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AND

AGRICULTURAL GAZETTE

FOR

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INDEX OF CONTENTS

TO THE

GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE,

FOR 1863.

A.

ABBOTSFORD, 1111
Aberia edulis, 78; Caffra, 102; Parthenogenesis of ditto, 727
Abies Albertiana, 340; firma, 507; Picea, 629; Douglasii, 602, 654; Mertensiana, 654; Menziesii, 654; amabilis, 654; nobilis, 654; Engelmanni, 1035
Accidents from steam machinery, 417
Acclimatisation, 819
Acrophorus affinis, 602
Ada aurantiaca, 1228
Adenium obesum, 1027
Adiantum cardiochlæna, 870
Adulteration of cattle food, 350; of linseed cake, 373; of milk, 518
Aëration of orchard houses, 271
African trees, 29, 54
Agave americana, 844; lurida, 847
Agriculture, Irish, 854, 948, 1021; Japanese, 800; Lancashire, 852; Rev. G. Wilkins on, 898, 901; H.R.H. the Duc d'Aumale on, 949; science of, 778; Shetland, 903; a commercial pursuit, 1116
Agriculturist's Assistant, rev., 1022
Agricultural Benevolent Society, 784
Agricultural drainage, 1067
Agricultural drainage and irrigation, a cure for, 1142
Agricultural education, 1048
Agricultural machinery, 396
Agricultural progress, 419, 1186, 1209; in 1862, 11
Agricultural Societies, 711
Agricultural statistics, 228; ditto of Ireland, 1048
Ailantus silkworm, 100, 775
Alcock on Japan, rev., 726
Alders, 176
Alexandra Park flower-show, 701
Algebra, Tait's, rev., 31
Alocasia Lowii, 580
Alpaca, the, 103
Alpine Club, 295
Alpine Guide, Ball's, rev., 846
Alsophila Tænitis denticulata, 580
Amaryllis Belladonna, 915
American blight, 248
American medicine men, 152
American miners, 176
American Sketches, South, Hincheliff's, rev., 678
Anacharis Alsinastrum, 889, 917, 943, 1039, 1060, 1062
Anagallis tenella, 868
Anchomanes Hookeri pallida, 775
Andromeda californica, 580
Androsace lanuginosa, 1012, 1040
Angler-Naturalist, rev., 750, 774
Animals, fat, 756; parasites on, 421
Annuals, select, 864
Anthyllis Vulneraria, 13, 325
Ants, cure for, 272, 608
Aphides, cure for, 366, 461, 652
Apiol, 10
Aponogeton distachyon, 368
Apples, seedling, 76; from Nova Scotia, 817, 100, 102, 1060; Chebucto Beauty, 102; York and Lancaster, 102; Winter Hawthornden, 799
Apple, Kei, of South Africa, 78, 102
Apple Festival, Russian, 440
Apple orchard, Mr. Graham's, 991
Appointments, 1203
Apricot, seedling, 864; Canino Grosso, 892; under glass, 676; in pots, 1036; proper aspect for, 1158
Apricot-leaf mould, 584
Arable farming, details of, 275
Aralia Sieboldi, hardiness of, 747
Araucaria imbricata, coning of, 412; bleeding of, 629
Arbor vitæ, to sow, 440
Arcades at South Kensington, 651
Architecture, Villa, 14; Garbett's, 535
Arithmetic, M'Leod's, rev., 9; Tait's, rev., 847
Armorial Bearings, Indian, 104
Arrow-root, 320
Asparagus, new mode of cultivating, 218
Asplenium Serpentini, 602; Adiantum nigrum cristatum, 748
Assessments, nurserymen's, 506, 1030, 1130
Asters, varieties of German, 75, 149, 174, 195
Aster grub, 798
Astro-meteorology, 33, 133, 1168
Athyrium Filix-fœmina Sinclairiæ, 748
Atkinson (Mrs.) on Tartar Steppes, rev., 810
Attraction, capillary, 972
Aubergines, to cook, 1016
Aucuba japonica limbata, 6; picturata, 6; fruiting of, 197, 244, 246, 295; ditto in Ireland, 222
Auriculas, select, 366
Auricula Show, National, 555
Austin on Australian Mines, 655
Australian wine, 677
Autobiography, 1139
Autumn cultivation, 1137
Awards, list of, made by Floral Committee, 531; new plant, 915
Azalea, blue, 413: Louise von Baden, 460; list of, 462; Van Houttei, 531; Reine des Beautés, 1231

B.

BABRAHAM herd, 298, 322, 323, 561; sale, 369
Bacon making, 1113; price of, 1165
Baldwin on Soils, rev., 830
Bamboos, flowering of Japanese, 175
Barks, Peruvian, 28; New Grenadian, 868
Barking trees, 126
Barley Parasites, 802
Barn owls, 941
Barnes' (Mr.) nursery, 487
Baskets, hanging, 1180, 390; plants for ditto, 128
Basket garden, 819, 842
Bates on the Amazons, rev., 798
Bath Agricultural Society's Journal, 514
Battersea Park, 655; floral decorations, 915; subtropical garden at, 963, 986
Beans, culture of, 134; manure for, 182; Calabar poison, 247
Bean Weevils, 78
Bedding plants, Spring, 536
Beer, 636; barrel mould, 582
Bees, humble, in a green-finch's nest, 629; advantage of moors to, 701; home of honey, 727; in birds' nests, 749; working two hives, 797
Bee cells, 628
Beet, French, 964
Belladonna Lily, 915
Bell on Feudalism, rev., 750
Bell glasses, bedewing, 890
Belstane, reflections on, 79
Benevolent Institution, Agricultural, 994
Bengal Agricultural show, 561
Bennet's (Dr.) Mentone and the Riviera, rev., 678
Bensington, steam culture at, 107
Benthamia fragifera, 148, 197
Bentinckia Codapana, 726
Berberis Darwinii, 749; nepalensis, 677, 701, 725
Berkeley, Rev. M. J., gold medal to, 1155
Bernay's Science of Home Life, rev., 535
Bertolonia margaritacea, 6
Bingley Hall cattle show, 1165
Birds, small, 198, 222, 509, 687, 941, 943, 987, 1036, 1083, 1061, 1062
Bird cage, 1062
Birmingham Show, 1108, 1159, 1218
Bisulphite of lime, solution of, a cure for mildew, 583
Black's (Mr.) appointment, 1203
Blandford Farmers' Club, 13
Blenheim, steam cultivation at, 227
Boat, the Sailing, 190
Bog Firs, 485, 557
Boilers, 344, 413
Boiler explosions, 417, 485, 733, 1018
Bomarea multiflora, 627
Bombyx Cynthia, 100; malabaricum, 8
Books, various, 487, 823, 967, 1134, 1182, 1206, 1231
Book-keeping, 673
Botanic Gardens, 75, 174; Chelsea, 267; Colonial, 102, 126; Cape of Good Hope, 488; Edinburgh, opening of, 555; Hull, 1132
Botanical Magazine, plants figured in, 102, 199, 272, 391, 487, 607, 774, 871, 991, 1087, 1207
Botanical Societies and Lancashire distress, 222
Botany, new Journal of, 31, 224; English, new edition, 247; Rocky Mountain, 296; prizes in, 392; Indian, 560
Bougainvilleas at Swyncombe, 368, 388; at Fir Vale, 463
Bouquet, Royal Bridal, 248
Bouton on Sugar Canes, rev., 703
Bowenia spectabilis, 867
Brahea dulcis, 1231
Bread from tailing Wheat, 1168
Breeds of cattle, wild, 1117
Breeding, 1240
Brinjalls, to cook, 1016
British Association, 869, 893, 916
British Columbia, 81, 248, 509, 581, 989; climate of, 704
Broccoli, 848; late, 416; Cornish, 608
Bromelia Sceptrum, 579
Broussonetia papyrifera fol. argenteo-variegatis, 602
Browallia Jamesoni multiflora, 460
Brugmansias, out-of-doors, 1158, 1182
Buckman, Prof., 734
Bulbs, spring, 317; treatment of, 416
Bulb farms at Haarlem, 436, 460, 484, 580, 1293
Burlingtonia decora picta, 1207
Burns' Agricultural Tour, 39
Burns' modern farming, 591
Buscot Park, improvement at, 81, 178
Butler on Canterbury, New Zealand, rev., 703

C.

CABBAGE and Carrots, 467, 514
Cactus fruit, 847
Calabar Bean, new use of, 412
Caladium Lowii, 6; to winter, 320; select, 344; new, 580; mirabile, 1231
Calceolaria punctata, 460, 775
Callirhöe verticillata alias involucrata, 1157, 1205
Camellias, when to shift 799; new, 334; Baron de Vrière, 1231; Vicomte de Nieuland, 1231; Bella Romana, 1231; Duchesse de Nassau, 1231; Fanny Sanchioli, 1231
Canine Hunters, 704
Cannas and Gladioli, 268; cultivation of, 342; iridiflora, 342
Caoutchouc, 655
Caper plant, 1157
Carnations, 940
Carnations and Picotees, 315
Carp and tench ponds, 555, 700, 724, 748,
Carrington's Irish Cryptogams, 727
Carrots, culture of, 326; and Cabbage, 467, 514
Carrot maggot, 591
Carter's (Messrs.) annual grounds, 743
Carts, 180
Cashmere, Gardener for, 172
Casks, purifying, 995
Catasetum trimerochilum, 1231
Cattell's (Mr.) Nursery, 703
Cattle, choking in, 61; hoven in, 61; prices of, 85; losses of by disease, 85; breeders of, 86; how to measure, 399; fattening, 420; West-Highland, 1000; prices of polled Angus, 1000; breeding the sexes, 1240
Cattle diseases, 37
Cattle food, 16, 493; adulteration of, 350; malt as, 394, 395
Cattle profits, 1020
Cattle trade, 1023, 1213
Cattle trucks, 1114, 1141, 1142
Cattleya, new, 6; Aclandi-Loddigesii, 602
Cattleya, hybrid, 620, 870
Causes of agricultural progress, 1186
Cavan, Seed trial at, 1137
Cecidomyia viminalis, 891; saliciperda, 891
Cedars of Lebanon, leaf-shedding in, 246, 270, 391, 394; white and red, 603
Cells, wasp and bee, 628
Cemeteries, plants for, 939, 990, 1062
Census, 1234
Cephalotaxus Fortuni, 1062, 1134
Cereals, decortication of, 1093
Cereus pterogonus, 199
Ceropegia Bowkeri, 991
Chadbury farm, 202
Chaff cutting, 62
Chater's (Mr.) Hollyhocks, 871
Cheap glass, 1081
Cheese, Bath, 423, 1240; cream, 423
Cheese-making, 999, 685; American, 61
Chemistry, new Dictionary of, 415
Cherimoyer, 1181, 1205, 1230
Cherries, Belle Agathe, 296; retarding, 1184
Cheshire Agriculture, 1041
Chillingham Castle, 1015
China Grass, 968
Chlorosis, vegetable, 393
Chorale Book, 679
Chrysanthemums, 1063, 1064, 1107; Mr. Salter's, 1156; in Crystal Palace, 1158; culture and selection of, 1189
Churchyards, Japanese, 968
Cigars, Henry's Canadian, 56
Cinchonas, 7, 28, 101, 199, 245, 531, 558, 654, 726, 822, 845, 869, 893, 1038, 1207, 1231
Cionidium Moorii, 870
Clay land, improvement of, 1161
Clayton & Shuttleworth's Works, 1048
Clematis reginæ, 6; Fortuni, 460, 676; florida Standishii, 460
Clematis caterpillar, 632
Clerodendron Thomsonæ, 6; fruit of ditto, 726
Climate of Nice, 28; Dr. Daubeny on, 590
Climbers for windows, 221
Cliveden, gardens at, noticed, 535
Clivia nobilis, 1181
Clover, manure for, 375; disease, 661, 826
Clubs, working men's, 635
Coccoloba platyclada, 607
Cockchafers, 78
Cocoa-nut Palm, fruiting of, 1129, 1227
Cocoa-nut fibre for Orchids, 150
Codonopsis cordata, 391
Cœlogyne lagenaria, 391,
Coffee, 419
Coleshill farm, 178
Collectors, British plant, 195
College, Cirencester, 202. 610, 635, 730, 734, 754
Colonies, the, 1046; machinery for, 325
Coltsfoot, variegated Japanese, 460
Commercial pursuit, agriculture as a, 1116
Conifers, grafted, 51; Mistleto on, 390, 413, 438; and mycelium, 461; Greek, 534; abnormal growth of, 917; best situations for, 963; what are genera among? 992
Conifer seeds, to sow, 104; how to extract, 440
Consolea, a new genus, 124
Contrasts, agricultural, 1161

Convolvulus stellatus ruber, 176
Coriaria thymifolia, 654, 893
Cork trees, 318, 342, 392
Corn, artificial fertilising of, 986; averages, 996, 998
Cornish horticulture, 656
Coronilla, variegated, 272
Corysanthes limbata, 102
Cotswold cultivation, 1213
Cottages, construction of, 58, 179, 202, 204, 205, 299, 349; ventilation of overcrowded, 660, 661; labourers', 853, 899, 901, 923, 925, 1046, 806, 850, 1142
Cottagers' food, 1046; shows, 774
Cotton tree, silk, 8
Cotton, Peruvian, 223; Illinois, 483; home grown hybridised, 966; hybrid, 1130, 1132; Italian, 1136; growing, 1012, 1157; French, 964
Couch Grass, 393
Covent Garden measures, 747
Cows, produce of two, 108; remedy for kicking, 927
Crampton's Lunar World, rev., 750
Crassula rosularis, 775
Craven Cottage, Fulham, 751
Crawley Village Hospital, 182
Cream, winter treatment of, 15
Cream cheese, 1193
Crewe Hall, embroidered parterre at, 124
Crickets, cure for mole, 652
Crocus biflorus, 152; Le Majestueux, 248
Crocus disease, 124
Crofton Hall, 1207
Crops, rotation of, 14; appearances of, 653, 683, 731; returns, 753, 777, 778, 779, 825, 828; cost of, 802; continental, 853; autumn, 1021
Crow a Pine planter, 1014
Cryptomeria japonica, 795
Crystal Palace floral exhibition, 510, 629, 845
Cucumbers, sea, 80; Cuthill on the, 151; stem rooting of, 680; mildewed, 776; new soil for, 776; Russian Ridge, 918
Cucumber beetles, 152; mould, 584
Cultivator, Smith's steam, 443; Howard's, ditto, 444; Woolston, 466; Bedford, 497
Cunninghams', the botanists, 1110
Cutbush's (Messrs.) Hyacinth show, 272
Cuttings, striking without soil, 815
Cyclamen seed, germination of, 78
Cypripedium Stonei, 6, 580; Hookeræ, 199
Cyrtanthus lutescens, 391

D.

Dahlias, classification of, 124, 436; exhibiting, 148, 174, 199, 320; seedling, 890, 915; select, 870; miniature, 871
Dairy farming, 61; produce, 108; statistics, 129, 995; management, 900
Dammara orientalis, 102
Darnel, 704
Dart moth caterpillar, injury done by, 826
Daubeny, Prof., on climate, 590; on exhaustion of soil, 1162
Decimal system, 747
Decoration, garden, 124
Degeneration, fruit tree, 773
Delphinium formosum, 800
Dendrobes, new, 6
Denton's Farm Homesteads, 759
Deodoriser, earth as a, 349
Deutzia crenata flore-pleno, 580
Devon, shrubs in South, 485
Dies Orchidianæ, 6, 54, 76, 124, 196, 388, 392, 1156, 1204, 1228
Digger, Ager's, 947, 855
Dinner table plants, 842
Dion strobilosum, 964
Dionæa, irritability of, 30, 1208
Diplacus glutinosus Godroni, 1231
Dipsads, 197, 246
Dipteracanthus affinis, 1207
Disa grandiflora, 6, 606, 799, 894, 1016
Diseases, Chinese modes of curing, 32; cattle, 85; of live stock, 994; parasitic animal, 421
Disease Prevention Society, 753
Dodder, Clover, 760, 797
Dogs and cats, 752
Dogs, sheep, 858, 855
Dog show, 301, 513, 514, 710
Dorstenia maculata, 1231
Douglas Fir seed, 602
Dove's Law of Storms, rev., 55
Dracophyllum, new, 460
Drainage, 851, 1091; in Hampshire, 36; and deep tillage, effect of, 465; systematic, 349, 421, 493; above Oxford, 662; a feat of, 901; arterial, 276; philosophy of, 586; Irish, 612
Drainage Act, 33, 59, 83
Draining, experience in, 348, 349; under, 1237
Drawing, isometrical, 8
Drill, Wilkins's, 182; liquid, 615
Drilling *v.* dibbling, 587
Drosera, irritability of, 30, 1208
Drugs from B. Guiana, 343
Drummond (of Swan River), death of, 582
Dry-rot, 296, 992
Dublin Winter Garden and Exhibition building, 511
Dufferin's (Lord) Lispings from Low Latitudes, rev., 415
Dumbleton, steam cultivation at, 226

E.

Earth as a deodoriser, 349
Earth, Worms on the, rev., 151
Earwigs, shower of, 776
Easter Pippins, 344
Edinburgh Botanic Garden, opening of, 555
Education of ploughmen, 756, 829, 972, 1189
Eggs, to preserve, 397
Egg fruit, to cook, 1016
Egypt, steam cultivation in, 1095
Egyptian gardening, 965, 1181
Emigrants, implements for, 947
Emigration, 325, 349
Enclosure Commission, 12
Engineers, Lives of, 702
Engraving, Photoglyphic, 678
Epidendrum vitellinum, 845
Epidemics, 850
Epipactis latifolia in gravel, 773
Eranthemum tuberculatum, 991
Eria myristicæformis, 1207
Erica exquisita, 531
Escallonia, new, 602
Essex, Flora of, rev., 9
Eucharis amazonica, 1130, 1181
Euphorbias and poisonous milk, 390
Euterpe edulis, 602
Ewes, 325, 419, 106
Exhaustion of vegetable mould, 1138
Exhibition, International Agricultural, 57, 322; of 1851, inauguration of Memorial of, 99, 459, 555; and wet weather, 725
Exhibition plants, 579, 651, 725, 843, 916, 939, 988, 1180; of fruit in season, 771

F.

Farms, Cross House, Mid Lothian, 14; Northumberland, 39, 133, 230, 470; South Hants, 62; Buscot Park, 81, 86, 178; Cirencester, 86; Little Woodcote, 105; Bensington, 107; in Cambridgeshire, 109; in Aberdeenshire, 158; Coleshill, 178; East Leach, 178; Chadbury, 202; Tabley, 206; Orrell, 206; Warburton Park, 254; East Sussex Down, 274; prize French, 277; Chatteris, 351; fattening cattle on light land, 420; co-operative, 490; Brighton Manor, 731; Luton Hoo Park, 754; Brown Hall, 855; Dartry, 974; Aston Park, 999; Tattenhall, 999; Dalgig, 999; Morton on the Prince Consort's, rev., 61
Farm balance sheet, 1167
Farm buildings, 973
Farm cultivation, Buckman on, 687
Farm economy, items of winter, 35
Farm homesteads, 230, 759
Farm life on the Pampas, 300
Farm memoranda, 1070, 1143
Farm valuations, 538
Farmers, British, 828; East Lothian, 1117; and the clergy, 661, 854
Farmers' Calendar, 1117
Farmers' Clubs (see Societies), 205
Farmers' Account Book, rev., 302
Farmers' privies, 587
Farming, outlines of modern, 14; hazards of, 15; in South Wales, 35; good advice respecting, 154; Hampshire and Cotswold compared, 156; essentials to profitable, 181; co-operative, 252; German, 636; at Salzmünde, 661; Northumberland, 853; how to learn, 897; Cumberland, 924; clay land, 950
Feeding, oilcake, 1164
Feejean Islands, Dr. Seemann on, 606, 631, 1110
Fences, ornamental living, 104; law relating to, 394; sunk, 1230
Ferns, new, 6, 392, 531, 580, 1108, 1180; new work on Indian, 727; vascular bundles in, 8; and Ferneries, 268, 316, 556; film, 627, 1131
Fern sports, 747
Fern burning and rain, 1064
Fertility, artificial, 826
Festucas, 615
Fibres, Indian, 223
Fibrous plants, 604
Ficus elastica in fruit, 102
Figs, 198; casting fruit, 248, 271
Firs, failure of Scotch, 435; felling Scotch, 604; bog, 485, 557; attractive agency of, 581
Fir trees, when to cut, 800
Fire insurance, 1162
Fish and Fishing, 220, 269, 340, 364, 412, 437, 460, 484, 507, 555, 700, 724, 748, 750, 774, 861, 965, 1013, 1036, 1042, 1109; offal, 685; Japanese, 824; hatching, 413; breeding, 1135; vitality of, 1208
Fitzroy's (Admiral), Weather Book, rev., 223
Flax, Japan, 150, 968; Irish, 207; extent of growth of, 904
Fleurs Castle, 895
Flies, cure for, 639
Flora Australiensis, rev., 1080
Floral Committee, list of awards to new plants by, 531
Florist's flowers, dressing, 32; and natural productions, 916; standards relating to, 966
Flowers, stray notes about, 603, 1061, 1084, 1204; early Japanese, 751; Christmas, 1208
Flower gardening, winter, 125, 148; arrangement, 890
Flower shows for working classes, 675, 1015
Flower show buildings, 985
Flower seeds, collections of, 149
Flower stands, 1061
Fly, black, extermination of, 603
Fodder, straw as, 969
Foliage plants, 1012, 1038, 1060, 1085, 1112
Food, cattle, 16; adulteration of, 350; malt as, 394, 395, 993; salt in, 805; statistics respecting, 994; at 12*s.* per week, 1091
Forcing houses, hygrometrical condition of, 339
Forest, tropical, 488, 752; Pomeranian, 941; Royal, 1064
Fortune on Japan, rev., 391, 486
Fortune's plants, sale of, 1040
Foul and infected trucks, 1142
French experiments in cultivation, 986
Frogmore gardens, 863
Frost in Devonshire, 701; Yorkshire, 701
Fruits, seedling, 7, 51, 55, 244, 364; Egyptian, 965
Fruit competitions, 918
Fruit exhibitions, seasonable, 771
Fruit lore, ancient, 389, 484, 603, 797, 748, 773, 844
Fruit-tree protection, 772, 966
Fuchsias, 26; show of, 126; for exhibition, 77; deformities, 989, 1062
Fungus, Larch, 243; Mushroom bed, 363; affecting paper and linen, 459; spore ejecting, 555; death to, 581; lawn, 893, 917; root, 796; Barley, 802; microscopic, 992
Funguses, Esculent, Badham on, rev., 1206
Furze, culture of, 85; crushing, 180

G.

Galvanised iron wire, 7, 149
Galls, British ink, 653
Ganot on Physics, rev., 102
Garbett's Architecture, rev., 535
Gardens, Botanic, 75, 174; formation of new, 104; town, 487; behaviour of the public in Irish, 604; Frogmore, 823
Garden law, 125, 149, 222, 342, 390, 894, 865
Gardeners' Benevolent Institution, 29, 54, 601, 652
Gardener's Year-book, Hogg's, rev., 1231
Gardening, geometric, 80; Egyptian, 965, 1181; sub-tropical, 663
Gardenia Rothmannia, 77; Thunbergia, 77; florida variegata, 602
Gas water, value of, 16
Gas work refuse, 1193
Generation, spontaneous, 246, 531, 1183
Geology of S. Australia, rev., 175; School, Jukes on, rev., 1160
Geraniums, Sardinian, 173
German seed lists, 75, 174, 195
Germinating power, and animalcules, 1037
Germination of buried seeds, 1011, 1228
Gibson's Flora of Essex, rev., 9
Gishurst Compound, 31, 534, 1039
Gladiolus and Cannas, 268; Brenchleyensis, 747; select, 870; seedlings, 872; showing, 842, 1108; how to pronounce, 896
Glass, 512, 869
Glaux maritima, 868
Gloxinias, new, 531
Glycine at home, 1040
Gondinie, South Africa, farming in, 1094
Goose, loving, 752; Canadian, 987
Gooseberry caterpillar, 677
Gordonia javanica, 29
Gorse, 1068
Graciliaria rufipennella, 796
Grafting, 412, 773; influence of on stocks, 797; conifers, 51; Vines, 1155; wax, 195
Grain, poisoned, 658; harvesting damp, 898
Gram, 344
Grape, Black Alicante, 8, 199; value of new, 30; old *v.* new, 75, 77, 101, 126; Muscat of Escholata, 126, 150, 174, 222; Muscat, 1157; setting ditto, 461; rust in, 584; large, 630; all the year round, 675; black spots on, 701; Golden Hamburgh, 725; American, 728; list of, 967; early, 1015
Grape growing in Norfolk, 8, 55, 125; American, 654, 893
Grape seeds, to sow, 845
Grape, mildewed, 1014
Grape Vine, Thomson on, rev., 558
Grasses, Remy on, rev., 127; sea-side, 299; an indication of the value of land, 398; grain-bearing, 518; manure for, 612
Grass lands, 229, 298, 633
Grass mixtures, 370
Grass seed adulteration, 471
Grate, smoke consuming and ventilating, 59
Grayling, 868, 1013
Greek plants, &c., for sale, 653
Greenfly, cure for, 366, 536
Greenheart timber, 653
Grey (Mr.) of Dilston, 804
Grove Gardens, Roehampton, 559
Guano, Flat Island, 87, 131; Peruvian, 87; solubility of, 753
Guarana, 414
Guiana, British, 77, 1062
Gulf stream, effect of, on temperature, 51
Gutta-percha, 512

H.

Haarlem bulb farms, 436, 460, 484, 556, 580, 1203
Hamburg Agricultural meeting, 706
Hams, 1168
Hancock on the decline of Irish prosperity, rev., 661
Harewood House, 919
Harris on Insects, rev., 78
Harvest, the, 807; of 1862, 345; the past, 972, 994; in Inverness, 1021; in Japan, 1039
Harvest homes, 1046
Haymaking, 588, 611; contrivances for, 636
Hazel nuts, 464
Health of stock, 1089
Heaths, list of, 462
Heat, new way of supplying bottom, 986; smoke consuming and ventilating grate for supplying, 59
Heating, boilers for, 344, 413, 485; Vine borders, 366; and ventilating, 1014; fire clay pipes for, 1230
Hechtia Ghiesbreghtii, 1231
Hedges, Japanese, 726
Hedychiums, 56, 219
Heifers, calving of, 274; roaring, 373
Heldreich's Natural History collections, 25
Heliconia Mariæ Alexandrovnæ, 78; brevispatha, 1207
Helps and hindrances, 1187
Hemp, to sow, 327
Henderson's (A. & Co.) Nursery noticed, 34
Henery, great French, 110, 299
Herd Book, Coates', 85; Davy's, 759
Herne's Oak, 847, 895, 1135
Hibiscus Huegelii quinquevulnera, 991
Higginsia Ghiesbreghtii, 607
Highland and Agricultural Society's Journal, rev., 38
Highway Act, new, 206
Hinchcliff's South American Sketches, rev., 678
Holdings, diminution of, 587
Holland, pauper cultivation in, 734
Holly, the, 415; select, 295; berries, to sow, 868
Holly leaves, 342, 366, 390
Hollyhocks, Messrs. Downie Laird & Co's, 775; Mr. Chater's, 871
Home Nurse, rev., 1039
Homoianthus viscosus, 580, 871
Honkeneja peploides, 868
Hooibrenck's experiments on Vines, &c, 986
Horses *v.* Steam, 784
Horse labour, 686
Horse power, 325
Horse Show, 300
Horse Warrantry, 14
Horse works, American, 783
Hotel, agricultural, 831
Houses, hints about, 1020
Huanacu, the, 103
Hue and Cry, 7
Hull Botanic Garden, 1132
Hurlingham House, Fulham, 9
Hurricanes, 55
Husbandry, laws of, 491, 538
Huxley on Man's Place in Nature, rev., 343
Hyacinths, select, 198, 392; Messrs. A. Henderson's, 343; Dutch mode of growing, 460, 484, 556, 841, 894; in glasses, 919, 1011; new, 1060, 1061, 1084, 1110, 1182, 1203
Hyacinth glasses, 872
Hyacinth Jars, Hooper's, 992
Hybridisation, 990, 1107
Hydropult, 196
Hygrometrical condition of forcing houses, 339
Hylobius abietis, 436
Hypericum Hookerianum 629

I.

Illustration Horticole, 1231
Imantophyllum miniatum, 296
Impatiens bicolor, 272
Implements, agricultural, 396
Implement show at Worcester, 756
Imports, agricultural, 303, 808, 927, 1209
Indians, N. W. American, 128
Indoor Gardening, 76, 173, 221, 317, 390, 393, 437, 919
Infusoria and germination, 968, 1037
Ink plant of New Grenada, 654, 893
Insects injurious to vegetation, 78
Insect powder, Persian, 603, 677
Insect Hunter's Companion, rev., 247
International Agricultural Exhibition, 57, 322; Exhibition Memorial, 99, 459, 555
Ireland, state of, 756
Irish prosperity, decline of, 661
Iron, influence of, on vegetation, 584
Iron and glass houses, 776
Irritability of Drosera, 30, 1208; of Dionæa, 30, 1208; vegetable, 315, 318
Ivy on trees, 80, 869

J.

Japan, 1059; Fortune on, rev., 391, 486; Alcock on, rev., 726
Japanese plants, sale of, 992, 1016
Japanese Flax, 126, 150
Japanese Grass, 1014
Jardin Fruitier du Muséum, rev., 367, 415, 463, 511
Jeans, death of Rev. G., 364
Judging breeding stock, 921
Juniperus virginiana, 654

K.

Kennard on Essays and Reviews, rev., 462
Kingscote Farmers' Club, 126
Kingston Hall, 775
Knowle Park, steam culture at, 106
Kohl-Rabi, feeding value of, 371

L.

Labour, cost of crops, with respect to, 1044
Labourers' recreation, 687; changes, 1018; condition of, 1141; wages, 37, 39; cottages, 179, 202, 204, 205, 299, 349, 901, 923, 925, 998, 1020, 1046, 1093
Labrador, explorations in, rev., 1159, 1182
Laburnum poisoning, 991
Lælia Turneri, 6, 655
Lambing season, 250; twin, 372, 373
Land, titles to, 974; Grasses, an indication of value of, 398; companies, 1042
Landlord and tenant, 973, 1189
Lapageria rosea, 846; rosea albiflora, 6
Lappareul on timber preservation, 25
Larch-rot, 243, 270, 394, 411
Larix Lyallii, 654, 916; occidentalis, 654; Griffithiana, fruiting of, 1039
Lastrea Standishii, 392; Filix-mas Ingramii, 747; dilatata Howardii, 748
Latania Verschaffeltii, 602
Latimer's, the seat of Lord Chesham, 1228
Law regarding ornamental shrubs, 272; garden, 125, 149, 222, 342, 390, 394, 820, 892; relating to horse sales, 302; relating to bedding plants, 942; relating to assessments, 506, 534, 1130
Lawns, weedy, 536; Fungi on, 893; Moss on, 896, 917
Lawson's Pinetum Britannicum, rev., 579, 727, 1207
Leases and tenant right, 201, 638; conditions of, 662
Leaves, gases given off by, 123; how to take impressions of, 414; pollen spotted, 675
Lectures, 825, 898, 901
Lee-Chee, 390
Le Fraisier, rev., 1206
Lewisia rediviva, 775
Liebig's Husbandry, 461, 466, 541, 659
Ligularia Kæmpferi argentea, 602; Hodgsoni, 1207
Lilac, President Massart, 1231; Ambroise Verschaffelt, 1231
Lilium giganteum, hardiness of, 626, 653; auratum, 6, 771, 966; nilgherrense, 1231
Lilies of the Valley, 437, 604; Belladonna, 915; Guernsey, 944; Scarborough, 270
Limatodes rosea, 160

Lime tree, old pollard at Aix-la-Chapelle, 844
Lindsæas, 628
Linen, Fungi affecting, 459
Linseed Cake adulteration, 373
Literary curiosity, 1084
Llama and animal allies, 103
Lolums, malformations affecting, 318
London Pride, 413
London trees, 219, 391, 699
London parks and squares, 483
Lonicera brachypoda aureo-reticulata, 6
Loquat, 390, 1205
Loranthaceæ, notes on, 77
Low (Mr.), death of, 920
Luminosity of plants, 1134
Luton Hoo Park farm, 754
Luxembourg gardens, 728
Lychnis Senno, 580
Lycioplesium pubiflorum, 388
Lycopodium denticulatum, 197
Lyell on Antiquity of Man, rev., 414

M.

Machinery, colonial, 325; agricultural, 396
McKenzie's nursery, early Grapes in, 1015
McLeod's Arithmetic, rev., 9
Mallow, tree, 464
Malt as food for cattle, 394, 395, 993; ditto and sheep, 1090
Malt tax, 132
Mammillaria Scheerii, 991
Man, Lyell on Antiquity of, rev., 414, 511; Vogt on, 871; origin of, 584
Mandon's collections of dried plants, 25
Mangel, acreable yield of, 372; summer keeping of, 447; cultivation, 561, 1213, 1237; cooking, 1167; disease, 639; grub, 634
Manetti stock, 798
Mann's (Mr.), appointment, 1203
Manure, use of liquid, 38; for top dressing, 245, 250; artificial, 84, 205, 253, 301, 1236; McLean & Hope's price list of, 326; valuation of, 348; house waste, 487; for root crops, 563; for Grass, 519, 612; sewage, 805; quality of, 926; adulteration, 854
Manuring, practice of, 14
Marattia Cooperi, 580
Masters' (Mr.) nursery, 849
Mealy Bug on Grapes, 800
Measures, Covent Garden, 747
Meat, diseased, 33, 899
Meat and live stock, inspectorship of, 466
Meetings, agricultural, 1185
Melastoma? argyroneura, 460, 507, 1187
Melon disease, 677
Melon stem disease, 701
Memoranda, agricultural, 973
Memorial of Exhibition of 1851, 555
Mentmore, 346, 370, 394
Menzies on Windsor Forest, 727
Messina, 438
Meteorological observations, 658
Meyenia Vogeliana, 774
Miconia pulverulenta, 507, 602, 1187
Microstylis discolor, 991
Mignonette, tree, 316
Mildew and thin seeding, 324; new cure for, 582
Mildews, Vine, 872
Milk, how to determine richness of, 250; value of, 297, 967; poisonous, 126, 390; adulteration of, 518; pans, 247
Milking-machine, 588
Miller's (Hugh) Tales and Sketches, rev., 367
Millets, 560
Mills and Mill work, treatise on, rev., 926
Mimulus Rosa, 602
Mimuluses, new crosses of, 388, 992
Miselto, parasitism of the, 245; on Conifers, 390, 413, 438
Moles, 180, 300, 373, 418, 468
Monochætum Humboldtianum, 272
Monstera deliciosa, 534
Montevideo, 494
Morels, 344
Morphology, 1038, 1085
Mosquitos, 200, 703
Mosses, De Notaris on Italian, rev., 199; British Columbian, 296
Moss on lawns, 896
Moutan Peonies, 627, 1082
Murray's Book of the Royal Horticultural Society, rev., 799
Musa vittata, 6, 871; Cavendishii, fruit of, 1232
Museums, village, 387
Mushroom growing, 9, 248, 318; bed Fungi, 363; spores, 920
Mushroom parasites, 1227
Mussel scale, 1160

N.

Napoleona imperialis, 460
Nardoo, 464, 1203
Natural history objects, sale of, 1087
Nectarines from Peach stones 51 cracking of Stanwick, 248
Negro, the, 893
Neill prize, the, 247
Nephelaphyllum scapigerum, 775
New Plants, awards to, 531, 915
New Zealand, timber belonging to, 726; emigration to, 1083, 1108
Nice, climate of, 28; gardens at, 54
Nova Scotian fruit, 1060
Nuts, trade in, 316; Hazel 464

O.

Oak, new, 872; Herne's, 847, 895, 1135
Oak galls and birds, 687
Oak spangles, 728
Oak Hill, gardens at, 319
Oats, Canadian, 182; Roman, 388, 413, 795
Oat disease, 730
Odontoglossums, 435
Oil, cod-liver, new source of, 31; Oolachan, 31
Oil-cake feeding, 1164
Ophelia umbellata, 775
Ophioglossums, African, 845
Orange trees, out of condition, 8, 55; in Australia, 317, 393; Tangierine, 1157; culture of, 1175
Orchard houses, 197, 222, 271, 342, 797, 799, 822, 1230; and Peaches, 868, 892, 894, 930, 965, 990, 1110; experiences, 1013, 1014, 1134, 1157, 1205, 1230; v. open walls, 1230
Orchids, Cocoa-nut fibre for, 150; on blocks, 173; African, 174; room, 174, 918, 919; winter blooming, 197; merits of different genera, 435; sale of, 487; new, 507; fertilisation of, 558; prices of, 661; suitable for a cool house, 461, 1059, 388, 389, 485, 819, 1085, 1110, 1158, 1175
Ornithogalum capitatum, 774
Orrell farm, 206
Osbeckia Wightiana, 531
Osmanthus ilicifolius variegatus nanus, 6; aquifolius, 344
Ourisia coccinea, 6
Ouvirandra Berneriana, 580
Over feeding, 1142
Oxford University Park, 363, 1131

P.

Pæonia Gloria Belgarum, 512; Madame Stuart Low, 1231; President Lambinon, 1231
Palermo, spring at, 414
Palm spathes, explosive bursting of, 30
Palms of Tropical W. Africa, 1230
Palmetto wood, 200
Pampas Grass, 440, 917, 943, 1085
Pancratium amboinense, 579, 602
Pandanus odoratissimus, 243; fruit of, 752
Pansies, fancy, 580, 628, 893
Paper Fungus, 459
Parasites on animals, 421; Mushroom, 1227
Paring and burning, 948
Paris, people's garden at, 1184; new winter garden for, 31
Park, Oxford University, 363, 1131; new public, 895
Partridges, Canadian, 102
Passiflora, sexual monstrosity in, 605
Pasture, laying down permanent, 14
Paullinia sorbilis, uses of, 414
Pauper cultivation in Holland, 734
Peaches in South America, 29; from Nectarine stones, 51; on Organ Mountains, 55; dropping, 509, 843; double blossomed, 943; pot culture of, 413; &c., under glass, 796; orchard house, 868, 939, 965, 990; proper aspect for, 1158
Peach house, dimensions of a, 896; heating with clay pipes, 1230
Peach protection, 318, 342, 390
Peach pruning, 461
Peach mildew, 632
Pear, Huyshe's Princess of Wales, 8; Bergamotte d'Esperen, 101, 198; Beurré Bretonneau, 149, 295, 342; British Queen, 607; Zéphirin Grégoire, 799; de Maraise, 991; Belle Julie, 991; Willermoz, 367; Œuf de Cygne, 367; de St. Gall, 367; Bonne Malinoise, 367; Suzette de Bavay, 367; Esperen, 367; de Dame, 367; Sageret, 367; Briffaut, 367; Augier, 367; Culotte de Suisse, 367; Sanguinole, 367; Van Marum, 368; Tougard, 415; St. Waast, 415; d'Auch, 415; Lesbre, 415; Tuerlinckx, 415; Poiteau, 415; de Grumkow, 415; Monchallard, 415; Triomphe de Jodoigne, 415; Giffard, 415; Amiré Roux, 415; des deux Sœurs, 463; Comte de Flandres, 463; Prévost, 463; Conseiller de la Cour, 463; Catinka, 463; Vicomte de Spælberg, 463; Bachelier, 463; De Duvergnies, 463; Clairgeau, 463; Jules Bivort, 463; hardy, 463; Bonne-Jeanne, 463; Louise Bonne, 511; Fondante de Noël, 511; Orpheline d'Enghien, 511; Bernard, 511; de Stuttgard, 511; de Montgeron, 511; Orange Tulipée, 511; St. Roch, 511; Impériale à Feuilles de Chêne, 511; D'Œuf, 511; Prince Camille de Rohan, 1204; pyramidal, 77, 102; multiplicity of varieties among, 772; out of season, 1157; Prince Camille de Rohan, 1204; bad keeping of, 1203
Pearson's (Mr.) nursery noticed, 799
Peas, 848; early, 534, 557, 582
Pea culture, 133
Peas "brock," 999
Pea weevils, 78
Peasemore, near Newbury, 322
Peat, 680
Pelargoniums, list of, 462; new Seedling, 507, 531, 580; show, 582, 843; Firefly, 602; Clara, 602; Hoyles' Achilles, 602; Mrs. Dorling, 602; Princeps, 602; Burley's Fireball, 602; culture of, 725; variegated, 872; Fancy, 916; Mrs. Milford, 991
Pennell's Angler-Naturalist, rev., 750
Pentstemons, select, 392
Peonies, Moutan, 627, 1082
Perfumes, new, 1112
Peronospora sparsa, on Roses, 339
Peru, plants of, 7, 27, 101, 245
Petunias, double-flowered, 1228
Phædranassa obtusa, 199
Phalænopsis Lowii, 6; Schilleriana, 246, 1231
Phœnix reclinata, 77
Phosphorescence, Dr. Phipson on, rev., 607
Photoglyphic engraving, 678
Phrynium Van der Heckii, 1231
Physurus fimbrillaris, 6
Picea and Abies, 604
Picotees, 940; and Carnations, 315
Pigs, to fatten, 420; and flies, 586; showing, 12
Pig diseases, 38
Pilobolus crystallinus, 555
Pinanga maculata, 1231
Pine-apple, large Queen, 918
Pinetum Britannicum, Lawson's, rev., 579, 727, 1207
Pinus rigida, 223; ponderosa, 223; monticola, 654; contorta, 654; flexilis, 654, 940; ponderosa, 654; aristata, 821; Bungeana, 776; albicaulis, 964
Pipes, bituminized paper, 174
Pippins, Easter, 344
Pirton Court, steam cultivation at, 228
Piscicultural Society, 438
Pitcairnia pungens, 102
Pitch Pine timber, 103, 126
Plants, dry stove, 5; succulent, 341; new of 1862, 531; for hanging baskets, 128; spring decorative, 196, 343, 414, 558; hardy Chinese, 196; defensive arms of, 199; early flowering, 247; contractile tissues of 315, 318; how to take impressions of, 343, 414; popular names of British, 412; new, 507, 627; Floral Committee awards to ditto, 531; prizes for ditto, 990; sub-tropical, grown out-of-doors, 963, 1012; functions of roots of, 997; exhibition of, 939; for cemeteries, 939
Plant cases, 867
Plant collectors, British, 195
Plant staking, 486
Plant lice, cures for, 652
Plant sales, 727
Platycodon sinense, 675, 749
Pleopeltis albido-squamata, 1180
Pleroma elegans, 582
Ploughs, steam, 203, 395, 442, 468, 681, 612, 829
Ploughmen, education of, 756
Plumbago rosea coccinea, 199
Plums, seedling, 27; continental, 54; Golden Esperen, 103; new, 461; Belle de Septembre, 991
Plymouth, plants in bloom at, 8
Poets, Japanese, 847
Poinciana Playfairii, 52, 388
Poisoned milk, 126, 390
Poisoning rooks, 398
Pollen spots on leaves, 675
Polyanthuses, 150
Polygonatum oppositifolium albo-lineatum, 6
Polypodium Robertianum, 842
Pomerania, fruit culture in, 940
Ponds, tench and carp, 555, 700, 724
Ponies, Iceland, 10
Popular Science Review, 655
Population, decrease of agricultural, 852; Thoughts on, rev. 967
Posts, prevention of rot in, 176
Potatos, 917, 942, 987, 990, 1039, 1046, 1110; how to render less liable to disease, 87; sweet, 100; new seedling, 774; select, 891; what is a sack of, 904; Beamell's Glory, 944; Mona's Pride, 968, 1014; taking up, 972; Paterson's seedling, 1013; from cuttings, 1157
Potato culture, 109, 220, 325, 375
Potato disease, 131
Potato soup, 1168
Poultry yard, 1143
Primroses, 1085; double fringed Chinese, 102; Fern-leaved Chinese, 296, 316; change of colour in, 1012
Primrose leaf disease, 440
Prince Consort, Speeches of H.R.H. the late, rev., 30
Prizes, value of, 822
Prize farm agreement, 1043, 1067
Protection, spring, 433, 772, 845, 917, 942, 944, 966
Prumnopitys elegans, 6, 26
Pteris serrulata cristata, 602, 1180; pellucida, 870
Punch, Cartoons from, 1231
Pycnostachys urticifolia, 272
Pyrethrums, Mr. Salter's, 723; Willemoti, 1034
Pyrus Sorbus, 366, 728

Q.

Queensland, 126
Quinine, 10, 531, 558

R.

Rabbits, 60, 829, 1020, 1237
Rabbit troughs, 951
Rags, new substitute for linen, 32
Railway gardens, 1062, 1178
Rain, yellow, 675
Rainfall at Chiswick, 53; at Witham, 54; at Cirencester, 54; at Bury St. Edmund's, 150; in Berks, 77
Rain gauge, value of to farmers, 901
Rain water, 581
Ram sales, 760 783, 902
Ranunculuses, best exhibition, 148, 606
Raspberry, culture of the, 173; seedling, 244
Rating, law relating to, 506, 534
Rats, cure for, 636, 1144
Read's Essay on Steam Cultivation, rev., 759
Reaping machines, 374, 808, 853, 902, 971
Rearing calves, 1143
Reasoning, false, 820
Reeve (Lovell) on Mollusks, rev., 199
Regent's Park, alterations in, 771, 821
Reichenbach's (Dr.,) appointment, 748
Remy on Grasses, rev., 127
Rheea fibre, 342
Rhodanthe maculata, 6, 392; atrosanguinea, 6
Rhododendron Aucklandii, 342; Nuttallii at Mr. Rucker's, 392; Dalhousiæ, 438; Picotee rosea, 460; Jean Verschaffelt, 460; Edgeworthii, out of doors, 534; Batemanni, 774; a town plant, 868; formosum, 1231; Duc Adolphe de Nassau, 1231
Rhododendron soil, 1181, 1205, 1230
Rhus succedaneum, 894, 918
Rhynchospermum jasminoides variegatum, 531
Ribbon border, 1016
Ringwood Hall, 967
Rockets, 342
Rollisson's (Messrs.) Orchids, 1156
Rooks, 398, 1014, 1085
Roots, power of selection in, 174, 147; excretions from, 147
Root crops, manures for, 563
Root cultivation, 687
Root Fungi, 796
Root crop caterpillar, 826
Roses, 604, 799, 964, 1035, 1038, 1062, 1109; effect of wet weather on, 26; to strike from buds, 77, 174; seed of, to sow, 128; seedling native Irish, 101; André Leroy d'Angers, 103; alpiné, 176; summer, 196; autumnal, 270, 870; Bourbon, 365; Cloth of Gold, 368; list of pot, 462; Lord Herbert, 460; Lord Macaulay, 460; Lord Clyde, 438, 461, 486; Noisette and Chinese, 461; growing, 172, 221, 679; rules respecting ditto, 581; Tea-scented, 533; Rubens, 557; Cherokee, 582; new, 389, 413, 483, 653, 892; improvement in, 699; select, 437, 724; Cattell's, 703; the Rev. H. H. Dombrain, 871; pole, 941; properties of perfect, 941; in 1862, 987, 989; Mrs. W. Paul, 991; prize offered for best English seedling, 1011; November, 1132; disbudding, 1204
Rose Amateur's Guide, Rivers's, rev., 1063
Rose mould, 339, 392
Rose blotches, 557, 560; black ditto, 509
Rose Garden, Paul's, rev., 415
Rose Show, Crystal Palace, 629; National, 630; Birmingham, 677
Rose exhibitions, 461, 796, 869, 893, 918, 1083, 1133, 1182
Royal Agricultural College, 1138
Royal Horticultural Society (see Societies).
Rubus leucodermis, 725; biflorus, 845
Rucker's (Mr.), 1228
Rushton Rectory, garden at, 990

S.

Sales, plant, 272, 368, 392, 415, 438, 440
Salix fragilis, 725
Salmon ladders, 507, 582
Salsafy, culture of, 53, 126, 339
Salt, agricultural use of, 754
Salter's (Mr.) nursery, 1063, 1156
Salzmünde, farming at, 636, 661
Sands, Reigate, 749
Sanseviera carnea variegata, 296
Sarcopodium psittacoglossum, 991
Sarmienta repens, 6
Sarsden estate, 1065
Scarborough Lilies, 270
Schleiden's (Dr.) appointment, 1203
Scissors, pruning, 629
Sclerotum, 364
Scolopendrium, variegated, 677
Scolytus, Pear tree, 319; destructor, 966, 990, 1014
Scotch Fir failure, 435
Sculpture, exhibition of, 439
Scutellaria aurea, 1231
Sea Cucumbers, 30
Season, mildness of the, 126, 1153, 1183, 1232
Seaweeds, growing, 771; British, 127; new, 868, 1207
Sedum Sieboldi, 102; Sieboldii medio-variegatis, 1231
Seed lists, German, 75, 174, 195, 101
Seeds, choice of, 254; vitality of old, 1011, 1228; locomotive, 1134
Seed trade, French, 29
Seedling fruits, 76
Seeding, rational; 12; thick and thin, 57, 83, 108, 130, 324, 536, 1020
Seemann on Viti Islands, rev., 631
Selliguea pothifolia, 580
Senecio pyramidatus, 775
Serissa fœtida aureo-marginatis, 1231
Serradilla, 200
Sewage, town, 60, 153, 155, 229, 394, 397, 441, 586, 634, 635, 783, 970, 1237
Sewage committee, 423
Sheds, portable, 733
Sheep fattening, 420; comparison of, 490; smallpox in, 347, 539; lung disease in, 540; jaundice in, 372; breeding of, 252; ditto, and feeding of, 565; straw for, 610; Southdown, 614; weights of, 182, 760; winter management of, 1095; Gamgee on diseases of, 657
Sheep clipping, 1213
Sheep farming, 251, 1141
Sheep sales, 828, 830
Ship-timber decay, prevention of, 25
Shorthorns, 131, 351, 447, 609, 688, 849, 904, 946, 1209
Shrubs in South Devon, 485
Sicily, spring in, 438, 557
Silene Elizabethæ, 871
Silkmoth, new, 100
Silkworms, 775, 848, 1064
Slugs, cure for, 652
Smiles' Lives of Engineers, rev., 702
Smithfield Club show, 1042, 1198
Smoke, town, 749
Snails, medical uses of, 199; cure for, 652
Societies :—
Acclimatisation, 819, 1061
Arts, 1131, 1211
Agricultural Improvement of Ireland, 132, 829
Alford Agricultural, 1238
Amateur Botanists, 100
Ayrshire Agricultural, 925
Bath Agricultural, 158, 300, 349, 445, 566, 661, 972, 997, 1094
Berkeley Agricultural, 997
Blechingley, 750
Botanical, of Edinburgh, 30, 223, 247, 343, 414, 558, 678, 726, 1205, 1231
Botanical of Canada, 295
Botanical, and Lancashire distress, 222
Brighton Horticultural, 894
Cambridgeshire (West), 1047
Cheshire Agricultural, 11
Chrysanthemum, 1086
Cumberland Agricultural, 925, 1215
Disease Prevention, 753
East Berks Agricultural, 972
East Lothian, 854
Entomological, 102, 175, 295, 391, 606, 749, 774, 943, 1014, 1132, 1206
Essex Agricultural, 609
Gloucester Agricultural, 830
Highland and Agricultural, 637, 757
Huntingdonshire Agricultural, 973
Irish Farming, 37, 85
Isle of Man, 854
Kilkenny Agricultural, 854
Kingscote Agricultural, 1238
Lasswade Agricultural, 854

Societies—*continued.*
Leicester Agricultural, 853
Liege Horticultural, 173
Linnean, 8, 77, 199, 246, 318, 390, 486, 605, 654, 1085, 1230
Long Sutton Agricultural, 1237
Manchester Agricultural, 853, 902, 1142
Newmarket Agricultural, 1238
Norfolk Agricultural, 613
Northern Agricultural, 902
Nova Scotia, 486
Penrith, 1047
Piscicultural, 438
Royal, 1155, 1158
Royal Agricultural, 131, 156, 205, 229, 276, 326, 373, 421, 443, 468, 491, 516, 539, 565, 567, 612, 637, 681, 687, 705, 706, 720, 733, 756, 950, 1068, 1165, 1190
Royal Dublin, 37
Royal Botanic, 318, 367, 414, 459, 462, 534, 605, 798
Royal Horticultural Elections, 77, 198, 509, 967; Anniversary, 150; Book of the, 799; Fruit Committee, 77, 439, 701, 749, 822, 918, 967, 1063, 1085, 1182; Floral Committee, 318, 439, 658, 701, 749, 822, 918, 967, 1085, 1182; Garden, 127, 583; remarks on ditto, 221, 651; Spring shows, 198, 271, 366; Exhibition of Sculpture, 439; Great flower and fruit shows, 509, 582, 630; Rose show, 630; fruit and Dahlia show, 869; Conservatory at South Kensington, 1231
Royal Horticultural of Dublin, 822
Rugeley Agricultural, 996
St. Austell's Agricultural, 1238
Staffordshire Agricultural, 973
Stoke Newington, 1086
Thame Agricultural, 950
Urchany, 850
Vale of Evesham Agricultural, 949
Van Mons of Belgium, 319
West Lothian Agricultural, 109
Wirral Agricultural, 1238
York Agricultural, 783
York Floral, 654

Farmers' Clubs:—Aiford, 1239; Bakewell, 1070; Brancote, 1142; Chertsey, 1095; Croydon, 1118; Dorking, 1069; Halberton, 1069; Hexham, 181; Kingscote, 253, 301, 1238; London, 132, 229, 349, 445, 1090, 1192; Morayshire, 1233; Newmarket, 973, 1238; Oxford, 398; Penrith, 302; Strathearn, 374; Torksey, 1069; Wigton, 397, 1095; Winfrith, 998; Wirral, 1238
Soils, treatise on, 830; restoration of, 1015; exhaustion of, 33, 34; Dr. Daubeny on, 1189, 1162; Rhododendron, 1230
Sonerila grandiflora, 102
Sophronitis grandiflora, 100
Sparrows, 10, 62, 131, 156, 180, 204, 228, 326; and moles, 418; and caterpillars, 421
Species v. varieties, 100; De Candolle on, 511
Sphæralcea acerifolia, 991
Sphærogyne latifolia, 6
Spiræa callosa, 749
Spiral grain in timber, 56
Spontaneous Generation, 1183
Squares, town, 1062
Stacks, measurement of, 1022
Stakes or no stakes, 486
Stanley's (Dr.) Sermons, rev., 439, 1110
Stapleford Hall, 1239
Statice Frostii, 627; caspica, 868
Statistics, agricultural, 228, 853, 950; Irish ditto, 420, 1043
Steam apparatus, Fowler's, Smith's, Coleman's and Howard's, 12, 253, 562, 564
Steam cultivation, 106, 130, 178, 202, 226, 227, 228, 249, 299, 322, 346, 370, 394, 397, 419, 441, 442, 474, 466, 468, 513, 516, 537, 540, 564, 585, 587, 588, 589, 635, 636, 658, 660, 681, 687, 706, 732, 753, 757, 759, 777, 784, 807, 1214, 1235
Steam Cultivation Company, 421, 901, 1140, 1233
Steam cultivators, 1022, 1090, 1067, 1115, 1186
Steam drill and grubber, Smith's, 299
Steam engines, 801, 945, 951, 1017
Steam plough, 926
Stephanophysum Baikiei, 342, 392
Stephanotis, fruit of, 653, 677
Stettin Horticultural exhibition, 940
Stock, live, 14; breeding, 15; imports of foreign live, 84; diseased Irish, 131; v. corn, 156; notes respecting, 180; feeding profits of, 516; report on health of, 657; farm, 850; overfeeding breeding, 921; prizes for, 972; diseases of live, 994; keeping, 1044
Stocks, German, 75, 174, 195
Stone breaker, American, 131, 159
Storax, 344
Storms, Dove, on Law of, rev., 55
Stove, dry, 55
Straw, for sheep, 610; as fodder, 969
Strawberry, British Queen, 197, 222, 295; culture of, 270, 394; seedling, 245; when and how should they be planted? 245; to raise from seed, 317; Cuthill's Black Prince, 485; sexuality, 627; Marguerite, 653; Eclipse, 653; Japanese, 655; pistillate, 677; La Constante, 629, 677, 749; Sir Harry, 677; Yarm, 700, 724; spurious, 749; and sports, 773; Sir Harry, 797; Triomphe de Hollande, 869; Frogmore Late Pine, 1207; French work on, 1206
Strawberry runners, 1034, 1083, 1157
Strawberry tile, 416
Strelitzia Nicolai, 126
Stuttgard, Royal Gardens at, 79, 151
Succulents, 5, 341
Suffolk Agricultural exhibition, 733
Sugar cane cultivation, 966
Sunderland Park, 918
Superphosphate making, 850; application of, 803
Swainsona violacea, 6, 296; splendens, 627
Swallows, 966, 990, 1063, 1014, 1039, 1085, 1110
Swedes, 1185; and Rape, 1213
Sweet Williams, Auricula-eyed, 629
Swift, the, 917
Swiss Scientific Society, 871
Swyncombe, Bougainvilleas at, 368

T.

Table decoration, 579, 581, 583
Tabley farm, 206
Tacsonia ignea, 536: Van Volxemii, 1231
Tales, Tom Moody's, 1207
Tallow tree in Algeria, 9
Tamarisks, 55
Tar, smell of coal, 1134
Tartar steppes, Atkinson's, rev., 319
Tates' Algebra, rev., 31; Arithmetic, rev., 847
Taxus hibernica fastigiata, 580
Tea, how to make, 535; American, 944, 1034; culture in India, 1033, 1231
Teazel culture, 275
Technicalities, 55
Tecophilea violæflora, 412
Temperature, effect of Gulf Stream on, 51; of 1862, 52; of November, 1862, 77; summer of 1863, 795; effect of on cultivation, 445; raised by drainage, 465; variation in, 968
Temple Chrysanthemums, 1064
Tenancy at will, 1092, 1138
Tenant right, 13, 35, 996
Tench and carp ponds, 555, 700, 724, 748
Testimonials, agricultural, 922
Theobalds' Park, 991
Thermometers, 1158
Thin seeding, 1042, 1116
Thomson on the Vine, rev., 558
Threshing machines, 62, 299
Thrips, cure for, 368, 603
Thuja gigantea, 654
Thujopsis lætevirens, 6; dolabrata, 703
Tillage implements, draught of steam, 561
Timber, preservation of, 25; clearing, 56, 102, 197; Pitch Pine, 103; Greenheart, 653; New Zealand, 726
Tithe commutation, 62
Tobacco culture, French, 964
Tombs, South American ancient, 31
Top dressings, 225, 250
Town gardening, 1158
Trade lists, 31, 679, 703, 895, 967
Training and gymnastics, rev., 1134
Transplanting trees, Sorley's plan of, 147; at Combe Abbey, 149; Cedars, 416
Traps and vermin, 821, 845
Trees, African, 29, 54; Ivy on, 80; barking, 126; law relating to, 342; London, 219, 391, 483, 699; return respecting growth of, 723; ages of, 824; and shrubs, damaging, 1088; of Fraser River, 1088, 1160
Tree heights, measuring, 749
Tree stump extractor, 947
Tree transplanter, 174
Tree wounds, 200
Trewia nudiflora, seed vessels of, 78
Trichomanes anceps, 393; radicans, 602, 653, 798, 842
Tricyrtis hirta, 102
Tropæolum majus, embryogeny of, 30
Truffles, British, 1082
Tuber, new, 800
Tulip, the, 988, 1038, 1040
Tulip show, national, 555
Tumours, 1168
Turnips, acreable yield of, 372; Telltower or Teltower, 941, 966, 990
Turnip grub, 922
Turnip mixtures, 345
Turnip storing, prize essay on, 157

V.

Vallota purpurea, 270, 893
Vancouver Island, 55
Varieties, thoughts about, 772
Vegetable irritability, 315, 318
Vegetable chlorosis, 893
Vegetation, insects injurious to, 78
Veitch's nursery, 679; Mr., death of, 459
Ventilation, cottage, 660, 733; and heating, 1014
Verbena, Lord Leigh, 296; Lord Craven, 296, 356; select, 653, 870; Italian, 632
Vermin and traps, 821, 845
Veronica syriaca, 413
Veterinary Manual, Dick's, rev., 61
Veterinary College, 445
Vicuna, the, 103
Village schools, lectures for, 679; museums, 387
Vines, ill managed, 8; disease of, 102, 171, 488; grafting, 412, 1155; pruning of, 604; growing of, 840, 869, 918, 991; perpetual fruiting, 1205
Vine borders, 1014, 1161, 366, 557, 1205
Vine exostose, 1038
Vine-leaf excrescences, 416, 584, 656
Vine mildews, 582, 872
Vine scissors, 629
Vinegar plant, 1084
Vintage, French, 964
Viola arborea Brandyana, 1231
Violets, 55; Neapolitan, 247; Russian, 1134
Vitality of a Fulham Oak, 1084
Viti, Seemann's Mission to, rev., 606, 631
Voelcker on manures for Grass, 612

W.

Wages, Berwickshire, 37, 39; in Roxburghshire, 109; Labourers', 803, 1090
Walls, brick v. stone, 104; v. orchard houses, 1230
Wall fruit, 342
Walks, concrete, 1208
Walpers' Annales Botanices Systematicæ, rev., 655
Wardian cases, 608, 867
Warner's Select Orchidaceous plants, rev., 655, 823, 1183
Wasp cells, 628
Water, uses of, 273; wanted pure, 991
Water rights, 892
Water weed, 889, 917, 943
Watts' Dictionary of Chemistry, 415
Wax, grafting, 195
Weather at Weybridge, 29; of 1862, 52; predictions, 182, 321, 372, 413, 422, 732, 759, 916, 1062
Weather Book, Admiral Fitzroy's, rev., 223
Wedding day, royal, 222
Weeds, native Pea-flowered, 154; notes on, 154, 492, 650, 971, 1020
Weed Extractor, Belcher's, 796
Weevils, Pea and Bean, 78
Weights and measures, 662
Wellingtonia, fructification of, 512, 725; growth of, 1040, 1184, 1230
Welwitschia mirabilis, 9, 272
Wheat, thin seeding, 34; effect of climate on, 590; growing, 684, 854; pedigree, 733; Mummy, 775; experiments with, 903; yield of, 904; varieties of, 922; samples of, 925; impure seed, 1046; crop of 1863, 1047; bread from tailing, 1168
Wheat flies, 104
Williams' (Mr.), nursery, 727
Willows, Weeping, 606; crack, 725
Willow stem midge, 891
Wimbledon village Museum, 387
Windows, climbers for, 221
Windsor Forest, Menzies on, 727, 919
Wines at International Exhibition, 559; Australian, 677
Winter, the coming, 1160
Winter flower gardening, 125
Wire, galvanised iron, 7, 149
Wireworm, 390, 413, 438, 461, 486
Wistaria sinensis, 1085, 1133
Women, address to young, rev., 759
Wood (Mr.), death of, 1160
Woods on South Australian Geology, rev. 175
Woods and forests, 248
Woods, New Zealand, 726
Wooden posts, prevention of rot in, 176
Woodlice, to kill, 877
Woodstock, gardens at, 175
Woollen refuse, 1133
Woolston, steam culture at, 204
Worcester agricultural meeting, 705, 706
Working men, Lord Brougham's address to, 996
Working men's flower shows, 675
Worms, 1208
Wounds, tree, 200
Wrest Park, gardens at, 103
Wynter's (Dr.) Subtle Brains, &c., rev., 1015

X.

Xanthoxylon fraxineum, 656
Xylaria, new, 364; tuberosa, 654

Y.

Yachting in the Baltic, rev., 439
Yams, 1232
Year Book, Agricultural, rev., 326
Yedo and Pekiug, Fortune's, rev., 391, 486
Yedo, scenery around, 895
Yew tree, a poor old, 920
Yucca lineata lutea, 460; flaccida, monstrosity on, 1227

Z.

Zinnia, new double, 412
Zoophytes, 272
Zosterostylis arachnites, 607
Zürich Botanic Garden, 583, 607

LIST OF WOODCUTS, &c., IN THE PRESENT VOLUME.

A

Abies Albertiana, 340
Alocasia Lowii, 580

B

Burnet seed, false, 493

C.

Cecidomyia viminalis, 891; saliciperda, 891
Clematis Fortuni, 676
Cottage building, patent material for, 58

D.

Dart Moth larva, ravages committed by, 922

F

Farm, Luton Park, 75
Flower Garden at Latimer's, 1229

G.

Gracilaria rufipennella, 796

H.

Haymaking contrivances, German, 636
Hyacinth bulbs, showing mode of propagation, 556

L.

Lycopodium pubiflorum, 358

N.

Noctua segetum, 922

O.

Oxford University Park, 1131

R.

Rose tree, pyramidal, 1063

S.

Sainfoin seed, decorticated, 493
Salmon ladders, 508
Stoves, cottage, 59

T.

Turnip stem grub, 922

W.

Willow-stem Midge, 891

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AND

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INDEX.

Agricultural summary of 1862	11 b	McLeod on Arithmetic	9 b
Anthyllis vulneraria	13 b	Orange trees	8 a
Architecture, villa	14 b	Orchidiaceæ	6 c
Blandford Farmers' Club	13 b	Pasture, permanent	14 b
Bombax Malabaricum	13 a	Pear, exquisite new	8 b
Breeding, remarks on	15 a	Pigs	12 b
British Columbia, camping in	8 b	Plants, dry stove	5 c
Cotton tree	8 a	— new	6 a
Cream	15 b	— of Peru	7 a
Dies Orchidiaceæ	6 c	— out door in bloom	8 a
Drawing, isometrical	8 b	Ponies, Iceland	10 a
Enclosure Commission	12 b	Prunnopitys elegans	6 c
Farming, Mid Lothian	14 b	Quinine, substitute for	10 a
— modern	14 a	Seeding, rational	12 c
Flora of Essex	9 a	Society, Linnean	8 c
Fruits, seedling	7 c	Sparrows, utility of	10 a
Galvanised iron wire	7 c	Steam ploughing	12 a
Grape, Black Alicante	8 b	Succulents	5 c
Grape growing in Norfolk	8 a	Tallow tree	9 c
Horse warranty	14 a	Tenant right	13 b
Hue and cry	7 c	Vines, ill managed	8 a
Hurlingham House, Fulham	9 c	Welwitschia mirabilis	9 a
Isometrical drawing	8 b	Wire, galvanised iron	7 c

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JOHN WATERER'S CATALOGUE of the above popular plants, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants.

It describes faithfully the colours of all the Rhododendrons, thereby rendering every facility for making selections.

It likewise contains an abridged List of really Hardy Conifers, with their heights and prices.

The American Nursery, Bagshot, Surrey.

To the Seed Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEEDSMAN, &c., Erfurt, Prussia, begs respectfully to announce that his WHOLESALE CATALOGUE of the above is now ready, containing extensive collections of Stocks, Asters, and other Choice Seeds.

Free by Post on application to GEO. MACINTOSH, Seedsman, High Road, Hammersmith, London W.

RARE and BEAUTIFUL COLUMBINE.—The Subscribers can supply strong flowering plants of AQUILEGIA GLANDULOSA, carefully packed, with earth adhering to their roots, and sent free to London, at 20*s.* per dozen. Seeds of the same at 2*s.* 6*d.* per packet, or for stamps of that value.

"This is perhaps the handsomest hardy perennial in cultivation."—*Gardeners' Chronicle.*

The Trade supplied at the wholesale rate.

JOHN GRIGOR & Co., Nurseries, Forres, Scotland.

Established 1787.

THOMAS KENNEDY AND CO.,
NURSERY AND SEED ESTABLISHMENT,
Dumfries, N.B.

*** PRICED CATALOGUES sent free on application.
FREE DELIVERY.

FARM and GARDEN SEEDS under certain limitations will be DELIVERED FREE OF CARRIAGE to the chief Railway Stations in Great Britain and the principal Steam Ports in Ireland.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

Splendid New Bedding Plants.



MESSRS. VEITCH AND SON, Exeter and Chelsea, S.W., are now prepared to supply SEEDS of the following splendid novelties, recently introduced by them, feeling confident that two such fine additions to the Flower Garden cannot fail to give general satisfaction.

AMARANTHUS MELANCHOLICUS RUBER.—Introduced from Japan by Mr. J. G. VEITCH; its beautiful blood red foliage renders it much superior to the Perilla, where colour and effect are required, and this, combined with its dwarf compact habit (averaging from 9 to 12 inches), cannot fail to make it the most popular dark-foliaged bedding plant yet introduced. It has been commended by the Floral Committee of the Royal Horticultural Society, on account of its distinct habit as a bedding plant.

The following persons having obtained their Seed of the above direct from Messrs. V. & SON, will be enabled to supply it genuine:—

Austin & M'Aslan, Messrs., Glasgow
Beck, Henderson & Co., Messrs., Adelphi, London
Butler & M'Culloch, Messrs., Covent Garden
Cattell, Mr., Westerham, Kent
Charlwood & Cummins, Covent Garden
Cooper & Bolton, Messrs., 152, Fleet Street
Dickson, Messrs. F. & A., Chester
Dobson, Messrs., Isleworth
Downie, Laird, & Laing, Messrs., Edinburgh
Finney, Messrs. S. & Co., Gateshead
Fisher, Holmes, & Co., Messrs., Sheffield
Fraser, Richardson, & Goad, Messrs., 82, Bishopsgate Street
Hollamby, Mr. E., Tunbridge Wells
Hooper, Messrs. W. & Co., Covent Garden
Krelage, Messrs., & Son, Haarlem, Holland
Lawson, Messrs. P. & Son, Edinburgh and London
Minier & Co., Messrs., 60, Strand
Shaw, Messrs., & Co., Manchester
Smith, Messrs. F. & A., Dulwich, Surrey
Smith, Messrs. Peter & Co., Hamburgh
Turner, Mr. Chas., Slough
Vilmorin, Messrs., & Co., Paris
Wood & Ingram, Messrs., Huntingdon

MIMULUS CUPREUS.—This beautiful little perfectly hardy novelty was sent us by Mr. Pearce, from the Andes of Chili, where he met with it at an elevation of from 6000 to 7000 feet.

Its dwarf and compact habit, not exceeding 4 to 6 inches in height, its perfect hardiness, and producing its bright orange-crimson flowers in great profusion, render it equally useful for the Flower Garden or for Pot culture.

It has been constantly exhibited during the past season, and had medals awarded it at both the Royal Horticultural and the Royal Botanic Societies. It is indeed a charming plant, and cannot fail to give general satisfaction.

The undermentioned having procured their Seed of Messrs. VEITCH & SON are able to supply the preceding true and genuine:—

Austin & M'Aslan, Messrs., Glasgow
Beck, Henderson & Co., Messrs., Adelphi, London
Cattell, Mr., Westerham, Kent
Charlwood & Cummins, Messrs., Covent Garden
Carter & Co., Messrs., Holborn
Cooper & Bolton, Messrs., Fleet Street
Cunningham, Messrs. Geo. & Son, Liverpool
Dickson, Messrs. F. & A., Chester
Ernst & Von Spreckelsen, Hamburgh
Finney, Messrs. S. & Co, Gateshead
Fraser, Richardson & Goad, Messrs, 82, Bishopsgate Street
Hooper, Messrs., & Co., Covent Garden
Huber Frères, Messrs., Hyères, France
Krelage, Messrs., & Son, Haarlem, Holland
Lawson, Messrs., & Son, Edinburgh and London
Shaw & Co., Messrs., Manchester
Smith, Messrs. P., & Co., Hamburgh
Sutton, Messrs., & Sons, Reading
Turner, Mr. Chas., Slough
Van Houtte, M. Louis, Ghent, Belgium
Vilmorin & Co., Messrs., Paris
Wood & Ingram, Messrs., Huntingdon

Prices to the Trade on application.

Royal Exotic Nurseries, Exeter and Chelsea—Jan. 3.

Vegetable and Flower Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully announces that his SEED CATALOGUE is now ready, free by post. The choicer kinds, which are disposed to vary from seed, are as far as possible home-saved and carefully selected, and all others drawn from the very first sources. The Collection of Vegetables recently commended by the Royal Horticultural Society was grown from Seeds furnished by him.

Nurseries and Seed Warehouse, Waltham Cross N.

To the Trade.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E., beg to inform their Friends and the Trade generally that their WHOLESALE CATALOGUE of AGRICULTURAL, GARDEN, and FLOWER SEEDS is now ready, and may be had on application.

CHEAP PLANTS.—The undermentioned are now ready in strong plants.

	per dozen.—*s. d.*		per dozen.—*s. d.*
Hepatica, sorts	3 0	Polyanthus, fine laced	3 0
Primroses ,,	4 0	Pampas Grass	4 0
Auriculas ,,	3 0	Hollyhock, fine named	6 0
Violets Double White and Purple and Russian	3 0	Hollyhock Seedlings, from fine named	3 0
Wallflower, Golden Yellow	4 0	Lavender	3 0
Pinks, fine named	3 6	Rock Cistus (sorts)	3 0
Clove (old Crimson)	3 0	Pansies, fine named	3 6
Christmas Roses	6 0	,, ,, mixed	2 0
Lily of the Valley	2 0		

The following in strong Stock Plants for cuttings:—

Per dozen—*s. d.*		Per dozen—*s. d.*	
Lobelia speciosa kermesina, true	3 0	Antirrhinums, new, 1862	4 0
Verbenas, all the leading kinds	3 6	Calceolaria canariensis	6 0
Verbenas, new, 1862	4 0	Dahlias, strong ground roots	6 0
Fuchsias, new, 1862	5 0	100 Hardy Herbaceous Plants in 50 varieties	20 0

Paid to London. Post-office Orders on Castle Hedingham.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

New Fern, Pteris nemoralis variegata.

WILLIAM COLE, Fog Lane Nursery, Withington, Manchester, the raiser of this beautiful and distinct NEW FERN, is now ready to supply good plants, and all orders will be executed in rotation.

It has been well described in the *Gardeners' Chronicle* of July 5, p. 620, where the writer speaks of it as "a curious and novel form of Variegated Pteris."

It was also reported on in the *Gardeners' Chronicle* of May 24, as follows:—"Among new Ferns, of which several were shown, was one from Mr. Cole, Nurseryman, Manchester, belonging to the Variegated Class, and as regards position, is intermediate between argyræa and tricolor, and is apparently a free grower."

W. COLE has great confidence in recommending it, and in stating that it is really a beautiful Fern, and one which will become exceedingly popular. 10*s.* 6*d.* each.

Price (very liberal terms to the Trade for 12, 50, or 100) on application.



LIST of MESSRS. SUTTON'S AGENTS for the Sale of Seed of the "STUDENT" PARSNIP, introduced by Professor Buckman.

Barr & Sugden, 12, King Street, Covent Garden, London, W.C.
Beck, Henderson, & Child, Adelphi Terrace, Strand, London
Brown, Henry, 4, Commutation Row, Liverpool
Backhouse, James & Son, York
Batt, Rutley, & Silverlock, Strand, London
Carter & Co., High Holborn, London
Cattell, John, Westerham
Cooper & Bolton, 152, Fleet Street, London
Charlwood & Cummins, Tavistock Row, Covent Garden, London
Clarke, Henry & Sons, 39, King Street, Covent Garden, London
Cooling, C., 13, Iron Gate, Derby
Davies, George, Stanley Nurseries, Liverpool
Dicksons & Brown, Corporation Street, Manchester
Dickson & Sons, 102, Eastgate Street, Chester
Dickson, Sons, & Co., 23, Market Place, Manchester
Dickson & Turnbull, 26, George Street, Perth
Dickson, F. & A. & Sons, 106, Eastgate Street, Chester
Dickson, Hogg, & Robertson, 22, Mary Street, Dublin
Dixon, E. P. & Son, 57, Queen Street, Hull
Dillestone & Co., The Nurseries, Sturmer
Downie, Laird, & Laing, 17, South Frederic Street, Edinburgh, and Stanstead Park Nursery, Forest Hill, Kent
Drummond & Sons, 58, Dawson Street, Dublin
Drummond & Sons, Stirling
Ernst & Von Spreckelsen, Hamburg
Edmondson, Brothers, 10, Dame Street, Dublin
Fairhead & Son, 7, Borough Market, London
Fisher, Holmes, & Co., Handsworth Nursery, Sheffield
Finney & Co., Gateshead Nursery, Newcastle-on-Tyne
Gibbs, Thomas, & Co., Corner of Half Moon Street, Piccadilly, London
Garaway & Co., Durdham Down, Bristol
Hurst & Son, 6, Leadenhall Street, London
Henderson, E. G. & Son, Wellington Nursery, St. John's Wood, London
Henderson, A. & Co., Pine Apple Place, Edgeware Road, London
Haycroft, J. & H., Cork
Ivery, James & Son, Dorking, Surrey
Kennedy, Thos. & Co., Dumfries
Krelage, C. F. & Son, Haarlem, Holland
Low, H. & Co., Clapton Nursery, London
Lowe, Richard & Co., High Street, Wolverhampton
Nutting & Son, 60, Barbican, London
Nelson, John, St. Michael's, Bristol
Osborn & Son, Nurserymen, Fulham, London
Perkins, John, 52, Market Square, Northampton
Pope, Henry, Great Heath Nurseries, near Birmingham
Perry, P. J., The Nurseries, Banbury
Plymouth Seed Company, Plymouth, Devon
Smith & Simons, Argyle Arcade, Glasgow
Stuart & Mein, Kelso, N.B.
Toole & Co., Westmoreland Street, Dublin
Turner, Charles, The Royal Nurseries, Slough
Thomas, Wm., Exchange Street, Wolverhampton
Veitch, James, jun., King's Road, Chelsea
Van Houtte, Louis, Ghent, Belgium
Wrench, Jacob, & Son, London Bridge
Wheeler, J. C. & Son, Gloucester
Wood & Son, Maresfield, near Uckfield
Waite, J. G, 181, High Holborn, London
Wood & Ingram, The Nurseries, Huntingdon

Packets of Seed, 6*d.*, 1*s.*, and 2*s.* 6*d.* each, can be obtained of any of the above named, and also of Messrs. SUTTON, who can supply it either Wholesale or Retail.

Royal Berkshire Seed Establishment, Reading.

*** The Trade supplied on liberal terms.

TRADE MARK.

HALLETT'S PEDIGREE. NURSERY WHEAT has produced, 1862, 62 bushels per acre, weighing 64 lbs. a bush.

Price ONE GUINEA A BUSHEL, including bag sewed up and sealed, delivered at the Brighton Railway Station, with Printed Directions for Planting, on Receipt of Cheque or Post-office Order, which must in all cases accompany the Order. Less than One Bushel will not be supplied. Name of Station and Railway should accompany the Order.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

SHIRREFF'S BEARDED WHITE WHEAT having yielded grain of fine quality when sown in East Lothian on the 7th April, 1862, is recommended for spring sowing. Selected parcels, weighing 65 lbs. per imperial bushel, 80*s.* per quarter. Parcels weighing from 63½ lbs. to 64 lbs. per imperial bushel, 65*s.* per quarter. Bags, 1*s.* 6*d.* each. Terms cash. Haddington, Jan. 3.

Prize Medal Seed Wheat.—International Cereal Show.

THE PRIZE MEDAL WAS AWARDED TO

MESSRS. RAYNBIRD, CALDECOTT, AND BAWTREE, for the BEST SAMPLE of RED WHEAT, for their sample of RED NURSERY WHEAT, by a jury consisting of some of the most eminent Corn Factors from Mark Lane and Agriculturists of the day.

This Wheat is remarkable for its fine quality, weight, and hardiness, and is one of the most productive upon poor soils and in exposed situations; it may be sown at any time from October to March.

Bulks of similar fine quality to the Prize sample, for cash only, at 80*s.* per Quarter.

Address, Basingstoke.

Best—Original and True Stock.

HENDERSON'S Compact-topped PINE-APPLE BEET.—Symmetrical shape, and fine dark crimson colour, uniform through the solid roots, are points of excellence rivalled only by its rich and sugary flavour, and long-keeping properties.

This celebrated Beet gained the FIRST PRIZE against ALL OTHER SORTS at the GREAT INTERNATIONAL EXHIBITION of FRUITS and VEGETABLES held at the Horticultural Gardens, South Kensington, October 8, 1862.

New Celery, Williams's Matchless Red.

B. S. WILLIAMS, Paradise Nursery, Holloway, N., has much pleasure in offering the above superior solid RED CELERY, feeling confident it will give satisfaction. It is perfectly hardy, a strong grower, very solid and crisp, and of a most delicious flavour. It has been taken up for use quite the end of April without having the least tendency for running to seed. From the testimonials received it is unquestionably the best Red Celery in cultivation. In sealed packets, 2*s.* each.

MOORE'S VEGETABLE CREAM.—An improved small cream-coloured oval-shaped variety of Vegetable Marrow, of an extremely delicate flavour. The Seed was presented to us by Thomas Moore, Esq., Secretary to the Floral Committee of the Royal Horticultural Society, and in a communication lately received he speaks of it as follows:—

"I have grown it for several years, 8 or 10 perhaps, and have always thought it to be the best flavoured of all the sorts I have tasted." Per packet, 1*s.*

JAMES CARTER & Co., 237, 238 and 261, High Holborn, W.C.

Fluke Kidney Potato Sets

FROM LAND WHICH HAS NOT BEEN BROKEN UP IN THE MEMORY OF MAN.

DICKSONS AND BROWN, SEEDSMEN, 43 and 45, Corporation Street, Manchester, have a few hundred bushels of the above valuable Potato, grown upon fresh land a very short distance from the place where the "FLUKE KIDNEY" was originally raised. They are picked expressly for sets.

By stating quantity required, the price will be forwarded on application to the Advertisers.

Early Potatoes for Planting—Carriage Free.

SUTTON AND SONS can supply the following Choice Sorts, true, and free from disease:—

DAINTREE'S FIRST EARLY, direct from Mr. Daintree, 2*s.* 6*d.* per peck, 9*s.* per bushel.

ALBION KIDNEY, earlier than the Ashleaf, 3*s.* per peck, 10*s.* per bushel.

LAPSTONE KIDNEY, particularly fine flavour, 3*s.* per peck, 10*s.* per bushel.

ASHLEAF, OXFORD, and WEBB'S IMPERIAL, 3*s.* per peck, 10*s.* per bushel.

Also the undermentioned, which SUTTON & SONS have proved to be a fortnight earlier than either of the above-named early sorts, viz.:—

SUTTON'S EARLY RACEHORSE KIDNEY, decidedly the earliest sort yet out, 5*s.* per peck, 18*s.* per bushel.

SUTTON & SONS have also true stocks of REGENTS, DALMAHOYS, FLUKES, FLOUR BALL, and other Potatoes for the main crops, at low prices, as per PRICED CATALOGUE, which may be had post-free on application, addressed

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

HOW'S EARLY FLUKES.—These POTATOES have been raised from the apple of the Fluke, and selected from upwards of 40 different sorts produced. They have taken the prize at the two last local shows, are ready to dig a fortnight after the Ash-leaf, and a much greater bearer than the old Fluke; they are of excellent shape, beautifully white, and good keepers. Price 10*s.* per bushel of 56 lbs., including bags. Cash must accompany all orders.

W. A. How, Farmer, Piedmarley, near Newent, *vid* Gloucester.

Myatt's Early Prolific Ash-leaved Kidney Potatoes.

H. AND F. SHARPE are now taking orders for the above, which has this season proved itself to be the earliest and most prolific Potato in cultivation, and as fine in quality as any of the Early Kidney varieties. Having a good stock they can offer them at a low price to the Trade.

Also JACKSON'S ASH-LEAVED KIDNEY, WALNUT-LEAVED KIDNEY, and all the early Round varieties at equally low prices, which may be had on application.

Seed Growing Establishment, Wisbech.

SEEDS.—The best three PEAS for succession are DANIEL O'ROURKE, 2½ feet, 1*s.* 6*d.* per quart; VEITCH'S PERFECTION, 2½ feet, 1*s.* 6*d.* do.; MAY'S PROLIFIC, the largest in cultivation, 2*s.* 6*d.* do.; with all the best kinds of Vegetable Seeds for Gardens, made up Collections, from 10*s.* 6*d.* and upwards.

J. M. having had 15 years' experience in the Seed Trade, parties can rely on him sending such kinds as are likely to answer

JOSEPH MAY, 15, Wellington Street, Strand (Waterloo Bridge).

JUST ARRIVED, CAMELLIAS, handsome plants, full of flower buds, 24s. and 30s. per dozen; extra size, 3 to 4 feet high, 7s. 6d. each; ORANGE TREES full of fruit; AZALIAS, 21s. and 24s. per dozen; BRITISH and FOREIGN FERNS, immense variety; EVERGREENS, the best and cheapest in London; Fern Cases and Aquariums, Wire and Rustic Stands, &c., &c.

R. GREEN, 154, Kingsland Road, and the Bedford Conservatories, Covent Garden Market. Entrance, Centre Avenue only.

COCOA-NUT REFUSE, as used for FERNS, BEGONIAS, &c., grown in the International Exhibition, delivered at any Booking Office in the City at 1s. 6d., or within 2½ miles of Charing Cross, at 2s. per bag of 3 bushels. Larger quantities on lower terms on application to the PATENT COCOA FIBRE COMPANY, Kingston-on-Thames, S.W.

Also SHORT FIBRE for Orchids and Drainage in pots.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are the best and most economical of any that are made, and are sold in every town in the kingdom.

CAUTION.—See that every Brush is stamped "J. BARSHAM'S Patent, Kingston-on-Thames."



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1s. and 2s. per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1s. per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.

WINTER DRESS all FRUIT TREES with GISHURST COMPOUND.

Copy of a Letter from Mr. RIVERS, Nurseries, Sawbridgeworth, Herts, January 9, 1862.

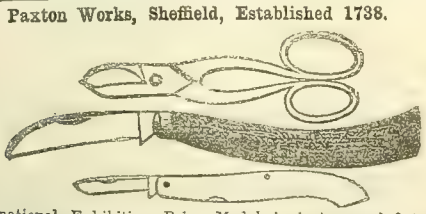
"I think you should prominently mention the great benefit Wall Trees of all kinds derive from a dressing of the Compound applied in January, it is so very beneficial. THOS. RIVERS."

From the Same, October 22, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a Wall to which Peach Trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with GISHURST COMPOUND, 1 lb to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple Trees; it killed the woolly aphis entirely, and has made his Trees clean and vigorous in their growth. He intends to paint his Wall Trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach Trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls. Unless trees are completely at rest, 6 to 8 ounces to the gallon of soft water is the best strength, and sufficiently strong to destroy eggs and insects."

GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in Boxes, 1s., 3s., and 10s. 6d. each; Wholesale by PRICE'S Patent Candle Company Limited, Belmont, Vauxhall, London.

Paxton Works, Sheffield, Established 1738.

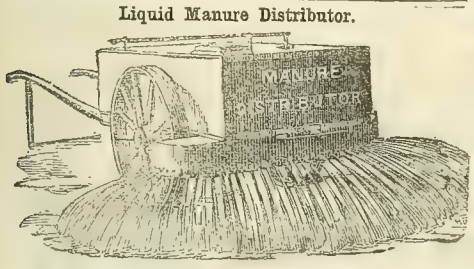


International Exhibition Prize Medal is just awarded to SAYNOR & COOKE for superiority of quality in Pruning and Budding Knives, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

Liquid Manure Distributor.



THE JUDGES of the Liverpool, Manchester, and Staffordshire Agricultural Shows, 1861, have each awarded the First Prize to I. JAMES, Tivoli Works, Cheltenham, for his LIQUID MANURE DISTRIBUTOR, making a total of 17 Prizes. It is also well adapted for Watering Streets, supplying the Steam Plough, Irrigating, or for a Fire Engine. Also his last great improvement in WASHING MACHINES, which have been awarded several First Prizes, and will wash 20 Shirts in 20 minutes.

The Old Established Seed Bag and Sack Manufactory.

ALEXANDER NICOL AND CO., MANUFACTURERS of SEED BAGS and SACKS, RYE-GRASS SEED BAGS, GRAIN and POTATO SACKS of all sizes and descriptions, SHOP and NURSERY TWINES, GARDEN LINES, &c.

Chalmers St. Works, Arbroath, N.B.

N.B. The principal Seed-houses in the three Kingdoms have been supplied by us for the last 30 years. Price Lists and Samples may be had on application. No connection with any other house in the Trade.

FOWLER'S

STEAM PLOUGHING AND CULTIVATING PATENTS.

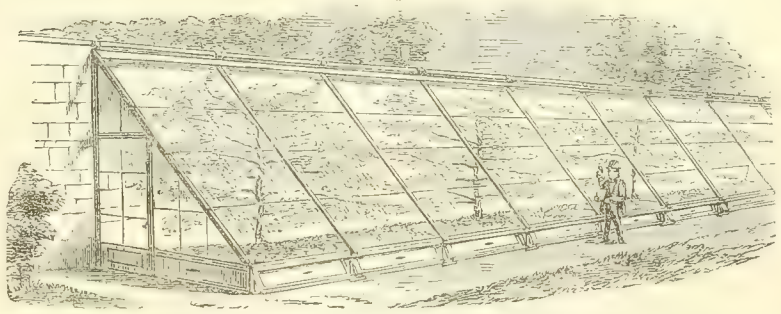
RANSOMES & SIMS, ORWELL WORKS, IPSWICH,

Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

ST. PANCRAS IRON WORKS COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS,

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS.

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. *Lists Free.*

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

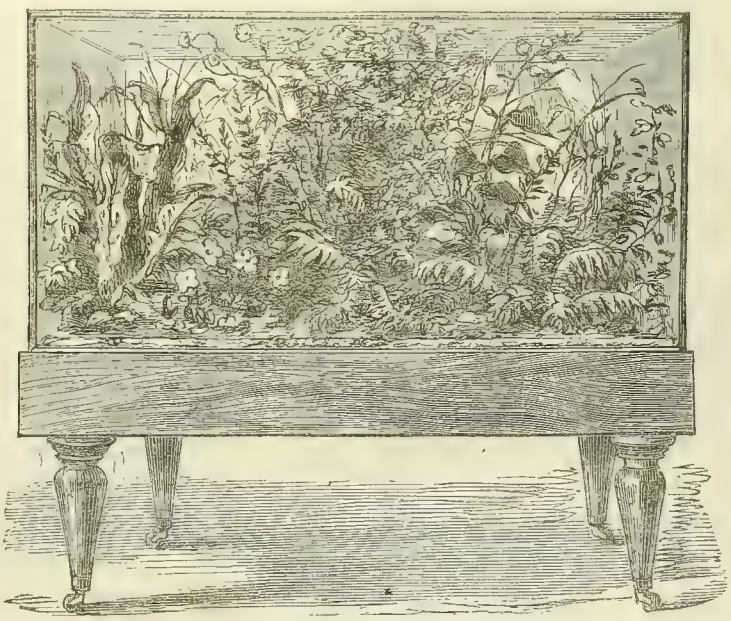
MISS MALING'S PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, LONDON, S.W.



MISS MALING'S PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c. the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS; ditto COWSLIP; Florist's Flower, POLYANTHUS, Roots or Seed; also SCARLET PRIMROSE—Double Crimson, Double Purple, Double White, Double Yellow, and Double Lilac ditto. COWSLIP from the Himalayas; DOUBLE POLYANTHUS; and other varieties, all of which may be had on application to

RICHARD WEBB, Calcot Gardens, Reading.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select, Descriptive, and Priced Lists of Exotic Orchids, Variegated and Ornamental-foliaged Plants, Azalea indica, Conifers, Chrysanthemums, Fuchsias, Ferns, Geraniums, Rhododendrons, Roses, Miscellaneous Stove, Greenhouse, and Hardy Plants, Fruit Trees, &c., Hyacinths, Tulips, Gladioli, and other Bulbs, is now published and will be forwarded, post free, to all applicants.

Exotic Nursery, Tooting, Surrey, S.

Gladioli.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully announces that his BULB CATALOGUE includes a descriptive list of all the most valuable varieties of GLADIOLI, the roots of which are unusually fine. He would remind intending purchasers that he was awarded prizes at both the Royal Horticultural and Crystal Palace September Shows. Price 4*s.* to 42*s.* per dozen.

Nurseries and Seed Warehouse, Waltham Cross, N.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

50 in 25 extra choice varieties	..	..	£2	2*s.* 0*d.*
25 in 25	,,	,,	..	.. 1 5 0
12 in 12	,,	,,	..	.. 0 12 0
50 in 50 choice varieties	..	..	..	2 12 6
50 in 25 ,,	,,	..	..	.. 1 5 6
25 in 25 ,,	,,	..	..	.. 0 13 6
12 in 12 ,,	,,	..	..	.. 0 5 0

Extra fine mixed, 2*s.* 6*d.* per doz., 17*s.* 6*d.* per 100.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, W.C.

Gladiolus Gandavensis and Varieties.

B. S. WILLIAMS'S choice collection of these superb Bulbous Plants, which are beyond doubt the handsomest autumnal ornaments to the garden, is now ready for sending out. Great attention has been bestowed on the selection, amongst which are many novelties, and none but those of the best quality are offered.

Collection of 24 Splendid Varieties, one root of each, 21*s.*

Collection of Choice Named Varieties, 6*s.*, 8*s.*, and 10*s.* per doz.

A PRICED and DESCRIPTIVE LIST on application.

Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London, N.

New Bedding Annual—Iberis grandiflora alba

(LARGE-FLOWERED WHITE CANDYTUFT).

MESSRS. E. G. HENDERSON AND SON offer this as a remarkably fine variety, and a much more gay and effective plant than any other in its tribe, having numerous large semi-cylindrical trusses, from 2 to 4 inches in length, of snow-white blossoms, continuing in bloom twice as long as the well known common kinds, and making a very beautiful group or bed until the latest autumn months. Its style of growth is much more robust, from 12 to 15 inches in height, and vigorously branched. For decoration in the flower garden, either as a separate bed, or as a ribbon row, it far surpasses any annual or other bedding plant in its colour; its long continued bloom is invaluable for effect with other groups.

Seed packets, 6*d.* and 1*s.* each. The Trade supplied; prices on application.

Wellington Nursery, St. John's Wood, London, N.W.

DOWNIE, LAIRD, AND LAING have much pleasure in offering the following FIRST CLASS NOVELTIES, which they can with confidence recommend as being decided acquisitions.

CALCEOLARIA CLOTH of GOLD, described by the Floral Committee of the Royal Horticultural Society as follows:—"A desirable bedding variety of dwarf habit, growing from 6 to 9 inches high; the leaves are narrow and deeply serrated, the flowers in fine compact trusses of a deep clear yellow, and of medium size and firm substance;" stems stiff and erect, requires no staking; as a dwarf yellow for front lines, or ribbon borders, it has no equal. Certificate of Merit by the Floral Committee, First Class Certificate at Regent's Park. Price 2*s.* 6*d.* each, 18*s.* per dozen. Special price for quantities on application.

DELPHINIUM BICOLOR GRANDIFLORUM.—This is a striking and most beautiful variety. It was commended by the Floral Committee of the Royal Horticultural Society, who described it as follows. "A showy variety with large flowers, in which the sepals were of a dark blue, and the petals of a creamy white colour, contrasting strongly with the darker colour surrounding them. Price 5*s.* each. Special offers to the Trade on application.

Stanstead Park, Forest Hill, S.E., and Edinburgh.

Pine Apple Place, Edgware Road, London, W.

ARTHUR HENDERSON AND CO., beg to announce that their CATALOGUE of KITCHEN, FARM, and FLOWER SEEDS, Imported German Asters, Stocks, and Collection of Vegetable Seeds, for One Year's Supply.

Collection, No. 1 ..	105*s.*	Collection, No. 3 ..	42*s.*
,, No. 2 ..	84*s.*	,, No. 4 ..	25*s.*
Collection, No. 5 ..	15*s.*		

is now ready, and will be forwarded free on application.

NOTE.—This Catalogue contains only the best varieties of Vegetables, and an abridged List of the most valuable Flower Seeds.

HUGH LOW & CO.

HAVE TO OFFER TO THE TRADE VERY STRONG

DWARF MAIDEN MOORPARK APRICOTS.

CLAPTON NURSERY, LONDON, N.E.

FOSTER'S SEEDLING GRAPE.

MESSRS. JOHN & CHARLES LEE

have to offer Mr. Foster's stock of this fine NEW GRAPE, which can be confidently recommended for general cultivation in cool Vineries. It has borne an abundant crop in the large Conservatory of the Royal Horticultural Society at Chiswick, the bunches being large, with medium sized berries of a pale amber colour. The flavour of Foster's Seedling is most luscious, equalling the richness of its twin sister Lady Downe's, and as far as can be seen, partaking of the same quality of hanging well without shrivelling.

Canes for planting, 7s. 6d. each. A few Fruiting Canes at 21s. each.

ROYAL VINEYARD NURSERY AND SEED ESTABLISHMENT, HAMMERSMITH, LONDON, W.

INTERNATIONAL EXHIBITION.

PRIZE MEDALS 1851 AND 1862

AWARDED FOR SUPERIORITY AND GENERAL EXCELLENCE TO

BUTLER & McCULLOCH, SEED MERCHANTS,

COVENT GARDEN MARKET, W.C.

(ESTABLISHED UPWARDS OF A CENTURY.)

COLLECTIONS OF VEGETABLE SEEDS SUITABLE FOR ANY SIZED GARDEN.

No. 1.	**20 Quarts of PEAS and other Seeds in proportion**	...	...	...	**£3 3 0**
No. 2.	**11 ditto**	**ditto**	**ditto**	... ...	**2 2 0**
No. 3.	**8 ditto**	**ditto**	**ditto**	... ...	**1 10 0**
No. 4.	**5 ditto**	**ditto**	**ditto**	... ...	**1 1 0**
No. 5.	**5 Pints**	**ditto**	**ditto**	... ...	**0 10 6**

All orders amounting to 21*s. and upwards sent Carriage paid.*

THE PLYMOUTH SEED COMPANY,

PLYMOUTH.

Extract from a Letter received from a CLERGYMAN *in Yorkshire, dated December* 11, 1862:—

"Our Vegetables have never been so fine as when grown from your Seeds."

The Company are now sending out their COLLECTIONS of SEEDS, which have always given great satisfaction

No. 1.	**Complete Collection for a large Garden, for One Year's Supply**	**£3**	**0**	**0**
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Extra Collection Carriage Free to any Railway Station in England and Wales, and to any Steam Port in England, Wales, Scotland, and Ireland.

No. 1 Carriage Free to most Stations and Ports in the Kingdom.

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No. 3 Carriage Free to any Station between Plymouth and Paddington.

For further particulars, see the GENERAL PRICE CURRENT, now ready.

Address, PLYMOUTH SEED COMPANY, PLYMOUTH.



CARTER'S COLLECTION OF GARDEN SEEDS FOR 1863,

BEING COMPLETE ASSORTMENTS OF VEGETABLE SEEDS FOR ONE YEAR'S SUPPLY.

Containing only the most approved and choice sorts, in quantities to suit Large and Small Gardens.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
10*s.* 6*d.*	20*s.*	40*s.*	60*s.*	100*s.*



These Collections are always kept ready, and can be supplied at a moment's notice.

CARTER'S SELECT LIST OF NEW AND CHOICE VEGETABLE FLOWER SEEDS AND PLANTS

is now published gratis and post free.

237, 238, & 261, HIGH HOLBORN, LONDON, W.C.

THE GREAT VINE at HAMPTON COURT.—The Subscribers being the holders of the Royal Kitchen Gardens, Hampton Court, are enabled to offer genuine the famous and truly excellent HAMPTON COURT BLACK HAMBURGH GRAPE.

Strong well-ripened plants in 9-inch pots, 42*s.* and 60*s.* p. doz.
" " fruiting plants in 12 inch pots, 10*s.* 6*d.* each.

If purchased in large numbers a considerable reduction will be made in price.

JACKSON & SON, Nurseries, Kingston, S.W.

EXTRA STRONG FRUITING VINES.—All the leading varieties, from Eyes, with stout well ripened rods, for FRUITING in POTS this YEAR. Price, from 7*s.* 6*d.* each; smaller, for Planting-out, from 3*s.* 6*d.* each. A reduction in price will be made to large purchasers.

"We can especially recommend the above, our strong Vines having for some years given unqualified satisfaction."—*Vide* Leading Article in *Gardeners' Chronicle* for December 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries, Chester.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, has the pleasure to offer now for the first time his two new excellent Fruits—

APPLE CALVILLE GARIBALDI .. 8*s.*
PEAR BEURRÉ DE GHÉLIN .. .. 5*s.*

This excellent Pear obtained the First Prize at the great Pomological Show at Tournay, Belgium.

N.B. These two new Fruits are figured in VERSCHAFFELT'S "Illustration Horticole."

CHARLES B. SAUNDERS, Cæsarean Nurseries, Island of Jersey, Established 1816.

Strong well ripened rooted VINES, best sorts, 6 to 8 ft. rods, grown in the open air without nursing, 2*s.* 6*d.* each; Dwarf Standard, Dwarf-trained PEAR TREES on Quince stocks, well rooted, set with fruit spurs, in fine condition, 1*s.* 8*d.* and 2*s.* 6*d.* each; Maiden and Dwarf-trained PEACH and NECTARINE TREES, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* 6*d.* each; Upright GUERNSEY ELMS, 6 and 8 ft. high, 40*s.* and 60*s.* per 100. An immense Stock of EVERGREEN OAKS, grown in Pots and frequently transplanted, from 50*s.* to 200*s.* per 100, 2 to 6 ft. high.

Large quantities of the above can be supplied.

LISTS of GENERAL NURSERY STOCK on application.

Fruit Trees.

RICHARD SMITH has no hesitation in saying, that he possesses by far the largest Stock of FRUIT TREES in the kingdom, consisting of Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots, in Maiden Trees, Dwarfs, Bushes, Pyramids, Half-Standards, and Standards; Dwarf-trained, Half-Standard, Standard, and Horizontally-trained Trees, of the finest sorts, and in the best possible condition. DESCRIPTIVE PRICED LISTS on application.

RICHARD SMITH, Nurseryman, Worcester.

SCOTT'S CATALOGUES.

No. 1.—FRUIT CATALOGUE and FRUIT TREE CULTIVATOR'S DIRECTORY describes nearly 800 of the best and most esteemed of our Fruits, with copious Observations and Directions about their Cultivation; the formation of Pyramids, Root Pruning, and other matter interesting to lovers of fine Fruit. Price 7*d.*

No. 2.—The BULB, WINTER, and SPRING BEDDING-PLANT CATALOGUE, 18 pages.

No. 3.—The DESCRIPTIVE CONIFEROUS CATALOGUE, 25 pages.

No. 4.—The ROSE CATALOGUE, 22 pages.

No. 5.—The SELECT NURSERY STOCK, 15 pages.

In December, the VEGETABLE and FLOWER SEED CATALOGUE.

In April, the SUMMER BEDDING CATALOGUE, 72 pages.

Apply to J. SCOTT, Merriott, Crewkerne, Somerset.

LARGE ORNAMENTAL TREES.—The Subscribers beg to offer very fine specimen plants of ARAUCARIA IMBRICATA, from 5 to 9 ft.; CEDRUS LIBANI, 7 to 12 ft.; WELLINGTONIA GIGANTEA, 5 to 9 ft.; PINUS EXCELSA, 7 to 10 ft.; also Spruce, Scotch, and Larch Firs, from 7 to 10 ft., with Limes, Birch, Beech, Elm, Sycamore, and Laburnum, 9 to 11 ft.; likewise Weeping Ash, Lime, and Willow, on fine tall stems. The above will be sold cheap, and if taken in quantity a great reduction will be made in the price.

J. IVERY & SON, Dorking Nursery.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

DEODAR CEDARS.

2½ to 3 feet, 2*s.* 6*d.* each, 24*s.* per dozen, or 9*l.* per 100.
3 to 4 feet, 3*s.* each, 30*s.* per dozen, or 12*l.* per 100.
4 to 5 feet, 4*s.* each, 42*s.* per dozen, or 17*l.* per 100.

A fine general Collection of CONIFERÆ, a CATALOGUE of which will be sent gratis.

Apply to J. SCOTT, Merriott Nurseries, Crewkerne, Somerset.

To Noblemen, Gentlemen, and Others engaged in Planting.

GEORGE BAKER begs to invite attention to the following superb specimens, which are in the finest condition:—

ARAUCARIA IMBRICATA, 6 feet, 9 feet, 14 feet
ABIES DOUGLASII, 10 feet, 14 feet, 20 feet
ARBOR-VITÆ (Siberian), 6 feet, 8 feet
CEDRUS DEODARA, 6 feet, 8 feet, 10 feet, 12 feet, 20 feet
CUPRESSUS LAWSONIANA, 5 feet
" DISTICHA, 8 feet, 12 feet
CEDRUS LIBANI, 8 feet, 10 feet
CHINESE JUNIPER, 5 feet, 6 feet
IRISH YEWS, 6 feet, 8 feet
JUNIPERUS RECURVA, 8 feet
" BEDFORDIANA, 5 feet, 6 feet
PICEA CEPHALONICA, 11 feet
PINUS CEMBRA, 7 feet, 10 feet
" EXCELSA, 10 feet, 15 feet
TAXODIUM SEMPERVIRENS, 10 feet, 12 feet
THUJA GIGANTEA, 6 feet
WELLINGTONIA GIGANTEA, 5 feet
KALMIA LATIFOLIA, Standards, fine
RHODODENDRONS,
PORTUGAL LAURELS,

G. B. in offering the above perfect specimens feels assured that whoever may favour him with their kind orders, their hopes will be fully realised. Prices on application.

American Nursery, Windlesham, Bagshot, Surrey.

Notice of Removal.



PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN, Edinburgh and London, respectfully beg to intimate that with a view to facilitate their business transactions they have REMOVED from

27, Great George Street, Westminster,
to
28, King Street, Cheapside,
and
15, Lawrence Lane, E.C.

New Seeds.



PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN, of Edinburgh and London, are prepared to send out

FARM
and
GARDEN SEEDS

of every kind, and of the finest quality.

Orders for exportation executed with prompt and careful attention.

28, King Street, Cheapside, and 15, Lawrence Lane, E.C.



WHEELER'S LITTLE BOOK for 1863.

WHEELER'S TOM THUMB LETTUCE.

WHEELER'S IMPERIAL LETTUCE

The price of the Lettuce is 1*s.* per packet, post free.

J. C. WHEELER & SON beg to inform the Trade that their "Little Book" is entered at Stationers' Hall, and that they cannot allow it to be copied.

J. C. WHEELER & SON, Seed Growers, Gloucester.

Seed Trade.

JAMES CARTER AND CO, Holborn, W.C., have a few lbs. of the following to offer to the Trade:—

MELVILLE'S GARNISHING KAIL,
VARIEGATED BEET, for garnishing,
SNOW'S WINTER BROCCOLI, true,
LITTLE PIXIE CABBAGE,
NEW FEATHER STEM SAVOY,
DANVER'S YELLOW ONION.
TOMATOE DE LAYE.
HENDERSON'S PINE-APPLE BEET.

Spring Blooming Plants.

CAMELLIAS, including the best new varieties, fine plants, set with bloom buds, from 30*s.* per doz.; extra size, from 60*s.*

HEATHS, EPACRIS, CINERARIAS, and JASMINUM GRANDIFLORUM (grafted), remarkably fine plants, at moderate prices.

Also HUMEA ELEGANS, extra strong, in 6-inch pots, 18*s.* per doz.

JAMES DICKSON & SONS, Newton Nurseries, Chester.

NEW VERBENA, "RUGBY HERO."—The above beautiful New VERBENA will be sent out in May, 1863. It received a First-class Certificate from the Royal Horticultural Society on 10th Sept. last. Colour, light rose, with vivid carmine ring surrounding a pure white eye; very large truss. Each, 5*s.*; six for 25*s.* Special price to the Trade on application to

WM. HY. TREEN, Victoria Nursery, Rugby.

Wholesale Catalogue.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1862 and SPRING 1863, comprising Fruit Trees of all the leading kinds, new and selected Roses, fine varieties of American Plants, Choice and Rare Conifers, Evergreen and Deciduous Trees and Shrubs, and a fine Stock of Transplanted Forest Trees, &c., can be had free on application.

Woking Nursery, Surrey.

Larch, Quicks, &c.

GEORGE CHIVAS, Chester, offers FOUR MILLIONS of TRANSPLANTED LARCH, from 1½ to 4½ feet, of very superior quality. FOUR MILLIONS of TRANSPLANTED THORNS of various sizes, a large portion of which are exceedingly strong. Orders for 10,000 of either, delivered free at any Railway Station. A Sample Bale, containing 100 of each, 5 sizes of Larch, 22*s.* 9*d.*, and of Quicks, 15*s.*, will be forwarded on receipt of a Post-office Order from unknown Correspondents.

A General PRICED LIST on application.

To Nurserymen and Others.

FOR SALE, at PONTEY'S NURSERY, Plymouth.

50,000 SPRUCE FIR, 2 feet to 3 feet.
50,000 SCOTCH FIR, 1½ feet to 2½ feet.
50,000 PINUS AUSTRIACA, 1½ feet to 2½ feet.
100,000 BEECH, 2 years Seedlings.
200,000 SCOTCH FIR, 2 years Seedlings.
100,000 SPRUCE FIR, 2 years Seedlings.

TRUE NATIVE HIGHLAND SCOTCH PINE PLANTS.—The Subscribers have for Sale a large stock of 2-year old SEEDLING NATIVE PINE PLANTS, grown from seeds collected in the celebrated native Forests in Strathspey.

All the premiums awarded by the Highland and Agricultural Society for the cultivation of this valuable tree have been awarded to the Subscribers.

PRICED LISTS of NURSERY STOCK furnished on application. JOHN GRIGOR & Co., Nurseries, Forres.

New Seeds, Growth of 1862.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

SUTTON AND SONS are now prepared to execute orders for all kinds of FARM and GARDEN SEEDS.

The prices are lower and the quality finer than usual, owing to the very favourable harvest.

Royal Berkshire Seed Establishment, Reading.

Grape Vines.



WILLIAM BULL, F.R.H.S., F.R.B.S., has a large and healthy stock of well ripened VINES from EYES, of all the best kinds (New and Old), either for Planting, or Fruiting in pots.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The ANNUAL GENERAL MEETING of the Members of this Institution will be held at the Bedford Hotel, Covent Garden, on THURSDAY, January 15, for the purpose of Electing Officers for the ensuing year and receiving the Accounts of the Society for the past year.

The Chair to be taken at 6 o'Clock in the evening precisely.

An ELECTION of TWO PENSIONERS will afterwards take place from among the following Candidates, who make application under Rule No. 6, and whose cases have been strictly examined into and approved of by the Committee. The Ballot will close at 8 o'Clock precisely.

CANDIDATES.

ROBERT DOWDELL, aged 73 | SARAH PHELPS, aged 76
JOHN LUCAS, aged 62 | JAMES ROBINSON, aged 62
JOHN SANGSTER, aged 67.

No person will be allowed to Vote whose Subscription for the year 1862 is unpaid on the day of Election.

Subscriptions are due on the 1st January in each year.

New Subscribers paying on or before the day of Ballot will be entitled to Vote, and will receive a Polling Paper on application to EDWARD ROGER CUTLER, Sec.

14, Tavistock Row, Covent Garden, W.C.

N.B. The Polling Papers have all been issued; any Subscriber not having received one is requested to notify the same to the Secretary.

The Gardeners' Chronicle.

SATURDAY, JANUARY 3, 1863.

MEETING FOR THE ENSUING WEEK.

MONDAY, January 5—Entomological .. .. .. P.M.

"A CLASS of plants, once the glory of DRY STOVE Gardeners, is now most undeservedly neglected and forgotten." Some such remark as this was made last week, and it has excited quite a little commotion among amateurs, who are already inquiring what manner of plants these are, and what a Dry Stove may be. Although any gardener can answer those questions, yet it is as well to say a few words on the subject.

Dry Stove plants are always "succulents;" that is to say plants whose skin is wholly or in part so thick that they lose little water by evaporation. Some of them indeed have none of the usual evaporating organs, that is to say have no leaves, the surface of the stem itself being all that is provided for this most important function. Plants of the kind are placed by Nature in dry places, or in parched up countries where water rarely falls; they are able when it does fall to suck up as much as will fill their system with enough to last till the arrival of a fresh supply. With us northern people they form an unimportant feature of vegetation, rocks and the tops of walls being their usual resort; but in many parts of the world, especially Africa, they are the sole vegetation of those burning plains where, in the hot season, a European's nails split and turn back. Hence when they are cultivated they demand a treatment precisely the reverse of those thin leaved, thin skinned, soft, fast-growing species that are commonly called stove plants. Water is all in all to the latter; to the former it is only an occasional luxury. No wonder then that in the days when little was thought of a damp atmosphere, unless now and then for a treat, these succulents were the delight of every little gardener; for if they were forgotten for even weeks together, they were not much the worse for the neglect.

How well do we remember them in a great Eastern city, in the windows of poor weavers, the owners of which were as proud of a Mesembryum or a Stapelia as they now are of a Cineraria or a Balsam. How universally, in the eyes of their wealthy masters, were succulents prized as Orchids are now, with this rather important difference, that no one tired of succulents, because they were cheap and easy to grow; whereas many an Orchid grower gives up his fancy in despair because of its cost and the difficulties of management.

And now the glories of the Dry stove are departed. The names of the Crassulas, and Sedums, and Sempervivums; of Mesembryanthemums and Globuleas, and Haworthias are well

nigh forgotten: and their places are filled by strangers no better than themselves. The cause of this is not merely that craving for novelty which from all time has been the peculiar mark of the gardener, but the folly of collecting all sorts of things, handsome and ugly, to which the term succulent could be applied. Had the beauties of the race been alone favoured with the gardener's attentions, it would have been as dear to us now as 50 years ago. But all sorts of uglies were collected and petted; the most incongruous assemblages were crowded into the stove—great Aloes that never flower, frightful Euphorbias that might as well not, and detestable Stapelias that never should. To this we ascribe the downfall of our succulents. Good taste revolted from such barbarous confusion, and in spurning the worthless the worthy became involved in one common ruin.

It is right to repair the error; and we submit that the time has arrived. The managers of our great Exhibitions should bestir themselves and invite competition by ample prizes. Of "Stove and Greenhouse plants," as they are called, we are getting rather tired—*tædet quotidianarum harum formarum*—give us, good Societies, something new, do something for the humble and lowly who can't afford costly glass-houses, and have no great "vans" in which to transport huge plants like wild beasts in a travelling menagerie. Do something to encourage those who would revive the good taste that has somehow been overlaid by the nurses of plants. How delightful it would be to see in some great schedule of Prizes—

CLASS 00. SUCCULENTS IN FLOWER.

1. The handsomest of 20 species in flower, none exceeding 00 inches in height——20*l.*; 12*l.*; 8*l.*

N.B. Euphorbias, Stapelias, Cactuses, Opuntias, Melocactuses, Echinocactuses, and the like, cannot be exhibited in this class.

Why indeed should not an attempt be made to fill with pretty succulents the plant cases now the rage? They might be arranged so as to produce a delicious effect; they would be a hundred times more easy to manage than the sorts now employed for the purpose; Miss MALING'S good advice would be little needed; and above all things the fair possessor of a plant case would not have the vexation of finding, upon her return home after a little visit to a watering place, her charming pets turned to dead leaves and sticks.

Here again we solicit the aid of the Exhibiting Societies, which might very well offer prizes for—

CLASS 00. The three plant cases best filled with Succulents, whether in flower or not—10*l.*; 6*l.*; 4*l.*

We shall be told perhaps that succulents cannot now be had, the fashion for growing them having long since gone out. We do not believe in the objection. Plenty may be had in the Botanic Gardens of this country; and if not those of the Continent are accessible. Trade will find the article the moment a demand springs up. All that our great Societies have to do is to revive the taste. If they are not strong enough to do this or any similar thing, they are not worth the support by which they live.

INDEPENDENTLY of the new garden plants already adverted to (see p. 1217, 1862), the novelties of the past year have been so abundant, that a *résumé* of the more important of them may serve as a useful reminder to those who have not yet determined which to add to their collections.

The foremost place must undoubtedly be given to Lilium auratum, the gold-banded Lily of Japan, of which somewhat different forms have been produced. The gorgeous blossoms of this hardy or all but hardy Lily—which seemed to find its way into everybody's note-book, formed one of the most telling features of the summer shows. We observe that effigies of its blossoms, not badly modelled, have already appeared amongst the treasures of the artificial flower shops. As to the plant itself, price alone must determine how soon it is to become "everybody's" flower. Another decided acquisition amongst hardy flowers is the Ourisia coccinea from Chili, a perfectly hardy herbaceous perennial, with leaves like a Heuchera, and scarlet flowers like those of Pentstemon, which cannot be other than a desirable introduction. The Japanese Polygonatum oppositifolium albo-lineatum is another charming perennial, with its rubicund stems, and beautifully white-striped leaves. The best annuals have been the West Australian Rhodanthes—maculata and atro-sanguinea, two perfectly distinct and very elegant "Everlastings," the former of which will probably be the greater favourite of the two.

Amongst hardy shrubs we must give the first place to Lonicera brachypoda aureo-reticulata, a beautiful Japanese Honeysuckle, introduced by Mr. FORTUNE. It is a free-growing climber, having the leaves distinctly netted over with golden veins. Another fine thing is Mr. ANDERSON-HENRY'S Clematis reginæ, a breed from lanuginosa, which being of garden origin ought strictly to have come into our former notice. It is a valuable acquisition, producing very large full-formed flowers of a light mauve purple. Amongst the Japanese importations have appeared several very distinct and desirable Maples (Acer), some with variegated, some with finely dissected leaves, and all of them remarkable for their elegance. The Aucubas have been augmented by two particularly handsome variegated forms — limbata and picturata, in one of which the border of the leaf, and in the other the centre is yellow, the rest of the surface being green. Besides the variegated forms of Osmanthus ilicifolius, which appeared in 1861, there has been added a dwarf variety called variegatus nanus, in which the leaves are effectively and prettily variegated with dark and light shades of green, quite unlike the ordinary white and yellow markings of variegated plants. A beautiful dwarf-habited Conifer, with something the aspect of a tree Lycopod, called Thujopsis lætevirens, has also appeared in Japanese collections.

The best greenhouse flowering plant of the year, in our estimation, is the white-flowered Lapageria, not indeed now known for the first time, but we believe not previously bloomed in England, and therefore unknown to English cultivators generally. Of this we need only say, that it is a fitting companion of the better known crimson Lapageria, with wax-like flowers of extreme delicacy. Another remarkably fine plant in this category is Swainsona violacea. It is more vigorous in habit than the rest of its family, and produces very long racemes of large deep mauve-purple blossoms, the keel portion of which is curiously convolute. Sarmienta repens, a dwarf barbaceous Chilian creeping Gesnera, with scarlet Mitraria-like flowers, will be a very useful basket plant for greenhouses; and another Chilian subject, Calceolaria ericoides, a most distinct looking thing amongst Slipperworts, is likely to be an excellent autumn-blooming decorative plant for the conservatory. We have also seen a nicely variegated form of the plant called Ophiopogon Jaburan, which is a very neat and good looking dwarfish perennial, and forms a nice tuft in the greenhouse, though probably more hardy. The red-veined Ficus Cooperi, from Australia, is another greenhouse plant desirable in its way.

Several very choice greenhouse Ferns have been introduced, the most striking and valuable of which are Polystichum concavum from Japan, which is likely to prove one of the polystichoid Lastreas, and Lomaria gibba from the Australasian regions. The first has spreading light green, much divided fronds, remarkable for the concave upper surface of the ultimate divisions; the latter is of Palm-like habit, with fine arching pinnatifid fronds, the divisions broader in those which are sterile, after the fashion of other Lomarias. To these may be also added Adiantum chilense and A. sulphureum, the latter of which is styled Golden Maidenhair, on the strength of a dusting of yellow powder on the lower surface of its fronds; but though this feature is not so marked here as in the well-known Golden Gymnogrammas, A. sulphureum as well as its congener, chilense, is an extremely welcome addition to our garden collections of Ferns.

Amongst stove Orchids some good things have appeared. Perhaps Phalænopsis Lowii, which has already been formally noticed in our columns (1862, pp. 955, 979) is one of the most interesting; though it is surpassed in beauty by such plants as Cattleya amethystoglossa or by Cattleya Warcsewiczii delicata, a charmingly delicate and beautifully grown variety, which appeared about the same time. Finer perhaps, though not we believe brought out at any of the exhibitions, is a remarkably rich coloured Lælia to be called L. Turneri, the flowers of which are unapproached for the intensity of the rose purple of the lip, the rest of the flower being deeply suffused with purple. There have been exhibited several interesting Dendrobes, especially D. Lowii, a yellow-flowered Bornean species, very distinct in appearance, having a red-veined lip, bristling with hairs along the coloured veins; D. infundibulum, a Moulmein plant something like formosum; D. nodatum or Aphrodite, a cream-coloured Moulmein plant with moniliform stems, the lip of the flower deeper coloured, and marked with a pair of crimson spots; and D. cucullatum majus, a very fine thing in that way, remarkable for its large rounded concave pubescent lip. Cypripedium Stonii, a new Bornean species with long narrow petals, and a very obviously slipper-formed lip, has been flowered and exhibited by Mr. Day. A very superior form of Disa grandiflora, named superba, and differing both in the form of its parts and in the fulness of the colouring of its veiny hood-like dorsal sepal, has been exhibited by Mr. Leach, who has this hitherto intractable plant completely under his thumb. Finally, in the Royal Horticultural Society's garden, Physurus fimbrillaris has been grown so as to have been critically pronounced the best of the silver-veined Anæctochiles.

The most notable amongst stove plants with ornamental flowers stands Clerodendron Thomsonæ, from Calabar, a slender climbing shrub, in whose blossoms the calyx is enlarged and coloured white, while the protruding corolla is crimson. Foliage plants requiring stove heat have been more numerous. Sphærogyne latifolia is one of the grandest to be set down to the year's account. It is a companion plant for Cyanophyllum magnificum, and perhaps in some points superior to that noble subject. Two very telling Arads have been brought out, namely, Caladium Lowii, with bronzy leaves, which have the appearance of being half-way between Alocasia metallica and Caladium Veitchii; and Alocasia zebrina, which, though green-leaved, is remarkable for the curious ornamental variegation of its erect leaf-stalks. These Alocasias and Caladiums, by the way, are apt in gardens to be named at random, and we do not know that either of the two we have now mentioned under the names they bear have been critically determined. Musa vittata has been largely exhibited in the early part of the year, and proves scarcely equal to what was expected of it, though it is not improbable that excessive propagation and strong forcing may have deteriorated it, and that when better established and less stimulated it may improve. The Royal Horticultural Society has obtained from its collector in Brazil a pretty dwarf melastomaceous herb, whose leaves are dotted over with pearl-like white spots; this, which is called Bertolonia margaritacea, will be worth cultivating.

The most remarkable stove Fern is Litobrochia nobilis. This is like a giant L. palmata, the great lobed fronds measuring upwards of a foot across the lamina: it is a noble plant. Cibotium princeps is another good Fern, but has not been produced in a mature state. Adiantum Féei (the A. flexuosum of Hooker) remarkable for its semi-climbing habit, and for the dense velvety pile on its zigzag rachis—a feature unknown in other Maidenhairs, has also attracted attention; and finally one or two persons have brought out the charming little Asplenium myriophyllum, raised by Linden, and distributed under the false name of A. flabellulatum.

This very hasty sketch will be sufficient to show that the acquisitions of 1862, which have not been few, have at the same time not been unimportant.

New Plants.

254. PRUMNOPITYS ELEGANS, *Philippi in Linnæa*, vol. xxx. p. 731.

UNDER this name, which literally signifies Plum-fir, Prof. Philippi of St. Jago in Chili has published an account of a very fine Conifer that has been raised by Messrs. Veitch. He describes it as a rather large tree with linear, distichous leaves, inhabiting the inner Andes of the province of Colchagua. It bears, he says, yellowish green drupes about ⅔ of an inch long; and its wood, which is handsomely veined, is in request among cabinet makers. The native name of the tree is Lleuque. The drupes or "Plums" are eaten when ripe as well as the stone they contain.

Whether this genus is really distinct from *Podocarpus*, we do not pretend to say. There is no doubt about its being nearly allied to the *Podocarpus andina* of Pöppig, of which we believe we have a specimen from the Paris Herbarium marked "No. 936, Juniperus, Peru, Dombey." Indeed we should have thought it the same had not Philippi described the fruit as ovate, while Pöppig expressly states that of P. andina to be globose.

Messrs. Veitch's seeds were collected in 1860 on the Andes of Chillar, at an elevation of 5000 to 6000 feet, by Mr. R. Pearce, who describes the tree as a pyramidal evergreen, 40 to 50 feet high, with a dark glossy green foliage, and much the appearance of Abies Douglasii.

DIES ORCHIDIANÆ.—No. II.

(*Continued from p.* 1196, 1862.)

TAKING Messrs. Loddiges' collection of Orchids as a fair example of what such things were some 30 years ago, and comparing them with the collections of the present day, many striking contrasts might be pointed out. Of these, perhaps the most remarkable occurs in connection with what we now term "Air-plants," κατ εξοχην—*i.e.* members of the true aërial genera Aerides, Saccolabium, Vanda, Phalænopsis, Angræcum, &c.—and which, though they claim a good moiety of the space in all our modern Orchid-houses, were in 1832 chiefly "conspicuous by their absence!" Messrs. Loddiges mustered only Vanda Roxburghi, V. multiflora, Renanthera coccinea, Aerides odoratum, Sarcanthus paniculatus, and S. rostratus, and if to these we add Angræcum eburneum from Chiswick, and Saccolabium guttatum from Kew, we shall have mentioned all that could have answered to their names in those days. But if there were then but few air-plants—properly so-called—there was at least an abundance of what have now almost disappeared from our collections—to wit the Cataseta. Heavy, swollen, awkward-looking things they certainly were, with their pseudo-bulbs naked for half the year, and strange, hideous and disagreeably-scented flowers. What wonder then if in this fastidious age they should have fallen into such utter disrepute that the other day when Mr. Darwin urgently required some specimens for investigation, it was with the utmost difficulty, and not without a search though half the gardens in England, that any could be procured for him! Yet time was when even the debut of a Catasetum could make a sensation in the horticultural world, for Dr. Lindley declared (*Collectanea Botanica, ann.* 1821) when C. tridentatum blossomed for the first time, that it was "by far the most remarkable Orchideous plant that had ever been seen in a cultivated state!" But with the Cataseta—which were giants in those days—a host of pigmies have also disappeared. Your

Orchidist of 1832, in order to eke out a list of a hundred species—then considered a high figure—was obliged to impress into his service a whole brigade of dwarfs contributed by the genera Pleurothallis, Stelis, Octomeria, Isochilus, Dichæa, Dicrypta, &c., the very names of which will sound strange to the ears of modern cultivators. And even of the four great genera that formed the staple of all collections, *i.e.* Epidendrum, Maxillaria, Oncidium, and Dendrobium, the last only has stood its ground. The first, viz., Epidendrum, holds on almost entirely by means of E. vitellinum and E. verrucosum*; the second—Maxillaria—in losing its section Lycaste has lost nearly all that was worth growing; while the third—Oncidium—can now scarcely count up half-a-dozen popular favourites, and is rapidly waning before the rising star of Odontoglossum. As to the other genera that once held a respectable position, the Bletias may be said to be going fast, and the Geodorums already gone; while with the Erias, Bolbophyllums, Pholidotas and Megacliniums "occupet extremum scabies" is the word. On the other hand certain genera are now in repute that were quite unknown at the time of which I write, such for example as Miltonia, Burlingtonia, Lælia, Trichopilia, Paphinia, †, Huntleya, ‡ &c. Then again there is Cypripedium, which although not by any means a new genus—indeed it is over a century old—has only within the last few years come prominently into notice. Those two veterans C. venustum and C. insigne were, up to the year 1837, its sole representatives in our stoves. Mr. Cuming then brought us C. purpuratum from the E. Indies, to be speedily followed by C. barbatum from Nepal. The wonderful C. caudatum from South America was the next to appear, fairly distancing in length of tail even the far-famed Angræcum sesquipedale itself! From the same hemisphere we have the pretty C. Schlimii, now flowering in more than one suburban collection, and we might have the noble C. Hartwegianum (*Xenia Orchidacea, t.* 27) if some staunch collector could but be induced to go and fetch it for us. Still the East would seem to be the favourite home of this extraordinary genus, for from thence have been lately added those admirable species C. Lowii, C. Fairieanum, C. hirsutissimum, C. villosum (a fine plant of this was knocked down to Mr. Veitch the other day at Stevens's Rooms for 75*l.*), and C. Stonei—the last perhaps the best of all. But besides the above there are two or three other unpublished species, as well as varieties innumerable, already in our gardens, and further important reinforcements are expected to reach us in the spring, nor do I hesitate to prophesy that before the end of 1864 we shall have at least two dozen distinct kinds upon our list. By that time I hope that the Royal Horticultural Society will deign to offer a liberal prize for "the best Cypripedium." Indeed, looking at the stages of Orchids exhibited year by year at our great horticultural shows, I cannot but think that a much improved effect might be attained if, instead of being jumbled together in a mixed incongruous multitude of all habits, these beautiful plants were collected into groups; air-plants being shown against air-plants, Cattleyas and Lælias against Cattleyas and Lælias, and so on. As at present arranged, the mixture destroys the variety. You walk for 50 or 60 yards along a splendid bank of Orchids, but before you have reached a quarter of the way it is 10 to 1 you have seen them all! For what remain are merely a repetition of the same kinds, *e. g.* Aerides, Cattleya, Saccolabium, Lælia, and Phalænopsis, followed by Aerides, Cattleya, Saccolabium, Lælia, and Phalænopsis, over and over and over again. But separate these into groups, and then the interest will be sustained by a constant succession of new forms and new effects. The office of judge, moreover, would, I am sure, be greatly promoted by the change I have ventured to suggest. *Serapias.*

* How comes it to pass that there are two Epidendrums under the style and title of E. verrucosum, viz., the one so called by Swartz, a small caulescent species, with an umbel of green flowers, introduced from Jamaica in 1524. The other, named by Professor Lindley, a pseudo-bulbous kind, with a splendid panicle of rose-coloured flowers, introduced 20 years later from Mexico. I have seen a magnificent drawing of the latter from a specimen that flowered in Mr. Turner's collection, which has been prepared for Mr. Warner's work.

† There are only two Paphinias recognised as such, viz. P. cristata and P. tigrina, but surely the so-called Cycnoches barbatum, which has nothing (but an arched column) in common with Cycnoches and everything in common with Paphinia, ought to be referred to the latter genus.

‡ The good Professor Reichenbach seems to be making sad havock with the Huntleyas. His genera Bollea, Warscewiczella, and Pescatorea appear to me to be all referable to Huntleya. Besides, what has become of the genus Huntleya itself? To extinguish a genus during the lifetime of him in whose honour it was named (for Mr. Huntley still lives) seems o mewhat harsh.

PLANTS OF PERU.—No. VI.

(*Continued from p.* 644, 1862.)

CINCHONAS.—On the 2d of December I sent an Indian to the Sierra with a letter for Dr. Taylor, informing him that I considered the plants would now bear removal, and requesting his co-operation in the work. The Indian reached the Canton of Guaranda on the 3d, where he met Dr. Taylor on his way to Limon, which he succeeded in reaching, in a very exhausted state, on the 5th instant. On his arrival, I commenced taking up the Cinchona plants,—being careful not to injure a single fibre—and packed them in cylindrical baskets, similar in form to a cask, but open at both ends. The plants were all placed in the baskets with the roots one way. In packing, the leaves and stems were carefully enveloped in Moss, procured from the adjoining forest, and previously well dried in the sun. A cluster of damp Moss was likewise placed around the roots; and they were afterwards bound firmly together, to preserve them from injury during the journey to Ventanas. The object in packing the leaves in dry Moss, was to prevent them from rotting or "heating," on their way through the damp, hot forests. About fifty plants were put in each basket, the ends of which, when packed, were wattled by (Sogas) the trailing stems of Passion-flowers and Bignonias. When packing was finished, it was seen that eight beasts would be required for the transportation of the plants—the number of baskets being sixteen. Dr. Taylor, having, with some difficulty, procured the necessary number of animals, we left Limon early on the morning of the 9th of December. The pathway led, in a zigzag manner, down steep forest-covered slopes, here and there intersected by large stones and trunks of fallen trees, which caused our mules to run frequently into the wood, from whence they were ultimately brought back, after a great deal of searching amidst the wet dripping forest, and great clumps of Arads. In one of those raids, a mule happened to get entangled in the branches of a tree, which was thickly hung with climbers, and these becoming fixed to the baskets, they were almost torn to pieces as the animal was endeavouring to free itself. Shortly afterwards, on descending a steep, muddy slope, another mule fell, and rolled over several times, crushing the baskets with which it was laden to pieces. By means of these two accidents alone, forty plants were lost.

About 4 o'clock in the afternoon we reached an open spot in the forest at the base of the slopes over which we had passed with such difficulty, and formed our encampment beside a little stream, the banks of which were fringed with thickets of lofty Bamboos. On removing the baskets from off the mules, I first repaired those which had been rolled in the mud, and afterwards strengthened all the others. Early on the morning of the 10th we resumed our course, without meeting with any accident—for we had now entered on the great Guayaquilian plain—and about dusk came to a place called "Wamaychu," a name of Indian origin, which, I was told, signifies the "eagle's water. We found at this place several persons, one of whom informed us that Mr. Spruce—who had gone from San Antonio to Guayaquil, and afterwards ascended the river—was at Ventanas, awaiting our arrival. It was nearly nine o'clock next morning ere we got on our way, on account of the great difficulty we had in finding the mules, which had been grazing all night beside our encampment in a great forest of Gynerium saccharoides, the shoots of which were from 15 to 18 feet high. After loading our mules we pursued our journey, hoping to reach Ventanas before the close of the day. The pathway was in tolerable condition, but the heat was oppressive; and we were, besides, frequently annoyed by a kind of stinging ant, which is furnished with wings, and inflicts a wound ten times more painful than a sting from our common English wasp.

It was astonishing to see the immense length and thickness of the various Climbers; and how they twined round the trunks, and climbed to the tops of the highest trees, from whence spread out a vast number of shoots, which, after running along the primary branches, again throw out laterals; and, owing to these becoming entwined with the branchlets, and with one another, a perfect mantle of network is formed, which, when viewed from beneath, appears like the ropework or rigging of a ship. About 5 P.M. of the 12th we came to Ventanas, where we found Mr. Spruce, who had been waiting there for us for more than a fortnight. The baskets containing the plants were deposited in an adjoining shed for the night; and the mules were sent back in charge of two Indians, who had accompanied us from the slopes of Limon. Early next morning the plants were taken down to the river side, and put under an awning of Maranta leaves previously prepared for them. I then opened them out—one basket at a time—and planted them close together in the Moss in which they had been packed. On being opened out, the plants seemed as fresh as when packed at Limon; but, before they had been more than half-an-hour in the Moss, every leaf was drooping, and the plants appeared to be already past recovery. Every one who came to see them said they would die; and I am almost inclined to think Mr. Spruce was of this opinion also. When the plants were all put in the moss I placed a man with a handful of twigs and a pitcher of water, to sprinkle them without intermission until sunset. In a few hours this simple remedy restored their appearance. I then went in search of soil, and selected some, covered with healthy Grass, from a mound on the bank of the river. Mr. Spruce was anxious to have soil from Limon, but that was an impossibility; for, before we left with the plants, the rainy season had set in, in consequence of which most of the people had left the Sugar Cane farms, and gone up to the mountains—where they usually reside during the wet season—taking their mules and bullocks with them. After excavating a considerable portion of the soil, it was spread out to dry, and turned every hour, in order to have it ready as soon as possible; and a similar quantity of decayed leaves, taken from the neighbouring forest, was treated in the same way. The object in drying the soil was to render it more porous and friable, and to destroy any vegetable life that might be in it—such as roots, fibres, &c. Next day the soil, exposed to the fierce rays of the sun, was dry as dust; but meantime the cases were being put in order, when they were afterwards put on the raft for the reception of the plants.

On the following morning, at daybreak, with the thermometer standing at 75° Fahr., I mixed about an equal quantity of the dried soil, and decayed leaves together; and then moistened the compost with water, and afterwards carried it to the raft. I then tested the stability of the cases by pouring water into them, and by this mode was enabled to make the bottoms perfectly watertight, a proceeding absolutely necessary, as, during the voyage, the cases might be standing for several hours, or perhaps days, in 5 or 6 inches of salt water.

When the cases were all tested, I took one, and after putting into it about 5 inches of soil, without any rough preparation in the bottom, for that would have made the cases unnecessarily heavy—a thing by all means to be avoided—I planted the plants in rows, keeping the soil as loose as possible, and to the roots of those plants which had but few fibres I added a little sand, in order to hasten their running into the soil; and finally, as the cases were planted in this manner, I sprinkled the plants with water, and then spread over each case a piece of cloth previously dipped in the river. The cases, on being covered with the wet cloths, soon became filled with vapour, which, in a few hours, greatly improved the appearance of the "Red Bark" plants. In two days afterwards, the cloths were gradually removed from off the cases—one hour in the morning, and two hours in the evening—for the afternoons were cloudy; but, after a few days, they were taken off altogether. However, on several occasions subsequently, during hot suns, I shaded the plants for two or three hours in the middle of the day; but the cloths were not placed on the cases as before, they were elevated about four feet above them, on a temporary framework consisting of bamboos and Salix Humboldtiana, both of which grow abundantly on the banks of the river. *Robert Cross, Southern Slopes of Chimborazo, March,* 1862.

HUE AND CRY.

IN the last issue of the Transactions of the Edinburgh Botanical Society mention is made of the presentation of seeds of several Grecian Piceæ, and amongst others of P. Reginæ Amaliæ from the mountains of Arcadia; P. Apollinis; P. Panachaica, a new and most beautiful species from Mount Boidas; and a new sp. from Mount Draco, 6000 feet above the sea, and where the temperature falls 4—5° below freezing point. What are these new Conifers? Have plants been raised from the seeds? and where are they to be met with?

In the same publication Captain Playfair is said to have sent seeds of an undescribed species of Poinciana, found at Aden, and which had been named P. Playfairii by Dr. Anderson. The plant is said to be very handsome, with pure white flowers, changing to pale buff. This seems to be worth inquiring about. Has any one succeeded in rearing it? *M.*

Home Correspondence.

Seedling Fruits.—My old friend Mr. Rivers, in his letter on this subject of the 20th ult., says:—"In South America I have heard that Peach trees, the second year from the stone, bear fruit." Allow me to say that in South America no Peach trees are grown. Most likely Mr. Rivers meant to say in the south of North America; and permit me to add that this mistake is often made by others as well as by Mr. Rivers. The best Peaches in North America are raised in Kentucky; but my opinion is that although our American cousins boast of eating the best Peaches on the globe, they are very inferior to those which we eat in France. Coming, however, to the point in question, I must say that very often stones thrown away in our gardens produce Peach trees, which, without any care, carry fruit the second year; this has been the case with me. Many of our horticulturists now prefer Peach trees raised from stones to those that are grafted, because they are more robust and stand the drought of our climate better, and particularly the dryness of our sandy soil, which, after all, is very suitable to the Peach tree. In the environs of Lyons particularly we have a great many Peaches raised from stones, and they are generally of first-rate quality. They are known under the general appellation of Pêches d'Oullins, although they proceed from early or late sorts. A very good Peach raised from a stone, and introduced some years ago to Grenoble by a M. Michal, and called Pêche de Syrie, reproduces itself pure from stones. In the South of France Peach trees are seldom raised otherwise, but there they are not equal in quality to those grown in an intermediate climate—the excess of heat destroys the flavour. *John Sisley, Rue St. Maurice, Monplaisir, Lyons.*

The Galvanised Iron Question.—Among the numerous observations which have appeared on this subject, I am

not aware that any one has attempted to account on scientific principles for the observed facts. No one has yet given us any reason why the material should be injurious to plants brought in contact with it. With your permission I will suggest an experiment, which being so consistent with familiar facts, will be readily admitted without actual trial, and which may go far to settle the question. If a man sit for five minutes upon a well heated gridiron, or upon a gridiron cooled down to zero, the results will in both cases be very much alike. Palpable evidence would be obtained that, when kept in contact with metallic conductors of heat at extreme temperatures, living matter is destroyed. The case of the tender shoot of a Peach tree trained upon a trellis of galvanised iron, is in winter the case of the refrigerated gridiron. At this place we have trellises of galvanised iron which are not injurious, but they are not exposed to extreme cold. When so exposed, painting the metal would of course to some extent be a protection to the plants. *John Cocks, Gardener, Clapham Park.*

Plants in Bloom at Little Efford, Plymouth.—The following were gathered in our garden on Christmas-day, viz.:—Myrtles, in flower; sweet-scented and purple Verbena, Calceolaria, two varieties of Heaths, Ageratum, single and double White Violet, three varieties of Purple Violets, Geraniums, double Blackberries, Polyanthuses, Berberis Darwini, fruit of Benthamia fragifera, China Roses, various Chrysanthemums, Intermediate and Virginian Stocks, Fuchsia Dominiana, Mignonette, various Antirrhinums, Anemones, Trumpet Honeysuckle, yellow Jasmine, Laurustinus, Alyssum, and scarlet Rhododendron. *G. H. S.*

Badly Managed Vines.—Wonders will never cease. In your last Number is an article under this head, in which the depth the Vines are planted, the material and purpose the border is used for, are all set forth. In these particulars, however, there is nothing remarkable; but the statement respecting a Vinery being shut up for weeks together in spring and summer under a scorching sun, completely outstrips us so called practicals, who make the *modus operandi* of airing our constant study. Perhaps "H. H." will be kind enough to explain what he means by the Vines being pruned twice a year, and whether the glazing is complete or not. Never during my experience have I heard or met with such a case; on the contrary I have known instances in which there was more than a third of the glazing deficient in a Vinery, and the crop which was ripe in the end of September was all that could be desired as regards quantity and colour. *W. McLellan, The Gardens, West Lodge, near Barnet.* [Mr. McLellan evidently misunderstands our correspondent's meaning; the case in question was merely recorded to show how badly Vines may occasionally be treated and yet bear satisfactory crops.]

A Cotton Tree that behaves ill.—Last spring I planted some seeds of a Cotton tree which I had from Ceylon. The pod is about 4 inches long, containing some silky cotton, some of which I have enclosed, also a leaf from the young trees. I believe the botanical name is Bombax Malabaricum, but about six weeks ago the young trees began to turn brown at the bottom, which appearance gradually covered the whole stem, which then shrivelled and dried up. They were grown in a garden frame until August, then removed into a greenhouse, and had no artificial heat until the latter end of October, which ranged between 60° and 70° in the sun down to 45° and 50° at night. Can you inform me where my management was wrong, and the kind of soil I ought to grow them in? *R. P.* [Bombax is a tropical genus, requiring the treatment of the tenderest stove plants. Your management did not approach what they demand.]

Grape Growing in Norfolk.—I do not marvel that your account of Mr. Hardie's Grape growing should have taken your correspondents "N. N." and "H. G." by surprise. The wonder is that the whole gardening fraternity has not stormed you for a "full and particular account" of the whole affair. It has hitherto been considered good enough work for a gardener to grow a crop of Muscats after April, from wood grown and ripened the previous year, but this jog-trot system bids fair to become antiquated, for what Mr. Hardie has done may be done by any other ordinary man. For all practical purposes one hothouse builder or nurseryman is just as good as another, so no merit can lie in that direction; the whole credit therefore must consist in the management, which must be discovered if it cannot be revealed. The challenge "How many men are there who could have performed such a feat?" must be extensively accepted by Grape growers to vindicate their own honour, and if we don't get Grapes we may get something as good or useful. No Grape grower would find any difficulty in cutting Grapes out of a house the first year, but to do it after the manner Mr. Hardie is said to have done is worth a trial. *A Cumberland Gardener.*

Orange Trees.—I would feel obliged by the opinion of some of your correspondents as to the reason why so many of the leaves are dropping from my large Orange trees at this season. It may, however, be necessary first to give a short history of my trees. About the middle of June last they were brought from the neighbourhood of Paris; at Havre, they stood on the quay for 14 days. Previous to being shipped for England I went to take them in charge, which was on the 28th of June. When I first saw them at Havre, I mentioned to my employer (who was there), that owing to the strong winds and dust to which they were subjected they would be injured. About the middle of July they were on board a steamer, and had a good passage to England. I ordered the men to keep the hatchings of the ship off, so as to admit as much light and air as possible, and at the same time they received no sea spray. At Middlesborough we got them safely landed from the ship, on railway rollers by steam crane, but owing to their great weight and size, we had the greatest difficulty in bringing them from Middlesborough to this place, neither railway arch nor bridge would allow them to pass; the first difficulty that presented itself, and that more than once, was the telegraph wires crossing the road; however, with the assistance of long ladders and cross poles we managed to get pretty safely under them. The greatest drawback in our journey was the endless number of tree branches that overhung the road; in many instances I ordered the men to climb the trees and cut the branches off, but with all our care and anxiety to get them safe here, they were sadly nipped when they get to their journey's end. Having got them at home they were placed on the lawn in the most sheltered situation we could find; there they stood till the 15th of September, when we placed them under a wooden house built for them. The dimensions of the house, which was all double boarded, were—length, 64 feet; height, 24 feet; width, 22 feet. It was heated by a stove. The front and ends are glass and wood, and the back dark, as is also the roof. Now I am, as you may suppose, most anxious about the welfare of these trees, and how I can improve their at present tattered appearance is what I want to know. Three out of the lot are worse than the others; these three had the worst of the land carriage. We never use fire heat except during severe frost, when we keep the thermometer at from 40° to 45° Fahr. Some of them are very fine specimens, being about 20 feet high and 12 feet in diameter. Six of the trees and soil weigh respectively 2 ton 3 cwt.; but about 50 are of smaller dimensions. Both large and small are losing many of their leaves, indeed several of the smaller ones are completely naked. What therefore can I do to restore them to health? *A Constant Reader, Darlington.*

Isometrical Drawing.—Allow me to recommend to your correspondents Mr. Sapwith's little book on this subject. It is the best and cheapest (4*s.* or 4*s.* 6*d.*) that I know, and ought to be in the hands of all young gardeners, but few of them, I am sorry to say, give their attention to architectural drawing, and still fewer, I believe, are acquainted with the merits of this particular kind of drawing. *W. Craw, Enville.*

Exquisite New Pear.—In your Paper of Dec. 12, 1857, an account was given of three seedling Pears which I had raised from a cross between Marie Louise and Gansel's Bergamot, and you closed that article with the following sentence—"What will the third of the three seedlings prove? It has not yet fruited." I am happy to tell you that this year (for the first time) that tree brought fruit to maturity, but, owing to untoward accidents, only a single specimen. This was very similar in appearance to its sisters. Its weight was 8 ounces, and it ripened about 10 days ago. Mrs. Huyshe took too much care of it, and it was kept in too warm a place, or in all probability it would have remained for three weeks longer, but it proved to be decidedly superior to either the Victoria or Bergamot (its sisters). It was tasted by seven persons with a good specimen of the Victoria as a test, and although they did not know at the time which Pear they were given to eat, the unanimous decision was in favour of the new seedling, and given without a moment's hesitation. Almost all these persons who tasted it, were good judges of Pears, three of them especially so. Two of them said that it was the best Pear they had ever tasted, and they were all astonished at the excellence of its flavour. Now I know that much reliance cannot be placed on a single specimen, but looking at its large size and excellent flavour I feel convinced that it will prove quite equal, if not superior to either of its sisters. I must apologize for troubling you with this statement, but from the observations you were kind enough to make on the subject in the *Gardeners' Chronicle* just alluded to, I cannot but imagine that you may feel interested in knowing the result of the fruiting of the third seedling. It has been named "Huyshe's Princess of Wales." *John Huyshe, Clysthydon Rectory, Collumpton.*

Black Alicante Grape.—As the merits of this Grape have been discussed by your correspondents, I beg to forward you a sample for your inspection. The account that Mr. Petch gave of it in your Paper, at page 1125, exactly corresponds with my experience. It is the freest setter of any kind of Grape that I know, and one of the best keeping sorts in cultivation. *J. B.* [And let us add one of the handsomest and richest flavoured.]

Foreign Correspondence.

HOW LADIES CAMP OUT IN BRITISH COLUMBIA.—After a short introduction to the inside of a comfortable looking little tent, we were summoned forth to supper by candle light under the trees (which I must tell you are not large here, but stand closely together, and with their thin drooping branches form, as it were, a series of bowers). Here we tasted the much libelled Beans and Bacon, which I thought excellent. We had hot tea and cold beef, hot Potatoes and cold butter, good bread, dough cakes, hot eggs, and I know not what other luxuries. Supper being over we retired to a glorious log fire, which served alternately for kitchen and drawing room. Bed time soon arrived, and my companion's husband instructed us how to make our beds, and after assuring us we had nothing to fear, that a watchman and a dog kept guard all night, while he and his brother would be in a tent close by, he bid us good night, and left us to our own cogitations. I had at once noticed in the tent a double-barrelled gun and a brace of revolvers, and knowing also that thousands of dollars were kept in a certain portmanteau there, we were not much inclined to sleep. I should tell you that the floor of the tent was thickly strewed with branches of the Douglas Fir, which smelt most pleasantly aromatic. Over these our beds were made of thick blankets, with our carpet-bags at the head for pillows. I drew myself well under the blankets and tried to sleep, but what with the jingling of the bishop's bell-mule and others trotting at its heels round our tent, as it seemed to me with great danger of their not seeing the canvas and of galloping over us; and what with other strange sounds and feelings (very like flea bites) it was almost dawn when I became unconscious, and awoke to find it a wet drizzling morning. This was unfortunate, but we had our breakfast *al fresco* all the same, and it being Sunday we all attended church service, held by the bishop under one of the neighbouring trees. The quiet earnestness of the bishop, and the reverent demeanour of all present, were subjects enough for a striking picture; I think I never shall forget it. After service the bishop and Mr. —— joined us, and we all strolled together down the fine new road now being made by Mr. Trutch, here blasted from the rocks and there built up with the granite fragments to bring it all to the same level. *Our Own Correspondent, Sept.* 20, 1862.

Societies.

LINNEAN: *Dec.* 18.—G. Bentham, Esq., President, in the chair. The following papers were read:—1. "On the form of the vascular fasciculi in certain British Ferns," by A. H. Church, B.A.; communicated by Dr. Francis. The author observed that the distribution of the vascular tissues in the stem and stipes of the British species of Ferns had been made the subject of much interesting study, and the results of such inquiries, "possibly affording criteria of generic if not of specific difference," might tend to further changes in the nomenclature of the Filices [a consummation devoutly *not* to be wished]. Of the genera Polystichum and Lastrea, as understood by Moore and many other authors, and co-extensive with Aspidium and Nephrodium of Hooker, the author had examined transverse sections of all the generally received British species, and many of the varieties, and in two only (L. Thelypteris and L. montana) was any material departure observed from the common arrangement of the vascular fasciculi disclosed by a transverse stipital section of L. Filix-mas, for example. In L. Filix-mas it was explained that the larger terete fasciculi of the stipes show an included irregular oval figure with a hooked or incurved apex; while in L. Thelypteris the fasciculi are compressed, and the included tissue forms a thin flat plate, representing in section a slightly wavy linear figure, which in L. montana becomes more curved and sigmoid, taking the form of the Greek Σ. The conclusions drawn from the observations detailed in the paper were:—1. That the disposition of the vascular tissue in all the British varieties and indistinct species of Hooker's genus Nephrodium is identical. 2. That there is no marked distinction between the genus Aspidium (Polystichum, M.) and the genus Lophodium (Lastrea, M.), in this particular. 3. That the genus Lastrea of Moore contains two British species, and many foreign ones, which possess a totally different arrangement of their vascular tissue; and that this fact, taken in connection with the other previously recognised outward difference of these very same species, almost warrants their removal to another genus. 4. That genera whose outward characteristics are conspicuously distinct exhibit marked differences in the arrangement of their vascular fasciculi, which closely allied genera do not. [To which we must add, 5thly, as proving from the author's own words in his remarks on Osmunda regalis, how useless these characters are for even specific distinctions:—"Not only do the various foreign forms of this plant exhibit the same disposition of the vascular tissue of the stipes, but an identical arrangement in species of Osmunda generally thought to be distinct, such as O. Claytoniana." That is to say, two perfectly distinct species show the same arrangement of the vascular bundles.] In a note the author adds, that in the genus Lastrea L. æmula (recurva, fœnisecii) with its very compound fronds of almost deltoid outline, its dark ramenta, and the trilobed outline displayed by a transverse section of its stipes, passes by nearly insensible gradations through L. dilatata and its slightly divergent varieties, through Mr. Westcombe's new form, L. scotica, through the forms of L. glandulosa, L. spinulosa, and L. uliginosa to L. cristata with its simpler narrow fronds, its pale concolorous ramenta, and its quadrangular section: the disposition of the vascular fasciculi remaining nevertheless nearly identical in the whole series.

2. "On Welwitschia mirabilis, a new genus of Gnetaceæ," by Dr. J. D. Hooker. In this paper Dr. Hooker gave a complete historical and scientific account of this very remarkable vegetable production, the most interesting probably which has been brought to notice since the discovery of Rafflesia. The paper was accompanied by a series of admirable figures by Fitch, and is to be shortly issued in the Transactions of the Society. The first notice of the plant was contained in a letter from Dr. Welwitsch to Sir W. J. Hooker, dated St. Paul de Loanda, August 16, 1860, which was communicated to the Society, and was published in its Journal. The plant was found on an elevated sandy plateau near Cape Negro (lat. 15·40 S.) on the South West coast of Africa. In the autumn of 1861 he sent to Sir W. Hooker, both drawings and specimens of the plant, the latter collected in lat. 24° or 25° S., about 500 miles south of Cape Negro. Subsequently Dr. Welwitsch sent two fine young specimens of the trunk, flowers, and cones with unripe seeds, together with his original drawings. In the early part of the present year, Mr. J. J. Monteiro sent to Dr. Hooker specimens of the trunk, with cones preserved in spirits. These were collected at Mossamedes, the Little Fish Bay of the English charts. Mr. Monteiro, on a journey to visit a copper mine 30 miles from the coast, passed a plain about three miles across, on which he saw about 30 specimens of Welwitschia in his line of march. The plain, which was of hard quartzose schist, was perfectly dry, and bare of other vegetation than the Welwitschia and a little short Grass, the former generally growing near the little ruts worn in the plain by running water during the rainy season. The largest specimens are reported to have been seen on the banks of the river Croquis, a little to the north of Port Alexandre. Mr. Monteiro adds, "I have information that the Welwitschia is found growing in the vicinity of the river San Nicolau in 14° 20′ S. lat. About here (Cuio Bay) it is unknown to the natives, so that you may consider 14° S. lat. as its most northern limit." Further specimens have been quite recently received from Mr. Monteiro, and a very fine one from Damara land from Mr. C. J. Anderson. The latter gentleman describes it as "growing on sandy soil, and luxuriating where it can find a few stones to fix its extraordinary tap-root, which often penetrates several feet deep. It has "leaves" of a dark green, of which several spring from the same stem, spreading and curling along the ground, and attaining sometimes a length of several feet; they will tear into innumerable shreds, each of which is exceedingly strong, tenacious, and straight-grained. Rain rarely or never falls where the plant exists." I have crossed and recrossed Damara land throughout its entire length and breadth, but only found the plant growing on that desperately arid flat stretching far and wide about Walwish Bay or between the 22d and 23d degrees of S. lat. It is most common along the lower course of the river Swakop. The technical characters and a very detailed description of the plant were then given. In respect to its affinities, Dr. Hooker arrived at the conclusion that notwithstanding certain anomalous features, it belonged to the Gnetaceæ, in which he placed it near Ephedra.

Notices of Books.

The Flora of Essex; or a List of the Flowering Plants and Ferns found in the county of Essex, with the localities of the less common species ascertained by recent observations and reference to former authors, and illustrated by four coloured plates of the Plants peculiar to the county, and a Map. By George Stacey Gibson, F.L.S. London: William Pamplin.

This is one of those laborious and conscientious works which seem to have demanded the pains-taking labour of a German and the business habits of an Englishman to be brought to a completion. Of its kind it is most excellent, and what that kind is the following resumé of its contents must tell.

The body of the work is comprised in 407 12mo pages devoted to a catalogue of the 1070 Essex plants, arranged according to Babington's Manual; together with the county distribution of each, indicated under eight districts, the authorities for its existence in each district, and occasionally notes. This is preceded by 20 pages of a tabulated synopsis of the said distributions, arranged in the same order, and followed by six appendices; of which the first gives the earliest and latest notices of the rarer plants, from Gerard's time (1597) downwards. The second arranges all the species according to their comparative abundance, under three heads: "common," "rather local," "very local"; the third follows the distribution of the plants into the adjacent counties of Cambridge, Hertford, Suffolk, and Kent; the fourth briefly compares the Essex Flora with the list in Watson's Cybele Britannica of the comparative frequency or rarity of British plants; the fifth enumerates the plants not unlikely to be found in Essex; and the sixth contains short biographical notices of the four magnates of Essex Botany—John Ray, Samuel Dale, Richard Warner, and Edward Forster. The whole contains just 500 pages, and concludes with two and a half pages of additions and corrections.

As we said at the beginning, the task which the author has set himself appears to be excellently well done, but to us the result is a very disappointing work, because for its bulk and pretensions it is almost wanting in aught to interest any but a mere local Essex plant hunter, and adds little or nothing to our knowledge of the plants themselves. This is the more to be regretted, as Mr. Gibson is himself a most accurate and acute British Botanist, who has spent many years in the field, and whose critical notices of the several hundred most critical species he enumerates, would be of infinitely greater real use to the Essex botanist than his list of the districts they inhabit, and have given his work a scientific value which in its present form it singularly lacks. Surely too something might have been said of the relations of the plants to the nature of the soil; of their flowering periods; of their local characters; and of the reasons why they abound in some districts and are absent in others. To these shortcomings we must add that we find no explanation of many of the symbols prefixed to the specific names, no notice as to which of the Lemnas flower, and that the title "Flora," adopted by the author, is misleading, inasmuch as a Flora is a work descriptive of the plants of a country.

Amongst the more interesting pieces of information we have gleaned from the work are the following. That in the time of Edward I. the whole county consisted of one forest, of which Hainault and Epping are the only considerable remains. The Flora is smaller than those of Suffolk or Kent, but contains 1070 species of the 1725 in Babington's Manual. Only four plants are supposed to be peculiar; Lathyrus hirsutus and tuberosus, Bupleurum falcatum and Galium Vaillantii. Cystopteris alpina, though reckoned usually an Essex plant, is rightly excluded as having been introduced. Of species that are supposed to have become extinct there are the following:—Crambe maritima, Diotis maritima, Sonchus palustris, Vaccinium oxycoccus, and Vitis idæa, Ophrys aranifera, Herminium monorchis, Schœnus nigricans, Carex extensa, Polypogon littoralis, Botrychium Lunaria.

The recently imported plants are Alyssum calycinum, Anacharis, Veronica Buxbaumii, and Bromus arvensis.

Solutions of Questions in Arithmetic by First Principles. By Walter McLeod, F.R.G.S. Longman & Co. 8vo. Pp. 108.

This work contains full solutions of questions in Simple and Compound Proportion, Per-centages, Commission, Interest, &c., by *First Principles*, in a form adapted, it is said, for elementary instruction. According to the author's announcement, the method adopted in this volume dispenses with rules altogether, and the most difficult questions in arithmetic are solved without statement, and by means of *multiplication* and *division* only. Many difficult ones, we admit, can be solved by these rules; but certainly in numerous cases the aid of addition and subtraction is necessary. The author himself has had to employ them. With regard to dispensing with rules altogether, we cannot agree with him in thinking this advisable. If once properly understood, they can afterwards be referred to with advantage, and as guides; whereas in their absence the solution of some difficult portion of a question would frequently have to be accomplished by searching among the mass of questions in the work for some analogous one. Examples are better than precepts, it has been said; but we are convinced that precepts or rules, with examples, are better still. Rules however should be clear and simple, not complicated as is too frequently the case, of which the author of the work before us justly complains. As for those employed for Proportion questions, which are a puzzle to almost every scholar, "there are few who are not mystified by the terms *direct, inverse, is to, as, &c.*" The rules absolutely necessary for all questions in Proportion are very few, and may be comprised in two or three sentences. The method adopted by the author is simple compared with the multiplicity of rules, and unmeaning jargon with which the old Rule of Three is now frequently encumbered, such, for instance, as "more requires more and less requires less," &c.

The method by *First Principles* is that which the French term, we think more properly, *The Method of Reduction to Unity.* It is so called because from the value of several articles the value of one is deduced by division; and then having the value of one, that of any number can be found by multiplication: thus, if 4 yards cost 8*s.*, what will 6 yards cost? This question may be resolved into the two following:—

1. If 4 yards cost 8*s.*, how much will 1 yard cost? Answer 2*s.*

2. If 1 yard cost 2*s.*, how much will 6 yards cost? Answer 12*s.*

In this case the method by reduction to unity is quite as expeditious as that by the old Rule of Three, or 4 : 6 : : 8 : 12. But there are cases in which the former method involves fractions, where by the Rule of Three these troublesome subjects are not required; and in all such cases we presume that most people will agree with us in preferring the old method to the new, provided the former is employed according to its original simplicity. Let us ask, if 12 yards cost 2*l.* how much will 144 cost. By the method in the work before us, when 12 yards cost 2*l.*, 1 will cost 3*s.* 4*d.* Then this 3*s.* 4*d.*, the price of 1 yard, must be multiplied by 144, to get the price of 144 yards or the answer to the question. To multiply by 3*s.* 4*d.* is somewhat troublesome; or we may, instead, multiply by 3⅓, but that is more inconvenient than whole numbers, which only are required by using proportion.

Yds. £ Yds. 144×2
Thus, if 12 : 2 : : 144 — $\frac{144 \times 2}{12}$ = £24. In this way

the answer is obtained without having occasion to reduce the pounds to shillings and pence, or otherwise to use fractions. We conclude therefore, that it is well to understand the method, which the author explains, and to apply it when most convenient to do so. But in cases where the rule of Simple Proportion is the plainest and easiest mode of solving questions, there is no reason why it should be thrown aside; the truth of this we think the author should admit, and in another edition give simplified rules for Proportion, showing in which cases it may then be more advantageously employed than the method he too exclusively recommends.

Garden Memoranda.

HURLINGHAM HOUSE, FULHAM, THE SUBURBAN RESIDENCE OF R. C. NAYLOR, ESQ.—At few places are Mushrooms cultivated with greater success than they are here by Mr. Jamieson, Mr. Naylor's gardener. The Mushroom house, properly so called, is small; and although good crops are raised in it, yet it is quite unable to satisfy the demand which at certain seasons is daily made on it for a supply of this useful esculent. "Gardener," said the man-cook one day to Mr. Jamieson, "can you furnish me with a large basketful of good Mushrooms?" "You can have plenty, sir," was the reply, "and that from under the drawing-room table!" a statement literally true, for in ordinary unheated cellars just below the drawing-room Mushrooms are grown in the greatest possible abundance. Here sloping beds are made up against the walls, and flat ones in the middle of the floor, with alleys round them, just sufficiently wide to keep the workmen from treading on the beds. The latter are made up of horse-droppings and road-scrapings, well mixed together, and spawned just after the first burning heat in the materials has begun to subside, the whole being soiled over and beaten firmly down. A covering of hay used to be applied; but as Mr. Jamieson had doubts as to its beneficial effects, he caused the half of one or two beds to be so protected, and left the other half bare. The result was that the uncovered portion produced quite as good crops as the others, and that they were comparatively free from woodlice, with which the hay-covered parts were greatly infested. Under these circumstances, therefore, all kinds of covering have been discontinued; and when woodlice do appear, they are destroyed by means of the plan first, we believe, made known by Mr. Cuthill, viz., that of pouring boiling water round the sides of the bed—a retreat to which the enemy invariably betakes itself the moment it is disturbed. In a brick-arched subterranean passage is another long bed, which, in 1861, furnished Mushrooms from August till May, and this season it promises to bear equally well. Even beds in open sheds sometimes succeed perfectly; but these require a thick protection of straw to keep them warm; and in order to prevent its weight injuring the Mushrooms, wooden trellis-work is laid under to keep it off the bed. Finally, one bed made of road-scrapings alone has been spawned by way of experiment, and, judging from present appearances, we think we may safely state that it will bear as good a crop as others made in the ordinary way.

As regards glass-houses, a new conservatory is being built at the west end of the mansion, and further improvements in this way are in contemplation. Other glass structures consist of Plant houses, Peach houses and Vineries; all of which have been built many years ago; but they are still, for the most part, in good condition. It was here, it may be mentioned, that the Muscat Hamburgh Grape is said to have been raised by Mr. Lane, a previous gardener, who afterwards gave it to Mr. Snow. It is stated to have been the result of a cross between the Muscat of Alexandria and the Black Hamburgh. On shelves in the early Vinery, which is just closed for forcing, are Strawberries in pots, consisting of Keen's Seedling, Sir Charles Napier, and Cuthill's Black Prince; and in pits are fine plants of Trollope's Victoria, a kind which, with a little forcing, forms a good succession to those just named, coming into use at a period intermediate between them and crops from the open ground.

In addition to the Kitchen garden, which is small, is an Orchard laid down in grass; and between the mansion and the Thames is ample space for some improvement in the way of ornamental gardening, which we understand it is Mr. Naylor's intention some day to carry out.

Miscellaneous.

The Tallow Tree in Algeria.—This remarkable tree, a native of China, and called by botanists Croton sebiferum or Stillingia sebifera, has now been successfully acclimatised in Algeria, through the exertions of the French Government. Its cultivation on a large scale would be extremely advantageous to the poorer classes, since it would diminish the cost of candles. A tree 10 years old yields from 1 to 2 kilogrammes of tallow,

15 years later it will yield from 3 to 4. It requires no care or watering; it may be planted on the road side; its leaves are like those of the Aspen; its bark is white and smooth; its seeds, of an almost hemispherical form, are covered with a waxy substance. In the island of Chusan large quantities of oil and tallow are extracted from its fruit, which is gathered in November or December, when the tree has lost all its leaves. The twigs bearing the fruit are cut down and carried to a farm-house, where the seed is stripped off, and put into a wooden cylindrical box, open at one end and pierced with holes at the opposite one. The box is then suspended in a cylindrical kettle containing water, and the diameter of which differs but little from that of the box. The water is then made to boil, and the steam penetrating into the box softens the seeds, and facilitates the separation of the tallow. After about a quarter of an hour's exposure to steam, the seeds are poured into a stone mortar, where they are stirred about until all the tallow has been separated in a semi-liquid state. It is afterwards poured into a cylinder with a hole at the bottom, through which it is driven by the action of a press. It comes out perfectly white, free from all husks and impurities, and soon becomes solid. The vessel which receives it has been previously moistened and powdered with a red earth, to prevent the cohesion of the tallow. In hot weather the candles made with the latter are apt to become soft and even liquid. To guard against this inconvenience they are dipped into wax. The seeds that have undergone the operation above described are pounded, and oil is extracted from them by pressure. *Galignani.*

Utility of Sparrows.—A letter from Leipzic, says a *Daily Paper* states that M. Weber, of that city, who has recently returned home after a long residence in Australia, has been charged by the Acclimatation Society of Melbourne to send out to the colony as many German sparrows as he can possibly procure. Caterpillars and other insects commit great ravages in Australia, particularly at Victoria, and these birds would be the most effectual means of destroying them. A great number will be shipped off in March next.

The Iceland Ponies are truly wonderful animals. They carry one over smooth bare rocks, over great blocks of lava, up places steeper than a stair but with footing not half so good; through mud puddles, water or bogs; over tracks of volcanic sand; through coppices; up hill, down hill; or across rivers. Patient and surefooted, they stick at nothing. They are guided by the feet as much as by the bridle; a gentle touch with the heel being the Icelandic they are trained to understand. Some riders, we saw, kept up a constant drumming on the poor beasts' sides. After their day's work is done, they receive no manner of grooming or stabling; saddle and bridle taken off, they are then left to shift for themselves. *Pen and Pencil Sketches of Faroe and Iceland.*

A Substitute for Quinine.—Drs. Joret and Homolle have laid before the Society of Pharmacy at Paris a new remedy, to which they have given the name of apiol, and which they claim to have the medicinal properties of Peruvian bark. The new product is obtained from common Parsley seeds. The method is as follows:—"Powdered Parsley seeds are to be exhausted with alcohol of sp. gr. 890 to 864; the tincture btained is to be treated with animal charcoal, and then evaporated in a water bath until three-fourths of the alcohol have been recovered. The residue is to be treated with ether or chloroform, and the solution so obtained is to be evaporated (finally by a stove heat), until all trace of either menstruum has been expelled. A liquid remains which is to be triturated with an eighth of its weight of litharge and then allowed to subside during 48 hours. Finally it is to be filtered through a thin layer of charcoal, which will render it nearly colourless. The product so obtained is called apiol." Apiol retains the odour of Parsley seeds, and has an acrid and pungent taste; it is allied to a fixed oil in character; it does not contain nitrogen. It is given in doses of five drops in any mucilaginous fluid or in form of a syrup. So far, all looks well for apiol; but before we place it by the side or in the place of quinine, we must hear its virtues more widely acknowledged, and learn something of its price as compared with its rival. *Social Science Review.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—About 40° is a good temperature for this house when not attached to sitting rooms, and only used for the purpose of wintering large specimens without plants in blossom; but where a supply of stove plants in bloom is constantly kept up from a forcing pit, which is essentially necessary in every large establishment in winter, the best heat is 45°. Cinerarias, which are great ornaments in this house in winter, are thirsty plants, and should be well attended to with water; they are also liable to the attacks of insects, and must be well looked after. Chinese Primroses are likewise very ornamental, and ought to be cultivated in quantity. In regard to soil, two parts rough leaf mould, and one of well decayed cow-dung, with a little sand, suits them best, and in this they like plenty of moisture. All stove plants should now, and for the next six weeks, be quite at rest, and in that state 55° will be high enough for them in cold weather. No more water should be given at the roots than what will keep the leaves from flagging, but the atmosphere should be kept more or less moist. Keep plants in pits and frames as hardy as possible, by fully exposing them in mild weather, but do not give them any more water than is absolutely necessary. Remove all decayed or decaying leaves, and keep the atmosphere in as healthy a state as possible.

FORCING DEPARTMENT.

PINERIES.—Where a supply of Pines is wanted throughout the year, it is sometimes necessary at this season to subject some of the fruiting plants to a high temperature to start them into fruit. If a few of those most likely to fruit soon can be put into a house by themselves, where a temperature of from 65° to 70° can be maintained by night and 72° by day, with about 85° of bottom-heat, it will bring on the fruit. The other plants can then be kept at a moderate temperature till the end of the month; this will prolong the succession of fruit, and be much better than subjecting many plants to a high temperature at this dull season.

VINERIES.—As before mentioned, observe great moderation in regard to increase of temperature in houses in which forcing has just commenced.

PEACH-HOUSES.—If the buds are swelling, 50° by night may be maintained; sprinkle the trees frequently, and protect the roots from the effects of frost. It is an excellent plan to have a stock of Peach-trees in pots, or tubs, for the first crop. If any of the blossom-buds have expanded, it will be well to assist the setting of the fruit by means of a camel-hair pencil. Trees in bloom require a temperature of 57° by night, and a rise of 5° or 10° by day, with fire-heat according to the state of the atmosphere.

CUCUMBERS.—These should have every possible amount of foliage exposed to light; and continue, as opportunities occur, successional crops of Kidney Beans, Seakale, Rhubarb, and Mushrooms.

FLOWER GARDEN AND SHRUBBERIES.

During changeable weather, like the present, little can be done in the regular work of this department; but where alterations are contemplated, such as making new walks, new flower-beds, or renewing the soil in old ones, these should be forwarded whenever the weather will permit. Holes for planting choice shrubs or trees may also be prepared by removing the bad soil, and replacing it by a compost suitable for the plants; and even where trees are planted and not growing well, the soil may be carefully removed from the roots, and replaced by better material. In wet weather plenty of work might be found in making pegs, brooms, flower sticks, repairing rustic baskets, and seats, and in painting wire trellises. Should frost set in, cover Auricula frames with two good mats, giving air by tilting the lights whenever possible. Should the plants by any means get frozen, allow them to thaw gradually, without being exposed to the action of the sun's rays. Those who have not obtained the necessary number of Ranunculuses to make up their beds, ought to do so without delay, as the period of planting will soon be here. If the beds have not been already formed, perhaps the simplest and best way is to excavate the soil 2 feet deep, put in 6 inches of decayed cow-dung, covering this with maiden turfy loam to the depth of 12 inches, the remaining 6 inches to be equal parts loam, leaf-soil, and sand, thoroughly incorporated.

HARDY FRUIT AND KITCHEN GARDEN.

Persevere while the weather is mild in getting well forward with all the necessary operations on wall fruit trees, such as pruning, nailing, and dressing. Continue the renovation of old borders as opportunity offers. See that pyramid and bush Pears and Apples get the necessary pruning, and dress orchard trees with quick lime to destroy Moss. The most effectual cure for this is, however, thorough drainage. All unoccupied ground should now be turned up by rough digging, trenching, or ridging; regulating these operations according to the nature of the soil, and the character of preceding and contemplated future crops. This is, however, more a month of preparation than of actual operations, and much will depend upon the state of the weather; all sorts of work which can be done under cover should be got well forward in bad weather, and hard frost will afford opportunities for wheeling out all sorts of manures and composts. Every advantage must be taken of mild weather to give a little attention to growing crops, such as Lettuces, Cabbages, and Cauliflowers; surface stirring whenever practicable must be persevered in, also dressings of dry lime and ashes may be given to check damp and the ravages of snails.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Dec. 31, 1862, as observed at the Horticultural Gardens

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 25	4	30.270	30.241	55	37	46.0	44½	44	S.W.	.00
Friday 26	5	30.287	30.138	50	30	40.0	45	44	W.	.00
Satur 27	6	30.358	30.228	52	45	48.5	45½	44	S.W.	.00
Sunday 28	7	30 071	29.875	55	45	50.0	45½	44½	W.	.18
Mon. 29	8	29.809	29.401	50	32	41.0	44½	44½	S.	.01
Tues. 30	9	29.627	29.411	52	28	40.0	45½	45	W.	.00
Wed. 31	10	30.197	30.028	48	36	42.0	45	44½	W.	.00
Average.		30.045	29.888	51.7	36.1	43.8	45.1	44.3		.19

Dec. 25—Clear and fine; fine throughout; windy at night.
— 26—Cloudy; partially overcast; fine.
— 27—Fine, hazy; fine; mild for the season.
— 28—Overcast; very fine; fine.
— 29—Densely clouded; slight rain; fine at night
— 30—Fine; clear and exceedingly fine; slight frost at night.
— 31—Fine, exceedingly fine, with bright sun; fine at night.
Mean temperature of the week 6¾ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 38 years, for the ensuing Week, ending Jan. 10, 1863.

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 4 ..	42.4	31 4	36.9	16	0.86 in.	4	7	5	5	2	10	3	2
Mon. 5..	41.7	30.2	35.9	13	0.40	4	7	4	4	4	10	4	1
Tues. 6..	41.1	29.5	35 3	13	0.33	4	7	5	4	4	10	4	2
Wed. 7..	41.4	28.7	35.0	14	0.34	3	5	4	4	3	1	8	2
Thurs. 8..	40.6	30.0	35.3	11	0.28	4	7	6	4	1	4	11	3
Friday 9..	40.9	30.8	35 8	14	0.71	4	7	4	3	4	11	7	2
Satur. 10..	41.6	30.3	36.0	16	0.40	3	9	3	4	5	7	5	1

The highest temperature during the above period occurred on the 5th, 1844—therm. 54 deg.; and the lowest on the 9th, 1841—therm. 6 deg.

MONTHLY DEPTH OF RAIN, in inches and hundredth parts of an inch, which fell at Chiswick in the years 1841 to 1862 inclusive.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.
January	Ins. 2.12	Ins. 0.78	Ins. 0.53	Ins. 0.80	Ins. 2.61	Ins. 1.21	Ins. 1.81	Ins. 2.03	Ins. 1.98	Ins. 1.15	Ins. 0.62	Ins. 1.97	Ins. 0.30	Ins. 1.27	Ins. 1.11	Ins. 1.88	Ins. 0.30	Ins. 1.53	Ins. 1.05	Ins. 2.03	Ins. 0.94	Ins. 1 53
February ..	0.76	1.22	2.85	2.27	0.93	1.47	1.94	3.12	2.52	0.95	0.90	1.06	0.59	0.73	1.95	0.62	0.31	0.41	0.61	2.18	0.82	0 38
March	2.60	1.06	1.33	2.25	2.07	2.85	1.31	1.16	1.73	1.43	3.07	2.72	2.14	1.92	0.10	1.70	2.09	0.41	1.91	1.20	1.89	3.74
April	1.58	0.15	1.62	0.33	0.86	0.92	0.41	3.05	0.85	0.13	0.25	0.52	2.58	0.30	0.28	0.97	0.73	0.88	0.77	1.63	1.44	2.29
May	1.32	1.81	0.47	2.44	1.25	1.09	1.94	3.06	2.21	1.79	1.65	0.25	1.48	0.42	1.75	0.97	0.78	1.48	1.31	0.95	1.63	2.40
June	2.16	1.73	5.26	0.25	2.80	1.95	1.59	0.28	3.53	1.84	3.90	0.52	2.58	4.03	0.26	1.97	1.77	2.13	2.49	0.95	1.44	2.40
July	2.45	1.58	1.62	0.97	1.36	0.80	1.31	3.20	3.91	1.40	1.33	4.69	2.54	1.53	1.48	0.58	1.01	2.05	2.18	2.72	1.04	3.00
August	8.56	1.52	1.67	1.84	2.31	1.78	1.50	4.70	1.60	0.97	2.09	3.71	1.87	2.40	1.45	3.50	2.80	2.55	2.18	4.16	0.50	2.40
September..	3.71	3.39	3.38	2.10	2.79	4.50	1.50	2.21	2.82	2.08	3.90	2.28	4.17	1.77	1.15	1.99	3.52	1.05	4.05	2.82	1.78	2.74
October	4.61	1.71	4.19	4.13	1.39	5.54	1.75	2.20	2.49	2.36	0.42	3.54	2.41	0.58	1.15	1.99	3.52	1.05	4.05	2.82	1.78	2.74
Novembor ...	3.41	4.43	2.13	3.06	2.11	1.48	2.26	0.90	1.92	2.03	0.55	6.20	0.91	1.31	6.15	2.40	4.01	1.36	2.55	1.60	1.04	3.00
December ..	2.69	2.81	3.38	1.84	2.79	4.50	1.50	4.70	1.60	0.97	2.09	3.71	1.87	2.40	1.45	3.50	2.80	2.55	2.18	4.16	0.50	2.40
Annual amount	30.97	22.97	26.48	21.84	23.33	27.71	16.65	28.34	22.84	18.28	20.79	32.55	24.87	18.92	24.38	22.72	21.06	15.78	25.54	30.05	19.48	28.64

The amount of rain which fell in 1862 was 26.64 inches, or about 2¾ inches above the average of the preceding 30 years.

Notices to Correspondents.

BOOKS: *M C S.* Surely a compilation like that of Beeton's may deserve what is said of it, even although some preposterous passage occurs in it. We repeat that it does deserve what is said, although one passage be the work of a madman.

GEOMETRIC GARDENS: *Mr. Newton* has sent us a reply to "Miles," (see p. 1197 last Vol.) for which we cannot find room. Nor, if we could, does it touch the points so ably defended by "Miles." Mr. N.'s mode of argument may be judged of from the following sentence. "As to the necessity of a mathematical education, or that the landscape gardener should be a Wrangler of Cambridge, or as 'Miles' says, 'artistically educated,' the very ablest hand known by me to execute geometrical designs is an ordinary working gardener!" It therefore appears that he places on the same level the artist who designs and the labourer who executes—which is the same as confounding Sir Thomas Lawrence with the man who ground his colours. We have ourselves seen garden designs very skilfully executed by a drunken gardener. But what is that to the purpose?

HOLLIES. *A lover* may find hundreds of such forms in every county in England in Holly plantations.

NAMES OF FRUITS: *N.* No. 3 is probably Bezi d'Heri; 4, Brown Pear of Worcester. The Apple, large, round and very acid, is not known.—*W F.* 1, 7, 9, Glou Morceau; 2, Crassane; 4, Eyewood; 5, Old Colmar; 6, 13, Easter Beurré; 8, Hacon's Incomparable; 11, Beurré Diel; 12, Beurré Rance.—*H S.* Van Mons Léon le Clerc.

NAMES OF PLANTS: *H J C.* Cyrtopodium punctatum.

PICEA NOBILIS. Our two friends who have engaged in this little skirmish will doubtless see, on consideration, that enough has been already said on both sides.

PRODIGIOUS EXPERIMENTS: *P P.* If men will make themselves ridiculous the least they can expect is to be laughed at.

TRAINING: *A Novice.* Read George Lindley's Guide to the Orchard and Kitchen Garden.

MISC.: *G T S.* Two shillings. Postage stamps may be sent.

Autumn Wheat Sowing.

PHOSPHO GUANO, delivered at Ship or Rail, in London or Liverpool, at 11*l.* 11*s.* per Ton for cash.
PETER LAWSON & SON, 28, King Street, Cheapside; and 15, Lawrence Lane, E.C.

To Farmers, &c.

CHEAP GYPSUM MANURE.—Parties requiring GYPSUM can be supplied at 10*s.* per Ton, bulk, at the Works at Kennington, S.
Address X. L., 34, Chapel Street, North Brixton, S.
*** Delivered on rail, adding for bags and cartage.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.
116, Fenchurch Street, E.C.

LAWES'S WHEAT MANURE for AUTUMN SOWING.
In consequence of the high price of Peruvian Guano, J. B. LAWES has manufactured a WHEAT MANURE for the present season, which will be found very suitable for that crop. A supply is now ready for delivery, and it can be obtained of J. B. LAWES, or through any of his appointed Agents. Price 8*l.* per ton at the Factories, Deptford and Barking Creeks.
Genuine Peruvian Guano direct from Messrs. Gibbs; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

40 to 45 per Cent. of Soluble guaranteed. 1862.

BURNARD, LACK AND CO.'S PATENT CONCENTRATED SUPERPHOSPHATES of LIME.
Extract of Opinion from Mr. WAY, *January* 23, 1862.
"This material contains in round numbers 44 per cent. (44 p.c) of Soluble Phosphate of Lime, and is the richest in this important fertilising agent that I can remember to have met with in my experience of the composition of Artificial Manures."
Extract of Opinion from Dr. VOELCKER, *January* 1862.
"Your firm, I believe, first introduced this Manure to the notice of the Agriculturist, and the composition, dry and finely powdered condition of this year's make, plainly show that you are resolved fully to maintain its superior character. I am not acquainted with any Manure which contains so large a per centage of Soluble Phosphate and proportionate small quantity of Sulphate of Lime as your Concentrated Superphosphate."
The great advantage of Concentration to the consumer lies in the fact, that he can weaken down with dry earth or ashes, at a much less cost than the manufacturer; nor is he called upon to pay for unnecessary packages, or for the hauling of useless and waste materials.
Analyses, with opinions by the late and present Chemists to the Royal Agricultural Society, with Field trials, Prices, &c., furnished on application to BURNARD, LACK & Co., Plymouth.

CAUTION to BUYERS of GUANO.—Having been informed that Guano has been imported into Liverpool, and offered for sale as "BAKER'S ISLAND GUANO," I hereby give Notice that I control the Deposit of "Baker's Island," and that the Genuine GUANO can only be procured through my Agents, Messrs. GUION & Co., of Liverpool.
Burling Slip, New York, Dec. 9. WILLIAM H. WEBB.

HENRY J. MORTON AND CO., 2, Basinghall Buildings, Leeds.

Galvanised Iron Water Cistern

for Cottage Houses, &c., to contain 50 gallons, 26*s.*; 80 gallons, 31*s.* each; and 140 gallons, 37*s.*, and fitted with tap, keeping the water perfectly sweet and clean; will not rust or corrode. Cisterns of all sizes.

Galvanised Iron Pumps

for Liquid Manure or Domestic Use, 3 inches diameter, 30*s.* and 32*s.* 6*d.* each; Tail Pipe for same at from 10*d.* per foot.

Galvanised Iron Swing Water Barrows

for Garden or Farm use, containing about 20 gallons, entirely formed of iron, 35*s.* 0*d.* each.

AGRICULTURAL MACHINERY. — Threshing Machines for Steam and Horse-power, Ploughs, Harrows, Waggons, Carts, Mills for hand or power, Turnip cutters, Cake-breakers, Chaff cutters, &c., &c.
Price List free per post on application. Catalogues 6*d.* each.
BURGESS & KEY, 95, Newgate Street, E.C.
Works—Brentwood, Essex.

THE HISTORY of the SET of SMITH'S STEAM CULTIVATING APPARATUS, supplied to Mr. Pike, of Stevington, Beds, in 1858, showing its practice from that period there and at Dunton Lodge, with other evidence upon the question, proving the efficiency and durability of the Woolston tackle, as well as the efficiency of the Woolston system, will be sent, post free, to any gentleman who may apply to Mr. WILLIAM SMITH, Woolston, Bletchley Station, Bucks, for it.

Steam Cultivation.

The following letter has been received by Mr. FOWLER:—
Sarsden, Chipping Norton, Dec. 17, 1862.
Dear Sir.—Mr. Langston having for some time used two of your Steam Ploughs on the lands in his own occupation, and being so thoroughly satisfied with the superiority of the work performed to that of horse-power, as well as the extra productiveness of the Root and Corn crops which have followed, is desirous of promoting the further extension of this excellent mode of cultivation on his property.
He has therefore requested me to order a 14-horse Engine and the Tackle to correspond with that power, viz.:—

Anchor (best)	7-Tined Cultivator
800 yards Rope	and Plough.
20 Rope Porters	

to be delivered not later than the last week in January, 1863.
This Steam Plough, &c., being intended principally (under certain conditions and arrangements) for the use and benefit of three or four of Mr. LANGSTON'S largest tenants, whose farms adjoin to his, now under Steam Cultivation, there will therefore in the coming summer be nearly 3000 Acres of arable land under this superior system; composed of a variety of soils, some of which require great power to bring them into a proper state to receive the seed, and which frequently could not be done in proper season by horse-power.
It will be a gratifying sight to witness so large and compact a breadth under Steam Cultivation, which cannot fail of showing the advantages thereof, and be the means of introducing others to adopt this system, and which I hope will be realised both for the benefit of the grower and consumer.—I am, yours truly,
(For J. H. LANGSTON, Esq.) HENRY ANDREWS.
Mr. JOHN FOWLER, Steam Plough Works, Leeds.

AGRICULTURAL and CHEMICAL COLLEGE, 37 and 38, Lower Kennington Lane, London, S.
ASSAYS and ANALYSES promptly attended to by J. C. NESBIT, LANSDELL & Co.

AGRICULTURAL and CHEMICAL COLLEGE, KENNINGTON.—Manufacturers and others engaged in making Artificial Manures may obtain every necessary instruction for their economical and efficient preparation by applying to J. C. NESBIT, LANSDELL & Co., 37 and 38, Lower Kennington Lane, London, S.
Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and despatch.
Gentlemen, Farmers, or others, desirous of practical knowledge in Chemical Analysis, or Assaying, may receive instruction at the College, where the extensive Laboratories give ample facility for pursuing their studies, and there is accommodation for a limited number of Resident Students.
Full particulars of terms will be forwarded on application.

DRAINAGE of LANDS (by Contract, or laid out and superintended at 5*s.* per acre) and the ERECTION of AGRICULTURAL BUILDINGS and all other permanent Improvements to Landed Estates, are undertaken by Mr. HUMBERT, Land Agent and Surveyor, Watford, Herts, and such Works can, if desired, be entirely executed under powers conferred by special Acts of Parliament, by Money raised by loan, and paid off (both principal and interest) by small annual payments spread over a number of years in the form of a rent charge, without immediate payment by the Land Owner.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
To LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c. IN ENGLAND AND WALES AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W.

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WORKS of DRAINAGE of any extent are EXECUTED by the GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY on all descriptions of property, whether freehold, entailed, mortgaged, trust, ecclesiastical, corporate, or collegiate.
Repayment may be made by the Landowner as successive portions of the works are completed; or the actual expenditure, with a commission thereon, may be charged on the property improved, by way of rentcharge on the estate created for various terms of years so as to adapt the rate per cent. of annual charge to the circumstances of the tenants.
No investigation of title being required, or notices given to Reversioners or Mortgagees, no legal expenses are incurred.
Works of Irrigation, Enclosing, Wood Grubbing, Road Making, and Farm Buildings are executed in a similar manner.
Landowners desirous to execute any of the Improvements by their own Agents, and charge the outlay and expenses on the Estate, may obtain Loans for the purpose.
Applications to be made to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, S.W.

The Agricultural Gazette.

SATURDAY, JANUARY 3, 1863.

A YEAR of unusually irregular seasons has come to an end, and its mild unwinterlike exit has been not out of keeping with the anomalies of its general character. Few years were ever ushered in under circumstances of a more widely and deeply felt national sadness, and unrepose. A recent, sudden, and heart-stinging affliction at home, penetrating every class of the community, coupled with the apprehension of an unsought and unwilling War pending upon the answer which the next Mail might bring across the Atlantic,—such was the condition which cradled the birth of the year we have just seen to its close; and notwithstanding the better than expected result of that apprehension, and the Great International Gathering which the year has witnessed, there are few who have not felt that a sombre and mourning tone has been shed, as if by sympathy, upon the course of the whole twelve months that have elapsed. The progress of a savage Strife, such as the World never witnessed before, amongst a people related to us in blood and in language, even if it could have left us unaffected except as spectators, would have been deeply felt: but the suffering it has brought home to us in the very heart of our largest branch of commercial Industry might almost bear comparison with the worst disturbance and affliction that a war of our own could bring, or has ever brought.

Such is the interdependence of Nations. And perhaps in the long run it is best that it should be so. The more widely felt an evil makes itself, even by those who are wholly innocent of the cause, the greater the pressure upon the reactive influence of the reasoning and efforts of mankind to abate the nuisance, or at any rate to confine it to its narrowest limits, like a pestilence.

It is not easy upon the survey of a year thus characterised physically, politically, and socially, to project the outline and features that belong exclusively to a special interest. Its agricultural aspect is so mixed and interwoven with external and internal circumstances affecting and more or less disturbing every interest, that the elimination of any one for separate regard, presents a difficulty that increases under the view. The enormous importation for instance both of corn and specie from the once United States, which under ordinary circumstances would have furnished a topic of agricultural notice, is this year too abnormal and out of course, too closely connected with causes more nearly affecting us, to be regarded on its own separate account. It is in fact to a great extent an incident of the war.

Nor can it be said that the home history of Agriculture during the past year furnishes any very exciting topic. The remark of the Premier the other day to the effect that the abolition of the Corn Laws had robbed Agriculture of its chief political interest is open to a wider application. The regular and measured Scale of variations in the case of a price-current that has the whole world for its commercial basis discounts such slight changes as it leaves, too effectually to allow much for complaint or even conversation. If anything could so operate upon the variations of the Weather, as an unrestricted Corn-trade has upon Mark Lane, an Englishman would be robbed of his birthright, in the matter of daily small-talk. What alarmists prophesied about our depending upon the rest of the world for our food-supplies appears to have gone half way towards verification: but "without the ill that should attend it." Conceal it from ourselves as we may by neglecting or refusing to collect the facts of our own cereal produce, there is yet enough known to convince us of the startling truth that our importations of Wheat have already reached an annual bulk of two-thirds of the amount we grow.

Mr. SMITH'S "Corn and Horn" discussion at the Farmers' Club would have derived some addition of practical interest by a little notice of this subject, and especially of this fact. Whether you shall grow Wheat or Turnips, may be a very pleasantly interesting question for the 'ignorant present time,' to put to yourself, and imagine you have the answer in your own hands. But in truth it has been settled for you by causes that have been in operation for many years past, and are receiving accession and confirmation every hour of every day. The most meat-consuming population in the world that has enclosed and cultivated all its enclosable and cultivable land and has a thousand fresh mouths a day to feed exercises no act of choice in growing annually more of what others cannot supply it with from abroad, and less of what they can. The true and special profit of the grain-crop in this country must ever, so long as present causes remain, be derivative, and dependent on the acreable abundance, the extrinsic fertility, so to speak, due to an increasing head of stock. Baron LIEBIG'S recent alarm-note upon the *de*-fertilisation of England might have been conceived in the very playfulness of paradox: as well might it be theoretically argued that the enormous demands of the Metropolis are exhausting the soil of the market-gardens in its neighbourhood! What we know to be the reality is that they are on the contrary so drugged with manure, as to require the admixture of the barest subsoil that can be dug up from four to five feet deep to qualify the rank richness of the surface.

This is only the type, it may in truth be called the nucleus of the process which, radiating from the vicinity of our largest Towns is gradually but inevitably extending itself. Its course is as irresistible, and more regular than a tide; for it never recedes. And the only regret is that we have not the means of testing its advance. Dr. LIEBIG'S views of English soil and agriculture have a sort of Malthusian tone: he is always fearing that the earth is not resourceful enough for its inhabitants. Experience points the other way, showing that the greater the increase of population the more abundant the elements of fertility become.

The 'Returns' (if we had any in agriculture) would afford ground for little apprehension on that score. The enclosure of fresh land now almost arrived at its utmost limit, the extension of

market-garden boundaries and increasing production of green crops, gross consumers of manure as they are, accompanied by no considerable increase of imported manures, in the case of Guano by a decrease, does not look like a "decadence de l'Angleterre" in the elements of fertility.

The opposite is the fact; and that to a capacity of extension which no country in the world has ever tested to its utmost limit; or probably ever will. But, neither has any country ever perhaps witnessed in so short a period a change such as we have undergone. Less than a century ago Arthur Young said that England (then an *exporter* of Corn) could in a good year grow Corn enough to feed herself for four. Her produce at this time (making allowance for causes which reduce the comparative increase) is at least [a third more than it was then, and by that third only it now overtakes the *imported* article. To estimate the bearing of these facts, it should be looked at not as it stands but as *it points*, not as a milestone that measures the road you have gone, but a Finger-post that points to that which you are going.

To put the matter in its simplest form, take the following specimen of progress. Our Wheat importation of 1859-60-61 was in round numbers respectively four millions, six millions, seven millions of quarters, and three and a half million, five million, six million cwts. of Wheat-flour; but that of the *first ten months* of the past year,—only to the *end of October*, was *nearly eight millions* of the former and *six and a half* of the latter!

Such a statement as this needs little epilogue: it speaks for itself, trumpet-tongued. A million of quarters of Wheat per month—twelve millions of quarters per annum, seems now to be the figure of our imported supply. *By how much does our own growth exceed this?* and how will it stand in ten, nay *five* years more, at the same rate of going.

If the nearest approximate estimate that has ever been attempted of the acreage annually under Wheat in the whole of the British Islands were taken as a basis, and assumed to yield an average of three quarters to the acre, it would exceed the amount imported by nothing like the quantity (one-third) stated above. If figures alone could be relied upon, the amounts would be nearly equal; and if they have not become so, it is clear that at the same rate, as that just shown, they very shortly will be.

A curious subject this for agricultural reflection! and it suggests some others more curious than itself. It has been said that an 'English Plum-pudding' contains about a larger assemblage of foreign elements than are often found under one skin: but how will the Englishman look upon the family loaf, when more than one half of *that* is become *exotic!*

A CORRESPONDENT asks for some statistics about steam ploughing. We thought our columns had been tolerably copious on that subject. He wants to know if "the rapidity and the neatness of ploughing by steam power fully compensate for the extra expense incurred." Now, though steam ploughing may be as neatly done as any other ploughing, yet it is not the neatness but the thoroughness of the work that is its principal merit. You may go as deep as you choose—you may move completely, and without treading on your work, the whole soil to that depth—you can do all this when the ground is so dry and hard that draught animals could hardly make impression on it—you may also do it without injury when the ground is moist, at a time when ploughing by draught animals would be mischievous.

You can work late and early, and push the ploughing during the dry autumn time, when cultivation is so much more beneficial and influential than at any other time. And you can do all this at less expense by steam for fuel and for wages than you can by horse power for food and for wages. That is the history of an experience, extending now over several years and many thousands of acres.

But if any one wishes to learn more precisely what individuals have ascertained by personal experience on this subject, he cannot do better than read some of the testimonies which customers and clients of Messrs. FOWLER, HOWARD, and SMITH have given in our advertising columns. Mr. FOWLER publishes in our advertisement columns to-day a letter from Mr. ANDREWS, the agent on the estate of J. H. LANGSTON, Esq., M.P., at Sarsden, giving an order for the largest apparatus for the use of tenants, and declaring that no less than 3000 acres on one estate will be under steam cultivation.

Mr. HOWARD lately advertised the letter of Mr. FORD, of Merton Hall, near Warwick, declaring that on a farm of 20 horses the adoption of Mr. HOWARD'S steam cultivating apparatus had enabled him to reduce his stock to 12. And Mr. SMITH published lately the letter of Mr. HUTCHINSON, of Grantham, showing that this year by his apparatus 775 acres had been cultivated in 131 days, at a cost for labour of 79*l.* 15*s.*; for coals of 54*l.* 9*s.*; for interest, tear and wear, repairs, and all other expenses, 105*l.*; bringing the total cost to 239*l.*, or 6*s.* 2*d.* an acre.

These testimonies appear to us satisfactory proof that steam cultivation has been a great success, and may be safely adopted.

WE last week reported the circumstances regarding a pen of pigs belonging to Colonel PENNANT which had been disqualified at the recent show of fat stock at Bingley, on the ground, as declared by Professor GAMGEE, that the state of their dentition indicated that they were not of the same litter. A correspondence has since been published, in which reports on the subject are given by Mr. BARTH, a veterinary surgeon of considerable experience at Chester; Mr. FARRALL, V.S., of Dublin; and Professor SIMONDS. Of these Mr. BARTH unreservedly says that the differences in the dentition of the pigs, which he admits and describes, are not sufficient to "prove," or even to "excite suspicion" that they were not of the same litter or of the same age. Mr. FARRALL says:—

"I hereby certify that at the request of the Hon. Colonel PENNANT, I have this day examined, at Penrhyn Castle, three sow pigs with reference to their age, and am distinctly of opinion that said pigs are of the same age, and from their general appearance I would believe them to be of the same litter."

And Professor SIMONDS, with equal straightforwardness, says:—

"I hereby certify that I have this day examined three pigs, the property of the Hon. Colonel DOUGLAS PENNANT, M.P., identified as being the same animals which were exhibited at the late Cattle Show at Birmingham, and find that a variation exists in their teething, which is not consistent with their being all of the same litter."

Mr. SMITH, the bailiff, and ROBERT OWEN, the man in charge of the pigs for some years, are ready to testify on oath that the three sow pigs are of one and the same litter farrowed on Feb. 12, 1862.

We have thus the two Professors, one of them probably the most experienced authority we have on such subjects, against two other veterinary experts, and we have the declaration of the men in charge against the liability to accident and error to which of course their management has been liable. Professor SIMONDS is satisfied that some of the pigs have been accidentally mixed, and that thus an error has been committed.

THE appointment of a successor to Mr. MULES, late one of the Enclosure Commissioners, is a matter of importance to the whole agricultural body. It bears much the same relation to them as that of an agent bears to the tenants of an estate. He may be a mere lawyer stickling for precedent, following in the ruts of all past practice—or he may be an energetic man with the power and the will to lay the natural resources of the property open, to make all the permanent improvements needed for that purpose which experience has found profitable—to give all the liberty, opportunity, and scope which an intelligent and wealthy tenantry require. The contrast certainly is very great, and soon appears in the condition of the property and of all who live by it. The fruits of landownership, ill or well conducted, soon borne and realised, whether its offices and duties be deputed or not, are obvious and significant enough.

Now the Enclosure Commission represents the largest land agency in this country. To the Commissioners are deputed over an immense extent of land the very highest offices of ownership—the responsibility of sanctioning or refusing outlays for the purpose of land-drainage, farm-buildings, road-making, and many other agricultural and engineering operations professing to be permanent improvements. And the question which is now proposed to those with whom the appointment rests—whether the new Commissioner shall be a lawyer or an agriculturist—thus becomes one of very great agricultural interest. No doubt legal as well as agricultural knowledge is required for many of the duties of the office, and it may be right that the majority of the Commissioners should be learned in the law. But the two existing Commissioners are Barristers, and it seems plain that their colleague should possess the practical knowledge of estate management and of agricultural improvement which is necessary for the due discharge of those duties of land agency which will fall upon him. There seems this especial reason why, if the two sets of qualifications must come into competition in a case of this kind, those of the agriculturist should be preferred to those of the lawyer—that the question, as regards a very large share of the duties to be discharged, is in no degree one of the ownership of the land—it is one merely of the profitableness of its proposed improvement.

If the money loan which the Commissioners sanction or disallow be spent by their allowance on the land, it constitutes a first mortgage—the rent charge by which it is repaid is the first rent which becomes due from the annual produce of the land. If the money has been wisely spent, not only will the rent charge be forthcoming without difficulty, but the property will be improved for all collateral or succeeding sharers in it. The real questions to be decided by the Commissioners throughout a very considerable portion of their duties are not of law at all—they are questions for decision by a practical and experienced agriculturist. Let us hope that such an one may receive the appointment to the vacant Commissionership.

ON RATIONAL SEEDING.

MR. EDITOR, and my respected readers, you will recollect that in my last letter I promised to give you some account of the farming operations of those pre-Adamite terrigenous human beings whom modern geologists and other savants inform us possessed and cultivated our planet before the creation of the pair from whom we moderns, geologically speaking, are derived; but as a kind friend has drawn my attention to a letter written by Mr. John Ford, Jun., of Rushton, Blandford, and inserted in the *Agricultural Gazette* of the 8th of last month, and which I myself, as well as my friend, think requires a little notice from me, I must postpone my description of the pre-Adamite husbandry for the present, unless it should be recognised in that of Mr. Ford, Jun., as probably it will, and to the examination of which I now turn my attention.

Mr. Ford, like the legions of gentlemen who attack my advocacy of improved husbandry, throws into the shade, or leaves entirely out, what I have ever laid the chief stress upon, in order to have an opportunity for a full fling at what he considers to be, and tries hard to make his readers also believe, is my weak and indefensible point. So long back as 1818 I sent a series of letters to a Provincial Paper on agricultural subjects, and my chief object was to show that the foundation of all farming operations was complete cultivation, thorough comminution of the soil, wherever it would admit of it, to at least from 8 to 12 inches deep, and from that time to the present I have repeated the same, I should think for at least 100 times; and to this for upwards of 30 years I have added complete draining, or rather placed draining in the first rank, as I do now. Why, then, has Mr. Ford, jun., as if aiming to throw my advocacy into ridicule, left out the foundations on which my superstructure is built? and represented me as saying nothing about what I consider of the primary and utmost importance.

I am an advocate for the seeding of land for grain crops, as Nature is everywhere teaching; and as ancient, learned, and philosophical husbandmen have described in their written works, and as hundreds of superior minded men are practising in this and other countries, Ireland, Canada, Natal, &c., and as modern writers have advocated, of our own and other countries—but I have never been weak headed enough to believe, nor endeavoured to make others believe, that mere seeding, however done, is to be a panacea for ignorance, improvidence, imperfect draining, or no draining where the land is full of cold and stagnant water; nor can seeding, whether much seed or little be used, be a substitute for bad and lazy cultivation and poverty of the soil;—no such thing, my respected readers, but on the contrary, thin seeding, or any seeding to be effectual, must be the result of deep and thorough cultivation; and wherever this is done, on an average 2 pecks of seed when put into the ground, as the philosopher Xenophon put his in and taught other philosophers like himself to put theirs in—that is, every grain separately, and the whole spread evenly as he writes, and not as modern farmers put their seed in—8, 10, 12, 14, 16, ay, and even 20 grains together, as I myself have many times proved by careful inspection—then this quantity, if put in early enough, will be far better than more. It is not then, my careful readers, the quantity of seed that is used, but the manner and time in which it is put into the well prepared ground on which success depends.

But young Mr. Ford cannot grow a crop without 2 bushels of seed, but then thousands of gentlemen can grow far superior crops to his, as I will show hereafter, from two-thirds and one half, and very many from one-fourth the seed that he requires—aye, and many also from one eighth of the quantity that he requires—and, I add, with a success that it is morally certain he

on his plan will never arrive at. But "such ridiculous quantums," continues this precocious advocate of primæval farming, "causes honeydew and mildew" to destroy the crop it produces, and small birds, rooks and pigeons and hares to devour it. Such diseases and enemies may exist at Rushton and even elsewhere, but I inform Mr. Ford, Jun. that if he will consult scientific books, or scientific men, either will inform him, that these dews arise from causes far different from that of thin seeding; but for an example last year, and I may add every year the same, I walked through Wheat before harvest so thick that I could scarcely get along—sown as thick as it could stand on the ground, but which was so completely destroyed by mildew and rust, that the owner of it, as he was afterwards carting it home, told me it was not worth threshing, and there were hundreds of like cases, where 2 bushels of seed were sown; and yet from extensive inquiries I have made, not one crop among the scores of thin seeders was mildewed at all—indeed the crops they produced, the quality, quantity and value of them rendered it impossible for disease of any kind, or enemies of any kind, to have been among them.

I have not the pleasure of knowing Mr. Hallett, but I have heard of 23 of his disciples who sowed, or rather dibbled one peck an acre, whose crops were so good and abundant, that some of them have doubled, and others trebled their quantities of acres this year done in the same way; and as they are Mr. Hallett's disciples, I have little doubt but he can give perhaps ten times the number, or certainly an account of very many more. All praise be due to him for having conquered so much prejudice in others, and still more praise be given to others, who have effected the more difficult achievement of conquering such prejudice within themselves, and I further rejoice that for the benefit of their country, and mankind in general, there are now many in the world who have won that most difficult to be gained of all victories. In England, in Ireland, in Canada, and in Natal, I know there are many thin seeders, and I have letters now lying before me informing me that the writers of them rejoice that they are so—nay, further, it was from flour made from Wheat of one of them—a real out and out thin seeder—that gained a prize at the late International Exhibition.

But Tull, the glory of our country; Messrs. Dean, Clark, and Jones, and the Revs. Sir G. Robinson, Close, and Smith—clerical gentlemen well known in the agricultural world, were, or are, all thin seeders, none of them exceeding 3, and some not 2 pecks an acre—and with such success that one, the Rev. Mr. Smith, informs the world that in 16 years off the same land he has grown 512 bushels of Wheat from 8 bushels of seed only, the value of which would equal that of the fee simple of his land three times over!

Then, again, the late Mr. Piper dibbled but 1 peck of seed an acre, and his annual profits, after all expenses were paid, and 2*l.* allowed for rent, as he annually published, were near 6*l.* an acre!

Mr. Alderman Mechi and Mr. H. Davis, and the Messrs. Hardy, are also thin seeders, and others—but I must stop.

But with all these examples before him, and pressed as they are daily on his notice, Mr. Ford, jun., is so blinded by that "plague of wise men and idol of fools" of all ages, known by the name of Prejudice, or so enveloped in Cimmerian darkness—that he is unable through the gloom to discover the least gleam of light to guide him out of it! Poor, unfortunate, unhappy, bewildered young man! I pity him from my heart! Yes, it bleeds for him! But there is no remedy, no balm, and even Hope, that last solace of the wretched, is shut out from him! Darkness, darkness that may be felt, incloses him all round, moves along, behind, before, and on both sides of him! Never surely was suffering mortal in such a sorrowful, pain-producing condition! That of a miner groping about in a huge cavern in the earth with his lamp gone out would be blissful to it; and unhappily he has many associates—many other young Fords in the world like himself; indeed their name is legion, and so to fight against them would be a hopeless task, a labour lost; and hence, for the present, we leave them in their gloom, but pray, and fervently, nevertheless, that some guardian Angel will descend and drag them out of it, as the Angels did Lot as he lingered in the devoted plain.

But, Mr. Editor, and my readers, to be more serious and thoughtful, is it not strange that in this truly enlightened, mechanical, and chemical age, earth-cultivation for corn growing, whilst everything in the world besides has been moving on, should have either stood still, or gone backward. But so it is, and I challenge the whole race of mankind to prove, unless among the thin-seeders, that it has not been so. Nature, the enlightened nations of antiquity, Egypt, Greece, Rome, Palestine, produced their 30-fold, 60-fold, 100-fold; yes, my friends, I am not writing without thought, when I state that all those nations grew more corn, seeded thinner, and fed more people from given quantities of land than British farmers of the present day do, and so do the Dutch, we are told, of the present day, and so do those half savages, as we designate them, called Chinese. Do you doubt this? What says Mr. Caird, who is reported to be the best authority we have. What? I grieve to write it; but truth compels me to do so; he states that the increase of crops of cereals over the seed sown does not average in England more than eight-fold! Eight-fold! blush, blush, ye British farmers, landlords, tenants and all; blush, or if not, I for one deeply and painfully blush for you. But, writes Mr. Ford, jun., "it would be dangerous for England to alter;" but to whom? To landlords? no, for their rents would be higher. To tenants? no, for their profits would be greater. To labourers? no, for they would live cheaper and better. To the public at large? no, for the condition of all would be greatly improved. Where, then, the danger? Who can show it. Heaven and earth! what excuses will not men invent for their follies, to cover their prejudices.

But Mr. Ford, jun., has a poetical quotation, and which he writes would be appropriate for a harvest song; and in this, for once, I am happy to agree with him, and so we part for the present in peace; and if he pleases, shake hands until we meet again, and which we may do at Philippi. But here the quotation is—the song for harvest—

"The effect was great because the dose was small."

Exactly so, exactly so; a large crop, because the seed was small—but just enough, nevertheless, and no more, to produce the large crop. An excellent song! capital! bravo, encore! My friend, Mr. Ford, jun., is emerged into light! *Geo. Wilkins, Wix Parsonage, Dec.* 22, 1862.

Home Correspondence.

Anthyllis vulneraria.—From your remarks (Dec. 13) on the plant Anthyllis vulneraria, or Ladies' Fingers, of which I am the grower, you don't appear to speak very favourably of it. May I be allowed to make a few observations upon my experience, pleading the importance of the question as an excuse. You have some doubt about the good qualities in a feeding point of view of plants that can be grown on next to nothing—that they are of low feeding value—but on such land the great difficulty is to get any herbage whatever. If such a plant is to be found, I think it of too much value to be neglected; how many acres of land are there that don't provide bite for a goose, whereas with the Ladies' Fingers it may be made very productive sheep feeding land; "no small consideration at the present day." It is a plant of which they are very fond. I had 17 acres laid down the last two years with it, the produce you have seen. I fed it this year until June with my flock of 16 score ewes and their produce, for a fortnight, when I shut it up to mow, putting the sheep on a Trefoil and Rye-grass lea, on the opposite side of the road, on very good land, but for two or three days they continually kept drawing to the gate, although my shepherd dogged them away. The sample you had sent was matured seed stalks, and not intended for hay. When sheep take so well to a plant "so prolific," there must be something worthy our deep consideration. I have that confidence in the plant, that I have at this time 40 acres of land laid down with it. Sainfoin grows best on similar land, and we know the value of that plant. I shall use the Ladies' Fingers as a change for Sainfoin. *H. Stebbing, Stow Bedon Hall, Attleboro', Norfolk.*

Farmers' Clubs.

BLANDFORD: *Tenant Right.*—At the late annual meeting of this Society the Rev. Lord S. G. OSBORNE said: He ventured, the last time he spoke in that room, to say something about Farmers' Clubs, and what was the result? Why, that he was actually challenged by the Blandford Farmers' Club itself, to appear before its members and "hold forth" upon three subjects, which, looking at the constitution of the Club, and looking at himself, were as likely to get him into hot water as any three subjects that he could possibly find. However, he accepted the challenge, and allow him to say he was very grateful for the kindness with which they received his weak efforts for their entertainment or instruction, whichever it might happen to have been. Mr. Seymer, in concluding his speech, certainly made a very curious remark. At agricultural meetings, a great many were excessively shy upon agricultural subjects; but Mr. Seymer had to-night said that he hoped to meet them next year with more cotton in their factories, more corn in their barns, and more money in their pockets. As regarded the latter, looking at those who were present, he supposed it meant rents punctually paid to his friends right and left, good savings, paying profits made by them all; a fair share, in the shape of tithes for the clergy, and good wages and employment for the labourer.

Then as to corn. Mr. Floyer had alluded to the vast capital which might be seen running about their fields in the shape of flocks of sheep, watched by a little boy or a single shepherd; and it was to him, who did not understand these things, certainly wonderful, when he came to think, not only of the vast capital invested in the cultivation of the land, but of the vast amount of true science employed in that cultivation; when he saw both these brought to bear in one of the most hazardous of all callings—depending upon weather, depending upon sudden changes of the market, depending upon many a foreign element, in the shape of a war here or a war there—when he saw all this, and yet saw the courage as well as skill with which farming was pursued in this country, he owned that sometimes, as he sat and thought of the matter, he was perfectly astonished. Only a few years ago, they were again and again at that table accustomed to hear of new discoveries in farming, and of science having been brought to bear upon it; and what had been the result after all? There was no doubt that to get a return for that great amount of capital which was now sunk in the cultivation of the land, there must be great moral courage in those who sunk it—great skill and industry to make that capital pay at all. They did not, as their forefathers did, farm upon what was called in ship-building, "the rule of thumb." They went upon certain fixed principles. Let them take up, as he did constantly, the accounts of farmers' clubs in various parts of the kingdom, and what did they see? Why, he had no hesitation in saying that they saw learned discussions — scientific discussions upon the application of this or that element of the soil, calculated to produce this or that particular crop. They did not now regard a field itself as so many acres; but they regarded, first, what was taken from that field; and next, what they must put in to restore its exhausted powers. Then, according to what they wished to grow, they applied certain manures skilfully concocted on appliable scientific principles which they were seeking to carry out, and so this had ceased to be a mere rule of thumb: it deserved to be ranked as a high and honourable profession. But even when he went beyond this, and looked at the demands which were made upon them in this shape, and beheld them still having to calculate how they could reduce their expenses, and increase their profits by a bold laying out of money in machinery—when he looked at the agricultural exhibitions of the year, and examined the displays of high scientific and mechanical ingenuity for the production of those machines which tenant-farmers used; in this direction, too, they were expending a great deal of capital, and with a great deal of courage. He would tell them why he thought they displayed a great deal of courage. It would be impertinent in him to say anything upon this or that system of cultivation, as being preferable the one to the other. He regarded them as a body of men who boldly invested not only the entire of their capital, but often money obtained through a co-partnership with their friends—investing in this profession, requiring this skill, this science, and this sinking of capital for a time—invested on a weaker tenure than any other body of capitalists in the world. With no desire to give offence to any, and with no desire to gain applause, the subject that appeared to him to be worthy of the greatest amount of consideration at these meetings, and especially at the meetings of farmers' clubs, was how the tenant could be encouraged, not simply in that expenditure which he now applied, but likewise in meeting that higher demand which would yet be made upon the soil. For remember, that whilst our population increased, our soil does not. The soil must be improved by more capital, more exertion, more energy, and still it must be made to keep pace with the increase of mouths to be fed. It was worthy, therefore, of the consideration of both landlords and tenants how far a sound basis could be found for unexhausted improvements. He had lately had an opportunity of going through a mass of evidence which had been carefully given by some of the ablest men in England, and it was most curious to see that while there was almost universal testimony on the part of landlords, agents, and large tenant-farmers to the great improvement in farming, there was also an almost equally universal testimony that something was yet required to give the farmer more confidence in the expenditure of his capital, that it may not, by any of those sudden changes of life to which all professions were liable, be lost to him or his family.

It would be easy to catch a cheer by saying that tenant-right was what they wanted; he would do no such thing. There was a vast amount of difficulty in the question, and they would be surprised, if they were to see the evidence to which he had alluded, at the great amount of property which was under entail in this country, over which, except for purposes of improvements made in his life-time, no man could charge his estates so as to secure to those coming after him—or rather so as to secure to the tenants under him, that they should receive compensation after his death. He believed that although there are Acts of Parliament which would enable him to do something in the way of draining and other improvements, yet that no heir coming into an entailed estate could be bound by any covenant for unexhausted improvements. Now the unentailed property—a far greater portion than they were aware of—if he might use the term, was embarrassed—in this way embarrassed—by marriage settlements, jointures, and frequently mortgages; under all those circumstances, there was a great difficulty in securing to the tenant, on the expiration of his lease, or on a change of tenure, any compensation for unexhausted improvements. He might feed his beasts highly with oilcake; he might drain to a great extent; he might put upon the land hundreds and hundreds of pounds of artificials; yet still he was liable to lose all that he had done, unless he had some security, which was not as yet universally given. He said "universally," because many of those present doubtless knew that in some counties this was secured to the tenant, not by law, but by that which had a certain force of law, namely, custom. Evidence has been given from Norfolk and other counties to prove this fact. Now, what we earnestly desired to see was this: that the improve-

ment in farming should continue as it had continued; that the confidence which the tenant had in his landlord should grow stronger and stronger; that he should continue to invest his money with spirit, and cultivate with courage; and that he should try to obtain from the land which he held all that it was capable of producing—he wished to see all this, but it should never be lost sight of by the tenant, the risks which he incurred in pursuing these courses. He wished at least that a feeling of common justice should gradually form itself into a custom, so that in this county and in all the counties of England it should become a custom as imperative as law, which no man would break through, but which every honest man would abide by. He had ventured to say thus much upon a question which he knew was a delicate question, but at the same time one of the greatest importance. It was almost the only "sore" that they had now left amongst them. He trusted that his friends around would feel assured that he had no intention of giving offence when he said that they should either by the force of custom or by covenant give their tenants at least the option of having a return from them, or the incoming tenant, of the value of that part of their capital which they left in the soil still unexhausted. And now, in thanking them for their kindness, he trusted that he had given them no offence. There had been times when he had done so; and he really could not say whether those times might not come again. One question had been started that evening—his old one—and it came across him as Mr. Farquharson was speaking of the little boy who had obtained one of the Society's premiums for ploughing. How came it that they saw so many boys doing men's work? His answer was that he did not believe they had cottages enough to hold a sufficiently large population of married men. They were thus obliged to turn out their boys to do the work of men. He was grateful for the fact that their cottages were much improved—he was most grateful for the fact that the number of cottages had increased—but when he looked at the vast increase of land which had been broken up; when he looked at the greater call for labour of every kind; when he looked at the vast temptations to abstract labour from one locality by the increased facilities of travelling, and of correspondence amongst families and friends, he was satisfied that if they were to have hands sufficient to work their farms as they should, they must have more cottages, better cottages, and, more than this, a higher class of men for their higher classes of work. The balance must be restored, or they would find more difficulty year by year in getting skilled labour—for skilled labour must be experienced labour—and they would be reduced to the position of demanding from young hands that which they would be glad to obtain from older and more experienced ones.

Reviews.

Outlines of Modern Farming. By Robert Scott Burn. —Vol. I. *Soils, Manures, and Crops.* Virtue, Brothers, & Co., 26, Ivy Lane, Paternoster Row.

This book is a compilation from the writings of Mr. Acland, Mr. H. Russell, Mr. Wilson of Edington Mains, Mr. Jekyll of Louth, Dr. Cameron of Dublin, Dr. Voelcker, Professor Anderson, Mr. Stephens, Dr. Daubeny, Baron Liebig, Mr. Lawes, Mr. Lawrance of Cirencester, Dr. Bicknell, Professor Skilling, Mr. Sibson, Mr. Jacob Wilson, Mr. Baldwin of Glasnevin, Professor John Wilson, Mr. Hewitt Davies, Mr. Mechi, Mr. Smith of Lois-Weedon, Mr. P. Love, Mr. Fisher Hobbs, Mr. J. A. Clarke, Mr. Hallett, and a number of other writers.

It is strictly a compilation—a series of extracts, or condensed summaries of essays, books, and writings already published—arranged in illustration of the three subjects, Soil, Manure, and Crops, which occupy respectively, 31, 45, and 150 pages of the little book in which they are thus treated.

The work professes to give merely outlines of its subject—and it is plain that these are all that could be given of so large a field in so small a book. The illustrations are not very numerous—at page 78 we have drawings of varieties of "Smooth Wheat" of extraordinary disparity as to size, the smallest of them certainly of no use for guidance or instruction. The drawing of a diseased Turnip on p. 159, is incorrect. Anbury does not cover a large round Turnip with warts. The root is distorted, stunted, shrunken, as well as filled with disease.

There are repeated references in the course of the book to the pages of forthcoming works from the same pen—"Historical Outlines connected with Farming and Farming Economy"—"The Labour Question, Cottagers' Wages, &c."—"Reclamation of Waste Lands, Utilisation of Town Sewage, &c."

Horse Warrantry. A Plain and Comprehensive Guide to the various points to be noted, showing which are essential, and which are unimportant. By Peter Howden. R. Hardwicke, 192 Piccadilly.

The purchaser of this book has, in 160 pages, a very large number of definitions of all manner of affections to which the horse is liable, with a declaration regarding each on the authority of the writer as whether it is an unsoundness, a blemish, a vice, or not. The book is a collection of instructive paragraphs written by a man of long experience and proved good judgment, written simply with a view to the instruction and guidance of owners, or of intending purchasers of horses. It is pleasant to meet in the course of a series of purely practical lessons for guidance in the horse fair, reflections such as the following paragraph contains.

"*Wall-Eyes.*—According to popular rumour wall-eyes never become blind, though how this error has originated it is difficult to see.

"The appearance peculiar to wall-eyes is due to the absence of the colouring matter of the iris, and therefore, were it true that the coloured eye alone was liable to blindness, wall-eyes would be the only sound ones; and, in such cases, He who has arranged with perfect wisdom everything for the good of His creatures would have made them the most prevalent, and not the exception.

"The truth is that such eyes are neither weaker nor stronger than ordinary ones, and are therefore sound. And wall-eyes are not considered a blemish."

Laying Down Land to Permanent Pasture. By Mr. H. Sutton, F.R.H.S., &c.

This is a reprint of the instructive and satisfactory essay on this subject contributed by Mr. Sutton, of Reading, to a recent volume of the English Agricultural Society's Journal. It is a simple and explicit series of directions, by following which abundant produce and a perfect sward may be obtained. The following is a passage relating to the management of the young plant, obtained by following the previous instructions as to preparation, seed, and sowing:—

"Soon after the young plants are established—say 3 to 4 inches high—a roller should be drawn over the field, and if any spots are found in which the seeds have missed, more should be sown.

"As weeds indigenous to the soil are almost sure to come up in land laid down to Grass, care should be taken to remove them by the hand, or check them by early mowing.

"These operations of course cannot well be performed if a crop of corn has been sown with the Grasses; but in such case the Grasses and Clovers should be looked to immediately after the corn is carried, some additional seed sown in any parts in which the Grasses have suffered from the corn-crop, when a top-dressing of well-rotted farmyard manure may with advantage be applied. Rolling once or twice before Christmas will be beneficial; and, should the Grass become very strong before winter, cattle may be turned in during fine weather; but on no account sheep, as they are apt to pull up the young plants of Grass.

"It will generally be better to leave the pasture till spring, giving it an additional rolling or bush-harrowing in the month of March, with a top-dressing of manure, if considered necessary. The young Grass should not be grazed till the following autumn; but two crops of hay should be taken in the first season—the first as early as possible. This frequent cutting checks the stronger Grasses, and affords the more slender-growing kinds a better chance, and all are encouraged to tiller out and form a good close sward; whereas, if allowed to stand too long before mowing, the early kinds would become strong and ripe to the injury of others.

"Again, if cattle are allowed to graze after the first mowing (or instead of mowing), they will pick out certain Grasses and Clovers, leaving others which in time become more coarse than is desirable, and have a very unsightly, patchy appearance.

"If grazing is practised, as being more in accordance with the requirements of the owner, then a scythe should be applied once or twice during the first summer to those plots of Grass which the cattle leave."

A Handy Book on Villa Architecture. By Charles Wickes. Second Series. Lockwood & Co., 7, Stationers' Hall Court.

This handsome quarto volume contains specifications and estimates of five designs for dwelling houses, varying in estimated cost from 1500*l.* to 3500*l.* There are ground, and chamber, and roof plans, front and side elevations and sections, forming a complete series of illustrations of five very commodious and artistically designed villas.

Farm Memoranda.

CROSS HOUSE, MID LOTHIAN.—My farm extends to somewhere about 800 acres, and varies in elevation from 600 to 1600 feet. About 220 acres are under cultivation, the rest being hill pasture. My report dates from my entry to the under farm at Martinmas 1856; the farm as I now work it having previously been two separate holdings. In commencing operations I had the whole in the following state:—The under farm had been cropped continuously for a long period of years without much regard to any regular system of rotation, but just any crop followed crop, and which, instead of being consumed on the farm, were mostly removed and driven to market. Little manure in lieu had been returned, and thus this scourging system had reduced the land to the very lowest ebb. The upper farm was all in pasture; what had originally been cultivated was ill laid down, undrained, and very unproductive.

Rotation of Crops.—I laid plans to drain, improve, and break up the available land of the upper farm, and to work it in regular rotation with the under one, which was all arable, and I as quickly as possibly introduced over the whole the following system of cropping—1, Oats; 2, Turnips; 3, Barley; 4, 5, and 6, pasture—only as much being reserved of the first year's Grass as is required for green cutting, and to provide a small quantity of hay for autumn and spring use. I make these statements regarding the rotation of cropping, because I believe it is the rotation which in an upland district is best suited to keep up the fertility of the soil, and which ultimately will become most profitable to the farmer. I find from experience that, without pasturing to a considerable extent, the land becomes both Clover and Turnip sick, and in fact, even with the most liberal manuring, becomes exhausted. In some soils pasture deteriorates the second and third years, and cannot longer be profitably continued; on my farm I have not experienced this deterioration, which is no doubt partly prevented by the liberal use of artificial feeding supplied to the stock when pasturing. I find, however, that when pastured longer than the three years before breaking up, the Oat crop is not so good; not occasioned, in my opinion, by the land being poorer, but by the sward having become tougher, making the mould less friable, and not so accessible to absorption by the roots of the crop.

Manure.—I manure as liberally as possible; every available part of the produce is consumed by stock on the farm, and either dropped on the fields or added to the dung heap. In applying artificials, after many experiments with most of the substances in the market, I am now confining myself almost entirely to bones, ground or dissolved, with a small quantity of Peruvian guano; but I never apply these alone for a turnip crop without an allowance for farmyard dung. Bones, being lasting in their effects, are a valuable application when pasturing is practised, and I hold it is of the very greatest importance to have our pastures rich, both as a source of immediate profit, and also as a means of increasing the fertility of the land when it is broken up. If pastures are all swarded and bare, the land will not be enriched; I therefore use every means to make my pastures as good as possible. As I said before, I cut only a small quantity of hay, never having the swards as good after a hay crop as when it is pastured the first year; indeed, so convinced am I of the benefits of rich pasture, that I believe in certain circumstances the grain crop had better be sacrificed altogether, and have the seeds pastured with sheep the first year. I am making arrangements just now to have 15 acres laid down in this way for the coming spring. I am at present consuming the Turnip crop upon the field by sheep, and intend ploughing as early as possible to have the surface well pulverised with frost, will sow the seeds in the beginning of April, adding a few lbs. per acre of Rape-seed, and expect luxuriant pasture by the middle of June. I will not detain you at present by giving any detail of my working staff more than by saying that I have availed myself of a considerable number of the most recently introduced implements and machinery, including steam power for threshing, &c., sowing and reaping machines, Turnip-cutters, cake breakers, &c., and have found these a decided advantage, and reckon them almost indispensable on a farm.

Live Stock.—In now proceeding to report on the live stock department of the farm, I would have you to understand that it is principally a breeding establishment, and as much of the stock as possible are sold for breeding purposes; the report will refer more to my practice as a breeder than as a feeder of stock, although feeding for the butcher is also practised to a certain extent. The improvement of live stock may be effected either by a selection from the stock on hand of the best animals to breed from, or by supplanting those that are inferior by a superior race. If any degree of perfection is wished, however, it is of great importance to have a fixity of type and purity of blood at once—there can be no doubt but the shortest and most certain way to carry out breeding successfully is to secure at the very outset both male and female of the purest and best. In doing so much time will be saved, and a uniformity of character will be secured, which a life time would not effect where the basis of the stock has been a spurious one. I have always made it my endeavour to breed from animals on both sides of the purest blood, and of the most standing type, and in so doing I have seldom been disappointed. My breeding stock consists of Ayrshire cattle; black-faced sheep on the hill, and Leicesters on the low grounds. I have also a breeding stock of pigs, and annually I have bred a few horses. I do not intend giving in detail an account of the general management of my stock, as this would take up too much of your time, but will confine myself to the principles on which I breed them. Where my stock has wanted pure breeding I have in every case disposed of the original stock, and replaced them by purchasing from breeders of known celebrity. In this way I have laid out a good deal of money, but I always reckon that an animal possessing intrinsic merit, though bought at a high price, is cheaper in the end than one of a spurious character, however moderate it may be purchased. We not unfrequently hear breeders of stock saying, "Why all this talk about fine breeding? give me an animal heavy enough, and I will not disturb myself about its pedigree." This is a great mistake,

which a simple glance at what constitutes a pure breed of animals will at once make obvious. Animals which are the progeny of parents of mixed blood, though possessing apparent excellence, have no fixed type about them.

Crosses in Breeding.—The remarks I have made however, do not at all condemn the practising wise and judicious crossing, to supply animals for feeding purposes. The fact is, there is the greatest inducement for crossing, as we find that the first progeny from animals of different breeds are often the most profitable of all for that purpose. In my experience of crossing, I have had sufficient proof, however, of the preponderating influence possessed by a breed having fixity of character, when used for crossing races of mixed blood. I may illustrate what I mean by detailing some experiments I made in crossing the different breeds of sheep, and I may state that I have found the principles of breeding to be the same in every variety of our domestic animals. In these experiments I also found in almost every case the influence of the rams to be greater than the ewes. As examples, I put Leicester rams to Southdown ewes, and *vice versâ;* by the former cross I had lambs very much resembling the Leicester, with comparatively whitefaces and rather long wool, while by the latter cross the lambs had the dun face and the thick matted wool of the Southdown. I made similar experiments with the Cheviot and Southdown with similar results. In a cross with the Leicester ewe and blackfaced ram, I had lambs with horns and dark faces, while in the common cross with the blackfaced ewe and Leicester ram, the lambs are without horns, having almost white faces, and in a high degree possessing the aptitude of the ram to fatten. In all these cases, however, it was only when rams of a pure breed were used that the lambs possessed anything like uniformity of appearance, and the principle that a fixed breed has far more influence on the progeny than one of a spurious character, was in all these experiments fully exemplified. Where crossing is practised, coarse and spurious bred rams are often put to black-faced ewes, and the notion is too prevalent, that purity of blood is not essential for crossing black-faced stock; but if we attach any importance to the principle, that antiquity of blood has a strong propelling force, and easily overcomes mixed blood in the other sex, the importance of using males of a pure breed will appear evident. In my opinion, the black-faced being an ancient breed, has a very strong counteracting influence, and it is only when crossed by rams of another pure breed that their features will not be found to be predominant in the offspring. I made various experiments with different breeds, having crossed the black-faced with the Southdown, and also with a cross from the Southdown and Leicester. I have also experimented with crosses from all these breeds, and have come to the decided conclusion, that when crossing is practised, purity of blood at least in the male is essential, and that as the influence of the male is greater than the female, even when breeding pure stock, it should be the aim of every breeder to secure these of superior character, but though that is of paramount importance, they should never be procured at the expense of neglecting to keep up a well-selected breeding stock in every department.

Phenomena in Breeding.—Before leaving this subject, I may, to excite discussion, refer to some phenomena I have observed in my breeding experiments, which I believe is not generally noticed by breeders, but which, from unmistakeable manifestations, has now some effect in guiding my management. (*a*) I refer in the first place to the condition of the different sexes in producing male or female offspring. I have invariably found that whatever sex is in the state of condition least conducive to health, whether they may be caused by under or over feeding, extreme youth or old age, is the most likely to produce offspring of their own sex. Thus we have a strong provision of nature, when the existence of either sex is threatened, that it should be reinforced by an offspring to fill its place. (*b*) Another phenomenon I may mention, although at one time I publicly stated my disbelief in it, has now, I think, in my experience been proved to have some foundation. I refer to the opinion held by some, that a male animal that has once had fruitful connection with a female, may so influence her future offspring, although begotten by other males, as to engraft upon them, to some extent, the distinctive features of the first male with which she had connection. Although I think I have noticed such effects in other cases, I will only adduce one example which I could not account for otherwise. I have a black half-bred mare, which had a foal to a chestnut blood horse, the foal was chesnut like the sire. The next year she was served by a bay cart horse, and as the mare is pretty strong, I expected a powerful strong-legged foal, but the reverse was the case; the foal, which unfortunately died, was actually as fine as the foal she had from the blood horse; and a singular phenomenon was also manifested in the colour of the foal. After being served by the cart-horse, the mare seemed to have a peculiar fancy for a chesnut horse, that was frequently put into the stable; on every occasion she seemed quite excited the first moment she saw him, and curious enough the second foal was chesnut too. Could this fancy for the chesnut horse, and shape and colour of the foal, be the result of the mare's first connection with the chesnut blood-horse, and was his influence reaching to the subsequent progeny of the mare in whose conception he himself had no share? I do not myself give a direct answer to these questions, but I certainly think it is a subject worthy of some consideration, as if it is to have any weight at all, questions must be involved of considerable importance in the science and practice of breeding. (*c.*) I annually dispose of a number of rams for breeding purposes, and I am frequently told by breeders, whom I am supplying, that such a ram left a great many twin lambs. Now, I must say that in my experience of breeding I have no reason to ascribe to the ram any share in the prolific fecundity of the ewe. I have noticed a few curious cases, however, which, at first sight, would lead one to suppose that he had an influence, but such cases can, I think, be satisfactorily accounted for by studying a little the laws of conception. The cases I refer to I believe occur frequently unnoticed; I allude to a ewe having two lambs at one birth from different rams. I only adduce one case, but have seen others. A Cheviot ewe was served by a Southdown ram, and also by a Leicester one, and had unmistakeably a lamb from each. I have mentioned this to different breeders, and I found they generally held the opinion that had the ewe been only served by the first ram, she would have had but one lamb; but I have not the least doubt a different result could be accounted for. Indeed, physiologically understood, it is quite plain; but as I never heard of a subject of that nature being discussed at a meeting such as this, I will not go further into the physiological discussion of it at present, but will content myself by viewing in it its more practical aspect. (*d*). A very common argument brought forward by those who believe that the ram has an effect on the prolificness of the ewe is, that the greatest number of twins are produced at the beginning of the lambing season, the produce of the rams when put out to the ewes strong and in high condition. In my present practice I have proof to render this opinion null and void. To save my rams from being too much reduced when serving my hill ewes, I put out one leet three weeks or so, when I bring them in, and put out another leet to finish up; but although the second leet goes out in as high condition as the first, there is no second return of the twin lambs when the lambing season comes round. The fact is, we can make ewes either prolific or not as we like, but I have never been able distinctly to mark that the influence of the ram, either from nature or condition, had much to do with the fruitfulness of the ewe. In hill stocks we do indeed have the greatest number of twins at first, caused, no doubt, partly by the strongest ewes taking the rams first, and partly by ewes in twins going rather shorter than when they have single lambs, also, as the season gets further advanced when the rams are with them, the ewes may to some extent be losing condition, which, no doubt, counteracts their tendency to fruitfulness. Nature works skilfully and to suit the wisest ends, and let me observe that after conception the male animal has nothing further to do with the produce, but nature has ordained that the female has to bear and nurse the progeny, and just in proportion as we supply or withdraw the means of subsistence for a period before conception is their fruitfulness determined. If their pastures are flowing with plenty, nature provides a numerous offspring, but if barren and bare a check is at once given to fruitfulness.

Hazards of Farming.—The breeding and rearing of stock is an interesting study; indeed it cannot be denied that farming, as a whole, when conducted on scientific principles, is a highly interesting occupation, but, at the same time, it is a difficult and hazardous one. I never was more convinced than I am at present of the hazardous nature of our profession; we have high rents, heavy taxes, expensive manures, and increasing outlay in every department of cultivation to strive with. But have we no more? If these were all our drawbacks we might battle the breeze, but add to these the various epidemics our flocks are now exposed to, and last, though not least, the mysterious diseases to which our root and grain crops are liable—and with these staring us in the face, who can but feel that our profession is a most precarious one? We are often told by those unacquainted with agricultural pursuits that the occupation of the farmer is an easy one, and we sometimes hear it talked of as the happiest retreat in declining years, for the man of business or of art, after having run their road in an active sphere of life; but instances are not wanting of disappointed expectations, reduced capital, and a life of difficulties and perplexities ending in bankruptcy and ejection, all the result of inexperience. It may of course do all very well for the inexperienced capitalist to engage in farming who has wealth to secure skilled superintendence, and who can afford to live in independence and ease, but I firmly believe there are few occupations that more requires experience, skill, and unremitting attention on the part of those who are engaged in them, and it is only these qualifications, combined with sufficient capital, that can make farming to those who must live by it at all a comfortable profession.

[The above has been somewhat abridged from an exceedingly interesting paper read by Mr. Wilson, of Crosshouse, at the late annual meeting of the Penicuik (Mid Lothian) Agricultural Society.]

Miscellaneous.

Treatment of Cream in Winter. Deep or Shallow Pans.—In order to determine with certainty the results of setting milk for cream in deep or shallow pans, I have made several experiments, and, although on a small scale, they have been made with accuracy and care. The milk from two cows was mixed at each milking, strained into common-size pans, and allowed to stand 48 hours. At this time the cream became hard, and was skimmed off wholly free from milk. The milk had been measured in each pan when strained, and when skimmed the cream was measured and weighed, but I do not place full reliance upon the weight, as our common steel-yards were used. Believing that temperature has effect on the milk, it was kept as equal as possible each day. No fire was kept in the room during the night, and I estimate the average temperature of the room at 46°. The temperature from 9 A.M. to 9 P.M. was 65°. The position of the pans was similar, being on the same shelf. The following is the result:

In pans containing	1 quart,	the cream measured	1	gill.
do.	do.	2 quarts,	do.	do.	2	gills.
do.	do.	3 do.	do.	do.	2½	do.
do.	do.	4 do.	do.	do.	3	do.
do.	do.	5 do.	do.	do.	3½	do.

The same experiments were tried twice successively with the same results. For another experiment the milk was allowed to stand 72 hours, but without any addition to the measure of cream. The question will readily occur, whether there would be any difference in the per centage of butter in either of the above experiments. This I cannot say, but I am positive in my own mind it is in favour of the milk in shallow pans.

I have experimented in various ways in the treatment of milk and butter-making, and have come to the following positive conclusions, viz.:—Milk should be strained immediately after milking, and two quarts is sufficient for one pan. No more cream is obtained from milk which has been headed, than from that which has been kept in a room of the proper temperature. Cream should be kept at the same temperature after being skimmed, as before, during cold weather; also it should be stirred twice a day, and a little salt stirred in two or three times while being gathered for a churning; this will prevent the white particles of curd seen in butter. 48 hours is sufficient for the milk to stand before being skimmed, if proper treatment is pursued. For churning the cream should be warmed gradually. This Mr. Edior, is in my humble opinion the best method of treating cream during the winter months; for summer my method is somewhat different. *A Farmer's Wife in the Homestead.*

Calendar of Operations.

JANUARY.

[The following passages are extracted from *Morton's Farmer's Calendar.* Routledge.]

"The work of the farm during January may include the following particulars, some of which, as will be seen, are referred to under other months, when they are also appropriate, while the others are discussed in the order in which they are numbered:—Land Drainage — Road-making—Marling, Chalking, Liming.—Preparation of Compost and Manure Heaps, and carriage of dung to field.—Tillage Operations.—The sowing of various crops, as (*a*) Wheat, (*b*) Oats, (*c*) Peas, (*d*) Beans.—Management of Pasture and Meadow land.—Threshing of Grain for market—Livestock Management, including the Feeding-house and Cow-byre, the Sheepfold, the Pigsty, the Stable, Management of Fences, and of Woodland."

Of Composts.—"In whatever way the materials of our dung heaps are gathered together, there is a considerable store accumulated by January; and as, during the frosts of winter the land is fit for carting on, a good deal is generally carried to the fields this month. When cattle are fed in open yards, the dung may be either carried out now, or left till spring, and then turned over and made fit for application to the land at once. This, however, is a most wasteful practice; for the manure thus suffers the greatest possible exposure both to air and rain water. When cattle are fed in covered yards, such a method is economical and efficient enough; as the dung so made is not then exposed to the washing of rain-water. When stall feeding is adopted, the soiled litter is thrown daily into the yard, either covered or open; or it is carried daily to the heap, and there covered with earth. When box feeding is adopted, the litter accumulates under the cattle, and the boxes are cleaned out only at intervals of months. It is then cut out and carted to the field, and either spread at once and ploughed in, or, if this cannot be done, carted to heaps in the fields where it is to be used. When carted together in January, the carts should be driven over the heap, which should be about 4 feet high. This treading down excludes air, and so checks the rotting process. Later in the season the carts are backed against the heap, which, lying more loosely together, ferments more rapidly, and so the sooner acquires that rotten texture which enables it to be easily buried under the surface, or perfectly mixed with the soil. In any case, in order to the retention both of the volatile and the soluble products of this fermentation, the heap should be laid upon a bed of loamy soil, about 6 inches deep, and covered with a layer of such soil 3 or 4 inches thick: and when the heap is finally mixed together, before being carted out, this earth, rich with ingredients that would have been lost, should be mingled with the mass."

Of Tillage Operations.—"These—including ploughing, deep stirring with the cultivator, &c., are efficient just in proportion as the land is dry when they are done; accordingly, as soon after harvest as possible is the best season for them. The air is, as already said, a great storehouse of manure for plants, and the more of it, as well as of things more commonly called manure, that you can get mixed with your soil the better. It too, like other manures, is useful in proportion to its thorough mixture with the soil. Every little particle of earth, though moist itself, should thus be wrapped in air; and where the land is drained every shower that passes through it will draw fresh air in, so that these particles shall be able to absorb fresh supplies from it of the fertilising ingredients which it contains. Detailed reference will be made to this hereafter; it is named just now as indicating that this month of all the 12 is generally the least adapted to tillage operations. Only rarely, in dry seasons, or when necessary work has been previously delayed, does the plough properly find work in January. Corn stubbles may in rare cases still be left unploughed, and should be turned over as soon as possible—or the ploughing of sward for Oats may have to be done. Land, too, the tillage of which has been

delayed by drainage operations, may when dry, be ploughed. This will be done irrespectively of the direction or position of the drains; but if ploughed up and down in lands of the same width as the intervals between the drains, these intervals had better be ploughed 'out,' so that the drains shall be in the 'crowns' of the future lands. In a flood time the surface furrows of the land are useful for hindering the stagnation of surface pools; and all clay lands especially ought to be water furrowed—*i.e.*, so provided with surface furrows as that water shall run off the land if it comes down faster than it can sink in; but the more that you can look upon these surface furrows as the mere accidents of your plan of ploughing, or useful only as a guide to future work, whether in sowing, hoeing, or harvest work, the better condition will it prove your land to be in. Never mind, therefore, how these surface furrows lie with reference to the position of your drains."

(To be Continued.)

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. SPEARING, Monsford, near Wallingford, Berks, during the week ending Dec. 31, 1862.

Day of Week.	Day of Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Dry Bulb Thermometer.	Reading of Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0-6	Amount of Cloud 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday ..	25	30.35	45	43	W.	2	1	48*	42	49*	38	..	43½	44
Friday ..	26	30.33	46	43	W.	3	6	50	40	69	33	..	43½	44
Saturday ..	27	30.43	42	41	S.	1	8	50	35	67	30	..	43½	44
Sunday ..	28	30.14	47	45	S.W.	2	6	52	41	68	40	..	43½	44
Monday ..	29	29.64	47	45	S.W.	4	8	53	45	65	41	0.06	44	44
Tuesday ..	30	29.61	38	46	W.	4	8	50	36	55	31	0.03	45	44½
Wednesday	31	30.16	36	34	W.	2	1	47	33	68	26	0.02	44	45

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

OBSERVATIONS.

N.B.—The instruments used are by Negretti & Zambra, tested by Mr. Glaisher.

Rainfall during Year.

January	2.35	August	2.41
February	0.49	September	1.59
March	4.29	October	3.42
April	2.92	November	0.79
May	3.43	December	1.66
June	2.53		
July	2.72	Total inches	27.60

Notices to Correspondents.

CATTLE FOOD: *C L.* The composition given might be produced by grinding together about equal quantities of Wheat, Carob pods, and roasted Potatoes with a little Linseed. Very good food indeed, on which cattle would fatten. This mixture however would hardly yield so much of the albuminous ingredient as you name, and perhaps some animal matter would have to be added. Excuse an accidental delay. We have not given the question any very detailed or elaborate examination, but it appears to us that such a material would not cost 12 or 14*l.* a ton.

FOOD AND STOCK: *G W.* We find a question from you which has, we fear, been left unanswered. Your food at the end of October, from your account of it, seems to have been about 100 tons, besides the winter Grass of 14 acres of moderate Grass land—perhaps 120 tons of green food in all, equal to 12,000 daily rations for an ordinary lamb or teg. Fatting cows will consume more or less of this according to size, condition and the quantity of purchased food given to them. Perhaps 20 rations may be put down for 4 each day for four or five months. The three dairy cows will need as much. The three 2-year old and 10 yearlings may be put down for 50 or 60 rations, and the 40 lambs for 40. Here then we have 140 rations daily, according to which you are largely over stocked—your food will have lasted you only 100 days. Of course it can be spread for a longer time by using straw and hay as fodder. The lambs will be better a part of their time on the Grass.

GAS WATER: *Marcus.* It is worth as much to the farmer if the carriage be not great, as the gas works can get from any other customer. What its actual worth may be depends on the proportion of ammonia which it contains, which varies with the coal and the process. We should apply it direct after a dilution the quantity of which must be ascertained by experiment with a watering pot on the lawn, and put it with the water cart on Grass land. Gas lime should be bought months before used and turned over in compost with other material before application to any Grass crop, or it may be applied on stubble and spread at once and left exposed to the air, by which its causticity is destroyed, and it becomes a mixture of lime and gypsum. It is worth at the gas works as much as lime is worth at the kiln, but it generally sells for less.



HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.

COMBINING SIMPLICITY, CHEAPNESS, AND DURABILITY,

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.



"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit can be obtained as the 'Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.



The Cash Prices of LEAN-TO HOUSES, with Water-troughs, Doors and Ends complete, are as follows:—

Ft. In.	8 ft. Lights	10 ft. Lights	Ft. In.	12ft. Lights	14ft. Lights	16ft. Lights
20 7 in length	£12 0 0	£16 0 0	20 11 in length	£21 18 0	£28 10 0	£34 5 0
31 3 in length	16 10 0	21 2 6	31 9 in length	29 6 0	37 12 0	45 16 0
41 11 in length	20 18 0	26 18 6	42 7 in length	36 16 0	46 14 0	57 7 0
63 3 in length	30 6 0	38 10 0	64 3 in length	51 14 0	64 18 0	80 10 0
84 7 in length	39 6 0	49 11 6	85 11 in length	66 12 0	83 2 0	103 11 0
105 11 in length	48 17 6	60 12 6	107 7 in length	81 10 0	101 10 0	126 13 0

SPAN-ROOF HOUSES at double the above prices for each length of house.

Circulars with Lists of Prices and Cards to view houses in operation in the neighbourhood of London, also Estimates for Heating and Erection complete, can be had on application to

SAMUEL HEREMAN, 7, PALL MALL EAST, LONDON, S.W.

A HANBBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN, price 1*s.*; post free, 1*s.* 1*d.*

"We cannot do better than advise every reader who has a spark of gardening spirit and taste in him to write at once for a Copy."—*Bell's Weekly Messenger*, March 17, 1862.

JOHN TAYLOR & SONS,

HORTICULTURAL BUILDERS AND ENGINEERS,

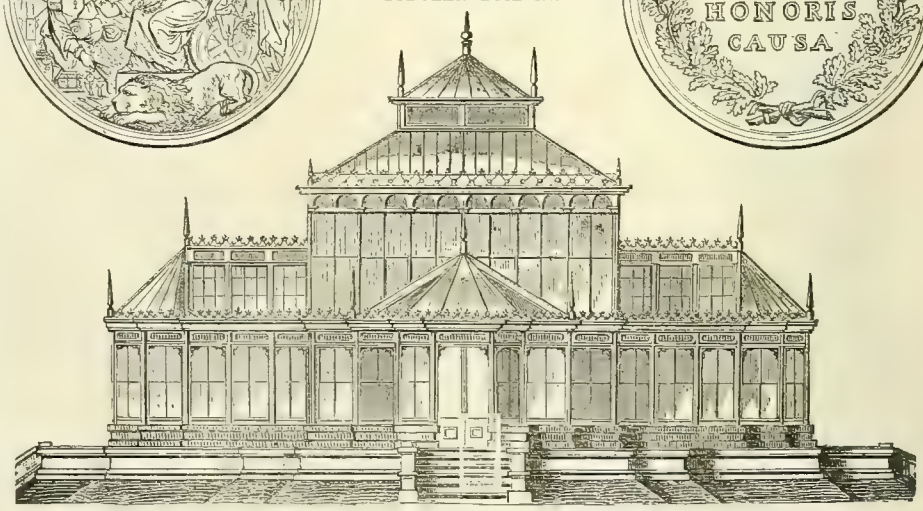
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INTERNATIONAL EXHIBITION,
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PRIZE MEDAL
For CONSERVATORY,
DOUBLE CHAMBER CORRUGATED
and HORIZONTAL
TUBULAR BOILERS.





J. TAYLOR AND SONS call the attention of the Nobility and Gentry to the very superior manner in which they erect CONSERVATORIES, VINERIES, FORCING, FRUIT, and PLANT HOUSES of every description, combining the most modern improvements with elegance of design and durability of materials and workmanship.

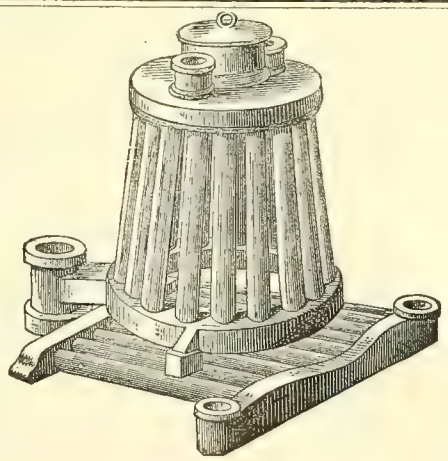
Our VENTILATING APPARATUS for the Roofs and Fronts of Horticultural Buildings, &c., supersedes any now in use, as being the most simple and effective in its action.

Our system of HEATING APPARATUS for Churches, Public Buildings, Mansions, Schools, Offices, Baths, Horticultural Buildings, &c., is particularly worthy of notice, we having for many years devoted especial attention to this branch. The great variety of work which has passed through our hands has gained us such experience in the mechanical details as to insure success and entire satisfaction in any undertaking entrusted to our care.

The superiority of our DOUBLE-CHAMBER CORRUGATED and HORIZONTAL TUBULAR BOILERS has caused them to be acknowledged as the best now in use, being both powerful and rapid in action.



FIRST CLASS PRIZE MEDAL
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At the INTERNATIONAL EXHIBITION.





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ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

HAS TAKEN MORE AWARDS THIS YEAR THAN ANY OTHER TUBULAR BOILER.

These Awards have been given by Scientific, Practical, and Competent Judges.

At the Exhibition of Boilers at the Royal Horticultural Society's Gardens, ORMSON'S PATENT JOINTLESS TUBULAR BOILER was the ONLY Boiler of any description to which an Award was given.

Other Tubular Boilers advertised in the pages of the *Gardeners' Chronicle* were exhibited to which NO Awards were given.

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Plans, Specifications, and Estimates on application.

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HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES, AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

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THE HYDROPULT,

The HYDROPULT is invaluable for

WATERING GARDENS,

EXTINGUISHING FIRE JUST COMMENCED,

PROTECTING a ROOF from FIRE,

CLEANSING TREES from INSECTS,

DRESSING with LIQUID MANURE,

SPRINKLING PLANTS,

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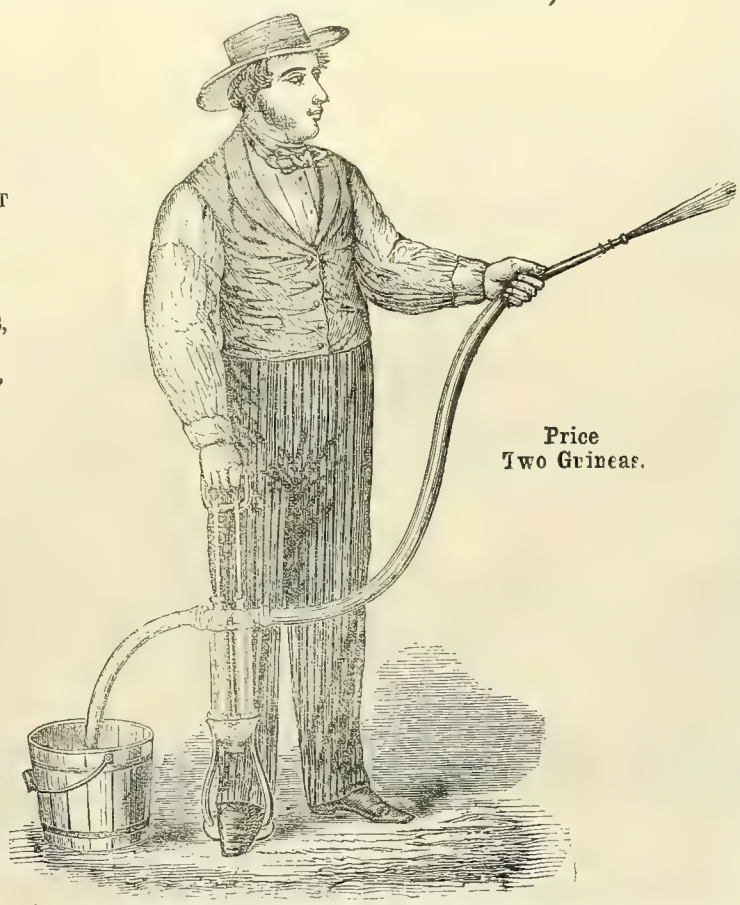
SPRINKLING STREETS,

WASHING CARRIAGES.

WETTING SAILS,

A SPRAY BATH,

&c. &c.



Price
Two Guineas.

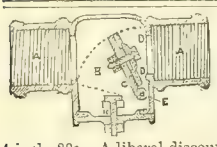
A PORTABLE GARDEN ENGINE, AND FIRE ANNIHILATOR.

CAUTION.—Unprincipled parties are now palming on the public an infringement of the Hydropult Patent. This is to notify, that said pirates and all persons using or vending this article will, in due time, be prosecuted. No machine contained in a bucket is the Hydropult. Every Hydropult has a Trade Label affixed, as follows:—

"The Hydropult, a Portable Fire Annihilator and Garden Engine.
"GRIFFITH & BROWETT,
Manufacturers, Birmingham;
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and is sold at the uniform rate of Two Guineas, complete, with 2½ feet suction and 3-feet delivery hose, Galvanised Wire Strainer, Rose or Sprinkler, and Fire Jet. It is an easy matter to imitate the Hydropult in appearance, and thereby deceive the public; therefore this caution. The Hydropult WEIGHS BUT 8 LBS., will throw 7 or 8 gallons of water per minute 50 FEET when worked by the power of one man. Has been recommended as an efficient FIRE ENGINE by the principal FIRE INSURANCE COMPANIES OF GREAT BRITAIN. Thomas Rivers, Esq., the eminent florist; Shirley Hibberd, Esq., and other well known gentlemen, recommend it as an invaluable GARDEN IMPLEMENT. J. Spencer, Esq., Inspector of the Royal Society for the Protection of Life from Fire, certifies to its efficiency in saving valuable property in Bayswater from destruction. The city and provincial press accord to the invention the utmost praise. All who purchase the Hydropult are satisfied with its action; each machine guaranteed to be perfect. Prospectus, with testimonials, on application at either office.

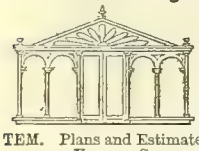
HYDROPULT OFFICE: 27, LEADENHALL STREET, LONDON, E.C., and 309, REGENT STREET, POLYTECHNIC BUILDING, LONDON, W.—CHARLES P. BUTTON, PROPRIETOR.



T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough, has recently patented a VALVE which is unequalled for its efficiency, simplicity, durability, and cheapness. Prices as under. Two-inch, 17*s.* 6*d.*; 3-inch, 23*s.*; 4-inch, 28*s.* A liberal discount to the Trade.

These Valves can be obtained in London of Mr. J. JONES, 6, Bankside, S.E.

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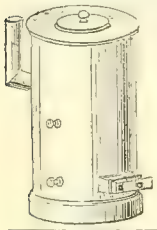




VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER. HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.

VINCENT SKINNER, Bridewell Street, Bristol.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



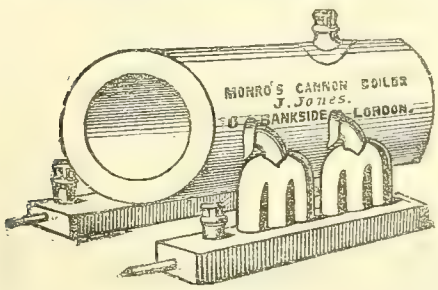
Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

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Price complete from 9*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

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SUPPLIES OR ERECTS, COMPLETE,

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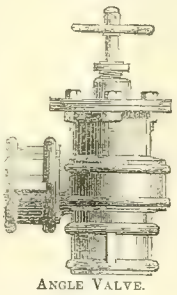
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INTERNATIONAL EXHIBITION, 1862.—CLASS VIII., No. 1796.

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BECK'S IMPROVED PATENT HOT-WATER VALVES.

UPWARDS of 3000 in USE.

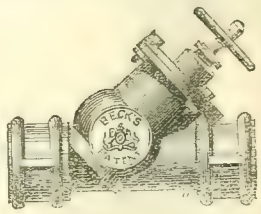


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The above fact shows the decided superiority of

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over every other description at present in use.



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STEAM CULTIVATORS, STEAM PLOUGHS,

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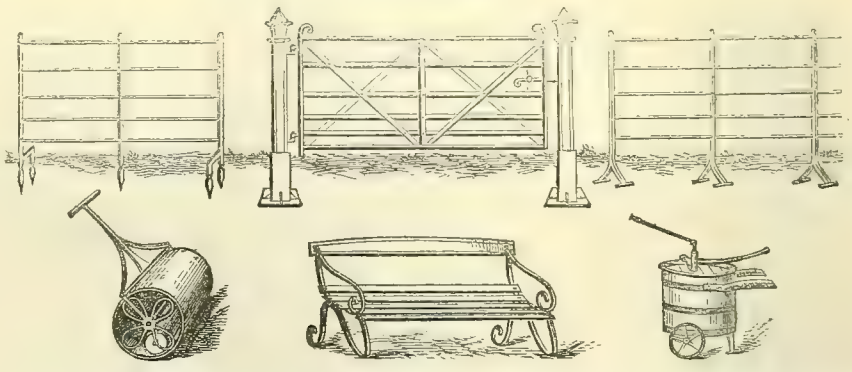
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CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED, IN VARIOUS STYLES.



IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes. VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c. The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

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Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

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HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

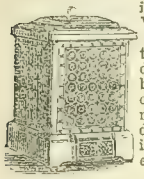
W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 8*d.* each.

Other Connexions at equally low prices, and all goods of first-class manufacture.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.—This Stove is the nearest approach to Warming by Hot Water, and an efficient aid in Ventilation.

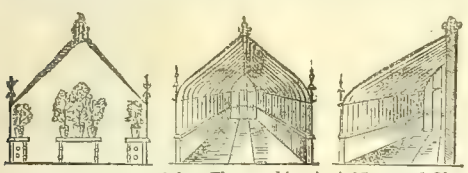


It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for Small Conservatories, with a vapour chamber, which maintains a moist atmosphere for 12 hours with once filling.

Particulars and prices post free on application to MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon



an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

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SOLELY MANUFACTURED BY

BURY AND POLLARD (Successors to JOHN R. PEILL, late STEPHENSON & PEILL), have attained a celebrity far surpassing any other Boilers ever invented. Of the many hundreds which have been fixed in this and foreign countries, not one single Boiler has ever proved defective, or failed to give the most complete satisfaction. They are connected with large ranges of Pipes (in some cases several thousand yards), at many Public Establishments, at the Crystal Palace, the Royal Botanical Gardens at Kew, and at the Regent's Park, as well as at most of the Nobility's Seats throughout the Kingdom.

All particulars may be obtained on application to BURY & POLLARD, Sole Manufacturers, Park Iron Works, New Park Street, Southwark, S.

Price £4 10*s.* and upwards.

Every description of Material for Heating Buildings, supplied of the best description, with directions for putting up Hot-Water Apparatus.

Anti-Frost Water Pipe Protector.
[Jones' Patent.]

IMPORTANT to all HOUSEHOLDERS, preventing damage, waste, and annual expenses from pipes bursting in frosty weather.

Wholesale of BURY & POLLARD, Engineers, Sole Manufacturers, Park Iron Works, Southwark, London, S.

Retail of all Ironmongers. A liberal discount to the Trade.

FOR SALE, 200 feet length of 10-feet LIGHTS, new and portable, for covering Peach or other wall, with Plates, Gutter, Doors and Ends complete,

For particulars apply to Messrs. CUTBUSH, Nurseries, Highgate, London.

TO BE SOLD a BARGAIN, Three Second-hand Lean-to GREENHOUSES, well adapted for Vineries.

No. 1—52 feet long by about 14 feet wide.
,, 2—40 ,, ,, 14 ,,
,, 3—30 ,, ,, 13 ,,

For price, &c., apply to CHARLES SOUTHBY, Nurseryman, Clapham, S.

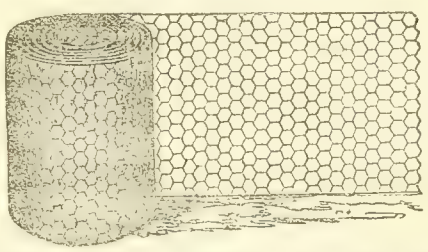


JOSEPH HAYWOOD
AND CO.,
MANUFACTURERS OF
PRUNING and BUDDING
KNIVES,
SPORTSMAN'S, and all kind
of POCKET CUTLERY.

Dealers in Gambia Garden Shears, Scissors, Syringes, &c.

Glamorgan Works, Sheffield.

BARNARD, BISHOP, AND BARNARDS, Norwich.
FURTHER REDUCTION in the PRICE of WIRE NETTING.—APRIL, 1861.

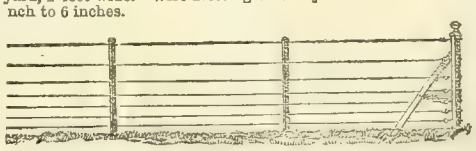


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised, per yard.	Japanned Iron, per yard
2-inch mesh, 24 inches wide..	No. 19	.. 4½*d.*	.. 3½*d.*
2-inch ,, ,, ,, ..	,, 18	.. 5	.. 4
2-inch ,, ,, ,, ..	,, 17	.. 6½	.. 5
2-inch ,, ,, ,, ..	,, 16	.. 8	.. 6½
1⅝-inch ,, ,, ,, ..	,, 19	.. 4¾	.. 4
1⅝-inch ,, ,, ,, ..	,, 18	.. 6	.. 4¾
1⅝-inch ,, ,, ,, ..	,, 17	.. 7	.. 5½
1⅝-inch ,, ,, ,, ..	,, 16	.. 9	.. 7

All the above kinds can be made any width (under 6 feet), at proportionate prices.

Strong Galvanised Poultry Netting, 7½*d.* per yard, 3 feet wide Galvanised Sparrow-proof Netting for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10*d.* per yard.

The same with Galvanised Wire Rope, 1*s.* per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

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For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

MINTON AND CO. have REMOVED from Albion Place, Blackfriars, to 50, Conduit Street, Regent Street.

ENCAUSTIC and other PAVEMENTS, EARTHENWARE and PLAIN TILES. Designs and Estimates prepared.

Manufactory: Stoke-upon-Trent.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability. Clinkers, Red and White Vail Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER, Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, London, N.E.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.

PROTECTION from the COLD WINDS & MORNING FROST. "FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. .. 1*s.* 6*d.* per yard run.
Four yards wide .. .. .. 3*s.* per yard.
An improved make, 3 yards wide, 2*s.* 6*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 4*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon St., City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

Archangel Mats.

JAMES T. ANDERSON begs to announce that he is now open to supply, at a low price, and in any quantity, ARCHANGEL MATS, the finest in London of this season's importation, and solicits an inspection of them by Nurserymen and Seed-men.

SACKS, SEED BAGS, &c.
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Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

BRAMAH POOTRA FOWLS, best Winter Layers, and the finest to cross with Dorkings for table and egg producing, a quantity of early birds for Sale; also Dorkings, Spanish, Cochin, Crevecoeur, Hamburgh, Game, Malay, Bantam, and other Fowls, Turkeys, Geese, Ducks, and Ornamental Waterfowl. Gold, Silver, and other Pheasants, Californian Quails, Foreign and British Cage Birds, and Cages &c., supplied at moderate prices, by JACKMAN and DECROIX, Importers, 36, Great St. Andrew Street, Broad Street, Bloomsbury, London.

PIGEONS for SHOOTING.

TO BE LET, in the County of Pembroke, LLANGWARREN FARM, consisting of 473 Acres, more than half of which is Pasture.

For particulars apply to J. B. LAWES, 1, Adelaide Place, London Bridge.

To Fruiterers and Seedsmen.

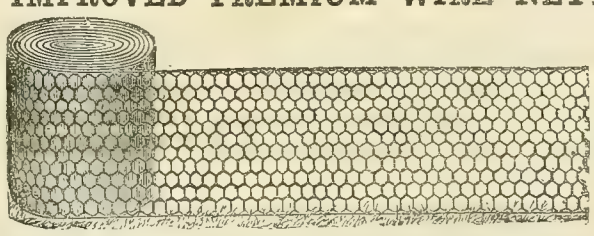
TO BE DISPOSED of, a BUSINESS in the above line, within 15 miles of London, in a capital neighbourhood. The above Business has been established 7 years. Satisfactory reasons for parting with the business can be given. About 1½ acre of Garden Ground can be obtained if required.

Also to be disposed of, a New Covered VAN, to use with one or two horses.

Particulars may be obtained on application to C. W. A., Post Office, High Wycombe.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH:—

Size of Mesh.	Mostly used for	Light. Japanned.	Light. Galvanized.	Medium. Japanned.	Medium. Galvanized.	Strong. Japanned.	Strong. Galvanized.	Extra Strong. Japanned.	Extra Strong. Galvanized.
2¼ inch	Hares, Dogs, Poultry	3*d.*	4*d.*	3¾*d.*	5*d.*	4½*d.*	6*d.*	5½*d.*	7*d.*
2 inch	Game or Poultry Netting	3½*d.*	4½*d.*	4*d.*	5*d.*	5*d.*	6½*d.*	6½*d.*	8*d.*
1⅝ inch	Small Rabbits, Hares, &c.	4*d.*	4¾*d.*	4¾*d.*	6*d.*	5½*d.*	7*d.*	7*d.*	9*d.*
1½ inch	Smallest Rabbits.....	5*d.*	6*d.*	5¾*d.*	7*d.*	7*d.*	9*d.*	9*d.*	11*d.*

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN & CO., 18, CANNON STREET, CITY, LONDON, E.C.

Sales by Auction.

Important Sale of Seeds from California and Vancouver's Island.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on WEDNESDAY, January 7, at half-past 12 o'clock precisely, a valuable collection of CONIFEROUS SEEDS, amongst which will be found:—

Picea amabilis	Pinus Lambertiana
,, grandis	,, ponderosa
Abies Douglasii	,, Sabiniana
,, Menziesii	,, Fremontiana
Libocedrus decurrens	Cupressus Lawsoniana
Thuja gigantea	,, MacNabiana
Sequoia sempervirens	,, macrocarpa
Wellingtonia gigantea	&c. &c.

On view the Morning of Sale, and Catalogues had.

Choice Collection of Standard Roses, &c.

MR. ARTHUR PLEWS will SELL by AUCTION, at the Auction Mart, on TUESDAY NEXT, January 6, at 12 o'Clock, a splendid Assortment of 600 Standard and other ROSES, choice Ornamental SHRUBS, TRAINED FRUIT TREES, &c.

May be viewed the Morning of Sale. Catalogues may be had at the Mart; and of Mr. ARTHUR PLEWS, Auctioneer and Valuer, 50, Chancery Lane, London, E.C.; and New Malden Surrey.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

SUTTON'S

COLLECTIONS OF GARDEN SEEDS FOR ONE YEAR'S SUPPLY.

(CARRIAGE FREE, AS SEE BELOW).

No. 1. A Complete Collection of KITCHEN GARDEN SEEDS for One whole Year's Supply (with instructions on Cultivation) £3 0 0
No. 2. A Complete Collection of KITCHEN GARDEN SEEDS, in quantities proportionately reduced 2 0 0
No. 3. A Complete Collection of KITCHEN GARDEN SEEDS, ditto 1 0 0
No. 4. A Complete Collection of KITCHEN GARDEN SEEDS for a SMALL GARDEN 0 10 6

Sent Carriage Free by Rail, and 5 per cent. discount allowed for cash payment. A remittance or reference requested from unknown Correspondents.

The sorts of Vegetables included in these Collections are those which have proved to be the most prolific, best flavoured, and most worthy of general cultivation, and of which sorts we have therefore grown large Crops of Seed. We exclude from our Collections not only inferior old sorts, but also such new ones as we have been unable to test the merits of, and which are selling at extravagant prices. By this means, and from the great convenience experienced in supplying every purchaser with the same sorts, we are enabled to supply A Complete Collection for One Year's Supply at much less expense than when a Gentleman or his Gardener makes his own selection; but if the latter mode of ordering is preferred, we shall be happy to send our GENERAL CATALOGUE, with prices of every article separate.

QUANTITIES CONTAINED IN SUTTON'S COLLECTIONS:—

	£3 0 0 Collection	£2 0 0 Collection	£1 0 Collection	10s. 6d. Collection
PEAS, the best sorts for succession, as proved in Messrs. Sutton's Trial Grounds	20 quarts	12 quarts	7 quarts	4 pints
BEANS, the best sorts for succession, ditto. ditto	10 ditto	6 ditto	3 ditto	2 ditto
FRENCH BEANS, Runners and Dwarfs, do. do.	6 pints	4 pints	2 pints	1 ditto
BEET, the finest in cultivation	3 ounces	2 ounces	1 packet	1 packet
BORECOLE, or Sprouting Kale, of best sorts for succession	4 packets	4 packets	4 packets	2 ditto
BRUSSELS SPROUTS, fresh imported seed	1 large pkt.	1 large pk	1 packet	1 ditto
BROCCOLI, the best sorts for succession, as tested in Messrs. Sutton's Sample Ground	8 large do.	7 do. do.	5 packets	2 packets
CABBAGE, best sorts for succession	8 packets.	6 packets	4 large do.	1 ditto
SAVOYS, fine curled	4 ditto	3 ditto	2 ditto	1 ditto
CARROT, best sorts for summer and winter use	14 ounces	7 ditto	3 ounces	1 ounce
CAULIFLOWER, true Walcheren and others	2 large pks	2 large pks	1 packet	
CELERY, Sutton's Solid White and others	2 ditto	2 packets	2 ditto	1 packet
COUVE TRONCHUDA, a most delicious vegetable	1 packet	1 packet	1 packet	1 packet
ENDIVE, best sorts	1½ ounce	2 ditto	1 ditto	1 ditto
CRESS, plain and curled	1½ pint & 2 packets	8 ounces & 2 packets	3 ounces & 1 packet	3 packets
CUCUMBERS, the best sorts in cultivation	4 packets	4 packets	2 packets	1 packet
LEEK, large sort, very fine	1 ounce	½ ounce	1 ounce	1 ditto
LETTUCE, Sutton's Superb Cos, and others for succession	5 packets	4 packets	3 packets	2 packets
MUSTARD	1 quart	1 pint	4 ounces	2 ounces
MELON, choicest sorts known	3 packets	3 packets	2 packets	1 packet
ONION, true Reading and others	13 ounces	7 ounces	2 ounces	1 ounce
PARSLEY, splendid curled kinds	3 ditto	2 ditto	1 ditto	1 packet
PARSNIP, Hollow Crown, Student, and others	6 ditto	4 ditto	2 ditto	1 ditto
RADISH, finest sorts for succession	1 pint and 10 ounces	14 ounces	6 ounces	3 ounces
SPINACH, summer and winter kinds	2 pints	1 pint	4 ditto	2 ditto
SALSAFY	1 large pkt	1 packet		
SCORZONERA	1 do. do.	1 ditto		
TURNIP, fine sorts for succession	16 ounces	8 ounces	3 ounces	2 ounces
VEGETABLE MARROW, best sorts	2 large pks	2 large pks	1 packet	1 packet
SWEET and POT HERBS, of all the useful kinds	6 packets	6 packets	4 packets	
MIXED GOURDS	1 packet	1 packet		
RAMPION	1 packet	1 packet	1 packet	
TOMATO	1 packet	1 packet	1 packet	
CAPSICUM and CHILI	2 packets	1 packet		
CORN SALAD	1 packet	1 packet	1 packet	
ORACHE	1 packet	1 packet	1 packet	

That great satisfaction has been given by those Collections in former seasons is testified by the recommendations given by our customers to their friends; as also by the numerous letters we receive, from which we present the following:

From the Rev. M. W. GREGORY, *Roade, Northampton.*
"I lose no opportunity of recommending your Seeds, which are most excellent; and I think you are doing us (the clergy especially), a great kindness in making up your garden selections."

From the Rev. W. H. ROACH, *Whiteshill Parsonage, Stroud.*
"I am more than satisfied with the assortment of Seeds you made for me, and with the quantity you sent; and I consider that I have done better by leaving the choice to you than selecting for myself."

From the Rev. JOHN KIRWAN, *Withycombe Rectory, Taunton.*
"I was so much pleased with the selection of Seeds sent by you, that I recommended two of my friends to take parcels from you."

From CHAS. LAWRENCE, Esq, *Cirencester.*
"I never recollect having received such a numerous collection of Seeds from any house so good in quality."

From ALEX. CATHCART, Esq., *Knockdolian Castle, Girvan, N.B.*
"I have had much satisfaction in recommending your Seeds to various friends, as I find they are much pleased with them; and you may depend upon my continuing to do so as long as I find the articles you send are good and reasonable in price."

From Mr. WILLIAM MOOR, *Gardener, The Rectory, Stoke.*
"I never had (previous to yours last year) a lot of Seeds which have all turned out so satisfactory."

From Mr. BONE, *Gardener, Huntsham Court, Tiverton.*
"I was so much pleased with your collection of Seeds last year, that I leave it to your selection again this year, both for the Kitchen and Flower Garden."

From Mr. ROBERTSON, *Gardener to* A. POLLOCK, Esq., *Lochfine, N.B.*
"I must say that your Seeds have been liberal as to quantity, and excellent as to quality."

From the Rev. C. T. FARLEY, *Moor Hall, Stourport.*
"Your Seeds are the very best my gardener ever made use of, and gave the highest satisfaction."

From J. LLOYD, Jun, Esq., *Dinas, Brecon.*
"The Garden Collection of Seeds has hitherto been most judiciously selected, and of the best description."

From the Rev. G. E. WALKER, *Shareshill, Wolverhampton.*
"Mr. Walker cannot but compliment Messrs. SUTTON & SONS on the quality of the Seeds sent last year, as they were by far the best he ever purchased."

If any of the above articles are not required they should be named when giving the order, and increased quantities of other sorts will be given in lieu of those omitted.
By ordering one of the above Collections once a year much trouble and expense will be saved.

SUTTON'S COLLECTIONS OF FLOWER SEEDS (Free by Post).

Amateurs requiring showy kinds of Flower Seeds are respectfully recommended to leave the selection of sorts wholly or partly to us, and we will supply those which we know to be really worthy of cultivation. Should any sorts of Flower Seeds be already possessed they should be named, that we may omit them.

No. 1. The best 100 sorts of FLOWER SEEDS, hardy and half hardy, with instructions £1 1 0
No. 2. The best 50 sorts of FLOWER SEEDS, ditto ... 0 10 6
No. 3. The best 36 sorts of FLOWER SEEDS, ditto £0 7 6
No. 4. The best 24 sorts of FLOWER SEEDS, ditto 0 5 0
No. 5. The best 24 sorts of FLOWER SEEDS, all hardy 0 5 0

SEEDS FOR EXPORTATION.

SUTTON AND SONS are constantly packing Farm and Garden Seeds for Australia, New Zealand, India, Africa, and other Foreign Parts, and receive the most gratifying accounts of the excellent condition in which they arrive, and of the Crops produced from their Seeds.

Also NATURAL GRASSES for LAWNS and MEADOWS, fine sorts of MANGEL WURZEL, TURNIP, and other Agricultural Seeds.

All kinds of Goods, of not less than 20*s.* value, sent Carriage Free to any Railway Station or Packet Office in England and Wales. When Goods to the value of £2 and upwards are ordered, they will be delivered Free in Scotland or at any of the Irish Ports.

All Export Orders are delivered Free at the Ship's side in London, Bristol, Southampton, Liverpool, &c.

Remittances may be made by Cheques on Town or Country Bankers, or by Post-office Orders payable to

SUTTON & SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 2.—1863.] SATURDAY, JANUARY 10. {Price Fivepence. Stamped Edition, 6d.

INDEX.

African trees	29 b	Nice, climate of	28 a
Agricultural Tour in Belgium, rev.	39 a	Northumberland Farm	39 b
Astro-meteorologists	33 a	Notes of a tour in Belgium	39 a
Barks, Peruvian	28 c	Paris winter garden, new	31 c
Botanical Journal, new	31 b	Peaches, South American	29 c
Cattle disease	33 c—37 c	Peru, plants of	27 c
Chinese simples	32 a	Prince Consort, Speeches of H. R. H.	30 b
Cinchonas	28 c	Prunnopitys elegans	26 b
Climate of Nice	28 a	Rags, substitute for	32 a
Cod liver oil, new source of	31 b	Roses on New Year's Day	26 b
Drainage Act	33 c	Seed trade, French	29 c
Drainage, Hants	36 c	Ship decay	35 b
Farm economy, items of	35 c	Soil, fertility of	33 b—34 c
Farming, South Wales	35 b	Society, Royal Dublin	37 c
Fruits, seedling	27 a	— Botanical of Edinburgh	30 a
Fuchsias	25 c	— Irish Farming	36 a
Gardeners' Royal Benevolent Institution	29 c	Tate's Algebra	31 b
Gishurst in Australia	31 c	Tenant right	35 a
Gordonia javanica	29 c	Timber preservation	25 b
Grapes, early	30 a	Tombs, ancient gold, American	31 c
Heidreich, M. von	25 c	Trade lists	31 b
Highland and Agri. Journal	38 c	Trees, African	29 b
Lapparent on timber	25 b	Vegetable mould	33 b—34 c
Mandon, M. G.	25 c	Wages, Berwickshire	37 a
Meat, diseased	33 c—37 c	Weather at Weybridge	29 b
		Wheat, seeding	34 b

☞ *An Edition of the* Gardeners' Chronicle and Agricultural Gazette *is published on Monday Afternoon at 4 o'Clock, containing full Reports of the Mark Lane and Cattle Markets, written expressly for the Paper.*

ROYAL HORTICULTURAL SOCIETY.—The First Meeting for the ELECTION of FELLOWS in the Year 1863, will take place on JANUARY 16.

Forms for Election, Rules, &c., can be had at the Garden, South Kensington, or on application to

Andrew Murray, Assist. Secretary.

Grape Vines.

WILLIAM BULL, F.R.H.S., F.R.B.S., has a large and healthy stock of well ripened VINES from EYES, of all the best kinds (New and Old), either for Planting, or Fruiting in pots.

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Grape Vines.

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Grape Vines.

J. IVERY and SON beg to inform their Patrons that their stock of the above is unusually fine this season. A PRICED LIST now ready.

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VINES.—Strong Fruiting Canes, extra fine, 8s. 6d. each. Best varieties for Sale by

Jas. Garaway & Co., Durdham Down Nurseries, Bristol.

Vines: Black Hamburgh and Muscat of Alexandria.

ROBERT PARKER begs to offer extra strong Plants of the above (for planting), in large or small quantities, at 3s. 6d. each. The usual discount to the Trade.

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TO BE DISPOSED OF, by a gentleman leaving for town and giving up his House, &c., about 100 good healthy PINE PLANTS, this and last year's growth.

Apply by letter to Mr. F. Stead, 23, Jarratt Street, Hull.

Dwarf Maiden Peaches, Nectarines, and Apricots.

WOOD and INGRAM beg to call the attention of the Trade to their large stock of the above, consisting of all the leading kinds of PEACHES and NECTARINES, and MOORPARK APRICOTS, all remarkably fine clean stuff.

Price on application.

Nurseries, Huntingdon.

NEW MELON, PRINCESS ALEXANDRA.—A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1s. per packet.

James Carter & Co., 237, 238, & 261, High Holborn, W.C.

NEW PRIZE MELONS. Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria. For descriptions see GUIDE to the KITCHEN GARDEN.

Barr & Sugden, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Melon Seed! Melon Seed!!—Hybrid Cashmere (True).

J. MEREDITH can supply Seeds of his First Prize MELONS, which were exhibited at Kensington and Regent's Park last summer. Twelve Seeds for 2s. 6d.

N.B. Payment may be made in postage stamps.

J. Meredith, Vine Cottage, Garston, near Liverpool.

NEW MELON—CHAUNTRY HYBRID.—Colour, golden yellow; beautifully netted, and a great bearer. Raised from Orion and Woolverstone Perpetual. Has been awarded the First Prize for flavour wherever exhibited. Price per packet of 5 seeds, 1s. 6d., on application to

J. Gilbert, Florist, &c., Ipswich.

RASPBERRIES.—Cornwell's Seedling, Fastolff, large fruiting monthly; Yellow Antwerp.

SEED POTATOES, at per 2 cwt. sack, Cash price.

Geo. Cornwell, Seedsman, &c., Barnet, Herts, N.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD and SON, Nurserymen and Seed Merchants, Maresfield, near Uckfield, Sussex.

Best Seeds, Carriage Free.

BUTLER and McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Agricultural Seeds.

GEORGE GIBBS and CO., Seedsmen, 26, Down Street, Piccadilly, London, W.

Agricultural and Garden Seeds.

H. and F. SHARPE, Seed Growers and Merchants, Wisbech. Special PRICED LIST of NEW SEEDS on application.

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CHARLES SHARPE and CO., Seed Growers, Seed Merchants, and Nurserymen, Sleaford.

SPECIAL PRICED LIST of SEEDS of 1862 growth on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER and CO., Seed Farmers and Nurserymen, 237 and 238, High Holborn, London, W.C.

PLYMOUTH SEED COMPANY, Union Road, Plymouth. See General Advertisement, page 22.

PLYMOUTH SEED COMPANY, Plymouth. The GENERAL PRICE CURRENT is now ready.

New and Genuine Garden and Agricultural Seeds.

Special Prices on Application to

JAMES FAIRHEAD and SON, Seed Growers and Merchants, 7, Borough Market, London, S.E.

New and Genuine Seeds.

JOHN DOBSON and SONS, Seedsmen and Florists, Woodlands Nursery, Isleworth and Hounslow. New CATALOGUES now ready, post free.

ANDRÉ LEROY'S NURSERIES, at Angers, the largest and richest in France. CATALOGUES sent on application.

New Garden Seeds of our own Growth.

JAMES CARTER and CO. are now prepared to execute orders for the above, saved at their Seed Farms. 237, 238, & 261, High Holborn, W.C.

CARTER'S SELECT LIST of New and Choice VEGETABLE, FLOWER SEEDS and PLANTS is now published, gratis and post free. 237, 238, & 261, High Holborn, London, W.C.

CARTER'S CHAMPION CUCUMBER. An excellent winter sort.—Vide *Gardeners' Chronicle* for 1862, page 1127. 1s. per packet. 237, 238, & 261, High Holborn, London, W.C.

CARTER'S CHAMPION CUCUMBER, recommended by the Royal Horticultural Society as being an excellent bearer. Fruit solid and firm, and the best of the Sion House class. 1s. per packet. A few ounces of our own saving to offer the Trade. 237, 238, & 261, High Holborn, London, W.C.

NEW CUCUMBERS.—Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN. Barr & Sugden, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

CUTHILL'S PRINCE ALBERT CUCUMBER; an Improvement on Highland Mary. The best for present sowing. Per packet, 1s. Butler & M'Culloch, Seed Merchants, Covent Garden Market.

NUTTING'S selected DWARF-RED BEET, recommended by the Royal Horticultural Society as the best in Cultivation. (The original Stock.) Price to the Trade on application. Nutting & Sons, Seed Warehouses, 60, Barbican, London, E.C.

Italian Rye-grass.

J. DIXON is offering ITALIAN SEED to the Trade. Samples and Prices sent on application. Kendal.—Jan. 10.

Rose Nurseries, Hertford.

E. P. FRANCIS has a few surplus Thousands of MANETTI STOCKS, fine and stout. Price upon application.

Standard Roses.

WILLIAM EPPS, Jun., can supply fine STANDARD ROSES, at 5l. per 100; 15s. per doz. The Nurseries, Ashford, Kent.

New Seedling Rhubarb Excelsior.

B. W. KNIGHT, Nurseryman, Battle, Sussex, is now sending out this superb NEW RHUBARB; it is quite distinct, of very large growth, very productive, of a new and desirable flavour, partaking largely of the flavour of the Apple. Good plants, 3s. 6d. each.

Good Seeds, Carriage Free, at Market Prices.

SUTTON and SONS, Seed Growers and Merchants, Royal Berkshire Seed Establishment, Reading.

To Purchasers of Seeds.

SUTTON'S PRICED LIST of NEW GARDEN and FARM SEEDS and POTATOES will shortly be ready, and will be forwarded post free on application, addressed Sutton & Sons, Royal Berks Seed Establishment, Reading.

Seeds.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE, of the best Varieties only, is now ready. It also contains several Novelties. The Royal Nurseries, Slough.

Best Seeds—Carriage Paid.

JAS. GARAWAY and CO.'S CATALOGUE of the above now ready, and forwarded post free on application. Durdham Down Nurseries, Bristol.

DOUBLE TUBEROSES, 3s. per dozen. Just arrived.

Butler & McCulloch, Seed Merchants, Covent Garden Market, London, W.C.

Just Imported,

DOUBLE ITALIAN TUBEROSES. Price 3s. per dozen.

James Carter & Co., 237, 238, and 261, High Holborn, London, W.C.

Fresh Imported Double Italian Tuberoses.

SUTTON and SONS have just received their supply, and can now offer very fine roots at 3s. 6d. per dozen. Royal Berkshire Seed Establishment, Reading.

SURPLUS STOCK of EARLY TULIPS to be SOLD cheap. Sorts and Prices on application to Butler & M'Culloch, Seed Merchants, Covent Garden Market.

TROPÆOLUM LOBBIANUM ELEGANS (Crystal Palace Scarlet), Seed scarce. Per packet, 1s. and 2s. 6d.

Butler & M'Culloch, Seed Merchants, Covent Garden Market.

FINE STANDARD PERRY PEARS.

BARLAND. | MALVERN HILL.
RED LONGDON. | OLDFIELD.

Delicious Perry can be made from the above excellent varieties. Fine Standard Trees for Orchards, 30s. per dozen.

J. C. Wheeler & Son, Gloucester.

Large Specimen Ornamental Plants.

E. P. DIXON and SONS have to offer a few large and handsome SPECIMEN PLANTS on reasonable terms. The Exotic Nursery, Sculcoats, Hull.

Wellingtonia gigantea.

JOHN KEYNES, Salisbury, has one of the finest specimens of the above to offer. The lowest price, 12l. 12s. Height, 10 feet; a perfect specimen.

WEBB'S IMPERIAL KIDNEY POTATOES.—No Potato like it for quantity, quality, beauty and size, at 12s. per Bushel, on application to

Richard Webb, Gardener, Gardens, Reading.

Seed Potatoes, Carriage paid.

EARLY HANDSWORTH, 10s. per bushel.—"Out of 74 varieties it was by 10 days the earliest."—*Gardeners' Chronicle.*—G. & W. Yates, Market Place, Manchester.

Seed Potatoes, Carriage paid.

G. and W. YATES offer to the Trade all the best sorts, grown specially for Seed, free from disease and scab. Prices sent on application.—Market Place, Manchester.

Established 36 Years.

HOLBURY ASHLEAF, the Earliest KIDNEY POTATO grown, 10s. per bushel, Carriage paid. G. & W. Yates, Seedsmen, Market Place, Manchester.

FLUKE and other SEED POTATOES off the Lancashire Moss and Sand. Price very moderate on application. H. Brown, Seedsman, 4, Commutation Row, Liverpool.

SEED POTATOES from the Growers. — Early Shaws, Regents, Forty-folds, Ash-leaf Kidneys, and Myatt's Prolific.

May be had on application of H. Cheverst, Salesman, Borough Market, S.E.

SPRUCE FIR, TWICE TRANSPLANTED. 1 to 1½ feet, 15s. per 1000. 1½ to 2 feet, 20s. per 1000.

Apply to James Garaway & Co., Durdham Down Nurseries, Bristol.

Spruce.

200,000 SPRUCE FIR, twice Transplanted, 2 to 2½ feet; and SCOTCH FIR, 2 to 2½ ft.

Apply to W. H. Bland, Nurseryman, Fordham, near Newmarket, Cambs.

Alder.

E. P. FRANCIS offers several Thousands of fine ALDER, transplanted, 3 to 4 ft. Price upon application. Rose Nurseries, Hertford.

Musa vittata.

E. P. DIXON and SONS have to offer a fine handsome specimen of the above, height 7 feet from the pot. Price on application. The Exotic Nursery, Sculcoats, Hull.

Spring Blooming Plants.

CAMELLIAS, including the best new varieties, fine plants, set with bloom buds, from 30s. per doz.; extra size, from 60s.

HEATHS, EPACRIS, CINERARIAS, and JASMINUM GRANDIFLORUM (grafted), remarkably fine plants, at moderate prices.

Also, HUMEA ELEGANS, extra strong, in 6 inch pots, 18s. per doz.

JAMES LICKSON & SONS, Newton Nurseries, Chester.

New Seeds.



PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN, of Edinburgh and London, are prepared to send out FARM and GARDEN SEEDS of every kind, and of the finest quality.

Orders for exportation executed with prompt and careful attention.

23, King Street, Cheapside, and 15, Lawrence Lane, E.C.



WHEELER'S LITTLE BOOK for 1863.

WHEELER'S TOM THUMB LETTUCE.

WHEELER'S IMPERIAL LETTUCE

The price of the Lettuce is 1s. per packet, post free.

J. C. WHEELER & SON beg to inform the Trade that their "Little Book" is entered at Stationers' Hall, and that they cannot allow it to be copied.

J. C. WHEELER & SON, Seed Growers, Gloucester.

DOWNIE, LAIRD, AND LAING have much pleasure in offering the following FIRST CLASS NOVELTIES, which they can with confidence recommend as being decided acquisitions.

CALCEOLARIA CLOTH of GOLD, described by the Floral Committee of the Royal Horticultural Society as follows:—"A desirable bedding variety of dwarf habit, growing from 6 to 9 inches high; the leaves are narrow and deeply serrated, the flowers in fine compact trusses of a deep clear yellow, and of medium size and firm substance;" stems stiff and erect, requires no staking; as a dwarf yellow for front lines, or ribbon borders, it has no equal. Certificate of Merit by the Floral Committee, First Class Certificate at Regent's Park. Price 2s. 6d. each, 18s. per dozen. Special price for quantities on application.

DELPHINIUM BICOLOR GRANDIFLORUM.—This is a striking and most beautiful variety. It was commended by the Floral Committee of the Royal Horticultural Society, who described it as follows. "A showy variety with large flowers, in which the sepals were of a dark blue, and the petals of a creamy white colour, contrasting strongly with the darker colour surrounding them. Price 5s. each. Special offers to the Trade on application.

Stanstead Park, Forest Hill, S.E., and Edinburgh.

Beet—Original and True Stock.

HENDERSON'S Compact-topped PINE-APPLE BEET.—Symmetrical shape, and fine dark crimson colour, uniform through the solid roots, are points of excellence rivalled only by its rich and sugary flavour, and long-keeping properties.

This celebrated Beet gained the FIRST PRIZE against ALL OTHER SORTS at the GREAT INTERNATIONAL EXHIBITION of FRUITS and VEGETABLES held at the Horticultural Gardens, South Kensington, October 8, 1862.

New Celery, Williams's Matchless Red.

B. S. WILLIAMS, Paradise Nursery, Holloway, N., has much pleasure in offering the above superior solid RED CELERY, feeling confident it will give satisfaction. It is perfectly hardy, a strong grower, very solid and crisp, and of a most delicious flavour. It has been taken up for use quite the end of April without having the least tendency for running to seed. From the testimonials received it is unquestionably the best Red Celery in cultivation. In sealed packets, 2s. each.

Pine Apple Place, Edgware Road, London, W.

ARTHUR HENDERSON AND CO., beg to announce that their CATALOGUE of KITCHEN, FARM, and FLOWER SEEDS, Imported German Asters, Stocks, and Collection of Vegetable Seeds, for One Year's Supply—

Collection, No. 1	105s.	Collection, No. 3	42s.
,, No. 2	84s.	,, No. 4	25s.
Collection, No. 5	15s.		

is now ready, and will be forwarded free on application.

NOTE.—This Catalogue contains only the best varieties of Vegetables, and an abridged List of the most valuable Flower Seeds.

INTERNATIONAL EXHIBITION.

PRIZE MEDALS 1851 AND 1862

AWARDED FOR SUPERIORITY AND GENERAL EXCELLENCE TO

BUTLER & McCULLOCH, SEED MERCHANTS,

COVENT GARDEN MARKET, W.C.

(ESTABLISHED UPWARDS OF A CENTURY.)

COLLECTIONS OF VEGETABLE SEEDS SUITABLE FOR ANY SIZED GARDEN.

No. 1.	20 Quarts of PEAS and other Seeds in proportion	...	...	...	£3	3 0
No. 2.	11 ditto	ditto	ditto	...	2	2 0
No. 3.	8 ditto	ditto	ditto	...	1	10 0
No. 4.	5 ditto	ditto	ditto	...	1	1 0
No. 5.	5 Pints	ditto	ditto	...	0	10 6

All orders amounting to 21s. and upwards sent Carriage paid.

BARR & SUGDEN 12 KING ST COVENT GARDEN

SEED MERCHANTS AND FLORISTS,

12, KING STREET, COVENT GARDEN, W.C.

OPPOSITE THE GARRICK CLUB.

Seeds Carriage paid. No charge for Packing or Package.

BARR AND SUGDEN'S COLLECTIONS of VEGETABLE SEEDS for 1863, embracing the best Varieties in Cultivation, and especially those most approved of in Covent Garden Market.

For particulars, see "GUIDE to the KITCHEN GARDEN."

No. 6	contains	20 Quarts of PEAS, and other Seeds in proportion, for				£3	3 0
No. 5	,,	10 Quarts	ditto	ditto	ditto	,,	2 2 0
No. 4	,,	8 Quarts	ditto	ditto	ditto	,,	1 10 0
No. 3	,,	10 Pints	ditto	ditto	ditto	,,	1 1 0
No. 2	,,	6 Pints	ditto	ditto	ditto	,,	0 15 6
No. 1	,,	4 Pints	ditto	ditto	ditto	,,	0 10 6

☞ *Orders amounting to 21s. and upwards sent Carriage paid.*

THE PLYMOUTH SEED COMPANY,

PLYMOUTH.

Extract from a Letter received from a CLERGYMAN *in Yorkshire, dated December* 11, 1862:—

"Our Vegetables have never been so fine as when grown from your Seeds."

The Company are now sending out their COLLECTIONS of SEEDS, which have always given great satisfaction.

No. 1.	**Complete Collection for a large Garden, for One Year's Supply**	**£3**	**0 0**
No. 2.	**Complete Collection for a moderate size Garden, for One Year's Supply**	**2**	**0 0**
No. 3.	**Complete Collection for do., smaller quantities, for One Year's Supply**	**1**	**0 0**
No. 4.	**Complete Collection for a Small Garden**	**0**	**15 0**
No. 5.	**Complete Collection for a Small Garden**	**0**	**10 6**
Extra large Collection, containing double the quantities contained in No. 1 ...		**5**	**0 0**

Extra Collection Carriage Free to any Railway Station in England and Wales, and to any Steam Port in England, Wales, Scotland, and Ireland.

No. 1 Carriage Free to most Stations and Ports in the Kingdom.

No. 2 Carriage Free to Broad Gauge Stations and Steam Ports.

No. 3 Carriage Free to any Station between Plymouth and Paddington.

For further particulars, see the GENERAL PRICE CURRENT, now ready.

Address, PLYMOUTH SEED COMPANY, PLYMOUTH.



CARTER'S COLLECTION OF GARDEN SEEDS FOR 1863,

BEING COMPLETE ASSORTMENTS OF VEGETABLE SEEDS FOR ONE YEAR'S SUPPLY.

Containing only the most approved and choice sorts, in quantities to suit Large and Small Gardens.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
10s. 6d.	20s.	40s.	60s.	100s.



These Collections are always kept ready, and can be supplied at a moment's notice.

CARTER'S SELECT LIST OF NEW AND CHOICE VEGETABLE FLOWER SEEDS AND PLANTS is now published gratis and post free.

237, 238, & 261, HIGH HOLBORN, LONDON, W.C.

WM. WOOD & SON'S

COLLECTIONS of KITCHEN GARDEN SEEDS

FOR ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.
£3.	£2.	£1.	10s. 6d.

Containing only Seeds of first-class quality, and varieties that can be confidently recommended.

For particulars, see CATALOGUE, a Copy of which may be had Post Free on application.

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD,
NEAR UCKFIELD, SUSSEX.

GENUINE NEW SEEDS, Carriage Free.

FRANCIS & ARTHUR DICKSON & SONS,

106, EASTGATE STREET, CHESTER.

NEW VEGETABLE AND FLOWER SEEDS
of every description and of the finest possible quality.

Their DESCRIPTIVE PRICED CATALOGUE, containing many valuable New and Select Vegetable and Flower Seeds, will be sent Post Free on application.

Collections for Gardens of all Sizes are on the most liberal scale.
(See Catalogue.)

Vegetable Seeds of 2*l.* value Carriage Free. All Flower Seeds Free by Post.

PARADISE NURSERY, HOLLOWAY, LONDON, N.

CHOICE VEGETABLE and FLOWER SEEDS.

B. S. WILLIAMS

BEGS RESPECTFULLY TO ANNOUNCE THAT HIS

PRICED AND DESCRIPTIVE SEED CATALOGUE FOR 1863

is now ready, and will be forwarded Post Free to all applicants. It contains Select Lists of FLOWER and VEGETABLE SEEDS, Choice GLADIOLI, &c., including all the Novelties of the season, and useful suggestions for the guidance of Amateur Cultivators.

COMPLETE COLLECTIONS of KITCHEN GARDEN SEEDS for ONE YEAR'S SUPPLY, containing none but the most valuable and approved sorts.

10s. 6d. | 20s. | 40s. | 60s. | 80s. each.

For kinds and quantities, see Catalogue.

PARADISE NURSERY,
SEVEN SISTERS AND HORNSEY ROADS, HOLLOWAY, LONDON, W.

GARDEN SEEDS.

S. GLENDINNING & SONS,

NURSERYMEN AND SEEDSMEN

(SUCCESSORS TO THE LATE R. GLENDINNING),

Are now sending out their COLLECTIONS of KITCHEN GARDEN SEEDS.

No. 1	contains 36 Quarts of PEAS, and all other Seeds in proportion				£5	5 0
No. 2	,, 28 Quarts	ditto	ditto	ditto	4	4 0
No. 3	,, 20 Quarts	ditto	ditto	ditto	3	3 0
No. 4	,, 12 Quarts	ditto	ditto	ditto	2	2 0
No. 5	,, 6 Quarts	ditto	ditto	ditto	1	1 0

COLLECTIONS of FLOWER SEEDS.

No. 1,	containing 100 Large Packets of Best Hardy Annuals				£0	18 0
No. 2,	,, 50	ditto	ditto	ditto	0	9 6
No. 3,	,, 24	ditto	ditto	ditto	0	5 0
No. 4,	,, 25	ditto	Half-Hardy Annuals		0	7 6
No. 5,	,, 12	ditto	ditto	ditto	0	4 0
No. 6,	,, 25	ditto	Tender Annuals		0	12 6
No. 7,	,, 12	ditto	ditto	ditto	0	6 0

The above Collections consist only of best and most useful varieties, and are of the finest quality.

S. G. & SONS' CATALOGUE of KITCHEN GARDEN, AGRICULTURAL, and FLOWER SEEDS, is now ready, and may be had on application.

CHISWICK NURSERY, LONDON, W.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1s. and 2s. per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1s. per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.
Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

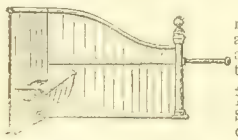
This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE CO., Limited.

Exhibition Prize Medal 1862.

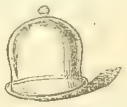
MUSGRAVE'S PATENT STABLE FITTINGS and HARMLESS LOOSE BOXES, PATENT IRON COW HOUSE FITTINGS, and IRON PIGGERIES.



These inventions are recommended as possessing numerous advantages not to be found in anything hitherto made. At the late Meeting of the Royal Agricultural Society at Leeds, MUSGRAVE BROTHERS received a Silver Medal, and two Awards of "Highly Commended," being the only Prizes conferred on any competitor in this class.

Particulars sent on application to the Inventors and Makers, MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

THOMAS MILLINGTON,
87, Bishopsgate Street Without, E.C.
HORTICULTURAL GOODS.



PROPAGATING GLASSES.

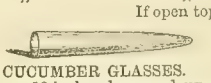
3 inches ..	0s. 4½d. each.	12 inches ..	1s. 9d. each.		
4 ,, ..	0 5½ ,,	13 ,, ..	2 0 ,,		
5 ,, ..	0 6½ ,,	14 ,, ..	2 6 ,,		
6 ,, ..	0 8 ,,	15 ,, ..	3 0 ,,		
7 ,, ..	0 10 ,,	16 ,, ..	3 6 ,,		
8 ,, ..	1 0 ,,	17 ,, ..	4 0 ,,		
9 ,, ..	1 2 ,,	18 ,, ..	5 0 ,,		
10 ,, ..	1 4 ,,	19 ,, ..	6 6 ,,		
11 ,, ..	1 6 ,,	20 ,, ..	7 0 ,,		



HAND GLASSES.

12 inches ..	6s. 0d. each	18 inches ..	9s. 0d. each
14 ,, ..	7 0 ,,	20 ,, ..	10 0 ,,
16 ,, ..	8 0 ,,	24 ,, ..	12 0 ,,

If open top, 1s. extra.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1d. per running inch.



ROLLING PINS.
From 12 inches long, 1½d. per running inch.

Improved ANTI-CORROSION and other PAINTS.
GAS and LAMP GLASSES, GLOBES, &c.
CHIMNIES of every description.
Not accountable for Breakage.

Glass for Greenhouses.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—

ENGLISH GLASS, 16 ounces to the foot, in Sheets averaging 40 by 30, packed in Cases containing about 280 feet, 2¼d. and 2½d. per foot.

SHEET GLASS, 16 ounces, packed in boxes of 100 feet each.

Package included.	3rds.	4ths.
12 by 9, 13 by 9, 14 by 9, 15 by 9 / 12 ,, 10, 13 ,, 10, 14 ,, 10, 15 ,, 10	14s. 0d.	12s. 6d.
13 ,, 11, 14 ,, 11, 15 ,, 11, 16 ,, 11 / 14 ,, 12, 15 ,, 12, 16 ,, 12, 17 ,, 12 / 18 ,, 12, 19 ,, 12, 20 ,, 12, 16 ,, 13 / 17 ,, 13, 18 ,, 13, 19 ,, 13, 20 ,, 13 / 16 ,, 14, 17 ,, 14, 18 ,, 14, 20 ,, 14	16s. 0d. per 100 feet.	13s. 6d.

Various other sizes.

GLASS for ORCHARD HOUSES,
As supplied by us to Mr. Rivers.

		16 oz.	21 oz.
20 in. by 12 in. / 20 in. by 13 in.	Common	13s. 6d. ..	£0 18 0
20 in. by 14 in. / 20 in. by 15 in.	Superior do.	16 0 ..	1 3 0
	English Glass	18 0 ..	1 9 0

The above prices include the Boxes.

SMALL SHEET SQUARES, IN 100 FEET BOXES.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11s. 6d.
8 ,, 6	8½ ,, 6½	9 ,, 7	9½ ,, 7½	
		10 ,, 8	10½ ,, 8½	12 6

Boxes 2s. each, returnable at full price.

SQUARES CUT TO SPECIAL SIZES.

16 oz. 4ths, 1¾d., 2d., and 2½d. 21 oz. 2¾d., 3d, and 3½d.
,, 3ds, 2d., 2½d., and 3d. ,, 3d., 3½d., and 4d.

London Agents for Hartley's Improved Patent Rough Plate.
Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.
Milk Pans, Propagating Glasses, and every description of Glass for Horticultural purposes.
JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, London, E.C.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

50 in 25 extra choice varieties	..	..	£2 2s. 0d.
25 in 25	,,	,,	.. 1 5 0
12 in 12	,,	,,	.. 0 12 0
50 in 50 choice varieties	..	..	.. 2 12 6
50 in 25	,,	,,	.. .. 1 5 6
25 in 25	,,	,,	.. .. 0 13 6
12 in 12	,,	,,	.. .. 0 5 0

Extra fine mixed, 2s. 6d. per doz., 17s. 6d. per 100.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, W.C.

Gladioli.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully announces that his BULB CATALOGUE includes a descriptive list of all the most valuable varieties of GLADIOLI, the roots of which are unusually fine. He would remind intending purchasers that he was awarded prizes at both the Royal Horticultural and Crystal Palace September Shows. Price 4s. to 42s. per dozen.

Nurseries and Seed Warehouse, Waltham Cross, N.

Gladiolus Gandavensis and Varieties.

B. S. WILLIAMS'S choice collection of these superb Bulbous Plants, which are beyond doubt the handsomest autumnal ornaments to the garden, is now ready for sending out. Great attention has been bestowed on the selection, amongst which are many novelties, and none but those of the best quality are offered.

Collection of 24 Splendid Varieties, one root of each, 21s.

Collection of Choice Named Varieties, 6s., 8s., and 10s. per doz.

A PRICED and DESCRIPTIVE LIST on application.

Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London, N.

To the Seed Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEEDSMAN, &c., Erfurt, Prussia, begs respectfully to announce that his WHOLESALE CATALOGUE of the above is now ready, containing extensive collections of Stocks, Asters, and other Choice Seeds.

Free by Post on application to GEO. MACINTOSH, Seedsman, High Road, Hammersmith, London W.

THE NEW PARSNIP "STUDENT."—Seed of this improved Parsnip, "ennobled" by Professor BUCKMAN, of the Royal Agricultural College, Cirencester, is now ready for delivery by Messrs. SUTTON & SONS, Post-free, in Packets, 6d., 1s., or 2s. 6d. each. Also Wholesale to the Trade.

It can also be obtained from Messrs. SUTTON'S Agents—see list in *Gardeners' Chronicle* of JAN. 3.

Royal Berkshire Seed Establishment, Reading.

Fluke Kidney Potato Sets

FROM LAND WHICH HAS NOT BEEN BROKEN UP IN THE MEMORY OF MAN.

DICKSONS AND BROWN, SEEDSMEN, 43 and 45, Corporation Street, Manchester, have a few hundred bushels of the above valuable Potato, grown upon fresh land a very short distance from the place where the "FLUKE KIDNEY" was originally raised. They are picked expressly for sets.

By stating quantity required, the price will be forwarded on application to the Advertisers.

DAINTREE'S EARLIEST SEEDLING POTATO.—The earliest and most prolific round variety in cultivation, verified by reports in the various papers, and by private reports from all parts of the country, numbers of which will be forwarded on application. Present price, 8s. per Bushel, or 12l. per Ton; sacks 1s. 6d. each.—Apply to Mr. SIMON A. DAINTREE, Fendrayton, St. Ives, Hunts.

N.B.—Genuine Italian Rye grass, and all the Agricultural Seeds of home growth, supplied as usual.

Myatt's Early Prolific Ash-leaved Kidney Potatoes.

H. AND F. SHARPE are now taking orders for the above, which has this season proved itself to be the earliest and most prolific Potato in cultivation, and as fine in quality as any of the Early Kidney varieties. Having a good stock they can offer them at a low price to the Trade.

Also JACKSON'S ASH-LEAVED KIDNEY, WALNUT-LEAVED KIDNEY, and all the early Round varieties at equally low prices, which may be had on application.

Seed Growing Establishment, Wisbech.

Early Potatoes for Planting—Carriage Free.

SUTTON AND SONS can supply the following Choice Sorts, true, and free from disease:—

DAINTREE'S FIRST EARLY, direct from Mr. Daintree, 2s. 6d. per peck, 9s. per bushel.

ALBION KIDNEY, earlier than the Ashleaf, 3s. per peck, 10s. per bushel.

LAPSTONE KIDNEY, particularly fine flavour, 3s. per peck, 10s. per bushel.

ASHLEAF, OXFORD, and WEBB'S IMPERIAL, 3s. per peck, 10s. per bushel.

Also the undermentioned, which SUTTON & SONS have proved to be a fortnight earlier than either of the above-named early sorts, viz.:—

SUTTON'S EARLY RACEHORSE KIDNEY, decidedly the earliest sort yet out, 5s. per peck, 18s. per bushel.

SUTTON & SONS have also true stocks of REGENTS, DALMAHOYS, FLUKES, FLOUR BALL, and other Potatoes for the main crops, at low prices, as per PRICED CATALOGUE, which may be had post-free on application, addressed

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

THE ROYAL ASH-LEAVED KIDNEY POTATO.—This variety was raised from seed of the Ash-leaved Kidney about five years since by the late JAMES ASHWIN, Esq., of Bretforten Hall, near Evesham.

He at the same time raised some other varieties from the same sort. Some specimens of all his seedlings were given to Mr. Rivers, who after having proved them, selected the above variety as being worthy of a name, and as the best and earliest Potato known.

It is like its parent in its fine flavour, shape, and leaves, but its bines are stouter and much more robust. It is also some eight or 10 days earlier, and gives quite 'double' the produce of the old sort, frequently from 20 to 30 fine tubers to a root. In 1861 two pecks of seed produced 22 bushels. A few were sent to Mr. Spencer, of Bowood, last spring. The following is the report from the Foreman of the Kitchen Garden, Mr. Taplin:—"We planted this Potato for trial with the old Ash-leaved Kidney. The seedling was fit for use first, the Potatoes were larger and more of them to a root than the old sort; they were quite free from disease, while some of the sorts planted with it were nearly all destroyed; from its earliness and productiveness, I believe it will be found a most useful sort for early forcing." In March last, 10 varieties of Early Potatoes, including all the Early Kidney Potatoes, were planted here on the same day and in the same piece of ground with one row of the Royal Ash-leaved; the latter was earlier and more productive than any other kind.

Sold in sealed Peck Bags of 14 lbs., at 5s. 6d. per bag.

In London, by Messrs. WRENCH & SONS, Seedsmen, 39, King William Street, London Bridge, E.C.; and by Messrs. THOS. RIVERS & SON, Nurseries, Sawbridgeworth, Herts.

Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER'S CATALOGUE of the above popular plants, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants.

It describes faithfully the colours of all the Rhododendrons, thereby rendering every facility for making selections.

It likewise contains an abridged List of really Hardy Conifers, with their heights and prices.

The American Nursery, Bagshot, Surrey.

Rhododendrons, Scarlet and Other Choice kinds suitable for Potting.

JNO. WATERER has the pleasure to say that he has quantities of the above in fine blooming Plants, very suitable for Forcing. The following kinds would be included in selections:—

BLANDYANUM	VIVID
PRINCESS AMELIA	ATTRACTION
VANDYKE	EVERESTIANUM
BRAYANUM	BARCLAYANUM
VICTORIA	ROSEUM SUPERBUM,
ATROSANGUINEUM	&c.

KALMIA LATIFOLIA, finely set with bloom.
,, MYRTIFOLIA, ditto.
BELGIAN and other AZALEAS, very full of buds.

Price on application to

JOHN WATERER, The American Nursery, Bagshot, Surrey.

CHEAP PLANTS.—The undermentioned are now ready in strong plants.

	per dozen.—s. d.		per dozen.—s. d.
Hepatica, sorts	3 0	Polyanthus, fine laced ..	3 0
Primroses ,, ...	4 0	Pampas Grass	4 0
Auriculas ,, ...	3 0	Hollyhock, fine named..	6 0
Violets, Double White and Purple and Russian	3 0	Hollyhock Seedlings, from fine named	3 0
Wallflower, Golden Yellow	4 0	Lavender	3 0
Pinks, fine named ..	3 6	Rock Cistus (sorts) ..	3 0
Clove (old Crimson) ..	3 0	Pansies, fine named ..	3 6
Christmas Roses	6 0	,, ,, mixed ..	2 0
Lily of the Valley ..	2 0		

The following in strong Stock Plants for cuttings:—

	Per dozen—s. d.		Per dozen—s. d.
Lobelia speciosa kermesina, true	3 0	Antirrhinums, new, 1862	4 0
Verbenas, all the leading kinds	3 6	Calceolaria canariensis .	6 0
Verbenas, new, 1862 ..	4 0	Dahlias, strong ground roots	6 0
Fuchsias, new, 1862 ..	5 0	100 Hardy Herbaceous Plants in 50 varieties	20 0

Paid to London. Post-office Orders on Castle Hedingham.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Specimen Conifers and other Trees.

JAMES VEITCH AND SON beg to call the attention of noblemen and gentlemen to their fine Stock of Specimen CONIFERS and other TREES. From the quantity they have they are enabled to offer them at reduced prices, which will be given on application:—

Abies Douglasii ..	3 to 5 feet.	Juniperus excelsa	4 to 6 feet.
,, ,, ..	5 to 8 ,,	Picea amabilis ..	1 to 1½ ,,
Araucaria imbricata	4 to 6 ,,	,, nobilis ..	1½ to 2½ ,,
,, ,, ..	6 to 8 ,,	,, lasiocarpa .	1½ to 2 ,,
Cedrus Deodara ..	3 to 4 ,,	,, ,, ..	3 to 4 ,,
,, ,, ..	4 to 6 ,,	,, Nordmanniana ..	4 to 5 ,,
,, ,, ..	6 to 8 ,,	,, Pinsapo .	3 to 4 ,,
,, ,, ..	8 to 10 ,,	Thuja gigantea ..	3 to 4 ,,
,, ,, ..	10 to 12 ,,	,, Lobbi ..	3 to 4 ,,
,, Libani ..	4 to 6 ,,	,, ,, ..	4 to 6 ,,
Cryptomeria Lobbi	4 to 6 ,,	Thujopsis borealis	3 to 5 ,,
Cupressus Lawsoniana	3 to 4 ,,	Wellingtonia gigantea	2½ to 3½ ,,
Irish Yews ..	4 to 6 ,,	,, ,, ..	4 to 5 ,,
,, ...	6 to 9 ,,	,, ,, ..	5 to 7 ,,

The whole of the above either in tubs or with good balls.

Standard PORTUGAL LAURELS, 3 to 4½ feet stems, with fine heads 4 to 5 feet through.

WEEPING HOLLIES, 4 to 5 feet stem, with fine heads, 3 to 4 feet through.

GREEN HOLLIES, pyramids, 8 to 10 feet, fine.

Also a fine stock of Dwarf Trained PEARS and APPLES, KALMIA LATIFOLIA, and BERBERIS ASIATICA, the latter particularly recommended for Fences.

Nursery, Exeter.

CHOICE FLOWER SEEDS.

	Per Packet—s. d.
AMARANTHUS MELANCHOLICUS RUBER..	1s. 2 0
ANTIRRHINUM, very choice	1 0
BALSAMS, Smith's, nine colours	2 6
CALCEOLARIA, splendid hybridised..	1s. 6d. to 5 0
CINERARIA, from prize flowers ..	1s., 2s. 6d. 5 0
HOLLYHOCK, from 30 new varieties.. .. .	1 0
PANSY, from a celebrated Scotch grower ..	1s. 2 0
,, Dean's Fancy (Belgian)	1 0
PRIMULA, superb fimbriated	1s., 2s. 6d. 5 0
PERILLA NANKINENSIS	0 6
MIMULUS CUPREUS, new	1s. 2 0
RHODANTHE MACULATA, new	1s. 2 0
SWEET WILLIAM, Dean's Auricula-eyed	1 0
,, Hunt's	1 0
TROPÆOLUM, from Barker's superb sorts	1 0
VERBENA, extra choice	1 0
ZINNIA ELEGANS FLORE PLENO..	1 0

Also choice IMPORTED SEEDS.

J. DOBSON & SONS, Seedsmen, Isleworth, W.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select, Descriptive, and Priced Lists of Exotic Orchids, Variegated and Ornamental-foliaged Plants, Azalea indica, Conifers, Chrysanthemums, Fuchsias, Ferns, Geraniums, Rhododendrons, Roses, Miscellaneous Stove, Greenhouse, and Hardy Plants, Fruit Trees, &c., Hyacinths, Tulips, Gladioli, and other Bulbs, is now published and will be forwarded, post free, to all applicants.

Exotic Nursery, Tooting, Surrey, S.

CHARLWOOD AND CUMMINS beg to announce that their CATALOGUE of GARDEN, AGRICULTURAL, and FLOWER SEEDS is now ready, and will be forwarded on application. They also now offer their

NEW NEMOPHILA DISCOIDALIS ELEGANS,

commended by the Royal Horticultural Society in their Proceedings; it is thus noticed:—

"The flowers of this variety (which is a very pretty one) are of a bright chocolate or light reddish maroon, conspicuously bordered with white. The colours are distinctly marked and very effective." It is commended as a very desirable Annual for general cultivation.

2s. 6d. per packet. Price to the Trade per ounce,

14, Tavistock Row, Covent Garden, London.

A TREE or SHRUB SEED LIST will be published shortly.

SUTTON'S UNRIVALLED COLLECTIONS of GARDEN SEEDS.—See last page of the *Gardeners' Chronicle* of January 3.

Lists of Contents of SUTTON'S COLLECTIONS, and SUTTON'S PRICED GENERAL CATALOGUE of SEEDS, may be had Gratis and post free.

Royal Berkshire Seed Establishment, Reading.

Vegetable and Flower Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully announces that his SEED CATALOGUE is now ready, free by post. The choicer kinds, which are disposed to vary from seed, are as far as possible home-saved and carefully selected, and all others drawn from the very first sources. The Collection of Vegetables recently commended by the Royal Horticultural Society was grown from Seeds furnished by him.

Nurseries and Seed Warehouse, Waltham Cross N.

Seeds for the Kitchen Garden, Flower Garden, and Farm.

JOHN CATTELL'S DESCRIPTIVE CATALOGUE of the above is now ready, and will be forwarded, post paid, on application; it contains select lists only, and includes, every novelty worthy of cultivation.

All parcels of Seeds of the value of 21s. and upwards carriage paid to any Railway Station in England.

Nursery and Seed Establishment, Westerham, Kent.

Genuine Seeds.—Carriage Free.

WM. CUTBUSH AND SON beg to intimate that they are now prepared to execute orders for GENUINE GARDEN SEEDS, for which their house is extensively known.

Mr. C. gives his personal attention to this branch of our business, and we can confidently recommend all offered as being of the best quality, at as moderate prices as consistent.

CATALOGUES free on application.

Highgate, London, N.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

Established 1787.

THOMAS KENNEDY AND CO., NURSERY AND SEED ESTABLISHMENT, Dumfries, N.B.

*** PRICED CATALOGUES sent free on application.

FREE DELIVERY.

FARM and GARDEN SEEDS under certain limitations will be DELIVERED FREE OF CARRIAGE to the chief Railway Stations in Great Britain and the principal Steam Ports in Ireland.

To the Trade.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E., beg to inform their Friends and the Trade generally that their WHOLESALE CATALOGUE of AGRICULTURAL, GARDEN, and FLOWER SEEDS is now ready, and may be had on application.

NEW VERBENA, "RUGBY HERO."—The above beautiful New VERBENA will be sent out in May, 1863. It received a First-class Certificate from the Royal Horticultural Society on 10th Sept. last. Colour, light rose, with vivid carmine ring surrounding a pure white eye; very large truss. Each, 5s.; six for 25s. Special price to the Trade on application to

WM. HY. TREEN, Victoria Nursery, Rugby.

Hendon Park Nurseries, N.W.

PANSIES.—Now is the time for making beds for exhibition. All the best show flowers, selection left to EDWARD SHENTON, 6s. per doz. Also New Bedding Pansy, BOY IN BLUE, very early and most effective, 6s. per doz.

EDWARD SHENTON.

Hendon Park Nurseries, N.W.

NEW AND RARE PLANT.

LONICERA AUREO RETICULATA.—The most beautiful and remarkable varigated Climber, the foliage being veined with gold, changing to crimson in the autumn; the green is bright, and it is most suitable as a Bedding Plant. It is so beautiful and novel in appearance that it has to be only seen once to be admired. Price on application.

EDWARD SHENTON.

WEBB'S PRIZE COB FILBERTS, and other COB NUTS as exhibited at the INTERNATIONAL FRUIT and FLOWER SHOW, Kensington. Trees of these splendid varieties of Filberts may be had by application to

RICHARD WEBB, Calcot Gardens, Reading.

New Bedding Annual—Iberis grandiflora alba

(LARGE-FLOWERED WHITE CANDYTUFT).

MESSRS. E. G. HENDERSON AND SON offer this as a remarkably fine variety, and a much more gay and effective plant than any other in its tribe, having numerous large semi-cylindrical trusses, from 2 to 4 inches in length, of snow-white blossoms, continuing in bloom twice as long as the well known common kinds, and making a very beautiful group or bed until the latest autumn months. Its style of growth is much more robust, from 12 to 15 inches in height, and vigorously branched. For decoration in the flower garden, either as a separate bed, or as a ribbon row, it far surpasses any annual or other bedding plant in its colour; its long continued bloom is invaluable for effect with other groups.

Seed packets, 6d. and 1s. each. The Trade supplied; prices on application.

Wellington Nursery, St. John's Wood, London, N.W.

New Fern, Pteris nemoralis variegata.

WILLIAM COLE, Fog Lane Nursery, Withington, Manchester, the raiser of this beautiful and distinct NEW FERN, is now ready to supply good plants, and all orders will be executed in rotation.

It has been well described in the *Gardeners' Chronicle* of July 5, p. 620, where the writer speaks of it as "a curious and novel form of Variegated Pteris."

It was also reported on in the *Gardeners' Chronicle* of May 24, as follows:—"Among new Ferns, of which several were shown, was one from Mr. Cole, Nurseryman, Manchester, belonging to the Variegated Class, and as regards position, is intermediate between argyræa and tricolor, and is apparently a free grower."

W. COLE has great confidence in recommending it, and in stating that it is really a beautiful Fern, and one which will become exceedingly popular. 10s. 6d. each.

Price (very liberal terms to the Trade for 12, 50, or 100) on application.

Foster's Seedling Grape.

MESSRS. JOHN AND CHARLES LEE have to offer Mr. Foster's stock of this fine NEW GRAPE, which can be confidently recommended for general cultivation in cool Vineries. It has borne an abundant crop in the large Conservatory of the Royal Horticultural Society at Chiswick, the bunches being large, with medium sized berries of a pale amber colour. The flavour of Foster's Seedling is most luscious, equalling the richness of its twin sister Lady Downe's, and as far as can be seen, partaking of the same quality of hanging well without shrivelling.

Canes for planting, 7*s.* 6*d.* each. A few Fruiting Canes at 21*s.* each.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

THE GREAT VINE at HAMPTON COURT.—The Subscribers being the holders of the Royal Kitchen Gardens, Hampton Court, are enabled to offer genuine the famous and truly excellent HAMPTON COURT BLACK HAMBURGH GRAPE.

Strong well-ripened plants in 9-inch pots, 42*s.* and 60*s.* p. doz.
" " fruiting plants in 12-inch pots, 10*s.* 6*d* each.

If purchased in large numbers a considerable reduction will be made in price.

JACKSON & SON, Nurseries, Kingston, S.W.

FRUITING VINES in POTS; Ex. Ex. Strong.—The undersigned have to offer 250 very strong, short-jointed, well-ripened VINES in POTS. They are of undeniable quality, and equal to producing five to 10 fine bunches each. The sorts are principally—Champion, Mill Hill, and Golden Hamburghs; Black Frontignan; West's St. Peter; Chasselas Napoleon; Muscats, Noir d'Angers, Alexandrian, Cannon Hall, and Bowood; Charlesworth and White Tokays, &c., 10*s.* 6*d.* each.

FRANCIS & ARTHUR DICKSON & SONS, "Upton" Nurseries, and the Old Established Seed Warehouse, 106, Eastgate Street, Chester.

EXTRA STRONG FRUITING VINES.—All the leading varieties, from Eyes, with stout well ripened rods, for FRUITING in POTS this YEAR. Price, from 7*s.* 6*d.* each; smaller, for Planting-out, from 3*s.* 6*d.* each. A reduction in price will be made to large purchasers.

"We can especially recommend the above, our strong Vines having for some years given unqualified satisfaction."—*Vide* Leading Article in *Gardeners' Chronicle* for December 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries, Chester.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, has the pleasure to offer now for the first time his two new excellent Fruits—

APPLE CALVILLE GARIBALDI .. 8*s.*
PEAR BEURRÉ DE GHÉLIN .. .. 5*s.*

This excellent Pear obtained the First Prize at the great Pomological Show at Tournay, Belgium.

N.B. These two new Fruits are figured in VERSCHAFFELT'S "Illustration Horticole."

Fruit Trees.

RICHARD SMITH has no hesitation in saying, that he possesses by far the largest Stock of FRUIT TREES in the kingdom, consisting of Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots, in Maiden Trees, Dwarfs, Bushes, Pyramids, Half-Standards, and Standards; Dwarf-trained, Half-Standard, Standard, and Horizontally-trained Trees, of the finest sorts, and in the best possible condition. DESCRIPTIVE PRICED LISTS on application.

RICHARD SMITH, Nurseryman, Worcester.

Rose and Bulb Catalogues for 1862-3.

EDWIN HOLLAMBY begs to announce that his NEW DESCRIPTIVE PRICED CATALOGUES of the above are now ready, and will be forwarded gratis and post-paid on application.

Seed and Nursery Establishment, Tunbridge Wells, Kent.

Dwarf Tea Roses.

EDWIN HOLLAMBY begs to announce that he has a large and healthy Stock of the above, comprising some of the finest Yellows, and other leading varieties, in the best possible condition. Price on application.

Nurseries and Seed Warehouse, Tunbridge Wells, Kent.

ROSES for SALE.—Three Thousand STANDARD and DWARF ROSES in any quantity, of most of the leading kinds, at very reduced prices, the land being required for other purposes.

Apply to ALFRED GOSLING, Tower Nurseries, Heathfield, Hurst Green, Sussex.

Roses.

GEO. PARSONS begs to offer fine STANDARD ROSES, from 2½ to 4 feet stems, at 5*l.* per 100, or 15*s.* per dozen; including the New Varieties, 18*s.* per dozen, or 6*l.* 10*s.* per 100; the last New Varieties of 1862, DWARFS, 30*s.* per dozen.

Catalogues free on application.

Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

Wholesale Catalogue.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1862 and SPRING 1863, comprising Fruit Trees of all the leading kinds, new and selected Roses, fine varieties of American Plants, Choice and Rare Conifers, Evergreen and Deciduous Trees and Shrubs, and a fine Stock of Transplanted Forest Trees, &c., can be had free on application.

Woking Nursery, Surrey.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS; ditto COWSLIP; Florist's Flower, POLYANTHUS, Roots or Seed; also SCARLET PRIMROSE—Double Crimson, Double Purple, Double White, Double Yellow, and Double Lilac ditto. COWSLIP from the Himalayas; DOUBLE POLYANTHUS; and other varieties, all of which may be had on application to

RICHARD WEBB, Calcot Gardens, Reading.

DUTCH BULBS — SURPLUS STOCK.—Orders over 10*s.* value carriage paid.

	Per 100—*s.*	*d.*
HYACINTHS, in fine mixture	20	0
LATE TULIPS	10	0
EARLY TULIPS	6	0
PARROT TULIPS	7	6

Also a variety of other Bulbs at equally low prices; all in good condition.

PRICE LISTS post free on application.

WM. WOOD & SON, Woodlands, Maresfield, near Uckfield.

New Seeds, Growth of 1862.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

SUTTON AND SONS are now prepared to execute orders for all kinds of FARM and GARDEN SEEDS. The prices are lower and the quality finer than usual, owing to the very favourable harvest.

Royal Berkshire Seed Establishment, Reading.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. Annual Sale exceeds 3000 packets. In sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each.

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE PRIMULA SINENSIS SEED. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth.

New Bedding Plant.

AMARANTHUS MELANCHOLICUS RUBER (VEITCH). Sealed packets, 1*s.* and 2*s.*

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S for NEW PELARGONIUMS.
DOBSON'S for SHOW PELARGONIUMS.
DOBSON'S for FANCY PELARGONIUMS.
DOBSON'S for SPOTTED PELARGONIUMS.
DOBSON'S for NEW CINERARIAS.
DOBSON'S for PRIZE CINERARIAS.
DOBSON'S for PANSIES.
CATALOGUES Free.

J. DOBSON & SONS, Woodlands Nursery, Isleworth.

Seed Trade.

JAMES CARTER AND CO, Holborn, W.C., have a few lbs. of the following to offer to the Trade:—

MELVILLE'S GARNISHING KAIL,
VARIEGATED BEET, for garnishing,
SNOW'S WINTER BROCCOLI, true,
LITTLE PIXIE CABBAGE,
NEW FEATHER STEM SAVOY,
DANVER'S YELLOW ONION,
TOMATOE DE LAYE,
HENDERSON'S PINE-APPLE BEET.

Surplus Stock of Bulbs for Beds and Borders.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.

30 named HYACINTHS, 20 POLYANTHUS NARCISSUS, 300 CROCUS, 200 TULIPS, 200 GARDEN NARCISSUS, 20 DOG'S-TOOTH VIOLETS, 30 IRIS, 30 IXIAS, SPARAXIS and BABIANAS for 21*s.*; half for 10*s.* 6*d.*

The Gardeners' Chronicle.

SATURDAY, JANUARY 10, 1863.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, Jan.	14	Society of Arts	8 P.M.
		Microscopical	8 P.M.
THURSDAY,	15	Linnean	8 P.M.
FRIDAY,	16	Royal Horticultural (Election of Fellows) at S. Kensington	2 P.M.

A PROCESS has lately been applied in the dockyard at Cherbourg by M. LAPPAREUL, Inspector General of Timber, with a view to the preservation of ships from decay, which is highly deserving of attention, though we have great doubt whether it will prove as efficient against fungous dry rot as is anticipated.

In considering the important subject of decay in ship timber—and the same remark is applicable to domestic or horticultural structures—we must always remember that there are two very distinct sources of evil, the mischief arising in one case from the action of Fungi, while in the other it is due to mere chemical decomposition, apart from all fungous growth.

The antiseptic properties of charred wood when exposed to damp, have long been recognised. The ends of gate posts, which have generally the sapwood left upon them, though sawed off above, are often charred before they are fixed in the ground; the same practice prevails on many railroad lines with regard to telegraph posts, and the base of hop-poles is generally submitted to the same treatment. Indeed, in the ancient lake habitations of Switzerland, the base of the piles is always charred, though it is possible in this case that the trees were felled by the agency of fire. In some cases, moreover, the process may have been used rather with a view to hardening the end of the stakes so as to make them drive more easily, a matter which was certainly in view in the stakes burnt at one end (*sudes præustæ*), which are mentioned by Cæsar in the fifth book of the Commentaries, though these were used for a very different purpose. It appears, also, that the practice of charring is not entirely new in the navy, and that the Royal Sovereign, which has outlasted many a contemporary, was treated in this manner.

M. LAPPAREUL'S process then consists simply in directing a powerful jet of burning gas on the wood, so as to penetrate every crevice, the charring being facilitated in some cases by the addition of a very thin wash of tar. That this practice will have a powerful effect in arresting the gradual combustion which takes place in timber exposed to the action of water or to a damp atmosphere we have not the slightest doubt, but whether it will effectually stop the growth of Fungi is a different question. Not only is it notorious that ground where charcoal has been prepared or where sticks have been burnt is constantly productive of Fungi, as different species of Agaricus and Peziza, or the far-famed Morell—but charred wood, both in temperate and tropical regions, is peculiarly subject to the growth of Polypori and other wood-borne Fungi. This is a fact well known to every one who has paid attention to exotic species. The most common of all, the beautiful vermilion-coloured *Polyporus sanguineus*, very frequently grows on charred trees, and the same may be said of many other species. But we are not without examples in our own country. Old Oaks, dating at least from the time of King JOHN, which have never shown a trace of a Fungus, except such species as *Fistulina hepatica*, *Polyporus dryadeus*, and *P. quercinus*, which all affect the bark and not the wood, if accidentally burnt, produce on the charred surface an abundant crop of the very Fungi which occur in such profusion in our dockyards on badly seasoned timber. The exact affinity of the *Polyporus* which causes such destruction in Oak-built ships is not known, but it is doubtless a form of some extremely common species, which for convenience sake, rather than from conviction of its being really distinct, has received a specific name. We therefore feel ourselves justified in hesitating to a certain extent as to the merits of M. LAPPAREUL'S process.

There is however another point of view in which it is well worthy of consideration. It is well known that Oak timber decays rapidly when in contact with iron, probably from the combination of its tannin or gallic acid with the iron, as the same effect does not seem to be produced where the wood does not contain that principle. The importance, at the present time, of anything which is likely to arrest this decay in iron-clad vessels is at once manifest. The portion of the wood in contact with the iron will be in such a very different chemical condition from that of uncharred wood, that there is at least great probability that the injurious action of the iron will be arrested.

The subject requires more attention than it has received at present. Even in the case of deal we have observed that the parts of boards where nails have been driven in, were more decayed than the other parts, a circumstance which we have been inclined to attribute to the condensation of moisture by the cold iron, and it is possible that the softening of Oak round iron bolts may not be wholly due to the presence of tannate or gallate of iron. *M. J. B.*

——WE learn with great regret that M. VON HELDREICH, the learned Curator of the Museum and Superintendent of the Botanic Garden, Athens, is obliged by the troubles in Greece to dispose of his natural history collections. As a Botanical authority for the names of the plants of the Levant this gentleman is inferior to no one. As a skilful preparer of dried specimens he has never been surpassed and very rarely equalled. The chance of forming a Greek Herbarium now presented is one which can hardly occur again, especially considering the very low price, 25 francs for 100 species, at which these beautiful preparations may be secured.

M. VON HELDREICH has also a fine collection of Greek Coleoptera and many specimens of terrestrial and freshwater shells, all of which he would dispose of on similar terms. Surely the Linnean and Geological Societies should look immediately to this opportunity.

——We also see that M. G. MANDON, of Poitiers, is offering for sale collections of dried plants from Bolivia at 40 francs the hundred. Judging from the Orchids now before us, of which the collection contains about 47 species, M. MANDON'S preparations are excellent. Purchasers should address him, care of M. H. WEDDELL, 14, Rue de la Tranchée, Poitiers (Vienne). The largest collection consists of about ten hundred; others of 200 or 300. All are named.

WE once more enter a protest against the admission of FUCHSIAS, in the shape of *old bushes*, to general competition at our summer flower shows; and we do so *now* with the double purpose of inducing those who have the devising of arrangements for the aforesaid shows to admit nothing but yearling plants, and of reminding cultivators of the necessity of making a good start in good time, if they desire a successful issue. We lay stress upon the sole admission of yearling plants, in order that the change from the present usage

of showing plants of unlimited age may be made clear and unmistakeable, and that there may be no possible excuse or encouragement for the production of the misshapen, scraggy, one-sided models to which exhibition Fuchsias have latterly been tending. If the rule were not made definite and imperative, the encouragement might here and there be held out, in the shape of a preference for a set of well managed old bushes, on the part of judges who might be inclined to allow bulk to outweigh quality—a bad principle, undoubtedly, in plant judging. And that it is bad in principle to tolerate old Fuchsias at an exhibition we reassert, founding our conclusions on these considerations,—1stly, that plants quite large enough and much more handsome and symmetrical, may with proper care be produced within the year; and 2dly, that such yearling plants, having all the freshness and healthfulness of youthful vigour about them, produce the finest blossoms, and are the best exponents of the true characters of the several varieties.

But if one step be taken in reforming the mode of exhibiting Fuchsias, why not others? We confess that we should like to see the prizes more distributed, which result would be brought about by adopting the plan of exhibiting in classes. This plan, moreover, would have a tendency to impart greater variety and some novelty of character to the monster exhibitions with which we are getting so familiar that it is fashion rather than, as it ought to be, interest in the display which draws too many of us within their charmed circle. It is variety and novelty of character that these exhibitions most obviously want; and the class showing of subjects like those we are considering, which would do something and probably much towards effecting this change of character, is quite in accordance with the excellent suggestion of "SERAPIAS," at p. 7, in reference to the exhibitions of Orchids. Instead of a bank of Fuchsias made up of red and white sorts incongruously mixed, the same forms recurring from end to end, with dull monotony as the result, there would be a distinct and definite group of one colour here, followed by another of a different colour there, producing more real variety than any general admixture, and having an aspect wholly novel and distinct.

Indeed, any exhibition subjects which are now shown throughout all these classes indefinitely mixed, would have a much better effect, we believe—certainly would produce more variety in the scene of which they form part—if separated into distinct classes. Pelargoniums, for example, might advantageously be formed into at least two divisions, light-coloured and dark-coloured. At present the indiscriminate mixture produces sameness throughout the long ranges of these gay flowers which occupy so much of the space at the midsummer shows; and an inspection of the collection which may chance to come first to hand, and which is seen at a glance to be an epitome of the rest, leaves but small inducement to an ordinary looker-on, or to one not directly interested in the competition, to wade through the whole. Yet the materials of a grand display are present in such scenes as those we are recalling, and the materials, though tiring by their monotony under present arrangements, could not very well be spared, for their absence would produce a poverty-stricken effect. Assuredly, if this plan of classification were adopted, it would, besides producing a most desirable change of feature in the exhibition, serve as a very useful index to point out the direction in which deficiencies amongst the varieties of a particular flower existed, and would consequently afford some very useful hints to the raisers of novelties.

We are not sure, that on these grounds, even such subjects as the Dahlia, when invited at exhibitions of a general character (certainly at those more strictly confined to florists' subjects), would not excite more interest amongst the spectators as well as be more suggestive to growers, if shown in some such groups as those we have already indicated (1862, p. 1100) for their classification. For under the present regulations, the very same objection applies alike to all these and many other cases: that objection being, that in the first set of any particular subject which the visitor happens to set eyes on, he sees an epitome of the whole exhibition of that particular flower, and it then becomes irksome to drag on with nothing but a repetition of the same picture to gaze upon. Let us be sure this has a good deal to do with the conversion of the great flower shows into mere fashionable promenades: nine-tenths of the visitors don't care for the flowers; they take a peep here and there and get satisfied, if not much gratified, and have moreover tolerably good reason to be satisfied, inasmuch as their peep has revealed to them nearly if not quite as much as those have seen who have submitted to the crush which occurs at particular points, and have completed the slow tour of the tables. Let, however, such sorts of particular flowers, be it of Orchids or of Pelargoniums, of Fuchsias, of Dahlias, or others,—let such sorts of such as them as will admit of being intelligibly classified be brought together in the show by classification in the schedules, and there will be secured at least as many separate effects rising in succession, as many distinct though more limited pictures, as it may be possible to form out of classes sufficiently different from each other. Would it not be well therefore—and we close this digression with the inquiry—would it not be well if in our great London shows, which have become in one sense wearisome repetitions, the effect of this classifying principle were to be fairly tried? It is reasonable to assume that its adoption, the tendency of which would be to increase the number and diminish the extent of individual exhibitions of particular flowers, would often let in a new exhibitor, and thus recruit the ranks of that most important body by whom the exhibitions are kept up.

Returning to our original subject the Fuchsia, we proceed to observe that few of our popular flowers want a more thorough weeding out of inferior varieties, so as to give greater prominence to those which hold the highest positions in respect to merit. Old sorts of Fuchsia seem to hang on hand longer than the old varieties of many other flowers which are rapidly multiplied, and this, apparently, because every Fuchsia, or almost every one, is really, though inferior by comparison, an object of beauty, the beauty being perhaps dependent here less than in other flowers upon the floral improvements wrought upon the individual blossoms, and more upon the natural elegance of the plant viewed as a whole. In consequence of this, or from some such cause, as we suppose, older and really inferior varieties are often returned in collections long after they should have been banished from a prominent position in our gardens. Yet it is a fact equally patent, that very great advances have been made of late years in respect to the size and quality of the flowers; and it becomes desirable therefore to point out which of the varieties are really most worthy of general cultivation as objects of ornament. As the result of our own observations and examinations, we briefly indicate those which appear to us superior.

Commencing with the dark or red-flowered series, which may be separated into those with violet-coloured corollas and those with white corollas, both further separating into single and double, we have seen nothing superior, all points considered, in the first of these groups (the single red and violet sorts) to Sir Robert Peel, The Lord Warden, and Souvenir de Chiswick, the two first representing those sorts with the corolla a good deal expanded, and the last, an oldish kind, yet unbeaten in its way, representing those with a moderately compact corolla. Sir Robert Peel is characterised by a dwarfish freely-branched habit, with large pendent bunches of flowers terminating the shoots, the parts of the individual blossoms being thick and smooth and richly coloured; while The Lord Warden, which has many of the same good qualities as the former, has the corolla more elongated as well as expanded, and so acquires a distinct aspect. Souvenir de Chiswick is remarkable for its elegant free-flowering habit. As very distinct sorts may be added Count Cavour, with a very much expanded slaty-blue corolla, dwarfish-habited and free blooming; and Edith, with a stiff erectly branched growth, and excessively expanded corolla.

The best double-flowered red and purples we have met with are Sir Colin Campbell, very elegant in habit, and bearing profusely its graceful rather long-tubed flowers; and Universal, which is remarkable for its great round cherry-like buds, and large distinct blossoms.

Nothing amongst the sorts with single white corollas that we have fallen in with, is really better than Princess of Prussia; and of the double sorts, we pronounce for Madame Cornelissen, which when well grown is a slender variety, and a worthy match for good old Sir Colin Campbell.

What are called light Fuchsias, that is having the tube and sepals light coloured, are not yet equal in quality to the single reds. They still want purity and development of the corolla. One or two of the newer sorts may be acquisitions, but we have not seen them in a condition to warrant us in placing them before those we are about to name as really beautiful varieties of this group, and the most desirable we have seen, regarding them as decorative plants, namely, Annie, Wiltshire Lass, and Elegantissima. The first of these is blush-white with a scarlet corolla; the second is nearly pure white with a purplish-rose corolla; and the third is a remarkably dwarf free-blooming sort, with the tube tolerably pure, and the corolla moderately spread out, and of a purplish-rose colour. Duchess of Lancaster is a still useful addition, on account of the distinct rose-coloured tint of its corolla.

We here omit of course all the most recent novelties, the habit of which remains to be tested; and in our estimate of those we have named, we have been guided by habit quite as much as by technical merits in the flowers. Those we have named in fact combine good habit and good flowers.

New Plants.

PRUMNOPITYS ELEGANS (see p. 6).

WE have just seen a memorandum concerning this beautiful plant, in the handwriting of Professor Philippi himself, from which it appears that it comes from the river Traiguen, in the province of Valdivia. This is a most important fact, for Valdivia is in the extreme south of Chili, with the ARAUCARIA CLIMATE, and therefore Prumnopitys should be quite as hardy.

"NEW YEAR'S DAY."

IT is raining violently. This morning's post brought me a letter from Hertfordshire, wishing me a happy commencement of the year. I might write back and say, it is "good weather for ducks," but if it continues to rain much longer, I must be drowned; or, as the Irishman who fell into the sea said, "I *will* be drowned, nobody *shall* save me." I must say, that a moderate quantity of rain and an equal quantity of sunshine are great blessings; but being pumped upon for nearly 24 months continuously is rather too much of a good thing, especially as the sun has not favoured us much these last two years. Give me a burning West Indian sun, and I will find the mulching and water. I remember a peevish old man, whose hay was spoilt, saying to me, "I wish I had made the world, I would have made the sun and moon go the other way; at any rate I wish I had got the management of the frying pan and pump (the sun and rain), I would have made my hay and carried it."—"Yes," said I, "that is true, but, having carried your hay, you would have pumped upon mine and spoilt it. Now we all share alike, and depend upon it, the frying pan and the pump are in the best hands." The old man said no more, but walked away, looking as sour as the superacetate of potash.

Let us hope for a dry March, which is, with a West Indian summer, the riches of the world. Can any of the readers of the *Gardeners' Chronicle* tell me the value of a pound of March dust? Last year the month of March was wet, and was followed by sunless, wet, and windy weather, from May till the end of July. On the Tuesday before the National Rose Show it rained here like the Atlantic Ocean coming through a sieve; on the rain ceasing, the sun shone brightly for a few moments, and was succeeded by a crashing hailstorm, which put the finisher on my Roses; moreover, the wind blew a hurricane. It was these three things that sent the Roses to the National in such defective condition. Considering the weather, I thought the Roses were, on the whole, very respectable. None but exhibitors know how difficult (especially those who are not exposed, as I am, to the furious assaults of the S.W. wind) it is to protect Roses against the elements, and also to convey them in a hot train a long distance to the show. Let us hope for a genial summer. "There is no lane so long that it has no turning."

As my last address was on Strawberries, let me say a few words in connection with Roses. I am very glad (though it is not so convenient to myself as an earlier day) that the Royal Horticultural Society have considered the north and cold clay-landers in appointing July 1st for the National Show. This is quite fair; and we (especially Manetti-ites), who live in a more genial climate, must exercise our wits, in order to take something — even an ornamental box. I do not hold with attempts at retarding, unless by removal; cutting back the plants after the proper time is often injurious. We can hasten nature without detriment; but not so the converse. As regards hastening a bloom by manipulation, I believe it is usually a failure. The best way is, if the weather is dry, to water the ground; and if it is wet, to put panes of glass over long stable dung, so as, when the sun comes out, to produce bottom or geothermal heat. Roses that are very full, pointed, and involved in their foldings, are sometimes very provoking. The only thing you can do with them is to take the branch in your hand, and vibrate it quickly but carefully towards the wind. If the air gets in, the Rose will soon open, if not soaked with wet. It is not necessary, when you start, that the Rose should be fully expanded—indeed, it is better that it should not be so. The vibrations of the train and rattling over the London stones will, with the heat, open it quite enough. You must, however, with gloves on (white kids), feel if there is any cleft in the side. If there is, the Rose cannot be good. It is safest to take the full complement of expanded Roses, and an equal surplusage of unexpanded ones. These unexpanded travellers will often be your best Roses. At one Show last year I won the trebles and singles entirely by this. The expanded ones, so nice when I started, were rags the next morning. There is much in the location of Roses. I have hitherto taken too little care about this. I believe that this will be admitted, that whilst Roses of level size throughout a box are most attractive, yet much may be done by putting the biggest Roses in the top line, the next size in the second line, and the smallest in the third line. The Roses in the three lines should reach light and dark (or contrasted) horizontally and perpendicularly. This, on account of the different sizes of the Roses, is very difficult. It was completely done as regards alternation by my 24 winning trebles, shown in Sept. 1861, at Kensington. Eleven of them were white, blush, and yellow, and the others were varieties of rose and crimson.

Sufficient attention is not paid to this; moreover, the pans are usually wanting in white, yellow, and dark coloured Roses. I keep a large stock of these three colours, without which I can hardly call a pan first-rate. The following are generally growable and good:—

White.—M. Zoutman, Devoniensis, Acidalie. These are first-rate. Sombreuil is fine, hardy, and good.

Yellow.—Solfaterre, Gloire de Dijon, Triomphe de Rennes, and Celestine Forestier. Root prune this last, and do not cut her leaders much. Removal will also make her bloom.

Very Dark Roses.—The Emperor of Morocco, Duc de Cazes (good on both stocks), Princesse Mathilde, and the new Rose, Prince Camille de Rohan.

Now, if these colours had been more interspersed in the show, it would have been much better.

I have now only one more point to advert to. Perhaps the readers of the *Gardeners' Chronicle* will be encouraged by the announcement of finality, just as Diogenes' disciples were awaked up by him as he came to the fly leaf of one of his essays, which he was reading, to their tired ears, by his crying out, "Courage, lads, I see land!" I have been often asked—which is the best way to win Rose prizes? My answer has been, high cultivation, new plants (bought, or home budded), change of ground, and hard cutting, as regards Briar Roses. Manetti Roses, when planted, or even afterwards, do not require hard cutting. Take off the tops to a good eye, and thin out the side wood, and cut the side wood to two or three eyes. The quantity of Roses, the good land, the new plants, the change of ground, are the reasons why the nurserymen beat the amateurs. I cannot close without expressing my highest admiration at all Mr. Hedge's pans at the last National tournament. It is lucky for the nurserymen that they had not to compete against him. *W. F. Radclyffe, Rushton, Jan.* 1.

SEEDLING FRUITS.

PLUMS.

IT must be nearly forty years since that five gigantic Plum trees of the old but very excellent early Plum the Précoce de Tours, planted by my grandfather about 1780, were in a flourishing state; they used to bear a full crop about once in five years, and at other times only what was called a "sprinkling." When this sprinkling was too insignificant to be worth gathering for market, we boys, my brother and myself, made it a point to appropriate the greater share, and most delicious we thought them. By some peculiar but rather unboyish instinct I was induced to plant some stones of this my favourite Plum, and in due time some young trees made their appearance. It was some ten years or so before they bore any fruit, for they were looked upon by my elders as wild trees, and planted in a shady corner; at last two of them bore good crops, and as I was then of an age to take some interest in new fruits, I was much pleased to find them valuable sorts, one earlier than its parent, the other as early; but so hardy that it bore annually a full crop, in spite of spring frosts, generally so fatal to the blossoms of Plum trees.

For some few years I distinguished the first-named as No. 1, the second as No. 2, and in process of time I acquired confidence enough to name them, No. 1, the Early Favourite, No. 2 as the Early Prolific; such are the names they now bear in most fruit-tree catalogues. The last named variety still maintains its character, and bears here so profusely that last season a plantation of about 500 trees gave some hundreds of "sieves" of Plums, which were sent to Covent Garden the end of July; the trees were purple with their loads of fruit. I have been rather diffuse in my account of these my first seedling Plums, because their offspring have led to a train of reasoning on the tendency of seedling fruits to return to the normal condition of their species. I have mentioned that very late Pears are inclined to produce sorts ripening in autumn, which is undoubtedly the season that Pears in their natural state ripen in. Well, I have raised seedlings from the Early Favourite Plum and the same from the Early Prolific, hoping to originate sorts still earlier, so as to have Plums ripening in June. Nature, however, seems to have stepped in, and my seedlings, from both kinds, have ripened from a fortnight to a month later than the parent sorts, and are mostly of inferior quality, although undoubtedly of the same race, being more like wild Plums than sorts of a good parentage; wild Plums ripen in September, and my seedlings from seedlings of an early Plum seem to me to be endeavouring to approach to a state of nature. It is still to be ascertained if seedlings from these half-wild Plums will return to the excellence of the first generation, and I hope to live to ascertain the fact.

I have omitted to say that the first seedlings raised from perhaps one of the oldest varieties of Plums known, the Précoce de Tours, viz. Early Favourite and Early Prolific, partake largely of the nature of their parent in colour, in size, and flavour, thus showing that seedlings raised from varieties of fruits long domesticated do not depart at once from the parental character; this will account for the want of success in that old and truthful pomologist Duhamel, in raising new kinds of Pears from the good old kinds, which he tells us he essayed to do during a portion of his life. In support of this idea I may mention that some twenty years since, before railways were in full activity, to take off what the market gardeners call a "glut" of fruit from Covent Garden, I bought in this market 20 bushels of over-ripe and half-rotten Green Gage Plums at 1*s.* 6*d.* per bushel; the stones of these were sown, and produced some thousands of trees, which were planted out and employed as stocks to graft Plums on. I watched them very narrowly to discover some deviation in leaves or in shoots, so as to be able to select a few likely subjects to plant out till they bore fruit, and thus possibly give me some new variety, but not one could I find: all had the smooth shoots, prominent buds and the glossy leaves of the Green Gage, the greater number with smaller leaves and thorny shoots; and so I allowed them all to be grafted with other kinds. I have at this moment seedling Green Gage Plums with the same undeviating habit, the tendency being to give small leaves and thorny shoots—in fact seeming as if they would (if left to reproduce themselves without the care of man) become, in a few generations, wild green Plums, probably the normal state of this sort. A few years since I procured from the Horticultural Gardens at Chiswick, the "Cabul Green Gage." I was deeply interested with it, for from its wild-looking habit and from its far eastern name, I at once concluded that at last I had got the Green Gage in its normal state, thus at once solving the secret of its origin, for to the East we look for the origin of nearly all our necessaries and luxuries pertaining to the vegetable world. I regret much to say, that this to me most interesting Plum has disappointed me,—it bore fruit two years since in my orchard house, and proved to be a Cherry Plum, a variety of the Mirobalan, with red fruit of a larger size than the common Cherry Plum. The habit of the tree is most remarkably vigorous, it making shoots in one season from 7 to 8 feet in length. A few years since I raised two or three seedlings from the Peach Plum (Prune Pêche); one of these bore fruit in 1859, which ripened June 30th, thus proving the earliest Plum known, but as the tree was in a pot, and stood in a warm place in front of a wall, I do not think it will in future ripen so early. This sort is a remarkable deviation from its parent, which is a large round and remarkably handsome red Plum, very sweet without any piquancy, ripening in August; the seedling is oval, smaller than its parent, and of a very brisk flavour; its habit is widely different, for its shoots are so slender as almost to be pendulous, whereas those of the parent are stout and robust.

There are two races of Damsons, one with downy shoots, peculiar to the north-west of England, and called the Prune or Shropshire Damson; the other with smooth shoots, called the Common Damson, which is the sort grown largely in Kent and other parts of the south of England. They would perhaps be considered by the older botanists as varieties of a species, so little do they deviate, as far as my experience has gone, when seedlings are raised from them. My experiment was with the last-named sort, and now dates some thirty or nearly forty years since. Damsons were then scarce in the nurseries, and the stones of some bushels were sown here to produce trees for sale; they grew slowly, and were many years before they had fruit. Their adherence to the parental type was then most interesting, for they were all Damsons with smooth shoots, but some bore oval fruit, some round or roundish, and a few with small fruit approaching very nearly in appearance to Sloes, but they were sweet, and their shoots were smooth instead of being downy like those of the common Sloe. I then thought, and am still inclined to think, that our Damsons owe their origin to the Sloe, and that after a few thousands of years, if left to a state of nature, they, in common with all our fine varieties of domesticated fruits, would return to their normal state, and that Greengages would be like Bullaces, Ribston Pippins like Crabs, and Peaches thick-fleshed Almonds; for I have one or two seedling Peaches approaching very nearly to that state.

Bullaces and White Damsons reproduce themselves from seed with but little variation. Some from the former, however, a recent generation, the trees now three years old, are of interest, for one among them with a close pyramidal habit has broad leaves and looks hopeful.

Coe's Golden Drop, which, compared with the Green Gage, is a new kind, has produced here a round Plum like an Orleans, and not a late Plum like its parent, for it ripens about the end of August; its quality rich and good, but although it has been in existence some twenty years, it has not been honoured with a name. This comparatively early Plum, from one of our latest varieties, is of much interest, and tends to support my train of thought relative to seedling Pears in No. 51.

The Jefferson Plum, which, compared to the Green Gage, is a new variety, has produced here seedlings varying to a great extent in their foliage and habit. As they promise to bear next season, the variation or non variation of their fruit will soon be ascertained.

The Reine Claude de Bavay, a new and late variety of the Green Gage, has produced seedlings giving great hopes, for they have departed widely in habit from their parent, as have seedlings from Guthrie's Late Green, another variety of the Green Gage. It would seem, therefore, that as soon as a deviation from an old race of domesticated fruits takes place, either by accidental or artificial fertilisation of the flowers, the seedlings of the second generation vary to a great extent. Seedlings from that very old sort, the Orleans, have the downy shoots and habit of the parent, and more remarkable than any fact I have related as to seedlings from old varieties being inclined to retain the habits of their parent, is that amongst about 80,000 seedlings raised from 40 bushels of stones of the oval purple Plum, known all over Germany as the Quetsche Plum, which is exported thence so largely, and which forms so important an article of food in some districts, (who can forget the anecdote in the "Bubbles," of the lean breeches-maker's dinner—a basin of Plums and a piece of bread?), not one could be found varying in the least in foliage and habit. These seedlings were growing vigorously last summer, the stones having been sown the previous February, but every plant had the same rugose pointed leaves as the parent, and I looked in vain for some deviation. The Quetsche is undoubtedly one of our very oldest varieties, and seems, like the Green Gage, to have acquired under many years of cultivation the settled habits of a race. There are, it is true, several varieties of Quetsche Plums known in Germany, some yellow, some greenish, some a little earlier than the common sort, but they are all of the same habit and same race.

I may also report the same fact with regard to the Petite Mirabelle, so largely grown in France, and so long known there: I have searched among some thousands of seedlings raised from stones imported from France for the purpose of raising young stocks, to make the Plum and the Peach dwarf in growth, in the same way as the Paradise stock dwarfs the Apple, but I have searched in vain for any deviation; the same small leaves, downy shoots, and dwarf habit, are prominent in all. This old French kind has, however, like the German Quetsche, diverged slightly, for there are early and late Mirabelles, the former quite a little jewel of a Plum, as it ripens in July, and is very rich, the latter ripening in October; and there is also the Mirabelle de Nancy and one or two others—still they are all Mirabelles, and retain the prominent characters of the race.

The Saint Catherine Plum, a very old variety, grown largely in the warmer parts of France for drying, reproduces itself from seed without the slightest variation in habit, so that one would think it a species.

I have been led into a lengthy notice of the adherence to race in seedlings raised from our very old varieties of Plums, because it may prove interesting to physiologists, and lead to agreeable and interesting speculations and deductions—in fact to matters that one like myself may think and talk about, but fear to commit to print.

It must be recollected that I have narrated the effect of raising seedling Plums without any attempt at fertilising the flowers; by this process the gardener can make Greengage Plums produce from their seed, varieties of all hues and forms. Before I conclude this, I almost fear too long an article, on one species of fruit, I feel that I ought to mention a remarkable variation in a Plum and not from seed, but from what gardeners call a "sport."

In the plantation of Early Prolific Plums, referred to above, one tree, about three years ago, produced Plums of a bright yellow, and has continued to do so ever since; these ripen at the same time as their purple brethren, are of the same shape and flavour, and the shoots and leaves of the tree are exactly like those of the Early Prolific. It is unlike any other yellow Plum known. *T. Rivers.*

PLANTS OF PERU.—No. VII.

(*Continued from p.* 7.)

CINCHONAS.—By the 21st of December, the plants alluded to in my last letter were well established in their cases; therefore we prepared to descend the river. The cases, 15 in number, were placed in two rows on the fore part of the raft; a little shed thatched with Maranta leaves to protect us from the sunheat by day, and dews at night, was erected in the centre; while the after part was occupied by an old man (a negro), and a lad who had undertaken to guide the raft to Guayaquil. The water, swollen by recent rains, was full of whirling eddies, which notwithstanding our united efforts, carried us against the banks of the river, which were overhung with branches of trees and climbers; as our raft passed swiftly along these came in contact with our little shed, pulling off a portion of the roof, and sometimes sweeping off the old negro also; who, however, was a good swimmer, and so always succeeded in regaining his position.

Mr. Spruce, who was full of anxiety for the safety of the plants, expected that we would have been wrecked on some sand bank, but about four o'clock in the afternoon we reached the village of Caracol, where the river runs smoothly dead, and from thence we were carried by the tides to Guayaquil, where we anchored on the evening of the 27th December.

Next day the appearance of the cases attracted the attention of commercial men, who came in numbers to see what the "glass boxes" contained. Some of them, however, had previously learned that they were Cinchonas for British India, and therefore such of them as had knowledge enough to foresee what the result might be seemed much chagrined; but at this time there existed no law to prevent the cases being sent on their journey, and when they succeded in making one,* which they shortly afterwards did, the plants were on board a mail steamer near the Straits of Babel Mandel. They were put on board on the 31st December, and were disembarked at Payta on the 2d of January, 1861. The removal of the cases from the steamer at Payta was a work of great difficulty. They had first to be lowered from the deck on to a raft, and from thence transferred to boats, which carried them to the quay, on to which they were raised some 20 or 25 feet by means of a very

* The law or decree in question is to the effect, that any one who may be found exporting seeds, or plants, of the Quinine tree, will be fined 100 dollars (about 20*l.*) for each grain of seed, and the same sum for every plant.

doubtful crane. Through the influence of the Consul at this place I got the cases placed in an open shed beside the quay, which was fortunate, because the days at Payta are always unclouded, from sunrise to sunset.

The town of Payta, which is situated at the head of a bay or arm of the sea immediately above the littoral line, is a miserable looking place. The houses are built of bamboos and plastered with mud. The town and surrounding country exist within that narrow strip of desert land which runs along the sea coast, from the northern part of Peru to the southern frontier of Chili.

Immediately behind the town rise mounds and hills of sand, barren and dry, without a single vestige of vegetable life, for not a drop of rain has fallen at Payta for the last twenty years; the climate therefore is so dry that even Lichens do not thrive. It appears wonderful that this place should be so completely parched up, when it is known that about sixty miles to the northward, rain falls in torrents for nearly six months of the year. The sand-covered hills, which are in many places traversed by deep chasms, exhibit near the surface a layer of shells, of apparently the same kind as those on the sea-shore, but bound together, and hard as a mass of granite.

Although the shed already referred to screened the cases from the rays of the sun, it did not exclude the clouds of very fine sand which are carried about by the wind, and which find their way into every dwelling. From the beginning the object was to give the plants as much air and sun as possible—provided the latter was not too powerful—before crossing the Atlantic; for it was evident that if they left America in a blanched unhealthy state, they would not be in a position to favour recovery when they arrived in India. I therefore took off the glasses and laid them aside; and immediately in front of the cases suspended mats and cloths, which were continually moistened with fresh water to prevent the sand from passing through them, and to modify the ill effects likely to be produced by a dry hot atmosphere. On the 17th, the steamer Lima arrived at Payta; when the cases were again put on board without sustaining any injury. Departing from the counsel I had received from eminent horticulturists before leaving England—who advised me to keep the cases well puttied up when on board the steamer, for that sea air was very injurious to plants—I opened them daily, and exposed the plants to air and sun. It is necessary, however, to draw a wide difference between sea air and sea spray, which is certain death to at least Cinchonas. On moistening the foliage of several Red Bark plants with salt water, I found that in less than three hours it became black and dead, and that on the following day both leaves and petioles dropped from the plants. Ever since I have, therefore, been afraid of salt water.

On arrival at Panama, the cases were lowered from the deck into a boat (where they were heaped up one above another) which carried them to the railway terminus, on to which they were raised by means of block and tackle, and put into a covered van or truck. About one P.M. the train started from Panama, and arrived at Aspinwall, on the western side of the Isthmus, at half-past four of the same day. The cases were then put on board a steamer; but many of the plants during the transfer were much injured, for the workmen on the Isthmus—who are mostly negroes—are the most careless and useless of any in the world; therefore what might have been done easily by two East Indian Coolies, was performed by six negroes with great difficulty, accompanied by a vast amount of yelling and shouting.

About 11 P.M. of the same day, the steamer sailed for the island of St. Thomas. During the voyage high winds prevailed, and that portion of the deck on which the cases stood, was continually flooded by salt water. After a stormy voyage of five days, we reached St. Thomas on the 31st of January. The cases were then put on board the Royal Mail Steam Packet Company's ship Atrato, which, on the same day, sailed for England. For the four following days we had beautiful weather, with the sea as smooth as a mirror, and during this period I opened the cases, and gave the plants the benefit of sunlight and air. On entering the English Channel heavy gales of cold wind were encountered, and the thermometer on several occasions fell to 30° Fah. The steamer reached Southampton on the 13th of February, and the cases were disembarked next day. *Robert Cross, Southern Slopes of Chimborazo, April*, 1862.

CLIMATE AND GARDENING AT NICE.

"WONDERFUL invention, Railways, Sir!" Of the multitudes who have listened to this platitude, we imagine few can have felt its truth so much as the original makers up of the traffic tables on the strength of which the railways which were brought forward in 1845—47 passed the Board of Trade. How must those men who then stretched an India rubber conscience to its utmost gape, now feel when they see that the statements which it required all their unabashed effrontery to bring forward, fall far short of the real facts, and that in some cases traffic which they dreamt not of is now yielding greater returns than all that they imagined from every source. It is not only that the old existing traffic has increased almost beyond count, but that the new sources of traffic, and new lines of business, consequent upon the facilities given by railways, have started into being.

One of these which is now springing up is the establishment of Nursery Gardening, in the warmer parts of Europe, for the supply of the colder parts with plants which can be reared in the former without artificial heat, but not in the latter.

More than one enterprise of this kind is now rising into importance at Nice. One of these, known as the Establishment du Ray, is according to M. Alphonse Karr likely to take a first place among European horticultural undertakings. The Count de Pierlas has set apart a fine property and large funds to found it, and has associated with him for the purpose an able French gardener (M. Joly). These gentlemen have adopted all modern improvements; they commenced by drawing together from all quarters the finest collections of every kind, from which they now propagate, sow and multiply. The chances from which M. Karr predicts future success and fortune for this establishment are (besides the ability with which it is conducted) the fact that the climate of Nice allows almost every plant for which a greenhouse is required in France, Belgium, or England, to be there cultivated and propagated in the open air. This condition effects an economy in the expense of production, which, if the rate of carriage is sufficiently low, will render it impossible for other establishments less favourably situated to compete in price with it.

M. Karr, in his recent "*Promenades hors de mon Jardin*," records the names and characters of most of the Gardeners and Gardens at Nice, among which we observe that he only mentions one Englishman as an amateur of flowers (probably Mr. Edwin Stuart) "*qui, dit on, est fort curieux et fort riche de belles plantes.*" We shall not follow him into these details, but pass on to one or two indications which he gives of the quality of the climate.

"If you wish Roses," says he, "you cut a branch of a China Rose, you bud upon that branch an eye of the Rose which you wish to possess, and you stick your branch ready budded into the ground wherever you may happen to be, only avoiding, if possible, places that are paved. This done, you trouble yourself no more about your cutting; but the Nicene considers himself very ill used if fifty days afterwards his Rose tree is not in flower.

"The growth here is such that latterly I experienced some inquietude on the subject of a cane to which I hold, having made certain promises with relation to it which it appears to me would not be quite correct to fulfil by means of another. I was in a garden, and to disembarrass myself of my stick for the moment I stuck it into the border, and then continued my walk, and left without remembering to take it with me. It was not until two days afterwards that I sent in all haste to recover it. My inquietude was this: My Rattan had perhaps taken root, and might be swaying its green leaves about in the wind. It was brought back to me intact nevertheless. But I explained that in this way:—1. The Rattan comes from a warmer climate than Nice. 2. Nice had undergone two days unworthy of it, and had not had its proper degree of heat. 3. The Rattan had only remained in the state of a cutting for two days."

The laziness and ignorance of the Nicene gardeners are well touched in the following sketches:—

"One of the most productive crops of the Nicene soil is the Violet, which is used for perfumery. The Violet which is cultivated for this purpose is the double grey Violet, called at Paris, where it is always dear, the Violet of Parma (in England the Neapolitan Violet). It is here so generous, that it is a remunerative crop, even when the perfumers only pay for it 20 sous the kilogramme (5*d.* the lb.), and Heaven knows what amount of perfume a kilogramme of Violets would make. They gather the Violets in the month of March, and say, 'What a pity that we did not weed the Violets last summer, they are choked by weeds.'" The harvest terminated, they cast their eyes no more in that direction; they do not even walk into that part of the garden until the month of March following. Then they gather the new flowers, saying, 'It is really a pity that we have not weeded the Violets last summer.' They gather them and look no more near them until the next month of March, when things pass exactly as before. The only difference consists in this, that each year the Violets are somewhat fewer.

The Peas at Nice are inferior. They grow 7 or 8 feet high, need great branches to support them, are often beaten down by the wind, produce few and very second-rate Peas, and keep the neighbouring plants in the shade.

A Nicene proprietor had observed that they were much despised by strangers. He procured some seeds from France, where he had heard that the garden Peas were excellent. He asked for the very best, and they sent him the Prussian blue Pea, an excellent Pea which grows only about a foot high. He gave it to his tenant, telling him, 'Take great care of this. It comes from France, and costs a great deal.'" The tenant set apart his tallest Pea sticks, and went to the neighbouring hill to procure long and strong poles, then he raised a sort of trellis, 12 feet in height, thinking that Peas which came so far and cost so much must grow much higher than those he was accustomed to sow.—"How go the French Peas?" asked the proprietor from time to time.—"They are not doing badly, but they grow very slowly."—"Take great care of them."—"It is not sticks they will want."—"Remember that the carriage alone cost me 5 francs."—"Then perhaps I have not put tall enough sticks. I could not get any better, but next year I shall see to procure some. In the meantime I have got the ladder mended for gathering them."

"How go the famous Peas?" asks the master, a month later.—"Don't speak of them, Sir, they have robbed you infamously."—"What do you say?"—"I say that these famous Peas, these French Peas, these Peas of which the carriage alone has cost 5 francs, are degenerated or wild Peas. Do you know at what height they have begun to flower? You need not seek, you will never guess it. They have begun to flower at 4 inches from the ground."—"Not possible!"—"And they have ceased to grow higher before reaching a foot; so I have not kept any of the seed."—"You have done quite right. Mon Dieu! how one is cheated! Peas which come from such a distance—Peas so dear—not to grow taller than that! Go back to the old Peas, and sow them next time."

Here is another illustration. "A countryman, my close neighbour," says M. Karr, "came one day into my garden, I know not for what reason. His glance fell upon a Peach tree, and he said to me, 'There is a good Peach, Monsieur.'—'I found it here, where it does not appear to be rare,' said I. 'There are a dozen in the garden. Have you not got it?'—'No, Monsieur.' 'Have you have been cultivating the garden where you are for a long time?'—'Twenty-two years.'—'You must take some grafts in the month of August.'—'The tenant before you, Monsieur, once offered them to me, but you know when one grafts in one's garden, one takes his grafts from the trees close at hand.'"

With all this ignorance and with all this laziness, Nice appears to have a future before it in the gardening world. The railways will operate a change here as every where else, and if the energy of the north does not leave its impress on the Nicenes, the northerner will settle there himself and do his own work. *M.*

REPORT ON THE CULTIVATION OF THE QUINIFEROUS CINCHONÆ, IN BRITISH SIKHIM, FROM THE 24TH MARCH TO THE 1ST AUGUST, 1862.

"THE plants of Cinchona which had been collected in the Botanic Gardens, Calcutta, from Java and Ootacamund, as well as those raised from seeds in the Botanic Gardens during the previous year, were sent by railway to Sahebgunge on the 24th March in charge of Mr. Thomas Stubbs, a European gardener, accompanied by two Mallees from the Botanic Gardens. All the plants were contained in 13 Wardian cases. Some of the plants were in earthen, others in Bamboo pots; almost all those of Cinchona succirubra were planted in the soil contained in the cases. The following Table shows the number of plants of each species despatched from Calcutta on the above date:—

TABLE I., SHOWING THE NUMBER OF SPECIES OF CINCHONA SENT TO DARJEELING ON 24TH MARCH, 1862.

NAME OF SPECIES.	No. of Plants.	No. of Seedlings.	Total of Plants and Seedlings.
Cinchona succirubra ..	84	..	84
,, Calisaya ..	5	..	5
,, nitida	56	..	56
,, micrantha ..	42	..	42
,, peruviana ..	2	..	2
,, Pahudiana ..	54	548	602
,, species ignota	6	..	6
Grand total ..	249	548	797

"No delay occurred at Sahebgunge; the plants were taken by the small ferry steamer across the Ganges to Caragolah Ghaut. They remained there until the afternoon of the 29th March. The distance from Caragolah Ghaut to Purneah, 24 miles, was performed very slowly. Some of the Wardian cases started from Caragolah on the afternoon of the 29th, not arriving at Purneah till noon on the 31st. This delay was caused by the inefficient Coolies provided for the transport of the cases. Many of them were children of 12 and 14 years of age, who were not even tall enough to lift the cases from the ground. The result was that 18 hours after the plants had started from Carogolah Ghaut, I found two of the cases at distances of four and six miles from Caragolah Ghaut fully exposed to the burning heat of the sun, the Coolies lying by them completely exhausted. Two carts were procured from a neighbouring village, but this means of conveyance was so slow that 20 hours more elapsed before the cases reached Purneah. The plants arrived flaccid and drooping from the effects of the exposure and the jolting; but, with a single exception, they all recovered before they left Purneah. At Purneah some delay occurred, but this I did not regret, as Mr. Robinson availed himself of it to procure a party of strong Dhanga Coolies, who most materially assisted in getting the cases over the next long stage of 40 miles to Kissengunge. The cases left Purneah on the 1st April, and arrived at Kissengunge on the evening of the 2d. They reached Punkabarree, at the foot of the Hills, on the 7th April, four days after leaving Kissengunge. After two days the plants were removed to Kursiong, which I had fixed on as the most suitable place for keeping them until arrangements could be made for their final disposal. The cases reached Kursiong on the 9th, and were at once placed in the square of the barracks used as rest houses for the European troops proceeding to Darjeeling. These barracks are about 4500 feet above the level of the sea. When the plants were carefully examined, on their arrival at Kursiong, eight were found to have perished since their departure from Calcutta. This is exclusive of casualties among the seedlings of C. Pahudiana. I look on this as a very small mortality, considering what the plants had undergone since leaving Calcutta. Mr. Stubbs deserves great credit for the unremitting attention he bestowed on the plants, and for the care with which he carried out my orders to give the plants as much air and as little water as possible. The exposure of the plants to air and light, and all changes of the weather, was commenced soon after their arrival at Kursiong, and after a few days' gradual inuring, they were left exposed night and day with great benefit to all the species.

"While the Cinchona plants were left at Kursiong under the care of Mr. Stubbs, I was engaged in exploring the forests, in the neighbourhood of Darjeeling, for a suitable site for the permanent nursery. I hoped to procure land near enough to Darjeeling to allow of the permanent propagating house and a temporary dwelling for the European gardener being erected within two months. This I soon discovered was quite impossible, as all the land within several miles of Darjeeling had been purchased for the cultivation of Tea, and that whatever piece of Government land I might select, a new road must be made to it before any buildings could be commenced. The nearest and most suitable tract of land I could obtain lay on the slopes of Sinchal, extending to the River Teesta, and which contained suitable land from heights of from 800 feet above the sea to 8600, the summit of Sinchal. The nearest point of this tract which had not been acquired by private individuals was not less than 10 miles from Darjeeling, and was quite inaccessible from the dense forest with which it was covered. I was thus forced to seek for some temporary accommodation for the Cinchona plants. After consulting with Captain Fitzgerald, the Executive Engineer, it was agreed that the best plan would be to convert one of the empty officers' quarters at Sinchal into a temporary propagating house, and to make over another as the dwelling house of the European gardener. Two rooms were accordingly thrown into one, and a glazed roof substituted for the wooden one. A plan for heating the atmosphere of the house and for affording bottom-heat to the plants was contrived. This was done by blocking up the chimney of the room and carrying the smoke and heated air through a horizontal flue of masonry, which, after passing through the room, ends in a short chimney outside. The plants were brought to Sinchal on the 5th May; they suffered more during the short journey of 20 miles from Kursiong to Sinchal than they did on the way from Calcutta to Kursiong. A serious accident occurred to the case containing the seedlings of C. Pahudiana; by the stumbling of one of the eight Coolies carrying the case it was upset, and all the plants were, more or less, uprooted. Although they were immediately replanted by Mr. Stubbs, and the case containing them was left for nine days near the spot where the accident happened under the care of an experienced native gardener, not one of them survived. On the 27th May the conservatory was completed, and the Cinchona plants were at once moved into it from the room where they had been placed on their arrival at Sinchal. All had suffered greatly from the effects of their long journey and the unavoidable delay in preparing proper accommodation for them. There is, however, a very marked difference in the loss between the plants from Java and those from Ootacamund. Out of 59 plants obtained from Java only one death occurred, while of the 170 plants from Ootacamund no less than 30 were completely lost. This difference in the healthiness of the plants from the two places becomes more striking when it is known that the plants from Java were brought by Coolies from the mountains in the interior of that island to Batavia, and thence by steamer to Calcutta; while those from Ootacamund were transported in 12 hours by railway over most of the land journey, and the sea voyage only lasted three days. The plants from Java were in addition exposed for two months longer than the others to the confinement of small pots and Wardian cases, as they arrived in Calcutta two months before them.

"The following table shows the stock of Cinchona plants on the 1st June, and the number of deaths in each species from the time of their leaving Calcutta:—

TABLE II., SHOWING CONDITION OF CINCHONA PLANTS FROM 24TH MARCH TO 1ST JUNE.

Name of Species.	Loss of Plants.	Loss of Seedlings.	Total of Losses.	Plants remaining.	Seedlings remaining.	Total of Plants and Seedlings.
Cinchona succirubra	10	..	10	74	..	74
,, Calisaya* ..	None.	..	None.	5	..	5
,, nitida ..	15	..	15	41	..	41
,, micrantha ..	9	..	9	33	..	33
,, peruviana ..	None	..	None.	2	..	2
,, Pahudiana*..	1	548	549	53	None.	53
,, species ignota	3	..	3	3	..	3
Grand total ..	38	548	586	211	None.	211

"The plants of the species marked* were obtained from Java. The seedlings of C. Pahudiana were raised in the Calcutta Botanic Gardens.

"During the month of June the propagation of all the species, except C. Pahudiana, was successfully prosecuted, and the number of deaths was reduced to seven. The process of layering was the only method followed, and by it young well-rooted plants were procured in from 21 to 30 days, in the case of C. succirubra, C. nitida, and C. micrantha. The plants of C. Pahudiana could easily have been artificially propagated, but as they were all finely formed plants raised from seed, I was unwilling to do anything that might interfere with their attaining their full development, the more so as I had a large quantity of apparently good seed which I had sown in the end of May. The only seedlings among the other species were the few plants raised in the Botanic Gardens, Calcutta, and of these none were layered.

"During June a few of the seeds of C. Pahudiana germinated. On the 1st July the return of the stock of all the species was as follows:—

TABLE III., SHOWING NUMBER OF PLANTS OF CINCHONA ON 1ST JULY, 1862.

Name of Species.	Loss of Plants since 1st June	Increase of Plants since 1st June.	Increase of Seedlings since 1st June	Total increase of Plants and Seedlings.	Total of Plants and Seedlings on 1st July.
Cinchona succirubra ..	3	36	..	36	107
,, Calisaya	None	1	..	1	6
,, nitida	2	9	..	9	48
,, micrantha ..	2	7	..	7	33
,, peruviana ..	None	None	..	None	2
,, Pahudiana ..	,,	,,	486	486	539
,, species ignota ..	,,	,,	..	None	3
Grand total ..	7	53	486	539	743

"In the following month, July, the increase was much greater, both by layers and seed. All the plants made a considerable growth and had acquired a much healthier appearance. On the 1st of August most of the seedlings of C Pahudiana had their two pairs of leaves well developed, and a few had formed their third pair.

"This last table is the return of the plants on the 1st August drawn up in the same manner as Table III.:—

TABLE IV.—SHOWING THE NUMBER OF CINCHONA PLANTS ON 1ST AUGUST.

Name of Species.	Remaining on 1st July.	Loss of Plants since 1st July.	Increase of Plants since 1st July.	Increase of Seedlings since 1st July.	Total Increase of Plants and Seedlings since 1st July	Total of Plants and Seedlings on 1st August.
Cinchona succirubra	107	1	32	..	32	138
,, Calisaya ..	6	None	2	..	2	8
,, nitida ..	48	,,	13	..	13	61
,, micrantha ..	38	2	6	..	6	42
,, peruviana ..	2	None	2	..	2	4
,, Pahudiana ..	539	,,	None	814	814	1353
,, species ignota	3	,,	2	..	2	5
Grand total ..	743	3	57	814	871	1611

"The rate of propagation will increase every month as in periods varying from three to six weeks; the new plants are ready to be artificially propagated in their turn, while the many shoots made by the plants that have already yielded new plants are likewise available for layers or cuttings.

"On leaving Calcutta in March I placed four plants of C. Pahudiana and two of C. succirubra under the charge of Mr. Scott, Head Gardener, Botanic Gardens, with directions to treat them like any other tropical plant, but to keep them in a rather shaded part of the gardens. I was also obliged to leave 14 cuttings of C. succirubra, three of C. nitida, and one of C. micrantha, in the cutting beds of the Botanic Gardens. I received a report on the condition of all these plants on the 22d July. Up to that date the losses had been two plants of C. Pahudiana, eight cuttings of C. succirubra, and the cutting of C. micrantha. The two plants of C. succirubra were in good health, one of them was then 18 inches in height, and the stem immediately above the ground was 1 inch and 6-10ths in thickness, while the leaves average 6 to 10 inches in length, and from 5 to 7 inches in breadth.

"The climate of Calcutta does not seem to be too hot for this species, by far the most valuable of all the Cinchonæ." *T. Anderson, M.D., Officiating Superintendent, Botanic Garden, Calcutta.*

The medical value of *Cinchona succirubra* is thus further reported on by Dr. Anderson—

"I have the honour to report to you, for the information of the Lieutenant-Governor, that I have succeeded in forming an infusion of the leaves of Cinchona succirubra from the plants of that species in the Cinchona Nursery, near Darjeeling. The leaves fell off spontaneously during the months of June and July.

"I sent the infusion to Dr. Collins, Civil Surgeon of Darjeeling, with a request that he would administer the infusion to some of the patients in the Civil Hospital.

"He has just informed me that he had given the infusion in doses of one fluid ounce to the first four cases of intermittent fever that occurred, and that these patients had been cured without any other medicine whatever.

"This result proves that the infusion of the leaves of Cinchona succirubra possesses some of the febrifuge properties of Cinchona (probably Kinovic acid); the infusion is of a dark chocolate colour and is intensely bitter. I hope to be able to submit an account of the chemical analysis of this infusion by Dr. Macnamara, Chemical Examiner to Government." *T. A.*

Home Correspondence.

African Trees.—Can you tell me what trees Mr. Baldwin refers to in his "African Hunting," p. 268? "To day I measured two trees called Mowane; one was twenty-seven and the other twenty-eight *yards* round the bole. At about six feet from the ground they spread into four immense stems, all bending outwards, and leaving in the middle a spacious apartment, exactly one foot between each stem, where they branched from the main bole, widening upwards, and at eighteen or twenty feet from the ground the circumference of the tree must have been forty yards at least. I should live in one of these if I stayed in this part." Mr. Baldwin was, when writing this, close to Lake N'gami. In p. 311 he says: "There was, however, delicious water at Mapousy, a fountain pure as crystal, where we first saw the Great Salt-pan, and a magnificent piece of scenery exactly resembling the sea coast; it was difficult to imagine oneself so far in the interior. We measured a tree called "Cream of Tartar," sixty-one feet round the bole; but there are many very much larger." I had generally understood that very large trunks were scarce in Africa. *Hans.*

The Year 1862 *at Weybridge Heath, Surrey:—*

Wind.		Weather.		Departure from Average of last Seven Years. +, *above*, —, *below*.
Prevailing Winds.	On days.			
N.	24	Mean height of barometer	inches 29.8578	inches .0212 +
N.E.	50	Mean height of thermometer:		
E.	4	Highest in the sun	64°.1414	1°.7311 —
S.E.	12	Highest in the shade	58°.2735	1°.4953 —
S.	19	Lowest	41°.1430	.5554 +
S.W.	122	Mean daily amount of ozone*	4.3330	
W.	15	Mean temperature	49°.7076	.2840 —
N.W.	30	Rainfall	inches 27.2850	inches 2.5005 +
		Number of wet days	46	days 7.6 +
		Number of days on which rain, &c., fell	221	days 28.3 +
		Driest month, February. Wettest ditto, March!		
Highest Winds.		Range of barometer	inches 1.41	inches .343 —
January 11 (W.), 31 (W.N.W.)		Range of thermometer	68°	11°. —
March 6 (S.W.), 7 (S.S.W.)		Range of ozonometer	12	
June 6 and 7 (S.W.), and 13 (W. to S.W.)		February 8. Barometer highest	inches 30.54	inches .03 —
August 7 (S.S.W., S., to S.W.)		March 28. Barometer lowest	inches 29.13	inches .31 +
October 17 (S.W. to S.), and 19 (S.E. to S.)		July 26. Thermometer highest:		
Dec. 19 and 20 (N.W. to N.N.W., and 21 N.)		In the sun	93°	7° —
		In the shade	82°	9° —
		January 19. Thermometer lowest (in the night of)	14°	2° +
		March 6 and April 8. Greatest amount of ozone	12	
		Jan. 14, Nov. 3, and Nov. 23, least amount of ditto	0	

* The ozone is reckoned according to the scale of Negretti and Zambra. The test-papers, supplied by them, were prepared by Dr. Moffatt, and exposed in the apparatus of Sir James Clark.

W. F. Harrison, Bartropps, Weybridge Heath, Jan. 2.

Peach Trees.—I observe that your Lyons correspondent states with much confidence, in opposition to the opinion of Mr. Rivers, "that in South America no Peach trees are grown." Allow me to inform him, as well as to confirm the opinion given by Mr. Rivers, that by the last mail from Monte Video I received a letter from a gentleman, an estanciero in that district, from which the following is an extract:—Our young Peach trees are loaded with fruit, and we shall not be able to consume half the produce. *R. W. B.*——Mr. Sisley has resided so long in France that I presume he has ceased to read English voyages and travels. If he will turn to that charming book, "Darwin's Naturalist's Voyage," he will find that Peach trees are abundant in La Plata, and that at Buenos Ayres they are often used for firewood. The fact of Peaches being common there is also mentioned by other travellers. I think I have also heard a very old friend, a retired naval officer long stationed in the Pacific, talk of the Peaches at Valparaiso. *Thos. Rivers.*

Gardeners' Royal Benevolent Institution.—I take the liberty of again writing to you concerning this Institution. I am very pleased to learn from your columns that there are a few friends of the Charity who are coming forward to join in the ten guinea subscription. I had a hope that the number would be found amongst gardeners, in order to show to the world that they were mindful of their own interests. The Charity however must not suffer; subscriptions will be thankfully received, come from whom they may. I have the promise of two ten guinea subscriptions from a lady and gentleman who are already subscribers, and whose names will be given if you would kindly open a list in your columns for that purpose. Such a proceeding might induce others to join in the good cause. If gentlemen and others interested in the success of the Charity would become annual subscribers they would confer a more lasting benefit on the Institution than if they subscribe their ten guineas and be done with it. The Charity is empowered to spend all the annual subscriptions in pensions, while of life subscriptions they must invest at least one-half; and therefore the 100 ten guinea subscriptions would only bring in enough to keep two pensioners, while if 100 annual subscribers could be obtained it would add to the funds of the Society 105*l.*, enough and to spare for six pensioners. From this it is evident that annual subscribers are the best. I therefore trust that there will be a good array of them, in addition to the 100 life subscribers. *George Thomson, Gardener, Stansted Park, Sussex.*

Gordonia javanica.—I have had a fine plant of this for some years, and cannot get it to bloom. I have tried it in the greenhouse and hothouse, and put it out of doors in the summer, but after all it will not show any signs of flower; the plant is very healthy. I shall be obliged by you letting me know how I can induce it to blossom. *Dido.*

The French Plant and Seed Trade.—I was gratified to see that the swindling Frenchmen whom you have often denounced in your columns have been prosecuted and convicted. The Lord Chief Justice having ruled in the cause of Glover *v.* Billaut that an action will lie in this country against a Frenchman if the contract was entered into here, I am induced to ask if any of your correspondents have obtained compensation from French seedsmen who deliver free in London, where the seeds have failed altogether or proved of a worthless and spurious kind. The great facility afforded now in getting seeds from France renders this a matter of great importance, as their lower prices offer great attractions; if however the protection afforded by the English code is wanting, any assumed advantages would be counteracted! there is the usual safeguard of the respectability of the house, but they often wear this garb until any difficulty arises, it is then doffed with surprising ingenuity. As this country is now being inundated with French lists, I shall be glad to be favoured with any information upon the subject which your Correspondents may be able to supply. *Justus.*

Early Grapes.—Having found that I wanted a good supply of Grapes during the festivities of this season, and that the difficulty of keeping late crops was great owing to the berries being injured by our salt atmosphere, I gladly took a hint from my friend Mr. Thomson, of Dalkeith, "To get the old crop and the new to shake hands together on New Year's Day," and I have succeeded beyond my expectation. In token of my gratitude, therefore, I will support Mr. Thomson's cause at the first meeting of the Fruit Committee of the Royal Horticultural Society at South Kensington. The house selected for trial is one which was all but exhausted, and this season the fruit is better than usual; the wood is stronger and firmer than it was two years ago when fruited in summer. Circumstances no doubt will alter cases, but in the month of January I can get double the price for new Grapes I could get for the very best kept bunches of my late crops, and that at a very trifling additional cost. *Alex. McKenzie, Bristol Nurseries, Kemp Town, Brighton.*

Societies.

BOTANICAL OF EDINBURGH: *Dec.* 11.—Prof. Balfour, V.P., in the chair. The following communications were read:—I. *Observations on the Embryogeny of Tropæolum majus.* By Dr. Alex. Dickson. Dr. Dickson gave the results of his observations on the development of the embryo in this plant. He showed that the embryo and suspensor were developed from the prolonged apex of the primitive germinal body, and that in this respect there was no exception here to the general rule in embryos produced from a distinct pro-embryonic structure. Schleiden was in error when he supposed the embryo with its suspensor to arise as a lateral branch from the primitive germinal body. The two remarkable root-like processes passing from the body of the germ are shown by their development to be distinctly lateral structures. Dr. Dickson completely confirmed the observations of Mr. W. Wilson regarding the relations of the extra-seminal and placental root-like processes to the seed and germen. As to the function of these processes, Dr. Dickson considered that it was more probable that they served as roots to the developing embryo, than that they were employed in the early stages of germination, as was supposed by Mr. Wilson. It can hardly be doubted that the rule in the vegetable kingdom is that roots are only formed in presence of wants, and not (so to speak) in anticipation of them; and that therefore it can scarcely be supposed that these root-like structures should be developed to such a large extent in the early stages of development, which were only to serve as such on the commencement of germination. The formation of the radicle in the dicotyledonous embryo and presence of the rudiments of adventitious roots in many monocotyledonous embryos, might be urged as examples of roots in anticipation; but it must always be remembered that it is only in presence of wants that these take on a really root-like elongation and development. As to the radicle itself, its constant abortion in the monocotyledon shows that it is not essentially even a root in anticipation.——II. *Remarks on the Bursting of the Spathe of Palms and Opening of Leguminous Fruits.* By Mr. J. Sadler. Mr. Sadler gave the views of different authors regarding the bursting of the spathe of Palms with an explosive report. That some species of Palms in their native habitats may make, while bursting their spathes, a sound, caused by compressed air, audible to a very attentive ear, he did not deny; but he was of opinion, from certain experiments which he and others had made on Seaforthia elegans, that in this country no indication of a report (as affirmed by some) was met with. The author then explained that the crackling sound of various leguminous fruits while shedding their seeds was not (as supposed) due to heated or compressed air, but to the shrinking or tension of the tissues. He concluded by reading extracts from a letter which he had received from Mr. W. Bell, of Saharunpore Botanic Garden, in which he stated that, from all the information he had gathered at Ceylon, Calcutta, and elsewhere, he could find nothing to support the theory of explosion caused by heat developed within the spathe.——III. *On the Propagation and Irritability of Drosera and Dionæa.* By Mr. J. Scott. The author, after a few introductory observations on the distribution of Droseraceæ, remarked that the modes of propagation and means of dissemination of Drosera (Sundew) and Dionæa (Venus Fly-trap) were varied. Thus, independently of reproduction by seeds, the leaves of a number of the Droseras present a remarkable aptitude for the production of adventitious buds. This property is well illustrated by the British species, all of which produce with the greatest facility young plants on the surfaces of their petioles and laminæ. So frequent is this mode of propagation that it must be familiar to all who have collected these plants in the latter summer or autumn months when the earlier developed leaves are beginning to decay. These falling on the moist mossy bed are reimbued with the formative force, and along their surfaces small cellular protuberances first make their appearance with a few pale fawn-coloured scales, after which one or usually two leaves are developed, and then a little rosette of undeveloped leaves, beset with scales, forming a pseudo-hybernaculum. The young plant up to this period is generally attached to the generative leaf, so that its nourishment is entirely derived from the parent. The vital activity of the recipient plant now in a great measure ceases, the generative leaf undergoes decay, and leaves it a free and independent organism, which, ere spring returns, may have been transported to some distant nidus by the floods which generally sweep their habitats during winter. As illustrating succeptibility to mechanical irritation, I may give the following experiments on Drosera rotundifolia (Round-leaved Sundew), performed in a temperature of 65° Fahr.:—Selecting a vigorous plant, I carried on a gentle irritation of the hairs for a short time; their collapsing soon became evident, and in half an hour they were all curved in upon the surface of the laminæ. Again, placing an insect upon the surface of another, the hairs had begun to collapse in 12 minutes, and in 20 minutes nearly all those near the base of the leaf had their glands applied to the insect, while those on the apical part had undergone little or no change. This had been occasioned by the position of the insect, which had been accidentally placed on a line with the petiole near the base of the lamina. Thus it would appear that the Droseras do not possess the communicative powers of either their ally the Dionæa, the lobes of which collapse on the touching of a single hair, or of the Mimosa, which exhibits the same rapid communicability to the other pinna of the leaf when the equilibrium of one is disturbed. The author also detailed some experiments in support of Dr. Nitsche's statement, "that their susceptibility to irritation is invariably proportionate to the activity of their secretions, and dependent on the process of assimilation." None of the author's experiments with chemical stimuli elicited any susceptibility to irritation, though he seemed to think that chloroform had an anæsthetic influence. In one of his experiments he placed two portions of the leaf of Drosera binata under a bell-glass exposed to the vapour of chloroform. In four minutes no perceptible change having taken place in either, he took one of them out, and found that the hairs were completely anæsthetised. In treating of the cause and functional import of these movements, he was inclined to suppose that in regard to the former no merely physical hypothesis was sufficient to account for the phenomenon, but that it was due entirely to the vital force; and in regard to the latter, he thought Mr. Knight's view, that decomposing animal matter might be necessary for certain of the functional requirements of the plant, very plausible, on considering how peculiarly adapted the leaves of Drosera and Dionæa were for the purpose of catching insects. ——IV. *Notice of Plants collected in the Neighbourhood of Elie, Fife.* By Mr. J. W. Brown.——V. *On a new character observed in the Fruit of Oaks.* By M. Alphonse De Candolle. Communicated by Professor Balfour. In this paper, after alluding to the character of Oaks, and more especially their annual and biennial periods of fruiting, the author proceeded to notice a character which appears to have been overlooked—viz., the position of the abortive or atrophied ovules in relation to the single developed seed contained in the Acorn. He finds that these abortive ovules can be easily traced in the fruit, and that they occupy either a superior or inferior position in reference to the perfect seed. He examined the character in various species of Oak, and proposed the following arrangement:—1. Abortive ovules inferior (*i.e.* at the lower part of the perfect seed), maturation of fruit annual. *a.* Leaves falling off caducous, Quercus Robur, Toza, lusitanica, alba, Prinus, macrocarpa, polymorpha, &c. *b.* Leaves persistent (evergreen)—Quercus tomentosa, microphylla, virens, Ilex, Suber, &c. 2. Abortive ovules inferior, maturation of fruit biennial. *a.* Leaves caducous, Quercus Cerris. *b.* Leaves persistent, Quercus pseudo-suber, occidentalis, Vallonea, Libani, coccifera, &c. 3. Abortive ovules superior (*i.e.*, at the upper part of the perfect seed), maturation of fruit biennial. *a.* Leaves caducous, Quercus falcata, ilicifolia, rubra, Phellos, Xalapensis, calophylla, &c. *b.* Leaves persistent, Quercus acutifolia, aquatica, Castanea, cinerea, &c. ——Mr. Naylor exhibited specimens of the Peloria of Linaria vulgaris, and a peculiar abortive state of the same plant.——Specimens were exhibited of Sarracenia purpurea, which has been of late used in cases of smallpox. The experience of medical men in Edinburgh seems to lead to the conclusion that the so-called remedy is of little or no value. Specimens of Sarracenia variolaris were also shown. The plant receives its name not from any qualities in reference to variola (smallpox), but from the smallpox like markings on the outside of the upper part of its pitchers.——Office-bearers for the ensuing year were elected, and W. Thompson, Esq., an ordinary Fellow of the Society.

Notices of Books.

The Principal Speeches and Addresses of H.R.H. the Prince Consort, with an Introduction. London: Murray, 8vo.

The book which lies before us is deeply interesting, and we strongly recommend it to the perusal of all who desire to form a correct estimate of the late lamented Prince Consort's character. We greatly mistake if the reader will not be struck by the evidences of high intellectual power, and of exalted sense of duty to his Sovereign and his adopted country, which these speeches demonstrate, as well as the sincere interest which he felt in the well-being of all classes of the community.

The Introduction very briefly but clearly shows the peculiar difficulties of the Prince's position, which imposed upon him the necessity of an habitual caution and reserve, absolutely necessary in one who was the sharer of the Queen's thoughts and counsels; next, there was the difficulty which all young persons must feel, in expressing themselves with perspicuity in a foreign language, and this too in the presence of distinguished personages, and before large assemblies, where no spice of politics could be permitted to season and add piquancy to his addresses, and no word must be allowed to escape, that could by any possibility be construed into a leaning towards any party in the State, or that might be thought in the remotest degree to compromise himself, her Majesty, or the Government of the day—and his were stirring times, when party spirit ran high, and great questions were angrily debated; when scarcely a throne in Europe seemed secure, and when our armies met with reverses abroad, and our rule was endangered in India.

It may be safely said that the Prince's speeches were always marked by sound sense, deep thought, and kindly feeling. He made it a point thoroughly to understand the whole bearing of a question before he ventured to speak upon it, so that, perhaps, there is no one thing to regret in all his numerous addresses; and to this must be added that there is a tone of unaffected piety running through them, wherever the subject admitted of its expression. The Prince possessed a very peculiar originality of mind, which enabled him to take a comprehensive view of things, and made trite and common-place matters new and interesting—"He would insist on thinking his own thoughts upon every subject that came before him, and whether he arrived at the same results as other men or gainsayed them, his conclusions were always adopted upon laborious reasonings of his own."

The first of these speeches was delivered as early as June 1840, when he could have been little at home in the English language. It was at a meeting for the abolition of slavery. The newspapers had complained of the lavish expenditure, and the small results produced by our large naval force upon the coast of Africa, and the Prince shows his sympathy for the cause of humanity and justice, and expresses his trust that Providence would prosper our exertions.

By 1848 the Prince had attained more fluency of speech, and seriously applied his mind to improving the condition of the labouring classes, a work which was felt to be of deep importance in that eventful year. How much practical good sense there is here! "Depend upon it, the interests of classes, too often contrasted, are identical, and it is only ignorance which prevents their uniting for each other's advantage. To dispel that ignorance, to show how man can help man, notwithstanding the complicated state of civilised society, ought to be the aim of every philanthropic person; but it is more peculiarly the duty of those who, under the blessing of Divine Providence, enjoy station, wealth, and education. Let them be careful, however, to avoid any dictatorial interference with labour and employment, which frightens away capital, destroys that freedom of thought and independence of action which must remain to every one who is to work out his own happiness, and impairs that confidence under which alone engagements for mutual benefit are possible."

The importance of British agriculture had long engaged the Prince's attention, and the influence which his example exerted upon the agricultural mind is too well known by our readers to need any comment. He attended the great meeting of the Society at York. Next year, at Great Grimsby, he noticed that "in this country national enterprises are undertaken by private exertion, with private capital, and at private risk." He bore testimony to the "national energy which had succeeded in transforming unhealthy swamps in Lincolnshire into the richest and most fertile soil in the kingdom," and noticed, with praise, "the happy relation which existed there between landlord and tenant."

His speech at the Servants' Provident Society is marked by unusually good sense. How often at such meetings are we told that the object of the Society is one of *charity*. It is no such thing. The Prince most properly says—"It is not one of charity, but of friendly advice and assistance, to be tendered to a large and important class of our fellow countrymen." He asks, "Whose heart would fail to sympathise with those who minister to us in all the wants of daily life, attend us in sickness, receive us upon our first appearance in this world, who live under our roof, form our household, and are a part of our family?" He finds that "in our metropolis the greater number of the inmates of the workhouse are domestic servants," and in urging some means for carrying the servant through life, safe from the temptations of the prosperous and from the sufferings of the evil day, distinguishes most carefully right principles from wrong in the Provident Societies. "Each person *must* work out his own happiness by personal exertion and self denial; the master may help the servant, by directing his efforts, and by ascertaining that the Society is founded on trustworthy principles—not offering extravagant advantages, nor allowing the money to be spent in convivial meetings." Englishmen are now so much accustomed to the style of thought that pervades the Prince's speech to the mayors assembled in London to

further the objects of the first Exhibition, that we almost forget how new these ideas then seemed—how visionary they appeared to most people, and to many even fraught with injury to the industry of this country. "Gentlemen, the Exhibition of 1851 is to give us a true test and a living picture of the point of development at which the whole of mankind has arrived in this great task, and a new starting point, from which all nations will be able to direct their further exertions." . . . "These hopes can only be realised in proportion to the help which we are prepared to render each other; therefore, only by peace, love, and ready assistance, not only between individuals, but between the nations of the earth." The allusion which he made to the late Sir Robert Peel in this speech will be read with peculiar interest, showing how true was his estimate of that great English statesman's mind, and ascribing his great influence to the fact, that "the nation recognised in his qualities the true type of the English character, which is essentially practical," and "taking this view of the character of our country," he says, "I was pleased when I saw the plan of the Exhibition undergo its ordeal of doubt, discussion, and even opposition." How manly and self reliant the tone of the following extract:—"The history of this grant exhibits to us the picture of a most healthy national progress. It affords a most pleasing proof that those important branches of industry (fisheries, &c.), have arrived at that stage of manhood and prosperity, when, no longer requiring the aid of a fostering Government, they can maintain themselves independently, relying upon their own vigour and activity, and can now in their turn lend assistance and support to their younger and weaker sisters, the Fine Arts."

These latter owe a boundless debt of gratitude to their highly cultivated patron. How admirable is the distinction which he draws between the provinces of science and art.

"But these laws of nature, these divine laws, are capable of being discovered and understood, and of being taught, and made our own. This is the task of science; and whilst science discovers, it teaches these laws; art teaches their application. No pursuit therefore is too insignificant not to be capable of becoming the subject both of a science and an art." The contrast between "science and prejudice," and the mistaken antagonism between "science and practice, scientific knowledge and common sense," are most happily drawn.

The Prince Consort is known to have taken very great interest in the progress of horticulture, and designed effecting an union between it and the Fine Arts. He accordingly accepted the office of President of the Royal Horticultural Society, and during his lifetime he took a most active part in its management. The noble garden at S. Kensington may be said indeed to have been his own creation.

The speech before the British Association for the Advancement of Science is so masterly a production that it would be most unfair to make only a brief extract from it. It must be studied, and will well repay the reader for his pains; we will even venture to say that it contrasts most favourably with the prosy addresses usually delivered by the Presidents at these great meetings. One only speech has been harshly commented upon, and that through misapprehension.

In the actual struggle of the Crimean war, we all felt that the great autocrat of the North derived advantages from his "unity of purpose and action, and impenetrable secresy, and uncontrolled despotic power. The Queen has no power to levy troops, and none at her command but such as voluntarily offer their services. Her Government can entertain no measure for the prosecution of the war without having to explain them publicly in Parliament; her fleets and armies can make no movement, nor even prepare for any, without its being proclaimed by the press." For these reasons "the country, if it would pass triumphantly through the crisis, must grant its confidence—a patriotic, indulgent, and self-denying confidence—to her Majesty's Government"—and so said every sensible man.

If anything could raise the character of the Prince Consort higher than it stood before, it is the publication of his private notes upon the office of Commander-in-Chief, pressed upon him by the great Duke of Wellington, but steadily declined, from motives so noble, self-denying, and high-minded, that the Queen could not refrain from making it known, "that the world might know the ever present, watchful, faithful, invaluable aid which she received from the Prince Consort in the conduct of the public business, and how much her Majesty owed to him."

Tate's Algebra made easy, and Key to ditto. 12 mo. Pp. respectively, 114, 130. Longmans & Co.

Some may doubt whether Algebra can be made easy, as expressed in the titles of these little works; but any one who possesses moderate ability and chooses to apply himself, will find no great difficulty in learning as much of it as will at times prove useful. With little or no farther assistance beyond that afforded by these two small volumes, he may go as far as quadratic equations, without occupying time that might be necessary for acquiring a knowledge of subjects more directly connected with his occupation or profession. Indeed many of the questions might serve for amusing puzzles, very easily solved by means of algebra, but which without it would require much trying and guessing; by these, the answer to such a question as No. 23, p. 38, may be hit upon:—"One-third the number of trees in a garden are Apple trees: one-fourth Pear trees, and there are 35 Plum trees. How many are there altogether? We shall call x the total number; then, $x = \frac{x}{3} + \frac{x}{4} + 35$; or $12x = 4x + 3x + 420$; then $5x = 420$; and consequently $x = 84$, the number of trees. Now let us see if this answer will fulfil the conditions of the question:—84 divided by 3 = 28 Apple trees; divided by 4 = 21 Pear trees, and 35 Plum trees, making thus the total number, in the required proportions of each kind. The first thing we did in order to obtain the answer was to form an equation according to the question, and by certain operations that equation was made to assume a different form, although still as truly an equation as the first; but the unknown quantity was still combined, and the equation had to be subjected to other operations, till at last we find the unknown quantity, x, standing alone on one side of the equation, and a known quantity, 84, on the other; $x = 84$. We first multiplied both sides of the first equation by 12, and thereby got clear of the fraction; then we took $4x + 3x = 7x$ from $12x$, which left $5x = 420$; then $\frac{420}{5} = x$, or $x = 84$.

Having obtained the answer, we turned back in the work to see if the steps taken were in conformity with certain axioms or rules laid down; but this we could do neither readily nor satisfactorily. At p. 7 we found that—"whatever we do to one side of an equation we must do the same thing to the other to keep up the equality," and at p. 17 we find another axiom; but why not give the principles and rules necessary for solving simple equations altogether, or so as they could be seen collectively, and in connection at one view. For example, something in this manner:—If equal quantities be added to equal, the sums will be equal, or, if equal quantities be multiplied by equal, the products will be equal, and so on. Then about half a dozen rules might follow, as, 1st, if the unknown quantity be divided by any other, multiply both sides of the equation by the divisor, thus, if $\frac{x}{3} = 5$; then $x = 15$. The work is excellent; but whilst we admit the high qualifications of the author, we think the suggestions we have made would be an improvement in future editions.

Near the end of the volume we came to the application of Algebra to Mensuration, and some of the questions bear on the laying-out of gardens, requiring the surrounding walks to contain a certain area. This is rather difficult; but by the aid of these volumes, which we strongly recommend, young gardeners may qualify themselves to solve such questions. To convince that class that they may have use for such qualification, we shall take the opportunity of submitting the following case, the circumstances of which we have imagined, as not unlikely to bear close analogy to some that may actually occur.

A piece of ground 250 feet long, and 230 broad, is to be laid out as a town garden, and so that there shall be next the outside boundary a border; within that a walk 10 feet wide; and then an iron railing that shall enclose exactly 1 acre for lawn and beds with ornamental plants. An estimate is wanted for the iron railing, at so much per foot run, involving the question—what is its *length?* And one for the formation of the walk at so much per square yard—what is its *area?* And *how far* from the outside boundary is the adjacent edge of the walk? These are not unreasonable questions; and to be able to answer such, Tate's Algebra and Key are just the sort of treatises which young gardeners should possess in order to gain a knowledge of the subject in the most easy and familiar way.

We have before us the Prospectus of a work to be published by Lovell Reeve & Co., once a month, 32 pages, 8vo, with a Plate by Fitch, price Two Shillings, as a new *Journal of Botany.* Edited by A. G. More, Esq., and Dr. Seemann.

It is to consist of two distinct sections, under separate Editors: the one devoted to General Botany, the other to the Botany of the British Isles. In both divisions original papers on subjects new to science will be given, and, when necessary, illustrated either in the text or by special plates. Each number will contain at least one full-page plate by Fitch, illustrative of new species described in the letterpress. It is intended, as far as possible, thus to illustrate alternately papers belonging to the two sections of the Journal.

TRADE LISTS RECEIVED.—KRELAGE & SON, Haarlem; *Hortus Krelageanus*, or a list of the plants on sale in their Nursery. VERY rich in Garden Amaryllids.—LOUIS VAN HOUTTE'S (of Ghent) *Wholesale and Retail Seed Catalogue for the Winter and Spring of* 1863.

Miscellaneous.

New Source of Cod-liver Oil.—The oil obtained from the Hou-li-kun is a common article of food among the northern tribes, and one of which they are very fond. This fish is not unlike a sprat, but somewhat longer and rounder, and is so oily that when dried it will burn like a candle. They are not found at the south part of the island, but are caught in great numbers to the northward. The process of extracting the oil from them is very primitive indeed. Mr. Duncan gives in one of his letters the following description of it, as witnessed by him at Nass River:—"In a general way," he says, "I found each house had a pit near it, about three feet deep and six or eight inches square, filled with the little fish. I found some Indians making boxes to put the grease in, others cutting firewood, and others (women and children) stringing the fish and hanging them up to dry in the sun; while others, and they the greater number, were making fish-grease. The process is as follows: make a large fire, plant four or five heaps of stones as big as your hand in it; while these are heating, fill a few baskets with rather stale fish, and get a tub of water into the house. When the stones are red-hot, bring a box about 18 inches square (the sides of which are all one piece of wood), near the fire, and put about half a gallon of the fish into it, and as much fresh water; then three or four hot stones, using wooden tongs. Repeat the doses again, then stir the whole up. Repeat them again, stir again; take out the cold stones, and place them in the fire. Proceed in this way until the box is nearly full, then let the whole cool, and commence skimming off the grease. While this is cooking prepare another boxfull in the same way. In doing the third, use, instead of fresh water, the liquid from the first box. On coming to the refuse of the boiled fish in the box, which is still pretty warm, let it be put into a rough willow basket; then let an old woman, for the purpose of squeezing the liquid from it, lay it on a wooden grate, sufficiently elevated to let a wooden box stand under; then let her lay her naked chest on it, and press it with all her weight. On no account must a male undertake to do this. *Mayne's British Columbia.* [This oil has been ascertained to be equal to cod-liver oil.]

A New Winter Garden for Paris.—A company is now being formed in Paris, according to the *Journal du Havre*, for the purpose of transforming the garden of the Palais Royal into a winter garden, like the immense greenhouses annexed to the palaces of the wealthier Russian nobles. The company proposes to bear the whole expense of making the garden a place of recreation unequalled in the world. It would be devoted to concerts, games of all kinds, artistic exhibitions, &c. In May, every year, the glass roof would be removed, and the garden opened to the public as usual. *Builder.*

Gishurst Compound in Australia.—The following important remark appears in a paper on Orange cultivation by Mr. Carson. "The benefit this invention has been to the gardening world may be conceived when I state that the year it came out I had made up my mind to root up all the Orange trees and put them in the fire, for all our spare time did not suffice to keep them clean. At this time I was burning my blighted Apple trees, and lately I have been told by several gardeners that they had condemned their Apples when they learned from me of this cure. But for this the axe, they said, would have settled blight and trees together." *The Yeoman and Australian Acclimatizer.*

S. American Tombs: Ancient Gold.—The excavated tombs, as found in our times, are all alike throughout South America. The Spanish conquerors having entered the territory of "la Capitana de la Nueva Granada," and collected all the gold they could among the Indians, turned their attention to the natural sources of gold, and also to the burial places, which soon became objects of much interest to the gold seekers. These tombs are always found on some isolated range with sharp outlines, so situated as not to admit of any water accumulating, and no apparent probability of water being led to it. In hills so situated the excavations are discovered by observing certain concavities on the surface; but where a thick forest exists, with a dense undergrowth, often of several feet, it is necessary to clear the ground by fire. It is generally allowed that a long period has elapsed since these tombs were closed, as by the accounts of the Mexicans and Peruvians, given at the time of the conquest, their calculations amounted to about two thousand years. The excavation is circular and perpendicular, and three or four feet in diameter, dug out of the decomposed syenitic rock. At the depth of nine to eleven feet charcoal is found among the soil, under which a flat stone (some kind of slate) covers the pit, on removing which the edge of a perpendicular slab is observed. At about four feet deeper the bottom of the tomb is reached, and on the perpendicular slab being removed, a horizontal excavation is seen towards the east. This is about four feet in height and the same in width, but somewhat more in length. Here the bones of the defunct are found, the body having been placed in a sitting posture, with the face towards the east, that is towards the rising sun, regarded as the "King of the Heavens." The bones are generally found in such a decayed state that they will not admit of being handled. The earth, which has more or less fallen in and mingled with the remains, is gathered and brought under the washing process, and the trinkets thus obtained are partly of gold, with its natural alloy (silver), and partly gold with copper. On one side of the remains a large earthenware vessel is found, covered with a piece of slate, and in some instances a sediment has been found deposited from the drink, the Indian "chicha," left with the deceased. On the opposite side, perfectly decayed, ears of Indian Corn have been found. In a niche cut out of the end of a tomb, a vase of earthenware is sometimes found, covered with stone, and filled with pounded charcoal, in which the remaining trinkets and gold-dust, left with the occupant of the grave, had been deposited. Implements for smelting gold, and

some tools made of gold and copper, are sometimes, though but rarely, found in the pot occupying the niche. The Spaniards, who during three centuries have gathered gold from the fluvial deposits, have found many of these burial places very remunerative. Some localities show that systematically arranged cemeteries have formerly existed where two excavations in the centre, of greater depth than the surrounding ones, were found. The deep graves appear to have been appropriated to the chiefs and their families, and the numerous others to the inferior classes. These burying places are termed "Pueblo de Indios," but these larger cemeteries are now seldom found. Traditional accounts of certain localities are still preserved and eagerly sought after, where great treasures are said to have been buried. In like manner reports are often heard of rich fluvial deposits of a more recent date, where the proprietor is said to have had a measure corresponding to about twenty to twenty-five pounds weight, on collecting his weekly produce. This may be regarded as probable, if we consider that as many as from two to three hundred African slaves were often employed in mining pursuits by one proprietor. The foregoing narrative supplies a proof that the aboriginal inhabitants of South America had some indefinite notion of a future state; they appear to have believed "that their deceased relative or friend had a long way before him," and that he would require some refreshment in his long journey to "reach the stars." This idea still extensively prevails. *Transactions of the Philosophical Institute of Victoria (Australia).*

Chinese Simples.—In a letter addressed to the President of the Société d'Acclimatation, M. Guillemin, missionary in China, gives a glowing account of the extraordinary fertility of the country, and among other things, expresses his surprise at the efficacy of certain Chinese remedies which are utterly unknown to Europe. He quotes the example of a Father Leturdu, who, having passed four years in a Chinese prison, where he contracted a pulmonary affection, was literally kept alive by certain pills which a Chinese doctor gave him; and when he subsequently attempted to return to a European treatment, he got worse, and only recovered by recommencing the Chinese pills. In another instance, a European physician belonging to the French navy utterly failed in mastering a violent fever which threatened the life of a Chinese convert; but a native physician obtained a complete cure in the course of a quarter of an hour (!!) by administering certain simples which he gathered on the spot. Let us hope that these sovereign remedies will soon find their way to Europe. *Galignani.*

Dressing Florists' Flowers.—To bring a plant into a desired form by cultivation is one of the proper objects of horticulture, but the proper means of doing so is by making Nature herself, through breeding and cultivation, produce the desired result in her own way; the subsidiary assistance of pruning and disbudding can scarcely be condemned as in all cases illegitimate, or beyond the horticulturist's fair means. But it is otherwise with the tying, and twisting, and propping, and bending, by which not only Chrysanthemums, but Azaleas, Pelargoniums, Pinks, Picotees, and a host of other plants, are now made to assume an appearance for the nonce which they do not in reality possess. The Chrysanthemum is the tribe in which this manipulation is, perhaps, carried to the greatest extent. It is not alone the ordinary appliances of sticks and threads, by which the plant is made to assume a compact form, and the flowers to seem equally distributed, which are used, but the blooms themselves are subjected to disingenuous treatment; the heart of their mystery is plucked out—(that is, the central petals)—the bud is collared in card, or treated like the Man in the Iron Mask; a tin implement compels the flat expanding petals to turn into incurved blooms; and, in short, the old plan attributed in jest to phrenologists, and made use of by Captain Marryat in one of his novels, of amending a man's unsatisfactory dispositions by depressing the bad bumps and raising the good ones by mechanical appliances, is here had recourse to in sober earnest. Some of these latter manœuvres either do or should disqualify from competition; actual tampering with the petals should in no case be allowed; but it is difficult to draw the line, and we protest we would rather want some of the beauty and effect of our great shows than have it attained by manipulation, carried to the extent it is. Something is wanted to check these artificial practices. This, probably, could only be done by encouraging the production of plants not so doctored. Anything more would be hopeless. It would never do to prescribe laws how far the gardener may train his Honeysuckles or nail up his fruit trees. It must be left to every man's own judgment what support to give his plants, but if the comparative absence of support or manipulation were made an admitted element in judging of the plants—if the exhibitor found a decided preference in the awards for plants not so overloaded with support, the evil would cure itself. It is the unacknowledged pretence against which our instincts rebel, as they turn with disgust from the painted beauty and padded beau. Where the object is admittedly imitation, no such dissatisfaction is felt. *Andrew Murray in Proceedings of the Royal Horticultural Society.*

A New Substitute for Linen Rags.—Advices from Philadelphia state that the fibre of the plant Hibiscus Moscheutos is occupying the attention of the merchants at that port as a substitute for linen rags and jute. This plant is indigenous to the Northern States, and grows in abundance in the swampy lands of Pennsylvania, New Jersey, New York, &c. The fibre has received the name of American jute. This term, however, may be considered inappropriate, for the reason that the jute of the East Indies is the production of the Corchorus olitorius, or Corchorus capsularis, and for the further reason, that the fibres of the Hibiscus are not so liable to become deteriorated by exposure and washing in alkaline lyes as those of the jute. At a moderate calculation, and taking into account the probability of loss from unforeseen causes, 3½ tons of disintegrated fibre can be derived from one acre of ground. As to the value of the fibre, it has been declared by experienced rope manufacturers to be far superior to Manilla hemp or jute—the specimens of rope exhibited being fully equal in strength and pliability to ordinary hempen rope. Two prominent paper manufacturers of New York have estimated the fibre to be worth 100 dols. per ton, to be used as a substitute for linen rags in the manufacture of paper. *Liverpool Journal of Commerce: Corrected.* [Caveat emptor.]

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—As this house will now be the chief resort of the family, it is requisite that all floors, &c., be at all times kept particularly clean and dry. Dryness of atmosphere through fire-heat will not, however, keep the plants in that luxuriant health which not only creates a present interest in them, but also furnishes a guarantee for success in future. Great modification, therefore, in the use of fire-heat is necessary in this department. A temperature of from 40° to 45° at night, and from 50° to 55° during the day time, is during this dead time of the year amply sufficient. Camellias in bloom, if any, may be watered now and then with clear tepid manure-water. In the case of stove plants keep up an abundance of atmospheric humidity, to counteract the drying tendency of hot-water pipes. In order to obviate the inconvenience of drip, leave a very little back air on all night whenever the weather is at all favourable. A few early Gloxinias and Achimenes may now be gently forced on for the decoration of warm houses. Let Pelargoniums now be kept as much at rest as possible, giving them but little water — in fact none except the leaves show a disposition to flag. In fine weather like the present they should however have plenty of air, but not in the shape of cold currents, which are apt to prove injurious to the leaves. A temperature of 50° by day and 40° at night will be sufficient for the present. The pit in which flowers for the conservatory are forced should possess at this period a permanent bottom-heat of 80°; atmospheric moisture, let us presume, has been secured; such being the case preparations must be made for securing a due succession of early spring flowers; if not already done let a sprinkling be forthwith introduced of the most favourite kinds adapted to forcing purposes, such as Moss, Provins, and Crimson Perpetual Roses, hardy Azaleas, and things of that sort. Hybrid Perpetual Roses will do better in a more moderate temperature.

FORCING DEPARTMENT.

PINERIES.—Continue former directions with regard to Pines for the present.

EARLY VINERY.—If the buds are now broken, endeavour to raise the temperature daily a little, until it reaches 70°, at which take your stand for a while; attend well to atmospheric humidity.

PEACH HOUSE.—As soon as the buds begin to open, syringing must be dispensed with for a while; steaming must, however, be resorted to in the evening, and a slight degree of atmospheric moisture secured for the night, in the day abundance of air.

CUCUMBERS.—Those who grow these in the old dung-beds still, should now set about making a seed-bed; take care however that the dung for the purpose is thoroughly worked. Provide plenty for the bed and turn it every four or five days.

MELONS.—To ensure success with these there must be the means of maintaining a bottom heat of from 75° to 80°, and the temperature of the atmosphere at from 65° to 75°, but good crops may be obtained in summer frames placed upon a bed of slowly fermenting materials. For the early crop sow now; pot in small pots when strong enough; keep near the glass, and either plant out or pot into large pots, using properly warmed, rather strong turfy soil. Sow for succession at intervals of about a month until May. When the plants get into free growth give air on every favourable occasion, so as to secure short-jointed wood, and keep the atmosphere rather dry while the fruit is setting. Trim and train the shoots regularly, keeping the main shoots thin, so as to allow space for the laterals on which the fruit will be produced. The soil should be made rather firm, which will tend to prevent over-luxuriant growth, and water should not be given too freely; but great care must be exercised to maintain a sweet healthy atmosphere, and to guard against red spider. Dryness at the root and also in the atmosphere when the fruit is ripening will tend to improve the flavour.

FLOWER GARDEN AND SHRUBBERIES.

The winter having as yet been unusually mild, every chance has been afforded of not only bringing up arrears of autumn business, but of even stealing a march on the coming spring. In the flower garden little can, however, be done now except digging deep the beds for clumping out flowers to ameliorate the soil; any that are exhausted should, as was stated the other day, have the soil renewed ready for spring work. In open weather laying turf or other pleasure-ground alterations may be proceeded with. See that all half hardy plants are secured against severe weather. All Pink and Pansy beds must be well looked after; those plants that are loosened in any way should be carefully fastened; the same observations will apply to seedling Auriculas, Polyanthuses, &c. Carnations and Picotees will still also require regular attention; some few, it is said, are spindling this mild weather. It will be better to allow the stem to remain on till rather later in the spring; water occasionally when the soil is very dry, but avoid wetting the foliage as much as possible. If the tenants of cold frames have been housed somewhat dry, and kept so, and hardened with abundance of air, nothing is necessary but to follow up these principles, and to take care to exclude frost should it set in; if, however, severe weather should occur, and they become frozen, see that they are not uncovered directly a thaw comes. Let them remain until they are quite thawed in comparative darkness, which, in ordinary cases, will be about two days, merely turning up the mats or straw a little at both back and front, so as gradually to inure them to the light.

HARDY FRUIT AND KITCHEN GARDEN.

As has been before stated all spare ground should now be dug and ridged, indeed, trenched, if time permit, Where a systematic rotation of crops is carried out, and, of course, a regular and pre-planned system of spade management, it is an excellent plan to trench all the kitchen garden successively in the course of every three years. The trenching to be performed each year should be on the ground intended for tap-rooted plants, such as Carrots and Parsnips; also, in forming new plantations of Strawberries, Raspberries, bush fruit, &c., if the subsoil is stiff and sour, it should be well worked up, and if wet, of course, well drained; a good coat of cinder ashes worked into it would serve to facilitate the passage of water and air.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Jan. 7, 1863, as observed at the Horticultural Gardens

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 1	13	29.996	29.674	52	42	47.0	46	44½	S.W.	.00
Friday 2	14	29.586	29.388	48	27	37.5	47	44½	S.W.	.04
Satur 3	○	29.586	29.562	47	30	38.5	46	45	S.W.	.16
Sunday 4	16	29.292	29.289	49	37	43.0	45½	44½	S.W.	.08
Mon. 5	17	29.063	28.846	51	34	42.5	46	44½	S.W.	.46
Tues. 6	18	28.956	28.952	53	29	41.0	46	44½	S.	.26
Wed. 7	19	29.277	29.167	54	27	39.0	46	44½	S.	.01
Average.		29.390	29.268	50.3	32.3	41.1	46.0	44.5		1.01

Jan. 1—Cloudy and warm, very boisterous at night.
— 2—Very boisterous; fine, slight frost at night.
— 3—Fine, very fine, dark clouds, rain.
— 4—Cloudy; fine, showery; heavy showers.
— 5—Densely clouded and boisterous with rain; barometer exceedingly low.
— 6—Densely overcast, cloudy; very heavy rain at night.
— 7—Clear; cloudy; fine; cloudy; fine; slight frost.

Mean temperature of the week 1½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending Jan. 17, 1863

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 11	41.4	30.9	36.1	19	0.77 in.	4	6	4	1	6	9	5	2
Mon. 12	42.3	30.6	36.5	15	0.76	2	7	3	3	6	10	4	2
Tues. 13	42.6	32.0	37.3	17	0.29	5	5	5	4	6	6	4	2
Wed. 14	42.0	32.2	37.1	16	0.80	6	7	5	4	3	6	3	3
Thurs. 15	41.4	29.0	35.1	12	0.54	3	5	4	3	4	8	7	3
Friday 16	41.7	30.6	36.2	19	0.34	1	8	5	2	5	9	4	3
Satur. 17	42.1	30.4	36.4	12	0.48	3	7	2	4	3	10	4	4

The highest temperature during the above period occurred on the 14th 1849; 15th, 1834 and 1852—therm. 56 deg.; and the lowest on the 14th, 1838—therm. 4 deg.

Notices to Correspondents.

CRYSTAL PALACE: *M A.* The water works here were executed under the direction of Sir Joseph Paxton, M.P., and the finest works in the world they are. Apply to Sir Joseph by letter only, addressed to him at Sydenham.

GARDENERS' BENEVOLENT. We have no objection to publish the names of new subscribers, whose money shall have been paid; but we can have nothing to do with promises to pay, especially when announced through anonymous Correspondents.

GREENHOUSE CLIMBERS: *A. B.* Plants of this kind may be planted in the open air and trained through holes in the bottom of the wall of the greenhouse if their roots are thoroughly well protected. But if the roots would from the position of the greenhouse have very little sun, that would probably be fatal to the experiment, unless some means could be found of warming the border.

LIME TREES: *H W.* Prune them now. Leave on all the small wood. Shear them hereafter every year in March.

RABY GARDENS: *A Correspondent* would be very glad to learn the present state of this fine place, now that the last gardener is gone. Would Mr. Mackintosh have the goodness to inform us.

TAMARISKS: *E S.* Any great nurseryman can furnish these. Take care, however, that you have French Tamarisks and not German ones (that is Tamarix gallica, not T. germanica.)

VINERIES: *Tyro.* Glaze as at B in your sketch. In the early Vinery we should substitute the White Sweetwater for the White Muscat; in the late Vinery we should substitute the White Muscat for one of the Black Hamburghs, and a black Alicant for one of the Lady Downes'.

VINERY: *T P.* Black Alicant, or Lady Downes, or Barbarossa.

ZINC: *S Z.* All soluble salts of this metal are injurious to plants. You should never set plants in zinc trays unless they are also furnished with earthen pans through which water cannot pass—that is to say glazed, or otherwise hardened.

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The Agricultural Gazette.

SATURDAY, JANUARY 10, 1863.

WHAT has become of our friends the astro-meteorologists? How is it that the remarkable warmth of this winter's weather has not been long ago foreseen and prophesied by them?

The "voices of the stars" are heard by the astronomer long before the period of their actual utterance. The positions of the planets with relation to the sun, the earth, and one another, can be read in the "Nautical Almanac" at least three years in advance; and so, can be talked of learnedly even by those who may not claim an independent knowledge of these subjects. Doctor FRANCIS MOORE, Physician, Mr. WHITE, or ZADKIEL, can any of them, on paying half-a-crown in Albemarle Street, already draw up his Almanac for 1865 or 1866, from pages which the Astronomer Royal has long ago prepared for publication there. How is it that with all the facts described so long before in full detail, the inferences from them should have been so long delayed. Here were frigid Saturn, scorching Mars, warm and genial Venus, torrid Mercury, great Jupiter himself—the masses of these great heavenly bodies substantively, with whatever adjectives imagination might select to qualify them, all already *placed*—their positions, aspects from or to the earth, relations to one another, all known months and years before. Why has the learned astro-meteorological authority of our excellent contemporary the *Mark Lane Express*, with a knowledge, now alas! almost unique, of mysteries which the ordinary human race of 1863 cannot hope without his help to penetrate, kept us in the dark so long?

What an expenditure on useless labour might he not have saved? What a much better arrangement of the winter's work might not have been adopted had he spoken out before? Let us hope that many farmers' clubs, fully alive at length to the importance of that foreknowledge of the weather which the studies of the planet-struck reveal to *them*, have responded to the advertisement of his willingness to lecture on this all important subject, and thus have secured for the coming spring the safe, economical, and profitable guidance which the agricultural operations of that season especially require.

Who knows what secret exclusively his own he may not now have to reveal to us? Even as we write, Saturn in opposition to the sun is traversing Libra—who, unless indeed it may be *he*, can know what strange oscillations of the weather that may not betoken. Winters have been experienced here, beginning, as in 1862, with unusual mildness, which have been followed by eight and ten weeks' frost. We have been (as the *Times* of Monday puts it) sitting at Christmas almost out of doors under our Vine and Fig tree, as it were; but they have after similar circumstances in other years been roasting oxen whole upon the frozen Thames before the month was out. It may be that February, March, and April of 1863 are to be to December of 1862 what previous winters have shown that these months sometimes are to one another. If so, what an advantage to be prepared for circumstances which will be disastrous if they meet us altogether unprepared!

It is hard indeed to understand how changes of effect so abrupt should be produced by those gradual changes in what astro-meteorologists declare to us is the efficient cause of them—changes *these*, which proceed sublimely constant to a simple rule, producing *those* which are as capricious as the weather proverbially is. But everybody knows—every agriculturist at any rate, for do not agricultural journals give their columns to the industrious teachers of the fact?—that it is on the oscillating positions of the hot and cold planets relatively to this earth—on the aspects towards the Earth of Venus, Mercury, and Mars, of the one part—and Saturn, Georgium Sidus we presume, and, with still less confidence we name it, Neptune, of the other—that our weather oscillates between cold and warmth, between drought and flood respectively. To be sure these latter oscillations, as in the instances referred to, are sometimes extraordinarily abrupt! The Gods and Goddesses, if their positions have produced the wonderful changes which we sometimes witness, must have been in boisterous mood—playing at leap frog at the very least—whereas it is generally believed, that the planetary masses which represent them to us moderns, "roll" or "march" along with none of those capricious jerks by which alone it is plain our changeful weather can be thus explained.

However, Mr. WHITE knows all about it—and we recommend agricultural societies and farmers' clubs by all means to apply to him!

It must be, alas! confessed that *Mother Goose*,* the astro-meteorological authority in *Punch's* admirable *Almanack*, talks as learnedly, as usefully, quite as much to the purpose, quite as suggestively of the truth upon this subject, as any of her brood who write elsewhere.

WHAT is the "greatest question that concerns man?" A correspondent of the *Times*, whose letter we reproduce elsewhere, declares that the preservation of vegetable mould is entitled to that distinction.—Vegetable mould, he says, is fast disappearing from our poorer soils. In many other countries it has been already exhausted over large districts, which are thus reduced nearly to sterility.

In the Eastern States of North America land that was once covered with a foot or 18 inches deep of mould now exhibits nothing but a poor mineral earth—"such as would delight the heart of LIEBIG or Professor VOELCKER!!" Under our present farming we aim at a large immediate production, regardless that we are killing the goose which lays the golden egg—the vegetable soil is deteriorating or disappearing — the depth and richness of vegetable mould is the food supply of Nature, cooked, we may say, by Nature in the most digestible manner, and it is the part of the husbandman to do everything in his power to prevent its exhaustion—LIEBIG's vaunted artificial manures ignorantly or improperly applied, and the scope of his lectures on this subject have perhaps tended to diminish rather than to increase the vegetable mould.

And thus we have the reaction and recoil from the extravagant warning which Baron LIEBIG lately uttered on the exhaustion which under our present system of agriculture is being experienced of the *mineral* ingredients of the soil. The *Times* correspondent writes a very good letter, but falls into one inconsistency, which should have diminished the confidence of his defence of the old exploded humus theory. How is it that, as he admits, "volcanic land, disintegrated lava, dust and ashes, and other ejectæ, will bear a great amount of exhausting cropping." The fact is not brought into consistency with his theory by the explanation which he offers. "In these volcanic soils all the different mineral ingredients have been boiled in the pot together, and as the rock goes on disintegrating, and top-dressings of ashes sometimes take place, these soils afford almost everything a plant needs in continued supply." It is evidently a weak point in his relation that no mention of vegetable mould comes in there to explain admitted fertility.

We fear, too, that his references to details of practice are not trustworthy. We shall be glad to learn where he has found that "the large manures ploughed down pretty deep in the ground are more effectual in enriching the vegetable soil than where near the surface, although they do not act so quickly to forward the immediate crop." And we shall also be glad to learn where, in Dr. VOELCKER's writings, he has found anything to bear out the assertion that the disappearance o vegetable matter from the soil, and its reduction to "light coloured poor mineral earth" would delight his heart!

It is safer to judge of the tendencies of English agriculture by the examination of a number of examples of it, than by applying the halves of truths in a general way, and then standing aghast at lopsided inferences. Whether English soil is as full of vegetable matter now-a-days as it was, we will not undertake to say—but that it is more fertile than it ever hitherto has been, is certain. And whether the share which the vegetable portion of it has in producing this fertility be less or larger than it was, is of little consequence. So long as cattle and live stock are kept upon the land in the increasing numbers which our farms now feed, so long will the fertility of English soils be sure. The present tendency undoubtedly is to look to the sheep fold and cattle yard rather than to the barn door for our returns; and so long as that is the case we need not in the least attend to such remonstrances as that of the writer in the *Times*. Nor, indeed, need we be very anxious about the gloomy anticipations of Baron LIEBIG.

* "SAT'N in Libra—is he? Libra, *the Scales!*—Ah! the ould sarpint—drat 'im!!"—*Punch's Almanac.*

QUOTING the Dublin correspondent of the *Times*, we lately called Professor GAMGEE to account for having agreed with Mr. GANLEY, the Irish cattle salesman, that compensation should be given to the owners of diseased cattle in order to hinder them from supplying the Dublin market with diseased butcher's meat. Professor GAMGEE now informs us that he never uttered a syllable in Dublin in favour of compensation for such a purpose, as stated by the correspondent of the *Times*. What he did say is we presume fairly represented in the full report of his valuable paper on the Cattle Diseases of Ireland, lately read before the Royal Dublin Society, which the Irish agricultural papers contained, from which we extract considerable passages in another page.

THE LAND DRAINAGE ACT, 1861.

LETTER I.—As we have now had a year's experience and consideration of the "Land Drainage Act, 1861," I propose saying a few words upon it, which shall convey to those interested in arterial drainage, and who may contemplate action under the new measure, some notion of its powers and short-comings; and I will explain in subsequent communications the mode of proceeding to form districts, and the engineering principles which should be recognised in the drainage works, as well as the practical rules which should regulate the rating of the district for the payment of the outlay.

In broad and general terms it may be said that the Act is a sound and, in many respects, a simple measure for the carrying out of district or combined outfall works, satisfactory in its principles, but demanding sundry amendments in details, such as are required in all new Acts of an executive character; but that it is a complete failure as a cheap and ready means of obtaining a single outfall by one proprietor through the lands of his neighbour.

It is evident that the evils attending the existing Commission of Sewers were comprehended by the eminent counsel who drew the Bill—there being a cogency about it on this point which could only arise from personal knowledge, but it is equally apparent that he entirely shut his eyes to the fact that at the present moment there are seven Acts of Parliament for the underdraining of land, and not one of those Acts give available powers (I speak practically, not legally) for discharging the drainage water of one estate through the lands of an adjoining owner, when those lands interpose between the drained estate and the outfall.

In the case of district drainages,—it may be somewhat premature, perhaps, to say as much,—the Act strikes at once to the main evils the whole country desired to remedy in a bold though safe manner. Two-thirds in average extent of any saturated valley or of every pent up moor may compel the remaining one-third to co-operate in outfall works and pay towards their cost;—Mill dams and weirs, the worst enemies our forefathers raised wherewith to trouble futurity, can be compulsorily removed or lowered; and powers are given for the compulsory purchase of lands required for the making of outfall cuts and raising embankments, or for erecting machinery, &c.

These three desiderata for combined drainage have been foremost among the objects desired by earnest agriculturists for centuries past, and the "Land Drainage Act, 1861," has provided that the necessary compulsory powers shall be exercised with due regard to the value of all interests involved. The mill-owner whose water power may be interfered with has ample security that he will have full compensation for any loss he may suffer, and the landowner whose land may be required for outfall works has equal protection. The practical objections which are felt to the details of the Act do not point to these provisions, or others of a *protective* nature in their primary character, but they refer especially to the delays which attend those pro-

visions, and the prejudicial influence such delays will have. In cases where the delay is intended to serve the owners of the obnoxious mill or the required land, it will lead to endless extortion, for *time* is ofttimes an element in the cost of works for which it is expedient to pay highly; in cases where it is intended to help the ratepayers by deferring the execution of works decided upon by the Commissioners of the District, for at least two months (!), disaster of the worst character may result.

These objections and several others bearing on practical details, however, will be removed by amending Acts. I refer to them rather to show the general tendency of the measure than to lay stress on them.

But I wish I could speak as favourably of the powers "enabling individual owners to procure outfalls," as I have of those relating to combined works. The Act in this respect is not only abortive in itself, but as all futile efforts in the way of amending measures postpone real relief, we are further off a remedy than we were beforehand.

I have not heard of a single effort being made to bring this portion of the Act into force. I have heard of two cases in which action has been taken since it passed—not under its provisions, however, but under the powers of Lord Lincoln's Act, which it was originally intended by those who promoted it the Land Drainage Act, 1861, should supersede, because the heavy and costly machinery of that Act was ridiculously inappropriate to the object desired, which was simply the obtaining a right to deepen a party ditch or joint water-way, or to carry an under drain through a neighbour's land to a natural outfall.

It is very difficult to bring home to our legislators the real condition of the country as affected by existing laws bearing on these simple points. Under-draining has been progressing for the last 15 years at the mean rate of probably 150 thousand acres a-year, and a large proportion of this extent of work has been done under one or other of the several Acts referred to, by which the cost has been charged on the drained lands. In nearly every case where a landlord has carried out systematic drainage on his estate at some point or other an outlet has been gained through the lands of a neighbour. How has that outlet been gained? What has been the nature and value of the permission, if any permission has been given? Let each owner of drained land ask himself this question, and if he or the kind neighbour who has granted the easement, be a tenant for a life, let him ask his solicitor, as well as himself, the following question,—"What is the value of a *viva voce* or informal permission against a successor of the property through which the easement has been given?" And let him go on to say, "I have drained 17 or 18 acres of land at a cost of 100*l.*, and am entirely dependent on the permission of my neighbour for the maintenance of the outlet of these 17 or 18 acres. When my neighbour dies, or when I die, the compact which good feeling has now brought about may be broken, and the outlet may be choked or destroyed. How can I or my successor obtain power to clear and rebuild it? I will take care to leave among my papers my kind neighbour's letter giving me permission: but will that suffice?"

We know that the answer to these questions will be that the permission being informal is legally worthless, and can therefore suppose the following dialogue to take place between the owner for life and his solicitor.

O. But have I not some remedy?

S. You can proceed formally under either of the Private Companies Acts, or under the Land Drainage Act 1861.

O. Which is the best and cheapest way?

S. There is very little difference in the cost under either of the Acts, but perhaps the quickest way would be under the Act of 1861.

O. Well, what will be the expense? Remember, my neighbour is willing to give the easement, but he is only a tenant for life.

S. The answer will be made up of sundry items:—

	£	s.	d.
1. You must have a plan and a formal application prepared, showing what you wish to do, and stating how the work is to be done. This will cost, for your surveyor, 1*l.* 11*s.* 6*d.*, and for my fee, 2*l.* 2*s.*; together	3	13	6
2. Your neighbour having (by deed under his hand and seal) assented, you will have to pay the cost of that deed, say	1	1	0
3. This arrangement must then be approved by two surveyors, who shall annex to the deed of assent a declaration that they approve of it; their cost will be	5	5	0
4. And then there is the cost and fee of lodging the assent with the Clerk of the Peace, and correspondence, say	1	1	0
Making altogether	£11	0	6

O. Then I am to understand that it will cost me 11*l.* to legalise an outlet for drainage costing only 100*l.*, and which I have already a letter to say I may effect without any expense at all. Of course I shall not expend 11*l.* for my successor. Pray what would be the cost if my neighbour did not consent?

S. No one can say; but the probability is, as the whole cost of litigation falls on the applicant, and the Act imports into the proceeding all the forms and difficulties of the Land Clauses Act, you would have to pay as much as from 50*l.* to 100*l.*, or at least 50 per cent. on the cost of the drainage, with the consolation of knowing that the outlet drain which is to do you service, will also be a benefit to your neighbour.

The conversation I have here supposed to take place will faintly represent the glaring inconsistencies pervading drainage proceedings every day in the year. Speaking from my own experience, I could quote very many instances where permitted easements are only enjoyed by a tenant for life at the will of another tenant for life, and where the extent of work resting upon the outlet, varying in cost from 20*l.* to 150*l.*, has not been sufficient to make it expedient to put the costly formal powers of existing Acts into force.

It is, in fact the very insignificance of each single object that gives importance to the question, for these outlets when collected, will represent an aggregate cost or value of many hundred thousand pounds. All that is wanted is a power in the hands of the Inclosure Commissioners to sanction and confirm, on the certificate of their inspector, such easements as are essential to the drainages they are called upon to approve, making such easements appurtenant to the several drainages only so long as they continue in action. The justice of affording landowners egress for the water of drainage is amply admitted by the numerous Acts of Parliament now in force. Why clog the power of obtaining it with legal and costly difficulties, even more tortuous and troublesome than the shallow crooked ditches we all want to avoid?

Having now said all I purposed saying on the shortcomings of the Act, I purpose in my next letter to explain the *modus operandi* when putting it in motion for district drainage. *J. Bailey Denton*, 52, *Parliament Street, Westminster.*

THIN WHEAT SEEDING.

THERE is one thing to which all the readers of the *Agricultural Gazette* will agree, viz., that the Rev. G. Wilkins has a deal of fun in his composition. When I read his first article I was tempted to take out a "*de tritico inquirendo*," but now I see, by his last article, that it would be more friendly to take out a "*de lunatico inquirendo.*" There are 12 paragraphs in his last *pasquinade*, answerable to 12 moons, I presume at the "full." Let this be an apology for the wanderings of his erratic and imaginative mind. I am afraid the Dorsetshire farmers, according to this luminary, are still in Erebian, or Cimmerian darkness; for my paper was read amidst the highest approval of the fraternity. He owns, I see, that legions of gentlemen attack his advocacy of improved (?) husbandry. I think that they are likely to continue to do so. I did not at all try to mislead his readers as to his weak and indefensible point (rather points it should be, for they were many) but I endeavoured to show, that as we cannot get our Turnips consumed so as to seed sufficiently early for tillering, and that as all lands are not of sufficient quality to ensure tillering when sown late, upon which two things principally, though not only, success in thin Wheat seeding depends, we cannot safely, considering all the circumstances of Wheat lands all over England, depend upon less than 2 bushels of Wheat per acre for seed. Mr. Wilkins in his last refers to virgin lands and climates far more favourable for his purpose than England. We owe a deal to Tull, but still he grew Wheat on the same land till he found it high time to leave off. Unless land abounds in silica it is impossible to grow Wheat successfully year after year, even though you put the best dung on it. The straw, for want of silica to stiffen it, is speckled and defective, and when this is the case, the yield cannot be great. I have known Tullian farmers come into this country with pockets full of money to teach us "pre-Adamites" the way to farm, and they have either altered their system in conformity with ours, or have gone away with empty pockets. A distinguished cultivator in this country, some years ago, began the "Digging and Dibbling" system, calling, as Mr. Wilkins does, the plough, drag, and harrow remnants of "feudalism and barbarism," but he has changed his opinion, and now farms well and much as his neighbours. Let me not forget here to own that as regards hints for economising manure we have very much to thank him for. He is well known to Mr. Mechi, and is a brother tenant of mine, and as worthy a gentleman as any in this or any other county. He was too clever a man, finding himself wrong, to go on in a ruinous system, for the sake of propping up a favourite theory. Gentlemen farmers, with deep pockets and shallow skulls, never charge themselves with rent; such artists can produce everything on the farm except their accounts. In the former rhapsody I think the rev. gentleman recommended the Virgilian system, from which perhaps Tull took his ideas. Now, it is some time since I read Virgil, but I have still faint recollections of Tussilago (Coltsfoot), Rubigo (Rust), and a complaint of the stock lying on the hard bare flint stones.

"Spem gregis Ah! silice in nuda connixa reliquit."

I do not think that Virgilians managed stock and crops so well as moderns do; nay, I would go further and say, that I do not think, taking the quality of the land into consideration, that there is a county in England that produces per acre more stock and crop than Dorsetshire. Go to the different fairs in the country, and see what sheep are brought there; and I say go to Appleshaw Fair, in Hampshire, and ask where the sheep are principally brought from, and they will say from Dorsetshire. Mr. Wilkins has not attempted to touch my observation, that it is impossible to get Wheat in as early as thin seeding requires to be successful; but knowing not what to say, he adopts an old legal device, "When you don't know what to say, let drive at the defendant's attorney." I hope some day to meet the Rev. gentleman, not at Philippi, but in Dorsetshire, where I trust we shall be able to show by stock and crop that we are *post-Adamites!*

I must, in conclusion, observe, that the Rev. gentleman has selected only one of two lines of poetry, omitting the last line, which I beg to supply—

"'Twould have been greater, had there been *none* at all."

Exactly so, exactly so, an excellent song. Capital! Bravo, encore! My friend, Mr. Wilkins, is emerged into light, after a long night of error, ignorance, and superstition; or, to keep up the appropriate simile, he has reappeared in the brilliancy of his restored intellect, after a long series of "lunar occultations."

I now wish the Rev. gentleman a Happy New Year, which has commenced with storms and tempests, and I can assure him—

"Though rough be the tempest, and terrible the storm,
My heart, full of fondness, beats kindly and warm."

P.S. Though I am John Ford, jun., I am the wrong side of 50, but still open to learn. *John Ford, jun., Rushton, alias Philippi, Jan. 5th*, 1863.

EXHAUSTION OF VEGETABLE MOULD.

THE means of increasing or preserving the vegetable mould is the greatest question that concerns man, while it is scarcely thought of. In the poorer soils, which include a great proportion of the more level cultivable surface of the earth, the vegetable mould is fast suffering exhaustion by aration under the present system, and man does not seem aware of what he is about. In the Eastern States of North America, from the State of Maine to Florida, in Lower Germany west of the Vistula, and in many parts of Spain and France, the vegetable mould is much exhausted, and no means taken to prevent ultimate sterility. The loss has been so great as almost to be irremediable by man, and perhaps must be left to the repairing agency of Nature, first to cover up the wasted land by a dense Pine forest for a number of ages, and when, by this means, a sufficiency of mould and moisture of climate is attained for the growth of broad-leaved trees, to remain for ages more under these; or if the exhaustion is too far advanced, or the climate too dry for forest growth, the country to be again dipped for a geological period under the ocean. In most places of the American Eastern States, except the Pine barrens of sheer sand, the vegetable mould, upon the clearance of the forest cover, amounts to from a foot to 18 inches of rich black vegetable mould, and this under 12 or 18 years' aeration is completely dissipated, nothing remaining but light-coloured, poor mineral earth—such as would delight the heart of Liebig or Professor Voelcker. Germany, from the Vistula to the German Ocean, with the exception of the rich river deltas, is almost equally exhausted—not only the vegetable mould lost, but even the marl and clay once existing in the soil, washed away, forming the alluvions of the Rhine, Weser, Elbe and Vistula, In the greater part of this country nothing remains on the surface within reach of the plough but sterile siliceous sand, termed "geest-land," perhaps a corruption of "geist-land."

When this stage of exhaustion takes place, if the climate from position is not naturally moist, the rain clouds are not formed, or not attracted, and the region becomes arid desert. In the greater part of Germany, though adjacent to two seas, the air is becoming drier, there is less rain-fall, and the rivers are diminishing in their flow of water. This is a dangerous feature, combined with an increasing population. The only remedy is an increase of forest cover and shelter belts of trees, to encourage the formation of cloud, rain, and dew. The air in Germany is at times so dry that in the quiet, clear nights of summer, there is little dew to give out heat in its change from the aërial into the liquid state, and in consequence the temperature falls sometimes at the surface of the ground in July below the freezing point, killing the Buckwheat and Potatoes. In Northern Africa and in many parts of Western and Central Asia, where man in former times had accumulated, had destroyed the forest cover, and wasted the natural vegetable mould, the country has become arid desert, animal and vegetable life extinct. There are however, several vast deposits of vegetable mould—those of Southern Russia and Poland, the valleys of the La Plata and the Mississippi, all in the temperate zones and suited to the white race of man, where it will be long before he is able to exhaust its great depth and richness. Volcanic land, disintegrated lava, dust and ashes, and other ejectæ, will also bear a great amount, of exhausting cropping. In these volcanic soils all the different mineral ingredients have been boiled in the pot together, and as the rock goes on disintegrating, and top-dressings of ashes sometimes take place, these soils afford almost everything a plant needs in continued supply. It is different with most soils consisting of ocean drifted materials, elevated seabeds and sands, such as Western and Northern Germany, and the greater part of England. These sea-sedimentary and wave-wafted soils are generally too much of one kind of mineral—too siliceous, too calcareous, too aluminous,—and under aëration the small quantity of vegetable mould they may have acquired is soon exhausted, and it is long before it can be replaced.

Under the present farmer occupancy, his endeavour is to obtain a large immediate production, without regard to any deterioration, however great, of the vegetable soil. Is this a system to be continued? Is the goose that lays the golden egg to be killed? Liebig, a good chemist, but no farmer, in his discovery of the components of plants—that a small portion of these are mineral, necessary to give firmness and strength to the vegetable as well as the animal frame—has written in

ignorance, at least ignoring the importance of the vegetable mould, the garnered food supply of the higher vegetables prepared by Nature in a manner, perhaps, more than anything else, showing a provision of means to end. Liebig seems so much captivated by what he absurdly terms "inorganics" (as if one constituent of an organism was more or less organic than another) as almost to recognise nothing else necessary; when the fact is that it is the carbonic acid given out by the vegetable mould that, mixing with water supply, renders the water able to dissolve and convey these minerals to the root-mouths of the plant. In the case of a heavy crop being produced by the artificial small manures so much vaunted by Liebig and his followers, there results a great exhaustion of the other components of the soil, not easily to be recovered.

The great importance of Liebig's discovery is the supposition, amounting to a considerable probability, that a plant nourished at an early stage of its growth to high luxuriance by what they term "artificial manures"—what the soil may be most destitute of, and necessary to the growth of the plant—is thus enabled to extract a large quantity of carbon, ammonia, &c., from the atmosphere, and thus obtain large bulk, so that when ultimately it comes to form manure it will increase the vegetable mould. However this may be, there cannot be a doubt that these artificial manures enable the cultivator to exhaust a soil not very abundant of vegetable mould to complete barrenness.

Liebig seems in error in supposing that alternation of crops is more exhausting than a continuation of the same kind. There is something yet to be discovered as to the effect of alternation and mixed crop. A crop of mixed grasses continued to be depastured for years has also an effect not well understood. The enriching effect is especially conspicuous when the field is heavily manured with large manures previous to laying down.

A fertilising cause, no doubt, is that the Grasses are not allowed to seed, the seeding consuming much more of the more valuable constituents, phosphates, alkalies, &c., than the succulent leaves. Another of the causes of the enrichment from lying out in pasture for years is that the mould is covered up from the burning and exhaling influence of the sun and air. A peculiar crumbly arrangement of the mould also takes place, favourable to vegetable growth, perhaps also a growth of fertilizing earth Fungi. The great mass of roots and ploughed-down sward of leaves also serves to enrich the mould. At one time it was thought plants threw out a refuse from their roots, and that this refuse of one kind of plant served as nourishment to another, while it was poisonous to its own kind. This idea is now given up.

It has been found that the large manures ploughed down pretty deep in the ground are more effectual in enriching the vegetable soil than when near the surface, although they do not act so quickly to forward the immediate crop. A depth and richness of the vegetable mould affords the best provision against injury by drought. It is the food supply of Nature, cooked, we may say, by Nature in the most digestible manner possible; and it is the part of the husbandman to do everything in his power to prevent its exhaustion. Liebig's vaunted artificial manures, ignorantly or improperly applied, and the scope of his lectures on the subject, have, perhaps, tended to diminish rather than to increase the vegetable mould. *A Correspondent in the Times.*

LANDLORD AND TENANT RIGHT.

THE following terms of agreement are recommended by a special committee of the Vale of Evesham Agricultural Society appointed for the purpose of considering the best means of protecting the landlord against injury to his property through the impoverishment of his land by an outgoing tenant, and of affording the latter the compensation to which he is entitled for unexhausted improvements. These terms are framed upon the assumption that the tenant is subject to the customary reservations as to the consumption of hay, straw, roots, and other food for cattle, on the premises, except in special cases of agreement, and to other usual landlord's reservations.

"The committee recommend as follows:—One month before the expiration of a tenancy, the landlord or incoming tenant (as the case may be) and the outgoing tenant, shall each appoint an arbitrator. These arbitrators shall meet not later than ten days before the expiration of such tenancy, and, having appointed an umpire, shall proceed to the consideration of the claims made by either party; in case the outgoing tenant refuses or neglects for the space of 20 days to appoint his arbitrator, the landlord may nominate an umpire, who shall have the same powers as if he had been appointed by the arbitrators jointly. The terms 'clean' and 'in good condition' hereinafter used shall be considered in a reasonable and practical sense, and the claims on either side, contingent thereupon, be treated accordingly.

"The agreement shall contain no stipulations as to cropping, but should any dispute arise thereupon during the tenancy, the same shall be forthwith submitted to arbitration. Every award made in pursuance of these recommendations shall be final and binding upon both parties, and either party shall be at liberty to make such award a rule of any superior Court of Law.

"At the expiration of the tenancy one-half part of the arable land shall be clean and in good condition, and fit for planting with white straw crops—one moiety of such half-part shall have been fallowed with green crops during the previous summer, the other moiety thereof shall have been wholly under Clover or mixed Grass seeds, or parts in Clover, and the rest Beans after being manured. None of the Clover or other Grasses shall have been allowed to stand for seed.

"One-fourth of the arable land shall have been sown in the spring preceding the termination of the tenancy with Clover or other proper mixed Grass seeds, upon land fallowed the previous year, and clean (or upon clay land farms this fourth may be not less than half Clover, the remainder fit to plant with Beans). The Clover seeds shall be supplied by the landlord or incoming tenant not later than the 1st of March; if not so supplied they shall be purchased (not less than 14 lb. to the acre) by the outgoing tenant, who shall be paid on production of vouchers for the same. He shall also be paid for sowing and harrowing, but shall not stock the seeds after harvest.

"Not more than one-fourth of the arable land shall require to be fallowed in the year after the termination of the tenancy, nor require an outlay of more than 50s. per acre to clean it; if it require less than that sum, the incoming tenant shall pay the difference.

"The incoming tenant shall pay 50s per acre for all land in excess of one-half which, under the above conditions, is fit to plant with white straw crops, and shall be paid at the same rate for every acre short of one half of the arable land.

"The incoming tenant shall pay 40s per acre for all the land whereon Clover or other Grasses have been grazed the whole summer by sheep, provided that it be clean, and that only one crop of corn has been taken since the previous fallow. The outgoing tenant shall be entitled to the sum of 50s. per acre for all clean fallows; if not clean the cost of making them so must be deducted.

"The outgoing tenant shall be paid one-half the cost of all purchased manures applied to green crops, in the last year of the tenancy, and one-fourth of that in the last year but one, such cost not having exceeded 40s. per acre. All unprepared bones and lime used upon any part of the farm within the last four years shall be paid for, and burnt soil, where the application has not been less than 80 cubic yards per acre—one-fourth of the cost in each case being deducted for each year's use—and for every other fertiliser of a permanent character, such allowance as the arbitrators may determine. He shall also be paid one-half the cost of all oilcake or Linseed consumed during the last year, and one-fourth of that consumed in the last year but one, provided that it has been given to cattle and sheep, but not to horses, and does not in either case exceed the average of the three previous years.

"The outgoing tenant shall be entitled to the value of all growing green crops, and of all hay and straw remaining on the premises. The arbitrators shall fix the times for threshing and for delivering such straw to the in-coming tenant.

"It is desirable that all draining should be done by the landlord, charging interest for the cost thereof, but where it has been done with pipes at the tenant's expense within the last 8 years, and provided the extent and system have been approved by the landlord in writing, the cost, not including carriage of materials, shall be repaid, subject to a deduction of one-eighth for every year's use, but in case the landlord has paid for materials, the cost of labour shall be considered as repaid in four years.

"All other permanent improvements made by the tenant with the landlord's previous sanction in writing shall be paid for as the arbitrators may determine.

"Not less than twelve months' notice shall be given to terminate a tenancy."

[The above has been sent to members of the Evesham Agricultural Society, with a request for criticism—so that when finally issued it may be considered the utterance of the whole body on this important subject.]

FARMING IN SOUTH WALES.

WE hear of steam cultivation in England, but never in Wales, at least not in your Paper. If it be practised here (South Wales) can you, or any one of your readers say where?—for in such case I should very much like to go and see it in operation. The general mode of cultivating the land in this quarter appears to be simply turning over the surface soil with a light old fashioned plough, sowing the seed immediately after, and then harrowing it over. In this way much of the seed must be wasted, judging from the large quantity usually deposited, and the return obtained. Occasionally, a pretty heavy dressing of mixed lime and earth is spread over the field previously to its being ploughed, but no very liberal allowance of manure of any kind, so far as I have been able to see, is ever given, for I do not consider lime as such. There are, no doubt, many instances of a different system being pursued by the more enlightened class of farmers throughout the country; but what I have stated applies to the majority of cases, and probably this is in a great measure owing to the almost general custom of only annual leases being granted by the landlords.

As to the recently introduced reaping machines, I have not heard of one of them being used here. The corn is all cut with the scythe, allowed to remain on the ground, just as it lies, for a day or two, then bound into sheaves in the usual way, which are put up into mows, and afterwards carted at leisure, sometimes not for a month or more, to the stackyard, called here "haggard." This may be a good plan of proceeding in the event of a continuance of wet weather prevailing after the corn is cut, as it certainly, in some degree, affords protection, but frequently an opportunity is lost by so doing, of getting the crop stacked at once in favourable order; besides, the extra time and labour that it takes is a consideration. However, as former generations adopted that custom, so is it thought expedient to follow it up to the present day.

With regard to steam threshing machines I am not aware of one of them being yet introduced. Those who can afford it, employ, it is true, a horse machine for the purpose, but the flail is still the prevailing method among the bulk of the farming community. In short, comparing the present state of agricultural operations in this quarter with those of other parts of the kingdom, as well as of Ireland, it appears to me to be at least half a century in arrear. Root crops are not cultivated to any extent here, but a large proportion of the land is occupied by permanent pasture and hay, upon which, together with cut chaff and chopped Furze during the winter months, the farm stock of animals is usually fed. The favourite breed of cattle appears to be the black Castle Martin, although latterly a good many half-bred Shorthorn Durhams, and here and there some Ayrshire and other breeds, have been introduced. Sheep mostly consist in the upper lands of the small country breed, and in the lower lying parts, a considerable number of the Southdown character, as well as mongrels of all sorts, are to be seen. Owing to the extent of pasture, dairy operations are pretty prevalent, and butter is the chief produce therefrom, consequently very little cheese of a rich quality is ever made, but a great deal of the poor skimmed milk sort, which constitutes a large portion of the diet of the labouring classes; oatmeal porridge, such as the lower orders in Scotland chiefly live upon, is almost wholly unknown here, but a quantity of that meal is made into dry cake, and also used in thickening their Leek soup, a pretty large share of which they take at dinner and supper along with Potatoes.

In some places a considerable part of the land is let out by the owners in small allotments and annual leases to their farm servants and others who are wholly unpossessed of capital. Where this practice is adopted, of course no improvement in the property can be expected. It only produces bad farming, and tends to encourage the vast growth of weeds that is observable in such localities, which I presume is the cause of the enormous number of slugs being generated that one meets with everywhere. Walking across the Grass fields when they are in a moist state during the warmer months of the year, it is really quite incredible what a prodigious host of these reptiles is seen crawling along; nor are the fields alone so infested, for the remark will apply equally with regard to nearly all the gardens, and especially throughout the past seasons of this year, where it was almost impossible to prevent any thing succulent and tender from being completely devoured by them. Upon my alluding to this circumstance the other day to an Irish gardener in the neighbourhood, his reply was, "and sure what else could be expected in such a sluggish country as this is?" I beg to add, in conclusion, that in making the above remarks I am not actuated by the slightest degree of prejudice, ill-will, or dislike towards the country. On the contrary, I feel most favourably inclined thereto, for I find the people, on the whole, civil, quiet, and well-behaved, and where their means admit of it, very hospitable; but confess that I should like to see a little more of the "go-a-head" system of husbandry introduced among them, and instead of the farmers obtaining only from 20 to 25 bushels of Wheat to the acre, as at present, the return increased to double that amount, which, in many places, the land is quite capable of yielding, by a greater degree of tact and enterprise being exercised than now exist in their mode of management. *Viator.*

ITEMS OF FARM ECONOMY FOR WINTER.

IT is by no means desirable to aim at making our farms self-supporting, even if it could be accomplished in these palmy days of agricultural progress. It is far better to avail ourselves of the benefits to be derived from the researches of scientific men, and the experience of ages. There are yet, however, many little matters connected with ordinary farm practice, that may with care and good management be turned to profitable account. One of these is the best mode of dealing with the weeds and common refuse of our farms, *i.e.* the roots of twitch and other weeds, the ditch roadings, road scrapings—indeed everything and anything that may come into the category of farm refuse. Instead of burning or otherwise dealing with any of these articles of refuse, they should be collected into suitable heaps in convenient places, and there be left till they are all nearly decomposed, or rather are becoming like unto rich earth.

In the winter season, when work is scarce, these heaps should be turned over, and be well mixed with some of the powerful artificial manures now in general use, *i. e.* Peruvian guano, bones, superphosphate of lime, night-soil, soot, salt, &c. &c., or, to be more economical, the concentrated manure from the piggeries or cart-horse stables, may be used with great effect, and to go a step further, the precise artificial manures should be obtained for mixing entirely in accordance with the design of application. If designed for Mangels only, Peruvian guano, common salt, and superphosphate of lime should be used in about equal proportions; if for Swedes or common Turnips, superphosphate of lime only, but any of the artificials named will help to make the heaps highly fertilizing substances of great value; and, if Morton's Almanack is consulted, the precise manures to be procured for each respective crop is named. Thus is to be made on every man's farm a mass of highly fertilising manure, which, if properly prepared and carefully closed down in heaps, will be ready to drill in for any required crop, but more particularly the Mangel and Turnip crops, and made from substances of which every farmer is too glad to rid himself. No manure is so economical in use, or is so cheaply manufactured.

Another item of farm economy is that relating to the preservation and consumption of the winter food of the farm.

Straw.—In the usual course of threshing by steam, much loss arises from the waste of chaff, pulse, &c., owing to the amount threshed in a short time. The remedy for this waste is to thresh less at a time, and to

take care that all chaff refuse, &c., be carried up the stack or into the straw barn for immediate use.

Hay.—This should all pass through the cutting box, and might be profitably mixed in the box with sweet straw, *i.e.*, Oat, Barley, or Pea straw.

Mangels.—Pulped Mangels, mixed with offal and meal, makes the best and cheapest food for pigs known. It don't require much water in mixing. Turnips of all kinds should be cut before given to stock of any kind, and more particularly sheep. The troughs used for sheep ought to stand upon legs about a foot from the ground, and for two reasons:—1st. It prevents waste. The sheep cannot comfortably get their feet into them, nor can they readily throw the slices out. 2nd. It compels the young sheep to hold up their heads whilst eating from the trough, and eventually adds to their upright appearance in the market, thus adding to their value as stores, and their nobility when fat. *O. F.*

NOTES ON IRISH FARMING SOCIETIES.

ONE hundred and twenty years ago Ireland was so little cultivated that one of the first acts of the Royal Dublin Society, which was then first incorporated, was to offer among the first premiums proposed, 50*l.* in plate, "To the person who should break up the greatest quantity of lea ground for any purpose of husbandry." There was then (and for some years subsequently) an unrepealed statute enforcing the cultivation of not less than 5 acres out of each 100, under the penalty of 40*s.*, "but the Act was as dead as the letters of it, for all the rich were delinquents: the country was deserted by the human species and peopled with sheep."

The late Farming Society of Ireland was formed for the much required and special objects of agriculture, at the commencement of the present century (only eight years subsequent to the first sitting of the English Board of Agriculture); and it gave prompt and vigorous impetus to the introduction of the best specimens of live stock into the kingdom, and to the acquisition of skill in ploughing, and in the construction of improved implements of husbandry.

That useful body commenced its operations by giving liberal prizes for the improvement of live stock, and as the race of swine was very defective, it distributed gratuitously young boars and sows of English blood among respectable tenant farmers, and granted a yearly bounty in some cases for keeping them. There were two establishments formed under its management—one in Dublin, with which an implement factory and sheds for cattle at the Spring Shows, and a room for the sale of wool were combined. At that time the form of ploughs and carts was execrably bad; the former were too light and unsteady for their work, and yet dragged through the land with difficulty from ignorance in the mode of yoking, and of the principles of draught, and low cars with solid block wheels were in universal use among small tenant farmers, and not unfrequently seen on the lands of agriculturists of higher degree. And, strange to add, the importation of farm implements duty free was prohibited in Ireland, from the wretched and blind policy which in many particulars had influenced the English Legislature until the year 1803, when the Commissioners of the Revenue relaxed the oppressive restriction. This act of justice and of common sense led the way to the distribution through the kingdom partially and gradually of implements made after the best British models. In the previous year arrangements had been made with the proprietors of the Liverpool and some other packets, by which a great reduction in the freight of cattle and sheep was effected, and an exemption for a previously existing duty on seed corn was obtained. At the annual exhibitions of live stock in Dublin and Ballinasloe the prizes were emulously contested, and also at the numerous district and special ploughing matches held under the regulations of the Society. At these were different classes of competitors for the premiums, which were both honorary and pecuniary. Cultivators of different grades were brought into useful rivalry with men of their respective classes, and all were stimulated to honourable and zealous exertion, and the distribution of efficient ploughs and improved live stock through each county, supplied models and incentives previously wanting.

In truth, this Society initiated a system of encouragement to good practical husbandry without any decided effort at the promotion of abstract scientific knowledge and the development of experimental and theoretical agriculture, which would have been too much in advance of the acquirements and habits and social circumstances of the general body of the Irish agriculturists of that period. The high prices of corn and other products of the land were in themselves stimulants to the development of agricultural skill and industry, and the leading gentry of the country interested in promoting higher cultivation and the improvement of live stock found willing co-operators among the intelligent tenant farmers with whom they associated at the half-yearly shows in Dublin and Ballinasloe, in working out their common objects, and communicating to one another the results of their respective experiences.

This parent society owed its effectiveness in a great measure to the resources it derived from Parliamentary grants, without which its operations would have been on a very limited scale. The subscriptions and donations of the principal landowners would not have been sufficient at that period for the objects of such an association; though the withdrawal of such fostering aid in a more advanced state of national wealth and civilization may not have been altogether inexpedient. Previously, it would have been very difficult if not altogether impracticable to have raised a fund by voluntary contributions, sufficient to admit of many 50*l.* prizes which it would seem were necessary to encourage the importation of first-rate breeding stock and the cultivation of cereals, which were in surprisingly small proportion to the area of land, five acres in every 100 being the required extent.

In the premium lists we find prizes of 50*l.*, 30*l.*, and 20*l.* offered for the best crops of Fiorin hay, not less than 5 statute acres. The mania for this Grass was not then confined to Ireland. There were adjudications of premiums almost contemporaneously by the Highland Society of Scotland, for that ridiculously prized Grass. Some of the most respectable members of that Society acted as inspectors of the crops which Mr. Baird of Shotts, Mr. Trotter of Castlelaw, and Sir James Stewart of Coltness, submitted to examination in 1815. The first-named candidate received the first premium, and the weight of his crop was estimated at 23 tons (green) per statute acre. The Rev. Dr. Richardson, of Clonpeele, in Ireland, who was an enthusiastic cultivator of Fiorin, and the introducer of it to public attention, estimated the weight of his crop in that year at 26 tons of green sward. Major Monroe and Captain M'Kenzie, of the Ross and Sutherland Militia, then quartered in Ireland, found the Doctor's men mowing and saving Fiorin in January, though October was the usually appointed season for those operations in regard of that peculiar Grass, and were promised similar crops in their Scotch mountains provided they obeyed the Doctor's orders implicitly. The Farming Society of Ireland co-operated with him in the encouragement of this mountain and bog Grass by proposing three very high premiums for the best crops of Fiorin hay—not less than five statute acres, produced in Ireland in 1816. But these artificial stimulants were soon withdrawn from a comparatively worthless object.

Many county and district farming Societies arose in Ireland in the subsequent years, to which the Farming Society gave aid in ploughs and medals more especially. 20*l.* was awarded in many instances to the best of the competitors in ploughing, and it stimulated district associations to a superintendence of minute improvements which could not be reached by the parent Society. And such was the excitement at ploughing matches in the infancy of their proceedings that it was not always easy to preserve order among the crowd of spectators and friends of the competing ploughmen. This was exemplified in a remarkable manner at Newcastle, in the county of Limerick, in the year 1816. "A party of dragoons attended on the ground to prevent the pressure of the crowd from interrupting the ploughmen, and the furrows from being trampled and defaced. Thus order was preserved, and the most useful and important of the arts of peace was marked by the respect shown to it by the distinguished military characters who were present." The grand finale to some of the annual programmes of the Society was—"To the person who shall in each district kill or destroy the greatest number of magpies, scarecrows, or kites in the year, 2*l.* 10*s.*"

The Royal Dublin Society for many years past has fulfilled part of the work previously discharged by the Central Farming Society. They have held exhibitions of live stock and farm implements annually, and greatly promoted thereby all the interests of agriculture. Two or three years ago they suggested agricultural queries for general consideration, analogous to those proposed by Sir John Sinclair when he was preparing his statistical account of Scotland; and if those queries, which were not of an inquisitorial character, had been more definite and better arranged, they might have been generally well received, and formed a good basis for more extended and complete information, and perhaps led the way to short essays or succinct and well-arranged reports on parochial agricultural statistics.

The agricultural labourer 50 years ago in many parts of Ireland, would not have been unfairly described in the language of Tacitus, applied to the Germans of his day: "In every house the children, naked and dirty, grow up into that muscular form we so much admire. Every mother suckles her own child; the master and servant are distinguished by no delicate differences of education; they live among the same beasts and upon the same floor. In some parts of Ireland, even now, the condition of the native labourer is not more advanced. The Farming Society of Ireland had among their resolutions one as follows:—"The Society will give an honorary medal in each county to the land proprietor by whose exertions the condition of the lower orders on his estate and in his neighbourhood, shall be most improved." This, though very vague in the language, was definite and sound in its principle, and it is with pleasure that we look back to some of the premiums awarded by the Kildare Farming Society, which was established in 1812, "for comfortable habitations, industry, &c., in Class 4," *e. g.*

To Toby Toole for having his house and family in the cleanest and most decent order £3 0 0

Then follow other names and premiums of lesser amount.

Again:—

To Margaret Beahan for having spun by herself and daughters 195 lbs. of Flax within the year,
1st premium £3 0 0
2d premium 1 0 0
3d premium 0 15 0

To Biddy Hilyard for having knit 30 pairs of stockings within the year 3 0 0
2d premium 2 0 0
3d premium 1 0 0

On another occasion we find the same Society giving, in addition to such as the foregoing, in each of the four districts into which the county was divided for the purpose, the premiums following:—

To the labourer holding not more than 1 acre, and who shall cultivate half a rood for the use of his family with any vegetable except Potatoes .. £2 0 0
To the second best 1 10 0

If we look to the Scotch system, we find such premiums as the following proposed by the Highland and Agricultural Society of Scotland for award in the different parishes of prescribed districts. "For the best kept cottage in each of the said parishes, 2*l.* For the second best, 1*l.* For the best kept cottage garden, 1*l.*

To the Cottager who shall have raised the greatest number of Hives of Bees £4 0 0
2d, ditto.. .. .. 3 0 0
3d, ditto 2 0 0
4th, ditto 1 0 0

In England the improvement of the cottager's condition, morally and physically, is a frequent subject of consideration at the Agricultural and Horticultural Exhibitions. In some societies it is a special object with the influential patrons, as the prize lists testify. Here is a specimen of almost the general rule of practice in this particular. At the last meeting of the Royal East Berks Association, there was in the prize list a series of six classes of premiums claimed, viz., for bringing up families without parochial relief; for the neatest cottages and gardens; for length of service on the same farm, for length of service with the same master. Female servants for length of service; male servants for length of service. Besides these there were 11 classes of ploughmen, shepherds, yardsmen, and rickmen, in which premiums were obtained. Mr. Walteret, jun., among other things, said:—"It seemed to him that if agricultural associations were to afford encouragement to any body, it should afford encouragement to all classes who composed them—landlords, farmers, and labourers. He, for his own part, and as a matter of private opinion, did not think it necessary to encourage a man by prizes for doing his duty, for being honest and so on, but skill in industry was deserving of encouragement. He asked them as sensible men, was it right and just that when they were giving prizes to labourers for bringing up families without parish relief, and giving young women the insignificant sum of 30*s.* for remaining in their service three or four years, and being virtuous and so on—was it right that they should overlook the condition in which these people had passed their lives, or the state of their houses in which they had been brought up? How could they expect families to lead moral lives if they continued to be huddled up in a filthy manner? Were labourers to find cottages for themselves? Were the tenants to find cottages? or whose duty was it? He believed it was the duty of the landlords; and if it was their duty and they neglected it, they needed encouragement; ay, or castigation, as the case might be." We hope that the recent Act of Parliament, by which loans are advanced through the Board of Works in Ireland to landlords, for erecting labourers' dwellings, will prove an effective incentive for the desired object, and we have just seen, with satisfaction, the names of the Earl of Courtown, a landlord of distinguished excellence, and of two other proprietors, in the schedule of applicants for loan for this special purpose. *M. D.*

DRAINAGE OF THE TEST VALLEY, HAMPSHIRE.

IN 1852 a project was set on foot for the "drainage of the valleys of the Test and Anton," or rather the readjustment of the level of the water in those valleys. The plan was based upon a recommendation of Mr. J. B. Denton, the well known engineer, to divide the valley into several areas wherever outfalls could be obtained for deep drainage without destruction of the mill property. Whether this could be done may be questioned, because the bed of the river above Romsey is in the chalk, into which the springs from that stratum flow in augmentation of the stream, at the level to which they are adjusted by the present arrangement of mill heads and water meadow weirs.

It is true that a considerable part of the Test Valley is in rough sedge and peat bog, therefore utterly useless for any agricultural purpose; though, on the other hand, very much is in useful water meadow. Firmness might perhaps be given to the present rotten ground by a large application of chalk or any rough material; the mill power, except at some points, is not on an extensive scale. Though the scheme in question has not been applied to the upper part of the Test, the noble owner of Broadlands has adopted it below

Romsey; it is said with success, so far as a short experience can determine the question.

It must be remembered, that at or about Romsey, the river leaves its chalk bed for the plastic and London clays, which gives a totally different engineering aspect to the question; these clays become carriers to the river, which now ceases to be augmented by the chalk springs, which therefore cannot be affected by any cutting made in its bed; there is some soakage through the silt, peat, and gravel, which form the immediate subsoil of the valley—this was very plainly seen in the operation of securing a foundation for a bridge over one of the cuttings: below these permeable soils is an impermeable bed of clay. In the district now under treatment, of three miles, below Romsey, two main areas with a small lateral area comprising the pleasure grounds at Broadlands are formed. In other words, two open cuttings of from 5 to 6 feet in depth have been made, one discharging itself into a back water to the west of the main stream below some hatches (or a weir); this passes under a tributary stream in its course. The second main cut crosses and passes underneath the first cut diagonally to give additional outfall in a direction where it commences above the hatches and outfalls into a mill tail below. The connection between the old water-meadow feeders and the river is cut off; the depressions of the meadows near the cut are filled in by the soil taken from it; the old water meadows will then either be converted into dry pastures or brought into arable cultivation, and this no doubt may be done at the point in question with safety. The present aspect of the operation is in its favour. The cuttings reveal a curious condition of soil. First, vegetable mould, mixed or alternating with silt, resting for the most part on a bed of so-called shell marl; it contains many recent shells, but consists principally of concretions of nearly pure carbonate of lime. The same sort of concretions (to all appearance round stones), may be seen in the beds of the old feeders and the rivers but when examined they will be found to be nodules of carbonate of lime, the deposit from the water charged with that substance; they are usually depositions round a nucleus of vegetable substance. This marl is found in large quantities also in the bed of the Itchen, where it may seen in very many of the feeders, and out-cropping in the banks of the rivers. Here it has in past time been dug for application to the heavy lands, used chemically as lime, and for immediate combination with soil it must be valuable, and more effective than chalk for that purpose. This marl generally rests on a bed of nearly pure peat, which again rest on a bed of sharp flint gravel. We have here, judging chemically, all the elements of fertility, which might by amalgamation, as opportunity offered, become very productive. At Bishopstoke the valuable meadows of a dairy farm are to all appearance of a soil nearly identical with those in the valley of the Test: though a casual observation could not determine this question, which can only be settled by experience. The meadows at Bishopstoke can be watered at pleasure, though this is seldom done, they are used as a winter run for heavy dairy cows, who seem to do well upon them. The meadows in the Test valley below Broadlands will no doubt either carry stock, or may be broken up; they appear specially fitted for growing roots. Floods are little to be feared in the upper part of the Test, except after a sudden thaw; and the flood water thrown from the tertiaries on either side of this valley, would be insignificant when the capacity of the river and these carriers is taken into account. *J. C. C.*

Home Correspondence.

Wages in Roxburghshire and the West of Berwickshire.—[The following from an intelligent Correspondent—one of the class whose circumstances he describes, has lain unnoticed for some time on our table.] Presuming that Mr. John C. Morton is collecting materials for his "Farmer's Almanack" for 1863, I have put myself to the trouble of collecting a few facts which I trust he will consider worthy of credence. Every farmer I have seen writing upon hinds' wages allows himself to forget that farmers compel hinds to occupy the position of contractors for supplying field labourers. There being such a difference in the rates of wages paid on different farms, I have made out three tabular accounts which show the gross total paid to a hind in a twelvemonth for his own wages, and for giving his bondager, board, lodgings, and washing, and for paying the bondager from 10*l.* to about 13*l.* for wages. It is self-evident that the cost of the bondager to the hind must be deducted from the gross total paid to a hind—for his own wages and for the cost of the bondager to the hind. Since one bushel of Oats of 46 lbs. makes two imperial stones of meal, I have set down 50 bushels as the cost to the farmer of the 100 stones of oatmeal. The minimum rate of payment consists of 100 imperial stones of oatmeal, 18 bushels of Barley, 6 bushels of Peas, 5*l.* of "sheep money," 5*l.* as a substitute for a cow's keep, 5*l.* as a substitute for the 1500 yards (lineal) of drills for growing Potatoes; a month's food in harvest, or 1*l.*; and a house and garden rent-free, and the cartage of 6 or 7 cartloads of coals from the Northumbrian pits or the railway stations. A good many farmers still pay the hind 10*d.* for each day his bondager works throughout the year, and the current rate of reapers' wages when cutting corn. They are notorious facts—that the hind is not paid full time for his bondager, even for those days the farmer has no employment for the bondagers—that it requires a bondager to work full time to earn 14*l.* 16*s.* 10*d.*—and that 44*l.* 8*s.* 0½*d.* is the gross total a great many farmers pay each hind for his own wages, and for his bondager contract! Some farmers pay 6*l.* as a substitute for a cow's keep, and 1*s.* per day for the bondager's work for three quarters of the year, which is the general rate of wages. But a few give 24 bushels of Barley, 7*l.* as a substitute for the cow's keep, and the other items, which is the maximum rate of hind's wages. I make the three gross totals equal to 44*l.* 8*s.* 0½*d.*; 47*l.* 5*s.* 2½*d.*; and 50*l.* 12*s.* 10*d.*, and a house and garden free, and coals carted. Reckoning 6*s.* per week a small enough allowance for giving an able-bodied farm labourer his board, lodgings, and washing, I make the three net rates equal to 16*l.* 16*s.* 0½*d.*, 19*l.* 13*s.* 2½*d.*, and 23*l.* 0*s.* 10*d.*, and the house and garden free, and coals carted in each of the three different rates. But as the bondager's wages vary from 10*l.* to about 13*l.* per annum, and as very few bondagers work 313 days for the 12 months, the hind's wages can be determined only by deducting the wages and expenses of the bondager of the gross total paid to the hind. These calculations give the nominal value to the farmer, but you are well aware I showed at page 426 of the *Agricultural Gazette* for 1858, and at page 81 for 1859, that the money value to the farmer of the cow's keep and the Potatoes does not represent the money value of the payment in kind to a hind. I was much pleased to hear of Mr. Scott, of Timperdean, and other practical farmers, defending the practice of making a cow's keep and the Potatoes a part of payment. *W.*

No. 1.—MARKET VALUE TO FARMERS OF THE MINIMUM RATE OF WAGES IN CASH AND KIND FOR THE 52 WEEKS ENDING JULY 26, 1862.

100 imperial stones of Oatmeal, equal to 50 bushels, at 3*s.* 2*d*			£7	18	4	
18 bushels of Barley, at 4*s.* 7¼*d.*			4	2	10½	
6 bushels of Peas, at 5*s.*			1	10	0	
"Sheep, pen, and lint (Flax) money"			5	0	0	
Substitute for a cow's keep			5	0	0	
Substitute for 1500 yards of Potato drills			5	0	0	
Substitute for a month's food in harvest			1	0	0	
					29 11	2½
A hind's wages and perquisites of house and garden free, and coals carted, &c.						
Money paid to hind for his bondager contract:—						
12 days in harvest at 3*s.* and board			£1	16	0	
Bondager's board in harvest when reaping			0	10	0	
301 days at 10*d.* (for those who work full time)			12	10	10	
Earnings of bondager to the hind			£14	16	10	14 16 10
Gross total paid to a hind for his own wages and his bondager contract					£44	8 0½
Deduct the cost of the bondager contract to the hind:						
From 10*l.* to 12*l.* 10*s.* per annum for wages			£12	10	0	
Board for 50 weeks at 5*s.*			12	10	0	
For lodging, washing, and incidental expenses			2	12	0	
			£27	12	0	27 12 0
A hind's nett wages are					£16	16 0½

and a house and garden free and coals carted.

No. 2.—MARKET VALUE TO FARMERS OF THE GENERAL RATE OF WAGES IN CASH AND KIND.

50 bushels of Oats at 3*s* 2*d.*			£7	18	4	
18 bushels of Barley at 4*s.* 7¼*d.*			4	2	10½	
6 bushels of Peats at 5*s.*			1	10	0	
"Sheep, pen, and lint money"			5	0	0	
Substitute for a cow's keep			6	0	0	
Substitute for 1500 yards			5	0	0	
And substitute for a month's food in harvest			1	0	0	
Hind's wages on some farms and perquisites for house, garden, and coals carted, &c.			£30	11	2½	30 11 2½
Money paid to hind for his bondager contract:—						
12 days in harvest at 3*s.* and board			£1	16	0	
Bondager's board			0	10	0	
223 days at 1*s.*			11	3	0	
78 days at 10*d.*			3	5	0	
Earnings of bondager			£16	14	0	16 14 0
Gross total paid to a hind for his own wages and his bondager contract					£47	5 2½
Deduct the cost of the bondager contract:—						
From 10*l.* to 12*l.* 10*s.* per annum for wages			£12	10	0	
Board for 50 weeks at 5*s.*			12	10	0	
For lodgings, washing, and incidental expenses			2	12	0	
			£27	12	0	27 12 0
Balance					£19	13 2½
And perquisites of house and garden free, and the cartage of coals						

No. 3.—MAXIMUM RATE OF WAGES IN CASH AND KIND.

5 loads of Oatmeal, equal to 50 bushels of Oats, at 3*s.* 2*d.*			£9	18	4	
24 bushels of Barley, at 4*s.* 7¼*d.*			5	10	6	
6 bushels of Peas, at 5*s.*			1	10	0	
"Sheep, pen, and lint (Flax) money"			6	0	0	
Substitute for a cow's keep			7	0	0	
Substitute for 1500 yards of Potato drills			5	0	0	
Substitute for a month's food in harvest			1	0	0	
			£33	18	10	£33 18 10
Hind's wages and a house and garden, and coals carted.						
Money paid to the hind for his bondager contract:—						
12 days at 3*s.* and board			£1	16	0	
Bondager's board for 12 days			0	10	0	
Carried forward			£2	6	0	
Brought forward			£2	6	0	33 18 0
223 days at 1*s.*			11	3	0	
78 days at 10*d.*			3	5	0	
Earnings of bondager			£16	14	0	£16 14 0
Supposed gross total paid to a hind for his own wages and his bondager contract						£50 12 10
Deduct the cost of the hind of the bondager contract:—						
Supposed maximum rate of bondager's wages			£12	10	0	
Board for 50 weeks, at 5*s.*			12	10	0	
Lodgings, washing, and incidental expenses			2	12	0	
Cost to the hind of the bondager contract			£27	12	0	27 12 0
Thus						£23 0 10

and a house and garden rent free, and coals carted, is the market value to farmers of the maximum rate of payment.

Societies.

ROYAL DUBLIN:—*The Prevalence and Prevention of Diseases amongst our Domestic Animals in Ireland.* Professor Gamgee, of Edinburgh, lately read a paper on this subject before this Society, and from it we make the following extracts:—

On Pleuro-pneumonia.—If we notice the progress of this disease in Prussia, Mecklenburg, Hanover, Belgium, Holland, and Schleswig-Holstein, we find it not pervading the breeding districts which are exporting for the supply of those who fatten for the butcher, but in the districts where stall feeding is carried on—where extensive distilleries, sugar manufactories, starch makers, &c, supply a rich and even wholesome refuse for the feeding of stock bred elsewhere. The animals have been bought up by dealers, sold and re-sold, and no sooner are they in the feeders' hands than pleuro-pneumonia appears. Here they are usually inoculated, and with far better result than I believed before visiting those countries this year. In Mecklenburg, Schleswig Holstein, Oldenburg, and that group of Dutch islands included in the province of Zealand, as in various other parts I could mention, the disease appears in isolated spots. The governments of these countries at once proscribe the districts where the epizootic appears, and slaughter the diseased animals. In consequence of this they suffer very rarely and very little. The Dutch Government attempted the same system in Friesland. This province was clear of pleuro-pneumonia until the port of Harlingen became a centre for the exportation of cattle to Britain. Friesland then began to import cattle and imported disease. Why should Friesland have remained free from 1829 to 1842, during which time the provinces of Utrecht, South Holland and even Gröningen suffered? It then produced far more than its own people wanted. It exported, eastward and southward; it did not import a single head of cattle yearly. Stock was cheaper than in the Rhine provinces, and the Friesland dealer availed himself of the markets in the latter. The state of things now is precisely reversed; and the once pure Friesland is the spot in the world perhaps most polluted by pleuro-pneumonia in cattle. What Friesland is in Holland, we find Meath to be in Ireland, Fife in Scotland, and Norfolk in England. These are the large exporting counties for the meat trade, and they import largely to feed for the butcher.

The Foot and Mouth Disease.—Very similar remarks to those I have made regarding pleuro-pneumonia, apply also to the foot-and-mouth disease, or epizootic aphtha. I shall therefore refer to these diseases in Ireland together.

Investigations as to the prevalence of these contagious disorders in Munster, show that they have nearly deserted Clare; they rage in Cork, Limerick, Tipperary, and Waterford. Dairy stock in Limerick is annually destroyed by these diseases to a large extent, and owing to the weekly and monthly purchases to keep up the supply of animals for the supply of milk. One gentleman alone lost 37 cows in 1853; 18 in 1855, 20 in 1860, and 30 in 1862, out of a stock never exceeding 200 head. This is one of many instances equally startling. County Cork, that was the first affected, and has always suffered severely since, affords us excellent examples of special breeding districts or breeding farms, which have never been visited by the disorder, or which have suffered but once, and that owing to the purchase of diseased stock. The stock-owners of counties Carlow, Kilkenny, Longford, and Queen's County have not, however, the yearly losses to record by contagious disorders, that interfere so much with the graziers and stall-feeders of Kildare, King's County, Louth, Meath, Dublin, and Wicklow. Dublin has suffered more severely and constantly than any other part of Ireland. This city supplies us with the same facts that may be obtained in any of the large towns of Britain. Cow-feeders own stocks that are dying off or slaughtered diseased, at the rate of 60 or 70 per cent. annually. I never heard more startling revelations than those made by some of the Dublin cow-feeders, when I was here in the summer. I might be tempted to enter into greater details, but I would occupy your time much longer than I can in reason wish. I must mention, however, that contagious diseases in Ireland induce annually quite 50 per cent. of the total losses by disease. In some of the districts I have referred to, fully 70 or 80 per cent. of the total of deaths result from pleuro-pneumonia. These contagious diseases are kept up by the trade in diseased animals, by the farmers purchasing calves from dairies in towns and elsewhere impregnated with disease, and also by a considerable yearly importation of calves from the great centres of disease—viz., the dairies of Liverpool, Manchester, Birmingham, Bristol, and elsewhere.

Quarter Ill.—If within the last 20 years contagious diseases have been very ripe, during that period the extermination of more enzootic disorders has been observed, owing to improvements in agriculture, and especially to the extension and thorough drainage of land. But the forcing system, on the other hand, has led to the development of diseases of a different and very fatal nature, which occur here and there quite unexpectedly, and sap the resources of the country as much as they puzzle the suffering farmer.

Widely disseminated over the world, we have soils which are fertile but damp, on which the rearing of young stock is always attended with great danger. The disease developed in these soils is the anthrax, or carbuncular fever of continental authors; the black leg, or quarter-ill of this country. In every climate the disease appears. It has been observed in the Polar regions, as in Lapland and Siberia; it prevails also in the temperate and tropical zones. I find in Ireland and in Scotland that it is chiefly witnessed in valleys along the base of mountains, where the pastures are rich but damp,

the soils stiff and retentive. It is, however, seen on the highest portions of the Grampians and Pentland Hills, on the mountains of Wicklow and Mourne, as in those of Kerry, Donegal, and Mayo. The countries in which human beings are most subject to ague, are also those in which the quarter ill of cattle is most malignant, and though this disease prevails widely in the three kingdoms, we find it far more dangerous and destructive in southern Europe. During the progress of the disease there the development of an animal poison is noticed, capable of inducing the malady in all warm-blooded animals and malignant pustule in man This virus develops in some countries, such as our own or France, only in the warmer months, and more rarely in the coldest and driest districts, in which the disease can appear. Closely allied to black-quarter, and belonging to the class of carbuncular affections, according to Continental authors, we have the fatal braxy of sheep; the destructive hog cholera, or blue sickness; the blain, or glessanthrax of cattle. Though these diseases prevail to a frightful extent in Ireland, and especially the hog cholera and black-quarter, they are more easily prevented here than on the majority of soils. There are no vast marshes or fens, the bogs are, for one reason or other, not insalubrious, and we find that, generally, animals must be predisposed to disease by being badly kept in winter, and then suddenly changed from bare to luxuriant pastures, in order to develop the malady. A judicious system of management would certainly put a stop to quarter-ill and the hog cholera whenever they appear. They are diseases which prevail extensively in Munster. The hog cholera devastates more or less every county in that province, and losses of 20, 30, 50, and 80 per cent. have been reported to me by many. Black-quarter is also rife. It is rare in the lightest and most porous soils of Tipperary, and is not so common in Waterford or Cork as in Clare, Limerick, and Kerry. I shall not detain you by special reference to such diseases as red-water or blood murrain, the dry murrain, &c, which are very generally distributed over the whole country. I have to notice, however, that in districts where black-quarter once destroyed many yearlings there is now splenic apoplexy. It is a disorder incidental to plethora or fulness of blood, attacking animals that are being fattened for the butcher, and destroying the majority of such animals when it appears on a farm. One farmer in County Meath told me that he lost many cattle to which he was allowing 4 stones of Mangels and 14 lbs. of artificial food daily. This farmer also said that Dublin was close at hand for the diseased stock to be sent to. I have known a large number of animals, seized with this fatal disease, sent forthwith to butchers in large towns; but within the last two or three years we have discovered that the flesh of these animals is very unwholesome. One of my students reported, in 1860, that a pig having eaten of the abdominal contents of a cow that had died of splenic apoplexy, was seized with symptoms of a putrid fever, and died. This year I had occasion to publish a report from Mr. Aris, of Wellingborough, in which he said, 'Pigs die rapidly after eating any of the offal of the diseased animals. I attended a very valuable mare which had died with all the symptoms of the disease, and she had been employed to draw one or two dead carcases out of the yard. I have great reason to believe she became infected from the diseased animals.' Professor Simonds also this year witnessed similar accidents from the blood of cattle suffering from splenic apoplexy having been thrown into a yard where pigs ate it and died. Dogs were affected in a similar manner. These observations are confirmed by those of many Continental veterinarians, and I think all will admit that we should not suffer the carcases of animals to be sold as human food, when the blood of these animals can poison pigs and dogs. The disease is one that can be entirely prevented, and the losses need not be severe if professional aid is sought when the malady first breaks out on a farm. Preventive measures must be adopted, as, when the symptoms of the disease appear on an animal, death is almost a certain result. Splenic apoplexy, like black-quarter, seizes the finest animals of a herd, and lays them low in from four to 24 hours.

Diseases of Pigs.—I have noticed the hog cholera, that dreaded distemper which has raged this season, and for many years past, with the intensity of a plague; but in its influence on the human health, the malady well known in Ireland by the name of measles is far more injurious.

It is essentially a disorder of this division of the United Kingdom. It is unknown in Scotland and England in the wide-spread form it prevails here. But it must not be supposed that the disease has not undergone changes with improvements in agriculture. In some parts of Ireland measles has been on the decline; in others it has remained stationary. It has been exterminated in those districts and counties where farmers rear large numbers of pigs on wholesome farm produce, and keep them amongst the animals of the farmyard. If, however, we go through Tipperary, Limerick, portions of Cork, and other counties, we see swine living with human beings. They enjoy freedom around the cottage, of which, according to an old Irish saying, they are the real tenants. They devour all filth, and, amongst other matters, human excrement. They swallow the ripe joints of tape-worms, and the ova of these develop into the cysticercus cellulosæ, the measles found in thousands distributed over the whole muscular structures of the pig. So thoroughly has the system of utilising diseased flesh as human food become established in this country, that respectable firms employ "measle-triers" to detect the measly pigs out of a lot bought in market, so as to claim a reduction on them. They cure them, and sell them at the small reduction of 3s. a flitch. From the open condition of the textures of these diseased animals, they pickle well, they are never tainted, and English bacon-dealers apply regularly for measly bales of bacon. Let it not be supposed that these parasites are destroyed by the pickling process. Fortunately myriads of them are destroyed in the process of cooking; but unfortunately there are many people, far more than any non-professional person would imagine, who acquire a morbid taste for underdone or raw food, especially pork, whether pickled or otherwise, and they rarely fail to suffer in consequence. A gentleman having great experience in the bacon trade, assured me that when the famine in Ireland stopped the supply of pigs for the English bacon factories, and they had to buy English pigs, they found no measles. It was rare to meet with a measly pig. They invariably got animals thus diseased from Ireland. Many of you here will have greater experience than myself regarding the districts where pigs are kept singly by the poor, and where they are chiefly enclosed in farmyards. As a rule, measles will be found to prevail in the first and not in the second. Is it not frightful that three per cent. of the Irish pigs should be affected with this loathsome disease?

The mortality amongst cattle in Ireland varies from 2 per cent. in a few districts, to 12 per cent. in others. The average over Ireland is never less than 5, and some years exceeding 7.

This is the loss by fatal disease, but as all farmers are aware, a heavy loss is incurred annually by maladies which do not kill, but which deteriorate the condition of stock, and lead to greater loss of time and food. This is the case when the epizootic aphtha prevails, as it has done of late. This loss cannot be calculated at less than one per cent., so that I am sure I am not overstating the yearly loss when I declare that it attains in Ireland, from all causes, 6 per cent. The last return shows that there are 3,250,396 head of cattle in Ireland, of which, therefore, there is a loss in round numbers of 195,024. A very careful study in the losses in cattle has led me to determine that it is the best stock that is destroyed, so that it is fair to calculate the value of the animals lost at the average value of the total stock. Mr. Donelly's valuation of 9*l*. for a head is not a correct one. It is very much below the real average value; nevertheless, even accepting that the lost animals be on the average not worth more, Ireland loses 1,267,656*l*. annually by losses amongst cattle alone. We are far nearer the mark if we value the dairy, grazing, and stall-fed stock, amongst which the largest amount of loss is sustained, at 12*l*. per head, and that gives a total loss of 2,340,288. Of that loss in this country, 60 per cent. is the result at present of contagious disorders. The average loss on sheep, over the whole country, is not less than one per score; it often exceeds this. The loss in money amounts to 190,173*l*. The lowest estimate I can make of the mortality amongst pigs in Ireland is 10 per cent. Were I to listen to the statement of losses amounting to 50 and 60 per cent. over wide districts, I would have to double that estimate. But, on the most moderate calculation, Ireland loses annually, in round numbers, 150,000 pigs, amounting in value to 187,500*l*. Taking the Registrar General's calculation of the value of the stock of the country—viz., 38,204,325*l*., we have an annual loss on it of 1,645,329*l*. I consider this to be far below reality, and if we take my valuation of the cattle at 12*l*. a head, the annual loss amounts to 2,718,961*l*. I have no doubt there are those who will think that there must be some mistake in all this; but any one devoting himself to the collection of statistics on the subject will find that I am much below instead of above the real loss which Ireland annually sustains from disease amongst cattle. I unhesitatingly affirm, that 50 per cent. of the loss I have alluded to could be saved within a couple of years of the active working of a scheme intelligently framed for the prevention of disease. The working of such a scheme, though expensive, would amount to a mere trifle in comparison with the loss. Recent calculations would indicate that the expenditure would amount to about 2 per cent. on the smallest estimate of annual losses. Any scheme adopted must aim at suppressing the traffic in diseased animals and the sale of diseased meat, affording advice to the stockowners when disease appears, and studying carefully all the facts relating to the prevalence and causes of enzootic disorders, with a view to suggest preventives. The stockowner must and can be protected by timely advice and co-operation. It would be absurd to say to him—we care not if you are ruined, but we shall not permit you to sell your diseased animals. This would materially tend to increase the yearly deficiency in the breeding of stock, which it is so important should increase in proportion to our wants. How such a scheme is to be worked out, it is at present premature to say. I am anxious that the evil existing should be exposed; that instead of permitting a system adopted as the best of bad ones by the farmers to keep, all secret, we should have everything open and above board. No enemy is more dangerous than one that is invisible. At present the general impression is that there is no serious cause for taking into consideration the losses resulting from disease in stock. These losses are not recognised as they should, as exerting a great and bad influence on the nation; and the capitalists who swell the mass of diseased meat sold to the public, by disposing, when occasion requires, of their diseased stock, are individually desirous that this vast subject should not be broached. When the Potato crop fails, the peasant's family is deprived of its humble but sufficient meal. The starving poor appeal to our sympathies, and the whole kingdom is anxious to find a remedy for such a disaster. But if Ireland does lose between two and three millions sterling annually by disease in cattle, the poor are affected indirectly, though with equal certainty. The real cause lies hidden and escapes observation. No effort is made to counteract it. Prevent that loss and you will soon find the yearly decrease in the production of stock converted into a decided increase. The farmer's income will be augmented, the labourers employed will be in greater number, and the landlord's rent paid with regularity. This great question concerns Government, as it involves the protection of the best property we have—the produce of our fertile soil. Past Governments have unwittingly led to a deterioration in the value of that produce. Free trade in stock has been an experiment which has injured every country that has tried it, unless regulated by laws based on a thorough knowledge of the nature of contagious disorders. Let the public state, in unmistakable terms, that it wishes wholesome food for its honestly acquired gold—let the farmer plainly assert that he must be ruined, unless he be permitted to dispose of his diseased stock to the butcher, and, with these points clearly before us, the remedy can be applied. It is a remedy that has been most successful elsewhere, and it consists in applying Veterinary knowledge to the prevention, rather than to the cure, of disease—in having able men to investigate at any moment the causes of mortality amongst stock; and, fortunately for us all, the diseases of the lower animals are simple in their nature, and their prevention is certain. My suggestion, therefore, is, that the public should manifest an interest in the matter, combine, if you like, and show a readiness to assist Government in any scheme sufficient to meet the evil, provided that scheme be for the good of all. If you are incredulous as to the possibility of preventing all the diseases I have alluded to, hesitate not to prosecute inquiries, to attempt experiments, and then aid in suggesting good measures if others propose bad ones. I invite you not to be deceived by the treacherous appearance of the surface of things. Face manfully an inquiry into the whole subject, and do this with a determination to further, by all means in your power, the interests of the farmer and of the general public. I do believe that the highly educated and intelligent men likely to influence the Government in those matters will do so in a manner calculated to effect much good; but in this country, fortunately, the voice of the people is listened to, and I sincerely trust that after these few words of caution, the feeling manifested by the agricultural community will be in favour of an uncompromising attitude against all who seek to blind themselves and others to the realities of the case, and are inclined to let matters take their course as for the past. I am not an advocate for coercive measures. I want to work out a remedy. That remedy is discovered so soon as you have established the nature of prevailing diseases and their causes.

Mr. GANLY, salemaster, said that beyond all doubt the disease called pleuro-pneumonia existed to a very large extent in Ireland, and the great question was how to prevent it. He would take that public opportunity to say, that unless some means were devised to give some compensation to the farmer for his diseased stock, it was impossible to prevent him from selling it, or the butcher from buying and selling it. Unless some society or some organisation were devised for the prevention of the spread of disease by purchasing the diseased animals, diseased meat would be sold, and bought, and killed, and eaten. As there was no use in mincing the matter, he would say for himself and his brother salesmen, that every one of them sold diseased cattle, and under existing circumstances they must continue to do so. The farmer had no remedy, he should sell his unsound cattle as well as his sound stock to enable him to pay his rent; for the disease was so prevalent that he could not live were he to submit his cattle to destruction without some payment for it.

The Hon. JOHN P. VEREKER, Lord Mayor Elect, thought that the subject of compensation for diseased stock should be approached with great caution, so that it would be the farmer's interest to prevent the spread of disease, and the producer was bound to submit to the loss, more especially if he were negligent in guarding against disease. The legislature was bound to prevent the extension of disease, and, in case a great loss should fall on the owner of stock, it would be proper that some compensation should be made to him.

Reviews.

The Journal of Agriculture, and the Transactions of the Highland and Agricultural Society of Scotland. No. 79, January, 1863. Blackwood.

The current Number of this Quarterly Agricultural Journal contains extremely interesting notes by Mr. MacLagan of Pumpherston, during an Italian tour, notes on Cattle Feeding, Liquid Manure, &c.; papers on the Evils of Excessive Pasture Land; on Hiring Markets; on the Smithfield Farmers' Club, &c.; Reports on the Agriculture of Berwickshire; on Improvements in Wigtownshire; on Top-dressing for pastures; on the Cultivation of the Willow; on the Larch Disease; on the Edinburgh Veterinary College; and on the proceedings in Dr. Anderson's Laboratory.

Many of these papers are exceedingly full of information and guidance, but bear too much the character of literary efforts with less of history, description and report than of argument and illustrative rhetoric. This character does not belong to Mr. Sanderson's valuable report on Berwickshire agriculture, which, continued from the last Number of the Journal, is an admirable example of what an agricultural report should be. We extract a passage from the former part of his essay, descriptive of a Berwickshire experience in the use of Liquid Manure:—

"The following successful results from liquid manuring and soiling were obtained last season (1860) on the home farm of Milnegraden. The gross produce was Italian Rye-grass—the yield of a field of 7 acres.

		Expenditure.	Returns.
Ploughing 7 acres, at 10s. per acre	..	£3 10 4½	
Sowing, harrowing, and rolling ..	..	2 2 0	
21 bushels seed, at 6s 6d per bushel	..	6 16 6	
7 cwt. Peruvian guano, at 15s 6d	..	4 14 6	
210 tons liquid manure not charged	..	0 0 0	
Cost of 1st cutting, £4 7s. 4½d. — Coal for engine, 3 days	..	0 9 4½	
Cost of 1st cutting, £4 7s. 4½d. — Engineer, 3 days, at 3s. per day	.. ..	0 9 0	
Cost of 1st cutting, £4 7s. 4½d. — Working horse, 3 days, at 3s. per day	.. ..	0 9 0	
Cost of 1st cutting, £4 7s. 4½d. — Cutting and carting home Grass	.. .. ..	3 0 0	

1st cutting, 82 tons 7 cwt., consumed as under:—

		Tons.	Cwt.		
From 23d June to 21st July.	19 West Highland Cattle	41	10		
	44 Sheep	24	2		
	8 Horses	22	15	at 20s. p. st.	£17 0 0
	6 Cows	5	0	do.	6 13 4
	Total consumed	82	7		

2d Cutting, 104 tons 7 cwt., consumed as under—

		Tons.	Cwt.		
From 21st July to 25th Aug.	26 Cattle*	33	10		
	44 Sheep	11	15		
	8 Horses	7	7	..	9 16 8
	6 Cows	1	15	..	2 6 8
	Total consumed	104	7		

3d. Cutting, 59 tons 13 cwt., consumed as under—

		Tons	Cwt.		
From 15th Sept to 13th October.	16 cattle	54	0		
	8 horses	5	13	..	7 15 8
	Total consumed	59	13		

4th. Crops consumed on ground as under—

46 sheep for 3 weeks at 6d. each week	.. ..		..	3 9 0
Rent of the above 7 acres	..	£14	0 0	
Poor rates	..	0	10 6	
Cost of 2d and 3d cuttings	..	8	14 9	
10 West Highland bullocks put into feeding byre, 18th June, cost 14*l*., sold 31st August for 18*l*. 10s., leaving a profit of	..		..	45 0 0
16 Cross-bred bullocks put into feeding byre 18th July, cost 13*l*. each, valued 13 October at 18*l*., leaving a profit of	..		..	82 0 0
44 Sheep 10 weeks in pens, cost 27s., sold at 34s., leaving a profit of	..		..	15 8 0
		£44 15 7½		£187 3 8
Deduct expenses	..		..	44 15 7½
Nett profit	..		..	£142 8 0½

"For this detailed account the writer is indebted to Mr. Bardner, manager of the farm. The yield of Grass appears to be extraordinary, but it ought to be remembered that Italian or any Grass is very weighty when newly mown. The nett profit from 7 acres is also extraordinary, and could have been obtained by no other means than by the soiling of cattle. Liquid manuring and soiling, to be successful, must be associated, for the one is as closely connected with the other as seed time and harvest. On Grasses alone is liquid manure of any use, for to apply it to cereal crops it is generally injurious, and where it is not the soil must be exceedingly poor and badly managed."

Of course a statement of this kind is open to a great deal of question and criticism, but it is plain from it that Mr. Bardner believes that, in his experience, liquid manure has been a profitable application; and *that*,

* On 18th July, 16 cross-bred bullocks were added to the foregoing 10 West Highlanders.

in these days of incredulity on the subject, is a noteworthy fact.

Notes of an Agricultural Tour in Belgium, Holland, and the Rhine. By Robert Scott Burn. Longman & Co.

Mr. Scott Burn has visited Belgium and Holland on three separate occasions, in 1859, 1860, and 1862 He has each time taken every opportunity of examining the peculiarities of the agriculture of the country, and has thus qualified himself as a guide to all succeeding agricultural visitors, as well as to those who must be satisfied with reading their report at home. The reader of Mr. Burn's account of what he saw will find full information given him on Flax culture, on the management of manures, on spade husbandry, on the Beet sugar manufacture, and on many other agricultural peculiarities of the country visited. The following is a passage on the manufacture of oil-cake:—

"The oil-mills form a very important part of the agricultural industry of Flanders. Almost every village has an oil-mill either attached to an ordinary corn-mill, or forming a mill, devoted entirely to the business. These mills are generally worked by wind-power, although, in the neighbourhood of large towns, as that of Bruges, there are mills worked on an extensive scale by water and steam. The owner of the mills offers every facility to the grower of the seed to convert it into a marketable article, either by purchasing the seed at its market value, by exchanging for it oil-meal or oil-cake, or, lastly, by crushing the seed at a stated price, returning both the oil and the cake, or selling the former to account of the grower. The process of crushing the seed to obtain the oil and the cake is a very simple one. The seed is, in the first place, bruised or converted into meal by means exactly similar to those employed in bone-crushing, a large circular stone, 5 to 5½ feet in diameter, and 14 inches wide or thick in the edge, being used, which has a double motion—one on its own axis, and another round a circular table on which the seed lies to be crushed. A shield revolves with the crushing-stone, the duty of which is to move the meal from the outside of the table towards its centre, so that the stone will keep always passing over it. The meal, when thoroughly prepared by this crushing process, is heated in a circular vessel, placed upon an iron plate, heated by a small furnace, in the interior of which a stirrer has a slow revolving movement, the effect of which is to keep the meal in motion while being heated, much in the same manner as if it were kept constantly mixed by the hand. By the side of the furnace two funnel-shaped receptacles are placed. These are without bottom, and the width of the lower aperture is equal to the width of the oil-cake which is to be made, or thereabouts. Two long flannel bags are suspended beneath the apertures, and are filled by throwing in the meal from the heating vessel into the funnel-shaped receptacles. The bags are then taken and spread evenly out on one end of a piece of thick felted material, the length of which is rather more than double that of the bag containing the meal. When this is spread evenly out, the thickness is somewhere about an inch and a half. In other cases the thickness is much greater than this. The piece of felted material, which is ribbed or barred transversely on its surface, is then doubled over, the bag containing the meal being thus placed between two surfaces. The centre part of the felted envelope, which we may here term it, is provided at the outside with a handle by which it can be lifted up and dropped into its place in the pressing-mill. This part of the apparatus, like the rest, is of great simplicity. Imagine a strongly-constructed table, in the centre of which a narrow 'well' is made running along its extreme length. In this a series of wedges or blocks of wood are placed, and in the centre a larger wedge, which is driven down by a heavy pile, or long piece of timber, which has a reciprocating up-and-down motion given to it by simple mechanism. At each end of this 'well,' above described, a felted envelope is placed containing its bag of meal. The thickness of these is such as to allow only of the thin edge of the central wedge being admitted between the blocks of wood which press upon the felted envelope. The machinery is then put in motion, and the beam gives a succession of blows to the wedge, which in a few minutes is driven hard up till its upper surface is flush, or nearly so, with the surface of the table. The enormous pressure to which the envelopes and their contained bags of meal are subjected, expresses their oil, which passes through the lower part of the 'well' to vessels placed underneath to receive it. The central wedge is removed or started from its position in which it is so firmly fixed, by a second beam giving a few blows to a second wedge, but the edges of which are cut in a reverse direction. As this passes down, the blocks of wood slide up the inclined sides of the wedge, and allow the central wedge to start. The felted envelopes are then removed, and the residue of the meal taken out of the bags, which present the well-known appearance of oil-cakes, their ribbed surfaces being produced by the uneven surface of the envelopes, to which we have before alluded. Their rough edges are then trimmed up by passing them along a knife fixed near the furnace which heats the meal. They are now ready for use. The meal is sometimes put through two processes—the first extracting a certain quantity of oil, the second finishing the cake. By the addition of this extra labour, comparatively little in amount, a larger per-centage of oil is obtained, or, if necessary, the cake may be made richer in oil by stopping the 'expression' after the first process. A ton of seed can be reduced to oil and cake in a day, by an expenditure of about four horse-power, the cost, where steam-power is used, being about 30*s*. Large farms are sometimes, we believe, provided with a simple crushing apparatus, in which the seeds are, in the first place, crushed by stampers, the lower ends of which are shaped to correspond with the bottom of what may be called mortars hollowed out in a solid block of hard wood. The stamping apparatus for extracting the oil is on the same principle as that already described. This apparatus costs about 20*l*., and is capable of crushing about 7 cwt. of seed a day, at the rate of about 5*s*. per ton."

The account which Mr. Burn gives of Flax culture in the districts where it is best managed is very elaborate. In fact the whole book is a complete and satisfactory guide to the agriculture of that district of all others on the continent where there is most for the English agriculturist to learn.

Farm Memoranda.

NORTHUMBERLAND FARM.—Another year has passed away, and though wanting in those essential characteristics of the season—frost and snow—January has once more come round, and with it mild, open, May-like weather. Whilst taking up our pen to report the agricultural operations on this farm during the last month of the year, never do we remember having more scanty material to work upon, owing to the similarity with the agricultural phenomena of November, and to the unchecked progress of the ordinary routine of labour. During December we have been visited by very severe storms, which did considerable damage to the hay and corn stacks, whilst rain fell in copious quantities as they abated. Frost here (near the sea) has scarcely been perceptible, and as to snow, we have seen none.

Crops.—The young Wheat plant, though at first very tardy in growth, now presents a most satisfactory appearance, and when drilled in a fine and dry seed-bed, exhibits no injury from excessive wet. Circumstances have permitted the regular pulling of Swedes and other roots, to such a satisfactory extent, that by the 10th of December we finished Wheat sowing, the remaining portion of Turnip land being intended for Barley. Swedes, though a regular crop, are pulling off very small in the root and considerably seeded, whilst White Turnips are a very average crop. Much benefit has been derived from the tops and small Turnips being carted on to the old Grass and Clover leas, and, owing to the unusually open weather, young stock have been able to go out and eat them up, thus economising the winter food to a very great extent.

Labour.—Carting Turnips home, and ploughing, with the addition of the ordinary process of threshing, may be represented as the labour of the month. Most of the stubbles are turned over, and the draughts are rapidly finishing lea-ploughing (for Oats). This latter is ploughed with a furrow of from 5 to 6 inches in depth, in large breaks, and will then be drilled across; thus avoiding so many open furrows, which are so obstructive to reaping and other modern machinery. Some small portions of manure have also been carted out, but the bulk of it must wait for a hard frost to bear the carts on the arable land; besides this, carting stone for roads, ditching and hedge-cutting may be said to complete the labour account.

Stock.—Feeding bullocks in boxes and yards have seldom been known to make greater progress; they are now being fed on sliced Swedes, at the rate of 9 stones (of 14 lbs.) per day in the boxes, and 13 stones in the yards, with the addition of Oat straw, hay, and Bean meal; these results speak volumes in favour of box-feeding, where the economy of food is an object. The grazing stock are still able to run out over old Grass in the middle of the day, picking up tops and small Turnips, and receiving straw in the yards; the sheep stock are doing well on similar treatment, being thinly distributed over old Grass. Pigs, having been fed on boiled Turnips mixed with Beans and Barley meal, are now nearly all fit for the knife.

And now we must bid adieu to the year 1862, trusting that our Reports for 1863 may be of such a character as to represent the British farmer under more favourable pecuniary circumstances than it has been his fortune to enjoy during the past year. *J. W.*

Miscellaneous.

Wages in Berwickshire.—Married ploughmen occupy cottages on the farm, are engaged by the year, and receive wages partly in money and partly in kind, and which rate from 30*l*. to 40*l*. annually. In Kelso district, they only receive about 6*l*. of money, the rest of the wages being made up by Oatmeal, Barley, Peas, free house, &c. In the Merse, hinds' wages consist of—

10 bolls Oats, which, taking last year's price, amounts, at 22*s*., to	£11	0	0
4 bolls Barley, at 26*s*., to	5	4	0
1 boll Beans, at 17*s*. 6*d*., to	0	17	6
Potatoes	5	0	0
Sheep-money	5	0	0
Cow's keep	7	0	0
Free house, garden, and carting of coals ..	3	10	0
1 month's food during harvest	0	15	0
	£38	6	6

In Lauderdale, and in the western part of Roxburgh married ploughmen get 16*l*. of money, 65 stones of Oatmeal, keep of a cow, 1 boll of Barley, 1200 yards of land for planting Potatoes, free house, food during harvest, 1*s*. a day, and harvest wages for bondagers. This, altogether, appears to be the best regulated wages a ploughman can have. The cow is a great support to a family, while the owning of one tends to induce fixed habits in the owner. Meal and Potatoes are thus procured, too, at the cheapest rate, and as they are always needed in a family, they are in any case as good as money, while in the case of an improvident wife they are better, as they are retained for food, when otherwise money would be spent. Beyond the necessary food requirements which the farm produces, grain as wages instead of money seems unfair to a ploughman, as he is in ordinary circumstances entitled to the same reward for the same amount of labour. Unmarried ploughmen are also engaged by the year, and when boarded in the farm-house receive 20*l*. of wages; when they have a "double hinding" with their fathers, they receive the same "gains." Piece-work is entirely confined to the mowing of hay and drainage, day-work to the usual manual work on the farm; and this is not strictly day-work, as the workers (bondagers) are paid half-yearly wages by the ploughmen who board them, and these again paid the daily wages by the farmer. Without entering into the merits of piece and day work, a pretty extensive observation warrants the writer to say that the system, apart from boarding, of yearly or half-yearly engagements, is the best for employers and employed. A farmer to have his labour properly executed, and to be safe from those contingencies which result from sudden demands for, and a short supply of, labourers, must have in his daily employ, and have secured for the year, sufficient forces to meet the most urgent requirements of the farm. In Roxburgh and Berwick the bondage system is universal, and complaints against it are not so loud as in other quarters. The population being chiefly rural, and the employment rural too, many of the bondagers are the daughters or sons of the ploughmen. In such cases bondage is a blessing, as it not only secures employment for the families of ploughmen, but, along with this, these are kept under the influence of parental example and reproof, instead of being sent abroad on the world, away from the parental eye, and at a time when they are most susceptible of good or evil. Besides, the boarding of one bondager in the house of each ploughman is less objectionable than several young men and women being boarded promiscuously in the farm kitchen. Probably the only injustice to ploughmen, in connexion with the system of bondage, is, that the farmer does not free them from the risk of losing from paying unforeseen high wages, or an unexpected price for the bondagers' food. It seems only fair that the farmer should engage as well as pay the half-yearly wages to the bondagers, and likewise pay the ploughmen for the bondagers' board. In general the bondager receives 1*s*. for ten hours' work, and 10*d*. for short days in winter. Labourers get 15*s*. a-week. During the last 25 years wages have risen for married ploughmen from 25*l*. to 35*l*. a-year; the unmarried ploughmen having board from 15*l*. a-year to 20*l*.; women, either for house or farm work, from 5*l*. to 7*l*. 10*s*. the summer half-year, and from 2*l*. to 4*l*. the winter half-year; labourers from 10*s*. to 15*s*. a-week. The wages of stewards average nearly 50*l*. Shepherds have sometimes part of money and part of sheep for their wages, and sometimes only the "keep" of a certain number of sheep, and again frequently money and "gains." Shepherds' wages average about 45*l*. In general the ploughmen are sober and industrious and are skilful workmen, and generally faithful servants. Although recently more given to change, yet, on the whole, they are settled in their habits, and it is not uncommon to meet with a servant who has been 30 years under the same master. *Mr. Sanderson in Transactions of the Highland Society.*

Calendar of Operations.

JANUARY.

[The following passages are extracted from *Morton's Farmer's Calendar*. Routledge.]

Of Sowing Operations. Wheat.—"The common rule to avoid sowing Wheat for a month or six weeks about Christmas time, dependent for its authority solely upon the usual condition of the land, expires some time in this month. But whenever the land is not sodden with water, or will not poach under the horses' feet, Wheat may be sown. Its usual seed time is October and November, and then the character of its different sorts will be described. At present it may suffice to say that any of the common winter Wheats may still be sown. Later in the season, the Talavera, a hardy white Wheat, with a very loosely packed ear, but yielding well grain of good quality, is to be preferred. And, later still, the Red, Bearded, so-called April Wheat must be sown. In well-tilled and drained land, six or seven pecks are ample seeding for an acre through this and the following month. It should be drilled in rows from 6 to 12 inches wide, the harrows preceding and following the drill; and it is generally found to succeed best on a stale furrow—*i.e.* when sown some weeks after the last ploughing. *Oats.*—Early in this month, if the weather be open, it is well to examine such fields as are intended for this crop, and consider, if there be any apprehension of being full of business in February and March, whether it would not be well to lessen the work of those more busy seasons by sowing some Oats now. The temper of the soil must govern this, but it is necessary to know that Oats sown so early succeed well. This has been proved by ample experience. Though five bushels per acre are still a common, they are an unnecessary quantity of seed. Four bushels are amply sufficient, and when the land is in good tilth and in good condition, three bushels will be seed enough. *Peas.*—In the neighbourhood of London it is common

to sow Peas so early as this on light dry soils, which have been ploughed out of some corn stubble, cleaned and manured in autumn. The land is ribbed at intervals of 15 to 18 inches, with a small 1-horse plough—the seed, two or two and a half bushels per acre, is sown in these rows by hand, and covered in by a broad hand-hoe, which pulls down enough of the edge of each ridgelet to cover the seed, leaving enough to be a protection from frosty winds to the young plant on first coming through, or enough to furnish a second covering with earth if the weather becomes excessively severe. This early cultivation of Peas is for the early supply of Covent Garden Market with green Peas. (See February.) *Beans.*—The season must regulate the article of tillage in all cases, and it must suffice to say that the farmer ought to sow his Beans the first month his land is dry. Winter Beans are sown in autumn. But any of the common field sorts, Horse or Tick Bean, Heligoland, Longpod, Mazagan, &c., may be sown in open weather in January and February. Their cultivation is given in detail in the months of February and October."

Of Pastures and Meadows.—"The pastures may, if dry, be thinly stocked with the ewe-flock, which will eat down all last year's growth, and so insure the quality of next year's Grass; or they may with great advantage be folded over with either a breeding or fatting flock, fed on Turnips and hay-chaff, &c. brought to them. If wet, the feeding bare should have been effected with cattle in the autumn; no sheep being then allowed on them, nor any other stock in winter to poach the surface of the land. It is, however, wonderful to see on some poor light soils how the pastures may be trodden to pieces in winter time with cattle foddered on them, and come out all the better and the greener for the rough treatment in the following spring. When hard with frost, manure may be carried out to pastures which have already been eaten bare; also, as already said, on the young Clover, and spread. The first rains will on all drained lands, wash the soluble parts of the dung into the roots of the Grass, and thus provide them with food at the time when returning warmth is exciting them to life again. Water meadows are flooded during January, taking intervals of a day or two after every eight to ten days of flood, for the water to drain off and aerate the soil. The practical rule is to flood or 'float' until a scum appears upon the surface, and to avoid floating over ice if the frost should be severe enough to bind the land up in spite of the flowing water."

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. Spearing, Moulsford, near Wallingford, Berks, during the week ending Jan. 7, 1863.

Day of Week.	Day of Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Dry Bulb Thermometer.	Reading of Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0–6.	Amount of Cloud 0–10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday ..	1	29.07	50	49	S.W.	3	6	51	35	71*	32	0.01	43	45
Friday ..	2	29.55	42	40	S.W.	2	6	54	41	57	38	0.29	43	45
Saturday ..	3	29.64	35	34	S.W.	2	1	46	32	68	39	0.01	44	45
Sunday	4	29.36	38	37	S.W.	2	2	45	33	69	27	0.23	43	44½
Monday	5	29.19	46	45	S.W.	3	2	47	37	58	32	0.19	43	44
Tuesday ..	6	29.10	38	37	S.	1	8	48	34	50	29	0.80	43½	44
Wednesday	7	29.26	33	33	S.	2	6	45	32	56	29	0.54	44	44

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Notices to Correspondents.

Milk: *First Subscriber.* Milk from cows down with the foot and mouth disease has in cases within our knowledge proved injurious to pigs. The disease goes generally by the name of the distemper or "epidemic." It is not the "thrush."

Peas and Canadian Oats: *C D.* The Pea grown on Whitfield Farm was purchased, the seed in Gloucester Market, under the name of the Providence, and Mr. Cobbam (Whitfield, near Berkeley) can oblige "C. D." with 2 quarters (he cannot spare more) for seed. The Canadian Oats he can recommend as being very hardy. They were drilled last year in February; ripens very early, and is very productive. Straw medium length and very stiff, and therefore well suited for rich soils, as it is not easily laid by heavy rains.

Saddle Room: *A Subscriber* asks which is the best gas fire-place for a saddle room, with warm water to heat coach houses adjoining, and where it may be obtained?

Swine: *Young Farmer.* The disease is doubtless to be attributed to some undiscovered error in feeding the sows. Avoid roots; give boiled milk with half a pound each of Wheat flour, Bean-meal, and Linseed cake meal daily. If this does not succeed, add two grains of calomel and four grains of opium, and give three times with a day's intermission between each dose.

Washing Machines. Messrs. C. Brown and F. Witz, of Switzerland, and D. Parkes, of the United States, received medals. We do not see any award for the washing machines of English makers.

FOWLER'S

STEAM PLOUGHING AND CULTIVATING PATENTS.

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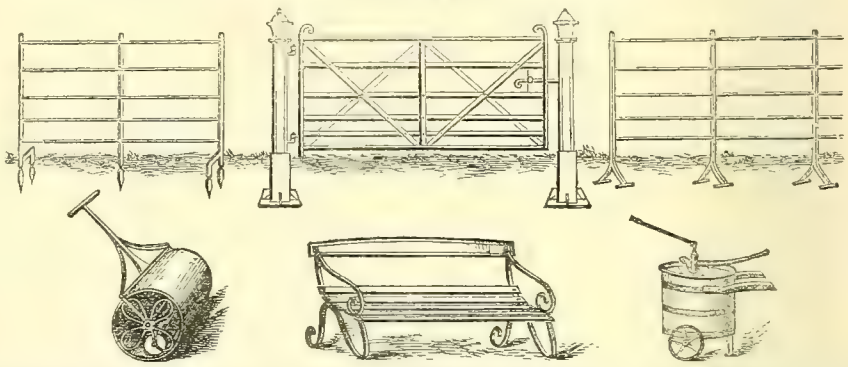
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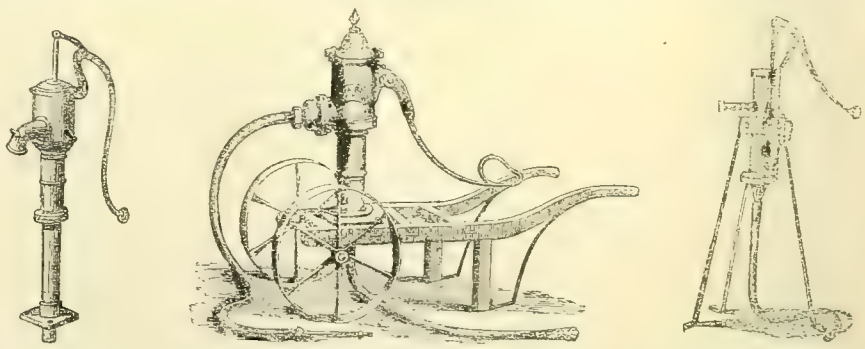
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No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... ... £1 1 | 2½ inches ... ... 3 feet 3 inches high £1 10
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0
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No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0
1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4
2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 8*s.*) 3 0 0
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Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

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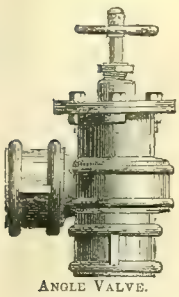
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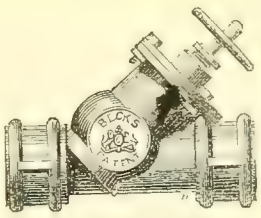
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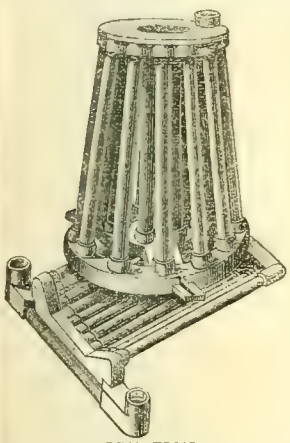
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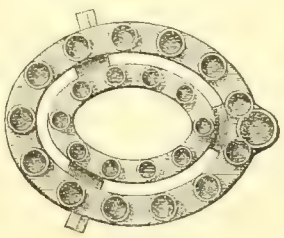
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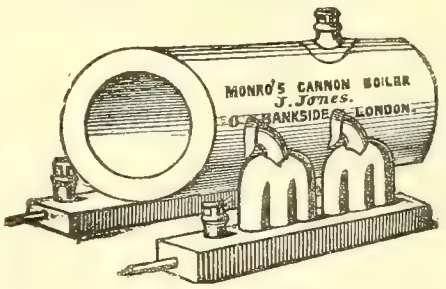
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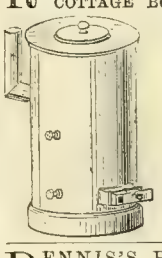


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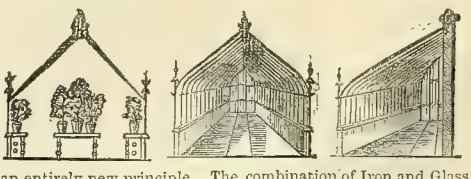
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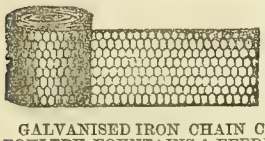
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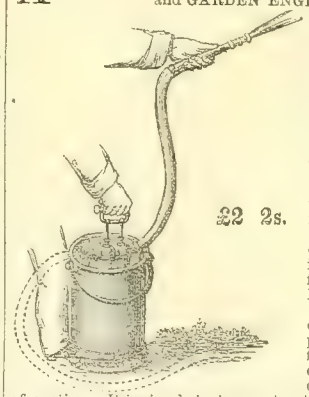
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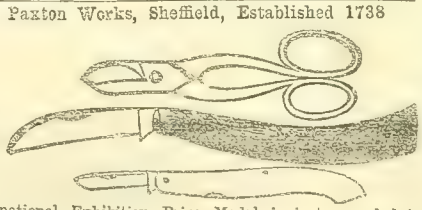
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ESTATE DRAINAGE. — HORTICULTURAL ALTERATIONS Planned, Superintended, and carried out. For the Advertiser's style, see Horticultural Innovation, p. 1172, *Gardeners' Chronicle*, Dec. 13, 1862.

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Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY January 10, 1863.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 3.—1863.] SATURDAY, JANUARY 17. {Price Fivepence. {Stamped Edition, 6*d*.

INDEX.

African trees	54 *c*	Orange trees	55 *a*
Colonial timber clearing	56 *a*	Peaches in South America	55 *b*
Conifers, grafting	51 *c*	Plums	54 *b*
Cottages, construction of	58 *a*	Pounciana Playfairii	52 *b*
Dairy farming	61 *c*	Rabbits	60 *c*
Dies Orchidianæ	54 *a*	Rainfall	51 *c*—54 *c*
Dove on Storms	55 *c*	Salsafy, culture of	53 *b*
Drainage Act	59 *c*	Seed sowing	57 *b*
Exhibition, Agri. International	57, *c*	Sewage, town	60 *b*
Farms, Morton on Royal, rev.	61 *a*	Sparrow clubs	62 *b*
— South Hants	62 *a*	Storms, law of	55 *c*
Fruits, seedling	51 *a*—65 *a*	Stoves, dry	55 *a*
Gardeners' Royal Benevolent Institution	54 *c*	Technicalities	55 *a*
Grafting Conifers	51 *c*	Timber clearing, colonial	56 *a*
Grape growing in Norfolk	55 *b*	Tithe commutation	62 *b*
Grates, smoke consuming	59 *b*	Trees, African	54 *c*
Hue and cry	52 *b*	Vancouver Island	55 *b*
Nice, gardens at	54 *c*	Veterinary Manual, rev.	61 *b*
		Weather of 1862	52 *b*

☞ *An Edition of the* Gardeners' Chronicle and Agricultural Gazette *is published on Monday Afternoon at 4 o'Clock, containing full Reports of the Mark Lane and Cattle Markets, written expressly for the Paper.*

ROYAL HORTICULTURAL SOCIETY.
FRUIT COMMITTEE.

A Special Meeting of the Fruit Committee will be held on WEDNESDAY, the 21st inst., at the Rooms, South Kensington, to decide upon the merits of new Black Hamburghs as compared with old Grapes of any other black variety. Chair to be taken at 12 o'Clock precisely. Packages to be addressed to
Robert Hogg, LL.D., Secretary to the Committee.

ROYAL BOTANIC SOCIETY of LONDON GARDENS, Regent's Park.

The First Meeting this year of the Fellows of the Society for the ELECTION of NEW FELLOWS and MEMBERS will be held at the Gardens, Regent's Park, on SATURDAY, January 24. The Chair to be taken at a Quarter before 4 o'Clock.

BRISTOL and CLIFTON HORTICULTURAL FÊTES.

The TWO SHOWS for the Season 1863 will be held at the Zoological Gardens, Clifton, as usual, on THURSDAY, May 21, and THURSDAY, August 27.

Schedules are now ready for delivery, and may be obtained on personal application to the Superintendent at the Gardens; or by letter addressed to the Honorary Secretary, R. Coles, Esq., 2, Lower Harley Place, Clifton.

JAMES ROBINSON, of Chiselhurst, hereby returns his most grateful thanks to all those kind friends whose VOTES have placed him on the LIST of PENSIONERS at the recent Election of the Gardeners' Royal Benevolent Institution.

Grape Vines.

B. S. WILLIAMS begs to intimate that he has a fine and healthy stock of the above from Eyes, including all the best varieties for Fruiting in Pots and Planting Out. Prices on application.
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To the Trade.

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H. and F. SHARPE,
Seed Growers and Merchants, Wisbech.
Special PRICED LIST of NEW SEEDS on application.

Agricultural and Garden Seeds.

CHARLES SHARPE and CO.,
Seed Growers, Seed Merchants, and Nurserymen,
Sleaford.
SPECIAL PRICED LIST of SEEDS of 1862 growth on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER and CO.,
Seed Farmers and Nurserymen,
237 and 238, High Holborn, London, W.C.

PLYMOUTH SEED COMPANY,
Union Road, Plymouth.
See General Advertisement, page 22.

PLYMOUTH SEED COMPANY,
Plymouth.
The GENERAL PRICE CURRENT is now ready.

Good Seeds, Carriage Free, at Market Prices.

SUTTON and SONS,
Seed Growers and Merchants,
Royal Berkshire Seed Establishment, Reading.

New and Genuine Garden and Agricultural Seeds.

Special Prices on Application to
JAMES FAIRHEAD and SON,
Seed Growers and Merchants,
7, Borough Market, London, S.E.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD and SON,
Nurserymen and Seed Merchants,
Maresfield, near Uckfield, Sussex.

ANDRÉ LEROY'S NURSERIES, at Angers, the largest and richest in France.
CATALOGUES sent on application.

New and Genuine Seeds.

JOHN DOBSON and SONS,
Seedsmen and Florists,
Woodlands Nursery, Isleworth and Hounslow.
New CATALOGUES now ready, post free.

Kitchen Garden Seeds, Finest Quality only.

HOOPER and CO., Seedsmen,
Covent Garden Market, London, W.C.
CATALOGUES Post Free.

LOBELIA SPECIOSA (true Crystal Palace var.). 6*d*., 1*s*., and 2*s*. 6*d*. per packet. Post Free.
Hooper & Co., Seedsmen, Covent Garden Market, London, W.C.

NEW and GENUINE SEEDS.
Carriage Free in Most Cases.
PRICED DESCRIPTIVE LIST, post free, upon application.
James Dickson and Sons, Seed Merchants, 102, Eastgate Street, Chester.

Fresh Imported German Flower Seeds (post free).

SUTTON and SONS, Reading, Berks, have just received a choice importation of GERMAN FLOWER SEEDS, a LIST of which will be sent gratis and post free on application.

Broccoli all the Year Round.—See

SUTTON'S SEED LIST, which will be sent post free on application.
Sutton & Sons, Seed Growers, Reading.

New Garden Seeds of our own Growth.

JAMES CARTER and CO. are now prepared to execute orders for the above, saved at their Seed Farms.
237, 238, & 261, High Holborn, W.C.

CARTER'S SELECT LIST of New and Choice VEGETABLE, FLOWER SEEDS and PLANTS is now published, gratis and post free.
237, 238, & 261, High Holborn, London, W.C.

CARTER'S CHAMPION CUCUMBER.
An excellent winter sort.—Vide *Gardeners' Chronicle* for 1862, page 1127. 1*s*. per packet.
237, 238, & 261, High Holborn, London, W.C.

CARTER'S CHAMPION CUCUMBER, recommended by the Royal Horticultural Society as being an excellent bearer. Fruit solid and firm, and the best of the Sion House class. 1*s*. per packet. A few ounces of our own saving to offer the Trade.
237, 238, & 261, High Holborn, London, W.C.

CUTHILL'S PRINCE ALBERT CUCUMBER; an Improvement on Highland [illegible].
The best for present sowing. Per packet, 1*s*.
Butler & M'Culloch, Seed Merchants, [Covent Garden Market.

Standard Roses.

WILLIAM EPPS, Jun., can supply fine STANDARD ROSES, at 5*l*. per 100; 15*s*. per doz.
The Nurseries, Ashford, Kent.

Roses, Gladiolus, Fruit Trees.

R. M. STARK respectfully solicits an inspection of his Stock, especially of the articles noted above, which he offers at moderate prices. DESCRIPTIVE CATALOGUES on application.
Edgehill Nursery, Edinburgh, Jan. 17.

Rose Nurseries, Hertford.

E. P. FRANCIS has a few surplus Thousands of MANETTI STOCKS, fine and stout.
Price upon application.

Seeds.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE, of the best Varieties only, is now ready. It also contains several Novelties.
The Royal Nurseries, Slough.

DOUBLE ITALIAN TUBEROSES, 3*s*. per dozen.
Just arrived.
Butler & McCulloch, Seed Merchants, Covent Garden Market, London, W.C.

TROPÆOLUM LOBBIANUM ELEGANS (Crystal Palace Scarlet), Seed scarce.
Per packet, 1*s*. and 2*s*. 6*d*.
Butler & M'Culloch, Seed Merchants, Covent Garden Market.

Ericas and Genistas (Cytisus fragrans).

S. W. TALBOT can supply fine Plants of the above in 48's; also ERICAS in small 60's, strong and healthy. Prices on application.
Waltham Abbey, N.

SEEDLING BIRCH and YEWS.—Holders of the above will oblige by stating age and price to
Wood & Ingram, Huntingdon.

SPRUCE FIR, TWICE TRANSPLANTED. 1 to 1½ feet, 15*s*. per 1000. | 1½ to 2 feet, 20*s*. per 1000.
Apply to James Garaway & Co., Durdham Down Nurseries, Bristol.

WANTED 50,000 BLACKTHORN, for Cash.
John Perkins, 52, Market Place, Northampton.

WANTED, ENGLISH OAK, 8 to 9 feet, suitable for planting in Hedge Rows.
Apply, stating quantity and price per 100, to Mr. P. J. Perry, The Nurseries, Banbury.

WANTED IMMEDIATELY, either OAKS, APPLES, or THORNS; nice young trees, with the MISTLETOE growing thereon. Any one having the above to dispose of, apply, with price and particulars, to
Wm. Wood & Son, Woodlands Nursery, Maresfield, Uckfield, Sussex.

WANTED, about Two Dozen QUERCUS ILEX. They must be straight-stemmed and uniform Plants, from 4 to 5 feet high, or more, if fit for removal.
T. W. Booth, Gardener, Arley Hall, Northwich, Cheshire.

HANDSWORTH POTATOES.—To the Trade
We offer the above (warranted true), carriage paid. Price sent on application. [Established 37 years.]
G. & W. Yates, 28, Market Place, Manchester.

Seed Potatoes, Carriage paid.

G. and W. YATES offer to the Trade all the best sorts, grown specially for Seed, free from disease and scab. Prices sent on application.—Market Place, Manchester.

Established 37 Years.

HOLBURY ASHLEAF, the Earliest KIDNEY POTATO grown. Price to the Trade (carriage paid) sent on application.—G. & W. Yates, Seedsmen, Manchester.

Seed Potatoes.

SUTTON and SONS, Seed Growers, Reading, have a large stock of the early kinds of POTATOES, very true and free from disease. Prices, &c., will be sent post free on application.

SEED POTATOES.—Splendid Stocks of Martin's Early Globe, Early Oxford, Early Fox's Seedling, Early Round Frame, Early Dalmahoy, Myatt's Prolific, and Jackson's Ash-leaved Kidney, Forty-fold, Fluke Kidney, and Flour-ball varieties at low prices.
H. & F. Sharpe, Wisbeach.

SEED POTATOES, Carriage Paid, true, and free from disease.
WEBB'S IMPERIAL KIDNEY, 8*s*. per bushel.
GLOUCESTERSHIRE EARLY KIDNEY, 8*s*. per bushel.
BIRMINGHAM PRIZETAKER, 6*s*. per bushel.
Terms, Cash.
W. Minchin & Son, Hook Norton, Oxon.

SEED POTATOES from the Growers.—Early Shaws, Regents, Forty-folds, Ash-leaf Kidneys, and Myatt's Prolific.
May be had on application of H. Cheverst, Salesman, Borough Market, S.E.

FLUKE and other SEED POTATOES off the Lancashire Moss and Sand. Price very moderate on application.
H. Brown, Seedsman, 4, Commutation Row, Liverpool.

WEBB'S IMPERIAL KIDNEY POTATOES.—No Potato like it for quantity, quality, beauty and size, at 12*s*. per Bushel, on application to
Richard Webb, Calcot Gardens, Reading.

ROYAL HORTICULTURAL SOCIETY.

ARRANGEMENTS FOR THE EXHIBITIONS AND MEETINGS IN 1863,

TO BE HELD AT

THE GARDEN, SOUTH KENSINGTON, W.

MEETINGS OF COUNCIL, PROMENADES, BALLOTS FOR PLANTS, SEEDS,

AND

EXHIBITIONS AND FLORAL AND FRUIT COMMITTEE MEETINGS.

TUESDAY, FEB. 10	Anniversary Meeting, at 1.
TUESDAY, FEB. 17	Ballot for Seeds, at 2.
FRIDAY, FEB. 20	Council, at 11. Meeting for Election of Fellows, at 2. HYACINTH SHOW, at 1. Band at 2.
WEDNESDAY, FEB. 25	Floral Committee, at 10. Fruit Committee, at 10.
WEDNESDAY, MARCH 18	CAMELLIA SHOW, at 1. Band at 2. Floral Committee, at 10. Fruit Committee, at 10.
FRIDAY, MARCH 20	Council, at 11. Meeting for Election of Fellows, at 2.
TUESDAY, MARCH 31	Floral Committee, at 12.
WEDNESDAY, APRIL 15	AZALEA AND ROSE SHOW, at 1. Band at 2. Floral Committee, at 10. Fruit Committee, at 10.
FRIDAY, APRIL 24	Council, at 11. Meeting for Election of Fellows, and Ballot for Plants, at 2.
TUESDAY, MAY 5	Opening of Exhibition of Sculpture, at 1. Floral Committee, at 12. Fruit Committee, at 12.
SATURDAY, MAY 16	Promenade. Band at 4.
WEDNESDAY, MAY 20	Promenade. Band at 4.
SATURDAY, MAY 23	Promenade. Band at 4.
WEDNESDAY, MAY 27	FIRST GREAT EXHIBITION, at 1. Bands at 2. Floral Sub-Committee, at 10. Fruit Sub-Committee, at 10.
FRIDAY, MAY 29	Council, at 11. Meeting for Election of Fellows, Ballot for Plants, &c., at 2.
SATURDAY, MAY 30	Promenade. Band at 4.
WEDNESDAY, JUNE 3	Promenade, Band at 4.
Date not fixed, JUNE	Uncovering of Memorial of Exhibition of 1851.
SATURDAY, JUNE 6	Promenade. Band at 4.
WEDNESDAY, JUNE 10	Promenade. Band at 4.
SATURDAY, JUNE 13	Promenade. Band at 4.
WEDNESDAY, JUNE 17	SECOND GREAT EXHIBITION, at 1. Bands at 2. Floral Sub-Committee, at 10. Fruit Sub-Committee, at 10.
SATURDAY, JUNE 20	Promenade. Band at 4.
WEDNESDAY, JUNE 24	Promenade. Band at 4.
FRIDAY, JUNE 26	Council, at 11. Meeting for Election of Fellows, at 2.
SATURDAY, JUNE 27	Promenade. Band at 4.
WEDNESDAY, July 1	THIRD GREAT EXHIBITION—ROSES, NEW PLANTS, &c., at 1. Bands at 2. Floral Sub-Committee, at 10. Fruit Sub-Committee, at 10.
SATURDAY, JULY 4	Promenade. Band at 4.
TUESDAY, JULY 7	Floral Committee, at 12. Fruit Committee, at 12.
WEDNESDAY, JULY 8	Promenade. Band at 4.
SATURDAY, JULY 11	Promenade. Band at 4.
WEDNESDAY, JULY 15	Promenade. Band at 4.
SATURDAY, JULY 18	Promenade. Band at 4.
TUESDAY, JULY 21	Floral Committee, at 12. Fruit Committee, at 12.
WEDNESDAY, JULY 22	Promenade. Band at 4.
FRIDAY, JULY 24	Council, at 11. Meeting for Election of Fellows, at 2.
SATURDAY, JULY 25	Promenade. Band at 4.
WEDNESDAY, JULY 29	Promenade. Band at 4.
TUESDAY, AUGUST 4	Floral Committee, at 12. Fruit Committee, at 12.
TUESDAY, AUGUST 25	Floral Committee, at 12. Fruit Committee, at 12.
WEDNESDAY, SEPT. 9	AUTUMN FLOWER SHOW, at 1. Band at 2. Floral Committee, at 10. Fruit Committee, at 10.
TUESDAY, SEPT. 22	Floral Committee, at 12. Fruit Committee, at 12.
FRIDAY, OCT. 2	Council, at 11. Meeting for Election of Fellows, at 2.
TUESDAY, OCT. 6	Floral Committee, at 12. Fruit Committee, at 12.
FRIDAY, NOV. 6	Council, at 11.
TUESDAY, NOV. 10	Floral Committee, at 12. Fruit Committee, at 12.
FRIDAY, DEC. 4	Council, at 11.
TUESDAY, DEC. 8	Floral Committee, at 12. Fruit Committee, at 12.
FRIDAY, DEC. 18	Council, at 11.

ADMISSION OF THE PUBLIC.

Previous to April 30, packets of 25 tickets may be brought by Fellows for 5*l.* per packet. These tickets are available for any Show or Promenade during the year—admitting numbers corresponding to the prices of the day: *i.e.*, one on a 5*s.* day; two on a 2*s.* 6*d.* day; and five on a 1*s.* day.

I. HORTICULTURAL EXHIBITIONS AND PROMENADES.

Feb. 25.	HYACINTHS, &c.	2*s.* 6*d.*
March 18.	CAMELLIAS, &c.	2*s.* 6*d.*
April 15.	AZALEAS AND ROSE SHOW	2*s.* 6*d.*
May 5.	OPENING OF EXHIBITION OF SCULPTURE	2*s.* 6*d.*
Sept. 9.	AUTUMN FLOWER SHOW	2*s.* 6*d.*

Admission by payment at the door or by tickets previously purchased.

PROMENADES.—Wednesday,	May 20	2*s.* 6*d.*
,, ,,	June 3, 10, 24	
,, ,,	July 8, 15, 22, 29	
,, Saturdays,	May 16, 23, 30	
,, ,,	June 6, 13, 20, 27	
,, ,,	July 4, 11, 18, 25	

II. GREAT EXHIBITIONS.

May 27.	FIRST GREAT EXHIBITION	Admission by tickets, price 5*s.* each, purchased previously to the day of the Show. If payment is made at the door, 7*s.* 6*d.* will be charged for each admission
June 17.	SECOND GREAT EXHIBITION	
July 1	THIRD EXHIBITION AND GREAT ROSE SHOW	

HYACINTHS AND OTHER SPRING FLOWERS, WEDNESDAY, FEBRUARY 25.

FELLOWS Free; FRIENDS 2*s.* 6*d.* each.

LIST OF PRIZES.

CLASS.	1st Prize.	2d Prize.	3d Prize.	Total.
	£ *s.*	£ *s.*	£ *s.*	£ *s.*
1. 12 Hyacinths, distinct kinds (*Nurserymen*)	1 10	1 0	0 10	3 0
2. 12 Hyacinths, 6 kinds (*Amateurs*)	2 2	1 1	—	3 3
3. 12 pots of Tulips, 6 kinds (*Nurserymen*)	1 10	1 0	0 15	3 5
4. 12 pots of Tulips, 4 kinds (*Amateurs*)	1 10	1 0	0 15	3 5
NOTE.—Hyacinths in the above classes must have only one bulb in each pot. Tulips, only three bulbs in each pot.				
5. Crocuses, collection of (*Nurserymen*)	0 15	0 10	—	1 5
6. Crocuses, 12 Pots (*Amateurs*)	0 15	0 10	—	1 5
7. Collection of 18 Forced Flowers, various (*Nurserymen*)	2 0	1 10	1 0	4 10
8. Collection of 12 Forced Flowers, various (*Amateurs*)	1 10	1 0	0 10	3 0
9. Collection of 12 Amaryllis, distinct kinds (*Open*)	2 0	1 10	1 0	4 10

CLASS.	1st Prize.	2d Prize.	3d Prize.	Total.
	£ *s.*	£ *s.*	£ *s.*	£ *s.*
10. 6 Epacris, not less than 3 colours (*Open*)	1 10	1 0	0 10	3 0
11. 4 Greenhouse Acacias, various (*Open*)	1 0	0 15	0 10	2 5
12. 6 Geraniums, forced, distinct kinds (*Nurserymen*)	1 0	0 15	0 10	2 5
13. 6 Geraniums, forced, 6 kinds (*Amateurs*)	1 0	0 15	0 10	2 5
14. 6 Pots of Lilies of the Valley (*Open*)	1 0	0 15	0 10	2 5
15. 6 Primulas, various colours (*Open*)	1 0	0 15	0 10	2 5
16. 6 Double Chinese Primroses, not less than 2 colours (*Open*)	1 0	0 15	0 10	2 5
17. Miscellaneous Collection of Plants in Flower	1 10	1 0	0 15	3 5
				£46 18

NOTE.—Orchids and Stove Plants, not admitted in Classes 7 & 8.

NOTE.—THE PRIZES IN CLASS 2 ARE OFFERED BY MR. J. CUTBUSH, OF HIGHGATE.

CAMELLIA AND RHODODENDRON SHOW, WEDNESDAY, MARCH 18.

FELLOWS Free; FRIENDS 2*s.* 6*d.* each.

SPECIAL PRIZES.	1st Prize.	2nd Prize.	3rd Prize.	Total.
	£ *s.*	£ *s.*	£ *s.*	£ *s.*
For the three best Camellias	—	—	—	10 0
For the three best Tree Mignonettes	—	—	—	3 0

CLASS.	1st Prize.	2nd Prize.	3rd Prize.	Total.
	£ *s.*	£ *s.*	£ *s.*	£ *s.*
1. 6 Camellias in flower, distinct kinds (*Nurserymen*)	2 10	1 10	1 0	5 0
2. 6 Camellias in flower, distinct kinds (*Amateurs*)	3 0	2 0	1 0	6 0
3. 4 Camellias in flower, distinct kinds (*Open*)	2 0	1 10	1 0	4 10
4. 1 Camellia, specimen plant (*Open*)	1 0	0 15	—	1 15
5. 6 Rhododendrons, 6 kinds (*Nurserymen*)	2 0	1 10	1 0	4 10
6. 4 Rhododendrons, 4 kinds (*Amateurs*)	1 10	1 0	0 [illegible]	3 0
7. 1 Rhododendron, specimen plant (*Open*)	1 0	0 10	—	1 10
8. 18 Hyacinths, distinct kinds (*Nurserymen*)	2 0	1 10	[illegible]	4 10
9. 12 Hyacinths, distinct kinds (*Amateurs*)	2 0	1 10	1 0	4 10

CLASS.	1st Prize.	2d Prize.	3d Prize.	Total.
	£ *s.*	£ *s.*	£ *s.*	£ *s.*
10. 6 Hyacinths, new kinds (*Open*)	1 0	0 15	0 10	2 5
NOTE.—Classes 8, 9, and 10, one bulb only in each pot.				
11. 6 pots of Hyacinths, 6 kinds (*Amateurs*)	1 0	0 15	0 10	2 5
12. 24 Pots of Tulips, 6 kinds (*Nurserymen*)	2 0	1 10	1 0	4 10
13. 18 pots of Tulips, 6 kinds (*Nurserymen*)	1 10	1 0	0 15	3 5
14. 12 pots of Tulips, 4 kinds (*Amateurs*)	1 10	1 0	0 15	3 5
NOTE.—Classes 11, 12, 13, and 14, three bulbs in each pot.				
15. 12 Camellias, cut blooms (*Amateurs*)	0 10	0 7	—	0 17
16. Miscellaneous Collections, Plants in flower	1 10	1 0	0 15	3 5
				£67 17

ROYAL HORTICULTURAL SOCIETY.—*Continued.*

AZALEA AND ROSE SHOW, WEDNESDAY, APRIL 15.

FELLOWS Free; FRIENDS 2*s.* 6*d.* each.

CLASS.	1st Prize.	2d Prize.	3rd Prize.	Total.
	£ s.	£ s.	£ s.	£ s.
1. 9 Azaleas, distinct kinds .. .. (*Nurserymen*)	2 0	1 10	1 0	4 10
2. 9 Azaleas, distinct kinds .. .. .. (*Amateurs*)	2 0	1 10	1 0	4 10
3. 6 Azaleas, distinct kinds .. .. .. (*Open*)	1 10	1 0	0 15	3 5
4. 6 Roses, distinct kinds .. .. (*Nurserymen*)	2 0	1 10	1 0	4 10
5. 6 Roses, distinct kinds .. .. .. (*Amateurs*)	2 0	1 10	1 0	4 10
6. 4 Roses, distinct kinds .. .. (*Open*)	1 10	1 0	0 10	3 0
7. 6 Cinerarias, distinct kinds .. .. (*Open*)	1 10	1 0	0 15	3 5
8. 4 Cinerarias, distinct kinds .. .. .. (*Amateurs*)	1 0	0 15	0 10	2 5
NOTE.—Plants in Classes 1 to 8 must be grown in pots not exceeding 10 inches in diameter.				
9. 4 Greenhouse Acacias, distinct kinds	1 0	0 15	0 10	2 5

CLASS.	1st Prize.	2d Prize.	3d Prize.	Total.
	£ s.	£ s.	£ s.	£ s.
10. 12 Auriculas, 3 of each kind, viz.: 3 grey edged, 3 white edged, 3 green edged, and 3 selfs, distinct kinds .. .. .. (*Nurserymen*)	1 10	1 0	0 15	3 5
11. 8 Auriculas, 2 of each kind distinct .. (*Amateurs*)	1 10	1 0	0 15	3 5
12. 6 Alpine Auriculas, distinct kinds .. .. (*Amateurs*)	1 0	0 15	0 10	2 5
13. 6 Polyanthus, distinct kinds .. .. (*Amateurs*)	0 15	0 10	0 7	1 12
14. 4 Cyclamens, distinct kinds .. .. (*Amateurs*)	0 10	0 7	—	0 17
15. 24 Pansies, cut blooms, 12 distinct kinds .. (*Open*)	0 15	0 10	0 7	1 12
16. 8 Pansies, Fancies, in pots, distinct kinds .. (*Open*)	1 10	1 0	0 15	3 5
17. Miscellaneous collection of Plants in Flower				£50 6

Rules and Regulations to be had of Mr. EYLES.

ROYAL EXOTIC NURSERY, CHELSEA, S.W.

JAMES VEITCH, JUN.,

RESPECTFULLY ANNOUNCES THAT HIS

CATALOGUE of KITCHEN GARDEN and FLOWER SEEDS

for 1862-63,

WITH A LIST OF IMPLEMENTS AND OTHER GARDEN REQUISITES,

IS NOW PUBLISHED, AND WILL BE FORWARDED POST FREE ON APPLICATION.

J. V., JUN., devoting his personal attention to this department of his business, can warrant his SEEDS TRUE TO NAME AND OF THE MOST GENUINE DESCRIPTION.

WM. WOOD & SON'S

COLLECTIONS of KITCHEN GARDEN SEEDS

FOR ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.
£3.	£2.	£1.	10s. 6d.

Containing only Seeds of first-class quality, and varieties that can be confidently recommended.

For particulars, see CATALOGUE, a Copy of which may be had Post Free on application.

*** *All orders amounting to* 10*s. and upwards sent Carriage Free.*

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.

GARDEN SEEDS.

S. GLENDINNING & SONS,

NURSERYMEN AND SEEDSMEN

(SUCCESSORS TO THE LATE R. GLENDINNING),

Are now sending out their COLLECTIONS of KITCHEN GARDEN SEEDS.

No. 1	**contains 36 Quarts of PEAS, and all other Seeds in proportion**				**£5**	**5** **0**
No. 2	**,, 28 Quarts**	**ditto**	**ditto**	**ditto**	**4**	**4** **0**
No. 3	**,, 20 Quarts**	**ditto**	**ditto**	**ditto**	**3**	**3** **0**
No. 4	**,, 12 Quarts**	**ditto**	**ditto**	**ditto**	**2**	**2** **0**
No. 5	**,, 6 Quarts**	**ditto**	**ditto**	**ditto**	**1**	**1** **0**

COLLECTIONS of FLOWER SEEDS.

No. 1,	**containing 100 Large Packets of Best Hardy Annuals**				**£0**	**18** **0**
No. 2,	**,, 50**	**ditto**	**ditto**	**ditto**	**0**	**9** **6**
No. 3,	**,, 24**	**ditto**	**ditto**	**ditto**	**0**	**5** **0**
No. 4,	**,, 25**	**ditto**	**Half-Hardy Annuals**	... ...	**0**	**7** **6**
No. 5,	**,, 12**	**ditto**	**ditto**	**ditto**	**0**	**4** **0**
No. 6,	**,, 25**	**ditto**	**Tender Annuals**	... ...	**0**	**12** **6**
No. 7,	**,, 12**	**ditto**	**ditto**	**ditto**	**0**	**6** **0**

The above Collections consist only of best and most useful varieties, and are of the finest quality.

S. G. & SONS' CATALOGUE of KITCHEN GARDEN, AGRICULTURAL, and FLOWER SEEDS, is now ready, and may be had on application.

CHISWICK NURSERY, LONDON, W.

Splendid New Bedding Plants.

MESSRS. VEITCH AND SON, Exeter and Chelsea, S.W., are now prepared to supply SEEDS of the following splendid novelties, recently introduced by them, feeling confident that two such fine additions to the Flower Garden cannot fail to give general satisfaction.

AMARANTHUS MELANCHOLICUS RUBER.—Introduced from Japan by Mr. J. G. VEITCH; its beautiful blood red foliage renders it much superior to the Perilla, where colour and effect are required, and this, combined with its dwarf compact habit (averaging from 9 to 12 inches), cannot fail to make it the most popular dark-foliaged bedding plant yet introduced. It has been commended by the Floral Committee of the Royal Horticultural Society, on account of its distinct habit as a bedding plant.

The following persons having obtained their Seed of the above direct from Messrs. V. & SON, will be enabled to supply it genuine:—

Austin & M'Aslan, Messrs., Glasgow
Beck, Henderson & Co., Messrs., Adelphi, London
Butler & M'Culloch, Messrs., Covent Garden
Cattell, Mr., Westerham, Kent
Cutbush, Messrs. W. & Sons, Highgate, N.
Charlwood & Cummins, Covent Garden
Cooper & Bolton, Messrs., 152, Fleet Street
Dickson, Messrs. F. & A., Chester
Dickson, Messrs. James & Son, Chester
Dobson, Messrs., Isleworth
Downie, Laird, & Laing, Messrs., Edinburgh
Finney, Messrs. S. & Co., Gateshead
Fisher, Holmes, & Co., Messrs., Sheffield
Fraser, Richardson, & Goad, Messrs., 82, Bishopsgate Street
Hollamby, Mr. E., Tunbridge Wells
Hooper, Messrs. W. & Co., Covent Garden
Krelage, Messrs., & Son, Haarlem, Holland
Lawson, Messrs. P. & Son, Edinburgh and London
Methven, Mr., Edinburgh
Minier & Co., Messrs., 60, Strand
Shaw, Messrs., & Co., Manchester
Smith, Messrs. F. & A., Dulwich, Surrey
Smith, Messrs. Peter & Co., Hamburgh
Smith & Simons, Messrs., Glasgow
Thorburn & Co., Messrs., New York
Stuart & Mein, Messrs., Kelso, N.B.
Turner, Mr. Chas., Slough
Vilmorin, Messrs., & Co., Paris
Wood & Ingram, Messrs., Huntingdon
Wrench & Son, Messrs., London Bridge, E.C.

MIMULUS CUPREUS.—This beautiful little perfectly hardy novelty was sent us by Mr. Pearce, from the Andes of Chili, where he met with it at an elevation of from 6000 to 7000 feet.

Its dwarf and compact habit, not exceeding 4 to 6 inches in height, its perfect hardiness, and producing its bright orange-crimson flowers in great profusion, render it equally useful for the Flower Garden or for Pot culture.

It has been constantly exhibited during the past season, and had medals awarded it at both the Royal Horticultural and the Royal Botanic Societies. It is indeed a charming plant, and cannot fail to give general satisfaction.

The undermentioned having procured their Seed of Messrs. VEITCH & SON are able to supply the preceding true and genuine:—

Austin & M'Aslan, Messrs., Glasgow
Beck, Henderson & Co., Messrs., Adelphi, London
Butler & McCulloch, Messrs., Covent Garden, W.C.
Cattell, Mr., Westerham, Kent
Charlwood & Cummins, Messrs., Covent Garden
Carter & Co., Messrs., Holborn
Cooper & Bolton, Messrs., Fleet Street
Cunningham, Messrs. Geo. & Son, Liverpool
Dickson, Messrs. F. & A., Chester
Ernst & Von Spreckelsen, Hamburgh
Finney, Messrs. S. & Co, Gateshead
Fraser, Richardson & Goad, Messrs., 82, Bishopsgate Street
Hooper, Messrs., & Co., Covent Garden
Huber Frères, Messrs., Hyères, France
Krelage, Messrs., & Son, Haarlem, Holland
Lawson, Messrs., & Son, Edinburgh and London
Methven, Mr., Edinburgh
Osborn & Son, Messrs., Fulham, S.W.
Shaw & Co., Messrs., Manchester
Smith, Messrs. P., & Co., Hamburgh
Smith & Simons, Messrs., Glasgow
Stuart & Mein, Messrs., Kelso, N.B.
Sutton, Messrs., & Sons, Reading
Thorburn & Co., Messrs., New York
Turner, Mr. Chas., Slough
Van Houtte, M. Louis, Ghent, Belgium
Vilmorin & Co., Messrs., Paris
Wood & Ingram, Messrs., Huntingdon

Prices to the Trade on application.

Royal Exotic Nurseries, Exeter and Chelsea—Jan. 17.

DUTCH BULBS — SURPLUS STOCK.—
Orders over 10*s.* value carriage paid.

	Per 100—*s.*	*d.*
HYACINTHS, in fine mixture	20	0
LATE TULIPS	10	0
EARLY TULIPS	6	0
PARROT TULIPS	7	6

Also a variety of other Bulbs at equally low prices; all in good condition.

PRICE LISTS post free on application.

WM. WOOD & SON, Woodlands, Maresfield, near Uckfield.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent.

GLENNY'S SUPERB BALSAMS, 6 classes, 37 stamps; mixed, 13; any single colour, 7.

GLENNY'S INTERNATIONAL REMEMBRANCER, 35 Engravings, cloth and gold, 20 stamps; plain, 13.

GLENNY'S LIST of the BEST SIXTY SEEDS for the Flower Garden, free for a directed envelope.

Nurseries to Let, and others Wanted. Sales and Valuations by G. GLENNY, Fulham, S.W.

Roses.

H. LANE AND SON, Nurseries, Great Berkhamsted, beg to call particular attention to their splendid collection of ROSES, viz.:—

STANDARDS of the popular kinds, fine and strong.

DWARF STANDARDS, very strong, and best sorts, suitable for giving an immediate effect in beds, &c.

Ditto in 32-sized Pots for immediate Forcing, fine and good.

DWARFS on own roots, the leading kinds for beds, &c.

Also fine Plants for Conservatory or Greenhouse of TEA SCENTED (Dwarfs).

Roses.

GEO. PARSONS begs to offer fine STANDARD ROSES, from 2½ to 4 feet stems, at 5*l.* per 100, or 15*s.* per dozen; including the New Varieties, 18*s.* per dozen, or 6*l.* 10*s.* per 100; the last New Varieties of 1862, DWARFS, 30*s.* per dozen.

CATALOGUES free on application.

Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

To the Trade.—Vines from Eyes.

H. LANE AND SON, Nurseries, Great Berkhamstead, have to offer a fine large quantity of well ripened CANES of Buckland Sweetwater, Prolific Sweetwater, Trentham, Muscat Hambro', Golden Hambro', Cannon Hall Muscat, Black St. Peter, Charlesworth Tokay, West's St. Peter, &c.

APPLE and PEAR TREES, &c.—100 doz. Dwarf and Pyramidal PEAR TREES, best sorts, 20*s.* per doz., packing included.

50 doz. Dwarf and Pyramidal APPLE TREES, best sorts, 12*s.* per doz., packing included.

GENERAL LISTS of NURSERY STOCK on application.

CHARLES B SAUNDERS, Nurseryman, &c., Jersey.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, has the pleasure to offer now for the first time his two new excellent Fruits—

APPLE CALVILLE GARIBALDI .. 8*s.*
PEAR BEURRÉ DE GHÉLIN .. .. 5*s.*

This excellent Pear obtained the First Prize at the great Pomological Show at Tournay, Belgium.

N.B. These two new Fruits are figured in VERSCHAFFELT'S "Illustration Horticole."

THE GREAT VINE at HAMPTON COURT.—The Subscribers being the holders of the Royal Kitchen Gardens, Hampton Court, are enabled to offer genuine the famous and truly excellent HAMPTON COURT BLACK HAMBURGH GRAPE.

Strong well-ripened plants in 9-inch pots, 42*s.* and 60*s.* p. doz.
" " fruiting plants in 12-inch pots, 10*s.* 6*d.* each.

If purchased in large numbers a considerable reduction will be made in price.

JACKSON & SON, Nurseries, Kingston, S.W.

EXTRA STRONG FRUITING VINES.—All the leading varieties, from Eyes, with stout well ripened rods, for FRUITING in POTS this YEAR. Price, from 7*s.* 6*d.* each; smaller, for Planting-out, from 3*s.* 6*d.* each. A reduction in price will be made to large purchasers.

"We can especially recommend the above, our strong Vines having for some years given unqualified satisfaction."—*Vide* Leading Article in *Gardeners' Chronicle* for December 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries, Chester.

Foster's Seedling Grape.

MESSRS. JOHN AND CHARLES LEE have to offer Mr. Foster's stock of this fine NEW GRAPE, which can be confidently recommended for general cultivation in cool Vineries. It has borne an abundant crop in the large Conservatory of the Royal Horticultural Society at Chiswick, the bunches being large, with medium sized berries of a pale amber colour. The flavour of Foster's Seedling is most luscious, equalling the richness of its twin sister Lady Downe's, and as far as can be seen, partaking of the same quality of hanging well without shrivelling.

Canes for planting, 7*s.* 6*d.* each. A few Fruiting Canes at 21*s.* each.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Fruit Trees.

RICHARD SMITH has no hesitation in saying, that he possesses by far the largest Stock of FRUIT TREES in the kingdom, consisting of Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots, in Maiden Trees, Dwarfs, Bushes, Pyramids, Half-Standards, and Standards; Dwarf-trained, Half-Standard, Standard, and Horizontally-trained Trees, of the finest sorts, and in the best possible condition. DESCRIPTIVE PRICED LISTS on application.

RICHARD SMITH, Nurseryman, Worcester.

JOSEPH FRYER, Clarendon Nurseries, Camberwell, S., has a large Stock of the undermentioned, which he can supply Cheap:—Limes, Poplars, Laburnums, Scarlet Thorns, Lilacs, Gueldre Rose, Yellow Broom, Althæa frutex, Weigelas, Aucubas, Andromedas, Vacciniums, Salisburias, Ivies, Clematis, Glycine, Pyrus japonica, Menispermum, Periploca, Euonymus japonicus and variegatus; fine Dwarf-trained Apples, Pears and Plums; fine Standard-trained Pears and Plums; fine Grape Vines, from layers; Figs, Gooseberries and Currants, a large stock of Herbaceous and Alpine Plants, Ferns and Lycopods, &c.; likewise all sorts of Peat Mould, Loam, Manure, Gravel, Silver Sand, Turf, Grotto Material, &c.

Seed Trade.

JAMES CARTER AND CO., Holborn, W.C., have a few lbs. of the following to offer to the Trade:—

MELVILLE'S GARNISHING KAIL,
VARIEGATED BEET, for garnishing,
SNOW'S WINTER BROCCOLI, true,
LITTLE PIXIE CABBAGE,
NEW FEATHER STEM SAVOY,
DANVER'S YELLOW ONION.
TOMATOE DE LAYE.
HENDERSON'S PINE-APPLE BEET.

Actinella grandiflora, Torrey and Gray.

W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, begs to announce that he has just received a small consignment of Seed of the above remarkable Composite, from the Rocky Mountains, It is described by Professor Gray, in "Plantæ Parryanæ," as a splendid Dwarf Alpine Plant, with (yellow) flower heads nearly 3 inches across. Perfectly new to Europe. Height 6 to 9 inches. Ray florets apparently marked with a black spot at base, as in Gazania. Quantity very limited. Packets free by post for 13 stamps, which must be sent with the order.

Silver Banksian Medal. Two First-class Certificates.
RHODANTHE MACULATA.

W. THOMPSON, Tavern Street, Ipswich, is now prepared to supply Seed of the above beautiful novelty, introduced by him from Australia. Price per packet, 1*s.*

W. T.'s DESCRIPTIVE PRICED CATALOGUE for 1863 is now ready.

Hendon Park Nurseries, N.W.

CAMELLIAS, all the best sorts, fine plants, beautifully set with bloom buds, 24*s.* to 30*s.* per dozen.

PANSIES, all the best show flowers, from 6*s.* per doz.; new bedding Pansy, BOY in BLUE, very early, 6*s.* per doz.

EDWARD SHENTON.

Spring Blooming Plants.

CAMELLIAS, including the best new varieties, fine plants, set with bloom buds, from 30*s.* per doz.; extra size, from 60*s.*

HEATHS, EPACRIS, CINERARIAS, and JASMINUM GRANDIFLORUM (grafted), remarkably fine plants, at moderate prices.

Also HUMEA ELEGANS, extra strong, in 6-inch pots, 18*s.* per doz.

JAMES DICKSON & SONS, Newton Nurseries, Chester.

Banks's Best New Fuchsias.

E. G. HENDERSON AND SON are now sending out the three following First-class Flowers:—

MDLLE. TREBELLI (BANKS).
BIANCA MARGINATA (BANKS),
MARS (BANKS).

As neat young plants for growing on into specimens (and others adapted for stock), price 3*s.* 6*d.* and 5*s.* each. Also plants of all last year's best varieties, 1*s.* 6*d.* to 2*s.* 6*d.* each.

SOLANUM CAPSICASTRUM FOLIA VARIEGATA, a beautiful table plant, with elegantly variegated leaves and red berries; drooping habit; 3*s.* 6*d.* and 5*s.* each.

Wellington Nursery, St. John's Wood, London, N.W.

Gladioli.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully announces that his BULB CATALOGUE includes a descriptive list of all the most valuable varieties of GLADIOLI, the roots of which are unusually fine. He would remind intending purchasers that he was awarded prizes at both the Royal Horticultural and Crystal Palace September Shows. Price 4*s.* to 42*s.* per dozen.

Nurseries and Seed Warehouse, Waltham Cross, N.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

50 in 25 extra choice varieties	£2	2*s.*	0*d.*
25 in 25 " "	1	5	0
12 in 12 " "	0	12	0
50 in 50 choice varieties	2	12	6
50 in 25 " "	1	5	6
25 in 25 " "	0	13	6
12 in 12 " "	0	5	0

Extra fine mixed, 2*s.* 6*d.* per doz., 17*s.* 6*d.* per 100.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, W.C.

Gladiolus Gandavensis and Varieties.

B. S. WILLIAMS'S choice collection of these superb Bulbous Plants, which are beyond doubt the handsomest autumnal ornaments to the garden, is now ready for sending out. Great attention has been bestowed on the selection, amongst which are many novelties, and none but those of the best quality are offered.

Collection of 24 Splendid Varieties, one root of each, 21*s.*
Collection of Choice Named Varieties, 6*s.*, 8*s.*, and 10*s.* per doz.
A PRICED and DESCRIPTIVE LIST on application.

Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London, N.

Large Importation of Gladioli.

WM. WOOD AND SON beg to announce the arrival of a choice and carefully selected assortment of the above in excellent condition, consisting of the best and most popular hybrid varieties, from which they will be happy to make selections at the following very moderate prices, viz.,

HYBRIDS OF GANDAVENSIS.

100 in 50 choice kinds	£4	0	0
50 in 50 "	2	10	0
50 in 25 "	2	0	0
25 in 25 extra choice kinds	1	5	0
25 in 12 "	1	0	0
12 in 12 "	0	10	0

Newer varieties at proportionately low prices.—See List.
Fine mixed GLADIOLI, per 100, 17*s.* 6*d.*; per doz., 2*s.* 6*d.*
Carriage paid on orders over 10*s.*
LISTS free on application.

Woodlands Nursery and Seed Warehouse, Maresfield, Uckfield, Sussex.

Gladiolus Brenchleyensis (True).

YOUELL AND Co. beg to offer this season strong Flowering BULBS of the above, unequalled by any other for its brilliancy of colour, at 3*s.* 6*d.* per dozen; or 25*s.* per 100. Trade price on application, and when quantities are ordered a considerable reduction will be made.

The *Gardeners' Chronicle* of August 23, 1862, says:—"The spikes you have sent us are magnificent. We have as yet seen nothing of the kind so handsome near London. It is undoubtedly the most showy of the whole race of Gladioli."

CATALOGUES of their extensive Collection, for which the First Class Prize was awarded at the Crystal Palace Show, Sept 3, 1862, and two First Class Prizes at the Royal Horticultural Society's Show, South Kensington, Sept. 10, 1862, will be forwarded on application.

Royal Nurseries, Great Yarmouth.

Genuine Seeds.—Carriage Free.

WM. CUTBUSH AND SON beg to intimate that they are now prepared to execute orders for GENUINE GARDEN SEEDS, for which their house is extensively known.

Mr. C. gives his personal attention to this branch of our business, and we can confidently recommend all offered as being of the best quality, at as moderate prices as consistent.

CATALOGUES free on application.

Highgate, London, N.

NEW VERBENA, "RUGBY HERO."—The above beautiful New VERBENA will be sent out in May, 1863. It received a First-class Certificate from the Royal Horticultural Society on 10th Sept. last. Colour, light rose, with vivid carmine ring surrounding a pure white eye; very large truss. Each, 5*s.*; six for 25*s.* Special price to the Trade on application to

WM. HY. TREEN, Victoria Nursery, Rugby.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS; ditto COWSLIP; Florist's Flower, POLYANTHUS, Roots or Seed; also SCARLET PRIMROSE—Double Crimson, Double Purple, Double White, Double Yellow, and Double Lilac ditto. COWSLIP from the Himalayas; DOUBLE POLYANTHUS; and other varieties, all of which may be had on application to

RICHARD WEBB, Calcot Gardens, Reading.

Choice Tropæolum Seed.

CHARLES J. BARKER begs to offer SEED from his beautiful new Hybrid varieties, exhibited at the Royal Horticultural Gardens, and of which a highly favourable account appeared in the *Gardeners' Chronicle* at the time. All colours mixed, 1*s.* per packet; free for 13 stamps.

Godalming Nursery, Surrey.

Vegetable and Flower Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully announces that his SEED CATALOGUE is now ready, free by post.

The COLLECTION of VEGETABLES recently commended by the Royal Horticultural Society was grown from Seeds furnished by him.

Nurseries and Seed Warehouse, Waltham Cross, N.

Flower and Vegetable Seed Catalogue.—Plant and Flower Root Catalogue.

C. TYSO, FLORIST and SEEDSMAN, will send the above NEW LISTS to any address for one stamp.

SEED POTATOES, per bushel, true to kind.

Ash Leaf ..	7*s.*	Early Handsworth ..	7*s.* 6*d.*	Bags
Early Oxford	7*s.*	Fortyfold	5*s.* 6*d.*	included.

Wallingford, Berks.



WHEELER'S LITTLE BOOK for 1863.

WHEELER'S TOM THUMB LETTUCE.

WHEELER'S IMPERIAL LETTUCE

The price of the Lettuce is 1*s.* per packet, post free.

J. C. WHEELER & SON beg to inform the Trade that their "Little Book" is entered at Stationers' Hall, and that they cannot allow it to be copied.

J. C. WHEELER & SON, Seed Growers, Gloucester.

New Seeds.



PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN, of Edinburgh and London, are prepared to send out

FARM
and
GARDEN SEEDS

of every kind, and of the finest quality.

Orders for exportation executed with prompt and careful attention.

2*s*, King Street, Cheapside, and 15, Lawrence Lane, E.C.

CHARLWOOD AND CUMMINS beg to announce that their CATALOGUE of GARDEN, AGRICULTURAL, and FLOWER SEEDS is now ready, and will be forwarded on application. They also now offer their

NEW NEMOPHILA DISCOIDALIS ELEGANS,

commended by the Royal Horticultural Society in their Proceedings; it is thus noticed:—

"The flowers of this variety (which is a very pretty one) are of a bright chocolate or light reddish maroon, conspicuously bordered with white. The colours are distinctly marked and very effective." It is commended as a very desirable Annual for general cultivation.

2*s.* 6*d.* per packet. Price to the Trade per ounce,

14, Tavistock Row, Covent Garden, London.

A TREE or SHRUB SEED LIST will be published shortly.

DOWNIE, LAIRD, AND LAING have much pleasure in offering the following FIRST CLASS NOVELTIES, which they can with confidence recommend as being decided acquisitions.

CALCEOLARIA CLOTH of GOLD, described by the Floral Committee of the Royal Horticultural Society as follows:—"A desirable bedding variety of dwarf habit, growing from 6 to 9 inches high; the leaves are narrow and deeply serrated, the flowers in fine compact trusses of a deep clear yellow, and of medium size and firm substance;" stems stiff and erect, requires no staking; as a dwarf yellow for front lines, or ribbon borders, it has no equal. Certificate of Merit by the Floral Committee, First Class Certificate at Regent's Park. Price 2*s.* 6*d.* each, 18*s.* per dozen. Special price for quantities on application.

DELPHINIUM BICOLOR GRANDIFLORUM.—This is a striking and most beautiful variety. It was commended by the Floral Committee of the Royal Horticultural Society, who described it as follows:—"A showy variety with large flowers, in which the sepals were of a dark blue, and the petals of a creamy white colour, contrasting strongly with the darker colour surrounding them." Price 5*s.* each. Special offers to the Trade on application.

Stanstead Park, Forest Hill, S.E.; and Edinburgh.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

A. STANSFIELD AND SONS beg to announce that their LIST of BRITISH FERNS for this season, including the New and Rare varieties, at reduced prices, is now ready, and may be had on application, enclosing two postage stamps. Also their GENERAL FERN LIST, No. 6, for 4 postage stamps, which purchasers may deduct.

Vale Nurseries, Todmorden.

Planting Season.

WM. URQUHART AND SONS, Dundee, beg to announce that their PRICED LIST of FOREST TREES, ORNAMENTAL TREES, SHRUBS, BORDER FLOWERS, ROSES, FERNS, and AURICULAS, may now be had on application.—Dundee, Jan. 17.

DEODAR CEDARS.
2½ to 3 feet, 2s. 6d. each, 24s. per dozen, or 9l. per 100.
3 to 4 feet, 3s. each, 30s. per dozen, or 12l. per 100.
4 to 5 feet, 4s. each, 42s. per dozen, or 17l. per 100.

A fine general Collection of CONIFERÆ, a CATALOGUE of which will be sent gratis.

Apply to J. SCOTT, Merriott Nurseries, Crewkerne, Somerset.

HANDSOME SPECIMENS of SPRUCE FIR, from 5 to 6 and 8 feet, by the dozen or 100; strong Kentish or Webb's COB NUT TREES, 20s. to 40s. per 100; extra size, do., 4s. to 6s. per dozen; Standard Trained PEACHES and NECTARINES, very fine; also Dwarf-trained do.; PEARS, PLUMS, and CHERRIES, DWARF APPLES, PEARS, PLUMS, and CHERRIES, 6s. and 9s. per dozen.

EPPS' Nursery and Seed Establishment, Maidstone.

Thorn Quicks.

JNO. CARTER, NURSERYMAN, Keighley, has a large stock of the above from 1 to 4 years' Transplanted, well rooted and very strong.

J. C. will be glad to furnish samples and prices, and also CATALOGUE of GENERAL NURSERY STOCK.

FOR SALE, 12 fine STANDARD PORTUGAL LAURELS, the stems about 4 feet high from the ground, fine symmetrical heads, 5 feet in diameter. They have been several times transplanted, and will remove any distance with perfect safety.

For price or other particulars apply to GEORGE LAMB, The Gardens, Osmaston Manor, Ashbourn, Derby.

Larch, Quicks, &c.

CHIVAS AND WEAVER, Chester (late GEORGE CHIVAS), offer FOUR MILLIONS of TRANSPLANTED LARCH, from 1½ to 4½ feet, of very superior quality. FOUR MILLIONS of TRANSPLANTED THORNS of various sizes, a large portion of which are exceedingly strong. Orders for 10,000 of either, delivered free at any Railway Station. A Sample Bale, containing 100 of each, 5 sizes of Larch, 22s. 9d., and of Quicks, 15s., will be forwarded on receipt of a Post-office Order from unknown Correspondents.

A General PRICED LIST on application.

LARGE ORNAMENTAL TREES.—The Subscribers beg to offer very fine specimen plants of ARAUCARIA IMBRICATA, from 5 to 9 ft.; CEDRUS LIBANI, 7 to 12 ft.; WELLINGTONIA GIGANTEA, 5 to 9 ft.; PINUS EXCELSA, 7 to 10 ft.; also Spruce, Scotch, and Larch Firs, from 7 to 10 ft., with Limes, Birch, Beech, Elm, Sycamore, and Laburnum, 9 to 11 ft.; likewise Weeping Ash, Lime, and Willow, on fine tall stems. The above will be sold cheap, and if taken in quantity a great reduction will be made in the price.

J. IVERY & SON, Dorking Nursery.

Large Limes, &c.

HENRY GODFREY, NURSERYMAN, Stourbridge, has to offer several hundred very fine LIME TREES, from 8, 10, 12, to 14 feet in height, most of them feathered two-thirds from the top downwards, and well rooted. Also about 500 WEEPING ELMS, 7 to 9 feet, fine heads, and straight in the stems; a few AILANTUS GLANDULOSA, 10 feet, double pink and single scarlet; THORNS, ENGLISH YEWS, PORTUGAL LAURELS, ARBOR-VITÆ, in sorts, from 7 to 10 feet.

The above are all well-grown stuff, and will be found useful to gentlemen planting where immediate effect is required.

Prices to be had on application.

A large Stock of well-grown QUICK and HOLLY on hand.

CHARLES DALY AND SON will sell Three Years' SEEDLING THORNS at 2s. per 1000.
1 Year Transplanted ditto, fine, at 4s. per 1000.
2 Years', ditto, ditto, 8s. per 1000.
COMMON LAUREL, 15s. per 1000.
PORTUGAL LAUREL, 1 to 1½ feet, 4s. per 100.
SWEET BAYS, 3 years' potted, 3d. to 6d. each.
RHODODENDRONS, good furnished plants, 20s. per 100.

Variegated Holly, Aucuba japonica, Irish and Common Yews, Privet, Seedling and Transplanted Forest Trees, cheap, for cash. Prices free by post on application.

Coleraine, Ireland.

The Planting Season.

THE EXECUTORS of MR. JNO. YOUNG, late Proprietor of the extensive Nursery Grounds, Taunton, have determined to reduce this large and valuable Stock. They respectfully invite the attention of Noblemen, Gentlemen, and the Trade to the FOREST TREES, HARDY and ORNAMENTAL TREES and SHRUBS, large and small; CONIFERÆ, EVERGREENS, HERBACEOUS, and a great variety of other PLANTS.

STANDARD, DWARF, and POTTED ROSES.

STANDARD, DWARF-TRAINED, and PYRAMIDAL FRUIT TREES.

The varied and excellent quality of this Stock is so well known that comment is unnecessary.

The Grounds are open for inspection and sale daily, and in quantities, at greatly reduced prices.

Applications by post direct to the EXECUTORS of the late Mr. John Young, Taunton.

The above capital FREEHOLD NURSERY
(Established more than 30 years),
containing about 12 Acres of highly productive Land, with the usual Appurtenances, situate at Taunton, the County Town of Somersetshire, in excellent condition, with a good connection, is
TO BE SOLD, with Early Possession,
in consequence of the Decease of the late Owner.
For particulars, apply as above.

SCOTT'S CATALOGUES.

No. 1.—FRUIT CATALOGUE and FRUIT TREE CULTIVATOR'S DIRECTORY describes nearly 800 of the best and most esteemed of our Fruits, with copious Observations and Directions about their Cultivation; the formation of Pyramids, Root Pruning, and other matter interesting to lovers of fine Fruit. Price 7d.

No. 2.—The BULB, WINTER, and SPRING BEDDING-PLANT CATALOGUE, 18 pages.

No. 3.—The DESCRIPTIVE CONIFEROUS CATALOGUE, 25 pages.

No. 4.—The ROSE CATALOGUE, 22 pages.

No. 5.—The SELECT NURSERY STOCK, 15 pages.

In December, the VEGETABLE and FLOWER SEED CATALOGUE.

In April, the SUMMER BEDDING CATALOGUE, 72 pages.

Apply to J. SCOTT, Merriott, Crewkerne, Somerset.

DICKSONS AND CO. have just published the following CATALOGUES, which may be had free on application:—
1. VEGETABLE, AGRICULTURAL, and FLOWER SEEDS.
2. FOREST and ORNAMENTAL TREES and SHRUBS.
3. RHODODENDRONS and CONIFERÆ.
4. ROSES.
5. FRUIT TREES.
6. STOVE and GREENHOUSE PLANTS and FERNS.
7. HERBACEOUS and ALPINE PLANTS.

Their DESCRIPTIVE CATALOGUE of FLORISTS' FLOWERS will be ready in March.

D. & Co. respectfully invite the attention of gentlemen engaged in planting to their extensive Stock of FOREST TREES, which are remarkably healthy and well rooted.

They have also a large Collection of ORNAMENTAL TREES and SHRUBS of all sizes, which they are offering at very reasonable rates.

1, Waterloo Place, Edinburgh.

Specimen Conifers and other Trees.

JAMES VEITCH AND SON beg to call the attention of noblemen and gentlemen to their fine Stock of Specimen CONIFERS and other TREES. From the quantity they have they are enabled to offer them at reduced prices, which will be given on application:—

Abies Douglasii ..	3 to 5 feet.	Juniperus excelsa	4 to 6 feet.
,, ..	5 to 8 ,,	Picea amabilis ..	1 to 1½ ,,
Araucaria imbricata	4 to 6 ,,	,, nobilis ..	1½ to 2½ ,,
,, ,, ..	6 to 8 ,,	,, lasiocarpa .	1½ to 2 ,,
Cedrus Deodara ..	3 to 4 ,,	,, ,, ..	3 to 4 ,,
,, ,, ..	4 to 6 ,,	,, Nordmanniana ..	4 to 5 ,,
,, ,, ..	6 to 8 ,,	,, Pinsapo .	3 to 4 ,,
,, ,, ..	8 to 10 ,,	Thuja gigantea ..	3 to 4 ,,
,, ,, ..	10 to 12 ,,	,, Lobbi ..	3 to 4 ,,
,, Libani ..	4 to 6 ,,	,, ,, ..	4 to 6 ,,
Cryptomeria Lobbi	4 to 6 ,,	Thujopsis borealis	3 to 5 ,,
Cupressus Lawsoniana	3 to 4 ,,	Wellingtonia gigantea	2½ to 3½ ,,
Irish Yews ..	4 to 6 ,,	,, ,, ..	4 to 5 ,,
,, ...	6 to 9 ,,	,, ,, ..	5 to 7 ,,

The whole of the above either in tubs or with good balls.
Standard PORTUGAL LAURELS, 3 to 4½ feet stems, with fine heads 4 to 5 feet through.
WEEPING HOLLIES, 4 to 5 feet stem, with fine heads, 3 to 4 feet through.
GREEN HOLLIES, pyramids, 8 to 10 feet, fine.

Also a fine stock of Dwarf Trained PEARS and APPLES, KALMIA LATIFOLIA, and BERBERIS ASIATICA, the latter particularly recommended for Fences.

Nursery, Exeter.

DOBSON'S for NEW PELARGONIUMS.
DOBSON'S for SHOW PELARGONIUMS.
DOBSON'S for FANCY PELARGONIUMS.
DOBSON'S for SPOTTED PELARGONIUMS.
DOBSON'S for NEW CINERARIAS.
DOBSON'S for PRIZE CINERARIAS.
DOBSON'S for PANSIES.
CATALOGUES Free.

J. DOBSON & SONS, Woodlands Nursery, Isleworth.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. Annual Sale exceeds 2000 packets. In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each.

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DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1s., 2s. 6d., and 5s.

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DOBSON'S PRIZE PRIMULA SINENSIS SEED.
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AMARANTHUS MELANCHOLICUS RUBER (VEITCH). Sealed packets, 1s. and 2s.

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W. B. SMALE'S COLLECTIONS of GARDEN SEEDS.

	No. 1. 10s.	No. 2. 20s.	No. 3. 30s.	No. 4. 50s.	No. 5. 70s.
Peas	6 pts.	6 qts.	9 qts.	17½ qts.	23 qts.
Beans	3 ,,	4 ,,	5 ,,	9 ,,	15 ,,
French Beans & Scarlet Runners	1 ,,	1 ,,	3 pints	2½ ,,	3 ,,
Beet	½ oz.	1 oz.	1½ oz.	2½ oz.	3 oz.
Broccoli, of sorts	2 pkts.	4 pkts.	1½ ,,	2 ,,	4 ,,
Brussels Sprouts	¼ oz.	½ oz.	1 ,,	1 ,,	1½ ,,
Borecole, sorts ..	2 pkts.	¾ oz.	1 ,,	1½ ,,	2 ,,
Savoy	2 pkts.	½ ,,	1 ,,	1½ ,,	2 ,,
Celery	2 ,,	½ ,,	½ ,,	½ ,,	1 ,,
Carrot	1 oz.	2 ,,	3½ ,,	6 ,,	9 ,,
Cauliflower ..	1 pkt.	1 pkt.	¼ ,,	½ ,,	½ ,,
Cress	1 oz.	½ pt.	1 pint	1½ pint	1 quart
Cucumber, Ridge and Frame sorts	1 pkt.	3 pkts.	3 pkts.	3 pkts.	3 pkts.
Lettuce	2 ,,	4 ,,	1 oz.	2 oz.	2 oz.
Mustard	1 oz.	½ pint	1 pint	1½ pint	1 quart
Onion	¾ ,,	2 oz.	2½ oz.	6 oz.	7 oz.
Radish	1 ,,	2 ,,	4 ,,	6 ,,	6 ,,
Salsafy & Scorzonera, each	1 pkt.	1 pkt.	1 pkt.	1 pkt.	1 pkt.
Spinach, Round and Prickly	1 oz.	2 oz.	4 oz.	5 oz.	8 oz.
Tomato	1 pkt.	2 pkts.	2 pkts.	2d kts.	2 pkts.

If any sorts are not wanted, larger quantities of the others will be sent.

A PRICED LIST may be had gratis on application.

Barton Nursery, St. Mary Church, near Torquay,

Seeds, Seeds, Seeds.

S. GLENDINNING AND SONS' (Successors to the late R. GLENDINNING) CATALOGUE of KITCHEN GARDEN, AGRICULTURAL and FLOWER SEEDS is now ready and may be had on application.

Chiswick Nursery, London, W.—January, 1863.

Rhododendrons, Scarlet and Other Choice kinds suitable for Potting.

JNO. WATERER has the pleasure to say that he has quantities of the above in fine blooming Plants, very suitable for Forcing. The following kinds would be included in selections:—

BLANDYANUM	VIVID
PRINCESS AMELIA	ATTRACTION
VANDYKE	EVERESTIANUM
BRAYANUM	BARCLAYANUM
VICTORIA	ROSEUM SUPERBUM,
ATROSANGUINEUM	&c.

KALMIA LATIFOLIA, finely set with bloom.
,, MYRTIFOLIA, ditto.
BELGIAN and other AZALEAS, very full of buds.
Price on application to
JOHN WATERER, The American Nursery, Bagshot, Surrey.

New Seedling Rhubarb Excelsior.

B. W. KNIGHT, NURSERYMAN, Battle, Sussex, is now sending out this superb NEW RHUBARB; it is quite distinct, of very large growth, very productive, of a new and desirable flavour, partaking largely of the flavour of the Apple. Good plants, 3s. 6d. each.

NUTTING'S selected DWARF-RED BEET, recommended by the Royal Horticultural Society as the best in Cultivation. (The original Stock.) Price to the Trade on application.

NUTTING & SONS, Seed Warehouses, 60, Barbican, London, E.C.

Cole's White Perfection Celery.

WM. COLE has much pleasure in offering again to his numerous customers the above, which has proved itself to be the best White Celery in cultivation. In sealed ½ oz. packets, free by post, 1s. 6d. Price to the Trade upon application.

Nurseries, Wichington, near Manchester.

New Celery, Williams's Matchless Red.

B. S. WILLIAMS, Paradise Nursery, Holloway, N., has much pleasure in offering the above superior solid RED CELERY, feeling confident it will give satisfaction. It is perfectly hardy, a strong grower, very solid and crisp, and of a most delicious flavour. It has been taken up for use quite the end of April without having the least tendency for running to seed. From the testimonials received it is unquestionably the best Red Celery in cultivation. In sealed packets, 2s. each.

LIST of MESSRS. SUTTON'S AGENTS for the Sale of Seed of the "STUDENT" PARSNIP, introduced by Professor Buckman.

Barr & Sugden, 12, King Street, Covent Garden, London, W.C.
Beck, Henderson, & Child, Adelphi Terrace, Strand, London
Brown, Henry, 4, Commutation Row, Liverpool
Backhouse, James & Son, York
Batt, Rutley, & Co., Strand, London
Burgess, A., The Nurseries, Cheltenham
Carter & Co., High Holborn, London
Cattell, John, Westerham
Cooper & Bolton, 152, Fleet Street, London
Cottrell, J. H., 15, Bull Ring, Birmingham
Charlwood & Cummins, Tavistock Row, Covent Garden, London
Clarke, Henry & Sons, 39, King Street, Covent Garden, London
Cooling, C., 18, Iron Gate, Derby
Cutbush & Son, The Nurseries, Highgate, London, N.
Davies, George, Stanley Nurseries, Liverpool
Dicksons & Brown, Corporation Street, Manchester
Dickson & Sons, 102, Eastgate Street, Chester
Dickson, Sons, & Co., 23, Market Place, Manchester
Dickson & Turnbull, 26, George Street, Perth
Dickson, F. & A. & Sons, 106, Eastgate Street, Chester
Dickson, Hogg, & Robertson, 22, Mary Street, Dublin
Dixon, E. P. & Son, 57, Queen Street, Hull
Dillestone & Co., The Nurseries, Sturmer
Downie, Laird, & Laing, 17, South Frederic Street, Edinburgh; and Stanstead Park Nursery, Forest Hill, Kent
Drummond & Sons, 58, Dawson Street, Dublin
Drummond & Sons, Stirling
Ernst & Von Spreckelsen, Hamburg
Edmondson, Brothers, 10, Dame Street, Dublin
Fairhead & Son, 7, Borough Market, London
Fisher, Holmes, & Co., Handsworth Nursery, Sheffield
Finney & Co., Gateshead Nursery, Newcastle-on-Tyne
Fraser, Richardson, & Goad, 82, Bishopsgate St. Within, E.C.
Godwin, F. G., 3, New Market Hall, Sheffield
Gibbs, Thomas, & Co., Half Moon Street, Piccadilly, London
Garaway & Co., Durdham Down, Bristol
Hurst & Son, 6, Leadenhall Street, London [Wood, N.W.
Henderson, E. G. & Son, Wellington Nursery, St. John's
Henderson, A. & Co., Pine Apple Place, Edgeware Road, W.
Haycroft, J. & H., Cork
Handasyde, Thos., Glen Nurseries, Musselburgh, N.B.
Ivery, James & Son, Dorking, Surrey
Kennedy, Thos. & Co., Dumfries
Krelage, C. F. & Son, Haarlem, Holland
Low, H. & Co., Clapton Nursery, London
Lowe, Richard & Co., High Street, Wolverhampton
Maule & Sons, The Nurseries, Bristol
Methven, T., Nursery Gate, Leith Walk, Edinburgh
Nutting & Son, 60, Barbican, London
Nelson, John, St. Michael's, Bristol
Osborn & Son, Nurserymen, Fulham, London
Perkins, John, 52, Market Square, Northampton
Pillinger, John, Chepstow Nurseries, Chepstow
Pope, Henry, Great Heath Nurseries, near Birmingham
Perry, P. J., The Nurseries, Banbury
Plymouth Seed Company, Plymouth, Devon
Smith & Simons, Argyle Arcade, Glasgow
Stuart & Mein, Kelso, N.B.
Toole & Co., Westmoreland Street, Dublin
Turner, Charles, The Royal Nurseries, Slough
Thomas, Wm., Exchange Street, Wolverhampton
Veitch, James, jun., King's Road, Chelsea
Van Houtte, Louis, Ghent, Belgium
Wrench, Jacob, & Son, London Bridge
Wheeler, J. C. & Son, Gloucester
Wood & Son, Maresfield, near Uckfield
Waite, J. G., 181, High Holborn, London
Wood & Ingram, The Nurseries, Huntingdon

Packets of Seed, 6d., 1s., and 2s. 6d. each, can be obtained of any of the above named, and also of Messrs. SUTTON, who can supply it either Wholesale or Retail.

Royal Berkshire Seed Establishment, Reading.

*** The Trade supplied on liberal terms.

Wholesale Catalogue.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1862 and SPRING 1863, comprising Fruit Trees of all the leading kinds, new and selected Roses, fine varieties of American Plants, Choice and Rare Conifers, Evergreen and Deciduous Trees and Shrubs, and a fine Stock of Transplanted Forest Trees, &c., can be had free on application.

Woking Nursery, Surrey.

Pine Apple Place, Edgware Road, London, W.

ARTHUR HENDERSON AND CO., beg to announce that their CATALOGUE of KITCHEN, FARM, and FLOWER SEEDS, Imported German Asters, Stocks, and Collection of Vegetable Seeds, for One Year's Supply—

Collection, No. 1 ..	105s.	Collection, No. 3 ..	42s.
,, No. 2 ..	84s.	,, No. 4 ..	25s.
Collection, No. 5 ..	15s.		

is now ready, and will be forwarded free on application.

NOTE.—This Catalogue contains only the best varieties of Vegetables, and an abridged List of the most valuable Flower Seeds.

Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER'S CATALOGUE of the above popular plants, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants.

It describes faithfully the colours of all the Rhododendrons, thereby rendering every facility for making selections.

It likewise contains an abridged List of really Hardy Conifers, with their heights and prices.

The American Nursery, Bagshot, Surrey.

Seeds for the Kitchen Garden, Flower Garden, and Farm.

JOHN CATTELL'S DESCRIPTIVE CATALOGUE of the above is now ready, and will be forwarded, post paid, on application; it contains select lists only, and includes, every novelty worthy of cultivation.

All parcels of Seeds of the value of 21s. and upwards carriage paid to any Railway Station in England.

Nursery and Seed Establishment, Westerham, Kent.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

To the Seed Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEEDSMAN, &c., Erfurt, Prussia, begs respectfully to announce that his WHOLESALE CATALOGUE of the above is now ready, containing extensive collections of Stocks, Asters, and other Choice Seeds.

Free by Post on application to GEO. MACINTOSH, Seedsman, High Road, Hammersmith, London W.

Established 1787.

THOMAS KENNEDY AND CO.,
NURSERY AND SEED ESTABLISHMENT,
Dumfries, N.B.

, PRICED CATALOGUES sent free on application.
FREE DELIVERY.

FARM and GARDEN SEEDS under certain limitations will be DELIVERED FREE OF CARRIAGE to the chief Railway Stations in Great Britain and the principal Steam Ports in Ireland.

INTERNATIONAL EXHIBITION.

PRIZE MEDALS 1851 AND 1862

AWARDED FOR SUPERIORITY AND GENERAL EXCELLENCE TO

BUTLER & McCULLOCH, SEED MERCHANTS,

COVENT GARDEN MARKET, W.C.

(ESTABLISHED UPWARDS OF A CENTURY.)

COLLECTIONS OF VEGETABLE SEEDS SUITABLE FOR ANY SIZED GARDEN.

No. 1.	**20 Quarts of PEAS**	**and other Seeds in proportion**	... ...	£3	3	0
No. 2.	**11**	**ditto**	**ditto**	**ditto**	2	2	0
No. 3.	**8**	**ditto**	**ditto**	**ditto**	1	10	0
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No. 5.	**5 Pints**	**ditto**	**ditto**	... ...	0	10	6

A Specification of the above Collections is given at page 77 of Messrs. BUTLER & MCCULLOCH'S systematically arranged SEED CATALOGUE for 1863, which may be had free and post paid upon application.

All orders amounting to £1 1s. sent Carriage paid.

THE PLYMOUTH SEED COMPANY,

PLYMOUTH.

Extract from a Letter received from a CLERGYMAN *in Yorkshire, dated December* 11, 1862:—

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EXCELLENCE AND ECONOMY COMBINED.

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SUTTON'S

COLLECTIONS OF GARDEN SEEDS FOR ONE YEAR'S SUPPLY

(CARRIAGE FREE).

No. 1.	**A Complete Collection of KITCHEN GARDEN SEEDS for One whole Year's Supply (with Instructions on Cultivation)**	£3	0	0
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No. 3.	**A Complete Collection of KITCHEN GARDEN SEEDS,** ditto	1	0	0
No. 4.	**A Complete Collection of KITCHEN GARDEN SEEDS for a SMALL GARDEN**	0	10	6

Sent Carriage Free by Rail, and 5 per cent. discount allowed for cash payment. A remittance or reference requested from unknown Correspondents.

The sorts of Vegetables included in these Collections are those which have proved to be the most prolific, best flavoured, and most worthy of general cultivation and of which sorts we have therefore grown large Crops of Seed. We exclude from our Collections not only inferior old sorts, but also such new ones as we have been unable to test the merits of, and which are selling at extravagant prices.

If any articles are not required they should be named when giving the order, and increased quantities of other sorts will be given in lieu of those omitted.

*** By ordering one of the above Collections once a year much trouble and expense will be saved.*

That great satisfaction has been given by these Collections in former seasons is testified by the recommendations given by our customers to their friends; as also by the numerous letters we receive, from which we present the following:—

From the Rev. M. W. GREGORY, *Roade, Northampton.*

"I lose no opportunity of recommending your Seeds, which are most excellent; and I think you are doing us (the clergy especially), a great kindness in making up your garden selections."

From Mr. ROBERTSON, *Gardener to* A. POLLOCK, Esq., *Lochfine, N.B.*

"I must say that your Seeds have been liberal as to quantity, and excellent as to quality."

From ALEX. CATHCART, Esq., *Knockdolian Castle, Girvan, N.B.*

"I have had much satisfaction in recommending your Seeds to various friends, as I find they are much pleased with them; and you may depend upon my continuing to do so as long as I find the articles you send are good and reasonable in price."

From Mr. WILLIAM MOOR, *Gardener, The Rectory, Stoke.*

"I never had (previous to yours last year) a lot of Seeds which have all turned out so satisfactory."

From the Rev. G. E. WALKER, *Shareshill, Wolverhampton.*

"Mr. Walker cannot but compliment Messrs. SUTTON & SONS on the quality of the Seeds sent last year, as they were by far the best he ever purchased."

From the Rev. JOHN KIEWAN, *Withycombe Rectory, Taunton.*

"I was so much pleased with the selection of Seeds sent by you, that I recommended two of my friends to take parcels from you."

A LIST of CONTENTS of the COLLECTIONS may be had gratis.

Also NATURAL GRASSES for LAWNS and MEADOWS, fine sorts of MANGEL WURZEL, TURNIP, and other Agricultural Seeds.

Remittances may be made by Cheques on Town or Country Bankers, or by Post-office Orders payable to

SUTTON & SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

HARDY and SHOWY FLOWER SEEDS (post free).
A COLLECTION of the best 50 sorts known £0 10s. 6d.
A COLLECTION of the best 36 sorts known 0 7 6
A COLLECTION of the best 24 sorts known 0 5 0
SUTTON'S CATALOGUE of SEEDS will be sent post free.
SUTTON & SONS, Seed Growers, Reading, Berks.

Seeds for Exportation.—New Seeds, Growth of 1862.
SUTTON AND SONS will shortly be prepared with their NEW SEEDS of this year's growth for export orders. Messrs. SUTTON'S mode of packing is most effectual and economical.
For terms, &c., apply to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Notice.
PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS.
For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Good Clover Seed.
GENUINE NEW CLOVER SEED may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.
SUTTON & SONS, Seed Growers, Reading, Berks.

Vegetable, Flower, and Agricultural Seeds.
NEW AND RARE PLANTS, &c.
ROBERT PARKER begs to announce that his NEW CATALOGUE, containing select descriptive and priced lists of AGRICULTURAL, KITCHEN GARDEN, Imported GERMAN, and other FLOWER SEEDS; NEW and RARE PLANTS; Variegated, Ornamental foliaged, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now published, and will be forwarded Post Free to all applicants.
Exotic Nursery, Tooting, Surrey, S.

Stirling, Scotland.
W. DRUMMOND AND SONS' CATALOGUE of SELECT VEGETABLE and FLOWER SEEDS, POTATOES, GARDEN TOOLS, &c., for 1863, is now ready, and may be had on application.
The distinctive features of this Catalogue are such as have commended themselves alike to the Gardener and Amateur. Being simple in arrangement, and sufficiently descriptive, a selection from its columns is rendered easy and satisfactory. Moreover, we still adhere to the system introduced by us several years since, of discarding, in the various sections, all comparatively inferior varieties, as well as omitting what are mere repetitions of the same sorts under different names.
*** Seeds Carriage Paid, as formerly.
W. DRUMMOND & SONS, Seed and Implement Warehouse, Stirling.

Rose and Bulb Catalogues for 1862-3.
EDWIN HOLLAMBY begs to announce that his NEW DESCRIPTIVE PRICED CATALOGUES of the above are now ready, and will be forwarded gratis and post-paid on application.
Seed and Nursery Establishment, Tunbridge Wells, Kent.

Dwarf Tea Roses.
EDWIN HOLLAMBY begs to announce that he has a large and healthy Stock of the above, comprising some of the finest Yellows, and other leading varieties, in the best possible condition. Price on application.
Nurseries and Seed Warehouse, Tunbridge Wells, Kent.

Melon Seed! Melon Seed!!—Hybrid Cashmere (True).
J. MEREDITH can supply Seeds of his First Prize MELONS, which were exhibited at Kensington and Regent's Park last summer, Twelve Seeds for 2s. 6d.
N.B. Payment may be made in postage stamps.
J. MEREDITH, Vine Cottage, Garston, near Liverpool.

NEW MELON—CHAUNTRY HYBRID.—Colour, golden yellow; beautifully netted, and a great bearer. Raised from Orion and Woolverstone Perpetual. Has been awarded the First Prize for flavour wherever exhibited. Price per packet of 5 seeds, 1s. 6d., on application to
J. GILBERT, Florist, &c., Ipswich.

NEW MELON, PRINCESS ALEXANDRA.—A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1s. per packet.
JAMES CARTER & Co., 237, 238, & 261, High Holborn, W.C.

The Gardeners' Chronicle.
SATURDAY, JANUARY 17, 1863.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, Jan. 21 { Royal Horticultural (Fruit Committee), at South Kensington .. 12 noon
Society of Arts .. .. .. 8 P.M.

THE raising of new varieties of fruit from seed is an operation that not unfrequently engages the attention of the amateur, as well as the practical horticulturist, and gradually becomes to both a source of great interest and amusement. Indeed, it is to their care and skill, no less than to their persevering exertions, that we are indebted for the choice varieties of fruit which now enrich our dessert, and add so much to our enjoyment. To obtain these may seem to many persons a very easy matter; some, perhaps, may even imagine they have only to sow the seeds of a favourite Apple or Pear in order to have young plants of the identical variety of Apple or Pear from which the seeds were taken. But in this they will be sadly disappointed; for although the seeds will produce plants resembling those of an Apple or Pear, yet the chances are when they come to bear fruit, the latter, instead of being eatable, will more frequently prove to be sour Crabs, or wildings, of the species from which the particular variety of Apple or Pear originated;—it being an axiom in vegetable physiology that seeds reproduce the species only, and cannot be relied upon to renew a variety that shall possess all the peculiar properties for which its parent was distinguished. Exceptions to this rule are to be found among our garden vegetables, where varieties of the same species which have been improved by cultivation are annually raised from seed with the greatest certainty. But even here the natural law is the same, although in such cases it may be said to be kept in abeyance by the art of man, and if great precautions were not taken to prevent its operation there can be no doubt that the different varieties we regard as fixed would gradually revert to their original condition.

We have been led to make these remarks with the view of directing the attention of our pomological friends to the valuable report of experiments on raising seedling fruits that we have recently been enabled to place before them, through the kindness of our esteemed correspondent Mr. RIVERS, of Sawbridgeworth, than whom, we believe, there is no one at the present day so conversant with all that relates to this interesting subject, or whose opinion on such matters is so entitled to respect. His experiments with the Pear, as detailed at page 1195 of the *Gardeners' Chronicle* for 1862, will be found to confirm the fact we have already stated—that the seed of a variety will rarely, if ever, reproduce itself. It may have a great similarity to its parent in habit and general appearance, but in some other respects it will have features peculiar to itself—and perhaps its fruit will be undeserving of notice. Now the object of raising new varieties of Pears is not to increase their number, which is far too large already, but with the hope of obtaining something that shall surpass if possible any of the finer varieties in general cultivation; and the chances of success may be imagined from Mr. RIVERS' statement, that "last year he had one tree out of 300 or 400 12-year-old-seedling trees that bore fruit, and that was from the Beurré d'Aremberg, which was simply a good, but not a remarkable Pear." He finds seedlings from Passe Colmar, Glou Morceau, and Beurré d'Aremberg have each a strong family resemblance, while others from Marie Louise, Knight's Monarch, Beurré de Capiaumont, and Josephine de Malines, show strong marks of the race from which they have sprung. Whenever any seedling shows a marked difference in habit, it immediately becomes of great interest to the Pear-raiser, as it is from such that a new variety deserving of notice is expected to arise. By sowing the seeds of late Pears, one might naturally hope that a variety might be obtained that would produce fruit to ripen even still later than that of its parent. But the result of Mr. RIVERS' experiments completely refutes this notion, as he finds "seedlings raised from late sorts will often bear fruit like the parent in form and general appearance, but for the most part they will ripen earlier."

But the facts which are of the greatest importance to the pomologist are those that relate to the raising of Peaches and Nectarines; and to Mr. RIVERS we are indebted for solving the long disputed question respecting their identity, and proving by actual experiments that they are not specifically distinct, as some botanists have supposed, but are only varieties of one another. We expressed this opinion long ago, as will be seen by referring to the *Gardeners' Chronicle* for 1856, page 531, but unfortunately we were unable to adduce any well authenticated instance of a Nectarine having been raised from the stone of a Peach, or a Peach from the stone of a Nectarine.

On this subject Mr. RIVERS tells us, that "being much struck with the earliness and goodness of some Early York Peaches on a tree trained against a wall—one of the first I imported from America—I sowed the stones and raised some 15 or 20 trees. These have all borne fruit . . One which is larger and earlier than its parent has been thought worthy of the name of the Early Victoria Peach. I mention this batch of seedlings with additional interest because one tree, exactly like all the others, with its glandless leaves and large flowers, bore Nectarines of a large size, with yellowish flesh."

From the new white Nectarine were raised several seedlings. All proved like the parent but one, and "that exception has proved of great interest, for it is a large Peach with a silvery white skin. The tree has the same leaves and the same large pale flowers as its parent, leaving no doubt of its origin."

Other instances similar to the above, and in some respects even more curious and interesting, are recorded by Mr. RIVERS as occasionally taking place among the seedlings raised from Peaches and Nectarines. The most remarkable is that of the Bellegarde Peach producing a Nectarine; and the Bourdin Peach, a well known late melting sort, producing a late variety of Nectarine likely to become the type of a new race, while from the Pitmaston Orange Nectarine has been obtained a large crimson Peach;—from the Newington, a clingstone Nectarine, has sprung a late melting Peach; and from Gregory's Late Peach, a melting freestone, has been raised a tree that produces large clingstone Peaches which ripen fully a month before its parent. Here we think is sufficient proof to satisfy the most incredulous, that not only do seedlings of the Peach and Nectarine produce varieties of each other, but what appears to be still more singular and inexplicable is, that the fruit in some cases should, in addition to changing its outward appearance, undergo a change of another description, and from a melting freestone become a hard clingstone, and *vice versâ*.

Notwithstanding the tendency which some varieties have to vary when raised from the stone, there are others, such as the Royal George, Noblesse, Grosse Mignonne, and Walburton Admirable, that reproduce themselves with but little variation; and it is worthy of remark that there is the same peculiarity in seedlings from late Peaches as from late Pears, to produce fruit that ripens much earlier than that of the varieties from which they sprang.

Such are a few of the facts which have resulted from the interesting experiments made by Mr. RIVERS in his attempt to raise new varieties of fruit from seed. While they show us how much doubt and anxiety attend the raising of a new sort of Pear, they also point out the facility with which varieties of the Peach and Nectarine may be obtained, and the necessity there is for great caution being exercised in order to prevent the public from being imposed upon with varieties that have no other merit besides novelty to recommend them.

—— WE are all anxious to know, if knowledge is attainable, the cause of the incessant rain, instead of frost and snow, by which the West of Europe is just now visited. The prevailing notion is that somehow the Gulf Stream has changed its course, and extended its influence, bringing its heated water to our western coasts. According to the newspapers, sharks have been seen on our shores, and as they cannot live out of warm water, the inevitable inference is that the sea that surrounds us is heated, and nothing seems capable of producing such an effect except the prodigious current that flows from the Gulf of Mexico.

At a meeting of the Geographical Society the other evening this opinion received the support of no less a person than (Lieutenant now) Captain MAURY. This gallant officer said: When he was at Bermuda, on his way hither from South Carolina, he saw an officer of HER MAJESTY'S navy who had been cruising for some years on the North American station, and he was told by him that on his passage from Halifax to Bermuda he had come across this extraordinary phenomenon—that the Gulf Stream actually ran to the southward and westward. The temperature of the water was all right, but his reckoning was all wrong. On going back he tried it again, taking care to verify his instruments, and, singular to relate, it happened again that the Gulf Stream not only was not running in its usual course, but was running backwards. He thought the action of the Gulf Stream accounted for the mild winter now being experienced in England. It operated like a hot-air furnace in the sea, mitigating the temperature, and, to whatever eccentricities it might be liable in its course, it reached the shores of this country in the long run, influencing its climate.

MOST of our readers will doubtless remember the controversy which has recently been carried on in our columns, respecting GRAFTED CONIFERS. It has been assumed on the one hand that grafted trees are "abominations," and on the other that trees raised from seeds or cuttings are necessarily to be preferred. The question raised is one of some importance, but it does not appear to be one which may be thus summarily disposed of, though it seems the notion has gone abroad that grafted plants of this family are amongst the "things to be avoided" in arboriculture.

Let us inquire a little into some of the facts. It cannot be difficult, indeed it is not difficult, for any one acquainted with plantations and nurseries in which the choicer Conifers, that is to say, those subject to grafting, are grown, to point out healthy vigorous thriving trees which are grafted. We have ourselves within the last few days had our attention particularly directed to a batch of Deodars grafted some years back on Lebanons, than which it is impossible

that trees could be in rude health, or in a more vigorous state of growth; and some of the long-leaved Pines, grafted specimens, were seen in a similar condition. Grafted plants therefore will thrive; and indeed one of our correspondents admits that they "do remarkably well" at certain places. On the other hand, we all know that seedling plants as well as grafted plants may be found without much difficulty in anything but a flourishing condition—ay, even it may be in close proximity to other grafted trees, which are flourishing to the heart's content of the planter. What is the inference which is fairly to be drawn from these facts? Why, surely this, that it is the adaptation of the root to the soil (or *vice versâ* if you please), and of the stock with its feeding apparatus to the trunk or head to be supported, which makes all the difference between success and failure. As a commercial speculation the Deodars we have referred to may not perhaps be quoted as a profitable investment, the stocks, we believe, being as valuable as the grafted trees; but viewing their manipulation as a physiological experiment they have their value, their flourishing condition furnishing evidence that the process of grafting is no bar to healthy development among Conifers any more than among the hundreds of other plants which are increased by this means, and are grown without question. Had these same trees been grafted on the Larch, they would probably not have been worth the ground they occupy; and here, if we mistake not, lies the gist of the whole matter. Provide a stock which is hardy at the root, of vigorous constitution, that constitution assimilating as nearly as possible with that of the sort to be grafted, and let the union be sound and perfect, and there is no reason that we can see, why grafted Conifers should not be entirely successful.

We graft our Apples and Pears on free-growing stocks, and expect them to grow to the natural size and to endure the full term of their species, or at least of the variety so treated; or we graft them on Quinces and other dwarfing stocks, for a definite purpose, not expecting them under these circumstances to do either the one or the other. We graft our delicate Indian Azaleas on stocks of the more robust-growing sorts to throw vigour into them, and thus treated we get them to grow more freely, and to endure longer than they would do on their own roots. The same principle runs through the various instances in which this mode of propagation is had recourse to; and why, we may ask, should Conifers be any exception? Indeed to the assumption that they are exceptions we venture to demur till we have clearer evidence. There are, as we believe, too many examples of healthy grafted Coniferous plants in the most satisfactory condition, to allow us to admit that there is *per se* anything hurtful in the process of grafting as applied to them beyond other plants. Indeed we go a step further, and hold that there MAY be cases in which the grafted plant may have the advantage over the seedling and decidedly over the cutting; for we maintain that a species whose constitution may verge towards tenderness (not being absolutely too delicate for our climate), may be adapted to a situation in which it would otherwise perish, by union with a vigorous hardy stock, if the disparity between the two is not too great, and the junction is sound. On the opposite hand, it is certain that a species naturally vigorous and hardy, may be ruined by union with a stock of more weakly, or even of a very dissimilar constitution. We must not "quincefy" our Conifers if we expect them to develope themselves in all their true nobility of character.

It will thus be seen that our own conclusions, based upon such examples as we have been at the moment able to recall, are these:—1. That grafting in itself is not injurious to Conifers; but that (2) success depends upon the proper adaptation of the stock, both to the graft and to the soil in which it is planted. But here practice and experience must step in to settle what are the most proper stocks for particular kinds. The question being, as we have said, a most important one to those interested in planting, we should feel obliged to such of our readers and correspondents as may have Conifers under their care, if they will report as exactly as possible such facts as may be ascertainable by them bearing on this point, which information, for the sake of comparison, it would be convenient to range under the following heads:—

1. The name of the species grafted.
2. The kind of stock employed.
3. The age of the tree—approximately if it cannot be exactly stated.
4. Its height and other dimensions.
5. Its condition and progress, as compared with seedlings or cuttings (if any) of the same species, grown under similar conditions.

A series of returns from different districts embodying these particulars, ought to set the question finally at rest, and to effect this desirable object we invite the co-operation of our readers.

We do not indeed intend to imply—let us guard ourselves against being thus misunderstood—that grafted plants are as a rule or even generally better than seedling plants, or that seedling plants are not to be preferred, all other things being equal. What we wish to set forth is our own conviction that there is not the disparity in value between the two classes of plants which some would have us believe; that when seedlings are unattainable, grafts on *proper* stocks need not be rejected; and that particular kinds may be sometimes rendered more suitable for particular localities by being grafted on hardier or more vigorous stocks.

—— Two or three printer's errors have rather changed the sense of our remarks on Fuchsias at p. 26. In the second paragraph of the first column the reading should be—"Indeed any exhibition subjects which are now shown throughout all *their* classes indefinitely mixed," &c. In the second column, first paragraph, 16th line, the word 'retained' should replace 'returned;' and in the fourth paragraph of the same column, Madame Cornelissen should appear as a 'splendid' not a 'slender' variety, which indeed it is not.

—— We observe that Mr. TURNER, by whom Dr. MACLEAN'S valuable NEW PEAS have been 'let out,' announces in his recent Seed Catalogue, that the LITTLE GEM, about which a Correspondent enquires at p. 1173 of our volume for 1862, 'cannot be offered this season'—doubtless from want of stock.

HUE AND CRY.

POINCIANA PLAYFAIRII.—Seedlings of this beautiful plant are living in the Royal Gardens, Kew, where they were sent by Captain Playfair from Aden. These are now about 4 inches high, and at present leafless, in which condition it is the object to keep them through the winter, which answers to the dry season of their own country. As a species it is very closely allied to, if not identical with, the old P. elata, L., which is a native of Arabia.

THE WEATHER OF 1862.

January.—This was a favourable winter month, for the temperature, although slightly below the average, was not at any time severe, the lowest indication of the thermometer being 17°. The ground temperature at 1 and 2 feet deep was, at the former, 42°, and at the latter 40°. The prevailing winds were from S.W., and the barometer was generally lower than usual; but the amount of rain was a little below the average.

February.—This month was remarkable for the small amount of rain which fell; there was none till the 16th, nor after the 23d; and altogether little more than ½ of an inch. The wind was chiefly from N.E. The barometer stood high, and was more remarkably so on the 8th. The mean temperature was nearly 2° above the average; the lowest was 18°, only 2° lower than it was in the following April. The ground was nearly 3½° warmer than usual at this period of the season. On the whole the weather throughout was very favourable for all out-door operations.

March.—This month was characterized by a low state of the barometer and an unusually large amount of rain; on the 20th alone there fell more than an inch; and altogether the amount was about 3¾ inches, being nearly 2½ inches above the average. This in many cases rendered the ground unfit for the reception of grain and other crops usually sown in this month. It was the wettest March that has been experienced for at least the last 36 years; in that period the nearest to it in amount of rain was March, 1851, when rather more than 3½ inches fell. The winds were from the S.W. and N.E. an equal number of days, nine in each direction; in the opposite direction of N. and S., and S.E. and N.W.; the antagonistic winds, were likewise in each an equal number of days. The lowest temperature, 14°, occurred on the nights of the 3rd and 4th, and these proved the coldest in the whole year. The ground temperature was about 2° higher than usual.

April.—The mean temperature was above the average; but there were some frosty nights which did much injury to the blossoms of many kinds of fruit trees. By the 10th vegetation had advanced further than usual; then came five frosty nights in succession. The thermometer indicated 11° below freezing on the 12th; on the 13th, 12°; 7° on the 14th; but again it fell to 12° below freezing on the 15th. Peaches on walls with very slight covering were saved; but Pears, Plums, and Cherries in the open ground were, in many instances, entirely cut off, especially on dwarf trees, for these suffer more from spring frosts than standards do. The temperature of the ground was rather above the average; but the soil was very wet, owing to the great quantity of rain which fell in the preceding month, whilst in the present the amount was nearly ¾ inch more than usual. Wind from S.W. was most prevalent; yet the barometer averaged higher than its mean, so that whilst the lower current of air was from the S.W., there must have been a strong upper current from N.E. or perhaps from North, for with air moving from these quarters the barometer rises; and although the lower current may be from the S.W., the upper and colder indicated by the height of the barometer may take the place of the warmer any day or night; and tender vegetation, brought out by the comparatively soft breezes from southern regions, easily falls a prey to the cold which accompanies the polar winds.

May.—This month was warm but wet. The mean temperature was 2°.70 above the average; and this was more owing to the heat of the days than that of the nights, the mean maximum being fully 4¼° above the average, whilst the mean minimum was little more than 1° higher than usual. In various instances the thermometer indicated within a few degrees of freezing; and as late in the month as the 25th it was within 1° of that point. The high temperature was maintained in consequence of the prevalence of S.W. winds, rather than by solar radiation, for the weather was generally cloudy, wet, and sunless. These circumstances, and the saturated condition of the soil, proved very unfavourable for bedding out plants, which made very slow progress after planting out, and they made comparatively a poor show in the early part of summer.

June.—The three preceding months were warm and moist; but this was wet and cold. The mean temperature was nearly 4° below the average, whilst that of the nights was more than 5° colder than usual. The season may be cold; but if the temperature advance regularly vegetation will continue to make sound though not rapid growth. But when the progressive rise of temperature is arrested for a considerable time, the organisation of tissue, according to the nature of the plant, must be more or less deranged. When a warm summer follows a moderately cold spring, a fair substantial growth is made; but the reverse when a hot spring is succeeded by a cold summer. Instead of the temperature of this month advancing 7° above that of its predecessor, as on the average is the case, it did not advance 1°; whilst also the quantity of rain was still in excess. Frequently at night the thermometer was at 40° or lower. On the night of the 9th, and again on that of the 28th, it was within 2° of freezing. In the previous month the weather was hot and wet; the latter still continued, but in this month it was accompanied with cold instead of heat. To these unfavourable and abnormal conditions we presume may be fairly attributed the strange effects exhibited by some kinds of vegetation. Strawberries, for example, which promised a fair crop, swelling and commencing to ripen, entirely rotted off, and the whole fructification mysteriously disappeared in many instances about London. A market gardener had gathered a few small baskets of this fruit from about half an acre of ground, and he made the remark that he thought he could gather about as many more from the same space. To the same unfavourable combination of circumstances may likewise be attributed most probably the failure in the formation of flower-buds on Rhododendrons, as described by Messrs. Waterer and Godfrey in the following letter: "It appears that we shall not be able to make an Exhibition of American Plants in the Horticultural Gardens next season, *from the fact that we have no bloom on our plants.* You will scarcely credit us when we tell you that out of our immense stock we could not find a hundred decent blooming plants, excepting here and there some of the commoner kinds. We were fully prepared with plants to do it, and with an ordinary season we have no doubt we should have made a better show than that of last year. As it is, we are wofully disappointed. We mentioned this to Mr. Eyles when he was here. We have since gone carefully over the plants, and can come to no other conclusion than that we are not in a position to carry it out either with satisfaction to the Council or credit to ourselves. In ordinary seasons we should be able to fill two or three such places, and it was our full intention to have done so. We never knew such an occurrence, nor does the oldest man in our nursery. Of course seasons vary, but we have hitherto always had some bloom; but this year we have none."

July.—Since February, every month has been marked by an excess of rain; but in the present the amount was below the average; still on 15 days rain fell more or less. The temperature was nearly as much below the average as in the previous month, and frequently at night the thermometer was very low for the period of the season. During 15 days the wind was from the warm south-west quarter; nevertheless, from the want of sun-heat the average temperature was not maintained, and great fears were entertained for the crops.

August.—The day temperature nearly equalled the average; but the nights were still colder than usual. There was, however, a considerable improvement in the weather of this month compared with that of several preceding ones. Scarcely any rain fell in the last 10 days; indeed very little after the 18th; and from that date the days were uniformly fine, but at the same time the nights were generally cold for this period of the season, being on the 23d as low as 36°, and in several instances below 40°.

September.—This, on the whole, was a very fine month, and the previous gloomy prospects as to the grain and other crops were greatly dispelled. For three previous months the mean temperature was considerably below the average, but in this it was above it. The days were fine, and with plenty of light and sunshine the crops improved wonderfully. On three nights, however, the thermometer, from the effect of N.E. winds, was below freezing. In consequence of wet and sudden chills at night the ears of Wheat exhibited blanks in many instances; but this is only what might have been expected from the vicissitudes of weather and chilly nights. The barometer averaged high. The amount of rain was above the average; but more than half the quantity for the month fell on the 28th alone. In the period from the 18th of August to the 23d of the present month there fell little more than half an inch, so that during these five weeks the weather was

quite as dry as could be desired; and had it not been for this favourable change the deficiency in the crops must have been very serious.

October.—The mean temperature was nearly 2½° above the average; and for the first time since May that of the nights was higher than usual. The amount of rain exceeded the average depth by nearly ½ of an inch; yet the prevailing winds were from N.E. and E. There were, however, strong gales from S.W., so that by far the greatest movement of air took place from this direction. That this was the case is corroborated by the barometer being on the average lower than usual. It is remarkable that the nights on the average were within half a degree of being as warm as those of the previous June.

November.—As regards temperature this month assumed the character of December. The mean of the latter is, on the average of 36 years, 39°.33; that of November of the year we are noticing, was 39°.38. On the other hand it may here be observed, that last December had a mean temperature of 42°.51, which is fully equal to that of November, 42°.44. In short we had December weather in November, and *vice versâ*. The nights of half those in the month were more or less frosty; the coldest was that of the 22nd, when the thermometer fell to 18°. Northerly winds were prevalent. Only about an inch of rain fell, and most of it on the 5th and 6th. The ground was in good working condition, and operations that had been delayed, owing to the wetness of the previous month, could be well carried out in this.

December.—In the previous month vegetation experienced a check, and a sort of moderate winter weather. The difference of temperature between March and April is a rise from the former to the latter of 4¾°; between last November and December, instead of a fall as usual, there was a rise of more than 3°. The mean of the month, 42°.51, exceeded the average of March, which is 42°.07. This being the case, vegetation felt the effects of a rising spring temperature. The buds of Roses commenced pushing, whilst the late developed leaves at the extremities of the shoots lingered as if inclined to obey the fresh stimulus of heat, and proceed in growth. The temperature of the earth was upwards of 2° higher than usual in this month. The warmest day was the 7th, thermometer 59°, a point which has rarely been equalled, and only once exceeded within the last 36 years. In Howard's "Climate of London," the maximum of the 18th Dec. 1828, is marked 65°; but this appears to be some mistake or error of the instrument. The month was remarkable for the total absence of N.E. winds, whilst strong gales have brought much warm air from southern regions, and that being the case we may not have any very severe cold for some time.

THE YEAR.—The mean temperature was scarcely 10° below the mean for 36 years; but it was not distributed throughout the months according to the usual gradations. Naturally the temperature rises from January, the coldest month, to July the hottest; and then it declines to the end of the year. Whether it follow this course is not of so much consequence except as regards the growing season, say from April to July. Usually each of these months exceeds its predecessor at the following rate:—April, about 4°; May, 7°; June, 7°; July, 3°; but in the past year the gradations were—April, 4°; May, 9°; June, 0°; July, 1° above the very low June. Here we see that from April to May the rise was greater than usual; but instead of that high temperature being carried on, the rise from May to June was nothing, and July still continued low. This had an injurious effect on vegetation, and rendered the crops late. Many of them would have been next to lost had it not been for the favourable weather in August, September, and October. As regards moisture, the months of March and May were very wet; and indeed injuriously so were all the growing months, considering their low temperature. Vegetation was started in May with more than usual heat and moisture in the ground and in the air; and these circumstances rendered it the more susceptible of injury from continued wet, and the subsequent low temperature to which it was subjected. Strawberries instead of ripening dropped or rotted off. Rhododendrons did not form blossom buds; neither did the Pyrus japonica. These are plants which rarely fail to bloom profusely; but the oldest cultivators never knew them to fail so completely as they did last season. There was no severe frost to cause them to do so; and the circumstance can only be attributed to a check when the embryo blossom bud should have commenced forming in the early part of summer. The blossom-buds of Peaches and Nectarines look very well, but the wood on which they are produced is only formed in the course of the summer, after the time the injury had been done to the blossoming of the other plants. Apples, Pears, Plums, and Cherries have formed their blossom-buds very well, and promise an abundant crop next year, if not destroyed by frost in the ensuing spring, as many of them were in the past one.

The annexed table will give the precise leading characteristics of each month, comparatively with those of the average, from which it will be seen that we had a favourable winter and spring, excepting as regards some injurious frosts for the blossoms of fruit trees; that the summer was very unfavourable till August, so much so that the country was then in great danger of the grain crops being defective, too late, and immature; but by a most favourable change in August those serious consequences were in a great measure averted.

TABLE SHOWING THE HEIGHT OF THE BAROMETER AND THERMOMETER, AND DEPTH OF RAIN AT CHISWICK, FOR EACH MONTH OF 1862, COMPARATIVELY WITH THE AVERAGE OF THIRTY-FIVE YEARS.

1862.	Barometer. Mean.	Extreme highest.	Extreme lowest.	Thermometer. Mean Max.	Above (+) or below (−) the average.	Mean Min.	Above (+) or below (−) the average.	Mean.*	Above (+) or below (−) the average.	Extreme Highest	Extreme Lowest.	Rain. Amount.	Above (+) or below (−) the average.
	Inches	Inches	Inches	Degrees	Degrees	Degrees	Degrees	Degrees	Degrees	Degrees	Degrees	Inches	Inches
January	29.787	30.361	29.337	40 79	−2.02	33.78	+2.10	37.29	−1.15	55	17	1.53	−0.00
February	30.002	30.548	29.276	47.32	+1.60	35.78	+3.10	41.55	+1.85	58	18	0.38	−1.08
March	29.508	30.112	29.115	51.80	+1.02	35.16	+1.79	43.48	+1.41	65	14*	3.74	+2.43
April	29.952	30.248	29.497	58.86	+1.43	37.06	+0.88	47.96	+1.15	76	20	2.20	+0.72
May	29.828	30.162	29.481	68.90	+4.28	45.13	+0.12	56.01	+2.79	80	33	3.54	+1.63
June	29.815	30.106	29.137	69.40	−2.58	48.40	−5.24	58.90	−3.01	79	34	2.33	+0.37
July	29.874	30.147	29.381	72.61	−2.00	48.69	−5.22	60.35	−3.61	79	37	2.09	−0.37
August	29.892	30.162	29.315	73.03	−0.41	45.19	−5.31	59.11	−2.86	82*	36	2.40	−0.02
September	29.957	30.394	29.583	70 04	+2.37	45.10	−0.83	57.57	+0.77	79	31	2.74	+0.28
October	29.806	30.393	29.302	62 32	+5.00	42.87	+1.73	52.59	+2.43	75	25	3.00	+0.31
November	29.872	30.342	29.402	47.86	−1.82	39.00	−1.31	39.38	+3.06	60	19	1.01	−1.25
December	29.947	30.358	29.401	49 51	+4 16	37 51	+2 10	42 51	+3.18	59	25	1 40	+0 02
	29.880	30.273	29 274	59.37	+.76	38.68	−1.81	49 22	−0.09	82*	14*	26.54	+2.89

* Extremes of the year.

SALSAFY, ITS MODE OF CULTURE.

HAVING been favoured by a request from "the learned Professor, the Editor," that I would forward a paper upon the mode of treatment as practised by me in the culture and growth of Salsafy, as exhibited at the Gardens of the Royal Horticultural Society, I forward the following, hoping it may be of use in determining the question raised by me below, as to whether there be not a radical error in the present culture of garden roots generally. I have myself been long convinced that the old theory, indeed the real practice as followed by the majority of my fellow brethren of the spade, is founded upon a wholly wrong principle.

I am not forgetful that an assertion like this cannot be made with impunity by any one, unless he has a certain proof that he can substantiate it. For my own part I but need only refer to the size of the various sorts of roots shown as above, the growth of our garden; but I will not confine myself to this only. I hope to adduce other points in support of my statement.

The better to illustrate the principle upon which I found my views and the mode of procedure practised by me, a little explanation will not be misplaced. It must be evident that the finest grown garden root is that having upon its surface the smallest number of branches or roots, or rootlets, of any description; and yet at first thought this may appear strange—that the tuber with the least number of roots should in reality produce the greatest amount of substance, both as regards utility and weight. And yet, to arrive at the truth of the statement, we need not cast about far for ample proof.

Let us take a single seed of any sort whatever, whose first effort when germinating is to push into the soil below a tap or main root. Sow and cause to germinate this seed in good rich upper soil to the accustomed spit depth of 7 or 8 inches (as is general in gardens), there being below, as is customary, an unturned, unmanured, subsoil. It will, as the main or tap root proceeds downward, throw out from all around a quantity of rootlets. The tap root will continue to grow luxuriantly whilst in this upper good soil, but the moment it reaches the inferior subsoil, from its change from plenty to the dearth of food, its progress is arrested and it receives a check; those originally small rootlets on the other hand still revel in the good upper soil and continue to grow. Doubtless, when the main root is checked they receive an additional impetus in the necessities of the growing plant, and the consequence is the tap and branch, the main and minor roots, become to all intents and purposes equalised. All this may appear simple in the extreme, and so it is; too simple perhaps to enter into our daily practice.

Take as an example of treatment of this kind applied to garden roots the accompanying specimen of Salsafy obtained from a neighbour. [This specimen (No. 1) was 10 inches long, and divided into 10 branches. The original tap was 3 inches long, and ¾ of an inch in diameter; the branches were from 3 to 7 inches long, and the biggest was not more than ¼ inch in diameter at the thickest part. It was quite unfit to send to the cook.]

Take another seed, sow it in poor upper soil; below this, at the depth of 7 or 8 inches, let there be a good consistency of well manured soil, and you will find that the tap root, unless anything befall it, not finding anything congenial to its wants above, will hasten downward until reaching the good soil, when it will end in the formation of a fine tuber, whilst the small rootlets which shot out in the upper bad soil will become impoverished, and make but very trifling if any progress at all. This is the treatment Salsafy and all other garden roots require.

The specimen numbered 2 is an example of the effect of this other treatment. [This root was 11 inches long, with only 2 or 3 very inconsiderable forks near the point. For 7 inches it was perfectly clean. Its diameter at the crown was an inch and three-eighths, and at 7 inches from the crown five-eighths. In all respects it resembled a beautifully grown small Parsnep.]

Some may say, "yes, but when we are really desirous of growing good roots we trench the ground well, which is equivalent if not better than the mode you wish to propound." To any assertion of this kind, I reply that this only produces finer and larger roots of the No. 1 description; for wherever or whenever the fork roots find within their reach those substances they have a liking for, they will and must grow and thrive therein.

Every practical gardener knows full well that it is one thing to understand well the routine of kitchen gardening, and another to have a thorough knowledge of each crop, its requirements and peculiarities. Take but the subject of my paper as an illustration. To the question, "I like Salsafy, can you grow it?" the invariable answer would be, "Yes!" but how is it grown generally? The very query warms me to my work. In general it is grown very badly, and yet such simple reasoning as I have given above is at the real bottom of this and all other root crops.

To grow good Salsafy choose ground which has not received any manure for at least two years. Bastard trench this ground some 8 inches deep. At the bottom of the trench place a tolerable good thickness of well decomposed manure; slightly mix it up with the soil at the bottom of the trench, returning the soil lightly upon the same. Let this same upper soil be slightly forked over occasionally, as it needs pulverising well to admit of the ready access of the first root into and through it; when you have sown the seed slightly tread the whole of the soil down firmly, and you cannot fail, I think, to have full returns for a little additional labour.

The time of sowing is an essential point, indeed one of the many trifles, the persevering study and performance of which invariably furnish the master key, success. I would not wish to fix a certain date upon which to sow, though it may be necessary for us to lay down a certain rule, upon the principle of which it would be well to proceed. Our climate being so very variable in different localities, it would at all times be far better to be what is considered a week or 14 days "behind time" in sowing, than to be one day too soon, and for this reason, the very basis, for the whole after-growth of your crop depends upon the ready way in which the seed vegetates. If it germinates healthily, the plants generally grow strongly, and the embryo root the same; and if unchecked produces a finely grown full-sized tuber. So to be short: when you consider the weather settled, and likely to continue fine, with soil properly dry, &c., sow by all means as early as possible, but only under those conditions; otherwise if the young plants are checked, a decrepid, and, consequently, a deformed existence will be the result. The remarks just made apply to the usual time of sowing, in the middle and after part of April up to May.

In reality there is nothing new in this method of growing root crops; and it is the more wonderful that it should be so little attended to, because our next door

neighbours, the agricultural gentlemen, have for years practised it successfully, as well as the implements they have in use will admit. They plough open a furrow; into this the manure is thrown; upon this is turned over some poor soil, constituting it a ridge; upon just within the surface of this ridge the seed is sown, and upon this ridge the root is grown—say Turnip; not an iota of roots — from the largest Turnip grown—ever entered the soil save and except one: the main primitive tap root, which, though the bulb, the Turnip, lay upon the poor ridge, had its ramifications in the substantialities below. And yet, though practised so effectually by our near neighbours, I never yet could induce one to demonstrate to me satisfactorily the reason why. *W. Earley, Digswell House, Welwyn.*

DIES ORCHIDIANÆ.—No. III.

(*Continued from* p. 7.)

THE subject of horticultural shows inevitably suggests another point of comparison—I should rather say of contrast—between the Orchid-growing of the present day and the Orchid-growing of 30 years ago. For then a plant was valued according to the beauty of its flowers or the comeliness of its habit, and without reference to its qualities for public "exhibition;" but now these last have come to be regarded as of such paramount importance that a species which can lay no claim to them, however high its other pretensions may be, will rarely be able to make its way in the world. It will avail a plant little to have the right flowers unless they be produced at the right time and in the right way. It won't do to bloom, like the Angræcums, in the winter months, or, like the Stanhopeas and Acinetas, to send out flower-scapes that have a downward tendency, nor yet, like the Schomburgkias, and a section of the Oncidiums, to spire too high. Regard must be had not only to the dates of our great shows, but also to the stage accommodation afforded at South Kensington and the Regent's Park! In this way the sympathies of our modern Orchid grower came to be unduly contracted, and the enterprise of our nurserymen unnecessarily curtailed. For if the chances are so great against a new plant ultimately becoming popular, there will of course be the less inducement to search for novelties, and the chief attention of the importer will be directed towards obtaining large supplies of established favourites. Thus, while until quite lately, scarcely an effort has been made during 20 years to add to our catalogue of East Indian Air-plants, I know not how many expeditions have been fitted out for the re-discovery of Vanda Batemanni, of which only two or three plants had been received alive from the Philippine Islands in 1838*.

I am however touching somewhat prematurely on the subject of Orchis-importation, respecting which I shall have more to say when I come to speak of what has been done in this direction by Messrs. Low and others; my present object being simply to enter my protest against the empirical standard by which the value of Orchids has lately been appraised. Of course I have not a word to utter against those beautiful displays on which all eyes are apt to be rivetted in May and June, but I humbly submit that such displays do not constitute the sole aim and end of Orchid-growing. On the contrary, I am convinced that one of the chief recommendations of this pursuit is due to the fact that a large number of species, including many of the most beautiful, produce their blossoms at that dreary time of the year when there are indeed no exhibitions, but when the sight of lovely flowers is not on that account the less welcome; and when, moreover, the growing season being past, and the temperature of the Orchid-house reduced accordingly, the plants may be visited in perfect comfort. I hope ere the present winter is past to show what can be done in this way, by publishing a list of the species that flower during the four colder months of the year, viz., November, December, January, and February; and I should be much indebted to any of your readers who would obligingly assist in this object, by sending me (to your office) the names of such kinds as may have bloomed with them during the months in question.

Another point—and it is the last I shall notice—which the retrospect of 30 years forces into view, is the large number of duplicate plants of the same species that are now to be found, even in private collections. Formerly your friends allowed you no peace if you happened to possess a Cattleya or a Saccolabium from which a back bulb or an offset could by any possibility be detached; but the grower of the present day is not content without his 10 or 20 specimens of the reigning favourites! Thus, at Mr. Rucker's I found almost half of one entire house filled with Lælia purpurata, and my expression of surprise was met by an intimation that the species flowered during the season, and was, therefore, in great request for bouquets; while Mr. Day (of Tottenham), who had provided himself with Cattleya Leopoldi on an equally liberal scale, explained that whenever an importation gave him the opportunity he always laid in a large stock of any promising kind, which he kept till the plants flowered, and then retained only the best varieties. Such is the luxurious height to which modern Orchis-growing has attained; but of course all this prodigality cannot be enjoyed unless accommodation of corresponding extent be provided for the plants; and that there is no stinting in this respect will be seen by a glance at the ranges of houses filled by Orchids in many private establishments, such, for example, as those of the two eminent growers to whom I have just alluded, or by a visit to the suburban nurseries of Messrs. Williams, Rollisson, Low, or Veitch. The last named firm have at least four large Orchid houses, and Messrs. Low an equal number. All this seems strange and wonderful to me, remembering, as I do, the time when my own collection—a fair one of its period—was comprised within the limits of a dripping-pan! Let me explain. There had been a coming-of-age in my neighbourhood, with its usual roasting-of-an-ox-whole accompaniment, and for which a dripping-pan of huge dimensions had been specially provided. This it was that in due time did me such excellent service. My father had, indeed, already allowed me to intrude a few Orchids into the corner of a Pine-pit, but these were sorely infested with woodlice, which swarmed among the tan of the pit; neither could I maintain sufficient humidity. In this dilemma I bethought me of the great dripping pan, and having petitioned for and obtained it I lost no time in placing it at the end of the Pine pit and filling it 2 or 3 inches deep with water, which thus not only supplied the requisite moisture, but also served the purpose of Mr. Lyons' "Onyscamyntic Epiphyte stand"—for the plants, placed on inverted saucers, could now bid defiance to their insect enemies. Such was my first experiment in Orchid growing, and let none despise the day of small things, for sure I am that I watched with as much interest, and drew as much pleasure from the contents of my solitary dripping-pan, as from the houses, one and all, into which my collection eventually overflowed.

From this long digression I return once more to the Messrs. Loddiges and their great Palm-stove, which, be it remembered, the Orchids shared with the Palms in their earlier years. Even then Mr. G. Loddiges was convinced that the Orchids had a great future before them, and that our knowledge of their beauty was quite in its infancy. But he added, "when we come to see specimens like cart-wheels, we shall know something of it," and Mr. Loddiges has proved himself a true prophet. It may be doubted, however, whether the wheel of a pony-carriage would not be a better gauge than the wheel of a cart for even the broadest of our specimens.

Before I take leave of the establishment at Hackney, I may perhaps be allowed to relate what at the last befel the great Palm-house, which, as most of your readers know, has long become a thing of the past. The encroachments of London having greatly impaired the horticultural value of the ground at Hackney, and at the same time greatly enhanced its value for building purposes, it was determined about 10 years ago to dismantle the nursery altogether. The Camellia house and the other extensive ranges of glass were easily removed, and their contents—as indeed were those of the Palm-house—absorbed by the Crystal Palace, which last, I may observe *en passant*, was not a greater advance upon the glass structures of its time than was Messrs. Loddiges' Palm-house upon those by which *it* was preceded. Its days however were now numbered, and the only difficulty was how to compass its demolition. Unless a scaffolding of a most expensive description were erected, the glass would all be sacrificed, but would the value of the sashes, even if saved, pay for the scaffolding? It would appear as if the question could only be answered in the negative; for when the structure was put up for sale under the auctioneer's hammer, it was actually knocked down for 10*l.*! The purchaser's axe was then set vigorously to work at the root of the great rafters, and, in a little while, down with a smash came what had once been the wonder of the whole world of horticulture! Its fragments were carted away for firewood. *Serapias.*

* All these expeditions failed in their object, and it was reserved for Mr. Veitch, jun., on his return from Japan in 1861, to find once more the very spot on which the long-sought recluse grew in profusion. Cultivators will be surprised to hear that the Vanda does not live on trees but on rocks, covered of course with Moss and the remains of decayed vegetation. Associated with the Vanda was a remarkable Cypripedium which has lately flowered, but has not yet, I believe, been named.

Home Correspondence.

Plums.—The writer of the very interesting article upon Plums, in your last Number, may like to know a few particulars respecting that fruit on the continent. There is a late greenish-yellow small egg-shaped Plum at Florence, not acquiring its flavour until it becomes shrivelled in autumn, but then very rich, a variety of Mirabelle perhaps, but different from those common in Germany. The Neapolitan Green Gage, of the best quality as to size and flavour, is different from any I have seen in England; large and of a much yellower and ruddier green when quite ripe, and with a less dense bloom on it. One of the Damsons mentioned is perhaps the Diamond, less acid but of equal flavour with the Damson. Further east, the investigation of fruits becomes more interesting. In the woods on the north side of Caucasus there is a wild Plum, small, round, red, and yellow, sweet and pleasant to eat in its wild state, which may possibly be the parent of more than one old garden sort. South of Caucasus are grown the finest and largest Prunes for drying, with the slenderest pointed stone, quite equal to the Pruneaux of France. In Persia is said to be a Plum (which I have not seen) with a downy skin, intermediate betwen a Plum and Apricot it may be allied to the curious fruit called Chrysomela sanguinea at Naples, or to the so called Peaches of Leitmeritz in Bohemia. Query, is there not in England a dwarf Peach, called Nutmeg Peach, somewhat—to use a gardener's phrase—in the same way? *I.*

Rainfall at Dorward's Hall, Witham, in 1862:—

	Ins.		Ins.
January	1.69	Brought forward ..	11.11
February	0.37	July	1.31
March	2.76	August	2.21
April	2.08	September	1.59
May	2.01	October	3.10
June	2.20	November	1.00
		December	1.46
	11.11	Total	21.78

Height of Rain Gauge, above ground, 2 feet; above sea level, about 20 feet.

H. Dixon.

Rainfall at Cirencester:—

	Ins.		Ins.
January	2.70	Brought forward ..	16.89
February	0.35	July	2.08
March	4.70	August	2.25
April	2.22	September	3.87
May	3.95	October	4.72
June	2.97	November	0.55
		December	2.10
	16.89	Total	32.46

Average of 15 years, 30.00.

Thos. C. Brown.

Gardeners' Royal Benevolent Institution.—I cannot agree with your Correspondent, Mr. G. Thomson, that annual subscriptions are the best mode of advancing the efficiency of this Institution. They are never to be certainly depended upon to keep up an income, or, at the very best, they can only be kept to the proper amount by constantly canvassing for new ones. Doubtless as long as they continue they afford a better income for distribution; but being so inconstant, the Committee cannot safely exhaust them in pensions. Donations, on the other hand, ought to be all invested and thus form a permanent fund, by the interest of which the quarterly payments may be made. Such a fund is safe from the accidents unavoidably attending annual subscriptions. To my mind, there is nothing more disagreeable than having to pay annual subscriptions. I therefore make it a rule to pay down in one sum the required composition for life membership. But those who think with me, ought not therefore to consider that they have done all that is due from them when they have paid their single 10*l.* 10*s.*, but should after a few years renew the payment. To carry out my own teaching, I have recently sent a second ten guineas to the Secretary of the Institution, and am rejoiced to see that others are about to do so. I mention this simply as an example to others, and did not intend to publish it, but now see that it may be advantageous to do so. Of course this applies to persons of my own position; to many others the annual subscription is far more convenient, and, on looking at the last report of the Institution, it seems to me that that class of contributors ought to be very much increased. It is they chiefly who may expect to derive benefit from the Institution should they meet with misfortunes and be reduced to poverty. Most of us life members are excluded from such a chance by the rules, and properly so excluded. Let us try then to make the present movement apply to the increase of members in both classes, and thereby to the increase of pensions. *C. C. B.*——I am pleased to see the way in which your suggestions of immediate support to this Institution have been taken up. Allow me to point out where I think the Committee of Management made a mistake. They print a list of supporters, and they append to each name the total amount which has been contributed by the subscriber, instead of saying 'First,' and repeating the entry when a second and a third donation has been given. To my mind this is an error. Many people give once because they cannot well help themselves; if the list shows that they have given more than once—twice, thrice, or ten times—it is proof positive that they heartily support the Institution. Again, the effect of putting but one sum is to stop subscriptions. A well wisher, we will say for instance a rising nurseryman, would like to support the undertaking; he sees Mr. Veitch 60 guineas, Messrs. Lee 60 guineas, and he naturally says to himself, I might afford ten, but cannot such a sum as 60, and yet I do not choose to be below those whom I am to rival in trade, and he therefore gives—nothing. Yet, probably, Mr. Veitch commenced with ten guineas, which, from anxiety to see the Institution do well, he has six times repeated. The smaller nurseryman would hope to do so too. The Committee ought also to append the year in which such donation is given, or annual subscription commenced; once stated it would cause no trouble, rather the contrary. *Hans.*

African Trees.—The first tree referred to by your correspondent (see p. 29) may be a Baobab, as there is one in that country. What the "Cream of Tartar" may be who can tell? The pulp of the Baobab fruit, however, has an acid and tartary taste. Are then both trees Baobabs? The first might be a Fig? *W. H. H.*——The description of your Correspondent "Hans" answers perfectly to Adansonia digitata, as to size, habit, and habitat. This tree is found in Africa, from the latitude of Senegal to the southern tropic. *J. D. H.*

Gardens at Nice.—The account you give of the gardens of Nice as nurseries for the north of Europe is encouraging. A similar plan was attempted many years ago, but before the modern improvements in

communication, which render it now much easier. I may suggest that the true reason why Mr. A. Karr's rattan did not strike root in three days, even in the climate of Nice, is that like most walking canes the head was probably downwards—a sufficient bar to vegetation anywhere. It is odd that Peas do not flourish there, according to your account, since the Haricots are remarkably fine. The pale blue Violet, double, called there of Parma, here Neapolitan, is at Naples called Portuguese. The single variety is common in the gardens at Florence—like the double distinguishable by its shining leaves. As you recommend Tamarix gallica in preference to germanica, I would add that T. afra is superior to both. *I.* [Yes, certainly; but we doubt whether T. afra can be found in the trade.]

The Dry Stove.—In a late Number you have advocated (not before it was wanted), the revival of the dry stove, now almost neglected in gardening, but for succulents only. Now I think a dry stove useful not only for succulents, and what may be called desert plants, but also for all plants of warm countries which do not require moist or jungle temperature, such as Ferns and Orchidaceæ, and other species that grow with them. The Date, Sycamorus, Doom, Acacias of many sorts, tropical bulbs, Coffee, Cinchona, the trees and shrubs of open plains and lower hills in Egypt or India—these are plants that I would put into a dry stove, if not in so dry a one as that for succulents only. And among the latter why do you exclude beautiful Cacti and the better Euphorbiæ, &c.? *I.*

Orange Trees.—No doubt the reason why your "Constant Reader's" Orange trees are losing their leaves is attributable to several causes:—1, the time of year in which they were moved; 2, the dry state to which they were subjected on the quay of Havre; and 3, the exposure to out-door treatment after arriving at their journey's end. No one would ever think of planting evergreens in the month of June if they could possibly do it in the month of August; neither should Orange trees be moved in the month of June if it could possibly be done in August, as the former month is the time in which they make their growth, and owing to the brittleness of their young wood, they should be kept perfectly still. Orange trees, in this country, generally get transferred from their dark-roofed prisons to the open air in the month of May. After five or six months' confinement, from May till July they are busy growing, from July till September they ripen their wood, so that either August or September would have been the best months to have moved them from Paris to Darlington. Orange trees require plenty of water when growing; this necessary element no doubt was withheld when on their journey, as the extra weight would have incurred extra expense in carriage. When a man comes from England to France he finds a change in the temperature; a man passing from France to England finds a similar change, and I have not the least doubt that the poor Orange trees found circumstances altered with them, but were not able to put on an extra covering, as a Frenchman would do: knowing this, your "Constant Reader" should have provided them with one suitable for them to recover the great check they received. I would advise him, in order to recover their present "tattered appearance," to keep them perfectly dry till March, then to give them a soaking of tepid water, and to raise the present temperature to 50°. *H. K. France.*

Improvement of Species.—Mr. Rivers is doing for horticulture a rare and real service in the letters he has begun and promised to continue in your pages. There is probably no department in the art of cultivation in which so much obscurity exists, and in which accurate information is so deficient, as in the alteration and improvement of species by reproduction from seed. Scientific accuracy has been ignored, and confusion courted for countless centuries. I doubt if there are half a dozen persons in the kingdom who could tell the result of sowing one pod of seed in the case of many-seeded plants, or a batch of seeds or stones from one individual tree. The idea seems to have been that an indiscriminate mixture of seeds from the largest number of varieties afforded, when sown, the greatest chance of success. I have somewhere read of a good illustration of this fallacy. Raisers of florists' flowers, who are obliged to be a little methodical, say that one good seedling out of a hundred is the most that you can expect. Now let a person sow a hundred seeds out of one pod, and also one seed out of each pod of one hundred varieties. In the first case he has one good chance, in the second the chances against him are almost out of calculation. The little boy who sowed an Apple-pip on his birthday, knowing the sort from which he took it, watched its growth and tasted its fruit, was a greater benefactor to society than the great nurseryman who raised a hedge of Apple trees from the refuse of a cider mill, and crowned all by putting his method in a book. Information on such subjects doubtless exists could it be brought to light; little boys and girls, the quiet country clergyman, the Spitalfields weaver in his dingy dwelling, and the "Corycian old man," in his sunny corner, know strange things, but have had no "vates sacer" to publish them. Let us hope that Mr. Rivers's example will be followed by others, and that attention may be a little diverted from bedding gardening, and directed to this most important subject. *R. T. C.*

Technicalities.—These are sometimes excusable, although they may be at the same time unintelligible; there is one however which I can neither understand nor tolerate. Often has it grated on my ear, and now that it is adopted by such a writer as the Rev. Mr. Radclyffe, I think that it is high time to call attention to it. I allude to the term "pan" in speaking of a collection of cut flowers—a term at all times inappropriate, but especially so when used in connection with the "Queen of Flowers," the type of everything that is graceful. Surely some better word might have been found. Even "box" would have been preferable, but why discard the good and comprehensive term "stand?" *Taffy.*

Grape Growing in Norfolk.—Your Cumberland correspondent has misinterpreted my meaning. The wonderful feat of Norfolk Vine growing did not take me by surprise—quite the contrary. I opposed it as being wrong in principle and dangerous in practice, and expressed my conviction that the feat in question had been purchased at the expense of future success. The challenge referred to by your correspondent, which he states "must be extensively accepted by Grape growers to vindicate their honour," is uncalled for. In answer to the question—how many men could be found to have performed such a feat? I would reply, "How many gardeners are there to be found wrong-headed enough to attempt it?" I should think not one in 50. Your correspondent intimates "if the secret of success cannot be revealed, it remains for gardeners to discover it." Is there any secret in the matter?—with due command of heat and moisture there would be little difficulty in growing a rod a dozen feet or more in length, and by stopping and pinching of laterals to manage to burst all the fruit buds and obtain a partial crop; such a performance might be called a feat, but not a success, for that lies in an opposite direction. Your correspondent wonders that the whole gardening fraternity did not storm you for "a full and particular account" of the whole affair, and sums up by saying that he thinks the system "worth a trial." As he has undertaken its advocacy, he would oblige by answering the few questions which I subjoin, viz., 1st. If all the fruit buds are burst the first year, how will he obtain his second year's crop? as every bud would be grown clean out from the base of his rods some inches, and, what is worse, never can be brought back again. Secondly, is he prepared to prune close home to his rods?—in that case he would have neither bud nor eye to break their whole length; if he takes the other alternative, and prunes out some inches to the bud of his laterals, his chances of a crop would be uncertain. Thirdly, what would be the future appearance of Vines pruned after this fashion, if after the first year's pruning the rods bore some resemblance to a ladder? I leave these few questions for the solution of your Correspondent, and when answered it will be time enough to talk of antiquated systems and the jog-trot pace. *H. G., Buckland Gardens, South Wales.*

Peach Trees in South America.—Why should these not grow in South America? many are cultivated between the tropics in British India! Mr. Rivers only names countries far from the line, such as Valparaiso, Buenos-Ayres, and Monte Video, which are 35° south of it. Let us go higher up and cite a spot nearer the Equator, where I have myself seen numerous Peaches strewing the soil; a spot where I have not only eaten Peaches fallen from their trees, but where I have also tasted excellent Apples, having the same flavour as those grown in our own northern country. I remember as well as if it was yesterday, that valley, formed by two declivities of the Organ Mountains, situated at an altitude of about 3000 feet; I remember being much pleased at making there the acquaintance of a jovial Englishman, O Senhor Ricardo, who bore a large white cross in front of his Brazilian poncho. He was at that time (28 years ago), a kind of an associate of an English fazendeiro (farmer), one of the most industrious men I ever knew, viz., a Mr. Marsh. I remember well that picturesque site, so high and so cold that our shivering negro attendant had his nose as red as the face of a carper taken in a traquenade. *Louis Van Houtte.*

Foreign Correspondence.

VICTORIA, VANCOUVER: *Nov.* 30, 1862.—I purposely avoided writing about the Ward's case till the contents were fairly planted in their adopted country. The Rhododendron is dead, as are also the two Plums; all the other trees and plants are looking well, and appear quite content with their lot. I have an excellent man, who has been under gardener at home. He came out from England with us, and has already effected great changes for the better in the place. The Ivies are very much admired, and I have promised cuttings to ever so many people. (There was no Ivy before in Vancouver.) I have the advice and assistance of a German gardener who looks after the orchard for me, and therefore I trust I shall be able to give you good news in spring of the growth of all my pets. It is very wonderful that no more plants died considering the ship was eight months on the voyage, and the fact that the Governor has never yet succeeded in importing trees in a Ward's case, though he has tried the experiment repeatedly. . . . The colony is progressing wonderfully, notwithstanding the "book of lies" published by a disreputable scamp who was over here, but glad to be off again. Labour is plentiful; any amount of gentlemen working on the roads, and not a few sprigs of nobility among them. There will be a good deal of suffering this winter, owing to the large immigration of unfit people: clerks, and men of that kind. The works department has to bear the chief brunt of it, for every one who cannot get work goes to its office, and seems to think it the duty of Government to find him something to do. We are doing all we can, as a matter of course, and the roads are being very much improved in consequence.

Notices of Books.

The Law of Storms. By H. W. Dove, F.R.S. Translated by R. Scott, M.A. Longman & Co., 1862.

The weather is notoriously the first subject of English conversation. Whether it is, has been, or is going to be, a fine day, would appear to be of paramount importance, considering the frequency with which these questions are discussed; and the latter especially is looked upon as a fair subject for speculation. Of interest to all, in this variable island climate, and of special interest as involving the welfare or destruction of our many fellow-countrymen at sea, how is it that the science of meteorology is still in its infancy? One might have supposed that the appalling list of wrecks annually published, would have spurred on the meteorologists to ascertain the laws governing the storms which commit such devastation, and to endeavour to give warning of the coming danger. That such warning would be gratefully received, might be inferred by the eagerness with which Moore's, and similar almanacs which profess to foretell the weather, are purchased; even though experience has proved their pretensions to be either pure charlatanry or else founded on such slight portions of the truth, that they are as often wrong as right.

One reason, perhaps indeed the chief, why meteorology has not advanced with as rapid strides as some of her sister sciences, is to be found in the fact that she requires not only long and patient observations, but also that these should be carried on simultaneously at many different places, and for a long and uninterrupted period; and it is evidently not an easy task to induce a large body of men in all parts of the world, to make hourly or even daily accurate observations, extending over a period of years. Therefore for a long time meteorologists were obliged to be contented with meagre and broken sets of observations, and from these imperfect data the results arrived at were necessarily vague, and often incorrect, whence there arose in the minds of the non-scientific a general unbelief in the possibility of there being any laws for such variable phenomena, or at least of their ever being ascertained. This feeling, joined to the notorious recklessness of sailors, is now shown by the indifference with which the signals of Admiral Fitzroy are so frequently regarded, in spite of the disastrous effects which have several times followed such disregard. Because his warnings have not always been followed by storms, they think themselves justified in sneering at them; forgetting that he expressly announces them as "strong probabilities," and that in the present state of the science they can be no more. We may hope, however, that these probabilities will soon be converted into certainties. As the importance of the subject becomes more and more acknowledged, observers increase, not only in numbers but in accuracy, and data for future use are rapidly accumulating.

Amongst the additions to our knowledge this book must take a high rank. Its author has long been well known for his labours in this field, and in the present volume he has gathered together the results of many observations and many years' experience. Meteorologists will therefore heartily thank Mr. Scott for having presented it to us in an English dress; and they will find it a most useful addition to their libraries, and one to which they will need constantly to refer. It is indeed more a book for study and reference than for light reading, though there is much interesting matter scattered here and there through its pages.

M. Dove groups "the motions of the atmosphere in the different zones" into three classes,—permanent, periodical, and changeable winds, and proceeds successively to the consideration of them; showing the causes of their motion and direction, and the laws which govern the storms produced by them; these are not always the same, and many points have to be considered in determining the true nature of a storm. Examples are given of storms in different parts of the world; from the fearful "cyclone" of the tropics, to the milder storms with which we are familiar in the temperate zone. A striking instance of the former is given in the account of the "Great Hurricane" which burst over the West Indies on the 10th of October, 1780:—

"The diameter of the hurricane was from the very commencement so great that it embraced the extreme points of the Leeward Islands, that is to say, Trinidad and Antigua, while its centre advanced over Barbadoes as far as St. Lucia, where Admiral Hotham lay with the Vengeance, Montagu, Egremont, Ajax, Alcmena, and Amazon. Subsequently it overtook, on the south coast of Martinique, the French convoy, which consisted of 50 merchant vessels and transports, with 5000 troops on board, escorted by the frigates Ceres and La Constante; only six or seven of these vessels were saved. 'Les bâtiments du convoi disparurent' (the vessels of the convoy disappeared), was the rather laconic expression made use of in the report given by the intendant

of Martinique. From thence the vortex of the hurricane passed over Porto Rico, where the Deal Castle was wrecked, to the island of Mona, and there on the morning of the 15th it overtook the English merchant fleet convoyed by the Ulysses and Pomona, to which it did considerable damage. After this it moved on to Silver Keys, where the Stirling Castle foundered. At what spot the Thunderer, which was on her passage from St. Lucia to Jamaica, was lost, has never been ascertained. It now turned to the N.E., when, in 26° N. latitude, it overtook the five vessels of Admiral Rowley's squadron, which had been dismasted by the hurricane at Savannah-la-Mar, and which, very unfortunately, were steering from the west side of the storm straight towards its centre. From thence it turned towards the Bermudas, probably extending across the Atlantic Ocean at the time when its breadth was greatest; and here the Berwick, which was on her return to England, after having been disabled by the first storm, fell in with it. But not less destructively did the hurricane rage on the islands themselves. At Martinique 9000 persons perished, 1000 at St. Pierre alone, where not a house remained standing, as the sea rose to a height of 25 feet, and 150 houses along the beach disappeared in a moment. At Port Royal, the cathedral, 7 churches, and 1400 houses were thrown down, and 1600 sick and wounded buried under the ruins of the hospital, so that but few were saved. At Dominica almost all the houses standing near the shore were carried away, and the royal bakehouse, the magazine, and a part of the barracks destroyed. At St. Eustatia 7 vessels were dashed to pieces on the rocks at North Point, and of 19 vessels which cut their cables and went to sea but one returned. At St. Lucia, where 6000 people were deprived of life, the strongest buildings were shattered to their foundations; cannon were carried more than 100 feet, and men and animals were raised from the ground and hurled to a distance of several yards. The sea rose to such a height that it demolished the fort, and hurled a vessel against the naval hospital, which was crushed by its weight. The coral bed at the bottom of the sea was torn up, and pieces of it raised so high on their edges that they were afterwards visible above the water; and the harbour itself was deepened 6 feet, and in some places even more. Of 600 houses at Kingston, in the island of St. Vincent, only 14 remained standing, and the French frigate Juno was wrecked."

Happily such extreme cases as this are rare, or the countries visited by them would be uninhabitable. The volume winds up with some practical rules for understanding the changes of the atmosphere; of which those relating to the north temperate zone naturally possess the most interest for us. They are, however, too long to be given entire, but we will conclude this notice with a few brief extracts from them.

"Since the southern current is warm, moist, and rarefied, the northern, on the contrary, cold, dry, and dense, we derive the following rules for their alternation, and we must remember that the cold polar current appears first in the lower strata of the atmosphere, while the warmer equatorial current will always have existed for some time in the upper strata before it is felt below. The changes of weather on the west side of the compass are, therefore, simultaneous with the changes of the barometer, while on the east side the indications of the barometer always precede the fall of rain which takes place. If the wind shifts from S. to N. through W., the barometer rises and the thermometer falls. This transition is characterised in winter by heavy falls of snow, in spring by sleet showers, and in summer by thunderstorms, after which the air becomes much cooler. If the wind veers from N. to N.E., we have clear weather, the air is dry, the barometer high, and in winter intense cold follows, with great clearness of the atmosphere. As soon as the barometer begins to fall the wind gets round to the E.; the sky, previously deep blue, covers itself with thin whitish clouds, and the snow which falls comes from the S. wind which has already set in above. If the barometer falls rapidly, the snow turns to rain and a thaw sets in, when the wind veers farther through S.E. and S. towards S.W."

"In winter, rain, with a west wind and a rising barometer, turns to snow; snow, with an east wind and a falling barometer, to rain. In spring, if the wind shifts through W. to N., we may expect the weather to clear up suddenly, and night frosts to set in, even though the thermometer, at a little height above the ground, may not fall below the freezing point. Heavy thunderstorms, which come up with an E. wind, while the barometer is falling, do not cool the air. We say that it is still sultry and there will be another thunderstorm. The air does not grow cooler till a thunderstorm comes up from the W. and the barometer begins to rise. If several thunderstorms come on in succession from the W., each successive storm is usually more northerly than that which has preceded it."

Miscellaneous.

Clearing Timbered Land in the Colonies.—No one unacquainted with the difficulty of clearing bush as it exists in British Columbia can form any accurate conception of it. Felling trees forms but a small part of it. When they are down, they are, of course, with the scanty resources at the settlers' command, too large to be removed, and they have to be sawn and cut up into blocks handy for removal or burning. That done, the hardest work yet remains. In forests such as these, the roots of the giant trees have been spreading underground for ages, forming a close and perfect network, some 8 or 10 feet beneath the surface. To dig this mass of interlaced roots up would defy the strength and patience of ordinary men; and it is only the wonderful dexterity of the Canadian—and, indeed, of the American generally—in handling his axe, that enables him to enter upon, far less accomplish, so difficult a task. Their dexterity is indeed remarkable. I have seen three men—one of whom, by the way, had lost his right arm—fell a tree 4 feet in diameter in three quarters of an hour. This may at first sight appear no very formidable feat; but, after a few days' trial, the difficulties of such an undertaking will begin to loom upon the amateur backwoodsman. I remember upon one occasion, that an officer of Marines quartered at Westminster, who thought himself, and really was, no contemptible axeman, undertook for a wager to fell a certain tree, some 3 feet in diameter, in a week. He made certain of winning, and commenced work in the most sanguine spirits. But the end of three days found his hands blistered painfully, and the tree upright and almost uninjured as before. At the expiration of the stipulated time another week was given him, and still the monarch of the wood held his head erect. The story goes—this was, of course, after the bet was lost—that he was found one night turning out some of his men to take a sly chop at the tree after dark. *Mayne's British Columbia.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—In reference to the use of artificial heat for this structure, too much stress cannot be laid on the moderation necessary. As has been often well observed, the fire king is sometimes a greater enemy than the ice king. Try to ensure sufficient atmospheric moisture without drip. To accomplish this there should be a moderate but permanent amount of moisture supplied either in floors or in contact with a return pipe, especially during the day. In mild weather like the present let as much air as possible be given to all structures in which half hardy plants are kept. Do not excite the inmates of stoves at present; wait for longer days and more light.

FORCING DEPARTMENT.

PINERIES.—Plants expected to fruit early should now be allowed a slight rise of temperature. On light days let the thermometer indicate 70° or 75°, and during sunshine 10° more may be indulged in. Those who are inclined to try the planting-out system had better postpone it for a few weeks; some special compost and previous training are however necessary in order to ensure success.

EARLY VINERY.—Supposing the buds to be now considerably advanced, thinning them becomes a daily and important operation. In all disbudding, do not take Nature by surprise—gradual, but rather frequent thinning is the maxim. Above all things, ensure a permanent supply of atmospheric moisture; if this is accomplished by fermenting materials so much the better. Put abundance of covering on outside roots, and if it be slightly fermenting so much the better.

LATE VINERY.—In the majority of cases the last Lady Downes and St. Peter's will now be all cut; if they are to be taken out to rest let it be done forthwith, They are best laid on the ground, and covered up with straw for fear of injury by frost. If the late vinery is devoted to Vines alone, throw the lights wide open at once.

PEACH-HOUSE.—Proceed cautiously here as recommended last week. Supposing the trees to be in course of blossoming give a little more fire in the daytime, to enable you to give more air; the latter cannot be given too freely if the weather is favourable, and the thermometer within can be maintained at 55°; let it, however, sink at night to 40° or 45°. If the roots inside have not been watered, or only slightly so, and the drainage can be relied on, apply another thorough watering with rich liquid manure, clarified of course, and heated to 75°, part of which heat will be reduced immediately it comes in contact with the soil.

CHERRY-HOUSE.—Follow Nature closely in this house; no extreme here will succeed. Plenty of air, permanency of atmospheric moisture, and a very moderate temperature, are the requisites.

FIGS.—Steer a course with these about intermediate between the early Vinery and the Peach-house. In sunny days, however, the temperature may rise equal to that in the Vinery. Observe to fumigate in all the aforesaid structures, the moment one green fly appears.

FRAMES OR PITS.—If hot dung is sufficiently worked, let a seed-bed be made forthwith; for Cucumbers and Melons a two-light frame is very handy for this purpose. Cover the dung inside with 6 inches of old and clean riddled tan, or if it can be had Cocoa-nut refuse, and plunge the seed pots near the glass, taking care if the bottom-heat exceeds 90° to keep it subdued. Endeavour to get a spare frame or pit for early Potatoes; a bottom-heat of 70°, that will last for a month, will be amply sufficient; the sooner it dies away after that the better, a continuance of bottom-heat too long will draw the haulm. If a frame can be spared, sow Horn Carrots and frame Radishes in alternate rows, 3 inches apart; a very slight bottom-heat of 65° will accelerate them much. Proceed with successional Asparagus; the early beds, if kept well lined, will do again, or they will make excellent Potato-beds, or for early Carrots and Radishes. Provide successions of Kidney Beans and Strawberries, as soon as spare room can be provided for them. Remember that Strawberries are best started in pits or frames with a bottom-heat of 70,° with abundance of air; and thence removed to the hothouse shelves if necessary.

FLOWER GARDEN AND SHRUBBERIES.

Little can be said about these at present. Proceed, as before observed, with all alterations before the necessary spring work arrives. Take care to have labels of all kinds in readiness; see to half-hardy plants, and tree Roses of tender habit. A wicker screen for the former, or even Spruce Fir boughs stuck round them, meeting at top, and covered with Fern, is a very good protection: they oftentimes suffer as much, however, from close covering as from frost. Frosty winds are perhaps more prejudicial than anything.

HARDY FRUIT AND KITCHEN GARDEN.

Proceed with digging, trenching, &c., whenever spare ground occurs and time permits. If some of this ground should require digging a second time, previous to cropping, so much the better; it will amply repay the labour. All fruit-tree planting not done in the autumn should be proceeded with at mild intervals; wherever the subsoil is bad it should be entirely removed, and a platform of brick-bats, rubble, or cinder-ashes, rammed hard at about 1 foot below the ground level. On this place, if possible, a little rough turf in a fresh state, and be sure to mix some fresh maiden soil with the compost. Sound and tenacious loams for Apples and Pears; sound yet mellow loam for Peaches, Apricots, &c., and free upland soil for Plums, Cherries, Vines, and Figs. Follow up nailing and training of fruit trees; lose no time, when the weather permits, of advancing these matters. Where such is completed, we would advise a syringing with the laundry soapsuds; saturating every crevice in the wall. This is an old plan, and a very cheap and good one. A few Onions may be sown on a warm border shortly, for drawing in a young state; if they should be destroyed by frost, the loss will not be great.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON, For the Week ending Jan. 14, 1863, as observed at the Horticultural Gardens

Jan.	Moon's Age.	Barometer.		Temperature.					Wind.	Rain.
				Of the Air.			Of the Earth			
		Max.	Min	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 8	20	29.564	29.467	52	26	39.0	45	44	S.	.60
Friday 9	21	29.693	29.648	53	32	42.5	44	43½	S.	.00
Satur 10	22	29.730	29.631	41	36	38.5	44	43½	N.E.	.04
Sunday 11	♌	29.990	29.742	42	23	32.5	43½	43½	S.E.	.40
Mon. 12	24	30.090	29.960	45	33	39.0	44	43½	S.E.	.08
Tues. 13	25	29.828	29.792	48	34	41.0	44	43½	W.	.00
Wed. 14	26	30.239	30.182	44	35	39.5	44	43½	E.	.00
Average.		29.876	29.771	38.8	31.3	38.8	44.0	43.6		.52

Jan. 8—Clear; fine; slight fog at night; slight frost.
— 9—Foggy; cloudy; fine at night.
— 10—Slight haze; overcast and cold; cloudy.
— 11—Cloudy; fine; heavy rain at night; sharp frost in the morning.
— 12—Frosty; cloudy, rain at night.
— 13—Overcast; cloudy; fine, overcast.
— 14—Overcast and cold; cloudy; clear.
Mean temperature of the week 2½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending Jan. 24, 1863.

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 18 .	41.18	31 18	36 18	15	0.55 in.	1	3	1	5	7	10	6	4
Mon. 19..	42.71	30.13	36.42	16	0 88	4	2	4	3	6	10	6	2
Tues. 20..	42.32	31.91	37 11	14	0.65	4	7	4	2	7	9	2	2
Wed. 21..	43.59	32.37	37.98	16	0.48	1	5	5	1	7	11	5	2
Thurs. 22..	43.54	32.70	38 12	16	0.57	2	5	1	5	3	14	5	1
Friday 23..	44.39	32.89	38 74	16	0.27	2	3	2	3	7	12	4	4
Satur. 24..	44.18	32.64	38.41	18	0.63	3	4	2	1	4	16	5	

The highest temperature during the above period occurred on the 19th, 1838—therm. 60 deg.; and the lowest on the 19th, 1838—therm. 1½ deg below zero.

Notices to Correspondents.

BOOKS: *F J.* The young lady just beginning to collect Mosses is advised to procure Wilson's Bryologia Britannica, published by Longmans, in one large volume 8vo, with numerous plates.

BOTANIC GARDENS: *W R R.* A list of these would be a list of every town of any note on the Continent. Some towns have large ones, some little ones, some have good ones, some bad ones, but all have something.

CIGARS: *L W.* We agree with you in thinking that Henry's Canadian cigars, in the Great International Exhibition, were treated improperly by the Jurors. The cigars were excellent. The Regalias more especially were infinitely better than some of those which were "be-medalled;" yet the Jury gave them—nothing: not even a civil word!

GARDENERS: *Fairplay.* No time is on the whole better than Michaelmas.

HEDYCHIUMS: *T B.* They should be resting now, in a moderately dry state. The old exhausted stems perish under such treatment, and should be cut away. Dry off at once, and then repot and start afresh in about six weeks' time—earlier if it had been resting sooner. Further particulars hereafter.

TIMBER: *Pembroke.* Don't you know that *all* timber has a spiral grain? Place your eye at the bottom of a mast and observe the clefts in its length; they show where the grain separates, and are invariably spiral. In fact the spiral grain is provided by nature to ensure stiffness, just as a hank of twine, be it ever so limp, becomes stiff when twisted.

MISC.: *A Gentleman's Gardener*; also *A Constant Reader.* We are much obliged for your suggestions, which cannot, however, be acted on.—*Harpagon.* We are unable to admit such matters, which are opinions—mere empty words—about which people neither do nor can agree. Practical matter, or theory which rests on admitted or at least probable facts, is always welcome.—Full Price will be given for the following Numbers for 1862:—Nos. 30, 36, 38, 41, 44, 47, 51. To be sent to the Office of the *Gardeners' Chronicle.*

MESSRS. WAY AND EVANS, ANALYTICAL CHEMISTS, have REMOVED their LABORATORY from 15, Welbeck Street, Cavendish Square, to 106, Leadenhall Street, E.C., where all Letters and Samples for Analysis should in future be addressed.—Jan. 17.

AGRICULTURAL and CHEMICAL COLLEGE, 37 and 38, Lower Kennington Lane, London, S.
ASSAYS and ANALYSES promptly attended to by J. C. NESBIT, LANSDELL & Co.

AGRICULTURAL and CHEMICAL COLLEGE, KENNINGTON.—Manufacturers and others engaged in making Artificial Manures may obtain every necessary instruction for their economical and efficient preparation by applying to J. C. NESBIT, LANSDELL & Co., 37 and 38, Lower Kennington Lane, London, S.
Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c, and Assays of Gold, Silver, and other Minerals, are executed with accuracy and despatch.
Gentlemen, Farmers, or others, desirous of practical knowledge in Chemical Analysis, or Assaying, may receive instruction at the College, where the extensive Laboratories give ample facility for pursuing their studies, and there is accommodation for a limited number of Resident Students.
Full particulars of terms will be forwarded on application.

CHEMICAL ANALYSES of MANURES, OIL-CAKES, &c., are now made on advantageous terms by ALFRED SIBSON, F.C.S., Author of "Agricultural Chemistry," &c., late First Assistant in the Laboratory of the Royal Agricultural College, Cirencester.
Temporary Laboratory, 9, Douro Cottages, St. John's Wood, London, N.W.
A "Lecture on Superphosphate" forwarded for 7 stamps.

DRAINAGE of LANDS (by Contract, or laid out and superintended at 5s. per acre) and the ERECTION of AGRICULTURAL BUILDINGS and all other permanent Improvements to Landed Estates, are undertaken by Mr. HUMBERT, Land Agent and Surveyor, Watford, Herts, and such Works can, if desired, be entirely executed under powers conferred by special Acts of Parliament, by Money raised by loan, and paid off (both principal and interest) by small annual payments spread over a number of years in the form of a rent charge, without immediate payment by the Land Owner.

ESTATE DRAINAGE. — HORTICULTURAL ALTERATIONS Planned, Superintended, and carried out. For the Advertiser's style, see Horticultural Innovation, p. 1172, *Gardeners' Chronicle*, Dec. 13, 1862.
J. NEWTON, 30, Eastbourne Terrace, Paddington, W.

Notice

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS), HORTICULTURAL VALUER, begs to inform his friends and the public that he has REMOVED from Priory Road, Wandsworth Road, to No. 1, Devonshire Terrace, Fulham Road, S.W.

Important to Amateur Gardeners.

FROST, AND ITS HAVOC AMONGST EARLY CROPS.
MR. WILLIAM E. PHILLIPS, Oak Bank Cottage, Farndon, Cheshire, begs to inform gentlemen amateurs in Gardening that by closely studying the transformations of nature during the different seasons, he is prepared to give correct information, with the greatest possible certainty, as regards the time when all danger of frost is past, and whether to plant early crops in the first week in February, or to withhold them for a much longer time. This unerring advice, which cannot be given before the end of January in any season, will be forwarded, together with a few valuable instructions to obtain very early crops of most kinds of vegetables, by forwarding a Post Office Order for 10s. 6d. to the above address.
Only a limited number of applications from each county will be answered this season; the remainder will be returned by the Advertiser.
N.B.—Market Gardeners need not apply.

Present Prices of Farm Seeds.

THE NEW FARM SEEDS are NOW READY, at Reduced Prices.
PRICED LISTS may be had, Post Free, from SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Fluke Kidney Potato Sets

FROM LAND WHICH HAS NOT BEEN BROKEN UP IN THE MEMORY OF MAN.
DICKSONS AND BROWN, SEEDSMEN, 43 and 45, Corporation Street, Manchester, have a few hundred bushels of the above valuable Potato, grown upon fresh land a very short distance from the place where the "FLUKE KIDNEY" was originally raised. They are picked expressly for sets.
By stating quantity required, the price will be forwarded on application to the Advertisers.

Myatt's Early Prolific Ash-leaved Kidney Potatoes.

H. AND F. SHARPE are now taking orders for the above, which has this season proved itself to be the earliest and most prolific Potato in cultivation, and as fine in quality as any of the Early Kidney varieties. Having a good stock they can offer them at a low price to the Trade.
Also JACKSON'S ASH-LEAVED KIDNEY, WALNUT-LEAVED KIDNEY, and all the early Round varieties at equally low prices, which may be had on application.
Seed Growing Establishment, Wisbech.

THE ROYAL ASH-LEAVED KIDNEY POTATO.—This variety was raised from seed of the Ash-leaved Kidney about five years since by the late JAMES ASHWIN, Esq., of Bretforten Hall, near Evesham.
He at the same time raised some other varieties from the same sort. Some specimens of all his seedlings were given to Mr. Rivers, who after having proved them, selected the above variety as being worthy of a name, and as the best and earliest Potato known.
It is like its parent in its fine flavour, shape, and leaves, but its bines are stouter and much more robust. It is also some eight or 10 days earlier, and gives quite double the produce of the old sort, frequently from 20 to 30 fine tubers to a root. In 1861 two pecks of seed produced 22 bushels. A few were sent to Mr. Spencer, of Bowood, last spring. The following is the report from the Foreman of the Kitchen Garden, Mr. Taplin:—"We planted this Potato for trial with the old Ash-leaved Kidney. The seedling was fit for use first, the Potatoes were larger and more of them to a root than the old sort; they were quite free from disease, while some of the sorts planted with it were nearly all destroyed; from its earliness and productiveness, I believe it will be found a most useful sort for early forcing." In March last, 10 varieties of Early Potatoes, including all the Early Kidney Potatoes, were planted here on the same day and in the same piece of ground with one row of the Royal Ash-leaved; the latter was earlier and more productive than any other kind.
Sold in sealed Peck Bags of 14 lbs., at 5s. 6d. per bag.
In London, by Messrs. WRENCH & SONS, Seedsmen, 39, King William Street, London Bridge, E.C.; and by Messrs. THOS. RIVERS & SON, Nurseries, Sawbridgeworth, Herts.

Permanent Grass Seeds, for all Soils.

SUTTON AND SONS have one of the largest and most complete Stocks of NATURAL GRASSES and CLOVERS in Europe, from which they prepare Mixtures expressly to suit the Soils for which they are required.
Seeds sent CARRIAGE FREE to all parts of the Kingdom. Export orders delivered FREE to the Ship's side in any English port.
PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S RENOVATING GRASS SEEDS for IMPROVING OLD PASTURES.—Many Old Upland Pastures, Parks, and Meadows are nearly destitute of Clovers, and the finer and more nutritious sorts of Grasses, in which case we are in the practice of furnishing such sorts only as are wanting. If the Seeds are *sown early in the Season*, the improvement in the Pasture will be very considerable, and at a small expense. *Quantity of Seed required*, 8 *lbs. to* 12 *lbs. per Acre. Price* 1s. *per pound.* Carriage free.
Address JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

FINE GRASS LAWNS in FLOWER GARDENS, &c.—The great expense of cutting and carting Turves from a distance may be avoided, and a *superior* Turf produced in a few months, by sowing SUTTON'S LAWN GRASS SEEDS, which consist solely of the finest and shortest growing kinds, perfectly *free from Moss and other weeds*
Price 18s. *per bushel, or* 1s. *per pound.* Quantities of not less than 1 bushel will be sent Carriage free.
JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

Prize Medal Seed Wheat.—International Cereal Show

THE PRIZE MEDAL WAS AWARDED TO
MESSRS. RAYNBIRD, CALDECOTT, AND BAWTREE, for the BEST SAMPLE of RED WHEAT, for their sample of RED NURSERY WHEAT, by a jury consisting of some of the most eminent Corn Factors from Mark Lane and Agriculturists of the day.
This Wheat is remarkable for its fine quality, weight, and hardiness, and is one of the most productive upon poor soils and in exposed situations; it may be sown at any time from October to March.
Bulks of similar fine quality to the Prize sample, for cash only, at 80s. per Quarter.
Address, Basingstoke.

TRADE
HALLETT'S | PEDIGREE. | NURSERY WHEAT.
MARK.
"The best Spring Wheat known. Drill in February and March, six pecks per acre."
Produced (1862) 62 bushels per acre, weighing 64 lbs. a bushel
Price ONE GUINEA A BUSHEL, including bag sewed up and sealed, delivered at the Brighton Railway Station, with Printed Directions for Planting, on Receipt of Cheque or Post-office Order, which must in all cases accompany the Order. Less than One Bushel will not be supplied. Name of Station and Railway should accompany the Order.
Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

The Agricultural Gazette.

SATURDAY, JANUARY 17, 1863.

THAT was a quaint bit of experience and wisdom which Mr. CUTHBERT JOHNSON disinterred the other day from Sir A. FITZHERBERT'S "Boke of Husbandry," in which the old Chief Justice had declared:—"There is a seed called Discretion, if a husbandman have of that seede and mingle it amongst his other corne, they will growe doubtless much the better, for that seede will tell him how many casts of corn a land ought to have. And if a young husband, or, it may so fortune, a man that by possibility might have gray-headed experience, hath not sufficient of that seede, yet he that lacketh, it is lawfull for him to borrow of his neighbours that have, and his neighbours be unkind if they will not lende this young husband part of their seed, for this seede of discretion hathe a wondrous virtue, for the more it is eyther taken of or lent the more it is."

Now Discretion is that part of good conduct which takes wary account rather of the difficulties, risks, and dangers of the way than of the object or rewards of the journey; and it is, we think, a fortunate circumstance that in one of the earliest specimens of "book farming" in our language it should have been desired that the "young husband" do mingle it with his "seed corne." It is because some men do and others do not act upon FITZHERBERT'S counsel, and there is so much difference of opinion on that old bone of contention—the proper seeding of our crops. It seems plain, let us nevertheless confess, that those who would be called "thin seeders" over more than half the corn land of the country, and who are declared by their opponents to lack "discretion," have the advantage in the argument. It may be, and no doubt is, that imperfect sowing, imperfect seed-bed, and enemies of all kinds destroy large quantities of seed; but disregarding for the moment the greater necessity that there, therefore, is of reducing these risks to a minimum by good management in other particulars, it is plain that in the meantime, and so long as they exist, a larger quantity of grain must be sown than would otherwise be needed. When, however, 3 and even 4 bushels of Wheat, with their 2,000,000 grains, are scattered over 40,000 square feet of land, 50 grains to every foot, it is manifest that there is an outrageous destruction not only of seed but of plants—that the latter must come up in larger quantity than there is room for their productive development, and that one half the seed would yield a better crop. There are districts where 3 bushels of Wheat, 6 and even 8 bushels of Oats, and 4 and 5 bushels of Barley, are the common rule at seed time—districts where climate, at least so far as the element of severity is concerned, cannot be pleaded in explanation of the practice—and where, accordingly, we imagine that both the parties to the discussion, as it is carried on in our columns, would be at one. It certainly must be both the interest and the duty of cultivators in such districts gradually to diminish the quantity of seed they sow, and ascertain by experience, as undoubtedly they would, that three or four plants in every square foot of ground will produce a maximum of grain.

Let us at once, however, admit that in a discussion where we sympathise rather with those who contend for the general reduction of the quantity of seed all over the country, there is no argument which will seem so perfectly futile and without avail to cultivation as that which reasons from the proportion between the seed and the produce. Mr. WILKINS, whose lucid English, erudition, clever irony, and pertinacity are all most usefully engaged in this discussion, not unfrequently declares that seed in his case produces 20 and 30, or even 40 fold, whereas, in ordinary farming, it does not yield above 8 or 10 fold; but it is not the object of the ordinary farmer to multiply seed; on the contrary, provided he could always have the minimum return, that 8 fold which is laughed at, he would prefer sowing all the seed in his granary over a single acre of land to sowing it at great expense of labour, rent, and risk, over many hundred acres. In the very district in which one quarter of Oats is a common seeding, 10 and 12 quarters of Oats are a common crop, and that is a better result than is experienced in other parts where 3 bushels produce 60.

They do not sow all their seed upon a single acre of land because they know the plants would smother one another—the point they do not see is that they smother one another as it is. If, instead of sowing probably 100 grains to every square foot of ground they should try in successive years the effect of 60, 40, even 30 or 20, taking care that each is well planted in a proper seed bed, they would gradually arrive at the conclusion, that notwithstanding the circumstances which have hitherto seemed to justify their confidence, they have hitherto been wasting a great deal of seed to the injury of the crop.

Any alteration of long established practice does in 9 cases out of 10 require a previous alteration of the long established circumstances of the soil out of which in all probability it has arisen; and Mr. WILKINS, no less than Mr. FORD, sees the necessity of good management being carried on in all its particulars together. Each item may be useless, perhaps even mischievous, unaccompanied by the others, and if the same shallow, wet and clayey seed bed into which four bushels of Wheat hitherto have been cast should receive, in obedience to Mr. WILKINS, only three or four pecks, regardless of his warning that good agriculture consists in the deep and thorough tillage of all drained land, he cannot be declared responsible for the failure which will follow.

—— WE have received the announcement of an International Agricultural Exhibition to be held, with the co-operation of the German Agricultural Society, on the Heiligengeistfeld at Hamburg, on the 14th, 15th, 16th, 17th, 18th, 19th and 20th of July, 1863, under the guarantee of a large number of gentlemen, whose names are published.

Hamburg is probably the most convenient place on the European continent for an International Exhibition. It is easily accessible from other agricultural countries—England, France, Holland, Belgium, Denmark, Sweden, Russia. Its commercial relations with these countries and other parts of the globe, its total exemption from duty and all customs regulations have especially favoured the merchants of Hamburg in the interchange of agricultural produce and machinery, and made this city a very important market for horses and cattle.

The Exhibition will therefore be an inducement for visitors to assemble from all parts, and afford them opportunitis of comparing the productions of various countries, and of opening new channels for trade.

The Committee are making exertions to induce all steam-navigation and railroad companies to convey at reduced rates of freight live-stock, machinery, agricultural implements and produce, that may be destined for the Exhibition. Their

endeavours have not yet terminated, but, so far, every encouragement to this end has been held out to them, and they will not fail to make generally known their arrangements, as early as possible, for the information of the Exhibitors.

The judges to be chosen will be impartial men, well acquainted with the matters submitted to them for decision, and taken from gentlemen of all countries.

The Committee have secured the hearty co-operation of the German Agricultural Society, they are liberally supported by the Hamburg authorities and other Governments; indeed so many agricultural societies in different countries, especially the Royal Agricultural Society of Great Britain, have evinced such a warm interest in this the first undertaking of the kind in Germany, that the Committee are encouraged to use their most strenuous efforts to render the "Hamburg International Agricultural Meeting of 1863" memorable for its importance.

Applications, respecting entries and other matters, must be addressed to the Secretary, GERHARD HACHMANN, LL.D., Hamburg. The last day of entry of articles to be exhibited is May 1, 1863.

We see that there are no fewer than 36 classes in which horses can be entered for competition, the prizes being from 400 to 15 thalers apiece; no fewer than 88 classes of cattle of all kinds and ages, with prizes varying from 200 thalers to 20; 44 classes of sheep; and 18 classes of pigs, with prizes varying from 50 to 10 thalers each.

The thaler is reckoned equal to 3s.

The following are the rules of adjudication:—

1. The judges will be instructed to withhold any prize if they are of opinion that there is not sufficient merit in any of the live stock, machinery, &c., exhibited for such prize to justify an award, and they may therefore disqualify a whole class.
2. If, in the opinion of the judges, there should be equality of merit, they will be instructed to make a special report to the Sub-Committee appointed for that purpose, who will finally decide on the award.
3. The Committee may withhold prizes which have been awarded by reason of erroneous statements on the part of the exhibitor.

In cases where it shall appear to the judges that animals or objects have been entered in a wrong class, they will be instructed to report the same to the Sub-Committee above mentioned, who will finally decide thereon.

4. The judges will be instructed to give in a "reserved number" in each class of live-stock; viz., which animal would, in their opinion, possess sufficient merit for the prize, in case the animal to which the prize is awarded should subsequently (in conformity with § 3) become disqualified.
5. In the classes for stallions, mares and fillies, the judges, in awarding the prizes, will be instructed, in addition to symmetry, to take activity and strength into their consideration.
6. The judges will be instructed to deliver to the Committee their award, signed, and stating the numbers to which the prizes are adjudged before they leave the show-yard.

There is also ample scope to be given to exhibitors of machinery, agricultural implements and produce; connected with which a series of instructions and conditions are published, all of which and every other information may be obtained on application to Dr. GERHARD HACHMANN, Secretary, Hamburg.

COTTAGE CONSTRUCTION.

[A very interesting paper on this subject was last month read by Mr. J. Taylor, jun., architect, before the Society of Arts. We now extract the following passages from this paper as it is reported in the Society's Journal, and we are enabled, by their kind permission, to give the wood-cuts with which it is there illustrated.]

WE are all, no doubt, well aware of the efforts that have been made to improve the condition of the labourer by improving his dwelling, and great has been the benefit obtained; but I think our over anxiety to provide him with a habitation that should come up to our own views and acquirements, rather than to what his wishes, habits, and inclination aspire to, have retarded much of that wide-spread benefit which might otherwise have been expected. For my own part, I would rather give the labouring multitude something better than they now have, than endeavour to make a few model labourers and labourers' homes.

Our experience, I think, has already taught us that, to build proper abodes for the working classes, will not return a remunerative per-centage; but we may, I think, with a reasonable prospect of success, endeavour to give the labourer something better than he has, and so gradually prepare him for the more perfect abode which we all hope in future time he may obtain.

I think a very grave error is made when a single penny is expended in architectural effect. Finishings and decorations, whereby the dwelling is reduced in size and the proper accommodation decreased, so that turn-up bedsteads are found in sitting-rooms, and other such like expedients resorted to, even when such embellishments are carried out with every regard to economy, tend to increase the difficulty of producing a plain, humble, healthy cottage at a reasonable expense; and hence the inducement to resort to many of the cheap shams and building contrivances of the present day. We are so apt for ourselves to require architectural effect, genteel appearance, and decorations within a limited rental, that it is becoming apparent that no honest builder can get a sufficiently remunerative rent. It is only the so-called "duffing builder" that knows how to set about this. It cannot be wondered at that, in the endeavour to build the labourer's cottage, resort is so often had to what is understood by "cheap building," although the after experience in repairs discourages those who have been misled, so that injury results where benefit was expected.

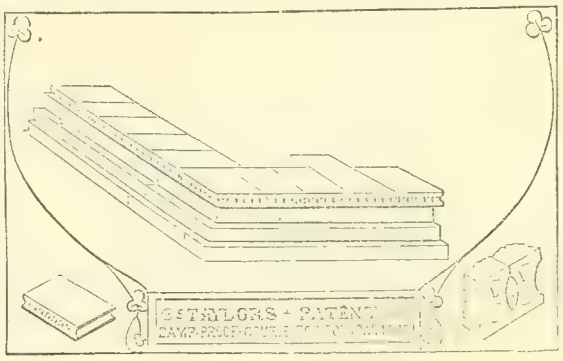


FIG. 1.

I will now explain the manner of constructing damp-resisting foundations, ventilated floors, or paving, dry walls, and a tight, warm roof.

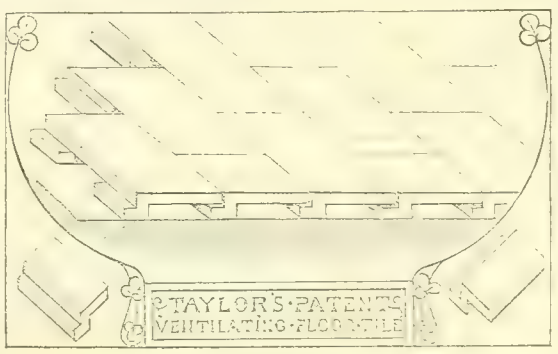


FIG. 2.

The question that must arise in your minds is, that granted all these are improvements, how are they applicable to a labourer's cottage? My answer is, that a mode of effecting this has recently occurred to me, and, although it has become the subject of recent patents, I now declare that any who wish to be supplied by me with such materials for the purpose only of constructing dwellings for the labouring poor, shall have them free from all royalties or patent charges whatever, so that a larger, healthier, and cheaper cottage may be built at a less cost than has before been done.

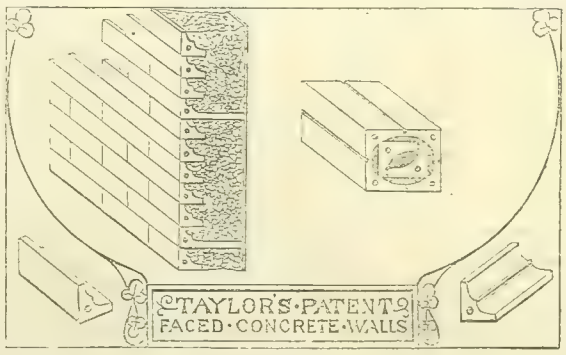


FIG. 3.

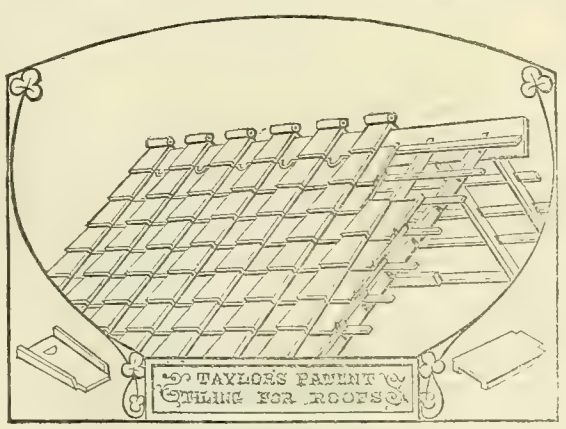


FIG. 4.

I will, however, first direct your attention to the plan of a double cottage, which contains on the ground floor a living room or kitchen, 12 feet by 12 feet; a washhouse or scullery, 11 feet 6 inches by 9 feet; a larder, 5 feet by 3 feet 6 inches; a store, 3 feet 6 inches by 3 feet 7 inches; and a large closet to the living room. In the wash-house are a good oven, grate, copper, sink, and dresser, and in the living room a range with oven and boiler. There is a back-door out of the scullery, and a door of communication between scullery and kitchen. The entrance door is in front, where there is a small lobby to the living room and staircase; this lobby has also a pent externally for shelter. Upon the floor above is a bedroom for the parents, one for girls, another for boys; out of the parents' room is a linen closet and cupboard. The whole is comprised within four walls, without breaks, presenting the least surface to the external atmosphere, a great object in this climate. All the flues are collected into one central shaft; the roof is a simple lean-to from party wall to side wall. There are therefore no gutters, valleys, or other intricacies of roof, and all the water falls into one length of eaves-guttering, down one down pipe into a rain water butt. No doubt some portions of this plan have often been seen, but its simplification and adaptation to my peculiar mode of construction is what I claim your attention to. It would have been easy, and certainly very tempting, to have added breaks and gables, &c., and so to have produced a more picturesque effect. The difficulty has been to avoid this, and economise cost in every way.

I will now proceed to explain the several peculiarities of construction, and, firstly, as to the foundations.

No doubt you have often observed and felt the ill effects damp rising up the walls by capillary attraction, the most fruitful source of an unhealthy dwelling. Stagnant and impure matters in the soil are sucked many feet up the walls, and become evaporated into the rooms—the higher the temperature the quicker the evaporation and the renewal of the noxious supply.

The usual means employed hitherto to prevent this were either a layer of asphalte, sheet lead, or slates in cement; and recently, in attempts at cheap cottage building, we hear of a layer of "gas tar and sand," a layer of "gas tar and powdered slate," a layer of "boiling pitch," a course of "calico immersed in tar and pitch."

In the construction of foundations, three essentials have been hitherto partially effected by as many separate means:—

1st. Damp prevented rising up the walls by the means before named.

2d. The introduction of air by air-bricks at intervals.

3d. Strengthening and bonding by the use of rough York stone, &c.

In my Damp-Proof Course those effects are combined:—

Damp rising is completely prevented by a highly vitrified and non-absorbent material, having an air space through the joints.

Air is supplied through the perforations, securing a circulation beneath the surface of the walls.

Strengthening and bonding are effected by the use of an imperishable material, capable of sustaining 600 feet of vertical brickwork upon each superficial foot. These three requirements are economically combined in the one article, with a saving of one course of brickwork in the height of the building.

The advantages to health and comfort that a properly constructed wooden floor possesses over stone, brick, tile, or other paving, are well known; the latter, we find, laid upon the earth, or some other medium in connection with it, and damp rising is again the cause of cold and discomfort; and if the surface of the ground beneath any single tile becomes soft or defective, that tile sinks, the surface becomes uneven, and the paving is quickly dilapidated.

My Patent Ventilated Paving Tile (Fig. 2) for floors or pavement is made with an under projecting rib or flange which, when laid, forms the bearer of the tile, and extends beyond the edge, receiving upon it the other edge of a similar tile, so that the rib not only acts as the bearer of the tile of which it forms a part, but it also forms the bearer of one edge of the next tile, leaving a space under the tile for the free circulation of air, which is there introduced through the Damp Proof Course before described, and, that the air may circulate transversely, as well as longitudinally, in the spaces under the tiles, openings are left in the ribs for the air to pass laterally through from the space under one row of tiles into the space under the next row. In beginning to lay down a pavement, a row of tiles is used, having an additional under rib; the air thus circulates freely under every part of the pavement, insuring its perfect dryness, and it becomes, in all respects, a suitable floor for a cottage, at a far less expense than any description of wooden floor, and, when we consider that there is no necessity for floor joists and sleeper-walls, the saving is very considerable.

We now come to the bulk of the building, viz., the walls. Ordinary brickwork, one brick thick, I consider totally unfitted for the abode of any human being. The single brick readily absorbs rain and moisture, and the through mortar joint quickly conveys it from the exterior to the interior.

Horizontal bond is studied and insisted upon by all careful builders, but, strange to say, vertical bond is never thought of. Hence we see the one-brick wall perhaps strong enough to bear the intended weight, but not stiff enough to stand even during its erection. Thicker walls are too expensive for a labourer's cottage. In seeking for a substitute, where economy is to be considered, the bulk of the material must be found upon the spot or in the locality, and nothing is more generally to be found than the necessary materials for concrete.

We all know that concrete is ordinarily composed of gravel and lime, and is in its proper place when in a trench as a foundation. Being retained therein, and prevented spreading,

it will sustain any weight we like to place upon it, but when used in building walls, it is not so retained, and is incapable of enduring cross strains, when the boards, which are, in fact, the moulds in which the cast has been made, are removed. The construction mainly depends upon the adhesive quality of the lime or cement, and when it is no longer retained, cross strain and other causes produce cracks and settlement, and the action of the weather upon the surface soon produces premature decay.

To understand how my patent cottage walls are constructed, observe the diagram on the left hand in Fig. 3, representing a hollow block, which certainly at first appears what no one can understand. It is made by pressing clay through a die. The dark portions represent hollow spaces through which the heat readily acts throughout the block where desired, during the process of burning in the kiln, and, when standing on end it occupies the least possible kiln room. It has been partially separated by knives in the die, but holds together firmly enough during burning in the kiln and carriage to the intended building. Just before use, the bricklayer or labourer readily separates it into six bricks specially adapted for the reception of concrete.

It will be readily seen that in all the several processes of manufacture, six bricks have been produced instead of one. These blocks, or bricks, when used, are laid by the bricklayer on each side of the intended wall, distant from each other the thickness of it, as shown at the left hand of Fig. 3. The labourer then lays concrete in the trench thus formed, the vertical pressure upon the flanges counteracts the outward thrust, and thus the concrete is retained as in a trench, the mould wherein the cast was made remaining to protect the wall from damp, and to prevent the decay of the external surfaces of the concrete by the weather.

Thus each course is thoroughly constructive, and even first-class houses may be thus built to any reasonable height. In a cottage wall, 9 inches of thickness is sufficient, requiring only one course of blocks externally, with the bonding blocks at intervals, and the use of a moveable board on the inner face during its construction. After this a little rendering inside with lime, or Scott's Cement, which is better, finishes the inner face.

It is calculated that a rod of ordinary brick-work requires 4352 bricks, which (at, say 32*s.* per 1000) costs 7*l.* One rod of the patent walling requires 1450 of my bricks, which (at 25*s.* per 1000), for labourers' cottages, only costs 1*l.* 16*s.* 3*d.*; add to this the cubical contents of the concrete, 9¾ yards, at 16*s.* 8*d.* (calculating gravel at 2*s.* per yard, and lime at 10*s.*), 1*l.* 12*s.* 8*d.*, together; 3*l.* 8*s.* 11*d.* the rod of 14-inch work, as against 7*l.* the rod of brickwork.

Now as to the weight; the 4352 bricks weigh 9 ton 14 cwt.; the 1450 of my bricks weigh 1 ton 9 cwt. We thus see that these blocks can be sent in a railway truck or otherwise long distances, where we could never hope to send bricks. When my blocks for facing ordinary brick-work are used, they cause continuous hollow air spaces to be left within the wall, and a great saving in bricks results. Vertical bond is obtained, and the yielding mortar joints are strengthened; and I have found that the walls of a house thus constructed become so quickly dry, that they may be papered almost immediately.

We now come to the crowning matter of my subject, viz., the roof.

Slate is generally applicable for roofing, as it admits of being laid to a flat pitch, and is light, but is so absorbent of heat that rooms in the roof become unbearable.

Plain tiling has not this objection, but must be laid to a steeper pitch, is much heavier, being nearly of double the thickness, and requiring greater strength of timber.

Pan tiling is lighter, but so pervious to weather, as to be only suitable for sheds and similar buildings.

My patent tiles may be laid to as flat a pitch as slates; their weight is 656 lbs. per square. Plain tiling is 1624 lbs. per square. Thus it appears that it is less than half the weight of ordinary tiling, pleasing in appearance, and combines all the advantages of slates and tiling without the drawbacks attending them. The price is 4*l.* 10*s.* per thousand, being enough to cover a square for 16*s.*

You will observe on the diagram (Fig. 4) that I make a tile wider at one end than at the other, and having flanges raised at two sides, the narrow end becomes the lower end of the lower or trough tile fitting into the wider end. The same tile reversed becomes the upper or capping tile; the two notches in the flanges enable each tile to take an even bearing upon the tile beneath, and allow all the ends of the tiles to range horizontally. The nib upon the upper part of the tile gives the necessary gauge, and firmly secures the tiles the one to the other.

The ridges are formed of a V shape, having all their joints lidded or capped. These ridges are applicable for any ordinary slated roof, and all screw holes and their defects are avoided.

Having now set before you such particulars as time will permit, I will only just briefly conclude by stating that all the patent materials necessary for the erection of the pair of cottages will be as follows:—

The damp-proof course	£40	0	0
The ventilating paving			
The wall blocks			
The roofing tiles			

I think we may now, therefore, reasonably expect that the remaining works may be done for such a cost as that a larger, healthier, and cheaper cottage may be available for the labourer than hitherto.

Having directed our time and attention thus far to the labourer's interest, let us look a little to our own, and at this season what is more constantly forced upon our attention than the discomforts that appear to be almost inseparable from our own firesides? We all know what is considered the next evil to a scolding wife.

Mechanical contrivances to effect the combustion of smoke are ineffective when left, as they must often be, to the care of our ordinary domestic servants. There is an annual loss in London alone of 75 per cent. of heat (an acknowledged fact) which escapes up the chimney without adding to the warmth of the apartment. The calculation of this does not afford us any consolation in our discomfort.

The air necessary to support combustion makes its way to the fire from door or window, chink, or crevice, and visits our backs with hurtful draughts in proportion to the warmth we are receiving in front.

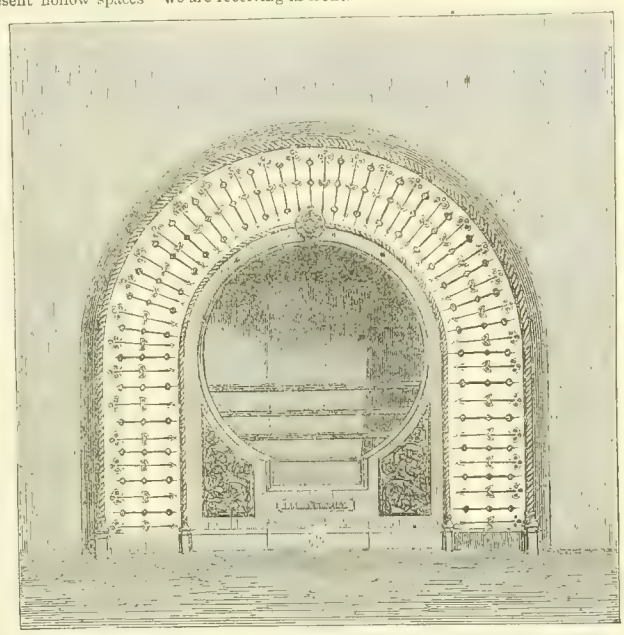


FIG. 5.—FRONT VIEW OF THE SMOKE CONSUMING AND VENTILATING GRATE.

A frequent cause of the chimney smoking is that it becomes filled with the air from the apartment, which, rushing in above the fire, lowers the temperature and renders the flue incapable of acting as a sufficiently rarefied ventilating shaft, and often incapable of even conveying away the smoke at all.

The peculiar features in my patent grates (Figs. 5 and 6) are as follows:—

When the register is closed, the smoke, having ascended from the fuel, and become mixed with atmospheric air, descends, and passes through the hottest part of the fire, where the carbon or soot in the smoke is consumed as fuel.

The heat which would have rushed up the chimney, calculated at 75 per cent., passes down and around the hollow fire lumps of which the grate is formed, and the external air, with which these communicate, enters the apartment in a large body, moderately warmed, not heated.

The apartment is supplied with moderately warmed instead of cold air, from door or window, and thus thorough ventilation is effected.

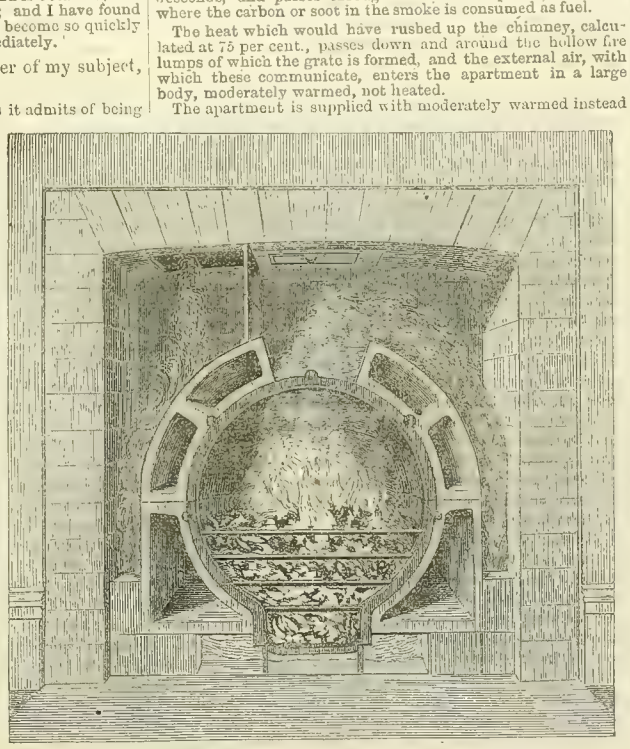


FIG. 6.—VIEW WITH FRONT REMOVED, SHOWING THE ACTION.

The cold air cannot rush up the chimney; the flue is therefore rendered a powerful extracting shaft for ventilation, and a highly rarefied, and consequently effectual, passage for the products of combustion, thus obviating another fruitful source of smoky chimneys.

Should the warmth be too great, the register can be opened and the action of an ordinary grate will take place.

In addition to these advantages, the fire is always under perfect control, and may at all times be brought to any degree of brightness.

Its combustion of fuel is so perfect, that what remains in the ash-drawer, after the day's consumption, if proper attention has been paid, might be taken away in the palm of the hand.

The occupation of the sweep will be nearly dispensed with.

I shall at all times be most happy to give any further explanation or information at my offices in Parliament Street.

In the course of the subsequent discussion Mr. J. BAILEY DENTON said:—

Mr. Taylor's paper was a very ingenious one, and he must admit that the drawings by which it was illustrated were most explicit; but there was to his mind one very manifest omission, and that was the consideration of the cost of the structure. Representing, as he did, a company which was employed very largely in the building of agricultural property, and in ascertaining the lowest prices at which, with due consideration to the sanitary requirements of the day, labourers' cottages could be built, and having himself inspected a great number of drawings, plans, and specifications for them, he was there to confess that they had not been able to build cottages for which the farm labourers of the country could pay a rent which, in itself, would give an adequate interest on the capital expended. The average cost at the present moment of cottages with three rooms, with water supply and the necessary fencing, was 260*l.* a pair. He was speaking not merely of his own experience, but from the experience of those who were largely engaged in building; and as it was necessary, in order to encourage the building of cottages, that they should give a return of six per cent. upon the outlay, the rent would amount to 15*l.* 12*s.* per annum, or 7*l.* 16*s.* per cottage. Now, the utmost that a farm labourer could afford to pay was limited to one-seventh of his earnings, and therefore, taking the average agricultural wages at 10*s.* or 11*s.* per week, the rent which really could be afforded was not more than 1*s.* 7*d.* or 2*s.* per week, which was equal to about 5*l.* a year. Now, inasmuch as 6 per cent. upon an outlay of 130*l.* per cottage represented 7*l.* 16*s.* a-year, it was clear that there remained 2*l.* 16*s.* yet to be made up from some source in order to encourage builders to erect these cottages. That 2*l.* 16*s.* might fairly be paid, partly by the farmer who employed the labourer, and partly by the owner on whose estate the cottages were built, the farmer employing the labourer having the advantage of the man living on his farm, could, it was admitted, pay something towards the rent; and if they assumed that he could afford to pay 1*s.* per week, or 2*l.* 12*s.* a year, there would yet remain something for the owner to pay to make up the deficiency. 260*l.* a pair for cottages was too large a cost, and it was an object worthy of this Society, and of the country at large, to endeavour to reduce the expense from 260*l.* to about 200*l.* a pair. If they could succeed in doing that, there was very little doubt they would be able to build cottages for the poor which were suitable in all particulars. As an illustration of the difference that existed in the various designs that had been placed before the world as being worthy of adoption, he might mention the fact that the cubical contents of these cottages varied as much as from 7000 to 12,000 cubic feet.

Mr. EBENEZER CLARKE was happy to state, as bearing upon the remarks just made, that he held a contract, which was now in course of execution, for building cottages as low as 225*l.* per pair, which were of larger cubical content than those described by Mr. Taylor. The front room was 12 feet by 10 feet, the back room being about the same size, with a wash-house at the back, and containing a capital oven, copper, sink, and dresser, and a good water-closet. There were two good rooms upstairs, and there was a porch in front. A pair of cottages upon this design had been placed opposite the eastern dome of the International Exhibition during the present year, and at Walthamstow there were 16 pairs of cottages now erecting at the contract price he had stated. The cost of those cottages, including the freehold of the ground, would not exceed 130*l.*, and a rental of 2*s.* 6*d.* per week would give 6*l.* 10*s.* a year as the interest upon that amount; but it was said the landlord would expect more than that. Even if 3*s.* 6*d.* per week, or 2*l.* 12*s.* additional for rates and repairs, were required, for that rental they might have cottages within five miles of London, which could be let to pay a fair remuneration upon the outlay. By this means a great difficulty would be overcome. Mr. Scratchley had laid down a goood principle for the purchase of cottages by labourers. He had proposed that some of the money subscribed to the savings bank should be appropriated, at 4 per cent., to the purchase of labourers' cottages.

THE LAND DRAINAGE ACT, 1861.

(*Continued from page* 34.)

LETTER II.—ON THE MODE OF PROCEEDING WITH DRAINAGE DISTRICTS.

To men uninitiated in law, and therefore incapable of appreciating the beauties of those Acts of Parliament which incorporate with their own provisions the powers of numerous other Acts, there will perhaps appear in "The Land Drainage Act, 1861," a complication which will trouble them, but this will be counterbalanced by the clearness which characterises the fundamental provisions of the first and second part of the Act itself.

There is hardly a river in England or in Wales, upon the banks of which there are not areas of saturated lands, requiring only the removal of some mill dam, or the lowering of some weir or stanch, and the straightening and deepening of internal watercourses, to change the character of those areas from worthless swamps to the best of land; and numberless, too, are the moors and marshes having no immediate connection with a river, but lying sometimes high among hills and above the mean level of the country, which can hardly be called low lands or valley lands, but which equally require outfall works and combined action to secure their reclamation.

Let us see how the new Act facilitates such improvements, and to do so assume that we are about to deal with an ordinary case of either of the above descriptions.

I. Before any formal steps can be taken, the landowners interested must agree in general terms upon the limits of the district to be formed, and thereupon instruct an engineer to report upon the mode of effecting the drainage and the cost of the works, and to furnish a map of the lands comprising the district, a schedule of the owners of land within it, and sections of such outfall drains or cuts as may be necessary.

II. With this information in hand, the proprietors of *one tenth* (in acres) of the land comprised in the proposed district may present a petition to the Inclosure Commissioners, praying that the area agreed upon may be constituted a district under the Act; but the landowners must signify whether it is their wish to have a "Commission of Sewers," or an "Elective Board,'

as the governing or superintending body of the district when formed.

The difference between a Commission of Sewers and an Elective Board consists in the former being constituted by the Queen practically for life, and the latter being elected annually by the ratepayers themselves. The qualification of the members of a "Commission of Sewers" is that fixed by the 3d and 4th of William IV. (which is high in amount, and therefore has an exclusive tendency) while that of the Elective Board is such as the Inclosure Commissioners may determine upon a consideration of the nature of the district.

There are other advantages and disadvantages attending each form of Commission, which will present themselves to the mind as we proceed.

III. The petition to the Inclosure Commissioners must set forth the particular information supplied by the engineer; *i.e.*, the quantity of land within the proposed district, the nature of the works intended to be carried out, the estimated cost of those works, and it must be accompanied by a map of the area, the sections of the outfalls, a schedule of the owners within the area, with the extent of land they each possess, and the names of those persons, who it would be well should serve as Commissioners on the first appointment. In some cases where the area is small and the landowners few, the management of the district will remain virtually in the hands of those who at present control the several unimproved properties; the advantages of forming the district being beyond the execution of combined outfall works, the exercise of borrowing powers, and the permanent maintenance of the whole length or system of outfall works, which it was the object of the combination to effect. Instances will not be wanting where the original cost of the works will be nominal, and the advantages gained will be rather in the powers of maintenance than in the execution of original works.

IV. Upon receipt of this petition the Inclosure Commissioners will institute through an inspector, by public meeting on the spot, an inquiry to satisfy them of the *bona fides* of the promoters and the number and extent of assenting and dissenting parties; but before doing so will require a deposit of money to cover the cost of the inquiry, proportionate to the magnitude of the undertaking.

V. If the landowners elect to carry out the drainage under a "Commission of Sewers," the Inclosure Commissioners will dismiss the petition if one-third the area in extent express to them their dissent in writing; but if an elective board be determined upon, then the Inclosure Commissioners will require to be satisfied through their inspector that two-thirds are in favour thereof. This difference is an inconsistency not easily explained. Every one knows how difficult it is to induce persons, who may be really favonrable to a general improvement, to declare themselves so when the advantages are prospective and a contribution of payment certain. And again, every one knows too that so large a proportion of the land in this country belongs to tenants for life, bodies corporate—women under disability—and absentee owners, that it frequently happens that two-thirds cannot manifest their assent. It is clearly due to the contributors towards the cost of combined works of drainage, that full opportunity should be given to all parties to express their opinions, and that no work should proceed without the concurrence of a majority, but the effect of requiring an expression of approval is practically to convert absentees and neutrals into dissentients; a requirement which will stop many district drainages.

VI. We will now suppose that the Inclosure Commissioners have satisfied themselves on all points of the "Commission of Sewers," or the "Elective Board" is determined upon as the case may be. If the former, the Commission comes into existence as soon as the mandate is issued from the Home Office, which may be in six weeks or two months after the Inspector has held his meeting; if the latter, the Board will be constituted as soon as the provisional order of the Inclosure Commissioners has been confirmed (with other drainages under the same Act) by a general Act of Parliament similar in its character to the Sessional Acts confirming Inclosures. There is, therefore, greater delay in the case of an "Elective Board" than in the case of a "Commission of Sewers."

Having established a Local Board, the functions of the Inclosure Commissioners close, and the Commissioners of the District commence their duties by taking the preliminary steps for the execution of the work, and the raising of the rates for the payment of the cost. If it is requisite to purchase land for new works, then the approval of the Inclosure Commissioners (confirmed by Act of Parliament) is required; so also, if it is desired to mortgage the rates and raise the money for the works by an arrangement enabling the landowners to pay off the principal money with interest in a period not exceeding 30 years—as in nine cases out of ten it will be found to be—the jurisdiction of the Inclosure Commissioners is again revived to sanction the mortgage. And most fortunate it is for the country that such interposition is necessary, for by a strange anomaly the Act does not require an adherence on the part of the Local Commissioners to the plans and statements put before the Inclosure Commissioners, when determining the limits of district, though any material departure from them must necessarily render the limits of the taxable area inappropriate, and the rating originally contemplated unjustifiable.

All these considerations, however, will have their weight when the district board is established, and the arrangements for internal management will follow in due course.

In my next and last letter I will confine myself to the two points which are of the greatest importance when the Local Board assume the executive. The engineering principles to be generally recognized, and the basis upon which the rate will be levied on the taxable area. *J. Bailey Denton, 52, Parliament Street, Westminster.*

TOWN SEWAGE.

I READ with surprise and regret, and "rather in sorrow than in anger," such portions of your late Leader as referred to our imports of foreign corn and to our waste of town manure. There was in that Leader a resignation to things as they are, and an inferential hopelessness of amending them, that are exceedingly painful to the feelings of an ardent agricultural improver. Are we really to see these vast foreign imports of corn and that enormous waste of food producing sewage without an effort to diminish the one and preserve the other. Are these objects impracticable? or can they be profitably accomplished by an investment of capital and intelligence? Have we been content to do the same thing with cotton? Why are we not by the same rule willing to purchase all our cotton goods from foreigners? How is it that Lancashire can purchase from foreigners their raw material, employ millions of British hands in working it up, and sell it again in a manufactured state to the very country that produced it? Look at the gigantic factories and costly and complicated machinery, raised and made by enormous investments of intelligence, science, and capital, and you have at once an answer to the question.

This has been done in our manufactures, but has it been done in agriculture? No! therefore in one case we can defy foreign competition, in the other we tamely submit to buy abroad that which we could, if we chose to do so, produce with profit at home, thus providing abundant and extensive additional channels for industrially employing our own people, and for that superabundant capital which is now, by our payments annually of many millions for foreign corn, stimulating and encouraging and remunerating our competitors in corn growing in other countries. But it will probably be asked—how can you compare cotton with corn? Does our agriculture admit of sufficient improvement to warrant a reasonable expectation of such a result as you contemplate? That is really the question. Let us see what our land really produces, and we shall soon arrive at a conclusion. The available agricultural area of Great Britain (leaving out mountain and waste) may probably be taken as 50 millions of acres, landlord's measure, which includes roads, fences, trees, and the space occupied by farm buildings. The rent of this land may be taken as 20*s.* per acre; its gross annual produce, according to the best estimates that can be referred to, about 3*l.* 15*s.* per acre, in meat, corn, and other agricultural produce. Capital employed, 4*l.* per acre.

Is this amount of produce worthy of British enterprise? To judge of this we must refer to numerous cases in our best-cultivated districts, where on the poorest soil, naturally, more than double 3*l.* 15*s.* annually is obtained from the soil, being the result of a greater investment of capital and of intelligence. But, then, are we deficient as a nation in capital? Every one knows the contrary, and that the annual surplusage of profits to the extent of many millions flows into almost every undertaking except the increased production of food, the most required and the most necessary of all things.

We must, therefore, come to the regretful conclusion that various causes interpose to prevent or delay the flowing of capital into that most necessary of all occupations, the production at home of human food. Many of these causes are very obvious; but the consideration of them is too large a subject for the present paper, for in dealing with so enormous an interest as British agriculture it is evident that so small an increase of produce as only 10*s.* per acre would, on 50 millions of acres, add 25,000,000*l.* annually to our stock of human and animal food, and thus almost render us independent of foreign imports. In fact no reasonable or calculating person can doubt that we have the means and power to produce with profit (if we had but the inclination to do so) much more food than could be consumed by the British people. Of course the result would be to cheapen the produce, and I have yet to learn that the same mighty power which has rendered calico more profitable at 3*d.* per yard than it was when at 1*s.* 6*d.*, may not be brought to bear on the production of our food.

The mere drainage of our land where required, better shelter for our live stock, greater economy of our manures and town sewage, and an amendment of the topography of our farms, would add greatly to the food of the people, with profit to landlords and tenants and the country at large.

Every unprejudiced man who travels from county to county throughout this kingdom must look with sorrow and contempt on the low scale of our general agricultural procedure and condition—and come to the conclusion that it is quite as much a matter for landlords as for tenants,—to inaugurate a better state of things. *J. J. Mechi, Jan. 7.*

RABBITS.

In a recent Number of the French periodical "*Connaissances Utiles*," there is a good practical article on the management of the domestic rabbit, by M. Verardi. It appears that there are establishments for breeding and fattening this prolific and useful creature in the vicinity of Paris, in which 1500 are supplied weekly for consumption as food, although in provincial districts the value of the artificially bred and reared rabbit is unknown. The flesh, however, of the tame rabbit is inferior, the writer admits, in flavour to that of the wild sort, which he attributes altogether to the mode of feeding; but probably confinement in the one case, with imperfect ventilation, and free air and liberty in the other have even more influences in affecting the quality and flavour of the flesh than the differences of food, which are not in all details dissimilar.

The rabbit that burrows in copses or clay banks, browses frequently on very succulent and dewy food, such as the leaves of corn, Turnips, Mangels, Clover, &c. Such food does not differ at all in regard to succulence from the garden waste usually given to domesticated rabbits, such as the leaves of Cabbages, Carrots, and Lettuces. Yet, on the other hand, instinct may lead the rabbit which is free to roam and select its own nutriment, to eat some herbs which may possess medicamental qualities corrective of the laxative properties of succulent Grasses and other herbivorous substances of kindred qualities. The leaves and bark of shrubs or trees, for instance, may prove astringents, and prevent the evil effects of other sorts of food. Wild herbs of varied qualities are within reach of the rabbit in a state of nature, and it may instinctively take what possesses the "virtues" which its condition requires, as the sick dog seeks for the Quicken or Cock's-foot Grasses, which afford it immediate relief by scouring as an emetic. The writer of the article before me attributes the ill success with which the rearing of domestic rabbits is so often followed, to the error of supposing that the waste vegetables of gardens constitute good food for them; though eaten eagerly they are injurious from their great succulency. Cabbages and Lettuces are often in a very watery state, and no doubt the rot or liver complaint which sweeps off successive generations of confined rabbits before they attain maturity is chiefly attributable to the excessive use of watery green food; whereas, if their nourishment consisted of such substances as wild Chicory, Thyme, Carrot, and Parsley (the latter is objectionable, however, for pregnant and nursing mothers), those diseases would probably be obviated.

Field plants will generally prove to be more healthful food than the other common sorts of garden plants. As a general rule aromatic herbs and those which the cow relishes are the most wholesome for rabbits. Lucerne, Clover, and Vetches, yield a ready and abundant supply of food, and in dry weather may be freely used; and even at other times, after exposure to evaporation by a current of air, they are innocuous, provided that Oats, or bran, or sweet hay be added as correctives of moisture. There is scarcely any cultivated vegetable or weed which rabbits will not eat; but discrimination on the part of the provider is very necessary. I attribute my own failures to incaution in this respect, and particularly to the error of giving moist green food to the young ones at too early an age. In winter, Turnips, Carrots, Potatoes, and Jerusalem Artichokes, mixed with corn, or bran, or grains, and with a little salt, will keep rabbits in a thriving condition under favouring circumstances of dry and well ventilated habitations. Some writer has observed that when rabbits die, "ninety-nine times out of the hundred starvation is the cause." I am inclined to think that over-feeding, or injudicious feeding, more frequently occasion premature death.

Rabbits require frequent feeding, and with small quantities to prevent waste. But M. Verardi suggests something more. The feeding time is not a matter of indifference, as one might suppose. The rabbit likes to ramble and graze from nightfall during eight or nine hours of the night, and halt an hour before dawn to sunrise, it sleeps during the day. This natural habit should therefore be indulged. On the subject of house accommodation and ventilation, the French writer offers suggestions which though brief are explicit and easily carried out. 1. The aspect should be east or south. 2. There should be at least two windows for admission of fresh air. 3. It should be laid on a dry bottom sufficiently inclined to throw off the liquids; and (4) kept in a perfectly clean state. "The odour from an ill-kept hutch is so intolerable, that complaints have been made on the subject to official authority because the atmosphere of hutches has been deemed mephitic and capable of exciting diseases. These miasmata would unquestionably become dangerous to mankind, if they were as susceptible of its evil effects as the rabbits are. But it is certain that these perish before there is any danger to the human kind, which would of necessity occasion the removal of the cause of anxiety. The shape of the hutch is unimportant, provided that the males and females can have separate apartments, and that it closes against cats, mice, and weasels. It ought to be well paved or tiled to prevent the rabbits from burrowing, and roofed with projecting slates. The divisions for the does should be raised 8 or 10 inches above the level of the ground, and constructed of lattice work or solid

boards to withstand the rabbits' teeth, but affording openings sufficient for free ventilation. The height to be from 2½ to 3 ft. (French measure in all these cases) and the bottom either boarded (or cemented), declining towards the back, and perforated with holes to let the liquid flow off. The side door only should open for the removal of the litter, which requires frequent changing. A little rack is necessary in each compartment to preserve the green juicy food from being trampled upon, and also a little bowl to hold bran or grain for the feeding of the nursing does. From 12 to 15 yards in length, and from 4 to 5 in breadth, is a sufficiently large hutch to contain from 20 to 24 divisions, of which two should be set apart for the males, and others (twice as large) for the young ones five or six weeks old, not yet strong enough to have an unlimited range of the hutch."

All the diseases to which rabbits are subject are principally attributable to wet floor, wet food, and foul air. The author thus enumerates their diseases with the remedies. The most dangerous ailments are, first, indigestion (occasioned by eating very succulent green food), which manifests itself by the patient's desire for darkness and solitude; the urinary discharges are frequent, and the excrement is nearly in a fluid state; hay and bran, Burnet or Parsley, with a little finely pounded salt, are the prescribed diet.

Swelled Stomach (the "dare," as it is termed in France) is hydropsy of the viscera of the lower stomach, and especially of the bladder. The sufferer does not however lose vivacity or appetite. The great size and flabbiness of the stomach indicate the affection, which is caused by very moist food, or humidity of location. The diseased rabbit ought to be separated from the others, as the malady may be contagious. Roasted Barley and bran, without salt at first, are the remedies, adding each evening a handful of Thyme, Sage; water also should be given, though contrary to general opinion. The author has remarked that this disease sometimes reappears a second year, in which case he recommends the purification of the hutch with chloride of lime or strong lime whitewash. A malady called Étisie, and indicated by loss of appetite and pining away, attacking principally young rabbits, causes them to die quickly in convulsions if not stopped early. This complaint arises also from humidity. Separation of the distempered rabbits from the others is necessary, and dry food such as hay (with salt), bran, or corn, should be substituted for the previous succulent diet.

Liver complaint usually arises from stagnant wetness of floor or litter, and wet food. It is best to kill those that are affected, as this ailment is contagious; on examination of the carcase the liver will be found to be full of purulent pustules.

Sore eyes. — Very young rabbits towards the weaning period are attacked by this malady, and it soon becomes fatal. It is attributable to foul air and the ammoniacal gases arising from wet litter, and never appear in well kept hutches. The sick ones should be removed to a clean place with fresh litter which is necessary in almost all cases of disease, and the hutch should be washed with lime whitewash. On the whole this article by M. Verardi, which I have abridged in some particulars (omitting the natural history of the *Lepus Cuniculus* altogether) is full of useful hints to any persons engaged in the rearing of domesticated rabbits. *Martin Doyle.*

Farmers' Clubs.

LONDON.—The following are the subjects for discussion for the present year:—

February 2.—The Operation of the Malt Tax, proposed by Mr. J. Steed, Baldock.

March 2.—The Question of Town Sewage further considered, especially with reference to the evidence given before Dr. Brady's Parliamentary Committee of 1862, by Mr. J. J. Mechi, Tiptree Hall, Kelvedon.

April 6.—What does the Experience of the past three years prove with regard to the required Depth of Under Drains, and width of intervening spaces, by Mr. G. Dobie, Lydgate, Newmarket.

May 4.—Practical Remarks on the Effect of Temperature on Cultivation, from observations of the three past seasons, by Mr. J. B. Spearing, Moulsford, Wallingford.

June 1.—The Present State of Steam Cultivation, by Mr. J. C. Morton, Streatley, Berks.

November 2.—The Veterinary Art in Relation to Agriculture, by Mr. W. Fisher Hobbs, Boxted Lodge, Colchester.

December 7.—The Breeding, Rearing, and Fattening of Stock upon Arable Farms, and the Capability of such Farms to produce Meat, by Mr. J. Coleman, Woburn.

Members unable to attend these Meetings are invited to forward practical information upon them. Their letters will be handed to the introducer of the subject, to which reference is made.

*** The discussions will commence at Half-past Five o'clock, P. M. There are no meetings in January, July, August, September, and October.

Reviews.

The Prince Consort's Farms: an Agricultural Memoir. By John Chalmers Morton, Editor of "The Cyclopædia of Agriculture," etc.; Honorary Member of the Royal Agricultural Society of Holland. Pp. 288. 4to. Longmans.

We take the following memorandum in reference to this work from Messrs. Longman's Notes on Books:—

"This volume describes in detail the relations to British agriculture sustained by H.R.H. the Prince Consort—the late President of the Royal Agricultural Society of England. It relates the improvements carried out under the instructions of His Royal Highness on the estates and farms of which he was the owner and the cultivator. The whole subject of estate and farm management has received most valuable illustration at Osborne and Balmoral, and on the farms around Windsor of which the Prince was the tenant; and it is attempted in these pages to describe those examples of farm buildings, good cottage accommodation, thorough drainage, steam tillage, skilful cattle breeding, and good cultivation generally, which the Royal Farms have for many years presented; *and thus to make known to cultivators in general the practical results of farming over several thousand acres of very different soils, which have for many years been managed on the most improved modern system.*

"A great deal of information has been thus collected, and is here presented, which will be of service to improvers, whether the owners or the occupiers of land.

"The Prince Consort's relations to the labouring class, and especially to the labourers on his own estates, are also described. And an account is given of what he actually did in furtherance of general agricultural improvement, and in aid of those Societies by which in this country it is promoted.

"The work has been prepared with the sanction and permission of the Queen, who has graciously accepted the dedication of it to her Majesty.

"The author gratefully acknowledges the help he has received from the several departments presided over by the Hon. Sir Charles Phipps, K.C.B.; Major-General the Hon. A. Nelson Hood, and Major-General Seymour, in whose hands the management of the Royal Farms is placed.

"Illustrations, filling upwards of 30 pages, give maps of the estates, plans and sketches and isometrical perspectives of buildings and cottages, and all such details as may be necessary for the easy understanding of the text; and it has been attempted by a simply written story, and by the best efforts in typography and engraving, to present a worthy memorial of a useful and distinguished agricultural career."

Manual of Veterinary Science. By William Dick, V.S. to the Queen for Scotland. Second Edition. A. & C. Black, Edinburgh.

This little work is an enlarged edition of the article on this subject which was published in the seventh edition of the "Encyclopædia Britannica." Its author is one of the most experienced men of his profession, and he has done more perhaps than any other man for its advancement. His book is written in the form of continuous narrative, unbroken into sections or chapters, but a good index enables the reader to find what is said on any subject he may be interested in.

The following are the author's notes on "Choking:"—

"Choking, or obstruction of the passage by a large morsel of food, witnessed more in cattle than in horses, and most frequently when they are feeding upon Turnips, Potatoes, Carrots, and such like. The obstruction usually occurs at the bottom of the pharynx and commencement of the gullet, not far from the lower part of the larynx, which I have seen mistaken for the foreign body. The accident is much more serious in ruminating animals than in others, as it immediately induces a suspension of that necessary process, and of digestion, followed by a fermentation of the food, the evolution of gases, and of all those frightful symptoms, which will be noticed under the disease *Hoven*. The difficulty in breathing, and the general uneasiness of the animal, usually direct at once to the nature of the accident, which examination brings under the cognizance of the eye and hand. No time must be lost in endeavouring to afford relief; and the first thing to be tried is, by gentle friction, and pressure of the hands upwards or downwards, to see and rid the animal of the morsel. Failing in this, I mention first, the great virtue I have frequently found in the use of mild lubricating fluids, such as warm water and oil, well-boiled gruel, &c. The gruel is grateful to the animal, which freely tries to gulp it, and often succeeds. Whether this is owing to the lubrication of the parts, or to the natural action superinduced, it is unnecessary to inquire; but the fact I know, that a few pints of warm gruel have often proved successful in removing the obstruction. If this remedy should be ineffectual, the foreign body may perhaps be within the reach of the small hand which a kind dairymaid may skilfully lend for the purpose. If this good service cannot be procured, the common probang must be used, the cup-end being employed. Other and more complicated instruments, acting upon various principles, have been invented, for example, the screw probang, for extracting the obstructing body: the use of these requires considerable skill."

The following, again, are remarks on "Hoven:"—

"It is often witnessed in animals removed from confinement and winter-feeding to the luxuriance of the Clover field; and in house-fed cattle, from the exhibition of rich food, such as Pease-meal and Beans, often supplied to enrich their milk. I have already mentioned that it sometimes proceeds from obstructed gullet. The symptoms bear so close a resemblance, both in their progress, and termination in rupture and death, to those so fully described above, that I shall not repeat them. The same treatment is generally required, and it must be equally prompt. The mixture of the oils of linseed and turpentine is nearly a specific. In addition, the probang is often used with advantage; but so violent and rapid are the symptoms, that recourse must sometimes be instantly had to the operation of PAUNCHING, which, though apparently a desperate remedy, is generally attended with success. The place for puncturing the paunch is on the left side, in the central point between the lateral process of the lumbar vertebræ, the spine of the ilium, and the last rib. Here the trochar may be introduced without fear. If air escape rapidly, all is well. The canula may remain in for a day or two, and on withdrawal, little or no inconvenience will usually manifest itself. If no gas escapes, the opening must be freely enlarged, till the hand can be introduced into the paunch, and its contents removed, as I have sometimes seen in prodigious quantities. This done, we should close the wound in the divided paunch with two or three stitches of fine catgut, and carefully approximate and retain the sides of the external wound by metallic sutures, and with rest, wait for a cure, which is often as complete as it is speedy."

Milch Cows and Dairy Farming. By C. L. Flint, Secretary of the Massachusetts State Board of Agriculture. Trübner & Co., 60, Paternoster Row.

The author describes the several dairy breeds—Ayrshire, Jersey, Short-horn, Dutch, Hereford and Devon, in a chapter of 48 pages.

A second chapter describes the American cattle, and refers to the objects and methods of good breeding. In the third chapter the selection of the cow and indications of age, and of a good milking character, are treated of. The feeding and management of cows, and the raising of calves, are treated of in the fourth and fifth chapters. The cultivation of Grasses and other forage plants is discussed in Chapter 6. The seventh, eighth, and ninth chapters describe milk, butter, and cheese. In the 10th chapter the diseases of dairy stock are described. The 11th describes the dairy husbandry of Holland. In the 12th there is a letter on cleanliness and other details to a dairy woman. And the 13th chapter relates to the Piggery. There is an Appendix giving the writings of the late Mr. Horsfall on this subject. And the whole is an octavo volume of 420 pages.

It is written somewhat diffusely, illustrated where necessary with good woodcuts, and furnished with a sufficient index.

The following extract may suffice as an example of the author's style, and it is at the same time an instructive account of American cheese making.

"The practical process of manufacture most common in the best dairies of this country will appear in the following statements of successful competitors at agricultural exhibitions. The first was made, by request, to the New York State Agricultural Society, and appeared in its Transactions, by A. L. Fish, of Herkimer county, one of the finest dairy regions of that State. The value of his statement is enhanced by the fact that his cows averaged 700 lbs. of the first quality of cheese each in 1844, and 775 lbs. each in 1845. In his mode of manufacture, 'the evening's and morning's milk is commonly used to make one cheese. The evening's is strained into a tub or pans, and cooled to prevent souring. The proper mode of cooling is to strain the milk into the tin tub set in a wooden vat, described in the dairy-house, and cool by filling the wooden vat with ice-water from the ice-house, or ice in small lumps, and water from the pump. The little cream that rises over night is taken off in the morning, and kept till the morning and evening milk are put together, and the cream is warmed to receive the rennet. It is mixed with about twice its quantity of new milk, and warm water added to raise its temperature to 98°: stir it till perfectly limpid, put in rennet enough to curdle the milk in 40 minutes, and mix it with the mass of milk by thorough stirring; the milk having been previously raised to 88 or 90°, by passing steam from the steam generator to the water in the wooden vat. In case no double vat is to be had, the milk may be safely heated to the right temperature, by setting a tin pail of hot water into the milk in the tubs. It may be cooled in like manner by filling the pail with ice-water, or cold spring-water where ice is not to be had. It is not safe to heat milk in a kettle exposed directly to the fire, as a slight scorching will communicate its taint to the whole cheese and spoil it. If milk is curdled below 84°, the cream is more liable to work off with the whey.' An extreme of heat will have a like effect.

"'The curdling heat is varied with the temperature of the air, or the liability of the milk to cool after adding rennet. The thermometer is the only safe guide in determining the temperature; for, if the dairyman depends upon the sensation of the hand, a great liability to error will render the operation uncertain. If, for instance, the hands have previously been immersed in cold water, the milk will feel warmer than it really is; if, on the contrary, they have recently been in warm water, the milk will feel colder than it really is. To satisfy the reader how much this circumstance alone will affect the sensation of the hand, let him immerse one hand in warm water, and at the same time keep the other in a vessel of cold water, for a few moments; then pour the water in the two dishes together, and immerse both hands in the mixture. The hand that was previously in the warm water will feel *cold*, and the other quite warm, showing that the sense of feeling is not a test of temperature worthy of being relied upon. A fine cloth spread over the tub while the

milk is curdling will prevent the surface from being cooled by circulation of air. *No jarring of the milk*, by walking on a springy floor, or otherwise, should be allowed while it is curdling, as it will prevent a *perfect cohesion* of the particles.

"'When milk is curdled so as to appear like a solid, it is divided into small particles to aid the separation of the whey from the curd. This is often *too speedily done* to facilitate the work, but at a sacrifice of *quality* and *quantity*.'

"To effect the fine division of the curd for the easy separation of the whey, Mr. Fish uses a wire network, made to fit into the tub, the meshes of fine wire being about a half-inch square, and the outer rim of coarse and stronger material. A cheese-knife is also used, about half as long as the diameter of the tub, and firmly fastened to the lower end of a long screw which passes through one end of the blade as it lies horizontally, leaving the blade at right angles with the screw, which has a coarse thread, and passes through a piece of wood on the top of the tub, held firm by notches at the ends laid on the edges of the tub. By turning a crank, the knife passes down through the curd in revolutions, cutting it into layers of the thickness of the threads of the screw."

Farm Memoranda.

SOUTH HANTS FARM.—Financially, this may be said to have been one of the worst seasons during the last 20 years. The crop of corn, more particularly that of Wheat, has proved so deficient in yield, and so low in price, that no other portion of the farmers' produce can make up the deficiency. If we compare the crop with that of the season of 1853 it is but a shade better, whilst the price of Wheat in that year ranged as high as 72*s.* per qr. against 52*s.* per qr. in the present season, with only a poor crop of Barley, selling at a low price; Oats, Beans, and Peas, an average crop at a moderate price; and with sheep and cattle brought in to stock the grazing farms and feed the root crops of the district at excessively high figures, there is no redeeming point whereon the interests of farming can rely for profit. As, however, we are now entering the new year, let us hope that 1863 will make us amends for the untoward state of things peculiar to the past season, and this hope must be strengthened by the fact of having a favourable seed time for the Wheat during the past autumn. The farm labourers during the past year have found regular employment, at least we never knew fewer men out of work; and the price of bread being moderate has been greatly in their favour, the rate of wages being from 11*s.* to 12s. per week. We have continued sowing Wheat with little if any interruption to the end of the year, and during the last fortnight in particular the land has been in first-rate condition for receiving the seed, and it has also been unusually favourable for drawing out the manure as fast as the land has been cleared of the root crops by sheep and otherwise; some of the early sown Wheats are showing rather forward, if the weather should continue mild and open. However, as we did not begin sowing until November 5, we have none likely to become winter proud, but it has vegetated very regularly, and a more even plant on the ground we can never remember. We shall continue to sow more Wheat during the next few weeks if the mild weather should continue; if not, and frost should intervene, delaying the season, we should give up the idea of sowing more Wheat, and seed the land with white Canadian Oats in the month of March instead, for we have found on our soil and tillage that we can grow as many quarters of Oats as we can sacks of Wheat sown in winter or spring. In the South Hants district food for stock is generally very abundant, and roots of all varieties are keeping sound and well, both in the ground and in stack; this circumstance still tends to keep up the value of all kinds of store and stock animals, it has also a tendency to keep up the price of fat meat, because farmers will hold on the animals and make them fatter, rather than sell them, unless they could replace the stock at a lower figure. We do not, however, expect to see the price of meat much lower further on in the season, as there is no great quantity of fat stock in the hands of the graziers, particularly sheep. The weather having been rather drier than usual, has been somewhat in favour of the sheep stock, although the fall of lambs is scarcely an average, and they came later than last year. Easter coming early this year, we may expect the early lambs to sell well; we have only sold a few, as yet, of our Somerset lambs; our West-country Downs have about half done lambing, producing but few twins; they have, however, made tolerable progress, and would have done better, but the lameness still continues to annoy them. We do not keep a large number of pigs, thinking they do not pay for fatting so well as bullocks and sheep, we therefore prefer to breed and sell for stores when the pigs will fetch from 25*s.* to 30*s.* each; we like the Berkshire breed best, and usually keep about five or six breeding sows. We prefer to keep the sows in rather low condition, allowing them to run together in a small yard fenced with iron, where they have a hovel to sleep in; but as soon as they are ready to farrow they are removed to a pen adapted for them, where they remain until their young ones are fit to wean, when they return to the yard and hovel again. We have often thought that the price of pork ranging as it does generally lower than other kinds of meat, must be occasioned by some decided cause; it would perhaps be somewhat difficult to say what the reason can be. We must however remember that almost any person who has room for a stye can and does keep his pig in the country districts, and the food required is of a nature accessible to all, whereas bullocks and sheep require a large area, and the produce of large areas of roots, hay, straw, &c., to fatten them. Bullocks require large areas, too, of buildings to accommodate them; in fact, if we look to the whole of the items in connection with breeding, rearing, and fattening sheep and bullocks, we must be forcibly reminded of the difference between swine and other stock which are fattened for the shambles in this country. *J. B.*

Miscellaneous.

The Crawley Sparrow Club: Sparrow Murder.—A country paper lately had the following announcement:—"The annual dinner took place at the George Inn on Wednesday last. The first prize was awarded to Mr. J. Redford, Worth, for having destroyed within the year 1467. Mr. Heaysman took the second, with 1448 destroyed. Mr. Stone third, with 982 affixed. Total destroyed, 11,944. Old birds, 8,663; young ditto, 722; eggs, 2,559.

Who killed Cock-sparrow?
"I," said three men of Crawley,
"With my club in my mawley,
I killed Cock-sparrow!"

Who saw him die?
"I," said Caterpillar,
"And I blessed sparrow killer,
As I saw him die."

"Who'll dance on his grave?
"I," said Mr. Slug,
With Green-fly and Red-bug,
"We'll dance on his grave."

Who'll weep for his loss?
"I," said young Wheat-shoot,
Fruit, and Flower-bud and Root,
"We'll weep for his loss."—*Punch.*

To this we add a letter from the *Times*, entitled *Hard-earned Thanks*. "I am desirous on behalf of some young entomologists to express their gratitude to those sportsmen and others who are kindly destroying so many small birds, as it promises large numbers of caterpillars and butterflies for next year. They also hope that the same gentlemen will continue to destroy largely the tomtits which commit such havoc among so many valuable caterpillars and chrysalides; they eat all the chrysalides off the walls, and the sportsmen will be doing a real service to entomologists by sparing no powder on them. *L. M. S. P.*"

Tithe Commutation.—As many of your readers may feel anxious to know the result of the corn averages for the seven years to Christmas, 1862, published by authority in the *London Gazette* of yesterday, viz.:—

Wheat	6*s.* 8$\frac{3}{4}$*d.*	per Imperial bushel.
Barley	4*s.* 7$\frac{1}{4}$*d.*	ditto
Oats	3*s.* 0*d.*	ditto

I beg to state for their information that each 100*l.* of tithe rent-charge will for the year 1863 amount to 107*l.* 5*s.* 2*d.*, or 2*l.* 8*s.* 4*d.* per cent. less than last year's value. The following statement from my "Annual Tithe Commutation Tables" will show the worth of 100*l.* of tithe rent-charge for each year since the passing of the Tithe Commutation Act, viz.:—

	£	*s.*	*d.*
For the year 1837	98	13	9$\frac{3}{4}$
,, 1838	97	7	11
,, 1839	95	7	9
,, 1840	98	15	9$\frac{1}{2}$
,, 1841	102	12	5$\frac{1}{4}$
,, 1842	105	8	2$\frac{3}{4}$
,, 1843	105	12	2$\frac{1}{4}$
,, 1844	104	3	5$\frac{1}{4}$
,, 1845	103	17	11$\frac{1}{4}$
,, 1846	102	17	8$\frac{3}{4}$
,, 1847	99	18	10$\frac{1}{4}$
,, 1848	102	1	0
,, 1849	100	3	7$\frac{3}{4}$
,, 1850	98	16	10
,, 1851	96	11	4$\frac{3}{4}$
,, 1852	93	16	11$\frac{1}{4}$
,, 1853	91	13	5$\frac{3}{4}$
,, 1854	90	19	5
,, 1855	89	15	8$\frac{3}{4}$
,, 1856	93	18	1$\frac{1}{4}$
,, 1857	99	13	7$\frac{3}{4}$
,, 1858	105	16	3$\frac{1}{2}$
,, 1859	108	19	6$\frac{1}{4}$
,, 1860	110	17	8$\frac{1}{2}$
,, 1861	112	3	4$\frac{3}{4}$
,, 1862	109	13	6
,, 1863	107	5	2
27)2727	1		9$\frac{3}{4}$

General average for the last 27 years .. £101 0 0$\frac{3}{4}$

Charles M. Willich, Actuary, University Life Assurance Society, 25, Suffolk Street, Pall-Mall East, Jan. 10.

Calendar of Operations.

JANUARY.

[The following passages are extracted from *Morton's Farmers Calendar*. Routledge.]

Of Threshing Corn. — Threshing Corn for Market—proceeds during January, as straw is needed for fodder or for litter, and as the state of the market seems to make desirable. The flail is still employed in many English barns for threshing Barley, but it might as well be finally abandoned, for our threshing machines are able to turn out a perfectly good malting sample, unbroken, awnless, clean. And at the Canterbury trials of threshing machines the Barley threshing was better work than that of any other grain. It is by the moveable steam-engine and threshing machine, turned out in immense numbers by all our implement makers, that the great bulk of corn in this country is now threshed. The cost of the process may be estimated as follows:—*

	£	*s.*	*d.*	£	*s.*	*d.*
Hire of 8-horse-engine and machine, with engineer and feeder				1	15	0
Cost of coals, say	0	8	0			
" water (one man and horse half his time)	0	2	6			
				0	10	6
2 men and 2 lads unloading rick, and pitching to feeder, and opening sheaves	0	6	0			
1 man attending to sacks	0	2	0			
1 man and horse removing corn ..	0	5	0			
Labour of removing straw and chaff, and building the former equal to 6 men	0	12	0			
				1	5	0
				£3	10	6

For this sum from 40 up to even 60 quarters, according to the yield, may be threshed for 1*s.* 6*d.* to 2*s.* a quarter.

In the case of the fixed engine the charge for power may be put at about 1*l.* a day for an 8-horse engine; 40 quarters being easily threshed per day. The cost of labour being:—

	£	*s.*	*d.*
4 men, 2 boys, 2 women, and 3 horses to deliver the pened sheaves to the feeders from the corn stack	1	0	0
1 feeder	0	2	6
3 women and 2 men to remove the straw and build it in the straw house	0	7	0
2 men to attend to the removal of the grain to the granary	0	4	0
Labour	1	13	6
Power	1	0	0
Total cost about	£2	13	6

or less than 1*s.* 6*d.* per quarter.

In both of these cases there would be an extra charge of 5 or 6 shillings for beer or cider for the labourers.

Sometimes machines and engines are let out at so much a quarter; and a common charge is 1*s.* 4*d.* a quarter for Wheat, and 10*d.* for Oats or Barley, or 3*d.* more when Hayes's Elevator is used for removing the straw. In either case 2 men (the feeder and engineer) are included in the hire. The additional hands required are for supply of water and removal of grain, also for bringing the sheaves to the feeder, just as in the first case quoted—costing therefore 13*s.*; and besides these, 2 men will be needed to build from the straw elevator, and this, with the beer supplied, amounts to 11*s.* 6*d.* and the coals may cost 8*s.*; so that the additional charge is equal to 32*s.* 6*d.* or 9*d.* a quarter upon a probable day's work, making the cost on the whole rather more under this plan than when a fixed charge—generally, as I have said, of 35*s.* a day—is made for the use of the engine. Threshing is done sometimes by the acre,—5*s.* an acre being about the price given for the use of machine and engine, with engineer and feeder, when the whole crop (Wheat, Barley, Oats, and Beans) is let together. The threshing of grain by machine in cases of ordinary yield may thus be put at 2$\frac{1}{2}$*d.* to 3*d.* per bushel for Wheat; while it is less in the case of those crops which yield more grain to a given bulk of straw. The immense superiority of machine and steam-power threshing over hand labour consists not so much in the diminished cost per bushel as in the greater quickness of the process; and the ability thus at once to supply the market without materially interfering with the ordinary labour of the farm, and without exposing the labourers to a constant temptation to dishonesty. An extra winnowing is almost always required, and it may be done as fast as 2 men can measure up and sack and wheel away the sacks: 2 men can winnow probably 60 or 70 quarters a day, and 4 men, whose wages are 8*s.*, will thus measure up at the rate of 1$\frac{1}{2}$*d.* to 2*d.* a quarter. If the Wheat needs "reeing" in order to get the chaffy grain and weeds out of it, this will require a man's wages for every 8 or 10 quarters a day, according to the filth to be removed—and it may thus cost 2*d.* or more per quarter in addition to the winnowing.

Of Chaff Cutting.—There has been a prejudice in favour of fresh straw as fodder; and grain has thus been threshed by hand for the daily supply of cattle in the yard. It is now, however, the custom in some districts to store away several months' supply of cut chaff at a time, and however stale it thus might be supposed to be, the cattle relish it when mixed with pulped roots or scalded with some hot water in which a little salt has been put. The following is the account given by Mr. Samuel Jonas, of Ickleton, Cambridgeshire, of his experience. He says,† writing in July:—'I have purchased of Mr. Maynard of Whittlesford, one of his powerful chaff-cutters, with sifting apparatus attached, which cutter I can work from a wheel or drum attached to my threshing machine, which is driven by a 9 horse-power steam-engine, at the same time that I am threshing corn. The straw, when delivered from the threshing machine, is carried up an inclined plane by spiked rollers to a height of about 9 feet; it then comes down an inclined rack, nearly yelmed and ready for cutting into chaff. Three men yelm the straw, mixing with it a small quantity of green fodder, such as Rye or Tares. When cut into chaff, it is sifted and carried into an empty barn or chaff-house and well trodden down, and about 1 bushel of salt mixed with a ton of chaff, so as to cause a fermentation. All this is effected with no more manual labour than would be required to take away the straw and stack it in the ordinary manner. Within the last few days I have threshed and dressed the corn, and at the same time cut the staw into chaff from the produce of about 80 acres of Wheat, at a cost, too, not exceeding 45*s.*, or 7*d.* per acre for cutting the straw produced on an acre of Wheat. This chaff I shall not use until next October, when I purchase my beasts for winter grazing, and none but those who have tried this plan of old chaff so managed, as compared with fresh-cut chaff, can believe the advantage in value of the old chaff for feeding stock. I can work off the produce of about 8 acres of good strong Wheat per day, thus cutting about 800 fans (ten tons) per day, the chaff being cut shorter and better than by the hand-box. Three men yelm the straw and feed the chaff cutter, and if the threshing machine be placed near the barn or chaff-house which is to be filled, 2 men can carry the chaff into the barn; 2 or 3 boys should tread it down close, so as to cause it to heat. The only extra expense is for from 4 to 5 cwt. of coals per day. If, however, the straw is stacked as threshed and cut into chaff afterwards, the expense of cutting and sifting with Maynard's chaff cutter would be as follows:—

	£	*s.*	*d.*
1 man to move the straw from stack to men to yelm	0	2	0
4 men to yelm straw	0	8	0
2 men to carry away chaff	0	4	0
3 lads to tread chaff down, 6*d.*	0	1	6
Hire of engine and chaff-cutter (this includes 1 man to feed chaff-cutter and engine-man)	1	10	0
Coals, 5 cwt.	0	4	6
Water, carting	0	2	0
	£2	12	0

'This will cut from 600 fans to 900 fans per day, according to the lengths of cut: the first cut being about 3-16ths of an inch in length, the latter about 3-8ths. The cost would be, the

* The estimate which follows is that which has been given by the Editor in his "Handbook of Farm Labour," lately published by Longmans.

† Journal of the Royal Agricultural Society of England.

very short cut 1*d.* per fan; the latter would cost 1-3rd of a penny per fan; but, by cutting the chaff at the same time you thresh, you save 47*s.* per day, or, in fact, cut 800 fans for 4*s.* 6*d.*'

This practice will introduce a great economy on many farms in more ways than one. It will, for instance, put a stop to the tedious labour of the flail, with all its constant premium on dishonesty.

WESTER ROSS: *Jan.* 6.—Although much rain fell, December admitted of out-door labour being proceeded with so uninterruptedly, that the arrears of work necessarily caused by a harvest so late have generally been cleared off. The green crop lot has been turned over, and this we endeavour to execute with a furrow from 9 to 11 inches deep. The farm being greatly brae-set, we find it nearly as speedy, and the work much better done, to plough across, throwing the whole down the hill, and returning empty; and as a furrow, nearly twice the ordinary breadth, can thus be taken, and as the horses return more speedily without a furrow, nearly an equal breadth to that turned over in the usual way can thus be accomplished. We have sown the usual quantity of Wheat in good condition, and all of it is now appearing above ground, close and healthy. A smaller breadth of Wheat, however, will be sown in the north this year from the failure last season, and because of the small demand there now is for our inferior grain. A beginning has been made in breaking up our leas for Oats. On Sabbath we had a slight fall of snow, with an intense frost, and meantime the ploughs are laid aside. A continuation of frost for some time would be very desirable, as the courts are becoming overstocked with manure. The fields have been so wet with the long-continued rains that carting out manure was impracticable. Now, however, the bound up condition of the soil will be taken advantage of for this purpose. We experienced the gales of the 18th and 19th of last month in their full force. Trees were uprooted, stacks were overturned, and considerable damage was done, particularly to thatched houses. As the threshing out of our grain is proceeded with we are increasingly dissatisfied with the crop. Barley, which as yet we have been principally engaged in threshing, is yielding about 3 quarters per acre, that weighs under 54 lb. per bushel and fetches from 24*s.* to 27*s.* per qr. For Wheat there has been no demand, and, consequently, there has been little threshed; but we can already say that a crop so bad has not been in our day, and we hope that we will never experience a repetition of it. Our Turnips have latterly improved materially, and many of the earlier sown fields are a full average crop; but the later sowings must now remain deficient. In the early part of the season Turnips were in good demand at from 5*l.* to 7*l.* per acre, but as a smaller number of sheep than usual came to winter on them, the demand has ceased, and there is now difficulty in having them let.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. SPEARING, Moulsford, near Wallingford, Berks, during the week ending Jan. 14, 1863.

Day of Week.	Day of Month.	Barometer corrected to Freezing Point at Mean Sea Level.	At 9 A.M., Railway Time. Reading of Dry Bulb Thermometer.	Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0-6	Amount of Cloud 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday	8	29.54	37	36	S.	2	3	46	33	79*	29	0.01	42	44
Friday	9	29.74	34	34	S.	1	9	42	30	49	26	0.08	42	44
Saturday	10	29.76	35	35	S.E.	3	3	40	33	51	31	0.00	41½	43½
Sunday	11	29.86	37	36	N.	1	8	41	34	42	31	0.00	41	43
Monday	12	30.16	31	30	N.W.	2	8	41	26	44	21	0.00	41	43
Tuesday	13	29.87	42	42	S.E.	2	6	46	31	49	28	0.85	40½	42½
Wednesday	14	30.25	37	36	N.	1	7	45	36	67	32	0.00	41½	42½

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Notices to Correspondents.

DORKINGS: *A Correspondent* asks from whom in the neighbourhood of Dorking he can obtain sittings of the eggs of pure Dorking fowls.

SEED: *R W.* Your seeds belong to some species of Sorghum, probably a form of Sorghum (Holcus) saccharatum.

THE JONAS WEBB MEMORIAL: *Subscriber.* The Committee, which have become responsible for the proper fulfilment of this English and truly praiseworthy object, are pursuing their course steadily, and with great energy.

STOCK OF A FARM: *Inquirer* asks what head of Stock—Cows, Fatting Cattle, and younger ones, as well as a Breeding flock of Longwoolled Sheep, fattening half the produce—a Farm done thoroughly well, of 400 acres in extent, rented at 30*s.* per acre, besides taxes, &c. ought to carry? Two thirds fair grass land, and remainder arable of medium quality.—Are any of our readers disposed to send in estimates? We shall endeavour to answer next week.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.
116, Fenchurch Street, E.C.

LAWES'S WHEAT MANURE for AUTUMN SOWING.
In consequence of the high price of Peruvian Guano, J. B. LAWES has manufactured a WHEAT MANURE for the present season, which will be found very suitable for that crop. A supply is now ready for delivery, and it can be obtained of J. B. LAWES, or through any of his appointed Agents. Price 8*l.* per ton at the Factories, Deptford and Barking Creeks.
Genuine Peruvian Guano direct from Messrs. Gibbs; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

To Farmers, &c.
CHEAP GYPSUM MANURE.—Parties requiring GYPSUM can be supplied at 10*s.* per Ton, bulk, at the Works at Kennington, S.
Address, X. L., 34, Chapel Street, North Brixton, S.
*** Delivered on Rail, adding for bags and cartage.

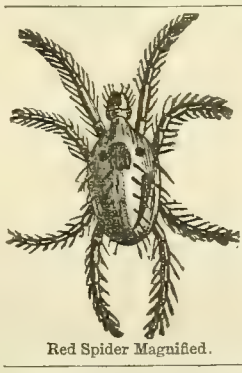
A MANURE MANUFACTURER wants to appoint a few respectable DISTRICT AGENTS. Liberal terms given, and the Manure sold Carriage free.
Address, with occupation and references, B. C., 10, Pall Mall East, London.

COCOA-NUT REFUSE, as used for FERNS, BEGONIAS, &c., grown in the International Exhibition, delivered at any Booking Office in the City at 1*s.* 6*d.*, or within 2½ miles of Charing Cross, at 2*s.* per bag of 3 bushels. Larger quantities on lower terms on application to the PATENT COCOA FIBRE COMPANY, Kingston-on-Thames, S.W.
Also SHORT FIBRE for Orchids and Drainage in pots.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are the best and most economical of any that are made, and are sold in every town in the kingdom.
CAUTION.—See that every Brush is stamped "J. BARSHAM'S Patent, Kingston-on-Thames."

To Gardeners and Seedsmen.
TOBACCO PAPER of choicest quality for Fumigating purposes, may be had at Wholesale Prices. Warranted to be the most effectual remedy for the extirpation of the Green Fly. References to the most eminent gardeners can be given.
Address, JAMES ALDERSON, 30, Nelson Street, Leeds.


Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.
NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.
Both may be obtained of all principal Seedsmen.
Patentee: J. NEAL, Edward Street, Birmingham.


Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.
This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by PRICE'S PATENT CANDLE CO., Limited.

VISIT to R. S. YATES'S NURSERY.
See *Journal of Horticulture*, Jan. 17, 1862.
"The blooms were protected by a covering of BRITTAIN'S THREE-FOLD NETTING, which shaded them from the sun, kept the bees out, and sheltered them from heavy rains and strong winds. Mr. Yates remarked that this Netting was better than any other covering he had tried, the wind having less hold of it than either Canvas or Tiffany. As a summer protection for Greenhouse Plants, such a Tent is invaluable. He states, also, that with care in taking it down off the framework, and putting it away quite dry in a dry room, it would last many years. He finds it of great service in protecting the rather tender varieties from frost."
NETTING: No. 1, 5*d.*; 2, 6*d.*; 3, 7*d.* the Square Yard.
PIECES, 30 Yards long, 1½ wide.

Oil Paint no longer Necessary.
HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

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For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

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JAMES T. ANDERSON begs to announce that he is now open to supply, at a low price, and in any quantity, ARCHANGEL MATS, the finest in London of this season's importation, and solicits an inspection of them by Nurserymen and Seedsmen.
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The Old Established Seed Bag and Sack Manufactory.
ALEXANDER NICOL AND CO., MANUFACTURERS of SEED BAGS and SACKS, RYE-GRASS SEED BAGS, GRAIN and POTATO SACKS of all sizes and descriptions, SHOP and NURSERY TWINES, GARDEN LINES, &c.
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N.B. The principal Seed-houses in the three Kingdoms have been supplied by us for the last 30 years. Price Lists and Samples may be had on application. No connection with any other house in the Trade.

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Galvanised Iron Water Cistern
for Cottage Houses, &c., to contain 50 gallons, 26*s.*; 80 gallons, 31*s.* each; and 140 gallons, 37*s.*, and fitted with tap, keeping the water perfectly sweet and clean; will not rust or corrode. Cisterns of all sizes.
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for Liquid Manure or Domestic Use, 3 inches diameter, 30*s.* and 32*s.* 6*d.* each; Tail Pipe for same at from 10*d.* per foot.
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for Garden or Farm use, containing about 20 gallons, entirely formed of iron, 35*s.* 0*d.* each.



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SPORTSMAN'S, and all kind of POCKET CUTLERY.
Dealers in Gambia Garden Shears, Scissors, Syringes, &c.
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TO PLOUGH MANUFACTURERS.—The Advertiser has invented a PLOUGH that will do its work better, and requires one-third less power, than any Plough in existence under the same circumstances; it is also very simple, and less labour for the Ploughman. The Advertiser is open to dispose of the invention.
Address D. S. R., Mrs. C. Daw's, Turnham Green, Brentford Road, Middlesex.

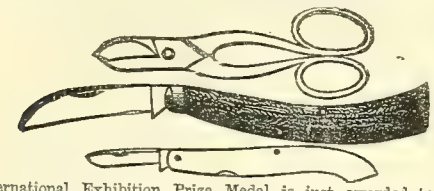
Steam Cultivation.
From the evidence on the Woolston farm; at Teddesley, on the farm of my Lord Hatherton, the noble Godfather to Steam Cultivation; at Mentmore on the sticky clay farm of Baron Rothschild; at Stevington, Bedfordshire, on the clay farm of Mr. Pikes, and elsewhere, the Royal Agricultural Society of England and the Agricultural press have awarded to Mr. SMITH, of Woolston, the honour of Pioneer to practical Steam Cultivation. See the Royal Agricultural Society's Journal and the Agricultural papers.
£1000 upon the Woolston System against any other system of steam cultivation.
The efficiency of the Woolston System is proved by its general adoption.
The efficiency and durability of the Woolston Implements, &c., is proved by the practical working of 190 sets. Here is a brief sketch from the history of a Set supplied in June 1858, to Mr. Pike, of Stevington, Beds. In December 1860, Mr. Pike showed that it had done more than 2000 acres, and that it was very little the worse for wear. In 1861, it did 751 a. 1 r. 19 p. in 133 days, averaging 5 a. 2 r. 23 p. per day, at a cost of 4*s.* 6*d.* per acre, exclusive of wear and tear. In 1862, it did 775 acres in 131½ days, averaging 5 a. 3 r. 23 p. per day, at a cost of 6*s.* 2*d.* per acre, inclusive of wear and tear, &c., and it was not more than 3*l.* worse for the two years' hard work than it was in December 1860.
See what the *Mark Lane Express* of January 5, 1863, says about the working of a Set supplied in August 1857, to Baron Rothschild, and worked ever since on his tough Clay Farm, at Mentmore:—"An 8-horse power Single Cylinder Engine yet in full operation, nearly as good as ever, the Implements quite so.... A steel rope lasted four years, and is now quite in a state to do cross cultivation, although it has been engaged in severe pioneer work, common to the Cultivator, which disrupts for the first time the hoof made pavement which lies beneath the shallow water-logged seed bed.... the coils of which were shown to me had broken up more than 2000 acres to the depth of from 8 to 10 inches."
The light draught as well as the durability of the Woolston Implements is proved by this. Here is an 8-horse engine after nearly six years' hard work nearly as good as ever, and the Implements are quite so.
See also how my Lord Hatherton, the noble Godfather to Steam Cultivation, gets on with Woolston Implements, &c.
"Teddesley Farm, Jan. 12, 1863.
"Dear Sir,—Lord Hatherton (who is now confined to his bed through illness) has sent me your letter to answer. I have now been at Teddesley five years, and during that time have used your implements and found them to work perfectly satisfactorily. I consider them very efficient, durable, and economical. We use them regularly in the months of March, April, May, June, and after the harvest is cleared, until the end of October.
"This farm was originally part of Cannock Chase, and a poor weak soil; but by the application of steam power we are enabled to get a greater depth of soil, and consequently better crops of roots and grain than was formerly obtained, under the old system of horse cultivation, and at the same time to dispense with four pairs of horses.
"I remain, Sir, your obedient servant,
"To Mr. Smith. "CHARLES WOOTTON."
For information and particulars apply to Mr. WILLIAM SMITH, Woolston, Bletchley Station, Bucks.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

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Paxton Works, Sheffield, Established 1738.

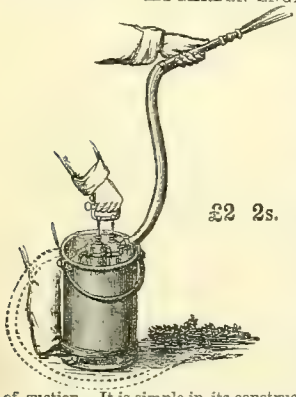


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SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

AMERICAN PORTABLE FIRE ANNIHILATOR and GARDEN ENGINE.



£2 2s.

An efficient means of Extinguishing Fires at their commencement. Nine out of ten Fires in London are put out on their first appearance by the London Fire Brigade with Hand Pumps of considerably less power.

One man will throw 7 or 8 gallons per minute from 40 to 50 feet with it.

It is an effective Garden Engine for cleansing or syringing Wall-fruit or Rose Trees, Plants, or Vines.

It may be used to draw water from the pail in which it is fixed, or from a tank or pond by the addition of the required length of suction. It is simple in its construction, having no suction or delivery valves to clog with dirt or leaves.

No Establishment, either private, commercial, or manufacturing, should be without one.

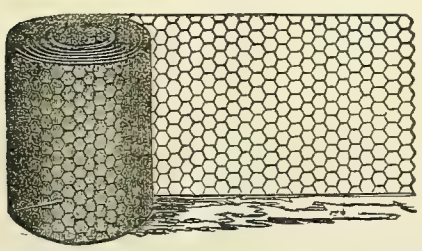
Six feet of Flexible Suction, with Union and Suction Rose, &c., extra, 12s. Longer lengths of Suction at 1s. 6d. per foot.

May be obtained of all Ironmongers and Seedsmen in Town and Country, or of the Manufacturers,

JOHN WARNER & SONS, 6, Crescent, Cripplegate, London, E.C.

BARNARD, BISHOP, AND BARNARDS, Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.—APRIL, 1861.

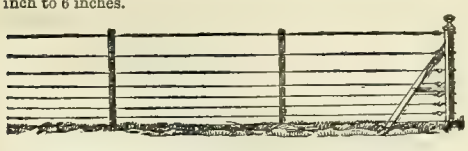


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard
2-inch mesh, 24 inches wide..	No. 19	.. 4½d	.. 3½d.
2-inch " " " .. "	18	.. 5	.. 4
2-inch " " " .. "	17	.. 6½	.. 5
2-inch " " " .. "	16	.. 8	.. 6½
1⅝-inch " " " .. "	19	.. 4¾	.. 4
1⅝-inch " " " .. "	18	.. 6	.. 4¾
1⅝-inch " " " .. "	17	.. 7	.. 5½
1⅝-inch " " " .. "	16	.. 9	.. 7

All the above kinds can be made any width (under 6 feet), at proportionate prices.

Strong Galvanised Poultry Netting, 7½d. per yard, 3 feet wide, Galvanised Sparrow-proof Netting for Pheasantries, 11d. per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10d. per yard.

The same with Galvanised Wire Rope, 1s. per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

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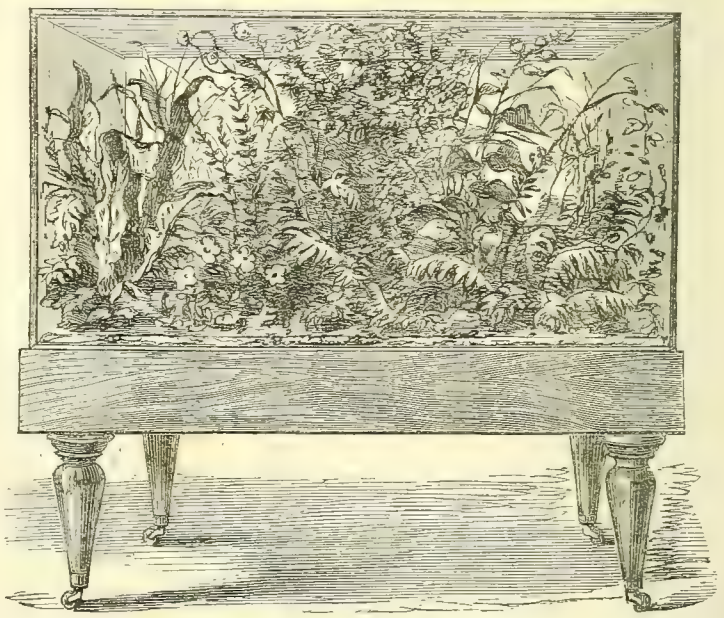
MISS MALING'S PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

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DANVERS STREET, CHELSEA, LONDON, S.W.



MISS MALING'S PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

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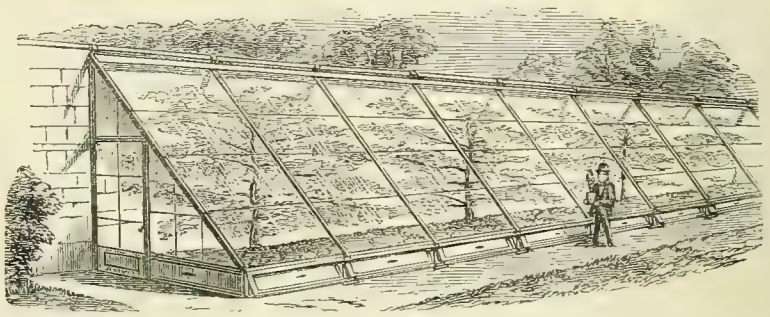
The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.

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BY ROYAL LETTERS PATENT.



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Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

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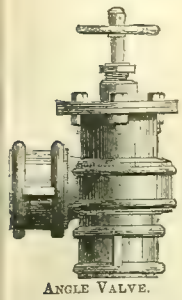
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UPWARDS of 3000 in USE.

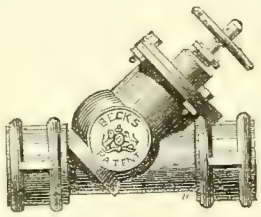


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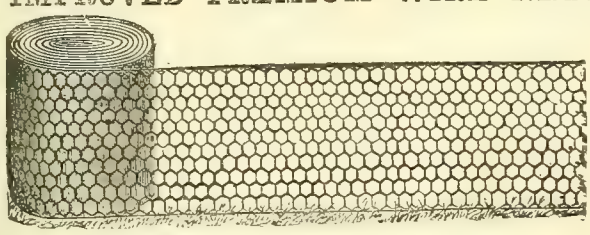
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PRICES PER LINEAL YARD, 24 INCHES HIGH:—

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		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2¼ inch	Hares, Dogs, Poultry	3*d.*	4*d.*	3¾*d.*	5*d.*	4½*d.*	6*d.*	5½*d.*	7*d.*
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1⅝ inch	Small Rabbits, Hares, &c.	4*d.*	4¾*d.*	4¾*d.*	6*d.*	5½*d.*	7*d.*	7*d.*	9*d.*
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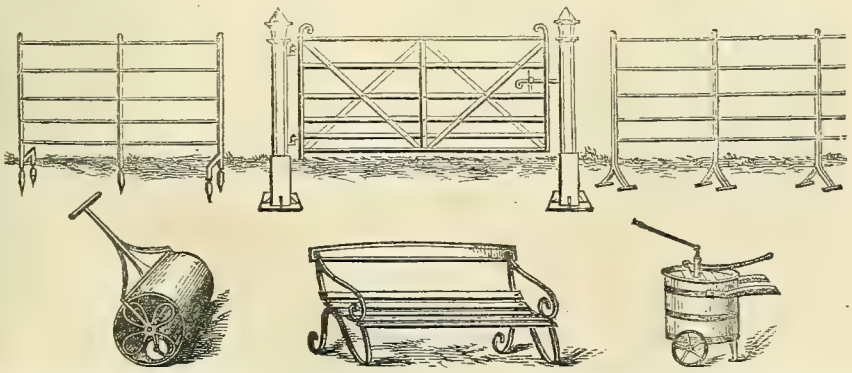
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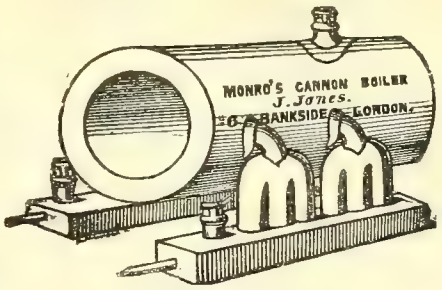
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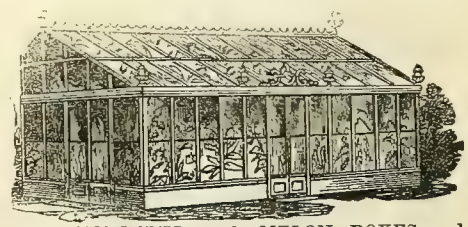
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Hothouses for the Million.—AWARDED A PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, 1862.



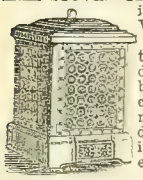
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Exhibition Prize Medal, 1862.

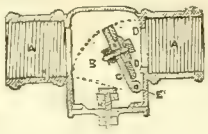
MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.—This Stove is the nearest approach to Warming by Hot Water, and an efficient aid in Ventilation.



It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for Small Conservatories, with a vapour chamber, which maintains a moist atmosphere for 12 hours with once filling.

Particulars and prices post free on application to MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.



T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough, has recently patented a VALVE which is unequalled for its efficiency, simplicity, durability, and cheapness. Prices as under.

Two-inch, 17*s.* 6*d.*; 3-inch, 23*s.*; 4-inch, 28*s.* A liberal discount to the Trade.

These Valves can be obtained in London of Mr. J. JONES, 6, Bankside, S.E.

West of England, Ireland, and Wales.

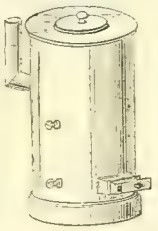


VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER. HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.



VINCENT SKINNER, Bridewell Street, Bristol.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

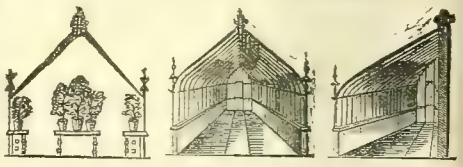
N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each.

Other Connexions at equally low prices, and all goods of first-class manufacture.

DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon



an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.

GREEN'S

LATEST IMPROVEMENTS IN

LAWN MOWING, ROLLING, and COLLECTING MACHINES,

FOR WHICH HER MAJESTY'S ROYAL LETTERS PATENT HAVE BEEN OBTAINED.

These Machines have carried off every Prize that has been given in all cases of competition, and have been awarded the PRIZE MEDAL at the INTERNATIONAL EXHIBITION of 1862.

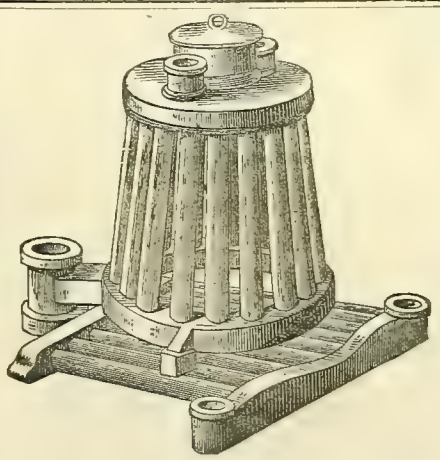
GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

For Illustrated Price Lists, with full particulars, address

T. GREEN, SMITHFIELD IRON WORKS, LEEDS; and 2, VICTORIA STREET, HOLBORN HILL, E.C.



FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the INTERNATIONAL EXHIBITION.





FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER
At the INTERNATIONAL EXHIBITION.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

HAS TAKEN MORE AWARDS THIS YEAR THAN ANY OTHER TUBULAR BOILER.

These Awards have been given by Scientific, Practical, and Competent Judges.

At the Exhibition of Boilers at the Royal Horticultural Society's Gardens, ORMSON'S PATENT JOINTLESS TUBULAR BOILER was the ONLY Boiler of any description to which an Award was given.

Other Tubular Boilers advertised in the pages of the *Gardeners' Chronicle* were exhibited to which NO Awards were given.

HORTICULTURAL BUILDINGS of every description MANUFACTURED by STEAM-POWER MACHINERY.

Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES, AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Glass for Greenhouses.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

ENGLISH GLASS, 16 ounces to the foot, in Sheets averaging 40 by 30, packed in Cases containing about 280 feet, 2½*d.* and 2¾*d.* per foot.

SHEET GLASS, 16 ounces, packed in boxes of 100 feet each.

Package included.	3rds.	4ths.
12 by 9, 13 by 9, 14 by 9, 15 by 9 / 12 „ 10, 13 „ 10, 14 „ 10, 15 „ 10 / 13 „ 11, 14 „ 11, 15 „ 11, 16 „ 11	14*s.* 0*d.*	12*s.* 6*d.*
14 „ 12, 15 „ 12, 16 „ 12, 17 „ 12 / 18 „ 12, 19 „ 12, 20 „ 12, 16 „ 13 / 17 „ 13, 18 „ 13, 19 „ 13, 20 „ 13 / 16 „ 14, 17 „ 14, 18 „ 14, 20 „ 14	16*s.* 0*d.* per 100 feet.	13*s.* 6*d.*

Various other sizes.

GLASS for ORCHARD HOUSES, As supplied by us to Mr. Rivers.

		16 oz.	21 oz.
20 in. by 12 in. / 20 in. by 13 in.	Common	13*s.* 6*d.* ..	£0 18 0
20 in. by 14 in. / 20 in. by 15 in.	Superior do.	16 0 ..	1 3 0
	English Glass	18 0 ..	1 9 0

The above prices include the Boxes.

SMALL SHEET SQUARES, IN 100 FEET BOXES.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11*s.* 6*d.*
8 „ 6	8½ „ 6⅝	9 „ 7	9½ „ 7½	
		10 „ 8	10½ „ 8½	12 6

Boxes 2*s.* each, returnable at full price.

SQUARES CUT TO SPECIAL SIZES.

16 oz. 4ths, 1¾*d.*, 2*d.*, and 2½*d.* 21 oz. 2⅞*d.*, 3*d.*, and 3½*d.*
„ 3ds, 2*d.*, 2½*d.*, and 3*d.* „ 3*d.*, 3½*d.*, and 4*d.*

London Agents for Hartley's Improved Patent Rough Plate.

Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

Milk Pans, Propagating Glasses, and every description of Glass for Horticultural purposes.

JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, London, E.C.

Glass.

THOMAS MILLINGTON, HORTICULTURAL WAREHOUSE, 87, Bishopsgate Street Without, London, E.C. ESTABLISHED 1750.

NEW REDUCED TARIFF.

SMALL SHEET SQUARES.

Best. 20*s.*	2nds. 16*s.*	3rds. 12*s.* 6*d.*	4ths. 11*s.*	Per 100 feet
6 in. by 4 in.	9½ in. by 7½ in.		14 in. by 10 in.	
6½ „ by 4½ „	10 „ by 8 „		15 „ by 10 „	
7 „ by 5 „	11 „ by 9 „		12 „ by 11 „	
7½ „ by 5½ „	12 „ by 9 „		13 „ by 11 „	
8 „ by 6 „	13 „ by 9 „		13½ „ by 11½ „	
8½ „ by 6½ „	12 „ by 10 „			
9 „ by 7 „	13 „ by 10 „			

Best. 23*s.*	2nds. 18*s.* 6*d.*	3rds. 14*s.* 6*d.*	4ths. 12*s.* 8*d.*	Per 100 feet
15 in. by 11 in.	16 in. by 12 in.		24 in. by 14 in.	
16 „ by 11 „	17 „ by 12 „		22 „ by 15 „	
17 „ by 11 „	18 „ by 12 „		24 „ by 15 „	
18 „ by 11 „	22 „ by 12 „		20 „ by 16 „	
13 „ by 12 „	17 „ by 13 „		20 „ by 17 „	
14 „ by 12 „	23 „ by 13 „		20 „ by 18 „	
15 „ by 12 „	22 „ by 14 „			

ORCHARD-HOUSE SIZES, as supplied to Mr. Rivers & others.

Best.	2nds.	3rds.	4ths.	
16 oz. 22*s.* 0*d.*	18*s.*	15*s.* 0*d.*	12*s.* 6*d.*	Per 100 feet
21 oz. 33 6	28	21 6	17 0	

20 in. by 12 in. | 20 in. by 13 in. | 20 in. by 14 in. | 20 in. by 15 in.

GLASS, cut according to size not on the List.

16 oz. 4ths. 1⅔*d.* 2*d.* and 2½*d.* per foot.
„ 3rds. 2½*d.* 2¾*d.* and 3*d.* „
21 oz. 4ths. 2⅔*d.* 3*d.* and 3½*d.* „
„ 3rds. 3½*d.* 4*d.* and 4½*d.* „

Various thicknesses of Sheet Glass to the foot.

15 oz. 26 oz. 21 oz. 32 oz.

Paints, Colours, Brushes, &c., Linseed Oil, Boiled Oil, Turpentine.
Genuine White Lead, 32*s.* p. cwt | Linseed Oil Putty, 8*s.* per cwt.
Anticorrosion Paint, 34*s.* „ | Patent Dryers, 28*s.* to 42*s.* „
CRYSTAL GLASS SHADES. EBONY and GILT STANDS.
HARTLEY'S IMPROVED PATENT ROUGH PLATE.

*** Not accountable for breakage.

SHEET LEAD, PIPE, &c., at the lowest wholesale prices.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.

PROTECTION from the COLD WINDS & MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. .. 1*s.* 6*d.* per yard run.
Four yards wide .. .. .. 3*s.* per yard.
An improved make, 3 yards wide, 2*s.* 6*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 4*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon St., City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

TO BE SOLD, 200 feet length of 10-feet LIGHTS, for covering Peach walls. They are new, portable, and easily fixed. Gutters, Plates, Doors and Ends complete. Price 80*l.* Apply to CUTBUSH & Co., Highgate, N.

Also 85 ORCHARD TREES in Pots, from 4 to 8 feet in height, fine trees, consisting of Peaches, Nectarines, Plums, Pears, and Cherries. Price 30*l.*

The Lights would make a good Orchard House, 100 feet in length.

CHUBB'S PATENT SAFES, the most secure against Fire and Thieves.

CHUBB'S FIRE PROOF STRONG ROOM DOORS; CHUBB'S PATENT DETECTOR LOCKS and STREET DOOR LATCHES; CHUBB'S CASH and DEED BOXES.

Illustrated Price List gratis and post free.

CHUBB & SON, 57, St. Paul's Churchyard, London, E.C.

Prize Medal 1862

AWARDED BY THE JURORS OF CLASS II. FOR THE GLENFIELD STARCH, being a confirmation by some of the most eminent scientific men of the age, of the superior qualities of this world-renowned Starch. Sold in Packets at ½*d.*, 1*d.*, 2*d.*, 4*d.*, and 8*d.* each, by all respectable Grocers, Chandlers, Oilmen, &c.

WOTHERSPOON & Co., Glasgow and London.

Household Economy and Comfort for 1863.

BRADFORD'S WASHING MACHINES have this year, 1862, received Prize Medals from the following Exhibitions and Societies:—The International Exhibition, the Glasgow, the Manchester and Liverpool, the Warwickshire, the Staffordshire, and the Royal Cornwall Society's Medal; also eight other FIRST PRIZES in money. But the most important, because the most practical, test ever applied to Washing Machines, was in competing for the great Preston Guild Prize of 5*l.*, for the "best Washing Machine combined with Wringing and Mangling;" the character of, and great publicity given to which,—more than its money value—naturally created considerable excitement and competition. The Prize of 5*l.* was awarded to BRADFORD'S Improved Original Patent after a 10 minutes and a 7 minutes' test; and a Medal to two other competitors. A reference to the Society's Catalogue will show that 34 Machines were entered for this Prize, fully establishing BRADFORD'S Washing Machines the best of the year 1862, as they were of 1861, 1860, 1859, and 1858, during which years a month's trial has been allowed to each purchaser. For detailed particulars of the above, and also of the celebrated India Rubber Clothes Wringer, see new Wholesale and Retail Illustrated Catalogue.

Address THOMAS BRADFORD, Patentee, Cathedral Steps, Manchester; and 63, Fleet Street, London, E.C.

BEDSTEADS, BATHS, and LAMPS.—WILLIAM S. BURTON has SIX LARGE SHOW-ROOMS devoted exclusively to the SEPARATE DISPLAY of LAMPS, BATHS, and METALLIC BEDSTEADS. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country.

Bedsteads, from	12*s.* 6*d.* to £20 0 0 each.
Shower Baths, from	8 0 — 6 0 0 each.
Lamps (Moderateur) from ..	6 0 — 8 10 0 each.

(All other kinds at the same rate.)

Pure Colza Oil .. .. 4*s.* 9*d.* per gallon.

FENDERS, STOVES, FIRE-IRONS, and CHIMNEY PIECES.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW-ROOMS. They contain such an assortment of FENDERS, STOVES, RANGES, CHIMNEY-PIECES, FIRE-IRONS, and GENERAL IRONMONGERY as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with ormolu ornaments, 3*l.* 15*s.* to 33*l.* 10*s.*; Bronzed Fenders, with standards, 7*s.* to 5*l.* 12*s.*; Steel Fenders, 3*l.* 3*s.* to 11*l.*; ditto, with rich ormolu ornaments, from 3*l.* 3*s.* to 18*l.*; Chimney-pieces, from 1*l.* 8*s.* to 100*l.*; Fire Irons, from 2*s.* 3*d.* the set to 4*l.* 4*s.* The BURTON and all other PATENT STOVES, with radiating hearth-plates.

GASELIERS in GLASS or METAL.—The increased and increasing use of Gas in private houses has induced WILLIAM S. BURTON to collect from the various manufacturers in metal and glass all that is new and choice in Brackets, Pendants, and Chandeliers, adapted to Offices, Passages, and Dwelling-rooms, as well as to have some designed expressly for him; these are ON SHOW over his TWENTY LARGE ROOMS, and present, for novelty, variety, and purity of taste, an unequalled assortment. They are marked in plain figures, at prices proportionate with those which have tended to make his Establishment the largest and most remarkable in the kingdom, viz, from 12*s.* 6*d.* (2 lights) to 16*l.* 16*s.*

WILLIAM S. BURTON'S GENERAL FURNISHING IRONMONGERY CATALOGUE may be had gratis, and free by post. It contains upwards of 500 Illustrations of his illimited Stock of Sterling Silver and Electro Plate, Nickel Silver, and Britannia Metal Goods, Dish Covers, Hot Water Dishes, Stoves, Fenders, Marble Chimneypieces, Kitchen Ranges, Lamps, Gaseliers, Tea Trays, Urns, and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1a, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place; and 1, Newman's Mews, London, W.C.

METCALFE, BINGLEY, AND CO.'S NEW PATTERN TOOTH BRUSHES, Penetrating Unbleached Hair Brushes, Improved Flesh Brushes, genuine Smyrna Sponges, and every description of Brush and Comb and Perfumery for the Toilet. METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box. The FAIRY BOUQUET; the OXFORD and CAMBRIDGE BOUQUET. In bottles, 2*s.*, 3*s.* 6*d.*, and 5*s.* each. 130 B, and 131, Oxford Street, W.

TO PARENTS and GUARDIANS.—Indispensable accompaniments to youth on their return to school are ROWLAND'S MACASSAR OIL, for the growth and improvement of the hair; ROWLAND'S KALYDOR, for the complexion and skin; and ROWLAND'S ODONTO, or Pearl Dentifrice, for the teeth and gums.—Sold at 20, Hatton Garden, E.C., and by all Chemists and Druggists.

DINNEFORD'S PURE FLUID MAGNESIA has been during 25 years emphatically sanctioned by the Medical Profession, and universally accepted by the public, as the best remedy for acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion, and as a mild aperient for delicate constitutions, more especially for ladies and children.—It is prepared in a state of perfect purity and of uniform strength by DINNEFORD & Co., 172, New Bond Street, London, and sold by all respectable Chemists throughout the world.

Be Careful what you Eat.

BORWICK'S is the BAKING POWDER recommended by Dr. HASSALL, Analyst to the Lancet Sanitary Commission, Author of "Adulterations Detected," &c., for making pure and wholesome Bread, instead of Yeast.

Sold by all Chemists and Grocers.

SAUCE.—LEA AND PERRINS' WORCESTERSHIRE SAUCE.

Pronounced by Connoisseurs "THE ONLY GOOD SAUCE."

See Name on Wrapper, Label, Bottle, and Stopper, and to avoid Counterfeits

ASK FOR LEA AND PERRINS' SAUCE.

*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c; and by Grocers and Oilmen universally.

No New Year's Gift is more valuable than

OLDRIDGE'S BALM of COLUMBIA, established upwards of 30 years, is the best and only certain remedy ever discovered for preserving, strengthening, beautifying, or restoring the Hair, Whiskers, or Moustaches, and preventing them turning gray.

Sold in bottles, 3*s.* 6*d.*, 6*s.*, and 11*s.*, by C. and A. OLDRIDGE, 22, Wellington Street, Strand, London, W.C.; and all Chemists and Perfumers. For Children and Ladies' Hair it is most efficacious and unrivalled.

Kerry Cattle.

MR. RICHARD G. CAMPION, Youghal, County Cork, has now ready for SALE 12 Beautiful HEIFERS, in Calf to a pure bred Bull, and to drop after 1st March.

FREEHOLD LAND, about 6 acres, for SALE, 35*l.* per acre—in one or more lots; 2½ miles from Farnham Town and Railway Station; well adapted for a Market Garden; in a good situation for a General Shop and Beer House.

Particulars of Mr. HANNAM, Wonersh, Guildford.

TO BE LET, in the County of Pembroke, LLANGWARREN FARM, consisting of 473 Acres, more than half of which is Pasture.

For particulars apply to J. B. LAWES, 1, Adelaide Place, London Bridge.

WANTED TO RENT, on LEASE, with option of Purchase preferred, a good STOCK and CORN FARM, principally Grass Land, of not less than 400 acres in extent, well situated in a South Western County, House and Buildings must be good, and Shooting must go with the Farm.

Address full particulars to S. W., care of Messrs. DAWSON & SONS, 74, Cannon Street, City, London, E.C.

Sales by Auction.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, January 20, at 12 o'Clock precisely, upwards of 200 Lots of Choice POULTRY and PIGEONS, consisting of Polands, Game, Bantams, Cochins, Dorkings, Spanish, Rouen Ducks, &c., from the yards of Mrs. H. Fookes; Messrs. Stainton, of Woking; Turner, of Southgate; Newton, of Stokesby; and Leno, of Herts. Also some fine PIGEONS, consisting of Carriers, Tumblers, Pouters, and most of the known varieties.

May be viewed the Morning of Sale, and Catalogues had.

Valuable and New Californian Seeds.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on THURSDAY, Jan. 22, at half-past 12 o'Clock precisely, upwards of 300 Lots of PINE CONES and SEEDS, a portion of them collected by Dr. Parry on the Rocky Mountains, comprising—

Pinus flexilis, quite new	Libocedrus decurrens
„ aristata, ditto	Sequoia sempervirens
Abies Engelmanni	Abies grandis
Pinus ponderosa	Wellingtonia gigantea
„ radiata	Cupressus Goveniana
„ Fremontiana	„ Lambertiana
„ Benthamiana	„ Lawsoniana
„ Lambertiana	Juniperus excelsa
„ insignis	Torreya myristica
„ Coulteri vel macrocarpa	Abies Pinsapo
	„ Nordmanniana
„ Sabiniana	Magnolia grandiflora
„ muricata	&c. &c.

On view the Morning of Sale, and Catalogues had.

Fruit Trees, Roses, Conifers, Laurels, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on SATURDAY, Jan. 24, at half-past 12 o'clock precisely, a large quantity of Standard, Half-standard, and Dwarf ROSES, mostly good varieties; choice FRUIT TREES, rare CONIFERS, COMMON and PORTUGAL LAURELS, SCOTCH FIR, LILACS, &c.

On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on SATURDAY, Jan. 31, at half-past 12 o'Clock precisely, 200 fine Camellias, with flower buds, 1 to 2 feet high; 200 choice Ghent Azaleas, 100 fine Standard Perpetual Roses, 300 roots of fine mixed Cannas, 300 Delphinium formosum, 300 Asclepias tuberosa, 300 choice hardy Rhododendrons, 200 Lilium lancifolium rubrum, &c.

On view the Morning of Sale, and Catalogues had.

Choice Collection of Standard Roses, &c.

MR. ARTHUR PLEWS will SELL by AUCTION, at the Auction Mart, on TUESDAY NEXT, Jan. 20, at 12 o'Clock, a splendid Assortment of 600 STANDARD and other ROSES, Choice ORNAMENTAL SHRUBS, Trained FRUIT TREES, &c.

May be viewed the Morning of Sale. Catalogues may be had at the Mart; and of Mr. ARTHUR PLEWS, Auctioneer and Valuer, 50, Chancery Lane; and New Malden, Surrey.

THE HYDROPULT,

THE HYDROPULT
IS INVALUABLE FOR

WATERING GARDENS,

EXTINGUISHING FIRE at its COMMENCEMENT,

PROTECTING a ROOF from FIRE,

CLEANSING TREES from INSECTS,

DRESSING with LIQUID MANURE,

SPRINKLING PLANTS,

WASHING WINDOWS,

WETTING SIDEWALKS,

SPRINKLING STREETS,

WASHING CARRIAGES,

WETTING SAILS,

A SPRAY BATH,

&c. &c.



CAUTION.— Unprincipled parties are now palming on the public an infringement of the Hydropult Patent. This is to notify, that said pirates and all persons using or vending this article will, in due time, be prosecuted. No machine contained in a bucket is the Hydropult. Every Hydropult has a Trade Label affixed, as follows:—

"The Hydropult, a Portable Fire Annihilator and Garden Engine.

"GRIFFITH & BROWETT, Manufacturers, Birmingham;

"CHARLES P. BUTTON, General Agent.

"VOSE'S Patent;"

and is sold at the uniform rate of TWO GUINEAS, complete, with 2½ feet suction and 3-feet delivery hose, Galvanised Wire Strainer, Rose or Sprinkler, and Fire Jet. It is an easy matter to imitate the Hydropult in appearance, and thereby deceive the public; therefore this caution.

A PORTABLE GARDEN ENGINE AND FIRE ANNIHILATOR.

SECURED BY ROYAL LETTERS PATENT.

PRICE TWO GUINEAS.

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Small Jet.

The Hydropult is a simple, effective, and convenient Apparatus for throwing Water by hand. It WEIGHS BUT 8 LBS., is made of Brass and Copper, costs but Two Guineas, and will throw 7 or 8 gallons of water per minute 50 FEET when worked by the power of one man.

FIRE! FIRE! FIRE!

THE HYDROPULT IS THE MOST EFFECTIVE FIRE ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.

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"The Hydropult is admirably adapted for Nurseries, and will be found invaluable for Watering and Syringing Plants and Trees in pots."

SHIRLEY HIBBERD, Esq., says in the "Gardeners' Magazine:"

"It will perhaps surprise the reader to be told that this little contrivance, which is pretty as a toy, and can be carried under the arm as easily as a trumpet, will throw from 7 to 8 gallons of water per minute a distance of 50 feet. But it will do it, as we know from having tried it, finding the experiment an agreeable exercise, and of special service in washing down a stuccoed wall, which it accomplished quite as well as if we had sent for the parish engine. Gardeners will not need to be told the value of a Portable Force Pump of this simple kind. It can be used to produce a powerful stream to extinguish a Fire, or a gentle shower to Syringe a whole house full of Plants, without the necessity of moving a single step from the position most convenient for a supply of water. Wherever a Pump or Syringe is needed the Hydropult can be brought into use, to remove Water from a Cellar or a Boat, to cleanse a Cistern, wash a Pavement, or drench the Foliage of Trees loaded with soot, or annihilate at one fell swoop the whole Insect population of a Plantation of Roses. But we will not enlarge upon its merits, they are obvious, and having a Hydropult in use we can say that it will soon pay for its cost in a Garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water."

"There can be no doubt but that it can be made available in the earlier stages of Fire in Warehouses, Manufactories, or Private Houses, in preventing large conflagrations.

"PERCY M. DOVE, Esq.,
"Manager Royal Insurance Company."

"The invention will prove extremely valuable for all the purposes to which such Machines are applied.

"SWINTON BOLT, Esq.,
"Secretary Liverpool and London Insurance Company."

IMPORTANT TO YACHTING CLUBS.

We take pleasure in presenting to the public the following Testimonial from Lieut.-Colonel WHEATLEY:—

"I have much pleasure in stating that both I myself and several friends have used your Hydropult for Wetting Yachts' Sails and Washing and Baling out Boats with the greatest success; and, for an instrument of its size, consider it most useful and applicable to Yachting purposes, obviating the necessity of a large engine or skeats during a match.

(Signed) "W. WHEATLEY, Royston."

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"ARTHUR NASH."

"The Hydropult fully answers my expectations. It is a most useful little tool in a Greenhouse, or to clean Carriages, Windows, &c. "SAMPSON LLOYD, Esq.,
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"I would state that the Instrument now in use at the Asylum gives entire satisfaction. Their applicability and general utility for Household, Farm, Garden, and other purposes, cannot be too highly spoken of.

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"I required the Hydropult to Lay Dust in Yards, &c., which it does effectually. "JAMES FLYNN, M.D.,
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T. SPENCER, Esq., Inspector of the Royal Society for the Protection of Life from Fire, certifies to its efficiency in saving valuable property in Bayswater from destruction.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 4.—1863.] SATURDAY, JANUARY 24. {Price Fivepence. {Stamped Edition, 6*d*.

INDEX.

Aberia, new species of	78 *a*	Grapes, old v. new	75 *a*
Adenium obesum	77 *b*	Harris on Insects, rev.	78 *b*
Apples, seedling	76 *b*	Heliconia, new	78 *a*
Aster, German	75 *c*	Herd Book	85 *c*
Bean Weevils	79 *c*	Indoor gardening	76 *c*
Belstance, reflections on	79 *c*	Insects, Dr. Harris on, rev.	78 *b*
Books, noticed	78 *b*	Ivy on trees	80 *c*
Botanic gardens	75 *b*	Loranthaceæ	78 *a*
British Guiana	77 *c*	Manures, artificial	81 *a*
Cattle, prices of	85 *a*	Pea weevils	78 *c*
— losses of by disease	85 *a*	Pear trees, pyramidal	77 *a*
— breeders of	86 *b*	Rainfall in Berks	77 *b*
Cockchafers	78 *c*	Roses from buds	77 *b*
Cyclamen seed	78 *a*	Sea Cucumbers	80 *a*
Dies Orchidianæ	76 *a*	Seeding, thin	83 *b*
Drainage Act	83 *a*	Seedling fruits	76 *b*
Farms, Berkshire	81 *c*	Seeds, foreign lists of	75 *c*
— Cirencester	86 *a*	Society, Royal Horticultural	77 *c*
Foreign live stock	84 *b*	— Linnean	77 *c*
Fuchsias for exhibition	77 *a*	Societies, Irish farming	85 *c*
Furze culture	85 *b*	Stock, foreign live	84 *b*
Gardenia Rothmanniæ	77 *b*	Stocks, German	75 *c*
— Thunbergia	77 *c*	Stuttgard, Royal Gardens at	79 *a*
Gardening, new style in	80 *a*	Temperature	77 *b*
German flower seeds	75 *c*	Trees, Cape	77 *b*

☞ *An Edition of the* GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE *is published on Monday Afternoon at 4 o'Clock, containing full Reports of the Mark Lane and Cattle Markets, written expressly for the Paper.*

BRISTOL and CLIFTON HORTICULTURAL FÊTES.

The TWO SHOWS for the Season 1863 will be held at the Zoological Gardens, Clifton, as usual, on THURSDAY, May 21, and THURSDAY, August 27.

Schedules are now ready for delivery, and may be obtained on personal application to the Superintendent at the Gardens; or by letter addressed to the Honorary Secretary, R. COLES, Esq., 2, Lower Harley Place, Clifton.

BISHOP AUCKLAND FLORAL and HORTICULTURAL SOCIETY.

The ANNUAL EXHIBITION of the above Society will be held in Auckland Park on FRIDAY, August 28.

Schedules of Prizes will shortly be ready, and may be had on application to the Secretary.

{ W. D. TROTTER, Chairman of Committee.
{ W. V. THOMPSON, Honorary Secretary.

NEW PRIZE MELONS, at 1*s*. 6*d*. per packet.

Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria.

For descriptions see GUIDE to the KITCHEN GARDEN.

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NEW MELON, PRINCESS ALEXANDRA.—A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1*s*. per packet.

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Grape Vines.

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Grape Vines.

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21, Cornwall Street.—Jan. 24.

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PLYMOUTH SEED COMPANY,
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See General Advertisement, page 72.

PLYMOUTH SEED COMPANY,
Plymouth.
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Collection, No. 5	.. 15*s.*		

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Mr. C. gives his personal attention to this branch of our business, and we can confidently recommend all offered as being of the best quality, at as moderate prices as consistent.

CATALOGUES free on application.

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Strong well-ripened plants in 9-inch pots, 42*s.* and 60*s.* p. doz.
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GENERAL LISTS of NURSERY STOCK on application.

CHARLES B. SAUNDERS, Nurseryman, &c., Jersey.

W. J. EPPS, Maidstone, can supply STANDARD DAMSON TREES, extra strong; also Trained MORELLO CHERRIES, Flemish and other kinds; PEACHES, NECTARINES, APRICOTS, PLUMS, and PEARS.

The above are very handsome clean grown stuff. Damsons, 1*s.* 6*d.* to 2*s.*; Cherries, Pears, and Plums, 2*s.* to 3*s.* 6*d.*; Peaches, Nectarines, and Apricots, 3*s.* 6*d.*

Orchard House Trees.

TO BE SOLD, Cheap, 36 excellent Fruit-bearing PEACHES, NECTARINES, PLUMS, APRICOTS, and PEARS, all in Pots, and well set with Bloom.

Apply to H. ROCHESTER, Gardener at J. Lewis's Horticultural Works, Stamford Hill, Middlesex.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, has the pleasure to offer now for the first time his two new excellent Fruits—

APPLE CALVILLE GARIBALDI .. 8*s.*
PEAR BEURRÉ DE GHÉLIN .. .. 5*s.*

This excellent Pear obtained the First Prize at the great Pomological Show at Tournay, Belgium.

N.B. These two new Fruits are figured in VERSCHAFFELT'S "Illustration Horticole."

Cucumbers and Melons.

EDWARD TILEY has this season a fine stock of true Seed of the above, well-ripened and in excellent condition, including, amongst others, the following well-known first-rate varieties, at 1*s.* per packet:—

CUCUMBERS.	MELONS.
Sir Colin Campbell	Garibaldi
Victory of Bath	M'Ewen's Scarlet and Green-flesh
Lord Kenyon's Favourite	Golden Drop Green-flesh
Captivation	Golden Perfection Green-flesh
Mills's Jewess	Green Gage
Conqueror of the West	Golden Ball
Incomparable	Pine Apple
Cuthill's Black Spine	Camerton Court Green-flesh
Champion of England	Blackall's Green-flesh
Stockwood Ridge	Bowood Green-flesh
Ayres' Prolific	Beechwood Green-flesh
Manchester Prize	Windsor Prize Green-flesh
Sutton's Champion	Hampton Court Green-flesh
Burges' Conqueror	Cuthill's Camberwell Beauty
Henderson's A 1	General Havelock
General Canrobert	Monro's Green Gage
Gordon's White Spine	Monro's Crystal Palace Hero
Phenomenon	Scarlet King
Rifleman	Incomparable
Manchester Prize	Bromham Hall
Hunter's Prolific	Rouse's Incomparable
Sion House	Austen's Incomparable
Allen's Victory	Queen's Melon
Trollope's King	Bailey's Green-flesh
Ipswich Standard	Emperor
Tiley's Improved	Fleming's Trentham Hybrid
Hamilton's Black Spine	Duncan's Green-flesh
Dickson's Newton Hero	Egyptian Green-flesh
Kelway's Victory	Gordon Castle Green-flesh
Gen. Outram (2*s.* 6*d.* per pkt.)	

TILEY'S EMPEROR RED CELERY, the best in cultivation, testimonials to which effect are being received almost daily, price 1*s.* per packet.

TILEY'S SOLID WHITE CELERY, 1*s.* per packet.

The true OLD BATH COS LETTUCE, 1*s.* per packet.

TILEY'S EARLY MARROW CABBAGE, which has given universal satisfaction, 1*s.* per packet.

EDWARD TALEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

Dwarf Maiden Peaches, Nectarines, and Apricots.

WOOD AND INGRAM beg to call the attention of the Trade to their large stock of the above, consisting of all the leading kinds of PEACHES and NECTARINES, and MOORPARK APRICOTS, all remarkably fine clean stuff.

Price on application.

Nurseries, Huntingdon.

To the Trade.

TO BE DISPOSED OF, a splendid lot of DWARF MAIDEN APRICOTS, 1 and 2 years old. Also Transplanted QUICK, 2, 3, and 4 years; extra strong Transplanted PRIVET and BERBERIS AQUIFOLIA, for Cover planting, all at most reasonable rates.

W. H. CAPARN & SON, King's Road Nursery, Newark-on-Trent

Fruit Trees.

RICHARD SMITH has no hesitation in saying, that he possesses by far the largest Stock of FRUIT TREES in the kingdom, consisting of Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots, in Maiden Trees, Dwarfs, Bushes, Pyramids, Half-Standards, and Standards; Dwarf-trained, Half-Standard, Standard, and Horizontally-trained Trees, of the finest sorts, and in the best possible condition. DESCRIPTIVE PRICED LISTS on application.

RICHARD SMITH, Nurseryman, Worcester.

Trees.

WANTED IMMEDIATELY, 60 Straight POPLARS, from 25 to 30 feet high, bushy tops 6 feet from the bottom. Lowest price to be sent.

To be delivered at 5, Stratheden Terrace, New Road, Shepherd's Bush, Hammersmith, Middlesex, S.W.

Black Thorn.

WANTED, a few Thousands of the above to PLANT for COVER.

Apply, stating price, &c., to A. Z., Post-Office, Burton-on-Trent.

Thorn Quicks.

JNO. CARTER, NURSERYMAN, Keighley, has a large stock of the above from 1 to 4 years' Transplanted, well rooted and very strong.

J. C. will be glad to furnish samples and prices, and also CATALOGUE of GENERAL NURSERY STOCK.

200,000 Strong Transplanted Quicks.

WOODLANDS NURSERY, MAYESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD and SON have a fine Stock of the above to offer at 10*s.*, 25*s.*, and Extra Strong at 30*s.* per 1000. A sample bundle of 100 of each size will be sent on receipt of postage stamps for 6*s.* 6*d.*

300,000 1-year SEEDLING ASH. Price on application.

ACORNS.—A few hundred Bushels of the above to offer, sound and good.

Apply to W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

WANTED, 4000 or 5000 Strong ASH, 5 to 6 feet, well rooted.

ROBERT F. DARBY, The Nurseries, Cirencester.

SPRUCE FIR, TWICE TRANSPLANTED. 1 to 1½ feet, 15*s.* per 1000. | 1½ to 2 feet, 20*s.* per 1000.

Apply to JAMES GARAWAY & Co., Durdham Down Nurseries Bristol.

Aucubas.

WANTED, 2000 strong bushy AUCUBAS, from 1 to 1½ feet high.

Apply to A. BLACK, Sundridge Park Farm, Bromley, Kent.

Important to Nurserymen and Others.

SURPLUS STOCK of 1 and 2 year SEEDLING FOREST TREES, &c.

PRICED LIST on application to

MICHAEL BURKE, Drumlargan Nurseries, Summerhill, Co. Meath, Ireland.

Berberis.

10,000 BUSHY BERBERIS, 3 years old, will be Sold, cheap. Also 1000 WALNUT TREES, from 2 to 8 feet high.

Apply to A. B., Post Office, Bromley, Kent.

HANDSOME SPECIMENS of SPRUCE FIR, from 5 to 6 and 8 feet, by the dozen or 100; strong Kentish or Webb's COB NUT TREES, 20*s.* to 40*s.* per 100; extra size, do., 4*s.* to 6*s.* per dozen; Standard Trained PEACHES and NECTARINES, very fine; also Dwarf-trained do.; PEARS, PLUMS, and CHERRIES, DWARF APPLES, PEARS, PLUMS, and CHERRIES, 6*s.* and 9*s.* per dozen.

EPPS' Nursery and Seed Establishment, Maidstone.

Larch, Quicks, &c.

CHIVAS AND WEAVER, Chester (late GEORGE CHIVAS), offer FOUR MILLIONS of TRANSPLANTED LARCH, from 1½ to 4½ feet, of very superior quality. FOUR MILLIONS of TRANSPLANTED THORNS of various sizes, a large portion of which are exceedingly strong. Orders for 10,000 of either, delivered free at any Railway Station. A Sample Bale, containing 100 of each, 5 sizes of Larch, 22*s.* 9*d.*, and of Quicks, 15*s.*, will be forwarded on receipt of a Post-office Order from unknown Correspondents.

A General PRICED LIST on application.

LARGE ORNAMENTAL TREES.—The Subscribers beg to offer very fine specimen plants of ARAUCARIA IMBRICATA, from 5 to 9 ft.; CEDRUS LIBANI, 7 to 12 ft.; WELLINGTONIA GIGANTEA, 5 to 9 ft.; PINUS EXCELSA, 7 to 10 ft.; also Spruce, Scotch, and Larch Firs, from 7 to 10 ft., with Limes, Birch, Beech, Elm, Sycamore, and Laburnum, 9 to 11 ft.; likewise Weeping Ash, Lime, and Willow, on fine tall stems. The above will be sold cheap, and if taken in quantity a great reduction will be made in the price.

J. IVERY & SON, Dorking Nursery.

CHARLES DALY AND SON will sell Three Years' SEEDLING THORNS at 2*s.* per 1000.
1 Year Transplanted ditto, fine, at 4*s.* per 1000.
2 Years', ditto, ditto, 8*s.* per 1000.
COMMON LAUREL, 15*s.* per 1000.
PORTUGAL LAUREL, 1 to 1½ feet, 4*s.* per 100.
SWEET BAYS, 3 years' potted, 3*d.* to 6*d.* each.
RHODODENDRONS, good furnished plants, 20*s.* per 100.
Variegated Holly, Aucuba japonica, Irish and Common Yews, Privet, Seedling and Transplanted Forest Trees, cheap, for cash. Prices free by post on application.

Coleraine, Ireland.

REIGATE SILVER SAND.—Best quality, 8*s.* per ton; PEAT SOIL and LOAM, 6*s.* per ton; good BUILDING SAND, 3*s.* per ton, in not less than 4 ton lots, for Cash payments, put on the Rail at Reigate.

W. SHORT, Reigate Heath, Surrey.

DOUBLE ITALIAN TUBEROSE ROOTS, 4s. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent.

German Seeds.

FREDERICK ADOLPHUS HAAGE, Jun., NURSERYMAN and SEED GROWER, of Erfurt, Prussia, has the pleasure to inform the Trade that his new WHOLESALE PRICE LIST for 1862 and 1863 is now ready, and may be had on application to his Agents,
Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street.

To the Seed Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEEDSMAN, &c., Erfurt, Prussia, begs respectfully to announce that his WHOLESALE CATALOGUE of the above is now ready, containing extensive collections of Stocks, Asters, and other Choice Seeds.

Free by Post on application to GEO. MACINTOSH, Seedsman, High Road, Hammersmith, London W.

RHODODENDRONS of all sorts and sizes may be obtained in any quantity of W. H. ROGERS, Red Lodge Nursery, Southampton. Also every description of well grown Nursery Stock, extending over 60 acres.

PRICED CATALOGUES forwarded on application.

Rhododendrons, &c.

JOSEPH SMITH, JUN., begs to offer 3 years' Seedling RHODODENDRONS; ditto 3 years and 1 Transplanted Hybrids in large quantities. Common LAUREL, 1 to 1½ feet, 1½ to 2, and 2½ to 3½ feet. SPRUCE, 1 to 1½ feet, 1½ to 2, and 2 to 2½ feet. EVERGREEN PRIVETS, 2 to 3 feet, 2 to 3½ feet. CURRANTS, Black, sorts, 2 to 3 feet. Price on application.

Moor Edge Nursery, Tansley, Matlock, Derbyshire.

Wholesale Catalogue.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1862 and SPRING 1863, comprising Fruit Trees of all the leading kinds, new and selected Roses, fine varieties of American Plants, Choice and Rare Conifers, Evergreen and Deciduous Trees and Shrubs, and a fine Stock of Transplanted Forest Trees, &c., can be had free on application.

Woking Nursery, Surrey.

DWARF-TRAINED FRUIT TREES.
Good trees moderate price.

PEARS.—Passe Colmar, Marie Louise, Williams's Bon Chrétien, Van Mons Leon le Clerc, Knight's Monarch, Ne plus Meuris, Easter Beurré, Duchesse d'Angoulême, Beurré d'Aremberg, Glou Morceau, Catillac, Crassane, Beurré Clairgeau, Beurré Magnifica, Prince Albert, Jules Bivort, Comte de Paris, Duchesse d'Orleans, Prevost, Alexandre Lambre, Zephorin Louis, Eliza d'Heyst, Cassane de Mars, Laura de Glymes, Josephine de Malines, Beurré Berckmanns, Beurré Superfin, Autumn Bergamot, Gansel's Bergamot, Beurré de Capiaumont, Jargonelle, Hacon's Incomparable, Beurré Bosc, Chaumontei, Louise Bonne of Jersey, Nelis d'Hiver, Beurré Diel, Leopold I., Bergamot d'Esperon, Comte de Flandres.

PLUMS.—New Early Orleans, Old Orleans, Red Magnum Bonum, Denyer's Victoria, Diamond, Goliah, Cooper's Large Red, Prince of Wales, Woolston's Black Gage, Angelina Burdett, Cloth of Gold, Autumn Compote, White Magnum Bonum, Reine Claude Violet, Washington, Ickworth's Imperatrice, Jefferson's Standard of England.

APPLES. — Hawthornden, Court Pendu Plat, Wellington Pippin, Cox's Orange Pippin, Lord Suffield, Reddlestone Pippin, Stamford Pippin, Yellow Ingestre, Keswick Codlin, Court of Wick, King of Pippins, Blenheim Orange, Cockle Pippin, Kerry Pippin, Nonpareil Russet, Scarlet Pearmain, Kirke's Golden Reinette, Hanwell Souring, Cellini Pippin, Mannington's Pearmain, Northern Spy, Reinette Van Mons, &c.

GEORGE JACKMAN & SON have the pleasure of offering the above named trees; all are well trained, and will be sold per dozen or hundred at moderate prices; the ground being required for other purposes, they are desirous of clearing the above stock this spring.

Woking Nursery, Surrey.—Jan. 24.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. Annual Sale exceeds 2000 packets. In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each.

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1s., 2s. 6d., and 5s.

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE PRIMULA SINENSIS SEED. In sealed packets, 1s., 2s. 6d., and 5s.

J. DOBSON & SONS, Seedsmen, Isleworth.

New Bedding Plant.

AMARANTHUS MELANCHOLICUS RUBER (VEITCH). Sealed packets, 1s. and 2s.

J. DOBSON & SONS, Seedsmen, Isleworth.

Gladioli.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully announces that his BULB CATALOGUE includes a descriptive list of all the most valuable varieties of GLADIOLI, the roots of which are unusually fine. He would remind intending purchasers that he was awarded prizes at both the Royal Horticultural and Crystal Palace September Shows. Price 4s. to 42s. per dozen.

Nurseries and Seed Warehouse, Waltham Cross, N.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

50 in 25 extra choice varieties	..	..	£2	2s. 0d.
25 in 25	,,	,,	 1	5 0
12 in 12	,,	,,	 0	12 0
50 in 50 choice varieties	..	..	.. 2	12 6
50 in 25	,,	,,	 1	5 6
25 in 25	,,	,,	 0	13 6
12 in 12	,,	,,	 0	5 0

Extra fine mixed, 2s. 6d. per doz., 17s. 6d. per 100.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, W.C.

Large Importation of Gladioli.

WM. WOOD AND SON beg to announce the arrival of a choice and carefully selected assortment of the above in excellent condition, consisting of the best and most popular hybrid varieties, from which they will be happy to make selections at the following very moderate prices, viz.,

HYBRIDS OF GANDAVENSIS.

100 in 50 choice kinds	..	..	£4	0 0
50 in 50	,,	.. ..	2	10 0
50 in 25	,,	.. ..	2	0 0
25 in 25 extra choice kinds		.. ..	1	5 0
25 in 12	,,	.. ..	1	0 0
12 in 12	,,	.. ..	0	10 0

Newer varieties at proportionately low prices.—See List.
Fine mixed GLADIOLI, per 100, 17s. 6d.; per doz., 2s. 6d.
Carriage paid on orders over 10s.
LISTS free on application.

Woodlands Nursery and Seed Warehouse, Marcsfield, Uckfield, Sussex.

Gladiolus Brenchleyensis (True).

YOUELL AND CO. beg to offer this season strong Flowering BULBS of the above, unequalled by any other for its brilliancy of colour, at 3s. 6d. per dozen; or 25s. per 100. Trade price on application, and when quantities are ordered a considerable reduction will be made.

The *Gardeners' Chronicle* of August 23, 1862, says:—"The spikes you have sent us are magnificent. We have as yet seen nothing of the kind so handsome near London. It is undoubtedly the most showy of the whole race of Gladioli."

CATALOGUES of their extensive Collection, for which the First Class Prize was awarded at the Crystal Palace Show, Sept 3, 1862, and two First Class Prizes at the Royal Horticultural Society's Show, South Kensington, Sept. 10, 1862, will be forwarded on application.

Royal Nurseries, Great Yarmouth.

Fuchsias.

MESSRS. J. AND J. FRASER, Lea Bridge Road Nurseries, N.E., having a fine Stock of healthy vigorous young plants of all the best and NEW FUCHSIAS, beg to invite intending purchasers to an inspection of the same. The plants now offered may be grown into fine specimens by next summer.

A List with price will be forwarded on application, as also a CATALOGUE of STOVE and GREENHOUSE PLANTS, ROSES, FRUIT TREES, CONIFERÆ, &c.

FINE MIXED HOLLYHOCK SEED from all named varieties, 1s. per packet; the double blue and white Perpetual TREE VIOLETS, strong plants, 4s. per doz.

A remittance must accompany all orders by Post-office Order or penny postage stamps. All goods sent postage free.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

WELLINGTONIA GIGANTEA.—The attention of the nobility, gentry, and the Trade, is invited to the largest stock of 1-year SEEDLING PLANTS in the Kingdom, established in single pots and fit for Spring planting. Price per dozen, 12s.; per 100 or 1000 on application. A Sample free by post for 12 stamps.

J. HENCHMAN, Edmonton, London, N.

E. G. HENDERSON AND SON'S NEW SEED CATALOGUE will be published this week. They beg to draw attention to the following among Novelties (rules for the guidance of amateurs are given for the sowing of seeds, and after management.)

AMARANTHUS MELANCHOLICUS RUBER, 1s.
SALVIA COCCINEA PUMILA, 1s.
RHODANTHE MACULATA, 1s.
PORTULACCA GRANDIFLORA FLORE PLENA, 2s. 6d.
TAGETES SIGNATA PUMILA, 1s.
VICIA GERARDI, 1s. 6d., 2s. 6d.
VINCA ALBA OCULATA LUTEA, 1s.
PRIMULA ERECTA SUPERBA, 2s. 6d.
IBERIS GRANDIFLORA ALBA, 6d. and 1s.
MIMULUS CUPREUS, 1s.
ANAGALLIS SANGUINEA, 6d.
AGERATUM MULTIFLORUM, 6d.
ABOBRA VIRIDIFLORA, 1s. and 2s. 6d.
VICTORIA ASTERS, 1s. and 2s. 6d.
DICTAMNUS GIGANTEA ANGUSTIFOLIA, 1s.
ZINNIA ELEGANS FLORE PLENA COCCINEA, 1s.
STEVIA OVATA, 6d.
NEMOPHILA DISCOIDALIS ELEGANS, 6d.
NEMOPHILA DISCOIDALIS VITTATA, 1s.

Also the following choice seeds:—

AQUILEGIA GLANDULOSA (true), best blue and white, 6d.
,, SKINNERI (true), best scarlet, 6d.
LINUM FLAVUM, fine bedding plant, dwarf golden yellow, 1s.
PENTSTEMON MURRAYANUM (true species), vermilion scarlet flower tubes, 6d.
TRITOMA UVARIA, best variety, special rule for raising seed, 6d. and 1s.
SAPONARIA CALABRICA ALBA, fine white bedder, 4d.
LILIUM GIGANTEUM, 1s.; CALENDULA SUPERBA, 4d.
VENIDIUM CALENDULACEUM, fine bedding plant, 3d.
LINUM CANDIDISSIMUM, pure white, 6d.
GYNERIUM ARGENTEUM (Pampas Grass), 1s.
SPERGULA PILIFERA (Grass Lawn substitute), 6d. and 1s.
LILIUM CORDIFOLIUM, similar in style of growth to L. giganteum, but dwarfer and of a darker tint in the young growth; the large, trumpet-shaped white flowers, with dark centre midribs, are also alike to the last-named species, but are produced by smaller bulbs, and on stems not rising more than from 3 to 4 feet in height. By its blooming much more readily than L. giganteum it will prove a very popular and useful Lily. 1s.

Special directions are given for the germination of this and L. giganteum.

Wellington Nursery, St. John's Wood, London, N.W.

PERMANENT GRASS SEEDS FOR ALL SOILS.

SUTTON & SONS, SEED GROWERS,

READING, BERKS,

Have a most extensive and complete stock of all the best kinds of GRASS SEEDS for PERMANENT PASTURE, which they are now sending out daily to all parts of the Kingdom, mixed expressly to suit the soil for which they are intended and the purposes for which the Pasture is required. It is believed that MESSRS. SUTTON'S Stock of GRASS SEEDS is the largest in the country, and certainly the quality cannot be surpassed. The sorts can be supplied separate or mixed to suit the soil. The Light Large Seeds are in one Mixture, and the Clovers and other Small Heavy Seeds in another; 2 bushels of the former and 12 lb. of the latter per Acre are supplied.

No. 1. Mixtures for Permanent Meadow and Pasture, mixed expressly to suit the Soil ... ... per acre 30s.

N.B.—Cheaper Mixtures, containing smaller quantities of Clover Seeds, &c., can be supplied if desired.

No. 2. Mixtures for Permanent Field Lawns, Parks, and Cemeteries ... ...per bushel 16s.
No. 3. Mixtures for Irrigation or Catch Meadows ... ... per acre 25s.
No. 4. Mixtures for Reclaimed, Marsh, or Heath Land ... ... ,, 18s. to 24s.
No. 5. Mixtures for Loose Blowing Sands, Heavy Clays, Chalky Soils, and Sharp Gravel ... ... ,, 30s.
No. 6. Mixtures of Finest Short Grasses for Garden Lawn ... ... 1s. per lb., or, per bushel 18s.
No. 7. Renovating Mixture of Clovers and Fine Grasses for Old Parks and Meadows, 9d. per lb., or, by the cwt., 80s.

Mr. MARTIN SUTTON'S *Essay on Permanent Pasture, containing complete Instructions for Sowing and Management, is supplied with the Seeds.*

OTHER AGRICULTURAL SEEDS, ALL UNADULTERATED.

CLOVERS.	RYE-GRASS.	MANGEL WURZEL.	SWEDES.	CARROTS.	SUNDRIES.
Common Red	Sutton's Improved Italian	Long Red, Elvetham	Sutton's Champion	White Belgian	Seradella
White or Dutch	Fine Imported do.	Orange and Yellow Globe	Skirving's	Yellow Belgian	Lucerne
Trefoil	Common Rye-Grass	Red Globe	Hardy Purple	Large Altringham	Drumhead Cabbage
Alsike Hybrid	Pacey's Perennial	Long Yellow	Marshall's Purple-top	James' Intermediate	Large Cattle Parsnip
Cow Grass (true kind)			Improved White	Long Orange	Kohl Rabi, of sorts

Goods delivered Carriage Free. Priced Lists Post Free. Five per Cent. allowed for payment on receipt of Goods.

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

Roses for Forcing.

CHARLES NOBLE has a nice assortment, one year established in 32-pots, ready for forcing. They are healthy vigorous plants, and cannot fail to give satisfaction. He has also a large stock of Dwarfs and Half-Standards suitable for planting in Roseries; they are offered very cheap.

Sunningdale Nursery, South-Western Railway.

Roses.

GEO. PARSONS begs to offer fine STANDARD ROSES, from 2½ to 4 feet stems, at 5*l.* per 100, or 15*s.* per dozen; including the New Varieties, 18*s.* per dozen, or 6*l.* 10*s.* per 100; the last New Varieties of 1862, DWARFS, 30*s.* per dozen.

CATALOGUES free on application.

Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

Fine Dwarf Roses.

GEO. CLARKE has an abundance of magnificent plants of DWARF ROSES, including the leading varieties of Hybrid Perpetuals and Bourbons: also well established plants in Pots of PERPETUALS, TEAS, and BOURBONS, suitable for Forcing. Prices forwarded on application.

Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, near the Victoria Railway Station, Pimlico, S.W.

DWARF HYBRID PERPETUAL ROSES, on the MANETTI STOCK; Carriage paid to London.—The Undersigned offer very fine and vigorous plants of the above. For a LIST of the more popular sorts, see *Gardeners' Chronicle* for December 6, 1862. Prices given for small and large numbers (per 1000 at a much reduced rate) and a DESCRIPTIVE CATALOGUE of ROSES sent on application to

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

Rose Nurseries, Hertford.

E. P. FRANCIS offers the following DWARF ROSES, strong and vigorous, worked very low on Manetti, at reduced prices, in orders of not less than 500. Price upon application.

HYBRID BOURBONS.
Blairii No. 2
Brennus
Juno
Charles Lawson
Coupe d'Hébé
Paul Perras
Paul Ricaut
Madame Zoutman

HYBRID PERPETUALS.
Admiral Nelson
Anna Alexieff
Augustine Mouchelet
Baron Prevost
Baron Larrey
Colonel de Rougemont
Coquette de Lyon
Comtesse de Chabrillant
Comte Odart
Duchess of Norfolk
Duchesse d'Orleans
Duchess of Sutherland
Garibaldi
Géant des Batailles
General Castellane
General Jacqueminot
Gustave Coraux

HYBRID PERPETUALS.
Baron Gonello
Jules Margottin
Lælia
Louis Peyronny
La Fontaine
Leon des Combats
Le Royal Epoux
La Reine
Madame Boll
Madame de Cambacérès
Madame Domage
Madame Hector Jacquin
Madame Louis Carique
Madame Vidot
Mademoiselle Alice Leroy
Monsieur de Montigny
Prince Noir
Prince Leon
Princess Clotbilde
Rosine Parron
Reine des Violettes [terre
Souvenir de la Reine d'Angle-
Sydonie
Triomphe des Beaux Arts
Triomphe de Paris
Victor Verdier
William Griffiths

Banks's Best New Fuchsias.

E. G. HENDERSON AND SON are now sending out the three following First-class Flowers:—

MDLLE. TREBELLI (BANKS).
BIANCA MARGINATA (BANKS).
MARS (BANKS).

As neat young plants for growing on into specimens (and others adapted for stock), price 3*s.* 6*d.* and 5*s.* each. Also plants of all last year's best varieties, 1*s.* 6*d.* to 2*s.* 6*d.* each.

SOLANUM CAPSICASTRUM FOLIA VARIEGATA, a beautiful table plant, with elegantly variegated leaves and red berries; drooping habit; 3*s.* 6*d.* and 5*s.* each.

Wellington Nursery, St. John's Wood, London, N.W.

DOWNIE, LAIRD, AND LAING have much pleasure in offering the following FIRST CLASS NOVELTIES, which they can with confidence recommend as being decided acquisitions.

CALCEOLARIA CLOTH of GOLD, described by the Floral Committee of the Royal Horticultural Society as follows:—"A desirable bedding variety of dwarf habit, growing from 6 to 9 inches high; the leaves are narrow and deeply serrated, the flowers in fine compact trusses of a deep clear yellow, and of medium size and firm substance;" stems stiff and erect, requires no staking; as a dwarf yellow for front lines, or ribbon borders, it has no equal. Certificate of Merit by the Floral Committee, First Class Certificate at Regent's Park. Price 2*s.* 6*d.* each, 18*s.* per dozen. Special price for quantities on application.

DELPHINIUM BICOLOR GRANDIFLORUM.—This is a striking and most beautiful variety. It was commended by the Floral Committee of the Royal Horticultural Society, who described it as follows:—"A showy variety with large flowers, in which the sepals were of a dark blue, and the petals of a creamy white colour, contrasting strongly with the darker colour surrounding them." Price 5*s.* each. Special offers to the Trade on application.

Stanstead Park, Forest Hill, S.E.; and Edinburgh.

New Japanese Plants.

PARSONS AND CO., Flushing, near New York, offer FOR SALE—

Ten LILIUM AURATUM, at 8 Guineas each. This plant bloomed the last summer at Flushing. It was much admired for its great beauty, and for its delicate yet powerful fragrance, pervading a room for some days after being cut, and even after the petals were withered. The bulbs are full and sound.

LONICERA BRACHYPODA (aurea reticulata), 5*s.* each. This beautiful plant, with its remarkable leaf variegation of green and gold, is supposed to be perfectly hardy, and is scarcely surpassed in beauty by any of the foliage stove plants. It is figured in "L'Illustration Horticole" for last September.

RETINOSPORA JAPONICA, 5 Guineas per 100, 40 Guineas per 1000. This plant is supposed to be either obtusa or pisifera. Its foliage is beautiful, and highly glaucous on the under side. The plants offered are about 3 inches high, have been once transplanted, and are in pots containing 25 each.

JEDDO GRAPE. This Grape has been described by Robert Fortune as scarcely inferior to any of the Grapes known in English hothouses. Originating in Japan, it is supposed to be hardy, and suitable for walls. Strong 1-year old plants will be ready for delivery in the autumn of 1863. Price 1 Guinea.

LARGE IMPORTATION of STANDARD ROSES.

WILLIAM WOOD & SON

Have much pleasure in announcing the arrival of a large Importation of STANDARD and DWARF ROSES in fine order, which they will be happy to supply on most reasonable terms.

CATALOGUES free and post paid on application.

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WM. WOOD & SON'S

COLLECTIONS of KITCHEN GARDEN SEEDS

FOR ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.
£3.	£2.	£1.	10s. 6d.

Containing only Seeds of first-class quality, and varieties that can be confidently recommended.

For particulars, see CATALOGUE, a Copy of which may be had Post Free on application.

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THE PLYMOUTH SEED COMPANY,

PLYMOUTH.

Extract from a Letter received from a CLERGYMAN *in Yorkshire, dated December* 11, 1862:—
"Our Vegetables have never been so fine as when grown from your Seeds."

The Company are now sending out their COLLECTIONS of SEEDS, which have always given great satisfaction.

No. 1. Complete Collection for a large Garden, for One Year's Supply	**£3**	**0**	**0**
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Extra Collection Carriage Free to any Railway Station in England and Wales, and to any Steam Port in England, Wales, Scotland, and Ireland.

No. 1 Carriage Free to most Stations and Ports in the Kingdom.
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For further particulars, see the GENERAL PRICE CURRENT, now ready.

Address, PLYMOUTH SEED COMPANY, PLYMOUTH.

GARDEN SEEDS.

S. GLENDINNING & SONS,

NURSERYMEN AND SEEDSMEN

(SUCCESSORS TO THE LATE R. GLENDINNING),

Are now sending out their COLLECTIONS of KITCHEN GARDEN SEEDS.

No. 1	**contains**	**36**	**Quarts of**	**PEAS,**	**and all other Seeds in proportion**	**£5**	**5**	**0**
No. 2	**,,**	**28**	**Quarts**	**ditto**	**ditto ditto**	**4**	**4**	**0**
No. 3	**,,**	**20**	**Quarts**	**ditto**	**ditto ditto**	**3**	**3**	**0**
No. 4	**,,**	**12**	**Quarts**	**ditto**	**ditto ditto**	**2**	**2**	**0**
No. 5	**,,**	**6**	**Quarts**	**ditto**	**ditto ditto**	**1**	**1**	**0**

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No. 5,	**,,**	**12**	**ditto**	**ditto**	**ditto ... ...**	**0**	**4**	**0**
No. 6,	**,,**	**25**	**ditto**	**Tender Annuals ... ...**		**0**	**12**	**6**
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The above Collections consist only of best and most useful varieties, and are of the finest quality.

S. G. & SONS' CATALOGUE of KITCHEN GARDEN, AGRICULTURAL, and FLOWER SEEDS, is now ready, and may be had on application.

CHISWICK NURSERY, LONDON, W.

INTERNATIONAL EXHIBITION.

PRIZE MEDALS 1851 AND 1862

AWARDED FOR SUPERIORITY AND GENERAL EXCELLENCE TO

BUTLER & McCULLOCH, SEED MERCHANTS,

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COLLECTIONS OF VEGETABLE SEEDS SUITABLE FOR ANY SIZED GARDEN.

No. 1.	20 Quarts of PEAS and other Seeds in proportion	£3	3	0
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A Specification of the above Collections is given at page 77 of Messrs. BUTLER & McCULLOCH'S systematically arranged SEED CATALOGUE for 1863, which may be had free and post paid upon application.

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BARR & SUGDEN 12 KING ST. COVENT GARDEN

SEED MERCHANTS AND FLORISTS,

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OPPOSITE THE GARRICK CLUB.

Seeds Carriage paid. Five per cent. allowed on Cash Payments. No charge for Packing or Package.

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GOOD SEEDS CARRIAGE FREE.

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COMPLETE COLLECTIONS of KITCHEN GARDEN SEEDS

FOR ONE YEAR'S SUPPLY.

SUTTON'S UNRIVALLED COLLECTIONS of KITCHEN GARDEN SEEDS are so assorted as to contain the proper quantities of the best kinds to supply a family for the whole year.

The entire charge for the largest Collection (No. 1) is £3 0 0 (Carriage Free).

Ditto ditto Collection (No. 2) is £2 0 0 ditto

And Complete Collections for Smaller Gardens may be had at 20s. and 10s. 6d.

From Mr. WILLIAM MOOR, *Gardener, The Rectory, Stoke.*

"I never had (previous to yours last year) a lot of Seeds which have all turned out so satisfactory."

From the Rev. G. E. WALKER, *Shareshill, Wolverhampton.*

"Mr. Walker cannot but compliment Messrs. SUTTON & SONS on the quality of the Seeds sent last year, as they were by far the best he ever purchased."

From the Rev. JOHN KIEWAN, *Withycombe Rectory, Taunton.*

"I was so much pleased with the selection of Seeds sent by you, that I recommended two of my friends to take parcels from you."

SUTTON'S CHAMPION SWEDE, 1s. per lb.; Choice MANGEL WURZEL, 6d. per lb., if ordered immediately.

NATURAL GRASS SEEDS for PERMANENT PASTURE, 30s. per Acre, mixed expressly to suit the soil.

SUTTON AND SONS, SEED GROWERS AND MERCHANTS, READING, BERKS.

Choice New Seeds.

B. S. WILLIAMS has much pleasure in offering the following choice SEEDS:—

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AMARANTHUS MELANCHOLICUS RUBER	1s. and	1 6
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For numerous other Novelties, see CATALOGUE post free to all applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

Hendon Park Nurseries, N.W.

CAMELLIAS, all the best sorts, fine plants, beautifully set with bloom buds, 24s. to 30s. per dozen.

PANSIES, all the best show flowers, from 6s. per doz.; new bedding Pansy, BOY in BLUE, very early, 6s. per doz.

EDWARD SHENTON.

Spring Blooming Plants.

CAMELLIAS, including the best new varieties, fine plants, set with bloom buds, from 30s. per doz.; extra size, from 60s.

HEATHS, EPACRIS, CINERARIAS, and JASMINUM GRANDIFLORUM (grafted), remarkably fine plants, at moderate prices.

Also HUMEA ELEGANS, extra strong, in 6-inch pots, 18s. per doz.

JAMES DICKSON & SONS, Newton Nurseries, Chester.

Hendon Park Nurseries.

NEW PLANT from JAPAN.—LONICERA AUREO RETICULATA, the most beautiful variegated Climber ever offered. The foliage netted with gold and crimson veins, the leaves and stem changing to crimson in the autumn; perfectly hardy. Price on application.

EDWARD SHENTON.



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WHEELER'S TOM THUMB LETTUCE.

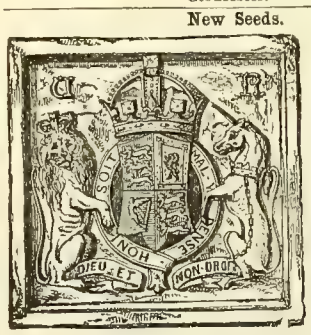
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The price of the Lettuce is 1s. per packet, post free.

J. C. WHEELER & SON beg to inform the Trade that their "Little Book" is entered at Stationers' Hall, and that they cannot allow it to be copied.

J. C. WHEELER & SON, Seed Growers, Gloucester.

New Seeds.



PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN, of Edinburgh and London, are prepared to send out

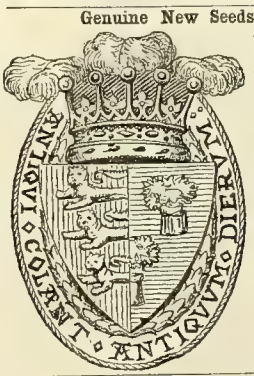
FARM and GARDEN SEEDS

of every kind, and of the finest quality.

Orders for exportation executed with prompt and careful attention.

28, King Street, Cheapside; and 15, Lawrence Lane, E.C.

Genuine New Seeds, Carriage Free.



FRANCIS & ARTHUR DICKSON AND SONS, 106, Eastgate Street, Chester.

New VEGETABLE and FLOWER SEEDS of every description, of the finest possible quality.

Their DESCRIPTIVE PRICED CATALOGUE, containing many valuable New and Select Vegetable and Flower Seeds, will be sent Post Free on application

Collections for Gardens of all Sizes are on the most liberal scale. See Catalogue.

☞ Vegetable Seeds of £2 value Carriage Free. All Flower Seeds Free by Post.

Vegetable and Flower Seeds.

CARRIAGE FREE.



JAMES DICKSON AND SONS' ANNUAL DESCRIPTIVE PRICED CATALOGUE of the above is now ready, and may be had, post paid, on application.

The *Field* of February 8, 1862, in a notice of our last season's Catalogue, says:—"This old established firm have issued their neat and well arranged Catalogue for this season. It embraces all seeds really worth growing in both departments."

JAMES DICKSON & SONS, 102, Eastgate Street, Chester; and 23, Market Place, Manchester.

IMPROVED DRUMHEAD or CATTLE CABBAGE.—The Subscriber has now for Sale Seed of his well known Improved LATE CABBAGE, selected and grown by himself, warranted net Seed, and all of Crop 1861, well harvested, and a fine sample.

Orders for quantities of not less than two hundred weight will be executed on receipt of Cash, or a satisfactory reference to respectable parties in Edinburgh or Leith, and intending purchasers unacquainted with the Stock, can be referred for information to many of the most respectable Seedsmen in England, Scotland, and Ireland. The Seed can be put free on board at Leith, or on the Rail at Edinburgh.

Apply to JOHN GIBSON, Woolmet, Dalkeith, N.B.

NEW AND BEAUTIFUL PLANTS FOR 1863.



WILLIAM BULL, F.R.H.S., F.R.B.S.,

NURSERYMAN AND NEW PLANT MERCHANT, KING'S ROAD, CHELSEA, LONDON, S.W.,

WILL SEND OUT THE FOLLOWING NOVELTIES FOR THE FIRST TIME ON AND AFTER THE 27TH OF APRIL NEXT.

In announcing the following NEW FLOWERS, W. B. begs to intimate that he has purposely made the descriptions as brief as possible; did merit depend on description, that to each should be most elaborate.

From the large numbers of NEW FLOWERS in each class, it may appear marvellous that all should be good and real improvements; but W. B. invites an inspection at the blooming season of the thousands of Seedlings raised at his Establishment, and the pains taken in hybridising to obtain New Varieties.

New Verbenas, 3s. 6d. each.

The following varieties are all conspicuous showy sorts, not such as can only be grown in pots, but all excellent bedders, which they thoroughly proved themselves during the last unfavourable summer, and therefore can be confidently recommended,

ALICE, rose shaded with violet, crimson centre, large primrose eye
ANTONY, bright crimson with dark velvet centre, white eye, fine truss
BRIGHT EYE, deep bright rose, with large yellow centre
CORDELIA, rich claret, light centre, distinct and novel
DUCHESS, crimson, with large white centre, good shape
DUNDREARY, violet rose, crimson centre, large white eye
EUPHRA, rich ruby, maroon centre, large white eye
FAVOURITE, maroon, black centre, large white eye
KATHLEEN, rich violet purple, maroon centre, large white eye
SPLENDID, light crimson shaded with scarlet, large yellow centre
THE CLIPPER, brilliant vermilion, flowers large, and perfect in shape, fine truss
THE COLONEL, bright scarlet, crimson centre, white eye, an improvement on Spark.

New Petunias, Single Flowered Varieties, 3s. 6d. each.

The following are confidently offered as very superior kinds; they are a small selection made from many thousand seedlings, the result of the most careful hybridisation.

ADELINE.—French white, violet throat, each petal broadly margined with bright red, attractive
AMETHYST, lavender with violet centre, veined and reticulated with violet, and margined with white
ATHLEEN, splendid crimson, rayed with black, large black centre
BEAUTY, violet crimson or mauve, broadly margined with pure white
CAPTIVATION, pure white, beautifully rayed with violet crimson
ELLA, rose, nerved with purple, dark throat
LADY MARIA SCOTT, purple crimson, margined with light rose, rayed and reticulated with violet crimson, black throat
LILIAN, white blotched with mauve
LONGFELLOW, bright violet, white centre
PRESIDENT, French white, nerved and shaded with violet, crimson centre, dark throat, a fine flower and good shape
SOUVENIR, very bright, rose shaded with violet, large white centre
VERNON, French white, dark purple centre, veined and reticulated with dark purple
WALLACE, pure white, striped and blotched with crimson

New Petunias, Double Flowered Varieties, 3s. 6d. each.

CHARMER, bright crimson, centre petals white
CORNELIA, bright violet pink
FATIMA, rich carmine, beautiful imbricated form
OPTIMUM, bright crimson, good form, like a rosette
PLEASANT, rich amaranth, very full and fine
PRINCESS ALEXANDRA, rich crimson, fine and large bold flower

New Fuchsias, 7s. 6d. each.

The following are all so distinct and good, they are sure to please; as there are so many it may be as well to remark that besides my own seedlings, to ensure putting out a good collection, the entire stocks have been purchased from three different raisers, and hence so much variety.

BEATRICE, large and pure white tube and sepals, the latter beautifully reflexed; corolla large and full, rich violet rose margined with scarlet, white base, very attractive
ETTIE, monstrous bright rose, sepals of unusual size and length, beautifully reflexed, large purple corolla with red base, very showy
FAIRY, broad sepals, completely reflexed, of the darkest and richest crimson; large pure white corolla, red at the base, extremely elegant
JOSEFA, rich dark crimson tube and sepals, the latter very broad, elegantly reflexed and of great substance; corolla rich dark purple, very evenly shaped, wax-like and fine
LYDIA, long and elegant pure white tube and sepals, the latter beautifully reflexed; corolla rich carmine scarlet, of great substance, very attractive
MARGARET, short tube and sepals, the latter completely reflexed; large and long blue corolla, peculiarly expanded, very novel in shape
MATCHLESS, rich dark scarlet tube and sepals, the latter well reflexed; corolla rich purple, very double and immensely large, extra
MILDRED, tube and sepals very dark crimson and of great substance, sepals beautifully reflexed, large well formed rich purple corolla
NELLY, pure white tube and sepals elegantly reflexed, bright rosine corolla, pure white at the base
PAULINE, sepals of the richest vermillion, remarkably broad, reflexing back to the tube; beautiful rich purple corolla, thick, wax-like and well formed
ROLAND, coral-red tube and sepals, the latter beautifully reflexed, long and large light blue corolla, very distinct
TIBBY, bright carmine tube and sepals, the latter completely reflexed; large expanded light blue corolla, particularly novel and striking, a gem

New Zonale Geraniums, 7s. 6d. each.

Two years since all the best English and Continental sorts were collected, carefully hybridised, and thousands of seedlings raised; these have been reduced to about 500 promising kinds, which will be flowered and proved again; meanwhile the following have been selected as of unquestionable merit.

ALFRED, clear orange scarlet, very large flowers of a magnificent form, shell-like petals, and large truss
AURICULA, soft flesh with bright rose coloured centre, white eye
BONNIE DUNDEE, rosy pink, large very round flower, horse-shoe foliage, fine
CECILIA, bright rose shaded with scarlet, immense flower, and fine truss
DR. LINDLEY, light scarlet, the largest and best formed flower ever offered
ERIN GO BRAGH, blush margined, with white, horse-shoe foliage
LUCILLA, beautiful soft clean rose, flowers of enormous size and most perfect form, trusses fine
NORA, bright rose shaded with scarlet, very fine flower and large truss, horse-shoe foliage
REALLY GOOD, vivid scarlet, white eye
ROSETTA, very deep bright pink, excellent
THE SWAN, pure white, large flower, fine shape
VISITOR, brilliant rose, immense flower, excellent form

New Pentstemons, 5s. each.

"In illustration of the advances which this flower has made, we may refer to a series of varieties which have been sent out this year by Mr. Bull, of Chelsea, and which we have had an opportunity of observing. They are remarkable for the advance in quality they show beyond the varieties hitherto grown." (Extract from *Gardeners' Chronicle, Nov.* 15, 1862, *vide* page 1075.)

The varieties now offered far eclipse any that have preceded them. Not the most unimportant feature is the improvement in their habit, and the greater redundancy of their blossoms.

ANGELINA, puce, pure white throat, distinct and pretty
CONSTANCE, dark violet-crimson lobes and tube, white throat blotched and striped with maroon
DORA, dwarf stiff habit, scarlet tube and lobes, light throat blotched and pencilled with crimson
FLORENCE, mauve tube and lobes, large pure white mouth and throat, flowers large and very attractive
HELEN, scarlet tube and lobes, very pure white throat
MAGGIE, light red tube and lobes, white throat striped with crimson
OLIVIA, deep violet-rose tube and lobes, white throat prettily pencilled and striped with crimson
SPECIAL, crimson-purple tube, violet-purple lobes, pure white throat; distinct
STANDARD, throat and lobes pure white, lobes margined with rose, violet-rose tube
UNDINE, white slightly tinged with blush
VIVIAN, bright crimson tube and lobes, white throat, mouth blotched with dark crimson
WINIFRED, rose tube, white lobes and throat, lobes edged with bright red, very dwarf

French Spotted New Pelargoniums, 21s. each.

The following are offered for their extreme beauty, free flowering character, and their rich, novel and varied colours:—

AILEEN, dark crimson, upper petals surrounded with fiery crimson, and margined with white; pure white under petals, lightly spotted with fiery crimson.
ALICIA, rich maroon upper petals, margined with rose violet; under petals rose violet, blotched with deep crimson
ANNETTE, dark crimson upper petals, margined with carmine violet; under petals rose violet, spotted with crimson.
CORAL, fiery crimson; upper petals blotched with maroon, under petals slightly spotted with dark crimson.
FIREBALL, upper petals fiery scarlet, blotched with rich maroon; under petals bright red, spotted with crimson
INTERNATIONAL, rich maroon upper petals, margined with rose; bright rose under petals, shaded with fiery crimson, heavily spotted with maroon.
JOSEFA, rich maroon upper petals, edged with cerise; under petals pink, spotted with dark crimson; light centre.
MABEL, maroon upper petals, margined with crimson; bright red under petals, spotted with crimson; violet throat.
NICOLA, fiery red upper petals, shaded with scarlet, and spotted with maroon; under petals distinctly spotted with maroon, violet centre.
NINA, deep crimson upper petals, edged with rose lilac; lower petals bright scarlet, heavily blotched with deep crimson, and margined with violet pink.
ROSARIO, bright red upper petals, with light margin, blotched with maroon and shaded with violet; under petals bright red, shaded with violet, and largely spotted with crimson.
VICEROY of EGYPT, rich maroon upper petals, margined lilac rose; under petals lilac rose, spotted with crimson.

New Bedding Tropæolums, 3s. 6d. each.

FIREFLY, vivid scarlet, rich dark throat, exceedingly stiff shell-like petals, good form
GLORY, golden yellow, all the petals cleanly spotted with maroon, excellent shape
MARVEL, cream colour, cleanly spotted with crimson on each petal, very pretty

New Lobelia (Erinus) Favourite, 3s. 6d. each.

Very bright turquoise blue, with clean pure white centre, flowering in the most profuse manner; very distinct and exceedingly pretty and attractive, habit dense and compact; a most desirable variety for edging or bedding purposes.

New Show Geraniums, 15s. each.

ADELINE, pure white; upper petals blotched with bright crimson, very fine.
GLORY, upper petals maroon surrounded with violet crimson and edged with rose, lower petals pink, large white centre.
HERO, fiery red, upper petals blotched with deep crimson, and margined with rosy violet; lower petals soft rose, pure white centre.

New Fancy Geraniums, 21s. each.

BERTHA, rich maroon upper petals edged with white; lower petals rosy purple margined with white, pure white centre.
CHARM, dark maroon upper petals, edged with pure white, lower petals bright crimson edged with white, white centre
LADY DOROTHY NEVILLE, deep rose upper petals shaded with violet; lower petals violet rose, pure white centre, fine shape.

Erect Gloxinias, 5s. each.

The following select and very beautiful collection has been selected from an immense number of seedlings, and are great improvements upon those at present in cultivation.

ANONYMA, blue lobes margined with lavender, white mouth and throat spotted at the base
BEAUTY, pink lobes, pure white mouth and throat
BRILLIANT, bright crimson, the lobes margined with rose, rich violet throat
CELESTIAL, rose lobes, throat encircled with deep violet, base of the tube white spotted with brown
CUPID, light blue lobes, with white marking, pure white throat
FAIRY, white tube and lobes, the mouth peculiarly encircled with violet crimson
FAVOURITE, bright rose shaded with crimson, throat encircled with violet, white tube
MODEL, pink shaded with violet, white tube
PEERESS, rich purple, the lobes margined with blue, base of the throat white spotted with brown
PRINCESS ALEXANDRA, white lobes margined with porcelain blue
ROSALIND, soft violet pink with immensely broad lobes, the mouth encircled with violet, white tube and throat
SERENA, soft rose, half of each lobe encircled with white, tube and throat white

Drooping Gloxinias, 5s. each.

The following may be depended upon as a very superior and beautiful selection.

ACME, blue lobes edged and prettily marked with white, violet throat
ASPROMONTE, broad clear rose lobes, pure white throat spotted at the base
BEAUTY, bright blue lobes encircled with purple, white throat
FLORA, rose lobes shaded with violet crimson and marked with white, pure white throat
ILLUMINATOR, beautiful rich crimson, the lobes broadly margined with bright red
LAURETTA, blue marbled with white, very distinct and attractive
MATCHLESS, lobes rose shaded with violet crimson, white mouth, the tube prettily striped and spotted with rose
OPTIMA, deep rose encircled with violet, white throat, very distinct
PRINCESS BEATRICE, porcelain blue, each lobe spotted with violet, pure white throat.
QUEEN OF PORTUGAL, rose, rich violet mouth, the base of the throat white spotted with crimson
SANSPARIEL, pure white, each lobe spotted with crimson, and the throat encircled with violet crimson, very delicate and pretty
VIRGINIE, blush, under lobes bright crimson, violet throat.

New Bedding Shrubby Calceolarias, 5s. each.

DISTINCTION, crimson or scarlet brown, primrose cap, very showy
ECLIPSE, bright golden yellow, minutely freckled with crimson spots
GOLDEN QUEEN, bright orange, large flowers thrown well above the foliage, dwarf compact habit, blossoms well perpetuated throughout the season
LIVELINESS, rich maroon, bright yellow cap, very attractive, an improvement on Sparkler

New Mimulus, "Attraction," 3s. 6d. each.

SULPHUR, with orange throat, margined and blotched with dark crimson, gigantic flowers, very free bloomer.

New Bedding Dahlia, "Gem of the Dwarfs," 7s. 6d. each.

"Of BEDDING DAHLIAS, a variety which is to be called Gem of the Dwarfs, and which is in the hands of Mr. Dean, of Shipley, appears likely to be an acquisition in its way. It is a crimson red tipped with white, and is said to be the dwarfest bedding variety yet seen, the plants never exceeding and seldom attaining so much as 18 inches in height. The variety has proved constant to this habit for three seasons, and is described as a most profuse bloomer, looking amazingly bright and showy in a bed. The blooms we have seen lead us to believe that it really deserves this good character."—*Extract from Gardeners' Chronicle, Nov.* 8, 1862, *vide* page 1050.

As the above has been so strongly recommended, Mr. WILLIAM BULL has purchased the entire stock.

J. SCOTT'S DESCRIPTIVE FRUIT CATALOGUE, describing the Culture and Character of nearly 800 sorts, price 7*d*. Also his CATALOGUES of CHOICE and GENUINE SEEDS, mostly his own saving; and his CATALOGUES of NURSERY STOCK, ROSES, and CONIFEROUS PLANTS, free on application to
J. SCOTT, Merriott Nurseries, Crewkerne, Somerset.

EDWIN HOLLAMBY begs to inform his Patrons and Friends that his DESCRIPTIVE PRICED CATALOGUE of VEGETABLE, FLOWER, AGRICULTURAL SEEDS, and GLADIOLUS is now ready, and may be had gratis and post paid on application.
Nursery and Seed Establishment, Tunbridge Wells, Kent.

Seeds, Seeds, Seeds.

S. GLENDINNING AND SONS' (Successors to the late R. GLENDINNING) CATALOGUE of KITCHEN GARDEN, AGRICULTURAL and FLOWER SEEDS is now ready and may be had on application.
Chiswick Nursery, London, W.—January, 1863.

A. STANSFIELD AND SONS beg to announce that their LIST of BRITISH FERNS for this season, including the New and Rare varieties, at reduced prices, is now ready, and may be had on application, enclosing two postage stamps. Also their GENERAL FERN LIST, No. 6, for 4 postage stamps, which purchasers may deduct.
Vale Nurseries, Todmorden.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS; ditto COWSLIP; Florist's Flower, POLYANTHUS, Roots or Seed; also SCARLET PRIMROSE—Double Crimson, Double Purple, Double White, Double Yellow, and Double Lilac ditto. COWSLIP from the Himalayas; DOUBLE POLYANTHUS; and other varieties, all of which may be had on application to
RICHARD WEBB, Calcot Gardens, Reading.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.
The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

At a GENERAL MEETING of the Members of this Institution, held on the 15th inst., for the purpose of ELECTING TWO PENSIONERS on the Funds, the following was the result of the BALLOT:—

CANDIDATES.

No.	NAME.	AGE.	VOTE.
1	ROBERT DOWDELL	72	61
2	JOHN LUCAS	63	296
3	SARAH PHELPS	76	622
5	JAMES ROBINSON	62	330
4	JOHN SANGSTER	67	273

The Meeting then declared SARAH PHELPS and JAMES ROBINSON, as having the greatest number of Votes, duly elected Pensioners of this Society.
Jan. 24. EDWARD R. CUTLER, Secs. 14, Tavistock Row.

The Gardeners' Chronicle.

SATURDAY, JANUARY 24, 1863.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, Jan. 26—Entomological (Anniversary).. 7 P.M.
WEDNESDAY, — 28—Society of Arts .. .. 8 P.M.

THE battle of the GRAPES, OLD *versus* NEW, to which, as an impending conflict, some reference was made at pp. 478 and 740 of our last year's volume, has in due course been fought, and a majority of the Fruit Committee of the Royal Horticultural Society has awarded the victory to the veterans. In other words the Hamburghs of the crop of last year, kept through the winter, and now brought forward by Mr. TILLERY, have on comparison with the newly-ripened Hamburghs from Mr. THOMSON, been pronounced the better of the two in respect to flavour. Thus ends the first assault of this friendly passage of arms between the champions above named.

We must, however, venture to express an opinion that this result does not settle the question of the merits of new as compared with old Grapes at this season of the year, so far as it concerns the general public. The decision arrived at would at first sight seem to indicate that new Grapes must be inferior, and consequently their production a question of little horticultural moment. Now we do not think the matter stands exactly so. As we understand it, the question to be decided was, which of the two competitors could in the month of January produce the "best flavoured" Grapes, the one showing old, the other new fruit. This reduced the comparison within very narrow limits. True, flavour is a point of the first importance, but different individuals have different notions as to excellence of flavour, and it may fairly be questioned whether a majority of Grape eaters would endorse the decision on this point at which the Committee arrived. At any rate we do not. It so fell out that "we" ourselves (journalists are an ubiquitous race) happened to be present as witnesses of the contest, and "we" not only saw but tasted. As to what we saw, our report is that in appearance the old Grapes were very far inferior to the new—lank bunches and shrunken berries, against compact clusters and plump juicy fruit. As to what we tasted, we say the old Grapes were good—decidedly good, having been well kept, their flesh sound and firm, and their flavour rich and sugary; while in comparison the new Grapes were much more juicy, somewhat less sugary, though in the best samples not many degrees below the others, and having a decided vinous smack which the kept fruit entirely wanted. The flavour in the two cases was therefore decidedly different; those who like sugary richness without vinous aroma would prefer the old sample, as was the case with the majority on this occasion; those who, like ourselves, prefer vinous juice as well as sugar in the fruit of the Vine, would rather choose those which had been newly ripened.

The question, we therefore repeat, is still an open one, and its merits hang on several pegs. Regardless of cost, do you at new-year's tide prefer Grapes approaching to sweetmeats in their properties, or do you prefer that the sweetness should be tempered by the presence of abundant vinous juice? In the first case, by all means choose those which have been matured by the sun of the previous summer and autumn, and have been judiciously "kept." In the latter case, start your Vines in autumn so as to have the fruit freshly ripened; you will by so doing gain everything in appearance, and what you lose in richness you will be compensated for in freshness. But whatever estimate we may put upon the merit of the produce, whether we regard it as preponderating to one or the other side, or as being balanced or nearly so, it is important to know what is the cost of the two systems respectively. Which is the most expensive plan—to ripen good Grapes in autumn and keep them properly afterwards, or to grow them so as to come fresh into use about New Year's Day? The market value we know to be in favour of the new crop, which sells at let us say 25*s*. per lb., against 10*s*. per lb. for old ones. Comparing this value with the cost of production, on which side lies the balance? We hope some of those of our readers who have been paying attention to the subject will be able to furnish these statistics.

We understand that a second decision was arrived at, after the match had been settled, to the effect that for "appearance and utility" the palm rested with the freshly ripened fruit. To a beautiful sample of new Grapes from Mr. MC KENZIE, of Brighton, ripened under the advantage of a more southerly climate than those shown by Mr. THOMSON, and very little inferior in richness of flavour to the old fruit from Mr. TILLERY, no doubt this decision was mainly owing. In this case it was stated that the Vines were started on the 1st of August, no fire being used till they came into bloom. After the fruit was set, fires were discontinued till the berries had stoned, which took place during the severe weather we had in October, from which time onwards moderate fires were continued till the fruit ripened.

As we have frequent inquiries from persons desirous of communicating with DIRECTORS OR SUPERINTENDENTS OF BOTANIC GARDENS abroad, we are desirous of obtaining an accurate list of all such. To this end we append the following list of those that now occur to us, requesting that any mistakes in this list, *especially in official designations*, will be pointed out to us, and additional information on this head communicated.

INDIA:—

Calcutta.—Royal Botanic Gardens: Dr. Thomas Thomson, F.R.S., F.L.S., Superintendent (in England on sick leave); Dr. Thomas Anderson, F.L.S., Acting Superintendent.—Agri-horticultural Society's Nursery Gardens: A. H. Bleckynden, Esq., Secretary.

Bombay.—Botanic Gardens, Heura; N. A. Dalzell, Esq., Superintendent.

Madras.—Horticultural Gardens; Mr. A. T. Jaffray, Superintendent.

Bangalore.—Public Gardens: Mr. W. New, Superintendent.

Ootacamund (Nilgherry Hills).—Mr. W. G. McIvor, Superintendent.

Saharunpore.—Botanic Gardens: W. Jameson, Esq., Bengal Army, Superintendent.

Monghyr.—Public Gardens: T. E. Ravenshaw, B.C.S., Secretary (Honorary).

Etawah.—Horticultural Gardens: A. O. Hume, Esq., B.C.S. Secretary (Honorary).

Balasore.—Agri-horticultural Society's Garden: Dr. A. A. Mantell, Secretary (Honorary).

Ceylon.—Royal Botanic Gardens, Peradenia, near Kandy: G. H. K. Thwaites, Esq., F.L.S., Director.

AUSTRALIA:—

Victoria.—Melbourne Botanic Gardens: Dr. F. Mueller, F.R.S., F.L.S., Director; Gippsland Botanic Gardens, Mr. Sale.

Sydney.—Botanic Gardens: Charles Moore, Esq., F.L.S., Superintendent.

Queensland.—Brisbane Botanic Gardens: Mr. Walter Hill, Director.

South Australia.—Adelaide Botanic Gardens: Mr. G. W. Francis, Superintendent.

Tasmania.—Royal Society's Gardens, Hobarton: Mr. F. Abbott, Jun., Superintendent.

AFRICA:—

Cape of Good Hope.—Botanic Gardens, Cape Town: Directorship vacant by the decease of Dr. L. Pappe.

Natal.—Botanic Gardens, D'Urban: Mr. McKen, Superintendent?

Mauritius.—Royal Botanic Gardens: Mr. James Duncan, Superintendent.

WEST INDIES:—

Jamaica.—Bath Botanic Gardens: Mr. N. Wilson, Superintendent.

Trinidad.—St. Anne's Botanic Gardens: Dr. Hermann Cruger, Director.

CANADA:—

Kingston Botanic Gardens: Dr. Lawson, Director (Honorary?)

"IN sealed packets as imported." So, at this season of the year, it is on all sides announced, with an air of mystery, anent collections of GERMAN FLOWER SEEDS. In one seed-list lying before us—which in this particular is much like all the rest, so fashionable has it for the time become to be duped into buying these interminable foreign collections—in this seed list we observe a catalogue of Asters, in comparison with which the lengthy document of Leporello sinks into insignificance. The catalogue we refer to reads something like this:—Double Dwarf German, 12 finest varieties; Double Globe German, 12 finest varieties; Double Quilled German, 12 finest varieties; New Dwarf Bouquet, 12 finest varieties; Double Crown or Cocardeau, 6 finest varieties; Newest Chrysanthemum-flowered Dwarf, 12 finest varieties; Newest Chrysanthemum-flowered Tall, 12 varieties; Hedgehog, 6 splendid varieties; Giant Emperor, 24 splendid varieties; Ranunculus-flowered, 9 fine varieties; Reid's Globe Quilled, 10 fine varieties; New Double French or Truffaut's Pæony-flowered, 24 varieties; Truffaut's Dwarf Pæony Pyramidal, 8 varieties; Truffaut's Pæony Perfection, 12 varieties; Truffaut's Globe Perfection, 12 varieties. That is to say, 183—One hundred and eighty three 'varieties' of the China Aster! of which as everybody knows there are but two, the Quilled and the Tasselled, in respect to the flowers, while there is not more than half a dozen colours of each form which are distinct enough to be worth growing, and only the Dwarf Chrysanthemum-flowered which presents any desirable variation of habit. Here then is surely enough a sack of chaff to a grain of corn. Pick out of this total of 183, a dozen at the most, of bright distinct colours, and of diverse habit, and the rest might with advantage to every one but the seed growers—and in the end to theirs also—be consigned to that limbo of unworthies, the rubbish heap. So long, however, as English flower-lovers and English gardeners will suffer themselves to be thus drawn into buying up these "collections," no doubt our Continental cousins will take care they are forthcoming. Yet who wants 183 varieties of Aster? At the same time, who that cares to grow Asters would not wish to secure the most distinct and the most handsome of them? This is where the shoe pinches, and where, let us add, it ought to pinch, if the purchaser quietly submits to the process. True, there is the option of buying smaller "collections" containing fewer "varieties" than those we have quoted in either class. But if so, the buyer is not advantaged; he gets at the best a proportionately smaller number of the really choice things, while the bulk, in either case, is made up of the rubbish, the chaff, we have alluded to. There is another alternative, indeed—the "mixed seed" which is offered of each group; but we can all guess what mixed seed means, when the more highly priced "distinct" varieties yield so small a return. To be sure there is yet another alternative, to which these endless and disappointing collections must drive people sooner or later, and that is to buy none at all. Let us add, that we have herein only alluded to the "rubbish" which comes in under the guise of "distinct colours," and have not taken account of the rubbish in respect to quality which these interminable collections are the means of palming off on unwary purchasers.

Then turning to the Stocks, we are asked to buy the following sorts:—Dwarf German Ten-week, 50 superb varieties; Branching Ten-week, 12 varieties; New Largest Improved Dwarf Ten-week, 18 superb varieties; New Large-flowered Pyramidal, 24 splendid varieties; Branching Large-flowered Pyramidal, 12 varieties; Miniature or Dwarfest Ten-week, 6 varieties; Emperor Perpetual or Large-flowering, 12 brilliant varieties; Newest Rose-flowered Rocket, 6 splendid varieties

New Dwarf Bouquet Ten-week, 8 splendid varieties; Earliest-flowered Autumn, 8 varieties; Wallflower-leaved Autumnal, 5 varieties; Newest Early Large-flowered Brompton, 12 varieties; Winter or Biennial Brompton, 12 fine varieties; Cocardeau or Tree Giant Cape, 6 varieties; besides Crimson Dwarf, Rose Dwarf, and Sulphur, three sorts which appear in classes apart. Here we have 194 "varieties"!! Only think of that, ye geometricians, who have been filling up the measure of your parterres with some half-dozen subjects until you have become tediously monotonous. One hundred and ninety-four "varieties" of Stocks, and one hundredand eighty-three "varieties" of Asters—those superb and splendid things, mind you, which, if you so will, you may have in sealed packets as imported!

What can you have been dreaming of, to let all these treasures lie unheeded at your feet (*aside*: best place for most of them), while you are losing ground daily through sheer monotony! As to the Stocks themselves, there is variety enough certainly, but the proportion of arrant rubbish is greater than even among the Asters, for the "collections" of distinct colours are swelled out by a large per-centage of such tints as slaty-blues, chamois-buffs, dingy reds, dirty pinks, liver-colour, copper-colour, dun-colour, lilac, and stained white—which can't look beautiful, however perfect and floriferous the plant, and however fine and double the blossoms. The whole set of these wretched-looking colours are abominations in a garden, hideous deformities which no merit in other respects can render tolerable. Away with them, therefore, and let us have the grain without the chaff. A good strain of the so-called scarlets, and purples, and whites, of old-fashioned times, is worth the whole set of German "varieties" which are poured in upon us like an overwhelming flood. The most extensive of the groups, that called the Dwarf German Ten-week, is set down at 50 varieties, out of which we venture to affirm, that half a dozen would include all the really effective colours, and would, in fact, be all that were worth growing generally.

These are the most flagrant cases perhaps, because Asters and Stocks being everybody's flowers, advantage seems to be taken of that circumstance to thrust upon the buyer a load of rubbish if he wishes to obtain two or three ornamental colours. It is surprising to us that buyers are so enduring; and still more surprising that some of our long-sighted English seedsmen don't turn rebellious and break through this German humbug. There is, we confess, very little sign of this being done at present. Indeed the "collection" system is growing upon us. Other flowers besides Asters and Stocks are made up in these questionable collections. Thus, we find now offered:—Carnations, 132 "superb varieties," designated by colours, in 11 classes. Picotees, 36 superb varieties, in three classes; Balsams, 33 varieties, in four classes; Cockscombs, in 12 varieties; Convolvulus major, in 10 varieties; Phlox Drummondi, in 12 varieties; Thunbergias, in six varieties; Schizanthus, in eight varieties; Salpiglossis in 10 varieties; Larkspurs, 40 varieties, in four classes; and so on. All this at a time when throughout the more valuable groups of garden plants, SELECTION has properly taken the place of COLLECTION, and cultivators would rather grow a dozen plants of one sort because it is good, than a dozen sorts because they are different.

Of course there is a charm in variety, and those who cannot afford to provide this element in their gardens by introducing the choicer and more valuable of the permanent or enduring classes of cultivated plants, must make up the deficiency by seeking for it amongst subjects like annuals, which are easily acquired. But then for such gardeners and for such gardens as theirs these endless collections are utterly unsuitable. Bad enough in extensive gardens, where there are or should be abundant compensatives, the wretched miserable dingy or else indistinct colours which form their bulk are infinitely worse in those cases where they must be depended upon to supply a main feature of interest, and where there is little else to take their place. In short they are intolerable anywhere.

As a practical application of this subject, we advise everybody to beware of buying these foreign collections of seeds. If they won't sell, we shall not long be troubled with them. Our gardens will be infinitely more beautiful for the weeding, and the seed-growers may turn their attention, with greater advantage to all parties, to the production of larger supplies of really choice and distinct flowers, having colours which it may afford delight and not disgust to look upon.

DIES ORCHIDIANÆ.

THE recent doings of Prof. Reichenbach lead to some doubt of his sanity. Certainly of all the books I ever saw that on *Orchides* in Walpers is the most astonishing. Once a genus-maker riding with the loosest possible rein, he has now pulled up with the hardest bit a publishing naturalist ever used. Applying it to genera he amazes us; had he been equally sharp with species, especially his own, we might have been content. But when we find the patron of such groups as Pseuderiopsis, Xiphizusa, Taurostalix, Pseudepidendrum, Miltoniastrum, Warczewiczella, Mesospinidium, and heaven knows what else that is frivolous or unintelligible, declaring that the Lælias, Brasavolas and Schomburgkias are all Bletias, and the Cattleyas Epidendrums, we pause in astonishment, and look to lunacy for an explanation. Nor is our suspicion removed when we think of this gentleman's book called Xenia and the marvellous figures therein, which seem to belong to the first century of our era rather than the 19th. As to the general text of the aforementioned "*Orchides*," it never can have come from a person in a right mind. English and Latin jumbled together, no authority given for quotations, of which the matter mainly consists, and misprints without a parallel, seem to be the production of a Bedlamite, not of a sane professor of Botany. *Crabro scandicus*. [These be hard words; what Crabro scandicus calls madness we name eccentricity.]

SEEDLING FRUITS.

APPLES.

IN looking over catalogues of varieties of Apples, and observing in that of the Horticultural Society, 1831, or in Dr. Hogg's Fruit Manual, the immense number of varieties described as of first-rate quality, it seems almost impossible that any sower of Apple pips could fail to raise at least one or two good kinds—yet I am not ashamed to confess that many years ago I utterly failed to do so, and did not repeat the experiment. Yes, it must be forty years since, that, impressed with a vague idea that I could improve and renovate the Golden and the Ribston Pippins, increase the size and prolong the season of that excellent autumn dessert Apple, the Wyken Pippin, procure a Nonpareil not likely to canker, and so on with some other favourite old kinds, that I raised a batch of pips of each, and when the young trees had made some growth, planted them out and waited patiently till they bore fruit; in the course of time this came to pass, and I had new varieties of Apples without end.

Fortunately I had fixed on a standard of excellence, and had determined, even before my seedling trees gave me fruit, to reject all that were not equal to the parent stock. I had numbers of Golden Pippins varying in size and beauty, but not one equal to the old sort in flavour; numbers of Ribston Pippins, some even larger and handsomer than the parent; numbers of Nonpareils, all much like the parent; the same with Wyken Pippins and others, but none stood the test of flavour, and so I gave them up, and had them grafted with Sturmer Pippins, which at that time grew so well and bore so abundantly here, although since then, and more particularly since the frost in December, 1860, they have rapidly declined, and have ceased to bear as they used to do. Thus ended my experiment in endeavouring to renovate our old kinds of Apples, which from my having seen those cultivated only as standards and orchard trees, and always in a diseased and cankered state, I had thought to be worn out—the idea generally entertained at that time. No one then thought of growing Golden Pippins in orchard houses, nor calculated what climate and management would do for them; for Paradise stocks and root-pruning were but little thought of.

Apropos of Paradise stocks, I reaped one advantage from my experiment, for among some seedlings raised from that very old and most peculiar Apple, the Nonsuch, were two or three that towards the autumn put forth roots from the lower part of their shoots; these crept on the surface and then entered the soil. These seedlings were fortunately preserved, but for some years the peculiarity was overlooked, and not till it was found that two among them were remarkable for a robust growth, and that their shoots when planted as cuttings rooted freely, did it occur to me that they would be valuable as stocks, in lieu of the Doucin, and the sort grown by the Surrey stock growers as the Paradise stock. One of these has the habit of the old Nonsuch Apple, in having short spurs on its shoots, but instead of being liable to canker like its parent, it is remarkably robust and healthy in its growth, having stout shoots and broad leaves. The French cultivators have a far more correct knowledge of the kinds of stocks adapted to different kinds of fruit trees than the English nurserymen, who seem to neglect this branch of their business, and are far behind their French brethren. Some of the latter, very experienced men, saw this Nonsuch stock last August, were charmed with it, and at once said it was the most valuable stock for garden Apple trees known.

I was amused with a remark made by these gentlemen; they said, "You English plant a standard Apple tree, and wait twenty years for a crop of fruit. We plant twenty trees on the Paradise stock and wait two years; they may not last so long as yours, but if they wear out we plant again."

The French nurserymen were to a certain extent correct, for, as far as I remember, planters of fruit trees thirty or forty years since wished every tree they planted to last from "generation to generation," and so they planted tall standards and declared that a Pear tree on a Quince stock was worthless, because it would not live a century. The enormous amount of time now "eaten up" in planting orchards in Gloucestershire and Worcestershire is well known; strong stocks with stout stems 7 to 8 feet high, and which take about ten years to rear, are planted out in grass fields, and after standing three, four, or five years they are grafted; by the end of the life of the planter, if he live to a good old age, the trees began to bear. I mention this rude way of planting to contrast it with the management of good fruit gardeners, who, like the French, may, if they plant trees on proper stocks, commence to reap fruit the second year after planting.

Permit me to apologise for a few trifling errors in my last communication, owing to my not having a proof in time, and my writing being——crabbed. *Thos. Rivers.*

Indoor Gardening.

ONE time in spring, a year or two ago, I was greatly tormented by hearing repeatedly of such delightful pots of Nemophila and white Alyssum, and Stocks and Mignonette which some friends had in their windows, and which I was only just beginning to be thinking of. "We sowed ours in January," was all the pity I got—and I do think it is common to forget spring-flowers entirely till spring days make us suddenly feel the immediate want of them. The seed rearing especially is a thing to provide for early.

The healthiest hardy annuals—and those dwarfest and most flowery that I have ever had—have been such as have been raised in moderate sized flower pots, without any attempt at heat giving, and with only the shelter from very severe frost given by being kept in a spare-room. This of course protected them equally from wind and wet.

Every one knows how much cold things will stand in a good season, and how hardy the garden flowers are, peeping out as they do the moment fine weather comes. The seed raising therefore is by no means a tender business. Abundant air and light are the great things required.

Large pots of Sweet Peas, for example, Nemophila, Nasturtiums, and Canariensis, can hardly be sown too early. The seeds of all these things will sometimes come up self sown in the borders, and when planted very early they grow stout and strong, and are ready to flower soon when absolute frosts are over. A few well-advanced things are at such times invaluable for filling up a window, or making a show in a balcony, whose contents are not yet grown large.

For the more tender seedlings, too, and especially for such as require heat to start them, it is no small advantage to give that heat pretty early, taking advantage always of vacancies that arise for getting up the seeds; by those who have the heated plant cases, for instance, a pot of seedlings may be soon brought on, and then when well up removed to a window-sill in time to afford space for cuttings to succeed. And even in a case that is arranged for ornament, one or two such seed-pots are very inoffensive, lurking in some warm corner, or under a little Moss, till the tiny plants begin to peep up and to be interesting.

Of the plants that thus require heat to start them, none that I am acquainted with are more worth growing than the beautiful Ipomœas. Some people say it is useless to try to grow them in England—and unless they get the right sort, I know it is a great chance whether the seeds will grow, and whether the plants will flower; but if they get the small common-looking seeds of Ipomœa Quamoclit in its different shades (I have had pink, white, blue, and striped,) there ought to be no difficulty whatever in obtaining a profusion of beautiful flowers, succeeding one another for a great many weeks.

These seeds are just like those of a Major Convolvulus, only dotted all over. Mostly they are black, brownish, and nearly white, according to the colour, and the beautiful gay display of bell-shaped flowers and leaves is such as would be well worth a little trouble to get.

The year before last my own plant stands were made charming by these things growing over them—and last summer others who had seen my own, adopted them, and at the very time when I was reading hard words applied to the race of them there were windows near me that I was told were beautiful with their flowers. Mine were sown in pots of light leaf-mould—4 or 5-inch pots—and were kept in my heated plant case until two leaves were well expanded, and till a little shoot with more leaves was clearly to be distinguished about half an inch above. They were not watered at all, if I remember right, but the sand they stood in was moist. The heat was not great, only just enough to make the soil feel slightly warm. They had a good deal of air, as it was a great object always not to let them run up. And when they were removed to a window to make way for my cuttings, they went on thriving, and were already blossoming when the first instalment of "bedding" plants went outside my window. Two or three grew and blossomed well in the open air, but the best and greenest were those that stayed inside. They took oceans of water! They were so green, and leafy, and during the hottest weather their saucers were filled each day.

The packets of these seeds cost from twopence to fourpence each, and it must, I think, be worth while for any window gardener to give them one more fair trial. Some mistakes arose last year with regard to the names, because the varieties in seed lists are so very numerous. But if proper seed is got of the varieties of *Quamoclit*, I do not think that any one can find it hard to grow.

The seedling Geraniums, too, are a real delight to get up. Even if unfortunately we have no great space to blossom them, the charming little small plants are beautiful for their leaves. And the variety

of leaves affords one such immense room for speculation as to what the flowers *might* be. These require much the same early treatment, in the plant case, as the Ipomœas—only after they are pricked out they require time to establish their new roots well in the same warm bed of sand, and air is always a first essential to them. The earlier that these are sown now the earlier we shall have the pretty little plants with their velvety leaves to look at. *E. A. M.*

Home Correspondence.

Pyramidal Pear Trees.—Nothing can strike one, who pays but small attention to horticulture, more forceably than the total absence of good dessert Pears at the tables of the well-to-do classes of society. On many tables such a thing as a Pear is not seen, but if one or two dishes make their appearance, it would puzzle any one to say what they are; and if tasted a Turnip may well claim the superiority. They who have not the advantage of a garden say they are the best they can buy, which shows how little the market gardener attends to what might be to him a source of great profit. But with those who have gardens, and large ones too, I find the case no better. The management of the garden is consigned entirely to a digging and hoeing individual, whose ignorance is only equalled by his obstinacy. His list of Pears, if he has one, consists of four—the Jargonelle, the "Bun Critten," the Bergamot, and the Swan's Egg. He will not thank you for recommending other Pears, or for instructing him how he may improve and prolong his master's desserts. Much of this, however, arises from the indifference exhibited by the masters themselves, who suppose that by the employment of any ignorant man who calls himself a gardener, they will thereby secure all the advantages required. Ten years ago I took possession of my present house, situated in the outskirts of the town. Behind it is a piece of ground, 50 feet wide by 120 feet in depth, which may with great propriety be called a back yard rather than a garden. I immediately had this well trenched, and got a catalogue of pyramidal Pear trees. I planted 20 different sorts, some duplicates, observing in my selection the period of ripening as well as quality. The result has been, that for the last seven years, except when visited by severe spring frost, I have been able to show a handsome dessert from September to May. The sorts are the following:—Williams's Bon Chrétien, Louise Bonne of Jersey, Beurré Hardy, Gratioli of Jersey, Marie Louise, Beurré Bosc, Crassane, Beurré D'Aremberg, Glou Morceau, Triomphe de Jodoigne, Napoleon, Passe Colmar, Baronne de Mello, Duchesse D'Angoulême, Easter Beurré, Beurré Rance, Ne plus Meuris, Duchesse de Mars, Knight's Monarch, Beurré Brettonneau, and Bergamot d'Esperen. With the exception of the Crassane, which is on the wall, all these trees are pyramids, bearing from the ground to the top branches. Many of them, being on the Quince stock, have never required root pruning, but when I see a tree running too much to wood, I either perform that operation myself, or stand by and see it done. Last year was not favourable to Pears, but I have been fortunate in my crop, and also the quality. From the great variety of Pears, ripening through six or seven months in the year, together with their goodness, if properly selected, they must ever form a main feature in good desserts. That they are within the reach of the humblest individual, either for pleasure or profit, I have proved without a doubt. In the ordinary practice my back yard would have been consigned to weeds and rubbish, or perhaps three or four mossy espaliers might have produced a few coarse Apples. One word as to the superiority of pyramids in general, and more particularly in the case of suburban gardens. The pyramids may be protected during the blooming season by matting or other materials. The sun and the air penetrate freely to all parts of a pyramidal tree, whereby the fruit in all seasons ripens better than on espaliers. The fruit is not so much exposed to autumnal winds, which in the case of standards often occasion great loss. *G. L., Cambridge.*

Fuchsias for Exhibition.—Your proposition to admit yearling plants for exhibition requires consideration. It reminds cultivators of the necessity of making a start in good time if they desire to be successful. Now I think the reverse ought to be the case. Having been connected with a society where yearlings were admitted, I can speak from experience, and I may assert that the yearling plan was obliged to be abandoned the next season after it was introduced, because exhibitors would begin too early. I have some plants struck last June, some in September, and some on New Year's Day; now which can I honestly exhibit next June or July as yearling plants? I suppose that to be yearlings they ought to be struck in the new year. But if I chose to show my plants that were struck last September next June or July, can the judges honestly disqualify them if I persist in saying that they were struck on New Year's day. If this class is admitted in the schedule of the Royal Horticultural Society I fear that dissatisfaction will always follow in the case of those who get minor prizes, except it be as a class for nurserymen for new kinds, which would be very interesting. Again, suppose that yearlings are admitted, I doubt if they would yield that grand display and satisfaction to the majority of those who attend our floral exhibitions that plants of the usual description would. They might be interesting to a certain few. But Fuchsias struck in winter cannot be got into that thick, compact and perfect shape by midsummer as to cover their pots, a point so much admired; that they can however be got in very pretty condition by that time I will freely acknowledge, and particularly for a September show. But they could not be compared with a good two-year-old plant under first-rate management. If societies generally were to follow the example set by the Royal Botanic—1stly, to have the pots not larger than 12 inches; and 2dly, to award old bushes very low prizes, the evil of growing old plants would soon be remedied. We should then have such a bank of young pyramidal Fuchsias as have perhaps never been seen. The cultivation of the Fuchsia I believe to be only in its infancy; a great change in it may probably be expected, and that at no distant date. I am sure that double the quantity of flowers might be produced on much smaller plants than we have been accustomed to see at our great metropolitan exhibitions. *Henry Cannell, Oak Lodge, Clapham.* [The September plants certainly would come within our meaning. They would not be a year old in July.]

Temperature of December and January.—If the unusual mildness of last December and the present January is attributable to a change in the direction of the Gulf Stream, how is the temperature of the month of November to be accounted for, which was considerably below the average, and particularly the latter part, when the thermometer on one occasion registered as low as 18° Fahr.? *P. L. N. F.*

Orchids.—As one of your readers, I feel very grateful to your Correspondent "L. W. J." for the valuable information his articles contained on the growth of Orchids, and I beg to ask if he will be kind enough to favour us with his system of growing the genus Calanthe. *James Hodges, Gr. to Edwin Wright, Esq., Gravelly Hill, Birmingham.*

Striking Roses from Buds.—Some 20 years ago there appeared (in the *Gardeners' Chronicle*, I think) a description and recommendation of a mode of striking Roses from buds. If some of your readers who have practised this mode of propagation would impart the necessary information for guidance as to the sort of wood from which the buds should be taken; in what state they should be, *i. e.*, whether dormant, plumping, or leafed to any extent; whether cut off square just below the bud or with a slice of wood, &c., above and below as for budding; whether from out of door plants; the kind of soil; kind and amount of heat, and general treatment, with the result of their experience, it would I think be very acceptable to not a few of your readers as well as myself. It would be useful to state what classes succeed best; and also whether buds from slender and unripe shoots, when none other are to be found, may be tried with any hope of success. *X., Windsor, Jan. 7.*

Adenium obesum.—Fine specimens of this most singular plant, which was figured (under the name of A. Honghel) in the 32d volume, Pl. 54, of the Botanical Register, are now alive in the Royal Gardens, Kew, and may be seen in the House No. 19. These were sent by Mr. Olding, of the P. and O. Steam Ship Company, and after remaining months in an apparently all but lifeless condition, have within the last few weeks put forth vigorous green leaves, and promise well for the future. As with other plants from the same desert country, the great horticultural difficulty is to give them a season of drought without drying them up and killing them. The moisture in the atmosphere of our driest houses tends to produce a succession of buds and leaves during our long cold dark winters, when these plants require absolute rest, and it is extremely difficult firstly to send them to sleep, and then to keep them from rotting, or growing, or being burnt up, till the proper season for leafing or flowering comes round. *J. D. H.*

Rainfall at Englefield, Reading, Berks, in 1862:—

	Ins.		Ins.
January	1.48	Brought forward ..	16.62
February	0.48	July	3.00
March	4.05	August	2.77
April	2.62	September	2.79
May	4.55	October	3.61
June	3.44	November	0.78
		December	1.15
	16.62	Total	30.72

E. Robinson.

Foreign Correspondence.

CAPE OF GOOD HOPE.—*Extract of a Letter dated Highlands, Sept.* 24, 1862.—Gardenia Rothmannia is held in great estimation by the colonists. It is used for making wagon tents; its long young branches, often 6 or 8 feet in length, are peeled and bent over into bows for wagon tents. They are exceedingly tough and durable, lasting (without being painted) in the open air six or seven years. This tree also bears a most delicious fruit, of a rich brown colour, and rather bright or shining; and in the woods they are mostly eaten up by birds before they are ripe. In the wild state, crowded among other trees, they do not bear well; but when cultivated in a garden, and exposed to the influence of the sun's rays, they are very prolific My father had some of them in his garden that repaid him well, and the flowers are pretty and sweetly-scented. Our Yellow-wood trees (Podocarpus) are disappearing fast from our forests; they do not shoot again, like the Stinkwood (Oreodaphne bullata), from the roots, but always die when cut down, and in the forests within the colony there are not many of them left, excepting in rough rocky places, where the timber cannot be conveyed away. Gardenia Thunbergia is an ornamental little tree; I am sorry to see that it is so seldom cultivated in our South African gardens; its flowers are large and handsome, and very sweetly scented, and its large white fruit forms a striking object amongst its dark green shining leaves. Phœnix reclinata is a useful little Palm; its long imbricated white young leaves are cut off while they are very young, and dried in the sun, and made into plait by the native women and poorer classes of the English colonists, and the plait is made into very nice light summer hats, well suited to our climate; its fruits are eagerly sought after by children and birds. This Palm is a beautiful and graceful object in a garden, but cannot endure either frost or cold; consequently they are only found on the banks of fresh-water streams near the coast, where we seldom have any frosts, and always in warm sheltered situations amongst other trees. *M. E. B.*

GEORGETOWN, DEMERARA, BRITISH GUIANA: *Dec.* 22, 1862.—SIR,—In a notice in your Paper of the 1st of November of the Catalogue of contributions from this Colony to the International Exhibition, there are some errors which we are desirous of correcting. The speeches at the opening and the close of our Local Exhibition in 1861 were delivered by the Honourable William Walker (the present Government Secretary of this colony), who, as Lieutenant-Governor, administered the Government from the 9th May, 1861, to the 7th of January, 1862, and to whom, as Chairman of the Committee of Correspondence of the Royal Agricultural and Commercial Society of this Colony, any credit gained to the Colony by its contributions, and by the merits of the Catalogue, is largely owing. The Catalogue was compiled and edited by a Sub-Committee selected from the Committee of Correspondence, and composed of the following gentlemen:—Hon. William Walker, Chairman; Mr. John Frederick Bourne, Mr. William Hunter Campbell, Mr. George Dennis, David Shier, M.D.; Rev. Edward Angell Wallbridge.

It was not published under the authority of Sir William Holmes—who has so well represented the Colony at the Exhibition—but it was printed and published in this Colony, and a certain number of copies were sent to him for distribution in England. The balance of deposits in the Savings' Bank, as at the end of 1861, was 185,092·69 dols. *J. Brumell, O. Anglim Gilbert, Honorary Secretaries to the Committee of Correspondence.*

Societies.

ROYAL HORTICULTURAL: *Jan.* 16 (*Election of Fellows*).—J. J. Blandy, Esq., V.P., in the chair. The following candidates were elected, viz.:—

A. F. Bainbridge, Esq.; Miss Mary Bazeley; H. J. Blackmore, Esq.; Mrs. Cadogan; Mrs. J. M. Douglas; A. M. Dowleans, Esq.; Lady Franklin; Rev. P. E. George; H. H. Harwood, Esq; The Lady Herbert of Lea; R. F. L. Jenner, Esq.; Mr. J. McGibbon; Mr. J. Meredith; The Earl of Mornington; H. Moss, Esq; Mrs. J. J. Oakley; Mrs. Pearce; Mrs. H. T. Riley; Lady Rolt; Mrs. J. L. Seager; Mr. J. Stevens; Louisa, Marchioness of Waterford, Ordinary Fellows; and Antoine M. François, Director of the Imperial Gardens, Bury Garten, Vienna, a Corresponding Member.

Jan. 21 (*Fruit Committee*).—This was a special meeting held for the purpose of deciding whether Black Grapes ripened in autumn and retarded until this season, or Black Grapes ripened now, were the best in point of flavour. The combatants were Mr. Thomson, gr. to the Duke of Buccleuch, at Dalkeith Park; and Mr. Tillery, gr. to the Duke of Portland at Welbeck, the former having challenged the latter to show old Grapes against his newly-ripened ones. The opinion of the judges on the bunches submitted to their inspection, together with other information relating to the matter, will be found in another column. We may add here, however, that besides the new Grapes shown by Mr. Thomson, excellent fruit both as regards flavour, colour, and bloom was furnished by Mr. M'Kenzie, of the Bristol Nurseries, Kemp Town, Brighton. Among old Grapes, Muscats in tolerable condition were shown by Mr. Fowler, gr. at Harewood House; and a fairly preserved bunch of Barbarossa came from Mr. Park, gr. at Grove Hall, Retford. By far the most important exhibition of Grapes produced, however, was three bunches of Muscat of Alexandria from Mr. Tillyard, gr. to J. Kelk, Esq., at Stanmore. Than these nothing, in their way, could possibly be handsomer; each bunch must have weighed at least 2½ lbs; the berries were large and plump, as if they had been ripened now instead of in September last, and the colour that rich golden yellow which indicates perfection in this fine variety of Grape. This exhibition was highly commended by the judges, as it well deserved. Among other kinds of fruit was a seedling Pear from the Swan's Egg, of no particular merit, from Mr. Cox, of Redleaf, and a seedling Apple resembling the Hollow-crowned Pippin, from Mr. Francis of Hertford.

LINNEAN: *Jan.* 15.—G. Bentham, Esq., President, in the chair. F. Harris, M.D., Rev. W. W. Newbould, and A. Saunders, Esq., were elected Fellows. Sir J. B. Hearsey exhibited a case of Indian Sphingidæ, containing specimens of species common to India and Great Britain, namely, Acherontia Atropos, Sphynx Convolvuli, Daphnis Nerii, Dielephila Livornica; and suggested that it would be an improvement in entomological nomenclature, if the species were more generally named after the plants upon which they feed. The following papers were read:—1. "Notes on Loranthaceæ, with a Synopsis of Genera," by Prof. Oliver.

The author observed, that having been engaged for some time in the study of the Loranthaceæ, chiefly with reference to certain analogies which they present with Gnetaceæ, he was desirous of submitting some of the notes which had accumulated for the use of others who might be inclined to work out the subject in further detail. With respect to the acknowledged relationship subsisting between the Loranthaceæ and Santalaceæ, a question upon which he did not propose to enter, the author merely intimated that his opinion strongly inclined to their union as subdivisions of one order. Indeed he thought M. Baillon might be right in proposing that both Olacineæ and Santalaceæ should be united with Loranthaceæ. As, however, in any arrangement based upon the Candollean sequence, it would be impossible to arrange these groups consecutively—one being Thalamifloral, another Calycifloral, and the third Monochlamydeous—he feared the more convenient course of keeping them apart would be generally followed. Myzodendron cannot, he thinks, be included in Loranthaceæ, as distinct from Santalaceæ, any more than Henslovia; and Mr. Miers's proposal to separate from Loranthus, Myzodendron, Viscum, and some allied genera, erecting them into a distinct order Viscaceæ, was stated to rest chiefly on an incorrect view of the structure of the ovary and fruit in these plants. "Since the recent researches of Hofmeister into the embryogeny of Loranthus, Viscum, and Lepidoceras, no doubt can remain but that these are all characterised by a single erect ovule, often almost entirely adnate with the wall of the ovary. My own observations confirm this view. * * * The plants referred by Korthals to Tupeia with pendulous ovules are species of Henslovia, as stated by Blume. Mr. Miers describes the embryo of Loranthaceæ as distinguished from Viscaceæ, as being 'enclosed in thin almost pellicular albumen, filling the cell,' and the fruit as 'containing a subcoriaceous putamen.' Loranthus is figured by Blume, Griffith, and others, with abundant albumen, and so I find it in the seeds of the Indian species which I have examined. In L. europæus, too, it is abundant. I cannot doubt therefore that Mr. Miers has had an old or decayed fruit for examination, in which the albumen had shrivelled up from the enclosed embryo." Then follows some general remarks on certain points of interest under each of the adopted genera, of which a conspectus is given. They are the following:—Nuytsia, Loranthus in 21 sections, Viscum, Ginalloa, Notothixos, a new genus which includes the Viscum cornifolium of All. Cun.; Tupeia, Arceuthobium, Phoradendron, Antidaphne, Eubrachion, Lepidoceras, and Eremolepis.——2. "On a new species of Aberia," by T. Anderson, M.D. Two thorny bushes supposed to be the Kei Apple of South Africa, and provisionally referred to Diospyros, had been grown in the Calcutta Botanic Garden for some years without producing flowers. Shortly after Mr. Anderson took charge of the garden in 1861, the largest of them bore a full crop of well-ripened fruits, though only pistilliferous blossoms could be detected at the time of flowering, the species being dicœcious. The seeds obtained from these fruits produced a vigorous crop of young plants. The same plant, since destroyed by a gale, flowered again in February, 1862; but this time without result, as the ovaries, after commencing to swell, all dropped off. The tree was carefully examined daily for traces of stamens, but without finding any. Some of the fruits sent to Kew were recognised as belonging to the genus Aberia, and the present species, which does not appear to have been hitherto recorded, has been named A. edulis, the fruit being described as of the size of a small Apple, with a yellow rind and flesh "*in usu grato*."——3. "On a new Heliconia, with the habit of Musa, sent from New Grenada to the Royal Garden, Kew, by Mr. A. Anthoine," by Dr. J. D. Hooker. Mr. Anthoine, of Carthagena, had sent to P. Le Neve Foster, Esq., Secretary of the Society of Arts, a sketch of this remarkable plant, with an account of the fibre its peduncles produce; and subsequently dried specimens and seeds were received at Kew. The trunk attains 12—15 feet in height and is formed of the sheaths of the leaf-stalks. The peduncles project beyond the leaves, and curving downwards bear a narrow flattened spike 2½ feet long, the red flowers of which are almost concealed by the spathe and white bracts. It has been named by M. Anthoine, H. Mariæ Alexandrovnæ, after the Empress of Russia.——4. "On the Germination of the Seed in Cyclamen repandum and C. persicum," by Dr. M. T. Masters. Both Gærtner and Treviranus describe the germination in Cyclamens as taking place thus:—the radicle is first of all protruded, its upper portion, or more properly speaking the caulicle, becoming dilated to form the tuber. The whole of the solitary cotyledon, except a short stalk attaching it to the tuber, remains within the seed, and decays with it. The short stalk or petiole of the cotyledon remains attached to the tuber for some time in the form of a minute stalk-like process, which ultimately withers and disappears. The first leaf is produced at the top of the tuber by the side of the hook-like remnant of the cotyledon, and resembles the perfect leaves in all but its smaller size. The subsequent leaves are produced in succession. Mirbel has considered the "first leaf" just mentioned as the cotyledon. The observations of Dr. Masters on a great number of seeds and seedlings leads him to consider the view of Gærtner and Treviranus as correct, the greater part of the cotyledon remaining constantly within the seed, and the "first leaf" being a subsequent production of which there is no trace in the seed itself. The primary radicle soon disappears, and a number of adventitious root fibrils spring from the base of the tuber.——5. "On the Tecophilaceæ, a sub-order of Irideæ," by F. Leybold; communicated by Sir W. J. Hooker. This paper consisted of a brief diagnosis of the proposed group, which consists of a few Chilian rhizomatous herbs, and descriptions of two species of Tecophilea.——6. "Note on the seed-vessels of Trewia nudiflora," by E. de Crespigny; communicated by D. Hanbury, Esq. The author observed that Dr. Lindley had in the 3d ed. of Vegetable Kingdom remarked thus: "Misled by imperfect information, I formerly proposed a group called Trewiaceæ, but it has been shown by Klotzsch that Trewia is really a tetracoccous genus of the order" Euphorbiaceæ. In a former communication M. de Crespigny had ventured to express a doubt as to the propriety of retaining Macaranga in the Spurgeworts on account of its erect ovule and oblique embryo; and the object of the present communication, which was accompanied by a careful drawing, was to show that the ovules in Trewia are also erect: they are attached by small funiculi to the base of the cells, and the fruit is a bilocular drupe, "not tetracoccous." If it be not deemed expedient to separate Macaranga, Trewia and others having erect ovules from the Euphorbiaceæ, M. de Crespigny suggests the propriety of their being "placed in a group by themselves, or attached to the order as appendices." The paper was accompanied also by drawings of Briedelia and Falconera, as "very fair examples of two-celled Euphorbials with suspended ovules," although it was remarked that on Falconera malabarica occasional 3-celled fruits occur.——7. "On the development of Chlöeon (Ephemera) dimidiatum," by J. Lubbock, Esq.——8. "On the Japanese species of Leostraca;" and 9. "On the species of Strombidæ, Trichotropidæ, Cyprædæ, &c., found in Japan:" both by A. Adams, Esq.——10. "Catalogue of the Hymenoptera collected by Mr. Wallace in the islands of Mysol, Ceram, &c.," by F. Smith, Esq.; communicated by W. Wilson Saunders, Esq. The first part of vol. xxiv. of the Society's Transactions, containing Dr. Hooker's full account of Welwitschia, illustrated by 14 plates, was placed on the table for distribution.

Notices of Books.

A Treatise on the Insects injurious to Vegetation. By Thaddeus Wm. Harris, M.D. Edited by Charles Flint. Large 8vo., Boston, (Mass.). Printed for Private Circulation. A new edition.

Our friends on the other side of the Atlantic are a wonderful race. While cutting each other's throats in a way which astonishes Europeans, and paying their way with postage stamps instead of coin, they manage to attend to matters which would with us be only thought of when men are idle and finances abundant. Here is a really magnificent work on practical science, worthy in every way of the most highly cultivated nation in Europe, with admirable illustrations, produced in the very midst of peals of musketry, the roar of artillery, and all the other clangour of a furious war.

The first edition dates back to 1841, when it appeared in the form of a scientific report prepared and published, along with others by the Commissioners of the Zoological and Botanical Survey of Massachusetts, acting under the instructions of Mr. Everett, at that time Governor of the State. In its new condition it forms a very handsome 8vo volume of 640 pages, admirably printed on maize coloured paper, and profusely illustrated with copper plates and wood engravings of which even a Curtis might be proud. Its editor is Mr. Charles L. Flint, Secretary of the State Board of Agriculture, himself a distinguished Entomologist, who has performed his part in a most able manner, leaving nothing to be desired. Its object is to bring the reader acquainted with the habits of insects in general, and especially with those which are injurious to American cultivators. In the words of the original author:—"Believing that the aid of science tends greatly to improve the condition of any people engaged in agriculture and horticulture, and that these pursuits form the basis of our prosperity, and are the safeguards of our liberty and independence, I have felt it to be my duty, in treating the subject assigned to me, to endeavour to make it useful and acceptable to those persons whose honourable employment is the cultivation of the soil." In this Dr. Harris thoroughly succeeded.

The introduction describes the structure of insects, their manner of growth, and their ways of life. The uses of the limbs and other organs peculiar to themselves—their antennæ, thorax, abdomen, stings, and the curious apparatus with which they consume their food—are all fully explained, as well as their various stages of transformation from the egg to the grub or maggot, from that to the chrysalid or pupa, and thence to the perfect fly, beetle, butterfly, or whatever else it may be called. This occupies 22 pages, and in our opinion it is the very best sketch of such a subject to be found in the English language. The remainder of the work is divided into 6 chapters; namely 1, on beetles (*Coleoptera*); 2, on earwigs, cockroaches, crickets, grasshoppers, locusts, and the like (*Orthoptera*); 3, on bugs, harvest-flies, aphides, thrips, &c. (*Hemiptera*); 4, on butterflies and moths (*Lepidoptera*); 5, on bees, wasps, hornets, sawflies, gall-flies (*Hymenoptera*) &c.; and 6, on gnats, flies, mosquitoes, and their relations (*Diptera*).

These most interesting and important subjects have never been so well treated of since the days of Kirby and Spence. Dr. Harris has perfectly understood how to render practical matter strictly scientific, and science the mere handmaid of popular descriptions, as will be seen from the following account of the COMMON COCKCHAFER, the curse of the light lands of all Europe.

"The habits and transformations of the common cockchafer of Europe have been carefully observed, and will serve to exemplify those of the other insects of this family, which, as far as they are known, seem to be nearly the same. This insect devours the leaves of trees and shrubs. Its duration in the perfect state is very short, each individual living only about a week, and the species entirely disappearing in the course of a month. After the sexes have paired, the males perish, and the females enter the earth to the depth of six inches or more, making their way by means of the strong teeth which arm the fore-legs; here they deposit their eggs, amounting, according to some writers, to nearly one hundred, or, as others assert, to two hundred from each female, which are abandoned by the parent, who generally ascends again to the surface, and perishes in a short time.

"From the eggs are hatched, in the space of 14 days, little whitish grubs, each provided with six legs near the head, and a mouth furnished with strong jaws. When in a state of rest these grubs usually curl themselves in the shape of a crescent. They subsist on the tender roots of various plants, committing ravages among these vegetable substances, on some occasions of the most deplorable kind, so as totally to disappoint the best founded hopes of the husbandman. During the summer they live under the thin coat of vegetable mould near the surface, but as winter approaches they descend below the reach of frost, and remain torpid until the succeeding spring, at which time they change their skins, and reascend to the surface for food. At the close of their third summer (or, as some say, of the fourth or fifth), they cease eating, and penetrate about 2 feet deep into the earth; there, by its motions from side to side, each grub forms an oval cavity, which is lined by some glutinous substance thrown from its mouth. In this cavity it is changed to a pupa by casting off its skin. In this state the legs, antennæ, and wing-cases of the future beetle are visible through the transparent skin which envelops them, but appear of a yellowish-white colour; and thus it remains until the month of February, when the thin film which encloses the body is rent, and three months afterwards the perfected beetle digs its way to the surface, from which it finally emerges during the night. According to Kirby and Spence, the grubs of the cockchafer sometimes destroy whole acres of Grass by feeding on its roots. They undermine the richest meadows, and so loosen the turf that it will roll up as if cut by a turfing spade. They do not confine themselves to Grass, but eat the roots of Wheat, of other grains, and also those of young trees. About 70 years ago a farmer near Norwich, in England, suffered much by them, and, with his man, gathered 80 bushels of the beetles. In the year 1785 many provinces in France were so ravaged by them, that a premium was offered by government for the best mode of destroying them. The Society of Arts in London, during many years, held forth a premium for the best account of this insect, and the means of checking its ravages, but without having produced one successful claimant."

Nor is the short account of the early life of GNATS and MOSQUITOES less deserving of notice.

"The little fish-like animals that swim about in vessels of stagnant water, and devour the living atoms that swarm in the same situations, soon come to maturity, cast their skins, and take another form, wherein they remain rolled up like a ball, and either float at the surface of the water, for the purpose of breathing through the two tunnel-shaped tubes on the top of their backs, or, if disturbed, suddenly uncurl their bodies, and whirl over and over from one side of the vessel to the other. In the course of a few days these little water-tumblers are ready for another transformation; the skin splits on the back between the breathing tubes, the head, body, and limbs of a mosquito suddenly burst from the opening, the slender legs rest on the empty skin till the latter fills with water and sinks, when the insect abandons its native element, spreads its tiny wings, and flies away, piping its war note, and thirsting for the blood which its natural weapons enable it to draw from its unlucky victims."

We may conclude with an extract from the author's account of the BRUCHI or WEEVILS that infest Peas and Beans.

"Few persons while indulging in the luxury of early green Peas are aware how many insects they unconsciously swallow. When the pods are carefully examined, small discoloured spots may be seen within them, each one corresponding to a similar spot on the opposite Pea. If this spot in the Pea be opened, a minute whitish grub, destitute of feet, will be found therein. It is the weevil in its larva form, which lives

upon the marrow of the Pea, and arrives at its full size by the time that the Pea becomes dry. This larva or grub then bores a round hole from the hollow in the centre of the Pea quite to the hull, but leaves the latter, and generally the germ of the future sprout, untouched. Hence these buggy Peas, as they are called by seedsmen and gardeners, will frequently sprout and grow when planted. The grub is changed to a pupa within its hole in the Pea in the autumn, and before the spring casts its skin again, becomes a beetle, and gnaws a hole through the thin hull, in order to make its escape into the air, which frequently does not happen before the Peas are planted for an early crop. After the Pea-vines have flowered, and while the pods are young and tender, and the Peas within them are just beginning to swell, the beetles gather upon them, and deposit their tiny eggs singly in the punctures or wounds which they make upon the surface of the pods. This is done mostly during the night, or in cloudy weather. The grubs, as soon as they are hatched, penetrate the pod and bury themselves in the opposite Peas; and the holes through which they pass into the seeds are so fine as hardly to be perceived, and are soon closed. Sometimes every Pea in a pod will be found to contain a weevil grub; and so great has been the injury to the crop in some parts of the country, that the inhabitants have been obliged to give up the cultivation of this vegetable. These insects diminish the weight of the Peas in which they lodge nearly one-half, and their leavings are fit only for the food of swine. This occasions a great loss where Peas are raised for feeding stock or for family use, as they are in many places. Those persons who eat whole Peas in the winter after they are raised run the risk of eating the weevils also; but if the Peas are kept till they are a year old the insects will entirely leave them."

Among the NEW BOOKS before us are the *Midland Counties Almanack* for 1863, useful to Gardeners and Farmers, but, we fear, not in so experienced a hand as it should be. *My Diary North and South.* By W. H. Russell (Bradbury & Evans, 2 vols., small 8vo), is a most interesting—because most graphic—account of what they were doing in the disunited States of America up to the famous Stampede at Bull's Run; by the Prince of Newspaper reporters.

Sowerby's beautiful volume of *British Wild Flowers* is completed by a double number consisting of Parts XXI. and XXII. containing a title, excellent indexes, and 180 figures of what are called "lately discovered" plants, consisting of trifling varieties with new names, or of well known species hitherto overlooked. The whole number of figures is 1780, forming one of the prettiest natural history volumes now on sale.

How much the love of Botany is spreading, appears from another excellent work on British plants, that Mr. Lovell Reeve has just issued. It is called *Illustrated Edition of the Handbook of the British Flora, &c., for the use of beginners and amateurs*: by George Bentham, F.R.S. It is to appear in small 8vo numbers, price 2*s.* 6*d.* each, and will contain excellent woodcuts, *interpolated with the text*, of every species of flowering plant and Fern found wild in this country. The cuts are from the skilful hand of Fitch; and do all that this method of illustration is capable of.

Walpers' Annales Botanices Systematicæ, vol. vi., part 3, is entirely occupied by Prof. Reichenbach's ideas about Orchids. It is too technical for other notice in this place.

Routledge's Illustrated Natural History, Part 47, contains spiders, myriapods, annulates, entozoa or tape-worms, and radiates; an excellent Number.

Culture of the Ranunculus.—Mr. C. Tyso, of Wallingford, Berks, has at the request of a few gentlemen interested in the culture of the Ranunculus, sent a circular to some of the principal well-known growers for a return of the names of the 12 sorts with their colours, which in the estimation of such persons are considered best adapted for exhibition, to be published in the *Gardeners' Chronicle*, and in one monthly periodical. Mr. Tyso would be glad if any amateur not having received a circular, but willing to aid in the dissemination of opinions on this flower, would communicate with him without delay, so that the compiled lists may be completed before the planting season.

Garden Memoranda.

ROYAL GARDENS AT STUTTGARD.—The Royal Palace of Stuttgart is a modern edifice of large dimensions, with two projecting wings facing the south-east. It is built of freestone, and was commenced in 1746 and finished in 1806. The roof over the grand entrance is surmounted by an enormous gilt crown. On its south-west side, but separated from it by a noble avenue of Plane trees, is the old Palace, a heavy picturesque building, very much resembling a feudal fortress. This is now occupied by Government offices.

On the south-east front of the new Palace is a large square of ground, called the Schlossplatz, 3 or 4 acres in extent, and at the end of this and fronting the Palace, is a handsome edifice lately erected for the Crown Prince.

This Schlossplatz is a garden laid out geometrically. A low chain fence connects the two projecting wings of the Palace, the square inside of which is private. A broad walk is carried along on the outside, and connected with the Plane avenue just mentioned. This is succeeded by a narrow strip of Grass containing flower beds. Beyond is another broad strip of gravel, in the centre of which stands a jubilee column 95 feet high, erected in commemoration of the 25th anniversary of King William Frederick Charles. The material of which this column consists is grey granite, and it has four allegorical figures at the angles. On either side of this column is placed, at a distance of some 70 or 80 feet from it, handsome fountains, each consisting of three basins placed one above the other, and having a single jet at top. The bottom basin is of brick and cement, about 30 feet in diameter. The fountain properly so called is placed in the centre of this basin, and is made or iron. The second basin or tazza is from 8 to 10 feet above the first, and is 10 or 12 feet in diameter. The third is about 8 feet above the second, and is 6 feet in diameter. The centre jet, which is about 1½ inch in diameter, is carried 4 feet above the upper tazza. The whole of the water is brought through this jet and plays 8 or 10 feet above it, falling into the top tazza, which overflows in a beautiful glassy sheet into the one below, the sides of which are circular, and at the widest part adorned with 12 lions' heads, out of which the water falls in graceful curved jets into the lower basin. On festive occasions *the fountains are illuminated* by carrying a jet of gas above the central jet of water, and a series of gas jets play around the column under the upper tazza, lighting up the water very effectively. A margin of Grass, 5 or 6 feet wide, is carried round the lower basin, and is edged by a stone kerb.

Walks diverge from the column and fountains in various directions through the square, and at the principal points flower borders are introduced, and fine Bay trees in tubs are also placed in different parts of the walks. All the Grass plots are edged with a stone kerb. Castor-oil plants and Cannas are the principal plants employed for the decoration of the borders, and these attain great perfection. A neat iron railing is carried along the top of the square, separating it from the street. The whole of this garden is well lighted with gas, and forms an agreeable evening promenade.

Passing under the covered way on the N.E. side of the square which connects the Palace with the Theatre, we enter another of the Royal Gardens, and by far the most important. The upper portion, near the Palace, is laid out in straight walks, borders and fountains. The lower portion, which might justly be termed the Hyde Park of Stuttgard, extends down the lovely valley of the Neckar for a distance of more than two miles, beautifully wooded, and containing walks and drives under avenues of Plane and Chesnut trees in various directions. The principal drive goes through the garden and park in nearly a straight line from the Palace to Rosenstein, a modern Grecian villa, visited by the King in summer. On the way to Rosenstein, outside the garden gates, which separate the garden proper from the park, are two colossal horses and two men holding them. They are by Hofer, and are greatly admired as works of art. The subject is the same as that on Monte Cavallo at Rome.

The arrangement of the garden near the Palace is very simple; two broad walks in the form of the letter T—the top one carried along in front of the Palace, the other through the centre of the garden, and terminated by a large basin of water, form the principal features. It is bounded on three sides by high trees, and a beautiful vista is formed in the centre, with a fine avenue of Planes leading to Rosentein, forming a continuation of the central walk beyond the fountain. A small recess on each side of the entrance to the Palace is separated from the other portion of the garden by a low iron fence, and to this the public is not admitted. It is almost covered with summer flowering plants, with four moderate sized Orange trees in tubs placed near the entrance. The opposite side of the broad walk running parallel with the Palace is furnished with Orange trees and statues, as are also both sides of the central walk as far as the ornamental water. The Orange trees are placed about 12 feet apart; they are by far the largest in Germany, many of the stems measuring nearly a foot in diameter, and it is said that the trees themselves are 300 years old. Their condition, however, is anything but satisfactory. At the end of the walk, just inside the fountain basin, are two colossal female figures, which form a fine feature viewed from the Palace. In the centre of the basin is a large jet surrounded by rockwork. A number of water-fowl, including several swans, are kept here during the summer season. A broad belt of shrubs and flowers is carried along the sides of the walks. The ribbon system is not adopted here. A narrow walk is carried around the fountain, and connected with the Plane-tree avenue mentioned already, and this also has its border of shrubs and flowering plants.

On each side of the avenue of Plane trees is a carriage drive. The one on the left side is for vehicles leaving Stuttgard, and that on the right for those coming to it. They diverge on nearing the fountain to the outsides of the flower garden and thence into the streets. On the outside of these is a fine row of Chesnut trees, which, with the Plane trees, form a dense shade.

On the east side and in close proximity to the Palace is the Botanic Garden, which is of moderate size and well stocked with plants. Under the shelter of high hedges is a large number of greenhouse plants, many of which are only of botanical interest. There are several greenhouses here, but they are apparently in bad condition. A large portion of the garden is filled with ornamental plants in masses of considerable size, intermixed with broad patches of Annuals. I also noticed a great number of Dahlias, Roses, Geraniums, and other common plants of a decorative character. *E.*

REFLECTIONS ON A LATE VISIT TO BELSTANE.—Belstane, the property of Humphrey Graham, Esq., is situated about 10 miles west of Edinburgh, in the parish of Kirknewton. Even to a general observer, a stroll over this estate affords a treat not soon to be forgotten. There, on a hill "at an elevation of from 700 to 900 feet," you can stand and take a bird's-eye view in reality of the surrounding country. On the south the Pentland hills, associated with deeds of blackness in days gone by, come into view, while on the east Arthur's Seat appears like a colossal lion crouching in the distance, amidst the mist and smoke of "Modern Athens"—scope indeed is here afforded at Belstane for both painter and historian; here too the geologist would find something with which to amuse himself. The amygdaloidal trap, basalt, and greenstone, on the west and north, are indications of volcanic origin. Sedimentary rocks also abound in the neighbourhood. On the north, at Midcalder, are limestone quarries, and on the south at Aimville a remnant of the same stratum occurs, overlying gritty sandstone, containing a few fossil Crustacea, chiefly Cypris Scoto-Burdigensis, and Beyrichia arguata. Both strata are variously laminated with thin seams of coal and shell, from which specimens of Lepidostrobus variabilis, Stigmaria ficoides, Lepidodendron obovatum? Calamites cannæformis, Sphenopteris affinis, and a beautiful kind of Adiantites may be obtained, ruins of a former world, clearly pointing out by the declination of strata that they flourished again and again, long before the molten block which now forms the foundation stone of Belstane burst forth from its subterranean cavern. Another well marked feature for the man of science to consider, is that the grounds of Belstane lie in a sloping direction towards the east. The soil for the most part is stiff clay, decidedly diluvial in character, nor is it difficult, while standing on the brink of the "Rotten quarry," for imagination to trace the direction in which the mighty current may have rolled, not only leaving the lands of Belstane a leeward deposit, but acting in a similar manner on almost every mountain and hill in Scotland. Be that as it may, everything is teeming with life now; even the gray stones in the walls are coated over with living vegetable matter, which the botanist would say consisted of Lecidea geographica, Lecanora atra, Parmelia saxatilis, and two or three species of Scyphophorus. What would most attract his attention would doubtless be the luxuriance of some plants. In sheltered places Hypnum loreum grows something like a Club Moss, and Asplenium Filix-fœmina 3 feet high. The arboriculturist would also find something here to suit his taste. Who would have thought of growing at Belstane one of the best collections of trees and shrubs in Britain? The first winter at such a height was enough to blight every hope; but no, a determination to conquer has now accomplished the end in view.

Around the fields are now to be seen belts of thriving young trees, and at different places plantations of considerable extent. These appear in the first place to have been planted with common trees purposely for shelter; but now the latter are fast disappearing, and their places are being filled with trees of a different aspect. Abies Douglasii is here quite at home; hundreds of healthy plants of it, from 1 to 36 feet high, are making an annual growth of from 2 or 2½ feet. A. Menziesii is also abundant; A. monstrosa, A. Smithiana, A. alba, A. nigra, A. rubra, A. sibirica, and even A. Hookeriana, are apparently doing well. A. Nordmanniana and nobilis are conspicuous, and Pinsapo and cephalonica may be met with by the thousand; of Webbiana there are some good specimens, as well as of grandis, amabilis, lasiocarpa, Pindrow, Pichta, Fraseri, and pyramidalis, &c. Pinuses are also numerous; among them may be mentioned Jeffreyii, Craigiana, Benthamiana, Cembra (hundreds of which exist from 2 to 18 feet high), pungens, tuberculata, muricata, Beardsleyi, Banksiana, calabrica, pyrenaica, Laricio, excelsa, austriaca, and maritima, &c. Here, too, Wellingtonia gigantea bids fair to make fine trees, as do also Taxodium sempervirens and Thujopsis borealis. The same may likewise be said of Thuja gigantea, Craigiana, aurea, Warreana, pyramidalis, and filiformis, &c. Cupressuses are also plentiful, such as C. torulosa, Lambertiana, Lawsoni, Goveniana and Macnabiana, &c. Associated with these are also Cryptomeria japonica and Lobbii. Among Poplars, græca is perhaps the best. Oaks also appear to do well; among them are examples of Quercus Ægilops, Turneri, coccinea, tinctoria, macrocarpa, fastigiata and Michauxii, &c. Of Cratæguses there are perhaps above 50 sorts; of Fraxinus about 20 species and varieties; and of Acer many, among which are striatum, rubrum, eriocarpum, macrophyllum, monspessulanum, saccharinum, and a beautiful variegated Sycamore. Other trees and shrubs may be found in proportion. There is also a garden apparently about 3 acres in extent which claims attention. It is sheltered on the north, partly by out-buildings and partly by means of a high stone wall. On the east, west, and south are hedges, as well as trees and shrubs. By the

side of the principal walks narrow borders are reserved for flowering plants, among which are collections of new Pentstemons, Phloxes, &c. As for Verbenas and Scarlet Pelargoniums, these, like the kitchen garden produce, were nearly all washed away by the heavy rains which have fallen this season. There is also an orchard house, in which are various fruit trees; a greenhouse, occupied by the customary tenants; and a stove, furnished with many curious and rare plants, especially Begonias, Lycopods, and Ferns. *An Old Showman.*

Miscellaneous.

Sea Cucumbers.—The Sea-Cucumber, so well known in the South Seas as the Trepang or Bêche de Mer (Holothuria tubulosa), is much eaten by the natives. Captain Flinders, in his 'Voyage to Terra Australis,' says it is boiled and dried, and traded, when thus prepared, with the Chinese. I have never seen the Red Indians dry it, nor have I ever seen it thus prepared in their huts; but I have constantly seen it boiled and eaten fresh. I once tasted some that was just cooked, and found it had much the same consistency as India Rubber, but without its flavour. The Indians make some kind of cake of the berries when they are plentiful. The Lichen (L. jubatus) which grows on the Pinus, is also prepared for food. Twigs, bark, &c., being cleared from it, it is steeped in water till it is quite soft; it is then wrapped up in Grass and leaves to prevent its being burnt, and cooked between hot stones. It takes 10 or 12 hours' cooking, and when done, while still hot, it is pressed into cakes. Berries when fresh are eaten in a way we should hardly appreciate—viz., with seal-oil! I have seen the Indians land from a canoe and pick a large quantity of beautiful fresh berries, then take a small bowl and pour into it a lot of seal-oil, and, sitting round it, dip each bunch of berries into the oil, and eat them with great apparent relish. They prefer houlikun-oil for this purpose when they can get it. They have various berries, among them the Strawberry and Raspberry. They are always very glad to get bread or rice, and these articles of diet are generally exchanged with them for fish. I found when travelling that neither the coast nor the inland Indians would eat pork. The invariable reply to my questions why they did not do so, being "Indians do not understand how to eat pork." *Mayne's British Columbia and Vancouvr.*

New Style in Gardening.—The introduction of a geometrical style in laying out grounds and gardens has become of late so prevalent that a few remarks may not be unwelcome in the *Builder* on the subject, inasmuch as the lawn and parterre must always have a close affinity to the domestic structure. All that we view daily in the park borders affords pleasing proof of the advance of floriculture and of the increase and improvement in our stock plants; and so far as geometric order is used in details of these grounds, there is nothing to be objected against; but on looking into the "Horticultural Gardens," the great national display in conjunction with the Exhibition, it is impossible not to be struck by the glitter of coloured walks, which have the appearance of red, yellow, blue, green, and other tinted ribbons, cunningly wrought through the intricate flower knots, which form the principal area of the 20-acre reserve. That the accuracy of the exquisitely-wrought Box borders is laboured and telling, none will deny; these are the works of an artist; and it is equally palpable that the colours of the walks are brilliant. Now, however, winter has set in and the flowers decayed, when the mould is raked and laid by in ordinary for winter, these gaudy bands winding symmetrically over the russet earth wear the appearance of true-lovers knots; and viewed in connection with the fountains, balustrades, terraces, &c., make up the total of a formal Dutch garden; but when the flowers were in bloom, those objects for which such cunning devices were but meant to be the garniture,—what was then the effect of all this polychromatic decoration? Why, simply that it subdued the effect of much natural beauty! It is not the question whether the South Kensington Garden, surrounded as it is by high buildings and arcades, is the proper site for horticultural growth, since that point has been long conceded. The position, within the metropolis, may be convenient for the exhibition of plants, flowers, and fruits grown elsewhere; but in the midst of smoke it has long ceased to be appropriate for the raising of seedlings or for the conservation of plants. Some hardy and beautiful flowering shrubs there are, which might thrive and bloom within the imposing boundaries. This is demonstrated by the gorgeous display of the neighbouring Kensington flower walk; but the aspect of this costly inclosure, its nakedness of floral or arborific garniture, leads one to inquire, might it not be improved by the introduction of some well-grown shrubs and trees, which would impart to it more of the hortulan if not sylvan character? Exhibitions of fruits and flowers occur, perhaps, six or eight times a year; and these, together with the amount collected from Fellows of the Society, possibly do yield a fund sufficient to support the grounds and conservatory. It is more of a public arena for promenade than horticulture. The broad walks and terraces, as laid down, are, perhaps, essential for the crowds that sometimes frequent the place; and considering the many architectural evidences within and surrounding it, even the winding walks of gaudy colours might be suitable here, however incongruous they might be in a rural garden. Still, as a border or setting for rare planted flowers, nothing that could be invented would more effectually mar and neutralise the delicate bloom of nature's tender nurslings. Let them stand, then, as they are,—highly wrought proofs of the gardener's skill; but, in the name of Flora! do not suffer vitreous walks to be farther extended, to the detriment of our best collections. *Correspondent of the Builder.* [Part of this criticism has been anticipated, by important additions to the spaces planted.]

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Although the expediency of night covering for the roofs of glass houses has been frequently pointed out and pretty generally admitted, yet hitherto little has been done in the way of carrying the plan into effect. It is however very economical in point of fuel, more especially in old houses with badly fitting glass. Under such circumstances a trial is only required to prove its utility. Maintain a mild agreeable atmosphere in show houses, and see that all plants are clean and in good health. If any become infested with insects remove them immediately; for no course of culture will succeed without thorough cleanliness. Orchids in warm houses must now be frequently examined, repotting such as may require it. Before applying Sphagnum, however, soak it in boiling water to destroy insects, and some even half char their peat for the same purpose. Such plants as show signs of growth should as a matter of course be potted first. Cinerarias which are cramped in their pots should have a shift, as should also Chinese Primroses for spring work. Introduce into the conservatory forcing pit bulbs, Roses Pinks, Lilacs, and plants of that description in succession. Keep up a bottom-heat of 75° and an average top temperature of 60° at night and 70° by day, admitting air on all favourable occasions.

FORCING DEPARTMENT.

PINERIES.—Such plants as are pushing should have plenty of heat and atmospheric moisture. Let the bottom-heat for the present be about 80°.

VINERIES.—In the early house let the thermometer be 70° by day and 60° at night. Disbud steadily; stop the shoots as they advance at the joint above the fruit. If the lower part of the house be deficient of wood, select some well-placed buds as they break to fill the vacancy; they will soon push into vigorous shoots and fill up the gaps.

PEACH HOUSE.—Give air at all times when the weather is favourable, and maintain a temperature of about 60°, allowing it to fall 5° lower at night. If the trees have done blooming, syringe freely in the afternoon about 4 o'clock, or earlier if the nights are frosty. Commence disbudding whenever the shoots are in a fit state for that purpose, removing a small quantity periodically till the work is finished.

CHERRY HOUSE.—A mild and somewhat moist atmosphere is what should be aimed at; give air, as in the case of Peaches, when the trees are in flower and the weather favourable, and see that the roots are in a proper state as to moisture.

CUCUMBERS.—Sow successions of choice kinds in case of failure. Pot off young stock and top as soon as the rough leaf has been unfolded. In planting out lay a thick turf under each hill, and in making the latter confine it to the centre of the light. Give air as often as possible, and, in order to be able to do so, keep up powerful linings.

MELONS.—Sow seed of the Beechwood or other early kind. Get some dung at work for the bed, and carry it through as careful a process as that for the early Cucumbers. If ridged out by the second week in February, they will be sufficiently early to prove a safe crop, and will be ready by the first week in June, if not a fortnight earlier.

FLOWER GARDEN AND SHRUBBERIES.

Those who have alterations to accomplish this spring, in the way of ground-work, must now lose no time. Look over and correct the general outlines of ornamental plantations. Break into all hedge-like lines; form bold recesses where space will admit of it; and endeavour to create intricacies. The lines of irregular plantations or shrubberies should be corrected in this way at least every three years; as, however well they may have been designed originally, the unequal growth of trees will, in some degree, militate against the first intention. Rearrange American masses; some of the delicate Azaleas, &c., are frequently overgrown and injured by the grosser Rhododendrons. Biennials may be planted in flower-borders or beds. See to bulbous plants; stir amongst them and protect if necessary. Give air to, and examine half-hardy plants, and see that they do not suffer from confined damp. Owing to the mild weather we have hitherto had, most flowers will be more susceptible than usual of frosts and cutting winds. Many collections of Tulips are now so forward that unless protected in some way serious consequences may result to the embryo blooms. Ranunculus beds may be thrown up in ridges of about 4 inches, so that the lower part of the bed is allowed to remain undisturbed. By this means advantage can be taken of a fine day, should the weather prove fickle, about the 14th February; as when suffered to lie in this state, the surface soil becomes sooner dry, and by simply raking level is immediately ready for putting in the roots. Polyanthus seed may now be sown in pans.

HARDY FRUIT AND KITCHEN GARDEN.

The time is at hand for commencing operations here in earnest, and one of the first steps is to plan out every inch of ground for the whole year, if possible. Laths should be written upon and placed at the heads of the quarters, descriptive of the kind of crop, the manuring, and what succeeded by. It is necessary also, in order to follow up a systematic rotation of crops, to keep a cropping book corresponding with the labels. Most persons will be laying in their stock of seeds for the year. A little Cauliflower, and a pinch of brown Cos Lettuce should be sown in boxes, and placed in a house at work. Also some white Spanish and Portugal Onion, to be transplanted in a highly manured ground. Sow a little Parsley, a little early dwarf Cabbage, a little round Spinach, and a pinch of early Dutch Turnip, on a warm slope. A plot of ground should be forthwith appropriated to slopes, which should of course run east and west, and they are most convenient about 3 feet 6 inches wide. They should, if possible, be attached to the frame ground, as such things as Radish, Horn Carrot, early Lettuces, &c., will require occasional covering with litter, and frequent attention. Slopes of this kind after carrying their spring or early summer crops, will be equally eligible for autumn ones; more especially for Endive, autumn Carrots, or for raising the stock of winter Lettuces. The sooner Asparagus beds are manured and soiled now the better. Plant Horse Radish, Seakale, and Jerusalem Artichokes as soon as possible. Plant a few early Potatoes, soil them over 8 inches deep, and draw off with rakes or hoes 2 to 3 inches in the first week of April, as a cleaning process. Follow up all nailing and pruning, except of Figs and Apricots. Thin orchard trees, make cuttings of choice Gooseberries, Currants, &c., taking care to pick out the buds at the lowest end of the shoot, in order to avoid suckers.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Jan. 21, 1863, as observed at the Horticultural Garden

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 15	25	30.336	30.318	45	34	39.5	44	43½	N.E.	.00
Friday 16	26	30.252	30.195	41	34	37.5	43½	43½	N.E.	.00
Satur 17	27	30.155	29 870	44	32	38.0	43	43	N.E.	.19
Sunday 18	28	29 250	29.322	48	38	43.0	43	43	N.W.	.00
Mon. 19	●	29.409	29.360	51	40	45.5	44	43	N.W.	.04
Tues. 20	1	29 359	29.083	46	37	41.5	45	43½	S.W.	.00
Wed. 21	2	29.732	29 550	44	34	40.5	45	43	W.	.02
Average.		29.912	29.671	45.5	35.5	40.7	43.9	43.1		.25

Jan. 15—Cloudy; fine; brisk N.E wind.
— 16—Overcast, cloudy and cold; fine at night.
— 17—Hazy; overcast, fine, rain at night.
— 18—Low dark clouds; fine, mild for the season.
— 19—Partially overcast; cold and dry; low clouds; very boisterous at night.
— 20—Boisterous; low white clouds; boisterous at night.
— 21—Fine, cloudy; fine at night; slight rain.

Mean temperature of the week 4 1-5th deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending Jan. 31, 1863.

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 25 .	44 4	32 3	38 4	20	0.90 in.	1	4	3	1	0	13	5	5
Mon. 26..	45.2	32.4	38.8	16	0.34	1	5	3	4	2	14	5	4
Tues. 27..	44.1	31.0	37 5	17	0.43	2	5	4	1	5	14	5	1
Wed. 28..	45.3	30 7	38 0	20	0.17	2	5	4	1	2	14	0	3
Thurs. 29..	45.4	31.6	38.5	17	0.23	5	4	—	2	2	13	5	6
Friday 30..	44.2	32.1	38 2	18	0.39	2	3	3	4	3	11	8	3
Satur. 31..	44.3	30.5	37.4	16	0.38	6	5	1	2	9	10	3	

The highest temperature during the above period occurred on the 25th and 28th, 1846; 28th, 1834; and 27th, 28th, and 31st, 1861—therm. 56 deg.; and the lowest on the 31st, 1857—therm. 8 deg.

Notices to Correspondents

*** Many communications are UNAVOIDABLY deferred till next week.

COCOA-NUT REFUSE: *Irish Subscriber.* Our experience of this as a plunging medium in forcing houses is, so far, favourable, but we have not had it in use for a sufficient time to be able to form a positive opinion as to its fitness for this purpose.

CURRANT BUSHES: *W B J.* Are you sure the trees, whose leaves drop off in July, are not attacked by insects in the hot dry summer weather? There is evidently an arrest of vital action. Are the roots kept sufficiently moist in the hot season? We can only suggest an excess of drought, or it may be of root-moisture as likely causes.

FUNGI: *Hampstead Gardener.* Your Fungus was so crushed in consequence of being sent in an envelope and not in a little box, that it could not be named with certainty. From the colour of its spores, however, we believe it to be Agaricus furfuraceus, the only allied species, as far as we know, common in winter. Your only chance of destroying it is to put salt on each patch, but if the spawn is very widely diffused, as appears to be the case, you must trust to the chapter of accidents. *M J B.*

HOLLIES: *An Old Subscriber.* Don't head them down before the middle or end of March.

IVY ON TREES: *J V.* No: not hurtful in the sense of feeding on them; but yes, in the sense of girting and smothering them, preventing or hindering the natural expansion of the trunk. Not seriously hurtful, however, in a general way if the value of the trunk as timber is not a consideration.

NAMES OF FRUITS: *A B.* 1, Marie Louise; 2, Glou Morceau; 3, Easter Beurré; 4, Old Colmar; 3, Blenheim Pippin; 4, Downton; 5, King of the Pippins.—*A R H.* Chaumontel.—*C A B.* 4, Ribston Pippin; 5, Kirke's Golden Pippin; 7, Downton; 10, Dutch Mignoune; 1 and 8 are the same, and unknown; the rest appear to be worthless seedlings. ‖

NAMES OF PLANTS: *J M B.* Neither we nor any one else in his senses can undertake to name the mere leaves of plants. 1 is Alonsoa incisifolia.—To *Enquirer from Belfast* we are obliged to say the same; 1 is some sort of Gomeza; 2 is a flower of some Zygopetalum without a lip, the most essential part; 3, Lælia anceps. We never name more than four plants at a time, even if they are in a state to be named.—*Sidmouth.* Marchantia polymorpha.

MESSRS. WAY AND EVANS, ANALYTICAL CHEMISTS, have REMOVED their LABORATORY from 15, Welbeck Street, Cavendish Square, to 106, Leadenhall Street, E C., where all Letters and Samples for Analysis should in future be addressed.—Jan. 24.

AGRICULTURAL and CHEMICAL COLLEGE, 37 and 38, Lower Kennington Lane, London, S.

ASSAYS and ANALYSES promptly attended to by J. C. NESBIT, LANSDELL & Co.

AGRICULTURAL and CHEMICAL COLLEGE, KENNINGTON.— Manufacturers and others engaged in making Artificial Manures may obtain every necessary instruction for their economical and efficient preparation by applying to J. C. NESBIT, LANSDELL & Co., 37 and 38, Lower Kennington Lane, London, S.

Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and despatch.

Gentlemen, Farmers, or others, desirous of practical knowledge in Chemical Analysis, or Assaying, may receive instruction at the College, where the extensive Laboratories give ample facility for pursuing their studies, and there is accommodation for a limited number of Resident Students.

Full particulars of terms will be forwarded on application.

DRAINAGE of LANDS (by Contract, or laid out and superintended at 5s. per acre) and the ERECTION of AGRICULTURAL BUILDINGS and all other permanent Improvements to Landed Estates, are undertaken by Mr. HUMBERT, Land Agent and Surveyor, Watford, Herts, and such Works can, if desired, be entirely executed under powers conferred by special Acts of Parliament, by Money raised by loan, and paid off (both principal and interest) by small annual payments spread over a number of years in the form of a rent charge, without immediate payment by the Land Owner.

WEST of ENGLAND and SOUTH WALES LAND DRAINAGE and INCLOSURE COMPANY.

ESTABLISHED 1844.

The Right Hon. the EARL of DEVON, *Chairman.*

Lands drained and improved without recourse to the private funds or moneys of the Proprietor.

This Company's Act not requiring Proprietors to liquidate the cost, the amount might remain a permanent charge on the lands, or be paid off when convenient, or be made redeemable over any term of years. The works are undertaken by the Company, or Proprietors might avail themselves of the power of the Act only, and get the works executed by Agents or other parties. Outfalls through adjoining lands are obtainable under the Company's Act. Works are also executed by the Company for parties advancing their own Capital, or not requiring to obtain the money under the Company's Act.

FREDERICK BRODIE, Secretary.

Offices: Exeter; and 30 Parliament Street, London.

THE LANDS IMPROVEMENT COMPANY.— Incorporated by Special Act of Parliament in 1853.

2, Old Palace Yard, Westminster, S.W.

TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c. IN ENGLAND AND WALES AND IN SCOTLAND.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

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3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W.

A MANURE MANUFACTURER wants to appoint a few respectable DISTRICT AGENTS. Liberal terms given, and the Manure sold Carriage free.

Address, with occupation and references, B. C., 10, Pall Mall East, London.

To Farmers, &c.

CHEAP GYPSUM MANURE.—Parties requiring GYPSUM can be supplied at 10s. per Ton, bulk, at the Works at Kennington, S.

Address, X. L., 34, Chapel Street, North Brixton, S.

*** Delivered on Rail, adding for bags and cartage.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

LAWES'S WHEAT MANURE for AUTUMN SOWING.

In consequence of the high price of Peruvian Guano, J. B. LAWES has manufactured a WHEAT MANURE for the present season, which will be found very suitable for that crop. A supply is now ready for delivery, and it can be obtained of J. B. LAWES, or through any of his appointed Agents. Price 8l. per ton at the Factories, Deptford and Barking Creeks.

Genuine Peruvian Guano direct from Messrs. Gibbs; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

New Sorts of Peas.

THE ADVANCER, PRINCESS ROYAL, SMUGGLER, GILSON'S GLORY, and other new PEAS, are included in SUTTON'S PRICED SEED LIST, just published, and which may be had, Gratis and Post-free, on application addressed

SUTTON & SONS, Seed Growers, Reading, Berks.

Seed Peas and Potatoes.

DANIEL O'ROURKE PEAS, at 18s. per bushel; also a few GREEN MARROWS. DALMAHOY, BRITISH QUEEN, and EARLY MALTA POTATOES, free from disease.

Apply to Mr. HENRY CLARKE, 57, Water Side, Lincoln.

WEBB'S IMPERIAL KIDNEY POTATOES, True, 8s. per bushel, 15s. per cwt.; DICKSON'S EARLY FAVOURITE PEAS, unpicked, 8s. per bushel; BLUE SCIMITAR PEAS, picked, 12s.; TAYLOR'S WINDSOR BEANS, 10s. Terms Cash.

W. MINCHIN & SON, Hook Norton, Oxon.

SEED POTATOES from the NORTH of SCOTLAND. —The following sorts, grown by Mr. SIMPSON TEAWIG, in Inverness and Ross-shires, on clay loam and light soils.

DALMAHOYS
WALKER'S EARLY REGENTS
WHITE ROCKS

They will be delivered free in sacks in London, Liverpool, or Newcastle, at very moderate rates, which may be learned by writing, stating quantities required, to A. SIMPSON, Beauly, N. B.

Fluke Kidney Potato Sets

FROM LAND WHICH HAS NOT BEEN BROKEN UP IN THE MEMORY OF MAN.

DICKSONS AND BROWN, SEEDSMEN, 43 and 45, Corporation Street, Manchester, have a few hundred bushels of the above valuable Potato, grown upon fresh land a very short distance from the place where the "FLUKE KIDNEY" was originally raised. They are picked expressly for sets.

By stating quantity required, the price will be forwarded on application to the Advertisers.

Myatt's Early Prolific Ash-leaved Kidney Potatoes.

H. AND F. SHARPE are now taking orders for the above, which has this season proved itself to be the earliest and most prolific Potato in cultivation, and as fine in quality as any of the Early Kidney varieties. Having a good stock they can offer them at a low price to the Trade.

Also JACKSON'S ASH-LEAVED KIDNEY, WALNUT-LEAVED KIDNEY, and all the early Round varieties at equally low prices, which may be had on application.

Seed Growing Establishment, Wisbech.

DAINTREE'S EARLIEST SEEDLING POTATO. —The earliest and most prolific round variety in cultivation, verified by reports in the various papers, and by private reports from all parts of the country, numbers of which will be forwarded on application. Present price, 8s. per Bushel, or 12l. per Ton; sacks 1s. 6d. each.—Apply to Mr. SIMON A. DAINTREE, Fendrayton, St. Ives, Hunts.

N.B.—Genuine Italian Rye grass, and all the Agricultural Seeds of home growth, supplied as usual.

SUTTON'S LIST of POTATOES for PLANTING. CARRIAGE FREE.

*** *The sorts marked* (K) *are kidney-shaped.*

	Per pk. or stone of 14 lbs.—s.	d.
SUTTON'S EARLY RACEHORSE (K), considerably earlier than any other Potato known	5	0
HUDSON'S NONSUCH (K), forwarder than the Early Ashleaf	5	0
HUDSON'S EARLY MAY (K), quite new; one of the best Potatoes for the main crop; it comes early, bears enormously, and keeps well	4	0
DAINTREE'S EARLIEST, new sort, highly spoken of, direct from Mr. Daintree	2	6
EARLY ASHLEAF (K), a well-known early sort	3	0
MYATT'S EARLY ASHLEAF (K), more productive than the preceding	3	0
EARLY WALNUTLEAF (K), somewhat similar to Ash-leaf, but shorter haulm, and rather earlier, and fuller flavour	3	0
HANDSWORTH EARLY, one of the forwardest and best for forcing; very short in the haulm	3	6
EARLY CHINA, quite new, second early	4	0
SODEN'S EARLY OXFORD, one of the best early round Potatoes	3	0
IMPROVED EARLY SHAW, a favourite Potato with the London Market Gardeners, and Hotel Keepers	3	0
WEBB'S IMPERIAL (K), new large, very fine	3	6
FLUKE (K), fine productive and popular sort	2	0
DALMAHOY, fine flavour, second early, and good for main crop	2	6
WELLINGTON, pink-eyed, strongly recommended	2	0
BRACKEN (K), a fine mealy Potato, red skin, delicious flavour	2	6
GOLDEN BALL or RED REGENT, large, well-shaped, and fine-flavoured. (This sort gained a First Prize at the International Show, 1862, where it attracted much attention)	2	6
RED ASHLEAF (K), mealy, and keeps well	3	6
SKERRY BLUE, very large and productive, new from Ireland	2	6
DAWE'S MATCHLESS (K), prolific, large, fine flavour and shape	3	6
THE KING (K). This may be fairly described as the finest Potato in cultivation; gained a First Prize at the Royal Horticultural Society's International Show, and at Birmingham. Mr. Hudson, one of the most experienced Potato growers in the kingdom, writes us:—"In all my fields of Potatoes, the King and Early May are free from disease, though other sorts have it worse than usual. These two Potatoes are about the finest and most productive of all I have ever grown, and to Market Gardeners will prove invaluable."	5	0
THE QUEEN (K), a very fine late sort, keeps well. (This was exhibited by Mr. Choyce, at the International Show, with "The King," to which the Prize was awarded), and was equally admired	5	0
FLOUR BALL, the true sort, strongly recommended	2	0
YORK REGENT, fine true stock. (Price per ton on application)	1	9
FORTYFOLD, very productive, mealy, and fine flavour.	2	0

Early Frame	Prince of Wales
Birmingham Prizetaker	Lemon Kidney
Alstone Kidney	Goldfinder
Lapstone Kidney	British Queen

Cheaper by the sack or bushel. Prices on application.

For field culture in large quantities, we can supply good sorts of Potatoes at much lower rates.

N.B. We deliver Potatoes, as well as Seeds, carriage free.

SUTTON'S PRICED LISTS of SEEDS, post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

TRADE

HALLETT'S | PEDIGREE. | NURSERY WHEAT. MARK.

"The best Spring Wheat known. Drill in February and March, six pecks per acre."

Produced (1862) 62 bushels per acre, weighing 64 lbs. a bush.

Price ONE GUINEA A BUSHEL, including bag sewed up and sealed, delivered at the Brighton Railway Station, with Printed Directions for Planting, on Receipt of Cheque or Post-office Order, which must in all cases accompany the Order. Less than One Bushel will not be supplied. Name of Station and Railway should accompany the Order.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

GENUINE CLOVER and GRASS SEEDS.— Samples and prices Post free on application.

☞ Orders amounting to 10s. and upwards sent carriage free.

WM. WOOD & SON, Seed Merchants and Nurserymen, Maresfield, near Uckfield, Sussex.

Good Clover Seed.

GENUINE NEW CLOVER SEED may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.

SUTTON & SONS, Seed Growers, Reading, Berks.

SUTTON'S RENOVATING GRASS SEEDS for IMPROVING OLD PASTURES.—Many Old Upland Pastures, Parks, and Meadows are nearly destitute of Clovers, and the finer and more nutritious sorts of Grasses, in which case we are in the practice of furnishing such sorts only as are wanting. If the Seeds are *sown early in the Season*, the improvement in the Pasture will be very considerable, and at a small expense. *Quantity of Seed required, 8 lbs. to 12 lbs. per Acre. Price 1s. per pound.* Carriage free.

Address SUTTON & SONS, Seed Growers, Reading, Berks.

FINE GRASS LAWNS in FLOWER GARDENS, &c.—The great expense of cutting and carting Turves from a distance may be avoided, and a *superior* Turf produced in a few months, by sowing SUTTON'S LAWN GRASS SEEDS, which consist solely of the finest and shortest growing kinds, perfectly *free from Moss and other weeds.*

Price 18s. per bushel, or 1s. per pound. Quantities of not less than 1 bushel will be sent Carriage free.

SUTTON & SONS, Seed Growers, Reading, Berks.

THE NEW PARSNIP "STUDENT."—SEED of this improved PARSNIP, "ennobled" by Professor BUCKMAN, of the Royal Agricultural College, Cirencester. is now ready for delivery by Messrs. SUTTON & SONS, Post free, in packets, 6d., 1s., or 2s. 6d. each. Also Wholesale to the Trade.

It can also be obtained from any of the Seedsmen named in the List which appeared in *Gardeners' Chronicle* of Jan. 17.

Royal Berks Seed Establishment, Reading.

Present Prices of Farm Seeds.

THE NEW FARM SEEDS are NOW READY, at Reduced Prices.

PRICED LISTS may be had, Post Free, from SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Agricultural Gazette.

SATURDAY, JANUARY 24, 1863.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

MONDAY, Feb. 2 { London Farmers' Club .. .. 6 P.M. (Mr. Steed on the Malt Tax.)
WEDNESDAY, — 4—Agri. Society of England.. .. Noon

BERKSHIRE is well off for example farms. Mr. SPEARING, in his prize essay on the agriculture of the county some years ago, referred to the PRINCE CONSORT'S farms at Windsor, and to those of Mr. BENYON, M.P., and the EARL of RADNOR. He might also have described Haines Hill, Mr. GARTH'S home farm near Twyford, and many a well managed tract of land in the hands of tenant farmers. And, during his examination of the county, there was in progress at Buscott Park, near Lechlade, one of the most energetic pieces of land management and improvement in the island, to which reference might also advantageously have been made. And now that the process of improvement there is approaching its completion, and every department of farm management is in full operation, we cannot do better than recommend to Mr. FRERE, the Editor of the Journal of the Royal Agricultural Society of England, that he should ask leave to report upon this estate, and the change that has been effected on it, in his pages; thus giving to the members of that body a description of the methods and results of good agriculture upon a larger scale of operation and achievement than has hardly anywhere till now been exhibited in this country.

All the leading questions on which agriculturists are now especially desiring information are receiving answers here. Probably the best list of topics of current agricultural interest is to be found on the annual discussion cards of the London Farmers' Club. During the last three years we have had steam cultivation, cheap home-made manures, farm capital, stock *versus* corn, sewage manure, lustre wools, under drainage, and the improvement of grass lands, brought under discussion by the ablest practical men in England. They are all illustrated here. Mr. FOWLER'S steam plough has been at work for a couple of years over probably a thousand acres of plough-land. The manufacture of manure directly from the raw material, bones and acid, &c., has been prosecuted to a very large extent, and its manufacture by the consumption of large

quantities of purchased food has been, and is now being carried out on a very unusual scale. Upwards of 1000 swine are being fed, and there are 250 sows in farrow, laired upon ashes, which absorb the enormous quantity of valuable manure thus made. The other stock is on a corresponding scale: 350 oxen are being fed on straw and cake in yards; and 10,000 Lincoln sheep are engaged in growing mutton and "lustre" wool. The subject of economising sewage has not been forgotten, and a large tank for the upward filtration of all the house waste, on the principle adopted at Osborne, is usefully at work. Nowhere in the island is there over the same extent a larger capital per acre engaged, both in landlord's and in tenant's improvements. Nowhere we believe is the owner bent so vigorously on the improvement of his estate for the growth of just that produce which soil and sky alike pronounce the best-fitted to its circumstances. Grass land improvement is the great effort that is being made. Land drainage, manuring, weeding, sheep-feeding, sub-tillage, are the agencies, and we can have no doubt that the result will yield a most instructive and encouraging lesson.

The estate of Buscot Park, near Lechlade, was purchased in 1859 by ROBERT CAMPBELL, Esq., the present High Sheriff of Berkshire. It is about 4500 acres in extent, bounded for 10 miles by the rivers Colne and Thames, and forming an extremely compact property, well wooded over a pleasantly undulating surface, its highest point crowned by the mansion, which commands a magnificent panorama. It is for the most part in pasture land—a stiff soil on the "Oxford clay" formation. The whole had been long neglected; its river-side Grass lands liable to flood, all the rest water-logged during winter for lack of drainage; roads, fences, buildings, all out of repair. It is and always was essentially a tract of good clay, but yielding probably less surface produce in proportion to its dormant capability and wealth than any other estate of corresponding extent in the county. Mr. CAMPBELL having purchased it upon the rental at which it had long been let, has had as ample margin left him by the purchase money, as he has had occasion given him by his purchase, for outlay on its improvement. He has, in fact, cheaply bought a strong box full of treasure, of which the former owner either had not ability, or had not wit enough to pick the lock—a valuable machine with all its usefulness in abeyance, no one having had the power or skill to wind it up.

The key which is to do these things for it is a very costly article, but it will pay to make and use. And Mr. CAMPBELL, labouring through the difficulties of three wet seasons, has been successfully engaged in making and applying it. All that we can do at present is to enumerate the different processes that have been at work.

1. Land-drainage is necessarily the first step towards the improvement of wet land. This during the last three years has been carried out 4 feet deep, over upwards of 3000 acres of land—about 9,000,000 of tiles have been laid in 1700 miles of trench. The effect has been very great at once, and will grow year by year as the influence of the rain-water circulating throughout the soil and subsoil tells upon the fertility of the land and its suitability to the better Grasses. At first conducted straight down the slope, regardless of ridge and furrow, and the watercourses to which the rainfall had hitherto been accustomed, the effect was unsatisfactory. Latterly the drains have been laid in furrows and old ditches, and the result is immediate. No doubt the other plan would ultimately have answered, and on arable lands, where high ridges could be easily levelled, and where deep tillage would facilitate the downward passage of the rainfall, the gridiron system of clay land drainage answers perfectly at once. But the result does not come at once in stiff clay pastures, and there is nothing in land improvement with which Mr. CAMPBELL, as a capitalist, is more impressed, than the cost and value of time. A drainage, therefore, of the pastures, down every furrow, and in many places oftener, so that the interval varies from 9 feet to 30 feet, has been the first step towards this improvement.*

2. Manures have been and are being most liberally applied. Three cwt. of bone dust, 2 cwt. of superphosphate, 1½ cwt. of guano, and 1 cwt. of salt have been spread broadcast per acre over many hundred acres; and now by the consumption of Lentils and Maize at the rate of 6 or 7 lbs. apiece daily to the larger ones over 1300 swine, an immense addition is being made to the fertilising resources of the land. In addition to this a large flock of sheep is fed during summer on the pastures, receiving oilcake. There is a breeding flock of 1800 Lincoln ewes, and in all about 10,000 sheep, most of which are sent out to "tack" during winter upon the Turnip fields of the neighbouring Cotswolds, or, bought in Lincolnshire, are wintering there; coming to the Buscot pastures in April and May, and covering them at the rate of from five to seven sheep per acre all through the season.

3. The estate is not yet furnished in any costly manner with farm buildings, and the plan of summering sheep which is to be adopted as the main consumption of the produce is economical in this, as in other ways—that no costly farmeries are needed. The existing outlying sheds and courts are now turned in a very simple and economical and efficient manner into pigsties for the enormous herd which is being fed. The home farm buildings, progressing towards completion, are in like manner turned for the most part into accommodation for swine—and the granaries are filled with their food.—Roads have been made where necessary—useless fences are being removed, wire fencing is being in many cases adopted. The immense quantities of grubbed fence and root are burned, and their ashes used as bedding for the swine.

4. The live-stock of the estate has been already referred to. Of the 4500 acres which the estate includes, some 3200 will be this spring in hand. The stock will then number 1300 swine, 250 of them sows in farrow, 10,000 heavy sheep, 350 oxen, 50 cart-horses (so many being needed in the work of estate improvement). When, as may ultimately be the case, the whole estate is in the owner's hands, and the pasture lands all fully in operation, they will no doubt summer-graze double the above number of sheep, and it is towards that result that the process of improvement tends. The produce of the land will thus be consumed at the best season of the year to ensure a return, and it will be consumed with less expense of superintendence and labour than in any other way. At present of course the labour of superintendence is much greater than will hereafter be needed. One man looks after and feeds 150 pigs, being supplied with meal, water, and pulped roots. Two carts, continually at work, supply the food for four or five such lots. The pulped roots are steamed and mixed half-and-half with the meal of Lentil and Maize. A hog weighing 13 score live-weight consumes about 45 lbs. of meal and 64 lbs. of steamed Swedes weekly, increasing some 12 lbs. in live weight during the time.

5. *Arable Management.*—Here the steam-plough has been a great assistance. A large extent—some 120 acres—of Gorse and Scrub has been grubbed up, and converted into most useful arable land. A good road lies through the valley, and the steam-plough, travelling up and down, can work a furrow, varying in length from 300 to 450 yards, on either side. During the past season a 12-horse engine, provided with the old-fashioned figure-of-8 arrangement of wheels and pulleys for dragging the rope, has had the fire lighted on 134 days, of which five have been lost by rain and faults of the apparatus, two of them owing to failures of the pump. During 129 working days, 502 acres have been very deeply ploughed—three furrows, and often only two furrows being worked at a time. The average of 4 acres a day is a very fair performance under such circumstances. The cost is 12*s.* a day for coals, 12*s.* a day for labour, and 4*s.* a day for water-cart, and probably 1*s.* a day for oil. These items amount to 29*s.* a day, or about 190*l.* on 502 acres, which is about 7*s.* 6*d.* per acre. A new rope has been needed every year, costing rather more than 1*s.* per acre. And this, with expense of repairs and interest of capital, will amount to a considerable sum—less, however, than the horse force otherwise required would have cost.

The thorough efficiency of the tillage thus conducted is proved by the heavy crops of Swedes now standing on the land,* the healthy colour of the young Wheat plant everywhere, and the firm tread of the clay soil, notwithstanding its flat cultivation—all of which are the result of it.

Among other particulars deserving mention under this head is the scale on which stiffe burning has been usefully carried out. On any foul and stiff fallow, especially where the clay is calcareous, this process will be found, as it has proved here, to exert a very fertilising influence. About 40*s.* worth of coal is used per acre in the process, and a useful dressing of some 200 cubic yards of charred and burned clay in place of two or three times as much of couchy and intractable clod is the immediate result. The ultimate result, as we saw last Tuesday, is a dark green plant of Wheat, as vigorous and promising, though unaided by any other dressing, as on adjoining land where 20 loads of farm-yard dung had been applied per acre.

6. The improvement of the pasture land is however the principal business at present of the owner of the Buscot Park Estate. It is to this end that such an expense in drainage has been incurred—that such an outlay in artificial manures has been made—that so much has been done in the way of spudding and removal of tussocks, anthills, &c., and their conversion with lime into compost—that "renovating" seeds have been sown and harrowed in over so many hundred acres—that such a herd of swine is being kept. "If in this last way I can only obtain manure for my pasture nearly free of cost," says Mr. CAMPBELL, "I shall have discoved the Philosopher's Stone for agriculture." It is to this end also, as well as profit more directly, that oilcake and Cotton-seed cake are given to the sheep at Grass. Lastly, and equal in importance to any of these means of improving pasture, it is with the same object in view that a great deal is being done in the direct tillage of Grass lands.

Hitherto but little has been done over most of our permanent pasture lands for the direct cultivation of the Grasses. We have mown or eaten down the annual growth which sunshine, soil, and shower, amongst them, have produced: we have perhaps occasionally applied dung or compost to the surface, and here and there the land has been drained of the stagnant water, which over the majority of acres still sours the soil, and furthers the growth of Sedge and Rush rather than of Grass. Any weeding has been confined to Dock and Thistle drawing, or to the same action of the scythe which annually or every other year injures the good crop as much as it does the weeds. But of those tillage operations, which we use in the cultivation of grain and root crops, and on which we depend for the fertility of arable lands, our pastures know nothing. We shall during the coming summer, and thereafter, see at Buscot the effect of Grass land tillage on a scale sufficient to demonstrate whether or not it pays. Around the mansion, where the land lies in charming undulations, wood and water intermingled with the meadow, the land has hitherto lain in steep ridge and furrow, and yielded Rush and Sedge and Moss, even more than Grass. The whole has now been drained, and upwards of 100 acres have been pared; the whole ground has then been dug over 9 or 10 inches deep and levelled, and the turf is being relaid. The whole will be heavily rolled, and there cannot be a doubt that this weathering of the under soil and this transplanting of the surface plants will result in a very extraordinary luxuriance of growth. Lime composts and manures, drainage and deep tillage, and sheep feeding must, over this rich clay land, produce as extraordinary a growth in the case of Grass as they do everywhere in the case of grain and other green crops. The operation in the Park has been costly. The paring costs 17*s.* to 18*s.* per acre, the digging about 3*l.*, the replacing of the turf, first smoothing the surface, about 30*s.* Elsewhere something of the same kind has been done in a cheaper but very efficient way. Where the ground does not need much levelling, a wheeled plough set shallow with broad share is preceded by men with mattocks, who cut up the tussocks, anthills, &c., and remove them. A furrow slice, not 2 inches thick, is then turned over. In the wake of the plough a good drill grubber follows, stirring the soil 4 inches deep, before the next furrow slice is laid. These furrow slices are afterwards turned back by hand, and the whole is then rolled down.

It is as an illustration of the proper cultivation of the Grasses that the alterations going on at Buscot are especially interesting; and at a time when the profits of farming, especially in the Western Counties, are plainly more and more depending on the sheep fold and the meat manufacture generally, it is to be hoped that a fuller account than we can give here of so well conducted and spirited an enterprise as the Buscot Estate presents, may hereafter be given to the public.

Judging from two visits to the estate, with an interval of nearly two years between them, we believe that the land will be more than doubled in annual value by an outlay of considerably less than one half the money invested in the purchase of it.

* A neighbour declaring that the land would be over drained, was answered by an experimental plot of half an acre, where drains 4 feet deep were put in every yard to the advantage of th Grass.

* A remarkably fine crop, taking the prize at the late Faringdon show—weighing at least 24 tons per acre.

THE LAND DRAINAGE ACT, 1861.

(*Continued from p.* 60.)

DISTRICT DRAINAGES.

LETTER III.—ON THE ENGINEERING PRINCIPLES WHICH SHOULD GOVERN THE WORKS, AND THE PRACTICAL RULES WHICH SHOULD REGULATE THE RATING OF THE DISTRICT FOR THE PAYMENT OF THE EXPENSES.

IN order to utilise the limited observations I am about to make, I will discard from consideration those cases of an extensive and complicated character which would better form the subject of special than of general treatment, and confine myself to those areas of wet land which will admit of classification.

They may be divided thus: 1st. Those low valley or seaboard lands which are naturally deprived of outfall by tidal influence, or by deficient inclination in the discharging channel. 2d. Those river side tracts which have been deprived of their natural outfall by artificial barriers, such as mill dams, river weirs, and hatches, or by the silting up of tortuous streams; the building of insufficient bridges and culverts and other like obstructions, but which can regain an outfall if those obstructions are removed, modified, or evaded; and 3d, those moors or marshes which are physically impounded or land-tied by the formation of higher ground surrounding them, and which requires simply, though ofttimes at considerable cost, a passage through the barrier to the river below.

These lands are all more or less subject to floods, and to floods which will be increased as underdrainage proceeds within the area of water-sheds of which they form part.

To this important point great attention is due. If underdrainage had not already helped to increase floods, we should not probably have had "the Land Drainage Act, 1861," and when we reflect that the extent of land already underdrained is but a small proportion of the wet lands of the country, we are only exercising common forethought in providing for an accumulating increase when dealing with works of arterial drainage which are to satisfy the future.

Unless indeed, we fully comprehend the effects of underdrainage on the water economy of the country, we shall be plotting a faulty design when we venture upon a reformation of or an interference with its river system. It is now admitted on all hands that the general effect of underdraining is to secure a large quantity of the rainfall which has hitherto returned to the atmosphere as vapour from the surface of the land. It is equally well understood by those who have investigated the matter that the clay soils, when once they have absorbed the quantity of rain sufficient to fill their interstices, discharge from the under drains a great share of each heavy downfall immediately after it has occurred; while the drains of the saturated free soils give out a much larger proportion of the whole year's rainfall, but with a more continuous and regular flow than those of the clays.

These are great points bearing on arterial drainage, and the Inclosure Commissioners in their control of the different branches of drainage have grave responsibilities confided to them. It is true that as steam cultivation, deeper ploughing, and the levelling of high backed lands gain ground, less water will pass off the surface, and to such extent floods will be diminished, but this will go but a small way to meet the increasing discharge of under-drainage as the breadth of drainage enlarges itself. Is not this water in some instances capable of storage? I propound this general question for the consideration of all interested in those broad level districts which suffer from summer droughts. Again, if it be the fact, as it undoubtedly is, that the under-drainage of our wet free soils, the gravels, the peats, and the mixed soils, will furnish the river with water when the clays have ceased to discharge, and in many cases with a perennial supply—is not some consideration due to a source from which we may gain such an advantage? My own experience has satisfied me that the valleys are numerous in which the water power may be increased by drainage, and a judicious concentration and application of the water of drainage in aid of the river water.

But to return to the classification into which district works may be divided. With respect to the 1st class, recourse must be had to artificial power for raising the water which cannot be discharged by gravity above tidal influence, and to embanking as a means of excluding the waters of other districts.

It is needless to say that the ability of the engineer will be best displayed in the complete manner in which, after disposing of all high land waters, he will collect the surface and under-drainage water of his district to one or more points and the economy observed in the machinery adopted.

It will be in the second class of works the greatest judgment and foresight will be needed.

The wholesale condemnation of mill dams is fashionable, and is likely to be acted upon, because it is simple and requires no calculation, but if it is correct that drainage creates of itself a water supply, we are throwing away, by a careless disregard of that gain, the very element by which we may make good in one part of a river the power we have destroyed in another. Again, we forget in our haste to get rid of an obstruction that the tail of one mill is an available outlet for the land above, and therefore if we adopt that mill tail as the discharging level of the next upper portion of the valley, we improve the water supply of the mill below. If it be possible to connect and act upon these considerations, it will be conceded that in cases where the natural fall of a river is 5 feet and more per mile, there exists a capability not only of effective under-drainage but of increasing the aggregate water power, though certain mills may be interfered with.

It is unnecessary to dwell upon the third class of works. The existence of a natural barrier converting a basin into a bog commends itself to the intelligence of all persons—the only question to be determined is the mode by which the engineer will give passage to the pent up water. This of course will depend on the nature of the barrier, which may be little or great. It may be done in some instance by merely deepening a shallow, or by straightening a crooked watercourse, or it may require the aid of steam and syphon, raising it above the impounding height.

Let me now say a few words on the second object of this letter—the mode of rating the district. As a fundamental rule the proportionate amount charged on each property will be according to the benefit derived from the works to be executed, although in some cases it may be expedient to divide the payment into two rates, one to pay for the outfall simply, and the other to cover the internal works by which the outfall may be made available—equally, or as near so as possible—for the subordinate drainage of all the properties within the taxable area. It is desirable that it should be understood by all parties in a district, that according to the capability of the land, by reason of its position and by the nature of the soil to receive advantages from the works, so will it be rated. For instance, some land may be always subject to floods from which the "skirt lands" will escape, though the skirt land may be incapable of underdrainage. In such case the benefit of the works may be as much as 4 to 1 comparatively. Again, some fertile soils kept in a state of saturation may be changed by drainage from a renting value of 5*s.* or 6*s.* to 40*s.* or even 50*s.* per acre, while other poor soils cannot be advanced in productive power beyond 20*s.* per acre. It is clear that the rate must have reference to such circumstances.

If the District Commissioners mortgage the rate to raise by loan the money to pay for the works, the valuation of the benefit must be prospective and the annual charge will be a little above 6 per cent. to repay the principal money with interest in 30 years, to which would be added the annual expenses of Dyke Reeve, and Clerk or Collector, and the current outlay, if any, in maintaining the works.

To reduce this to figures we will assume 5000*l.* expended on the outfall drainage of 2000 acres. The rate to repay the outlay would probably be 325*l.*, to which would be added the annual salaries to Clerk and Dyke Reeve, say 75*l.*, making 400*l.*, which would be 4*s.* per acre for the 30 years, exclusive of repairs. At the end of 30 years the original outlay will be discharged, and the annual rate for maintenance will probably be but a nominal charge.

I must now close these remarks. My object has been to rouse public attention to the important Act of 1861, and by pointing out its deficiency with respect to private outfalls, to secure the support of the influential, in gaining what is so manifestly wanted—a simple remedy for a simple defect. *J. Bailey Denton*, 52, *Parliament Street, Westminster.*

THIN SEEDING.

I DO not remember to have read a Leader in any Journal, nor any paper whatever, which has fallen in with my opinions more completely than has yours of Saturday, Jan. 3. Long has the same painful subject occupied my thoughts, and upwards of 20 years since I addressed some letters to individual Members of Parliament, drawing their attention to the impending evil, and suggesting to them whether it would not be wise or prudent to bring the matter before Parliament, and to urge upon it the propriety of establishing agricultural colleges or government farms in various parts of the kingdom, whereat agriculture in all its ramifications might be studied and taught on sound and scientific principles by learned and scientific professors, on the one hand, and the operations directed by practical men on the other, so that, science being combined with practice, the miserable state of land cultivation which existed might, as it was clearly capable of being, be completely set aside, and a system more rational, and founded upon sound chemical and mechanical knowledge, substituted in its stead. This I wrote four or five and twenty years ago, but of course I wrote in vain; by some probably I was looked upon as a candidate for a lunatic asylum, and by others as an individual too insignificant to deserve their notice, or probably all thought, as all now nearly believe, that the agriculture of England was in the highest possible perfection, that nothing could be done to improve it, nor could it be improved. And so all my efforts ended in labour thrown away—and indeed I did not expect much from it.

But whether I was right or wrong, rational or exhibiting symptoms of a weak mind, Mr. Editor, in another article, if you will kindly print it for me, I will give your readers an opportunity of judging for themselves—that is, whether I was right in my conclusions, that the farming of England was a satire upon the age, considering the wonderful advances science had made in all other arts, and whether or not it cried almost trumpet-tongued, for the revolution I aimed at in every one of its parts. But before I proceed further, let me say a word or two about myself now, and though a venerable sort of person, I will avoid egotism, the weakness of my age, as much as I can. First then, 44 years since I wrote a few papers, as I have hundreds since endeavouring to show what vast improvement farming was capable of, and that the interest and safety of the country demanded their being made. But before I put pen to paper I read with avidity Sir H. Davy's "Agricultural Lectures" and "Elements of Chemical Philosophy," Parke's "Chemical Catechism," and Bishop Watson's "Chemical Essays," but which are now much out of date, and to these I added the works of those two glories of our country, Tusser and Tull; and with them I joined Xenophon and Theocritus, Greeks, and Virgil the Roman, and Columella the Spaniard, and I attended a few chemical lectures also.

This, my respected readers, and Mr. Editor, was what I did before I ventured to put my thoughts on paper on agricultural matters, and especially to allow them to be made public in print. And since then these books, with my Bible, &c., and some modern works, English and foreign, Liebig, Boussingault, Dumas, &c., are always lying on my study table, and they almost daily, even now, enable me to while away many pleasant hours, and if not profitably to others most certainly they are so to myself; for in them all are displayed to me the wonderful works of Almighty God, and I hope I can say, and without egotism or vanity, that the study of them helps to make me both a wiser and a better man, as I approach nearer and nearer the end of my earthly pilgrimage, to close my eyes in rest and sleep, my journey being at an end! I fear, my readers, this little episode may not have been very agreeable to you, but I have had an object in view while penning it, namely, to show, that like Æsop of old, though I relax my mind sometimes with a little sportive playing, and put my boxing gloves on to defend my venerable person from the sharp blows young aspirants for fame aim at it, I never even play without thought, nor hit but with a care not to wound; nor do I put my pen to paper without seriously reflecting upon what I am about to let fall from it. Nor did I study only, but I had a little land—about twice the quantity that Cincinnatus tilled—and which I might with propriety call my classical fields, for as nearly as I possibly could I cultivated them on classical models; and let me inform my readers, and especially let me claim the attention of my young opponent at Rushton, Blandford, and my other opponents—youths in years or juveniles in intellect—that it has been chiefly the marvellous success of my classical farming that has given me the confidence to write as I do, and to knock down my opponent with so much ease as I do. But to give one or two examples for the present as to seeding land: I never used more, but generally less than 2 pecks of seed an acre, and some few times only half a peck, and yet from less than 2 bushels of seed Wheat per acre in four years, or half a bushel a year, I had 176 bushels of fine crop, and then followed from 2 pecks of Barley an acre 44 bushels of crop an acre; and on one occasion I had 83 bushels of Barley from half a bushel of seed, or 166-fold of as fine Barley as ever was grown.

And further, I would go into my field in the dark, and allow any one else to do the same, and from among the growing crops—or to go in blindfolded—and pull up root after root from single grains of seed having upwards of 2000 fine plump grains to them, or upwards of 2000-fold increase, and some roots upwards of 4000-fold increase!

Now if Mr. J. Ford, jun., had imitated this practice, and in good earnest, though he had not succeeded to the extent that I did, he would, I think, have shown himself a wiser man, or more so, than turning it into ridicule, and especially should I have been enabled to treat him with more kindly forbearance, had he not repeated that oft-told proof of ignorance, that complete tillage of land, and having no more plants upon it than can grow luxuriantly, brings some demon among the crops and destroys them with mildew and honeydew—which two words, by the bye, mean the same thing, as mildew ought to be written meldew, from mel, honey, and deaw, the Saxon for dew, but I merely state this, and I did not expect Mr. Ford to write the word otherwise than as it is generally written.

But had Mr. Ford, jun. who I conclude is a respectable and well educated country gentleman, reflected but for a moment only, or had he dipped a little into natural science, or not closed his eyes against the innumerable proofs that in thinly sown crops by professed thin seeders, mildew and rust are never seen, though these maladies appear often in farmers' Wheat crops, and among the thickest seeded especially, as I had seen thousands of times; or where the seed has died, or the plant has died, and so the crops have become thin and mildewed;—but thin seeding could not cause the evil, since the seeding was thick—probably 2 bushels or 2½ bushels an acre; or perhaps, as at the Royal Agricultural College, 3 bushels an acre. But I have never seen mildew on well tilled and thin seeded land, and I believe I have seen more of this kind than any other man, or nearly so.

But this is the way that men, otherwise respectable and intelligent, go on copying from the vulgar the

most palpable absurdities, of which, if I had space, I could give many ludicrous examples.

But to return: Mr. Ford trembles lest thorough draining, good tillage, and rational seeding should reduce farmers to "bone and skin," by, I conclude, reducing the prices of their productions; but here, again, if he would exercise his thinking faculties, he would find that his fears are all imaginary; for such is the low state of British farming, that the prices of corn and meat, &c., are regulated by the importations of them from foreign nations, and not from the products of our own country. Does he not know that in one single year it took this country 44 millions of money to purchase Wheat of foreigners to make bread of for our own countrymen, and that no year can English farming supply England with food for more than 17 weeks in it out of the 52, and even what farmers now grow is chiefly by the aid of foreign guanos, bones, &c., and the manures made by cattle fed with foreign oilcake, pulse, &c. We hear of elderly ladies being frightened at their own shadows, but Mr. Ford is scared at the shadow of a shadow—he raises a ghost which frightens him out of his senses.

Tremble as he seems to do, lest thin-seeders should glut the markets—and they will, it is morally certain, ultimately send very much more corn and meat to them than now find their way thither by the thick-seeders—yet the evil is too great and inveterate to be cured except by very slow means; and hence thick-seeders, though a fearful retribution hangs over their heads, will proceed in their calling in their own way, and will not be reduced to the condition of

> "Bone and Skin, those brothers twin,
> Whose heads are soft and nothing in,"

Mr. Ford seems so much to tremble at; but will continue as they are, growing their 8 bushels of crop for one of seeds, and feeding their cattle with foreign grown fodder, and clothing their own backs with foreign grown wool, silk, and cotton. All this they will continue to do with their fellow countrymen until another foreign continental war shall break out; but then farmers—thick-seeders, thin-seeders, and moderates—will all perish together by one and the same agency, and that most direful one will be famine, yes, awful, appalling famine—for then all the ships of the British navy, and all those of the merchants combined, if armed with all the implements of destruction that the ingenuity of man can invent, will not be able to supply England with necessary food enough to keep the population from perishing by hunger and disease, and their accompanying evils.

An island like Great Britain cannot exist, depending from day to day, as she now is, on all the world for food. No, no; and infatuated the man must be with his own folly who believes she can; she must have a complete revolution in all her farming operations, and which she ought to have had long ago, or she is inevitably lost; her enormous wealth will avail nothing against a scarcity of food during a war with continental Powers, but famine will destroy her. *Geo. Wilkins, Wix Parsonage, Jan.* 9.

ARTIFICIAL MANURES.

A COMMUNICATION from a correspondent appeared recently in the *Times*, to which some prominence was given by a leading article referring to it, hinting at the progressive deterioration of the arable lands of this kingdom, and that this had of late been accelerated by the use of "artificial manures." When doctrine of this kind is imported into the *Times* it obtains universal publicity, and as the gradual destruction of the fertility of the land in these islands would, if true, be the most serious calamity which could befall the country, and the bare suggestion is calculated to alarm those owners of land who have not given their personal attention to the management of land, I hope to be permitted, through the same channel, to offer a few observations upon the communication to which I have referred. They are the result of personal experience in farming my own estate for many years, and also in the position of a tenant farmer. Having taken a great interest in the subject of agriculture, I have had my eye on all that has been going on among my neighbours in the centre of a large district, comprising mainly arable farms. My observation extends back over a period of 40 years, and I can safely say I am not acquainted with a single instance in which any farm, under the ordinary system of cropping, has been deteriorated; on the contrary, with rare exceptions in which farms have been in the hands of tenants without capital, skill, or care, increase of fertility and productiveness has been the rule.

There is really no comparison between the arable lands, as cultivated in this country, and those referred to in other countries after the clearance of forests, your correspondent's account of which is doubtless correct. In the latter case, a succession of corn crops is taken under very imperfect tillage, so long as the land will produce them in abundance, and then they are left, to adopt the same course with fresh land; no rest or return of produce is ever thought of; whereas the practice in this country is to return to the land all the produce except the grain, and some proportion of that on which the animals are fed. Furthermore, as a rule, the corn crop is followed by a root crop or a Clover crop, the whole produce of which is either directly or ultimately returned to the land. Again, the great extension of the root crop of late years is notorious. The fact is equally well known that these large-leaved crops derive considerable, if not the greater proportion of their increase, from the atmosphere, though the mode in which this is communicated is, as yet, undetermined. We know that five-sixths of the atmosphere is composed of nitrogen, so essential to our corn crops. We know as a fact that frequent stirring the mere surface of our soil, independently of any solid and specific manuring, has an immediate and evident effect in promoting the growth of our cereals, as well as of our green crops, which can only be attributable to atmospheric influences. Your correspondent writes that "from a foot to 18 inches of rich black vegetable mould, and under 12 or 18 years' aëration, is completely dissipated;" and again, referring to other soils containing too much of specified minerals, he adds, "and under aëration the small quantity of vegetable mould they may have acquired is soon exhausted." It is surely a very novel doctrine that land is exhausted by aëration. My observation and experience have taught me, on the contrary, that in proportion as land is thoroughly aërated, or, in other words, exposed to atmospheric influences, is the facility of its tillage, and its productiveness. To what other end do we drain but to supply the land with mild air rather than cold water? We plough as deeply as the land admits, and employ cultivators, drags, harrows, and hoes, for the same purpose, as well as to eradicate weeds. It is notorious among agriculturists that lands so carefully tilled and aërated, under the ordinary rotation of crops, and the returns in the shape of the ordinary manures produced on the farm by a competent stock, do not in fact deteriorate, but improve in fertility, without the aid of "artificial manures," as they are called. You have hit the right nail on the head in the following passage:—"We must be allowed to express a suspicion that few soils, if any, are quite so much passive agents in the hands of the chemical manipulator as we are asked to believe, and that, after all, there is no laboratory so efficient as the old farmyard." Liebig has done good service in demonstrating to farmers that the minerals contained in our soils are very material agents in the growth of our crops—that they abound, in most cases, beneath the surface heretofore stirred by the plough, in an insoluble state for want of exposure to atmospheric influences, showing the advantages to be derived from deeper tillage. Liebig has, however, pressed his mineral theory too hard. Your correspondent would have been more correct had he associated the name of Dr. Daubeny with that of Liebig, rather than that of Dr. Voelcker, the Chemical Professor in our Agricultural College. The laboratory of the latter is surrounded by our College farm of 400 acres of arable land, in which he conducts many experiments, and takes much interest. He finds that the laboratory of nature modifies much of the teaching of the laboratory of the chemist.

Your correspondent's suggestions in reference to the employment of artificial manures well deserve the attention of the owners of land. I believe with him that the use of active stimulants, such as guano and nitrates generally, to the Corn crops, is mischievous. That they materially increase the actual crop of Corn to which they are applied, as compared with ordinary farmyard manure, is unquestionable; but all "is not gold that glitters." I venture to state that, taking into consideration the produce of the entire rotation of crops, whether it be the four-field or the five-field course, well made and well preserved farm-yard manure will, at the same outlay, be more productive to the occupier than the stimulants to which I have referred. The nitrates are to the land as the whip and spur to the horse, which increase his speed, but not his endurance.

Where something more than the ordinary produce of the farmyard is required, and it can be economically afforded, this should be obtained by the outlay of food for the stock. There is no question about the permanent value of the products of the animal laboratory.

I am far from condemning the use of all artificial manures; on the contrary, the phosphates materially increase the growth of the root crops, leading to the increasing of the live stock, and to the quantity and quality of manure, all of which is returned to the land. The application of bones to land depastured by cows for a long period is another instance of unquestionable advantage of a permanent character. *Charles Lawrence, Cirencester, Jan.* 17, *in the Times.*

FOREIGN LIVE STOCK.

HAS ITS IMPORTATION BENEFITED US?

[The following are extracts from an exceedingly interesting paper in a late number of the *Edinburgh Veterinary Review.*]

The leading points may be thus briefly summed up:—

1. Have we, as a nation, profited by the free introduction of foreign stock?

2. Have prices of either beasts or sheep suffered from foreign competition?

3. Have the losses of home-fed stock been equal to the importations?

4. Are the precautions taken to prevent the spread of disease in England and elsewhere judicious, and equal to the emergency?

Lastly, we propose to demonstrate the utter fallacy of the system which admits the intermixture of foreign stock with our own.

1. The first question, as given above, has never hitherto been raised; but on close examination of various details, it will be found all important both to the producing and consuming classes. The former naturally desire a remunerative price for their productions, whatever they may consist of; whilst the latter too frequently contend for the necessity of enlarged supplies, from whatever source they can be obtained, without fully comprehending the effects which may ultimately arise from the importation of an article, which carries with it a fearfully destructive power, and which may be instrumental in raising the value of a particular commodity far above its ordinary level—consequently in sapping the very foundations of our agricultural greatness. London being the great emporium for the import and sale of foreign stock, claims our attention, in the first place, as the largest consuming city in the world, and as the centre of disease, which we shall prove as we proceed. The great increase in the population of the metropolis during the last ten years, viz., 440,798, the actual census in 1851 being 2,362,236, and in 1861, 2,803,034 souls, would naturally lead us to the conclusion that the necessities of the people would lead to an enormous increase in the consumption of butchers' meat, and the operations of free trade in foreign stock would materially assist in providing for the requirements of an augmented population. Let us bring a few statistical facts to bear upon this question. In doing so, we will take the past 11 years, viz., from the period of the census in 1851, and include the value of beasts and sheep in a given period. If we mistake not, the details will show that free trade in cattle has been otherwise than favourable to the country generally. In the 11 years, then, ending with 1861, the total supplies of stock exhibited in the London markets, were as under:—

TOTAL SUPPLIES OF STOCK EXHIBITED IN THE LONDON CATTLE MARKET.

Years.	Beasts.	Cows.	Sheep and Lambs.	Calves.	Pigs.
1851	233,761	5,083	1,549,426	21,383	33,954
1852	243,537	6,067	1,455,240	27,225	32,178
1853	269,607	6,030	1,498,772	30,178	32,354
1854	257,167	6,227	1,498,525	24,853	34,280
1855	246,306	5,625	1,423,418	23,420	38,940
1856	252,624	5,841	1,325,474	20,395	34,077
1857	250,224	5,630	1,238,204	23,426	28,222
1858	258,710	6,054	1,335,597	24,164	32,646
1859	256,571	6,007	1,462,036	19,558	30,999
1860	260,122	5,919	1,424,770	25,281	29,676
1861	259,562	6,262	1,378,910	19,000	36,078

Thus we find that, comparing 1861 with 1851, the increase in the supply of beasts for the whole year was only 25,801 head; but if we compare 1861 with 1853, in which latter period 269,607 beasts were shown, we find a positive deficiency of 10,045 head! In 1853 the number of beasts turned out unsold to reappear for sale—and we beg particular attention to the turning-out system—was under 10,000; whilst in 1861, it was nearly 20,000 head. It follows, therefore, that the deficiency was nearly 20,000 head. But it may be said that the local markets in the vicinity of London have increased in importance. To some extent they have; but in numerous instances they have been partly supplied from the London market, and during the greater portion of 1861 and the present year, much of the meat sold by the butchers at Brighton, Hastings, Lewes, Margate and Ramsgate, as well as in the towns north of London, has been derived from the metropolitan market; so that, in point of fact, the increased supplies consequent upon the free import of foreign stock, are nowhere to be met with. It may, however, be contended that the additional consumption has been supplied by a very large increase in the arrivals of dead meat up to Newgate and Leadenhall markets from Scotland and various parts of England. On this subject we have made close inquiries, and the result of our investigations proves conclusively that the reverse is the case. The total number of carcasses received up to those markets, since January last, has not exceeded 30,000 per week; but, in 1851, they were upwards of 40,000, and in one week in 1841, they were nearly 80,000. Of course, prices in the latter year were very low, and who can feel surprised that they were so, with enormous supplies of home-fed stock, and with a population considerably less than at present?"

The table of the supplies of stock exhibited in the metropolitan market includes nearly, or quite, the whole of the foreign stock received in London; consequently, if we deduct the imports in 1861 from the total numbers shown, we find that, exclusive of the numbers turned out week by week, the supply of English, Irish and Scotch bullocks did not exceed 215,326 head. This statement will be better understood on reference to the annexed statement of imports:—

IMPORTS OF STOCK INTO LONDON.

Years.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.
1851	40,095	179,210	9,720	18,722	9,575
1852	37,449	171,347	8,293	20,219	7,220
1853	52,344	200,419	7,711	22,619	8,503
1854	49,603	134,855	3,862	17,331	8,625
1855	49,030	131,324	3,207	14,617	9,266
1856	41,211	104,498	5,709	15,564	7,333
1857	35,222	128,946	6,616	19,118	7,911
1858	36,446	142,824	9,175	19,614	8,402
1859	37,974	201,231	10,762	21,537	5,919
1860	46,231	236,699	14,192	19,066	16,115
1861	44,236	235,910	11,216	16,415	20,883

It is now necessary to consider what portions of England have benefited or suffered from the free introduction of stock from abroad. Whilst some districts have slightly increased their supplies of beasts for consumption, others have suffered materially, and others have scarcely advanced during the past ten years. In proof of these observations, we insert the annexed statement of the districts from whence London has drawn its bullock supplies in that period.

DISTRICT ARRIVALS OF BEASTS IN LONDON.

Years.	Northern Districts.	Eastern Districts.	Other Parts of England.	Scotland.
1851	60,360	61,300	30,300	16,020
1852	70,550	55,010	51,130	15,446
1853	56,650	60,400	31,700	18,446
1854	59,740	57,300	33,200	12,976
1855	53,400	64,080	24,580	12,820
1856	61,660	56,700	34,550	12,742
1857	81,600	67,500	29,860	10,796
1858	71,260	73,860	28,380	11,130
1859	68,470	71,060	42,310	14,780
1860	70,140	76,020	43,750	5,584
1861	76,150	61,260	27,400	12,858

It must be understood that the 'Northern Districts' refer to Lincolnshire, Leicestershire, and Northamptonshire; and the 'Eastern Districts' to Norfolk, Suffolk, Essex, and Cambridgeshire. The statement shows a steady increase in the producing powers of the first named counties, almost a 'stand-still' system in the east, and a falling off in the production in other parts of England, as well as in Scotland.

2. How, then, have the consuming classes fared in the period indicated? Have they purchased animal

food at a less cost than previous to the commencement of free trade?

"In the ten years prior to 1842, the average prices of beef in Smithfield did not exceed 3*s.* 2*d.*, and of mutton, 3*s.* 6*d.* per 8 lbs. In 1851, nearly the same quotations were realised; but for the sake of a closer comparison, we will take the month of November, since that period to the present time. The comparison stands thus:—

PRICES OF BEASTS AND SHEEP IN NOVEMBER.
PER 8 LBS. TO SINK THE OFFAL.

Years.	Beef.	Mutton.
1851	2*s.* 2*d.* to 3*s.* 8*d.*	2*s.* 8*d.* to 4*s.* 2*d.*
1852	2 0 „ 4 0	2 6 „ 4 6
1853	2 6 „ 4 6	3 0 „ 5 0
1854	3 4 „ 5 2	3 4 „ 5 0
1855	3 4 „ 5 2	3 4 „ 5 0
1856	2 8 „ 4 10	3 2 „ 5 2
1857	3 0 „ 4 10	3 0 „ 5 4
1858	2 8 „ 4 10	2 8 „ 5 0
1859	3 0 „ 5 0	3 2 „ 5 2
1860	2 6 „ 5 0	3 4 „ 5 4
1861	3 0 „ 5 3	3 2 „ 5 8
1862	2 8 „ 4 10	3 8 „ 5 8

"It follows, therefore, that the best beef is now worth 1*s.* 2*d.* per 8 lbs., more than in 1851, and that the advance in the best qualities of mutton is 1*s.* 6*d.* per 8 lbs., or 2¼*d.* per lb.!

3. Apparently these figures are highly favourable to the agricultural body in this country, but if free trade in stock implies high prices, how is it that home production does not keep pace with the demand! The reply to that question resolves itself simply into losses by disease—imported, we have no hesitation in saying, amongst the foreign stock, and this brings us to the consideration of the third point laid down in the first portion of our article.

"The public, generally, are well aware that a great number of sheep have been lost in Wiltshire, and some other counties in England, owing to an alarming spread of small-pox; but they are very little acquainted with the actual extent of the disease amongst sheep, or of the effects of the lung and hoof disease amongst the beasts. We are not alarmists when we state that fully one-third of the stock disposed of from time to time in our various markets, are more or less suffering from disease of some nature. If such be the case in open markets, how far must the evil have travelled throughout the country? It is a very common error to suppose that, because some kind of inspection is made of the stock which arrives in London from Holland, Germany, Sweden, &c., and, occasionally, consignments have been rejected by the inspectors, the present system wholly prevents the introduction of disease into England. We import on the average of years about 300,000 head of each kind of stock from abroad; but what is that number compared with the vast herds and flocks possessed in the United Kingdom, and the fearful amount of risk, attended with fearful losses, we incur in the spread of a malignant disease amongst our native breeds? It might appear difficult to estimate those losses, but our decided impression is, that they have far, very far, exceeded the number of stock imported. Some districts in England, such as Herefordshire, Devonshire, Sussex, &c.,—in which, be it observed, foreign stock has not hitherto been introduced,—appear to have escaped remarkably well; but wherever experiments have been made in fattening foreign animals, and which have come in contact with our own breeds, the results have been most disastrous. Let us give a few instances of loss amongst the foreign stock purchased in the metropolitan market. A friend of ours, residing in Norfolk, purchased 200 Dutch beasts, at 16*l.* 10*s.* each. They were conveyed to his farm, and placed in the stalls; but, in the course of three weeks, no less than 47 of them died from disease. Within six months, the number had been reduced to 80. They were sold, some on the spot, at 20*l.* 10*s.*; and the remainder—20—which turned out remarkably well, were again disposed of in London, at an average of 28*l.* 10*s.* each. An eminent distiller in the metropolis purchased the same number to fatten on grains: but the loss in this instance was still more severe, 63 having died in less than six weeks, and the rest were sold as speedily as possible, at from 14*l.* to 16*l.* each. Were it necessary, we could multiply similar instances, but we refrain from doing so on the present occasion, owing to the want of space."

4. Well, then, in dealing with the fourth question—Are the precautions taken to prevent the spread of disease in this country equal to the emergency?

"On the arrival of the steamers from abroad, laden with stock, the condition of the animals is certainly a matter of inspection, and we assume that nothing in the shape of disease is allowed to pass into the cattle market; but what supervision exists beyond this. The inspector in the market itself can order stock to be destroyed, if found in a very diseased state; but, beyond this, literally nothing is done to prevent contagion. Now, it frequently happens that many thousands of sheep—merinos—imported from Schleswig-Holstein, *viâ* Hamburg, are annually purchased by persons having land in the neighbourhood of the metropolis to keep down the Grass, and on speculation. These sheep, generally purchased in a very poor state, at from 17*s.* to 22*s.* each, are mixed with Lincolns, Leicesters, Downs, half-breds, &c., and after a run of some six or seven weeks are again brought into the market in, as we have frequently seen, a diseased state. But the evil does not rest here. It is true that the Metropolitan is not a market for the sale of store-beasts or sheep; but an immense number of those half-fat—we here refer to English breeds—are taken annually to graze and feed in Hertfordshire, Bedfordshire, Essex, Kent, Surrey, and various other counties. Need we point out the extreme danger of thus contaminating our own flocks and herds, in being penned amongst diseased stock; and need we feel in any way surprised that the disease, in a most virulent form, should suddenly present itself in more than one locality? Be it understood that the whole of the stock imported from abroad is liable to disease. It may not show itself on arrival; but no buyer can be certain that it will not present itself within a very few days after the stock is reported; indeed, it is a well-known fact that both beasts and sheep turned out of the cattle-market unsold on the Monday have seriously deteriorated in value within less than a week, and have consequently been sold at corresponding prices. In the lairs, there is an indiscriminate mixture of stock, diseased and in a healthy state, during several days; hence we contend that the precautions taken to prevent infection wholly fail in their intended effects.

"It may be asked what remedies we have to propose to prevent the spread of disease in the country, seeing the magnitude of the whole question bearing upon an adequate supply of food? We contend that foreign stock ought never to be allowed to mix with our own breeds under any circumstances; that lairs and slaughter-houses ought to be erected near the landing wharfs in London, and that severe penalties should be inflicted upon those who exhibit, or dispose of imported stock in open markets. These may appear to be arbitrary rules and regulations; but who shall tell what another year may bring forth, with a comparative license to sell foreign stock, which, in a short period after being landed, may communicate disease in its worst form to our English breeds? Is it not a well-known fact that during the present year the losses of home-fed beasts and sheep have largely increased, and is it not well known, likewise, that stock raised abroad is peculiarly liable to diseases unknown in the United Kingdom prior to the passing of the present tariff? It is perfectly useless to tell us that any system of inspection in this country on the arrival of the stock can prevent the introduction of disease, whilst a general intermixture is thenceforth permitted, and whilst sales are allowed for grazing purposes, because past experience has fully proved to us that such intermixture has been productive of serious, and in many instances, irreparable loss to the grazing community. We do not argue the necessity for wholly excluding foreign stock from this country; but we do maintain the principle, that we ought at least to protect ourselves from the possibility of loss. The simple, though all-important question to consider is,—can we afford to sacrifice even a moderate portion of the stock in the United Kingdom, (the value of which is very little short of 200 millions sterling), in order that the people may enjoy the supposed advantage of a large import of foreign stock to keep down prices to a moderate level? The statistics we have given prove conclusively to our minds that, irrespective of the immense sums in hard cash which have been drawn from us by the foreigners, we have lost more in the quality and condition of our own breeds, by the introduction of diseased beasts and sheep, than is generally supposed. Whilst the present system is allowed, daily losses must arise from it, until, eventually, we may find home stock not only very scarce, but considerably dearer in price than it now is. As a great consuming nation of animal food, and with a rapidly increasing population, especially in towns and cities, our great aim should be directed towards an increased home production. To secure that object, every effort should be made to exclude from our shores disease in every form. It will not do for the Government to remain passive whilst the enemy is at our very doors. If they really desire to protect the producers and consumers, let them call to their aid those who thoroughly understand the great question at issue, and the country may be saved from the consequences of loss and high prices, without destroying the principle of free trade in foreign stock."

Home Correspondence.

Furze Culture.—I cheerfully respond to the call of "A. B. C." regarding Furze, though when writing before on the subject I had intended to have paid a long promised visit to the demesne farm of Belle and be enabled to describe Mr. Cliffe's machine for preparing the Furze, and the system of culture on such good land; the impression formerly being—and on many minds still is—that Furze is profitably grown but on poor high dry land, difficult to cultivate, and when cultivated producing very inferior Corn crops. Mr. Cliffe's farming has been long conducted by a most respectable intelligent Scotchman, totally free from those anti-Irish propensities that were characteristic of the class of Scotchmen formerly introduced as stewards into Ireland, and whose management, from their ignorance of the peculiarities of the country, had so largely contributed to the trade of the Irish Incumbered Estates Court. To show the great value set upon Furze for horse and cattle feeding by Mr. Cliffe, he once said to me, on the scarcity of Grass and hay in the dry year of 1859: "But for the Furze we would have become, as it were, bankrupt in provender." But, however desirable and profitable Furze culture has been on such fine land as Bellevue, I think that until we can get the large tracts of Ireland, valueless in their present state, brought into use for Furze culture, it would be well to confine our operations in this regard to such lands; for by the superabundance of valuable food which they could be made to produce, those farmers beside them having land capable of corn growing and sheep feeding can be enabled to purchase or rent some of those Furze meadows from their owners, as I believe is now extensively done in some parts of the county of Cork, where the great value of Furze is so well known. There are two or three descriptions of soils and subsoils in Ireland on which I have seen Furze seldom grow well. They are what is called "burning sands," and deeply calcareous gravels—shallow soils resting on limestone beds, and heavy strong undrained clay soils resting on marl beds. Time of sowing—from the middle of March till the 1st of May, though I often sowed them with success on ditch banks later in the summer and early in autumn. But the above period is the best, especially when sown with a corn crop, for which Barley, if the soil suits it, is the best, as it is least injurious to the young Furze. I have sown the Furze even with a Flax crop, and they did well and without injury to the Flax fibre. Quantity of seed per statute acre—30 to 35 lb Some prefer a lesser quantity, and argue that by having a thinner crop the plants grow stronger and produce a greater arable produce, whilst a great many more prefer to have the crop thick, by which means the stems will be finer, and producing less waste in woody matter when the food is being prepared by cutting, crushing, or otherwise. Mode of sowing:—When the corn is harrowed in, or rather before the last "stroke" of the harrow is given—but better still with the Grass seed harrow, the Furze seed will be adequately covered, and let all stones be removed from the surface, which must be made as smooth and even as possible so as to admit of the scythes cutting the Furze as near the ground as possible, otherwise the stubbles or Furze stumps will in the course of time become so long as to lessen the produce considerably, and render the operation of cutting difficult. In harvesting the corn crop it will be advisable to leave the stubble long, to avoid cutting down thus early and injuring the growth of the young Furze; besides, the corn stubble will afford them shelter during the winter, and shade from the sun during spring. Deep cultivation of the land where practicable will be necessary, and though the Furze when established will thrive when their roots get into a subsoil that would be poisonous to corn, it is better to avoid bringing much of such subsoil to the surface, whilst the Furze plants are *in embryo*. If the land be very poor in the surface, a slight manuring with guano, superphosphate, or gypsum, or all three combined harrowed in with the corn crop, will be useful in giving the Furze a strong "start," by which means the seed sown next spring will be fit to mow for provender in the winter of 1864. Some prefer to give the plants a second year to strengthen and establish themselves, and say that though the first year's produce pays nothing, by thus strengthening the plant the loss will be more than compensated for by an increased annual produce corn in three years cutting. *E. Carroll.*

Coates's Herd Book.—As the 15th volume of Coates's "Herd Book" is now in preparation, and as the work threatens to become before long both very cumbersome and very expensive, I beg to call the attention of Shorthorn breeders to this matter, with the view of inducing them to consider how this growing evil may best be checked, and the book kept within reasonable dimensions. Now, the object of the work is to afford the means of tracing the pedigree of any pure-bred Shorthorn, and this may be attained by entering bulls only, with numbers attached to their names, as has hitherto been done; cows having been always entered without numbers, as if it was deemed unnecessary to refer to the book as to the cows in tracing a pedigree. I am therefore inclined to think that the entries of cows might be omitted (except, perhaps, celebrated prize animals), without greatly affecting the utility of the work. Thinking thus, I respectfully request Short-horn breeders to consider the matter carefully; and if they arrive at the same conclusion as I have done, they will perhaps be induced to omit the entering of their cows, and thus in some degree prevent this valuable Herd Book from becoming what it now seems likely otherwise to become, "a great book," which, according to the Greek sage, is "a great evil." *A. T.*

Notes on Irish Farming Societies.—The Royal Agricultural Society of Ireland was instituted in 1841 under the presidency of the Marquis of Abercorn, and the vice-presidency of eight other noblemen of distinguished reputation and rank as improving landlords, with a numerous and, we may assume, efficient Council. Their primary objects are announced to be—1. The establishment of at least one annual agricultural meeting for the show of cattle, &c., to be held in one of the four provinces in rotation, similar to those which are now held by the Highland Society and the Royal Agricultural Society of England. 2. To encourage the foundation of local or district agricultural societies, and to enter into communication with them, and afford them every aid and assistance towards improving the culture of land and breeding of cattle in their immediate localities. 3. To promote improvement in the dwellings and domestic condition of the agricultural population in Ireland, There are 32 Local Societies in connection with this Central Society, and though these may not all act with equal energy and effect, the aggregate amount of improvement attained through their instrumentality, must be considerable. The large prizes annually distributed at the provincial meetings excite much emulation, and constitute one of the chief causes of the great improvement which has taken place in Ireland in respect of farm live stock of all descriptions. No cost is spared by the leading breeders for the purchase of cattle of the best blood that Great Britain can afford, and the beneficial results are obvious to those who attend the cattle fairs and markets. And instead of deteriorating on the Irish soil, cattle and sheep naturally improve in their successive generations on the prime Grass lands which are available to them in many counties—much more so, in proportion to extent of area, than in Great Britain. The last notice under the head above (which was written many weeks ago), concluded with the remark that the names of two or three landlords had appeared in the schedule of applicants for loans through the Board of Works, for building labourers' dwellings. Several other proprietors have subsequently applied for loans for the same purpose (the third object of the Royal Agricultural Society) and other improvements. *M.D.*

Farm Memoranda.

COLLEGE FARM, CIRENCESTER.—In writing a report for the last month of the year, we are naturally inclined to review the principal agricultural features of the past season, and one fact stands out very obviously, viz., that it has been a bad year for the farmer. As the rickyards become emptier, so does the evidence become more clear that the yield of corn is very deficient, probably quite as bad as in 1860, and no doubt in great measure owing to the same cause, viz., excessive rainfall at certain important periods, and the absence of genial, hot, dry weather, during the ripening of the grain. The total rainfall as registered by Mr. T. C. Brown is not very much above the average, being 32.46 inches, whilst the average of the last 15 years is 30 inches. The following is his table :—

	Ins.		Ins.
January	2.70	Brought forward ..	16.89
February	0.35	July	2.08
March	4.70	August	2.25
April	2.22	September	3.87
May	3.95	October	4.72
June	2.97	November	0.55
		December	2.10
	16.89	Total	32.46

The large rainfall from March to June inclusive must have been very unfavourable for the cereal produce, and by interfering with the preparation for the root crops threw the planting back, and this partly accounts for the deficient crops which are general in many districts. The months of February and November, often amongst the wettest, were remarkable for the absence of rainfall. The dry character of November was of great importance in enabling the farmers to turn up the fallows in a healthy condition; more especially as up to this date we have had so little frost. Live stock will however to some extent help to make up the deficiency. Prices have been remunerative, and on dry healthy land sheep have done well; still the bad weather during lambing and weaning time has in many cases seriously affected the young stock. Tegs are not large, and the casualties from chest diseases and other inflammatory disorders are unusually heavy. In the low lands we hear that rotten sheep are spoken of, though this scourge appears in a very mitigated form as compared with 1860; and all over England cattle have been attacked with a foot and mouth disease, causing very serious loss to the dairyman and grazier.

With regard to the question of Horn *v.* Corn, which has lately occupied considerable attention, it appears to us quite impracticable to attempt to separate these two sources of an arable farmer's returns. If we could look into the future and be certain that corn would bring only low prices and meat would remain dear, we might wisely modify our system so far as to enable us to keep an increased quantity of stock, but we must still though perhaps rather less frequently, have corn, because it is the return from the corn that pays us in a great degree for the outlay upon our root crops. As a general rule, the return from sheep does not pay for more than the cultivation, rent, taxes, &c., of the land in roots, and others not even this, but the soil is left so enriched that it will grow perhaps 5 qrs. of Barley, which costs comparatively little to cultivate, and it is often to the produce of the corn as compared with its cost that we must look for our profit, rather than to the sheep, whose manure has so greatly contributed to this result. The idea of sheep without corn is absurd. We may on light soils keep our land in Grass for two years, and so increase our sheep food, but it must be with the view of growing a larger corn produce per acre that we repeat the crop less frequently. The only safe system of farming at the present day is that which aims at the largest possible production that is profitable. To what extent we can avail ourselves of artificial manures and artificial foods is a question that must depend upon soil, climate, and a variety of circumstances, but that each should avail himself of these valuable aids to the full extent that he knows to be profitable there can be no sort of question. Let us take for an example the use of artificial manures. A soil of moderate fertility, capable of growing 30 bushels of Wheat without extra help, can be made to produce 40 bushels if top dressed with a manure, costing say 25*s.* to 30*s.* per acre; with Wheat as low as 5*s.* a bushel, a very handsome profit remains. But in what condition is the soil left after such an increase of crop? Undoubtedly it is exhausted in proportion as the mineral matter and nitrogen in the increased produce exceeds that which was applied in the fertilizer. The latter has acted partly as a food, partly as a stimulant, resembling somewhat the action of a tonic on the animal system. This exhaustion is of no importance, provided we can renew the fertility of the soil at a cost that shall be less than our gain from the increased corn crop. The root crop follows—manured with, probably, farm-yard and artificial manure; consumed by sheep, eating corn or cake; and we have the soil again prepared for another corn crop. With such a practice we need not fear our soils becoming too rich for corn crops; indeed our own experience has been that within certain limits the application of an artificial stimulant to the Wheat crop gives the best net return when the soil is naturally the most fertile. A remarkable instance of this came under our notice lately. A celebrated farmer in Wiltshire applies nitrate of soda at the rate of 1½ cwt. to a field of Wheat on stiff soil; leaving a measured space undressed. The season was very unfavourable for such land. The natural produce was only 20 bushels per acre, whilst the manured part yielded 40 bushels per acre, besides a large increase of straw which was not noted. The plant was stimulated to assimilate an increased amount of food, which the stiff soil contained in abundance. Of course the topic we have alluded to is totally distinct from the question, how far arable or pasture land is the more profitable.

With regard to the month that is past we have little of interest to chronicle. The weather during the early part was dry and favourable for field operations, allowing of steam and horse ploughing the fallow land, and raftering Sainfoin, and old Grass land in preparation for the breast plough and burning. Swedes had been buried in drills opened by a common plough (3 rows in each), and again ploughed over, whilst a limited portion were cleaned, heaped and soiled over to be kept as a reserve in case of severe frost. Cleaning out ditches, grubbing up fences, in order to make the surface more suitable for steam cultivation, and repairing roads, now constitute the principal operations. In the report for November we made some remarks upon our falling sheep; we will now notice the management of the ewe flocks. These are divided into two portions. The shearling ewes are gnawing Swedes, and getting some inferior seed hay; and, considering the very wet weather, they are doing well. A pen of straw is made in one corner of the field, on which the cribs are placed, so that the sheep at night have a dry lair. The older ewes are eating Turnips, of which they have a very limited supply; at night they are driven into a fold-yard, and supplied with straw in racks. All through December they had Bean straw, and it is astonishing what a large quantity they consume, and how well they thrive upon such food.

It is a common idea that it is only the pods or the upper portions of the straw that sheep will eat, but we find that a large proportion of the straw is eaten. Now they are having Pea straw, and when within a week or two of lambing, a portion of hay will be given for the first time. The feeding value of straw is a question of such importance that any successful instance of its use ought to prove interesting. When straw alone is used for fodder, it will not pay to cut it up; we not only have the expense of cutting, but the sheep will not do so well. *John Coleman, Royal Agricultural College.*

Miscellaneous.

Bakewell and Jonas Webb.—It is pleasing to see the awakening of a better feeling to those men who have distinguished themselves as breeders of live stock, and desiring all manner of success to the subscription for a monument to Jonas Webb, in the Agricultural Hall, it certainly seems to me that if that monument is erected, which I have no doubt it will be, it must have the effect of recalling to mind the neglect which has been permitted to hang over the greater name of Bakewell. It is perfectly wonderful that some attempt has not been made to associate his name in some way or other with the many displays of live stock which occur so often in England. While in Scotland now we have statues of James Watt of various kinds, and while in England just the other month a statue of Crampton was inaugurated; while numbers of men only noted for transient and ephemeral works have been commented on in no ordinary degree in many of the other departments of manufacturing and mercantile pursuits—the very existence of the greatest name which any country can boast of in the production of food for the million is left entirely ignored. When some half-informed people speak of the few names of discoverers which agriculture can boast of in comparison with other departments of knowledge, we say then there is none in any surpassing that of Bakewell. Before ever Crampton, Arkwright, or James Watt made their discoveries, he had made his; and it is truly wonderful how Providence works, for had the laws which regulate the production of sheep or mutton not been then discovered, how would the millions have been fed which these discoveries called into existence? For his discoveries are equal in degree to those of any of these great names. The genius who could discover what his did—that a certain form of the animal system was required before the beef-producing properties could be acquired, and that a certain quality of touch must accompany that form before the full advantage could be realised from that form, was of no common order. Let breeders say what they choose, not one new principle has been enunciated since he produced his Leicester sheep, and created a breed of animals from which they only have copied. From some acquaintance with the older works on agriculture, it has always appeared to us that it some day would come when the value of Bakewell's discoveries would be more truly appreciated and acknowledged. Any works treating on live stock before his day contain the most absurd and contradictory rules for the breeding of sheep and cattle, evincing the grossest ignorance of the rules which he exemplified in his stock. But the universality of their adoption at the present day seems to be the cause why so little regard is paid their discoverer. It is surely time that something was done. A statue by all means, if people wish it, in the Agricultural Hall, where it should fill the place of honour if there is any such. But there are other ways by which respect may be shown his name. Why should the Royal Agricultural Society, with thousands at its command, not offer 100*l.* prize for the best essay on his life and discoveries, to be followed up by those of his successor Mr. Collins. Or why not pay a competent party to execute such a work, to hunt out all the reminiscences which may yet exist as to his history, whether any portrait of him still or ever was to be seen. Whether any portraits of his early sheep may be in existence. In the literary and philosophical journals there are few more interesting pages than those with the lives of the chemists or mechanics. Why not let us have equally full accounts of the life and labours of the men who have produced races of animals which have no equals in the world? *A Mid-Lothian Farmer.*

Calendar of Operations.

JANUARY.

[The following passages are extracted from *Morton's Farmer's Calendar*. Routledge.]

The Feeding House and Byre.—The Economy of Winte Cattle-feeding—will be discussed in November and December, when it commences, and it must suffice here to refer to the continued use of the mixed chaff, pulped roots and meal—becoming richer as the fattening process is prolonged. One half the quantity of roots formerly commonly given (or, say ¾ cwt. daily), is thus used along with 20 lbs. or more of sweet straw chaff, and 4 lbs. to 8 lbs. of meal, either Beans and Barley meal, or oil cake crushed and moistened, or their equivalent in Carob pods or cotton seed cake, or some of the other cakes whose merits will be compared in the Calendar for November.

The Cow House.—Cows may, some of them, calve this month. They should afterwards receive more succulent food than formerly—as Turnips, Cabbages, Mangel Wurzels. After they calve, they should be kept quite from the other lean stock, either in the house or in another yard, and be fed upon those articles and hay, or cut chaff, mixed with pulped roots, and two or three pounds of meal, daily. Cabbages, of which 40 or 50 tons may be grown per acre, will maintain cows in the cheapest manner; and the butter made from their milk will be perfectly sweet, whatever (almost) be their food, if the milk have hot water (one pint to a gallon) added, when set for cream, and if the cream be scalded—the tin of cream being placed for half an hour before churning, in a boiler of water at the boiling heat, and its contents stirred repeatedly. It is, however, right, if Cabbages be given, to remove all decayed and yellow leaves, giving the cows nothing but the heart of the Cabbage: the refuse leaves will be eaten clean up by the lean cattle. The great expense of winter-feeding cows with hay alone eats up the profits of the dairy, even if none be given till they calve; for supposing them to calve in January or February, there remain three or four months for that expensive food.

Young Cattle.—The last year's calves should now be fed liberally with chaff of hay and straw, mixed with pulped roots, either Turnips or Mangels; and they should be thoroughly well fed, and kept perfectly clean by means of litter. At this age it is a matter of great consequence to keep such young cattle as well as possible, for the contrary practice will inevitably stop their growth, which cannot be recovered by the best summer food. To steers and heifers two years old, the same food in proportionate quantity may be given, the chaff being of hay, if it is abundant; or straw, with baits of Turnips, Cabbages, &c. It is not right to keep yearling calves and two-year olds together; they should, if in yards, be sorted out in lots of equal size and strength, or the weak ones suffer. And if the practice of giving them out Turnips along with a little hay or access to the straw, should be adopted, yearlings should receive in addition one or two pounds of oil cake daily apiece. The two-year old steers should be in fattening order on the best food in the feeding house, as already described—or, if heifers, on the less fattening diet, to which reference has already been made.

The Breeding Flock.—In this month ewes of some breeds of sheep will lamb. They should be provided with shelter, food, and attendance. They seldom need Turnips till near the end of the year; most farmers having Grass sufficient for the ewe flock till they are near lambing, when they should have Turnips regularly given them. If the land be not dry, the best method is to draw the Turnips, and cart them to a dry pasture, and there bait the sheep on them twice a day, observing well that they eat clean, and make no waste; which is not a bad rule for ascertaining the quantity necessary. In this way the Turnip crop goes the farthest. On dry soils, the best way, as the best manuring for the succeeding Barley crop, is to eat the crop on the land, hurdling off a certain quantity for the flock; and, as fast as the crop is consumed, whether off the land or cut in troughs, to remove the hurdles farther. This method saves much trouble, and is highly improving to the land; but it should be practised only on lands that are dry, otherwise the sheep poach, and do mischief. The crop, when eaten as it stands, will not go so far as if drawn and laid in a Grass field[a]; for the sheep dung, and stale, and trample on many of the roots after they are begun, which occasions waste: nor is there any loss of manure in carting them, only it is left, in one instance, on the arable field, and, in the other, on the Grass one.

BERWICKSHIRE MERSE FARM: *Jan.* 10.—Since the departure of winter in November we have enjoyed six weeks of remarkably mild weather. Until Sunday last there was not a touch of frost, but on Tuesday the ploughs were frozen out for that day only. Strong winds prevailed during the latter half of December, and on the night of the 18th it blew almost a gale, with a very marked rise of temperature to 50° Fahr. The rainfall amounts to 4 inches, one-half of which has fallen since the new year. Wednesday and yesterday were very wet, streams brimming, and the land soaked for the first time since harvest. Since last spring everything has been a month behind the usual time; and the main part of our winter Wheat has been sown within a month past, in good order for the time of year. Work in general has got a good lift, yet lea ploughing is not so far advanced as to make us wish for hard weather yet. The storing of Swedes is well forward, showing a small crop, sound and firm. White Turnips, on the contrary, have never come to maturity, and sheep have made short work with them; and *vice versâ*, there has been great mortality among hogs these two or three weeks. We have commenced cutting to them, in the hope of stopping the deaths; and with many whose Turnips are finished there is no choice. We believe the number of cattle being fed is smaller than usual; and if Swedes are deficient we could scarcely expect to have corn cheaper. Linseed cake at a half more money is surely too dear. Poor as our hopes were as to the yield of corn, the result is worse than we expected. Wheat is bad in proportion as it was farther advanced at the time of the gale of 25th July, fallow Wheat being the worst. Spring sown fields were not then in the ear, and they yield 2½ to 3 quarters of better quality. Barley is high coloured, and gives 3 to 4½ quarters. Oats promised well, but do not turn out any better than they should

do. There is a slight revival in the trade, and fine samples of Oats are sought for seed at 26*s.* and 27*s.* a quarter. Potatoes are a miserable crop, and prices going down in spite of it. Good prices cannot be looked for, when so many of our customers are lying idle; and with such a bad crop half a year's rent at least must be raised otherwise than from the farm. *J. T.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. SEARING, Moulsford, near Wallingford, Berks, during the week ending Jan. 21, 1863.

Day of Week.	Day of Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Dry Bulb Thermometer.	Reading of Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0-6	Amount of Cloud 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Reading of Self-Registering Thermometers. Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.
		At 9 A.M., Railway Time.												
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday ..	15	30.45	37	36	N.E.	2	7	43	30	64*	24	..	41	42¾
Friday ..	16	30.36	36	35	N.E.	3	6	41	32	44	27	..	40¾	42¾
Saturday ..	17	30.25	35	34	N.E.	1	6	44	32	40	32	..	40	42
Sunday ..	18	29.42	41	39	W.	3	3	49	34	70	30	0.15	42	43
Monday ..	19	29.42	47	43	W.	3	4	49	37	70	34	..	42	43
Tuesday ..	20	29.20	42	37	W.	3	3	51	40	73	36	..	42	43
Wednesday	21	29.69	41	39	W.	4	3	43	36	60	31	0.60	42¼	43¼

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Notices to Correspondents.

CARTS: *H. W.* asks for price and character of the best carts now made from any of our Correspondents, and where they are to be had, We may mention that Messrs. Crosskill, of Beverley, have long been known for their good carts.

FLAT ISLAND GUANO: *Cor.* A Melbourne advertiser announces it as being superior to Peruvian, and for sale at 5*l.* 5*s.* a ton. There are several "Flat Islands" named in Gazetteers, N. latitude 11°, 18° 3', and S. latitude 3°, 7°, and 8°, chiefly in the Indian Archipelago and China seas. It is possible that good Guano may be found on them.

HERD BOOK: *Amateur.* If you will address a letter to H. Stratford, Esq., 13, Euston Square, London, N.W., the Editor of the Herd Book, he will give you every information.

LAND IMPROVEMENT: *J Charlton.* A good plough with sharp irons and a share of extra width should pare your land much more cheaply than common breast ploughs. Drainage, liming (3 tons per acre), paring and burning and spreading the ashes, should after tillage, with perhaps 3 cwt. of guano per acre, enable you to grow a good crop of Rape; and after this is fed off we would take another green crop, as Turnips, for the sake of an efficient tillage of the land. Thereafter it might be laid down to Grass with some prospect of success. Read the account of Northumberland experience of this kind in Mr. Wilson's article on Agriculture in the *Encyclopædia Britannica.*

PEDIGREE WHEAT: *A Correspondent* who calls himself a victim, complains that the same Wheat for which in August last two guineas were demanded, is now being sold for one half that price.

PERUVIAN GUANO: *R.* The reduction to 12*l.* per ton of the price of Peruvian Government guano was announced lately by Messrs. I. Thomson, T. Bonar, and Co., the present consignees of this article, It will be recollected that early last summer, immediately previous to the change which then took place in the agency for the sale of guano in this country, the price was advanced to 13*l.* per ton. This advance has proved very prejudicial to the interests of the Peruvian Government, having checked the sales of guano, and greatly stimulated the manufacture and consumption of spurious articles, and of other artificial manures, and the reduction now announced in the price of the genuine article, consequent, we understand, upon urgent representations to the Peruvian Government, will be regarded as a boon by agriculturists.

POTATOES: *Messrs. Nesbit & Co.*, of Kennington Lane, inform us that the sulphates of magnesia and of soda have a decided effect in diminishing the liability to disease. For clayed peat land without other manure they advise at the time of planting to sow broadcast and to harrow in about 3 cwt. of guano. Set the Potatoes in the usual way, and three or four weeks afterwards sow over them and lightly harrow in the like quantity with 1 cwt. of sulphate of soda and 1 cwt. of sulphate of magnesia per acre. Or if it be preferred not to use guano, a compound of superphosphate and sulphate of soda and of ammonia or nitrate of soda, containing about the same quantities of phosphates, nitrogen, and alkaline salts, may be used in lieu thereof.

STOCK OF FARM: *Inquirer.* Failing a detailed answer this week, we give you some of the data on which such a calculation must be founded. A sheep fatting in spring to 20 or 24 lbs. a quarter, will eat during winter 20 lbs. of green food daily, a quantity which will be reduced at the rate of perhaps 4 to 6 lbs. for one by cake or grain given in addition, and 2 to 4 for one by hay. A cow in milk will eat as much as 10 sheep, younger stock in proportion. We will endeavour to go into your case in detail in our next publication.

Seed Catalogue.—Spring, 1863.

WM. WOOD AND SON respectfully announce that their DESCRIPTIVE SEED CATALOGUE for the present season, containing select Lists of the most approved KITCHEN GARDEN, FLOWER GARDEN, and FARM SEEDS, is now ready, and may be had post free on application.

☞ Orders amounting to 10*s.* and upwards sent carriage free. See List.

Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.

N.B. CATALOGUES of ROSES, FRUIT TREES, ORNAMENTAL SHRUBS, &c., may also be had.

DICKSONS AND CO. have just published the following CATALOGUES, which may be had free on application:—

1. VEGETABLE, AGRICULTURAL, and FLOWER SEEDS.
2. FOREST and ORNAMENTAL TREES and SHRUBS.
3. RHODODENDRONS and CONIFERÆ.
4. ROSES.
5. FRUIT TREES.
6. STOVE and GREENHOUSE PLANTS and FERNS.
7. HERBACEOUS and ALPINE PLANTS.

Their DESCRIPTIVE CATALOGUE of FLORISTS' FLOWERS will be ready in March.

D. & Co. respectfully invite the attention of gentlemen engaged in planting to their extensive Stock of FOREST TREES, which are remarkably healthy and well rooted.

They have also a large Collection of ORNAMENTAL TREES and SHRUBS of all sizes, which they are offering at very reasonable rates.

1, Waterloo Place, Edinburgh.

Seeds made Proof against the Attacks of Birds.

SAMUEL WALTERS, SEED GROWER and MERCHANT, Hilperton, Trowbridge, Wilts, begs respectfully to offer SEEDS prepared as above stated, in small or large collections. Some of the advantages of using seed so prepared are—a less quantity of seed will produce a greater number of plants; all contrivances to frighten away birds can be dispensed with; the anxiety to secure seeds from the attacks of birds will be no more felt by the use of new and good home-grown seed so prepared. Unusual success may be expected. A nominal charge only will be made for Proof Seed, or when a Collection of Garden Seeds of 20*s.* value and upwards be requested and supplied by S. W., no extra charge will be made. The Seed can be tested at once by putting it on side of other Seed not prepared—the birds will eat the latter, but not the former.

AMATEUR'S GUIDE in a comprehensive form will be sent with each Collection of Proof Seeds.

KITCHEN GARDEN, FLOWER, and FIELD SEEDS always on Sale.

Specimen Conifers and other Trees.

JAMES VEITCH AND SON beg to call the attention of noblemen and gentlemen to their fine Stock of Specimen CONIFERS and other TREES. From the quantity they have they are enabled to offer them at reduced prices, which will be given on application:—

Abies Douglasii ..	3 to 5 feet.	Juniperus excelsa	4 to 6 feet.
,, ..	5 to 8 ,,	Picea amabilis ..	1 to 1½ ,,
Araucaria imbricata	4 to 6 ,,	,, nobilis ..	1½ to 2½ ,,
,, ,, ..	6 to 8 ,,	,, lasiocarpa .	1½ to 2 ,,
Cedrus Deodara ..	3 to 4 ,,	,, ,, ..	3 to 4 ,,
,, ,, ..	4 to 6 ,,	,, Nordmanniana ..	4 to 5 ,,
,, ,, ..	6 to 8 ,,	,, Pinsapo .	3 to 4 ,,
,, ,, ..	8 to 10 ,,	Thuja gigantea ..	3 to 4 ,,
,, ,, ..	10 to 12 ,,	,, Lobbi ..	3 to 4 ,,
,, Libani ..	4 to 6 ,,	,, ,, ..	4 to 6 ,,
Cryptomeria Lobbi	4 to 6 ,,	Thujopsis borealis	3 to 5 ,,
Cupressus Lawsoniana	3 to 4 ,,	Wellingtonia gigantea	2½ to 3½ ,,
Irish Yews ..	4 to 6 ,,	,, ,, ..	4 to 5 ,,
,, ...	6 to 9 ,,	,, ,, ..	5 to 7 ,,

The whole of the above either in tubs or with good balls.

Standard PORTUGAL LAURELS, 3 to 4½ feet stems, with fine heads 4 to 5 feet through.

WEEPING HOLLIES, 4 to 5 feet stem, with fine heads, 3 to 4 feet through.

GREEN HOLLIES, pyramids, 8 to 10 feet, fine.

Also a fine stock of Dwarf Trained PEARS and APPLES, KALMIA LATIFOLIA, and BERBERIS ASIATICA, the latter particularly recommended for Fences.

Nursery, Exeter.

To Gentlemen, Nurserymen, Market Gardeners, and Others.

MR. HOOK will be happy to treat for the remainder of his Stock not disposed of, in large or small quantities, such as are enumerated in the Catalogue.

A quantity of LILY of the VALLEY ROOTS, SEEDLING NUTS, GRAPE VINES, GOOSEBERRIES, CURRANTS, ROSES, and a quantity of PHEASANT'S-EYE NARCISSUS ROOTS, &c.

Bulstrode Gardens, Jan. 24.

The Planting Season.

THE EXECUTORS of MR. JNO. YOUNG, late Proprietor of the extensive Nursery Grounds, Taunton, have determined to reduce this large and valuable Stock. They respectfully invite the attention of Noblemen, Gentlemen, and the Trade to the FOREST TREES, HARDY and ORNAMENTAL TREES and SHRUBS, large and small; CONIFERÆ, EVERGREENS, HERBACEOUS, and a great variety of other PLANTS.

STANDARD, DWARF, and POTTED ROSES.

STANDARD, DWARF-TRAINED, and PYRAMIDAL FRUIT TREES.

The varied and excellent quality of this Stock is so well known that comment is unnecessary.

The Grounds are open for inspection and sale daily, and in quantities at greatly reduced prices.

Applications by post direct to the EXECUTORS of the late Mr. John Young, Taunton.

The above capital FREEHOLD NURSERY
(Established more than 30 years),
containing about 12 Acres of highly productive Land, with the usual Appurtenances, situate at Taunton, the County Town of Somersetshire, in excellent condition, with a good connection, is
TO BE SOLD, with Early Possession,
in consequence of the Decease of the late Owner.
For particulars, apply as above.

TO BE SOLD, 200 feet length of 10-feet LIGHTS, for covering Peach walls. They are new, portable, and easily fixed. Gutters, Plates, Doors and Ends complete. Price 80*l.* Apply to CUTBUSH & Co., Highgate, N.

Also 85 ORCHARD TREES in Pots, from 4 to 8 feet in height, fine trees, consisting of Peaches, Nectarines, Plums, Pears, and Cherries. Price 30*l.*

The Lights would make a good Orchard House, 100 feet in length.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

New Seedling Rhubarb Excelsior.

B. W. KNIGHT, NURSERYMAN, Battle, Sussex, is now sending out this superb NEW RHUBARB; it is quite distinct, of very large growth, very productive, of a new and desirable flavour, partaking largely of the flavour of the Apple. Good plants, 3*s.* 6*d.* each.

CHARLES SHARPE AND CO., SEED GROWERS, Sleaford, have a large quantity of the following PEAS to offer to the Trade, viz.:—Flack's Imperial, Bedman's Imperial, Dickson's Favorite Green Marrow, Champion of England, and Woodford's Green Marrow.

Samples and prices on application. Can make good offers.

To the Trade.

TO BE DISPOSED OF (for Cash), about 30 bushels of GREEN-TOP SWEDE TURNIP, new Seed of 1862, and can be warranted. For price and further particulars, apply to

W. HUZZARD, Etton, near Beverley, Yorkshire.

Seakale.

GEORGE CLARKE begs to announce that he has SOLD OUT of FORCING SEAKALE, but can supply any quantity of healthy clean roots for planting. Prices will be forwarded on application.

Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, near the Victoria Railway Station, Pimlico, S.W.

To Seedsmen and Others.

THOMAS AYRES, SEEDSMAN and GROWER, Biggleswade, Beds, begs to offer the following SEEDS of his own growth of 1862, viz:—

WHITE SPANISH ONION SEED,
MANGEL WURZEL SEED, various kinds.
SWEDE, and COMMON TURNIP, ,,
SEED POTATOES of the following varieties:—EARLY ASH LEAF KIDNEY, MYATT'S PROLIFIC do., EARLY SHAW and REGENTS.

A PRICE LIST forwarded upon application.

Stirling, Scotland.

W. DRUMMOND AND SONS' CATALOGUE of SELECT VEGETABLE and FLOWER SEEDS, POTATOES, GARDEN TOOLS, &c., for 1863, is now ready, and may be had on application.

The distinctive features of this Catalogue are such as have commended themselves alike to the Gardener and Amateur. Being simple in arrangement, and sufficiently descriptive, a selection from its columns is rendered easy and satisfactory. Moreover, we still adhere to the system introduced by us several years since, of discarding, in the various sections, all comparatively inferior varieties, as well as omitting what are mere repetitions of the same sorts under different names.

*** Seeds Carriage Paid, as formerly.

W. DRUMMOND & SONS, Seed and Implement Warehouse, Stirling.

CHARLWOOD AND CUMMINS beg to announce that their CATALOGUE of GARDEN, AGRICULTURAL, and FLOWER SEEDS is now ready, and will be forwarded on application. They also now offer their

NEW NEMOPHILA DISCOIDALIS ELEGANS,

commended by the Royal Horticultural Society in their Proceedings; it is thus noticed:—

"The flowers of this variety (which is a very pretty one) are of a bright chocolate or light reddish maroon, conspicuously bordered with white. The colours are distinctly marked and very effective." It is commended as a very desirable Annual for general cultivation.

2*s.* 6*d.* per packet. Price to the Trade per ounce,

14, Tavistock Row, Covent Garden, London.

A TREE or SHRUB SEED LIST will be published shortly.

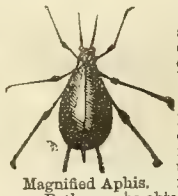
COCOA-NUT REFUSE, as used for FERNS, BEGONIAS, &c., grown in the International Exhibition, delivered at any Booking Office in the City at 1*s.* 6*d.*, or within 2½ miles of Charing Cross, at 2*s.* per bag of 3 bushels. Larger quantities on lower terms on application to the PATENT COCOA FIBRE COMPANY, Kingston-on-Thames, S.W.

Also SHORT FIBRE for Orchids and Drainage in pots.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are the best and most economical of any that are made, and are sold in every town in the kingdom.

CAUTION.—See that every Brush is stamped "J. BARSHAM'S Patent, Kingston-on-Thames."



Magnified Aphis.

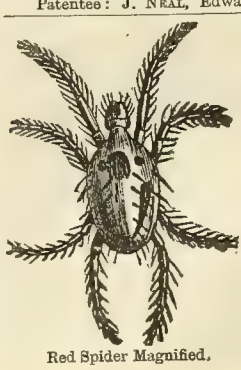
NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP,

1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

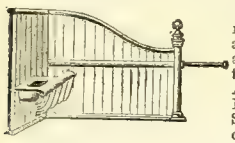
Wholesale by
PRICE'S PATENT CANDLE CO., Limited.

MINTON AND CO. have REMOVED from Albion Place, Blackfriars, to 50, Conduit Street, Regent Street. ENCAUSTIC and other PAVEMENTS, EARTHENWARE and PLAIN TILES. Designs and Estimates prepared.
Manufactory: Stoke-upon-Trent.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability. Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.
To be obtained of F. & G. ROSHER, Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, London, N.E.

AGRICULTURAL MACHINERY. — Threshing Machines for Steam and Horse-power, Ploughs, Harrows, Waggons, Carts, Mills for hand or power, Turnip cutters, Cake-breakers, Chaff cutters, &c., &c.
Price List free per post on application. Catalogues 6d. each.
BURGESS & KEY, 95, Newgate Street, E.C.
Works—Brentwood, Essex.

Exhibition Prize Medal 1862.
MUSGRAVE'S PATENT STABLE FITTINGS and HARMLESS LOOSE BOXES, PATENT IRON COW HOUSE FITTINGS, and IRON PIGGERIES.

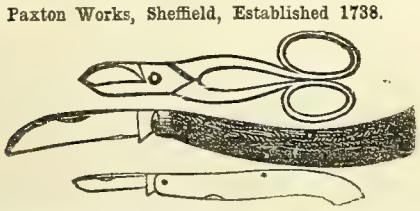


These inventions are recommended as possessing numerous advantages not to be found in anything hitherto made. At the late Meeting of the Royal Agricultural Society at Leeds, MUSGRAVE BROTHERS received a Silver Medal, and two Awards of "Highly Commended," being the only Prizes conferred on any competitor in this class.
Particulars sent on application to the Inventors and Makers, MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.



JOSEPH HAYWOOD AND CO.,
MANUFACTURERS OF
PRUNING and BUDDING KNIVES,
SPORTSMAN'S, and all kind of POCKET CUTLERY.
Dealers in Gambia Garden Shears, Scissors, Syringes, &c.
Glamorgan Works, Sheffield.

Paxton Works, Sheffield, Established 1738.

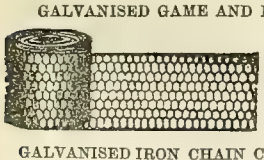


International Exhibition Prize Medal is just awarded to SAYNOR & COOKE for superiority of quality in Pruning and Budding Knives, &c.
SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.
CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

Prices Reduced.
H. J. MORTON AND CO., Galvanised Iron Works, 2. Basinghall Buildings, Leeds.
GALVANISED IRON ROOFING
for Farm Buildings and other Roofs; the cheapest, most durable, and neatest Roofing in use: also Spouting at 10½d. per yard,
WIRE STRAND CABLE FENCING



(formed of Twisted Wires like a rope or cable), the strongest, cheapest, and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Price, with five lines of the Galvanised Strand, iron main posts, and pronged Standards, from 1s. per yard.
This fence is far cheaper than posts and rails, or any kind of iron fencing; and possesses four times the strength of solid bars. Will not rust nor corrode. Upwards of 1200 miles of this Fencing supplied.
GALVANISED GAME AND POULTRY NETTING.

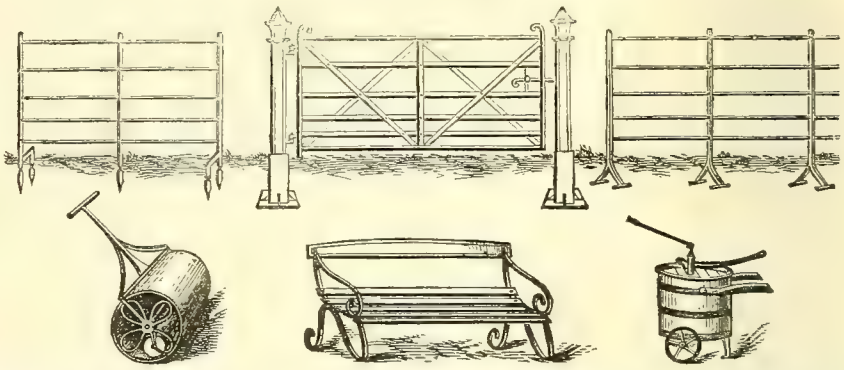


Galvanised, 24 ins. wide, 2-inch mesh, 4d., 4½d., and 6¾d. per yard.
Galvanised, 24 ins. wide, 3-inch mesh, 2¾d., 3¾d., and 5¼d. per yard. The Netting made any width, and with openings of any size.
GALVANISED IRON CHAIN CAMP STOOLS & CHAIRS, POULTRY FOUNTAINS & FEEDERS, PRONGED DAHLIA RODS and ROSE STAKES, &c.
Strong CATTLE HURDLES from 2s. per yard.

PATENT IMPROVED GAS WORKS
of all sizes, for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c. Works from 10 to 500 lights estimated for. The works can be entrusted to an ordinary labourer.—Apply to
HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

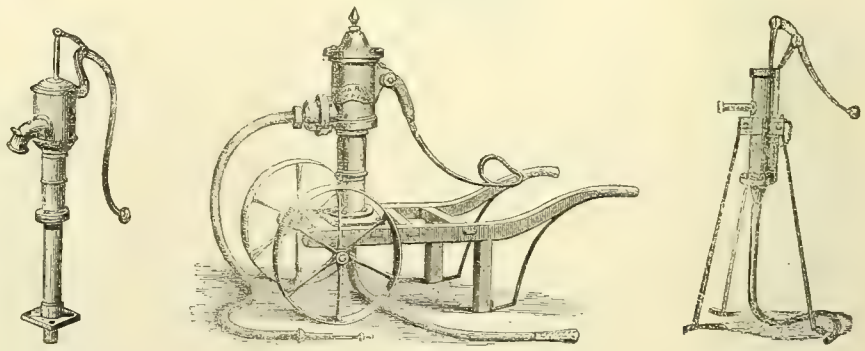
FOWLER'S
STEAM PLOUGHING AND CULTIVATING PATENTS.
RANSOMES & SIMS, ORWELL WORKS, IPSWICH,
Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

COTTAM'S
CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,
MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.
PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED,
IN VARIOUS STYLES.



IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES
WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.
VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.
The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.
Illustrated CATALOGUES and DRAWINGS free on application to
COTTAM & CO., ENGINEERS and IRON FOUNDERS,
2, WINSLEY STREET (OPPOSITE the PANTHEON), OXFORD STREET, LONDON, W.

JOHN WARNER & SONS,
BELL AND BRASS FOUNDERS TO HER MAJESTY,
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS
OF EVERY DESCRIPTION.



No. 35. No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... ... £1 | 1 2½ inches ... ... 3 feet 3 inches high £1 10
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0
2½ inches long, ditto ditto 2 14

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3l. 3s.) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3l. 15s.) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.
When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equa capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.
4½-inch LIQUID MANURE PUMP, with legs, 2l. 15s.; 2-inch Flexible Rubber and Canvas Suction Pipe, 2s. 5d. per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

ST. PANCRAS IRON WORKS,

OLD ST. PANCRAS ROAD, N.W.

IRON HURDLES, FENCING, and GATES.

The PROPRIETORS of the ST. PANCRAS IRON WORKS, OLD ST. PANCRAS ROAD, LONDON,

WERE AWARDED THE

SILVER MEDAL of the ROYAL AGRICULTURAL SOCIETY for their IRON HURDLES and GATES, which, by their peculiar construction, are more than twice as strong and durable as those in ordinary use.

Lists per post on application. Gates from 30*s.* to 500*l.*

The Hurdles can be seen in process of Manufacture at the Works.

GAME WIRE NETTING.

PROFESSOR VARNELL'S ENAMELLED and WROUGHT-IRON STABLE FITTINGS.

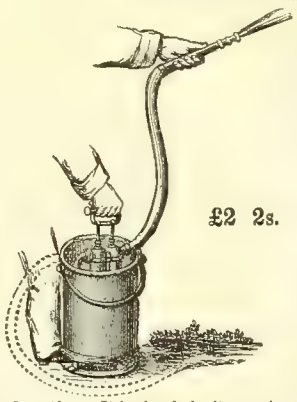
These Patent Mangers and Stable Fittings obtained the Commendation and the Silver Medal of the Royal Agricultural Society of England and the Royal Agricultural Society of Ireland, are adopted by the Royal Agricultural Society of England and the Royal Agricultural Society of Ireland, are adopted by the Royal Veterinary College, and Professor Spooner of that Institution states that they should be used by all who value the health and comfort of their Horses. They can be had Plain, Galvanised, or Enamelled.

A Show Room is devoted entirely to every description of Stable Furniture, and full-sized Stalls and Loose Boxes are erected for inspection at St. Pancras Iron Works.

ADDRESS—THE MANAGERS, ST. PANCRAS IRON WORKS,

OLD ST. PANCRAS ROAD, LONDON, N.W., OPPOSITE OLD ST. PANCRAS CHURCH.

AMERICAN PORTABLE FIRE ANNIHILATOR and GARDEN ENGINE.



£2 2s.

An efficient means of Extinguishing Fires at their commencement. Nine out of ten Fires in London are put out on their first appearance by the London Fire Brigade with Hand Pumps of considerably less power.

One man will throw 7 or 8 gallons per minute from 40 to 50 feet with it.

It is an effective Garden Engine for cleansing or syringing Wall-fruit or Rose Trees, Plants, or Vines.

It may be used to draw water from the pail in which it is fixed, or from a tank or pond by the addition of the required length of suction. It is simple in its construction, having no suction or delivery valves to clog with dirt or leaves.

No Establishment, either private, commercial, or manufacturing, should be without one.

Six feet of Flexible Suction, with Union and Suction Rose, &c., extra, 12*s.* Longer lengths of Suction at 1*s.* 6*d.* per foot.

May be obtained of all Ironmongers and Seedsmen in Town and Country, or of the Manufacturers,

JOHN WARNER & SONS, 6, Crescent, Cripplegate, London, E.C.

GREEN'S

LATEST IMPROVEMENTS IN

LAWN MOWING, ROLLING, and COLLECTING MACHINES,

FOR WHICH HER MAJESTY'S ROYAL LETTERS PATENT HAVE BEEN OBTAINED.

These Machines have carried off every Prize that has been given in all cases of competition, and have been awarded the

PRIZE MEDAL at the INTERNATIONAL EXHIBITION of 1862.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

For Illustrated Price Lists, with full particulars, address

T. GREEN, SMITHFIELD IRON WORKS, LEEDS; and 2, VICTORIA STREET, HOLBORN HILL, E.C.

THE HYDROPULT,

THE HYDROPULT

IS INVALUABLE FOR

WATERING GARDENS,

EXTINGUISHING FIRE JUST COMMENCED,

PROTECTING a ROOF from FIRE,

CLEANSING TREES from INSECTS,

DRESSING with LIQUID MANURE,

SPRINKLING PLANTS,

WASHING WINDOWS,

WETTING SIDEWALKS,

SPRINKLING STREETS,

WASHING CARRIAGES,

WETTING SAILS,

A SPRAY BATH,

&c. &c.



Price Two Guineas.

CAUTION.—Unprincipled parties are now palming on the public an infringement of the Hydropult Patent. This is to notify, that said pirates and all persons using or vending this article will, in due time, be prosecuted. No machine contained in a bucket is the Hydropult. Every Hydropult has a Trade Label affixed, as follows:—

"The Hydropult, a Portable Fire Annihilator and Garden Engine.
"GRIFFITH & BROWETT,
Manufacturers, Birmingham;
"CHARLES P. BUTTON,
General Agent.
"VOSE'S Patent;"

and is sold at the uniform rate of Two Guineas, complete, with 2½ feet Suction and 3-feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Fire Jet.

It is an easy matter to imitate the Hydropult in appearance, and thereby deceive the public; therefore this caution.

The Hydropult WEIGHS BUT 8 LB.; will throw 7 or 8 Gallons of Water per minute 50 FEET when worked by the power of one man.

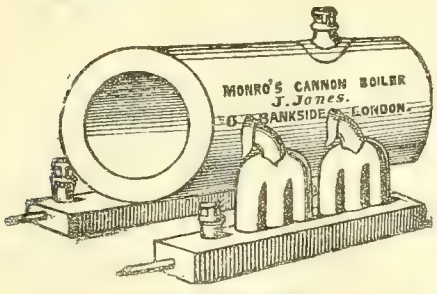
Has been recommended as an efficient FIRE ENGINE by the principal FIRE INSURANCE COMPANIES of GREAT BRITAIN. Thomas Rivers, Esq., the eminent Florist; Shirley Hibberd, Esq., and other well known gentlemen, recommend it as an invaluable GARDEN IMPLEMENT. J. Spencer, Esq., Inspector of the Royal Society for the Protection of Life from Fire, certifies to its efficiency in saving valuable Property in Bayswater from destruction. The City and Provincial Press accord to the invention the utmost praise. All who purchase the Hydropult are satisfied with its action; each Machine guaranteed to be perfect.

A PORTABLE GARDEN ENGINE, AND FIRE ANNIHILATOR.

Prospectus, with Testimonials, on application at either Office.

HYDROPULT OFFICE: 27, LEADENHALL STREET, LONDON, E.C.; and 309, REGENT STREET, POLYTECHNIC BUILDING, LONDON, W.—CHARLES P. BUTTON, PROPRIETOR.

HEATING BY HOT WATER.



MONRO'S CANNON BOILER.

J. JONES,

HORTICULTURAL ENGINEER AND IRON MERCHANT,

SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

HEATING GREENHOUSES,

CONSERVATORIES,

FORCING PITS,

CHURCHES, CHAPELS, SCHOOLS,

HALLS,

BILLIARD ROOMS,

COACH HOUSES, HARNESS ROOMS, &c.,

OF THE BEST QUALITY, AND AT MODERATE CHARGES.

PLANS, ESTIMATES, and DESCRIPTIVE CATALOGUES

SENT POST FREE ON APPLICATION TO

J. JONES,

6, BANKSIDE, LONDON, S.E.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.

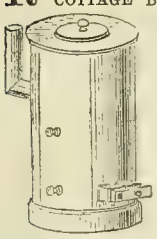


T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES of the above, Glazing without Putty, Garden Engines, &c., sent upon application.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon



an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, grea strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perisbable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.

Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

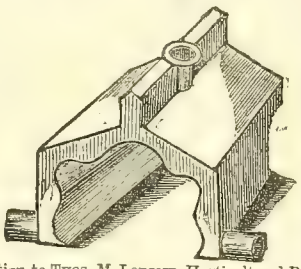
Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

T. M. LOBJOIT'S PATENT HOT-WATER BOILERS are acknowledged by all who have them in use to be the most powerful Boilers now known, and are the most economical, requiring less fuel and attention than any other. They are made of various sizes, suitable for heating the smallest Greenhouse to the largest Conservatory, Churches, and Buildings of all descriptions.



Testimonials forwarded on application to THOS. M. LOBJOIT, Horticultural Builder and Hot-Water Apparatus Manufacturer, Turnham Green, W., and at Acton, Middlesex, W.

SHAW'S TIFFANY,
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

Archangel Mats.

JAMES T. ANDERSON begs to announce that he is now open to supply, at a low price, and in any quantity, ARCHANGEL MATS, the finest in London of this season's importation, and solicits an inspection of them by Nurserymen and Seedsmen.

SACKS, SEED BAGS, &c.
15, Sherborne Lane, King William Street, London, E.C.

The Old Established Seed Bag and Sack Manufactory.

ALEXANDER NICOL AND CO., MANUFACTURERS of SEED BAGS and SACKS, RYE-GRASS SEED BAGS, GRAIN and POTATO SACKS of all sizes and descriptions, SHOP and NURSERY TWINES, GARDEN LINES, &c.
Chalmers St. Works, Arbroath, N.B.

N.B. The principal Seed-houses in the three Kingdoms have been supplied by us for the last 30 years. Price Lists and Samples may be had on application. No connection with any other house in the Trade.

BLOSSOM of WALL FRUIT TREES.—WORSTED NET, an approved and effectual protection, 7*d.* per square yard; a large quantity of pieces of Canvas for ditto, sewn in various widths, 4½*d.* per square yard. TANNED NETS, ¾*d.* per yard. 400 second-hand TARPAULINGS, 7 ft. 6 in. by 4 ft. 6 in., with eyelet holes in corners, 2*s.* 9*d.* each; a great many much larger to cover sheds and for garden purposes. Ten second-hand dressed RICK CLOTHS, 30 ft. by 30 ft. for 30 tons of hay, 3*l.* 15*s.*, and other sizes larger and smaller in proportion. WATERPROOF CAPES, lined with blue cloth, 3*s.* each. Second-hand POLICE CAPES, 18*s.* to 24*s.* per dozen. HORSES' LOIN CLOTHS, lined with woollen, 7*s.* each. DRIVING APRONS, 7*s.* each. A large quantity of Rabbit-proof WIRE FENCING, various widths, at 6*d.* per square yard. About 400 yards of second-hand trained WIRE FENCING, with 100 iron posts, six wires, for Sale, for 7*l.*
R. RICHARDSON, 99, Euston Road, London, N.W.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

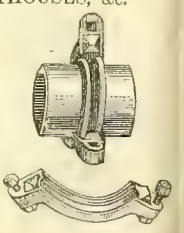
VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

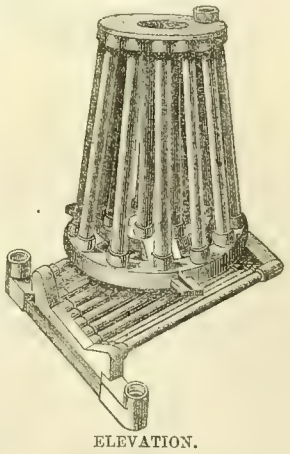
Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

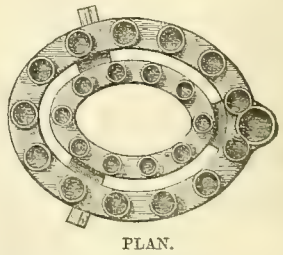
GRAY'S OVAL TUBULAR BOILER.



ELEVATION.

INTERNATIONAL EXHIBITION,

Class IX., No. 2119.



PLAN.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement.

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

Glass for Greenhouses.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

ENGLISH GLASS, 16 ounces to the foot, in Sheets averaging 40 by 30, packed in Cases containing about 280 feet, 2½*d.* and 2¾*d.* per foot.

SHEET GLASS, 16 ounces, packed in boxes of 100 feet each.

Package included.	3rds.	4ths.
12 by 9, 13 by 9, 14 by 9, 15 by 9	14*s.* 0*d.*	12*s.* 6*d.*
12 „ 10, 13 „ 10, 14 „ 10, 15 „ 10		
13 „ 11, 14 „ 11, 15 „ 11, 16 „ 11		
14 „ 12, 15 „ 12, 16 „ 12, 17 „ 12	16*s.* 0*d.*	13*s.* 6*d.*
18 „ 12, 19 „ 12, 20 „ 12, 16 „ 13	per 100 feet.	
17 „ 13, 18 „ 13, 19 „ 13, 20 „ 13		
16 „ 14, 17 „ 14, 18 „ 14, 20 „ 14		

Various other sizes.

GLASS for ORCHARD HOUSES, As supplied by us to Mr. Rivers.

		16 oz.	21 oz.
20 in. by 12 in.	Common	13*s.* 6*d.* ..	£0 18 0
20 in. by 13 in.	Superior do.	16 0 ..	1 3 0
20 in. by 14 in.	English Glass	18 0 ..	1 9 0

The above prices include the Boxes.

SMALL SHEET SQUARES, IN 100 FEET BOXES.

6 by 4	6½ by 4½	7 by 5	7½ by 5½ 11*s.* 6*d.*
8 „ 6	8½ „ 6⅔	9 „ 7	9½ „ 7½
		10 „ 8	10½ „ 8½ 12 6

Boxes 2*s.* each, returnable at full price.

SQUARES CUT TO SPECIAL SIZES.

16 oz. 4ths, 1¾*d.*, 2*d.*, and 2½*d.* 21 oz. 2¾*d.*, 3*d*, and 3½*d.*
„ 3ds, 2*d.*, 2¾*d.*, and 3*d.* „ 3*d.*, 3½*d*, and 4*d.*

London Agents for Hartley's Improved Patent Rough Plate.

Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

Milk Pans, Propagating Glasses, and every description of Glass for Horticultural purposes.

JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, London, E.C.

THOMAS MILLINGTON, 87, Bishopsgate Street Without, E.C. HORTICULTURAL GOODS.



PROPAGATING GLASSES.

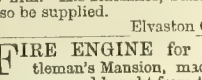
3 inches ..	0*s.* 4½*d.* each.	12 inches ..	1*s.* 9*d.* each		
4 „ ..	0 5½ „	13 „ ..	2 0 „		
5 „ ..	0 6½ „	14 „ ..	2 6 „		
6 „ ..	0 8 „	15 „ ..	3 0 „		
7 „ ..	0 10 „	16 „ ..	3 6 „		
8 „ ..	1 0 „	17 „ ..	4 0 „		
9 „ ..	1 2 „	18 „ ..	5 0 „		
10 „ ..	1 4 „	19 „ ..	6 6 „		
11 „ ..	1 6 „	20 „ ..	7 0 „		



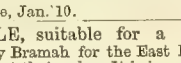
HAND GLASSES.

12 inches ..	6*s.* 0*d.* each	18 inches ..	9*s.* 0*d.* each
14 „ ..	7 0 „	20 „ ..	10 0 „
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12 Dessert Spoons ..	1 4 0	1 12 0	1 15 0	1 17 0
12 Tea Spoons	0 16 0	1 2 0	1 5 0	1 7 0
6 Egg Spoons, gilt bowls..	0 10 0	0 13 6	0 15 0	0 15 0
2 Sauce Ladles	0 6 0	0 8 0	0 9 0	0 9 6
1 Gravy Spoon	0 6 6	0 10 0	0 11 0	0 12 0
2 Salt Spoons, gilt bowls..	0 3 4	0 4 6	0 5 0	0 5 0
1 Mustard Spoon, gilt bowl	0 1 8	0 2 3	0 2 6	0 2 6
1 Pair of Sugar Tongs ..	0 2 6	0 3 6	0 4 0	0 4 6
1 Pair of Fish Carvers ..	1 4 0	1 7 6	1 10 0	1 12 0
1 Butter Knife	0 2 6	0 5 6	0 6 0	0 7 0
1 Soup Ladle	0 10 0	0 17 0	0 17 0	1 0 0
1 Sugar Sifter	0 3 3	0 4 6	0 5 0	0 5 6
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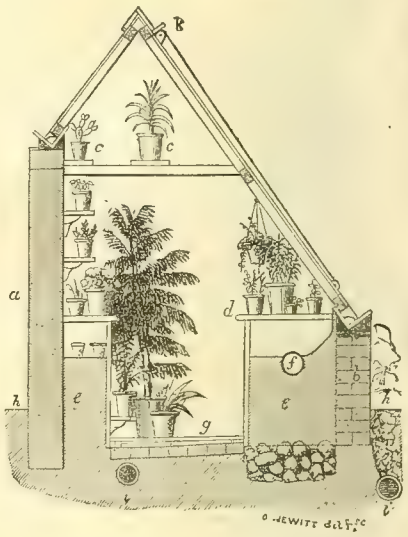
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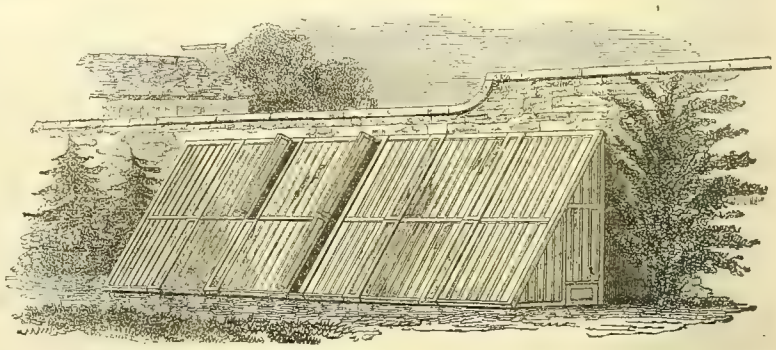


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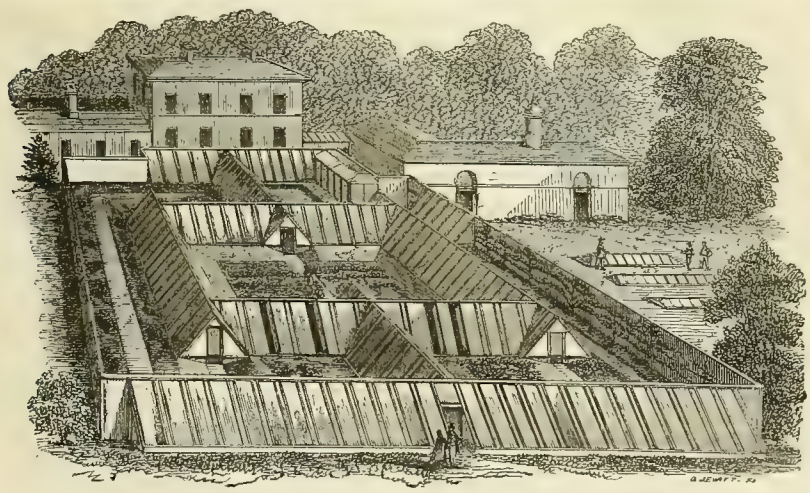


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Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 5.—1863.] SATURDAY, JANUARY 31. {Price Fivepence. {Stamped Edition, 6d.

INDEX.

Apples, Novo Scotian	100 b	Llama and allies	103 c
Armorial bearings, Indian	104 a	Opuntias	100 c
Bensington Farm	107 c	Partridges, Canadian	102 a
Bombyx Cynthia	100 a	Pears, late	102 a
Books, noticed	102 b	— pyramidal	102 a
Botanical gardens, colonial	103 a	Peru, plants of	101 a
Conifers, to sow	104 c	Potato culture	109 a
Cows, produce of two	108 c	Potatoes, sweet	100 c
Dairy produce	108 c	Seed lists	101 c
Ewe flock	106 a	Seeding, thick and thin	108 a
Exhibition of 1851, Memorial of	99 c	Silk moth, new	100 a
Farm, Fen	103 b	Society, Entomological	102 b
— Bensington	107 c	— West Lothian Agri.	109 a
— Little Woodcote	105 b	— Amateur Botanist's	100 a
Fences, ornamental	104 a	Sophronitis grandiflora	100 c
Ficus elastica in fruit	102 b	Species v. varieties	100 c
Fruit, Nova Scotian	100 b	Steam cultivation	106 c
Garden, new	104 c	Timber clearing	102 a
Grapes, late v. early	101 b	Vine disease	102 a
Henery, Great French	110 a	Walls, garden	104 c
Knowle Park	106 c	Wheat flies	101 a
		Wrest Park, Beds	103 a

☞ *An Edition of the* GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE *is published on Monday Afternoon at 4 o'Clock, containing full Reports of the Mark Lane and Cattle Markets, written expressly for the Paper.*

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Per packet, 1s. and 2s. 6d.
BUTLER & M'CULLOCH, Seed Merchants, Covent Garden Market.

New Garden Seeds of our own Growth.

JAMES CARTER AND CO. are now prepared to execute orders for the above, saved at their Seed Farms. 237, 238, & 261, High Holborn, W.C.

CARTER'S SELECT LIST of New and Choice VEGETABLE, FLOWER SEEDS and PLANTS is now published, gratis and post free.
237, 238, & 261, High Holborn, London, W.C.

Seeds.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE, of the best Varieties only, is now ready. It also contains several Novelties.
The Royal Nurseries, Slough.

Roses.

WM. PAUL (Son and Successor to the late A. PAUL) has still a fine stock of ROSES, NEW and OLD, Standards, Dwarf Standards, and Dwarfs.
Plants good and prices moderate.
Nurseries and Seed Warehouse, Waltham Cross, N.

Rose Nurseries, Hertford.

E. P. FRANCIS offers DWARF HYBRID PERPETUAL ROSES, strong and vigorous on Manetti Stock, at reduced prices, for LIST of which see *Gardeners' Chronicle*, January 24, 1863.

Standard Roses.

WILLIAM EPPS, JUN., can supply fine STANDARD ROSES, at 5l. per 100; 15s. per doz.
The Nurseries, Ashford, Kent.

Roses.

FOR SALE, 3000 STANDARD and DWARF ROSES, of most of the leading kinds, in any quantity at a reduced price, the land being required for other purposes.
For List and Price, apply to ALFRED GOSLING, Tower Nurseries, Heathfield, Sussex.

CUTHILL'S PRINCE ALBERT CUCUMBER; an Improvement on Highland Mary.
The best for present sowing. Per packet, 1s.
BUTLER & M'CULLOCH, Seed Merchants, Covent Garden Market.

CARTER'S CHAMPION CUCUMBER, recommended by the Royal Horticultural Society as being an excellent bearer. Fruit solid and firm, and the best of the Sion House class. 1s. per packet. A few ounces of our own saving to offer the Trade.
237, 238, & 261, High Holborn, London, W.C.

NEW CUCUMBERS, at 1s. per packet.
Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

STRONG CUCUMBER PLANTS for present Planting. PEACH and NECTARINE TREES, well established in pots, grown under glass for three years, and well set with Fruit Buds.
J. BAILEY, Hope Nursery, George Street, Deptford, S.E.

New Seedling Rhubarb Excelsior.

B. W. KNIGHT, NURSERYMAN, Battle, Sussex, is now sending out this superb NEW RHUBARB; it is quite distinct, of very large growth, very productive, of a new and desirable flavour, partaking largely of the flavour of the Apple. Good plants, 3s. 6d. each.

NEW CELERY.—WILLIAMS'S MATCHLESS RED, a very superior variety, 2s. per packet.
B. S. WILLIAMS,
Paradise and Victoria Nurseries, Holloway, London, N.

Cole's White Perfection Celery.

WM. COLE has much pleasure in offering again to his numerous customers the above, which has proved itself to be the best White Celery in cultivation. In sealed ½ oz packets, free by post, 1s. 6d. Price to the Trade upon application.
Nurseries, Withington, near Manchester.

WANTED, Extra Strong ASPARAGUS ROOTS for immediate Forcing, by DICKSONS & BROWN, Manchester. Send Samples with lowest price.

SNOW'S WINTER WHITE BROCCOLI (True) may be had in small or large quantities. Price upon application to
JOHN PERKINS, 52, Market Square, Northampton.

WEBB'S IMPERIAL KIDNEY POTATOES.—No Potato like it for quantity, quality, beauty and size, at 12s. per Bushel, on application to
RICHARD WEBB, Calcot Gardens, Reading.

HANDSWORTH POTATOES.—TO THE TRADE. We offer the above (warranted true), carriage paid. Price sent on application. [Established 37 years.]
G. & W. YATES, 28, Market Place, Manchester.

Seed Potatoes, Carriage paid.

G. AND W. YATES offer to the Trade all the best sorts, grown specially for Seed, free from disease and scab. Prices sent on application.—Market Place, Manchester.

Established 37 Years.

HOLBURY ASHLEAF, the Earliest KIDNEY POTATO grown. Price to the Trade (carriage paid) sent on application.—G. & W. YATES, Seedsmen, Manchester.

SEED POTATOES.—Splendid Stocks of Martin's Early Globe, Early Oxford, Early Fox's Seedling, Early Round Frame, Early Dalmahoy, Myatt's Prolific, and Jackson's Ash-leaved Kidney, Forty-fold, Fluke Kidney, and Flour-ball varieties at low prices.
H. & F. SHARPE, Wisbeach.

Potatoes.

RICHARD RICHARDSON, MARKET GARDENER, Cottenham Park, Wimbledon, Surrey, S.W., has 100 SACKS of EARLY OXFORD POTATOES to dispose of, at 12s. per sack. Also a large quantity of good STRAWBERRIES, best sorts, 1s. 3d. per 100.

WHEELER'S GLOUCESTERSHIRE KIDNEY POTATO.—This is one of the earliest, the most productive, the best flavoured, and the most profitable Potato ever introduced.
For price and all particulars, see WHEELER'S "Little Book."

GARDEN SEEDS and FLOWER SEEDS of the finest and most rare varieties, at the lowest prices at which they can be delivered, carriage free, are quoted in WHEELER'S "Little Book" for 1863.
J. C. WHEELER & SON, Seed Growers, Gloucester.

SEEDS, SEEDS.—The above, pure from the Seed field, cheap and warranted. For cheap COLLECTIONS, see LIST, free on application.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

SUCCULENT PLANTS for SALE, in considerable variety and in good condition.
For further particulars, address Mr. C. GREEN, Mrs. Borrer's, Henfield, Hurstpierpoint.

Chinese Herbaceous Pæonies.

JOHN SALTER begs to announce that he can furnish good Plants of all the best varieties of these noble flowers; this being the season for planting.
Versailles Nursery, William Street, Hammersmith Turnpike.

Pine Apple Place, Edgware Road, London, W.

ARTHUR HENDERSON AND CO. beg to announce that their CATALOGUE of KITCHEN, FARM, and FLOWER SEEDS, Imported German Asters, Stocks, and Collection of Vegetable Seeds, for One Year's Supply—

Collection, No. 1 .. 105s. | Collection, No. 3 .. 42s.
„ No. 2 .. 84s. | „ No. 4 .. 25s.
Collection, No. 5 .. 15s.

is now ready, and will be forwarded free on application.

NOTE.—This Catalogue contains only the best varieties of Vegetables, and an abridged List of the most valuable Flower Seeds.

Seed Trade.

JAMES CARTER AND CO., Holborn, W.C., have a few lbs. of the following to offer to the Trade:—

MELVILLE'S GARNISHING KAIL,
VARIEGATED BEET, for garnishing,
SNOW'S WINTER BROCCOLI, true,
LITTLE PIXIE CABBAGE,
NEW FEATHER STEM SAVOY,
DANVER'S YELLOW ONION.
TOMATOE DE LAYE.
HENDERSON'S PINE-APPLE BEET.

Seeds for the Kitchen Garden, Flower Garden, and Farm.

JOHN CATTELL'S DESCRIPTIVE CATALOGUE of the above is now ready, and will be forwarded, post paid, on application; it contains select lists only, and includes every novelty worthy of cultivation.

All parcels of Seeds of the value of 21s. and upwards carriage paid to any Railway Station in England.

Nursery and Seed Establishment, Westerham, Kent.

Vegetable and Flower Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully announces that his SEED CATALOGUE is now ready, free by post.

The COLLECTION of VEGETABLES recently commended by the Royal Horticultural Society was grown from Seeds furnished by him.

Nurseries and Seed Warehouse, Waltham Cross, N.

Vegetable, Flower, and Agricultural Seeds.

NEW AND RARE PLANTS, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing select descriptive and priced lists of AGRICULTURAL, KITCHEN GARDEN, Imported GERMAN, and other FLOWER SEEDS; NEW and RARE PLANTS; Variegated, Ornamental Foliaged, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now published, and will be forwarded Post Free to all applicants.

Exotic Nursery, Tooting, Surrey, S.



Vegetable and Flower Seeds.

CARRIAGE FREE.

JAMES DICKSON AND SONS' ANNUAL DESCRIPTIVE PRICED CATALOGUE of the above is now ready, and may be had, post paid, on application.

The *Field* of February 8, 1862, in a notice of our last season's Catalogue, says:—"This old established firm have issued their neat and well arranged Catalogue for this season. It embraces all seeds really worth growing in both departments."

JAMES DICKSON & SONS, 102, Eastgate Street, Chester; and 23, Market Place, Manchester.

Seed Catalogue.—Spring, 1863.

WM. WOOD AND SON respectfully announce that their DESCRIPTIVE SEED CATALOGUE for the present season, containing select Lists of the most approved KITCHEN GARDEN, FLOWER GARDEN, and FARM SEEDS, is now ready, and may be had post free on application.

☞ Orders amounting to 10s. and upwards sent carriage free. See List.

Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.

N.B. CATALOGUES of ROSES, FRUIT TREES, ORNAMENTAL SHRUBS, &c., may also be had.

DICKSONS AND CO. have just published the following CATALOGUES, which may be had free on application:—

1. VEGETABLE, AGRICULTURAL, and FLOWER SEEDS.
2. FOREST and ORNAMENTAL TREES and SHRUBS.
3. RHODODENDRONS and CONIFERÆ.
4. ROSES.
5. FRUIT TREES.
6. STOVE and GREENHOUSE PLANTS and FERNS.
7. HERBACEOUS and ALPINE PLANTS.

Their DESCRIPTIVE CATALOGUE of FLORISTS' FLOWERS will be ready in March.

D. & Co. respectfully invite the attention of gentlemen engaged in planting to their extensive Stock of FOREST TREES, which are remarkably healthy and well rooted.

They have also a large Collection of ORNAMENTAL TREES and SHRUBS of all sizes, which they are offering at very reasonable rates.

1, Waterloo Place, Edinburgh.

Stirling, Scotland.

W. DRUMMOND AND SONS' CATALOGUE of SELECT VEGETABLE and FLOWER SEEDS, POTATOES, GARDEN TOOLS, &c., for 1863, is now ready, and may be had on application.

The distinctive features of this Catalogue are such as have commended themselves alike to the Gardener and Amateur. Being simple in arrangement, and sufficiently descriptive, a selection from its columns is rendered easy and satisfactory. Moreover, we still adhere to the system introduced by us several years since, of discarding, in the various sections, all comparatively inferior varieties, as well as omitting what are mere repetitions of the same sorts under different names.

*** Seeds Carriage Paid, as formerly.

W. DRUMMOND & SONS, Seed and Implement Warehouse, Stirling.

BARR & SUGDEN
12 KING ST. COVENT GARDEN

SEED MERCHANTS AND FLORISTS,
12, KING STREET, COVENT GARDEN, W.C.
OPPOSITE THE GARRICK CLUB.

Seeds Carriage paid. Five per cent. allowed on Cash Payments. No charge for Packing or Package.

BARR AND SUGDEN'S COLLECTIONS of VEGETABLE SEEDS for 1863, embracing the best Varieties in Cultivation, and especially those most approved of in Covent Garden Market.

For particulars, see "GUIDE to the KITCHEN GARDEN."

No. 6	contains	**20 Quarts**	of **PEAS**, and other Seeds in proportion, for		**£3**	**3 0**
No. 5	„	**10 Quarts**	ditto	ditto	ditto	„ **2 2 0**
No. 4	„	**8 Quarts**	ditto	ditto	ditto	„ **1 10 0**
No. 3	„	**10 Pints**	ditto	ditto	ditto	„ **1 1 0**
No. 2	„	**6 Pints**	ditto	ditto	ditto	„ **0 15 6**
No. 1	„	**4 Pints**	ditto	ditto	ditto	„ **0 10 6**

☞ *Orders amounting to 21s. and upwards sent Carriage paid.*

PRESENTED TO EACH CUSTOMER.

The ILLUSTRATED GUIDE to the KITCHEN GARDEN, price 1s.; and the ILLUSTRATED GUIDE to the FLOWER GARDEN, price 2s. 6d.

BARR AND SUGDEN, SEED MERCHANTS,
12, KING STREET, COVENT GARDEN, W.C. (Opposite the GARRICK CLUB).

WM. WOOD & SON'S

COLLECTIONS of KITCHEN GARDEN SEEDS

FOR ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.
£3.	£2.	£1.	10s. 6d.

Containing only Seeds of first-class quality, and Varieties that can be confidently recommended.

For particulars, see CATALOGUE, a Copy of which may be had Post Free on application.

*** *All orders amounting to 10s. and upwards sent Carriage Free.*

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD,
NEAR UCKFIELD, SUSSEX.

SEEDS.—GENUINE HOME-GROWN

VEGETABLE, FLOWER, AND AGRICULTURAL.

If above the value of 20s. Carriage paid to any Railway Station, and to all Irish and Welsh Ports in communication with Bristol.

CATALOGUES post free on application.

JAMES GARAWAY AND CO., DURDHAM DOWN NURSERIES, BRISTOL.

THE PLYMOUTH SEED COMPANY,

PLYMOUTH.

Extract from a Letter received from a CLERGYMAN *in Yorkshire, dated December* 11, 1862:—
"Our Vegetables have never been so fine as when grown from your Seeds."

The Company are now sending out their COLLECTIONS of SEEDS, which have always given great satisfaction.

No. 1. Complete Collection for a large Garden, for One Year's Supply	**£3 0 0**
No. 2. Complete Collection for a moderate size Garden, for One Year's Supply	**2 0 0**
No. 3. Complete Collection for do., smaller quantities, for One Year's Supply	**1 0 0**
No. 4. Complete Collection for a Small Garden	**0 15 0**
No. 5. Complete Collection for a Small Garden	**0 10 6**
Extra large Collection, containing double the quantities contained in No. 1 ...	**5 0 0**

Extra Collection Carriage Free to any Railway Station in England and Wales, and to any Steam Port in England, Wales, Scotland, and Ireland.

No. 1 Carriage Free to most Stations and Ports in the Kingdom.
No. 2 Carriage Free to Broad Gauge Stations and Steam Ports.
No. 3 Carriage Free to any Station between Plymouth and Paddington.

For further particulars, see the GENERAL PRICE CURRENT, now ready.

Address, PLYMOUTH SEED COMPANY, PLYMOUTH.

GOOD SEEDS CARRIAGE FREE.

SUTTON'S

COMPLETE COLLECTIONS OF

KITCHEN GARDEN SEEDS

FOR ONE YEAR'S SUPPLY.

SUTTON'S UNRIVALLED COLLECTIONS of KITCHEN GARDEN SEEDS are so assorted as to contain the proper quantities of the best kinds to supply a family for the whole year.

The entire charge for the largest Collection (No. 1) is £3 0 0 (Carriage Free).

Ditto ditto Collection (No. 2) is £2 0 0 ditto

And Complete Collections for Smaller Gardens may be had at 20s. and 10s. 6d.

From Mr. WILLIAM MOOR, *Gardener, The Rectory, Stoke.*

"I never had (previous to yours last year) a lot of Seeds which have all turned out so satisfactory."

From the Rev. G. E. WALKER, *Shareshill, Wolverhampton.*

"Mr. Walker cannot but compliment Messrs. SUTTON & SONS on the quality of the Seeds sent last year, as they were by far the best he ever purchased."

From the Rev. JOHN KIRWAN, *Withycombe Rectory, Taunton.*

"I was so much pleased with the selection of Seeds sent by you, that I recommended two of my friends to take parcels from you."

SUTTON'S CHAMPION SWEDE, 1*s.* per lb.; Choice MANGEL WURZEL, 6*d.* per lb., if ordered immediately. NATURAL GRASS SEEDS for PERMANENT PASTURE, 30*s.* per Acre, mixed expressly to suit the soil.

SUTTON AND SONS, SEED GROWERS AND MERCHANTS, READING, BERKS.

INTERNATIONAL EXHIBITION.

PRIZE MEDALS 1851 AND 1862

AWARDED FOR SUPERIORITY AND GENERAL EXCELLENCE TO

BUTLER & McCULLOCH, SEED MERCHANTS,

COVENT GARDEN MARKET, W.C.

(ESTABLISHED UPWARDS OF A CENTURY.)

COLLECTIONS OF VEGETABLE SEEDS SUITABLE FOR ANY SIZED GARDEN.

No. 1.	20 Quarts of PEAS and other Seeds in proportion				£3	3 0
No. 2.	11	ditto	ditto	ditto	2	2 0
No. 3.	8	ditto	ditto	ditto	1	10 0
No. 4.	5	ditto	ditto	ditto	1	1 0
No. 5.	5 Pints		ditto	ditto	0	10 6

A Specification of the above Collections is given at page 77 of Messrs. BUTLER & MCCULLOCH'S systematically arranged SEED CATALOGUE for 1863, which may be had free and post paid upon application.

All orders amounting to £1 1*s. sent Carriage paid.*

GARDEN SEEDS.

S. GLENDINNING & SONS,

NURSERYMEN AND SEEDSMEN

(SUCCESSORS TO THE LATE R. GLENDINNING),

Are now sending out their COLLECTIONS of KITCHEN GARDEN SEEDS.

No. 1	contains 36 Quarts of PEAS, and all other Seeds in proportion				£5	5 0
No. 2	,,	28 Quarts	ditto	ditto	ditto	4 4 0
No. 3	,,	20 Quarts	ditto	ditto	ditto	3 3 0
No. 4	,,	12 Quarts	ditto	ditto	ditto	2 2 0
No. 5	,,	6 Quarts	ditto	ditto	ditto	1 1 0

COLLECTIONS of FLOWER SEEDS.

No. 1,	containing 100 Large Packets of Best Hardy Annuals					£0	18 0
No. 2,	,,	50	ditto	ditto	ditto	0	9 6
No. 3,	,,	24	ditto	ditto	ditto	0	5 0
No. 4,	,,	25	ditto	Half-Hardy Annuals	... ...	0	7 6
No. 5,	,,	12	ditto	ditto	ditto	0	4 0
No. 6,	,,	25	ditto	Tender Annuals	... ...	0	12 6
No. 7,	,,	12	ditto	ditto	ditto	0	6 0

The above Collections consist only of best and most useful varieties, and are of the finest quality.

S. G. & SONS' CATALOGUE of KITCHEN GARDEN, AGRICULTURAL, and FLOWER SEEDS, is now ready, and may be had on application.

CHISWICK NURSERY, LONDON, W.

Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER'S CATALOGUE of the above popular plants, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants.

It describes faithfully the colours of all the Rhododendrons, thereby rendering every facility for making selections.

It likewise contains an abridged List of really Hardy Conifers, with their heights and prices.

The American Nursery, Bagshot, Surrey.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS; ditto COWSLIP; Florist's Flower, POLYANTHUS, Roots or Seed; also SCARLET PRIMROSE—Double Crimson, Double Purple, Double White, Double Yellow, and Double Lilac ditto. COWSLIP from the Himalayas; DOUBLE POLYANTHUS; and other varieties, all of which may be had on application to

RICHARD WEBB, Calcot Gardens, Reading.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

Spring Blooming Plants.

CAMELLIAS, including the best new varieties, fine plants, set with bloom buds, from 30*s.* per doz.; extra size, from 60*s.*

HEATHS, EPACRIS, CINERARIAS, and JASMINUM GRANDIFLORUM (grafted), remarkably fine plants, at moderate prices.

Also HUMEA ELEGANS, extra strong, in 6-inch pots, 18*s.* per doz.

JAMES DICKSON & SONS, Newton Nurseries, Chester.

Genuine Seeds.—Carriage Free.

WM. CUTBUSH AND SON beg to intimate that they are now prepared to execute orders for GENUINE GARDEN SEEDS, for which their house is extensively known.

Mr. C. gives his personal attention to this branch of our business, and we can confidently recommend all offered as being of the best quality, at as moderate prices as consistent.

CATALOGUES free on application.

Highgate, London, N.

FINE MIXED HOLLYHOCK SEED from all named varieties, 1*s.* per packet; the double blue and white Perpetual TREE VIOLETS, strong plants, 4*s.* per doz.

A remittance must accompany all orders by Post-office Order or penny postage stamps. All goods sent postage free.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. Annual Sale exceeds 2000 packets. In sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each.

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE PRIMULA SINENSIS SEED. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth.

Fuchsias.

MESSRS. J. AND J. FRASER, Lea Bridge Road Nurseries, N.E., having a fine Stock of healthy vigorous young plants of all the best and NEW FUCHSIAS, beg to invite intending purchasers to an inspection of the same. The plants now offered may be grown into fine specimens by next summer.

A List with price will be forwarded on application, as also a CATALOGUE of STOVE and GREENHOUSE PLANTS, ROSES, FRUIT TREES, CONIFERÆ, &c.

Banks's Best New Fuchsias.

E. G. HENDERSON AND SON are now sending out the three following First-class Flowers:—

MDLLE. TREBELLI (BANKS).
BIANCA MARGINATA (BANKS),
MARS (BANKS).

As neat young plants for growing on into specimens (and others adapted for stock), price 3*s.* 6*d.* and 5*s.* each. Also plants of all last year's best varieties, 1*s.* 6*d.* to 2*s.* 6*d.* each.

SOLANUM CAPSICASTRUM FOLIA VARIEGATA, a beautiful table plant, with elegantly variegated leaves and red berries; drooping habit; 3*s.* 6*d.* and 5*s.* each.

Wellington Nursery, St. John's Wood, London, N.W.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

50 in 25 extra choice varieties	..	..	..	£2 2*s.* 0*d.*
25 in 25	,,	,,	.. ..	1 5 0
12 in 12	,,	,,	.. ..	0 12 0
50 in 50 choice varieties	..	..	..	2 12 6
50 in 25	,,	,,	.. ..	1 5 6
25 in 25	,,	,,	.. ..	0 13 6
12 in 12	,,	,,	.. ..	0 5 0

Extra fine mixed, 2*s.* 6*d.* per doz., 17*s.* 6*d.* per 100.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, W.C.

Large Importation of Gladioli.

WM. WOOD AND SON beg to announce the arrival of a choice and carefully selected assortment of the above in excellent condition, consisting of the best and most popular hybrid varieties, from which they will be happy to make selections at the following very moderate prices, viz.,

HYBRIDS OF GANDAVENSIS.

100 in 50 choice kinds	..	..	..	£4	0 0
50 in 50	,,	..	..	2	10 0
50 in 25	,,	..	..	2	0 0
25 in 25 extra choice kinds		..	..	1	5 0
25 in 12	,,	..	..	1	0 0
12 in 12	,,	..	..	0	10 0

Newer varieties at proportionately low prices.—See List.

Fine mixed GLADIOLI, per 100, 17*s.* 6*d.*; per doz., 2*s.* 6*d.*

Carriage paid on orders over 10*s.*

LISTS free on application.

Woodlands Nursery and Seed Warehouse, Maresfield, Uckfield, Sussex.

E. G. HENDERSON AND SON'S NEW SEED CATALOGUE will be published this week. They beg to draw attention to the following among Novelties (rules for the guidance of amateurs are given for the sowing of seeds, and after management.)

AMARANTHUS MELANCHOLICUS RUBER, 1s.
SALVIA COCCINEA PUMILA, 1s.
RHODANTHE MACULATA, 1s.
PORTULACCA GRANDIFLORA FLORE PLENA, 2s. 6d.
TAGETES SIGNATA PUMILA, 1s.
VICIA GERARDI, 1s. 6d., 2s. 6d.
VINCA ALBA OCULATA LUTEA, 1s.
PRIMULA ERECTA SUPERBA, 2s. 6d.
IBERIS GRANDIFLORA ALBA, 6d. and 1s.
MIMULUS CUPREUS, 1s.
ANAGALLIS SANGUINEA, 6d.
AGERATUM MULTIFLORUM, 6d.
ABOBRA VIRIDIFLORA, 1s. and 2s. 6d.
VICTORIA ASTERS, 1s. and 2s. 6d.
DICTAMNUS GIGANTEA ANGUSTIFOLIA, 1s.
ZINNIA ELEGANS FLORE PLENA COCCINEA, 1s.
STEVIA OVATA, 6d.
NEMOPHILA DISCOIDALIS ELEGANS, 6d.
NEMOPHILA DISCOIDALIS VITTATA, 1s.

Also the following choice seeds :—

AQUILEGIA GLANDULOSA (true), best blue and white, 6d.
" SKINNERI (true), best scarlet, 6d.
LINUM FLAVUM, fine bedding plant, dwarf golden yellow, 1s.
PENTSTEMON MURRAYANUM (true species), vermilion scarlet flower tubes, 6d.
TRITOMA UVARIA, best variety, special rule for raising seed, 6d. and 1s.
SAPONARIA CALABRICA ALBA, fine white bedder, 4d.
LILIUM GIGANTEUM, 1s.; CALENDULA SUPERBA, 4d
VENIDIUM CALENDULACEUM, fine bedding plant, 3d.
LINUM CANDIDISSIMUM, pure white, 6d.
GYNERIUM ARGENTEUM (Pampas Grass), 1s.
SPERGULA PILIFERA (Grass Lawn substitute), 6d. and 1s.
LILIUM CORDIFOLIUM, similar in style of growth to L. giganteum, but dwarfer and of a darker tint in the young growth; the large, trumpet-shaped white flowers, with dark centre midribs, are also alike to the last-named species, but are produced by smaller bulbs, and on stems not rising more than from 3 to 4 feet in height. By its blooming much more readily than L. giganteum it will prove a very popular and useful Lily. 1s.

Special directions are given for the germination of this and L. giganteum.

Wellington Nursery, St. John's Wood, London, N.W.

Cheap and Select Hardy Nursery Stock.

WM. JACKSON AND CO., Bedale, Yorkshire, beg to offer the following at annexed moderate prices. They are well rooted and quite hardy.

	£	s.	d.
12 Scarlet and White PYRUS JAPONICA, strong plants	0	6	0
12 New Gold-striped WEEPING BOX, 1 to 2 feet, strong plants	1	10	0
12 Standard, Scarlet, and other Fancy THORNS, 5 feet	0	9	0
12 BERBERIS DARWINII, 2 to 3 feet, very pretty	0	12	0
12 GHENT AZALEAS, strong plants, 2 feet, best kinds	0	18	0
12 KALMIA LATIFOLIA, new Scarlet, 2 feet, very handsome	1	10	0
12 RHODODENDRONS, dwarf compact growing, Crimson, Scarlet, and other handsome hardy varieties by name, strong good bushy plants, 1 to 2 feet	1	10	0
100 EVERGREEN and FLOWERING SHRUBS, strong good plants	3	0	0
100 TREE BOX, in variety, 3 to 4 feet, often Transplanted	3	0	0
100 PORTUGAL LAURELS, 1 to 1½ feet, selected	1	0	0
100 COMMON LAURELS, 1 to 1½ feet, 10s.; 1½ to 2½ feet	1	0	0
100 DWARF ROSES, on own roots, strong and good kinds	2	0	0
100 PYRACANTHA, 1½ to 2 feet, for Ornamental coverts	0	15	0
100 RHODODENDRON CAMPANULATUM, 1½ to 2 feet, strong plants from seed	6	0	0
100 RHODODENDRON JACKSONII, and other splendid hybrids of compact growth, of free flowering kinds, per names, strong plants, 1 to 2 feet	10	0	0
1000 EVERGREEN PRIVET, 3 to 4 feet, for hedges or coverts	1	5	0
SPRUCE FIR, 2 to 2½ feet, strong, for coverts. Price on application.			

FRUIT TREES PER DOZEN.

CHERRIES, PEARS, PLUMS, and APPLES, strong Standard Trees, 5 to 5½ feet stem	1	0	0
PEARS, strong Dwarfs of the best kinds training	0	8	0
CURRANTS and GOOSEBERRIES, fruiting trees	0	3	0

A reference or remittance is respectfully solicited from unknown correspondents.

The Trade supplied.

H. LANE AND SON, The Nurseries, Great Berkhamsted, beg to call the attention of Planters and the public in general to their fine and healthy specimens of the annexed. The smaller sizes are given in their CATALOGUE, which may be had upon application.

ARAUCARIA IMBRICATA, the finest and largest quantity in Europe, 3 to 10 feet.
ABIES DOUGLASII, magnificent specimens, dense foliage, 6 to 10 feet.
ABIES ORIENTALIS (true), very distinct, 3 feet.
CEDRUS DEODARA, very bushy and handsome, 5 to 12 feet.
" LEBANON, do. do. 6 to 14 feet.
CUPRESSUS LAMBERTIANA, do. do. 6 to 8 feet.
HOLLY, Variegated, in sorts.
JUNIPERS, in sorts.
PINUS AUSTRIACA, bushy and fine.
" EXCELSA, fine specimens, 4 to 14 feet.
RETINOSPORA ERICOIDES, very pretty and pyramidal shape.
THUJA AUREA, very bushy.
" GIGANTEA, very handsome, 2 to 3½ feet.
" LOBBII.
" SIBERIAN, very bushy and good, 2 to 5 feet.
THUJOPSIS BOREALIS, one of the finest evergreens.
WELLINGTONIA GIGANTEA, fine specimens, 1 to 4 feet.
WILLOW, Standards of the American and Kilmarnock, clean straight stems, and good heads.
YEW, BREVIFOLIA, fine and bushy, 2 to 3 feet.
" ELEGANTISSIMA, a large stock of handsome plants, 1 to 3 feet.

ALSO A FINE STOCK OF THE FOLLOWING FOREST TREES.

ASH, COMMON, 3 to 6 feet.
ELM, Cornish, English, and Huntingdon, Grafted, 6 to 10 feet.
HORSE CHESTNUT, strong and straight, 8 feet to 12 feet.
PRIVET, very strong, for cover, &c., at per 1000.
SCOTCH FIR, good and strong, 2 feet, at per 1000.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, begs to inform his friends and the public he can supply from his great Stock of the above 20 pairs of the best large Varieties for 10s.; and 25 pairs of best POMPONES for 10s.; 20 pairs of Cuttings of the large Varieties for 5s.; and 25 pairs of Pompones ditto for 5s.

New CATALOGUES ready for one stamp.

N.B. To save trouble all orders to be paid to J. H. BIRD, Stoke Newington.

CHARLWOOD AND CUMMINS beg to announce that their CATALOGUE of GARDEN, AGRICULTURAL, and FLOWER SEEDS is now ready, and will be forwarded on application. They also now offer their

NEW NEMOPHILA DISCOIDALIS ELEGANS, commended by the Royal Horticultural Society in their Proceedings; it is thus noticed :—

"The flowers of this variety (which is a very pretty one) are of a bright chocolate or light reddish maroon, conspicuously bordered with white. The colours are distinctly marked and very effective." It is commended as a very desirable Annual for general cultivation.

2s. 6d. per packet. Price to the Trade per ounce, 14, Tavistock Row, Covent Garden, London.

A TREE or SHRUB SEED LIST will be published shortly.

New and Genuine Seeds.

GEORGE PARSONS, SEEDSMAN by Appointment to HER MAJESTY. A DESCRIPTIVE SELECT PRICED LIST, post free, on application.

27 and 28, Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

LARGE ORNAMENTAL TREES.—The Subscribers beg to offer very fine specimen plants of ARAUCARIA IMBRICATA, from 5 to 9 ft.; CEDRUS LIBANI, 7 to 12 ft.; WELLINGTONIA GIGANTEA, 5 to 9 ft.; PINUS EXCELSA, 7 to 10 ft.; also Spruce, Scotch, and Larch Firs, from 7 to 10 ft., with Limes, Birch, Beech, Elm, Sycamore, and Laburnum, 9 to 11 ft.; likewise Weeping Ash, Lime, and Willow, on fine tall stems. The above will be sold cheap, and if taken in quantity a great reduction will be made in the price.

J. IVERY & SON, Dorking Nursery.

Thorn Quicks.

JNO. CARTER, NURSERYMAN, Keigbley, has a large stock of the above, from 1 to 4 years' Transplanted, well rooted and very strong.

J. C. will be glad to furnish samples and prices, and also CATALOGUE of GENERAL NURSERY STOCK.

COMMON LAURELS, in quantity, 3, 4, and 5 feet high, bushy and well rooted; about 800 HORSE CHESTNUTS, 5 to 7 feet; 500 ENGLISH OAK, 4 to 5 feet, to be sold reasonable. Price on application to

D. S. THOMSON, Nurseryman, near Railway Station, Wimbledon, Surrey, S.W.

Fine Transplanted Larch.

TO BE DISPOSED OF, a Lot of Transplanted LARCH in very fine condition, from 5 to 7 feet, price 45s. per 1000.

For further particulars apply by letter, prepaid, to Sir W. P. GALLWEY, Thirkleby Park, Thirsk.

TRANSPLANTED FOREST TREES and EVERGREENS, &c.

SPRUCE FIR, 1 foot, per 1000	10s.
" " 1 to 1½ foot, per 1000	15s.
" 1½ to 2 feet, per 1000	25s.
OAKS, 3 feet to 4 feet	25s.
WEEPING ELM, 10 to 12 feet stems, fine heads, per doz.	24s.
COMMON LAUREL, bushy, 2 feet, per 100	10s.
BERBERIS AQUIFOLIA, 1½ to 2 feet, per 100	10s.
TREE BOX, 2 feet, bushy, per 100	20s.

ALEXANDER LAING has yet the above Surplus Stock to Dispose of, having grown upon Iground that must be at once cleared.

Beverley Nurseries.—Jan. 31.

New Sorts of Peas.

THE ADVANCER, PRINCESS ROYAL, SMUGGLER, GILSON'S GLORY, and other new PEAS, are included in SUTTON'S PRICED SEED LIST, just published, and which may be had, Gratis and Post-free, on application addressed

SUTTON & SONS, Seed Growers, Reading, Berks.

CHARLES SHARPE AND CO., SEED GROWERS, Sleaford, have a large quantity of the following PEAS to offer to the Trade, viz. :—Flack's Imperial, Bedman's Imperial, Dickson's Favorite Green Marrow, Champion of England, and Woodford's Green Marrow.

Samples and prices on application. Can make good offers.

May's Prolific Pea.

JOSEPH MAY, in offering the above NEW PEA, begs to assure his customers and the Public generally that it is the largest and most productive Pea known. Growth 5 to 6 feet, a large Wrinkled Marrow, can be sown from February till June, 3 inches apart in the row. Price 2s. 6d. per quart. The Trade supplied on application, from 8 quarts and upwards.

15, Wellington Street, Strand, Waterloo Bridge, W.C.

To Seedsmen and Others.

THOMAS AYRES, SEEDSMAN and GROWER, Biggleswade, Beds, begs to offer the following SEEDS of his own growth of 1862, viz :—

WHITE SPANISH ONION SEED,
MANGEL WURZEL SEED, various kinds.
SWEDE, and COMMON TURNIP, "
SEED POTATOES of the following varieties :—EARLY ASH LEAF KIDNEY, MYATT'S PROLIFIC do., EARLY SHAW and REGENTS.
SCARLET RUNNER BEANS (English grown).

A PRICE LIST forwarded upon application.

COCOA-NUT REFUSE, as used for FERNS, BEGONIAS, &c., so much admired in the International Exhibition, delivered in the City at 1s. 6d., or within 2½ miles of Charing Cross, at 2s. per bag of 3 bushels. Ten bags or more on lower terms. Apply to the PATENT COCOA FIBRE COMPANY, Kingston-on-Thames, S.W.

Also for particulars of SHORT FIBRE for Orchids and Drainage in pots.

Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are the best and most economical of any, and are sold in every town in the kingdom; at DEANE'S, London Bridge; and E. WHITE & SON'S, 95, Cannon Street.

CAUTION.—Every Brush is stamped "J. BARSHAM'S Patent."

Seakale.

GEORGE CLARKE begs to announce that he has SOLD OUT of FORCING SEAKALE, but can supply any quantity of healthy clean roots for planting. Prices will be forwarded on application.

Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, near the Victoria Railway Station, Pimlico, S.W.

Cucumbers and Melons,

EDWARD TILEY has this season a fine stock of true Seed of the above, well-ripened and in excellent condition, including, amongst others, the following well-known first-rate varieties, at 1s. per packet :—

CUCUMBERS.	MELONS.
Sir Colin Campbell	Garibaldi
Victory of Bath	M'Ewen's Scarlet and Green-flesh
Lord Kenyon's Favourite	Golden Drop Green-flesh
Captivation	Golden Perfection Green-flesh
Mills's Jewess	Green Gage
Conqueror of the West	Golden Ball
Incomparable	Pine Apple
Cuthill's Black Spine	Camerton Court Green-flesh
Champion of England	Blackall's Green-flesh
Stockwood Ridge	Bowood Green-flesh
Ayres' Prolific	Beechwood Green-flesh
Manchester Prize	Windsor Prize Green-flesh
Sutton's Champion	Hampton Court Green-flesh
Burges' Conqueror	Cuthill's Camberwell Beauty
Henderson's A 1	General Havelock
General Canrobert	Monro's Green Gage
Gordon's White Spine	Monro's Crystal Palace Hero
Phenomenon	Scarlet King
Rifleman	Incomparable
Manchester Prize	Bromham Hall
Hunter's Prolific	Rouse's Incomparable
Syon House	Austen's Incomparable
Allen's Victory	Queen's Melon
Trollope's King	Bailey's Green-flesh
Ipswich Standard	Emperor
Tiley's Improved	Fleming's Trentham Hybrid
Hamilton's Black Spine	Duncan's Green-flesh
Dickson's Newton Hero	Egyptian Green-flesh
Kelway's Victory	Gordon Castle Green-flesh
Gen. Outram (2s. 6d. per pkt.)	

TILEY'S EMPEROR RED CELERY, the best in cultivation, testimonials to which effect are being received almost daily, price 1s. per packet.

TILEY'S SOLID WHITE CELERY, 1s. per packet.

The true OLD BATH COS LETTUCE, 1s. per packet.

TILEY'S EARLY MARROW CABBAGE, which has given universal satisfaction, 1s. per packet.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

LIST of MESSRS. SUTTON'S AGENTS for the Sale of Seed of the "STUDENT" PARSNIP, introduced by Professor Buckman.

Austen & M'Aslan, Trongate, Glasgow
Barr & Sugden, 12, King Street, Covent Garden, London, W.C.
Beck, Henderson, & Child, Adelphi Terrace, Strand, London
Brown, Henry, 4, Commutation Row, Liverpool
Backhouse, James & Son, York
Batt, Rutley, & Co., Strand, London
Burgess, A., The Nurseries, Cheltenham
Carter & Co., High Holborn, London
Cattell, John, Westerham
Cooper & Bolton, 152, Fleet Street, London
Cottrell, J. H., 15, Bull Ring, Birmingham
Charlwood & Cummins, Tavistock Row, Covent Garden, London
Clarke, Henry & Sons, 39, King Street, Covent Garden, London
Cooling, C., 18, Iron Gate, Derby
Cutbush & Son, The Nurseries, Highgate, London, N.
Davies, George, Stanley Nurseries, Liverpool
Dicksons & Brown, Corporation Street, Manchester
Dickson & Sons, 102, Eastgate Street, Chester
Dickson, Sons, & Co., 23, Market Place, Manchester
Dickson & Turnbull, 26, George Street, Perth
Dickson, F. & A. & Sons, 106, Eastgate Street, Chester
Dickson, Hogg, & Robertson, 22, Mary Street, Dublin
Dixon, E. P. & Son, 57, Queen Street, Hull
Dillestone & Co., The Nurseries, Sturmer
Downie, Laird, & Laing, 17, South Frederic Street, Edinburgh; and Stanstead Park Nursery, Forest Hill, Kent
Drummond & Sons, 58, Dawson Street, Dublin
Drummond & Sons, Stirling
Ernst & Von Spreckelsen, Hamburg
Edmondson, Brothers, 10, Dame Street, Dublin
Fairhead & Son, 7, Borough Market, London
Fisher, Holmes, & Co., Handsworth Nursery, Sheffield
Finney & Co., Gateshead Nursery, Newcastle-on-Tyne
Fraser, Richardson, & Goad, 82, Bishopsgate St. Within, E.C.
Godwin, F. G., 3, New Market Hall, Sheffield
Gibbs, Thomas, & Co., Half Moon Street, Piccadilly, London
Garaway & Co., Durdham Down, Bristol
Hurst & Son, 6, Leadenhall Street, London [Wood, N.W.
Henderson, E. G. & Son, Wellington Nursery, St. John's
Henderson, A. & Co., Pine Apple Place, Edgeware Road, W.
Haycroft, J. & H., Cork
Handasyde, Thos., Glen Nurseries, Musselburgh, N.B.
Ivery, James & Son, Dorking, Surrey
Kennedy, Thos. & Co., Dumfries
Krelage, C. F. & Son, Haarlem, Holland
Low, H. & Co., Clapton Nursery, London
Lowe, Richard & Co., High Street, Wolverhampton
Maule & Sons, The Nurseries, Bristol
Methven, T., Nursery Gate, Leith Walk, Edinburgh
Minier, Nash, & Nash, 60, Strand, London, W.C.
Nutting & Son, 60, Barbican, London
Nelson, John, St. Michael's, Bristol
Osborn & Son, Nurserymen, Fulham, London
Paul & Son, Old Nurseries, Cheshunt
Perkins, John, 52, Market Square, Northampton
Pillinger, John, Chepstow Nurseries, Chepstow
Pope, Henry, Great Heath Nurseries, near Birmingham
Perry, P. J., The Nurseries, Banbury
Plymouth Seed Company, Plymouth, Devon
Shaw, Jno., 29, Oxford Street, Manchester
Smith & Simons, Argyle Arcade, Glasgow
Stuart & Mein, Kelso, N.B.
Toole & Co., Westmoreland Street, Dublin
Turner, Charles, The Royal Nurseries, Slough
Thomas, Wm., Exchange Street, Wolverhampton
Veitch, James, jun., King's Road, Chelsea
Veitch & Son, High Street, Exeter
Van Houtte, Louis, Ghent, Belgium
Wrench, Jacob, & Son, London Bridge
Wheeler, J. C. & Son, Gloucester
Wood & Son, Maresfield, near Uckfield
Waite, J. G., 181, High Holborn, London
Wood & Ingram, The Nurseries, Huntingdon

Packets of Seed, 6d., 1s., and 2s. 6d. each, can be obtained of any of the above named, and also of Messrs. SUTTON, who can supply it either Wholesale or Retail.

Royal Berkshire Seed Establishment, Reading.

*** The Trade supplied on liberal terms.

WEBB'S IMPERIAL KIDNEY POTATOES, True, 8*s.* per bushel, 15*s.* per cwt.; DICKSON'S EARLY FAVOURITE PEAS, unpicked, 8*s.* per bushel; BLUE SCIMITAR PEAS, picked, 12*s.*; TAYLOR'S WINDSOR BEANS, 10*s.* Terms Cash.

W. MINCHIN & SON, Hook Norton, Oxon.

To the Trade.

MYATT'S PROLIFIC ASHLEAF KIDNEY POTATO.—The above excellent variety, sound and in good condition; also a few Seeds DALMAHOY POTATO, to be had of

J. MYATT, Offenham, Evesham.—Price List on application.

EXTRAORDINARY POTATOES.—A gentleman resident in the Country offers for SALE a few BUSHELS of SEED POTATOES of a new and most wonderful kind. For the table they are unsurpassed as to whiteness and delicacy of flavour, and their productiveness is almost incredible, even on indifferent soil; and further, the disease never attacks them.

For price, &c., address by letter to Z. Z., No. 937, *Times* Office, Hereford. Early application is necessary.

Mona's Pride, New Early Kidney Potato.
Picea nobilis Cones.

TOOLE AND CO. have for SALE a limited supply of the above NEW EARLY KIDNEY POTATO, the finest ever yet introduced, being much earlier than the Ashleaf, larger, and more prolific.

Price 5*s.* 6*d.* per sealed bag of 14 lbs.

Also a few well ripened Cones, PICEA NOBILIS, at 21*s.* each.

41, Westmorland Street, Dublin.

HOW'S EARLY FLUKE.—This new KIDNEY POTATO has been raised from the apple of the Fluke. In 1861, 1200 yards produced 132 bushels. In 1862, tested in alternate rows with other sorts, it was freest from disease, and by far the heaviest crop. It boils white, and is of first-rate quality. Its flavour when dug young is much extolled. Two First Prizes have been awarded to it at the last Redmarley Horticultural Shows held in July. For early market or the gentleman's table it is unsurpassed. Price 10*s.* per bushel of 56 lbs.

W. A. How, Redmarley, Newent, Gloucester.

SEED POTATOES from the NORTH of SCOTLAND. —The following sorts, grown by Mr. SIMPSON TEAWIG, in Inverness and Ross-shires, on clay loam and light soils.

DALMAHOYS
WALKER'S EARLY REGENTS
WHITE ROCKS

They will be delivered free in sacks in London, Liverpool, or Newcastle, at very moderate rates, which may be learned by writing, stating quantities required, to A. SIMPSON, Beauly, N. B.

Myatt's Early Prolific Ash-leaved Kidney Potatoes.

H. AND F. SHARPE are now taking orders for the above, which has this season proved itself to be the earliest and most prolific Potato in cultivation, and as fine in quality as any of the Early Kidney varieties. Having a good stock they can offer them at a low price to the Trade.

Also JACKSON'S ASH-LEAVED KIDNEY, WALNUT-LEAVED KIDNEY, and all the early Round varieties at equally low prices, which may be had on application.

Seed Growing Establishment, Wisbech.

THE ROYAL ASH-LEAVED KIDNEY POTATO —This variety was raised from seed of the Ash-leaved Kidney about five years since by the late JAMES ASHWIN, Esq., of Bretforten Hall, near Evesham.

He at the same time raised some other varieties from the same sort. Some specimens of all his seedlings were given to Mr. Rivers, who after having proved them, selected the above variety as being worthy of a name, and as the best and earliest Potato known.

It is like its parent in its fine flavour, shape, and leaves, but its bines are stouter and much more robust. It is also some eight or 10 days earlier, and gives quite double the produce of the old sort, frequently from 20 to 30 fine tubers to a root. In 1861 two pecks of seed produced 22 bushels. A few were sent to Mr. Spencer, of Bowood, last spring. The following is the report from the Foreman of the Kitchen Garden, Mr. Taplin:—"We planted this Potato for trial with the old Ash-leaved Kidney. The seedling was fit for use first, the Potatoes were larger and more of them to a root than the old sort; they were quite free from disease, while some of the sorts planted with it were nearly all destroyed; from its earliness and productiveness, I believe it will be found a most useful sort for early forcing." In March last, 10 varieties of Early Potatoes, including all the Early Kidney Potatoes, were planted here on the same day and in the same piece of ground with one row of the Royal Ash-leaved; the latter was earlier and more productive than any other kind.

Sold in sealed Peck Bags of 14 lbs., at 5*s.* 6*d.* per bag.

In London, by Messrs. WRENCH & SONS, Seedsmen, 39, King William Street, London Bridge, E.C.; and by Messrs. THOS. RIVERS & SON, Nurseries, Sawbridgeworth, Herts.



WHEELER'S LITTLE BOOK for 1863.

WHEELER'S TOM THUMB LETTUCE.

WHEELER'S IMPERIAL LETTUCE

The price of the Lettuce is 1*s.* per packet, post free.

J. C. WHEELER & SON beg to inform the Trade that their "Little Book" is entered at Stationers' Hall, and that they cannot allow it to be copied.

J. C. WHEELER & SON, Seed Growers, Gloucester.

Change your Seed.

SEED POTATOES AND SWEDE TURNIP SEED.

WM. JACKSON AND CO., SEED GROWERS and NURSERY and SEED MERCHANTS, Bedale, Yorkshire, have the pleasure to inform Agriculturists that they have grown large quantities of the following articles, carefully selected for Seed:—

DALMAHOY, FLUKE, and PRINCE REGENT (a great cropper) POTATOES, Free from disease, and fine samples.

The best PURPLE TOP, the best GREEN TOP, and the best HARDY BRONZE TOP, SWEDE TURNIP SEED.

These kinds have never failed to produce excellent crops.

CATALOGUES with particulars and prices, which are very moderate, sent to any part of the kingdom on application.

West Norfolk American Nurseries, Downham Market.

THE EXECUTORS of the late JOHN BROWN, in returning their sincere thanks for the liberal support for many years extended to the late Proprietor, beg to inform the nobility, gentry, and public, that the above Nurseries will in future be conducted by competent practical persons under the style of "JOHN BROWN & CO."

JOHN BROWN & Co., in soliciting a continuance of the support so liberally extended to their predecessor, beg to assure the public that no effort will be wanting on their part to merit a continuance of the same, and that all articles supplied by them will be of the best quality at lowest remunerative prices.

J. B. & Co. have on hand an extensive collection of FOREST TREES, CONIFERS, EVERGREEN and FLOWERING SHRUBS; also a large stock of GARDEN and AGRICULTURAL SEEDS of best quality.

All communications to be addressed, and Post Office Orders to be made payable to JOHN BROWN & CO.

The Planting Season.

THE EXECUTORS of MR. JNO. YOUNG, late Proprietor of the extensive Nursery Grounds, Taunton, have determined to reduce this large and valuable Stock. They respectfully invite the attention of Noblemen, Gentlemen, and the Trade to the FOREST TREES, HARDY and ORNAMENTAL TREES and SHRUBS, large and small; CONIFERÆ, EVERGREENS, HERBACEOUS, and a great variety of other PLANTS.

STANDARD, DWARF, and POTTED ROSES.

STANDARD, DWARF-TRAINED, and PYRAMIDAL FRUIT TREES.

The varied and excellent quality of this Stock is so well known that comment is unnecessary.

The Grounds are open for inspection and sale daily, and in quantities at greatly reduced prices.

Applications by post direct to the EXECUTORS of the late Mr. John Young, Taunton.

The above capital FREEHOLD NURSERY
(Established more than 30 years),
containing about 12 Acres of highly productive Land, with the usual Appurtenances, situate at Taunton, the County Town of Somersetshire, in excellent condition, with a good connection, is
TO BE SOLD, with Early Possession,
in consequence of the Decease of the late Owner.
For particulars, apply as above.

To Farmers, &c.

CHEAP GYPSUM MANURE.—Parties requiring GYPSUM can be supplied at 10*s.* per Ton, bulk, at the Works at Kennington, S.

Address, X. L., 34, Chapel Street, North Brixton, S.

*** Delivered on Rail, adding for bags and cartage.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

LAWES'S WHEAT MANURE for AUTUMN SOWING.

In consequence of the high price of Peruvian Guano, J. B. LAWES has manufactured a WHEAT MANURE for the present season, which will be found very suitable for that crop. A supply is now ready for delivery, and it can be obtained of J. B. LAWES, or through any of his appointed Agents. Price 8*l.* per ton at the Factories, Deptford and Barking Creeks.

Genuine Peruvian Guano direct from Messrs. Gibbs; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

TO BE SOLD, 200 feet length of 10-feet LIGHTS, for covering Peach walls. They are new, portable, and easily fixed. Gutters, Plates, Doors and Ends complete. Price 80*l.* Apply to CUTBUSH & Co., Highgate, N.

Also 85 ORCHARD TREES in Pots, from 4 to 8 feet in height, fine trees, consisting of Peaches, Nectarines, Plums, Pears, and Cherries. Price 30*l.*

The Lights would make a good Orchard House, 100 feet in length.

Notice.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS), HORTICULTURAL VALUER, begs to inform his friends and the public that he has REMOVED from Priory Road, Wandsworth Road, to No. 1, Devonshire Terrace, Fulham Road, S.W.

ESTATE DRAINAGE. — HORTICULTURAL ALTERATIONS Planned, Superintended, and carried out. For the Advertiser's style, see Horticultural Innovation, p. 1172, *Gardeners' Chronicle*, Dec. 13, 1862.

J. NEWTON, 30, Eastbourne Terrace, Paddington, W.

ARCHANGEL MATS, for protecting Fruit Trees, Plants, Shrubs, &c., from Frost. A large quantity fresh imported, are now on Sale at low prices per hundred, delivered free at any of the Metropolitan Railway Stations. Also Ropes, Lines, Twines, Sacks, and Bags of every description. Tanned Garden Netting. A Price List forwarded upon application to

JOHN MORISON, 25, Norton Folgate, N.E.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.

PROTECTION from the COLD WINDS & MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. .. 1*s.* 6*d.* per yard run.
Four yards wide .. .. .. 3*s.* per yard.
An improved make, 3 yards wide, 2*s.* 6*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 4*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon St., City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE Co., Limited.

SHAW'S TIFFANY, For samples and prices apply to J. SHAW & Co., 29, Oxford Street, Manchester.

Do as Others Do!

BUY YOUR SEED BAGS from JAMES T. ANDERSON, SACK and BAG MAKER, and RUSSIA MAT MERCHANT, 15, SHERBORNE LANE, King William Street, London, E.C., who will supply you with a first-rate article at a low price. ARCHANGEL MATS, the pick of the season. Russian and Prussian Dunnage Mats.

Prices sent free on application.

The Old Established Seed Bag and Sack Manufactory.

ALEXANDER NICOL AND CO., MANUFACTURERS of SEED BAGS and SACKS, RYE-GRASS SEED BAGS, GRAIN and POTATO SACKS of all sizes and descriptions, SHOP and NURSERY TWINES, GARDEN LINES, &c.

Chalmers St. Works, Arbroath, N.B.

N.B. The principal Seed-houses in the three Kingdoms have been supplied by us for the last 30 years. Price Lists and Samples may be had on application. No connection with any other house in the Trade.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozon:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

F. A. HAAGE, Jun., of Erfurt.—WOOD GARDEN STICKS and LABELS. Commended by the Royal Horticultural Society. Wholesale prices on application to BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

MINTON AND CO. have REMOVED from Albion Place, Blackfriars, to 50, Conduit Street, Regent Street. ENCAUSTIC and other PAVEMENTS, EARTHENWARE and PLAIN TILES. Designs and Estimates prepared.

Manufactory: Stoke-upon-Trent.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability. Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER, Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, London, N.E.

HENRY J. MORTON AND CO., 2, Basinghall Buildings, Leeds.

Galvanised Iron Water Cistern

for Cottage Houses, &c., to contain 50 gallons, 26*s.*; 80 gallons, 31*s.* each; and 140 gallons, 37*s.*, and fitted with tap, keeping the water perfectly sweet and clean; will not rust or corrode. Cisterns of all sizes.

Galvanised Iron Pumps

for Liquid Manure or Domestic Use, 3 inches diameter, 30*s.* and 32*s.* 6*d.* each; Tail Pipe for same at from 10*d.* per foot.

Galvanised Iron Swing Water Barrows

for Garden or Farm use, containing about 20 gallons, entirely formed of iron, 35*s.* 0*d.* each.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

HARDY FLOWER SEEDS, of Showy Colours only, sent free by post or rail, by
SUTTON AND SONS.

A COLLECTION of the best 50 sorts known .. 10*s.* 6*d.*
A COLLECTION of the best 36 sorts known .. 7 6
A COLLECTION of the best 24 sorts known .. 5 0
SUTTON'S CATALOGUE of SEEDS will be sent post free.
SUTTON & SONS, Seed Growers, Reading, Berks.

FINE GRASS LAWNS in FLOWER GARDENS, &c.—The great expense of cutting and carting Turves from a distance may be avoided, and a *superior* Turf produced in a few months, by sowing SUTTON'S LAWN GRASS SEEDS, which consist solely of the finest and shortest growing kinds, perfectly *free from Moss and other weeds:*

Price 18*s.* per bushel, or 1*s.* per pound Quantities of not less than 1 bushel will be sent Carriage free.
SUTTON & SONS, Seed Growers, Reading, Berks.

WELLINGTONIA GIGANTEA.—The attention of the Nobility, Gentry, and the Trade, is invited to the largest stock of 1-year SEEDLING PLANTS in the Kingdom, established in single pots and fit for Spring planting. Price per dozen, 12*s.*; per 100 or 1000 on application. A Sample free by post for 12 stamps.
J. HENCHMAN, Edmonton, London, N.

Box Edging.

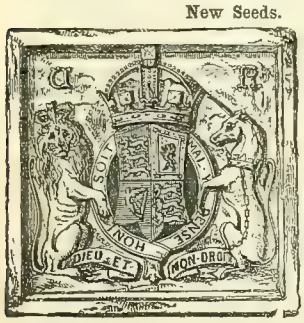
MR. JAMES VEITCH, JUN., is in want of a quantity of BOX EDGING. It must be dwarf and good, and warranted to plant at least three yards for one

Parties having any to offer may send ONE yard as sample, carriage paid to London, to be forwarded by Parcels Delivery. The price to include free delivery into a truck at a Railway Station.
Royal Exotic Nursery, Chelsea, London.—Jan. 31.

Larch, Quicks, &c.

CHIVAS AND WEAVER, Chester (late GEORGE CHIVAS), offer FOUR MILLIONS of TRANSPLANTED LARCH, from 1½ to 4½ feet, of very superior quality. FOUR MILLIONS of TRANSPLANTED THORNS of various sizes, a large portion of which are exceedingly strong. Orders for 10,000 of either, delivered free at any Railway Station. A Sample Bale, containing 100 of each, 5 sizes of Larch, 22*s.* 9*d.*, and of Quicks, 15*s.*, will be forwarded on receipt of a Post-office Order from unknown Correspondents.
A General PRICED LIST on application.

New Seeds.



PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN, of Edinburgh and London, are prepared to send out
FARM
and
GARDEN SEEDS
of every kind, and of the finest quality.

Orders for exportation executed with prompt and careful attention.

28, King Street, Cheapside; and 15, Lawrence Lane, E.C.

DOWNIE, LAIRD, AND LAING have much pleasure in offering the following FIRST CLASS NOVELTIES, which they can with confidence recommend as being decided acquisitions.

CALCEOLARIA CLOTH of GOLD, described by the Floral Committee of the Royal Horticultural Society as follows:—"A desirable bedding variety of dwarf habit, growing from 6 to 9 inches high; the leaves are narrow and deeply serrated, the flowers in fine compact trusses of a deep clear yellow, and of medium size and firm substance;" stems stiff and erect, requires no staking; as a dwarf yellow for front lines, or ribbon borders, it has no equal. Certificate of Merit by the Floral Committee, First Class Certificate at Regent's Park. Price 2*s.* 6*d.* each, 18*s.* per dozen. Special price for quantities on application.

DELPHINIUM BICOLOR GRANDIFLORUM.—This is a striking and most beautiful variety. It was commended by the Floral Committee of the Royal Horticultural Society, who described it as follows:—"A showy variety with large flowers, in which the sepals were of a dark blue, and the petals of a creamy white colour, contrasting strongly with the darker colour surrounding them." Price 5*s.* each. Special offers to the Trade on application.
Stanstead Park, Forest Hill, S.E.; and Edinburgh.

New Japanese Plants.

PARSONS AND CO., Flushing, near New York, offer FOR SALE—

Ten LILIUM AURATUM, at 8 Guineas each. This plant bloomed the last summer at Flushing. It was much admired for its great beauty, and for its delicate yet powerful fragrance, pervading a room for some days after being cut, and even after the petals were withered. The bulbs are full and sound.

LONICERA BRACHYPODA (aurea reticulata), 5*s.* each. This beautiful plant, with its remarkable leaf variegation of green and gold, is supposed to be perfectly hardy, and is scarcely surpassed in beauty by any of the foliage stove plants. It is figured in "L'Illustration Horticole" for last September.

RETINOSPORA JAPONICA, 5 Guineas per 100, 40 Guineas per 1000. This plant is supposed to be either obtusa or pisifera. Its foliage is beautiful, and highly glaucous on the under side. The plants offered are about 3 inches high, have been once transplanted, and are in pots containing 25 each.

JEDDO GRAPE. This Grape has been described by Robert Fortune as scarcely inferior to any of the Grapes known in English hothouses. Originating in Japan, it is supposed to be hardy, and suitable for walls. Strong 1-year old plants will be ready for delivery in the autumn of 1863. Price 1 Guinea.

Seeds made Proof against the Attacks of Birds.

SAMUEL WALTERS, SEED GROWER and MERCHANT, Hilperton, Trowbridge, Wilts, begs respectfully to offer SEEDS prepared as above stated, in small or large collections. Some of the advantages of using seed so prepared are—a less quantity of seed will produce a greater number of plants; all contrivances to frighten away birds can be dispensed with; the anxiety to secure seeds from the attacks of birds will be no more felt by the use of new and good home-grown seed so prepared. Unusual success may be expected. A nominal charge only will be made for Proof Seed, or when a Collection of Garden Seeds of 20*s.* value and upwards be requested and supplied by S. W., no extra charge will be made. The Seed can be tested at once by putting it on side of other Seed not prepared—the birds will eat the latter, but not the former.

AMATEUR'S GUIDE in a comprehensive form will be sent with each Collection of Proof Seeds.

KITCHEN GARDEN, FLOWER, and FIELD SEEDS always on Sale.

Roses for Forcing.

CHARLES NOBLE has a nice assortment, one year, established in 32-pots, ready for Forcing. They are healthy vigorous plants, and cannot fail to give satisfaction. He has also a large stock of Dwarfs and Half-Standards suitable for planting in Roseries; they are offered very cheap.
Sunningdale Nursery, South-Western Railway.

Rose Catalogue for 1863.

EDWIN HOLLAMBY begs to announce that his NEW DESCRIPTIVE PRICED CATALOGUE of the above is now ready, and will be forwarded gratis and post-paid on application.
Seed and Nursery Establishment, Tunbridge Wells, Kent.

Roses.

GEO. PARSONS begs to offer fine STANDARD ROSES, from 2½ to 4 feet stems, at 5*d.* per 100, or 15*s.* per dozen; including the New Varieties, 18*s.* per dozen, or 6*d.* 10*s.* per 100; the last New Varieties of 1862, DWARFS, 30*s.* per dozen.

CATALOGUES free on application.
Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

DWARF HYBRID PERPETUAL ROSES, on the MANETTI STOCK; Carriage paid to London.—The Undersigned offer very fine and vigorous plants of the above. For a LIST of the more popular sorts, see *Gardeners' Chronicle* for December 6, 1862. Prices given for small and large numbers (per 1000 at a much reduced rate) and a DESCRIPTIVE CATALOGUE of ROSES sent on application to
THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

Fine Dwarf Roses.

GEO. CLARKE has an abundance of magnificent plants of DWARF ROSES, including the leading varieties of Hybrid Perpetuals and Bourbons; also well established plants in Pots of PERPETUALS, TEAS, and BOURBONS, suitable for Forcing. Prices forwarded on application.

Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, near the Victoria Railway Station, Pimlico, S.W.

Roses.

H. LANE AND SON, The Nurseries, Great Berkhamsted, beg to call particular attention to their splendid Collection of ROSES, viz.:—

STANDARDS of the popular kinds, fine and strong.

DWARF STANDARDS, very strong, and best sorts, suitable for giving an immediate effect in beds, &c.

Ditto in 32-sized Pots for immediate Forcing, fine and good.

DWARFS on own roots, the leading kinds for beds, &c.

Also fine Plants for Conservatory or Greenhouse of TEA SCENTED (Dwarfs).

Splendid New Bedding Plants.



MESSRS. VEITCH AND SON, Exeter and Chelsea, S.W., are now prepared to supply SEEDS of the following splendid novelties, recently introduced by them, feeling confident that two such fine additions to the Flower Garden cannot fail to give general satisfaction.

AMARANTHUS MELANCHOLICUS RUBER.—Introduced from Japan by Mr. J. G. VEITCH; its beautiful blood red foliage renders it much superior to the Perilla, where colour and effect are required, and this, combined with its dwarf compact habit (averaging from 9 to 12 inches), cannot fail to make it the most popular dark-foliaged bedding plant yet introduced. It has been commended by the Floral Committee of the Royal Horticultural Society, on account of its distinct habit as a bedding plant.

In addition to the List of Agents advertised in the *Gardeners' Chronicle* of January 17, 1863, the following have also obtained their seed of the above from Messrs. V. & SON:—

Backhouse & Sons, Messrs., York
Cunningham & Son, Messrs. Geo., Liverpool
Fraser, Messrs. J. & J., Leyton, Essex
Glendinning, Messrs., Chiswick
Ivery, Mr., Peckham
Jackson, Messrs., Kingston, S.W.
Sands, Mr. John, Stafford
Waite, Mr., Holborn
Wood & Son, Messrs., Maresfield, Sussex

MIMULUS CUPREUS.—This beautiful little perfectly hardy novelty was sent us by Mr. Pearce, from the Andes of Chili, where he met with it at an elevation of from 6000 to 7000 feet.

Its dwarf and compact habit, not exceeding 4 to 6 inches in height, its perfect hardiness, and producing its bright orange-crimson flowers in great profusion, render it equally useful for the Flower Garden or for Pot culture.

It has been constantly exhibited during the past season, and had medals awarded it at both the Royal Horticultural and the Royal Botanic Societies. It is indeed a charming plant, and cannot fail to give general satisfaction.

In addition to those advertised in the *Gardeners' Chronicle* of January 17, 1863, the undermentioned have also procured their Seed of Messrs. V. & SON:—

Fraser, Messrs. J. & J., Leyton, Essex
Glendinning, Messrs., Chiswick
Jackson, Messrs., Kingston, S.W.
Waite, Mr., Holborn, W.C.
Wood & Son, Messrs., Maresfield, Sussex

LARGE IMPORTATION of STANDARD ROSES.

WILLIAM WOOD & SON

Have much pleasure in announcing the arrival of a large Importation of STANDARD and DWARF ROSES in fine order, which they will be happy to supply on most reasonable terms.

CATALOGUES free and post paid on application.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

IMPROVEMENT OF OLD PASTURES, PARKS, AND MEADOWS,

BY SOWING THE MOST SUITABLE KINDS OF

GRASS AND CLOVER SEEDS.

SUTTON'S RENOVATING MIXTURES.

Quantity of Seed required, 8 to 12 lb. per Acre. Price reduced to 9d. per lb., or 80s. per Cwt.

From Mr. JOHN BARTON, *Hackwood Farm.*

"Your Renovating Seeds have given great satisfaction. Two meadows which seemed almost past growing anything are now as good a herbage as any one could wish."

From Mr. ALEXANDER TILL, *Minster, near Queenborough.*

"Two years since I sowed some of your 'Grass Seed Mixtures' upon some old and mossy pasture, and now I see a positive and considerable benefit therefrom, the pasture being much *thicker* and more vigorous; and the sheep show their fondness for it in the close and even manner in which they feed it down."

From Mr. J. HALLETT, *Blackford Farm, Highclere.*

"The Grass Seeds you sent me last season have given me the greatest satisfaction, inasmuch as the plot of ground where they were sown, which before seemed almost past growing anything, is now growing as beautiful a plant of herbage as any one could wish to see."

From the Rev. CANON GUTHRIE, *Vicarage, Caine.*

"I have no hesitation in expressing my great satisfaction at the *manifest improvement* both to lawn and *pasture* from the Seeds which I received from you, though I was somewhat late in the sowing."

From Mr. G. NORRINGTON, *Rectory Farm, Taplow.*

"Five years ago I wrote to you to send me a Mixture of Grass Seeds to sow upon 10 acres of old Pasture. At the time I took the Farm the 10 acres of Meadow were almost useless. I now have a most excellent pasture."

From T. T. FICKLIN, Esq., *The Grove, Cambridge.*

"Your Renovating Grass Mixture answered perfectly, and my friend wishes me to order some for him."

From Mr. R. S. CROSS, *Petersfield.*

"The Renovating Mixture I had a year ago last spring had evidently much increased the quantity and improved the quality of this year's crop of Grass."

From ALEXANDER C. FORBES, Esq., *Whitchurch,*

"You will be pleased to hear that the Renovating Seed I sowed, and which I thought had failed, are now coming up in great abundance."

From Mr. W. MEEKINS, *Gardener to the Dowager Lady Truro, Bowes Manor, Southgate.*

"I am much pleased with the Renovating Seeds I got last season from you, as in every meadow where I sowed it I found great improvement, both in quantity and quality; also the Lawn was very much improved by the mixture you sent me, and my employer was much gratified with the results, both in our Pasturage and on the Lawns, and wishes me again to procure mixtures from you when the time arrives for sowing."

From C. F. THRUSTON, Esq., *Talgarth.*

"Your Grass Seeds have answered admirably. They were sown in spring, under rather unfavourable circumstances. The after Grass is remarkable; Clover and other Seeds springing up where nothing but the poorest pasture had been previously, and I think that a field of 9 acres sown with your Renovating Mixture is now one of the finest in our neighbourhood."

Meadows and Upland Pastures may be increased in value 50 per cent. by sowing these Seeds (as see the above Letters).

Our RENOVATING MIXTURE consists of the Finest GRASSES and PERENNIAL CLOVERS. If the Seeds are sown *early in the season*, the improvement in the Pasture will be very great, and at a small expense.

SUTTON'S PERMANENT MEADOW GRASS SEEDS, mixed expressly to suit the soil, 30*s.* per Acre.

Fine LAWN GRASS SEEDS, 18*s.* per Bushel. Also

Good CLOVER and RYE-GRASS SEEDS for Alternate Husbandry at market prices.

ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

NEW PRIZE MELONS, at 1*s.* 6*d.* per packet.
Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria,
For descriptions see GUIDE to the KITCHEN GARDEN.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

NEW MELON, PRINCESS ALEXANDRA.—A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1*s.* per packet.
JAMES CARTER & Co., 237, 238, & 261, High Holborn, W.C.

Melon Seed! Melon Seed!!—Hybrid Cashmere (True).
J. MEREDITH can supply Seeds of his First Prize MELONS, which were exhibited at Kensington and Regent's Park last summer, Twelve Seeds for 2*s.* 6*d.*
N.B. Payment may be made in postage stamps.
J. MEREDITH, Vine Cottage, Garston, near Liverpool.

To the Trade.—Vines from Eyes.
H. LANE AND SON, The Nurseries, Great Berkhamsted, have to offer a fine large quantity of well-ripened CANES of Buckland Sweetwater, Prolific Sweetwater, Trentham, Muscat Hamburgh, Golden Hamburgh, Cannon Hall Muscat, Black St. Peter, Charlesworth Tokay, West's St. Peter, &c.

THE GREAT VINE at HAMPTON COURT.—The Subscribers being the holders of the Royal Kitchen Gardens, Hampton Court, are enabled to offer genuine the famous and truly excellent HAMPTON COURT BLACK HAMBURGH GRAPE.
Strong well-ripened plants in 9-inch pots, 42*s.* and 60*s.* p. doz.
" " fruiting plants in 12-inch pots, 10*s.* 6*d.* each.
If purchased in large numbers a considerable reduction will be made in price.
JACKSON & SON, Nurseries, Kingston, S.W

Vines.
GEORGE CLARKE, having an enormous stock of stout, short-jointed, well-ripened, Fruiting VINES, is induced to offer them at prices considerably lower than those usually charged for such plants. He offers them at 7*s.* 6*d.* each. They embrace all the well-known leading varieties, and will produce a good crop of fruit in the ensuing season. Smaller plants, equally well ripened, 3*s.* 6*d.* to 5*s.* each.
Nursery, Streatham Place, Brixton Hill, London, S.; and 4, Windsor Terrace, near the Victoria Railway Station, Pimlico, S.W.

EXTRA STRONG FRUITING VINES.—All the leading varieties, from Eyes, with stout well ripened rods, for FRUITING in POTS this YEAR. Price, from 7*s.* 6*d.* each; smaller, for Planting-out, from 3*s.* 6*d.* each. A reduction in price will be made to large purchasers.
"We can especially recommend the above, our strong Vines having for some years given unqualified satisfaction."—*Vide* Leading Article in *Gardeners' Chronicle* for December 13, 1862, p. 1170.
JAMES DICKSON & SONS, The Newton Nurseries, Chester.

New Early Peaches, &c.
MESSRS. RIVERS AND SON have much pleasure in offering the following new and valuable sorts of PEACHES, &c.:—
EARLY VICTORIA.—This, the earliest good Peach yet known, ripens early in August, and is so hardy that it may be cultivated as a bush in the open air. It was placed before the Fruit Committee of the Royal Horticultural Society, August 12, 1861. "The flavour was most delicious;" *vide* report in "Proceedings" of that date. Maiden trees, 5*s.* each; bearing trees in pots, 7*s.* 6*d.* each.
EARLY ALBERT.—This distinct variety ripens about the middle of August, just after the Early Victoria. It was placed before the Fruit Committee, Sep. 10, 1861 (the fruit sent being retarded). "The flavour is excellent;" *vide* report in "Proceedings" of that date. Maiden trees, 5*s.* each.
PRINCE OF WALES PEACH.—A sort raised from the Pitmaston Nectarine. Very large, colour deep crimson, flesh very rich and melting. It ripens from a week to 10 days after the Barrington Peach. Maiden trees, 5*s.* each.
PRINCE OF WALES NECTARINE.—A late melting sort, raised from the Bourdin Peach. Fruit oval, large, melting, very red at stone; flavour rich, with a vinous smack. It ripens about the first week in October. Maiden trees, 5*s.* each; bearing trees in pots, 7*s.* 6*d.* each.
PINE APPLE NECTARINE.—A late variety of Pitmaston Orange, with large oval fruit; colour bright orange and red. Flavour remarkably sugary and rich. Maiden trees, 5*s.* each; bearing trees in pots, 7*s.* 6*d.* each.
Carriage paid to London.
Nurseries, Sawbridgeworth.

Wholesale Catalogue.
GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1862 and SPRING 1863, comprising Fruit Trees of all the leading kinds, new and selected Roses, fine varieties of American Plants, Choice and Rare Conifers, Evergreen and Deciduous Trees and Shrubs, and a fine Stock of Transplanted Forest Trees, &c., can be had free on application.
Woking Nursery, Surrey.

DWARF-TRAINED FRUIT TREES.
Good trees moderate price.
PEARS.—Passe Colmar, Marie Louise, Williams's Bon Chrétien, Van Mons Leon le Clerc, Knight's Monarch, Ne plus Meuris, Easter Beurré, Duchesse d'Angoulême, Beurré d'Aremberg, Glou Morceau, Catillac, Crassane, Beurré Clairgeau, Beurré Magnifica, Prince Albert, Jules Bivort, Comte de Paris, Duchesse d'Orleans, Prevost, Alexandre Lambre, Zepherin Louis, Eliza d'Heyst, Cassane de Mars, Laura de Glymes, Josephine de Malines, Beurré Berckmanns, Beurré Superfin, Autumn Bergamot, Gansel's Bergamot, Beurré de Capiaumont, Jargonelle, Hacon's Incomparable, Beurré Bosc, Chaumontei, Louise Bonne of Jersey, Nelis d'Hiver, Beurré Diel, Leopold I., Bergamot d'Esperon, Comte de Flandres.
PLUMS.—New Early Orleans, Old Orleans, Red Magnum Bonum, Denyer's Victoria, Diamond, Goliah, Cooper's Large Red, Prince of Wales, Woolston's Black Gage, Angelina Burdett, Cloth of Gold, Autumn Compote, White Magnum Bonum, Reine Claude Violet, Washington, Ickworth's Imperatrice, Jefferson's Standard of England.
APPLES.—Hawthornden, Court Pendu Plat, Wellington Pippin, Cox's Orange Pippin, Lord Suffield, Reddlestone Pippin, Stamford Pippin, Yellow Ingestre, Keswick Codlin, Court of Wick, King of Pippins, Blenheim Orange, Cockle Pippin, Kerry Pippin, Nonpareil Russet, Scarlet Pearmain, Kirke's Golden Reinette, Hanwell Souring, Cellini Pippin, Mannington's Pearmain, Northern Spy, Reinette Van Mons, &c.
GEORGE JACKMAN & SON have the pleasure of offering the above named trees; all are well trained, and will be sold per dozen or hundred at moderate prices; the ground being required for other purposes, they are desirous of clearing the above stock this spring.
Woking Nursery, Surrey.—Jan. 31.

Foster's Seedling Grape.
MESSRS. JOHN AND CHARLES LEE have to offer Mr. Foster's stock of this fine NEW GRAPE, which can be confidently recommended for general cultivation in cool Vineries. It has borne an abundant crop in the large Conservatory of the Royal Horticultural Society at Chiswick, the bunches being large, with medium sized berries of a pale amber colour. The flavour of Foster's Seedling is most luscious, equalling the richness of its twin sister Lady Downe's, and as far as can be seen, partaking of the same quality of hanging well without shrivelling.
Canes for planting, 7*s.* 6*d.* each. A few Fruiting Canes at 21*s.* each.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Dwarf Maiden Peaches, Nectarines, and Apricots.
WOOD AND INGRAM beg to call the attention of the Trade to their large stock of the above, consisting of all the leading kinds of PEACHES and NECTARINES, and MOORPARK APRICOTS, all remarkably fine clean stuff.
Price on application.
Nurseries, Huntingdon.

APPLE and PEAR TREES, &c.—100 doz. Dwarf and Pyramidal PEAR TREES, best sorts, 20*s.* per doz., packing included.
50 doz. Dwarf and Pyramidal APPLE TREES, best sorts, 12*s.* per doz., packing included.
GENERAL LISTS of NURSERY STOCK on application.
CHARLES B. SAUNDERS, Nurseryman, &c., Jersey.

To Noblemen, Gentlemen, Gardeners, &c.
LEWIS SOLOMON, of Covent Garden Market, W.C., FRUITERER, PURVEYOR to HER MAJESTY and the ROYAL FAMILY, having large orders for New Fruits, such as GRAPES, STRAWBERRIES, PEACHES, NECTARINES, &c., during the first three weeks in MARCH next, will be glad to PURCHASE such produce at remunerative prices; or, if preferred, make exchanges for them.
Applications to be made as early as possible to LEWIS SOLOMON, Grape Vine, Covent Garden Market, W.C.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, has the pleasure to offer now for the first time his two new excellent Fruits—
APPLE CALVILLE GARIBALDI .. 8*s.*
PEAR BÉURRÉ DE GHELIN .. .. 5*s.*
This excellent Pear obtained the First Prize at the great Pomological Show at Tournay, Belgium.
N.B. These two new Fruits are figured in VERSCHAFFELT'S "Illustration Horticole."

To the Trade.
MARSH AND PERKINS, 42, Drapery, Northampton, have great pleasure in offering the following Surplus Stock, all being fine and well rooted:—
STANDARD CHERRIES, of sorts, 60*s.* per 100.
LINNÆUS and VICTORIA RHUBARB ROOTS, 20*s.* per 100.
Transplanted SCOTCH FIR, 1½ to 2 feet, 14*s.* per 1000.
Extra do. do. 2 to 3 feet, 20*s.* per 1000.
Do. do. do. 3½ to 4½ feet, for wood planting, 40*s.* per 1000.
Strong 2 years transplanted WHITE THORN QUICKS, 9*s.* [per 1000.
Do. 3 years do. do. 12*s.* per 1000.
ASH, 1 year Seedling, 1*s.* per 1000.

Fruit Trees.
RICHARD SMITH has no hesitation in saying, that he possesses by far the largest Stock of FRUIT TREES in the kingdom, consisting of Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots, in Maiden Trees, Dwarfs, Bushes, Pyramids, Half-Standards, and Standards; Dwarf-trained, Half-Standard, Standard, and Horizontally-trained Trees, of the finest sorts, and in the best possible condition. DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman, Worcester.

J. SCOTT'S DESCRIPTIVE FRUIT CATALOGUE, describing the Culture and Character of nearly 800 sorts, price 7*d.* Also his CATALOGUES of CHOICE and GENUINE SEEDS, mostly his own saving; and his CATALOGUES of NURSERY STOCK, ROSES, and CONIFEROUS PLANTS, free on application to
J. SCOTT, Merriott Nurseries, Crewkerne, Somerset.

Lobelia speciosa (True).
THOMAS METHVEN begs to state that he can supply the above, and which he can warrant genuine, in packets at 1*s.*, 2*s.* 6*d.*, and 5*s.*
GENERAL SEED CATALOGUE free on application.
Seed Warehouse, Leith Walk, Edinburgh.

Pinus Montana. | Abies Menziesii.
THE SUBSCRIBER begs to inform the Trade and others that he has a surplus Stock of the above.
Prices by the 100 or 1000 upon application to J. GRIER, Nurseries, Ambleside.

SPRUCE FIR, TWICE TRANSPLANTED. 1 to 1½ feet, 15*s.* per 1000. | 1½ to 2 feet, 20*s.* per 1000.
Apply to JAMES GARAWAY & Co., Durdham Down Nurseries, Bristol.

Important to Nurserymen and Others.
SURPLUS STOCK of 1 and 2 year SEEDLING FOREST TREES, &c. PRICED LIST on application to
MICHAEL BURKE, Drumlargan Nurseries, Summerhill, Co. Meath, Ireland.

10,000 Aucuba japonica.
ALEXANDER LAING begs to offer the above, fine bushy Plants, twice Transplanted, 12 to 13 inches, at 20*s.* per 100 for cash.
Nurseries, Beverley, Yorkshire.—Jan. 31.

ACORNS.—A few hundred Bushels of the above to offer, sound and good.
Apply to W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Large Fan Yews.
MESSRS. BROWN AND CO. have a quantity to dispose of, 4 to 6 and 8 to 10 feet high. All well-grown handsome specimens, fit for immediate screens, some pyramidal, well-branched, and good leader. State size and height required. Price sent by return of post.
American Nurseries, near Farnham, Surrey.

200,000 Strong Transplanted Quicks.
WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.
WM. WOOD and SON have a fine Stock of the above to offer at 10*s.*, 25*s.*, and Extra Strong at 30*s.* per 1000. A sample bundle of 100 of each size will be sent on receipt of postage stamps for 6*s.* 6*d.*
300,000 1-year SEEDLING ASH. Price on application.

Good Clover Seed.
GENUINE NEW CLOVER SEED may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.
SUTTON & SONS, Seed Growers, Reading, Berks.

GENUINE CLOVER and GRASS SEEDS.—Samples and prices Post free on application.
☞ Orders amounting to 10*s.* and upwards sent carriage free.
WM. WOOD & SON, Seed Merchants and Nurserymen, Maresfield, near Uckfield, Sussex.

RHODODENDRONS of all sorts and sizes may be obtained in any quantity of W. H. ROGERS, Red Lodge Nursery, Southampton. Also every description of well grown Nursery Stock, extending over 60 acres.
PRICED CATALOGUES forwarded on application.

A. STANSFIELD AND SONS beg to announce that their LIST of BRITISH FERNS for this season, including the New and Rare varieties, at reduced prices, is now ready, and may be had on application, enclosing two postage stamps. Also their GENERAL FERN LIST, No. 6, for 4 postage stamps, which purchasers may deduct.
Vale Nurseries, Todmorden.

Seeds, Seeds, Seeds.
S. GLENDINNING AND SONS' (Successors to the late R. GLENDINNING) CATALOGUE of KITCHEN GARDEN, AGRICULTURAL and FLOWER SEEDS is now ready and may be had on application.
Chiswick Nursery, London, W.—January, 1863.

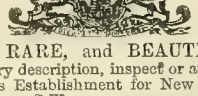
EDWIN HOLLAMBY begs to inform his Patrons and Friends that his DESCRIPTIVE PRICED CATALOGUE of VEGETABLE, FLOWER, AGRICULTURAL SEEDS, and GLADIOLUS is now ready, and may be had gratis and post paid on application.
Nursery and Seed Establishment, Tunbridge Wells, Kent.

German Seeds.
FREDERICK ADOLPHUS HAAGE, Jun., NURSERYMAN and SEED GROWER, of Erfurt, Prussia, has the pleasure to inform the Trade that his new WHOLESALE PRICE LIST for 1862 and 1863 is now ready, and may be had on application to his Agents,
Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.
N.B. Printed regulations for treatment sent.

Established 1787.
THOMAS KENNEDY AND CO.,
NURSERY AND SEED ESTABLISHMENT,
Dumfries, N.B.
*** PRICED CATALOGUES sent free on application.
FREE DELIVERY.
FARM and GARDEN SEEDS under certain limitations will be DELIVERED FREE OF CARRIAGE to the chief Railway Stations in Great Britain and the principal Steam Ports in Ireland.

ROBERT KENNEDY, SEEDSMAN, Great Piazza, Covent Garden, W. C. (Established 1846), in returning thanks to his numerous Patrons for past favours, respectfully intimates that his NEW PREMISES will be found replete with objects of interest in BOTANY, ZOOPHYTOLOGY, and REPTILIA.
A large assortment of Choice Healthy Ferns, Wardian Cases, Shades, Rustic Stands, Aquaria, German Flower Seeds, Select and New; Trichomanes, Hymenophyllums and other rare Ferns.
N. B.—Business carried on exclusively by R. K., at his New Premises, Great Piazza, Covent Garden, W. C.

New and Rare Plants.

FOR NEW, RARE, and BEAUTIFUL PLANTS of every description, inspect or apply at
WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, S.W.

The Gardeners' Chronicle.
SATURDAY, JANUARY 31, 1863.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	Feb.	2—Entomological	7 P.M.
WEDNESDAY,	—	4—Society of Arts	8 P.M.
THURSDAY,	—	5—Linnean	8 P.M.

THE subjoined correspondence in reference to the INAUGURATION OF THE MEMORIAL OF THE GREAT EXHIBITION OF 1851 in the Garden of the Royal Horticultural Society has just been made public:—

"To His Royal Highness the Prince of Wales, &c.

"SIR,—The Memorial of the Great Exhibition of 1851 is now so far advanced that the day of its inauguration may be fixed and announced. Your Royal Highness's lamented father, the PRINCE CONSORT, had intimated his intention that this event should be marked with honour. By an act fully appreciated, not alone by the committee I have the pleasure to represent, but by the people of this country, your Royal Highness has connected yourself with the Memorial, and restored to it the twofold character it was originally intended to have. I have now to beg, Sir, that you will increase the obligation already conferred, and permit the announcement that the Memorial will be inaugurated by your Royal Highness on the 5th of

June, the anniversary of the opening of the Horticultural Society's Gardens, in which it stands.

"I have taken the pleasure of Her Majesty the QUEEN upon the subject, and have received a gracious intimation that HER MAJESTY will have no objection to such an announcement.

"I have the honour to subscribe myself, Sir, your Royal Highness's obedient and devoted servant, "GEORGE GODWIN."

"24, Alexander Square, Brompton, Jan. 19."

"Sandringham, Norfolk, Jan. 24.

"SIR,—I am directed by the PRINCE OF WALES to acknowledge the receipt of your letter, requesting, in the name of the Committee for the Memorial of the Great Exhibition of 1851, that his Royal Highness would be pleased to inaugurate it on the 5th of June next, and permit the announcement to be made accordingly.

"It is with the greatest satisfaction that his Royal Highness accedes to the request; for in so doing he cannot but feel that he is contributing towards carrying out the wishes of a beloved and lamented parent, that the Memorial of the Exhibition of 1851 should be inaugurated with every circumstance of honour.

"I have the honour to be, Sir, your most obedient servant, "W. KNOLLYS."

"G. GODWIN, Esq."

THE introduction of A NEW SILK MOTH (Bombyx Cynthia) into Europe bids fair to be of great importance. It was first sent from China to Turin by a Piedmontese missionary in 1857, and so early as 1858 it had attracted the attention of GUÉRIN-MÉNNEVILLE at Paris, so far as to induce him to plant 5000 trees of Ailantus glandulosa, on the leaves of which the caterpillar feeds. It is reported that the almost incredible quantity of 100 millions of trees are now planted in France for the sustenance of the caterpillar, insomuch that GUÉRIN-MÉNNEVILLE has said that "HENRY IV. gave us silk for the rich, but NAPOLEON III. has given silk to the poor."

We believe, indeed, with every reader of "Quentin Durward,"* that silk was produced in France long before the reign of HENRY IV., but however this may be, the produce of Bombyx Cynthia is of a far coarser and more durable nature than ordinary silk. In China it forms the greater part of the material of which the clothing of the middle-class is made, and is so durable that a garment descends from parent to child, besides having the valuable qualities of never contracting grease spots, and being waterproof.

So useful an article of commerce, the culture of which had already extended from Italy to France, Switzerland and Belgium, could scarcely help attracting the attention of Austria, where there is such variety of soil and climate suited in some locality or other for almost every thing which can be employed to any useful purpose in art or manufacture, provided it does not require tropical heat. Experiments were accordingly made at Trieste and Görtz in raising the new silkworm, and apparently with some success. It was however desirable to ascertain whether there was any promise for more northern latitudes. Accordingly a manufacturer of the name of FICHTNER, at Atzgersdorf, at a short distance from Vienna, on the borders of the river March, a tributary of the Danube from the North, has taken the matter in hand, and has laid before the Trade Union of Lower Austria, on the 17th of October, 1862, an account of his experiments, of which we now have an abstract before us.

One great advantage attending the culture consists in the fact that, unlike the common silkworm, the Ailantus caterpillar requires scarcely any care, if a single harvest only is desired. If, however, two or more are sought for, the eggs must be hatched artificially, and the caterpillars fed on the leaves of *Dipsacus fullonum*, or artificially forced Ailantus, till the leaves are expanded in the open air. At present great difficulty has been experienced in running off the silk from the cocoon, and in consequence, the process of carding must be employed, which is wasteful, besides yielding a kind of silk resembling wool rather than common silk. But even here there is one advantage, viz., that the cocoon is far less injured when the moth makes its appearance than in that of the old silkworm.

All that is necessary where a single crop only is desired, which is conceived to be the most useful plan for Austria, especially for small proprietors, the persons who are expected most to profit by the scheme, is to cover the hedge of Ailantus, the most convenient form in which the plants can be grown, with a common net spread over hoops, to protect the caterpillars from the house sparrow, which is peculiarly fond of them, a curious matter, as they are so very different from any caterpillar to which sparrows are used.*

The insect assumes the pupa state in from 38 to 40 days after the caterpillars first make their appearance, and in about 20 days more the moths appear. The pupæ must be placed in some convenient box lined with cotton and covered with network for protection, in order that the eggs may not be lost, and may be conveniently removed by cutting to pieces the lining or net to which they are attached. Unfortunately the eggs retain their vitality only for a short time, and dependence therefore for the next year's crop must be placed on those pupæ which do not at once change to the Imago.

Experiments have been tried in the north-eastern corner of Moravia, at the northern foot of the Carpathian mountains, which have been equally crowned with success, a circumstance which makes it not impossible that the insects may succeed in those parts of Great Britain where the Ailantus will flourish. Success indeed is more probable, as the caterpillars are not impatient of moderate changes of temperature, though as autumn advances, when the nights are cold, they will begin to spin the cocoons, but will not finish them, as they die before they can attain the state of pupæ. There is the more reason to hope that they may succeed in England, as the degree of labour which they require is so small as not to make it a very serious item of expense.

At present the experience is of so short a date in Germany that it is quite premature to speak of the relative expense of production and profit. Herr FICHTNER however is sanguine that, without detracting much from other objects of cultivation, the small proprietor will find his end answered in having on his few acres a hedge or two of Ailantus, which will produce about a pound of silk for every 12 feet, the only expense being the wear and tear of the protecting net, as the small amount of labour can easily be supplied by the cottager's family. *M. J. B.*

OUR readers, and the visitors to the recent fruit shows of the Royal Horticultural Society, cannot have forgotten the surpassing beauty and equal excellence of the APPLES communicated by the great colony of NOVA SCOTIA. Certainly nothing like them had been previously seen at any public exhibition in this country. The other day we received a box of similar fruit,† packed in a manner that deserves to be made known.

A wooden box was filled with trays, each 2 feet long, 18 inches wide, and 5 inches deep, divided by partitions into spaces 4 inches wide. These trays had a layer of *dry* ground plaster of Paris strewed over the bottom; on this layer the Apples were placed in a single row; more plaster was carefully filled in between the Apples, and the whole was covered with about an inch of plaster well shaken down, so that the fruit became immovable. Packed in Halifax on the 9th Jan., the box arrived on the 25th. Upon being opened the fruit was found to be in the most beautiful preservation, both as to appearance and quality. The plaster having been perfectly dry, no decay from moisture or fermentation was possible, and a soft brush removed it easily.

Could not our fruiterers take advantage of this experiment? We should think that such admirable fruit as that from Nova Scotia arriving before Christmas would fetch a high price in the market. At all events private individuals could open a communication with the fruiterers of Halifax, N. S., for their own supply; as our London can produce nothing like it.

For this highly interesting communication we have to express our thanks to R. HALIBURTON, Esq., of Halifax, who, upon the representation of the Rev. G. HONEYMAN, the distinguished Geologist to the Government of Nova Scotia, took upon himself the trouble of having the fruit despatched. We are also indebted to the kindness of Mr. JOSEPH KAYE for the specimens, which had been produced in his orchard. When there shall have been arranged a regular supply of the choicest Nova Scotian fruit to the English markets, it will be interesting to call to mind the names of those gentlemen to whom so gratifying a result will have been owing.

WE understand that the following changes in the Council and Officers of the ROYAL HORTICULTURAL SOCIETY will be proposed at the next anniversary; viz., Sir DANIEL COOPER, Bart., J. KELK, Esq., and the Rev. JOSHUA DIX as new members of Council; WILLIAM WILSON SAUNDERS, Esq., as Secretary, and JOHN CLUTTON, Esq., as Treasurer. Dr. LINDLEY has resigned, from inability longer to fulfil the duties of the office he has occupied for more than forty years.

—— ABOUT this time last year we invited attention to the seldom seen LIMATODES ROSEA as a beautiful Orchid for winter decoration, and briefly indicated the treatment by means of which Messrs. Low & Co., of Clapton, had been enabled to bloom it in great perfection. We understand that both the Limatodes and their companion Calanths have been still finer this year, which may be taken as a satisfactory confirmation of the fitness of the treatment which has been followed, and which we then explained (see *Gard. Chron.* 1862, p. 22). Another beautiful plant of the Orchid family, SOPHRONITIS GRANDIFLORA, has been flowering grandly at the same place, and had there been any floral meeting at this season of the year, we believe it was Mr. Low's intention to have exhibited a group of some four dozen of them, all in blossom. Probably such a group as this has never before been seen in cultivation.

—— From a circular which has lately reached us we learn that a SOCIETY OF AMATEUR BOTANISTS, with Mr. M. C. COOKE at its head, has been, or is about to be, established in London. Its objects are stated to be the rendering of mutual assistance in the study of British plants by organised country excursions; the interchange of specimens, the communication of papers, and the establishment of a library, herbarium, and museum. The annual subscription is 2*s.* 6*d.*, and there is an admission fee of similar amount. Bi-monthly evening meetings are to be held; and persons residing at too great a distance to participate in them, but who are desirous of aiding in the objects of the Society, are admissible as corresponding members without payment of subscriptions. The Secretary is Mr. T. MARTIN, and the Society's quarters are at 239, Euston Road. Something of the sort, more homely and genial than the meetings of the "learned" societies, has been much needed since the disruption of the Botanical Society of London; and as aiding in the good work of extending a taste for practical botany, especially in that stratum of society from which the learned societies are fed, we wish the undertaking all success.

—— The lovers of SWEET POTATOES may like to know that Messrs. GARCIA, in the Central Avenue, Covent Garden, have now on sale some of the best that ever reached London. They are as fresh and sound as if they had been just dug at Barcelona.

SPECIES *versus* VARIETIES.

THE important information contained in the leading article in the *Gardeners' Chronicle* of the 17th inst. (p. 51) respecting the experiments made by Mr. Rivers in raising fruit trees from seeds, and the results which followed, must have been read with much pleasure by all experimental horticulturists. I have frequently had occasion to mention, both in public and private, that the Peach and Nectarine were only varieties of each other, and have, nearly as often as I did so, been laughed at for advancing such a theory. Being unable to defend the assertion by direct proof, which I have been challenged to produce, my antagonists considered they had the best of the argument, but now the tables are turned, and we possess the most accurate information on the matter.

This will, I trust, show the necessity which exists for experiments being made on other subjects connected with horticulture as well as botany. For example, a series of experiments, properly conducted, in trying to breed back the most distinct varieties of Brassica oleracea, *e. g.*, Cauliflower, Broccoli, &c., to the normal state of the species from which they are supposed to have originated, would be fraught with much interest. I am persuaded this could be accomplished in a shorter period than many suppose, by selecting the most aberrant individuals annually out of each sowing. In this manner sound data might be obtained to reason on—whether a typical form, called a species, has certain range only in which it is capable of breaking out into dissimilar forms, called varieties, which, if

* LOUIS XI. is there spoken of as the great silk merchant and cultivator of Mulberry trees, under the name of Maitre PIERRE.

* The caterpillars are at first black with yellow spots, then yellow with black spots, then white with black spots, then emerald green with indigo spots, when they are very fat and greedily sought by the birds.

† The sorts were Monster Pippin, Obertson's Nonsuch, Newtown Pippin, Chebucto Beauty, Gravenstein, Blenheim Pippin, Bishop Pippin, Northern Spy, Baldwin, Spitzenberg, Blood Streak, King of Pippins, Monster Russet, Golden Pippin, Pomme Gris, Nonpareil, Ribston Pippin.

neglected and allowed to run wild, or carefully bred back, will again assume the normal typical form; or whether they remain permanent, with a tendency to greater alienation from it.

The idea of a species among plants has, probably, never since the time of Linnæus been dealt with more arbitrarily than it is at present by British authors. Some affirm specific distinctions on what many suppose insufficient grounds, whilst others group a lot together as slight varieties, which were formerly held as species. As an example of the latter, I need only refer to Bentham's useful "Handbook of the British Flora," where, at page 559, will be found grouped together Carex paniculata, Carex teretiuscula, and Carex paradoxa, as forms of one species. Now, these are by myself and others who have had an equally good opportunity of judging of them, held to be aboriginally distinct typical forms; and this I know—they continue so in cultivation, and come distinct from seed, through one generation at least.

This leads me to observe on another genus, which contains the gist of this communication. The difficulty of defining what are called species and varieties of our native Roses has been long felt, yet few direct experiments have been made, that I am aware of, to assist in clearing away these difficulties. Finding this the case, I had most of our Irish kinds of native Roses brought from the northern counties and placed under cultivation in this botanical garden about twenty years ago, where they have grown ever since, and still remain unaltered in their distinguishing features. Twelve years ago we began a series of experiments by raising the different kinds from seeds, and the results arrived at were unexpected. The kinds operated on were the following: Rosa tomentosa, Smith; R. hibernica, var. β; R. scabriuscula, Engl. Bot.; R. Sabini, Engl. Bot. Suppl., and Rosa Forsteri, Borrer. Plants grew freely from the seeds of all save those of R. hibernica, var. β, and most of them flowered during the fourth and fifth years, when they proved, almost without exception, true to the typical form of the plants the seeds were taken from, the principal differences being in slight shades of colour in their corollas. From the fruit taken from the first seedlings, a second batch was again sown, which also flowered, presenting similar results to the former: each plant continued typically true to that type from which it sprang. If therefore these facts do not prove specific identity, they certainly show that the kinds I have mentioned are not such slight varieties as some may think. It may be that others have tried similar experiments, and have obtained dissimilar results, which this notice may be the means of eliciting.

A number of forms of British and foreign Hieracia were put under cultivation for the purpose of being experimented on, but owing to the light nature of their seeds they soon became so mixed as to render further experiment unsatisfactory; yet I believe, with patience and perseverance, some facts of much interest might be brought out by experiments on the numerous forms of this genus. At present there are a number of seedlings of the principal forms of British Rubi here, three years old, some of which may flower next summer. *D. Moore, Glasnevin, Jan.* 20.

PLANTS OF PERU.—No. VIII.

(*Continued from p.* 28).

CINCHONAS.—On the disembarkation of the cases at Southampton, notice was immediately sent to the India Office of their arrival, and of the healthy condition in which the plants reached England, and that they might with safety be sent on at once to India. Next day, however, one of the foremen from Kew Gardens came to Southampton, with instructions to bring the cases to Kew without delay. They were accordingly put into a van and taken by rail to Kew. From the railway station they were conveyed by means of waggon and hand-truck to the gardens, and placed in one of the hothouses. The glasses were then removed from the cases, when it was seen that, notwithstanding the unfavourable temperature to which the plants had been subjected on entering the English Channel, they were still, as has been stated, in a healthy and vigorous condition. Doubts, however, were entertained by some as to whether or not they had roots, a point speedily decided; for on several plants being taken out of the soil, the numerous roots attached to them at once testified that there was no deception in the matter. Proposals were then made for sending the plants by ship round the Cape of Good Hope to India, as the loss of the former collections had been attributed to the high temperature experienced during the voyage on the Red Sea. It was likewise resolved, that, before shipment, the plants together with the American soil should be removed from the cases, and that they should be replanted and established in fresh material. Before this plan, however, had been carried into effect, orders were received from the India Office to proceed with the fifteen cases of "Red Bark" plants, by the steamer leaving Southampton for Alexandria on the 27th instant. This was undoubtedly the safest course that could have been pursued; for, although the fatal results to former collections were believed to have been caused by the excessive heat on the Red Sea, yet it might reasonably be doubted whether they were in a condition to travel before they left South America. Before leaving Kew I was instructed to make an exchange of six "Red Bark" plants for six very small rooted cuttings of Cinchona Calisaya, to go on with the others to India, which was done.

The cases were put on board the Peninsular and Oriental Company's steamer Ellora at Southampton, on the 27th, and on the same day the ship sailed for Alexandria. During the early part of the voyage the weather was cold and we experienced high winds, which kept the deck in a sheet of foam. On entering the Mediterranean the sea became more smooth, therefore one morning I thought I might venture to open the cases. This had not been done more than half an hour, when a little rippling wave broke against the side of the steamer, rose high into the air, and then fell in a thick shower on the cases. I had fortunately opened only half of them, which however, if lost, would have been bad enough; but after putting on the glasses, I took a syringe and some fresh water, and well washed the leaves of the plants which had received the salt water. I then carefully removed from the surface of the cases the wet soil, which, if it had been allowed to remain, might have killed, or at least greatly injured, many of the plants, and in the end all proved satisfactory. On reaching Alexandria, the cases were put into an old deep boat, which was towed to the quay, adjacent to the railway terminus, by a small steamer. Considerable difficulty was experienced in removing the cases from this boat to the train. The Egyptians could hardly be persuaded to carry them properly: they hoisted them on their shoulders, sometimes upside down, and with a great deal of chattering and noise ran off with them to the railway station. About midday the train left Alexandria, and arrived at Grand Cairo at 11 P.M. Here we had to remain for nearly two days, as the steamer had not arrived at Suez. Between Alexandria and Cairo the tract of country which forms the valley of the Nile is a vast plain, mottled with little mounds (many of them probably artificial) which are strewn with broken bricks and tiles. On some of these mounds I observed assemblages of low wretched-looking mud hovels, which are certainly inferior to the mud cabins that fringe the morasses and bogs of Ireland. The only door they had was a small hole, just large enough to allow the inmates to creep in and out. Here and there, over the face of the country, are seen many canals and water-courses in a ruinous and neglected state, and portions of walls from two to three feet high—the remains of ancient aqueducts. Around Cairo I saw some splendid crops of Melons and Cucumbers growing in a very sandy soil, and exposed to the rays of a very powerful sun. Even European plants and vegetables seem to flourish wonderfully well, growing around the base of lofty Date trees—the Phœnix dactylifera.

Early on the morning of the day succeeding that on which I arrived at Cairo, I went to the railway station to examine the plants, but was informed that they had been sent on during the night, along with the overland freight, to Suez. On learning this I immediately went to the telegraph office and despatched a message to the company's agent at Suez, instructing him to see that the cases were put in a safe place, and shaded from the rays of the sun. My orders were well attended to; for, on reaching Suez, I found the cases on board the steamer, and carefully covered over with cloths and matting. On leaving Suez I removed the coverings and glasses from the cases, and syringed the plants with fresh water. They still appeared healthy; but I was assured by the officers and others on board that none of the plants would survive the five days' voyage on the Red Sea. During the five following days the glasses were removed daily, and the plants sprinkled with water. Not one died during the voyage down the Red Sea, although the temperature was very high, ranging from 90° to 105° Fahrenheit. I may, however, mention, that more depends on the state of the plants previous to their being put on board a steamer than on the treatment they may receive during the voyage. If they are in a blanched state previous to the time of shipment, and if the voyage be a long one, then they are sure to die, for it should be borne in mind, that under the most favourable circumstances justice cannot be done to them while at sea; therefore, owing to bad constitutions previously engendered, and being shut up in Wardian cases, where they are in a great measure deprived of light and air, they either die off by the accumulation of moisture on the leaves, or push forth long watery shoots, which, when exposed to the atmosphere, wither and shrivel up till they get past recovery.—*Robert Cross, Southern Slopes of Chimborazo, May*, 1862.

Home Correspondence.

Late versus Early Grapes.—As the first skirmish in the battle of the Grapes has been decided in the favour of the late ones shown on the 21st inst., I now beg to be the challenger for another trial of strength next year. Should Providence spare my life till January next, and I am in the same place, I intend showing at the first meeting of the Fruit Committee in that month late-ripened Mill Hill Hamburghs, West's St. Peter's, and Black Damascus against any sort of early-ripened Black Grapes brought forward, and open to all comers. On purpose to stop all cavilling, let them be judged by all the properties of flavour, size of bunch and berry, and if requisite, by the new classification of "appearance and utility." As there has lately been considerable dissatisfaction on the judging of Grapes, I think some definite code of rules must be agreed upon to guide judges at fruit shows. The florists have the properties of flowers reduced to a standard, and why should not fruit of all kinds be in the same category? On purpose to "ventilate" the subject amongst Grape growers, I have put down the following points for their consideration in the matter of judging Grapes, namely: flavour, three points; colour and bloom, three points; size of bunch, two points; size of berry, two points; and the new classification of appearance and utility, two points. In your remarks on the late show of Grapes, there is the following paragraph respecting the early Grapes shown from Brighton—"that having been ripened under the advantage of a more southerly climate than Mr. Thomson's, they were richer in flavour than his and nearly equal in that respect to the late ones exhibited." Now, we had been given to understand that neither climate nor sun had any effect in giving flavour to Grapes ripened in December and January, but that all depended upon the circulation of heated air. Mr. M'Kenzie's Grapes are stated to have been "started on the 1st of August, no fire heat being used till they came into bloom. After the fruit was set, fires were discontinued till the berries were stoned, which took place during the severe weather we had in October, from which time onwards moderate fires were continued till the fruit ripened." Respecting Grapes ripened in the summer and autumn months, I believe the expense for forcing will be found to be far less, for no artificial heat is required, except at the time they are setting, and in the autumn and winter to expel frost and damp. I therefore for one cannot see any utility in the practice of growing early Grapes, for even their higher price in the market will be counterbalanced by the heavier crop produced by the late ones. Although I doubt the utility of ripening Grapes in December and January, there is no difficulty in the matter, and where there is plenty of scope for the purpose, and no objection to murdering Vines by winter work, by all means let the system go on—in large establishments, or for market purposes. In my opinion, the greatest feat in Grape-growing is to have a nice crop ripening in March or April, so as to have fruit if required all the year round. The past year has been an exceptional one with me in the keeping of late Grapes, for at the present time the Hamburghs, West's St. Peter's, and Lady Downe's Seedling are not in such good condition as I usually have them at the end of February, the wet and sunless summer having no doubt had some effect on their keeping qualities, even where the borders were well protected. *William Tillery, Welbeck.*

Late Pears.—So much is said of new Pears, that I have been collecting specimens for the purpose of testing and tasting, and I may one day find time to communicate the result for the benefit of your readers. Without, however, waiting till leisure can be found for that operation, I am anxious to point out the admirable qualities of the *Bergamotte d'Esperen*. A specimen of this, sent to a friend by Mr. Van Houtte, was tried *yesterday* (Jan. 26), and proved to be as good as a Brown Beurré at its best. It would have kept I should think three weeks longer. As plenty of time is still left for planting Pears, I hasten to communicate the fact, in order that those who, like me, have no years to spare, may obtain the variety at once. *Linager.*

Seed Lists.—Twenty years ago a seed list was a seed list and nothing more, but on opening one the other day, the following struck my eye:—"And out of the ground made the Lord God to grow every tree that is pleasing to the sight and good for food, and the Lord God took the man and put him into the garden of Eden to dress it and to keep it." Immediately after is a notice that 5 per cent. would be taken off for cash, and no charge for packing. This is the most striking illustration of the old adage, "There is but one step from the sublime to the ridiculous," I have ever met with. To see Scriptural quotations intermixed with the qualities of Broccoli and Parsnip is a new phase in the art of puffing. *Anti-Humbug.*

Collections of Seeds.—Permit me to direct attention to the subject of garden seeds. It has lately become the practice of seedsmen to advertise collections. You have only to state the size of your garden, and you will receive a collection suitable for cropping it with. This at first I thought was a capital idea, and no doubt so thinks your seedsman, as it enables him to get rid of many kinds of seeds of questionable quality. I confess that I fell into the trap and was induced to write to a respectable firm, which, for my purpose, I will call that of Messrs. A. B. & Co., whose catalogue I had that morning received by post, highly recommending the said collections, and wherein were testimonials from clergymen, lawyers, &c. As I have just said, I wrote to A. B. & Co., and next day I received my seeds. I sent for my gardener to take charge of them. In a short time the gardener had made certain discoveries which at first I set down to prejudice. He complained that some articles sent were of no use to me, and that others which I required were altogether omitted. I assured him of the well-known respectability of Messrs. A. B. & Co., and that I had every confidence in their knowledge in such matters. My gardener shook his head, and said—"Sir, when I engaged myself to be your gardener I did not expect you would treat me thus; for certainly, if I understand

my business, I am the best judge of what you are likely to require for your garden in the way of seeds." As I began to fear the affair would be likely to assume a serious aspect, I commenced to smooth down the difficulty by assuring the poor fellow that I did not for a moment question his abilities, but was perfectly satisfied with them, thinking the matter would end here, but in this I was deceived, for he replied—"Sir, I beg to say that it is neither the best nor the cheapest way of buying seeds; and to convince you, let us take each article separately, measure or weigh, as the case may require, then refer to any seedsman's catalogue—A. B. & Co.'s if desired, and see what price is quoted therein, and by this test ascertain what the collection would have cost if I had made my own selection of precisely the same articles." This challenge was too practical to be disregarded; we set to work measuring and weighing everything, pricing everything, according to A. B. & Co.'s own Catalogue. And what think you was the result? Why, that I had paid too much for my seeds, but not for my experience. *A 22 years' Subscriber, Epsom.*

Colonial Botanical Gardens.—Observing your special request that any mistakes in the official designations of Directors and Superintendents of Colonial Botanical Gardens published in the *Gardeners' Chronicle* of the 24th inst. may be pointed out, I beg to state that the official designation of Mr. Moore, of the Sydney Botanical Garden, is Director, not Superintendent as stated. Mr. James Kidd fills the latter office, and if letters be sent simply directed to the Superintendent, Botanical Garden, Sydney, they will go to Mr. Kidd. The annual votes of the Legislative Assembly of New South Wales for the salaries of those officers are taken under the designations herein mentioned. See "Sydney Directory—List of Government Officers." *Delta.*—I beg to state that the official designation of the Manager of the Natal Botanical Gardens, is Mark J. McKen, Esq., Curator of Botanical Garden, D'Urban. *H. B. Wheelwright, Hunstanton.*

Pyramidal Pear Trees.—I see in the *Gardeners' Chronicle* a letter from "G. L." (a great personage here) on standard Pear trees, and certainly he has the best desserts of any man in Cambridge, and the best Pears by far, and all out of a back yard of a garden. His Grapes, too, are superlative. I tasted his "Triomphes" and some other first rate Pears about five weeks ago, and they were excellent. *X. Y. Z., Cambridge.*

The Kei Apple.—The species of Aberia described by Dr. T. Anderson in a paper read at the last meeting of the Linnean Society, under the name A. edulis (see p. 78), is Aberia Caffra, Hook. f. & Harv., described in the Addenda, p. 584, at the end of vol. 2 of "Flora Capensis." *W. H. H.*

Timber Clearing.—At page 56, you give an extract from "Mayne's British Columbia," descriptive of the difficulty of clearing timbered land in the colonies, and noting especially the heavy labour requisite to get out the roots after the trees themselves have been felled and burned. Now, at page 95 of the Colonisation Circular, No. 21, 1862, issued by her Majesty's Emigration Commissioners, and under the head of "Expenses of Clearing," it is stated with reference to Queensland, that "the roots of the larger trees are left two or three seasons, and then got rid of by an easy and simple process called steaming." If you or any of your readers will kindly explain this "easy and simple process," and so put me in the way of clearing effectually and cheaply land that I now hesitate to attack on account of the heavy price demanded for felling and grubbing the timber, it will indeed be conferring a favour upon me, and doubtless upon many others similarly embarrassed. *Tribune.* [We shall be glad of any information on this subject.]

Canadian Partridges.—Is it an ascertained fact that these birds are sometimes poisonous; and is the correct explanation that of the following paragraph which was noticed in one of the daily papers some time since:—"It seems to be well ascertained that during the winter these birds are sometimes tempted to feed on the berries [?] of the Kalmia, and that it is when these berries are in their crop that it is dangerous to eat them. This may not, probably, happen once in a hundred instances, but surely even such a risk as this ought not to be overlooked." Perhaps Prof. Lawson, should this meet his eye, may be able to give some information on the subject. Which of the Kalmias, if either, is the delinquent? *M.*

Double-fringed Chinese Primroses.—Can any of your Correspondents inform me whether or not the new fringed varieties of the double Primula are as yet sent out, and where they can be procured. *J. L.* [We do not know. They were grown and shown by Messrs. Smith of Dulwich. The raisers of novelties should advertise.]

Vine Disease.—A writer in the *Moniteur Vinicole* is reported to have stated, in the course of the past season, that one of his friends who had a Vineyard at Bazons (Seine-et-Oise) was fortunate in obtaining an abundant crop the preceding year, notwithstanding the unfavourable season; and he goes on to say:—"When we visited the Vineyard last year we blamed the cultivation of flowers in the borders at the foot of the Vines; they were removed, and the result proved that the operation was a judicious one. This year our friend re-stocked the borders with flower-roots; they were planted so thickly that their leaves were mixed with of the Vines. We considered such a course to be contrary to the most elementary principles in the cultivation of the Vine. Well, the following is the extraordinary result: the remaining Vines, which were all carefully dressed (no sulphur was used, because no apprehension was entertained of the oïdium), were alone attacked with the disease; while the others, which were overcrowded with flower roots, had not a single Grape affected." Can you or any of your readers suggest any explanation of this seeming anomaly? *Vitis.* [We do not think it inexplicable if true. But is it true?]

Ficus elastica in Fruit.—I have a plant of the Ficus elastica now fruiting. I am informed that the fruiting of this plant is of rare occurrence—indeed, that it has happened but very few times in this country. I send a specimen for your inspection. *S. W. Talbot, Waltham Nursery, Waltham Abbey.* [A small oblong nipple-like fruit, sessile on a short pedicel as thick as itself.]

Societies.

ENTOMOLOGICAL: *January* 5.—F. Smith, Esq., President, in the chair. W. W. Saunders, Esq., exhibited various specimens of galls, one of very large size, formed of an assemblage of cells on the root stems of a tree from the Zoolu country, collected by Mr. Cooper; another, soft to the touch, which grew like clusters of Grapes on the stems of a species of Cissus from the same country; a large root gall from Oak trees near Reigate; and also numerous specimens of a species of Bruchus reared from the beautiful seeds of Erythrina Saundersonii, from Natal, each seed being attacked by from one to four of these destructive insects. Mr. S. Stevens exhibited a remarkable specimen of Papilio Pammon, from the Sulu islands, one of the hind wings of which was scarcely more than half the normal size; also a beautiful species of the remarkable genus of Longicorn beetles, Psalidognathus, from Quito. Prof. Westwood exhibited a curious pouch or bag of a strong leathery texture with loose silken exterior, formed by a colony of insects (most probably the caterpillars of some kind of moth) on trees in tropical Africa, communicated to him by Vernon Wollaston, Esq. Also a number of preparations by Mr. S. Stone, of Brighthampton, mounted upon glass, of leaves mined by the larvæ of Lepidoptera, which were thus rendered visible through the leaf when held against the light. Mr. Laing exhibited a fine variety of Ellopia prasinaria, taken at Charlton; and Mr. Bibbs, of Worcester, a number of remarkable varieties of different kinds of British butterflies and moths. Mr. Percy Wormald exhibited Lemnephilus nobilis, Kol., a species of Trichoptera, new to this country; and General Sir J. B. Hearsey, a series of 32 species of Sphingidæ, from India. The following memoirs were read:—1. On various New Species of Catascopus, by Mr. Saunders; 2. On the Geographical Distribution of European Butterflies, by Mr. Kirby; 3. On three minute Species of British Staphylinidæ, by Mr. G. R. Waterhouse; 4. On the descriptions of various Species of Ants, contained in M. Du Chaillu's Travels, by Mr. F. Smith. An examination of the works of various writers on this family of insects showed that the wonderful account of the Bashykooyah ant, given by Du Chaillu, was concocted from Mr. Savage's memoir on Anomma rubellum, published at Philadelphia; whilst his illustration of the species represented a Termes and not any kind of ant!! 5. Characters of New Species of South African Heterocerous Lepidoptera collected by Mr. D'Urban, by Mr. Walker: 6. Observations on Lucanus Lama and its synonymy, by Major Parry.

Notices of Books.

Elementary Treatise of Physics, Experimental and Applied; for the use of Colleges and Schools; by Professor Ganot. *Translated and edited from the ninth edition, with the author's sanction,* by E. Atkinson, Ph.D., F.C.S., Lecturer on Chemistry and Physics, Royal Military College, Sandhurst. 8vo. 1863. London, Baillière, pp. 6 and 780, with 585 woodcuts.

The work of which this is a translation has long enjoyed a considerable reputation in France, and now appears in an English dress, with such alterations and additions as may make it more suitable to the requirements of English examiners. The execution of it is, on the whole, admirable, the illustrations leaving little if anything to be desired, and the style in general easy and lucid, though a little obscurity sometimes arises from the Centigrade division of the thermometer being retained, which may occasionally cause some confusion between the examiner and examinee, should competition take place, where the work is not admitted as a text-book. The volume will, moreover, be welcome to many as a book of reference where results are desired rather than the several steps by which those results have been obtained. There are, however, multitudes of descriptions of instruments, and record of facts where calculations, or at least abstruse calculations, are not requisite, which are desirable matters of knowledge, and with which an examiner may fairly expect a pupil to be acquainted, even if he has not advanced in mathematics as far as the differential calculus.

The volume treats, mostly in a popular manner, in ten books, of matter, force, and motion, of gravitation and molecular attraction, of liquids, gases, acoustics, heat, light, magnetism, statical electricity, or electricity in a state of rest, and dynamical electricity, or electricity in a state of motion, with an appendix on the elementary outlines of meteorology and climatology. A work which treats of so many subjects can scarcely enter deeply into any, and we think it would in some cases have been better to have omitted formulæ altogether, where the processes by which those formulæ have been obtained are necessarily kept back. We think, for example, that there can be no use to burden a student's mind with such matter as appears in the paragraphs relative to the determination of the height of a mountain by the barometer, for which two formulæ are given, together with a special instance of the form which the first assumes for a particular degree of latitude, which if committed to memory for the purposes of examination would be forgotten almost as soon as learnt. Besides which the necessary corrections for the alteration of density in the mercury at different temperatures appears in a different place, and it is not shown what shape the earlier formula would take if the correction were applied.

We have an especial dislike to whatever is like mere cramming in examinations, a system which is too prevalent in France, and adopted advisedly in many examinations, and we are therefore anxious that everything approaching to it should be discouraged as much as possible. When the Natural History Tripos was first projected at Cambridge, something approaching to the French system was recommended by a few, but the answer to the inquiries which were circulated as to the best mode of ascertaining the merits of candidates, returned by all who regarded the best interests of the University, was to the effect that whatever degree of knowledge was required, should as far as possible be complete in itself, and such as should try not merely the memory but the reasoning powers, without which education must be in great measure a failure, and examinations fall short of producing the desired effect. An accurate knowledge of a limited number of subjects is surely far better than a smattering of a thousand. The former is sure to tell some day or other, while the latter can only end in disappointment if not in disaster.

With a few exceptions of this kind, and they are by no means numerous, the book is admirably calculated to answer the end proposed, and may be recommended as a compendium of knowledge on many interesting subjects.

The *Botanical Magazine* for January gives us illustrations of the following plants, most of which are new:—*Sonerila grandiflora,* a dwarfish suffruticose Indian plant, with a somewhat fleshy-looking aspect, clothed with ovate or elliptic-ovate leaves, and bearing terminal cymes of deep purple-red flowers. Sir W. Hooker calls it the finest species of the genus that has hitherto flowered in this country.—*Tricyrtis hirta,* a handsome as well as curious herbaceous plant from Japan: a slender hairy branching herb, 3 to 5 feet high, with ovate-oblong acuminate stem-clasping leaves, and short racemes of large six-petaled flowers from the upper axils, the colour of the flowers being white marked over thickly with purple dots; the prominent style terminates in three forked recurved stigmas.—*Pitcairnia pungens,* an ornamental greenhouse herb from the Andes of New Grenada, with its outer leaves abortive, and changed into brownish spines, the perfect ones long and tapered to a point, scurfy beneath, and the flowers pale orange-red in a simple oblong spike. It has been raised by Mr. Anderson Henry.—*Corysanthes limbata,* a diminutive terrestrial Orchid, but the most exquisite little thing imaginable, from the transparency of its stem, the vivid green and white of its delicate heart-shaped leaf, and the beauty of its amethystine flowers. It grows but 2 or 3 inches high, and consists of but one leaf and one flower. This leaf is elegantly veined with white; and the flower, which is half an inch long, has its dorsal sepal incurved, dilated, truncated, and three-lobed at the apex, and its lip convolute at the base, with an expanded orbicular limb, of a deep vinous purple colour, with a white eye, and white erose margin. It is a native of Java.—*Sedum Sieboldii,* one of the prettiest of half-hardy succulent-leaved herbs, with the orbicular wedge-shaped indistinctly toothed leaves in whorls of three, and the flowers pink, in cymes, terminating all the branches.—*Dammara orientalis,* "perhaps the rarest of all the coniferous plants in cultivation in Europe," which has now flowered in the Royal Garden at Kew.

In the *Proceedings of the Royal Horticultural Society* for January, we find a coloured figure of a new Apple called the York and Lancaster, with the information annexed:—"Among the new varieties of fruit sent from Nova Scotia for exhibition at the Society's Great International Show of Fruit in October last were two Apples which attracted especial admiration: one was called the Chebucto Beauty; the other was merely styled a Nova Scotia Seedling, but as it seems worthy of more general recognition, we have named it the York and Lancaster Apple, on account of its resemblance in colouring to the old York and Lancaster Rose—blotches and streaks of crimson on a nearly white ground. The Apple is fine, large, and well formed, and not only pleasant to the eye, but also good to eat. In these days, when one quality is almost as much sought after as the other, a new fruit

combining both is worthy of every encouragement, especially when its beauty is of a striking and unusual character. It came in perfect condition from Halifax, and may be expected to take a good place in the English market." It is a handsomely striped fruit, with white flesh occasionally stained with red, especially near the core, and having an agreeable flavour.

The *Florist and Pomologist* opens its second volume with a fine portrait of a new dark velvety Rose, of the colour of the old Tuscany, and named André Leroy d'Angers. It appears to have been raised by M. Victor Trouillard of Angers, and to have been named by him, with the special concurrence of M. Leroy himself, after his employer. The flower, which comes from General Jacqueminot, is large and cupped, smooth, and of a deep velvety purple-crimson, and, if anything like Fitch's beautiful drawing, must be an acquisition. There is also a figure of the Golden Esperen Plum or Drap d'Or d'Esperen, a first-rate dessert fruit of handsome appearance, raised by Major Esperen of Malines, and described to be both a hardy variety and a good bearer. In the literary portion there are some good remarks on the present mode of exhibiting and judging Melons opposed to the practice of regarding flavour only. In another page "R. S." makes the following enquiries:—A variety of timber is now much used, called 'Pitch Pine'; it is imported from America, and should, according to authority, be the produce of Pinus rigida, but on examination, is more likely to be obtained from Pinus Coulteri, ponderosa, or Benthamiana. It is a very valuable timber, and its use is likely to increase considerably. Can any reader say which the timber is really obtained from, as Coulteri is not hardy in Britain, but both Benthamiana and ponderosa are perfectly so? If the Royal Horticultural Society would send some competent person to investigate and report on the timber trees of British Columbia, they would confer a benefit on planters. The same writer asks:—"Who is to investigate the banks of the Amoor river, where travellers tell us are magnificent trees which would be hardy in Britain? and who the Bokhara, Cashmerian, and Thibetan chains of mountains, the only spots likely to give us hardy trees and shrubs. It appears to me unfortunate sending collectors to climates where nothing hardy can be obtained, and the Society should remember that not all their Fellows keep conservatories." Again, "Why not import the Tasmanian and Australian timber trees to South Africa as a commercial speculation."

Gossip of the Garden contains some excellent papers. Besides some remarks on the classification of Dahlias, which will be noticed elsewhere, the parterre system of flower-gardening, considered from an economic point of view, comes under review; and the coming National Auricula Show gives Mr. Wilson an opportunity to suggest that the differences between North and South should be settled by adopting five pips instead of three as the minimum for a truss, and to uphold on the score of economy the plan of exhibiting in temporary pots.

Garden Memoranda.

WREST PARK, BEDS, ONE OF THE SEATS OF THE COUNTESS COWPER.—Until within these last few years this fine place belonged to Earl de Grey, under whose directions the present mansion was built, new kitchen and fruit gardens formed, and the ornamental grounds greatly improved. Near the middle of a richly wooded and beautiful park, well stocked with deer, stands the mansion, a pretty building in the style of Louis the Fourteenth, and approached from Silsoe and Shefford, through noble avenues of Elm trees, now unfortunately somewhat past their best. In the case of that from Silsoe a line of Spanish Chesnuts is planted on each side of the approach outside the Elms, furnishing ample shade in summer, and producing an appearance by no means unsightly in winter. Other avenues of a similar kind, but in some instances planted with Limes instead of Elms, traverse the park in different directions. Timber trees of all kinds succeed well in this part of Bedfordshire. Among Oaks are many specimens of enormous size, some of which are becoming stag-headed, but others are still in vigorous health. Coniferous trees, among which is a remarkably fine example of Balm of Gilead Spruce, also thrive well, as do likewise all kinds of evergreens.

On the west side of the mansion lie the fruit and kitchen gardens, all of which are substantially enclosed by means of good brick walls covered with finely-managed fruit-trees, skilfully pruned and beautifully trained. From these and from standards some of the best Pears and Apples in England are annually gathered. Alfristons weighing a pound each are no uncommon occurrence here, and Cherries, Plums, and all other out-door fruit indicate equal excellence, while for forced Peaches perhaps no grower has ever carried off so many first prizes at our great London exhibitions as Mr. Snow, a gardener whose universally acknowledged abilities place him in the first rank of English cultivators. Even at the present time the fruit room is full of beautiful Apples and Pears in a state of excellent preservation. It is a house built lean-to fashion on the north side of a line of sheds, with 14-inch hollow walls and a slate roof supported by means of 5-inch square joists, to which boarding is fixed above and below, the space between being firmly packed with Moss, and the whole concealed by means of a lath and plaster ceiling. Double windows at the end farthest from the door are made to open, and other ventilation can be given when the weather is favourable through apertures in the front wall, which are capable of being opened or shut as required. Among Apples are fine examples of Bull's Golden Reinette, a handsome fruit, Winter Queening or Spanish Pearmain, Blenheim Orange, Alfriston, Wellington, and another kind with a local name, quite as brilliant in colour as that of the Lady Apple, or Pomme d'Api of the French. Though a variety of no particular merit, yet a dish of this produces a fine effect on the dessert table, intermixed with other kinds.

Glass-houses consist of Vineries, Peach-houses, Fig-houses, a warm Green-house, or rather stove, an Orangery, and numerous pits, the whole being in excellent condition and efficiently warmed. In the stove is a remarkably fine plant of Bignonia venusta, now loaded with magnificent clusters of bright orange blossoms, This is planted in a border at one end of the house and carried up to the top where a branch is led down the rafter; it is then trained along the back wall to the other end of the house, where it is again brought down the rafter, and from one or other of these branches bunches of glorious blossoms may be cut nearly the whole year round. Passion flowers, Stephanotis and other plants of that description, are also trained down the rafters in a similar manner, and, managed in this way, they are reported to flower most profusely. Below this floral canopy is a stageful of select stove plants, with a dwarf wall in front concealed under a dense covering of Ficus repens, a plant extremely well adapted for this kind of work, and not half so well known as it should be.

Among Vines is a strong plant of Snow's Muscat Hamburgh, an excellent black variety, stated to be the result of a cross between the Black Hamburgh and Muscat of Alexandria, raised at Hurlingham House, Fulham, by Mr. Lane, once a gardener there. The latter being an old friend of Mr. Snow's, made an agreement with him to attach his name to it, and to "deal with it" commercially, inasmuch as he had better opportunity of doing so than Mr. Lane. Such at least is Mr. Snow's account of the matter, which we see no reason to doubt, and we hope that some of our readers who have recently written to us on the subject may be equally satisfied with Mr. Snow's explanation of the origin of this variety.

Peaches are grown on semicircular trellises, sloping from the front of the house to the back, and notwithstanding the distance they are from the glass, the amount of colour infused into the crop is remarkable. In short Mr. Snow's Peaches, both in point of size and colour, are matchless. By having low trellises in front trees can be trained up the back wall, and these also furnish good crops. On the same wall are also Figs, from which two crops a year are obtained—one early and another in August or September.

Cucumbers and Melons are grown in McPhail pits, of the fitness of which for such purposes Mr. Snow entertains a high opinion. Heat in abundance is admitted through the pigeon-holes in the sides, and owing to the dung linings being sunk, wind has not that opportunity of blowing the warmth out of them which it has when all is above ground. In point of appearance old McPhail has also a great advantage over the ordinary dung pit. A seed bed has just been sown, and in about a month or so, if all goes on well, the plants will be ready to plant out.

Asparagus on dung beds has been "in cut" for some time, as has also Seakale. After the Asparagus is cleared off the pit is filled with Potatoes, and sometimes after that the same pit furnishes a crop of late Cucumbers.

In the kitchen garden, the walks of which are all edged with slate, we noticed plantations of Snow's Broccoli, an excellent white-flowered, self-protecting kind, and of his Matchless and Champion Lettuces, two hardy and extremely good varieties, especially for winter use.

On a short conservatory wall at the head of a broad grassy glade which divides the kitchen garden from the pleasure grounds, Jasminum nudiflorum is now beautifully in flower, its Primrose-like blossoms having a cheerful effect at this comparatively dull season of the year. Near Mr. Snow's house, too, are some admirable plants of Christmas Rose, now in beautiful bloom, and in a cold frame are abundance of Neapolitan Violets.

At one end of the mansion is a small geometrical garden, and up a few steps is a neat conservatory, forming one wing of the house. In front is a broad stone terrace promenade, and down a flight of steps a neat flower garden, ornamented with statuary, some very fine standard Portugal Laurels, and consisting of beds associated with Box embroidery, grassy walks and others of a small narrow description, gravelled with white Derbyshire spar. A broad gravel walk runs straight through the centre of this garden down the Park, past a circular basin of water, to a temple about half a mile off. In front of this temple is a piece of water, which, seen from the mansion, has a good effect. In the neighbourhood of the temple just named the ground is pretty thickly planted and pervaded by a network of walks, some formed of Grass, guarded on each side by Yew and Laurel hedges, others of gravel—some straight, some serpentine—and nearly all having monumental terminations or other objects of historical interest, while here and there the visitor come suddenly upon some rectilinear piece of water in a sunk panel, surrounded by high closely clipped Yew hedges, the whole forming a well-varied labyrinth of much interest and beauty. In front of a sloping bank surmounted by Yews, and in spring covered with Primroses, is a piece of water; between that and the mansion on the left is a handsome banqueting house with bowling green in front; a little further up is an American garden in four squares, each having a mound in the centre surmounted by an Irish Juniper, and surrounded by a double Dwarf Yew hedge; a little further up still is the Orangery, a handsome architectural building with glass span roof and containing some noble trees in good condition. Here are also two fine standard plants of double blossomed Myrtle. Around the Orange tubs, which are of slate, are wintered bedding Geraniums, standard Heliotropes, and plants of that description. A little higher up we regain the terrace in front of the mansion, and taking a retrospective view of the park with its delightful undulations, its beautiful evergreens and deciduous trees, its statuary, its water, its walks, and its living Gothic avenues, the visitor must feel satisfied that he has just had the pleasure of inspecting one of the finest places in Bedfordshire, and one which, through the liberality of the Countess Cowper, is open free to the public every Monday.

Miscellaneous.

The Llama and its Animal Allies.—The llama and its near relations, the alpaca, the huanacu, and the vicuña, the largest four-footed animals which Peru possessed before the Spaniards introduced the horse and the ox, are all natives of the Puna. Long before the invasion of Pizarro, the llama was used by the ancient Peruvians as a beast of burthen, and was not less serviceable to them than the camel to the Arabs of the desert. The wool served for the fabrication of a coarse cloth; the milk and flesh, as food; the skin, as a warm covering or mantle; and without the assistance of the llama, it would have been impossible for the Indians to transport goods or provisions over the high table-lands of the Andes, or for the Incas to have founded and maintained their vast empire. The llama is also historically remarkable as being the only animal domesticated by the aboriginal Americans.

The *Huanacu* is of a greater size than the llama, and resembles it so much that it was supposed to be the wild variety until Tschudi, in his "Fauna Peruana," pointed out the specific differences between both. The huanacu is of a larger size; its fleece is shorter and less fine; its colour is brown, the under parts being whitish—but varieties of colour are never observed, as in the llama; the face is blackish grey, lighter and almost white about the lips. The huanacus generally live in small troops of from five to seven. They are very shy, but when caught young are easily tamed, though they always remain spiteful, and can hardly ever be trained to carry burthens. They are frequently met with in the European menageries, where they pass under the name of llamas.

The *Alpaca* is smaller than the llama, and resembles the sheep; but its neck is longer, and it has a more elegantly formed head. The wool is very long, soft, fine, and of a silky lustre—sometimes quite white or black, but often also variegated. On account of its admirable qualities it fetches a high price, and is extensively used in England; so that from 1835 to 1839, 98,808 bales, weighing near 7,000,000 lbs., were imported into Liverpool alone. It is particularly valuable from its being able to be woven with common wool, silk, or cotton, into a variety of equally beautiful and durable fabrics; so that in spite of a continual increase of the importation, its price has trebled since 1840.

Shy, like the chamois or the steinbock, the *Vicuña* inhabits the most solitary mountain-valleys of the Andes. It is of a more elegant shape than the alpaca, with a longer and more graceful neck, and a much shorter and more curly wool, of such extreme fineness as to be worth about 27*s.* the pound. The upper parts of the body are of a peculiar reddish-yellow colour (color de vicuña), the under side of the neck and the limbs light ochre, the long wool of the breast and the abdomen white. During the rainy season, the vicuñas retire to the crests of the Cordillera, where vegetation is reduced to the scantiest limits; but they never venture on the bare summits, as their hoof, accustomed to tread only on the turf, is very tender and sensitive. When pursued, they never fly to the ice-fields, but only along the Grass-grown slopes. In the dry season, when vegetation withers on the heights, they descend to seek their food along the sources and swampy grounds. From 6 to 15 she-vicuñas live under the protection and guidance of a single male, who always remains a few paces apart from his harem, and keeps watch with the most attentive care. At the least approach of danger he immediately gives the alarm by a shrill cry, and rapidly steps forward. The herd, immediately assembling, turns inquisitively towards the side whence danger is apprehended, advances a few paces, and then suddenly wheeling, flies at first slowly, and constantly looking back, but soon with unrivalled swiftness. The male covers the retreat, frequently standing still and watching the enemy.

The females reward this faithful care of their leader with an equally rare attachment; for when he is wounded or killed, they will keep running round him with shrill notes of sorrow, and rather be shot than flee. But when a bullet strikes a female, the whole troop continues its flight with increased velocity. *Hartwig; the Tropical World.*

Armorial Bearings of North West Indian Tribes.—I have previously had occasion to refer to the fashion among the Indians of carving the faces of animals upon the ends of the large beams which support the roofs of their permanent lodges. In addition, it is very usual to find representations of the same animals painted over the front of the lodge. These crests, which are commonly adopted by all the tribes, consist of the whale, porpoise, eagle, raven, wolf, and frog, &c. In connection with them are some curious and interesting traits of the domestic and social life of the Indians. The relationship between persons of the same crest is considered to be nearer than that of the same tribe; members of the same tribe may, and do, marry; but those of the same crest are not, I believe, under any circumstances allowed to do so. A whale, therefore, may not marry a whale, nor a frog a frog. The child again always takes the crest of the mother; so that if the mother be a wolf, all her children will be wolves. As a rule also, descent is traced from the mother, not from the father. At their feasts they never invite any of the same crest as themselves: feasts are given generally for the cementing of friendships or allaying of strife, and it is supposed that people of the same crest cannot quarrel; but I fear this supposition is not always supported by fact. Mr. Duncan, who has considerable knowledge of their social habits, says that the Indian will never kill the animal which he has adopted for his crest, or which belongs to him as his birthright. If he sees another do it, he will hide his face in shame, and afterwards demand compensation for the act. The offence is not killing the animal, but doing so before one whose crest it is. They display these crests in other ways besides those I have mentioned, viz., by carving or painting them on their paddles or canoes, by the arrangement of the buttons on their blankets, or by large figures in front of their houses or their tombs. They have another whimsical custom in connection with these insignia: whenever or wherever an Indian chooses to exhibit his crest, all individuals bearing the same family figure are bound to do honour to it by casting property before it, in quantities proportionate to the rank and wealth of the giver. A mischievous or poor Indian, therefore, desiring to profit by this social custom, paints his crest upon his forehead, and looks out for an opportunity of meeting a wealthy person of the same family crest as himself. Upon his approach he advances to meet him, and when near enough displays his crest to his unsuspecting victim; and however disgusted the latter may be, he has no choice but to make the customary offering of property of some sort or other. *Mayne's British Columbia and Vancouver.*

Ornamental Living Fences.—Although this is by no means a new method of forming ornamental living fences, as it has been largely practised on the Continent for more than three centuries, I have seldom seen it used in Britain. It is the method of forming the sides of berceaux walks, and consists in planting young slender trees in a slanting direction, *i. e.*, every tree leaning the opposite way and in the same line, that they will cross each other and form a regular trellis with diamond-shaped openings. At the parts which come in contact, if a small piece of the bark is removed and the parts tied together and clayed over, as in common grafting, a union takes place, leaving each tree grafted into its neighbour, which in time makes one of the most beautiful and strong hedge fences imaginable. The following trees are best suited for the purpose:—Mountain Ash, Common Ash, Laburnum, most of the Poplars, strong-growing Willows, Alders, Birch, Beech, Chesnut, Elm, Hornbeam, &c. Such fences need at no time exceed 4 or 5 inches in thickness; and, when established a few years, will resist bullocks or any kind of cattle, and form excellent screens in gardens for separating one part from another, or for hiding out objects it is desirable shall not be seen. *Scottish Horticulturist.*

Wheat Flies.—The American insect, which I have seen alive, in its winged form, in Maine and in New Hampshire, and which I have also reared from the larva, agrees exactly with the descriptions and figures of the European Wheat-fly, or Cecidomyia Tritici of Mr. Kirby. It is a very small orange-coloured gnat, with long, slender, pale-yellow legs, and two transparent wings, reflecting the tints of the rainbow, and fringed with delicate hairs. Its eyes are black and prominent. Its face and feelers are yellow. Its antennæ are long and blackish. Those of the male are twice as long as the body, and consist of twenty-four joints, which, excepting the two basal ones, are globular, surrounded by hairs, and connected by slender portions, like beads on a string. The antennæ of the females are about as long as the body, and consist of only twelve joints, which, except two at the base, are oblong oval, narrowed somewhat in the middle, and surrounded by two whorls of hairs. These insects vary much in size. The largest females do not exceed one-tenth of an inch in length; and many are found, towards the end of the season, less than half this length. The males are usually rather smaller than the females, and somewhat paler in colour. Among hundreds that I have examined in the living state, I have never found one specimen with spotted wings. The time of their appearance in the winged form varies according to the season and the situation, from the beginning of June to the end of August. In Salisbury, Connecticut, they had entirely disappeared before the 25th of July, 1851; but during the same year I found them still in some numbers at North Conway, in New Hampshire, on the 17th of August; and three days later, near the base of the White Mountains. In most parts of New England where Wheat is cultivated, immense swarms of these orange-coloured gnats infest fields of grain towards the last of June. While the sun shines they conceal themselves among the leaves and weeds near the ground. They take wing during the morning and evening twilight, and also in cloudy weather, when they lay their eggs in the opening flowers of the grain. New swarms continue to come forth in succession, till the end of July; but Mr. Buel says that the principal deposit of eggs is made in the first half of July, when late-sown winter Wheat and early-sown spring Wheat are in the blossom or milk; and this statement agrees with the observations of Mrs. Gage. The flies are not confined to Wheat alone, but deposit in Barley, Rye, and Oats, when these plants are in flower at the time of their appearance. *Harris, Insects injurious to Vegetation.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Most operations here should still be performed as early in the morning as possible, in order that the atmosphere and floors may be in an enjoyable condition later in the day. Oranges in tubs are liable to be affected by soot Fungus, which should be thoroughly cleaned off at all seasons, but more especially now; let the leaves be washed clean with soap and water and a sponge. Decaying flowers or unsightly plants must be kept constantly removed, and their places supplied with fresh material from the forcing pit. In addition to small plants such as Chinese Primulas, Rhododendrons and Camellias will now be making a good display. In stoves and Orchid houses, a little more heat may now be indulged in, especially on sunny days, by shutting up early after thorough ventilation. Examine carefully trellis plants in pots; those which have received considerable rest, and are required to flower in good time, should now be pruned, disrooted if necessary, and started on a mild bottom-heat. Some of the Passion-flowers, and such plants as Ipomœa ficifolia, Pergularia odoratissima, &c., answer well treated in this way. Stores of hybrid Roses in cool pits, intended for growing in pots for a late display, may now be potted off singly, using one-half loam, the other half leaf-soil and manure, and charcoal dust. If a warm and moist heat can be obtained, introduce some Fuchsias intended for specimens and for propagation. Keep a mild atmosphere in the mixed greenhouse, and beware of too much night heat.

FORCING DEPARTMENT.

PINERY.—The time is now approaching in which a thorough revision of the whole stock is considered necessary. See, therefore, that tan is ready, and leaves, or other fermenting material; also turfy, mellow loam. In the meantime, persist in the routine of practice before recommended; keep early fruiters in a lively atmosphere, stretching a point in regard to temperature and moisture on bright days; take away all air soon in the afternoon, and use much moisture.

EARLY VINERY.—When the blossoms begin to open, reduce the amount of atmospheric moisture in a considerable degree. Keep lively fires in the morning, with a free circulation of air but not cold draughts, and shut up early in the afternoon with a temperature of 85° if solar heat; if not, be content with 75° at shutting up time, sinking to 65° by the next morning at daylight.

PEACH HOUSE.—Proceed according to former directions; if any pushing is requisite in order to produce fruit at a given period, let it by all means take place when there is an unclouded atmosphere; more especially by closing the house early; any attempt at rapid progress during night, or a deficiency of light, will inevitably end in disappointment.

FIGS.—Follow up former directions, and steer a somewhat medium course between the Vinery and Peach-house; inclining to the former.

CHERRIES.—Imitate in the general course of forcing Cherries, a mild soft day in a genial April.

CUCUMBERS.—See to your early frame; if the dung is sufficiently worked build the bed forthwith. Place brushwood a foot deep at the bottom, and introduce more about three-parts of the way upwards, if you can; it will facilitate the action of the back and front linings. Use well-wrought dung for outsides of the bed, and fill up the interior with older and weaker material, such as half-spent leaves, &c.

FLOWER GARDEN AND SHRUBBERIES.

Grass lawns will be now benefited by a thorough rolling, as will also gravel walks. Examine all belts about the suburbs of the kitchen garden, or otherwise; remove deciduous trees where they injure the best evergreens, and introduce Hollies, or trees of permanent character, in blanks. If not already done stake newly-planted trees carefully; the harm done for want of it this season is in some places very great. Procure Rose stocks, and plant them in lines on highly manured ground, in the kitchen or reserve garden.

HARDY FRUIT AND KITCHEN GARDEN.

As the season has proved so mild, it will be difficult to get manure on the ground where necessary; and few things injure soils more for gardening operations than wheeling in moist weather. As soon as the ground is fit, therefore, let this part of the business be forwarded as much as possible for all spring crops. Where dung will have to lay on the surface until March, it should be soiled over immediately, or drying winds will steal away its properties. As soon as the blossom buds of Apricots can be distinguished, the trees should be pruned, and nailing completed. The eggs of the caterpillar, which so much infests them in the leaf, should be hunted for, and destroyed; they are deposited in circular groups on the branches, of about the size of a Parsnip seed, and look somewhat like it, having the appearance of being pasted on; they are thus readily destroyed; the trees must have protection forthwith. Take care to secure bundles of the main twigs of Apple prunings; give them a tie at each end, and throw them in some dry place; they are very useful through the summer. Get Peaches and Nectarines pruned and nailed. As soon as nailed, soak the trees and wall with soap-suds, and when dry take a bowl of sulphur mixture, viz., sulphur blended with soft-soap water, until as thick as paint, or nearly so, and draw a stripe with the brush between every two shoots. This is a good preventive of red spider. Keep an eye to Gooseberry buds; country folks in some places tie feathers over the bushes, to keep birds away. Try to fit up a few warm slopes with hoops and mat coverings, to receive early Potatoes, &c. Hoe through and clean all Winter Spinach, or other standing crops; put down scrapers where necessary, and top dress alleys or back walks with spare cinder ashes, which make an excellent and dry walk. Dig first and then lay on the dressing. Spring Broccoli now coming in, such as Grange's or Knight's, should be protected. Push a handful of soft hay amongst the leaves. Plant out August-sown Onions for early bulbs.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Jan. 28, 1863, as observed at the Horticultural Gardens

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 22	3	29.774	29.727	53	37	45.0	45	44	S.W.	.00
Friday 23	4	29.807	29.555	53	34	43.5	45½	44	S.W.	.04
Satur 24	5	30.281	29.658	52	34	43.0	45½	44	W.	.00
Sunday 25	6	30.118	29.935	50	38	44.0	45	44	S.W.	.00
Mon. 26	7	30.392	30.143	52	42	47.0	45	43½	S.W.	.07
Tues. 27	8	30.290	30.036	49	24	36.5	46	44	N.W.	.00
Wed. 28	9	30.476	30.320	51	38	44.5	45	44	S.W.	.00
Average.		30.149	29.907	51.4	35.8	43.3	45.3	43.9		.11

Jan. 22—Cloudy; boisterous, clear and fine at night.
— 23—Cloudy; densely clouded and boisterous; clear and fine; rain.
— 24—Boisterous; scattered white clouds; dry air; fine at night.
— 25—Clear; fine; barometer very unsteady; boisterous.
— 26—Partially overcast; fine; clear and fine at night; rain.
— 27—Overcast; half the sky overcast; the rest very clear; frosty at night.
— 28—Frosty; very fine with bright sun in forenoon; overcast; clear.

Mean temperature of the week 4½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending Feb. 7, 1863

February.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 1	43.2	30.8	37.0	12	0.52 in.	5	6	1	2	3	9	5	6
Mon. 2	43.5	30.0	37.1	12	0.75	3	6	5	3	2	9	6	3
Tues. 3	44.2	31.0	37.1	16	0.42	4	4	4	3	2	15	3	2
Wed. 4	44.7	32.0	38.8	17	0.31	3	4	4	1	7	12	4	2
Thurs. 5	45.7	33.6	39.6	17	0.39	2	3	2	2	3	15	5	5
Friday 6	46.2	32.5	39.3	19	0.25	2	3	4	3	4	8	7	5
Satur. 7	46.5	32.8	39.7	19	0.29	2	3	4	—	5	13	7	3

The highest temperature during the above period occurred on the 1st, 1832; and 3d, 1850—therm. 57 deg.; and the lowest on the 5th, 1830—therm. 10 deg.

Notices to Correspondents

CONIFEROUS SEEDS: *W W.* Sow now, in pure yellow loam, and place in a cool house or pit.

GARDEN WALLS: *Inquirer.* Bricks are the better of the two, being warmer than stone; and besides, brick walls afford a much more convenient surface for training.

NAMES OF FRUITS: *J M.* 1, Very different from the Marie Louise; it is the Vicar of Winkfield, for which our climate is not warm enough; 3, Hollundbury; 6, 7, King of the Pippins; 8, Trumpington.—*E W.* The Pear is the Chaumontel.—*M B.* 1, Sturmer Pippin; 2, Like Cornish Aromatic; 3, Fearn's Pippin; 4, Blenheim Pippin.—*S J,* 1, Beauty of Kent, and a very fine specimen; 2, Catshead; 7, Waltham Abbey Seedling; 9, Duchesse d'Angoulême. The others appear to be seedlings of little merit.—*B M.* 2, Golden Noble; 3, Court Pendu Plat; 5, Beurré d'Aremberg; 7, London Pippin; 8, Beurré Diel; 9, Van Mons-Leon le Clerc; 10, Beurré Rance; 13, Easter Pippin.—*W B H.* The Grape is the Kishmish, a white stoneless variety, of no value in this country, being too acid. It requires a very great heat to render it otherwise.‖

NEW GARDEN: *Pinus Abies.* For the lawn trench, and for the garden trench and manure as much as necessary, laying the surface in rough ridges for a while. If the gravel forms a hard pan, break it up in the bottom of the trench. The fitness of such a soil as you describe for growing "good crops" depends upon its depth and quality. If very sandy, you must give it body by admixing marl or loam; if poor you must enrich it by copious and repeated manurings. The Fir-leaves are not likely to have done any injury, or to communicate their peculiar flavour to vegetables raised on the ground. If they lie thick and undecayed on the surface we should rake them up and burn them.

SALSAFY: *A B.* would be obliged by Mr. W. Earley further telling him whether when he says "at the bottom of the trench place a good thickness of decomposed manure," he means to place the manure at the bottom of the underspit, which was moved in the process of bastard trenching, or merely at the bottom of the top spit, which was thrown upon it.

MISC.: *Mark Lucas.* Unstamped Papers should be sent with a penny stamp *on each.*

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JOSEPH BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes, Drainage Engineer) undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally.

Under-drainage, Outfall Drainage, Watercourses, Embankments, and River Works; Reclamation of Marshes, Lakes, and Moor Lands; Irrigation, Warping, Clearing, Inclosing; the Erection of Farm Buildings, Labourers' Cottages, Construction of Farm Roads, &c., executed either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.

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WEST of ENGLAND and SOUTH WALES LAND DRAINAGE and INCLOSURE COMPANY. ESTABLISHED 1844.

The Right Hon. the EARL of DEVON, *Chairman*.

Lands drained and improved without recourse to the private funds or moneys of the Proprietor.

This Company's Act not requiring Proprietors to liquidate the cost, the amount might remain a permanent charge on the lands, or be paid off when convenient, or be made redeemable over any term of years. The works are undertaken by the Company, or Proprietors might avail themselves of the power of the Act only, and get the works executed by Agents or other parties. Outfalls through adjoining lands are obtainable under the Company's Act. Works are also executed by the Company for parties advancing their own Capital, or not requiring to obtain the money under the Company's Act.

FREDERICK BRODIE, Secretary.

Offices: Exeter; and 30 Parliament Street, London.

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WORKS of DRAINAGE of any extent are EXECUTED by the GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY on all descriptions of property, whether freehold, entailed, mortgaged, trust, ecclesiastical, corporate, or collegiate.

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No investigation of title being required, or notices given to Reversioners or Mortgagees, no legal expenses are incurred.

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TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c. IN ENGLAND AND WALES AND IN SCOTLAND.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

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3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
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For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W.

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THE NEW FARM SEEDS are NOW READY, at Reduced Prices.

PRICED LISTS may be had, Post Free, from SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

TRADE

HALLETT'S | PEDIGREE. | NURSERY WHEAT.

MARK.

"The best Spring Wheat known. Drill in February and March, six pecks per acre."

Produced (1862) 62 bushels per acre, weighing 64 lbs. a bush.

Price ONE GUINEA A BUSHEL, including bag sewed up and sealed, delivered at the Brighton Railway Station, with Printed Directions for Planting, on Receipt of Cheque or Post-office Order, which must in all cases accompany the Order. Less than One Bushel will not be supplied. Name of Station and Railway should accompany the Order.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

IMPROVED DRUMHEAD or CATTLE CABBAGE.—The Subscriber has now for Sale Seed of his well known Improved LATE CABBAGE, selected and grown by himself, warranted net Seed, and all of Crop 1861, well harvested, and a fine sample.

Orders for quantities of not less than two hundred weight will be executed on receipt of Cash, or a satisfactory reference to respectable parties in Edinburgh or Leith, and intending purchasers unacquainted with the Stock, can be referred for information to many of the most respectable Seedsmen in England, Scotland, and Ireland. The Seed can be put free on board at Leith, or on the Rail at Edinburgh.

Apply to JOHN GIBSON, Woolmet, Dalkeith, N.B.

To the Trade.

TO BE DISPOSED OF (for Cash), about 30 bushels of GREEN-TOP SWEDE TURNIP, new Seed of 1862, and can be warranted. For price and further particulars, apply to

W. HUZZARD, Etton, near Beverley, Yorkshire.

The Agricultural Gazette.

SATURDAY, JANUARY 31, 1863.

MEETINGS FOR THE FOLLOWING WEEK.

MONDAY, Feb. 2 { London Farmers Club .. .. 6 P.M. (Mr. Steed on the Malt Tax)

WEDNESDAY, — 4—Agri. Society of England.. .. Noon

WE last week called attention to the energetic agricultural improvements of a wealthy landowner. Let us now describe the doings of an enterprising tenant farmer. It is a significant and a striking fact that while the methods adopted by the former are especially directed towards ransacking the natural storehouse of the soil, and making the land yield its natural stores of fertility and wealth, the latter is engaged in using the soil simply as a machine, taking a large manufactured produce from it because he brings a large quantity of raw material to it.

The former, in fact, owns a naturally rich soil whose stores are naturally inaccessible; the latter occupies what naturally is a shallow, free, and open soil, which if it is to yield anything beyond its naturally small produce, must have the raw material of that produce brought to it. The latter, as well as the former, is the owner of his land, though not unconditionally, and only for a term of years. He pays a rent, but that only quickens his enterprise and activity; in both cases the land is held for a certain period absolutely, and that is what makes the enterprise and activity in either case reasonable.

Mr. CAMPBELL occupies a stiff clay soil, which is his own; he is therefore right not only in making the natural storage of food for plants within it more accessible and convertible by drainage and by tillage, but also in adding to it artificially by a great expenditure on manure and cattle food, and by using the resultant growth of Grass in such a manner as shall ensure the increased storage of fertilising matters in the land.

All this is, moreover, enforced upon him by the absence of any great market near him, and by the special difficulty and cost of cultivating an adhesive soil in any other way.

Mr. ARNOT, of Carshalton, on the other hand, owns (for the period of his lease) a comparatively poor soil, possessing no inaccessible storage of fertilising matter within its substance. It is free and easy working land, adapted for what is thus in its case the comparatively inexpensive cultivation of plough-land crops, for which there is a market close by. His plan of operation therefore differs from that of Mr. CAMPBELL. His object, no doubt, is to some extent to improve that tillage of the soil by which its natural powers may be fully utilised, but mainly it is to cheapen and facilitate such a tillage; and being near a market both for the raw material and the produce, to convert by means of the good and easily worked machinery of his soil, the former into the latter. He therefore brings all that organisation of labour which is the main distinction between the Scotch farmer and the English from Forfarshire to Surrey—he brings the cheaper and more efficient steam engine to displace the slow and costly horse—he buys large quantities of stable dung and artificial manure—and by means of Potatoes, Wheat, &c., he converts it into food for the enormous gathering of men close by.

The following is a more precise account of his operations, to which we have once before alluded in our columns. Our object is more especially to point out, even in this case of easily worked land, the greater cheapness of steam power applied to cultivation; but also to describe an example in which liberal manuring has proved extremely profitable.

Little Woodcote Farm, near Carshalton, includes some 610 acres of arable land on the thin chalk land about two miles from the Carshalton Station. It has been in Mr. ARNOT's occupation since 1855. It is worked on a seven years' course of cropping, namely: 1, Potatoes; 2, Wheat; 3, Barley (excepting, perhaps, 20 or 30 acres of the Wheat stubble, which may be put half to Potatoes and half to Vetches); 4, Mangel Wurzel and Turnips; 5, Barley or Oats; 6, Clover; 7, Wheat. The Clover comes better in the second year after Mangel Wurzel than in the second year after Potatoes, notwithstanding that both crops are removed from the land. This is a fact ascertained by experience in Surrey, which differs from the experience of agriculturists in the North. The Potato land receives 16 to 18 loads of dung per acre, placed in the drills in the old-fashioned way, and thereafter 1½ cwt. of guano, 2 cwt. of superphosphate, and 1 cwt. of sulphate of soda are strewn broadcast over the whole, before the sets are covered by the splitting of the intervening ridgelets. The Wheat after the Potatoes receives 1½ cwt. of guano and ½ cwt. of nitrate of soda per acre over the young plant. What of the Wheat stubble is prepared for Potatoes or Vetches receives a dressing of stable dung—the rest sown with Barley receives 1 cwt. of guano and 1½ cwt. of superphosphate of lime as a top dressing. The Mangels and Turnips receive 16 to 18 loads of dung and a dressing of 4 cwt of superphosphate of lime. The Oats, after this crop, excluding any land that may be fed off with sheep, receive 1 cwt. of nitrate and 1 cwt. of Glauber salts (sulphate of soda). The seeds are manured with 12 to 16 loads per acre of stable dung at this time of the year, and are mown the following summer and ploughed up for Wheat, which gets 1 cwt. of guano and 1 cwt. of nitrate of soda per acre. All the Vetches receive 1 cwt. of guano, and 1 cwt. of superphosphate per acre. Some 4000 or 5000 cubic yards of stable dung are brought on to the farm every year, equal to 18 or 20 yards per acre over all the Mangels, Potatoes and Clover. Four horses are kept continually on the road, carrying produce to market, and bringing home manure.

This indicates an enormous conversion of manure into farm produce by means of the land, which is thus used almost entirely as a machine for the conversion in this way of raw material. The Potatoes (Rocks and Regents) are sold off the land—from 6 to 8 tons an acre are an average crop—and there has been very little disease under the treatment they have thus received during the past six years. The straw of the grain crop is mostly sold off the land. The Clover is sold as hay. The grain is all sold; the Mangels and Tares are sold to the extent for which there is a demand, and the remainder is consumed by a few cattle kept in yards, and by a flock of some 200 or 300 sheep kept in a store condition.

Here is the case of a farm where the artificial manure plan of fertilisation is chosen in preference to the plan of feeding stock with imported food, and thus enriching the home-made farm-yard dung. The land is not exhausted by the sale of the resultant produce, simply because every year the supplies whence a corresponding growth is to be obtained are artificially forthcoming for it. Of course the crops produced are not built up merely of the re-arranged atoms of the manure thus added; there is an immense quantity of other matter in them; but this is due to the natural agencies of air and soil and sun and shower, which are used by the living plant without any such exhaustion of the soil as both practical men and theorists are inclined under such circumstances to foretell.

The soil is well cultivated, as well as being liberally supplied, and in this way its powers both as a feeding ground and as a mere machine are effectually brought to bear.

It is to the economy of labour on the farm that our further remarks must be directed. Upwards of 600 acres of arable land, of which two-sevenths are in fallow crop, are worked by 8 horses and a 10-horse power steam plough, with its water-cart horse.

To this must be added 4 hired horses nearly constantly employed in cartage, but we believe that taking this into account, and remembering that nearly all the produce and all the manure is carted to and fro, most agricultural readers will wonder at the smallness of the force employed.

The 10-horse power engine working FOWLER's 4-furrow plough turned over 645 acres between harvest 1861 and harvest 1862. Three hundred and 15 acres were turned over in 62½ days during autumn, and 335 acres were moved in 67½ days between January and July. The wages, oil and coal, paid for, amounted to 110*l.* 5*s.* 11*d.*, which is 3*s.* 5*d.* per acre. This is the whole cost of immediate outgoings to be put against the work done. You have to add for wear of rope, interest of capital, and tear and wear, before you learn the whole expenditure. But 3*s.* 5*d.* per acre over the work accomplished with the plough, is the whole immediate expense.

Mr. ARNOT has this year had the figure-of-eight arrangement of draught-wheels under the engine displaced by the new clip drum; he has also got a cultivator for use this spring; and a considerable expenditure has thus been incurred, which must be considered partly as chargeable for repairs against the work hitherto accomplished, and partly as an addition to the capital sum. Since the accomplishment of these changes, *i. e.* since Sept. 15, and up to Nov. 28, 1862, his engine has been at work 21½ days ploughing, accomplishing 103 acres in the time; 21 days scarifying, accomplishing 167 acres; and 9 days threshing, turning out 417 quarters of grain. Some of the ploughing was done for a neighbour, and paid for at 14*s.* an acre, the rest done at home is charged 12*s.* an acre. The scarifying, all at home, is charged 6*s.* an acre. The threshing is charged 1*s.* 3*d.* to 2*s.* a quarter. And the actual earnings of the apparatus thus amount during autumn to 155*l.* 9*s.* 10*d.* The actual cost of wages, coals, oil and repairs during the same time in accomplishing all this work has been 89*l.* 0*s.* 1*d.*, not much more than one half the earnings; and taking out the wages, coals, and oil of the days at work with the steam plough alone, we have a sum of 66*l.* 9*s.* 9*d.* spent against 155*l.* 9*s.* 10*d.* earned in ploughing at 12*s.* and 14*s.* per acre, and scarifying at 6*s.* an acre. There is certainly ample room here for interest of capital and tear and wear and cost of rope.

Whether we look at the actual work accomplished in a given time by the engine and apparatus, and the expense incurred in a given performance; or consider the whole cost per annum of horse labour and engine combined in cultivating and managing a 600-acre farm of arable land; there is certainly here very skilful and economical work.

And it is not only in the work of cultivation, but in harvest work as well, that economical management is seen. Mr. ARNOT's experience is as good a testimonial to Messrs. BURGESS & KEY as it is to Mr. FOWLER.

The book in which the whole money cost of cutting and tying the corn crop on Little Woodcote Farm has for many years been recorded is now before us. The following are extracts for the last five years, when BURGESS & KEY's reaper has been employed:—

Year.	Acreage cut.	Total cost.	Cost per acre.
1858	180	£40 17 8½	£0 4 6
1859	183½	41 2 8	0 4 6
1860	208⅝	52 17 8	0 5 1
1861	190	29 1 6½	0 3 0¾
1862	293	69 12 0	0 4 9

These sums include the whole wages paid in cutting and cocking or tying the crop. They include the whole cost of oil and repairs, but they do not include the expense of raking or of pitching and building the corn, nor do they include the cost of horses in working the machine; the whole cutting is let to a single man at 3*d.* per acre. He is supplied with horses as often as he requires them, and they are brought to him in the field.

The whole operations of the farm, carried on in like manner, are systematically and vigorously conducted. Mr. ARNOT has his house full of agricultural pupils, and we do not know where young men are more likely to acquire a practical knowledge of the business and the art of farming.

THE EWE FLOCK.

WE are continually recurring to the proper management of the ewe flock at this season of the year, and it is because it constitutes one of the most important features in farm economy, and is one which being so often neglected, or better changes put off till too late, that leads to such great casualties as the result. "The lambing time" is fast approaching, and it is in order that every flockmaster may be properly prepared for it that we so frequently call attention to this particular department of business. The ewe flock at the precise period of lambing ought to be in one uniform state or condition—not too fresh, not too poor—but in a docile, healthy, thriving, or improving state. The difficulty lies in bringing them on, and up to this satisfactory condition. The general course pursued in wintering breeding ewes is to run them thinly on the ordinary Grass lands or seeds, and in Turnip counties on common Turnips, with hay or chaff in addition. In the former case nearly all depends upon the state of the pastures when they are first laid on in the autumn, and the continuance of open weather throughout the winter.

If the pastures abound in Grass during the autumn, leaving a good winter supply, and the weather continues mild and tolerably free from frosts, snows, or heavy rains, the flock will require but little further attention. But should the pastures be short, or weather cold, stormy, or in any way ungenial, then every attention will be requisite to carry them safely and favourably through the winter, so that they arrive at "lambing time" in that healthy condition, without having undergone any violent change, &c., necessary to insure a good lambing season. For this purpose I would recommend the closest attention, the inspection of every animal, and the removal of every one not found progressing favourably to other and better keeping. This must be done with judgment. It will not do to change their keeping to another kind too suddenly, or give them too much of it, but keep to a similar kind, as nearly as possible, giving other aids in addition, as Turnips, Mangels, corn, or cake. The animals that may be found too fat or too high in condition must not be allowed to shrink, but a little blood might be taken from them. Generally a puncture of the vein in each nostril would be sufficient for one bleeding. Allow them salt *ad libitum*. Should this upon close watchfulness be thought insufficient for their safety, a moderate bleeding from the neck vein must be resorted to. All that is wanted is to defend them from attacks of fever after lambing. It is customary with many breeders to mark the ewes as served by the ram—a very excellent course, as it enables the shepherd to make better and somewhat earlier preparation, for those likely to "lamb" first. The usual way is one mark for the first week, two for the second, and three for the third, after which they are counted as "going over again," should such be the case; and are then left till the last lot are brought forward. This plan of marking permits a partial separation as the lambing season approaches, which is desirable. It prevents too much crowding of the flock and consequent discomfort, and of course a slight shrinking of the flock, which at this particular juncture ought of all things to be avoided. Ewes cannot be kept too quiet and free from alarms. A sudden fright will cause them to gallop across a field, however large, and often abortion is the consequence and also wrong presentations in the lambing season. Abortion is one of the great things to be guarded against in a flock of ewes; should any cases occur, by all means remove the affected ewes and all external causes which may excite the sympathies of the remaining—otherwise some are sure to be too much influenced, and more cases will occur, and often to an alarming extent, and with great loss. Without being a prophet, I may judge from the unusual prevalence of that disease in corn and Grass, called ergot, that it is probable many cases may occur in different parts of the country this season. I am not acquainted with any remedy or preventative beyond what I have stated, particularly that they be undisturbed. The shepherd himself is frequently the unwilling agent or cause of these affections—no cause is more common than for the shepherd to enter the field, it may be in early morning, and give his accustomed shout or whistle. The dog barks in unison, the flock spring up from their lair and are upon their legs instantly, and in accordance with their daily practice hurry as fast as they can to some customary place to await the inspection of their disturber, and should the shepherd own an angry or nasty tempered dog the animals are greatly affrighted, and make off to the greatest distance from him. This is certainly one great cause of abortion and wrong presentations in the lambing season. Separation appears to be the safest course in case of abortion from the rest of the flock; and in the individual a washing of a solution of chloride of lime on the affected part, and in bad cases a slight injection of it into the uterus, will be serviceable. If fever arises, purgatives and mild diuretics must be resorted to. If debility, gentian and ginger with small doses of Epsom salts should be used. Another cause of abortion and wrong presentations arises from the too common practice of "ointmenting" them when too near the lambing season. Dipping and fagwatering, if done when the lambing time is near, is also very dangerous. Nothing of the sort ought to be attempted after the ewe is supposed to have passed half the time of her gestation. "Clatting" or "Clagging" ought not to take place till after lambing. In any of these operations the animal is too much turned over and about to be safely done—her very struggling is enough to seriously derange her internal position and parts. As the lambing season more closely approaches, I may recur again to this important subject. *O. F.*

STEAM CULTIVATION.

KNOWLE PARK, NEAR GUILDFORD.

THE following account of an estate, lying just within the district of the Weald—which occupies in our geological maps a lozenge-shaped tract over Kent and Sussex, overlapping Surrey, too, at its southern extremity—is given, not especially for the successful steam cultivation of which it has been the subject, but for several other interesting features, and particularly because of the general agricultural improvements effected on it since, nineteen years ago, it came into the hands of John Bradshaw, Esq., who will on Monday enter upon his duties as Chairman of the Central Farmers' Club. We have an example here of benefit received by agriculture and the soil from the investment of capital realised in commercial pursuits, which alone would be enough to upset all those predictions of agricultural exhaustion, whether of vegetable mould or soluble mineral matter, which theorists, ignorant of the many compensating circumstances at work for us, have lately uttered.

Mr. Bradshaw, an English merchant, purchased Knowle Park, near Cranley, Surrey, some sixteen years ago—formerly the property of the Onslow family.

There is attached to the mansion a farm of 550 acres, about 150 acres of which are Grass around the house; the remainder are arable and woodland. It lies, a gently undulating surface, seven miles south of the South-Eastern line, at the Shalford Station. The train has brought you on to the green sand formation, by a tunnel through the chalk lying between that station and Guildford; and I do not know a more instructive geological excursion for an agriculturist than that which lies in a few miles from Reading,—taking him across the poor sands and clays of the woodland plastic clay, the still poorer sands of the Bagshot district, the narrow chalk range constituting a mere ridge near Guildford, the fertile sands of the beds immediately below the chalk at Shalford and Wonersh, into the comparatively poor clay-sands of the Weald, all of which he traverses in his journey from Reading *viâ* Shalford to the village of Cranley. Hardly anywhere, in so short a time, will so many agricultural differences and contrasts be observable—the result of geological variations. For a mile or two after leaving Shalford, in a walk southward towards Cranley, you traverse a very picturesque and fertile district, whose extremely hilly surface is thereabouts cut into by deep lanes fringed with luxuriant shrubbery, its many small irregular fields being now covered with a green and luxuriant growth of Grass and Wheat and Rye, while the hills are topped by Larch and Fir. Very soon however this is changed for a less abruptly hilly surface—the sandy beds beneath the soil become ferruginous—the roads lie through wide unenclosed driftway and poor common—the fences are ragged and untrimmed—imperfect farm buildings are here and there neglected and in ruins—the soil is wet, and impoverished, as well as being naturally poor—where arable you often see a poor yellow colour, and occasionally patches of black amidst the general light fawn colour of the plough land—copsewood and generally inferior timber, with here and there an example of the older forest which once overspread the whole, is frequent—and you have all the indications of land much inferior to the district you have left in fertility, in agriculture, and in the application of farm capital.

It is probable that a visit 16 or 17 years ago to the Knowle Park estate of Mr. Bradshaw would have left just such an impression as one now gathers on the way to it from much of the land between it and Wonersh. Since that date, however, it has been in the occupation of an intelligent and wealthy man, whose agricultural tastes have led him to join the London Farmers' Club, of which he has long been one of the most active members, and of which he has this year been elected President. His estate is part of a gently rolling country of generally poor soil. Some of the low lying lands are of such depth as to be naturally fairly fertile. Much of it, especially on the summit of the rounded undulations of the surface, is a free and occasionally somewhat brashy or gravelly soil, which is fertile or not according to cultivation: while the rest is a very variable patchwork of that extremely fine and impalpable sand which, in some places more clayey than in others, everywhere runs together hard after rain, and everywhere throughout the Weald district to which it belongs is entirely difficult to cultivate.

The following is the very truthful account of the agricultural character of the soil of this district, given by Mr. Morton, in his work on Soils:—

"The soil is in every respect like the subsoil, although of a darker fawn or hazel colour, and has a pale, whitish yellow, sickly appearance in some places. When ploughed it cuts like a piece of soap, and the furrow turns over unbroken.

"It does not adhere much to the feet, but is unctuous and slippery, and close and adhesive to the particles of which it is composed.

"They are of a very fine impalpable nature, more of a fine sand than clay, mixed with little or no vegetable matter, and so close and retentive is the soil, that when once it is soaked with wet, it requires a very long time before it becomes dry, as the atmosphere has little or no effect on it, from the whiteness of its colour and the closeness of its texture.

"The peculiarity of this soil is the minuteness of the division of its parts; the silicious matter being so very fine, and the clayey particles being equally minute, they form a close firm paste, which dries into a substance almost as hard as brick, and which the roots of vegetables are unable to penetrate. From the great expense in cultivating this soil, a considerable

portion of it is in woods; some is in poor wet pasture for young horses and oxen, and the remainder is under the plough.

"There is a diluvial deposit on some parts of this soil, composed of a flinty iron-sand and gravel, but of very limited extent."

The estate of Knowle Park is no exception to the general rule of picturesqueness and landscape beauty which make Surrey so attractive as a "residential" county; nor is it any exception to the general rule which ensures a fair return for money invested in agricultural improvements. The land has been drained, some of it for 5 feet deep and more, all of it at least 4 feet deep, at intervals varying from 30 up to 70 feet, according to the character of the subsoil, which is often of an extremely pervious character. Fields have been thrown together and hedgerows removed. A very capital set of farm buildings has been erected in the midst of the property. Considerable quantities of bones and artificial manure have been already applied—a large consumption of linseed and cotton seed cake adds to the richness of the natural manure of the farm—the whole has been well cultivated after the four-course rotation of crops, and, within the past two years, steam cultivation has been brought to bear. The consequences are that land bought for 18*l.* 10*s.* an acre, is now worth from 20*s.* to 50*s.* an acre, and probably over the whole to at least 30*s.* an acre to rent.

The work of cultivating 400 acres of arable land, and of carriage and other work belonging to the estate generally, has been hitherto done by 16 horses. In the spring of 1860, Mr. Bradshaw procured Smith's steam cultivator and apparatus from Messrs. Howard of Bedford. It is worked by an 8-horse power engine. Since that time the estate has been worked by 10 horses only; a saving of six, costing most likely an expenditure of 200*l.* a year, has been thus effected. The following is the work done by the apparatus in 1861. From the 15th February to the 7th of June, in 57½ days 327 acres were traversed by the cultivator, some of the work being in duplicate. The wages, including all labour of removals, &c., were about 18*s.* a day, or 52*l.* 15*s.* 9*d.* Twenty-four tons of coal were burned, costing 24*l.* on the ground, and 14 gallons of oil were used, costing 4*l.* The whole expenditure was 80*l.* 13*s.* 9*d.*, or 4*s.* 11*d.* per acre for mere money outgoings. During the summer of that year in like manner 60 acres were cultivated in 9½ days at an expenditure of 12*l.* 6*s.* 6*d.*, or 4*s.* 1*d.* per acre; and in autumn 200 acres were cultivated in 36 days, at a cost of 42*l.* 18*s.*, or 4*s.* 3½*d.* per acre. The work on the whole amounted to 507 acres, at a cost of 135*l.* 18*s.* 3*d.* This was "cultivation" or grubbing—much of it a first time, when any movement of the soil by horse-power must have been exceedingly costly; a great deal of it a second and even a third time, when grubbing by horse-power, less expensive, would still have been much more costly than this. During the past year, in like manner, the same engine (one of 8 horse-power) and apparatus have cultivated 450 acres at a cost of 4*s.* per acre, or 88*l.* 12*s.* 5*d.* in all. The wages given daily are the ordinary wages of the farm labourer—12*s.* a-week, with 6*d.* extra for the extra care required, over-time being paid for at the same rate in addition, so that the men often take 18*s.* home.

The Weald soil is in some respects especially adapted for steam cultivation, in others less so. Mr. Bradshaw's estate is an example especially of the advantages of the district, for there is the power of cultivating almost every part of it without water carriage for the engine, owing to pools and drains supplying every station which the engine need to occupy: and there is also an unusual size of fields, which lie in 30 and 40 acre pieces. We learn here, as we do elsewhere in the district, the very little wear of rope which the soil produces. No doubt every care is taken in carrying it, though Mr. Bradshaw has not the improved rope porters for this purpose which are now sent out; but it is only in the Weald district that one learns of ropes used for two years being still unworn. The 1600 yards by which 20 and 30 acres are often done at a time still promises to be available for two or three additional seasons. The cost of repairs, too, has been hardly anything, and there is little beyond interest of capital and the mere effect of use in converting a new thing into a second-hand one, for which addition has to be made to the items already-named.

If, however, where fields have been thrown together as here, the Weald district enables very cheap steam culture, taking at the same time very heavy work (for the Weald soil becomes extremely firm and difficult) out of the department of costly horse-labour, yet here the advantages of steam-tillage, as indeed of any kind of tillage, are less than in other districts. We hear of double and triple cultivation of the same land. Even when done in the dry the soil runs together, and the work has to be done over again very soon. The land needs to be stirred, and combed, and combed to get rid of its Couch; it needs to be stirred and stirred to enable its aëration during a sufficient period to ensure its fertilization. It is so with all sandy clays, and with all so-called clays whose adhesiveness depends rather upon the impalpableness of its sandy composition than upon the presence of actual alumina. At Woolstone, a calcareous clay, a single deep stirring in the dry is a thorough destruction of root weeds and a good fertilisation of the soil, because it does not run together again so readily, and because the soil is naturally full of fertilising matter, which being thus laid open by a single operation for so long a time are much more easily extracted. A lot of Couch which has vigorous hold of a rich calcareous clay soil is so thoroughly astonished by a "smashing up"—the circumstances under which it has flourished are so entirely and for so long a time changed by a single operation, that one smashing up in dry weather will destroy it. A crop of Couch which has hold of a hardened sand-clay soil in the Weald, of nothing like such vigorous growth, for it does not find such food there to sustain it, may be equally astonished by a smashing up for the time; but the land runs together again before the weeds are dead, and so they need to be actually combed out and burned, if they are to be killed.

Steam cultivation, in Mr. Bradshaw's hands, has nevertheless been advantageous and economical. It has not only dispensed with the labour of six horses, but it has so forwarded the labour of the farm, that there is nothing behindhand in the work of the season. The rotation of crops adopted—Wheat, Vetches, Rye, &c., followed by Turnips, Oats, Clover—gives occasion for a great deal of labour, and in particular the certainty of a Turnip crop after Rye and Vetches fed off (formerly a very doubtful speculation, when horse power was the only means of reducing the hardened sheepfold in the months of June and July to tilth), is now almost a certainty. There are now very good Turnips after Vetches standing on the farm. Rape grown under such circumstances is not so good. The crop of Swedes, not so good this year as usual, is nevertheless very fair—half of it is carried home to the building for cattle. The Wheat plant looks extremely well, and nothing can look better than the Vetches and the Rye. The usual practice of manuring is 7 or 8 loads of farm-yard dung, 6 bushels of half-inch bones, and 2 cwt. of dissolved bones for the Turnip crop; for Mangels, in place of the dissolved bones, 1½ cwt. of superphosphate and 1½ cwt. of guano are applied at seed time, and at twice afterwards during the growth of the young plant, 1 cwt. of nitrate of soda and 3 cwt. of salt per acre are applied. This is thus an extremely liberal application.

The young Clover receives a dressing of dung at this season of the year, and it is ploughed up early in the following autumn for Wheat, which rarely receives any spring dressing.

One of the most instructive features of the management at Knowle Park is the treatment of the farm yard manure. The buildings are exceedingly compact and compendious and economical. The labour of managing 40 head of cattle and a large stock of pigs, is diminished as much as possible by the easy connection of the different parts of the farmery; and the original cost of the building itself was reduced to a minimum by the example which it was attempted to give of utilising the old material of the estate. Four or five old farmeries were pulled down, and the timber and other material used here. Nowhere have I seen more neatness and precision in the details of management. The Wheat and Oats are brought in from the mill on the waggon, thrown into the threshing machine, worked by a fixed engine—the straw falls away into straw-house or is cut up with hay into chaff, which falls into large bins. The Turnips brought in cleaned into the root house, are either pulped or cut into finger-shaped pieces, and piled up ready for use. The cattle stalls, long ranges on either side, are easily fed and littered from the stores close by. The stock lie on boards and straw, and their urine drains from them, and the soiled litter is removed from them, into a large central tank 9 feet deep, occupying nearly the whole of the central yard. Over it is built a shed with open boarded floor, on which a large stock of porkers and bacon hogs are kept, whose waste falls from them into the same tank, where other swine and poultry find a living. The manure, 400 loads or more, which the tank holds, is thus never washed with rain water, and, derived from cake-fed beasts, and swine fed on Barley meal, is as good as it can be. There is a roadway for carts into it, underneath one of the lines of building from the outside of the farmery, by which its contents are easily removed.

The stock of the farm consists of about 40 head of cattle, and 250 large Hampshire Down ewes bought each year, which, crossed with a Cotswold ram, are fed and fattened with their produce, receiving chiefly cotton seed cake, with Vetches, Turnips, &c., and sold all through the following summer. The cattle it is proposed to buy as yearling Shorthorns in the autumn, keep on straw and cake and a few Turnips during the following winter in yards, graze during the summer, and fatten during the second winter. Some 40 young Devon and other (chiefly Shorthorn), small 2-year-old cattle, are now tied up, receiving their bushel of cut Swedes, 21 lbs. of hay and straw chaff, and 4 or 5 lbs. of cotton seed cake daily. The accommodation for these, and their management in the feeding house, seems to be exceedingly good.

The labour of the farm amounts to as much as 2*l.* an acre over the arable land. The reaping machine (Burgess & Key's) is employed, to the advantage of the labourers of the farm, as well as to the cheapening of harvest work generally. The cost of labour is, however, greater than a tenant farmer could afford. The estate is well and neatly cultivated, the roads and fences are in capital condition, the crops promise well, and the land is generally in good order and clean. It may fairly be called—as, indeed, in the occupation of the Chairman of the London Farmers' Club it ought to be—one of the example farms of England.

BENSINGTON NEAR WALLINGFORD.—The traveller by the Great Western Railway must have noticed between the Goring and Wallingford Road Station on the northern and eastern side of the line, and again, after the Wallingford Road Station upon the southern and western side, a large extent of open, flat but undulating country between him and the hills, generally well covered with grain at harvest time, unbroken by hedges, and cultivated in fields of large size. The line there crosses and skirts the lower chalk, green sand, and Kimmeridge clay formations; and the land varies in texture from a comparatively free and shallow chalky soil to a deep stiff clay, the varieties being without much regular geological sequence, because of the overlying beds of flinty gravel which here and there obscure the regular formation.

The parish of Bensington lies barely within this district—the village lies near the Thames, and the lands extend from the river up towards the chalk hills, which are there about 2 miles off.

Almost the whole of the intervening country between the Elms and Alders of the river side and the hanging Beech woods which crown the heights is open, with hardly any hedgerows, or these very neat and trim and enclosing large tracts of land. The greater part of the parish was till lately a "common field." Mr. Frampton, who occupies about 600 acres of arable land in it, the property of Mr. Newton, in this open tract of country, tells me that a few years ago his farm lay scattered in more than 500 pieces—a furlong here and furlong there, divided from the neighbours' land which lay intermixed in the same manner, by a furrow or a footpath, incapable therefore of systematic, regular, and energetic independent management.

Within the past seven years the parish has been enclosed, and Mr. Frampton's land lies now in large and open tracts, occasionally in fields of comparatively flinty, gravelly soil, without much body, elsewhere a deep calcareous loam, and in other parts again a stiff calcareous clay. It has been partly drained by 3½ and 4 feet deep drains, placed occasionally where the object has been to remove spring water, of which there is a great deal in places where the clay and chalk or green sand join; but regularly and pretty close together where the regular drainage of clay soil was needed.

The farm, though low, lies for the most part well above the flood waters of the Thames — as much as 8 to 20 feet above it, I should suppose, from its position eastward of the long straggling village which extends down to the river. But I was told that the drainage of the land is sluggish and difficult when the river is in flood nevertheless. This, however, must not, I imagine, be from any direct effect of the rise of river water, but simply from the extra quantity of rain-fall to which both the river-rise and the water-logged land are owing.

The farm, now that it lies compact together, is cultivated on the 4-field course—Wheat, Turnips, Barley, Clover. The Wheat stubbles are however as much as possible cultivated in autumn, and sown with Vetches, Rye, Trifolium, which again are ploughed up in spring and put to Turnips. Mangel Wurzels are grown over not more than 5 or 6 acres; there is a good extent of Swedish Turnips, and some little Rape, but the bulk of the Turnip break is put to common Turnips, of which a large 40-acre piece of a capital crop had just been eaten off by sheep when I was over the farm the other day. The Barley is sown down with seeds, either the broad Red Clover by itself, or Hop and Rye-grass; and what of this is eaten off early in the spring is ploughed up and sown with Turnips or Rape. There is thus a large extent of green-crop food for sheep, and most of the land bears folding. This large produce being all thus consumed upon the farm, the land yields heavy crops of straw. A very good sample of Barley, nevertheless, is grown.

The cultivation has hitherto engaged 24 to 26 horses, mostly worked in three-horse teams, besides two or three teams of oxen during winter. There are now 18 horses employed, and the work is done more easily now than formerly. The saving—equal, taking the oxen into account, to probably nearly three teams of horses, costing at least 300*l.* a year—has been effected by adopting Fowler's steam plough. Mr. Frampton, always a mechanician by taste, has long had a moveable steam-engine for threshing his own and neighbouring crops of grain. In the spring of 1861 he purchased Fowler's 10 horse-power engine and a four furrow plough and all the necessary apparatus for steam cultivation; and in that year, including its remarkably dry and useful autumn, it did good work; ploughing 97 acres and cultivating 57 acres in 31 days, at the rate of 3 or 4 acres a day for ploughing, and twice as much for cultivating. There was the time and labour of six removals included in this time, and the cost was 17*l.* 9*s.* 2*d.* for wages, and 19*l.* 16*s.* 4*d.* for coals, &c. The cost of ploughing for these items was about 4*s.* 10*d.* per acre. An accident by which the pumping apparatus of the engine was disabled interfered with the greater success which otherwise would have been achieved. The following is the amount of work done by the apparatus during 1862. It ploughed 395 acres and cultivated 145 acres at a cost of manual

labour, (including water cart and horse) of 73*l.* 10*s.*, and at a cost for coal and oil of 67*l.* 14*s.* This was at a cost of about 5*s.* 3*d.* per acre for these items.

Last October an exchange was effected, and a 14-horse engine with stronger rope is to set to work next spring. With the more powerful engine, the usual performance is 6 or 7 acres a day of ploughing, and 10 or 12 acres with the scarifier. The wages paid amount to only 9*s.* a day of 10 hours, viz. 2*s.* 6*d.* to engineer, 2*s.* 4*d.* to ploughman, 1*s.* 1*d.* to each of the porter lads, and 1*s.* 8*d.* or 2*s.* to the anchor man. Water-cart may cost 4*s.* a day. The workmen employed are the ordinary labourers, and nothing seems more certain than the fitness of such men as engineers or any other superintendence of farm machinery, after a few weeks' experience. Threepence an hour is paid for overtime to engineer and ploughman, 2*d.* an hour to the others. Coals about 21*s.* a ton upon the ground, cost 12*s.* to 15*s.* a day, and the cost of coals and oil, water cart (4*s.*) and wages does not generally exceed 5*s.* an acre for ploughing during a good day's work. The expense of new rope must be incurred every two years, and amounts to about 1*s.* an acre. The apparatus is found sufficiently compendious and manageable.

Mr. Frampton has had a road made through one open tract of land where the soil is stiffest, enabling a long furrow's work on either side of it. The apparatus is now lying by in farm-yard and shed, and it would take, so Mr. Frampton says, the labour of seven horses with the men employed in attending to it when at work, to get the steam up, move it out to its place some half a mile off, set the anchor rope and apparatus out, and set to work. Thereafter it could travel up the road, ploughing on one side, and come back down the road, ploughing the other side, probably 150 acres or more in all, fully three or four weeks' work without any time lost in shifting apparatus. It is in cases like this where the great advantage of steam power is felt. And, given weather suitable for tillage work, a soil adhesive, and barely fit for the sheepfold, and a large open tract with roadway facilitating the work—and it is impossible to doubt that steam power applied to the cultivation of the land is very much cheaper than that of horses.

As to its efficiency, that has been amply proved; and in the case of Mr. FRAMPTON'S farm it was sufficiently obvious, last week, from the firm condition of the land, both where it had been deeply turned over roughly with the digging breasts and also where the usual turnfurrow had been used.

The farm is remarkable for its excellent buildings—finer barns, stabling and shedding round the sides of a square I have never seen—nor buildings kept in more perfect repair. The inner quadrangle is laid out in yards where sheep pick over the Barley straw, which is daily thrown in fresh from the flail. A flock of 450 ewes is kept; the tegs and part of the ewe lambs being fattened off at 12 and 13 months old, and one-third of the ewes being sold every year. A few store cattle are maintained on straw and Turnips. These, with a considerable stock of Berkshire pigs, make up the live stock of the farm. The land, now recovering from the foul condition to which its piecemeal cultivation when unenclosed had reduced it, gives a good specimen of the style of management common to the country, on which steam cultivation has been engrafted by an intelligent, energetic, and enterprising man.

One is not surprised to find that in so open a country an example of this kind has been followed. There is within six or eight miles of Bensington, near Chakendon, immediately under the chalk hills, and on a farm of lighter shallower soil, another steam plough at work. Mr. Frank Dodd, of Bottom Farm, Chakendon, has since the Battersea meeting purchased one of Fowler's 12-horse power engines, burning 15 cwt. of coal a day, and costing thus about 13*s.* a day. His wages, including engineman 15*s.*; ploughman 14*s.*; two porter lads at 5*s.*; and anchorman 10*s.*; amount to 49*s.* a week; and the whole expense for labour, water, oil, and fuel thus does not exceed 7*l.* 14*s.* per week. During four weeks this autumn, and working 23 days of this time—losing, too, the labour of as many as five removals—Mr. Dodd accomplished 106 acres of ploughing, which has cost about 6*s.* an acre. His 750 acres of arable land have hitherto been worked by 30 horses—he is now getting rid of 10 of them, and has no doubt that at less expense he will have the land worked with greater efficiency by steam.

Of course his experience over so short a time is not so trustworthy or instructive as that of others who have had some years' experience. And one can in his case therefore only declare that a shrewd and practical tenant farmer having ascertained, after a detailed examination into the cost of horse-labour and of steam respectively, that the former is the dearer of the two, has not, after an autumn trial of the latter, seen any reason to repent of his decision.

Home Correspondence.

John Ford's Farewell to the Subject of Thick and Thin Seeding.—I have read your leader of January 17, p. 57, and trust that I shall commit no offence if I refer to it—supply a little information from well known and approved documents—and also add a few lines by way of "heal all," or "drops for nervous sufferers." 1st, in reference to your leader. I quite agree with Chief Justice Fitzherbert's observations in relation to "discretion." Discretion alone can determine whether a quantum of seed is or is not ridiculous, be the quantum thick or thin, or rather much or little. Thin seeders certainly have one apparent advantage, as you say, in the argument, viz., their tendency to economy, of which we farmers have need in every branch of our profession; but if the adage, "Nothing wasted nothing wanted," holds good, there is also another adage equally weighty, viz., "Penny wise and pound foolish." Each intelligent farmer must himself strike the balance between these two adages according to his experience, founded upon his particular circumstances. In your third paragraph you refer to Mr. Wilkins's "lucid English, erudition, clever irony, and pertinacity." No man admires them more than I do. I have no pretentions to these qualities, at least in any such degree as the Rev. gentleman has. As regards his clever irony, no man is more sensible of it than I am, for he has with "discretion," by his "letters patent," heaped upon me more titles than I am ever likely to receive from the Crown of England. Let us survey them, and also the inconvenience I am likely to be placed under from this "thick seeding" of titles. "Pre-Adamite John Ford," "terrigenous John Ford," "precocious John Ford," "prejudiced John Ford," "Cimmerian John Ford!" Here let me pause, and say, "Angels descend, and bring me out of Lot's abode!" Let me say, that proud as I am of these titles, sometimes "the bane of wise men and the idol of fools," I do not think that your readers will say that they betray on the part of the Rev. gentleman that "discretion" recommended by the Chief Justice. The inconvenience will be this:—if I send a letter to order a bed at a London hotel under all these glorious titles, and should not go, it is nearly certain that the innkeeper will charge me for five reserved beds, for he will never believe that all these titles can belong to poor, deluded, single John Ford, 'dragged by an angel out of Cimmerian darkness!" I have no pretentions to irony, so let me try and signalise myself by further establishing a character for "pertinacity" by calling attention to two extracts from the Journal of the Royal Agricultural Society, a Journal which I trust is not the "bane of wise men, nor the idol of fools." I was induced to search such accredited works as were within my reach by the good advice of the respected Rector of Wix, who recommended me to read the scientific works of scientific men, and I may suppose practical men, for I find that science without practice is often nothing more than "philosophy in a dilemma." I therefore, having all the volumes of the Royal Society, of which I am a member, looked into them to see the opinion and experiments of men in whom the members of the Council have sufficient confidence to admit their articles for national perusal and direction. The first extract is in volume the ninth, page 283. The article from which it is taken is addressed by Mr. Loft to Mr. Pusey, on the "varieties of Wheat and the advantage of thick sowing." The quantity of seed sown was at the rate of 5 pecks per acre, and the average (of 12 sorts of Wheat) was 45 bushels and 2 pecks per acre. The remainder of the field (15 acres) was drilled in the usual way with 8 pecks to the acre of Marigold Wheat, and it yielded rather over 57 bushels per acre. There was no difference either in land or management, except that the 12 sorts (seeded with 5 pecks) had more care and labour bestowed upon them in weeding and hoeing than the remainder of the field. Mr. Loft observes that this result is at variance with the opinion of the advocates of thin sowing as to the quantity of seed. I now, says he, generally begin with 7 pecks of seed as the minimum, gradually increasing, as the season advances, to 9 pecks per acre. Observe, he says, nothing of blight as regards the corn raised from 8 pecks; but in respect of the 12 varieties sown at the rate of 5 pecks (eight varieties being white sorts and four red), "in all the white sorts there was a considerable quantity of smut, two or three of the finer sorts being much the worst; whereas amongst the red only three cases occurred, and two of these only very slightly affected with smut. He also gives the result of another experiment with five sorts grown from 7½ pecks, and the crops per acre ranged from 39 bushels 1 peck to 57 bushels. The next extract is from the 6th volume, page 192. The article is written by David Barclay, M.P. on the advantage of thick sowing. The account of the experiments on the merits of thin and thick sowing, drilling, dibbling, and broadcast, conducted on Eastwick Farm, in the county of Surrey, is as follows: 2½ bushels drilled 9 inches apart, produced 37 bushels per acre, value 16*l.* 6*s.*; 1 bushel drilled 12 inches apart, produced 25 bushels, value 10*l.* 2*s.*; 1 bushel, dibbled 12 inches apart, produced 31 bushels, value 13*l.* 4*s.*; 1 bushel 3 pecks dibbled 9 inches apart, produced 37 bushels, value 15*l.* 12*s.*; 2½ bushels sown broadcast produced 40 bushels, value, 18*l.* 1*s.* These figures include the value of both corn and straw. I call especial attention to the following words of Mr. Barclay. The plants in Nos. 2 and 3 (thin seedings) were by much the strongest, and looked best throughout the season, until the approach of harvest, when it became evident that the quality of the grain and straw was inferior, more particularly in No. 2, which appeared to have suffered a little from mildew! I have now done with all controversy on this subject. Locality and various circumstances must determine the quantity of seed.

Two seeders (shocking to relate)
Began a fierce debate.
* * * *
"God bless the Queen, God bless the land
With plenty, joy, and peace;
And grant henceforth, that foul debate
Twixt husbandmen may cease!"

John Ford, Jun., Rushton.

Produce of Two Cows in Four Months.—Will you be so kind as to tell me if you think the enclosed is a fair produce from two cows for the four months, April, May, June, and July, as on the list? The cows are one Short-horn and the other small, something of an Irish breed; the produce sent to a gentleman's table. They had nothing but the Grass that they got in the field, and that field is in the middle of Regent's Park, London. The butter at 1*s.* 6*d.* per lb.; cream, 3*s.* per pint; new milk at 4*d.* per quart; skim at 1*d.* per quart. But some of the skim is given away. The cows calved the beginning of March. *J. C.*

1862. April.	Butter. lb.	Cream. pints.	New milk. quarts.	Skim milk. quarts.	£	*s.*	*d.*
1	..	1½	5	6	0	6	8
2	1	1	5	6	0	6	8
3	..	2	5	6	0	8	2
4	..	1½	5	5	0	6	8
5	..	2	5	6	0	8	2
6	..	1½	5	6	0	6	9
7	1	1	5	5	0	6	7
8	..	1½	5	6	0	6	8
9	1	1½	5	6	0	8	2
10	..	1½	5	6	0	6	8
11	1	1½	5	6	0	8	2
12	..	2½	5½	8	0	10	0
13	..	1½	5	6	0	6	8
14	1½	2	5	6	0	10	5
15	..	1½	5	7	0	6	9
16	½	1	5	6	0	5	11
17	..	1	5	7	0	5	3
18	1¼	1¼	5	6	0	8	6
19	..	1½	5	6	0	6	8
20	..	2	5	6	0	8	2
21	2	1½	5	6	0	9	8
22	..	1½	5	6	0	6	8
23	1¼	1¼	5	7	0	8	7
24	..	2½	6	6	0	9	2
25	..	2	5	7	0	8	3
26	..	1½	5	6	0	6	8
27	..	2	5	6	0	8	2
28	..	1½	6	6	0	6	8
29	1	1½	5	8	0	8	4
30	..	1½	5	7	0	6	9
	11½	48	152	187	£11	6	10

1862. May.	Butter. lbs.	Cream. pints.	New Milk. quarts.	Skim Milk quarts.	£	*s.*	*d.*
1	..	2	6	8	0	8	8
2	1½	2	5	7	0	10	6
3	..	2	5	6	0	8	2
4	..	2	6	7	0	8	7
5	1	1½	5	6	0	8	2
6	..	1	5	7	0	5	3
7	1½	1	6	6	0	7	4
8	..	1½	6	7	0	6	9
9	..	2	6	8	0	8	4
10	1¾	1½	7	6	0	8	2
11	..	2	6	6	0	8	2
12	..	2	6	7	0	8	7
13	1	1½	6	6	0	8	2
14	..	3½	7	7	0	13	5
15	..	2	6	6	0	8	6
16	1	1¼	6	7	0	8	3
17	..	1¼	6	6	0	6	8
18	..	2	7	7	0	8	11
19	1	1½	6	6	0	8	6
20	..	1½	6	6	0	7	0
21	1	1½	5	6	0	8	2
22	..	1½	6	7	0	7	1
23	..	..	6	7	0	2	7
24	1½	2	5	6	0	5	11
25	..	1	5	7	0	3	9
26	..	1½	5	6	0	6	2
27	1½	2	6	8	0	11	3
28	..	4	8	8	0	15	4
29	..	1½	6	7	0	7	1
30	..	2	7	6	0	8	10
31	1	1½	6	5	0	8	5
	13½	52	176	200	£12	10	8

1862. June.	Butter. lbs.	Cream. pints.	New Milk. quarts.	Skim Milk quarts.	£	*s.*	*d.*
1	..	1½	6	8	0	7	2
2	..	2	7	6	0	8	10
3	1	1½	6	7	0	8	7
4	..	1	6	6	0	5	6
5	..	1½	7	7	0	7	5
6	1	1	6	6	0	7	0
7	..	1½	6	7	0	7	1
8	..	1½	6	6	0	7	0
9	..	1½	6	6	0	7	0
10	1	1½	6	6	0	8	6
11	..	2½	8	12	0	11	2
12	..	1	6	6	0	5	6
13	..	1	6	6	0	5	6
14	..	1½	6	8	0	7	2
15	..	1½	6	6	0	7	0
16	1	1	6	7	0	7	1
17	..	1½	7	7	0	7	5
18	..	1½	6	6	0	7	0
19	..	1	7	6	0	5	10
20	..	1	6	6	0	5	6
21	1	1½	6	6	0	8	6
22	..	1	7	7	0	5	11
23	..	1½	6	6	0	7	0
24	..	1	6	6	0	5	6
25	..	1	6	8	0	5	8
26	..	1½	6	7	0	7	1
27	1½	1	6	6	0	7	9
28	..	1½	6	6	0	7	0
29	..	1	7	8	0	6	0
30	..	1½	6	8	0	7	2
	6½	40½	194	203	£10	10	10

Produce of Two Cows in Four Months—Continued.

1862.	Butter.	Cream.	New Milk.	Skim Milk			
July	lbs.	pints.	quarts.	quarts.	£	s.	d.
1	1½	1	6	8	0	7	11
2	..	1½	6	7	0	7	1
3	..	1½	6	8	0	7	2
4	..	1	6	8	0	5	8
5	..	1½	7	8	0	7	3
6	..	1	6	6	0	5	6
7	1½	1½	6	7	0	9	4
8	..	1	6	8	0	5	8
9	..	1½	6	8	0	7	2
10	..	1	6	6	0	5	6
11	1	1½	6	8	0	8	8
12	..	1	6	7	0	5	7
13	..	1½	6	7	0	7	1
14	..	1	6	8	0	5	8
15	1½	1	6	6	0	7	9
16	..	1½	7	8	0	7	6
17	..	1½	7	8	0	7	6
18	..	1½	7	10	0	7	8
19	..	1½	8	9	0	7	11
20	..	1½	6	8	0	7	2
21	..	1	7	8	0	6	0
22	..	1½	8	6	0	7	8
23	..	1½	8	7	0	7	9
24	..	1½	6	8	0	7	2
25	..	1½	7	9	0	7	8
26	..	1	6	8	0	5	8
27	..	1½	7	9	0	7	2
28	..	1½	8	8	0	7	10
29	..	1½	6	7	0	7	1
30	..	1½	7	8	0	7	6
31	..	1½	7	8	0	7	6
	5½	41½	203	239	£10	11	9

[We gather from your account that your two cows have not yielded much more than 100 gallons of milk per month during the four best months in the year. It is a small yield.]

Wages in Roxburghshire and the West of Berwickshire.—In your "Home Correspondence" of 10th inst. under the above heading, your Correspondent "W." says:—"Since 1 bushel of Oats, of 46 lbs., makes two imperial stones of meal, I have set down 50 bushels as the cost to the farmer of the 100 stones of oatmeal." A bushel of such Oats, crop 1861, he values at 3*s.* 2*d.* 1. In a good year, 46 lbs. of Oats will yield 25½ lbs. of meal free of "multure" or millers' charge for grinding; and 100 stones of meal will require 55 bushels of 46 lbs. When weight and quality are deficient, the number of bushels must be greater. 2. "W." errs in taking the "fiars" or average price of good and bad throughout the county. Your 46 lb. Oats are produced only under the most favourable circumstances; and last year, at this dull period, they were sold at 3*s.* 8*d.* a bushel. I submit therefore, that the estimate of wages ought to be increased by 2*l.* 3*s.* 4*d.* in the item of Oats alone, as follows:—

50 Bushels at 6*d.*	..	..	£1 5*s.* 0*d.*
5 Bushels at 3*s.* 8*d.*	..	..	0 18 4
			£2 3 4

J. T.

Societies.

WEST-LOTHIAN: *Potato Culture.*—At a late meeting of this Club Mr. Cadell, of Grange, read a paper on this subject, from which we make the following extracts:—

Prior to 1845 the cultivation of the Potato crop was considered simple. If the ground was well drained and free, and strongly manured with byre or stable manure, and properly seeded and cleared, a crop was counted upon as all but certain; but in that year a mysterious disease appeared, by which the crop was destroyed after nearly coming to maturity, and which has continued to affect it more or less every year since.

It is not my intention now to enter into the inquiry as to what kind of Potatoes have stood best, or how far their diseased state may be owing to erroneous treatment; suffice it to say, that the disease has generally been worst in wet and warm seasons, and has shown the greatest virulence on ground naturally damp, and where heavily manured; it appears also to have infested most the kind of Potatoes that flowered and bore seed, so that we now seldom see a field of them either in flower or bearing Potato-apples.

Chemistry of late years has been very much brought to bear upon agriculture, and has done a great deal in showing us what vegetables require for food, and in pointing to substances and combinations suitable for manures; but as yet chemistry has failed to detect the latent principles of disease, or to point to a thorough remedy; and, while many have despaired of finding a cure, I am inclined to think that, by practical experiment and accurate observation, we may not be long of finding out both the cause and the cure of the Potato disease, and may live to see it eradicated.

In regard to the diseases of the human kind, Professor Simpson, in his excellent little book, "Physicians and Physic," (p. 126):—"We have banished the plague which in former times often destroyed in London more lives than any other maladies counted together; we have rooted out and modified the ague, so that it is rarely a fatal affection now, while every year it destroyed thousands formerly; scurvy has almost disappeared from our mortality bills;" and others are much diminished and modified.

Now, these diseases of the genus Homo have, I believe, been remedied, or prevented, which is better, not by finding out the occult cause or principle of the disease, and applying the remedy which theory would suggest, but rather by observation of the natural causes tending to produce the disease, and learning by experience what remedies are most effective; and in like manner, by observation and experiment, coupled with what chemical and physical knowledge we may have, we may, I think, be led to find out a preventive or remedy for the Potato disease.

In the experiments I have made, I have used as much as possible simple and well-known manures, mostly single, although I believe it to be of very great advantage to mix different kinds of manures. I have used byre dung at the rate of about 20 tons per imperial acre as a standard, and in some of the experiments, along with the byre manure I applied certain substances in small quantities, with the intention of testing them as specifics against the disease, these being lime, common salt, and wood ashes.

The ground on which the experiments were made was a fine black, dry, gravelly soil which had been long used as a garden, and had been all trenched through the winter to the depth of 20 inches. Each trial consisted of three drills of 12 yards long and 2 feet apart, and the sets planted 14 inches separate, so that each trial occupied 24 superficial yards, or 1-200th of an imperial acre. The seed used was Regents, 10 lbs. to each plot.

I intended the different trials to have all the same advantages as to soil and exposure, so that they might all compare with each other, and give the comparative merits of the manures and specifics with distinctness; but not having ground enough at one place, and the latter part of them being on a piece of ground near a strip of trees by which they have been very prejudicialy affected, owing a good deal, I believe, to the cold wet season, and, therefore, in making comparisons, the first eleven must be taken by themselves, and the last thirteen by themselves.

EXPERIMENTS IN GARDEN AT GRANGE ON THE RAISING OF POTATOES, made with various Manures, partly to test certain specifics for the disease, and partly the effect of the manures in producing quantity. Planted on a dry, gravelly soil, which had been trenched; each plot being 3 drills of 12 yards long and 2 feet apart, the sets 14 inches separate, each plot occupying 24 superficial yards, or 1-200th part of an imperial acre. Planted between 15th and 25th March, 1862; lifted 15th to 17th September:—

No.	Date of Planting.	Kind of Manure Used.	Weight.	Value.	Came Up. A 1st B 2nd C 3rd D 4th	Date when lifted.	Produce. Total.	Good.	Diseased.	Value of Manures per Imperial Acre. £	s.	d.	Quantity of Potatoes Produced per Imperial Acre. T.	Ct.
	1862.		Ct. lb.	D.			lb.	lb.	b.					
1	Mar. 15	Byre manure alone .. (=20 tons manure per acre)	2 0	7½	B	Sept. 15	101	87	14	6	5	0	9	9
2	,,	Do. { .. .. .. do. .. with salt	2 0 / 0 1½	8	B	,,	154½	154	½	6	13	4	13	16
3	,,	Do. { .. .. .. do. .. with salt and lime	2 0 / 0 1½ / 0 3	8½	B	,,	179½	179	½	7	1	8	16	0
4	,,	Do. { .. .. .. do. .. with lime	2 0 / 0 3	8	B	,,	205½	205	½	6	13	4	18	7
5	,,	Do. { .. .. .. do. .. Wood ashes	2 0 / 0 3	8½	B	,,	206	205	1	7	1	8	18	8
6	,,	Do. { .. .. .. do. .. Sea-ware	1 0 / 1 0	8	A	,,	265	263	2	6	13	4	23	13
7	,,	Sea-ware alone .. .. .. do. ..	2 0	8½	B	,,	180	161	19	7	1	8	16	1
8	Mar. 17	Guano, Peruvian .. .. .. (= 3 cwt. per acre)	0 1½	2½	B	,,	183	175	8	2	1	8	16	7
9	Mar. 25	Do. Bolivian .. .. .. (= 5 cwt. per acre)	0 2½	2½	B	,,	206	195	11	2	5	10	18	8
10	,,	Bones, in dust .. .. .. do. do.	0 2½	2½	A	,,	184	179	5	2	1	8	16	8
11	,,	Do., dissolved .. .. .. do. do.	0 2½	2½	A	,,	200	195	5	2	1	8	17	17
12	Mar. 17	Blood manure .. .. .. (= 5 cwt. per acre)	0 2½	2½	B	Sept. 16	138	119	19	2	1	8	16	6
13	,,	Soot and lime { Soot .. .. (= 5½ cwt. per acre) / Lime .. .. (= 5½ cwt. per acre)	0 3 / 0 3	1½	A	,,	124	99	25	1	9	2	11	1
14	,,	Stable dung .. .. .. (=10 tons per acre)	1 0	3	C	,,	75	56	19	2	10	0	6	14
15	Mar. 18	Peat from sea-shore, with Byre wash .. .. (=20 tons per acre)	2 0	4	A	,,	117	87	30	3	6	8	10	9
16	,,	Night-soil, near hedge .. .. (=10 tons per acre)	1 0	6	B	,,	88½	69	19	5	0	0	7	18
17	,,	Sea mud, not dried .. .. (=20 tons per acre)	2 0	2	D	,,	108	73	35	1	13	4	9	13
18	,,	Byre dung and rotten whin .. (=20 tons per acre)	2 0	6	C	Sept. 17	116	72	44	5	0	0	10	7
19	,,	Vegetable mould .. .. .. (=10 tons per acre)	1 0	6	B	,,	115	92	23	5	0	0	10	5
20	,,	Hughes' manure .. .. .. (= 5½ cwt. per acre)	0 3	3	C	,,	107	82	25	2	10	0	9	11
21	Mar. 25	Townsend's manure .. .. (= 5½ cwt. per acre)	0 3	3	C	,,	76	47	29	2	10	0	6	16
22	,,	Byre manure alone .. .. (=20 tons per acre)	2 0	7½	C	,,	71	35	36	6	5	0	6	7
23	,,	Do. nearer trees .. (=20 tons per acre)	2 0	7½	C	,,	67	39	28	6	5	0	6	0
24	,,	Do. still nearer .. (=20 tons per acre)	2 0	7¼	C	,,	60	35	25	6	5	0	5	7

It may be observed that in the plot of ground done with byre manure alone, an ordinary mode of dunging (No. 1), the produce was 101 lbs., or 9 tons per imperial acre, being the smallest produce of the first eleven trials; while the plot (No. 6) with half byre dung and half sea-ware, produced the largest by 265 lbs., being the extraordinary quantity of 23 tons 13 cwt. per imperial acre; and, while of the former there were 14 lbs. diseased, there were only 2 lbs. of the latter. Singular it is that, while mixed with byre manure the sea-ware produced this wonderful crop, when used alone it produced only 180 lbs., and of this 19 lbs. were diseased. Next in effect comes Bolivian guano (No. 9), producing 206 lbs., but with 11 lbs. diseased, parallel with which and with less disease are (Nos. 4 and 5) the byre manure with lime and with wood-ashes, and after these dissolved bones (No. 11), producing 200 lbs., with only 5 lbs. diseased.

In the last-mentioned 13 plots, which were affected by the vicinity of trees—viz., a row of fruit trees on one side, and a strip of forest trees on the other—the average of the byre manure plots alone was one-third deficient of that on the other lot, while the disease was increased to nearly one-half; and it and stable dung are lowest, Nos. 12, 13, 15, 18, 19, 20, all artificial manures, being superior to the other in quantity, and mostly more free of disease. The injurious effect of the shading of the trees—for I could ascribe it to no other cause—was strongly marked, as the plots with the byre manure in this lot produced on the average only 65 lbs., in the other 101 lbs., while disease was increased from 14 per cent. up to about 40 per cent.

The substances which I used as specifics against the disease—being lime, salt, and wood ashes—are all simple and innocuous, and were applied along with the other manure in such small quantities that I scarcely contemplated their having any manurial effect, the lime being applied at the rate of 3 lbs. per plot, or 5 cwt. per acre, and the salt at the rate of 1¼ lb. per plot, or 2½ cwt. per acre, and the wood ashes at the same rate as the lime. To my astonishment, the effect was that, while the crop in the cases of the lime and the wood ashes, as compared with the byre dung alone, was doubled, at the same time the disease was reduced from 14 per cent. down to one-fourth per cent. The effect of the salt used was just half the effect of the lime alone, and that of the mixture of lime and salt jointly was a medium produce between the salt and the lime; the effect in diminishing the disease was the same in both these plots.

These trials point to what may be done in increasing the produce of a crop by the proper mixtures and application of manures, and also what may be done to arrest disease in the crop. The effect of different manures and different specifics will vary under different circumstances and in different soils. Whether in any one case I have hit the best proportions of manures or specifics remains to be seen by farther and more extended trials.

Farm Memoranda.

CHATTERIS, ISLE OF ELY, *Jan.* 22.—The winter is quickly passing away, and we are still without its usual accompaniments—frost and snow. To-day the temperature is high and the air mild and balmy, and one can scarcely resist the conviction that spring is here. We may, however, yet have some severe weather, and perhaps may sustain, in consequence, heavy losses. Cold springs are much to be dreaded in the Fens. A little seasonable frost just now would be advantageous, as it would enable us to move manure, and would pulverise the high lands and prepare them to receive the seed. It is very difficult to secure a good seed-bed for spring corn on high lands, unless they have been acted upon by frost after ploughing. We have had some strong gales of wind from the W. and N.W., and two days ago had a severe storm of rain, accompanied by vivid lightning.

The open weather has made field work very forward. The ploughs have never been interrupted, but have been kept daily at work. Much of our land designed for spring corn is ploughed, but a small portion requires a few days' frost to prepare it for ploughing. We have been much occupied during the last two months with deep ploughing. Early in November we began to plough by steam power. Our first effort was to use two ploughs from 12 to 14 inches deep, but we found our 10-horse engine was not equal to this. We then removed one body, and ploughed with the other from 15 to 18 inches deep, the subsoil being hard and gravelly. This we accomplished very satisfactorily. Our plough, made by Messrs. Howard, from a description we gave of our requirements, is fitted with a skim body, which runs immediately before the deep plough, removing the soil about 3 ins. in depth, and placing it in the bottom of the furrow; the deep plough following and covering it completely. We believe ours is the first plough Messrs. Howard have made of this description. Some slight alterations require to be made, but as a first effort it has succeeded admirably. We have ploughed 113 acres with it at a depth varying from 15 to 18 inches. In the short days of the last month, if we met with no special interruptions we were able to plough 3 acres per day, which is as much as 30 horses would do. We find 1 acre per day enough for horses; to plough this depth it will require 10, and they will find it hard work. We have also ploughed 20 acres, nearly 18 inches deep with horses, doing 1 acre per day, and using 10 horses. The cost for manual labour per acre with steam power was about 4*s.* 3*d.*, and with horses 5*s.* 8*d.* Besides this we have ploughed 7 acres 12 inches deep, with six horses doing 1 acre per day. Our total amount deep ploughed is 140 acres. We have 240 shearling sheep in the yards, eating Clover chaff and Mangels, with 1 pint of Peas each daily. We never saw sheep thrive better. The Mangels are of excellent quality, and not a sheep scours, although they have all they can eat. We have also 77 lambs in the yard, eating the same food with a half pint Peas, and 130 more eating Coleseed during the day, and chaff and a few Peas and Mangels in the yard at night; our losses are very slight, and sheep stock are all healthy.

The few bullocks we have, eat 1 bushel of Oats each per week, with cut chaff and 1 peck of pulped Mangels per day each. They thrive well. Instead of bruising the Oats, we put one pig to a bullock, and he finds all that passes through the stomach of the bullock unmasticated.

We have about 60 or 70 pigs eating cut Mangels and 1 pint Peas each daily. This is cheap feeding, and they grow and increase in weight very satisfactorily.

Our growing Wheats are exceedingly healthy and promising. Mild, open winters always suit our Fen lands, and if we get a moderately mild spring, we may hope for an abundant crop of Wheat. *A. S. R.*

Miscellaneous.

The Great French Henery.—With care and good management no branch of domestic industry is more profitable than rearing poultry. Many persons have supposed that what is profitable on a small scale might be made still more so when carried on to a larger extent, but repeated experiments in this and other countries have proved this to be a mistake. The secret of the matter is, that hens cannot thrive and lay without a considerable quantity of animal food. Where but a limited number of fowls are kept about the farmyard, the natural supply of insects is sufficient to meet this demand; and hence, when attempts have been made to extend the business beyond this source of supply, they have not prospered. It will be seen from the following interesting account, that M. de Sora, of France, has adopted a method that has proved completely successful, by affording an artificial supply of this essential portion of food. The French practical philosophers certainly know how to make the most of things. A Mons. de Sora has recently discovered the secret of making hens lay every day in the year by feeding them on horseflesh. The fact that hens do not lay eggs in winter as well as in summer is well known, and the simple reason appears to be that they do not get the supply of meat which they obtain in the warm season from worms and insects. M. de Sora was aware of all these facts, and living at the time upon an old dilapidated estate a few miles from Paris, the acres having been bequeathed to him a few years previously, he set himself earnestly at the task of constructing a henery, which should be productive twelve months in the year. He soon ascertained that a certain quantity of raw mince-meat, given regularly with other food, produced the desired result; and commencing with only some 300 female fowls, he found that they averaged, the first year, some 25 dozen eggs in the 365 days. The past season he has wintered thus far about 100,000 hens, and a fair proportion of male birds, with a close approximation to the same results. During the spring, summer, and autumn they have the range of the estate, but always under surveillance. In the winter their apartments are kept at an agreeable temperature; and although they have nice meat rations the year round, yet the quantity is much increased during the cold weather. They have free access to pure water, gravel, and sand, and their combs are always red. To supply this great consumption of meat, M. de Sora has availed himself of the superannuated and damaged horses which can can always be gathered from the stables of Paris and the suburbs. The useless horses are taken to an *abattoir* owned by M. de Sora himself, and there neatly and scientifically slaughtered. The blood is saved clean and unmixed with offal; it is sold for purposes of the arts at a remunerative price. The skin goes to the tanner; the head, hoofs, shanks, &c., to the gluemaker and Prussian-blue manufacturer; the large bones make a cheap substitute for ivory with the buttonmaker; while the remainder of the osseous structure is manufactured into ivory black, or used in the shape of bone dust for agricultural purposes. Even the marrow is preserved; and much of the fashionable and highly perfumed lip-salve and pomade was once enclosed in the leg-bones of old horses. Uses are also found for the entrails—and in fact no portion of the beast is wasted. The flesh is carefully dissected off the frame, of course, and being cut into suitable proportions, it is run through a series of revolving knives, the apparatus being similar to a sausage machine of immense size, and is delivered in the shape of a homogeneous mass of mincemeat, highly seasoned, into casks, which are instantly headed up, and conveyed per railroad, to the egg plantation of M. de Sora. The consumption of horses for this purpose by M. de Sora has been at the average rate of 22 per day for the last 12 months, and so perfectly economical and extensive are all his arrangements, that he is enabled to make a profit on the cost of the animals by the sale of the extraneous substances enumerated above—thus furnishing to himself the mincemeat for much less than nothing, delivered at his henery. It has been ascertained that a slight addition of salt and ground pepper to the mass is beneficial to the fowls; yet M. de Sora does not depend upon these conditions alone to prevent putrefacation, but has his store-rooms so contrived as to be kept at a temperature just removed from the freezing point through the year, so that the mincemeat never becomes sour or offensive; the fowls eat it with avidity; they are ever in good condition, and they lay an egg almost daily in all weathers and in all seasons. The sheds, offices, and other buildings are built around a quadrangle, enclosing about 20 acres, the general feeding ground. This latter is sub-divided by fences of open paling, so that only a limited number of fowls are allowed to herd together, and these are ranged into different apartments, according to their age, no bird being allowed to exceed the duration of four years of life. At the end of the fourth year they are placed in the fattening coops for about three weeks, fed entirely on crushed grain, and then sent alive to the city of Paris. As one item alone in this immense business, it may be mentioned that in the months of September, October, and November last, M. de Sora sent nearly 1000 dozen of capons to the metropolis. He never allows a hen to set! The breeding rooms are warmed by steam, and the heat is kept up with remarkable uniformity to that evolved by the female fowl during the process of incubation, which is known to mark higher on the thermometer than at any other period. A series of shelves, one above the other, form the nests, while blankets are spread over the eggs to exclude any accidental light. The hatched chickens are removed to the nursery every morning, and fresh eggs laid in to supply the place of empty shells. A constant succession of chickens is thus ensured, and, moreover, the feathers are free from vermin. Indeed, a lousy fowl is unknown on the premises. M. de Sora permits the males and females to mingle freely at all seasons, and after a fair trial of all the various breeds, has cleared his establishment of every Shanghae, Cochin-China, or other outlandish fowl, breeding only from old fashioned barnyard chanticleers, and the feminines of the same species. He contends that the extra size of the body and eggs pertaining to these foreign breeds can only be produced and sustained by extra food, while for capon-raising the flesh is neither so delicate or juicy as that of the native breed. The manure produced in this French establishment is no small item, and since it forms the very best fertiliser for many descriptions of plants, it is eagerly sought for at very high prices by the market gardeners in the vicinity. He employs nearly 100 persons in different departments, three-fourths of whom, however, are females. The sale of eggs during the past winter has averaged about 40,000 dozen per week, at the rate of six-dozen for four francs, bringing the actual sales up to 250,000 dollars per annum. The expenses of M. de Sora's henery, including wages, interest, and a fair margin for repairs, &c., are in the neighbourhood of 75,000 dollars, leaving a balance in his favour of 175,000 dollars per year. *Bell's Messenger.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. SPEARING, Moulsford, near Wallingford, Berks, during the week ending Jan. 28, 1863.

Day of Week.	Day of Month.	At 9 A.M., Railway Time. Reading of Barometer corrected to Freezing Point at Mean Sea Level.	Dry Bulb Thermometer.	Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0-6	Amount of Cloud 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday ..	22	29.78	49	47	S.W.	3	6	50	40	58*	37	0.04	41½	42
Friday ..	23	29.56	51	49	S.W.	5	8	53	47	67	45	0.01	43½	43
Saturday ..	24	29.70	44	41	S.W.	4	3	53	34	65	28	0.20	43½	43
Sunday	25	30.21	40	38	W.	2	2	50	37	69	32	0.18	42½	43
Monday....	26	30.30	46	44	S.W.	3	7	51	39	77	36	0.01	43	43
Tuesday ..	27	30.17	44	40	W.	2	7	52	43	54	40	0.01	43½	43½
Wednesday	28	30.55	35	34	W.	1	2	47	29	79	24	..	43	44

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Notices to Correspondents.

CART HORSES: *Corres.* You cannot have a better opportunity than is afforded by the sale at Sandwood Farm, Spaldington, near Howden, advertised elsewhere. Eighteen capital horses are to be sold, which we are assured are really an extraordinarily good team, uniting power and activity in a very unusual degree.

CO-OPERATIVE FARMS: *Correspondent.* The letter to which you refer was transferred from the *Times* to our columns; and an attempt was made, unsuccessfully, to obtain further information. You "again" call the attention of the Editor to the subject, but you do not say for what purpose; and we do not remember any former communication from you about it.

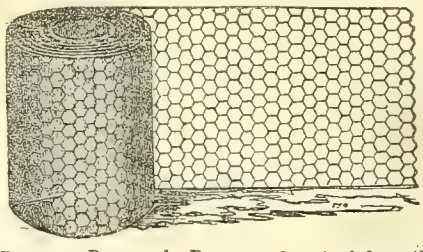
LIMEKILNS: *Calcareous.* We do not suppose that the neighbourhood of Limekilns will have an injurious effect on a field of Potatoes.

MANURE: *Agricola.* It seems to us that the agreement with the tenant ties the manure to the land; and that the purchaser buying the land with that understanding can insist on its being observed. If the tenant left half a year before his annual term was up, he did so we presume by a special agreement, in which this manure question was considered.

NEW WORK BY MR. BAILEY DENTON: *A very old Subscriber.* We are not aware of a new work on Drainage by that gentleman. He is publishing an excellent work illustrative of Farm Architecture entitled the "Homesteads of England."

BARNARD, BISHOP, AND BARNARDS, Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.—APRIL, 1861.



BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised, per yard.	Japanned Iron, per yard
2-inch mesh, 24 inches wide..	No. 19	4½d.	3½d.
2-inch " " " .. "	18	5	4
2-inch " " " .. "	17	6½	5
2-inch " " " .. "	16	8	6½
1⅝-inch " " " .. "	19	4¾	4
1⅝-inch " " " .. "	18	6	4¾
1⅝-inch " " " .. "	17	7	5½
1⅝-inch " " " .. "	16	9	7

All the above kinds can be made any width (under 6 feet), at proportionate prices.

Strong Galvanised Poultry Netting, 7½d. per yard, 3 feet wide, Galvanised Sparrow-proof Netting for Pheasantries, 11d. per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10d. per yard.

The same with Galvanised Wire Rope, 1s. per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

SAUSAGE and MINCING MACHINE.—The Guinea one of BURGESS & KEY'S is the best; it is simple, easily cleaned, and quicker in operation than any other.

BURGESS & KEY, Makers, 95, Newgate Street, E.C.

Illustrated particulars free on application.

F. C. CALVERT'S PHENYLINE (the active principle of coal-tar) is an unfailing remedy for Foot-rot, Distemper, Grease, Glanders, Scab, Mange, &c., and may be obtained of any of the following Agents:—

JOHN BELL & Co., 338, Oxford Street, London; A. PATTISON & Co., 67, Buchanan Street, Glasgow; CLAY & ABRAHAM, Liverpool; J. WOOLLEY, Manchester; HARVEY & REYNOLDS, Leeds; H. BRADEY, Newcastle-on-Tyne; J. REED, Arundel; C. CORTIS, Worthing.

TESTIMONIALS of CUPISS'S CONSTITUTION BALLS, for HORSES and NEAT CATTLE.

From J. HARRIES, Esq., *Llandovery.*

December 12, 1861.

Sir,—I have with much pleasure to recommend your Balls; they proved exceedingly efficacious to a pony of mine, far surpassing every other remedy that was tried—one packet performing a complete cure.—Yours respectfully,

Mr. F. CUPISS. JAMES HARRIES.

Nantmole, November 2, 1860.

Sir,—I have a Mare that was troubled very much with sore eyes; they were much swollen, and at last she could not see at all with one of them. I tried many things externally, but to no purpose. I then gave your Balls a trial, and in less than a week she was completely cured.—I remain, yours respectfully,

JOHN HOWELL.

From Mr. H. HUMPHREY, *Bulkeley Arms Inn, Menai Bridge, North Wales.*

"I have been in the habit of using your Constitution Balls for the last 16 years, and have invariably found them the best remedy for Cough, Influenza, and many other diseases to which the horse is liable. I have also tried them with young horses, and have found them exceedingly beneficial in getting them into condition. Those horses I have not given them to, although getting the same food, were quite the reverse."

From Mr. D. JAMES, *Gilshew, near Narberth, S. Wales.*

"Thanks for your early reply to my last note. I am happy to inform you that I have found (as you expected) the Horse is in very good condition, through the use of your Constitution Balls."

The Balls are prepared by FRANCIS CUPISS, Diss, Norfolk, Author of the Prize Essay on the Diseases of the Liver of the Horse. And may be had of all Patent Medicine Vendors in Packets of 3 Balls. 1s. 9d.; and 6 Balls, 3s. 6d.; or 7 small Packets for 10s. 6d.; or 7 large Packets for 21s. with full directions.

Persons using the Balls may consult the Proprietor gratuitously by enclosing a stamp in a prepaid letter.

FOWLER'S
STEAM PLOUGHING AND CULTIVATING PATENTS.

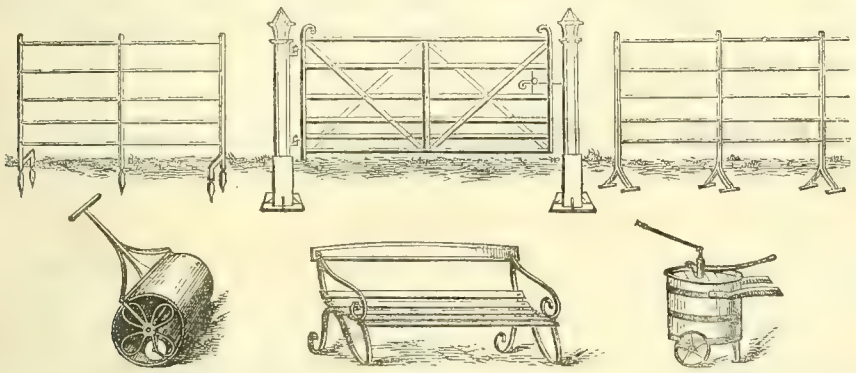
RANSOMES & SIMS, ORWELL WORKS, IPSWICH,

Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

COTTAM'S
CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED, IN VARIOUS STYLES.

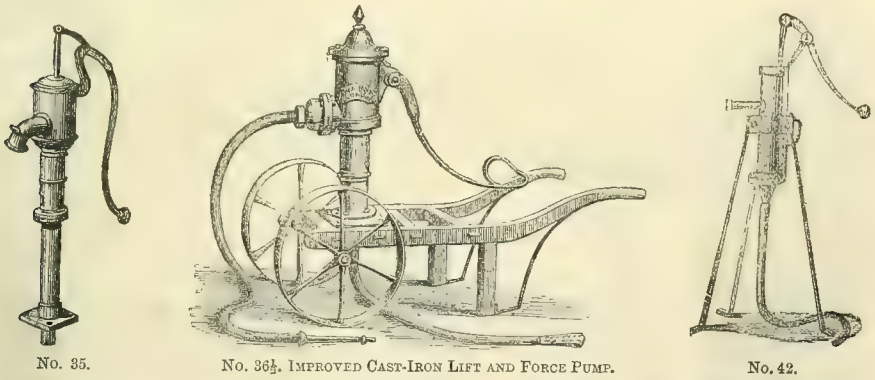


IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes. VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c. The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

Illustrated CATALOGUES and DRAWINGS free on application to
COTTAM & CO., ENGINEERS and IRON FOUNDERS,
2, WINSLEY STREET (OPPOSITE the PANTHEON), OXFORD STREET, LONDON, W.

JOHN WARNER & SONS,
BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... ... £1 1 | 2½ inches ... ... 3 feet 3 inches high £1 10
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0
2½ inches long, ditto ditto 2 14

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1½-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

Glass for Greenhouses.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

ENGLISH GLASS, 16 ounces to the foot, in Sheets averaging 40 by 30, packed in Cases containing about 280 feet, 2¼*d.* and 2½*d.* per foot.

SHEET GLASS, 16 ounces, packed in boxes of 100 feet each.

Package included.	3rds.	4ths.
12 by 9, 13 by 9, 14 by 9, 15 by 9 / 12 „ 10, 13 „ 10, 14 „ 10, 15 „ 10	14*s.* 0*d.*	12*s.* 6*d.*
13 „ 11, 14 „ 11, 15 „ 11, 16 „ 11 / 14 „ 12, 15 „ 12, 16 „ 12, 17 „ 12 / 18 „ 12, 19 „ 12, 20 „ 12, 16 „ 13 / 17 „ 13, 18 „ 13, 19 „ 13, 20 „ 13 / 16 „ 14, 17 „ 14, 18 „ 14, 20 „ 14	16*s.* 0*d.* per 100 feet.	13*s.* 6*d.*

Various other sizes.

GLASS for ORCHARD HOUSES, As supplied by us to Mr. Rivers.

		16 oz.	21 oz.
20 in. by 12 in. / 20 in. by 13 in. / 20 in. by 14 in. / 20 in. by 15 in.	Common	13*s.* 6*d.* ..	£0 18 0
	Superior do.	16 0 ..	1 3 0
	English Glass	18 0 ..	1 9 0

The above prices include the Boxes.

SMALL SHEET SQUARES, IN 100 FEET BOXES.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11*s.* 6*d.*
8 „ 6	8½ „ 6⅔	9 „ 7	9½ „ 7½	
		10 „ 8	10½ „ 8½	12 6

Boxes 2*s.* each, returnable at full price.

SQUARES CUT TO SPECIAL SIZES.

16 oz. 4ths, 1½*d.*, 2*d.*, and 2½*d.* 21 oz. 2½*d.*, 3*d*, and 3½*d.*
„ 3ds, 2*d.*, 2½*d.*, and 3*d.* „ 3*d.*, 3½*d.*, and 4*d.*

London Agents for Hartley's Improved Patent Rough Plate.

Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

Milk Pans, Propagating Glasses, and every description of Glass for Horticultural purposes.

JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, London, E.C.

Glass.

THOMAS MILLINGTON,
HORTICULTURAL WAREHOUSE,
87, Bishopsgate Street Without, London, E.C.
ESTABLISHED 1750.
NEW REDUCED TARIFF.
SMALL SHEET SQUARES.

Best.	2nds.	3rds.	4ths.	
20*s.*	16*s.*	12*s.* 6*d.*	11*s.*	Per 100 feet

6 in. by 4 in.	9½ in. by 7½ in.	14 in. by 10 in.
6½ „ by 4½ „	10 „ by 8 „	15 „ by 10 „
7 „ by 5 „	11 „ by 9 „	12 „ by 11 „
7½ „ by 5½ „	12 „ by 9 „	13 „ by 11 „
8 „ by 6 „	13 „ by 9 „	13½ „ by 11½ „
8½ „ by 6½ „	12 „ by 10 „	
9 „ by 7 „	13 „ by 10 „	

Best.	2nds	3rds.	4ths.	
23*s.*	18*s.* 6*d.*	14*s.* 6*d.*	12*s.* 8*d.*	Per 100 feet

15 in. by 11 in.	16 in. by 12 in.	24 in. by 14 in.
16 „ by 11 „	17 „ by 12 „	22 „ by 15 „
17 „ by 11 „	18 „ by 12 „	24 „ by 15 „
18 „ by 11 „	22 „ by 12 „	20 „ by 16 „
13 „ by 12 „	17 „ by 13 „	20 „ by 17 „
14 „ by 12 „	23 „ by 13 „	20 „ by 18 „
15 „ by 12 „	22 „ by 14 „	

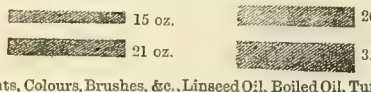
ORCHARD-HOUSE SIZES, as supplied to Mr. Rivers & others.

Best.	2nds.	3rds.	4ths.	
16 oz. 22*s.* 0*d.*	18*s.*	15*s.* 0*d.*	12*s.* 6*d.*	Per 100 feet
21 oz. 33 6	28	21 6	17 0	

20 in. by 12 in. | 20 in. by 13 in. | 20 in. by 14 in. | 20 in. by 15 in.

GLASS, cut according to size not on the List.
16 oz. 4ths. 1¼*d.* 2*d.* and 2½*d.* per foot.
„ 3rds. 2½*d.* 2¾*d.* and 3*d.* „
21 oz. 4ths. 2¾*d.* 3*d.* and 3½*d.* „
„ 3rds. 3½*d.* 4*d.* and 4½*d.* „

Various thicknesses of Sheet Glass to the foot.



Paints, Colours, Brushes, &c., Linseed Oil, Boiled Oil, Turpentine
Genuine White Lead, 22*s.* p. cwt | Linseed Oil Putty, 8*s.* per cwt.
Anticorrosion Paint, 34*s.* „ | Patent Dryers, 28*s.* to 42*s.* „
CRYSTAL GLASS SHADES. EBONY and GILT STANDS.
HARTLEY'S IMPROVED PATENT ROUGH PLATE.
**** Not accountable for breakage.
SHEET LEAD, PIPE, &c., at the lowest wholesale prices.

AGRICULTURAL and HORTICULTURAL TOOLS.—Threshing Machines for Steam and Horse Power, Ploughs, Waggons, Carts, Turnip Cutters, Cake Breakers, Chaff Cutters, &c. Price List free. Illustrated Catalogues on receipt of six postage stamps.
BURGESS & KEY, 95, Newgate Street, E.C.
Works: Brentwood, Essex.

AMERICAN PORTABLE FIRE ANNIHILATOR and GARDEN ENGINE.



£2 2*s.*

An efficient means of Extinguishing Fires at their commencement. Nine out of ten Fires in London are put out on their first appearance by the London Fire Brigade with Hand Pumps of considerably less power.

One man will throw 7 or 8 gallons per minute from 40 to 50 feet with it.

It is an effective Garden Engine for cleansing or syringing Wall-fruit or Rose Trees, Plants, or Vines.

It may be used to draw water from the pail in which it is fixed, or from a tank or pond by the addition of the required length of suction. It is simple in its construction, having no suction or delivery valves to clog with dirt or leaves.

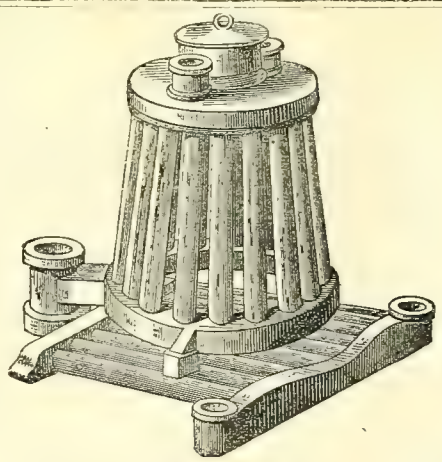
No Establishment, either private, commercial, or manufacturing, should be without one.

Six feet of Flexible Suction, with Union and Suction Rose, &c., extra, 12*s.* Longer lengths of Suction at 1*s.* 6*d.* per foot.

May be obtained of all Ironmongers and Seedsmen in Town and Country, or of the Manufacturers,
JOHN WARNER & SONS, 6, Crescent, Cripplegate, London, E.C.



FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the INTERNATIONAL EXHIBITION.





FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER
At the INTERNATIONAL EXHIBITION.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

HAS TAKEN MORE AWARDS THIS YEAR THAN ANY OTHER TUBULAR BOILER.

These Awards have been given by Scientific, Practical, and Competent Judges.

At the Exhibition of Boilers at the Royal Horticultural Society's Gardens, ORMSON'S PATENT JOINTLESS TUBULAR BOILER was the ONLY Boiler of any description to which an Award was given.

Other Tubular Boilers advertised in the pages of the *Gardeners' Chronicle* were exhibited to which NO Awards were given.

HORTICULTURAL BUILDINGS of every description MANUFACTURED by STEAM-POWER MACHINERY.

Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES, AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

THE HYDROPULT,

THE HYDROPULT
IS INVALUABLE FOR

WATERING GARDENS,

EXTINGUISHING FIRE JUST COMMENCED,

PROTECTING a ROOF from FIRE,

CLEANSING TREES from INSECTS,

DRESSING with LIQUID MANURE,

SPRINKLING PLANTS,

WASHING WINDOWS,

WETTING SIDEWALKS,

SPRINKLING STREETS,

WASHING CARRIAGES,

WETTING SAILS,

A SPRAY BATH,

&c. &c.



Price
Two Guineas.

CAUTION.—Unprincipled parties are now palming on the public an infringement of the Hydropult Patent. This is to notify, that said pirates and all persons using or vending this article will, in due time, be prosecuted. No machine contained in a bucket is the Hydropult. Every Hydropult has a Trade Label affixed, as follows:—

"The Hydropult, a Portable Fire Annihilator and Garden Engine.
"GRIFFITH & BROWETT,
Manufacturers, Birmingham;
"CHARLES P. BUTTON,
General Agent.
"VOSE'S Patent;"

and is sold at the uniform rate of Two Guineas, complete, with 2½ feet Suction and 3-feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Fire Jet.

It is an easy matter to imitate the Hydropult in appearance, and thereby deceive the public; therefore this caution.

The Hydropult WEIGHS BUT 8 LB.; will throw 7 or 8 Gallons of Water per minute 50 FEET when worked by the power of one man.

Has been recommended as an efficient FIRE ENGINE by the principal FIRE INSURANCE COMPANIES of GREAT BRITAIN. Thomas Rivers, Esq., the eminent Florist; Shirley Hibberd, Esq., and other well known gentlemen, recommend it as an invaluable GARDEN IMPLEMENT. J. Spencer, Esq., Inspector of the Royal Society for the Protection of Life from Fire, certifies to its efficiency in saving valuable Property in Bayswater from destruction. The City and Provincial Press accord to the invention the utmost praise. All who purchase the Hydropult are satisfied with its action; each Machine guaranteed to be perfect.

A PORTABLE GARDEN ENGINE, AND FIRE ANNIHILATOR.

Prospectus, with Testimonials, on application at either Office.

HYDROPULT OFFICE: 27, LEADENHALL STREET, LONDON, E.C.; and 309, REGENT STREET, POLYTECHNIC BUILDING, LONDON, W.—CHARLES P. BUTTON, PROPRIETOR.

West of England, Ireland, and Wales.



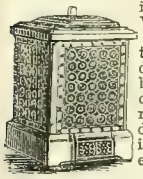
VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER. HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.



VINCENT SKINNER, Bridewell Street, Bristol.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.—This Stove is the nearest approach to Warming by Hot Water, and an efficient aid in Ventilation.



It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for Small Conservatories, with a vapour chamber, which maintains a moist atmosphere for 12 hours with once filling.

Particulars and prices post free on application to MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

Hothouses for the Million.—AWARDED A PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner, all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to SAMUEL HEREMAN, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1*s.*; post free, 1*s.* 1*d.*

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

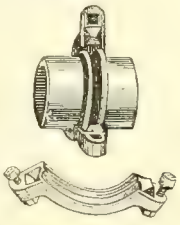
Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS





Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

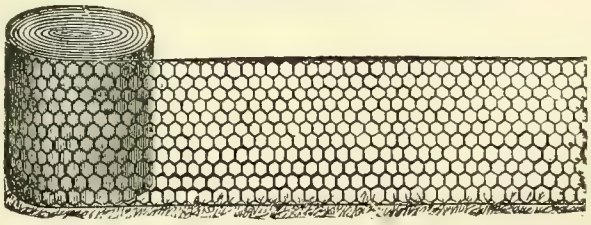
By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

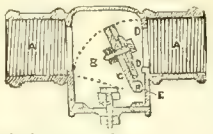
PRICES PER LINEAL YARD, 24 INCHES HIGH:—

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2½ inch	Hares, Dogs, Poultry	3*d.*	4*d.*	3¾*d.*	5*d.*	4½*d.*	6*d.*	5½*d.*	7*d.*
2 inch	Game or Poultry Netting	3½*d.*	4½*d.*	4*d.*	5*d.*	5*d.*	6½*d.*	6½*d.*	8*d.*
1⅝ inch	Small Rabbits, Hares, &c.	4*d.*	4¾*d.*	4¾*d.*	6*d.*	5½*d.*	7*d.*	7*d.*	9*d.*
1½ inch	Smallest Rabbits.....	5*d.*	6*d.*	5¾*d.*	7*d.*	7*d.*	9*d.*	9*d.*	11*d.*

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN & CO., 18, CANNON STREET, CITY, LONDON, E.C.

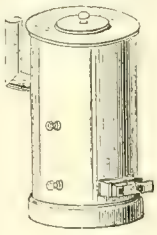


T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough, has recently patented a VALVE which is unequalled for its efficiency, simplicity, durability, and cheapness. Prices as under.

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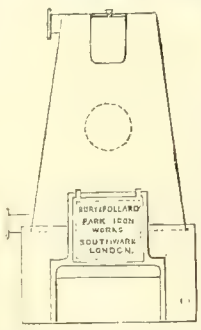
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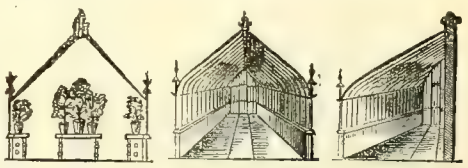
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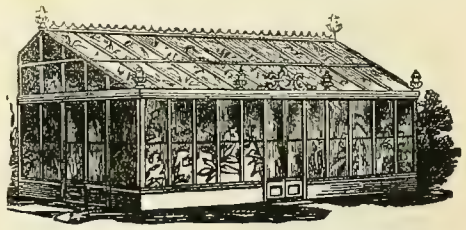


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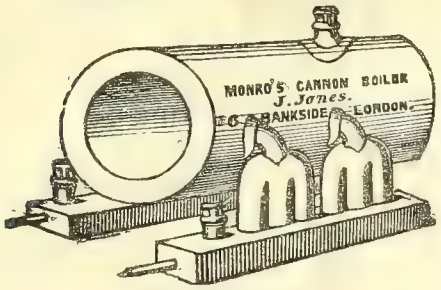
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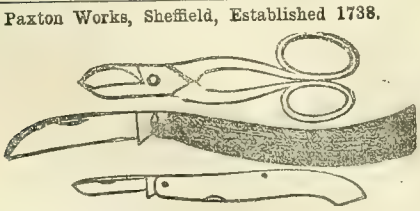
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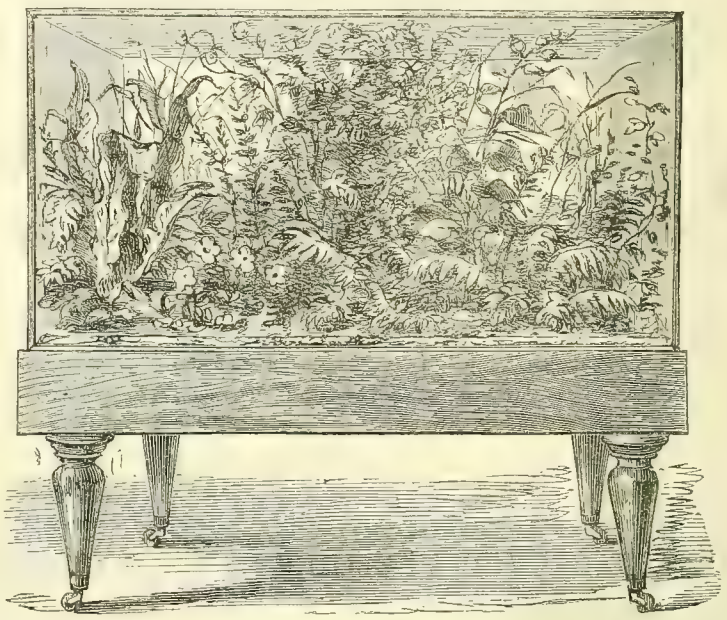
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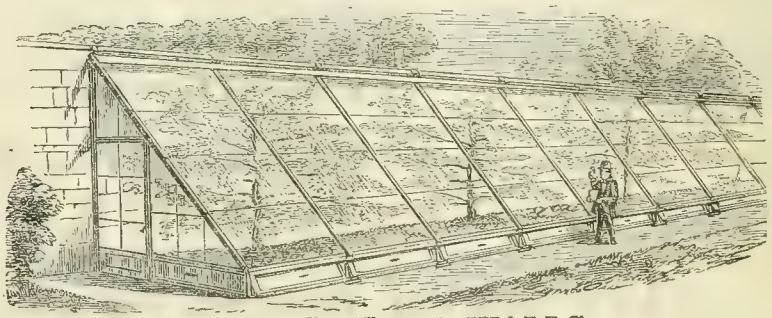
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On View the Morning of Sale and Catalogues had.

Choice Collection of Standard Roses, &c.

MR. ARTHUR PLEWS will SELL by AUCTION, at the Auction Mart, on FRIDAY, February 6, at 12 o'Clock, a splendid assortment of 600 STANDARD and other ROSES, choice ORNAMENTAL SHRUBS, Trained FRUIT TREES, &c.
May be viewed the Morning of Sale. Catalogues may be had at the Mart; and of Mr. ARTHUR PLEWS, Auctioneer and Valuer, 50, Chancery Lane, E.C.; and New Malden, Surrey.

Beneficial Lease and Immediate Possession of a Nursery Ground, at Maida Hill,

WITH RESIDENCE, STOCK IN TRADE, &c.

MR. ALFRED COX will SELL by AUCTION (if not previously disposed of by Private Contract), on the Premises, 10, Clarendon Place, on the high Edgware Road, on WEDNESDAY, February 11, in One Lot, the LEASE of the excellent DWELLING HOUSE, NURSERY GROUND, and PREMISES, with Hothouses, Greenhouse, Pit Lights, and thousands of Geraniums and other Plants in Pots; Fixtures, Furniture, &c., lately occupied by James Wood, near Henderson's. Held for about 9½ years unexpired, at a rent of 60l. per annum.
Auctioneer's Offices, 64, New Bond Street, W.

Bickley, Kent.

IMPORTANT SALE OF FRUIT AND OTHER TREES, &c.

MR. NORTON will SELL by AUCTION, on SATURDAY, February 7, at 12 o'Clock, on the Southlands Estate, adjoining the Bickley Station, a large quantity of STANDARD and other APPLES, CHERRIES, PEARS and PLUMS, PEACHES and APRICOTS; Cob Nuts and Standard Damson Trees; Gooseberries, Currants, Raspberries, and Strawberry Plants; Large Ornamental Trees and Shrubs, Worked Elms, Thorns and Chesnuts, fine transplanted Beech and Privet for hedges; 20,000 of three-year old Quick, large quantity of Spruce Firs, from 6 to 8 feet; fine specimens of Abies Smithiana, Cedrus Deodara, Wellingtonia gigantea, Acacia, Cryptomeria japonica, Arbor-vitæ, Fan Yews, Portugal and Common Laurels, Ribes, Deutzias, Silver Firs, Standard Roses, &c. The whole are handsome and clean grown stuff, removed from one of the first nurseries in Kent in consequence of the land being required for building purposes.
Catalogues to be had of Mr. JAMES MORRIS, Seedsman, Bromley; the Railway Stations, Bickley and Bromley; and at the Refreshment Rooms, London Bridge; also of the Auctioneer, at time and place of Sale.

PARADISE AND VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

CHOICE VEGETABLE AND FLOWER SEEDS.

BENJAMIN S. WILLIAMS

BEGS RESPECTFULLY TO ANNOUNCE THAT HIS

PRICED AND DESCRIPTIVE SEED CATALOGUE FOR 1863

Is now ready, and will be forwarded Post Free to all applicants. It contains SELECT LISTS of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, CHOICE GLADIOLI, &c., including all the NOVELTIES of the season, and Suggestions for the Guidance of Amateur Cultivators.

The following Seeds, of which descriptions will be found in Catalogue, are specially recommended.

Vegetable Seeds.

	Per quart.—s.	d.
PEAS.—Advancer, a new dwarf wrinkled Marrow, of fine flavour, the earliest and best of its class, 2 feet	5	0
,, Princess Royal, a distinct new large white variety, producing an abundance of very large well filled pods, 2½ feet	3	6
,, Prince of Wales, the most prolific white wrinkled Pea in cultivation, producing pods from near the roots to the top, as early as Scimetar, 4 feet	3	6
,, Perfection (Veitch's), pods long, producing seven to eight very large Peas in each, excellent flavour, abundant bearer	1	6
,, Sangster's No. 1, Champion of England, & British Queen	1	0
,, Early Favourite, Blue Scimetar, and Auvergne	0	10
BEANS.—The best varieties	6d.	8
,, French, the best varieties	1	3
,, Scarlet Runners	1	0
BEET.—Compact Topped Pine Apple per oz.	0	6
,, Dwarf Red (Nutting's) ,,	0	6
BORECOLE.—Curled Variegated (Melville's) ,,	0	6
,, Cottagers' Kale ,,	0	4
,, Dwarf or Tall Green Curled ,,	0	3
BROCCOLI.—Champion of England ,,	1	0
,, Dalmeney Park (Melville's) ,,	1	0
,, New White Sprouting (Lee's) ,,	1	6
,, Walcheren ,,	2	0
,, Winter White (Snow's) ,,	1	3
,, White Cape (Grange's) ,,		
BRUSSELS SPROUTS.—Imported, Improved Dwarf, Roseberry per oz.	0	6
CABBAGE.—The best varieties per oz. 4d.	0	6
,, Fearnought (Melville's), new early dwarf variety per pkt.	1	0
CAULIFLOWER.—Early London per oz.	1	3
,, New Early Mammoth per pkt.	1	0
CELERY.—Matchless Red (Williams's), a new and very superior variety. From testimonials received it is unquestionably the finest red Celery in cultivation per pkt.	2	0
,, White Perfection (Cole's), a new and very superior variety per pkt.	1	0
CUCUMBERS.—Dr. Livingstone, Empress Eugenie, Long Gun, Market Favourite (Hamilton's), Manchester Prize, Phenomenon, Newton Hero, Telegraph, &c. per pkt.	1	0
LETTUCE, CABBAGE.—Hammersmith Hardy Green, Large Versailles, Victoria, &c. per oz.	0	6
LETTUCE, COS.—Alma, very large, solid, and crisp ,,	1	0
,, Moor Park, very large and crisp; the best variety in cultivation per oz.	1	0
MELONS.—The best varieties per pkt.	1	0
ONIONS.—The best varieties per oz. 6d.	0	8
PARSLEY.—Myatt's Garnishing, extra fine curled per oz.	0	3
PARSNIP.—Hollow crowned	0	3
,, The Student per pkt. 6d.	1	0
SPINACH.—Winter or Summer per quart	0	8
TURNIP.—The best varieties per oz.	0	3

Potatoes.

ASHLEAF KIDNEY per peck of 14 lb.	2	6
MYATT'S EARLY ASHLEAF ,,	2	6
DALMAHOY ,,	2	0
EARLY OXFORD ,,	2	6
YORKSHIRE REGENTS ,,	1	4

*** A reduction will be made on the above prices, when large quantities are taken.

Complete Collections of Kitchen Garden Seeds.

For One Year's Supply, to suit Gardens of various sizes, at 10s. 6d., 20s., 40s., 60s., and 80s. each.
Comprising none but the most useful and approved sorts. Particulars and quantities will be found in CATALOGUE.

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*** The whole of the following are purchased of and received direct from the most celebrated cultivators, and may be relied upon as being the very finest qualities of their several kinds, and equal to the best samples supplied in previous years.

	s.	d.
ANTIRRHINUMS.—An assortment of 10 new and finest varieties	3	0
ASTER.—Cocardeau or Crown. An assortment of 4 vars.	1	0
,, Dwarf Chrysanthemum-flowered. An assortment of 12 varieties	2	6
,, Dwarf Pyramidal Bouquet. An assortment of 12 vars.	2	0
,, Truffaut's Pæony-flowered Perfection. An assortment of 12 varieties	2	0
,, New Large Flowering Dwarf Pæony. This beautiful novelty is offered for the first time. It is half the height of Truffaut's Aster. An assortment of 6 vars.	5	0
,, New Giant Emperor. An assortment of 10 varieties	4	0
,, Double Quilled German. An assortment of 18 varieties	2	6
,, ,, ,, 12 ,,	1	6
,, ,, ,, Ranunculus-flowered. ,, 4 ,,	1	0
BALSAMS.—Double Camellia-flowered (Smith's). An assortment of 9 varieties	2	6
,, Double Rose-flowered. The same as the French Camellias or Andrieux. An assortment of 12 varieties	3	0
,, Camellia Rose-flowered. An assortment of 6 varieties	2	0

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CONVOLVULUS MAJOR.—An assortment of 10 varieties	1	6
HELICHRYSUMS.—An assortment of 8 varieties	2	0
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LARKSPUR.—Double Dwarf Hyacinth-flowered. An assortment of 10 varieties	2	0
,, Double, tall. An assortment of 8 varieties	1	6
MARIGOLDS.—Double French and African. An assortment of 10 varieties	1	6
MARVEL of PERU.—An assortment of 10 varieties	1	6
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,, ,, In 12 minature varieties	2	6
ORNAMENTAL GRASSES.—In 12 annual kinds	2	0
PELARGONIUMS.—An assortment of 12 distinct fancy varieties by name	6	0
,, Ditto 12 distinct spotted fancy varieties, by name	6	0
,, Ditto 12 large-flowered show varieties, by name	6	0
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POPPIES.—Double Pæony-flowered, ditto 8 varieties	1	0
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SCABIOUS, SWEET.—An assortment of 6 varieties	1	0
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,, Brompton.—An assortment of 8 varieties	1	6
,, Cocardeau Biennial.—An assortment of 4 varieties	1	0
,, Emperor or Perpetual.—An assortment of 8 varieties	2	0
,, Dwarf German Ten Week.—An assortment of 24 vars.	4	0
,, Ditto, an assortment of 12 varieties	2	0
,, Ditto, new hybrid, foliage between rough and Wallflower-leaved.—An assortment of 6 varieties	1	6
,, New Dwarf Bouquet.—An assortment of 4 varieties	1	0
SWEET PEAS.—An assortment of 8 varieties	1	9
THUNBERGIAS.—An assortment of 6 varieties	2	0
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The following are saved from one of the finest collections in Europe, and are recommended with the greatest confidence. They are very robust in growth, and most profuse bloomers.

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YELLOW CARNATIONS.—An assortment of 12 superb varieties of Self, Flake, Bizarre, or Fancy	3	6
PERPETUAL or TREE CARNATIONS.—An assortment of 12 superb varieties of Self, Flake, Bizarre, or Fancy	3	6
PICOTEES.—An assortment of 12 superb varieties. White ground	3	6
,, An assortment of 12 superb varieties. Yellow ground	3	6
,, ,, 12 ,, Perpetual or Tree	3	6

Choice Flower Seeds, in packets.

B. S. W. has much pleasure in submitting the following List of NEW and CHOICE SEEDS, which are specially recommended for their beauty and superior qualities, many of which are offered for the first time.

	Per pckt.—s.	d.
ALYSSUM SAXATILE COMPACTUM	1	0
AMARANTHUS MELANCHOLICUS RUBER.—One of the most interesting plants for bedding purposes yet introduced	1s. 1	6
AMARANTHUS TRICOLOR SPLENDIDISSIMUS	0	4
AMARYLLIS.—Seed selected with great care from a very large and choice collection	2	6
AQUILEGIA VULGARIS CARYOPHYLLOIDES.—A very pretty and distinct variety of Columbine	0	6
ASTER VICTORIA.—The most elegant Aster in cultivation	1	6
,, NEWEST DWARF PYRAMIDAL.—These new Pyramidal Asters are nearly 1 foot high, azure blue	0	6
,, Ditto, azure blue and white	0	6
,, PÆONY-FLOWERED (extra Double).—This variety is entitled to strong recommendation, blooming at least a fortnight earlier than Truffaut's. It may be correctly described as the earliest of Asters. Snow white	1	0
,, Ditto, brilliant rose	1	0
,, WHITE CHRYSANTHEMUM-FLOWERING.—This beautiful dwarf variety of Aster is offered for the first time. Flowers pure white	1	0
BIDENS ATROSANGUINEA (Cosmos diversifolia)	1	0
BALSAM, CAMELLIA-FLOWERED, very choice, 6d.	1	0
,, ROSE-FLOWERED, very choice 6d.	1	0
CALCEOLARIA, HERBACEOUS.—Seed saved from carefully selected plants, and the finest formed flowers 1s. 6d.	2	6
CALLIOPSIS CARDAMINEFOLIA HYBRIDA ATROSANGUINEA	0	6
CELOSIA AUREA.—A very distinct and beautiful species	1	0
,, BEAUFLEUR.—A superb hybrid between C. pyramidalis and C. argentea	2	6
CELOSIA CRISTATA (Coccinea)	1	0
,, (Dwarf Cockscomb).—A very superior variety	1	0
,, SPICATA ROSEA	1	0
CINERARIA CRUENTA.—Seeds saved from a collection of prize flowers 1s. 6d.	2	6
CLIANTHUS DAMPIERII.—Well ripened seeds, saved in England	2	6

Choice Flower Seeds, in packets.

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CLARKIA INTEGRIPETALA MARGINATA.—Figured in the "Floral Magazine" of November	1	0
,, INTEGRIPETALA ALBA	1	0
,, ,, NANA	1	0
,, PULCHELLA FLORE PLENO	1	0
,, ,, CARNEA	0	6
CYCLANTHERA EXPLODENS (ELASTICA).—A very interesting novelty, the fruit of which explodes	0	6
CONVOLVULUS CANTABRICUS STELLATUS NOVUS	0	6
DIANTHUS BARBATUS AURICULÆFLORUS.—An improved variety of Sweet William	0	6
,, CHINENSIS HEDDEWIGII FLORE PLENO	0	6
,, ,, ,, HYBRIDUS FLORE PLENO	1	0
,, ,, ,, IMPERIALIS HYBRIDUS	0	6
,, ,, ,, LACINIATUS FLORE PLENO	0	6
,, ,, NANUS ATROSANGUINEUS	0	6
GLOXINIA TUBIFLORA.—The fragrance of this beautiful variety is most powerful and exquisite, a single plant being sufficient to perfume a whole greenhouse	2	6
GODETIA, THE BRIDE.—A charming addition to this beautiful tribe	1	0
HELIANTHUS ARGOPHYLLUS STRIATIFLORUS FLORE PLENO	1	0
,, MACROPHYLLUS GIGANTEUS.—This gigantic species reaches, with good manuring and frequent watering, the height of 19 feet, and sometimes even more. It produces one single flower, and reaches the enormous size of 13 inches (Prussian measure)	1	0
HOVEA CELSII	1	6
IPOMŒA CŒLESTINA GRANDIFLORA, a novel and exquisite variety	1	0
LOBELIA ALBA SANGUINEA.—A very pretty variety, with dark red flowers tipped with white	1	0
,, ERINUS SPECIOSA HYBRIDA.—Flowers dark blue, with large white centre. An improved variety and the best of the dwarf varieties for bedding purposes	0	6
,, ERINUS COMPACTA ALBA.—Flowers pure white	1	0
,, FULGENS MULTIFLORA.—Flowers deep scarlet	0	6
,, TRIGONICAULIS	0	6
LYCHNIS HAAGEANA	0	6
MAURANDYA ANTIRRHINIFLORA NOVA GRANDIFLORA.—A very pretty miniature variety, with violet coloured flowers	1	0
MEDICAGO LITTORALIS.—A fine bedding plant with silvery foliage, producing handsome yellow flowers	1	0
MIMULUS CUPREUS	1	6
NEMOPHILA DISCOIDALIS ELEGANS.—Figured in the "Floral Magazine," June, 1862	1	0
,, ATOMARIA OCULATA	1	0
NICOTIANA SUAVEOLENS.—Flowers white and very fragrant	0	6
ŒNOTHERA CINNABARINA	0	6
,, LAMARCKIANA	0	6
,, MEXICANA ROSEA	1	6
PHACA BÆTICA	1	6
PHLOX DRUMMONDII PRINCESS ALEXANDRA.—Flowers a splendid scarlet, with black centre	2	6
,, ,, TWILIGHT.—Flowers rich violet with black centre	2	6
,, ,, RADOWITZI KERMESINA STRIATA	0	6
PLANTAGO PURPUREA	0	4
PORTULACCA GRANDIFLORA FLORE PLENO (Double Portulacca Roses).—Mixed seed, consisting of the finest double varieties, of the most brilliant colours in scarlet, crimson, yellow-striped, &c.; will produce two-thirds double flowers, measuring from half to three-quarters of an inch in diameter. The raiser declares them to be one of the most brilliant and useful of acquisitions	2	6
PRIMULA (Red and White Fringed).—Very choice seed. Numerous letters have been received bearing testimony to its superior quality, and it has been proved that this seed will produce 90 per cent. of the finest fimbriated flowers 2s.	3	6
RHODANTHE MACULATA.—This beautiful variety received First-class Certificates at the Royal Horticultural and Royal Botanic Society's meetings 1s.	1	6
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,, ROSEUS SUPERBUS	1	0
SAPONARIA CALABRICA MARGINATA	1	0
,, ,, ALBA	0	4
SENECIO ELEGANS FLORE PLENO (Magenta)	1	0
SOLANUM CAPSICASTRUM	0	4
,, PSEUDO CAPSICUM	0	4
,, PRINCESS BEATRICE.—Fruit the size of a Cherry, and of a beautiful light vermilion colour	2	6
,, TEXANUM, a distinct, novel, and handsome species	0	4
TAGETES SIGNATA PUMILA	0	6
TROPÆOLUM, CRYSTAL PALACE GEM	0	6
,, LOBBI GLORY	1	0
,, TOM THUMB, White	1	0
VINCA ROSEA, NOVA SPECIES	1	6
VIOLA TRICOLOR HYBRIDA.—Saved from a selection of the best named varieties of Garden Pansy 6d.,	1	0
VISCARIA OCULATA HYBRIDA (SPLENDENS).—A splendid novelty, deserving extensive cultivation	1	0
ZINNIA ELEGANS FLORE PLENO.—Very choice	0	6

PARADISE NURSERY, SEVEN SISTERS and HORNSEY ROADS, HOLLOWAY;
VICTORIA NURSERY (NEAR THE ARCHWAY TAVERN), UPPER HOLLOWAY, LONDON, N.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 6.—1863.] SATURDAY, FEBRUARY 7. {Price Fivepence. {Stamped Edition, 6*d*.

INDEX.

Astro-meteorology	133 *b*	Malt tax	132 *c*
Barking trees	126 *b*	Mildness of the season	126 *a*
Classification of Dahlias	124 *a*	Mosses	126 *b*
Botanical gardens, colonial	126 *b*	Poisonous milk	126 *b*
Conifers	126 *a*	Potato disease	131 *b*
Crocuses in water	124 *a*	Premises, useless	125 *c*
Dairy statistics	129 *c*	Remy's Essai d'une nouvelle Classification de la Famille des Graminées, rev.	127 *b*
Dies Orchidianæ	124 *c*	Royal Hort. Society's Garden	127 *c*
Diseased stock	131 *a*	Salsafy	126 *b*
Farm, Northumberland	133 *a*	Seeding, thin	130 *c*
Farmers' Clubs, London	132 *c*	Short horns	131 *a*
Foreign correspondence	126 *c*	Society, Royal Agricultural	131 *c*
Fuchsias	126 *c*	— Imp. of Ireland	132 *b*
Garden decoration	124 *b*	Sparrow murder	131 *c*
Garden law, No. I	125 *c*	Steam culture, cost of	130 *a*
Gases	123 *c*	Stock, diseased	131 *a*
Grape growing in Norfolk	125 *c*	Stone breakers	131 *b*
Grapes	126 *b*	Strelitzia Nicolai	126 *a*
Guano, Flat Island	131 *c*	Winter flower gardening	125 *b*
Japan Flax	126 *c*		
Late v. early Grapes	126 *c*		

ROYAL HORTICULTURAL SOCIETY.—The ANNUAL MEETING of this Society for the Election of Council, Officers, Auditors, and Expenses Committee-men for the ensuing year will be held in the Council Room, at the Garden, South Kensington, on TUESDAY, February 10. The Chair to be taken at One o'clock, p.m., precisely.
Feb. 2, 1863. ANDREW MURRAY, Assistant Secretary.

ROYAL HORTICULTURAL SOCIETY. Exhibitions of HYACINTHS and other SPRING FLOWERS, WEDNESDAY, February 25.
Fellows and Cards Free; Friends, 2*s*. 6*d*. each.

ROYAL BOTANIC SOCIETY of LONDON, REGENT'S PARK, N.W.
EXHIBITIONS of SPRING FLOWERS.
SATURDAY, March 28th, CAMELLIAS, PRIMROSES, &c
" April 11th, AZALEAS, HYACINTHS, &c.
" April 25th, ROSES, PELARGONIUMS, &c.
The Band will play from half-past 2 to half-past 5. Visitors admitted by Tickets, to be had at the Gardens, by orders from Fellows and Members of the Society. Price 2*s*. 6*d*. each, or in packets of 10 for 1*l*. per packet.

CRYSTAL PALACE FLOWER SHOW.—The ANNUAL SHOW of FLOWERS and FRUIT will be held on SATURDAY, May 23.

FIFTH YEAR of the GRAND FLORAL FÊTE at YORK, WEDNESDAY and THURSDAY, June 10 & 11. PRIZES, nearly Three Hundred and Fifty Pounds.
Schedules and Forms of Entry will be ready in a few days, and may be had on application to JOHN WILSON, Secretary.
Committee Room, 13, New Street, York.

Grape Vines.

J. IVERY AND SON beg to inform their Patrons that their stock of the above is unusually fine this season. A PRICED LIST now ready.
Dorking Nursery.

Grape Vines.

TO BE SOLD, Cheap, 1800 close-jointed vigorous Plants, with Canes 6 to 12 feet long, all struck from Eyes last spring.
Apply to the GARDENER, at J. Lewis's Horticultural Works, Stamford Hill, Middlesex, N.

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JAMES CRAWFORD begs to offer a very fine stock of GRAPE VINES, at low prices.

VINES, VINES.—Extra Strong Canes, for Fruiting in pots this season, price 8*s*. 6*d*. each, for Sale by JAS. GARAWAY & CO., Durdham Down Nurseries, Bristol.

Pine Plants.

T. PAPE can supply PROVIDENCE RIPLEY QUEEN and MONTSERRAT PINE PLANTS, clean, all sizes.
T. PAPE, Undercliffe Gardens, Bradford, Yorkshire.

Pine Plants.

TO BE DISPOSED OF, by a gentleman leaving for town and giving up his House, &c., about 100 good healthy PINE PLANTS, this and last year's growth.
Apply by letter to Mr. F. STEAD, 23, Jarratt Street, Hull.

Surplus Stock of Dwarf, Maiden, Royal George, and Noblesse Peaches.

WM. WOOD AND SON are desirous of offering the above on advantageous terms.
Address, Nurseries, Maresfield, Uckfield, Sussex.

WEBB'S PRIZE COB FILBERTS, and other COB NUTS as exhibited at the INTERNATIONAL FRUIT and FLOWER SHOW, Kensington. Trees of these splendid varieties of Filberts may be had by application to RICHARD WEBB, Calcot Gardens, Reading.

Chinese Herbaceous Pæonies.

JOHN SALTER begs to announce that he can furnish good Plants of all the best varieties of these noble flowers; this being the season for planting.
Versailles Nursery, William Street, Hammersmith Turnpike.

TO BE SOLD cheap, 100 PINUS EXCELSA (Himalaya Pine), 7 to 8 feet, with good balls. Would make a fine avenue.
R. FENNESSY & SON, Waterford Nursery.

CHEAP GRASS SEEDS for HILL SIDES and RAILWAY BANKS.—Rough Grasses, Sainfoin Siftings, &c., suitable for the above purpose, at 2*s*. per bushel and 3*d*. per lb.
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Best Seeds, Carriage Free.

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GEORGE GIBBS AND CO., SEEDSMEN, 26, Down Street, Piccadilly, London, W.

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H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbeach.
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B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N.
A PRICED and DESCRIPTIVE CATALOGUE post free to all applicants.

Choice Kitchen Garden Seeds.

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CHOICE GLADIOLI.
A DESCRIPTIVE CATALOGUE on application.
B. S. WILLIAMS,
Paradise and Victoria Nurseries, Holloway, London, N.

DOUBLE ITALIAN TUBEROSES, 3*s*. per dozen.
Just arrived.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

TROPÆOLUM LOBBIANUM ELEGANS (Crystal Palace Scarlet), Seed scarce.
Per packet, 1*s*. and 2*s*. 6*d*.
BUTLER & M'CULLOCH, Seed Merchants, Covent Garden Market.

GENISTAS (CYTISUS FRAGRANS), in 48's; and ERICAS, in small 60's. Price to the Trade on application.
S. W. TALBOT, Waltham Abbey, N.

New Garden Seeds of our own Growth.

JAMES CARTER AND CO. are now prepared to execute orders for the above, saved at their Seed Farms.
237, 238, & 261, High Holborn, W.C.

CARTER'S SELECT LIST of New and Choice VEGETABLE, FLOWER SEEDS and PLANTS is now published, gratis and post free.
237, 238, & 261, High Holborn, London, W.C.

Seeds.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE, of the best Varieties only, is now ready. It also contains several Novelties.
The Royal Nurseries, Slough.

Cheap and Genuine Vegetable Seeds.—See

B. S. WILLIAMS'S Advertisement on last page of *Gardeners' Chronicle*, Jan. 31.
Paradise and Victoria Nurseries, Holloway, London, N.
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Choice Flower Seeds and Novelties.—See

B. S. WILLIAMS'S Advertisement on last page of *Gardeners' Chronicle*, Jan. 31.
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*** PRICED and DESCRIPTIVE CATALOGUE post free on application.

Plymouth Seed Company, Plymouth.

THE GENERAL PRICE CURRENT and the SPRING FARM SEED LIST are now ready, and may be had gratis on application.
See General Advertisement Page.

GARDEN SEEDS and FLOWER SEEDS of the finest and most rare varieties, at the lowest prices at which they can be delivered, carriage free, are quoted in WHEELER'S "Little Book" for 1863.
J. C. WHEELER & SON, Seed Growers, Gloucester.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

Roses.

WM. PAUL (Son and Successor to the late A. PAUL) has still a fine stock of ROSES, NEW and OLD, Standards, Dwarf Standards, and Dwarfs.
Plants good and prices moderate.
Nurseries and Seed Warehouse, Waltham Cross, N.

Rose Nurseries, Hertford.

E. P. FRANCIS offers DWARF HYBRID PERPETUAL ROSES, strong and vigorous on Manetti Stock, at reduced prices, for LIST of which see *Gardeners' Chronicle*, January 24, 1863.

Standard Roses.

WILLIAM EPPS, JUN., can supply fine STANDARD ROSES, at 5*l*. per 100; 15*s*. per doz.
The Nurseries, Ashford, Kent.

Roses, Gladiolus, Fruit Trees.

R. M. STARK respectfully solicits an inspection of his Stock, especially of the articles noted above, which he offers at moderate prices. DESCRIPTIVE CATALOGUES on application.
Edgehill Nursery, Edinburgh—Feb. 7.

FOR SALE, a few Thousand first-rate MANETTI STOCKS. For price, apply W. C. LAY, London Road Nursery, Newbury, Berks.

POLYANTHUS SEED from the best Laced Florists' Flowers, in packets, sent free on receipt of 18 postage stamps.
JAMES WOODS, Florist, Harwich, Essex.

Cheap and Select Hardy Nursery Stock.

WM. JACKSON AND CO., Bedale, Yorkshire, beg to refer to their advertisement of the above in the *Gardeners' Chronicle*, page 96, January 31.

SEEDS, SEEDS.—The above, pure from the Seed field, cheap and warranted. For cheap COLLECTIONS, see LIST, free on application.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

RHODODENDRONS of all sorts and sizes may be obtained in any quantity of W. H. ROGERS, Red Lodge Nursery, Southampton. Also every description of well grown Nursery Stock, extending over 60 acres.
PRICED CATALOGUES forwarded on application.

Narrow-leaved English Elms.

WOOD AND INGRAM beg to offer to the Trade extra fine Seedlings of the above, at 5*s*. per 1000.
Huntingdon Nurseries.

Purple Beech.

THOMAS METHVEN, NURSERYMAN, Leith Walk, Edinburgh, is in want of the above, 7 to 9 feet high, and will be glad to hear from any one having such to offer.

SPRUCE FIR, TWICE TRANSPLANTED. 1 to 1½ feet, 15*s*. per 1000. | 1½ to 2 feet, 20*s*. per 1000.
Apply to JAMES GARAWAY & Co., Durdham Down Nurseries, Bristol.

Important to Nurserymen and Others.

SURPLUS STOCK of 1 and 2 year SEEDLING FOREST TREES, &c. PRICED LIST on application to MICHAEL BURKE, Drumlargan Nurseries, Summerhill, Co. Meath, Ireland.

To the Trade.

WANTED, TRANSPLANTED LARCH, 1½ to 2 feet. State quantity.
Messrs. TREMBLE, Penrith.

CUTHILL'S PRINCE ALBERT CUCUMBER; an Improvement on Highland Mary.
The best for present sowing. Per packet, 1*s*.
BUTLER & M'CULLOCH, Seed Merchants, Covent Garden Market.

NEW CELERY.—WILLIAMS'S MATCHLESS RED, a very superior variety, 2*s*. per packet.
B. S. WILLIAMS,
Paradise and Victoria Nurseries, Holloway, London, N.

Potatoes for Planting.

SUTTON'S DESCRIPTIVE LIST, Post Free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

To the Trade.

MYATT'S PROLIFIC ASHLEAF KIDNEY POTATO.—The above excellent variety, sound and in good condition; also a few Seeds DALMAHOY POTATO, to be had of J. MYATT, Offenham, Evesham. Price List on application.

WEBB'S IMPERIAL KIDNEY POTATOES.—No Potato like it for quantity, quality, beauty and size, at 12*s*. per Bushel, on application to
RICHARD WEBB, Calcot Gardens, Reading.

WHEELER'S GLOUCESTERSHIRE KIDNEY POTATO.—This is one of the earliest, the most productive, the best flavoured, and the most profitable Potato ever introduced.
For price and all particulars, see WHEELER'S "Little Book."

SEED POTATOES.—Splendid Stocks of Martin's Early Globe, Early Oxford, Early Fox's Seedling, Early Round Frame, Early Dalmahoy, Myatt's Prolific, and Jackson's Ash-leaved Kidney, Forty-fold, Fluke Kidney, and Flour-ball varieties at low prices.
H. & F. SHARPE, Wisbeach.

Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER'S CATALOGUE of the above popular plants, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants.

It describes faithfully the colours of all the Rhododendrons, thereby rendering every facility for making selections.

It likewise contains an abridged List of really Hardy Conifers, with their heights and prices.

The American Nursery, Bagshot, Surrey.

New Verbenas.

ROBERT REA, NURSERYMAN, &c., London Road, Ipswich, begs leave to announce that he intends sending out the following NEW VERBENAS after the 20th of April; they have been selected with great care from a large number of Seedlings. With their various colours, fine form, and good habit, he feels quite confident they will give satisfaction.

COMET.—Cerise scarlet, fine formed pip, large and compact truss, large white eye, good for either bedding or exhibition.

PRINCE ALFRED.—Fine plum purple with conspicuous large white eye, extra fine pip and truss, superb.

MAUVE QUEEN.—A fine dark mauve-coloured flower with large white eye, quite new in colour, highly recommended for either bedding or exhibition.

MULBERRY KING.—Bright mulberry crimson, large white eye, fine ball-shaped truss, an exceedingly rich and striking variety.

BLUE IMPERIAL.—Style of Leviathan, light blue with large white eye, extra fine and effective.

IPSWICH GEM.—A most beautiful fine-formed, rose-coloured flower, with conspicuous large white eye, pip and truss unequalled, a very free bloomer.

INTERNATIONAL.—Deep plum colour, extra large white eye, a superb variety.

FAIRY NYMPH.—Very delicate pink with lemon-coloured eye, surrounded with dark red, quite novel in colour; a fine variety.

SUNSET.—Rosy purple-shaded lake, large white eye, a fine formed flower, good for exhibition.

SCARLET GEM.—Fine scarlet, extra large white eye, round flat pip and good truss.

Price 3*s.* 6*d.* each; the set for 30*s.*; with the usual discount to the Trade.

Vegetable and Flower Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully announces that his SEED CATALOGUE is now ready, free by post.

The COLLECTION of VEGETABLES recently Commended by the Royal Horticultural Society was grown from Seeds furnished by him.

Nurseries and Seed Warehouse, Waltham Cross, N.

Seeds for the Kitchen Garden, Flower Garden, and Farm.

JOHN CATTELL'S DESCRIPTIVE CATALOGUE of the above is now ready, and will be forwarded, post paid, on application; it contains select lists only, and includes every novelty worthy of cultivation.

All parcels of Seeds of the value of 21*s.* and upwards carriage paid to any Railway Station in England.

Nursery and Seed Establishment, Westerham, Kent.

New Sorts of Peas.

THE ADVANCER, PRINCESS ROYAL, SMUGGLER, GILSON'S GLORY (2*s.* 6*d.* per quart), and other NEW PEAS, are included in SUTTON'S PRICED SEED LIST, just published, and which may be had, Gratis and Post free, on application addressed

SUTTON & SONS, Seed Growers, Reading, Berks.

Cole's White Perfection Celery.

WM. COLE has much pleasure in offering again to his numerous customers the above, which has proved itself to be the best White Celery in cultivation. In sealed ½ oz. packets, free by post, 1*s.* 6*d.* Price to the Trade upon application.

Nurseries, Withington, near Manchester.

KIMBERLEY'S SUPERB SOLID RED CELERY.

—This is without exception the best Celery in cultivation. CHARLES KIMBERLEY has much pleasure in offering this superb Celery for the first time, although he has grown it for upwards of 20 years. Thousands of plants are annually sold in Coventry Market. The seed now offered is saved from bleached roots of 1862; ½ oz. packets free by post, 1*s.* 6*d.*

Stoke Nursery, near Coventry.

Stirling, Scotland.

W. DRUMMOND AND SONS' CATALOGUE of SELECT VEGETABLE and FLOWER SEEDS, POTATOES, GARDEN TOOLS, &c., for 1863, is now ready, and may be had on application.

The distinctive features of this Catalogue are such as have commended themselves alike to the Gardener and Amateur. Being simple in arrangement, and sufficiently descriptive, a selection from its columns is rendered easy and satisfactory. Moreover, we still adhere to the system introduced by us several years since, of discarding, in the various sections, all comparatively inferior varieties, as well as omitting what are mere repetitions of the same sorts under different names.

*** Seeds Carriage Paid, as formerly.

W. DRUMMOND & SONS, Seed and Implement Warehouse, Stirling.

Seeds made Proof against the Attacks of Birds.

SAMUEL WALTERS, SEED GROWER and MERCHANT, Hilperton, Trowbridge, Wilts, begs respectfully to offer SEEDS prepared as above stated, in small or large collections. Some of the advantages of using seed so prepared are—a less quantity of seed will produce a greater number of plants; all contrivances to frighten away birds can be dispensed with; the anxiety to secure seeds from the attacks of birds will be no more felt by the use of new and good home-grown seed so prepared. Unusual success may be expected. A nominal charge only will be made for Proof Seed, or when a Collection of Garden Seeds of 20*s.* value and upwards be requested and supplied by S. W., no extra charge will be made. The Seed can be tested at once by putting it on side of other Seed not prepared—the birds will eat the latter, but not the former.

AMATEUR'S GUIDE in a comprehensive form will be sent with each Collection of Proof Seeds.

KITCHEN GARDEN, FLOWER, and FIELD SEEDS always on Sale.

NEW CUCUMBERS,

at 1*s.* per packet.

Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

CARTER'S CHAMPION CUCUMBER,

recommended by the Royal Horticultural Society as being an excellent bearer. Fruit solid and firm, and the best of the Sion House class. 1*s.* per packet. A few ounces of our own saving to offer the Trade.

237, 238, & 261, High Holborn, London, W.C.

Seakale.

GEORGE CLARKE begs to announce that he has SOLD OUT of FORCING SEAKALE, but can supply any quantity of healthy clean roots for planting. Prices will be forwarded on application.

Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, near the Victoria Railway Station, Pimlico, S.W.

To Seedsmen and Others.

THOMAS AYRES, SEEDSMAN and GROWER, Biggleswade, Beds, begs to offer the following SEEDS of his own growth of 1862, viz:—

WHITE SPANISH ONION SEED,
MANGEL WURZEL SEED, various kinds.
SWEDE, and COMMON TURNIP, „
SEED POTATOES of the following varieties:—EARLY ASH LEAF KIDNEY, MYATT'S PROLIFIC do., EARLY SHAW and REGENTS.
SCARLET RUNNER BEANS (English grown).

A PRICE LIST forwarded upon application.

To the Seed Trade.

H. AND F. SHARPE have a Surplus Stock of true—

Early Long Pod Beans	Ne Plus Ultra Peas
Mackie's Monarch ditto	Laing's Imperial Swede Turnip
Broad Windsor ditto	Early Green Top Yellow ditto
Early Emperor Peas	Fine Red Surrey Carrot
Woodford's Green Marrow do.	Early Nonpareil Cabbage
Flack's Blue Imperial ditto	„ Emperor ditto
British Queen ditto	„ Enfield Market ditto

which they can offer at a low figure.

Seed-growing Establishment, Wisbeach.

Cucumbers and Melons.

EDWARD TILEY has this season a fine stock of true Seed of the above, well-ripened and in excellent condition, including, amongst others, the following well-known first-rate varieties, at 1*s.* per packet:—

CUCUMBERS.	MELONS.
Sir Colin Campbell	Garibaldi
Victory of Bath	M'Ewen's Scarlet and Green-flesh
Lord Kenyon's Favourite	Golden Drop Green-flesh
Captivation	Golden Perfection Green-flesh
Mills's Jewess	Green Gage
Conqueror of the West	Golden Ball
Incomparable	Pine Apple
Cuthill's Black Spine	Camerton Court Green-flesh
Champion of England	Blackall's Green-flesh
Stockwood Ridge	Bowood Green-flesh
Ayres' Prolific	Beechwood Green-flesh
Manchester Prize	Windsor Prize Green-flesh
Sutton's Champion	Hampton Court Green-flesh
Burges' Conqueror	Cuthill's Camberwell Beauty
Henderson's A 1	General Havelock
General Canrobert	Monro's Green Gage
Gordon's White Spine	Monro's Crystal Palace Hero
Phenomenon	Scarlet King
Rifleman	Incomparable
Manchester Prize	Bromham Hall
Hunter's Prolific	Rouse's Incomparable
Syon House	Austen's Incomparable
Allen's Victory	Queen's Melon
Trollope's King	Bailey's Green-flesh
Ipswich Standard	Emperor
Tiley's Improved	Fleming's Trentham Hybrid
Hamilton's Black Spine	Duncan's Green-flesh
Dickson's Newton Hero	Egyptian Green-flesh
Kelway's Victory	Gordon Castle Green-flesh
Gen. Outram (2*s.* 6*d.* per pkt.)	

TILEY'S EMPEROR RED CELERY, the best in cultivation, testimonials to which effect are being received almost daily, price 1*s.* per packet.

TILEY'S SOLID WHITE CELERY, 1*s.* per packet.

The true OLD BATH COS LETTUCE, 1*s.* per packet.

TILEY'S EARLY MARROW CABBAGE, which has given universal satisfaction, 1*s.* per packet.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

IVERY'S NONSUCH LETTUCE, the best summer variety in cultivation. Per pkt., 1*s.*

The undernamed having procured their seed of W. I., are able to supply the preceding true. No more can be sold to the Trade.

Burgess & Kent, Messrs., Stoke-upon-Trent	Hurst & Son, Messrs., Leadenhall Street, London
Brigden, Mr. T., King William Street, London	Harrison, Mr. C. H., Birming-[ham
Brown, Mr. J., Liverpool	Hewet, Mr. T., Birmingham
Burgess, Mr. C., Cheltenham	Hopwood, Mr. W., Cheltenham
Baskerville & Son, Messrs., Bristol	Hume & Cousens, Messrs., Gloucester
Butler, Mr. D., Bath	Harris, Mr. J., Bristol
Boshell, Mr. F., Borough, [London	Ivery & Son, Messrs., Dorking
Clark, Mr. W., Bishopsgate Street, London	Johnson, Mr. J., Liverpool
Clark & Son, Messrs., King Street, Covent Garden	Paul, Mr. W., Waltham Cross
Chives, Mr. G., Chester	Perkins, Mr. E., Leamington
Cuthbert, Mr. J., Liverpool	Pope, Mr. H., Birmingham
Clark, Mr., Cheltenham	Potter, Mr., Farringdon Street, London
Charmes, Mr. T., Exeter	Skirving, Mr. W., Liverpool
Dickson & Son, Messrs., Chester	Sealy, Mr. J., Bristol
Dickson & Brown, Messrs., Manchester	Tomkins, Mr. J., Birmingham
Denyer, Mr. W., Gracechurch Street, London	Thompson, Mr. G., Chester
Flanagan & Son, Messrs., Mansion House Street, London	Thompson, Mr. T. B., Birmingham
Fisher, Holmes, & Co., Messrs., Sheffield	Whalley, Mr. T., Liverpool
Grey, Mr., West Derby, Liver-[pool	Watkinson, Mr. H., Manchester
Garaway & Co., Messrs., Bristol	Wood & Son, Messrs., Worcester
Haywood, Mr. J. S., Worcester	Wood & Son, Messrs., Maresfield
	Wrench & Son, Messrs., London Bridge
	Youell & Co., Messrs., Yar-[mouth
	Yates, Messrs. G. & W., Manchester

N.B. W. I.'s DESCRIPTIVE CATALOGUE of SEEDS is now ready, all being of the choicest varieties, sent post free on application.

Hanover Nursery, Peckham, London, S.E.

THE NEW PARSNIP "STUDENT."—SEED of

this improved PARSNIP, "ennobled" by Professor BUCKMAN, of the Royal Agricultural College, Cirencester, is now ready for delivery by Messrs. SUTTON & SONS, Post free, in packets, 6*d.*, 1*s.*, or 2*s.* 6*d.* each. Also Wholesale to the Trade.

It can also be obtained from any of the Seedsmen named in the List which appeared in *Gardeners' Chronicle* of Jan. 31.

Royal Berks Seed Establishment, Reading.

POTATOES.—Ashleaf and Myatt's Improved, 26*s.*; Dalmahoy and Shaw, 14*s.*; Regent and Blues, 12*s.* per 2 cwt. sack. Sacks, 1*s.* each. Flukes, fine sample Fortyfold, &c.

STRAWBERRIES.—Black Prince, 15*s*; Admiral Dundas, British Queen, Elton Pine, Eleanor, Wizard of the North, 10*s.* per 1000. 2*s.* per 100. RASPBERRIES, &c.

GEO. CORNWELL, Seedsman, &c., Barnet, Herts, N.

Change your Seed.

SEED POTATOES AND SWEDE TURNIP SEED.

WM. JACKSON AND CO., SEED GROWERS and NURSERY and SEED MERCHANTS, Bedale, Yorkshire, have the pleasure to inform Agriculturists that they have grown large quantities of the following articles, carefully selected for Seed:—

DALMAHOY, FLUKE, and PRINCE REGENT (a great cropper) POTATOES, Free from disease, and fine samples.

The best PURPLE TOP, the best GREEN TOP, and the best HARDY BRONZE TOP, SWEDE TURNIP SEED.

These kinds have never failed to produce excellent crops.

CATALOGUES with particulars and prices, which are very moderate, sent to any part of the kingdom on application.

DAINTREE'S EARLIEST SEEDLING POTATO.

—The earliest and most prolific round variety in cultivation, verified by reports in the various papers, and by private reports from all parts of the country, numbers of which will be forwarded on application. Present price, 8*s.* per Bushel, or 12*l.* per Ton; sacks 1*s.* 6*d.* each.—Apply to Mr. SIMON A. DAINTREE, Fendrayton, St. Ives, Hunts.

N.B.—Genuine Italian Rye-grass, and all the Agricultural Seeds of home growth, supplied as usual

EXTRAORDINARY POTATOES.—A gentleman

resident in the Country offers for SALE a few BUSHELS of SEED POTATOES of a new and most wonderful kind. For the table they are unsurpassed as to whiteness and delicacy of flavour, and their productiveness is almost incredible, even on indifferent soil; and further, the disease never attacks them.

For price, &c., address by letter to Z. Z., care of Editor, 162, Fleet Street, London, E.C. Early application is necessary.

Mona's Pride, New Early Kidney Potato. Picea nobilis Cones.

TOOLE AND CO. have for SALE a limited supply of the above NEW EARLY KIDNEY POTATO, the finest ever yet introduced, being much earlier than the Ashleaf, larger, and more prolific.

Price 5*s.* 6*d.* per sealed bag of 14 lbs.

Also a few well ripened Cones, PICEA NOBILIS, at 21*s.* each.

41, Westmorland Street, Dublin.

HOW'S EARLY FLUKE.—This new KIDNEY

POTATO has been raised from the apple of the Fluke. In 1861, 1200 yards produced 132 bushels. In 1862, tested in alternate rows with other sorts, it was freest from disease, and by far the heaviest crop. It boils white, and is of first-rate quality. Its flavour when dug young is much extolled. Two First Prizes have been awarded to it at the last Redmarley Horticultural Shows held in July. For early market or the gentleman's table it is unsurpassed. Price 10*s.* per bushel of 56 lbs.

W. A. HOW, Redmarley, Newent, Gloucester.

Myatt's Early Prolific Ash-leaved Kidney Potatoes.

H. AND F. SHARPE are now taking orders for the above, which has this season proved itself to be the earliest and most prolific Potato in cultivation, and as fine in quality as any of the Early Kidney varieties. Having a good stock they can offer them at a low price to the Trade.

Also JACKSON'S ASH-LEAVED KIDNEY, WALNUT-LEAVED KIDNEY, and all the early Round varieties at equally low prices, which may be had on application.

Seed Growing Establishment, Wisbech.

THE ROYAL ASH-LEAVED KIDNEY POTATO.

—For a full description of this fine early sort, see advertisement in *Gardeners' Chronicle* for Jan. 31.

Price 5*s.* 6*d.* per Peck Bag of 14 lbs., sealed.

Sold in London by Messrs. WRENCH & SONS, 39, King William Street, E.C.; and by Messrs. THOS. RIVERS & SON, Nurseries, Sawbridgeworth, Herts.

SEED POTATOES.—The Subscriber has now for

SALE, grown by himself, EVERGREEN REGENTS, at 5*l.* per ton, and EARLY DALMAHOYS, at 6*l.* per ton, in bulk, put on the rail at Edinburgh, or free on board at Leith or Granton; if in bags 10*s.* per ton extra. Both varieties sound, grown after old pasture, and carefully selected for seed. The Dalmahoy is the best cropper, and the earliest of all the early field varieties.

Orders for quantities of not less than One Ton, will be executed on receipt of cash, or a satisfactory reference to respectable parties in Edinburgh or Leith.

Apply to JOHN GIBSON, Woolmet, Dalkeith, N.B.

Important to Agriculturists.

A DISTINCT NEW POTATO.—The SKERRY BLUE, one of the most productive ever yet offered to the public. The Tops grow very strong, and require to be planted thin—it possesses a most delicious flavour.

The Subscriber intimates to those who were disappointed last season, that they should order early. He subjoins one or two opinions of its merit, which he has received from those who had a few from him last season.

"The Crescent, Castlebellingham, Nov. 4, 1862.

"Sir,—The 1½ cwt. of Skerry Blue Potatoes I had from you, has surprised me. I dug 32 cwt. of sound Potatoes; there was not a dozen of damaged ones in the lot. I did not plant these Potatoes for a month after my general crop. Had I planted earlier, I firmly believe the produce would have been larger. Since 1846, I have never seen Potatoes equal to the 'Skerry Blue,' grown by me, from the seed supplied by you.—Yours, &c., "WM. WOOLSEY."

"Ballybrooney Ballina, Dec. 12, 1862.

"The produce of the 2 cwt. of Skerry Blues you sent me in April I have just now raised. I have about 2 tons of clean sound Potatoes; not half a dozen of tainted ones in the lot could I discover. They are admired by every one in this part of the country. "Yours most truly, SAMUEL MOORE."

Prices by the cwt. or ton. Delivered in Liverpool or Glasgow, on application to

ANDREW G. DALY, Nursery and Seedsman, Newry.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. Annual Sale exceeds 3000 packets. In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each.
J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1s., 2s. 6d., and 5s.
J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE PRIMULA SINENSIS SEED.
In sealed packets, 1s., 2s. 6d., and 5s.
J. DOBSON & SONS, Seedsmen, Isleworth.

Notice.

PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS.
For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

CHARLWOOD AND CUMMINS beg to announce that their CATALOGUE of GARDEN, AGRICULTURAL, and FLOWER SEEDS is now ready, and will be forwarded on application. They also now offer their
NEW NEMOPHILA DISCOIDALIS ELEGANS,
commended by the Royal Horticultural Society in their Proceedings; it is thus noticed:—
"The flowers of this variety (which is a very pretty one) are of a bright chocolate or light reddish maroon, conspicuously bordered with white. The colours are distinctly marked and very effective." It is commended as a very desirable Annual for general cultivation.
2s. 6d. per packet. Price to the Trade per ounce.
14, Tavistock Row, Covent Garden, London.
A TREE or SHRUB SEED LIST will be published shortly.

Lobelia speciosa (True).

THOMAS METHVEN begs to state that he can supply the above, and which he can warrant genuine, in packets at 1s., 2s. 6d., and 5s.
GENERAL SEED CATALOGUE free on application.
Seed Warehouse, Leith Walk, Edinburgh.

10,000 Aucuba japonica.

ALEXANDER LAING begs to offer the above, fine bushy Plants, twice Transplanted, 12 to 13 inches, at 20s. per 100 for cash.
Nurseries, Beverley, Yorkshire.—Feb. 7.

Thorn Quicks.

JNO. CARTER, NURSERYMAN, Keighley, has a large stock of the above, from 1 to 4 years' Transplanted, well rooted and very strong.
J. C will be glad to furnish samples and prices, and also CATALOGUE of GENERAL NURSERY STOCK.

Large Trees for Parks, Hedgerows, &c.

WILLIAM CROWDER, NURSERYMAN, Horncastle, has a quantity of SPANISH CHESNUT, 10 to 12 feet; LIMES, 8 to 10 feet; ELM, grafted, 8 to 10 feet, all strong well grown trees and well rooted, to offer cheap to Trade or gentlemen.

THE SUBSCRIBERS have on SALE 2, 3, and 4-year Seedling NORWAY SPRUCE; 3-year Seedling THORN QUICKS; Transplanted SPRUCE, 1 to 1½ feet; 3-year Transplanted THORN QUICKS, all at very low prices, which may be had on application.
FOWLER & SON, Glasgow—Feb. 7.

FOR SALE, 100,000 3-year Seedling SILVER FIR.—The above will be offered cheap, as the ground is wanted for other purposes; also 150,000 1-year Seedling LARCH. Samples and Prices sent on application.
Apply to DOWNIE, LAIRD, & LAING, 17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London.

WANTED IMMEDIATELY, 100,000 2 year SCOTCH FIR, good strong stuff.
On offer, a few ENGLISH OAK, 4 feet, and 1-year GORSE, very fine.
Apply to G. FROST, Bampton, Devon; late of Brushford.

COMMON LAURELS, in quantity, 3, 4, and 5 feet high, bushy and well rooted; about 800 HORSE CHESNUTS, 5 to 7 feet; 500 ENGLISH OAK, 4 to 5 feet, to be sold reasonable. Price on application to
D. S. THOMSON, Nurseryman, near Railway Station, Wimbledon, Surrey, S.W.

Large Fan Yews.

MESSRS. BROWN AND CO. have a quantity to dispose of, 4 to 6 and 8 to 10 feet high. All well-grown handsome specimens, fit for immediate screens, some pyramidal, well-branched, and good leader. State size and height required. Price sent by return of post.
American Nurseries, near Farnham, Surrey.

LARGE ORNAMENTAL TREES.—The Subscribers beg to offer very fine specimen plants of ARAUCARIA IMBRICATA, from 5 to 9 ft.; CEDRUS LIBANI, 7 to 12 ft.; WELLINGTONIA GIGANTEA, 5 to 9 ft.; PINUS EXCELSA, 7 to 10 ft.; also Spruce, Scotch, and Larch Firs, from 7 to 10 ft., with Limes, Birch, Beech, Elm, Sycamore, and Laburnum, 9 to 11 ft.; likewise Weeping Ash, Lime, and Willow, on fine tall stems. The above will be sold cheap, and if taken in quantity a great reduction will be made in the price.
J. IVERY & SON, Dorking Nursery.

To the Trade.

MARSH AND PERKINS, 42, Drapery, Northampton, have great pleasure in offering the following Surplus Stock, all being fine and well rooted:—
LINNÆUS and VICTORIA RHUBARB ROOTS, 20s. per 100.
Transplanted SCOTCH FIR, 1½ to 2 feet, 14s. per 1000.
Extra do, do. do. 2 to 3 feet, 20s. per 1000.
Do. do. do. do. 3½ to 4½ feet, for wood planting, 40s. per 1000. [per 1000.
Strong 2 years' transplanted WHITE THORN QUICKS, 9s.
ASH, 1 year Seedling, 1s. per 1000.
OAKS, ENGLISH, 1 year's Seedling, 3s. 6d. per 1000.
Cash or reference required from unknown correspondents.

TRANSPLANTED FOREST TREES and EVERGREENS, &c.

SPRUCE FIR, 1 foot, per 1000	10s.
,, ,, 1 to 1½ foot, per 1000	15s.
,, ,, 1½ to 2 feet, per 1000	25s.
OAKS, 3 feet to 4 feet!	25s.
WEEPING ELM, 10 to 12 feet stems, fine heads, per doz.	24s.
COMMON LAUREL, bushy, 2 feet, per 100	10s.
BERBERIS AQUIFOLIA, 1½ to 2 feet, per 100	10s.
TREE BOX, 2 feet, bushy, per 100	20s.

ALEXANDER LAING has yet the above Surplus Stock to Dispose of, having grown upon ground that must be at once cleared.
Beverley Nurseries.—Feb. 7.

MESSRS. BROWN AND CO. offer the following Selection of CHOICE PLANTS, which they will forward to any part of the kingdom:—

	s.	d.
25 AZALEAS, new hardy Belgian varieties, one of a sort, on their own roots, by name	20	0
25 AZALEAS, hardy American varieties, do. do.	15	0
12 Hardy RHODODENDRONS, one of a sort, including Scarlet, White, and Rose colour	12	0
Hardy HEATHS, LEDUMS, and KALMIAS, per doz.	6	0
ROSES, best sorts, Standards and Half Standards, per dozen, 12s. to	15	0
CLIMBING ROSES, of best sorts per dozen	6	0
PILLAR ROSES, new sorts do.	9	0
DWARF ROSES for beds or forcing, including Bourbons, Teas, and Perpetuals, per dozen	9	0
Choice Hardy PINUS and other CONIFERÆ. Cheap. Price List by post.		
Greenhouse AZALEAS, fine varieties, per doz., 10s. to	15	0
CAMELLIAS, best double varieties, per dozen	28	0
TREE CARNATIONS, winter flowering, per dozen	12	0

CHOICE FRUIT TREES.

Fine Standard and Dwarf-trained Peaches, Nectarines, Apricots, Cherries, Apples, Plums, and Pears, 2s. 6d. each, or 24s. per dozen.
Dwarf Plants of all the above kinds, grown especially for pot culture in Orchard Houses, &c., 18s. per dozen.
Filberts, Gooseberries, Currants, and Raspberries, p. doz., 3s.
Evergreen Shrubs of all kinds cheap; fine large Fan Yews, price by post.
American Nurseries, near Farnham, Surrey.

E. G. HENDERSON AND SON'S NEW SEED CATALOGUE will be published this week. They beg to draw attention to the following among Novelties (rules for the guidance of amateurs are given for the sowing of seeds, and after management)
AMARANTHUS MELANCHOLICUS RUBER, 1s.
SALVIA COCCINEA PUMILA, 1s.
RHODANTHE MACULATA, 1s.
PORTULACCA GRANDIFLORA FLORE PLENA, 2s. 6d.
TAGETES SIGNATA PUMILA, 1s.
VICIA GERARDI, 1s. 6d., 2s. 6d.
VINCA ALBA OCULATA LUTEA, 1s.
PRIMULA ERECTA SUPERBA, 2s. 6d.
IBERIS GRANDIFLORA ALBA, 6d. and 1s.
MIMULUS CUPREUS, 1s.
ANAGALLIS SANGUINEA, 6d.
AGERATUM MULTIFLORUM, 6d.
ABOBRA VIRIDIFLORA, 1s. and 2s. 6d.
VICTORIA ASTERS, 1s. and 2s. 6d
DICTAMNUS GIGANTEA ANGUSTIFOLIA, 1s.
ZINNIA ELEGANS FLORE PLENA COCCINEA, 1s.
STEVIA OVATA, 6d.
NEMOPHILA DISCOIDALIS ELEGANS, 6d.
NEMOPHILA DISCOIDALIS VITTATA, 1s.
Also the following choice seeds:—
AQUILEGIA GLANDULOSA (true), best blue and white, 6d.
,, SKINNERI (true), best scarlet, 6d.
LINUM FLAVUM, fine bedding plant, dwarf golden yellow, 1s.
PENTSTEMON MURRAYANUM (true species), vermilion scarlet flower tubes, 6d.
TRITOMA UVARIA, best variety, special rule for raising seed, 6d. and 1s.
SAPONARIA CALABRICA ALBA, fine white bedder, 4d.
LILIUM GIGANTEUM, 1s.; CALENDULA SUPERBA, 4d
VENIDIUM CALENDULACEUM, fine bedding plant, 3d.
LINUM CANDIDISSIMUM, pure white, 6d.
GYNERIUM ARGENTEUM (Pampas Grass), 1s.
SPERGULA PILIFERA (Grass Lawn substitute), 6d. and 1s.
LILIUM CORDIFOLIUM, similar in style of growth to L. giganteum, but dwarfer and of a darker tint in the young growth; the large, trumpet-shaped white flowers, with dark centre midribs, are also alike to the last-named species, but are produced by smaller bulbs, and on stems not rising more than from 3 to 4 feet in height. By its blooming much more readily than L. giganteum it will prove a very popular and useful Lily. 1s.
Special directions are given for the germination of this and L. giganteum.
Wellington Nursery, St. John's Wood, London, N.W.

SPECIAL OFFER to the TRADE.

	Per doz.—s.	d.
ACHIMENES, MAUVE PERFECTION	6	0
,, MINIATA	6	0
ACACIA LOPHANTHA	9	0
ADIANTUM CONCINNUM	24	0
AGATHÆA CŒLESTIS FOLIIS VARIEGATIS	6	0
ANÆCTOCHILUS ARGENTEUS	42	0
ANTIRRHINUMS, choice sorts. See page 53 of 1862 Catalogue	9	0
ATHYRIUM FILIX FŒMINA FRIZELLIÆ	18	0
BEGONIAS, choice sorts. See page 31 of 1862 Catalogue	18	0
CALCEOLARIA SPARKLER	9	0
,, CANARIENSIS	9	0
CHRYSANTHEMUMS, good sorts	6	0
,, New sorts of 1862	12	0
COLEUS VERSCHAFFELTI	6	0
FUCHSIAS, New sorts of 1862. See page 61 of 1862 Catalogue	18	0
,, TRUE BLUE	6	0
,, KING of PURPLES	6	0
,, COMET	6	0
GERANIUMS, FRENCH SPOTTED 18s., 30s., and	42	0
,, SHOW 18s., 30s., and	42	0
,, ZONALE 18s., 30s., and	42	0
,, VARIEGATED, QUEEN of QUEENS	30	0
,, LADY ROKEBY	9	0
,, GEM of ROSES	9	0
,, FIREBALL	9	0
GESNERA REFULGENS	42	0
,, VELUTINA	42	0
GLOXINIAS, Seedlings, good flowering plants	6	0
,, choice named. See page 31 of 1862 Catalogue	18	0
GOLD FERN, GYMNOGRAMMA CHRYSOPHYLLA	12	0
GYMNOGRAMMA LAUCHEANA, the best Golden Gymnogramma	30	0
KALOSANTHES. See page 35 of 1862 Catalogue	21	0
PAMPAS GRASS, GYNERIUM ARGENTEUM	12	0
PENTSTEMONS, choice sorts of 1861. See page 48 of 1862 Catalogue	9	0
,, choice sorts of 1862. See page 46 of 1862 Catalogue	18	0
PHLOX ADMIRATION	18	0
,, choice sorts. See page 56 of 1862 Catalogue	12	0
PTERIS ARGYRÆA, CRETICA ALBO-LINEATA, variegated Ferns	12	0
,, RUBRO-NERVIA	18	0
VINES, ROYAL MUSCADINE, MUSCAT MUSCADINE, CHASSELAS MUSQUE, GROVE-END SWEETWATER, OLD SWEETWATER, BARBAROSSA, BLACK HAMBURGH, BLACK PRINCE	30	0

WILLIAM BULL, Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Excellence and Economy Combined.

SUTTON'S UNEQUALLED COLLECTIONS of KITCHEN GARDEN and FLOWER, &c. SEEDS.
SUTTON'S COLLECTIONS of GARDEN SEEDS will be found the most economical, as well as the best in quality of seeds, as see List of Contents, which may be had gratis and post free.
Royal Berkshire Seed Establishment, Reading.

Pine Apple Place, Edgware Road, London, W.

ARTHUR HENDERSON AND CO. beg to announce that their CATALOGUE of KITCHEN, FARM, and FLOWER SEEDS, Imported German Asters, Stocks, and Collection of Vegetable Seeds, for One Year's Supply—

Collection, No. 1	105s.	Collection, No. 3	42s.
,, No. 2	84s.	,, No. 4	25s.
Collection, No. 5	15s.		

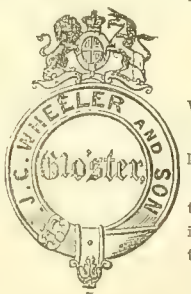
is now ready, and will be forwarded free on application.
NOTE.—This Catalogue contains only the best varieties of Vegetables, and an abridged List of the most valuable Flower Seeds.

Garden Seeds.

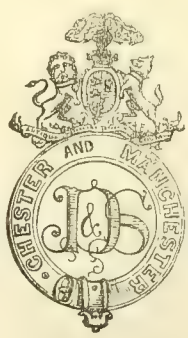
COLLECTIONS of KITCHEN GARDEN SEEDS, consisting of all the choicest sorts, are offered as follows:—

					£	s.	d.
No. 1 contains 20 quarts Peas, and all other seeds in proportion					3	0	0
No. 2	ditto	10 quarts	ditto	ditto	1	10	0
No. 3	ditto	5 quarts	ditto	ditto	0	15	0
No. 4	ditto	5 pints	ditto	ditto	0	10	6

CATALOGUES on application.
RICHARD SMITH, Seed Merchant, corner of High Street and Broad Street, Worcester.



WHEELER'S LITTLE BOOK for 1863.
WHEELER'S TOM THUMB LETTUCE.
WHEELER'S IMPERIAL LETTUCE
The price of the Lettuce is 1s. per packet, post free.
J. C. WHEELER & SON beg to inform the Trade that their "Little Book" is entered at Stationers' Hall, and that they cannot allow it to be copied.
J. C. WHEELER & SON, Seed Growers, Gloucester.



Vegetable and Flower Seeds.
CARRIAGE FREE.

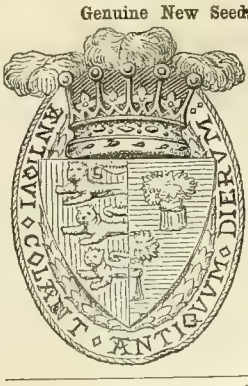
JAMES DICKSON AND SONS' ANNUAL DESCRIPTIVE PRICED CATALOGUE of the above is now ready, and may be had, post paid, on application.
The *Field* of February 8, 1862, in a notice of our last season's Catalogue, says:—"This old established firm have issued their neat and well arranged Catalogue for this season. It embraces all seeds really worth growing in both departments."
JAMES DICKSON & SONS, 102, Eastgate Street, Chester; and 23, Market Place, Manchester.

New Seeds.



PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN, of Edinburgh and London, are prepared to send out
FARM and GARDEN SEEDS
of every kind, and of the finest quality.
Orders for exportation executed with prompt and careful attention.
28, King Street, Cheapside; and 15, Lawrence Lane, E.C.

Genuine New Seeds, Carriage Free.



FRANCIS & ARTHUR DICKSON AND SONS, 106, Eastgate Street, Chester.
New VEGETABLE and FLOWER SEEDS of every description, of the finest possible quality.
Their DESCRIPTIVE PRICED CATALOGUE, containing many valuable New and Select Vegetable and Flower Seeds, will be sent Post Free on application.
Collections for Gardens of all Sizes are on the most liberal scale. See Catalogue.
☞ Vegetable Seeds of £2 value Carriage Free. All Flower Seeds Free by Post.

Vegetable, Flower, and Agricultural Seeds.
NEW AND RARE PLANTS, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing select descriptive and priced lists of AGRICULTURAL, KITCHEN GARDEN, Imported GERMAN, and other FLOWER SEEDS; NEW and RARE PLANTS; Variegated, Ornamental Foliaged, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now published, and will be forwarded Post Free to all applicants.
Exotic Nursery, Tooting, Surrey, S.

GLADIOLUS, SEEDLINGS of GANDAVENSIS

50 in 25 extra choice varieties	..	..	£2 2s. 0d.
25 in 25 ,, ,,	..	..	1 5 0
12 in 12 ,, ,,	..	..	0 12 0
50 in 50 choice varieties	..	..	2 12 6
50 in 25 ,, ,,	..	..	1 5 6
25 in 25 ,, ,,	..	..	0 13 6
12 in 12 ,, ,,	..	..	0 5 0

Extra fine mixed, 2s. 6d. per doz., 17s. 6d. per 100.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, W.C.

The Flower of the Season.

DOBSON'S Splendid NEW PELARGONIUM, QUEEN of WHITES, acknowledged by the whole of the Floricultural Press to be the very best white flower raised. Strong Plants now ready, 31s. 6d. each. Figured in the February Number of the "Floral Magazine."
Woodlands Nursery, Isleworth, W.

A PRICED and DESCRIPTIVE CATALOGUE of all the new and leading kinds of Show, Spotted, French, Fancy, Scarlet, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready in exchange for one postage stamp.
GEO. SMITH, Tollington Nursery, Hornsey Road, Islington, London, N.

B. MALLER begs respectfully to state that his DESCRIPTIVE SEED CATALOGUE can now be had free on application.
Best Reigate SILVER SAND, 16s. per ton, delivered free within four miles, or to London Bridge Railway or Wharf. Less quantities, 1s. 6d. per bushel, for cash.
Nursery and Seed Establishment, Lewisham, Kent. S E.

Spring Blooming Plants.

CAMELLIAS, including the best new varieties, fine plants, set with bloom buds, from 30s. per doz.; extra size, from 60s.
HEATHS, EPACRIS, CINERARIAS, and JASMINUM GRANDIFLORUM (grafted), remarkably fine plants, at moderate prices.
Also HUMEA ELEGANS, extra strong, in 6-inch pots, 18s. per doz.
JAMES DICKSON & SONS, Newton Nurseries, Chester.

Grass Seeds for all Soils.

SUTTON AND SONS have one of the largest stocks in Europe of the PERMANENT NATURAL GRASS SEEDS, which they mix expressly to suit the soil for which they are required.
Price 30s. per acre (carriage free). A copy of Mr. Martin Sutton's "Essay on Pastures" is sent with each lot of Grass Seeds.
Royal Berks Seed Establishment, Reading.

Good Clover Seed.

GENUINE NEW CLOVER SEED may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.
SUTTON & SONS, Seed Growers, Reading, Berks.

GENUINE CLOVER and GRASS SEEDS.—Samples and prices Post free on application.
☞ Orders amounting to 10s. and upwards sent carriage free.
WM. WOOD & SON, Seed Merchants and Nurserymen, Maresfield, near Uckfield, Sussex.

SEED CORN from the CHALK.—All the most approved varieties supplied by RAYNBIRD, CALDECOTT, & BAWTREE. Samples and prices on application.
Address, Basingstoke; and 89, Seed Market, Mark Lane. E.C.

TRADE MARK.

HALLETT'S PEDIGREE. NURSERY WHEAT.

"The best Spring Wheat known. Drill in February and March, six pecks per acre."
Produced (1862) 62 bushels per acre, weighing 64 lbs. a bush.
Price ONE GUINEA A BUSHEL, including bag sewed up and sealed, delivered at the Brighton Railway Station, with Printed Directions for Planting, on Receipt of Cheque or Post-office Order, which must in all cases accompany the Order. Less than One Bushel will not be supplied. Name of Station and Railway should accompany the Order.
Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

EDWIN HOLLAMBY begs to inform his Patrons and Friends that his DESCRIPTIVE PRICED CATALOGUE of VEGETABLE, FLOWER, AGRICULTURAL SEEDS, and GLADIOLUS is now ready, and may be had gratis and post paid on application.
Nursery and Seed Establishment, Tunbridge Wells, Kent.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS; ditto COWSLIP; Florist's Flower, POLYANTHUS, Roots or Seed; also SCARLET PRIMROSE—Double Crimson, Double Purple. Double White, Double Yellow, and Double Lilac ditto. COWSLIP from the Himalayas; DOUBLE POLYANTHUS; and other varieties, all of which may be had on application to
RICHARD WEBB, Calcot Gardens, Reading.

A. STANSFIELD AND SONS beg to announce that their LIST of BRITISH FERNS for this season, including the New and Rare varieties, at reduced prices, is now ready, and may be had on application, enclosing two postage stamps. Also their GENERAL FERN LIST, No. 6, for 4 postage stamps, which purchasers may deduct.
Vale Nurseries, Todmorden.

Choice Tropæolum Seed.

CHARLES J. BARKER begs to offer SEED from his beautiful new Hybrid varieties, exhibited at the Royal Horticultural Gardens, and of which a highly favourable account appeared in the *Gardeners' Chronicle* at the time. All colours mixed, 1s. per packet; free for 13 stamps.
Godalming Nursery, Surrey.

KITCHEN GARDEN SEEDS,

FLOWER SEEDS.

In Collections including all the new and approved kinds, or separate to order.

Detail CATALOGUES post free.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND
THOS. GIBBS & Co.
Corner of
HALF-MOON St.
PICCADILLY,
London.
APPOINTED APL 3 1844
THE SEEDSMEN

AGRICULTURAL SEEDS,

GRASS SEEDS,

FARM SEEDS,

of all descriptions.

Thomas Gibbs & Co.

CORNER OF
HALF-MOON St.
PICCADILLY, LONDON, W.

GARDEN SEEDS.

S. GLENDINNING & SONS,

NURSERYMEN AND SEEDSMEN

(SUCCESSORS TO THE LATE R. GLENDINNING),

Are now sending out their COLLECTIONS of KITCHEN GARDEN SEEDS.

No. 1 contains	36 Quarts of	PEAS,	and all other Seeds in	proportion	£5	5 0
No. 2	,, 28 Quarts	ditto	ditto	ditto	4	4 0
No. 3	,, 20 Quarts	ditto	ditto	ditto	3	3 0
No. 4	,, 12 Quarts	ditto	ditto	ditto	2	2 0
No. 5	,, 6 Quarts	ditto	ditto	ditto	1	1 0

COLLECTIONS of FLOWER SEEDS.

No. 1, containing	100	Large Packets of	Best Hardy Annuals	... ...	£0	18 0
No. 2, ,,	50	ditto	ditto ditto	... ...	0	9 6
No. 3, ,,	24	ditto	ditto ditto	... ...	0	5 0
No. 4, ,,	25	ditto	Half-Hardy Annuals	... ...	0	7 6
No. 5, ,,	12	ditto	ditto ditto	... ...	0	4 0
No. 6, ,,	25	ditto	Tender Annuals	... ...	0	12 6
No. 7, ,,	12	ditto	ditto ditto	... ...	0	6 0

The above Collections consist only of best and most useful varieties, and are of the finest quality.

S. G. & SONS' CATALOGUE of KITCHEN GARDEN, AGRICULTURAL, and FLOWER SEEDS, is now ready, and may be had on application.

CHISWICK NURSERY, LONDON, W.

GENUINE SEEDS FOR THE FARM AT LOW PRICES.

THE PLYMOUTH SEED COMPANY, PLYMOUTH,

Have a large and pure Stock of all kinds of GRASS SEEDS for PERMANENT PASTURES, Mixtures of which can be had expressly to suit any soil. The quantity recommended per Acre is 2 bushels of the Light Grass Seeds, and 12 lb. of Clovers.

Mixtures for Permanent Pasture ... ... per acre, 22s. to 30s.
Mixtures for Permanent Lawns ... ... per bushel, 16s.; per lb. 1s.
Mixtures for Uplands and Sheepwalks ... ... per acre, 22s. to 30s.
Mixtures for Water Meadows ... ... per acre 24s.
Mixtures for Cemeteries, Churchyards, &c. ... ... per bushel, 16s.; per lb. 1s.

RYE GRASS. per bush.—s. d.	CLOVERS. Per lb.—s. d.	MANGEL WURZEL. Per lb.—s. d.	SWEDES. Per lb.—s. d.	OTHER TURNIPS. Per lb.—s. d.	CARROTS. Per lb.—s. d.
Italian Imported ... 6 0	English Red 6d. to 0 9	Fisher Hobbs, true 1 6	Plymouth Improved Purple-top ... 1 0	Scotch in Vars. ... 0 9	White Belgian ... 1 0
Italian, English saved 6 0	Foreign Red 6d. to 0 8	Long Red 0 6	Skirving's 0 9	White Globe ... 0 8	Yellow do. ... 1 3
Perennial, in varieties 4s. to 7 0	White or Dutch 9d. to 1 0	Yellow Globe ... 0 6	Purple-top 0 9	Green Globe ... 0 8	Altringham ... 1 6
	Trefoil ... 4d. to 0 6	Red Globe 0 6	Green-top 0 9	Red 0 8	Long Surrey ... 1 3
	Alsike 1 6	Long Yellow ... 0 6		Grey Stone 1 0	
				Orange Jelly ... 0 10	
				Tankards 0 9	

And all other AGRICULTURAL SEEDS at Moderate Prices.

THE FARM SEED LIST IS NOW READY, AND CAN BE HAD GRATIS ON APPLICATION.

Complete Collections of Garden Seeds, 10s. 6d., 15s., 20s., 40s., 60s. For particulars see General Price Current.

Seeds Carriage Free.

ADDRESS, PLYMOUTH SEED COMPANY, PLYMOUTH, DEVON.

Muscat of Escholata Grape.

WM. PAUL (Son and Successor to the late A. PAUL) has a fine stock of this Vine, Fruiting Canes and others. Price 7*s.* 6*d.* to 15*s.* each. Most of the other popular sorts, 3*s.* 6*d.* to 7*s.* 6*d.* each.

Nurseries and Seed Warehouse, Waltham Cross, N.

PINE PLANTS.—A gentleman who is declining Pine Growing, has about 60 clean FRUITING and SUCCESSIONS; consisting of Queens, Enviles, Black Jamaicas, Smooth-leaved Cayenne, &c.

Apply in the first instance to Mr. J. F. GODWIN, Seedsman, 3, Norfolk Market Hall, Sheffield.

Wanted Immediately.

WM. WOOD AND SON are in want of Dwarf-Trained PEACHES, NECTARINES, and APRICOTS, also MORELLO CHERRIES. Really good plants and well trained.

Address, WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

NEW PRIZE MELONS, at 1*s.* 6*d.* per packet.

Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria.

For descriptions see GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

NEW MELON, PRINCESS ALEXANDRA.—A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1*s.* per packet.

JAMES CARTER & Co., 237, 238, & 261, High Holborn, W.C.

Grape Vines.

B. S. WILLIAMS begs to intimate that he has a fine and healthy stock of the above from Eyes, including all the best varieties for Fruiting in Pots and Planting Out. Prices on application.

Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London, N.

THE GREAT VINE at HAMPTON COURT.—The Subscribers being the holders of the Royal Kitchen Gardens, Hampton Court, are enabled to offer genuine the famous and truly excellent HAMPTON COURT BLACK HAMBURGH GRAPE.

Strong well-ripened plants in 9-inch pots, 42*s.* and 60*s.* p. doz.
" fruiting plants in 12-inch pots, 10*s.* 6*d.* each.

If purchased in large numbers a considerable reduction will be made in price.

JACKSON & SON, Nurseries, Kingston, S.W

Vines.

GEORGE CLARKE, having an enormous stock of stout, short-jointed, well-ripened, Fruiting VINES, is induced to offer them at prices considerably lower than those usually charged for such plants. He offers them at 7*s.* 6*d.* each. They embrace all the well-known leading varieties, and will produce a good crop of fruit in the ensuing season. Smaller plants, equally well ripened, 3*s.* 6*d.* to 5*s.* each.

Nursery, Streatham Place, Brixton Hill, London, S.; and 4, Windsor Terrace, near the Victoria Railway Station, Pimlico, S.W.

EXTRA STRONG FRUITING VINES.—All the leading varieties, from Eyes, with stout well ripened rods, for FRUITING in POTS this YEAR. Price, from 7*s.* 6*d.* each; smaller, for Planting-out, from 3*s.* 6*d.* each. A reduction in price will be made to large purchasers.

"We can especially recommend the above, our strong Vines having for some years given unqualified satisfaction."—*Vide* Leading Article in *Gardeners' Chronicle* for December 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries, Chester.

To Noblemen, Gentlemen, Gardeners, &c.

LEWIS SOLOMON, of Covent Garden Market, W.C., FRUITERER, PURVEYOR to HER MAJESTY and the ROYAL FAMILY, having large orders for New Fruits, such as GRAPES, STRAWBERRIES, PEACHES, NECTARINES, &c., during the first three weeks in MARCH next, will be glad to PURCHASE such produce at remunerative prices; or, if preferred, make exchanges for them.

Applications to be made as early as possible to LEWIS SOLOMON, Grape Vine, Covent Garden Market, W.C.

EXTRA FINE DWARF-TRAINED PEARS.—The Undersigned have a remarkably fine stock of the above to dispose of on reasonable terms.

Address, WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, has the pleasure to offer now for the first time his two new excellent Fruits—

APPLE CALVILLE GARIBALDI .. 8*s.*
PEAR BEURRÉ DE GHELIN .. .. 5*s.*

This excellent Pear obtained the First Prize at the great Pomological Show at Tournay, Belgium.

N.B. These two new Fruits are figured in VERSCHAFFELT'S "Illustration Horticole."

APPLE and PEAR TREES, &c.—100 doz. Dwarf and Pyramidal PEAR TREES, best sorts, 20*s.* per doz., packing included.

50 doz. Dwarf and Pyramidal APPLE TREES, best sorts, 12*s.* per doz., packing included.

GENERAL LISTS of NURSERY STOCK on application.

CHARLES B. SAUNDERS, Nurseryman, &c., Jersey.

J. SCOTT'S DESCRIPTIVE FRUIT CATALOGUE, describing the Culture and Character of nearly 800 sorts, price 7*d.* Also his CATALOGUES of CHOICE and GENUINE SEEDS, mostly his own saving; and his CATALOGUES of NURSERY STOCK, ROSES, and CONIFEROUS PLANTS, free on application to

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RICHARD SMITH has no hesitation in saying, that he possesses by far the largest Stock of FRUIT TREES in the kingdom, consisting of Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots, in Maiden Trees, Dwarfs, Bushes, Pyramids, Half-Standards, and Standards; Dwarf-trained, Half-Standard, Standard, and Horizontally-trained Trees, of the finest sorts, and in the best possible condition. DESCRIPTIVE PRICED LISTS on application.

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WELLINGTONIA GIGANTEA.—The attention of the Nobility, Gentry, and the Trade, is invited to the largest stock of 1-year SEEDLING PLANTS in the Kingdom, established in single pots and fit for Spring planting. Price per dozen, 12*s.*; per 100 or 1000 on application. A Sample free by post for 12 stamps.

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RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

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GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1862 and SPRING 1863, comprising Fruit Trees of all the leading kinds, new and selected Roses, fine varieties of American Plants, Choice and Rare Conifers, Evergreen and Deciduous Trees and Shrubs, and a fine Stock of Transplanted Forest Trees, &c., can be had free on application.

Woking Nursery, Surrey.

DWARF-TRAINED FRUIT TREES. Good trees moderate price.

PEARS.—Passe Colmar, Marie Louise, Williams's Bon Chrétien, Van Mons Leon le Clerc, Knight's Monarch, Ne plus Meuris, Easter Beurré, Duchesse d'Angoulême, Beurré d'Aremberg, Glou Morceau, Catillac, Crassane, Beurré Clairgeau, Beurré Magnifica, Prince Albert, Jules Bivort, Comte de Paris, Duchesse d'Orleans, Prevost, Alexandre Lambre, Zepherin Louis, Eliza d'Heyst, Cassane de Mars, Laura de Glymes, Josephine de Malines, Beurré Berckmanns, Beurré Superfin, Autumn Bergamot, Gansel's Bergamot, Beurré de Capiaumont, Jargonelle, Hacon's Incomparable, Beurré Bosc, Chaumontel, Louise Bonne of Jersey, Nelis d'Hiver, Beurré Diel, Leopold I., Bergamot d'Esperon, Comte de Flandres.

PLUMS,—New Early Orleans, Old Orleans, Red Magnum Bonum, Denyer's Victoria, Diamond, Goliah, Cooper's Large Red, Prince of Wales, Woolston's Black Gage, Angelina Burdett, Cloth of Gold, Autumn Compote, White Magnum Bonum, Reine Claude Violet, Washington, Ickworth's Imperatrice, Jefferson's Standard of England.

APPLES. — Hawthornden, Court Pendu Plat, Wellington Pippin, Cox's Orange Pippin, Lord Suffield, Reddlestone Pippin, Stamford Pippin, Yellow Ingestre, Keswick Codlin, Court of Wick, King of Pippins, Blenheim Orange, Cockle Pippin, Kerry Pippin, Nonpareil Russet, Scarlet Pearmain, Kirke's Golden Reinette, Hanwell Souring, Cellini Pippin, Mannington's Pearmain, Northern Spy, Reinette Van Mons, &c.

GEORGE JACKMAN & SON have the pleasure of offering the above named trees; all are well trained, and will be sold per dozen or hundred at moderate prices; the ground being required for other purposes, they are desirous of clearing the above stock this spring.

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LONICERA AUREO RETICULATA (Japan).—The finest variegated Creeper ever offered, being variegated bright green, gold, and crimson veins. Price on application.

NEW BEDDING PANSY, BOY IN BLUE, is now in full bloom, and will continue till Christmas most effective. From 6*s.* per doz.

Also all the best Show Varieties. Selection left to E. S. from 6*s.* per doz.

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REIGATE SILVER SAND.—Best quality, 8*s.* per ton; PEAT SOIL and LOAM, 6*s.* per ton; good BUILDING SAND, 3*s.* per ton; REIGATE BUILDING STONE, best quality, 8*s.* per yard, in not less than 4 ton lots, put on the Rail at Reigate.

W. SHORT, Reigate Heath, Surrey.

COCOA-NUT REFUSE, as used for FERNS, BEGONIAS, &c., so much admired in the International Exhibition, delivered in the City at 1*s.* 6*d.*, or within 2½ miles of Charing Cross, at 2*s.* per bag of 3 bushels. Ten bags or more on lower terms. Apply to the PATENT COCOA FIBRE COMPANY, Kingston-on-Thames, S.W.

Also for particulars of SHORT FIBRE for Orchids and Drainage in pots.

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BARSHAM'S BRUSHES and MATS are the best and most economical of any, and are sold in every town in the kingdom; at DEANE'S, London Bridge; and E. WHITE & SON'S, 95, Cannon Street.

CAUTION.—Every Brush is stamped "J. BARSHAM'S Patent."



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

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Both may be obtained of all principal Seedsmen.

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GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

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MR. A. CHANDLER (of the late Firm of CHANDLER & SONS), HORTICULTURAL VALUER, begs to inform his friends and the public that he has REMOVED from Priory Road, Wandsworth Road, to No. 1, Devonshire Terrace, Fulham Road, S.W.

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MR. J. W. CHAPMAN undertakes the Laying-out and Alteration of Gardens and Pleasure Grounds, Forming and Thinning Plantations, and the general Improvement of Estates.

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ARCHANGEL MATS, for protecting Fruit Trees, Plants, Shrubs, &c., from Frost. A large quantity, fresh imported, are now on Sale at low prices per hundred, delivered free at any of the Metropolitan Railway Stations. Also Ropes, Lines, Twines, Sacks, and Bags of every description. Tanned Garden Netting. A Price List forwarded upon application to

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NEW TWINE GARDEN NETS, 2 yards wide, 4*d.* per yard; ½-inch Mesh do., 8*d.* per yard, 2 yards wide; REPAIRED TANNED NETS, 2 yards wide, 1½*d.* per yard; RABBIT NETS, 2 yards wide, fixed on cords, 1*l.* 18*s.* per 100 yards; WIRE NETTING, 2 feet wide, galvanised, 2-inch Mesh, 4*d.* per yard.

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TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

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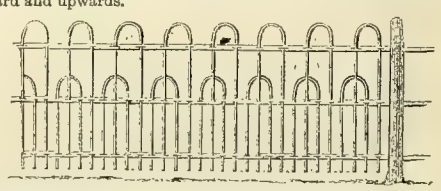
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W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.

Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.

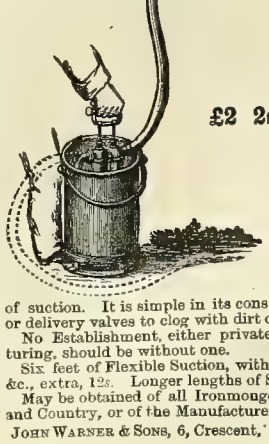


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FIRE ENGINE, £35 (was bought at the East India House) with 100 feet of Copper-riveted Leather Hose; all made by Brahma. Suitable for a gentleman's mansion or small town. In perfect order.

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AMERICAN PORTABLE FIRE ANNIHILATOR and GARDEN ENGINE.



£2 2*s.*

An efficient means of Extinguishing Fires at their commencement. Nine out of ten Fires in London are put out on their first appearance by the London Fire Brigade with Hand Pumps of considerably less power.

One man will throw 7 or 8 gallons per minute from 40 to 50 feet with it.

It is an effective Garden Engine for cleansing or syringing Wall-fruit or Rose Trees, Plants, or Vines.

It may be used to draw water from the pail in which it is fixed, or from a tank or pond by the addition of the required length of suction. It is simple in its construction, having no suction or delivery valves to clog with dirt or leaves.

No Establishment, either private, commercial, or manufacturing, should be without one.

Six feet of Flexible Suction, with Union and Suction Rose &c., extra, 12*s.* Longer lengths of Suction at 1*s.* 6*d.* per foot.

May be obtained of all Ironmongers and Seedsmen in Town and Country, or of the Manufacturers,

JOHN WARNER & SONS, 6, Crescent, Cripplegate, London, E.C.

Old Cheshunt Nurseries, Herts, N.—Roses.

PAUL AND SON have the pleasure to announce that their NEW HYBRID PERPETUAL ROSE, LORD CLYDE, will be ready for delivery in April next, at 7*s.* 6*d.* each. Usual allowance to the Trade when three are taken. A Coloured Plate, by Andrews, post free for 12 stamps.

The NEW ROSES of other Raisers will be ready in March.

They have still to offer fine Home grown STANDARD and DWARF ROSES.

DESCRIPTIVE LISTS of the New Roses, Gladioli, and Genuine Seeds now ready.

Roses.

JOHN HARRISON begs to inform his Friends and the Trade that he has still on hand at least 20,000 Choice HYBRID PERPETUAL ROSES, worked on the Manetti Stock, in the finest possible health and condition, for Sale. Prices for quantities exceedingly low.

Darlington Nursery.—February 7.

Roses for Forcing.

CHARLES NOBLE has a nice assortment, one year, established in 32-pots, ready for Forcing. They are healthy vigorous plants, and cannot fail to give satisfaction. He has also a large stock of Dwarfs and Half-Standards suitable for planting in Roseries; they are offered very cheap.

Sunningdale Nursery, South-Western Railway.

Rose Catalogue for 1863.

EDWIN HOLLAMBY begs to announce that his NEW DESCRIPTIVE PRICED CATALOGUE of the above is now ready, and will be forwarded gratis and post-paid on application.

Seed and Nursery Establishment, Tunbridge Wells, Kent.

DWARF HYBRID PERPETUAL ROSES, on the MANETTI STOCK; Carriage paid to London.—The Undersigned offer very fine and vigorous plants of the above. For a LIST of the more popular sorts, see *Gardeners' Chronicle* for December 6, 1862. Prices given for small and large numbers (per 1000 at a much reduced rate) and a DESCRIPTIVE CATALOGUE of ROSES sent on application to

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

Fine Dwarf Roses.

GEO. CLARKE has an abundance of magnificent plants of DWARF ROSES, including the leading varieties of Hybrid Perpetuals and Bourbons; also well established plants in Pots of PERPETUALS, TEAS, and BOURBONS, suitable for Forcing. Prices forwarded on application.

Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, near the Victoria Railway Station, Pimlico, S.W.

Roses.

GEO. PARSONS begs to offer fine STANDARD ROSES, from 2½ to 4 feet stems, at 5*l.* per 100, or 15*s.* per dozen; including the New Varieties, 18*s.* per dozen, or 6*l.* 10*s.* per 100; the last New Varieties of 1862, DWARFS, 30*s.* per dozen.

CATALOGUES free on application.

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MESSRS. J. AND J. FRASER, Lea Bridge Road Nurseries, N.E., having a fine Stock of healthy vigorous young plants of all the best and NEW FUCHSIAS, beg to invite intending purchasers to an inspection of the same. The plants now offered may be grown into fine specimens by next summer.

A List with price will be forwarded on application, as also a CATALOGUE of STOVE and GREENHOUSE PLANTS, ROSES, FRUIT TREES, CONIFERÆ, &c.

FIRST CLASS NEW FUCHSIAS. — Coloured Drawings by Mr. ANDREWS of SANSPAREIL, BRIDESMAID, CONSPICUA, HERCULES, are now ready, and will be forwarded in exchange for 12 postage stamps.

G. SMITH begs to offer the above as the most Superb FUCHSIAS yet offered to the Public. For description, with price, and also time of sending out, see CATALOGUE, now ready.

GEORGE SMITH, Tollington Nursery, Hornsey Road, Islington, London, N.

Banks's Best New Fuchsias.

E. G. HENDERSON AND SON are now sending out the three following First-class Flowers:—

MDLLE. TREBELLI (BANKS).
BIANCA MARGINATA (BANKS).
MARS (BANKS).

As neat young plants for growing on into specimens (and others adapted for stock), price 3*s.* 6*d.* and 5*s.* each. Also plants of all last year's best varieties, 1*s.* 6*d.* to 2*s.* 6*d.* each.

SOLANUM CAPSICASTRUM FOLIA VARIEGATA, a beautiful table plant, with elegantly variegated leaves and red berries; drooping habit; 3*s.* 6*d.* and 5*s.* each.

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DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT's Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent.

Established 1787.

THOMAS KENNEDY AND CO.,
NURSERY AND SEED ESTABLISHMENT,
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*** PRICED CATALOGUES sent free on application:
FREE DELIVERY.

FARM and GARDEN SEEDS under certain limitations will be DELIVERED FREE OF CARRIAGE to the chief Railway Stations in Great Britain and the principal Steam Ports in Ireland.

FINE MIXED HOLLYHOCK SEED from all named varieties, 1*s.* per packet; the double blue and white Perpetual TREE VIOLETS, strong plants, 4*s.* per doz.

A remittance must accompany all orders by Post-office Order or penny postage stamps. All goods sent postage free.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

Seed Catalogue.—Spring, 1863.

WM. WOOD AND SON respectfully announce that their DESCRIPTIVE SEED CATALOGUE for the present season, containing select Lists of the most approved KITCHEN GARDEN, FLOWER GARDEN, and FARM SEEDS, is now ready, and may be had post free on application.

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AWARDED FOR SUPERIORITY AND GENERAL EXCELLENCE TO

BUTLER & McCULLOCH, SEED MERCHANTS,

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COLLECTIONS OF VEGETABLE SEEDS SUITABLE FOR ANY SIZED GARDEN.

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SEEDS.—GENUINE HOME-GROWN

VEGETABLE, FLOWER, AND AGRICULTURAL.

If above the value of 20*s.* Carriage paid to any Railway Station, and to all Irish and Welsh Ports in communication with Bristol.

CATALOGUES post free on application.

JAMES GARAWAY AND CO., DURDHAM DOWN NURSERIES, BRISTOL.

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COLLECTIONS of KITCHEN GARDEN SEEDS

FOR ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.
£3.	**£2.**	**£1.**	**10s. 6d.**

Containing only Seeds of first-class quality, and Varieties that can be confidently recommended.

For particulars, see CATALOGUE, a Copy of which may be had Post Free on application.

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NEAR UCKFIELD, SUSSEX.

A PLAIN AND STRAIGHTFORWARD

CATALOGUE of FLOWER and VEGETABLE SEEDS (86 pages),

Not offering such peculiar advantages to Purchasers as to necessitate Deterioration in Quality of Goods, but containing everything desirable to make

A GARDEN PRODUCTIVE AND ATTRACTIVE,

at the lowest remunerative prices for REALLY GOOD and SATISFACTORY ARTICLES, is just published by

HOOPER AND CO., SEEDSMEN,

COVENT GARDEN MARKET, LONDON, W.C.,

and will be forwarded gratis and post free on application.

SPLENDID NEW SCARLET VERBENA, LORD LEIGH.

S. PERKINS & SON,

In offering the above SCARLET VERBENA, have much pleasure in stating that it has been awarded a First-Class Certificate by the Floral Committee of the Royal Horticultural Society, June 11, 1862; First-Class Certificate by the Royal Botanic Society, July 9; First-Class Certificate at the Crystal Palace, Sydenham, Sept. 4 and 5; First-Class Certificate by the Rugby Floricultural Society, August 29; First Prize by the Birmingham Botanic Society, July 10.

After the above Awards, S. P. & SON think it needless to offer any remarks, further than that it is of a free habit and will prove a first-class Bedding variety; colour the most dazzling scarlet that can be conceived, with a clear white eye; truss and pip extremely large, and of the finest shape and quality.

See Editor's remarks in *Gardeners' Chronicle*, August 30, 1862, and December 27, 1862; "Journal of Horticulture," Sept. 9, 1862. An Engraving will appear in the April Number of the "Florist and Pomologist."

Plants after April 15, 5s. each. Special Price by the dozen on application to the

PARK NURSERY, COVENTRY.

ROYAL EXOTIC NURSERY, CHELSEA, S.W.

JAMES VEITCH, JUN.,

RESPECTFULLY ANNOUNCES THAT HIS

CATALOGUE of KITCHEN GARDEN and FLOWER SEEDS for 1862-63,

WITH A LIST OF IMPLEMENTS AND OTHER GARDEN REQUISITES,

IS NOW PUBLISHED, AND WILL BE FORWARDED POST FREE ON APPLICATION.

J. V., JUN., devoting his personal attention to this department of his business, can warrant his

SEEDS TRUE TO NAME AND OF THE MOST GENUINE DESCRIPTION.

SPLENDID NEW BEDDING PLANTS.

MESSRS. VEITCH & SON,

ROYAL EXOTIC NURSERIES, EXETER AND CHELSEA,

Are now prepared to supply SEEDS of the following SPLENDID NOVELTIES, recently introduced by them, feeling confident that two such fine additions to the Flower Garden cannot fail to give general satisfaction.

AMARANTHUS MELANCHOLICUS RUBER.

Introduced from Japan by Mr. J. G. VEITCH. Its beautiful blood red foliage renders it much superior to the Perilla, where colour and effect are required, and this, combined with its dwarf compact habit (averaging from 9 to 12 inches), cannot fail to make it the most popular dark-foliaged bedding plant yet introduced. It has been Commended by the Floral Committee of the Royal Horticultural Society, on account of its distinct habit as a bedding plant.

MIMULUS CUPREUS.

This beautiful little perfectly hardy novelty was sent us by Mr. PEARCE, from the Andes of Chili, where he met with it at an elevation of from 6000 to 7000 feet. Its dwarf and compact habit, not exceeding 4 to 6 inches in height, its perfect hardiness, and producing its bright orange-crimson flowers in great profusion, render it equally useful for the Flower Garden or for Pot culture. It has been constantly exhibited during the past season, and had Medals awarded it at both the Royal Horticultural and the Royal Botanic Societies. It is indeed a charming plant, and cannot fail to give general satisfaction.

Packets of either of the above, 1s., 1s. 6d., and 2s. 6d. each, according to size.

LARGE IMPORTATION of STANDARD ROSES.

WILLIAM WOOD & SON

Have much pleasure in announcing the arrival of a large Importation of STANDARD and DWARF ROSES in fine order, which they will be happy to supply on most reasonable terms.

CATALOGUES free and post paid on application.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

FOSTER'S SEEDLING GRAPE.

MESSRS. JOHN & CHARLES LEE

have to offer Mr. Foster's stock of this fine NEW GRAPE, which can be confidently recommended for general cultivation in cool Vineries. It has borne an abundant crop in the large Conservatory of the Royal Horticultural Society at Chiswick, the bunches being large, with medium sized berries of a pale amber colour. The flavour of Foster's Seedling is most luscious, equalling the richness of its twin sister Lady Downe's, and as far as can be seen, partaking of the same quality of hanging well without shrivelling.

Canes for planting, 7s. 6d. each. A few Fruiting Canes at 21s. each.

ROYAL VINEYARD NURSERY AND SEED ESTABLISHMENT, HAMMERSMITH, LONDON, W.

NEW SHRUBBY CALCEOLARIAS.

MESSRS. JOHN & CHARLES LEE

Having purchased the entire stock of Seedling SHRUBBY CALCEOLARIAS, raised by Mr. Watson, of St. Alban's, in 1861 and 1862, have selected four distinct colours, which they intend to offer to the public the first week in May. They are the finest high coloured Shrubby Calceolarias yet raised, and in point of habit and quality are everything that can be desired for bedding or pot culture. They are decidedly shrubby and of good constitution, with a dwarf spreading habit and good foliage. The flowers rise just above the leaves, forming an even mass of exquisite colouring.

Price 5s. each, or 15s. the set, as under:—

PRINCESS ALEXANDRA.—Rich orange buff, of very dwarf habit, free blooming and conspicuous. Quite a new colour in Calceolarias.

MAGNIFICENT.—Deep orange flowers, of large size with close mouth, flower stalks short and stiff, a good dense habit and first-rate in every respect.

PRINCE LOUIS of HESSE.—Rich crimson flowers of medium size, free blooming, habit very dwarf and showy.

FIREFLY.—Intense orange scarlet flowers of good size, free blooming dwarf habit, the brightest colour yet raised.

Terms to the Trade on application.

ROYAL VINEYARD NURSERY AND SEED ESTABLISHMENT, HAMMERSMITH, LONDON, W.

HARDY FLOWER SEEDS, of Showy Colours only, sent free by post or rail, by SUTTON AND SONS.

A COLLECTION of the best 50 sorts known .. 10s. 6d.
A COLLECTION of the best 36 sorts known .. 7 6
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SUTTON'S CATALOGUE of SEEDS will be sent post free.
SUTTON & SONS, Seed Growers, Reading, Berks.

Seed Trade.

JAMES CARTER AND CO., Holborn, W.C., have a few lbs. of the following to offer to the Trade:—

MELVILLE'S GARNISHING KAIL,
VARIEGATED BEET, for garnishing,
SNOW'S WINTER BROCCOLI, true,
LITTLE PIXIE CABBAGE.
NEW FEATHER STEM SAVOY,
DANVER'S YELLOW ONION.
TOMATOE DE LAYE.
HENDERSON'S PINE-APPLE BEET.

Seeds, Seeds, Seeds.

S. GLENDINNING AND SONS' (Successors to the late R. GLENDINNING) CATALOGUE of KITCHEN GARDEN, AGRICULTURAL and FLOWER SEEDS is now ready and may be had on application.
Chiswick Nursery, London, W.—February, 1863.

New and Genuine Seeds.

GEORGE PARSONS, SEEDSMAN by Appointment to HER MAJESTY. A DESCRIPTIVE SELECT PRICED LIST, post free, on application.
27 and 28, Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

To Nurserymen, Seedsmen, &c.

ROBERT KENNEDY, SEEDSMAN, Great Piazza, Covent Garden, has received a consignment of a very choice parcel of Seeds from a well known British grower residing abroad. They are chiefly rare hard-wooded greenhouse plants. 1000 Seeds of CAMELLIAS from the best stock in cultivation. A few lots EUCALYPTUS, the timber of which was so greatly admired at the International Exhibition. They will be sold for the highest offer.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.
The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

Genuine Seeds.—Carriage Free.

WM. CUTBUSH AND SON beg to intimate that they are now prepared to execute orders for GENUINE GARDEN SEEDS, for which their house is extensively known.
Mr. C. gives his personal attention to this branch of our business, and we can confidently recommend all offered as being of the best quality, at as moderate prices as consistent.
CATALOGUES free on application.
Highgate, London, N.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, begs to inform his friends and the public he can supply from his great Stock of the above 20 pairs of the best large Varieties for 10s.; and 25 pairs of best POMPONES for 10s.; 20 pairs of Cuttings of the large Varieties for 5s.; and 25 pairs of Pompones ditto for 5s.
New CATALOGUES ready for one stamp.
N.B. To save trouble all orders to be paid to J. H. BIRD, Stoke Newington.

THE CHRYSANTHEMUM.—At a Preliminary Meeting, held at the Angel Hotel, Islington, February 2, 1863, SHIRLEY HIBBERD, Esq., in the Chair, the following Resolution was adopted:—

"That a Society be formed, to be called The Amalmagated Metropolitan Chrysanthemum Society."

It was further resolved, that the MEETING be ADJOURNED until MONDAY, February 16, to be holden at the Angel Hotel, Islington, at 8 o'clock in the Evening, for the Election of Officers, &c. J. JEFFRIES, Secretary (pro tem).

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 7, 1863.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Feb. 10 { Royal Horticultural (Anniversary) at South Kensington .. 1 P.M.
WEDNESDAY, — 11 { Society of Arts .. .. .. 8 P.M.
Microscopical (Anniversary) .. 8 P.M.

A VERY important paper by M. BOUSSINGAULT, on the nature of the gases produced during the decomposition of carbonic acid by leaves exposed to light, has lately appeared in the "Annales des Sciences Naturelles."

It has long been received as incontestible that carbon is fixed under such circumstances, and that oxygen is given off, thereby replacing the loss due to combustion and to the respiration of animals. Experiments, however, have constantly given a greater or less excess of azote after exposition to sun light, over the original estimate. And though in some cases this excess was purely accidental, observation shows that it is too constant, though the quantity may be far less than was previously supposed, to be attributed to mere accident alone. Professor DAUBENY, for example, could never obtain oxygen from these experiments, free from azote, and the most recent observations of Messrs. CLOËZ and GRATIOLET, show that though the proportion of azote was less every day, as if the azote detained in the vegetable tissues or in the water in which the plant was immersed, were driven off by the oxygen, there was still a notable quantity present.

M. BOUSSINGAULT himself tried in vain to obtain

pure oxygen from the action of light on the green parts of vegetables immersed in water, slightly acidulated with carbonic acid. He determined however, to examine matters more closely. In former experiments care had been taken to eliminate the air dissolved in the water or detained in the tissue of plants; but as it was found impossible to do this effectually, he determined to eliminate nothing. Still the result was as before, an excess of azote, though less than was shown by former experiments.

The question then arose, whether this was real or apparent. Did it follow that because gas did not disappear by absorbent reagents, as carbonic acid by potash, and oxygen by moist phosphorus or alkaline pyrogallates, or whatever other method of analysis might be used, that it was indubitably azote?

The azote was therefore carefully examined, and it appeared that it contained a notable quantity of inflammable gas, constituted principally of carbonic oxide, with a slight admixture of proto-carbonate of hydrogen, the volume of inflammable matter being as nearly as possible equal to the volume of azote in excess, and therefore clearly formed during the decomposition of the carbonic acid.

The green leaves, then, of plants, M. BOUSSINGAULT concludes, do not emit azote during the decomposition of carbonic acid, but together with pure oxygen, a portion of carbonic acid and proto-carbonate of hydrogen.

It is curious, he remarks, that the brilliant discovery by PRIESTLEY of the property possessed by plants of purifying the air during their respiration excited interest more with reference to its bearing on questions of health than of vegetable physiology; nor less so, after the lapse of a century, that it should appear that, during the same process, the leaves probably of all plants, and certainly those of aquatic plants, while they emit a gas which purifies the atmosphere, at the same time give out carbonic oxide, one of the most deleterious of gases. Is it not moreover possible that the notorious unwholesomeness of marshy districts may in part be due to this cause? *M. J. B.*

WE were lately much surprised on entering the room of a friend, who had several groups of Crocuses of different varieties vegetating in water, to see every plant in one set of triple glasses wearing a very peculiar appearance, while a single plant only, which however belonged to the same variety, was similarly affected in a second set.

The three lower sheaths were as usual filmy, and directed, according to circumstances, either to one side or disposed spirally. The tips only of the two following sheaths were filmy, the rest being of a firm waxy consistence, swelling out abruptly, crisp like quickly grown Asparagus, extremely glossy and nearly colourless. The upper sheath, which reached a length of from 5 to 6 inches, had merely a slight perforation on the top, through which in some cases the tips of the leaves made their appearance, while in others they were wholly concealed, and in every case more or less irregular in outline and surface, and partially or entirely chlorotised. On opening the upper sheath, the flowers were found at the base entirely confined in their own scarious envelope, with the petals extremely short and withered, scarcely surpassing half the length of the anthers, while the style and stigma were in most cases entirely concealed. Every flower, of which there were about five in each shoot, was perfectly dead. It was clear, in fact, that the whole of the nutriment which was intended to support the fructification had been diverted into the sheaths, arresting at an early stage the development of the several parts of the flower, and causing their ultimate death, while the leaves were more or less pauperised. The cause of this diversion could not be ascertained, but in every case the roots were much impaired, and in one not a single root had been formed. We have no reason, however, for believing that the hypertrophy of the sheaths was due to their condition. The disease is new to us, though possibly many of our readers may be acquainted with it, and at any rate is worth recording. *M. J. B.*

—— REFERRING to some recent remarks of ours on the CLASSIFICATION of DAHLIAS (*Gard. Chron.*, 1862, p. 1099) a writer in *Gossip*, who signs himself "Telegram," while giving his adhesion to the arrangement we proposed, points to a classification of his own in the pages of that periodical published so long ago as 1858, but which has, he confesses, produced no manifest improvement in respect to the present absurd and meaningless classification into "show" and "fancy" varieties. On turning to the volume indicated, we find that "Telegram's" scheme is more comprehensive than our own, as it includes an arrangement of the plants themselves, whereas we had dealt only with the blooms of the show class. We, therefore, gladly incorporate his scheme with that we have suggested; and in doing so again urge upon the florists the desirableness for perspicuity's sake of adopting some such classification—a better one if forthcoming—as that which has been proposed, rather than continuing to follow the unmeaning arrangement at present in use. If, as "Telegram" observes, Messrs. TURNER and KEYNES would at once take the initiative in this matter, the whole thing would be as good as done.

In the arrangement which "Telegram" proposes, all those varieties which produce blooms up to the required standard in respect to form, are admitted as SHOW DAHLIAS, irrespective of their colours: this is the group to which our previous remarks refer. Then follows a set called BORDER DAHLIAS, including those in which the blooms are of brilliant colours, though less perfect in form, such indeed as would produce a grand effect planted at the back of a border, on the verge of a shrubbery, or in any place not immediately under the eye of the observer. The third set comprises those dwarf varieties with a spreading habit, which are capable of being massed with good effect in a flower garden, and these are called BEDDING DAHLIAS. We add a fourth group which has sprung up since the paper was written, that of the POMPON DAHLIAS, which includes those varieties with diminutive but symmetrical flower-heads, and which as they become more and more dwarfed, will be the most suitable of all Dahlias for planting in a flower garden, as they are now the most suitable for bouquets, &c. Thus we should come to range all the cultivated varieties of Dahlia in one of four primary groups, thus—

1. SHOW DAHLIAS, with the "blooms" or flower-heads nearly or quite perfect in respect to the technical "properties" which constitute floral excellence.
2. BORDER DAHLIAS, with bright-coloured attractive blooms, and a floriferous habit.
3. BEDDING DAHLIAS, with a dwarf spreading free-blooming habit, and bright attractive decided colours.
4. POMPON DAHLIAS, with diminutive symmetrical blooms, combining the chief points of Class 1 (except size), with the habit of Class 3, or a near approach thereto.

As a basis for the subdivision of his leading groups, "Telegram" proposed to take colour, and suggested its application according to the following formulary:—Selfs, Shaded, Tipped, Edged, Striped, and Mottled. Here, however, we prefer our own plan, which is we think sufficiently detailed for all practical purposes, and more simple than the foregoing; it reads thus:—Self-coloured, Laced, Tipped and Striped. The fourth class of Pompons will for a few years require the weeding out of all the coarser-bloomed sorts which get associated with the genuine minimums, as well as of all the taller growers, and there should be a constant aim, in breeding, to secure absolute dwarfness, combining therewith the free blooming, slender, and graceful habit which the more typical varieties of this group now assume, and which has already rendered them especial favourites.

As regards the plea of Mr. RAWLINGS (1862, p. 1124) for the retention at the exhibitions of a "fancy" class to receive the dark sorts having light tips and edges, on the ground that they require a class to themselves, because they are of inferior form, and would be prevented by the superiority of the others from appearing in a good stand, "Telegram" observes, with much force and truth, that the very reason urged for its retention is precisely that which should lead to its being got rid of altogether; for, he continues, "I believe no more effectual means could be devised for the perpetuation of an inferior race than giving prizes expressly for these sorts of imperfect form. Besides, a class which contains such varieties as Duchess of Kent, the two Gems BURBURY'S and STAFFORD'S, Lady Paxton, Madame Alboni, Miss Jones, Mrs. Crisp, Norah Creina, Pluto, Pauline, Queen Mab, and a few others, is well able to hold its own amongst the best. The sorts named are not only admissible into a first-rate stand, but would, if I mistake not, be found amongst the most effective. There can be no doubt that these will soon be followed by others of equal or even superior excellence; while those deficient in form should be forthwith consigned to the borders, where they will be more effective than those adapted solely for exhibition."

This writer takes exception to our recommendation, that blooms which have sported back to selfs from the striped and tipped classes, should not be admissible for exhibition in any class. If, he says, a self-coloured flower possesses the required properties, I think it ought not to be excluded simply because it has varied or sported from its original state of variegation, or *vice versâ*. We still believe they ought not to be admitted in cases where class-showing is adopted. Of course in open classes such blooms might be introduced, but where a series of prizes is offered for the exhibition of varieties in certain classes, it appears to us only fair and reasonable that the exhibitions in these several classes should consist of varieties which legitimately belong to them. A "self" bloom of a normally striped variety is what is technically called a "flower run," and we cannot see any reason why it should not be treated as such, and condemned so far as its exhibition is concerned.

As regards the redistribution of the present amount of prizes, which would be necessary were the "fancy" class to be abolished at the exhibitions, and which we at least do not wish to see diminished, "Telegram" (whose opinion, if we rightly guess, is of some weight), thinks an increased number of prizes in the several classes would be more acceptable to amateur exhibitors than an increase in the number of classes. He also very judiciously points out that in respect to the relative value of prizes, the gradations should be easier than they frequently are. It is by no means unusual to read in an exhibition schedule such an item as this: For the best 24 Dahlias, 5*l.*; second, 2*l.* 10*s.*; third, 1*l.* 10*s.*; fourth, 1*l.* Here there is offered 10*l.* in all; but the difference between the first and second prize is too great, for it often happens—oftener, indeed, than not—that the first and second collections are very nearly on a par. If, urges "Telegram," "the exact sum of 10*l.* for the class be a Medo-Persic necessity, would it not be better to allot it thus:—First, 4*l.*; second, 3*l.*; third, 2*l.*; fourth, 1*l.*? Or, to make use of the funds available by reason of the extinction of the 'fancy' section, five prizes instead of four might be offered, of which the highest would be 5*l.* and the lowest 1*l.* in value; and so throughout the entire number of classes." We are quite ready to endorse this recommendation for the more regular gradation of the amount of the prizes, because nothing in its way can be more unsatisfactory than to see a stand of blooms which has only just—by a hair's breadth—failed to take the premier place, awarded a prize which is only half the value of that carried off by the hair's-breadth winner. It is seldom indeed that there is the great discrepancy between the exhibitions which take the two first places, which there should be to make such a distribution as that supposed, a fair and equitable one.

—— Favoured by the climate of Sicily, M. MICHEL ANGELO CONSOLE, Assistant Director of the Botanic Garden of Palermo, has had the rare opportunity of examining the flowers of certain plants, formerly referred to OPUNTIA, but now called CONSOLEA, to wit, *O. rubescens* and *O. spinosissima*. He finds in their blossoms a structure which has not hitherto been observed or recorded in the plants of this family. The base of the style, which is tapered below so as to become substipitate, stands in a kind of cup at the apex of the ovary. In other words the style is inserted in a cupuliform disk. It seems that the species in which this structure has been observed, have other characteristic features, as for example, the stems are tall, nearly simple, and everywhere inarticulated and continuous. These facts have induced M. LEMAIRE to propose for the plants a new genus of Cactaceæ, which he calls CONSOLEA, in honour of M. CONSOLE, and to which he refers O. rubescens, an unarmed, and O. catacantha, ferox, leucacantha, and spinosissima, all aculeate species.

GARDEN DECORATION.

CREWE HALL is a handsome building of the time of James I., and remarkable for elaborated Oak panelling, &c., in the dining-room as well as in the "carved parlour;" also a stair with a very quaint balustrade leading to a long morning room ("the gallery" above the entresol) which occupies the entire length of the house east and west. A large segmental bay window, projecting on its centre, commands the Park scenery with its beautiful lake. The space between the house and the shore of the latter has been converted into a geometric garden (on various levels) terminated by a boat-house, which acts as an architectural terrace having flanking flights of steps to a landing place.

The principal compartment of flower beds, &c. (the subject of the accompanying chromo-lithograph) is particularly effective, and forms a striking foreground to the lake and woods beyond. Owing to the elevated floor of the said gallery bay window (above that of the chapel) the scroll work tells to great advantage, through the admirable management of Mr. Wm. Whitaker, the head gardener. The single lines of Box, by his judicious treatment, have now arrived at proper and uniform dimensions, viz. 3 inches high and 2 inches thick, thus giving great solidity to the various forms of tracery, very different from the gossamer appearance they frequently assume on being first planted with very thin Box.

East of the house there is another parterre with two compartments of embroidered beds divided by a long straight walk, flanked by Araucarias, and leading to the shrubbery.

The parterre now illustrated affords another example of the beautiful geometrical designs of Mr. Nesfield, some of which have already appeared in our last volume.

DIES ORCHIDIANÆ.*—No. IV.

(*Continued from p. 54.*)

HAVING lingered long enough among the Orchids of 30 years ago, I must now proceed to devote a "Dies" or two to the Orchids of the present day. This will

* You must allow me, Mr. Editor, to object to the appropriation of the above heading by other writers, especially when coupled with such a very discourteous attack as was made in your last Number but one upon my valued friend Prof. Reichenbach. Surely the *Dies Orchidianæ* are quite as much the *peculium* of "Serapias" as were the *Noctes Ambrosianæ* of the late lamented Christopher North.

lead me and my readers—if I have any—to the nurseries of Messrs. Low, Rollisson, Williams, and Veitch, as well as to the private establishments of Messrs. Day, McMorland, and Rucker; all of which I was enabled to visit during the few days I spent in town last November. This month, as every one knows, is famous for its fogs, in London more especially, and I need not therefore have felt surprised when, on attempting to look out of the windows of my hotel in Berners Street, I found it impossible to see across the street. This did not promise much sport in Orchid-hunting; however, I started in a state of sullen despair for Clapton Nursery, and was rewarded by finding myself in bright sunshine long before I reached my destination, although in Berners Street (as I afterwards learned) the fog had continued without any mitigation throughout the livelong day!

Arrived at Clapton I soon found that I had enough work before me, for here were four large houses all filled to overflowing with fine Orchids; most of them imported during the last few months from Brazil, Moulmein, or the East Indian Archipelago. The profusion in which some of the more popular kinds had been safely brought across the seas quite took me by surprise. In one house an endless row of fine plants of Cœlogyne pandurata, ranged horizontally along the walls, had all the effect of a frieze. Another house was mainly devoted to Lælia purpurata, the demand for which Mr. Low told me was so great that he had sold one houseful already in the course of the year! Phalænopsis amabilis, and two or three other species, hung in festoons from the rafters, as did also Sophronitis grandiflora and Ionopsis violacea. The last is a delicate but beautiful plant, something like an Oncidium, and appears to flower freely treated like the Burlingtonias. The Sophronitis is better known, though it is only of late that it has received the homage it so well deserves. This I have no doubt is the identical Orchid that a South American traveller once assured me he had often observed in the virgin forests of Brazil, almost wrapping, as it were, the trees in a sheet of flame! And although I must confess that I was disposed at the time to abate somewhat from the above description, on the score of traveller's license, still, after having seen masses of the plant in flower in Mr. Day's collection, at Chatsworth, and elsewhere, I begin to think that my informant's account was no exaggeration. It clips hold of the trunks of large trees in a peculiar fashion, having much the appearance of an ancient *testudo*, and is easily peeled off in large sheets, which may again be as easily replaced on logs of wood (cork-wood is the best) of the same curvature. Then add a few bits of living Moss, suspend near the glass, and success is certain. There are several varieties of this Sophronitis, differing much in the size of their flowers, and the intensity of their colouring, which in some cases approaches nearer to pure scarlet than anything yet observed among Orchids, in which—as a tribe—the colour in question is the rarest of all.

Among Mr. Low's Brazilian importations I was pleased to see a goodly number of Burlingtonias, which for some reason or other have always been rare in this country. This may in part be due to the circumstance of their not succeeding under pot culture; but only suspend them on blocks of wood, and give them plenty of heat and moisture in their growing season, and then no plants could be more manageable, certainly none can be more beautiful. I was also glad to notice a few plants of my old favourite Rodriguezia coccinea, once the commonest of Orchids, but of late years rarely seen, because, like the Burlingtonias, it has a trick of disappearing if kept in a pot. Prof. Reichenbach, I perceive, now refers all the Burlingtonias to Rodriguezia, and here I confess I am disposed to agree with him. Mr. Low had a new Lælia, so-called, in flower, and a beautiful thing it was; but I thought it inclined more to Cattleya, so I counted the pollen-masses and found that they were four, as in the latter genus, instead of eight, as in the former. And oh, why will not gardeners do this very simple sum in arithmetic for themselves, and thereby save a very large proportion of the confusion that now surrounds these two favourite genera. The plant above referred to proved to be one of the many fine and distinct varieties of that Protean species, Cattleya (Lælia) elegans.

But if Mr. Low was rich in Orchids from the New World, his importations from the Old were still more interesting and important; indeed, besides large supplies of old-established favourites, there was a greater amount of novelty than I ever before remember to have met with at one and the same time at one and the same place.

I counted as many as half a dozen air-plants which, by their habit, I cannot doubt were new, and quite as many Cœlogynes and Dendrobiums. Of the latter D. infundibuliforme, D. nodatum, and D. Lowii, have already been noticed in the columns of the *Gardeners' Chronicle*, but there were others of equal promise, *e. g.*, D. salaccense, D. pictum, and a species from Borneo, of which dried specimens were shown to me, and which I am satisfied will prove the very best of all the pendent-stemmed kinds. Mr. Low had called it D. Dayii. I noticed also a pretty Dendrobium in flower that had much the appearance of D. palpebræ, but was still, I think, distinct. It may be provisionally called D. bicolor. Time would fail me were I to attempt to describe the multitudes of Cypripediums (the list of these was likely I heard to be soon swelled by novelties already on their way to Europe), Limatodes rosea, Calanthe vestita, &c., but I must not omit to notice that one large house was rendered quite gay by crowds of the last-named Calanthe, of which I scarcely knew whether most to admire the variety with a crimson or that with a yellow-eyed lip. Both were most beautiful, when seen in such profusion, and are really invaluable as winter-flowering plants. They insist, however, upon having a good quantum of heat, so that there is no chance of their ever elbowing Lycaste Skinneri, which seems disposed to make itself quite at home in our drawing-rooms! *Serapias.*

WINTER FLOWER GARDENING.—No. I.

Will you permit me to offer a few practical remarks on the subject of that great desideratum, a winter flower garden.

I have read with much interest the leading articles in Nos. 48 and 49 of last year, and rejoice to see you taking up this too long neglected branch of gardening. When it is remembered that a winter garden must last for seven months, and on the other hand that the summer display is at most for four months, there is no question as to which is the most important of the two. I have therefore given a good deal of consideration to the former, and for 14 years our "modern flower garden" has not been "bare at this season of the year," nor has it once been filled on the deplorable make shift plan of cut branches merely stuck in the ground. That plan however I pass over with a certain amount of respect, as it shows at least the wholesome craving for a garden all the year round, and the truth of that abhorrence of a vacuum which we inherit from Nature herself. You suggest what to do. Will you hear what we have done, so that readers of the same means, and with similar situation and soil, may be spared disappointment, and be encouraged to follow your advice and suggestions.

Many have been the trials and failures with us, but we are now on a regular system which suits our situation, close to the sea and unsheltered, and our soil, which is poor and light; and year after year we have had cheerful gay beds without disappointment, even in the winter of 1860-1.

The beds are on Grass, 35 in number, the largest 23 feet by 7½, and a circle of 13 feet diameter, and the smallest circles of 5½ feet diameter.

There is in each bed a centre of evergreens, a border or ring of colour, an edging of variegation, and close to the Grass early bulbs. Now the article of colour is my strong point, to which I wish to draw attention and to popularise. Looking over your second article, in spite of the long list of costly and beautiful shrubs and plants, colour, in the common acceptation of the word, is wanting until the Crocuses bloom, and for the dead months it must be so, unless you employ the various varieties of the Brassica tribe. By the use of these you obtain every shade, from the darkest purple of the Siberian to the vivid Magenta, mauve, and rose of the Borecoles, and also pure and yellow white. All other green looks dead when compared with the lively growing green of the German Kale, and in the unhearted Dutch Cabbage, the various shades of purple and red, combined with rich bloom, have a very telling effect in large centre beds.

The names of Kale and Borecole at first sound rather startling as ornaments for the flower garden, and in conjunction with Yuccas, Thuja aurea, Skimmia japonica, and the other tempting and beautiful shrubs named at p. 1148 of your Journal. I really know not how they would combine; but then that would be a winter garden on a grand scale, which is beyond the means of hundreds who, like myself, have constant enjoyment and work in their smaller gardens, and it is for this class I write.

Our first attempt was on a grand scale. Variegated Hollies, Juniperus virginiana and canadensis, Cypresses, Ericas, Berberis, Daphnes, Rhododendron hirsutum variegatum, besides those Evergreens which now I only use. Also edgings of Cineraria maritima, Santolina squarrosa, Carnations, Pinks, Onopordon Acanthium, Hellebores, Thymes, Hepaticas, Saxifrages, Alyssums, Stocks and Wallflowers; besides bulbs both early and late flowering.

The effect was all that could be desired (except the want of colour in winter), but it was a failure, because the first six classes of evergreens will not bear lifting in the cold winds and hot suns of May, without care and trouble, which at that busy season cannot be commanded in a small establishment, where there can be no reserve garden or orchard house, or unlimited number of hands. The outlay was very considerable, but it was to be once for all, and the plants were to last for years. Many were dead, few presentable, and none good specimens by the next winter. It was the first and last experiment on a grand scale. A few shillings, *not* yearly, now suffice. *F. J. H., Wardie Lodge, Edinburgh.*

(To be continued.)

Home Correspondence.

Garden Law: No. 1, Useless Premises.—A nurseryman takes on lease at a high rent a piece of land, having houses, &c., upon it. He takes the lease solely for the purposes of his business, but after he has got his lease he discovers that, owing to the bad construction of the houses and the defective drainage of the land, it is impossible to get his plants to grow or even to keep them alive. He complains to his landlord, who declines to do anything, but who nevertheless insists on being paid his rent. To this the tenant objects, and, not being prepared to lay out his own money in improving his landlord's property, quits the premises in disgust and refuses to pay. A lawsuit ensues, and the question arises whether the tenant is bound to pay the rent, or whether he is not entitled to repudiate the lease. The landlord urges that he entered into no agreement with the tenant, except that he should peaceably enjoy the property for so many years at a certain rent. The nurseryman answers, "You knew very well that I only wanted the place for the purpose of carrying on my business; the place is not fit for any such purpose, and I ought not to be bound to keep what is of no use to me. If I had hired a house of you that was not fit for habitation I could have left, as somebody did who took furnished apartments at Brighton, and found them so infested with bugs as to be unendurable. I am much in the same position. He wanted the apartments to live in, and they were not fit for his purpose; I wanted the land to grow plants in, and it's not fit for my purpose. He gave up his rooms and was not obliged to pay any rent; I give up my land—why should I pay any more than he?" The landlord replies, "I know nothing about the bugs at Brighton. It may be that if a person takes furnished apartments he is entitled to have them in such a state that he can live in them; but as to what you say about the house, I take it that if you go and look over an unfurnished house, and then take a lease of it, and after you have got into it, you find you do not like it, and you cannot live in it, you must nevertheless pay your rent. That is my case; you saw the place before you took it; if it does not suit you, that is your affair. I never promised that it should." The judge declares that the landlord's law is better than the tenant's, and says that by the law of England, if a man contracts for the use of land for a specified time, at a specified rent, he is bound by that bargain, even though he took it for a particular purpose, and that purpose is not attained "Suppose, for instance," adds the judge, "that he took it with the object of making a handsome income out of it as a farm—if his object fail altogether, is it to be said that he is not liable for any rent? Suppose again he takes it for building purposes, and finds that the subsoil is such that no foundations can be made except at a ruinous expense—is he to be discharged from his contract to pay rent?" The judge is a little perplexed by the case of the lodgings, especially as he decided it himself, but he agrees with the landlord that there is a difference between furnished apartments and an unfurnished house or a piece of land. Whatever the law may be as to the lodgings, the judge declares that a person who lets a house or a piece of land, does not implicitly undertake that it is fit for habitation, cultivation, or any other purpose. The decision is therefore against the tenant, and he has to pay. *Lincoln's Inn.*

Orchidology.—Let "Mr. Crabro Scandicus" give short technical characters for the so-called genera Lælia, Brasavola, Schomburgkia, and Cattleya, in *Gardeners' Chronicle.* If there should be found any, I'll gladly accept the genera again; if not, he may enjoy genera without characters. So much for science. As to his astonishing libel, I do not feel inclined to give him any answer. Critics should depend on arguments, not on calumniations. *H. G. Reichenbach, fil., Leipsic, Jan.* 30.

Grape Growing in Norfolk.—Mr. Hardie seems to have got into hot water with his brother gardeners for going out of the old road of Grape growing. He is not the only man who has been abused in the same way. When Stephenson proposed railway travelling he was put down as a dangerous man; and so are all who attempt to strike out a new path of their own. I do not perceive the great difficulty which some of your correspondents seem to see in reference to Mr. Hardie producing Grapes the first season from green wood. Let us just take a glance at the good old way of growing the Vine during the first season. We order our plants from some nursery, and give from 3*s.* 6*d.* to 5*s.* each for them, *i. e.* for Hamburghs and Muscats About the middle of March we plant the Vines spreading out the roots, &c., and we attend to them with great care, both with respect to root and branch, letting them grow as much as they can without pinching or stopping; by autumn they will have made nice rods. In December we prune; some cut back to the bottom of the rafter, others down to 3 feet from the bottom, but in this they are guided by the strength of the Vine. The other system consists in sending to some nursery, in which you know good Vines are grown. You say you want some strong ones in 12-inch pots; they come to hand all safe, with rods as thick as your finger; the price 10*s.* or 15*s.* each, *i. e.* for Hamburghs and Muscats. You prune to the length you think you will want them. In the first week in February a hotbed is made, and when the heat has declined to about 90° you turn the Vines out of their pots, previously giving them a good watering. Then you loosen what roots you can by reducing the ball a little, doing as little injury as possible; place each Vine on the hotbed, about 8 inches apart, filling every

part amongst the balls, with light soil composed of decayed leaves and light sandy material. The tops are then made secure to rods. In the first week in April, if the Vines are removed from the hotbed, it will be found that they have made hundreds of young roots—in fact, that they are one mass of young fibres. As I have already said, remove them to a well-prepared border, heated to about 70°, and plant them, putting round each ball some soil from the hotbed; give a good watering with warm water, and let the Muscats occupy one house and the Hamburghs another. Let the house be kept moist and cool, say from 48° or 50° at night, until the Vine buds have broken; after that they may gradually have a higher temperature, until you reach 65° at night, and 10° higher in the daytime before you give air. Let there be no want of moisture in the house; examine the border frequently to see that the roots are all right; if they are getting dry give a good watering with warm water. This treatment is for Hamburghs. For the Muscats gradually rise the temperature of the house until you reach 70° at night, allowing 10° more in the daytime before you give air, providing plenty of moisture, and giving very little front air at any time. Attend to the roots the same as for Hamburghs; stop all the shoots but one when they have got about 6 inches in length; leave the strongest, and let it grow until it has made a growth of about 10 feet in length; remove all the laterals, 6 feet from the bottom, letting the leading shoot reach 12 feet in length; then cut it back to 10 feet; in three or four days remove the other laterals. There must be plenty of moisture both at the roots and in the house. Most of the eyes will break, and show plenty of fruit; there will be no danger in ripening the fruit, provided the leaves are kept green. Fruit which is produced by the green shoot in summer is found to grow a great deal quicker than the general crop—at least I have found such to be the case. The above relates to Muscats, which were mentioned as having been grown so successfully in Norfolk, for most gardeners will have noticed that when a green shoot of a Muscat gets stopped or broken, some of the principal eyes will burst and show one or two bunches, even if the laterals are on, and the shoot is at the top of the Vine. I have thus, it will be seen, given an account of two systems. In the first the Vine bursts into leaf but makes very slow progress during the first month, and sometimes it will nearly stop growing altogether—for the following reason, viz.: because there are no young fibres to furnish it with nourishment; but after it has been planted 10 or 12 weeks its progress is more rapid, for then plenty of mouths have been made to feed it. In the other system the Vines burst into leaf with a vigour that is astonishing—the shoot grows away without any stoppage. The reason here is the same as in the other case; it has got hundreds of mouths waiting and eager to supply it with abundance of food. Let us suppose that the Vine has grown 12 feet; in that event the young shoot will be nearly 1 inch in diameter; stop such a shoot as recommended above, and it will be sure to show plenty of fruit, and ripen it too. After all the fruit is cut, prune the Vine down to the bottom; there will be some eyes there which have not broken, and some of them will make a shoot the second season that will put the Vines to shame that were planted on the old system. I would not, however, recommend allowing Vines to bear on the green shoot the first year, but each Vine should carry a nice crop the second year. I would recommend that all which are planted should have their roots previously excited, but not to plant before the middle of April, unless you can heat the border either from below or from above with litter or leaves. If it is considered good work to get fruit from the green shoot of strong young Vines, I think that it is a far greater feat to plant an eye in January 1861, and cut fruit from a plant sprung from that eye at Christmas of the same year. *J. A. B. G. L. Y.*

Strelitzia Nicolai.—I have at the present time a seedling Strelitzia sending out its flower stalk. The seed was sent me from the Cape some 10 years ago under the name of S. albiflos, but which Mr. Van Houtte says is the same as his S. Nicolai. It is like S. augusta except that it has no stem, and that the leaves are much longer. The spathe is upwards of a foot long, in form similar to S. Reginæ. I have never heard of its having flowered in Europe. *St. Bertin, Clos St. Bertin, St. Omer, France.* [S. Nicolai, which is said to be a Cape plant, has been flowered at St. Petersburg, and named there by Dr. Regel. It has large white flowers, and leaves which are somewhat heart-shaped at their base; and at length it acquires a tall stem.]

Conifers.—How can the learned Editor of the *Gardeners' Chronicle* admit into his columns such stuff as is quoted at p. 103 from a mensual magazine. The writer of that article does not say why Pitch Pine does not come from Pinus rigida, its true source, but he *thinks* (!) it may come from P. Coulteri and others—a very wise idea considering that P. Coulteri, ponderosa, and Benthamiana are from the West of North America, while the Pitch Pine comes from the East. Perhaps this intelligent gentleman imagines that Pitch Pine comes hither in balloons. Faugh! *Crabro Scandicus.*

Mildness of the Season.—I enclose for your inspection some Snowdrops in full bloom, Elder in leaf, Gooseberry in blossom, and several small branches of Thorn, on some of which not only are the leaves well developed, but the young wood has grown several inches. The hedge from which they were cut gives one the idea that we are in the month of April instead of January. This place is 400 feet above the sea, and ten miles south of Edinburgh. I have just returned from the south of England, where I saw no Snowdrops in blow, nor any appearance of vegetation in the most sheltered hedges. I have been a close observer of these things all my life, eagerly watching for the bursting of the first buds in spring, but I never remember seeing vegetation so forward in the month of January before. I hope that Admiral Fitzroy will drop into your office and inspect these signs of the weather in the north; he may then for once make a right forecast of "S.W., mild, fine," instead of the everlasting "W.N.W. to N.E. and back, and heavy snow," of which I should think he must be even getting tired himself. *George Dalrymple, Hereford Castle, Dalkeith, Jan.* 28.

Grapes.—I am sorry to see so respectable a house as that of Paul & Son pushing forward the Muscat of Escholata Grape, which I could never find different from the Muscat of Alexandria grown out of doors. Will they oblige me and other Grape growers with some *precise* information as to its differences? *Vinicola.*

Barking Trees.—Is barking likely to prevent young Oak roots from "stooling out" and producing underwood? I have a wood full of young Oak saplings; they must be thinned, and I want to make them produce underwood. If cut over now, no doubt they would grow out freely next summer; but then the crop of bark would be sacrificed. I therefore propose to have them felled and barked next spring. My keeper fears that if this is done, there will be no undergrowth next year, as he has observed this to be the case where Oak of large size has been felled. Please tell me if it is necessary to cut now in order to secure the regrowth, or whether it is possible to secure the crop of bark, and also the underwood. *R. P. L.* [Try the experiment with a few. Bark them as soon as the bark will run and then cut down the rods.]

Mosses.—I would advise "F. J." not only to study the book by Wilson, but to obtain from Mr. Brocas, 25, Hart St., Bloomsbury, dried specimens, which he would furnish, beautifully arranged, at a moderate expense, (from 5*s.* to any extent). She would find reference to named specimens greatly aid her researches, and add to her enjoyment of this interesting study; and she could add to this the further pleasure of sending him fresh specimens she could not decidedly name, for his opinion—or of sending occasionally a little basketful of Mosses, Fungi, Lichens, &c., fresh gathered in her rambles, as a very acceptable contribution to a botanist's London shop. *F. T.*

Poisonous Milk.—From an extract from the *Malta Times*, which has appeared within the last few days in the daily papers, it appears that the inmates of two of the principal hotels in Valetta had been seized with symptoms of virulent cholera, occasioned as it turned out on inquiry, by the use of goat's milk. Even a cat, which had taken some, showed symptoms of having been poisoned. Towards the end of last year a number of exactly similar cases happened at Sliema, where the family of a field officer was poisoned, evidently by goats' milk; and about the same time other cases occurred among the officers and men of her Majesty's ships Marlborough, Algiers, and Firebrand, but with no fatal consequences. Poisoning by milk, therefore, appears to be not an uncommon occurrence in Malta; but, continues the Malta paper, we are not aware if experiments were ever made by scientific men to ascertain beyond doubt the real cause of the milk assuming this dangerous character. The natives attribute it to the goats browsing on a particular plant belonging to the natural family Euphorbiaceæ, or Spurgeworts, which they call *tenhuta*, and which they say possesses the property of rendering the milk poisonous to human beings, without inflicting any serious injury on the animal itself. On the other hand, we have heard this popular belief ridiculed by some of the more learned Maltese physicians. A correspondent of the *Times* also points to something of a similar nature as occurring in the Western States of America. He says that for two or three months in the year the milk of the cow becomes a fatal poison. "Many of the first settlers fell victims to it; a person drinking a bowl of milk in the morning would be seized with pain and vomiting during the course of the day, and be a corpse by evening. This poisonous quality is attributed to some peculiar herb eaten by the cows at a certain season of the year, which, though not injurious to themselves, renders their milk poisonous to man, and consequently, every year when the 'milk disease' commences, which is discovered by the milk changing colour after standing some time, the cows are shut up and fed upon hay." What are the delinquent plants in these two cases? *M.*

Colonial Botanical Gardens.—The designation of Mr. Walter Hill is Colonial Botanist, and Director of Botanical Gardens and Queen's Domains, Queensland. There is under him a head gardener with staff. The gardens are supported by a grant from the Brisbane Legislature of 1188*l.* per annum, no small sum for an infant colony. *Good Hope.*

Salsafy.—In answer to "A. B.," who asks at what depth a good thickness of well-decomposed manure should be placed, I beg to say that it should not be deeper than 8 inches below the surface, as indeed I stated at p. 53; and for this reason: had I explained my meaning in the same workmanlike manner as the question has been put by "A. B.," I might have led my indulgent readers into greater mistakes than I would have wished to have done, simply because those who wish practically to follow my suggestions would have been entirely at the mercy of the workman who might chance to have been entrusted with the trenching in question, as any observant person knows that there is a great difference between different workmen in the use of the spade. I have here beneath my own notice no less than four varieties of digging—one man at all times buries his spade well in, "past the hilt," perpendicularly moving the soil, which when the crumbs are taken out, gives nearly a clear foot deep trench, while others vary back to about five inches; so instead of writing, a spit only, or a spit and the crumbs, I answer—place the manure at the depth of 7 or 8 inches from the surface. *W. Earley, Digswell, Welwyn.*

Late versus *Early Grapes.*—With regard to the friendly passage of arms, in the matter of Grapes, that has taken place betwixt Mr. Tillery and myself, some misapprehension seems to exist. Many appear to imagine that I claimed some special merit for being able to produce new ripe Grapes on New Year's Day, and that I considered it more difficult to do so than on the 1st of March. Now, the very opposite of this is what I laboured to prove, which a single quotation from the pages of the *Florist*, where the discussion commenced, will show. At page 70 of that work I wrote, after remarking on the fine crops Mr. Davis used to ripen at Oakhill in March, "What I contend for is that the same Vines would have produced ripe Grapes in January with greater ease to themselves and all concerned than in March." I observe that Mr. Tillery, like a gallant knight, has challenged all and sundry to meet him next year with their new Grapes, he being armed with his old. For my own part I will fulfil my engagement by meeting him before the Committee on the 25th of the present month, and whatever may be its decision I will bow to it, and there the matter shall end as far as I am concerned. *Wm. Thomson, Dalkeith Park.*

Fuchsias.—Fearing that some slight confusion or misunderstanding might arise among exhibitors of Fuchsias from Mr. Cannel's letter which appeared in your pages of the 24th ult., I have ventured, as one who has taken an active part in discarding the old stagers, to explain to Mr. Cannel and others that it is by no means intended to confine the plants of Fuchsias exhibited to 12 months growth, or what are termed yearlings—it matters not whether they are of 14 or 18 months' growth. It might be hazardous to exceed this, but the principal object has been to obtain for our exhibitions young and well grown specimens, developing the true character of this useful flower, such as Mr. Cannel himself has so successfully exhibited. I quite coincide with the opinion that the size of the pot in which the Fuchsias are to be shown should be stated, and I trust we shall find this to be the case when the Schedules for 1863 of our two Royal Societies appear. *X., Feb.* 4.

Japan Flax.—The enclosed has been imported from Nagasaki as Japan Flax, and recently offered to nurserymen as a substitute for bast for tying, for which it seems admirably adapted. Will you kindly tell us the name of the plant from which it is prepared, and if it would succeed here? It looks like a fine preparation of hemp. *Enquirer.* [We are making enquiries.]

Foreign Correspondence.

QUEENSLAND: *Expedition to Cape York.*—His Excellency Sir George Bowen, Governor of the colony, left Brisbane on the 27th of August last, in H.M.S. Pioneer, on an expedition to Cape York for the purpose of ascertaining its adaptability for a settlement. Booby Island, the furthest point in that direction of the Queensland territory, was reached on the 9th of September, and on the 10th the return voyage was commenced, the course being through Endeavour Straits. The Governor and Commodore Burnett spent some days in carefully examining Cape York and its vicinity, both by sea and land, and ultimately decided that Port Albany (Albany Island) would be the best site for the proposed settlement. There is good anchorage, plenty of fresh water, good pasturage for sheep and cattle, and a quantity of land fit for cultivation. Albany Island, in fact, forms a large natural paddock, separated from the mainland by a deep channel only one-third of a mile broad. Port Albany is about five miles from Cape York. The township is to be named "Somerset," in honour of the First Lord of the Admiralty. His Excellency also visited Endeavour River (where Captain Cook refitted his ship in 1770), and Rockingham Bay—the two points on the east coast of Australia which will probably be next occupied, as colonisation gradually extends its steps northward. Good anchorage and level ground, with plenty of water and timber, were found at the mouth of the Endeavour River. The two principal streams which flow into the bay were traced for some considerable distance up, but bars and sand-banks render them of little use for navigation. The eternal "Mangrove swamp" lines the coast up to the foot of a high range of hills running parallel to the shore. Mr. Walter Hill, the Government Botanist, accompanied the expedition in his official capacity, and the following

are extracts from his report dated November 6, 1862, and addressed to the Hon. the Secretary for Lands and Works:—

Fitzroy Island is upwards of five miles in circumference, high, rocky, and well timbered. The upper margin of the coral beach is overrun with Ipomœa maritima, Canavalia Baueriana, and other Creepers, succeeded by Scævola Kœnigii, Tournefortia argentea, and Morinda citrifolia, with occasional trees of Mimusops Kauki, Calophyllum Calaba, Pandanus spiralis, and Casuarina paludosa. The two principal streams pass through narrow valleys filled with dense scrub, occupied by Calamus australis (Lawyers), Seaforthia elegans, Guettarda speciosa, Wormia alata, Careya arborea, Sciodaphyllum macrostachyum, with examples of the following orders:—Meliaceæ, Cinchonaceæ, Fabaceæ, Rutaceæ, Moraceæ, and Malvaceæ. Among the parasitical plants in the scrub were three species of Dendrobium, two of Platycerium, and three of Loranthus. The trees in the forest ground consist principally of Eucalyptus, Acacia, Erythrina, with Livistonia inermis gracing now and then the ridges. The Grasses consist of Panicum, Poa, Sporobolus, Ectrosia, Anthistiria, and others of equal value for pasture. The greater portion of the soil consists of a light black sandy loam, well adapted for grazing purposes, but there are also patches composed of black loam mixed with vegetable matter, both in the scrub and forest ground, well suited for gardening purposes. Water is plentiful, both on the eastern and western sides.

Pelican Island is upwards of a quarter of a mile in length, and about 4 feet above high-water mark. The soil is of a very sandy nature, and partly covered with coarse Grass, and a yellow flowering Sida about 3 feet high. Booby Island is a mere rock, about a quarter of a mile in diameter, flat, and intersected by a small valley, in which are a few stunted trees and creepers, comprising Ficus syringifolia and others. Dayman's Island, in Endeavour Straits, is about one mile in length, half a mile in breadth, and about 300 feet high, rocky, with patches of scrub scattered about. Among the plants collected were Barringtonia speciosa, and a Dendrobium with large scarlet flowers. The soil is a brown sandy loam, of a barren nature, and only 2 or 3 inches in depth. Two small native wells were found, filled with excellent fresh water.

Evans' Bay, south of Cape York Island, is surrounded by a flat sandy beach, at the back of which is a dense scrub, composed of a good variety of trees, with Melaleuca Leucadendron, Calophyllum Calaba, Mimusops Kauki, a species of Hibiscus, and the Broom-like Casuarina paludosa, facing the bay. The inner portion is occupied with some noble plants of Caryota urens, Seaforthia elegans, Careya arborea, Thouinia australis, Cargillia laxa, Jambosa eucalyptoides, Terminalia Chuncoa, Maba obovata, Mimusops parvifolia, Wormia alata, and the singular Sciodaphyllum macrostachyum, about 50 feet high, sending out a few branches with immense digitate dark glossy leaves, and four or five long racemes of small scarlet flowers. The soil of this scrub is rich black sandy loam, and is suitable for the cultivation of most tropical productions. One of the most interesting plants gathered in the neighbourhood of Evans' Bay was a Palm not hitherto mentioned as Australian, Sagus farinifera, one of the East Indian sago-producing species; a single plant was first seen in the scrub, near the top of Bremer Peak, and afterwards a clump in one of the small scrubs close to the Bay. Two native wells, with fresh water of excellent quality, were found.

Albany Island, in one of the little Bays named Port Albany, separated from the mainland by a deep narrow channel, is upwards of 3 miles in length and about 1 in its greatest breadth, and consists of three-fourths open forest, the rest scrub. There are several hundred acres of the open forest ground which have scarcely a tree upon them, and are thickly clothed with excellent Grasses suitable for grazing purposes, comprising the following genera, viz:—Agrostis, Panicum, Holcus, Ectrosia, Anthistiria, &c. The belts of scrub on the rocky headlands are densely covered with stunted trees, shrubs, and creepers, comprising the following genera:—Bombax, Erythrina, Eugenia, Eucalyptus, Mimusops, Ficus, Myristica, Pittosporum, Dolichos, Tecoma, &c. The greater part of the soil consists of red sandy loam mixed with small ironstone nodules. The rapid growth, especially at this dry season, of the young Grass which had been burnt only six days before, leads me to believe that there would be sufficient pasturage all the year for 100 head of mixed cattle (six months old and upwards), together with 500 head of sheep. In addition to these grazing capabilities, there are several spots where the soil is well adapted for the growth of the most useful vegetable productions. The successful trial that was made in sinking a well through the sandstone rock near the beach for fresh water, and the finding of three springs on different parts, indicate that abundance of water of excellent quality can be procured. Among the interesting plants collected on the island, I may mention two. The first is a species of Parinarium, a middle-sized shady wide-spreading tree resembling the Elm in the colour and form of its leaves; its young branches are drooping. At the time of our visit it was laden with fruit of oblong form, about an inch in length, and half an inch in diameter, and of a yellow colour when ripe, the pericarp of which is very mealy, and agreeable to eat, and would be wholesome if it were not so extraordinarily astringent. The other is Dioscorea bulbifera (a kind of Yam) which was found in the scrub in great quantity, and proved good eating. Both of these plants are much used by the natives. On the mainland, opposite Albany Island, two running fresh water streams, upwards of eight feet wide, flowing in different directions, were discovered. A narrow belt of dense scrub, of great luxuriance, yielded five species of palms, viz.—Caryota urens, Seaforthia elegans, and species of Areca, Zalacca, and Pinanga, the latter rising to a height of 110 feet. The other occupants of the scrub belong to the orders of Araceæ, Scitamineæ, Leguminosæ, Meliaceæ, Sapindaceæ, Myrtaceæ, &c. Along the valley are some beautiful clear flats, with fine open ridges, which are occasionally covered with dense scrub. The soil of these flats is of great depth, and consists of black loam, with about one-fourth of silver sand, and is suitable for the growth of any tropical production. These localities would be admirably suited for small farms. The soil on the open forest ground is of a lighter texture, and better adapted for grazing purposes than cultivation. The variety of timber trees on the forest land is much greater, and of a better description for building purposes, than that found on Albany Island. Amongst the plants collected on the mainland and used as articles of food by the natives, were Curcuma longa (turmeric), Zingiber sp. (ginger), a species of Dolichos with large bean-like seeds, and two species of Ferns, the roots of which are pounded and eaten. During our stay at Port Albany the temperature was always cool and agreeable, owing to the constant breeze—the thermometer was never once above 85°.

On Dunk Island my excursion was confined to the flat behind the beach, which is thinly timbered and thickly clothed with Grass. Near the base of the hill I observed the Dioscorea bulbifera (Yam) growing in great quantities, and the numerous pits that were turned up showed that it was largely used by the natives. The soil of the flat was of a light black sandy loam, with a large amount of vegetable matter. Fresh water was found in one of the lagoons near the beach. Next day we proceeded to a fresh water river (unnamed), about two miles south of the Mackay River. At its mouth is a sandy bar, on which the water was three feet deep at low water, but after having crossed the bar we found nine feet of excellent fresh water. About a quarter of a mile from its mouth we landed on the south side, and extended our journey along its bank for about half a mile. The soil was of a sandy nature, and thinly covered with small Acacias, Casuarinas, and Callistemons. After returning to the cutter we traced the river up for about half a mile, our further progress being stopped for want of sufficient depth of water. The entrance to the Mackay River is about 180 yards wide, with a sandbank across, on which the water was 3 feet 6 inches deep at low water. On proceeding up this tortuous river, we found its channel became narrower, and varied from 7 feet to 16 feet in depth. The banks on either side for about a quarter of a mile up are low and sandy, and, after that, are, for miles, skirted on either side by thick Mangrove swamps, behind which the land gradually rises into hills of moderate height, many of them densely clothed with scrub. We traced the river upwards of ten miles, and landed on a small flat on the north side, upon which were a few good-sized Eucalyptus and Acacia trees. The soil here is a light sandy loam. On our return we visited the scrub on the north side, about a mile from the inlet. This consists of trees, shrubs, and creepers, in greater variety than I had previously seen. Among the very interesting plants collected during my short stay of only fifteen minutes, I may mention three of the most striking. The first, a remarkable Cycadeæ, which in its habit and foliage resembles no other of that natural order, having branched fronds. The second, a beautiful Zingiberaceous plant, the foliage, root, and habit of which resemble an Alpinia; the beauty of this plant consists in its large, stiff, shining bracts, which are about half an inch broad at the base, slightly curved inwards and tapering to a point; the heads of flowers which resemble those of a Pine-apple in shape and size, and are of a fine crimson colour, are produced on the top of a flower-stem 12 inches high. The other plant referred to is the Musa Jackeyi, W. H. (a Banana which I have named after Mr. Kennedy's faithful aboriginal companion 'Jackey'), growing in great abundance on the border of the scrub, and attaining the height of 20 feet. Two small plants and a fine bunch of the fruit were procured. The plants were packed in a glazed case; and the fruit, which was hung up on the quarter deck of the ship, was fast getting ripe, when it was unfortunately thrown overboard by accident. The soil in this scrub consists of a rich mellow loam mixed with vegetable matter.

At Maryborough I visited the Cotton Company's establishment, which is situated about eight miles below the township, on the banks of the Mary River. My visit only extended to one of the portions of land under cultivation, a plot about 20 acres in extent, the soil consisting of a dark brown sandy loam, well adapted for the cultivation of Cotton, &c. The plants were about 3 inches in height and appeared to be very healthy. *From the Queensland Courier.*

Notices of Books

Essai d'une nouvelle Classification de la Famille des Graminées. Par E. A. Remy. Première Partie. Les Genres. Baillière. 1861.

A classification of Grasses, based on sound principles, and practically useful, is perhaps the greatest desideratum in Systematic Botany. Many have essayed such a work, and the names of Trinius and Ruprecht of Russia, Kunth of Berlin, and Palisot de Beauvois of France, all hold high rank amongst the systematic writers on this difficult family of plants; if to these we add those of Robert Brown as the most sagacious expounder of the floral structure of Grasses, Nees von Esenbeck as the most laborious describer of species, and Steudel as the author of the most complete (in appearance, for it is, with the exception of the subject of this review, the most contemptible) systematic work on the order, we shall have pretty well exhausted the names of those who have hitherto especially distinguished themselves as writers on the Gramineæ.

To this band must now be added the name of M. Remy, to whom we can have no hesitation in assigning the first rank in point of boldness (we should rather say audacity), whatever his other qualifications may be.

M. Remy commences by informing us that Grasses are assuredly the most widely diffused of all plants, a position we at once dispute; and goes on to say that this must be so "in order that it should be possible that they should be able to fulfil the mission which the Creator of all things has assigned to them"—a reflection which seems to us to be neither more nor less than twaddle. In the same lofty strain he asks us—"What would become of mankind in Europe without Wheat; in Asia without Rice; in Africa without Millet; and in America without Maize?" and satisfies himself with the answer, that the years when these fail are very disastrous! And by way of "improving the occasion," he next wanders back into the mazes of antiquity, apparently in search of foreshadowings of his own sage lucubrations, and tells us that Pythagoras "580 ans av. J. C." assures us "*dans le même but*," that vegetables were endowed with intelligence; also that Empedocles, Anaxagoras, and Democritus laid the foundations of serious investigations, by teaching that the seed was the vegetable egg, and that the leaves absorbed and exhaled the atmosphere. In this manner the history of scientific graminology is evolved, and the names of several scores of Greeks, Romans, Thessalonians, and Arabs, besides European authors of the dark ages, lead us down to that of Linnæus, where we pause to read—not a word about Grasses—but "a very ingenious history of the origin and progress of Botany!"

The really practical part of M. Remy's book begins at p. xxxv. of the Introduction, with a resumé of all the modern arrangements of the order, beginning with that of Palisot de Beauvois, and ending with his own. The exposé of his own method is prefaced with the statement that its object is "to classify all known Grasses by certain invariable, constant, and always obvious characters." Brave words these, M. Remy; let us see how he justifies them. "The sexes and the inflorescence are the foundations of the classification I propose. Starting from this point I divide all Grasses into five great classes.

I. Flowers complete, all hermaphrodite (*Hermaphrodites vraies*).

II. Flowers hermaphrodite and rudimentary, the latter apparently asexual and always sterile. (*Hermaphrodites incomplètes*).

III. Male and female flowers and hermaphrodite flowers mixed in the same panicle (*Polygamées*).

IV. Male and female flowers on the same plant (*Monoïcées*).

V. Male and female flowers on different plants.

All of the Classes contain 4 tribes, viz. 1-flowered, 2-flowered, 3-flowered, and many-flowered, except Class V. which has but one (the 2-flowered)."

What M. Remy's pretensions or qualifications, opportunities or experience may be, to become an exponent of Grasses we know not; all we can say is, that characters more unreal, capricious, variable or obscure, could hardly be found upon which to base a classification of the order. In proof we may state that *Calamagrostis, Oryza* and *Spartina* all rank amongst the Unifloræ of Class I.; that *Arundo, Poa, Triticum*, &c., are decreed always to have many flowers and all complete! and so on throughout every class and tribe in the book that is not monotypic or nearly so.

Lastly, with regard to the sequence of the genera, nothing can be worse; for *Triticum* and *Ægilops* rank under different classes, and *Hordeum* in a third, standing between *Gymnopogon* and *Erianthus!* and so on throughout the work, of which we fervently hope the second part will never appear.

British Seaweeds; Drawn from Prof. Harvey's "Phycologia Britannica." By Mrs. Alfred Gatty. 4to. (Bell & Daldy).

This is a handsome quarto volume, containing 80 coloured plates with figures illustrative of 384 species of British Seaweeds. These are described in 166 pages of letterpress, and further illustrated by 44 preparatory pages, which comprise, besides a charmingly written "Introduction," "Rules for Preserving and Laying out Seaweeds," "The Amateur's Synopsis," "List of Families, Genera and Species," systematically arranged; and an "Alphabetical Table of Genera and Species." The plates, which are reduced copies of those of "Phycologia Britannica," have appeared before, but without letterpress, under the title of "The Atlas of British Seaweeds" (Reeve). The whole of the text now given is new, and will be found admirably adapted to the use of the amateur collector. In an appendix 10 new species, discovered since the completion of the "Phycologia," are fully described; and in the "List of Families, &c.," the changes in nomenclature, introduced of late years, are indicated; and thus the subject is brought down to the present day.

Those who are acquainted with Mrs. Gatty's "Parables from Nature," and especially with her delightful parable about "Red Snow," need not be told that the literary part has been ably executed by a competent and loving observer. In her present work she has endeavoured, and we think most successfully, to translate the terms and phrases of science into the language of amateurs, and especially of amateuresses. If a Latin or Greek term be unavoidable, it is explained by its English equivalent; and Anglo-Saxon words are carefully substituted for such words as "ovate, cordate, flabelliform;" for "ramulus" we have branchlet, and for "ramellus," branchleteen, &c. Mrs. Gatty's familiarity with the plants themselves has enabled her to do this charitable office without falling into the errors to which a mere compiler, in departing from a beaten track, would be liable; and if she have not made a "reading made easy" of this branch of Botany, it is the fault of the subject and not of the authoress. The publishers have well done their duty in paper, print, and binding, and have produced a volume which will be an ornament to a drawing-room table, and a most acceptable present to friends going to the sea-side. *W. H. H.*

Garden Memoranda.

ROYAL HORTICULTURAL SOCIETY'S NEW GARDEN, SOUTH KENSINGTON.—That differences of opinion should exist respecting the merits of the style of gardening adopted here is not to be wondered at; we believe however that when carefully examined they will be found to relate more to matters of detail than to the general features of Mr. Nesfield's plan, which is that of a fine Italian garden; and that when its latent beauties come to be fully developed, and its peculiar characteristics rendered more striking by means of the addition of evergreen plants to furnish it in winter, few gardens will be more universally admired or have a finer appearance than that now under notice. The introduction of more evergreen decoration is indeed a matter of the necessity of which the Council has long been aware; but an opportunity of carrying it even partially into effect could not be conveniently found until the past autumn. Now, evergreens have been planted wherever it has been considered consistent with the general aspect of the garden to do so, and, as might be anticipated, with excellent effect; while at the same time spring ornamentation has not been neglected—on the contrary, the pretty terra cotta vases that line the dwarf parapet wall in front of the conservatory are filled with Crocuses edged with Forget-me-Nots;

and on the border below have been planted next the brickwork rows of Wallflowers, then ribbons of Crocuses and Hyacinths, the whole being finished by an edging of Forget me-Nots. In this way a spring display will be created which will last until the usual bedding-plants occupy the place.

On the conservatory terrace beds have been filled with dwarf evergreen shrubs, such as Rhododendrons, Box, Yew, and Chinese Privet, edged with spring bulbs, here and there intermixed with Christmas Roses. Round the band-houses too have been put Rhododendrons broken into groups by means of flights of steps, and bordered by a broad Grass edging, inside of which are rows of spring bulbs. Lombardy Poplars have been introduced alternately with the Chesnuts which form cross lines in this part of the garden, and further down near the water have been added beds of Rhododendrons and hardy Azaleas, intermixed with Crocuses and rows of Delphinium formosum, the one forming a good succession to the other.

In large angular beds at the four corners of the garden, on the level of the middle arcades, have been planted Rhododendrons intermixed with early blooming standard shrubs and small trees, such as variously coloured Thorns, Laburnums, and Lilacs, &c., to give importance to masses which have hitherto been occupied only with dwarfer plants. Among these have also been introduced Aucubas and spring bulbs, the whole being bordered with Erica vagans.

The different friezes, both on the east and west sides, of which coloured representations appeared in our volume of last year, are filled with bulbs, associated more or less with such plants as blue and white Forget-me-Nots, Pansies of different colours, and dwarf Silenes.

The neighbourhood of the great central cross walk has been well furnished with Rhododendrons, both in the shape of single bushes of considerable size, and of moderate-sized clumps. This useful shrub, when planted in masses, on heights, at the top of the different flights of steps, and at the corners of walks, as it is here, has, even when not in bloom, a striking appearance. Several new beds of Rhododendrons have also been planted along the borders of Grass near the bridges contiguous to the canals; and among masses of Rhododendrons right and left of the beautiful French fountains which still remain in the garden, have been introduced spring-flowering, deciduous trees, such as Thorns, Bird Cherries, Laburnums, double flowered Peaches, Almonds, and other low growing trees, while in the open glade between these and the Exhibition building has been planted an avenue of splendid Lime trees, presented by her Majesty from the grounds at Windsor Castle. While speaking of Limes, we may add that those presented by Mr. Gibbs, of Bristol, appear to have become perfectly reconciled to their new situation, and look as if they might make a vigorous start in spring. A new line of Lime trees running the whole length of the garden has also been introduced on the east side, and we believe a similar line has been planted opposite.

In the middle of the two large triangular Box-embroidered beds have been planted Variegated Hollies, Box, Berberis, Aucubas, and Golden Yews, the whole set off and skilfully associated with spring bulbs, Forget-me-Not, and Pansies, arranged so as to form ribbons or broad bands of different colours. The great circular central series of Box-embroidered beds in front of the principal piece of water has also been planted with Van Thol Tulips, supported in the spandril or side beds by rows of Double Daisies. If all succeed, therefore, this portion of the grounds may be expected to be quite gay in the early spring months. Standard Roses were planted on Grass round the outside of the stone kerb which forms a natural and appropriate boundary to this charming embroidered work, but they did not thrive, and their places have now been filled with handsome specimens of Yucca recurva, a plant apparently well suited to withstand the smoke and dust of a suburban garden, and one whose graceful habit forms a striking contrast with most kinds of masonry.

The great central walk, excellent though it is, seems to be too broad, as strips of turf laid experimentally along portions of the sides of it apparently prove; this fault, now that it is perceived, may therefore soon be expected to be remedied.

In the Conservatory the great standard Camellias are loaded with flower buds and open blooms. Orange and Lemon trees are furnished with fruit, and masses of Palms and other fine leaved plants give rest to the eye and form evergreen screens, which shut out from view hard lines of brick and mortar. Cobœa scandens and other climbers envelope the pillars and cross ties with masses of living green, and along the front are numerous semi-circular stages, beautiful at all seasons—now filled with Chinese Primroses in flower, Solanums covered with crimson fruit, and other plants of equally ornamental character. The wire decorations attached to these stages are at present being painted and otherwise put in order for the coming season, and the curved wire boxes of the Toothed Lycopod, which form an edging to them, are being filled afresh, it being found that this Lycopod does not last good more than one season without renewal. In a propagating stove are multitudes of plants of Isolepis gracilis, with which the masses in the Conservatory are to be margined. Hyacinths and other spring-flowering bulbs are also in a forward state for its decoration, and altogether such a display may soon be expected to be produced as will render this house very gay.

Works of art have been liberally introduced in suitable situations in the grounds, and to those in the Conservatory has recently been added an extremely interesting statue of Linnæus, presented by J. L. Tupper, Esq., at the request of Dr. Lindley. It is a full-sized representation of that great botanist when young, in long shaggy coat and low round-crowned hat, with "specimen" book in hand, in contemplative mood examining the marsh plant, Calla palustris. It is the original of Mr. Tupper's marble statue in the Taylorian Museum at Oxford, and affords a striking proof of what may be done with statuary when a man of real genius abandons the wearisome conventionalisms of sculptors.

When will the Council order the absurd medallions provided by Mr. Henry Cole and his staff to be painted out?

Miscellaneous.

North-West American Indians.—I have seen three or four canoes full of Haida Indians (from Queen Charlotte Island), each canoe holding 16 or 18 people, all black as my hat. . . . Sometimes they wear caps or tie handkerchiefs round their heads, and in wet weather they frequently wear mushroom-shaped hats made of the bark of the Thuja, cut in narrow strips, plaited much like Panama straw, and painted with various devices. Their canoes are of all sizes, from frail things a man can hardly find room to sit in, to boats large enough to hold 30 or 40 people with their equipment. They are all made of single trees, although sometimes the very large ones have a bow and stern tacked on. After they cut the tree down they burn out the inside, and then finish it off and shape it with axe and knife. The models of some are beautiful, their shape and fashion varying according to the place they are required for. Thus all the Indians inside the island and northward of it have round and pointed sterns, while in the strait of Fuca and on the west coast of the island they have straight-up and down sterns, each being adapted to the waters in which they are used. The Birch-bark canoes, made from the bark of Betula papyracea, and so celebrated in the interior and east of the Rocky Mountains, are unknown, or at least unused, on the coast. *Mayne's British Columbia.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—The winter has been so favourable for indoor plants generally that comparatively little fuel will have been required; a slight increase of warmth may now, however, be indulged in for a couple of hours or so on sunny afternoons; but let the temperature sink at night again to 45° or 50°. See that all insects are removed before the growing season commences. Such pests as red spider are not so commonly met with now as they were 20 years ago, a circumstance doubtless to be attributed more to the fact of a greater degree of humidity being maintained now than formerly, than to any special receipt for its destruction having become of general application. Humidity alone is not however, sufficient at all times to keep red spider in check; but sulphur rightly applied in conjunction with atmospheric moisture will be found a perfect cure for it. Apply it on an under pipe or on the least heated portion of a flue as thick as paint, and worked up with soft soap to make it stick. Great care must however be taken not to use it on any surface that is so warm as to produce inconvenience to the hand when grasping it—a simple but safe rule for the guidance of beginners.

FORCING DEPARTMENT.

PINERIES.—Proceed steadily; if pits are at liberty, and provided with permanent bottom heat of say 80°, it would be a good plan to shift a small portion of the plants into large pots in the expectation of their producing early fruit. Where a constant succession is required, let the final removal into the fruiting pots take place successively; no doubt this influences in a considerable degree the period of fruiting. Young stock which has thoroughly filled the pots, might also have a liberal shift, provided pit-room is at hand. With young plants an early growth, with a long summer before them, is important. In all potting, use good turfy loam, the newer and the rougher the better; when the soil is in a proper condition water will pass through precisely where it falls without puddling the surface.

VINERIES.—Proceed as before recommended; lessen the atmospheric moisture when the Vines are in blossom, and dispense altogether with syringing for a while; allow plenty of day heat with a lively circulation of air.

PEACH HOUSE.—Continue to make slow advances in heat on bright days.

CUCUMBERS AND MELONS.—Make a successional sowing or two of each of these for fear of disappointment. Any surplus strong plants of the early sowings may be planted in large pots or boxes, and placed in a light part of any warm structure; 70° of heat, and abundance of atmospheric moisture night and day, are the indispensable conditions. All glass frames or pits at work must be kept washed and thoroughly clean: the importance of this in early forcing can never be overrated. Hang mats or other coverings upon rails free from dirt. Keep at all times plenty of leaves and dung well blended, and in a state of high fermentation, ready for new beds, linings, &c.; a portion should be mixed once a week at this period.

FLOWER GARDEN AND SHRUBBERIES.

Continue to make the necessary preparations for clumps or masses, by sweetening or renewing the soil. Plant out things of biennial character, in masses, where requisite; in borders the re-arrangement of perennials had better stand over until the latter begin to bud in March. A calculation should now or soon be made as to how far the inmates of cold frames will be able to supply the demands to be made upon them. No doubt that damp has reduced the numbers of some kinds. Strong plants, or pots of stores, which had become well established in the autumn, of Verbenas, Fuchsias, Petunias, Heliotropes, Salvias, Calceolarias, &c., should be removed forthwith to some of the houses or pits at work. These will quickly furnish abundance of early cuttings, which should be slipped off, and propagated. Water sparingly at present.

HARDY FRUIT AND KITCHEN GARDEN.

Sow Tomatoes in heat; also Sweet Basil, Marjoram, &c.; get hand-glasses up for Cauliflowers in pots; enrich the stations very much, adding fresh loam also if at hand. Turn out four strong plants from the pots—one in each angle; they should be well soaked with liquid manure previously. Get Seakale and Rhubarb for next year's forcing planted immediately on rich ground, trenched; throw a hillock of old tan, ashes, or sand, round each crown to coax them on through the vicissitudes of the weather during this month and March. Plant Box edgings where requisite, and thoroughly drain any portion of the garden which exhibits the least appearance of requiring such an operation. Where water is apt to stand on the surface, through the puddling properties of heavy rains, try to improve the texture, by a dressing of sand, ashes, lime rubbish, charcoal dust, &c. Plant Horse-radish if not already done; dibble it in in rich light soil from a foot to 15 inches deep. Get all planting of fruit trees finished, and stake and mulch. Remember to drain thoroughly. Nowhere is this advice more necessary than in the orchard; although Apples and Pears are fond of adhesive soils, they will never prove profitable where water is allowed to accumulate.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Feb. 4, 1863, as observed at the Horticultural Gardens

Jan. and Feb.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 29	10	29.857	29.742	57	45	51.0	45	43½	W.	.00
Friday 30	11	29.398	29.388	52	45	48.5	46	44	S.W.	.14
Satur. 31	12	29.721	29.369	49	31	40.0	47	44½	N.W.	.16
Sunday 1	13	29.853	29.738	50	38	44.0	44	44½	S.W.	.06
Mon. 2	14	29.886	29.835	52	45	48.5	45½	45	S.W.	.08
Tues. 3	○	29.899	29.712	51	29	40.0	46½	44½	S.W.	.01
Wed. 4	16	30.159	29.850	50	44	47.0	46	44½	W.	.03
Average.		29.853	29.659	51.5	39.5	45.5	45.7	44.3		.48

Jan. 29—Densely overcast; very fine; rather boisterous at night.
— 30—Overcast; densely clouded; fine; rain.
— 31—Fine, rain; slight frost.
Feb. 1—Densely overcast, fine; rain.
— 2—Overcast; densely clouded; boisterous; rain.
— 3—Uniformly overcast; heavy clouds; fine; slight shower, frosty.
— 4—Clear; fine; cloudy; fine.
Mean temperature of the week 7 4-5th deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending Feb. 14, 1863

February.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 8..	45.4	32.9	39.1	20	0.67 in.	1	4	4	2	5	14	4	3
Mon. 9..	45.1	31.7	38.4	15	0.40	1	6	4	2	2	14	5	3
Tues. 10..	44.5	29.4	36.9	14	0.52	7	7	3	2	5	9	3	1
Wed. 11..	44.1	29.7	36.9	15	0.34	9	6	2	—	5	9	2	4
Thurs. 12..	44.6	29.9	37.2	15	0.26	4	7	1	—	4	11	8	2
Friday 13..	43.9	29.6	36.8	14	0.37	3	5	5	1	5	10	6	2
Satur. 14..	45.2	31.3	38.3	14	0.50	1	5	3	3	3	12	8	2

The highest temperature during the above period occurred on the 10th, 1831—therm. 65 deg.; and the lowest on the 13th, 1835—therm. 0 deg.

Notices to Correspondents

BOOKS: *Maidstone.* Either M'Ewen's pamphlet, or that of Cuthill on the Strawberry, may possibly answer your purpose.

EPACRISES: *Belmont.* They are greenhouse plants, which thrive perfectly in a mixture of peat, leaf-mould, and silver sand. They will bloom freely in spring without forcing. When done blossoming, let the flower-spikes be cut off, and induce the plants to make wood, which must be ripened out of doors in the autumn. Cuttings of Epacrises strike freely in pots or pans filled with silver sand, under bell-glasses, and placed on a gentle bottom heat.

NAMES OF PLANTS: *A H.* 1 & 3, Lomaria lanceolata; 2, Lomaria fluviatilis; 4, Woodwardia (Doodia) media.

OXALIS VERSICOLOR: *W P.* It usually blossoms freely enough, and doubtless your plants of it, now covered with flower buds, and apparently in good health, will do the same; but they will not stand forcing.

PLANTS FOR HANGING BASKETS: *C S T.* Convolvulus mauritanicus, Isolepis gracilis, Lycopodium denticulatum, Ivy-leaved Pelargoniums, the Saxifrages—sarmentosa and cuscutæformis, any of the less rampant cross-bred Tropæolums, Thunbergias, Maurandyas, &c. These are some of the more useful of the many plants adapted for basket culture.

ROSE SEEDS: *A Novice.* Keep it in damp river sand for a year; then sow it like any other hard seed. You may sow it at once if you like, but it is a great chance if you get anything by so doing.

VINES: *A Z.* Let them by all means be shaken out of the pots in which they are at present, and the roots carefully spread over the border as far as they will go; turning out with a ball direct from the pots would not answer.



W. Westfield Jr.

Vincent Brooks Lith

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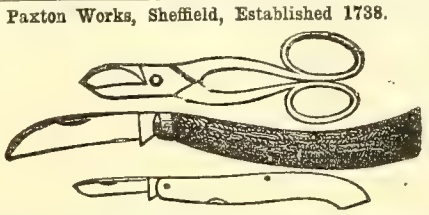
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PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—
"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.
The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.



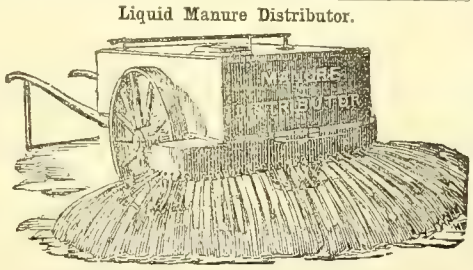
JOSEPH HAYWOOD AND CO.,
MANUFACTURERS OF
PRUNING and BUDDING KNIVES,
SPORTSMEN'S, and all kind of POCKET CUTLERY.
Dealers in Gambia Garden Shears, Scissors, Syringes, &c.
Glamorgan Works, Sheffield.

Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal is just awarded to SAYNOR & COOKE for superiority of quality in Pruning and Budding Knives, &c.
SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.
CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

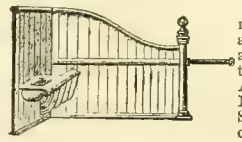
Liquid Manure Distributor.



THE JUDGES of the Liverpool, Manchester, and Staffordshire Agricultural Shows, 1861, have each awarded the First Prize to I. JAMES, Tivoli Works, Cheltenham, for his LIQUID MANURE DISTRIBUTOR, making a total of 17 Prizes. It is also well adapted for Watering Streets, supplying the Steam Plough, Irrigating, or for a Fire Engine. Also his last great improvement in WASHING MACHINES, which have been awarded several First Prizes, and will wash 20 Shirts in 20 minutes.

Exhibition Prize Medal 1862.

MUSGRAVE'S PATENT STABLE FITTINGS and HARMLESS LOOSE BOXES, PATENT IRON COW HOUSE FITTINGS, and IRON PIGGERIES.



These inventions are recommended as possessing numerous advantages not to be found in anything hitherto made. At the late Meeting of the Royal Agricultural Society at Leeds, MUSGRAVE BROTHERS received a Silver Medal, and two Awards of "Highly Commended," being the only Prizes conferred on any competitor in this class.
Particulars sent on application to the Inventors and Makers, MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

Prices Reduced.

H. J. MORTON AND CO., Galvanised Iron Works,
2, Basinghall Buildings, Leeds.
GALVANISED IRON ROOFING
for Farm Buildings and other Roofs; the cheapest, most durable, and neatest Roofing in use: also Spouting at 10½*d.* per yard,
WIRE STRAND CABLE FENCING



(formed of Twisted Wires like a rope or cable), the strongest, cheapest, and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Price, with five lines of the Galvanised Strand, iron main posts, and pronged Standards, from 1*s.* per yard.
This fence is far cheaper than posts and rails, or any kind of iron fencing; and possesses four times the strength of solid bars. Will not rust nor corrode. Upwards of 1200 miles of this Fencing supplied.
GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 4*d.*, 4½*d.*, and 6½*d.* per yard.
Galvanised, 24 ins. wide, 3-inch mesh, 2¾*d.*, 3¾*d.*, and 5½*d.* per yard. The Netting made any width, and with openings of any size.
GALVANISED IRON CHAIN CAMP STOOLS & CHAIRS, POULTRY FOUNTAINS & FEEDERS, PRONGED DAHLIA RODS and ROSE STAKES, &c.
Strong CATTLE HURDLES from 2*s.* per yard.

PATENT IMPROVED GAS WORKS
of all sizes, for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c. Works from 10 to 500 lights estimated for. The works can be entrusted to an ordinary labourer.—Apply to
HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

MESSRS. WAY AND EVANS, ANALYTICAL CHEMISTS, have REMOVED their LABORATORY from 15, Welbeck Street, Cavendish Square, to 106, Leadenhall Street, E.C., where all Letters and Samples for Analysis should in future be addressed.—Feb. 7.

AGRICULTURAL and CHEMICAL COLLEGE, 37 and 38, Lower Kennington Lane, London, S.
ASSAYS and ANALYSES promptly attended to by J. C. NESBIT, LANSDELL & Co.

AGRICULTURAL and CHEMICAL COLLEGE, KENNINGTON.—Manufacturers and others engaged in making Artificial Manures may obtain every necessary instruction for their economical and efficient preparation by applying to J. C. NESBIT, LANSDELL & Co., 37 and 38, Lower Kennington Lane, London, S.
Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and despatch.
Gentlemen, Farmers, or others, desirous of practical knowledge in Chemical Analysis, or Assaying, may receive instruction at the College, where the extensive Laboratories give ample facility for pursuing their studies, and there is accommodation for a limited number of Resident Students.
Full particulars of terms will be forwarded on application.

Drainage, &c.

MR. JOSEPH BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes, Drainage Engineer) undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally.
Under-drainage, Outfall Drainage, Watercourses, Embankments, and River Works; Reclamation of Marshes, Lakes, and Moor Lands; Irrigation, Warping, Clearing, Inclosing; the Erection of Farm Buildings, Labourers' Cottages, Construction of Farm Roads, &c., executed either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements. Valuations made for Sales, or the re-letting of Farms.
22, Parliament Street, Westminster, S.W.

WEST of ENGLAND and SOUTH WALES LAND DRAINAGE and INCLOSURE COMPANY.
ESTABLISHED 1844.
The Right Hon. the EARL of DEVON, *Chairman.*
Lands drained and improved without recourse to the private funds or moneys of the Proprietor.
This Company's Act not requiring Proprietors to liquidate the cost, the amount might remain a permanent charge on the lands, or be paid off when convenient, or be made redeemable over any term of years. The works are undertaken by the Company, or Proprietors might avail themselves of the power of the Act only, and get the works executed by Agents or other parties. Outfalls through adjoining lands are obtainable under the Company's Act. Works are also executed by the Company for parties advancing their own Capital, or not requiring to obtain the money under the Company's Act.
FREDERICK BRODIE, Secretary.
Offices: Exeter; and 30 Parliament Street, London.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c. IN ENGLAND AND WALES AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W.

NEW HARDY WHITE SWEDE.—The Favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills. Grows rather coarse on some soils or when sown early; but it is very productive, hardy, and it is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor land.
Seed 1*s.* per lb., or 42*s.* per bushel.
Supplied by RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

International Exhibition. Prize Medals 1851 and 1862,
AWARDED FOR "EXCELLENT SEED CORN AND SEEDS," TO
RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED MERCHANTS and GROWERS, Basingstoke, Andover; and 89, Seed Market, Mark Lane, London, E.C.
Samples of all kinds of AGRICULTURAL SEEDS and SEED CORN, sent post free on application.

Present Prices of Farm Seeds.

THE NEW FARM SEEDS are NOW READY, at Reduced Prices.
PRICED LISTS may be had, Post Free, from SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Agricultural Gazette.

SATURDAY, FEBRUARY 7, 1863.

SOME weeks ago (in last year's volume), we gave detailed statistics of the Frocester Court Dairy during the past seven years. We now repeat the table then published, in order that the figures of

ast year, the eighth of the series, may be added, and in order that they may be compared in some particulars with the figures of an American experience which are given in the last number of the New York State Agricultural Society's Transactions.

STATISTICS OF FROCESTER COURT DAIRY, IN GLOUCESTERSHIRE.

Year.	No. of Cows.	Yield of Milk in Gallons.				Yield of Cheese.		Yield of Butter.				Value of Produce.		
		Total.	Per Cow.	Given to Calves and Pigs.	Made into Cheese.	Total.	Per Cow.	Milk.	Whey.	Total.	Per Cow.	Total.	Per Cow.	
		Gallons.	Gallons.	Gallons.	Gallons.	lb.	lb.	lb.	lb.	lb.	lb.	£	£ s.	d.
1855	30	..	..	..	...	10,860	362	1402	461	1863	62	444	15 0	0
1856	45	..	..	..	...	19,040	423	2272	647	2919	65	711	16 0	0
1857	55	34,728	631	say 3000	31,728	25,424	464	3375	91	3466	63	906	16 10	0
1858	52	26,247	507	say 3000	23,247	20,160	388	1687	344	2031	39	638	12 5	0
1859	60	32,000	533	3400	28,607	22,736	378	1728	697	2425	40	795	13 5	0
1860	66	34,470	522	3439	31,031	29,344	444	1757	729	2486	37	1070	16 4	0
1861	71	38,831	550	4874	33,957	32,262	454	1589	862	2457	34	1068	15 0	0
1862	73	38,238	524	6038	32,200	30,876	423	2112	640	2752	38	1034	14 3	9

In the English experience, taking the last six years during which the record is complete, 377 cows yielded 204,523 gallons of milk, or 542⅔ gallons of milk apiece per annum. Of this nearly 23,000 gallons were given to calves and pigs, and the remainder (180,770 gallons) was made into cheese, yielding 16,802 lbs. of cheese, and 15,617 lbs. of butter, or 444⅔ lbs. of cheese, and 41⅓ lbs. of butter per cow. The total annual yield, including the value of the whey given to pigs, varies from 12*l.* 5*s.* to 16*l.* 10*s.* per cow per annum. Two years ago it was 16*l.* 4*s.* per cow; last year it was 14*l.* 3*s.*; the year between it was 15*l.* And the difference has not been owing to any difference in the yield of produce: it will be seen that the yield of cheese was 423 lbs. per cow last year, notwithstanding the loss owing to an attack of distemper. The loss is attributable to the fall of prices alone; and it is probably owing to the large importations of dairy produce from America. The loss of 2*l.* per cow is the measure of the share borne by the dairy districts of England in the general calamity of the American war.

The following figures, given by way of comparison with the Gloucestershire experience, are descriptive of the produce of 50 cows of the "native" breed kept on the farm of the Hon. Z. PRATT, Prattsville, Greene county, New York. The farm contains 365 acres, 40 of which are fine alluvial soil, the rest loam and gravel, lying on the slope of the Catskill mountain. Colonel PRATT's 50 cows yielded 31,842 gallons of milk in 1857, and 32,536, 30,087, 26,276, and 28,301 gallons during the four succeeding years—149,062 gallons altogether—equal to 596 gallons annually per cow. The greatest daily yield by the 50 cows was 3½ gallons per cow on one day in 1859, and in every year it reached or exceeded 3⅛ gallons as the maximum daily yield of the year. In the Frocester Court Dairy the maximum weekly yield per cow was 22¼ gallons in 1862, 22½ gallons in 1861, and as much as 24½ gallons in 1857; varying thus from 3¼ to 3½ gallons daily; nearly the same as in the case of Col. PRATT. The annual yield of milk is however greater in the American dairy, and it may be accounted for by the greater richness of the food given to the cows, which receive "2 quarts each per day of mixed provender, consisting of one third each of corn, Oats, and Buckwheat, ground together, hay also being supplied from February till the 10th of May, then Grass alone until Sept. 1, when 'corn' sown broadcast for forage began to be fed, and afterwards Pumpkins, both of which were found to add to the flavour and colour of the butter. This, especially the early spring food, is much better keep than English dairy cows receive, and is quite enough to account for the greater yield of milk.

Colonel PRATT's is a butter and pork dairy exclusively. The following are his returns:—

STATISTICS OF PRATTSVILLE DAIRY, NEW YORK.

Years.	No. of Cows.	Yield of Milk in Gallons.			Butter in lbs.		Quarts of Milk to 1 lb. of Butter.	Pork in lbs.		Sales.	
		Total.	Per Cow.	Maximum of one Day.	Total.	Per Cow.		Total.	Per Cow.	Total.	Per Cow.
										£ s. d.	£ s. d.
1857 ..	50	31,842	636½	3.28	6,500	130	20	4627	92½	575 3 0	7 10 0
1858 ..	50	32,556	651	3.31	8,050	161	16.16	7408	148	469 0 0	9 7 6
1859 ..	50	30,087	601⅝	3.53	8,300	166	14 5	6455	129	457 12 0	9 19 0
1860 ..	50	26,276	525½	3 40	9,143	182⅝	11.2	6516	130	520 18 0	10 8 4
1861 ..	50	28,301	572½	3.34	10,860	217½	10 4	6625	132½	564 18 0	11 5 0

The calculation of the money return has been made from the published account at the rate of 4*s.* to the dollar. It appears from the accompanying statement that the increase in the yield of butter from 182 lbs. to 217 lbs. per cow in the last year of the series, as compared with 1860, has been owing not merely to the more favourable character of 1861, but also to a very great change in the actual cows of the dairy, for "in the belief that the best milkers yield the most profit, the best cows that could be found for dairy purposes have been carefully selected in the new purchases that have been made, so that in point of fact only about 30 of the 50 cows milked in 1861 formed part of the herd in 1860."

It will be seen that the yield of milk during the last two years is smaller than during the previous three, but its richness is marvellously increased—the yield of butter being about 1 lb. to 21 pints of milk in 1861, and barely more than half this quantity in 1857. The yield is stated, month by month, for the last two years, as follows:—

	1860.		1861.	
	Quarts per lb. of Butter.	Weight per gallon.	Quarts per lb. of Butter.	Weight per gallon.
	lbs.	lbs.	lbs.	lbs.
May 1	12.96	7.91	12.2	8.02
June 1	11.43	8.28	12 4	7.74
July 1	12.14	8.30	10.74	8.03
August 1	11.35	8.06	10.45	8.28
September 1 ..	11.83	8.09	9.94	8.12
October 1	9.28	8.53	8.85	8.07
November 1 ..	8.21	7.26	8.50	8.12
Average of the 7 days	11.03	8.19	10.29	8.05
Average of the whole season	11.2	8.28	10.42	8.05

The increasing richness of the milk as the season passes, is very strikingly illustrated by these figures, which we quote from the statement in the New York State Society's Transactions.

—— WE have to beg readers of the Saturday's edition of the last Number of the *Agricultural Gazette* to substitute the following sentence in the last column of the leading article for what is there said about the cost of steam cultivation during the past autumn on Mr. ARNOT's farm at Carshalton.

"The actual earnings of the apparatus thus amounted during the autumn to 155*l.* 9*s.* 10*d.* The actual cost of wages, coals, oil, and repairs during the same time in accomplishing all this work (ploughing and threshing) has been 89*l.* 0*s.* 1*d*, not much more than one half the earnings; and taking out the wages, repairs, and coals and oil of the days at work with the steam plough and cultivator alone, we have a sum of 58*l.* spent against 120*l.* earned in ploughing at 12*s.* and 14*s.* an acre, and scarifying at 6*s.* an acre. There is here certainly ample room for interest for capital, and tear and wear and cost of rope."

In like manner the sum, 3*s.* 5*d.* per acre, stated as the cost of ploughing over the whole year between harvests of 1861 and 1862, should have been described as the cost of wages, oil, and repairs of repairs only. The coal bill, amounting to 63*l.* 15*s.* or 2*s.* an acre, was not included. The whole charge therefore is 5*s.* 5*d.* per acre, to which the charge for rope and interest of capital, and general tear and wear, must be added before the whole expenditure is understood.

It is proper also to add that Mr. FRANK DODD, of the farm near Chakendon, Oxfordshire, whose experience was given at p. 108, has since informed us that the statement of wages in steam ploughing, amounting to 49*s.* a week is not true of the actual period described, for during the first three weeks of the use of the plough, other labourers than his own, and more of them, were engaged than have subsequently been employed. Of course the 6*s.* an acre, at which his expenditure in ploughing 104 acres in 23 days was thus estimated, did not include any charge for tear and wear, or interest on outlay, or horse labour in the removals of apparatus from one place to another.

THIN SEEDING.

THERE were two or three things in my little classical farming which I forgot to mention, and which I think my readers will excuse me if I now state.

First, on taking my land, for I rented it, I drained it thoroughly to an average depth of about 5 feet, and the drains worked delightfully, completely conveying away all the water, and at the same time raising of course the temperature of the land. Secondly, the land being infested with wireworms, I advertised for live moles, and several boxes full were brought me by mole-catchers, which I bought and turned down, first giving 3*s.* a dozen, and then 2*s.* But did they not injure my land?—injure it! no; but during the growth of my crops, though for some time they made the land like a honeycomb, the crops were not injured in the least by them, but if anything improved; but all the wireworms were soon destroyed, and then, having performed me this great service, the pretty little fellow workers migrated to my neighbour's field to benefit them in the same way, but of course were bowstringed by the wise and intelligent men whom they went to serve.

Oh! when will men learn to use their thinking faculties. Wisdom, like Truth, is certainly at the bottom of a very deep well.

But I am told a thousand times over by land cultivators, "We know that moles do but little harm, but we do not like to see the mole-hills they make." "Then, my friends," I reply, "take a hoe and knock them about as I do; yes, you yourselves knock them about—why not? Take a little manual exercise of this kind the first thing in the morning, and it will enable you to relish your breakfasts the better, and perhaps keep off the gout and apoplexy."

"But we do not like to see mole hills," and I will tell you, my friends, what I do not like to see, and it is this: the very essence of your farmyard manure running first into your horse-ponds, and then into ditches, and thence into brooks, and thence to the sea, to be mingled with the waters of the ocean! This is a thousand times more annoying to me—nay, more painful—than it would be to see my land covered over with mole-hills, for the latter would be but for a season; the work would soon be done, and then my kind friends would leave me, as I have said, to be bowstringed by the wise and intelligent men whom they went away to serve. But your wasting all the essence of your manures, the pabula that ought to be for your crops, is perpetual; your grandfathers and grandmothers, uncles and aunts and cousins did the same; and your neighbours, Master Turniptop and old John Weatherhog, do the same—[There are not now so many gentlemen of these names in the agricultural districts as the rev. gentleman appears to imagine]—and they say—"Muck cannot be too dry for land, and they like it when it has well smoked and heated." But, my friends, do you not reflect—why not?—that one ton of your farm-yard manure, if it were wisely made, is of more real value for your land, than much of the rubbish called guano you are purchasing at 7*l.*, 8*l.*, or 9*l.* or 10*l.* a ton?

My most valued friends, for many of you are excellent men—none better—but do think a little, will you? and should you do this, then every quart of liquid from your farm-yards, and your house, and the houses of your labourers, who may not require it themselves, will be taken to your fields, and then away with this new-fangled, lazy-basket compositions of all kinds of rubbish called guanos, as your lands will be always in heart by the application to them of really valuable fertilisers.

But one more word in behalf of my favourite little fellow labourer, the mole; but now he shall plead for himself, and do you attend to what he says, for he is a wise and learned little creature, and is taught by One who cannot lead him wrong—

> "I put no man to pain,
> I eat not his grain,
> They hate me in vain."

Why then employ poachers, midnight assassins, to bow-string him?—for nine-tenths of the mole-catchers are poachers in disguise; but the innocent farmers pay them to wander about their fields by day in order that they may know where to set their nets and gins by night. But so the world rubs on.

But thirdly, another thing I did on my classical farm was this: My principle was, as I had before explained more fully, to put the seed into my ground as the learned and scientific Xenophon taught his disciple, the philosophical Socrates, that seed ought to be put in, that is, evenly, grain separate from grain; and as Nature, science, and common sense also confirm it should be put in. But I could not get my land so seeded; the drills that are so much boasted of would not do it, but scooped up the seed, throwing it into the furrows made by the coulters by cupsfull. The drill, then, would not do, there being no even seeding by that, and so I tried the dibbling plan; and this was worse: for here the droppers, in spite of all I could say against it, dropped from their little benumbed fingers whole handsful of seeds into holes at a time.

The last time I tried the dibbling plan was rather ludicrous, and though I have encroached rather too far, I must give a short account of it. I engaged a man to dibble my field with Wheat, but one grain in a hole only was to be put in, except by chance. He commenced with his droppers, and I found the children dropped, as usual, half a dozen or a dozen seeds in a

hole. That I said would not do, and should not do; and so the man turned rather restive, and intimated that I was sadly deficient in brains. At this I said to him, "Leave off this job, and I will set you to put in a plot of Windsor Beans;" and so away we went to the plot, and my man made the holes, and then dropped a single Bean into each hole, when I stopped him again, saying, "Drop in 6, 8, or 10, or more into each hole, as you do of Wheat," when the poor man thought worse of my intellect than he did before, and so all I could do was to call him off to some other employment, as reasoning of course would have been vain with such a 2-bushel an acre seeder.

But since then I have invented and made a drill, by which I put in my seed exactly as I like, thick or thin; and last year I had a little Wheat, Barley, and Oats put in by it in single grains, and the Wheat and Barley, though I have had better, averaged from 1500 to 1600-fold, and were as thick in the ground as they could grow; but the Oats were wonderful, the admiration of all who saw them.

But, to be as brief as I can, will any one of my farming friends be so good as to inform me and the world why farmers in dibbling put into each hole 6, 8, 10, 12, and even—I write what I have often proved—20 grains of Wheat in a hole, while for a crop of Beans they put in but one? If any one will show me a sound reason for this, I shall ever afterwards esteem him as one of my choicest philosophical friends; and if he will favour me, also, with his photograph, I will place it the very first in my album. And I further add, if farmers will seed their land as Nature teaches, we shall hear no more of the two bushel an acre men, except their regrets that they had not opened their eyes to the light somewhat sooner. *Geo. Wilkins, Parsonage, Wix, Manningtree, Jan.* 27.

Home Correspondence.

The Ketton Short-horns.—"An eminent breeder insinuated in a letter to Sir John Sinclair, in the 'Farmers' Magazine,' 1814, that Mr. Colling had crossed some of his stock with kyloes, and that if he had not done so, his stock would have sold for some thousand pounds more. Mr. Colling undoubtedly purchased annually many female kyloes, and the best he could procure, which he used as nurses for his young calves, but the produce of such kyloes were fed for the butcher and were by no means intended for breeding. The first bulls of fame at Ketton were called Hubback, Punch, and Ben. I have heard that Mr. Colling bought one of the first-named bulls (and which was depastured in the lanes contiguous to Great Burdon and Haughton-le-Skerme) of a neighbouring farmer. Ben, the last-named bull, he purchased of another farmer, who resided near Great Stainton, and had a good assortment of cattle, and was called Benjamin Ord, an uncle of my father. My father accompanied Mr. Colling when he purchased Ben." To this, communicated anonymously to the *Darlington Telegraph*, we add the following from a correspondent: Old Mr. Westall, who is now living in Darlington, tells me that the breeder of Hubback, Mr. Robert Colling, and Mr. Westall's father attended Houghton-le-Skerme Church, and that on the Sunday previous to Good Friday Mr. W.'s father and Robert Colling, having previously agreed to buy Hubback for their joint use, asked the breeder, on their return from church, what he would take for him, and was told 10*l.* They offered 8*l.*, which was refused. On the morning of Good Friday Mr. W.'s father went to this church, and there met Hubback's master, and agreed to buy him at 10*l.*; and whilst this was being done, Robert Colling had gone to the man's house and waited for his return from church, and as Mr. W.'s father believed with the intention of buying the bull on his own account, and not, as had been agreed upon, for their joint account (however, I suppose it is a mere surmise that Robert went to buy him exclusively for himself). Robert and old Westall kept him, and each put nearly twenty cows to him, when they sold him to Charles Colling for 20*l.*, and they had to put their cows to the bull, and not be charged, but Mr. W. says the first cow his father sent Charles demanded 5*l.* The above are the particulars Mr. Westall related to me about two years ago, and as far as his veracity I believe it is true. *W. Wooler.*

Diseased Stock in Ireland.—Being one of those who, at the request of Doctor Kirkpatrick, had supplied Professor Gamgee with much of the materials which formed the subject matter of his late lecture before a meeting of the Royal Dublin and its visitors, I was with many others not a little surprised and disappointed at the use he appeared to have made of such information, and the apparent conclusions he had arrived at. Still I would be far from censuring his lecture without first seeing whatever he may have had in view, but kept in the background relative to the cure as well as the prevention of those diseases; though I must confess that in as far as his lecture might influence me, I have little hopes of much practical service being rendered by that lecture beyond what may be derived from Mr. Ganley's project, and which I fear you have with the best possible intentions thrown cold water upon, *in limine*, before it can be well understood. I have the pleasure of knowing Mr. Ganly well and for a long time, and believe him quite incapable of suggesting anything that would not be perfectly legitimate and practically beneficial to both the consumers and producers of flesh-meat—nay, to the public at large, without injury to any individual. As regards remedial measures you say: "Among these the veterinary surgeon stands first." Until lately I thought the same, but from having seen the "doctors' differences" so fully displayed by eminent veterinary surgeons of late, I fear that some of those early prejudices indulged in by me and other Irishmen have had some just grounds for their origin, nor has this lecture of Professor Gamgee done much to remove them. You further say—"The only society which is likely to help the unfortunate men who are suffering by the liability of their live stock to disease is a mutual insurance company for bearing one another's burden. In as far as England is concerned I think you are quite right, but very much fear the impossibility of such an organisation in Ireland I have many reasons for indulging in this fear, which it would not become me to give in full in your pages; however there is one which I cannot avoid giving. Some time ago a friend of mine became the agent in Ireland for a cattle insurance company, and requested my advice on the appointment of district inspectors. This I gave him, and to help the project, at his request, agreed to be the inspector for a large district in my own neighbourhood, but a little experience in that unenviable capacity soon convinced me of the impossibility (on my part at least) of preventing frauds and injustice being practised on both sides, so I resigned the job and let it go into other hands, and the whole affair soon fell to the ground, as I had anticipated, because there was not nor could there be an adequate check against fraud and double dealing. But the case may be, and I am sure can be, quite the reverse with a well formed project in preventing the sale of diseased meat to be consumed as human food, in preventing a great sacrifice on the part of the producers, and in conferring an universal benefit, if I may so express it, on all classes in Ireland; and, as already said, I am sure, if Mr. Ganly takes up the matter and receives that support which the importance of it would entitle it to, he will set an example for all Ireland at least, and perhaps worth the consideration of England also. *Edward Carroll, Kilgreany Lodge, Clonegal.*

The American Stone Breaker.—Can any of your readers give information of experience in working the American stone breaker, a model of which was in the Exhibition, and apparently did its work so well. *R. Neville Grenville.*

Potato Disease and the means of Averting it.—I have seen with much pleasure your Leader signed "B," on the subject of Potato disease and the simple means of averting it, if no new feature of an unforeseen character presents itself. In corroboration of the views of "B," I will give you a short note on some of my latest experiments. In October last year I selected some Potatoes considerably diseased, and planted them in the garden at Cranmore House, but without any manure beyond what was unexhausted in the ground after the previous Cabbage and Carrot crops; and my successor there, to whom I sold the farm, had the earliest, soundest, and best crop of the kind in the locality. On coming here the latter end of March I had everything to do—no preparation having been made for anything. Remembering the old practices of my grandfather in producing early Potatoes, with some amendment I adopted the same, on what is libellously termed the "lazy bed" system. But, unlike "B," I did not plough or dig the lealand at all—I merely had the land laid out in beds, 2½ feet wide, leaving an alley or furrow of 1 foot between them, to afford cover. I had about 6 tons of well-rotted dung, with about twice that weight of earth in compost, placed and spread on the beds, and the tubers planted at 9 inches from the edges of the beds, and at 1 foot in every other way asunder. They were covered then with the spade and shovel, and on a larger scale with the earth ploughed in the furrows and shovelled over the tubers. When they were well over ground I had at the rate of 2 cwt. of Lawes' superphosphate, and the same money value (15*s.*) respectively applied to the statute acre of other portable manures, spread over the beds between the stalks, which were then earthed up, and left so, merely pulling up whatever weeds appeared, till the crop was fit to dig, which was by the middle of July, just in three months after being planted. The disease made its appearance on the stalks—the crop then nearly matured—in the last week in August, when I had the crop, with the exception of one short bed which I left for experiment, dug and pitted in very narrow and very shallow pits, covered up with dry earth and a sod placed with the green side up on the top of the pits to prevent the wet entering there, and from then till now I could scarcely discover a diseased tuber in any of the four following varieties—Kemps, Dalmahoys, Pinkeyes, and Scotchdons. The produce varying from 6½ to 9 tons to the acre according to the above order. The bed I left for experiment I have tried at the beginning of each month since the general crops were dug out. The disease in the tubers had made some progress by the 1st of October, and increased ever since till now, when there is scarcely a sound tuber in what are remaining. Am I right in saying the foregoing simple process possessed the following advantages:—1. A cheap and expeditious mode of planting; 2. A security against disease by having the plants grown on a bed rendered dry by the deep furrows or alleys beside it; 3. An early maturity, by which a second and valuable crop can be had on the same*; and 4. By having the crop removed thus early, that great curse to Ireland, the propagation of weeds, so visible in most places where the Potato crop had become diseased, is totally averted? I think I am, and the state of the land on which I grew the Potatoes proves it. And here let me thank your correspondent "B." for the matter and manner of his letter, which may tend to benefit the small farmers of Ireland if our local papers, as is their wont on such occasions, have the matter transferred to their columns. *E. C.*

Flat Island Guano.—In reference to the Flat Island guano mentioned in your Notices to Correspondents, allow me to state that I have seen it at Melbourne. Its appearance is something more like lumps of chalk in dry mud than anything else, and it is obtained for the Melbourne market from a small island called Mud Island, or Flat Island, lying somewhere near the entrance to Port Phillip Heads, where sea-birds congregate in vast numbers. It has no smell whatever of ammonia. As the Peruvian guano sells at Melbourne freely at 15*l.* 10*s.* per ton, the statement that the Mud Island is better than the Peruvian can only be reconciled with truth if we suppose that at 5*l.* 5*s.* per ton, it is better for some purposes than the Peruvian is at 15*l.* 10*s.* *D.*

Steam Ploughing at Carshalton.—In your *Gazette* of last week I find a mistake has occurred with regard to the immediate outgoings against the work done by the steam plough on my farm, which, if not rectified, will make me look singular even in the eyes of the steam-ploughing community. The item 110*l.* 5*s.* 11*d.* stands only against wages, oil, and repairs. The coal bill has by some means been omitted, which amounts to 63*l.* 15*s.*, or 2*s.* an acre, thus making the actual outgoings 5*s.* 5*d.* instead of 3*s.* 5*d.* per acre. *James Arnot, Woodcote, Feb.* 2. [The correction is made in a leading paragraph.]

Sparrow Murder.—It is quite clear to me, that the Almighty Creator intended some kinds of animals to prey upon others, and those others to be preyed upon, so that the earth should be replenished, and a just balance kept up among them; but man for his own amusement, and in his folly and ignorance, destroys the balance, and in England it is altogether destroyed. Hence we are over-run with rats, and mice, and sparrows, and hence the necessity there is for them to be destroyed, and, if possible, I would destroy every rat in the kingdom, and the mice also (although the latter are of some use), and I would destroy sparrows also. The whole? No. And would I sustain Sparrow Clubs? No; on the contrary, condemn them *in toto*; nevertheless, I would destroy sparrows, or sanction their being destroyed, and thank any one who will destroy some few scores or hundreds that I am most unwillingly supporting in my garden, pig-styes, yard &c.; and this I should do because the kestrels and hawks are everywhere destroyed, and hence sparrows are now, where they are not kept down, doing infinitely more injury than good. But now to be serious, and do you be serious also, if you can; and I will tell you what all this fuss about "sparrow murder" is about; and what it is? Because the sparrows eat caterpillars; so says Dr. Bree. But do they eat caterpillars? No, they do not, and this every tyro of a naturalist knows, and this I, myself, have proved hundreds of times. A sparrow will perish with hunger rather than touch a* caterpillar; and this, I stake my reputation in proving to the satisfaction of every man who can understand what a proof is; and hence the house of snow which the Doctor has erected is completely melted away. But, sparrows are notorious thieves, as every farmer and gardener knows to his cost, and though a few are very useful, yet the numbers are now unbearable and they must be diminished—murder indeed! hang the rogues. *G. Wilkins, Wix Parsonage, Jan.* 13, 1863.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, February* 4.—Present: Viscount Eversley, President, in the chair; Earl Cathcart, Earl Powis, Lord Berners, Lord Feversham, Lord Tredegar, Lord Walsingham, Hon. W. Cavendish, M.P., Hon. A. Vernon, Sir A. K. Macdonald, Mr. Raymond Barker, Mr. Barthropp, Colonel Challoner, Mr. Dent, M.P., Mr. Druce, Mr. Exall, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Major-General Hood, Mr. Holland, M.P., Mr. Jonas, Mr. Lawes, Mr. Lawrence, Mr. Milward, Mr. Pain, Mr. Randell, Mr. Sanday, Mr. Shuttleworth, Mr. Thompson, M.P. Mr. Torr, Mr. Wallis, Mr. Burch Western, Mr. Wilson, Mr. Frere, Professor Simonds, Professor Voelcker.

The following new members were elected:—

Arnold, Matthew, Westmeon, Petersfield
Ashby, James, Capel, near Dorking
Ashmore, John, Norton, Evesham
Baker, John, Hockley, Rayleigh, Essex
Barker, Charles Stuart, 12, Buckingham Street, Adelphi, W.C.
Beaumont, Richard, Wollaton, Nottingham
Birch, George Francis, Clare Park, Farnham
Bornford, Benjamin, Pitchill, Evesham
Bower, George, St. Neot's
Branson, William Charles, Little Weldon, Wansford
Brown, Benjamin, Manor House, Shipbourne, Tunbridge
Brown, Richard, Cippenham, Slough
Campain, Joseph George, Cowbit, Spalding
Campain, Samuel Wm.; Deeping St. Nicholas, Spalding
Chaundler, Robert James, Crondall, Farnham
Christian, John, Barrow House, near Oakham
Coney, William, Battenhall, Worcester
Coote, George, Smeetham Hall, Sudbury

* Cabbages, late Turnips, Rape, Italian Rye-grass, Early Wheat for thin seeding, by dibbling, ribbing, or otherwise.

Crisp, Edwards, M.D., 278, King's Parade, Chelsea, S.W.
Davies, John Morgan, Froodvale, Llandilo
Davison, John Terry, Easton Maudit, Northampton
Dickson, Arthur, Queen's Park, Chester
Esam, William, Averham Park, Southwell
Fletcher, Thomas, Deeping St. Nicholas, Spalding
Ford, John, Moreton Hall, Warwick
Ford, John, Market Rasen
Garrard, Edward Holland, Clopton House, Broadway, Worcester
Garringe, Hugh, Southwick Green, Shoreham
Grantham, Captain, H. V., Scawby, Brigg
Grimes, Wm. Howlett, Bubbenhall, Kenilworth
Haselwood, Lewis Robert, 33, Queen's Square, Bloomsbury
Haywood, George, Derby
Haywood, James, Jun., Derby
Headley, Edward, 2, New Square, Cambridge
Hearne, Stephen Street, Abbots Salford, Evesham
Heatley, John, Eaton, Market Drayton
Heatley, Richard Thomas, Dodicote Grange, Market Drayton
Hill, Henry, 22, Queen's Gate Terrace, South Kensington, S.W.
Johnson, Joseph, Windsor
Longland, James, Grendon, Northampton
Loveden, Pryse, Gogerddau, Aberystwith
Marsh, Richard, Sandwich
Masterman, Thomas Wm., The Hall, Rotherfield, Tunbridge Wells
Neame, Edward, Selling Court, Faversham
New, David, Waverley House, Nottingham
Palmer, Robert, Bexington, Bridport
Palmer, Walter James, Pencoyd Court, Ross
Parris, John Williamson, Farnham, Bishop's Stortford
Perry, William Perry, Kingsomborne, Stockbridge
Prance, Courtenay Connell, The Elms, Evesham
Pritchard, William, Albert Street, Camden Road, N.W.
Quibell, William Oliver, Newark
Ralphs, John, Saighton, Chester
Reading, William, Ashorne, Leamington
Reeves, Robert, Bratton, Westbury
Robinson, John, Rudly, Hutton Rudly, York
Robinson, John George, 21, Montague Square, W.
Scriven, Edward, Wormleighton Hill, Southam, Warwick
Scudamore, John, Pengeley Court, Ross
Seymour, Captain Henry, Park Place, Old Windsor
Shellabear, Samuel, Holkham, Wells
Smith, William Robert, Rushford, Evesham
Smithin, Benjamin, Sheriff's Leuch, Evesham
Smithin, Joseph, Wadborough, Kempsey
Spicer, John William Gooch, Esher Place, Esher
Thornton, Edward, Little Pitchford, Shrewsbury
Tindal, C. G., Yattendon, Newbury
Turner, William, Jun, Stourton, Birkenhead
Tuson, Richard V., R.V. College, Camden Town, N.W.
Vesey, Charles C., Lucan House, Lucan, Dublin
Vickerman, Charles Ranken, Thoby Priory, Brentwood
Ward, Thomas Johnson, Fern Park, Olveston, Gloucester
Watson, Robert, Standard Hill, Ninfield, Battle
Webb, James, Spring Hill, Hadbury, Pershore
Whitworth, George, Lower Road, Rotherhithe, S.E.

FINANCES.—The Hon. General Hood, Chairman of the Committee, presented the Report, from which it appeared that the Secretary's receipts during the past two months had been examined by the Committee, and by Messrs. Quilter, Ball & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on Jan. 31 was 2698*l.* 10*s.* 4*d.* The balance-sheet for the quarter ended December 31, 1862, and the statement of subscriptions and arrears were laid on the table, the amount of arrears then due being 711*l.*

JOURNAL.—Mr. Thompson, M.P., Chairman, reported that the Committee had taken into consideration the selling price of the "Journal," which was at present 10*s.*, and concurred in recommending that the price be reduced to 6*s.*, which it was thought would lead to a considerable extension of the sale both at home and abroad. The Council unanimously adopted this report.

The Chairman also gave notice that the following would be the course of subjects for discussion at the Weekly Meetings of Council before Easter:—

25th February.—Mr. J. Taylor will exhibit and explain his improved materials for the construction of cottages, as introductory to a general discussion of the Economy of Labourers' Dwellings.
18th March.—Mr. Bailey Denton on the influence of Underdrainage on the Rivers, and on the Water Economy of the country generally.
25th March.—Professor Tanner on the difficulties experienced in breeding from Pedigree Stock.

VETERINARY.—The following form of veterinary certificate was approved and ordered to be attached to the certificate of entry sent in by every exhibitor in the Horse Classes at the ensuing show at Worcester:—

I hereby certify that I have this day examined a ——, aged ——, the property of ——, chiefly with reference to h— freedom from hereditary diseases, and more especially of those of the visual and respiratory organs, and find h— to be perfectly free from all such affections. (Signed) A. B., Member of the Royal College of Veterinary Surgeons.

May, 1863.

GENERAL WORCESTER.—Lord Walsingham reported that the arrangements for the show yard and trial-ground were in a forward state of progress. The Council resolved that the trials of machinery should commence on Wednesday, July 15, at 12 o'clock, and continue on the following Thursday, Friday, and Saturday, commencing at 9 o'clock, the admission on each day to be 5*s.* The whole showyard of stock and implements should be open on Monday the 20th, at 8 o'clock, at 10*s.* each person; Tuesday and Wednesday, at 2*s.* 6*d.*; Thursday and Friday, at 1*s.*; to close each day at 6 o'clock. Horse-boxes would be provided by the Society for stallions and hunters, for which a charge of 40*s.* would be made to exhibitors.

A letter was read from H.M. Secretary of State for Foreign Affairs, announcing an International Exhibition of Stock and Implements at Hamburg, from the 14th to the 20th July, the particulars of which have already appeared in our columns.

The following books were presented to the Society's library, for which the thanks of the Council were directed to be returned. "The Prince Consort's Farms," by J. C. Morton; "Farm Life," by W. J. M. Pocock; The Bombay Magnetical and Meteorological Observations; "Complete Works on Husbandry, by F. W. Hofmann, Vienna; "Description des espèces bovine, ovine et porcine de la France," by M. Lefour; "Synopsis of the Vegetable products of Norway," by Dr. Schübeler; "English Botany," edited by J. T. B. Syme, F. L. S., and the first part of a series on "The Farm Homesteads of England," by J. Bailey Denton. C. E., F.G.S.

The Council then adjourned to its weekly meeting on Wednesday next.

The Half-Yearly Audit of Accounts to the 31st of December, 1862, took place on Friday the 6th inst.

AGRICULTURAL IMPROVEMENT OF IRELAND: *Jan.* 24.—A meeting of Council was summoned to consider a question at issue between the Council and an English agriculturist, Captain Broughton, who had been a competitor at the meeting of the Society held in Limerick last year. Captain Broughton exhibited a ram in class "F," which won the first prize of 10*l.* After the show of the Society at Cork in 1861 there was a surplus of receipts over the expenditure, which the local committee turned to account by offering two challenge cups of 50*l.* each, one of which was for the best shearling ram in classes "F and G." Captain Broughton's ram won the prize in "F," where his merit was tested by competition, but there was no competition in "G." The judges thought that though the ram deserved the prize of 10*l.* he had not sufficient merit to obtain the challenge cup. The judges therefore "recommended" the Council to withhold the cup in this case, "if they had the power." There is a rule which requires the judges to withhold premiums if the animals for which they are claimed be not of sufficient merit, and particularly "if there be little or no competition." The decision of the judges regarding the cup was not an award, but a recommendation, coupled with the expression of a doubt whether the Council had power to act upon it. The merit of the ram had been recognised and rewarded with the first prize; it was thought the challenge cup should have followed as a matter of course, and that the judges had no right to intercept it. They avowed a doubt as to the legality of the course they recommended, and it would have been more politic, as well as more generous for the Council to give the benefit of the doubt to the competitor, especially when he came from the other side of the Channel. They decided to withhold the cup from Captain Broughton. That gentleman questioned the justice and legality of the decision. The subject has been repeatedly under discussion in the Council, who have by large majorities re-affirmed their original decision. Captain Broughton offered to leave the matter to arbitration, and this also the Council unwisely declined. At length Captain Broughton threatened legal proceedings, but his solicitor subsequently proposed that he and the Council should jointly submit the case for the opinion of counsel, in order to avoid litigation, and this meeting was called to consider a letter from the solicitor proposing this plan, he being at liberty to supply any omission of facts which he thought necessary to a clear understanding of the question. Some members—namely, Mr. O'Reilly Dease, Captain Vesey, and the Hon. King Harman indignantly protested against such a course, as calculated to stultify the Council, to compromise its dignity, by yielding to terror, and to encourage future litigation. Others took a more prudent course—Mr. Naper, Lord Talbot de Malahide, Mr. Garthan, Mr. Wade, and Mr. Donnelly advocated compliance with the proposal made on behalf of Captain Broughton. A resolution was moved to the effect that they should themselves get the opinion of counsel, and act upon it without concert with the "plaintiff." On this Mr. Garthan moved an amendment to the effect that both parties should join in submitting the case to counsel, binding themselves to abide by the opinion, and agreeing that whichever party was in the wrong should pay the fee. This amendment was carried by a majority of 11 to 4. The question turns entirely on the interpretation of one of the rules regulating the awards. Could it be said that the ram was deficient in merit after standing competition and receiving a prize? Could a challenge cup offered for the best animal in a certain class be rightfully refused to one which the Society's own judges declared to be the best in that class? It is of great importance to the interests of this most useful and ably-managed Society that cases like this should be precluded hereafter, and that the present difference should be amicably settled. It is not good policy to strain the rules in doubtful cases—for the withholding of premiums, thus discouraging the competition on which the utility of the Society mainly depends. It was the less called for in this case, as the cup could be competed for again next year.

[Of course the power of the Judges and of the Council is limited by the terms in which the challenge cup was offered by its donor—but on the general question there can be but one opinion of the propriety of the Council giving full effect to the awards and recommendations of its Judges].

Farmers' Clubs.

LONDON.—This Society on Monday evening resumed its monthly meeting for discussion under the presidency of John Bradshaw, Esq., of Knowle Park, near Crawley, Guildford, who has been elected its Chairman for the ensuing year. The Malt Tax was the subject announced on the card for discussion, and Mr. Steed, of Baldock, had been announced to open the discussion.

The CHAIRMAN congratulated the Club on the subjects placed on the card for discussion during the present year. Some of them had never been brought forward on that arena before. One had been before them several times; every time it was invested with fresh interest: he alluded to steam cultivation. The drainage of land, which had also been frequently discussed, was again to engage their attention. He wished to throw out one suggestion with regard to the discussions of the present year; it was, that it was desirable, as tending to add to the effectiveness of the discussions, that some of the members should come there prepared to speak on the subject upon the card. He thought it would also add to the value of the remarks made, if when a gentleman got up to speak he would take care to announce from what county or district he came; for they all knew that climate and soil had a great deal to do with the success of practice in agriculture. Unfortunately the gentleman who was to have introduced the subject that evening was labouring under indisposition, and could not attend. He had, however, sent his paper to the Secretary, Mr. Corbett, who would read it, and, being well acquainted with the question treated, would afterwards open the discussion with some remarks of his own.

Mr. CORBETT, after remarking that he did not receive Mr. Steed's letter till Saturday morning, and that the title of the paper was "The operation of the Malt Tax," proceeded to read as follows:—

As my name is put down to propose this subject to-night, I hope I shall not be out of place by offering several remarks thereon, as they affect both the producers as well as consumers of Barley and Malt. We are all aware that this is a Barley-producing country, and as free trade is or ought to be our motto, why should we be taxed from 50 to 60 per cent. on the produce of our native soil, independent of all other charges on the land? It is now about two years since the repeal of this tax was last agitated in Suffolk, Norfolk, and Herts, and I then expected the desire to repeal it would have been general throughout the country; but, alas! myself with many others have been disappointed. When we consider the many advantages which would result from the repeal of this tax, it is a marvel that it has not been removed a long time since. We ought to drink our beer free from tax, as well as eat our bread free. By repealing it, certainly the price of Barley would be much improved, not only for the best quality, but other descriptions would also follow, and the inferior sorts would be malted for food for cattle and sheep; and I do not hesitate to say double the quantity of malt would be made to what is at present: this would stimulate the farmers to use their own produce, instead of expending immense sums for linseed cake, and it is very desirable that a substitute should be found to reduce the price of cake from 30 to 40 per cent., which undoubtedly the repeal of this tax would affect. It follows of course, if malt is used instead of cake, the price of cake must be considerably reduced, and from my own experience I find malt is equal if not superior to cake or any other article used for the production of meal, for both beasts and sheep are so fond of it, that they devour it greedily. We might fatten three beasts where we only fatten two, and sheep in proportion, provided this tax were repealed, and every class of the community, from peer to peasant, would be greatly benefited, from the price of meat being considerably reduced, and the farmer having the manure from his extra number of fat stock, it would fully compensate him: it would also greatly stimulate the breeding and rearing of store stock of every description. We may remember when free trade first came into operation, which I think was twelve or fourteen years ago, the late Sir Robert Peel remarked they must repeal the malt tax, and Lord John Russell expressed himself in similar terms; now, since that period the country has paid in round numbers five millions per annum for malt tax for the last fourteen years—seventy millions! and so we seem to go on. Is it not high time a stop was made? And no better time than the time present. When the paper duty of one million two hundred thousand was repealed, about two persons in one thousand were benefited; but give us the malt tax, and all classes of the community would be profited, even to the tee-totallers, who, though no consumers of malt in the shape of drink, are uncommonly good trenchermen, and they would get their meat considerably cheaper. We must not forget that these seventy millions of hard cash within the last fourteen years have been drawn principally from the mechanics and labourers of this country, they being the principal consumers of malt liquors, consequently they pay a large proportion of the malt tax. It is not a long time since one of the late Duke of Bedford's tenants told him the malt tax was not fairly levied, for when a brewer exported his malt liquors the Government allowed a drawback on all malt liquors so exported, and to my knowledge this is a fact. The Duke told his tenant he thought this could not be so, but would make it his business to enquire in the proper quarter; he did so, and, to his astonishment, found his tenant correct. It is possible there are some few now present who are not aware of this, and may I not presume that in the House of Commons, out of upwards of 600 members, there may not be some who require to be enlightened on this important subject?

Having finished reading the paper, Mr. Corbett then addressed the meeting, and the following are some of his remarks:—I need not tell the usual frequenters of this room that this is the shortest paper ever offered for discussion to the members of the Central Farmers' Club. Taking the subject of the operation of the malt tax as exhausted, or rather taking the necessity of repeal as admitted, let me remark that I believe few members of the Club would leave this room satisfied if there had been no discussion as to the best means of getting rid of the tax. On this subject I am to some extent a practical authority, as the Secretary of this Club. And here it may be as well to say, that if the members of this Club and of local farmers' clubs will look back to the lists of subjects, they will find that the repeal of the malt tax was discussed by this Club

before it was discussed by any other Club in the kingdom. I am the more disposed to direct attention to this fact, because it often happens that gentlemen who come here talk as if the repeal of the malt tax was with us a new idea. In conjunction with the Anti-Malt-Tax Association, this Club has frequently dealt with the subject. Having been the Secretary of the Association which I have just mentioned, I wish here to say a few words in reference to its course:—

What is the history of those proceedings? In the course of two or three years we spent between two and three thousand pounds; we agitated the whole country; we held meetings repeatedly in London, and we also convened meetings in many districts which had manifested sympathy in our object. Petitions were sent to the House of Commons, not only from the Society, but from various parts of England. Whenever there was to be an election which we seemed at all likely to influence, we sent some one down to watch, and whenever there was an apparent chance of obtaining a hearing, we went before the Prime Minister, or the Chancellor of the Exchequer, or some other great personage, on whichever side happened to be in power. I myself went repeatedly before leading members of both the great parties in the House of Commons. We spent, as I said before, two or three thousand pounds in two or three years, and did nothing, simply because we had no one to represent us in Parliament. Meetings were well attended, but there were no Members of Parliament present. At some of our meetings in London, where there were nearly 200 persons, there were but two or three members. This was no joke. There was old Mr. Frewen from Sussex attending regularly, and there was another gentleman who was, I think, rather anxious to become a Member of Parliament; while the late Mr. Cayley now and then sent us a letter. But we had no direct parliamentary influence; it was with the greatest difficulty we got a member to introduce us to the Premier or the Chancellor of the Exchequer, or whomsoever else we might wish to see. So it went on till the different districts became tired of subscribing without seeing any result. The same district subscribed two or three times over. One man put his name down for 5*l.*, another put his down for the same amount, and at last both got rather sick of it. Let me here observe, that one thing which has operated against the repeal of the malt tax hitherto has been the impossibility of securing any general movement in support of the object. The agitation for the repeal of the malt tax partakes rather of the nature of an epidemic. Sometimes it will seize one county, sometimes another; now it secures an immense number of friends in Sussex, and then it appears in a distant part of the kingdom. At the present moment there are three counties which are especially distinguished for the agitation of this question: Berkshire, Sussex, and Dorsetshire—[A voice, "and Suffolk"].—Yes, I will add Suffolk. Well, on looking back to the period of 1847 and 1848, I find that some of the counties which have been so active of late were at that time worse than lukewarm; they scarcely subscribed one penny in aid of the object. This is a great difficulty in the case, and it is one which we must take seriously into account. It is, in truth, very difficult indeed to get any general movement in favour of the repeal of the malt tax. This leads me back to my first point. I saw some years ago, as I see now, that the agitation in favour of the malt tax has failed hitherto because the farmers, or the malt-tax abolitionists—call them which you will—have had no representatives in the House of Commons. If you have watched the proceedings of Parliament during the last two or three years, you must have observed that when Mr. Gladstone has brought forward a budget proposing the repeal of the paper duty, the wine duty, or anything else, one man, and only man, has got up and said a word in favour of the repeal of the malt-tax, and that man is Mr. Ball, the member for Cambridgeshire. And mark this, Mr. Ball's remarks on that topic have frequently been received with laughter. What is the consequence? Mr. Ball is going to leave the House of Commons. He has already signified to the electors of Cambridgeshire his intention of retiring; and I really believe that, unless farmers do a great deal more for themselves than they have done, they will not have one representative in that assembly. It seems to me that there is one very palpable deduction from the past. Gentlemen who only look at this question on the surface, say, "Let us have a general movement; let us rouse the whole country; let numerous petitions be sent to Parliament; let us have meetings in all directions, and let us fight the matter out throughout the kingdom." Now I believe that that is a very great mistake. I believe that, instead of fighting collectively, you will have to fight individually—instead of getting up at farmers' club meetings, and other meetings, and making fine speeches on this subject, farmers will have to make straightforward speeches to their representatives. If this question be not fought at the homestead now, it will have to be fought at the hustings; that is, if it is to be fought with any hope of success. Look at the manner in which the constituents of great towns act in relation to their representative in Parliament. If he does not act in accordance with their wishes, where is he at the next election? Why, nowhere. I say advisedly that, so far as the repeal of the malt tax is concerned, that special question has scarcely one representative in Parliament. Country gentlemen can occasionally fight the battle of country gentlemen. We have had a pretty recent instance of this kind. I am not going to enter into the particulars. County members can at times be excited, but they have never been so in reference to the malt tax. I have been before leading members of both parties, and have found them equally lukewarm. They have always said "This is not the proper time." It was not the proper time in 1847 and in 1848, and it will not be the proper time in 1863 and 1864. After the greatest study and long experience of the subject, it appears to me that the whole question resolves itself into two practical points. In the first place, when a county member comes before you and asks you for your vote, you ought to say to him, "Will you vote for the repeal of the malt tax?" This meeting may not separate, without determining that there shall, if possible, be an early interview obtained with the Chancellor of the Exchequer; and I would therefore suggest in the second place that every member of the Club who is present should tell each of his representatives in Parliament that on a certain day the interview will be held, and ask him to form part of the deputation. The member may say, "This is not the proper time." Well, let us make it the proper time. Let us say to him, "We are going to the Chancellor of the Exchequer—say on the first Tuesday in March; will you go with us?" There are many influential men, who, if they would only speak half as strongly before their members as they do in this room, might do a great deal for the repeal of the malt tax.

Farm Memoranda.

NORTHUMBERLAND FARM: *February* 1.—Unlike ordinary seasons, the month of January has passed away without exhibiting any of those characteristics of winter—frost and snow—which are usually considered seasonable at this season of the year, but instead of which the weather has been most mild and spring-like, though of a very variable character; at one time the cheering sunshine, accompanied by the inspiring notes of birds, reminding us of the approach of summer, whilst anon these pleasing sensations are interrupted by a sudden deluge of rain, often preceded or accompanied by a severe squall of wind, the latter usually rising to its maximum force during the night. The rainfall during this month registers about 3 inches; the wind usually blowing from the west or south-west. During the middle of the month we certainly had one or two days' frost, which, however, was easily dissipated by a milder change. A frost during the ensuing month would be most seasonable and acceptable in producing a disintegrating action on our strong clays intended for spring seeding; besides this, it would enable us to cart out our farmyard manure more advantageously, as well as have the effect of destroying a large percentage of insect life, which will otherwise run baneful riot over our growing crops during the coming summer. We may yet have severe weather to contend against when we are least prepared for it, probably during seed time or the lambing season, in which case we shall feel it most severely in these exposed parts.

Labour.—Owing to the open state of the weather, the ploughs have been kept almost uninterruptedly going, the excessive wet not having prevented the ploughing of lea on the dry lands, though it drove us off for a time from the stronger stubbles. All the lea and Wheat stubbles are now ploughed, and awaiting a favourable seed-time—the former for Oats and the latter for Beans. Turnips are nearly all pulled, and the land ploughed close up in preparation for Barley, whilst the draughts are at present finishing some Oat-stubble intended for a fallow crop. After waiting from time to time for a frost, to enable us to cart out our manure more easily, and with as little damage as possible to the land, we were at last—though grudgingly—obliged to lay aside the ploughs for a few days, so as to employ our force in emptying some of the cattle courts and boxes which had become completely filled with a three months' accumulation; but in very rare instances were we able to form our manure heaps so conveniently for subsequent use, as we could either wish or had intended, considering it preferable policy not to cut the land up during its present wet state, at the risk of a longer cartage at Turnip time. We continue threshing out grain to suit the requirements of our stock with regard to fodder, and we still find our Wheat yield sadly deficient, though not to the extent as is represented in Scotland. Barley is a fair yield, though somewhat high coloured, but malting well; and Oats are producing a better result than we have experienced for many years. It every day becomes more apparent that the growth of the Wheat crop in this country must be curtailed if success in farming is to be attained; and even on the strong clays where they are drained—(and most of them are, or ought to be at the present day), and have received an application of lime, a crop of Oats or Barley, though it be high coloured, would unquestionably be more satisfactory to the grower. We can easily imagine old farmers feeling a sort of affection for Wheat, from the pleasing recollections of the fortunes they made by its growth and sale at war prices during the early part of the present century, when England was an exporting country; but a great change has come over this country since that period, during which interval John Bull has discovered that a superior sample of bread-stuff can be grown and imported from other countries, and as his epicurean tastes ever lead him to secure the best of everything at almost any cost, we are in duty bound to observe the very broad hints which he is invariably giving us to stop; advice which I anticipate the majority of clay land farmers, from their unprecedented experience during the past year, will be willing now to accept.

Stock.—The first lot of our fat bullocks are now prime and ready for the butcher; some of them will go to market during the first week of February, and the rest in rapid succession; whilst the second lot must go on for a couple of months longer. They are receiving about 9 stones of Swedes per day in the boxes, and 12 to 13 stones in the yards (the cattle in the boxes are heavier than those in the yard), besides 4 lb. of meal and a little hay, in addition to a liberal supply of Oat-straw. The grazing cattle are now all confined to the yards, receiving white Turnips and Oat-straw, and are doing well. Our Swedes have pulled off a light crop, but the Yellows, and especially the Whites, are a very bulky crop. The sheep stock is extremely healthy, and are running thinly over the old Grass fields, receiving a liberal allowance of white Turnips and hay chaff; we have not yet had a single death, though we hear of heavy losses in hoggets on the Turnip breaks on the lighter farms. Young Wheats are looking well, and not too far forward, whilst young Clover plants are gathering bone and presenting a very luxuriant appearance. *J. W.*

Miscellaneous.

Astro-meteorology for February.—Turn we now to the probable weather to be looked for in February. The transition from the mild influence at the end of January falls on the 2nd, when the earth will be approaching the chilling influences of Herschel, which will probably give us a little seasonable frost, to keep vegetation from getting too forward; the earth will then approach the double influences of Saturn and Venus under solar power, and a conjunction of the Sun and Mercury on the 10th, when we may anticipate strong gales, with downfall, rain or snow, according to temperature. On the 13th we pass the influence of Mercury and approach the benefic planet Jupiter, which will greatly moderate the temperature, and produce fine dry weather; but about the 19th it will be worth while to notice the cooling-down of the temperature again as the earth approaches the combined influences of Saturn, Herschel, and Neptune; again giving us cold and downfall, with strong gales of wind demanding the Admiral's warnings. I think the Admiral's warnings will be required on the 6th, 10th, 16th, and 23rd; yet the following periods, 3rd, 8th, and 20th, demand particular notice. The month will probably end fine. *Mr. W. H. White, in an Agricultural Paper.*

Calendar of Operations.

FEBRUARY.

WEST SUSSEX: *Jan.* 27.—We are now into Spring so far as the weather goes; everything is assuming a reviving appearance, and the land is getting dry and very suitable for working, but it has not been such a favourable winter for our clay lands; they do much better with a few sharp frosts, and we have hardly yet seen ice. The weather, though rough, has been mild to a greater degree than usual. We are now getting ready for Pea-sowing, but as the land has turned up rather heavily we should like a little frost upon it before sowing it, or a little rain after it is dry may do as a substitute; at any rate we must wait a week or two for what may turn up. We are now in the early Down lambing season, and the weather is all that we can wish for, but the success with many has not been what could be wished, and it would appear that what we call a fine season is not always the best for lambing—we have now the most delicate nursing, followed by disaster; and open air random attendance followed by vigour in the flock. And it is no use to expect that any plan will answer well when the flock is not in a sound state; and the chief object ought to be to have them in a sound healthy condition before lambing; fair feeding and a judicious amount of exercise are indispensable to their health. A very frequent error is their being left too quiet before lambing. I remember one year having bad luck, many of the ewes being lame; they were fed well and exercised rather sparingly, and when lambing came, several ewes were lost at first. They had good pasture with plenty of good hay; any system of doctoring seemed to do no good, and things looked as badly as they well could do, when we turned them out of their old Grass pasture into a bare seed field, giving them Mangel, and driving them on the road about a mile each morning, and the result was that there was not one loss after this plan was adopted. Giving them Mangel at such a stage did not seem very safe, and in ordinary circumstances, perhaps, would not be judicious, but in this case it seemed very beneficial. Work is pretty well advanced, but extra carting has been deferred during the winter, as the land was never in a fit state for it, so that some alterations and improvements must wait for some time longer. Wheat looks well and equal over the land; perhaps thin seeders may get a pull this time—I mean those who use 1 bushel and under, (we use 1½ to 2), as the present mild winter has secured the success of every plant. Vetches, Rye, &c., are good, but I do not think such is the case with Trifolium, which often now fails, perhaps owing to the cause of its not being looked upon as a Clover plant, and so being sown too soon after the other Trefoils. We have seen failures in it and the after Clovers that could certainly be accounted for in this way, but we do not think the fact is generally admitted. Cattle are doing well, and the roots are keeping well; Swedes are growing, and a sharp frost will do them good by putting them back in their place. *G. S.*

[The following passages are extracted from *Morton's Farmers' Calendar.* Routledge.]

PEAS.—This is the season for sowing the hardy sorts of Pea; and towards the end of the month any kind of field Pea may be sown. The Pea can hardly be called an ameliorating crop, but admitting of cultivation in the wide intervals between the rows in which it is usually sown, and afterwards covering the ground with a bulky smothering growth of haulm, it is when well cultivated a fallow crop. The land should thus be left cleaner after Peas than it was; and as the crop yields in its nutritious straw a capital contribution to the dung heap, a frequent crop of Peas is no evidence of cross-cropping. It rarely, however, forms a regular part of the rotation, being taken now and then, in addition to the common course of cropping, when the land seems fit for it, or unfit for the crop which it is taken to displace. The soils best adapted for it are the lighter loams, which are hardly stiff enough for Beans; and calcareous soils are especially fitted for it. Pea straw contains in its ashes from 35 to 40 per cent. of lime, and 12 to 15 per cent. of potash. This indicates the kind of soil which the plant requires. Peas need liberal treatment and good cultivation like any other crop, but bad farmers are too apt to sow this pulse when the land will yield nothing else. They have a proverb among them, which signifies, that the season does for Peas as much as good husbandry; and they from thence take care that good crops shall be owing to season alone. Hence arises the general idea of Peas being the most uncertain crop. This is owing to their being too often sown on land that is not in good order. Let the careful husbandman lay it down as a maxim, that he should sow no crop on land that is not in good order; not merely in respect of fine tilth at the time of sowing, but also of the soil being in good heart and clear of weeds. I would not, however, here be understood to rank all kinds of crops together; because Beans and Peas will admit of cleaning while they grow. On that account, if a farmer comes to a field which his predecessor has filled with weeds, a horse-hoed crop of Beans might be expedient, when a Barley crop would be utterly improper. Peas, when managed in a spirited manner, will not have the reputation of being so very uncertain a crop, for this character has, in some measure, been owing to ill conduct. From these remarks, however, the reader is not to understand that I think Peas as certain as other crops; but this quality will still much depend on management.

PEAS AFTER CLOVER.—The white boiling Pea, of many sorts, and under various names, is more tender than the Greys and various kinds of hog Peas; but I have many times put them into the ground in February, and though very smart frosts followed, they received no injury. I have uniformly found, that the earlier they were sown the better. There is also a particular motive for being as early as possible; which is, to get them off in time for stubble Turnips. If they are sown in this month, and a right sort chosen, they will be off the land early in July, so that Turnips may follow, at not too late a time for sowing that crop. All the sorts of early Peas should be cultivated on dry soils only. Upon sands, dry sandy loams, gravels, and chalks, they succeed well. Broadcast Peas are to be utterly rejected in every case. The only question that can arise in their culture is between drilling and dibbling. If the former is determined on, the land should have been ploughed in autumn, with the skim-coulter. The surface being worked

shallow with a scarifier and harrow as soon as possible after winter, drilling should directly follow. If dibbling is determined on, the land, if already clean, need not be ploughed till winter time or after it, and a heavy roller follows the plough. Dibbling Peas on a Clover layer generally results in a good crop. It is the practice of some farmers to manure for Peas. If the land is in heart, and they are put in on a layer, they do not want manure. A very good crop may be gained without it. I have had five, and even five quarters and a half an acre, without any manure applied for this crop. Dung makes them run to long straw, and that is not favourable for podding productively. Beans will benefit from a heavy dressing of dung, but with Peas the case is different. There are very few situations in which the farmer can have such a command of manure as to give him a sufficiency. It is therefore of much consequence to him never to spread a load but where it will be sure to answer best. Every man complains of a want of dung; and he should be careful therefore to give it to the crops that will pay best for the expense. As to distance between the rows of Peas, the practice of various farmers differs exceedingly. Equidistant rows from 9 to 18 inches are common. I have seen them at 2 feet, and even at 3. In dibbling, it is common in Norfolk and Suffolk, to put in a row on every flag or furrow-slice of 9 or 10 inches breadth; and I have known very good crops in most of these distances. If horse-hoeing, or much hand-hoeing is intended, double rows at 9 inches, with intervals of 18, do well; but the greatest crops I have known have been from planting every furrow-slice. Where drilled in rows, the interval of 15 to 18 inches is to be preferred. This enables an efficient horse-hoeing of the land during the early stages of their growth. From two to two bushels and a half per acre is the usual quantity when planting every furrow. If they are drilled at greater distances, 6 or 7 pecks will do. Some have trusted to 1 bushel per acre, but that quantity is too small.

PEAS AFTER A STUBBLE CROP are sown by the drill after the harrow upon land which was cleaned, manured, and ploughed the previous autumn. The manure thus lying some months in the ground becomes more thoroughly incorporated with the soil; and is less likely to produce too gross and leafy a growth. The sorts sown may be (1) the early Grey Warwick, which, however, being of more rapid growth, is adapted for March or later sowing; it is not so productive as other sorts, and is especially adapted for late districts and land in good condition; (2) the Common Grey field Pea, later, more prolific, yielding a very bulky straw, and better adapted therefore for dry soils and districts, and for land not in such rich condition; (3) the Partridge Pea, or Grey Maple, very prolific, yielding plenty of straw, and better adapted than the last for a late country; (4) the Winter Field Pea—referred to in autumn, when it is sown. There are also several white boiling Peas adapted for field culture which may be named, as (5) the Early Charlton, of medium bulk as to straw, yielding an abundant crop and tolerably early; (6) the Carolina Pea, later, equally abundant; (7) the White Sickle, a good cropper, yielding long bent pods, but much later than the others. The place of the crop in the rotation is either after Clover, as already named, or after a corn stubble; and in the latter case it generally takes either the place of Clover in cases where there is believed to be a liability to "Clover sickness," or the place of Turnips in cases where there is believed to be a liability to the "finger and toe" disease. After autumn culture as already described, the land as soon as dry in February, is either scarified or merely well harrowed down, and the seed, 2 to 3 bushels per acre, is drilled in rows, 15 to 18 inches apart, permitting the subsequent use of the horse-hoe. The ground is then again harrowed, and the field is shut up till the rows appear.

BEAN CULTURE.—Early in this month the farmer should begin to plant his Beans, and, if possible, finish it before the end of the month, as later crops do not succeed so well. The land ought to have been cleansed, manured, and ploughed the autumn before; by which means the only object now will be to sow the seen. When cultivated in rows, 20 to 26 inches apart, and therefore allowing of the cultivation of the land during its growth, the Bean is a fallow crop; *i. e.* it tends to clean the land, and to lay it open to "atmospheric influence." And where it is grown that its produce may be consumed on the farm, it may be considered in every respect as a fallow or restorative crop, and may be allowed to take the same place in the rotation as the Turnip or any other green crop. When, however, it is grown for the sale of its produce, excepting on those lands which are peculiarly adapted for it, it should take the place of a corn or scourging crop in the rotation. The soil which the Bean prefers is a stiffish loam. There are many ways of cultivating the plant, but the best plan is either to drill or to dibble it. 1. When the land was manured in the autumn, as described in October and November, the field, lying all winter in the lands in which it has been ploughed, will now harrow down, and the drill following will sow 2 or 3 bushels per acre, in rows 2 feet apart. 2. If the land has not been manured in autumn, it may have been well to rib it up in ridgelets 2 feet wide, or thereabout. The manure is carried on as soon as possible after winter, spread in the rows, and a Bean barrow going up each row drops the seed over the manure, and the whole is covered up by the splitting of the intervening ridgelets with the double-mould-board plough. The new ridgelets covering the seed are afterwards partly harrowed down before the young plants appear. This is the plan generally adopted in Scotland; and I add the following description, written a few years ago, of an actual day's work in February on a Galloway farm:—"We are now occupied with Bean sowing, which is performed in the following manner:—The land, which was trench-ploughed in autumn, from exposure to the weather now breaks down before the drill plough, without any other previous operation; 6 drill ploughs, following each other, go a 'bout' in the morning, making 12 drills; a drill barrow, which sows 3 drills, then enters, and at a 'bout' finishes 6 drills. By this time the 6 ploughs have again drawn 6 drills, and on returning up the field, they cover the first 6 drills, now sown. They then draw off 6 new drills, and again cover 6 on their return, the drill barrow going at the same rate, and sowing at a 'bout' 6 drills also. A space of 12 drills is left between the opening and covering, which gives plenty of room for the working of the barrow and the passing of the horses. The drills are 27 inches wide, and are made across the winter furrows. Part of the land was dunged on the stubble, but the part* which was not dunged is dressed with 3 cwt. of guano per acre, sown in the drills by hand, and covered in with the seed. Two and a-half bushels of Beans are sown per acre, and with this force we get over from 10 to 12 acres a day. An expeditious plan at this season is of the greatest consequence, in taking advantage of a favourable seed time for Beans." 3. Or, thirdly, if the manure be spread broad-cast, it is not an uncommon practice to plough in the seed, a Bean barrow following every second or third plough, as they turn the manure under. The young plants thus come up in scattered rows, at intervals of 18 or 27 inches, giving ample opportunity for horse-hoeing. 4. Lastly, Beans are often hoed or dibbled in; the former operation costs about 6*s.* per acre. The seed is planted across the ridges in rows about 12 inches apart; the labourer in the act of making each trench with his hoe fills the one already made, in which he has previously scattered a quantity of seed. Beans are sometimes dibbled; either the unharrowed furrow slice is used as the labourer's guide, and two or three Beans are put into each of the dibble holes, which are made in alternate furrows, or, what is better, the land is first harrowed down, and a double line is used, the cords of which are 10 or 12 inches apart, and the labourer facing them manages both rows at once. He makes in succession about 4 holes in the near line, and places seed in them; and after doing the same on the far line, he moves sideways up the rows and repeats the operation. The holes are filled in by a subsequent harrowing. Two to three bushels of seed are thus used, and about 5*s.* per acre are paid for it.

SOIL FOR BEANS.—Everybody knows that all the sorts of strong and heavy soils are the common ones generally applied to this crop. The Winter Bean, sown in autumn (see October), is alone adapted to the lighter class of soils. Chemists tell us that the ashes of Bean straw contain no less than 21 per cent. of potash, and an equal quantity of lime. The mineral part of the grain is also remarkable for the quantity (42 per cent.) of potash which it contains. And this seems to indicate what is, indeed, plain from experience, that clays which are richer than lighter soils in alkaline matters, and especially calcareous clays, are well adapted to the cultivation of this crop. The place of the plant in the rotation is that of a manured fallow crop, coming after other grain, and preceding a grain crop, generally Wheat. Artificial manures are of little use to the Bean crop; as much of the manure of the farm as can be spared is ploughed in for it either in autumn, or as soon as possible after winter. And Mr. Lawes recommends that the richer part of the farmyard dung be kept for other crops which need it more. "Beans and Tares," he says, "may be manured with the inferior qualities of dung."

OF THE SORTS OF BEANS we name—(1) the Winter Bean, a small oblong kind—two bushels containing seed enough per acre—weighing very well, often 70 lbs per bushel, adapted for light soils, and hardy enough for autumn sowing. (2) The Common Horse Bean, a good deal larger, needing 2 to 3 bushels or more as the seeding of an acre, and requiring to be sown in spring on stiff soils. (3) The Common Tick Bean—much smaller—very prolific, 2 bushels containing seed enough per acre. (4) Heligoland Bean, a plump, round seed, adapted for good soils; not so large as the Horse Bean; 2 bushels or 10 pecks containing seed enough for an acre. (5) Long Pod—a name for many different sorts, all of them much larger than those already named, requiring fertile land, in good order, for their efficient culture. (6) Mazagan, also as much of a garden Bean as the Long Pod, but yielding a valuable produce per acre in fields well cultivated and in good condition.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. SPEARING, Moulsford, near Wallingford, Berks, during the week ending Feb. 4, 1863.

Day of Week.	Day of Month.	At 9 A.M., Railway Time. Reading of Barometer corrected to Freezing Point at Mean Sea Level.	Dry Bulb Thermometer.	Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0-6	Amount of Cloud 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday ..	29	29.90	49	47	S.W.	3	8	50	34	64*	29	0.01	42½	43½
Friday ..	30	29.59	50	48	S.W.	3	8	55	43	82	39	..	44	44
Saturday ..	31	29.40	47	46	S.W.	2	6	52	43	54	40	0.30	45	44
Sunday	1	29.77	45	44	S.W.	3	8	50	34	76	29	0.04	44½	44½
Monday....	2	29.93	47	44	S.W.	3	6	49	38	78	34	0.09	43½	44
Tuesday ..	3	29.77	47	45	S.W.	2	7	50	44	57	41	0.46	44½	44½
Wednesday	4	30.20	42	39	S.W.	3	6	49	34	61	30	0.01	44	44½

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Notices to Correspondents.

GRASS: *S. Broome, Temple Gardens.* The Grass is the Avena flavescens, or Yellow Oat Grass. Your notes on the change in the meadow resulting from cultivation are very interesting. The little book on Meadow and Pasture Grasses by Professor Buckman of Cirencester will perhaps be the best for your purpose. Sowerby has published Engravings of Grasses, which are well done, and therefore somewhat costly.

OIL OF VITRIOL: *A Subscriber.* If by "Spirits of Vitriol" you mean sulphuric acid, then the only instance in which we have understood it has been applied directly to the soil, was at the suggestion if we remember aright, of Dr. Daubeny, on the chalk soil of a farm belonging to the late Mr. Davies Gilbert, with what result we do not know. The idea was that it would be efficient as a manure by the formation of gypsum.

PASTURE: *Cor.* The seeds sent belong to the genus Alopecurus; but whether it be a rough variety of A. pratensis (Meadow Foxtail), or a distinct species, it is difficult to say from the seed alone.—*A.* The usual practice with regard to the droppings on the pastures is to knock them abroad when they have arrived at a certain degree of consistency. We believe that an old man and donkey cart might be usefully employed constantly during summer in collecting them and forming a heap, wherever there is extent and herd enough to give him work.

* Guano and other artificial manures are of little use to Beans.

Glass for Greenhouses.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

ENGLISH GLASS, 16 ounces to the foot, in Sheets averaging 40 by 30, packed in Cases containing about 280 feet, 2¼*d.* and 2½*d.* per foot.

SHEET GLASS, 16 ounces, packed in boxes of 100 feet each.

Package included.	3rds.	4ths.
12 by 9, 13 by 9, 14 by 9, 15 by 9	14*s.* 0*d.*	12*s.*6*d.*
12 ,, 10, 13 ,, 10, 14 ,, 10, 15 ,, 10		
13 ,, 11, 14 ,, 11, 15 ,, 11, 16 ,, 11		
14 ,, 12, 15 ,, 12, 16 ,, 12, 17 ,, 12	16*s.* 0*d.*	13*s.*6*d.*
18 ,, 12, 19 ,, 12, 20 ,, 12, 16 ,, 13	per 100 feet.	
17 ,, 13, 18 ,, 13, 19 ,, 13, 20 ,, 13		
16 ,, 14, 17 ,, 14, 18 ,, 14, 20 ,, 14		

Various other sizes.

GLASS for ORCHARD HOUSES,

As supplied by us to Mr. Rivers.

		16 oz.	21 oz.
20 in. by 12 in.	Common	13*s.* 6*d.* ..	£0 18 0
20 in. by 13 in.	Superior do.	16 0 ..	1 3 0
20 in. by 14 in.	English Glass	18 0 ..	1 9 0
20 in. by 15 in.			

The above prices include the Boxes.

SMALL SHEET SQUARES, IN 100 FEET BOXES.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11*s.* 6*d.*
8 ,, 6	8½ ,, 6⅜	9 ,, 7	9½ ,, 7½	
		10 ,, 8	10½ ,, 8½	12 6

Boxes 2*s.* each, returnable at full price.

SQUARES CUT TO SPECIAL SIZES.

16 oz. 4ths, 1¾*d.*, 2*d.*, and 2½*d.* 21 oz. 2⅞*d.*, 3*d.*, and 3½*d.*
,, 3ds, 2*d.*, 2½*d.*, and 3*d.* ,, 3*d.*, 3½*d.*, and 4*d.*

London Agents for Hartley's Improved Patent Rough Plate.

Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

Milk Pans, Propagating Glasses, and every description of Glass for Horticultural purposes.

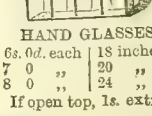
JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, London, E.C.

THOMAS MILLINGTON,
87, Bishopsgate Street Without, E.C.
HORTICULTURAL GOODS.



PROPAGATING GLASSES.

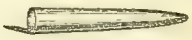
3 inches ..	0*s.* 4½*d.* each.	12 inches ..	1*s.* 9*d.* each		
4 ,, ..	0 5½ ,,	13 ,, ..	2 0 ,,		
5 ,, ..	0 6½ ,,	14 ,, ..	2 6 ,,		
6 ,, ..	0 8 ,,	15 ,, ..	3 0 ,,		
7 ,, ..	0 10 ,,	16 ,, ..	3 6 ,,		
8 ,, ..	1 0 ,,	17 ,, ..	4 0 ,,		
9 ,, ..	1 2 ,,	18 ,, ..	5 0 ,,		
10 ,, ..	1 4 ,,	19 ,, ..	6 6 ,,		
11 ,, ..	1 6 ,,	20 ,, ..	7 0 ,,		



HAND GLASSES.

12 inches ..	6*s.* 0*d.* each	18 inches ..	9*s.* 0*d.* each
14 ,, ..	7 0 ,,	20 ,, ..	10 0 ,,
16 ,, ..	8 0 ,,	24 ,, ..	12 0 ,,

If open top, 1*s.* extra.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1*d.* per running inch.



ROLLING PINS.
From 12 inches long, 1½*d.* per running inch.

Improved ANTI-CORROSION and other PAINTS.
GAS and LAMP GLASSES, GLOBES, &c.
CHIMNIES of every description.
Not accountable for Breakage.

TRANSPLANTING LARGE TREES. — Five different sizes of Mr. BARRON'S MACHINES, with efficient men to work them, can be hired by parties applying to him. His Machines, built under his superintendence, can also be supplied.
Elvaston Castle.—Feb. 7.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability. Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER, Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, London, N.E.

Garden Decorations in Terra Cotta.

WERE AT THE EXHIBITION,

PULHAM'S CUPID'S FOUNTAIN.—Near the Japanese Court, a pleasing and novel design, engraved in the *Art Journal* of October.

PULHAM'S HEBE FOUNTAIN (in S.E. Transept).—A novel and beautiful adaptation of Hebe, being made so that water can actually flow from her jug down into the cup. An engraving will be in the "Masterpieces of the Exhibion."

PULHAM'S NOVEL FERNDELABRUM.—For growing SIXTY FERNS (or Flowers) on a space of 4 ft. 8 in. over 9 feet high. A little Boy at the top to let water on them out of his shell by the turn of a tap. Price 9*l.* A Stereograph for nine stamps.

THE BEST TERRA-COTTA VASES.—Engraved in the *Art Journal* of October.

PULHAM'S NOVEL CONSERVATORY TUBS or TREE VASES (in the Nave and S.E. Transept).—An octagon base, with eight pieces set in it, held by eight screws, to unscrew from outside or in; can be taken to pieces and put together again in a few minutes; 3 ft. over; can be moved, full, by two men (on a peculiar truck). The best at the Horticultural Garden Show in terra-cotta.

The Prize Medals of 1862 and 1851 awarded to JAMES PULHAM, of Broxbourne, Herts. Also Notice of Artistic Merit and of Sound and Durable Material. (Durability guaranteed.)

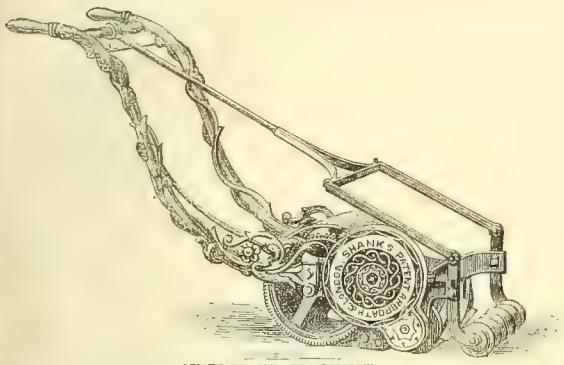
A Set of Stereographs sent for inspection on receipt of Twelve stamps.

SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.



NEW HAND MACHINE.

THE FIRST PRIZE MEDAL

OF THE

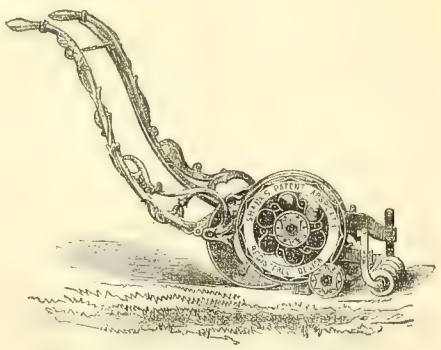
INTERNATIONAL EXHIBITION

WAS AWARDED TO

ALEX. SHANKS AND SON

FOR THEIR

PATENT LAWN MOWERS.



12-INCH or LADY'S MACHINE.

ALEXANDER SHANKS AND SON are gratified to find that the Improvements introduced into their PATENT LAWN MOWERS last season have been so entirely successful, that universal satisfaction has resulted from the use of these Machines wherever they have been tried. The Patentees have pleasure in intimating that they have this season introduced further Improvements into their already celebrated Lawn Mowers, which are fully described in their Illustrated Price Lists, which will be at once forwarded on application.

SHANKS' PATENT LAWN MOWERS are in use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL. They are also in use in many hundreds of the principal Gardens in the Kingdom, and in almost every country throughout the world, where their merits have been thoroughly tested, with the most satisfactory results. The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

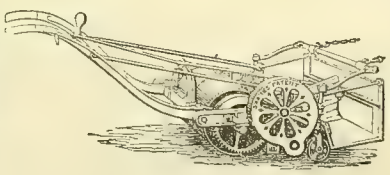
SHANKS' NEW PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

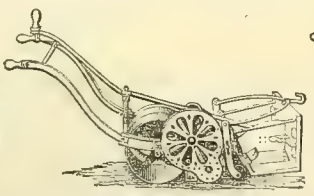
NEW PATENTED IMPROVEMENTS THIS SEASON.

EXHIBITION PRIZE MEDAL AWARDED.

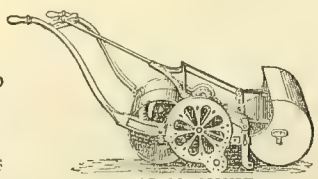




HORSE MACHINE.



PONY MACHINE.



NEW HAND MACHINE



SHANKS' NEW PATENT MACHINE

Mows the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at half the expense.

NO PERSON HAVING A LAWN SHOULD BE WITHOUT A MOWING MACHINE.

The first practical Gardeners of the day who have devoted their attention in examining all the different Lawn Mowers offered, do not hesitate in recommending SHANKS' Machine as *the best Mower for general use.* The important Improvements introduced last season have undergone a thorough practical test, and satisfied the most sanguine expectations. *Further Improvements, simplifying the Machine, and adding to its efficiency, have been introduced into the* NEW PATENT LAWN MOWER for 1863.

PRICES.

SHANKS' NEW PATENT HORSE MACHINE.

Including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for Use.

Width of Cutter.		
No. 1.—48-inch Machine	£28 0 0	*Drawn by a Horse.*
No. 2.—42-inch Machine	26 0 0	
No. 3.—36-inch Machine	22 0 0	
No. 4.—30-inch Machine	19 0 0	*Drawn by a Horse or strong Pony.*

Patent Delivering Apparatus for Nos. 1 and 2 Machines, 40*s.*; for Nos. 3 and 4 Machines, 30*s.*; Box with complete Set of Tools, 10*s.*; Silent Movement, 20*s.*; Boots for Horses' Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for Use.

Width of Cutter.		
No. 5.—30-inch Machine	£15 15 0	*Drawn by a Pony.*
No. 6.—28-inch Machine	14 10 0	
No. 7.—25-inch Machine	12 10 0	*Drawn by a Donkey.*

Patent Delivering Apparatus for Nos. 5 and 6 Machines, 30*s.*; for No. 7 Machine, 25*s.*; Box with complete Set of Tools, 7*s.* 6*d.*; Silent Movement, 12*s.* 6*d.*; Boots for Pony, 21*s.*; Donkey, 10*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for use.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Do. by a Man and a Boy.*

Width of Cutter.		
No. 11.—16-inch Machine	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6 2 6	*Do. by a Boy.*

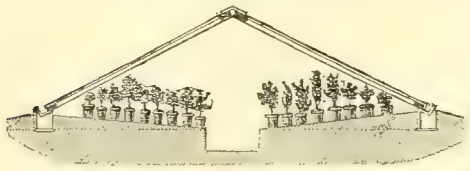
The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.*; Box, with complete Set of Tools, 5*s.*; Silent Movement, 7*s.* 6*d.*

No. 16.—12-inch Machine for Pushing only, £5 5*s.*; easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

AGENTS:

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

Hothouses for the Million.—AWARDED A PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner, all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to SAMUEL HEREMAN, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1*s.*; post free, 1*s.* 1*d.*

DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon



an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.

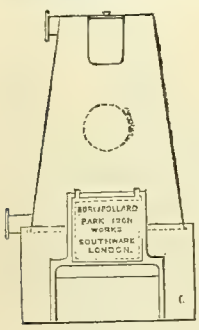
T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.



T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES of the above, Glazing without Putty, Garden Engines, &c., sent upon application.



New Method of Heating by Hot Water.

THE IMPROVED

CONICAL BOILERS,

SOLELY MANUFACTURED BY

BURY AND POLLARD

(Successors to JOHN R. PEILL, Late STEPHENSON & PEILL),

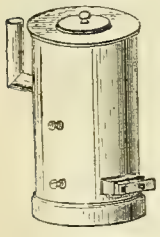
Have attained a celebrity far surpassing any other Boilers ever invented.

The annexed Sketch shows the improved arrangement, requiring

NO BRICKWORK SETTING.

All particulars on application to BURY & POLLARD, Park Iron Works, New Park Street, Southwark, S.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

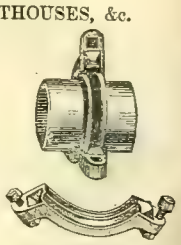
Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

JOHN TAYLOR & SONS,

HORTICULTURAL BUILDERS AND ENGINEERS,

HARROW ROAD, LONDON, W.

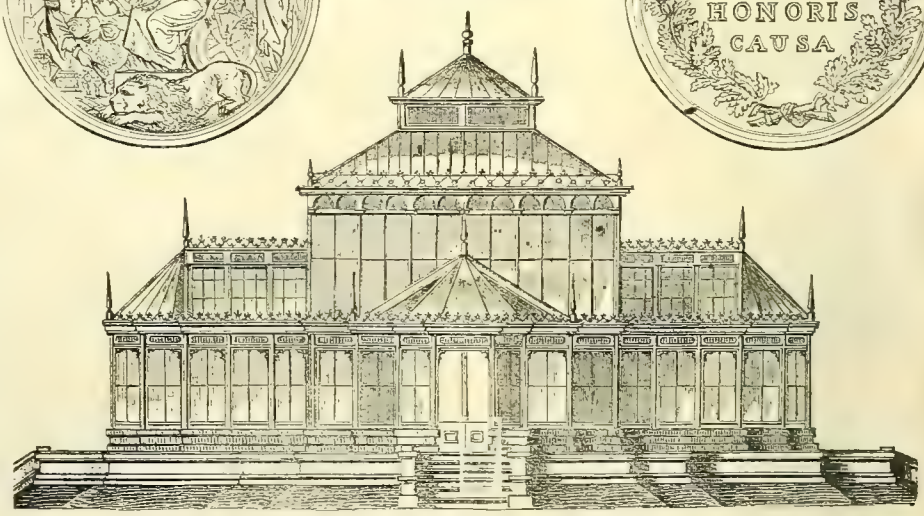


INTERNATIONAL EXHIBITION, CLASS IX., 2191.

PRIZE MEDAL

For CONSERVATORY, DOUBLE CHAMBER CORRUGATED and HORIZONTAL TUBULAR BOILERS.





J. TAYLOR AND SONS call the attention of the Nobility and Gentry to the very superior manner in which they erect CONSERVATORIES, VINERIES, FORCING, FRUIT, and PLANT HOUSES of every description, combining the most modern improvements with elegance of design and durability of materials and workmanship.

Our VENTILATING APPARATUS for the Roofs and Fronts of Horticultural Buildings, &c., supersedes any now in use, as being the most simple and effective in its action.

Our system of HEATING APPARATUS for Churches, Public Buildings, Mansions, Schools, Offices, Baths, Horticultural Buildings, &c., is particularly worthy of notice, we having for many years devoted especial attention to this branch. The great variety of work which has passed through our hands has gained us such experience in the mechanical details as to insure success and entire satisfaction in any undertaking entrusted to our care.

The superiority of our DOUBLE-CHAMBER CORRUGATED and HORIZONTAL TUBULAR BOILERS has caused them to be acknowledged as the best now in use, being both powerful and rapid in action.

GREEN'S

LATEST IMPROVEMENTS IN

LAWN MOWING, ROLLING, and COLLECTING MACHINES,

FOR WHICH HER MAJESTY'S ROYAL LETTERS PATENT HAVE BEEN OBTAINED.

These Machines have carried off every Prize that has been given in all cases of competition, and have been awarded the

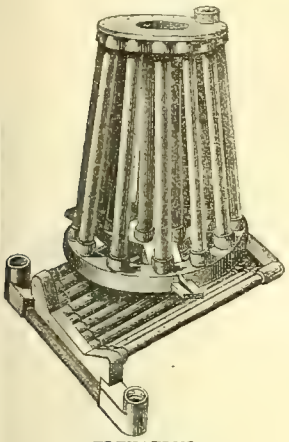
PRIZE MEDAL at the INTERNATIONAL EXHIBITION of 1862.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

For Illustrated Price Lists, with full particulars, address

T. GREEN, SMITHFIELD IRON WORKS, LEEDS; and 2, VICTORIA STREET, HOLBORN HILL, E.C.

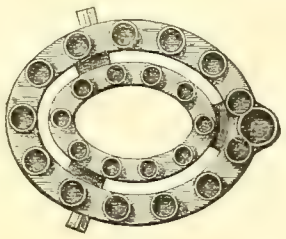
GRAY'S OVAL TUBULAR BOILER.



ELEVATION.

INTERNATIONAL EXHIBITION,

Class IX., No. 2119.



PLAN.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

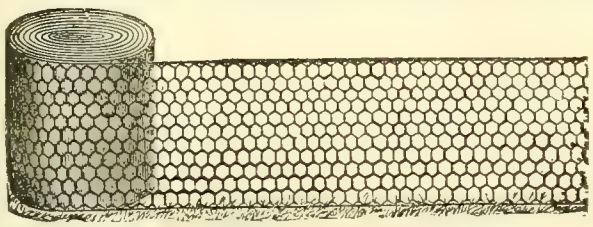
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement.

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH:—

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2¼ inch	Hares, Dogs, Poultry	3d.	4d.	3¾d.	5d.	4½d.	6d.	5½d.	7d.
2 inch	Game or Poultry Netting	3½d.	4¼d.	4d.	5d.	5d.	6½d.	6½d.	8d.
1⅝ inch	Small Rabbits, Hares, &c.	4d.	4¾d.	4¾d.	6d.	5½d.	7d.	7d.	9d.
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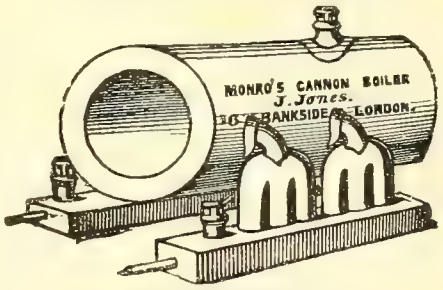
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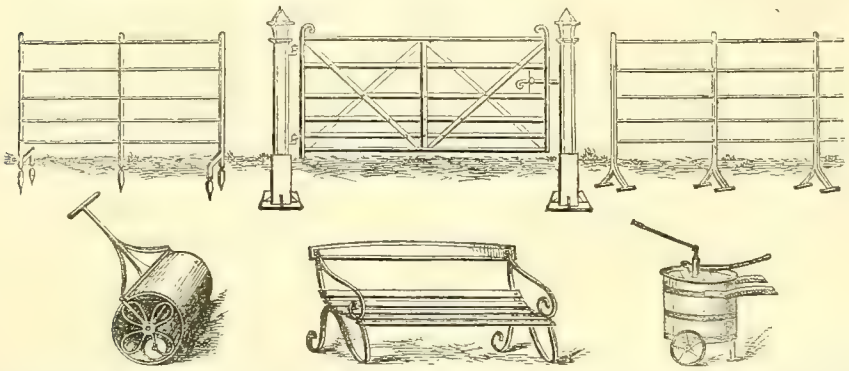
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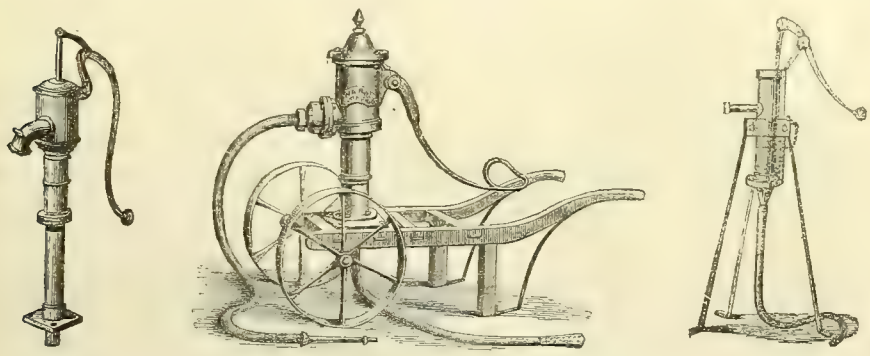


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"The Hydropult, a Portable Fire Annihilator and Garden Engine.

"GRIFFITH & BROWETT, Manufacturers, Birmingham;

"CHARLES P. BUTTON, General Agent.

"VOSE'S Patent;"

and is sold at the uniform rate of TWO GUINEAS, complete, with 2½ feet suction and 3-feet delivery hose, Galvanised Wire Strainer, Rose or Sprinkler, and Fire Jet. It is an easy matter to imitate the Hydropult in appearance, and thereby deceive the public; therefore this caution.

A PORTABLE GARDEN ENGINE AND FIRE ANNIHILATOR.

SECURED BY ROYAL LETTERS PATENT.

PRICE TWO GUINEAS,

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Small Jet.

The Hydropult is a simple, effective, and convenient Apparatus for throwing Water by hand. It WEIGHS BUT 8 LBS., is made of Brass and Copper, costs but Two Guineas, and will throw 7 or 8 gallons of water per minute 50 FEET when worked by the power of one man.

FIRE! FIRE! FIRE!

THE HYDROPULT IS THE MOST EFFECTIVE FIRE ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.

EXTRACTS FROM TESTIMONIALS.

Read the following from THOS. RIVERS, Esq., the eminent Florist and Nurseryman:—

"The Hydropult is admirably adapted for Nurseries, and will be found invaluable for Watering and Syringing Plants and Trees in pots."

SHIRLEY HIBBERD, Esq., says in the "Gardeners' Magazine:"

"It will perhaps surprise the reader to be told that this little contrivance, which is pretty as a toy, and can be carried under the arm as easily as a trumpet, will throw from 7 to 8 gallons of water per minute a distance of 50 feet. But it will do it, as we know from having tried it, finding the experiment an agreeable exercise, and of special service in washing down a stuccoed wall, which it accomplished quite as well as if we had sent for the parish engine. Gardeners will not need to be told the value of a Portable Force Pump of this simple kind. It can be used to produce a powerful stream to extinguish a Fire, or a gentle shower to Syringe a whole house full of Plants, without the necessity of moving a single step from the position most convenient for a supply of water. Wherever a Pump or Syringe is needed the Hydropult can be brought into use, to remove Water from a Cellar or a Boat, to cleanse a Cistern, wash a Pavement, or drench the Foliage of Trees loaded with soot, or annihilate at one fell swoop the whole Insect population of a Plantation of Roses. But we will not enlarge upon its merits, they are obvious, and having a Hydropult in use we can say that it will soon pay for its cost in a Garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water."

"There can be no doubt but that it can be made available in the earlier stages of Fire in Warehouses, Manufactories, or Private Houses, in preventing large conflagrations.

"PERCY M. DOVE, Esq.,
"Manager Royal Insurance Company."

"The invention will prove extremely valuable for all the purposes to which such Machines are applied.

"SWINTON BOLT, Esq.,
"Secretary Liverpool and London Insurance Company."

IMPORTANT TO YACHTING CLUBS.

We take pleasure in presenting to the public the following Testimonial from Lieut.-Colonel WHEATLEY:—

"I have much pleasure in stating that both I myself and several friends have used your Hydropult for Wetting Yachts' Sails and Washing and Baling out Boats with the greatest success; and, for an instrument of its size, consider it most useful and applicable to Yachting purposes, obviating the necessity of a large engine or skeats during a match.

(Signed) "W. WHEATLEY."
Royston.

"I consider the Hydropult the most convenient Garden Engine I have seen. My gardener is delighted with it.

"ARTHUR NASH."

"The Hydropult fully answers my expectations. It is a most useful little tool in a Greenhouse, or to clean Carriages, Windows, &c. "SAMPSON LLOYD, Esq.,
"Proprietor of Old Park Ironworks, Wednesbury."

"I would state that the Instrument now in use at the Asylum gives entire satisfaction. Their applicability and general utility for Household, Farm, Garden, and other purposes, cannot be too highly spoken of.

"W. F. KNIGHT, Esq.,
"Secretary Borough Lunatic Asylum, Birmingham."

"I required the Hydropult to Lay Dust in Yards, &c., which it does effectually. "JAMES FLYNN, M.D.,
"Resident Physician and Manager Clonmel District Lunatic Asylum."

Valuable premises in Oxford were saved from destruction by the use of the Hydropult alone.

T. SPENCER, Esq., Inspector of the Royal Society for the Protection of Life from Fire, certifies to its efficiency in saving valuable property in Bayswater from destruction.

Prospectus, with Testimonials, on application at either Office.

HYDROPULT OFFICE: 27, LEADENHALL STREET, LONDON, E.C.; and 309, REGENT STREET, POLYTECHNIC BUILDING, LONDON, W.—CHARLES P. BUTTON, PROPRIETOR.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 7.—1863.] SATURDAY, FEBRUARY 14. {Price Fivepence. Stamped Edition, 6d.

INDEX.

American Medicine Men .... 152 a
Asters, collections of ..... 149 c
Benthamia fragifera ..... 148 c
Cocoa-nut fibre ..... 150 a
Corn v. stock ..... 155 a
Cotswolds, cropping on ..... 156 c
Crocus biflorus ..... 152 c
Cucumber Beetles ..... 152 a
Cucumber, Cuthill on, rev. .. 151 b
Cultivation, differences of .... 157 b
Dahlias, exhibiting ..... 148 a
Earth Worms on the, rev..... 151 a
Essay on the Storing of Turnips, rev. ..... 157 c
Farmers' Club, Kingscote .... 156 b
Farming, good advice respecting ..... 154 a
— Hampshire ..... 156 b
— Cotswold ..... 156 c
Farm Memoranda ..... 158 c
Flax, Japan ..... 160 b
Flower gardening, winter.... 148 c
Flower seeds, collections of .. 149 c
Garden law ..... 149 b
Grape, Muscat of Escholata .. 150 b
Hampshire, cropping in ..... 157 a
Japan Flax ..... 150 b
Law, garden ..... 149 b
Pear, Beurré Brettonneau.... 149 c
Polyanthuses ..... 150 a
Rainfall in Suffolk ..... 150 b
Ranunculuses, best exhibition 148 b
Roots, power of selection in .. 147 b
Sewage, town .....153 b—155 c
Society, Royal Horticultural . 151 b
— Royal Agricultural .... 156 b
Sparrows ..... 156 a
Stock v. corn ..... 156 a
Stuttgart, Royal Gardens at.. 151 c
Transplanting trees.... 147 a—149 b
Weeds, notes on..... 154 c
Wire, galvanised iron ..... 149 c

☞ *An Edition of the* GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE *is published on Monday Afternoon at 4 o'Clock, containing full Reports of the Mark Lane and Cattle Markets, written expressly for the Paper.*

ROYAL HORTICULTURAL SOCIETY.—First Exhibition in 1863. The SHOW of HYACINTHS and other SPRING FLOWERS will be held at South Kensington on WEDNESDAY, February 25. Open at 1 o'clock. Admission, Half-a-Crown.

Packets of 25 Five Shilling Tickets, admitting one or two persons according to the daily charge, to the Fêtes and Promenades, during the Season, can now be obtained.

ROYAL BOTANIC SOCIETY of LONDON, Regent's Park, N.W.
EXHIBITIONS of SPRING FLOWERS.
SATURDAY, March 28th, CAMELLIAS, PRIMROSES, &c.
" April 11th, AZALEAS, HYACINTHS, &c.
" April 25th, ROSES, PELARGONIUMS, &c.
The Band will play from half past 2 to half-past 5. Visitors admitted by Tickets, to be had at the Gardens, by orders from Fellows and Members of the Society. Price 2s. 6d. each, or in packets of 10 for 1l. per packet.

HORTICULTURAL SOCIETY of LIVERPOOL.—The First EXHIBITION of HYACINTHS and SPRING FLOWERS will be held in St. George's Hall, Liverpool, on WEDNESDAY, March 18.
For Schedules of Prizes and any further information, apply to R. W. KER, Hon. Sec., 4, Basnett Street, Liverpool.

Grape Vines.

J. IVERY AND SON beg to inform their Patrons that their stock of the above is unusually fine this season. A PRICED LIST now ready.
Dorking Nursery.

VINES, VINES.—Extra Strong Canes, for Fruiting in pots this season, price 8s. 6d. each, for Sale by JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

Pine Plants.

TO BE DISPOSED OF, by a gentleman leaving for town and giving up his House, &c., about 100 good healthy PINE PLANTS, this and last year's growth.
Apply by letter to Mr. F. STEAD, 23, Jarratt Street, Hull.

Surplus Stock of Dwarf, Maiden, Royal George, and Noblesse Peaches.

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EXTRA FINE DWARF-TRAINED PEARS.—The Undersigned have a remarkably fine stock of the above to dispose of on reasonable terms.
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WEBB'S PRIZE COB FILBERTS, and other COB NUTS as exhibited at the INTERNATIONAL FRUIT and FLOWER SHOW, Kensington. Trees of these splendid varieties of Filberts may be had by application to RICHARD WEBB, Calcot Gardens, Reading.

LARGE ARAUCARIA EXCELSA.—A fine Specimen, 10 feet by 6 feet, to be disposed of, Cheap.
Apply to E. COOLING, Derby.

TRUE NATIVE HIGHLAND SCOTCH FIR, Two-year Seedling.
Apply to JOHN GRIGOR & Co., Nurseries, Forres, Scotland.

To the Trade.

ENGLISH OAKS, 1 year's Seedling, 3s. 6d. per 1000. Cash or reference from unknown Correspondents.
Apply to MARSH & PERKINS, 42, Drapery, Northampton.

WANTED, STRONG BEECH, 8 ft. ENGLISH OAK, 8 ft.
Strong, handsome, well rooted trees.
J. C. WHEELER & SON, Gloucester.—February 14.

WANTED, 300,000 good SEEDLING LARCH, One or Two years.
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WANTED, a quantity of nice saleable free-flowering GREENHOUSE and STOVE PLANTS. State lowest cash price and full particulars as to size, &c.
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Best Seeds, Carriage Free.

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NOVELTIES.—The Novelties of the Season Illustrated in CARTER'S GARDENER'S and FARMER'S VADE MECUM, post free for 12 stamps.
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Choice Kitchen Garden Seeds.

B. S. WILLIAMS'S Advertisement on last page of *Gardeners' Chronicle*, Jan. 31.
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THE GENERAL PRICE CURRENT and the SPRING FARM SEED LIST are now ready, and may be had gratis on application.
See General Advertisement Page.

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E. P. FRANCIS offers DWARF HYBRID PERPETUAL ROSES, strong and vigorous on Manetti Stock, at reduced prices, for LIST of which see *Gardeners' Chronicle*, January 24, 1863.

Roses.

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ASH.—A quantity of the above, from 12 to 20 feet high, well adapted for working upon, to be sold cheap.
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GARLIC.—We offer a few Cwt. of above, of English growth. Good quality.
JAMES FAIRHEAD & SON, 7, Borough Market, London, S.E.

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For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

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POLYANTHUS SEED from the best Laced Florists' Flowers, in packets, sent free on receipt of 13 postage stamps.
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Genuine Seeds, Carriage Free.

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Strong flowering plants of the above may be obtained of R. WARNER, Broomfield, Essex.
Prices on application.

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THOMAS METHVEN, NURSERYMAN, Leith Walk, Edinburgh, is in want of the above, 7 to 9 feet high, and will be glad to hear from any one having such to offer.

Cheap and Select Hardy Nursery Stock.

WM. JACKSON AND CO., Bedale, Yorkshire, beg to refer to their advertisement of the above in the *Gardeners' Chronicle*, page 96, January 31.

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WHEELER'S GLOUCESTERSHIRE KIDNEY POTATO.—This is one of the earliest, the most productive, the best flavoured, and the most profitable Potato ever introduced,
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MESSRS. JOHN AND CHARLES LEE are now prepared to send out strong blooming plants of this beautiful HARDY AZALEA, the following description of which is extracted from the Report of the Floral Committee of the Royal Horticultural Society of May 6, 1862.

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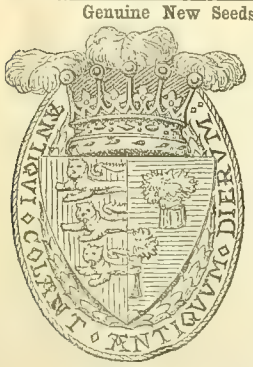
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New VEGETABLE and FLOWER SEEDS of every description, of the finest possible quality.

Their DESCRIPTIVE PRICED CATALOGUE, containing many valuable New and Select Vegetable and Flower Seeds, will be sent Post Free on application.

Collections for Gardens of all Sizes are on the most liberal scale. See Catalogue.

☞ Vegetable Seeds of £2 value Carriage Free. All Flower Seeds Free by Post.

Vegetable and Flower Seeds.

CARRIAGE FREE.



JAMES DICKSON AND SONS' ANNUAL DESCRIPTIVE PRICED CATALOGUE of the above is now ready, and may be had, post paid, on application.

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JAMES DICKSON & SONS, 102, Eastgate Street, Chester; and 23, Market Place, Manchester.

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Flower Seeds free by post.

J. TYNAN, Importer of Continental Seeds, 68, Great George Street, Liverpool.

Seeds made Proof against the Attacks of Birds.

SAMUEL WALTERS, SEED GROWER and MERCHANT, Hilperton, Trowbridge, Wilts, begs respectfully to offer SEEDS prepared as above stated, in small or large collections. Some of the advantages of using seed so prepared are—a less quantity of seed will produce a greater number of plants; all contrivances to frighten away birds can be dispensed with; the anxiety to secure seeds from the attacks of birds will be no more felt by the use of new and good home-grown seed so prepared. Unusual success may be expected. A nominal charge only will be made for Proof Seed, or when a Collection of Garden Seeds of 20*s.* value and upwards be requested and supplied by S. W., no extra charge will be made. The Seed can be tested at once by putting it on side of other Seed not prepared—the birds will eat the latter, but not the former.

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IMPROVEMENT OF OLD PASTURES, PARKS, AND MEADOWS,

BY SOWING THE MOST SUITABLE KINDS OF

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Fine LAWN GRASS SEEDS, 18*s.* per Bushel. Also

Good CLOVER and RYE-GRASS SEEDS for Alternate Husbandry at market prices.

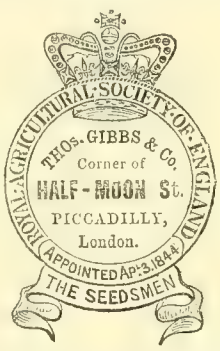
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In Collections including all the new and approved kinds, or separate to order.

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NURSERYMEN AND SEEDSMEN

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No. 5,	,, 12	ditto	ditto	ditto	0	4 0
No. 6,	,, 25	ditto	Tender Annuals		0	12 6
No. 7,	,, 12	ditto	ditto	ditto	0	6 0

The above Collections consist only of best and most useful varieties, and are of the finest quality.

S. G. & SONS' CATALOGUE of KITCHEN GARDEN, AGRICULTURAL, and FLOWER SEEDS, is now ready, and may be had on application.

CHISWICK NURSERY, LONDON, W.

LARGE IMPORTATION of STANDARD ROSES.

WILLIAM WOOD & SON

Have much pleasure in announcing the arrival of a large Importation of STANDARD and DWARF ROSES in fine order, which they will be happy to supply on most reasonable terms.

CATALOGUES free and post paid on application.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

SEEDS.—GENUINE HOME-GROWN

VEGETABLE, FLOWER, AND AGRICULTURAL.

If above the value of 20*s*. Carriage paid to any Railway Station, and to all Irish and Welsh Ports in communication with Bristol.

CATALOGUES post free on application.

JAMES GARAWAY AND CO., DURDHAM DOWN NURSERIES, BRISTOL.

MESSRS. E. G. HENDERSON & SON'S

NEW SEED CATALOGUE

FORWARDED POST FREE ON APPLICATION.

Amongst other NEW and RARE FLOWERS are the following. In addition to the usual information, valuable practical rules are given for the guidance of Amateur Cultivators in the sowing and after-management of all the Flowers described in the Catalogue.

VICIA GERARDI.—A very useful and elegant annual climbing plant, resembling somewhat the Eccremocarpus, with bunches of lavender-purple Swainsonia-like flowers, which might be compared to those of Wistaria sinensis, but smaller. A beautiful plant for covering pillars, trellis-work, and walls to the height of 8 or 10 feet. 1*s*. 6*d*. and 2*s*. 6*d*.

LINUM CANDIDISSIMUM.—Neat habited plant of densely branched growth, 12 to 18 inches in height; flowers pure white, very effective for medium-sized beds. Differs from L. monogynum, that species being broader leaved, more strictly upright, and showing an almost total absence of side growth. 6*d*.

ARCTOTIS REPTANS.—A silver leaved plant of compact trailing habit, covering the ground thickly with short roundish leaves not rising above 3 inches in height, adapted for broad margins, also for rock-work, growing freely in dry common soil in any situation. 6*d*.

KENNEDYA RUBICUNDA MACROPHYLLA.—A summer-flowering greenhouse Climber for trellis-work and pillars, a fine improvement in its style of growth, and large crimson flowers. 1*s*. 6*d*.

PORTULACA GRANDIFLORA FLORE PLENO.—Double-flowered varieties. These comprise a beautiful selection of new rose-like flowers in sulphur, orange, golden purple, orange scarlet, flesh, scarlet-striped, with yellow coloured varieties, equally dwarf and compact as the well-known single-flowered varieties. They have been in cultivation a few years, but the difficulty of propagation has caused them to be expensive, and prevented their being cultivated, but the seed now offered will produce about 75 per cent. double-flowers, and the moderate price will bring them accessible to amateur cultivators. 2*s*. 6*d*.

PENTSTEMON MURRYANUM.—The most distinct of the many species of Pentstemon, and very rare in collections, with long spikes of vermilion-scarlet trumpet-like flowers an inch and a half in length. A beautiful plant for the flower-garden. 6*d*.

TRITOMA UVARIA.—One of the finest summer and late autumn flowering herbaceous plants known, forming magnificent beds, groups, or masses, in extensive pleasure-grounds and flower-gardens, borders, &c., and admirably adapted for single specimens in villa gardens. The very brilliant orange-red and flame-coloured sceptre-like flower heads are unequalled for effect in all extensive arrangements of floral decoration. 6*d*. and 1*s*. (plants 1*s*. and 1*s*. 6*d*.)

LINUM FLAVUM.—A well-known gay and effective plant by its profusion of golden-yellow salver-shaped flowers, equal in form with the beautiful crimson L. grandiflorum rubrum, but differing from it by a more compact and dwarf growth. 1*s*. (plants 6*d*. and 9*d*.)

RHODANTHE MACULATA.—A very beautiful new variety, from 1 to 2 feet in height; the blossoms are large, of a bright rose or violet purple, with a bright yellow centre surrounded by a conspicuous dark-crimson ring. It forms a fine plant for pot culture, or for groups in the open border. 1*s*.

SAPONARIA CALABRICA.—Pink 3*d*., ditto alba 4*d*., ditto marginata 1*s*. No other plants of densely branched dwarf-habit retain such vigorous healthy growth and continuous bloom of rosy pink and white blossoms throughout summer and late autumn as the Saponaria, which are perhaps the latest plants wherewith to ornament the flower garden, Admirably adapted for beds or broad marginal lines, and parallel rows, on the ribbon-system.

TAGETES SIGNATA PUMILA.—A beautiful densely slender-branched plant of dwarf-habit, with a profusion of bright yellow flowers, continuing from June till October, which, combined with its elegant foliage, will render it a great acquisition for groups or ribbon lines and margins. 1*s*. and 2*s*. 6*d*.

SALVIA COCCINEA PUMILA.—A great improvement on the old species, being of a dwarf and profuse blooming habit, it will become a desirable bedding plant. 1*s*.

SWEET WILLIAM, HENDERSON'S PERFECTION.—Marked improvements upon Hunt's strain by their more brilliant tints, broader flower lobes, even rose-petaled margins, and wider belts of colour. The flowers with large white disc and broad middle zone of rich crimson, purple and violet form the Auricula-eyed section. 6*d*. and 1*s*.

ABOBRA VIRIDIFLORA.—An extremely pretty tuberous-rooted climbing perennial herbaceous plant, allied to the Gourd section, with elegantly divided leaves and numerous small oval or egg-shaped scarlet fruits, forming an ornamental plant for trellis work or walls throughout the summer months. 1*s*. and 2*s*. 6*d*.

HELIANTHUS MACROPHYLLUS GIGANTEUS.—A splendid plant of a very gigantic stature, from 10 to 15 feet or more in height; the enormously large round leaves on long footstalks, hanging down in an oblong position, give to the plant the appearance of a colossal pyramid; only one flower upwards of a foot in diameter is produced by each plant. 6*d*.

HELIANTHUS WEBBI.—The interest and value of this species consists in its having a shrub-like branched habit of growth, attaining from 3 to 4 feet in height. This remarkable plant is expected to originate a new and desirable class of varieties for exhibition purposes, it having already passed into all the colours found in florist varieties of the present time, and no doubt but higher improvements in form, and other essential properties, will be obtained in connection with its superior culture. It will be found well adapted for decorative purposes, by its taller growth, and longer continuance in bloom. 2*s*. 6*d*.

VENIDIUM CALENDULACEUM.—Marygold-leaved, large orange flowers with brown centre, very effective for early bedding, for which purpose it is unequalled among annuals. 3*d*.

CALANDRINIA UMBELLATA, 4*d*.; Ditto Ditto GRANDIFLORA, 6*d*.—Charming little plants of compact dwarf habit, with neat small foliage, and a profusion of very rich violet-crimson salver-like blossoms, well adapted for warm situations on rock-work, or sunny spots on south borders, the latter variety being an improvement as to size of flower.

AQUILEGIA GLANDULOSA and SKINNERI are the two finest and most distinct in character of this tribe; the first is a broad blue-petaled, the latter a long scarlet and yellow blossomed variety; both early summer flowering plants. 6*d*. each.

CANDYTUFT (IBERIS GRANDIFLORA ALBA).—Large-flowered white; a much more effective plant than any other in its tribe, having numerous large trusses, from 2 to 4 inches in length, of snow-white blossoms, continuing in bloom twice as long as the well-known common kinds, and making a very beautiful group or bed until the latest autumn months. For decoration in the flower-garden, either as a separate bed, or as a ribbon row, it far surpasses any annual or other bedding plant in its colour. 6*d*. and 1*s*.

NEMOPHILA DISCOIDALIS ELEGANS.—A pretty and effective variety; the ground colour is a rich reddish maroon with a distinct white border. 6*d*.

LILIUM CORDIFOLIUM, similar in style of growth to L. giganteum, but dwarfer and of a darker tint in the young growth; the large trumpet-shaped white flowers, with dark centre midribs, are also alike to the last-named species, but are produced by smaller bulbs, and on stems not rising more than from 3 to 4 feet in height. By its blooming much more readily than L. giganteum it will prove a very popular and useful Lily. 50 seeds, 1*s*

LILIUM GIGANTEUM.—A noble Lily, rising fom 6 to 10 feet in height, nearly hardy, with fine dark green neart-shaped leaves, and beautiful white trumpet-shaped flowers. 50 seeds, 1*s*.

GOSSYPIUM ARBOREUM (the Cotton Plant).—Handsome free-blooming Hibiscus-like flowers; plants in small pots, producing its flowers freely at every leaf, and followed with fine pods of cotton.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

Banks's Best New Fuchsias.

E. G. HENDERSON AND SON are now sending out the three following First-class Flowers:—

MDLLE. TREBELLI (BANKS).
BIANCA MARGINATA (BANKS),
MARS (BANKS),

as neat young plants for growing on into specimens (and others adapted for stock), price 3*s*. 6*d*. and 5*s*. each. Also plants of all last year's best varieties, 1*s*. 6*d*. to 2*s*. 6*d*. each.

SOLANUM CAPSICASTRUM FOLIA VARIEGATA, a beautiful table plant, with elegantly variegated leaves and red berries; drooping habit; 3*s*. 6*d*. and 5*s*. each.

THE TIETJEN STRAWBERRY, hardier than "British Queen," of the same quality, colour, &c., 30*s*. per 100.

GLOXINIAS: BRILLIANT, LEVIATHAN, BIRD of PARADISE, and MOST BEAUTIFUL, the four most distinct new Gloxinias, 3*s*. 6*d*. and 5*s*. each.

AUCUBA HIMALAICA, 7*s*. 6*d*., 10*s*. 6*d*., to 21*s*. each.

PRIMULA SINENSIS FILICIFOLIA, white and red, 5*s*. each.

STUARTIA PENTAGYNIA, strong plants, 5*s*. each.

LOBELIA ERINUS SPECIOSA PAXTONI, 1*s*. 6*d*. each; 12*s*. per doz.

DOUBLE PANSY "GOOD GRACIOUS," 1*s*. 6*d*. each; 12*s*. per doz.

LONICERA AUREA RETICULATA, leaves light green, richly netted over with golden yellow veins, 5*s*. each.

LAPAGERIA ROSEA, 1*s*. 6*d*., 2*s*. 6*d*.; stronger, 5*s*. and 7*s*. 6*d*.

PRIMULA SINENSIS ERECTA SUPERBA, a fringed variety of P. Kermesina, 2*s*. 6*d*.

PRIMULA PICTA, mottled, 1*s*. 6*d*.

BEDDING DAHLIAS (pot roots), 6*s*. and 9*s*. per doz.

LILLIPUTIAN " " " 6*s*., 9*s*., to 18*s*. per doz.

Wellington Nursery, St. John's Wood, London, N.W.

MESSRS. E. G. HENDERSON and SON, Wellington Road, St. John's Wood, London, N.W., beg to draw attention to the Plants figured in Part XV. of the "Illustrated Bouquet":—

IMATOPHYLLUM MINIATUM
SWAINSONIA VIOLACEA
PRIMULA PRÆNITENS (SINENSIS) FILICIFOLIA RUBRA
STRAWBERRY TIETJEN
REINECKIA CARNEA VARIEGATA

The following SEEDS are also included in Messrs. HENDERSON & SON'S SEED CATALOGUE, forwarded post free on application:—

CLIANTHUS DAMPIERI, home-ripened seed.—A most beautiful cool greenhouse plant, with clusters of large rich scarlet pea-shaped flowers, 3 to 4 inches in length, each flower being marked with a large conspicuous black cloud-like blotch in front. This magnificent plant has flowered in Messrs. E. G. H. & Son's Nurseries, extending upwards of 15 feet in length, being trained horizontally against upright supports. It was ascertained that this single plant produced 680 trusses of bloom in one summer, which, averaging six flowers in a truss, formed an aggregate of 4000 blossoms as the produce of a single seed! See Catalogue for the peculiar treatment in the sowing and after management of this plant. Plants, 3*s*. 6*d*. Seeds, 1*s*. and 2*s*. 6*d*.

CUCUMBER.

HENDERSON'S A 1 HOUSE CUCUMBER.—The Royal Horticultural Society of London have fruited 118 varieties in their gardens at Chiswick, and decided this as the second best black-spined variety, its length 17 inches, straight and even, fine dark colour. A superior variety. Per packet, 1*s*. 6*d*.

ALL THE YEAR ROUND.—Very prolific, for quality and usefulness not surpassed at any season of the year. Per packet, 1*s*. 6*d*.

CITRON GOURD (for Preserves).—This is a truly valuable and highly interesting esculent fruit, and constitutes a true variety of the hard-fleshed Water Melon, which, though not edible in its raw state, is now proved and strongly recommended for its valuable adaptation in making a very delicious preserve. Full directions for its culture and method of preparing the preserve are given in the Catalogue. 1*s*.

BUSH VEGETABLE MARROW (true).—This valuable variety is sufficiently dwarf and bushy to form a compact habited plant, and from its short-jointed character and abundant bearing, its produce may be compared to a nest of fruits overlaying each other. 6*d*. and 1*s*.

Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER'S CATALOGUE of the above popular plants, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants.

It describes faithfully the colours of all the Rhododendrons, thereby rendering every facility for making selections.

It likewise contains an abridged List of really Hardy Conifers, with their heights and prices.

The American Nursery, Bagshot, Surrey.

CHARLWOOD AND CUMMINS beg to announce that their CATALOGUE of GARDEN, AGRICULTURAL, and FLOWER SEEDS is now ready, and will be forwarded on application. They also now offer their

NEW NEMOPHILA DISCOIDALIS ELEGANS,

commended by the Royal Horticultural Society in their Proceedings; it is thus noticed:—

"The flowers of this variety (which is a very pretty one) are of a bright chocolate or light reddish maroon, conspicuously bordered with white. The colours are distinctly marked and very effective." It is commended as a very desirable Annual for general cultivation.

2*s*. 6*d*. per packet. Price to the Trade per ounce,

14, Tavistock Row, Covent Garden, London.

A TREE or SHRUB SEED LIST will be published shortly.

Fuchsias, Silvery-leaved and Variegated Plants.

J. SCOTT, Merriott, Crewkerne, Somerset, holds fine Stocks of the following, ready to send out:—

FUCHSIAS, in 100 named kinds (newest), at 4*s*. per dozen, late autumn struck, will make splendid specimens for exhibition.

VARIEGATED PLANTS, 3*s*. per dozen: Agathæa cœlestis, Arabis fol. var., Bellis Aucubæfolia, Sedum carneum var., Veronica chamædryoides.

SILVERY-LEAVED PLANTS, 3*s*. per dozen: Cineraria maritima, Centaurea candidissima, 1*s*. each; Gnaphalium lanatum, G. arenarium, G. margaritaceum, Silvery Arctotis, Stachys lanata, and Cerastium tomentosum.

VARIEGATED GERANIUMS, 3*s*. per dozen; Alma, Bijou, Countess of Warwick, Manglesii, Shottisham Pet, and Brilliant.

BEDDING GERANIUMS, 3*s*. per dozen: Christine, Rose Queen, Crystal Palace, Punch, Lamartine, and Tom Thumb; and 100 sorts (to name), my selection, of Greenhouse sorts, at 6*s*. per dozen.

Roses for Forcing.

CHARLES NOBLE has a nice assortment, one year, established in 32-pots, ready for Forcing. They are healthy vigorous plants, and cannot fail to give satisfaction. He has also a large stock of Dwarfs and Half Standards suitable for planting in Roseries; they are offered very cheap.

Sunningdale Nursery, South-Western Railway.

The Best New Roses for 1863.

5000 STRONG DWARF PLANTS in Pots, in 50 varieties, will shortly be ready.

DESCRIPTIVE CATALOGUES, gratis and Post-free on application.

Address WM. WOOD & SON, Nurseries, Maresfield, Uckfield, Sussex.

Roses.

GEO. PARSONS begs to offer fine STANDARD ROSES, from 2½ to 4 feet stems, at 5*d.* per 100, or 15*s.* per dozen; including the New Varieties, 18*s.* per dozen, or 6*d.* 10*s* per 100; the last New Varieties of 1862, DWARFS, 30*s.* per dozen.

CATALOGUES free on application.

Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

DWARF HYBRID PERPETUAL ROSES, on the MANETTI STOCK; Carriage paid to London.—The Undersigned offer very fine and vigorous plants of the above. For a LIST of the more popular sorts, see *Gardeners' Chronicle* for December 6, 1862. Prices given for small and large numbers (per 1000 at a much reduced rate) and a DESCRIPTIVE CATALOGUE of ROSES sent on application to

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

DAHLIAS, DAHLIAS.—A special DESCRIPTIVE LIST of surplus stock of SHOW, FANCY, BEDDING, and LILLIPUTIAN or BOUQUET DAHLIAS, about 300 varieties, with 400 VINES struck from Eyes. Also a list of HOLLYHOCKS struck from Eyes last autumn.

May be had on application to J. C. PADMAN, Providence Nursery, Boston Spa, near Tadcaster.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s* per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent

Seeds, Seeds, Seeds.

S. GLENDINNING AND SONS' (Successors to the late R. GLENDINNING) CATALOGUE of KITCHEN GARDEN, AGRICULTURAL and FLOWER SEEDS is now ready and may be had on application.

Chiswick Nursery, London, W.—February, 1863.

A. STANSFIELD AND SONS beg to announce that their LIST of BRITISH FERNS for this season, including the New and Rare varieties, at reduced prices, is now ready, and may be had on application, enclosing two postage stamps. Also their GENERAL FERN LIST, No. 6, for 4 postage stamps, which purchasers may deduct.

Vale Nurseries, Todmorden.

A PRICED and DESCRIPTIVE CATALOGUE of all the new and leading kinds of Show, Spotted, French, Fancy, Scarlet, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready in exchange for one postage stamp.

GEO. SMITH, Tollington Nursery, Hornsey Road, Islington, London, N

FIRST CLASS NEW FUCHSIAS. — Coloured Drawings by Mr. ANDREWS of SANSPAREIL, BRIDESMAID, CONSPICUA, and HERCULES, are now ready, and will be forwarded in exchange for 12 postage stamps.

G. S. begs to offer the above as the most Superb FUCHSIAS yet offered to the Public. For description, with price, and also time of sending out, see CATALOGUE, now ready.

GEORGE SMITH, Tollington Nursery, Hornsey Road, Islington, London, N.

New Fuchsia.

ROBERT REA, NURSERYMAN, &c., London Road, Ipswich, has much pleasure in announcing that he intends sending out after the 20th of April, plants of his SEEDLING FUCHSIA DEFIANCE, which was so much admired last season. Defiance is a fine bold double flower of great substance, bright scarlet tube and sepals, dark violet barrel-shaped corolla, sepals much reflexed. This will be a standard flower for years, and will be grown in every collection.

10*s.* 6*d.* each, with the usual discount to the Trade.

B. MALLER begs respectfully to state that his DESCRIPTIVE SEED CATALOGUE can now be had free on application.

Best Reigate SILVER SAND, 16*s.* per ton, delivered free within four miles, or to London Bridge Railway or Wharf. Less quantities, 1*s.* 6*d.* per bushel, for cash.

Nursery and Seed Establishment, Lewisham, Kent, S.E.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

50 in 25 extra choice varieties	..	..	£2	2*s.* 0*d.*
25 in 25	,,	,,	..	.. 1 5 0
12 in 12	,,	,,	..	.. 0 12 0
50 in 50 choice varieties	..	..	..	2 12 6
50 in 25 ,,	,,	..	..	.. 1 5 6
25 in 25 ,,	,,	..	..	.. 0 13 6
12 in 12 ,,	,,	..	..	.. 0 5 0

Extra fine mixed, 2*s.* 6*d.* per doz., 17*s.* 6*d.* per 100.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, W.C.

Spring Blooming Plants.

CAMELLIAS, including the best new varieties, fine plants, set with bloom buds, from 30*s.* per doz.; extra size, from 60*s.*

HEATHS, EPACRIS, CINERARIAS, and JASMINUM GRANDIFLORUM (grafted), remarkably fine plants, at moderate prices.

Also HUMEA ELEGANS, extra strong, in 6-inch pots, 18*s.* per doz.

JAMES DICKSON & SONS, Newton Nurseries, Chester.

Hendon Park Nursery.

LONICERA AUREO RETICULATA (Japan).—The finest variegated Creeper ever offered, variegated bright green, gold, and crimson veins. Price on application.

NEW BEDDING PANSY, BOY IN BLUE, is now in full bloom, and will continue till Christmas most effective. From 6*s.* per doz.

Also all the best Show Varieties. Selection left to E. S. from 6*s.* per doz. EDWARD SHENTON.

Muscat of Escholata Grape.

WM. PAUL (Son and Successor to the late A. PAUL) has a fine stock of this Vine, Fruiting Canes and others. Price 7*s.* 6*d.* to 15*s.* each. Most of the other popular sorts, 3*s.* 6*d.* to 7*s.* 6*d.* each.

Nurseries and Seed Warehouse, Waltham Cross, N.

Grape Vines.

TO BE SOLD, Cheap, 1800 close-jointed vigorous Plants, with Canes 6 to 12 feet long, all struck from Eyes last spring.

Apply to the GARDENER, at J. Lewis's Horticultural Works, Stamford Hill, Middlesex, N.

Foster's Seedling Grape.

MESSRS. JOHN AND CHARLES LEE have to offer Mr. Foster's stock of this fine NEW GRAPE, which can be confidently recommended for general cultivation in cool Vineries. It has borne an abundant crop in the large Conservatory of the Royal Horticultural Society at Chiswick, the bunches being large, with medium sized berries of a pale amber colour. The flavour of Foster's Seedling is most luscious, equalling the richness of its twin sister Lady Downe's, and as far as can be seen, partaking of the same quality of hanging well without shrivelling.

Canes for planting, 7*s.* 6*d.* each. A few Fruiting Canes at 21*s.* each.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Grape Vines.

B. S. WILLIAMS begs to intimate that he has a fine and healthy stock of the above from Eyes, including all the best varieties for Fruiting in Pots and Planting Out. Prices on application.

Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London, N.

THE GREAT VINE at HAMPTON COURT.—The Subscribers being the holders of the Royal Kitchen Gardens, Hampton Court, are enabled to offer genuine the famous and truly excellent HAMPTON COURT BLACK HAMBURGH GRAPE.

Strong well-ripened plants in 9-inch pots, 42*s.* and 60*s.* p. doz. Purchased in large numbers a considerable reduction will be made in price.

If Jackson & Son, Nurseries, Kingston, S.W

EXTRA STRONG FRUITING VINES.—All the leading varieties, from Eyes, with stout well ripened rods, for FRUITING in POTS this YEAR. Price, from 7*s.* 6*d.* each; smaller, for Planting-out, from 3*s.* 6*d.* each. A reduction in price will be made to large purchasers.

"We can especially recommend the above, our strong Vines having for some years given unqualified satisfaction."—*Vide* Leading Article in *Gardeners' Chronicle* for December 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries, Chester.

PINE PLANTS.—A gentleman who is declining Pine Growing, has about 60 clean FRUITING and SUCCESSIONS; consisting of Queens, Enville, Black Jamaicas, Smooth-leaved Cayenne, &c.

Apply in the first instance to Mr. F. G. GODWIN, Seedsman, 3, Norfolk Market Hall, Sheffield.

Pine Plants.

TO BE DISPOSED OF, 100 well-rooted and remarkably healthy and clean grown PINE PLANTS, from 16 to 18 months old, calculated to throw fruit in October, 1863. For further particulars, apply to

Messrs. WHEELER & SON, Nurserymen, Gloucester.

PINE PLANTS WANTED: Smooth Cayenne, Black Jamaica, Hurst House Seedling, about a dozen of each, strong clean plants, to fruit in nine months to a year.

Address, stating price, delivered on rail, to H. B. D., Messrs. Dawson & Sons, 74, Cannon Street, London, E.C.

APPLE and PEAR TREES, &c.—100 doz. Dwarf and Pyramidal PEAR TREES, best sorts, 20*s.* per doz., packing included.

50 doz. Dwarf and Pyramidal APPLE TREES, best sorts, 12*s.* per doz., packing included.

GENERAL LISTS of NURSERY STOCK on application.

CHARLES B. SAUNDERS, Nurseryman, &c., Jersey.

To Noblemen, Gentlemen, Gardeners, &c.

LEWIS SOLOMON, of Covent Garden Market, W.C., FRUITERER, PURVEYOR to HER MAJESTY and the ROYAL FAMILY, having large orders for New Fruits, such as GRAPES, STRAWBERRIES, PEACHES, NECTARINES, &c., during the first three weeks in MARCH next, will be glad to PURCHASE such produce at remunerative prices; or, if preferred, make exchanges for them.

Applications to be made as early as possible to LEWIS SOLOMON, Grape Vine, Covent Garden Market, W.C.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, has the pleasure to offer now for the first time his two new excellent Fruits—

APPLE CALVILLE GARIBALDI .. 8*s.*

PEAR BEURRÉ DE GHELIN .. .. 5*s.*

This excellent Pear obtained the First Prize at the great Pomological Show at Tournay, Belgium.

N.B. These two new Fruits are figured in VERSCHAFFELT'S "Illustration Horticole."

NEW MELON, PRINCESS ALEXANDRA.—A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1*s.* per packet.

JAMES CARTER & Co., 237, 238, & 261, High Holborn, W.C.

NEW PRIZE MELONS, at 1*s.* 6*d.* per packet.

Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria.

For descriptions see GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

CUCUMBER and MELON SEED. — PRINCE ALBERT, HIGHLAND MARY, BLACK SPINE, LONG GUN, 1*s.* per packet each; best MELONS, 1*s.*; MUSHROOM SPAWN, 5*s.* per bushel.

CUCUMBER PAMPHLET now ready, 1*s.* 1*d.*

JAMES CUTHILL, F.R.H.S., Camberwell, London, S.

Apples, Pears, and Plums.

JOHN ADAMS AND CO. beg to inform the Trade and the public generally, that they have a fine stock of the above, 2 and 3 year old Pyramid and Dwarf-trained Trees, of all the leading sorts, also an extra quantity of COMMON LAURELS, about 3 feet high. Prices, &c. on application.

Brentford.—Feb. 14.

Wanted Immediately.

WM. WOOD AND SON are in want of Dwarf-Trained PEACHES, NECTARINES, and APRICOTS, also MORELLO CHERRIES. Really good plants and well trained.

Address, WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

Fruit Trees.

RICHARD SMITH has no hesitation in saying, that he possesses by far the largest Stock of FRUIT TREES in the kingdom, consisting of Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots, in Maiden Trees, Dwarfs, Bushes, Pyramids, Half-Standards, and Standards; Dwarf-trained, Half-Standard, Standard, and Horizontally-trained Trees, of the finest sorts, and in the best possible condition. DESCRIPTIVE PRICED LISTS on application.

RICHARD SMITH, Nurseryman, Worcester.

Wholesale Catalogue.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1862 and SPRING 1863, comprising Fruit Trees of all the leading kinds, new and selected Roses, fine varieties of American Plants, Choice and Rare Conifers, Evergreen and Deciduous Trees and Shrubs, and a fine Stock of Transplanted Forest Trees, &c., can be had free on application.

Woking Nursery, Surrey.

DWARF-TRAINED FRUIT TREES. Good trees moderate price.

PEARS.—Passe Colmar, Marie Louise, Williams's Bon Chrétien, Van Mons Leon le Clerc, Knight's Monarch, Ne plus Meuris, Easter Beurré, Duchesse d'Angoulême, Beurré d'Aremberg, Glou Morceau, Catillac, Crassane, Beurré Clairgeau, Beurré Magnifica, Prince Albert, Jules Bivort, Comte de Paris, Duchesse d'Orleans, Prevost, Alexandre Lambre, Zepherin Louis, Eliza d'Heyst, Cassane de Mars, Laura de Glymes, Josephine de Malines, Beurré Berckmanns, Beurré Superfin, Autumn Bergamot, Gansel's Bergamot, Beurré de Capiaumont, Jargonelle, Hacon's Incomparable, Beurré Bosc, Chaumontel, Louise Bonne of Jersey, Nelis d'Hiver, Beurré Diel, Leopold I., Bergamot d'Esperon, Comte de Flandres.

PLUMS.—New Early Orleans, Old Orleans, Red Magnum Bonum, Denyer's Victoria, Diamond, Goliah, Cooper's Large Red, Prince of Wales, Woolston's Black Gage, Angelina Burdett, Cloth of Gold, Autumn Compote, White Magnum Bonum, Reine Claude Violet, Washington, Ickworth's Imperatrice, Jefferson's Standard of England.

APPLES. — Hawthornden, Court Pendu Plat, Wellington Pippin, Cox's Orange Pippin, Lord Suffield, Reddlestone Pippin, Stamford Pippin, Yellow Ingestre, Keswick Codlin, Court of Wick, King of Pippins, Blenheim Orange, Cockle Pippin, Kerry Pippin, Nonpareil Russet, Scarlet Pearmain, Kirke's Golden Reinette, Hanwell Souring, Cellini Pippin, Mannington's Pearmain, Northern Spy, Reinette Van Mons, &c.

GEORGE JACKMAN & SON have the pleasure of offering the above named trees; all are well trained, and will be sold per dozen or hundred at moderate prices; the ground being required for other purposes, they are desirous of clearing the above stock this spring.

Woking Nursery, Surrey.—Feb. 14.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

SPLENDID NEW SCARLET VERBENA, LORD LEIGH.

S. PERKINS & SON,

In offering the above SCARLET VERBENA, have much pleasure in stating that it has been awarded a First-Class Certificate by the Floral Committee of the Royal Horticultural Society, June 11, 1862; First-Class Certificate by the Royal Botanic Society, July 9; First-Class Certificate at the Crystal Palace, Sydenham, Sept. 4 and 5; First-Class Certificate by the Rugby Floricultural Society, August 29; First Prize by the Birmingham Botanic Society, July 10.

After the above Awards, S. P. & SON think it needless to offer any remarks, further than that it is of a free habit and will prove a first-class Bedding variety; colour the most dazzling scarlet that can be conceived, with a clear white eye; truss and pip extremely large, and of the finest shape and quality.

See Editor's remarks in *Gardeners' Chronicle*, August 30, 1862, and December 27, 1862; "Journal of Horticulture," Sept. 9, 1862. An Engraving will appear in the April Number of the "Florist and Pomologist."

Plants after April 15, 5s. each. Special Price by the dozen on application to the

PARK NURSERY, COVENTRY.

POTATOES.—Ashleaf and Myatt's Improved, 26*s.*; Dalmahoy and Shaw, 14*s.*; Regent and Blues, 12*s.* per 2 cwt. sack. Sacks, 1*s.* each. Flukes, fine sample Fortyfold, &c.

STRAWBERRIES.—Black Prince, 15*s.*; Admiral Dundas, British Queen, Elton Pine, Eleanor, Wizard of the North, 10*s.* per 1000. 2*s.* per 100. RASPBERRIES, &c.

GEO CORNWELL, Seedsman, &c., Barnet, Herts, N.

DAINTREE'S EARLIEST SEEDLING POTATO. —The earliest and most prolific round variety in cultivation, verified by reports in the various papers, and by private reports from all parts of the country, numbers of which will be forwarded on application. Present price, 8*s.* per Bushel, or 12*l.* per Ton; sacks 1*s.* 6*d.* each.—Apply to Mr. SIMON A. DAINTREE, Fendrayton, St. Ives, Hunts.

N.B.—Genuine Italian Rye grass, and all the Agricultural Seeds of home growth, supplied as usual

EXTRAORDINARY POTATOES.—A gentleman resident in the Country offers for SALE a few BUSHELS of SEED POTATOES of a new and most wonderful kind. For the table they are unsurpassed as to whiteness and delicacy of flavour, and their productiveness is almost incredible, even on indifferent soil; and further, the disease never attacks them.

For price, &c., address by letter to Z. Z., care of Editor, 162, Fleet Street, London, E.C. Early application is necessary.

SEED POTATOES.—The Subscriber has now for SALE, grown by himself, EVERGREEN REGENTS, at 5*l.* per ton, and EARLY DALMAHOYS, at 6*l.* per ton, in bulk, put on the rail at Edinburgh, or free on board at Leith or Granton; if in bags 10*s.* per ton extra. Both varieties sound, grown after old pasture, and carefully selected for seed. The Dalmahoy is the best cropper, and the earliest of all the early field varieties.

Orders for quantities of not less than One Ton will be executed on receipt of cash, or a satisfactory reference to respectable parties in Edinburgh or Leith.

Apply to JOHN GIBSON, Woolmet, Dalkeith, N.B.

SUTTON'S LIST of POTATOES for PLANTING.

CARRIAGE FREE.

*** *The sorts marked* (K) *are kidney-shaped.*

	Per pk. or stone of 14 lbs.—*s.*	*d.*
SUTTON'S EARLY RACEHORSE (K), considerably earlier than any other Potato known	5	0
HUDSON'S NONSUCH (K), forwarder than the Early Ashleaf	5	0
HUDSON'S EARLY MAY (K), quite new; one of the best Potatoes for the main crop; it comes early, bears enormously, and keeps well	4	0
DAINTREE'S EARLIEST, new sort, highly spoken of, direct from Mr. Daintree	2	6
EARLY ASHLEAF (K), a well-known early sort	3	0
MYATT'S EARLY ASHLEAF (K), more productive than the preceding	3	0
EARLY WALNUTLEAF (K), somewhat similar to Ashleaf, but shorter haulm, and rather earlier, and fuller flavour	3	0
HANDSWORTH EARLY, one of the forwardest and best for forcing; very short in the haulm	3	6
EARLY CHINA, quite new, second early	4	0
SODEN'S EARLY OXFORD, one of the best early round Potatoes	3	0
IMPROVED EARLY SHAW, a favourite Potato with the London Market Gardeners, and Hotel Keepers	3	0
WEBB'S IMPERIAL (K), new large, very fine	3	6
FLUKE (K), fine productive and popular sort	2	0
DALMAHOY, fine flavour, second early, and good for main crop	2	6
WELLINGTON, pink-eyed, strongly recommended	2	0
BRACKEN (K), a fine mealy Potato, red skin, delicious flavour	2	6
GOLDEN BALL or RED REGENT, large, well-shaped, and fine-flavoured. (This sort gained a First Prize at the International Show, 1862, where it attracted much attention)	2	6
RED ASHLEAF (K), mealy, and keeps well	3	6
SKERRY BLUE, very large and productive, new from Ireland	2	6
DAWE'S MATCHLESS (K), prolific, large, fine flavour and shape	3	6
THE KING (K). This may be fairly described as the finest Potato in cultivation; gained a First Prize at the Royal Horticultural Society's International Show, and at Birmingham	5	0

Mr. Hudson, one of the most experienced Potato growers in the kingdom, writes us:—"In all my fields of Potatoes, the King and Early May are free from disease, though other sorts have it worse than usual. These two Potatoes are about the finest and most productive of all I have ever grown, and to Market Gardeners will prove invaluable."

FLOUR BALL, the true sort, strongly recommended		2	0
YORK REGENT, fine true stock. (Price per ton on application)		1	9
FORTYFOLD, very productive, mealy, and fine flavour		2	0
Early Frame	Prince of Wales		
Birmingham Prizetaker	Lemon Kidney		
Alstone Kidney	Goldfinder		
Lapstone Kidney	British Queen		

Cheaper by the sack or bushel. Prices on application.

For field culture in large quantities, we can supply good sorts of Potatoes at much lower rates.

N.B. We deliver Potatoes, as well as Seeds, carriage free.

SUTTON'S PRICED LISTS of SEEDS, post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Important to Agriculturists.

A DISTINCT NEW POTATO.—The SKERRY BLUE, one of the most productive ever yet offered to the public. The Tops grow very strong, and require to be planted thin—it possesses a most delicious flavour.

The Subscriber intimates to those who were disappointed last season, that they should order early. He subjoins one or two opinions of its merit, which he has received from those who had a few from him last season.

"The Crescent, Castlebellingham, Nov. 4, 1862.

"Sir,—The 1½ cwt. of Skerry Blue Potatoes I had from you, has surprised me. I dug 32 cwt. of sound Potatoes; there was not a dozen of damaged ones in the lot. I did not plant these Potatoes for a month after my general crop. Had I planted earlier, I firmly believe the produce would have been larger. Since 1846, I have never seen Potatoes equal to the 'Skerry Blue,' grown by me, from the seed supplied by you.

"Yours, &c., WM. WOOLSEY."

"Ballybrooney Ballina, Dec. 12, 1862.

"The produce of the 2 cwt. of Skerry Blues you sent me in April I have just now raised. I have about 2 tons of clean sound Potatoes; not half a dozen of tainted ones in the lot could I discover. They are admired by every one in this part of the country. "Yours most truly, SAMUEL MOORE."

Prices by the cwt. or ton. Delivered in Liverpool or Glasgow on application to

ANDREW G. DALY, Nursery and Seedsman, Newry.

SEED POTATOES.—Splendid Stocks of Martin's Early Globe, Early Oxford, Early Fox's Seedling, Early Round Frame, Early Dalmahoy, Myatt's Prolific, and Jackson's Ash-leaved Kidney, Forty-fold, Fluke Kidney, and Flour-ball varieties at low prices.

H. & F. SHARPE, Wisbeach.

DAINTREE'S EARLIEST SEEDLING POTATO, 8*s.* per bushel, or 12*l.* per ton; sacks, 1*s.* 6*d.* each.

RED REGENTS POTATOES, the best late variety, at 7*l.* per ton; sacks, 1*s.* 6*d* each.

Address Mr. SIMON A. DAINTREE, Fendrayton, St. Ives, Hunts.

THE ROYAL ASH-LEAVED KIDNEY POTATO. —For a full description of this fine early sort, see advertisement in *Gardeners' Chronicle* for Jan. 31.

Price 5*s.* 6*d.* per Peck Bag of 14 lbs., sealed.

Sold in London by Messrs. WRENCH & SONS, 39, King William Street, E.C.; and by Messrs. THOS. RIVERS & SON, Nurseries, Sawbridgeworth, Herts.

Myatt's Early Prolific Ash-leaved Kidney Potatoes.

H. AND F. SHARPE are now taking orders for the above, which has this season proved itself to be the earliest and most prolific Potato in cultivation, and as fine in quality as any of the Early Kidney varieties. Having a good stock they can offer them at a low price to the Trade.

Also JACKSON'S ASH-LEAVED KIDNEY, WALNUT-LEAVED KIDNEY, and all the early Round varieties at equally low prices, which may be had on application.

Seed Growing Establishment, Wisbech.

HOW'S EARLY FLUKE.—This new KIDNEY POTATO has been raised from the apple of the Fluke. In 1861, 1200 yards produced 132 bushels. In 1862, tested in alternate rows with other sorts, it was freest from disease, and by far the heaviest crop. It boils white, and is of first-rate quality. Its flavour when dug young is much extolled. Two First Prizes have been awarded to it at the last Redmarley Horticultural Shows held in July. For early market or the gentleman's table it is unsurpassed. Price 10*s.* per bushel of 56 lbs.

W. A. How, Redmarley, Newent, Gloucester.

SEED POTATOES from the NORTH of SCOTLAND. —The following sorts, grown by Mr. SIMPSON, Teawig, in Inverness and Ross-shires, on clay loam and light soils.

DALMAHOYS,
WALKER'S EARLY REGENTS,
WHITE ROCKS.

They will be delivered free in sacks in London, Liverpool, or Newcastle, at very moderate rates, which may be learned by writing, stating quantities required, to A. SIMPSON, Beauly, N.B.; or applying to A. TOD, 17, Duke Street, London Bridge, E.C.

ADDITIONAL AGENTS for the SALE of SEED of the "STUDENT" PARSNIP.

Batt, Rutley, & Silverlock, Strand, London, W.C.
Clarke, Henry & Sons, 39, King Street, Covent Garden, London, W.C.
Dickson, James & Sons, 102, Eastgate Street, Chester.
Fraser, Richardson, & Goad, 82, Bishopsgate Street Within, London, E.C.
Handasyde, Thos., Glen Nurseries, Musselburgh, N.B.
Minier, Nash, & Nash, 60, Strand, London, W.C.
Pilleuger, John, Chepstow Nurseries, Chepstow.
Pierpoint, Thos., 126, Bridge Street, Warrington.
Shaw, John, 29, Oxford Street, Manchester.
Wheeler, Geo., Warminster Nursery, Wilts.

The above-named Seedsmen have been supplied direct from Messrs. SUTTON & SONS, Reading, who have Seed on Sale Wholesale to the Trade, or Retail at 6*d*, 1*s.*, or 2*s.* 6*d* per packet.

Royal Berks Seed Establishment, Reading.

International Exhibition. Prize Medals 1851 and 1862,

AWARDED FOR "EXCELLENT SEED CORN AND SEEDS," TO

RAYNBIRD, CALDECOTT, AND BAWTREE, Seed Merchants and Growers, Basingstoke, Andover; and 89, Seed Market, Mark Lane, London, E.C.

Samples of all kinds of AGRICULTURAL SEEDS and SEED CORN, sent post free on application.

TRADE

HALLETT'S | PEDIGREE. | NURSERY WHEAT.

MARK.

"The best Spring Wheat known. Drill in February and March, six pecks per acre."

Produced (1862) 62 bushels per acre, weighing 64 lbs. a bush.

Price ONE GUINEA A BUSHEL, including bag sewed up and sealed, delivered at the Brighton Railway Station, with Printed Directions for Planting, on Receipt of Cheque or Post-office Order, which must in all cases accompany the Order. Less than One Bushel will not be supplied. Name of Station and Railway should accompany the Order.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

Established 1787.

THOMAS KENNEDY AND CO.,
NURSERY AND SEED ESTABLISHMENT,
Dumfries, N.B.

*** PRICED CATALOGUES sent free on application.

FREE DELIVERY.

FARM and GARDEN SEEDS under certain limitations will be DELIVERED FREE OF CARRIAGE to the chief Railway Stations in Great Britain and the principal Steam Ports in Ireland.

CHEAP GRASS SEEDS for HILL SIDES and RAILWAY BANKS.—Rough Grasses, Sainfoin Siftings, &c., suitable for the above purpose, at 2*s.* per bushel and 3*d.* per lb.

Address, RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Grass Seeds for all Soils.

SUTTON AND SONS have one of the largest stocks in Europe of the PERMANENT NATURAL GRASS SEEDS, which they mix expressly to suit the soil for which they are required.

Price 30*s.* per acre (carriage free). A copy of Mr. Martin Sutton's "Essay on Pastures" is sent with each lot of Grass Seeds.

Royal Berks Seed Establishment, Reading.

FINE GRASS LAWNS in FLOWER GARDENS, &c.—The great expense of cutting and carting Turves from a distance may be avoided, and a *superior* Turf produced in a few months, by sowing SUTTON'S LAWN GRASS SEEDS, which consist solely of the finest and shortest growing kinds, perfectly *free from Moss and other weeds.*

Price 18*s.* per bushel, or 1*s.* per pound. Quantities of not less than 1 bushel will be sent Carriage free.

SUTTON & SONS, Seed Growers, Reading, Berks.

Good Clover Seed.

GENUINE NEW CLOVER SEED may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.

SUTTON & SONS, Seed Growers, Reading, Berks.

GENUINE CLOVER and GRASS SEEDS.—Samples and prices Post free on application.

☞ Orders amounting to 10*s.* and upwards sent carriage free.

WM. WOOD & SON, Seed Merchants and Nurserymen, Maresfield, near Uckfield, Sussex.

SEED CORN from the CHALK.—All the most approved varieties supplied by RAYNBIRD, CALDECOTT, & BAWTREE. Samples and prices on application.

Address, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

AUGUSTE VAN GEERT'S NURSERY, Ghent, one of the finest on the Continent.

CATALOGUES may be had on application, or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

COCOA-NUT REFUSE, as used for FERNS, BEGONIAS, &c., so much admired in the International Exhibition, delivered in the City at 1*s.* 6*d.*, or within 2½ miles of Charing Cross, at 2*s.* per bag of 3 bushels. Ten bags or more on lower terms. Apply to the PATENT COCOA FIBRE COMPANY, Kingston-on-Thames, S.W.

Also for particulars of SHORT FIBRE for Orchids and Drainage in pots.

Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are the best and most economical of any, and are sold in every town in the kingdom; at DEANE'S, London Bridge; and E. WHITE & SON'S, 95, Cannon Street.

CAUTION.—Every Brush is stamped "J. BARSHAM'S Patent."

ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and Destroying the Fly, 1*s.* 4*d.* per lb., over 10 lbs., 1*s.* 1*d.*

JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C. Post Office Orders payable Fleet Street.

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.

Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.

Can be obtained through the principal Nurserymen and Seedsmen in England.

A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.

PAGE & TOOGOOD, Seed Merchants, Southampton.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE CO., Limited.

Notice.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS), HORTICULTURAL VALUER, begs to inform his friends and the public that he has REMOVED from Priory Road, Wandsworth Road, to No. 1, Devonshire Terrace, Fulham Road, S.W.

THE FARMERS' BAROMETER, 50*s.*, a new Instrument by NEGRETTI & ZAMBRA, will correctly indicate whether the Barometer falls for Rain or for Wind.

Particulars by enclosing stamp, 1, Hatton Garden, E.C.; 59, Cornhill, E.C.; and 122, Regent Street, W.

SHAW'S TIFFANY,

For samples and prices apply to

J. SHAW & Co., 29, Oxford Street, Manchester.

ARCHANGEL MATS, for protecting Fruit Trees, Plants, Shrubs, &c., from Frost. A large quantity, fresh imported, are now on Sale at low prices per hundred, delivered free at any of the Metropolitan Railway Stations. Also Ropes, Lines, Twines, Sacks, and Bags of every description. Tanned Garden Netting. A Price List forwarded upon application to

JOHN MORISON, 25, Norton Folgate, N.E.

Do as Others Do!

BUY YOUR SEED BAGS from JAMES T. ANDERSON, SACK and BAG MAKER, and RUSSIA MAT MERCHANT, 15, SHERBORNE LANE, King William Street, London, E.C., who will supply you with a first-rate article at a low price. ARCHANGEL MATS, the pick of the season. Russian and Prussian Dunnage Mats.

Prices sent free on application.

The Old Established Seed Bag and Sack Manufactory.

ALEXANDER NICOL AND CO., MANUFACTURERS of SEED BAGS and SACKS, RYE GRASS SEED BAGS, GRAIN and POTATO SACKS of all sizes and descriptions, SHOP and NURSERY TWINES, GARDEN LINES, &c.

Chalmers St. Works, Arbroath, N.B.

N.B. The principal Seed-houses in the three Kingdoms have been supplied by us for the last 30 years. Price Lists and Samples may be had on application. No connection with any other house in the Trade.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

WELLINGTONIA GIGANTEA.—The attention of the Nobility, Gentry, and the Trade, is invited to the largest stock of 1-year SEEDLING PLANTS in the Kingdom, established in single pots and fit for Spring planting. Price per dozen, 12s.; per 100 or 1000 on application. A Sample free by post for 12 stamps.

J. HENCHMAN, Edmonton, London.

FINE SPECIMEN WELLINGTONIAS.—50 splendid SPECIMEN PLANTS of WELLINGTONIA GIGANTEA, 4½ to 5½ feet high, strong sturdy plants (from seed), grown on cold clay, in a very exposed situation, transplanted 2 years since, and will remove with large balls. Price moderate.

Apply to GEORGE T. FOX, The Nurseries, Wetley Rocks, near Leek, Staffordshire.

COMMON LAURELS, in quantity, 3, 4, and 5 feet high, bushy and well rooted; about 800 HORSE CHESNUTS, 5 to 7 feet; 500 ENGLISH OAK, 4 to 5 feet, to be sold reasonable. Price on application to

D. S. THOMSON, Nurseryman, near Railway Station, Wimbledon, Surrey, S.W.

Thorn Quicks.

JNO. CARTER, NURSERYMAN, Keighley, has a large stock of the above, from 1 to 4 years' Transplanted, well rooted and very strong.

J. C. will be glad to furnish samples and prices, and also CATALOGUE of GENERAL NURSERY STOCK.

FOR SALE, 100,000 3-year Seedling SILVER FIR.—The above will be offered cheap, as the ground is wanted for other purposes; also 150,000 1-year Seedling LARCH. Samples and Prices sent on application.

Apply to DOWNIE, LAIRD, & LAING, 17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London.

THE SUBSCRIBERS have on SALE 2, 3, and 4-year Seedling NORWAY SPRUCE; 3-year Seedling THORN QUICKS; Transplanted SPRUCE, 1 to 1½ feet; 3-year Transplanted THORN QUICKS, all at very low prices, which may be had on application.

FOWLER & SON, Glasgow—Feb. 14.

TRANSPLANTED FOREST TREES and EVERGREENS, &c.

SPRUCE FIR, 1 foot, per 1000	10s.
,, ,, 1 to 1½ foot, per 1000	15s.
,, ,, 1½ to 2 feet, per 1000	25s.
OAKS, 3 feet to 4 feet	25s.
WEEPING ELM, 10 to 12 feet stems, fine heads, per doz.	24s.
COMMON LAUREL, bushy, 2 feet, per 100	10s.
BERBERIS AQUIFOLIA, 1½ to 2 feet, per 100	10s.
TREE BOX, 2 feet, bushy, per 100	20s.

ALEXANDER LAING has yet the above Surplus Stock to Dispose of, having grown upon ground that must be at once cleared.

Beverley Nurseries.—Feb. 14.

JAMES VEITCH, JUN., having a very large stock of the CHOICE HARDY TREES named below, offers them at the low prices annexed. The whole of them are in the finest possible condition, and may be seen growing, together with a fine collection of other Trees and Shrubs, in his new Nursery, at Coombe Wood, Kingston Hill, S.W.

This Nursery is situated 1¼ mile from the New Malden and Coombe, 2½ miles from the Richmond, 2 miles from the Kingston, and 3 miles from the Putney Stations, South Western Railway, and at the three latter Stations Flys can at all times be obtained. It is distant about 5 miles from the Chelsea Nurseries.

The prices include delivery at the London wharfs and railway stations.

ABIES DOUGLASII TAXIFOLIA.—This is the best variety of the Douglas Fir, 4 to 5 feet, 3l. per dozen.

ABIES DOUGLASII TAXIFOLIA, 5 to 6 feet, 4l. 4s. per doz.

The above are really fine formed specimens.

ARAUCARIA IMBRICATA.—Strong good shaped plants, 1l. 10l. per dozen.

Do. do. Strong good shaped plants, 2 ft., 2l. 2s. to 3l. per doz.

Do. do. Fine specimens, from 3 to 5 to 7 feet, 15s. to 21s. to 42s. to 63s. to 105s. each.

N.B.—These plants are so robust and well formed, they should be seen to be appreciated.

CEDRUS DEODARA.—Beautifully formed plants, 3 to 4 ft., 1l. 16s. per dozen.

Do. do. Beautifully formed plants, 4 to 6 ft., 3l. per dozen.

Do. do. ,, 6 to 8 ft., 4l. 4s. per doz.

Do. do. Splendid specimens, 8 to 10 ft., 10s. 6d. to 21s. each.

These are all very handsome plants.

CEDRUS DEODARA ROBUSTA.—Fine plants, 4 to 5 ft., 2l. 2s. per dozen.

Do. do. Fine plants, 5 to 6 ft., 3l. 3s. per dozen.

CUPRESSUS LAWSONII.—Very nice plants, 2 to 3 ft., 1l. 10s. per dozen.

Do. MACROCARPA, 12 to 18 inches, all transplanted in August, 1862, 12s. per dozen, 3l. 15s. per 100.

Do. do., 2½ to 3 ft., 1l. 10s. per dozen.

CRYPTOMERIA LOBBII, 3 to 4 feet, 2l. 2s. per dozen

,, 4 to 5 feet, 3l. per dozen

N.B. This is the most hardy, the finest green foliage, and closest habit of the Cryptomerias.

JUNIPERUS CRACOVIA, fine plants, 3 to 4 feet, 1l. 4s. per doz.; 7l. 10s. per 100.

PINUS BENTHAMIANA, 3 to 4 feet, 3l. per dozen.

,, INSIGNIS, 3 to 4 feet, 2l. 2s. per dozen; 15l. per 100.

,, ,, 5 to 6 feet, 3l. per dozen.

These Pinus insignis were all transplanted in August, 1862, and are remarkably fine plants.

PINUS INSIGNIS.—Very fine specimens, 6 to 10 feet, 7s. 6d. to 21s. each.

PINUS PYRENAICA.—Very fine plants, 4 to 5 feet, 3l. per dozen.

SEQUOIA (TAXODIUM) SEMPERVIRENS, 5 to 6 feet, 2l. 2s. per dozen.

THUJA LOBBII.—A beautiful kind, 2 feet, 1l. 10s. per dozen.

Do. do. Fine plants, 3 feet, 2l. 2s. per dozen.

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Do. do., 2 feet, 4l. 4s. per dozen.

Do. do. Plants of larger sizes from 3 to 4 to 6 feet, magnificently formed specimens, 21s. to 63s. to 84s. each.

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WOOD AND INGRAM beg to offer to the Trade extra fine Seedlings of the above, at 5s. per 1000.

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JOHN BROWN AND CO. have a surplus stock of COMMON LAURELS, 2 to 4 feet; also a few cwt. of HOLLOW-CROWNED PARSNIP and ASHLEAF KIDNEY POTATOES. Price on application.

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PRIMULA, Red or White (fringed), very superior; see testimonials in Catalogue	2s.	6
CALCEOLARIA, herbaceous, finest mixed	1s. 6d.	6
CINERARIA CRUENTA, ,, ,, saved from a collection of prize flowers	1s. 6d.	6
AMARANTHUS MELANCHOLICUS RUBER	1s.	6
MIMULUS CUPREUS	1s.	6
RHODANTHE MACULATA	1s.	6
ASTER VICTORIA, a very elegant variety		6
,, Newest DWARF PYRAMIDAL, azure blue		6
,, ,, azure blue and white		6
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PORTULACA GRANDIFLORA FLORE PLENO (Double Portulaca Roses)	2	6
DWARF COCKSCOMB	1	0
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,, ,, ALBA	1	0
,, ,, NANA	1	0
CONVOLVULUS CANTABRICUS STELLATUS NOVUS	0	6
GODETIA, THE BRIDE	1	0
PHLOX DRUMMONDI, PRINCESS ALEXANDRA	2	6
,, ,, TWILIGHT	2	6
TROPÆOLUM LOBBI, GLORY	1	0
,, CRYSTAL PALACE GEM	0	6
,, TOM THUMB (White)	1	0
SAPONARIA CALABRICA MARGINATA	1	0
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,, BARNES	RED CABBAGE

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Woodford's Green Marrow do.	Early Nonpareil Cabbage
Flack's Blue Imperial ditto	,, Emperor ditto
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VARIEGATED BEET, for garnishing,
SNOW'S WINTER BROCCOLI, true,
LITTLE PIXIE CABBAGE.
NEW FEATHER STEM SAVOY,
DANVER'S YELLOW ONION.
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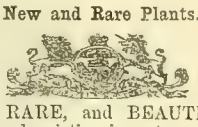
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WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, S.W.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 14, 1863.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, Feb. 18—Society of Arts .. .. .. 8 P.M.
THURSDAY, — 19—Linnean .. .. .. 8 P.M.
FRIDAY, — 20 { Royal Horticultural (Election of Fellows) at S. Kensington .. .. 2 P.M.

WE saw the other day at Mr. STANDISH'S nursery at Bagshot, whence are being removed to a new nursery at Ascot, sundry good-sized Conifers, what appeared to us to be a very capital contrivance for TRANSPLANTING TREES. The plan, we understand, originated with Mr. SORLEY, of Falkirk, and has been for a year or two in use in different parts of Scotland, where by its aid large trees are successfully removed at any period of the year, the month of August being indeed preferred for many kinds, especially evergreens.

The apparatus is simple in the extreme, and herein consists one of its strongest recommendations; and it is not only simple in itself, but it is also simple in its application. There are four semicircles of ordinary sheet iron, hollowed out in the centre, so as to admit the bole of the tree in the concave part. The edges of these half-annular iron plates are strengthened by being turned over a small iron rod, and the outer curved margin, as well as the two straight ends of each, are provided with a series of brass eyelet-holes, large enough to admit the passage of a cord. This is all the essential part of the contrivance. There is in addition, we believe, employed for transporting the trees, a kind of truck or barrow similar in its construction to those we see in daily use for moving corn sacks, or for moving luggage at our railway stations. The head of this carriage is thrust under the ball, and the top of the tree being then brought over, the whole mass is easily and safely removed, provided there is sufficient force brought to bear upon it. It is however in the application of the iron plates that the great advantage of the plan consists, and for this the inventor deserves great credit.

When a tree is to be transplanted, the first operation, after securing the branches as far as may be necessary, is to excavate a trench at a distance from the bole sufficient to secure a good "ball" of earth about the roots, the extremities of the roots beyond the circumference of this "ball" being more or less carefully preserved in excavating according to the nature of tree. The ball of earth (its size having been previously determined on), is then to be undermined on one side, and one of the iron plates with the convex side outwards slipped beneath it, while another is placed on the upper side of the ball with its concave edge towards the bole, and as near to it as may be convenient. These two plates are then to be judiciously laced together, with as much force as will keep the earth firm, the ends of the roots being for the present left free between the cords. A cord should be passed from the straight ends of the two plates above and below the ball, and either held or tied firmly on the opposite side to keep the plates themselves temporarily in their right position. The other side is then to be undermined (the tree being gently inclined if necessary), and a pair of plates placed above and below opposite the first pair, the ends of the opposite pairs being firmly laced together, and the outer edges being also laced as before. When this has all been properly done, there remains the ball of earth held firmly together by means of the four half-annular plates of iron, two above and two beneath, which are secured by vertical lacing at the circumference of the ball, and by horizontal lacing where the ends of the semicircles meet. The lacing, of course, has to be made strong in proportion to the size and weight of the ball; but once done, and the projecting roots carefully laid round and laced over, with any kind of packing material to protect them, the tree might be sent from one end of the kingdom to the other without injury at any season, provided the materials protecting the roots were kept in a moistened state.

When a tree thus removed has reached its destination, and is lowered into its place, nothing is required but to cut or unlace the cord or rope which has held the plates together, to lift off the upper and to slip out the lower plates, and then carefully to fill in the soil about the extremities of the roots, the growth of which latter will be facilitated, and the steadiness of the tree assisted greatly by the influence of the undisturbed mass of earth which has thus so easily been retained about the base of the roots.

We believe the plates are employed of various sizes, and that Mr. SORLEY himself may be consulted as to their application. Those we saw in use with Mr. STANDISH, and which we were informed were calculated for a ball of about half a ton weight, would have formed a circle of some three feet in diameter, having, of course, a large opening in the centre when the ends of their two halves were brought into contact.

The plan is so simple and so effectual that it deserves to be made generally known.

IT has long been a question of interest whether ROOTS have any power of selection from the food dissolved in the moisture which surrounds their delicate spongelets, the only point apparently which is capable of absorption; and then whether they are able to return to the soil any matter which is useless or prejudicial, or which they cannot conveniently deposit by means of elimination from their juices during their passage from one part to another. The question is clearly one of great importance as regards the theory of cultivation, and especially of that part which treats of the exhaustion or deterioration of the land from preceding cropping, and there are collateral points of interest.

M. CAUVET, an apothecary in the French army, has made some interesting experiments on the subject, the results of which have appeared in a recently-published number of the "Annales des Sciences Naturelles," dated 1861, a publication the botanical part of which drags its slow length along to the great dissatisfaction of its subscribers.

Previous experiments have been generally made with plants whose stems were mutilated, and therefore not in a natural state, and whose rootlets were much injured by removal from the ground, and by washing away the adherent soil. To avoid these evils M. CAUVET employed seeds which he had caused to germinate through holes in wooden discs placed over glasses filled with water. Each perforation was occupied by a single plant, and it was possible to examine the tips of the root, and any rootlets it might give off, by simply lifting up the disc, which could be done without the slightest injury to the spongelets.

Colouring matter mechanically suspended in water was clearly useless, though employed in many previous experiments. Substances therefore were used which were perfectly soluble in water, and which could be taken up into the cellular tissue, provided the fluid penetrated the spongelets.

It appeared from the experiments that coloured liquids, whether active, as solutions of minerals, or inert, as decoction of Phytolacca, were not absorbed completely into the system, so long as the roots were physiologically sound, though they affected the cells of the spongelets, and the superficial cells of the parts immersed. Active liquors affected the spongelets rapidly and decomposed them. In the first case, the roots are surrounded, especially at their extremity, by a deposit of colouring matter, which renders the absorption of the solution extremely difficult or prevents it altogether, inducing at length the destruction of the spongelets, while in either case, as soon as the spongelets are decomposed, the fluid enters the plant, following the course of the fibro-vascular bundles, a circumstance which has an important bearing on the condition of these bundles in Potatoes, Turnips, &c., affected by disease. M. CAUVET deduces from this the corollary that it is useless to study the course of the sap in plants by means of coloured injections.

Having established these points, he proceeded to examine the question whether there is really any excretion from roots. In the course of his experiments, he ascertained that roots physiologically sound do not absorb indifferently all substances dissolved in water; and confirmed his former views that it is only after the more or less complete destruction of the spongelets that coloured substances, whether poisonous, inert, or not capable of being assimilated, can be absorbed, and that death ensues unless new roots are thrown out; that roots physiologically sound have no power of rejecting substances, whether poisonous or otherwise, which have been already absorbed, but that when the plant survives the first shock, the poison or deleterious matter is carried to the leaves, which die in the order of their evolution, while a minute quantity is eliminated from the sound leaves together with the water of evaporation. Arsenious acid, for example, is not absorbed by plants growing in a soil which has been purposely poisoned, unless the dose is too large, and then it arrests germination and destroys the plant. If the plant chances to grow, an appreciable quantity of arsenic is not found by chemical analysis in the fruit, and animals nourished with the leaves do not appear to be inconvenienced.

The latter point has an interesting bearing on some questions of Forensic Medicine, and may quiet the alarms of those who believe that evil consequences can arise from the dressing of Wheat with poisonous salts, alarms which are put in a very striking way in M. DUMAS'S "Montecristo," in a conversation between MONTECRISTO himself and Madame VILLEFORT.

As regards cultivation, then, we have two important facts—first, that plants do exercise a certain degree of selection in their choice of food, refusing to imbibe inert or injurious substances—more however by their action on the spongelets, than by any actual election; secondly, that inasmuch as the roots of plants do not give out any excretory matter to the soil, the theory of rotation of cropping as put forth by DECANDOLLE and LIEBIG is void of truth. The barrenness of a field after a particular crop does not depend upon the deposit in the soil of matters injurious to the plants of the same species. Within certain limits therefore it must depend upon the elective faculty, and not on any excretion, that plants owe the differences which we observe, species by species, in the quantity or quality of their saline elements. The fact that in the same plot of ground *Tamarix* and *Salsola* give very different chemical results, the former containing more magnesia and the latter more soda, while in *Eryngium maritimum*, which grows exclusively on the sand bordering the sea, and strongly impregnated with chlorate of soda, there occurs three times as much potash as soda, certainly indicates some power of selection, for if soda, potash, and magnesia, were indifferently taken up into the plant—and it is an established fact that there is no excretion from the roots—they must be found on analysis. The bearing on such

questions as that of the cause of chlorosis, Clover sickness, and several other maladies to which plants are subject, is at once evident, and it is greatly to be wished that M. CAUVET should continue his experiments, which tend so much to throw light on numerous physiological questions. *M. J. B.*

—— MR. KEYNES has made (*Flor. and Pomol.* ii. 11) a useful suggestion relative to the EXHIBITION of DAHLIAS, and one to which we are happy to give further publicity in our columns. His object is to check favouritism in the awarding of prizes, and the plan he suggests seems to have the double preliminary advantage of being one which may be readily carried out in practice, and which would not occasion any serious extra outlay. As it must also inevitably act as a check against the recognition of the exhibitions of particular individuals, and, to the same extent, render null the partiality in the distribution of awards, which it is alleged does now and then come into play even in these purer times, it might be very well adopted as a step in avoidance of even the apparition of evil. In addition to all this, it would do away at a stroke with the unsightly diversity which a series of ill-fitting and variously-coloured boxes is apt to produce in exhibitions of which cut florists' flowers form the staple.

What Mr. KEYNES suggests is this:—(1) That the managers of exhibitions should provide stands for the exhibition of Dahlias and other subjects shown in a cut state; (2) that a trifling charge should be made for the use of these stands; and (3) that no names or marks of any kind should be allowed till the awards are decided. We feel inclined to add another condition, namely, that it should be made imperative, that all cut flowers should have their names neatly written on uniform card sheets, plain or ornamented, ruled off in spaces according with the number of flowers in the stand. These should be provided by the societies. With a few sheets of cardboard, and the manipulation of a dexterous clerk, they might all be easily prepared while the awards were being made, the exhibitors being required to hand in previously a list, bearing the letter and number of their respective stands. Some plan should also be contrived by which these lists might be elevated above the stands so as to be readily seen, which is not the case when they are nailed down in front of the table.

As regards the first of the above suggestions there can be no doubt that such an arrangement would improve the appearance of exhibitions just so far as the uniformity of the stands and the consequent neatness which might be secured in their arrangement would be preferable to the confused picture presented by the diverse forms and colours of the stands and boxes we now see generally used. Besides, it is pointed out that the same stands would be available for the display of nearly every kind of cut flower brought to the exhibitions, perhaps only excepting Roses; and as nothing more would be required than a neat plane surface of board, with removable legs of two sizes to bring this surface to the proper angle of sight, and with apertures at proper distances to receive the tubes in which the flowers would be brought, the first cost of providing such stands in sufficient number for a whole exhibition would be an item of no serious amount. Such an arrangement would no doubt be a convenience to exhibitors, as they would then only have to carry their travelling boxes; and it would—it must—in great measure prevent the recognition of the ownership of the flowers while under the scrutiny of the censors.

The second point, that of charging a small fee for the use of the stands—which fee Mr. KEYNES proposes should be sent when the entries are made, as a check upon the false or sham entries of convenience in which some exhibitors indulge, is one which probably our exhibition authorities would not care to adopt. It might lead to misunderstanding; indeed it would be almost certain to do so, by multiplying the little details of management. Its main advantage would, we think, consist in whatever influence it might have in rendering the entries *bonâ fide*. If exacted, it would soon repay the cost of the stands.

The third point which we find amongst Mr. KEYNES' suggestions, is one on which we suppose florists are particularly sensitive. It is true that in the case of plants generally, this principle of withholding exhibitors' names while the awards are being made, has (with much advantage as regards the management of a show) been abandoned, and as far as we have seen without any resulting inconvenience; but then plants are so much more readily recognised than cut flowers, independently of all extraneous marks, that there would certainly be less advantage from concealment in their case than in that we are considering; and as the exhibitors of florists' flowers, some at least of them, seem to attach importance to the revival of the old *régime* of withholding exhibitors' names, it would be a very easy concession to comply with their wishes.

Mr. KEYNES does not pronounce very distinctly on the question of abolishing the class of Fancy Dahlias, to which we have more than once adverted; but we may take it for granted that he is acquiescent, since we find that he proposes as the most desirable arrangement in reference to exhibitions of this flower to form classes of "the best 24 self varieties, and the best 24 striped tipped edged or shaded." These would make, he adds, two distinct classes, and prove very attractive. As no champion has yet advanced anything which really tells in favour of retaining the "fancy" class, we regret to see the Royal Horticultural Society continuing it for another year in its prize schedule.

THE BEST EXHIBITION RANUNCULUSES.

AT the request of some amateur florists who are desirous of obtaining information about the choice kinds of Ranunculuses, and such as are in the estimation of different cultivators best adapted for show, I issued a circular to above 20 growers of this flower, resident in various parts of England and Scotland, asking them to make a return of the 12 sorts which they esteemed most highly, and considered fit to be placed at an exhibition. The subjoined is the result.

The replies were varied, and not without interest. Nine returned lists of 12 sorts together with their colours, as given below. One had discontinued the growth of his favourite of 25 years' standing for newer and more modern claimants on his regard. One or two never grew any seedlings, but cultivated the old sorts year after year in the same garden until they were exhausted. A 5th learned experimentalist doctored his collection with nostrums, and lost 80 per cent. of his plants, and became disheartened. A 6th from sheer modesty wrote well of one or two sorts, but could not make up his mind to recommend twelve different named varieties. And lastly, one cultivator replied that he grew none under name, mixtures being his hobby. Most of the respondents indicated their affection for the Ranunculus, and in regretful strains expressed sorrow that they could not more satisfactorily reply to my solicitation.

Subjoined, however, are the returns as far as received; they will be found sufficient, I think, to excite interest in the flower, and to give an indication of the position certain varieties, the names of which recur several times in the list, hold in the estimation of growers competent to give an opinion on the subject.

In several cases, such names as occur once only, belong to modern seedlings, a circumstance which accounts for their non-appearance in other lists.

TWELVE SORTS RETURNED BY MR. W. LITTLEBOY, BENSON, OXON.

Eva, gold, red edge	Victor, Tyso's, dark purple
Marquis of Hereford, crimson	Commodore Napier, sulphur, red edge
Melancthon, white, edged	Sir R. Sale, white shaded
Sir W. Hoste, yellow, red edge	Playfair, orange mottled
Naxara, nearly black	Sophia, white, rose edge
Eliza, sulphur	
Herald, white, crimson edge	

TWELVE SORTS BY MR. CALCOT, OXFORD.

Apollo, Costar's, dark red	Naxara
Apollo, crimson	Sophia
Temeraire, white, red stripe	Delectus, yellow, red edge
Coronation, straw mottled	Cedo Nulli, orange
Miss Forbes, white, red spot	Sabina, pale yellow
Eliza	Edgar, yellow, brown edge

TWELVE SORTS BY MR. T. P. MEW, NEWPORT, ISLE OF WIGHT.

Eliza	Exhibitor
Liffey	Miriam
Sir W. Hoste	Auriga
Talisman	Preceptor
Meekness	Zebrina
Petrel	Grand Prior

TWELVE SORTS BY MR. J. WEST, SHILLINGFORD, OXON.

Rose Incomparable, white, rose	Horatio, yellow, brown edge
Venus, white spotted [edge	Marquis of Hereford
Mustapha	Balcot
Delight, yellow, red edge	Reine de Sheba
Pertinax, yellow spotted	Eliza
Kilgour's Princess, white mot.	Delectus

TWELVE SORTS BY MR. J. WATERSTON, PAISLEY.

Ann Hathaway, white, pink edge	Jenny Meldrum, white, purple edge
Beritola, white, rose edge	Mackenzie, white, black edge
Camperdown, wht. purple edge	Mary Howitt, white, pink mottle
Chevalier, white, purple edge	Mrs. Guir, white, purple edge
Dr. Darwin, yellow, red mottle	Oceano, white, dark mottle
Humboldt, white, purple edge	
Lord Gough, yellow, red edge	

TWELVE SORTS BY MR. G. KIRTLAND, BLETCHINGTON.

Tillett's Blush, rosy mottled.	Apollo
Sophia	Orange Brabançon, orange
Horatio	Quilla Filla, rose mottled
Model of Perfection	General Napier
Henning, white, purple edge	Naxara
Coronation	Eliza

TWELVE SORTS BY MR. T. HEARNSHAW, NOTTINGHAM.

Naxara	Rubro magnificus, scarlet
Melange, striped	Plato, white
Œil Noir, dark	Viola la vrai Noir, dark brown
Orissa, striped	Delectus
Melpomene, scarlet	Herald
La Temeraire, striped	Gomer, yellow edge

TWELVE SORTS BY MR. LIGHTBODY, FALKIRK.

Miranda, white, rose edge	Goldfinder, yellow, red edge
Dr. Horner, white, purple edge	Lord Berners, white, dark edge
Talisman, white, purple edge	Chevalier, white, purple edge
Prince Albert, dark edge	Florimel, white, red edge
Sir Philip Broke, cream, purple edge	Pelopidas, white, purple edge
Mrs. Trahar, white, rose edge	Princess Louisa, white, rose edge

TWELVE SORTS BY MR. C. TYSO, WALLINGFORD.

Melancthon, white purple edge	Indicator, yellow, red spot
Naxara	Festus, yellow, brown spot
Kilgours' Princess	Fairy, white, purple spot
Alexis, yellow spot	Marquis of Hereford, crimson
Delectus	Eupatoria, white, purple edge
Eva, yellow, red edge	Procilla, yellow, red edge

Carey Tyso, Florist, Wallingford, Berks.

BENTHAMIA FRAGIFERA.

ALTHOUGH this fine shrub has been in cultivation ever since 1825, during which time few plants have been more universally grown, yet even now its real character is but little understood, or its merits valued. I have therefore sent you a specimen branch covered with fruit, which will, I think, convince all who may see it, that under proper treatment the Benthamia may be brought to be one of the most useful and attractive of out-door shrubs.

The plant from which the specimen in question was taken is 15 feet high, and is literally a mass of fruit, so much so that it has been found necessary to prop it up. It was planted in 1835 on a dry sloping bank, closely backed on the north side by a thick evergreen shrubbery, which has so overgrown the Benthamia as to give it the appearance of having been set against a wall. A two-fold advantage is thus obtained; first, protection is afforded from sharp northerly winds; and secondly, the roots of the neighbouring evergreens prevent all excess of moisture from accumulating and impoverishing the soil. It is to the latter circumstance that I attribute my success in fruiting it so profusely in the present instance; for, owing to the soil being so poor, the growth of the plant has been much checked, the result of which has been an unusually heavy crop of fruit.

In support of this statement I send you a specimen from another plant of Benthamia, growing not more than 10 yards from the first; this forms a specimen shrub, measuring 15 feet through the middle. The side facing the south annually produces flower buds in great abundance, but in consequence of the propensity of the plant to grow freely, and also owing to the plant being deprived of any kind of shelter either at the root or head, as in the case of the other specimen, they have never yet developed themselves, all falling off during the growing season.

To those who know the Benthamia only as an evergreen shrub, the following remarks may not be out of place. Its blooming season is June. Although not very attractive the flowers should by no means be despised; they resemble those of a Strawberry; in colour they are greenish yellow, and they measure about the size of a half crown piece, and are produced in great abundance. Then follows the fruit, which it must be remembered is edible, but in its raw state is not very palatable; as a preserve, however, it is very useful.

The foregoing will, I think, be sufficient to prove that a little careful management is all that is necessary to raise this plant to a high position among its associates. To those, therefore, who will turn their attention to it I would say: select a space against a wall or house having a south aspect, taking care that the roots are not exposed either to excess of moisture or imbedded in too much soil, for the reasons already stated. Under proper treatment as to soil, and with a little judicious stopping and tying or nailing to the wall, this plant may be kept as neat as a Myrtle or Magnolia, and have a much more graceful appearance; managed well, I am confident that it would soon become one of the most favourite evergreen plants of the present day. *Richard Westcott, Singleton Gardens, Swansea, South Wales.* [But only in the warmer parts of Great Britain. *Ed.*]

WINTER FLOWER GARDENING.—No. II.

(*Concluded from page* 125.)

THE following are the evergreens I now employ; their roots can take of themselves, and hold together without a good ball of soil; they are small leaved (with one exception) and can therefore endure our unsheltered situation; they are 1½ and 2 feet high, with the exception of three large Rhododendron ponticum, and two large Aucuba japonica for the centres of the three largest beds. They all stood the winter of 1860–61.

VARIEGATED.	GREEN.
Aucuba japonica	Buxus sempervirens pendula
Buxus sempervirens aurea	,, ,, lancеolata
,, ,, argentea	,, ,, latifolia
,, ,, pendula	,, ,, lucida
GREEN.	,, ,, myrtifolia
Rhododendron ponticum	,, ,, marginata
Phillyrea media	,, ,, angustifolia
Buxus sempervirens	Juniperus Sabina
,, ,, rotundifolia	

The colour borders consist of the following varieties of Brassica oleracea: Red Dutch Cabbage, Triple Curled Borecole, White and Green Variegated, Purple Variegated, Purple or Russian Borecole,—arranged in different ways—1, 2, or 3 colours, red, purple, white and green, alternate or mixed, the beds in pairs, generally.

The broken and decayed leaves are regularly stripped off and sent to the pig boiler, as are the whole plants when the season advances. There is no waste of this valueless class of plants. Those selected for seed are carefully transplanted. Everything depends on the seed being good; that it be not sown too soon, so that the plants are of suitable size, unhearted (where Dutch Cabbage is used), and not left in the seed bed too long to become drawn leggy plants.

The variegated edgings are permanent, except those of White Kale, and consist this year of the following plants, viz.: Hedera Helix arborescens fol. aureis, grafted; the plants of this Ivy were 5 years old, I

think, when I got them 5 years ago from Mr. Barron, of Elvaston; these edgings have been the envy of all who have seen them, both in summer and winter. Hedera Helix fol. argenteis, on its own roots, laid. Veronica Andersonii variegata: this is an experiment; it has stood with slight and partial disfigurement the 9° of frost we had in November. Arabis præcox variegata; Linaria Cymbalaria variegata (also an experiment); Stachys lanata; Vinca minor aureo-variegata; Phalaris arundinacea variegata: this edging is mown thrice in the summer and never allowed to run up to flower.

The bulb margins consist of Crocuses (yellow, blue, and white, a different colour being placed around each pair of beds), for the 22 small beds; and Snowdrops, and Eranthis hyemalis, round the 13 large figures. These margins are never touched except to be parted when bulbs are required elsewhere, and are not the slightest inconvenience when the summer bedding-out comes. I am against later flowering Bulbs for the flower-garden beds, because you cannot permit them to remain until properly ripened; in fact, you find yourself wishing their beauty was over. To have them in the mixed flower borders is my plan, in groups of three. In one border there are five rows of Tulips, Van Thol in the front, and the large Rex rubrorum and Tournesol in alternate groups in the back row.

Now in all this I do not wish or mean to say a word against the plans or plants you suggest for the winter garden; but except in large places, or with large means, these will disappoint persons who may try them. There will be less outlay and more satisfaction in my less-expensive arrangement for the mass who cannot afford to spend much; and the grand point, viz., encouragement of winter gardens, will be promoted till they become an "institution," as the "modern flower garden" already is.

Economy is my motto, in its true, broad, and liberal sense, which includes the saving of time, trouble, and temper, as well as £ *s. d.* To employ an expensive plant when a common one will have nearly as good an effect is, in certain circumstances, simply purse-proud extravagance.

To fill the beds here with plants of the same size and number, in the shape of worked Hollies and Yews, Conifers, Euonymus and Ilex, and to fill the colour-borders, would cost in price of plants, above 70*l.*, besides the certain loss from transplanting twice a year, and the risks of severe winters; whereas the money value of my plan for the centres and borders is under 5*l.*, and some of the shrubs are from the original first outlay, so that such an investment might really be trusted as one likely to have been made once for all.

It is my present belief that you must be satisfied by having your "modern flower garden" in perfection in summer, autumn, and winter; and let the spring flowering perennials be in the mixed flower borders with the late bulbs, Hyacinths, Tulips, Narcissus, &c.

Variegation was a hobby of mine long before fashion made it the rage, and for the three following reasons:—1st, in our poor soil the variegation is kept up; 2d, with variegated plants you have a certain amount of colour and show at once when you begin to bed out, and one that is independent of rain and sun; and 3d, nothing looks better against Grass. Naturally my next aim was to employ hardy, permanent variegation, thus reducing the amount of propagation necessary annually, and in this point I am succeeding.

Thuja aurea will never in our day be cheap enough to use instead of Golden Chain Geranium. It would be admirable for such an edging, and its slow growth would insure its taking advantage of the protection of snow in severe winters.

I would that every one had as intense enjoyment in a garden at all seasons of the year as I have myself, though they may not have my hereditary love of it. I wish that the expression so frequently heard in winter, "There is nothing to see in the garden just now," were by the powerful help of your periodical rendered no longer a truth, and that I should have the same greeting when visiting my friends in winter (and which they receive at all seasons when they visit me) that I have in summer, "Take a look at the garden before you come in," or "Of course you stopped at the garden as you came up to the house."

I set aside failure from seasons and weather, and make it a principle never to grumble at the effects and disappointments from either; but it does try the temper when one has wilfully or stupidly used such plants as experience has proved to be a risk. Let there be risks and experiments in the other portions of the garden, but not, at least on the wholesale scale, in the winter beds. I have always some plants on trial (and never have slavishly the same arrangement for either summer or winter), and if they fail am always prepared with a substitute at either season.

There is another neglected branch of flower gardening which I have been for years working at, and of which I will send you a memorandum. It is for a hardy herbaceous mixed border, in which I do not admit one bedding-out plant, yet it has even now, when the bulb edgings are not yet up, a good effect, and as it is in full view of the drawing-room windows, I am determined never to have it bare. *F. J. H., Wardie Lodge, Edinburgh.*

TREE MOVING AT COMBE ABBEY.

In the formation of a new carriage drive, and other works now in progress here, I have had much to do in the way of moving trees, the weights of which varied from 1 to 10 tons each. I had one of Mr. McNab's hand-machines made, which acts very well for tapering trees weighing from 1 ton to 25 cwt.; but for trees of greater weight, having spreading branches, it is not so useful. I however found it to answer exceedingly well in the moving of Deodars of about 15 years old. Not having a large transplanting machine, such as Mr. Barron's, or the one at the Royal Horticultural Society's Gardens, with which large Deodars were moved, I resolved to make use of the best means at command; I therefore constructed a truck 8 feet long and 6 feet wide, mounted on four wheels, each 18 inches in diameter, and 8 inches wide, made of two thicknesses of 4-inch Oak, crossing the grain to give strength, and binding the whole well together by means of an iron tire and cast iron boxes, with iron arms fitted into wood axles. The platform of the truck I boarded smoothly over, thus completing a simple but strong transplanting carriage. The other accompaniments to the truck were a builder's crab, block, and tackle, with a quantity of chain and pieces of rope for binding purposes. In moving some of our larger trees I have employed three crabs, and two crabs working in oppcsite directions, to turn the tree round "best side front."

It occurred to me that if we could do without suspending the entire weight of both tree and ball, much unnecessary labour would be obviated, and in doing this I have thought fit to diverge from the usual way of digging round a tree with the view of getting under it. I commence a good distance from the tree, and with a sloping excavation advance until the outside of the ball is reached; at this point underground excavation begins: two skilful workmen, having each a short pick and shovel, get upon their sides and commence to operate. When they have advanced about a foot, a strong plank or beam is fixed across the mouth of the hole close under the ball; this bearing is strengthened by an upright prop. The men again go to work, and as they throw out the debris, a man at the mouth of the hole clears it away, and also hands in props when required by the excavating party. In this way the work goes on until it is far enough advanced to receive the truck. Upon the excavation being completed the truck is got ready without delay, and brought to the edge of the hole, the first prop is knocked out, then a second and a third, &c., to the last. It is necessary that this performance be done quickly, as when the props are taken away, the ball will be likely to settle down. When the truck is adjusted under the ball, the operation of digging round the latter is then commenced. The use of leaving this piece of work to the last will now be seen, as the undisturbed soil assists in supporting the ball while excavation is proceeding. If the trees are very heavy, I generally use a crab to pull them up the incline leading from their old situation to the top of the hole; this is more safe and gentle than the snatching kind of force furnished by horses—it takes a little more time, but I am of opinion, especially in the moving, "that if a thing is worth doing at all, it ought to be done well."

When the tree is brought to its destination, it is necessary that the truck should be lowered a little at one end until the bottom of the ball is brought level with a plane which inclines gradually until it reaches the final site of the tree. The transit from the truck to the final site is effected by means of a crab. This latter movement is facilitated by throwing some water under the ball whilst on the truck, and also on the incline down which it has to travel.

For the removal of trees I feel that I cannot recommend too strongly the use of the crab, at least as far as my experience goes in the matter. It is powerful, gentle, and safe; it can be instantly stopped on the discovery of anything going wrong, and I have employed it in many ways for tree moving with the greatest success, besides those just described. *W. Miller.*

Home Correspondence.

Garden Law: No. 2, Repairs.—Our friend the tenant, who learned, at the expense of a lawsuit, that he was obliged to pay rent for the premises he had taken, although they were useless for the purposes for which he took them, is again in trouble about repairs. He says his house is cracking, the walls are settling, and the plaster is crumbling; and as to his hothouses, the roofs are so rotten that he hardly dare venture under them, and the heating apparatus is so out of repair that it will not work. His landlord declines to do anything, and says there is nothing in the lease about repairs which obliges him to put things right. The tenant, before again going to law, seeks advice, and asks whether his landlord is not bound to help him? "Let me look at your lease," says his adviser. "Is this all you have got?—an agreement for a yearly tenancy, and nothing said about repairs? If this is all, I am afraid your landlord is not bound to do anything, but neither are you; you must pay your rent however, and think yourself lucky that you did not take a lease binding you to keep the premises in repair. The best thing you can do is to give notice to quit, and get rid of the place as soon as you can."—"Oh," but the tenant says, "I have got something more. Here is this lease—look at that and tell me what is to be done." The man of law runs his eye over the lease, finds that it is for 7, 14, or 21 years, that there is no covenant by the landlord to do any repairs at all, but that there is, as there almost always is, a covenant by the tenant that he will, at his own proper costs and charges, from time to time, as occasion shall require, well and substantially repair and keep in repair the demised premises, and the fixtures thereon, and yield the same up in good condition at the end of the lease. "This makes a serious difference, my good friend; you see you have bound yourself to keep the place in repair, and although you probably did not expect that there would be any occasion to do more than refasten a loose slate, mend a broken window, do a little painting, or other small matters of the same sort, you cannot on that ground escape from the bargain you have made with your landlord." "Do you mean to say," asks the tenant, "that I am bound to make good all the defects of which I complain? It is monstrous; it is owing to no act of mine that the houses are all tumbling down; they were in a wretched state when I took them, although I did not think they were so bad as they are; surely I cannot be bound to put them in a better plight than they were in when they were let."—"Had you been a prudent man," the lawyer replies, "you would have got the landlord to put the premises in a proper condition before you undertook to repair them and keep them repaired yourself; and I dare say he would have done that before the lease was granted; but now it is quite clear you cannot make him do anything, and it is equally clear that he can make you do much more than you like. A client of mine came to consult me on this very subject a little while ago. He had taken a farm on lease, and covenanted to keep the farm buildings in repair, and to deliver them up in good repair at the end of the lease. They were in a very bad state when he took them, and the outlay required to put them in proper repair was so great that he preferred running the risk of an action to repairing the premises. His landlord sued him for a breach of covenant, and the Court of Exchequer decided that the tenant was bound both to put the buildings into repair, and to keep them so afterwards; but the Court held that in determining the extent to which the repairs were to go, regard was to be had to the class of the building and to their age when they were let. Your case appears to me to be very like that, and my advice to you therefore is to be guided by it and to repair your houses. You are not bound to convert bad old houses into good new ones; but you are bound to do whatever may be necessary to put your premises into such a state of repair as is reasonable, considering their character and their age." *Lincoln's Inn.*

Beurré Brettonneau Pear.—I daresay there are others as well as myself, who would feel obliged to your Correspondent "G. L." (see p. 77) if he would explain how he manages to ripen this Pear on pyramids. We have fruited it here for several years both in the shape of dwarfs and standards, as well as trained against a west and a south wall, but in no case have I been able to secure a single fruit fit for dessert. I could not induce it to become half melting; it remained intractable until June and July, when it ultimately became shrivelled, and unfit either for cooking or eating. The trees have now been regrafted, and the variety dismissed from our collection. *A. Cramb, Tortworth Court.*

Galvanised Iron Wire.—With regard to the discussion which I have lately noticed in your columns as to the injurious effect of galvanised iron wire on the young shoots of Peach and other trees, I may observe that with me the Peaches and Nectarines under glass, and Vines also, have for several years been trained against this wire without any evil effects resulting. All the trees are in fact in most perfect health. *H.*

Collections of Flower Seeds.—Every one interested in growing plants from "Collections of Flower Seeds," must admit the necessity which exists for a reform in the long lists which we have presented to us in some of the seedsmen's Catalogues at the present time. This being the case, they must admire the spirit of the remarks made in your Paper of the 24th ult. I think however that all who grow the popular class of flowers referred to will agree that it would be most undesirable to adopt such sweeping measures as are there proposed. First then, in the case of Asters—I say that it is impossible to include within two divisions, Pæony-flowered and Quilled, the several most distinct varieties of Aster sinensis now in existence, and again, that a dozen colours does not include every shade worthy of cultivation. I have before me at the present time a spring catalogue of some 80 pages published by a firm in the London Seed Trade, in which I find seven varieties of Asters mentioned which it is not difficult to identify as distinct. They may in the first place be conveniently divided into two great divisions—those having ligulate or flat, and those with tubular or quilled florets. These, especially the former, may be subdivided into several distinct classes. In the first division then we have the deservedly admired Pæony-flowered, sending up a number of straight stems to about an equal height from the ground, growing about 15 inches in height, and each terminating in a single bloom at the top, thus forming one of the most suitable kinds for planting together in masses, or for forming lines of colour in the ribbon

system of gardening. We have the Chrysanthemum-flowered, which is more dwarf than the preceding, scarcely reaching a foot in height, and whose florets are more loosely and irregularly disposed upon the receptacle. Then there is the pretty little Dwarf Bouquet Pyramidal sort, with its small neat flowers, literally forming, as its name expresses, a pyramidal bouquet of flowers, and therefore adapted for growing singly in borders of mixed flowers, or in any situation where the whole plant is seen. The Ranunculus-flowered has a bloom much smaller still, in shape not unlike some of the varieties of Pompone Chrysanthemums; it grows about a foot high, and has somewhat the same habit as the Pæony-flowered. Such are perhaps the most distinct of the ligulate-floret varieties. The tubular division, although not so large as the last, gives us the Globe-flowered, with its branching stem rising to the height of 2 feet or more, and bearing a profusion of solid hemispherical-shaped blooms, and the Crown or Cocardeau, sending up straight stems of about a foot in height, the flower being an almost flat disk of white, surrounded by rays of dark blue or crimson. In Stocks there are the Ten-week, of which the smooth, or Wallflower leaved, is a very distinct variety; the Brompton or Winter, and the Intermediate—all, I believe, generally well known. With regard to colour, it is true that, if in gardening the only desideratum be a mass of white, crimson, or purple, then all intermediate shades may be dispensed with; but it should be borne in mind that one of the greatest charms presented to the amateur in the cultivation of flowers is that of noting the close approximation of colours to each other—of seeing a bed of flowers furnishing all the colours of the rainbow, in which, possibly, no two plants bring forth blooms which are in this respect positively identical. It is this very love of multiplicity of colours which has been one of the most powerful agents in converting the obscure Althæa rosea of forty years ago into the now popular Hollyhock of our gardens, and the Dahlia variabilis, introduced into this country in the latter part of the last century—a yellow disc, surrounded by one row of short rays—into the now almost universal favourite both of cottage and hall. The same remark as to colour would apply to varieties of Phlox Drummondii, Balsams, Larkspurs, Portulacas, and Tropæolums, which all become of increasing interest to us, as each respectively presents us with varied and brilliant shades of colour. It would thus appear that, so far as we can obtain sorts distinct in form or habit, or pleasing in their variety of colour, it is desirable to do so; and while we are careful, on the one hand, to avoid the many repetitions of the same article offered under different names in the Catalogues sent out by certain houses in the seed trade, not to discard, on the other, those which, in their several sorts, and in the different purposes to which they may be adapted, we find ever varied and beautiful. *Jno. Fuller, 7, Lower Calthorpe Street, Gray's Inn Road, London.* [But if one of the greatest charms in a garden is to see a bed of flowers furnishing all the colours of the rainbow, as our correspondent says, why not grow a good mixture? Why be troubled with a dozen or two dozen different but not distinct shades of each slightly varying type? What need is there to try to perpetuate the 194 so-called "distinct" varieties of Stocks, for example, which we referred to, or what advantage if it were accomplished? Why these endless "collections," in fact, except to sell? Surely, a dozen or two of the handsomest would be preferable—generally.]

Cocoa-Nut Fibre for Orchids.—Allow me to say a few words in favour of this material for Orchids, as I find among Orchid growers a great repugnance to use it largely, in consequence of reports to the effect that it produces Fungi. I have no doubt that the refuse from the cocoa-nut, which appears like small tanner's bark, has a tendency to produce Fungi, but I have never seen them make their appearance on the pure fibre, any more than amongst peat and moss. I have repotted the greater part of our collection in Cocoa nut fibre and sphagnum moss, mixed in equal quantities, and find nothing could possibly answer the purpose better, as the Orchids root into it very freely, and make great progress in a very short time, quite different from what they did on the old peat and moss system. In fact, it possesses all the essentials of the best fibry peat, being all fibre and no soil. Let no one therefore be afraid to make a start with it, as I have proved its utility beyond a doubt. I consider it the greatest boon ever offered to Orchid growers, and I'll warrant, after once trying it, they will never return to the old system of using peat and moss. The following genera thrive amazingly in it, viz.:—Cattleya, Dendrobium, Cypripedium, Cœlogyne, Epidendrum, Lælia, Oncidium, Miltonia, Trichopilia, Cymbidium, Pleione, Odontoglossum, Huntleya, Galeandra, &c. *George Toll, Gardener to J. A. Turner, Esq., M.P., Pendlebury, Manchester.*

Polyanthuses.—Having been an ardent lover and successful grower of that early spring flower, the Polyanthus, for more than 40 years, I thought that a word or two on its cultivation at this season might be acceptable to amateurs who have been unfortunate in its culture. I have heard many say—"I admire the flower, but cannot get the seed to grow; I have taken great pains with it, but all to no purpose; I have sown it in boxes and pans, set it in the greenhouse, watered it, waited a month or five weeks, and yet no plants have made their appearance; I gave it up in despair." Thus the seeds were consigned to the refuse-heap, when, had the sowers waited three or four days longer, they would have been rewarded for their trouble; as the plants seldom make their appearance under six weeks. Others have set their boxes in the sun, where in two or three hours, if they have begun to germinate, their labour is lost, for once dried in that state they never recover. If, however, the amateur will attend to the directions I am about to give, he will find a 1*s.* packet of seed will give him 200 plants, and from that quantity he may calculate to get from 12 to 20 first and second-rate varieties, that will not disgrace a florists' stage, and the remainder will be good border flowers. I generally sow my first seeds early in February in the front of a cold pit, where little or no sun comes on them, and these are generally my best and strongest plants. In March or earlier, I make my next sowing in the open air, on a shady border, making the soil as fine as I possibly can with a rake, sowing my seed, and taking great care to put no more fine mould on it than would cover the face of writing-paper. I then put on a few small bushes or brakes to keep the wind from drying the earth, and to ease the watering-pot, as in no instance must the seed be allowed to get dry; thousands of plants are lost for want of that precaution. When large enough to handle, the plants are put 3 inches apart, on a shady border. *James Woods, Harwich.*

Rainfall in 1862 *at Culford, near Bury St. Edmunds, Suffolk:—*

	Ins.		Ins.
January	2.10	Brought forward ..	12.01
February	0.41	July	2.20
March	2.40	August	2.27
April	1.41	September	1.41
May	2.44	October	2.62
June	3.25	November	1.33
		December	1.94
	12.01	Total	23.73

P. G.

Muscat of Escholata Grape (see p. 126).—In reply to your Correspondent "Vinicola," who somewhat roughly assails us in your Paper of the 7th inst., I beg to say that it is now some 25 or 30 years since I purchased the Escholata Muscat of Mr. Money, nurseryman, of Hampstead, as a new and nearly hardy variety, almost equal in flavour and size to the Muscat of Alexandria, ripening well in a greenhouse, and in a fine season even maturing its fruit on a wall with a southern aspect. My father, the late Mr. A. Paul, and myself, then in partnership, sold it to several of our customers, whose opinion after trial generally, with our own, was, that it too nearly resembled the Muscat of Alexandria, was not quite equal to it, and required nearly the same heat, though I remember once in a fine summer it almost ripened on an old south wall in the Old Cheshunt Nursery, by the side of some immense bunches of the Flame-coloured Tokay or Paix d'Amiens, and some other Grapes since almost forgotten. The Grape in question fruited this year on an old Vine thus supplied by us at E. J. Williams', Esq., of Enfield Town, where it is esteemed, but we have neither recommended nor called attention to it for many years. Should your correspondent who inquired in the "Hue and Cry" of your Paper for the Flame-coloured Tokay need a few eyes next season, if our plant fruits we should be happy to send him a few for trial. *George Paul, for Paul & Son, Cheshunt.*

Japan Flax (see p. 126).—We are informed by Mr. J. G. Veitch that he believes this fibre to be the cleaned inner bark of Broussonetia papyrifera (the Paper Mulberry of Japan). It is similar, he says, to samples of the same bark which he saw at Yeddo. There are however two or three other trees, the barks of which the Japanese clean and use. He adds that the fibre in question is also very similar to some he once saw at Hong Kong, which was said to be obtained from the leaves of a kind of Grass growing abundantly in Cochin China. He however never saw the latter plant growing.

Societies.

Royal Horticultural: *Feb.* 10 (*Anniversary*).—This meeting, for the election of Council and officers for the ensuing year, and receiving the Report of the Council, was held at the Society's new Garden, South Kensington, on Tuesday last. Sir C. Wentworth Dilke, Bart., V.P., occupied the Chair. Judge Des Barres and Mr. E. Rosher having been appointed scrutineers of the approaching ballot, the Assistant Secretary read the following Annual Report from the Council to the Fellows:—

The first duty of the Council on meeting the Fellows on the present occasion is to congratulate them on the success which has attended the Society during the past season.

A reference to the Balance sheet appended to this Report will show that the receipts have largely exceeded those of the previous year.

While thankfully acknowledging this measure of success, the Council cannot but feel that had H.R.H. the deeply lamented Prince Consort, who laid the foundation of it, and to whom it is mainly due, been spared to the Society, results even much beyond this would have been achieved. A very large portion of the prosperity which the Society has enjoyed beyond its ordinary receipts is referable to the Great Exhibition. The interests of the two undertakings during the past year were closely linked together, the same causes which injured or benefited the one equally affecting the other. Had, therefore, the influence of His Royal Highness been spared to it, it cannot be doubted that the Council would now have had to present a report even more favourable than the present.

Out of the receipts during the year, amounting to 29,800*l.*, a sum of 8676*l.* was received as the Society's share of the joint Season Tickets, a sum of 1125*l.* from the various Refreshment Contractors for portions of the Society's premises let to them, and 5029*l.* from the Promenades, chiefly drawn on those days when the charge for admission from the Exhibition to the Garden was 6*d.* A statement and diagram is appended to this Report, showing the different sums received on every day throughout the Season.

The Flower shows produced upwards of 5000*l.*, which is the largest amount that has ever been drawn by the Society from that source in any one year. Had it not been for the large number of joint ticket holders, this amount would of course have been still greater. The Shows themselves were also of unparalleled excellence, the Council having determined that nothing should be spared to make them worthy of the Society, and such as would leave a favourable impression on the numerous visitors from abroad. A statement is given in the Appendix, showing the amounts received and the expenses disbursed at these Shows, so far as the latter can be separated from the general expenses of the establishment.

The Council have also to report favourably on a more important portion of the financial resources of the Society, viz., that drawn from the subscriptions. The following comparative statement of the number of Fellows, and their rates of payment, as at 31st December, 1861, and 31st December, 1862, shows the increase during the course of the year, viz.:—

	As at 31st Dec., 1861		As at 31st Dec., 1862	
	Payable in Advance.	Retrospectively	Payable in Advance	Retrospectively
Fellows paying 1 guinea ..	..	10	7	3
,, ,, 3 gs.	..	25	16	9
,, ,, 2 gs.	716	6	912	6
,, ,, 4 gs.	915	215	1307	80
Fellows who have compounded by paying 20 gs	334	..	386	..
,, ,, 40 gs.	555	..	587	..
	2520	256	3215	98
	256		98	
	2776		3313	
			2776	
Increase ..	..	..	537	

The above table shows the actual state of matters each year, at 31st December. But on taking deaths and resignations into account, it appears that 633 new Fellows have joined the Society since 31st December, 1861, and that there have been 55 deaths, and 41 resignations.

It will be seen from the above table that the recommendation of the Council in last year's Report, that Fellows who paid retrospectively should change their retrospective payment into one in advance, has been well responded to—the number of retrospective subscribers having been reduced from 256 to 98. Many of those who are still in this position have no doubt continued so from inadvertence, and it is hoped that in another year the number may be still further reduced.

Through the consideration of the Fellows too, the transference of the period of payment from the 1st of May to the 1st of January has been all but unanimously carried into effect.

As regards the expenditure, the unfinished state of the Garden, together with the exceptional nature of the year, added to the fact that the previous season was equally exceptional from its being the opening year of the reconstituted Society, and from its only extending over 8 instead of 12 months, prevent the receipts and expenditure of the two years being contrasted with each other, and the Council must confine themselves to treating the expenditure of each by itself.

The expenses of the publications of the Society are large, owing to the considerable number of Fellows; but the information contained in them is (the Council have every reason to believe) considered valuable by the Fellows at large. The Council, however, with the view of making it contribute to its own support, have resolved to allow advertisements to be received on horticultural and scientific subjects.

Mr. Weir, the Plant-Collector in South Brazil, has examined and reported on a district not much known, and when last heard from was on his way to explore new ground in the interior. Mr. Cooper, the Plant-Collector in South Africa, was sent out as an explorer at the private charges of Mr. Wilson Saunders, the Treasurer of the Society, who admitted it to a share of Mr. Cooper's collections on terms so liberal as to be almost gratuitous. Mr. Cooper explored the district of the Drachenberg mountains, lying to the south-west of Natal, and found it, although in many parts barren, to contain a considerable number of plants of interest to the botanist, and some of much beauty, well worthy the attention of the horticulturist. The product of the labours of both these collectors have either already been distributed, or are about to be distributed among the Fellows by ballot.

The expenses of Chiswick have this year amounted to 2354*l.*, from which a sum of 485*l.* may be deducted, which has been received for fruit sold and reimbursement of garden charges. Upwards of 50,000 bedding-out plants have been reared at Chiswick last year for use at South Kensington. Further, it is to be noted that the Fellows have received large quantities (upwards of 3000 packages) of cuttings of Vines and other fruit-trees from this garden; that an unrivalled collection of fruit-trees is there maintained for the comparison and testing of all kinds of fruit; that the experiments and trials of the Fruit and Floral Committees are conducted there, and a large portion of the flower-seeds grown which are distributed amongst the Fellows. 2610 packets of valuable seeds, 11,000 plants, and 166 lots of bulbs have been distributed from these or other sources during the past year. In addition there have been distributed 1500 packages of seeds of vegetables, and a like number of packages of flower seeds.

The expenses of the Garden at South Kensington have amounted to 6063*l.* The details of which this is composed will be found in the Appendix.

The expenses for Promenades and Exhibitions have largely repaid themselves, besides affording much gratification to the Fellows, and the Council have resolved to continue the Promenades during the present season, twice a week from 16th May to 1st August.

The Council have the satisfaction of informing the Fellows that the Commissioners of 1851, through the Expenses Committee, with whom rests on their behalf the control and regulation of the expenses of the Society, in the most liberal manner authorised the expenditure of a considerable amount of the receipts in the execution of works which strictly speaking belong to capital—a liberality which in the present year, when there is a surplus to the half of which the Commissioners are entitled as their share of profit, is equivalent to themselves paying the half of these expenses.

The Commissioners of 1851 have throughout shown the utmost desire to promote in every way within their power the completion of the Garden. It is to them that the Society owes

the beautiful façade of the refreshment room. They have paved the upper arcades during the season, and lent, as above mentioned, valuable assistance towards the completion of the Garden, its clothing and decoration, works which the Council have felt to be of pressing importance. As regards the decoration of the Garden, the Council have been much assisted by the liberality of the Fellows, who have allowed their subscriptions, originally intended for the French fountains, to be applied in the purchase of works of art for the Garden.

As regards the planting of the Garden, the Council have, they trust, effected considerable improvements in it by the introduction of clumps of trees and shrubs. They have also provided a large supply of bulbs for its spring decoration, and they have to acknowledge the assistance received by presents from Her Majesty, and some of the Fellows.

A great deal, no doubt, still remains to be done, but so far as these objects are concerned, the work already executed justifies the Council in looking at their progress with satisfaction. It is otherwise, however, with a part of the Garden less under their control; a portion of the arcades still remains unfinished, and in a measure neutralises the beneficial effects of other improvements. The completion of the arcades belongs to the Commissioners of 1851, and notwithstanding the reluctance which the Council have naturally felt to press a body who had dealt with them so liberally, they have considered themselves called upon to make a most urgent appeal to the Commissioners on this subject.

There still remain structural works pressing for completion which belong to the Society to execute; such as the council-room portico, steps in the middle walk, a western entrance, &c.

The Council regret to have to announce the retirement of Dr. Lindley from the Secretaryship, which he has held so long with honour to himself and benefit to the Society. Last year he tendered his resignation, but was induced to withdraw it at the solicitation of the Council, on the ground that as he had supported the Society during its period of depression, so he should remain as one of its officials until the next summer (1862) should have crowned his labours with success. He has now repeated his resignation, and the Council have most reluctantly felt bound to comply with his wish, and accept it. He has been for 41 years an officer of the Society, and during that period, to use his own words, he "has endeavoured to the best of his ability to promote its true interests as a great English association for the advancement of Horticultural knowledge, until, through many changes and some adversity, it has at length gained a position of high eminence, and may be regarded as standing on a secure foundation."

The Council need not repeat the arrangements for the coming season which have been already made public. The chief alteration on those of last year is the non-admission of the public to the Garden except on fête days and promenades, a restriction by which they trust that the comfort and quiet enjoyment of their Garden by the Fellows and their friends will be materially increased.

The Council cannot conclude this Report without congratulating the Fellows on the continued interest The Queen takes in the Society and its proceedings. Constant reports of its progress have been furnished to Her Majesty throughout the season, and She has in various ways marked the interest She has taken in them.

This report having been read and adopted, some discussion took place relative to the better ornamentation of the garden, especially in winter, and the price at which the public has been admitted to it. The 5th of June, the day appointed for the inauguration of the Memorial of the Great Exhibition of 1851, by H.R.H. the Prince of Wales, was also objected to on account of its being in the week in which Ascot races take place. These matters and others of a similar character having been satisfactorily replied to, the Chairman adverted in appropriate terms to the retirement of Dr. Lindley from all active duties connected with the Society, and remarked that none knew better than the Council how hard he had laboured in its behalf. He announced that it was therefore the intention of members of the present and former Councils to have a portrait of him painted and presented to the Society. It was moved by W. Wilson Saunders, Esq., and seconded by Mr. Alderman Copeland, that the best thanks of the Society be given to Dr. Lindley for his long and eminent services. A proposition was afterwards made by Mr. Alderman Copeland, and supported by Mr. Bateman, that some suitable testimonial should be presented to Dr. Lindley by the members of the Society generally, and that a committee should be appointed to carry that object into effect. The ballot having been taken, the Chairman announced that His Grace the Duke of Buccleuch had been re-elected President; that John Clutton, Esq., had been elected Treasurer; and that W. Wilson Saunders, Esq., F.R.S., had been elected Secretary; that Mr. Jonathan Clarke, Mr. Edmonds, and Mr. James Nicholson, had been re-elected Auditors; and that Sir Daniel Cooper, Bart., the Rev. Joshua Dix, and J. Kelk, Esq., had been elected new Members of Council for the ensuing year.

Notices of Books.

The Earth and its Mechanism: being an Account of the various Proofs of the Rotation of the Earth. By H. Worms. 8vo. Longman & Co. 1862.

Mr. Worms informs us in his preface, that "the present work consists of two parts, the one popular and adapted to the comprehension of the general reader; the other analytical and designed for the perusal of the mathematical student." Of the second half we say nothing; 146 pages of figures and algebraical symbols are doubtless intensely interesting to those who understand them, and compared with them the first half of the volume is certainly more easy of comprehension; but we must protest against the idea of its being "popular," or that "general readers" will find it intelligible. The simplest of Mr. Worms's explanations needs a knowledge of mechanics and allied abstruse sciences. We opened the book at random, and this is the sentence our eye fell upon:—"Let Z P H represent a meridian, λ the latitude of the place Z, *n* the angular velocity of the earth on its axis, C P, then by Euler's theorem we have *n* sin. λ and *n* cos. λ for the angular velocities about C Z, and the horizontal C H." If this is Mr. Worms' idea of a popular explanation, it is as different from ours, as is his notion of a general reader. We grant that it is probably difficult, if not impossible, to convey what he has attempted to describe, in any other manner; but if this be so, he must content himself with a select rather than a numerous audience. We cannot flatter him by recommending his book to those who, ignorant of mathematics, yet wish to understand the methods by which the earth's rotation is satisfactorily established. They must be content to believe it is so, and since the contrary belief is now so far exploded, that it only lingers in some remote country parts, Mr. Worms's explanations are scarcely needed to correct errors, or remove doubts.

The introductory chapter is the most amusing, as it contains a *resumé* of the various theories and hypotheses held by the ancients on the subject of the universe. Strange and wild they appear to us, more like the quaint notions of childhood, than the serious, well-considered speculations of thoughtful men.

"Anaximander says: The figure of the earth is that of a column, and the sun and moon are great vessels filled with fire; at the top of them is an opening through which the fire escapes, but should the aperture be closed an eclipse takes place. Anaximenes believed the heavens to be solid, and to consist of a kind of fine earthenware, and the stars to be like golden nails driven through it. Anaxagoras considered that the solstices were caused by the air at the poles being so thick that the sun could not pass through. He also thought that the sun and moon were rocks cast off by centrifugal force, and ignited in the upper regions of fire. Aristotle was of opinion that the spots on the moon were the reflected images of the seas and lands of the earth. Theophrastus believed that the celestial hemispheres were knitted together by means of the Milky Way, but so carelessly that spaces were left through which the fiery heavens could be seen. Xenophanes' doctrine was that the sun consisted of particles of fire extracted from the humid vapours of the earth, which were extinguished every night and renewed every morning, and that the stars were fiery clouds collected in the higher regions." In the middle of the 15th century, the following was the universal belief:—

"The earth was supposed to be immovably fixed in the centre of the universe; immediately surrounding it were the atmospheres of air and fire, and beyond these the sun, moon, and planets were supposed to travel round the earth, each fixed to a separate orb, or heaven, of solid but transparent matter. The stars were considered fixed in an outer orb, beyond which were two crystalline spheres; and on the outside of all the 'primum mobile,' which sphere was supposed to revolve round the earth in 24 hours, and by its friction, exercised on the interior orbs, to carry them round with a similar motion; hence the diversity of day and night. But, besides this principal and general motion, each orb had one of its own, which was intended to account for the apparent changes of position of the planets."

The names of Copernicus and Galileo will at once occur to every one as those whose truer views first shed light on the darkness; but a long period elapsed before the rotation of the earth was fully proved, and even in the present generation, experiments have been conducted and apparatus invented for the purpose of clearly explaining and exhibiting it. All these are fully described by Mr. Worms, with the aid of numerous diagrams and woodcuts; and to those who are conversant with these subjects his volume will be interesting and instructive. Others, we repeat, will find the attempting to read it merely time thrown away.

Cuthill's Treatise on the Cucumber and Melon, just published (Hamilton & Adams), is a plain and practical account of the author's method of cultivation. The success which attends it must bear evidence to the soundness of the practice; and in this pamphlet of some two dozen pages the whole plan is detailed with a degree of minuteness which hardly leaves a possibility of going astray. Our eye catches the following seasonable paragraph:—"My advice is always to sow new seed; never let it be more than two years old. If three or four years old seed is sown it often vegetates badly and irregularly, while some rots, and others push weakly. In some cases old seed may produce plants that will bear a little earlier than others, but with me the new-seed plants have invariably proved the most early and productive, as well as most healthy and lasting. So fruitful indeed are they, that I am obliged to nip out the very early fruit, for if left upon plants only a month planted out, it would weaken them too much. At one time I used to carry the new seed of both Cucumbers and Melons in my pocket, to dry, for 14 days or so, after saving it. I now however think that I was wrong, for by so doing I was drying up what Nature had put into those small seeds, making them prematurely old. Weak plants were therefore the result, the reverse of what I intended; at least I think my plants are stronger from fresh seed, than when I adopted the drying process." And then we are told how to manage the seedlings till they come to "cover the trellis," and are themselves "covered with fruit." We are warned that the only way to perpetuate a high-bred Cucumber is by cuttings. There is a good chapter on Melons; and finally there is this curious paragraph, headed "Economy in Cucumber Growing":—"An old lady called upon me some few years ago. 'Well, Mr. C., I am told you are a good Cucumber grower; but you don't know everything now. Have you ever cut off as much as was wanted, and left the remainder to grow bigger?'—'Never; I thought it would bleed.' Not a bit of it; she was obliged to adopt this plan on account of her servants devouring up her Cucumbers, that had cost her so much: her coachman and self being the gardeners. I cut a Cucumber about half off. Strange to say, it did not bleed; the remainder swelled fast. This was new to me."

Garden Memoranda.

Royal Gardens, Stuttgart: The Wilhelmia.—This beautiful villa, which is recently erected, is in the Alhambra style, and is situated on a gentle slope of a hill opposite the town of Canstatt, about three miles from Stuttgart. The whole of the building is not quite finished, some of the offices being at present in course of erection. It is much frequented by the King, and is kept strictly private. The gardens are surrounded by buildings, consisting of detached portions of the villa in question, conservatories and arcades. They may be said to be divided into three parts. The first, in front of the building, is nearly square, and is bounded on two sides by the villa, conservatories, and winter garden, and on the other sides by open arcades. The second portion is in the form of a parallelogram, the ends of which are slightly curved. The third part is a semicircle lying at the top of and adjoining the second division; it is reached by means of a flight of steps in the centre, and forms a kind of upper terrace to the second garden. At the top of the semicircle, and forming as it were its keystone, is a beautiful detached portion of the villa, in a direct line with the principal part of the garden; and behind this again, and at about fifty yards distant from it, is another portion much smaller than the second, and called, we think, the Bath house. This is an isolated building, the arcades only going as far as the second part. The arcades around the second and third portions of the garden are open towards the garden, and terminate on either side of the circular part in a square pavilion furnished with seats, &c.; and being placed at a considerable elevation above the second garden; these pavilions command a beautiful view of it, its flower beds, fountains, and trickling cascades, the whole surrounded by Moorish architecture, curiously enriched arches, cupolas, and minarets, while beyond the Vine-clad hills with which it is surrounded come into view, forming a *coup d'œil* superior to anything seen in Germany.

The arcade around the second garden is reached by a flight of steps passing under the pavilion; it is conducted round the sides and front of the villa, and in its centre is the principal entrance to the villa. The conservatories are also arrived at through this arcade.

The gardens are laid out geometrically. They contain three fountains, a large basin in the centre opposite the principal entrance, and a smaller one on each side. The fountains simply consist of jets of water, no sculpture of any kind being introduced. There are also small fountains and cascades on either side of the steps, forming as it were the coping of the wall, an arrangement which has a novel and interesting appearance.

The lawn is nearly covered with borders for dwarf shrubs and flowers, such as Geraniums, Calceolarias and other garden plants used in England; in addition to these large masses of Cannas, Castor-oil plants, Maize, Wigandias, &c., are introduced, and as the climate is favourable to their perfect development, they produce an excellent effect.

In front of the villa the garden is laid out in quite a formal manner, with an avenue of trees in the centre leading to the entrance. Trees are also planted in different parts of the lawn; giving to the whole as much as possible the appearance of a grove; large masses of flowering plants are introduced here and there to give colour; but the principal object is evidently to furnish shade.

On either side of the villa are conservatories for plants. On the right is an Orchid-house of considerable dimensions, containing a large assortment, principally Epidendrums, Oncidiums, Maxillarias, Stanhopeas, and Catasetums, &c.; few of the rare kinds are to be found here. Small fountains are placed at the ends of the house, which assist materially in keeping the atmosphere moist.

On the left side is a conservatory of similar dimensions, containing a large collection of Azaleas, mostly small plants for early spring decoration. These houses form the front façade. At the end of this, and forming the western boundary, is the winter garden, some 200 or 300 feet in length, and about 14 or 15 feet in breadth. The plants are arranged on each side in a wavy line, so as to give a serpentine form to the walk, and in the middle of the winter garden is a square containing a small fountain about 5 feet high, with a basin about 5 feet in diameter at the bottom, and a small tazza at the top; four small jets play from the bottom into the upper tazza, which has four holes in it with guiding tubes about an inch long, through which the water falls again into the lower basin, producing the effect of eight small jets. The plants in this house are placed very closely together, and all kinds of evergreens are used, but the majority of them are Australian. An agreeable temperature is maintained, just sufficient to

keep the plants growing, the object being to produce a garden with a spring-like aspect, regardless of the permanent health of the plants. At the bottom of this is a stove conservatory about 40 feet square, and from 20 to 25 feet high. This is arranged so as to give an agreeable finish to the Winter Garden. Every portion of the borders not occupied with plants is beautifully green with Lycopodium denticulatum. In the foreground is a fountain fitted to receive all kinds of fantastical jets. The sides and back are planted with fine tropical plants, the broad leaves of Musas mixing with the delicate foliage of Araucaria Cookii; Bamboos, various sorts of Ficus, Marantas, Begonias with variegated leaves, &c., all mingling together, so as to produce a group having something of a natural appearance.

A walk is carried round the house, and at the back is an elevated platform of rocks on which seats are placed. From this point a good view of the Winter Garden is obtained. A door at the end leads into the outer arcade which skirts the public road to Canstatt.

Altogether this is a most interesting place, which bears ample testimony of the refined taste of the King, and many thanks are due to Dr. Steinbach for affording an opportunity of visiting it. *E.*

Miscellaneous.

North West American Medicine Men.—The most influential men in a tribe are the medicine men. . . . The ceremony of curing or trying to cure a sick person is very curious. I give the following description of such a process upon an old woman, a Tyee in Shoalwater Bay. She had been sick some time of liver complaint, and finding her symptoms grow more exaggerated she sent for a medicine-man to "mamoke" (work) spells to drive away the "memmelose" or dead people, who, she said, came to her every night. Towards night the doctor came, bringing with him his own and another family to assist in the ceremony. After they had eaten supper the centre of the lodge was cleaned, and fresh sand strewed upon it. A bright fire of wood was then kindled, and a brilliant light kept up by occasionally throwing oil upon it. I considered this to be a species of incense offered, as the same light could have been produced, if desired, by a quantity of pitch-knots, which were lying in the corner. The patient, well wrapped in blankets, was laid on her back, with her head a little elevated and her hands crossed on her breast. The doctor knelt at her feet and commenced singing a refrain, the subject of which was an address to the dead, asking them why they had come to take his friend and mother, and begging them to go away and leave her. The rest of the people then sang the chorus in a low mournful chant, keeping time by knocking on the roof with long wands they held. The burden of the chorus was to beg the dead to leave them. As the performance proceeded, the doctor got more and more excited, singing loudly and violently, with great gesticulation, and occasionally making passes with his hand over the face and person of the patient, similar to those made by mesmeric manipulators; a constant accompaniment being kept up by the others with their low chaut, and beating with their sticks. The patient soon fell asleep, and the performance ceased. She slept a short time, and woke refreshed. This was repeated several times during the night, and kept up for three days, but it was found that the patient grew no better, and another doctor was sent for, who soon came with his family of three or four persons, the first doctor remaining, as the more persons they have to sing the better. Old John, as the last doctor was usually called, had no sooner partaken of food than he sat down at the feet of the patient, covering himself completely with his blanket. He remained in this position three or four hours, without moving or speaking. He was communing with the "To-man-na-was" or familiar spirit. When he was ready, he commenced singing in a loud and harsh manner, making most vehement gesticulations. He then knelt on the patient's body, pressing his clenched fists into her sides and breast till it seemed to me the woman must be killed. Every few seconds he would scoop his hands together as if he had caught something, then turning towards the fire would blow through his fingers, as though he had something in them he wished to cast into the flames. The fire was kept stirred up, so as to have plenty of embers, on which, it appeared, he was trying to burn the evil spirit he was exorcising. . . . The pounding and singing were kept up the same as at the first performance. Old John sang to his "To-man-na-was" to aid him; then, addressing the supposed spirit, he by turns coaxed, cajoled, and threatened to induce him to depart. But all was of no avail, for in two days the woman died. *Mayne's British Columbia.*

Cucumber Beetles.—Various means have been tried to prevent the ravages of these striped Cucumber-beetles, which have become notorious throughout the country for their attacks upon the leaves of the Cucumber and Squash. Dr. B. S. Barton, of Philadelphia, recommended sprinkling the vines with a mixture of tobacco and red pepper, which he stated to be attended with great benefit. Watering the vines with a solution of 1 ounce of Glauber's salts in a quart of water, or with tobacco-water, an infusion of Elder, of Walnut leaves, or of Hops, has been highly recommended. Mr. Gourgas, of Weston, has found no pplication so useful as ground plaster of Paris; and a writer in the 'American Farmer' extols the use of charcoal dust. Deane recommended sifting powdered soot upon the plants when they are wet with the morning dew, and others have advised sulphur and Scotch snuff to be applied in the same way. As these insects fly by night as well as by day, and are attracted by lights, burning splinters of Pine knots or of staves of tar-barrels stuck into the ground during the night around the plants have been found useful in destroying these beetles. The most effectual preservative, both against these insects and the equally destructive black flea-beetles which infest the vines in the spring, consists in covering the young vines with millinet stretched over small wooden frames. Mr. Levi Bartlett, of Warner, N. H., has described a method for making these frames expeditiously and economically, and his directions may be found in the second volume of the "New England Farmer," and in Fessenden's "New American Gardener," under the article Cucumber." *Harris, Insects injurious to Vegetation.* [This is like our Asparagus beetle, which might possibly be dealt with in the same way.]

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—This structure should now be full of interest, and ought, where much attention is paid to flowers, to be quite as gay as at any other period of the year. Camellias done blooming, should, if possible, be removed to some warm house where a moist atmosphere and a temperature averaging 65° will induce them to produce wood freely, shading them should the weather become bright for a few hours in the middle of the day. Under such treatment the leaves get well developed, large, and healthy. The plants may also be watered occasionally with weak liquid manure. Climbers should now have a thorough dressing, cutting away all weak and decayed wood and shortening where necessary to furnish back wood previous to the growing season. In Stoves and Orchid houses some little increase of temperature may now be permitted to take place. Shut up early and use plenty of moisture, taking care however occasionally to dry the foliage by a free circulation of air.

FORCING DEPARTMENT.

PINERIES.—As a somewhat general shift should take place during this month, let us offer a little advice about soils, &c. It is certain that first rate Pines have been grown in various soils, as well as by different so-called systems. No plan however can be complete without thorough drainage on the one hand, and plenty of atmospheric moisture on the other. Our best Pine-growers adhere in general to loam. What is wanted is not a new soil, but good texture. Few people use turf so fresh as they may and ought to do. Proper mechanical texture is the great desideratum, and this may be obtained in perfection in fresh loamy turf; lumps of charcoal and broken bones will add to its porosity, as also to its quality. Turf for Pines should be housed in September in a dry state, and should be chopped into squares, or small pieces when dry. As drainage for pots we would recommend in addition to open crocks, broken bones and charcoal mixed; on this put a layer of fresh turf in lumps, and then the ball of the shifted Pine.

EARLY VINERY.—Kinds that are difficult setters should be impregnated artificially, choosing the middle of the day for the operation; those swelling should be thinned in the berry the moment the latter can be handled. Many exhaust their Vines by deferring too long this important operation. Follow up the close stopping of all superfluous wood, leaving some well-placed shoots, likely to be permanent ones, to ramble occasionally, if they should be below their proper strength; provide plenty of atmospheric moisture, and do not be afraid to indulge in a considerable increase of temperature on the afternoons of bright days. In houses, pushing for a succession crop, take care to observe the same principles as laid down for the early house, viz., slow breaking, and abundance of moisture in the air.

PEACH-HOUSES.—Proceed with steadiness; if the fruit is swelling off, syringing must be again resumed, and should be performed twice a day, viz., in the morning about 9 o'clock, and in the afternoon about 3 o'clock. Shut up early, and do not be afraid to allow the thermometer to range to 75° on such occasions, if by sun heat; sinking through the night to 50° or 55°.

CHERRIES, FIGS, &c.—Advance steadily. Ventilate freely, if without draft. Moisture, &c., as before.

CUCUMBERS.—Take care to stop and peg down regularly plants sufficiently forward in dung beds. Water frequently between the hills, and round the sides of the frame; also sprinkle the linings occasionally, in order to prevent them from burning, as it is technically termed. The soiling-over is better done in a progressive way, as too great a body of cold earth applied at once impedes the heat for a while. Ensure a temperature of 70° night and day, allowing a rise of 5° in the day if possible, and rising to 85° or even 90° during sunshine. Keep air without draft, day and night, if possible, although it is considered by some a good practice to close thoroughly, from two in the afternoon until six on sunny days, sprinkling the frame a little at closing; during this short period the plants will be found to have made most substantial growth, as well as rapid advances towards fruiting.

STRAWBERRIES.—To those in bloom near the glass, keep abundance of air; use liquid manure, and thin the fruit where too thick.

FLOWER GARDEN AND SHRUBBERIES.

As before observed, see that all planting is completed forthwith. Improve as much as possible outlines of every kind. Plant fresh masses or groups where necessary, and introduce specimen plants where fitting opportunities offer. Much mischief is done by planting single specimens in recesses; these should be carefully preserved as a general rule, to give deep shadows, and to throw the prominent features into bold relief. If frosty weather should set in, every available means must be adopted to protect Tulips, Auriculas, &c. At this season mice are apt to be very mischievous amongst Polyanthuses, when kept in frames, by eating the hearts of the plants; they must therefore be trapped. When the weather is sufficiently fine, lose no time in planting Ranunculuses. These beautiful flowers delight in a cool subsoil. Seed may now be sown in pans or boxes, the compost of decayed leaves and sand having been previously well watered the night before; on this the seed may be scattered rather thickly, pressing gently on the surface; cover very slightly. It will soon be time to put Carnations and Picotees in their blooming pots. It a proper quantity of compost is not prepared, lose no time in mixing it, at the same time keeping a vigilant look out for all injurious insects, &c. Do not let a frosty day pass without giving it a turn over; the trouble will be amply repaid by the excellent state of the soil. Dahlia roots may continue to be put into gentle heat.

HARDY FRUIT AND KITCHEN GARDEN.

See to the due preparation of ground for crops in general, but beware of carrying on any operations when the soil is in a wet state—better be a fortnight too late with any given crop. Where kitchen gardens are composed of light sandy soil, they are better dug or trenched some weeks before the ground is wanted for some crops, which, more especially for Broad Beans, like a firm hold of the soil. Parsnips will grow on any soil, and are perhaps less liable to blight or other mischances than any other vegetable. The best way to keep them in winter is to spread over the crowns in November, the manure that is intended for the next crop, and to trench them out as wanted, leaving the soil in ridges. The ground for these should be trenched, the manure in the bottom, and the seed sown directly in drills about 15 inches apart.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Feb. 11, 1863, as observed at the Horticultural Gardens

February	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 5	17	30.131	30.050	52	40	46.0	46	45	W.	.00
Friday 6	18	30.261	30.216	50	43	46.5	46½	45	S.W.	.00
Satur 7	19	30.137	30.071	56	40	48.0	47	45	S.W.	.03
Sunday 8	20	30.053	29.961	52	25	38.5	48	45	W.	.00
Mon. 9	21	30.128	30.087	47	35	41.0	46	45	S.W.	.00
Tues. 10	22	30.148	30.126	48	37	42.5	45½	45	S.W.	.00
Wed. 11	(c)	30.183	30.080	54	36	45.0	45½	44½	S.W.	.02
Average.		30.163	30.084	43.9	36.5	43.9	46.7	44.9		.00

Feb. 5—Densely clouded; very fine throughout.
— 6—Overcast, fine at night.
— 7—Overcast, warm for the season; clouds in strata; overcast.
— 8—Rain; fine, clear at night; frosty.
— 9—Frosty; clear, very fine throughout.
— 10—Overcast, cloudy; very fine.
— 11—Partially overcast; clear and fine; slight rain.
Mean temperature of the week, 3½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending Feb. 21, 1863.

February.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 15.	46.5	31.4	39.0	13	0.37 in.	4	4	4	—	5	10	7	3
Mon. 16..	46.5	31.0	38.7	8	0.23	6	6	3	3	1	9	6	3
Tues. 17..	46.5	31.5	39.0	14	0.32	3	5	4	3	4	7	9	2
Wed. 18..	44.9	31.0	38.0	15	0.30	5	3	4	2	5	8	6	4
Thurs. 19..	45.0	31.1	38.1	13	0.50	6	2	5	5	1	10	4	4
Friday 20..	45.6	30.7	38.1	20	0.51	2	4	3	6	3	9	7	4
Satur. 21..	46.6	32.3	39.5	17	0.20	3	7	4	6	—	10	6	1

The highest temperature during the above period occurred on the 16th and 21st, 1859, and 21st, 1846—therm. 58 deg.; and the lowest on the 17th, 1855—therm. 2 deg.

Notices to Correspondents.

CROCUSES: *H S.* There is surely some mistake about your yellow Crocuses changing to those of which flowers were sent. These flowers belong to the common old fashioned Scotch Crocus, C. biflorus, and from the condition of their stigmas are no doubt of the variety of that species called stigmatosus, of which it is said: "the petals are subject to be somewhat deformed, and then appear emarginate, and the stigmas are visible at the top of the flower before it expands," which is just what we find in your specimens. The yellow ones must disappear, and probably either from unsuitableness of soil, or from being preferred by vermin.

FREAK OF A FLORENTINE TULIP: *J R.* Such a growth is not common. The long root-like process is apparently a rolled up leaf.

GREENHOUSES: *J W L.* We would make the longest house 15 feet in width, and the shortest one 14 feet in breadth.

NAMES OF FRUITS: *P C.* 1, Court of Wick; 4, Ribston Pippin; 10, a Redstreak; 11, Margil; 12, King of the Pippins.—*F Davies.* The Apple probably is a seedling; but it bears considerable resemblance to Pennington's Seedling.—*J C M.* 18, Scarlet Nonpareil; 20, Alfriston; 25, Blenheim, not well ripened; 11, Deux Ans.—*A C.* 2, Eyewood.—*J W.* 2, Old Colmar; 3, Rouse Lench; 4, Glou Morceau; 5, Broom Park; 6, Passe Colmar.

WALTONIAN CASE: *M C.* You will find a full description of this case, together with woodcut representations of it, in our Vol. for 1860, p. 97. An inspection of these, we should think would enable any intelligent carpenter to make one for you,

apparently yet to learn that money is not to be made without spending money, and as 25 per cent. is reckoned a very fair return, the 31,000*l.* gross receipts may very probably dwindle into a by no means so magnificent figure, net. But whatever the surplus might be, whether 5000*l.* or 30,000*l.*, why am I to be disappointed at its being spent? If your contemporary thinks the garden finished, then he comes to his conclusion on right premises. But if he cannot say it is,—and whether he says so or not, I for one protest against any such supposition,—if it is still unfinished, then, sir, I say it is the duty of the Council to expend every penny they can spare in completing it before they dream of investing money as capital. It is not the business of the Society to lay by money—it is organised for different purposes, and these purposes must first be fulfilled before the monies received can be applied as your contemporary would appear to wish. I do not at all dispute the desirableness of having a reserve of capital, but to make such a reserve while matters of vital importance to the prosperity or existence of the Society are stopped for want of funds, would be an absurdity on a par with your contemporary's expectation that the Council should have made a nest egg of borrowed money. *Common Sense.*

Societies.

Entomological: *Anniversary, Jan.* 26.—F. Smith, Esq., President, in the chair. The usual annual routine business was transacted, and the following officers were elected for the ensuing year:—President, Mr. F. Smith; Treasurer, Mr. S. Stevens; Secretaries, Messrs. Shepherd and Dunning; Curator, Mr. Janson. The President delivered an address, which was ordered to be published, and thanks were given to the Council and officers for their services during the past year.

Feb. 2.—The President in the chair. Messrs. J. Leconte of New York, Lacordaire, and Hagen, were proposed as foreign honorary members. The President nominated Messrs. Pascoe, Waterhouse, and Gent, to act as Vice-Presidents during the ensuing year. The Secretary exhibited a small box of "manna," collected in Tasmania, being a white saccharine exudation from the young branches of the white Gum trees, caused by the punctures of a species of Eurymela, a genus of Homopterous insects allied to our common cuckoo-spit insect. Mr. F. Bond exhibited a specimen of Colias Hyale, one of the fore wings of which was only half the normal size; also a female Polyommatus Adonis, the right hand wings of which were destitute, on the underside, of many of the ordinary markings, which were exhibited on the wings of the left side. Mr. G. R. Waterhouse exhibited specimens of Homalota Soror, and read notes on that and on several closely allied species of Staphylinidæ. Mr. Haward exhibited a box of fine Coleopterous insects, collected by himself in central Europe. Mr. Stainton, on behalf of Mr. Healy, exhibited some Bramble leaves, within the burrows of which were observed the cast skins of the larvæ of a species of Nepticula, and read some notes on the mode of moulting in this curious genus of small moths, showing that although the duration of the larva state in the summer season occupies only a few days, in the middle of January the act of moulting occupies as long as four days. Mr. McLachlan read a paper on a new genus and several new species of exotic Trichoptera; and Professor Westwood exhibited drawings of two new Lucanidæ, sent from Gipps Land, New South Wales, by Dr. Howitt.

Notices of Books.

Geological Observations in South Australia. By the Rev. J. E. Woods, F.G.S., &c. 8vo. Longmans.

This book will be welcomed by geologists, both here and in Australia. It contains the results of observations, carefully made and sagaciously worked out, and is a valuable addition to our knowledge of the country which it embraces. It is true that the author has confined his researches to the S.E. district of Australia, which includes, no doubt, but a small portion of this vast continent; but when we bear in mind that his geological labours extended over an area of 22,000 square miles, and that moreover they were carried on during the intervals of missionary work, one only wonders that he should have accomplished so much. For Mr. Woods is not a superficial observer, he has evidently most carefully examined all that he describes, and his conclusions are not hastily arrived at, but all evidence, whether for or against a preconceived theory, not only carefully weighed, but laid before the reader in any doubtful case, or where the author's results differ from the opinions of other geologists. Indeed, if we were to find fault, it would be with the extremely minute and somewhat prolix descriptions which render the volume rather heavy and tedious. But few possess the pen of a Darwin or a Lyell, and if Mr. Woods has failed to make his book generally interesting, he must be pardoned in consideration of its usefulness and accuracy.

The following is the description of the district included under the name of South Australia:—"There is no country more interesting in its formations or more varied in its mineralogical productions than South Australia: lofty mountains, extensive plains, sandy deserts, and inland seas, are all included in its far-stretching boundaries; with a climate like that of the south of Spain, it possesses the scenery of the Highlands in some places, while in others deserts like those of Arabia, and vying with them for bleakness, aridity, and burning heat. There are chains of salt lakes which render unprofitable a larger area than England; there are marshes and salt swamps more dank, unwholesome, and extensive, than any in the United States; there are rocky precipices, and chasms, and waterfalls to rival almost the Alps; there are extinct volcanoes of large dimensions, almost as numerous as those of Auvergne; and finally, there are caves which exceed in magnitude the Guacharo caves of Humboldt, or in stalactites the Antiparos of the Ægean Sea."

To produce these varied results, he considers that there has been "an immense area of subsidence during the Pleiocene period, accompanied by a coral formation," after which "volcanic disturbance commenced, and gave rise to submarine craters. After the cooling of the lava from these, a deposit of small fragments of shells was thrown down from an ocean current; this became hardened into stone, and was gradually upheaved; during which period, and until very recently, extensive volcanic disturbance took place, giving rise to craters which are all now extinct. The upheaved coralline rock, when decomposed, has given rise to a very indifferent sort of soil, of a sandy character, which causes large tracts of arid useless country in this part of Australia; and the same rock, being of a loose texture, easily allowed water to percolate through, forming caves and underground passages, besides honeycombing the ground in all directions."

With regard to the fauna and flora, Mr. Woods considers that Australia is far behind the rest of the world, and that its present state is very similar to that of Europe immediately after the secondary period. "In the flora the correspondence to the secondary period is well marked. There the Araucariæ, so common to the secondary rocks, are represented, and these are only found in Norfolk Island and Australia. There are the Zamiæ and Arthrozamiæ, found only at the Cape of Good Hope and Australia, being closely allied to species found in secondary deposits. There are likewise plants which, though not connected botanically with the mesozoic flora, bear a striking resemblance to them, and these are the Xanthorrhææ, which abound in all the continent.

"If we may judge from the few specimens which have been preserved to us from secondary rocks, the flora was not abundant there, and in this particular our country resembles it, for the general character of the country is most decidedly barren. Hence, with regard to the Mammalia, no indigenous animals have been found distinct from the Marsupialia, except rodents, and one or two species about whose introduction doubts have been entertained. The rodents are an order which has many affinities with marsupials, and one species occurs where the characters are interchanged—the Phascolomys. Our birds, though beautiful, are comparatively few in number, and even those not all peculiar to our country. And lastly, there are no secondary rocks found in Australia, but a great portion of the country appears to have been recently raised from the sea, where it has undergone a state of things very similar to our chalk, while the immense tracts of desert country, and the large portions that are quite unavailable, indicate a territory less adapted for the habitation of man than any tract of land of similar size on the face of the earth."

This theory is supported by a passage from Mantell's "Wonders of Geology," and further by several facts and arguments, for which we must refer our readers to the book itself; they will find some shrewd reasoning, together with a fair and candid statement of any facts that may appear to militate against the theory.

Let us turn to the present aspect of the country. Every one has heard of the "scrubs" of Australia, those impenetrable dreary tracts which form such a peculiar feature of the country. Mr. Woods' description of the Mallee Scrub conveys a good idea of the desolate nature of such a region.

"This portion of the south-eastern district of South Australia, about 9000 square miles in extent, is one uninterrupted waving prairie of Eucalyptus dumosa (by the natives termed Mallee), something like a bushy Willow in appearance. It commences about one hundred miles from the southern extremity of the coast, and goes on (as far as yet known) without any interruption right on to the N. and N. W. boundary formed by the River Murray to this district. It continues on the other side of the river, but with this we have nothing to do just now. One road passes across it for about 100 miles from the Tatiara country to Wellington Ferry, or the crossing place of the Murray. There is also a small patch of grassy country on some porphyry ranges, about 26 miles within its edge, but beyond this it is considered impenetrable. Occasionally, however, an adventurous settler has taken a few days' supply of water and provisions, and has gone 50 or 60 miles beyond the nearest settlement, but such journeys have only confirmed the idea that the scrub is totally unfit for any purpose. There are only few places, however, where it can be even explored. The trees grow close together like reeds, and certainly not thicker, without a branch, until about 14 feet from the ground, and so dense are they that 10 or 12 stems may be counted springing from one root, and occupying little more than a square foot of ground. Where a road has been cut through it, it appears as though there were a high wall on each side; indeed, the effect is not unlike that produced by a road through a trench. It is strange, that while writers on Australia give so much praise to the fertility of the country, they forget to mention that by far the larger portion of it is taken up by deserts such as this. Not only in this district, but in the whole of South Australia, there is not a single portion of available land which is not bounded either on the north, or east, or west, by a similar desert, if the term can be applied to tracts of land producing useless stunted shrubs. The appearance of such places is very gloomy. From any eminence you see nothing but a dark brown mass of bushes, as far as the eye can reach. The soil is generally a yellow sand, and when a patch of it is observed, it gives an air of sterility in exchange for monotony. But the outline is generally unbroken, seeming like a heaving ocean of dark waves, out of which, here and there, a tree starts up above the brushwood, making a mournful and lonely landmark. On a dull day the view is most sad, and even sunlight gives no pleasure to the view, for seldom bird or living thing ever lends a variety to the colour, while light only extends the prospect, and makes it more hopeless."

One shudders to think of the feelings of a wanderer, when he gradually becomes aware that he is "lost in the scrub;" scarcely less terrible must be his situation than that of the unfortunate wretch whose remains were found in the deepest recesses of one of the caves explored by Mr. Woods. "At the side of one of the boulders, in a crevice between it and the wall, where Nature seems to have made a natural couch, lies, in the position of one asleep, with the head resting on the hand and the other limbs reclining, the dried and shrivelled corpse of a native, but slightly decayed, and almost petrified by the droppings of the limestone. It is known to have been there for many years without decomposition, though the fingers and feet became annually more encrusted with stalactite. The history of his coming there is a sad one. The blacks, in addition to the destruction of the sheep spoken of above, committed murder and so many acts of violence, that the settlers resolved to be avenged. They assembled and set out with the significant motto, 'Let not your right hand know what your left hand doeth.' The natives resisted desperately; some were shot in every part of the country. One, wandering near these caves, was seen, and brought to the ground by a rifle-ball. Badly wounded he managed to crawl away unobserved, and, thinking that he would be sought for as long as life was in him, crept down into the lowest and darkest recess of the cavern, where he rightly judged few would venture to follow. There he lay down and died. Time went on. Not a tear was shed over him as he lay there uncoffined, but drops of water fell upon him from the rock above; and when, a long time after, his remains were discovered, the limestone had encased him in a stony shroud, which to this day preserves his remains from decay."

The book is illustrated with a few very pretty woodcuts, and a small skeleton map, which is, however, too vague to be of much use. It is a great pity that a really good map was not appended, as it would have added very considerably to the interest of the volume.

Garden Memoranda.

Messrs. Veitch's Nursery, Chelsea.—We understand one of the Japanese Bamboos imported by this great establishment is now *in flower*, a very rare occurrence. It is a small species. Messrs. Veitch possess, we believe, 15 distinct kinds of Bamboo from Japan, some of which attain a great size. If hardy, as the beautiful Bambusa Metake is, they will be most valuable additions to our gardens.

Woodstock.—This fine place, the seat of Colonel Tighe, is situated some 16 miles south-east of Kilkenny, and within the mild influence of the Gulf Stream. The park, which is of large extent, contains a fine herd of deer, and possesses great natural beauties. The mansion and grounds have lately been wonderfully improved in appearance. A new terrace which has been made has literally changed Woodstock by bringing into view beautiful glimpses of the Nore, as well as 20 miles of the richest and most beautiful landscape towards Wexford. The terrace in question somewhat resembles the flower garden in front of Trentham Hall, but in certain features is quite distinct from that princely spot. It is supported on two sides by massive granite stone walls; that at the lower elevation is 13 feet high, and consists of beautiful ashlar work, with massive buttresses placed about 30 feet apart. A magnificent flight of granite steps, leading down to a bowling green, adds much to the general effect. The wall which runs parallel with the mansion is less massive, but more ornamental, supporting, as it does, large tazza-shaped vases.

All the stone work on the place has been done by native workmen. An iron stair-case leading from the drawing-room door to the terrace is allowed to be a masterpiece of elegance and durability. Looking from the drawing-room door, an Araucaria avenue forms a grand feature in the foreground. Running parallel with this avenue is a sunk drive, a large cutting, out of which 50,000 loads of earth were taken to raise new terrace levels. In the upper sides of this cutting are formed deep recesses, which are faced with masses of quartz rock, granite, &c., ornamented with Ferns and rock plants.

From a rock garden, which forms one of the many pretty features of the place, an interesting winding

track leads to a higher portion of the pleasure grounds skirting a rather closely wooded department of the deer park. Nothing could be better than the blending of the wild and dressed grounds to be met with here; and the deer seen constantly leaping and gambling among the brown bracken, add life to a retired quiet winter scene. The beauty of this walk is also much enhanced by the many varieties of Conifers which have been planted near it. Here are specimens of Pinus Montezumæ, P. insignis, a lovely tree; P. Gordoniana, P. Russelliana, and Taxodium sempervirens. There are also many fine plants of Cupressus. At the top of the walk is a pretty rustic arbour, erected by an ingenious labourer on the place. From this can be obtained a beautiful view of Brandon, and to the left, towards Kilkenny, fine distant views of hill and dale; here a noble Araucaria towers up like some giant over a retired little Rose garden. The excessive wet of the past season caused some anxiety regarding the health of the largest of the Araucarias; to prevent evil a drain 11 feet deep has been dug at 30 feet from the tree on three sides of it, and the drain has been filled to the top with stones, an attention which this pyramid of beauty well deserves. Masses of Rhododendrons divide the grounds into beautiful glades, and give an air of refinement, even to the roughest corners. In connection with this upper walk are so many cozy nooks, inviting seats, and varied forms of lovely trees, that one could stay days to note the beauties that charm the thousands who yearly visit this spot.

It is interesting to observe how some trees improve in character when allowed to develope their natural forms; a striking illustration of this occurs in two trees near the Pinus ground, viz., the Cedar of Goa, and the Leather Wood—the former large, flat-headed, and picturesque, the latter equally so of its kind, and seldom seen in good condition. Douglas Fir succeeds well, even on poor thin soil, as does also P. apulcensis, which merits the attention of planters of ornamental trees. In the flower garden there is no lack of interest; the beautiful arrangement of the terrace beds, as seen on Christmas Day, would alone have amply repaid a visit to Woodstock. The beds were filled with native Ferns and dwarf shrubs, the latter chiefly consisting of Rhododendrons, Yews, Junipers, Heaths, Ivy, Box of different sorts, &c. The Ferns were planted to relieve the denser forms of the shrubs. The most noticeable among them was the Male Fern, the fronds of which were 4 feet high and 18 inches broad. There were also several other kinds of Lastrea, as well as of Hart's Tongue, Blechnum, and Polypodium vulgare—all of which remain green until removed in spring, when they are transplanted into shady borders for use another year. The employment of bright red and other coloured gravels also tends greatly to improve the general appearance of this pretty flower garden.

We omit all notice of plant and fruit houses till another opportunity of describing them occurs. The gardens are however generously thrown open to the public, and all who can should not fail to inspect them. *J. R.*

Miscellaneous.

North-West American Miners and Universal Suffrage.—Pre-eminent for certain social qualities which had rendered him generally obnoxious to the laws of whatever country he had favoured with his presence, was a certain Mr. M'Gowan. This individual had spent some time in California, where he had become very notorious, and had been honoured with the especial enmity of the "Vigilance Committee" of San Francisco. He had, I believe, had the misfortune to kill several of his comrades in those little personal encounters which one sees reported so frequently in the American newspapers under the head of "shooting" or "cutting affairs." The act for which the Vigilance Committee of San Francisco doomed him to the gallows was killing a man in cold blood in the streets of that city who knew too much of his antecedents. M'Gowan of course denied this, and always asserted that he shot his foe in self-defence. As an instance of the working of universal suffrage, it may be mentioned that this man at one time filled the office of a judge in California; and quite recently, when, after shooting at a man at Hill's Bar, whom he luckily missed, he escaped across the frontier into American territory, he has been elected to the House of Representatives of one of the border States that lie east of the Rocky Mountains. . . . . Colonel Moody, representing the majesty of the law, was still at Yale. Mr. M Gowan outraged it unmistakably by committing an unprovoked assault. This, coupled with sundry other suspicious circumstances, caused Colonel Moody to think that M'Gowan's friends and admirers would, if provoked, break into serious insubordination; and he at once instructed me to drop down the river to Hope and Langley, and order up the engineers, marines, and blue jackets left at those places. . . . . Mr. M'Gowan, after enjoying the sensation he had caused, paid the Commissioner a formal visit, and after making a very gentlemanly apology for the hasty blow which had disturbed the peace of British Columbia, committed himself frankly into the hands of justice! What could be done with such a frank, entertaining rascal? He was fined for the assault, exonerated from all previous misdemeanours, and next day, upon Hill's Bar being visited by Mr. Begbie (the Chief Justice) and myself, he conducted us over the diggings, washed some "dirt" to show us the process, and invited us to a collation in his hut, when we drank Champagne with some twelve or fifteen of his Californian mining friends. And, whatever opinion the Vigilance Committee of San Francisco might entertain of these gentlemen, I, speaking as I found them, can only say that, all things considered, I have rarely lunched with a better-spoken, pleasanter party. The word "miner," to many unacquainted with the gold-fields conveys an impression similar, perhaps, to that of "navvy." But among them may often be found men who, by birth and education, are well qualified to hold their own in the most civilised community of Europe. *Mayne's British Columbia.*

To Prevent the Rotting of Wooden Posts and Piles.—The following receipt has been sent to the Société d'Encouragement, Paris. The paint, it is said, or varnish, has the hardness of stone, resists damp, and is very cheap. It has been in use for the last five years. 50 parts of resin, 40 parts of finely-powdered chalk, about 300 parts of fine hard sand, 4 parts of linseed oil, 1 part of red oxide of lead, and 1 part of sulphuric acid, are mixed together. The resin, chalk, sand, and linseed oil are heated together in an iron boiler: the red lead and the sulphuric acid are then added. They are carefully mixed, and the composition is applied while hot. If it be not found sufficiently fluid, it may be made thinner by adding linseed oil. This paint, when cold and dry, forms a varnish of the hardness of stone. *Builder.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Composts for potting should be got in readiness for use when wanted. All who aim at high cultivation endeavour to keep the different soils of which they consist in a mellow, but not dry state. A good plan of effecting this is to stack them in September in the open air and to thatch them with straw, Fern, leafy Laurel branches, or any material easily procurable that will throw off heavy rains. Such heaps should be placed contiguous to the potting shed, into which they can be introduced as required; and as a general examination of all kinds of plants employed for summer and autumn decoration should now or soon take place, it is necessary that fresh materials for potting should be at hand, and in a proper condition for the purpose. As regards temperature, dispense with fires as much as possible; 55° by day and 45° by night will be sufficient. Exhausted winter flowering plants in stoves may be cut back a little, and left to break afresh, when they may be disrooted and placed in smaller pots; if all goes on well they will make fine specimens for next winter. A little Cineraria and Chinese Primrose seed may now be sown; this, together with another sowing in April, will furnish a supply for the coming autumn and winter. Attend to ornamental trellis plants, which should be kept neat and orderly. Forced bulbs will now be in full flower, and will keep conservatories and mixed greenhouses gay for some time to come. In forcing pits continue a growing moist atmosphere. Attend to introducing plants for succession, and keep Roses free from caterpillar and greenfly. See also that the plants are occasionally watered with tepid liquid manure.

FORCING DEPARTMENT.

PINERIES.—General stock, if wintered in a proper manner, will be as well left unshifted until it has filled the pots with fresh fibres. Then shift. A brisk bottom heat should afterwards be secured, and occasional waterings with tepid liquid manure will also be found to be productive of good results.

VINERIES.—Thin liberally; those who overload their Vines either with bunches or useless berries, will find their fruit inferior both in flavour and colour to that obtained from Vines more fairly cropped.

PEACH HOUSES.—Attend well to disbudding, removing every misplaced and superfluous shoot. If the trees are too luxuriant, pinch the point out of every over robust branch as soon as it is 3 or 4 inches in length. By strict attention to this, little winter pruning will be required.

MELONS.—Keep up successional sowings—indeed, a great portion of the summer's stock might be sown and got forward without delay, provided proper means are taken to keep them free from severe checks, both at top and bottom. To this end, only one plant should occupy a pot, say a 6-inch one, and the soil should be entirely stiff turfy loam, for if not the plants are apt to suffer through drought. Melon plants of some age will be found both to show fruit and to set better than young and gross plants.

KIDNEY BEANS.—Stop the first shoot, and if started as they ought to be, four in a 5-inch pot, let them remain in such until the second buds begin to push, then remove them instantly into a much larger pot. Let the soil be two parts sound turfy loam, one part half rotten manure, and one part coarse leaf soil, adding plenty of charcoal, with a thorough drainage, and using liquid manure.

MUSHROOMS.—Spring beds should be made forthwith; these will produce until the early part of June, after which they will not be good till September.

FLOWER GARDEN AND SHRUBBERIES.

Attend well to thorough cleanliness; hoe through or otherwise dress all margins or beds where Crocuses, Snowdrops, and other spring flowers are in bloom. Plant out Hollyhocks, which are well deserving of general cultivation. Their bold and pointed forms stand out in fine relief in masses of flat-headed shrubs. Owing to the absence of frost, and the hitherto singularly mild weather, collections of Tulips and other Bulbs appear to be but little troubled with canker. When this occurs, and the plants are fairly above-ground, cut away the parts with a sharp penknife. Shelter the beds from prevailing aud cutting winds, which are more detrimental than slight frosts. As seedling Polyanthuses come into bloom, remove all that are inferior in shape, lacing, or colour. Amateurs have hardly been able to do wrong this season with Carnations and Picotees; and Stocks are looking well throughout the country. Continue the directions previously given, and keep the plants free from green-fly. Plant out in beds seedlings for blooming, retaining all the soil possible.

HARDY FRUIT AND KITCHEN GARDEN.

Everything in the kitchen garden is now stirring. A proper rotation of crops having been secured, the next best advice is to watch the fluctuations of the weather, and endeavour to do all planting and sowing whilst the ground is in a mellow state. Sow some early Parsley, a sprinkling of early Cabbages, Dutch Turnip, Onions for drawing young, Normandy Cress, successional Peas and Beans, and a little early Celery in boxes on a slight heat. If early spring-sown Cauliflowers and Lettuces are forward enough, get them pricked out. Continue to plant out winter Cauliflower plants in rich and sheltered spots; and get winter Lettuces out in a similar way. Warm slopes, artificially prepared, high manuring, and, where at hand, old lights or mats on hoops, are the grand essentials. Bring up arrears forthwith. In reference to fruit trees make sure of thorough draining. Get nailing finished; provide against insects, and protect as far as possible all opening blossoms.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Feb. 18, 1863, as observed at the Horticultural Gardens

February	Moon's Age	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 12	24	30.395	30.145	55	23	39.0	46	45	N.W.	.00
Friday 13	25	30.575	30.536	51	28	39.5	44	44	E.	.00
Satur 14	26	30.579	30.451	54	25	39.5	44	44¼	E.	.00
Sunday 15	27	30.490	30.461	55	20	37.5	43	43	E.	.00
Mon. 16	28	30.538	30.503	59	19	39.0	42½	43	E.	.00
Tues. 17	29	30.556	30.487	56	18	37.0	41½	42	S.	.00
Wed. 18	●	30.465	30.358	55	33	44.0	41	42	S.W.	.01
Average.		30.514	30.420	58.0	23.7	33.3	43.1	43.3		.01

Feb. 12—Hazy; exceedingly fine; frosty at night.
— 13—Frosty, with fog; hazy; clearing; frosty; barometer remarkably high.
— 14—Hazy clouds; fine; frosty at night.
— 15—Frosty and foggy, fine; sharp frost.
— 16—Frosty; very fine, slight fog; frosty.
— 17—Very dense fog; barometer still unusually high; clear and fine; sharp frost.
— 18—Frosty; fine throughout; slight rain at night.
Mean temperature of the week, 1 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending Feb. 28, 1863.

February.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 22 .	46.4	32.4	39.4	17	0.29 in.	4	3	6	3	1	11	6	3
Mon. 23..	47.1	31.5	39.3	13	0.44	4	4	7	2	1	10	6	3
Tues. 24..	46.8	32.9	39.8	17	0.60	1	4	6	3	7	6	4	7
Wed. 25..	47.4	32.5	40.0	19	0.92	2	5	7	1	6	9	5	3
Thurs. 26..	47.2	33.1	40.1	20	0.48	4	6	5	1	4	6	8	3
Friday 27..	47.9	33.7	40.8	18	0.40	3	6	4	2	6	8	5	3
Satur. 28..	48.9	33.5	41.2	14	0.84	1	8	6	—	2	8	5	8

The highest temperature during the above period occurred on the 27th, 1846—therm. 62 deg.; and the lowest on the 24th, 1860—therm. 18 deg.

Notices to Correspondents.

ALDERS: *J M.* The Black Alder is Rhamnus Frangula: the common Alder is Alnus glutinosa. The first is a Calyciforal plant, the other is Amentaceous.

ALPINE ROSES: *B A M.* The real Alpine Rose is a true wild Rose, and is called by botanists Rosa alpina. But what the French call the *Laurier-Rose des Alpes* is Rhododendron ferrugineum.

BEGONIAS: *E A M.* When these plants are propagated by dividing their leaves it is not the hairs that form roots, but true roots are emitted in the usual way. Many plants (*e. g.* Gloxinias) may also be propagated by laying their leaves, whole or divided, on damp warm sand.

CONVOLVULUS STELLATUS RUBER: *Epsom.* We can only repeat that this is merely the common field Convolvulus arvensis, or smaller Bindweed. It is a very pretty sort, no doubt, but has no pretension to so grand a name.

GARDEN LAW: *R H.* If you dissent from the law as explained by "Lincoln's Inn" you had better not put your opinion to any legal decision; for depend upon it if you do go into court in opposition to his advice, you will receive a lesson not likely to be forgotten.

MOWING MACHINES: *X Y Z.* There can be no doubt that Shanks's are excellent.

NAMES OF PLANTS: *LL D.* Rhododendron dauricum. The dried leaf belongs to Smilax aspera, a charming climber in the South of Europe, but not suited to our cool damp climate.

NURSERYMEN: *G C.* Whoever gave you the information deserves to be prosecuted for slander. There is no truth in the statement. The person referred to is a most respectable man, quite incapable of committing such a fraud, or of permitting it to be committed. We should incline to think that your informant is himself such a delinquent.

POPULUS CANDICANS AND ANGULATA: *J S.* You ought to find them in every general nursery of any pretensions, such as Osborn's for example, where a good collection of hardy trees is kept up.

STEPHANOTIS FLORIBUNDA: *J J C.* This fruits and ripens occasionally; mind that it is very acrid. Æschynanthus grandiflorus we never saw with its seed-vessel, except in native specimens.

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No. 5. Mixtures for Loose Blowing Sands, Heavy Clays, Chalky Soils, and Sharp Gravel ... ... ,, 30s.
No. 6. Mixtures of Finest Short Grasses for Garden Lawn ... ... 1s. per lb., or, per bushel 18s.
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Common Red	Sutton's Improved Italian	Long Red, Elvetham	Sutton's Champion	White Belgian	Seradella
White or Dutch	Fine Imported do.	Orange Globe	Skirving's Improved	Yellow Belgian	Lucerne
Trefoil	Common Rye-Grass	Red Globe	Hardy Purple	Large Altringham	Drumhead Cabbage
Alsike Hybrid	Pacey's Perennial do.	Long Yellow	Marshall's Purple-top	James' Intermediate	Large Cattle Parsnip
Cow Grass (true kind)	Evergreen do.	Large Yellow Globe	Improved White	Long Orange	Kohl Rabi, of sorts

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Mixtures for Uplands and Sheepwalks ... ...per acre, 22s. to 30s.
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Italian Imported ... 6 0	English Red 6d. to 0 9	Fisher Hobbs, true 1 6	Plymouth Improved Purple-top ... 1 0	Scotch in Vars. ... 0 9	White Belgian ... 1 0
Italian, English saved 6 0	Foreign Red 6d. to 0 8	Long Red 0 6	Skirving's 0 9	White Globe ... 0 8	Yellow do. ... 1 3
Perennial, in varieties 4s. to 7 0	White or Dutch 9d. to 1 0	Yellow Globe ... 0 6	Purple-top 0 9	Green Globe ... 0 8	Altringham ... 1 6
	Trefoil ... 4d. to 0 6	Red Globe 0 6	Green-top 0 9	Red 0 8	Long Surrey ... 1 3
	Alsike 1 6	Long Yellow ... 0 6		Grey Stone 1 0	
				Orange Jelly ... 0 10	
				Tankards 0 9	

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The Agricultural Gazette.

SATURDAY, FEBRUARY 21, 1863.

THE USES OF TIME in farm management and in agriculture generally would form a good subject for a lecture to a Farmers' Club. It is not of such topics as promptitude or patience that we would ask counsel of the lecturer. It is neither of the advantages of "taking time by the forelock," nor of the wisdom of waiting for an opportunity, that he should be desired to speak. But there would be plenty of scope in our mere dealings with the soil as well as in our relations, whether as farmers or as landowners, with our neighbours, for a discussion of the wastefulness of hurry, and for

illustrating the efficiency and economy of the costless influences of Nature when time is allowed for their operation.

In tillage operations, as in other details of farm practice, time will do what no other force, whether of hand, or horse, or steam, can accomplish. The plan of reducing hard land to tilth at once by setting steam to grind the soil to powder was conceived in disregard of the cheaper, more efficient, agency of time and weather. CROSSKILL'S clod-crusher, the plough, the harrow, and the grubber, can cut the hardened soil into slices, break these into masses, and reduce them to smaller fragments still, but they are clods to the last. A series of revolving teeth turning rapidly as they are drawn onwards over the unmoved ground, and biting 6 or 8 inches into its depth, might, like so many circular saws, make sawdust of the land at once, but every little bit torn out would still be a bit of the original wood; and a mass of nuts or of hardened morsels, however small they may be, does not amount to tilth. *That* is the result of *time*—of moisture upon hard dry fragments, or of frost on moistened clods. One thorough breaking up of the hard clay stubble land in autumn will, after the lapse of the months of frost and thaw which intervene, present a tilth for the seed bed of spring-sown crops, such as no unassisted artificial agency can create. The more perfect this original smashing up of the land the better no doubt will be the subsequent effect of the time allowed to the operation of the weather—but this is the real cause of tilth. And it is in this way, and not because so great a power can be applied to the direct trituration of the soil, that the great advantages of the steam engine for the cultivation of the land are to be realised.

But the man who cannot wait for the weather to do the rest when he has once thrown the land open to its influence in the most perfect manner, but must attempt by artificial means at great expense to hasten on imperfectly and perhaps mischievously that which, if he had patience, he would see done for him without trouble to himself, without cost, and without fail, is to be found in many other departments of agriculture, besides the mere work of tillage.

The natural method, by which things will of themselves work round, hinging satisfactorily on the new element which may have been introduced, and by which *men* as well as material are converted—by which not so much the enemy, as his enmity, is overborne and conquered, may everywhere be found contrasted with its foil—the artificial and violent—by which knots are cut rather than untied, and by which difficulties are swept out of the way rather than overcome. The contrast between the two is indeed seen oftener in land-owning and land-agency than in mere cultivation. And, not unfrequently, differences of management arising out of such contrasts of temperament are to be seen on adjoining properties.

Not many weeks ago we referred to the active, rapid course of improvement going on at Buscot, near Faringdon. The estate had but just been bought by a wealthy energetic man, who found it in an exceedingly unfurnished and neglected state. The land, for the most part a stiff calcareous clay, was much of it locked up in stagnant water. Rush and moss and sedge occupied the place of Grass and Clover. Large Gorse coverts, a nuisance to all the country round, covered many acres. Poor roads, poor buildings, hardly any drainage, poor crops and little rent—all this, over 5000 acres, were bought for some 35*l.* per acre. A man of Mr. CAMPBELL'S temperament can have purchased such a property solely with a view to its improvement. He doubtless believes that he will double its value by spending of course a good deal less than as much again as he had given for it, in mansion, cultivation, drainage, and other permanent improvements.

There were two courses open to him—he might have set his tenants to work. The advantages of under-draining are now everywhere admitted, which is more than could have been said 20 years ago, so that he had that in his favour. If he examined the dairy districts in his neighbourhood he would find that the best pastures were not necessarily on this geological formation or on that, but they were invariably the home grounds—those where cattle had been foddered at one season, and dressed at another, every year for time-out-of-mind. And he might have patiently laboured away for years; or induced his tenants to labour for him on the plan which had brought about such a result as that. Gradually by land drainage, by increasing fertility, by better accommodation for the larger head of stock which would come to be kept, the whole estate would thus be brought up to the standard of its best fields. The immediate landlord's improvements would be the making of good roads, the grubbing up of Gorse covers, and certainly arterial drainage. The general field drainage of the whole would proceed more gradually, with the erection of additional buildings as they were needed; and as the estate improved, and more stock was kept and more labour employed, the erection of more and better cottages. That was one plan open to the landowner. It has the advantage of being the most economical, and it has the great merit of improving the population at the same time that it improves the estate. The alteration in both would go on together; it would, like every other effort to improve mankind, be gradual and slow; but, resting as it would on the altered convictions and habits of the people, it would be sure.

Another plan was open to the purchaser of the estate. He could resolve upon its drainage wholesale and at once. He could set steam power on to make bricks and tiles for the drainage and the buildings, and to enforce the tillage of the arable land. He could import an army of labourers to hurry every operation, in or out of season. He could, without waiting for the cultivative influence of drainage, and of depasturing by cattle, &c., upon the Grass land, proceed at once to stock up the bad Grasses, to sow better, and to dress the land heavily with purchased dung and artificial manure. He could, without waiting for the gradual effect of consuming at home the increased produce of the fields due to drainage, resolve upon heavy dressings of dung made from large consumption of imported cattle food. And he could, when tenants accustomed only to a particular style of management were unable to fall in with his requirements, take the whole estate in hand himself.

This is the plan which he has adopted. It has the advantage of quick results, and in the meantime of furnishing a great deal of very interesting agricultural information. Spectators see on the great scale the results of operations concerning the propriety of which many are still in doubt. Thus we shall in the next few years see well illustrated at Buscot the effect of tillage of Grass lands, deep cultivation of clays, depasturing rich loamy pastures with sheep, pig feeding on purchased food with the avowed object of merely obtaining their manure for nothing. And many of these subjects will be exhibited on a scale hitherto unparalleled in this country. Moreover the neighbourhood of the estate benefits by the disturbance of its usual practice. Men are obliged to look again into subjects which they had long thought needed no rediscussion; and they reap the advantage of being made to think. They also benefit directly and immediately by the clearance of many a nuisance which a less energetic man than Mr. CAMPBELL has till now disregarded. The clearance of a 100 acre Gorse covert is a specimen of the kind of immediate advantage which such a man at once confers upon a neighbourhood. On all these grounds the operations on the estate at Buscot Park recently received as they deserved the praises of a writer in these columns.

He saw in them the illustration of what ample means directed to the immediate attainment of fertility in the case of a water-logged mismanaged property could do—when directed by a powerful will. There are disadvantages in dealing with an estate altogether from the outside in this way—thus enforcing the solution of all difficulties without regard to the will or assistance of the tenants—which he had not then to discuss, but which deserve consideration. They are such as men of impulsive energetic temperament always experience whatever enterprise they undertake. Mistakes are made, in themselves a loss, and they are hastily corrected before time has fully determined the extent of the blunder which has been made—plans are executed hurriedly and without a proper or efficient staff for their superintendence. The mere material result is sought, regardless of the effect which the hasty work has on the usual agency hitherto employed—and above all the result is generally only adapted to and in fact the expression of the strong will which has attained it; so that when, as ultimately must happen, things have to depend on the ordinary style of owner and of occupier, the arrangements built up at so much cost of labour and of money fall asunder, and to a great extent are lost.

All this has happened or may happen at Buscot. We have recorded how land has been redrained in a hurry on the failure of an expensive "gridiron" plan of drainage on clay land pastures across the old ridge and furrow, although it would doubtless have been wiser to wait for a while to see how much ultimately might be needed to supplement the original imperfect work. We have seen how the estate is becoming more and more dependent personally on its owner; the former tenants being parted with before time can have enabled the growth of a sufficient staff as substitute. Plans involving the keeping of large flocks of sheep at a distance, especially require the superintendence of careful, conscientious men; and, however excellent are the present heads of departments, it is hardly possible to collect in a hurry a large body of perfectly trustworthy subordinates. Moreover in the end, when the estate is in full operation, as its present owner wishes, with its immense flocks "at tack" on the Cotteswold Turnip fields during winter, and shepherded over the Buscot pastures during summer, and everything is brought into accordance with this plan, so exceptional and peculiar an arrangement with the scanty buildings it will need, and the comparatively few labourers it will employ, must unfit the estate for the general style of farm management on which after all so large a property must ultimately be dependent.

These then are the disadvantages of hasty and enforced estate improvement. And on this side, putting apart the slow and dilatory character which the operation generally exhibits, it is well to consider the advantages of the gradual and patient "continuance in well doing" on which the contrasted method of accomplishing estate improvement depends for its efficiency. These, too, may be illustrated by example.

The Coleshill property of the Earl of RADNOR adjoins that of Buscot Park. It has been now for 23 years under one management. Mr. MOORE, his lordship's present agent, came to Coleshill as long ago as that. He certainly did not find the estate in the disorder to which non-residence has since reduced the neighbouring property; but the drainage, the farm buildings, and the general management needed to be improved. The first was done from the outset in partnership with the tenants, they agreeing to pay a per centage on the landlord's expenditure. Some who did not trust his work had tiles given them to put in as they thought best—18 inches or 2 feet deep, by their own men; but these have since and long ago been dug up and replaced at the full depth of 3 feet 6 inches or 4 feet, the tenants having been themselves convinced of the advantages of the greater depth. And this is an illustration of the whole management. The improvements having been effected cheaply and efficiently by the tenants themselves or with their sanction, their permanence and the continued prosperity of the estate, are of course much more certainly secured, than they could be if they had depended wholly on the will and judgment of the owner.

And beyond any advantage of this kind, there is the condition of the labourer on the property to be considered. The whole estate is being gradually furnished with good cottages. Coleshill is itself a model village in this respect, and no alteration having been suddenly or hurriedly effected, the improvement in the condition of the labouring population has been a growth, and is as permanent as anything sublunary can be.

The estate is at present in the hands of a prosperous and intelligent tenantry—the home farm presents a first-class example of a good homestead, and of good management. Steam ploughing has been adopted in conjunction with three neighbouring occupiers, though, as under a partnership responsibility and divided management might have been expected, it has not proved such a success as elsewhere.

The great achievement here is land improvement by the original tenantry, who, stimulated by the owner or his agent, have adopted all the proved improvements of modern agriculture; their own interests and those of their labourers having thus been served at the same time as those of the landlord and of the country generally.

STEAM CULTIVATION.

EAST LEACH, NEAR LECHLADE.

The traveller from the Cotswold district southwards by Burford, Lechlade, and Faringdon, first crosses the bleak and level surface of the Great Oolite, where large square fields of shallow brashy soil are walled in and cultivated chiefly on the five-course rotation of crops, which is essentially the Norfolk, with seeds kept down two years. This he leaves perhaps by one of the valleys which send streams downward to the Thames, large springs rising at their upper end, wher

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WORKS of DRAINAGE of any extent are EXECUTED by the GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY on all descriptions of property, whether freehold, entailed, mortgaged, trust, ecclesiastical, corporate, or collegiate.

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Lands drained and improved without recourse to the private funds or moneys of the Proprietor.

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FREDERICK BRODIE, Secretary.

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The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

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Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W.

MESSRS. WAY AND EVANS, ANALYTICAL CHEMISTS, have REMOVED their LABORATORY from 15, Welbeck Street, Cavendish Square, to 106, Leadenhall Street, E.C., where all Letters and Samples for Analysis should in future be addressed.—Feb. 14.

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THE NATIONAL EXHIBITION of SPORTING and OTHER DOGS.

TESTIMONIAL TO FREDERICK BURDETT, ESQ.

The extraordinary Success of the National Exhibition of Sporting and other Dogs at Birmingham, has attracted the attention of Sportsmen in all parts of the United Kingdom to the laborious, disinterested, and continued exertions of Mr. BURDETT, which have been the main cause of its permanent establishment, and it has therefore been determined to present that gentleman with a suitable Testimonial, in recognition of his important public services.

The contributions of Sportsmen, and of all who love a good Dog, are respectfully solicited.

An influential Committee has been appointed, of which the Right Hon. Viscount Curzon, M.P., has courteously consented to act as Chairman.

Subscriptions will be received by the Bankers, Messrs. Attwood, Spooner, Marshalls, & Co., and by the Hon. Sec., Mr. William Docker, Newhall Street, Birmingham.

A considerable amount has already been subscribed, and a List will shortly be published.

Agricultural Society.

HIGHLAND and AGRICULTURAL SOCIETY.—The EXAMINATION of CANDIDATES for the SOCIETY'S AGRICULTURAL DIPLOMA will take place in the Museum, George IV. Bridge, Edinburgh, on WEDNESDAY, March 18.

Candidates must lodge intimation with the Secretary on or before March 10. JN. HALL MAXWELL, Secretary.

6, Albyn Place, Edinburgh, Feb. 14

Present Prices of Farm Seeds.

THE NEW FARM SEEDS are NOW READY, at Reduced Prices.

PRICED LISTS may be had, Post Free, from SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Agricultural Gazette.

SATURDAY, FEBRUARY 14, 1863.

We see that Dr. BRADY is about to call the attention of Parliament to the report of the Committee which took evidence on the utilisation of town sewage during last Session. It is to be hoped that some honourable member will endeavour to ascertain from the Chairman of that Committee how the conclusions published with their report as an analysis of the evidence have been arrived at.

This analysis is given under several heads. Under the first we are informed that the water of the sewage is of great benefit for agricultural purposes; on the contrary, everybody knows that it is the enormous dilution of the sewage by this water which is the great difficulty in the way of turning town waste to useful account.—We are also told that town sewage contains a large amount of heat, and that this heat it has been proved is of great benefit to agriculture in stimulating vegetation. "It is evident that such a property in the sewage must greatly enhance its value as a manure." No Committee of the House of Commons was needed to teach us that warmth stimulates vegetation—but to suppose that town sewage is valuable because of the warmth which it is to convey to the roots of plants is absurd.

Under the second head we have an account of the evidence on the value of sewage as proved by its effects on land and crops. And it has evidently been drawn up by a partisan of the method which has been advocated of applying sewage in small quantities to the land. "The evidence," we are told, "proves that the crop is only benefited by the manure contained in that portion of the sewage which is absorbed by the soil within reach of the roots of the plant, and that the land is not benefited by any portion of the sewage which escapes from its surface." We do not consider that the evidence proves anything of the kind. It is, on the contrary, almost certain that on the Craigentinny and other meadows where the sewage water is used in the irrigation of Grass land, the plant benefits by the rapidly moving foul surface water even more than it does by what sinks in and may be absorbed by the soil. The contrast between meadows where there is an immense surplus of such water running to waste and others where the quantity applied is not more than the soil absorbs, is sufficient to prove this.

"The evidence further proves that by the hose and jet sewage may be much more economically applied than by open carriers." In what sense the word "economically" is here used does not appear, but if it is intended at all to suggest that the hose and jet system is more "profitable" than the system of distribution by open carriers, it will unquestionably mislead.

"The evidence further proves that," in certain quoted instances, "results have been obtained by small applications of sewage, which solve the question of sewage utilisation." The experience of Lord ESSEX on the subject is one of the foundations of this assertion—but his lordship states in his evidence, on the contrary, that his losses have been owing to too large an extent of land having been allotted for the reception of the sewage which was at his command. Small experiments in the use of the waste of particular houses and establishments over a few acres of land are of very little authority in any contest of opinion on the general subject of town waste. The London sewage is much more likely to behave like that of any other large town than to follow the rule of Kingsweston or Anerley, where the waste from a few people has a bailiff and a staff of servants to superintend its application.

Let the probabilities of the case be examined in the light of what has been realised at Rugby or at Edinburgh. Why was not Mr. JAMES ARCHIBALD CAMPBELL invited to give evidence on this subject? He has for several years had the use of Rugby sewage on a farm of several hundred acres in its neighbourhood, and no man has a right to a more confident opinion on the subject under discussion. Not having been requested to attend the Committee, he has since published, in pamphlet form, answers* to some twenty questions which ought to have been put to him. The following are some of his conclusions; they differ materially from those put forward by the compiler of the Analysis of Evidence given before the Committee of the House of Commons.

As to whether sewage will pay to apply as a dressing to land, Mr. CAMPBELL says:—"If water or liquid sewage can be distributed, as has been stated, at a cost of less than a farthing a ton, it ought, under ordinary circumstances, to be remunerative. At Rugby the receiving tank and engine house cost 450*l.*; the engine, 300*l.*; instead of 2350*l.* for laying iron pipes, &c., over 400 acres of land, which it did actually cost, allow 250*l.* for leading it to 100 acres of land; total, 1000*l.* Population of Rugby, 6700, connected with sewerage—say 25 gallons of water per head per diem, including rainfall—gives about 750 tons per diem, which at ½d per ton for 300 days=468*l.* per annum, cost of working engine, repairs, &c., &c.—say 250*l.*—leaves 218*l.* for interest on 1000*l.* 750 tons per diem will give for 300 days 225,000 tons, or 2250 tons for each acre of the 100. I would expect from this an increased produce of about 10 tons to the acre, which at 10*s.* per ton =5*l.*"

As to whether it will pay best to distribute large quantities of sewage over a small surface, or small quantities over a large surface, "It is clearly more advantageous to apply large quantities over a small surface. It is less expensive and more productive. . . . I would expect a better paying return from 50 acres with 4500 tons per acre per annum than from 100 acres with 2250 tons per acre, but of course there is a limit. It may be overdone." It can be applied most "economically" "by means of small open gutters on the plan of Mr. DICKFORD'S system of irrigation."

On these points Mr. CAMPBELL is entirely against the reporter of the Committee. And it is because we feel sure that extravagant estimates of the value of town sewage will only retard the solution of the difficulties which surround the subject, that we are glad to quote the following good advice from the pamphlet in which he describes his experience at Rugby:—

"Avoid theorists and calculators from analogy. Don't give your faith to names, however celebrated; trust not even to the testimony contained in Blue-books published under the sanction of Government Boards; unless in either case you are satisfied that actual experience of a precisely similar article, under similar circumstances to your own, has elicited the opinion given."

* "Utilization of Town Sewage: the Experience of Eight Years." By J. A. Campbell. Crossley & Billington, Rugby.

GOOD ADVICE.

[Mr. J. Fyfe, of Shipley, thus addresses Yorkshire farmers in late districts, in the *Leeds Mercury*.]

THIS is the fourth bad harvest you have had in succession. Three years ago, the weather broke when you were in the midst of harvest operations, and your corn was nearly all spoiled. Two years since, the season was cold and wet throughout, and the greater part of your crops never ripened, and what did ripen was mostly threshed by the wind. Last year, the drought of summer came so suddenly after the rains of winter, that your stiff clay lands were quite baked, and as a consequence the crops were poor and the yield very inferior. This year the harvest was late, and a fortnight's rain and wind in the latter half of October has done great damage to your corn.

It must be obvious that to carry on farming operations under such disadvantages cannot fail to prove ruinous, especially to small farmers, who can ill afford to bear the loss. Such a series of disasters may well make you pause and consider whether any improvement can be made in your mode of farming that would prevent such calamities in future.

Whilst deeply sympathising with you in your present trials, allow me to offer a few friendly counsels which, I am persuaded, will be of service in moderating, if not entirely obviating, such evils in the time to come,

You farm, or rather attempt to grow corn under great disadvantages. Your land being high and cold, your harvests are late, even in the most favourable seasons; and your crops are always liable to be injured by the weather breaking before you get them housed. But if the spring is backward and the summer colder than usual, winter comes upon you before harvest is well begun, your crops are spoiled, your labour lost, your hopes blighted, and your substance wasted. Under these circumstances it surely becomes a grave question whether your land is really suited for corn growing. Whether, in fact, it would not pay you better, and be clearly to your advantage every way, to lay it down in Grass and make the breeding and rearing of cattle your chief business. I submit that your experience for the last four years pretty plainly indicates that you ought to adopt such a course. You might still keep a few acres under the plough to supply you with Oats and straw, Turnips, and Potatoes; and you might, if you thought proper, go through all your land in rotation in this way year by year for the sake of change. But if your land were mostly "green side up," you would avoid many of the ills you now suffer. Your farming operations would be conducted with less cost, fewer men and horses would be required, your cattle would furnish an abundant supply of manure, which, with a liberal application of lime alternately, would greatly improve your Grass; and, consuming most of your own produce, you would be comparatively independent of the corn markets and the weather.

A friend of mine, who farms high land on the edge of a moor in the north of England, was much discouraged a number of years ago with several bad harvests in succession. At length he determined to adopt the plan I have just recommended, and found it a great improvement on corn growing. When I saw him three years ago he was in good spirits, and was doing well.

If, however, you should not see your way clear to adopt this plan, and still wish to conduct your farm as a corn-growing farm, then the best, and indeed the only, thing you can do is to endeavour to hasten the harvest. If by any means you can bring on the harvest a fortnight sooner, what an immense advantage that would be to you. If, for example, the harvest had been a fortnight earlier this present year, the great bulk of your corn would have been got in in good condition. There is nothing more certain than that this can be done. If your land were well drained, well limed, well manured, and well worked, and thus brought into a good state of cultivation, and kept in good heart, your harvest most assuredly would be two or even three weeks earlier than at present.

Look at the present condition of your land. It is mostly wet, cold, stiff, clay land. If the winter is wet, it is far into the spring before you can get into the land to work it, and if drought comes suddenly after the rain, it becomes too hard to be worked; thus, much valuable time is often lost at this most precious season of the year, waiting for drought to dry the land, or rain to soften it, before it can be worked. Now, if your land were well drained, limed, and tiled, the water would sooner get away—it would become more open and friable, and you would be able to work it sooner and easier. This would be no small advantage to begin with.

Then, again, in the present condition of your land, it often happens that, after the crops begin to grow, the soil is for weeks together saturated with water. Neither air nor heat can penetrate to the roots of the plants, and the fresh rains that ought to convey food to them swim off the surface. The plants, in fact are starved, drowned, and poisoned by the noxious water in which they are immersed. And when the water does dry off, it frequently leaves the soil hardened and dried into a batter, through which the roots penetrate with difficulty, and from which they slowly obtain a scanty supply of inferior food. Is it any wonder, then, that your crops are poor, weak, and sickly, long in filling, long in ripening, and, when ripe, furnishing a very poor sample of grain? But let the land be well drained, limed, and manured, the injurious subsoil water will be speedily removed, and the fresh rains will carry down appropriate nourishment to the roots of the plants; and the pores of the soil being open, air and heat are admitted, which are so essential to healthy vegetation.

Lime acts mechanically on stiff clay soils, opening them and rendering them friable. It is itself an important food for plants, strenthening the straw and feeding the grain. Then, again, it enters into chemical combination with various elements of the soil, and converts them into wholesome food for the crops. The plants, having thus an abundant supply of proper food ready prepared and close at hand, have nothing to do but grow, and being healthy and vigorous, they are soon filled, soon ready for the sickle, and the harvest is rendered earlier by some weeks, while there is more corn of a better quality, and not half the risk of its being spoiled by bad weather. These considerations are well worth the serious attention of all farmers of high late lands.

But it may be said, "This is all very well for farmers who have plenty of capital and leases to secure a return for their outlay." I believe many landlords stand sadly in their own light in not granting leases to improving tenants. If they were to grant, say 19 years' leases at moderate rents, stipulating that so much land should be drained and so much lime laid on every year, the farmer would be greatly stimulated and encouraged to improve his land, even if he had to borrow money to do it, because he would have a just assurance of an ample return for his outlay. And the landlord himself would be benefited: his rent would be sure, and as the land became more highly cultivated, it would in the end yield a higher rent. It must be said, however, that most landlands very seldom disturb a tenant who farms satisfactorily and pays his rent, so that it may be considered a pretty safe speculation for the farmer to make improvements at his own cost, although, of course, he would feel more secure with a lease. But I fear there are many farmers who have so little enterprise about them that they are reluctant to lay out a pound in improving their land, even though they were sure of getting two in return.

I believe many landlords would be willing to advance money for draining purposes, if the tenants would agree to pay a fair percentage—say, 5 per cent.—on it. This arrangement would be found advantageous to both parties—to the landlord it would be a good investment; capital and interest are safe and sure, and it increases the value of his land, while at the same time it is greatly to the advantage of the tenant. Arable land can be drained with tiles 3 feet deep at say 5*l.* per acre; that at 5 per cent. will add 5*s.* to the rent. Suppose the present rent is 35*s.*, it would in future be 40*s.*: but the farmer would be a gainer, by at least four times the 5*s.* He would very nearly save it in labour alone; for it is a well-known fact that land well drained and tilled is much more easily and readily worked than wet, stiff land. Then his crops would be much better, with far less risk of their being spoiled, as has been already shown. A man may imagine that, because his rent is not high, therefore his farm is cheap, and he may be at no great pains to improve it; but if he will consider the greater amount of labour that stiff undrained land requires, and the poor crops it yields, together with the certainty—for it almost amounts to a certainty—that on cold backward land he will lose one harvest out of three, he will see that he really pays a high rent—a rent high enough for the best land, and that what he loses year by year in extra labour and spoiled crops would go far, if judiciously laid out, in bringing the present land into a good state of cultivation. Rest assured, my friends, poor farming on cold, undrained lands will not pay in these times. You must go forward, or be content to go backward—you cannot stand still.

A friend of mine in Scotland took a poor, high-lying clay farm. His landlord drained it with tiles 3 feet deep. He himself subsoil-ploughed it to a depth of 18 inches, and limed and manured it at the rate of 10 tons of lime and 20 of manure to the acre. He treated one field thus every year, till he went round the whole farm. Two years ago he took me into a field that was still on the old system, and then into an adjoining one on the new, and the difference was most surprising—indeed, I could scarcely have believed it possible. While the corn in the one was thin, short, and light, in the other it was thick, strong, and heavy, and took me quite overhead. "Go thou, my friend, and do likewise, and thou shalt in no wise lose thy reward."

Much valuable time might be gained by selecting the right kind of seed. A crop raised from seed procured from good, dry, forward land will be ripe a fortnight earlier than one raised from seed got from poor, cold, backward land. A farmer sowed a field with good Scotch Oats, but not having a sufficiency of seed for the whole field, he procured some grown on poor, cold neighbouring land. The result was the Scotch Oats were ripe, cut, and housed a fortnight before the others were ready. Surely this is worth the attention of farmers of late lands.

The evils of a broken harvest may be very much mitigated by adopting the plan of stacking corn pursued by the farmers of some parts of Scotland and Wales. Instead of letting corn stand in the field till it is sufficiently dry for a great square stack, they build little round stacks, like hay pikes, containing two or three cartloads each, in the field, with the bottoms of the sheaves outwards and the heads inwards, with a hollow up the middle, and a small opening near the ground to let in air. It is then thatched and allowed to stand till a more favourable season arrives for leading it into the barn or threshing it in the field. I have often wondered how it was that some such plan were not adopted in this neighbourhood, where the harvests are so late and uncertain. As the corn does not require so much time to dry for these little stacks, the risk of its being spoiled is considerably diminished. I am satisfied much of it has been spoiled this year, and in previous years, that might have been saved if some such plan had been followed.

NOTES ON WEEDS.

BY JAMES BUCKMAN, F.L.S., &C., PROFESSOR OF BOTANY AND GEOLOGY.

THE Pea-flowered tribe of plants, which are said to belong to the natural order Papilionaceæ, from the butterfly-like forms assumed by the irregular petals of some of the more showy species; or Leguminosæ, from the shape of their Pea pods, are well represented on the farm by Peas and Beans, which get the name of pulse, and no less so by Vetches, Sainfoin, and even those small flowered forms called Trefoil-Clovers and their allies, which we cultivate as fodder plants. Most meadows, too, will be found to supply some species or other, which, mixing with the Grasses, are rather a good addition to the crop than otherwise. Still, though this natural order is pre-eminently useful, there are many species which can only be considered as weeds arising either from some mechanical peculiarity—such as spines in the Furze—growing in abundance as to choke other plants, as the Melilot in corn, or else from their habit of climbing or twining, smothering or choking crop plants in their vicinity, such as the climbing Vetches or the choking Tares.

Among the more prominent forms in the weed list we may tabulate the following:—

LIST OF NATIVE PEA-FLOWERED WEED PLANTS.

	Scientific Name.	Trivial Name.	Remarks.
—	Ulex europæus	Gorse or Furze ..	Mostly spinous shrubs.
1	Genista anglica	Petty Whin	
2	,, tinctoria ..	Dyers' Green Weed	Weeds of Sandbanks.
3	Cytisus scoparius ..	Broom	
4	Ononis arvensis	Rest Harrow ..	Moors & poor pastures.
5	Anthyllis vulneraria ..	Ladies' Fingers ..	
6	Melilotus officinalis ..	Melilot	
7	Medicago maculata ..	Spotted Medick ..	Arable and Special Soil Weeds.
8	Trifolium arvense ..	Corn Trefoil	
9		Strawberry-headed	
10	,, fragiferum ..	Trefoil ..	
11	Ervum hirsutum ..	Hairy Tare	Choking Corn Weeds
12	,, tetraspermum ..	Smooth Tare ..	
13	Vicia sepium	Bush Vetch	Bush, Brake, or Hedge-row Weeds.
14	,, Cracca	Cow Vetch	
15	,, sylvatica	Wood Vetch	
16	Lathyrus sylvestris ..	Narrow-leaved Everlasting Pea	
17	Astragalus glycyphyllus	Sweet Milk Vetch ..	

Amongst these 17 species will be found several which are not only elegant in form, but which are indeed or might be made eminently useful as crop plants; the climbing Vetches and everlasting Peas may well bear out both these assertions, but inasmuch as they too often grow to the detriment of what we require, more especially in the position in which we have placed them, they are properly to be considered as weeds.

1. The well known Furze, which so soon takes possession of the neglected hill side or sandy common, has to be weeded out before the *locale* can be ameliorated. The plan which we have found answer best for this purpose, is that of sprinkling a few gallons of naphtha over the bushes, by which the ignition is started so well that the whole becomes thoroughly well burnt, the rougher stools are then to be removed, and the surface smoothed where rough, and then the whole well harrowed with bush harrows, and afterwards iron ones, with the double object of spreading the ashes more evenly and removing rough or unnecessary material. Upon this surface Grass seeds may be sown, and afterwards rolled so as to fix the seeds on the surface and smother the whole. By these means we have seen Furze and the rough Grasses, Sedges, Heaths, and weeds of different kinds all converted into a manure, which has had a wonderful effect in producing really useful meadow out of waste. Much of the common land near London, as Woking Common, Bagshot Heath, Aldershott Common, might in this way be greatly ameliorated, especially if accompanied by a few well made drains where required, rather than what Mr. Bailey Denton calls the "gridiron system of draining" without reference to the nature of the soil, and occasional liming and top-dressings, for which latter we would especially recommend "night soil," every bit of which should be economised where there are masses of people got together in poor districts.

2. Petty Whin is a spinous plant, but altogether smaller than the Furze. Unlike the former, however, its spines are so sharp and woody, that even if the plant was useful as food it could not be made available. It usually grows on poor sandy commons, frequently

with the Furze; but it often happens that in pastures where the Furze is kept down by cattle the Whin still maintains a place, in which case it should at once be removed by pulling, with a thick pair of gloves to guard the hands; and then if top-dressings of stiff soil, marl, and manure be employed, it will not be apt to grow again. Its presence betokens poverty of soil, which after all would be better in arable with liberal treatment in the rotations.

3. The Dyer's Green Weed, sometimes called Woad Waxen, is a striking little shrub-like plant, with the aspect of the Common Broom. Its usual habitat is in stiff clays, being exceedingly common in meadows upon the Oxford and Lias clay deposits. Its presence in quantity is no bad indication of sound land, as it is not partial to wet, and more especially dislikes stagnant water; still it is not only a useless plant that occupies much space, but it is an indication of poverty of soil. We have seen it quickly eradicated by a little judicious drainage to begin with, followed up by top-dressings of all kinds of refuse, especially when containing phosphates, and if no hay be taken, an autumn skimming with the scythe and spring rolling will soon eradicate the Green Weed and substitute good Grass in its stead.

4. The Common Broom may rather be considered as an ornamental shrub than as a weed; still it so completely takes possession of some dry situations, such as sandbanks and drift on Woking and other Commons, the silicious drifts on the chalk, the northern quartzose drifts, and others, that its growth is an indication of some importance. Suppose for example such drifts cover up the London clay, the Lias clays or the marls of the new red sandstone, as the Broom will keep pretty constant to the lighter soil, its presence most clearly indicates geo-agricultural lines in a most instructive manner.

5. The Rest Harrow, with its striking mauve-coloured flowers, is yet no friend to the farmer, as it is the denizen of most of our poorer neglected pastures. Still its ominous name of Rest Harrow may be differently interpreted, for as one sometimes sees it growing round the borders of rough badly farmed arable fields, where the substratum is a kind of silicious clay through which neither air nor water can circulate, we almost feel inclined to say rest harrow, make a few drains, and convert it into pasture. Again, having been consulted as to the advisability of breaking up some old pastures in different positions in which was a quantity of this plant, we have felt variously according to circumstances. For instance, in a low lying field of Lias just sprinkled with sand drift which had never been cultivated, but just depastured from time to time when it would yield a bite, we have seen town refuse, consisting of dust-bin materials, ashes, soot, old mortar, with a little superphosphate, work wonders. But even this will not do to be merely put on and there an end, cultivation is here as necessary to ensure any benefit from one's appliances as in the arable. Its treatment then should consist in draining where necessary, pulling and skimming rough weeds, which may be collected and burnt, and its ashes returned to the land, sowing therewith a little of some desirable sort of Grass-seed, bush harrowing to mix and spread over ameliorating materials and seeds, and rolling to thoroughly make all even, for roughness is the first commencement of a return to a jungle—and to consolidate the soil about the Grasses' roots, which are thus replanted when thrown out by the fangs of Jack Frost or the workings of insects.

6. The Lady's Fingers, though they may possess some claim to utility as a plant to cultivate on poor soils, yet as we think it would itself be but little improved either in its yield or quality by the process, we are not oversanguine as to the result. But be this as it may, the large patches one sometimes sees on the borders of upland meadows or on neglected banks, though it be a pretty plant, yet entitle it to a position in our weed list. We would here remark that if cultivated we have reason to believe that it would be improved in amount and quality of crop by a dressing of lime, if the soil be deficient in that mineral. As a weed it may be got rid of by improving the soil where it grows. Skimming and burning and mixing phosphatic marls (easily done in chalk marl districts), manuring, and sowing a few Grass seeds, will usually get rid of this plant, and pave the way for what we should consider far better, namely, Festuca duriuscula, Hard Fescue; Lolium perenne, Perennial Rye-grass; Poa pratensis, Smooth-stalked Meadow-grass; and Trifolium repens, Dutch Clover.

7. The Melilot is here introduced from the extent to which it sometimes prevails in our corn fields. In the midland counties this plant is by no means confined to the road side or the thicket, as some of our botanists would have us suppose, being common in all kinds of corn crops, and we are inclined to think that it became introduced with foreign farm seeds; but, be this as it may, probably from following the rotation, it is not so decidedly biennial in the arable as in the thicket. Authors describe a smaller species as a field denizen in the eastern counties, to which the name is given of Melilotus arvensis, Corn Melilot, but we incline to the opinion that it scarcely differs so much from the arable form of the M. officinalis as the latter does from the wilder plant of the thicket—yet, though it would probably not rank as a distinct species, we need not further discuss that matter here, as both forms are alike weeds in the corn, from which it should be removed by hoeing or pulling if necessary, as, if gathered with grain, its flavour is so much like that of the Anthoxanthum odoratum. Sweet Vernal Grass imparts both smell and taste, which, though not objectionable in fodder, is far from improving a sample of Wheat.

8. *Medicago maculata*, the Spotted Medick, is a Clover-like plant with small yellow flowers, and a large central purple spot on each of the trifoliate leaflets. We have had this plant communicated to us several times during the last few years, as it is evidently fast spreading all over the country in "seeds." So that, although as an interloper it is not wrongly placed as an arable weed, it is not mischievous to any extent; indeed we are not sure that it would not make a good fodder plant, as it grows so luxuriantly under cultivation.

9 and 10. The two Trefoils are here placed as marking soil; the corn one as a sand lover, the Strawberry-headed species as a native of cold hungry clays. We have seen the T. arvense so thick in the corn fields in sandy soils as to become a troublesome pest. It is only to be got rid of by weeding and never letting it seed on the one hand, and not to sow its seed, which one is so apt to do in "seeds," especially in Dutch Clover, on the other.

Its confinement to sands is so remarkable as to make it a good index of the nature of land. Thus in the Cotteswold district we have two sand beds in the oolitic series, one in the sands of the Kelloway rock, and the other in the sandy partings so common in the forest marble. In the former it occurs abundantly in the arable land, and here the Turnip crop is usually affected with Anbury, so much so, indeed, that we should take the presence of this weed in any quantity as a warning to use lime as an antidote for Anbury. In the latter we have at Cirencester a notable instance of the localising of a plant according to soil. Near Kemble, the Great Western Railway, in a deep cutting, exposes a band on either side, about two feet thick, in the middle of the slopes of sand; here this pretty little Clover has established itself, growing only on the lines of sand, and eschewing the oolitic limestone bands both above and below; and with it is intermixed that pretty sand-loving Grass, the Aira caryophyllea, both of them being rare for miles around.

The Strawberry-headed Trefoil has much the character of Dutch Clover; however, its smaller heads of pinkish flowers, succeeded by the enlarged coloured calyces now simulating the fruit after which it is named, will readily distinguish it. Our plant occurs locally in considerable-sized patches on cold wet clays, thus differing from the lighter lands to which Dutch Clover is partial; it is there an indication of poverty and want of drainage, so that the distinguishing it from the Dutch Clover may be a matter of great importance. Now, it is true that its slight amount of foliage is eaten by cattle; still we should desire its eradication as earnestly as that of any other weed, especially when we know that a drain acting properly where it grows, and a treatment of manure will not only eradicate it, but encourage the growth of good Grasses and useful Clovers in its stead.

11, 12 The two species of Tare are distinguished as follows:—Ervum hirsutum, pods hairy, two-seeded; E. tetraspermum, pods smooth, four-seeded. The former of these mostly occurs on limestones and lighter soils, and the latter on clays; both, where they occur in quantity in the corn field, twine and climb about the stems of the crop, often completely smothering it, and even bringing it down to the ground.

Some farmers give the name of Tare to our cultivated Vetches; and Mrs. Calcott, in her "Scripture Herbal," gives a drawing of the Vetch to illustrate her notice of the two species of Tare. Our plants, however, are much smaller, and from their tall, slender, climbing stems much more mischievous; but whether these be the Tares referred to in St. Matthew's Gospel, it would be difficult to say, though it is probable, as they are both of Eastern origin. Of course clean farming, with the due hoeing of Wheat, and the proper cleaning of seed, will soon eradicate these plants. In hoeing, the horse-hoe will be inefficient where the Tares abound, and where they may be sown with unclean seed, the enemy will be left in the rows.

The remaining plants of our list scarcely need to be separately discussed; they are all of them weeds of the hedgerow, completely smothering the Quicks wherever they establish themselves, in which case they do harm in proportion to their size. In this respect the two last as being such large tall plants would be the most mischievous; fortunately however they are only local, so that, although their beauty and comparative scarcity recommend them to the botanist, yet their local bushes are so dense as to destroy the hedge-row in which they may occur, and they should therefore be most carefully weeded out. To this end it will be found of little use to pull them in the autumn, as their permanent root stock will be left in the ground uninjured; but if the Vetchlings be pulled before they have attained full vigour, the hedge will not be stayed in its progress for that year, and the root stock of the weeds will be so weakened that one or two early summer attacks of this kind is usually sufficient for their destruction.

All these have had trials as crop plants, to which some of them have some claims, but it is not our province now to dwell upon this matter.

THE SEWAGE OF TOWNS.

THE second report of the Select Committee appointed to inquire into the best means of utilising the sewage of the cities and towns of England, with a view to the reduction of taxation and the benefit of agriculture, has been just issued. The committee report as follows:—

"That it appears, from the evidence laid before them, that the value of the sewage of the cities and towns varies greatly, according to the extent to which the manure and other fertilising refuse of the place is discharged into and mixed with the town drainage, and to the extent of the area of rainfall which flows into the town drains; but, when these fertilising matters are not diluted in an unusual degree, the sewage is of great agricultural value.

"That the cost of the application of this sewage depends upon the relation of the town to the surrounding agricultural lands, and to their value and quality; but, when these relations are not unusually adverse to the application of the sewage, it can be applied to agricultural purposes with profit either to the town or to the owners of land.

"That evidence has also been laid before your committee to show that town manure can be collected before it is mixed with the drainage, and profitably applied to agricultural purposes; but this application has been too limited to admit of your committee expressing an opinion on the subject.

"Your committee think the information now obtained will enable the authorities in each town to deal with the sewage in the manner most suitable to the particular circumstances of the place; but your committee desire to add that the municipal authorities have not at present sufficient powers to enable them to rent or otherwise deal with lands in their neighbourhood for the most profitable application of the sewage in relief of local taxation."

In the analysis of the evidence, the reporter for the commit ee gives the following among the various conclusions at which they have arrived:—

"The evidence proves that sewage contains the elements of every crop which is grown; that, as compared with solid manure, there are advantages in the application of sewage to land. In the application of solid manure loss is sustained from evaporation, but no such loss occurs with sewage. In the application of solid manure to land, years may pass before its entire productive qualities are all absorbed, causing a loss to the farmer from the slow return of the capital sunk in manure, but in the application of sewage, or any other liquid manure, no such loss occurs, as every particle of it comes into immediate action on the crop in a day or two.—The evidence also proves that town sewage contains a large amount of heat; this heat, it has been proved, is of great benefit to agriculture in stimulating vegetation. It is therefore evident that such a property in the sewage must greatly enhance its value as a manure.—Also, that the water alone of the sewage, even if entirely deprived of its manure, is of great benefit for agricultural purposes.—The evidence further shows that 1 ton of average town sewage contains an amount of manure which, if extracted and dried, would be worth a little over 2*d.*, taking Peruvian guano sold at 11*l.* per ton as the standard; but, as it appears from the evidence that Peruvian guano is now selling at 13*l.* 10*s.* per ton, it is evident that the portion of manure contained in a ton of average town manure is now worth more than 2*d.* The evidence of Lord Essex proves that the use of sewage permanently improves land, its good effects being visible afterwards for years.—The evidence further proves also that sewage has been applied to common Grass, Italian Rye grass, and to roots and grain crops with great advantage; and, further, that sewaged Grass has a great effect in increasing the quantity and richness of the milk of cows, as well as improving the condition of the cattle.—It is further proved that the use of sewage hastens vegetation; also that cattle of all sorts appear to prefer sewaged Grass to all others, and will eat it within a few hours of its being dressed with sewage; also that the earth possesses the power to absorb from the sewage all the manure which it contains, provided the sewage be not applied in too large a quantity, and that the crop is only benefited by the manure contained in that portion of the sewage which is absorbed by the soil within reach of the roots of the plant, and that the land is not benefited by any portion of the sewage which escapes off its surface.—In the case of Lord Essex, Mr. Westwood, the late farm bailiff of the schools at Anerley, and Philip W. S. Miles, Esq., results have been obtained by small applications of sewage which solve the question of sewage utilisation, showing that if commercial results are to be sought for—results which will enable the agriculturist to pay a fair price for the sewage, and thus yield a return to the ratepayers of our cities and towns from its sale—sewage must be treated like any other manure, and applied to the soil or the crop according to their requirements, bearing in view the returns to be obtained.

"In Lord Essex's case, his lordship applied 134 tons of sewage to each of 2 acres of Wheat, and on each acre his lordship obtained an increase of produce worth 3*l.* 1*s.* 6*d.* over and above the produce of any other acre in the field, or a gross return of 5½*d.* for each ton of sewage applied. On 35 acres of his meadow Grass, his lordship applied 600 tons per acre per annum in two dressings, and states that he gets "an extraordinary crop, such as he never saw before using the sewage."

"In the case of Philip W. S. Miles, Esq., the sewage of his establishment of 30 persons was passed, principally for sanitary purposes, over 14 acres of ground, arable and pasture Here, as is shown by the evidence of Mr. Miles and his bailiff, Mr. Foster, the value of the 14 acres of land was doubled, simply by the application of this manure.

"The extraordinary difference in the results obtained by Mr. Lawes and Mr. Miles is at once explained by the fact that in Mr. Miles's case the sewage was applied in small quantities at each application, and the earth had in consequence full power to extract from it, close to the surface, and within easy reach of the roots of the crop, all the manure which it contained; neither was any portion of the manure allowed to escape off the surface; but in the case of Mr Lawes a great portion flowed off the surface and was lost, and a further portion must have sunk beyond the reach of the roots of the crop. These are the reasons suggested by Mr Miles for the bad result obtained at Rugby, and shown to be the case by the results of the experiments at the schools at Anerly.—This committee are therefore of opinion that the evidence which has been given fully establishes the fact that sewage is applicable to all crops, and that if commercial results are sought for, it should be applied in small dressings. If the sewage of our cities and towns were utilised to the best advantage, over suitable areas, it is evident that little or no imported or manufactured manures would be used; this would greatly limit the area now supplied by such manures, and would therefore reduce the profits of all those engaged in the importation, manufacture, or sale of manure.

"In reference to the varieties of soil to which sewage has been applied, state of cultivation at the time, and comparative merits of different sorts of sewage application, the committee state that the evidence here proves that the sewage may be applied with advantage to every description of soil which is naturally or artificially drained, and that the most profitable returns, as in the case of all other manures, will be obtained when it is applied to the best soil.

"On the question when the town sewage may be applied to

land and to crops, it is stated that the evidence shows that sewage may be advantageously applied throughout the entire year with the exception of hard frosts. With regard to the probability of town sewage being injurious to land or to crops from any of the ingredients which it contains, it was proved by the evidence that some of the matters which enter the sewers of a town, in addition to the excreta of the inhabitants, and which, if applied by themselves to land, would be injurious to vegetation, yet, bearing as they do so small a portion of the entire bulk of the sewage, are lost sight of, and rendered perfectly harmless.

"On the further question, would the application of town sewage to land or to crops be likely to cause a nuisance or be attended with dangerous consequences, the committee state, as the result of the evidence, that sewage, in the state in which it is found at the outfall of the sewers, even in the hottest weather, is very slightly offensive. If applied to the land in this state, and in such dressings as can be readily absorbed by the earth, no fear of nuisance need be felt, as the soil possesses the power to deodorise and separate from liquids all the manure which they contain, provided that too large a quantity be not applied, as the power of the soil has its limits; but if the power of the soil be overtaxed, and very large dressings be applied, a nuisance will be be created in the neighbourhood, and injury to wells and running streams would occur.

"The evidence on the question whether solid manure can be profitably manufactured from town sewage, leads to the conclusion that a solid manure cannot be manufactured with profitable results."

Home Correspondence.

Stock versus Corn.—At the late debate on this subject before the London Farmers' Club, Mr. Congreve said, "that the great want of the country was a more plentiful supply of lean stock," and that "if the inferior clays of the country could be laid down and turned to account in that way, it would be of the greatest advantage, which he hoped would arise from the present discussion." This is the part of the debate which at this distance of time and place I would presume to take part in. The supply of "lean stock" to which Mr. Congreve alludes can be had from Ireland, provided those English gentlemen interested in having them will support the few claims of the Irish small farmers, which I will hereafter notice. If the clay lands of England be still such as I saw so many of them 18 years ago, they must be badly calculated to produce food for rearing the improved stock of the present day, especially by Grass alone. Even if drained will they not, if left too long uncultivated, degenerate as pastures? For example, Tiptree Hall itself, whose fertility now is, as I am led to understand, truly astonishing—if left again to Nature will it not in a few years go back to something like what I saw it in 1844, for, to use the words of a shrewd countryman of mine whom I met as a labourer employed there, "Oh, if you saw this place last year you would say it was a blue look out for the Michaelmas rent." Query, would it not to some extent become so again if Alderman Mechi ceased to expend his great capital and energy on it? I fear it would. I am certain such land in Ireland would, even were it as well drained, subsoiled, and manured as Tiptree Hall. But supposing that Wheat culture must be abandoned on such lands, which is what I do not believe if drained and subsoiled as it was—does it follow that by abandoning tillage and laying down such lands to permanent pasture, a greater amount of lean stock can be had for the use of the grazier on the rich pasture land, or the stall-feeder in his well-arranged homestead? I think not, and I speak from no very limited experience in the cultivation of every kind of land, rich and poor, high and low, light and heavy. But this much we have, I hope, a right to expect—that as we send you "the raw material" in the shape of "lean stock," it is both your duty and your interest to assist us in increasing our powers to do so, and simply thus:—Instead of any of your "penny wise and pound foolish" members of parliament, whether English, Scotch, or Irish, or all combined, opposing the miserable grant for Irish agricultural education in Ireland, all who are interested in the agricultural prosperity of the United Kingdom should press on the Government the importance of increasing that grant, and extending its advantages to many parts of Ireland where there is neither agricultural school nor model farm such as are diffusing such advantages to more favoured places. The teachings now at the head or training establishment, Glasnevin, Dublin, bid fair to supply many of our wants, and to enable us to supply you with not only more lean stock to manufacture meat from, but also some more of the manufactured article itself, without causing any disagreeable rivalry. In addition to the operations carried on at Glasnevin by the application of improved machinery and agricultural teachings on a large scale, there is also a small farm under the sole management and direction of Mr. Baldwin, the agricultural lecturer; by manual labour on which he has already shown how small farms even in the best land when properly managed, are more profitable than large ones as at present managed; and that even if Wheat culture should continue to be unprofitable, that tillage will still be far more profitable than ordinary grazing; in a word, that more cattle feeding can be had on one-half of a farm fairly cultivated than would or could be had on the whole if left out under Grass under the most favourable circumstances of ordinary grazing land. One of the great wants in Ireland is this kind of agricultural teaching, which is adapted to large as well as to small farms. *F. Carroll, Clonegal.*

Sparrows.—Our excellent friend Mr. Wilkins will, I think, on consideration see that he is somewhat illogical in his wholesale denunciation of the sparrows, and not strictly accurate in his facts. Because, he says, the hawks and kestrels have been destroyed, the balance wisely ordained by our Creator has been overthrown, therefore he would destroy all the sparrows also. Surely the correct inference is that the absence of hawks throws some greater portion of the work of destruction on man. And now as to the caterpillar question. Does Mr. Wilkins undertake to say that at no period of their lives do sparrows eat caterpillars? It is, I think, generally stated in books of ornithology, that they feed their young with various kinds of soft food, and, among it, with caterpillars: and I think there are few persons of observation that will not corroborate this statement by their own experience. As soon as the young are fledged and betake themselves to the fields, no doubt their depredations on the corn commence, and may become serious. The reasonable plan would seem to be (and I may say also that most in accordance with the will of their Creator) to let them alone during the breeding season, and use the undoubted prerogative of man to lessen their numbers within convenient limits at other seasons—but not surely to destroy them altogether, which is going beyond man's prerogative. I may hope perhaps for a more favourable consideration from our good friend if I avow myself by my signature *A Thin-Seeder.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

THE FIRST WEEKLY MEETING of the Society of the present year took place on Monday last in Hanover Square. The Chair was taken at noon by Raymond Barker, Esq. The attendance was exceedingly limited.

The names of twelve new members to be proposed for election were read by the Secretary.

The Secretary afterwards observed that there was no other business to be brought before the meeting, and announced that on the 25th inst. Mr. J. Taylor will "exhibit and explain his improved materials for the construction of cottages, as introductory to a general discussion of the economy of labourers' dwellings."

The Chairman then said, that the following Wednesday being Ash Wednesday, it was not thought desirable that the Council should reassemble, and he would therefore move an adjournment till that day fortnight.

This motion having been agreed to, the proceedings terminated.

Farmers' Clubs.

KINGSCOTE: *January*, 1863.—*A Comparison between the Hampshire and Cotswold Systems of Farming.*—At the last monthly meeting of this active and energetic Farmers' Club, Mr. Drew of Boxwell, who had farmed in both the counties which he undertook to compare, read a paper on this subject, from which we make the following extracts:—

First, as to the Character of the Soils.—So long as the farming of Gloucestershire is restricted to the Cotswolds, I must confine my remarks to that part of Hants which, as nearly as possible, resembles them in an agricultural point of view.

This constitutes the middle division of the county, and that resting on the chalk formation. The soils there are various, and the highest parts of the district or farm are generally the stiffest. The valleys, or low grounds, likewise vary, some being light and some heavy, and others of a deep loamy description. First, there is a strong loamy soil, of good quality, which seldom fails to yield first-rate crops, moderate in the expense of tillage, and good stock land. Next, the clays; heavy working, varying considerably in quantity. Some of a red tinge, and mostly producing good crops; others of a faint brown, inclining to yellow, very weak, expensive to cultivate, and making a poor return. The poorest thin soils are very light, of a brown or hazel colour, intermixed with small fragments of rubbly chalk, easy of cultivation, and the produce as easily disposed of, but without satisfactory remuneration. There is another description of soil called white land; some of a strong loamy nature, produce excellent crops, particularly of roots (Mangel especially); others being weak and fainty, very deceptive in appearance. Flints or gravel (flints predominating) are found in the whole; and in some of the valleys the surface is sometimes completely covered with them; yet oftentimes the more abundant the flints (that is if they are of the right kind), the better the soil, and the more certain the crops. Instances have been known of strangers to their influence having had the ground cleared of them; the result, that the soil would afterwards produce scarcely anything, and only restored to its former fertility by hauling them back again. The chalk rock forms the base of the whole. The very thin soils resting on the upper chalk are deficient in almost every ingredient calculated to produce good crops. All soils resting on the chalk are easily acted on by the weather; after rain the surface is almost like birdlime, rendering it heavy work to walk over the cultivated parts, the clay soils getting very tender, and often puzzle the farmer to know what to do with his flock. Still, where the beds of clay are not very thick, the water soon finds its way into the chalk. I think there is vast room for improvement on lots of these soils by draining. The frost pulverises and reduces the surface to a very fine tilth; so likewise does alternate dry and showery weather at the spring of the year. I have seen it plough up very stiff; dry weather set in and thoroughly bake it; rain following, it falls to pieces like lime. This fine and hollow surface, however, precludes the sun and wind from penetrating to any depth, and when you would imagine a field like an Onion-bed, it is often so close and tenacious a few inches in depth, that a plough will scarcely touch it; and it is double the work for the horses to what the appearance of the surface would lead one to suppose. The farms, for the most part, are large, and chiefly arable; the fields of a good size, and surrounded by hedge-rows, in many places of tremendous width, ranging from 5 to 30 yards, a great portion of which is Hazel wood, and is used for making flake hurdles for sheepfolds. On most farms there is some Down, and in some instances a portion of water meadow. The chief aim of the farmer is the production of keep for maintaining a large flock of sheep in proportion to the size of the farm, with the ultimate view of producing a large crop of corn for market. Few cattle are kept, but generally a full stock of pigs, with a good strong team of horses.—I now revert to the Cotswolds. Here, like the middle division of Hants, the farms are rather large, but on the whole not the size of the former; the country for the most part open, the fields of a good size, the fences chiefly stone-walls, the soil here also varying, but generally speaking considered of a light character; still this, like the chalk district, varies considerably, it consists of heavy land resting on tenacious clays, these like those of Hants again varying, some being good and producing excellent crops, while others are weak, expensive to work, and yield a bad crop for the trouble and outlay; then we have the corn brash in many instances near the rock, but on the whole a good soil, generally yielding crops exceeding the expectation of those unacquainted with them; then comes another of inferior quality, thin and weak, resting on an inferior rock, shelly and soft in its nature: there is also another description termed a "dead sand;" it is of a lighter colour than most of the former, often deep, and to an unpractised eye very deceptive; it contains few stones, and is what Mr. J. Morton (in his work on "Soils") terms a sleepy soil, a very appropriate one for it; it is not a little trouble or expense that will at all times arouse it to a state of gratefulness for the expense and labour bestowed upon it. On the whole the expense of tilling the Cotswolds is not so great as the Hants district. The farms, like those of middle Hants, consist of a large portion of arable, in a very few instances a little water-meadow, and some Down; permanent pasture or meadow land however is much more extensive. The farmers' chief aim and object is also to keep as large a flock of sheep as possible, the quantity of cattle kept, however, prevails to a much greater extent, not so the stock of pigs, neither are the work horses of the size or power, nor are they kept up so well for doing a good day's work. Oxen likewise are here employed in tillage much more than in Hants. Some portion of the Cotswolds are of considerable elevation, and rest for the most part on the great and inferior oolite formation, and yielding soils similar in character to those resting on the upper and lower chalk.

2. *Cropping on the Cotswolds.*—From these remarks it may be gathered that the particular divisions of the two counties (although some 70 or 80 miles asunder), may, and should be farmed on the same system, and so in reality they are, although in detail carried out somewhat differently; the rotation generally followed the four and five-field in both counties, but in some few instances a six-field is practised.

First, taking the four-field rotation of the Cotswolds and commencing with the root crop; it generally follows Wheat (a portion of which probably may first be sown to Rye and Vetches and fed off with sheep), and old Sainfoin lea; it is now general soon after harvest to scarify the stubbles, well working it and burning what filth there may be, and then haul out on that portion of land intended for Mangel and Swedes, the farm-yard manure, which on many light land farms is the whole of that made the previous winter, placing the same in convenient heaps for carting, or in many instances wheeling in barrows by men (which is the most economical plan of the two), previously to planting; the land is then ploughed to the depth, varying according to the nature of the soil or subsoil, and ranges from 3½ or 4 inches to 7 inches; it then remains until March or April, and in some cases till May, when it receives another ploughing or scarifying; on the first favourable opportunity it is again scarified, dragged, rolled, and harrowed, till what filth remains is thoroughly worked out, collected, and burned.—Mangel Wurzel is planted on the ridge, the latter end of April or beginning of May, the ridges being drawn about 28 inches wide; the yard manure in addition to guano or some special manure and salt, which is sown along the bouts by hand, and covered in, and the seed either dibbled or drilled; this crop the past three years has not been so great as previously, and is receding in the extent of its cultivation.—Two methods of planting Swedes are practised; some adopt the ridge system, whilst others adhere to flat work; in either case the yard manure is applied first, and covered in, and planting by the drill, with an addition of guano, bones, super, Turnip, or some special manure, to an extent of from 14s. to 40s. per acre. Manuring in the autumn has been tried with various degrees of success; on strong and loamy soils it has succeeded tolerably well, while on light puffy land the result has been rather against than in its favour. The quantity of yard manure made on a farm is seldom more than sufficient for a moiety of the root crop, a part of the remainder sometimes remains as it was after the corn was carried, until the spring of the year, is then raftered, and cultivated across, worked, and stifle-burnt, the ashes spread, baulk-ploughed, a double tine with the harrows given, and then lightly ploughed, the seed sown broadcast, another double tine with the harrows to cover the seed completes the operation. Artificial manures, however, are now more commonly added to a portion of the ashes, and drilled with the seed, and mostly followed by good crops; the remainder of the land is clean ploughed to a moderate depth at the fall of the year, accompanied by the same treatment as the Swedes, excepting the application of the yard manure, and drilled on the flat, with artificial as for Swedes; horse and hand hoeing complete the cultivation. The Mangel is taken up the latter part of October, and stored away. Storing the Swedes is pretty generally adopted; for fattening sheep the Turnip-cutter is always used. Common Turnips chiefly remain in the ground to be fed off by the breeding parts of the flock. A portion of each is sometimes hauled off to be consumed by the cattle in the yards, and greatly improves their doing, and at the same time with an addition of cake enriches the manure. Hay is given with the roots, accompanied with cake or corn, to the fatting sheep.—The second year of the rotation is Barley; Oats and April Wheat are, however, sometimes substituted, and some lightly clean plough immediately behind the sheep, after the roots are consumed; others balk plough or "rafter," again lightly ploughing just before planting; others, again, on the lightest soils, only plough once. The corn, for the most part, is put in with the drill: about 3 bushels of Barley, 2½ of April Wheat, 4 bushels of Oats, commencing as early in the season as the state of the land will permit; from 1 to 1½ bushels of Rye-grass, 6 to 8 lb. of Cow-grass or Red Clover, 3 to 4 lb. of Yellow, and 2 to 3 lb. of White Clover is either sown at the time of planting the corn, or more generally (and particularly all the early-planted) sown when the corn is up and rolled in, and which will constitute the third crop of the course, or young seeds to be mown for hay, the lattermath being fed, and afterwards ploughed up for Wheat. This usually commences some time in the month of August or beginning of September, varying according to the quality and condition of the soil and other ruling circumstances. One ploughing with a skim coulter attached suffices on most land on these hills. On all the light soils early ploughing is resorted to; a better result follows, from the fact of the seed-bed being firmer. A heavy roller follows the plough; it is afterwards well worked with drags and harrows, and sometimes a second rolling; and, should it be inclined to get green, instead of extra dragging, the scarifier is run over it as lightly as possible, being afterwards well harrowed and the Wheat drilled; the quantity of seed the early part of the season about 7 pecks, increasing to 9 as the season advances. It is often rolled at spring, and hoeing is practised to some extent, but not universally so: neither are manures (either natural or artificial), applied to any extent at this or planting time, manures being thought on most of these soils to have a greater effect in producing an increase in the amount of straw

rather than in the grain.—The proportion of Sainfoin varies, as before intimated, and ranges from 8 to 15 acres in every 100 of arable. It is usually planted with spring corn, sometimes after roots, but more frequently after Wheat. In some cases it has been drilled at spring in the growing Wheat; and when the land has been clean, I have known this practice succeed admirably. Formerly it was usual for it to last seven or eight years; latterly, however, it has been more difficult to obtain a plant, and seldom last more than about four years, and often goes off the third. It has been, and still is, a valuable plant to the hill farmer, both for hay and feed. It was at one time considered—the poorer or worse in condition the land, the better it succeeded. I am not prepared to say such was the case, at the same time it seems somewhat singular, that now, the land generally being in a much better state of cultivation and fertility, you seldom see so good a crop of Sainfoin hay cut as formerly, nor do we see that luxuriant lattermath, in which every description of stock was wont to do so well.—The five-field system is the counterpart of the four, extending the seeds to two years, grazing them the second, which usually produce a large amount of good keep, carrying a great quantity of stock. It is practised on all the lightest class of soils on the Cotswolds; it enables its occupier to keep an increased quantity of stock, and I believe at the same time to produce quite as large, if not a larger amount, of corn. The roots and fibres of the seeds the second year extend themselves in every direction, combined with the treading and dressings of the sheep and cattle, producing that solidity to the soil, so necessary to the Wheat crop following. The six-field is another extension, but not in the right direction, being an addition to the five of another crop of corn after Wheat the last year of the course.

3. *Cropping in Hampshire.* — 1st. The four-field, when stipulated, varies somewhat from that followed on the Cotswolds, so that with 400 acres in course of cropping there would be 200 in corn and 200 in green and root crops; 200 of which, under the regular four-field system, would give 50 acres Wheat, 50 acres roots, 50 acres spring corn, and 50 acres seeds. The other 200, some would have—1st, 50 acres Wheat; 2d, 25 acres Barley and 25 acres roots; 3d, 25 acres Clover and 25 Barley; 4th, 50 acres Rape and roots. This mode would give 100 acres Wheat, 125 acres Rape and roots, 100 acres spring corn, and 75 acres seeds; the Wheat crop would follow 50 acres seeds and 50 acres of the Rape and early Turnips; spring corn, partly after roots and partly after Wheat; seeds sown partly with the Wheat, the remainder with the spring corn; while the Swedes, Rape, and Turnips succeed the 25 acres seeds, part of the Root, Barley, and Wheat crops. Others, again, would further divide the third course of the second division of the rotation, that is, would still have—1st, 50 acres Wheat; 2d, 25 acres spring corn and 25 acres roots; 3d, 12½ acres seeds, 12½ acres roots, and 25 acres Barley; 4th, 50 acres Rape and roots. Pulse, to some extent, occasionally takes the place of some of the other crops, but not to any great degree on the sheep farms of this district, provision for the flock always being the aim, and engaging the attention of the flockmaster; this would still give the 200 acres of corn, it would, however, increase the Rape and roots to 137½ acres, and at the same time reduce the seeds to 62½ acres. Sainfoin, under either system, is an indispensable requisite; the proportion, however, varies considerably, but, on the average, a larger acreage is grown than on the Cotswolds; the plant and crop is likewise better, often yields abundant crops of hay and lattermath, but is not allowed to remain down so long, its effects on the soil being so different.

The Wheat crop as a rule succeeds seeds, Rape, and early Turnips, and is the crop which above all others receives the greatest amount of stimulants in the shape of manure. Most farmers contend that it would be useless to plant Wheat without a dressing of some kind: with regard to the seeds, some persons apply all the available yard manure fit for the purpose in seasonable weather, during the preceding winter, and which increases the produce for hay and soiling. The lattermath is allowed to get up, and a heavy folding of sheep precedes the ploughing. That part not manured in the winter or spring receives a dressing after the hay crop is off, and, as far as possible, the sheep fold in addition. Ploughing does not commence so early as on the Cotswolds, seldom beginning before the middle of September. Two or three ploughs accompany each other, followed by two or three wheel-pressers. After the pressers sowing is mostly accomplished by hand. A few times with light drags, and oftentimes only with the harrows, is all the working it receives: some work after the plough and presser, and drill the corn. The quantity of seed varies from 2 to 3 bushels per acre, usually about 2½—that following the Rape and Turnips (the crops preceding, which were seeds and Swedes) receives one plough: sometimes it is pressed, and sometimes worked down and the Wheat drilled.—I have said Sainfoin is not allowed to remain down so long as on the Cotswolds: it is here more as a substitute for seeds, and seldom lies down more than four years, often not more than three, and sometimes only two. Some bring it in for Wheat, being treated like the seeds; it is, however, the practice with others, as likewise with seeds if the land is heavy, to feed it at spring of the year, plough it up, fold the sheep over it, then cross plough, well work and clean it—in short, to make a good fallow of it, and often the Wheat succeeds well with this treatment; some consider it equal to manuring on the heavy soils. When the land at spring of the year is at all hollow, it is well rolled or trodden with the sheep: it is sometimes hoed, but not as a rule.—Next comes spring grain after Wheat and roots: the Wheat stubbles chiefly receive one ploughing, the presser following, worked down and drilled; the remainder after roots, and which is generally only that which is fed off it, early; is sometimes rafted and ploughed, sometimes ploughed twice, but more frequently only ploughed once, and the corn drilled as early as the weather will allow, but earlier than here. The spring sowing is generally completed in March, all the late fed seed land remaining over for Rape and early Turnips. The seeds are sown partly in the Wheat and partly with the spring corn, some being sown to Cow-grass or Red Clover, 14 or 16 lb. per acre, and some with Rye-grass, White and Yellow Clover, 2 bushels of the former, 2 to 3 lb. of the White, and 5 to 6 lb. of the Hop Clover, reversing it when it comes round again; this, combined with the short quantity grown, admits of sufficient time for the land to recover itself from Clover sickness. Lastly comes the root and Rape crop, which follows seeds, roots, Barley, or Oats and Wheat.—The Rape and early Turnips are first planted after a portion of seeds and Swedes of the previous year, the land being treated according to its requirements, some being repeatedly ploughed, rolled, and dragged, while others may want only one ploughing and a good harrowing, or a scarifying may be resorted to. The application of manure also is regulated by the condition or dressings left by the sheep in feeding off the previous crops; seldom more than 2 cwt. of superphosphate is used; ashes or compost, and often water is added. The Rape sometimes is sown broadcast, but often these crops are put in with a drill. The Rape occasionally is not hoed, the Turnips get one or two hoeings. Planting is effected in two ways, by the dry and the water drill, each having its advocate. Water is much more extensively used than here, and strongly recommended by many, while others think ashes or compost with the dry drill equally efficacious. I have witnessed good crops and failures under both modes. Flat work is the rule, bouting the exception, for all kinds of roots. The greater part of the yard manure is generally applied to the seeds, preparatory to Wheat, in a very long or green state; consequently a great portion is thought to remain in the land for the succeeding root crop. Artificial manure is used for all roots, but not to the amount per acre as on the Cotswolds—about 2 cwt. guano and 2 cwt superphosphate for Mangels, 4 to 8 bushels of bones, or an equivalent in guano, and 2 cwt. superphosphate, where the yard manure was applied for the Wheat crop, for Swedes; and 4 bushels bones and 2 cwt. superphosphate for common Turnips. I do not mean to say that larger quantities are not used by many; on the other hand, I believe there are as many using less as there are more, consequently I put this at something about the average, and mostly produces a fair crop; in fact, with 1 cwt. guano, 4 bushels bones, and 1½ superphosphate to a poor soil, I have seen as good crop of roots produced as needs be. Bones and superphosphate mixed is considered by many better than either alone; it is the practice of many to burn ashes a year or so beforehand, and to purchase the bones at the fall of the year, mixing them with the ashes, keeping the heaps up together well and tidy, then letting them remain till about a fortnight before using, when the whole is carefully turned over. The bones for the most part will then go to pieces and act much quicker and more effectually, at a less cost, almost superseding the use of superphosphate. Many, again, purchase their bones early in the spring, moisten them with water, and add a portion of sulphuric acid, covering the mass with ashes, letting it remain a short time, and then occasionally turning it over; this also has been found to answer well, and they believe they get a stronger and better manure than when they purchase manufactured superphosphate. The generality of farmers, however, purchase their superphosphate or other artificial manures, and use them much as we do here, excepting, as I have before said, a more extended use of the water drill; they are planted at narrower intervals, hoeing and cultivation is much the same as here, but pitting or other means of preservation is seldom resorted to.

Differences of Cultivation.—The chief points of difference in the mode of carrying out the different systems, are, first, as regards the Wheat crop:—

(*a*) On the Cotswolds Clover or seeds, or what is more frequently termed one or two years lea, is the preceding crop, and often the only expense is cultivation up to the time of planting, viz., 1 clean plough, 1 roll, 4 drag tines, drilling 7 pecks of seed, and 1 or 2 harrow tines. Under the Hampshire a portion succeeds Rape and early Turnips, the previous year being seeds and Swedes; to that there is the tillages and manure for the Swede crop and the tillages and manure of the Rape and Turnips, rent, &c., besides the ploughing, working, drilling, seed, &c., up to the planting. The crop of Wheat generally is good, often much better than after seeds, and leaving the land in better heart; the remainder after seeds receives a dressing of yard manure, and the sheepfold; occasionally where this cannot be done, guano or other artificial manure is applied. (*b*) The Hants soils produce, comparatively speaking, little straw, but much kinder and stiffer than a great portion of the Cotswolds, while the yield in corn is good in quality and large in proportion to the amount of straw, consequently there is little fear (force how you may) of pushing the quantity of straw and throwing the corn down to its detriment. On the other hand, if we except the corn brash, Cotswolds often produce without manure an over-abundance of soft straw, easily lodging. I do not myself attribute the difference altogether to the mode of cultivation, but to climate—the lack of some material element in our soils to perfect its development. (*c*) Next, with regard to our Barley crop. Here it invariably follows the roots, some of which are often not fed off before May; and if we get rain when feeding off at this time, and the land is much trodden, the chance of a crop afterwards is materially lessened, and the quality not at all fit for malting purposes. On the other hand, the Hampshire farmers, by only planting their root land which has been fed off early, and the stubble lands, which cannot be much out of heart from its previous treatment for the Wheat crop and early planting, usually succeed in obtaining, if not a heavy crop, one of quality, and commanding the attention not only of their immediate customers, but those from a distance. (*d*) This brings me to their Clover and seeds. The Hants farmer, however, would think it almost madness to let any of his seed remain the whole of the second year, while the Cotswold farmer would be equally sceptical and puzzled to know in what way he could more advantageously apply them. It is a fact that would scarcely be believed by many here, that however good a piece of seed may be at the fall of the year, after being mown or grazed the preceding summer, the following spring it would scarcely be conceived to be seeds, and would not again rally, or be of much service afterwards; on the other hand, here frequently our seeds are better the second year than the first. (*e*) I will here add a few words with respect to the Sainfoin plant, which in Hampshire is considered by many as part of the seed brake, and in a measure taking the place of Clover; and is appreciated as affording good crops of hay and lattermath, but found to be a scourger to the soil, particularly if allowed to remain down long, rather than, as is the case on the Cotswolds, to stimulate and invigorate the land in proportion to the length of time it remains down. There is, however, some difference in its treatment, and which may partially explain the reason, viz., that the stock, when feeding, seldom lie on it, but are merely brought there for a few hours to fill themselves, and are then removed to some other kind of keep—a tie of Vetches, Clover, Rape, or the like. (*f*) Lastly, comes the root crop. The chief difference consists in the absence of direct application of yard manure, and relying solely on artificials; previously taking, to a considerable extent, catch crops of Rye, winter Barley, Oats, and Vetches, and growing a portion two years in succession. This latter I much question if it would answer here, as when our land is trodden late in the spring it would be almost impossible (in the generality of seasons) to obtain that fine tilth necessary to insure a good plant; the aim of the farmer in both districts is, as I have before intimated, one and the same—that of keeping a large amount of stock, believing (I may say knowing) this to be the best, if not the only means of keeping the soil in a good state of fertility, and of indirectly increasing the produce of corn, and thus, in a measure, making a return for his trouble and outlay.

5. *Live Stock.*—We will now consider kind, quantity, and mode of treatment, with the result such treatment is likely to effect, not only on the stock itself, but also the condition of the soil.

The chief stock in both districts is sheep; in Hants, however, it is the main—in fact, were it not for them, a great portion of the district must go out of cultivation, no artificial means as yet having been discovered to give that staple and solidity necessary on light puffy land for the production of corn as the feet of sheep; and the Hants farmer makes full use of his flock, not only in this respect, but also a means of conveying manure (by their droppings) to that locality by means of a fold they may deem necessary for any particular crop. The breed of sheep is also different. The large heavy-coated Cotswold would be ill-suited for the purpose; it is one peculiar to the county, of the Down character, but nevertheless very different to the neat South or Sussex Down, being larger and stronger, with large heads and coarse in the bone, and, to appearance, one would imagine more calculated for the hardships and privations they are often subjected to; they are, however, like most other local breeds, very much improved the last few years; and what is termed the improved Hampshire, will readily get fat; and I have known the lambs sold at the fall fairs at almost fabulous prices, then being from 8 to 9 months old, and ranging from 50*s.* to 60*s.* a-piece; and it is not at all uncommon for lambs, when yeaned the previous January or February, to sell for 30*s.* to 40*s.* each. These prices, however, are not obtained without much trouble and expense. Their mode of treatment is somewhat thus:—Most flockmasters like their lambs to drop as early in the year as possible. They remain in a place provided for them a few days after being yeaned, and are first turned into a piece of old lea or pasture for another day or two, from whence they are drawn off to the Turnip or Swede fields, spar and hurdles being placed at intervals, with spaces admitting the lambs to run forwards; and it is surprising how soon, and to what extend, the lambs will eat the green, and also the roots; their treatment is however, regulated by the aspiration of the farmer. If extraordinary achievements are to be attained, extraordinary means must be resorted to, and troughs and Turnip cutters immediately brought into play, the ewes getting, in addition to what roots and hay they can eat, a portion of cake or corn, the roots being cut outside for the lambs, with hay, hay-chaff, cake, and corn. Should bad weather set in, they are at once removed into the leas and pasture, and their food hauled to them. I have heard of instances of farmers, on sudden and heavy rain occurring, getting up in the night for this purpose; this is the treatment they receive till the water-meadows, or the Rye and so forth are ready to receive them, but, as the lambs get strong, instead of having their range, a fold is pitched forwards for them, their dams and the dry flock following to clear up. By weaning-time the spring feed is ready to receive them; they are then drawn into different lots, and forced for their intended market, a fold of Vetches, generally their first morning's meal, then again into seeds, and back into some Vetches, then a tie of Sainfoin, and lastly another tie of Vetches for the night; the use of corn and cake regulated according to the caprice of the farmer. As the Rape and early Turnips, with the lattermath, come on, these crops take the place of the Vetches, &c., and it is extraordinary how fast they then thrive. As soon as the lambs are weaned the ewes are drafted and are pushed on for the July fairs, and have, like the lambs, realised good prices. The breeding ewes all this time are complete scavengers, clearing up what is left by the others; they, however, generally do pretty well. As soon as the sale stock is got rid of, they are pushed on, and soon make up their flesh; they are folded every night as a preparation for some future crop, as also were the sale ewes. But there is a perceptible difference in the succeeding crops, where cake and corn are used. Generally speaking, very few cattle are kept; some, however, purchase a few, for the purpose of converting the straw, giving them cake; but few follow the system, as the cattle often pay very little more than enough to cover the cost of the cake, sometimes not that. Others take in tackers from the other divisions of the county, while some consume and tread down their straw with the sheep and horses. I have seen the Wheat-straw hauled about on heavy land from the threshing-machine, spreading about, folding on it, and then ploughing in. The Hampshire farmer, in this case, is far behind the Cotswold one; attention here being devoted to the keeping of cattle for the express purpose of manufacturing his straw into manure, more than from any direct profit. It could not, however, be carried out to a like advantage by the Hants farmer, from the general use of the fold for sheep, and, in many instances, the insufficiency of mounds and the want of pasture land. And, on the other hand, the treatment of their horses is worthy of our imitation. They are powerful animals, and always kept in the yard or stable, with a liberal allowance of corn winter and summer, a certain amount of hay combined with straw in winter, with Rye, Vetches, and Clover in the summer. But they get an hour's evening run in the summer time. They are at their labour from about half-past 6 in the summer, and in the winter as soon as they can see to plough, putting on the harness by candlelight. There are several other matters requiring notice, but I must have already tired your patience. One, however, I must just notice, namely, that of chalking or marling. It has been practised there for centuries past; and its effect is astonishing, particularly on the heavy land, not only increasing the produce, but tending to lessen the tenacity of the soil, consequently the labour in its culture.

Resolution: "This meeting is of opinion that the wheel-presser might be used to advantage on the Cotswold Hills. It would also be a step in the right direction to mix bones with ashes in the autumn, to be used with the root crop in lieu of superphosphate; but to alter the system of cropping, by breaking up a portion of the old seeds for a crop previous to the Wheat, would not be advisable."

Reviews.

Prize Essay on the Storing of Turnips. By W. Duthrie, Hillside, Kincardineshire. Printed for the Royal Northern Agricultural Association.

Sir J. D. Elphinstone, Bart., offered a prize for the best essay on this subject to be written by farm servants, the prize to be awarded by the Royal Northern Agricultural Association. The Society requested Mr. MacLagan, of Pumpherston, to act as judge, and they have published the essay he selected as the best, along with accompanying remarks by himself, the whole forming a very complete and instructive pamphlet on the subject. The following are extracts:—

Mr. MacLagan says:—

On the Growth of the Turnip Crop. — "The Turnip plant is liable to be attacked by different insects and diseases. Scarcely have the root leaves in particular seasons emerged from the soil than the Turnip flea-beetle, commonly but erroneously called the Turnip fly, voraciously attacks them, and in a short time sweeps them off the surface of the drills. The conditions most favourable for the attack of this insect are cold dry weather, and a consequent slow growth of the plant. We should therefore try to use every means for hurrying the young plant through that stage of its

growth most favourable for the attack of this insect—viz., from the time of the braird to its getting the first rough leaf. We should therefore steep the seed in water before sowing, to ensure a rapid braird, sow thick, and use those manures most suitable for the Turnip in as soluble a state as possible, so that the young plant after exhausting the nourishment contained in the seed, and struggling for existence, may have no difficulty in finding the necessary food in an available form. In England, the water-drill has been used with great advantage to assist the plant through this critical period of its growth. Sulphur has also been recommended, both as a preventive and as a cure for the flea-beetle. After the Turnip has been singled, it is often attacked by the caterpillar, or more especially the larvæ of the Turnip saw-fly. Its devastation is generally rapid and complete. The remedies proposed for it are sowing hot lime over the field, picking the caterpillars off the leaves by means of boys and girls, and turning poultry, particularly ducks, into the fields. Moles also destroy the plants to a large extent, by burrowing along the drills in search of worms. Rooks commit similar damage by searching for worms amongst bones that had been sown with the Turnips; and wood-pigeons are most destructive to young Swedish Turnip plants, by eating the leaves. The damage committed by these birds is quite incredible to those who have not had an opportunity of examining a field of Swedish Turnips that has been subjected to their depredations.

The Turnip crop, however, has suffered more from the diseases of finger-and-toe and anbury than from any other attack of insect or disease. I prefer to give the results of an experiment I made with the view of discovering a remedy for these diseases to discussing the various theories that have been published regarding them. A few years ago, I improved a moor. The rotation was as follows:—Two years Oats, third year Turnips, fourth Oats, fifth Turnips, which failed entirely, from finger-and-toe. Another crop of Oats was then taken, and lime was applied on the stubble during the winter at the rate of 8 tons per imperial acre to all the field, excepting two or three ridges, which were left unlimed for experiment. Turnips were sown after the Oats and lime in the following summer, and the result was that there was not a single sound Turnip on the unlimed ridges, and not a single diseased one on the land that was limed.

After the Turnips have reached maturity, they are liable to be attacked by animals, particularly deer, hares, rabbits, and by rooks and wood-pigeons. The destruction by the former is very great; hares, in particular, play sad havoc, not so much from what they consume, but from what they destroy; they seldom make a meal off a Turnip or two, which they may commence on, but they run along a field, breaking a great number of roots, and thus rendering them quite unfit for being stored. The wood-pigeons eat principally the leaves of the Swedish Turnips during frost, and the rooks at the same time pick holes into the roots, destroying them even more than the hares. Many allege that the wood-pigeons are also guilty of making these holes; but such is not the case, for they are quite incapable of doing this from the formation of their bills. They feed from the holes which the crows have made before them. The only remedy for these pests is to keep down their numbers, which proprietors will find it to be as much their interest as that of their tenants to do.

On the Storing of the Crop, the essayist insists on the following conditions:—"1st. That they are perfectly ripe before being pulled. 2d. That they are dry, both when carted and stored. 3d. That they are neither cut nor bruised in pulling. 4th. That they be carefully cleared of all earth and dung which generally rise with the roots, cutting off the smaller fibres or roots, and also the tops of the yellow varieties, not nearer the bulbs than half-an-inch, and that of the Swedish about the middle of the shank or castock. 5th. That they be carefully covered when dry. 6th. That they must be covered and ventilated, so as to prevent them from suffering from frost, stagnant gases, or a current of air."

The following are passages on the same branch of the subject by Mr. MacLagan. He says:—

"Let any one examine a field of Turnips before a black frost, and in spring, after it has been exposed for a week or two to such a frost, and the number of Turnips he will then see wasted will be sufficient to convince him of the advantage of having had them protected from the frost. In clay districts, where there is much rain, the storing of Turnips is now considered nearly as necessary an operation as the storing of Potatoes. Whenever the roots have reached maturity, storing should commence. If stored before they are fully ripe, they are apt to sprout in the pits; but I would rather run the risk of sprouting than lose a favourable opportunity of storing. The sprouting can be stopped by opening the pits, and turning the roots over, rubbing off with the hand any new sprouts that may be on them.

"As the early or white variety of Turnips is the first used, it is not generally stored for any length of time; but as I like always to have a month's supply of roots stored up ready for any emergency, the white Turnips are put into large square heaps, about 2 feet high, level at top, and covered with straw. Sometimes I store them for lambing ewes in spring, in which case I pay particular attention to the details to be afterwards described in storing the harder varieties. The first thing to be observed in lifting Turnips, preparatory to storing them, is to do so only in dry, open weather. In handling them, particular care must be taken not to wound the bulb in any way. The tops should not be cut off closer to the bulbs than about three-quarters of an inch; and if possible more than an inch of the top should not be left adhering to the bulb, but rather leave more than run the risk of injuring the bulb. If the state of the land admit of it, the Turnips should be carted from the field the same day on which they are lifted. This is a consideration not often attended to, but it is most important; one night's keen frost on Turnips topped and lying along the bottom of the drill renders them unfit for keeping any length of time in heaps or stores. A farmer of my acquaintance who sells Turnips to the cow-feeders in town, and requires always to have a fresh supply in store for his customers, makes it a practice to send out his carts to the field with the people who lift his Turnips, so that they are thrown at once, after being topped and tailed, into the carts. They should never be stored with the least moisture or frost on them. Frequently on the clay soils in this district it is impossible to take them off the field the same day on which they are pulled, without poaching the ground, and doing such injury to it as materially to deteriorate the succeeding crops. In such cases the roots should be thrown together into small heaps, as far apart as the workers can conveniently throw them, and then they should be covered up with the tops. This should be done the same day on which they are lifted. And the first opportunity of a frosty morning, or of a tract of dry weather, should be taken to cart them off to be stored for the winter. If any of the bulbs should be touched with frost, from being insufficiently covered, they should not be stored, but thrown out for immediate use. This operation will cost about 1s. 6d. per imperial acre; but if we consider the profit from it, not only in having well-preserved roots, but in having the soil in a proper state for the following crops, the trifling expense, equivalent in value to 3 or 4 cwt. of Turnips per acre, should not be grudged.

"We shall be better able to judge of the best mode of storing Turnips if we mention first what are the necessary conditions for their keeping well in stores. They should be kept dry, and safe from frost, and they should not, particularly when first stored, be covered quite close up; ventilation is absolutely necessary. I shall now proceed to state the different kinds of storing practised, pointing out the best in conformity with these conditions. Where the climate is wet and late, and the soil and subsoil retentive, it is advisable to cart all the Turnips off the field, and store them in suitable and convenient places near where they are to be consumed by cattle in the steading, or sheep on some lea field. They are better stored on the surface of the land than having a pit even six inches deep made for them, unless the subsoil be very dry. When brought to the places selected for storing, the Turnips are thrown up into triangular heaps, from four to eight feet in width at the base, and as high as they can lie, and as long as is thought convenient. The width of the heaps should vary with the time the Turnips are expected to be stored—the widest heaps being first used. About 6 inches of dry straw should then be placed next the roots, and at least 6 inches of wet straw from the stack-yard, and 2 or 4 inches of thatch. The thatch should be tied down by straw ropes. The use of the wet straw is to prevent the admission of frost to the roots in windy weather, during which dry straw has little effect in keeping out the frost. If there is a stone and lime wall near the place where it is wanted to store the Turnips, they may be thrown up against it, making the heaps as wide at the bottom as may be thought necessary, according to the time that the roots are to be used, and as steep as that no rain may find its way into the heaps, but may run down the thatch. The same covering of straw and thatch should be put on. If the Turnips are to be consumed during the winter, they should be stored on the south side of the wall, if it runs east and west, so that the stores may be opened in frosty weather during the warmest time of the day. If they are for spring use, they should be stored on the north side of the wall, where they will be less liable to sprout. The plan often followed for storing Mangel Wurzel in England is also well adapted for storing Turnips. The rows of hurdles are set up from 5 to 9 feet apart, or two lines of stakes, about 2½ feet high, are driven into the ground about the same distance apart, and wattled, and some straw is placed between the roots and the hurdles or stakes. The carts are backed between the rows, and the roots are thrown up to the height of the hurdles or stakes, and above them they are piled up like a roof, and covered with straw to the thickness of about 15 inches, including the thatch. As many of these reservoirs for the Turnips are made parallel to one another, and with a passage between each two sufficient for a man to pass along, the thatch from the several heaps should overlap at this passage, to form a protection from the frost to the Turnips piled up at the sides of the hurdles, and drains should be made in the passages to carry off the water from the roof. The Turnips in such store heaps are thus kept dry, and well ventilated, and are protected from frost.

"In some districts there will be a scarcity of straw to give a sufficient covering of it to the store heaps. In such cases, half the quantity may be used with a covering of soil. Care should be taken, however, to have the heaps properly ventilated by leaving the top of them uncovered by soil, and, likewise, air holes, about a foot square, along the whole length and at the bottom of the heaps, about 6 or 8 feet apart, covered only by straw and thatch. After the fermentation, which always takes place when roots are thrown together, called in common language sweating, has subsided, these holes may be closed up by earth. But, however advantageous the storing of roots may be to the farmers, they are never so palatable to the cattle when taken from the store heaps as directly from the field. Some farmers, therefore, prefer preserving them in the field to carting them home. A plough is made to pass between two drills, to throw up the soil so as to cover the roots; this is called furring up. Where the Turnips are small, this may be effectual enough, but large Turnips can seldom be sufficiently covered by this method. Another and better plan is to make a deep furrow between two drills, and lifting four, five, or six drills, or as many as the furrow will hold, with the tops and roots entire, to place them upright, with the roots down, and close to one another, and then cover them up with the soil, by means of the plough, a man following with the spade and covering up the bulbs entirely in any part that may not have been sufficiently done by the plough. This I believe to be the best way of preserving roots for spring use; for they will be much sweeter than those stored in heaps and covered with straw; but unfortunately, it cannot be extensively practised; for unless the subsoil be very dry and porous to carry off the water rapidly from the Turnips, a large proportion of them will be rotted. Another plan is to throw the roots into small heaps in the field 4 or 5 feet wide at the bottom, and sloping up like a roof, containing two or three cartloads each; a slight covering of straw is thrown over them, and then some earth; these are carted home during frost, and used directly by the animals. By a combination of these different methods of storing, a farmer is made independent of the weather. In wet weather he receives his supplies from the store heaps near the steading; in frost, from the small heaps in the field; and in spring, from those that were earthed up. I confess, however, that I much prefer carting them all off at once from the field, if the horse labour admit of this being done at the proper time, unless the soil and subsoil are so dry as to allow of their being earthed up with safety. Sometimes Turnips are stored to a limited extent, according to the plan called causeweying; the plants are raised entire with tops and roots, and placed close to one another in the same position in which they grew; the tops protect them from a certain degree of frost, but they should not be kept too long, for though certainly they will resist the effects of the weather better than if they were exposed where they grew in the field, they cannot be so well preserved as if they were stored according to some of the methods described above. I have not alluded to storing in the houses, because I have found that the Turnips do not keep in them so well as in the heaps. There should always, however, be attached to a steading a root-house, adjoining the houses for cattle, sufficient to contain Turnips for eight or 10 days' consumption.

"I have now, I think, described the principal methods of storing Turnips. In all of them the roots lose in weight, in some more than in others; but it must be remembered that, when exposed all winter in the open field, the loss in weight is also very large. This loss may not be of much consequence to the farmer if it is only the water of the roots, but if it arises from the juice exuding from the cut roots, it is of material importance to him, and he should endeavour to prevent it as much as possible. Hence we have advised the roots not to be cut off those Turnips that are to be stored till they are taken out of the heaps to be used. It is thought, however, that they are far more apt to sprout when the roots are left entire, but for this the farmer should always be on the outlook by examining the heaps from time to time.

"Turnips are generally topped and tailed by means of an old sickle, and when they are firmly rooted in the ground, the workers often strike the bent part of the sickle into the bulb to pull it out; thus wounding it, and rendering it unfit to be stored. A better implement for topping and tailing is a knife, with a broad piece of iron welded on at the point, perpendicular to the blade, whose edge is in the opposite direction to that of the piece of iron. The implement resembles very much a small hoe, if we suppose the blade of the knife to be the shaft of the hoe, and the piece of iron, the iron part. The use of the piece of iron is to assist the worker to raise the Turnip, when he could not do it by pulling the shaw alone. I have had sent me from England an implement, drawn by two horses, for raising Turnips more expeditiously than can be done by labourers. The report of the trial shall be published in due time, if the weather admits of a fair trial. Another implement that would be found of use in raising Turnips is a two-pronged fork, somewhat like a dung drog, but with the prongs broader. This would be found of use in pulling up firmly rooted Turnips, such as the Swedish variety; so many labourers might go before, pulling them up, while others follow, topping and tailing them, if required."

Farm Memoranda.

ABERDEENSHIRE.—A correspondent of the *North British Agriculturist* thus details the circumstances of a farm in his own county.

As actual facts are much better than any mere general assertions, I purpose giving you a short statement of the receipts and expenditure on a farm with which I am well acquainted, and which statement I have full permission to publish.

The farm consists of 560 imperial acres, partly of light loamy, and partly of light sandy soil, on a gravelly subsoil, favourably situated as regards climate, exposure, and vicinity to markets. It is farmed partly on the 5-years' course, or 2 years' Grass, and partly on the 6-years' course, or 3 years' Grass. The rent in the years I shall refer to was 620*l*. It will now be 1110*l*. As it may be interesting to compare the different returns of grain in different years, I shall give the number of quarters of grain sold, and the money received, for seven crops, commencing with 1855:—

	No. of Qrs.	Price.
1855	692	£1111
1856	728	976
1857	653	735
1858	884	930
1859	695	776
1860	778	937
1861	690	875
Average of 7 years	728	909

The profit or live stock average 976*l*. for the last 5 years. To this ought to be added the keep of 10 cows for milk for servants, say 80*l*.; and it must also be observed that the stock has been steadily improving and increasing in value, to the extent, according to valuation, of 100*l*. per annum, during the two years referred to. This would bring up the actual profit on live stock to 1156*l*., which amount agrees pretty nearly with what the Grass and Turnips might yield if let—the former for pasture, and the latter to be consumed on the farm—

	£	s.	d.
Say 101 acres of first year's Grass, and deduct 21 acres for hay = 80 acres at 50s.	200	0	0
154 acres older Grass at 30s.	231	0	0
102 acres Turnips, consumed on the farm by cattle and sheep, at 6*l*.	612	0	0
	£1043	0	0

Other receipts from the sale of hay, Potatoes, Turnip seed, Grass, Pigs, &c., &c., vary from 80*l*. to 150*l*. per annum. I now give a statement of the actual receipts and expenses for the years 1860 and 1861:—

1860.

Receipts.		Expenses.	
Grain sold	£937	Rent and taxes, &c. ..	£669
Profit on live stock ..	996	Wages	348
Potatoes, hay, pigs, &c. .	122	Manure, cake, &c. ..	386
House rent, and meal, milk, vegetables, &c. .	75	Tradesmen's accounts, travelling expenses of all kinds, &c.	119
Increased value of stock	100	Seed	144
		Interest of capital, 5000*l*., at 4 per cent.	200
		Additional for tear and wear of horses and implements, say 1000*l*., at 5 per cent. profit ..	314
	£2230		£2230

1861.

Grain sold	£575	Rent and taxes, &c. ..	£667
Profit on live stock ..	911	Wages	376
Potatoes, hay, &c. ..	109	Manures, cake, &c. ..	414
House rent, &c.	75	Tradesmen's accounts, &c.	131
Increased value of stock	100	Seed	92
		Interest as before ..	250
		Profit	140
	£2070		£2070

It is pretty clear from the above statement that the

* A considerable part of the wages is, of course, paid in meal, cows' keep, house rent, &c.

tenants' average remuneration has not been very large, even at the old rent; and how a profit is to be made at the new rent, with taxes and poor rates proportionally increased, which will bring it up in all to 1130*l.* or a rise of 510*l.*, I confess I am unable to see. The foregoing may be considered as favourable seasons for the farm referred to. There is no doubt that there will be a great deficency of grain this year—to the extent of at least one-third. Much of the Wheat will not yield 1½ qrs. per acre, and that of miserable quality. Live stock have been bringing good prices, and the return from them will be rather above an average. I have endeavoured to give the whole as carefully as possible from the farm accounts, in the hope that the statement may possibly be of some use, both to landlords and tenants, previously to their entering into new engagements. It is clear that this is a farm that has been in a favourable position during the past few seasons, as compared with many others, both because the rainy seasons we have had lately have suited it well, and also because it is well adapted for stock-rearing. Probably more might be done on it in that way. Everything at present seems to point to the conclusion that, exposed as British farmers now are to free competition with the finest grain-growing districts in the world, live stock is the thing on which they must more and more depend for their profits. *A., Aberdeenshire.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. Spearing, Moulsford, near Wallingford, Berks, during the week ending Feb. 11, 1863.

Day of Week.	Day of Month.	Reading at 9 A.M. Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Dry Bulb Thermometer.	Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0–6	Amount of Cloud 0–10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday ..	5	30.16	42	42	S.W.	2	7	50	40	63*	40	..	44	44½
Friday ..	6	30.35	47	46	S.W.	2	7	51	41	75	40	..	45	44½
Saturday ..	7	30.24	49	47	S.W.	2	6	54	44	83	39	..	45	45
Sunday ..	8	30.04	43	43	N.W.	2	7	56	42	64	39	0.03	45	45
Monday ..	9	30.21	36	34	N.W.	3	7	49	35	82	29	..	44	44½
Tuesday ..	10	30.20	43	42	W.	3	5	40	35	73	31	..	44	45
Wednesday	11	30.35	45	42	S.W.	2	4	52	40	80	34	..	44	45

* The readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Calendar of Operations.

FEBRUARY.

Berwickshire Merse Farm: *Feb.* 7.—Four weeks more of fresh and boisterous weather have passed, and no signs of winter, except an inch of snow (on the 20th ult.) which soon disappeared. The wind has been unceasing, but the frequent gales seem not to have done so much damage here as in other districts. On Wednesday night we heard one peal of thunder, while a very severe storm was raging in Edinburgh and Glasgow; and since that it has blown very strong from the west, but mild and drying. The depth of rain is only 1·8 inch, yet folded sheep have frequently had a wet lair. Wheat sowing has gone on from time to time, as the land was cleared; but the rawness of the soil has scarce admitted of harrowing sufficient to cover the seed. These two days, however, have been so spring-like, that the land is drier than it was last April, and we have been enabled to give a finishing stroke to a break sown during 10 days past. Swedes still maintain their excellent feeding quality, but they are going all too fast. We may hope for early Grass to finish off fat hogs; but it is too soon to count on it. Barley and Oats are liberally made use of to eke out the store of Turnips. Corn continues to yield badly, but it is in better condition; and the prices are falling owing to mild weather, and "the appearance of the growing crop." Of the latter we have seen but little; for the larger part of it is underground, in various stages of germination and incipient growth. *J. T.*

Notices to Correspondents

American Stone Breakers.—Mr. Grenville will obtain every information on this subject from Mr. L. A. Bigelow, 144, High Holborn.

Cottages: *Falcon.* We will take care of your MS., and return it with thanks, if not published.

FOWLER'S

STEAM PLOUGHING AND CULTIVATING PATENTS.

RANSOMES & SIMS, Orwell Works, Ipswich,

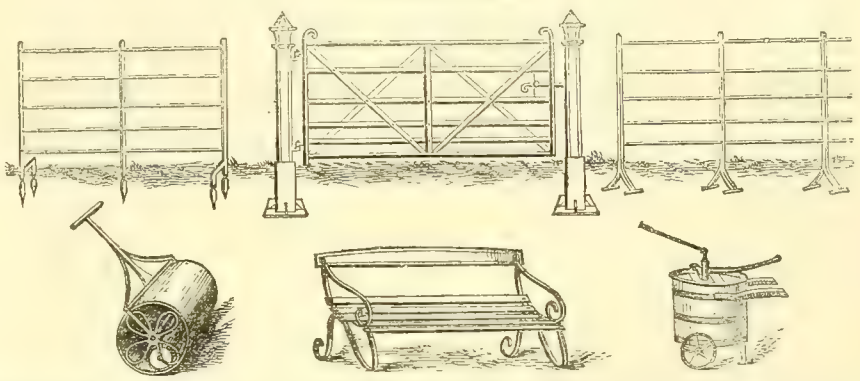
Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

COTTAM'S

CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED, IN VARIOUS STYLES.



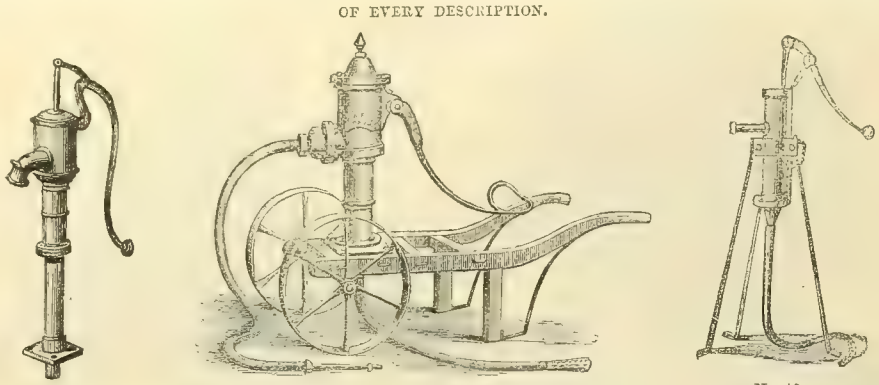
IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes. VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c. The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

Illustrated CATALOGUES and DRAWINGS free on application to COTTAM & CO., ENGINEERS and IRON FOUNDERS, 2, WINSLEY STREET (Opposite the Pantheon), OXFORD STREET, LONDON, W.

JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. No. 36½. Improved Cast-Iron Lift and Force Pump. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... ... £1 1 | 2½ inches ... ... 3 feet 3 inches high £1 10
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0
2½ inches long, ditto ditto 2 14

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump one man will force the water in a continuous stream to a height of 50 feet. When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve, and cannot clog in action.

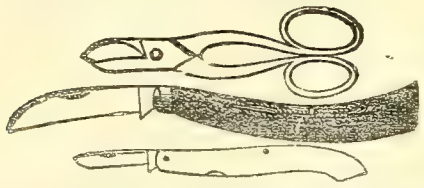
4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

PATENTEES and MANUFACTURERS,

JOHN WARNER and SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal is just awarded to SAYNOR & COOKE for superiority of quality in Pruning and Budding Knives, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

To the Nursery and Seed Trade.

BROWN'S FLORAL SHADING, the cheapest and best material for protecting Fruit Trees from Frost. Prices on application to CHAS. BROWN, Greenheys, Manchester.



JOSEPH HAYWOOD AND CO.,

MANUFACTURERS OF

PRUNING and BUDDING KNIVES,

SPORTSMEN'S, and all kind of POCKET CUTLERY.

Dealers in Gambia Garden Shears, Scissors, Syringes, &c.

Glamorgan Works, Sheffield.

For Samples of the best possible

GARDEN NETTING,

apply to

THOS. BRITTAIN & Co., Manchester.

TANNED NETTING, at reduced prices.—1*d.* per square yard; 200 yards, 14*s.*; 500, 30*s.*; 1000 yards, 50*s.* SCRIM CANVAS, for Wall Fruit; GARDEN MATS; GREENHOUSE SHADES.

Be particular. FREDERICK EDGINGTON & Co., Rick Cloth Manufacturers, Thomas Street, Old Kent Road, London, S.E.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

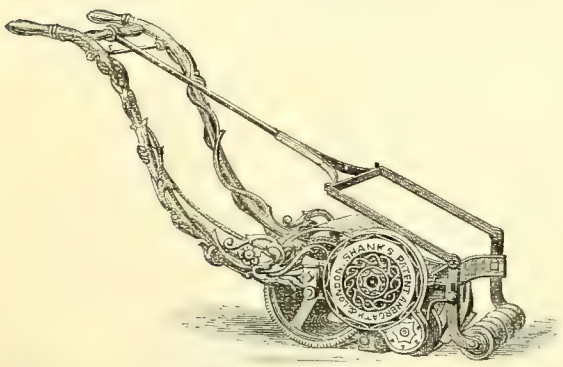
VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.



NEW HAND MACHINE.

THE FIRST PRIZE MEDAL

OF THE

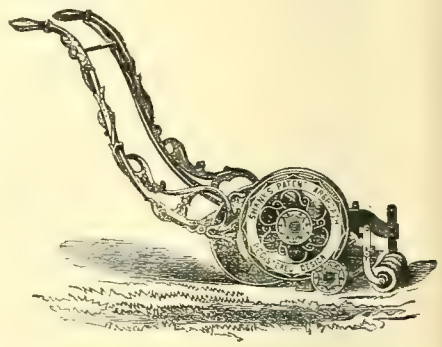
INTERNATIONAL EXHIBITION

WAS AWARDED TO

ALEX. SHANKS AND SON

FOR THEIR

PATENT LAWN MOWERS.



12-INCH or LADY'S MACHINE.

ALEXANDER SHANKS AND SON are gratified to find that the Improvements introduced into their PATENT LAWN MOWERS last season have been so entirely successful, that universal satisfaction has resulted from the use of these Machines wherever they have been tried. The Patentees have this season introduced further Improvements into their already celebrated Lawn Mowers, which are fully described in their Illustrated Price Lists, which will be at once forwarded on application.

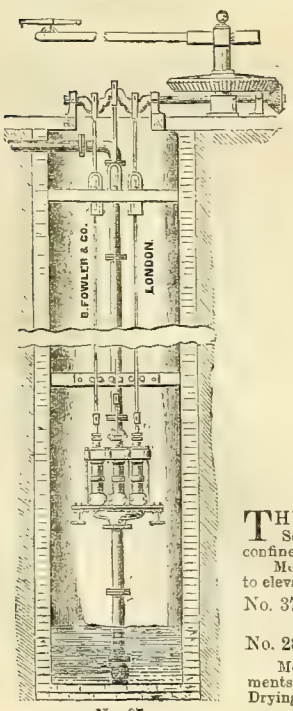
SHANKS' PATENT LAWN MOWERS are in use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL. They are also in use in many hundreds of the principal Gardens in the Kingdom, and in almost every country throughout the world, where their merits have been thoroughly tested, with the most satisfactory results.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.



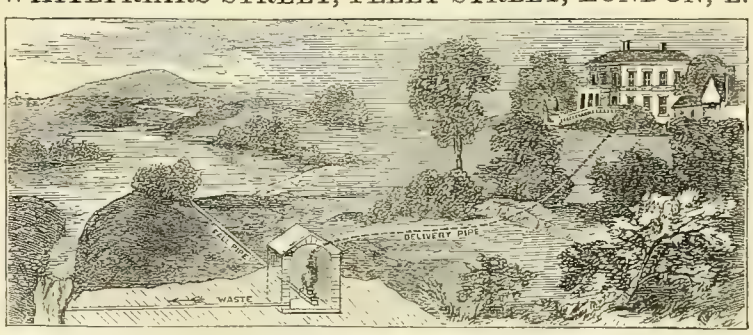
No. 37.

BENJAMIN FOWLER & CO.,

MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.



THE Landscape Sketch shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

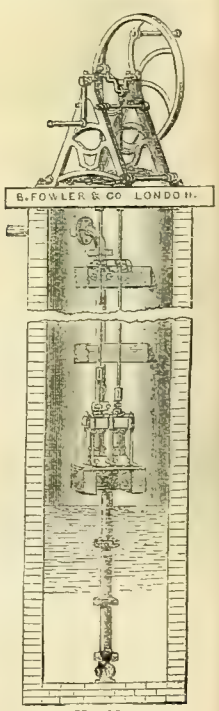
Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for raising water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c., free on application.



No. 28 *a*.

THE HYDROPULT,

THE HYDROPULT

IS INVALUABLE FOR

WATERING GARDENS,

EXTINGUISHING FIRE JUST COMMENCED,

PROTECTING a ROOF from FIRE,

CLEANSING TREES from INSECTS,

DRESSING with LIQUID MANURE,

SPRINKLING PLANTS,

WASHING WINDOWS,

WETTING SIDEWALKS,

SPRINKLING STREETS,

WASHING CARRIAGES,

WETTING SAILS,

A SPRAY BATH,

&c. &c.



Price
Two Guineas.

CAUTION.—Unprincipled parties are now palming on the public an infringement of the Hydropult Patent. This is to notify, that said pirates and all persons using or vending this article will, in due time, be prosecuted. No machine contained in a bucket is the Hydropult. Every Hydropult has a Trade Label affixed, as follows:—

"The Hydropult, a Portable Fire Annihilator and Garden Engine.
"GRIFFITH & BROWETT,
Manufacturers, Birmingham;
"CHARLES P. BUTTON,
General Agent.
"VOSE'S Patent;"

and is sold at the uniform rate of Two Guineas, complete, with 2½ feet Suction and 3-feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Fire Jet.

It is an easy matter to imitate the Hydropult in appearance, and thereby deceive the public; therefore this caution.

The Hydropult WEIGHS BUT 8 LB.; will throw 7 or 8 Gallons of Water per minute 50 FEET when worked by the power of one man.

Has been recommended as an efficient FIRE ENGINE by the principal FIRE INSURANCE COMPANIES of GREAT BRITAIN. Thomas Rivers, Esq., the eminent Florist; Shirley Hibberd, Esq., and other well known gentlemen, recommend it as an invaluable GARDEN IMPLEMENT. J. Spencer, Esq., Inspector of the Royal Society for the Protection of Life from Fire, certifies to its efficiency in saving valuable Property in Bayswater from destruction. The City and Provincial Press accord to the invention the utmost praise. All who purchase the Hydropult are satisfied with its action; each Machine guaranteed to be perfect.

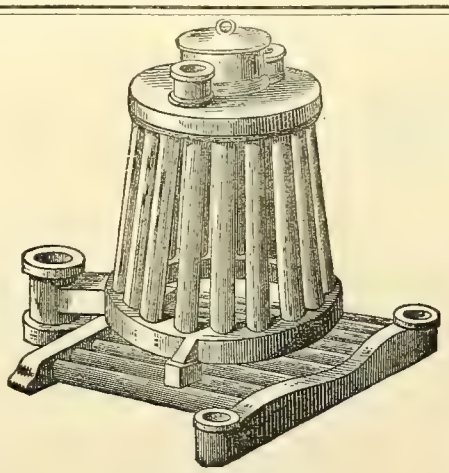
A PORTABLE GARDEN ENGINE, AND FIRE ANNIHILATOR.

Prospectus, with Testimonials, on application at either Office.

HYDROPULT OFFICE: 27, LEADENHALL STREET, LONDON, E.C.; and 309, REGENT STREET, POLYTECHNIC BUILDING, LONDON, W.—CHARLES P. BUTTON, PROPRIETOR.



FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the INTERNATIONAL EXHIBITION.





FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER
At the INTERNATIONAL EXHIBITION.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

HAS TAKEN MORE AWARDS THIS YEAR THAN ANY OTHER TUBULAR BOILER.

These Awards have been given by Scientific, Practical, and Competent Judges.

At the Exhibition of Boilers at the Royal Horticultural Society's Gardens, ORMSON'S PATENT JOINTLESS TUBULAR BOILER was the ONLY Boiler of any description to which an Award was given.

Other Tubular Boilers advertised in the pages of the *Gardeners' Chronicle* were exhibited to which NO Awards were given.

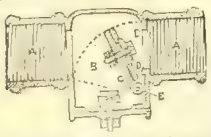
HORTICULTURAL BUILDINGS of every description MANUFACTURED by STEAM-POWER MACHINERY.

Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES, AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.



T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough, has recently patented a VALVE which is unequalled for its efficiency, simplicity, durability, and cheapness. Prices as under. Two-inch, 17*s.* 6*d.*; 3-inch, 23*s.*; 4-inch, 29*s.* A liberal discount to the Trade.

These Valves can be obtained in London of Mr. J. JONES 6, Bankside, S.E.

West of England, Ireland, and Wales.



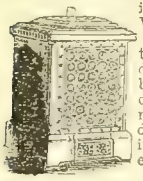
VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.



VINCENT SKINNER, Bridewell Street, Bristol.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.—This Stove is the nearest approach to Warming by Hot Water, and an efficient aid in Ventilation.

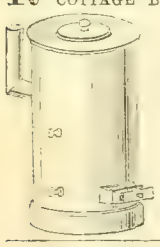


It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for Small Conservatories, with a vapour chamber, which maintains a moist atmosphere for 12 hours with once filling.

Particulars and prices post free on application to MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

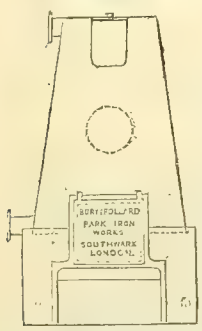
Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

New Method of Heating by Hot-Water.

THE IMPROVED

CONICAL BOILERS,

SOLELY MANUFACTURED BY



BURY AND POLLARD (Successors to JOHN R. PEILL, Late STEPHENSON & PEILL),

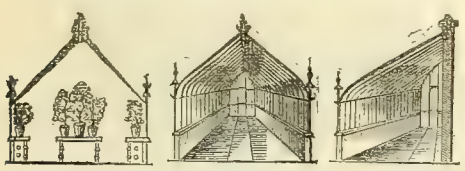
Have attained a celebrity far surpassing any other Boilers ever invented.

The annexed Sketch shows the improved arrangement, requiring

NO BRICKWORK SETTING.

All particulars on application to BURY & POLLARD, Park Iron Works, New Park Street, Southwark, S.

DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon



an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOTWATER APPARATUS MANUFACTURERS, near the Green Man, Old Kent Road, London, S.E.



200 CUCUMBER and MELON BOXES and LIGHTS, and from

400 to 500 LIGHTS for PITS of all SIZES kept in STOCK. Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the kingdom.

10 dozen strong Zinc HAND GLASSES, Glazed and Painted complete, ready for immediate use, 18, 20, and 22, all shifting tops.

References to the Nobility, Gentry, and Trade in most of the counties in England.

HOTHOUSES FOR THE MILLION.



AWARDED A PRIZE MEDAL, 1862.



ON THE PRINCIPLE INVENTED AND PATENTED BY

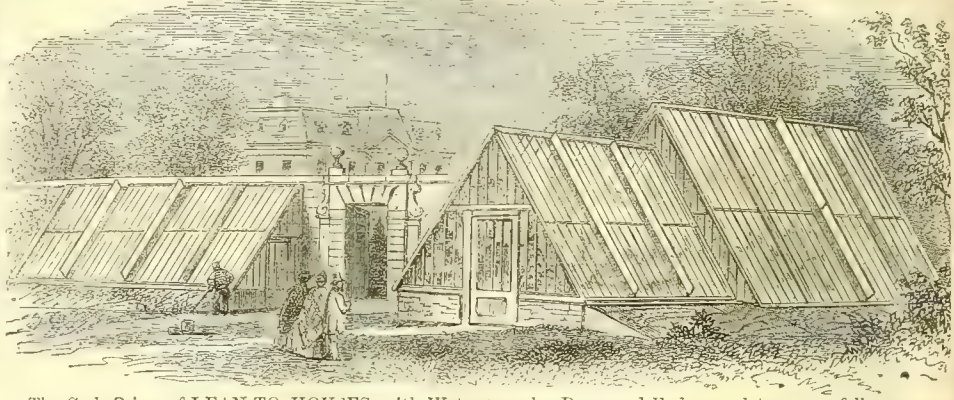
SIR JOSEPH PAXTON, M.P.

COMBINING SIMPLICITY, CHEAPNESS, AND DURABILITY,

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.

"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit can be obtained as the 'Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.



The Cash Prices of LEAN-TO HOUSES, with Water-troughs, Doors and Ends complete, are as follows:—

Ft. In.	8 ft. Lights	10 ft. Lights	Ft. In.	12 ft. Lights	14 ft. Lights	16 ft. Lights
20 7 in length	£12 0 0	£16 0 0	20 11 in length	£21 18 0	£28 10 0	£34 5 0
31 3 in length	16 10 0	21 2 6	31 9 in length	29 6 0	37 12 0	45 16 0
41 11 in length	20 18 0	26 18 6	42 7 in length	36 16 0	46 14 0	57 7 0
63 3 in length	30 6 0	38 10 0	64 3 in length	51 14 0	64 18 0	80 10 0
84 7 in length	39 6 0	49 11 6	85 11 in length	66 12 0	83 2 0	103 11 0
105 11 in length	48 17 6	60 12 6	107 7 in length	81 10 0	101 10 0	126 13 0

SPAN-ROOF HOUSES at double the above prices for each length of house.

Circulars with Lists of Prices and Cards to view houses in operation in the neighbourhood of London, also Estimates for Heating and Erection complete, can be had on application to

SAMUEL HEREMAN, 7, PALL MALL EAST, LONDON, S.W.

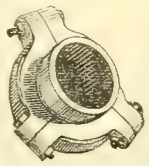
A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN, price 1*s.*; post free, 1*s.* 1*d.*

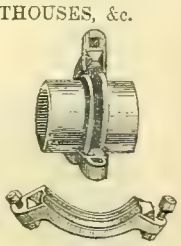
"We cannot do better than advise every reader who has a spark of gardening spirit and taste in him to write at once for a Copy."—*Bell's Weekly Messenger*, March 17, 1862.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS





Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erectio
16 feet by 8 feet	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

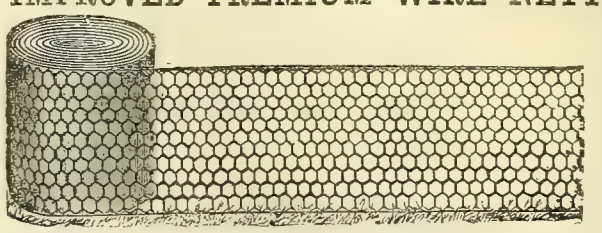
By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH:—

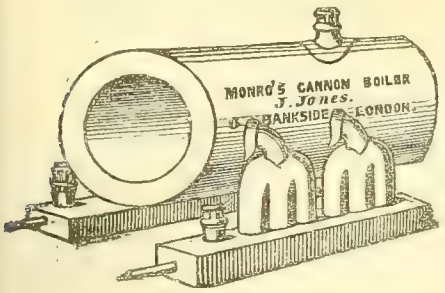
Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2¼ inch	Hares, Dogs, Poultry	3*d.*	4*d.*	3¾*d.*	5*d.*	4½*d.*	6*d.*	5½*d.*	7*d.*
2 inch	Game or Poultry Netting	3½*d.*	4¼*d.*	4*d.*	5*d.*	5*d.*	6½*d.*	6½*d.*	8*d.*
1⅝ inch	Small Rabbits, Hares, &c.	4*d.*	4¾*d.*	4¾*d.*	6*d.*	5½*d.*	7*d.*	7*d.*	9*d.*
1½ inch	Smallest Rabbits.....	5*d.*	6*d.*	5¾*d.*	7*d.*	7*d.*	9*d.*	9*d.*	11*d.*

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

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MONRO'S CANNON BOILER.

J. JONES,

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SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

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CONSERVATORIES,

FORCING PITS,

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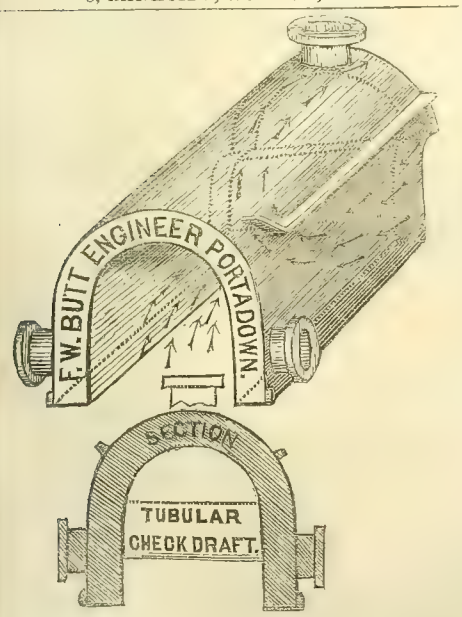
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HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d.; 3-inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from stock, 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

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Good substantially made GREENHOUSES, glazed, ready for fixing, 42 feet by 13 feet, 50l.; 21 feet by 13 feet, 28l.; 12½ feet by 10 feet, 15l. ORCHARD-HOUSES. 10 per cent. cheaper. A handsome CONSERVATORY, 46 feet by 19 feet, for Sale. Estimates given.

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Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

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Kerry Cattle.

MR. RICHARD G. CAMPION, Youghal, County Cork, has now ready for SALE 12 Beautiful HEIFERS, in Calf to a pure bred Bull, and to drop after 1st March.

Carhead Pigs.

MR. WAINMAN has several YOUNG BOARS and SOWS of his Battersea Prize Strains for SALE, at moderate prices.

Apply to Mr. FISHER, Carhead Farm, Cross Hills, Yorkshire.

WANTED to RENT, by a desirable Tenant, a good STOCK and CORN FARM of about 500 Acres in extent, in the South or West. A healthy convenient situation. Good House and Buildings with the Shooting indispensable.—Particulars to be addressed to S. W., care of Messrs. Dawson & Sons, 74, Cannon Street, London, E.C.

FOR SALE, a NURSERY BUSINESS, Established 20 years, in one of the best situations in this country. Stock first class and very select. Ground 6 acres of best quality, with Plant Houses and all necessary appurtenances. Rent moderate.

Address, HORTUS, *Gardener's Chronicle* Office, W.C.

Sales by Auction.

SALE THIS DAY, AT HALF-PAST 12 O'CLOCK PRECISELY.

Ornamental Evergreens, Fruit Trees, Roses, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., THIS DAY, Saturday, February 14, at half past 12 o'clock precisely, A CHOICE COLLECTION of PLANTS, consisting of Common and Portugal Laurels, Yews, Firs, Larch, Tree Box, Aucubas, Arbor-vitæ, Hollies, Fruit Trees, Roses, Oaks, Conifers, Hollyhocks, &c., &c.

On view the Morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on TUESDAY, February 17, at 12 o'Clock precisely, a choice assortment of POULTRY and PIGEONS, consisting of Dorkings, Cochins, Brahmas, Game, Hamburghs, Bantams, Rouen and Aylesbury Ducks, &c., from the yards of Mrs. H. Fooks, Mrs. Pattison, Mrs. Dunnage, Rev. G. Gilbert, Messrs. Boghurst, Plumbley, Jones, Smith, and other well-known fanciers. Also a capital lot of Pigeons, from the lofts of well-known breeders.

On view the Morning of Sale, and Catalogues had.

To Noblemen, Gentlemen, Nurserymen, and Others.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 18, at half-past 12 o'Clock precisely, a collection of HARDY PLANTS, consisting of Hollies, Pinuses, Red Cedars, Thujas, Piceas, Cryptomerias, Yews, Cypresses, Laurels, Laburnums, Raspberry Canes, Apple trees, Gladiolus Brenchleyensis, Carnations, Pinks, and Picotees, Violets, Delphiniums, Strawberry Plants, Dielytras, Vines, Currant Trees, &c.

On view the Morning of Sale, and Catalogues had.

Important Sale of Coniferous Seeds.

MR. J. C. STEVENS will SELL by AUCTION at his Great Room, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 19, at half-past 12 o'Clock precisely, Valuable and Rare CALIFORNIAN and GRECIAN TREE SEEDS, comprising the following choice sorts:—

Wellingtonia gigantea	Pinus contorta
Libocedrus decurrens	,, monticola
Abies Douglasii	,, ponderosa
,, amabilis	,, Lambertiana
,, grandis	,, radiata
Cupressus Lawsoniana	,, Coulteri
Picea Nordmanniana	,, maritima
,, Regiæ Amaliæ	Juniperus attica
,, new species	,, rufescens

and many other Hardy and Ornamental Varieties, all for absolute sale, without the least reservation.

On view the Morning of Sale, and Catalogues had.

Ornamental Evergreens, Fruit Trees, Roses, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on SATURDAY, February 21, at half-past 12 o'Clock precisely, a CHOICE COLLECTION of PLANTS, consisting of Common and Portugal Laurels, Yews, Firs, Larch, Tree Box, Aucubas, Arbor-vitæ, Hollies, Fruit Trees, Roses, Oaks, Conifers, Hollyhocks, Berberis, &c., &c.

On view the Morning of Sale, and Catalogues had.

Choice Collection of Standard Roses, &c.

MR. ARTHUR PLEWS will SELL by AUCTION, at the Auction Mart, on TUESDAY NEXT, at 12 o'Clock, a splendid SELECTION of ROSES, Choice Ornamental Shrubs, Fruit Trees, and Miscellaneous Floral Produce.

May be viewed the Morning of Sale, and Catalogues had at the Mart; and of Mr. ARTHUR PLEWS, Auctioneer and Valuer, 50, Chancery Lane, W.C.; and New Malden, Surrey.

MESSRS. TATTERSALL will SELL by AUCTION at Hyde Park Corner, S.W., on MONDAY, February 23, the property of a Gentleman, two remarkably handsome and pure bred SUFFOLK CART STALLIONS.

1. YOUNG EMPEROR, 4-years-old, by Chester Emperor, dam by Catlin's Duke.

2. GRAND DUKE, 3-years-old, by Chester Emperor, dam by Catlin's Duke.

N.B. Chester Emperor] was by Newcastle Captain, dam by Catlin's Old Boxer.

Annual Sale of very Handsome English Grown Camellias, &c.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, February 20, at 12 o'Clock, about 200 Choice DOUBLE CAMELLIAS, compact plants, from 1 to 6 feet, abundantly furnished with Bloom buds; fine AZALEA INDICA in flower; a superb assortment of about 300 very handsome Standard, Half Standard, and Dwarf Roses; a fair Collection of American Plants, Lilium lancifolium rubrum and album, Ericas, Epacris, Cinerarias, Fuchsias, Verbenas, Pæonias, Dahlias in dry roots, &c.

On view the Morning of Sale. CATALOGUES may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Peckham.

MESSRS. PROTHEROE AND MORRIS have received instructions to SELL by AUCTION, on the Premises, Hanover Nursery, Rye Lane, Peckham, S.E., on MONDAY and TUESDAY, February 23 and 24, at 11 for 12 o'Clock precisely, the VALUABLE NURSERY STOCK (on that portion of the ground required immediately to be cleared for the South London Railway Company), consisting of fine Evergreens and Deciduous Shrubs, including handsome specimen Araucaria imbricata, 5 to 6 ft.; Phillyreas, 4 to 6 ft.; Bushy Evergreen Oaks, 4 to 9 ft.; Common and Portuga Laurels, Hollies, Thujas, sorts; Box, Euonymus, Irish and English Yews, &c.; a choice assortment of American Plants, Standard and Dwarf Roses, Fruit and Ornamental Trees, a splendid collection of Herbaceous Plants by name; together with the Greenhouse Plants, comprising large specimen Double Camellias, Azalea indica, Chrysanthemums, &c.

May be viewed prior to the Sale. Catalogues may be had, 6d. each, returnable to purchasers, on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Sale of Conifers, Fruit, and other Shrubs and Trees.

MESSRS. PROTHEROE and MORRIS are instructed to SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on WEDNESDAY, February 25, at 12 o'clock, an assortment of choice CONIFERS, comprising compact specimens of Wellingtonia gigantea, Thujopsis borealis, Araucaria imbricata, Cupressus Lawsoniana, Retinospora, Abies Douglasii, Cupressus sorts, Skimmia japonica, &c. A rich assortment of American Plants, including the newest and best Hardy, Scarlet, and Hybrid Rhododendrons, Ghent Azaleas, Andromedas, &c. Also about 200 fine Standard and Dwarf Roses, selected Fruit and Ornamental Trees and Evergreens in variety. Strong Vines, sorts, in pots, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

Stratford, Essex.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Bunney to SELL by AUCTION, on the Premises, The Nurseries, Leytonstone Road, and within five minutes' walk of the Stratford Station, on the Great Eastern Railway, on TUESDAY, March 3 and following day, at 11 o'Clock each day, without reserve, the ground being immediately required for gravel digging, the valuable NURSERY STOCK, comprising quantities of fine Evergreens, of various sizes and description; some very handsome Standard and Dwarf Trained Peaches, Nectarines, Cherries, Plums, Apples, Pears; a superb assortment of Standard and Dwarf Roses; also Scarlet and other Rhododendrons, Azaleas sorts, Andromeda floribunda, Kalmias, &c., with a variety of Hardy Climbers in pots, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; at the Eagle, Snaresbrook; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

12,000 Choice Fruit and other Trees, Flowers, &c.

Bulstrode Gardens, Gerrard's Cross, Bucks.

TO GENTLEMEN, NURSERYMEN, MARKET GARDENERS, AND OTHERS.

G. C. HETHERINGTON has received instructions from Mr. W. Hook (who is leaving in consequence of the Duke of Somerset requiring the ground), to SELL by AUCTION, on the Premises, on MONDAY, February 23, at 11 for 12 o'Clock, the remaining portion of his Stock, consisting of about 5000 2 and 3-year-old BLACK CURRANT TREES, 600 fine Seedling Filbert ditto, 16 Hook's celebrated Seedling Cob-Nut Trees, without exception the choicest Nut out; 2000 Gooseberry Trees, 300 Sweetwater and Black Cluster Grape Vines, 3000 Moss and other Rose Trees, a quantity of Forget-me-Nots, Polyanthuses, &c.; 1000 yards of Lilies of the Valley, a few Lots of Seed Potatoes. Thirty accommodation Lots, consisting of Filbert Trees, Grape Vines, Currant, Gooseberry, Raspberry, Rose Trees, Flowers, &c.; a quantity of Pheasant's-eye and other Narcissus Plants, Spring Flowers, &c. The Seedling Filbert, Cob, Rose Trees, &c., are bedded fit for immediate removal. As the ground must be positively cleared there will be some small, as well as large lots, to suit the convenience of Purchasers, and all will be sold without the least reserve.

May be viewed four days prior to the Sale by applying to Mr. W. Hook, Gerrard's Cross, Bucks, of whom Catalogues may be obtained; also of the Auctioneer, Eton, Bucks; and of Mr. Cosier, Uxbridge; or will be sent by post on application.

Babraham, near Cambridge.

EXTENSIVE AND MOST IMPORTANT SALE OF THE ENTIRE HERD OF FIRST-CLASS SHORTHORNED CATTLE.

MESSRS. H. STRAFFORD AND J. CARTER JONAS, who are jointly concerned on this occasion, are honoured with instructions from the Executors of the late Mr. Jonas Webb to offer for SALE by AUCTION, without any reserve, the far-famed BABRAHAM HERD of First-class SHORTHORNS, consisting of about 150 head of Bulls, Cows, and Heifers, which are chiefly descended from the following celebrated Cows: "Celia," "Dodona," "Belinda," "The Beauty," "Daffy Gwynne," &c., which on reference to the Herd Book will show a fine combination of good blood, and a marvellous illustration of the prolific character of the two former tribes in the hands of the late Proprietor for the last 20 years, during which time has been used some of the best blood of the day. The Herd will be divided in two portions, the first of which will be offered on WEDNESDAY, April 15, and the remainder on WEDNESDAY, the 15th July next.

The Auctioneers beg to call attention to the high honour gained by this Herd in winning the Gold Medal for the best Shorthorn exhibited at the recent Battersea Show, and to assure Breeders and Buyers of Shorthorns, that their instructions from the Executors are most positive, and that the whole will be sold without the slightest reserve.

Catalogues, with Pedigrees, and other particulars, will shortly be issued, and may be had on application to Mr. J. CARTER JONAS, Land Agent, Cambridge; or of Mr. STRAFFORD 13, Euston Square, London, N.W.

GREEN'S

LATEST IMPROVED PATENT

LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863,

FOR WHICH HER MAJESTY'S ROYAL LETTERS PATENT HAVE BEEN OBTAINED.

THE FIRST PRIZE MEDAL

OF THE

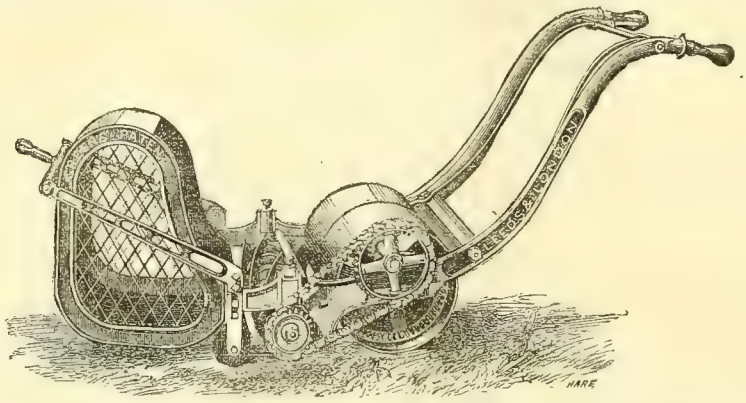
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THOMAS GREEN

FOR HIS

PATENT LAWN MOWERS.



THE FIRST PRIZE MEDAL

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WAS AWARDED TO

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FOR HIS

PATENT LAWN MOWERS.

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS DURING THE SEASON OF 1862.

THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, have much pleasure in stating that the important Improvements which were added to their Machines for last season (which combined simplicity of construction, durability, and lightness of draught), have proved them to be superior to anything of the kind ever brought before the Public, inasmuch as they have given entire satisfaction wherever used, and have gained the largest sale of any Machines extant. They have carried off every Prize that has been given in all cases of competition, and were the only Machines highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given).

GREEN'S PATENT LAWN MOWERS are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

						If With Patent Delivery Box.
To Cut 10 inches	£3	10	0	Suitable for a lady.		
„ 12 „	5	0	0	Suitable for one person. If with internal gear, 10*s.* extra.		
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„ 16 „	6	10	0	Suitable for one man or two boys.		
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„ 22 „ ...	8	10	0	Suitable for two men ...	9	17 6
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Leather Boots for Donkey, 16*s.*; for Pony, 20*s.*

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

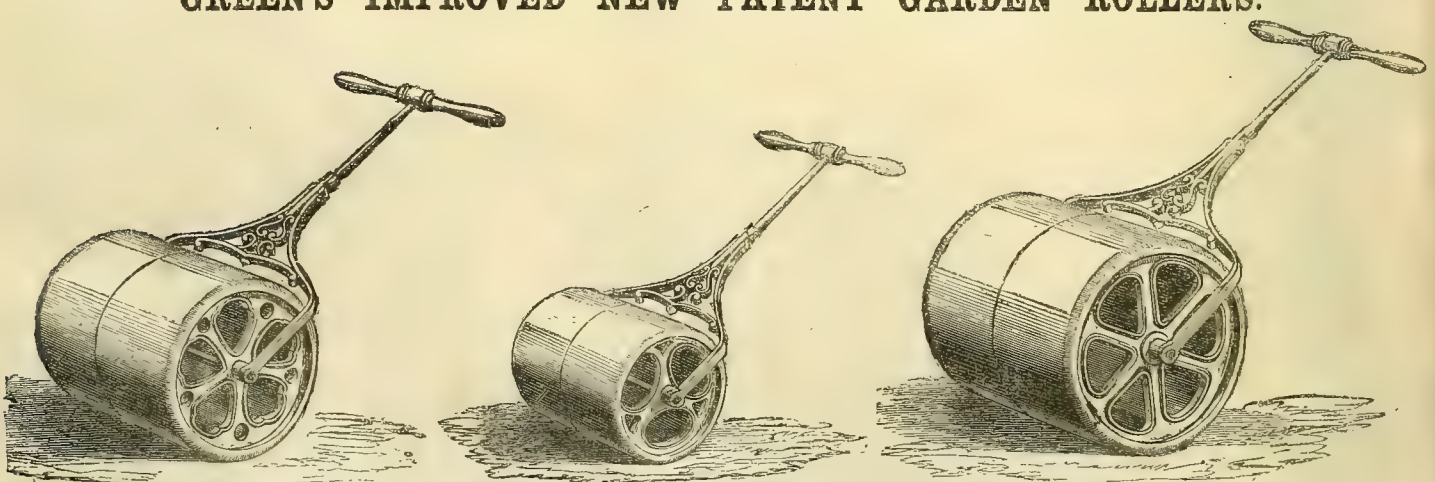
	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	... £21 10 0
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„ 42 „	26 0 0	... 28 2 0
„ 48 „	29 0 0	... 31 8 0

Leather Boots for Horse, per set, 1*l.* 4*s.*

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.



Diameter 20 inches, length 22 inches, price £3 5*s.* | Diameter 16 inches, length 17 inches, price £2 10*s.* | Diameter 24 inches, length 26 inches, price £4 5*s.*
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

T. GREEN AND SON in introducing the above are well aware that the extremely simple character of this Implement cannot admit of any very radical change, yet they are confident that the Improvement just effected (and secured by Letters Patent) is a real one, and is strikingly apparent when compared with any other Garden Roller. In previous Rollers a limit was always set to weight in consequence of marks being left on the gravel, and the power required to work them, but the present one is nearly double the ordinary weight, yet is considerably easier to turn in consequence of the Roller being divided in two parts, and the outer edges being rounded off or turned inwards, thus avoiding the *unsightly marks* left by all others hitherto in use. They can be used by the most unskilful with the greatest certainty of producing a beautifully even surface, either on *Lawns or Gravel Paths*, and for the *Bowling Green and Cricket Field are really indispensable.* They are manufactured of the best materials, and got up in a manner surpassing any ever yet brought out.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; and 2, VICTORIA STREET, HOLBORN HILL.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MOLLETT EVANS, of No 11, Bouverie St., in the Precinct of Whitefriars, City of London Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, February 14, 1863.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 8.—1863.] SATURDAY, FEBRUARY 21. {Price Fivepence. Stamped Edition, 6*d*.

INDEX.

American miner ..... 176 *a*
Astrometeorological prophecy 182 *b*
Bamboos, flowering of Japanese ..... 175 *c*
Begonias, to propagate ..... 176 *c*
Botanical gardens ..... 174 *b*
Buscot and Coleshill estates . 177 *c*
Carts ..... 180 *b*
Cottages for labourers ..... 179 *c*
Cranley Village Hospital, Report of ..... 182 *a*
Dahlias ..... 174 *c*
Dublin winter garden ..... 173 *b*
East Leach Farm ..... 178 *c*
Farmers' Club, Hexham ..... 181 *a*
Flower seeds, collections of .. 174 *a*
Furze, cutting and crushing for cattle food ..... 180 *a*
Gardener for Cashmere ..... 172 *c*
Geology in South Australia .. 173 *a*
Grape, Muscat of Escholata .. 171 *b*
Indoor gardening ..... 173 *c*
Labourers, cottages for ..... 179 *c*
Moles ..... 180 *b*
Orchids, African ..... 174 *a*
— roots ..... 174 *a*
— on blocks ..... 173 *a*
Pear, Beurré Brettonneau ... 174 *b*
Posts, to prevent rotting in .. 176 *b*
Raspberry, culture of ..... 173 *a*
Roots, power of selection in.. 174 *a*
Roses, Alpine ..... 176 *c*
Rose culture ..... 172 *a*
Roses from buds ..... 174 *b*
Society, Hort. of Liége ..... 172 *b*—174 *c*
— Royal Horticultural .. 172 *c*
— Entomological ..... 175 *a*
Sparrows and Caterpillars .... 180 *b*
Steam cultivation ..... 178 *c*
Stephanotis, fruiting of ..... 176 *c*
Stock, relating to ..... 180 *b*
Transplanter ..... 174 *a*
Veitch's (Messrs.) nursery .... 175 *c*
Vine disease ..... 171 *c*
Water pipes, paper ..... 174 *c*
Woodstock ..... 175 *c*

ROYAL HORTICULTURAL SOCIETY.—First Exhibition in 1863. The SHOW of HYACINTHS and other SPRING FLOWERS will be held at South Kensington on WEDNESDAY NEXT. Open at 1 o'clock. Admission, Half-a-Crown.

All Plants, &c., to be brought in at the Eastern Entrance in the Exhibition Road.

Packets of 25 Five Shilling Tickets, admitting one or two persons according to the daily charge, to the Fêtes and Promenades, during the Season, can now be obtained.

ROYAL HORTICULTURAL SOCIETY. FLORAL COMMITTEE.

The next MEETING of this Committee for the Exhibition of NEW PLANTS and SEEDLINGS will be held in conjunction with the Show of Spring Flowers, which will take place in the Gardens of the Society on February 25.

The subjects exhibited must be in the Gardens by 9 A.M., in accordance with the regulations for the Show; but they may be entered without previous notice. All persons are at liberty to exhibit.

THOMAS MOORE, Secretary to the Floral Committee.

ROYAL HORTICULTURAL SOCIETY. FRUIT COMMITTEE.

A MEETING of the Fruit Committee of the Royal Horticultural Society will be held on the 25th inst., for the Examination of such FRUITS and VEGETABLES as may then be submitted for adjudication, and for a comparison between New BLACK HAMBURGH GRAPES with any other variety of Old BLACK GRAPES. Chair to be taken at 12 o'Clock.

All Communications and Packages to be addressed to ROBERT HOGG, LL.D., Secretary to the Committee.

ROYAL BOTANIC SOCIETY of LONDON, REGENT'S PARK, N.W.

EXHIBITIONS of SPRING FLOWERS.

SATURDAY, March 28th, CAMELLIAS, PRIMROSES, &c.
,, April 11th, AZALEAS, HYACINTHS, &c.
,, April 25th, ROSES, PELARGONIUMS, &c.

The Band will play from half past 2 to half-past 5.

Visitors admitted by Tickets, to be obtained at the Gardens, by orders from Fellows and Members of the Society. Price 2*s*. 6*d*. each, or in packets of 10 for 1*l*. per packet.

HORTICULTURAL SOCIETY of LIVERPOOL.—The First EXHIBITION of HYACINTHS and SPRING FLOWERS will be held in St. George's Hall, Liverpool, on WEDNESDAY, March 18.

For Schedules of Prizes and any further information, apply to R. W. KER, Hon. Sec., 4, Basnett Street, Liverpool.

STAMFORD HORTICULTURAL SOCIETY.—The GRAND SUMMER FÊTE and ROSE SHOW will be held on WEDNESDAY, July 8.

Schedules with Rules will shortly be ready, and may be had on application to Messrs. LAXTON & HEWITT, Hon. Secs., Stamford.

To Floral Societies.—Notice.

MESSRS. J. DOBSON AND SONS having retired from Exhibiting for Prizes during 1863, beg to state that Mr. DOBSON, Sen., is open to accept engagements as JUDGE during the season.—Woodlands Nursery, Isleworth, W.

NEW PRIZE MELONS, at 1*s*. 6*d*. per packet.

Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria,

For descriptions see GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Grape Vines.

J. IVERY AND SON beg to inform their Patrons that their stock of the above is unusually fine this season. A PRICED LIST now ready.

Dorking Nursery.

VINES, VINES.—Extra Strong Canes, for Fruiting in pots this season, price 8*s*. 6*d*. each, for Sale by JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

Pine Plants.

TO BE DISPOSED OF, by a gentleman leaving for town and giving up his House, &c., about 100 good healthy PINE PLANTS, this and last year's growth.

Apply by letter to Mr. F. STEAD, 23, Jarratt Street, Hull.

STRAWBERRIES.—A New DESCRIPTIVE CATALOGUE of more than 200 varieties of Strawberries, from good plants, of nearly every variety, can now be supplied by the Grower,

W. J. NICHOLSON, Egglescliffe, Yarm, Yorkshire.

WEBB'S PRIZE COB FILBERTS, and other COB NUTS as exhibited at the INTERNATIONAL FRUIT and FLOWER SHOW, Kensington. Trees of these splendid varieties of Filberts may be had by application to RICHARD WEBB, Calcot Gardens, Reading.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH, SEED MERCHANTS, Covent Garden Market, London, W.C.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.

New and Genuine Garden and Agricultural Seeds.

SPECIAL PRICES ON APPLICATION TO

JAMES FAIRHEAD AND SON, SEED GROWERS AND MERCHANTS, 7, Borough Market, London, S.E.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Agricultural and Garden Seeds.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbeach.

Special PRICED LIST of NEW SEEDS on application.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

Agricultural and Garden Seeds.

CHARLES SHARPE AND CO., SEED GROWERS, SEED MERCHANTS, and NURSERYMEN, Sleaford.

SPECIAL PRICED LIST of SEEDS of 1862 growth on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

ANDRÉ LEROY'S NURSERIES, at Angers, the largest and richest in France.

CATALOGUES sent on application.

AUGUSTE VAN GEERT'S NURSERY, Ghent, one of the finest on the Continent.

CATALOGUES may be had on application, or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

TROPÆOLUM LOBBIANUM ELEGANS (Crystal Palace Scarlet), Seed scarce.

Per packet, 1*s*. and 2*s*. 6*d*.

BUTLER & M'CULLOCH, Seed Merchants, Covent Garden Market.

New Garden Seeds of our own Growth.

JAMES CARTER AND CO. are now prepared to execute orders for the above, saved at their Seed Farms. 237, 238, & 261, High Holborn, W.C.

CARTER'S SELECT LIST of New and Choice VEGETABLE, FLOWER SEEDS and PLANTS is now published, gratis and post free.

237, 238, & 261, High Holborn, London, W.C.

NOVELTIES.—The Novelties of the Season, Illustrated in CARTER'S GARDENER'S and FARMER'S VADE MECUM, post free for 12 stamps.

JAMES CARTER & Co., 238, High Holborn.

Choice Kitchen Garden Seeds.

B. S. WILLIAMS'S Advertisement on last page of *Gardeners' Chronicle*, Jan. 31.

Paradise and Victoria Nurseries, Holloway, London, N.

*** PRICED and DESCRIPTIVE CATALOGUE post free on application.

GARDEN SEEDS and FLOWER SEEDS of the finest and most rare varieties, at the lowest prices at which they can be delivered, carriage free, are quoted in WHEELER'S "Little Book" for 1863.

J. C. WHEELER & SON, Seed Growers, Gloucester.

Plymouth Seed Company, Plymouth.

THE GENERAL PRICE CURRENT and the SPRING FARM SEED LIST are now ready, and may be had gratis on application.

See General Advertisement, page 177.

New Verbenas

ROBERT REA begs to refer to his Advertisement of the above in the *Gardeners' Chronicle* of Feb. 7.

Nursery, London Road, Ipswich.

Genuine Seeds, Carriage Free.

G. J. WOOLLETT'S PRICED LIST of the above sent free on application.

Caterham Nurseries, Caterham, Surrey.

Seeds.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE, of the best Varieties only, is now ready. It also contains several Novelties.

The Royal Nurseries, Slough.

PHALÆNOPSIS AMABILIS, GRANDIFLORA, ROSEA, and SCHILLERIANA.

Strong flowering plants of the above may be obtained of R. WARNER, Broomfield, Essex.

Prices on application.

SEED CORN from the CHALK.—All the most approved varieties supplied by RAYNBIRD, CALDECOTT, & BAWTREE. Samples and prices on application.

Address, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

HARDY SHOWY FLOWER SEEDS.—SUTTON'S DESCRIPTIVE CATALOGUE post free.

SUTTON & SONS, Reading, Berks.

Standard Roses.

WILLIAM EPPS, JUN., can supply fine STANDARD ROSES, at 5*l*. per 100; 15*s*. per doz.

The Nurseries, Ashford, Kent.

NEW ROSES for 1862 (the pick of the year) offered in fine strong plants, a DESCRIPTIVE LIST of which may be had on application to

BENJAMIN R. CANT, St. John's Street Nursery, Colchester.

RHODODENDRONS of all sorts and sizes may be obtained in any quantity of W. H. ROGERS, Red Lodge Nursery, Southampton. Also every description of well grown Nursery Stock, extending over 60 acres.

PRICED CATALOGUES forwarded on application.

Narrow-leaved English Elms.

WOOD AND INGRAM beg to offer to the Trade extra fine Seedlings of the above, at 5*s*. per 1000.

Huntingdon Nurseries.

Purple Beech.

THOMAS METHVEN, NURSERYMAN, Leith Walk, Edinburgh, is in want of the above, 7 to 9 feet high, and will be glad to hear from any one having such to offer.

Dwarf Box for Edging.

HENRY GODFREY, NURSERYMAN, Stourbridge, has to offer a quantity, which will be sold Cheap.

Price and sample on application.

Strong four-year old QUICK, 10*s*. per 1000.

W. VIRGO AND CO. have a few thousands of BERBERIS AQUIFOLIA and DULCIS, EVERGREEN PRIVET, and COMMON LAUREL, fit for cover planting. Price and samples on application at the Nursery.

Wonersh Nursery, near Guildford, Surrey.

TRUE NATIVE HIGHLAND SCOTCH FIR, Two-year Seedling.

Apply to JOHN GRIGOR & Co., Nurseries, Forres, Scotland.

5000 TRANSPLANTED LAURELS, 2 to 3 feet, 10*s*. to 15*s*. per 100.

Apply to J. J., 6, Lamb's Passage, Chiswell Street, Finsbury, London, E. C.

WANTED, very strong Transplanted ASH. Apply, stating height and price, to RICHARD SMITH, Nurseryman, Worcester.

To Larch Growers.

WANTED, 40,000 good PLANTS, from 18 inches to 2½ feet high.

Apply immediately, with lowest price, to the PLYMOUTH SEED COMPANY, Plymouth.

A BARGAIN.—A large quantity of SCOTCH and SPRUCE FIR, 2 to 3 feet high, fine healthy stuff, to offer cheap.

For price apply to GEORGE BATLEY, the Nursery, Rugby.

ACORNS.—A few hundred bushels of the above to offer, sound and good.

Apply to W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

ENGLISH OAK, 1-year's Seedling, 2*s*. 6*d*. per 1000. ASH, 1-year's Seedling, 1*s*. per 1000.

Cash or reference from unknown Correspondents.

Apply to MARSH & PERKINS, 42, Drapery, Northampton.

STRONG Flowering AQUILEGIA GLANDULOSA, 20*s*. per dozen, free to London. Seeds, 2*s*. 6*d*. per packet.

Apply to JOHN GRIGOR & Co., Nurseries, Forres, Scotland.

CYCLAMEN PERSICUM. — Fine varieties and foliage, in full bloom or with buds, 9*s*., 12*s*., & 18*s*. per doz.

S. WALTERS, Hilperton, Trowbridge, Wilts.

POTATO ONIONS and SHALLOTS.—Good sound bulbs.

H. BROWN, 4, Commutation Row, Liverpool.

NEW CELERY.—WILLIAMS'S MATCHLESS RED, a very superior variety, 2*s*. per packet.

B. S. WILLIAMS,

Paradise and Victoria Nurseries, Holloway, London, N.

Fresh Mushroom Spawn.

SUTTON AND SONS have a superior stock of MUSHROOM SPAWN, 5*s*. per bushel.

Royal Berkshire Seed Establishment, Reading.

NEW SUBSTITUTE for VETCHES, "SERADELLA."—See SUTTON'S SEED LIST, which may be had post free.

Royal Berkshire Seed Establishment, Reading.

Potatoes for Planting.

SUTTON'S DESCRIPTIVE LIST, Post Free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SKERRY BLUE POTATO.—The best adapted for Field Culture, price 5*s*. per bushel, sack included if four bushels be taken.

Remit to EDWIN LADMORE, Widemarsh Street, Hereford.

WEBB'S IMPERIAL KIDNEY POTATOES. No Potato like it for quantity, quality, beauty and size, at 12*s*. per Bushel, on application to

RICHARD WEBB, Calcot Gardens, Reading.

MYATT'S SEEDLING POTATOES, 15*s*. per cwt. ASHLEAF KIDNEY POTATOES, 12*s*. 6*d*. per cwt.

A large quantity of Fluke and other Seed Potatoes to offer at H. BROWN'S, 4, Commutation Row, Liverpool.

CHARLES NEWSPAPER PENNY DIEU ET MON DROIT

Seed Trade.

JAMES CARTER AND CO., Holborn, W.C., have a few lbs. of the following to offer to the Trade :—

MELVILLE'S GARNISHING KAIL,
VARIEGATED BEET, for garnishing,
SNOW'S WINTER BROCCOLI, true,
LITTLE PIXIE CABBAGE,
NEW FEATHER STEM SAVOY,
DANVER'S YELLOW ONION.
TOMATOE DE LAYE.
HENDERSON'S PINE-APPLE BEET.

Garden Seeds.

COLLECTIONS of KITCHEN GARDEN SEEDS, consisting of all the choicest sorts, are offered as follows :—

					£	s.	d.
No. 1 contains 20 quarts Peas, and all other seeds in proportion					3	0	0
No. 2	ditto	10 quarts	ditto	ditto	1	10	0
No. 3	ditto	5 quarts	ditto	ditto	0	15	0
No. 4	ditto	5 pints	ditto	ditto	0	10	6

CATALOGUES on application.

RICHARD SMITH, Seed Merchant, corner of High Street and Broad Street, Worcester.

Pine Apple Place, Edgware Road, London, W.

ARTHUR HENDERSON AND CO. beg to announce that their CATALOGUE of KITCHEN, FARM, and FLOWER SEEDS, Imported German Asters, Stocks, and Collection of Vegetable Seeds, for One Year's Supply—

Collection, No. 1 .. 10*5s.* | Collection, No. 3 .. 42*s.*
,, No. 2 .. 84*s.* | ,, No. 4 .. 25*s.*
Collection, No. 5 .. 15*s.*

is now ready, and will be forwarded free on application.

NOTE.—This Catalogue contains only the best varieties of Vegetables, and an abridged List of the most valuable Flower Seeds.

Vegetable and Flower Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully announces that his SEED CATALOGUE is now ready, free by post.

The COLLECTION of VEGETABLES recently Commended by the Royal Horticultural Society was grown from Seeds furnished by him.

Nurseries and Seed Warehouse, Waltham Cross, N.

Seeds for the Kitchen Garden, Flower Garden, and Farm.

JOHN CATTELL'S DESCRIPTIVE CATALOGUE of the above is now ready, and will be forwarded, post paid, on application; it contains select lists only, and includes every novelty worthy of cultivation.

All parcels of Seeds of the value of 21*s.* and upwards carriage paid to any Railway Station in England.

Nursery and Seed Establishment, Westerham, Kent.

Vegetable, Flower, and Agricultural Seeds.

NEW AND RARE PLANTS, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing select descriptive and priced lists of AGRICULTURAL, KITCHEN GARDEN, Imported GERMAN, and other FLOWER SEEDS; NEW and RARE PLANTS; Variegated, Ornamental Foliaged, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now published, and will be forwarded Post Free to all applicants.

Exotic Nursery, Tooting, Surrey, S.

Established 1787.

THOMAS KENNEDY AND CO.,
NURSERY AND SEED ESTABLISHMENT,
Dumfries, N.B.

*** PRICED CATALOGUES sent free on application.
FREE DELIVERY.

FARM and GARDEN SEEDS under certain limitations will be DELIVERED FREE OF CARRIAGE to the chief Railway Stations in Great Britain and the principal Steam Ports in Ireland.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS; ditto COWSLIP; Florist's Flower, POLYANTHUS, Roots or Seed; also SCARLET PRIMROSE—Double Crimson, Double Purple, Double White, Double Yellow, and Double Lilac ditto. COWSLIP from the Himalayas; DOUBLE POLYANTHUS; and other varieties, all of which may be had on application to

RICHARD WEBB, Calcot Gardens, Reading.

FIRST CLASS NEW FUCHSIAS. — Coloured Drawings by Mr. ANDREWS of SANSPAREIL, BRIDESMAID, CONSPICUA, and HERCULES, are now ready, and will be forwarded in exchange for 12 postage stamps.

G. S. begs to offer the above as the most Superb FUCHSIAS yet offered to the Public. For description, with price, and also time of sending out, see CATALOGUE, now ready.

GEORGE SMITH, Tollington Nursery, Hornsey Road, Islington, London, N.

DAHLIAS, DAHLIAS.—A special DESCRIPTIVE LIST of surplus stock of SHOW, FANCY, BEDDING, and LILLIPUTIAN or BOUQUET DAHLIAS, about 300 varieties, with 400 VINES struck from Eyes. Also a list of HOLLYHOCKS struck from Eyes last autumn.

May be had on application to J. C. PADMAN, Providence Nursery, Boston Spa, near Tadcaster.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent.

Fuchsias, Silvery-leaved and Variegated Plants.

J. SCOTT, Merriott, Crewkerne, Somerset, holds fine Stocks of the following, ready to send out :—

FUCHSIAS, in 100 named kinds (newest), at 4*s.* per dozen, late autumn struck, will make splendid specimens for exhibition.

VARIEGATED PLANTS, 3*s.* per dozen : Agathæa cœlestis, Arabis fol. var., Bellis Aucubæfolia, Sedum carneum var., Veronica chamædryoides.

SILVERY-LEAVED PLANTS, 3*s.* per dozen : Cineraria maritima, Centaurea candidissima, 1*s.* each; Gnaphalium lanatum, G. arenarium, G. margaritaceum, Silvery Arctotis, Stachys lanata, and Cerastium tomentosum.

VARIEGATED GERANIUMS, 3*s.* per dozen; Alma, Bijou, Countess of Warwick, Manglesii, Shottisham Pet, and Brilliant.

BEDDING GERANIUMS, 3*s.* per dozen : Christine, Rose Queen, Crystal Palace, Punch, Lamartine, and Tom Thumb; and 100 sorts (to name), my selection, of Greenhouse sorts, at 6*s.* per dozen.

EXCELLENCE AND ECONOMY COMBINED.

SUTTON'S

UNRIVALLED COLLECTIONS OF

KITCHEN GARDEN SEEDS

FOR ONE YEAR'S SUPPLY.

SUTTON'S UNRIVALLED COLLECTIONS of KITCHEN GARDEN SEEDS are so assorted as to contain the proper quantities of the best kinds to supply a family for the whole year.

The entire charge for the largest Collection (No. 1) is £3 0 0 (Carriage Free).
Ditto ditto Collection (No. 2) is £2 0 0 ditto
And Complete Collections for Smaller Gardens may be had at 20s. and 10s. 6d.

A LIST *of the* CONTENTS *of the above may be had on application.*

From CHAS. LAWRENCE, Esq., *Cirencester.*
"I never recollect having received such a numerous collection of Seeds from any house so good in quality."

From the Rev. G. E. WALKER, *Shareshill, Wolverhampton.*
"Mr. Walker cannot but compliment Messrs. SUTTON & SONS on the quality of the Seeds sent last year, as they were by far the best he ever purchased."

From the Rev. JOHN KIRWAN, *Withycombe Rectory Taunton.*
"I was so much pleased with the selection of Seeds sent by you, that I recommended two of my friends to take parcels from you."

SUTTON'S CHAMPION SWEDE, 1*s.* per lb.; Choice MANGEL WURZEL, 6*d.* per lb., if ordered immediately.
NATURAL GRASS SEEDS for PERMANENT PASTURE, 30*s.* per Acre, mixed expressly to suit the soil.

SUTTON AND SONS, SEED GROWERS AND MERCHANTS, READING, BERKS.

KITCHEN GARDEN SEEDS.

FLOWER SEEDS.

In Collections including all the new and approved kinds, or separate to order.

Detail CATALOGUES post free.

THOS. GIBBS & Co.
Corner of
HALF-MOON St.
PICCADILLY,
London.

AGRICULTURAL SEEDS,
GRASS SEEDS,
FARM SEEDS,
of all descriptions.

Thomas Gibbs

CORNER OF
HALF-MOON St.
PICCADILLY, LONDON, W.

FARM AND GARDEN SEEDS

CARRIAGE FREE.

BANGHOLM SWEDE,
EAST LOTHIAN SWEDE,
WARD'S BEAUTY SWEDE,
DROPMORE SWEDE,
MARSHALL'S CHAMPION SWEDE,
GREEN-TOP SWEDE,
WHITE SWEDE,
IMPROVED SKIRVING'S SWEDE.
WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
DOBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
IMPROVED YELLOW GLOBE DITTO,
IMPROVED ORANGE GLOBE DITTO,



IMPROVED LONG RED MANGEL,
IMPROVED LONG YELLOW MANGEL,
IMPROVED RED GLOBE MANGEL,
IMPROVED WHITE FIELD BEET,
RED CLOVER, | COWGRASS,
WHITE, YELLOW, and ALSIKE CLOVERS.
PACEY'S PERENNIAL RYE-GRASS, and other sorts.
ITALIAN RYE-GRASS, FOREIGN and ENGLISH SEED.
NATURAL GRASS SEEDS, in mixture or separate, suitable for various soils and localities.
LIGHT RYE-GRASS and other CHEAP GRASSES, for Sowing on Railway Banks and Waste Places.

Orders for Exportation promptly attended to.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN,
28, KING STREET, CHEAPSIDE, NEAR the GUILDHALL, and
15, LAWRENCE LANE, LONDON, E.C.

SPLENDID NEW SCARLET VERBENA, LORD LEIGH.

S. PERKINS & SON,

In offering the above SCARLET VERBENA, have much pleasure in stating that it has been awarded a First-Class Certificate by the Floral Committee of the Royal Horticultural Society, June 11, 1862; First-Class Certificate by the Royal Botanic Society, July 9; First-Class Certificate at the Crystal Palace, Sydenham, Sept. 4 and 5; First-Class Certificate by the Rugby Floricultural Society, August 29; First Prize by the Birmingham Botanic Society, July 10.

After the above Awards, S. P. & SON think it needless to offer any remarks, further than that it is of a free habit and will prove a first-class Bedding variety; colour the most dazzling scarlet that can be conceived, with a clear white eye; truss and pip extremely large, and of the finest shape and quality.

See Editor's remarks in *Gardeners' Chronicle*, August 30, 1862, and December 27, 1862; "Journal of Horticulture," Sept. 9, 1862. An Engraving will appear in the April Number of the "Florist and Pomologist."

Plants after April 15, 5s. each. Special Price by the dozen on application to the

PARK NURSERY, COVENTRY.

LARGE IMPORTATION of STANDARD ROSES.

WILLIAM WOOD & SON

Have much pleasure in announcing the arrival of a large Importation of STANDARD and DWARF ROSES in fine order, which they will be happy to supply on most reasonable terms.

CATALOGUES free and post paid on application.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

SEEDS.—GENUINE HOME-GROWN

VEGETABLE, FLOWER, AND AGRICULTURAL.

If above the value of 20*s*. Carriage paid to any Railway Station, and to all Irish and Welsh Ports in communication with Bristol.

CATALOGUES post free on application.

JAMES GARAWAY AND CO., DURDHAM DOWN NURSERIES, BRISTOL.

GARDEN SEEDS.

S. GLENDINNING & SONS,

NURSERYMEN AND SEEDSMEN

(SUCCESSORS TO THE LATE R. GLENDINNING),

Are now sending out their COLLECTIONS of KITCHEN GARDEN SEEDS.

No. 1	**contains**	**36 Quarts of PEAS, and all other Seeds in proportion**			**£5**	**5**	**0**
No. 2	,,	**28 Quarts**	ditto	ditto	ditto	**4**	**4**	**0**
No. 3	,,	**20 Quarts**	ditto	ditto	ditto	**3**	**3**	**0**
No. 4	,,	**12 Quarts**	ditto	ditto	ditto	**2**	**2**	**0**
No. 5	,,	**6 Quarts**	ditto	ditto	ditto	**1**	**1**	**0**

COLLECTIONS of FLOWER SEEDS.

No. 1,	**containing**	**100**	**Large Packets of Best Hardy Annuals**	...	...	**£0**	**18**	**0**
No. 2,	,,	**50**	ditto	ditto	ditto	...	...	**0**	**9**	**6**
No. 3,	,,	**24**	ditto	ditto	ditto	...	...	**0**	**5**	**0**
No. 4,	,,	**25**	ditto	**Half-Hardy Annuals**	...	...	**0**	**7**	**6**
No. 5,	,,	**12**	ditto	ditto	ditto	...	...	**0**	**4**	**0**
No. 6,	,,	**25**	ditto	**Tender Annuals**	...	...	**0**	**12**	**6**
No. 7,	,,	**12**	ditto	ditto	ditto	...	...	**0**	**6**	**0**

The above Collections consist only of best and most useful varieties, and are of the finest quality.

S. G. & SONS' CATALOGUE of KITCHEN GARDEN, AGRICULTURAL, and FLOWER SEEDS, is now ready, and may be had on application.

CHISWICK NURSERY, LONDON, W.

Roses.

WM. PAUL (Son and Successor to the late A. PAUL) has still a fine stock of ROSES, NEW and OLD, Standards, Dwarf Standards, and Dwarfs.
Plants good and prices moderate.
Nurseries and Seed Warehouse, Waltham Cross, N.

Roses.

EDWIN HOLLAMBY begs to announce that he has still a fine stock of STANDARD and DWARF ROSES of most of the leading kinds, in very fine plants.
DESCRIPTIVE PRICED CATALOGUE free on application.
Nursery and Seed Establishment, Tunbridge Wells, Kent.

New Roses of 1863.

J. AND J. FRASER'S DESCRIPTIVE LIST of the best varieties will be forwarded Post Free on application.
Strong healthy Plants are now ready.
A GENERAL CATALOGUE may be had on application.
Lea Bridge Road Nurseries, N.E.—Feb. 21.

Roses for Forcing.

CHARLES NOBLE has a nice assortment, one-year, established in 32-pots, ready for Forcing. They are healthy vigorous plants, and cannot fail to give satisfaction. He has also a large stock of Dwarfs and Half-Standards suitable for planting in Roseries; they are offered very cheap.
Sunningdale Nursery, South-Western Railway.

The Best New Roses for 1863.

5000 STRONG DWARF PLANTS in Pots, in 50 varieties, will shortly be ready.
DESCRIPTIVE CATALOGUES, gratis and Post-free on application.
Address WM. WOOD & SON, Nurseries, Maresfield, Uckfield, Sussex.

DWARF HYBRID PERPETUAL ROSES, on the MANETTI STOCK; Carriage paid to London.—The Undersigned offer very fine and vigorous plants of the above. For a LIST of the more popular sorts, see *Gardeners' Chronicle* for December 6, 1862. Prices given for small and large numbers (per 1000 at a much reduced rate) and a DESCRIPTIVE CATALOGUE of ROSES sent on application to
THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

Roses.

GEO. PARSONS begs to offer fine STANDARD ROSES, from 2½ to 4 feet stems, at 5*l*. per 100, or 15*s*. per dozen; including the New Varieties, 18*s*. per dozen, or 6*l*. 10*s*. per 100; the last New Varieties of 1862, DWARFS, 30*s*. per dozen.
CATALOGUES free on application.
Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

Old Cheshunt Nurseries, Herts, N.—Roses.

PAUL AND SON have the pleasure to announce that their NEW HYBRID PERPETUAL ROSE, LORD CLYDE, will be ready for delivery in April next, at 7*s*. 6*d*. each. Usual allowance to the Trade when three are taken.
A Coloured Plate, by Andrews, post free for 12 stamps.
The NEW ROSES of other Raisers will be ready in March.
They have still to offer fine Home-grown STANDARD and DWARF ROSES.
DESCRIPTIVE LISTS of the New Roses, Gladioli, and Genuine Seeds now ready.

Azalea Altaclerensis.

MESSRS. JOHN AND CHARLES LEE are now prepared to send out strong blooming plants of this beautiful HARDY AZALEA, the following description of which is extracted from the Report of the Floral Committee of the Royal Horticultural Society of May 6, 1862.
"AZALEA ALTACLERENSIS:—from Messrs. J. & C. LEE, Hammersmith. A fine large-flowered rich orange-yellow hardy Azalea, bred between A. sinensis and one of the Ghent hybrids. It had ovate elliptic hairy leaves, and very large heads of flowers, and being also of free blooming habit, it was adjudged a FIRST CLASS CERTIFICATE."
Price 10*s*. 6*d*. The usual discount to the Trade.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

JAMES VEITCH, JUN.,

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.,

Having a very large stock of the CHOICE HARDY TREES named below, offers them at the unusually low prices annexed. The whole are in the FINEST POSSIBLE CONDITION, and may be seen growing, together with a fine COLLECTION of other TREES and SHRUBS, in his

NEW NURSERY AT COOMBE WOOD, KINGSTON HILL, S.W.

This Nursery is situated 1½ mile from the New Malden and Coombe, 2½ miles from the Richmond, 2 miles from the Kingston, and 2½ miles from the Putney Stations, South-Western Railway, and at the three latter Stations Flys can at all times be obtained. It is distant about 5 miles from the Chelsea Nurseries.

The Prices include Delivery at the London Wharves and Railway Stations.

ABIES DOUGLASII TAXIFOLIA.—This is the best variety of the Douglas Fir, 4 to 5 feet, 3*l*. per dozen; 5 to 6 feet, 4*l*. 4*s*. per dozen. The above are really fine formed specimens.
ARAUCARIA IMBRICATA.—Strong good shaped plants, 1*l*. 10*s*. per dozen.
Do. do. Strong good shaped plants, 2 feet, 2*l*. 2*s*. to 3*l*. per dozen.
Do. do. Fine specimens, from 3 to 5 to 7 feet, 15*s*. to 21*s*. to 42*s*. to 63*s*. to 105*s*. each.
N.B.—These plants are robust and well formed; they should be seen to be appreciated.
CEDRUS DEODARA.—Beautifully formed plants, 3 to 4 feet, 1*l*. 16*s*. per dozen; 4 to 6 feet, 3*l*. per doz.; 6 to 8 ft., 4*l*. 4*s*. per doz.; Splendid specimens, 8 to 10 ft., 10*s*. 6*d*. to 21*s*. each.
These are all very handsome plants.
CEDRUS DEODARA ROBUSTA.—Fine plants, 4 to 5 feet, 2*l*. 2*s*. per dozen.
CUPRESSUS LAWSONIANA.—Very nice plants, 2 to 3 feet, 1*l*. 10*s*. per dozen.
,, MACROCARPA, 12 to 18 inches, all transplanted in August, 1862, 12*s*. per dozen; 3*l*. 15*s*. per 100. 2½ to 3 ft., 1*l*. 10*s*. per dozen.
CRYPTOMERIA LOBBI, 3 to 4 feet, 2*l*. 2*s*. per dozen; 4 to 5 feet, 3*l*. per dozen.
This is the most hardy, the finest green foliage, and closest habit of all the Cryptomerias.
JUNIPERUS CRACOVIA, fine plants, 3 to 4 feet, 1*l*. 4*s*. per dozen; 7*l*. 10*s*. per 100.
PINUS BENTHAMIANA, 3 to 4 feet, 3*l*. per dozen.
,, INSIGNIS, 3 to 4 feet, 2*l*. 2*s*. per dozen; 15*l*. per 100; 5 to 6 feet, 3*l*. per dozen.
These Pinus insignis were all transplanted in August, 1862, and are remarkably fine plants.
PINUS INSIGNIS.—Very fine specimens, 6 to 10 feet, 7*s*. 6*d*. to 21*s*. each.
,, PYRENAICA.—Very fine plants, 4 to 5 feet, 3*l*. per dozen.
SEQUOIA (TAXODIUM) SEMPERVIRENS, 5 to 6 feet, 2*l*. 2*s*. per dozen.
THUJA LOBBI.—A beautiful kind, 2 feet, 1*l*. 10*s*. per dozen.
,, ,, Fine plants, 3 feet, 2*l*. 2*s*. per dozen.
THUJA OCCIDENTALIS (American Arbor-vitæ), 3 to 4 feet, 6*s*. per dozen; 2*l*. 2*s*. per 100.
,, ,, Very fine plants, 4 to 5 feet, 15*s*. per dozen; 5*l*. per 100.
This is an admirable plant for hedges.
WELLINGTONIA GIGANTEA, 2 years, very strong, 1*l*. 10*s*. per dozen; 10*l*. 10*s*. per 100; 18 inches, 3*l*. per dozen; Plants of larger sizes from 3 to 4 to 6 feet, magnificently formed specimens, 21*s*. to 63*s*. to 84*s*. each.
These latter are such beautiful plants that they would amply repay a visit of inspection, and may be selected.

Muscat of Escholata Grape.

WM. PAUL (Son and Successor to the late A. PAUL) has a fine stock of this Vine, Fruiting Canes and others. Price 7*s.* 6*d.* to 15*s.* each. Most of the other popular sorts, 3*s.* 6*d.* to 7*s.* 6*d.* each.

Nurseries and Seed Warehouse, Waltham Cross, N.

Grape Vines.

TO BE SOLD, Cheap, 1800 close-jointed vigorous Plants, with Canes 6 to 12 feet long, all struck from Eyes last spring.

Apply to the GARDENER, at J. Lewis's Horticultural Works, Stamford Hill, Middlesex, N.

THE GREAT VINE at HAMPTON COURT.—The Subscribers being the holders of the Royal Kitchen Gardens, Hampton Court, are enabled to offer genuine the famous and truly excellent HAMPTON COURT BLACK HAMBURGH GRAPE.

Strong well-ripened plants in 9-inch pots, 42*s.* and 60*s.* p. doz.

If purchased in large numbers a considerable reduction will be made in price.

JACKSON & SON, Nurseries, Kingston, S.W

EXTRA STRONG FRUITING VINES.—All the leading varieties, from Eyes, with stout well ripened rods, for FRUITING in POTS this YEAR. Price, from 7*s.* 6*d.* each; smaller, for Planting-out, from 3*s.* 6*d.* each. A reduction in price will be made to large purchasers.

"We can especially recommend the above, our strong Vines having for some years given unqualified satisfaction."—*Vide* Leading Article in *Gardeners' Chronicle* for December 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries, Chester.

Apples, Pears, and Plums.

JOHN ADAMS AND CO. beg to inform the Trade and the public generally, that they have a fine stock of the above, 2 and 3 year old Pyramid and Dwarf-trained Trees, of all the leading sorts, also an extra quantity of COMMON LAURELS, about 3 feet high. Prices, &c. on application.

Brentford.—Feb. 21.

APPLE and PEAR TREES, &c.—100 doz. Dwarf and Pyramidal PEAR TREES, best sorts, 20*s.* per doz., packing included.

50 doz. Dwarf and Pyramidal APPLE TREES, best sorts, 12*s.* per doz., packing included.

GENERAL LISTS of NURSERY STOCK on application.

CHARLES B. SAUNDERS, Nurseryman, &c., Jersey.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, has the pleasure to offer now for the first time his two new excellent Fruits—

APPLE CALVILLE GARIBALDI .. 8*s.*

PEAR BÉURRÉ DE GHELIN .. .. 5*s.*

This excellent Pear obtained the First Prize at the great Pomological Show at Tournay, Belgium.

N.B. These two new Fruits are figured in VERSCHAFFELT'S "Illustration Horticole."

NEW MELON, PRINCESS ALEXANDRA.—A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1*s.* per packet.

JAMES CARTER & Co., 237, 238, & 261, High Holborn, W.C.

THE NEW PARSNIP "STUDENT."—SEED of this improved PARSNIP, "ennobled" by Professor BUCKMAN, of the Royal Agricultural College, Cirencester, is now ready for delivery by Messrs. SUTTON & SONS, Post free, in packets, 6*d.*, 1*s.*, or 2*s.* 6*d.* each. Also Wholesale to the Trade.

It can also be obtained from any of the Seedsmen named in the List which appeared in *Gardeners' Chronicle* of Jan. 31.

Royal Berks Seed Establishment, Reading.

JAMES TYNAN'S importation of celebrated GERMAN ASTERS, STOCKS, WALLFLOWERS, PHLOXES, and other FLOWER SEEDS, is now ready, and comprises as usual an extensive assortment of the very best varieties, selected from the most noted Continental growers. They are made up, as formerly, in large or small packets, to suit the requirements of purchasers. Every description of Vegetable and Agricultural Seeds of the finest quality.

Flower Seeds free by post.

J. TYNAN, Importer of Continental Seeds, 68, Great George Street, Liverpool.

Ranunculuses, Anemones, &c.

C. TYSO, FLORIST and SEEDSMAN, Wallingford, Berks, begs to offer choice-named assortments:—

50 Splendid RANUNCULUS, one each ..	14*s.* to	£1	0*s.* 0*d.*
50 ditto, TYSO'S SEEDLINGS, one each ..	30*s.* to	3	0 0
50 Mixed ditto, fine quality	4*s.*, 8*s.*, and	0	10 0
50 DOUBLE ANEMONES, one each	10*s.* 6*d.* to	0	13 0
50 Ditto Single Mixed	2*s.* 6*d.* to	0	3 6

IMPORTED GERMAN SEEDS.—Asters, Stocks, Balsams, Immortelles, Larkspurs, Phloxes, Poppies, Zinnias, &c., in named assortments, 1*s.* and 2*s.* 6*d.* each.

ANNUAL SEEDS.—50 sorts, 10*s.*; 25 sorts, 5*s.*

VEGETABLE SEEDS, of the best quality.

CATALOGUES gratis, or post free for one stamp.

All the above articles can be sent by Post.

MESSRS. BROWN AND CO. offer the following Selection of CHOICE PLANTS, which they will forward to any part of the kingdom:—

	s.	*d.*
25 AZALEAS, new hardy Belgian varieties, one of a sort, on their own roots, by name	20	0
25 AZALEAS, hardy American varieties, do. do...	15	0
12 Hardy RHODODENDRONS, one of a sort, including Scarlet, White, and Rose colour	12	0
Hardy HEATHS, LEDUMS, and KALMIAS, per doz.	6	0
ROSES, best sorts, Standards and Half Standards, per dozen, 12*s.* to	15	0
CLIMBING ROSES, of best sorts .. per dozen	6	0
PILLAR ROSES, new sorts .. .. do.	9	0
DWARF ROSES for beds or forcing, including Bourbons, Teas, and Perpetuals, per dozen ..	9	0
Choice Hardy PINUS and other CONIFERÆ. Cheap. Price List by post.		
Greenhouse AZALEAS, fine varieties, per doz., 10*s.* to	15	0
CAMELLIAS, best double varieties, per dozen ..	28	0
TREE CARNATIONS, winter flowering, per dozen	12	0

CHOICE FRUIT TREES.

Fine Standard and Dwarf-trained Peaches, Nectarines, Apricots, Cherries, Apples, Plums, and Pears, 2*s.* 6*d.* each, or 24*s.* per dozen.

Dwarf Plants of all the above kinds, grown especially for pot culture in Orchard Houses, &c., 18*s.* per dozen.

Filberts, Gooseberries, Currants, and Raspberries, p. doz., 3*s.*

Evergreen Shrubs of all kinds cheap; fine large Fan Yews, price by post.

American Nurseries, near Farnham, Surrey.

Seeds for the Flower Garden offered by B. S. WILLIAM S.

	s.	*d.*
An ASSORTMENT of 12 Fine Selected Varieties of HARDY ANNUALS	1	6
An ASSORTMENT of 12 Fine Selected Varieties of HALF-HARDY ANNUALS	2	6
An ASSORTMENT of 12 Fine Selected Varieties of HARDY BIENNIALS and PERENNIALS, suitable for Rockwork	2	6
An ASSORTMENT of 12 Splendid Annual kinds of ORNAMENTAL GRASSES	2	0

Paradise and Victoria Nurseries, Holloway, London, N.

Choice Seeds of Asters, Balsams, and Stocks,

OFFERED BY

B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N.

	s.	*d.*
An Assortment of 12 varieties of TRUFFAUT'S PÆONY-FLOWERED ASTER, 100 seeds of each	2	0
An Assortment of four varieties of COCARDEAU or CROWN ASTER, 100 seeds of each	1	0
An Assortment of 12 varieties of CHRYSANTHEMUM-FLOWERED DWARF ASTER, 100 seeds of each ..	2	6
An Assortment of nine varieties of CAMELLIA-FLOWERED BALSAMS	2	6
An Assortment of 12 varieties of DOUBLE ROSE-FLOWERED BALSAMS	3	0
An Assortment of eight varieties of AUTUMNAL-FLOWERING STOCKS, 100 seeds of each	2	0
An Assortment of eight varieties of BROMPTON STOCKS, 100 seeds of each	1	6
An Assortment of 12 varieties of DWARF GERMAN TEN-WEEK STOCKS, 100 seeds of each	2	0
An Assortment of eight varieties of EMPEROR or PERPETUAL STOCKS, 100 seeds of each	2	0
An Assortment of six varieties of MINIATURE STOCKS, 100 seeds of each	1	6

A PRICED and DESCRIPTIVE CATALOGUE, post free to all applicants, containing useful suggestions for the guidance of amateur cultivators.

NEW LILACS.—The following varieties of LILACS are all distinct and very ornamental. They are budded on Seedling Stocks which do not sucker, are from 3 to 5 feet in height, and are well adapted for Pyramids or Half Standards for Lawns.

	Each—*s.*	*d.*		Each—*s.*	*d.*
Charles X.	1	6	Philemon	2	6
Dr. Lindley	5	0	Triomphe d'Orleans ..	2	6
Gloire de Moulins ..	2	6	Valetteana	1	6
Grandiflora rubra ..	2	6	Virginalis	1	6
Insignis rubra	2	6	White Siberian ..	2	6
New Dark Red	1	6			

Carriage paid to London.

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

50 in 25 extra choice varieties	£2	2*s.*	0*d.*
25 in 25 „ „	1	5	0
12 in 12 „ „	0	12	0
50 in 50 choice varieties	2	12	6
50 in 25 „ „	1	5	6
25 in 25 „ „	0	13	6
12 in 12 „ „	0	5	0

Extra fine mixed, 2*s.* 6*d.* per doz., 17*s.* 6*d.* per 100.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, W.C.

Banks's Best New Fuchsias.

E. G. HENDERSON AND SON are now sending out the three following First-class Flowers:—

MDLLE. TREBELLI (BANKS).
BIANCA MARGINATA (BANKS),
MARS (BANKS),

as neat young plants for growing on into specimens (and others adapted for stock), price 3*s.* 6*d.* and 5*s.* each. Also plants of all last year's best varieties, 1*s.* 6*d.* to 2*s.* 6*d.* each.

SOLANUM CAPSICASTRUM FOLIA VARIEGATA, a beautiful table plant, with elegantly variegated leaves and red berries; drooping habit; 3*s.* 6*d.* and 5*s.* each.

THE TIETJEN STRAWBERRY, hardier than "British Queen," of the same quality, colour, &c., 30*s.* per 100.

GLOXINIAS: BRILLIANT, LEVIATHAN, BIRD of PARADISE, and MOST BEAUTIFUL, the four most distinct new Gloxinias, 3*s.* 6*d.* and 5*s.* each.

AUCUBA HIMALAICA, 7*s.* 6*d.*, 10*s.* 6*d.*, to 21*s.* each.

PRIMULA SINENSIS FILICIFOLIA, white and red, 5*s.* each.

STUARTIA PENTAGYNIA, strong plants, 5*s.* each.

LOBELIA ERINUS SPECIOSA PAXTONI, 1*s.* 6*d.* each; 12*s.* per doz.

DOUBLE PANSY "GOOD GRACIOUS," 1*s.* 6*d.* each; 12*s.* per doz.

LONICERA AUREA RETICULATA, leaves light green, richly netted over with golden yellow veins, 5*s.* each.

LAPAGERIA ROSEA, 1*s.* 6*d.*, 2*s.* 6*d.*; stronger, 5*s.* and 7*s.* 6*d.*

PRIMULA SINENSIS ERECTA SUPERBA, a fringed variety of P. Kermesina, 2*s.* 6*d.*

PRIMULA PICTA, mottled, 1*s.* 6*d.*

BEDDING DAHLIAS (pot roots), 6*s.* and 9*s.* per doz.

LILLIPUTIAN „ „ „ 6*s.*, 9*s.*, to 18*s.* per doz.

Wellington Nursery, St. John's Wood, London, N.W.

Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER'S CATALOGUE of the above popular plants, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants.

It describes faithfully the colours of all the Rhododendrons, thereby rendering every facility for making selections.

It likewise contains an abridged List of really Hardy Conifers, with their heights and prices.

The American Nursery, Bagshot, Surrey.

Stocks, Asters, and Balsams.

MESSRS. BUTLER AND MCCULLOCH strongly recommend their Collections of the above to Amateurs and Exhibitors. Messrs. B. & McC. have spared neither trouble nor expense in procuring the very best.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

Spring Blooming Plants.

CAMELLIAS, including the best new varieties, fine plants, set with bloom buds, from 30*s.* per doz.; extra size, from 60*s.*

HEATHS, EPACRIS, CINERARIAS, and JASMINUM GRANDIFLORUM (grafted), remarkably fine plants, at moderate prices.

Also HUMEA ELEGANS, extra strong, in 6-inch pots, 18*s.* per doz.

JAMES DICKSON & SONS, Newton Nurseries, Chester.

Genuine Seeds.—Carriage Free.

WM. CUTBUSH AND SON beg to intimate that they are now prepared to execute orders for GENUINE GARDEN SEEDS, for which their house is extensively known.

Mr. C. gives his personal attention to this branch of our business, and we can confidently recommend all offered as being of the best quality, at as moderate prices as consistent.

CATALOGUES free on application.

Highgate, London, N.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, begs to inform his friends and the public he can supply from his great Stock of the above 20 pairs of the best large Varieties for 10*s.*; and 25 pairs of best POMPONES for 10*s.*; 20 pairs of Cuttings of the large Varieties for 5*s.*; and 25 pairs of Pompones ditto for 5*s.*

New CATALOGUES ready for one stamp.

N.B. To save trouble all orders to be paid to J. H. BIRD, Stoke Newington.

New Fuchsia.

ROBERT REA, NURSERYMAN, &c., London Road, Ipswich, has much pleasure in announcing that he intends sending out after the 20th of April, plants of his SEEDLING FUCHSIA DEFIANCE, which was so much admired last season. Defiance is a fine bold double flower of great substance, bright scarlet tube and sepals, dark violet barrel-shaped corolla, sepals much reflexed. This will be a standard flower for years, and will be grown in every collection.

10*s.* 6*d.* each, with the usual discount to the Trade.

A. STANSFIELD AND SONS beg to announce that their LIST of BRITISH FERNS for this season, including the New and Rare varieties, at reduced prices, is now ready, and may be had on application, enclosing two postage stamps. Also their GENERAL FERN LIST, No. 6, for 4 postage stamps, which purchasers may deduct.

Vale Nurseries, Todmorden.

CHEAP PLANTS.—In Strong Plants.—

	Per doz.—*s.*	*d.*		Per doz.—*s.*	*d.*
Hepaticas, sorts ..	3	0	Primroses, Double White and Lilac	4	0
Auriculas, sorts ..	3	0	Sedum carneum fol. var.	3	0
Violets, Russian and Double White ..	3	0	Christmas Roses ..	6	0
Pinks, fine named ..	3	6	Golden Yellow Wall-flower	4	0
Clove, old Crimson ..	3	0	Rockets, sorts	4	0
Pansies, fine named ..	3	6	Hollyhocks, fine named	6	0
„ fine mixed ..	2	6	Pampas Grass	4	0

Also, Strong STOCK PLANTS of the following for Cuttings:—

	Per doz.—*s.*	*d.*		Per doz.—*s.*	*d.*
Lobelia speciosa kermesina "true."			Verbena Purple King ..	4	0
Verbenas, new, 1862 ..	4	0	Fuchsias, new, 1862 ..	5	0
„ old varieties ..	3	6	„ older varieties	4	0
„ Mrs. Holford (white)	4	0	Dahlias, strong ground roots	6	0

100 Hardy Herbaceous plants in 50 varieties, carefully named and packed for 20*s.* Carriage of all Orders of 10*s.* paid to London, and other parts within 50 miles.

Post Office Orders payable at Castle Hedingham.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

WM. WOOD & SON'S

COLLECTIONS of KITCHEN GARDEN SEEDS

FOR ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.
£3.	£2.	£1.	10*s.* 6*d.*

Containing only Seeds of first-class quality, and Varieties that can be confidently recommended.

For particulars, see CATALOGUE, a Copy of which may be had Post Free on application.

*** *All orders amounting to* 10*s. and upwards sent Carriage Free.*

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.

The Flower of the Season.

DOBSON'S Splendid NEW PELARGONIUM, QUEEN of WHITES, acknowledged by the whole of the Floricultural Press to be the very best white flower raised. Strong plants now ready, 31s. 6d. each. Figured in the February Number of the "Floral Magazine."

Woodlands Nursery, Isleworth, W.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. Annual Sale exceeds 3000 packets. In sealed packets, 1s. 6d, 2s. 6d., 3s. 6d., and 5s. each.

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1s., 2s. 6d., and 5s.

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE PRIMULA SINENSIS SEED. In sealed packets, 1s., 2s. 6d., and 5s.

J. DOBSON & SONS, Seedsmen, Isleworth.

POLYANTHUS SEED from the best Laced Florists' Flowers, in packets, sent free on receipt of 13 postage stamps.

JAMES WOODS, Florist, Harwich, Essex.

HARDY FLOWER SEEDS, of Showy Colours only, sent free by post or rail, by SUTTON AND SONS.

A COLLECTION of the best 50 sorts known .. 10s. 6d.
A COLLECTION of the best 36 sorts known .. 7 6
A COLLECTION of the best 24 sorts known .. 5 0
SUTTON'S CATALOGUE of SEEDS will be sent post free.

SUTTON & SONS, Seed Growers, Reading, Berks.

New Fuchsias of 1862.

B. W. KNIGHT, FLORIST, &c., Battle, Sussex, can supply the New FUCHSIAS of 1862 in good plants, at 6s. per dozen.

CATALOGUES sent on application.

BEAUTIFUL FLOWERS.—Twelve packets, containing 10,000 seeds, weigh 2 oz, 1s.; sent Post-free, 1s. 4d. Tender Annuals and Perennials, weigh 1 oz., or Post-free. 1s. 2d. Dwarf German (Ten-weeks) STOCKS, as imported, 36 varieties, 6s. or—each variety 2d per packet. BROMPTON STOCKS and WALLFLOWER, blood-red and canary-yellow, warranted double, each variety, 4d. packet. Calceolaria, Heliotropium, Salvia, Ageratum, Pentstemons, Pinks, Carnations, Picotees, Cupheas, Choice Dahlias, Petunias, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6d. per packet. Catalogue on application.

WM. CULLINGFORD, 1, Edmund Terrace, Balls Pond, Islington.

E. G. HENDERSON AND SON offer First-class quality of CINERARIA, CALCEOLARIA, and PRIMULA SINENSIS FIMBRIATA, 1s. and 2s. 6d. per packet.

CINERARIA WEBBI.—The interest and value of this species consists in its having a shrub-like branched habit of growth, attaining from 3 to 4 feet in height. This remarkable plant is expected to originate a new and desirable class of varieties for exhibition purposes, in having already passed into all the colours found in florist varieties of the present time, and no doubt but higher improvements in form, and other essential properties, will be obtained in connection with its superior culture. It will be found well adapted for decorative purposes, by its taller growth, and longer continuance in bloom. 2s. 6d.

Wellington Nursery, St. John's Wood, London, N.W.

Lobelia speciosa (True).

THOMAS METHVEN begs to state that he can supply the above, and which he can warrant genuine, in packets at 1s., 2s. 6d, and 5s.

GENERAL SEED CATALOGUE free on application.

Seed Warehouse, Leith Walk, Edinburgh.

AMARANTHUS MELANCHOLICUS (var. ruber). —Habit very compact, height 1 to 1½ feet, with striking blood-red foliage; a most valuable bedding plant for Flower Garden decoration, after the style of Perilla Nankinensis. Price per packet, 6d., 1s., and 2s. 6d. The Trade supplied.

E. P. DIXON & SONS, Seedsmen and Florists, 57, Queen Street, Hull.

CHARLES DALY AND SON will SELL 3-year Seedling THORN QUICK at 2s. per 1000; 1-year Transplanted do., at 4s. per 1000; 2-year do. do., at 8s. per 1000. COMMON LAURELS, at 15s. per 1000; SWEET BAYS, 3-year Potted, 6d. each; RHODODENDRONS, good furnished plants, 20s. per 100; fine large UPRIGHT YEWS, seven times Transplanted, fit for cemeteries or pleasure grounds. The above will be sold Cheap for cash. Turnip Seeds or new Greenhouse Plants will be taken in payment. LIST of PRICES Free by Post.

Coleraine, Ireland.

LARGE ORNAMENTAL TREES.—The Subscribers beg to offer very fine specimen plants of ARAUCARIA IMBRICATA, from 5 to 9 ft.; CEDRUS LIBANI, 7 to 12 ft.; WELLINGTONIA GIGANTEA, 5 to 9 ft.; PINUS EXCELSA, 7 to 10 ft.; also Spruce, Scotch, and Larch Firs, from 7 to 10 ft., with Limes, Birch, Beech, Elm, Sycamore, and Laburnum, 9 to 11 ft.; likewise Weeping Ash, Lime, and Willow, on fine tall stems. The above will be sold cheap, and if taken in quantity a great reduction will be made in the price.

J. IVERY & SON, Dorking Nursery.

GEORGE BAKER begs to offer the following, a selection from his extensive Stock:—

ARAUCARIA IMBRICATA, 3 feet, 6 feet, 9 feet, 14 feet.
ABIES DOUGLASII, 3 feet, 5 feet, 10 feet, 14 feet, 25 feet.
ARBOR-VITÆ (WAREANA), 3 feet, 6 feet, 8 feet.
CEDRUS DEODARA, 3 feet, 6 feet, 12 feet, 20 feet.
CUPRESSUS LAWSONIANA, 3 feet, 5 feet.
" DISTICHA, 3 feet, 8 feet, 12 feet.
CEDRUS LIBANI, 6 feet, 8 feet, 10 feet.
CHINESE JUNIPER, 3 feet, 5 feet, 6 feet.
IRISH YEW, 4 feet, 6 feet, 8 feet.
JUNIPERUS RECURVA, 8 feet.
PICEA CEPHALONICA, 3 feet, 4 feet, 11 feet.
PINUS CEMBRA, 3 feet, 5 feet, 7 feet.
" EXCELSA, 10 feet, 15 feet.
THUJA GIGANTEA, 4 feet, 5 feet, 6 feet.
THUJOPSIS BOREALIS, 1 foot, 2 feet.
PINUS AUSTRIACA, 3 feet, 4 feet.
" BENTHAMIANA, 3 feet, 4 feet.
WEYMOUTH PINE (fine), 1¼ foot, 2 feet.
SPRUCE FIR, 1 foot, 2 feet.
AZALEAS (to name)
ANDROMEDAS (to name).
RHODODENDRONS (to name).
" STANDARDS (to name).
KALMIA LATIFOLIA.
" " STANDARDS (very fine heads).

Prices free by Post, on application. Also G. B.'s GENERAL PRICED LIST is now ready.

American Nursery, near Bagshot, Surrey, about 1¼ mile from Sunningdale Station, S. W. R.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

Large Trees for Parks, Hedgerows, &c.

WILLIAM CROWDER, NURSERYMAN, Horncastle, has a quantity of SPANISH CHESNUT, 10 to 12 feet; LIMES, 8 to 10 feet; ELM, grafted, 8 to 10 feet, all strong well grown trees and well rooted, to offer cheap to Trade or gentlemen.

WELLINGTONIA GIGANTEA.—The attention of the Nobility, Gentry, and the Trade, is invited to the largest stock of 1-year SEEDLING PLANTS in the Kingdom, established in single pots and fit for Spring planting. Price per dozen, 12s.; per 100 or 1000 on application. A Sample free by post for 12 stamps.

J. HENCHMAN, Edmonton, London.

FINE SPECIMEN WELLINGTONIAS.—50 splendid SPECIMEN PLANTS of WELLINGTONIA GIGANTEA, 4½ to 5½ feet high, strong sturdy plants (from seed), grown on cold clay, in a very exposed situation, transplanted 2 years since, and will remove with large balls. Price moderate.

Apply to GEORGE T. FOX, The Nurseries, Wetley Rocks, near Leek, Staffordshire.

Thorn Quicks.

JNO. CARTER, NURSERYMAN, Keigbley, has a large stock of the above, from 1 to 4 years' Transplanted, well rooted and very strong.

J. C. will be glad to furnish samples and prices, and also CATALOGUE of GENERAL NURSERY STOCK.

COMMON LAURELS, in quantity, 3, 4, and 5 feet high, bushy and well rooted; about 800 HORSE CHESNUTS, 5 to 7 feet; 500 ENGLISH OAK, 4 to 5 feet, to be sold reasonable. Price on application to

D. S. THOMSON, Nurseryman, near Railway Station, Wimbledon, Surrey, S.W.

THE SUBSCRIBERS have on SALE 2, 3, and 4-year Seedling NORWAY SPRUCE; 3-year Seedling THORN QUICKS; Transplanted SPRUCE, 1 to 1½ feet; 3-year Transplanted THORN QUICKS, all at very low prices, which may be had on application.

FOWLER & SON, Glasgow—Feb. 21.

FOR SALE, 100,000 3-year Seedling SILVER FIR. —The above will be offered cheap, as the ground is wanted for other purposes. Samples and Prices sent on application.

Apply to DOWNIE, LAIRD, & LAING, 17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London.

Liquorice Plants.

FOR SALE, 40,000 Strong Plants, in fine condition, price 8s. per 1000. AMERICAN ARBOR-VITÆ, 1-year old, fine, 8s. 6d. per 1000; CHINESE ditto, 12s. 6d. per 1000.

WM. POLLARD, Nurseryman, Ferrybridge, near Pontefract.

To Ribbon Gardeners and Others.

FOR SALE, about 250 Ground Roots of the Dwarf "PURPLE ZELINDA" DAHLIA, price 6s. p. doz.

Apply to Mr. J. SMITH, Basingstoke, Hants.

The Planting Season.

THE EXECUTORS of MR. JNO. YOUNG, late Proprietor of the extensive Nursery Grounds, Taunton, have determined to reduce this large and valuable Stock. They respectfully invite the attention of Noblemen, Gentlemen, and the Trade to the FOREST TREES, HARDY and ORNAMENTAL TREES and SHRUBS, large and small; CONIFERÆ, EVERGREENS, HERBACEOUS, and a great variety of other PLANTS. STANDARD, DWARF, and POTTED ROSES. STANDARD, DWARF-TRAINED, and PYRAMIDAL FRUIT TREES. The varied and excellent quality of this Stock is so well known that comment is unnecessary. The grounds are open for inspection and sale daily, and in quantities at greatly reduced prices. Applications by post direct to the EXECUTORS of the late Mr. John Young, Taunton.

The above capital FREEHOLD NURSERY
(Established more than 30 years).
containing about 12 Acres of highly productive Land, with the usual Appurtenances, situate at Taunton, the County Town of Somersetshire, in excellent condition, with a good connection, is
TO BE SOLD, with Early Possession,
in consequence of the Decease of the late Owner.
For particulars, apply as above.

Improvement of Grass Lands by Sowing Good Seeds of the most Suitable Kinds.

SUTTONS' RENOVATING GRASS SEEDS should now be Sown.

These Seeds consist of PERENNIAL CLOVERS and FINE GRASSES for improving the bottom. Price 9d. per lb., or 80s. per cwt. Eight or 12 lbs. per acre will be sufficient, and will produce a great increase in the produce,

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

New Sorts of Peas.

THE ADVANCER, PRINCESS ROYAL, SMUGGLER, GILSON'S GLORY (2s. 6d. per quart), and other NEW PEAS, are included in SUTTON'S PRICED SEED LIST, just published, and which may be had, Gratis and Post free, on application addressed

SUTTON & SONS, Seed Growers, Reading, Berks.

Cabbage Plants.

W. VIRGO and SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 3s. 6d. per 1000:—

EARLY YORK CABBAGE	EARLY NONPAREIL
" BATTERSEA	DRUMHEAD
" BARNES	RED CABBAGE

5s. per 1000. All strong, healthy, and well rooted.

Wonersh Nursery, near Guildford, Surrey.

To the Seed Trade.

H. AND F. SHARPE have a Surplus Stock of true—

Early Long Pod Beans	Ne Plus Ultra Peas
Mackie's Monarch ditto	Laing's Imperial Swede Turnip
Broad Windsor ditto	Early Green Top Yellow ditto
Early Emperor Peas	Fine Red Surrey Carrot
Woodford's Green Marrow do.	Early Nonpareil Cabbage
Flack's Blue Imperial ditto	" Emperor ditto
British Queen ditto	" Enfield Market ditto

which they can offer at a low figure.

Seed-growing Establishment, Wisbeach.

NEW CUCUMBERS, at 1s. per packet.

Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

CARTER'S CHAMPION CUCUMBER, recommended by the Royal Horticultural Society as being an excellent bearer. Fruit solid and firm, and the best of the Sion House class. 1s. per packet. A few ounces of our own saving to offer the Trade.

237, 238, & 261, High Holborn, London, W.C.

YOUELL'S NORFOLK HERO CUCUMBER.—Without exception the best Ridge Cucumber known. 6 Seeds, 1s.; 18 Seeds 2s.

LAING'S MAMMOTH CELERY.—The very best, hardiest, and finest flavoured Red Celery in cultivation. 1s. and 2s. per packet, on receipt of postage stamps.

See former advertisement.

YOUELL'S Royal Nurseries, Great Yarmouth.

Cole's White Perfection Celery.

WM. COLE has much pleasure in offering again to his numerous customers the above, which has proved itself to be the best White Celery in cultivation. In sealed ½ oz. packets, free by post, 1s. 6d. Price to the Trade upon application.

Nurseries, Withington, near Manchester.

KIMBERLEY'S SUPERB SOLID RED CELERY. —This is without exception the best Celery in cultivation. CHARLES KIMBERLEY has much pleasure in offering this superb Celery for the first time, although he has grown it for upwards of 20 years. Thousands of plants are annually sold in Coventry Market. The seed now offered is saved from bleached roots of 1862; ½ oz. packets free by post, 1s. 6d.

Stoke Nursery, near Coventry.

TAYLOR'S DEFIANCE, NEW WHITE CELERY, free through the post, per packet, 2s. 6d.

The stock of seed of this fine variety was purchased of a market gardener, who is acknowledged to send the finest Celery of any into the principal Yorkshire markets. It is the largest, most solid, and finest flavoured White Celery grown; from the extreme difficulty of seeding it, but a small quantity can be supplied.

EDWARD TAYLOR'S DESCRIPTIVE and PRICED CATALOGUE, containing many new and choice varieties of Agricultural, Vegetable and Flower Seeds, may be had Gratis on application.

ADDITIONAL AGENTS for the SALE of SEED of the "STUDENT" PARSNIP.

Batt, Rutley, & Silverlock, Strand, London, W.C.
Clarke, Henry & Sons, 39, King Street, Covent Garden, London, W.C.
Dickson, James & Sons, 102, Eastgate Street, Chester.
Fraser, Richardson, & Goad, 82, Bishopsgate Street Within, London, E.C.
Handsyde, Thos., Glen Nurseries, Musselburgh, N.B.
Minier, Nash, & Nash, 60, Strand, London, W.C.
Pillenger, John, Chepstow Nurseries, Chepstow.
Pierpoint, Thos., 126, Bridge Street, Warrington.
Shaw, John, 29, Oxford Street, Manchester.
Wheeler, Geo., Warminster Nursery, Wilts.

The above-named Seedsmen have been supplied direct from Messrs. SUTTON & SONS, Reading, who have Seed on Sale Wholesale to the Trade, or Retail at 6d., 1s., or 2s. 6d. per packet.

Royal Berks Seed Establishment, Reading.

MESSRS. E. G. HENDERSON AND SON'S NEW SEED CATALOGUE forwarded post free upon application.

In addition to the usual information, valuable practical rules are given for the guidance of Amateur Cultivators in the sowing and after-management of all the Flowers described in the Catalogue.

N.B. For Descriptive Notes of NEW and RARE FLOWERS from Seed, refer to page 143 of *Gardeners' Chronicle* (Feb. 14).

CLIANTHUS DAMPIERI, home-ripened seed.—A most beautiful cool greenhouse plant, with clusters of large rich scarlet pea-shaped flowers, 3 to 4 inches in length, each flower being marked with a large conspicuous black cloud-like blotch in front. This magnificent plant has flowered in Messrs. E. G. H. & Son's Nurseries, extending upwards of 15 feet in length, being trained horizontally against upright supports. It was ascertained that this single plant produced 680 trusses of bloom in one summer, which, averaging six flowers in a truss, formed an aggregate of 4000 blossoms as the produce of a single seed! See Catalogue for the peculiar treatment in the sowing and after management of this plant. Plants, 3s. 6d. Seeds, 1s. and 2s. 6d. per packet.

CUCUMBER.

HENDERSON'S A 1 HOUSE CUCUMBER.—The Royal Horticultural Society of London have fruited 118 varieties in their gardens at Chiswick, and decided this as the second best black-spined variety, its length 17 inches, straight and even, fine dark colour. A superior variety. Per packet, 1s. 6d.

ALL THE YEAR ROUND.—Very prolific, for quality and usefulness not surpassed at any season of the year. Per packet, 1s. 6d.

CITRON GOURD (for Preserves).—This is a truly valuable and highly interesting esculent fruit, and constitutes a true variety of the hard-fleshed Water Melon, which, though not edible in its raw state, is now proved and strongly recommended for its valuable adaptation in making a very delicious preserve. Full directions for its culture and method of preparing the preserve are given in the Catalogue. 1s.

BUSH VEGETABLE MARROW (true).—This valuable variety is sufficiently dwarf and bushy to form a compact habit plant, and from its short-jointed character and abundant bearing, its produce may be compared to a nest of fruit overlaying each other. 6d. and 1s.

MESSRS. E. G. HENDERSON and SON, Wellington Road, St. John's Wood, London, N.W., beg to draw attention to the Plants figured in Part XV. of the "Illustrated Bouquet":—

IMATOPHYLLUM MINIATUM
SWAINSONIA VIOLACEA
PRIMULA PRÆNITENS (SINENSIS) FILICIFOLIA RUBRA
STRAWBERRY TIETJEN
REINECKIA CARNEA VARIEGATA

Wellington Nursery, St. John's Wood, London, N.W.

TREE AND SHRUB SEEDS

OFFERED BY

CHARLWOOD & CUMMINS, SEEDSMEN,

14, TAVISTOCK ROW, COVENT GARDEN, LONDON, W.C.

		s.	d.
ACACIA ARGYROPHYLLA	per ounce	3	0
,, ARMATA	per packet	1	0
,, CUNNINGHAMII	,,	1	0
,, DEALBATA	,,	1	0
,, FARNESIANA	per ounce	3	0
,, GLANDULOSA	,,	4	0
,, GLOMERATA	,,	4	0
,, GRANDIS	per packet	1	0
,, HISPIDA	,,	1	0
,, HYBRIDA	,,	1	0
,, JULIBRISSIN	per ounce	3	0
,, LEPTOPHYLLA	,,	2	0
,, LEUCOCEPHALA	,,	4	0
,, LOPHANTHA	,,	1	6
,, MELANOXYLON	,,	4	0
,, NERIFOLIA	per packet	1	0
,, SOPHORÆ	per ounce	3	0
,, STROMBULIFERA	per packet	1	0
,, TORTUOSA	,,	1	0
,, TRINERVA	per ounce	4	0
ACER CAMPESTRE (Maple)	per bushel	4	0
,, PENNSYLVANICUM	per ounce	1	6
,, PSEUDO PLATANUS (Sycamore)	per bushel	4	0
,, SACCHARINUM (Sugar Maple)	per lb.	6	0
ÆSCULUS HIPPOCASTANUM (Horse Chestnut)	per bushel	6	0
AILANTUS GLANDULOSA (The new food for the silkworm)	per lb.	6	0
ALNUS GLUTINOSA (common Alder)	,,	1	6
,, SERRULATA (notch-leaved Alder)	per ounce	1	6
AMORPHA FRUTICOSA	,,	1	0
ANDROMEDA ARBOREA	,,	1	6
,, MARIANA	,,	1	6
,, PANICULATA	,,	1	6
ANTHOCERCIS PICTA	,,	1	6
ARBUTUS UNEDO (Strawberry Tree)	per lb.	8	0
ARMENIACA VULGARIS (Apricot)	,,	3	0
BENTHAMIA FRAGIFERA	per ounce	1	0
BERBERIS CANADENSIS (Canadian Barberry)	per lb.	8	0
BETULA ALBA (white Birch	,,	0	8
,, LENTA (soft Birch)	per ounce	1	0
,, LUTEA (yellow Birch)	,,	1	0
,, NIGRA (black Birch)	,,	1	0
BIGNONIA CATALPA	,,	1	0
,, RADICANS	,,	2	0
CALYCANTHUS MACROPHYLLUS	per packet	1	0
CARPINUS AMERICANA (American Hornbeam)	per lb.	16	0
CARPINUS BETULUS (common Hornbeam)	,,	1	0
CASSIA CORYMBOSA	per ounce	2	0
,, LÆVIGATA	,,	2	0
,, TOMENTOSA	,,	2	0
,, TOROSA	per packet	1	0
CEANOTHUS AMERICANUS	per ounce	4	0
,, AZUREUS	per packet	1	0
,, STYRACIFOLIUS	,,	1	0
,, THYRSIFLORUS	,,	1	0
CELASTRUS SCANDENS (a beautiful climber)	per ounce	1	0
CELTIS AUSTRALIS (Nettle Tree)	,,	1	6
,, OCCIDENTALIS	,,	1	6
,, ORIENTALIS	,,	1	6
CEPHYLANTHUS OCCIDENTALIS (a very ornamental North American shrub)	,,	1	6
CERASUS DOMESTICA (common Cherry)	per lb.	2	0
,, VIRGINIANA (Virginian Cherry)	per ounce	1	0
CERATONIA SILIQUA (St. John's Bread)	per packet	1	0
CERCIS SILIQUASTRUM (Judas Tree)	per ounce	1	0
,, CANADENSIS	,,	1	0
CHIONANTHUS MARITIMA (Fringe Tree)	,,	1	0
,, MONTANA	,,	1	0
,, VIRGINICA	,,	1	0
CISTUS ALBIDUS	,,	1	0
,, MONSPELIENSIS	,,	1	6
,, SALVIFOLIUS	,,	1	0
CLEMATIS FLAMMULA (Virgin's Bower)	,,	1	6
,, VIRGINIANA	,,	1	6
CLETHRA ALNIFOLIA	,,	1	0
,, ARBOREA	,,	1	0
CLIANTHUS PUNICEUS	per packet	1	0
CORNUS FLORIDA (Great flowered Dogwood)	per ounce	1	0
CORONILLA GLAUCA	,,	1	0
,, JUNCEA	,,	1	0
CRATÆGUS OXYACANTHA (common white Hawthorn)	per bushel	8	0
CYDONIA VULGARIS (Quince)	per ounce	1	0
CYRILLA RACEMIFLORA	per packet	1	0
CYTISUS CAPITATUS	per lb.	12	0
,, LABURNUM (English Laburnum)	,,	1	0
,, NIGRICANS (evergreen Cytisus)	,,	12	0
,, SCOPARIUS (common Broom)	,,	1	0
,, SESSILIFLORUS	per ounce	1	0
,, SPINOSUS	,,	1	0
,, TRIFLORUS	,,	1	0
DAUBENTONIA TRIPETIANA	per packet	1	0
DIOSPYROS PUBESCENS (Date Plum)	per ounce	1	0
DIRCA PALUSTRIS (Leather Wood). An ornamental shrub, with very flexible twigs)	,,	1	0
EBENUS CRETICA	per packet	1	0
ERICA, fine mixed Cape	per ounce	10	0
ERYTHRINA CRISTA-GALLI	per packet	1	0
EUCALYPTUS FALCATA	,,	1	0
EUONYMUS EUROPÆUS (common Spindle Tree)	p. lb.	4	0
,, JAPONICUS (Japan)	per packet	1	0

		s.	d.
FAGUS SYLVATICA (Beech)	per bushel	14	0
FRAXINUS AMERICANA (American Ash)	per lb.	4	0
,, EXCELSIOR (common Ash)	per bushel	3	0
GENISTA JUNCEA	per ounce	1	0
,, SPINOSA	,,	1	0
GLEDITSCHIA TRIACANTHOS (Three-thorned Acacia)	per lb.	3	0
GYMNOCLADUS CANADENSIS (Kentucky Coffee Tree)	,,	4	0
HALESIA TETRAPTERA (Snowdrop Tree)	,,	4	0
HIBISCUS COCCINEUS	per packet	1	0
,, SYRIACUS	per ounce	1	0
HYPERICUM KALMIANUM	,,	1	0
ILEX AQUIFOLIUM (common Holly)	per bushel	12	0
,, ,, ALBO-MARGINATA (variegated Holly)	per lb.	1	0
,, OPACA (Carolina Holly)	,,	3	0
ITEA VIRGINICA	per ounce	1	0
KALMIA AUGUSTIFOLIA	per lb.	12	0
,, LATIFOLIA	,,	12	0
KOLREUTERIA PANICULATA	per ounce	1	0
LAURUS BENZOIN (Benjamin Tree)	,,	0	8
,, NOBILIS (Sweet Bay)	per lb.	3	0
LIGUSTRUM JAPONICUM (Chinese Privet)	,,	1	6
,, VULGARE (common Privet)	,,	0	8
LIQUIDAMBAR STYRACIFLUA (Sweet Gum Tree)	,,	12	0
LIRIODENDRON TULIPIFERA (Tulip Tree)	,,	1	4
MAGNOLIA ACUMINATA	,,	12	0
,, GLAUCA	,,	12	0
,, GRANDIFLORA	per ounce	1	0
,, MACROPHYLLA	,,	1	6
,, TRIPETALA (Umbrella Magnolia)	per lb.	10	0
MORUS ALBA (white Mulberry)	per ounce	1	6
,, NIGRA (black Mulberry)	,,	1	6
MYRTUS COMMUNIS (common Myrtle)	,,	1	0
NYSSA VILLOSA	,,	1	0
PAULOWNIA IMPERIALIS	per packet	1	0
PHILLYREA LATIFOLIA	per ounce	1	0
PHOTINIA ARBUTIFOLIA vel CRATÆGUS ARBUTIFOLIA	,,	2	6
PODALYRIA CORDATA	per packet	1	0
PRINOS GLABER	per ounce	2	0
,, VERTICILLATUS	,,	1	0
PRUNUS DOMESTICA (common Plum)	per lb.	3	0
PTELEA TRIFOLIATA (North American shrub, with Laburnum-like leaves)	per ounce	1	0
PYRUS AUCUPARIA (Mountain Ash)	per lb.	1	0
,, COMMUNIS (the Pear)	,,	6	0
,, MALUS (the Apple)	,,	6	0
QUERCUS COCCINEA (Scarlet Oak)	per lb.	1	6
,, ILEX (evergreen Oak qt. 1s. 6d)	per bushel	40	0
RHAMNUS CATHARTICUS (Buckthorn)	per ounce	0	9
RHODODENDRON MAXIMUM	per lb.	12	0
,, PUNCTATUM	per ounce	1	6
RHUS GLABRA (smooth Sumach)	,,	1	6
,, TYPHINA (Virginian Sumach)	per lb.	6	0
,, VERNIX (varnish Sumach)	per ounce	1	0
RIBES GROSSULARIA (Gooseberry)	,,	1	6
,, RUBRUM (Red Currant)	,,	1	6
,, ALBUM (White Currant)	,,	1	6
ROBINIA PSEUD-ACACIA (the common Acacia)	per lb.	1	6
ROSA RUBIGINOSA (Sweet Briar)	,,	4	0
RUBUS IDÆUS (Raspberry)	per ounce	1	6
SAMBUCUS CANADENSIS (Canadian Elder)	,,	2	0
SCHINUS MOLLE	,,	4	0
SMILAX WALTERI	per lb.	4	0
SOLLYA HETEROPHYLLA	per packet	1	0
SOPHORA JAPONICA	per ounce	1	0
,, PINNATA	,,	1	0
STAPHYLEA TRIFOLIA	,,	2	0
STYRAX OFFICINALE	per lb.	12	0
SUTHERLANDIA FRUTESCENS (Colutea frutescens)	per packet	1	0
TILIA AMERICANA (American Lime)	per lb.	8	0
,, EUROPÆA (Common Lime)	,,	4	0
,, GLABRA (Smooth-leaved Lime)	,,	6	0
ULEX EUROPÆA (Furze, Whin, or Gorse)	,,	1	6
ULMUS CAMPESTRIS (Elm)	,,	0	8
VIBURNUM LENTAGO	per ounce	1	0
,, NUDUM	,,	0	8
,, OXYCOCCUS	,,	1	0
,, TINUS (Common Laurestine)	per lb.	8	0
VIMINARIA LATERIFLORA	per ounce	1	6
VIRGILIA LUTEA	,,	3	0
VITIS VINIFERA (Grape)	,,	1	0

CONIFERÆ.

		s.	d.
ABIES ALBA (white American Spruce Fir)	per ounce	1	6
,, CANADENSIS (Hemlock Spruce Fir)	,,	2	0
,, DOUGLASII (Douglas's Spruce Fir)	50 seeds	2	6
,, ENGELMANNI (new species from the Rocky Mountains, closely resembling Abies Pattoniana)	50 seeds	5	0
,, EXCELSA (Norway Spruce Fir)	per lb.	1	0
,, MENZIESII (Menzies's Spruce Fir)	200 seeds	2	6
,, PATTONIANA (Patton's Spruce Fir)	50 seeds	2	6
ARAUCARIA BRASILIANA (Brazil Pine)	100 seeds	12	0
CRYPTOMERIA JAPONICA (Japan Cedar)	per ounce	8	0
,, LOBBII	per packet	2	6
CUPRESSUS BENTHAMII	100 seeds	2	6

CONIFERÆ.

		s.	d.
CUPRESSUS CORNEYANA *vel* GRACILIS	100 seeds	2	6
,, GOVENIANA	per packet	2	6
,, KNIGHTIANA	150 seeds	2	6
,, LAWSONIANA (from Northern California, forming a handsome tree 150 to 200 feet high), 1 oz., 24s.; ½ oz., 14s.,	per ¼ ounce	8	0
,, McNABIANA (from Northern California)	per 100 seeds	2	6
,, MACROCARPA vel LAMBERTIANA (large Californian Cypress)	per ounce	6	0
,, SEMPERVIRENS HORIZONTALIS (Evergreen spreading Cypress)	per lb.	4	0
,, SEMPERVIRENS STRICTA (Evergreen upright Cypress)	,,	4	0
,, TORULOSA	per packet	2	6
,, TOURNEFORTIA	per ounce	1	6
JUNIPERUS ATTICA (new species from Greece)	,,	6	0
,, COMMUNIS (common Juniper)	per lb.	1	0
,, DRUPACEA	per packet	2	6
,, EXCELSA	per ounce	2	6
,, OXYCEDRUS	,,	1	0
,, RUFESCENS (species from Greece)	,,	5	0
,, VIRGINIANA (Red Cedar, fine clean seed)	per lb.	12	0
LARIX AMERICANA (American Larch)	per ounce	2	0
,, EUROPÆA (common Larch), Scotch seed, per cwt., 8l. 8s.	per lb.	2	0
,, ,, Tyrolese seed	,,	2	6
LIBOCEDRUS DECURRENS vel THUJA CRAIGIANA	per 50 seeds	2	6
PICEA AMABILIS (lovely Silver Fir)	,,	5	0
,, BALSAMEA (Balm of Gilead Fir)	per lb.	16	0
,, FRASERI (Fraser's Silver Fir)	per ounce	2	6
,, GRANDIS (Californian Silver Fir)	per 50 seeds	5	0
,, NORDMANNIANA (Nordmann's Silver Fir), 1 oz, 16s.; ½ oz, 9s.	per ¼ ounce	5	0
,, PECTINATA (common Silver Fir)	per lb.	1	0
,, PANACHAICA (new species from Greece), per ½ oz., 5s.	per ¼ ounce	3	0
,, PINSAPO (Pinsapo Silver Fir), 8 oz., 16s.; 4 oz., 9s.; 2 oz., 5s.	per ounce	3	0
,, REGINÆ AMALIÆ (new species from Greece), ½ oz., 5s.	per ¼ ounce	3	0
PINUS ARISTATA (hardy, new, and distinct, found at an elevation of 9000 feet on the high mountains of Clear Creek and Bear River, where it forms a handsome tree 40 to 50 feet in height)	12 seeds	10	0
PINUS AUSTRIACA (Austrian or Black Pine)	per lb.	4	0
,, BENTHAMIANA	10 seeds	2	6
,, CANARIENSIS (Canary Pine), 4 oz., 16s.; 2 oz., 9s.	1 ounce	5	0
,, CEMBRA (Siberian Stone Pine)	per lb.	3	0
,, COULTERI vel MACROCARPA, 1 oz., 12s.; ½ oz., 7s.	¼ ounce	4	0
,, CONTORTA (from the Sierra Nevada), cone with seeds		1	0
,, FLEXILIS (new and distinct, found on the mountains along the Fraser River, and on the Shasta Mountains in Northern California, forming a handsome tree 60 to 80 feet in height)	12 seeds	10	0
,, FREMONTIANA (Nut Pine), 1 oz., 20s.; ½ oz. 12s.	per ¼ ounce	7	0
,, HALEPENSIS (Aleppo Pine)	per lb.	16	0
,, INSIGNIS, 1 oz., 8s.; ½ oz., 5s.	per ¼ ounce	3	0
,, LAMBERTIANA (Lambert's Pine), 1 oz., 12s.; ½ oz., 7s.	,,	4	0
,, LARICIO (Corsican or Larch Pine)	per lb.	8	0
,, MARITIMA	,,	1	4
,, MONTANA	,,	6	0
,, MURICATA (small or Prickly-coned Pine)	50 seeds	2	6
,, PINASTER (Pinaster or Cluster Pine)	per lb.	1	4
,, PINEA (Stone Pine)	,,	1	4
,, PONDEROSA (ponderous-wooded Pine), ¼ oz. 10s.,	per ⅛ ounce	6	0
,, PUMILIO (dwarf or Mountain Pine)	per lb.	10	0
,, RADIATA (radiated-scaled Pine) 1 ounce, 16s.; ¼ ounce, 9s.	per ¼ ounce	5	0
,, RIGIDA (stiff leaved Pine)	per ounce	2	0
,, SABINEANA (Sabine's Pine) 1 oz., 16s.; ½ oz., 9s.	per ¼ ounce	5	0
,, STROBUS (Weymouth Pine)	per lb.	10	0
,, SYLVESTRIS (Scotch Pine, or Scotch Fir)	,,	3	0
,, TUBERCULATA (tuberculated Pine)	cone with sds.	4	0
TAXODIUM DISTICHUM vel CUPRESSUS DISTICHA (deciduous Cypress)	per lb.	6	0
,, SEMPERVIRENS vel SEQUOIA SEMPERVIRENS (Red Wood or Bastard Cedar)	100 seeds	2	6
TAXUS BACCATA (the common Yew)	per lb.	4	0
THUJA NEPALENSIS (Nepal Arbor-vitæ)	,,	12	0
,, OCCIDENTALIS (American Arbor-vitæ)	,,	12	0
,, ORIENTALIS (Chinese Arbor-vitæ)	,,	10	0
WELLINGTONIA GIGANTEA (the Mammoth Tree of California) ½ oz. 30s.; ¼ oz. 17s. 6d.; ⅛ oz.; 10s.; $\frac{1}{10}$th ounce		6	0

CHARLWOOD & CUMMINS, in offering the TREE and SHRUB SEEDS in the above LIST, beg to observe that every precaution has been taken in obtaining them from the best sources; but as they are unable to test them before sending out, they cannot hold themselves responsible, nor will any deduction be allowed for failure of growth or error of description. Any Seeds not approved of can be immediately returded, for which the full amount will be credited.

☞ *The usual allowance to the Trade.*

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STRIKING NOVELTIES FOR 1863.

See our "Guide to the Flower Garden."

Abutilon.—See page 19.

Per packet.—*s. d.*

390. ABUTILON REGELII.—A magnificent variety of this really ornamental genus, with deep golden yellow large bell-shaped flowers, exquisitely veined, and produced in great profusion. Foliage very handsome .. 1 6

Acacia.—See page 19.

432. ACACIA MYRIOBOTRIA.—A splendid free-flowering variety, with elegant rich green leaves and deep primrose flowers in racemes 1 0

434. ACACIA ODORATISSIMA PENDULA.—An elegant variety, with long slender foliage and clusters of exceedingly fragrant yellow flowers, which are produced in great abundance, and in succession throughout the year; remarkable also for its rapid growth and graceful habit.. .. .. 1 0

437. ACACIA PETEOLARIS.—One of the most strikingly beautiful of this grand genus; its broad dark green foliage, and fine clusters of deep primrose flowers, combine to make it an extremely picturesque, and desirable plant for conservatory decoration. This is perhaps one of the finest Acacias in cultivation .. 1 0

Amaranthus.—See page 22.

493. AMARANTHUS MELANCHOLICUS, var. RUBER.—When illumined by the sun's rays the resplendent beauty of the foliage of this plant is incomparable; its growth is very elegant; admirably adapted for ribboning, bedding, grouping, or massing with other plants: to MR. JAMES VEITCH'S visit to Japan, the public are indebted for this first-class novelty 1 0

Anagallis.—See page 23.

505. ANAGALLIS GRANDIFLORA ASPROMONTE.—Fine carmine maroon 1 0

510. ,, ,, GARIBALDI.—Vermilion .. 1 0

515. ,, ,, SUPERBA.—Bright blue .. 0 6

The above are exquisitely pretty varieties of this neat and profuse-flowering plant.

Aster.—See page 26.

ASTER, VICTORIA.—Said to be "The most beautiful Aster in cultivation; flowers perfectly double, imbricated, globular, of a fine rosy-carmine, and as large as the Giant Emperor Aster. The plant is of vigorous growth, producing from 10 to 20 flowers, which form an elegant pyramid; height, 1½ feet."

630. ASTER, LARGE-FLOWERED DWARF PÆONY.—"Half the height of Pæony Perfection Aster, and of a beautiful pyramidal habit, with very large handsome double flowers" 1 0

613. ASTER, GLOBE PÆONY-FLOWERED PERFECTION.—"Possessing the branching habit of the Globe Aster, and with flowers resembling in form the Pæony Perfection Aster 1 0

To be continued next week.

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WILLIAM BULL, F.R.H.S., F.R.B.S.,

NURSERYMAN AND NEW PLANT MERCHANT,

KING'S ROAD, CHELSEA, LONDON, S.W.

The following NOVELTIES are now being sent out in good plants, fit for Spring propagation.

New Fuchsias, 7s. 6d. each.

ADELINE.—Red tube and sepals, beautifully reflexed, and of unusual length; double purple corolla of an irregular shape, some petals being long and others short; very peculiar.

FLORETTA.—Rich scarlet tube and sepals of the deepest crimson, very broad and wax-like, pure white corolla, of excellent shape.

HERO.—Light red tube and sepals, the latter reflexed and unusually wide and long; lake corolla; an immense flower, very striking.

MONARCH.—Crimson tube and sepals, the latter beautifully reflexed; large double corolla, peculiarly formed: large, showy, and attractive.

NORA.—Crimson sepals beautifully reflexed, double purple corolla flaked with bright crimson at the base, distinct.

SPECIAL.—Broad bright red sepals, reflexing back to the tube; beautiful, large, stiff, and smooth, bright blue corolla, marked with red at the base; excellent habit.

TRIUMPHANT.—Crimson sepals, with double purple plum corolla, flaked with crimson at the base; fine form.

New Petunias, 3s. 6d. each.

BASILISK.—Glossy crimson, with rich violet throat, very smooth, fine form.

BRIDESMAID.—Bright pink, with large white centre.

CUPID.—Double, mauve, blotched in the centre with pure white, distinct.

ENSIGN.—Violet pink, blotched and margined with pure white.

GOOD THING.—Rich crimson, veined and striped with black; black throat.

MARMION.—French white, reticulated and veined with violet, very delicate, semi-double.

SENSATION.—Bright rose, rayed with violet, violet centre and light throat, very attractive.

SILVER SPOT.—Bright crimson, blotched with white.

New Petunias, 3s. 6d. each.

STANDARD.—Clean bright crimson, large and very double, a fine noble flower.

STARTLER.—Double, bright crimson, blotched with pure white.

UNDINE.—Deep rose, rayed and barred with crimson, dark throat.

Azalea William Bull, 21s. each.

This fine Azalea was raised in Belgium, and named by M. Ambroise Verschaffelt, from whom the stock for circulation in the United Kingdom has been purchased. The flowers individually are of unusual size and substance, and well formed; colour crimson and violet, richly spotted; a really superb variety.

New Zonale Geraniums, 5s. each.

ACHIM.—Rose shaded with pink, excellent form.

ASPASIA.—Bright rose, very pretty.

CAROLINE.—Carmine shaded with orange scarlet, immense truss.

CHANCELLOR.—Clear rose with scarlet centre.

COUNTESS.—Rose shaded with scarlet.

COMMISSIONER.—Brilliant scarlet, vermilion upper petals.

DORIS.—Vivid orange scarlet, white eye.

EFFECTIVE.—Vermilion shaded with rose.

ENVOY.—Very deep rosy scarlet, large flower.

GLORIOUS.—Light scarlet, light centre.

HELDI.—Glowing scarlet, large flowers.

MAJOR DOMO.—Rosy scarlet, fine flowers.

PERSIAN.—Bright rose.

TRANSCENDENT.—Bright cerise shaded with scarlet.

UNIT.—Soft rose.

UMPIRE.—Cerise shaded with pink, large flower.

Wholesale Catalogue.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and SPRING 1863, comprising Fruit Trees of all the leading kinds, new and selected Roses, fine varieties of American Plants, Choice and Rare Conifers, Evergreen and Deciduous Trees and Shrubs, and a fine Stock of Transplanted Forest Trees, &c., can be had free on application.

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B. MALLER begs respectfully to state that his DESCRIPTIVE SEED CATALOGUE can now be had free on application.

Best Reigate SILVER SAND, 16*s.* per ton, delivered free within four miles, or to London Bridge Railway or Wharf. Less quantities, 1*s.* 6*d.* per bushel, for cash.

Nursery and Seed Establishment, Lewisham, Kent, S.E.

Seeds, Seeds, Seeds.

S. GLENDINNING AND SONS' (Successors to the late R. GLENDINNING) CATALOGUE of KITCHEN GARDEN, AGRICULTURAL and FLOWER SEEDS is now ready and may be had on application.

Chiswick Nursery, London, W.—February, 1863.

EDWIN HOLLAMBY begs to inform his Patrons and Friends that his DESCRIPTIVE PRICED CATALOGUE of VEGETABLE, FLOWER, AGRICULTURAL SEEDS, and GLADIOLUS is now ready, and may be had gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells, Kent.

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CHARLES J. BARKER begs to offer SEED from his beautiful new Hybrid varieties, exhibited at the Royal Horticultural Gardens, and of which a highly favourable account appeared in the *Gardeners' Chronicle* at the time. All colours mixed, 1*s.* per packet; free for 13 stamps.

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A PRICED and DESCRIPTIVE CATALOGUE of all the new and leading kinds of Show, Spotted, French, Fancy, Scarlet, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready in exchange for one postage stamp.

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The Gardeners' Chronicle.

SATURDAY, FEBRUARY 21, 1863.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, Feb. 25 { Royal Horticultural (Fruit and Floral Committees) at S. Kensington 10 A.M. / Hyacinth Show, ditto 1 P.M.

IT is the fate of Vines to be tortured. No poor wretch who has been rubbed by ST. JOHN LONG, scoured by MORRISON, disjointed under excruciating rheumatism by MAHOMET, or drenched with gallons of cold water without or within by one of the Water Doctors, has ever had more reason to complain than the Grape Vine under the hands of quack gardeners and sciolists. Each has his own theory. The roots are either gorged with carrion or starved in mere sand and rubble; they are parboiled, and at length dried up by contiguous flues, or rotted with stagnant water, while matters which are sure to breed some deadly spawn are mixed up with their compost; no proper proportion is maintained between the temperature of the house and the external air or soil, in consequence of which the internal air is often so dry that the leaves can scarcely maintain their plumpness; rootlets are sent out from the branches, and spongy masses appear on the leaves; light and ventilation are prevented, and the foliage becomes chlorotic; insects and moulds are feared, and the leaves and bark are half destroyed with injurious chemicals, and it is well if the whole plant is not withered at once by sulphurous vapour.

This at first sight may appear an exaggerated statement, but though British Grape growers can bear competition with the whole world, yet since every gardener tries his skill at Grape growing, though devoid alike of instruction and experience, it is not wonderful that there should be so many failures, especially when it is borne in mind that first-rate Grape growing requires great skill, and an ability to meet local difficulties with speed and precision. Our remarks, moreover, are justified by the fact that in no branch of culture do so many anomalies occur, and accordingly that there is no subject on which we are so often asked for advice, or on which the same information is so repeatedly given in our answers to correspondents.

The matter has been brought forcibly under notice by a very singular case which was sub-

mitted to us a few days since, to a part of which we fancy that we have a clue, though not all the materials which are requisite.

Several Vines were planted in July 1859 in a poor light sandy loam, full of Fern roots (some of them of considerable size) such as is often found in woods where the Beech is the only tree which flourishes: a soil which is pervious and easily drained, but which has scarcely staple enough in it for continued vigorous growth.

The Vines accordingly grew very strong the first year, but the soil apparently was much exhausted by the first effort, and in 1860 the young rods broke weakly and very irregularly, a condition which has not been since improved. Then came the mildew, while the decaying Fern was beginning to injure the tender roots; some wash, apparently too powerful, has been applied to the bark, the superficial tissues received injury, and the succeeding growth was still worse; the alburnum is again injured, and in all probability the Vines will ultimately decay.

On removing the young bark, it is quite curious to see how the tissues are in part discoloured, and the ducts completely clogged up with a reddish brown jelly, while a section shows that a precisely similar condition obtained during the previous year. We see no trace of Grape-mould at present on the young shoots or leaves, nor any signs of last year's fungus.

Whether our views of the case are quite correct or not, can only be ascertained at the place of growth, but the reasons assigned are precisely such as would account for the condition of the Vines, while it must always be borne in mind, in questions of vegetable pathology, that apparently similar effects may often be produced by very different causes.

There is still a peculiarity about the rods which requires notice, and one for which we can assign no probable reason. Every specimen communicated to us is covered with knaurs, which are clearly formed from latent adventitious buds, in the same manner as the well-known productions on several of our forest trees. The rapidity with which these have been produced, and the difference of solidity between them and the normal tissues of the stem, are very striking. It is possible that this tendency to form adventitious buds, and the quantity of nutriment which must be diverted from its natural direction to support the knaurs, may exercise considerable influence on the growth of the young rods, but to what this peculiarity is to be attributed we can form no conjecture.

Insufficient nutriment from below, the baneful Grape-mildew, and an overdose of some chemical dressing, are quite enough without this constitutional peculiarity to account for the mischief. And after all it must be confessed that "constitutional" like "neuralgic" is a very convenient epithet, where effects are plain enough, but where the cause is hidden. Even supposing that we are wrong about the chemical dressing, there are plenty of instances on record where violent attacks of mildew have induced a partial or complete destruction of the wood. *M. J. B.*

NOTWITHSTANDING the signal revolutions which modern times have witnessed in the Kingdom of FLORA, the Rose still reigns supreme. Queen, not only by hereditary and prescriptive right, but also by universal assent, she occupies the same throne and sways the same sceptre now, as when NERO feasted, and when SAPPHO sang. Times have changed, and in the onward march of events the Rose has gathered and is still gathering richer and more glowing vestments from the loom of her beautiful foster-mother Nature, and now as then, in gorgeousness of apparel, in grace, in sweetness, she stands forth unrivalled and alone.

Never was there a more opportune moment than the present for bringing the Rose under notice as a hardy decorative plant, for such it must still be considered, notwithstanding that the winter of 1860-61 in great measure cleared our gardens of Roses as they were, good, bad, and indifferent. If we have to mourn over the loss of some cherished gems, we have at least the satisfaction of being rid of the rubbish which had been accumulating on our hands for the last quarter of a century. And now that we are recovered from the consternation produced by the slaughter of that period, and Roses are again cheap, good, and plentiful, it may be well to consider how we can best reproduce those pictures of the past, which, though becoming dimmed by distance, are still fresh in memory. In future numbers this question, with other branches of Rosology, will be discussed by a Correspondent who is able to speak on all matters connected with Rose-culture with the authority which experience alone can impart.

No one with a knowledge of the Rose as it is, would, we presume, think of refilling his garden with the varieties of the olden times. And if, owing to the scarcity of buds, or from other causes, any grower should have renewed his stock with such materials, he will probably find it easier to grow than to dispose of them. We have entered on a new era in Rose culture. Summer Roses are less valuable than formerly. We cannot indeed altogether set them aside, but we shall do well first to reduce the groups, and then the number of the varieties. The Moss, the Austrian Brier, the Hybrid China, &c., are the only groups of this division that are likely henceforth to be extensively cultivated. The French and kindred groups, sweet, bright, and beautiful as they are, must yield to the equal beauty and greater durability of the Hybrid Perpetuals. The Bourbon and Tea-scented races, if inferior to the last-mentioned in hardihood and exactitude of form, so far surpass them in redundancy of bloom, that they are altogether indispensable.

But another question arises—"In what way shall these Roses be cultivated?" Certain kinds are best as climbing, pillar, or weeping Roses, but in general it is a matter of indifference whether they are grown as standards or dwarfs—budded or on their own roots. The purposes for which they are required, and the positions they are intended to occupy, will in most cases settle this question. But, apart from these considerations, we think that tall standard Roses have been too plentifully used in ornamental gardening. A Rose tree, except when viewed at a distance, is more beautiful growing *under* the eye than on a level with or above it. And for these reasons: the face of a flower is more captivating than the base or sides, and the upper surface of the leaves is more highly finished than the lower.

One lesson taught us by the winter of 1860-61 should not be forgotten, viz., that budded and grafted Roses are sometimes killed when those on their own roots pass safely through the severest frosts. All lovers of Roses should plant at least one of each of the most valued sorts on its own roots; the winter may indeed kill the shoots of these plants above ground, but the dormant buds beneath the earth will remain safe, and will quickly restore the plant to its original state.

The practice of planting budded and grafted Roses in autumn has been unwisely extended to those on their own roots. Against this we enter a caution. A greater mistake, we believe, could not be committed. Doubtless, many examples of non-success might be traced to this cause. Leaving out of the question the cases of Roses on their own roots which have been nursed up in heat to get them quickly into the market, the custom of transferring a plant from a pot into the ground in early autumn, exposed before it is established to all the vicissitudes of an English winter, is contrary alike to sound theory and practice. Plant in April when the growing season has commenced, and the result will be a well-established plant before the winter arrives, and one that will live and flourish in spite of its trials and difficulties.

——WE learn from the *Builder* that the PLAN OF AN EXHIBITION BUILDING AND WINTER GARDEN in Dublin has been finally settled. That of Mr. ALFRED G. JONES of that city has been accepted.

"The Winter Garden will be formed at the south and west sides of the building, and will be of considerable extent, with continuous galleries. This building is to be constructed of glass and iron, having two principal fronts. The west front of the winter garden will run the full extent of the buildings, and unite with the Exhibition department. The building will also contain a private entrance for the use of the LORD LIEUTENANT and his suite, as well as dining-rooms, board-room, secretary's office, manager's residence, &c., with a basement story. The building, except on the north side, will be surrounded by an ornamental garden and grounds, the laying out of which will be under the direction of Mr. NIVEN, landscape gardener, of Drumcondra. The cost of the building is estimated at 40,000*l.* The whole site covers about 15 acres of ground. The architect, Mr. JONES, has engaged the co-operation of Messrs. ORDISH & LE FEUVRE, of London, to assist him with the details of the ironwork."

Judging from a very clever drawing engraved in the *Builder*, the building will be one of great beauty.

—— We observe that the HORTICULTURAL SOCIETY OF LIÉGE offers prizes for some subjects not included in our English exhibitions of plants, but which seem to deserve the attention of our own societies. Those to which we allude are the following:—

1. The best new seedling raised in Belgium.
2. A collection of 20 plants with parti-coloured foliage.
3. A collection of 25 useful or medicinal plants.
4. A collection of 25 bulbous plants in flower, consisting of at least 15 *distinct* species or varieties.
5. The best 6 pots of Lily of the Valley.
6. The best 6 Bromeliads.
7. The best specimens of garden labels.
8. Any garden tools or implements.
9. Any objects of art suitable for the decoration or use of gardens.
10. The best forced Vegetables.

—— A rare opportunity now occurs for sending to Cashmere a young man of energy and character, who understands the manufacture of cider, and who is also thoroughly acquainted with general gardening. The MAHARAJAH, in whose service he would be placed, will give 200*l.* a-year, and pay his expenses there and back.

The climate of Cashmere is beautiful. Apply by letter only to Dr. LINDLEY, Turnham Green.

—— WE may remind the lovers of Flowers and of FLORAL EXHIBITIONS that next Wednesday is the inaugural show of the season, that day having been set apart by the Royal Horticultural Society for a competitive display of Hyacinths and other spring flowers. The show is to take place at South Kensington. As the season has been remarkable for the absence either of injurious cold, or of the depressing dulness which sometimes in winter renders the production of a fine display of early blossoms a very critical and difficult task, we may look forward to a gay meeting—so far at least as the formation of incipient flowers may not have been hindered by the semi-sunless summer of last year. Another spring meeting, called a Camellia and Rhododendron show, is to take place under the same auspices on the 18th of March; and an Azalea and Rose Show is fixed for the 15th of April. Add to these the spring exhibitions of the Royal Botanic Society in the Regent's Park, for which the 28th of March and the 11th and 25th of April are the days named, and it will be evident that London residents and visitors will have ample opportunity to do homage to FLORA, and that the exhibitors, FLORA'S especial handy-men, will not want fitting occasion to prove themselves her trusty knights.

We are glad to see that the grand old family of Amaryllids is again attracting the notice both of schedule makers and of growers for exhibition. Though ranking amongst the most gorgeous of all our gaudy flowers, they had somehow or other become unfashionable, and though seen here and there in tolerable perfection, they were by no means generally cultivated. Now, however, one meets with them somewhat more frequently, and the fact that collections of them are invited by the Royal Horticultural Society on the 25th of February, and by the Royal Botanic Society on the 11th of April, must give an impetus to their cultivation, not only directly for the purposes of competition on these occasions, but also incidentally by the attention which the display, if at all what it ought to be, cannot fail to be the means of attracting towards them. They well deserve this revival.

Camellias, which rank amongst the aristocracy of flowers, of course figure prominently in the spring schedules to which we are alluding. The Royal Horticultural Society on the 18th of March invites two sets of 6 plants, one from nurserymen the other from amateurs, as well as sets of four plants and single plants open to all comers; and in addition to these a special "plum" is held out for the best three plants from any quarter. What a grand display might be made of these flowers alone, if the blossoms would but travel better! It is even worth making an effort, some of these days, to bring them together on a much grander scale than has hitherto been attempted. But always, failing the plants, we may have exhibitions of the gathered blossoms, and these, nicely arranged in appropriate stands, form one of the prettiest series of cut flowers which are met with in the whole range of our exhibitions—second only to Roses; so that we are not at all surprised to find both Societies inviting Camellias in this form. We must say, however, that the half sovereign offered as a first prize at Kensington for a dozen blooms is hardly consistent with the general liberality in prizes which characterises that western suburb.

Auriculas—those loveliest of the early pets of the florist—are not it seems forgotten by either of the 'royal' societies, though perchance in so mild a season, the reception, fixed for April, may come rather late. This, however, is one of the little matters in which antedated calculations are liable to prove fallible. And then how pleasant and genial to see the whole family included in the invitation—to Kensington too above all places: grey-edged, white-edged, green-edged, selfs, aye and Alpines, one and all of them! We began to think Mr. EYLES had persuaded the Council to turn florists in earnest, until our eye caught first another entry just below: "8 Pansies, fancies, in pots, 15*s.*," and

then for 24 blooms of the genuine show kinds, we saw that a less amount had been fixed; so that this could not be.

One special feature worthy of note in the meetings at the Regent's Park, is the invitation of collections of Conifers and other hardy evergreens in pots. At the present day, when so many fine things of this class have been introduced, thanks in great measure to Mr. FORTUNE and Mr. VEITCH, this hardy evergreen group might be made to form a very interesting part of the display. There is ample material also for a class of hardy variegated shrubs and trees, a well assorted group of which would prove exceedingly attractive.

ORCHIDS ON BLOCKS.

THERE are several genera of Orchids which may very conveniently be grouped together for purposes of cultivation, and none more so than those specified in this paper, as they require precisely the same kind of treatment, due regard being paid to the different periods of growth and flowering. With but one exception, I grow them on blocks of wood proportioned to the size of the plant. For this purpose I use a branch of a Cork-tree, cut to different lengths according to the thickness. The bark of this tree is more capable of retaining moisture than that of most others; it has also the advantage of being light and durable, and it is but rarely that the roots of the Orchids will refuse to cling to it. Acacia wood is of about the same value for this purpose; it is more easily obtained, but it is heavier.

In fixing the plants on the blocks, I generally first place a small portion of peat-fibre or Sphagnum on them; the plant is then firmly attached by passing fine copper wire between the pseudo bulbs, finishing off by covering the roots with more Sphagnum. It is of the utmost importance that the plants should be firmly fixed in their position, in order that the roots may attach themselves the moment growth commences.

Orchids on blocks like plenty of moisture. They become dry very quickly, and if neglected sustain serious injury; I therefore see that they have constant attention, examining them daily, and employing the syringe freely during their season of growth—in short, never discontinuing its use until the plants are removed to a cooler house. It may be here remarked that the principal secret in regard to Orchid growing consists in incessant watchfulness—in fact, in constantly observing and attending to their numerous wants, varying as they do in different species and at different seasons. To a real lover of Orchids, such operations form a source of peculiar pleasure, especially to the owner of a mixed collection, who sees beauty in many a form unrecognised by others who only cherish the élite among this aristocratic class of plants. With what satisfaction do we watch the swelling bud in its various stages of development, and see the healthy roots scrambling over the rough exterior of the blocks on which they grow, revelling in Moss, or striking out boldly in mid air in search of nourishment! Here one plant may be showing flower; there another bursting into bloom, perhaps to prove something new! This I say, constantly recurring, affords unflagging interest even from January to December.

When the plants have quite finished growing, they may be rested for a time by withholding water, except what is just sufficient to prevent shrivelling, or by removing the blocks to a warm greenhouse for a month or two, according to the strength of the bulbs; after that they may be returned to their growing quarters and be treated as before. In a house with strong rafters, plants on blocks and in baskets have a fine appearance, and serve to create variety. The following are kinds most suitable for growing on blocks, and all of them are interesting either as respects beauty or curiosity. They possess another advantage in not occupying much space; they may therefore be grown even in the smallest collection, viz.:—

Masdevallia infracta	Comparettia coccinea
M. coccinea	C. falcata
Leptotes bicolor	Scuticaria Steelii
L. serrulata	

I grow the last named on a block placed in a basket of Sphagnum, in order that the roots may have more support.

Rodriguezia recurva	Fernandezia elegans
R. crispa	F. lunata
R. secunda	Brasavola glauca
Broughtonia sanguinea	B. Digbyana
Bolbophyllum barbigerum	B. nodosa
Sarcopodium Lobbii	

The last does best in a basket with Moss, and is a most useful plant for winter flowering, as is also B. glauca, Cirrhopetalum Cumingii, C. picturatum, C. chinense, C. Medusæ, Barkeria Skinneri, B. melanocaulon, B. spectabilis, and B. Lindleyana. The Barkerias require a cooler house than the others.

There are also a few species belonging to other genera which require blocks, such as Cattleya citrina, C. marginata, Dendrobium pulchellum, D. Jenkinsii, D. chrysotoxum—in fact, any epiphytal Orchid will succeed naturally on a block; but the large growers get unmanageable, and do much better under pot treatment. *L. W. J.*

CULTURE OF THE RASPBERRY.

THE following are a few extracts from a paper on the culture of the Raspberry in the south-west of France, by M. L'Abbé D. Dupuy, Secretary of the Agricultural and Horticultural Society of Gers.

It has been generally believed, M. Dupuy remarks, and he himself, he says, has participated in the error, that the climate of France is too hot for this plant, unless grown in a situation with a northern aspect, and completely shaded from the rays of the sun. He obtained some Raspberry plants from Belgium, with the intention of planting them in the most shaded part of his garden; but from some cause he had occasion to plant two of them in a very warm corner exposed to the south, and sheltered from the north and west; they grew vigorously, and bore good fruit in the following year. On mentioning the circumstance to M. Dumas, the latter replied that he was not surprised, for at Saulsaie near Lyons, M. Verrier got better crops of this fruit from a southern than from a northern aspect; and in numerous plantations of fruit trees which had been made at Bazin, the Raspberries occupied the warmest borders in the garden.

[The cultivators in the south of France doubtless see their interest in this treatment in order to get the fruit earlier, and, with a due supply of moisture, probably more abundant and more highly flavoured than in a shaded situation. Earliness is important, more especially now that railroads afford quick means of conveyance to Paris and other towns, where this fruit is much used for dessert alone or with Strawberries), much more so indeed than in England), where also it is in great request on account of its aromatic properties for syrups, vinegars, wines, &c., for ices, and for the flavouring of confectionery. Raspberries will force, and growing them on a south border in the south or south-west of France is next to forcing.]

Instead of the ordinary mode of cultivation in the south of France, by which each plant is allowed to form a sort of bush, with bearing wood and young shoots growing amongst each other, L'Abbé Dupuy recommends the following:—Dig a trench 20 inches deep, and 30 inches wide, put in the well-rooted suckers, at 3 feet 3 inches apart, and fill up with well decomposed manure and good garden soil. At the end of winter or early in spring cut down the canes to within a few inches of the surface. Cut off all the flowers as they appear in the first summer after planting, in order to encourage the production of shoots for fruiting in the following season. Numerous shoots from the stock or suckers from the root are usually pushed; when the strongest of these have attained the height of 8 or 12 inches, the weak ones are removed, and those only which are in line in the trench left, as regularly as possible at about a foot apart.

In the spring following, or even in autumn, an inch or two deep of fresh soil is put round the stems in order to encourage suckers for the year following. When the time of pruning arrives, that is, towards the end of February, a stake is secured at each end of the line of Raspberries, and at the height of 2 feet a wire, long rod, or reed, is stretched between the stakes. If the line is long, intermediate stakes are necessary. [It may be useful to observe that the end stakes which have to bear the strain are not perpendicular, but are inclined backwards from each other, at an angle of about 30° so as to resist the strain.] These preparations being made, the canes which ought to bear the fruit are pruned to the length of 2½ feet, and trained to the wire, rod, or reed at an angle of about 60°, all being trained slanting in the same direction. In the course of the summer a young shoot is encouraged between those that have been trained as above described for bearing; which latter are cut down close to the ground in November. The same routine is repeated every year. A plantation thus managed will last from 10 to 20 years, according to the nature of the soil, and will bear abundantly, provided it gets a little manure every two or three years.

There is a method of training the Raspberry which is much practised at Haarlem, in Holland, and which the Abbé strongly recommends, because it avoids the confusion arising from the crowding of old and young wood. It is this:—The suckers or young plants are planted 5 feet apart, in rows 3 feet 4 inches asunder. On each side of the plant, and 24 inches from it, a small stake is driven so as to stand 20 inches high. Four canes for bearing are trained to these stakes, two being inclined to the right and two to the left, like the branches of a young tree to be fan-trained. The canes are shortened to the length of between 2 feet 3 inches and 2 feet 8 inches. Whilst these are bearing in summer, four shoots are allowed to grow upright in the centre, in order to be trained at the winter pruning in the same inclined position as those that, having borne, will then be cut away.

Raspberries generally bear near the top of the canes tied upright; but the author says that by the inclined mode of training above described, all the buds on the stem break into fruitful shoots in consequence of the inclination of the stem [just as Vines break their buds when bent down]. From the experience he has had of this mode, he has no hesitation in saying that it will give a more abundant produce than is obtained by the crowded bush system.

The author is of opinion that were it not for the loss of ground, the Haarlem method might be somewhat modified with advantage. By training the two inclined branches above each other, their foliage is rather close, especially near their base. He therefore proposes to train only one shoot toward each point, say N., S., E., W. [This might be tried for experiment; but it would be more expensive as regards labour, stakes, and loss of ground. On the other hand we think the Haarlem method might in many instances be advantageously employed; for when tied strictly upright the buds near the base often do not break, and the bearing branchlets consequently proceed from the weaker and more immature portion of the cane; but when inclined, bearing shoots are induced from the strongest part, and they will consequently be more vigorous and will produce larger fruit.]

Indoor Gardening.

ONE of the very pleasantest interests of an indoor gardener is that, it seems to me, of raising plants from seed. The very fact of not knowing what they may prove to be, adds much to the interest of it.

Those "Sardinian Geranium" seeds, for instance, cannot, perhaps, be expected to produce a great many fine new flowers. If one should turn up, indeed, I believe that the raiser might reckon herself to have been very lucky. But then without grand blossoming we may have immense amusement, and I seldom enjoyed any garden more than I did a boxfull of seedlings of this kind two or three springs ago. I bought a half crown or five shilling packet, if I remember right, of mixed seed, sowed the seeds in a plant case, and pricked them out afterwards into small pots that stood on a window sill.

Nearly every seed contained in the packet came up. The plants were from the first leaf pretty—such velvety, nicely cut, beautifully shaped little leaves—and so green and bright looking. Some grew up directly into tiny short trees with a stem like an Oak of 2 inches high, and others spread out and grew leafy, and distressed me by being crooked. The scent was so pleasant too; and I always hoped to get if not a new blossom, anyhow a new scent. For any one who desires to have a window garden with the largest possible amount of work about it, which is often, we know, an essential, and with the smallest amount of space, and on the whole little cost, I would advise her to get three packets of seeds—Geranium, Balsam, and Mimulus—and then she would find her hands most likely well filled for the summer.

At the time when I grew these seedlings the plan of the heated plant cases was first being got up, and I had one then *outside* my window, in which the seeds came up splendidly. They were sown about March, and the case was covered at night, and had one of the glasses raised a good deal of each day.

For those who now have the plant cases in windows or conservatories, especially if not much heated, the seeds would no doubt do well, for my first experimental case gave far less heat than these do when they are fully heated; and indeed it seems that for window gardeners the very lowest temperature at which a seed will grow or a plant will thrive is safest and least likely to lead to damage in the shape of over drawing.

The Geranium seeds are apt when they begin to grow to walk up out of the soil, as the little spirals affixed to them curl and uncurl provokingly. I don't know if it was right, but I cut off most of mine, and could not see that it hurt them. The pots were not very small—5 or 6 inches across. The seeds were sown each separately, as is well worth doing in such cases, leaving a little margin of soil all round the edge, and placing the seeds at intervals of about a couple of inches. It is by no means a bad plan to put in the middle of the flower-pot a very tiny thumb pot, leaving it only partly filled with soil, and always watering through it. Any such plan for watering is helpful sometimes, for there is so much danger often of washing away the soil and leaving the little rootlets bare.

The soil I used was leaf-mould made rather sandy. The pots were most thoroughly drained quite half way up with charcoal in small pieces. The earth was firmed a little and the seeds pressed down upon it. A little soil was then spread carefully over the seeds.

Balsams are done just the same, but Mimulus or Lobelia seeds are so very small, that the smallest quantity of soil is enough to cover them; a quarter of an inch deep is quite as low as they should be, or in coming up they get too much drawn and weakened. I have quite ceased to believe in covering seeds with moss for the practice of window gardeners. One wants to see how they get on, and somehow they don't do well! But if the sun is shining the glasses may be closed on the case, which will not only shade effectually, but add very much to the warmth. We must, however, remember that such warmth is very fleeting, and will rather make it necessary to give more than less heat that night.

For those even who have not plant cases or hotbeds, or any means of heat-giving, I think it would be worth trying to devise some means for warmth. The seedlings do not require it for more than a very few weeks; and though it is very certain that a succession of things keep coming all the spring in general, still, to raise three pots full is not such a hopeless task.

When the pricking out comes, a few days of shady heat is always beneficial; and then the range of tiny plants is ready to go to a window, and to go in or out as the case may be. The more air they have certainly on a fine still day the better, but if gusty or stormy weather comes they are very liable to be uprooted.

The Balsams are good to grow, too. They do best and safest, I think, grown in 4-inch pots after the first pricking out, and then they can be re-potted into a larger size when the pots are quite full of roots. This makes them bud early and flower dwarf. They take an immense deal of water and do best indoors always, as the closer atmosphere seems to suit them best.

Mimulus grows anywhere, even in a north window, after the seeds are up. It is a step above "Musk" in beauty (being itself a Musk plant), but of the two I think it is almost the easiest grown; it blossoms, too, very early and very constantly, and its pale green leaves hanging down and spreading have a fresh pleasant look about them, quite independently of the pretty yellow and red spotted flowers. *E. A. M.*

Home Correspondence.

An African Orchid.—Mr. Andersson, in his "Lake Ngami" (pp. 33, 35, vol. ii.), speaks in rapturous terms of an orchideous plant, which he observed on the banks of the Swakop River, near Walfisch Bay. He quotes also Gordon Cumming, who had been fascinated by its beauty. Andersson's own words are, "I ascended the rock, when I discovered a most beautiful air-plant in full blossom, of a bright scarlet colour, with the lower part of the interior of the corolla tinged with lemon." Again, "On a lofty and inaccessible rock overhanging the river-bed, I again saw some of those beautiful flowers which in the early morning had caused me so much delight; and, with a well-directed ball, I brought down one almost to my feet." Can any of your correspondents tell what species is referred to, and whether it has been brought alive to England? *An Orchid Grower.*

Power of Selection in Roots.—In your last Number is an interesting article relating to some experiments by M. Cauvet, a French apothecary, on the power of selection ascribed to the roots of plants. I am glad to see this confirmation of the views which I have put forth in papers read before the Chemical Society of London, and may refer your readers for an abstract of them to the agricultural portion of the *Gardeners' Chronicle* for last year, and in which will be found a report of two lectures of mine on the Physical Forces concerned in the Phenomena of Vegetation. It is in the second of these that an account of my experiments on the power of selecting and rejecting mineral substances ascribed to the roots is to be found. *Charles Daubeny, Professor of Botany, Oxford.*

Collections of Flower Seeds.—I think a reply to the queries inserted after my remarks in your impression of last week, does not involve a contradiction of any assertion I there made. In answer to the first, I would say, by all means grow a good mixture of colours—but that a dozen or two dozen varieties of Asters or Stocks include every colour worthy of a place in this "good mixture," I must still deny. If it be granted that six or seven varieties of Asters may be identified as distinct from each other, and adapted for different purposes, and that they each give us, on an average, only eight distinct colours, we have here some four or five dozen distinct sorts. In the same way, if it be admitted that there are three or four distinct varieties of annual Stocks, dissimilar in habit or blooming at different seasons of the year, in addition to the Brompton or biennial (Matthiola simplicicaulis), which forms another species, and that each furnishes us with a dozen distinct colours, we obtain, as the result, four or five dozen distinct kinds. In saying this, I cannot be understood to wish to perpetuate the "194 varieties of Stocks" you refer to, or the "endless collections" generally, which, I must agree with you, are "useless except to sell." I think I made this sufficiently apparent in my concluding observation, where I recommended that care should be exercised in selecting, in order to avoid "the many repetitions of similar articles frequently offered under different names." *Jno. Fuller, 7, Lower Calthorpe Street, Gray's Inn Road, London.*

Tree Transplanter.—An apparatus for transplanting large evergreens, somewhat similar to that recommended in your Paper of last week, but without the brass eyelet holes, was used here many years ago; but practically it was not found to answer, owing to the difficulty in adjusting firmly the semicircular iron plates, to "balls" of earth varying in size, and in removing the lower plates without disturbing the roots of the tree, when put in position. This led to the adoption of another plan, whereby curved iron plates, circular at the top, were fixed to and formed the upper bed of the transplanting machine, which resembles a porter's corn truck, but of course is much larger and stronger, the wheels being about 18 inches in diameter, and 8 inches wide; some iron work is fixed underneath to receive a large lever shaft or pole about 25 feet long, when the handles of the truck are not sufficient for the purpose. The machine does its work so well, and so easily enables us to remove trees with from half a ton to a ton and a half of earth, that it occurs to me it may be useful, now that the subject is under discussion, to describe its mode of action. A trench is dug round the tree of the required depth, leaving a "ball" about 4 feet in diameter, for trees not unusually large. This done, say 4 feet deep, the "ball" is well secured by sacking, barrel staves, and cords, undermined on one side, and the truck drawn down an inclined plane, and fixed with the handles in a vertical direction, so that its curved iron bed extends fully half way under the "ball;" the other side is then undermined, and a semi-circular iron plate, about 8 inches wide, is secured partly beneath the "ball," and attached by means of a strong chain to the truck. Leverage is then applied, the truck pulled down, and the tree turned over, so as to allow the side of the "ball" to rest on the iron bed; in this position the tree is drawn away and replaced, by simply allowing the lever shaft gently to resume a vertical position. There is no difficulty in drawing out the truck and removing the appliances, and I do not recollect that we have ever had a failure. *J. K. H., The Castle, Wallingford.*

Muscat of Escholata Grape.—Your Correspondent "Vinicola" speaks of "puffing" the Muscat of Escholata Grape. I offer it, but do not puff it. I have known it for many years, and frequently seen and tasted the fruit, and believe it to be a valuable hothouse Grape, quite different from the Muscat of Alexandria. Perhaps, "Vinicola" has obtained the latter under the former name, but I hardly think he could form a correct judgment of a hothouse Grape planted out of doors! In my opinion it is nearer to the Cannon Hall than to the Muscat of Alexandria; the leaves are more deeply serrated, the wood grosser, and the berries larger than those of the latter. Permit me to correct as light error of Messrs. George Paul & Son, in your last week's Number. They state that "the Grape in question fruited this year on an old Vine thus supplied by us, &c." Now the Vine in question was supplied by the late firm of A. Paul & Son, and not by the new firm of G. Paul & Son. *William Paul, Waltham Cross.*

Beurré Brettonneau Pear.—My experience as to this Pear has not been much, but it is enough to condemn it. I had a good crop last autumn, which were gathered about the 5th of November, for the shrivelling of late Pears arises often as much from being too early gathered, as from being kept in too high a temperature. They are now ripe, half melting, but totally wanting in flavour. I shall follow the example of Mr. Cramb, and regraft my trees. I may take this opportunity of stating that the Bergamot d'Esperen succeeds admirably on the pyramid. It is one of the best late Pears. Mine are now perfectly melting and delicious. They should be well thinned when about the size of Nutmegs. *G. L., Cambridge.*

Room Orchids.—"Serapias" says, at p. 125, in writing of Messrs. Low's magnificent Orchids at Clapton—"One house was rendered quite gay by crowds of Calanthe vestita, of which I scarcely knew whether more to admire the variety with a crimson or that with a yellow-eyed lip. Both were most beautiful when seen in such profusion, and are really invaluable as winter flowering plants. They insist, however, upon having a good quantum of heat, so that there is no chance of their ever elbowing Lycaste Skinneri, which seems disposed to make itself quite at home in our drawing-rooms." Now I must beg leave to say a word for these lovely flowers—at least in connection with Mr. Gray's Plant Cases. Last Christmas twelvemonth Messrs. Low were good enough to send me a plant of Limatodes rosea, of which people were then talking as the loveliest winter flower; and another pot contained plants of two different coloured Calanthes, the yellow and the purple-eyed. These plants were put at once into a warm plant case in my sitting-room window, and there the long spikes of blossom kept on opening slowly out, and looking very beautiful for nearly or quite six weeks. They went off at last only from accident; I was ill, and the plants for a week not attended to. The Lycaste Skinneri has the advantage of looking green, and therefore beautiful, from one year's end to the other, but in point of flowers, I think that the Calanthes and Limatodes would be quite as easily managed; in my case, in fact, they seemed more so. The difficulty would be for room gardeners to manage the after growth, as the pseudo-bulbs are not at all ornamental. Cannot some one devise some means of growing them on? My own made good green shoots and swelled out the pseudo-bulbs well; but I only see thoroughly to one plant case at a time, and these plants were in another liable to neglect, under which they suffered. I don't suppose room plants would ever yield long flower spikes like those at Clapton, where one hears of them 3 feet and more; but if anything could be done to make such flowers available to brighten up Christmas plant stands, the work would be well worth doing, as anything more beautiful than the delicate waxen blossoms with their pale pure rose colour, it would be hard to find; and the yellow and purple-eyed Calanthes grew in still longer flower spikes, and curved out amidst my Ferns and other green things most exquisitely. It has now been suggested to me to set up a case exclusively for the growth of Orchids in summer, and forcing flowers in winter, and this will be, I think, a really successful plan. *E. A. M.*

Striking Roses from Buds.—The Rose is as easily propagated by means of buds or eyes as the Vine. If your Correspondent "X." (see page 77), will take a strong shoot from almost any kind of Rose in a dormant state, and with a sharp knife cut it into as many pieces as there are good eyes on the shoots, the pieces not being more than one inch long, taking care to have the eye in the centre of the piece, he will doubtless succeed. One third of the wood should be cut clean off from end to end at the back of the eye, just as you would prepare a Vine eye. In preparing the cutting pans it is most essential to put a good quantity of broken potsherds in the bottom, beginning with large pieces, and finishing with others more finely broken; then mix a quantity of good loam, leaf-soil, and sand in equal proportions, rub it through a fine sieve, and fill the pans to within 1 inch of the top, pressing down the soil moderately firm. After that put in the eyes in a leaning or slanting position, pressing them firmly into the soil with the thumb and finger, taking care to keep the thumb on the bottom end of the cutting to prevent the bark from being injured. After the eyes are put in, give the pan two or three gentle raps on the bench, then put half an inch of silver or clean river sand on the top, water with a fine rose, and plunge the pans in a nice bottom heat, of say 60°, covering the surface over with moss, to prevent the soil from getting dry; they will not require any more water for a week or 10 days. The Moss should be carefully removed as soon as the young shoots begin to push through the sand. In three weeks from that time the Roses will be fit for potting off into large 60-sized pots. They should then be placed in a temperature of 70°, when they will soon repay the care bestowed on them. I however prefer grafting on the Manetti stock. I grafted a lot in a dormant state 7 weeks ago; they are now nice plants, and will be in bloom by May. *J. Wills, Oulton Park, Cheshire.*

Dahlias.—In answer to "Telegram's" remarks which you quote from *Gossip*, viz, "that no more effectual means could be devised for the perpetuation of an inferior race than giving prizes expressly for those sorts of imperfect form"—I beg to say that if prizes are given for a distinct class which is of inferior form at present, it does not follow that the inferiority will be perpetuated, but rather that it will be assiduously cultivated until it attains the same excellence of form which the superior classes already possess. *Geo. Rawlings.*

Patent Bituminized Paper Pipes.—In the summer of last year one of your Correspondents strongly recommended these pipes as possessing all the advantages claimed for them by the Company. I was disposed at the time to indorse his recommendation, having laid down about 800 feet of the 2-inch piping some few weeks previously, for the conveyance of water to and from a large reservoir on the top of a hill about 60 or 70 feet high. For a time they answered very well, but after two or three months they began to burst, and they appeared to be affected by the soil through which they passed in two or three damp places. Repair was easy, but no sooner was one fresh pipe put in than another was required, till at last I was obliged to substitute lead, feeling convinced that they would not stand the pressure to which they were subjected. They may answer for ordinary purposes on level ground, when protected from the effects of mortar, rubbish, &c., which seems to eat into the outer coating, and perhaps on this point your Correspondent will kindly give the result of his further experience. *J. K. H. The Castle, Wallingford.*

Botanical Gardens.—You lately gave some information respecting foreign botanical establishments. You would, I think, be imparting some desirable information if you gave the names of cities and towns in Britain where they had botanic gardens attached to them, together with the names of the managers. *A Subscriber.* [If the information is furnished us we will publish it.]

Royal Horticultural Society.—I am a Fellow of the Royal Horticultural Society, and take a lively interest in its prosperity. I attended the annual meeting last week, and received and heard read what appeared to me a very fair and satisfactory Report from the Council. On reading an article in the pages of one of your contemporaries, however, I find according to him that I am all wrong; that instead of the Report being satisfactory it is quite the reverse, and that instead of feeling gratified by the apparent prosperity of the Society I ought to feel a strong measure of disappointment. This rather startled me, and I turned again to the Report and the accounts and read them more carefully, and afterwards perused your contemporary's leader; but I protest I am no more enlightened than I was before. The Report (like a good railway witness) only comes out the stronger the more I study it; and while I see more and more ground for satisfaction I see less and less cause for disappointment. It may be my stupidity, but I fail to see on what possible ground I am to feel a strong measure of disappointment. I see well enough at what your contemporary is disappointed, but what I want to know is his reason for being disappointed. It is not enough for a leader of public opinion to tell us that he is disappointed, he should tell us why. I may be disappointed that an Apple is not a Pear, but before I can expect others to sympathise with my disappointment I must give my reasons for it. I have looked carefully through your contemporary's observations to see—1st, what he is dissatisfied at; and 2d, why; and the one and sole ground of dissatisfaction is that the Council have applied the money which they borrowed, and the funds which their good management last year produced, in going on with the works in the garden. Can it be that your contemporary is under the delusion that the garden was completed 12 months ago, or is complete now? He appears to have studied last year's Report for comparison with this, but apparently his study of it has been hasty and partial, or he would never have told us that he had "been living in the fond delusion" that a sum of 16,000*l.* which he found there invested, "was still safe in India debentures or other equally safe security," seeing that the same Report showed that against the 16,000*l.* had to be placed a liability of upwards of 15,000*l.* then due for the works which had been executed. This money was expressly borrowed for the purpose of being so applied. Nobody borrows money for the mere borrowing's sake. They intend to spend it, and if it is expended in the way intended, why should they be disappointed that it is not still invested? Why should they be disappointed that their Apple is not a Pear? Again, as to the receipts drawn during the last year, amounting to no less than 31,000*l.* I see from the accounts that this has not been drawn without a large counter outlay, and I never was such an unsophisticated shepherd as to suppose it could. Your contemporary has

the waters of the oolitic limestone flow over the edge of the Oxford clay. A very different country then is traversed—of stiffer soil and smaller and less regular fields—with a larger share of pasture land, surrounded by Thorn fences, containing a good deal of hedgerow timber. It is on both sides of the line separating the Great Oolite from the Oxford clay that the farms of Mr. Giles Edmonds of East Leach lie. And it is down such a valley, sending a clear and copious trout stream to the Thames, that you reach East Leach on your way from Burford. There are few prettier villages than Bothrop, through which the road leads you. The churches of two parishes within a stone's throw of each other, the wooded grounds and Gothic windows of a residence overlooking both, the roadside cottages and houses of the hamlet, are passed in succession, and at length you reach the scattered homestead with the large and comfortable farm-house, the buildings, sheds, and barns, without much plan or visible arrangement, and the large unoccupied spaces amongst them, all characteristic of the English Farmery.

Mr. Edmonds occupies two farms, one of 1200 arable acres and 250 acres of pasture, attached to the homestead, though provided also with two or three others in other parts of it; and the second, at some distance, of 800 acres arable and 150 acres pasture. Of the arable land about 700 acres are stiff clay, chiefly on the Oxford clay formation; the remainder of the land is the brashy soil of the upper oolite. Of course the management of 2000 acres of arable land is a very large business, requiring the employment on an average of about 100 men, 20 boys, and 40 women throughout the year. The labour bill cannot fall far short of 3200*l.* per annum, or 32*s.* an acre. The horses employed on these farms have varied from 40 to 44, and some 50 oxen have been kept, enabling the work of 15 or 16 teams on alternate days = 7 or 8 constantly employed. The rotation of cropping adopted is 4-field on the light land, and 3-field on the heavy. Wheat, Mangel Wurzel, Turnips, Barley, Clover or Peas or Beans on the light land; Wheat, Beans, Vetches or fallow on the clay. There is thus a very large extent of tillage, probably 1,000 acres of grain crop, and near 500 acres of fallow crop every year to be cultivated. The land for the most part lies wonderfully well for steam cultivation—in a series of fields, 30 to 50 acres in extent, long rectangles, 400 yards across—laid out just as if the use of Fowler's apparatus had been contemplated at the time of the original enclosure.

Mr. Edmonds' during the past summer purchased Fowler's 14 horse-power engine with complete apparatus, 800 yards of wire rope, and 4-furrow balance plough and cultivator. He had previously hired the Cirencester steam tackle and been satisfied with the quality of the work done by it, though not with its speed. The men from Leeds however, who started his own machinery for him, got his labourers into rapid movement from the first, and they have been maintained in it, by a mode of payment which is to some extent a premium on activity, ever since. Neither engineer nor ploughman would in the first instance brook any delay. Rope porters, if not cleared out of the way, were ploughed down, and the porter lads were quickened at first starting in a manner which they have never since forgotten.

In place of 4 or 5 acres a day with which the men in charge of the hired apparatus were satisfied, 7 or 8 acres of ploughing, 10 or 12 of cultivating, or 20 over the second time, alone were considered satisfactory, and the consequence is that during the past autumn on 54 days in August, September, and October, 490 acres of land were moved, 144 being ploughed, 239 being scarified, and the rest being worked with the digging breasts upon the plough frame. The depth and thoroughness of the cultivation left nothing to be desired. What is now lying fallow for Beans, or smashed up for Mangel Wurzel and Turnips, is well and deeply worked. The Wheat plant on the steam-ploughed Clover lea looks first-rate.

The following are the expenses of the operation:—For wages—engineer (the home blacksmith), 3*s.*; anchorman and ploughman, 1*s.* 8*d.* each; two porter lads, 1*s.* each daily; amounting in all to 8*s.* 4*d.* a day. To this, however, is added 1*d.* per acre to both engineer and ploughman for work accomplished, and ½*d.* an acre to the anchorman, so that the three have earned in addition to their wages the sum of about 5*l.* to be divided among them during the two autumn months.

A boy and water cart is needed, costing 3*s.* 6*d.* to 4*s.* a day for the supply of water and coals. Coals cost 13*s.* a ton at the station—probably 20*s.* a ton on the ground—and 15 or 16 cwt. may be burned daily. Adding to all these items about 1*s.* a day for oil, we have a total expenditure of at least 30*s.* daily, in ploughing on an average 7 to 8 acres, or in scarifying 10 to 12 acres, or in cross scarifying, 18 to 22 acres. The cost of wages and fuel and material in ploughing, thus amounts to 4*s.*; in scarifying, to 2*s.* 6*d.* or 3*s.*; and in cross scarifying, from 1*s.* to 1*s.* 3*d.* per acre; in every case there must be added 2½*d.* an acre extra as a gratuity to the men. The repairs required by the apparatus after 500 acres of work, are literally nothing; the breakages have been confined to a few shares or skifes, and the rope is believed to be still nearly as good as new. To show that the average performance is at least what I have stated, I will quote the performance of the past autumn. On August 25 and 26, 22 acres, partly clay and partly stone brash, which had borne Vetches fed off, were scarified (with the digging breasts), and on August 27th, 21 acres of the piece were cross scarified without moving the apparatus. On the 28th, 13 acres of clay land which had been previously moved by steam, were scarified. On the 29th another 13 acres were scarified—in both cases the apparatus being moved at the end of the day's work to the new field.

On the 30th they commenced ploughing (with the digging breasts) a 20-acre piece of Wheat stubble described as sand and clay. This took three days, on the last of which however not much was done, for 1 inch of rain fell in the morning; in the afternoon the apparatus was moved to a field of 24 acres Wheat stubble on sandy land. This with moving after finishing the job to another field took three days. On the last day (Sept. 6) of the second week they commenced ploughing a 50-acre field of Clover lea for Wheat, but worked only five hours that day; the piece was finished on Friday night, and the apparatus was moved back to the first piece which had been worked on August 27; this piece, 21 acres, was scarified in one day. In the three weeks they had lost one day, moved five times, scarified the first time over 72 acres, the second time over 42 acres, with the digging breasts 20 acres, and ploughed 50 acres—in all 134 acres of scarifying, and 50 acres of ploughing, which would have needed about seven teams of horses to have done it in the time. The wages of the men and boys employed in ploughing and scarifying by horse power would, during these three weeks, have been probably 15*l.*, and the food of the horses would have been at least 20*l.* Whereas the cost of fuel, wages, and material spent in steam ploughing, at 30*s.* a day, did not exceed 27*l.* in all. And beside the mere question of cost, it must be remembered that the superiority of the work by steam power on the clay lands at any rate is unquestionable.

The following is the diary of the rest of the autumn:

			A.	R.
Sept.	15	Half-day ploughing fallow land for Wheat, clay, wet day	10	0
,,	16	Ditto ditto ditto, and moved		
,,	17	Scarified same piece worked Sept. 3d, 4th, and 5th, and some extra	26	0
,,	18	Ditto ditto ditto, and moved		
,,	19	Scarified clay land for Wheat		
,,	20	Ditto ditto	26	0
,,	22	Ditto ditto, and moved		
,,	23	Ditto ditto, for Vetches	12	0
,,	24	Scarified Wheat stubble, stone brash land		
,,	25	Ditto ditto ditto, ¾ day	31	0
,,	26	Ditto ditto ditto		
,,	27	Ditto, across the most of work done the last three days	22	0
,,	29	Ploughed fallow clay land for Wheat		
,,	30	Ditto ditto ditto	30	0
Oct.	1	Ditto ditto ditto		
,,	2	Ditto ditto ditto, and moved 2 miles		
,,	3	Digging Wheat stubble, part stiff clay, part brash	27	0
,,	4	Ditto ditto ditto ditto		
,,	6	Ditto ditto ditto ditto		
,,	7	Moved and digging Wheat stubble, part stiff clay, part brash	13	0
,,	8	Ditto ditto ditto, moved again		
,,	9	Digging Wheat stubble, part stiff clay and part brash	12	0
,,	10	Hindered by a foot path and moved		
,,	11	Wet morning, began digging at 2 o'clock		
,,	13	Not at work		
,,	14	Digging Wheat stubble	21	1
,,	15	Ditto ditto, and moved		
,,	16	Digging sandy land and stone brash		
,,	17	Ditto ditto ditto		
,,	18	Ditto ditto ditto ½ day	30	2
,,	20	Ditto ditto ditto		
,,	21	Ditto ditto and moved		
,,	22	Not at work		
,,	23	Ploughing Wheat stubble, beginning at 10 o'clock		
,,	24	Ditto ditto hindered through having carted some long dung which caused it to reeve	16	0
,,	25	Ploughing ditto and moved		
,,	27	Ditto and moved	5	3
,,	28	Ditto ditto	13	2
,,	29	Ditto ditto and moved ½ mile		

To this must be added about 20 acres of Wheat stubble ploughed for Beans in addition, making in all 510 acres accomplished during the past autumn. We have little doubt that if equal good fortune attends the machine during the coming year, Mr. Edmonds will be able to report the accomplishment of 1400 or 1500 acres by next winter. It is when the annual charges of interest and deterioration of value have to be divided over a great extent of land like this that the economy of the process will be the most apparent.

Mr. Edmonds' own valuation of the work done hitherto upon his farms is as follows:—

"I consider the cost of the above work to have been about as follows:—Daily expenses, Engineman, 3*s.* 6*d.*; Ploughman, 2*s.* 6*d.*; Anchorman, 2*s.* 2*d.*; three boys, 3*s.*; Water carts, 4*s.*; Coals (15 cwt.), 15*s.*; Oil, 1*s.*; total, 31*s.* 2*d.*, or on 55 working days, 85*l.* 14*s.* 2*d.* Add to this four months charge for interest and wear and tear at 12½ per cent. per annum on 900*l*—37*l.* 10*s.*, making the total cost for 490 acres of scarifying and ploughing, 123*l.* 4*s.*, or 5*s.* per acre. The wear on our rope at present seems small, and the work done has been all that I could wish. I have broken 10 skifes from contact with blocks of stones and roots of trees in old hedge rows. Cog pinion working clip drum requires repairing, a new one is desirable. Cast iron wheel for fastening hind wheels of engine when propelling itself, cracked but still in use."

We do not doubt that so favourable a report by so experienced a man will tend immensely to the extended use of Mr. Fowler's apparatus, which is already employed on many farms in that neighbourhood.

The farms are interesting in other respects than for their steam cultivation; the live stock on them consists of a flock of about 1000 Southdown ewes, of which the produce are sold fat at 16 or 18 months old. A dairy herd of Short-horns is also kept, and a considerable number of cows are annually fattened off. Nowhere have we seen feeding sheds in which attention is more perfectly paid to the comfort and well-doing of the beasts.

The large number of oxen employed formerly is now reduced; some 30 or 34 oxen are put up to fatten instead of being merely kept along for labour, and a few horses less are kept. It is impossible to doubt that when the full effect of the apparatus has been proved, a much larger saving in both horse and ox labour will be effected than has hitherto been attempted.

COTTAGES FOR LABOURERS.

THE cottage accommodation for farm labourers has by no means received the attention from a majority of the landed proprietors it is by many people thought to deserve. Where a large property includes the whole, or a great part of a parish, it is clearly the part of the owner of such property to see that the cottages are fit for human beings to inhabit; and I think very many of our nobility and landowners on a large scale are awake to their duties, and it has been my lot to be connected with two estates upon which the cottage accommodation is considered one of the first duties of the landlord, and where cottages have been erected in large numbers suited to the requirements of the labourer.

In parishes and districts where no large owners of property exist, I have often observed the dwellings of the poor to be in the worst condition, because there is no one to take the least interest in them other than the tenant farmer, who cannot be supposed to find capital for cottage erection, yet who may do much towards their improvement by representing to their landlords the necessity of better houses for their labourers; still I am afraid that in very many instances the wages of the agricultural labourer will hardly allow of his paying rent enough to make the erection of such cottages as the present age requires a profitable business of itself; but the better the dwelling, the more moral and intelligent will be those who are reared within its walls, and it is to be hoped that many of our owners of property will consider if they cannot do something for the benefit of the labourer; still, goodness knows, the land has almost enough to pay already, yet every day increases its value, not only to the proprietor, but men are to be found who are willing even now to give higher rents than formerly.

The situation of the cottage is of very great importance, and ought to be well considered before being selected; the principal things to guide one are the healthiness of the spot and the nearness to the man's daily employment; I much prefer a high and dry site, and let the soil be porous if possible; as near to, or adjoining a good road as can be; and instead of single dwellings, they should be erected in blocks of, say four or six; by this means expense is saved, and one of the great wants of the labourer supplied—viz., a little society. The districts most requiring cottage accommodation are those that for the most part consist of large arable farms, which take more labour than the grazing districts; and in such localities the labourer generally resides in the village at too great a distance from his employment. I know a farm of 1200 acres, nearly all arable land, the occupier of which is compelled to pay 1*s.* per week to his men more than his neighbours, and this solely in consequence of his great distance from the surrounding villages, otherwise he would not be able to command the class of men for labourers he would wish to have, as most of them have to come a distance of two miles to their work; this extra outlay would go far towards paying for the erection of good cottages upon or contiguous to the farm, and go to the owner in the shape of the increased value of the farm.

The cost of building a cottage is now-a-days very various, and we must not take those built by landlords as ornaments to their properties as a rule, any more than such hovels as are erected by speculators merely for the sake of the rents they will let for, or to be any guide as to what is the right sort of dwelling for a farm labourer. In the first place, very much depends upon the materials used, and the cost of them in various localities; in places where stone is plentiful it may be the cheapest material, but more generally brick with slate or tile roofs would be employed.

A landowner, in cottage building, has his own brick kiln to supply materials, and in many instances the wood is grown upon the estate, and he ought to take care not to charge those materials too high a price, or he adds very much to the seeming expense of his building. I much prefer foreign to English timber, for roofs, doors, &c., to cottages, it being so much more durable and cheaper in the end; but where English stuff is used, it ought to be of good age and well seasoned; if not, cottages, or any other buildings, will soon be out of repair. I know of some estates where the cottages are a source of continual annoyance to the agents from their being built with young unseasoned timber grown upon the property, and thought quite good enough for cottages;

but this is a mistake, as the repairs of labourers' cottages are, in some instances, so great, as to deter owners of property from increasing the number, and mainly from bad materials used.

The accommodation a cottage should contain consists of two rooms on the ground floor, one larger than the other, for a general living room for the family, and the smaller one fitted up with sink, oven, copper, &c., for washing, cooking, and the work of the house; two bedrooms are positively necessary, and in very many instances three, it being highly improper that, when a family is growing up, children of both sexes should sleep in the same room, as is too often the case now-a-days, for those brought up in this way never make decent or moral men and women; a small shed should be added at the back of the cottage as a store place for fuel, tools, and such like articles. This amount of accommodation can be in most instances secured for an outlay of from 60*l.* to 80*l.*, yielding a rent of from 3*l.* to 4*l.* per annum, with from 20 to 40 poles of garden ground attached; this I consider of great importance, and will always tell me to whom the cottages belong, as owners of property, in most instances, allow good-sized gardens, and such a plan is much preferable to the allotment system, as a labourer is enabled to spend more time in a garden adjoining his cottage than he could on a piece of ground at some distance from it.

I don't think a large landowner ought to look to the actual rent of the cottage as the only benefit he is deriving from his outlay, but rather to the increased value of his farms from the good supply of labour that his cottages will be the means of keeping upon his property. When cottages are erected upon the farm, they in some instances are let to the tenant, and by him filled with such men as he thinks proper—this may do in a few cases, for such labourers as shepherds, herdsmen, carters, or others employed after the stock; but no landlord ought to allow his cottages to be out of his own hands, if he wishes to have them kept in proper order, and filled by respectable tenants.

I am afraid these few observations will be of but little service to the friends before whom you may introduce the subject, and I wish very much my time would enable me to go more into detail in the matter. I hope your hearers will remember that a good cottage is not all a poor man requires, but that a kind and thoughtful employer may do very much to mitigate the hardship of his lot. *J. Coleman.*

[The above letter was recently addressed by Mr. Coleman, of Woburn Park Farm, to the Secretary of the Hungerford Farmers' Club.]

Home Correspondence.

Furze Crushing and Cutting for Cattle Food.—In a former letter I promised your readers a notice of the successful and economical preparation of Furze as cattle food, practised at Mr. Cliffe's, Bellevue, county of Wexford, Ireland. In this I have been anticipated, I perceive, by the conductors of that very useful Irish periodical the "Agricultural Review," and having implicit reliance on the correctness of the report, I will give you a few extracts from it, bearing on the subject of Furze. The writer says, "The Furze-preparing machine was purchased at the Exhibition in London in 1851. It is 'Burrell's patent of 1849,' and does its work most efficiently. The Furze is 'fed' to the machine by a trough similar to that of a chaff-cutter, a pair of toothed and fluted rollers take the Furze to the knives, which are arranged on the principle of Passmore's patent chaffcutter, a series of knives being set on two wheels of about 15 inches diameter, which revolve at right angles to the feeding rollers. The cut Furze then passes between two rollers of about 15 inches diameter. The surface of these rollers is smooth, one of them is set something higher than the other, the degree of pressure being regulated by a weighted lever. There are eight plantation acres of land producing Furze, which supplies the place of hay for 12 horses from Sept. 1 to May 1, as also giving 40 head of cattle feeding for one month. The cost of Furze for each horse has been found to be twopence per diem, the only additional food given to horses being one half-stone of Oats daily, and occasionally a mash of boiled Turnips and Bean-meal. The condition of the horses is all that might be desired. We may here describe the Furze meadows and their management. . . . The seed sown in March, at about 35 lbs. per acre, the roughest and poorest portion of the land being selected—in fact the Furze meadows are situated on almost otherwise valueless portions of the farm; the Furze mown in two years after being sown, and every second year afterwards. It has been found that when the Furze was cut annually it 'died out' of the land. Mr. Ford (the steward) tried and approves of sowing Furze in drills 12 inches apart. Two-year-old Furze will be found to have a quantity of woody matter, useless as feeding; this is chopped off, and nothing but the one-year-old growth prepared as food." A friend of mine two years ago, at my suggestion, sowed his Furze in drills 15 inches apart, the sites of the drills left lower by a few inches than the spaces between. The object in sowing in drills in his case was to admit of having the spaces forked or hoed between them, and the object of having the spaces higher was to admit of having some of the soil and subsoil let fall in between the plants in the drills as a top-dressing, when the hoeing or forking was being performed. He has also sown broadcast, as is customary in most other parts of Ireland where Furze is cultivated for stock-feeding; and is now of opinion, as I had anticipated when suggesting the experiment, that the drilled crop is most profitable. All those who have cultivated Furze for hedges may have remarked, as in Mr. Ford's case, at Bellevue, that by the annual cutting of the young shoots, the remaining stems will "die out." Wherever this is dreaded in a Furze meadow, by leaving the crop uncut for three years, till the plants will have acquired strength, then cutting very low for fuel, it is found that young shoots acquire renewed vigour, and continue productive for many years after. There is an advantage in using Furze, which all should bear in mind, derived from the immense quantity of valuable manure produced by their use. Where straw is scarce for litter, cut Furze whin, left by the stock at night, proves an excellent substitute. *E. Carroll.*

Carts.—A correspondent having inquired in the *Agricultural Gazette* of the 24th ult., who is the best maker of farm carts, perhaps you will allow me to state that for the last four years I have used carts made by the Busby Agricultural Implement Company, of Newton-le-Willows, near Bedale (Yorkshire); and that I have found them very serviceable, strong, well made, and "useful for general purposes." Mr. R. Robinson, of Broughton, near Stockbridge (Hants), makes a very light, strong, and durable one or two-horse cart. *F. S. S.*

Moles.—The Vicar of Wix does not rest content with knowing how to seed other men's lands better than they do themselves, but he must needs have a fling at them about moles—even their mole catcher must have a smack. My father was one of these very men whom the Vicar would hold up to ridicule upon the mole question; for more than 40 years ago, when he began draining, he waged war against the mole, his land being overrun with them; he destroyed hundreds perhaps thousands; so deadly was his fight with them, that I can say of my own knowledge there has been but one on my bottom farm (then my father's farm) for more than 30 years, and that one I had destroyed as soon as I saw its first mole hill. Then, to the extent of this one mole. the Vicar's dart hits me—yes! and since I have killed every mole that has trespassed on my land for 30 years, it hits me hard, as hard as it can any man. Now for the result; why, my lands are not overrun with wireworms, but they are yearly overspread with splendid crops of roots and corn. Besides this I am not troubled with either gout or apoplexy, although I have not had mole hills to kick for exercise. For years back the two mole catchers in this neighbourhood have been, one a schoolmaster and parish clerk, and the other a leader of a choir and constant attendant at church, both very respectable and trustworthy men. Why, then, the worthy Vicar in dipping his bucket this time has missed both "discretion and wisdom." Let us hope that he has not picked up either the gout or apoplexy; but since "discretion and wisdom" have slipped him, I shall not follow him through his out-of-place muck question. *William Smith, Woolston, Bletchley Station, Bucks, Feb.* 9.

Sparrows and Caterpillars.—"I will tell you what all this fuss about sparrow-murder is about, and what it is. Because the sparrows eat caterpillars, so says Dr. Bree. But do they eat caterpillars? No, they do not; and this every tyro of a naturalist knows; and this I, myself, have proved hundreds of times. A sparrow will perish with hunger rather than touch a caterpillar; and this I stake my reputation in proving to the satisfaction of every man who can understand what a proof is," &c. *G. Wilkins, Wix Parsonage, Jan.* 13, *in Gardeners' Chronicle, Feb.* 7.—That distinguished ornithologist, the Rev. F. O. Morris, says in his very interesting account of the sparrow, "I have watched pairs of sparrows repeatedly feeding their young, and have found that they bring food to the nest once in ten minutes during at least six hours of the 24, and that each time from two to six caterpillars are brought—every naturalist will know this to be under the mark. Now, suppose that the 3500 sparrows destroyed by an association for killing sparrows were to have been alive the next spring, each pair to have built a nest, and reared successive broods of young during three months, we have, at the rate of 252,000 per day, the enormous multitude of 21,168,000 larvæ prevented from destroying the products of the land, and from increasing their numbers from 50 to 500 fold!" (see 2d vol. of first edition, p. 279).—Cannot some observer assure us whether caterpillars are eaten by sparrows or not? as we cannot tell which of the above Rev. gentlemen is the best naturalist. *Correspondent.*

Relating to Stock.—The physiology of generation is one of the most recondite and difficult of studies; at every step one finds a new puzzle. It seems as if the Deity, for wise purposes, said, "Thus far shalt thou know, and no farther." The great puzzle in the equines are the mules and mutes, which partake of the nature and similarity of both parents, showing the mutual influence of them both without the power of breeding. Among the bovines the freemartens are an enigma not yet solved. Your readers know that if a heifer and bull calf are born at the same time from the same cow, the heifer is never in season, and therefore of course can never breed. She seems, like the mule and mute, to partake of the properties of both parents, though, as to generative organs, so far as we see, she is female; her head and fore-quarters inclining to the appearance of the male, or rather ox, and the hind-quarters to that of the female parent. I am led to supply the following remarks, by perusing an able and interesting treatise in page 15 of the *Agricultural Gazette* for 1863, relating to "crosses in breeding" and "phenomena in breeding," read by Mr. Wilson, of Cross House, at the late meeting of the Penicuik (Mid Lothian) Agricultural Society. I propose to make a few observations on Mr. Wilson's able article in relation to the phenomena of breeding, under the heads of his paragraphs (*b*) (*c*) and (*d*), having no observations as regards (*a*). (*b*). The following was told me by the Scotch steward-bailiff (a first-rate man) of a gentleman in this county, who farms more extensively than any one in this county; of course I was much amused, as your readers also will be. It tends, however, to show the dangers of the "eye." A farmer in Scotland bred a colt from a favourite mare, and to his surprise, when born, the colt had crooked fore-legs, and walked as if it had "knock-knees." The farmer said to his man, "I would as soon it had died, it walks like Tom Jones the teacher" (a knock-kneed man). To which his man replied, "I can well remember that he was standing by at the time." The farmer of course exclaimed, "I wish he had been at home teaching his boys, or any where but there." (*c.*) There are different opinions respecting the best crosses in sheep. I have many times observed, when at the Smithfield show, the excellence of the cross between the Southdown and Leicester sheep. They were remarkably handsome about their fore-quarters, apparently possessed of great aptitude to fatten, combined with well-formed backs and mellowness to the touch. Amongst the cross-bred classes there are prizes given for wether sheep under 220 lbs. live weight, which of course are weighed whilst the judges are in execution of their duty. Two or three years ago, when acting as steward at the above show, I had to see the sheep weighed, and I found them within one pound of the weight; they were about 20 months old—the same breed in the other class being much heavier. Many persons would have been surprised to have found so much weight in so small a compass;" but an old saying, that "the best goods are packed in the smallest parcels," might have been justly applied to them. They have many years won the first prize amongst the many cross bred sheep exhibited against them, and I think they are still likely to do so; but how to go on crossing I am at a loss to know. I well recollect, when, as a boy, I assisted my father (more than 30 years ago), that he thought it would be advantageous to cross his pure Southdowns with the best Leicester rams he could purchase. Accordingly he did make the cross, and certainly the issue was early and fast fatting lambs; but he found eventually that he could not successfully go on breeding from them, as they soon became, if not mongrels, yet mongrel-looking, and exhibited some of the worst qualities of one or both parents. As he did not like the cross, he began again with the pure Southdowns, and continued them till he gave up his farm and stock to me. Since my succession I have kept the same pure Southdown stock, and I feel increasingly satisfied from experience, that no class of sheep is better than the Southdowns for such a hill-farm as I occupy. Let me not here forget to express how grateful I feel to our late much lamented and much respected friend, Mr. Jonas Webb, who presented to the whole world the type of a sheep, and at the same time infused into Southdowns by careful selection, substance and constitution. I have been breeding principally, though not only, from his noble flock for many years, and sorry indeed was I when I read of his intention to abandon sheep breeding—a sorrow only exceeded by the report of his death. It is not my desire at all to run down cross-bred sheep, or throw cold water upon the zeal of cross breeders. In my own neighbourhood there are some admirable flocks of improved Hampshire Downs. Great improvement has taken place within the last 10 years in respect of this class, and I think that great praise is due to Mr. Humphrey for the improvement; yet I cannot help observing that though the ewes, wethers, and lambs of this class of sheep yield more money than our Southdowns do (sheep for sheep), we can nevertheless keep more of the Southdowns on the same quantity of feed; and when the feed is short, as sometimes it will be, they will come best out of difficulties. The estimate of a flock must be taken from what can be made of it from a given quantity of land, and not from the mere price of the sheep. Suitability, no less than variety, is the soul of life. For good pastures, with ample space to move about, the cross breds are very suitable. What may be a very good sheep for one locality may be undesirable for another. The right sheep, as well as the right man, must, to do credit, be put in the right place. As regards those two most beautiful specimens of sheep, the Southdown and Leicester, so essential to crossing, I trust I shall never live to see the total extinction of their pure blood. It will be a "blunder worse than a crime." I may observe here, that although I have never yet seen a cross bred sheep beat the pure bred, yet hope seemed to dawn upon cross bred cattle last Christmas, a cross ox having won the Gold Medal at Birmingham, (the same thing occurring at Smithfield) away from the pure breeds. I do not recollect a cross ox taking the lead before. As a lover of purity of blood in cattle, as

well as sheep, I hope it will not occur again for some time. (*d*). Respecting ewes bearing twins, I am of opinion that high feeding of the ewes during the tupping season has much to do with it. Certainly some flocks of ewes are more prolific than others. The failure is often put erroneously to the discredit of the ram instead of the ewe. I have written the above remarks with a view of enabling and causing "young" stock breeders to think well before they commence the experiment of cross breeding. *John Ford, Jun., Rushton, Blandford, Feb. 2.*

Farmers' Clubs.

HEXHAM: *The Essentials to Profitable Farming.*—We preface the paper lately read on this subject to this farmer's club by its President, J. Grey, Esq., of Dilston, with the following remarks, which appeared in the *Oxford Journal*:—

JOHN GREY, Esq., of Dilston.

There is hardly any profession whose wise and successful prosecution tends more to the general welfare than that of the land-owner. It depends greatly upon him whether his estate shall yield food, wages, and farm profits in abundance or at all. On his will and judgment rests the share which is contributed by his portion of the island to the prosperity of its population.

There cannot be greater contrasts than land managed under different ownerships presents. Much greater than those arising from differences of soil or of climate—these act directly upon the character of the population, producing all the differences between listlessness and energy, between poverty and wealth.

There are light sandy districts in this country, formerly so worthless and deserted, that land-lighthouses were necessary for the guidance of the traveller, which now, thanks to the wisdom of measures taken by their owners, present the best illustrations of fertility and productiveness. There are clayey tracts which in some parts are a poverty-stricken dairy country—and in others, owing to similar measures, are drained, tilled, and productive. On the one side in these two pictures we have a scanty population, earning a precarious livelihood from hand to mouth; while, on the other, there are intelligence, activity, well-paid labour, well-supplied markets, and a prosperous tenantry. The difference between the two is due to the differences between energy and carelessness, between parsimony and liberality, between recklessness and wisdom in the person and management of the land-owner.

The duties of such a position, on which so much depends, are rarely performed in person, and thus the office of the land-agent or deputy, to whom they are generally remitted, is one of very great importance.

We do not know an estate on which the value of a wise and liberal and energetic superintendence has been more obviously proved than it has on the Northumberland property of the Greenwich Hospital. Nor is it, we believe, possible to name any one to whom, in this direct local and immediate manner, English agriculture owes so much as it does to the gentleman whose name heads this paragraph, and who has now for nearly 30 years administered this extensive property.

Appointed then by the late Earl Grey and the late Lord Althorp sole superintendent of an estate extending from the North of the Tweed to Cross Fell in Cumberland, with all its vast mineral and agricultural productions, he might well feel diffident and alarmed. He accepted the onerous post, however, and has since performed not only the mere duties of the office—but in a most distinguished and public spirited manner those which every man in his position and degree owes to society. Mr. Grey, of Dilston, has long been known as the great agricultural authority in the North of England—as the great promoter of agricultural improvement—as the founder of Agricultural Societies—as the heart and centre of every useful public movement in the agricultural world. Known to readers of the English Agricultural Society's Journal as the writer of many useful papers on the relations of master and servant—on the relations of landlord and tenant—on farm buildings and other agricultural subjects; he is still better known as the eloquent public speaker whenever there is a wise and large-hearted plan to be promoted, or a good and genial sentiment to be advocated.

When he first came to the agency of the Greenwich Hospital estates he saw that there were many things capable of great improvement. Slovenly harvest work, carelessness in breeding stock, and general listlessness in the details of farm management, had to be dealt with and corrected. Premiums were offered—sweepstakes were established—Societies founded—and in every other possible way energetic industry was stimulated. It was to one of these Societies—the Hexham Farmers' Club, over which Mr. Grey has for many years presided—that he gave the other day an address on the essentials to profitable farming, in which he brings to bear upon an important subject that ripe and experienced wisdom which is to be acquired only by the Christian gentleman after a long life of honourable, public spirited, and useful employment.

It has been by way of bringing the good advice thus given in the North before agricultural readers in the Midland and Southern Counties that we have thus referred to the life and labours of the speaker.

Mr. Grey, in his address on the essentials to profitable farming, speaks of capital, judgment, industry, intelligence, and probity. The following are short extracts from his remarks on these five important topics:—

Every one knows how great has been the change in the practice of agriculture during the present century.

Previous to that it was a dull routine, leaving all to the land, as the nurse of plants, not knowing that different plants required different nourishment, and that land is only the medium through which that must be administered. Science must be called to aid in discovering what it is. When the mere produce of the farmyard was found insufficient to maintain the fertility of the soil, under more frequent cropping, other kinds of manure were sought for, and resorted to. The first application of the kind was bones in different shapes, which were found to yield the quickest return when dissolved in acid, which fits them at once to be assimilated by plants. Phosphates were found to be efficacious for roots. Then guano was discovered, which has ever since been imported in increasing quantities, added to many manufactured manures. One source of manurial wealth is still neglected, in the waste of sewage, which Dr. Liebig reminds us must eventually tend to the diminished fertility of the country, so great a portion of its produce being consumed in large towns, and never restored to the soil. It follows, of course, that the qualifications essential to a successful farmer are now much increased, and different from what they were formerly. More education, intelligence, and knowledge are required to keep up with the progress of scientific agriculture. The subject proposed for our present discussion is 'The essentials to profitable farming,' under which head may be enumerated capital, judgment, industry, intelligence, probity, and good moral conduct, on each of which I shall endeavour to make a few remarks.

First, Capital—a rock on which many make shipwreck at the outset, leading themselves to work afterwards in shoals and difficulties.

The man who engages in a larger concern than he has capital to do justice to is always at the mercy of the times, if they prove unfavourable, to bring him to a stand still; he is compelled to dispose of his produce in low markets, and unable to take advantage of a good bargain if it comes in his way. The capital required to stock and enter upon a farm differs according to the customs which prevail in different parts of the country. It is usual in these parts to allow six months to pass after a rent becomes due before it is collected, which gives a considerable advantage to the tenant in regard of capital, as he can often realise some produce from the land in aid of his funds in hand. The amount of capital required for entering upon a farm has often been stated at a certain sum, but that cannot be applied to farms indiscriminately, so much depends on the quality of the land, as 100 acres of very good land will require as much stock as 200 acres of an inferior quality. Much depends also on the proportions which may be in old pasture and in tillage. But it may be safe to say, allowing for such diversities, that the capital needful for entering upon a farm of mixed cultivation and stock, with safety, varies from 5*l.* to 8*l.* an acre. In another way of reckoning, it may be considered that a farmer should have at command four times the rent which he engages to pay. It hardly needs remark that all such calculations must be made to meet particular circumstances, and must therefore be liable to great variation. In countries where "tenant's rights" are in force, and take the place of leases, where tenants are left to build, enclose, and drain at their own cost, looking for repayment from their successors, in case of a change, the tenant's investment becomes so great on the premises that it is no easy matter for a new tenant to encounter such an undertaking. Hence, long occupations by the same family are found to exist in connection with the annual tenure, and necessarily with lower rents, giving to that system, in the opinions of some people, a preference over the custom of letting land on leases of reasonable length; and of all permanent works, such as building, fencing, draining, and road making, being done by the owners, so as to leave the farmer's capital to be employed solely in the legitimate object of stocking and cultivating the land.

Then, as to Judgment:—

The first and most important subject on which a farmer's judgment can be exercised is in selecting a farm suited to his means; next, in making a just estimate of its worth; and then in deciding upon the most judicious and profitable course of management to which it should be subjected. Another point on which it is essential for a farmer to exercise judgment is in selecting the kinds of live stock which are most suited to the quality of his land, its produce, and climate. Having made up his mind on this point, judgment is still called into constant exercise in bringing his animals to the greatest perfection, and selling them to the greatest advantage. There is no operation on a farm, nor any animal or implement by which it is effected, that is not a subject for the exercise of sound judgment, the absence of which may greatly detract from its profitable occupation. There is another subject on which it is of infinate importance to exercise good judgment, and that is, so to arrange the cultivation of a farm as to cause it to maintain the greatest quantity of live stock. To pretend to grow Wheat to profit, on inferior soils and in high situations, in this country, which must come into competition with the produce of the finest Wheat-growing districts in other parts of the world, is manifestly absurd. Wheat can be conveyed by sea and by rail, at a small cost as compared to its value, and without injury; but it is not so with live stock. In that we can suffer little from foreign competition; and, happily for us, we have soil and climate most favourable for its production, and a never-failing market at home for all the beef, mutton, and wool that we can supply. The result of our last harvest, and the relative prices of corn and butchers' meat at this time, tend strongly to confirm this view of the matter, which I have endeavoured, on former occasions, to impress upon you. It is difficult to uproot old prejudices; and time was, before the freedom of trade and the facilities of intercourse existed which we now enjoy, that it was in some measure true what an old farmer in this part told me nearly 30 years ago, "that nothing was worth growing but Wheat." Now, I believe, except in the most favourable situations, it pays, on an average of seasons, the least, and is the most precarious of all our crops; while the consumption of meat continues to increase, and, had it not been for the dreadful calamity under which so large a section of the operative classes of our country are now suffering, it is reasonable to suppose that the price of butchers' meat would have ruled still higher than it does at present. No doubt exists in my mind that a large portion of the inferior land in this country would yield the greatest profit, by restricting the growth of corn, and curtailing the expense of cultivation to that point which is necessary for the maintenance of live stock, making that our primary object, and the growth of corn crops subservient to it, except in situations most favoured by soil and climate. I do not say that all land of inferior quality should be laid off to permanent pasture; on the contrary, I believe that a rotation of tillage, with an interval of three years' Grass, is more profitable, and that the freshness which is recovered by that rest in pasture, is most favourable to the growth of those root crops which are indispensable to the keeping of stock during the winter. What I recommend is, to curtail the area of tillage as much as is consistent with the production of winter food for stock, and to deal with that reduced area so liberally, by draining, good cultivation and manure, as to obtain from it as much as is got from the larger surface at a greater expense. Even the heavy soils of our districts may, by draining and deeper cultivation, be made available for sheep pasture, which I need not tell you practical farmers, is the best and most profitable stock that you can rear, whether as regards the return they yield in flesh and wool, their greater exemption from disease, and the benefit derived from their manure, which is richer in quality and more equally distributed over the land than that of horned cattle. It does not come within the object of this address to compare the advantages of different rotations of cropping for different soils, I only refer to it as a subject on which sound judgment must be exercised, or much labour may be lost and many advantages sacrificed, but, as a general maxim, I believe it to be prudent to cultivate chiefly that kind of grain which the land has a tendency to grow in the greatest abundance; for if it should not be the most suitable for market, the coarsest grain can always be employed, by bruising or steaming it, for feeding stock, and seldom fails to be profitable, especially if mixed with a portion of Thorley's or Campbell's condiments.

The next point which I have named in the list of essentials to profitable farming, is Industry.

That you may say, and say truly, is essential to success in every calling, but in none that I know of are persevering industry, and constant vigilance, so indispensable as in farming. The manufacturer, in any line, employs a certain kind of machinery, and works upon certain substances which admit of little variation. As he leaves his work at night, he resumes it in the morning. Not so the farmer. He works in an ever-varying climate, the changes of which affect the soil, or the produce on which he operates, and the performance of the implements in use. A fall of rain while he sleeps makes the operation he was engaged in to-day injurious on the morrow. New arrangements must be made, and other employment resorted to, and it depends upon his capacity and activity whether they be suitable and profitable, or otherwise. Such circumstances naturally stimulate to industrious and active habits; and such, in general, are characteristic of the farmer. Yet among them you do find men, as in all situations of life, of various temperaments and dispositions; some pushing and energetic, others indolent and indifferent. And it is curious to remark how everything about a farm bears the impression of the occupier's peculiar temperament. On one farm you will find operations going on systematically and energetically, the master, present among his work people, or, if absent, well aware by the amount of work performed, how things have gone on in his absence. On that farm, you are likely to find stock of a right kind and in good keeping, and roads, fences, and gates in good order. On another, you probably find horses in plough or cart, standing behind a hedge, and the people enjoying a quiet gossip beside them. Ask for their master, and they will tell you that he would likely be found in the house. And there you will find him, with his feet on the fender, and a pipe in his mouth, or, if a warmer season invites, on a seat outside, indulging in the sun. Go through his farm, and you find the road-sides flourishing with Docks and Thistles, shedding their seed for the good of his neighbours; the hedges full of gaps, stuffed with dead thorns that kill the living ones; and gates which you must lift off the crooks or shift a pile of stones from to obtain a passage through. I speak from experience in such matters, and have no wish to draw an exaggerated picture. Is it fair, then, to abuse farming as a bad occupation, because such an one does not thrive in it, or to accuse a landlord of being rapacious and tyrannical because he would like to remove such a tenant to put his property into other hands?

I now come to speak of Intelligence as an essential for profitable farming.

No doubt, much and useful intelligence may arise from good natural abilities, and acute observation. These, even without the advantage of early instruction, have, in some instances, been the pioneers to great distinction and success; but did we ever hear of a Watt or a Stephenson who, having struggled through difficulties, and attained great eminence, did not lament the impediments they had to encounter, from the want of early education? The time has gone by with too many of us to profit by the improved education which the present state of society requires and affords; but allow me to remind such of you as have the responsibility of being parents, of the duty incumbent upon you, to educate your families so as to fit them for taking a respectable position in life. It is the best patrimony which you can bestow upon them. A liberal and judicious course of education is the foundation of future acquirement; it opens up the sources of knowledge, and gives vigour and opportunity of expansion to any peculiar tendency of intellect which the mind is disposed to. Without it no man need expect to keep pace with the onward movement of society, or to make his way in arts, manufactures, or even agriculture—to which some knowledge of chemistry and the natural sciences is indispensable. I have heard with great satisfaction of the distinguished places which two youths, who were lately pupils with my near neighbour, Mr. Lee, have taken in the late examination at the College of Cirencester; and I congratulate our late Secretary on the success of his pupils, which reflects credit upon himself. Although we cannot but look with admiration on the brilliant examples which a fortuitous education has at times produced from the lowest walks of life; on the philosophic depths of Leslie, and the poetic flights and stupendous learning of the ever-lamented Leyden, yet it is far more for the purpose of improving and instructing the great masses of the people that we ought to prize and encourage a popular education. I need hardly ask you, in the last place, whether that education should be limited to the mere business of scholastic acquirements, or if it should not also be directed to a higher and holier aim—to imbue the youthful mind with those sentiments of morality and virtue which it ought to be our especial desire to see as the characteristics of an improving age.

I have ventured to place Probity among the essentials for profitable farming, and, I may say, for success in any line of life.

Point to the unfortunate man who is known to be capable of practising falsehood, fraud, or deceit—the man who will show a better sample of grain from his pocket than he has in his sack—who will not scruple to use a defective measure, if he thinks he can escape detection, or to pass off an animal on a purchaser which is lame or diseased—and need you ask if such an one can long be successful—if he can be respected by others or happy in himself? Many complaints and disputes are heard of in our day between masters and their farm servants, and doubtless the latter have many faults. We hear of cases of idleness, drunkenness, and dishonesty; but are the faults all on their side? Are the masters always found to be actuated by a spirit of justice and mercy? Are they inclined to visit those faults with forbearance and forgiveness, with a view of reforming them, or with severity and punishment? To effect a general reform, each one should begin by reforming himself. Do we keep habitually in mind that, though God has appointed us to different stations in life, giving to each his duties, one to direct and another to serve, yet that, in His sight, we are all brethren? Do we consider it to be a part of our social duty to look to their domestic accommodation and comforts—to the moral training and religious instruction of their children—to do what we can to elevate them in principle and in feeling—in short, to purify and make more healthy the whole moral atmosphere in which we live—to impress upon all the obligations imposed upon us here, and the responsibility which we must give account for hereafter

Reviews.

Third Annual Report of the Cranley Village Hospital, Established 1859.

The following is the report of the Trustees:—

The Trustees, in presenting the Third Annual Report of the Cranley Village Hospital, desire to inform the Donors and Subscribers, that the number of admissions has exceeded those of previous years, and that the results—as shown in the Report of the Cases—have been eminently satisfactory.

The admissions in 1860 were 23,—the same number as in the year 1859—whereas in this, the third year of the establishment of the Hospital, the admissions have been 30, most of these also (as was the case in previous years) could not have been properly treated in ordinary cottages.

The institution of the Village Hospital resulted, indeed, from the absolute necessity of providing better accommodation for the poor, in cases of sickness or accident, than that afforded by their own homes. The distance of the London Hospitals prevents them from being of much use to the poor in country districts, and the change also to the atmosphere of London is oftentimes in itself prejudicial to the health of country patients.

The Hospital now contains six beds. It is situated in the village of Cranley, close to the residence of the Medical Officer, who is thus enabled to afford prompt and unremitting attention.

The principle of weekly payments by the Patients has answered so well, that its adoption in all similar institutions is confidently recommended.

The Trustees believe that the utility of the Village Hospital is now generally recognised; and in soliciting your support by annual subscriptions or otherwise, they beg also to suggest that donations of port wine, brandy, and linen rags, even in small quantities, will be most acceptable.

The Hospital from the time of its first establishment has been instrumental in the alleviation of a great deal of suffering, and this alone is sufficient to enable the Trustees to recommend it with confidence to your support; they trust in the blessing of God, that it will continue to flourish as a permanent and an excellent Institution.

(Signed) JOHN BRADSHAW, JAMES ELMES, J. H. SAPTE.

Mr. Bradshaw, whose name is here appended, is the Chairman for this year of the London Farmers' Club. We had the pleasure of describing his farm in these columns the other day. We refer now to the good work in which we find him sharing here, hoping that his example may thus be copied elsewhere. Institutions of this kind are, we know, being established elsewhere. On passing through Bourton-on-the-Water the other day we found one there, and it was praised for its usefulness to the labourer, who is thus in case of accident or acute disease brought near to the medical man, and under good and constant nursing.

The following are the rules of the Cranley Village Hospital:—

1. The Hospital is designed for the accommodation of the Poor when suffering from disease, or from accident; and shall be under the direction of Three Trustees, one of whom shall be the Rector of the Parish, who shall also be the acting Manager.
2. The establishment shall consist of a regular nurse, and another woman for the necessary work of the house. A lady has also kindly promised the benefit of her assistance in all special cases.
3. The nurse shall at such times as her services are not required in the Hospital, attend poor women at their own homes during their confinements, or other illnesses, on payment of the usual fee.
4. Patients shall be received on payment of a weekly sum, the amount of which, dependent on their circumstances, is to be fixed by their employer, in conjunction with the Manager of the Hospital.
5. Admission of Patients shall be granted by the Manager, on consultation with the Medical Officer, to either of whom applications for admission may be made, addressed at the Village Hospital, Cranley.
6. The Medical Department shall be under the control and superintendence of A. Napper, Esq.
7. The Domestic arrangements shall be under the management and supervision of some of the ladies of the parish.
8. Every requisite shall be provided in the Hospital, and patients may not receive food or drink from any other source, without the sanction of the Medical Officer.
9. The funds for the establishment and support of the Hospital, shall be raised by voluntary contributions, and the Treasurer's statement of the receipts and expenditure (examined by the Trustees), shall be printed once a-year and forwarded to each subscriber.
10. All subscriptions shall be payable yearly and in advance, on the 1st of October, and any of the Trustees may receive Donations and Subscriptions, an account of which shall be rendered to the Treasurer.
11. The furniture, and all other property of the Hospital, shall be vested in the Trustees.
12. In case of a vacancy, the remaining Trustees shall elect another to make up the number.

Miscellaneous.

Astrometeorological Prophecy uttered this Time last Year.—We are now enjoying all the mildness of spring under the powerful influence of Mars, instead of the anticipated cold from the moon's conjunction with Saturn and Jupiter; but it must again be remembered that Saturn and Jupiter, from their long travelling near together, their recent conjunction, and now their near neighbourship, though very slowly getting further apart, seem to have become very much assimilated, the former from the double action of the sun and Jupiter having become more modified in his influences; the latter, having received much of Saturn's cold magnetic influence, has become much cooled down, and therefore his reflected rays do not elevate the temperature of our globe, as they will do when they once get an entire sign from each other, and this will yet take considerable time, as Jupiter is a whole month in passing through one zodiacal sign, while Saturn takes two years and a half to push through one sign. We must, therefore, consider the coming year to be a mild and prolific one.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. SPEARING, Moulsford, near Wallingford, Berks, during the week ending Feb. 18, 1863.

Day of Week.	Day of Month.	At 9 A.M., Railway Time. Reading of Barometer corrected to Freezing Point at Mean Sea Level.	Dry Bulb Thermometer.	Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0-6	Amount of Cloud 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday ..	12	30.35	42	41	W.	2	3	51	39	75	34	0.01	44½	45
Friday ..	13	30.66	30	27	N.	1	1	53	24	94	20	..	44	45
Saturday ..	14	30.65	39	37	E.	2	3	49	24	74	23	..	42½	44
Sunday	15	30.60	37	34	E.	1	1	45	29	73	22	..	42	44
Monday....	16	30.61	32	27	E.	1	1	49	23	78	18	..	41	43½
Tuesday ..	17	30.64	35	33	S E.	1	1	52	26	84	20	..	40	43
Wednesday	18	30.53	30	28	S.	1	2	54	25	89	20	..	40	43

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Calendar of Operations.

FEBRUARY.

WESTER ROSS: *Feb.* 16.—At length we have had a few fine drying days, and already the change in the appearance of the fields is astonishing. Previously, and for many weeks, there was nothing but wading through them; now they are regaining a seed-like aspect. Throughout the month of January it rained, often heavily, and almost incessantly. The weaker sheep depasturing on Turnips were actually sticking in the mud, whilst all of them underwent a deteriorating process. The fields were so continuously washed over that little of the littering of the sheep could have remained to benefit the coming crop. Ploughing leas for Oats, which is now well advanced, was nearly the only practicable out-door operation. Now, however, the roads are dry, and right glad are we to see them thus, as for a long time before we could not cart up our hills a single load of manure. A continuation of such weather, which we may now reasonably expect, would admit of our frightfully overstocked cattle courts being emptied out, and all other out-door employment being comfortably proceeded with. Although the harvest was late, the winter has been open, and the arrears of labour are well wrought up. Autumn-sown Wheat is above ground, and, although not far advanced, appears thick and healthy. From the deficiency, nay the almost total failure of last year's crop, a smaller breadth of Wheat than usual has been sown this season. Not a few fields were so thoroughly bad that the grain would do little more than pay for the threshing; and yet, bad as our Wheat is, our Barley is very little better. The average yield of Barley with us is from 3 to 3½ quarters per acre, and the price per quarter has been from 26*s.* to 27*s.*, consequently the proceeds would amount only to some 4*l.* 10*s.* per acre, a state of things very far from being remunerative or satisfactory. The whole crop on many a farm, after deducting the grain requisite for home use, will do no more than fetch money sufficient to meet the claims of the landlord. In the early part of the season Turnips for sheep were in good demand, at high prices; now they are selling at little more than half the price they would have originally brought, and many have difficulty in getting them disposed of at any price. Fat cattle have been in good demand, at satisfactory prices. On the whole the present year is, perhaps, the worst that farmers now living have ever seen.

Notices to Correspondents.

BEANS: *Inquirer.* Mix 2 cwt. each of guano and superphosphate and apply them broadcast on the ground before the drill.

CANADIAN OATS: *N.B.* Weighing 48 lbs. per bushel they do not, nevertheless, yield more meal than other kinds at 42 to 44 lbs

COCOA NUT FIBRE: *Subscriber of* 32½ *Years.* Richardson, 99, Euston Road, N.W.

FLAX: *Subscriber.* Mr. Dickson on Flax has written a good book—M'Adam also. We forget the exact title—but this mention may bring you the title.

MR. WILKINS' DRILL.—Some persons have applied for Mr. Wilkins' drills, and the last applicant asks Mr. Wilkins to state in the *Agricultural Gazette* where he can purchase the drill. The Rev. G. Wilkins laments that he cannot at present supply the gentlemen who have written to him with his drills, as they have not yet been made for sale; but he will make an arrangement with some firm for the making of them as soon as he can. He begs also to inform the applicants that they are so simple in their construction that the machinery of them may easily be attached to the carriage of the drills in common use, and at a very small expense. He begs, also, to add that the principle is that every seed, be it of what kind it may, is forced seed after seed through a hole just large enough to admit it, so that one seed only, except accidentally, can pass through the hole at a time, and the quantity of seed is regulated by the number or fewer of the holes, and thus the quantity of seed, whether little or much, is equally distributed over the ground.

MUTTON: *Brebis.* A fat Cotswold sheep will yield a Smithfield stone of mutton for every imperial stone of live weight, *i.e.* 8-14ths of their live weight is mutton. If your sheep are short-woolled and in very good condition they will yield more mutton than this.

Good Clover Seeds.

SUTTON and SONS have now ready, at very moderate prices, fine new RED, WHITE, and ALSIKE CLOVER SEEDS. As also new Rye Grasses, Turnip, Mangel Wurzel, and other Agricultural Seeds, a Priced List of which may be had post free.

Address SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

GENUINE CLOVER and GRASS SEEDS.—Samples and prices Post free on application.

☞ Orders amounting to 10*s.* and upwards sent carriage free.

WM. WOOD & SON, Seed Merchants and Nurserymen, Maresfield, near Uckfield, Sussex.

CHEAP GRASS SEEDS for HILL SIDES and RAILWAY BANKS.—Rough Grasses, Sainfoin Siftings, &c., suitable for the above purpose, at 2*s.* per bushel and 3*d.* per lb.

Address, RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Notice.

PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS.

For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

WHEELER'S GLOUCESTERSHIRE KIDNEY POTATO.—This is one of the earliest, the most productive, the best flavoured, and the most profitable Potato ever introduced,

For price and all particulars, see WHEELER'S "Little Book."

POTATOES.—Ashleaf, Myatt's Ditto, Dalmahoy, Shaw, Regent, Rock, Fluke, Fortyfold, Blues, &c.

RASPBERRIES.—Fastolff, Antwerp, Autumn-fruited, &c.

1-year ASPARAGUS; STRAWBERRIES (see last week).

GEO. CORNWELL, Seedsman, &c., Barnet, Herts, N.

THE ROYAL ASH-LEAVED KIDNEY POTATO.—For a full description of this fine early sort, see advertisement in *Gardeners' Chronicle* for Jan. 31.

Price 5*s.* 6*d.* per Peck Bag of 14 lbs., sealed.

Sold in London by Messrs. WRENCH & SONS, 39, King William Street, E.C.; and by Messrs. THOS. RIVERS & SON, Nurseries, Sawbridgeworth, Herts.

To the Trade.

CHRISTMAS QUINCEY, SEEDSMAN, Peterboro', has to offer, of his own growing, ASH-TOP KIDNEYS, MYATT'S PROLIFIC, DALMAHOYS, FORTYFOLDS, SHAWS, and FLOURBALLS, by the sack or ton.

Also YELLOW and RED GLOBE MANGEL, BROCCOLI, and WINDSOR BEANS. Prices on application.

SEED POTATOES from the NORTH of SCOTLAND.—The following sorts, grown by Mr. SIMPSON, Teawig, in Inverness and Ross-shires, on clay loam and light soils.

DALMAHOYS,
WALKER'S EARLY REGENTS,
WHITE ROCKS.

They will be delivered free in sacks in London, Liverpool, or Newcastle, at very moderate rates, which may be learned by writing, stating quantities required, to A. SIMPSON, Beauly, N.B.; or applying to A. TOD, 17, Duke Street, London Bridge, E.C.

DAINTREE'S EARLIEST SEEDLING POTATO.—The earliest and most prolific round variety in cultivation, verified by reports in the various papers, and by private reports from all parts of the country, numbers of which will be forwarded on application. Present price, 8*s.* per Bushel, or 12*l.* per Ton; sacks 1*s.* 6*d.* each.—Apply to Mr. SIMON A. DAINTREE, Fendrayton, St. Ives, Hunts.

N.B.—Genuine Italian Rye-grass, and all the Agricultural Seeds of home growth, supplied as usual

EXTRAORDINARY POTATOES.—A gentleman resident in the Country offers for SALE a few BUSHELS of SEED POTATOES of a new and most wonderful kind. For the table they are unsurpassed as to whiteness and delicacy of flavour, and their productiveness is almost incredible, even on indifferent soil; and further, the disease never attacks them.

For price, &c., address by letter to Z. Z., care of Editor, 162, Fleet Street, London, E.C. Early application is necessary.

SEED POTATOES.—Splendid Stocks of Martin's Early Globe, Early Oxford, Early Fox's Seedling, Early Round Frame, Early Dalmahoy, Myatt's Prolific, and Jackson's Ash-leaved Kidney, Forty-fold, Fluke Kidney, and Flour-ball varieties at low prices.

H. & F. SHARPE, Wisbeach.

Seed Potatoes.

B. S. WILLIAMS begs to intimate that he has a good stock of POTATOES for Planting, which he offers at moderate prices.

	Per peck of 14 lbs.—*s.* *d.*
EARLY ASHLEAF.—A very early variety	2 6
,, (Myatt's Improved).—The most prolific Potato in cultivation	2 6
DALMAHOY.—Fine flavour	2 0
EARLY SHAW.—Second early, very prolific	1 6
EARLY OXFORD (Soden's)	2 6
YORKSHIRE REGENTS.—The best for general late crop	1 4

*** A reduction will be made on the above prices when large quantities are taken.

Paradise and Victoria Nurseries, Holloway, London, N.

HOW'S EARLY FLUKE.—This new KIDNEY POTATO has been raised from the apple of the Fluke. In 1861, 1200 yards produced 132 bushels. In 1862, tested in alternate rows with other sorts, it was freest from disease, and by far the heaviest crop. It boils white, and is of first-rate quality. Its flavour when dug young is much extolled. Two First Prizes have been awarded to it at the last Redmarley Horticultural Shows held in July. For early market or the gentleman's table it is unsurpassed. Price 10*s.* per bushel of 56 lbs.

W. A. How, Redmarley, Newent, Gloucester.

COCOA-NUT REFUSE, as used for FERNS, BEGONIAS, &c., so much admired in the International Exhibition, delivered in the City at 1*s.* 6*d.*, or within 2½ miles of Charing Cross, at 2*s.* per bag of 3 bushels. Ten bags or more on lower terms. Apply to the PATENT COCOA FIBRE COMPANY, Kingston-on-Thames, S.W.

Also for particulars of SHORT FIBRE for Orchids and Drainage in pots.

Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are the best and most economical of any, and are sold in every town in the kingdom; at DEANE'S, London Bridge; and E. WHITE & SON'S, 95, Cannon Street.

CAUTION.—Every Brush is stamped "J. BARSHAM'S Patent."

Vegetable and Flower Seeds.

CARRIAGE FREE.

JAMES DICKSON AND SONS' ANNUAL DESCRIPTIVE PRICED CATALOGUE of the above is now ready, and may be had, post paid, on application.

The *Field* of February 8, 1862, in a notice of our last season's Catalogue, says:—"This old established firm have issued their neat and well arranged Catalogue for this season. It embraces all seeds really worth growing in both departments."

JAMES DICKSON & SONS, 102, Eastgate Street, Chester; and 23, Market Place, Manchester.

WHEELER'S LITTLE BOOK for 1863.

WHEELER'S TOM THUMB LETTUCE.

WHEELER'S IMPERIAL LETTUCE

The price of the Lettuce is 1*s.* per packet, post free.

J. C. WHEELER & SON beg to inform the Trade that their "Little Book" is entered at Stationers' Hall, and that they cannot allow it to be copied.

J. C. WHEELER & SON, Seed Growers, Gloucester.

Genuine New Seeds, Carriage Free.

FRANCIS & ARTHUR DICKSON AND SONS, 106, Eastgate Street, Chester.

New VEGETABLE and FLOWER SEEDS of every description, of the finest possible quality.

Their DESCRIPTIVE PRICED CATALOGUE, containing many valuable New and Select Vegetable and Flower Seeds, will be sent Post Free on application.

Collections for Gardens of all Sizes are on the most liberal scale. See Catalogue.

£5 Vegetable Seeds of £2 value Carriage Free. All Flower Seeds Free by Post.

On Sale,

PERUVIAN GUANO.

Apply to Messrs. GIBBS, BRIGHT, & Co., 1, North John Street, Liverpool.

To Farmers, &c.

CHEAP GYPSUM MANURE.—Parties requiring GYPSUM can be supplied at 10*s.* per Ton, bulk, at the Works at Kennington, S.

Address X. L., 34, Chapel Street, North Brixton, S.

*** Delivered on Rail, adding for bags and cartage.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

LAWES'S WHEAT MANURE for AUTUMN SOWING.

In consequence of the high price of Peruvian Guano, J. B. LAWES has manufactured a WHEAT MANURE for the present season, which will be found very suitable for that crop. A supply is now ready for delivery, and it can be obtained of J. B. LAWES, or through any of his appointed Agents. Price 8*l.* per ton at the Factories, Deptford and Barking Creeks.

Genuine Peruvian Guano direct from Messrs. Gibbs; Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

TENANT FARMERS' MANURE COMPANY.

ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME,

MANUFACTURED BY THE PATENT

NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),

Consisting of TENANT FARMERS, occupying upwards of 30,000 Acres of Land.

Chairman.—JOHN CLAYDON, Esq., Littlebury, Essex.

Particulars of these Standard Manures may be obtained at the Offices. C. T. MACADAM, Secretary.

Or of the Local Agents.

Offices: 109, Fenchurch Street, London, E.C.

Manufactory: Plaistow Marshes, Essex, N.E.

Crushers of Cotton Seed and Linseed.

MARLAND AND CO., 6, New High Street, Manchester.

Prices of Cake or Oil will be sent on application.

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.

Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.

Can be obtained through the principal Nurserymen and Seedsmen in England.

A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.

PAGE & TOOGOOD, Seed Merchants, Southampton.

To Florists and Nurserymen.

H. PERKINS calls the attention of the above to his large stock of Genuine TOBACCO PAPER and CLOTHS, at 10*d.* per lb., warranted free from adulteration, having taken every pains to secure the same.

Address, 10, Cambridge Circus, Hackney Road, London, N.E.

ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and Destroying the Fly, 1*s.* 4*d.* per lb., over 10 lbs., 1*s.* 1*d.*

JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C. Post Office Orders payable Fleet Street.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE CO., Limited.

THE HYDROPULT,

THE HYDROPULT

IS INVALUABLE FOR

WATERING GARDENS,

EXTINGUISHING FIRE JUST COMMENCED,

PROTECTING a ROOF from FIRE,

CLEANSING TREES from INSECTS,

DRESSING with LIQUID MANURE,

SPRINKLING PLANTS,

WASHING WINDOWS,

WETTING SIDEWALKS,

SPRINKLING STREETS,

WASHING CARRIAGES,

WETTING SAILS,

A SPRAY BATH,

&c. &c.



Price Two Guineas.

CAUTION.—Unprincipled parties are now palming on the public an infringement of the Hydropult Patent. This is to notify, that said pirates and all persons using or vending this article will, in due time, be prosecuted. No machine contained in a bucket is the Hydropult. Every Hydropult has a Trade Label affixed, as follows:—

"The Hydropult, a Portable Fire Annihilator and Garden Engine.
"GRIFFITH & BROWETT,
Manufacturers, Birmingham;
"CHARLES P. BUTTON,
General Agent.
"VOSE'S Patent;"

and is sold at the uniform rate of Two Guineas, complete, with 2½ feet Suction and 3-feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Fire Jet.

It is an easy matter to imitate the Hydropult in appearance, and thereby deceive the public; therefore this caution.

The Hydropult WEIGHS BUT 8 LB.; will throw 7 or 8 Gallons of Water per minute 50 FEET when worked by the power of one man.

Has been recommended as an efficient FIRE ENGINE by the principal FIRE INSURANCE COMPANIES of GREAT BRITAIN. Thomas Rivers, Esq., the eminent Florist; Shirley Hibberd, Esq., and other well known gentlemen, recommend it as an invaluable GARDEN IMPLEMENT. J. Spencer, Esq., Inspector of the Royal Society for the Protection of Life from Fire, certifies to its efficiency in saving valuable Property in Bayswater from destruction. The City and Provincial Press accord to the invention the utmost praise. All who purchase the Hydropult are satisfied with its action; each Machine guaranteed to be perfect.

A PORTABLE GARDEN ENGINE, AND FIRE ANNIHILATOR.

Prospectus, with Testimonials, on application at either Office.

HYDROPULT OFFICE: 27, LEADENHALL STREET, LONDON, E.C.; and 309, REGENT STREET, POLYTECHNIC BUILDING, LONDON, W.—CHARLES P. BUTTON, PROPRIETOR.

GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863,

FOR WHICH HER MAJESTY'S ROYAL LETTERS PATENT HAVE BEEN OBTAINED.

THE FIRST PRIZE MEDAL

OF THE

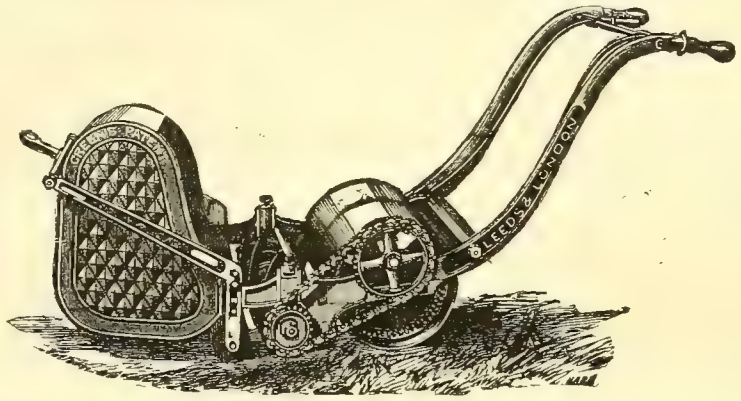
INTERNATIONAL EXHIBITION

WAS AWARDED TO

THOMAS GREEN

FOR HIS

PATENT LAWN MOWERS.



These were the only Machines highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862.

(No Prizes were given).

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS DURING THE SEASON OF 1862.

THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, have much pleasure in stating that the important Improvements which were added to their Machines for last season (which combined simplicity of construction, durability, and lightness of draught), have proved them to be superior to anything of the kind ever brought before the Public, inasmuch as they have given entire satisfaction wherever used, and have gained the largest sale of any Machines extant. They have carried off every Prize that has been given in all cases of competition.

GREEN'S PATENT LAWN MOWERS are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

To Cut 10 inches	£3	10	0	Suitable for a lady.	
„ 12 „	5	0	0	Suitable for one person. If with internal gear,	10s. extra.
„ 14 „	5	10	0	Do. Do. Do. Do.	10s. extra.
„ 16 „	6	10	0	Suitable for one man or two boys.	

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	... ... £12 10 0
„ 26 „	12 10 0	... ... 13 12 0
„ 30 „	16 14 0	... ... 18 0 0

Leather Boots for Donkey, 16s.; for Pony, 20s.

					If With Patent Delivery Box.
To Cut 18 inches ...	£7	10	0	Suitable for one man and boy	£8 15 0
„ 20 „ ...	8	0	0	Do. Do.	9 5 0
„ 22 „ ...	8	10	0	Suitable for two men ...	9 17 6
„ 24 „ ...	9	0	0	Do. Do. ...	10 7 6

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

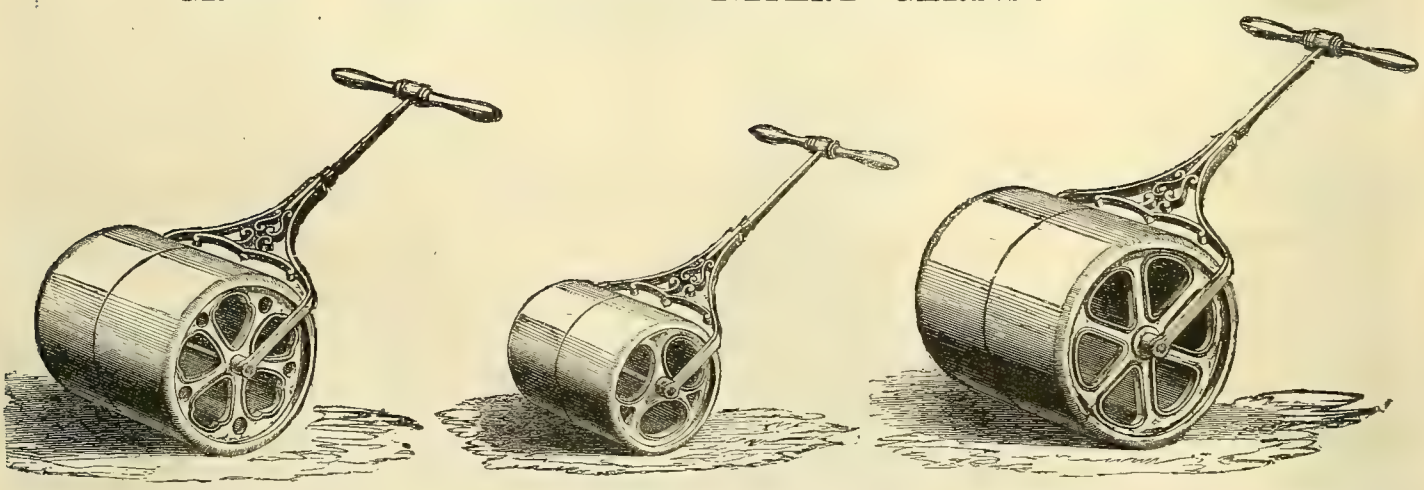
	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	... £21 10 0
„ 36 „	23 0 0	... 24 16 0
„ 42 „	26 0 0	... 28 2 0
„ 48 „	29 0 0	... 31 8 0

Leather Boots for Horse, per set, 1*l.* 4*s.*

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.



Diameter 20 inches, length 22 inches, price £3 5*s.* | Diameter 16 inches, length 17 inches, price £2 10*s.* | Diameter 24 inches, length 26 inches, price £4 5*s.*
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

T. GREEN AND SON in introducing the above are well aware that the extremely simple character of this Implement cannot admit of any very radical change, yet they are confident that the Improvement just effected (and secured by Letters Patent) is a real one, and is strikingly apparent when compared with any other Garden Roller. In previous Rollers a limit was always set to weight in consequence of marks being left on the gravel, and the power required to work them, but the present one is nearly double the ordinary weight, yet is considerably easier to turn in consequence of the Roller being divided in two parts, and the outer edges being rounded off or turned inwards, thus avoiding the *unsightly marks* left by all others hitherto in use. They can be used by the most unskilful with the greatest certainty of producing a beautifully even surface, either on *Lawns or Gravel Paths*, and for the *Bowling Green and Cricket Field are really indispensable.* They are manufactured of the best materials, and got up in a manner surpassing any ever yet brought out.

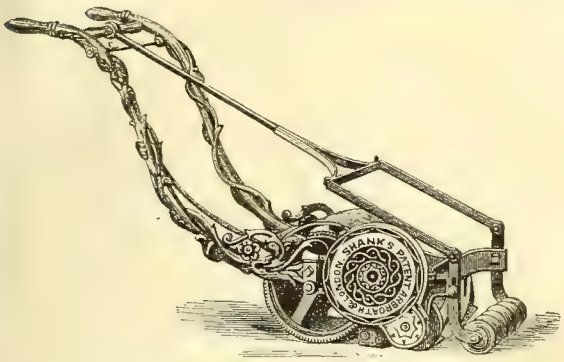
T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.



NEW HAND MACHINE.

THE FIRST PRIZE MEDAL

OF THE

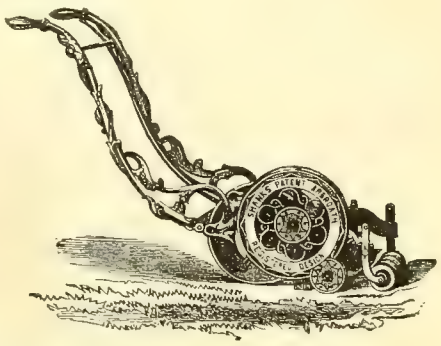
INTERNATIONAL EXHIBITION

WAS AWARDED TO

ALEX. SHANKS AND SON

FOR THEIR

PATENT LAWN MOWERS.



12-INCH or LADY'S MACHINE.

ALEXANDER SHANKS AND SON are gratified to find that the Improvements introduced into their PATENT LAWN MOWERS last season have been so entirely successful, that universal satisfaction has resulted from the use of these Machines wherever they have been tried. The Patentees have this season introduced further Improvements into their already celebrated Lawn Mowers, which are fully described in their Illustrated Price Lists, which will be at once forwarded on application.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved, and their success established.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.
LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

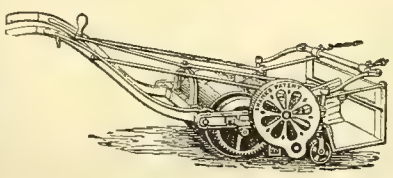
SHANKS' NEW PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

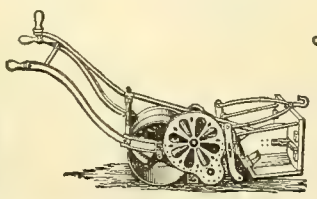
NEW PATENTED IMPROVEMENTS THIS SEASON.

EXHIBITION PRIZE MEDAL AWARDED.

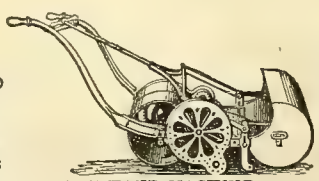




HORSE MACHINE.



PONY MACHINE.



NEW HAND MACHINE.



SHANKS' NEW PATENT MACHINE

Mows the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at half the expense.

NO PERSON HAVING A LAWN SHOULD BE WITHOUT A MOWING MACHINE.

The first practical Gardeners of the day who have devoted their attention in examining all the different Lawn Mowers offered, do not hesitate in recommending SHANKS' Machine as *the best Mower for general use.* The important Improvements introduced last season have undergone a thorough practical test, and satisfied the most sanguine expectations. *Further Improvements, simplifying the Machine, and adding to its efficiency, have been introduced into the* NEW PATENT LAWN MOWER for 1863.

PRICES.

SHANKS' NEW PATENT HORSE MACHINE.

Including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for Use.

Width of Cutter.		
No. 1.—48-inch Machine	£28 0 0	*Drawn by a Horse.*
No. 2.—42-inch Machine	26 0 0	
No. 3.—36-inch Machine	22 0 0	
No. 4.—30-inch Machine	19 0 0	*Drawn by a Horse or strong Pony.*

Patent Delivering Apparatus for Nos. 1 and 2 Machines, 40*s.*; for Nos. 3 and 4 Machines, 30*s.*; Box with complete Set of Tools, 10*s.*; Silent Movement, 20*s.*; Boots for Horses' Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for Use.

Width of Cutter.		
No. 5.—30-inch Machine	£15 15 0	*Drawn by a Pony.*
No. 6.—28-inch Machine	14 10 0	
No. 7.—25-inch Machine	12 10 0	*Drawn by a Donkey.*

Patent Delivering Apparatus for Nos. 5 and 6 Machines, 30*s.*; for No. 7 Machine, 25*s.*; Box with complete Set of Tools, 7*s.* 6*d.*; Silent Movement, 12*s.* 6*d.*; Boots for Pony, 21*s.*; Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together

Including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for use.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Do. by a Man and a Boy.*
No. 11.—16-inch Machine	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6 2 6	*Do. by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.*; Box, with complete Set of Tools, 5*s.*; Silent Movement, 7*s.* 6*d.*

No. 16.—12-inch Machine for Pushing only, £5 5*s.*; easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

AGENTS:

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

READ'S PATENT

GARDEN ENGINES, MACHINES, AND SYRINGES.



GARDEN WATERING ENGINES, PAIL MACHINES, CONSERVATORY PUMPS, AND GREENHOUSE SYRINGES,
with all the latest Improvements, Manufactured only by the Patentee,

RICHARD READ, 35, REGENT CIRCUS, PICCADILLY, LONDON, W.

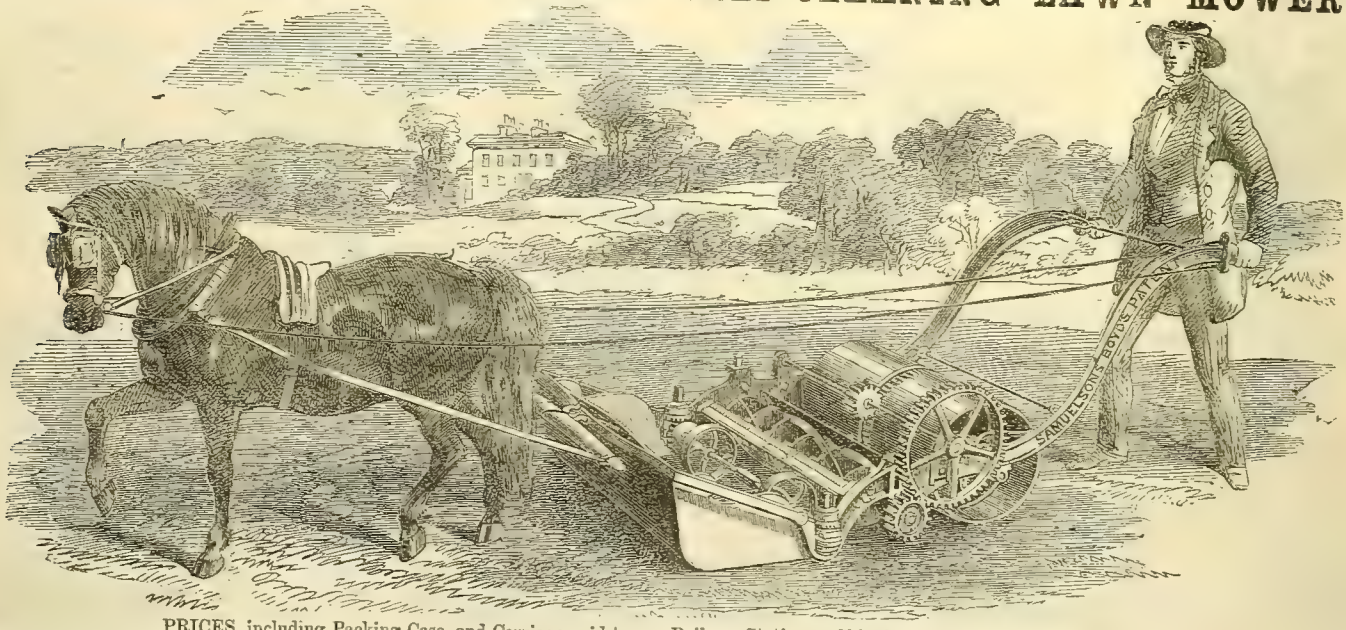
CAUTION.—Syringes of the VERY COMMONEST DESCRIPTION being extensively circulated throughout the Kingdom, and SOLD as "READ'S," the Public are respectfully informed that *all* READ'S Instruments have the Royal Arms, with the Address, "**35, REGENT CIRCUS, LONDON.**"

Small Size (for Ladies' use), 12s. and 18s. Large Size, with three Caps, complete, 28s.

*** *Descriptions, with Drawings, post free.*

THE GEARING OF SAMUELSON AND CO.'S LAWN MOWING MACHINES IS NOT LIABLE TO DERANGEMENT.

SAMUELSON AND CO.'S PATENT SELF-CLEANING LAWN MOWERS.



PRICES, including Packing Case, and Carriage paid to any Railway Station or Shipping Port in the United Kingdom:—

MANUAL POWER	12 inches cut,	suitable for a Lady	...	...	...	£4	12	0	PONY POWER	22 inches cut	...	...	...	£8	15	0
	16 „	suitable for One Person	...	...	...	6	10	0		25 „	...	...	...	11	10	0
	19 „	suitable for One Man and Boy	...	...	...	7	0	0		30 „	...	...	...	14	14	0
	22 „	suitable for Two Men ...	...	...	...	8	0	0								

If with BOYD'S PATENT BRUSH, 15*s.* extra.

TESTIMONIAL *from* SHIRLEY HIBBERD, Esq.

"Stoke Newington, London, N.

"The Lawn Mower paid its cost in one season, in the saving of labour alone. Instead of the old bother of Scythe sharpening, sweeping, rolling, and loitering, the Grass is mown now almost by looking at it, the Turf improved by a regular and clean cut, and the operation one of enjoyment and healthy exercise. Instead of 'making a toil of pleasure,' one can now make a pleasure of toil, and gain time and strength that used to be wasted. I have a good collection of the best Garden Tools and Implements, and I value the Lawn Mower above them all.

"SHIRLEY HIBBERD, F.R.H.S."

All Orders direct or through Dealers will be executed according to priority of receipt. May be obtained at the WORKS, Banbury; or at SAMUELSON & CO.'S various Depôts; also of all Ironmongers and Seedsmen, and at

SAMUELSON AND CO.'S WAREHOUSE, 76, CANNON STREET WEST, LONDON, E.C.

Notice.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS), HORTICULTURAL VALUER, begs to inform his friends and the public that he has REMOVED from Priory Road, Wandsworth Road, to No. 1, Devonshire Terrace, Fulham Road, S.W.

J. T. WILLMER, HORTICULTURAL AGENT, AUCTIONEER and VALUER, Springfield Nursery, Sunbury, Middlesex, S.W.

THE SPADE and its ADAPTATION.—Illustration of WALTERS's Open Spade, dimensions of ditto. SEEDS made proof against Birds and Insects; LISTS of FLOWER, VEGETABLE, and FARM SEEDS, also S. W.'s 27th ANNUAL CATALOGUE of SELECT PLANTS, ROSES, &c., in exchange for Six Postage Stamps.
S. WALTERS, Hilperton, Trowbridge, Wilts.

FOX'S SEED PROTECTORS, from 1*s.* per yard; WIRE NETTING, from 1*d.* per yard; HANGING BASKETS, from 6*d.* each; Wire Garden Arches, Flower Stands, Trainers, Dahlia Rods, Garden Bordering, and every article in Wire for Garden and Ornamental purposes, at
FOX & Co.'s, late BOLUS & FOX, 105, Holborn Hill, E.C., two doors east of Hatton Garden, E.C.

F. A. HAAGE, JUN., of Erfurt.—WOOD GARDEN STICKS and LABELS. Commended by the Royal Horticultural Society. Wholesale prices on application to
BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

TRANSPLANTING LARGE TREES. — Five different sizes of Mr. BARRON'S MACHINES, with efficient men to work them, can be hired by parties applying to him. His Machines, built under his superintendence, can also be supplied.
Elvaston Castle.—Feb. 21.

AGRICULTURAL and HORTICULTURAL TOOLS.—Threshing Machines for Steam and Horse Power, Ploughs, Waggons, Carts, Turnip Cutters, Cake Breakers, Chaff Cutters, &c. Price List free. Illustrated Catalogues on receipt of six postage stamps.
BURGESS & KEY, 95, Newgate Street, E.C.
Works: Brentwood, Essex.

HORTICULTURAL IMPLEMENTS and GARDEN TOOLS of every description, for the amateur or practical gardener, and of warranted quality.—DEANE & Co.'s ILLUSTRATED PRICED LIST of the above gratis on application, or post free, includes Lawn Mowing Machines, Garden Engines, Boyd's Patent Self-adjusting and Vulcan Scythes, Garden Rollers (from 30*s.*), Flower-Stands, Garden Seats, &c. Galvanised Game Netting from 6*d.* per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c. Lingham's Permanent Labels. Saynor's celebrated Pruning Knives.
DEANE & Co. (opening to the Monument), London Bridge, E.C.
Established A.D. 1700.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.
To be obtained of F. & G. ROSHER, Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, London, N.E.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.

PROTECTION from the COLD WINDS & MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.
Two yards wide .. .. .. 1*s.* 6*d.* per yard run.
Four yards wide .. .. .. 3*s.* per yard.
An improved make, 3 yards wide, 2*s.* 6*d.* per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 4*d.* per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon St., City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

FOR SALE, a Thorough-bred SUFFOLK STALLION, 4 years old; a sure Foal-getter, and works quietly in the team.
Apply to M. K., Post Office, Reading.

Kerry Cattle.

MR. RICHARD G. CAMPION, Youghal, County Cork, has now ready for SALE 12 Beautiful HEIFERS, in Calf to a pure bred Bull, and to drop after 1st March.

Carhead Pigs.

MR. WAINMAN has several YOUNG BOARS and SOWS of his Battersea Prize Strains for SALE, at moderate prices.
Apply to Mr. FISHER, Carhead Farm, Cross Hills, Yorkshire.

TO BE LET, in the County of Pembroke, LLANGWARREN FARM, consisting of 473 Acres, more than half of which is Pasture.
For particulars, apply to J. B. LAWES, 1, Adelaide Place, London Bridge.

FOR SALE, a NURSERY BUSINESS, Established 20 years, in one of the best situations in this country. Stock first-class and very select. Ground 6 acres of best quality, with Plant Houses and all necessary appurtenances. Rent moderate.
Address, HORTUS, *Gardener's Chronicle* Office, W.C.

TO BE LET, NURSERY LAND, from 5 to 30 acres, on Lease, in the locality of Bagshot, near two Railway Stations, very suitable for the growth of Trees, American Plants, and Evergreens generally. A good Residence can also be had on the ground. This is a convenient opportunity for a London Nurseryman, as a portion has been trenched, and planted with Evergreens, &c.
Apply to J. T. VINING, Esq., 51D, Moorgate Street Buildings, London, E.C.

To Nurserymen, Gardeners, and Others.

TO BE DISPOSED OF, by Private Treaty, and with early possession (in consequence of the failing health of the present Proprietor), an OLD ESTABLISHED NURSERY, with Hot and Greenhouses, doing a good business, in an excellent situation, and within a few miles of Liverpool. The whole to be taken at a valuation.
For particulars, apply by letter, post paid, to M. S., Wren & Sons, Tea and Coffee Merchants, Temple Court, Liverpool.

Guildford, Surrey.

TO NURSERYMEN, FLORISTS, SEEDSMEN, MARKET GARDENERS, AND OTHERS.

TO BE LET, with Immediate Possession, all that truly valuable, old-established NURSERY GARDEN and SEED BUSINESS, known as the Guildford Nursery grounds, in a good state of cultivation, close to the entrance of the town; has been in the same name upwards of 50 years. This opportunity is worthy the attention of those seeking a profitable and increasing business, being the only Nursery near this improving neighbourhood. The present Stock is small and saleable.
Inquire of Mr. DRURY, Guildford, Surrey.

Established 100 years.

TO NURSERYMEN AND SEEDSMEN.

TO BE SOLD or LET, with Immediate Possession, the NURSERY and SEED BUSINESS of J. NEWMAN & Co., of Chichester. The Nursery is situated within a very short distance of the city, and consists of between 8 and 9 statute acres of very superior Freehold Land, in full working order, well stocked with a general assortment of Nursery and Greenhouse Plants. The Buildings comprise a Dwelling House, Hothouse, Propagating House, Greenhouses, Pits, Sheds, Stable, &c., and every requisite for carrying on a large business. There is a good Dwelling House and Seed Shop, in the South Street, near the Cross. Declining health is the sole reason for the Proprietor wishing to retire from the above, which offers to persons having a knowledge of the Nursery and Seed Business an opportunity seldom to be met with.
J. NEWMAN, Nurseryman, Chichester.

Sales by Auction.

MESSRS. TATTERSALL will SELL by AUCTION at Hyde Park Corner, S.W., on MONDAY, February 23, the property of a Gentleman, two remarkably handsome and pure bred SUFFOLK CART STALLIONS.
1. YOUNG EMPEROR, 4-years-old, by Chester Emperor, dam by Catlin's Duke.
2. GRAND DUKE, 3-years-old, by Chester Emperor, dam by Catlin's Duke.
N.B. Chester Emperor was by Newcastle Captain, dam by Catlin's Old Boxer.

Importation from Japan, just arrived.

IMPORTANT TO NURSERYMEN AND OTHERS.

MR. J. C. STEVENS will SELL by AUCTION at his Great Room, 28, King Street, Covent Garden, W.C., on MONDAY, February 23, at half-past 12 o'Clock precisely, 2000 LILY ROOTS, just received ex "Romeo" from Japan for Absolute Sale; 500 STANDARD, HALF-STANDARD, and DWARF PERPETUAL ROSES, Fruit Trees, Berberis, Laurels, Lilacs, Rhododendrons, Tree Box, Yews, Arbutus, Cedars, Hollies, Junipers, Daphnes, Hederas, Cupressus, Thorns, Pyrus, Almonds, Cotoneasters, Piceas, Arbor-vitæ, Poplars, Clematis, Thuja, Aucuba, &c.
On view the Morning of Sale, and Catalogues had.

Extensive Sale of Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 25, at half-past 12 o'clock precisely, a Choice ASSORTMENT of PLANTS, comprising Conifers, Hollies, Privets, Yews, Laurels, Laburnums, Willows, Berberis, Lilacs, Roses, Honeysuckles, Carnations, Pinks and Picotees, Ash, Clematis, Gladioli, Delphiniums, Violets, Pentstemons, Fruit Trees, Strawberry Plants, &c.
On view the Morning of Sale, and Catalogues had.

Important Sale of Plants from Surrey.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on MONDAY, March 2, at half-past 12 o'Clock precisely, SPLENDID SPECIMEN CONIFERS, comprising Wellingtonia gigantea, 3 feet; Thujopsis borealis, 6 feet; Pinus Benthamiana, 6 feet; Cupressus Lawsoniana, 3 feet; Araucaria imbricata, 3 feet; Thuja Lobbi, 2 feet; Abies Douglasii, 4 feet, and others. Vines, Rhododendrons, Standard, Half Standard and Dwarf Roses, Laurels, Clematis, Berberis, &c.
On view th Morning of Sale, and Catalogues had.

Peckham.

MESSRS. PROTHEROE AND MORRIS have received instructions to SELL by AUCTION, on the Premises, Hanover Nursery, Rye Lane, Peckham, S.E., on MONDAY and TUESDAY, February 23 and 24, at 11 for 12 o'Clock precisely, the VALUABLE NURSERY STOCK (on that portion of the ground required immediately to be cleared for the South London Railway Company), consisting of fine Evergreens and Deciduous Shrubs, including handsome specimen Araucaria imbricata, 5 to 6 feet; Cedrus Libani, 10 feet; Phillyreas, 4 to 6 feet; Busby Evergreen Oaks, 4 to 9 feet; Common and Portugal Laurels, Hollies, Thujas, sorts; Box, Euonymus, Irish and English Yews, &c.; a choice assortment of American Plants, Standard and Dwarf Roses, Fruit and Ornamental Trees, a splendid collection of Herbaceous Plants by name; together with the Greenhouse Plants, comprising large specimen Double Camellias, Azalea indica, Chrysanthemums, &c.

May be viewed prior to the Sale. Catalogues may be had, 6*d.* each, returnable to purchasers, on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Sale of Conifers, Fruit, and other Shrubs and Trees.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on WEDNESDAY, February 25, at 12 o'clock, an assortment of choice CONIFERS, comprising compact specimens of Wellingtonia gigantea, Thujopsis borealis, Araucaria imbricata, Cupressus Lawsoniana, Retinospora, Abies Douglasii, Cupressus sorts, Skimmia japonica, &c. A rich assortment of American Plants, including the newest and best Hardy, Scarlet, and Hybrid Rhododendrons, Ghent Azaleas, Andromedas, &c. Also about 200 fine Standard and Dwarf Roses, selected Fruit and Ornamental Trees and Evergreens in variety. Strong Vines, sorts, in pots, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

Important Sale of Standard Roses, Fruit Trees, Coniferæ, and other Shrubs.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on WEDNESDAY, February 25, at 12 o'clock, about 500 very handsome STANDARD and DWARF ROSES; an assortment of choice CONIFERS, comprising compact specimens of Wellingtonia gigantea, Thujopsis borealis, Araucaria imbricata, Cupressus Lawsoniana, Retinospora, Abies Douglasii, Skimmia japonica, Cupressus sorts, &c. A rich collection of AMERICAN PLANTS, including the newest and best hardy Scarlet and Hybrid Rhododendrons, Ghent Azaleas, Andromedas, &c.; selected Fruit and Ornamental Trees, Evergreens in variety; strong Vines in pots, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

Sale of very Handsome English Grown Camellias, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, February 27, at 12 o'Clock, about 200 Choice DOUBLE CAMELLIAS, compact plants, from 1 to 6 feet, abundantly furnished with Bloom buds; fine AZALEA INDICA in flower; a superb assortment of about 300 very handsome Standard, Half Standard, and Dwarf Roses; a fair Collection of American Plants, Lillum lancifolium rubrum and album, Ericas, Epacris, Cinerarias, Fuchsias, Verbenas, Pæonias, Dahlias in dry roots, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Stratford, Essex.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Bunney to SELL by AUCTION, on the Premises, The Nurseries, Leytonstone Road, and within five minutes' walk of the Stratford Station, on the Great Eastern Railway, on TUESDAY, March 3 and following day, at 11 o'Clock each day, without reserve, the ground being immediately required for gravel digging, the valuable NURSERY STOCK, comprising quantities of fine Evergreens of various sizes and description, including many specimens of Aucubas, Bays, Fan and Irish Yews, Hollies, and other Shrubs for effective purposes; some very handsome Dwarf-trained Peaches, Nectarines, Cherries, Standard Plums, Apples, Pears; a superb assortment of Standard and Dwarf Roses; also Scarlet and other Rhododendrons, Azaleas, sorts, Andromeda floribunda, Kalmias, with a variety of Hardy Climbers in pots, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; at the Eagle, Snaresbrook; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

To Amateurs, Florists, Seedsmen, Nurserymen, and Others.

MR. ARTHUR PLEWS is favoured with instructions to SELL by AUCTION, at the Auction Mart, on THURSDAY NEXT, February 26, at Half-past 12 o'Clock, a fine COLLECTION of 1500 FRUIT TREES, 100 Standard Roses, Half Standard and Dwarf Roses, Shrubs, and Miscellaneous Horticultural Produce, consigned to him for Absolute Sale.

May be viewed the Morning of Sale, and Catalogues had at the Mart; and of Mr. ARTHUR PLEWS, 50, Chancery Lane, W.C.; and New Malden, Surrey.

Close to Brighton, among the Southdowns.

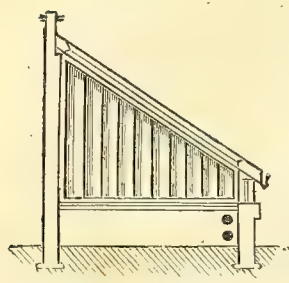
Capital Residence, with Pleasure Garden, Laundry, Stabling, Yards, Piggeries, and numerous other useful Buildings, all in the best possible state of repair; a Meadow, and about 11 acres of fertile Garden Ground, with Fruit Trees, Frame Ground, Forcing Pits, Hothouses, and Greenhouse clothed with choice Vines.

MR. WILKINSON has received instructions to LET on LEASE or DISPOSE of the LEASE of the above valuable PROPERTY, most delightfully situated, and highly eligible to any gentleman fond of horticultural pursuits or to a market gardener, or nurseryman and florist. The whole of the ground has been deep-trenched, is in a high state of productiveness, and fully stocked. The demand for garden produce at Brighton is necessarily great, while the supply is well known to be very limited, and this Property, on which a large sum has been recently expended, offers an unusually favourable opportunity for conducting a profitable business; or to the proprietors of any extensive establishment it would be equally advantageous.

For particulars and cards to view apply to Mr. WILKINSON, Brighton; or to Messrs. GADSDEN, WINTERFLOOD, & ELLIS, 18, Old Broad Street, London.

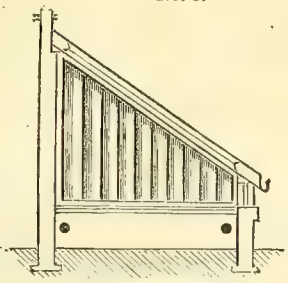
J. JONES'S HOT-WATER APPARATUS.

No. 7.



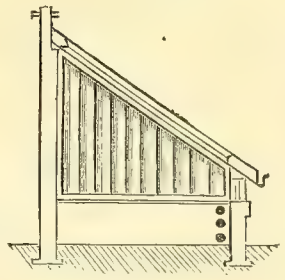
Size of House.	Price
20 by 10 feet	£9 0 0
30 „ 12 „	12 0 0
40 „ 15 „	15 0 0
50 „ 15 „	18 0 0
60 „ 15 „	20 0 0
70 „ 15 „	22 0 0
80 „ 15 „	24 0 0
100 „ 15 „	26 0 0

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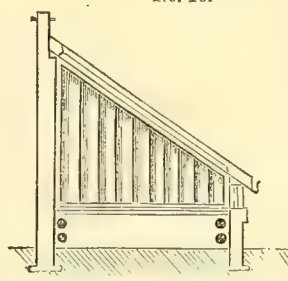
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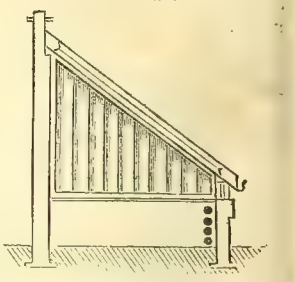
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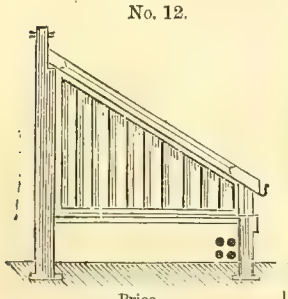
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No. 11.



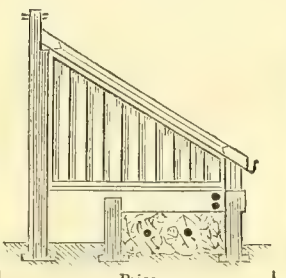
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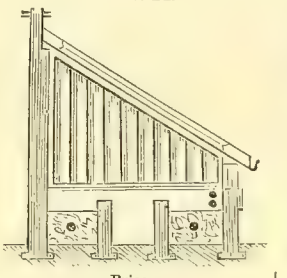
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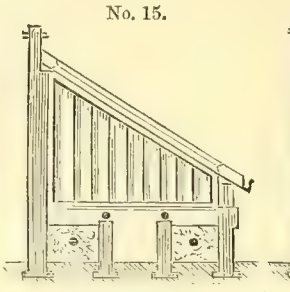
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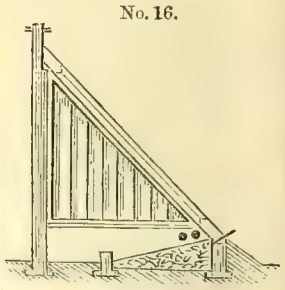
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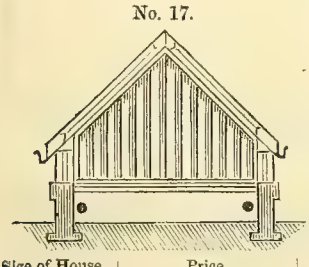
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No. 16.



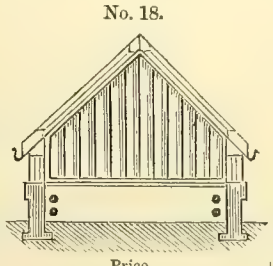
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No. 17.



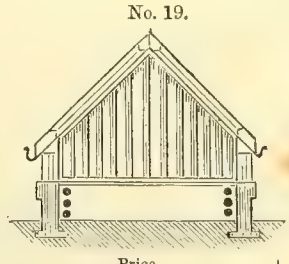
Size of House.	Price
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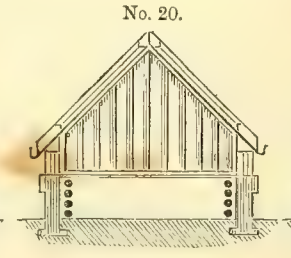
Price
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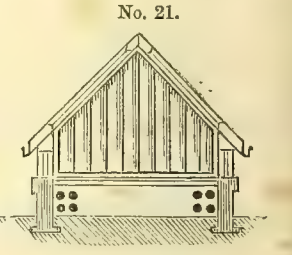
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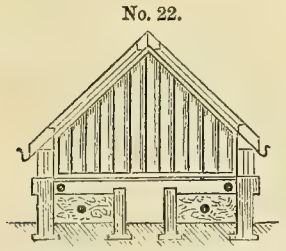
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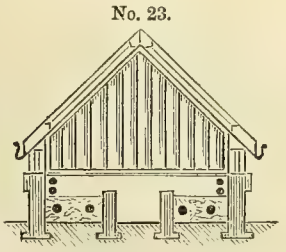
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70 0 0

No. 22.



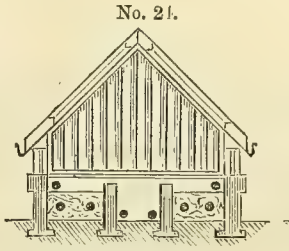
Size of House.	Price
20 by 10 feet	£15 0 0
30 „ 12 „	21 0 0
40 „ 15 „	25 0 0
50 „ 15 „	29 0 0
60 „ 15 „	33 0 0
70 „ 15 „	37 0 0
80 „ 15 „	41 0 0
100 „ 15 „	45 0 0

No. 23.



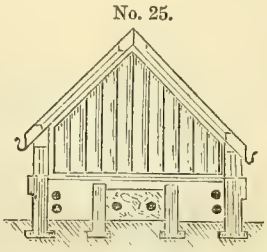
Price
£25 0 0
32 0 0
38 10 0
44 10 0
51 10 0
58 0 0
65 0 0
72 0 0

No. 24.



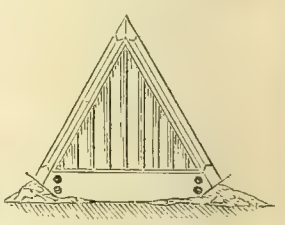
Price
£25 0 0
32 0 0
38 10 0
44 10 0
51 10 0
58 0 0
65 0 0
72 0 0

No. 25.



Price
£18 10 0
25 0 0
30 0 0
35 0 0
40 0 0
45 0 0
50 0 0
55 0 0

No. 26.



Price
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

J. JONES will be happy to supply HOT-WATER APPARATUS for HOUSES according to any of the above Plans, delivered Free to any Station in England at the prices named, which include strong CAST-IRON CYLINDER or SADDLE BOILER, FURNACE DOORS, FIRE BARS, SOOT DOORS, CISTERN and DAMPER, 4-inch HOT-WATER PIPES and CONNECTIONS, all of the best quality; or he will forward ESTIMATES for WORK erected complete, with WROUGHT or CAST-IRON BOILER of any sort, at a small addition to the above prices.

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J. JONES, IRON MERCHANT AND HORTICULTURAL ENGINEER, 6, BANKSIDE, LONDON, S.E.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 9.—1863.] SATURDAY, FEBRUARY 28. {Price Fivepence. Stamped Edition, 6*d*.

INDEX.

Agricultural College	202 *b*	Mosquitoes	200 *a*
Aucuba in fruit	197 *b*	Mosses, Italian	199 *b*
Benthamia fragifera	197 *b*	New Highway Act, rev.	206 *b*
Birds, small	198 *a*	Orchard houses, lean-to	197 *c*
Books, noticed	199 *a*	Orchids, winter blooming	197 *c*
Chadbury Farm	202 *c*	Palmetto wood	200 *a*
Common Pleas, trial at	203 *c*	Pear, Bergamot d'Esperen	198 *a*
Condition of the working classes	204 *c*	Plant collectors	195 *c*
Cottage history	202 *a*	Plants, defensive arms of	199 *c*
Dies Orchidianæ	196 *c*	Plants, winter flowering	196 *a*
Dipsads	197 *c*	— spring ditto	196 *a*
Farmers' Club, Kingscote	205 *c*	Rose culture	195 *b*
Farm Memoranda	206 *c*	Society, Royal Horticultural	198 *a*
Figs	198 *a*	— Linnean	199 *a*
Fruit catalogue	197 *c*	— Royal Agricultural	205 *a*
German flower seeds	195 *c*	Sparrows and caterpillars	204 *c*
Grafting wax	195 *b*	Steam cultivation	202 *c*
Hydropult	196 *a*	Steam ploughs, manufacture of	203 *c*
Lease and tenant right	201 *c*	Strawberries	197 *c*
Lycopodium denticulatum, hardy	197 *c*	Timber clearing	197 *c*
Mollusks, Reeve on, rev.	199 *a*	Woolston	204 *c*
		Wounds, tree	200 *c*

☞ *An Edition of the* GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE *is published on Monday Afternoon at 4 o'Clock, containing full Reports of the Mark Lane and Cattle Markets, written expressly for the Paper.*

ROYAL BOTANIC SOCIETY, Regent's Park.

The FIRST EXHIBITION of SPRING FLOWERS, CAMELLIAS, PRIMROSES, &c., will take place on SATURDAY, March 28.

Tickets are now being issued, and can be obtained at the Gardens by orders from Fellows and Members of the Society, price 2*s*. 6*d*. each; or in packets of 10 for 1*l*. per packet. The Gates open at 2 o'clock.

The Band will play from half-past 2 to half-past 5 o'clock.

ROYAL BOTANIC SOCIETY, Regent's Park.

EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, May 13, June 3, and 24.

Tickets are now being issued, and can be obtained at the Gardens by orders from Fellows of the Society. Price on or before May 2, 4*s*.; after that day, 5*s*.; or on the days of Exhibition, 7*s*. 6*d*. each.

STAMFORD HORTICULTURAL SOCIETY.—The GRAND SUMMER FÊTE and ROSE SHOW will be held on WEDNESDAY, July 8.

Schedules with Rules will shortly be ready, and may be had on application to Messrs. LAXTON & HEWITT, Hon. Secs., Stamford.

To Floral Societies.—Notice.

MESSRS. J. DOBSON AND SONS having retired from Exhibiting for Prizes during 1863, beg to state that Mr. DOBSON, Sen., is open to accept engagements as JUDGE during the season.—Woodlands Nursery, Isleworth, W.

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WILLIAM BULL, F.R.H.S., F.R.B.S., has a large and healthy stock of well ripened VINES from EYES, either for Planting, or Fruiting in pots.

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TO BE DISPOSED OF, 100 well-rooted and remarkably healthy and clean grown PINE PLANTS, from 16 to 18 months old, calculated to throw fruit in October, 1863. For further particulars, apply to

Messrs. WHEELER & SON, Nurserymen, Gloucester.

Pine Plants.

TO BE DISPOSED OF, by a gentleman leaving for town and giving up his House, &c., about 100 good healthy PINE PLANTS, this and last year's growth.

Apply by letter to Mr. F. STEAD, 23, Jarratt Street, Hull.

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B. S. WILLIAMS'S Advertisement on last page of *Gardeners' Chronicle*, Jan. 31.

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Plymouth Seed Company, Plymouth.

THE GENERAL PRICE CURRENT and the SPRING FARM SEED LIST are now ready, and may be had gratis on application.

See General Advertisement, page 177.

New Verbenas

ROBERT REA begs to refer to his Advertisement of the above in the *Gardeners' Chronicle* of Feb. 7.

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ROSES, Dwarf-worked, very strong; ditto on own roots of all the best and newest varieties.

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ACORNS.—A few hundred bushels of the above to offer, sound and good.

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CYCLAMEN PERSICUM.—Fine varieties and foliage, in full bloom or with buds, 9*s*., 12*s*., & 18*s*. per doz.

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B. S. WILLIAMS,

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SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

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CATALOGUES free on application.
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	per 100—*s. d.*
MOSS ROSES, fine strong plants, transplanted, with five to six branches	40 0
MAIDEN'S BLUSH, very strong	36 0
CENTIFOLIA MINOR, fine plants for forcing	32 0
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Delivered, carriage paid, at Hamburg, packing included. Net cash.

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WM. PAUL, (Son and Successor to the late A. PAUL), respectfully invites attention to the following NEW ROSES, which will be ready for delivery very shortly.

LORD HERBERT, H.P.—Rosy carmine, the petals reflexing at the summits in the way of Beauty of Waltham, large, full, and finely formed, and altogether of first-rate excellence. 7*s.* 6*d.*

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CATALOGUES free on application.
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GLADIOLUS, SEEDLINGS of GANDAVENSIS.

50 in 25 extra choice varieties	£2 2*s.* 0*d.*
25 in 25 „ „	1 5 0
12 in 12 „ „	0 12 0
50 in 50 choice varieties	2 12 6
50 in 25 „ „	1 5 6
25 in 25 „ „	0 13 6
12 in 12 „ „	0 5 0

Extra fine mixed, 2*s.* 6*d.* per doz., 17*s.* 6*d.* per 100.
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WARD'S DITTO,
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IMPROVED RED GLOBE MANGEL,
IMPROVED WHITE FIELD BEET,
RED CLOVER, | COWGRASS,
WHITE, YELLOW, and ALSIKE CLOVERS.
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WM. WOOD & SON'S

COLLECTIONS of KITCHEN GARDEN SEEDS

FOR ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.
£3.	£2.	£1.	10s. 6d.

Containing only Seeds of first-class quality, and Varieties that can be confidently recommended.

For particulars, see CATALOGUE, a Copy of which may be had Post Free on application.

*** *All orders amounting to* 10*s. and upwards sent Carriage Free.*

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD,
NEAR UCKFIELD, SUSSEX.

INTERNATIONAL EXHIBITION.

PRIZE MEDALS 1851 AND 1862
AWARDED FOR SUPERIORITY AND GENERAL EXCELLENCE TO

BUTLER & McCULLOCH, SEED MERCHANTS,

COVENT GARDEN MARKET, W.C.

(ESTABLISHED UPWARDS OF A CENTURY.)

COLLECTIONS OF VEGETABLE SEEDS SUITABLE FOR ANY SIZED GARDEN.

No. 1.—20 Quarts of PEAS	**and other Seeds in proportion**	...	...	**£3 3 0**
No. 2.—11	**ditto**	**ditto**	**ditto**	... ... **2 2 0**
No. 3.—8	**ditto**	**ditto**	**ditto**	... ... **1 10 0**
No. 4.—5	**ditto**	**ditto**	**ditto**	... ... **1 1 0**
No. 5.—5 Pints	**ditto**	**ditto**	**ditto**	... ... **0 10 6**

A Specification of the above Collections is given at page 77 of Messrs. BUTLER & McCULLOCH'S systematically arranged SEED CATALOGUE for 1863, which may be had free and post paid upon application.

COLLECTIONS OF FLOWER SEEDS.

NEW ANNUALS.

12 Extra fine Varieties	10*s.* 6*d.*	6 Extra fine Varieties	5*s.* 0*d*

ANNUALS FOR BEDDING OUT.

100 Finest selected Varieties	30*s.* 0*d.*	25 Finest selected Varieties	7*s.* 6*d.*
50 ditto ditto	15*s.* 0*d.*	12 do. ditto	4*s.* 0*d.*

HARDY ANNUALS.

100 Finest selected Varieties	20*s.* 0*d.*	30 Finest selected Varieties	5*s.* 0*d.*
50 ditto ditto	10*s.* 0*d.*	15 ditto ditto	2*s.* 6*d.*

B. & McC. strongly recommend their COLLECTIONS of STOCKS, ASTERS, and BALSAMS to Amateurs and Exhibitors; neither trouble nor expense have been spared in procuring the very best.

All Flower Seeds sent post paid; and all orders for Flower and Vegetable Seeds amounting to £1 1*s.* sent carriage paid.

GARDEN SEEDS.

S. GLENDINNING & SONS,

NURSERYMEN AND SEEDSMEN

(SUCCESSORS TO THE LATE R. GLENDINNING),

Are now sending out their COLLECTIONS of KITCHEN GARDEN SEEDS.

No. 1	**contains**	**36 Quarts**	**of PEAS, and all other Seeds in proportion**		**£5**	**5 0**
No. 2	**,,**	**28 Quarts**	**ditto**	**ditto**	**ditto**	**4 4 0**
No. 3	**,,**	**20 Quarts**	**ditto**	**ditto**	**ditto**	**3 3 0**
No. 4	**,,**	**12 Quarts**	**ditto**	**ditto**	**ditto**	**2 2 0**
No. 5	**,,**	**6 Quarts**	**ditto**	**ditto**	**ditto**	**1 1 0**

COLLECTIONS of FLOWER SEEDS.

No. 1,	**containing**	**100**	**Large Packets of Best Hardy Annuals**	...	...	**£0 18 0**
No. 2,	**,,**	**50**	**ditto**	**ditto ditto**	... ...	**0 9 6**
No. 3,	**,,**	**24**	**ditto**	**ditto ditto**	... ...	**0 5 0**
No. 4,	**,,**	**25**	**ditto**	**Half-Hardy Annuals**	... ...	**0 7 6**
No. 5,	**,,**	**12**	**ditto**	**ditto ditto**	... ...	**0 4 0**
No. 6,	**,,**	**25**	**ditto**	**Tender Annuals**	... ...	**0 12 6**
No. 7,	**,,**	**12**	**ditto**	**ditto ditto**	... ...	**0 6 0**

The above Collections consist only of best and most useful varieties, and are of the finest quality.

S. G. & SONS' CATALOGUE of KITCHEN GARDEN, AGRICULTURAL, and FLOWER SEEDS, is now ready, and may be had on application.

CHISWICK NURSERY, LONDON, W.

GRAPES for COOL VINERIES

BLACK HAMBRO'	3*s.* 6*d.*	to	5*s.* 0*d.*
BUCKLAND SWEETWATER..	5 0	to	7 6
MUSCAT HAMBRO'	5 0	to	7 6

We have to offer fine Canes of the above, and all other leading varieties.

PAUL & SON, "Old" Cheshunt Nurseries, Herts, N.

Grape Vines.

TO BE SOLD, Cheap, 1800 close-jointed vigorous Plants, with Canes 6 to 12 feet long, all struck from Eyes last spring.

Apply to the GARDENER, at J. Lewis's Horticultural Works, Stamford Hill, Middlesex, N.

THE GREAT VINE at HAMPTON COURT.—The Subscribers being the holders of the Royal Kitchen Gardens, Hampton Court, are enabled to offer genuine the famous and truly excellent HAMPTON COURT BLACK HAMBURGH GRAPE.

Strong well-ripened plants in 9-inch pots, 42*s.* and 60*s.* p. doz.

If purchased in large numbers a considerable reduction will be made in price.

JACKSON & SON, Nurseries, Kingston, S.W

Strong Fruiting Vines.

TO BE DISPOSED OF, four MUSCATS of ALEXANDRIA and one BLACK HAMBURGH, all five years old; would bear a crop this year.

☞ For price, &c., apply by letter to MR. W. G. CALDWELL, The Nurseries, Knutsford, Cheshire.

EXTRA STRONG FRUITING VINES.—All the leading varieties, from Eyes, with stout well ripened rods, for FRUITING in POTS this YEAR. Price, from 7*s.* 6*d.* each; smaller, for Planting-out, from 3*s.* 6*d.* each. A reduction in price will be made to large purchasers.

"We can especially recommend the above, our strong Vines having for some years given unqualified satisfaction."—*Vide* Leading Article in *Gardeners' Chronicle* for December 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries, Chester.

NEW PRIZE MELONS, at 1*s.* 6*d.* per packet.

Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria.

For descriptions see GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

NEW MELON, PRINCESS ALEXANDRA.—A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1*s.* per packet.

JAMES CARTER & CO., 237, 238, & 261, High Holborn, W.C.

STRAWBERRIES, Trade price.—Black Prince, Admiral Dundas, British Queen, Eleanor, Elton Pine, Wizard of the North, 10*s.* per 1000; Prince of Wales, Eliza, Alice Maude, Oscar, Duc de Malakoff, 2*s.* per 100.

POTATOES. sorts, see Advertisement Feb. 21.

GEO. CORNWELL, Seedsman, &c., Barnet, Herts, N.

APPLE and PEAR TREES, &c.—100 doz. Dwarf and Pyramidal PEAR TREES, best sorts 20*s.* per doz., packing included.

50 doz. Dwarf and Pyramidal APPLE TREES, best sorts, 12*s*, per doz., packing included.

GENERAL LISTS of NURSERY STOCK on application.

CHARLES B. SAUNDERS, Nurseryman, &c., Jersey.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, has the pleasure to offer now for the first time his two new excellent Fruits—

APPLE CALVILLE GARIBALDI .. 8*s.*
PEAR BÉURRÉ DE GHELIN .. .. 5*s.*

This excellent Pear obtained the First Prize at the great Pomological Show at Tournay, Belgium.

N.B. These two new Fruits are figured in VERSCHAFFELT'S "Illustration Horticole."

Vines and Seakale.

GEORGE CLARKE has a good stock of short-jointed, well ripened, fruiting, and younger VINES of the principal kinds, from Eyes, price 3*s.* 6*d.* to 7*s.* 6*d.*

Also SEAKALE, clean and sound, very suitable for planting permanent beds, 5*s.* to 7*s.* 6*d.* per 100.

FORCING SEAKALE all Sold.

Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

Large Fruiting Mulberry Trees.

WM. DENNIS has still left a few fine Trees from 6 to 8 feet, clean stems, and fine heads; also smaller plants of different sizes, which he will dispose of a Bargain.

A few fine LIME TREES, LILACS in kinds, GOOSEBERRIES and CURRANTS (in fruit-bearing condition), BOX TREES, &c. A quantity of Geraniums, Fuchsias, and other Greenhouse Stock; two or three Greenhouse Frames, &c. The whole to be disposed of cheap, as the ground must positively be cleared for immediate building.

King's Road, Chelsea, S.W.

NEW LILACS.—The following varieties of LILACS are all distinct and very ornamental. They are budded on Seedling Stocks which do not sucker, are from 3 to 5 feet in height, and are well adapted for Pyramids or Half Standards for Lawns.

	Each—*s.* *d.*		Each—*s.* *d.*
Charles X.	1 6	Philemon	2 6
Dr. Lindley	5 0	Triomphe d'Orleans ..	2 6
Gloire de Moulins ..	2 6	Valetteana	1 6
Grandiflora rubra ..	2 6	Virginalis	1 6
Insignis rubra	2 6	White Siberian	2 6
New Dark Red	1 6		

Carriage paid to London.

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

E. G. HENDERSON AND SON offer First-class quality of CINERARIA, CALCEOLARIA, and PRIMULA SINENSIS FIMBRIATA, 1*s.* and 2*s.* 6*d.* per packet.

CINERARIA WEBBI.—The interest and value of this species consists in its having a shrub-like branched habit of growth, attaining from 3 to 4 feet in height. This remarkable plant is expected to originate a new and desirable class of varieties for exhibition purposes, in having already passed into all the colours found in florist varieties of the present time, and no doubt but higher improvements in form, and other essential properties, will be obtained in connection with its superior culture. It will be found well adapted for decorative purposes, by its taller growth, and longer continuance in bloom. 2*s.* 6*d.*

Wellington Nursery, St. John's Wood, London, N.W.

SEEDS.—GENUINE HOME-GROWN

VEGETABLE, FLOWER, AND AGRICULTURAL.

If above the value of 20*s*. Carriage paid to any Railway Station, and to all Irish and Welsh Ports in communication with Bristol.

CATALOGUES post free on application.

JAMES GARAWAY AND CO., DURDHAM DOWN NURSERIES, BRISTOL.

BARR & SUGDEN 12 KING ST COVENT GARDEN

Second Edition, just Published, price 2*s*. 6*d*., OUR

ILLUSTRATED GUIDE TO THE FLOWER GARDEN.

COMPANION *to the above, price* 1*s*., OUR

ILLUSTRATED GUIDE TO THE KITCHEN GARDEN,

COLLECTIONS OF VEGETABLE SEEDS.

£3 3 0 | £2 2 0 | £1 10 0 | £1 1 0 | 15s. 6d. | 10s. 6d.

For particulars, see page 4 of "Guide to the Kitchen Garden."

COLLECTIONS OF FLOWER SEEDS.

£3 3 0 | £2 2 0 | £1 10 0 | £1 1 0 | 15s. | 10s. 6d. | 5s. 6d. | 3s. 6d.

For particulars, see page 18 of "Guide to the Flower Garden."

STRIKING NOVELTIES.

Continued from last week's *Gardeners' Chronicle*, page 171.

STRONG CANNA ROOTS,

A PORTION OF THE UNRIVALLED COLLECTION OF OUR "SARDINIAN CORRESPONDENT."

Fine foliaged plants, and such as are of stately growth, have of late years been much sought after for the adornment of the FLOWER GARDEN, TERRACES, PLEASURE GROUNDS, LAWNS, SELECT SHRUBBERIES, CARRIAGE DRIVES, &c.; besides relieving the monotony too frequently to be met with in such places, plants of this character impart a somewhat Oriental aspect.

For such purposes the CANNA stands unrivalled; its large picturesque foliage, and spikes of vivid-coloured flowers, produce a truly magnificent effect, especially when planted in groups, whether on the Lawn, in the centre of large beds, or in the mixed Flower Border. Varieties enumerated in our "Guide to the Flower Garden" will be found to form one of the most striking contrasts in habit and foliage.

3179	100	Roots assorted, our own selection, in 25, 30, and 40 varieties.	5*l*. 5*s*., 6*l*. 6*l*., and	£7	7 0
3180	50	„ „		2	15 6
3181	25	„ „		1	10 6
3182	12	„ „	12*s*., 18*s*., to	1	1 0

Celosias.—See pages 9 and 34, also Engraving.

New Varieties raised by our "SARDINIAN CORRESPONDENT."

The whole of this beautiful class, but more especially the spicata varieties, may be dried for Winter Bouquets. For Terraces, Conservatory and Drawing Room decoration, Celosias are invaluable. Their easy culture and graceful habit entitle them to a place amongst plants cultivated for Dinner Table decoration.

896. PRINCESS ALEXANDRA, var. PYRAMIDALIS MUSCOIDES.—Rich carmine flowers in plumes, frisées, so that they resemble pretty tufts of fine Moss, 2*s*. 6*d*.

897. PRINCE OF WALES, var. PYRAMIDALIS MUSCOIDES.—Scarlet, resembling the above in every respect, except colour, 2*s*. 6*d*.

These two magnificent varieties are in the style, but far surpassing the much praised C. aurea pyramidalis. In our Engraving, left-hand group, we have endeavoured to convey some idea of the effect produced by these superb introductions.

3248. PRINCESS ALEXANDRA, var. SPICATA. — Pale pink, with long delicately beautiful spikes, 2*s*. 6*d*.

3249. PRINCE of WALES, var. SPICATA. — Vermillion-tipped primrose; extremely handsome, 2*s*. 6*d*.

Unlike Nos. 896 and 897, the flowers of these are produced in long slender spikes of a slightly pendulous character; when well grown, one plant will carry from 80 to 100 of them, and as they feather the plant from base to summit, the effect is magnificent. On the right-hand side of our ENGRAVING of CELOSIAS we have endeavoured to convey some idea of the plant.

894. ADA BEAUFLEUR.—A hybrid between C. pyramidalis and C. argentea; the flower-spikes are white, tipped with rosy-purple, about 8 ins. long; a truly beautiful variety, 1*s*. 6*d*.

SPICATA, in 12 distinct colours. See pages 9 and 64.

PLUMOSA, in 12 distinct colours. See pages 9 and 34.

Bougainvillea.—See page 85.

2429. BOUGAINVILLEA SPLENDENS AURANTIACA.—A novel and magnificent variety, resembling B. splendens, except in colour, which is rich orange, 5*s*. per seed.

Brachysema.—See page 86.

2430. BRACHYSEMA SPECIOSUM.—An exceedingly handsome New Holland greenhouse climber, with beautiful deep red flowers, 1*s*.

Canna.—See page 32.

785. CANNA ANNEII AURANTIACA.—A majestic variety, of erect growth, with large and beautiful orange-coloured flowers, 1*s*.

786. CANNA AUREA SPLENDIDISSIMA.—A strikingly beautiful variety, with large handsome golden-yellow flowers and magnificent large foliage, 1*s*.

793. CANNA DISCOLOR FLORIBUNDA.—An exceedingly effective variety, with large handsome leaves, beautifully veined maroon; growth majestic, 1*s*.

797. CANNA GÉANT.—One of the most majestic of this truly magnificent genus, with superb large foliage and beautiful orange-red flowers; should be grown as a specimen plant (See Engraving on 3d page of Wrapper), 1*s*.

802. CANNA GRANDIS.—An exceedingly free-flowering variety, with beautiful large oval leaves and vivid-red flowers, 1*s*. 6*d*.

815. CANNA MUSÆFOLIA MINIMA.—A strikingly attractive variety, with beautiful silvery foliage, resembling a small Banana; flowers red, 1*s*.

822. CANNA PERUVIANA.—A remarkably beautiful species, with exceedingly broad leaves, splendidly veined maroon, 1*s*. 6*d*.

To be continued next week.

BARR AND SUGDEN, SEED MERCHANTS.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS; ditto COWSLIP; Florist's Flower, POLYANTHUS, Roots or Seed; also SCARLET PRIMROSE—Double Crimson, Double Purple, Double White, Double Yellow, and Double Lilac ditto. COWSLIP from the Himalayas; DOUBLE POLYANTHUS; and other varieties, all of which may be had on application to

RICHARD WEBB, Calcot Gardens, Reading.

New and Genuine Seeds.

GEORGE PARSONS, SEEDSMAN by Appointment to HER MAJESTY. A DESCRIPTIVE SELECT PRICED LIST, post free, on application.

27 and 28, Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

MESSRS. E. G. HENDERSON AND SON'S NEW SEED CATALOGUE forwarded post free upon application.

In addition to the usual information, valuable practical rules are given for the guidance of Amateur Cultivators in the sowing and after-management of all the Flowers described in the Catalogue.

N.B. For Descriptive Notes of NEW and RARE FLOWERS from Seed, refer to page 143 of *Gardeners' Chronicle* (Feb. 14).

CLIANTHUS DAMPIERI, home-ripened seed.—A most beautiful cool greenhouse plant, with clusters of large rich scarlet pea-shaped flowers, 3 to 4 inches in length, each flower being marked with a large conspicuous black cloud-like blotch in front. This magnificent plant has flowered in Messrs. E. G. H. & SON'S Nurseries, extending upwards of 15 feet in length, being trained horizontally against upright supports. It was ascertained that this single plant produced 680 trusses of bloom in one summer, which, averaging six flowers in a truss, formed an aggregate of 4000 blossoms as the produce of a single seed! See Catalogue for the peculiar treatment in the sowing and after management of this plant. Plants, 3*s*. 6*d*. Seeds, 1*s*. and 2*s*. 6*d*. per packet.

CUCUMBER.

HENDERSON'S A 1 HOUSE CUCUMBER.—The Royal Horticultural Society of London have fruited 118 varieties in their gardens at Chiswick, and decided this as the second best black-spined variety, its length 17 inches, straight and even, fine dark colour. A superior variety. Per packet, 1*s*. 6*d*.

ALL THE YEAR ROUND.—Very prolific, for quality and usefulness not surpassed at any season of the year. Per packet, 1*s*. 6*d*

CITRON GOURD (for Preserves).—This is a truly valuable and highly interesting esculent fruit, and constitutes a true variety of the hard-fleshed Water Melon, which, though not edible in its raw state, is now proved and strongly recommended for its valuable adaptation in making a very delicious preserve. Full directions for its culture and method of preparing the preserve are given in the Catalogue. 1*s*.

BUSH VEGETABLE MARROW (true).—This valuable variety is sufficiently dwarf and bushy to form a compact habited plant, and from its short-jointed character and abundant bearing, its produce may be compared to a nest of fruits overlaying each other. 6*d*. and 1*s*.

MESSRS. E. G. HENDERSON and SON, Wellington Road, St. John's Wood, London, N.W., beg to draw attention to the Plants figured in Part XV. of the "Illustrated Bouquet":—

IMATOPHYLLUM MINIATUM
SWAINSONIA VIOLACEA
PRIMULA PRÆNITENS (SINENSIS) FILICIFOL RUBRA
STRAWBERRY TIETJEN
REINECKIA CARNEA VARIEGATA

Wellington Nursery, St. John's Wood, London, N.W.

Banks's Best New Fuchsias.

E. G. HENDERSON AND SON are now sending out the three following First-class Flowers:—

MDLLE. TREBELLI (BANKS).
BIANCA MARGINATA (BANKS),
MARS (BANKS),

as neat young plants for growing on into specimens (and others adapted for stock), price 3*s*. 6*d*. and 5*s*. each. Also plants of all last year's best varieties, 1*s*. 6*d*. to 2*s*. 6*d*. each.

SOLANUM CAPSICASTRUM FOLIA VARIEGATA, a beautiful table plant, with elegantly variegated leaves and red berries; drooping habit; 3*s*. 6*d*. and 5*s*. each.

THE TIETJEN STRAWBERRY, hardier than "British Queen," of the same quality, colour, &c., 30*s*. per 100.

GLOXINIAS: BRILLIANT, LEVIATHAN, BIRD of PARADISE, and MOST BEAUTIFUL, the four most distinct new Gloxinias, 3*s*. 6*d*. and 5*s*. each.

AUCUBA HIMALAICA, 7*s*. 6*d*., 10*s*. 6*d*., to 21*s*. each.

PRIMULA SINENSIS FILICIFOLIA, white and red, 5*s*. each.

STUARTIA PENTAGYNIA, strong plants, 5*s*. each.

LOBELIA ERINUS SPECIOSA PAXTONI, 1*s*. 6*d*. each; 12*s*. per doz.

DOUBLE PANSY "GOOD GRACIOUS," 1*s*. 6*d*. each; 12*s*. per doz.

LONICERA AUREA RETICULATA, leaves light green, richly netted over with golden yellow veins, 5*s*. each.

LAPAGERIA ROSEA, 1*s*. 6*d*., 2*s*. 6*d*.; stronger, 5*s*. and 7*s*. 6*d*.

PRIMULA SINENSIS ERECTA SUPERBA, a fringed variety of P. kermesina, 2*s*. 6*d*.

PRIMULA PICTA, mottled, 1*s*. 6*d*.

BEDDING DAHLIAS (pot roots), 6*s*. and 9*s*. per doz.

LILLIPUTIAN „ „ „ 6*s*., 9*s*., to 18*s*. per doz.

Wellington Nursery, St. John's Wood, London, N.W.

LILIUMS FROM JAPAN.

HUGH LOW & CO.

HAVE TO OFFER AT VERY LOW PRICES LILIUM ROOTS, RECENTLY ARRIVED FROM JAPAN.

No name is attached to them, but they are reported to be the finest the country produces, and the Bulbs resemble very closely in appearance those of LILIUM AURATUM.

HUGH LOW & CO. will with pleasure afford any gentleman calling at the Nursery an opportunity of comparing the Bulbs now offered with those of LILIUM AURATUM.

CLAPTON NURSERY, LONDON, N.E.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, begs to inform his friends and the public he can supply from his great Stock of the above 20 pairs of the best large Varieties for 10*s.*; and 25 pairs of best POMPONES for 10*s.*; 20 pairs of Cuttings of the large Varieties for 5*s.*; and 25 pairs of Pompones ditto for 5*s*

New CATALOGUES ready for one stamp.

N.B. To save trouble all orders to be paid to J. H. BIRD, Stoke Newington.

New Fuchsia.

ROBERT REA, NURSERYMAN, &c., London Road, Ipswich, has much pleasure in announcing that he intends sending out after the 20th of April, plants of his SEEDLING FUCHSIA DEFIANCE, which was so much admired last season. Defiance is a fine bold double flower of great substance, bright scarlet tube and sepals, dark violet barrel-shaped corolla, sepals much reflexed. This will be a standard flower for years, and will be grown in every collection.

10*s.* 6*d.* each, with the usual discount to the Trade.

FIRST CLASS NEW FUCHSIAS. — Coloured Drawings by Mr. ANDREWS of SANSPAREIL, BRIDESMAID, CONSPICUA, and HERCULES, are now ready, and will be forwarded in exchange for 12 postage stamps.

G. S. begs to offer the above as the most Superb FUCHSIAS yet offered to the Public. For description, with price, and also time of sending out, see CATALOGUE, now ready.

GEORGE SMITH, Tollington Nursery, Hornsey Road, Islington, London, N.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent.

B. MALLER begs respectfully to state that his DESCRIPTIVE SEED CATALOGUE can now be had free on application.

Best Reigate SILVER SAND, 16*s.* per ton, delivered free within four miles, or to London Bridge Railway or Wharf. Less quantities, 1*s.* 6*d.* per bushel, for cash.

Nursery and Seed Establishment, Lewisham, Kent, S.E.

Seeds, Seeds, Seeds.

S. GLENDINNING AND SONS' (Successors to the late R. GLENDINNING) CATALOGUE of KITCHEN GARDEN, AGRICULTURAL and FLOWER SEEDS is now ready and may be had on application.

Chiswick Nursery, London, W.—February, 1863.

EDWIN HOLLAMBY begs to inform his Patrons and Friends that his DESCRIPTIVE PRICED CATALOGUE of VEGETABLE, FLOWER, AGRICULTURAL SEEDS, and GLADIOLUS is now ready, and may be had gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells, Kent.

A PRICED and DESCRIPTIVE CATALOGUE of all the new and leading kinds of Show, Spotted, French, Fancy, Scarlet, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready in exchange for one postage stamp.

GEO. SMITH, Tollington Nursery, Hornsey Road, Islington, London, N

A. STANSFIELD AND SONS beg to announce that their LIST of BRITISH FERNS for this season, including the New and Rare varieties, at reduced prices, is now ready, and may be had on application, enclosing two postage stamps. Also their GENERAL FERN LIST, No. 6, for 4 postage stamps, which purchasers may deduct.

Vale Nurseries, Todmorden.

AMARANTHUS MELANCHOLICUS (var. ruber).—Habit very compact, height 1 to 1½ feet, with striking blood-red foliage; a most valuable bedding plant for Flower Garden decoration, after the style of Perilla Nankinensis. Price per packet, 6*d.*, 1*s.*, and 2*s.* 6*d.* The Trade supplied.

E. P. DIXON & SONS, Seedsmen and Florists, 57, Queen Street, Hull.

WELLINGTONIA GIGANTEA.—The attention of the Nobility, Gentry, and the Trade, is invited to the largest stock of 1-year SEEDLING PLANTS in the Kingdom, established in single pots and fit for Spring planting. Price per dozen, 12*s.*; per 100 or 1000 on application. A Sample free by post for 12 stamps.

J. HENCHMAN, Edmonton, London.

JAMES TYNAN'S importation of celebrated GERMAN ASTERS, STOCKS, WALLFLOWERS, PHLOXES, and other FLOWER SEEDS, is now ready, and comprises as usual an extensive assortment of the very best varieties, selected from the most noted Continental growers. They are made up, as formerly, in large or small packets, to suit the requirements of purchasers. Every description of Vegetable and Agricultural Seeds of the finest quality.

Flower Seeds free by post.

J. TYNAN, Importer of Continental Seeds, 68, Great George Street, Liverpool.

Ranunculuses, Anemones, &c.

C. TYSO, FLORIST and SEEDSMAN, Wallingford, Berks, begs to offer choice-named assortments:—

50 Splendid RANUNCULUS, one each ..	14*s.* to	£1	0*s.* 0*d.*
50 ditto, TYSO'S SEEDLINGS, one each ..	30*s.* to	3	0 0
50 Mixed ditto, fine quality	4*s.*, 8*s.*, and	0	10 0
50 DOUBLE ANEMONES, one each	10*s.* 6*d.* to	0	13 0
50 Ditto Single Mixed	2*s.* 6*d.* to	0	3 6

IMPORTED GERMAN SEEDS.—Asters, Stocks, Balsams, Immortelles, Larkspurs, Phloxes, Poppies, Zinnias, &c., in named assortments, 1*s.* and 2*s.* 6*d.* each.

ANNUAL SEEDS.—50 sorts, 10*s.*; 25 sorts, 5*s.*

VEGETABLE SEEDS, of the best quality.

CATALOGUES gratis, or post free for one stamp.

All the above articles can be sent by Post.

Hardy Climbers, Hardy Climbers.

MESSRS. DILLISTONE AND CO., of The Nurseries, Sturmer, Halstead, Essex, has to offer a first-rate Collection of the above, consisting of splendid HONEYSUCKLES, ROSES, CLEMATISES; some very beautiful IVIES, JASMINES, &c., &c. A basket containing one dozen, carefully packed and paid to London upon receipt of 10*s.*

100 HERBACEOUS PLANTS, properly named and carefully packed, for 20*s.* PANSIES by the dozen, hundred, or thousand. PAMPAS GRASS, &c., &c. NURSERY STOCK in General.

Sturmer Nurseries.—Feb. 28.

Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER'S CATALOGUE of the above popular plants, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants.

It describes faithfully the colours of all the Rhododendrons, thereby rendering every facility for making selections.

It likewise contains an abridged List of really Hardy Conifers, with their heights and prices.

The American Nursery, Bagshot, Surrey.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

Spring Blooming Plants.

CAMELLIAS, including the best new varieties, fine plants, set with bloom buds, from 30*s.* per doz.; extra size, from 60*s.*

HEATHS, EPACRIS, CINERARIAS, and JASMINUM GRANDIFLORUM (grafted), remarkably fine plants, at moderate prices.

Also HUMEA ELEGANS, extra strong, in 6-inch pots, 18*s.* per doz.

JAMES DICKSON & SONS, Newton Nurseries, Chester.

Seeds for the Flower Garden offered by B. S. WILLIAMS.

	s.	*d.*
An ASSORTMENT of 12 Fine Selected Varieties of HARDY ANNUALS	1	6
An ASSORTMENT of 12 Fine Selected Varieties of HALF-HARDY ANNUALS	2	6
An ASSORTMENT of 12 Fine Selected Varieties of HARDY BIENNIALS and PERENNIALS, suitable for Rockwork	2	6
An ASSORTMENT of 12 Splendid Annual kinds of ORNAMENTAL GRASSES	2	0

Paradise and Victoria Nurseries, Holloway, London, N.

CHEAP PLANTS.—In Strong Plants.—

	Per doz —*s.*	*d.*
Hepaticas, sorts ..	3	0
Auriculas, sorts ..	3	0
Violets, Russian and Double White ..	3	0
Pinks, fine named ..	3	6
Clove, old Crimson ..	3	0
Pansies, fine named ..	3	6
,, fine mixed ..	2	6

	Per doz.—*s.*	*d.*
Primroses, Double White and Lilac	4	0
Sedum carneum fol. var.	3	0
Christmas Roses ..	6	0
Golden Yellow Wallflower	4	0
Rockets, sorts	4	0
Hollyhocks, fine named	6	0
Pampas Grass	4	0

Also, Strong STOCK PLANTS of the following for Cuttings:—

	Per doz.—*s.*	*d.*
Lobelia speciosa kermesina, "true."	4	0
Verbenas, new, 1862 ..	4	0
,, old varieties ..	3	6
,, Mrs. Holford (white)	4	0

	Per doz.—*s.*	*d.*
Verbena Purple King ..	4	0
Fuchsias, new, 1862 ..	5	0
,, older varieties	4	0
Dahlias, strong ground roots	6	0

100 Hardy Herbaceous plants in 50 varieties, carefully named and packed for 20*s.* Carriage of all Orders of 10*s.* paid to London, and other parts within 50 miles.

Post Office Orders payable at Castle Hedingham.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Choice Seeds of Asters, Balsams, and Stocks,

OFFERED BY

B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N.

	s.	*d.*
An Assortment of 12 varieties of TRUFFAUT'S PÆONY-FLOWERED ASTER, 100 seeds of each	2	0
An Assortment of four varieties of COCARDEAU or CROWN ASTER, 100 seeds of each	1	0
An Assortment of 12 varieties of CHRYSANTHEMUM-FLOWERED DWARF ASTER, 100 seeds of each ..	2	6
An Assortment of nine varieties of CAMELLIA-FLOWERED BALSAMS	2	6
An Assortment of 12 varieties of DOUBLE ROSE-FLOWERED BALSAMS	3	0
An Assortment of eight varieties of AUTUMNAL-FLOWERING STOCKS, 100 seeds of each	2	0
An Assortment of eight varieties of BROMPTON STOCKS, 100 seeds of each	1	6
An Assortment of 12 varieties of DWARF GERMAN TEN-WEEK STOCKS, 100 seeds of each	2	0
An Assortment of eight varieties of EMPEROR or PERPETUAL STOCKS, 100 seeds of each	2	0
An Assortment of six varieties of MINIATURE STOCKS, 100 seeds of each	1	6

A PRICED and DESCRIPTIVE CATALOGUE, post free to all applicants, containing useful suggestions for the guidance of amateur cultivators.

LARGE ORNAMENTAL TREES.—The Subscribers beg to offer very fine specimen plants of ARAUCARIA IMBRICATA, from 5 to 9 ft.; CEDRUS LIBANI, 7 to 12 ft.; WELLINGTONIA GIGANTEA, 5 to 9 ft.; PINUS EXCELSA, 7 to 10 ft.; also Spruce, Scotch, and Larch Firs, from 7 to 10 ft., with Limes, Birch, Beech, Elm, Sycamore, and Laburnum, 9 to 11 ft.; likewise Weeping Ash, Lime, and Willow, on fine tall stems. The above will be sold cheap, and if taken in quantity a great reduction will be made in the price.

J. IVERY & SON, Dorking Nursery.

The Planting Season.

THE EXECUTORS of MR. JNO. YOUNG, late Proprietor of the extensive Nursery Grounds, Taunton, have determined to reduce this large and valuable Stock. They respectfully invite the attention of Noblemen, Gentlemen, and the Trade to the FOREST TREES, HARDY and ORNAMENTAL TREES and SHRUBS, large and small; CONIFERÆ, EVERGREENS, HERBACEOUS, and a great variety of other PLANTS. STANDARD, DWARF, and POTTED ROSES. STANDARD, DWARF-TRAINED, and PYRAMIDAL FRUIT TREES. The varied and excellent quality of this Stock is so well known that comment is unnecessary. The grounds are open for inspection and sale daily, and in quantities at greatly reduced prices. Applications by post direct to the EXECUTORS of the late Mr. John Young, Taunton.

The above capital FREEHOLD NURSERY
(Established more than 30 years).
containing about 12 Acres of highly productive Land, with the usual Appurtenances, situate at Taunton, the County Town of Somersetshire, in excellent condition, with a good connection, is

TO BE SOLD, with Early Possession,
in consequence of the Decease of the late Owner.
For particulars, apply as above.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

Narrow-leaved English Elms.

WOOD AND INGRAM beg to offer to the Trade extra fine Seedlings of the above, at 5*s.* per 1000.

Huntingdon Nurseries.

New Fuchsias of 1862.

B. W. KNIGHT, FLORIST, &c., Battle, Sussex, can supply the New FUCHSIAS of 1862 in good plants, at 6*s.* per dozen.—CATALOGUES sent on application.

To the Trade.

CHRISTMAS QUINCEY, SEEDSMAN, Peterboro', has to offer, of his own growing, ASH-TOP KIDNEYS, MYATT'S PROLIFIC, DALMAHOYS, FORTYFOLDS, SHAWS, and FLOURBALLS, by the sack or ton.

Also YELLOW and RED GLOBE MANGEL, BROCCOLI, and WINDSOR BEANS. Prices on application.

A BARGAIN.—A large quantity of SCOTCH and SPRUCE FIR, 2 to 3 feet high, fine healthy stuff, to offer cheap.—For price apply to GEORGE BATLEY, the Nursery, Rugby

THE SUBSCRIBERS have on SALE 2, 3, and 4-year Seedling NORWAY SPRUCE; 3 year Seedling THORN QUICKS; Transplanted SPRUCE, 1 to 1½ feet; 3-year Transplanted THORN QUICKS, all at very low prices, which may be had on application.

FOWLER & SON, Glasgow—Feb. 28.

FOR SALE, 100,000 3-year Seedling SILVER FIR.—The above will be offered cheap, as the ground is wanted for other purposes. Samples and Prices sent on application.

Apply to DOWNIE, LAIRD, & LAING, 17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London.

Green Hollies.

CORNELIUS WHITEHOUSE, Brereton Nursery, Rugeley, Staffordshire, offers an immense stock of well-grown healthy extra Transplanted HOLLIES, exceedingly well-rooted, from 12 to 15, 15 to 18, 18 to 24, 24 to 30 inches. Also very handsome SPECIMEN PLANTS from 3 to 5 feet; also ENGLISH YEWS from 2 to 2½ feet, 2½ to 3 feet and upwards. The above growing on ground to be cleared for other stock, the price will be liberal. Trade price on application.

CHARLES DALY AND SON will SELL 3-year Seedling THORN QUICK at 2*s.* per 1000; 1-year Transplanted do., at 4*s.* per 1000; 2-year do. do., at 8*s.* per 1000. COMMON LAURELS, at 15*s.* per 1000; SWEET BAYS, 3-year Potted, 6*d.* each; RHODODENDRONS, good furnished plants, 20*s.* per 100; fine large UPRIGHT YEWS, seven times Transplanted, fit for cemeteries or pleasure grounds. The above will be sold Cheap for cash. Turnip Seeds or new Greenhouse Plants will be taken in payment. LIST of PRICES Free by Post.

Coleraine, Ireland.

Lobelia speciosa (True).

THOMAS METHVEN begs to state that he can supply the above, and which he can warrant genuine, in packets at 1*s.*, 2*s.* 6*d.*, and 5*s.*

GENERAL SEED CATALOGUE free on application.

Seed Warehouse, Leith Walk, Edinburgh.

DAHLIAS, DAHLIAS.—A special DESCRIPTIVE LIST of surplus stock of SHOW, FANCY, BEDDING, and LILLIPUTIAN or BOUQUET DAHLIAS, about 300 varieties, with 400 VINES struck from Eyes. Also a list of HOLLYHOCKS struck from Eyes last autumn.

May be had on application to J. C. PADMAN, Providence Nursery, Boston Spa, near Tadcaster.

TO THE TRADE.—Special Offer.

ABIES MENZIESII, 9 to 12 inches, 3*s.* per dozen;		20*s.* per 100.
,, ,,	18 to 24 inches, 6*s.* per dozen;	40*s.* per 100.
,, ,,	24 to 30 inches, 9*s.* per dozen;	60*s.* per 100.
PINUS INSIGNIS, 4 to 5 feet, 3*s.* 6*d.* each;		30*s.* per dozen.
,,	5 to 6 feet, 5*s.* each;	42*s.* per dozen.
BERBERIS DARWINII, 6 to 9 in., 5*l.* per 1000, or 12*s.* 6*d.*		p. 100.
,, ,,	9 to 12 ins, 3*s.* per doz.;	15*s.* per 100.
,, ,,	18 to 24 ins., 9*s.* per doz.;	60*s.* per 100.
CUPRESSUS LAWSONIANA, 2 to 3 feet,		200*s.* per 100.
,, ,,		3½ to 4½ feet, 30*s.* per dozen.
,, ,,		4½ to 5 feet, 36*s.* per dozen.
,, ,,		5 to 6 feet, 5*s.* to 7*s.* 6*d.* each.
THUJA LOBBI, 18 to 24 in., 12*s.* per doz.;		or 75*s* per 100.
,,	2 to 3 feet, 18*s.* per doz.;	or 100*s.* per 100.
BLUSH CHINA ROSES, 25*s.* per 100.		
RHODODENDRON PONTICUM, fine large bushy stuff, 1½ to 2½ feet, 40*s.* to 60*s.* per 100.		
,, ,,		2 to 3 feet, 70*s.* per 100.
,, ,,		3 to 4 feet, 126*s.* per 100.
WELLINGTONIA GIGANTEA, 4½ to 5 feet,		42*s.* to 50*s.* each.
,, ,,		5 to 6 feet, 50*s.* to 63*s.* each.
,, ,,		6 to 7 feet, 63*s.* to 84*s.* each.
,, ,,		7 to 8 feet, 84*s.* to 105*s.* each.

The above are all fine healthy, well rooted stuff.

TRADE CATALOGUE of GENERAL NURSERY STOCK on application.

THOMAS CRIPPS, Nurseryman, Tunbridge Wells, Kent.

GEORGE BAKER begs to offer the following, a selection from his extensive Stock:—

ARAUCARIA IMBRICATA, 3 feet, 6 feet, 9 feet, 14 feet.
ABIES DOUGLASII, 3 feet, 5 feet, 10 feet, 14 feet, 25 feet.
ARBOR-VITÆ (WAREANA), 3 feet, 6 feet, 8 feet.
CEDRUS DEODARA, 3 feet, 6 feet, 12 feet, 20 feet.
CUPRESSUS LAWSONIANA, 3 feet, 5 feet.
,, DISTICHA, 3 feet, 8 feet, 12 feet.
CEDRUS LIBANI, 6 feet, 8 feet, 10 feet.
CHINESE JUNIPER, 3 feet, 5 feet, 6 feet.
IRISH YEW, 4 feet, 6 feet, 8 feet.
JUNIPERUS RECURVA, 8 feet.
PICEA CEPHALONICA, 3 feet, 4 feet, 11 feet.
PINUS CEMBRA, 3 feet, 5 feet, 7 feet.
,, EXCELSA, 10 feet, 15 feet.
THUJA GIGANTEA, 4 feet, 5 feet, 6 feet.
THUJOPSIS BOREALIS, 1 foot, 2 feet.
PINUS AUSTRIACA, 3 feet, 4 feet.
,, BENTHAMIANA, 3 feet, 4 feet.
WEYMOUTH PINE (fine), 1½ foot, 2 feet.
SPRUCE FIR, 1 foot, 2 feet.
AZALEAS (to name)
ANDROMEDAS (to name).
RHODODENDRONS (to name).
,, STANDARDS (to name).
KALMIA LATIFOLIA.
,, STANDARDS (very fine heads).

Prices free by Post, on application. Also G. B.'s GENERAL PRICED LIST is now ready.

American Nursery, near Bagshot, Surrey, about 1¼ mile from Sunningdale Station, S. W. R.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

Proprietors—JOHN SUTTON, MARTIN HOPE SUTTON, and ALFRED SUTTON.

UNDER THE DISTINGUISHED PATRONAGE OF

HER MOST GRACIOUS MAJESTY THE QUEEN,
HIS ROYAL HIGHNESS THE PRINCE OF WALES,
AND THE PRINCIPAL MEMBERS OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

PRICES OF FARM SEEDS FOR MARCH

(CARRIAGE FREE).

FOR EXTRA LARGE QUANTITIES, SPECIAL CONTRACTS MAY BE MADE.

SUTTON & SONS, SEED GROWERS, READING, BERKS,

OFFER THE UNDERMENTIONED WITH GREAT CONFIDENCE, AS BEING GENUINE NEW SEEDS, WHICH HAVE BEEN PROVED TO GERMINATE WELL.

New Clover Seeds, perfectly free from Dodder and other Weeds.

COMMON RED, or BROAD CLOVER, extra fine and clean, 8½*d.* per lb.; 78*s.* per cwt. Second quality cheaper.

YELLOW TREFOIL (Hop Clover, or Black Medick), 5½*d.* per lb.; 48*s.* per cwt. Second quality cheaper.

WHITE, or DUTCH CLOVER, 10½*d.* per lb.; 95*s.* per cwt. Second quality cheaper.

ALSIKE, or HYBRID CLOVER, 1*s.* 3*d.* per lb.; 130*s.* per cwt. Second quality cheaper.

COW GRASS (the true kind), 10*d.* to 1*s.* per lb.; 90*s.* to 105*s.* per cwt.

MIXED PERENNIAL CLOVERS for PERMANENT PASTURE (Perennial Red, Perennial White, and Alsike), 1*s.* 2*d.* per lb.; 120*s.* per cwt.

MIXED CLOVERS for ALTERNATE HUSBANDRY (Common Red, Alsike, White, and Yellow), 10½*d.* per lb; 95*s.* per cwt.

RIB GRASS, or NARROW-LEAVED PLANTAIN, 7*d.* per lb.

Mixtures of Clovers and Rye-grass Seeds.

TO BE SOWN WITH CORN FOR A CROP OF CLOVER, &c., IN THE FOLLOWING YEAR.

CLOVERS and ITALIAN RYE-GRASS (Seeds), for One Year's Clover, &c., including 14 lbs. Alsike and other Clovers, at 15*s.* per acre.

CLOVERS and COMMON RYE-GRASS, including 14 lbs. Alsike and other Clovers, at 15*s.* per acre.

CLOVER SEEDS WITHOUT RYE-GRASS, at 12*s.* 6*d.* to 14*s.* per acre; according to the sorts and quantities supplied.

Sutton's Mixtures of Permanent Pasture Grass Seeds.

The first Prize Medal of the Royal Horticultural Society was awarded to our Collection of Clover and Grass Seeds at the Great International Exhibition of Seeds and Roots in October last. The quantity we usually supply is 2 bushels of light Seeds and 12 lb. heavy Seeds per acre. 30*s.* per acre.

*** *For extra large quantities, special contracts may be made.*

CHEAPER PERMANENT MIXTURES, including Clovers and Good Permanent Grass Seeds, but omitting some of the more expensive kinds, 24*s.* to 26*s.* per acre.

MIXTURES for RECLAIMED MARSHES and HEATH LANDS, 20*s.* per acre.

MIXTURES for LAYING DOWN WATER MEADOWS, 25*s.* per acre.

MIXTURES to LAY DOWN NEW PARK LAWNS.—Seeds for this purpose will be 16*s.* per bushel.

MIXTURES for FINE GARDEN LAWNS.—Including only the finest or shortest growing kinds, 18*s.* per bushel. 3 bushels per acre of these fine sorts are required.

MIXTURES of GRASSES, CLOVERS, &c., for 3 or 4 YEARS' PASTURE, HAY, or SOILING.—These we can supply of best quality, at 22*s.* per acre, or if required to remain only 2 years, the price will be only 18*s.* 6*d.* per acre.

EVERGREEN GRASSES for CHURCHYARDS and CEMETERIES.—Price of Seed, 16*s.* per bushel.

MIXTURES for ORCHARDS and PASTURES OVERSHADOWED with TREES, 15*s.* per bushel.

MIXED PERMANENT GRASS SEEDS of COARSE KINDS, for RAILWAY EMBANKMENTS, &c., &c., 2*s.* 6*d.* per bushel, in quantities of not less than 8 bushels.

Natural Grasses contained in Messrs. Sutton's Mixtures,

(Besides Clovers), and which may be purchased separately in quantities not less than 7 lbs. of either sort.

	Per lb.—*s.* *d.*		Per lb.—*s.* *d.*
ALOPECURUS PRATENSIS	1 3	GLYCERIA FLUITANS	1 0
ANTHOXANTHUM ODORATUM ..	1 6	,, AQUATICA	1 0
AGROSTIS STOLONIFERA	0 10	LOLIUM PERENNE	0 5
CYNOSURUS CRISTATUS	1 0	,, ,, STICKNEYANUM	0 5
DACTYLIS GLOMERATA	0 10	,, ,, PACEYANUM ..	0 5
FESTUCA DURIUSCULA	0 10	,, ,, SEMPERVIRENS	0 5
,, ELATIOR	1 0	,, ,, TENUE	0 6
,, GIGANTEA	1 3	PHLEUM PRATENSE	0 8
,, HETEROPHYLLA	1 0	POA PRATENSIS	1 0
,, PRATENSIS	0 10	,, TRIVIALIS	1 0
,, OVINA	0 10	,, NEMORALIS	1 3
,, RUBRA	0 10	,, ANGUSTIFOLIA	1 3
,, TENUIFOLIA	1 0	,, FERTILIS	1 3
,, LOLIACEA	0 10	,, SEMPERVIRENS	1 6

Rye-grasses (cheaper in large quantities),

ITALIAN RYE-GRASS, good English seed, 6*s.* 6*d.* per bushel.
FRESH IMPORTED SEED, cleaned, 7*s.* 6*d.* per bushel.
PERENNIAL RYE-GRASS, clean seed, 6*s.* 6*d.* per bushel.
PACEY'S PERENNIAL RYE-GRASS, very fine, 7*s.* 6*d.* per bushel.
EVERGREEN RYE-GRASS, 7*s.* 6*d.* per bushel.
ANNUAL, or COMMON, best quality, 5*s.* 6*d.* per bushel.
Ditto ditto, lighter seed, 4*s.* 6*d.* per bushel.

Mangel Wurzel, 6d. per lb., or cheaper by the cwt.

YELLOW GLOBE | RED GLOBE | LONG RED | LONG YELLOW

The Mangel Seed offered as above at 6*d.* per lb. is of good stock and New Seed, which has been proved to germinate well.

Improved Sorts of Mangel Wurzel (cheaper by the cwt.)

SUTTON'S LARGE YELLOW GLOBE.—The heaviest cropper and hardiest Mangel known. The First Prize Medal at the International Root Show in October last was awarded to us for this sort. 8*d.* per lb.

SUTTON'S ORANGE GLOBE.—Beautiful shape, with smaller greens than other sorts, 8*d.* per lb.

ELVETHAM LONG RED.—A new large variety, of superior feeding properties, 8*d.* per lb.

FISHER HOBBS' ORANGE GLOBE, very fine, 8*d.* per lb.

Prices per cwt. on application.

Turnip Seeds.

SUTTON'S CHAMPION SWEDE.—A very large Purple-top Yellow Swede. Gained 12 Silver Cups presented by His late Royal Highness the Prince Consort in six successive years, of 20 Guineas value each, besides numerous other distinguished Prizes in other parts of the Kingdom. 1*s.* per lb.; 45*s.* per bushel.

SKIRVING'S SWEDE (SUTTON'S Selected Stock).—Our stock of this Swede is particularly true, having been grown last summer from transplanted roots carefully selected. 9*d.* per lb.; 32*s.* per bushel.

SUTTON'S HARDY PURPLE-TOP, a fine hardy Swede, 9*d.* per lb.; 32*s.* per bushel.

MARSHALL'S PURPLE-TOP, direct from Mr. Marshall, 10*d.* per lb.; 36*s.* per bushel.

HARDY WHITE SWEDE.—Choice stock, excellent for late spring feed, 1*s.* per lb.; 45*s.* per bushel.

SKIRVING'S PURPLE-TOP YELLOW BULLOCK, 10*d.* per lb.; 36*s.* per bushel.

DALE'S HYBRID, 10*d.* per lb.; 36*s.* per bushel.

YELLOW SCOTCH or BULLOCK (Green-top), selected stock, 10*d.* per lb.; 36*s.* per bushel.

YELLOW TANKARD TURNIP, strongly recommended, 10*d.* per lb.; 36*s.* per bushel.

LINCOLNSHIRE RED GLOBE TURNIP, true.—From the original stock presented to us by the late Philip Pusey, Esq., 9*d.* per lb.; 32*s.* per bushel.

SUTTON'S IMPERIAL GREEN ROUND or GLOBE.—Should be sown for the main Winter Crop, instead of the Common Green Round Turnip, being a heavier and more nutritious Turnip, 9*d.* per lb.; 32*s.* per bushel.

OLD HARDY GREEN ROUND, for late spring feed, 8*d.* per lb.; 28*s.* per bushel.

POMERANIAN, large white, for early feed, 9*d.* per lb.; 32*s.* per bushel.

WHITE GLOBE, large sort, well known, fine stock, 8*d.* per lb.; 28*s.* per bushel.

TANKARD, RED, WHITE, or GREEN, for early feeding only, 9*d.* per lb.; 32*s.* per bushel.

EARLY SIX-WEEKS' STONE, or STUBBLE, for sowing very early or very late, 9*d.* per lb.; 32*s.* per bushel.

GREY STONE, or MOTTLED GLOBE.—Fine large new sort, strongly recommended, 10*d.* per lb.; 36*s.* per bushel.

Carrot (cheaper by the cwt.)

WHITE BELGIAN.—Fresh imported Seed; a very heavy cropper, 1*s.* per lb.

LARGE GREEN-TOP YELLOW BELGIAN, similar to White Belgian in size, and more nutritious, 1*s.* 3*d.* per lb.

RED INTERMEDIATE, excellent for Shallow Soils, 2*s.* 6*d.* per lb.

ALTRINGHAM, the largest Red Carrot, 2*s.* per lb.

Cow Cabbage.

EARLY SCOTCH DRUMHEAD.—Sow in March, to feed in October and Nov., 2*s.* 6*d.* per lb.

LARGE DRUMHEAD, from fine selected plants, 2*s.* 6*d.* per lb.

THOUSAND-HEADED.—Very productive, tall, branching, strongly recommended, 2*s.* 6*d.* p. lb.

ROBINSON'S CHAMPION DRUMHEAD.—Gained First Prizes at Royal Horticultural Society's International Show, and Birmingham; some of the heads weighing 75 lbs. each, 5*s.* per lb.

LONDON MARKET, EARLY BATTERSEA, and others, 4*s.* each.

Kohl-Rabi, or Turnip-rooted Cabbage.

LARGE GREEN.—Very large. Prize Medal at International Root Show. 2*s.* 6*d.* per lb.

LARGE PURPLE.—Not quite so large as the preceding, 2*s.* 6*d.* per lb.

Miscellaneous.

	Per lb.—*s.* *d.*		Per lb.—*s.* *d.*
LUPINS, white, yellow, and blue; per bushel, 20*s.*	0 9	SERADELLA, substitute for Vetches ..	0 10
FURZE, or GORSE (20 lb. per acre) ..	1 6	LUCERNE (20 lb. per acre)	0 10
LARGE CATTLE PARSNIP (6 lb.) ..	1 6	LINSEED, or FLAX. Price fluctuating.	
MUSTARD (24 lb.)	0 5	BROOM (for Cover)	1 0
RAPE, or COLE (4 to 6 lb.)	0 4½	BURNET	0 6
SHEEP PARSLEY	1 0	CHICORY	2 6
WHITE SILESIAN SUGAR BEET ..	1 0	YARROW	2 6
FENUGREEK	0 9	BUCK WHEAT .. .. per bushel	7 6
		EARLY RACEHORSE PEAS ,,	10 6

All Goods carriage free (except small parcels). PRICED LISTS of FARM and GARDEN SEEDS *post free.*

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.

LIST of AWARDS, February 25, 1863.

FIRST-CLASS CERTIFICATES.

CYPRIPEDIUM DAYANUM, from J. Day, Esq., Tottenham.
YUCCA LINEATA LUTEA, from Mr. W. Bull, Chelsea.
TRICHOMANES ANCEPS, from Mr. W. Bull, Chelsea.
AZALEA PRESIDENT CLAEYS, from Messrs. Veitch & Son, Chelsea.
BARKERIA SKINNERI SUPERBA, from Messrs. Veitch & Son, Chelsea.

SECOND-CLASS CERTIFICATES.

LIMATODES ROSEA *v.* ALBA, from Messrs. Low & Co., Clapton.
ANECTOCHILUS ARGYRÆA, from Mr. W. Bull, Chelsea.

COMMENDATION.

HIBISCUS (sp. ?) VARIEGATUS, from Messrs. Veitch & Son, Chelsea.

SPECIAL CERTIFICATES.

Collection of 40 varieties of green and 32 of variegated HOLLIES, illustrating a paper read before the Committee, from Mr. W. Paul, Waltham Cross.
Collection of the varieties of LYCASTE SKINNERI, from Messrs. Veitch & Son, Chelsea.

The next MEETING of the Committee will take place on Wednesday, March 18, at 10 A.M.

THOMAS MOORE, Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY.
SHOW of HYACINTHS, and other SPRING FLOWERS, WEDNESDAY, February 25.

AWARDS OF THE JUDGES.

CLASS 1.—12 HYACINTHS, distinct kinds (Nurserymen).
1st, Messrs. W. Cutbush & Son, Highgate Nurseries, N., 1*l.* 10*s.*
2d, Mr. Wm. Paul, Cheshunt Nurseries, Waltham Cross, N., 1*l.*

Prizes offered by Mr. J. Cutbush, of Highgate.

CLASS 2.—12 HYACINTHS, 6 kinds (Amateurs).
1st, Mr. A. Carr, Gr. to B. Noakes, Esq., Highgate, N., 2*l.* 2*l.*
2d, Mr. G. Taylor, Gr. to C. A. Hanbury, Esq., East Barnet, 1*l.* 1*s.*

CLASS 3.—12 Pots of TULIPS, 6 kinds (Nurserymen).
1st, Messrs. W. Cutbush & Son, Highgate Nurseries, N., 1*l.* 10*s.*
2d, Mr. Wm. Paul, Cheshunt Nurseries, N., 1*l.*

CLASS 4.—12 Pots of TULIPS, 4 kinds (Amateurs)
1st, Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, N., 1*l.* 10*s.*
2d, Mr. A. Carr, Gr. to B. Noakes, Esq., Highgate, N., 1*l.*
3d, Mr. R. Blogg, Gr. to J. P. Gassiot, Esq., Clapham Common, S., 15*s.*

CLASS 5.—CROCUSES, Collection of (Nurserymen).
1st, Messrs. W. Cutbush & Son, Highgate Nurseries, N., 15*s.*
2d, Mr. Wm. Paul, Waltham Cross, N., 10*s.*

CLASS 6.—CROCUSES, 12 pots (Amateurs).
1st, Mr. R. Blogg, Gr. to J. P. Gassiot, Esq., Clapham Common, S., 15*s.*

CLASS 7.—Collection of 18 FORCED FLOWERS, various (Nurserymen).
1st, Messrs. J. Veitch & Son, Exeter and Chelsea, 2*l.*
2d, Messrs. W. Cutbush & Son, Highgate Nurseries, N., 1*l.* 10*s.*

CLASS 8.—Collection of 12 FORCED FLOWERS, various (Amateurs).
No competition.

CLASS 9.—Collection of 12 AMARYLLIS, distinct kinds (Open).
No competition.

CLASS 10.—6 EPACRIS, not less than 3 colours (Open).
No competition.

CLASS 11.—4 GREENHOUSE ACACIAS, various (Open).
No competition.

CLASS 12.—6 GERANIUMS, forced, distinct kinds (Nurserymen).
No competition.

CLASS 13.—6 GERANIUMS, forced, 4 kinds (Amateurs).
No competition.

CLASS 14.—6 pots of LILIES of the VALLEY (Open).
1st, Messrs. J. Veitch & Sons, Royal Exotic Nurseries, Exeter and Chelsea, 1*l.*
2d, Mr. J. Salter, William Street, Hammersmith, W., 15*s.*

CLASS 15.—6 PRIMULAS, various colours (Open).
1st, Mr. G. Taylor, Gr. to C. A. Hanbury, Esq., East Barnet, 1*l.*
2d, Mr. J. Todman, Gr. to R. Hudson, Esq., Clapham Common, S., 15*s.*
3d, Messrs. Cutbush & Son, Highgate Nurseries, N., 10*s.*
Equal 3d, Mr. R. Blogg, Gr. to J. P. Gassiot, Esq., Clapham Common, S., 10*s.*

CLASS 16.—6 DOUBLE CHINESE PRIMROSES, 2 colours (Open).
2d, Messrs. W. Cutbush & Son, Highgate Nurseries, N., 15*s.*

CLASS 17.—MISCELLANEOUS COLLECTION of PLANTS in FLOWER.
Equal 1st, Messrs. W. Cutbush & Son, for Collection of 50 Hyacinths, 1*l.* 10*s.*
Equal 1st, Messrs. W. Cutbush & Son, for Collection of 50 pots of Tulips, 1*l.* 10*s.*
Equal 1st, Mr. Wm. Paul, for Collection of 50 pots of Hyacinths, 1*l.* 10*s.*
Equal 1st, Messrs. Veitch & Son, for Collection of Plants in Flower, 1*l.* 10*s.*
2d, Mr. Wm. Bull, for Collection of New and Rare Plants, 1*l.*
Equal 3d, Mr. Wm. Paul, for Box of Cut Camellias, 15*s.*
Equal 3d, Messrs. F. & A. Smith, for Collection of 6 Stove Plants, 15*s.*
Extra, Mr. J. Todman, for Collection of 3 Roses in pots, 10*s.*

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. Annual Sale exceeds 3000 packets. In sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each.
J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*
J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE PRIMULA SINENSIS SEED. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*
J. DOBSON & SONS, Seedsmen, Isleworth.

Select Double Hollyhocks.

WILLIAM PERRY begs to announce that he has for SALE a good and healthy stock of Young Plants of the above that will flower well this season. If selection is left to W. P., the price per dozen will be 9*s.*, 12*s.*, 18*s.* 24*s.*, 30*s.*
Sawbridgeworth, Herts.

Superb Double Hollyhocks.

THIS BEING THE BEST TIME FOR PLANTING THEM OUT.
WILLIAM CHATER has an immense stock of healthy Plants.
CATALOGUE of PRICES to be had on application.
WILLIAM CHATER, Nurseries, Saffron Walden.

HARDY FLOWER SEEDS, of Showy Colours only, sent free by post or rail, by
SUTTON AND SONS.
A COLLECTION of the best 50 sorts known .. 10*s.* 6*d.*
A COLLECTION of the best 36 sorts known .. 7 6
A COLLECTION of the best 24 sorts known .. 5 0
SUTTON'S CATALOGUE of SEEDS will be sent post free.
SUTTON & SONS, Seed Growers, Reading, Berks.

Excellence and Economy Combined.

SUTTON'S UNEQUALLED COLLECTIONS of KITCHEN GARDEN and FLOWER, &c. SEEDS.
SUTTON'S COLLECTIONS of GARDEN SEEDS will be found the most economical, as well as the best in quality of seeds, as see List of Contents, which may be had gratis and post free.
Royal Berkshire Seed Establishment, Reading.

Noble Specimen Camellia.

JOHN SALTER has for SALE a splendid Specimen plant of CAMELLIA ELEGANS; it is between 7 and 8 feet high from the rim of the pot, of a pyramidal form, and covered with buds now coming into bloom. Price 10*l.*
Versailles Nursery, William Street, near Hammersmith Turnpike, W.

Major's Half-Shrubby Calceolaria Seed for 1863.

HENRY MAJOR is prepared to supply the above as usual, in packets at 2*s.* 6*d.* each, or 3 for 5*s.*, post free. The seed is very select, having been saved from large and strikingly beautiful flowers.
Postage stamps are requested in payment.
Knosthorpe, near Leeds, Yorks.

Choice Seedling Calceolarias.

CHARLES KIMBERLEY has a large stock of the above, all saved from impregnated flowers. The plants are strong, fit to pot into 5-inch pots. He begs to offer them at 4*s.* per dozen.
Stoke Nursery, near Coventry.

The Flower of the Season.

DOBSON'S Splendid NEW PELARGONIUM, QUEEN of WHITES, acknowledged by the whole of the Floricultural Press to be the very best white flower raised. Strong plants now ready, 31*s.* 6*d.* each. Figured in the February Number of the "Floral Magazine."
Woodlands Nursery, Isleworth, W.

Choice Coniferæ, Tree and Shrub Seeds offered by CHARLWOOD AND CUMMINS.
For particulars see Advertisement in the *Gardeners' Chronicle*, February 21, page 170.
CATALOGUE forwarded on application.
14, Tavistock Row, Covent Garden, London, W.C.

New and Rare Plants for 1863.

WILLIAM BULL, F.R.H.S, F.R.B.S., begs to intimate that his CATALOGUE of NEW SOFT-WOODED PLANTS is now ready, and will be forwarded Post free on application.
Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

The Gardeners' Chronicle.
SATURDAY, FEBRUARY 28, 1863.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, March 2—Entomological .. .. .. 7 P.M.
THURSDAY, — 5—Linnean .. .. 8 P.M.

AMONG the many new inventions brought to notice by the late International Exhibition was a kind of GRAFTING WAX, named Lhomme-Lefort, after its discoverer. Grafting waxes are not in favour in this country, possibly owing to the dampness of our climate. It appears, however, from a report by Mr. ROBERT THOMPSON, that the one now alluded to is an exception.

This composition, Mr. THOMPSON informs us, has been tried in the Horticultural Society's Garden; and so far it has proved a better grafting wax than any hitherto known. It is easily and expeditiously applied, without any heating or other preparation. It only requires to be thinly laid on with a spatula or any thin flat piece of stick. Its great merit is that it continues pliable and elastic; and with respect to these properties it has a great advantage over all other grafting compositions that have been tried in the Society's Garden.

The Mastic Lhomme-Lefort was tried for Apple and Pear grafting last spring; and afterwards it was used for grafting Vines. In all cases it succeeded very well. It was tried comparatively with well-tempered grafting clay, the same variety of Apple or Pear being employed, and all other circumstances being as nearly as possible alike in both modes. The first examination was made about the middle of May; but owing to the backwardness of the season, grafts were not so far advanced in growth as they usually are at that period, and, consequently, any difference that might have arisen from using different substances could not be so fully apparent as it would when the plants were in a more advanced stage of growth. The result, however, of careful inspection at that time led to the conclusion that the grafts covered by the Mastic Lhomme-Lefort were progressing very favourably.

More recently it has been employed in grafting Vines under glass. In this case it is much better than grafting clay, because a crowd of rootlets are apt to be emitted into the latter.

The mastic is said to prevent the bleeding of the Vine; but it is not quite effective for that purpose. The sap of the Vine destroys the elastic principle of the composition; partially decomposing it. With this exception, the statements that accompany the boxes containing the mastic are borne out.

The Vine grafts to which the mastic was applied succeeded well, and made as good shoots as with the clay; except, indeed, in the case of some imported sorts, which were much dried up and scarcely alive when put on. For Vines and small work, such as many kinds of stove and greenhouse plants, where clay cannot be applied, the composition in question appears to be well adapted.

When it becomes necessary to loosen the tyings of the grafts to which the mastic is applied, it is found that the latter comes clean away without leaving portions sticking on the young bark. In this respect it has a great advantage over many grafting compositions that have been used. They generally require to be applied hot, and on cooling form a pitchy crust, too hard for the free expansion of the tender bark.

It is now generally understood that all substances employed for covering wounds of trees are only useful by protecting the young tissue from the weather. The union of graft and stock must be the result of vital action on organisable matter; and in trees this action is chiefly carried on immediately below the inner bark, which forms a very delicate natural covering, itself being protected by the rustic outer bark. When a wound is made, as must be the case in grafting, some covering is necessary to protect the newly generated tissue formed at the junction of stock and scion; and that is the best which most resembles the soft pliable nature of the inner bark. This itself has even been tried, but its natural moist state could not be maintained. The grafting wax Lhomme-Lefort is perhaps as near an imitation of the natural covering of tissue as can be obtained.

We have already stated that it is immediately below the inner bark that organisation chiefly takes place; and as the grafting season is at hand, this important fact should be kept in mind, so as to take care in grafting that the *inner* bark of stock and scion are made to coincide with each other. The woods of these, and likewise their outer barks, may be nicely joined, but it is only at the junction of the respective inner barks that a vital union is formed: the forming tissues meeting mixing, and growing together whilst in a semi fluid state.

—— A CORRESPONDENT of the Phytologist states that there is at Buxton a man who trades in botanical rarities, supplying visitors with wild flowers. The consequence is what might be expected: the *rariores* become *rarissimæ*, and the latter in process of time disappear like snow on the mountains in summer time. This practice of the wholesale spoliation of the rarer plants of our Flora cannot be too strongly deprecated. The blame, however, attaches quite as much to those who buy or receive as to those who sell or give; perhaps even more so. It is stated, moreover, in the same publication, that at a well-known sale room in London the writer had himself purchased amongst a moderate-sized bundle of dried plants above a hundred examples of one species which is confined to the chalk of the south of England. What selfish greed must have had possession of the gatherer!

—— We must repeat our recommendation, that flower gardeners—amateurs especially, who may not in all cases be perfectly informed on the subject—should not be duped into buying the interminable collections of GERMAN FLOWER SEEDS, sent every year across the water, bearing glowing descriptions which are seldom realised. It is not enough for us merely to avoid, as a correspondent would (see pp. 150, 174), "the many repetitions of similar articles frequently offered under different names." That of course we would do, and we would advise every one interested in gardening to do so likewise. But we would also decline to receive as distinct and brilliant varieties the 183 sorts of Asters and 194 sorts of Stocks, which we are asked to buy of our continental cousins; and if we can further persuade the public to decline purchasing them (and considering the rubbish—we repeat the word—of which these endless collections mainly consist, we shall be perfectly justified in doing so), we may by-and-by get the seed-growers to provide something which may be better worth purchasing. We do not want, and the public does not want, to be compelled to pay for a dozen or two dozen "varieties" of Stocks and Asters, three-fourths at least of which will be destroyed as soon as their ugliness becomes

apparent, in order to get the three or four bright and cheerful looking sorts that are really wanted. We do not grant, as the Correspondent whose letter we printed last week at p. 174, seems to assume—we do not grant that six or seven varieties of Aster may be identified as distinct, and that we are to have a string of colours under each of these types, counting up to some four or five dozen in all. Even this number is moderate compared with that which the seed lists maintain; but we hold to our opinion and to our statement, that no ordinary garden requires so many as six or seven classes of Asters, even if they were tolerably distinct in character; and that beyond the best form of ligulate-flowered, the best form of quilled-flowered, and what is called the dwarf Chrysanthemum-flowered, which really has a well-marked difference of habit, the public generally has no requirement in the shape of Asters. So of Stocks: if the New Giant Pyramidal be immeasurably the finest of the annual series, as some maintain it is, the public does not want the remaining classes or breeds of annual Stock at all. This is the point on which we and our Correspondent differ *in toto*. The unwary amateur, who sees the long list of so-called distinct classes, each promising to supply him with so many bright and different colours, is tempted to buy and try them, and when flowering time comes he is disgusted to find that the differences in the groups themselves are in many cases next to imaginary, while the bright colours are many of them the veriest drabs. Now, we say that such an one would be thankful if some friendly hand would blot out from the seed lists and consign to the flames every vestige of all the inferior classes, and would not object moreover that all the dingy hues comprised in even the superior classes should share the same fate.

We are not singular in our views on this subject. A contemporary, following up our previous remarks, writes:—"It is a disgrace to the English seed trade that they have not struck a blow long since at the discreditable system the German seedsmen have of palming upon us pretended varieties, in which it is not easy to detect a difference, and many of which are utterly worthless. So long as the English seed trade passively submits to be gulled, so long will the foreign seedsmen provide them with these 'fat collections.'"

—— Contrivances for distributing water with facility must be regarded as belonging to the very essentials of gardening; and of these the watering-hose and watering-pot for soaking the roots of plants are not more important than the engine and the syringe for cleansing and refreshing their foliage. Whatever, in fact, tends to facilitate the application of this important element, facilitates the gardener's operations, and is to the extent of its adaptability to his purposes, a boon to him in carrying on his daily labours. One of these useful contrivances is the HYDROPULT of Mr. BUTTON, of which both a description and illustration have appeared in our advertising columns. Another is the American portable engine of Messrs. WARNER & SONS, also advertised, with an illustration. We find from experience of one of them in our possession, that these Hydropults work well, and as they are extremely simple and convenient, they deserve to be recommended as useful portable garden engines. They are in every way suitable for washing and syringing plants of all kinds, whether indoors or out; and as they are capable of throwing "seven or eight gallons of water per minute 50 feet when worked by the power of one man," it will be evident that they have more power, and may be used with less personal toil than the syringe; whilst they are not only less expensive than an ordinary garden engine, but have the further advantage of being less bulky, and available in many situations where an engine could not be readily introduced. All Londoners and other town residents, who care for their little gardens and greenhouses, should therefore avail themselves of such engines, and with them wage constant warfare against the army of blacks, which legion after legion come up to attack the plants which have survived the sapping and mining of the sewer contractors, and the evil influences of the other enemies of their well-being.

The machines are put forward as fire annihilators, and to the extent of their power would be available at the commencement of a conflagration.

PLANTS FOR WINTER AND EARLY SPRING DECORATION.

AT the Anniversary Meeting of the Royal Horticultural Society which was held a few days ago (see p. 150), a discussion took place regarding the dull and dreary appearance which the Garden presented during the months of winter and spring. It unfortunately happens that these winter and spring months—or rather, I ought to say, from Feb. to June—are those when the majority of the Fellows of the Society are in London, and when they visit their garden. It is of little consequence to them to know that during the late summer and autumn months the Garden is gay with flowers of every hue (and very gay it was last autumn), for by this time the majority of them have left London for places where Roses and Geraniums grow and bloom much better than they can ever be expected to do at South Kensington. Their wish to have something to look at during the London season is therefore not at all unreasonable.

In the open ground during winter the garden must necessarily present a somewhat barren aspect in so far as flowers are concerned. But there can be no difficulty in keeping the conservatory, or other greenhouses which may be erected, gay from Christmas, until a display can be made in the ground out of doors. Most persons acquainted with such subjects will readily agree on this point, and add that it is simply a question of expense.

The object I have in view is to point out a class of plants, many of them introduced to England by the Society itself, which bloom naturally during the early part of the year, and which, at very little cost, would afford a remedy for the want which is complained of. It is a curious fact that almost all the ornamental flowering plants of Northern China produce their blossoms either very early or very late in the year. During the summer months, when our gardens in England are gay with Geraniums, Petunias, Verbenas, &c., the fierce heat and dry air of Northern China are not favourable for the development of delicate floral organs. Nature therefore chooses the beautiful spring and autumn of those regions as her flowering time, while the summer is employed to ripen the fruit, and wood, and leaves. In this way a class of plants is offered to us to be used for garden decoration at a time when few other things are in bloom. Every one knows how easily Camellias, Azaleas, Primroses, and other greenhouse Chinese plants are induced to bloom in the early part of the season in this country.

In addition to these there have been introduced to England, within the last 20 years, a race of Chinese plants, perfectly hardy in our climate, and easily induced to put forth their blossoms as early as January and February. The latter are admirably suited to supply the want so much felt by the Fellows of the Royal Horticultural Society. What, for example, can be more beautiful than masses of the snow-white flowers of double Spiræa prunifolia? Then there are the double-blossomed Peaches, trees nearly as hardy as the common Almond, producing red and white and striped flowers as large as Roses; and in addition to these may be named Forsythia viridissima, Prunus triloba, Deutzias, and Jasminum nudiflorum. The graceful Dielytra spectabilis might also do good service, either on shelves, or in hanging baskets, and be as attractive as it is at the Crystal Palace at Sydenham. Many other things might be named which could be used with good results, such, for example, as the Acacias and other Australian plants which readily produce their flowers in winter and spring; but those above mentioned are specially recommended, as they could be procured in quantity and used in masses at a trifling expense. Of course Hyacinths and other well-known flowers, together with plants with ornamental fruit, could be added, but as these are used freely already, I need not direct attention to them further than to name the Chinese Skimmia japonica as a plant very ornamental in winter, owing to its being covered with bright red berries.

Jasminum nudiflorum produces its flowers in the open air during the depth of winter, and might be used freely on the terrace walls. A plant which will cover a wall with its pretty yellow blossoms during the months of January and February, and make it look like a bank of wild Primroses, is a valuable acquisition, and Jasminum nudiflorum will do this.

These early flowering plants which I have recommended for the decoration of the conservatories in winter and spring might add greatly to the ornament of the Garden out of doors during spring and early summer; and I think if Mr. Eyles would turn his attention to the varieties of the gorgeous Tree Pæonies he would show how ornamental they are, and add another feature to the attractions of the Garden in the month of May. *R. Fortune.*

ROSES.—No. I.

By Mr. WILLIAM PAUL, F.R.H.S, PAUL'S NURSERIES, WALTHAM CROSS.

SUMMER ROSES.—Can we dispense with Summer Roses? This is a question which we think admits of an emphatic "No." The autumnals are undoubtedly invaluable—among them the Hybrid Perpetuals furnish us with flowers of perfect form and exquisite colours, and yield a succession of bloom that prolongs the gay season of the garden to the very verge of winter; the Bourbon, Chinese, and Tea-scented flower still more abundantly in the later months of the year, and are consequently even more valuable in those gardens which are visited by their proprietors in the autumnal months only; but for gorgeousness of effect none of these equal the summer Roses. The flowers, which with the autumnals are spread over a lengthened period, are, with the former, concentrated on a point of time; and if they were counted, flower for flower, throughout the season, we doubt whether the balance would not remain in favour of summer Roses. It would appear then to be a matter of choice whether we receive the boon at once or by instalments; and certain it is that the garden is stripped of its gayest scenes and some of its brightest ornaments, if we altogether exclude the Roses of June. Such is my conviction, and following it I shall venture to enumerate the principal summer groups, describing a few of the most desirable varieties from each.

The BOURSAULT contains one variety, Amadis, which must not be lost sight of. It is one of the hardiest, thriving alike in shade and sunshine, and growing in the least favourable soils and situations. It is most valuable as a pillar and climbing Rose, producing myriads of crimson purple flowers on shoots utterly devoid of thorns. It requires very little pruning.

The SCOTCH Rose is valuable because it blooms so abundantly, and often a month earlier than other summer Roses. Planted singly it forms the prettiest dwarf bushes imaginable; it also makes an excellent low hedge. The flowers are small and globular, principally white, red, blush and purple—but there are intermediate shades—and very sweet; they resemble each other too closely to need describing. The plant will flourish on the shallowest of soils, and may be pruned closely every winter.

The DAMASK, formerly an important group, may now be brought down to three or four varieties. La Ville de Bruxelles is a full-sized Rose of free growth, with beautiful light green foliage; the flowers are salmon-rose margined with blush. Leda, or Painted Damask, is in its best form worthy of a place in every garden; the flowers are blush edged with lake, exceedingly pretty and distinct. Where care is not taken to preserve the marked form it is apt to degenerate and lose the lake margin, when, as a wholly white flower, it is comparatively worthless. Madame Hardy is still the best of white summer Roses, and cannot be too highly praised. For form, purity of colour, hardihood, and freedom of growth and flowering, it is still unrivalled. It makes a beautiful bed on a lawn, and as such, where quantity of flowers is required, should not be too closely pruned. Madame Soetmans is a creamy white, sometimes shaded with buff; a large full flower, of excellent properties, and in its best state quite a show Rose. All these require moderately close pruning, and will grow in any common garden soil.

The PROVENCE Rose includes the Cabbage, the Crested, and the White, none of which can yet be spared. The first and last are too well known to require description; the Crested is similar to the Cabbage, except that the sepals are beautifully fringed with moss. The globular form is in perfection here, and the fragrance of these Roses is proverbial. A subsection of this group, known as the MINIATURE PROVENCE or POMPON, is also highly interesting on account of its dwarf growth and tiny flowers. These delight most in a rich soil, and should be subjected to close pruning.

The MOSS ROSE will always rank high where grace and beauty are fairly appreciated. Baronne de Wassenaer is a vigorous growing sort, producing clusters of bright red flowers, of good size and globular form; it must not be pruned much. Captain Ingram is distinct and handsome, the flowers are dark velvety purple, almost black. Celina, now an old favourite, is not yet surpassed in its way; the growth is compact, the flowers are of the richest crimson shaded with purple, well mossed and produced in gorgeous abundance. This makes an excellent bed, and should be pruned closely. The Old or Common Red Moss remains a model of beauty; the hybridiser has varied this group exceedingly, but never yet produced any sort to surpass the original. Indeed the best varieties of true Moss Roses have been derived from sports rather than from seed. Clemence Beaugrand is a beautiful bright pink Rose with large double flowers; the growth is vigorous. Comtesse Murinais is a large double almost white Rose, not equal to the White Bath in form or purity, but it grows freely everywhere, which the latter does not. Gloire des Mousseuses is of first-rate excellence; the flowers are blush, very large, full, less globular than the original sort, but well mossed. Gracilis or Prolific resembles the old variety very closely, but is of dwarfer growth, and flowers more profusely; it forms a beautiful bed of about the same rate of growth as Celina. Marie de Blois produces rosy lilac flowers of good shape and size, and is above the average in merit. Nuits de Young bears velvety purple flowers, very dark and very double. Princess Alice, a variety raised from seed by me some 10 or 12 years since, is, I find, still quoted and commended in four out of five of the Rose catalogues that I have looked into; the flowers are blush with pink centres, something in the way of the Maiden's Blush; the buds are well mossed. Princess Royal, for form and colour, is one of the gems of this group; the flowers are salmon-flesh, not over large; the growth is hardly vigorous, but both growth and flowers are improved by close pruning. Purpurea rubra is a good free hardy sort with large full purple flowers. Reine Blanche is a large full pure white Rose of perfect outline, but rather flat; it grows as freely as Madame Hardy, and has some points of resemblance to that variety. White Bath, the best of the white Moss Roses where it thrives well, is unfortunately capricious, which detracts much from its value. Every garden should have a bed or beds of Moss Roses, either on their own roots or budded close to the ground. Manure highly, prune closely, and they will yield a rich harvest of the sweetest and most beautiful flowers.

(*To be continued*).

DIES ORCHIDIANÆ.—No. V.

(*Continued from* p. 125.)

A DRIVE of less than half an hour brought me from the nursery of Messrs. Low, at Clapton, to that of Mr. Williams, in the Seven Sisters Road, Holloway. The Orchids here were looking well, a circumstance that

need occasion no surprise when it is remembered that they were under the immediate protection of the author of "The Orchid Grower's Manual." Now that I have mentioned this unobtrusive little work I cannot avoid bearing my testimony to its rare excellence. Nothing could be more trustworthy, more impartial, or, up to the eve of its publication, more complete. Looking at his subject from a purely popular point of view, Mr. Williams selects from the almost endless list of species that are (or were) in our stoves some two or three hundred of the most beautiful kinds, gives full instructions for their cultivation, and altogether ignores the rest. This he was in a measure compelled to do, since to notice in detail a host of species some thousand strong, would have swelled his little volume to an unreasonable bulk; but it may still be a question whether, when a new edition is called for, it might not be desirable just to tabulate—as is done in Loudon's *Hortus Britannicus*—all the kinds that have ever found their way into European collections, distinguishing the varieties and appending the synonymes. All this might be accomplished in less than 20 additional pages, while the gain to the general—I mean the non-scientific—reader would be incalculable. Indeed, unless some such "help" as this be speedily provided, I dread to think of the confusion in nomenclature that must soon set in, now that the tide of Orchido-mania is again rising rapidly. It is vain to expect the appearance of another such comprehensive work as that (Loudon's) already referred to, for the labour and expense required for its production would be so great as to leave no chance of remuneration to the publisher, even if he were none other than Mr. Bohn himself! All therefore that can be done is to take advantage of works dedicated like that of Mr. Williams to a particular tribe, and introduce into them complete lists of all the plants in cultivation—be their attractions what they may—belonging to such tribe.

There is one marked difference observable between the establishment of the Messrs. Low and that of Mr. Williams; the former trust almost entirely to their extensive importations for the supply of their Orchid-market, while the latter mainly relies upon careful and skilful propagation. Either system has its attractions. You may go to Mr. Williams if you want a particular variety of a particular species, but must repair to Clapton if you have confidence in your own judgment, and wish to speculate in improved plants. But although not so extensive an importer as some others in the trade, Mr. Williams was fortunate in being the first to introduce the beauteous Phalænopsis Schilleriana into the gardens of this country, where it has already established itself as a popular favourite. And no wonder, for its exquisitely mottled foliage, even if its flowers were worthless, would now-a-days ensure it a place in every collection. Such indeed is the present *furore* for variegated plants, that a horticultural Jacques might be tempted to exclaim—

"Motley's the only wear."

And it is really curious to note how the maxim of the political economists, that "demand creates supply," applies as strictly to the domains of Flora as to the empire of Plutus. For no sooner had the prevailing epidemic shown itself than plants of all orders and degrees, including even Ferns and Orchids, began to make their appearance, with the sure passport to popularity that is to be found in blotched or brindled leaves!

The Anæctochili, that look as if they had been embroidered with gold and silver thread, are a living host in themselves—a host, by the way, constantly reinforced by fresh discoveries. A singular Maxillaria (?), with white spots upon its leaves, has been imported by Messrs. Whitley & Osborne, and latest of all comes Cypripedium Hookeræ (Bot. Mag. for February), the foliage of which is justly compared by Reichenbach to that of Phalænopsis Schilleriana itself! Of the last mentioned plant the best specimen that I had ever seen was growing in Mr. Williams's Orchid house, but fine as it was it would seem to fall far short of the ample dimensions occasionally attained, according to M. Lemaire, who devotes several pages of the last number of the "Illustration Horticole" to the history and description of this remarkable novelty. In the number of flowers, as well as in the size of the leaves, cultivators, it would seem, have still a point to gain; for while native specimens have borne a hundred flowers on a spike, twenty-nine is the largest number ever obtained in cultivation, and this only in the collection of Madame Pescatore. In England 27 is the highest figure reached, and no one but Mr. Day has achieved even so much as this. Nothing indeed at present appears to be settled as to the best mode of cultivating the whole genus Phalænopsis, though, paradoxical as it may sound, all the species are justly reckoned among the easiest of Orchids to grow, and the freest to flower! Mr. M'Morland suspends them near the light, Mr. Day keeps them in the dampest and darkest corners, while M. Lemaire quotes the authority of a traveller and eye witness (M. Porte), to the effect that P. Schilleriana is never met with in shady or moist situations, but that it affects the trunks rather than the branches of trees in forests where dryness prevails for a considerable portion of the year, and at an elevation of about 1000 feet above the sea level.

While speaking of what travellers have to say about these plants, I am reminded that Mr. Williams, in the last edition of his "Manual" reports the alleged discovery of a "scarlet (query orange red) Phalænopsis" somewhere in the Indian Archipelago, and I sincerely hope the report may speedily be corroborated by the introduction of the plant. Nor do I see any inherent improbability in the case, not more so at least than would have been felt if—prior to our acquaintance with Aër. curvifolium or miniatum—we had heard of the discovery of a "scarlet" Aerides.*

In Mr. Williams's collection I also noticed with great interest a noble specimen of that truly remarkable plant, Vanda gigantea. Its habit is most stately, and in this respect at all events it may be accounted the "successful rival of the matchless three," V. Lowii, V. Batemanni, and Angræcum eburneum to wit. Its flowers, too, according to the report of its discoverer (the late lamented Griffith) are worthy of its habit, being (so he said) the only one he had seen in India capable of vying with the South American Vandæ. In this expression he is taxed by Dr. Lindley with "exaggeration," the Professor meaning no doubt to assert the claims of other Indian Orchids to contest the prize of beauty with their transatlantic cousins, and with no purpose whatever of disparaging the charms of V. gigantea. But here Dr. Lindley is taken to task in his turn by M. Lemaire, who seems to regard the remarks I have noticed as a direct affront upon the redoubtable Vanda (of which he lately gave in the "Illustration" an excellent figure taken from specimens that had flowered finely in Belgium), and like a true knight he maintains the attractions of his favourite with considerable vivacity, and evidently thinks there can be no "exaggeration" in the case.

In corroboration of M. Lemaire's views I was glad to hear that the plant had lately flowered in great perfection, with I know not how many spikes, in some suburban collection. This was doubly satisfactory as proving the beauty of the plant, and as proving too that when well established it readily brought its spikes to perfection; many of these in the more recently imported individuals having damped off.

And here I cannot forbear to remark how the genus Vanda is beginning to dominate over its fellows. No other can boast of so many first-rate plants. The list of these now comprises V. suavis, V. Batemanni, V. insignis, V. cœrulea, V. Lowii, V. gigantea, V. Cathcarti, V. violacea, and V. teres, to which the Bishop of Winchester has lately added V. densiflora, Mr. Linden V. Gluberti (a beautiful thing), and Mr. Low V. Hookeriana. Flowers of the last are now before me; they rival in size those of V. teres (which has a somewhat similar habit), but are perfectly distinct. The lip is the largest in the genus. *Serapias.*

* What can the "scarlet air-plant" be that is noticed in last week's Number as having been met with near Lake Ngami? Was it an Orchid at all? We know that South Africa produces scarlet terrestrial Orchids—*e. g.* Disa grandiflora—but these are not "air plants," nor would they be found seated on the side of an inaccessible rock.

Home Correspondence.

Benthamia fragifera.—Your correspondent in Wales, who speaks of the size and general appearance of some Benthamias where he is, will be glad to learn that there are specimens of this plant far better than those which he mentions. Some few years ago, when I was living in Cornwall, there were a good many Benthamias growing in the grounds and plantations. Several of these were standing out in the shape of single specimens; of these some had clear stems several feet in height without a branch, looking just as if trimmed up, giving them the character and appearance of a tree. Many measured from 20 to 25 feet high, and one which grew in a sheltered place was over 30 feet in height, but it was drawn up, and not so handsome as those that stood in more open situations. I have seen these standard Benthamias literally covered with flowers, not only the side next the sun but all round. The colour of the blossoms generally is a dull creamy white, not very effective viewed from any position, but certainly seen to best advantage against green shrubs such as Hollies or Portugal Laurels. Almost all Cornish residences possess good specimens of Benthamia. About seven or eight years ago I collected in one season nearly 2 bushels of its fruit, which blackbirds and thrushes are very apt to destroy, even before it is ripe. It has a dull tawny aspect, which perhaps is owing to its ripening at the dullest season of the year, when the sun has little power. To the taste the fruit is very insipid. We never tried it as a preserve. *G. Dawson, Isle of Wight.*

Aucuba japonica Fruiting in Ireland.—I had always understood that the common spotted Aucuba was a plant which bore male and female blossoms on different trees, and that the reason it did not bear berries with us was because we had only male plants, as the female never had been imported, and in confirmation of this view I find that the recent importers of Chinese plants are advertising the "true female Aucuba," a plant of which I have already purchased. I mentioned this to my gardeners on the arrival of the true female, and thus their attention was called to the Aucuba. To my surprise yesterday one of the men took me to a large Aucuba growing in shade, and showed me a bunch of four scarlet berries, which he said were the second he had found, as he had pulled one bunch to show it to the head gardener. The berries are bright scarlet. I am sure that their appearance is unusual, as I am an observant person, and though always about amongst shrubs I never saw berries on an Aucuba before. *R. W. Hall Dare, Newtownbarry, Ireland, Feb.* 17.——A few days ago I noticed that red berries were forming on two plants of Aucuba japonica. One of the bushes which are fruiting is 7, and the other 8 feet high, and they are growing in a shrubbery here. Having never observed fruit on the Aucuba before, I apprehend that its occurrence now is an unusual circumstance, attributable, perhaps, to the excessive mildness of the present winter. *Sion Lodge, Waterford, Feb.* 20.

Lycopodium denticulatum.—Some of your Correspondents have asserted that this will succeed out of doors. In confirmation of that fact, I may mention that I have seen this Lycopod growing out of doors for seven or eight years, and covering some yards of ground; this was along the side of a walk amongst large trees and shrubs, upon a slope gently facing the south, and where the Grass was kept pretty short with the scythe. There this Lycopod seemed quite at home. In trying plants of doubtful hardihood out of doors, it is best to place them where the water at all seasons can pass freely away from them, and to cover them over in severe weather with some open material, such as leaves or a piece of an old mat. *G. Dawson.* [But was it not Lycopodium helveticum?]

Strawberries.—Allow me to ask whether it is in the power of any grower of the British Queen to assign a cause or suggest a remedy for the occasional utter failure of that valuable plant during some certain winter seasons. I have grown the British Queen with great care and general success for 12 years. I cultivate the land for its reception nearly 3 feet in depth, introducing a variety of new earths and rich manure, and I am generally rewarded with abundant and magnificent fruit. I never let the plant stand more than two seasons; I mulch the bed in the autumn, taking care to disturb the surface with the fork as little as possible—and now for the second time, only during two winters both remarkable for their extraordinary mildness, almost the whole of my strongly established second year's plants are dying. *Z.*

Timber Clearing.—In your impression of Jan. 31 (see p. 102) you invite correspondents to furnish information concerning the removing of large stumps of trees. In looking over an American paper the other day the following novel plan came under my notice, which may be interesting. The writer says that he removed a large stump from his house in the following manner:—"In the fall with an inch augur he bored a hole in the centre of the stump, 10 inches deep, and into it put half a pound of oil of vitriol, and corked the hole up tight. In the spring the whole stump and root, extending through all their ramifications, were so rotten that they were easily eradicated." This seems to be a cheap and easy way of removing stumps. *Andrew Pettigrew, Gardener to Charles Meeking, Esq., Richings Park, Colnbrook, Bucks.*

Winter-blooming Orchids.—One of your Correspondents lately wished to know the names of Orchids blooming in the winter months. I have the following species now in flower:—viz. Phalænopsis amabilis, grandiflora, rosea, Schilleriana with 76 flowers expanded, and a new unnamed species; Dendrobium nobile, Pierardi, and Paxtoni; Ansellia africana; Cymbidium eburneum; Cypripedium villosum, hirsutissimum, and barbatum; Cœlogyne cristata, fuccida, and media; Saccolabium violaceum; Odontoglossum pulchellum; Oncidium Cavendishi, and bicallosum; Vanda insignis, tricolor, and suavis; Lælia superbiens, with 14 flowers on a spike, and anceps; Cattleya Warscewiczii delicata; Zygopetalum Mackayi; Lycaste Skinneri, numerous varieties; besides several others. *Robert Warner, Broomfield.*

Fruit Catalogue.—When shall we get the Horticultural Society's Catalogue of Fruits? Commenced last September in the 'Proceedings,' and continued in driblets, which will make it very unhandy to use, it has now reached about the middle of letter E in the list of Apples! We shall, some of us, be grey-headed by the time we learn all about Pears or Strawberries from this source, if it continues to drag along at the same rate. Surely, so useful and important a thing as this list should be, is worth getting out with a little more alacrity; and as one of the most useful kinds of information the Society is able to supply to its Fellows, the latter have some claim to be considered in its issue. I perceive nothing is said about it in the annual report recently printed in your columns, so that I suppose it has not been thought so important a subject at head quarters as the "polychrome" beds at Kensington. *Phi.*

Dipsads.—Is the Teazel referred to by Thomson in 'Sophonisba,' where he writes of the Prince of Numidia being driven from his throne, to "thirst with Dipsads in the burning sand?" The leaves of the Teazel are, as is well known, united by their bases around the stem to form a hollow in which water collects; and the plant is hence sometimes called Venus's Bath. Or does the poet merely use the word as a version of the name *dipsakos*, or thirsty, which suited his story? Some of your learned readers may be able to say. *X. X.*

Lean-to Orchard Houses.—I have lately had so many friends apply to me on the feasibility of building lean-to orchard houses against boundary walls which could not be perforated, so as to give ventilation in the

back wall at the same height as at front, that I am induced, at the risk of recapitulation (for it is an oft-repeated theme), to beg for a small space in your columns to say that a lean-to house for the culture of orchard house trees in pots, or planted in the borders either as dwarf bushes or pyramids, must, to give the least chance of success, have a continuous shutter 1 foot wide in front, the lower part of the opening not more than 20 inches or 2 feet from the surface of the soil, and in the back wall openings 3 feet long and 1 foot, or still better, 18 inches wide and 3 feet apart, at exactly the same level as the opening in front, thus admitting two currents of air, which in calm, hot weather will meet in the centre of the house, if it be not more than 12 or 14 feet wide—the usual width. Ventilation in the front and at the top of the roof, however abundant, is of no avail, for it seems, as far as I have observed, that Peach and Nectarine trees more particularly must have fresh air admitted to the under surface of their leaves, where, to use a common but expressive phrase, the lungs, or to employ the proper term, stomata, are placed in such abundance that, to quote Mr. Darwin, "in some leaves there are, on a square inch, 60,000 on the lower surface to 3000 on the upper." To my taking advantage of this peculiarity in the structure of leaves, I owe my invariable success in cultivating Peach and Nectarine trees under glass, for all my houses have low ventilation, the span-roofed houses a continuous shutter, either glazed or of wood, on each side, and the lean-to houses ventilators front and back as above described, with no roof ventilation, but merely an aperture at each end under the gablel to allow the heated air to escape. Peaches and Nectarines may however be cultivated with success in lean-to houses against boundary walls, (but not as bushes or pyramids) if such houses are freely ventilated in front and equally so at the top of the sloping roof by a glazed shutter on hinges. The trees may be trained to trellises under the glass without the least fear of failure, for the cool air entering at the front, as it becomes rarified will ascend and make its way upwards, thus aërating the under surface of the leaves and giving health to the trees, which unless they receive fresh air after this manner become blighted, infested with red spider, and useless. To the lack of this very simple method of ventilation, at a low level, I impute many failures in orchard-house culture; builders either do not know or do not care for the wants of trees, so that they are allowed to build a most substantial house, and many gardeners from want of experience try to cultivate trees in houses that are certain to bring on disease and infertility. If trees in houses had the gift of speech, what a crowd of words would be heard every fine morning in spring and summer about 8 o'clock, and "give us air" from every tree would fill the house. My Apricot trees are now coming into full bloom, and while this mild weather lasts they will have air night and day, and if the same kind of weather is with us while the Peaches and Nectarines are in bloom, they will have the same treatment, the houses being closed only when frost is severe. In an orchard house a temperature of 26° is less injurious than close stagnant air while fruit trees are blossoming. *T. R.*

Small Birds.—In the agricultural portion of your Paper of Saturday last, the question is asked whether sparrows do or do not feed upon insects. During a portion of the year they most certainly do; in the first place their young, like those of all the Fringillidæ, are principally fed with caterpillars, and the parent birds destroy immense numbers of the larvæ of the Winter Moth (Cheimatobia brumata), which are so destructive to Roses, &c. Sparrows are also exceedingly fond of the common cockchafer (Melolontha vulgaris), and are very useful in checking the increase of this species, the larvæ of which sometimes do much damage in meadows by eating the roots of the Grass. In winter sparrows often seriously injure Plum and Currant trees by feeding upon the buds, and they will sometimes eat those of the Gooseberry, but the bullfinch is more partial to the buds of this tree than the sparrow. *Henry Doubleday, Epping, Feb.* 24.

Figs.—In your Paper of the 13th of April, 1844, appeared a most excellent article on Fig culture by Mr. Markham, but from what he says of the Nerii, it is evident that he cultivated, under that name, the White Marseilles. It always appeared to me singular how he could have fallen into such a mistake; but from an observation made by Messrs. Lee, of Hammersmith, in their catalogue, it seems that the mistake is by no means uncommon. The Nerii is no doubt the White Ischia. *G. S.*

Pears.—I can fully endorse the favourable opinion which one of your Correspondents, a few weeks ago, gave of the Bergamotte d'Esperen. This year it was most excellent, ripening during January and February, and any Pear which can be eaten after Winter Nelis, and yet be thought good, must, indeed, have merit. In other years it has not been so satisfactory. *G. S.*

Societies.

ROYAL HORTICULTURAL: *Feb.* 20 (*Election of Fellows*).—S. H. Godson, Esq., in the chair. The following candidates were elected, viz:—

A. Bayley, Esq.; A. D. Berrington, Esq.; Mr. W. T. Catleugh, Mrs. Edwards, W. Emmens, Esq.; A. Faulkner, Esq.; W. H. Gatliffe, Esq.; Major-General Hon. Chas. Grey, Mrs. T. Harrison, Mrs. Innes, Miss Anna A. Johnston, F. H. Gore Langton, Esq.; Mrs. Lewis, Miss Lewis, G. Maw, Esq., F.L.S.; Mrs. Ross, Miss Saumarez, C. Seely, Esq., M.P.; J. W. Shackel, Esq.: Dr. Spence, W. Whyte, Esq.; Major-General Wortham, as Ordinary Fellows; and as Corresponding Members: S. Shelman Cooper, Esq., Queensland, New South Wales; Dr. Hurlbert, Hamilton, Upper Canada; J. G. Knight, Esq., Victoria, Australia; and the Hon. Mr. Justice Wilmot, Fredericton, New Brunswick.

Feb. 25 (*First Spring Show*).—This was held in the South-east Arcade, which joins the Great International Exhibition building on the one side, and is glazed on the other. The display of Spring-flowering Bulbs was most satisfactory, and miscellaneous and other plants were produced in sufficient abundance to make up a highly interesting exhibition.

Of Hyacinths many excellent collections were contributed. In the Nurserymen's class of large groups fine plants came from Mr. Wm. Paul, who showed among *Reds*, robust well-flowered examples of Queen of Hyacinths, Milton, Von Schiller, Lady Sale, Macau'ay, Pelissier, Victoria Alexandrina, Madame Hodgson, Howard, and Lina. Of *Blues*, the collection contained Charles Dickens, Laurens Koster, an old but still excellent variety; William I., Pieneman, a sort with unusually large bells; Von Humboldt, Baron von Tuyll, Couronne de Celle, Prince of Saxe Weimar, Leonidas, Bleu Mourant, Grand Lilas, and last but not least Argus, a deep blue with a white eye. Of *Plum* or *Mauve*-coloured kinds the best was Haydn. *Blacks*, or nearly so, were represented by La Nuit. Among *White* varieties the most conspicuous were Madame Van der Hoop, Mont Blanc, Prince of Waterloo, Alba maxima, La Tour d'Auvergne, Mirandoline, and Queen of the Netherlands. *Blush* or *Delicate Pinks* consisted of Gigantea, Tubiflora, a large-flowered kind; and Lord Wellington. *Buffs* were confined to Koning Van Holland. From Messrs. Cutbush, who furnished another collection, came among *Blues* Sir Colin Campbell, Van Speyk, Orondates, Grand Lilas, Charles Dickens, Baron Von Tuyll, Mimosa, Regulus, Garrick, and charming plants of Argus. Among *Reds* the most conspicuous were Macaulay, of which a very fine specimen was shown; Von Schiller, Mrs. Beecher Stowe, Solfaterre, Queen of Hyacinths, Susannah Maria, Howard, Madame Hodgson, a sort prettily striped with white, as were also Queen Victoria, Le Prophète, Buccaneer, Duchess of Richmond and Princess Charlotte. Of *Buffs striped with white* the best was Duc de Malakoff, a truly beautiful sort, and shown in good condition. Among *Whites* the best were Orondates, Mont Blanc, Miss Burdett Coutts, and Grandeur à Merveille. *Blushes* were confined to Duke of Wellington.

Collections of 12 Hyacinths came from Messrs. Cutbush and Mr. Wm. Paul. In addition to the sorts just named, these groups contained examples of General Havelock, blue; Snowball, white; Princess Clothilde, dark red; and Ida, the last one of the best of yellows.

The winners of the prizes offered by Messrs. Cutbush to amateurs for the best 12 varieties of Hyacinths were Mr. Carr, Highgate, and Mr. Taylor, East Barnet. Among sorts shown by these growers were La Dame du Lac, Alba Maxima, Grand Lilas, Charles Dickens, Madame Hodgson, Von Schiller, Baron Von Tuyll, Grandeur à Merveille, Mont Blanc, Princess Clothilde, Howard, Garrick, Macaulay, Couronne de Celle, and Van Speyk. Mr. Young of Highgate, who was likewise one of the competitors for this prize, sent a well grown collection, in which were also one or two extremely well flowered kinds.

Groups of Tulips were numerous, and made a good display. They were furnished by Messrs. Cutbush, Mr. Wm. Paul, Mr. Carr, Mr. Blogg and Mr. Young. Among the kinds the most effective were Vermilion Brilliant, red-striped and white Pottebakker, Royal Standard, Belle Alliance; Duc de Holstein, Tournesol, and Bruid Van Haarlem.

Of Chinese Primulas several extremely well-grown collections were shown, consisting chiefly of single white and pink sorts. These came from Messrs. Taylor, Todman, Cutbush, and Blogg. A group of double-blossomed sorts was also shown by Messrs. Cutbush.

Of Crocuses there were some interesting collections, especially one from Messrs. Cutbush, who, having covered their pots with Moss so as to quite conceal them from view, had their flowers thus growing as it were out of a green bank, a mode of exhibiting Crocuses which, in addition to being natural in appearance, sets off the beauty of the flowers to much advantage. Owing to the want of sunshine, however, on this occasion, the blossoms did not expand well. Mr. Wm. Paul also had a good group, which was shown in pots in the usual way. Among sorts the most striking were Marie d'Ecosse, white; and Albion, a prettily striped lilac kind.

Lily of the Valley was furnished in good condition in pots by Messrs. Veitch; and Mr. Salter also had good examples of the same useful spring flower, but not so finely in blossom.

Cyclamens came from Messrs. Smith, of Dulwich. The sorts consisted of red and white varieties of Persicum.

A box of beautiful Camellia blooms was furnished by Mr. Wm. Paul, and three Roses in pots, well flowered for the season, came from Mr. Todman, of Clapham.

A striking assortment of forced plants was contributed by Messrs. Veitch, who had two famous panfulls of Hyacinths—one consisting of Charles Dickens, the other Grand Vainqueur also various hardy Ghent and Chinese Azaleas, a Rhododendron or two, Andromeda floribunda, the white variety of Ribes sanguineum, Double-flowering crimson Chinese Peach, charming masses of Dielytra spectabilis, Wistaria sinsenis, in the form of a standard, well furnished with blossom; Amaryllises of different sorts, beautiful masses of Lily of the Valley, Persian Lilacs, and Orange trees in flower. Messrs. Cutbush likewise showed forced plants, among which were Dielytras, Rhododendrons, Epacrises, Tulips, Polygonatum multiflorum, bearing numerous drooping spikes of greenish white flowers, Persian Lilacs, Narcissi, broad leaved Kalmias, and Azaleas.

Of Miscellaneous Stove and Greenhouse Plants, Messrs. Veitch contributed a handsome group, in which were Eriostemons, Chorozemas, Tradescantia (?) odoratissima in flower, Imatophyllum miniatum, bearing handsome heads of orange blossoms, a magnificent plant of Cypripedium villosum, Chinese Azaleas, Boronias, and the brilliant orange-flowered Rhododendron javanicum, the last, though small, highly ornamental and effective.

Messrs. Smith, of Dulwich, furnished Platycerium grande, Croton variegata, the prettily variegated Cyperus alternifolius, Sphærostema marmorata, Cyanophyllum speciosum, pretty examples of Eriocnema marmorata and of a variegated Hemerocallis under bell glasses, and the useful pink-blossomed Monochætum sericeum multiflorum, Gesnera cinnabarina, Camellias, and Heaths.

From Mr. Bull also came a collection, in which were Hippomane longifolia, the noble looking Fern Cibotium princeps, Dracænas, Palms, the handsome Anthurium acaule and A. leuconervium, a glaucous variety of Araucaria Cunninghami, handsome plants of Cordylines, variegated Yuccas, and other plants of that description.

Examples of artificial flowers made of rice paper were shown by Mrs. Stodart. They were tastefully set up in handsome vases, and, being extremely natural in appearance, had a fine effect. Among them were Camellias in the shape of plants twined with flowers, Convolvuluses, Roses, and Snowdrops; and the stems of the vases were encircled with a neat sprig of Fern or Lycopod. Whether all the flowers were made of Rice paper or not we had not time to ascertain; but altogether it was an interesting exhibition.

The subjects belonging to the department of the Floral Committee were not very numerous, but there were some of considerable interest. The very handsomely variegated Bornean Cypripedium Dayanum was sent by J. Day, Esq., of Tottenham; a fine yellow-striped Yucca from Mexico, called lineata lutea, and a lovely glittering fronded Trichomanes, called anceps, were both contributed by Mr. Bull; a large bright-looking form of Barkeria spectabilis, called superba, and a brilliant white-edged salmon Azalea, named President Claeys, came from Messrs. Veitch & Son. These all received First-class Certificates. Messrs. Veitch also sent a pretty white Epacris, called densa, which was said to come from Western Australia, and a variegated Hibiscus from New Caledonia, which was commended. A clear white Limatodes from Moulmein, sent by Messrs. Low & Co.; and a narrow-leaved Anæctochilus argyræus, from Brazil, exhibited by Mr. Bull, both received Second-class Certificates. A finely bloomed plant of the hybrid Rhododendron, Countess of Haddington, which had already received a first-class award, came from Mr. Parker, of Tooting; and an interesting variegation of Araucaria imbricata was sent by Mr. Fowler, gardener to the Earl of Stair. These, with a collection of 12 varieties of Lycaste Skinneri from Messrs. Veitch; a collection of 72 varieties of Holly from Mr. W. Paul, accompanying a paper on Hollies read before the Committee; and a few seedling Cinerarias, made up the display of novelties. Both the collections just mentioned deservedly received the award of a special certificate.

Among Miscellaneous subjects was a box containing cut specimens of Bougainvillæa speciosa, which, for size of floral leaf, and brilliancy of colour were magnificent. They were sent by Mr. Wainwright from his garden in Northamptonshire, where the plant which produced them is stated to be at present blooming in great perfection. Messrs. Smith had a nice collection of Cinerarias; Mr. Parker, of Tooting, the pale-flowered Rhododendron, just mentioned; and last, but not least, a cut specimen of Helleborus olympicus was shown by Mr. Harington, Acton Green. Of all the Christmas Roses this is the handsomest; it is as hardy as a Crocus, and the flowers, which are large, are white beautifully flushed with pink. Though seeds of this Helleborus were presented by Dr. Lindley to the Royal Horticultural Society a good many years ago for distribution amongst the Fellows, it is a plant not cultivated half so extensively as it deserves to be. In the garden from which the specimens shown were cut, it renders a piece of rockwork at the present time quite gay with its showy blossoms.

Of Fruit there was little. Good specimens of Barbarossa Grapes came from Mr. Park, gr. to G. H. Vernon, Esq., of Retford; and J. Crawshay, Esq., of Cyfarthfa Castle, S. Wales, sent the same variety, and a few over ripe bunches of White Tokay. Mr. Thomson showed a bunch of newly ripened Black Hamburgh, but it was not in good condition, having been bruised and otherwise injured in travelling. From Mr. Pottle, gr. to B. D. Colvin, Esq., came a good Prickly Cayenne Pine Apple, and there were a few dishes of Apples and Pears from C. W. Strickland, Esq., Messrs. Wood &

Ingram, and others. S. Rickards, Esq., sent a dish of very fine Lemons. From Messrs. Ivery, of Dorking, came good specimens of a new Cucumber called Winter Champion. It was stated to be a hybrid between Syon House Improved and Stone's Improved Black Spine.

LINNEAN: *Feb.* 5.—George Bentham, Esq., President, in the chair. Robert Braithwaite, Esq., M.R.C.S., and J. Brooking Rowe, Esq., were elected Fellows. The following communications were read:—1. "On the existence of two forms, and on their reciprocal sexual relation, in several species of Linum," by Charles Darwin, Esq., M.A.—2. "A letter from Col. Yorke to Dr. Hooker, on the spiculæ contained in the wood of the Welwitschia, and the crystals pertaining to them." Communicated by Dr. Hooker.—3. "Catalogue of the Dipterous Insects collected by Mr. Wallace in Waigiou, Mysol, and North Ceram, with descriptions of new species," by Francis Walker, Esq.

Feb. 19.—G. Bentham, Esq., President, in the chair. The Rev. S. Owen Glenie, M.A., and C. Moore, Esq., Director of the Sydney Botanic Garden, were elected Fellows. The following paper was read:—"On the Structure and Nature of the Dracunculus or Guinea Worm," by A. Charlton Bastron, Esq., M.A.; communicated by G. Busk, Esq.

Notices of Books.

The Land and Freshwater Mollusks indigenous to or naturalised in the British Isles. By Lovell Reeve, F.L.S. 8vo. pp. xxv. and 275, with a Map, Portrait, and numerous Woodcuts.

This volume, following so quickly in the wake of Mr. Jeffreys' account of British Land and Freshwater Shells, was projected several years since, and has some features about it which are calculated to make the student thankful for its appearance, though at a slight additional cost. The geographical distribution of the species is one especial point which the author had in view, to the illustration of which an excellent map is devoted; there are numerous beautiful and accurate figures of the animal in some species of each genus as well as of the shells; and there is an excellent portrait of Draparnaud, the father of modern European conchology, so far as relates to the land and freshwater species. The volume closes with a tabular view of the distribution of all the species, to which is appended a treatise in four sections on the distribution and origin of species in general.

A few species, such as Helix pomatia and Dreissena polymorpha, of exotic origin, though now completely naturalised and widely distributed—the latter, like the new Water Weed, occurring in almost every stream—are included in the volume; but such species as Bulimus Goodallii, which inhabits in the greatest abundance the Pine stoves at Chester, are excluded, as species which can only live in an artificial temperature.

As regards the animal of Pisidium, it may be remarked that it is not correct to describe the siphons as united into one tube. The fact is that one of the siphons is entirely disunited from the other, but so short as frequently to escape notice, a point which has not been sufficiently attended to by many authors. We doubt, too, whether Lymnæa and its allies really breathe water as well as air. The greater part of them certainly come up to the surface to breathe, and supposing Ancylus to be more generally submerged, which is not, however, the case, it is very possible that a little air bubble is formed at the pulmonary orifice through which there is an interchange of gases after the fashion of those insects which carry down a bubble of air with them into the water, by means of which respiration is kept up, the air being constantly renewed from that which is mixed up with the water.

As regards the figures it is sufficient to say that the greater part of them are from the pencil of Mr. G. B. Sowerby, while the descriptions will be found in every respect satisfactory. "The inland molluscan fauna of the British Isles," Mr. Reeve observes, "is very limited in kind compared with that of America within the same isothermal latitude as Britain. The warmer temperate districts of Europe, marked by the Olive and even the Vine, show a material increase in the development of molluscan life; while in the intertropical region of the Palms, embracing all that is most productive in the conditions of light, heat, and vegetation, its abundance is prodigious. Upwards of 7000 land and freshwater shells have been described from all parts of the world, of which scarcely more than 120 are British. To the casual observer a few slugs and snails in the garden or on the chalk downs, a few water snails and little horny bivalves in our ponds and ditches, and a pearl mussel or two in our running streams, are all that present themselves to his attention. The remainder are minute forms, living more or less concealed in Moss or among the decaying roots of shrubs and bushes, only to be procured with diligent search at the proper times and seasons. Our molluscan Fauna, too, is simply European in its character; it possesses no local typical speciality like the Fauna of Madeira or the Sandwich Isles. Our groves do not glow beneath the same tropical sun as the woods and forests of the Philippine Isles, of Bolivia, or of Venezuela; and our running streams are small indeed, compared with the mighty rivers of America."

The above is a faithful statement of what the young naturalist may expect to reward his searches in this branch of our Fauna. But comparatively small as the number of species is, he will find much to admire in form and structure, especially if he extends his views to a study of the animals, without which he must be considered rather as a collector than a naturalist. Even amongst the few score of species which may exist in his neighbourhood, he will find many an attractive subject for examination, and there are few localities in which he may not hope to have his diligence rewarded by some new or interesting observations of habit or economy. As regards our own experience there are few hours to which we can look back with greater pleasure than those which were engaged in the study of these humble animals.

In respect of geographical distribution, again, it is curious how very small a number of our shells are identical with those of North America. Amongst the humbler plants, though the United States possess many species which have not hitherto rewarded the researches of European botanists, there is still a vast mass of species which are altogether identical with our own; but amongst the land and freshwater mollusks, 10 British species only are found in the United States, and of these six have been introduced in various ways, like many of our common weeds. The four remaining species are Pisidium obtusatum, Paludina vivipara, Helix pulchella, and Zua subcylindrica, two of which are land, and two freshwater species. These two land shells moreover are amongst those which have the widest range, both extending throughout Europe, and in Asia from Northern Siberia to Thibet.

We must, however, give an extract of a different nature, and we have chosen one of general interest. It is well known that though snails are despised in this country as articles of food, some species, but more especially the large Apple snail, which is naturalised in several parts of England, are considered a great delicacy. It is, however, to the utility of snails in pulmonary complaints that we would more especially direct attention.

"Of its efficacy," says our author, in "cases of consumption I am able to testify on personal knowledge. Mr. Barlow, of the firm of John Dickinson & Co., paper makers, informs me that he has a brother who was in the last stage of consumption, when their father resolved to try the experiment of a diet of Apple snails. Specimens had been transported from Italy some 30 years before by an English nobleman, for the same purpose, to the range of hills in the neighbourhood of Reigate and Boxhill, in Surrey; and as they had bred abundantly, Mr. Barlow was induced to take a house in that locality. The expressed mucilaginous juice of the snail was administered to the patient without his knowledge in every conceivable form. It was taken in jellies and conserves, in gravies and with *entremets* of meats. In the course of a twelvemonth the invalid was entirely cured, went to the Crimea, and is living at this moment a strong hearty man."

The Apple snail, it may be observed, is a misnomer—however, generally adopted, the epithet pomatia referring not to the Apple-like form of the shell but to the peculiar calcareous operculum with which the aperture of the shell is closed up in winter.

It would be easy to extract many interesting passages respecting other species from this SNAIL BOOK, but we have already exceeded our usual limits, and must refer our readers to the volume itself, the acquisition of which will assuredly be no subject of regret.

Musci Italici. Auct. J. De Notaris. Fascicolo I., con 35 Tavole. Geneva, 8vo. pp. 69, 1862.

Whatever comes from the pen of De Notaris, whose name is well known to every Cryptogamic Botanist, is sure to be worth attention, while his figures, if not artistic, are remarkable for the accuracy of the details. The present number is the first instalment of a work on Italian Mosses, commencing with the genus Tortula, taken in a wide sense, of which 35 species or varieties are carefully figured with copious details. The leaves of several species are remarkable for the curious plates with which the nerve is covered; but the great point of interest in the genus is the curious formation of the teeth of the peristome, which well deserve an accurate study. Few microscopic objects for example are more elegant than the peristome of Tortula ruralis, a species to be found continually in fruit, and common on the roof of almost every cottage. The abrupt transition from the cellular sheath to the twisted threads, and the manner in which these curiously constructed bodies are formed from the upper cells, are far more worth notice than many of the points over which microscopists are wont to pore hour after hour.

Though considerable difference occurs in the details both of the leaves and peristome, the genus is on the whole so natural that it is impossible to divide it satisfactorily into several genera, even were it advisable. De Notaris is wisely content merely to propose four divisions — Aloidella, Cuneifoliæ, Syntrichia, and Barbula. Indeed some other Mosses which are at present separated might without violence be included in the same category, especially where the teeth are twisted, a condition which is we believe almost universally accompanied by a similar arrangement of the cells of which the veil is composed.

As the species are often difficult of distinction, and a large number of the Italian sorts (18 out of 33) are identical with those found in the British isles, the treatise will be welcome to British Bryologists, and we trust that though each part is complete in itself, the worthy author will be spared to finish a task commenced so auspiciously.

The Sailing Boat: a Treatise on English and Foreign Boats, descriptive of the various forms of Boats and Sails of every Nation, with practical directions for Sailing Management, &c. By H. C. Folkard, Esq. Third Edition. Longmans, 8vo, pp. 317.

Nearly 200 various kinds of boats, English and foreign, are described in this little book; and almost every kind of boat is represented by a woodcut or steel engraving. The work is thus made unusually attractive, and every person interested in boats will be well repaid the cost of procuring it by the curious and abundant information it contains.

The February number of the *Botanical Magazine* contains portraits and descriptions of the following plants:—*Cereus pterogonus*, a rare species from Carthagena, which first blossomed in August of last year. It is a straggling growing plant, with the thick fleshy spiny branches four or sometimes five-angled, and bearing large white flowers, 5 to 6 inches long in the tube, and as much across when fully blown. *Phædranassa obtusa*, a pretty Quitinian bulb of the Amaryllidaceous family, with an umbel of drooping red and green cylindraceous flowers, re-introduced by Isaac Anderson Henry, Esq, of Edinburgh, and well deserving of cultivation as a winter-flowering greenhouse bulb. *Cypripedium Hookeræ*, a beautiful species, related to C. venustum and barbatum, imported from Borneo by Messrs. Low & Co., and described by Professor Reichenbach as having "the flowers of C. hirsutissimum, and the leaves of Phalænopsis Schilleriana, or nearly so." It is, in fact, a very ornamental plant, with the leaves boldly tessellated with dark green and gray, and the broad hairy petals purple towards the ends, and spotted with purple on green towards the base, the lip being brownish, and the dorsal sepal yellowish green. It has been flowered by W. Marshall, Esq., of Enfield. *Plumbago rosea, var. coccinea*, a more vigorous-habited form of P. rosea, with larger leaves, and secundly arranged bright red flowers, very showy, and bright coloured, but, as seen by us at least, hardly of the scarlet tint Mr. Fitch has given them, or of the 'bright brick-red' Sir W. Hooker mentions. It is an acquisition to its class, that of subshrubby stove plants. *Cinchona officinalis*, the plant which has supplied "a large proportion of the renowned Loxa bark of commerce." It is a very interesting and not unornamental stove shrub, having ovate acute leaves, and pale pinkish-red flowers with a straight tube and a star-shaped spreading downy limb. It has been variously called C. Condaminea, C. Uritusinga, C. academica, and C. lancifolia, but Dr. Hooker here gives reasons for retaining Linnæus's original name of C. officinalis, the first change of which, "because many species are truly officinal, and may be substituted the one for the other," being, he maintains, made on insufficient grounds. The plant has been raised and recently flowered by Mr. Howard, the author of the magnificent work on the Medicinal Barks, which has been already noticed by us.

The subjects in the *Florist and Pomologist*, are a set of five of the most remarkable of the many fine varieties of Pelargoniums introduced to notice last year, and an admirable portrait, by Mrs. Dix, of the Grosse Calebasse Pear. Mr. Keynes makes the suggestions respecting the exhibition of Dahlias to which we have already referred; and Mr. Melville recommends the Alicante Grape—which he describes as "an old variety, but recently called the Kempsey Alicante,"—as one of the finest-looking Grapes we have. "The Alicante for a black," he says, "and the Cannon Hall for a light Grape—I consider these two the most noble-looking Grapes yet extant." Both varieties however, he continues, have an inherent drawback, both being bad setters, and on that account they are not generally grown. The whole secret or cause of this he explains to be this: that the summit of the pistil of every flower is invariably covered with a sort of nectar or honeydew, which keeps off the pollen; and his remedy is, gently, with a very soft camel's-hair brush, or carefully with both hands, to strip down the individual bunches when they are coming into bloom till the dewdrops are all taken off: then the pollen gets admission. This is done between 9 and 10 o'clock in the morning, and again about 3 in the afternoon, daily, for several days till they are all set.

Miscellaneous.

The Defensive Arms of Plants.—The thorns and spines with which many European plants are armed, give but a faint idea of the size which these defensive weapons attain in the tropical zone. The Cactuses, the Acacias, and many of the Palm trees, bristle with sharp-pointed shafts, affording ample protection against the attacks of hungry animals, and might appropriately be called vegetable hedge-hogs, or porcupines. The Toddalia aculeata, a climbing plant, very common in the hill-jungles of Ceylon, is thickly studded with knobs, about half an inch high, and from the extremity of each a thorn

protrudes, as large and sharp as the bill of a sparrow-hawk. The black twigs of the Buffalo-thorn (Acacia latronum) a low shrub abounding in northern Ceylon, are beset at every joint by a pair of thorns set opposlte each other, like the horns of an ox, as sharp as a needle, from 2 to 3 inches in length, and thicker at the base than the stem they grow on; and the Acacia tomentosa, another member of the same numerous genus, has thorns so large as to be called the jungle-nail by Europeans, and the elephant-thorn by the natives. In some of these thorny plants, the spines grow, not singly, but in branching clusters, each point presenting a spike as sharp as a lancet; and where these shrubs abound, they render the forest absolutely impassable, even to animals of the greatest size and strength. The formidable thorny plants of the torrid zone, which are often made use of by man to protect his fields and plantations against wild beasts and robbers, have sometimes even been made to serve as a bulwark against hostile invasions. Thus Sir Emerson Tennent informs us, that during the existence of the Kandyan kingdom, before its conquest by the British, the frontier forests were so thickened and defended by dense plantations of thorny plants, as to form a natural fortification impregnable to the feeble tribes on the other side; and at each pass which led to the level country, moveable gates formed of the same thorny beams, were suspended as an ample security against the incursions of the naked and timid lowlanders. *Hartwig; the Tropical World.*

British Columbia and its Mosquitoes.—The last day and a half the mosquitos had become intolerable, worse indeed than I had ever known them to be, even in British Columbia. Fortunately I had a small mosquito net, which the Doctor had wisely insisted upon bringing or I do not know what I should have done. Whenever I halted I hung this on two sticks, and getting inside tucked it about me. When tea was ready, it was handed in to me under the net, watch being kept that none of the enemy entered with it. The poor Indians suffered terribly, though they coated themselves with a mixture of oil and mud. At starting they had warned us that the mosquitos would kill us all when we got to the Lilloett; and they certainly did their best to effect that purpose. Before we left the ship we had head-bags made of crape, and these were the only things that kept us from being devoured while we were walking. These were long veils which were fastened round the top of our straw hats and tied in at the neck. We even went so far as to have small cane hoops inserted in them to keep them off the face. But these only answered in clear land, of which we found very little on this trip. In the bush the hoops were always catching the boughs of trees and tearing. The moment the bag touched your face you were bitten through it, the mosquitos making nothing of any such trifling obstruction as the net of which it is composed. Indeed it was said by some of the officers engaged on the boundary expeditions, that the mosquitos were known to bite through two blankets! *Mayne's British Columbia.* [To make matters worse the wounds inflicted by these wretches are apt to fester!]

Palmetto Wood.—Behind Fort Sumter, a new fort, which takes its name from General Ripley, is built almost entirely of Palmetto wood. In reference to the Palmetto tree [Chamærops Palmetto]—the peculiar emblem of the State of South Carolina—it should be noticed that it possesses far more valuable properties than strangers would be apt to imagine. Palmetto wood is much used for facing wharves and other works under water, as it is never injured by the Teredo. It affords excellent material for the construction of forts, inasmuch as cannon balls soon lose their force in its spongy substance, and while they penetrate but little they make no extended fractures, nor do they detach any dangerous splinters. The top of the tree yields a substance resembling Cabbage, which makes an excellent vegetable, tasting much like the heart of an Artichoke or like Vegetable Marrow. The large, thick, fan-like leaves are converted into light but durable hats. The Palmetto grows only on lands adjacent to the sea, and the attempt to induce it to grow at Columbia, the seat of the State Legislature, has hitherto been a failure. *Times Correspondent.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Poinsettias which have done flowering should be removed to a warm growing temperature to make new wood, of which cuttings may be made. Euphorbia jacquiniflora, too, may be transferred to a warm house, but not pruned. Routine work will chiefly consist in constantly obtaining spring bulbs and other plants in flower from the forcing pit or other houses, and removing such as have done blooming to other quarters. In cool houses Pelargoniums should be duly attended to in the way of staking and tying out the branches so as to induce them to form handsome specimens. They will bear repotting the moment blossom buds are formed in the terminal points. Water moderately after shifting until the pot is tolerably well filled with roots. Tender Annuals, as Balsams, Cockscombs, &c., may now be sown. They succeed best in a frame on a gentle bottom-heat furnished by means of fermenting materials. Orchids generally will doubtless now be preparing to push; fire heat should be kept sufficiently lively in the early part of the day to allow a free circulation of air to take place. Every leaf should be dry for an hour or so about mid-day; after that air may be gradually withdrawn, and atmospheric moisture renewed. This treatment will be found to suit the majority of stove plants as well as Orchids. Than Achimenes few plants are more useful or attractive; therefore every garden of any importance should possess a good quantity of them; their dwarf bushy habit, brilliant flowers, and the length of time they continue to bloom, render them worthy of every care. They all like a stove heat, but they may also be grown without such convenience, for most of the Achimenes and even several Gloxinias will attain a high degree of perfection in a Cucumber frame. The compost should be a light sandy loam, turfy peat, and rotten dung, in equal parts, with a little silver sand; these should be mixed well together in the autumn previously to being used, allowing the mixture to remain exposed to the action of the air till wanted, but protected from rain. Achimenes are all readily propagated; therefore a good stock of them is easily kept up. In order to maintain a succession of blooming plants from April till the dark months of the succeeding winter, some should be started at different times. After receiving a little water they should be placed in a hotbed or house where the temperature ranges from 60° at night to 70° by day, and the fermenting material in which they are plunged from 75° to 80°, not higher, as either excess of heat or water at this early stage of excitement might be injurious. When the pots become filled with roots they should be shifted at once into those in which they are to be flowered. Achimenes look best when grown in masses; this is done by taking four plants out of small pots, and planting them in a larger one or in a pan, of a foot in diameter or so, in proportion to the size required, with 2 or 3 inches of potsherds in the bottom, to secure perfect drainage; the top as well as the bottom heat now should be raised to about 80°, keeping up a moist atmosphere: Achimenes should be syringed frequently, and air given at every favourable opportunity. When small pots are employed, liquid manure should be given twice a week, but never before the roots have completely filled the pots; while growing they should be kept as near the glass as possible, removing them when in bloom to the greenhouse or conservatory, but taking care not to expose them to cold draughts; shading is sometimes necessary to preserve the flowers.

FORCING DEPARTMENT.

PINERIES.—Do not allow the bottom-heat to rise too suddenly; when much new tan has been added in consequence of recent shiftings or removals this may readily take place. Constant attention to the trial sticks is therefore now necessary in order to ensure success. For general purposes 80° or 85° will be sufficient. Let atmospheric moisture be in proportion to the natural increase of heat and light, and give air freely early in the day on all favourable occasions, shutting up a good amount of sun-heat whenever a chance of doing so occurs.

VINERIES.—Attend regularly to the disbudding or stopping of superfluous wood. Take good care of bunches that require shoulder tying. A brisk heat may be permitted on sunny afternoons; but be moderate at night; let 65° at that period be the maximum. Keep up a liberal amount of moisture independent of the syringe. As soon as succession houses are closed for forcing be careful to secure a thoroughly moist state of the atmosphere by frequently sprinkling the floors and every available surface, but as observed previously, a regular moist state of the atmosphere is most effectually secured by means of a slight bed of fermenting materials in the house, which will also afford a little warmth, and the moisture from this is much more congenial to vegetation than anything that can be effected by the most careful use of either syringe or evaporating pans.

PEACH HOUSES.—As before observed, suffer no gross shoots to push above five or six eyes, without stopping; this will do more to equalise the sap than any mode of winter pruning. If the trees are properly attended to in these respects there will be little left for the knife. When the fruit is as large as marbles, commence thinning only a few at a time. Give air freely when the weather is favourable, and syringe liberally with much force in the afternoon.

FIGS.—As soon as the Fig-shoots are four or five joints long, commence stopping them; squeeze them flat between the finger and thumb; this is one of the principal secrets of success in Fig management. Ensure a steady degree of moisture at the roots; Figs are very impatient of drought—a very short period of neglect in this respect may prove fatal to the crop.

CHERRIES.—Advance the heat cautiously on bright days, falling back to a lower temperature at night.

CUCUMBERS, MELONS, KIDNEY BEANS, &c.—Follow up former directions—regularly stopping and often sprinkling lightly with water round the frame. Pot off Melons into pots singly; stop them, and get them strong for succession frames. Kidney Beans as before; giving plenty of liquid manure.

FLOWER GARDEN AND SHRUBBERIES.

All Grass lawns should now have a thorough rolling, and all turfing repairs should be completed forthwith. Where it is absolutely necessary to cut edges of walks, let it be done now; and as soon as accomplished, run a heavy roller several times up and down the edge, to soften the cut line. All edgings should, if possible, have a slight inclination towards the walk, and they should only be fresh cut in consequence of irregularities in the line. High kept lawns should have a single mowing on the heels of the roller. As regards Tulips follow up former directions, and cover the beds with large meshed nets; when too small the plants are apt to be drawn, which should be avoided. Pansy beds are best made in the autumn; but where plants have been kept in pots during the winter months, they may now be planted with their balls entire on richly-prepared soil. Pinks ought now to be carefully gone over, the surface soil slightly forked up, and a top-dressing similar in composition to that employed for Auriculas should be put over the bed to the depth of ½ an inch. Planting time with respect to Carnations is now rapidly approaching; give all attention to the proper management of the soil, as much of after success depends upon that.

HARDY FRUIT AND KITCHEN GARDEN.

Attend to due preparation of the ground to be used for the main crops of Carrots, Parsnips, Onions, &c. Plant Seakale forthwith, salting and manuring heavily. Give all Asparagus beds a slight salting; this should be done after soiling; the rains will carry it down in a progressive way. Onions may be sown as soon as possible; choose a piece of ground that had been manured for a previous crop, adding no fresh manure; throw it into beds. Sow when dry, cover thinly, and roll hard except in the case of clayey soils. In the orchard bring pruning to a close. Get Apricots and Peaches covered forthwith. Prune and nail Vines on walls without delay.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Feb. 25, 1863, as observed at the Horticultural Garden

February	Month's Arc.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 19	1	30.347	30.308	46	39	42.5	42	41½	S.E.	.04
Friday 20	2	30 310	30.282	48	29	38.5	43	42	S.	.00
Satur 21	3	30.366	30 185	53	33	43.0	44	42	S.	.01
Sunday 22	4	30.210	30 101	51	26	38 5	44	42½	S.W.	.00
Mon. 23	5	30 290	30.171	51	44	47.5	44	43	W.	.00
Tues. 24	6	30 275	30.245	50	27	38.5	45	43	N.E.	.00
Wed. 25	7	30.369	30.332	49	41	45.0	45	43	S.W	.00
Average.		30.305	30.244	49.7	34.1	41.9	43.8	42.4		.05

Feb. 19—Rain; foggy; overcast; foggy.
— 20—Hazy, overcast, slight frost at night.
— 21—Dense fog, very fine throughout.
— 22—Fine; very fine, frosty at night.
— 23—Fine throughout; mild at night.
— 24—Overcast, dry haze; overcast; slight frost.
— 25—Foggy, overcast, very fine.—Barometer still high—seldom or never has it been as in this month so long continually above 30 inches.
Mean temperature of the week, 3 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending March 7, 1863.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 1	47.5	34 0	40.7	14	0.62 in.	—	8	2	1	5	10	7	4
Mon. 2	48.8	35.5	42 2	14	0.45	3	7	5	—	3	12	5	3
Tues. 3	49.4	32.3	40 9	15	0.22	3	7	5	1	3	9	6	3
Wed. 4	49.1	31 3	40.2	11	0.48	3	9	3	3	3	8	6	3
Thurs. 5	48.4	31.7	40.0	10	0.40	2	7	3	3	4	9	6	3
Friday 6	48.7	32.5	40.6	14	0.26	4	6	4	2	4	8	5	4
Satur. 7	49.4	32.8	41.1	13	0.11	4	6	4	1	4	11	4	2

The highest temperature during the above period occurred on the 7th, 1859—therm. 63 deg.; and the lowest on the 4th, 1852—therm. 15 deg.

Notices to Correspondents.

DISEASED VINES AND KIDNEY BEANS: *T S.* Your Vine and Kidney Beans are affected in the same way, the cause must therefore be in the house. Probably during the frosty nights of last week, the air got too dry, and in consequence your plants suffered. Depend upon it the fault is in the condition of the atmosphere of your houses. *M. J. B.*

ELECTRICITY: *Woburn.* At present we do not believe the statement. If the writer will give a satisfactory account of the new experiments we will gladly take them into consideration. To loose assertions we can pay no attention.

GARDENER FOR CASHMERE: We believe the place is filled up. Numerous applications have been made, but *very* few were accompanied by satisfactory recommendations.

JASMINUM NUDIFLORUM: *S. Edwards.* Doubtless the reason why this charming spring flowering shrub is so very shabby this spring, is that it could not ripen its wood in the last unfavourable summer.

NAMES OF PLANTS: *J R.* Odontoglossum constrictum, not worth growing, unless extremely well done—and hardly then.

ORCHARD HOUSES: *G G.* The fumes of coke ought never to be allowed to mix with the air of any place in which plants of any sort are grown.

PENTAS CARNEA: *J E.* It is too damp. and not half ventilated. Keep it warm, moderately damp, and give plenty of air; but mind not to chill it in so doing.

ROSES: *Lady J W.* Any sudden check might cause the flower-buds of your Provence Roses to turn yellow and never develope themselves; or the fault may lie at the root, which may be water-logged through the drainage being out of order. If the latter should be found to be the case, carefully repot them, and thin the flower buds. What remains may then come to perfection. Too dry an atmosphere is doubtless the cause of thrips attacking your Vines. Sulphur freely, and, if not in flower, give them frequent washings with the garden engine.

SERADELLA: *York.* This plant, whose name is usually spelt Serradilla, is the Ornithopus sativus. It is an annual, growing from 2 to 3 feet high, and giving large crops on light sandy land. Five and forty years ago we saw a field of it near Thetford in Norfolk.

TREE WOUNDS: *Brechin.* Scrape out every bit of decayed wood. Next fill the hole whence the limb was torn with thoroughly well made grafting clay with which fresh burnt lime has been mixed. Then, when the surface of the clay *is dry*, pitch it over on a dry sunny afternoon.

JOHN KERNAN, SEEDSMAN, 4, Russell Street, Covent Garden, W. C., respectfully solicits attention to his LISTS of VEGETABLE, FLOWER and FARMING SEEDS, for which his prices will be found considerably under other houses, for goods of equal quality; and he flatters himself that his cannot be exceeded in excellence by any other Establishment. He is ready to supply packages of all Seeds, especially such as are recommended or selected by practical gardeners, (certainly the best judges of what they really want) in preference to the puffed five or three guinea selections, which in 99 cases out of every 100 are sure to contain many that are totally useless. J. K. offers his services in purchasing at Auction Sales in the neighbourhood, excellent Fruit Trees, Roses, Rare Plants, &c., to be met with almost weekly, at prices less than the carriage of Orchard house Plants and large pots would come to, with the additional advantage of having been raised in a congenial soil, instead of the pure peat used in the neighbourhood of Woking and other parts of Surrey, from which, transplanted, they speedily fall into the sear and yellow leaf, or soon after removal die. J. K. takes this opportunity of reiterating to his numerous correspondents, asking advice how to remove Aphis, red Spider and other insects from their Orchard houses to rid themselves at once of the nuisance, by selling or even by giving away, those puffed snares and delusions, which like other periodical humbugs are got up merely to ease the unwary of their cash. Each, as experience has amply verified, has had its day, as witness the once be-praised Stanwick Nectarine, the Pear on Quince Stocks, and other similar emanations of some giddy brain, who if farmers could only be led to put faith in his fine promises, would be ready to ready to recommend crossing sheep with the wolf.

J. K. has now on Sale for immediate and general cropping the following first-rate PEAS:—Daniel o' Rourke, Sangster's No. 1, Climax, Champion of England, Scimitar, Ne Plus Ultra, British Queen, &c, &c. Also Mazagan, Longpod, and Windsor Beans, French and Scarlet Runners; Radish, olive shaped, and other varieties; Early French Horn, and other Carrots; Parsnip, Jersey, Hollow Crown (far superior to the Student); Cauliflower, Cabbage, Cucumber, Melons, Vegetable Marrow, Celery; Asparagus and Seakale Plants, all kinds of early and late forcing Potatoes, Mushroom Spawn, &c., &c.

J. K. can also recommend his Double Scarlet and Single Anemones, fine mixed Persian Ranunculus, Gladiolus of the most showy and contrasting kinds, Lilium lancifolium roseum and album, with the various spring Bulbs suitable for planting up to the end of April; genuine imported Stocks and Asters in 12 distinct colours (36 of the 48 sometimes advertised being differences without any distinction), 3s. per packet, or mixtures of the same, 6d.; also seeds of Cotton, Hops, Tobacco, and Sugar-Cane for emigrants; 30 packets of showy hardy Annuals, 5s.; a collection of new half-hardy and tender Flower Seeds, from 10s. to 20s. Some fine straight stemmed Walnut Trees for those who wish to commemorate the bridal ceremony of H.R.H. The Prince of Wales; Japan Flax, Cuba Bass, Russia Matting, Labels, genuine Guano, Gardening Knives and Implements, Fumigators, and every requisite for Horticultural and Agricultural pursuits; the patent Cow-milking Machine, 2l. 10s.; English and American Linseed-cake. Seeds and Plants selected and carefully packed for India and other colonies.

Catalogues to be had on application. The Trade supplied on liberal terms.

SEED POTATOES.—Splendid Stocks of Martin's Early Globe, Early Oxford, Early Fox's Seedling, Early Round Frame, Early Dalmahoy, Myatt's Prolific, and Jackson's Ash-leaved Kidney, Forty-fold, Fluke Kiduey, and Flour-ball varieties at low prices.

H. & F. SHARPE, Wisbeach.

SEED POTATOES.—Fine Dalmahoy Early Potatoes, delivered free in London, Hull, and other places, at very moderate prices; also superior second size Regents for Seed.

Supplied on application to Mr. J. B. TAYLOR, Seton Mains, Prestonpans, Edinburgh.

EXTRAORDINARY POTATOES.—A gentleman resident in the Country offers for SALE a few BUSHELS of SEED POTATOES of a new and most wonderful kind. For the table they are unsurpassed as to whiteness and delicacy of flavour, and their productiveness is almost incredible, even on indifferent soil; and further, the disease never attacks them.

For price, &c., address by letter to Z. Z., care of Editor, 162, Fleet Street, London, E.C. Early application is necessary.

DAINTREE'S EARLIEST SEEDLING POTATO.—The earliest and most prolific round variety in cultivation, verified by reports in the various papers, and by private reports from all parts of the country, numbers of which will be forwarded on application. Present price, 8s. per Bushel, or 12l. per Ton; sacks 1s. 6d. each.—Apply to Mr. SIMON A. DAINTREE, Fendrayton, St. Ives, Hunts.

N.B.—Genuine Italian Rye-grass, and all the Agricultural Seeds of home growth, supplied as usual

Seed Potatoes.

B. S. WILLIAMS begs to intimate that he has a good stock of POTATOES for Planting, which he offers at moderate prices.

	Per peck of 14 lbs.—s.	d.
EARLY ASHLEAF.—A very early variety	2	6
,, (Myatt's Improved).—The most prolific Potato in cultivation	2	6
DALMAHOY.—Fine flavour	2	0
EARLY SHAW.—Second early, very prolific	1	6
EARLY OXFORD (Soden's)	2	6
YORKSHIRE REGENTS.—The best for general late crop	1	4

*** A reduction will be made on the above prices when large quantities are taken.

Paradise and Victoria Nurseries, Holloway, London, N.

THE ROYAL ASH-LEAVED KIDNEY POTATO.—This variety was raised from seed of the Ash-leaved Kidney about five years since by the late JAMES ASHWIN, Esq., of Bretforten Hall, near Evesham.

He at the same time raised some other varieties from the same sort. Some specimens of all his seedlings were given to Mr. Rivers, who after having proved them, selected the above variety as being worthy of a name, and as the best and earliest Potato known.

It is like its parent in its fine flavour, shape, and leaves, but its bines are stouter and much more robust. It is also some 8 or 10 days earlier, and gives quite double the produce of the old sort, frequently from 20 to 30 fine tubers to a root. In 1861 two pecks of seed produced 22 bushels. A few were sent to Mr. Spencer, of Bowood, last spring. The following is the report from the Manager of the Gardens, Mr. Taplin:—"We planted this Potato for trial with the old Ash-leaved Kidney. The seedling was fit for use first, the Potatoes were larger and more of them to a root than the old sort; they were quite free from disease, while some of the sorts planted with it were nearly all destroyed; from its earliness and productiveness, I believe it will be found a most useful sort for early forcing." In March last, 10 varieties of Early Potatoes, including all the Early Kidney Potatoes, were planted here on the same day and in the same piece of ground with one row of the Royal Ash-leaved; the latter was earlier and more productive than any other kind.

Sold in sealed Peck Bags of 14 lbs., at 5s. 6d. per bag.

In London, by Messrs. WRENCH & SONS, Seedsmen, 39, King William Street, London Bridge, E.C.; and by Messrs. THOS. RIVERS & SON, Nurseries, Sawbridgeworth, Herts.

Cole's White Perfection Celery.

WM. COLE has much pleasure in offering again to his numerous customers the above, which has proved itself to be the best White Celery in cultivation. In sealed ½ oz packets, free by post, 1s. 6d. Price to the Trade upon application.

Nurseries, Withington, near Manchester.

KIMBERLEY'S SUPERB SOLID RED CELERY.—This is without exception the best Celery in cultivation. CHARLES KIMBERLEY has much pleasure in offering this superb Celery for the first time, although he has grown it for upwards of 20 years. Thousands of plants are annually sold in Coventry Market. The seed now offered is saved from bleached roots of 1862; ½ oz. packets free by post, 1s. 6d.

Stoke Nursery, near Coventry.

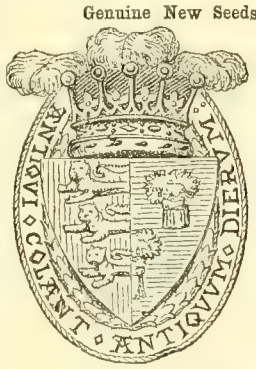
TAYLOR'S DEFIANCE, NEW WHITE CELERY, free through the post, per packet, 2s. 6d.

The stock of seed of this fine variety was purchased of a market gardener, who is acknowledged to send the finest Celery of any into the principal Yorkshire markets. It is the largest, most solid, and finest flavoured White Celery grown; from the extreme difficulty of seeding it, but a small quantity can be supplied.

EDWARD TAYLOR'S DESCRIPTIVE and PRICED CATALOGUE, containing many new and choice varieties of Agricultural, Vegetable and Flower Seeds, may be had Gratis on application.

Seed and Plant Establishment, Market Place, Malton, Yorkshire.

Genuine New Seeds, Carriage Free.



FRANCIS & ARTHUR DICKSON AND SONS, 106, Eastgate Street, Chester.

New VEGETABLE and FLOWER SEEDS of every description, of the finest possible quality.

Their DESCRIPTIVE PRICED CATALOGUE, containing many valuable New and Select Vegetable and Flower Seeds, will be sent Post Free on application.

Collections for Gardens of all Sizes are on the most liberal scale. See Catalogue.

☞ Vegetable Seeds of £2 value Carriage Free. All Flower Seeds Free by Post.



WHEELER'S LITTLE BOOK for 1863.

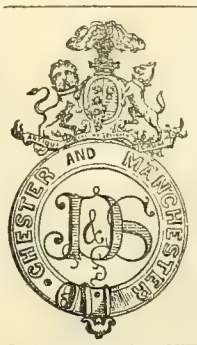
WHEELER'S TOM THUMB LETTUCE.

WHEELER'S IMPERIAL LETTUCE

The price of the Lettuce is 1s. per packet, post free.

J. C. WHEELER & SON beg to inform the Trade that their "Little Book" is entered at Stationers' Hall, and that they cannot allow it to be copied.

J. C. WHEELER & SON, Seed Growers, Gloucester.



Vegetable and Flower Seeds.

CARRIAGE FREE.

JAMES DICKSON AND SONS' ANNUAL DESCRIPTIVE PRICED CATALOGUE of the above is now ready, and may be had, post paid, on application.

The *Field* of February 8, 1862, in a notice of our last season's Catalogue, says:—"This old established firm have issued their neat and well arranged Catalogue for this season. It embraces all seeds really worth growing in both departments."

JAMES DICKSON & SONS, 102, Eastgate Street, Chester; and 23, Market Place, Manchester.

Cabbage Plants.

W. VIRGO and SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 3s. 6d. per 1000:—

EARLY YORK CABBAGE	EARLY NONPAREIL
,, BATTERSEA	DRUMHEAD
,, BARNES	RED CABBAGE

5s. per 1000. All strong, healthy, and well rooted.

Wonersh Nursery, near Guildford, Surrey.

To the Seed Trade.

H. AND F. SHARPE have a Surplus Stock of true—

Early Long Pod Beans	Ne Plus Ultra Peas
Mackie's Monarch ditto	Laing's Imperial Swede Turnip
Broad Windsor ditto	Early Green Top Yellow ditto
Early Emperor Peas	Fine Red Surrey Carrot
Woodford's Green Marrow do.	Early Nonpareil Cabbage
Flack's Blue Imperial ditto	,, Emperor ditto
British Queen ditto	,, Enfield Market ditto

which they can offer at a low figure.

Seed-growing Establishment, Wisbeach.

GENUINE CLOVER and GRASS SEEDS.—Samples and prices Post free on application.

☞ Orders amounting to 10s. and upwards sent carriage free.

WM. WOOD & SON, Seed Merchants and Nurserymen, Maresfield, near Uckfield, Sussex.

CHEAP GRASS SEEDS for HILL SIDES and RAILWAY BANKS.—Rough Grasses, Sainfoin Siftings, &c., suitable for the above purpose, at 2s. per bushel and 3d. per lb.

Address, RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

International Exhibition. Prize Medals 1851 and 1862,

AWARDED FOR "EXCELLENT SEED CORN AND SEEDS," TO

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED MERCHANTS and GROWERS, Basingstoke, Andover; and 89, Seed Market, Mark Lane, London, E.C.

Samples of all kinds of AGRICULTURAL SEEDS and SEED CORN, sent post free on application.

To Agriculturists.

THE SUBSCRIBERS beg to call the attention of English Agriculturists to their large and carefully selected stock of BARLEY and OATS for SEED, comprising all the most approved varieties, and grown expressly for the Subscribers' trade by careful and well-known growers in the Lothians, Berwickshire, and Roxburghshire.

They will have pleasure in forwarding samples and prices on application.

They would also direct attention to their stock of SEED POTATOES of the various descriptions, carefully selected from the growing districts of Ireland and Scotland.

M'LEAN & HOPE, 1, King's Stables, Grassmarket, Edinburgh.

TRADE

HALLETT'S [PEDIGREE.] NURSERY WHEAT.

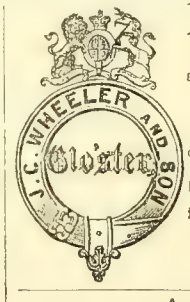
MARK.

"The best Spring Wheat known. Drill in February and March, six pecks per acre."

Produced (1862) 62 bushels per acre, weighing 64 lbs. a bush.

Price ONE GUINEA A BUSHEL, including bag sewed up and sealed, delivered at the Brighton Railway Station, with Printed Directions for Planting, on Receipt of Cheque or Post-office Order, which must in all cases accompany the Order. Less than One Bushel will not be supplied. Name of Station and Railway should accompany the Order.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.



FARM SEEDS, of the finest quality, are offered at fair Market Value.

A LIST of PRICES at which they can be delivered carriage free, and 5 per cent. discount allowed for Cash, is contained in

WHEELER'S "LITTLE BOOK" for 1863.

Agricultural Seeds.

JOHN GEORGE WAITE'S WHOLESALE AGRICULTURAL SEED CATALOGUE for Spring 1863, is now published, and will be forwarded on application.

Seed Establishment, 181, High Holborn, London, W.C.

Present Prices of Farm Seeds.—See SUTTON'S PRICED LIST at p. 194 of this day's *Chronicle*.

The Agricultural Gazette.

SATURDAY, FEBRUARY 28, 1863.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, March	2	London Farmers' Club (Mr. Mechi on Town Sewage.)	6 P.M.
WEDNESDAY, —	4	Agri. Society of England	Noon

EVERYBODY is benefited as the quantity of invested farm capital increases—the landlord, for rent in the long run is in proportion to the fertility of the soil, whether it be natural or artificial—the farmer, for notwithstanding what economists tell us about the greater costliness of every fresh addition to an artificial fertility, practical men know well that from the latest outlay on the soil there is not only its own return but an increased benefit derived from what has been done before; for instance, that besides the advantages conferred directly by the steam plough there is an increased efficiency given by it to the land drainage which had preceded it; that besides the direct advantage of the application of lime there is the increased force given by it to previous manurings; and many other illustrations could be quoted. That the labourer and the consumer are benefited by the increased outlay and effort of the farmer is too plain to require a proof.

The converse of the proposition is equally true—everybody is injured by that which either occasionally or constantly checks the investment of farm capital. The value of the land, the profits of agriculture, the money paid as wages, the produce sent to market, all diminish with the slackened effort of the farmer. There is thus no question of greater agricultural importance than—how to encourage the investment of capital in the land.

There are two principal plans which landlords have adopted in order to a satisfactory solution of this question. They have offered their land to wealthy tenants for a term of years at a fixed annual rent, letting it, with as few restrictions as possible, be dealt with as the tenant chooses in order to the creation of fertility and the conversion of that fertility to his profit. And this, it cannot be doubted, is the only true way to encourage agricultural enterprise. It has the two great advantages of giving to regular professional

agriculturists the certainty of a home for a term of years, and to the more energetic among them an undisturbed and certain field for their enterprise. The lease alone, however, is not a security for the permanence of the fertility which it creates.

When tenants have made the outlay which the circumstances of the farm require, and the fertility thus conferred is rewarding their exertions, the end of the term draws near, and knowing that then their opportunity is about to cease, it no longer becomes their interest to make any other outlay than is repaid within the year or by the current crop. They draw upon the artificial fertility which they had created until it ceases with the end of their occupation as it began with its commencement.

When "the lease" alone exists, there is thus a tendency to an intermittent fertility. And some modification of the relation between the landlord and the tenant is needed as an inducement to the latter to maintain good and energetic management throughout his occupation of the farm. The provisions which are to have this effect, by which it becomes the interest of the farmer to keep the land at its utmost fertility to the very end of the lease, constitute the code of what the Vale of Evesham Agricultural Society call "landlord and tenant right." We have already given in our columns the terms of agreement recommended by that Society as a code for that purpose. It is plain that they are not antagonistic but supplementary to the lease for a term of years—that the latter more especially is the incentive to agricultural enterprise, and that the former ensures the maintenance of the fertility thus created.

Mr. SANDERSON, of Westminster, who has related many remarkable instances in his recent agricultural history of Berwickshire, of the influence of a long lease in inducing agricultural improvements by the tenant, lately read a valuable paper on leases as compared with yearly tenancy, before the Oxford Farmers' Club. It does not appear to us that his very conclusive argument in favour of the former at all discredits the labours of Mr. PUSEY, Mr. HOLLAND, and other advocates of what is called tenant right. On the contrary, in proportion to the artificial fertility, which, as he properly contends, is the probable result of the lease, will be the need of tenant-right agreement against that periodical ebb of effort and fertility which the lease alone cannot prevent.

We shall have an opportunity hereafter, when Mr. SANDERSON's paper is published by the Oxford Farmers' Club, of calling attention to the forcible arguments and illustrations which it presents. Meanwhile we give the conditions on which he proposes that the clauses of a 21 years' agricultural lease should be based, so as to give security to both landlord and tenant, assuming that skill and integrity are essential requirements in a tenant; and assuming, nevertheless, that if a landlord can legally prove that his tenant is pursuing a system of deterioration, he might at any time dismiss him at a twelvemonth's notice:—

First, no restriction as to cropping the first 17 years of a lease; secondly, no restrictions with respect to the sale of roots, straw, or hay, the first 17 years; thirdly, that for the last four years of the lease one-fourth of the entire area under cultivation should be annually allotted for root crops; fourthly, that during the last four years a root crop should intervene two white crops; fifthly, that during the last four years no straw should be consumed off the farm, unless an equivalent in value of dung be restored to it; sixthly, that all root crops during the last four years should be consumed on the farm; seventhly, that at the expiration of the tenancy one-half of the arable land should be under straw crops, or fit for straw crops (as the term of entry might regulate), one-fourth for roots, and one-fourth under Clovers. None of the above conditions would need to be enforced were a renewal of the lease agreed upon at the end of the 17th year.

ON Wednesday last the Royal Agricultural Society were engaged in considering the important question of Labourers' Cottages in the agricultural districts—and a report of the discussion will be found in another page. Mr. TAYLOR, of Parliament Street, whose paper on this subject, lately read before the Society of Arts, was reproduced in our pages some weeks ago, again described his many ingenious contrivances for cheapening and improving cottage architecture; and other speakers stated their experience of the subject. The readers of this discussion who may be in search of further information on the general subject of Cottage building, cannot do better than procure the little book about it, lately published by JARROLD & SONS, of 12, Paternoster Row,* containing the Essay to which was awarded the prize of 50 guineas offered by H. TUCKER, Esq., Vice-President of the Faringdon Agricultural Library. It describes "the evil," "its causes," and "the remedy," with perhaps less of detailed and practical information under the last of the divisions than is desirable.

Under the first head evils of position, construction, and arrangement are described, with their physical, moral, and national effects in detail; and a great deal of useful statistical information, as well as of particular illustration, is collected.

There is in the second chapter also a great deal on habit, prejudice, and ignorance among both masters and servants, which well deserves the attention of the former, as showing where the responsibility for the great evils thus laid bare really lies.

In the last section of the book, the duties of cottagers themselves, and of landowners and farmers in connection with the subject, are forcibly stated; and the following suggestions are made as to the rules which ought to be observed in the erection of cottages:—

"1. Semi-detached cottages are, on the whole, to be preferred.

"2. Each garden should, if practicable, contain from a sixth to a quarter of an acre.

"3. The convenience should be away from the water supply; and if there be a cesspool, it should be at the extreme end of the garden: if a pigsty, it should be away from the house.

"4. Tiles or slates, not thatch, should be used for the roof.

"5. There ought to be two doors to the lower room, one front and back. The windows on two sides of the room, and all sashes and casements to open near to the ceiling.

"6. Three bedrooms for a family; viz., one for the parents, and one each for the boys and girls; all properly ventilated.

"7. All the internal fittings to be arranged so as to encourage cleanliness and order."

The only point on which it appears to us that insufficient stress has hitherto been laid in discussions of this subject is the power of a large garden to meet the difficulty in the way of cottage building as a profitable speculation. A pair of cottages will cost say 250*l.*, and at 5 per cent. they ought to let for 12*l.* or 13*l.*; but agricultural labourers cannot afford more than 4*l.* or 5*l.* apiece for them. If, however, a large garden is attached, they can afford to pay double the agricultural rent for that; and 2*l.* or 50*s.* will be given for half an acre, for which 15*s.* to 20*s.* is the most which a farmer would offer. Though, therefore, the outlay on the mere cottage may fail of an adequate annual return, yet that will be sufficiently supplemented by the increased rental of the garden ground to make the cottage and garden together pay 5*l.*, or even 6*l.* per cent. upon the outlay; and with this the owner ought to be satisfied.

* Labourers' Cottages in the Agricultural Districts of England. Price 1*s.*

WE have received the following letter, dated Cirencester, Feb. 18, 1863, and signed by Professors J. BUCKMAN, G. T. BROWN, and JOHN COLEMAN:

"From a Circular issued by the Council, the public may possibly suppose that a thorough investigation had taken place into the causes of difference which have existed between the Principal and Professors, not for 'some months' only, but for some years past; that these were examined into, and that evidence had been collected and received on both sides.

"This was not the case, for while witnesses were examined and evidence produced from various parts of England on the side of the Principal, whose case was fully entered into, some of the Professors received the intimation that a Council meeting was in contemplation, in a letter from the Chairman the very day the Council met, and one not until it was over, and another not at all.

"In this letter, it was signified that if the Professor had any further complaint to make, he might appear on the following morning.

"The case was then decided, apparently without any evidence being required on the other side.

"Now in making this statement, we have no wish to criticise the conduct of the Council. The public already knows enough of the principal facts, to draw its own conclusions. Our only object is to place ourselves in a proper position before the world, and to show that the decision arrived at was not the result of a thorough investigation, such as had been promised."

The circular to which reference is here made, had previously reached us, though "not for publication;" but seeing that it has appeared in the columns of other agricultural papers, and that it has been very widely circulated otherwise, it appears to be only fair that those who consider themselves unfairly treated by it should be enabled to state their case. The following are the essential passages in the Circular referred to. It is dated January 22, 1863, and is signed by the Earl of DUCIE, Mr. HOLLAND, and Mr. BATHURST. Referring to the differences which have "for some months past existed between some of the Professors and the Principal," it says:—

"From various and inevitable circumstances the Council have been unable to meet and inquire into the nature of those differences until the present date. They have now assembled at the College (having previously invited the attendance of the existing officers), and having had before them much documentary and personal evidence, the causes of disunion have been made apparent to them.

"The Council are of opinion that those differences have mainly arisen from a misapprehension on the part of some of the professors of their position and duties in relation to the management of the Institution, which are nevertheless well defined by the charter and the following bye-laws:—

"'42. The Principal is to be appointed by the Council, to whom he is responsible for the general well-being of the College. He is to exercise a vigilant superintendence over all departments, moral, instructional, and domestic.

"'43. He is, with the approval of the Council, to fix the disposition of the students' time, the hours of rising and retiring to rest, of prayers, and of meals, and to regulate the frequency and duration of the several lectures and periodical examinations, and all other matters of detail.

"'44. He has plenary power for the enforcement of discipline by such means as he may judge best; and to him alone all appeals are to be made, and from him must be asked permission for any deviation from prescribed rules.'

"Setting aside the conflicting personal evidence brought before them (which may always be anticipated in such cases) the Council arrive at the following conclusions:—

"That the Principal has introduced, and carried into effect, many salutary reforms in the administration of the Institution.

"That since his appointment the social position and general character of the students has been advantageously developed.

"That the progress of the students in the practice and sciences taught at the college has been generally satisfactory.

"That valuable and reliable testimony has been brought before the Council of the improved religious, moral, and general conduct of the students of late years, the result, as the Council believe, of improved discipline and careful superintendence.

"Under these circumstances, the Council have to express their confidence in the Principal."

STEAM CULTIVATION.

CHADBURY, NEAR EVESHAM.

IT was not without reason that a protest was made at a late meeting of the London Farmers' Club against the title of the subject then under discussion. "Stock *versus* Corn" is a misnomer and a blunder. Experience to the contrary of it has indeed almost ripened into a proverb, and "the more stock the more corn" is what almost every arable farmer admits to be the truth. That which is true of a whole district must be generally true of individual occupations. And if England be compared with France or with any of the American States upon this point, it will be found that the country which carries the most sheep and bullocks also grows the most corn per acre.

We hope too that some other result may follow the discussion of such a subject than that general laying down of second-rate clay lands to pasture which was advocated by the graziers present at the discussion referred to. We recommend the occupiers of such land to pay a visit to the neighbourhood of Evesham, and they will see how the question receives its solution there. All around the town lie the richest market gardens, which owe their fertility, no doubt, to tillage and manure. And on either side, beyond the immediate influence of excessive manuring and of garden tillage, the poorer clays are made in several instances to yield larger quantities at once of grain and meat than such land almost anywhere else produces.

This is owing essentially to tillage operations—to drainage, clay burning, and steam cultivation. At Mr. Holland's home farm at Dumbleton, which stretches down on to what used to be the poor clay of the lias there, and at Chadbury on the other side of Evesham, where the highest ground is the stiffest and the poorest, the clay of the lower fields being in some places disguised by overlying deposits of gravel and sand, there are admirable examples of the way in which the arable culture of clay lands is made to yield the largest quantities of grain and butcher meat.

Let us take the latter of these farms in the first place. Till lately the property of Mr. Holland, M.P., since sold to H.R.H. the Duc d'Aumale, and for many years in the occupation of Mr. Randell, who has long been known in his own and neighbouring counties as an able and intelligent tenant farmer and energetic land agent, it has for several years been one of the most successful instances of steam cultivation in the country. Certainly the land is now in first-rate order. The young Wheat, of the most promising colour and perfect plant, is flattening out for tillering—the Vetches are already bushy and covering the ground—the Wheat stubbles, manured and cross cultivated by steam power, are preparing for Mangels under the best possible circumstances. The field Cabbages, in various stages of forwardness, are promising well. The Italian Rye-grass among Wheat stubble is ready for the sheep fold, and the Clover plant is thick and full. And the produce of the previous year is shown in great piles of Mangel Wurzel, and in a well filled stack-yard.

Mr. Randell occupies two farms. The one on the northern side of the Avon, is, excepting one or two small patches, a stiff clay, including about 390 acres of arable land in large open fields without hedgerow timber, and 100 acres or thereabouts of pasture. The other farm of 200 acres—about 150 arable and the remainder pasture—is of a lighter character. The cultivation, very heavy, by reason both of the stiffness of the soil and of the rotation which is adopted, used to be accomplished by about 20 horses on the one farm and 8 upon the other. The adoption of steam cultivation has saved at least 8 horses, for that number fewer are kept, and some of

the others, being brood mares, are less efficient in the field. On this ground alone, the cost of cultivation must be less by 240*l.* year than it used to be.

The rotation adopted on the larger farm is essentially biennial—it grows Wheat every other year; but as it varies greatly in quality the alternate cropping also varies. On the lighter portion—1st year, either Cabbages, Rye-grass, or Vetches, succeeded by Swedes or Turnips; 2d, Wheat; 3d, Clover or mixed Grass seeds; 4th, Wheat.

The best part of the clay has—1st year, part Mangels, part Cabbages; 2d, Wheat; 3d, Clover; 4th, Wheat; 5th, Beans; 6th. Wheat.

The poor clay has—1st year, Vetches or Rye-grass; 2d, Wheat; 3d, seeds; 4th, Wheat.

The acreage this year is—

	A.	R.	P.
Wheat	202	0	0
Seeds	72	0	0
Beans	10	0	0
Potatoes	2	3	0
Fallow, viz.:—			
Rye-grass, to be followed by Swedes	25	2	0
Cabbages, ,, Swedes	8	0	0
,, ,, Turnips	10	2	0
,, only	14	0	0
Mangels	21	2	0
Vetches	22	2	0
	102	0	0
Total	383	3	0

The double culture of the root crop land, which bears a previous crop of Cabbages, Rye-grass, or Vetches before Swedes, the quantity of autumn cultivation, and the early fallow of Rye-grass stubble for the succeeding Wheat crop, create a great deal of tillage work, and as on such land it is all heavy ploughing, there is plenty of room for steam power.

Mr. Randell has had Smith's cultivator at work since the spring of 1857, so that there is the experience of six years in its favour. During the first of these a good deal of difficulty was experienced in getting into work. No experienced man could then accompany the apparatus. Mr. Humphries, of Pershore, by whom it was supplied, had himself as much as his customer to learn the right method of employing it. A stranger thing than it is now-a-days, of course the whole country side assembled to witness the accidents and breakages which signalised the first few days of use; but Mr. Smith was in this instance fortunate enough to have placed his machine in the hands of a man of the requisite tenacity of purpose, patience, and resolution, and thus it happens that he can point out Chadbury as one of the best examples of his success. The sudden slackening of the rope consequent on the yielding of the then imperfect anchors often threw it in amongst the cog wheels of the windlass, and much breakage of rope was the consequence. To this it is owing that two complete sets of rope, the first of which was of iron wire, have been purchased. A portion of the second now remains, and with the third set of steel-wire rope there is every prospect of the present stock lasting five or six years.

The engine is one of 10-horse power. The labourers are—engineer, windlassman, and ploughman, two anchormen, one porter lad, and a water-cart boy; the porters at each end of the furrow being shifted by the anchormen at the ends respectively. The cost of labour is 3*s.* 6*d.* an acre for a first grubbing. This company of men contract to do the work with the 3-tined grubber for 3*s.* 6*d.* an acre, dividing it among themselves as they themselves arrange. The average amount of such work is 5½ acres a day. In crossing this work with the 5-tined grubber, 8 acres a day are generally accomplished (in both cases all the time and labour of removals are included), and the price of labour is proportionately reduced.

The following is the acreage actually accomplished during the past year:—

1862.	Acres grubbed. 1st Time	2d Time
Before harvest	85	55
After ,,	60	....

The account for repairs during 1862 amounts to 3*l.* 17*s.* 10*d.*; at 5½ acres a day, there would be 19*s.* 3*d.* to divide, viz. 1*s.* 6*d.* each to the two boys, and 16*s.* 3*d.* between the five men equally; the horse 2*s.* 6*d.* per day to draw coals and water, ½ ton coals, 5*s.*; and oil 1*s.* per day—or near 5*s.* 3*d.* per acre in the items of material and labour for grubbing. Add to this for interest upon windlass and cultivation, new shares and repairs, 22*l.* 10*s.* per annum; wear of rope, 20*l.*; use of engine (which is employed also for thrashing, 20*l.* Total 62*l.* 10*s.*; or upon 200 acres, 6*s.* 3*d.* per acre, making a total of 11*s.* 6*d.* per acre, or 115*l.* per annum as against 240*l.*, the cost of the eight horses which have been displaced. It is plain that the comparatively high cost is owing to the comparatively small acreage that is cultivated by steam power.

But it is not the saving in the cost of cultivation that constitutes the chief advantage of the application of steam—it is that the work is done better, and more of it, while the weather is fine, the most important consideration of all for clay land. Mr. Randell's fields have all been drained, and the steam cultivator, which leaves no floor beneath its moved soil, which stirs the ground moreover to a greater depth than horse cultivation hitherto has known, has opened up both soil and subsoil to the fertilising influences of the air and of the rain. The result of this and of the other departments of good management here has been to raise land from the poverty-stricken condition which poor undrained clay presents up to the standard of producing 5 quarters of Wheat, and 5 quarters of Beans, and 30 tons of Mangels per acre, and heavy crops of Clover, Vetches, Cabbages, &c.

Among the "other departments of good management" alluded to may be mentioned the practice of clay burning. The whole surface of some fields has been burned—100 to 150 cubic yards of clay gathered as clods from the surface of a rough fallow are piled in heaps over the field and burned at the cost of about 5*d.* per cubic yard, coal being supplied—and when afterwards spread and worked by tillage into the midst of the soil, a great increase of produce is the result. When banks of clay are burned in great piles, coal is supplied at the rate of about a ton of inferior stuff to every 50 cubic yards, and the price is either 5*d.* per cubic yard, coal being supplied, or 6½*d.* without the coal. The heap is burned "end on," wet clay being thrown over the burning end and sprinkled with small coal, in the proportion which practice teaches. These great piles, of which several unfinished still lie about in different parts of the farm, are drawn upon for spreading over the sheep yards.

Mr. Randell has a breeding flock of about 400 Shropshires—the lambing season is just commencing, and the ewes are in the grass fields, and in yards about an old homestead at the farther part of the farm. The system is to sell some 30 or 40 shearling rams every year, and everything else—tegs and barren ewes—fat the draught ewes for breeding. The feeding sheep are having cut Mangels, hay chaff, and malt dust, with a little cake daily. The old barns, several old sheds, and new ones are all converted into sheep houses now, and the yards are covered every two or three weeks with a layer of burned clay, receiving straw as it fouls for a week or two afterwards until ready for another layer of the clay ashes. The whole digs out a very rich mass of manure, the best possible both as to its mechanical effect and as to its composition for the clay soils which are to receive it. The flocks are of the largest framed and heaviest fleeced that I have seen in Shropshires. They are folded during summer on Vetches, Cabbages, Rye-grass, and Clover, and Early Turnips; and during winter they come home to yards for Swedes and Mangel Wurzel, and hay. Besides the flock a dairy of 10 or 12 cows is kept, and their produce, with the draught cows, are also fattened off.

Among the details of cultivation which may be considered peculiar to the place, the field culture of Cabbages may be named. The earliest stock is Wheeler's Imperial; but the crop is now from home-saved seed several generations old. During the growth of the crop those Cabbages are marked which are of the character which it is desired to maintain. And when the whole crop is cut, these Cabbage stumps are transplanted to the seed bed. There they are transplanted from time to time to hinder the formation of Cabbages, until in the second year they are allowed to bloom, and the seed is preserved. They are sown in seed-beds in July and August. Several acres of the Wheat stubble are steam-cultivated and manured, and if very rough the whole stubble, &c., is ploughed under, and the Cabbages are pricked out in rows upon the ploughed ground, 24 inches wide, and at intervals of about 15 inches in the rows. Early in November some 40 bushels of soot are sown per acre, partly as a remedy for or security against the ravages of slugs, and the intervals are horse hoed—and guano is applied before another horse hoeing in March. These Cabbages are either sold to market men, who come and cut them as they think proper, or if there be no market for them they are folded off with sheep in time to enable a crop of early Turnips for an autumn fold, or of Swedes or Mangel Wurzel to be removed before the Wheat seed time. Three successions of Cabbages are thus grown in as many different fields, the last of them not off till past midsummer, when, however, there is still time for a good fallowing before Wheat sowing.

That portion of the Wheat stubble which is intended for Mangel Wurzel is manured immediately after harvest with 18 to 20 loads of farm-yard dung, then broken up with the steam cultivator, and, if the weather continue dry, scuffled across. In this state it lies till spring; it is then looked over by men with forks to remove the Couch-grass, and has a ploughing by horses. About the first week of April a mixture of 4 cwt. of guano and 3 cwt. of common salt is applied broadcast, and 3 cwt. of superphosphate mixed with 1½ cartloads of ashes from the sheep sheds drilled with the seed.

The crop is lifted and piled up early in October along the roadside, so as to facilitate carriage to the folds in spring. Boys cut off the leaf as they stand in the field, and men lift them and throw them into carts. They are secured simply by a covering of earth, and no attempt is made to turn either root or top until they are taken from the heap. Heavy crops are grown. A portion of the Wheat land is occasionally sown with Italian Rye-grass, which is folded over in spring with ewes and lambs and immediately broken up and well fallowed for the succeeding Wheat crop. The rest of the Wheat stubble which is in seeds, is mown for hay, and broken up early if Rye-grass was sown among it, being cultivated and cross cultivated by steam power in July and August. In one instance last autumn, it was found that the Clover in a Wheat stubble had failed where Cabbages had been grown and eaten off by sheep before the previous Wheat crop—succeeding perfectly however where Mangel Wurzel carried off had been the previous root-crop. The explanation offered was that the salt of the dressing for Mangels may have kept down the slugs, to which the destruction of the young plant was owing.

In walking across the farm one is struck at present with the vigorous and promising growth of the young Wheat, the Vetches, the Cabbages, and the Italian Rye-grass. There is not a field where traces, often abundant, of the large dressing of burned earth do not exist. And on the very highest and poorest clay of the farm, where the dung-cart never comes, steam-tillage, burned earth, artificial manure, and the summer sheepfold, enable the same severe rotation as elsewhere, on land not worth more originally than 10*s.* or 12*s.* an acre; and the Wheat plant and the Rye-grass look as well here as anywhere.

The spectator from this, the highest part of the estate, looks down now on a very different scene from that of 20 years ago, when Mr. Randell first came here. The fields have been enlarged, the hedgerow timber has been cleared away; the tile-yard, now given up, has sent out tiles and bricks enough to drain the land and erect the necessary buildings of the homestead. A house, which, with its garden, shrubberies, and grounds, displays exceedingly good taste and infinite fertility of resource, has been erected. The whole estate is completely in hand, and has long been doing its full share in the work of feeding the population, and meeting the demands of landlord, tenant, and labourer.

Of course the main features of the scene are as they were. Yonder is the Cotswold range, with the outlying mass of the Bredon hill, and at our feet the Avon flows, skirting the farm on its way from Evesham to the Severn. And a beautiful English landscape it has always been. Within the last few years this and several other farms around have been purchased by the Duc d'Aumale, for whom Mr. Randell, acting as his agent, has built a shooting-box, stables, kennels, and other offices, displaying here the same good taste and ingenuity which he had long exhibited at home. And his Royal Highness brings his harriers and spends several months of every autumn at Chadbury, welcomed by the neighbourhood for the genial friendly manner in which he shares with neighbours the enjoyments of his quiet country life.

THE MANUFACTURE OF STEAM PLOUGHS.

IN the Court of Common Pleas, at the sittings in Guildhall, a case has been on for trial before Lord Chief Justice Erle, by a special jury which has lasted nearly the whole of the week, touching the alleged infringement of patents obtained by Messrs. Fiskin and Mr. John Fowler for improvements in the manufacture of steam ploughs by Messrs. Howard, the implement makers of Bedford. The plaintiffs, Messrs. Beadel & Co., to whom the patents of Messrs. Fiskin and Fowler have been assigned, were represented by Mr. Bovill, Q.C., Mr. Hindmarch, Q.C., and Mr. Aston, and the defendants were represented by Sir Fitzroy Kelly, Q.C., Mr. Webster, and Mr. Barrow.

The action was brought for the violation of two several patents. The first was granted to David and Thomas Fiskin, and was dated July 18, 1855, and the second was granted to John Fowler the younger, and David Grey, on February 18, 1856. Both were for improvements in machinery for steam ploughing, and the defendants were charged with manufacturing a machine for a similar purpose in which both patents were infringed. The defendants pleaded that they were not guilty, and that the letters patent obtained by the plaintiffs was not valid on account of the insufficiency of the specifications.

Mr. Bovill, Q.C., opened the case for the plaintiffs in a speech of considerable length, in which he stated that although the action was brought by Messrs. Beadel & Co., Mr. John Fowler, whose property the patents were, and who had assigned his interest in them to Messrs. Beadel, was virtually the plaintiff. Mr. Fowler was an agricultural engineer, and carried on business at Cornhill and Leeds. For some years great attention had been paid to the question of steam ploughing, but although large prizes were offered by the Royal Agricultural Society and other Societies in England and Scotland, no one succeeded in inventing a machine which by the aid of steam could be adapted to the cultivation of the land, until the problem was solved by Messrs. Fiskin in 1855. Many attempts had previously been made, but the machine of Messrs. Fiskin was the first approach towards a really useful and serviceable plough. The difficulty had been to produce a plough sufficiently portable and manageable in the field. In the machine invented by Messrs. Fiskin the motive power was given by means of an ordinary steam engine, but the improvements which rendered the machine valuable were the adoption of a principle of counterpoise, commonly called the "tip action," which enabled the ploughs to be depressed into and raised out of the land without difficulty, and the invention of a moving anchor by which the position of the

machine was readily changed on reaching the headland after each "bout." Up to the date of Messrs. Fiskin's patent those objects were only attained by the aid of a considerable amount of manual labour, which had the effect of rendering steam ploughing rather more expensive than the ordinary ploughing by horse power. The machine of Messrs. Fiskin consisted of a new and very peculiar arrangement of the ploughs, and in the mode of lifting, and made a great stride in progress towards perfection. They placed a set of ploughs at each end of their machine upon separate sets of levers. There were thus two sets of ploughs and two sets of levers, the whole of which were connected together by a very ingenious arrangement. By working a screw and a sector shaft the ploughman was enabled without difficulty to raise one set of ploughs out of the land, and as they were lifted the set at the opposite end were depressed into the land ready for action in the opposite direction. A patent for this invention was taken out in the year 1855, and in the following year Mr. Fowler obtained a patent for further improvements. Mr. Fowler adopted the balancing power, which formed a great feature in the machine of Messrs. Fiskin, but instead of having two separate sets of levers he fixed two sets of ploughs upon one rigid lever, and by attaching chains to each enabled them to sink into or rise out of the land by the action of draught power. The action, in point of fact, was very similar to that exhibited by two children playing at "see-saw." The ploughs were placed upon a balance, and when one set was pulled down by the draught of the wire rope the other was naturally lifted out of the land. After Mr. Fowler had taken out his patent he entered into an agreement with Messrs. Fiskin, by which he obtained an assignment of their patent, and on the 23d of May, 1859, both patents were assigned to the plaintiffs. In 1861 Messrs. Ransome & Sims, Messrs. Clayton & Shuttleworth, and Messrs. Howards, entered into an arrangement by which they should be authorised to use both Fiskins' and Fowlers' patents in the construction of steam ploughs, on the payment by each firm of a sum of 30,000*l.*; but before the agreement was completed, on the 17th December, 1861, Mr. James Howard wrote a letter to Mr. Fowler, in which he said, "Upon canvassing the subject with my brother I found that he has such insuperable objections to carrying the agreement further, that if the agreement is carried out it must be with the omission of our names." Messrs. Howard, however, had since constructed a plough in which it was alleged that they had adopted both the balancing principle adopted in Messrs. Fiskin's plough, and the draught action invented by Mr. Fowler, and it was for these infringements of the existing patents that the present action had been brought. The questions for the consideration of the jury, as stated by Mr. Bovill, would be—first, was Messrs. Fiskin's plough new, and was their anchor new; and secondly, were the improvements of Mr. Fowler new? He believed there was no pretence for saying that there had ever been anything like them made before, or that they were not useful and valuable inventions.

Mr. Carpmael, patent agent and civil engineer, was examined at some length. He stated that he had paid great attention to the construction of implements for agricultural purposes, and particularly in reference to steam ploughing. He had seen the specifications contained in the letters patent obtained by Messrs. Fiskin, and he had also seen their plough at work. The machine they had patented was altogether new, and was a valuable invention. The improvements patented by Mr. Fowler were also new, and materially simplified the arrangement and working of Messrs. Fiskin's machine.

Mr. Fowler, C.E., Mr. Bramwell, C.E., of Great George Street, Mr. Amos, C.E., consulting engineer to the Royal Agricultural Society, and Mr. Bovill, C.E., gave similar evidence.

Mr. Clayton, of the firm of Clayton & Shuttleworth, implement makers, was also examined. He stated that the inventions both of Messrs. Fiskin and Mr. Fowler were new, and that the firm of which he was a member would not have consented to pay so large a sum as 10,000*l.* for the privilege of using them if they did not believe them to be of the greatest value. They were quite ready to carry out their part of the agreement.

Similar evidence was given by Mr. Ransome, of the firm of Messrs. Ransome & Sims, implement makers, of Ipswich.

Sir Fitzroy Kelly, Q.C., for the defence raised several objections upon points of law in regard to the sufficiency of the specifications, a note of which was taken by the Lord Chief Justice. He then proceeded to urge that it was a principle in law that a patent at the time it was granted must be valid. It could not be rendered valid by any act done subsequently. It was also an established principle that the patent must be granted to the inventor and not to any other person. He believed he should be able to show that with regard to Fiskin's patent there were two several parts of the machine patented, which were not the invention of David & Thomas Fiskin, but which were the invention of a brother named William Fiskin and a machinist of Stockton-upon-Tees named Rogers. William Fiskin claimed to be the inventor of the balancing power, and Rogers of the moving anchor. Since the negotiations between Mr. Fowler and Messrs. Howard for the use of his patents had been broken off, William Fiskin had written to the defendants to say that it was he who invented the balancing power, and in addition to that Messrs. Fiskin had offered to grant them a license to use it. If he succeeded in establishing that fact the learned judge would tell the jury that in law the patent was invalid, but should he fail in doing so he believed he should be able to prove beyond doubt, from the evidence of Mr. Rogers, that he had invented another very material part of the machine patented, namely, the moving anchor. If he succeeded in proving that upon that ground also the patent would be invalid.

Wm. Fiskin, who appeared to be an adverse witness, was called, and a letter written by him to Messrs. Howards, in which he claimed to have invented the balancing power, was put into his hands. He stated that since that letter was written he had found other letters written by his brothers, from which he ascertained that the idea of the balancing power had suggested itself to them before it had suggested itself to him.

Robert Rogers, machinist of Stockton-on-Tees, stated that Thomas Fiskin brought him the model of a steam plough shortly before the agricultural show at Carlisle in 1855. Mr. Fiskin was introduced to him by Mr. Fowler, an engineer of Stockton (not the patentee). In the original model, Mr. Fiskin proposed to work the balancing movement by a lever, but in constructing the machine, witness found that it would not act, and suggested that a screw and sector shaft should be used, which, after some opposition from Mr. Fiskin, was ultimately adopted. Witness suggested that Messrs. Fiskin should patent the invention, but they said they had not the means of doing so; and he then suggested that they should pay him his account for constructing the machine, and he would then take out a provisional protection. They paid him 30*l.* off a bill of 37*l.*, and he took out a provisional protection, making the drawing and specification in the name of Messrs. Fiskin. Another agreement was then entered into by which he was to take out a complete patent for Messrs. Fiskin, which was to be assigned to him, he paying them a royalty upon all the machines he constructed. In 1857 he received 60*l.* to give up his interest in the patent. After the provisional protection had been obtained, and before the complete patent was taken out, he invented the moving anchor, and applied it to the machine.

Mr. Pole, C.E., Inspector of Government Artillery; Mr. Newton, patent agent; Mr. Howard, one of the defendants, and other witnesses were called to prove that the defendants in their machine, although they adopted the same principle as Messrs. Fiskin and Fowler, had applied it in a different manner, and had not infringed the existing patents.

Mr. Bovill then called, to contradict the evidence given by the defendants,—

Thomas Fiskin, who admitted having taken a model of his machine to Rogers in 1855, and requested him to construct it, but alleged that at that time there was a moving anchor to it. He denied the statements of Rogers, both with regard to the screw and sector and the moving anchor, and said he had had the idea of a moving anchor for years before he succeeded in perfecting his machine. He also produced a letter written in 1850, in which he described its action. He added that he and Rogers were in constant consultation as to the best mode of carrying out the invention.

Lord Chief Justice Erle remarked to the jury that an inventor in carrying out an idea he had discovered was fairly entitled to avail himself of the practical skill of a machinist.

Mr. Fowler, of Stockton-on-Tees, deposed to having introduced Thomas Fiskin to Rogers in 1855. Previously to doing so Mr. Fiskin had explained to him the nature of the machine he had invented, and he distinctly remembered that the moving anchor was described to him.

After a speech from Sir Fitzroy Kelly in summing up the evidence on behalf of the defendants, Mr. Bovill replied upon the whole case.

At the sitting of the Court this morning, Lord Chief Justice Erle proceeded to charge the jury, requesting their careful attention to the case, which he observed was of great importance to the parties concerned. He had reserved some points of law, with which the jury had nothing to do. The three questions for their consideration were—first, had the defendant infringed the patent granted to Messrs. Fiskin in 1855; secondly, had he infringed the patent granted to Mr. Fowler in 1856; and thirdly, were Mr. Fiskin and David Fiskin the first and true inventors of the invention under their patent of 1855—the screw and the sector. If the defendant had infringed the patent granted to Messrs. Fiskin, he had also infringed the patent granted to Mr. Fowler. His lordship, after calling the attention of the jury, at considerable length, to the particular nature of the inventions and improvements which had been spoken to by the witnesses, handed them in writing the questions which he had propounded for their consideration.

The jury then retired, and in the course of about 10 minutes returned into Court, finding a verdict for the plaintiffs on all the issues.

Mr. Hindmarsh asked his lordship to name a sum, so as to guide the costs of the case.

His lordship thought 40*s.* with the usual certificates would be sufficient.

The verdict was entered accordingly.

Home Correspondence.

Sparrows and Caterpillars.—Your "Correspondent," in replying to Mr. Wilkins on this subject, is wrong in stating that the Rev. F. O. Morris alleges that he has seen the sparrow feed its young with "caterpillars." Mr. Morris simply quotes the experience of Mr. John Hawley, of Doncaster, in the passage printed by your correspondent. The relative merits as naturalists of "the two rev. gentlemen," are not therefore at issue on this point. The Rev. G. Wilkins, moreover, is too severe when he writes that "every tyro of a naturalist knows" that the sparrow does not eat caterpillars. Yarrell has never been considered "a tyro" in natural history, and he distinctly affirms—"Their young are fed for a time with soft fruits and insects, particularly caterpillars, and so great is the number of these that are consumed by the parent birds, and their successive broods of young, that it is a question whether the benefit thus performed is not a fair equivalent for the grain and seeds required at other periods of the year." Vol. i., page 476. Buffon states that the house sparrow destroys caterpillars by thousands. The Rev. J. G. Wood, in his recent work on Natural History, alleges that a single pair of sparrows have been watched for a whole day, and were seen to convey to their young no less than "40 grubs per hour;" and this rev. gentleman adds the startling paragraph—"At Maine, for example, the total destruction of the sparrows was ordered by Government, and the consequence was that in the succeeding year even the green trees were killed by caterpillars;" page 474. Mr. Jesse, in his "Gleanings of Natural History," states that a pair of sparrows destroys "thousands of caterpillars" during the breeding season; and finally, Mr. Edward Peacock, of Messingham, Lincolnshire, quoted by Mr. Morris, has discovered "green caterpillars" in the stomachs of young sparrows. The question, therefore, is not so plain to "every tyro of a naturalist." It is probable that the sparrow will refuse to touch hairy caterpillars; but even at the risk of being numbered among those who do not "understand what a proof is," I am not yet prepared to accept the very positive statement of the Rev. Mr. Wilkins, that the "sparrow will perish with hunger rather than touch a caterpillar." The fact admits of simple proof, and the season is now approaching in which such "proof" can be obtained by any person desirous of settling the interesting question. *John Hitchman, Mickleover, near Derby.*

The Condition of the Working Classes in all its bearings is most important. Advice will be almost thrown away if the recipient feels it impracticable to follow the precepts laid down. Tell a hungry man there is bread in the baker's shop, it will not satisfy his appetite unless he has the means of purchasing food. The most earnest wish of a labouring man will not stretch the walls of his cottage, or enable him with a wife and six children, and with only three rooms to shelter them at night, to separate the sexes, so as to observe common decency in his family. When advocating any beneficial change in Society, too hard a line should not be drawn between the classes; they all come within the influence of the home circle. In the human body there are many members dependent upon each other for assistance, their combined and healthy action making up the perfect man, physically speaking—classes, amongst men and women, having their particular duties and vocations, work together, much in the same manner, in a well governed country, so long as they observe the laws of God and man; a deviation from these will cause derangement in the social machine. There the parallel ceases, and the community have the advantage over the individual. The injury or loss of an eye cannot be replaced by an arm or a leg, the use of each is distinct and permanent; not so with classes, whose rise in the scale of society may be progressive according to circumstances, from the lowest to the highest offices in the country. Since the world began there have been and must continue to be, men and women appointed to fulfil the various duties required by the state; and domestic wants by cultivation of the soil, commercial enterprise, home offices, administration of the laws, education, religious instruction, and defence by sea and land. Taking the worst class first: the better you make the labourer intrinsically, the more useful he will become to those who employ him, as well as more happy and contented within himself. A little thing is often the turning point in a man's character—a rough word hastily spoken, or a slight disappointment, may drive him to the public house, because the mind is always dwelling upon the cares and struggles of life, instead of looking for the "silver lining in the cloud." How can he do so, having but an overcrowded cottage to return to after a wet walk home and a hard day's toil? *Falcon.* [No. 1 has never arrived.]

Woolston.—My Wheat after Beans, the land cultivated, and drilled by steam-power at one operation, at a cost of only 6*s.* 2*d.* per acre, looks well. My heavy land Barley (last year) planted by the same machine at one

operation, including cultivating the land after roots fed on, produced 54 bushels per acre. The land was never known to have produced over 40 bushels of Barley per acre under horse culture, and my neighbour's land last year, of the same quality, gave under horse culture only from about 24 to 32 per bushels per acre, which according to the reports in the agricultural papers was not much exceeded on the heavy lands throughout the country. The general cry throughout the year has been a bad crop of Barley, in consequence of the bad weather and a bad seeding, whereas the bad result was caused by a bad system, which may now be obviated by the adoption of a better power, by which the farmer may take advantage of best weather, and get results equal mine. I have now fixed Monday, March 2, as the day on which I shall begin working my combined cultivating and drilling machine. I shall first plant my light land Beans, 12 acres: then my heavy land Beans, 10 acres; then my heavy land Barley after roots fed on, 12 acres. Then I shall move the machine on to Loughton, where it will cultivate and drill with Barley 17 acres after roots fed on for Mr. Bignell; after which, and as soon in April as my sheep have eaten all my light land Swedes, 13 acres, the machine will be brought back to cultivate and drill the land with Barley. Now, since it is utterly impossible for me to show this machine in actual operation at any of the agricultural summer shows, except by scratching it through a bit of unfit land, by which but few of the public can understand its merits—Farningham to wit; or by setting it up in a show yard, a mere dummy—Battersea to wit—I have determined that I will not put myself to the costly trouble of showing it at all at any of the public shows to be held this summer; therefore, if any of the public would like to see the greatest agricultural novelty of the age, the machine that will ere long clear England's light land of its twitch, in actual operation, they may do so by visiting Woolston when any of the above work is being done. *William Smith, Woolston, Bletchley Station, Bucks, Feb.* 19.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

A MEETING of the Council and Members of the Society was held at the Society's rooms on Wednesday, Mr. Raymond Barker in the Chair.

LABOURERS' DWELLINGS.—Mr. J. Taylor exhibited and explained his improved materials for the construction of cottages, as introductory to a general discussion on the economy of labourers' dwellings. He said he did not propose to show any particular plan of cottage buildings, more than was necessary to show how his own materials were introduced. If he attempted to exhibit a perfect model of a cottage, he must fail, because the requirements of cottages in different localities, and the number of boys and girls, must be taken into account. He proposed to point out principally the general defects of cottage building, one of the principal of which was damp, the source of most of the diseases under which the labouring classes in the rural districts suffer. He then, by means of diagrams, proceeded to describe a labourer's cottage with three bedrooms, a kitchen or long room on the ground floor, and a washhouse or scullery with an oven, copper, sink, &c. One of the bedrooms in front, near the parent's room, was for boys—the other, at the back, for girls. There was a centre party wall and a side wall, a gable front and back, with a common lean-to roof; the timbers lean from the centre down to the side wall, and he thus avoided all intricacies of roof and a great deal of expense. There were no valleys and no gutters, but along the side walls a single rain-water trough, from which the water ran down into a butt. The walls were perfectly square, and presented the least external surface to our very damp climate. He then exhibited a diagram of a pair of cottages which he was about to build at Bishops Waltham, and which was a modification of the former plan. It contained two bed-rooms on the upper story for the parents and girls, and a sleeping room for boys on the ground floor. One of the evils experienced in cottages was the damp which rose up to the walls by capillary attraction; and to meet this, instead of slates, cement, or asphalte, he proposed to use a damp-proof course made of brown stone ware, which was very much superior on account of its hardness and durability. It was made of earth expressed through a die and perforated, by which means an open air space was created right through, so that if a cottage was built in a pond of water no damp could arise beyond that point. It had also the advantage of having a perforated course all round the building, producing a thorough separation of air. One thing wanted in a foundation was bonding and strength; the best thing for that purpose was a layer of York stone, but that was too expensive to be generally used. His perforated course was as strong as York stone, and would bear 600 feet of brickwork upon it: in fact it might be regarded as a piece of York stone. Three purposes were thus answered—damp was kept down, air introduced, and the bonding secured. He next adverted to the construction of walls. In his opinion a brick wall 9 inches thick was unfit to form the habitation of any human being, because the mortar joint on the brickwork was the ready source of wet being conveyed from the exterior to the interior, and even good bricks were of an absorbent character. Again, a 9-inch wall, although strong enough, was not stiff enough. It was so yielding, that on being built it oscillated every time the workmen ran up the ladder, owing to the yielding mortar joints. To construct a cottage economically, the bulk of the materials used must be produced on the spot; and he proposed to use a small quantity of his own materials along with the local materials. He made a perforated block by means of an ordinary brick machine in the usual way. He made them in pairs, which gave facilities for drying and burning. An ordinary brick would never dry straight and true; it would warp in various ways; but when made in pairs that objection was obviated. The bricklayer when he got the block could immediately divide it into two with a chisel. He would lay a course of bricks, which were called "headers," and then take one of these blocks and lay it upon the "headers." He would then follow with the ordinary brick, and carry it along the inside of the wall. Then came another of the facing blocks and a course of "headers." By this arrangement all the through mortar joints which were usually the means of wet, were as it were closed, and the more wet there was upon the flange of the facing block the more the yielding brickwork at the back was thickened by the vertical bond, much as a piece of angle iron was placed to stiffen a wall. A wall was thus made perfectly stiff, and it had no more bulk in it than an ordinary 9-inch wall, and would be perfectly dry within the external surface. Another material which abounded in almost every locality where bricks were expensive was concrete, or materials suitable for it. Hitherto concrete had not been available for the construction of walls. In the foundation it would bear any weight, because it was retained in the trench and was prevented from spreading. When a concrete wall was built by the ordinary method, it was at once, on the removal of the mould board, exposed to the action of the atmosphere, and immediately began to decay. What he proposed was, to use concrete in the construction of walls in the same manner as it was used in the trench. The plan he adopted was to enclose it within facing blocks of brick. First the bricklayer would lay a course of flange bricks on the outside, and then the labourer would fill in the trench, so created, with concrete. By using a flange brick the pressure of the concrete upon that brick counteracted the outward thrust given by the concrete, which was consequently retained just the same as it was retained in the trench for the formation of a building. The blocks or bricks of the particular form were cheap enough to be used for cottage buildings, by reason of their being burnt in blocks of six together, and being capable of separation by the bricklayer. Each of these bricks was 12 inches long and of the ordinary width, but on the principle of moulding and burning the joints were straighter and truer than were to be found in the very best description of bricks. If concrete walls were used for cottages very few of these bricks would be necessary. With respect to flooring, he had made a paving tile with a flange at the side of it. The next tile rested upon the flange, and longitudinally openings were formed by leaving out a small portion of that flange, so that the air not only circulated longitudinally from one side to the other beneath the paving, but transversely. The paving was laid at exactly the same level, and there was a perfect circulation of air everywhere beneath the paving, and the floor well preserved its level. Alluding to the subject of roofing he said he thought tiling a better roof than slating. In and about London it was more costly, to the extent of 35 per cent. at least. The advantage of slate was that less timber was required. Ordinary plain tiling was many times the weight of slate. The reason was that to keep out the wet, plain tiling had to be laid double over every part. Hence the great weight. The tiled roof was much warmer in winter and much cooler in summer than the slated roof. He had invented a roof half the weight of the plain tiling and only a trifle heavier than slating, in consequence of not requiring to be laid double. This tile was made with two flanges, having notches in the flanges. These notches allowed the tile when turned topsy turvy to go down and take a level bearing upon the two side tiles beneath it.

In reply to a question, Mr. TAYLOR said that the floor varied from 6 to 10 inches above the ground surface, and all the unnecessary depth of foundation, sleepers, walls, &c., required by wooden flooring were avoided; and provided the soil was sufficiently good, they might build nearly upon the surface instead of going down 18 inches for a foundation. He next called attention to warming by means of the usual open fire-place. By the present system of warming the greater the warmth the greater the draft; and the next defect was that 75 per cent. of the heat produced rushed up the chimney. Then, again, there were the evils resulting from smoke. There was no smoke in the lower part of the fire where the greatest heat was to be found; but on coming to the upper part of the flue the smoke was thrown off and ascended. In his plan he had a register at that point, and the smoke not being able to ascend the chimney passed down into the fire, where all the carbon was at once consumed as fuel, which it really was. When that had taken place, the smoke deprived of the carbon went up the chimney, when the smoke and heat which otherwise would have gone up the chimney passed round the parts which formed the fire place, and these were hollow; they were in fact between two fires. The room was by this means provided with a large quantity of moderately warmed air, not overloaded by coming into contact with over heated surfaces, but moderately warm, and the three defects which he had pointed out were all remedied by one and the same agency. The smoke—the carbon in the smoke—was consumed without any trouble—the heat which would have escaped up the chimney was made use of—and the room, instead of being supplied with cold air from the door or the window, was supplied with a moderately warm air. He next pointed out the means by which he proposed to remove the common evil of a smoky chimney, and described the *modus operandi* by which the chimney was swept and kept clean, which appeared to be of a very simple and easy character. If his plan were adopted, the services of a chimney sweeper would not be required more than once in 5 or 6 years.

Mr. BAILEY DENTON observed that however important the principle of construction might be, there was a still more important question, and that was the cost. He wished to know how was that cost to be met, what proportion was to be borne by the landowner—what proportion by the tenant, and whether it was possible for the ordinary farm labourer to contribute more for rent than one-seventh of his wages, which in many cases did not exceed 9*s.* or 10*s.* a week.

Mr. TAYLOR, after entering into some details as to the cost of the brickwork, said that three-roomed cottages might be constructed of concrete walls with his brick facing for, 140*l.* a pair, assuming the materials to be within a reasonable distance. Of course that could not be done if the materials had to be conveyed 100 miles. The use of these materials would benefit the labouring classes in a sanitary point of view, would benefit him as a manufacturer, and would undoubtedly be a great advantage to the landed proprietor and also to the tenant.

Mr. WOODS, of Chichester, spoke of the advantage of using mud walls, of which he had seen specimens in Suffolk and Wiltshire, and which were always kept carefully whitewashed. The only objection to the use of these walls was that a nail could not be driven into them, nor anything placed to fasten the windows without injuring walls of that description.

After some further discussion a vote of thanks to Mr. Taylor, proposed by the Chairman and seconded by Mr. McDouall, was passed, and the Secretary announced that the next meeting for discussion would be on the 18th of March.

Farmers' Clubs.

KINGSCOTE: *Feb.* 3.—The Monthly Meeting of this association was held on Feb. 3, J. T. Harrison, Esq., President of the Association, in the Chair. There was an unusually large attendance of members, who had the pleasure of listening to one of the most interesting and instructive papers ever read before this association, the subject being on Artificial Manures, their relative value and economic application to farm crops, by Mr. Edward Drew, of Calcot.

The following are extracts from this paper:—

1. *As to Artificial Manures.*—In dealing with the subject I take the more extended view, although I question its correctness, and include as artificials all substances or fertilisers imported or derived from extraneous sources, dwelling more particularly on those fertilisers best known and most used and appreciated by us. These comprehend guano, bones, nitrate of soda, sulphate of ammonia, soot, superphosphate of lime, with a few of the manures specially prepared for roots, corn, &c.

Before entering on them, perhaps it may not be uninteresting to shortly review the important progress made and the attention devoted to these manures during the past 20 or 25 years. Previous to this time bones were the principal artificial manure: others were, however, known and used, but on a very limited scale, and chiefly in the vicinity of large towns or cities, or near to the place of supply, such for instance as night soil, hair, feathers, fish, greaves, woollen rags, horn shavings, soapers' ashes, soot, salt, rape cake (with lime, chalk, and marl, to as great if not greater extent than at the present time), and extraordinary results are recorded of the effects of some of these, one of which in 1777 is from the use of old feathers. An application of 10 bushels per acre, at a cost of 15*s.*, yielded a crop of 48 bushels of white Wheat, against 28 bushels on unmanured land. Bones at the commencement of the present century were only used in four or five counties, but in a rough state, and in large dressings. Arthur Young, in his prize essay of the Bath and West of England Society in the year 1804, states they were used to a considerable extent in the neighbourhood of London, even to the amount of 250 to 300 bushels an acre, but the dressings varied according to the opinions of individuals. They were first broken and boiled for the grease, then sold to the farmers, and at that time worth from 3*d.* to 4*d.* a bushel, which some few years before were to be had for 1*d.* a bushel; their duration exceeded all other manures, their effects having been seen for 30 years. As time advanced they were not so lavishly applied, and a more systematic mode of applying them adopted; by some they were mixed with dung, ashes, mould, or road-scrapings, and formed into heaps some time before using, and occasionally turned over, which promoted heating and assisted decomposition; the whole was then spread on the land (on the tillage) and immediately ploughed in, the price 1*s.* per bushel, the quantity used from 50 to 60 bushels per acre. Their good effects were soon so apparent that it caused an increase in the demand, and as a consequence, a rise in price which necessitated a still further economy in using, and experience having shown that the finer they were the better the effect, mills were brought into action for the purpose of crushing or grinding them, and one of these mills was in use in this immediate neighbourhood some 30 years ago, which no doubt many of you recollect, and know more about than I do (I allude to that at Owlpen). Bone dust was also brought from the Messrs. Procter's of Bristol about this time; it is however a curious fact that the Messrs.

Procter crushed bones and sent them into other countries, years before they were used and appreciated here The mode of applying them now is by the drill (mixed with ashes), at the rate of from 8 to 20 bushels per acre, costing from 2*s.* to 2*s. 6d.* per bushel. The present era of progress commenced about the year 1840. Nitrate of soda had previously claimed attention, and the wonderful working of guano was talked of, the first importation of which took place in 1841. The dissolving of bones by means of sulphuric acid was manifesting itself, but we do not see superphosphate in our regular manure list until 1844, and it was backed by the use of sulphate of ammonia; in fact step by step, chemical inquiry, manure manufacturing (and not a little manure quackery) began, and was advancing in most rapid and great strides, and it has now attained such magnitude as to render it not only a matter of import to the producer and consumer of meat and corn, but also a flourishing branch of commercial enterprise.

Present Consumption of Artificial Manures :—

In illustration of which I will give you a statement made by Professor Anderson at Dumfries, of an approximate estimate, from inquiries made by him, as to the extent to which these several dressings were used. The value of guano imported and retained for home consumption in the year 1858, was 3,857,724*l.*; the usual import he puts at not less than 2,500,000*l.*; the annual import of bones, 84,000 tons; home produce, 50,000 tons; or a total of 134,000. 20,000 tons of this amount he deducts for the use of the bone turners and other purposes, leaving a balance of 114,000 tons to be employed in agriculture, of which he thinks 40,000 may be used as bone-dust, at a cost to the farmer of 6*l.* per ton, the other 74,000 tons, converted by sulphuric acid into 110,000 tons of superphosphate, valued at 7*l.* per ton. Mineral phosphates he puts at 48,000 tons, yielding 72,000 tons of superphosphate, at 5*l.* per ton; 13,000 tons of nitrate of soda, at 15*l.* per ton; and 6000 tons of sulphate of ammonia, at 15*l.* per ton; to these he adds the sum of 50,000*l.* to represent the value of other artificial dressings, such as blood, fish, soot, salt, potash, &c., or a total proximate value of the artificial manures consumed yearly by the agriculturists of this country as follows :—

Guano	£2,500,000	0	0
Bone dust	240,000	0	0
Superphosphate from bone, 110,000 tons	770,000	0	0
Do. from coprolite, 72,000 „	360,000	0	0
Nitrate of soda	195,000	0	0
Sulphate of ammonia	90,000	0	0
Other substances	50,000	0	0
	£4,205,000	0	0

The quantity of guano imported in 1841 (its first year) was 2881 tons, advancing in 1845 to 283,300 tons; the next four years it receded to an average of about 81,500 tons, when it again turned upwards, rising in 1855 to 305,061 tons, of the computed real value of 3,137,160*l.*; the quantities not so large in 1850-7, but in 1858 it amounted to 353,541 tons, being the largest quantity ever imported in one year, since which there has been a considerable falling off. The supply of other manures without doubt, however, has correspondingly increased, and the manufacture of superphosphate and other special manures to an enormous extent, and which to some degree may be judged of from the immense increase in the supply and use of sulphuric acid. I have been informed of one company having used 700 carboys a day; when we consider that this is sufficient for the production of something like 1000 tons per week from one house, some idea may be gathered of the magnitude of the trade, and it is not to say the trade is concentrating, for we are constantly hearing of fresh manufacturers starting, whilst the old and established ones say their business rather increases than diminishes. I will shortly allude to those artificial manures or fertilisers most in use and favour in this immediate neighbourhood, which are guano, nitrate of soda, soot, and salt, with specially prepared manures, for our corn and Grasses. I know of but one instance of bones being tried for corn, and that (so far as the crop was concerned) a failure, and only in very few cases to pasture. Guano, bones, superphosphate, with specially prepared manures, according to the opinions and experience of the farmer, are applied to the several root crops.

Choice of Artificial Manures :—

As practical men, we know there is nothing like muck; science confirms our opinion of its merits. In selecting our artificials, we should endeavour to procure (bearing in mind the crop to be raised) those nearest resembling yard manure in their fertilising properties. First in order (of the artificials) I will take guano. There are few who have not witnessed the good effects that this manure has on vegetation; theorists and consumers all agree that for general purposes hardly any other manure can compete with it, and all efforts to find one of equal reputation at less cost have failed. It is considered by chemists to belong to the nitrogenous class of manures, rich in ammonia, at the same time containing a proportion of phosphates, and a manure more calculated for grain crops than for roots.—Next comes nitrate of soda and sulphate of ammonia. Nitrate of soda has been used in this neighbourhood for some years, but not extensively; it is considered more as a stimulant than a manure, and is better calculated (combined with salt) as a top-dressing at spring for corn crops, and the Grasses, than for roots. If pure it should consist of 94 or 95 of chemically pure nitrate, and contains much the same amount of ammonia [nitrogen] as guano, but in rather a different state; it does not lose its virtue in dry, hot weather, like guano; on the other hand, if an excess of rain occurs, there is a probability of a portion being washed away. It has, however, generally extraordinary powers of invigoration, producing most marked effects on vegetation.

Sulphate of ammonia contains a larger per-centage of ammonia than any of the others. It is not very extensively used, and is very similar in its action to nitrate of soda.

I will now pass on to soot, another of the nitrogenous group, and one of the oldest of the extraneous fertilisers used in this locality. Some here probably recollect the immense quantities used for Wheat and Potatoes, by the late Mr. Joseph Dimery, of Stancomb, and to which he in a great measure attributed his success in raising such good crops, under what I should consider a scourging course of cropping, viz., roots, Potatoes, and Wheat.

Soot owes its fertilising action in a great measure to ammonia. It sometimes contains as much as 5 per cent; it should average rather over 2; it is best adapted for the cereals, and has in many instances produced good results.

I will now pass on to those that are considered more immediately as root fertilisers, such as bones, superphosphate, and special manures. Bones have been longest used, but are now to a great extent superseded by the others. Bones in their natural state contain a large proportion of phosphate, with a good deal of gelatine and fat, and about 5 per cent. of ammonia. The presence of grease prevents their rapid decomposition, and accounts for their tardy action. After being subjected to boiling or steaming they act more readily, and even after burning they are more soluble still, showing that their manuring properties are chiefly derived from the phosphates. Chemists now tell us it is a complete waste of money to apply them in their natural state, and that they never should be used without first subjecting them to the action of acid. Superphosphate, next to guano, undoubtedly is the most important, and the most extensively used artificial manure, even if it does not now stand first in point of quantity. Professor Anderson's calculations were made some time since, then being 132,000 tons. In all probability they now exceed 200,000, whilst the imports of guano have considerably fallen off. The sources from which it is derived are bones, bone-ash, animal charcoal, the inferior varieties of charcoal, coprolites, and mineral phosphates; a good deal of variation no doubt exists in the qualities of this manure.

Then comes special prepared Turnip manure, a superior one of which occurs in the same set of experiments by Dr. Voelcker on Swedes. The difference in this and the superphosphates consists in the Turnip manure being much richer in organic matters, and containing a larger per centage of ammonia. It is altogether a very interesting set of experiments, and would well repay a little time and attention devoted to their perusal. I had thought to have selected analyses of a few of our grain and root crops, to show the difference existing in their composition. I found, however, time would not admit of my doing so; I must therefore content myself by stating a few of the principal points of difference in the nutriment they require, and source of its supply. The constituents abounding in Wheat are starch and gluten; its mineral matter (or ash) ranging between 1½ and 2 per cent., the ruling elements of which are phosphoric acid, potash, and magnesia—valuable constituents, and which if not abounding in the soil, have to be supplied in the shape of manure, the best for which science informs and practice confirms are those abounding in nitrogen, such as nitrate of soda, sulphate of ammonia, guano, soot, and the like. Barley and Oats are of somewhat similar character, abounding in starch and the protein compounds, but varying a little in the quantities, yielding however rather more ash, which differs somewhat in its composition; that of Barley contains a large portion of silica, and Oats still more. Our root crops contain a very large quantity of water, some of them over 90 per cent.; at the same time it must be borne in mind they yield a great weight per acre, consequently the apparent insignificant quantities of other ingredients much exceed those existing in corn crops. Twenty tons of Turnips per acre contain an excess over a crop of 25 bushels of Wheat and 1½ ton of straw (according to Professor Johnstone), three times the amount of protein compounds, more than double the quantity of sugar, pecten, gum, &c., and almost double the quantity of saline matters, and an excess of oil or fat. Independently of the food drawn from the land and the application of manure, plants derive a portion of their nourishment from the atmosphere, some being taken in through the leaves, whilst other is carried down by the rain into the soil, and admitted through the roots—large leaved plants, like the Turnip, having a decided advantage in this respect over the narrower leaved tribe, as corn. Various and rather conflicting opinions and statements exist as to the proper kind of manure for roots; practice, however, by the large employment of superphosphate, seems to confirm theoretical views—that those manures are best in which phosphates abound.

(To be continued.)

Reviews.

Two Letters on the New Highway Act. By a Warwickshire Incumbent. T. B. Wright, Union Street, Birmingham.

These two letters appeared in the first instance in the *Midland Counties Herald*, and we are glad to announce their publication in a separate form, as great service will undoubtedly be done by their extensive circulation. Both the efficiency and economy of good management are well illustrated in these pages, and the argument for the general adoption of the new Act appears to us irresistible.

The following passage state forcibly the evils of the present system :—

"I verily believe that human ingenuity would be taxed in vain to discover any system more plausible, and at the same time more utterly subversive of the end in view than the system we have all been up to the present date suffering under. What, it may be argued, can be more reasonable, more likely to promote productive expenditure, wise economy, and good and sufficient highways, than to entrust the entire control, maintenance, and management of them to the respective parishes through which they pass, whose inhabitants of course use them most? But look at the practical working of the plan, and it will at once be seen that there are causes at work which must ever render the present system hopelessly bad. Road making is just as much an art as shoemaking or any other craft, and proficiency in it can only be acquired by long and extensive practice, and by a thorough knowledge of certain fundamental laws. Now, who are the persons mostly selected by the parishes to serve the office of surveyor? Are they not usually tenant farmers who, although perfectly honest and well-intentioned, have had no training or experience in the art of the office they have undertaken? If an efficient man is appointed, and he proceeds to place the roads in shape and in good and substantial repair, and by consequence, to require somewhat more than the accustomed rate, he is for a certainty ejected with ignominy and reproaches from office after a tenure of one or two years, and is succeeded by some noisy ignoramus who spends and does next to nothing, and suffers the roads to deteriorate and go down, and ultimately resigns office with honour and praise. The result is, that in the long run the roads cost three times as much as if they had been properly kept up, and the cost had been scattered over a course of years. My house is situated on the confines of the districts assigned to some half-dozen surveyors, and within an easy walk I can witness every possible prank and vagary played, and the utter violation of every fundamental law which must be observed in the maintenance of a good and serviceable road. Let me illustrate this remark by a few examples, and let me ask your readers whether their experience does not coincide with mine.

"Perfect and complete drainage is so essential that without it a road is continually heavy and in a bad state, and requiring constant renewal of materials, and on the recurrence of a frost is blown up. Outlets from the water tables into the ditches cannot therefore be too numerous; and where there are causeways, should be conducted under them by drain pipes. But my friends, the rural surveyors, don't agree to this, and consequently I have to traverse whole lengths of uselessly muddy roads, where the ditches are closed up, and footpaths or green mounds on each side bank up the water and keep the road chronically rotten. In this parish, containing 51 miles of road, I do not believe that last year the surveyors expended 2*l.* in pipes for drainage out of a total expenditure of 455*l.*

"A road should fall transversely from the centre, at the rate of 1 in 24. In some cases the centre of the road will be seen to be the lowest, and the water running longitudinally along it, and in other cases the road is made so convexed and hog-backed that the pressure of the wheels cannot be perpendicular, and the constant thrust of the metal is to the side of the road, which is thus spoiled.

"Then, again, there should always be a relative proportion observed in the outlay on labour and material; but in the nine districts of this parish, no rule whatever can be traced, and, looking to the small sum in some cases expended on materials, it is hard to understand how it happens that the highway remains as good as it does.

"Then, again, metal should never be added more than a stone's thickness at a time, and the stones should not be larger than 2 inches. But my friends cannot submit to any such tedious process as this. Stones are not broken down to the required size. The whole weight needful is frequently thrown on at once, and the result is that a considerable portion of the metal is ground to pieces; the road becomes corduroy fashion and one-sided by reason of the traffic following one track; and it continues in a loose and unsettled state for double the time to what would have been the case had the required thickness been added one coat at a time.

"As water is the greatest enemy, so the sun and the wind are the greatest friends to good roads. For the obtaining of these last essentials it is needful that the hedges should be kept low and trees should be trimmed up. Few amongst us care to embroil ourselves with our neighbours or go to law with them, and least of all in carrying out the duties of a thankless public office, and so it happens that the hapless surveyor suffers the occupiers of land, especially if they chance to be the big men of the parish, to damage the road by their high hedges and over-shadowing trees, and to occupy it by their filthy manure heaps, and to encroach upon it by their buildings and new set hedges, enclosing intakes of land, rather than quarrel with them, and lose both time and money by summoning them to abate their nuisances.

"The rate for the maintenance of the parish roads is levied on all without exception; and at the appointed time the inevitable surveyor knocks at *pauperum tabernas regumque turres*. But though all have to contribute to the income, a very large class are utterly neglected and ignored in the expenditure. On an average I traverse twice weekly on foot the two miles of parish road between my house and a neighbouring important village. For half the distance there is no footpath whatever. Over the remaining half there certainly is a footway; but, as to the best of my belief, it has not, for three-fourths of the distance, been touched by the surveyors for the last 20 years, and still obstructs the passenger with the identical petrified kidneys or boulders, and the same uneven surface which I recollect on first making its acquaintance, its presence is only adding insult to injury."

We hope the voice of the Warwickshire Incumbent will be widely heard and generally listened to.

Farm Memoranda.

TABLEY, NEAR KNUTSFORD.—Farm contains 117 acres. In pasture 47½ acres, Clover and seeds mown 18 acres, Oats 16½ acres, Barley 17½ acres, Potatoes 4 acres, Swedes 8 acres, Mangels 4 acres; homestead, orchard, gardens and occupation roads 1½ acres. Live stock consists of 4 farm horses, 5 colts, 1 brood mare, and 12 dairy cows, 6 heifers, 100 sheep, 50 pigs, and 4 rearing calves; total 182. Fed on Grass, Hay, Straw, Oats, Beans, Indian and Barley meal, with oilcake. Make annually about 300 tons of manure, which is applied to root crops. Purchase annually about 5 tons of Bradbury's guano substitute, and about 10 tons of fine ground bones. The farm has been all drained by my landlord. I have eradicated upwards of a mile and a-half of old fences, and planted 2787 yards of new ones, my landlord finding Quicks. Have filled up several large pits, and made a culvert of 1090 yards, and 16 inches inside, through the farm, my landlord finding culvert bricks. By this have gained near 4 acres of arable land. Have also gained near 3 acres by inclosing waste land from the high road. Have erected a hay shade of 28 yards by 7, and about 20 feet high to the eaves, at a cost of 95*l.*, a bakehouse and other buildings costing 20*l.* Also made a new occupation road through the farm, of 423 yards long, at my own expense. July 15, 1862. (Signed) THOMAS HURST.

This farm lies well as to good roads, near a railway and town, and in a good climate. The soil mostly a light sandy and peaty loam, easy to cultivate, but requiring considerable assistance in manure. Mr. Hurst has not stated in his certificate, what is his customary rotation. But it appears to be—1st, Oats after seeds, 2d, root crops, 3d, Wheat or Oats, or Barley seeded, 4th, seeds mown, and then pastured two years. This year he has no Wheat. The farm is now in seven fields, and one is in permanent pasture. The root crops were very healthy and clean, as well as the head ridges around. One fourth of the Barley crop was very light, with many annual weeds in this portion. The remaining three quarters a very fine thick uniform crop, of good colour, with plenty of Clover and seeds at bottom. Oats the strongest and best crop we have seen this season; stood well, and 5 feet high. Clover and seeds had been a heavy first crop, and the 2d crop coming well on. The 2d and 3d year's seeds, pastured, full of Grass of a good quality. The old turf very good. All the fences on the farm are new, well grown, and healthy, 4 feet broad at bottom, and cut to a point at top, about 5 feet high. The farm is well laid out for convenient approach to the fields, and these of proper form and size. The homestead is in the wrong place, but in all other respects well arranged and in very correct order. The whole, including house and dairy, showing constant attention to cleanliness. The live stock of the right sort for the purposes intended, and the same may be said of the implements. Gates, posts, and occupation road in good order.

ORRELL, NEAR LIVERPOOL.—This claimant's farm is 98 acres. There are 9 acres in pasture, meadow or clover mown 30 acres, 4 of which are covered with dung water. Wheat after Potatoes 16 acres, Oats 3½ acres, Barley 13 acres, Potatoes 16 acres, Turnips and Mangel 3½ acres, orchard, gardens, and roads 3 acres. Customary rotation of crops on this farm :—1, Potatoes and other green crops; 2, Wheat; 3, Barley or Oats, under which seeds are sown to lie 3 or 4 years, sometimes 5 years. Stock on this farm :—4 horses, 2 colts, 6 dairy cows, 6 heifers and stirks, 8 pigs, 3 calves—total, 29 heads. In summer the stock are fed

mostly in the pastures on cut Grass or Clover. Makes 180 tons of mrnure in the year, applied to Potatoes or Turnips. Buys 220 tons of cow and horse manure, applies that to green crop. Buys 280 tons of night soil and street sweepings, and 4 tons of guano, applied to Grass crops and general purposes. Has drained 43 acres since 1853. Does not state the quantity or number of tiles used; but the subsoil of this farm is mostly of a broken sandy character; the drains would operate at wide apart. Since 1853 has eradicated 3,500 lineal yards of old fences, and filled up the ditches; has eradicated 200 yards of old fences and filled up the ditches; these ditches averaged near 6 feet deep, and a considerable quantity of material had to be carted for filling up the ditches. Laid tiles on slates in all the ditch bottoms. Filled up 4 pits, 2 of them very large. Cost 87*l*; and by that gained 3¼ acres of land. Built new steaming house, with apparatus, and shandry house—these cost 50*l*. Half of all tiles used were at claimant's own expense. Planted 2,700 yards of Quicks, part of which, with the railing, found by claimant, and portion by the landlord.

All the meadow and Clover land on this farm is in a highly cultivated condition. The pasture land, 9 acres, is in two fields, and is the best we have seen in the same locality. Wheat in two fields, beautiful corn and good crops and clean. The Barley and the Oats, with seeds under both, tall and thick crops. The Potatoes, in two fields, showed equal to the best in district, and far superior to most crops this year. Both Turnips and Mangel, have seen only a few instances equal during our inspection. All the fences on this farm are modern, some only planted a few years, and all of them in a growing state, well kept, and look well. The gates substantial, and in good repair. Yards, barns, and piggeries, in nice order. Orchards and garden clean, and in productive condition. House altogether respectable looking, both inside and outside.

By Mr. J. B. SPEARING, Moulsford, near Wallingford, Berks, during the week ending Feb. 25, 1863.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

Day of Week.	Day of Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Dry Bulb Thermometer.	Reading of Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0-6.	Amount of Cloud 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
		At 9 A.M., Railway Time.												
Thursday ..	19	Inches. 30.43	° 41	° 41	W.	1	10	53	32	94*	26	Inches. 0.17	° 40	° 42
Friday ..	20	30.40	42	41	S.E.	1	5	50	40	63	38	0.15	42	42½
Saturday ..	21	30.37	39	38	S.	1	6	44	32	51	28	0.01	42½	42½
Sunday ..	22	30.29	40	39	N.W.	1	2	55	37	87	31	0.01	43	43
Monday ..	23	30.38	44	43	W.	1	2	51	35	89	29	..	43	43½
Tuesday ..	24	30.35	45	45	W.	1	6	51	43	70	40	0.01	44	44
Wednesday	25	30.45	44	43	S.W.	1	7	48	40	52	39	..	44½	44

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Notices to Correspondents.

BOOKS: *Inquirer*. Morton's "Farm Calendar" (Routledge) or the "Cyclopædia of Agriculture" (Blackie), 10*s*. 6*d*. and 3*l*. 15*s*. respectively.

GROWING IRISH FLAX.—The following is the extent grown in Ireland in each of the following years:—1854, 151,403 acres; 1855, 97,075 acres; 1856, 106,311 acres; 1857, 97,721 acres; 1858, 91,646 acres; 1859, 136,282 acres; 1860, 128,595 acres; 1861, 147,957 acres; 1862, 149,389 acres. This last item has just been published.

SUBSOIL: *Agricola*. It is impossible to give advice founded upon a mere examination by the eye of a handful of the soil. We can only urge as general truths, that the drainage of land when water stagnates, the marling of sands, the addition of lime when no calcareous matter, or when an excess of organic matter exists, are all profitable operations.

TOLL BARS: *A Traveller*. We are not learned in the law; but it is plain that the spirit of the Act, and of decisions under it, is against the charges you name, viz., for carting the tops of trees (not timber) from one part of a farm to the other, and for the farmer riding his pony from one part of the farm to the other.

Seed Trade.

JAMES CARTER AND CO., Holborn, W.C., have a few lbs. of the following to offer to the Trade:—

MELVILLE'S GARNISHING KAIL,
VARIEGATED BEET, for garnishing,
SNOW'S WINTER BROCCOLI, true,
LITTLE PIXIE CABBAGE,
NEW FEATHER STEM SAVOY,
DANVER'S YELLOW ONION,
TOMATOE DE LAYE,
HENDERSON'S PINE-APPLE BEET.

Garden Seeds.

COLLECTIONS of KITCHEN GARDEN SEEDS, consisting of all the choicest sorts, are offered as follows:—

				£	s.	d.
No. 1 contains 20 quarts Peas, and all other seeds in proportion				3	0	0
No. 2	ditto 10 quarts	ditto	ditto	1	10	0
No. 3	ditto 5 quarts	ditto	ditto	0	15	0
No. 4	ditto 5 pints	ditto	ditto	0	10	6

CATALOGUES on application.

RICHARD SMITH, Seed Merchant, corner of High Street and Broad Street, Worcester.

Pine Apple Place, Edgware Road, London, W.

ARTHUR HENDERSON AND CO. beg to announce that their CATALOGUE of KITCHEN, FARM, and FLOWER SEEDS, Imported German Asters, Stocks, and Collection of Vegetable Seeds, for One Year's Supply—

Collection, No. 1	105*s*.	Collection, No. 3	42*s*.
,, No. 2	84*s*.	,, No. 4	25*s*.
Collection, No. 5	15*s*.		

is now ready, and will be forwarded free on application.

NOTE.—This Catalogue contains only the best varieties of Vegetables, and an abridged List of the most valuable Flower Seeds.

Seeds for the Kitchen Garden, Flower Garden, and Farm.

JOHN CATTELL'S DESCRIPTIVE CATALOGUE of the above is now ready, and will be forwarded, post paid, on application; it contains select lists only, and includes every novelty worthy of cultivation.

All parcels of Seeds of the value of 21*s*. and upwards carriage paid to any Railway Station in England.

Nursery and Seed Establishment, Westerham, Kent.

Vegetable and Flower Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully announces that his SEED CATALOGUE is now ready, free by post.

The COLLECTION of VEGETABLES recently Commended by the Royal Horticultural Society was grown from Seeds furnished by him.

Nurseries and Seed Warehouse, Waltham Cross, N.

Vegetable, Flower, and Agricultural Seeds.

NEW AND RARE PLANTS, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing select descriptive and priced lists of AGRICULTURAL, KITCHEN GARDEN, Imported GERMAN, and other FLOWER SEEDS; NEW and RARE PLANTS; Variegated, Ornamental Foliaged, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now published, and will be forwarded Post Free to all applicants.

Exotic Nursery, Tooting, Surrey, S.

NEW CUCUMBERS, at 1*s*. per packet.

Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

CARTER'S CHAMPION CUCUMBER, recommended by the Royal Horticultural Society as being an excellent bearer. Fruit solid and firm, and the best of the Sion House class. 1*s*. per packet. A few ounces of our own saving to offer the Trade.

237, 238, & 261, High Holborn, London, W.C.

YOUELL'S NORFOLK HERO CUCUMBER.—Without exception the best Ridge Cucumber known. 6 Seeds, 1*s*.; 18 Seeds 2*s*.

LAING'S MAMMOTH CELERY.—The very best, hardiest, and finest flavoured Red Celery in cultivation. 1*s*. and 2*s*. per packet, on receipt of postage stamps.

See former advertisement.

YOUELL'S Royal Nurseries, Great Yarmouth.

NEW HARDY WHITE SWEDE.—The Favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills. Grows rather coarse on some soils or when sown early; but it is very productive, hardy, and it is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor land.

Seed 1*s*. per lb., or 42*s*. per bushel.

Supplied by RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

THE NEW PARSNIP "STUDENT."—SEED of this improved PARSNIP, "ennobled" by Professor BUCKMAN, of the Royal Agricultural College, Cirencester, is now ready for delivery by Messrs. SUTTON & SONS, Post free, in packets, 6*d*., 1*s*., or 2*s*. 6*d*. each. Also Wholesale to the Trade.

It can also be obtained from any of the Seedsmen named in the List which appeared in *Gardeners' Chronicle* of Jan. 31.

Royal Berks Seed Establishment, Reading.

Established 1787.

THOMAS KENNEDY AND CO., NURSERY AND SEED ESTABLISHMENT, Dumfries, N.B.

*** PRICED CATALOGUES sent free on application: FREE DELIVERY.

FARM and GARDEN SEEDS under certain limitations will be DELIVERED FREE OF CARRIAGE to the chief Railway Stations in Great Britain and the principal Steam Ports in Ireland.

To Seedsmen and Others.

THOMAS AYRES, SEEDSMAN and GROWER, Biggleswade, Beds, begs to offer the following SEEDS of his own growth of 1862, viz:—

WHITE SPANISH ONION SEED,
MANGEL WURZEL SEED, various kinds,
SWEDE, and COMMON TURNIP, ,,
SEED POTATOES of the following varieties:—EARLY ASH LEAF KIDNEY, MYATT'S PROLIFIC do., EARLY SHAW and REGENTS.
SCARLET RUNNER BEANS (English grown).
A PRICE LIST forwarded upon application.

To the Trade.

THE SUBSCRIBERS have still a few hundred thousands of each of the following SEEDLINGS to offer:—

1 year Seedling Larch	2 year Seedling Pears
2 year Seedling Silver Fir	1 year Seedling Pinus Austriaca
3 year Seedling Spruce	
2 year Seedling White American Spruce	1 year Seedling Pinus Laricio
1 year Seedling English Oak in drills	1 year Seedling Pinus maritima

Also a large Stock of Transplanted BEECH, 1½ to 2 feet; Transplanted NORWAY SPRUCE, 9 to 15 inches and 12 to 18 inches; Transplanted WHITE AMERICAN SPRUCE, 1 to 2 feet; all extra fine stock. Samples, with prices, which are very low, may be had on application.

MORRISON BROTHERS, Aberdeen.

REIGATE SILVER SAND.—Best quality, 8*s*. per ton; PEAT SOIL and LOAM, 6*s*. per ton; good BUILDING SAND, 3*s*. per ton; REIGATE BUILDING STONE, best quality, 8*s* per yard, in not less than 4 ton lots, put on the Rail at Reigate.

W. SHORT, Reigate Heath, Surrey.

COCOA-NUT REFUSE, as used for FERNS, BEGONIAS, &c., so much admired in the International Exhibition, delivered in the City at 1*s*. 6*d*., or within 2½ miles of Charing Cross, at 2*s*. per bag of 3 bushels. Ten bags or more on lower terms. Apply to the PATENT COCOA FIBRE COMPANY, Kingston-on-Thames, S.W.

Also for particulars of SHORT FIBRE for Orchids and Drainage in pots.

Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are the best and most economical of any, and are sold in every town in the kingdom; at DEANE'S, London Bridge; and E. WHITE & SON'S, 95, Cannon Street.

CAUTION.—Every Brush is stamped "J. BARSHAM'S Patent."

On Sale,

PERUVIAN GUANO.

Apply to Messrs. GIBBS, BRIGHT, & Co., 1, North John Street, Liverpool.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

To Farmers, &c.

CHEAP GYPSUM MANURE.—Parties requiring GYPSUM can be supplied at 10*s*. per Ton, bulk, at the Works at Kennington, S.

Address, X. L., 34, Chapel Street, North Brixton, S.

*** Delivered on Rail, adding for bags and cartage.

TENANT FARMERS' MANURE COMPANY.

ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME,

MANUFACTURED BY THE PATENT

NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED).

Consisting of TENANT FARMERS, occupying upwards of 30,000 Acres of Land.

Chairman.—JOHN CLAYDON, Esq., Littlebury, Essex.

Particulars of these Standard Manures may be obtained at the Offices. C. T. MACADAM, Secretary.

Or of the Local Agents.

Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex, N.E.

LAWES'S MANURES. The Manures msnufactured by J. B. LAWES for the present season of 1863 are now ready for delivery at his Factories, at the following prices:—

LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from Messrs. Gibbs: Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

CAUTION to BUYERS of GUANO.—Having been informed that Guano has been Imported into Liverpool, and offered for Sale as "BAKER'S ISLAND GUANO," I hereby give Notice that I control the Deposit of "Baker's Island," and that the Genuine GUANO can only be procured of W. H. WEBB, at New York; or through my Agents, Messrs. GUION & Co., of Liverpool, and GRINNELL, TINKER, & MORGAN of London. WILLIAM H. WEBB.

Burling Slip, New York, December 9, 1862.

Crushers of Cotton Seed and Linseed.

MARLAND AND CO., 6, New High Street, Manchester.

Prices of Cake or Oil will be sent on application.

Prize Medal at the International Exhibition, 1862.

E. WOLFF AND SON'S SOLID INK PENCILS in CEDAR for GARDEN TALLIES.—These Pencils are the Best and Cheapest Invention ever used for Writing on Garden Tallies of all descriptions, the action of the air, rain, &c., not having the slightest effect upon them. The advantages resulting from their use are—Firstly, the simplicity of an ordinary lead pencil; secondly, the superiority and portability of a dry pencil over liquid Ink, or Paint; and, thirdly, their reasonable price, which places them within the reach of all classes.

These Pencils are also useful for all kinds of Writing, Memoranda, &c.

Price 3*d*. each; extra thick, 6*d*. each.

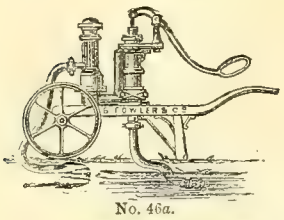
To be had Retail of all Seedsmen, Nurserymen, and Stationers, and Wholesale at the Manufactory, 22 & 23, Church Street, Spitalfields, N.E.

BENJAMIN FOWLER & CO.,

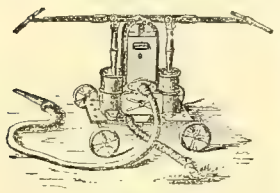
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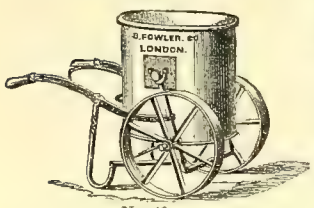
WHITEFRIARS STREET, FLEET STREET, LONDON.



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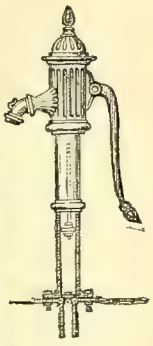


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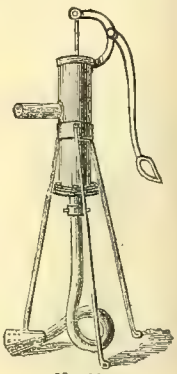


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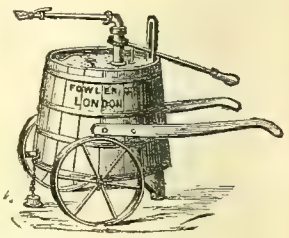




No. 4.



No. 38.



No. 49.

THE Landscape Sketch shows an adaptation of THE IMPROVED HYDRAULIC RAM for forcing water to considerable heights and distances to supply Mansions, Farms, &c., where a few feet fall can be obtained. Full particulars of this useful Self-acting Machine can be had on application.

No. 4. FOWLER'S Useful YARD, GARDEN, and COTTAGE PUMPS, from 1*l.* 5*s.* each.
No. 38. FOWLER'S Portable LIQUID MANURE PUMPS, with flexible suction pipe.
No. 46*a*. FOWLER'S DOUBLE-ACTION PORTABLE FORCE PUMPS and FIRE ENGINES for Water or Liquid Manure.
No. 50. FOWLER'S Improved (Holman's Patent) DOUBLE-BARREL FARM FIRE ENGINES and IRRIGATING PUMPS.
No. 49. GARDEN ENGINES of all sizes.
No. 49*a*. Improved SWING WATER CARRIERS, holding 24 and 35 gallons, for Garden Use.

Further Particulars, Estimates, and Illustrated Price Lists on application.

SAMUELSON & CO.'S PATENT LAWN MOWING MACHINES.

SAMUELSON & CO.'S IMPROVED GARDEN ENGINES, GARDEN ROLLERS, AND GARDEN SEATS.

CATALOGUES FREE, ON APPLICATION TO BRITANNIA WORKS, BANBURY, or to

SAMUELSON AND CO.'S LONDON WAREHOUSE, 76, CANNON STREET WEST, CITY,

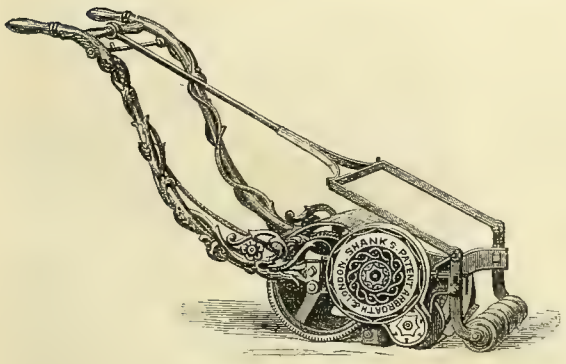
WHERE SAMPLES MAY BE SEEN.

SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.



NEW HAND MACHINE.

THE FIRST PRIZE MEDAL

OF THE

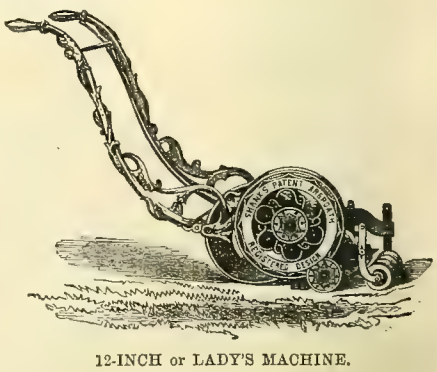
INTERNATIONAL EXHIBITION

WAS AWARDED TO

ALEX. SHANKS AND SON

FOR THEIR

PATENT LAWN MOWERS.



12-INCH or LADY'S MACHINE.

ALEXANDER SHANKS AND SON are gratified to find that the Improvements introduced into their PATENT LAWN MOWERS last season have been so entirely successful, that universal satisfaction has resulted from the use of these Machines wherever they have been tried. The Patentees have this season introduced further Improvements into their already celebrated Lawn Mowers, which are fully described in their Illustrated Price Lists, which will be at once forwarded on application.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved, and their success established.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863,

FOR WHICH HER MAJESTY'S ROYAL LETTERS PATENT HAVE BEEN OBTAINED.

THE FIRST PRIZE MEDAL

OF THE

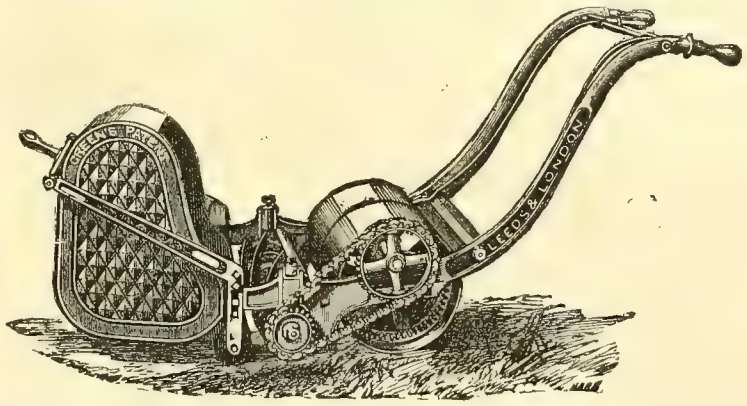
INTERNATIONAL EXHIBITION

WAS AWARDED TO

THOMAS GREEN

FOR HIS

PATENT LAWN MOWERS.



These were the only Machines highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862.

(No Prizes were given).

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS

DURING THE SEASON OF 1862.

THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, have much pleasure in stating that the important Improvements which were added to their Machines for last season (which combined simplicity of construction, durability, and lightness of draught), have proved them to be superior to anything of the kind ever brought before the Public, inasmuch as they have given entire satisfaction wherever used, and have gained the largest sale of any Machines extant. They have carried off every Prize that has been given in all cases of competition.

GREEN'S PATENT LAWN MOWERS are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

To Cut 10 inches	£3	10	0	Suitable for a lady.	
„ 12 „	5	0	0	Suitable for one person.	If with internal gear, 10*s.* extra.
„ 14 „	5	10	0	Do. Do. Do. Do.	10*s.* extra.
„ 16 „	6	10	0	Suitable for one man or two boys.	

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	£12 10 0
„ 26 „	12 10 0	13 12 0
„ 30 „	16 14 0	18 0 0

Leather Boots for Donkey, 16*s.*; for Pony, 20*s.*

		If With Patent Delivery Box.
To Cut 18 inches ...	£7 10 0 Suitable for one man and boy	£8 15 0
„ 20 „ ...	8 0 0 Do. Do.	9 5 0
„ 22 „ ...	8 10 0 Suitable for two men ...	9 17 6
„ 24 „ ...	9 0 0 Do. Do. ...	10 7 6

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

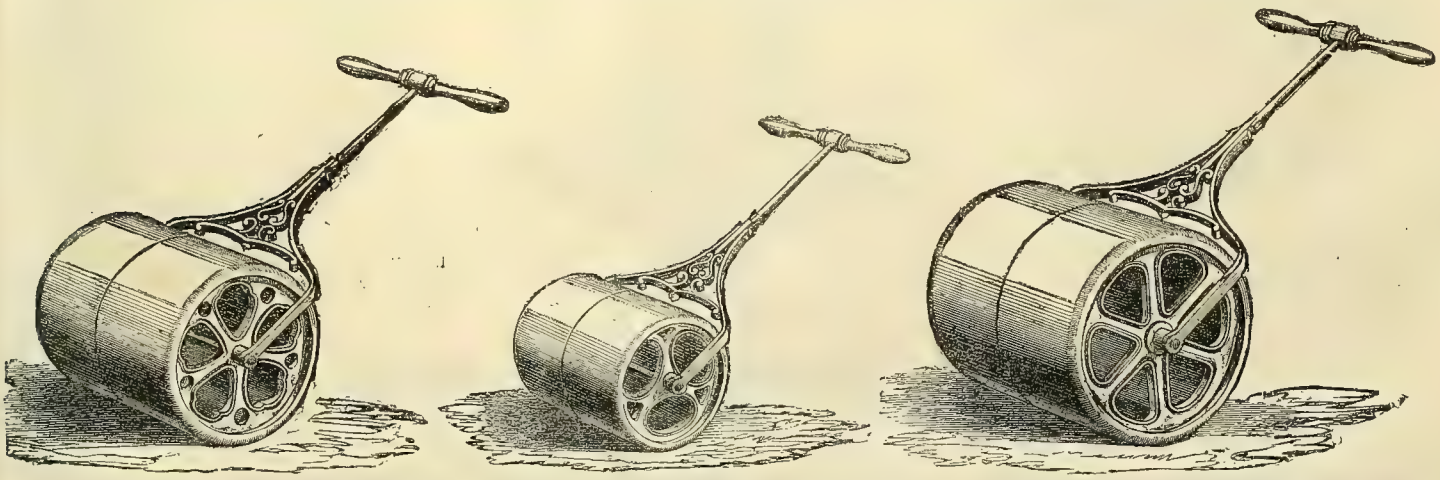
	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	£21 10 0
„ 36 „	23 0 0	24 16 0
„ 42 „	26 0 0	28 2 0
„ 48 „	29 0 0	31 8 0

Leather Boots for Horse, per set, 1*l.* 4*s.*

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

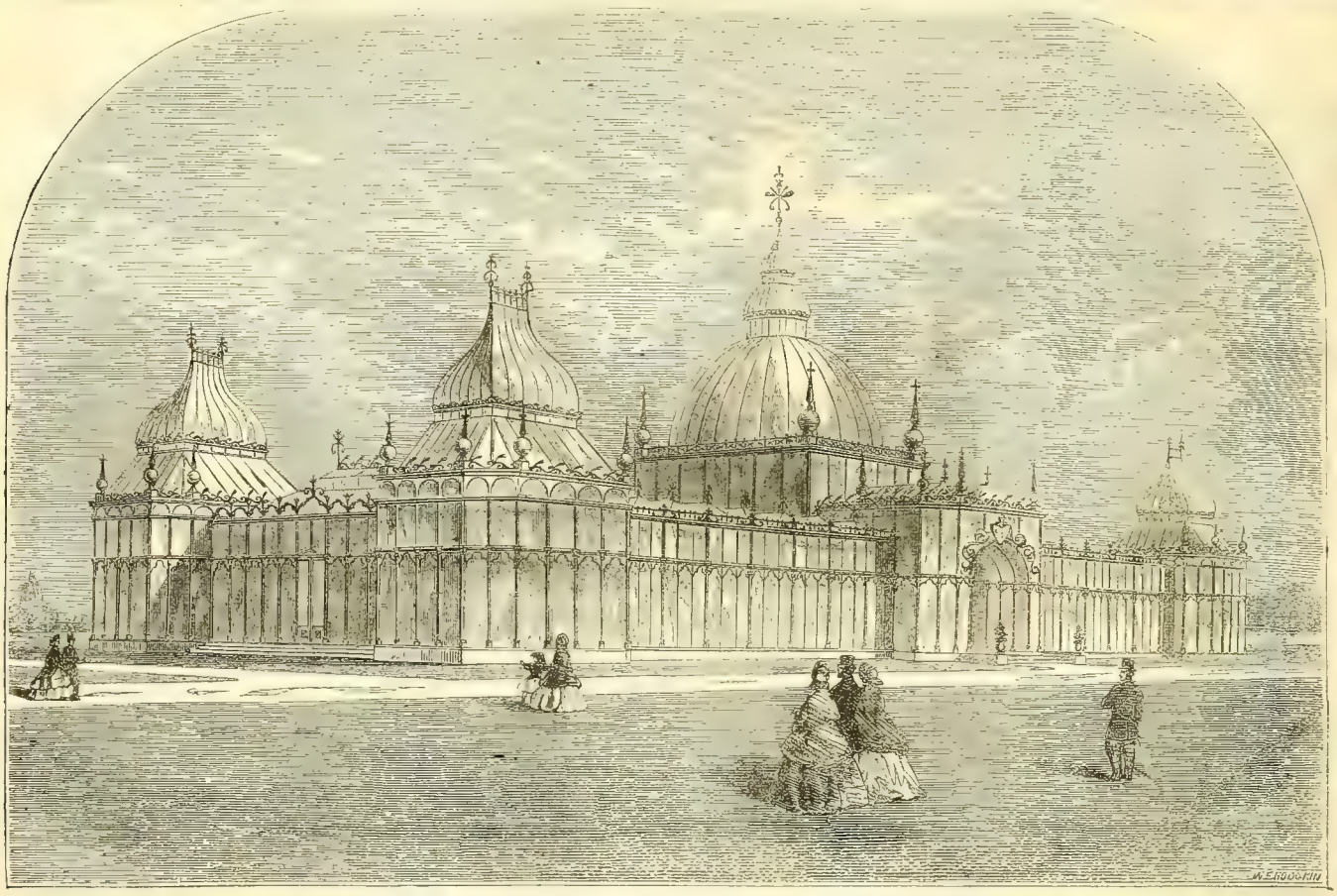


Diameter 20 inches, length 22 inches, price £3 5*s.* | Diameter 16 inches, length 17 inches, price £2 10*s.* | Diameter 24 inches, length 26 inches, price £4 5*s.*
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

T. GREEN AND SON in introducing the above are well aware that the extremely simple character of this Implement cannot admit of any very radical change, yet they are confident that the Improvement just effected (and secured by Letters Patent) is a real one, and is strikingly apparent when compared with any other Garden Roller. In previous Rollers a limit was always set to weight in consequence of marks being left on the gravel, and the power required to work them, but the present one is nearly double the ordinary weight, yet is considerably easier to turn in consequence of the Roller being divided in two parts, and the outer edges being rounded off or turned inwards, thus avoiding the *unsightly marks* left by all others hitherto in use. They can be used by the most unskilful with the greatest certainty of producing a beautifully even surface, either on *Lawns or Gravel Paths*, and for the *Bowling Green and Cricket Field are really indispensable.* They are manufactured of the best materials, and got up in a manner surpassing any ever yet brought out.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.



CONSERVATORY SPECIALLY DESIGNED FOR

HIS HIGHNESS THE LATE VICEROY OF EGYPT,

BY

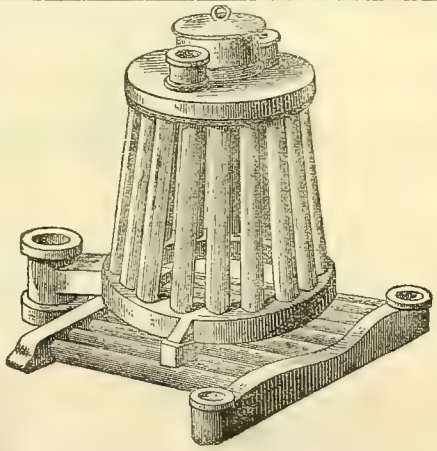
JOHN WEEKS & COMPANY,

HORTICULTURAL BUILDERS AND HOT-WATER APPARATUS MANUFACTURERS,

KING'S ROAD, CHELSEA, S.W.



FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the INTERNATIONAL EXHIBITION.





FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER
At the INTERNATIONAL EXHIBITION.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

HAS TAKEN MORE AWARDS THIS YEAR THAN ANY OTHER TUBULAR BOILER.

These Awards have been given by Scientific, Practical, and Competent Judges.

At the Exhibition of Boilers at the Royal Horticultural Society's Gardens, ORMSON'S PATENT JOINTLESS TUBULAR BOILER was the ONLY Boiler of any description to which an Award was given.

Other Tubular Boilers advertised in the pages of the *Gardeners' Chronicle* were exhibited to which NO Awards were given.

HORTICULTURAL BUILDINGS of every description MANUFACTURED by STEAM-POWER MACHINERY.

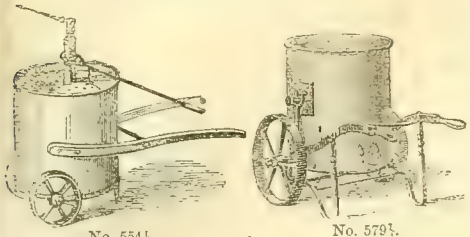
Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES, AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.



No. 554½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

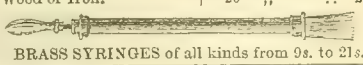
10 gallons	..	.. £2	15 0
16 ,,	..	.. 3	15 0
24 ,,	..	.. 5	0 0

Larger sizes may be had in either Wood or Iron.

No. 579½.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	.. £2	10	0
20 ,,	.. 2	0	0



BRASS SYRINGES of all kinds from 9s. to 21s.

AMERICAN PORTABLE FIRE ANNIHILATOR and GARDEN ENGINE.



£2 2s.

An efficient means of Extinguishing Fires at their commencement. Nine out of ten Fires in London are put out on their first appearance by the London Fire Brigade with Hand Pumps of considerably less power.

One man will throw 7 or 8 gallons per minute from 40 to 50 feet with it.

It is an effective Garden Engine for cleansing or syringing Wall-fruit or Rose Trees, Plants, or Vines.

It may be used to draw water from the pail in which it is fixed, or from a tank or pond by the addition of the required length of suction. It is simple in its construction, having no suction or delivery valves to clog with dirt or leaves.

No Establishment, either private, commercial, or manufacturing, should be without one.

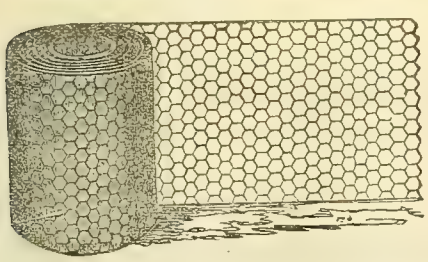
Six feet of Flexible Suction, with Union and Suction Rose, &c., extra, 12s. Longer lengths of Suction at 1s. 6d. per foot.

The above may be obtained of all Ironmongers and Seedsmen in Town and Country, or of the Manufacturers,

JOHN WARNER & SONS, 8, Crescent, Cripplegate, London, E.C.

BARNARD, BISHOP, AND BARNARDS, Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.

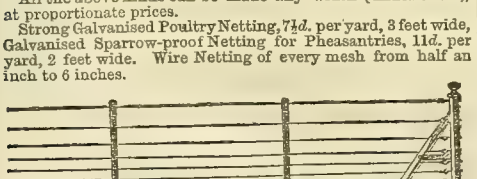


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard
2-inch mesh, 24 inches wide..	No. 19	.. 4¼d.	.. 3½d.
2-inch ,, ,, ,, .. ,,	18	.. 5	.. 4
2-inch ,, ,, ,, .. ,,	17	.. 6½	.. 5
2-inch ,, ,, ,, .. ,,	16	.. 8	.. 6½
1⅝-inch ,, ,, ,, .. ,,	19	.. 4¾	.. 4
1⅝-inch ,, ,, ,, .. ,,	18	.. 6	.. 4¾
1⅝-inch ,, ,, ,, .. ,,	17	.. 7	.. 5½
1⅝-inch ,, ,, ,, .. ,,	16	.. 9	.. 7

All the above kinds can be made any width (under 6 feet), at proportionate prices.

Strong Galvanised Poultry Netting, 7½d. per yard, 3 feet wide, Galvanised Sparrow-proof Netting for Pheasantries, 11d. per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 fee apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10d. per yard.

The same with Galvanised Wire Rope, 1s. per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.

Can be obtained through the principal Nurserymen and Seedsmen in England.

A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.

PAGE & TOOGOOD, Seed Merchants, Southampton.

ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and Destroying the Fly, 1s. 4d. per lb., over 10 lbs., 1s. 1d.

JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C. Post Office Orders payable Fleet Street.

To Florists and Nurserymen.

H. PERKINS calls the attention of the above to his large stock of Genuine TOBACCO PAPER and CLOTHS, at 10d. per lb., warranted free from adulteration, having taken every pains to secure the same.

Address, 16, Cambridge Circus, Hackney Road, London, N.E.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1s. and 2s. per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP,

1s. per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE CO., Limited.

THE SPADE and its ADAPTATION.—Illustration of WALTERS'S Open Spade, dimensions of ditto. SEEDS made proof against Birds and Insects; LISTS of FLOWER, VEGETABLE, and FARM SEEDS, also S. W.'s 27th ANNUAL CATALOGUE of SELECT PLANTS, ROSES, &c., in exchange for Six Postage Stamps.

S. WALTERS, Hilperton, Trowbridge, Wilts.

Notice.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS), HORTICULTURAL VALUER, begs to inform his friends and the public that he has REMOVED from Priory Road, Wandsworth Road, to No. 1, Devonshire Terrace, Fulham Road, S.W.

MORTON'S PATENT NOISELESS LAWN MOWER.—This Machine Rolls, Collects, and Delivers the Grass, and Combines all the most recent improvements, including those secured by her Majesty's Royal Letters Patent for 1863. For efficiency and simplicity it cannot be surpassed, and can be worked by any one unskilled in Machinery. It is superior to all other Machines yet introduced to the notice of the Public for keeping Lawns and Pleasure Grounds in the highest state of perfection. No place, however small, should be without one.

Catalogues, with Prices, can be obtained free on application to GRIMMOND, LAIRD & Co., 15, Cannon Street West, E.C.

*** Agents wanted in every town. Apply as above.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.

Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4d. to 1s. 6d. per yard and upwards.

For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

Kerry Cattle.

MR. RICHARD G. CAMPION, Youghal, County Cork, has now ready for SALE 12 Beautiful HEIFERS, in Calf to a pure bred Bull, and to drop after 1st March.

Carhead Pigs.

MR. WAINMAN has several YOUNG BOARS and SOWS of his Battersea Prize Strains for SALE, at moderate prices.

Apply to Mr. FISHER, Carhead Farm, Cross Hills, Yorkshire.

TO BE SOLD, a newly formed NURSERY, with excellent Dwelling House, two handsome Conservatories, and two Greenhouses 40 feet long, each delightfully situated, opposite the Grove, Church End, Finchley.

For particulars apply on the Premises.

TO BE LET, in the County of Pembroke, LLANGWARREN FARM, consisting of 473 Acres, more than half of which is Pasture.

For particulars, apply to J. B. LAWES, 1, Adelaide Place, London Bridge.

Monmouthshire, near Raglan.

TO BE LET, a capital FARM, consisting of about 138 Acres of Land which has been thoroughly drained. The Buildings are in good repair. Distant one mile from a Railway Station.

For particulars apply to Mr. BAILEY DENTON, 52, Parliament Street, S.W.; or to Mr. W. F. BATT, Solicitor, Abergavenny.

To Nurserymen, Gardeners, and Others.

TO BE DISPOSED OF, by Private Treaty, and with early possession (in consequence of the failing health of the present Proprietor), an OLD ESTABLISHED NURSERY, with Hot and Greenhouses, doing a good business, in an excellent situation, and within a few miles of Liverpool. The whole to be taken at a valuation.

For particulars, apply by letter, post paid, to M. S., Wren & Sons, Tea and Coffee Merchants, Temple Court, Liverpool.

TO BE LET, NURSERY LAND, from 5 to 30 acres, on Lease, in the locality of Bagshot, near two Railway Stations, very suitable for the growth of Trees, American Plants, and Evergreens generally. A good Residence can also be had on the ground. This is a convenient opportunity for a London Nurseryman, as a portion has been trenched, and planted with Evergreens, &c.

Apply to J. T. VINING, Esq., 54D, Moorgate Street Buildings, London, E.C.

Sales by Auction.

Important Sale of Plants from Surrey.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on MONDAY, March 2, at half-past 12 o'Clock precisely, SPLENDID SPECIMEN CONIFERS, comprising Wellingtonia gigantea, 3 feet; Thujopsis borealis, 6 feet; Pinus Benthamiana, 6 feet; Cupressus Lawsoniana, 3 feet; Araucaria imbricata, 3 feet; Thuja Lobbi, 2 feet; Abies Douglasii, 4 feet, and others. Vines, Rhododendrons, Standard, Half Standard and Dwarf Roses, Laurels, Clematis, Berberis, &c.

On view the Morning of Sale, and Catalogues had.

Seeds and Cones.—Important Sale.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on THURSDAY, March 5, at half-past 12 o'Clock precisely, CONIFEROUS SEEDS and CONES, comprising Wellingtonia gigantea, Cupressus Lawsoniana, macrocarpa and McNabiana; Picea nobilis, amabilis and grandis; Abies Pattoniana, Libocedrus decurrens, Thuja gigantea, Juniperus excelsa, Magnolias, five good varieties; Araucaria Brasiliensis, Pinus Lambertiana, ponderosa, Sabiniana, &c.

On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on FRIDAY, March 13, at half-past 12 o'Clock precisely, Choice CAMELLIAS, BEGONIAS, LILIES, RHODODENDRONS, Azaleas, Cannas, Delphiniums, Piceas, Pæonias, and other Greenhouse and Hardy Plants.

On view the Morning of Sale, and Catalogues had.

Stratford, Essex.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Bunney to SELL by AUCTION, on the Premises, The Nurseries, Leytonstone Road, and within five minutes' walk of the Stratford Station, on the Great Eastern Railway, on TUESDAY, March 3 and following day, at 11 o'Clock each day, without reserve, the ground being immediately required for gravel digging, the valuable NURSERY STOCK, comprising quantities of fine Evergreens of various sizes and description, including many specimens of Aucubas, Bays, Fan and Irish Yews, Hollies, and other Shrubs for effective purposes; some very handsome Dwarf-trained Peaches, Nectarines, Cherries, Standard Plums, Apples, Pears; a superb assortment of Standard and Dwarf Roses; also Scarlet and other Rhododendrons, Azaleas, sorts, Andromeda floribunda, Kalmias, with a variety of Hardy Climbers in pots, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; at the Eagle, Snaresbrook; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Sale of very Handsome English Grown Camellias, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, March 6, at 12 o'Clock, about 200 Choice DOUBLE CAMELLIAS, compact plants, from 1 to 6 feet, abundantly furnished with Bloom buds; fine AZALEA INDICA in flower; a superb assortment of about 300 very handsome Standard, Half Standard, and Dwarf Roses; a fair Collection of American Plants, Lilium lancifolium rubrum and album, Ericas, Epacris, Cinerarias, Fuchsias, Verbenas, Pæonias, Dahlias in dry roots, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Battersea.

To GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS ENGAGED IN PLANTING.

MESSRS. PROTHEROE AND MORRIS have received instructions from the Executors of the late THOMAS GAINES, Deceased, to SELL by AUCTION on the Premises, Surrey Lane, Battersea, on MONDAY, March 9, 1863, at 11 o'Clock, the ground being required for building upon, the whole of the valuable NURSERY STOCK, consisting of a quantity of fine Evergreens and Deciduous Shrubs, comprising some handsome Variegated and Green Hollies, large Aucubas, Chinese Arbor-vitæ, 3 to 7; Irish and English Yews, Box, Privet, Laurels, Thuja sorts, fine Mulberries, a quantity of Herbaceous Plants, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex, N.E.

N.B. The whole Collection of Choice Greenhouse Plants, Greenhouses, Pits, and other Effects, will be submitted to public competition the middle of next April.

Close to Brighton, among the Southdowns.

Capital Residence, with Pleasure Garden, Laundry, Stabling, Yards, Piggeries, and numerous other useful Buildings, all in the best possible state of repair; a Meadow, and about 11 acres of fertile Garden Ground, with Fruit Trees, Frame Ground, Forcing Pits, Hothouses, and Greenhouse clothed with choice Vines.

MR. WILKINSON has received instructions to LET on LEASE or DISPOSE of the LEASE of the above valuable PROPERTY, most delightfully situated, and highly eligible to any gentleman fond of horticultural pursuits or to a market gardener, or nurseryman and florist. The whole of the ground has been deep-trenched, is in a high state of productiveness, and fully stocked. The demand for garden produce at Brighton is necessarily great, while the supply is well known to be very limited, and this Property, on which a large sum has been recently expended, offers an unusually favourable opportunity for conducting a profitable business; or to the proprietors of any extensive establishment it would be equally advantageous.

For particulars and cards to view apply to Mr. WILKINSON, Brighton; or to Messrs. GADSDEN, WINTERFLOOD, & ELLIS, 18, Old Broad Street, London.

THE HYDROPULT,

THE HYDROPULT
IS INVALUABLE FOR

WATERING GARDENS,

EXTINGUISHING FIRE at its COMMENCEMENT,

PROTECTING a ROOF from FIRE,

CLEANSING TREES from INSECTS,

DRESSING with LIQUID MANURE,

SPRINKLING PLANTS,

WASHING WINDOWS,

WETTING SIDEWALKS,

SPRINKLING STREETS,

WASHING CARRIAGES,

WETTING SAILS,

A SPRAY BATH,

&c. &c.



CAUTION. — Unprincipled parties are now palming on the public an infringement of the Hydropult Patent. This is to notify, that said pirates and all persons using or vending this article will in due time, be prosecuted. No machine contained in a bucket is the Hydropult. Every Hydropult has a Trade Label affixed, as follows:—

"The Hydropult, a Portable Fire Annihilator and Garden Engine.

"GRIFFITH & BROWETT, Manufacturers, Birmingham;

"CHARLES P. BUTTON, General Agent.

"VOSE'S Patent;"

and is sold at the uniform rate of TWO GUINEAS, complete, with 2½ feet suction and 3-feet delivery hose, Galvanised Wire Strainer, Rose or Sprinkler, and Fire Jet. It is an easy matter to imitate the Hydropult in appearance, and thereby deceive the public; therefore this caution.

A PORTABLE GARDEN ENGINE AND FIRE ANNIHILATOR.

SECURED BY ROYAL LETTERS PATENT.

PRICE TWO GUINEAS,

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Small Jet.

The Hydropult is a simple, effective, and convenient Apparatus for throwing Water by hand. It WEIGHS BUT 8 LBS., is made of Brass and Copper, costs but Two Guineas, and will throw 7 or 8 gallons of water per minute 50 FEET when worked by the power of one man.

FIRE! FIRE! FIRE!

THE HYDROPULT IS THE MOST EFFECTIVE FIRE ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.

EXTRACTS FROM TESTIMONIALS.

Read the following from THOS. RIVERS, Esq., the eminent Florist and Nurseryman:—

"The Hydropult is admirably adapted for Nurseries, and will be found invaluable for Watering and Syringing Plants and Trees in pots."

SHIRLEY HIBBERD, Esq., says in the "Gardeners' Magazine:"

"It will perhaps surprise the reader to be told that this little contrivance, which is pretty as a toy, and can be carried under the arm as easily as a trumpet, will throw from 7 to 8 gallons of water per minute a distance of 50 feet. But it will do it, as we know from having tried it, finding the experiment an agreeable exercise, and of special service in washing down a stuccoed wall, which it accomplished quite as well as if we had sent for the parish engine. Gardeners will not need to be told the value of a Portable Force Pump of this simple kind. It can be used to produce a powerful stream to extinguish a Fire, or a gentle shower to Syringe a whole house full of Plants, without the necessity of moving a single step from the position most convenient for a supply of water. Wherever a Pump or Syringe is needed the Hydropult can be brought into use, to remove Water from a Cellar or a Boat, to cleanse a Cistern, wash a Pavement, or drench the Foliage of Trees loaded with soot, or annihilate at one fell swoop the whole Insect population of a Plantation of Roses. But we will not enlarge upon its merits, they are obvious, and having a Hydropult in use we can say that it will soon pay for its cost in a Garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water."

"There can be no doubt but that it can be made available in the earlier stages of Fire in Warehouses, Manufactories, or Private Houses, in preventing large conflagrations.

"PERCY M. DOVE, Esq.,
"Manager Royal Insurance Company."

"The invention will prove extremely valuable for all the purposes to which such Machines are applied.

"SWINTON BOLT, Esq.,
"Secretary Liverpool and London Insurance Company."

IMPORTANT TO YACHTING CLUBS.

We take pleasure in presenting to the public the following Testimonial from Lieut.-Colonel WHEATLEY:—

"I have much pleasure in stating that both I myself and several friends have used your Hydropult for Wetting Yachts' Sails and Washing and Baling out Boats with the greatest success; and, for an instrument of its size, consider it most useful and applicable to Yachting purposes, obviating the necessity of a large engine or skeats during a match.

(Signed) "W. WHEATLEY."
Royston.

"I consider the Hydropult the most convenient Garden Engine I have seen. My gardener is delighted with it.

"ARTHUR NASH."

"The Hydropult fully answers my expectations. It is a most useful little tool in a Greenhouse, or to clean Carriages, Windows, &c. "SAMPSON LLOYD, Esq.,
"Proprietor of Old Park Ironworks, Wednesbury."

"I would state that the Instrument now in use at the Asylum gives entire satisfaction. Their applicability and general utility for Household, Farm, Garden, and other purposes, cannot be too highly spoken of.

"W. F. KNIGHT, Esq.,
"Secretary Borough Lunatic Asylum, Birmingham."

"I required the Hydropult to Lay Dust in Yards, &c., which it does effectually. "JAMES FLYNN, M.D.,
"Resident Physician and Manager Clonmel District Lunatic Asylum."

Valuable premises in Oxford were saved from destruction by the use of the Hydropult alone.

T. SPENCER, Esq., Inspector of the Royal Society for the Protection of Life from Fire, certifies to its efficiency in saving valuable property in Bayswater from destruction.

Prospectus, with Testimonials, on application at either Office.

HYDROPULT OFFICE: 27, LEADENHALL STREET, LONDON, E.C.; and 309, REGENT STREET, POLYTECHNIC BUILDING, LONDON, W.—CHARLES P. BUTTON, PROPRIETOR.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 10.—1863.] SATURDAY, MARCH 7. {Price Fivepence. {Stamped Edition, 6*d*.

INDEX.

Agricultural statistics	228 *b*	London trees	219 *b*
Aucuba, male of	222 *c*	Northumberland Farm	230 *c*
Birds and insects	222 *b*	Orchard houses	222 *b*
Blenheim	227 *b*	Pirton Court Farm	228 *a*
Botany, Monthly Journal of	224 *b*	Potatoes	220 *b*
Cider and perry	231 *a*	Rose culture	221 *a*
Conifers	223 *a*	Royal Hort. Society's Garden	221 *c*
Crocuses	223 *a*	Royal wedding day	222 *c*
Dumbleton	226 *b*	Society, Bot. of Edinburgh	223 *a*
Fish and fishing	220 *b*	— Royal Agricultural	229 *a*
Garden law	222 *a*	Sparrows	229 *a*
Grape, Muscat of Escholata	222 *c*	Steam cultivation	226 *b*
Grass lands	229 *a*	Strawberry, British Queen	221 *b*
Grubs and sparrows	228 *c*	Transplanting trees	222 *c*
Hedychiums	219 *c*	Trees, London	219 *b*
Homesteads of England, rev.	230 *b*	Top dressings	225 *c*
Indoor gardening	221 *b*	Trials of reapers	229 *a*
Lancashire distress	222 *c*	The house sparrow	229 *a*
Law, garden	222 *a*	Weather Book, rev.	223 *b*

ROYAL BOTANIC SOCIETY,
REGENT'S PARK.

The FIRST EXHIBITION of SPRING FLOWERS, CAMELLIAS, PRIMROSES, &c., will take place on SATURDAY, March 28.

Tickets are now being issued, and can be obtained at the Gardens by orders from Fellows and Members of the Society, price 2*s*. 6*d*. each; or in packets of 10 for 1*l*. per packet. The Gates open at 2 o'clock.

The Band will play from half-past 2 to half-past 5 o'clock.

ROYAL BOTANIC SOCIETY,
REGENT'S PARK.

EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, May 13, June 3, and 24.
AMERICAN PLANTS, MONDAY, June 8.

Tickets are now being issued, and can be obtained at the Gardens by orders from Fellows of the Society. Price on or before May 2, 4*s*.; after that day, 5*s*.; or on the days of Exhibition, 7*s*. 6*d*. each.

THE CHRYSANTHEMUM.—A GENERAL MEETING of the AMALGAMATED METROPOLITAN CHRYSANTHEMUM SOCIETY will be held at the Angel Hotel, Islington, on MONDAY, March 16, when the Committee will submit a Code of Rules, &c., for the Government of the Society. The Chair to be taken at 8 o'Clock P.M., by ALFRED SMEE, Esq., of the Bank of England, F.R.S., the President of the Society.
J. JEFFERIES, Hon. Sec.
10, Catherine Street, Barnsbury Park, N.

Grape Vines.

J. IVERY AND SON beg to inform their Patrons that their stock of the above is unusually fine this season. A PRICED LIST now ready.
Dorking Nursery.

Pine Plants.

TO BE DISPOSED OF, by a gentleman leaving for town and giving up his House, &c., about 100 good healthy PINE PLANTS, this and last year's growth.
Apply by letter to Mr. F. STEAD, 23, Jarratt Street, Hull.

FIGS, in Pots.—Nice strong Plants of all the best varieties by the dozen.
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RICHARD WEBB, Calcot Gardens, Reading.

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W. J. NICHOLSON, Egglescliffe, Yarm, Yorkshire.

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3000 DAHLIAS (dry roots) of the best sorts in cultivation; also 500 PAMPAS GRASS (strong) in 32-size pots.
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CYCLAMEN PERSICUM. — Fine varieties and foliage, in full bloom or with buds, 9*s*., 12*s*., & 18*s*. per doz.
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B. W. KNIGHT, FLORIST, &c., Battle, Sussex, can supply the New FUCHSIAS of 1862 in good plants, at 6*s*. per dozen.—CATALOGUES sent on application.

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WOOD AND INGRAM have to offer to the Trade and others fine Stocks of the above, Cash price and Samples, if required, on application.
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Garden and Agricultural Seeds, Carriage Free.
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Per packet, 1*s*. and 2*s*. 6*d*.
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New Garden Seeds of our own Growth.
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Choice Kitchen Garden Seeds.
B. S. WILLIAMS'S Advertisement on last page of *Gardeners' Chronicle*, Jan. 31.
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GARDEN SEEDS and FLOWER SEEDS of the finest and most rare varieties, at the lowest prices at which they can be delivered, carriage free, are quoted in WHEELER'S "Little Book" for 1863.
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WANTED, OLD SWEET-SCENTED CHINA ROSES.
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Exotic Nursery, Tooting, Surrey, S.

CABBAGE PLANTS.—Fine Drumheads, 3*s*. 3*d*. per 1000; Red Pickle plants, 4*s*. per 1000; Extra fine Early Cabbage, 3*s*. 4*d*. per 1000 of sorts; Large Asiatic Cauliflowers, 2*s*. 6*d*. per 100; Choice Early sorts of Cabbage Seed, 2*s*. 2*d*. per lb.
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NEW CELERY.—WILLIAMS'S MATCHLESS RED, a very superior variety, 2*s*. per packet.
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Royal Berkshire Seed Establishment, Reading.

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MELVILLE'S GARNISHING KAIL,
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					£	s.	d.
No. 1	contains 20 quarts Peas, and all other seeds in proportion	..	..	..	3	0	0
No. 2	ditto 10 quarts	ditto	ditto	..	1	10	0
No. 3	ditto 5 quarts	ditto	ditto	..	0	15	0
No. 4	ditto 5 pints	ditto	ditto	..	0	10	6

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Seeds for the Kitchen Garden, Flower Garden, and Farm.

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Vegetable and Flower Seeds, Carriage Free.

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Vegetable, Flower, and Agricultural Seeds.

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ROBERT PARKER begs to announce that his NEW CATALOGUE, containing select descriptive and priced lists of AGRICULTURAL, KITCHEN GARDEN, Imported GERMAN, and other FLOWER SEEDS; NEW and RARE PLANTS; Variegated, Ornamental Foliaged, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now published, and will be forwarded Post Free to all applicants.

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JAMES TYNAN'S importation of celebrated GERMAN ASTERS, STOCKS, WALLFLOWERS, PHLOXES, and other FLOWER SEEDS, is now ready, and comprises as usual an extensive assortment of the very best varieties, selected from the most noted Continental growers. They are made up, as formerly, in large or small packets, to suit the requirements of purchasers. Every description of Vegetable and Agricultural Seeds of the finest quality.

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	Per doz.—*s.*	*d.*		Per doz.—*s.*	*d.*
Hepaticas, sorts	.. 3	0	Primroses, Double White and Lilac	 4	0
Auriculas, sorts	.. 3	0	Sedum carneum fol. var.	3	0
Violets, Russian and Double White	.. 3	0	Christmas Roses	.. 6	0
Pinks, fine named	.. 3	6	Golden Yellow Wallflower	 4	0
Clove, old Crimson	.. 3	0	Rockets, sorts	.. 4	0
Pansies, fine named	.. 3	6	Hollyhocks, fine named	6	0
,, fine mixed	.. 2	6	Pampas Grass	.. 4	0

Also, Strong STOCK PLANTS of the following for Cuttings:—

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Lobelia speciosa kermesina, "true."	3	6	Fuchsias, new, 1862	.. 5	0
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50 Mixed ditto, fine quality	.. .. 4*s.*, 8*s.*, and	0	10 0
50 DOUBLE ANEMONES, one each	10*s.* 6*d.* to	0	13 0
50 Ditto Single Mixed	.. .. .. 2*s.* 6*d.* to	0	3 6

IMPORTED GERMAN SEEDS.—Asters, Stocks, Balsams, Immortelles, Larkspurs, Phloxes, Poppies, Zinnias, &c., in named assortments, 1*s.* and 2*s.* 6*d.* each.

ANNUAL SEEDS.—50 sorts, 10*s.*; 25 sorts, 5*s.*

VEGETABLE SEEDS, of the best quality.

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ARAUCARIA IMBRICATA, 3 feet, 6 feet, 9 feet, 14 feet.
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CEDRUS DEODARA, 3 feet, 6 feet, 12 feet, 20 feet.
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CHINESE JUNIPER, 3 feet, 5 feet, 6 feet.
IRISH YEW, 4 feet, 6 feet, 8 feet.
JUNIPERUS RECURVA, 8 feet.
PICEA CEPHALONICA, 3 feet, 4 feet, 11 feet.
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,, EXCELSA, 10 feet, 15 feet.
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,, BENTHAMIANA, 3 feet, 4 feet.
WEYMOUTH PINE (fine), 1½ foot, 2 feet.
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,, STANDARDS (to name).
KALMIA LATIFOLIA.
,, ,, STANDARDS (very fine heads).

Prices free by Post, on application. Also G. B.'s GENERAL PRICED LIST is now ready.

American Nursery, near Bagshot, Surrey, about 1¼ mile from Sunningdale Station, S. W. R.

SPLENDID NEW SCARLET VERBENA, LORD LEIGH.

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In offering the above SCARLET VERBENA, have much pleasure in stating that it has been awarded a First-Class Certificate by the Floral Committee of the Royal Horticultural Society, June 11, 1862; First-Class Certificate by the Royal Botanic Society, July 9; First-Class Certificate at the Crystal Palace, Sydenham, Sept. 4 and 5; First-Class Certificate by the Rugby Floricultural Society, August 29; First Prize by the Birmingham Botanic Society, July 10.

After the above Awards, S. P. & SON think it needless to offer any remarks, further than that it is of a free habit and will prove a first-class Bedding variety; colour the most dazzling scarlet that can be conceived, with a clear white eye; truss and pip extremely large, and of the finest shape and quality.

See Editor's remarks in *Gardeners' Chronicle*, August 30, 1862, and December 27, 1862; "Journal of Horticulture," Sept. 9, 1862. An Engraving will appear in the April Number of the "Florist and Pomologist."

Plants after April 15, 5s. each. Special Price by the dozen on application to the

PARK NURSERY, COVENTRY.

INTERNATIONAL EXHIBITION.

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AWARDED FOR SUPERIORITY AND GENERAL EXCELLENCE TO

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(ESTABLISHED UPWARDS OF A CENTURY.)

COLLECTIONS OF VEGETABLE SEEDS SUITABLE FOR ANY SIZED GARDEN.

No. 1.—	20 Quarts of PEAS and other Seeds in proportion	...	...	...	£3	3	0
No. 2.—	11 ditto	ditto	ditto	...	2	2	0
No. 3.—	8 ditto	ditto	ditto	...	1	10	0
No. 4.—	5 ditto	ditto	ditto	...	1	1	0
No. 5.—	5 Pints	ditto	ditto	...	0	10	6

A Specification of the above Collections is given at page 77 of Messrs. BUTLER & MCCULLOCH'S systematically arranged SEED CATALOGUE for 1863, which may be had free and post paid upon application.

COLLECTIONS OF FLOWER SEEDS.

NEW ANNUALS.

12 Extra fine Varieties	...	...	...	10*s.* 6*d.*	6 Extra fine Varieties	...	...	...	5*s.* 0*d.*

ANNUALS FOR BEDDING OUT.

100 Finest selected Varieties	...	...	...	30*s.* 0*d.*	25 Finest selected Varieties	...	...	...	7*s.* 6*d.*
50 ditto	ditto	...	...	15*s.* 0*d.*	12 do.	ditto	...	...	4*s.* 0*d.*

HARDY ANNUALS.

100 Finest selected Varieties	...	...	...	20*s.* 0*d.*	30 Finest selected Varieties	...	...	...	5*s.* 0*d.*
50 ditto	ditto	...	...	10*s.* 0*d.*	15 ditto	ditto	...	...	2*s.* 6*d.*

B. & McC. strongly recommend their COLLECTIONS of STOCKS, ASTERS, and BALSAMS to Amateurs and Exhibitors; neither trouble nor expense have been spared in procuring the very best.

All Flower Seeds sent post paid; and all orders for Flower and Vegetable Seeds amounting to £1 1*s.* sent carriage paid.

GARDEN SEEDS.

S. GLENDINNING & SONS,

NURSERYMEN AND SEEDSMEN

(SUCCESSORS TO THE LATE R. GLENDINNING),

Are now sending out their COLLECTIONS of KITCHEN GARDEN SEEDS.

No. 1	contains 36 Quarts of PEAS, and all other Seeds in proportion				£5	5	0
No. 2	,, 28 Quarts	ditto	ditto	ditto	4	4	0
No. 3	,, 20 Quarts	ditto	ditto	ditto	3	3	0
No. 4	,, 12 Quarts	ditto	ditto	ditto	2	2	0
No. 5	,, 6 Quarts	ditto	ditto	ditto	1	1	0

COLLECTIONS of FLOWER SEEDS.

No. 1,	containing 100 Large Packets of Best Hardy Annuals				...	...	£0	18 0
No. 2,	,, 50	ditto	ditto	ditto	...	...	0	9 6
No. 3,	,, 24	ditto	ditto	ditto	...	...	0	5 0
No. 4,	,, 25	ditto	Half-Hardy Annuals		...	...	0	7 6
No. 5,	,, 12	ditto	ditto	ditto	...	...	0	4 0
No. 6,	,, 25	ditto	Tender Annuals		...	...	0	12 6
No. 7,	,, 12	ditto	ditto	ditto	...	...	0	6 0

The above Collections consist only of best and most useful varieties, and are of the finest quality.

S. G. & SONS' CATALOGUE of KITCHEN GARDEN, AGRICULTURAL, and FLOWER SEEDS, is now ready, and may be had on application.

CHISWICK NURSERY, LONDON, W.

SEEDS.—GENUINE HOME-GROWN

VEGETABLE, FLOWER, AND AGRICULTURAL.

If above the value of 20*s.* Carriage paid to any Railway Station, and to all Irish and Welsh Ports in communication with Bristol.

CATALOGUES post free on application.

JAMES GARAWAY AND CO., DURDHAM DOWN NURSERIES, BRISTOL.

KITCHEN GARDEN SEEDS,

FLOWER SEEDS.

In Collections including all the new and approved kinds, or separate to order.

Detail CATALOGUES post free.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND — THOS. GIBBS & Co. Corner of HALF-MOON St. PICCADILLY, London. (APPOINTED APRIL 3, 1844) THE SEEDSMEN

AGRICULTURAL SEEDS,

GRASS SEEDS,

FARM SEEDS,

of all descriptions.

Thomas Gibbs & Co.

CORNER OF

HALF-MOON St.

PICCADILLY, LONDON, W.

J. C. WHEELER AND SON Glo'ster

GRASS SEEDS AND CLOVER SEEDS.

J. C. WHEELER & SON,

SEED GROWERS, of GLOUCESTER,

ARE IN A POSITION TO OFFER

GRASS SEEDS AND CLOVER SEEDS

ON EXTREMELY LIBERAL TERMS.

FARM AND GARDEN SEEDS

CARRIAGE FREE.

BANGHOLM SWEDE,
EAST LOTHIAN SWEDE,
WARD'S BEAUTY SWEDE,
DROPMORE SWEDE,
MARSHALL'S CHAMPION SWEDE,
GREEN-TOP SWEDE,
WHITE SWEDE,
IMPROVED SKIRVING'S SWEDE.
WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
DOBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
IMPROVED YELLOW GLOBE DITTO,
IMPROVED ORANGE GLOBE DITTO,



IMPROVED LONG RED MANGEL,
IMPROVED LONG YELLOW MANGEL
IMPROVED RED GLOBE MANGEL,
IMPROVED WHITE FIELD BEET,
RED CLOVER, | COWGRASS,
WHITE, YELLOW, and ALSIKE CLOVERS.
PACEY'S PERENNIAL RYE-GRASS, and other sorts
ITALIAN RYE-GRASS, FOREIGN and ENGLISH SEED.
NATURAL GRASS SEEDS, in mixture or separate, suitable for various soils and localities.
LIGHT RYE-GRASS and other CHEAP GRASSES, for Sowing on Railway Banks and Waste Places.

Orders for Exportation promptly attended to.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN,

28, KING STREET, CHEAPSIDE, NEAR the GUILDHALL, and

15, LAWRENCE LANE, LONDON, E.C.

NEW SHRUBBY CALCEOLARIAS.

MESSRS. JOHN & CHARLES LEE

Having purchased the entire stock of Seedling SHRUBBY CALCEOLARIAS, raised by Mr. Watson, of St. Alban's, in 1861 and 1862, have selected four distinct colours, which they intend to offer to the Public the first week in May. They are the finest high coloured Shrubby Calceolarias yet raised, and in point of habit and quality are everything that can be desired for bedding or pot culture. They are decidedly shrubby and of good constitution, with a dwarf spreading habit and good foliage. The flowers rise just above the leaves, forming an even mass of exquisite colouring.

Price 5s. each, or 15s. the set, as under:—

PRINCESS ALEXANDRA.—Rich orange buff, of very dwarf habit, free blooming and conspicuous. Quite a new colour in Calceolarias.

MAGNIFICENT.—Deep orange flowers, of large size with close mouth, flower stalks short and stiff, a good dense habit, and first-rate in every respect.

PRINCE LOUIS of HESSE.—Rich crimson flowers of medium size, free blooming, habit very dwarf and showy.

FIREFLY.—Intense orange scarlet flowers of good size, free blooming dwarf habit, the brightest colour yet raised.

Terms to the Trade on application.

ROYAL VINEYARD NURSERY AND SEED ESTABLISHMENT,

HAMMERSMITH, LONDON, W.

Seeds for the Flower Garden offered by

B. S. WILLIAMS.

	s.	*d.*
An Assortment of 12 Fine Selected Varieties of HARDY ANNUALS	1	6
An Assortment of 12 Fine Selected Varieties of HALF-HARDY ANNUALS	2	6
An Assortment of 12 Fine Selected Varieties of HARDY BIENNIALS and PERENNIALS, suitable for Rockwork	2	6
An Assortment of 12 Splendid Annual kinds of ORNAMENTAL GRASSES	2	0

Paradise and Victoria Nurseries, Holloway, London, N.

Choice Seeds of Asters, Balsams, and Stocks,

OFFERED BY

B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N.

	s.	*d.*
An Assortment of 12 varieties of TRUFFAUT'S PÆONY-FLOWERED ASTER, 100 seeds of each	2	0
An Assortment of four varieties of COCARDEAU or CROWN ASTER, 100 seeds of each	1	0
An Assortment of 12 varieties of CHRYSANTHEMUM-FLOWERED DWARF ASTER, 100 seeds of each	2	6
An Assortment of nine varieties of CAMELLIA-FLOWERED BALSAMS	2	6
An Assortment of 12 varieties of DOUBLE ROSE-FLOWERED BALSAMS	3	0
An Assortment of eight varieties of AUTUMNAL-FLOWERING STOCKS, 100 seeds of each	2	0
An Assortment of eight varieties of BROMPTON STOCKS, 100 seeds of each	1	6
An Assortment of 12 varieties of DWARF GERMAN TEN-WEEK STOCKS, 100 seeds of each	2	0
An Assortment of eight varieties of EMPEROR or PERPETUAL STOCKS, 100 seeds of each	2	0
An Assortment of six varieties of MINIATURE STOCKS, 100 seeds of each	1	6

A PRICED and DESCRIPTIVE CATALOGUE, post free to all applicants, containing useful suggestions for the guidance of amateur cultivators.

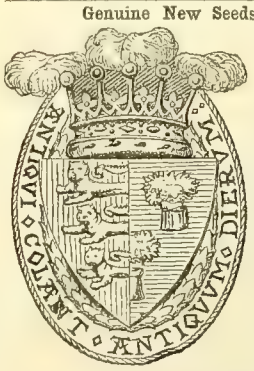
HARDY FLOWER SEEDS, of Showy Colours only, sent free by post or rail, by SUTTON AND SONS.

A COLLECTION of the best 50 sorts known .. 10*s.* 6*d.*
A COLLECTION of the best 36 sorts known .. 7 6
A COLLECTION of the best 24 sorts known .. 5 0

SUTTON'S CATALOGUE of SEEDS will be sent post free.

SUTTON & SONS, Seed Growers, Reading, Berks.

Genuine New Seeds, Carriage Free.



FRANCIS & ARTHUR DICKSON AND SONS, 106, Eastgate Street, Chester.

New VEGETABLE and FLOWER SEEDS of every description, of the finest possible quality.

Their DESCRIPTIVE PRICED CATALOGUE, containing many valuable New and Select Vegetable and Flower Seeds, will be sent Post Free on application.

Collections for Gardens of all Sizes are on the most liberal scale. See Catalogue.

☞ Vegetable Seeds of £2 value Carriage Free. All Flower Seeds Free by Post.

J. C. WHEELER AND SON Glo'ster

WHEELER'S LITTLE BOOK for 1863.

WHEELER'S TOM THUMB LETTUCE.

WHEELER'S IMPERIAL LETTUCE

The price of the Lettuce is 1*s.* per packet, post free.

J. C. WHEELER & SON beg to inform the Trade that their "Little Book" is entered at Stationers' Hall, and that they cannot allow it to be copied.

J. C. WHEELER & SON, Seed Growers, Gloucester.

Vegetable and Flower Seeds.

CARRIAGE FREE.

CHESTER AND MANCHESTER J&C

JAMES DICKSON AND SONS' ANNUAL DESCRIPTIVE PRICED CATALOGUE of the above is now ready, and may be had, post paid, on application.

The *Field* of February 8, 1862, in a notice of our last season's Catalogue, says:—"This old established firm have issued their neat and well arranged Catalogue for this season. It embraces all seeds really worth growing in both departments."

JAMES DICKSON & SONS, 102, Eastgate Street, Chester; and 23, Market Place, Manchester.

The Nurseries, Ghent (Belgium).

JEAN VERSCHAFFELT begs to offer the following interesting Novelties at moderate prices, as marked, viz.—

RHODODENDRON JEAN VERSCHAFFELT, the finest hardy variety known. Strong plants, 10*s.* each.

RHODODENDRON SOUVENIR DE JEAN BYLS (J. V.)—One of the most distinct hardy varieties lately sent out. Strong plants, 21*s.* each.

CAMELLIA QUERCIFOLIA (the Oak-leaved Camellia).—Nice plants of this interesting novelty can still be supplied at 21*s.* each.

AZALEA INDICA, for late blooming.—J. V. begs to offer a few hundred very fine plants of Indian Azaleas for late flowering, well set with bloom buds, at 5*l.* per 100. The plants are very strong, and include only first-rate varieties.

Apply to JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent, Belgium.

Choice Coniferæ, Tree and Shrub Seeds offered by

CHARLWOOD AND CUMMINS.

For particulars see Advertisement in the *Gardeners' Chronicle*, February 21, page 170.

CATALOGUE forwarded on application.

14, Tavistock Row, Covent Garden, London, W.C.

Large Trees for Parks, Hedgerows, &c.

WILLIAM CROWDER, NURSERYMAN, Hornchurch, has a quantity of SPANISH CHESNUT, 10 to 12 feet; LIMES, 8 to 10 feet; ELM, grafted, 8 to 10 feet, all strong well grown trees and well rooted, to offer cheap to the Trade or gentlemen.

Narrow-leaved English Elms.

WOOD AND INGRAM beg to offer to the Trade extra fine Seedlings of the above, at 5*s.* per 1000.

Huntingdon Nurseries.

FINE TRANSPLANTED LARCH FIR, 2 to 3 feet.

1-year SEEDLING LARCH FIR.
1-year SEEDLING ASH.

The above will be offered on reasonable terms by WM. WOOD & SON, Woodlands Nursery, Maresfield, Uckfield, Sussex.

Surplus Stock.

JOHN PALMER AND SON, NURSERYMEN, Annan, beg to inform their Friends and the Trade generally that they have several Millions of the following, of first-class quality:—

2 years SILVER FIR | 2 years NORWAY SPRUCE
3 years NORWAY SPRUCE.

The above will be sold Cheap. Prices and Samples, if required, on application.

Green Hollies.

CORNELIUS WHITEHOUSE, Brereton Nursery, Rugeley, Staffordshire, offers an immense stock of well-grown healthy extra Transplanted HOLLIES, exceedingly well-rooted, from 12 to 15, 15 to 18, 18 to 24, 24 to 30 inches. Also very handsome SPECIMEN PLANTS from 3 to 5 feet; also ENGLISH YEWS from 2 to 2½ feet, 2½ to 3 feet and upwards. The above growing on ground to be cleared for other stock, the price will be liberal. Trade price on application.

TO BE DISPOSED OF, 30 fine healthy plants of WELLINGTONIA, which can be removed with safety, ranging from 5 to 8 feet high.

For particulars of price, &c., address A. B., care of Mr. Chadwell, Stationer, Peterborough.

To the Trade.

THE SUBSCRIBERS have still a few hundred thousands of each of the following SEEDLINGS to offer:—

1 year Seedling Larch
2 year Seedling Silver Fir
3 year Seedling Spruce
2 year Seedling White American Spruce
1 year Seedling English Oak in drills
2 year Seedling Pears
1 year Seedling Pinus Austriaca
1 year Seedling Pinus Laricio
1 year Seedling Pinus maritima

Also a large Stock of Transplanted BEECH, 1½ to 2 feet; Transplanted NORWAY SPRUCE, 9 to 15 inches and 12 to 18 inches; Transplanted WHITE AMERICAN SPRUCE, 1 to 2 feet; all extra fine stock. Samples, with prices, which are very low, may be had on application.

MORRISON BROTHERS, Aberdeen.

TO THE TRADE.—SPECIAL OFFER.

ABIES MENZIESII, 9 to 12 inches, 3*s.* per dozen; 20*s.* per 100.
18 to 24 inches, 6*s.* per dozen; 40*s.* per 100.
24 to 30 inches, 9*s.* per dozen; 60*s.* per 100.
PINUS INSIGNIS, 4 to 5 feet, 3*s.* 6*d.* each; 30*s.* per dozen.
5 to 6 feet, 5*s.* each; 42*s.* per dozen.
BERBERIS DARWINII, 6 to 9 in., 5*l.* per 1000, or 12*s.* 6*d.* p. 100.
9 to 12 ins, 3*s.* per doz.; 15*s.* per 100.
18 to 24 ins., 9*s.* per doz.; 60*s.* per 100.
CUPRESSUS LAWSONIANA, 2 to 3 feet, 200*s.* per 100.
3½ to 4½ feet 30*s.* per dozen.
4½ to 5 feet, 36*s.* per dozen.
5 to 6 feet, 5*s.* to 7*s.* 6*d.* each.
THUJA LOBBI, 18 to 24 in., 12*s.* per doz.; or 75*s.* per 100.
2 to 3 feet, 18*s.* per doz.; or 100*s.* per 100.
BLUSH CHINA ROSES, 25*s.* per 100.
RHODODENDRON PONTICUM, fine large bushy stuff, 1½ to 2½ feet, 40*s.* to 60*s.* per 100.
2 to 3 feet, 70*s.* per 100.
3 to 4 feet, 126*s.* per 100.
WELLINGTONIA GIGANTEA, 4½ to 5 feet, 42*s.* to 50*s.* each.
5 to 6 feet, 50*s.* to 63*s.* each.
6 to 7 feet, 63*s.* to 84*s.* each.
7 to 8 feet, 84*s.* to 105*s.* each.
The above are all fine healthy, well rooted stuff.

TRADE CATALOGUE of GENERAL NURSERY STOCK on application.

THOMAS CRIPPS, Nurseryman, Tunbridge Wells, Kent.

Hardy Climbers, Hardy Climbers.

MESSRS. DILLISTONE AND CO., of The Nurseries, Sturmer, Halstead, Essex, has to offer a first-rate Collection of the above, consisting of splendid HONEYSUCKLES, ROSES, CLEMATISES; some very beautiful IVIES, JASMINES, &c., &c. A basket containing one dozen, carefully packed and paid to London upon receipt of 10*s.*

100 HERBACEOUS PLANTS, properly named and carefully packed, for 20*s.* PANSIES by the dozen, hundred, or thousand. PAMPAS GRASS, &c., &c. NURSERY STOCK in General.

Sturmer Nurseries.—March 7.

NEW CUCUMBERS, at 1*s.* per packet.

Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

CARTER'S CHAMPION CUCUMBER, recommended by the Royal Horticultural Society as being an excellent bearer. Fruit solid and firm, and the best of the Sion House class. 1*s.* per packet. A few ounces of our own saving to offer the Trade.

237, 238, & 261, High Holborn, London, W.C.

YOUELL'S NORFOLK HERO CUCUMBER.—Without exception the best Ridge Cucumber known. 6 Seeds, 1*s.*; 18 Seeds 2*s.*

LAING'S MAMMOTH CELERY.—The very best, hardiest, and finest flavoured Red Celery in cultivation. 1*s.* and 2*s.* per packet, on receipt of postage stamps.

See former advertisement.

YOUELL'S Royal Nurseries, Great Yarmouth.

Flower Seeds sent Free by Post.

WOOD AND INGRAM beg to offer 12 fine varieties of HARDY and HALF-HARDY ANNUALS for 1 8
24 ditto ditto ditto .. 2 10
36 ditto ditto ditto .. 4 0
48 ditto ditto ditto .. 5 0

Nurseries, Huntingdon.

Camellia alba plena.

JOHN HARRISON has a noble Specimen of the old DOUBLE WHITE CAMELLIA, 9 feet in height and as much through, in a tub 22 inches by 24, getting too large for his houses. It is a beautiful well furnished plant, with at least 400 to 500 bloom-buds upon it at the present time ready to bloom. Price Twenty-five Guineas.

Darlington Nursery.

Lupine Seed for Field Culture.

SUTTON AND SONS, SEED GROWERS, Reading, can supply the proper kinds of LUPINE SEEDS for Field Culture, as recommended by Baron Herm Von Nathusiel, and Mr. Thos. Crisp, in the "Journal of the Royal Agricultural Society," No. XLIII. Instructions on Cultivation sent with the Seed. PRICED LISTS post free.

Royal Berkshire Seed Establishment, Reading.

Pine Apple Place, Edgware Road, London, W.

ARTHUR HENDERSON AND Co. beg to announce that their CATALOGUE of NEW and CHOICE FLOWER SEEDS, containing all the Novelties up to the present time, is now ready, and will be forwarded Free on application.

DOUBLE DWARF POPPIES.—The most beautiful Stock in cultivation. Colours varied and brilliant; flowers as double as a Hollyhock. Seed 1*s.* per packet, Post free. To the Trade, 3*s.* 6*d.* per ounce.

HOOPER & Co., Seedsmen, Covent Garden Market, London, W.C.

Notice.

PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS.

For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

To Seedsmen and Others.

THOMAS AYRES, SEEDSMAN and GROWER, Biggleswade, Beds, begs to offer the following SEEDS of his own growth of 1862, viz:—

WHITE SPANISH ONION SEED,
MANGEL WURZEL SEED, various kinds.
SWEDE, and COMMON TURNIP, ,,
SEED POTATOES of the following varieties:—EARLY ASH LEAF KIDNEY, MYATT'S PROLIFIC do., EARLY SHAW and REGENTS.
SCARLET RUNNER BEANS (English grown).

A PRICE LIST forwarded upon application.

Established 1787.

THOMAS KENNEDY AND CO., NURSERY AND SEED ESTABLISHMENT, Dumfries, N.B.

*** PRICED CATALOGUES sent free on application: FREE DELIVERY.

FARM and GARDEN SEEDS under certain limitations will be DELIVERED FREE OF CARRIAGE to the chief Railway Stations in Great Britain and the principal Steam Ports in Ireland.

JUST ARRIVED, CAMELLIAS and AZALEAS, full of Flower Buds, 21*s.*, 24*s.*, and 30*s.* per dozen; ORANGE TREES with Fruit and Bloom, 2*s.* 6*d.* and 3*s.* 6*d.* each. British and Foreign FERNS, immense variety. FERN CASES and AQUARIUMS of every description.

R. GREEN, 154, Kingsland Road, N.E., and the Bedford Conservatories, Covent Garden Market, entrance Centre Avenue only.

BARR & SUGDEN, 12 KING ST. COVENT GARDEN

Second Edition, just Published, price 2*s.* 6*d.*, OUR

ILLUSTRATED GUIDE TO THE FLOWER GARDEN.

COMPANION *to the above, price* 1*s.*, OUR

ILLUSTRATED GUIDE TO THE KITCHEN GARDEN,

COLLECTIONS OF VEGETABLE SEEDS.

£3 3 0 | £2 2 0 | £1 10 0 | £1 1 0 | 15*s.* 6*d.* | 10*s.* 6*d.*

For particulars, see page 4 of "Guide to the Kitchen Garden."

COLLECTIONS OF FLOWER SEEDS.

£3 3 0 | £2 2 0 | £1 10 0 | £1 1 0 | 15*s.* | 10*s.* 6*d.* | 5*s.* 6*d.* | 3*s.* 6*d.*

For particulars, see page 18 of "Guide to the Flower Garden."

STRIKING NOVELTIES.

Continued from last week's *Gardeners' Chronicle*, page 192.

STRONG CANNA ROOTS,

A PORTION OF THE UNRIVALLED COLLECTION OF OUR "SARDINIAN CORRESPONDENT."

Fine foliaged plants, and such as are of stately growth, have of late years been much sought after for the adornment of the FLOWER GARDEN, TERRACES, PLEASURE GROUNDS, LAWNS, SELECT SHRUBBERIES, CARRIAGE DRIVES, &c.; besides relieving the monotony too frequently to be met with in such places, plants of this character impart a somewhat Oriental aspect.

For such purposes the CANNA stands unrivalled; its large picturesque foliage, and spikes of vivid-coloured flowers, produce a truly magnificent effect, especially when planted in groups, whether on the Lawn, in the centre of large beds, or in the mixed Flower Border. Varieties enumerated in our "Guide to the Flower Garden" will be found to form one of the most striking contrasts in habit and foliage.

3179	100	Roots assorted, our own selection, in 25, 30, and 40 varieties.										5*l.* 5*s.*, 6*l.* 6*l.*, and £7	7	0
3180	50	,,	,,	...	...	...	...	...	...	...	2	15	6	
3181	25	,,	,,	...	...	...	...	...	...	...	1	10	6	
3182	12	,,	,,	...	...	...	...	...	12*s.*, 18*s.*, to		1	1	0	

Celosias.—Magnificent new Varieties.

See Illustrations in our "Guide to the Flower Garden," and for prices see last week's *Gardeners' Chronicle*.

Clitoria.—See page 86.

2450. CLITORIA TERNATEA VIOLACEA FLORE PLENO.—A new variety of this truly beautiful and easily cultivated genus, and to which we would invite the special attention of those who are fond of climbers, whether for training on wire-globes, trellis-work, or rafters. (The whole of the Clitorias are remarkable for their elegant large flowers, some of which, especially C. gesnatia atro-cœrulea, are of the most intense blue.) It is the first double variety yet obtained, and without doubt the most charming novelty of the season; flowers large, very double, and of an exquisitely beautiful satiny-purplish lavender. (See Engraving.) 1*s.* 6*d.*

Chlora.—See page 36.

924. CHLORA GRANDIFLORA.—Our "SARDINIAN CORRESPONDENT" informs us that this is a unique bedding plant, producing when in bloom a grand effect. The growth of the plant is elegant, the flowers are of a beautiful pale orange, and produced in profusion throughout the summer and autumn months; height, 1½ feet. 1*s.*

Cineraria.—See page 37.

951. CINERARIA PLATANIFOLIA.—A most remarkable plant, combining to immense heads of golden-yellow flowers, large velvety green leaves; in the centre of flower beds, or intermingled with other plants, it imparts a charm of no ordinary character. 1*s.* 6*d.*

Clarkia.—See page 37.

971. CLARKIA INTEGRIPETALA MARGINATA.—(Illustrated in the *Floral Magazine* of November last). A most desirable addition to this favourite class; petals entire and of a rich magenta-rose, conspicuously bordered with pure white. 1*s.*

970. CLARKIA INTEGRIPETALA ALBA.—Similar to the above, but pure white; very handsome. 1*s.*

973. CLARKIA TOM THUMB INTEGRIPETALA.—This variety possesses the good qualities of the above two, but much more dwarf and compact in growth; flowers rosy-crimson. 1*s.*

Convolvulus.—See page 39.

1037. CONVOLVULUS STELLATUS RUBER.—This beautiful trailing Convolvulus, whether grown in hanging baskets or in beds, is equally attractive; in the former (as is shown in our Engraving) it is remarkable for its elegant growth, while for flower beds it is most valuable, blooming profusely, and throwing above its remarkably neat foliage a profusion of pretty deep rose-coloured blossoms, with attractive double white star in centre. 1*s.*

Cordia.—See page 39.

1038. CORDIA DOMESTICA.—A truly ornamental evergreen shrub, with pretty orange flowers. 6*d.*

Dianthus.—See page 43.

1176. DIANTHUS JAPONICUS SUPERBUS FLORE PLENO.—A superb variety of this favourite genus, with large handsome double flowers of various shades, and possessing a fine, robust, compact habit; altogether superior to the beautiful Heddewigii. 1*s.*

To be continued next week.

BARR AND SUGDEN, SEED MERCHANTS.

GOOD MANGEL WURZEL SEED which grows well.
RED GLOBE | YELLOW GLOBE | LONG RED
YELLOW OLIVE-SHAPED | LONG YELLOW.
6*d.* per lb., or cheaper by the cwt.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Good Clover Seeds at Market Prices.

SUTTON AND SONS have now ready, at very moderate prices, fine new RED, WHITE, and ALSIKE CLOVER SEEDS. As also new Rye Grasses, Turnip, Mangel Wurzel, and other Agricultural Seeds, a Priced List of which may be had post free.

Address SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Sutton's Improved Italian Rye-Grass.

SUTTON AND SONS have an excellent Stock of the above now ready.

Price 7*s.* per bushel, or cheaper in large quantities.
Royal Berks Seed Establishment, Reading.

Clovers and Rye-Grass Seeds.

SUTTON AND SONS can supply the proper quantities of the best kinds of CLOVER and RYE-GRASS SEED, either Common or Italian Rye-Grass, at 16*s.* per acre; or Clovers without Rye-Grass at 14*s.* per acre.

The sorts of Clovers supplied by SUTTON & SONS are the Alsike, the Common Red, and the White Clover (14 lb. per acre).

The great produce of the above-named Mixture is shown by the following:—

From C. F. THRUSTON, Esq., *Talgarth, Machynlleth, July* 31.

"I cut a crop of Grass on June 2, which had been previously dressed with soot and guano. It was full ripe, and the Italian Rye-Grass was really 4 feet high, Clover in proportion. I am now (July 31) getting a second crop from it equally heavy."

In ordering it is only necessary to state that "Clovers and Italian Rye-Grass," or "Clovers and Common Rye-Grass," or "Clovers only," are required for so many acres, when the proper quantities will be sent.

Royal Berkshire Seed Establishment, Reading.

GRASS SEEDS for LAYING DOWN LAND to PERMANENT PASTURE or MEADOW.

Having been amongst the very first in this country to recommend the use of the Natural Grasses in the formation of Permanent Pasture, and having over a long period of years given the subject a considerable share of attention, we, from the marked success which has attended their culture, feel quite warranted in recommending our carefully prepared Mixtures or Assortments, to the notice of those who purpose laying down land for a period of years. In choosing for these Mixtures, our aim is to imitate, as near as possible, the varieties composing the rich old pastures of Britain, and which it is obvious cannot be obtained by adopting the too common mode of sowing down with Ryegrass and Clover only, for although these yield heavily at first they are soon exhausted, and leave the land bare, to be filled up in course of time by an inferior herbage.

Parties ordering will please state the nature and extent of the land to be sown, and whether with or without a grain crop. When not instructed to the contrary, the Seeds will be sent out mixed and ready for the sower. The mixing being a most important operation, is much more perfectly done by our practised hands than it can be by those unaccustomed to it. After numerous carefully tested experiments, we find it the best plan to sow light and heavy seeds together.

When requested, we will be glad to furnish a list of the varieties and quantities suited to any given description of land. The Cost for a full Supply of Seeds will range from 25*s.* to 28*s.* per statute acre.

Carriage of Seeds paid to the principal Railway Stations throughout the kingdom.

W. DRUMMOND & SONS, Stirling.

*** PRICED CATALOGUES of all the leading descriptions of Seeds required for the Farm or Garden, may be had prepaid on application.

GIANT ASPARAGUS ROOTS, 2*s.* 6*d.* per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see RICHARD SMITH'S SEED LIST for 1863.

Strong Transplanted SEA KALE, 2*s.* per doz.
RICHARD SMITH, Nurseryman, Worcester.

The King and Queen Potatoes.

SUTTON AND SONS have much confidence in recommending these two new sorts of POTATOES, as decidedly the finest and best in cultivation.

The following Prizes have been awarded to Mr. Spencer for these Potatoes:—

The Prize at the Crystal Palace, 1861.

Three Prizes at the International Show at the Royal Horticultural Society's Gardens, South Kensington, in October last.

The Prize at the Birmingham Cattle and Root Show, Bingley Hall, in December last; and upwards of 20 other Prizes in various parts of the kingdom.

To be had of Messrs. SUTTON & SONS, Reading. Price 5*s.* per Peck (of 14 lbs.)

SEED POTATOES.—Splendid Stocks of Martin's Early Globe, Early Oxford, Early Fox's Seedling, Early Round Frame, Early Dalmahoy, Myatt's Prolific, and Jackson's Ash-leaved Kidney, Forty-fold, Fluke Kidney, and Flour-ball varieties at low prices.

H. & F. SHARPE, Wisbeach.

EXTRAORDINARY POTATOES.—A gentleman resident in the Country offers for SALE a few BUSHELS of SEED POTATOES of a new and most wonderful kind. For the table they are unsurpassed as to whiteness and delicacy of flavour, and their productiveness is almost incredible, even on indifferent soil; and further, the disease never attacks them.

For price, &c., address by letter to Z. Z., care of Editor, 162, Fleet Street, London, E.C. Early application is necessary.

DAINTREE'S EARLIEST SEEDLING POTATO.—The earliest and most prolific round variety in cultivation, verified by reports in the various papers, and by private reports from all parts of the country, numbers of which will be forwarded on application. Present price, 8*s.* per Bushel, or 12*l.* per Ton; sacks 1*s.* 6*d.* each.—Apply to Mr. SIMON A. DAINTREE, Fendrayton, St. Ives, Hunts.

N.B.—Genuine Italian Rye-grass, and all the Agricultural Seeds of home growth, supplied as usual

MYATT'S PROLIFIC POTATOES, 24*s.* per sack, (2 cwt.); ASHLEAF KIDNEY do. 22*s.*; DALMAHOYS, FORTYFOLDS, SHAWS and FLOUR BALLS, 12*s.*; Sacks 1*s.* 6*d.* each.

YELLOW GLOBE MANGEL WURZEL SEED, 4*d.* per lb., 30*s.* per cwt; RED GLOBE, 4*d.* per lb., 32*s.* per cwt.; PURPLE TOP SWEDE, 8*d.* per lb., 26*s.* per bushel of 50 lbs; WHITE FLESHED do., 9*d.* per lb., 30*s.* per bushel (Bags included).

ALTRINGHAM CARROT SEED, 1*s.* per lb.; Selected do. 1*s.* 6*d.*; WINDSOR BEANS, 9*s.* per bushel.

*** Remittances to accompany order from unknown correspondents.

CHRISTMAS QUINCEY, Seed Grower and Seedsman, Peterborough.

Cole's White Perfection Celery.

WM. COLE has much pleasure in offering again to his numerous customers the above, which has proved itself to be the best White Celery in cultivation. In sealed ½ oz. packets, free by post, 1*s.* 6*d.* Price to the Trade upon application.

Nurseries, Withington, near Manchester.

KIMBERLEY'S SUPERB SOLID RED CELERY.—This is without exception the best Celery in cultivation. CHARLES KIMBERLEY has much pleasure in offering this superb Celery for the first time, although he has grown it for upwards of 20 years. Thousands of plants are annually sold in Coventry Market. The seed now offered is saved from bleached roots of 1862; ½ oz. packets free by post, 1*s.* 6*d.*

Stoke Nursery, near Coventry.

THE NEW PARSNIP "STUDENT."—SEED of this improved PARSNIP, "ennobled" by Professor BUCKMAN, of the Royal Agricultural College, Cirencester, is now ready for delivery by Messrs. SUTTON & SONS, Post free, in packets, 6*d.*, 1*s.*, or 2*s.* 6*d.* each. Also Wholesale to the Trade.

It can also be obtained from any of the Seedsmen named in the List which appeared in *Gardeners' Chronicle* of January 31 and February 21.

Royal Berks Seed Establishment, Reading.

CHEAP GRASS SEEDS for HILL SIDES and RAILWAY BANKS.—Rough Grasses, Sainfoin Siftings, &c., suitable for the above purpose, at 2*s.* per bushel and 3*d.* per lb.

Address, RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Cabbage Plants.

W. VIRGO and SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 3*s.* 6*d.* per 1000:—

EARLY YORK CABBAGE	EARLY NONPAREIL
,, BATTERSEA	DRUMHEAD
,, BARNES	RED CABBAGE

5*s.* per 1000. All strong, healthy, and well rooted.

Wonersh Nursery, near Guildford, Surrey.

To the Seed Trade.

H. AND F. SHARPE have a Surplus Stock of true—

Early Long Pod Beans	Ne Plus Ultra Peas
Mackie's Monarch ditto	Laing's Imperial Swede Turnip
Broad Windsor ditto	Early Green Top Yellow ditto
Early Emperor Peas	Fine Red Surrey Carrot
Woodford's Green Marrow do.	Early Nonpareil Cabbage
Flack's Blue Imperial ditto	,, Emperor ditto
British Queen ditto	,, Enfield Market ditto

which they can offer at a low figure.

Seed-growing Establishment, Wisbeach.

NEW HARDY WHITE SWEDE.—The Favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills. Grows rather coarse on some soils or when sown early; but it is very productive, hardy, and it is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor land.

Seed 1*s.* per lb., or 42*s.* per bushel.

Supplied by RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Dahlia Pot Roots.

GEORGE RAWLINGS has a quantity, which he begs to offer at 6*s.* per dozen. Among them are UMPIRE, CRITERION, JUNO, ANDREW DODD, and such first class flowers. Mixed varieties at 10*s.* per 100. A small quantity of Choice Seed at 2*s.* 6*d.* per packet of 50.

21, Globe Road, Bethnal Green, N.E.

Rhododendron, Countess of Haddington.

First-Class Certificates at Royal Horticultural Society's Exhibition, March 19, 1862, and at Royal Botanical Society's Exhibition, April 2, 1862.

ROBERT PARKER begs to announce that this beautiful variety will be distributed in August next; price of Plants, 21*s.* each. Orders are now being booked, and will be executed in rotation. The Stock being limited early orders are solicited. A Plant was exhibited at the Royal Horticultural Society's Exhibition, Feb. 25, 1863, of which notice can be seen in reports of Show in *Gardeners' Chronicle* of Feb. 28, and *Journal of Horticulture* of March 3. Other Plants will be exhibited at the coming Spring Exhibitions.

*** The usual discount to the Trade.

Exotic Nursery, Tooting, S.

COCOA-NUT REFUSE, as used for FERNS, BEGONIAS, &c., so much admired in the International Exhibition, delivered in the City at 1*s.* 6*d.*, or within 2½ miles of Charing Cross, at 2*s.* per bag of 3 bushels. Ten bags or more on lower terms. Apply to the PATENT COCOA FIBRE COMPANY, Kingston-on-Thames, S.W.

Also for particulars of SHORT FIBRE for Orchids and Drainage in pots.

Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are the best and most economical of any, and are sold in every town in the kingdom; at DEANE'S, London Bridge; and E. WHITE & SON'S, 95, Cannon Street.

CAUTION.—Every Brush is stamped "J. BARSHAM'S Patent."

THE SPADE and its ADAPTATION.—Illustration of WALTERS'S Open Spade, dimensions of ditto. SEEDS made proof against Birds and Insects; LISTS of FLOWER, VEGETABLE, and FARM SEEDS, also S. W.'s 27th ANNUAL CATALOGUE of SELECT PLANTS, ROSES, &c., in exchange for Six Postage Stamps.

S. WALTERS, Hilperton, Trowbridge, Wilts.

GENUINE SEEDS FOR THE FARM AT LOW PRICES.

THE PLYMOUTH SEED COMPANY, PLYMOUTH,

Have a large and pure Stock of all kinds of GRASS SEEDS for PERMANENT PASTURES, Mixtures of which can be had expressly to suit any soil. The quantity recommended per Acre is 2 bushels of the Light Grass Seeds, and 12 lb. of Clovers.

Mixtures for Permanent Pasture ... ... per acre, 22*s.* to 30*s.*
Mixtures for Permanent Lawns ... ... per bushel, 16*s.*; per lb. 1*s.*
Mixtures for Uplands and Sheepwalks ... ... per acre, 22*s.* to 30*s.*
Mixtures for Water Meadows ... ... per acre 24*s.*
Mixtures for Cemeteries, Churchyards, &c. ... ... per bushel, 16*s.*; per lb. 1*s.*

RYE GRASS. per bush.—*s.* *d.*	CLOVERS. Per lb.—*s.* *d.*	MANGEL WURZEL. Per lb.—*s.* *d.*	SWEDES. Per lb.—*s.* *d.*	OTHER TURNIPS. Per lb.—*s.* *d.*	CARROTS. Per lb.—*s.* *d.*
Italian Imported ... 6 0	English Red 6*d.* to 0 9	Fisher Hobbs, true 1 6	Plymouth Improved Purple-top ... 1 0	Scotch in Vars. ... 0 9	White Belgian ... 1 0
Italian, English saved 6 0	Foreign Red 6*d.* to 0 8	Long Red 0 6	Skirving's 0 9	White Globe ... 0 8	Yellow do. ... 1 3
Perennial, in varieties 4*s.* to 7 0	White or Dutch 9*d.* to 1 0	Yellow Globe ... 0 6	Purple-top 0 9	Green Globe ... 0 8	Altringham ... 1 6
	Trefoil ... 4*d.* to 0 6	Red Globe 0 6	Green-top 0 9	Red 0 8	Long Surrey ... 1 3
	Alsike 1 6	Long Yellow ... 0 6		Grey Stone 1 0	
				Orange Jelly ... 0 10	
				Tankards 0 9	

And all other AGRICULTURAL SEEDS at Moderate Prices.

THE FARM SEED LIST IS NOW READY, AND CAN BE HAD GRATIS ON APPLICATION.

Complete Collections of Garden Seeds, 10*s.* 6*d.*, 15*s.*, 20*s.*, 40*s.*, 60*s.* For particulars see General Price Current.

Seeds Carriage Free.

ADDRESS, PLYMOUTH SEED COMPANY, PLYMOUTH, DEVON.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, begs to inform his friends and the public he can supply from his great Stock of the above 20 pairs of the best large Varieties for 10*s.*; and 25 pairs of best POMPONES for 10*s*; 20 pairs of Cuttings of the large Varieties for 5*s.*; and 25 pairs of Pompones ditto for 5*s*

New CATALOGUES ready for one stamp.

N.B. To save trouble all orders to be paid to J. H. BIRD, Stoke Newington

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FIRST CLASS NEW FUCHSIAS. — Coloured Drawings by Mr. ANDREWS of SANSPAREIL, BRIDESMAID, CONSPICUA, and HERCULES, are now ready, and will be forwarded in exchange for 12 postage stamps.

G. S. begs to offer the above as the most Superb FUCHSIAS yet offered to the Public. For description, with price, and also time of sending out, see CATALOGUE, now ready.

GEORGE SMITH, Tollington Nursery, Hornsey Road, Islington, London, N.

A PRICED and DESCRIPTIVE CATALOGUE of all the new and leading kinds of Show, Spotted, French, Fancy, Scarlet, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready in exchange for one postage stamp.

GEO. SMITH, Tollington Nursery, Hornsey Road, Islington, London, N.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. CORBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent.

Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER'S CATALOGUE of the above popular plants, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants.

It describes faithfully the colours of all the Rhododendrons, thereby rendering every facility for making selections.

It likewise contains an abridged List of really Hardy Conifers, with their heights and prices.

The American Nursery, Bagshot, Surrey.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

LINDEN'S AMATEUR COLLECTIONS of the choicest GERMAN FLOWER SEEDS direct from Erfurt.—Packets containing 30 species, 2*s.* 6*d*; 15, 1*s.* 3*d.* (Discount allowed to the Trade), forwarded prepaid.

Pinus Laricio, 85*s.* and 70*s.*; Abies, 25*s.*; Picea, 35*s.*; Strobus, 4*s.* 6*d.*; austriaca, 3*s.* 6*d.*; sylvestris, 3*s.* and 2*s.* 6*d*; Tilia europæa, 65*s.*, &c. Nett cash, prepaid to London, Hull, Glasgow, or Dublin. All Seeds warranted fresh and true.

EMIL LEIBIUS, Importer, 3, Barnsbury Grove, London, N.

Genuine Seeds.—Carriage Free.

WM. CUTBUSH AND SON beg to intimate that they are now prepared to execute orders for GENUINE GARDEN SEEDS, for which their house is extensively known.

Mr. C. gives his personal attention to this branch of our business, and we can confidently recommend all offered as being of the best quality, at as moderate prices as consistent.

CATALOGUES free on application.

Highgate, London, N.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

50 in 25 extra choice varieties	..	..	£2 2*s.* 0*d.*
25 in 25	,,	,,	.. .. 1 5 0
12 in 12	,,	,,	.. .. 0 12 0
50 in 50 choice varieties	..	..	.. 2 12 6
50 in 25 ,,	,,	..	.. .. 1 5 6
25 in 25 ,,	,,	..	.. .. 0 13 6
12 in 12 ,,	,,	..	.. .. 0 5 0

Extra fine mixed, 2*s.* 6*d.* per doz., 17*s.* 6*d.* per 100.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, W.C.

RUSSELL'S PYRAMID PRIMULAS.—Seed of this unequalled strain is now ready, in packets, price 2*s.* 6*d.*

The great satisfaction which these kinds have given in previous seasons, renders further comment on their merits unnecessary. The additional care taken however in saving the seed last year will probably result in producing flowers much superior to any ever seen.

Printed notes on raising them and their culture, forwarded with each packet; payment can be made in postage stamps.

GEORGE CLARKE, Nursery, Streatham Place, Brixton Hill, London, S.; and 4, Windsor Terrace, Pimlico, S.W.

E. G. HENDERSON AND SON offer First-class quality of CINERARIA, CALCEOLARIA, and PRIMULA SINENSIS FIMBRIATA, 1*s.* and 2*s.* 6*d.* per packet.

CINERARIA WEBBI.—The interest and value of this species consists in its having a shrub-like branched habit of growth, attaining from 3 to 4 feet in height. This remarkable plant is expected to originate a new and desirable class of varieties for exhibition purposes, in having already passed into all the colours found in florist varieties of the present time, and no doubt but higher improvements in form, and other essential properties, will be obtained in connection with its superior culture. It will be found well adapted for decorative purposes, by its taller growth, and longer continuance in bloom. 2*s.* 6*d.*

Wellington Nursery, St. John's Wood, London, N.W

Fuchsias, Silvery-leaved and Variegated Plants.

J. SCOTT, Merriott, Crewkerne, Somerset, holds fine Stocks of the following, ready to send out:—

FUCHSIAS, in 100 named kinds (newest), at 4*s.* per dozen, late autumn struck, will make splendid specimens for exhibition.

VARIEGATED PLANTS, 3*s.* per dozen: Agathæa cœlestis, Arabis fol. var., Bellis Aucubæfolia, Sedum carneum var., Veronica chamædryoides.

SILVERY-LEAVED PLANTS, 3*s.* per dozen: Cineraria maritima, Centaurea candidissima, 1*s.* each; Gnaphalium lanatum, G. arenarium, G. margaritaceum, Silvery Arctotis, Stachys lanata, and Cerastium tomentosum.

VARIEGATED GERANIUMS, 3*s.* per dozen; Alma, Bijou, Countess of Warwick, Mangle-ii, Shottisham Pet, and Brilliant.

BEDDING GERANIUMS, 3*s.* per dozen: Christine, Rose Queen, Crystal Palace, Punch, Lamartine, and Tom Thumb; and 100 sorts (to name), my selection, of Greenhouse sorts, at 6*s.* per dozen.

GRAND EXHIBITION OF HYACINTHS, 1863.

WM. CUTBUSH & SON

BEG TO ANNOUNCE THAT THEIR

GRAND EXHIBITION OF HYACINTHS AND OTHER SPRING FLOWERS

WILL BE HELD AT THEIR

NURSERIES, HIGHGATE, during the TWO WEEKS commencing MONDAY, MARCH 16.

Admission by Tickets, which can be had free on application or by Private Address Card.

The Nurseries are easy of access by Omnibus from London Bridge Station, the Bank, Holborn, Tottenham Court Road, Islington, and Charing Cross to the foot of the Hill, from thence a distance of about 7 minutes' walk.

☞ NOT OPEN ON WEDNESDAY, MARCH 18.

NEW AND BEAUTIFUL PLANTS.

WILLIAM BULL, F.R.H.S., F.R.B.S.,

NURSERYMAN AND NEW PLANT MERCHANT,

KING'S ROAD, CHELSEA, LONDON, S.W.

The following NOVELTIES are now being sent out in good plants, fit for Spring propagation.

New Fuchsias, 7s. 6d. each.

ADELINE.—Red tube and sepals, beautifully reflexed, and of unusual length; double purple corolla of an irregular shape, some petals being long and others short; very peculiar.

FLORETTA.—Rich scarlet tube and sepals of the deepest crimson, very broad and wax-like, pure white corolla, of excellent shape.

HERO.—Light red tube and sepals, the latter reflexed and unusually wide and long; lake corolla; an immense flower, very striking.

MONARCH.—Crimson tube and sepals, the latter beautifully reflexed; large double corolla, peculiarly formed; large, showy, and attractive.

NORA.—Crimson sepals beautifully reflexed, double purple corolla flaked with bright crimson at the base, distinct.

SPECIAL.—Broad bright red sepals, reflexing back to the tube; beautiful, large, stiff, and smooth, bright blue corolla, marked with red at the base; excellent habit.

TRIUMPHANT.—Crimson sepals, with double purple plum corolla, flaked with crimson at the base; fine form.

New Petunias, 3s. 6d. each.

BASILISK.—Glossy crimson, with rich violet throat, very smooth, fine form.

BRIDESMAID.—Bright pink, with large white centre.

CUPID.—Double, mauve, blotched in the centre with pure white, distinct.

ENSIGN.—Violet pink, blotched and margined with pure white.

GOOD THING.—Rich crimson, veined and striped with black; black throat.

MARMION.—French white, reticulated and veined with violet, very delicate, semi-double.

SENSATION.—Bright rose, rayed with violet, violet centre and light throat, very attractive.

SILVER SPOT.—Bright crimson, blotched with white.

New Petunias, 3s. 6d. each.

STANDARD.—Clean bright crimson, large and very double, a fine noble flower.

STARTLER.—Double, bright crimson, blotched with pure white.

UNDINE.—Deep rose, rayed and barred with crimson, dark throat.

Azalea William Bull, 21s. each.

This fine Azalea was raised in Belgium, and named by M. Ambroise Verschaffelt, from whom the stock for circulation in the United Kingdom has been purchased. The flowers individually are of unusual size and substance, and well formed; colour crimson and violet, richly spotted; a really superb variety.

New Zonale Geraniums, 5s. each.

ACHIM.—Rose shaded with pink, excellent form.

ASPASIA.—Bright rose, very pretty.

CAROLINE.—Carmine shaded with orange scarlet, immense truss.

CHANCELLOR.—Clear rose with scarlet centre.

COUNTESS.—Rose shaded with scarlet.

COMMISSIONER.—Brilliant scarlet, vermilion upper petals.

DORIS.—Vivid orange scarlet, white eye.

EFFECTIVE.—Vermilion shaded with rose.

ENVOY.—Very deep rosy scarlet, large flower.

GLORIOUS.—Light scarlet, light centre.

HELDI.—Glowing scarlet, large flowers.

MAJOR DOMO.—Rosy scarlet, fine flowers.

PERSIAN.—Bright rose.

TRANSCENDENT.—Bright cerise shaded with scarlet.

UNIT.—Soft rose.

UMPIRE.—Cerise shaded with pink, large flower.

BEDDING PLANTS, &c.

WOOD & INGRAM

BEG TO OFFER AS FOLLOWS.

Zonale Geraniums,

VERY FINE SUMMER-STRUCK PLANTS.

	Per dozen.—*s.*	*d.*
AGATHA	3	0
AURORA (Halley's)	6	0
BLACKHEATH BEAUTY (Halley's)	6	0
BLACK PRINCE	3	0
BRILLIANT	3	0
BRITISH FLAG	5	0
CERISE UNIQUE	3	0
CHRISTINA	4	0
COTTAGE MAID	2	6
COURONNE DE FLORE	5	0
COUNTESS	5	0
DEFIANCE (Giant)	4	0
FIREBALL	3	0
FLORIAN	5	0
FROGMORE	2	6
HENDERSONII	2	6
HON. MRS. FELLOWES	4	0
HUNTSMAN	3	0
IMPERIAL CRIMSON	4	0
KING OF SCARLETS	3	0
KINGSBURY PET	3	0
LADY DOWNES	4	0
,, E. STANLEY	5	0
,, MIDDLETON	3	0
LEONIE	6	0
MADAME LAVOCAT	8	0
MARTIN GIREAUD	3	0
MODEL NOSEGAY	3	0
MRS. MAYLER	5	0
MRS. ROWLEY, fine pink	9	0
PAUL L'ABBÉ	6	0
PAULINE	4	0
PET SUPERB	3	0
PRINCESS OF PRUSSIA	12	0
,, ROYAL	5	0
RAINBOW	4	0
RUBENS	4	0
SIR C. CAMPBELL	4	0
SYMMETRY	3	0
TOM THUMB	3	0
TRENTHAM	4	0
TRIOMPHE DE PARIS	3	0
VIRGINIAN	3	0

CARNATIONS and PICOTEES, named flowers, 12*s.* per dozen pairs.

	Per dozen.—*s.*	*d.*
GNAPHALIUM LANATUM, new silvery-leaved edging plants	3	0
SEDUM CARNEUM VARIEGATUM	4	0
AGATHÆA CŒLESTIS FOL. VARIEGATIS	3	0
LOBELIA SPECIOSA	2	0
KONIGA VARIEGATA	3	0
BELLIS AUCUBÆFOLIA, very fine	4	0

Variegated-leaved Geraniums

SIMILAR FINE PLANTS.

	Per dozen.—*s.*	*d.*
BIJOU	5	0
BRILLIANT	3	0
FLOWER OF THE DAY	3	0
GOLDEN CHAIN	6	0
IVY-LEAVED	4	0
JANE	4	0
LADY PLYMOUTH	4	0
MANGLE'S PINK	3	0
,, RED	3	0
PERFECTION	3	0
QUEEN VICTORIA	4	0
SHOTTISHAM PET	5	0
SILVER QUEEN	4	0

Also a choice collection of PELARGONIUMS, Show, French and English, Spotted and Fancy varieties, fine bushy plants, once cut down, 9*s.* per dozen; Summer struck, fine plants, 5*s.* per dozen. CINERARIAS, fine plants, in 5-inch pots, just showing bloom, 6*s.* per dozen; LACHENALIA PENDULA, with 3 to 5 spikes of bloom, 9*s.* per dozen: ACACIA ARMATA, good blooming plants, 9*s.* per dozen; EUGENIA UGNI, 9*s.* per dozen; DIOSMA CAPITATA, 6*s.* per dozen; &c., &c.

HUNTINGDON NURSERIES.

GRAPES for COOL VINERIES.
BLACK HAMBRO' .. .. 3s. 6d. to 5s. 0d.
BUCKLAND SWEETWATER.. 5 0 to 7 6
MUSCAT HAMBRO' .. .. 5 0 to 7 6
We have to offer fine Canes of the above, and all other leading varieties.
Paul & Son, "Old" Cheshunt Nurseries, Herts, N.

THE GREAT VINE at HAMPTON COURT.—The Subscribers being the holders of the Royal Kitchen Gardens, Hampton Court, are enabled to offer genuine the famous and truly excellent HAMPTON COURT BLACK HAMBURGH GRAPE.
Strong well-ripened plants in 9-inch pots, 42s. and 60s. p. doz.
If purchased in large numbers a considerable reduction will be made in price.
Jackson & Son, Nurseries, Kingston, S.W

EXTRA STRONG FRUITING VINES.—All the leading varieties, from Eyes, with stout well ripened rods, for FRUITING in POTS this YEAR. Price, from 7s. 6d. each; smaller, for Planting-out, from 3s. 6d. each. A reduction in price will be made to large purchasers.
"We can especially recommend the above, our strong Vines having for some years given unqualified satisfaction."—*Vide* Leading Article in *Gardeners' Chronicle* for December 13, 1862, p. 1170.
James Dickson & Sons, The Newton Nurseries, Chester.

NEW PRIZE MELONS, at 1s. 6d. per packet.
Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria,
For descriptions see GUIDE to the KITCHEN GARDEN.
Barr & Sugden, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

NEW MELON, PRINCESS ALEXANDRA.—A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1s. per packet.
James Carter & Co., 237, 238, & 261, High Holborn, W.C.

APPLE and PEAR TREES, &c.—100 doz. Dwarf and Pyramidal PEAR TREES, best sorts, 20s. per doz., packing included.
50 doz. Dwarf and Pyramidal APPLE TREES, best sorts, 12s. per doz., packing included.
GENERAL LISTS of NURSERY STOCK on application.
Charles B. Saunders, Nurseryman, &c., Jersey.

STRAWBERRIES, Trade price.—Black Prince, Admiral Dundas, British Queen, Eleanor, Elton Pine, Wizard of the North, 10s. per 1000; Prince of Wales, Eliza, Alice Maude, Oscar, Duc de Malakoff, 2s. per 100.
POTATOES, sorts, see Advertisement Feb. 21.
Geo. Cornwell, Seedsman, &c., Barnet, Herts, N.

Vines and Seakale.
GEORGE CLARKE has a good stock of short-jointed, well ripened, fruiting, and younger VINES of the principal kinds, from Eyes, price 3s. 6d. to 7s. 6d.
Also SEAKALE, clean and sound, very suitable for planting permanent beds, 5s. to 7s. 6d. per 100.
FORCING SEAKALE all Sold.
Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

Select Double Hollyhocks.
WILLIAM PERRY begs to announce that he has for SALE a good and healthy stock of Young Plants of the above that will flower well this season. If selection is left to W. P., the price per dozen will be 9s., 12s., 18s. 24s., 30s.
Sawbridgeworth, Herts.

Superb Double Hollyhocks.
This being the best time for Planting them out.
WILLIAM CHATER has an immense stock of healthy Plants.
CATALOGUE of PRICES to be had on application.
William Chater, Nurseries, Saffron Walden.

Early Spring Flowers.
WEBB'S GIANT POLYANTHUS; ditto COWSLIP: Florist's Flower, POLYANTHUS, Roots or Seed; also SCARLET PRIMROSE—Double Crimson, Double Purple, Double White, Double Yellow, and Double Lilac ditto. COWSLIP from the Himalayas; DOUBLE POLYANTHUS; and other varieties, all of which may be had on application to
Richard Webb, Calcot Gardens, Reading.

Major's Half-Shrubby Calceolaria Seed for 1863.
HENRY MAJOR is prepared to supply the above as usual, in packets at 2s. 6d. each, or 3 for 5s., post free. The seed is very select, having been saved from large and strikingly beautiful flowers.
Postage stamps are requested in payment.
Knosthorpe, near Leeds, Yorks.

Choice Seedling Calceolarias.
CHARLES KIMBERLEY has a large stock of the above, all saved from impregnated flowers. The plants are strong, fit to pot into 5-inch pots. He begs to offer them at 4s. per dozen.
Stoke Nursery, near Coventry.

Seeds, Seeds, Seeds.
S. GLENDINNING and SONS' (Successors to the late R. Glendinning) CATALOGUE of KITCHEN GARDEN, AGRICULTURAL and FLOWER SEEDS is now ready and may be had on application.
Chiswick Nursery, London, W.—March, 1863.

EDWIN HOLLAMBY begs to inform his Patrons and Friends that his DESCRIPTIVE PRICED CATALOGUE of VEGETABLE, FLOWER, AGRICULTURAL SEEDS, and GLADIOLUS is now ready, and may be had gratis and post paid on application.
Nursery and Seed Establishment, Tunbridge Wells, Kent.

New and Genuine Seeds.
GEORGE PARSONS, Seedsman by Appointment to Her Majesty. A DESCRIPTIVE SELECT PRICED LIST, post free, on application.
27 and 28, Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

AMARANTHUS MELANCHOLICUS (var. ruber).—Habit very compact, height 1 to 1½ feet, with striking blood-red foliage; a most valuable bedding plant for Flower Garden décoration, after the style of Perilla Nankinensis. Price per packet, 6d., 1s., and 2s. 6d. The Trade supplied.
E. P. Dixon & Sons, Seedsmen and Florists, 57, Queen Street, Hull.

Old Cheshunt Nurseries, Herts, N.—Roses.
PAUL and SON have the pleasure to announce that their NEW HYBRID PERPETUAL ROSE, LORD CLYDE, will be ready for delivery in April next, at 7s. 6d. each. Usual allowance to the Trade when three are taken. A Coloured Plate, by Andrews, post free for 12 stamps.
The NEW ROSES of other Raisers will be ready in March.
They have still to offer fine Home grown STANDARD and DWARF ROSES.
DESCRIPTIVE LISTS of the New Roses, Gladioli, and Genuine Seeds now ready.

New Roses of 1863.
J. and J. FRASER'S DESCRIPTIVE LIST of the best varieties will be forwarded Post Free on application.
Strong healthy Plants are now ready.
A GENERAL CATALOGUE may be had on application.
Lea Bridge Road Nurseries, N.E.—March 7.

Roses for Forcing.
CHARLES NOBLE has a nice assortment, one-year, established in 32-pots, ready for Forcing. They are healthy vigorous plants, and cannot fail to give satisfaction. He has also a large stock of Dwarfs and Half-Standards suitable for planting in Roseries; they are offered very cheap.
Sunningdale Nursery, South-Western Railway.

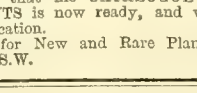
DWARF HYBRID PERPETUAL ROSES, on the MANETTI STOCK; Carriage paid to London.—The Undersigned offer very fine and vigorous plants of the above. For a LIST of the more popular sorts, see *Gardeners' Chronicle* for December 6, 1862. Prices given for small and large numbers (per 1000 at a much reduced rate) and a DESCRIPTIVE CATALOGUE of ROSES sent on application to
Thos. Rivers & Son, Nurseries, Sawbridgeworth.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.
Richard Smith, Nurseryman, Worcester.

WELLINGTONIA GIGANTEA.—The attention of the Nobility, Gentry, and the Trade, is invited to the largest stock of 1-year SEEDLING PLANTS in the Kingdom, established in single pots and fit for Spring planting. Price per dozen, 12s.; per 100 or 1000 on application. A Sample free by post for 12 stamps.
J. Henchman, Edmonton, London.

Excellence and Economy Combined.
SUTTON'S UNEQUALLED COLLECTIONS of KITCHEN GARDEN and FLOWER, &c. SEEDS.
SUTTON'S COLLECTIONS of GARDEN SEEDS will be found the most economical, as well as the best in quality of seeds, as see List of Contents, which may be had gratis and post free.
No. 1, £3; No. 2, £2; No. 3, £1; No. 4, 10s. 6d.
Royal Berkshire Seed Establishment, Reading.

New and Rare Plants for 1863.



WILLIAM BULL, F.R.H.S, F.R.B.S., begs to intimate that his CATALOGUE of NEW SOFT-WOODED PLANTS is now ready, and will be forwarded Post free on application.
Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

The Gardeners' Chronicle.
SATURDAY, MARCH 7, 1863.

MEETINGS FOR THE ENSUING WEEK.

Wednesday, March 11 { Microscopical .. .. 8 P.M. / Society of Arts .. .. 8 P.M.

The illustrious Princess who this day comes amongst us as the affianced bride of our future Sovereign will, we doubt not, be too deeply affected by the grand spontaneous welcome that awaits her to receive any but the most favourable impressions of the vast metropolis through which she will wend her triumphal way. The arches, the banners, the draperies, and, more striking than either, the interminable forest of heads that will line every inch of the course of the royal pageant, will, in her eyes, more than compensate for a thousand deficiencies which other strangers, arriving under other circumstances, could not fail to descry. It is quite beside our present purpose to chronicle all our manifold short-comings, but if required to specify the two most flagrant offences against good taste that must strike the eye of an intelligent foreigner, we would instance the strange prudery that almost entirely hides our noble Thames from view, and the equally strange *absence of trees* that stamps such a character of nudity and desolation upon the whole of the eastern and much of the western portions of London.

He may travel for miles without a trace of vegetation, and according as the day may be cold or hot may imagine himself at Archangel or Algiers, in the depth of winter or the height of summer! The almanack and the thermometer will be his only guides, for his eye—unable to detect any clue to the season—can render him little or no aid!

We may well wonder that a state of things such as we have thus faintly attempted to describe should, under any circumstances, have come to pass, but it will be a still greater marvel if we did not eagerly seize the very first opportunity of remedying it. Such an opportunity, as our readers are well aware, is now to be found in that magnificent Embankment which will ere long open a splendid roadway along the sides of the Thames, and at the same time provide a plateau on which lines of trees may be placed with perfect ease and admirable effect. And yet, so far as the latter are concerned, it seems but too probable that this glorious opportunity will be utterly neglected, for we read the other day in a paragraph that had but too much the air of an official announcement, that the idea of planting trees on the embankment had been definitively abandoned. Can this be possible! We have already waited too long in the hope that some member of Parliament would rise to ask Mr. Cowper whether there was any authority for so extraordinary a statement, but as nothing of the kind appears as yet to have been done, it is high time that public attention should be thoroughly aroused. The matter is to the full as important as the carrying on of the embankment past Montague House, and yet no one cares to stir about it. How is this? We would heartily commend it to some lively M.P. in quest of a grievance, for if well worked it might almost serve to make a reputation in this halcyon session. We may probably have occasion to revert to this subject, and shall assuredly keep an eye upon it.

In the meantime we would commend the question—or, at all events, so much of it as pertains to the selection of appropriate trees—to the good offices of the Committee on Arboriculture that has recently been appointed by the Royal Horticultural Society, and which commenced its useful labours at South Kensington on Tuesday last. Indeed we scarcely know how such a body could render more valuable service than by searching out the trees best qualified to do battle against the various influences that abound (much more than they need) in the atmosphere of London and other great towns. Even if it should be found that our range of choice is more limited than in Paris and other large continental cities, we have at all events the satisfaction of knowing that *our* trees, whatever they be, will not have to be cut down every 20 or 30 years to form barricades.

The inquiry of a Correspondent a few weeks since, respecting the treatment of Hedychiums, reminds us that a word may be said on behalf of these noble Scitamineans, which have most undeservedly gone out of general cultivation. Indeed, Hedychiums are not the only plants of the Scitamineous order which stand in this neglected position, and whose place in our plant stoves have been usurped by many less worthy subjects. Witness the Alpinias, many of which are exceedingly beautiful, and some of them, Alpinia nutans for example, hardly to be surpassed; its pendent racemes of exquisitely tinted flowers almost rivalling those of the grandest of our Orchids in the singularity and beauty of their form and colouring. Alpinia magnifica, another neglected species, is quite a sensation plant, its cone-shaped bright red inflorescence, surrounded by a ruff of magnificent white-edged crimson bracts, being so unlike any of the ordinary garden plants. Several species of Curcuma too, might be instanced as plants of exceedingly ornamental character now scarcely ever seen, being elbowed out of our hothouses by the monstrous specimens of Aralias and such like "foliage" plants which the madness of fashion has permitted to usurp far more than their share, both of our glass houses and our exhibition tables. We may add to this short catalogue of unappreciated worthies belonging to the same Scitamineous family (which however in modern times has been broken up into two, represented respectively by the Ginger and the Arrow-root) a whole troop of Cannas, plants which are for the most part of a very striking character, and which are now becoming popularized for the sake of their foliage. Among these, Canna iridiflora, with its large long-tubed drooping rose-coloured flowers, stands preeminent as a grand example of the nobility of the order; and C. flaccida, with its large yellow blossoms, and C. glauca, with its distinctly glaucous leaves and yellow blossoms, are of almost equal interest in their way, to say nothing of the many species with scarlet and crimson blossoms, typified by the common Indian Shot, all of them telling plants, and some of them very handsome in foliage as well as flower.

Of the Hedychiums themselves, with their long, richly-coloured, and deliciously fragrant flower-spikes, what can possibly be finer, for instance,

than a well grown mass of coccineum, in which the flowers are scarlet; of longifolium, in which they are of an orange-red; of angustifolium, in which they are of a soft vermilion-scarlet; of elatum, in which they are of a tender creamy blush; or of Gardnerianum, in which they are remarkably bold in character and of a clear yellow colour? Then again there is coronarium, which produces its exquisitely scented snow-white flowers in succession from June to October, a plant impregnating the atmosphere around it with so delightful an odour as to have called forth the remark that a person entering a house in which it is blooming finds the smell so grateful that a feeling of reluctance is experienced at the thought of leaving. Still again, there are flavum with yellow, and flavescens with yellowish flowers, both showy, and both remarkable for their fragrance, the scent of flavum having been compared to that of a ripe Orange with a mixture of Jasmine. There are many more of these noble things to be had for the seeking.

All the plants we have mentioned are alike in this respect: they are all perennials, requiring rest in winter, and stimulating treatment during their season of growth. They all have tuberous rootstocks, which require to be kept moderately dry during the dormant period, and the stems in all of them perish after flowering, the plant either going to rest absolutely, or having a tendency to do so, so that in most cases there is nothing left during the winter but the rootstock. Tuberous rootstocks and annual stems are indeed very general though not universal characteristics of the Scitamineous family; and they indicate the general features of the management which it is necessary to adopt in order to ensure their successful cultivation.

The treatment required during the resting period may be said to be rather of a negative character. Thus when the plants have done flowering, which will be about October or November, they are to be set away in any back or out-of-the-way part of the stove, and the supply of water reduced. Thus circumstanced, their leaves soon turn yellow, and their stems wither; and when they have become well ripened in this way they may be cut down nearly to the base. They may continue to occupy the same position, but water is to be entirely withheld from them until the spring.

The treatment necessary during the season of growth, is on the contrary of a very active nature; and in the bygone times when Hedychiums were still in favour, it was something like what we now proceed to sketch. In spring, about the month of March, a little earlier or later as the case might be, the rhizomes were taken out of the roots, and then, all or nearly all of the old soil being removed from them, they were repotted in fresh earth. If they were healthy and not overcrowded, nor larger in the mass than was necessary to furnish a sufficient number of stems to form a good plant, they were repotted whole. If the masses were large, so that a greater number of stems would be produced than the soil that could be given them would nourish; if the rootstock consisted of too large a proportion of the older tubers without strong or vigorous eyes; or if propagation were desired, the root stocks were parted before potting — in the first case, so as to reduce them to a convenient size; in the second, to give encouragement to the younger portions, so that vigorous buds capable of yielding strong shoots for flowering might be organised; and in the third so as to form as many separate plants as might be desired, or as the mass of tubers would yield.

The strong flowering plants, which require rather ample pots, were planted at once into those in which they were to flower. They were found to require a rich and rather strong soil. That to be recommended consisted of mellow turfy loam of good heart broken up rather roughly, and mixed with about a fourth part of decayed hotbed manure. In potting it was found necessary to apply a liberal drainage of broken rubble, and on this was beneficially placed a layer of the rougher portions of the loam and dung for the roots to feed upon, as they struck down towards the bottom of the pots—which they were found to do as soon as they got into active growth. After potting the plants were plunged in a bed of tan on dung and leaves where there was a brisk bottom-heat, under the influence of which they soon pushed freely. This bottom-heat, however, it may be remarked, though beneficial, is not essential. At this stage and onwards they were most liberally supplied with water. The bottom heat was continued with advantage during the whole of their progress till they reached the flowering state. These were the main features of their cultivation.

When the roots have become numerous in the pots, and the soil is getting exhausted, there can be no question that the vigour of the stems of such plants may be kept up by judicious applications of liquid manure. Rapid and vigorous growth are the objects to be secured, and abundant heat and moisture, with good soil as a basis—in other words good feeding, are the agencies through which they must be obtained. These being secured, a good display of bloom follows as a necessary consequence. The plants as they come into flower may be removed for the decoration of the stove conservatory.

Some if not most of the species will grow and flower in a very satisfactory manner planted out in the border of a warm conservatory; and they have a very fine appearance in such a situation.

Why should we not have introduced at our autumn flower shows a class of Hedychiums? They would have a grand effect, if they could be secured in perfection. They are so well nigh forgotten by the present generation that they would appear with all the charm of novelty as a striking feature in the displays of that season, which now consist in great measure of cut flowers. Their near relations, the Cannas, would be good supporters, even if invited solely for the sake of their noble and telling foliage; in spite of the tendency of their flowers to fall off.

In a paper on keeping and planting Potato sets, by M. Gauthier, the author recommends choosing the large and the middling-sized tubers for sets, and asserts that it is much more profitable to give the small ones to animals; for small sets produce tubers of diminutive size. This is perfectly correct. Instances may be adduced to the contrary, but they are the exceptions. The eyes or buds are often as numerous in small tubers as in large ones of the same variety; but the buds are small, and throw up comparatively weak stems, which produce only small Potatoes. Instead of planting small tubers whole, M. Gauthier prefers large ones cut in sets; and this he advises to be done three weeks or a month after the Potatoes are taken up. If cut at the time of planting the produce is much diminished; it is, he says, like cutting trees when they are in sap—their vegetation is interrupted. When the cut surface of the Potato is healed or dried over before vegetation takes place in spring, there is little or no loss of sap.

For keeping the sets till the time of planting, he recommends shallow, open lath boxes [open-worked baskets would answer the same purpose], which may be placed above each other, with pieces of wood between so as to admit a good circulation of air; the more air the better. They should by no means be put in a cellar. By this mode of keeping an earlier and more abundant produce is obtained. It is important that early growth should be encouraged, in order that the tubers may be the better matured before September or October, when the disease sets in. In *planting*, therefore, care should be taken not to break the shoots that may have pushed from the sets in the boxes. Some that had been planted with their shoots entire on the 15th of April made stems 10 inches high by the 15th May, whilst at this time those sets from which the shoots had been broken off were only pushing through the ground. When manure is employed, the author thinks it should be placed over instead of under the sets.

For obtaining early dishes of the Marjolaine or Ash-leaved Kidney Potato, M. Gauthier recommends planting in 5 or 6-inch pots, and placing these anywhere in a greenhouse or conservatory, on the tops of Orange boxes for example, where they will be no trouble except watering occasionally. They should be planted out of the pots in the open ground as soon as they can be secured from frost, care being taken to shelter them with straw mats. This is better than leaving them in the pots, where, however long they may remain, the plants only produce small tubers. By the above mode Potatoes may be obtained, the author says, almost as early as on a hotbed.

FISH AND FISHING.

For a long time I have been one of your delighted and edified readers. For a very much longer period I have been an ardent lover of all that appertains to gardening, horticulture, floriculture, &c.; and contemporaneously I have had another ruling passion—a passion for fishing. I have been pondering over these two ruling passions existing in myself, and I come to a conclusion that they are born of one parent, namely, the love of Nature, and that therefore they are twin sisters.

In the country districts your main supporters reside, and methinks that among those supporters many must possess my "twin-sisterly tastes," the love of gardening and the love of fishing; and those I think might be grateful for some information on the latter subject, if you would contrive to devote a small corner to the subject.

In forwarding you the following lines, I should state that they were written for another purpose, to which they have never been applied. They refer rather to the increase of fish than to "fishing." But they are important as referring to the existence of fish, as a necessary preliminary to "fishing." And they may enlighten some, at least, of your readers as to what is progressing to insure a larger supply, and a cheaper, of admirable substances of food for the table. The English Salmon Fisheries Bill of 1861 only came into operation at the close of that year, yet its effect seems to be marvellous; salmon at this moment are abundant in the London market, and are described as very abundant in all rivers legislated upon. Large fish, similar to those sold in London in February, 1862, for which 3*s.* or 4*s.* per lb. was demanded, are already, February, 1863, offered for 1*s.* 8*d.* per lb. To how much less the price may fall during this year it is impossible to conjecture. What will another year's progress, under good legislation, place within the reach of the poor man's pocket?

Many years ago I knew a man who had literally raised himself from a coal pit underground working lad to the position of great wealth and standing in a town in Lancashire. "Village," it used to be called, but he had raised it into a "town." He was locally known as the "Father of ———." Though he would sometimes point to a poor spot whereon a hut which he occupied in his younger days had stood, he was too single-minded and single-hearted to speak of the large fortune he had accumulated. Only once did I hear anything like exultation escape him. "Sir," said he, "God has always been most merciful to myself and to my family, but the proudest worldly moment in my life happened in this wise. From my early experience underground I formed a conjecture that under a certain piece of land there was coal. It was for sale, and I bought it at a reasonable price. My best friends advised me against it. I commenced my shaft and went deeper and deeper, my friends almost ridiculing me. I had sunk a deal of money, still I persevered in my fore-judgment; but even I began almost to fail in hope—when lo! the surest signs known to a practical coal miner showed themselves. All was realised at last, when we came to a most extensive and remunerative coal bed, which has confirmed my fortune for my children. I conquered a great difficulty against the advice of my friends, and in that is my greatest pride in life—far higher than the pecuniary gain which that coal mine has yielded me."

Well now, so it may well be, and so it is, with the "Fisheries Preservation Association." That Association came into existence at the suggestion of two or three energetic gentlemen early in the year 1861. Of course, as with all new things, friends poured in, and great promise was held out. There was no great *éclat* attending its exertions. Yet the Council of the Association, bongré malgré, through thick and thin, and without hope of pecuniary reward, have stuck to the ship, "steering for the great aim of the Association, Fisheries Preservation!" and by its almost weekly meetings from May, 1861, to the present moment in 1863, apparently without ostensible advantage, has, like my mining friend, achieved something like a great success at last.

It must not be forgotten that the Association effected great good in assisting the passing of the "English Salmon Fisheries Act." Had not the Association existed and acted strenuously, the models of the objectionable engines which had almost destroyed the breed of salmon in English rivers, would never have been seen in the Committee Rooms of the House of Commons, and the Bill would have been thrown out. Not the slightest doubt exists that the exhibition and explanation of these models altered the opinion of very many Members in the House, and turned the shaking balance into a large majority, which passed the Bill triumphantly.

Since then the Association has formed several deputations to this Minister and that, in hopes of relief against crying evils to the salmon fisheries—apparently, at times, hopeful, but until recently, hopelessly. The stoppage of the export of salmon taken from our rivers, while in the very act of spawning, to France, has been the subject of its great labours of late; millions of ova have been destroyed, and we have lost the hope of thousands of large salmon which our rivers might have yielded in a few years hence.

The Council worked with energy to induce Sir G. Grey to lend a sure and helping hand to prevent this loss, until he finally announced that he was powerless. The Council thought that the 16th and 17th Vict. c. 157, s. 150, would have justified a proclamation or Order in Council, prohibiting the export. But Sir G. Grey was forced to follow the opinion of the law officers, which was "contra," and reluctantly (as I believe) declined to act.

For the late "close season" the thing is of course

hopeless; those millions of ova are dead irretrievably, and the Council began almost to despair.

But a bright gleam of hopeful sunshine suddenly darts across the straits from France, and all its labours seem crowned with success. *Le Moniteur de la Flotie* indicates that the Emperor thinks well of the "Fisheries Preservation Association," and determines to act upon a policy which is most wise and beneficent to his subjects, as regards the supply of wholesome food.

Doubtless we shall hear that during a certain season there will be a total prohibition against the sale in the French market of any salmon or trout, and through the act of France all poaching during "fence months" or "close season" in Great Britain and Ireland will be virtually knocked on the head. "Close the market, and poaching (or the demand) will cease."

What will ensue upon this common-sense act of the Emperor? I prophesy nothing less than this, namely, that the last remaining scales of hesitation will drop from the eyes of our Government, and that it will, in the present session, support any measures brought in to stop the export of foul salmon, to prohibit the sale of any of the salmo genus during a certain "close time," whether they come from north, south, east, or west, and to enforce one uniform close time throughout the British dominions. I prophesy this, if not more, namely, that the Government will themselves propose such measures.*

If such things happen, who has brought them about? The Fisheries Preservation Association in a very great measure!

Finis coronat opus.

And it has its reward. But its work does not finish there. The Association started as a Society for the Preservation of Fisheries; and if it has the support of the public as fish consumers in general, and of all persons interested as sportsmen or as owners of fisheries in particular, it has an undying duty to carry out, till all abuses are abolished. Trout must be legislated upon, and the pollution of all waters, whether as fisheries or on the score of public health, must be prohibited.

In former days, centuries back, our inland fisheries were of immense value for the food they yielded. They were thought worthy subjects of Royal Charter, and there were then hundreds of fish to each one caught in the present day. Even in my time, I knew rivers 40 years ago wherefrom you could charm every day a large basket of trout; but now in some of them the trout is wholly extinct, and in others you may fish for a week and consider yourself lucky if you catch two or three. The truth is that mills (formerly innoxious), especially modern paper and rag mills, so pollute our streams that the ova will never vivify, or if they do vivify the tender young are poisoned; and so, unless an effectual stop be put to the poisoning, the breed will become extinct. *E. C.*

* The *Times* of this day, Feb. 25, shows that this latter prophecy is about to be fulfilled.

ROSES.—No. II.

By Mr. William Paul, F.R.H.S, Paul's Nurseries, Waltham Cross.

Summer Roses (*continued from* p. 196.)—The French and its hybrids, once the leading group of the genus, has been depreciated more than any other by the improvements of modern times. It must not however be yet laid aside. The varieties grow freely in any common garden soil, and produce fine masses of highly fragrant flowers in the summer time. The colours are varied and beautiful, the growth compact, and the plants require close pruning. Adèle Prevost is a pretty silvery blush Rose, of good form, and flowers very freely. Boula de Nanteuil is a superior crimson purple variety, with fiery centre, still one of the best of very dark summer Roses. Cynthie produces pale rose-coloured flowers, delicately margined with blush, and is also a free-flowering sort. Duchess of Buccleuch is a large bold dark rose-coloured flower, with blush margin, a little coarse but still a show Rose. Grandissima, or Louis Philippe as it is also called, is a good purplish-rose coloured variety. Kean is by no means a bad show Rose; the flowers are rich velvety purple dashed with scarlet, large and full. Œillet parfait produces pure white flowers, broadly striped with rosy crimson; the flowers are not large, but they are neatly formed; the growth is not vigorous, but is improved by close pruning. Taken altogether, this is one of the best of striped Roses. Blanchefleur deserves a word of special commendation; it is hardly a show Rose, but its white flesh-tinted flowers are produced in such gay profusion that scarcely any Rose of its colour is so effective. La Volupté, or Letitia, is still a show Rose, of a bright rose-colour, the petals exquisitely arranged. Some of the French Roses are beautiful in colour and outline, and the petals are admirably disposed. Their fault as show Roses is that they have a papery appearance, owing to the delicate texture of the petals, and they fall out of shape too soon after gathered.

The Hybrids of the Chinese, Bourbon and Noisette are the glory of the Rose garden in summer, and many of them are excellent show Roses also. Hardy and free, they are alike suited for pots, pillars, or standards. Some should be pruned very little, others moderately, few close. If those of strong growth be cut much they grow too vigorously and are scant of flowers. Blairii No. 2 cannot be too highly commended as a wall Rose where a great height or breadth is required to be covered quickly. The growth is extraordinarily rapid, and the foliage and flowers fine; the latter are of a blush pink, very large and double. Prune sparingly. Charles Duval, although an old Rose, is still a good one; the flowers are deep pink, large and full; the foliage is handsome. Charles Lawson is a first-rate pot Rose, and good either as a standard or pillar; the flowers are vivid rose-colour, large and full—quite a show Rose. Chénédolé is a beautiful Rose, with flowers of a light vivid crimson; the growth is very vigorous, and it is equally good as a pot, pillar or standard Rose. It should be pruned very little. Coupe d'Hébé is one of the gems of this group, and hardly surpassed by any other Rose; the flowers are of a rich deep pink, exquisitely cupped, large, and very double. Like the preceding it is good as a pot, pillar, or standard Rose, but should be pruned tolerably close. General Jacqueminot produces flowers of a rich purplish crimson, which are glowing and effective on the tree or pillar, but hardly suited to figure at the exhibitions. Juno as a pot Rose is of matchless beauty, and is good out of doors in fair weather; but unfortunately the flowers, which are rose edged with blush, are quickly soiled by rain or wind. This variety, which partakes somewhat of the group Alba, should be pruned closely. Madame Plantier is one of those profuse blooming Roses admirably adapted for bedding; the flowers are white, produced in clusters, individually below the average in size. Madeline is desirable for its distinctness; the flowers are flesh-colour edged with crimson, not overlarge, but quite full and very beautiful. Paul Perras is a very superior pot Rose, growing to the largest size as such; the flowers are of a pale rose colour, large, full, and fine. Paul Ricaut is a bright crimson flower, large, full of glowing colour, and exquisite form; most valuable as a pot Rose, but good also as a dwarf or standard. It should be pruned rather closely. Perfection is a peach-coloured flower, not large, but distinct, and perfect in form. Vivid, one of my first seedlings, now ranking among the old varieties, is still unequalled as a brilliant-coloured standard, wall, or pillar Rose; the flowers are of the richest crimson, and so abundant that no Rose in the garden can compare with it for effect. It requires very little pruning.

The Roses of the Alba group, of which the Maiden's Blush and the Celestial may be taken as the types, are still valuable for their delicate colours and distinctness. Felicité and La Séduisante, both flesh-coloured Roses, with blush margins, are the best. Then there are Madame Audot, flesh colour; Madame Legras, white; and Queen of Denmark, pink, which are not surpassed in their way. Sophie de Marsilly is a fair-weather Rose, exquisitely beautiful when first opening if lucky enough to escape the rain and wind; the flowers are blush, with rosy centres, large and full. Common soil and moderate pruning suits these Roses, which are valuable in the garden, but not large enough for show Roses.

The Austrian section contains the only hardy yellow Roses that are worthy of general cultivation, and these flourish best in country air; Harrisoni, a yellow variety of American origin, produces almost double flowers in magnificent profusion. It is best grown as a weeping Rose, and pruned once in two years only. The Persian Yellow has flowers of a deeper hue, and more double than the preceding; the young leaves have the fragrance of the Sweet Briar. The Copper Austrian, although single, is so rich and distinct in colour that every one should possess it. All these are valuable.

The Ayrshire are most appropriate for covering banks, running up trees, poles and high buildings; the growth is slender but very rapid; they form the best of weeping Roses. Dundee Rambler, Ruga, Splendens, and Thoresbyana, all white or nearly white varieties, are the best.

The Evergreen Roses are not unlike the last, except that they hold their leaves through a great part of the winter; they are suited for the same purposes, and require but little pruning. Félicité Perpetué, Leopoldine d'Orleans, and Rampante, which are the best, produce white flowers; Banksiæflora, whose flowers are white with creamy centres, is pretty and distinct; Myrianthes Rénoncule, flowers blush, shaded with rose, is also interesting and useful.

The Banksian Roses form a most distinct and beautiful group, wholly unlike any others, and are well worthy of more extended cultivation. The flowers are very small, double, and exquisitely formed; they are produced in clusters, and those of the white variety are very sweet. To grow them in perfection they should be planted as conservatory climbers; or, if grown out of doors, are best trained against a south wall in a soil that is dry and warm. *If left unpruned* for two or three years, merely nailing the shoots to the wall, they will bloom in perfection.

(To be continued.)

Indoor Gardening.

Now that March has come in, people want to be spring-like, and my indoor gardening this week will step outside the window.

What is the meaning, I wonder, of late-blossoming flowers in London? And as for the country windows and the rough pretty outside balconies, is it not an important object to fill them also quickly brim-full?

Nothing looks ever lovelier than a fringe of green leaves round a window; no gay well-filled flower boxes half make up the want of that; the flickering light and shade, and the pleasant bright green leaves, make such a charming tracery edging over window frames. But nurserymen stock boxes and supply balconies largely, all with the low growing plants, such as Stocks and Mignonette, and Nasturtiums, &c.; and we must look out for ourselves if we want to have frames of green. The plants I have used mostly have been the Japan Honeysuckle or Lonicera, a charming evergreen thing with leaves that are free from insects, and most delicious sweet-scented flowers, small and pink and delicate, waxen and really lovely. This plant I have had in a large pot growing up to the top of a window. It does charmingly for a verandah or where a pillar requires filling, and for a cool conservatory it also would answer well. Many balcony owners might also well be glad to have the gay flowers of Jasminum nudiflorum, which in several gardens in London blossoms all through the winter. The garden wall of a friend of mine is always gay with it all winter and if it were so arranged as to be trained out in front of Ivy, there would be abundant leaves to show off the primrose flowers. It has been in blossom for months on a wall of mine, and even for cut flowers it really is very pretty. The Ivy and the Jasmine might occupy two pots, and either be made fairly stationary or come into view each autumn, when the long wreaths of Clematis and the blue hanging Passion-flowers have ceased to enliven the walls. I got last spring a quantity of blue Passion-flower at the Ashburnham Park Nursery, somewhere at Chelsea. That was the only place where I then could find it growing, but no doubt young plants could be got from any nursery. Passiflora cœrulea is the best sort I think to grow; it is free in flowering, and grows so gracefully and quickly, with really the least protection. I kept it in pots some winters (including the very cold one) and it kept quite well and safe in an empty and fireless room. The pots were rather large, and the soil well rammed in. In summer—from this time even—it might be out of doors. In a balcony, for instance, how nicely it would answer in a pot sunk in a box, or in a sort of case, made of four tiles cemented at the edges. If the space within contained Cocoa refuse the roots would root into it nicely, and these tile-faced boxes would have a good effect.

Then brackets may be used, screwed firmly against the walls, or little rustic balconies like those I described last year. In these things the creepers are charming—Clematis winds about, being like the others hardy and quickly grown. In places not quite in towns the climbing Roses grow beautifully if we only are careful to give them sufficient drainage and to keep their leaves fresh and clean. The Honeysuckle hangs down long gracefully waving wreaths every now and then, adorned with its yellow flowers, and its pinky buds half opening. The quick-growing Cobœa scandens tangles into a green mass, and the bells of the "morning glory" open to the sunshine. The grand things are the watering, the root sheltering, and the washing. People will have to get hydropults and work them all summer industriously! Their reward will be the most fresh and radiant leafage possible; and though the trees in London may soon lose their first green brightness, this will not be the case with the plants which are thus washed frequently.

I never can myself feel happy without some Vine leaves—no other leaves compare with them for bright and transparent beauty. Why may not indoor gardeners have an æsthetic Vine? If indeed its foliage does surpass all others, why should it be grown solely where Grapes are practicable? A very young Vine cutting, even just a mere common sort, would make a fair show in a year or two, for it is very different growing leaves or Grapes, and abundant and frequent waterings will soon make our Vine leaves grow.

The climbers that I have grown thus have been in 8-inch flower pots, or even now and then in some of smaller size. The Calystegia, or great white Bindweed, grows splendidly, and Hops will succeed sometimes if abundantly washed and watered. If ever it is allowable to use manure for window plants, we might in this instance give some now and then to the Hop bine. And any stray little ladybirds who may happen to cross our path will best fulfil their vocation eating the Hop-bine's insects.

The guano water should be always exceedingly weak. And though it often does harm to pot plants by inducing leaves not flowers, in cases like these, where we want leaves, it will be much more to the purpose. The prices of all these climbers is always very reasonable. I think I have always bought them from a shilling to half-a-crown each. *E. A. M.*

Home Correspondence.

The Royal Horticultural Society's Garden, South Kensington.—Will any one in the secret have the goodness to explain to me and other curious persons, why, when every suburban garden is rejoicing in the brilliant ornaments of spring, this great place is as desolate as a dirty London Square. Report says that the Society had last year an income of nearly 30,000*l.*—a prodigious sum to be spent on a garden of a few acres. Have the guineas been sown for a crop and refused to grow? I happened the other day to call on an old friend rather fond of flowers, and I found him in the midst of an acre

or so of Crocuses of the most superb tints; the ground was ablaze with colour. The richest Turkey carpet that ever left the looms of the East was dull and lustreless in comparison. Thence I proceeded to South Kensington, where I expected far greater things. All I could find in that head-quarters of gardening was such gayness as bits of many-coloured stones and tiles could supply. At last my eye fell upon a fragment of a pattern that appeared to have been stuck over with Potato sets. A nearer view showed them to be points of dingy yellow flowers—possibly Tulips—and that was all. And this towards the end of a spring unparalleled for warmth and sunshine. Oh! *B. J. B.*

Garden Law: No. 3, Fires caused by Rubbish Heaps.—A friend had the misfortune to have his premises destroyed by fire the other day, in consequence of some carelessness on the part of his neighbour. It appeared that the latter had lighted a heap of rubbish near a shed on our friend's land, and the wind lying towards the shed, that soon caught fire, and the flames spreading rapidly, the whole of the adjoining buildings were consumed. The premises destroyed consisted of a dwelling-house held for 21 years under a lease, and of a greenhouse and other buildings held for the same time under an agreement. The lease contains a covenant by the tenant to repair, but there is no provision applying in terms to destruction by fire, The agreement is altogether silent about repairs. The landlord requires not only that the premises shall be rebuilt, but also that the rent for them shall be paid just as if nothing had happened. We are asked whether this demand must be complied with, and whether there is any remedy against the man to whose carelessness the fire was owing. Let us see how the matter stands. There are three totally different subjects for consideration. There is, first, the rent; secondly, the restoration of the property; and, thirdly, the negligence to which the accident was owing. The two first of these questions concern the landlord and the tenant only, and must turn mainly on the bargain they have made with each other. There are two bargains, however; one contained in the lease, and the other in the agreement; and the terms of the two are not alike. They both, however, contain an undertaking by the tenant to pay rent, and there is nothing whatever to qualify that part of the agreement. The rent, therefore, must be paid, although for some time to come the property will be of no use to the tenant. This may seem hard; but when a man deliberately enters into a bargain he cannot escape from it on the ground that by some accident it is hard upon him to keep it. For the same reason he must repair, that is rebuild, the dwelling house; for he has expressly agreed to repair and keep in repair that part of the property, and if he did not intend his covenant to apply to accidental destruction by fire, he should have taken care to say so. This reasoning, however, is inapplicable to the greenhouse and the other buildings held under the agreement, for that contains nothing about either repairs or fire. To determine what ought to be done with these, we must therefore find out what the law as to losses by fire is as between landlord and tenant where they have entered into no agreement upon the subject. Turning to our law books, we find that the landlord is not bound to rebuild. We further find, in the absence of any bargain to the contrary, a tenant is not liable to make good the damage caused by fire not attributable to any act or default of himself or his servants. We conclude, therefore, that as regards the greenhouse and other buildings, neither the landlord nor the tenant need rebuild them; but, whether rebuilt or not, the tenant must pay his rent. There remains to be considered what the liability is of the person on whose property the fire originated. He says that the fire was an accident; that, although his heap of rubbish was rather near his neighbour's shed, still, when the rubbish was lighted, the wind blew from the shed, and that the fire arose entirely from the circumstance that the wind afterwards shifted. He insists therefore that he is in no way responsible for the damage which has occurred, and being somewhat of a lawyer he quotes an Act of Parliament and a passage from Blackstone in support of his contention. There is no question however, that the rubbish was intentionally lighted by him or his servants; that it was nearer to the shed than was safe; and that there was a want of proper care in watching and managing the burning heap. The Act of Parliament which renders persons irresponsible for fires accidentally beginning in their houses or on their property, was not intended to screen people from the consequences of negligence, and notwithstanding the Act, it has been decided more than once, since the time of Blackstone, that damage caused to one person by fire occasioned by the carelessness of another or his servants must be made good by him. There was an instance some years ago of a hay-stack taking fire spontaneously and burning down a house; the owner of the house brought an action against the owner of the stack, and negligence on his part being proved, obtained heavy damages against him. There was another instance in which a farmer's crops were seriously damaged by fire from a rubbish heap burning on his neighbour's land; the farmer obtained damages, although it was insisted that the fire was purely accidental. We conclude therefore that our friend whose shed and houses were destroyed is not without remedy against his neighbour to whose carelessness the loss was attributable. *Lincoln's Inn.*

Birds and Insects.—As I am a good deal used to birds and their ways, may I be allowed to give my testimony on their behalf, in the present argument, as to whether they eat seeds or insects. There is a certain fable too well known to need quotation. The Chameleon was green as well as white and blue—and is it not a fact that while a pair of old sparrows may prefer a few young Peas, the voracious appetites of their numerous young are exclusively fed upon live food. One proof seems to me conclusive for those who are not satisfied with outdoor observations. In rearing young birds, all bird keepers know that it is impossible to keep them in health without insects or their substitutes; the hard-boiled eggs, &c., are mere means of supplying these, and, after all, thriving nestlings are far better fed by old birds, who have the range of orchards, and who, eat what they may themselves, flock in with endless grubs for the benefit of their young. As for a bird declining to eat some one sort of insect, it does not seem to me to go for very much—most birds appear to have some one especial prey. And as to large hairy caterpillars, who can expect to see them bolted! Silkworm experience would lead to the conclusion that in the tiny new hatched state, they form a more likely prey; and happily young nestlings are altogether insatiable. Their days are extremely long—and there are many mouths—so that any one who has enjoyed the task of rearing such small fry, must be qualified to guess fairly at their untiring "usefulness;" far outbalancing surely the small parental ravages. People must have seen too the incessant return of small birds to some one particular tree? If that tree be well examined, a swarm of tiny creatures is sure to be found upon it—black flies, or green flies, or little new hatched caterpillars—according to the tastes of their particular offspring. As collateral evidence I see, while writing this, the mention of a young cuckoo, for whom "animal food" is required. If sparrows did not generally feed their own young with insects, surely the young cuckoo would not be put into its nest? *E. A. M.*

The British Queen Strawberry.—I have read what "Z." has said (see p. 197). As he generally succeeds with the British Queen, I can give no other reasons for his failure than radiation and too much rain. Where drainage is not free, and water lies on the surface (called waterlogged), the Queen suffers much. She is particularly sensitive of snow-water. Her stalks and leaves being hairy, water, which gives power to frost, lodges in her. The Queen in some lands will often winter better exposed to all four winds on the top of a hill than in protected valleys, where she is subjected to radiation, too much moisture, and frosts. In my valley, facing the W., I have never had but one good crop in 10 years. I have put her on a severe ledge at the west end of my house, exposed to the fury of the W. and S.W. winds, and also to the severe blasts of the north. She is by the side of Eliza, to which as a plant she bears no comparison, and she is in tolerable condition. If she fails this year, I fear she must go. This I shall regret, as she is my idea of fragrarian excellence. I have another garden, where she does well without any trouble, but the place is open to "boys and birds." Suitability of soil is the one grand key to the Queen. The Blandford land is peculiarly adapted to her. I have lately reviewed her in three gardens there, viz., Mr. Ingram's on the top of the hill, and also at Mr. May's and Mr. Hector's, whose gardens face each other on either side of the river Stower (or Stour); and the result is the same. Mr. May's Queens planted last March are wonderful for health, and bold, vigorous, and many crowns. Though the garden is subject to the overflowing of the Stower, still the Queen revels there. She will not fail this year there—nor did I ever know her fail there. I sent Mr. Gloede to see her there this last year. Suitability of soil, free drainage, high cultivation, freedom from radiation, and dryness are, I believe, the main keys. Strong soil, friable, is better than light soil, and the exposed tops of hills are better for her than wet valleys. Still, observe, where soil has been suitable to her, I have seen her, without variation, beat every other difficulty. I think the London market gardens must be suitable to her, for I observed this last year and also on a former occasion, that the pottles were chiefly filled with the Queen; and next to her the favourite seemed to be the Empress Eugenie, a noble production, with which with Eliza, Wonderful, Trollope's Victoria and Marguerite, I am filling my garden. This latter Strawberry is very hardy, is large, handsome, and I think, with sun, it will be very good. I must not forget to say, that my good friend Mr. Gloede tells me, that the winter there has cut up the foliage of all his Strawberries excepting "Eliza!" The best chance to succeed with the Queen is to spring plant her, keep her runners off, and force her into strong growth. Canvas over head would keep her dry. Plain straw would be the best mulching; and where Celery was last grown would probably be the best place. *W. F. Radclyffe, Rushton.*

Orchard Houses.—Without intending in any way to detract from the merits of your correspondent "T. R." (to whom we are indebted for the agreeable and useful structures of which he treats), I am tempted to express my strong dissent from some of the doctrines laid down in his letter published in your last Number. Admitting the necessity for thorough ventilation in all houses where fruit trees are grown, my own experience entitles me to deny that there is any necessity for perforating the back wall of a lean-to house, for the admission of air, "in order to have the least chance of success." Neither can I admit that the ordinary method of ventilation "in front, and at the top of the roof, however abundant, is of no avail," because, at this moment, I have a house which is ventilated precisely in that manner, containing potted pyramid trees, in the best state of health, and which are studded all over with well set fruit, which any one may see to whom you give my address. It may be true that the under surfaces of leaves contains 20 times the number of stomata of the upper surfaces; but I should be very unwilling to perforate my walls, or to loosen a single brick, in favour of so wild a notion as that of specially aërating the under surfaces of the leaves of my trees, under the idea of "taking advantage of the peculiarity in their structure" above referred to; as if it were possible to aërate the one surface of a leaf by such means, more or less than the other. Where there are thorough ventilation, and other necessary conditions, the presumption is that the leaves may be safely left to do their duty. *John Cocks, Gardener, Clapham Park.*

Transplanting Trees.—In reply to the remarks of "J. K. H." in your Paper of last week respecting my tree planter, I beg to say that neither of his methods bear the least resemblance to mine, as there is no difficulty whatever in the putting on or taking off the plates, neither ball nor roots being disturbed in the smallest degree by the operation. I have long ago had recourse to Mr. McNab's plan of the barrel staves, which "J. K. H." lays claim to, but I have laid them aside as things that have been. I lift hundreds of large trees annually, with the most complete success, and at half the usual cost. *Thomas Sorley, Falkirk.*

Muscat of Escholata Grape.—In answer to your Correspondent, "Vinicola," I have to state that I have cultivated this Grape for 23 years. It was purchased of Mr. Money, of the Haverstock Nursery, or, as he afterwards called it, Eschol Place, and my stock of it is from that source. It differs from the Muscat of Alexandria in being hardier, its berries larger, of a deeper yellow, and it will ripen in the same temperature as the Black Hamburg. In a critique on it in Loudon's "Gardeners' Magazine" for 1839, the writer admits that it is hardier and of a deeper colour than the Muscat of Alexandria. When first sent out, Mr. Money stated, that with him it had ripened on the open wall. *John Jennings, Shipston-on-Stour.* [We are sorry to differ from our Correspondent, but we remember Mr. Money and his Grape perfectly. Judging from the specimens he used to exhibit, it was like a half ripe Muscat of Alexandria, and not worth growing out-of-doors. If we are wrong we shall confess our error whenever we shall see a *ripe* specimen, not a half ripe one.]

The Male of Aucuba japonica.—I was much interested in observing by the letters of two correspondents (see p. 197) that some scarlet berries had been produced on Aucuba japonica in Ireland this year, and I may mention that I have some recollection of the same thing having happened on the Continent some years ago. Your correspondent "R. W." is in error when he says that the plant in our gardens is the male of this species. It is the lady which has been so long amongst us, and separated from her better half. One of the objects I had in view in visiting Japan was to re-unite the two, and I may take the liberty of stating that I found the gentleman in a garden near Yeddo, the capital of the country, and sent him home in a Ward's case. He is now just coming into bloom in Mr. Standish's nursery at Bagshot. We may soon expect to see the Aucubas of our gardens covered during the spring months with bright scarlet berries as they are in the woods of Japan. Without the male plant a few berries now and then may be produced, but never, I should imagine, in any quantity. The plant sold to your correspondent under the name of the "true female Aucuba" is probably the green-leaved kind from which the variegated one in our gardens originally sprang. It is, in my opinion, the most beautiful shrub of the two, and if it prove hardy will be a valuable addition to our evergreens. *R. Fortune.*

The Royal Wedding Day.—Pray, Mr. Editor, call upon the public to do something to be remembered on the above day. Advise every village or town in the empire that possesses a green or a public park to publicly plant a tree of some kind—an Oak, a Deodar Cedar, Cedar of Lebanon, Atlas Cedar, or above all a Wellingtonia, as a lasting memorial of the auspicious day. *Quercus Britannicus.* [We advise as "Quercus" advises.]

Lancashire Distress and the Members of the Mossley Botanic Society.—Will you have the kindness to allow me the privilege of appealing to your numerous readers on behalf of the members of our Botanic Society at Mossley, who, through the stopping of our mills for cotton, are now undergoing the most severe privations. I need not tell you how long the cotton famine has existed, nor of the dreadful ordeal through which we have so far passed, as the various newspapers have made you acquainted with these things. If those of our wealthy friends who can afford it will kindly lend us their assistance we shall feel exceedingly grateful. Anything they may feel disposed to send, either in money or clothing, will be thankfully received, and we shall be glad to make any return which lies in our power. Parties wishing for specimens of such things as grow within 20 miles of Mossley shall be served to the best of our ability. We have got a very fair share of

Mosses and Ferns. Among the latter I may name Botrychium Lunaria, Ophioglossum vulgatum, Cystopteris fragilis, C. dentata, Polypodium vulgare, P. Phegopteris, P. dryopteris, P. calcareum, &c.; Asplenium Ruta-muraria, A. Trichomanes, &c. These and others grow in such profusion that there is no fear of their habitat being destroyed. Parties willing to contribute anything to our assistance, or who may want any specimens we can furnish, will please send to the subjoined address, and they will be cheerfully attended to; or any gentleman coming our way will be accompanied to any part of our neighbourhood. *James Walker, Carr Hill, Mossley, near Ashton-under-Lyne, Lancashire.*

Conifers.—If a well-known botanist cannot escape the lash of your very scientific Correspondent, "Crabro Scandicus," how can an unknown writer expect to escape, especially when Orchids and Pinuses are generally said, among the learned in those matters, to be in a sad state of confusion. Perhaps your critical Correspondent will explain, for the benefit of your readers, the difference between Pinus rigida of the east side of North America and ponderosa of the west; for taking soil and situation into account, botanists on the spot (who?) have not been able to discover any. Until this is satisfactorily explained, possibly some of your readers may fancy Pitch Pine arrives in this country in balloons. *A Constant Reader, Penkridge.*

[" Crabro " is too far off to be consulted at present; so we will answer for him as much as we can understand of this inquiry. As for the two Pines, as far as we know anything about them, *P. ponderosa* has much broader leaves and larger cones, with recurved hooks, not little prickles on the cone-scales. It is no wonder that these Conifers, or any other plants, should be in a state of confusion, when they are taken in hand by persons knowing nothing of botanical science, among whom most certainly is *not* included Mr. Crabro's victim.]

Crocuses.—I send two flowers of a purple Crocus with white stigma and anthers, a variety I never saw before. They are growing with others of the usual sort, namely yellow and orange anthers. I shall be obliged by your informing me if it is new, and if you think it will probably continue to be distinct, in which case I should be glad to dispose of a few roots. *Mary.*

[We cannot match this among a good many thousands now before us. But two questions arise: 1, is the variety likely to be permanent; 2, is it handsome enough to deserve preserving? To neither can we give a satisfactory answer.]

Societies.

Botanical of Edinburgh: *January* 8.—Professor Maclagan, President, in the chair. Archibald Hewan, Esq., Old Calabar, presented a box of beans of Physostigma venenosum, the Calabar Ordeal Bean. The following communications were read:—1. *Irish Hepaticæ.* By Benj. Carrington, M.D., F.L.S., being the concluding portion of a record of Irish Cryptogams collected in Kerry during the summer of 1861.——2. *On some British Cyperaceæ recently discussed by Dr. Carrington.* By Professor Babington, M. A. In this paper the author made remarks on Carex Grahami, C. saxatilis, C. pulla, C. rigida, Eleocharis Watsoni, E. palustris, E. uniglumis, and Scirpus Holoschœnus.——3. *Remarks on some Fibrous Plants of Madras.* By Dr. Alexander Hunter. From experiments he had made in cleaning fibres of a great number of Indian plants, Dr. Hunter felt satisfied that the steeping and rotting process was not suited to the heat of the Indian climate. Plants putrify rapidly under water in India, and the fermentative process, which goes on for weeks sometimes in a cold climate, is occasionally completed in from 12 to 18 hours in India, and is immediately succeeded by putrefaction, which discolours and takes the strength from the fibres. The best method of separating the woody fibre and bark (or boon of flax, as it is called) is to crush or beat the plant as soon after it is cut as possible, taking care not to double up the stalks, otherwise the fibres get entangled like tow; continue the beating for half an hour, and then place in water for a night; to remove the sap, squeeze and hang up the bundles in the shade to dry; when thoroughly dry, the bundles may be rolled up in coarse gunny bags of cloth, and well beaten on a board with a wooden mallet. This separates the woody fibre and boon, leaving the flax soft, white, and very pliant. The more the fibre is beaten and knocked about, the finer and softer the flax becomes, and the interposition of the cloth prevents the fibre from being cut by the beating; it should afterwards be combed or hackled.——4. *Remarks on the Cotton Plant of the Peruvian Coast.* By C. R. Markham, Esq. The author, while travelling in the Coimbatore and Madura collectorates, in the autumn of 1860, was struck with the resemblance of the climate in many respects to that of the coast-valleys of Peru. This part of India appeared to be admirably adapted for the cultivation of the valuable long-stapled Cotton which is indigenous to the Peruvian coast-valleys. This Peruvian Cotton plant is indigenous and perennial, and was cultivated by the subjects of the Incas in the coast valleys long before the discovery of Peru by the Spaniards. The ancient Peruvians used a machine for cleaning their cotton, which closely resembled the Indian *churka.* The same machine was, according to Frezier, used by the Brazilians in 1720. The long strip of coast line between the Andes and the Pacific Ocean extending from the river Loa in 21° 48′ S., to the river Tumbez, in 3° 35′ S., a distance of 1620 miles, consists of a sandy desert, intersected by chains of rocky, barren hills, and traversed by 60 rivers and streams, with as many fertile valleys on their banks. This region is bounded inland by the cordillera of the Andes, and varies from 9 to 60 miles in breadth. The coast valleys thus surrounded by sandy deserts, which extend from the foot of the Andes to the shores of the Pacific, are the native habitat of the Peruvian Cotton. The climate of this region is very peculiar, rain is unknown, and the northern part, especially, is exposed to a long season of excessive dryness.——5. *On the Flora of Jersey.* By F. Naylor, Esq. Mr. Naylor stated that during two visits to Jersey in the latter part of the summers of 1861-1862, both of several weeks' duration, he made frequent botanical excursions, and left little of the Island unexplored. The list of flowering plants and Ferns, so far as he knew, now amounted to 850 species. Since the publication of Babington's "Primitiæ Floræ Sarnicæ," in 1839, 52 species have been added to the flora of that Island, several of which were first observed by the author. The paper was illustrated by dried specimens of all the rarer species.——6. *Notes on the Flora of Moffat, with special reference to the Ferns and other Cryptogamic Plants.* By Mr. John Sadler. The author remarked that there had been various incidental notices of the flora of Moffat—celebrated for its mineral waters and healthy atmosphere—principally the results of Professor Balfour's class excursions; but though visited year after year, by hundreds, no attempt had been made to publish anything like a complete list of the plants of the district. Mr. Sadler enumerated 540 species of flowering plants. In Black's Guide to Moffat, Silene acaulis and Saxifraga Hirculus are recorded as being found in the district, but the author believed the statement to be incorrect. Ferns grow remarkably luxuriant throughout the whole district, and, with their allies, number 37 species. The district is peculiarly rich in Musci, Hepaticæ and Lichenes, and would doubtless amply reward a more careful search; the number of species already known to exist are:—Musci, 155, many of great rarity; Hepaticæ, 50; and Foliaceous Lichens, 50.——Mr. J. Robertson, Glasgow, sent specimens of a beautifully variegated variety of Geum urbanum, which he had met with in a wood near Dunkeld. The plants were perceptible at a considerable distance from their light coloured foliage.

Notices of Books.

The Weather Book: A Manual of Practical Meteorology. By Rear-Admiral Fitzroy. Longman & Co. 1863.

Under this plain and unpretending title, we have one of the most interesting and instructive works that has yet appeared in this country on Meteorology, and the physical laws which regulate the various alterations that are constantly taking place in the atmosphere. The subject when viewed in its proper light is of vast importance, and has engaged the attention of some of the most sagacious and learned men of all nations, from the earliest period of our history to the present time. In the sacred writings numerous occurrences of a meteorological character will be found recorded with wonderful accuracy: and no one who reads the account of them can refrain from admiring the beautiful and expressive language in which they are described. For more than 4000 years there have, at certain intervals, been seen in the sky and upon our globe the return of the seasons, attended with a change of weather peculiar to each. The regularity with which these changes were observed to succeed one another naturally led to the belief that they were not the work of chance, but must be the effect of certain laws; and it is with the hope of acquiring some knowledge of the nature and mode of operation of these laws, that meteorologists have for a very long period pursued their investigations. Hitherto, it must be admitted, they have failed to solve the difficult problems, but their observations have to a certain extent paved the way; and we are led to anticipate results of the highest importance to science, and of the greatest benefit to the community, by the establishment of a Government department for meteorological purposes at the Board of Trade, under the superintendence of Admiral Fitzroy—an officer alike distinguished for scientific attainments, great practical experience, and careful observation during many years in all parts of the world.

That the gallant officer is "the right man in the right place," we think all who read his Weather Book will readily acknowledge. It is ably written, and bears evidence in almost every page of being the production of one who has made the science of meteorology his particular study. After some introductory remarks, and a minute description of the various instruments that are necessary for meteorological purposes, we are furnished with a brief sketch of the progress that the science has made up to the present time. A rapid glance is then taken of the differences of climate and atmospheric conditions appertaining to the tropical, temperate, and polar zones. The motions of the air around and about our world are stated to be owing to solar influence acting consecutively, and continually, so as to cause atmospheric circuits and a general exchange of air over all our globe. "This great general circulation, is, however affected and exceedingly modified, locally, by continents, oceans, mountain ranges, and deserts; which much augment conflicts of air currents, and occasion the varieties of winds, storms, and climates experienced in each hemisphere; all alike in origin, all in accordance as to general principles, and all now explicable by the same natural laws." These are fully explained, as well as the movement of air currents. Respecting the latter, it is observed, "that comparisons of accumulated facts have induced the conclusion that winds move in parallel currents, or circulate round centrical areas; and that whether the extension of such movement or circulation be immense, as between the tropics and the polar regions, or whether it be small even as the dust-whirl, the laws of circulation, or gyration, are uniform, except in such very rare and limited cases as to be unimportant." It is further worthy of notice that while there are various currents, sweeps, or circuits in any given area of our temperate zone intermixed and incessantly moving, the result of numerous simultaneous observations has made it apparent that "the entire mass of the atmosphere in our latitude has a constant, a perennial movement toward the east, averaging about five miles an hour. This induction from facts, having since been fully proved, and amply corroborated, has induced the Board of Trade to provide means for daily forecasts of weather, and occasional warnings of expected gales of wind or storms."

Previous, however, to entering upon this subject the reader is presented with a mass of highly interesting information on the effects of the greater currents of air, and their offsets around the world, together with an extensive but generalised view of all climates, with their prevalent winds and weather. As an example of the manner in which this is done, we subjoin the following extract with reference to central America. "We must not proceed farther without a notice of the tropical currents across those northern breadths of South America that are covered with the most abundant vegetation and the most extensive forests, and are watered by the longest rivers in the world. All the perennial wind there brings moisture from the Atlantic, which is stopped, precipitated, and from the mountains, returned by the rivers. Across the Andes to Peru not a shower reaches, and the country there is absolutely sterile; while in the vast territories extending from those mountains to the estuaries of the Amazon and Orinoco, rain is abundant all the year, forests spread everywhere, and animal life abounds. In Peru the houses have no roofs to keep out water; rain is a prodigy; and everywhere, unless artificially irrigated from a mountain torrent, the country is uniformly barren and brown; producing no vegetation (naturally), maintaining no conspicuous animal life except llamas (vicuñas or guanacoes), condors and seals; though by artificial expedients and immense labour formerly, now a productive, rich, and in some places a populous region. Similar harsh sterility extends both ways from central Peru northward, as far as Payta, near the equator, and toward the south, along part of Chile. On those shores in particular, where, in former ages, such multitudes of sea-birds swarmed as in their seemingly interminable flights actually darkened the air, guano abounded; no rain washed away its accumulations, age after age; and not until the comparative civilisation of those countries, under Ynca rule, were those deep deposits at all disturbed by man."

With regard to the climate of Australia, it is observed—"In extra-tropical Australia, inland as well as on the coasts, occasional hot winds, from the interior arid and heated deserts, sweep across the country like a sirocco, or being *dry*, almost as a simoom. They are immediately met and displaced by polar winds, raising dust in clouds ('brickfielders'), and changing the temperature 20° or 30°, even to 50°, almost suddenly.

"As through all the extra tropical range of Australia, extensive as it is, tropical upper currents are rainless, having passed over heated arid land only, and as the natural polar-currents are not usually moisture-bearing, though in passing over an ocean they are slightly moistened by taking up vapour—the consequence is that dry sterility is general. Localities of course may differ; fertile valleys—near heights attracting rain and occasional water-courses, occur often; but there are few fresh-water rivers, and fewer large lakes. Untowardly there are *many* salt streams.

"Tasmania, in point of climate, winds, and weather approaches Australia, excepting that it is less hot, arid, and saline, but windier and more rainy; therefore being, extensively wooded, shelter in extremes of temperature is available, and agriculture flourishes."

In this way the climate, winds and weather of the most remarkable places in each quarter of the globe are noticed; after which a brief outline is given of the practical system of meteorologic telegraphy established at the Board of Trade, and the methods by which the various observations at different stations throughout the kingdom are utilised. The more difficult parts that relate to the conditions and circumstances under which the ever changing state of atmosphere occur, are fully explained, as well as the reasons for such decisions as are made in forecasting weather. With respect to the latter, it is observed, "the term forecast is strictly applicable to such an opinion as is the result of a scientific combination and calculation, liable to be occasionally, though rarely, marred by an unexpected 'downrush' of southerly wind, or by a rapid electrical action not yet sufficiently indicated to our extremely limited sight and feeling." These forecasts have been ridiculed, from not being correct for all places in one district; but when rightly understood they will be found both useful and interesting to those who can form independent judgments of the probable changes likely to take place in their locality, and will compare the daily tables with the indications of their own

instruments. Like the storm signals the notices of expected bad weather should be understood to be merely *cautionary*—as it must be borne in mind that the system at present in operation is only a tentative experiment to render meteorology useful.

Our space will not admit of entering further into this subject. We must therefore refer the reader to the book itself, in which are given a variety of interesting details relating to storms, cyclones, meteors, &c., besides a number of plates illustrative of barometric curves, tropical and polar air currents, clouds, Royal Charter storm, &c.

To nautical men, we think, the Weather Book will be of the greatest value; indeed it ought to be studied by them with the utmost care and attention. The portion of it which is most deserving the notice of the farmer and gardener, and others engaged in out-door pursuits, will be found comprised in the following extracts relating to the movements of the barometer and thermometer, with the inferences to be drawn from them, and the appearance of the elements.

"By attention to the following observations (the results of many years' practice, and many persons' experience) any one not accustomed to use a barometer may do so without much difficulty.

"A barometer shows whether the air is getting lighter or heavier, or is remaining in the same state. The quicksilver falls as air becomes lighter, rises as it becomes heavier, and remains at rest in the glass tube while the air is unchanged in weight. It should always be remembered that the state of the air *foretells coming* weather, rather than indicates weather that is present (an invaluable fact too often overlooked); and that the longer the time between the signs and the change foretold by them, the longer such altered weather will last. To know the state of the atmosphere, not only barometer and thermometer should be watched but appearances in the sky should be vigilantly noticed. A rapid rise of the barometer indicates unsettled weather; a slow movement of some duration the contrary, as does likewise a steady barometer; which when continued, and with dryness, foretells very fine weather lasting for some time. A rapid and considerable fall is a sign of stormy weather and rain. Alternate rising and sinking always indicates unsettled and disagreeable weather.

"The direction of the wind affects a barometer—the north-east wind tending to raise it most, the south-west to lower it the most, and winds from points of the compass between them, proportionally as they are nearer the one or the other extreme point. Another remarkable peculiarity is, that the wind usually appears to veer, shift, or go round with the sun, and that when it does not do so, or backs, more wind or bad weather may be expected, instead of improvement, after a short interval.

"Allowance should *invariably* be made for the previous state of the barometer and thermometer during some days, as well as some hours, because their indications may be affected by distant causes, or by changes close at hand."

With the indications of the instruments, Admiral Fitzroy recommends every prudent person to combine observation of the elements; and the more accurately the two sources of foreknowledge are compared, the more satisfactory their results will prove. We subjoin a few of the more marked signs of weather, that he thinks may be useful.

"A rosy sky at sunset presages fine weather; a sickly-looking, greenish hue, wind and rain; a dark red, rain; a red sky in the morning, bad weather or much wind (perhaps rain); a grey sky in the morning, fine weather; a high dawn—(that is when the first indications of daylight are seen above a bank of clouds) wind; a low dawn, fair weather. Soft-looking clouds foretell fine weather; hard-edged, oily looking clouds, wind. A bright yellow sky at sunset presages wind, a pale yellow wet; therefore by the prevalence and kind of red, yellow, or other tints, the coming weather may be foretold very nearly. Small inky clouds foretell rain. High upper clouds crossing the sun, moon, or stars, in a direction different from that of the lower clouds, or the wind then felt below, foretell a change of wind toward their direction.

"After fine clear weather, the first signs of a coming change, are usually light streaks, curls or wisps of white distant clouds, which increase and are followed by a murky cloudiness. This appearance, as wind or rain will prevail, is an infallible sign.

"Misty clouds forming, or hanging on heights, show wind or rain coming, if they remain, increase or descend. If they rise, or disperse, the weather will improve or become fine.

"When sea-birds fly out early, and far to seaward, moderate wind and fair weather may be expected. When they hang about the land, or over it, expect a strong wind with stormy weather.

"There are other signs of a coming change in the weather known less generally than may be desirable, and therefore worth notice; such as, when birds of long flight—rooks, swallows, or others—hang about home, and fly up and down or low, rain or wind may be expected. Also when pigs carry straw to their styes, when smoke from chimneys does not ascend readily (or straight upwards during calm) an unfavourable change is probable.

"Dew is an indication of fine weather, so is fog. Remarkable clearness of atmosphere near the horizon, distant objects, such as hills, unusually visible, and what is called 'a good hearing day,' may be mentioned among signs of wet, if not wind, to be expected.

"More than usual twinkling of the stars, indistinctness or apparent multiplication of the moon's horns, haloes, and the rainbow, are more or less significant of increasing wind, if not approaching rain, with or without wind. Remarkable clearness is a bad sign. The 'young moon with the old moon in her arms,' is a sign of bad weather."

Let us add, in conclusion, that the work is a beautiful example of correct typography, and is furnished with a capital index.

The Journal of Botany (Hardwicke) is a new monthly periodical, to be conducted under the editorial management of Dr. Seemann, and to be sold (post free) at 2*s.* a number. It is to consist of two distinct sections; the one devoted to general botany, the other to the botany of the British Isles. In both divisions original papers on subjects new to science are to be given, and, when necessary, illustrated either in the text or by special plates. Each number will contain at least one full-page plate by Fitch, illustrative of new species described in the letterpress. Original communications will of necessity relate to the different sections of the science, of which it is likely that systematic papers will form the bulk; yet structural, morphological, and physiological botany will be attended to. Nor will geographical nor palæontological botany be neglected. Mere details of excursions, with records of collecting plants, will be very properly excluded, unless there is some real addition to knowledge contained in them.

The January number—the only one we have seen—contains some good papers, worthy of Dr. Seemann's reputation.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Camellias, Acacias, Cytisus, Rhododendrons, Azaleas, Deutzias, Orange trees, Epacrises, and last, but not least, Roses, will now be a blaze of beauty where plant growing is well attended to. During bright weather like the present they will require abundance of water, to which weak clear liquid manure should be constantly added. Dispense with fire heat as much as possible, and canvas screens should be at hand to be drawn over the brightest parts of the house for a few hours on sunny days. Orchids will now be pushing vigorously, and many on blocks and baskets will require careful attention in the way of watering, which should be done on sunny mornings early and air given freely for a couple of hours in order to prevent moisture from lodging amongst the buds and tender shoots. Attend to disrooting and cutting back winter flowering stove plants. Those done first, if the operation is conducted in proper order, will be the earliest next autumn and winter. In the mixed greenhouse force on Fuchsias where fine specimens are required; a moist atmosphere, with a slight amount of shading, will cause the shy sorts to make wood by retarding the flowering principle. Those wintered in outhouses or cellars should now be brought forth and potted, if possible, to give them a start for the decoration of lawns or the flower-garden. Brugmansias should be disrooted, pruned back, and started in heat. Shift, when necessary, New Holland plants in a growing state, likewise Pelargoniums, Calceolarias, and Cinerarias, with a view to having fine specimens. Pot successions of Gloxinias and Achimenes, and keep them rather dry and warm. In the forcing pit keep Roses free from insects, watering frequently with liquid manure. Provide successions of plants for forcing. Dutch bulbs should not remain long in heat. Hyacinths lose much of their effect when the bells are too far asunder through too much excitement in proportion to light. In sowing annuals do not forget Phlox Drummondi and Rhodanthe Manglesii, together with Portulaccas, Cockscombs, and Balsams.

FORCING DEPARTMENT.

Pineries.—It should be understood at all times, that a sudden check of any kind whatever is at variance with the whole economy of Pine growing. In shifting early in spring this frequently happens if the plants are allowed to stand unplunged in a temperature of 50°, whilst the tan bed from which they were taken has probably been 85°. Such a great discrepancy is found to be followed by pernicious effects. Attend well to atmospheric moisture; rest assured that as far as the Pine alone is concerned, it is not easy to overdo it at this period. Be sure to secure a powerful solar heat, with occasional syringings. Do not be afraid of a thermometer of 90° at 3 o'clock on a sunny afternoon.

Vineries.—Look well to the bottom-heat of early forced Vines, the roots of which are outside. Endeavour to keep fermenting material to 80° or 90°. When material of this kind is suffered to become inactive at this period, it is worse than useless. Early Grapes now about stoning should be run over once more with the scissors; let the shoulders be well set out. Keep up a soft and warm atmosphere on all ordinary occasions, but allow the heat to rise to 85° or 90° early in the afternoon of bright days, sinking to 65° at night.

Peach Houses.—Trees on which fruit is swelling will now begin to enjoy a little liquid manure; guano water, clear and weak, will be found of great service. Gross shoots need scarcely be feared with this application, provided all luxuriant wood is stopped as soon as it is 5 or 6 inches long.

Figs.—Provide against red spider by copious syringings, and the application of sulphur on the pipes. Be sure to follow up stopping.

Cucumbers and Melons.—Make it a point to turn one of the linings to the early Cucumbers and Melons, once every week until May. See that they are in good condition as regards moisture, and take care that no burning extends into the bed. Secure by frequent sowing and good cultivation in pots, stout plants full of health, of choice Melons. Do not object to turning out old plants in preference to young ones, provided they have not received any check.

Kidney Beans.—Secure abundance of atmospheric moisture to Kidney Beans; water both these and Strawberries continually with clear manure water; as soon, however, as Strawberries begin to change colour, use ordinary water only.

FLOWER GARDEN AND SHRUBBERIES.

Crocuses are blossoming unusually well this year, and where they have been planted in quantity and in sufficient variety they give the out-door garden at this comparatively flowerless season a gay and dressy appearance. Among yellows, lilacs, and whites are some very large and showy kinds, which when planted in parallel rows close together, have a striking effect, a point that should not be forgotten at next planting season. If not already done a thorough collection of the best hardy annuals should now be sown; they are of most service and most esteemed before Verbenas, Pelargoniums, &c., come to perfection. Where a frame or pit is at liberty we would recommend their being sown in small pots in loamy soil, and not turned out until they are slightly pot-bound; the flower then gains the predominance, and the great proportion of this above the leaf constitutes the chief beauty of most annuals. Get Dahlias in heat for purposes of propagation.

HARDY FRUIT AND KITCHEN GARDEN.

Make sowings forthwith on well situated beds of Green Kale, Savoys, Leeks, Brussels Sprouts, Cauliflower, and Dwarf Cabbage; and a little Pomeranian Cabbage, a sprinkling of Somers's, or other late spring Broccoli may also be added. Get in Parsley. Give a slight salting to Asparagus beds and Seakale ground. Sow Peas, Beans, and Radishes, as soon as former sowings are fairly above ground. Prick out very early Celery in a frame. Old mellow dung made firm is good, and prevents tap roots. Sow Sweet Marjoram and Basil, on heat. Protect fruit blossom by all possible means. Straw-ropes, mats, canvas, bunting, nets, Fir boughs, and fronds of Fern, should all, or any of them, be in requisition. As soon as nailing Peach trees is finished, mix sulphur and soap water to the thickness of paint, and draw a band of the mixture between the shoots, in all directions; this once done, and that well, will tend to secure the trees from red spider. Proceed with grafting, following in the order in which the buds break. Thrust a wisp of hay once a week into white Broccoli, the heads of which are showing, for fear of frost.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending March 4, 1863, as observed at the Horticultural Gardens

February and March.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 26	8	30.351	30.260	51	43	47.0	45½	44	S.W.	.00
Friday 27	9	30.256	30.218	54	29	41.5	46	44	W.	.00
Satur. 28	10	30.227	30.073	60	28	44.0	46	44	S.W	.00
Sunday 1	11	29.912	29.854	53	34	43.5	46	44	S.W.	.00
Mon. 2	12	29.876	29.832	58	32	45.0	46	44	S.W.	.01
Tues. 3	13	29.805	29.691	67	29	48.0	46	44½	S.E.	.00
Wed. 4	14	29.651	29.555	70	28	49.0	46	45	S.E.	.00
Average.		30.011	29.926	59.0	31.8	45.4	45.9	44.2		.01

Feb. 26—Fine; cloudy; very fine.
— 27—Fine; very fine throughout; slight frost at night.
— 28—Foggy; exceedingly fine; slight frost.
March 1—Cloudy; very fine throughout.
— 2—Densely overcast; cloudy; very fine.
— 3—Quite cloudless, exceedingly fine with bright sun; very dry air.
— 4.—Foggy; fine; unusually hot for the season; very fine; slight frost.

Mean temperature of the week, 4½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending March 14, 1863.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 8	49.7	31.9	40.3	14	0.17 in	3	7	2	3	5	7	4	6
Mon. 9	49.9	31.4	40.6	10	0.47	3	4	3	2	6	9	5	6
Tues. 10	50.2	31.7	40.9	13	0.69	4	3	1	1	5	10	4	6
Wed. 11	49.5	32.3	40.9	15	0.33	1	5	3	5	3	14	4	2
Thurs. 12	50.7	32.5	41.6	13	0.24	1	4	3	3	4	12	5	2
Friday 13	50.7	34.5	42.6	14	0.36	2	2	6	2	3	10	6	5
Satur. 14	51.2	35.2	43.2	16	0.70	—	8	5	—	5	13	6	2

The highest temperature during the above period occurred on the 10th, 1826, 12th, 1841, and 15th, 1828—therm. 67 deg.; and the lowest on the 10th, 1847—therm. 7 deg.

Notices to Correspondents.

A packet of Replies to Correspondents having miscarried on its way to the printing office, we are under the necessity of asking those gentlemen whose enquiries have not been answered to have the goodness to repeat them.

To Correspondents. Some complaints having reached the Editor that letters are not answered nor parcels acknowledged, he desires to explain that no unpaid or imperfectly paid letters or parcels are ever taken in.

Strelitzias: *St. Omer.* We await further information with curiosity.

Vallota purpurea. *A Z* inquires whether this is what is often called the Scarborough Lily, and if so, how and why it received the name?

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Burling Slip, New York, December 9, 1862.

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For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

Exhibition Prize Medal 1862.

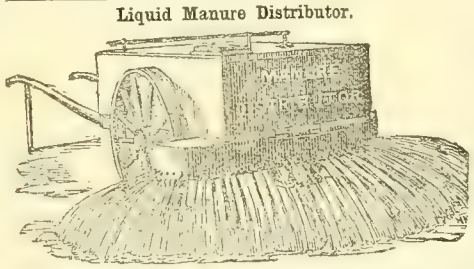
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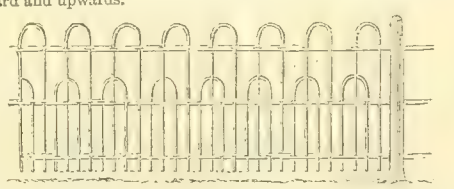
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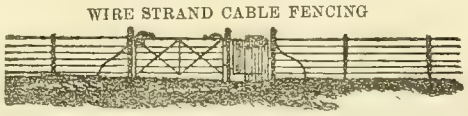
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for Farm Buildings and other Roofs; the cheapest, most durable, and neatest Roofing in use; also Spouting at 10½d. per yard

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Strong CATTLE HURDLES from 2s. per yard.

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Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

Present Prices of Farm Seeds.—See SUTTON'S PRICED LIST at p. 194 of the *Gardeners' Chronicle* of February 28.
Royal Berks Seed Establishment, Reading.

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AWARDED FOR "EXCELLENT SEED CORN AND SEEDS," TO
RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED MERCHANTS and GROWERS, Basingstoke, Andover; and 89, Seed Market, Mark Lane, London, E.C.
Samples of all kinds of AGRICULTURAL SEEDS and SEED CORN, sent post free on application.

Agricultural Seeds.

JOHN GEORGE WAITE'S WHOLESALE AGRICULTURAL SEED CATALOGUE for Spring 1863, is now published, and will be forwarded on application.
Seed Establishment, 181, High Holborn, London, W.C.

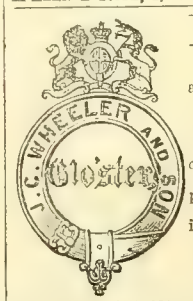
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HALLETT'S PEDIGREE NURSERY WHEAT.

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Produced (1862) 62 bushels per acre, weighing 64 lbs. a bush.
Price ONE GUINEA A BUSHEL, including bag sewed up and sealed, delivered at the Brighton Railway Station, with Printed Directions for Planting, on Receipt of Cheque or Post-office Order, which must in all cases accompany the Order. Less than One Bushel will not be supplied. Name of Station and Railway should accompany the Order.
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To Agriculturists.

THE SUBSCRIBERS beg to call the attention of English Agriculturists to their large and carefully selected stock of BARLEY and OATS for SEED, comprising all the most approved varieties, and grown expressly for the Subscribers' trade by careful and well-known growers in the Lothians, Berwickshire, and Roxburghshire.
They will have pleasure in forwarding samples and prices on application.
They would also direct attention to their stock of SEED POTATOES of the various descriptions, carefully selected from the growing districts of Ireland and Scotland.
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FARM SEEDS of the finest quality, are offered at fair Market Value.

A LIST of PRICES at which they can be delivered carriage free, and 5 per cent. discount allowed for Cash, is contained in

WHEELER'S "LITTLE BOOK" for 1863.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
WORCESTER MEETING, 1863.
STOCK and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to
H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MARCH 7, 1863.

THE mild spring weather of February and March is urging young Wheats, Winter Beans, Rye, and Grass, into unusually early growth. In order to the full benefit of the natural agencies at work, it is necessary that the crops be artificially supplied with all that warmth and life will enable them to use.

Measures have been already taken with regard to most of them with that end in view. The Clover stubble, the corn stubble, the previous crop, received its dressing of farm yard dung before the Wheat, the Beans, the Rye were sown. And by previous land drainage and subsequent tillage the land was adapted both as a storehouse for these fertilising substances and as an apparatus for doling them out to the growing plant. Nevertheless there is much possible in the way of the direct administration of food to the mouths of the plant as they become enabled by returning spring to receive it.

Top dressings of growing plants are indeed more and more becoming known as the method of manuring best adapted to our high pressure system of farming. Mr. Alderman MECHI, who this day discourses of town sewage in our columns, has repeatedly urged that the very ingredients which day by day, through the dairymen, are brought into the city from the neighbouring pastures, should be immediately returned to the field and at once built up again within the growing plant. And it is more and more becoming understood, that it is the truest economy to feed the plant rather than to load the soil—to treat the latter as a machine rather than a warehouse, believing that if properly tilled, it is practically inexhaustible of its stores, which are in fact continually replenished without much help from man.

The subject of top-dressings is thus annually

becoming of greater importance, and no season is better than the present for drawing attention to recent experience connected with it.

Dr. VOELCKER has for several years published the results of his experiments with common salt, nitrate of soda, salts of ammonia, guano, and soot, as top-dressings for Wheat.

First, of 1860, as reported in the Transactions of the British Association for 1861; the following are among his results:—

"1. The natural produce of this field, it will be seen, amounted to nearly 34 bushels. The grain on all plots was lighter than it is usually, and weighed only 59 lbs. per bushel.

"2. Nitrate of soda and salt produced the greatest increase in grain and straw—a result well corresponding with the results obtained in 1859. In grain we have an increase of 13 bushels per acre, and in straw an increase of 12 cwt. 3 qrs. 4 lbs., upon the unmanured portion of the field.

"This large increase was obtained with an expenditure of 1*l.* 13*s.* per acre—an outlay which, even at a lower market-price of Wheat, paid excellent interest.

"3. Nitrate of soda applied by itself was not quite so beneficial, but still gave a large increase both of grain and straw.

"4. Chloride of sodium, or common salt, on the other hand, hardly increased the yield in grain, and slightly reduced the yield in straw.

Common salt certainly has the effect of checking the growth of Wheat, and is therefore frequently employed in cases in which the Wheat is too luxuriant, or, as it is called by farmers, too proud-looking. Such Wheat has a tendency to fall down before the grain is quite ripe, especially if the season happens to be wet and stormy. Common salt is used by farmers for the purpose of preventing the laying of Wheat, and is said to strengthen the straw. It does so, not by supplying to the Wheat plant a constituent deficient in the soil, but by retarding the abundant development of the haulm of Wheat and other Cereals.

"5. Next to nitrate of soda, Peruvian guano was the most efficacious and most economical manure for Wheat. 2½ cwt. per acre gave an increase of 12 bushels of Wheat over the unmanured portion, besides an increase of 9 cwt. of straw.

"6. Two cwt. of sulphate of ammonia per acre, applied by itself, gave a larger increase than 4 cwt. of a mixed mineral and ammoniacal manure, containing less ammoniacal and more mineral compounds than the 2 cwt. of sulphate of ammonia.

"Thus, the latter gave an increase of 10 bushels of grain and 11 cwt. of straw, whilst the mixed mineral and ammoniacal manure gave only an increase of 8 bushels of grain and 6 cwt. of straw, in round numbers."

Secondly, in 1861, as reported in the late volume of the Journal of the English Agricultural Society, when "all the top-dressings produced a considerable increase in corn. Nitrate of soda and salt, as in former years, gave the best result, though almost identical with that obtained from nitrate of soda alone. Previously, both in 1859 and 1860, the addition of common salt to nitrate of soda had an excellent effect upon the crop. The apparent inefficiency of this admixture in 1861 is the more surprising, as salt alone then produced an increase of nearly 7 bushels of corn."

The cost of the manure in this case varied from 3*s.* worth of common salt to 2*l.* 5*s.* worth of ulmate of ammonia per acre. One and a half cwt. of nitrate of soda, costing 25*s.* 6*d.*, gave an increase of 14 bushels of Wheat, worth 4*l.* 9*s.* 11*d.* The mixture of nitrate of soda with common salt —1½ cwt. of the former with 3 cwt. of salt per acre, has generally proved at Cirencester the most productive of all the top-dressings—and we strongly recommend that on all free calcareous soils a top-dressing of this kind be tried wherever a luxuriant growth is not otherwise expected.

Of the results in 1860 Dr. VOELCKER wrote thus in the Journal of the Agricultural Society:—

"1. That 1½ cwt. of nitrate of soda and 3 cwt. of salt gave by far the most profitable return of all the top-dressings.

"2. That guano gave a better return than sulphate of ammonia.

"3. That there was hardly any economical advantage in applying salt alone as a top-dressing.

"4. That although the outlay for soot amounted to only 16*s.* per acre, it gave a less profitable return than the most expensive top-dressing in the list."

The nitrate of soda and common salt mixture thus seems, by the Cirencester experience, which is upon a soil of the kind just named, to be the most promising application that can be made. And as soon as soon as rain threatens, this dressing may be usefully thrown broadcast over the young Wheat wherever there is any doubt of a luxuriant growth. Soot, though it has long had a good character as a dressing for grain crops, did not acquit itself so well in the Cirencester experience. And its liability to adulteration, of which the police courts have just given a curious illustration, renders it the less trustworthy. The following conversation just reported between the magistrate and the constable, the magistrate's clerk, and a witness, is sufficiently instructive and suggestive:

Police Constable JOHN SMITH, 70 G, said—The copperas is used by the man CLARK in his business as a sweep.

Mr. BARKER—What can a sweep want with copperas in his business?

The police-constable said that CLARK told him that he used it for dyeing sawdust to sell to the farmers as soot.

Mr. MOULD (chief clerk) to CLARK—You had better be careful how you go on in that way, for if you are caught in the act of committing such a fraud you will most likely be transported.

Mr. BARKER—This is a very disgraceful fraud on the farmers, and one that I hope will be made public through the agency of the press. A more disgraceful fraud I never heard of, and it is one that was calculated to do the farmers an immense amount of harm.

STEAM CULTIVATION.

DUMBLETON, NEAR EVESHAM.

NOWHERE in the Island is the landscape more beautiful, or the charm of a country life more delightful and attractive, than on the westward slopes of the oolitic range in Gloucestershire. From a foreground of green knolls, white cottages, Fern-fringed lanes, and over-hanging beechen woods, you there look across a rich and fertile vale 8 or 10 miles wide, sprinkled with villages and towns, church spires, and here and minster towers. And in the midst the Severn flows—towards the south a broad and tidal frith—everywhere a striking feature in the view—the sky line on its farther side broken by the Malverns in the north, and the Mendips in the south, and throughout sufficiently irregular and bold to make a worthy setting to so fair a scene. This at any rate is the feeling which all brought up upon the oolite, wherever they may be, in whom its brown soils, white stones, green fields, and ruddy autumns, excite home memories, will share in common with the writer.

Dumbleton Hall, near Evesham, stands within an outlying fragment of the oolitic range, here some 4 or 5 hundred feet in height, and possesses all the beauty of the foreground which has been referred to—but less of the distant landscape. It looks inwards on the broad valley which here lies between it and the Cotswolds, and it is not until you climb the hill at the foot of which it stands, that you learn how wide a panorama is commanded on the other side.

The estate stretches from the brashy soils upon the lower oolitic limestone, which here caps the hill, across calcareous sands and marlstones still lower in the geological scale over a considerable extent of the lias clay which constitutes the valley. Formerly in the occupation of a dozen tenants, who went as "the twelve apostles" among their neighbours, possibly because of the profession of poverty which was in their case enforced by the circumstances of the land, it has since shared largely in the agricultural improvements which have nowhere been more marked than in the calcareous clay land districts of the country.

It was during the present ownership of the estate that one of these farms, significantly named "Starve-all," was declined by its former tenant on terms so low that, rather than reduce them, the proprietor resolved on taking it in hand himself. And it is a fortunate thing for English agriculture that, as in the case of Mr. Coke, of Holkham, Mr. Holland was thus driven to take an interest in farm practice and improvements. Since that date a large expenditure has been incurred in drainage, roads, farm buildings, and good tillage, but in the course of another year or thereabouts, we understand that the whole account will have been balanced—the capital sums which have been advanced being repaid with interest on them by the farm returns, and the land being lettable at a much higher rent as the result of the speculation.

Mr. Holland was one of the earliest to adopt steam cultivation on his clay land farm, and several of his tenants have now followed his example; he has also acquired the highest reputation as a breeder of Shropshire sheep and Shorthorn cattle. And but that his sales of stock are for breeding purposes, his home farm would be as striking an illustration as we know of the possibility of combining the growth of grain with that of meat on the same land.

There are two home farms, the one at the top of the hill, and the other in the vale, separated or connected by the Park land surrounding the Hall. The former is of light brashy soil, about 350 acres in extent, of which some 130 acres are arable. It is provided with an admirable homestead, in which there is the best possible accommodation for stock in stalls and boxes draining to a tank where the liquid manure ferments before it is used as a dressing on the pastures—and there are pumps and other machinery by which steam-power can be applied to lift the waste water for delivery at any point, and by which also the threshing, Turnip-pulping and chaff-cutting, &c., may be carried on.

The land is cultivated for the most part on the 4-field course of cropping, and the steam plough has been drawn up the hill side to work upon the highland arable fields. It is however in the vale that it has been of greatest use. The land there, both deeper and stiffer, is most benefited by the steam power, which stirs or turns it without trampling it. And the greate power needed in fallow operations there makes horse power so much the more costly. There are about 400 acres in the Vale Farm, of which 230 are arable. The rotation is one of six years—Wheat every other year, the alternate crops being Mangel Wurzel, seeds, and Beans respectively. The surface, formerly in exceedingly high ridges—seen still in the old pastures as great rolling waves of land, in the hollows of which boys are hidden from each other, has been gradually levelled—the drains which stood 3 or 3½ feet deep being thus now 4 feet below the surface.

A great deal has been done to burning the land, of which a more particular account was given in our description of Mr. Randell's farm at Chadbury. In some few cases an even more complete burning of the surface soil has been effected here than there, costing, in fuel and labour, as much as 12*l.* 10*s.* per acre; but no doubt is entertained of the profitable nature of the outlay. Ordinarily a dressing of about 150 cubic yards per acre, at a cost of about 6*d.* or 7*d.* per cubic yard, has been the application.

The cultivation formerly required 16 horses, now 10 horses are employed, by which there is a saving of at least 200*l.* a year. Mr. Holland purchased Mr. Fowler's original apparatus in 1858. Since then he has exchanged it for the improved arrangement. The following report by himself is dated Dec. 31, 1860, since which therefore he has had two years' experience:—

"Dumbleton Hall, Evesham, Dec. 31, 1860.

"Although this is my third season of ploughing by steam-power, yet from my having commenced with an imperfect (10-horse) engine, a 3-furrow plough, and old anchor and ropes, my experience will not allow of my replying satisfactorily to your queries, which have reference rather to what can now be done with the more perfect machinery and tackle supplied by Mr. Fowler, than to what could be accomplished under the above circumstances.

"It was only at Michaelmas last that I started one of Fowler's improved (12-horse) engines; and it was not until the middle of October that I was able to avail myself of his recent alterations in the disposition of ropes and tackle of his new and less complicated anchor, and of his improved 4-furrow plough.

"I have stated that I have been using a steam plough for three seasons, but that up to Michaelmas last I worked with defective machinery. Up to that time I had steam ploughed (in all, from the period of my commencing) 500 acres. My expenses were as follows:—

Mr. Fowler's bill	£751 19 6
Railway expenses (carriage)	26 19 4
	£778 18 10

My repairs during these two seasons, whilst making use of old machinery, amounted to 93*l.* 7*s.* 2*d.* This cannot, however, be considered as a basis on which to calculate, wear, tear, and depreciation connected with improved steam ploughing machinery.

"I will therefore state what I have done since discarding my defective machinery at Michaelmas last, at which date, to the cost of plant already given, must be added the sum paid to Mr Fowler on exchanging my old for improved plant:—

Expended up to Michaelmas last	£778 18 10
Additional sum paid to Mr. Fowler on exchanging old for new plant at Michaelmas last	40 19 6
	£819 18 4

Since Michaelmas I have steam ploughed about 140 acres in 31 days (and many of these have been short winter days), under the influence of a bad season, and much of it being land lying on the side of a hill of considerable inclination. Notwithstanding these drawbacks, the average day's ploughing, accomplished according to this statement, amounts to something above 4½ acres; and I think that, with Fowler's improvements, I am justified in stating that (including removals from field to field) I can plough on an average 5 acres of stiff land in a day, at a depth of from 4 to 6 inches for a corn crop, and from 8 to 10 inches for roots; or if, instead of ploughing, we are using a steam cultivator (or scuffler), our average day's work may be put at 10 acres a day, at a depth of from 8 to 10 inches. The total area of my arable land is under 400 acres; the amount of steam cultivation that can be beneficially applied to it may be thus (approximately) stated:—

	Acres.	Days.
For Wheat (one ploughing)	100	20
For roots (ditto) in the autumn	100	20
Spring cultivation land (scuffled twice) ..	100	20
Extra work (foul land scuffled once) ..	100	10
For Barley (one ploughing)	100	20
	500 ..	90

"In thus estimating the work done by the steam plough in the course of the year upon land in my own occupation, I have thought it best to base the calculation on some system; I have therefore taken the four-course system as my basis, that being the one more generally understood; still I ought to state that, as I by no means confine myself to four courses, the amount of ploughing and that of cultivation (scuffling) must vary with the seasons.

"The expenses of a day's work at steam-ploughing are as follows:—

The engine-man	3*s.* 0*d.*	
Ploughman	2 6	
Two men at 2*s.* 2*d.* each	4 4	0 11 9
Boy with water cart	1 0	
Extra labour	0 11	
A horse with the water-cart		0 3 0
Half a ton of coals		0 7 0
Oil		0 1 0
Total		£1 2 9

You lately suggested that a charge of 1*l.* 10*s.* per day would probably be sufficient to cover the cost of interest, repairs, and depreciation of machinery and tackle. I am willing to adopt this estimate, which, when added to the day's expenses (1*l.* 2*s.* 9*d.*), gives as the total cost of ploughing 5 acres 2*s.* 12*s.* 9*d.*, being a charge of (say) 10*s.* 6*d.* an acre for steam ploughing; and since we can in a day cultivate (scuffle) double the quantity ploughed, the cost of cultivating may be considered as one-half, or 5*s.* 3*d.* an acre.

"About here in ordinary ploughing four horses are used in a team. They get over on an average three quarters of an acre in a day, and it is reckoned that the cost of ploughing an acre may be put at 20*s.* According to my showing, the cost therefore of steam ploughing is 10*s.* 6*d.* an acre, against horse ploughing at 20*s.* It should be remembered, however, that when the plough and tackle are not at work the engine is useful in other departments of the farm; I ought not there-

fore properly to charge the ploughing, as I have done, with the whole cost of the interest and wear and tear of the engine."

Since the date of this letter, when the capital sum invested in steam ploughing was 820*l.*, two years have elapsed, during which the experience of its working was as follows :—

	1861			1862		
Ploughed (acres)	330			412		
Scarified (acres)	254			300		
Days at work	154			169		
	£	*s.*	*d.*	£	*s.*	*d.*
Cost of fuel	54	0	0	56	0	0
Cost of oil, &c.	10	0	0	10	0	0
Cost of repairs .. .. Cost of alterations, including rope ..	32	7	3	162	0	0
Cost of wages	90	9	0	125	17	0

The original purchase of rope in 1858 was 1000 yards, and since then the following ropes have been bought.

	Yards.	
1861..	450	charged above under the head of repairs and alterations.
1862..	450	

Of the present condition of the rope it may be said that there is the same stock in equally good order now at the end of 1862 as there was at the end of 1860 ; the whole of the rope bought in the interval therefore must be considered as worn in doing the work of these two years. The whole cost for two years, which however includes unusual outlay on alterations, amounts to 540*l.*, which, set against the acres of work done, amounts to 8*s.* 4*d.* per acre. This, it must be remembered, is in a country where 20*s.* an acre is considered an ordinary charge for the 4 and 5-horse ploughing which one sees going on in the neighbourhood.

The tillage of the land by steam power is not injurious to the interests of the labourer. The wages paid on the farm amount to from 1300*l.* to 1500*l.* annually, about 6-eighths of the whole being in piece-work payments. In connection with the labourers on the estate, it may be mentioned that the tillage of Dumbleton has been long undergoing improvement, which has latterly been more rapidly prosecuted, 5 pairs of cottages on the model of the prize cottage at the Leeds show, having been erected at a cost of 230*l.* per pair. The rent charged to the labourer for cottage and garden is 4*l.* a year, it being understood that the difference between this and 6*l.*, the fair rental for the outlay, is to be borne half by Mr. Holland and half by his tenant. The cottages are erected as additions to the farms, and 5*l.* a year is charged to the tenant, he covenanting to let his labourer have it for 4*l.* Nothing can be more comfortable or commodious than the living-room, store-room and back kitchen, with its oven, sink, &c.,—and three bed-rooms over head, with ventilation openings in the ceiling. The out-houses, including pigsties, woodbox and privy, are convenient without being unsightly ; and the whole arrangement is both good and good looking.

Mr. Holland's lower farm, like the one upon the hill, has a convenient homestead. The arrangement of the machinery for threshing is ingenious. The stable yard lies alongside of the range of building which contains engine-house, granary, chaff-house, &c., and the fixed engine drives a shaft which lies outside under the eaves of the building its whole length—a strap from one or other of the riggers on this shaft drives a moveable threshing machine, which is thus placed alongside any of the ricks. The other machinery is equally well placed—the chaff-cutter, driven by steam power, delivers cut hay into a rotatory screen, and the uncut screenings are passed up again to the upper floor by a fuse, which blows them up through a long shaft, while any stones, sticks, &c., mixed with it fall to the ground. A chamber close by receives the chaff, and the whole is steamed, receiving thus a savoriness and common quality which unsteamed it is without. Stables on one side are faced by a large feeding-house on the other side, and this range of granary, machine-house, &c., connecting the two ends, form three sides of a square. Within this square sheds have been erected, enclosing a feeding yard. And other shedding and yards occupy a square beyond the line of the stables. The feeding-house, arranged in boxes with mangers suspended on chains, and thus capable of being raised as the lair rises under the cattle, is filled now with a lot of heavy fatting beasts, of which 60 or 70 are fed every year.

The yards are occupied by the pedigree stock of the Short-horn breed, of which Mr. Holland has now gradually acquired a very considerable herd. The bulls used have been of Colonel Towneley's Butterfly and of Captain Gunter's Duchess strains; Master Butterfly 5th and the Duke of Cambridge having been lately employed, and a son of the 7th Duke of York being now in use.

The flock upon the farm is one of the best of the Shropshire breed. Mr. Holland has for many years been engaged in the formation of it, and he has now become well known by its success at the shows, both of fat and breeding stock, at the meetings both of the English Agricultural Society and of the Midland Counties and Smithfield Clubs.* Some 400 ewes are kept; 40 or 50 rams are annually disposed of, at prices averaging about 14*l.* a head. Some draught ewes are also annually disposed of, and the remainder of the flock is sold fat at 15 months old, averaging about 22 lb. a quarter. The fleeces average 7 lb. from the tegs, and nearly 5 lbs. from the ewes. The annual produce of the flock amounts to between 1700*l.* and 1800*l.*

Both the flock and the herd have a first-rate reputation, and they have been made the subject of reports by writers well qualified to describe them. Our present object has been to refer to Mr. Holland's doings in connection with steam cultivation, and to that we must for the most part confine our remarks.

The farm, which has been laid open for this purpose by the removal of hedgerows, and which is naturally adapted to it by the stiffness of its soil, is one of our best illustrations at once of the recent agricultural improvement of the country generally—the sales of grain are 10-fold now upon the same extent of arable land what they were 10 years ago—of the compatibility of the large increase of grain produce with a much larger herd of live stock—and of the fact that the farm which employs the most machinery is likely to be the place where most labourers also are employed, and where their interests are the best observed.

BLENHEIM.

There is here, as at Holkham, the seat of the Earl of Leicester, and at Coleshill, the seat of the Earl of Radnor, a large arable home farm around the grounds of the Park. At Blenheim, as at Holkham, it lies within the Park boundary—a certain portion of the Park land, from 300 to 400 yards in width, having long ago been broken up within the wall upon the northern side of the domain. Here too, as at Holkham, it is chiefly a light soil capable of pair-horse cultivation. Very commodious, substantial, and well arranged buildings have been erected in both places as farmeries, and other points of agricultural resemblance will occur to the memory of those who have visited these—two of the most princely of the homes of English noblemen.

Steam cultivation has been adopted at both places. Lord Leicester has long had Fowler's engine and apparatus at work upon his seaside enclosure of heavy alluvial clay, where he finds that "one ploughing or smashing up of the stubble, if done directly after harvest when the land is hard and dry, is quite sufficient for the spring and summer crops." And he has during the past autumn been ploughing and subsoiling a portion of the Wheat stubbles on his home farm, which is "an average description of Norfolk soil, light, with a chalk or gravel subsoil."

At Blenheim, on the other hand, where there is no very stiff land, and where most of the land is a light calcareous and sometimes a brashy soil, the Duke of Marlborough has, since October, 1861, employed Howard's apparatus, drawn by a double cylinder 10-horse power engine of Messrs. Clayton & Shuttleworth's manufacture. And quoting in like manner from the trade catalogue of the maker, we learn from Mr. Scott that the apparatus has given "the greatest satisfaction."

Having lately gone over the Blenheim home farm and seen the apparatus at work, and learned a good deal of further information from Mr. Scott, we are able to give his experience in somewhat greater detail. The following, therefore, is the story of steam cultivation so far as relates to the Blenheim home farm.

The land includes two farms—the one at the northern end of the park a light brashy soil and 650 acres arable, and the other at the southern end of a heavier soil, 150 acres arable and as much pasture. Besides these, some 70 acres of water meadow and 300 or 350 acres of pasture are mown every year; and there is the Grass land of the park to stock. The smaller occupation is a dairy farm, and includes among its buildings a fine double cow range on the model of that at the Prince Consort's home farm, near Windsor. It is however with the large arable farm alone that we have at present to do.

It is cultivated on the 5-course rotation of crops; viz., 1, Wheat; 2, roots; 3, Oats; 4, Barley; 5, half seeds, and half Peas and Beans. Till lately the labour of the farm had been done by 22 horses—11 pairs. Since October 1861, when the steam cultivator was purchased, both farms have been managed by 18 horses. And as six horses may be fairly put aside for the additional land, it may be said that the labour of the home farm is now accomplished by 12 horses in place of 22.

Mr. Scott estimates the weekly horse keep at 1 bushel of Oats besides cut Clover, and pasture at night, during four months—1½ bushels of Oats and straw chaff, with 3½ trusses of hay during four months—and the same hay and chaff with 2 bushels of Oats weekly per head during other four months of the spring and autumn seed time.

The Oats, 10 qrs. per annum, cost 3*s.* per bushel	£12 0 0
The hay, 100 trusses per annum, at 3*s.* a cwt. ..	7 10 0
The Clover cut and brought home, about 4 tons, at 10*s.* a ton	2 0 0
The night pasture, 18 weeks, at 2*s.* 6*d.*	2 5 0
Total cost per annum	£23 15 0

The wages of the horsemen are 11*s.* a week all the year round, 2*l.* at Michaelmas, and 1*l.* 12*s.* for beer at the two harvest times, in all 32*l.* 4*s.* Add for shoeing 10*s.* a horse ; contracted repairs of harness, 10*s.* per horse; and maintenance of value, 10 per cent. on the value of the animal, 3*l.* 10*s.*; in all, 5*l.* per horse, and the total cost of a pair of horses comes thus to 85*l.* a year.; and as five pairs are believed by Mr. Scott to have been saved by the use of the steam plough, here is a sum of above 400*l.* saved per annum.

What does the substituted steam power cost? The wages spent daily in working it are—for engineer, 3*s.*; windlassman, 2*s.*; ploughman, 2*s.* 4*d.*; two anchormen, at 2*s.*; two porter lads, at 1*s.* 2*d.* each ; water cart and boy, 3*s.* 8*d.*; in all about 18*s.* The coals consumed are from 7 to 8 cwt. a day, a very small consumption for a 10-horse power engine, but declared to us as a fact, and they cost about 15*s.* a ton on the field. The oil, about a gallon a week, may be charged at 6*d.* a day. The whole charge thus amounts to 23*s.* 6*d.* a day. Now, the usual day's work is about 7 acres ; thus, in the autumn of 1861, 102 acres were cultivated 7 or 8 inches deep twice over in 29 days, including all the labour of removals, which, however, in a farm lying so well for the work is not much. This, therefore, amounts to less than 3*s.* 6*d.* per acre for one-way work. There has been a very small amount of breakages or consequent expense for repairs. The machinery was at work all last year, and has already begun this year. The rope has broken twice, the result of accident; but it will outlast this, its second year. There have been several dozen shares broken and used, costing 9*d.* apiece, but excepting that, very little expense has been incurred.

During last year 348 acres were done over twice, and 104 acres were done over once. At the rate of the work during the previous autumn it must have occupied about 70 days, costing, therefore, about 82*l.* for labour and fuel, 25*l.* for nearly half a new rope, not 21*l.* for repairs of all kinds, and about 52*l.* (10 per cent.) for an annual sinking fund to meet the effect of tear and wear. The total expenditure cannot be more than 180*l.* a year, against more than double that sum spent on the team of horses which have been displaced. The quantity of work for an engine on a farm of this size is very considerable.

There are 130 acres of Wheat every year after seeds and Pea stubble, in both cases needing a double "cultivation" with the grubber; there are 130 acres of Swedes, Turnips, and Mangel Wurzel after Wheat, which receive a one-way cultivation in autumn, and another cultivation in spring. There are 130 acres of Oats, which are put in after a double cultivation of the folded root land. There are 130 acres of Barley after Oats, receiving a single grubbing in autumn, and a cross cultivation in spring; the remaining 130 acres are seeds and Peas and Beans, the last (about 65 acres) receiving a double cultivation after Barley. Here then are 1040 acres of cultivation to be done, and this may be accomplished during a favourable season by steam-power. It is plain that in such a case there will be an immense saving of horse labour, and that excepting harrowing and carriage, the labour of cultivation will be undertaken wholly by steam-power—and a good many more horses will in all probability be dispensed with.

The farm is particularly interesting for the example which it gives of a good farm homestead. A large rectangle of building, including stables, cartshed, granaries, feeding stalls, barns, and machinery for cutting chaff and threshing corn, and pulping and cutting roots, piggeries, &c., contains within it other sheds and yards in which young stock are fed. The plan adopted is to rear all the stock fattened on the farm. Some 35 or 40 heavy Shorthorn oxen or fat cows are thus now fattening in the stalls. The following is the plan of rearing and feeding the calves which at three years old are sold fat.

During the first week the calves suck their mothers. Afterwards they are fed out of a pail, receiving 4 quarts of new milk daily. In about eight weeks they receive skim milk, with hay and roots, as much as they will take. They get out to grass during summer, and receive then about 1 lb. of oilcake daily apiece. In autumn they are brought into yards and receive about half a bushel of cut roots with hay, and the allowance of cake is continued; during the following summer they receive nothing but their pasture. In the second winter they receive pulped roots and straw chaff, and after a third summer's grazing are brought into the sheds and get about 50 lbs. of pulped roots, 16 lbs. of straw chaff, and 4 lbs. of meal, and 3 lbs. of Flax-seed daily until they are ready for the butcher. They are sold at three years old generally to weigh about 8 cwt.

The other stock of the farm includes about 700 Oxford Down ewes, of which the produce is annually sold fat and naked at 15 months old.

There are few pleasanter holidays for the agriculturist who is at the same time interested in fine scenery, fine buildings, and fine paintings than a day at Blenheim Palace, park, and farms. Approaching Woodstock through a somewhat flat and dreary country, the stranger traverses it to the end of a street of lofty houses, apparently ending in a *cul de sac;* he turns to his left, and entering through a gateway into the park he finds himself to his astonishment abruptly at the head of a valley half filled with a lake, spanned by a noble arch, and looked down upon by one of the most magnificent palatial residences in England.

* It may be mentioned in illustration of the vexed question of trimming and clipping sheep, which it is argued ought to be left to the will of the exhibitor—for, whether the public are thereby deceived or not, most certainly *judges* are not—that Mr. Holland exhibited a pen of Shropshires at Birmingham last winter in their natural untrimmed condition, and lost the prize. Feeling that he had suffered for lack of the same attention to the appearance of his sheep which his successful rivals had paid, he had the same sheep carefully trimmed, exhibited them against the same rivals next week before the Smithfield Club, and *won the prize!*

There are all the beauties of ample extent, of undulating surface, of well timbered turf covered with "horned cattle," both of Robin Hood's description and the more strictly agricultural sort. A large herd of Kyloes are purchased every year, and with every variety of stock upon it the Park is well grazed. Of the beauties, internal and external, of the Palace we need not speak; the chief points of interest on the farm have been already named.

Pirton Court Farm, near Gloucester.—Messrs. Witcomb, who here occupy a large farm, chiefly of stiff clay land upon the lias, have had Mr. Howard's apparatus at work since Sept. 1861. There are two farms in the occupation of these gentlemen—one, their own property, chiefly a grazing and dairy farm near Gloucester, whence the daily produce of milk is taken into the city; the other, about four miles from Gloucester, on the Cheltenham road, extending from the oolitic hill-side into the vale, where it is partly on the lias clay and partly on the calcareous gravel with which the lias is in places overspread. This latter farm is 500 acres in extent, and of these 330 are arable, cultivated partly on the 3-field course proper for the stiffest clays; where Wheat, Beans, and Vetches, or Rape or bare fallow succeed each other; and partly on the four-field course proper for the lighter land. This is an instance where the apparatus has been purchased by a tenant farmer exclusively as a matter of direct profit. There is nothing in the management of the land—certainly nothing in the style of the homestead or farm buildings to indicate that either the owner or the occupier here are doing more than immediate profit would justify or demand. It is on such cases that one especially depends for an answer to the question whether steam cultivation is a paying speculation.

We do not gather from our visit to this farm that the cost of cultivation by draught labour has been very much diminished by the addition of steam power. Formerly the farm was worked by 14 horses and 20 bullocks—the former in 4-horse teams on the heavy land, and 2-horse teams on the lighter land. Their cost, with the labour connected with them, can hardly be estimated at less than 400*l.* per annum. And the 20 oxen displacing 20 fatting beasts, whose food would go to the production of flesh, not of mere force, may be put down as a charge of 160*l.* or thereabouts per annum. And putting the labour at a man and a boy to every four for six months in the year, another 80*l.* must be charged on their account. The whole draught labour of the farm thus used probably to cost 640*l.* a year, a good deal of course being due to the carriage and other labour belonging to the pasture land, all of which still remains the same. Since, however, the adoption of steam cultivation, which necessarily takes a good deal of heavy cultivation off the draught animals, the only difference made has been to get rid of the oxen altogether, without, however, adding to the number of the horses employed. There are now 14 horses at work, which at the rate already named cost probably 400*l.* a year in food, wages, tear and wear, &c.

The cost of working the steam-driven apparatus stands as follows:—half a ton of coals, 7*s.*; engineer, 3*s.*; ploughman, 2*s.*; 2 anchormen, at 2*s.*; windlassman, 2*s.* 6*d.*; 3 porter lads at 1*s.*; horse and watercart, 4*s.*, in all 23*s.* 6*d.* a day, so that with 6*d.* for oil, the charge is 26*s.* a day. The work done will average 4 acres a day. This work is grubbing the stiff clay land some 6 or 8 inches deep, and would need a team of six or eight horses for its performance, and could not be done under 12*s.* or 14*s.* an acre. It costs as regards immediate outgoings 6*s.* 6*d.* an acre by steam power. It is an extraordinary thing that the doing so much of the heavy work which firmly occupied the teams should not have led to a more considerable reduction of the number. In the autumn of 1861, during 40 days of September and October, 240 acres of this grubbing were accomplished, and where the land was light as much as 8 acres were easily done with an 8-horse power engine. During the past year the following work was accomplished. In spring they grubbed 240 acres over one way. In autumn the work done was 159 acres. The general cultivation was 7 or 8 inches deep. The average performance—first and second time over together—exceeded 5 acres a day, which is a good deal, considering that it is an 8-horse power engine which is employed. Messrs. Witcomb purchased 1400 yards of rope, with the apparatus, in 1861. They bought another 1400 yards in the autumn of 1862, the original rope having proved very defective. There are now however 2000 yards effective, and the second rope is hardly worn at all. The cost of rope for one and a half year's work, at 5*l.* per 100 yards, can hardly be estimated at less than 50*l.*, which is considerably more than is generally incurred in working the number of acres which has been accomplished.

Nothing is more striking than the contrasts on this subject which obtain as regards the tear and wear of rope. Though this hinges a good deal on the character of the soil over which it is drawn, it is far from being wholly dependent upon it. Probably the least waste of rope is to be found in the Weald district of Sussex, where the soil is an impalpable sand. And the greatest waste is on the upper chalk, which is full of flints, but even here, when great care is taken, as we have seen on a farm near Shoreham, the waste of rope is exceedingly small compared with what it is elsewhere. At Pirton, again, on what is generally a clay soil, the wear of rope is much greater than it ought to be.

The profit arising from steam cultivation at Pirton Court Farm evidently is not so much in the diminished cost of the labour by steam-power, as in the superiority of the work. On walking across several of the fields, we saw Wheat stubble which had been broken up for Beans, the land lying dry and well stirred, unsodden, though a stiff clay and without any surface drainage. Of course the land is underdrained; and it is by the size of its fields well adapted to the use of the steam cultivator, a furrow of 400 yards being generally a possible thing. The young Wheat was looking exceedingly promising when we walked across it a fortnight ago.

Messrs. Savory, iron founders and machinists, of Gloucester, are bringing out another method of applying steam-power to the culture of the land, which promises extremely well, and is likely to answer wherever there is ample employment of other kind for the engines during the time of year when they cannot work on the land. Two engines are employed on the two headlands—a large cylindrical drum envelopes the boiler, revolving on and geared to 4 inner wheels, to one of which the engine gives revolution. The drum carries the rope, and some 400 or 500 yards may be wound on it, one strand thick. There is an exceedingly ingenious screw arrangement for coiling and uncoiling the rope. The plough, Fowler's balance plough, or any other, is drawn one way by the one engine and the other way by the other engine, each unwinding as the other winds. There is thus but one rope across the field, and when the last furrow is reached the plough is detached from the near engine and dragged its last furrow alone. Each engine is thus ready at once to walk out of the field as soon as its work is done. In fact, one engine is off before the last furrow is completed—the other in moving off draws the plough and what porters are needed behind it. The method of self-driving is very simple and ingenious, and the whole package of the several parts well designed and compendious. The wear of rope will probably be reduced under this plan to a minimum, the careful and exact winding being the main feature and merit of the method.

Of course the employment of two 8 or 10-horse engines involves a large capital; but when this is not a difficulty, the ultimate cost of ploughing in this way is not likely to be excessive. One pair of engines has lately been sent out to the West Indies. Another has been purchased, and was employed last autumn by Mr. Bomford, of Pitchill, Evesham, on a farm of 600 acres of strong loam, near Evesham.

There were 32 horses formerly employed on this farm, and now 20 only are employed, which is equal to a saving of 300*l.* a year. The apparatus was bought only on Nov. 4, 1862, and cost 800*l.*, including 400 yards of rope to each engine, and two 8-horse power engines. The labour is three men and three boys to two engines at 3*s.* a day, the ploughmen at 2*s.* 6*d.*, the boys at 10*d.* each. The coals consumed were 1 ton daily at 15*s.* Mr. Bomford says:—"With the 8-horse engine and Howard's cultivator we can thoroughly cultivate from 12 to 14 acres, and with Fowler's 3 furrow plough we can plough 7 acres per day of 10 hours.

Both soil and drainage are very much improved by steam cultivation, and Mr. Bomford is able to speak on this point, for he has had the autumn's experience of steam cultivation, having the previous autumn cultivated all his stubbles with Howard's apparatus.

AGRICULTURAL STATISTICS.

It may be that the suggestion of your Correspondent the Rev. Mr. Williams, in a late Number of your journal, that Parliament should extend a fostering surveillance to agriculture, is worthy of more attention than it has received. But there is an important preliminary inquiry—how far this may be necessary, or in other words how far the farmers of England can feed the people of England? Are the imports of grain 5 per cent. or 50 per cent. of the required supply? In the present state of peace with the whole world, this may be of less consequence; but if the formidable means for the defence of the country, of late years called into existence, are the shadows of events which come before, they may indicate a "state of siege" for these islands, in which the provision of the garrison cannot be too soon looked into. And this would not be such a difficult matter. It is a fact that in the late Census, when the farmers were required to return the extent of their farms, not 10 per cent. of them neglected to do so, and the majority of these probably from inadvertence merely. It therefore appears that there is no indisposition on their part to furnish this information, and if in addition they were requested to return the extent of Wheat grown by them, it would probably be all the information on the subject of agricultural statistics of any real value to obtain. So simple an inquiry could hardly be refused—where it was, an estimate might still be adopted. The same machinery which so efficiently discharged the duties in the late census might again be employed—the registrars of births and deaths throughout the country. Of these there are about 1800 throughout England and Wales, while the number of farmers and cultivators is about 260,000, or on an average less than 150 to each registrar's district. By means of the post the registrar might forward a simple form of inquiry to each cultivator within his district, asking only for the extent of land farmed by him and of Wheat grown. To these two questions he would be requested to reply, and to return his answer by post to the Central Office in London, and thus all local inspection would be avoided, which is considered so great an objection by the agricultural community. In this way a return from every part of the country might be obtained, and the result for each county published. This return would supply a serious defect in the present estimates of the harvest as published in the local and agricultural newspapers, where the terms average, under average, &c., apply to the quality only, and never to the extent of the crop. In this way it may be hoped a more correct estimate of the harvest, and of the probable range of prices, might be obtained than ever has been previously, and some light thrown upon such important questions as, with a deficient yield of say one-fourth, would the price of bread be doubled or quadrupled? But as this would only be where after successive returns, that had become comparative, we cannot too soon commence the inquiry. *R. Duke.*

The following is the circular which might be used in the plan proposed:—

"Sir,—It being the desire of Parliament to obtain some information as to the extent of land in cultivation, and of Wheat grown, I beg to forward the enclosed paper, and to direct your attention to the two questions therein contained. In the estimate made each year of the harvest, and usually published by the local newspapers, it is exceedingly desirable that a more trustworthy basis should be adopted, the terms average, under average, &c., being applied invariably to the quality, and not to the extent of the crop. This defect it is now proposed to supply, and in a matter of such importance I hope that you may not be indisposed to assist. For this purpose the enclosed paper is forwarded, if you will be good enough to reply to the two questions therein, and to post your answer before the 1st of May, leaving the postage unpaid. The information thus obtained will be made up at this Office, and the result for the whole country published, and in this way it is hoped a more valuable indication of the prospects of the harvest and of the probable range of prices may be obtained, than ever has been previously. Any further information that you may desire will be freely supplied on application to Mr. ——, Registrar of Births and Deaths. "I am, &c.

"Registrar-General."

Superintendent Registrar's District, Epsom. } No. 37.
Registrar's Sub-District, Carshalton. }
(Enclosed paper.) 1.

Subject of Inquiry.	Answer.
What is the extent of land farmed by you?	
How many acres have you under Wheat this season?	

Be pleased to reply to the above two questions, writing your answer opposite each, and to post this paper before the 1st July, leaving the postage unpaid.

Mr. John Smith, Farmer,
Banstead, Carshalton.

Home Correspondence.

Sparrows and Grubs.—I copy the following from the *Gardeners' Chronicle* of Jan. 31, 1863.

"All that is necessary where a single crop only is desired, which is conceived to be the most useful plan for Austria, especially for small proprietors, the persons who are expected most to profit by the scheme, is to cover the hedge of Ailantus, the most convenient form in which the plants can be grown, with a common net spread over hoops, to protect the caterpillars from the house-sparrow, which is peculiarly fond of them; a curious matter, as they are so very different from any caterpillar to which sparrows are used."

This is accompanied by a note describing the caterpillars, which "are very fat, and greedily sought by the birds." In the *Agricultural Gazette* of the following week I saw a statement from Mr. Wilkins, the rector of Wix, in which he stated that he could prove that sparrows never eat caterpillars—that they would not touch them, &c. This statement was the same, less some "trenchant irony" and "lucid English," which had already appeared and been answered in a local paper. May I ask, Mr. Editor, which end of your Paper we in the country are to be guided by? As to the caterpillar question, it is really one utterly unworthy of notice in the form it has been thrown into by Mr. Wilkins. When I say that I have seen sparrows — house-sparrows — Passer domesticus, hundreds, if not thousands of times, carrying caterpillars and grubs to their young, I have said that which is supported by numerous other eye-witnesses, as recorded in our Natural History Journals, and which is confirmed by the authority of every writer upon ornithology worthy of the name of naturalist. Mr. Wilkins is a gentleman who writes—with the best intention no doubt—most dogmatically. I am far from desirous of detracting in any way from the experience of a man who has read Parke's Chemistry, and cultivates a classic farm of 1½ acre in extent. Such a person may conceive himself an undoubted authority upon the "vitality of seeds," "thin seeding," "mole killing," and "sparrow murder," but I think it would be quite as well both for the scientific questions of which he treats, and a due regard for the opinions of others—equally, at all events—competent to form an opinion upon them, were those questions raised with less egotism and a more moderate appreciation of facts, which are not the less undoubted because they are denied by Mr.

Wilkins, with that "trenchant irony" and "lucid English" for which, as you say, his lucubrations are remarkable. *C. R. Bree, M.D., F.L.S., Colchester, Feb.* 22.

The House Sparrow.—Apropos to Mr. Wilkins, I send two extracts from authors of authority in the matter of birds. *T. S. P.*

"If unfortunately it is too true that the sparrows cause great injury in ripe fields of Wheat, Barley, and Peas, it must be acknowledged that they are very useful in our orchards and gardens, by destroying in the spring thousands of insects, on which they feed their young ones as well as themselves." *J. M. Bechstein, M.D., &c., &c., of Waltershausen in Saxony.*—"Although sparrows are so fond of grain during the harvest, I have seen them take to their nest, as food for their young ones, flies of all kinds; even butterflies, worms, and grubs. Indeed such insects form their principal subsistence, when they cannot obtain grain; a fact which may, perhaps, be thought to render them less fitted than they are sometimes considered to be for culinary purposes. *C. Jennings.*

Grass Lands.—Can you direct me to any work on Grass lands, teaching their proper management under different conditions of soil, climate, locality, and use or application; and also stating what, under those various circumstances, are in practice the usual obligations of tenants and landlords in respect of such Grass lands? I find the general treatises on farming very defective on this subject. I own a Grass farm within two miles of the suburbs and four miles of the centre of one of our very large towns, and of course its application is for dairy purposes. It is almost entirely depastured by milch cows, and besides milk the tenant sells hay without stint. His neighbours do the same. They claim to be under the single condition of bringing back in return for each ton of hay sold, 2 tons of stable manure or 4 tons of "short" manure, meaning cinders and broken crockery from the town "mixens;" but the landlord has no means of knowing the quantity sold, and on the weekly hay-market day it is rare to see the hay-carts and waggons returning from the town otherwise than empty. The tenants consider themselves under no obligation to manure land which they do not mow, though daily carrying off its phosphates in their milk. Allow me to ask you what one might fairly require of the tenant in this case, or what treatment will save the land from losing heart. *H. G.*

Sparrows.—I have distinctly seen and watched sparrows collect caterpillars from off the vegetables and fly with them to their nests. *Geo. Nichols, Hunslet, near Leeds.*——It has been a decided opinion of mine for many years that sparrows devour the caterpillars (if so they are called) that infest and curl up the leaves of Roses, Apple blossoms, &c., but they never touch a hairy caterpillar of any kind. I have caught a sparrow with as many as eight of those insects in its beak at one time, but whether the good sparrows thus do is not counterbalanced by their bad habits, I must leave for others to decide. I know right well they are very destructive to the buds of Cherries, Gooseberries, and Currants, though not so much so as the bullfinch. The ground underneath the May Duke (for they touch no other Cherry), the Greengages, Diamond and all Plums, is covered with the husks of the fruit-buds, caused alike by bullfinches, sparrows, and tomtits. We always have a lad with a gun upon the look-out for them at this season of the year. *J. Dillistone, Sturmer Nurseries.*

Trials of Reapers.—As there is no authoritative trial of reaping and mowing machines at the Royal Agricultural Society's Show at Worcester this year, we are desirous of having our mowers, combined machines, and self-acting and other reapers subjected to thorough testing trials by practical men in those districts of England where they are not yet introduced, and we shall be glad to correspond for this purpose with any gentlemen who may address us in consequence of this letter. *Samuelson & Co., Banbury.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: WEDNESDAY, *March* 4, 1863.—Present: Viscount Eversley, President, in the Chair. The Duke of Marlborough, Earl Cathcart, the Earl of Powis, Lord Berners, Lord Tredegar, Lord Walsingham, Hon. W. Cavendish, M.P., Hon. Major-General Hood, Sir E. C. Kerrison, Bart., M.P.; Mr. Amos, Mr. Arkwright, Mr. Barker, Mr. Barnett, Mr. Bramston, M.P., Mr. Buller, M.P., Mr. Cantrell, Mr. Dent, M.P., Mr. Druce, Mr. Exall, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Holland, M.P., Mr. Wren Hoskyns, Mr. Jonas, Mr. Lawes, Mr. Lawrence, Mr. Pope, Mr. Rigden, Mr. Sanday, Mr. Shuttleworth, Mr. Thompson, M.P., Mr. Torr, Mr. Wells, Mr. Frere and Dr. Voelcker.

The following New Members were elected:—

Andrews, James; Kinnersley, Severn Stoke, Worcester
Apps, John, Jun.; Gondhurst, Staplehurst
Ashwin, Richard; Aldington, Evesham
Bourne, Samuel; Goldsmith House, Whitchurch, Salop
Broughton, Capt. P., Jun.; Tunstall Hall, Market Drayton
Bundock, Alex. F.; 39, Albion Street, Hyde Park, W.
Cadle, Thomas; Longcroft, Westbury-on-Severn
Chadwick, Joseph; Kirkstall, Leeds
Cook, Richard Samuel; Pailton Lodge, Lutterworth
Deedes, Wm.; Sandling Park, Hythe, Kent
Dowdeswell, Geo. Morley; Park Gate House, Catsfield, Battle
Eyre, Edwin; The Cottage, Bishops Stortford
Firkins, Geo. John; Bishampton, Pershore
Fisher, A. B., Poulshot, Devizes
Gough, Ashwin D.; Hinton-on-the-Green, Evesham
Green, John; Newtown Farm, Worcester
Haine, George; Over Farm, Gloucester
Holton, Wm. Fifield; Cleeve Prior, Evesham
Lake, Edward; Hill Side, Strood, Kent
Morris, Edwyn John; Stanley Poutlarge, Winchcomb, Glo'ster
Pocock, Wm. J. M.; St. John's Villa, Redland, Bristol
Prosser, Benjamin; Offerton Farm, Hindlip, Worcester
Stallard, Josiah; Worcester
Stebbing, Henry; Stow Bedon, Attleboro', Norfolk
Stedman, Robert; Pakenham, Bury St. Edmunds
Torrens, Robert, M.P.; Ramslade, Bracknell, Berks

On the motion of Mr. Fisher Hobbs, seconded by Mr. Lawrence, the Council unanimously elected Mr. Edward Bowly, of Siddington House, Cirencester, a Member of Council, in the room of the late Mr. Jonas Webb.

FINANCES.—The Hon. General Hood, Chairman of the Committee, presented the Report, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on the 28th February was 2904*l.* 3*s.* 10*d.* The Committee recommended that 37 names of members in arrear of subscription be erased from the list of the Society. This report was adopted.

JOURNAL.—Mr. Thompson, M.P., announced the inability of Professor Tanner from illness to open the discussion which had been announced for the 25th inst. On the 18th March Mr. Bailey Denton will read a paper on the Influence of Under-drainage on the Rivers, and on the Water Economy of the country generally.

CHEMICAL.—At the meeting of this Committee held yesterday, Professor Voelcker gave the detailed statement (proposed in the last report) of the analyses furnished to members during the year 1862. They were as follows:—

Guano	61
Ammoniacal salts, nitrate of soda, and refuse materials	36
Superphosphates and similar artificial manures	84
Bone dust	13
Limestone, chalk, and marls	16
Milk and cheese	10
Soils 22, waters 16	38
Oilcakes	105
Turnips, feeding meals, and other articles of food	18
Total	379

The two last articles of this list belong to a class in which (it will be remembered as mentioned in the last report) adulterations had been found to prevail, frequently of an injurious character, not only to the fattening but even the health of animals, from the presence of poisonous weeds. The Committee have therefore requested Professor Voelcker to make this the subject of one of his lectures this year, and have named the third Wednesday (15th) of April for this lecture.

Amongst the above list of analyses, some few are of a rather singular character. Prince Halim Pasha, brother of the late Viceroy of Egypt, sent for analysis some of the mud of the river Nile (the earliest, doubtless, of top-dressing), and specimens of cement from ancient buildings, containing a large per centagé of nitre, commonly dug up for use as manure by the natives of Egypt.

The papers in the last Journal by the Chemical Professor are:—

1. On Wheat experiments (Top dressings)
2. On Cheese experiments
3. Commercial value of Artificial Manures
4. Poisonous Cheese.

The papers in the forthcoming Number are—

1. On the Power of Soils of known composition to absorb Soluable Phosphates.
2. Further Experiments with Top dressing in Wheat.
3. Report of Analysis of Waters from Ilchester.

To these papers the Committee have awarded the annual grant of 200*l.*

The second lecture this year will be on the application of different kinds of manures to Grass-lands, founded on the late experiments of Mr. Lawes at Rothamsted, who has also promised to place the general result of his experience at the assistance of the Lecturer.

This lecture is fixed for the 20th of May.

WORCESTER MEETING.—Lord Walsingham reported that 100 horse boxes of a good and substantial character had been ordered of the contractor in anticipation of a numerous entry for the forthcoming Show. 2*l.* would be charged to each exhibitor in the thoroughbred hunter and hackney classes for the use of these boxes. The committee recommended that the following work, heretofore performed at the office of the honorary director, be done at the Society's rooms, viz.: the examination of certificates; the preparation of MS. of catalogues; the preparation and forwarding of admission orders, tickets, and other documents usually sent to exhibitors of stock and implements. The forage to be delivered by tickets, under the direction of the hon. director and steward. Mr. Cantrell had consented to act as steward of forage. This report was adopted.

Letters inviting the authorities of Carlisle, Darlington, Durham, Newcastle, and Sunderland, to offer sites for holding the Meeting of 1864 in that district were directed to be sent.

The Council having ordered that the Society's house be closed on Saturday the 7th and Tuesday the 10th inst., on account of the Procession and the Marriage of his Royal Highness the Prince of Wales, adjourned to their Weekly Meeting on Wednesday next.

Farmers' Clubs.

LONDON: *March* 2, *Town Sewage.*—Mr. Alderman Mechi read a paper on this subject, from which we make the following extracts:—There is a great lamentation just now because we can no longer manufacture for ourselves and the world at large our usual supply of Cotton goods. We have not been used to this, but we have been used to import foreign food, and so we hear no complaint of our not producing our own food. We depend upon foreigners for one-third of our daily bread, and a good deal of our meat, cheese, eggs, and butter. We do not ask ourselves if we could produce all this at home, and whether that production would not employ an amount of native labour and capital with immense advantage to our country. Perhaps this evening's meeting may somewhat tend to remedy this national anomaly and discredit. There can be no reasonable doubt but that we have the means to produce our own food superabundantly, did we choose so to do.

I think we are all agreed that the great want of British agriculture is more manure—much more manure. On this point there is a remarkable unanimity among farmers. We may over-manure for our cereals, but never for our pastures, Rye-grass, green root, and leguminous crops. It is impossible to take a railway trip through almost any district of the United Kingdom, without being convinced that it is only half-manured, and that its powers of production might be greatly increased if our 50,000,000 of available acres could receive an extra manurial dressing. Employing at present merely a tenant's capital of 4*l.* per acre, with a gross produce of 3*l.* 12*s.* per acre, the small increase of 10*s.* per acre would add 25,000,000*l.* annually to our supply of human and animal food. The use of town sewage will render less necessary the purchase of guano and artificial manures, and it will diminish the necessity for purchasing foreign feeding stuffs as a source of manure. This is a very important consideration, for I know one Norfolk farmer who pays 3000*l.* annually for Linseed cake alone; and another who, during his holding, has paid 70,000*l.* for cake, and 50,000*l.* for artificial manures, being equal to 100*l.* per acre over his whole farm. We all know that we cannot feed our animals with purchased food except at a considerable loss, chargeable against their manure. I purpose to extract as briefly as possible from the Parliamentary and Government documents, as much of the valuable evidence as our limited time this evening will permit.

How will the Landlord's interest be affected by the Use of Town Sewage?—Will its use increase or diminish the value and fertility of his land at the end of a lease? The once sandy wastes on the sea-shore near Edinburgh, not then worth 5*s.* per acre, now produce an annual income of from 20*l.* to 30*l.* per acre, solely by the application of town sewage. The same remark applies in degree to all the other instances quoted before the Committee. The tithe rent-charge being a fixed commuted charge, the profit thus resulting to the landlord will be considerable.

How will the Tenant's interest be affected by the use of Town Sewage?—The evidence clearly proves that by large applications of sewage the crops of Grasses (and consequently of milk, butter, cheese, meat, and manure) may be increased from three to six fold and upwards, according to soil. Now, supposing that a tenant has a long lease of a suitable farm, it is quite clear that his present rent, chargeable against each ton of produce grown on the sewaged land, will be gradually diminished from 25 to 70 or 80 per cent. The same remark applies to tithes, rates, &c. But there is this enormous additional advantage, that, having four times as much manure from the produce of the sewaged soil, he will be enabled to grow much heavier crops on the other parts of his farm unsewaged, and thus increase the profits over the whole of his farm.

What is the Probable Value of the Human Excrement of the United Kingdom?—There is no difficulty in answering the question, when applied to the feeding of animals; and the same principle holds good for human beings, because they eat the cattle which have consumed the cattle food. Science has revealed to us that, although our food passes from us altered in appearance, its elements are unchanged, and little is abstracted from it by full-grown persons or animals. Taking the cost of consumable products (liquid and solid) used by the 30 millions of our population at 9*l.* per head, or 270,000,000*l.*, and taking the excrementitious residue of such consumption at the very low estimate of one-tenth of the cost of the articles consumed, we should have as a result an excretal value of 27,000,000*l.* Seeing that more than one-third of our population live in towns, and that the others who do not are very careless of their excreta, we may reasonably ask, is it not an act of folly, and of gross commercial error, to waste such a treasure, instead of availing ourselves of it to fertilise our soil, and cheapen and increase our food? We paid to foreigners 76,000,000*l.*, in the year 1861, for the consumable products they sent us. Ought not the excretal result of such an enormous importation to have greatly fertilised our soil? To the estimate I have made must be added the excreta of animals which is deposited in our streets. In London alone the horses consume 30,000 quarters of Oats per week, and hay in proportion. Here is Mr. Lawes's table, which is confirmed by the research of eminent chemists:—

TABLE showing the Estimated Value of the Manure obtained from the consumption of 1 ton of different articles of food; each supposed to be of good quality of its kind:—

Description of Food.	Estimated money value of Manure from 1 ton of each kind of Food.			I annex the average market price of the articles.		
	£	s.	d.	£	s.	d.
1. Decorticated cotton-seed cake	6	10	0	9	0	0
2. Rape cake	4	18	0	6	0	0
3. Linseed cake	4	12	0	10	10	0
4. Malt dust	4	5	0	5	5	0
5. Lentils	3	17	0	8	0	0
6. Linseed	3	13	0			
7. Tares	3	13	6	15	0	0
8. Beans	3	13	6	8	0	0
9. Peas	3	2	6	9	0	0
10. Locust Beans	1	2	6	7	0	0
11. Oats	1	14	6	7	0	0
12. Wheat	1	13	0	14	0	0
13. Indian corn	1	11	6	7	0	0
14. Malt	1	11	6			
15. Barley	1	9	6	8	0	0
16. Clover hay	2	5	0	5	10	0
17. Meadow hay	1	10	0	4	10	0
18. Oat straw	0	13	6	1	10	0
19. Wheat straw	0	12	6	1	15	0
20. Barley straw	0	10	6	1	10	0
21. Potatoes	0	7	0	5	0	0
22. Mangels	0	5	0	0	15	0
23. Swedish Turnips	0	4	3	0	15	0
24. Common Turnips	0	4	0			
25. Carrots	0	4	0	1	5	0

How other Nations value Human Excrements.—The evidence of Mr. White, M.P. for Brighton, and formerly an Alderman of London, is especially interesting. That gentleman has resided

many years in China. The Chinese are evidently beforehand with us in the art of producing food. They don't throw away human dung as we do, and then go many thousand miles to buy birds' dung at a high price to replace it. Almost the whole manuring in China is effected by the application of the sewage—in fact, by much-diluted liquid manure; the Chinese have the idea that manure, whether the production of bipeds or of quadrupeds, if applied to land in a dry state, burns the plant. They also say that you do not require to manure, or, as they put it, to fatten the land, but what you want is to feed the plant; and therefore they do not manure the land previous to sowing, but manure the growing plant. The custom in China is, daily to take from the houses all excrementitious, with any other animal and vegetable refuse, for manurial purposes. When this sewage is taken into the country, it is deposited in a tank or shallow well, which is ordinarily found at the corner of almost every field. The way in which they put this sewage upon the land is this:—they take a small quantity, a scoopful, and put it into a bucket of water; and in this very diluted state the cultivator throws it over his crop, or applies it to the root of each plant. Nearly the whole cultivation of China is by the application of sewage manure, and that in a liquid state.

Sir Joseph Paxton says:—At this time they are taking the better kind of sewage in small iron tanks by railway, and they take it down the railway a very considerable distance. The tanks are brought to the station, they are filled, and are so fastened that no impurity can escape from them. They are brought to the railway trucks, taken down 30 or 40 miles, and they are fetched away by the farmers. The tank is lifted off the truck and put into a little cart which the farmer has, and he takes it away, and he dilutes the sewage with water, in order to supply his plants, and he gives it out to them according to their requirements.

The Croydon Sewaged Meadows.—Mr. Marriage, of Chelmsford, a practical farmer, who rents them, has favoured me with the following dependable facts. He pays 1500*l.* annually for the 300 acres. The former rental, before the sewage was applied, was under 2*l.* The cost of levelling, making the carriers, &c., is about 5*l.* per acre, 3*l.* of which was allowed by the town of Croydon. The ground is very level, with a gentle slope; and thus the expense of laying out has been small. The inhabitants of Croydon are about 28,000; but he only gets the sewage from 18,000, or about 60 persons to the acre. This, he thinks, is an ample supply; and he knows, from experiments tried, that, although the water passes from his land quite clear, it still contains a great deal of fertilising matter. He only gets the fluid excrements, the solid being arrested by filter-beds. He would prefer having the whole. The sewage is mixed with a daily supply of water equal to one million gallons, to which must be added the rainfall and drainage from springs that ooze into the pipes, and increase the quantity to 2 million gallons. The sewage goes on winter and summer. The first cut of Grass was last year, the 10th April, and it was continued up to the 7th of November, being nearly all sold to cowkeepers, &c., who are now beginning to appreciate the advantage of using it. He continued to cut it for his own cows until the 27th of November. Although the meadows are newly sewaged, he reckons the produce at 32 tons per acre: this, if dried, would represent about 9 tons of hay. He differs with Mr. Lawes as to the Grass not having fattening properties. Some bullocks which he turned out gained flesh twice as fast as they would have done in Essex pastures. He fed 40 of his own cows, from May to the end of November, with the refuse Grass only, which he did not send to market. They were in full milk, and gained considerably in condition, although they had nothing but the Grass, and, being stall-fed, lay on the bare bricks, he having no straw for them. He is, with me, of opinion that a ton of this Grass is worth much more than a ton of Mangel (for which the cowkeepers pay 1*l.*), as it contains twice as much dry matter. Mangel Wurzel alone would destroy cows by purgation; while the sewaged Grass alone gives milk and condition. Mr. Marriage thinks the meadows will improve annually for some time, as this is only their third year of sewaging. [The Edinburgh and Rugby meadows, which Mr. Alderman Mechi next described, have been already referred to in our Columns].

What Crops would Pay Best for Sewage.—On this point the evidence is most unanimous. Italian Ryegrass stands first, then ordinary pastures, Clovers, &c. Italian Ryegrass, I know, from long experience, is much to be preferred. It is a more greedy feeder, it grows more quickly, and will dispose of much more moisture than any other Grass. It stands stiffer, like a corn crop, admits more air to the soil, will stand more forcing, and does not get laid and rotten like ordinary Grasses. It possesses another most valuable property—it fattens rapidly, and no animal will ever scour upon it. We all know how immense are losses in health and condition by animals scouring; Italian Ryegrass prevents this. Nothing impoverishes soil more with ordinary farming and dry manure than Italian Ryegrass; but with sewage it has the contrary effect, and fertilizes the farm. After sewaged Italian Ryegrass I can take abundant Pulse, and then cereal crops. One acre of highly-sewaged Italian Ryegrass, cut and brought to the homestead, suffices to keep my 80 head of young and old bullock stock and my farm horses for a whole week (the stock have cotton-cake, &c., in addition), and it is fit to cut again in summer in five or six weeks. It is easy to understand what a quantity of manure is thus produced in summer for other parts of the farm.

What it costs to Lay Out Land to receive Sewage by Gravitation and open Carriers, or by Underground Pipes and Hose and Jet.—Mr. King says, "I have laid out the meadows at Hayward's Heath Lunatic Asylum, containing 500 or 600 inmates It is about 17 acres, and the cost of laying out was 3*l.* per acre. It is done by means of contour channels, to suit the inequalities of the ground, which is very hilly. A portion of these meadows is drained; the rest I have recommended them to drain. I have very little doubt that the value of the estate will be doubled by the application of the sewage. The cost of preparing the land on the Edinburgh meadows was 13*l.* 10*s.* per acre." Mr. Blackburn says, "It would cost 8*l.* per acre to lay down land with underground iron pipes, and the necessary appliances to put on 2000 tons per acre per annum. At Tiptree, in my own case, it took 15 yards of 3-inch iron pipes per acre.

Piping, &c.	£2	0	0
Pumps, &c.	0	10	0
Tank	0	10	0
Gutta percha hose	0	7	6
	£3	7	6

My engine was already there for other purposes. This was on 170 acres; on a smaller area it would cost more per acre. My pumps will throw 100 gallons per minute.

The question of Dilution.—Objectors to the use of town sewage urge that it loses its power by dilution. This objection will not stand the test of examination. It is admitted that 1270 tons of sewage contain the manurial elements of one ton of best Peruvian guano. Now, every ton of guano spread over our fields receives from Nature a much greater dilution by rainfall than the much abused sewage; and, in fact, without rainfall to intermix it with the soil it would be valueless. 1270 tons of sewage per acre are equal to a rainfall of 12½ inches. As our average annual rainfall is 26 inches, or 2600 tons per acre, and as a ton of guano is usually spread over 10 acres, it follows that it is actually diluted by and mixed with 26,000 tons of water, while its equivalent in sewage is only mixed with 1270 tons, to be added in fact to the natural rainfall of 26,000 tons. Mr. J. B. Lawes says:—"The largest produce I ever obtained with an enormous quantity of dry manure, was about 12 tons of green produce. The quantity obtained by sewage irrigation was 33 tons of green produce per acre. 12*l.* is a large rent for a very good irrigated meadow. If you put on sewage enough you would probably get 30*l.* or 40*l.* a-year." In plain English, Mr. Lawes's evidence shows that, while an enormous application of dry or ordinary manure can only produce 12*l.* per acre in Grasses and green crops, the same or a less quantity of such manure diluted with several thousand tons of water would produce 36*l.* per acre, or an increase of 200 per cent.! What a lesson these facts teach the British farmer in the use of his farm manure on Grass lands where water is accessible! What becomes of the objections to dilution for Grass crops?

Are we, as Agriculturists, prepared to take this Sewage?—The witnesses generally say that we are not. Sir Joseph Paxton says:—The farmers around are a long way behind the times; the truth is, that farmers are 100 years behind horticulturists, and the application of this sewage question, in the extended form in which it has been suggested, will be the greatest difficulty when you come to these gentlemen, the farmers; they will have their own way, and they have a right to do so. Mr. John C. Morton, being asked by Mr. Whitbread, the value of sewage manure as a fertiliser being admitted, what, in his opinion, had been the chief causes which have operated to prevent the application of it more largely than has hitherto been the case? says—I suppose that it has been occasioned by *vis inertiæ*; men not being wide awake. Lord Essex being asked—Have the farmers in the neighbourhood tried this sewage at all?—They have no means of doing it; I have got it all. They have seen the result at my farm, and they say that it is all very fine, and so on. My own opinion is, that when they see the practical results, and find that it pays, they will soon adopt it.

Value of Sewage Tested per Head of Population.—The evidence agrees that an average of 60 people, giving, with rainfall and water supply, about 4000 tons of sewage per annum, will produce an enormous increase per acre of pasture Grass or Italian Rye-grass. If you were to ask a farmer whether 60 well fed sheep and lambs kept a whole year upon 1 acre of ground would manure that amply? he would be astonished at your proposition, seeing that two to two and a-half sheep per acre is above the average manurial supply of the United Kingdom. Now comes the question—what is the worth of the annual excreta of each human being in this metropolis? Mr. Lawes puts it at 2*s.* per heap, but as every individual consumes in food and drinkables about 9*l.* per annum, this valuation neither accords with his own table, nor with the recognised valuation of farmers themselves.

2*s.* per head would give 3-8ths of a penny per ton of sewage.
4*s.* ,, ,, 6-8ths ,, ,, ,,
6*s.* ,, ,, 1¼*d.* ,, ,,
8*s.* ,, ,, 1½*d.* ,, ,,
10*s.* ,, ,, 1⅞*d.* ,, ,,

The latter is in my opinion nearer the value than Mr. Lawes's estimate, if delivered on the farm, but comparison and competition will soon fix a proper value. I consider Mr. Morton's estimate of ¼*d.* per ton much below its value. Lord Essex gets the Watford sewage (60,000 tons) at, I believe, 2*d.* per head, or 1-5th of a penny per ton. Farmers would be very glad to get sheep fed on their land on such terms, and weight for weight a human being produces better manure than a sheep. Of course, the price paid to the town or corporation, and the cost when delivered on the farm, must vary very much, according to distance and expense of conveyance; but when absolutely placed on the field, good town sewage cannot, in my opinion, be worth less than 1½*d.* to 2*d.* per ton. In conclusion, let me entreat the people of England not to neglect the truthful and ominous warning of Baron Liebig in his letter to me; "I know that the prophets of future evil have at all times been derided by their own generation; but if history and natural laws can furnish any ground for a just conclusion, then there is none which stands more firmly than this, that if the British people do not take pains to secure the natural conditions of the permanent fertility of their land, if they allow these conditions, as hitherto, to be squandered, their fields and meadows will at no distant time cease to yield their returns of corn and meat. But it does not belong to the province of natural science to discuss the question whether the might, strength, and independence of the nation will be preserved, after this state of things shall have gradually arisen."

Reviews.

The Farm Homesteads of England. A Collection of plans of English Homesteads existing in different parts of the county, carefully selected from the most approved specimens of farm architecture to illustrate the accommodation required under various modes of Husbandry, with a digest of the leading principles recognised in the construction and arrangement of the Buildings. Edited by J. Bailey Denton, M. Inst. C.E., F.G.S. &c., 52, Parliament Street, Westminster.

We have received a copy of the first number of this magnificent work, and hasten to direct the attention of our readers to what will when completed be a remarkably fine testimony to the high standing of English agriculture. Mr. Denton instead of following an example already shown in many publications, and issuing for his reader plans and estimates of his own devising, with an exclusive view to his own professional interests, has preferred exhibiting in a number of examples the influence of the varying circumstances of our agriculture in the production of a series of farmeries due to a number of architects, connecting them all by a discussion of the general subject, so as to bring into full relief the principles common to all, on which a homestead, whatever the peculiarities of the farm for which it is to be provided, must be designed and erected. The following is a passage from a prospectus of the work:—

"We have only to add that of late years, and in the highest quarters, an inclination has been evinced to view the question of Farm Architecture by the light which modern science throws upon it. Prejudice has given way to common sense, and a considerable outlay is not necessarily regarded as an improvident proceeding, but as necessitating the utmost attention to site and arrangement, and a due reference to climate,—the nature of the farm,—the system of husbandry observed, and the character of the machinery employed. Upon the estates of those who take a lead in agriculture, has arisen, therefore, a number of homesteads specially designed to provide for modern requirements, and affording evidence that tenants of intelligence and capital regard good arrangement as a means of economy in the homestead with an appreciation equal to that of good soil and large fields as a means to success in cultivation. In the several neighbourhoods where superior homesteads are to be found, there is noticeable a growing dissatisfaction with the defective buildings which surround them, and their influence is felt beyond these local limits, for they are visited and studied by those who are also contemplating an expenditure in buildings of an improved character.

"In order to facilitate the study of these precedents the editor has selected the best existing specimens, and now presents to the agricultural public a series of plans and views delineating them; and purposes to add, in the form of a digest, illustrated with drawings, the result of a careful examination of the numerous buildings which have come under his notice."

The plans are beautifully executed as lithographs, the page being large enough for the smallest details to be entered on the scale that has been adopted. Isometrical projections are given along with the plans, enabling a perfect realisation of the character of the buildings, and a sufficiently detailed account is in every case given of the farms on which they are respectively erected.

The whole will be an exceedingly valuable illustration of the skill and judgment which has of late been brought to bear on the improvement of landed property.

Farm Memoranda.

NORTHUMBERLAND FARM. *Report for February.*—A decided change from the previous months may be said to have marked the weather of February;—the violent winds—not often unaccompanied by rain—which raged during the greater portion of the winter having disappeared, and given place to weather of an entirely different phase. Sharp frosts have been experienced during the nights, which however soon succumbed to the powerful influence of a brilliant sun, that almost daily shone forth towards the middle of the day, with a warmth characteristic of midsummer. Such a change was not unacceptable to the strong-land farmer, from its ameliorating effect on the retentive furrow, and its reduction and conversion into a more satisfactory seed bed;—while at the same time winter Wheat received a healthful and desirable check to its growth. On the whole, this month must be considered as having been most favourable for farming operations; owing to the frost during the early part of it, we were enabled to cart out an immense mass of farm-yard manure for our Turnip break without damaging the land in the smallest degree; whilst during the latter part, seed time absorbed our special attention.

Labour.—The manure above referred to as having been carted out early in the month, was in some cases driven on, whilst in others it was thrown up by hand, according to its ultimate disposition and present composition; in the latter case it will rot sooner, and will save a second turning, which is at this open season of great consequence; whilst, should it be required for use at an earlier period than the other, it will naturally be more fit for application. In addition to this work, the draughts have been chiefly occupied in ploughing land after Turnips in preparation for Barley, also a remnant of Oat stubble for a fallow crop; and another operation in ploughing which we must not omit to mention as one which we appreciate to a considerable degree in the spring cleaning of fallows, viz., ribbing across the previous winter furrow, a process which has the effect of bringing all the Couch to the top and exposing it to the atmosphere. This will be left for two or three weeks, and then harrowed, grubbed, again harrowed, and the Couch taken off; all our Swede land for the ensuing crop has been thus treated. We commenced drilling Beans on the 24th, the land being previously thoroughly broken up by Bentall's broadshare, grubbers, harrows, &c., which had the desired effect of producing an excellent seed-bed on most of the land (though in some instances it broke up sour and lumpy), upon which was drilled with Garret's drill—on 12 acres—a mixture of large Scotch Beans and Peas at the rate of three bushels per acre, the rows being 16 inches apart; we prefer sowing the large Scotch Bean on our strongest land in this case, whilst on our sharper loams we drilled pure Heligoland Beans at the same distances apart, and 2½ bushels per acre, to the extent of 22 acres. I am glad to be able to notice the increased breadth of Bean land drilled this year with the large drill, instead of the antiquated barrow and plough, and I am satisfied that the more my northern brother-farmers adopt this system, the more they will like it; it has endless advantages over the broadcast (dirt-producing) system, as well as over the ploughing-in; not the least important of which is its compulsory and rigorous injunction for the thorough and efficient working of the land as a preparation for a seed-bed; besides this, the extra breadth that can be drilled per diem, and the saving of manual labour where a corresponding horse-hoe follows (drill-husbandry being incomplete without the horse-hoe) are important considerations which must not be lost sight of. Much employment has been given in the barn during the present month, in threshing Beans and Barley; the latter having been threshed in preference to Wheat, which is a miserable sale at present. The Beans have met a ready sale at seed prices, upwards of

50 quarters having been disposed of for that purpose at 44*s.* per quarter. Barley to the amount of 50 quarters has been sold at Leeds for malting at 35*s.* and 35*s.* 6*d.* per quarter, being about 4*s.* per quarter more than we can have at home, while a fair profit remains, after paying carriage, commission, &c. The net weight of the Beans was 68½ lbs. per bushel; and of the Barley 56 lb. We have also been selling Oats of 43 lb., being a slight admixture of Canadian among Potato, at 26*s.* per quarter. Wheat still threshes out a poor yield; Barley very fair for strong land, 5 quarters per acre; Oats 6½ quarters per acre, and Beans 3½ quarters; the Beans would have been an enormous yield had we not experienced the severe winds at the particular moment when they were in bloom.

Stock.—Much of our fat stock has been disposed of during this month, at fair remunerative prices for feeding; 20 bullocks have been sent off at prices varying from 19*l.* to 25*l.* 10*s.* a head. Our Swedes running somewhat short earlier than we expected, some of these cattle went off sooner than we had intended, though at the same time they were good beef; those now remaining will require a couple of months to finish them properly. Grazing cattle are doing exceedingly well on straw and yellow Turnips. Hoggets are divided into two lots, one small lot being on the Turnip break receiving cut Swedes, Oats, and cut hay, whilst the other is on old Grass receiving somewhat similar treatment. The ewes have been better treated lately in preparation for lambing, on cut hay and good yellow Turnips, which we consider more milk-producing than Swedes, whilst the cut hay has the effect of checking any over-laxative tendency produced by the luxuriant growth of the Grass. We have already four lambs, and during the ensuing fortnight we expect them coming very quickly. Corn markets are dull, but beef and mutton is gradually rising in price; and the price of lean stock for summer grazing will, I fear, leave but a meagre profit to the grazier. Winter Wheat is healthy and sticking well to the ground; Clover fields are most luxuriant and will afford a full bite for ewes and lambs when required; and the old Grass fields, though somewhat checked by the recent nightly frosts, show a prospect of a sufficiency of spring food. *J. W.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. Sperring, Monlsford, near Wallingford, Berks, during the week ending March 4, 1863.

Day of Week.	Day of Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Dry Bulb Thermometer.	Reading of Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0-6	Amount of Cloud 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in 24 hours previous on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
		Inches.										Inches.		
Wednesday	25	30.42	41	42	S.W.	2	7	50	41	65*	39		45	44½
Thursday	26	30.31	46	43	S.W.	2	6	50	42	60	40		45	44½
Friday	27	30.28	40	40	S.W.	1	9	56	32	89	29		45	44½
Saturday	28	29.93	46	44	S.W.	3	8	57	34	95	27		44	44½
Sunday	1	29.91	49	48	S.S.W.	1	7	54	39	79	34	0.03	44	44½
Monday	2	29.83	46	43	S.	2	9	57	38	60	30	0.07	44	44½
Tuesday	3	29.69	49	45	S.	2	4	64	37	102	30	0.01	45½	45
Wednesday	4													

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Notices to Correspondents.

Cider and Perry: *H W C.* Will any one tell our correspondent which is the best book on the making of cider and perry. There are articles by Mr. Towers in the Cyclopædia of Agriculture.

Grass Seeds: *T S.* Sutton's of Reading send out a pamphlet, containing useful instructions, and Lawson's (Edinburgh) Agrostographia, a quarto pamphlet, contains all the information you ask for.

Milk: *D. Scadding.* Milk from cows down with the foot and mouth disease has in cases within our knowledge proved injurious to pigs. The disease goes generally by the name of the distemper or "epidemic." It is not the "thrush."

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.

Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.

Can be obtained through the principal Nurserymen and Seedsmen in England.

A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.

Page & Toogood, Seed Merchants, Southampton.

ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and Destroying the Fly, 1*s.* 4*d.* per lb., over 10 lbs., 1*s.* 1*d.*

Joseph Baker, 10, Gough Square, Fleet Street, E C. Post Office Orders payable Fleet Street.

To Florists and Nurserymen.

H. PERKINS calls the attention of the above to his large stock of Genuine TOBACCO PAPER and CLOTHS, at 10*d.* per lb., warranted free from adulteration, having taken every pains to secure the same.

Address, 16, Cambridge Circus, Hackney Road, London, N.E.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of Geo. Glenny, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. Neal, Edward Street, Birmingham.



Red Spider Magnified.

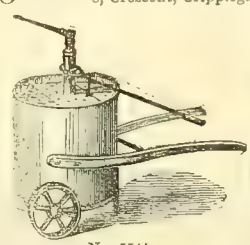
GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

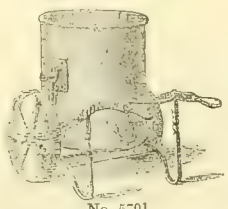
Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 2*s.*, and 10*s.* 6*d.* each.

Wholesale by Price's Patent Candle Co. Limited.

JOHN WARNER AND SONS, 8, Crescent, Cripplegate, London, E.C.



No. 554½.



No. 570½.

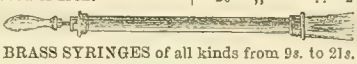
WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons	..	£2 15 0
16 ,,	..	3 15 0
24 ,,	..	5 0 0

Larger sizes may be had in ither Wood or Iron.

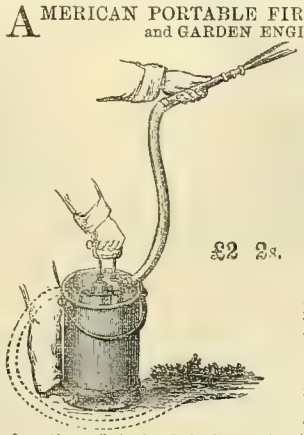
WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	..	£2 10 0
20 ,,	..	2 0 0



BRASS SYRINGES of all kinds from 9*s.* to 21*s.*

AMERICAN PORTABLE FIRE ANNIHILATOR and GARDEN ENGINE.



£2 2*s.*

An efficient means of Extinguishing Fires at their commencement Nine out of ten Fires in London are put out on their first appearance by the London Fire Brigade with Hand Pumps of considerably less power.

One man will throw 7 or 8 gallons per minute from 40 to 50 feet with it.

It is an effective Garden Engine for cleansing or syringing Wall-fruit or Rose Trees, Plants, or Vines.

It may be used to draw water from the pail in which it is fixed, or from a tank or pond by the addition of the required length of suction. It is simple in its construction, having no suction or delivery valves to clog with dirt or leaves.

No Establishment, either private, commercial, or manufacturing, should be without one.

Six feet of Flexible Suction, with Union and Suction Rose, &c., extra, 12*s.* Longer lengths of Suction at 1*s.* 6*d.* per foot.

The above may be obtained of all Ironmongers and Seedsmen in Town and Country, or of the Manufacturers,

John Warner & Sons, 8, Crescent, Cripplegate, London, E.C.

Glass for Greenhouses.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

ENGLISH GLASS, 16 ounces to the foot, in Sheets averaging 40 by 30, packed in Cases containing about 280 feet, 2¼*d.* and 2½*d.* per foot.

SHEET GLASS, 16 ounces, packed in boxes of 100 feet each.

Package included.	3rds.	4ths.
12 by 9, 13 by 9, 14 by 9, 15 by 9	14*s.* 0*d.*	12*s.* 6*d.*
12 ,, 10, 13 ,, 10, 14 ,, 10, 15 ,, 10		
13 ,, 11, 14 ,, 11, 15 ,, 11, 16 ,, 11	16*s.* 0*d.* per 100 feet.	13*s.* 6*d.*
14 ,, 12, 15 ,, 12, 16 ,, 12, 17 ,, 12		
18 ,, 12, 19 ,, 12, 20 ,, 12, 16 ,, 13		
17 ,, 13, 18 ,, 13, 19 ,, 13, 20 ,, 13		
16 ,, 14, 17 ,, 14, 18 ,, 14, 20 ,, 14		

Various other sizes.

GLASS for ORCHARD HOUSES,

As supplied by us to Mr. Rivers.

		16 oz.	21 oz.
20 in. by 12 in. / 20 in. by 13 in.	Common	13*s.* 6*d.* ..	£0 18 0
20 in. by 14 in. / 20 in. by 15 in.	Superior do. ..	16 0 ..	1 3 0
	English Glass ..	18 0 ..	1 9 0

The above prices include the Boxes.

SMALL SHEET SQUARES, in 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11*s.* 6*d.*
8 ,, 6	8½ ,, 6⅝	9 ,, 7	9½ ,, 7½	
		10 ,, 8	10½ ,, 8½	12 6

Boxes 2*s.* each, returnable at full price.

SQUARES CUT TO SPECIAL SIZES.

16 oz. 4ths, 1½*d.*, 2*d.*, and 2½*d.* 21 oz. 2½*d.*, 3*d*, and 3½*d.*

,, 3ds, 2*d.*, 2½*d.*, and 3*d.* ,, 3*d.*, 3½*d.*, and 4*d.*

London Agents for Hartley's Improved Patent Rough Plate.

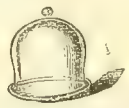
Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

Milk Pans, Propagating Glasses, and every description of Glass for Horticultural purposes.

James Phillips & Co., 180, Bishopsgate Street Without, London, E.C.

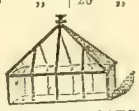
THOMAS MILLINGTON, 87, Bishopsgate Street Without, E.C.

HORTICULTURAL GOODS.



PROPAGATING GLASSES.

3 inches ..	0*s.* 4½*d.* each.	12 inches ..	1*s.* 9*d.* each		
4 ,, ..	0 5½ ,,	13 ,, ..	2 0 ,,		
5 ,, ..	0 6½ ,,	14 ,, ..	2 6 ,,		
6 ,, ..	0 8 ,,	15 ,, ..	3 0 ,,		
7 ,, ..	0 10 ,,	16 ,, ..	3 6 ,,		
8 ,, ..	1 0 ,,	17 ,, ..	4 0 ,,		
9 ,, ..	1 2 ,,	18 ,, ..	5 0 ,,		
10 ,, ..	1 4 ,,	19 ,, ..	6 6 ,,		
11 ,, ..	1 6 ,,	20 ,, ..	7 0 ,,		



HAND GLASSES.

12 inches ..	6*s.* 0*d.* each	18 inches ..	9*s.* 0*d.* each		
14 ,, ..	7 0 ,,	20 ,, ..	10 0 ,,		
16 ,, ..	8 0 ,,	24 ,, ..	12 0 ,,		

If open top, 1*s.* extra.



CUCUMBER GLASSES. From 12 inches long and upwards, 1*d.* per running inch.



ROLLING PINS. From 12 inches long, 1½*d.* per running inch.

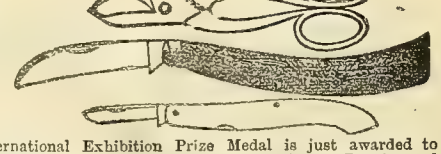
Improved ANTI-CORROSION and other PAINTS.

GAS and LAMP GLASSES, GLOBES, &c.

CHIMNIES of every description.

Not accountable for Breakage.

Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal is just awarded to Saynor & Cooke for superiority of quality in Pruning and Budding Knives, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

Caution.—None are genuine unless marked Saynor. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

Important to Nurserymen and large Plant Growers.

DEAL WOOD LABELS, 3½ ins. in length, 2*s.* p. 1000

,, ,,	4½ ,,	,,	3*s.*	,,
,, ,,	6½ ,,	,,	4*s.*	,,
ASH LABELS	4½ ,,	,,	3*s.*	,,
SYCAMORE LABELS	4½ ,,	,,	4*s.*	,,
,, ,,	6½ ,,	,,	6*s.*	,,

The above Labels are admirably adapted for retailing out in Shops. They are done up in packages of 4000, 8000, and 10,000 each, but a thousand of each will be sent as samples if desired, on application to Edward Taylor, Derwent Nurseries, Malton, Yorkshire.

HORTICULTURAL IMPLEMENTS and GARDEN TOOLS of every description, for the amateur or practical gardener, and of warranted quality.—Deane & Co.'s ILLUSTRATED PRICED LIST of the above, gratis on application, or post free, includes Lawn Mowing Machines, Garden Engines, Boyd's Patent Self-adjusting and Vulcan Scythes, Garden Rollers (from 30*s.*), Flower-Stands, Garden Seats, &c. Galvanised Game Netting from 6*d.* per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c Lingham's Permanent Labels. Saynor's celebrated Pruning Knives.

Deane & Co. (opening to the Monument), London Bridge, E.C. Established A.D. 1700.

GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863,

FOR WHICH HER MAJESTY'S ROYAL LETTERS PATENT HAVE BEEN OBTAINED.

THE FIRST PRIZE MEDAL

OF THE

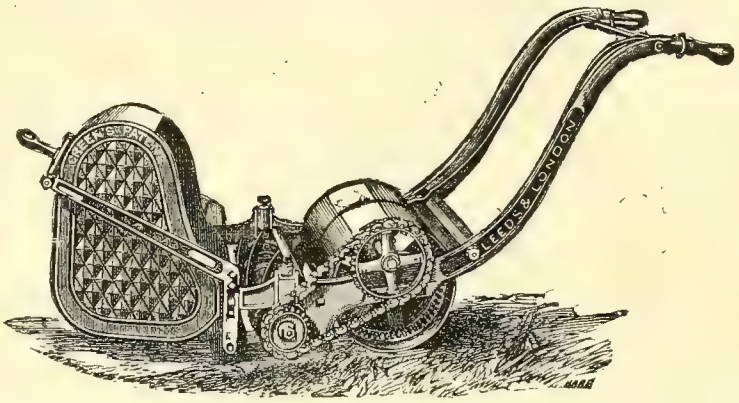
INTERNATIONAL EXHIBITION

WAS AWARDED TO

THOMAS GREEN

FOR HIS

PATENT LAWN MOWERS.



These were the only Machines highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862.

(No Prizes were given).

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS DURING THE SEASON OF 1862.

THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, have much pleasure in stating that the important Improvements which were added to their Machines for last season (which combined simplicity of construction, durability, and lightness of draught), have proved them to be superior to anything of the kind ever brought before the Public, inasmuch as they have given entire satisfaction wherever used, and have gained the largest sale of any Machines extant. They have carried off every Prize that has been given in all cases of competition.

GREEN'S PATENT LAWN MOWERS are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

To Cut 10 inches	£3	10	0	Suitable for a lady.	
„ 12 „	5	0	0	Suitable for one person.	If with internal gear, 10s. extra.
„ 14 „	5	10	0	Do. Do. Do.	Do. 10s. extra.
„ 16 „	6	10	0	Suitable for one man or two boys.	

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	... ... £12 10 0
„ 26 „	12 10 0	... ... 13 12 0
„ 30 „	16 14 0	... ... 18 0 0

Leather Boots for Donkey, 16s.; for Pony, 20s.

					If With Patent Delivery Box.
To Cut 18 inches ...	£7	10	0	Suitable for one man and boy	£8 15 0
„ 20 „ ...	8	0	0	Do. Do.	9 5 0
„ 22 „ ...	8	10	0	Suitable for two men ...	9 17 6
„ 24 „ ...	9	0	0	Do. Do. ...	10 7 6

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

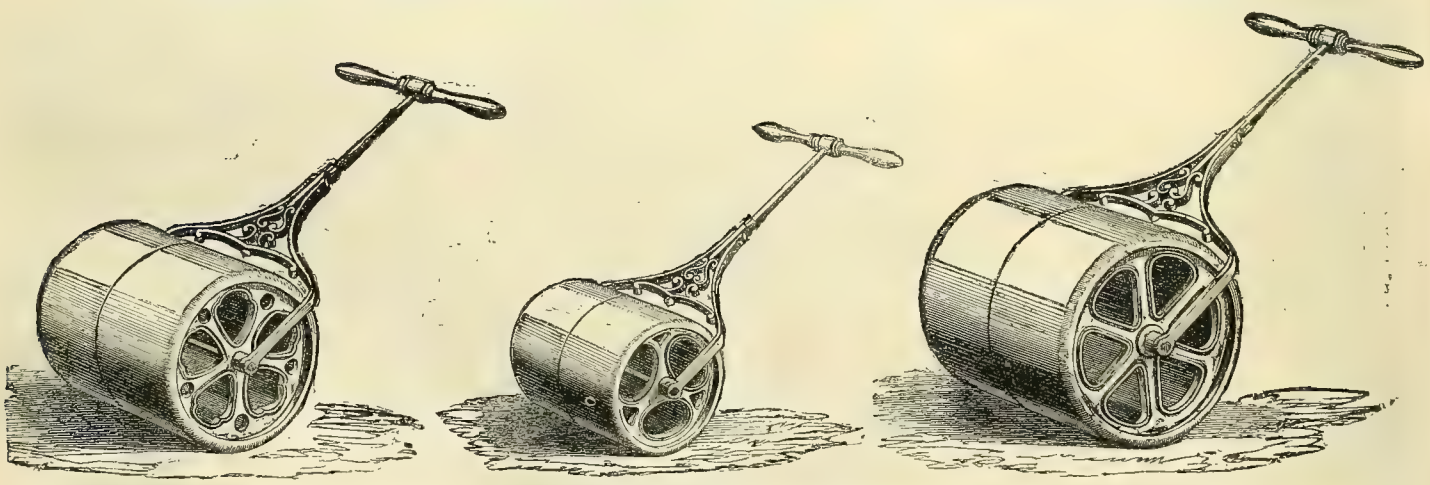
	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	... £21 10 0
„ 36 „	23 0 0	... 24 16 0
„ 42 „	26 0 0	... 28 2 0
„ 48 „	29 0 0	... 31 8 0

Leather Boots for Horse, per set, 1*l.* 4*s.*

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.



Diameter 20 inches, length 22 inches, price £3 5*s.* | Diameter 16 inches, length 17 inches, price £2 10*s.* | Diameter 24 inches, length 26 inches, price £4 5*s.*
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

T. GREEN AND SON in introducing the above are well aware that the extremely simple character of this Implement cannot admit of any very radical change, yet they are confident that the Improvement just effected (and secured by Letters Patent) is a real one, and is strikingly apparent when compared with any other Garden Roller. In previous Rollers a limit was always set to weight in consequence of marks being left on the gravel, and the power required to work them, but the present one is nearly double the ordinary weight, yet is considerably easier to turn in consequence of the Roller being divided in two parts, and the outer edges being rounded off or turned inwards, thus avoiding the *unsightly marks* left by all others hitherto in use. They can be used by the most unskilful with the greatest certainty of producing a beautifully even surface, either on *Lawns or Gravel Paths*, and for the *Bowling Green and Cricket Field are really indispensable.* They are manufactured of the best materials, and got up in a manner surpassing any ever yet brought out.

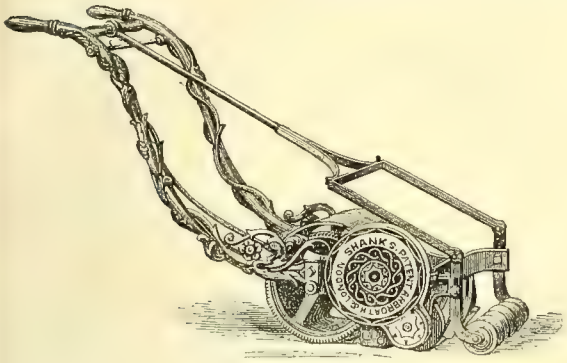
T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.



NEW HAND MACHINE.

THE FIRST PRIZE MEDAL

OF THE

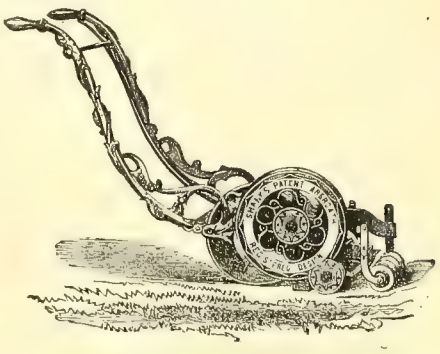
INTERNATIONAL EXHIBITION

WAS AWARDED TO

ALEX. SHANKS AND SON

FOR THEIR

PATENT LAWN MOWERS.



12-INCH or LADY'S MACHINE.

ALEXANDER SHANKS AND SON are gratified to find that the Improvements introduced into their PATENT LAWN MOWERS last season have been so entirely successful, that universal satisfaction has resulted from the use of these Machines wherever they have been tried. The Patentees have this season introduced further Improvements into their already celebrated Lawn Mowers, which are fully described in their Illustrated Price Lists, which will be at once forwarded on application.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved, and their success established.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

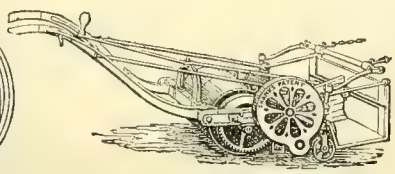
SHANKS' NEW PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

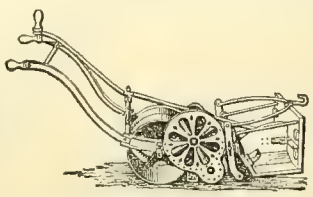
NEW PATENTED IMPROVEMENTS THIS SEASON.

EXHIBITION PRIZE MEDAL AWARDED.

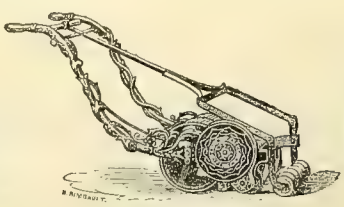




HORSE MACHINE.



PONY MACHINE.



NEW HAND MACHINE.



SHANKS' NEW PATENT MACHINE

Mows the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at half the expense.

NO PERSON HAVING A LAWN SHOULD BE WITHOUT A MOWING MACHINE.

The first practical Gardeners of the day who have devoted their attention in examining all the different Lawn Mowers offered, do not hesitate in recommending SHANKS' Machine as *the best Mower for general use.* The important Improvements introduced last season have undergone a thorough practical test, and satisfied the most sanguine expectations. *Further Improvements, simplifying the Machine, and adding to its efficiency, have been introduced into the* NEW PATENT LAWN MOWER for 1863.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for Use.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		
No. 1.—48-inch Machine	£28 0 0	*Drawn by a Horse.*
No. 2.—42-inch Machine	26 0 0	
No. 3.—36-inch Machine	22 0 0	
No. 4.—30-inch Machine	19 0 0	*Drawn by a Horse or strong Pony.*

Patent Delivering Apparatus for Nos. 1 and 2 Machines, 40*s.*; for Nos. 3 and 4 Machines, 30*s.*; Box with complete Set of Tools, 10*s.*; Silent Movement, 20*s.*; Boots for Horses' Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		
No. 5.—30-inch Machine	£15 15 0	*Drawn by a Pony.*
No. 6.—28-inch Machine	14 10 0	
No. 7.—25-inch Machine	12 10 0	*Drawn by a Donkey.*

Patent Delivering Apparatus for Nos. 5 and 6 Machines, 30*s.*; for No. 7 Machine, 25*s.*; Box with complete Set of Tools, 7*s.* 6*d.*; Silent Movement, 12*s.* 6*d.*; Boots for Pony, 21*s.*; Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for use.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Do. by a Man and a Boy.*

Width of Cutter.		
No. 11.—16-inch Machine	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6 2 6	*Do. by a Poy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.*; Box, with complete Set of Tools, 5*s.*; Silent Movement, 7*s.* 6*d.*

No. 16.—12-inch Machine for Pushing only, £5 5*s.*; easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of may be at once returned.*

AGENTS:

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

THE HYDROPULT,

THE HYDROPULT

IS INVALUABLE FOR

WATERING GARDENS,

EXTINGUISHING FIRE JUST COMMENCED,

PROTECTING a ROOF from FIRE,

CLEANSING TREES from INSECTS,

DRESSING with LIQUID MANURE,

SPRINKLING PLANTS,

WASHING WINDOWS,

WETTING SIDEWALKS,

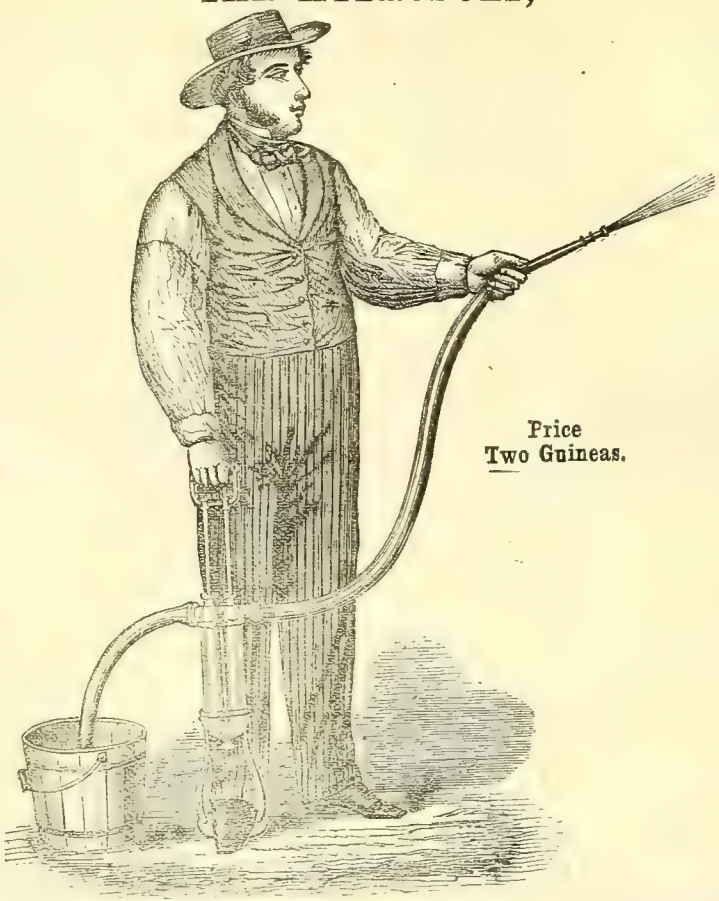
SPRINKLING STREETS,

WASHING CARRIAGES,

WETTING SAILS,

A SPRAY BATH,

&c. &c.



Price
Two Guineas.

CAUTION.—Unprincipled parties are now palming on the public an infringement of the Hydropult Patent. This is to notify, that said pirates and all persons using or vending this article will, in due time, be prosecuted. No machine contained in a bucket is the Hydropult. Every Hydropult has a Trade Label affixed, as follows:—

"The Hydropult, a Portable Fire Annihilator and Garden Engine.
"GRIFFITH & BROWETT,
Manufacturers, Birmingham;
"CHARLES P. BUTTON,
General Agent.
"VOSE'S Patent;"

and is sold at the uniform rate of Two Guineas, complete, with 2½ feet Suction and 3-feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Fire Jet.

It is an easy matter to imitate the Hydropult in appearance, and thereby deceive the public; therefore this caution.

The Hydropult WEIGHS BUT 8 LB.; will throw 7 or 8 Gallons of Water per minute 50 FEET when worked by the power of one man.

Has been recommended as an efficient FIRE ENGINE by the principal FIRE INSURANCE COMPANIES of GREAT BRITAIN. Thomas Rivers, Esq., the eminent Florist; Shirley Hibberd, Esq., and other well known gentlemen, recommend it as an invaluable GARDEN IMPLEMENT. J. Spencer, Esq., Inspector of the Royal Society for the Protection of Life from Fire, certifies to its efficiency in saving valuable Property in Bayswater from destruction. The City and Provincial Press accord to the invention the utmost praise. All who purchase the Hydropult are satisfied with its action; each Machine guaranteed to be perfect.

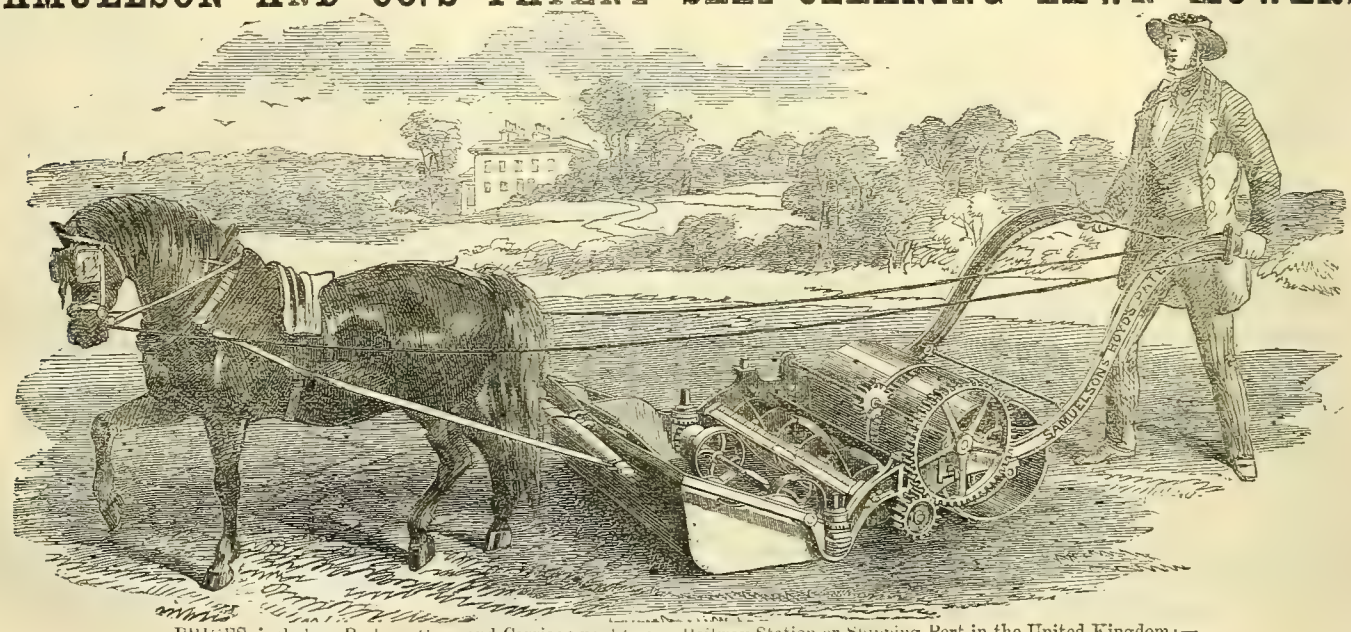
A PORTABLE GARDEN ENGINE, AND FIRE ANNIHILATOR.

Prospectus, with Testimonials, on application at either Office.

HYDROPULT OFFICE: 27, LEADENHALL STREET, LONDON, E.C.; and 309, REGENT STREET, POLYTECHNIC BUILDING, LONDON, W.—CHARLES P. BUTTON, PROPRIETOR.

THE GEARING OF SAMUELSON AND CO.'S LAWN MOWING MACHINES IS NOT LIABLE TO DERANGEMENT.

SAMUELSON AND CO.'S PATENT SELF-CLEANING LAWN MOWERS.



PRICES, including Packing Case, and Carriage paid to any Railway Station or Shipping Port in the United Kingdom:—

MANUAL POWER	12 inches cut,	suitable for a Lady	... ...	£4	12	0	PONY POWER	22 inches cut	... ...	£8	15	0
	16 „	suitable for One Person	... ...	6	10	0		25 „	... ...	11	10	0
	19 „	suitable for One Man and Boy	... ...	7	0	0		30 „	... ...	14	14	0
	22 „	suitable for Two Men	... ...	8	0	0						

If with BOYD'S PATENT BRUSH, 15*s.* extra.

TESTIMONIAL *from* SHIRLEY HIBBERD, Esq. "Stoke Newington, London, N.

"The Lawn Mower paid its cost in one season, in the saving of labour alone. Instead of the old bother of Scythe sharpening, sweeping, rolling, and loitering, the Grass is mown now almost by looking at it, the Turf improved by a regular and clean cut, and the operation one of enjoyment and healthy exercise. Instead of 'making a toil of pleasure,' one can now make a pleasure of toil, and gain time and strength that used to be wasted. I have a good collection of the best Garden Tools and Implements, and I value the Lawn Mower above them all. "SHIRLEY HIBBERD, F.R.H.S."

All Orders direct or through Dealers will be executed according to priority of receipt. May be obtained at the WORKS, Banbury; or at SAMUELSON & Co.'s various Depôts; also of all Ironmongers and Seedsmen, and at

SAMUELSON AND CO.'S WAREHOUSE, 76, CANNON STREET WEST, LONDON, E.C.

ST. PANCRAS IRON WORKS,

OLD ST. PANCRAS ROAD, N.W.

IRON HURDLES, FENCING, and GATES.

The PROPRIETORS of the ST. PANCRAS IRON WORKS, OLD ST. PANCRAS ROAD, LONDON,

WERE AWARDED THE

SILVER MEDAL of the ROYAL AGRICULTURAL SOCIETY for their IRON HURDLES and GATES, which, by their peculiar construction, are more than twice as strong and durable as those in ordinary use.

Lists per post on application. Gates from 30*s.* to 500*l.*

The Hurdles can be seen in process of Manufacture at the Works.

GAME WIRE NETTING.

PROFESSOR VARNELL'S ENAMELLED and WROUGHT-IRON STABLE FITTINGS.

These Patent Mangers and Stable Fittings obtained the Commendation and the Silver Medal of the Royal Agricultural Society of England and the Royal Agricultural Society of Ireland, are adopted by the Royal Veterinary College, and Professor Spooner of that Institution states that they should be used by all who value the health and comfort of their Horses. They can be had Plain, Galvanised, or Enamelled.

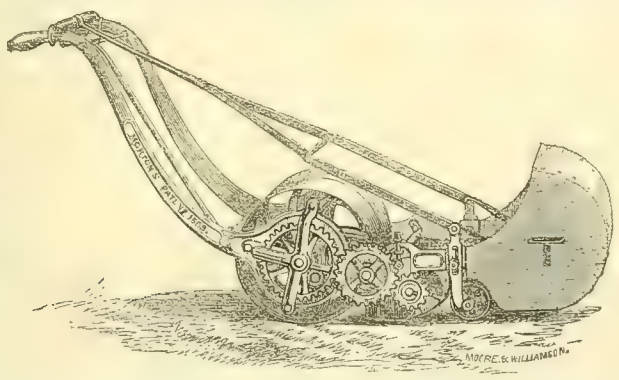
A Show Room is devoted entirely to every description of Stable Furniture, and full-sized Stalls and Loose Boxes are erected for inspection at St. Pancras Iron Works.

ADDRESS—THE MANAGERS, ST. PANCRAS IRON WORKS,

OLD ST. PANCRAS ROAD, LONDON, N.W., OPPOSITE OLD ST. PANCRAS CHURCH.

MORTON'S

PATENT NOISELESS LAWN MOWER.



This Machine Rolls, Collects, and Delivers the Grass, and Combines all the most recent Improvements, including those secured by her Majesty's Royal Letters Patent for 1863. For efficiency and simplicity it cannot be surpassed, and can be worked by any one unskilled in Machinery. It is superior to all other Machines yet introduced to the notice of the Public for keeping Lawns and Pleasure Grounds in the highest state of perfection, and is likely to be the Leading Machine of the Season. No place, however small, should be without one.

Catalogues, with Prices, can be obtained free on application to

GRIMMOND, LAIRD, AND CO., 15, CANNON STREET WEST, E.C.

*** *Agents Wanted in every Town. Apply as above.*

Lawn Mowing Machines, with Recent Improvements.

MAPPLEBECK AND LOWE, MACHINISTS and MANUFACTURERS, Birmingham.

Drawings and Prices on application.



GARDEN BORDER-EDGING TILES. — These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

To be obtained at F. & G. ROSHER'S Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

THE RAIN and the COLD.—Every Change in the Weather foretold, and FARMING and GARDENING operations greatly assisted, by the use of L. CASELLA'S POPULAR INSTRUMENTS for the WEATHER. Reliable Thermometer for Registering Cold, 4*s.* 6*d.*; the Gardener's Barometer, 12*s.* 6*d.* to 25*s.*; Rain Gauge, 15*s.* 6*d.*

The New ILLUSTRATED LIST of PRICES free by post.

L. CASELLA, Sole Medalist of the Patent Thermometer for Registering Cold, and Maker to the Admiralty, the Ordnance, &c., 23, Hatton Garden, London, E.C.

AGRICULTURAL and HORTICULTURAL TOOLS.—Threshing Machines for Steam and Horse Power, Ploughs, Waggons, Carts, Turnip Cutters, Cake Breakers, Chaff Cutters, &c. Price List free. Illustrated Catalogues on receipt of six postage stamps.

BURGESS & KEY, 95, Newgate Street, E.C.
Works: Brentwood, Essex.

Carhead Pigs.

MR. WAINMAN has several YOUNG BOARS and SOWS of his Battersea Prize Strains for SALE, at moderate prices.

Apply to Mr. FISHER, Carhead Farm, Cross Hills, Yorkshire.

FARM WANTED, from 100 to 150 acres; Arable and Pasture, good Land, and within 30 miles of London. S. M'R., *Gardeners' Chronicle* Office, W.C.

TO BE DISPOSED OF, an Old Established NURSERY and SEED BUSINESS, of moderate size, in an excellent locality, adjoining a large important Town, close to a first-class Railway Station, with Vinery, Greenhouses, and Pits conveniently arranged, and well supplied with Water. May be taken to by valuation or private treaty.

Address L. H. M., Messrs. Hurst & Son, Seedsmen, 6, Leadenhall Street, London, E.C.

TO BE LET, in the County of Pembroke, LLANGWARREN FARM, consisting of 473 Acres, more than half of which is Pasture.

For particulars, apply to J. B. LAWES, 1, Adelaide Place, London Bridge.

Guildford, Surrey.

To NURSERYMEN, FLORISTS, SEEDSMEN, MARKET GARDENERS, &c.

TO BE LET, with Immediate Possession, all that truly valuable old-established NURSERY GARDEN and SEED BUSINESS, known as the Guildford Nursery Grounds, in a good state of cultivation, close to the entrance of the town; has been in the same name upwards of 50 years. This opportunity is worthy the attention of those seeking a profitable and increasing business, being the only Nursery near this improving neighbourhood. The present Stock is small and saleable.

Inquire of Mr. DRURY, Guildford, Surrey.

To Nurserymen, Gardeners, and Others.

TO BE DISPOSED OF, by Private Treaty, and with early possession (in consequence of the failing health of the present Proprietor), an OLD ESTABLISHED NURSERY, with Hot and Greenhouses, doing a good business, in an excellent situation, and within a few miles of Liverpool. The whole to be taken at a valuation.

For particulars, apply by letter, post paid, to M. S., Wren & Sons, Tea and Coffee Merchants, Temple Court, Liverpool.

Sales by Auction.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on FRIDAY, March 13, at half-past 12 o'Clock precisely, Choice CAMELLIAS, BEGONIAS, LILIES, RHODODENDRONS, Azaleas, Cannas, Delphiniums, Piceas, Pæonias, and other Greenhouse and Hardy Plants.

On view the Morning of Sale, and Catalogues had.

Forthcoming Sales.

MR. J. C. STEVENS begs to announce that he has received instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on

Thursday, March 12.—Philosophical Instruments, Photographs, Lathes, &c.
Friday, March 13.—Consignment of Plants from Ghent, Camellias, &c.
Saturday, March 14.—Hardy and Ornamental Plants, Roses, Conifers, &c.
Monday, March 16.—Bird Skins, Horns, and other Natural History objects, &c.
Tuesday, March 17.—Poultry, Pigeons, and Fancy Birds.
Wednesday, March 18.—Pinks, Carnations, Bulbs, Conifers, Fruit Trees, &c.
Thursday, March 19.—Seeds and Cones from Vancouver's Island.
Friday, March 20.—Photographic Apparatus, Air Pumps, Telescopes, &c.
Saturday, March 21.—Garden Stands and Baskets, Roses, Bulbs, Conifers, &c.
Monday, March 23.—Insects, the property of the late J. Walton, Esq, F.L.S.
Tuesday, March 24.—Insects, &c., several private Collections.
Wednesday, March 25, Hardy and Ornamental Plants, Bulbs, &c.
Friday, March 27.—Photographs, Philosophical Instruments, &c.
Saturday, March 28.—Conifers, Roses, Ornamental Shrubs, &c.
Tuesday, March 31.—Poultry, Pigeons, Fancy Birds.

Also in APRIL.

Several collections of Established Orchids.
An interesting collection of Torquoises from Arabia Petrea.
Importation of rare Araucarias from Sydney.
An important collection of British Birds' Eggs.
50,000 choice Bedding Plants, four entire Sales.
Hardy and Ornamental Plants, Bulbs, &c., two entire Sales.
500 lots of Poultry and Pigeons, two entire Sales.
A large collection of Bird and Animal skins. Horns, &c.
Library of Botanical Works, the property of a gentleman.
Library of Books of the late John Walton, Esq., F.L.S.
Several Importations of Orchids from India and other parts.
Valuable Collection of Skeletons of Birds and Animals.
Collection of Eggs and Bird Skins from Lapland.
Consignment of Roses, Fruit Trees, &c., from Holland.
Importation of Impeyan Pheasant Skins from India.

Catalogues of any of the above Sales will be forwarded on receipt of Two Stamps by Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Battersea.

To GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS ENGAGED IN PLANTING.

MESSRS. PROTHEROE AND MORRIS have received instructions from the Executors of the late Thomas Gaines, Deceased, to SELL by AUCTION on the Premises, Surrey Lane, Battersea, on MONDAY, March 9, 1863, at 11 o'Clock, the ground being required for building upon, the whole of the valuable NURSERY STOCK, consisting of a quantity of fine Evergreens and Deciduous Shrubs, comprising some handsome Variegated and Green Hollies, large Aucubas, Chinese Arbor-vitæ, 3 to 7; Irish and English Yews, Box, Privet, Laurels, Thuja sorts, fine Mulberries, choice Standard and Dwarf Roses, Dwarf-trained Peaches and Nectarines, Herbaceous Plants, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex, N.E.

N.B. The whole Collection of Choice Greenhouse Plants, Greenhouses, Pits, and other Effects, will be submitted to public competition the middle of next April.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, Bartholomew Lane, E.C., on FRIDAY, March 13, at 12 o'Clock, about 100 Choice DOUBLE CAMELLIAS, 1 to 6 feet, abundantly furnished with Bloom buds; fine AZALEA INDICA in flower; a superb assortment of about 300 handsome Standard, Half Standard, and Dwarf Roses; Selected Fruit and Ornamental Trees; a fine Collection of American Plants, Gladiolus Brenchleyensis and others; Lilium lancifolium, Ericas, Cinerarias, Fuchsias, Verbenas, Dahlias in dry roots, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers, American Nurseries, Leytonstone, Essex, N.E.

Babraham, near Cambridge.

EXTENSIVE AND MOST IMPORTANT SALE OF THE ENTIRE HERD OF FIRST-CLASS SHORTHORNED CATTLE.

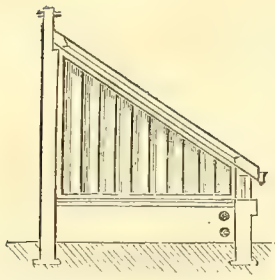
MESSRS. H. STRAFFORD AND J. CARTER JONAS, who are jointly concerned on this occasion, are honoured with instructions from the Executors of the late Mr. Jonas Webb to offer for SALE by AUCTION, without any reserve, the far-famed BABRAHAM HERD of First-class SHORTHORNS, consisting of about 150 head of Bulls, Cows, and Heifers, which are chiefly descended from the following celebrated Cows: "Celia," "Dodona," "Belinda," "Bodice," "The Beauty," and "Daffy Gwynne," which on reference to the Herd Book will show a fine combination of good blood, and a marvellous illustration of the prolific character of the two former tribes in the hands of the late Proprietor for the last 20 years, during which time has been used some of the best blood of the day. The Herd will be divided in two portions, the first of which will be offered on WEDNESDAY, April 15, and the remainder on WEDNESDAY, the 15th July next.

The Auctioneers beg to call attention to the high honour gained by this Herd in winning the Gold Medal for the best Shorthorn exhibited at the recent Battersea Show, and to assure Breeders and Buyers of Shorthorns, that their instructions from the Executors are most positive, and that the whole will be sold without the slightest reserve.

Catalogues, with Pedigrees, and other particulars, may be had on application to Mr. J. CARTER JONAS, Land Agent, Cambridge; or of Mr. STRAFFORD, 13, Euston Square, London, N.W.

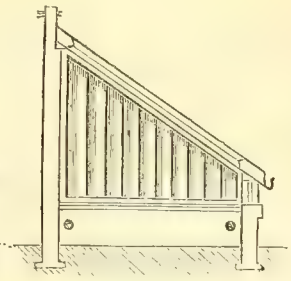
J. JONES'S HOT-WATER APPARATUS.

No. 7.



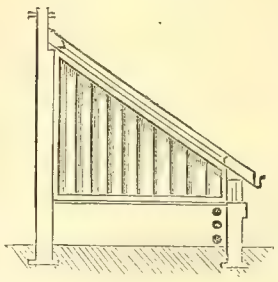
Size of House.	Price
20 by 10 feet	£9 0 0
30 „ 12 „	12 0 0
40 „ 15 „	15 0 0
50 „ 15 „	18 0 0
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90 „ 15 „	26 0 0

No. 8.



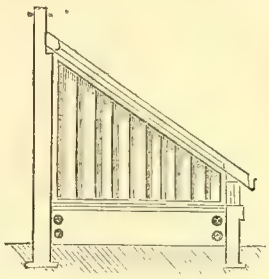
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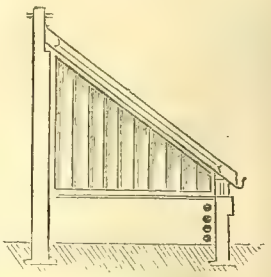
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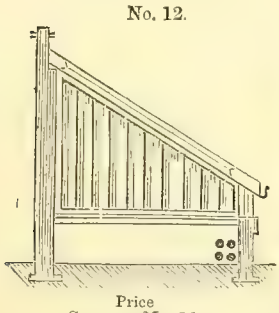
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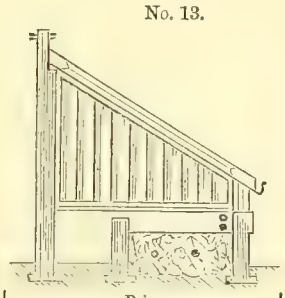
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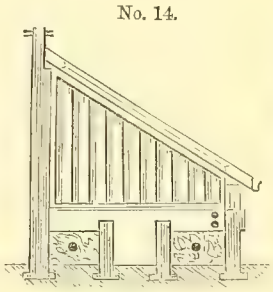
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No. 13.



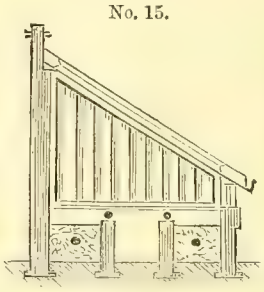
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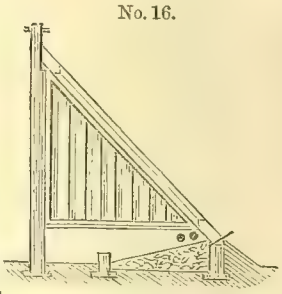
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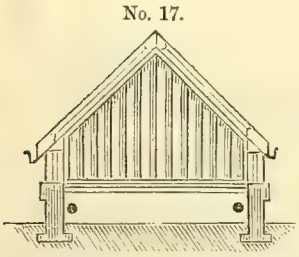
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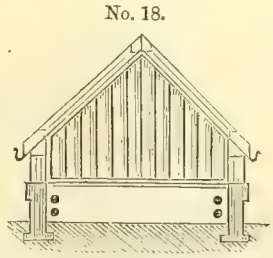
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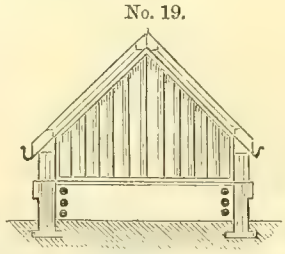
Size of House.	Price
20 by 10 feet	£9 0 0
30 „ 12 „	12 0 0
40 „ 15 „	15 0 0
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No. 18.



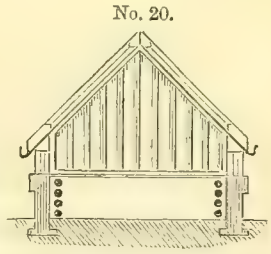
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No. 19.



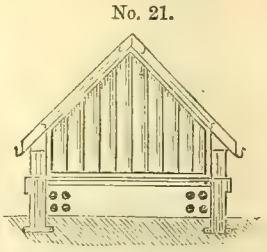
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54 0 0

No. 20.



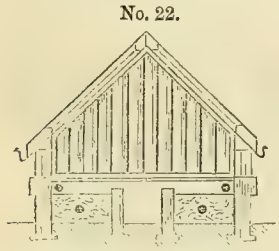
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42 10 0
49 0 0
56 0 0
63 0 0
70 0 0

No. 21.



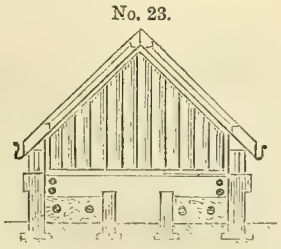
Price
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36 10 0
42 10 0
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No. 22.



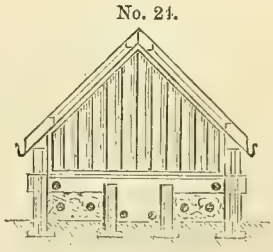
Size of House.	Price
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60 „ 15 „	33 0 0
70 „ 15 „	37 0 0
80 „ 15 „	41 0 0
100 „ 15 „	45 0 0

No. 23.



Price
£25 0 0
32 0 0
38 10 0
44 10 0
51 10 0
58 0 0
65 0 0
72 0 0

No. 24.



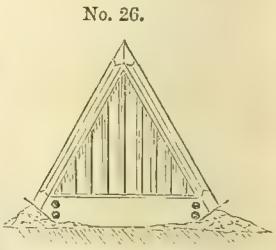
Price
£25 0 0
32 0 0
38 10 0
44 10 0
51 10 0
58 0 0
65 0 0
72 0 0

No. 25.



Price
£18 10 0
25 0 0
30 0 0
35 0 0
40 0 0
45 0 0
50 0 0
55 0 0

No. 26.



Price
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

J. JONES will be happy to supply HOT-WATER APPARATUS for HOUSES according to any of the above Plans, delivered Free to any Station in England at the prices named, which include strong CAST-IRON CYLINDER or SADDLE BOILER, FURNACE DOORS, FIRE BARS, SOOT DOORS, CISTERN and DAMPER, 4-inch HOT-WATER PIPES and CONNECTIONS, all of the best quality; or he will forward ESTIMATES for WORK erected complete, with WROUGHT or CAST-IRON BOILER of any sort, at a small addition to the above prices.

☞ *The Black Circles on Sections of Houses show the arrangement of Pipes.*

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 11.—1863.] SATURDAY, MARCH 14. {Price Fivepence. {Stamped Edition, 6*d*.

INDEX.

American blight..... 248 *c*
Artificial manures..... 253 *b*
Asparagus culture..... 248 *a*
Aucubas, fruiting of....244 *b*—246 *b*
Books, noticed..... 247 *c*
Bridal bouquet, Royal..... 248 *a*
Cedar of Lebanon, leafless .... 246 *b*
Cinchonas..... 245 *b*
Co-operative farming ..... 252 *b*
Crocus, Le Majestueux ..... 248 *c*
Dipsads..... 246 *b*
Farm Memoranda..... 254 *b*
Farmers' Club, Kingscote .... 253 *b*
Fruit forcing ..... 248 *c*
Generation, spontaneous .... 246 *a*
Great steam plough trial .... 253 *a*
Lambing season ..... 250 *c*
Lammermuir sheep farm .... 251 *b*
Larch rot ..... 243 *c*
Manures, artificial..... 250 *a*
Milk..... 250 *a*
Mushroom growing ..... 248 *c*
Neill prize..... 247 *b*
On breeding sheep..... 252 *c*
Peru, plants of ..... 245 *b*
Phalænopsis Schilleriana .... 246 *b*
Raspberries, seedling ..... 244 *b*
Royal wedding day ..... 246 *b*
Seeds, choice of..... 251 *c*
Sheep farm, Lammermuir .... 251 *b*
Society, Linnean..... 246 *b*
— Bot. of Edinburgh .... 247 *a*
— Royal of ditto ..... 247 *b*
Steam cultivator, Smith's.... 249 *c*
Strawberry plants..... 245 *c*
Violets Neapolitan ..... 247 *c*
Warburton Park ..... 254 *b*
Woods and forests..... 243 *c*

ROYAL HORTICULTURAL SOCIETY'S CAMELLIA SHOW at South Kensington on WEDNESDAY NEXT. Open at 1 o'Clock. Band at 2. Admission, 2*s*. 6*d*.
The Exhibition Building will be open to the visitors, and an Organ performance will be given.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.
The next MEETING of this Committee for the Exhibition of NEW PLANTS and SEEDLINGS will be held in conjunction with the Show of Spring Flowers, which will take place in the Gardens of the Society on March 18. The subjects exhibited must be at the Gardens by 8.30 A.M., in accordance with the regulations for the Show, but may be entered without previous notice. All persons are at liberty to exhibit.
THOMAS MOORE, Secretary to the Floral Committee.

ROYAL BOTANIC SOCIETY,
REGENT'S PARK.
The FIRST EXHIBITION of SPRING FLOWERS, CAMELLIAS, PRIMROSES, &c., will take place on SATURDAY, March 28.
Tickets are now being issued, and can be obtained at the Gardens by orders from Fellows and Members of the Society, price 2*s*. 6*d*. each; or in packets of 10 for 1*l*. per packet. The Gates open at 2 o'clock.
The Band will play from half-past 2 to half-past 5 o'clock.

ROYAL BOTANIC SOCIETY,
REGENT'S PARK.
EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, May 13, June 3, and 24.
AMERICAN PLANTS, MONDAY, June 8.
Tickets are now being issued, and can be obtained at the Gardens by orders from Fellows of the Society. Price on or before May 2, 4*s*.; after that day, 5*s*.; or on the days of Exhibition, 7*s*. 6*d*. each.

To Floral Societies.—Notice.
MESSRS. J. DOBSON AND SONS having retired from Exhibiting for Prizes during 1863, beg to state that Mr. DOBSON, Sen., is open to accept engagements as JUDGE during the season.
Woodlands Nursery, Isleworth, W.

Grape Vines.
J. IVERY AND SON beg to inform their Patrons that their stock of the above is unusually fine this season. A PRICED LIST now ready.
Dorking Nursery.

Pine Plants.
TO BE DISPOSED OF, by a gentleman leaving for town and giving up his House, &c., about 100 good healthy PINE PLANTS, this and last year's growth.
Apply by letter to MR. F. STEAD, 23, Jarratt Street, Hull.

FIGS, in Pots.—Nice strong Plants of all the best varieties by the dozen.
Apply to H. LANE & SON, Nurseries, Berkhampstead.

Strawberry Plants.
CUTHILL'S SIX SORTS, all at 5*s*. per 100; Selected, 7*s*. 6*d*. CUCUMBER and MELON, 1*s*. per packet. Best MUSHROOM SPAWN, 5*s*. per bushel.
JAMES CUTHILL, F.R.H.S., Camberwell, London, S.

STRAWBERRIES.—A New DESCRIPTIVE CATALOGUE of more than 200 varieties of Strawberries, from good plants, of nearly every variety, can now be supplied by the Grower,
W. J. NICHOLSON, Egglescliffe, Yarm, Yorkshire.

WEBB'S PRIZE COB FILBERTS, and other COB NUTS as exhibited at the INTERNATIONAL FRUIT and FLOWER SHOW, Kensington. Trees of these splendid varieties of Filberts may be had by application to
RICHARD WEBB, Calcot Gardens, Reading.

PHALÆNOPSIS AMABILIS, GRANDIFLORA, ROSEA, and SCHILLERIANA.
Strong flowering plants of the above may be obtained of R. WARNER, Broomfield, Essex.
Prices on application.

Notice.
PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS.
For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

MR. JOHN HUDSON, of Castle Acre, Norfolk, is now Thrashing his GOLDEN MELON BARLEY for SEED, which he can supply in quantities of Five Quarters and upwards, at 50*s*. per qr., including new sack.
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Covent Garden Market, London, W.C.

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Royal Berkshire Seed Establishment, Reading.

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SEED MERCHANTS,
12, King Street, Covent Garden, W.C.

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SEED GROWERS and MERCHANTS,
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CATALOGUES sent on application.

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SUTTON & SONS, Reading, Berks.

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TROPÆOLUM LOBBIANUM ELEGANS (Crystal Palace Scarlet). Seed scarce.
Per packet, 1*s*. and 2*s*. 6*d*.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market.

New Garden Seeds of our own Growth.
JAMES CARTER AND CO. are now prepared to execute orders for the above, saved at their Seed Farms.
237, 238, & 261, High Holborn, W.C.

CARTER'S SELECT LIST of New and Choice VEGETABLE, FLOWER SEEDS and PLANTS is now published, gratis and post free.
237, 238, & 261, High Holborn, London, W.C.

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JAMES CARTER & CO., 238, High Holborn.

Choice Kitchen Garden Seeds.
B. S. WILLIAMS'S Advertisement on last page of *Gardeners' Chronicle*, Jan. 31.
Paradise and Victoria Nurseries, Holloway, London, N.
*** PRICED and DESCRIPTIVE CATALOGUE post free on application.

Pine Apple Place, Edgware Road, London, W.
ARTHUR HENDERSON AND CO. beg to announce that their CATALOGUE of NEW and CHOICE FLOWER SEEDS, containing all the Novelties up to the present time, is now ready, and will be forwarded Free on application.

J. IVERY AND SON beg to announce that their new PRICED and partially DESCRIPTIVE CATALOGUE of HARDY BRITISH FERNS is now ready, and will be forwarded on application.
Dorking Nursery.

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CHARLES TURNER'S DESCRIPTIVE CATALOGUE, of the best Varieties only, is now ready. It also contains several Novelties.
The Royal Nurseries, Slough.

SCOTCH FIR.—Splendid bushy well rooted stuff, 2 feet high. Price on application at
H. LANE & SON, Nurseries, Berkhampstead.

Narrow-leaved English Elms.
WOOD AND INGRAM beg to offer to the Trade extra fine Seedlings of the above, at 5*s*. per 1000.
Huntingdon Nurseries.

W. VIRGO AND CO. have a few thousands of BERBERIS AQUIFOLIA and DULCIS, EVERGREEN PRIVET, and COMMON LAUREL, fit for cover planting. Price and samples on application at the Nursery.
Wonersh Nursery, near Guildford, Surrey.

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Royal Berks Seed Establishment, Reading.

New Roses, 1863.
MESSRS. VEITCH AND SON can supply strong healthy plants of the most approved kinds.
PRICED CATALOGUE free on application.
Nursery, Exeter.

ALL the NEW ROSES of 1863.—In fine strong Plants now ready.
DESCRIPTIVE LISTS on application.
Woodlands Nursery, near Uckfield, Sussex.

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BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.
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To the Trade.
ROSES, Dwarf-worked, very strong; ditto on own roots of all the best and newest varieties.
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EDWIN HOLLAMBY begs to announce that he has still a fine stock of STANDARD and DWARF ROSES of most of the leading kinds, in very fine plants.
DESCRIPTIVE PRICED CATALOGUE free on application.
Nursery and Seed Establishment, Tunbridge Wells, Kent.

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"Old" Cheshunt Nurseries, Herts.

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POLYANTHUS SEED from the best Laced Florists' Flowers, in packets, sent free on receipt of 13 postage stamps.
JAMES WOODS, Florist, Harwich, Essex.

DOUBLE DWARF POPPIES.—The most beautiful Stock in cultivation. Colours varied and brilliant; flowers as double as a Hollyhock. Seed 1*s*. per packet, Post free. To the Trade, 3*s*. 6*d*. per ounce.
HOOPER & Co., Seedsmen, Covent Garden Market, London, W.C.

DANVERS'S new YELLOW ONION (true).—The Subscribers offer the above to the Trade.
NUTTING & SONS, Seedsmen, 60, Barbican, E.C.

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SUTTON AND SONS have a superior stock of MUSHROOM SPAWN, 5*s*. per bushel.
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Potatoes for Planting.
SUTTON'S DESCRIPTIVE LIST, Post Free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

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For price and all particulars, see WHEELER'S "Little Book."

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B. S. WILLIAMS,
Paradise and Victoria Nurseries, Holloway, London, N.

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No. 1 Peas and Yellow Globe Mangel.
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Huntingdon Nurseries.

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A COLLECTION of the best 50 sorts known .. 10*s.* 6*d.*
A COLLECTION of the best 36 sorts known .. 7 6
A COLLECTION of the best 24 sorts known .. 5 0
SUTTON'S CATALOGUE of SEEDS will be sent post free.
SUTTON & SONS, Seed Growers, Reading, Berks.

CHOICE HARDY FLOWER SEEDS, of showy colours, and best sorts only, with Cultural Directions :—
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A Selection of the best 24 sorts, 2*s.* 6*d.* ; ,, 3*s.* 6*d.*
A Selection of the best 36 sorts, 3*s.* 6*d.* ; ,, 5*s.* 0*s.*
A Selection of the best 50 sorts, 5*s.* ; ,, 7*s.* 6*d.*
A Selection of the best 12 half-hardy sorts, 2*s.* 6*d.* and 5*s.*
A List of other Collections sent free by post.
J. SCOTT, Merriott, Somerset.
The BEDDING CATALOGUE and FLOWER GARDEN DIRECTORY will be ready in April, price 6*d.*

Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER'S CATALOGUE of the above popular plants, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants.
It describes faithfully the colours of all the Rhododendrons, thereby rendering every facility for making selections.
It likewise contains an abridged List of really Hardy Conifers, with their heights and prices.
The American Nursery, Bagshot, Surrey.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application ; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.
The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

Genuine Seeds.—Carriage Free.

WM. CUTBUSH AND SON beg to intimate that they are now prepared to execute orders for GENUINE GARDEN SEEDS, for which their house is extensively known.
Mr. C. gives his personal attention to this branch of our business, and we can confidently recommend all offered as being of the best quality, at as moderate prices as consistent.
CATALOGUES free on application.
Highgate, London, N.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

50 in 25 extra choice varieties	..	..	£2 2*s.* 0*d.*
25 in 25	,,	,,	.. .. 1 5 0
12 in 12	,,	,,	.. .. 0 12 0
50 in 50 choice varieties	..	..	.. 2 12 6
50 in 25 ,,	,,	..	.. .. 1 5 6
25 in 25 ,,	,,	..	.. .. 0 13 6
12 in 12 ,,	,,	..	.. .. 0 5 0

Extra fine mixed, 2*s.* 6*d.* per doz., 17*s.* 6*d.* per 100.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, W.C.

RUSSELL'S PYRAMID PRIMULAS.—Seed of this unequalled strain is now ready, in packets, price 2*s.* 6*d.*
The great satisfaction which these kinds have given in previous seasons, renders further comment on their merits unnecessary. The additional care taken however in saving the seed last year will probably result in producing flowers much superior to any ever seen.
Printed notes on raising them and their culture, forwarded with each packet ; payment can be made in postage stamps.
GEORGE CLARKE, Nursery, Streatham Place, Brixton Hill, London, S. ; and 4, Windsor Terrace, Pimlico, S.W.

New Verbenas and Fuchsias. Double and Single Petunias of 1862.

WM. KNIGHT offers strong well-established Plants of all the best varieties of the above for Bedding or Exhibition, having been one of the most successful exhibitors of the above. Nothing but first-rate proved flowers in their classes are offered. VERBENAS, 5*s.* per doz. ; FUCHSIAS, 6*s.* per doz. ; PETUNIAS, 6*s.* per doz.
Floral Nursery, Hailsham, near Hurst Green, Sussex.

Rhododendron, Countess of Haddington.

First-Class Certificates at Royal Horticultural Society's Exhibition, March 19, 1862 ; Royal Botanical Society's Exhibition, April 2, 1862 ; and Edinburgh Horticultural Society's Exhibition, March 19, 1861.
ROBERT PARKER begs to announce that this beautiful variety will be distributed in August next ; price of Plants, 21*s.* each. Orders are now being booked, and will be executed in rotation. The Stock being limited early orders are solicited. A Plant was exhibited at the Royal Horticultural Society's Exhibition, Feb. 25, 1863, of which notice can be seen in reports of Show in *Gardeners' Chronicle* of Feb. 28, and *Journal of Horticulture* of March 3. Other Plants will be exhibited at the coming Spring Exhibitions.
*** The usual discount to the Trade.
Exotic Nursery, Tooting, S.

JOSEPH FRYER, Clarendon Nurseries, Camberwell, S., has a large Stock of the undermentioned, which he can supply cheap :—Limes, Poplars, Laburnums, Scarlet Thorns, Lilacs, Guelder Roses, Yellow Broom, Althæa frutex, Weigelas, Aucubas, Andromedas, Vacciniums, Salisburias, Ivies, Clematis, Glycine, Pyrus japonica, Menispermum, Periploca, Euonymus japonicus and variegatus ; fine Dwarf-trained Apples, Pears and Plums ; fine Standard-trained Pears, and Plums ; fine Grape Vines, from layers ; Figs, Gooseberries and Currants, a large stock of Herbaceous and Alpine Plants, Ferns and Lycopods, &c. ; likewise all sorts of Peat Mould, Loam, Manure, Gravel, Silver Sand, Turf, Grotto Material, &c.

The Nurseries, Ghent (Belgium).

JEAN VERSCHAFFELT begs to offer the following interesting Novelties at moderate prices, as marked, viz.—
RHODODENDRON JEAN VERSCHAFFELT, the finest hardy variety known. Strong plants, 10*s.* each.
RHODODENDRON SOUVENIR DE JEAN BYLS (J. V.)—One of the most distinct hardy varieties lately sent out. Strong plants, 21*s.* each
CAMELLIA QUERCIFOLIA (the Oak-leaved Camellia).—Nice plants of this interesting novelty can still be supplied at 21*s.* each.
AZALEA INDICA, for late blooming.—J. V. begs to offer a few hundred very fine plants of Indian Azaleas for late flowering, well set with bloom buds, at 5*l.* per 100. The plants are very strong, and include only first-rate varieties.
Apply to JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent, Belgium.

Choice Seeds of Asters, Balsams, and Stocks,
OFFERED BY
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N.

	s.	*d.*
An Assortment of 12 varieties of TRUFFAUT'S PÆONY-FLOWERED ASTER, 100 seeds of each	2	0
An Assortment of four varieties of COCARDEAU or CROWN ASTER, 100 seeds of each	1	0
An Assortment of 12 varieties of CHRYSANTHEMUM-FLOWERED DWARF ASTER, 100 seeds of each ..	2	6
An Assortment of nine varieties of CAMELLIA-FLOWERED BALSAMS	2	6
An Assortment of 12 varieties of DOUBLE ROSE-FLOWERED BALSAMS	3	0
An Assortment of eight varieties of AUTUMNAL-FLOWERING STOCKS, 100 seeds of each	2	0
An Assortment of eight varieties of BROMPTON STOCKS, 100 seeds of each	1	6
An Assortment of 12 varieties of DWARF GERMAN TEN-WEEK STOCKS, 100 seeds of each	2	0
An Assortment of eight varieties of EMPEROR or PERPETUAL STOCKS, 100 seeds of each	2	0
An Assortment of six varieties of MINIATURE STOCKS, 100 seeds of each	1	6

A PRICED and DESCRIPTIVE CATALOGUE, post free to all applicants, containing useful suggestions for the guidance of amateur cultivators.

Seeds for the Flower Garden offered by
B. S. WILLIAMS.

	s.	*d.*
An Assortment of 12 Fine Selected Varieties of HARDY ANNUALS	1	6
An Assortment of 12 Fine Selected Varieties of HALF-HARDY ANNUALS	2	6
An Assortment of 12 Fine Selected Varieties of HARDY BIENNIALS and PERENNIALS, suitable for Rockwork	2	6
An Assortment of 12 Splendid Annual kinds of ORNAMENTAL GRASSES	2	0

Paradise and Victoria Nurseries, Holloway, London, N.

E. G. HENDERSON AND SON offer First-class quality of CINERARIA,
CALCEOLARIA, and PRIMULA SINENSIS FIMBRIATA, 1*s.* and 2*s.* 6*d.* per packet.
CINERARIA WEBBI.—The interest and value of this species consists in its having a shrub-like branched habit of growth, attaining from 3 to 4 feet in height. This remarkable plant is expected to originate a new and desirable class of varieties for exhibition purposes, in having already passed into all the colours found in florist varieties of the present time, and no doubt but higher improvements in form, and other essential properties, will be obtained in connection with its superior culture. It will be found well adapted for decorative purposes, by its taller growth, and longer continuance in bloom. 2*s.* 6*d.*
Wellington Nursery, St. John's Wood, London, N.W.

SEEDS.—GENUINE HOME-GROWN
VEGETABLE, FLOWER, AND AGRICULTURAL.

If above the value of 20*s.* Carriage paid to any Railway Station, and to all Irish and Welsh Ports in communication with Bristol.
CATALOGUES post free on application.
JAMES GARAWAY AND CO., DURDHAM DOWN NURSERIES, BRISTOL.

FARM AND GARDEN SEEDS
CARRIAGE FREE.

BANGHOLM SWEDE,
EAST LOTHIAN SWEDE,
WARD'S BEAUTY SWEDE,
DROPMORE SWEDE,
MARSHALL'S CHAMPION SWEDE,
GREEN-TOP SWEDE,
WHITE SWEDE,
IMPROVED SKIRVING'S SWEDE.
WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
OBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
PROVED YELLOW GLOBE DITTO,
MPROVED ORANGE GLOBE DITTO,



IMPROVED LONG RED MANGEL,
IMPROVED LONG YELLOW MANGEL
IMPROVED RED GLOBE MANGEL,
IMPROVED WHITE FIELD BEET,
RED CLOVER, | COWGRASS,
WHITE, YELLOW, and ALSIKE CLOVERS.
PACEY'S PERENNIAL RYE-GRASS, and other sorts.
ITALIAN RYE-GRASS, FOREIGN and ENGLISH SEED.
NATURAL GRASS SEEDS, in mixture or separate, suitable for various soils and localities.
LIGHT RYE-GRASS and other CHEAP GRASSES, for Sowing on Railway Banks and Waste Places.

Orders for Exportation promptly attended to.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN,
28, KING STREET, CHEAPSIDE, NEAR the GUILDHALL, and
15, LAWRENCE LANE, LONDON, E.C.

GARDEN SEEDS.

S. GLENDINNING & SONS,
NURSERYMEN AND SEEDSMEN
(SUCCESSORS TO THE LATE R. GLENDINNING),

Are now sending out their COLLECTIONS of KITCHEN GARDEN SEEDS.

No. 1 contains	**36 Quarts of PEAS, and all other Seeds in proportion**				**£5**	**5**	**0**
No. 2	,,	**28 Quarts**	**ditto**	**ditto**	**ditto**	**4**	**4**	**0**
No. 3	,,	**20 Quarts**	**ditto**	**ditto**	**ditto**	**3**	**3**	**0**
No. 4	,,	**12 Quarts**	**ditto**	**ditto**	**ditto**	**2**	**2**	**0**
No. 5	,,	**6 Quarts**	**ditto**	**ditto**	**ditto**	**1**	**1**	**0**

COLLECTIONS of FLOWER SEEDS.

No. 1, containing	**100 Large Packets of Best Hardy Annuals**				...	...	**£0**	**18**	**0**
No. 2,	,,	**50**	**ditto**	**ditto**	**ditto**	...	...	**0**	**9**	**6**
No. 3,	,,	**24**	**ditto**	**ditto**	**ditto**	...	...	**0**	**5**	**0**
No. 4,	,,	**25**	**ditto**	**Half-Hardy Annuals**		...	...	**0**	**7**	**6**
No. 5,	,,	**12**	**ditto**	**ditto**	**ditto**	...	...	**0**	**4**	**0**
No. 6,	,,	**25**	**ditto**	**Tender Annuals**		...	...	**0**	**12**	**6**
No. 7,	,,	**12**	**ditto**	**ditto**	**ditto**	...	...	**0**	**6**	**0**

The above Collections consist only of best and most useful varieties, and are of the finest quality.
S. G. & SONS' CATALOGUE of KITCHEN GARDEN, AGRICULTURAL, and FLOWER SEEDS, is now ready, and may be had on application.
CHISWICK NURSERY, LONDON, W.

Superb Hollyhocks.

R. B. BIRCHAM begs to state that he has a very large Stock of fine healthy Plants now ready for planting out, and shall be happy to supply orders upon the most liberal terms.

CATALOGUES sent upon application.

Hedenham Rosery, Bungay, Suffolk.

Superb Double Hollyhocks.

THIS BEING THE BEST TIME FOR PLANTING THEM OUT.

WILLIAM CHATER has an immense stock of healthy Plants.

CATALOGUE of PRICES to be had on application.

WILLIAM CHATER, Nurseries, Saffron Walden.

Select Double Hollyhocks.

WILLIAM PERRY begs to announce that he has for SALE a good and healthy stock of Young Plants of the above that will flower well this season. If selection is left to W. P., the price per dozen will be 9*s.*, 12*s.*, 18*s.*, 24*s.*, 30*s.*

Sawbridgeworth, Herts.

Major's Half-Shrubby Calceolaria Seed for 1863.

HENRY MAJOR is prepared to supply the above as usual, in packets at 2*s.* 6*d.* each, or 3 for 5*s.*, post free. The seed is very select, having been saved from large and strikingly beautiful flowers.

Postage stamps are requested in payment.

Knosthorpe, near Leeds, Yorks.

Choice Seedling Calceolarias.

CHARLES KIMBERLEY has a large stock of the above, all saved from impregnated flowers. The plants are strong, fit to pot into 5-inch pots. He begs to offer them at 4*s.* per dozen.

Stoke Nursery, near Coventry.

EDWIN HOLLAMBY begs to inform his Patrons and Friends that his DESCRIPTIVE PRICED CATALOGUE of VEGETABLE, FLOWER, AGRICULTURAL SEEDS, and GLADIOLUS is now ready, and may be had gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells, Kent.

New and Genuine Seeds.

GEORGE PARSONS, SEEDSMAN by Appointment to HER MAJESTY. A DESCRIPTIVE SELECT PRICED LIST, post free, on application.

27 and 28, Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

JUST ARRIVED, CAMELLIAS and AZALEAS, full of Flower Buds, 21*s.*, 24*s.*, and 30*s.* per dozen; ORANGE TREES with Fruit and Bloom, 2*s.* 6*d.* and 3*s.* 6*d.* each. British and Foreign FERNS, immense variety. FERN CASES and AQUARIUMS of every description.

R. GREEN, 154, Kingsland Road, N.E., and the Bedford Conservatories, Covent Garden Market, entrance Centre Avenue only.

The Flower of the Season.

DOBSON'S Splendid NEW PELARGONIUM, QUEEN of WHITES, acknowledged by the whole of the Floricultural Press to be the very best white flower raised. Strong plants now ready, 31*s.* 6*d.* each. Figured in the February Number of the "Floral Magazine."

Woodlands Nursery, Isleworth, W.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. Annual Sale exceeds 3000 packets. In sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each.

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE PRIMULA SINENSIS SEED In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth.

Flower Seeds sent Free by Post.

WOOD AND INGRAM beg to offer

				s.	*d.*
12 fine varieties of HARDY and HALF-HARDY ANNUALS for	..	..	..	1	8
24 ditto	ditto	ditto	..	2	10
36 ditto	ditto	ditto	..	4	0
48 ditto	ditto	ditto	..	5	0

Nurseries, Huntingdon.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS; ditto COWSLIP; Florist's Flower, POLYANTHUS, Roots or Seed; also SCARLET PRIMROSE—Double Crimson, Double Purple, Double White, Double Yellow, and Double Lilac ditto. COWSLIP from the Himalayas; DOUBLE POLYANTHUS; and other varieties, all of which may be had on application to

RICHARD WEBB, Calcot Gardens, Reading.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

WELLINGTONIA GIGANTEA.—The attention of the Nobility, Gentry, and the Trade, is invited to the largest stock of 1-year SEEDLING PLANTS in the Kingdom, established in single pots and fit for Spring planting. Price per dozen, 12*s.*; per 100 or 1000 on application. A Sample free by post for 12 stamps.

J. HENCHMAN, Edmonton, London.

AMARANTHUS MELANCHOLICUS (var. ruber).—Habit very compact, height 1 to 1½ feet, with striking blood-red foliage; a most valuable bedding plant for Flower Garden decoration, after the style of Perilla Nankinensis. Price per packet, 6*d.*, 1*s.*, and 2*s.* 6*d.* The Trade supplied.

E. P. DIXON & SONS, Seedsmen and Florists, 57, Queen Street, Hull.

Green Hollies.

CORNELIUS WHITEHOUSE, Brereton Nursery, Rugeley, Staffordshire, offers an immense stock of well-grown healthy extra Transplanted HOLLIES, exceedingly well-rooted, from 12 to 15, 15 to 18, 18 to 24, 24 to 30 inches. Also very handsome SPECIMEN PLANTS from 3 to 5 feet; also ENGLISH YEWS from 2 to 2½ feet, 2½ to 3 feet and upwards. The above growing on ground to be cleared for other stock, the price will be liberal. Trade price on application.

Choice Coniferæ, Tree and Shrub Seeds offered by CHARLWOOD AND CUMMINS.

For particulars see Advertisement in the *Gardeners' Chronicle*, February 21, page 170.

CATALOGUE forwarded on application.

14, Tavistock Row, Covent Garden, London, W.C.

Surplus Stock.

JOHN PALMER AND SON, NURSERYMEN, Annan, beg to inform their Friends and the Trade generally that they have several Millions of the following, of first-class quality:—

2 years SILVER FIR | 2 years NORWAY SPRUCE
3 years NORWAY SPRUCE.

The above will be sold Cheap. Prices and Samples, if required, on application.

Large Fruiting Mulberry Trees, and large Irish Ivies, 10 to 20 feet.

WM. DENNIS has still left a few fine Trees from 6 to 8 feet, clean stems, and fine heads; also smaller plants of different sizes, which he will dispose of a Bargain.

Fine LILACS, the best kind, to be sold cheap.

A few fine LIME TREES, GOOSEBERRIES and CURRANTS (in fruit-bearing condition), BOX TREES, &c. A quantity of Geraniums, Fuchsias, and other Greenhouse Stock; two or three Greenhouse Frames, &c. The whole to be disposed of cheap, as the ground must positively be cleared for immediate building.

King's Road, Chelsea, S.W.

GEORGE BAKER begs to offer the following, a selection from his extensive Stock:—

ARAUCARIA IMBRICATA, 3 feet, 6 feet, 9 feet, 14 feet.
ABIES DOUGLASII, 3 feet, 5 feet, 10 feet, 14 feet, 25 feet.
ARBOR-VITÆ (WAREANA), 3 feet, 6 feet, 8 feet.
CEDRUS DEODARA, 3 feet, 6 feet, 12 feet, 20 feet.
CUPRESSUS LAWSONIANA, 3 feet, 5 feet.
" DISTICHA, 3 feet, 8 feet, 12 feet.
CEDRUS LIBANI, 6 feet, 8 feet, 10 feet.
CHINESE JUNIPER, 3 feet, 5 feet, 6 feet.
IRISH YEW, 4 feet, 6 feet, 8 feet.
JUNIPERUS RECURVA, 8 feet.
PICEA CEPHALONICA, 3 feet, 4 feet, 11 feet.
PINUS CEMBRA, 3 feet, 5 feet, 7 feet.
" EXCELSA, 10 feet, 15 feet.
THUJA GIGANTEA, 4 feet, 5 feet, 6 feet.
THUJOPSIS BOREALIS, 1 foot, 2 feet.
PINUS AUSTRIACA, 3 feet, 4 feet.
" BENTHAMIANA, 3 feet, 4 feet.
WEYMOUTH PINE (fine), 1½ foot, 2 feet.
SPRUCE FIR, 1 foot, 2 feet.
AZALEAS (to name)
ANDROMEDAS (to name).
RHODODENDRONS (to name).
" STANDARDS (to name).
" KALMIA LATIFOLIA.
" " STANDARDS (very fine heads).

Prices free by Post, on application. Also G. B.'s GENERAL PRICED LIST is now ready.

American Nursery, near Bagshot, Surrey, about 1¼ mile from Sunningdale Station, S. W. R.

TO THE TRADE.—SPECIAL OFFER.

ABIES MENZIESII, 9 to 12 inches, 3*s.* per dozen; 20*s.* per 100.
18 to 24 inches, 6*s.* per dozen; 40*s.* per 100.
24 to 30 inches, 9*s.* per dozen; 60*s.* per 100.
PINUS INSIGNIS, 4 to 5 feet, 3*s.* 6*d.* each; 30*s.* per dozen.
5 to 6 feet, 5*s.* each; 42*s.* per dozen.
BERBERIS DARWINII, 6 to 9 in., 5*l.* per 1000, or 12*s.* 6*d.* p. 100.
9 to 12 ins, 3*s.* per doz.; 15*s.* per 100.
18 to 24 ins., 9*s.* per doz.; 60*s.* per 100.
CUPRESSUS LAWSONIANA, 2 to 3 feet, 200*s.* per 100.
3½ to 4½ feet 30*s.* per dozen.
4½ to 5 feet, 36*s.* per dozen.
5 to 6 feet, 5*s.* to 7*s.* 6*d.* each.
THUJA LOBBI, 18 to 24 in., 12*s.* per doz.; or 75*s.* per 100.
2 to 3 feet, 18*s.* per doz.; or 100*s.* per 100.
BLUSH CHINA ROSES, 25*s.* per 100.
RHODODENDRON PONTICUM, fine large bushy stuff, 1½ to 2½ feet, 40*s.* to 60*s.* per 100.
2 to 3 feet, 70*s.* per 100.
3 to 4 feet, 126*s.* per 100.
WELLINGTONIA GIGANTEA, 4½ to 5 feet, 42*s.* to 50*s.* each.
5 to 6 feet, 50*s.* to 63*s.* each.
6 to 7 feet, 63*s.* to 84*s.* each.
7 to 8 feet, 84*s.* to 105*s.* each.

The above are all fine healthy, well rooted stuff.

TRADE CATALOGUE of GENERAL NURSERY STOCK on application.

THOMAS CRIPPS, Nurseryman, Tunbridge Wells, Kent.

Excellence and Economy Combined.

SUTTON'S UNEQUALLED COLLECTIONS of KITCHEN GARDEN and FLOWER, &c. SEEDS.

SUTTON'S COLLECTIONS of GARDEN SEEDS will be found the most economical, as well as the best in quality of seeds, as see List of Contents, which may be had gratis and post free.

No. 1, £3; No. 2, £2; No. 3, £1; No. 4, 10*s.* 6*d.*

Royal Berkshire Seed Establishment, Reading.

THE NEW PARSNIP "STUDENT."—SEED of this improved PARSNIP, "ennobled" by Professor BUCKMAN, of the Royal Agricultural College, Cirencester, is now ready for delivery by Messrs. SUTTON & SONS, Post free, in packets, 6*d.*, 1*s.*, or 2*s.* 6*d.* each. Also Wholesale to the Trade.

It can also be obtained from any of the Seedsmen named in the List which appeared in *Gardeners' Chronicle* of January 31 and February 21.

Royal Berks Seed Establishment, Reading.

YOUELL'S NORFOLK HERO CUCUMBER.—Without exception the best Ridge Cucumber known. 6 Seeds, 1*s.*; 18 Seeds 2*s.*

LAING'S MAMMOTH CELERY.—The very best, hardiest, and finest flavoured Red Celery in cultivation. 1*s.* and 2*s.* per packet, on receipt of postage stamps.

See former advertisement.

YOUELL'S Royal Nurseries, Great Yarmouth.

NEW CUCUMBERS, at 1*s.* per packet.

Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

CARTER'S CHAMPION CUCUMBER recommended by the Royal Horticultural Society as being an excellent bearer. Fruit solid and firm, and the best of the Sion House class. 1*s.* per packet. A few ounces of our own saving to offer the Trade.

237, 238, & 261, High Holborn, London, W.C.

Seed Trade.

JAMES CARTER AND CO., Holborn, W.C., have a few lbs. of the following to offer to the Trade:—

MELVILLE'S GARNISHING KAIL,
VARIEGATED BEET, for garnishing,
SNOW'S WINTER BROCCOLI, true,
LITTLE PIXIE CABBAGE,
NEW FEATHER STEM SAVOY,
DANVER'S YELLOW ONION.
TOMATOE DE LAYE.
HENDERSON'S PINE-APPLE BEET.

Seeds for the Kitchen Garden, Flower Garden, and Farm.

JOHN CATTELL'S DESCRIPTIVE CATALOGUE of the above is now ready, and will be forwarded, post paid, on application; it contains select lists only, and includes every novelty worthy of cultivation.

All parcels of Seeds of the value of 21*s.* and upwards carriage paid to any Railway Station in England.

Nursery and Seed Establishment, Westerham, Kent.

Vegetable and Flower Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully announces that his SEED CATALOGUE is now ready, free by post.

The COLLECTION of VEGETABLES recently Commended by the Royal Horticultural Society was grown from Seeds furnished by him.

Nurseries and Seed Warehouse, Waltham Cross, N.

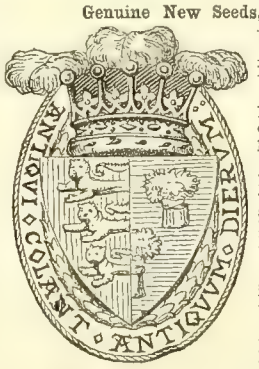
Vegetable, Flower, and Agricultural Seeds.

NEW AND RARE PLANTS, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing select descriptive and priced lists of AGRICULTURAL, KITCHEN GARDEN, Imported GERMAN, and other FLOWER SEEDS; NEW and RARE PLANTS; Variegated, Ornamental Foliaged; Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now published, and will be forwarded Post Free to all applicants.

Exotic Nursery, Tooting, Surrey, S.

Genuine New Seeds, Carriage Free.



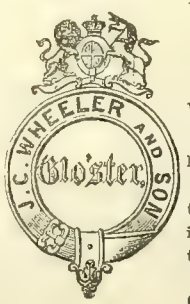
FRANCIS & ARTHUR DICKSON AND SONS, 106, Eastgate Street, Chester.

New VEGETABLE and FLOWER SEEDS of every description, of the finest possible quality.

Their DESCRIPTIVE PRICED CATALOGUE, containing many valuable New and Select Vegetable and Flower Seeds, will be sent Post Free on application.

Collections for Gardens of all Sizes are on the most liberal scale. See Catalogue.

☞ Vegetable Seeds of £2 value Carriage Free. All Flower Seeds Free by Post.



WHEELER'S LITTLE BOOK for 1863.

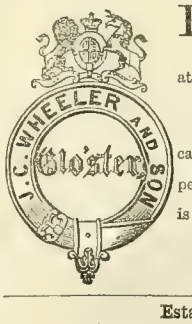
WHEELER'S TOM THUMB LETTUCE.

WHEELER'S IMPERIAL LETTUCE

The price of the Lettuce is 1*s.* per packet, post free.

J. C. WHEELER & SON beg to inform the Trade that their "Little Book" is entered at Stationers' Hall, and that they cannot allow it to be copied.

J. C. WHEELER & SON, Seed Growers, Gloucester.



FARM SEEDS of the finest quality, are offered at fair Market Value.

A LIST of PRICES at which they can be delivered arriage free, and 5 per cent. discount allowed for Cash, is contained in

WHEELER'S "LITTLE BOOK" for 1863.

Established 1787.

THOMAS KENNEDY AND CO., NURSERY AND SEED ESTABLISHMENT, Dumfries, N.B.

*** PRICED CATALOGUES sent free on application.

FREE DELIVERY.

FARM and GARDEN SEEDS under certain limitations will be DELIVERED FREE OF CARRIAGE to the chief Railway Stations in Great Britain and the principal Steam Ports in Ireland.

Cole's White Perfection Celery.

WM. COLE has much pleasure in offering again to his numerous customers the above, which has proved itself to be the best White Celery in cultivation. In sealed ½ oz packets, free by post, 1*s.* 6*d.* Price to the Trade upon application.

Nurseries, Withington, near Manchester.

KIMBERLEY'S SUPERB SOLID RED CELERY.—This is without exception the best Celery in cultivation. CHARLES KIMBERLEY has much pleasure in offering this superb Celery for the first time, although he has grown it for upwards of 20 years. Thousands of plants are annually sold in Coventry Market. The seed now offered is saved from bleached roots of 1862; ½ oz. packets free by post, 1*s.* 6*d.*

Stoke Nursery, near Coventry.

The King and Queen Potatoes.

SUTTON AND SONS have much confidence in recommending these two new sorts of POTATOES, as decidedly the finest and best in cultivation.

The following Prizes have been awarded to Mr. Spencer for these Potatoes:—

The Prize at the Crystal Palace, 1861.

Three Prizes at the International Show at the Royal Horticultural Society's Gardens, South Kensington, in October last.

The Prize at the Birmingham Cattle and Root Show, Bingley Hall, in December last; and upwards of 20 other Prizes in various parts of the kingdom.

To be had of Messrs. SUTTON & SONS, Reading. Price 5*s.* per Peck (of 14 lbs.)

The King of Potatoes.

JOS. H. ROBINSON, SEEDSMAN, Coventry, has a limited quantity of the above superior POTATO to offer at 2*s.* per peck, or 7*s.* per bushel. Also MYATT'S ASHLEAF, 2*s.* and 7*s.* EARLY LEMONS, the earliest and best Ashleaf out, 2*s.* and 6*s.* 6*d.* DALMAHOY SECOND EARLY, 1*s.* 3*d.* and 4*s.* FLUKES, 1*s.* 3*d.* and 4*s.*

The "King" may fairly be said to be the finest Potato in cultivation; gaining the First Prize at the Royal Horticultural Society's Show, and at Birmingham

POTATOES:—Ashleaf, Fortyfold, Shaw, Dalmahoy, Regent, Flukes, &c. STRAWBERRIES: Black Prince, Admiral Dundas, British Queen, Eleanor, Elton Pine, Wizard of the North, 10*s.* per 1000; Prince of Wales, Princess Royal, Eliza, Alice Maude, Oscar, Duc de Malakoff, 2*s.* per 100.

GEO. CORNWELL, Seedsman, &c., Barnet, Herts, N.

SEED POTATOES.—Splendid Stocks of Martin's Early Globe, Early Oxford, Early Fox's Seedling, Early Round Frame, Early Dalmahoy, Myatt's Prolific, and Jackson's Ash-leaved Kidney, Forty-fold, Fluke Kidney, and Flour-ball varieties at low prices.

H. & F. SHARPE, Wisbeach.

EXTRAORDINARY POTATOES.—A gentleman resident in the Country offers for SALE a few BUSHELS of SEED POTATOES of a new and most wonderful kind. For the table they are unsurpassed as to whiteness and delicacy of flavour, and their productiveness is almost incredible, even on indifferent soil; and further, the disease never attacks them.

For price, &c., address by letter to Z. Z., care of Editor, 162, Fleet Street, London, E.C. Early application is necessary.

GIANT ASPARAGUS ROOTS, 2*s.* 6*d.* per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see RICHARD SMITH'S SEED LIST for 1863.

Strong Transplanted SEA KALE, 2*s.* per doz.

RICHARD SMITH, Nurseryman, Worcester.

To the Seed Trade.

H. AND F. SHARPE have a Surplus Stock of true—

Early Long Pod Beans	Ne Plus Ultra Peas
Mackie's Monarch ditto	Laing's Imperial Swede Turnip
Broad Windsor ditto	Early Green Top Yellow ditto
Early Emperor Peas	Fine Red Surrey Carrot
Woodford's Green Marrow do.	Early Nonpareil Cabbage
Flack's Blue Imperial ditto	,, Emperor ditto
British Queen ditto	,, Enfield Market ditto

which they can offer at a low figure.

Seed-growing Establishment, Wisbeach.

To Seedsmen and Others.

THOMAS AYRES, SEEDSMAN and GROWER, Biggleswade, Beds, begs to offer the following SEEDS of his own growth of 1862, viz:—

WHITE SPANISH ONION SEED,
MANGEL WURZEL SEED, various kinds.
SWEDE, and COMMON TURNIP, ,,
SEED POTATOES of the following varieties:—EARLY ASH LEAF KIDNEY, MYATT'S PROLIFIC do., EARLY SHAW and REGENTS.
SCARLET RUNNER BEANS (English grown).

A PRICE LIST forwarded upon application.

Cabbage Plants.

W. VIRGO and SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 3*s.* 6*d.* per 1000:—

EARLY YORK CABBAGE	EARLY NONPAREIL
,, BATTERSEA	DRUMHEAD
,, BARNES	RED CABBAGE

5*s.* per 1000. All strong, healthy, and well rooted.

Wonersh Nursery, near Guildford, Surrey.

GOOD MANGEL WURZEL SEED which grows well.

RED GLOBE | YELLOW GLOBE | LONG RED
YELLOW OLIVE-SHAPED | LONG YELLOW.

6*d.* per lb., or cheaper by the cwt.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

NEW SUBSTITUTE for VETCHES. "SERADELLA."

See SUTTON'S SEED LIST, which may be had post free.

Royal Berkshire Seed Establishment, Reading.

Two Hundred and Fifty Guineas in Ten Prizes.



FOR FIVE YEARS SUCCESSIVELY HIS LATE ROYAL HIGHNESS THE PRINCE CONSORT'S PRIZE CUPS HAVE BEEN AWARDED TO

SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Bucks Agricultural Societies.

New Seed now ready, 1*s.* per lb., or 45*s.* per bushel, carriage free.

Royal Berkshire Seed Establishment, Reading.

NEW HARDY WHITE SWEDE.—The Favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills. Grows rather coarse on some soils or when sown early; but it is very productive, hardy, and it is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor land.

Seed 1*s.* per lb., or 42*s.* per bushel.

Supplied by RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Sutton's Improved Italian Rye-Grass.

SUTTON AND SONS have an excellent Stock of the above now ready.

Price 7*s.* per bushel, or cheaper in large quantities.

Royal Berks Seed Establishment, Reading.

Good Clover Seeds at Market Prices.

SUTTON AND SONS have now ready, at very moderate prices, fine new RED, WHITE, and ALSIKE CLOVER SEEDS. As also new Rye Grasses, Turnip, Mangel Wurzel, and other Agricultural Seeds, a Priced List of which may be had post free.

Address SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Lupine Seed for Field Culture.



SUTTON AND SONS, SEED GROWERS, Reading, can supply the proper kinds of LUPINE SEEDS for Field Culture, as recommended by Baron Herm Von Nathusiel, and Mr. Thos. Crisp, in the "Journal of the Royal Agricultural Society," No. XLIII.

Instructions on Cultivation sent with the Seed. PRICED LISTS post free.

Royal Berkshire Seed Establishment, Reading.

Clovers and Rye-Grass Seeds.



SUTTON AND SONS can supply the proper quantities of the best kinds of CLOVER and RYE-GRASS SEED, either Common or Italian Rye-Grass, at 16*s.* per acre; or Clovers without Rye-Grass at 14*s.* per acre.

The sorts of Clovers supplied by SUTTON & SONS are the Alsike, the Common Red, and the White Clover (14 lb. per acre).

The great produce of the above-named Mixture is shown by the following:—

From C. F. THRUSTON, Esq., *Talgarth, Machynlleth, July* 31.

"I cut a crop of Grass on June 2, which had been previously dressed with soot and guano. It was full ripe, and the Italian Rye-Grass was really 4 feet high, Clover in proport on. I am now (July 31) getting a second crop from it equally heavy."

In ordering it is only necessary to state that "Clovers and Italian Rye-Grass," or "Clovers and Common Rye-Grass," or "Clovers only," are required for so many acres, when the proper quantities will be sent.

Royal Berkshire Seed Establishment, Reading.

Grass Seeds for all Soils.



SUTTON AND SONS have one of the largest stocks in Europe of the PERMANENT NATURAL GRASS and CLOVER SEEDS, which they mix expressly to suit the soil for which they are required.

The following letter has been received, besides many others:—

From Professor LINDLEY, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

PRESENT PRICES ARE—	Per Acre. *s.*	*d.*
Best quality MIXTURES for Laying Down to PERMANENT PASTURE	30	0
Cheaper MIXTURES, omitting certain sorts 20*s.* to	26	0
Best quality ditto, for Three or Four Years' Lay ..	22	0
Ditto ditto, for One or Two Years' Lay 15*s.* to	18	6
CLOVERS and fine GRASSES for Renovating Old Pastures .. .. 6*s.* to	9	0
Finest LAWN GRASS SEEDS .. .. per bushel	18	0
PARK LAWN GRASS SEEDS .. .. ,,	16	0

The First Prize Medal was awarded to SUTTON & SONS for their Grass and Clover Seeds at the Great International Exhibition of Roots and Cereals at South Kensington in October last.

A Copy of Mr. MARTIN SUTTON'S "Essay on Pastures" is sent with each lot of Grass Seeds.

Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.

PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

CHEAP GRASS SEEDS for HILL SIDES and RAILWAY BANKS.—Rough Grasses, Sainfoin Siftings, &c., suitable for the above purpose, at 2*s.* per bushel and 3*d.* per lb.

Address, RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

GRASS SEEDS for LAYING DOWN LAND to PERMANENT PASTURE or MEADOW.

Having been amongst the very first in this country to recommend the use of the Natural Grasses in the formation of Permanent Pasture, and having over a long period of years given the subject a considerable share of attention, we, from the marked success which has attended their culture, feel quite warranted in recommending our carefully prepared Mixtures or Assortments, to the notice of those who purpose laying down land for a period of years. In choosing for these Mixtures, our aim is to imitate, as near as possible, the varieties composing the rich old pastures of Britain, and which it is obvious cannot be obtained by adopting the too common mode of sowing down with Ryegrass and Clover only, for although these yield heavily at first they are soon exhausted, and leave the land bare, to be filled up in course of time by an inferior herbage.

Parties ordering will please state the nature and extent of the land to be sown, and whether with or without a grain crop. When not instructed to the contrary, the Seeds will be sent out mixed and ready for the sower. The mixing being a most important operation, is much more perfectly done by our practised hands than it can be by those unaccustomed to it. After numerous carefully tested experiments, we find it the best plan to sow light and heavy seeds together.

When requested, we will be glad to furnish a list of the varieties and quantities suited to any given description of land. The Cost for a full Supply of Seeds will range from 25*s.* to 28*s.* per statute acre.

Carriage of Seeds paid to the principal Railway Stations throughout the kingdom.

W. DRUMMOND & SONS, Stirling.

*** PRICED CATALOGUES of all the leading descriptions of Seeds required for the Farm or Garden, may be had prepaid on application.

Agricultural Seeds.

JOHN GEORGE WAITE'S WHOLESALE AGRICULTURAL SEED CATALOGUE for Spring 1863, is now published, and will be forwarded on application.

Seed Establishment, 181, High Holborn, London, W.C.

Agricultural Seeds of First Quality.

COW CABBAGE, CARROTS, KOHL RABI, MANGEL WURZEL, RAPE, WHITE MUSTARD, TURNIPS, SWEDES, CLOVERS, RYE-GRASSES, GRASSES FOR PERMANENT PASTURE, FURZE OR GORSE, SERADELLA, &c., &c.

WM. WOOD AND SON beg to offer Seeds of the above, genuine and unadulterated, and will be happy to forward samples and prices (which are very moderate) on application.

DESCRIPTIVE PRICE LIST of AGRICULTURAL SEEDS now ready.

☞ Orders amounting to 10*s.* and upwards, sent carriage free.—See List.

Seed Warehouse, Maresfield, near Uckfield, Sussex.

N.B. Special quotations at reduced rates for large quantities.

International Exhibition. Prize Medals 1851 and 1862,

AWARDED FOR "EXCELLENT SEED CORN AND SEEDS," TO

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED MERCHANTS and GROWERS, Basingstoke, Andover; and 89, Seed Market, Mark Lane, London, E.C.

Samples of all kinds of AGRICULTURAL SEEDS and SEED CORN, sent post free on application.

To Agriculturists.

THE SUBSCRIBERS beg to call the attention of English Agriculturists to their large and carefully selected stock of BARLEY and OATS for SEED, comprising all the most approved varieties, and grown expressly for the Subscribers' trade by careful and well-known growers in the Lothians, Berwickshire, and Roxburghshire.

They will have pleasure in forwarding samples and prices on application.

They would also direct attention to their stock of SEED POTATOES of the various descriptions, carefully selected from the growing districts of Ireland and Scotland.

M'LEAN & HOPE, 1, King's Stables, Grassmarket, Edinburgh.

TRADE

HALLETT'S PEDIGREE. NURSERY WHEAT.

MARK.

"The best Spring Wheat known. Drill in February and March, six pecks per acre."

Produced (1862) 62 bushels per acre, weighing 64 lbs. a bush.

Price ONE GUINEA A BUSHEL, including bag sewed up and sealed, delivered at the Brighton Railway Station, with Printed Directions for Planting, on Receipt of Cheque or Post-office Order, which must in all cases accompany the Order. Less than One Bushel will not be supplied. Name of Station and Railway should accompany the Order.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

COCOA-NUT REFUSE, as used for FERNS, BEGONIAS, &c., so much admired in the International Exhibition, delivered in the City at 1*s.* 6*d.*, or within 2½ miles of Charing Cross, at 2*s.* per bag of 3 bushels. Ten bags or more on lower terms. Apply to the PATENT COCOA FIBRE COMPANY, Kingston-on-Thames, S.W.

Also for particulars of SHORT FIBRE for Orchids and Drainage in pots.

Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are the best and most economical of any, and are sold in every town in the kingdom; at DEANE'S, London Bridge; and E. WHITE & SON'S, 95, Cannon Street.

CAUTION.—Every Brush is stamped "J. BARSHAM'S Patent."

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.

Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.

Can be obtained through the principal Nurserymen and Seedsmen in England.

A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.

PAGE & TOOGOOD, Seed Merchants, Southampton.

ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and Destroying the Fly, 1*s.* 4*d.* per lb., over 10 lbs., 1*s.* 1*d.*

JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C. Post Office Orders payable Fleet Street.

To Florists and Nurserymen.

H. PERKINS calls the attention of the above to his large stock of Genuine TOBACCO PAPER and CLOTHS, at 10*d.* per lb., warranted free from adulteration, having taken every pains to secure the same.

Address, 16, Cambridge Circus, Hackney Road, London, N.E.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE Co., Limited.

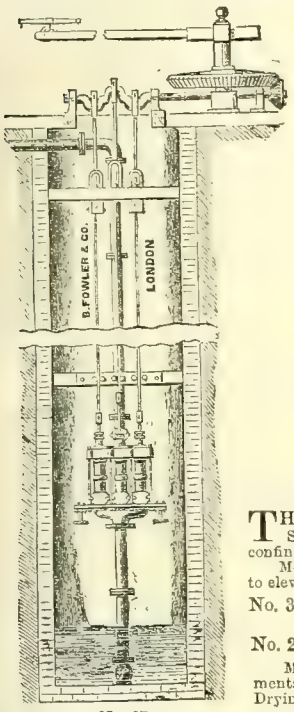
SAMUELSON & CO.'S PATENT LAWN MOWING MACHINES.

SAMUELSON & CO.'S IMPROVED GARDEN ENGINES, GARDEN ROLLERS, AND GARDEN SEATS.

CATALOGUES FREE, ON APPLICATION TO BRITANNIA WORKS, BANBURY, or to

SAMUELSON AND CO.'S LONDON WAREHOUSE, 76, CANNON STREET WEST, CITY,

WHERE SAMPLES MAY BE SEEN.



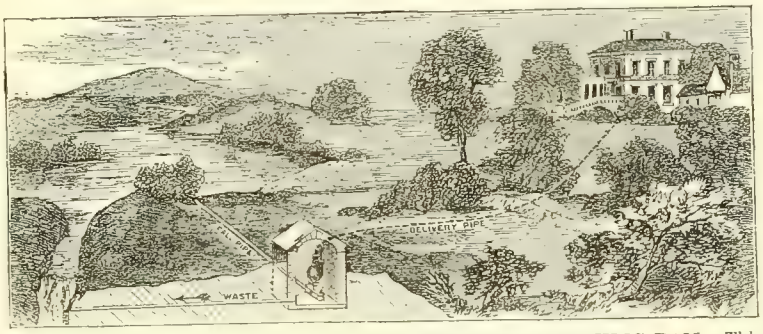
No. 37.

BENJAMIN FOWLER & CO.,

MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.



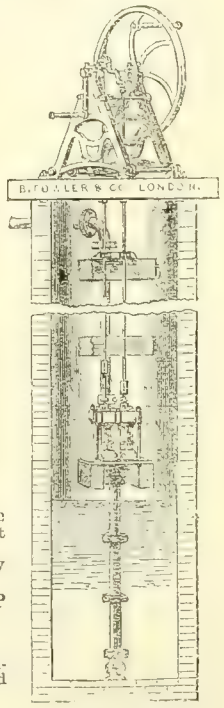
THE Landscape Sketch shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring. Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for raising water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c., free on application.



No. 28 *a*.

THE HYDROPULT,

THE HYDROPULT

IS INVALUABLE FOR

WATERING GARDENS,

EXTINGUISHING FIRE JUST COMMENCED,

PROTECTING a ROOF from FIRE,

CLEANSING TREES from INSECTS,

DRESSING with LIQUID MANURE,

SPRINKLING PLANTS,

WASHING WINDOWS,

WETTING SIDEWALKS,

SPRINKLING STREETS,

WASHING CARRIAGES,

WETTING SAILS,

A SPRAY BATH,

&c. &c.



Price Two Guineas.

CAUTION.—Unprincipled parties are now palming on the public an infringement of the Hydropult Patent. This is to notify, that said pirates and all persons using or vending this article will, in due time, be prosecuted. No machine contained in a bucket is the Hydropult. Every Hydropult has a Trade Label affixed, as follows:—

"The Hydropult, a Portable Fire Annihilator and Garden Engine.
"GRIFFITH & BROWETT, Manufacturers, Birmingham;
"CHARLES P. BUTTON, General Agent.
"VOSE'S Patent;"

and is sold at the uniform rate of Two Guineas, complete, with 2½ feet Suction and 3-feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Fire Jet.

It is an easy matter to imitate the Hydropult in appearance, and thereby deceive the public; therefore this caution.

The Hydropult WEIGHS BUT 8 LB.; will throw 7 or 8 Gallons of Water per minute 50 FEET when worked by the power of one man.

Has been recommended as an efficient FIRE ENGINE by the principal FIRE INSURANCE COMPANIES of GREAT BRITAIN. Thomas Rivers, Esq., the eminent Florist; Shirley Hibberd, Esq., and other well known gentlemen, recommend it as an invaluable GARDEN IMPLEMENT. J. Spencer, Esq., Inspector of the Royal Society for the Protection of Life from Fire, certifies to its efficiency in saving valuable Property in Bayswater from destruction. The City and Provincial Press accord to the invention the utmost praise. All who purchase the Hydropult are satisfied with its action; each Machine guaranteed to be perfect.

A PORTABLE GARDEN ENGINE, AND FIRE ANNIHILATOR.

Prospectus, with Testimonials, on application at either Office.

HYDROPULT OFFICE: 27, LEADENHALL STREET, LONDON, E.C.; and 309, REGENT STREET, POLYTECHNIC BUILDING, LONDON, W.—CHARLES P. BUTTON, PROPRIETOR.

GRAPES for COOL VINERIES.
BLACK HAMBRO' .. .. 3s. 6d. to 5s. 0d.
BUCKLAND SWEETWATER.. 5 0 to 7 6
MUSCAT HAMBRO' .. .. 5 0 to 7 6
We have to offer fine Canes of the above, and all other leading varieties.
PAUL & SON, "Old" Cheshunt Nurseries, Herts, N.

THE GREAT VINE at HAMPTON COURT.—The Subscribers being the holders of the Royal Kitchen Gardens, Hampton Court, are enabled to offer genuine the famous and truly excellent HAMPTON COURT BLACK HAMBURGH GRAPE.
Strong well-ripened plants in 9-inch pots, 42s. and 60s. p. doz.
If purchased in large numbers a considerable reduction will be made in price.
JACKSON & SON, Nurseries, Kingston, S.W

EXTRA STRONG FRUITING VINES.—All the leading varieties, from Eyes, with stout well ripened rods, for FRUITING in POTS this YEAR. Price, from 7s. 6d. each; smaller, for Planting-out, from 3s. 6d. each. A reduction in price will be made to large purchasers.
"We can especially recommend the above, our strong Vines having for some years given unqualified satisfaction."—*Vide* Leading Article in *Gardeners' Chronicle* for December 13, 1862, p. 1170.
JAMES DICKSON & SONS, The Newton Nurseries, Chester.

NEW PRIZE MELONS, at 1s. 6d. per packet.
Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria.
For descriptions see GUIDE to the KITCHEN GARDEN.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

NEW MELON, PRINCESS ALEXANDRA.—A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1s. per packet.
JAMES CARTER & Co., 237, 238, & 261, High Holborn, W.C.

POT VINES, BEARING FRUIT.—Fine plants of the leading kinds, each having at present 20 to 40 bunches of Fruit on them; suitable for growing in Pots or planting a fruitful Vinery at once, 7s. 6d. each. Smaller plants for Fruiting next season, 3s. 6d. to 5s.
PEACHES, NECTARINES, PLUMS, &c., in Pots, established with bloom buds, 5s. to 7s. 6d. each.
GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

Vines and Seakale.
GEORGE CLARKE has a good stock of short-jointed, well ripened, fruiting, and younger VINES of the principal kinds, from Eyes, price 3s. 6d. to 7s. 6d.
Also SEAKALE, clean and sound, very suitable for planting permanent beds, 5s. to 7s. 6d. per 100.
FORCING SEAKALE all Sold.
Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

New Roses of 1863.
J. AND J. FRASER'S DESCRIPTIVE LIST of the best varieties will be forwarded Post Free on application.
Strong healthy Plants are now ready.
A GENERAL CATALOGUE may be had on application.
Lea Bridge Road Nurseries, N.E.—March 14.

Roses for Forcing.
CHARLES NOBLE has a nice assortment, one-year, established in 32-pots, ready for Forcing. They are healthy vigorous plants, and cannot fail to give satisfaction. He has also a large stock of Dwarfs and Half-Standards suitable for planting in Roseries; they are offered very cheap.
Sunningdale Nursery, South-Western Railway.

DWARF HYBRID PERPETUAL ROSES, on the MANETTI STOCK; Carriage paid to London.—The Undersigned offer very fine and vigorous plants of the above. For a LIST of the more popular sorts, see *Gardeners' Chronicle* for December 6, 1862. Prices given for small and large numbers (per 1000 at a much reduced rate) and a DESCRIPTIVE CATALOGUE of ROSES sent on application to
THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

New Roses.
WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites attention to the following NEW ROSES, which will be ready for delivery very shortly.
LORD HERBERT, H.P.—Rosy carmine, the petals reflexing at the summits in the way of Beauty of Waltham, large, full, and finely formed, and altogether of first-rate excellence. 7s. 6d.
LORD MACAULAY, H.P.—Velvety crimson, in the way of General Jacqueminot, but brighter in colour, thicker in the petal, and more double. The flowers are of good average size, produced abundantly and in rapid succession; the habit is good, and foliage handsome. 7s. 6d.
MRS. WILLIAM PAUL, H.P.—Bright violet red, shaded with fiery red; flowers constantly, and in clusters, large and full. Raised by M. Verdier, of Paris, the raiser of Madame Furtado, and others of our finest Roses. 5s.
RED ROVER, H.P.—Bright red petals, large, thick, and round; flowers abundantly and in succession up to Christmas. Not double enough for a show Rose, but the most effective pillar Rose ever offered. 3s. 6d.
WILLIAM PAUL, H.P.—A seedling from Senateur Vaisse, but brighter in colour. Raised at Lyons by the raiser of Lord Raglan, Senateur Vaisse, and other first-class sorts. 5s.
BEAUTY OF WALTHAM, H.P.—Bright rosy crimson, of good size, form, and substance, and deliciously sweet. This Rose is found to surpass the description originally given of it. 3s. 6d.
All the new French Roses, 3s. 6d. to 5s. each, or 42s. per dozen. The best of the old Roses at lowest advertised prices. The plants are well established, and in the finest possible health.
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MESSRS. DILLISTONE AND CO., of The Nurseries, Sturmer, Halstead, Essex, has to offer a first-rate Collection of the above, consisting of splendid HONEYSUCKLES, ROSES, CLEMATISES; some very beautiful IVIES, JASMINES, &c., &c. A basket containing one dozen, carefully packed and paid to London upon receipt of 10s.
100 HERBACEOUS PLANTS, properly named and carefully packed, for 20s. PANSIES by the dozen, hundred, or thousand. PAMPAS GRASS, &c., &c. NURSERY STOCK in General.
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FLOWER SEEDS.

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ILLUSTRATED GUIDE TO THE FLOWER GARDEN.
COMPANION *to the above, price* 1s., OUR
ILLUSTRATED GUIDE TO THE KITCHEN GARDEN,

COLLECTIONS OF VEGETABLE SEEDS.
£3 3 0 | £2 2 0 | £1 10 0 | £1 1 0 | 15s. 6d. | 10s. 6d.
For particulars, see page 4 of "Guide to the Kitchen Garden."

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£3 3 0 | £2 2 0 | £1 10 0 | £1 1 0 | 15s. | 10s. 6d. | 5s. 6d. | 3s. 6d.
For particulars, see page 18 of "Guide to the Flower Garden."

STRIKING NOVELTIES.
Continued from last week's *Gardeners' Chronicle*, page 192.

STRONG CANNA ROOTS,
A PORTION OF THE UNRIVALLED COLLECTION OF OUR "SARDINIAN CORRESPONDENT."

Fine foliaged plants, and such as are of stately growth, have of late years been much sought after for the adornment of the FLOWER GARDEN, TERRACES, PLEASURE GROUNDS, LAWNS, SELECT SHRUBBERIES, CARRIAGE DRIVES, &c.; besides relieving the monotony too frequently to be met with in such places, plants of this character impart a somewhat Oriental aspect.

For such purposes the CANNA stands unrivalled; its large picturesque foliage, and spikes of vivid-coloured flowers, produce a truly magnificent effect, especially when planted in groups, whether on the Lawn, in the centre of large beds, or in the mixed Flower Border. Varieties enumerated in our "Guide to the Flower Garden" will be found to form one of the most striking contrasts in habit and foliage.

3179	100	Roots assorted, our own selection, in 25, 30, and 40 varieties.									5l. 5s., 6l. 6l., and	£7	7	0
3180	50	"	"	...	...	...	...	...	...	...		2	15	6
3181	25	"	"	...	...	...	...	...	...	...		1	10	6
3182	12	"	"	...	...	...	...	...	12s., 18s., to			1	1	0

Gloxinia.
1337. GLOXINIA TUBIFLORA.—(Cultural treatment same as the tuberose), producing, during the autumn months, its delightfully fragrant pure white trumpet-shaped flowers, in long handsome tuberose or Hyacinth-like spikes. A single plant is sufficient to perfume a Conservatory. 1s. 6d. We can also supply strong flowering roots at 3s. 6d. each.

Goditia.—See page 49.
1348. GODITIA, THE BRIDE.—Pure white, base of flower rich vermilion, very beautiful. 1s.

Gynerium.—See page 94.
2718. GYNERIUM ROSEUM.—A variety of the Pampas Grass, somewhat dwarfer than Gynerium argenteum, and having the panicles of blossoms tinged with rose. 1s.

Helianthus.—See page 51.
1379. HELIANTHUS ARGOPHYLLUS STRIATIFLORUS.—(See Engraving on 1st page of wrapper, and Ornamental foliage plants on 3d page of wrapper). A remarkably neat compact little Sunflower of a golden yellow, sometimes striped with brown, and with the most beautiful silvery foliage; a strikingly effective plant for flower, shrubbery borders, and large beds cut out of the grass. 1s.

Hibiscus.—See page 52.
1429. HIBISCUS MUTABILIS FLORE PLENO.—A magnificent variety of this highly ornamental genus, with large beautiful carmine double flowers, changing to purple. 1s.
1433. HIBISCUS ROSEUS PALLIDUS GRANDIFLORUS.—Flowers pale rose, of an immense size, and produced in great profusion; truly magnificent. 1s.
1434. HIBISCUS SPLENDIDUS.—Flowers beautiful bright rose, spotted with reddish purple; blooms freely during the winter months. 1s. 6d.

Hypericum.—See page 53.
1448. HYPERICUM WEBBII.—A splendid border plant, with gigantic leaves; an exceedingly effective ornamental foliage plant. 1s.

Incarvillea.—See page 88.
2487. INCARVILLEA SINENSIS GRANDIFLORA.—An elegant climber, with large handsome trumpet-shaped flowers of rich orange-scarlet tinged brown. 4d.

To be continued next week.

BARR AND SUGDEN, SEED MERCHANTS.

ROSES AND HYACINTHS.

WM. PAUL (SON and SUCCESSOR to the late A. PAUL)

Respectfully invites inspection of his ROSES and HYACINTHS, now in FULL BLOOM. Many of the kinds are quite new, and have never bloomed in England before.

Entrances from the Platform, Waltham Station (Great Eastern Railway), and High Road, Waltham Cross.

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GRAND EXHIBITION OF HYACINTHS, 1863.

WM. CUTBUSH & SON

BEG TO ANNOUNCE THAT THEIR

GRAND EXHIBITION OF HYACINTHS AND OTHER SPRING FLOWERS

WILL BE HELD AT THEIR

NURSERIES, HIGHGATE, during the TWO WEEKS commencing MONDAY, MARCH 16.

Admission by Tickets, which can be had free on application or by Private Address Card.

The Nurseries are easy of access by Omnibus from London Bridge Station, the Bank, Holborn, Tottenham Court Road, Islington, and Charing Cross to the foot of the Hill, from thence a distance of about 7 minutes' walk.

☞ NOT OPEN ON WEDNESDAY, MARCH 18.

NEW PURPLE VERBENA, LORD CRAVEN.

DOWNIE, LAIRD, & LAING,

In offering the above truly magnificent variety, have no hesitation in pronouncing it by far the finest purple ever raised. It was unanimously awarded a FIRST-CLASS CERTIFICATE by the Floral Committee of the Royal Horticultural Society of London, 26th August, 1862, the only place exhibited.

The following is their report:—"A remarkably fine Verbena, producing bold, well-filled trusses, of large, flat, well-formed flowers, an inch in diameter, of a rich velvety pucy purple self colour," and being of medium growth, free and branching habit, will prove a first-rate Bedding Variety.

Figured in Hogg's *Florist* for March, 1863, and Van Houtte's *Flore des Serres*, who requested permission to figure it.

See Editor's remarks in *Gardeners' Chronicle*, 27th December, 1862.

Plants after 23d April, 5s. each, or 42s. per dozen. Per 100 on application.

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No. 2.—11 ditto	**ditto**	**ditto**	...	...	...	2	2	0
No. 3.— 8 ditto	**ditto**	**ditto**	...	...	...	1	10	0
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A Specification of the above Collections is given at page 77 of Messrs. BUTLER & McCULLOCH'S systematically arranged SEED CATALOGUE for 1863, which may be had free and post paid upon application.

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J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, begs to inform his friends and the public he can supply from his great Stock of the above 20 pairs of the best large Varieties for 10s.; and 25 pairs of best POMPONES for 10s; 20 pairs of Cuttings of the large Varieties for 5s.; and 25 pairs of Pompones ditto for 5s

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N.B. To save trouble all orders to be paid to J. H. BIRD, Stoke Newington.

To the Trade.

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1 year Seedling Larch	2 year Seedling Pears
2 year Seedling Silver Fir	1 year Seedling Pinus austriaca
3 year Seedling Spruce	1 year Seedling Pinus Laricio
2 year Seedling White American Spruce	1 year Seedling Pinus maritima
1 year Seedling English Oak in drills	

Also a large Stock of Transplanted BEECH, 1½ to 2 feet; Transplanted NORWAY SPRUCE, 9 to 15 inches and 12 to 18 inches; Transplanted WHITE AMERICAN SPRUCE, 1 to 2 feet; all extra fine stock. Samples, with prices, which are very low, may be had on application.

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FIRST CLASS NEW FUCHSIAS. — Coloured Drawings by Mr. ANDREWS of SANSPAREIL, BRIDESMAID, CONSPICUA, and HERCULES, are now ready, and will be forwarded in exchange for 12 postage stamps.

G. S. begs to offer the above as the most Superb FUCHSIAS yet offered to the Public. For description, with price, and also time of sending out, see CATALOGUE, now ready.

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A PRICED and DESCRIPTIVE CATALOGUE of all the new and leading kinds of Show, Spotted, French, Fancy, Scarlet, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready in exchange for one postage stamp.

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DOUBLE ITALIAN TUBEROSE ROOTS, 4s. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. CORBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent.

New and Rare Plants for 1863.

WILLIAM BULL, F.R.H.S, F.R.B.S., begs to intimate that his CATALOGUE of NEW SOFT-WOODED PLANTS is now ready, and will be forwarded Post free on application.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

The Gardeners' Chronicle.

SATURDAY, MARCH 14, 1863.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, March 18	Royal Horticultural (Fruit and Floral Committees) at S. Kensington	10	A.M.
	CAMELLIA SHOW, ditto	1	P.M.
THURSDAY, — 19	Linnean	8	P.M.

FEW, perhaps, of our readers are aware how very small a proportion of the timber required for our navy is of British growth. The complaint, however, of the scarcity of trees of sufficient scantling for large vessels is not of yesterday. In a report of the Commissioners appointed to inquire into the condition of the Crown Woods and Forests, dated July 22, 1789, the rapid decrease of the quantity of native timber is brought prominently forward, and is attributed to a great proportion of the land best calculated for the growth of Oak being taken into cultivation, while freeboards and hedgerows which produced large quantities of excellent trees have been contracted or entirely destroyed.

To meet the deficiency, the Commissioners, influenced probably by the earlier results of the Duke of ATHOLL'S forests, strongly recommended the cultivation of Larch, which from its hardy nature, rapid growth, and excellent qualities, seemed to justify their favourable report. They remarked, meanwhile, that the ships built with this timber at Archangel were quite as durable as those of Russian Oak, and though they naturally clung to their own native wooden walls for the navy, they thought that if the builders of merchant vessels could be induced to try Larch timber, there would be more Oak available for dockyards.

Two or three years later one admirable vessel at least was built from the DUKE'S forests, which far outlived hundreds of more recently built Oak vessels, but unhappily, like the reputation of some single-speech orators, that of the Larch forests, so far as the navy was concerned, began and ended almost at the same time. The trees began to decay rapidly at the heart, and in process of time it was found that whatever might be the merits of the Larch as a source of profit when of a few years growth only, no dependence could be placed upon it for large timber.

The Larch rot was found, indeed, to be more especially prevalent where the land did not admit

of complete draining, a circumstance which seemed at once to be supported by the fact that the Larch on its native mountains flourished most where, though abundantly supplied with moisture, the water never stagnates.

In ill-drained land, especially where the ground had previously borne a growth of timber, whether of the same or of some different kind, the central root after a few years rotted, and the infection being communicated to the earlier central rings of growth, the heart of the tree decayed rapidly, so that when felled it was quite hollow, as if bored for draining pipes.

In dry situations again, where the subsoil was impervious, from the presence of conglomerate or some other rock of close texture, after a few years the trunks became cankered, and the produce so small as to render the plantations almost worthless.

Unhappily the soil which seems best calculated for Larch is not exempt from the evil. At the present moment we are in possession of discouraging facts respecting some Larch plantations which have hitherto yielded a fair profit, situated as they are on a good loam with an admixture of sand in the New Red Sandstone district of Cheshire, upon a bank sloping down to a brook, which receives at once all the superfluous water.

The first absolute evidence of evil was exhibited by a particular tree, which had died from some unknown cause, and which when felled, though the timber seemed at first in a healthy condition, was clothed between the bark and young wood by enormous sheets of fungous mycelium having the appearance of kid leather or common dry rot, but much tougher than the latter, proceeding evidently from several distinct points of growth, though at length in great measure continuous from the confluence of neighbouring patches. Of this we have specimens before us both from the upper and lower parts of the tree, where they present a very different appearance, in the one case being coated on either side with a thin brown skin, while in the other the part nearest the young wood is even and of a pure white, the outer surface being coated with portions of the latest formed bark, which adhere closely to it. Unhappily neither shows the slightest trace of fructification, so that we are unable to indicate the precise species to which they belong, though we believe that they are due to one of the following three Polypori, *P. abietinus*, *P. versicolor*, and *P. destructor*, all of which are more or less generally distributed upon decayed Larch.

It was at first believed that the Fungus had seized upon the living tree, and exhausted its vitality, thus departing from the common habit of feeding on "vegetable carrion," but further investigation showed that the tree from which the mycelium was taken, was far from being the only one affected, and that the only way of preventing an aggravation of evil was at once to fell the whole. For the central rings in other trees, when closely examined, appeared to be in the condition of seasoned rather than of growing timber, without any indications of moisture, and containing a very small quantity of resin if any. They did not indeed at present exhibit any traces of fungous matter, but it appeared quite certain that there would soon be unmistakeable symptoms of its prevalence.

The woodman attributed their condition to a severe attack three years since of the white aphis, which had evidently depressed the vitality of the trees, for not only has the foliage ever since been scanty, but the rings of growth corresponding to those years have been unusually narrow and irregular. It was found moreover that where the wood was affected, the bark had a peculiar rough aspect, the cones were retained at the top of the tree, while many of the lower branches were dead, a circumstance which at once pointed out the individuals in which the timber had begun to lose its tenacity.

We believe that in all cases of ordinary rot the Fungus commences its attacks from below, but we have already recorded a case of decay in which the contrary course seemed to have been taken, the Fungus being a *Peziza* and not a *Polyporus*.

As the soil is so good, and there have hitherto been no cases of Larch rot, it is very probable that the first attack of Fungus was really coincident with the devastation of the aphides, the low condition of vitality induced by the insects rendering the roots more susceptible of inoculation from any spawn that might exist in the soil.

In cases like that before us, the wiser plan is certainly to turn the plantation at once to profit. In general it is however worth consideration, since it is clear that in this climate Larch will seldom make large timber, what is the best time for turning the trees to profit. A careful comparison of the breadth of the rings of growth at different periods will at once indicate the time at which it is most profitable to cut down the trees.

With ordinary underwood it is quite certain that nothing is gained by letting the Elm and Ash poles stand to a second or third cycle. In the midland counties of England, where it is usual to cut the underwood every 14 years, we find that up to that period the growth is extremely rapid, and for five years later; but that after that period the breadth of the rings suddenly diminishes, so that it takes three or even four years to equal the growth of one of the preceding years, a decrease which is not sufficiently compensated by the increase of surface over which the new wood is developed. We are sure that sufficient attention has not been paid to this fact, which may be of considerable importance in the profitable management of undergrowth. The plantations of Larch to which our remarks are directed, it may be observed, are of 26 years' standing, and it is probable that, taking the risk of Larch rot into consideration, and the decrease of rapidity of growth after a certain number of years, the most profitable course will be to make the last felling about that period, though of course differences of locality will greatly modify our practice. *M. J. B.*

Owing we suppose to the singularly damp season of 1862, succeeded by a winter of unusual mildness, the Aucuba japonica has been producing its scarlet "fruit" in several places, as has been announced in our columns. This not having occurred near London, we should have been unable to examine the so-called fruit had we not been favoured with specimens by some very obliging correspondents. The Aucuba being a plant which bears its male and female flowers on different individuals (dicœcious in the language of botanists), its production of real fruit under any conditions of climate, however unusual, would be wholly opposed to the laws of Nature unless both male and female were present, which is not the case in our English shrubberies, where all the specimens are without exception female. We are glad to announce that Nature remains true to herself, and that A.D. 1862 has not witnessed anything so monstrous and unnatural as the birth of children without fathers.

The Aucuba, like the Apple and Pear, produces in the form of fruit a body composed of two totally different parts. The first or inside is the real fruit with the seed within it; the second, or outside, is a sort of husk which bears much the same relation to the fruit as a bird's nest to a bird's egg. In the case before us Aucuba has formed her husk without the fruit, just as a bird might have built her nest and laid no egg—that is all.

In truth it would have been a great disappointment had the abortions of 1862 been really fruit. For we have always looked forward hopefully to the time when the male plants lately brought alive from Japan by Mr. Fortune and Mr. Veitch, should enable our shrubberies to glow with the fiery berries of this plant. Our abortions have been miserable things about as big as a grain of Wheat; the real perfect berries of Aucuba are as large as Sloes. We possess unripe specimens, gathered near Yokohama, by Mr. J. G. Veitch, and in woods near Jeddo, by Mr. Fortune, each of which, although much shrunk in drying, measures five-tenths of an inch in length and three-tenths in breadth. An Aucuba bush loaded with scarlet fruit like this will really be something to admire, and we hope that no time will be lost by the fortunate possessors of the males in dispersing them through the country.

SEEDLING FRUITS.

Raspberries.—Although the Raspberry may be, in the estimation of many, one of our inferior fruits, it has been made so fertile in variation that more than usual interest has been felt in its cultivation. I therefore trust that if I give it more space than it may be thought to deserve as a garden fruit, I shall do so because the facts I shall have to detail may be of interest to the physiologist.

About 30 years or so since, I received from a gardener living at Wethersfield, in Essex, a plant of what he called the Black Raspberry, which he said was a hybrid between the Blackberry (Rubus fruticosus) and the Red Antwerp Raspberry, and which gave purple fruit. I cultivated this sort and soon found that it differed much in its habit from any Raspberry known, making very strong curved shoots of a dark purplish brown, from 8 to 10 feet in length in one season, and giving fruit of a purplish rose colour, very acid, and very different to any other varieties.

From this sort I commenced to raise seedlings many years ago, and found that there was but little variation in the fruit, although the canes of some were very full of spines, while others were nearly smooth; but all were summer-bearing Raspberries. I must here state that I disbelieved the assertion of the person who sent me the original plant, of its being a hybrid between the Blackberry and Raspberry, on the ground that the former flowers in August, while the latter flowers towards the end of May, in average seasons; so that unless artificial means were used to force the Blackberry, so as to make it flower with the Raspberry, no crossing could take place. I then came to the conclusion that it was probably a cross between the Dewberry (Rubus cæsius), which flowers in May and June, and the Raspberry, which I believe to be the fact. I continued to raise seedlings from my seedlings for three or four generations with scarcely any change, till in one batch I observed in the autumn some 10 or 12 canes of a totally different habit from the rest, for they were of a bright bluish tint, with a bloom of the colour of Plum bloom, and the ends of the canes were then (September) full of flowers and fruit, some of which were commencing to ripen. I was at first totally at a loss to account for this sudden change, till on looking over the canes whence I had gathered the seed I found that one plant of a new kind of Raspberry which I had recently imported from America had been planted at the end of the row of my black Raspberries. This sort was sent under the name of the "Ohio Everbearing Raspberry," said to have been discovered growing wild in Ohio by Mr. Longworth. I found the canes of this sort of the same bright blue as those of my seedlings, and like them full of flowers and fruit, which when they ripened were small, very firm and compact, with a peculiar web-like film spread over each berry, and of a very dark purple, like the wild American summer Raspberry, called the Black Cap.

I at once saw that to this sort I owed my hybrids. I must here observe that although the Ohio Everbearing Raspberry, in common with other autumn-bearing sorts, gives its full crop on the young canes the growth of the same season, it gives flowers and small inferior fruit in summer on canes of the preceding season; this will account for my summer Raspberries being hybridized by it.

In the course of the winter following my discovery, I selected all my blue-caned seedlings, and formed a row of them a long distance from any sort of Raspberry, hoping to keep the stock pure. In the autumn of 1859 my seedlings all bore a plentiful crop, and to my great delight all gave fruit of a good size and of the same dark purple colour, and very remarkable for their flavour—a combination of the Blackberry and Raspberry. I must confess I was much interested in these Raspberries, for they seemed a new creation. I even began to think that I had established a species, thought about "selection" and other ideal matters, for the canes, the leaves, and the fruit were all so perfectly *sui generis*, as to lead one to that train of thought.

In the autumn of 1859, I had all the finest fruit of these autumnal black Raspberries selected, and the seeds sown. In 1860 I had an abundant crop of seedlings, of which I took more than usual care, for they were planted on an old hot-bed, and by the end of summer were two to three feet high. Nothing in garden experiments could be more interesting than my crop of seedling Raspberries, and alas! nothing to me more disappointing, for instead of finding them all alike with blue canes and habit like their parents, I found on close examination that some of the canes were red, some white or yellow, some purple, and so on, and their leaves—never could we imagine such a diversity. Many of them nearly as large as those of Hollyhocks, and nearly as rugose; some of the plants were stout and full of spines, like the common Blackberry, others perfect pigmies. In 1861, all these seedlings were planted out thinly, so as to give them space to grow and bear fruit; some hundreds of them gave fruit, and all those with blue canes gave purple fruit, like the parent stock, but a great number gave red fruit, small and worthless. Some twenty or thirty gave fruit of a pale yellow, and a few canes bore bright orange-coloured berries. One among them was remarkable for giving in October some of the largest and most beautiful orange-coloured Raspberries ever seen; but strange to say, although as a rule yellow Raspberries are much sweeter than red, yet my orange-coloured seedlings were acid, and seemed to combine the Blackberry with the Raspberry flavour; but there was no end to their diversity in size, colour, habit, and flavour. I have been, and am, totally at a loss to account for this, particularly as regards the orange-coloured and pale yellow varieties, for my row of black Raspberries, whence the seed was gathered, is at least from 500 to 700 yards from any yellow variety.

It would seem as if my original black Raspberry, stained with the nature of the Dewberry, was open to change more than our common kinds of Raspberries, so that its flowers, fertilised with the pollen of the Ohio Everbearing by the bees, produced fruit (seed) which has

opened up new races of Raspberries unlike any ever produced in our gardens. How wonderful is all this!—that one foreign plant has through accident wrought such changes, for it must be stated that the seed of our common kinds of red and yellow summer Raspberries, although growing near plants of the Ohio Everbearing, has produced plants with little or no variation. I have also raised many hundreds of seedlings from those two well-known autumn-bearing varieties, the October red and yellow Raspberries (Merveille des Quatre Saisons of the French), thinking that as the Ohio Everbearing had wrought such changes in my summer-bearing black Raspberry, it would from blooming at the same season as the above-mentioned autumn-bearing sorts, and growing with them so that the bees would fertilise the flowers—it is very remarkable to find the flowers given by these autumn-bearing Raspberries in August and September most attractive to bees, which swarm on them—and have some extraordinary effect on the seed given by the October red and yellow sorts. Seed was sown, some hundreds of plants were raised, all of which have borne fruit, but not a single deviation can be found at all marked—all produce fruit like the parent sorts, varying a little in size; leaves and shoots are all alike.

The following fact seems to give more interest to my hybrid Raspberries, and to make them appear to be of a distinct race. They do not put forth suckers from their roots like our common sorts, but, on being cut down annually, they form "stubs," like those in a wood cut periodically, with but few and, in most cases, no suckers.

Seedling Raspberries from the Yellow Antwerp produce, for the most part, yellow fruit with but little variation, except that a few will give red fruit. It is rare to find any variety worth perpetuating among them. Seedlings from the Red Antwerp and Fastolf also vary but little. In France the latter is said to have produced both the yellow and red October Raspberries (Merveille des Quatre Saisons), which I have referred to above, and which reproduce themselves from seed with but little variation.

Strawberries.—There are but few horticultural employments more interesting than raising Strawberries from seed. If some ripe berries are squeezed flat, laid on the surface of some mould in a flower pot, and the flattened pulp covered with a covering of fine earth to the thickness of a crown piece—if all this is done in June, and the surface of the mould covered with a piece of slate or tile to keep the seeds from being disturbed by heavy rains or vermin, a large crop of young plants may be expected in April or May following; and these if planted out thinly, will in the following year bear a full crop of fruit, some of which may, in the opinion of the raiser—for do we not love our children?—be worthy of bearing the names of the kings, queens, and princes of the earth.

"Time flies away," as the church clerk at a village in Essex once translated and transferred to his signboard "Tempus Fugit." It is more than 20 years since that my brother, who was addicted to crossing Turnips, and other bucolic matters at which we gardeners are apt to look with lofty eyes and a little contempt—for do not the farmers think much of themselves, and are they not patted on the back by great men, and have they not a Royal Society with Imperial resources, and are they not addicted to taking more pleasure in looking over a flock of fat "ship," as my old neighbour used to call them, than at a fine house of Peaches or Grapes, much to our distaste?—well, my brother sowed a considerable quantity of the seeds of Myatt's Eliza Strawberry, and the young plants when planted out here formed a large bed; it was interesting to see such a level mass of foliage. The second year they all or nearly all bore fruit, and then in the centre of the bed was discovered one plant with comparatively large leaves, and forming a robust tuft. This sort gave large fruit, very different from the parent sort and its surrounding brethren, all of which partook largely of the stock they were raised from, and, as we then thought, were not worthy of being named, although it has often occurred to me since then that many of them were more worthy than many new kinds recently introduced. The robust-growing seedling was named the Seedling Eliza, and has now made its way to a high place among Strawberries. I mention this remarkable sort making its appearance amongst a crowd of others, because it reminds me of the method of raising seedling Roses in France. Large quantities of seed are sown, and the sower is often rewarded by a fine variety—one in 500 or 1000, perhaps—making its appearance in the midst of a crowd—a specimen of "natural selection," and worthy of cultivation.

The most difficult Strawberries to break into by crossing, are the Hautbois and Alpine varieties; millions of the latter have been raised from seed, but up to the present time no fruit-bearing cross-bred varieties have made their appearance. Several sorts have been introduced varying in the size and flavour of their fruit, but no Alpine Strawberry with the autumn-bearing propensity peculiar to the race and partaking of the size and flavour of the British Queen, has yet been raised.

The Hautbois Strawberries are also very obstinate in their adherence to race, a cross with the Alpine seems as if it would not be unnatural, looking at the races in their wild state; but although said more than once to have taken place, it has not, that I am aware of, yet occurred.

A few years since a variety was raised at Bordeaux, said to be a cross between the Alpine and Hautbois, bearing freely in autumn and partaking in its flavour of both sorts. The first season after its introduction it bore freely in the autumn, and one almost fancied that what had been said about it was true, for its fruit in September, with a little stretch of imagination, seemed to taste like the Alpine. This habit of bearing in the autumn soon ceased, and the sort—evidently a seedling—proves to be much like the Prolific Hautbois, only more vigorous and a more abundant bearer. I have expressed my belief of this variety being a seedling because I have found that seedling Hautbois Strawberries for one or two seasons have a great tendency to produce flowers and fruit late in autumn, and then relapse into the habit of the race.

Feeling interested in the Belle Bordelaise Strawberry, I sowed the seeds of nearly all my first crop, and raised hundreds of young plants: trusting, as in the case of the Seedling Eliza, to nature or chance making a selection. I planted them in a large bed, and was not disappointed, for in the midst of a crowd of luxuriant seedlings, all with the true Hautbois character, I one day saw a cluster of magnificent berries peeping through the leaves of its neighbours. They were the largest berries of this race I had ever seen. On looking more closely into the bed, I found another cluster of berries nearly as large; all the rest of the seedling plants gave berries of a very inferior size, and were destroyed. The first sort selected I distinguished as No. 1, the second as No. 2. No. 1, in 1862, gave very fine fruit and bore abundantly; No. 2 proved a failure, being late in ripening and inferior in flavour. Seedlings from the Seedling Eliza retain the robust habit of the parent, but their fruit up to the present time has not been found equal to the parent stock. Seedlings from Carolina Superba seem to give hopes of a more robust habit than the parent. On the whole, seedling Strawberries are most interesting, but the raiser must not have high hopes, for it is necessary to test all by high standards, such as the Queen, Carolina Superba, and some others that are of high excellence. In 1861-2 a large bed of seedlings, some thousands in number, all raised here from a few choice sorts, bore abundance of fruit; their variation in growth was most remarkable; some were dwarf and compact, some tall and straggling, and the variation in the shape and size of their fruit was also remarkable; and more so, there was scarcely a bad Strawberry among them—but not one was superior to our well known and popular varieties. *Thos. Rivers.*

PLANTS OF PERU.—No. IX.

(*Continued from p.* 101)

Cinchonas.—On the 28th of March the steamer reached Bombay, where the cases were disembarked, taken to the Town Hall, and placed in a position where they were secure from the clouds of sand and dust which are wafted about by the wind, and from the rays of the sun. Early next morning, Dr. Birdwood, the Curator of the Bombay Museum, made arrangements for getting the cases put on board H.M. Steamer Dalhousie, which was about to proceed to Madras, but would stop at Calicut and other towns on the coast, on her way to that place. The cases were accordingly carried to the quay by coolies, and put into boats, which conveyed them to the steamer. When they had been all placed on board, Dr. Birdwood, who had kindly superintended the operation, returned to the town, and I was engaged in shading the cases when the captain of the steamer came to me and inquired "if I was going to accompany them to Calicut." I replied that I was. "Show me then," said he, "your order; for I have received instructions to take the cases to Calicut, but none concerning you." I said that it was probably an oversight on the part of Dr. Birdwood, but that I believed it was understood I was to go along with the cases to their destination. "Well, well," was the reply, "that signifies nothing; if you cannot produce an order you must go ashore."—Very well," I said, "but you must put the cases ashore also."—"No, no," was the answer, "I have an order for them, but none for you, and so, if you do not make off quickly, I will send you ashore in 'irons.'"

In order therefore, to avoid confinement I went ashore and proceeded to the Town Hall, to state my case to Dr. Birdwood, who, however, had gone to another part of the town on important business; on reporting the matter, however, to another gentleman, I was advised to go to Commodore Wellesley, and relate the matter to him. The Commodore's residence was a considerable distance from the town, but my adviser sent his servant along with me to point out the way. And as there was no time to be lost we set out at a running pace, under a very hot midday sun, with clouds of sand and dust blowing about in every direction. On reaching the house of the Commodore, I reported my difficulties, and he at once provided me with the necessary order. On again reaching the steamer I handed the note received from the commodore to the captain, which in some measure seemed to satisfy him, but on requesting permission to move the cases under an awning, I was peremptorily informed that they must remain in their present place. And so, during six days' voyage between Bombay and Calicut, they were exposed to the full rays of an Indian sun, for the Russian mats I had brought with me from England on being spread over them broke and crumbled to dust; they therefore afforded but little shade. [We hope that this will meet the eyes of the gentlemen of the India Board. This gentle Captain would be benefited, or at least future passengers would be, if he were called upon to explain his conduct.] The steamer arrived at Calicut on the 4th of April, when the cases were disembarked without sustaining any injury. At Calicut I had ready an effective assistance from the Deputy Collector of the district, Mr. Bates, who immediately provided canoes for the transportation of the cases, which had to be taken up a river that falls into the sea a little way to the south of Calicut. About 6 P.M. of the same day on which the cases were disembarked, they were placed in the canoes, and we proceeded up the river. The night was dark and silent, but the banks of the river were lined with fishermen, who went about from one place to another, bearing large flaming torches, that now and then lighted up the dark foliage of the lofty Palm forest behind, and presented a scene which strongly reminded me of those exhibited by the camp fires at night on the banks of the Guayaquil river in South America.

Early on the following morning we came to a shallow part of the river, over which the canoes could not be dragged; the cases had therefore to be carried by coolies from this place to Ootacamund. The first day's journey was over rising grounds and long undulating plains, some of which were partially cultivated and bore fine crops of Rice and Plantains. Here and there along the sides of the road were groves of the Banyan tree, Ficus indica, whose wide-spreading branches, thickly set with foliage, afford protection from the fierce rays of the sun. This day I saw one of the many cunning tricks practised by the mendicants of India. Just before entering a small village where we intended to remain for the night, a man was observed a little way in advance lying under the shade of a Banyan tree, with his knees drawn up to his breast, and rolling about and groaning, as if he was enduring the greatest possible agony. As we approached, groans were increased to loud cries, and his features were much distorted. When we came opposite to where he lay, my companion dismounted, and taking hold of a small stick which I held in my hand, was about to deal him a smart stroke across the knees, when he sprang to his feet and ran off with a rapidity to which even very active men in England could make no pretensions. Early next morning we reached the ascent of the Sispara Ghaut, where we were met by Mr. M'Ivor, the Superintendent of the Government Gardens at Ootacamund, who conveyed us to the summit on the same evening. The vegetation of this Ghaut is very fine, containing several kinds of Palms and Tree Ferns, some of which attain a great altitude; and I saw here, too, the Angiopteris evecta, Pteris argyræa (a variegated Fern), and several kinds of Torenia. Two days' journey more over the summits of the Neilgherries brought us to the scattered village of Ootacamund, where I arrived with the fifteen cases containing Red Bark plants on the 8th of April. On reaching Ootacamund the plants were placed in the Government Gardens under the charge of the Superintendent. Next day they were counted by Mr. M'Ivor, who stated their number to be 470; including six of C. Calisaya taken from Kew, which were still alive. There were, however, a number of plants that had lost their leaves during the voyage between Bombay and Calicut, and these were not included in the reckoning, but on transplanting it was found that they likewise possessed healthy roots and buds; therefore the entire number amounted to nearly 500 "Red Bark" plants. Owing to the capricious and perverse character of the captain of the steamer Dalhousie, [This quarter-deck Captain once more to be noted down] the plants were, as I have already stated, subjected to much ill usage during the voyage between Bombay and Calicut. They were placed on a part of the deck where they were entirely exposed to the fierce rays of a tremendous sun, and ropes, &c., streaming with salt-water were continually being dragged over them; the latter frequently caught hold of the covers of the cases, pulling them off, and breaking many of the leaves and shoots. Before leaving Bombay the cases contained 580 plants; there was therefore a loss of 19 between Peru and the mainland of India. During the voyage between Peru and England only six plants were lost, and these were previously very delicate, having been raised from seeds about two months before leaving the slopes of Chimborazo. *Robert Cross, Quito, Oct.* 1862.

WHEN AND HOW SHOULD STRAWBERRIES BE PLANTED.

On reading the title of this article, many experienced cultivators will doubtless say, "These are old questions which have long ago been debated and settled; therefore it is unnecessary to bring them up again." Others, and the greater number, may perhaps find in them certain points to which they may again profitably advert. I am inclined to think so; for having examined plantations of Strawberries in different localities, I have come

to the conclusion, that they have not generally been made with the precautions necessary to insure the desired result.

Some advise Strawberries to be planted in the end of August, or in September, or better still, between the 1st and 15th of October; others prefer the months of March or April. Those who advocate the former period say that the plants put out in the end of summer or beginning of autumn have time to establish themselves in the soil before winter and to gain sufficient strength to bear a crop in the following summer. This reasoning, it must be admitted, appears plausible. The success of plantations made at this season depends however, in a great measure, on the soil being well worked, and in proper condition as regards moisture; on the plants being sufficiently strong and furnished with good roots, and on their being carefully transplanted. I agree with the opinion of those who prefer spring planting. For more than a quarter of a century I have planted at all seasons, but the spring plantations have always proved the best. The cause of this success lies in the following facts:—

The plants established round the stools since last summer without being detached from their parent plant, will be found much stronger after winter than those that have been separated before winter, either for planting out in nursing beds, or at once in the plantation. When carefully taken up with all their fibres in spring they soon take root, and grow vigorously in well prepared newly dug ground; and in June or July they produce as much fruit as those that have been detached in a young state and planted before winter.

On taking up some young Strawberry plants it will be observed that the very slender fibrous roots extend obliquely in the soil in all directions round the parent plant. From this fact the cultivator should infer that in transplanting he ought to extend the roots in a similar oblique direction, covering them successively with soil up to the necks of the plants. On examining these a fortnight after it will be found that new spongioles have been formed all along the roots, a circumstance which shows the utility of preserving all the fibres when taking up the plants.

Every cultivator must be aware that Strawberries push roots more than a foot into the ground, provided it is deep, and rendered loose and permeable by manures suitable to the nature of the soil. They extend obliquely more than a foot and a half in all directions round the plant. If they are planted so closely that the roots entangle each other in struggling to obtain nourishment, it may be easily conceived that the produce must in consequence be diminished, not only in the first, but also in the second, and more especially in the third year after planting. By some this is ascribed to the plants being exhausted; but this is an error arising from mistaking the effect for the cause. It would be more reasonable to say that the elements of nutrition in the soil become insufficient for the demand. These observations show the necessity of planting widely apart, so as to prevent the roots of Strawberries and other plants from coming in contact with each other if we wish to obtain fine produce.

Those who plant exclusively with a view to crop, and to obtain the fruit in full perfection, cut off the runners in spring and summer as they are produced. The fewer runners a variety of Strawberry throws out, the easier the plantation is kept in order. A variety naturally disposed to make few runners is preferred to those that produce many, if in other respects it possesses equal merit, a property which is becoming more and more appreciated by connoisseurs. Such being the case, I was rather astonished to observe that Mr. Radclyffe makes the limited production of runners a fault as regards La Constante; and this is a reproach thrown on this Strawberry which is even not well founded; for if planted in good soil, neither too dry, nor too stiff, cold, and wet, it produces runners sufficiently well. A dozen young plants which were planted out in April, 1862, furnished by October 127 plants, which was at the rate of more than 1000 per cent. The circumstance of this variety not producing a superabundance of runners is considered one of its meritorious characters by the most intelligent cultivators.

What will Mr. Radclyffe say when he shall have cultivated two varieties to which I have given the names of Model and Bijou. The first name applies to the plant and its fruit; the second exclusively to the fruit, which is truly a Bijou in every respect. They are improved seedlings from La Constante, and produce runners in an infinitely more moderate degree. *J. De Jonghe, 9, Chaussée de Nieuwmolen, Saint-Gilles Lez Bruxelles, Feb.* 20.

Home Correspondence.

Spontaneous Generation.—In the "American Journal of Science," July 1862, or rather in an extract from it, there is a notice of "Experiments on the formation of infusoria in boiled solutions of organic matter, enclosed in hermetically sealed vessels and supplied with pure air," by Jeffries Wyman M.D., Hersey Professor of Anatomy in Harvard College. He refers to Pasteur's admirable researches on fermentation, and states that in his (Pasteur's) experiments, where the vessels had been submitted to a boiling heat, and no air admitted except through red hot tubes of iron, the contents remain unaltered an indefinite time—no organisms appeared. Whereas in Dr. Wyman's experiments, 33 in number, and conducted with even more care than Pasteur's, organisms, viz., Vibrios, Bacteriums, ferment-cells were found very generally, and in some cases Monads, Spirillums, and Kolpoda-like bodies were seen, some of them having ciliary movements. He states that Professor Asa Gray witnessed the opening of some of the flasks, and satisfied himself of the presence of infusoria in the contents.

Dipsads.—The Dipsad mentioned by your correspondent "X. X." is not a plant, but a fabulous serpent, thus included among the African serpents by Lucan, ix. 610:—

"Stabant in margine siccæ
Aspides, in mediis sitiebant Dipsades undis."

The supposed effect of its painless bite in destroying its victim by intolerable thirst is described in the same book, ix. 737, 760. *T.*

Phalænopsis Schilleriana.—I am extremely gratified in being able to state that this fine plant has nearly approached the point I affirmed it would do about this time last year in your columns, in which I asserted that I had received dried spikes, consisting of several branches, and bearing upwards of 100 flowers. Mr. R. Warner of Broomfield, Chelmsford, has at the present time a magnificent specimen of this plant in bloom; its spike, which is 3 feet long, consists of seven branches with laterals, and is furnished with 76 beautifully expanded flowers, all of which are in perfection, producing a grand effect. The plant in question is growing on a block; although only imported about 18 months ago, it has leaves a foot in length, and 4 inches in diameter. In the same collection I also saw two other plants of P. Schilleriana in flower; both varieties differed from one another, and one was finer than any I ever before witnessed. There appears to be great variety among plants of P. Schilleriana; some have foliage not so much variegated as others, and some of the flowers are of a deeper colour and more spotted upon the upper part of the lip than the kind first imported. *B. S. Williams, Paradise Nursery, Holloway.*

Fruiting of Aucuba japonica.—About four years ago I saw a few bright red oval berries on a variegated Aucuba in my garden at Sunningwest Rectory, near Oxford. My gardener, who has been employed in the same garden for many years, said he had never seen them before. Your Irish correspondents say nothing as to the size of the berries; those I saw were hardly bigger than a grain of Wheat. The Aucuba which produced the berries in question was, like those in Ireland, in the shade. I had other plants in more open parts of the garden which were more luxuriant, but bore no fruit. *G. H. Sawyer.*——Having noticed (see p. 197) that some of your correspondents are surprised at finding the blotched-leaved Aucuba japonica in fruit, I beg to inform them that I have gathered beautiful berries several times from plants in the shrubbery here during these last six or eight years. The plants which fruited grew in shade under the drip of Limes, Elms, and other trees. I inclose two clusters for your inspection, which I have this day obtained from one of our plants about 5 feet high; the fruit is however much smaller than that gathered in previous years. *J. Mitchell, Gardener to P. P. Smith, Esq, Tremorvah, Truro, Cornwall.*

Leafless Cedars of Lebanon.—In one part of our pleasure grounds are two Cedars of Lebanon, varying from 30 to 35 feet in height, which have always had a healthy appearance until last autumn, when they began to lose their leaves, and they have continued to do so ever since, which has left them naked. My employer has therefore desired me to ask if you have heard any similar complaints from other quarters respecting Cedars being affected in the manner just described. *A Constant Reader.* [No.]

The Royal Wedding Day.—I have much pleasure in stating that I followed the excellent suggestion of your Correspondent, by planting a tree yesterday on the highest part of Selborne Hill, in the presence of a goodly number of the inhabitants of this parish, including the clergyman and his lady, and a large number of children, headed by our excellent schoolmaster and mistress. The whole affair went off well, and will, I hope, be long remembered. The tree is named the Prince's Tree. *Thomas Bell, The Wakes, Selborne.*

Societies.

Linnean: *March* 5.—G. Bentham, Esq., President, in the chair. Dr. W. Carmichael McIntosh was elected a Fellow. Sir C. J. F. Bunbury, Bart., exhibited cones of Taxodium sempervirens produced in the arboretum at Barton Hall, Suffolk, on a tree planted in 1847. The following papers were read:—1. "Notes on the Geographical Distribution of the aculeate Hymenoptera, collected by Mr. A. R. Wallace, in the Eastern Archipelago," by F. Smith, Esq.——2. "On the Parasitism of the Mistletoe (Viscum album)," by John Harley, M.D., communicated by Dr. Hooker. After alluding to the fragmentary and superficial nature of the information to be found in our language on the subject of the parasitism of the Mistletoe and other plants (which subject he had been led to investigate, in the hope that it might throw some light on the cause of cancer and analogous diseases), the author proceeded to give an account of the general arrangement of that part of the Mistletoe which lies within the nourishing plant. Most writers, *e.g.*, Henslow, Griffith, Unger, Schacht, and Pitra, agree in stating that the young plant first sends into the bark of the nourishing plant a single root or sucker, which pressing inwards comes into perpendicular relation to the wood of the nourishing plant, in the cambium layer of which the point rests, and there ceases to grow. In its passage towards the wood, it gives off several horizontal or side roots, which run along the branch in the bark, or upon the surface of the wood. These side roots give origin to perpendicular suckers, which come into contact, like the original root, with the surface of the wood; while the wood and bark of the mother plant, in their periodical increase, form layers around the suckers, which grow in exactly the same manner in the cambium stratum, and thus the hardened suckers come to be embedded in the body of the wood. Dr. Harley's own researches led him to the conclusion that the horizontal ramifications of the Mistletoe are contained entirely in the bark, and do not as represented by Schacht run upon the surface of the wood, and consequently do not 'become embedded, like the other roots, in the wood, by means of the growth of the stem,' as is stated by Unger; but unless the layer of bark which intervenes between these roots and the surface of the stem be accidentally killed, they are continually removed further from the surface of the wood by the formation of the new layers of bark. The base of the Mistletoe and all its ramifications are what the author calls roots. Owing to the regular arrangement of the medullary system of plants, the roots of the parasite have a corresponding regularity of distribution, each perpendicular root invariably occupying the position of a medullary ray of the nourishing plant. This conclusion the author rests on the following fact:—the base of the Mistletoe is always attached at right angles to that particular part of the branch upon which it grows, and this relative position is maintained with regard to the roots of the parasite which lie within the stock. The young roots of Mistletoe are invariably found, on making a transverse section of a branch infested with them, to be convergent, like radii, from the circumference to the centre if this be occupied by the medullary canal, or if not so, towards the excentrical pith. In their progress inwards they gradually taper and terminate in excessively fine extremities at variable distances from the medullary canal, some few occasionally reaching it. The roots lie strictly parallel with the contiguous medullary rays. A vertical section of the nourishing plant made at right angles to the medullary rays, divides the roots of the parasite at right angles to their long axes. The majority of the sections have, like the medullary rays, an elliptic shape, and the direction of the ellipse invariably corresponds in the two. Like the medullary rays the roots tend to become confluent in the longitudinal direction; and they are arranged in linear series up and down the branch, an arrangement which corresponds to that of the medullary rays themselves. Dr. Harley finds that the medullary system of the two plants are everywhere confluent, and that there is such an assimilation of the constituent cells of the two systems, as would lead one to suppose that the cells which form the surface of the roots of Viscum, and connect it with the tissues of the nourishing plant, belong to the medullary system of the latter rather than to that of Viscum. The young cellular root of viscum may be regarded generally as a prolongation of the central pith of the parasite. The woody fibres of the two plants never, as far as the author's observations have gone, come into actual contact; the plain thick-walled prosenchyma of Viscum constantly thins away and disappears towards the attached surface of the parasite, so as to be entirely absent at the line of junction between the two plants. As regards the relation of the vascular system of the two, Unger considers their inosculation to be an essential condition of all cases of parasitism, and Pitra appears to have adopted the same view. That the vessels of the two plants do not however directly inosculate, and that their inosculation is probably accidental and contingent upon the relation of the parenchymatous systems of the two plants, appears evident, for the reticulated ducts of Viscum invariably run parallel to the surface of the part in which they are contained. Its vertical roots run horizontally inwards, parallel to the medullary rays, and therefore at right angles to the fibrovascular bundles which regularly diverge around them. In longitudinal sections of these roots it is readily and uniformly observed that the reticulated ducts run parallel with the long axis of the root; rows of the long reticulated cells which compose them frequently occupy the surface of the root, which is bounded by prosenchymatous cells and ducts seen in transverse section. There then, it is clear, the vascular tissues of the two plants are arranged at angles to each other. The relation of the fibrovascular bundles of the two plants may best be made out in the Poplar, the large ducts of which correspond in size with those of Viscum. As to the relations of the cortical systems of the parasite and its nurse, the author, after careful scrutiny of a great number of specimens, finds the contiguous barks of the two to form a living union with each other, and thus to cover over the line of junction between the woody systems with a living layer, by which the uninterrupted circulation of the sap is secured. Dr. Harley concludes that the essential condition of parasitism is a confluence of the medullary systems of the parasite and its nourishing plant; and that the roots of the parasite actually

invade the cellular system of the plant upon which it grows. The second conclusion is in opposition to the views of all the authors whom he has consulted on the subject. When the roots of the Mistletoe have fairly inûxed themselves into the medullary system of the nourishing plant, their invasive growth ceases; but they increase and lignify about their outer portions, while the inner extremities now lying deep in the hard wood, constantly retain their original soft cellular condition. The author considers the life of the parasite as dependent upon these delicate cellular processes. They are, he observes, to Viscum what the cellular rootlets of terrestrial plants are to them. Hence he objects to the reiterated statements commonly made in botanical works that the Mistletoe contracts an organic adhesion with the cambium layer, and becomes grafted just as a bud does in the ordinary operation of budding. Parasitism and grafting, he argues, differ in this important particular, that whereas the life of the scion is maintained by woody union with the stock, that of the parasite cannot be so maintained, but requires for its preservation a root, by the selective action of which the materials of its nutrition and growth may be elaborated from the sap of the nourishing plant.

Botanical of Edinburgh.—The Society met on Thursday, 12th February, at 5, St. Andrew Square—Professor Balfour, V.P., in the chair. Various donations to the Society's library were laid on the table. The following communications were read:—I. "*Notice of Plants collected in the counties of Leeds and Grenville, Upper Canada, in July* 1862." By George Lawson, LL.D.——II. "*A Record of the Plants collected by Mr. Pemberton Walcott and Mr. Maitland Brown in the year* 1861, *during Mr. F. Gregory's Exploring Expedition into North-West Australia.*" By Ferdinand Mueller, M.D.——III. "*Extracts from Indian Letters from Dr. Cleghorn.*" Communicated by Professor Balfour. In one of the letters, dated Punjaub, 15th October, 1862, Dr. Cleghorn said:—In fulfilment of Lord Canning's instructions, I have just completed one of the most extensive and adventurous journeys ever made on the Himalaya, and from the rapid nature of the movements, often very fatiguing. It has been my duty to follow the flexures of four of the great Punjaub rivers (Sutlej, Beas, Ravi, and Chenab) from the plains up to the highest points where timber of value is found to grow. In some places I diverged to examine the main tributaries, or to test the amount of breakage in many of the timber slides.——IV. "*Notes on the Physiological Action of the Calabar Poison Bean (Physostigma venenosum — Balfour).*" By Thomas R. Fraser, M.D.—This paper was an abstract from Dr. Fraser's graduation thesis of last session. It was concluded from an experimental investigation that the spermoderm of the Calabar Bean possesses properties as a sedative of the spinal cord, hydragogue cathartic, and diuretic. The most energetic action was obtained from the kernel. It was concluded—1st, to act on the spinal cord by destroying its power to conduct impressions; 2d, this destruction may result in two well-marked and distinct effects—*a*, in muscular paralysis, extending gradually to the respiratory apparatus, and producing death by asphyxia; *b*, in rapid paralysis of the heart—probably due to an extension of this action to nervous ganglia of the heart—causing death by syncope; 3d, a difference in dose accompanied this difference in effect; 4th, the action does not extend to the brain proper, *pari passu* with the action on the spinal cord; the functions of the brain may, however, be influenced secondarily; 5th, it produces a paralysis of muscular fibre—striped and unstriped; 6th, it acts as an excitant of the secretory system, increasing especially the action of the alimentary mucous membrane; 7th, topical effects follow the local application of the watery emulsion and alcoholic extract; these are—destruction of the contractility of muscular fibre, and contraction of the pupil when applied to the eyeball or eyelids. It is probable that this last action may be of importance in illustrating the action of the Bean. Valentin has shown that the iris receives its nervous supply from two sources, from cerebral and from spinal filaments. He has concluded that the cerebral filaments are supplied to the circular muscle or contractor of the pupil, and the spinal to the radiating muscle or dilator of the pupil. The actions of these two nervous supplies must be regarded as antagonistic. When therefore the influence of one set of fibres is removed, that of the other will be unchecked, and will produce a greater degree of its proper action. Thus, when the influence of the cerebral supply is removed, the fibres, which are acted on by the spinal nerves, will be unchecked, and dilatation of the pupils will result. The kernel of the Calabar Bean can in its action be referred to the spinal cord in the same way. The contraction of the pupils may be caused in three ways—by cerebral irritation, by spinal depression, and by a combination of cerebral irritation and spinal depression. The symptoms disprove any cerebral irritative action, and so neither the first nor last of these can be regarded as the cause of the contraction. The symptoms on the other hand, distinctly indicate a depressing action on the spinal cord. By this action the power of the cord to transmit impressions is destroyed, and so, necessarily, the power of transmitting the spinal influence to the iris. The balance between the dilator and contractor muscles is removed, the circular fibres, being unopposed, act, and the pupil is contracted. Dr. Fraser described a similar physiological action to result from the administration to man.——V. "*Register of the Flowering of Spring Plants in the open air, at the Royal Botanic Garden, Edinburgh.*" By Mr. M'Nab. The register showed the dates at which the flowering took place in 1861, 1862, and 1863 respectively. Those for the latter year were as follow:—Aubrietia grandiflora, Jan. 16; Corylus Avellana, Jan. 16; Tussilago fragrans, Jan. 18; Helleborus orientalis, Jan. 18; Hepatica triloba, Jan. 20; Helleborus purpureus, Jan. 23; Galanthus nivalis, Jan. 26; Garrya elliptica, Jan. 26; Rhododendron atrovirens, Jan. 27; Symphytum caucasicum, Jan. 28; Primula denticulata, Feb. 2; Leucojum vernum, Feb. 2; Tussilago alba, Feb. 2; Omphalodes verna, Feb. 2; Eranthis hyemalis, Feb. 3; Erica herbacea, Feb. 6; Galanthus plicatus, Feb. 7; Crocus susianus, Feb. 9; Crocus vernus (blue), Feb. 10; Rhododendron Nobleanum, Feb. 11; Sisyrinchium grandiflorum, Feb. 12; Nordmannia cordifolia, Feb. 12. Plants in flower on 12th Feb. 1863, not included in the above list, but which have been flowering more or less during the winter months:—Helleborus niger, Tritoma media, Cheiranthus Cheiri, Mathiola incana, Gentiana acaulis, Arabis albida, Viola odorata, Jasminum nudiflorum, Bellis perennis (single white, double red, and double white), Primula veris (varieties), Primula vulgaris (varieties), Andromeda floribunda, Viola tricolor (varieties). Dr. John Lowe sent the following list of plants flowering in the open air on the 6th of February, in his garden at Lynn, Norfolk:—Eranthis hyemalis, Galanthus nivalis, Viola odorata, Primulas of various kinds, Coronilla sp., Hepaticas, Arabis albida, Crocus (yellow), Helleborus, Omphalodes verna, Cheiranthus Cheiri, Erica herbacea, Jasminum nudiflorum, Doronicum caucasicum, Daphne mezereon, D. Laureola, Mathiola incana. The following wild flowers were also in flower on 6th February, in the neighbourhood of Lynn:—Galanthus nivalis, Lamium album, L. purpureum, Vinca major, V. minor, Primula veris, Corylus Avellana, Ulex europeus, Sarothamnus scoparius, Malva sylvestris, Draba verna, Anthriscus sylvestris, Stellaria media, Bellis perennis, Senecio vulgaris, Leontodon taraxacum, Mercurialis perennis.——William Ivory, Esq., exhibited 31 species and varieties of plants which were in flower on 12th February, at St. Rocque, near Edinburgh.——Mr. John Sadler exhibited twigs of various Pear trees from the Experimental Garden, with flowers nearly expanded.

Royal of Edinburgh: *The Neill Prize.*—The following remarks were made at last meeting of the Royal Society by Sir David Brewster, on presenting the Neill Medal to Dr. Greville:—Before presenting the Neill Medal to Dr. Greville, in conformity with the decision of the Council, it may be proper for the information of strangers, and even of many Fellows of the Society, to give a brief notice of the bequest to science which was made by the late Dr. Patrick Neill. Although Dr. Neill was a member of this Society, he never took an active part in its proceedings, and I believe never communicated any paper to its Transactions. He was one of the founders of the Wernerian Society, and discharged the duties of its secretary during the 30 years of its existence under the able presidency of Professor Jameson. The Wernerian Society was, indeed, the rival of the Royal Society of Edinburgh, and its seven volumes of Transactions contain many papers by distinguished writers which would otherwise have been communicated to this Society. Dr. Neill's first publication appeared in 1806, and was entitled "A Tour through some of the Islands of Orkney and Shetland." In 1829 he published his "Horticultural Tour in Flanders," and in 1845 his "Fruit, Flower, and Kitchen Garden," which was a republication of the article "Horticulture" in the "Edinburgh Encyclopædia." Dr. Neill communicated only two papers to the Wernerian Transactions, one entitled "A List of Fishes in the Forth, and Lakes and Rivers near Edinburgh," and another "On the Fossil remains of the Beaver in Perthshire and Berwickshire." Dr. Neill died in 1850, and bequeathed to the Royal Society of Edinburgh the sum of 500*l*., "the interest of which was to be applied in furnishing a medal every second or third year to any distinguished Scottish naturalist, to be adjudicated by the Council of the Society." In fulfilling this trust, the Council wisely adopted the triennial in place of the biennial period, and the first adjudication of the prize was made to Dr. Lauder Lindsay for his researches on the structure of Lichens. The second adjudication was made to Dr. Robert Kaye Greville "for his contributions to Scottish natural history, more especially in the department of cryptogamic botany, including his recent papers on Diatomaceæ." Dr. Greville's contributions to natural history have been both numerous and valuable, and their merits have been recognised by the most distinguished botanists of the age. His "Scottish Cryptogamic Flora" was published between 1823 and 1829. His "Flora Edinensis" appeared in 1824. His "Algæ Britannicæ, or, description of marine and other inarticuled plants in Britain belonging to the order Algæ," was published in 1830, and he has inserted in the "Microscropical Journal" no fewer than 12 papers on the Diatomaceæ, an interesting subject which still occupies his attention. But Dr. Greville's services to science have not been limited by his writings. He has been an ardent collector of plants and other objects of natural history; and his complete herbarium of phanerogamous and cryptogamous plants, as well as his collection of insects, have been placed in the Museum of our University. He has also made a collection of land and freshwater mollusca, which is the finest in Scotland. These various contributions to natural history have been highly appreciated both in this and in foreign countries. In 1824 the University of Glasgow conferred upon Dr. Greville the degree of Doctor of Laws, and many of the natural history Societies in Europe and America have received him among their corresponding or honorary members. Though somewhat foreign to the present occasion, the society will, I trust, excuse me for adding that Dr. Greville has taken an active part in those interesting questions of philanthropy, on the solution of which the happiness and security of society depend. He has felt, as I am sure most of us here feel, that there is something greater than science, and something higher and more enduring than fame; and it is no slight ground of congratulation, that some of those who have been commissioned by their Maker to study His works, and to sound the depths of His wisdom and His power, have shunned the fatal course which others have pursued, of sapping the foundations of that faith and hope which science is so able to sustain. Dr. Greville—In the name of the Council I now beg to present to you the Neill Medal, and to congratulate you on this honour, which you have so well merited.

Notices of Books.

English Botany, or Coloured Figures of British Plants. Third Edition, enlarged, rearranged according to the Natural Order, and entirely revised. (Hardwicke). No. 1, with 24 plates.

The old English Botany, in some 36 8vo volumes, was remarkable for the excellence of its plates by the first Sowerby, and the worthlessness of its letter-press by Smith. In the second edition, in seven 8vo. volumes, the valuable plates were retained, and new letter-press of a satisfactory character, though very concise, was substituted. We have now before us the first number of a third edition, in which all our wild flowering plants are to be republished, with such corrections and additions as have become necessary in the course of time. Mr. Syme is to write the pure science, Mrs. Lankester the literary matter, and the learned Coroner the utilitarian; plates, either old retouched and augmented, or new, will be provided by Messrs. J., J. de C., and J. E. Sowerby. For the present we can only report that the work promises well, and that the new figures are better than the old ones, which is saying a good deal. We only hope that Mr. Syme will not lend himself to the promulgation of Mr. Hewitt Watson's silly notions about super-species and sub-species, which if produced in the form of plates, will soon exhaust the patience of both publisher and buyers.

Running the Blockade (Ward & Lock) is an amusing collection, by Lieut. Warneford, R.N., of rough and ready stories, that must we think prove immensely popular with British seamen. We are not so sure that it will be to the taste of the Northerners, considering the strong Confederate spirit that pervades it.

The Insect Hunter's Companion: being instructions for collecting and preserving Butterflies and Moths, and comprising an Essay on Pupa digging. By the Rev. Joseph Greene, M.A. 12mo., Van Voorst.

A capital book on a subject most interesting to the young naturalist. What would we not have given for such advice when we began collecting. But why not extend the instructions to all branches of Entomology?

Garden Memoranda.

A. J. Doxat's, Esq., Putney Heath.—At few places are Neapolitan Violets grown in greater perfection than they are here; a short account therefore of the way in which they are treated may not be uninteresting, unusually plentiful though these fragrant little winter and spring flowers are this season. Strong plants are obtained by dividing the old ones of the previous year's growth. This operation Mr. Shrimpton, Mr. Doxat's gardener, performs early in May. A sloping border under the shade of a north wall is selected for their reception, and on this they are planted with a trowel in rows about a foot apart, and 8 inches asunder in the row. Care is taken to keep the soil loose, and during the summer season weak manure water is given them twice a week from July until the beginning of September. It is applied by means of a small spouted watering pot, taking care to keep the heart of the plants dry, otherwise the liquid is apt to prove injurious. Runners are kept closely pruned in from the moment the plants are placed in the border until the time when they are removed to the frame, which is usually about the middle of October. They are moved if possible with a good ball of earth to each plant, and are placed in the frame, which is

filled with good light soil, and set on a thick bed of leaves. After planting, the frame is kept nearly close and well shaded. This is continued for a week or ten days, after which the plants enjoy plenty of light and air. Great care is taken not to over water them during dull weather. Under this management Violets are obtained in abundance all through the winter and spring months.

On open walls, here as elsewhere, there is every prospect of good crops of Peaches, Nectarines, Apricots, and Plums. Figs also look promising. When these were wont to be covered here in winter the result was no crop; but during these last two or three seasons, when they have received no protection whatever, they have borne well. They are, however, well sheltered from cutting winds.

Miscellaneous.

The Princess Alexandra's Bridal Bouquet.—It will doubtless interest our readers to learn that Mr. James Veitch, jun., of the Royal Exotic Nursery, King's Road, Chelsea, had by special permission of his Royal Highness the Prince of Wales, the honour of presenting the wedding bouquet. It was of the most beautiful description, being composed of Orange blossoms, White Rose buds, rare Orchideous flowers, and sprigs of Myrtle, with a trimming of Honiton lace. The Myrtle was, by express command of her Majesty, sent from Osborne, and was taken from plants reared from the sprigs used in the bridal bouquet which Mr. Veitch had the honour to present to her Royal Highness the Princess Royal. It is, we understand, her Majesty's desire to have Myrtle plants raised and kept in the gardens at Osborne from each of the bridal bouquets of the Royal family in remembrance of these auspicious events. *From the Times.*

New Mode of Cultivating Asparagus; by R. R. Gauthier.—Asparagus, the author observes, does not succeed well in some soils, especially in cold clays; but he says he has discovered a mode of growing it as easily as Wheat, and at less than the usual expense. Asparagus requires a great amount of heat, in cold soils it pushes slowly, and the quality is not so good as in warm ground. We must therefore in unfavourable soils have recourse to butting or earthing up, forming a conical heap on the base of each stool. *Sowing.*—The seed should be selected from the plants that have been observed to give the finest produce. It should be gathered when ripe, which is generally in September or October; and it should be sown immediately, in fresh dug ground. The seeds should be lightly covered with some good vegetable mould. In the month of May following, the plants will have attained the height of some inches. They should then be planted, choosing the strongest of those that have their buds farthest apart, and rather few roots. The plants, says M. Gauthier, which have their roots much developed often yield small shoots. *Planting.*—If the soil is strong, it must be trenched and abundantly manured with leaves, decayed vegetables, or preferably with street manure, finishing with some good soil at top. There are three ways of planting. 1st. At 6 or 7 inches apart, for obtaining green Asparagus called *Aux petits pois*. 2d. At 13 inches for Asparagus, green or blanched, under glass. For the blanched, soil should be put in the frames or on the beds, to the height of about 12 or 13 inches; for the green Asparagus this is not necessary. 3d. At 3 feet 3 inches distant, and in quincunx for the large blanched Asparagus. When the plants are sufficiently strong, generally when about three or four years old, form over each stool a conical heap of soil like a large mole hill, 10 or 12 inches high, and which may be progressively augmented in following years, according to the strength of the plants, to 20 inches. This work should be done in a dry time in March, the finest soil being gathered together by means of a hoe. The Asparagus is gathered when it pushes an inch or two above the hills; and in doing this great care should be taken not to injure the crowns. The fourth year after planting only a few shoots are gathered from each stool; this gathering should not be continued for more than three weeks at most. In the climate of Paris the cutting of Asparagus continues till the 15th of June; if prolonged beyond this period it will be at the expense of future crops. In the course of November we cut down all the stems to about 13 inches. [In this country they are at once cut nearly close to the ground.] Then we uncover the stools, so as to leave on each only a very slight covering of soil. By so doing, the maturity of the plants is perfected. Every second year, soon after the earthing up is taken down, it is necessary to give the Asparagus plantations a good dressing of rotten dung. Those who prefer a different system of culture from that above indicated should, however, says M. Gauthier, use plants of one-year old, and plant when they begin to push.

British Columbian Timber.—Beaver harbour is fine, roomy, and well sheltered. . . . The timber here is fine—the Douglas and White Pines growing very large. Three or four years ago a large number were felled, with the intention of shipping them to China and elsewhere; but from some mismanagement in the Company which had undertaken the work, they were never despatched, and are now lying about the beach in all directions. There is a considerable quantity of Yellow Cypress here also. This wood is not found on the south-east part of the island. Some has been cut on the west side, but it becomes more plentiful as you travel north; and in the Russian territory near Sitka it exists in large quantities. It is very light and tough, and is by far the best wood on the coast for boat plank. When green it emits a peculiar though not unpleasant smell, and can always be recognised in the woods by its leaf, which differs from that of the Common Pine—which tree it otherwise closely resembles, being convex on both sides. *Mayne's British Columbia.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—The climbers in this structure will now want attention at least once a week. Prune off superfluous shoots, stop or pinch the points of over luxuriant leaders, to induce a flowering habit in such kinds as produce blossoms from the axils of their leaves, and keep them neatly tied and trained. Growing Orchids in stoves should now be carefully shaded for two or three hours on bright days, more especially those which have been disturbed at the root; these, if convenient, should be removed to a house or pit by themselves, as established plants which have remained undisturbed will enjoy more sunshine. Keep up a lively circulation of air all the early part of the day in mixed greenhouses, and dispense with fire heat as much as possible. Where a house of this character has stove as well as common greenhouse plants in it, a climate superior in point of heat to that of an ordinary greenhouse must be maintained; and in order to do as little mischief as possible through the compromise necessary, let all advances in point of extra warmth be made during the day time when there is light. Therefore practice early shutting up; and on such occasions take care that the fire has been very low, or out for an hour or two previously. The heat thus secured for the evening, if accompanied by sufficient atmospheric moisture, will establish a healthy and short-jointed growth. Make a sowing of tender annuals, if not already done. Pot off Balsams, Cockscombs, &c.; these things will do better, however, in a frame, with fermenting materials, close to the glass, and well matted up at night. Continue potting off stock for out-door decoration; also making cuttings of Verbenas, Fuchsias, Petunias, Dahlias, Geraniums, &c.; they will all be wanted. Shade newly-potted Stocks, and remember, that in making cuttings the leaf should not be first allowed to flag, and then an attempt made to restore it by abundance of water; foliage should never be allowed to droop.

FORCING DEPARTMENT.

PINERY.—Little new can be added at present. Give air freely to growing successions in dung-pits; induce them to grow more in bulk than in length.

VINERIES.—Endeavour to avoid the consequences of indulging in too much atmospheric moisture in the day time. Many berries are doubtless scalded, as well as leaves injured, by a surplus of atmospheric moisture in the morning, or too early in the afternoon, in an endeavour to accelerate forcing by shutting up unreasonably early. Night is the period established in the order of nature for copious dews. See that late Vines which have been laying out all the latter part of the winter are now introduced. If they bleed, scrape and dry the wounds, and apply the late Mr. Knight's plaster; which is scraped cheese and powdered oyster-shells, kneaded into a fine paste.

PEACH HOUSES.—Persist in stopping at all times every gross shoot on all the upper parts of the tree—allowing such, however, to ramble when they grow towards the extremities of the lower parts; this is the best way of equalising the sap. Syringe freely—especially in the afternoon—and at that period endeavour to create atmospheric moisture for the night, by sprinkling all available surfaces, except flues or pipes.

FIGS.—Follow up stopping; give manure-water very freely.

CHERRIES.—These should have free syringings, with abundance of air early. The syringing, however, must cease the moment any change of colour in the fruit is perceived.

STRAWBERRIES.—Keep up successions; do not suffer those on which fruit is swelling to get dry; use plenty of liquid manure according to former directions, viz., constantly clear and weak.

MUSHROOMS.—A late bed may now be made.

FLOWER GARDEN AND SHRUBBERIES.

See that rolling, mowing, &c., proceed in due order. Now is the period to lay the foundation of a fine lawn. Let all fresh turfing be completed forthwith. Early herbaceous plants overgrown may now be divided, the exterior portions of the stools should be reserved and the interior rejected. Be sure in planting them again to introduce fresh soil. Cut in all coarse evergreens or shrubs before the bud becomes too much advanced; this is a good time to cut in Holly hedges. The period has now arrived when plants for out-door decoration require attention. Though premature, Polyanthuses in some places are in full bloom; seedlings should now be strictly scrutinised, and reference made to the properties that constitute a good flower, which are given at length in our former volumes; protection not only from late spring frosts, but from cutting winds, will, however, be still necessary in many cases. Tulips never stood in more need of screening than they do just now. Many have potted out a portion of their stock of Carnations and Picotees, and there appears to be a much greater disposition to spindle amongst the layers this year than usual. Keep seedling Ranunculuses from frost, and throw mats over beds containing choice Pansies, the hoops over which ought to be at least a yard high in the centre. Propagate Dahlias in gentle heat; the most slender cuttings strike root most readily.

HARDY FRUIT AND KITCHEN GARDEN.

A sowing of late spring Broccoli may soon be made. See to early Horn Carrots—slugs are reported to be devouring them, although followed up with liming and sprinkled over with coarse sand. Nothing is better, perhaps, than cinder-ashes riddled extremely fine, and the mere dust taken out; these sown thickly over the ground present such a sharp macadamised kind of surface, that snails and slugs are at the last point of starvation before they will venture on them. Be sure to salt all Asparagus and Seakale-beds—little and often is best. The time is approaching for planting Asparagus; it should not be put in until 6 or 8 inches high. Continue to protect blossoms, and to eradicate insects by all possible means. See that all winter and early spring work amongst fruit trees is brought to a close forthwith.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending March 11, 1863, as observed at the Horticultural Garden

March.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 5	○	29.623	29.567	66	35	50	46½	45	S.E.	.00
Friday 6	16	29.546	29.287	53	36	45 5	46½	45	S.E.	.08
Satur 7	17	29.553	29.390	52	30	41.0	48	45	S.	.22
Sunday 8	18	29.530	29.533	50	25	37.5	47	45	W.	.03
Mon. 9	19	29.566	29.405	50	24	37.0	45	44½	W.	.06
Tues. 10	20	29.547	29.276	46	30	38.0	45	44½	N.E.	.01
Wed. 11	21	29.581	29.465	45	21	33.0	45	44	N.	.00
Average.		29.567	29 417	52.0	28.7	40.3	46.1	44.7		.34

March 5—Slight fog, exceedingly fine and warm; fine at night.
— 6—Clear and fine; overcast, rather boisterous.
— 7—Overcast, fine, overcast; heavy rain.
— 8—Fine; cloudy, showers; frosty at night.
— 9—Frosty; clear; fine; sharp frost at night.
— 10—Hazy, fine, hazy, slight rain; fine; overcast; foggy.
— 11—Uniformly overcast, fine but cold; sharp frost.
Mean temperature of the week, ½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending March 21, 1863

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 15	51.0	31 4	42.2	17	0.37 in	3	8	4	1	3	7	7	4
Mon. 16	51.5	34.8	43.1	12	0.68	1	9	7	1	2	11	5	3
Tues. 17	50.0	33.5	41 8	12	0.37	1	8	3	—	4	7	7	3
Wed. 18	50.4	33.5	42.0	11	0.24	3	8	2	2	2	6	12	2
Thurs. 19	51.3	34.0	42.7	12	0.33	4	5	2	1	2	10	7	3
Friday 20	51.5	34.1	42 8	16	1.11	3	4	—	2	—	13	5	6
Satur. 21	51.0	32.9	42.0	17	0.21	9	3	3	3	3	2	7	1

The highest temperature during the above period occurred on the 15th, 1828, 19th and 20th, 1836—therm. 67 deg.; and the lowest on the 17th and 20th, 1845—therm. 17 deg.

Notices to Correspondents.

APPLE TREE: *Z.* It is covered with American blight. Try the effect of painting it over with a strong lather of Gishurst Compound. Care must, however, be taken to brush it well into all crevices and cracks, or some of the pest will survive the dressing and reestablish, and the work will have to be all done again.‡

CROCUSES: *G. Ipswich.* Of all the new sorts by far the finest is Le Majestueux, at least what is sold by Barr & Sugden under that name. Very large, and most elegantly veined with sharp purple lines on a ground delicately tinted with violet.

FRUITS AND FORCING: *J C N.* The Charlesworth Tokay is closely allied to the Muscat of Alexandria. The White Nice produces very large bunches like the Syrian, but the berries are not so large as those of the latter; their skin is thinner, and their pulp not so firm. If you wish to prevent your Peaches, which were planted end of last October, from throwing their fruit, you must give the trees plenty of air, and but little artificial heat whilst they are in blossom; they ought not however to be allowed to bear much till they are better established. As for the cause of Fig trees casting their fruit when half grown, although a common occurrence, we doubt whether any one can satisfactorily explain it. We have known intelligent gardeners who had their Fig trees, under glass, loaded with fruit at one place; but the same persons, acting on the same system at another place, failed in obtaining such crops; and they confessed they could not account for the fact.‖

MUSHROOMS.—We have received from *Mr. Harley*, gardener at *Fairford*, a box of fine large Mushrooms, but as they were packed up on Feb. 23, and only reached us last Friday, they were of course in such a state as prevented any opinion being formed of their quality. They appeared to have been the brown sort, which is always a great bearer. Mr. Harley says the spawn from which they had been produced was made by himself of turfy loam and horse droppings in nearly equal quantity, well worked together in a moist state; when half dry cut into bricks; when perfectly hard dried thoroughly. He has been gathering Mushrooms since the 16th August last by the bushel from three beds, each 3 yards long by 2 wide, the depth of dung being about 14 inches. He adds that he could now send a bushel more of the same quality from a bed made Jan. 10.

NAMES OF PLANTS: *R G., Edinburgh.* Gongora truncata.—*G S.* Garrya elliptica, the female.—*Gloster.* Forsythia viridissima; the "greenish straps" are not flowers, but the scales of leaf buds.—*Stewkley.* 1, Thujopsis dolabrata; 2, Thujopsis borealis. We are unfortunate enough not to understand the question about a Vine in a pot.—*H H.* Soldanella alpina.

SCRAPS ON PLANTING: *S S.* You must excuse us. We really cannot affront our readers by criticizing such ignorance.

THE MASTIC LHOMME LEFORT: *G D.* desires to learn where he can obtain this grafting wax. We only know that it was sent to the International Exhibition. No doubt it may be had in Paris.

THE STANWICK NECTARINE: *Acklington.* This delicious fruit cracks because when swelling it has too much water, either by its roots or through the atmosphere. When swelling it requires warmth and *dryness*. The questions are gone to the Horticultural for answer.

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SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. Purser, Secretary.

116, Fenchurch Street, E.C.

Manures for Present Use.

PERUVIAN GUANO, Genuine as Imported by the Contractors of the Peruvian Government, Deliveries direct from the Docks; NITRO-BIPHOSPHATE (Blood and Offal Manure), Fish Offal ditto (PHOSPHATE); SUPERPHOSPHATE of LIME (made from Bone), see Royal Agricultural Society's Journal, vol. 6, page 2; and all others of known value, may be had on the best terms by application to Mark Fothergill, 23, Great Tower Street, Mark Lane, E.C.

Established 1839.

TENANT FARMERS' MANURE COMPANY.
ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME,

Manufactured by THE Patent

NITRO-PHOSPHATE or BLOOD MANURE COMPANY (Limited),

Consisting of TENANT FARMERS, occupying upwards of 30,000 Acres of Land.

Chairman.—John Clayton, Esq., Littlebury, Essex.

Particulars of these Standard Manures may be obtained at the Offices. C. T. Macadam, Secretary.

Or of the Local Agents.

Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Pluistow Marshes, Essex, N.E.

LAWES'S MANURES. The Manures manufactured by J. B. Lawes for the present season of 1863 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. Lawes, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from Messrs. Gibbs: Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address John Bennet Lawes, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

CAUTION to BUYERS of GUANO.—Having been informed that Guano has been Imported into Liverpool, and offered for Sale as "BAKER'S ISLAND GUANO," I hereby give Notice that I control the Deposit of "Baker's Island," and that the Genuine GUANO can only be procured of W. H. Webb, at New York; or through my Agents, Messrs. Guion & Co., of Liverpool, and Grinnell, Tinker, & Morgan of London. William H. Webb.

Burling Slip, New York, December 9, 1862.

AGRICULTURAL and HORTICULTURAL TOOLS.—Threshing Machines for Steam and Horse Power, Ploughs, Waggons, Carts, Turnip Cutters, Cake Breakers, Chaff Cutters, &c. Price List free. Illustrated Catalogues on receipt of six postage stamps.

Burgess & Key, 95, Newgate Street, E.C.
Works: Brentwood, Essex.

HENRY J. MORTON and CO., 2, Basinghall Buildings, Leeds.

Galvanised Iron Water Cistern

or Cottage Houses, &c., to contain 50 gallons, 26s.; 80 gallons, 31s. each; and 140 gallons, 37s., and fitted with tap, keeping the water perfectly sweet and clean; will not rust or corrode. Cisterns of all sizes.

Galvanised Iron Pumps

or Liquid Manure or Domestic Use, 3 inches diameter, 30s. and 32s. 6d. each; Tail Pipe for same at from 10d. per foot.

Galvanised Iron Swing Water Barrows

or Garden or Farm use, containing about 20 gallons, entirely formed of iron, 35s. 0d. each.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.

PROTECTION from the COLD WINDS & MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. .. 1s. 6d. per yard run.
Four yards wide .. .. .. 3s. per yard.
An improved make, 2 yards wide, 1s. 8d. per yard.
An improved make, 3 yards wide, 2s. 6d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 4d. per yard run.

Elisha Thomas Archer, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon St., City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

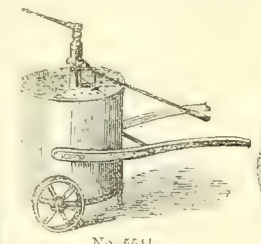
Oil Paint no longer Necessary.

HILL and SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon pai to any station in the kingdom.

Apply to Hill & Smith, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

JOHN WARNER and SONS, 8, Crescent, Cripplegate, London, E.C.

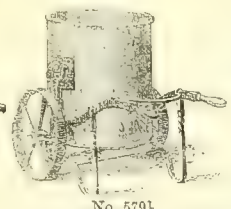


No. 554½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons	£2 15 0
16 ,, ...	3 15 0
24 ,, ...	5 0 0

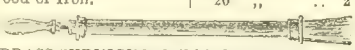
Larger sizes may be had in Ash or Wood or Iron.



No. 579½.

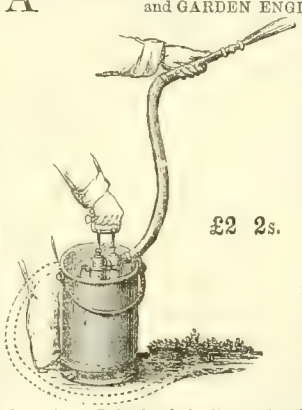
WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons ..	£2 10 0
20 ,, ..	2 0 0



BRASS SYRINGES of all kinds from 9s. to 21s.

AMERICAN PORTABLE FIRE ANNIHILATOR and GARDEN ENGINE.



£2 2s.

An efficient means of Extinguishing Fires at their commencement. Nine out of ten Fires in London are put out on their first appearance by the London Fire Brigade with Hand Pumps of considerably less power.

One man will throw 7 or 8 gallons per minute from 40 to 50 feet with it.

It is an effective Garden Engine for cleansing or syringing Wall-fruit or Rose Trees, Plants, or Vines.

It may be used to draw water from the pail in which it is fixed, or from a tank or pond by the addition of the required length of suction. It is simple in its construction, having no suction or delivery valves to clog with dirt or leaves.

No Establishment, either private, commercial, or manufacturing, should be without one.

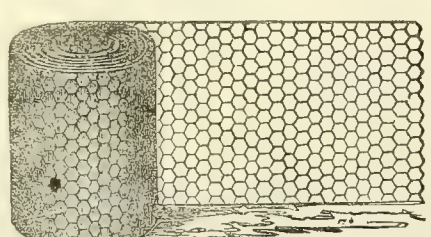
Six feet of Flexible Suction, with Union and Suction Rose, &c., extra, 12s. Longer lengths of Suction at 1s. 6d. per foot.

The above may be obtained of all Ironmonger and Seedsmen in Town and Country, or of the Manufacturers,

John Warner & Sons, 8, Crescent, Cripplegate, London, E.C.

BARNARD, BISHOP, and BARNARDS, Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.



Barnard, Bishop, & Barnards beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard
2-inch mesh, 24 inches wide..	No. 19	.. 4¼d.	.. 3½d.
2-inch ,, ,, ,, ..	,, 18	.. 5	.. 4
2-inch ,, ,, ,, ..	,, 17	.. 6½	.. 5
2-inch ,, ,, ,, ..	,, 16	.. 8	.. 6½
1⅝-inch ,, ,, ,, ..	,, 19	.. 4¾	.. 4
1⅝-inch ,, ,, ,, ..	,, 18	.. 6	.. 4¾
1⅝-inch ,, ,, ,, ..	,, 17	.. 7	.. 5½
1⅝-inch ,, ,, ,, ..	,, 16	.. 9	.. 7

All the above kinds can be made any width (under 6 feet), at proportionate prices.

Strong Galvanised Poultry Netting, 7½d. per yard, 3 feet wide, Galvanised Sparrow-proof Netting for Pheasantries, 11d. per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 fee apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10d. per yard.

The same with Galvanised Wire Rope, 1s. per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

AGRICULTURAL and CHEMICAL COLLEGE, 37 and 38, Lower Kennington Lane, London, S.

ASSAYS and ANALYSES promptly attended to by J. C. Nesbit, Lansdell & Co.

AGRICULTURAL and CHEMICAL COLLEGE, Kennington.—Manufacturers and others engaged in making Artificial Manures may obtain every necessary instruction for their economical and efficient preparation by applying to J. C. Nesbit, Lansdell & Co., 37 and 38, Lower Kennington Lane, London, S.

Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and despatch.

Gentlemen, Farmers, or others, desirous of practical knowledge in Chemical Analysis, or Assaying, may receive instruction at the College, where the extensive Laboratories give ample facility for pursuing their studies, and there is accommodation for a limited number of Resident Students.

Full particulars of terms will be forwarded on application.

Drainage, &c.

MR. JOSEPH BEAUMONT, Land Agent, Surveyor, and Drainage Engineer (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.

Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements. Valuations made for Sales, or the re-letting of Farms.

22, Parliament Street, Westminster, S.W.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Special Act of Parliament in 1853.

2, Old Palace Yard, Westminster, S.W.

To Landowners, the Clergy, Estate Agents, Surveyors, &c. in England and Wales and in Scotland.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

For further information, and for forms of application, apply to the Honourable William Napier, Managing Director, 2, Old Palace Yard, Westminster, S.W

Land Drainage.

WORKS of DRAINAGE of any extent are EXECUTED by the GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY on all descriptions of property, whether freehold, entailed, mortgaged, trust, ecclesiastical, corporate, or collegiate.

Repayment may be made by the Landowner as successive portions of the works are completed; or the actual expenditure, with a commission thereon, may be charged on the property improved, by way of rentcharge on the estate created for various terms of years so as to adapt the rate per cent. of annual charge to the circumstances of the tenants.

No investigation of title being required, or notices given to Reversioners or Mortgagees, no legal expenses are incurred.

Works of Irrigation, Enclosing, Wood Grubbing, Road Making, and Farm Buildings are executed in a similar manner.

Landowners desirous to execute any of the Improvements by their own Agents, and charge the outlay and expenses on the Estate, may obtain Loans for the purpose.

Applications to be made to William Clifford, the Secretary, at the Offices of the Company, 52, Parliament Street, S.W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

WORCESTER MEETING, 1863.

STOCK and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to

H. Hall Dare, Secretary.

12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MARCH 14, 1863.

—— We last week saw Mr. Smith's new combined cultivator and drill most successfully worked by steam power at Woolston. Built on a very strong framing, for it is at once a grubber and a sowing machine, it is first drawn round the headlands of the field, commencing close to the hedgerows, stirring the land and at the same time depositing the seed in rows; and when a sufficient width of headland has thus been finished to furnish turning ground for the tool, the whole of the field is gradually planted in the same way from one side of it to the other. On the previous Monday the tool had been taken to a 12-acre field; it had started work at 10 A.M., the headlands were accomplished by 1 P.M., and

the whole field was finished by 1 P.M. on the following day. Fourteen cwt. of coals had been burned during this process, and 7 men and 2 boys had been employed for one day and a half. The land, a Wheat stubble of 1862, had been manured and grubbed by steam-power in autumn, and now the combined cultivator and drill crossed the working of the previous season. It is impossible for land to have been in better condition for planting, or to have been planted in better form.

Close by, young Wheat, looking the right colour and planted exceedingly well, had been sown by the machine directly on a Bean stubble, with no other preparation or cultivation than was thus accomplished at a single operation.

On the stiffer land, where the implement was employed in planting Beans last Friday, the tool was crossing the autumnal cultivation of last year's Barley stubble. By shifted snatch-blocks the tool was in the first instance drawn in and out wherever desired, in order to the thorough cultivation and planting of a somewhat crooked headland. And the union of the round-about system of draught with the arrangement for turning the tool at the land's end which characterises Mr. SMITH'S plan of steam cultivation, is admirably adapted to the application of steam power to the draught of a sowing machine.

We cannot doubt the success of the new tool; it will be a very great addition to the advantages and facilities which steam power has already conferred on arable farmers. We must add that it appears to us a very great addition to the value of Mr. SMITH'S property in steam cultivation. And on this view of the matter we offer him our cordial congratulations. English agriculturists owe much to his ingenuity, foresight, and resolution in connection with steam cultivation. None of those to whom we owe its successful prosecution hitherto has a more numerous or a better satisfied body of clients and disciples, nor has any of them hitherto a larger extent of land in this country under his particular plan of cultivation by steam power. We are glad therefore of any fresh promise that occurs to Mr. SMITH or to any other of our leaders on this subject of an adequate reward for his labours.

—— PROFESSOR DAVY has lately called the attention of the Royal Dublin Society to the method which Mons. MARCHAND has devised for determining the richness of milk. He declares it to be perfectly trustworthy, and therein to differ from the other principal methods hitherto employed to determine the quality of milk, which are all more or less fallacious.

M. MARCHAND'S method consists in adding to a certain volume of milk in a long glass tube, closed at one end, and of about half an inch in diameter, an equal volume of ether (having previously rendered the milk slightly alkaline by the addition of a few drops of a solution of caustic soda or potash). The same volume of alcohol as that of the ether employed is then added, the proper quantities of milk, ether, and alcohol to be used being indicated by three marks on the tube. After each addition to the milk, the tube is to be well shaken for a few moments, during which time it is to be firmly closed with the thumb of the hand holding it. The alcohol having been added, and the contents of the tube finally well shaken, it is then only necessary to immerse the tube for a few minutes in a vessel of warm water (the temperature of which is about 100° F.), when an oily layer will form on the surface of the mixture in the tube, and its thickness will be in direct proportion to the richness of the milk in butter.

By having a graduated sliding scale, whose divisions bear a certain relation to the volume of milk employed, and this latter to a pint or quart, the amount of butter in either quantity of milk can be known in a few minutes.

The accuracy of this method of determining the quantity of butter in milk, Professor DAVY has satisfied himself of by many experiments; and he is of opinion that it might be of much use as a means not only of testing the milk supplied to different public institutions, with a view of detecting adulteration, but likewise for the purpose of having them supplied with milk of a certain degree of richness, and that when it was discovered by this method to fall below a fixed standard it should not be taken into those institutions.

THE first part of the volume for 1863 of the Journal of the Royal Agricultural Society has just made its appearance. Last year's Journal appeared in October, 1862, in one volume at once —in a publication which, taken to be the usual half, was pronounced to be an unusually good specimen of the work. It was a disappointment to learn that the whole Journal for the year had thus been issued; but we have the advantage thereby of getting the work for the future published in time—the first part in early spring, the second in early autumn. And the advantage of suiting the topics to the season is in the present instance seen almost at once. At the commencement of the Part we have a further report from Dr. VOELCKER on top-dressings for grain crops, in the middle another valuable and elaborate report from Mr. LAWES on top-dressings for Grass lands, and towards the close an instructive paper from Mr. LAWRENCE, of Cirencester, on Carrot and Cabbage culture—all of them topics on which we want information *now*, in order that it may be turned to account during the coming season.

To the other papers in the volume we shall hereafter direct attention; meanwhile the following may be given as a further contribution to the history of top-dressings which occupied us last week. The field on which the experiments took place was of a somewhat clayey calcareous soil—"moderately stiff and fair Wheat land." The conclusions reached are stated thus :—

"1. Nitrate of soda, as in previous years, produced a considerable increase both in corn and in straw.

"2. The larger application of nitrate of soda produced a correspondingly larger increase in corn.

"It will be seen that whilst 1 cwt. of nitrate of soda and 2 cwt. of salt gave an increase of 9¾ bushels of corn, 1½ cwt. of nitrate and 3 cwt. of salt gave an increase of 12½ bushels of corn, and 2 cwt. of nitrate and 4 cwt. of salt an increase of 15¾ bushels. Thus for each ½ cwt. more nitrate of soda an additional increase of almost exactly 3 bushels of Wheat was obtained.

"3. In the third experiment 2 cwt. of nitrate of soda and 4 cwt. of salt gave scarcely a larger increase than in the fourth experiment, in which 2 cwt. of nitrate of soda was used alone. This was also the case in my Wheat experiments in 1861; whilst in the preceding years of 1860 and 1859 the addition of salt to the nitrate of soda had a marked beneficial effect upon the Wheat crop.

"4. Salt alone, applied at the rate of 3 cwt. per acre, it will be seen, produced as large an increase as 1 cwt. of nitrate and 2 cwt. of salt.

"This is a curious result, but it stands not solitary, for in 1861 salt alone produced an increase of nearly 7 bushels of corn. But as salt alone in the years preceding 1860 had hardly any effect upon the increased production of corn, it appears very desirable that further experiments with this cheap fertiliser should be made.

"5. Peruvian guano, applied at the rate of 2 cwt. per acre, produced nearly as good a result as 2 cwt. of nitrate of soda.

"6. The addition of salt to the guano, it appears, had little effect in further increasing the produce in corn, as it had in conjunction with nitrate of soda.

"This is the more remarkable, since salt alone had such a favourable effect when used by itself.

"7. Salt, added both to guano and to nitrate of soda, appears to have checked over-luxuriance in the straw. Thus it will be seen that whilst 2 cwt. of nitrate of soda produced an increase of nearly 12½ cwt. of straw, the same quantity of nitrate mixed with 4 cwt of salt gave only an increase of 9¾ cwt. of straw in round numbers. And again, whilst 2 cwt. of Peruvian guano gave 9¾ cwt. of increase in straw, the same quantity of guano mixed with 2 cwt. of salt produced only an increase of 7 cwt. of straw. To show the commercial results I have constructed the following table. The Wheat is valued at 48*s.* a quarter, the price at which it was actually sold, and the straw at 30*s.* per ton, as a usual selling price.

"As regards economy, there can thus remain no doubt that nitrate of soda, as well as Peruvian guano, either alone or mixed with salt, may be used with great benefit as top-dressings for Wheat—at least, on calcareous soils which, like our soils, contain an abundance of mineral plant food.

"On light land, guano and salt appear to me preferable to nitrate of soda or salt, because guano supplies phosphates and alkalies, as well as nitrogenised matters, whilst nitrate of soda is efficacious as a manure solely in virtue of its nitrogen.

"Caution ought, therefore to be used in applying this salt as a top-dressing for Wheat on light land. The opinion that nitrogenous top-dressings are beneficially applied to Wheat grown on poor land requires to be accepted with discrimination. If the poverty, or rather unproductiveness, is caused by a bad mechanical condition and improper aëration of the soil, such top-dressings frequently produce marvellously beneficial results —results, however, which perhaps are not greater than those attending deep ploughing, exposure to air, and similar means for improving naturally unproductive clay soils. But if land is unproductive, like many sandy soils, simply because it does not contain in sufficient quantity all the mineral constituents which enter into the composition of the ash of Wheat, top-dressings with nitrate of soda will tend to its more rapid exhaustion; and though such a dressing may for a season produce a somewhat larger corn-crop, it is doubtful whether the injury done to the land is not greater than the temporary benefit which is realised by the crop."

"On the whole," says Dr. VOELCKER, "I am inclined not to recommend nitrate of soda, as is commonly done, as a top-dressing for Wheat on poor land, if, as explained, the poverty of the land is caused by a deficiency of mineral food; but I would feel little hesitation about using it liberally on clay soils and all land which good cultivation renders productive. Chemically speaking, the better the land—that is, the more abundant in it the stores of mineral food—the more largely nitrogenous top-dressings may be used, and *vice versâ*."

In keeping with this is the experience of Mr. STRATTON, at Wall's Court, near Bristol, related in an appendix, who had an extraordinary return from a top-dressing of nitrate of soda on his clay soil, which, though described as an inferior clay soil, is not poor in a chemical sense, but full of mineral riches.

THE LAMBING SEASON.

EVERY true breeder of sheep looked forward with no ordinary interest as the lambing season approached, and the state of his ewe flock invariably excites his careful attention and solicitude. He is anxious that no reasonable cause of failure shall be chargeable to any neglect, mismanagement, or ignorance on his part; hence he endeavours to re-assure himself that he has so far done what was requisite and necessary to their safety, and he is now making every proper provision to insure their successful passage through this their trying and difficult time—the lambing season. To aid the general breeder at this precise time, it may not be inappropriate to remind him of a few of the common and ordinary requisites necessary to insure a successful season.

The Lambing Field.—Every breeding farm of moderate, or any extent, ought to possess a suitable and convenient field in which to collect the ewe flock during the short period of lambing. This should be near to the residence of the shepherd, and be under pasture, dry, and well sheltered. The food upon which they have been fed for the last few weeks should be brought them, and given in moderate quantity. Lamb-pens and shelters should be made according to requirement throughout the field. The lamb-pens for the use of the ewe immediately after lambing in cold weather, and the shelters for the lambs to creep to as they please. In addition to this field, warm and convenient paddocks, provided with lamb-pens well covered, should be attached, into which the ewes should be driven every cold or wet night, so as to be more immediately under the eye of the shepherd. This arrangement conduces much to the comfort of the shepherd and the safety of the flock. No plan can be devised from which something detrimental may not arise. Now, great care is requisite in this case. These paddocks must be kept as sweet and clean as possible, otherwise the cleanings of the ewes and other gangrenous impurities coming in contact with the uterus or vagina of the ewe may cause gangrene and consequent death—besides, occasional cases of fever arise which in certain seasons have become infectious. The ewes, therefore, should be fetched in the last thing at night, and put out as early as good judgment dictates in the morning; those already lambed to a separate field, those yet to lamb to be returned to the lambing field, any sickly or weak ones to remain in the lamb pens. Care must be taken to supply their food with great regularity, so that no restlessness takes place. This uneasiness is often the cause of great losses amongst the weaker lambs, the dams seeking more after their own food than to take care of their progeny.

These common attentions being provided for, we now come to the ewes, and their requirements during lambing. The treatment should always be founded upon principles of patience, quietude, and kindness. When the ewe manifests unequivocal symptoms of labour, the shepherd should keep a close watch upon her. After a reasonable time (and plenty of time should be given) he should with the aid of his crook catch her, and examine to see if the presentation is correct, which may be ascertained by the finger, and he ought to find the muzzle with a forefoot on either side of it, but somewhat under it. If this is the case he may safely leave her to her own efforts for some time longer, or rather till the tongue of the lamb begins to protrude and becomes discoloured, or the ewe exhibits signs of exhaustion; in either case he must no longer wait, but aid her in such way as in his judgment seems best. If he has to draw the lamb away, he should gently lay her on her right side, and as quickly as possible seize one of the fore-legs and very steadily draw it forward, (the ewe will generally cease to struggle when the shepherd begins to draw); when this is brought out, he should then take hold of the other leg with one hand, and endeavour with the other to bring the head forward at the same time, but not forth; the leg should come first, and if the head has been brought forward, it will immediately follow; the lamb should then be gently drawn away

and at once laid to the head of the ewe, who, if not greatly exhausted, will immediately commence licking it clean. In a few minutes it should be suckled; indeed, if the ewe lies quietly it may be suckled as she lies; but it is wrong to hold her up and set her on her rump, as is too much the case, to suckle the lamb. This often brings on "paining," and not unfrequently results in the expulsion of the womb. It is certainly very important to the lamb, especially in bad weather, to get it suckled speedily; but to do so at once, irrespective of the painful condition of the dam, is wrong. Good judgment is necessary.

Wrong presentations unfortunately often occur from too many causes, which with due care in many instances might be avoided — alarms, jumping grips, long drifts, running, &c. When a wrong presentation occurs, the shepherd's first duty is to seek assistance to hold the ewe properly. He should then grease his hand and introduce it with the utmost care into the uterus or vagina, and according to the case so act. If it is a side presentation, or the breech, or the back, the fœtus must be pushed back into the womb, and a leg if possible be got forward—the foreleg if it can be done, but if not, the hind legs will generally suffice. The first leg brought forward should have a strong tape or list placed securely on it to hold by, the assistant aiding; then get the other forward—if this can be done, parturition will speedily ensue. Occasionally the lamb has to be turned in the womb, a most difficult and hazardous task, the head must be found if possible, and be brought to the mouth of the womb, together with the forelegs; failing this the shepherd must use his own discretion, which often results in taking the lamb away piecemeal. This is best done by introducing a noosed cord, and placing it on the legs first, and as they are drawn forward to take them off, and so on till all is brought away. If the lamb can be turned so as to form a fair presentation, it may be desirable to leave the ewe to her own efforts awhile, but generally the better course is to take it away if all appears fair to do so. In cases of a dead lamb in the womb, the like course must be pursued. The shepherd should always be provided with a cordial drink, consisting of milk, brandy, and sweet spirit of nitre, about equal parts, and give one or two tablespoonfuls as the case may require; but in a case of paining a tablespoonful of laudanum is better, to be repeated when the paining returns. A strong dose of laudanum will lay the ewe in quiet, during which rest the womb has time to partially settle in its usual position. Laudanum has also been found very efficacious in subduing the great restlessness consequent upon strong or protracted labour. In cases of the ceasing of pains during labour, infusion of ergot of Rye is strongly recommended to recall them. In cases of fever, Epsom salts are as useful as any other medicine, and but little bleeding. The succulent food given is generally of a sufficiently purgative character, but watchfulness is very requisite in a sickly ewe, and gruels and cordial drinks should be given. Should the womb become inverted it may be replaced, and a strong dose of laudanum administered; but should paining recur, and expulsion again and again take place, it is best to tie a ligature round it. It will slough off in a few days, and but little harm will result. Of course in such a case the ewe must be fatted after rearing her lamb. Should inflammation of the womb take place, bleeding and Epsom salts must be resorted to, but no infusions. This affection requires close watching, often commencing on the two or three first days after lambing, and is difficult to discover.

The Cæsarian operation should only be resorted to in extreme cases. Lambs have often to be taken from an opening in the side of the ewe when the case is otherwise hopeless. If this is requisite it should be done by a veterinary surgeon, who might possibly save the ewe. The expulsion of the placenta on cleansing is occasionally attended with some difficulty—resort in this case must be had to the infusion of the ergot of Rye, to be followed in a day or two by 2 ounces of Epsom salts with a little ginger.

The treatment of the young lambs as they are dropped is simple but important. In a protracted labour some are actually dead, in other cases they appear so; in all cases the shepherd should attempt to inflate the lungs by cleansing the mouth, and then blowing strongly into it so as to reach the lungs. His first duty to the lamb in all cases should be to cleanse the nostrils and mouth, then place it before the dam; in a few minutes it may be suckled, and shortly afterwards the dam and lamb may be taken to the nearest shelter, but always having regard to the state of the ewe, and on no account drive a ewe already exhausted to any distance. If the lamb is starved down recourse must be had to the "kitchen fire," and a slight covering over its head or mouth; it should be held awhile to the fire before laying down—quickness in imparting warmth is the only chance in most cases. The udder should always be cleared of wool, lest the lamb draws it into the stomach, where it is fatal. The shepherd should always have at hand, laudanum, castor-oil, Epsom salts, warm milk, gin; also his crook, a small hook or curved wire, bright, a cord or tape, and his ruddle or marking material. *O. F.*

LAMMERMUIR SHEEP FARMS.

The district is divided into sheep farms, varying in extent from 1000 to 5000 acres. Although the depopulation system, so common in many districts of the Highlands of Scotland, and so obnoxious from the sudden and wholesale manner of ejection, is unknown here, yet the fact is undeniable that our hills and valleys were in former days much more thickly peopled than they are now. The crofter system of the Highlands, whereby a clan held possession of a district, each householder cultivating a plot of ground around his dwelling, never apparently existed here; but it is certain that at no very remote date the farms were smaller, and the homesteads, such as they were, more thickly planted among the hills. Many of the present farms embrace the area of two or three of the holdings of bygone days, the names of which are still retained in current leases, although in many instances nothing but grassy mounds remain to mark where dwellings have been. Not only were the farms more numerous, but in the glens stood many a thatched cottage, now level with the ground, which in those times supplied labour to the surrounding farms. On this farm alone the householders are eight or nine fewer in number than they were, even in the recollection of men still living, and the same remark applies in greater or less degree to the whole district.

From old farm books and memoranda, which date from the year 1744, we gather some information about the labourers employed on the farm 100 years ago. Their wages were paid largely in kind, and money seems to have been a very scarce commodity. Day's wages rate about 4*d*. a day for ordinary labour; 6*d*. a day (with meat) for clipping, and as high as 8*d*. for mowing.

One or two entries in these old books we extract as curiosities:—

"David Symington wrought two days and a half at 4*d*. a day, is 10*d*., for July, 1748.

"19th day of May, 1755 (or 6), counted with George Fream, and he has wrought seven days at a mark a day, and 10 days of a labouring man at half a mark a day at the (washing) pool of ——, for making it better.

"11th ——, 1772. Hired George Barry for 36 sheep, 20*s*., and two pair of shoes.

"Hired James Barry for 20 sheep, 20*s*., and two pair of shoes.

"Hired James Robinson for 30 sheeps' Grass—the ordinary dry boll and a cow.

"April 14th, 1772. Having measured the dykes there are one hundred three score and eighteen roods—money 1*l*. 2*s*.—Bountith—one firlot—½ peck."

The dykes referred to appear from similar entries to have been for cattle folds, which most probably were constructed of turf, for shelter or fencing, as the remains of such are visible in the old pastures to this day. Throughout this whole range of hills much more land has been under the plough at a former time than what is now kept in cultivation. Almost every acre of good land bears the mark of the plough. Some of the old ridges are crooked like the letter S, showing that oxen had been used in draught—these are seen occasionally on very wet meadow land, and for the purpose of surface drainage have been always ploughed one way till the ridge was gathered high in the centre, and the furrow scraped bare and deep. No doubt the crop would then confine itself very much to the deep soil of the middle of the ridge. The existence once of many little local grinding mills—abandoned and in ruins now—indicate a period when cultivation was more extended—the inhabitants more numerous, and more accustomed perhaps to live upon oatmeal of their own production than Wheaten bread. We of the present day are however strongly disposed to doubt whether all this ploughing has not deteriorated rather than improved the grazings of our hills; most of the dry lea land being completely over-run and choked up with fog, or having in large measure reverted to the original Heath. This fog, by the way, seems to follow the plough, sooner or later taking possession, whereas any patches of good soil which have escaped the plough produce bushes of Heather intermixed with rich and sweet Grass. The explanation of so much ploughing is found, we think, in the fact of the farms being more numerous, also in the high price of grain during the wars of the beginning of the present century; but last, and principally, that the style of cultivation followed in those days rendered the breaking of fresh ground a frequent necessity. Turnip and drill husbandry being as yet unknown, and the rest and restoration of cropped land in well sown down and well fenced fields unpractised (the only rest given consisting in an occasional bare fallow, frequently followed by a close succession of white crops), utter exhaustion of the soil ere long drove the persistent cultivator to fresh fields, there for a while to pursue the same process of extraction, while the forsaken subject, having sown itself away to Grass or something else, was supposed to be resting and recovering itself for a future day and a fresh infliction. Much of such ill-used land, however, has not recovered itself yet, and possibly never will, till again taken through hands and dealt with in a more liberal manner. But we must not be too severe in our review of the farming of those days, for what better could they do in a country such as this. Their systems and practice may appear odd and antiquated now, but we must bear in mind that their resources and appliances were very limited. They had no roads, or at best only bridle paths over which the corn had to be marketed, and lime brought home long distances on horses' backs. Without the Turnip crop above all without the artificial manures of modern times, we could not expect their practice to have been much different. Money also was by no means plenty, or at least little of it found its way into this remote and unproductive hill country.

The old books already referred to furnish us with information about the sheep department also, and the one from which we now quote contains a record of the numbers of sheep on the same farm for about a century, as enumerated at stated times when "counting" with the shepherds. The first extract dates 119 years ago:—

"Having counted, 15th of September, 1744, I have of old sheep 28 score and 7; 14 score and 1 ewes; 16 score of lambs."

And bearing upon prices we have the following:—

"April 1756. Sanders Carr has got 60 ewes, at 7*l*. 10*s*. the score, and I have got 6*l*. of their price." The price was thus 7*s*. 6*d*. a head.

"Jan. 20, 1751. Sold my two red oxen at 9*l*. 10*s*. sterling, and I have received 38*s*. ready money, and John Sligh is owing me 7*l*. 12*s*. sterling."

—— "1750. William Currie. Wool at 7*s*. a stone; he got 70 and 3 stones."

The Valley of the Whitadder Water at a still earlier period was an extensive forest of natural wood, which, extending from the opening into the Merse of Berwickshire back 10 miles among the hills, was so dense on each side of the river that a man might have stept from branch to branch for miles of the stretch, abundant confirmation of this being found in the clumps of brushwood still existing here and there on the hill-sides.

The general introduction of sheep seems to have been the destruction of the natural timber, in cropping over the tender seedlings as they appeared, and which in succession would have taken the place of the old decaying trees. The ground seems full of roots or seeds yet, as is shown by the turf cope of stone walls, where out of reach of the sheep, frequently sending up vigorous stems of Mountain Ash. The valley itself seems to have been a mountain pass between the two counties of Berwick and East Lothian; the ruins of a line of old border towers or keeps, with lockfast accommodation for cattle on the ground floor, plainly telling of the days when the possession of goods and chattels was not so peaceable as now.

But to come down to times which we know more about, we find the hills stocked with black-faced or Highland sheep, hardy mountaineers, which live on what the hills afford them, and look for nothing from the stock-master but a handful of hay saved from their pastures during summer, to put over a snow storm when they cannot reach the Heather. These were certainly the kind of sheep for those days when Turnips were not grown, and many believe them to be the best kind yet, for high and exposed ranges. This may be true where the altitude of the sheep range is too high for the introduction of the combined arable and pastoral system, but where this can be done with a fair prospect of the arable land paying its way—the command of Turnips and well sown down Grasses enables the flockmaster to maintain a larger and finer class of sheep, and one which will yield more return for forcing and extra keep. Such a breed we have in the Cheviot, and for Turnips and good keep they pay much better than the black-faced. The teeth of black-faced sheep fail soon upon Turnips, and their wool does not pay so much for extra keep as that of the Cheviots or Leicesters. We believe however that in their own range they are the safest and most profitable, living and thriving where Cheviots would pine and dwarf. The question whether Cheviots or black-faced pay best where the farming is partly arable, is more easily settled however than the other question of how far it is prudent and profitable to carry the arable department up among the hills. Soil, locality, climate, and access are the circumstances which determine this. We might at times be disposed to assert limits, were it not that in practice we see the steady march of reclamation and its wonderful effects; the prices of mutton and wool being no doubt the stimulating cause. The circumstances which affected this question in a former day are not the same to us, and many new elements must enter into our consideration of it, chief of which are the demand for store sheep of a good quality for low country feeding, the opening up of the country by railways, and the command of artificial manures. The class of sheep most in demand for low country purposes, is the cross between the Cheviot ewe and the Leicester ram. The black-faced ewe is also crossed with the Leicester ram to a large extent, and the produce is a valuable sheep, both of the above crosses leaving a large return for good keep on Turnips, whether as boggs the first winter, or fat sheep the second. This transition state of things, however, though decidedly apparent in this range of hills, is seen in much greater activity in those districts of high lying country which have been intersected by railways. There the plough has climbed the steep hill side, the open country has been enclosed and subdivided into fields, a regular system of arable farming introduced, and there even the Cheviot ewe has given place to the finer class of half Leicesters, which far exceed in quality and even in num-

bers the original stock, which had the whole country to themselves; the plough bringing more sheep in its wake than it displaces by its innovations. Good roads, of which there are few even yet in Lammermuir, would do much for its improvement. It is within the recollection of men still living that many of the present lines of road were formed; and in their formation a most provoking system of engineering was followed, the level haughs of the river sides, which, without much cutting, would have furnished a line for a railway, being carefully avoided, and those heights crossed which have rendered our present roads a successive wave of hill and hollow—totally impracticable for single horse carts, and rendering that heavy work for two horses which could easily have been accomplished with one. The cause of this lasting blunder we are at a loss to discover; most probably the old bridle paths, which for the sake of dry and firm footing traversed the high ground, were closely followed. Until better access is secured the improvement of many districts must be a tedious process, as they are so far removed from the limestone; and lime is the prime agent in the reclamation of land, working like a spell on the fresh moulds. Being so far removed from the limestone rock its effects are the greater, a much smaller quantity telling with good effect on new land than what is required for the frequently dosed land of the low country. Four tons an acre is amply sufficient for a first dressing, and without lime it is most unprofitable practice to break up and continue to work this new land. Turnips will not grow on it to any purpose, but the deficiency is most apparent when the land, having been put through one rotation, is again sown down to Grass. Then every shovelful of lime shows where it was spread, in the take of the Grasses and the bloom and progress of the sheep. Good roads would also give us a command of draining tiles, which are much required, as large portions of the old arable land are very wet, rendering the cultivation of this kind of land very precarious in our wet climate.

The continuance of such land in cultivation at all we consider more than questionable, as it requires a drier climate for its satisfactory working than we have, especially while large tracts of dry Turnip soil remain unimproved which might be substituted for it. Those portions of meadow land which remain untouched, we consider it a radical mistake to plough, as they form the mainstay of the pasturage, and when well surface-drained they produce a close and thick sward of Grass, which if once broken up would require years to restore; whilst to plough up boggy ground without first draining it is a ruinous policy. These surface drains are laid on either across the meadow land or straight up and down hill, like furrow-draining. Their cost is about 1*d.* per rood of 6 yards. Of course it would be better and in the long run more economical to drain these hill meadows with tiles, but the undertaking is beyond the reach of a tenant. And in the meantime few investments which he can make, pay better than these surface drains, although they require to be renewed every six or eight years, according to the character of the meadow. We hold that these portions of bog and meadow land should be let alone, and the work of reclamation carried on upon the dry, and in its present state, less valuable grazing. Large portions of such land are to be found on every farm of the district, which are paying little or no rent as they are, would be little missed by the flocks whilst under the operation, and which would add largely to the produce of Turnips when kept in rotation, and to the extent of good Grass when well limed and sown down to pasture.

It is the good ground and not the bad which maintains the flocks at present; and if these portions of inferior grazing were improved and added to the area of Grass already existing, they would be increased both in numbers and quality. We believe at the same time that it is possible to carry this work of reclamation too far, especially where it is intended to allow the sheep to graze at large in flocks or hirsels. A certain amount of rough pasture is required for winter keep, and mountain sheep eat good heather which great relish, instinct and taste leading them to mix their food by grazing on the low grassy grounds in the fore part of the day and on the high and heathery portions in the afternoon. Those portions of good earthy soil which grow a mixture of Heather and Grass cannot have too much pains bestowed on them to make them grow good Grass, as they grow the worst description of Heather, whilst that which grows on peaty soils is more tender and succulent, and we believe the very best crop which can grow on such land, especially when renewed every few years by burning. Peaty soils, also, stand very few years in Grass, reverting speedily to Heather or to a worthless fog. We shall shortly describe the plan usually followed in breaking up hill ground, which consists in ploughing with a furrow (shallow or otherwise) for the first time, and well turned over, as much as possible to kill the existing vegetation. It is then left for a year or more to rot. In the autumn it is cross-ploughed, and again in the following spring it is ploughed for the third time; the lime having been applied between the different ploughings, in such a manner as not to bury it too deep. The land having been split up into ridges by the last ploughing is now ready for Oat seed. Two white crops in succession are in this instance taken, and the second is generally the best, from the turf being better mouldered down. Next come Turnips, and lastly a crop of Oats sown down with Grass seeds. Some people, impatient at the lengthened process, attempt to tear the turf to pieces by force, sowing Oats after the first ploughing, and forcing it into Turnips the second season. This method has, however, little to recommend it, as the first crop of Oats is insignificant, and the turf stubbornly refuses to yield tilth or mould enough for the Turnip crop, whilst the land afterwards is not well enough reduced for a successful take of Grass seeds. Time and weather do more for the reduction of new land than any expenditure of physical force. Simultaneous with the breaking up and liming, the work of enclosing is carried on, generally by stone walls; and till land is enclosed its reclamation is only temporarily effected, as sheep grazing over it during the day and wandering from it at night do not enable it to maintain its fertility. Wire fences are often erected where stones cannot be procured, but the lack of shelter is a great drawback in them. Turf walls are sometimes built, and Whins sown atop protected by rails on each side: but best of all is the stone wall, which, as we have heard it pithily expressed, is "major" at the very first. If fences are necessary for the advantageous grazing of infield land, they are equally beneficial as marches and boundaries between the different farms, as however well neighbours may seem to agree on the take and give principle, the good boundary fence secures the flocks from many alarms and disturbances. We believe also that these division fences might with great advantage be introduced to separate the different flocks on the same farm, as the strife of herdsmen is still well known in our day. Valuable and important as the already mentioned improvements are in our sheep farming, one remains to be noticed, which is second in benefit to none of them, and that consists in the laying out of plantations. Of these we have at present very few, and their extension is slow; yet trees of the Pine variety grow well on our hills. As draining, liming, and enclosing improve our soils, plantations no less ameliorate our climate. They ought to be placed in clumps and belts all over our hill ranges. When enclosed with stone walls, they form at once good shelter stells, and in the course of 10 or 12 years the trees are over-topping the fences, and every year after increasing the area of their sheltering influence till they are full grown. In rough stormy weather the flocks need never leave their vicinity for their food, and when snow storms force them together into a place of security, there is no fold so much to be trusted as the lea side of a thick plantation. Into the detail of the management of hill flocks we have not entered, confining our remarks more especially to those causes and circumstances which seem destined in the course of time to alter alike the appearance of the district and the character of its farming. *J. S. B.*

CO-OPERATIVE FARMING.

The following letter appeared in the London *Times* of 22d of December last:—

"Sir,—The interesting article from our "Own Reporter," dated Rochdale, respecting Co-operative societies, induces me to trouble you with a few lines on the same subject. About 30 years ago, upon a small farm [of 100 acres] in Suffolk becoming vacant, I called together 20 labourers, and offered to lend them capital without interest if they would undertake to farm it, subject to my rules and regulations. They gladly availed themselves of my offer. In the course of 10 years they paid me back my capital, so that I was induced to let another farm of 150 acres to 30 men, upon the same terms. These have also nearly paid back the capital, and instead of eating dry bread, as I regret to say many of the agricultural labourers are now doing, each man has his bacon and numberless comforts that he never possessed before; thus the rates are reduced, as these 50 families are no longer burdensome. The farmers are sure to meet with honest men, as conviction for crime would debar them of their share, and the men themselves have become much more intelligent, and present happy, cheerful countenances. If every country gentleman would follow my example, distress among the agricultural poor would not be known. I merely add, that I have no land so well farmed. I shall be happy to send you my plan, rules, and regulations, if required. "John Gurdon."

"Assington Hall, Suffolk, Dec. 19.

We have since received two letters from Mr. Gurdon, with further details of his Co-operative Farming. In his first letter to us, he says he has received many inquiries, and adds:—

"I am for adopting the newest improvements, such as threshing machines, ploughs, &c.; and my societies are both for advancing with the times. I have drawn out a plan for a cattle mutual assurance, as less expensive to the farmer and less open to imposition. I have also drawn out a plan for suburban villages, say four or five miles on the London railways, whence the labourers would be brought up to their daily work and taken back at night, embracing economy, morality, education, health and happiness."

The substance of the printed agreement under which the Assington farm is let is to the following effect:—

"I agree to let to the undermentioned persons, forming themselves into an Agricultural Association, a farm, called 'Severals,' containing 136 acres, for the annual rent of 194*l.*; and 3*l.* for each house, upon the following conditions:—That the society consist of 30 members. That they conduct themselves with propriety and pay their rent regularly. That the land be farmed upon the four-course husbandry. That every 12 years the land be re-valued. That all repairs be done by the Association, the landlord finding rough materials. To insure the premises for 300*l.*, &c."

The names of the members are given, together with the rules and regulations, and Mr. Gurdon writes a second letter, as follows:—

The subject of co-operative farms is a most interesting one to the cultivators, as well as to the lords of the soil. We must all admit that, owing to the depressed state of the labour market, the former are insufficiently remunerated; the consequence is that poaching and petty thefts are the crying evils of the age. My desire was to raise the labourer in his class, without taking him out of it, by giving him a stake in the country, and thus becoming a responsible man, not only to his Maker, but his neighbour; I do not add, to be independent of his fellow-creatures, for such a principle I detest. Dependence upon God, in the first instance, and secondly, upon our neighbour, is the mainspring of society—each forming a link in the human chain. I am for progressing with the times. I like large farms and extended fields; they save the landlord many buildings, they give full scope to machinery, and they meet the requirements of the march of intellect; still there must be small isolated off-hand farms, which are generally ill cultivated or neglected; it is to these I wish to call your attention. One of this sort, 100 acres, more or less, becoming vacant, I called together twenty of the better class of labourers, and offered them the farm and the necessary capital without interest, if they would undertake to cultivate it conformably to my regulations, each man paying down 2*l.* as a guarantee. They gladly accepted my proposal, and in the course of 10 years or so the capital was paid back, and they were in complete possession as tenants of a well-cultivated and well-stocked farm. I was so fully satisfied with this success, that upon another farm of 150 acres becoming vacant, I put in 30 men upon the same terms; and only 50*l.* of the capital lent remains unpaid, and they hope to liquidate this sum during the year. Simple and inexpensive as my plan is, after so long an experience I can say confidently that it has not one drawback. The labourer himself has now something to lose; his sympathy is drawn out towards his master, for in his calamities he can feel as one who might have been in the same predicament. Physically speaking, he is better fed, and can, consequently, do greater justice to his employer than heretofore; the farmer can also put more confidence in him, as conviction for theft would deprive him of his share in the society, which is now worth upwards of 50*l.* The landlord has also his advantages; less marauding, less poaching, and (as in my case) 50 families not only taken off the parish rates, but paying to them. Their interest is to keep the rates low. To give further security to this part of the scheme, they must each of them insure in the Stoke and Melford Benefit Club, for 10*s.* a week during sickness; 5*s.* a week after 65, when all payments cease; 5*l.* for funeral expenses. I might here remark, that in 1828 I established this Club upon Government principles, and that owing to the energy and unwearied attention of the clergy, who act as directors in their several parishes, the capital now invested amounts to upwards of 23,000*l.* The form of agreement may be altered to meet the wishes of the landlord, but it is necessary to write to J. Tidd Pratt, Esq., 28, Abingdon Street, Westminster, S.W., for instructions how to act to render the society valid. When I was at Assington, I attended the Michaelmas quarter meetings, and was surprised at the shrewd and apposite remarks made by these uneducated labourers. As only ten or twelve members are required upon the two farms, the remainder serve their old masters as usual. In passing through the village, you would not know that any such institution existed, unless you met a well-appointed waggon, inscribed "The Assington Agricultural Co-operative Society," or "The Assington Agricultural Association." Three years ago I advanced the societies a sum of money at 5 per cent., to purchase a first-rate threshing machine. They work it themselves, and they have paid me back a large portion of the capital. The editor of the "Agricultural Society's Journal" (Mr. Frere) has been down to inspect the farms. He was so pleased with the manager of one of the farms, that he offered to take him as a bailiff at a good stipend, but he did not wish to leave his present situation. *From the "Co-operator," a monthly periodical, conducted by Mr. H. Pitman, of Manchester.*

Home Correspondence.

On Breeding Sheep.—At a time like the present, when the breeding of sheep is likely to produce a better return than corn-growing, it becomes an important question to consider whether we cannot improve our system, so as upon the same food to grow a greater quantity of stock. There has been very marked progress in the system of feeding horned stock. Dry in-calf cows are kept in good condition upon 20 lbs. of roots daily, pulped and mixed with straw-chaff. Ewes in the same condition are allowed to gnaw an equal quantity. The cow has a similar digestive apparatus, and is ten times as heavy; and consequently, in proportion to their respective live weights, the ewe is consuming ten times the quantity of roots. The question for experiment to decide is how far we can adopt the system of pulping roots and mixing with chaff, for sheep, and by economising the Turnips, keep twice as many sheep per acre as we do now. It may be objected that the process we contemplate will be attended with too much labour. In answer to this, we would ask what is the proportion between the cost of

attendance and the value of the roots? For fatting sheep on Swedes — where the roots are cut up, the value of the labour represents from one-sixth to one-seventh of the value of the roots. Now, in case of ewes, if we can keep double the quantity of stock upon a given area of roots, we can afford to lay out double the amount of labour, and still leave a very large profit. By adopting this plan another most important advantage would be gained—the keeping our stock longer on the same land, and thus leaving a double supply of manure. According to our present methods of feeding, the sheep pass much too rapidly over the soil; and although in the case of fatting sheep we can use artificial food, which causes the manure to be much enriched, this is often attended with a heavy outlay not always remunerative—whilst the ability to keep on dry healthy land a much increased breeding flock is a point of immense national importance. The state of the markets for several years past prove that we do not grow enough meat for our ever increasing population, and it would appear from statistics that there is very little increase in our production—at any rate not in proportion to the increased demand. Foreign importation cannot make up the deficiency. Could we only find a means of economically growing two sheep where one was grown before, we have the means of supplying food at a reasonable price, sufficient for our enormous population. The plan I am about to suggest is best suited for large arable farms of a light nature. The land often lies far removed from the buildings, any system of centralizing the produce, and converting the straw into manure by beasts is unprofitable, from the heavy expense of labour in carting to and fro; and certainly it will be a great improvement if we could devise a means of mixing the straw and roots, and making ewes consume the same on the land. The corn must be stacked near the roots that are to be consumed; threshed by a portable machine, and straw stacked and thatched. The roots must be cleaned and placed in large heaps at regular distances; and now the operations may commence. It will be necessary to have a root pulper and chaff cutter combined, to be worked by horse-power (one horse), this might be made in a portable form, and need not occupy much space; being placed upon wheels it could be moved as required. A light shed, also on wheels, with covered sides and a waterproof roof, would be necessary to hold the prepared food, which might be cut up every other day. One horse and lad, besides the ordinary attendants, would be required three or four days a week. Considering the increased number of sheep kept, we do not think the extra labour would be very great. *John Coleman, Cirencester, Feb.* 24.

The Great Steam Plough Trial has cleared away a good deal of mist, as well as putting two of our leading steam ploughmen, the Messrs. Howard and Fowler, in the shade; the former by sending them back empty with the piper to pay. The *Bedford Times* says, that a straw will be catched at before five judges in June to try to shift the load on to another's back, but then there is a "should" in the way. We shall see what we shall see. The latter has lost all his laurels, for they are all adjudged to the Messrs. Fiskin. Now although this trial has cleared away some mist, &c., it has brought up a fog; for Mr. Bovill, the leading counsel for the plaintiff, said:—

"One of the patents was granted originally to two gentlemen named Fisken, in 1855, and the other to Mr. Fowler, and a Mr. David Greig in 1856. Both relative to steam ploughs, that is, ploughs used in connexion with steam machinery; and in point of fact, by the ploughs which were the subject of these patents, the problem how far steam ploughs could be rendered available for the cultivation of the land, was solved. Up to that time, although various attempts had been made; no one had succeeded in making a plough that would answer the purpose, although large prizes had been offered by various Agricultural Societies in England and Scotland, as an inducement for persons to perfect machinery for steam ploughing. When the patent of Messrs. Fiskin was taken out, the problem was solved, and the first approach was made to the construction of a really useful and serviceable plough."

Mr. Hindmarsh, another counsel on the same side, said that the date of the Messrs. Fiskin's patent was 19 July, 1855. Mr. Carpmael, a witness, said:—

"I am acquainted with Messrs. Fiskins' patent. . . . . Before the date of that patent, many attempts had been made to bring steam ploughing machinery into operation, but without success."

Mr. Fowler in his evidence says:—

"I remember in 1855 going to the agricultural show at Carlisle....received an order for making a machine to draw any given surface plough that might be brought forward."

Now let us see the thickness of this fog. Mr. Bovill may be a very learned advocate in a court of law, but for all that he may not be very learned upon the question of steam ploughing, except as to dealing with data that may be placed before him, for when he says that by the Messrs. Fiskins' patent of July 19, 1855, the problem was solved and the first approach was made to the construction of a really useful and serviceable plough, he says wrong. Let me refer him to March 19, 1855, the date of my steam plough patent; hundreds of these ploughs are now in useful and serviceable operation, and my own farm has been regularly worked by it ever since December 1855. Mr. Carpmael might have been looked to as an authority upon the question, he being an eminent patent agent, agent both for Mr. Fowler and myself; surely he must have forgotten my patent of March 19, 1855, or he never would have dubbed Messrs. Fiskins' machinery, patented July 19, 1855, as the date of the first successful operation in steam agriculture. Then, upon the evidence that I have placed before you, I claim the laurels apparently won at this trial by the Messrs. Fiskin, and Mr. Fowler would have acted more fairly towards me, if he, instead of saying that he received an "order" at Carlisle, that he had received instructions from me, and contracted to make for me according to those instructions, a machine to draw any given surface plough. Now let me call his attention to the words of the Lord Chief Justice: "An inventor in carrying out an idea he had discovered, was fairly entitled to avail himself of the practical skill of a machinist;" then let us have no more of this foggy stuff. I shall not go into the question as to whether my plough, that turns at the land's end, is to die out to make room for the double action one of the Messrs. Fiskin; but I shall, and do claim the honour of having been the first to solve the problem and stand here before you as king upon the question of steam ploughing. Yes; and if I may be permitted to live a few years longer, I shall see the double action thing a dead letter, for a thing that can live only by working its engines at double its nominal power must die. *William Smith, Woolston, Bletchley Station, Bucks, March* 4.

Farmers' Clubs.

KINGSCOTE: *Feb.* 3.—*Artificial Manure.*—We continue our report of Mr. Drew's paper on this subject.

I will now pass on to the second division of our subject, the relative values of artificial manures. This is a question easier asked than answered, being one depending on a number of contingent circumstances. First of all there is the requirements of the crops, the nature and condition of the land, the available food already naturally existing in the soil, and state of the weather, and time and mode of application, with various others.

Different plants possess different habits and wants, whilst the soil may be deficient in those very substances which are essential to their development; when this is the case those manures must be resorted to which in the opinion (from previous experience) of the farmer, he thinks most calculated to supply the necessary ingredients in the best available form, and from the best and cheapest source, attention being paid (not to the immediate cost of the article) but to the requirements of the particular crop to which it is to be applied. Generally speaking the money value of a manure depends in a measure on the amount of ammonia and phosphates it contains. A table was furnished some few years since by Professor Way, setting a price to the different substances contained in manures, by which an approximate value (on analysis) might be arrived at; it has, however, since been shown by Dr. Voelcker that it is not entirely to be depended on, the efficacy of the manure not altogether depending on the quantity, but also on the state and combination of the different ingredients it is composed of; the source of supply of some of the elements also affected their value as did the influence of climate. Reviewing the experiments that have from time to time been tried by different persons under apparently similar circumstances, one is struck with the very great difference in the results. The great point at issue between ourselves is—what proportion does the increased value of the produce bear to the expense attending their application? In order to set this before you, as far as my experience shows, I will detail to you a few experiments I have tried, bearing on the matter, as also an account of others I have been favoured with, likewise some useful information and practical opinions received from trustworthy sources.

The first experiment I tried with artificials to the cereals was to Wheat in the year 1860.

(*a*) The soil is of a poor weak sandy description, about 3½ inches in depth, the land in fair condition, having carried a good deal of stock the previous year, being the 2d year's seeds, it looked fresh and well when ploughed up. The Wheat came up well, was a good plant, and was strong and healthy all the early part of the winter; from alternate frosts and thawing a great portion of the Wheat was killed, leaving barely half a plant, and this very weak. Plots were measured out, and nitrate of soda, guano, and special prepared Wheat manure applied on the 19th of April, at an expense in each case of 32*s.* per acre. In one week a decided improvement in the appearance of the nitrated plot had taken place; in another week the whole of the plots showed a marked effect, the nitrate of soda taking the lead, followed by the guano, and in the distance the Wheat manure. The several lots continued in the same order, until harvest, and on threshing the result was as follows:—

Manure.	Bushels of Wheat of 60 lbs.	Straw.	Total value.	Profit.	Loss.
	bus. lbs.	cwt. qrs. lbs.	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
None ..	16 20	21 1 24	5 19 6	..	..
Wheat manure.	20 0	26 3 4	7 6 9	..	0 4 9
Guano ..	24 28	29 2 4	8 16 3	1 4 9	..
Nitrate of soda ..	30 24	33 2 8	10 16 3	3 4 3	..

The straw and corn were kindest and best where the Wheat manure was applied; the next without manure; 3. Guano; and lastly, the nitrate. The quantity of tailings on light corn about equal from the Wheat manured portion and where none was used; from guano rather more, and the nitrate more than double. All was sold together at 6*s.* per bushel.

(*b*) I tried the same experiment again in 1861, on stone brash land of rather better soil after two years seeds, and in fair condition, the Wheat a full plant, the manure applied the beginning of May when mowing fast, at a cost of 40*s.* per acre.

Manure.	Wheat.	Value.	Straw.	Total value.	Loss.
	bus. lbs.	£ *s.* *d.*	cwt. qrs. lbs.	£ *s.* *d.*	£ *s.* *d.*
None ..	31 9½	9 18 6	25 2 4	11 9 9	..
	Tail 60 lbs.	0 5 6			
Nitrato of soda.	35 44	11 3 4	36 1 26	13 5 7	0 4 2
	Tail 64 lbs.	0 5 9			
Guano ..	35 9	11 4 0	31 0 8	12 19 1	0 10 8
	Tail 40 lbs	0 4 1			
Wheat manure.	32 32	10 7 4	30 3 6	12 3 4	1 6 5
	Tail 56 lbs.	0 5 3			

Nos. 1, 3, 4, about of equal quality and weight, viz., 61 lbs. per bushel, sold at 6*s.* 4½*d.* No. 2, not so good, and over 1 lb. per bushel deficient in weight, sold at 6*s.* 3*d.* per bushel.

(*c*) Wheat with like manures in 1862 with sulphate of ammonia, soot and dissolved bone in addition, the soil sandy with some stone, two years seeds in fair condition, the plant of Wheat even; the manures sown the latter end of April.

Manure.	Cost.	Wheat.	Straw.	Total.	Profit.
	£ *s.*	bus. lbs.	cwt. qrs. lbs	£ *s.* *d.*	£ *s.* *d.*
None ..	..	30 48	33 2 0	11 13 3	..
80 bushels of soot ..	2 0	37 58	51 2 16	14 18 4	1 5 1½
Dissolved bone ..	2 0	32 16	40 0 0	12 9 8	Loss. 1 8 7
Nitrate of soda ..	2 0	36 56	51 2 8	14 11 7	Profit. 0 18 4
Wheat manure ..	2 0	36 32	42 2 24	14 0 1	0 6 10
Sulphate of ammonia..	2 0	37 22	44 1 16	14 7 1	0 13 10
40 bushels of soot ..	1 0	36 24	36 1 20	13 13 0	0 19 9
Guano ..	2 0	37 58	44 2 8	14 11 3	0 18 0

The samples of corn, with the exception of plots 4 and 6, were much alike; they stood in the order to appearance, of—1, Wheat manure; 2, soot; 3, guano; 4, no manure; 5, dissolved bones; sulphate of amonia next; nitrate worst,—the whole put at 6*s.* 6*d.* per bushel, 62 lbs., the straw, at 1*l.* per cwt. The nitrated plot made the first start, followed by the 80 bushels of soot and sulphate, next guano, then the 40 bushels of soot, afterwards the Wheat manure, whilst there was scarcely any perceptible difference from first to last where the dissolved bones were used. As the crops approached maturity, it was evident the nitrated and sulphate of ammonia plots were blighted, the nitrated especially, and it bent down. The whole of the others was tolerably kind, particularly with soot, which was first ripe by about 3 days, whilst the nitrated lot was 4 or 5 days later than either.

(*d*) I will now give you an account of some experiments from Mr. Rich, of Wellsley, with Wheat drilled in the autumn of 1855, on good dry stone brash land on new lea, (or one year's seeds). Manure applied in April 1856.

	bush.	lbs.
No. 1, White trump Wheat with 1½ cwt. nitrate soda and 1 cwt. common salt	47	15
No. 2. Without manure	35	36

N.B. The weight of straw of No. 1 to 2 was as 14 to 9½.

2, To Wheat in the spring of 1858 on shallow stonebrash soil.

	bush.	lbs.
No. 1. 2 cwt. nitrate soda	44	26
No. 2. No manure	37	27
No 3. 1½ cwt., guano	44	0

Again, to White Trump Wheat drilled in the autumn of 1861, on dry stone brash and on new lea manures, sown April 8, 1862.

1½ cwt. nitrate of soda, 82½ cwt. common salt, produced per acre 41 bushels 58 lbs of Wheat and 30¼ cwt. straw. Unmanured, 29 bushels, 18 lbs., and 18½ cwt. of straw.

In this experiment the whole field was manured excepting a stripe 2 perches wide across the whole field. At harvest time a stripe of 1 perch wide on each side was measured off and accurately separated and threshed as against the unmanured plot. The natural weight per imperial bushel of the manured Wheat exceeded by 2 lbs. per bushel that of the unmanured. Mr. Rich did not give the actual money results, as he says prices are constantly varying, both in the manures and produce. The return could not be otherwise than satisfactory; an outlay of from 20*s.* to 25*s.* giving an increase in the first case of nearly 12 bushels and 50 per cent. more straw; in the second of 12½ bushels of corn and 11¾ cwt. of straw. Calculating the Wheat at 6*s.* per bushel, and the straw at 1*s.* per cwt., it would at the least give a profit of over 3*l.* per acre.

(*e*) The next account of some trials by a friend in Hampshire on light chalk soil (rented at 12*s.* 6*d.* per acre):—1st, to Barley after Turnips fed off with sheep.

Manures per acre.	Cost.	Barley per acre.	Straw and chaff.
	£ *s.* *d.*	bus. pk.	ton cwt. lb.
None	..	24 2	0 17 1
2 cwt. guano and 1 cwt. salt ..	1 7 6	27 3	0 19 0
2 cwt. guano and 1 cwt. salt ..	1 7 6	32 2	1 1 0

Remarks.—No. 3.—The manure sown broadcast and harrowed in at the time of planting the Barley. No. 2. The manure applied as a top-dressing when the Barley was about 4 inches high in a wet morning, but dry weather set in afterwards.

2d. A comparison of superphosphate and bones (half dissolved in sulphuric acid) applied to Turnips, with its effect in the following year on the Barley crop; the Turnips fed off with sheep.

No.	Manure per acre.	Cost.	1st year Turnips.	2d year Barley	Straw.
		£ *s.* *d.*	tn. ct. qr.	bus. pk.	tn. ct. qr.
4	3 cwt. superphosphate and 20 bus. ashes	1 2 10	12 2 2	32 1	0 18 0
5	Dissolved bone and 20 bus. ashes	1 2 10	11 15 0	26 3	1 2 1

Remarks.—Weight of Barley from No. 4, 50 lb. per bushel. From No. 5, 50½ lb. per bushel.

My friend does not state the advantage or otherwise attending the application of the manure; at the same time we can draw our own conclusions, and there are one or two matters in these interesting experiments claiming attention. In the first, it would hardly enter our minds to use stimulants of any kind to any crop following roots fed off with sheep, and not of first-rate quality; then there is the great difference in the yield of corn and straw from the same kind and quality of manure, but applied at different times, and which informs us that the benefits attending the use of artificials depends on other circumstances as well as the manures themselves. No. 3 of this experiment realising a profit of almost 1*l.*, whilst No. 2 would leave a loss of nearly 10*s.* on the manure. In the second experiment it is worthy of remark that although the superphosphate (which doubtless contained a larger quantity of ready available food) gave a greater weight of Turnips per acre than the partly dissolved bone, the latter had a greater influence on the succeeding Barley crop, both in the yield of corn and straw.

(*f*) I now come nearer home, and will relate an account of an experiment tried by our worthy Secretary, Mr. F. Burnett, on Kingscote Farm, with different artificial manures applied as a top dressing to Wheat in the spring of last year on a two years' lea.

Description of Manure.	Cost.	Wheat per acre.	Value.	Loss.
	£ s.	Bushel.	£ s. d.	s. d.
Special Wheat manure ..	2 0	38½	11 11 0	1 0
Guano	2 0	36½	10 19 0	13 0
Nitrate of soda	2 0	37½	11 5 0	7 0
Soot	1 12	38	11 8 0	4 0 profit
None	..	32	9 12 0	..

Remarks.—No. 3. The greatest increase is straw, but the corn of inferior quality. No. 1. The next largest quantity of straw and next worst sample of grain. Nos. 2 and 4. Very similar in quantity of straw and similarity of grain. The best sample, No. 5.

Mr. Burnett does not make any calculation on the increase of straw; he however admits that it is deserving of consideration, and says the extra quantity from the nitrate and special manures would counterbalance the inferiority in the quality of the grain from these manures.

(*g*) I have also received an account of some valuable experiments tried on the Royal Agricultural College Farm, a detail of which you will find in the Journal of the Royal Agricultural Society of England, copies of which are in our library, and would well repay a perusal. They are too extensive for me to fully enter into, but I will just give you the general results:—1st, to Wheat and Barley in 1860.

No.	Manure per Acre.	Cost.	Profit in Wheat per Acre.	Results with Barley.
		£ s. d.	£ s. d.	£ s. d.
1	Procter's special manure.. ..	1 12 0	1 4 6	0 3 1½ loss
2	2½ cwt of guano	1 12 0	2 13 0	0 6 8 ,,
3	1½ cwt. nitrate of soda	1 10 0	2 1 6	1 7 6 gain
4	1½ cwt. do., and 3 cwt. common salt	1 13 0	3 1 6	0 19 3 ,,
5	3 cwt. salt ..	0 3 0	0 6 0	0 9 9 ,,
6	Nothing	..	..	.. ..
7	2 cwt. sulphate of ammonia	1 12 0	1 18 3	1 2 4 ,,
8	32 bushels soot ..	0 16 0	1 18 4	1 3 2

The Wheat was put at 7*s.* per bushel, and the Barley at 5*s.* 6*d.*, but the increase in straw not taken into consideration. The same experiment was continued in 1861, straw and corn taken into account; the Wheat valued at 50*s.* per quarter, straw at 1*s.* per cwt.; Barley at 38*s.* per quarter, straw at 6*d.* per cwt.

No.	Manure.	Profit per acre, Wheat & Straw.	Barley & Straw.
		£ s. d.	£ s. d.
1	2½ cwt. Guano, cost 32*s.* 6*d.* ..	1 11 9½	1 14 5½
2	4 cwt. Procter's, special manured, 32*s.*	1 11 8½	2 4 7½
3	1½ cwt. nitrate of soda, 22*s.* 6*d.*	3 4 6½	1 2 10½
4	Nothing	..	..
5	3 cwt. salt, 1½ cwt. nitrate of soda, 25*s.* 6*d.*	3 12 3½	1 12 3½
6	3 cwt. salt, 3*s.*	1 19 7½	0 6 10½
7	2 cwt. sulphate of ammonia, 32*s.*	2 18 8	0 5 6loss
8	6 cwt. ulmate of ammonia, 45*s.* sent expressly for experiment..	0 9 10	0 15 6½do

2d. Swede experiment on poor dry dead sandy land drilled on the flat in 1846, excepting No. 1, sown broadcast.

		Per Acre. Tons.	Cwt.
No. 1.	20 yards ordinary farm yard dung, 4 cwt. guano, and 30 bushels ashes, sown broadcast	12	14
2.	20 yards per acre	11	6
3.	20 yards per acre and 30 bushels ashes ..	11	12½
4.	2½ cwt. (Peruvian) guano, and 60 bush. ashes	8	13
5.	20 bushels bones	11	17½
6.	5 bushels bones dissolved in 140 lbs. acid and 20 bushels ashes	9	11½
7.	3½ cwt. Fothergill's superphosphate and 20 bushels ashes	11	1½

Much of the seed did not vegetate on No. 1.

3d. With Orange Globe Mangel in 1849.

		Per Acre. Tons.	Cwt.
No. 1.	21 loads farm yard dung and 3 cwt. Peruvian guano	22	12
2.	30 loads of dung	22	16
3.	No manure	8	8
4.	6 cwt. guano	19	5

4th. With Long Red Mangel on good land in the year 1853.

		Per Acre. Tons.	Cwts.
No. 1.	20 loads dung and 3 cwt. bacon salt	30	11
2.	Yellow Globe do., same manure	36	6
3.	3 ditto, 20 loads dung, 3 cwt. salt, and 1½ cwt. guano	29	7

Mr. Rich adds:—the result of this experiment is extraordinary, the plant being equally good in the three cases, but the addition of the guano giving the least produce.

(*g*) These, with two or three I have myself tried, will I think be sufficient for our purpose. The first was in the year 1854, to Swedes after Wheat the soil stone brash of medium texture.

Plot 1.	Manure per Acre.	Cost.	Weight of Swedes.
		£ s. d.	tn. ct. qr. lb.
1	None	..	7 11 1 0
2	30 bushels ashes	0 2 6	12 3 0 9
3	Do. and 4 cwt. Peruvian guano ..	2 16 6	19 14 1 7
4	Do. and 2 cwt. guano, and 9½ bush. bones	2 15 6	18 1 3 19
5	Do. and 19 bush. bones	2 17 6	20 10 2 4
6	Do. and 6 cwt. superphosphate ..	2 7 6	21 17 2 5
7	Do. and 6 cwt. special manure ..	2 17 0	17 0 2 19
	Do. and 20 yards dung, 4 bush. bones, and 1½ cwt. guano	5 5 6	28 9 0 0

There is something inexplicable about this experiment as regards the special manure, as it should have given a better result, but I cannot give the reason.

2. To Swedes in the year 1860 after Wheat, the soil dry and sandy, part of the manure was sown along the boults and covered in, the remainder drilled with about 30 bushels of ashes per acre.

Plot 2.	Manure per Acre.	Cost.	Weight of Roots.
		£ s. d.	tn. ct. qr. lb
1	20 bush. bones	3 5 0	17 16 3 11
2	8 cwt. special manure	3 6 6	19 8 3 20
3	4 cwt guano	2 19 6	17 4 3 9
4	12 cwt. special manure	4 18 6	19 12 3 21
5	30 bush. bones	4 16 3	20 16 3 27
6	6 cwt. guano	4 8 0	18 2 3 13
7	4 cwt. special manure and 10 bush. bones	3 4 9	20 0 3 23
8	2 cwt. guano and 10 bush. bones ..	3 1 3	17 10 3 10
9	2 cwt. guano and 4 cwt. Turnip manure	3 3 0	15 16 3 0
10	20 yds. manure and 8 bush. bones	4 17 6	24 15 0 25

It is observable in this experiment that an addition of one third more manure did not increase the weight of roots to a corresponding extent. I shall however advert to this more particularly presently. I will only trouble you with one more I tried last year with Swedes after Wheat on a very poor piece of sandy land of a dead nature; the manure was applied by hand in boults, the seed drilled with a small quantity of ashes on the 28th of May; the roots taken up, cleaned from root and top, and weighed on the 3d of December.

Plot 3.	Manure per Acre.	Cost.	Weight of Roots.
		£ s. d.	tn. ct. qr. lb.
1	10 bushels of bones and 2 cwt. of guano	2 17 0	16 1 6 18
2	8 cwt. superphosphate	2 16 0	16 13 1 26
3	7 do. Turnip manure	2 16 0	18 10 2 0
4	4 do. guano	2 15 0	18 16 2 19
5	None	..	3 17 1 4
6	6 cwt. superphosphate	2 2 0	16 1 0 18
7	10 bush. bones, 4 cwt. superphosphate	2 18 0	17 11 3 27
8	3½ cwt. Turnip manure and 2 cwt. guano	2 15 6	20 13 2 21
9	10 bush. bones and 3½ cwt. Turnip manure	2 18 0	16 19 2 17
10	4 cwt. superphosphate and 2 do. guano	2 15 6	19 2 3 10
11	20 bush. bones	3 0 0	17 18 0 18
12	15 yards dung, 8 bush. bones, and 1 cwt. each of Turnip manure and superphosphate	4 11 6	23 15 1 3
13	15 yards dung	2 12 6	16 0 0 11

(*h*) My experience will not warrant my adding much as regards the application of manures to pastures, not having accurately carried out any experiment with them. I have occasionally applied them, and as far as observation goes, believe they might be much more extensively used. Nitrate of soda is very quick and invigorating, rendering the herbage very sweet; but its effects are soon gone, and scarcely, if at all, visible the second season. Guano I have also tried; it does not act so quickly as the nitrate, but is much more lasting. Specially prepared manures for Grass, again, I think are more tardy still; this likewise improves the feeding, and I have witnessed stock grazing to the very verge where it has been put, leaving the unmanured untouched. I will give you a little experiment, tried by my friend in Hants with guano and farmyard dung to a piece of old dry pasture that previously had never been known to produce more than 12 cwt. of hay per acre. The dung was applied early in January, the guano in the last week of February, 1861.

Plot.	Manure per acre.	Cost.	Produce in 1861.	Produce in 1862.	Remarks.
		£ s. d.	tn. ct. qr.	tn. ct. qr.	
1	6 cwt. guano and 2 cwt. salt and 13 hdds. liquid manure	5 0 0	7 8 0	3 6 0	The Grass much sweeter, and the Grass all gone
2	20 cartloads pit dung	5 0 0	5 2 1	4 18 2	The after Grass better both yearsafter the dung.

I am not informed whether the produce was dry hay—if it was it was a most extraordinary increase. The artificial gives the best return the first year, but falls off considerably the second, whilst the pit dung is not so great the first, but almost maintains itself the second; averaging the two years, there is a difference of about 7 cwt. a year in favour of the guano.

(*i* The Hon. Southeron, M.P., instigated some very interesting experiments by the application of different kinds of artificial manures to pasture land in the neighbourhood of Shipton Moyne in the year 1856-7; on the whole however they did not hold out much inducement for an extensive use, very few returning their cost, and in most of the cases entailing a loss. Many hold out that our pastures and Grass lands do not receive that amount of manuring or attention as they are deserving. Were I able to do so, time would not allow my entering fully into this matter, and it will leave an opening for discussion afterwards.

(*To be continued.*)

Farm Memoranda.

WARBURTON PARK, NEAR WARRINGTON.—This farm is 305 acres, and is disposed to pasture 82 acres, old measure 16 acres, meadow covered with dung water 25, meadow irrigated from a river or brook 24 acres. Wheat after Potatoes and other green crop 65 acres, Oats 16 acres, Clover and Vetches for stall feeding and some for hay 28 acres, Potatoes 54 acres, Turnips 9 acres, Mangel 3 acres, orchard and garden 1½ acres, occupation road 1½ acres. The customary rotation on this farm is—Potatoes, then Wheat, and about 16 acres more or less of Oats; on some of the green crop soil Wheat is here sown with Clover and other seeds under. Stock on this farm:—54 dairy cows, 1 bull, and from 30 to 40 feeding beasts; farm horses 12, colts 7, sheep or lambs 124, pigs 10; total number generally from 240 to 250. Sometimes a dozen rearing calves, but none returned this year. The stock are mostly fed in the pastures in summer, except the horses, which have cut Clover and other green food. In winter they have pulped roots, chopped hay, a little straw three times in the day, and three fodders of hay during day time. The stall fed cows have 8 lbs. of oilcake besides hay daily. The claimant does not state the quantity of manure made on his farm. Buys 500 tons—not less, of horse dung annually, and 1400 tons of night soil, besides many tons of guano. The farm yard manure is used separately for early Potatoes, and the other manures for general purposes on the farm. Claimant drained all this Farm in the first four years of his tenancy, and entirely at his own cost, excepting the tiles; has expended in that time 170*l.* in filling up pits, old fences pulled down, and deep ditches; and sunk 5465 yards of deep ditches and new fences, planted 3025 yards, all done by claimant, excepting the landlord found quicks. The tenant had to cut down and saw, and put up the railing; has made entirely a new occupation road through the farm, 1320 lineal yards; has done the whole of this at his own expense entirely, and the cost of material and carting it cost for several years upwards of 40*l.* per annum. Tenant has made 22 gates entirely at his own cost. Has built a large milk house and dairy, calf sheds, shed for implements, a stable for four horses, a gig-house, a loose box, a smithy and engine house, and found all materials except for the milk house, dairy, and calves sheds, and for those he had to fell the timber and prepare it for its different purposes. Forming and paving farm yard, which is a very large one; the stones for paving were obtained mostly from the draining and other such operations on the land. Claimant farmed and laid out both the front and back garden, and says that his expenditure on this farm has been excessive.

Inspectors' Remarks.—The soil on this is various. Some rich alluvial, some good upland. There are also many acres of a clayey soil, not of a favourable character, and except in particularly good seasons requiring skilful management for successful arable cultivation. The old alluvial meadow is frequently top-dressed with town's and other manure, besides being occasionally irrigated, and by those means made to yield a great production. 27 acres of Clover mown this year showed for far the best of any seen this year, and 9 acres of an old meadow, near the house, is in a luxuriant condition. The pasture land on this farm is in five fields. One field of 32 acres has been down three years, except a small portion which has been down longer; another field of 22 acres, down two years; another field of 11 acres, somewhat older turf; but from appearances we should think none except one field of pasture has been down above six years, and with the exception of pastures which were boned last year, or the year previous, we have seen none equal to them during our inspection this year. The Wheat, 65 acres, is in three fields, and a few acres of a fourth field, and all the Wheat, omitting about three acres in one field of 18 acres, is equal to the best we have seen this year, and the three acres, as above excepted, was a full average crop. A considerable breadth of the Wheat is sown under with Clover and seeds, and whenever examined they showed full of plant and clean. Oats, 16 acres, a full and tall crop, within a line of the very best seen this year. Potatoes, 54 acres, are nearly all on three fields; many acres had been cleared for the market, and about 20 hands were employed in taking up Potatoes when we made our inspection, and showed a large crop, with but few diseased ones. The Potato cultivation on this farm is well managed; it is liberally manured and kept clean. A considerable surface is in beds, 3 and 4 sets wide. The Turnips and Mangels, 12 acres, are in one field—not a favourable soil for a moist season. The Turnips showed for a great crop. The Mangels had vegetated indifferently in places. The omissions were planted or sown with common Turnips, and of both Mangels and Turnips there would be a great crop from the land. All the different crops were well cultivated up to fence sides and head lands. The different improvements in buildings, roads, and fields drained, were pointed out to be examined by the inspectors, and were examined; also the main open sewer, of more than a mile in length, which claimant had cut from 5 feet to more than 9 feet deep, in places with width in proportion. This was to take the surface water from the centre of the farm, vast volumes of water accumulating there in heavy falls of rain. The different erections before enumerated, also the sheds that have been built by this claimant, are convenient and substantial. The yard is large and well paved. The occupation roads made by claimant are in the best condition. The fences planted by claimant are well kept, and the older fences maintained well for all purposes of protection for crops and stock. There is a powerful steam-engine on this farm, and mill gearing for making household flour and meal and crushing different grain. The back yard of the house is spacious and convenient. These have been done by the claimant. The house is very neat, and a nice drive for a carriage to the front, where a piece of well regulated lawn has also been made by this claimant. Everything about this place looks respectable. *Journal of the Manchester and Liverpool Agricultural Society.*

Miscellaneous.

The Choice of Seed hinges (1) on the character of the different varieties of each crop offered in the market, and for this the reader must refer to the description given of each; and (2) on the locality where the seed was grown; though on this point we believe that undue importance is generally placed. Let it, in the

first place, be admitted that a healthily grown, thoroughly ripened seed is perfect of its kind, and, these conditions being fulfilled, it matters nothing whether it be grown on chalk, or clay, or sand. A "change" from one geological formation to another, or from one farm to another, is not, as some seem to think it, necessarily an advantage. Healthily grown and thoroughly ripened Wheat is to be had in any county in the kingdom; and if, having it, you have that which is perfect of its "kind," it is plain that you need not travel for a "change." The question, however, is—What of the character of a grain is involved in this term "kind;" and the answer we presume to be—All that it inherited or can transmit. Now nothing is more certain in agricultural experience than that besides those characters of plants which botanists admit as the permanent distinctions of species, there are other habits or features of greater or less permanence, which plants acquire by the constant treatment of the cultivator or the constant influence of habitat and climate, and which, though capable of alteration and ultimate extinction by other treatment, are yet not altogether transient, but will reappear in subsequent seasons in greater or less degree, according as the circumstances of the locality or season are favourable or otherwise. Thus, we doubt not that a "kind" distinguished for several years under good cultivation for extraordinary productiveness, will be more likely than one of inferior character in this respect to yield well even under inferior cultivation. And the advice on this subject which we should offer would be, simply to look out for seed of a sort which has been known for many years to yield most bushels per acre of good grain. If it can be had from your neighbour, then you will be saved the trouble of sending to either end of the island for it. There are, however, characters which grain from Sussex and from Aberdeen respectively are likely to bring with them in addition to the quantity or quality of their produce; and if a choice must be made between the two, it must hinge upon the relative value of those characteristics which the respective climates of those counties are likely to have encouraged, and, as it were, imprinted. Is hardiness and ability to withstand severity of winter and spring especially desired? then seed from the northern county will probably be preferred. *Morton's Farmers' Calendar.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. SPEARING, Moulsford, near Wallingford, Berks, during the week ending March 11, 1863.

Day of Week.	Day of Month.	Reading of Barometer corrected to Freezing Point at Mean Sea Level. At 9 A.M., Railway Time.	Reading of Dry Bulb Thermometer. At 9 A.M., Railway Time.	Reading of Wet Bulb Thermometer. At 9 A.M., Railway Time.	Wind. Direction. At 9 A.M., Railway Time.	Wind. Force, 0-6 At 9 A.M., Railway Time.	Amount of Cloud 0-10. At 9 A.M., Railway Time.	Reading of Self-Registering Thermometers. Max. in Air.	Reading of Self-Registering Thermometers. Min. in Air.	Reading of Self-Registering Thermometers. Max. in Rays of Sun.	Reading of Self-Registering Thermometers. Min. on Grass.	Rain Fallen in 24 hours previous 9 A.M. on the Ground.	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday ..	5	29.69	43	42	S.	2	1	65	35	100*	30	..	46	45
Friday ..	6	29.52	49	47	S.	2	5	61	40	95	35	..	46	45½
Saturday ..	7	29.61	42	40	S.W.	2	6	54	36	74	32	0.03	46	46
Sunday ..	8	29.61	38	36	S.W.	2	3	54	32	80	29	0.25	46	45½
Monday ..	9	29.63	35	33	W.	1	2	47	27	90	22	0.03	44	45
Tuesday ..	10	29.37	34	32	S.W.	2	2	48	23	88	19	..	43	45
Wednesday ..	11	29.58	36	35	N.W.	1	8	50	29	79	26	..	43	44½

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Notices to Correspondents.

GRASS SEEDS: *G Frost.* Your samples have been unfortunately lost. Will you be so good as send others.

RAPE: *Wisbech.* How far must the different varieties of Rape or Swede be planted apart, to avoid danger of inoculation? Will any one who has had experience be good enough to answer this question. Absolute safety is to be secured, we imagine, only by a very long interval, for bees travel miles; but the question is, what in practice is found to be a sufficient distance?—Also are Early Cabbage and Swedish Turnip seed liable to cross breed?

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WILL BE AT WORK NEAR BEDFORD THROUGHOUT THE SEASON.

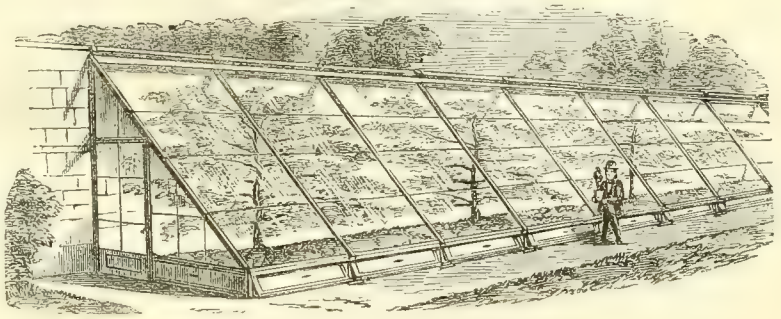
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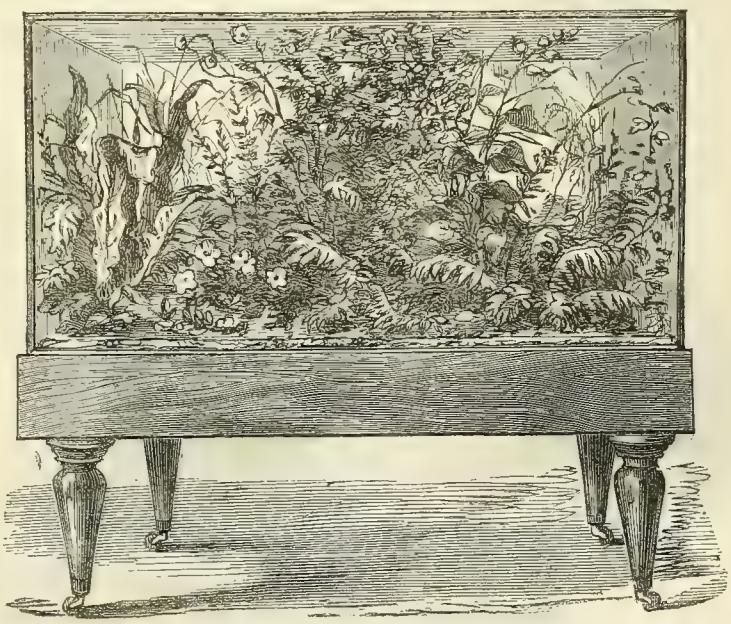
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(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

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The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

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NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863,

FOR WHICH HER MAJESTY'S ROYAL LETTERS PATENT HAVE BEEN OBTAINED.

THE FIRST PRIZE MEDAL

OF THE

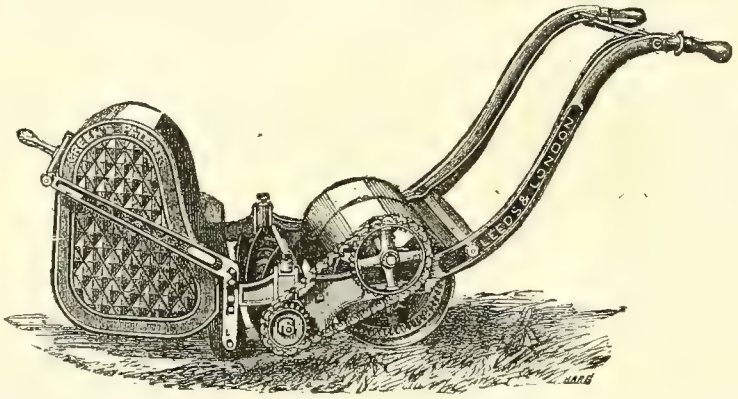
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THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, have much pleasure in stating that the important Improvements which were added to their Machines for last season (which combined simplicity of construction, durability, and lightness of draught), have proved them to be superior to anything of the kind ever brought before the Public, inasmuch as they have given entire satisfaction wherever used, and have gained the largest sale of any Machines extant. They have carried off every Prize that has been given in all cases of competition.

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To Cut 10 inches	£3	10	0	Suitable for a lady.	
„ 12 „	5	0	0	Suitable for one person.	If with internal gear, 10*s.* extra.
„ 14 „	5	10	0	Do. Do. Do. Do.	10*s.* extra.
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„ 20 „ ...	8	0	0	Do. Do.	9 5 0
„ 22 „ ...	8	10	0	Suitable for two men	... 9 17 6
„ 24 „ ...	9	0	0	Do. Do.	... 10 7 6

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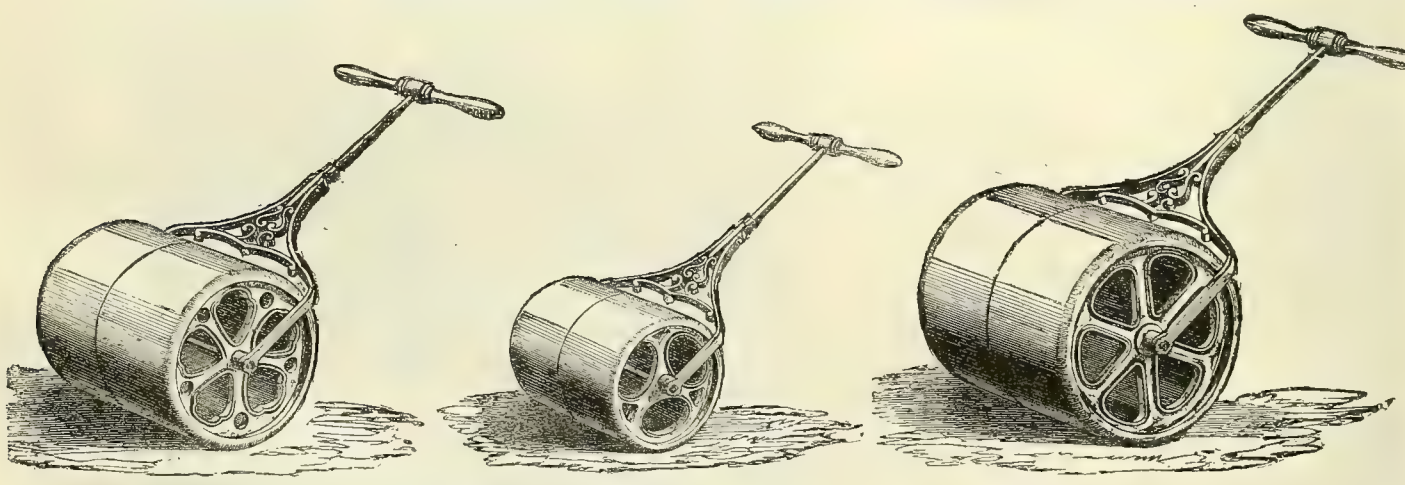
	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	£21 10 0
„ 36 „	23 0 0	24 16 0
„ 42 „	26 0 0	28 2 0
„ 48 „	29 0 0	31 8 0

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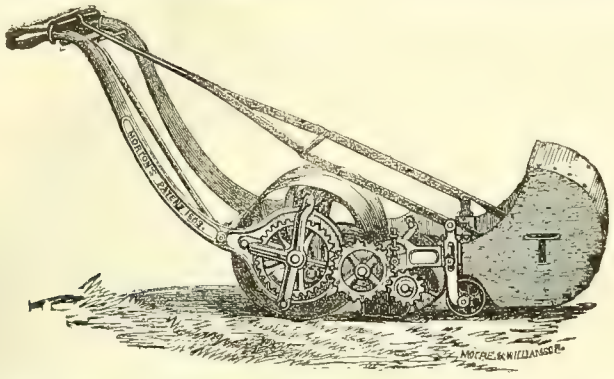
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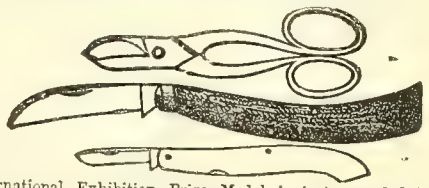
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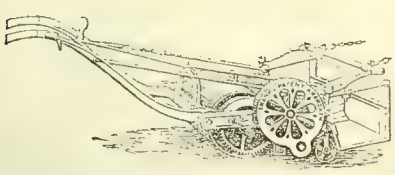
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

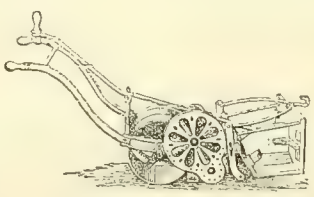
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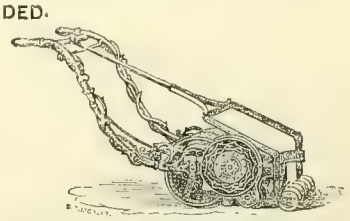
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These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

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No. 3.—36-inch Machine ...	22 0 0	30*s.* „
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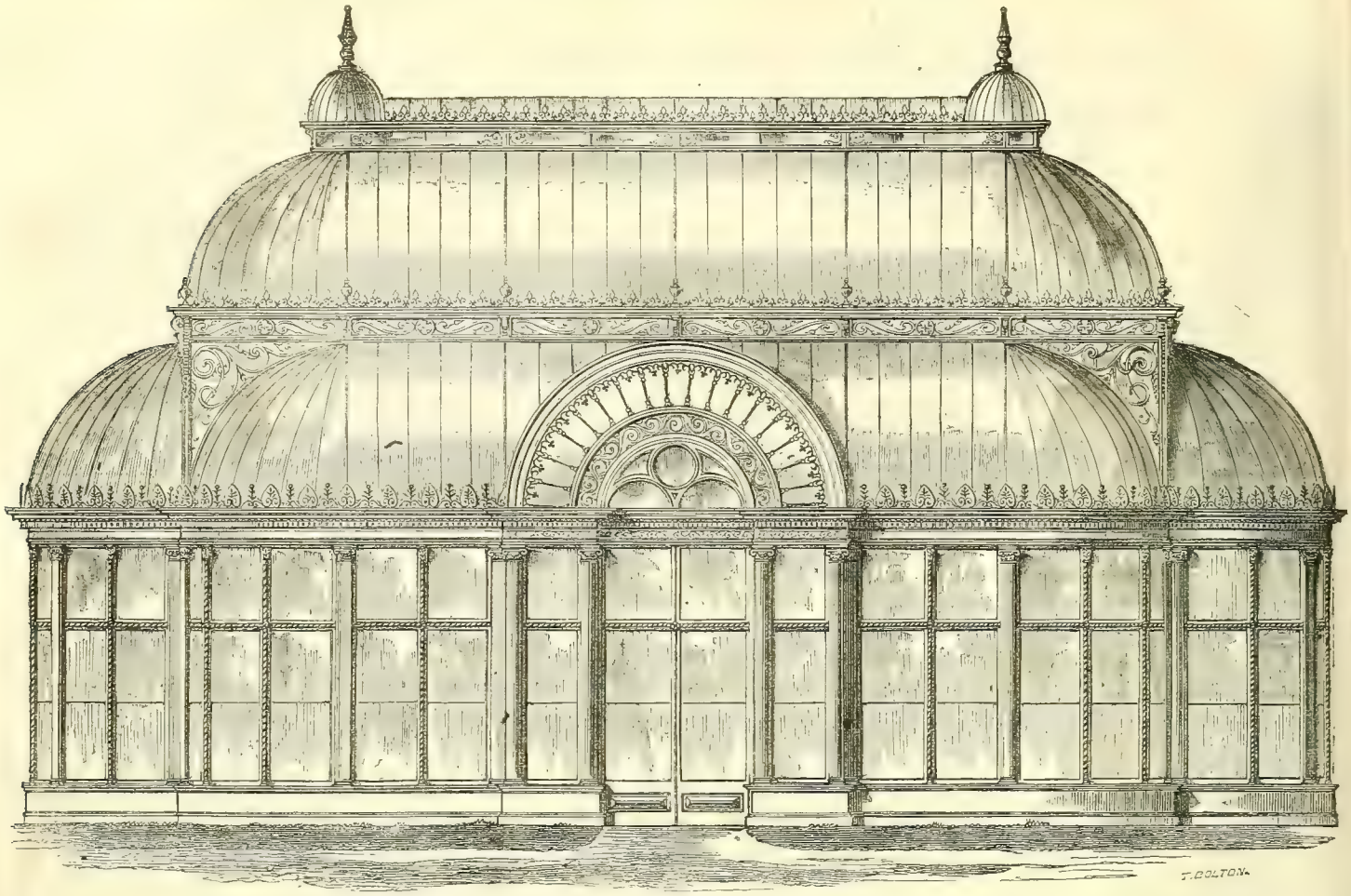
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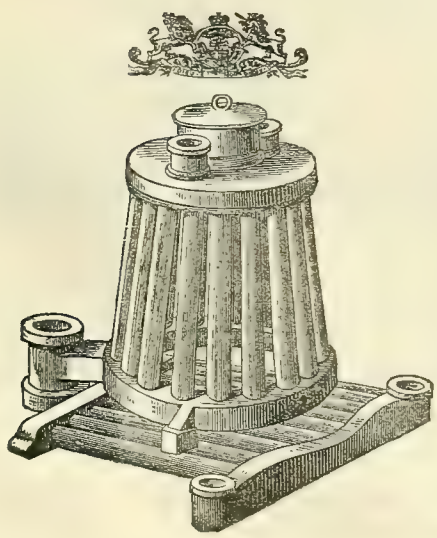
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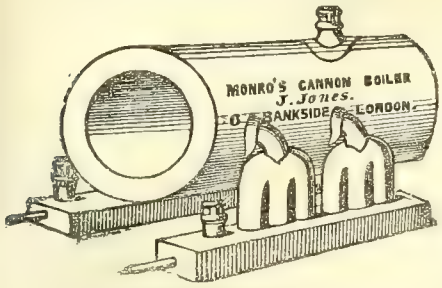
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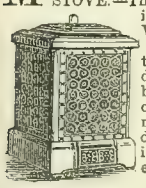
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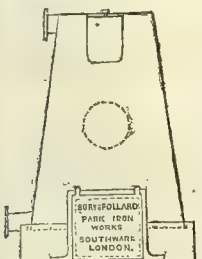
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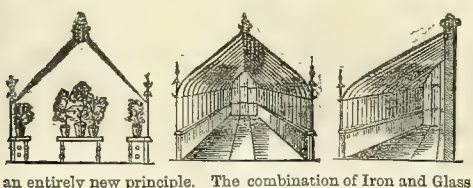
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The annexed Sketch shows the improved arrangement, requiring

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For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.

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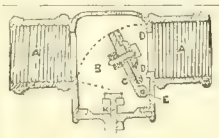
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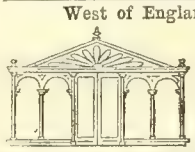
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Notice of Removal.

MR. ARTHUR PLEWS has the honour to announce that on and after MONDAY NEXT his Offices will be REMOVED from No. 50, Chancery Lane, to his Great Horticultural Sale Rooms, No. 11, Catherine Street, Strand, W.C.

Sale of Philosophical Instruments, Photographic Apparatus, Books, &c.

MR. ARTHUR PLEWS has the honour to announce that he purposes establishing SALES of the abovementioned description of property at his NEW SALE ROOMS, 11, Catherine Street, Strand, W.C., EVERY THURSDAY throughout the year.
Full particulars and Scale of Charges can be had on application.

Sales of Horticultural Stock, Seeds, Bulbs, &c.

MR. ARTHUR PLEWS has the honour to announce that he purposes establishing SALES of HORTICULTURAL STOCK at his NEW SALE ROOMS, 11, Catherine Street, Strand, W.C., EVERY TUESDAY and FRIDAY throughout the year.
Full particulars as to Scale of Charges can be had on application.

Sales of Poultry, Rabbits, Pigeons, and Fancy Birds.

MR. ARTHUR PLEWS has the honour to announce that he purposes establishing SALES of POULTRY, RABBITS, PIGEONS, &c., at his NEW SALE ROOMS, 11, Catherine Street, Strand, W.C., EVERY WEDNESDAY throughout the year.
Full particulars and Scale of Charges can be had on application.

Sales by Auction.

SALE THIS DAY, AT HALF-PAST 12 PRECISELY.

Highly Important Sale of Splendid Specimen Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., this Day, SATURDAY, March 14, at half-past 12 precisely, SPECIMEN PLANTS of Wellingtonia, Piceas, Araucarias, Irish Yews, Hollies, Thujas, Laurels, Aucubas, Tree Box, Roses, Berberis, &c.
On view and Catalogues had.

Consignment of Fruit Trees, Roses, and Rhododendrons from France.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY NEXT, March 16, at half-past 12 o'Clock precisely, 2000 splendid STANDARD, DWARF, and TRAINED FRUIT TREES, all the best and newest varieties.; 200 STANDARD ROSES, fine bushy heads; 100 dwarf standard ditto; 100 fine RHODODENDRONS, &c., all very choice Plants, just arrived from France for absolute Sale.
On view the Morning of Sale, and Catalogues had.

Indian Seeds.

MR. J. C. STEVENS will SELL by AUCTION, during THIS MONTH, at his Great Rooms, 38, King Street, Covent Garden, W.C., 128 lbs. of clean SEED of CEDRUS DEODARA, and 12 lb. of assorted seeds expected to arrive by next mail from India.
The day of Sale will shortly be announced.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, March 17, at half-past 12 o'Clock precisely, an assortment of Choice POULTRY, consisting of Spanish, Hamburghs, Cochins, Bantams, Dorkings, Game, Andalusians, Turkeys; Aylesbury Ducks; Himalaya and English Rabbits, &c., from the yards of Mrs. Fookes, Mrs. Larger, Mrs. Pattison, Mrs. Stow, Rev. G. Gilbert, and other well-known fanciers. Also a large number of FANCY PIGEONS from well-known breeders and exhibitors.
On view the Morning of Sale, and Catalogues had.

Important Sale of Moss Roses and other Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 18, at half-past 12 o'clock precisely, upwards of 700 DOUBLE CRIMSON MOSS ROSES, LANEII and LUXEMBOURG (two of the finest Moss Roses in cultivation, from one of the first and largest Rose growers in England); also a splendid assortment of Carnations, Pinks, and Picotees, about 500 pair. Fine specimen Irish Yews, Common and Portugal Laurels, Willows, Laburnums, Lilacs, Honeysuckles, Cryptomerias, Cypresses, GLADIOLI, Delphiniums, Gazanias, Dianthus, Iris, Fuchsias, Gooseberry and Currant Trees, Strawberry and Rhubarb Plants, &c.
On view the Morning of Sale, and Catalogues had.

The First Sale of Californian Tree Seeds this Season.

HIGHLY IMPORTANT SALE OF CONIFEROUS SEEDS JUST RECEIVED DIRECT FROM CALIFORNIA, IN SPLENDID CONDITION.

MR J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 19, at half-past 12 o'Clock precisely, about 800 ounces of clean SEED of Wellingtonia gigantea, Sequoia sempervirens, Thuja gigantea, Libocedrus decurrens, Cupressus Lawsoniana, macrocarpa, and M'Nabiana; Picea nobilis, grandis and amabilis; Abies Pattoniana, Menziesii and Douglasii; Pinus Lambertiana, monticola, ponderosa, Sabiniana and Fremontiana; Taxus Lindleyana, &c.
On view the Morning of Sale, and Catalogues had.

Hardy & Ornamental Plants, Roses, Wire Baskets, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, March 21, at half-past 12 o'clock precisely, 100 ORNAMENTAL GALVANISED and PAINTED FLOWER BASKETS and STANDS, suitable for Conservatories, part of the stock of a large Manufacturer; 800 Bulbs of Gladiolus Bowiensis and Gandavensis; 1000 Standard, Dwarf and Moss Roses, from several well-known English growers, comprising most of the newest and best varieties. Also a Miscellaneous assortment of Hardy Plants from Woking, comprising Rhododendrons, Cedars, Junipers, Araucarias, Apple and Pear trees, Berberis, Laurels, Ash, Beech, Kalmias, Azaleas, Hollies, Ericas, Clematis, Honeysuckles, Ivies, &c.
On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Holland for absolute Sale.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 26, at half-past 12 o'Clock precisely, a splendid assortment of FRUIT TREES, ROSES, RHODODENDRONS, Hollies, Conifers, Kalmias, Deutzias, Weigelas, Hydrangeas, Berberis, Forsythias, Syringas, &c., from a well known Nurseryman in Holland.
N.B. The Fruit Trees, Roses, and Rhododendrons are particularly fine.
On view the Morning of Sale, and Catalogues had.

Fruit Trees, Ornamental Shrubs, Perennials, &c.

MR. ARTHUR PLEWS will SELL by AUCTION, at the Auction Mart, London, on TUESDAY NEXT, March 17, at half-past 12 o'Clock precisely, a fine Collection of HORTICULTURAL and FLORAL PRODUCE.
May be viewed the Morning of Sale, Catalogues may be had of the Auctioneer, 50, Chancery Lane, W.C.

Horticultural and Floral Produce.

MR. ARTHUR PLEWS will SELL by AUCTION at his Great Horticultural Sale Rooms, 11, Catherine Street, Strand, W.C., on FRIDAY NEXT, March 20, at half-past 12 o'clock precisely, a large quantity of HORTICULTURAL and FLORAL PRODUCE.
May be viewed the Morning of Sale and Catalogues had.

Picotees, Carnations, Pinks, Standard, Dwarf, and Climbing Roses; Hollyhocks, Heartsease, &c., &c.

MR. J. WILLMER will SELL by AUCTION as above, at the Auction Mart, Bartholomew Lane, E.C., opposite the Bank of England, on THURSDAY, March 19, at 12 o'Clock.
Catalogues at the Mart, and of Mr. J. WILLMER, Springfield Nursery, Sunbury, Middlesex, S.W.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, Bartholomew Lane, E.C., on FRIDAY, March 20, at 12 o'Clock, about 100 Choice DOUBLE CAMELLIAS, 1 to 6 feet, abundantly furnished with Bloom buds; fine AZALEA INDICA in flower; a superb assortment of about 300 handsome Standard, Half Standard, and Dwarf Roses; Selected Fruit and Ornamental Trees; a fine Collection of American Plants, Gladiolus Brenchleyensis and others; Lilium lancifolium, Ericas, Cinerarias, Fuchsias, Verbenas, Dahlias in dry roots, &c.
On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers, American Nurseries, Leytonstone, Essex, N.E.

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And other Orchids.	Kennedyas
Dracæna terminalis	Pimeleas
Strelitzia Reginæ, 2 large plants.	Lapageria rosea, a remarkably fine specimen, showing 37 blooms at one time last season.

And numerous other Stove and Greenhouse Plants.
LARGE COLLECTIONS of FUCHSIAS, GERANIUMS, FERNS, CALCEOLARIAS, CINERARIAS, &c.

The above valuable Lots have been collected by Sir Thomas Parkyns with great care, regardless of expense, he having been almost in every instance a successful Exhibitor in taking away the best Prizes at the Horticultural Shows.

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HENRY G. BOHN, YORK STREET, COVENT GARDEN, W.C.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 12.—1863.] SATURDAY, MARCH 21. {Price Fivepence. STAMPED EDITION, 6*d*.

INDEX.

Botanic Garden, Chelsea	267 *c*	Orchard houses	271 *a*
Botanical Magazine	272 *a*	Roses, culture of	270 *a*
Cannas and Gladioli	268 *b*	Royal Agricultural Society's Journal	274 *a*–277 *b*
Cedar of Lebanon	270 *c*	Royal wedding day	271 *a*
Drainage, arterial	276 *c*	Sales	272 *b*
Exhibition of Hyacinths	272 *a*	Scarborough Lilies	270 *c*
Farm, East Sussex Down	274 *c*	Seemann's Journal of Botany, rev.	272 *a*
Farms, French prize	277 *c*	Society, Royal Horticultural	271 *b*
Ferns and Fernories	268 *c*	— Royal Agricultural	276 *c*
Figs	271 *a*	Strawberries	270 *c*
Fish and fishing	269 *a*	The Florist and Pomologist	272 *a*
Gladioli and Cannas	268 *b*	Vallota purpurea	270 *c*
Horse power	278 *a*	Water, uses of	273 *c*
Larch rot	270 *c*		
Law	272 *c*		

☞ *An Edition of the* GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE *is published on Monday Afternoon at 4 o'Clock, containing full Reports of the Mark Lane and Cattle Markets, written expressly for the Paper.*

ROYAL BOTANIC SOCIETY, REGENT'S PARK.
FIRST EXHIBITION of SPRING FLOWERS, CAMELLIAS, PRIMROSES, &c., SATURDAY NEXT, March 28.
Visitors admitted only by Tickets to be obtained at the Gardens by orders from Fellows of the Society, price 2*s*. 6*d*. each; or in packets of 10, 1*l*. per packet. Gates open at 2 o'clock. Band at half-past 2.
N.B. Fellows, Members, and Bearers of Ivory Tickets only, admitted free, as on the General Exhibition days.

CRYSTAL PALACE.—The GREAT FLOWER SHOW of the season will take place on SATURDAY, May 23.

To Floral Societies.—Notice.
MESSRS. J. DOBSON AND SONS having retired from Exhibiting for Prizes during 1863, beg to state that Mr. DOBSON, Sen., is open to accept engagements as JUDGE during the season.
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New Roses of 1863.
PAUL AND SON have now ready their usual fine Plants of the finest Novelties of the season. DESCRIPTIVE LIST on application.
"Old" Cheshunt Nurseries, Herts.

New Roses, 1863.
MESSRS. VEITCH AND SON can supply strong healthy plants of the most approved kinds.
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Nursery, Exeter.

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DESCRIPTIVE LISTS on application.
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Strong healthy Plants are now ready.
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CHARLES NOBLE has a nice assortment, one-year, established in 32-pots, ready for Forcing. They are healthy vigorous plants, and cannot fail to give satisfaction. He has also a large stock of Dwarfs and Half-Standards suitable for planting in Roseries; they are offered very cheap.
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PAUL AND SON have still to offer fine STANDARD and DWARF ROSES, new and old; also HOLLYHOCKS, all the leading varieties. CATALOGUES on application.
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Special PRICED LIST of NEW SEEDS on application.

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ARTHUR HENDERSON AND CO. beg to announce that their CATALOGUE of NEW and CHOICE FLOWER SEEDS, containing all the Novelties up to the present time, is now ready, and will be forwarded Free on application.

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PEACHES, NECTARINES, PLUMS, &c., in Pots, established with bloom buds, 5s. to 7s. 6d. each.
GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, S.; and 4, Windsor Terrace, Pimlico, S.W.

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TO BE DISPOSED OF, above 100 strong and healthy Fruiting and Successional PINE PLANTS, consisting of QUEENS, MONTSERRATS, ENVILLES, and other good sorts.
Apply to P. N. DAVIDSON, Gardener to G. J. Yarburgh, Esq., Heslington Hall, near York.

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MARY NICHOLSON, Egglescliffe, Yarm, Yorkshire.

NOTICE.—M. NICHOLSON hopes by strict attention to orders to retain the support accorded to her late Husband.—March 21.

50,000 EXTRA STRONG and BUSHY PLANTS of the following sorts of CURRANTS:—Cherry Red, Red Dutch, Red Grape, Goliath, Victoria, La Versailles, White Grape, White, black flavoured, and Transparent white, all at 10s. per 100; also a large Collection of DWARF ROSES, in Pots, including all the newest and best sorts out, from 9s. per dozen. Price per 100 on application to
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Hardy Scarlet and other Choice Rhododendrons.

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SILVER BANKSIAN MEDAL.

Rhodanthe maculata.

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A DESCRIPTIVE PRICED CATALOGUE, comprising many other fine novelties, may be had gratis.
Wholesale Agents for the sale of RHODANTHE MACULATA: Messrs. A. HENDERSON & Co., Pine-apple Place, Edgeware Road, London, W.

Rhododendron, Countess of Haddington.

First-Class Certificates at Royal Horticultural Society's Exhibition, March 19, 1862; Royal Botanical Society's Exhibition, April 2, 1862; and Edinburgh Horticultural Society's Exhibition, March 19, 1861.

ROBERT PARKER begs to announce that this beautiful variety will be distributed in August next; price of Plants, 21s. each. Orders are now being booked, and will be executed in rotation. The Stock being limited early orders are solicited. A Plant was exhibited at the Royal Horticultural Society's Exhibition, Feb. 25, 1863, of which notice can be seen in reports of Show in *Gardeners' Chronicle* of Feb. 28, and *Journal of Horticulture* of March 3. Other Plants will be exhibited at the coming Spring Exhibitions.
*** The usual discount to the Trade.
Exotic Nursery, Tooting, S.

Old Cheshunt Nurseries, Herts, N.—Roses.

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The NEW ROSES of other Raisers will be ready in March.
They have still to offer fine Home-grown STANDARD and DWARF ROSES.
DESCRIPTIVE LISTS of the New Roses, Gladioli, and Genuine Seeds now ready.

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BEDDING PANSY, BOY IN BLUE.—Will bloom from Christmas—most effective; from 6s. per dozen.
EDWARD SHENTON.

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E. G. HENDERSON AND SON offer First-class quality of CINERARIA,
CALCEOLARIA, and PRIMULA SINENSIS FIMBRIATA, 1s. and 2s. 6d. per packet.
CINERARIA WEBBI.—The interest and value of this species consists in its having a shrub-like branched habit of growth, attaining from 3 to 4 feet in height. This remarkable plant is expected to originate a new and desirable class of varieties for exhibition purposes, in having already passed into all the colours found in florist varieties of the present time, and no doubt but higher improvements in form, and other essential properties, will be obtained in connection with its superior culture. It will be found well adapted for decorative purposes, by its taller growth, and longer continuance in bloom. 2s. 6d.
Wellington Nursery, St. John's Wood, London, N.W.

SPLENDID NEW SCARLET VERBENA, LORD LEIGH.

S. PERKINS & SON,

In offering the above SCARLET VERBENA, have much pleasure in stating that it has been awarded a First-Class Certificate by the Floral Committee of the Royal Horticultural Society, June 11, 1862; First-Class Certificate by the Royal Botanic Society, July 9; First-Class Certificate at the Crystal Palace, Sydenham, Sept. 4 and 5; First-Class Certificate by the Rugby Floricultural Society, August 29; First Prize by the Birmingham Botanic Society, July 10.
After the above Awards, S. P. & SON think it needless to offer any remarks, further than that it is of a free habit and will prove a first-class Bedding variety; colour the most dazzling scarlet that can be conceived, with a clear white eye; truss and pip extremely large, and of the finest shape and quality.
See Editor's remarks in *Gardeners' Chronicle*, August 30, 1862, and December 27, 1862; "Journal of Horticulture," Sept. 9, 1862. An Engraving will appear in the April Number of the "Florist and Pomologist."

Plants after April 15, 5s. each. Special Price by the dozen on application to the
PARK NURSERY, COVENTRY.

BEDDING PLANTS, &c.

WOOD & INGRAM

BEG TO OFFER AS FOLLOWS.

Zonale Geraniums,

VERY FINE SUMMER-STRUCK PLANTS.

	Per dozen.—s.	d.
AGATHA	3	0
AURORA (Halley's)	6	0
BLACKHEATH BEAUTY (Halley's)	6	0
BLACK PRINCE	3	0
BRILLIANT	3	0
BRITISH FLAG	5	0
CERISE UNIQUE	3	0
CHRISTINA	4	0
COTTAGE MAID	2	6
COURONNE DE FLORE	5	0
COUNTESS	5	0
DEFIANCE (Giant)	4	0
FIREBALL	3	0
FLORIAN	5	0
FROGMORE	2	6
HENDERSONII	2	6
HON. MRS. FELLOWES	4	0
HUNTSMAN	3	0
IMPERIAL CRIMSON	4	0
KING OF SCARLETS	3	0
KINGSBURY PET	3	0
LADY DOWNES	4	0
" E. STANLEY	5	0
" MIDDLETON	3	0
LEONIE	6	0
MADAME LAVOCAT	3	0
MARTIN GIREAUD	3	0
MODEL NOSEGAY	3	0
MRS. MAYLER	5	0
MRS. ROWLEY, fine pink	9	0
PAUL L'ABBÉ	6	0
PAULINE	4	0
PET SUPERB	3	0
PRINCESS OF PRUSSIA	12	0
" ROYAL	5	0
RAINBOW	4	0
RUBENS	4	0
SIR C. CAMPBELL	4	0
SYMMETRY	3	0

	Per dozen.—s.	d.
TOM THUMB	3	0
TRENTHAM	4	0
TRIOMPHE DE PARIS	3	0
VIRGINIAN	3	0

Variegated-leaved Geraniums

SIMILAR FINE PLANTS.

	Per dozen.—s.	d.
BIJOU	5	0
BRILLIANT	3	0
FLOWER OF THE DAY	3	0
GOLDEN CHAIN	6	0
IVY-LEAVED	4	0
JANE	4	0
LADY PLYMOUTH	4	0
MANGLE'S PINK	3	0
" RED	3	0
PERFECTION	3	0
QUEEN VICTORIA	4	0
SHOTTISHAM PET	5	0
SILVER QUEEN	4	0

CARNATIONS and PICOTEES, named flowers, 12s. per dozen pairs.

	Per dozen.—s.	d.
GNAPHALIUM LANATUM, new silvery-leaved edging plants	3	0
SEDUM CARNEUM VARIEGATUM	4	0
AGATHÆA CŒLESTIS FOL. VARIEGATIS	3	0
LOBELIA SPECIOSA	2	0
KONIGA VARIEGATA	3	0
BELLIS AUCUBÆFOLIA, very fine	4	0

Also a choice collection of PELARGONIUMS, Show, French and English, Spotted and Fancy varieties, fine bushy plants, once cut down, 9s. per dozen; Summer struck, fine plants, 5s. per dozen. CINERARIAS, fine plants, in 5-inch pots, just showing bloom, 6s. per dozen; LACHENALIA PENDULA, with 3 to 5 spikes of bloom, 9s. per dozen: ACACIA ARMATA, good blooming plants, 9s. per dozen; EUGENIA UGNI, 9s. per dozen; DIOSMA CAPITATA, 6s. per dozen; &c., &c.

HUNTINGDON NURSERIES.

ORNAMENTAL GOURD SEEDS,

FREE BY POST.

MESSRS. SUTTON'S COLLECTION of the above in the Royal Horticultural Society's Gardens, in October last, formed one of the most attractive features in that great International Exhibition, and was most avourably noticed by the various Horticultural Papers. These, as well as the whole of the beautiful Assortment or which the Prize was awarded to Messrs. SUTTON at Birmingham, in December, were grown in our then rial Grounds at Reading last summer, and, together with the many NOVELTIES imported from Nice and lsewhere this season, may be had at the undermentioned very moderate prices, free by post:—

		s.	d.
	MINIATURE GOURDS.		
30	Packets beautiful varieties	7	6
20	„ „	5	0
15	„ „	3	6
10	„ „	2	6
	MEDIUM-SIZED GOURDS.		
12	Packets finest varieties	3	0
6	„ „	1	6
	EDIBLE GOURDS or PUMPKINS.		
	WARTED GOURDS.		
20	Packets finest varieties	5	0
10	„ „	2	6
	GIANT GOURDS.		
30	Packets finest varieties	7	6
20	„ „	5	0
15	„ „	3	6
10	„ „	2	6
	ORNAMENTAL CUCUMBERS.		
10	Packets finest varieties	2	6

SUTTON AND SONS, SEED GROWERS, READING, BERKS.

BARR & SUGDEN 12 KING ST COVENT GARDEN

Second Edition, just Published, price 2s. 6d., OUR

ILLUSTRATED GUIDE TO THE FLOWER GARDEN.

COMPANION *to the above, price* 1s., OUR

ILLUSTRATED GUIDE TO THE KITCHEN GARDEN,

COLLECTIONS OF FLOWER SEEDS.

£3 3 0 | £2 2 0 | £1 10 0 | £1 1 0 | 15s. | 10s. 6d. | 5s. 6d. | 3s. 6d

For particulars, see page 18 of "Guide to the Flower Garden."

STRIKING NOVELTIES.

Continued from last week's *Gardeners' Chronicle,* page 242.

STRONG CANNA ROOTS,

A PORTION OF THE UNRIVALLED COLLECTION OF OUR "SARDINIAN CORRESPONDENT."

Fine foliaged plants, and such as are of stately growth, have of late years been much sought after for the adornment of the FLOWER GARDEN, TERRACES, PLEASURE GROUNDS, LAWNS, SELECT SHRUBBERIES, CARRIAGE DRIVES, &c.; besides relieving the monotony too frequently to be met with in such places, plants of this character impart a somewhat Oriental aspect.

For such purposes the CANNA stands unrivalled; its large picturesque foliage, and spikes of vivid-coloured flowers, produce a truly magnificent effect, especially when planted in groups, whether on the Lawn, in the centre of large beds, or in the mixed Flower Border. Varieties enumerated in our "Guide to the Flower Garden" will be found to form one of the most striking contrasts in habit and foliage.

3179	100	Roots assorted, our own selection, in 25, 30, and 40 varieties.	5*l.* 5*s.*, 6*l.* 6*l.*, and £7	7	0
3180	50	„ „	2	15	6
3181	25	„ „	1	10	6
3182	12	„ „	12*s.*, 18*s.*, to	1	1	0

Passiflora.—See page 90.

2581. PASSIFLORA COMTE DE NESSELRODE.—A magnificent variety, which may be grown out of doors like P. cœrulea, but requiring a little winter protection. The flowers are of a deep rosy lavender, and produced in the greatest profusion; foliage dark green, variegated and spotted with creamy yellow. 2*s.* 6*d.*

2583. PASSIFLORA DECAISNEANA.—Brilliant carmine coloured flowers, of an immense size, great beauty, and delicious fragrance; foliage large and very ornamental. One of the most noble of the Passiflora tribe, far surpassing P. quadrangularis. 2*s.* 6*d.*

2579. PASSIFLORA BUONAPARTEA.—A spendid species, handsome red, blue, and white flowers. 1*s.* 6*d.*

Pentstemon.—See page 66.

1874. PENSTEMON INSIGNIS, beautiful rosy-violet flowers, and shining foliage. 1*s.*

1875. PENTSTEMON JAFFRAYANUS, beautiful sky-blue flowers. 1*s.*

1877. PENTSTEMON LOBBIANUS, a splendid plant, with fine bushy habit, remarkably neat foliage, and beautiful yellow sweet-scented flowers. 1*s.*

UPON THE EVE OF GOING TO PRESS the following were received from our "SARDINIAN CORRESPONDENT," and described by him as extremely beautiful:—

3252. PENTSTEMON PUBESCENS ELEGANS. 1*s.*
3253. „ MONSIEUR PASSORT. 1*s.*
3254. „ MADAME PERRET. 1*s.*
3255. „ PERFOLIATUS GRANDIFLORUS. 1*s.*
3256. „ DIGITALIS GRANDIFLORUS. 1*s.*
3257. „ COBŒA GRANDIFLORUS. 1*s.*

Phlox Drummondii.—See page 68.

1914. PRINCESS ALEXANDRA.—A most beautiful variety, flowers scarlet with black centre. 1*s.* 6*d.*

1919. TWILIGHT.—An exquisite variety; flowers finely formed and very large, of a rich violet colour with black centre, producing a splendid effect in beds, ribbons, &c. 1*s.* 6*d.*

Phygelius.—See page 68.

3258. PHYGELIUS CAPENSIS AURANTIACUS. A magnificent variety of this favourite genus, with large orange tubular-shaped flowers of great beauty. A very desirable plant for flower beds and borders, also for the ornamentation of the Conservatory or Greenhouse. Cultural treatment same as Pentstemon, which it much resembles. 1*s.*

Potentilla.—See page 70.

1991. POTENTILLA CARDINALIS.—An exceedingly fine variety, with handsome scarlet flowers. 1*s.*

1998. POTENTILLA MARGINATA.—A beautiful variety, with purple and white flowers. 1*s.*

2002. POTENTILLA RESPLENDENS.—Carmine and rose, very beautiful. 1*s.*

2003. POTENTILLA SPLENDIDISSIMA.—Flowers of a beautiful vermilion colour. 1*s.*

Quercus.—See page 71.

2038.—QUERCUS MIRBECKII.—A magnificent species of African Oak, with a picturesque glossy variegated foliage and majestic growth. 6*d.*

BARR AND SUGDEN, SEED MERCHANTS.

Seeds for the Flower Garden offered by

B. S. WILLIAM.S.

	s.	d.
An Assortment of 12 Fine Selected Varieties of HARDY ANNUALS	1	6
An Assortment of 12 Fine Selected Varieties of HALF-HARDY ANNUALS	2	6
An Assortment of 12 Fine Selected Varieties of HARDY BIENNIALS and PERENNIALS, suitable for Rockwork	2	6
An Assortment of 12 Splendid Annual kinds of ORNAMENTAL GRASSES	2	0

Paradise and Victoria Nurseries, Holloway, London, N.

Choice Seeds of Asters, Balsams, and Stocks,

OFFERED BY

B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N.

	s.	d.
An Assortment of 12 varieties of TRUFFAUT'S PÆONY-FLOWERED ASTER, 100 seeds of each	2	0
An Assortment of four varieties of COCARDEAU or CROWN ASTER, 100 seeds of each	1	0
An Assortment of 12 varieties of CHRYSANTHEMUM-FLOWERED DWARF ASTER, 100 seeds of each ..	2	6
An Assortment of nine varieties of CAMELLIA-FLOWERED BALSAMS	2	6
An Assortment of 12 varieties of DOUBLE ROSE-FLOWERED BALSAMS	3	0
An Assortment of eight varieties of AUTUMNAL-FLOWERING STOCKS, 100 seeds of each	2	0
An Assortment of eight varieties of BROMPTON STOCKS, 100 seeds of each	1	6
An Assortment of 12 varieties of DWARF GERMAN TEN-WEEK STOCKS, 100 seeds of each	2	0
An Assortment of eight varieties of EMPEROR or PERPETUAL STOCKS, 100 seeds of each	2	0
An Assortment of six varieties of MINIATURE STOCKS, 100 seeds of each	1	6

A PRICED and DESCRIPTIVE CATALOGUE, post free to all applicants, containing useful suggestions for the guidance of amateur cultivators.

New Plants for 1863.

B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N., has much pleasure in offering the following NOVELTIES for the first time, to be sent out after the 20th April:—

NEW ACHIMENES.

The following choice varieties are the seedling productions of that successful gardener, Mr. Parsons, of Welwyn, and they will be found great acquisitions to this beautiful class of plants, and quite equal to the descriptions given:—

ACHIMENES MAUVE QUEEN.—This splendid variety is, without exception, the finest of all that useful and most desirable class of summer-flowering plants; a great improvement on longiflora major; producing an abundance of beautiful large mauve-coloured flowers, with a conspicuous light chocolate eye, splendid form, and of extraordinary waxy substance. Was exhibited by the Raiser at the Floral Committee of the Royal Horticultural Society, and was awarded a First-class Certificate. Figured in the "Floral Magazine," November, 1862. Price 10*s.* 6*d.* each.

ACHIMENES CARMINATA ELEGANS.—Another beautiful variety, and is, without doubt, the finest of the small and free-flowering sections, producing spikes 18 inches in length; being of good branching habit, is capable of producing specimens 3 or 4 feet in diameter, thus making it a charming object for the, summer and autumn months. Price 7*s.* 6*d.* each.

*** Coloured Illustrations of each of the above by Andrews will be forwarded in exchange for six postage stamps.

NEW PETUNIAS.

The following valuable varieties were raised by Mr. Holland, of Isleworth, and are a small collection selected from a large quantity of seedlings. They are confidently recommended for general excellence, being great improvements on all others previously offered.

PETUNIA CRIMSON GEM.—A compact branching and free growing variety; flowers of a soft velvety crimson, with dark throat; of great substance and fine form; an improvement on Phaeton and all in that way. This is, without exception, the highest coloured Petunia yet offered. Received a First-class Certificate from the Royal Botanic Society, May, 1862. Price 5*s.* each.

PETUNIA FLOWER OF THE DAY.—This remarkable flower has four broad stripes of pure white, and four bright purple above, equally divided; very constant and beautiful. Received a First-class Certificate from the Royal Botanic Society, May, 1862. Price 5*s.* each.

PETUNIA ROSA BELLA FORME.—A free flowering and shrubby variety, of first-class habit for bedding and other purposes, being of short-jointed growth; producing an abundance of beautiful bright Magenta flowers, with a clear white throat, of great substance and perfect form. This will, without doubt, prove to be the best bedding Petunia yet offered. Price 5*s.* each.

*** Coloured Illustrations of Petunia Rosa Bella Forme, and Flower of the Day, by Andrews, will be forwarded in exchange for six postage stamps.

NEW ZONALE GERANIUM.

CONQUEROR OF EUROPE (HOLLAND).—Beautiful soft carmine; fine form and substance; extra large truss; long flower stalks, producing enormous heads of bloom well above the foliage; good and compact habit; fine for pot culture. Was awarded a First-class Certificate at the Royal Horticultural Society's meeting, June 1862. Price 5*s.* each.

Paradise and Victoria Nurseries, Holloway, London, N.

COLLECTIONS of FLOWER SEEDS.

Free through the post, except No. 10.

		s.	d.
1.	Containing 100 packets best sorts HARDY and HALF-HARDY ANNUALS. A good sized packet of mixed German Asters, Stocks, Zinnias, &c. (imported seed) is included in this collection ..	21	0
2.	Contains 100 packets ditto, of a smaller size	15	0
3.	50 packets best sorts ANNUALS, imported German Asters, &c., as before	10	6
4.	50 packets of a smaller size	7	6
5.	25 packets ANNUALS, including imported German Stocks, &c.	4	6
6.	25 packets of a smaller size	3	6
7.	18 packets HARDY ANNUALS..	2	6
8.	18 packets of a smaller size	2	0
9.	12 packets HARDY ANNUALS..	1	6
10.	12 packets of a smaller size	1	0

The above Collections contain good sized packets, with Descriptive and Cultural remarks attached to most of them. They are certain to give satisfaction, as no better selection can be made.

EDWARD TAYLOR, Seedsman and Florist, Malton, Yorkshire, offers the above Collections of FLOWER SEEDS, feeling certain they will give every satisfaction.

CATALOGUES gratis on application.

New Purple Verbena Lord Craven.

DOWNIE, LAIRD, AND LAING will be prepared to execute all orders for the above magnificent flower after April 23. For particulars see *Gardeners' Chronicle* of March 14, page 243. 5*s.* each; 42*s.* per dozen.

CATALOGUES on application, post free.

Stanstead Park Nursery, Forest Hill, London, S.E.; and Edinburgh.

New Plants.

CALCEOLARIA CRAWFORD'S EMPEREUR DE MAROC.

JAMES CRAWFORD has much pleasure in offering the above magnificent SEEDLING CALCEOLARIA, which is considered the finest dark shrubby Calceolaria in cultivation for bedding. The individual blooms are more than an inch in diameter; colour the deepest crimson. Its dwarf shrubby habit makes it a fitting companion to Calceolaria aurea floribunda. Strong plants, 3*s.* 6*d.* each in April.

High Beech Nursery, Essex.

Splendid New Fuchsia,

CRAWFORD'S BEAUTY of HIGH BEECH.—This beautiful new Fuchsia is perfectly distinct from any yet sent out; sepals dark crimson, well reflexed corolla, beautifully variegated with crimson, white, and lake. The flower is very large, and expanded like Fuchsia La Crinoline.

Plants in April, 3*s.* 6*d.* each. Post-office orders payable to JAMES CRAWFORD, Loughton, N.E.

High Beech Nursery, Essex—March 21.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

Choice Coniferæ, Tree and Shrub Seeds offered by CHARLWOOD AND CUMMINS.

For particulars see Advertisement in the *Gardeners' Chronicle*, February 21, page 170.

CATALOGUE forwarded on application.

14, Tavistock Row, Covent Garden, London, W.C.

SPECIAL OFFER.—AMERICAN ARBOR-VITÆ, 1-year, per 1000, 8*s.*
HOLLY, 2-years, fine, per 1000, 7*s.* 6*d.*
RASPBERRIES, FASTOLFFS (true), per 1000, 40*s.*
CARNATIONS and PICOTEES, fine named sorts, per 100 pairs, 60*s.*

JOHN KEARSLEY & SONS, Nurserymen, Leeds.

Green Hollies.

CORNELIUS WHITEHOUSE, Brereton Nursery, Rugeley, Staffordshire, offers an immense stock of well-grown healthy extra Transplanted HOLLIES, exceedingly well-rooted, from 12 to 15, 15 to 18, 18 to 24, 24 to 30 inches. Also very handsome SPECIMEN PLANTS from 3 to 5 feet; also ENGLISH YEWS from 2 to 2½ feet, 2½ to 3 feet and upwards. The above growing on ground to be cleared for other stock, the price will be liberal. Trade price on application.

Surplus Stock.

JOHN PALMER AND SON, NURSERYMEN, Annan, beg to inform their Friends and the Trade generally that they have several Millions of the following, of first-class quality:—

2 years SILVER FIR | 2 years NORWAY SPRUCE
3 years NORWAY SPRUCE.

The above will be sold Cheap. Prices and Samples, if required, on application.

GEORGE BAKER begs to offer the following, a selection from his extensive Stock:—

ARAUCARIA IMBRICATA, 3 feet, 6 feet, 9 feet, 14 feet.
ABIES DOUGLASII, 3 feet, 5 feet, 10 feet, 14 feet, 25 feet.
ARBOR-VITÆ (WAREANA), 3 feet, 6 feet, 8 feet.
CEDRUS DEODARA, 3 feet, 6 feet, 12 feet, 20 feet.
CUPRESSUS LAWSONIANA, 3 feet, 5 feet.
,, DISTICHA, 3 feet, 8 feet, 12 feet.
CEDRUS LIBANI, 6 feet, 8 feet, 10 feet.
CHINESE JUNIPER, 3 feet, 5 feet, 6 feet.
IRISH YEW, 4 feet, 6 feet, 8 feet.
JUNIPERUS RECURVA, 8 feet.
PICEA CEPHALONICA, 3 feet, 4 feet, 11 feet.
PINUS CEMBRA, 3 feet, 5 feet, 7 feet.
,, EXCELSA, 10 feet, 15 feet.
THUJA GIGANTEA, 4 feet, 5 feet, 6 feet.
THUJOPSIS BOREALIS, 1 foot, 2 feet.
PINUS AUSTRIACA, 3 feet, 4 feet.
,, BENTHAMIANA, 3 feet, 4 feet.
WEYMOUTH PINE (fine), 1½ foot, 2 feet.
SPRUCE FIR, 1 foot, 2 feet.
AZALEAS (to name)
ANDROMEDAS (to name).
RHODODENDRONS (to name).
,, STANDARDS (to name).
KALMIA LATIFOLIA.
,, ,, STANDARDS (very fine heads).

Prices free by Post, on application. Also G. B.'s GENERAL PRICED LIST is now ready.

American Nursery, near Bagshot, Surrey, about 1¼ mile from Sunningdale Station, S. W. R.

TO THE TRADE.—SPECIAL OFFER.

ABIES MENZIESII, 9 to 12 inches, 3*s.* per dozen; 20*s.* per 100.
18 to 24 inches, 6*s.* per dozen; 40*s.* per 100.
24 to 30 inches, 9*s.* per dozen; 60*s.* per 100.
PINUS INSIGNIS, 4 to 5 feet, 3*s.* 6*d.* each; 30*s.* per dozen.
5 to 6 feet, 5*s.* each; 42*s.* per dozen.
BERBERIS DARWINII, 6 to 9 in., 5*l.* per 1000, or 12*s.* 6*d.* p. 100.
9 to 12 ins, 3*s.* per doz.; 15*s.* per 100.
18 to 24 ins., 9*s.* per doz.; 60*s.* per 100.
CUPRESSUS LAWSONIANA, 2 to 3 feet, 200*s.* per 100.
3½ to 4½ feet 30*s.* per dozen.
4½ to 5 feet, 36*s.* per dozen.
5 to 6 feet, 5*s.* to 7*s.* 6*d.* each.
THUJA LOBBI, 18 to 24 in., 12*s.* per doz.; or 75*s.* per 100.
2 to 3 feet, 18*s.* per doz.; or 100*s.* per 100.
BLUSH CHINA ROSES, 25*s.* per 100.
RHODODENDRON PONTICUM, fine large bushy stuff, 1½ to 2½ feet, 40*s.* to 60*s.* per 100.
2 to 3 feet, 70*s.* per 100.
3 to 4 feet, 126*s.* per 100.
WELLINGTONIA GIGANTEA, 4½ to 5 feet, 42*s.* to 50*s.* each.
5 to 6 feet, 50*s.* to 63*s.* each.
6 to 7 feet, 63*s.* to 84*s.* each.
7 to 8 feet, 84*s.* to 105*s.* each.

The above are all fine healthy, well rooted stuff.

TRADE CATALOGUE of GENERAL NURSERY STOCK on application.

THOMAS CRIPPS, Nurseryman, Tunbridge Wells, Kent.

RUSSELL'S PYRAMID PRIMULAS.—Seed of this unequalled strain is now ready, in packets, price 2*s.* 6*d.*

The great satisfaction which these kinds have given in previous seasons, renders further comment on their merits unnecessary. The additional care taken however in saving the seed last year will probably result in producing flowers much superior to any ever seen.

Printed notes on raising them and their culture, forwarded with each packet; payment can be made in postage stamps.

GEORGE CLARKE, Nursery, Streatham Place, Brixton Hill, London, S.; and 4, Windsor Terrace, Pimlico, S.W.

Hardy Climbers, Hardy Climbers.

MESSRS. DILLISTONE AND CO., of The Nurseries, Sturmer, Halstead, Essex, has to offer a first-rate Collection of the above, consisting of splendid HONEYSUCKLES, ROSES, CLEMATISES; some very beautiful IVIES, JASMINES, &c., &c. A basket containing one dozen, carefully packed and paid to London upon receipt of 10*s.*

100 HERBACEOUS PLANTS, properly named and carefully packed, for 20*s.* PANSIES by the dozen, hundred, or thousand. PAMPAS GRASS, &c., &c. NURSERY STOCK in General.

Sturmer Nurseries.—March 21.

Established 1787.

THOMAS KENNEDY AND CO., NURSERY AND SEED ESTABLISHMENT, Dumfries, N.B.

*** PRICED CATALOGUES sent free on application.

FREE DELIVERY.

FARM and GARDEN SEEDS under certain limitations will be DELIVERED FREE OF CARRIAGE to the chief Railway Stations in Great Britain and the principal Steam Ports in Ireland.

NEW CUCUMBERS, at 1*s.* per packet.

Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

CARTER'S CHAMPION CUCUMBER, recommended by the Royal Horticultural Society as being an excellent bearer. Fruit solid and firm, and the best of the Sion House class. 1*s.* per packet. A few ounces of our own saving to offer the Trade.

237, 238, & 261, High Holborn, London, W.C.



WHEELER'S LITTLE BOOK for 1863.

WHEELER'S TOM THUMB LETTUCE.

WHEELER'S IMPERIAL LETTUCE

The price of the Lettuce is 1*s.* per packet, post free.

J. C. WHEELER & SON beg to inform the Trade that their "Little Book" is entered at Stationers' Hall, and that they cannot allow it to be copied.

J. C. WHEELER & SON, Seed Growers, Gloucester.

Vegetable and Flower Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully announces that his SEED CATALOGUE is now ready, free by post.

The COLLECTION of VEGETABLES recently Commended by the Royal Horticultural Society was grown from Seeds furnished by him.

Nurseries and Seed Warehouse, Waltham Cross, N.

To Seedsmen and Others.

THOMAS AYRES, SEEDSMAN and GROWER, Biggleswade, Beds, begs to offer the following SEEDS of his own growth of 1862, viz:—

WHITE SPANISH ONION SEED,
MANGEL WURZEL SEED, various kinds.
SWEDE, and COMMON TURNIP, ,,
SEED POTATOES of the following varieties:—EARLY ASH LEAF KIDNEY, MYATT'S PROLIFIC do., EARLY SHAW and REGENTS.
SCARLET RUNNER BEANS (English grown).

A PRICE LIST forwarded upon application.

Cabbage Plants.

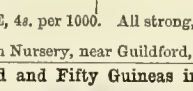
W. VIRGO and SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 3*s.* per 1000:—

EARLY YORK CABBAGE | EARLY NONPAREIL
,, BATTERSEA | DRUMHEAD
,, BARNES

RED CABBAGE, 4*s.* per 1000. All strong, healthy, and well rooted.

Wonersh Nursery, near Guildford, Surrey.

Two Hundred and Fifty Guineas in Ten Prizes.



FOR FIVE YEARS SUCCESSIVELY HIS LATE ROYAL HIGHNESS THE PRINCE CONSORT'S PRIZE CUPS HAVE BEEN AWARDED TO SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Bucks Agricultural Societies.

New Seed now ready, 1*s.* per lb., or 45*s.* per bushel, carriage free.

Royal Berkshire Seed Establishment, Reading.

New Swede.

CARTER'S IMPERIAL PURPLE-TOP SWEDE TURNIP.—The Hardiest and best keeping Swede in cultivation.

*** This Swede was raised by an eminent Kentish Agriculturist, and carefully selected by him until he has succeeded in producing the Perfection of Swedes. Price per lb. 1*s.*

JAMES CARTER & Co., 237 and 238, High Holborn, W.C.

NEW HARDY WHITE SWEDE.—The Favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills. Grows rather coarse on some soils or when sown early; but it is very productive, hardy, and it is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor land.

Seed 1*s.* per lb., or 42*s.* per bushel.

Supplied by RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

SUTTON'S LIST of POTATOES for PLANTING. Carriage free, except small parcels.

*** The sorts marked K are Kidney-shaped.

Daintree's Early Seedling	Webb's Imperial, K.
Early China	Fluke, K.
Soden's early Oxford	Wellington
Golden Ball or Red Regent	Red Ashleaf, K.
	Flour Ball
Dawe's Matchless, K.	The King, K.
The Queen, K.	Alstone, K.
York Regent	Skerry Blue.

PRICE LISTS on application, post free.

☞ SUTTON & SONS deliver Potatoes, as well as Seeds, carriage free (except quantities under one bushel).

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The King and Queen Potatoes.

SUTTON AND SONS have much confidence in recommending these two new sorts of POTATOES, as decidedly the finest and best in cultivation.

The following Prizes have been awarded to Mr. Spencer for these Potatoes:—

The Prize at the Crystal Palace, 1861.
Three Prizes at the International Show at the Royal Horticultural Society's Gardens, South Kensington, in October last.
The Prize at the Birmingham Cattle and Root Show, Bingley Hall, in December last; and upwards of 20 other Prizes in various parts of the kingdom.

To be had of Messrs. SUTTON & SONS, Reading. Price 5*s.* per Peck (of 14 lbs.)



KING of the POTATO.—The original Stock as received from the Raiser, Mr. Spencer, and sent out by us. Pronounced by all who have grown it, to be one of the MOST PRODUCTIVE AND BEST VARIETIES in cultivation. No Blight affects it.

Price 12*s.* 6*d.* per cwt., or 12*l.* per ton.

JAMES DICKSON & SONS,

The "Newton" Nurseries, Chester.

The King of Potatoes.

JOS. H. ROBINSON, SEEDSMAN, Coventry, has a limited quantity of the above superior POTATO to offer at 2*s.* per peck, or 7*s.* per bushel. Also MYATT'S ASHLEAF, 2*s.* and 7*s.* EARLY LEMONS, the earliest and best Ashleaf out, 2*s.* and 6*s.* 6*d.* DALMAHOY SECOND EARLY, 1*s.* 3*d.* and 4*s.* FLUKES, 1*s.* 3*d.* and 4*s.*

The "King" may fairly be said to be the finest Potato in cultivation; gaining the First Prize at the Royal Horticultural Society's Show, and at Birmingham

Early Handsworth Potatoes.

E. P. DIXON AND SONS, Hull, have on hand a fine stock of the above well-known prolific Potato. Price on application.

Yorkshire Seed Establishment, 57, Queen Street, Hull.

POTATOES:—Ashleaf, Fortyfold, Shaw, Dalmahoy, Regent, Flukes, &c. STRAWBERRIES: Black Prince, Admiral Dundas, British Queen, Eleanor, Elton Pine, Wizard of the North, 10*s.* per 1000; Prince of Wales, Princess Royal, Eliza, Alice Maude, Oscar, Duc de Malakoff, 2*s.* per 100.

GEO. CORNWELL, Seedsman, &c., Barnet, Herts, N.

GIANT ASPARAGUS ROOTS, 2*s.* 6*d.* per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see RICHARD SMITH'S SEED LIST for 1863.

Strong Transplanted SEA KALE, 2*s.* per doz.

RICHARD SMITH, Nurseryman, Worcester.

GRAYSON'S TRUE MORTLAKE GIANT ASPARAGUS, grown on the ground where the late Mr. GRAYSON brought it to such perfection, so that Grayson's Asparagus is preferred everywhere.

Seed saved from the Mortlake Beds .. 6*d.* per oz.
Plants 1-year old .. .. .. 2*s.* 6*d.* per 100
,, 2 years old .. .. .. 4*s.* 0*d.* per 100

FRANCIS R. KINGHORN, Sheen Nursery, Richmond, S.W.

Seed Trade.

JAMES CARTER AND CO., Holborn, W.C., have a few lbs. of the following to offer to the Trade:—

MELVILLE'S GARNISHING KAIL,
VARIEGATED BEET, for garnishing,
SNOW'S WINTER BROCCOLI, true,
LITTLE PIXIE CABBAGE,
NEW FEATHER STEM SAVOY,
DANVER'S YELLOW ONION.
TOMATOE DE LAYE.
HENDERSON'S PINE-APPLE BEET.

To the Seed Trade.

H. AND F. SHARPE have a Surplus Stock of true—

Early Long Pod Beans	No Plus Ultra Peas
Mackie's Monarch ditto	Laing's Imperial Swede Turnip
Broad Windsor ditto	Early Green Top Yellow ditto
Early Emperor Peas	Fine Red Surrey Carrot
Woodford's Green Marrow do.	Early Nonpareil Cabbage
Flack's Blue Imperial ditto	,, Emperor ditto
British Queen ditto	,, Enfield Market ditto

which they can offer at a low figure.

Seed-growing Establishment, Wisbeach.

Seeds for the Kitchen Garden, Flower Garden, and Farm.

JOHN CATTELL'S DESCRIPTIVE CATALOGUE of the above is now ready, and will be forwarded, post paid, on application; it contains select lists only, and includes every novelty worthy of cultivation.

All parcels of Seeds of the value of 21*s.* and upwards carriage paid to any Railway Station in England.

Nursery and Seed Establishment, Westerham, Kent.

Vegetable, Flower, and Agricultural Seeds.

NEW AND RARE PLANTS, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing select descriptive and priced lists of AGRICULTURAL, KITCHEN GARDEN, Imported GERMAN, and other FLOWER SEEDS; NEW and RARE PLANTS; Variegated, Ornamental Foliaged, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now published, and will be forwarded Post Free to all applicants.

Exotic Nursery, Tooting, Surrey, S.

Good Clover Seeds at Market Prices.

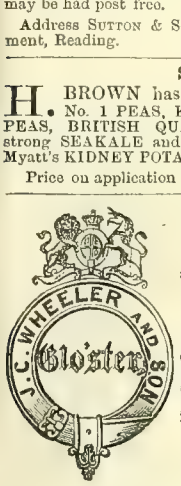
SUTTON AND SONS have now ready, at very moderate prices, fine new RED, WHITE, and ALSIKE CLOVER SEEDS. As also new Rye Grasses, Turnip, Mangel Wurzel, and other Agricultural Seeds, a Priced List of which may be had post free.

Address SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Surplus Stock.

H. BROWN has to offer to the Trade Sangster's No. 1 PEAS, Knight's DWARF GREEN MARROW PEAS, BRITISH QUEEN PEAS, and a few thousand strong SEAKALE and ASPARAGUS. Also a few Tons of Myatt's KIDNEY POTATO.

Price on application to 4, Commutation Row, Liverpool.



FARM SEEDS of the finest quality, are offered at fair Market Value.

A LIST of PRICES at which they can be delivered carriage free, and 5 per cent. discount allowed for Cash, is contained in

WHEELER'S "LITTLE BOOK" for 1863.

Agricultural Seeds of First Quality.

COW CABBAGE, CARROTS, KOHL RABI, MANGEL WURZEL, RAPE, WHITE MUSTARD, TURNIPS, SWEDES, CLOVERS, RYE-GRASSES, GRASSES FOR PERMANENT PASTURE, FURZE OR GORSE, SERADELLA, &c., &c.

WM. WOOD AND SON beg to offer Seeds of the above, genuine and unadulterated, and will be happy to forward samples and prices (which are very moderate) on application.

DESCRIPTIVE PRICE LIST of AGRICULTURAL SEEDS now ready.

☞ Orders amounting to 10s. and upwards, sent carriage free.—See List.

Seed Warehouse, Maresfield, near Uckfield, Sussex.

N.B. Special quotations at reduced rates for large quantities

International Exhibition. Prize Medals 1851 and 1862,

AWARDED FOR "EXCELLENT SEED CORN AND SEEDS," TO RAYNBIRD, CALDECOTT, AND BAWTREE, SEED MERCHANTS and GROWERS, Basingstoke, Andover; and 89, Seed Market, Mark Lane, London, E.C.

Samples of all kinds of AGRICULTURAL SEEDS and SEED CORN, sent post free on application.

TRADE

HALLETT'S | PEDIGREE. | NURSERY WHEAT.

MARK.

"The best Spring Wheat known. Drill in February and March, six pecks per acre."

Produced (1862) 62 bushels per acre, weighing 64 lbs. a bush.

Price ONE GUINEA A BUSHEL, including bag sewed up and sealed, delivered at the Brighton Railway Station, with Printed Directions for Planting, on Receipt of Cheque or Post-office Order, which must in all cases accompany the Order. Less than One Bushel will not be supplied. Name of Station and Railway should accompany the Order.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

CHEAP GRASS SEEDS for HILL SIDES and RAILWAY BANKS.—Rough Grasses, Sainfoin Siftings, &c., suitable for the above purpose, at 2s. per bushel and 3d. per lb.

Address, RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

GRASS SEEDS for LAYING DOWN LAND to PERMANENT PASTURE or MEADOW.

Having been amongst the very first in this country to recommend the use of the Natural Grasses in the formation of Permanent Pasture, and having over a long period of years given the subject a considerable share of attention, we, from the marked success which has attended their culture, feel quite warranted in recommending our carefully prepared Mixtures or Assortments, to the notice of those who purpose laying down land for a period of years. In choosing for these Mixtures, our aim is to imitate, as near as possible, the varieties composing the rich old pastures of Britain, and which it is obvious cannot be obtained by adopting the too common mode of sowing down with Ryegrass and Clover only, for although these yield heavily at first they are soon exhausted, and leave the land bare, to be filled up in course of time by an inferior herbage.

Parties ordering will please state the nature and extent of the land to be sown, and whether with or without a grain crop. When not instructed to the contrary, the Seeds will be sent out mixed and ready for the sower. The mixing being a most important operation, is much more perfectly done by our practised hands than it can be by those unaccustomed to it. After numerous carefully tested experiments, we find it the best plan to sow light and heavy seeds together.

When requested, we will be glad to furnish a list of the varieties and quantities suited to any given description of land. The Cost for a full Supply of Seeds will range from 25s. to 28s. per statute acre.

Carriage of Seeds paid to the principal Railway Stations throughout the kingdom.

W. DRUMMOND & SONS, Stirling.

*** PRICED CATALOGUES of all the leading descriptions of Seeds required for the Farm or Garden, may be had prepaid on application.

Blight.

BROWN'S PATENT FUMIGATOR. — A Portable Instrument for Fumigating Greenhouses, Stoves, and Frames, or Shrubs and Flowers in the open air, without injuring the most delicate plant; delivering the smoke cold, in a dense mass, and effecting a great saving of Tobacco. Price 10s. and upwards.

Manufactured and supplied to the Trade by Messrs. BARBER & GROOM, London; and may be had of all Ironmongers, Seedsmen, and Florists.

Notice.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS), HORTICULTURAL VALUER, begs to inform his friends and the public that he has REMOVED from Priory Road, Wandsworth Road, to No. 1, Devonshire Terrace, Fulham Road, S.W.

REIGATE SILVER SAND.—Best quality, 8s. per ton; second quality, 6s. per ton, of not less than 4 tons, put on the rail at Reigate. PEAT SOILS and LOAM.

W. SHORT, Reigate Heath, Surrey.

To Gardeners and Others.

BEST WHITE SILVER SAND GRIT, admirably adapted for Gardening Purposes, may be obtained on very advantageous terms by applying to THOMAS TWINSTEAD, Heath & Reach, near Leighton Buzzard.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1863 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from Messrs. Gibbs: Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

TENANT FARMERS' MANURE COMPANY.
ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME,

MANUFACTURED BY THE PATENT

NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),

Consisting of TENANT FARMERS, occupying upwards of 30,000 Acres of Land.

Chairman.—JOHN CLAYDON, Esq., Littlebury, Essex.

Particulars of these Standard Manures may be obtained at the Offices. C. T. MACADAM, Secretary.

Or of the Local Agents.

Offices: 109, Fenchurch Street, London, E.C.

Manufactory: Plaistow Marshes, Essex, N.E.

Established 1848.

THE BLAYDON MANURES.—Two Prizes were last season awarded, under the auspices of the Rutland Agricultural Society, for Turnips grown with the above Manures, viz.:—

1st.—A Silver Cup, value Five Sovereigns, was given by the Town and Trade of Oakham to Mr. T. W. Fowler, Exton, for the best Turnips (not being Swedes) grown within the County of Rutland. These Turnips were raised with 3 cwt. per acre of the 7*l.* 10*s.* Blaydon Manure, used with a moderate dressing of Farm-yard Manure.

2d.—Three Sovereigns (the 2d premium), given by the Right Hon. Viscount Campden, were awarded to Mr. Fowler, Exton, for Swedish Turnips. These Turnips were grown with 3 cwt per acre of the 7*l.* 10*s.* Blaydon Manure, along with a moderate quantity of Farm-yard Manure.

Manufactured by the Blaydon Chemical Company, Blaydon-on-Tyne.

Managing Partner, EDWARD RICHARDSON, Jun.

POTTER'S GUANO (established 21 years), 7*l.* per Ton.

POTTER'S CONCENTRATED MANURE, guaranteed by analysis, 10*l.* per Ton.

PURE GYPSUM, 25s. per Ton, bags included.

Address, 28, Clapham Road Place, S.

Manures for Present Use.

PERUVIAN GUANO, Genuine as Imported by the Contractors of the Peruvian Government, Deliveries direct from the Docks; NITRO-BIPHOSPHATE (Blood and Offal Manure), Fish Offal ditto (PHOSPHATE); SUPERPHOSPHATE of LIME (made from Bone), see Royal Agricultural Society's Journal, vol. 6, page 2; and all others of known value, may be had on the best terms by application to MARK FOTHERGILL, 23, Great Tower Street, Mark Lane, E.C.

Established 1839.

ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and Destroying the Fly, 1s. 4*d.* per lb., over 10 lbs., 1s. 1*d.*

JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C. Post Office Orders payable Fleet Street.

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.

Can be obtained through the principal Nurserymen and Seedsmen in England.

A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.

PAGE & TOOGOOD, Seed Merchants, Southampton.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1s. and 2s. per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1s. per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1s. 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE CO., Limited.

Metropolitan Board of Works.

THE METROPOLITAN BOARD of WORKS HEREBY GIVE NOTICE that on FRIDAY, the 8th day of May NEXT, they will receive TENDERS for the DISPOSAL of the SEWAGE discharged by the Main Outfall Sewers. All Tenders must contain a full description of the Works proposed, and must be accompanied by a Plan and Section showing their several details. The Board will further require full information as to the manner in which the Sewage is to be treated and employed, and, if by Irrigation, as to the distribution of the Sewage, the quantity and locality of the land over which it is to be distributed, the points at which the Sewage is to be intercepted, the daily quantity to be employed, the mode of effecting junctions or communications with the Board's Sewers, the provisions against Floods, failure of Pumping power, or other defect in the Company's Works, the mode of deodorisation, or otherwise preventing the Sewage from becoming a Nuisance or injurious to health; the amount of Capital to be invested, number and value of the Shares, duration of the Contract, and Royalty agreed to be paid to the Board. The Board will not enter into any Contract, or make any concession of Sewage to any parties, unless they take all steps necessary for carrying their project into effect within a time to be named by the Board, and in the event of failure to do so, any agreement or concession on the part of the Board shall be void and of no effect; and in any contract provision must be made to secure to the Board the return of the Sewage Works, and the full power to Re-let and deal with the same, and so that the Board may in case of any failure of the Contractors or their operations be left to their full rights, and without any cost to the Board. The Tender must contain the names of two or more sureties, to be approved by the Board, who shall be jointly and severally bound in a competent sum for the due performance of the Contract, and for the efficient execution of the Works in accordance with the provisions and subject to the limitations of the Metropolis Local Management and Main Drainage, and for indemnifying the Board against all loss, damage, or injury, claims for compensation, or legal proceedings arising out of the said Works or other operations of the contractors. The Board will not bind itself to accept the highest or any Tender.

The Plans and Sections of the Sewers can be seen, and all information obtained, at the Office of the Engineer of the Metropolitan Board of Works, at their Office in Spring Gardens, between the hours of 9 A.M. and 4 P.M., or on Saturdays, between 9 A.M. and 2 P.M.

The Tenders are to be addressed to the Clerk of the Board, and must be delivered at this Office before 4 o'Clock on Thursday, the 7th May next, and no Tender will be received after that hour. By order. JOHN POLLARD, Clerk of the Board.

REDUCTION IN PRICE.

PHOSPHO GUANO.

The Prices for the Season 1863 are as follows, delivered Free on Board, or on the Rails at Liverpool.

For 30 Tons and upwards	**£10**	**5**	**0**	**per Ton, net cash.**
For 10 Tons up to 30 Tons	**10**	**10**	**0**	,, ,,
For 5 Tons up to 10 Tons	**10**	**15**	**0**	,, ,,
For smaller quantities	**11**	**0**	**0**	,, ,,

The Price will not exceed 12s. per Ton additional if delivered at any other Port in Great Britain.

PETER LAWSON & SON, CONTRACTORS.
GEO. SEAGRAVE & CO., BROKERS.
WILLIAM DIXON & CO., GENERAL AGENTS.

Superb Hollyhocks.

R. B. BIRCHAM begs to state that he has a very large Stock of fine healthy Plants now ready for planting out, and shall be happy to supply orders upon the most liberal terms.

CATALOGUES sent upon application.

Hedenham Rosery, Bungay, Suffolk.

Superb Double Hollyhocks.

This being the best time for Planting them out.

WILLIAM CHATER has an immense stock of healthy Plants.

CATALOGUE of PRICES to be had on application.

William Chater, Nurseries, Saffron Walden.

Select Double Hollyhocks.

WILLIAM PERRY begs to announce that he has for SALE a good and healthy stock of Young Plants of the above that will flower well this season. If selection is left to W. P., the price per dozen will be 9s., 12s., 18s., 24s., 30s.

Sawbridgeworth, Herts.

EDWIN HOLLAMBY begs to inform his Patrons and Friends that his DESCRIPTIVE PRICED CATALOGUE of VEGETABLE, FLOWER, AGRICULTURAL SEEDS, and GLADIOLUS is now ready, and may be had gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells, Kent.

New and Genuine Seeds.

GEORGE PARSONS, Seedsman by Appointment to Her Majesty. A DESCRIPTIVE SELECT PRICED LIST, post free, on application.

27 and 28, Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

New Verbenas and Fuchsias. Double and Single Petunias of 1862.

WM. KNIGHT offers strong well-established Plants of all the best varieties of the above for Bedding or Exhibition, having been one of the most successful exhibitors of the above. Nothing but first-rate proved flowers in their classes are offered. VERBENAS, 5s. per doz.; FUCHSIAS, 6s. per doz.; PETUNIAS, 6s. per doz.

Floral Nursery, Hailsham, near Hurst Green, Sussex.

Flower Seeds sent Free by Post.

WOOD AND INGRAM beg to offer

				s.	d.
12 fine varieties of HARDY and HALF-HARDY ANNUALS for	..	..	..	1	8
24 ditto	ditto	ditto	..	2	10
36 ditto	ditto	ditto	..	4	0
48 ditto	ditto	ditto	..	5	0

Nurseries, Huntingdon.

CHOICE HARDY FLOWER SEEDS, of showy colours, and best sorts only, with Cultural Directions :—

A Selection of the best 12 sorts, 1s. 6d.; large packets, 2s. 6d.
A Selection of the best 24 sorts, 2s. 6d.; ,, 3s. 6d.
A Selection of the best 36 sorts, 3s. 6d.; ,, 5s. 0s.
A Selection of the best 50 sorts, 5s.; ,, 7s. 6d.
A Selection of the best 12 half-hardy sorts, 2s. 6d. and 5s.

A List of other Collections sent free by post.

J. Scott, Merriott, Somerset.

The BEDDING CATALOGUE and FLOWER GARDEN DIRECTORY will be ready in April, price 6d.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

				£	s.	d.
50 in 25 extra choice varieties	..	..	..	£2	2s.	0d.
25 in 25	,,	,,	..	1	5	0
12 in 12	,,	,,	..	0	12	0
50 in 50 choice varieties	..	..	..	2	12	6
50 in 25	,,	,,	..	1	5	6
25 in 25	,,	,,	..	0	13	6
12 in 12	,,	,,	..	0	5	0

Extra fine mixed, 2s. 6d. per doz., 17s. 6d. per 100.

Butler & McCulloch, Seed Merchants, Covent Garden Market, W.C.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS; ditto COWSLIP; Florist's Flower, POLYANTHUS, Roots or Seed; also SCARLET PRIMROSE—Double Crimson, Double Purple, Double White, Double Yellow, and Double Lilac ditto. COWSLIP from the Himalayas; DOUBLE POLYANTHUS; and other varieties, all of which may be had on application to

Richard Webb, Calcot Gardens, Reading.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., Nurseryman, Stoke Newington, begs to inform his friends and the public he can supply from his great Stock of the above 20 pairs of the best large Varieties for 10s.; and 25 pairs of best POMPONES for 10s.; 20 pairs of Cuttings of the large Varieties for 5s.; and 25 pairs of Pompones ditto for 5s.

New CATALOGUES ready for one stamp.

N.B. To save trouble all orders to be paid to J. H. Bird, Stoke Newington.

New Chrysanthemums.

JOHN SALTER'S DESCRIPTIVE CATALOGUE of CHRYSANTHEMUMS, including the new varieties, which he will send out this Spring, as well as "HARDY VARIEGATED PLANTS," and other novelties, is now ready, and will be sent post free on receipt of two stamps.

Versailles Nursery, William Street, near Hammersmith Turnpike, London, W.

FIRST CLASS NEW FUCHSIAS. — Coloured Drawings by Mr. Andrews of SANSPAREIL, BRIDESMAID, CONSPICUA, and HERCULES, are now ready, and will be forwarded in exchange for 12 postage stamps.

G. S. begs to offer the above as the most Superb FUCHSIAS yet offered to the Public. For description, with price, and also time of sending out, see CATALOGUE, now ready.

George Smith, Tollington Nursery, Hornsey Road, Islington, London, N.

A PRICED and DESCRIPTIVE CATALOGUE of all the new and leading kinds of Show, Spotted, French, Fancy, Scarlet, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready in exchange for one postage stamp.

Geo. Smith, Tollington Nursery, Hornsey Road, Islington, London, N.

Genuine Seeds.—Carriage Free.

WM. CUTBUSH and SON beg to intimate that they are now prepared to execute orders for GENUINE GARDEN SEEDS, for which their house is extensively known.

Mr. C. gives his personal attention to this branch of our business, and we can confidently recommend all offered as being of the best quality, at as moderate prices as consistent.

CATALOGUES free on application.

Highgate, London, N.

MAGNIFICENT AND UNIQUE PLANTS.

MR. WILLIAM BULL

Begs to intimate that his collection of NEW and RARE PLANTS now contains many specimens unequalled in England; amongst them may be mentioned, the loftiest TREE FERN, the most elegant and magnificent GLEICHENIA; the New MAIDEN-HAIR FERN "ADIANTUM FEEII;" the handsome SILVER PALM from Madagascar; the LACE PLANT from Madagascar, with leaves a foot and half in length, besides several NEW and RARE PLANTS not to be seen elsewhere.

Mr. William Bull will be happy to show the above to any one who will favour him with a visit.

ESTABLISHMENT FOR NEW AND RARE PLANTS,

KING'S ROAD, CHELSEA, LONDON, S.W.

ROSES AND HYACINTHS.

WM. PAUL (SON and SUCCESSOR to the late A. PAUL)

Respectfully invites inspection of his ROSES and HYACINTHS, now in FULL BLOOM. Many of the kinds are quite new, and have never bloomed in England before.

The THREE FIRST PRIZES for HYACINTHS, the FIRST PRIZE for ROSES, and TWO PRIZES for TULIPS were awarded to these Collections at the Royal Horticultural Society's Exhibition on Wednesday last.

Entrances from the Platform, Waltham Station (Great Eastern Railway), and High Road, Waltham Cross.

NURSERIES and SEED WAREHOUSE, WALTHAM CROSS, N.

GRAND EXHIBITION OF HYACINTHS, 1863.

WM. CUTBUSH & SON

BEG TO ANNOUNCE THAT THEIR

GRAND EXHIBITION OF HYACINTHS AND OTHER SPRING FLOWERS

WILL BE HELD AT THEIR

NURSERIES, HIGHGATE, during the TWO WEEKS commencing MONDAY, MARCH 16.

Admission by Tickets, which can be had free on application or by Private Address Card.

The Nurseries are easy of access by Omnibus from London Bridge Station, the Bank, Holborn, Tottenham Court Road, Islington, and Charing Cross to the foot of the Hill, from thence a distance of about 7 minutes' walk.

HIGHGATE NURSERIES, LONDON, N.

GARDEN SEEDS.

S. GLENDINNING & SONS,

NURSERYMEN AND SEEDSMEN

(SUCCESSORS TO THE LATE R. GLENDINNING),

Are now sending out their COLLECTIONS of KITCHEN GARDEN SEEDS.

						£	s.	d.
No. 1	contains	36 Quarts	of PEAS, and all other Seeds in proportion			£5	5	0
No. 2	,,	28 Quarts	ditto	ditto	ditto	4	4	0
No. 3	,,	20 Quarts	ditto	ditto	ditto	3	3	0
No. 4	,,	12 Quarts	ditto	ditto	ditto	2	2	0
No. 5	,,	6 Quarts	ditto	ditto	ditto	1	1	0

COLLECTIONS of FLOWER SEEDS.

							£	s.	d.
No. 1,	containing	100	Large Packets of Best Hardy Annuals		...	...	£0	18	0
No. 2,	,,	50	ditto	ditto	ditto	...	0	9	6
No. 3,	,,	24	ditto	ditto	ditto	...	0	5	0
No. 4,	,,	25	ditto	Half-Hardy Annuals		...	0	7	6
No. 5,	,,	12	ditto	ditto	ditto	...	0	4	0
No. 6,	,,	25	ditto	Tender Annuals		...	0	12	6
No. 7,	,,	12	ditto	ditto	ditto	...	0	6	0

The above Collections consist only of best and most useful varieties, and are of the finest quality.

S. G. & Sons' CATALOGUE of KITCHEN GARDEN, AGRICULTURAL, and FLOWER SEEDS, is now ready, and may be had on application.

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KITCHEN GARDEN SEEDS,

FLOWER SEEDS.

In Collections including all the new and approved kinds, or separate to order.

Detail CATALOGUES post free.

THOS. GIBBS & Co. Corner of HALF-MOON St. PICCADILLY, London.

AGRICULTURAL SEEDS,

GRASS SEEDS,

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of all descriptions.

CORNER OF HALF-MOON St. PICCADILLY, LONDON, W.

GRASS SEEDS AND CLOVER SEEDS.

J. C. WHEELER & SON,

SEED GROWERS, of GLOUCESTER,

ARE IN A POSITION TO OFFER

GRASS SEEDS AND CLOVER SEEDS

ON EXTREMELY LIBERAL TERMS.

FARM AND GARDEN SEEDS

CARRIAGE FREE.

BANGHOLM SWEDE,
EAST LOTHIAN SWEDE,
WARD'S BEAUTY SWEDE,
DROPMORE SWEDE,
MARSHALL'S CHAMPION SWEDE,
GREEN-TOP SWEDE,
WHITE SWEDE,
IMPROVED SKIRVING'S SWEDE.
WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
DOBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
IMPROVED YELLOW GLOBE DITTO,
IMPROVED ORANGE GLOBE DITTO,



IMPROVED LONG RED MANGEL,
IMPROVED LONG YELLOW MANGEL
IMPROVED RED GLOBE MANGEL,
IMPROVED WHITE FIELD BEET,
RED CLOVER, | COWGRASS,
WHITE, YELLOW, and ALSIKE CLOVERS.
PACEY'S PERENNIAL RYE-GRASS, and other sorts.
ITALIAN RYE-GRASS, FOREIGN and ENGLISH SEED.
NATURAL GRASS SEEDS, in mixture or separate, suitable for various soils and localities.
LIGHT RYE-GRASS and other CHEAP GRASSES, for Sowing on Railway Banks and Waste Places.

Orders for Exportation promptly attended to.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN,
28, KING STREET, CHEAPSIDE, NEAR the GUILDHALL, and
15, LAWRENCE LANE, LONDON, E.C.

INTERNATIONAL EXHIBITION.

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AWARDED FOR SUPERIORITY AND GENERAL EXCELLENCE TO

BUTLER & McCULLOCH, SEED MERCHANTS,

COVENT GARDEN MARKET, W.C.

(ESTABLISHED UPWARDS OF A CENTURY.)

COLLECTIONS OF FLOWER SEEDS (Carriage Free).

NEW ANNUALS.

12 Extra fine Varieties ... ... 10*s.* 6*d.* | 6 Extra fine Varieties ... ... 5*s.* 0*d.*

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100 Finest selected Varieties ... ... 30*s.* 0*d.* | 25 Finest selected Varieties ... ... 7*s.* 6*d.*
50 ditto ditto ... ... 15*s.* 0*d.* | 12 do. ditto ... ... 4*s.* 0*d.*

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100 Finest selected Varieties ... ... 20*s.* 0*d.* | 30 Finest selected Varieties ... ... 5*s.* 0*d.*
50 ditto ditto ... ... 10*s.* 0*d.* | 15 ditto ditto ... ... 2*s.* 6*d.*

B. & McC. strongly recommend their COLLECTIONS of STOCKS, ASTERS, and BALSAMS to Amateurs and Exhibitors; neither trouble nor expense have been spared in procuring the very best.

NEW LARGE FLOWERING GERMAN DWARF TEN-WEEK STOCKS.

12 Splendid Vars., of the most beautiful colours 2*s.* 6*d.* | 12 Splendid Vars., smaller packets ... ... 1*s.* 6*d.*

DWARF GERMAN TEN-WEEK STOCKS.

12 Splendid Vars., of the most beautiful colours 2*s.* 6*d.* | 12 Splendid Vars., smaller packets ... .. 1*s.* 6*d.*

NEW FRENCH PÆONY-FLOWERED PERFECTION ASTER (TRUFFAUT'S).

12 Splendid Vars., of the most beautiful colours 3*s.* 6*d.* | 12 Splendid Vars., smaller packets ... ... 2*s.* 6*d.*

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8 Splendid Vars., of the most beautiful colours 2*s.* 6*d.* | 8 Splendid Vars., smaller packets ... ... 1*s.* 6*d.*

DOUBLE BALSAMS.—12 Splendid Varieties, of the most beautiful colours ... ... 2*s.* 6*d.*

CAMELLIA BALSAMS.—12 Splendid Varieties, of the most beautiful colours ... ... 2*s.* 6*d.*

ROSE-FLOWERED BALSAMS.—12 Splendid Varieties, of the most beautiful colours. ... ... 2*s.* 6*d.*

ROYAL HORTICULTURAL SOCIETY.

HYACINTH and CAMELLIA SHOW, WEDNESDAY, MARCH 18.

AWARDS OF THE JUDGES.

SPECIAL PRIZE.—For the 3 best TREE MIGNONETTES.

Mr. J. Richards, Gr. to Lord Londesborough, Tadcaster, 3*l.*
Mr. J. Holloway, Gr. to R. Dobree, Esq., Walthamstow, Highly Commended.
T. D. Shafto, Esq., Hunton, Kent, Highly Commended.

SPECIAL PRIZES.—For the 3 best CAMELLIAS.

Messrs. Veitch & Son, Royal Exotic Nurseries, Exeter and Chelsea, 10*l.*

CLASS 1.—6 CAMELLIAS in FLOWER, distinct kinds (Nurserymen).

1st, Messrs. Veitch & Son, Exeter and Chelsea, 2*l.* 10*s.*
2d, Mr. J. Hally, Blackheath and Lee, 1*l.* 10*s.*

CLASS 3.—4 CAMELLIAS in FLOWER, distinct kinds (Open).

1st, Messrs. J. Veitch & Son, Royal Exotic Nurseries, Exeter and Chelsea, 2*l.*

CLASS 4.—1 CAMELLIA, specimen plant (Open).

1st, Messrs. J. Veitch & Son, Royal Exotic Nurseries, Exeter and Chelsea, 1*l.*
2 l, Mr. J. Salter, Versailles Nursery, Hammersmith, 15*s.*

CLASS 7.—1 RHODODENDRON, specimen plant (Open).

1st, Messrs. Veitch & Son, Royal Exotic Nurseries, Exeter and Chelsea, 1*l.*
2d, Mr. Wm. Young, Gr. to R. Barclay, Esq., Highgate, 10*s.*

CLASS 8.—18 HYACINTHS, distinct kinds (Nurserymen).

1st, Mr. Wm. Paul, Waltham Cross, N., 2*l.*
2d, Messrs. Cutbush & Son, Highgate Nurseries, N., 1*l.* 10*s.*
3d, Messrs. Carstairs & Son, 106, George Street, Edinburgh, 1*l.*

CLASS 9.—12 HYACINTHS, distinct kinds (Amateurs).

1st, Mr. A. Carr, Gr. to B. Noakes, Esq., Highgate, N., 2*l.*
2d, Mr. Wm. Young, Gr. to R. Barclay, Esq., Highgate, N., 1*l.* 10*s.*
3d, Mr. G. Taylor, Gr. to C. A. Hanbury, Esq., East Barnet, 1*l.*

CLASS 10.—6 HYACINTHS, new kinds (Open).

1st, Mr. Wm. Paul, Nurseries, Waltham Cross, N., 1*l.*
2d, Messrs. Cutbush & Son, Highgate Nurseries, N., 15*s.*
3d, Mr. Wm. Young, Gr. to R. Barclay, Esq., Highgate, N., 10*s.*

CLASS 11.—6 Pots of HYACINTHS, 6 kinds (Amateurs).

2d, Mr. A. Carr, Gr. to B. Noakes, Esq., Highgate, N., 15*s.*
3d, Mr. Wm. Young, Gr. to R. Barclay, Esq., 10*s.*

CLASS 12.—24 Pots of TULIPS, 6 kinds (Nurserymen).

1st, Messrs. Cutbush & Son, Highgate Nurseries, N., 2*l.*
2d, Mr. Wm. Paul, Waltham Cross, N., 1*l.* 10*s.*

CLASS 13.—18 Pots of TULIPS, 6 kinds (Nurserymen).

1st, Messrs. Cutbush & Son, Highgate Nurseries, N., 1*l.* 10*s.*
2d, Mr. Wm. Paul, Waltham Cross, N., 1*l.*

CLASS 14.—12 Pots of TULIPS, 4 kinds (Amateurs).

1st, Mr. A. Carr, Gr. to B. Noakes, Esq., Highgate, N., 1*l.* 10*s.*
2d, Mr. Wm. Young, Gr. to R. Barclay Esq., Highgate, N., 1*l.*

CLASS 16.—MISCELLANEOUS COLLECTIONS. PLANTS in FLOWER.

1st, Messrs. Veitch & Son, 1*l.* 10*s.*
2d, Messrs. J. & C. Lee, 1*l.*
Extra 2d, Mr. W. Bull, for Collection of New and Rare Plants, 1*l.*
Extra 2d, Mr. Wm. Paul, for Collection of 100 Hyacinths, 1*l.* 10*s.*
Extra 2d, Messrs. W. Cutbush & Son, for Collection of 100 Hyacinths, 1*l.*
Extra 2d, Messrs. W. Cutbush & Son, for Collection of Amaryllis, 1*l.*
Extra 2d, Mr. W. Paul, for 4 Boxes Cut Roses, 1*l.*
Extra 2d, Messrs. Paul & Son, for 3 Boxes Cut Roses, 15*s.*
Extra 2d, Messrs. F. & A. Smith, for Hemerocallis elegans fol. var., 10*s.*

ROYAL HORTICULTURAL SOCIETY.—FLORAL COMMITTEE AWARDS, MARCH 18.

FIRST-CLASS CERTIFICATES.

PANDANUS ELEGANTISSIMUS, from Messrs. Veitch & Son, Chelsea; and also from Mr. W. Bull, Chelsea.
SKIMMIA JAPONICA VERA, from Mr. Standish, Bagshot.
TRICHOMANES SPICATUM, from Mr. Bull.

COMMENDATIONS.

RHODODENDRON ROMAIN DE SMET, from Messrs. Veitch & Son; and also from Messrs. Lee, Hammersmith.
CAMELLIA NAPOLEON III., from Messrs. Lee.
CINERARIA JOHN SPENCER, from Mr. Turner, Slough.

SPECIAL CERTIFICATES.

To Mr. Standish for flowering plants of the true AUCUBA JAPONICA (fœm.), and of A. JAPONICA VARIEGATA (mas.).
To Messrs. F. & A. Smith, Dulwich, for a collection of DOUBLE PRIMULAS, white and red, raised from seeds of plants certificated last year. Also to the same, for a group of Azalea Flag of Truce.

The next MEETING will take place on March 31st, at 12 o'clock. THOMAS MOORE, Secretary to the Committee.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE is hereby given that an ELECTION of TWO PENSIONERS on the Funds of this Institution will take place in JULY NEXT. All persons desirous of becoming Candidates are required to send in their Testimonials and Certificates to the Committee on or before SATURDAY, April 25, after which time they will not be received.

Preference will be given to those persons who have been Subscribers for 15 years and upwards, but should there not be a sufficient number of that class of applicants, then the claims of those who have not been Subscribers so long, or not at all, will be considered.

Printed Forms of Petition can be had upon application to the Secretary. By order. EDW. R. CUTLER, Secretary.

14, Tavistock Row, Covent Garden, W.C., March 21.

The Gardeners' Chronicle.

SATURDAY, MARCH 21, 1863.

MEETING FOR THE ENSUING WEEK.

SATURDAY, March 28—Royal Botanic (Spring Show) .. 2 P.M.

THE accompanying circular letter, having reference to the revival of the old BOTANIC GARDEN of CHELSEA, which has been addressed by the authorities of the Society of Apothecaries—CHARLES WEST WHEELER, Master; and HENRY COMBE and JAMES LOWE WHEELER, Wardens—to the Members of that body, claims, from its bearing on

Garden Botany, some notice in our columns. Its more general dissemination may serve to aid the efforts which the Society, seconded by its estimable Curator, is making to render the Chelsea Garden again worthy of its ancient fame:—

"The members of the Society of Apothecaries, from the earliest period of its history, have taken a very lively interest in the pursuit of botanical knowledge. Very shortly after their incorporation in the reign of James I., we find them engaging in periodical botanical excursions in the neighbourhood of London; and so early as the year 1632 the Society's 'Herbarizings' had become an established annual custom.

"Thomas Johnson, the learned Editor of "Gerard's Herbal," and an honoured member of the Society, has left a most graphic account of several of these early excursions, proving not only the devotion to botany of the 'Socii itinerantes' themselves, but the extent to which that devotion was shared by the Society at large. The interest thus awakened seems to have strengthened with time, for within half a century of their incorporation, the Society were able to secure for their members increased opportunities for the prosecution of their favourite study, by acquiring a Botanic Garden of their own; and the reality of this interest is strongly proved by the fact, that the means for the formation and early support of the Garden were provided by the members from their private resources.

"It was under these circumstances that, in the year 1673, the Society of Apothecaries became lessees of between 3 and 4 acres of land on the bank of the Thames at Chelsea, and at a very considerable expenditure enclosed the ground, and adapted it for the purposes of a Botanic Garden.

"Such was the origin of the Society's Garden at Chelsea, which was the first Garden in the neighbourhood of the metropolis established by a public body, and exclusively devoted to the advancement of botany as a science. For nearly two centuries have the Society maintained this Garden at their great charge, and frequently under circumstances involving considerable personal sacrifices on the part of the individual members; but on no occasion on which a strenuous effort has been necessary to preserve the Garden for the purposes to which it was originally destined, have the members of the Society been found deficient in the liberality and zeal which characterised their early predecessors.

"The Society have sought and received their reward in the assistance which they have been able to render to the general advancement of botanical science, and more especially in the opportunities afforded to successive generations of medical students for the prosecution of this branch of their professional studies. Nor have there been wanting great and good men (not belonging to their own body) who have encouraged and aided the Society in their efforts to extend the benefits of sound botanical knowledge. In the year 1721 Sir Hans Sloane (at that time President of the Royal College of Physicians), who had become the purchaser of the land under lease to the Society, conveyed the Garden to the Society in perpetuity, 'to the end that the said Garden might at all times thereafter be continued as a Physic Garden, and for the better encouraging and enabling the Society to support the charges thereof, for the manifestation of the power, wisdom, and glory of God in the works of creation.'

"For some few years past, the Society have had to contend with numerous difficulties in their efforts to preserve the Garden in full efficiency. On the one hand, the expenses of its cultivation have pressed heavily on the resources of the Society, and on the other, the increase of buildings and manufactories in its neighbourhood, and the threatened inroads of railway companies, have created a feeling of discouragement, and even of doubt, as to the course which the Society should pursue with reference to its continued maintenance. When the executive of the Society, however, reflected how much benefit the Garden had conferred in times gone by, with what pride it had been cherished by their predecessors, and, above all, when they found how numerous a body of the medical students of the metropolis were still anxious to profit by it (no fewer than 500 students having applied for admission during the past summer), they unanimously resolved that the Garden should be continued, and that a vigorous effort should be made to render it as efficient as possible for the fulfilment of the important objects to which it has been so long devoted.

"In order to carry this resolution into immediate action, it has been determined, in addition to other arrangements:—1. To make a new and as complete a collection as possible of all medicinal and economical plants. 2. To enlarge the collection of the more important hardy herbaceous plants, arranged according to the natural system. 3. To convert the old lean-to houses into 'Aspects of the vegetation of tropical and temperate climes.' 4. To make two divisions in the span-roof house for plants requiring various degrees of heat and moisture. 5. To construct a cold house, or mere glass shelter, in order to show experimentally the value of such protection in cultivating plants in a town atmosphere. 6. To construct and plant examples of Wardian cases, in illustration of their utility in cultivating, as well as in the conveyance of plants to and from distant countries. 7. To build a new room for the use of the assistant gardeners, and to provide the same with suitable books, specimens, &c., for their instruction and amusement.

"The members of the Society will learn with great satisfaction, that in carrying out the above objects, the Society will have the benefit of the valuable advice and superintendence of their colleague, Mr. Ward.

"The Master and Wardens invite the cordial co-operation of their brethren in their endeavour to render their establishment at Chelsea worthy of the Society as a scientific body, and they venture to suggest a mode in which valuable aid may be afforded, viz., by assisting in the completion of the various collections of plants. Such individual members as may be able to assist in this respect, either personally, or through the agency of correspondents or relations abroad, will greatly oblige the Master and Wardens by so doing.

"It is hardly necessary to add that it is intended to render every facility to Professors of Botany and their pupils making use of the Garden in its renovated form."

— Though remarkable for the beauty of its flowers, it must be confessed that the Gladiolus is somewhat deficient in respect to its foliage. There is scarcely enough of leaf, so at least one is tempted to think, to set off to the best advantage the bold spikes of brilliant blossoms. A suggestion has been made, and it seems experimentally tested, to use the Canna to supply the deficiency at which we have hinted. It may therefore be worth while at this juncture to recall the subject, in order that seeds or roots of the Cannas may be taken in hand, to supply the stock which may be required by those who may be inclined to carry out this mode of planting.

And here it is necessary to put in a caution that some at least of the species and varieties of Canna would be unsuitable for the object proposed. Cannas form one of the garden subjects which have been "improved" until they have acquired a stature and dimensions which render them indeed noble objects in themselves, but which would in a genial season become quite overpowering to the Gladioli. Hence the larger and bolder forms must be omitted, unless the situation should be such as would be suitable for their being employed as a background. Probably there is no more appropriate species for mixing with Gladioli than the common old Canna indica, which is comparatively dwarf, and has narrowish green leaves, such as would accord better with the natural foliage of the Gladiolus than would the broader and variously tinted leaves of many of the majestic and giant varieties which now-a-days find a place in the seed catalogues.

While referring to Cannas, let us say one word in their behalf as noble summer plants for the flower garden, to which their foliage, when well developed, imparts an almost tropical aspect. When used in this way indeed, our climate is not always to be trusted to bring them to perfection; and hence the means which a knowledge of their habits suggests, should always be adopted to secure the intended result. If they are, as we believe them to be in certain cases, worth introducing to our parterres, for the sake of the noble appearance they present by their foliage, then they are worth taking some trouble with to ensure success. And the secret of success is bottom-heat; such for example as it is found desirable to give to half-tender plants like Gourds and Cucumbers, which as every gardener knows thrive all the better for a little warmth at the roots, notwithstanding that they may sometimes succeed without it. The readiest means of applying this bottom-heat on a limited scale, would of course be by the introduction of fermenting materials beneath the surface of the soil, in a sufficiently drained excavation—a bed, that is to say, of leaves and dung worked up into the state in which the mixture would be fit for making a hotbed. But whatever the agency employed, the result would be similar, provided it were sufficient to warm the soil.

What that result would be, has been shown by Capt. Trevor Clarke, who has experimented on the growth of tropical plants in the open air, when planted in beds of heated earth. These experiments will be found recorded in the Proceedings of the Royal Horticultural Society (ii. 182). The heat in this case was supplied by a hotwater boiler and pipes, and was sufficient to raise the temperature of the earth to about 70°. Most of the plants were taken at once from a stove, some few only being planted out after a week's probation in a cool house, and no protection of any kind was given them. It was observed that they appeared to suffer no check when planted out, but grew away at once, and that at a time when ordinary bedding plants, planted out in the ordinary way, were chilled and inactive.

Now for the result as regards Cannas, and we will quote Captain Clarke's own words:—"Two or three Cannas, including the curious C. flaccida, with Hedychium coronarium, were placed so as to hide my rude cistern, which they soon did most effectually. C. iridiflora I failed in procuring in time, and I much regret not being able to try this fine and still rare plant. C. flaccida produced its beautiful yellow Hedychium-like blossoms, but so frail in texture that they were annihilated by the first puff of wind or shower of rain. The Hedychium flowered well upon such shoots as had been made previously in the stove. It then, together with the Cannas, made a huge thicket of shoots. The Cannas neither flowered earlier nor more plentifully than others in the open ground without heat, but made a much more luxuriant growth."

FERNS AND FERNERIES.—No. I.

So much has been of late years written on the subject of Ferns, that most interesting division of the Cryptogamia, that few among the readers of this Journal can have neglected to learn to admire their graceful forms, to rejoice in their refreshing colours, and to wonder at the varied growth which the several species exhibit. Nor are there many, probably, who do not number among their acquaintance some one whose appreciation of the pleasure that their quiet companionship affords, has induced him to attempt their culture—either in a garden saucer covered by a small bell glass, or in some more ambitious manner. Such an one will have heard of Wardian cases, perhaps have speculatively invested in a popular book on Ferns, and yet have obtained a very uncertain notion of the intention of the first, and a somewhat puzzled conception of the meanings intended by the novel terms employed in the other. Disappointed in the discovery that his pets do not thrive, dying just when their rapid growth seemed to promise so well, he will be ready, perhaps, to welcome a few suggestions that may guide to better fortune with their successors. Much of this ill success may, no doubt, be imputed to the self-will observed to be characteristic of all pets, and the cause of the premature death of the Ferns has probably been the same as that which killed the favourite canary bird, and compelled poor Carlo, oppressed with hearth-rug slumbers and good living, to seek relief in apoplexy. For with Ferns, let them but have earth, air, and water suited to their habits, of the several conditions of which I propose shortly to speak, and the less they are meddled with the better. Like the petulant old lady, who, troubled by the too frequent inquiries of attentive neighbours and expectant relatives, assured them that "when any serious change occurred, she would let them know," so all they wish is to be let alone. Should a tiny beetle or a wood-louse be disturbing her root, "Fragilis" will drop her head and so complain, or if "Elegans," after throwing out such pretty crozier-like shoots, be found one morning lying prostrate, he 'lets you know' that the ground is too moist round about him. Even Vulgare will cry out in dwindling size and fading colour, when, forgetting his shady home, you place him in unfamiliar company over an exposed heap of stones.

I have already mentioned Wardian cases. The learned and most amiable gentleman whose name has been given to all glazed cases adapted to the growth of plants, on the scientific principles originally set forth by him, has explained their use in the culture and preservation of many varieties of plants, and especially in the safe transport of plants from tropical climates to our own. We are here only concerned with their use for the growth of Ferns in London and other large towns, and particularly of the British species, and such hardy exotics, whether denizens of the temperate zone or of elevated regions in the tropics, as do not require hothouse cultivation. We do not propose to prevent the access of fresh air, as has been commonly imagined, but to exclude those fuliginous matters that exist to so great an extent in the London atmosphere, and which, whether by filling up the pores by which plants breathe, or by affecting chemically their tissues, are found seriously to check the healthy growth of all vegetation. This, then, in the first place; but beyond this we desire to produce that stillness of the air, and to preserve for it that excess of moisture which are observed to prevail in the fissures of rocks and other secluded situations in which Ferns especially delight to flourish, avoiding also those extremes of heat and cold, the active instruments in Nature of decay and destruction: in short, while restraining the power of destructive natural agents, preserving the effect of those of beneficial character.

A curious misunderstanding of the necessary conditions of their use led to much disappointment in the early history of Wardian cases. A certain number of these had been constructed under the immediate superintendence of the inventor, and sent on board a vessel for conveyance abroad, with instructions for their being properly filled with specimens of the more valued plants indigenous to the tropical country to which the ship was bound. Directions were also given for the previous execution of such repairs to the glazing as might be required, and for repairing. These orders were complied with, and with Chinese exactness, for the paint, thickly laid over both glass and framework, completely shut out the light; the plants were killed, and the successful issue so anxiously expected of an interesting experiment for many months postponed.

Your Fernery then may be of whatever dimensions you choose, being simply an enclosed space roofed with glass, and with glazed sashes, at least on one side; for if the arrangement of your dwelling permit, it were as well, or even better, that the ends should be of brickwork. I presume that you would wish that one side opening from your drawing-room or library should allow you the pleasure of frequently seeing your winter garden. I use the word "opening" only as meaning open to your view, for you will find it beneficial to your Ferns and consistent with your own comfort that the moist atmosphere of the Fernery should be as much as possible excluded.

Circumstances beyond your control have probably determined the aspect. Were this, however, a subject

of choice, due south should be avoided—nor is due north to be preferred. A morning sun is rather to be chosen than the reddened rays of his setting. Much light is wanted—but little sunshine. Yet, sunshine shut out by blinds is better by far than no sun at all.

Assuming, then, that your Fernery has been erected, the bottom provided with water-courses for effectual drainage, the sides and roof with blinds to give shade to every part accessible to the direct rays of the sun, and means of access to each corner provided by opening sashes from without, your next operations will be the procuring of materials in which to plant them, and the gathering together the inhabitants themselves. And the grand secret is the proper distribution of the former, so as to accommodate the various habits of the latter, for they are many of them capricious and their tastes peculiar. Now there are two ways of doing this; the one, doing it yourself as far as you can, and for the rest personally superintending your servant, and this is the mode I recommend; the other employing a nurseryman to do it for you, when the Hibernian conclusion will doubtless follow—that it will not be done at all. *Z.*

FISH AND FISHING.—No. II.

In commencing a series of papers on a subject such as Fish and Fishing, on which the mind of the writer has perhaps dwelt for years, the task is no easy one; not for lack of what to say, but from the difficulty of deciding which head of the Hydra-headed whole to attack first. For my own part I may confess I have, at different times, written and published enough to fill a good-sized volume on "Fish and Fishing." Yet on resuming my pen upon the subject, I find that without plagiarism on myself, or any other writer, I have enough to write about, more than sufficient for another volume or two. As one goes on writing the thoughts multiply, the mind expands, and they are ever finding fresh points to touch on. So it is at this moment. I was ready to go to press with other branches of my chosen subject, Fish and Fishing, when what I consider a more imperative duty starts up before me, and that one is the importance of keeping readers wide awake as to what is immediately going on in our Legislature.

From the high standing of the *Gardeners' Chronicle and Agricultural Gazette*, I hope that my lines may come under the eyes of noble lords and honourable members in Parliament, and I wish I might be privileged to influence them. Food in one shape or the other is under the special protection of this Journal, whether it be in the shape of meat, or vegetable, or fruit, and if we can give to the poor labourer a dish of fresh fish for one day in the week, in lieu of his every day bread and cheese, no doctor will deny that we shall improve his condition by the change of diet. Encourage us therefore to increase the number of fresh water and sea fish of every denomination, if merely on the ground that we increase the supply of food. But I am one of those who would go a step further, I would add, increase fish not merely as food, but also to afford sport to the amateur of fresh water fishing.

Methinks I hear some timid lover of the rod in the Legislature exclaim, "Hush, hush! do not breathe it in Parliament, or we shall lose all." I cannot lay my hands upon the paper (the *Times*) which last year contained the speech of Lord Derby upon the nuisances arising from manufactories not only to the air but to fish in rivers. I can only mention it as an *impression*—my impression was that he would fain have said much more about injury to fish, and in favour of protection to the angler's sport, but for a certain undefinable something, not quite apparent. Now I am not so squeamish. I say, preserve fish for food sake, certainly: but do not blink the question of "sport." Though I am firmly convinced that fishermen (amateurs I mean, of course), have increased at least 100 fold within the last 20 years, yet they are not so numerous in Parliament as those who follow "game." The game laws are well and wisely in my opinion kept up without disguise by sportsmen. They know the value of sport of some kind as an innate love of every "Britisher," and as they would not wish all of us to be deer-stalkers, huntsmen, or shooters, they would surely allow (to paraphrase Pope)—

"Some men to shooting, some to fishing, take,"

and even leave the fair sex (you know what Pope's next line declares about them) to follow "the gentle art" (as many do), without a sneer or laugh when angling; or, to use parliamentary language, the "rod fisher," should be thought of prominently in legislation.

Members in both Houses of Parliament know full well "in their sleeves" that it is "rod fishers" who have recently stirred up all this most useful commotion about the preservation of salmon rivers. The great contest has apparently been between "upper" and "lower" proprietors. Each party has, as is natural to frail human nature, demanded too much for himself, but the "rod fisher" has formed an intermediate interest, and, as such, has seen what is for the benefit of all parties. Stake nets and other fixed engines of every kind are pronounced an abomination, as indeed they are, by all, except those who use them for their pocket's sake; and their abolition by the "English" Act has already proved most efficacious for the increase of food.

In like manner, if you openly enact laws favouring the inland rod fishers for trout, grayling, &c., you are sure to encourage the breeding of fish of all kinds in inland rivers, lakes, and even ponds as a supply of food. Enact good laws, and you may safely rely on it that the "rod fishers" will do their best to see those laws carried out.

At this moment there are three Bills before Parliament which either do, or ought to, tend to the increase of fish:—

1st. There is Lord Stanley of Alderley's Bill, in the Lords, as to the pollution of air.

2d. Mr. Bruce's Bill, prohibiting the exportation of salmon at certain times.

3d. Mr. M'Mahon's Bill to assimilate the law of Ireland as to salmon fisheries, to that of England.

We will take them in order: and, 1st, Lord Stanley's Bill. I have not had the advantage of seeing that Bill, nor the report of the Lords' Committee of last year, on which it is supposed to be grounded, so I must argue at some disadvantage; but from what I gather from the *Times*, that Bill is confined to pollution of air, and by alkali works only. It is a wretched half measure, if so, at best. To a small extent it may benefit fish, because it is possible to conceive that the pollution of air, which must be imbibed by water upon which it rests, being prohibited, the breed of fish will be improved in the particular neighbourhood of alkali works, pure air being one of the most important ingredients of pure water.

Many years ago I was on a visit in Lancashire near to St. Helen's. There was a flourishing garden of fruit and vegetables at the back of the house. In front, a well-trimmed lawn and flower garden; beyond that a fine sheet of water, a dam feeding of the "Sankey Canal," which backed it; I fished in that year, and had fair success in pike and other fishing. On a subsequent visit I found, within say 100 yards of the back of the house, chemical works were erected. The exact nature of those chemical works I do not know; but this much I do know, viz., that the fruit trees and shrubs in that garden were all blighted by those chemical works, and that for a great distance, all agricultural endeavours were frustrated. Oak trees at a further distance were apparently killed. And as to fish in that dam, though I persevered fishing almost every day for near six weeks, I perhaps did not take as many fish of any kind. There was always a scum upon the water! One circumstance I particularly remember, because it "touched my pocket." My "half" had taken down with her a new silk dress; the "ground" of it was black, with an open curious sort of large amber scroll running over it. Before I returned to London the amber scroll had separated and fallen out of the black ground! and I have always attributed the circumstance to those chemical works. Whether such "chemical works" will come within the scope of Lord Stanley's Bill I know not, but I know that they ought to do so.

But now I will put the case in another point of view. As regards ownership, I put it suppositiously only. I am the owner of a "several fishery," which means that I have the sole and only right to take fish in a certain piece or stream of water. In the middle of my piece of water, a certain mill is erected, of course by permission of the land owners; that mill is innocuous in the first instance, and the proper flow or height of water is continually preserved. We will suppose it to have been always a paper mill; but clean rags become scarce—dirty refuse of every kind, whether old "Macintoshs," "tarpaulins," "old clothes," even "old boots," and in fact something of every kind, are found capable of being bleached into "paper material," and the mill, once innocent, is at last converted into a paper material, or paper stuff mill.

In former days, when rags only, and for the most part white rags, were made into paper, you can readily conceive that the process of cleaning and bleaching was simple and *quasi* harmless to fish. But where it is requisite before bleaching to get rid of india-rubber, varnish, oil and such like water-resisting things, a very strong chemical preparation is required. What that preparation used in the mill in question is, is of course kept secret by the mill owner, but we know from analysis, that lime and sulphuric acid join in the process. The refuse of these is occasionally turned direct from the mill into my river in two distinct volumes; I am able at times to trace the whiteness of the lime nearly a mile from the mill, and the brown tinge of the latter to a lesser distance, and during certain states of the atmosphere a very sickening effluvium arises from the river when thus polluted. My river was once a very celebrated trout stream, always breeding its own supply of trout. Now, it is believed to breed few or no trout; and I can only keep it up as a trout stream by a yearly supply of two or three hundred brace of "stores" (young trout of, say, 6 inches in length), and I forbid the catching of trout under 1 lb. weight. Thus instead of Nature's supply, which, as owner of the fishery, I am entitled to, I am driven to a large expense and great trouble in providing these "stores." Add to this that my river is so polluted and thickened at times, that if I am out fishing it becomes hopeless, and I am forced to "wind up" and go homewards.

I am putting my case as though I and my river were the sole complainants; but a moment's reflection and you will find that our name is "Legion." There are hundreds of owners and rivers in the same strait, though the grievances may vary in detail.

What right has another party to destroy fish which though, *de lege*, may be called *feræ naturæ*, are virtually and *de facto, de jure*, my fish; for no other person or body of persons has a right to touch them.

As regards the "*feræ naturæ*," I will call to mind that though game birds may wander from one man's ground to another and so give a right of shooting them to one party or the other, trout, of all fish, never do so; they stick to one locality during one part of the year, and only for the purpose of spawning resort to another chosen spot close by during the winter.

Well, my fishing right is clear, and it is of pecuniary importance, for I may lease that right; but can I find or keep a lessee if my fishery becomes deteriorated or wholly ruined by the pollutions of that mill? But yet for this wrong there is no present come-at-able remedy. "Oh!" says one, "you must submit, because we must protect trade."

"Protect trade!"—humbug! You protect one particular individual trader to the injury of another person's private rights; and you enable him to put more money into his own individual pocket by injury to that private right. Protection of trade, forsooth! If a trade must be carried on, force the trader to do so without injury to other's rights. If my mill owner at my mill must use lime and sulphuric acid for the purposes of his trade, let him; but at the same time compel him so to act that he does not ruin my right of fishery; oblige him, in other words, to get rid of his refuse lime and sulphuric acid by other means than turning it into my stream.

"Granted," says another, "that a wrong is committed, but surely under the Game Laws, Peel's Acts, you have a remedy against the lime." Granted, my friend, if I could prove that my mill owner threw the lime into my water for the purpose of catching my fish! But my mill owner is not a poacher but an honest gentleman, and never dreams at all about my fish one way or the other.

A third friend will say, "Surely you have a remedy under the Nuisance Act." (18 & 19 Vict. c. 121.) "Oh, yes; certainly there is a clause (s. 27) which

'Keeps the promise to the ear, but breaks it to the hope.'"

You may prosecute "any manufactory causing effluvia" upon certificate of a local "medical officer or any two legally qualified medical practitioners" that the effluvia is "a nuisance or injurious to the health of the inhabitants," &c., "provided that the provisions hereinbefore contained shall not be applicable to any place without the limits of any city, town, or populous district." Here are the trammels of law! The object of that Act is the health of the people; and although under other circumstances I might abate my nuisance under cloak of that Act, yet see the difficulties! I have first to prove that my mill is within "the limits of a city, town, or populous district." What are the "limits," and what constitutes a "populous district?" Nothing is defined as to what constitutes a "populous district, tho' it might be argued from the Act that less than "200" inhabitants does not constitute a "populous district." So that if I could only prove the immediate neighbourhood to consist of 199 inhabitants, and were not allowed by the magistrates to give a larger signification to the term "district," remedy, as far as my hidden cause of complaint, "my fishery" is concerned, is hopeless.

Then look at the earlier provisions of that section 27. "Certificate of a medical officer or other legally qualified practitioners." First, in what an invidious position you place the "medical officer," and how difficult to get witnesses in a case ever so clear! My mill owner has a large mill, and employs many hands living in the midst of my grievance, and has great parochial influence. Under the thumb and finger of his wealthy and powerful hand are "the breads and butters," in one way or other, of my "medical officer" and my "witnesses." What hope is left for me? As to other "qualified medical practitioners," the difficulties as to witnesses remaining the same, who is to defray my expenses of bringing them to and keeping them on the spot, so as to enable them to form an opinion proper to ground their certificate?

No! As the law now stands, I have my grievance without my remedy, and my millowner "pockets the halfpence."

In the same "Nuisance Act" there is one clause full of sound sense, as good as ever I saw in any Act of Parliament, one which is positive and unmistakeable, and out of which there is no escape, which any one, running, may read. It is clause 23. "Any person," &c., "engaged in the manufacture of gas who shall," &c., "cause" &c., "to flow into any stream," &c., "any washing," &c., from gas "whereby," &c., "water shall be fouled" "shall forfeit," &c.

The interest of all parties concerned in the preservation of fish would, I think, be secured by the introduction into Lord Stanley's Bill of a clause of which the following should be the skeleton.

"Any person," &c., "engaged in any manufacture who shall, &c., "cause," &c., "to flow into any stream," &c., "any refuse," &c., "whereby," &c., "water shall be fouled (or causing effluvia)," shall forfeit, &c.

As to the expression, "water shall be fouled," care must be taken. Water is colourless, so it cannot be

di-coloured. "White," scientifically, is the presence of all colour, and not called "a colour." So the discolouring and colouring (where "white" is intended) ought to be carefully avoided in the wording of the section.

Would that I could fix my ideas of the things wanting in Lord Stanley's Bill upon the bright mind of Lord Derby!

I have very brief space left to touch upon Mr. Bruce's Bill prohibiting the export of foul fish. As far as it goes it will be decidedly beneficial, and a very great check upon poaching, because it will tend to close one market for foul fish. But the public must keep a very sharp look-out lest a home market is opened. Such foul salmon may be "kippered," or "pickled," or "preserved in tins for exportation." I need do no more than say "Watchers, wardens, keepers, and bailiffs, beware!"

Mr. McMahon's Bill to assimilate the Fisheries Laws of Ireland to those of England, inasmuch as the latter have proved themselves to be so very beneficial, must be also beneficial to Ireland, and not only to Ireland but to England also; for the supply of food being increased, the world at large whereunto Irish products are exported must feel the benefit. The temper of the House of Commons at present seems to favour this Bill; yet are its opponents in and out of the House numerous, powerful, and energetic. But for the most part they are owners of stake and other fixed nets, and are struggling for their own individual interests regardless of public benefit. Such men should remember that "no man ought to act as judge in his own cause."

I do not think the House will feel much doubt in passing the Bill as a whole; but there is one clause in it referring to the prohibition of netting within 50 yards below or above a "free gap," which may occasion much debate. This, of seeming insignificance, is really of the utmost importance. Fish, before passing through, in ascending a river, must find the gap and necessarily linger close to it before they make the rush through it; fish having passed it, pause in the water immediately above, perhaps from exhaustion; and fish descending a river have to go through a similar toil before they take the downward plunge. To allow the netter to fish within 50 yards is considered as giving him an unfair advantage, for which he can be on the look-out during all hours in the day.

Success to the Irish Bill, and may it pass as it stands! *E. C.*

ROSES.—No. III.

By Mr. William Paul, F.R.H.S, Paul's Nurseries, Waltham Cross.

Autumnal Roses.—I shall here, as with Summer Roses (p. 221), describe the leading groups only. The Perpetual Moss are desirable because they prolong the season of Moss Roses; beyond this not very much can be said in their favour. They are for the most part of shy growth, and not overburdened with moss. They require a rich soil and should be pruned closely. Empress Eugenie is the prettiest of the group, but also one of the most difficult to preserve in health, being naturally a short lived Rose. The flowers are bright red, of medium size, full and perfect in form; the growth is dwarf. General Druot grows freely enough, but the flowers, which are crimson and purple shaded, are only semi-double. Hortense Vernet produces white flowers shaded with rose. Madame Edouard Ory is one of the best; the growth is free, the flowers bright rosy carmine, large, full, and fine. Perpetual White Moss is also an excellent variety; the flowers are white, produced in clusters well massed; perhaps the most interesting of the group. Salet is a good Rose, very free and hardy; the flowers are bright rose margined with blush, large and full.

The Hybrid Perpetual, now the leading group of the genus, is of comparatively modern date, being a new branch of an old stock. In 1837 my friend M. Laffay, of Bellevue, sent me a beautiful purplish Rose which he called Princesse Hélène, describing it with all the enthusiasm of his warm and kindly nature. This was the first strongly marked divergence from the now old-fashioned Damask Perpetual Roses, which were then so much in vogue, and from which this sprang. Fortunately this hybrid produced seeds freely, and in three years we had no less than 20 varieties. Now, the number is legion, and they take much the same position in the garden now that the French Roses did a quarter of a century ago. Well, they are the finest of Roses, and improving at a more rapid rate than any other group; form, colour, and fragrance are here in perfection, and they are the hardiest and finest of autumnals. In looking through the list of candidates for election it is a task of no ordinary nature to bring down the number within reasonable limits. One has a claim for form, another for colour, a third for fragrance, and in some cases in which one or the other of these requisites may be absent the general habit of the variety is so good or so elegant that it outweighs or negatives these important considerations. I shall confine my remarks at present to the cream of the old varieties, reserving what I have to say of new Roses for a special paper.

Anna Alexieff is one of those hardy free-flowering Roses that is invaluable for masses and conspicuous situations in the garden; the foliage is handsome, and it is almost always in bloom. The flowers are rosy pink, of good size and form, usually arranged in clusters. Anna de Diesbach is quite the opposite to the last in every character but colour; the flowers are composed of fine large thick petals, produced singly, of immense size, but few and far between. Auguste Mie is a truly beautiful silvery pink Rose of exquisite form; the shape is almost equal to Coupe d'Hébé, which it resembles in some respects; it is good for standard, pot, or pillar. Baronne Hallez is a dark red Rose of average size and superior form, sweet and free, but hardly vigorous. Cardinal Patrizzi is one of the finest Roses grown under glass, but it is uncertain out-of-doors, and seldom more than second-rate; the colours are brilliant red shaded with blackish purple. Caroline de Sansal, clear flesh-colour with blush edges, is a first-class show Rose when it can be found clean; it is however a fair-weather Rose only, and while it cannot be dispensed with, it cannot be confidently relied on. Colonel de Rougemont is a very large expanded Rose of a pale rose colour, shaded with carmine; it is of rather delicate habit, and requires a rich soil, and close pruning, which extra attention it is quite worthy of. Comte de Nanteuil is a perfect Rose according to rule; the flowers are rosy carmine, large, full, and quite circular in outline; quite a show Rose. The same may be said of Comtesse de Chabrillant, whose flowers are pink and very sweet; this is not so constantly good as the last named, but when in its best state it is of matchless beauty. Duc de Cazes is a very distinct flower; the colours are purple crimson and maroon, very velvety and variously shaded; it is a most effective Rose in the garden if pruned sparingly; the growth is vigorous. Duchesse d'Orleans is a good show Rose; the flowers are lavender blush, large and full, the growth vigorous. Empereur de Maroc, though not a show Rose, can hardly be left out of a limited collection; the rich velvety maroon flowers, the summits of the petals folding back with so much regularity and grace, are unique and lovely. François Arago, with dark velvety purple flowers, is also a valuable addition to our dark Roses; it is hardy, free, and the best of its colour. François Ier is quite first-class, whether for exhibition or garden decoration; the flowers are brilliant cherry, of good size and form. General Jacqueminot is almost too well known to need description; the flowers are brilliant red, very velvety, large and very double. The introduction of this Rose was quite an era in Rose culture; it produces seeds so freely, and the seedlings have proved so good that we have already a numerous race derived from it. General Washington has bright rosy red flowers of large size and full; it is sometimes splendid but uncertain. Gloire de Vitry is a first-rate show Rose of a bright rose-colour, large and full; the foliage is rather thin. Gloire de Santenay produces scarlety crimson flowers, large, full, and fine; it is a little uncertain, but nevertheless a superb Rose. Imperatrice Eugénie is a white Rose with rosy centre; the flowers are not large but full and exquisitely formed, the habit is rather delicate. Jules Margottin is an every day Rose, the flowers of a bright cherry colour; one of the best for a standard or a bed. La Reine, one of M. Laffay's original Hybrid Perpetuals, is not yet surpassed in its way; the flowers are rosy pink tinged with lilac, very large and globular; it is a magnificent flower, although a little uncertain. La Ville de St. Denis is still a good flower, rosy carmine, large and full. Lælia is a silvery rose shaded, very large, globular, and in every respect of first-rate quality. Lord Raglan is one of those high coloured varieties, scarlet crimson edged with violet crimson, that pleases everybody; the flowers are large, full, and of good shape, the growth is vigorous. Madame Boll is very different to any other, appearing to have some of the old French blood in it; the flowers are rose colour with blush edges, very large, full and excellent. Madame C. Crapelet is a flower of great finish; the blossoms are rosy red, veined and shaded with lilac, the form very beautiful. Madame de Cambacérès is rosy carmine, often purplish, cupped, large and full; a good free hardy Rose with beautiful foliage. Madame Furtado is a full rosy crimson flower, very sweet, and one of the best for exhibition. Madame Knorr is bright rose with pale edges, large, full, and flowers freely. Madame Masson is a grand Rose, of a reddish crimson hue, shaded with violet, very large and full. Madame Rivers has clear flesh-coloured flowers of fine form, large and full; growth vigorous. I remember seeing this Rose at Lyons in the seedling state, but it is better here than there. Madame Vigneron is one of those silvery flowers tinged with rose or purple, large, and of good outline, although a little flat. Madame Vidot is a model in form, and beautiful in colour also; transparent flesh, shaded with rose, large and full. Madlle. Bonnaire is perhaps the best of the white kinds, with rosy centre; it is of good average size, full, and of exquisite form. Prince Léon is a fine bright crimson variety, the form and colour all that we could wish for, and in its best state quite a show Rose. Queen of Denmark is sometimes very fine, though a little uncertain; the flowers are lilac flesh, large, full, distinct, and beautifully transparent. Queen Victoria, introduced by me, is still the best in its way; the flowers are white shaded with peach, the colour of the old Celestial Rose, large and full; the growth is vigorous. Senateur Vaisse is one of those full bright-red Roses with large smooth thick petals much in advance of the general run of these; the flowers are large and full, the growth vigorous. Souvenir de Leveson Gower is a fine ruby-coloured flower, very large, full and well-shaped; growth vigorous. Souvenir de la Reine d'Angleterre has bright rosy pink flowers, very large, full, and fine; the growth is vigorous, and it forms one of the best of pillar Roses. Triomphe d'Alençon, with its fresh bright red flowers, is sure to please; Baronne Prevost, which it somewhat resembles in growth and form, looks faded by the side of it. Triomphe de Lyons is the best of the very dark large well-shaped Roses, although not always clean and good. Triomphe de l'Exposition produces vivid reddish crimson flowers; it usually loses its shape too soon to be first-class for exhibition, but it is one of the most effective for garden decoration. Triomphe de Paris is a good dark Rose, of size, form, and fulness above the average. Triomphe des Beaux Arts is a plum-coloured edition of General Jacqueminot, excellent for garden decoration, but scarcely full enough for a show Rose. Victor Verdier is a decided step in advance; the flowers are rosy carmine with purplish edges; a large showy free-growing Rose with beautiful foliage, good for exhibition, and one of the very best for effect in the garden. Victor Trouillard, although irregular in shape, is valuable for its brilliant velvety crimson flowers and beautiful foliage. Virginal comes in strong contrast to the preceding; the flowers are pure white, the habit rather delicate, but the variety still indispensable. William Griffith, a well known old Rose, is one of those glossy-looking flowers of a pink or pale rosy hue, in its best state very beautiful.

The Hybrid Perpetual Roses require high cultivation to bring out their valuable qualities in full perfection; manure freely and prune closely, watering occasionally during the season of most rapid growth if the weather should be dry. Those kinds which bloom very freely should be relieved of a portion of the flowers when in the bud state, by which practice the flowers that are left will bloom finer, and the vigour of the plant be more efficiently preserved.

Home Correspondence.

Larch Rot.—I believe that Mr. Berkeley has very truly as well as ably stated the chief causes of Larch going rotten at the heart. The case is exactly the same way with the Spruce Fir. You will find the same thing stated in a letter of mine from Boynton, which you published nearly 20 years ago. In both Spruce and Larch the general cause of the heart rot is the decay of the roots, from their going into a subsoil which does not suit them; the two things most certainly fatal to them, in my experience, being a wet subsoil, and chalk. It will be interesting, I think, to Mr. Berkeley and other of your readers to know that in the woods at Castle Howard and the neighbourhood, which are very extensive, the Larch is always sound and good to any age wherever the subsoil is calcareous grit. On the coralline oolite, which, as well as the calcareous grit, is always dry, the Larch is not always sound; but I believe that the Spruce is sounder and better on the coralline oolite than on the calcareous grit. I look forward to the Committee of the Royal Horticultural Society which has just been formed being the means of collecting and publishing a great deal of valuable information on this and similar subjects. *C. H. Strickland, Hildenley.*

Strawberries.—In reading Mr. de Jonghe's remarks upon the cultivation of Strawberries, published last week, I was surprised to find that he is an advocate for planting out runners in the spring. If from any cause they could not be planted out at the proper time in the summer, I admit that it would be better to defer the operation till spring than to move them in October, but I am convinced that the sooner the runners are planted out after they have rooted the better. When there are beds ready to receive them, by far the best plan is to peg the runners down in small pots, and as soon as they are rooted to plant them out where they are to remain, first (unless the soil is very heavy) treading the ground down until it is quite firm. In fine seasons they might be put out early in June, or at any rate by the middle of that month, and then they would make very strong plants before winter sets in. I have some beds of Sir Charles Napier which were planted out last summer, and each plant now forms a circle of fine foliage 18 inches in diameter, with from ten to a dozen strown crowns. I have plants of La Constante quite as strong, but the growth of this fine variety is more compact than that of Sir Charles Napier. *Henry Doubleday, Epping.*

Cedar of Lebanon.—A correspondent asks why his employer's Cedars of Lebanon lose their leaves in winter. It is probable they were grafted by dishonest nurserymen on Larch stocks, and thus take after the deciduous habit of that tree. This may become more striking as they increase in age. *R.* [The evil *may* have arisen from bad health occasioned by improper grafting, but is more likely to be the effect of the severe cold we had some year or two since, only now showing itself.]

Vallota purpurea, or Sea borough Lily.—In the third volume of a child's book called "Magnet Stories," is a tale called "Hope deferred," giving the following account of how the Vallota acquired that name. A sailor brought a bulb from Holland and gave it to his sister, promising to return by the time the splendid scarlet flower which he talked of, was open. He went

to sea and was supposed to be drowned, but the girl still watched her plant in the cottage window, and would not part with it, though the doctor offered a large sum for it. When it was in full beauty the boy returned safely. The plant was presented to the doctor, who gave an offset to the girl, which soon bloomed at the cottage, and then the plant was shortly spread over the town of Scarborough where all these events happened, and so gained the name of the Scarborough Lily. *G. E. O.* [A very pretty story certainly, but how much of it is true?]

Figs Casting their Fruit.—In replying last week to your correspondent "J. C. N.," you seem to doubt if any reason can be given for Figs casting their fruit, stating that the same gardeners treating Figs in the same way sometimes lose the fruit, and sometimes not. May it not be because sometimes they smoke their houses at the important period of caprification, and sometimes they do not? Should they happen to smoke just at that time they kill the Fig fly (I do not know its scientific name), the interior blossom thus remaining unfertilised, and the Fig as a consequence falling off. I always see this fly on my Fig trees. It is thin-bodied, something like a cheese fly, this slender form enabling it to creep through the small orifice at the large end of the Fig, and thus assist in the interior fertilisation. *J. R.* [Has this been observed by others?]

The Royal Wedding Day.—As one of your Correspondents suggested the planting of memorial trees on the Prince of Wales's marriage day, I see by the *Western Times*, that the firms of Messrs. Lucombe, Pince & Co. and Messrs. Veitch, have given to the citizens of Exeter three magnificent specimens of Conifers, which were duly planted by the Mayor, the ex-Mayor, and High Sheriff. The first planted was a fine specimen of Picea Nordmanniana, contributed by Messrs. Lucombe, Pince & Co., and named the "Queen's Tree," which was duly christened from a Victoria Vase won by Mr. Pince many years since. The next was a magnificent plant of Wellingtonia gigantea, contributed by Messrs. Veitch & Son, and named the "Prince of Wales's tree." The last a splendid specimen of Cedrus Deodara, contributed by Messrs. Lucombe, Pince & Co., and named the "Princess of Wales's Tree." These three trees were planted with much ceremony, and amid great rejoicings, in the Bury Meadow, a pleasure ground adjoining the City of Exeter. *G. Toll, Pendlebury, Manchester.*

Aëration of Leaves and Lean-to Orchard Houses.—At p. 222 I observe that Mr. Cocks dissents from my opinion, that lean-to houses require low lateral ventilation, back and front. If I were inclined to trust to my own experience of a lean-to forcing-house, and to state, as I can with truth, that I have Peaches and Nectarines well set with fruit in houses that have only been ventilated in front, and neither in the back wall or roof, and to allow this to be applied to common orchard-houses, I should grievously mislead your readers. In the cool months of early spring the air is so dense that very moderate ventilation is required in a house in which forcing is carried on. At that season it matters but little how the outer air is admitted, for by its density it rushes in, even at a small aperture, becomes rarified, dilates, and soon fills the whole house. An analogous case may be stated. If the door of a large heated room opening into a cold hall be opened only for a few minutes, the cool air at once fills the room, and is felt at all parts of it. This is just the case in early spring when the ventilators of a forcing house are opened, and not only in early spring, for as long as fire heat is used in a house, so much does the density of the outer air differ from that in the house that any common mode of ventilation will answer; for if it is admitted from above it falls at once, and as it becomes heated it rises, and thus gives to the under surfaces of the leaves that on which they live and breathe—fresh air. Mr. Cocks, in his haste to set us all right, calls aërating the under surfaces of the leaves a "wild notion." Surely he has not looked into, nor thought maturely of, the wonderful works of Nature to be seen in every garden and field. Let him then examine a blade of Wheat, or a blade of grass, or the leaves of the trees of the field; in the former two he will find the under surface differing widely from the upper, and so formed evidently for a wise purpose. There is the concave surface next to the earth crowded with stomata to catch and drink in, if I may so express it, the constant supply of fresh air they derive from the unceasing radiation of the earth. It is the same with the leaves of our vegetables and trees: the concave surface to catch radiation, the mouths to breathe the fresh air thus carried to them. This is all wonderful and beautiful. It may be a "wild notion," but on this I have built my theory, strengthened every year by practice, that orchard houses in which fire heat is not used require low lateral ventilation, after the method I have already described in your columns (p. 198). The only failures I have seen in orchard house culture have been in houses built against high brick walls with no back ventilation: so that in a house 12 or 15 feet wide, during the summer months, when there is often but little difference in the density of the inner and outer air, the air admitted in the front part only has not force enough to make its way fully across the house, and even if abundant, the trees near the front can alone be kept in health, while those on the back border—supposing the house to have a central path and two borders—will be suffocated and constantly attacked by red spider and aphides. I am quite willing to admit that very narrow lean-to houses against high brick walls, if with large ventilating sashes in front and openings at the top of the roof, may and do answer, for if I remember correctly the houses at Trentham, only 5 feet wide, thus ventilated, have seldom failed: the trees, whether potted or trained as espaliers, being in front, and also trained to the back walls. In these narrow houses a very small amount of sunshine rarifies the air so that the dense outer air rushes in, impinges against the back wall, rises rapidly, and in so doing aërates the under surfaces of the leaves of the trees. It is therefore possible—I am sorry thus to impugn the statement of Mr. C.—to aërate "one surface of a leaf more than the other." It follows as a natural consequence—it is the law of Nature; and although we gardeners are apt to think too highly of our abilities because we can grow a bunch of Muscat Grapes so as to bear a faint resemblance to such as are grown in Sicily or the south of Spain, we must to a certain extent obey her laws—assist her, but not deride her. *T. R.*

Societies.

Royal Horticultural: *Mar.* 18 (*Second Spring Meeting*).—Although 8° of frost were registered in the neighbourhood of London on the morning on which this Show took place, and the City itself and its suburbs were enveloped in dense fog, yet such an assemblage of gay flowering plants as were produced on the occasion has seldom before been witnessed at so early a period. Hyacinths and Tulips especially were furnished in unusual abundance.

Of Camellias the best examples came from Messrs. Veitch, who contributed in the class of three plants, well-grown bushes of Countess of Orkney, a beautiful light kind; Général Lafayette and Valtevaredo, both good red sorts. The same firm also furnished a well grown specimen of Princesse Baciocchi, also a well formed red variety. From Mr. Salter, of Hammersmith, came a tall pyramidal plant of Elegans. In the class of six plants Messrs. Veitch showed Madame Lebois, red; Fimbriata; Comte de Paris, delicate pink shaded with rose; Bella di Firenze, red striped with white; Old Double White, and Teutonia rosea. From the same collection were also exhibited in the class of four plants, beautiful examples of Amelia Benucci, red; Alexina, white striped and shaded with pink; Double White, and Triompho di Loddi, the last a carnation-striped white. From Mr. Halley, of Blackheath, came Countess of Orkney, Elegans, Imbricata, Optima, Amabilis, and Carminata. In a collection from Mr. Standish, of Bagshot, were Sarah Frost, a red striped with white, of remarkably fine shape; Contessa Lavinia Maggi, a charming new carnation-striped variety; Duchesse de Berri, a beautiful white; and a flesh-coloured sort called Queen of Beauty. Messrs. Lee showed the handsome Contessa Lavinia Maggi, another new sort mentioned below, and a box of cut blooms, among which we noticed the fine red kind called Mathotiana. The show of these plants was not, however, what might have been expected.

Among Miscellaneous collections of plants, the best came from Messrs. Veitch, who exhibited various fine varieties of Lycaste Skinneri, Erica triumphans, a kind with large pitcher-shaped white blossoms; the white sweet-scented Rhododendron Sesterianum, a most beautiful specimen of R. jasminiflorum, one or two kinds of Eriostemon, Boronia pinnata, the Holly-leaved Chorozema, the brilliant Azalea Extrani, and the showy Amaryllis called Grand Sultan. From Messrs. Lee came Camellia Prince Albert, a carnation-striped kind, and other sorts; different varieties of Epacris, Acacia Drummondii, Andromeda floribunda, Hederoma tulipiferum, well furnished with pretty carnation-striped Tulip-shaped blossoms; the charming little Azalea amœna, Heaths of different sorts, Amaryllis, Eriostemons, and Tropæolums. A collection from Mr. Bull, of King's Road, Chelsea, was remarkable chiefly for fine foliaged plants, among which were Palms, Dracænas, the deep green ample leaved Anthurium acaule, Cibotium princeps and other Ferns, Araucarias, and Massonia cannæfolia. From the same exhibitor also came Camellia Empress Eugénie, a delicate pink kind, flushed with rose. Messrs. Arthur Henderson & Co. sent the showy flame-coloured Epacris, called Viscountess Hill. Cyclamens came from Messrs. Smith, of Dulwich, who also sent the singular bronzy-leaved Alocasia metallica, the variegated Cyperus alternifolius, Platycerium grande, Eriocnema marmoratum, and other plants.

Of Amaryllises Messrs. Cutbush had a good collection, in which the most conspicuous were Eclatante, a large white-striped red, and Charles Dickens.

From Mr. Daniels came a boxful of Bougainvillæa speciosa; but it was unfortunately not in good condition, having apparently been injured in travelling.

Mr. Taylor, gr. to C. A. Hanbury, Esq., East Barnet, contributed six plants of the pretty Primula denticulata, a plant not half so much grown as it ought to be. For greenhouse decoration during the early spring months it is invaluable.

Roses, as might be expected after so favourable a winter, were in excellent condition, and beautiful boxes of them came from Mr. Wm. Paul and Messrs. Paul & Son. Among the kinds were the new variety called John Hopper, in excellent condition; also President; Chas. Lefebre, deep crimson; Madame Falcot, said to be an improvement on Safranot; Prince Camille de Rohan, a new dark kind; Madame de St. Joseph, Devoniensis, and Reine des Violettes, the last, owing to its peculiar colour, forming a fine contrast with its associates.

Among Tree Mignonettes were some extraordinary specimens, especially three from Lord Londesborough's gardener at Tadcaster. These stood at least 5 feet in height, their stems being 3 feet and their heads 2 feet one way and as much the other. Though somewhat stiff-looking they were perfect specimens of skilful cultivation. Smaller plants considerably, but beautifully in bloom and in free growth, came from Mr. Holloway, gr. to R. Dobree, Esq., of Walthamstow; and specimens trained pyramidally were exhibited by Mr. Morrison and T. D. Shafto, Esq., Hunton, Kent. These were about 3 feet in height, and well furnished with foliage and flowers from top to bottom.

Of the display of Hyacinths too much can scarcely be said. They filled a table 150 feet in length, five rows deep. The hero of the day was Mr. Wm. Paul, who carried off first prizes in all classes. His 18 were models of fine growth. They consisted of Lord Wellington, a double variety shown in great perfection; Haydn, Snowball, Von Schiller, Marie, Duc de Malakoff, Grandeur à Merveille, Mont Blanc, Cavaignac, Florence Nightingale, Macaulay, Baron Von Tuyll, General Havelock, Solfaterre, Ornement de la Nature, Grand Lilas and Koh-i-noor; the last, perhaps, the most perfect specimen of the kind ever exhibited, and the admiration of all who saw it; its spike of bloom could not measure less than 8 inches in length. Messrs. Cutbush also furnished beautiful plants both in this class, and in that of the 100 kinds. The sorts of which these exhibitions consisted were not different from those named at p. 198. Messrs. Carstairs sent from Edinburgh a well-grown collection in small deep pots with very little rim—just the kind of pot most suitable for placing in drawing-room jardiniers. Some good collections were also contributed by amateurs.

Of new kinds of Hyacinth Mr. Wm. Paul had Macaulay, red, shaded with rose; Duc de Malakoff, fawn; Haydn, plum, shaded with violet; Florence Nightingale, delicate pink; Koh-i-noor, in the way of Macaulay; and Snowball, a good white with close spike and excellent petal. Messrs. Cutbush furnished Prince of Orange, pink striped with red; San Francisco, a good clear yellow; Feruk Khan, deep blue; Fair Maid of Denmark, white, but as shown somewhat loose in the spike; and Rouge Eclatante, deep crimson.

Tulips were not seen to advantage; for the day being dull they did not open. A very fine collection of them was shown by Messrs. Cutbush, and some good groups also came from amateurs. Among the varieties we did not find any that have not been named by us on former occasions.

Of Rhododendrons, Messrs. Veitch showed a fine specimen of an improved variety of Smithii; and Mr. Young, gr. to R. Barclay, Esq., of Highgate, a small plant of Blandyanum.

Among the subjects exhibited before the Floral Committee, perhaps the most important was one of Mr. Fortune's Japanese Skimmias, which is said to be the true S. japonica. It is a larger and freer-growing plant than the very ornamental shrub which now bears this name in our gardens, and is clothed with clean-looking smooth elliptic-lanceolate leaves, and has the branches terminated by larger thyrsoid panicles of small greenish sweet scented flowers. If these are succeeded by high-coloured berries, as in its near relative, which there seems no reason to doubt, though we understand Mr. Fortune could not afford any information on this point, it will be a most valuable acquisition to our hardy shrubs; but even independent of these it is to be regarded as a first class evergreen for its foliage alone, and such no doubt was the opinion of the Committee, for a First-class Certificate was awarded to it. Another very interesting exhibition from the same source was the green leaved or true Aucuba japonica, a female plant, loaded with flowers, and accompanied by a small male plant of the blotched-leaved variety, both recent importations from Japan. We may therefore hope to see ere long an Aucuba bush laden with perfect specimens of its handsome and highly coloured fruits. A very elegant stove plant called Pandanus elegantissimus, was exhibited both by Messrs. Veitch & Son, and Mr. Bull, and this also received a First-class Certificate. It has narrow arching green leaves, the edges and keel of which are decorated by rows of red teeth. Messrs. Veitch also exhibited a garden hybrid Rhododendron called Romain de Smet, as a variety useful for its forcing qualities; its flowers are blush, spotted equally and freely on all the segments with black dots; this was Commended. The same variety was shown by Messrs. Lee. Mr. Bull produced an interesting panfull of the elegant little dimorphous Trichomanes (or Féea) spicatum, to which a First-class Certificate was given. A very pretty flesh-coloured cupped-flowered Camellia called Napoleon III. was shown by Messrs. Lee, and obtained a Commendation; a similar award was given to a remarkably showy deep crimson Cineraria called John Spencer, from Mr. Turner. The double white Azalea called Flag of Truce was sent in abundance, and in capital condition, by Messrs. F. & A. Smith, of Dulwich, who also sent several plants of the fine strain of double red and white Chinese Primroses, raised from seeds of the

plants shown by them last season. Both these exhibitors received Special Certificates. This Azalea proves to be a much finer thing than when shown last year, and the Primulas well maintain their character for doubleness. From Mr. Mills, of Ealing, came a very promising China Rose, raised from Mrs. Bosanquet, which was recommended to be shown again when the season was more advanced. M. Jean Verschaffelt, of Ghent, sent a small plant of the high-coloured double-flowered salmon and white Azalea called Souvenir du Prince Albert, not however in good condition. A tall straggling plant of the Hebeclinium macrophyllum, with immense cordate leaves, and large corymbs of reddish-lilac flowers, said to be well adapted for summer gardens in the climate of France, but apparently not suited for out-door gardening in this country, and too coarse for indoor planting, came from Messrs. Henderson & Co., of the Pine Apple Nursery. Messrs. Dobson sent a group of a showy Magenta Cineraria, called Conqueror, and several other seedlings.

Notices of Books.

The second number of *Seemann's Journal of Botany* (Hardwicke), contains a figure of a new Podocarpus like plant, with pinnated leaves, from the Feejees; some very excellent reports on Cinchona cultivation in India by McIvor, Thwaites and other practical men; and a good deal of interesting miscellaneous information.

The *Botanical Magazine* for March contains a reduced sketch of the entire plant, and a double plate showing the cone-like inflorescence of the most remarkable of all known vegetation, the African *Welwitschia mirabilis*, of which brief notices have already appeared in our columns. Living plants (though in a dying condition) have been received at Kew, but as to the cultivating of them in our stoves, Sir W. Hooker observes, "we despair of it altogether, as much as we do of rearing the Rafflesia Arnoldi. Climate, soil, and native locality are all against success; yet trials should be made, and no doubt will be made, to raise it from seed, whenever opportunity may offer." For the present, therefore, this vegetable wonder must be considered as lost to our gardens; nevertheless we may well join in the wish that either by means of seeds or plants it may soon again be introduced. We fear, however, that it will prove so unmistakeably ugly, as to make little way amongst cultivators. Only imagine a tree with a trunk 6 feet across, rising but a few inches above the soil, and producing but two or three strap-like leathery leaves, 6 feet or more in length, and a fork-branched cymose inflorescence of scarlet cones, rising scarcely a foot high, and we have a true picture, albeit a not very tempting one from a gardening point of view, of this "mirabilis," which no stretch of fancy would enable us to class even amongst the popular "ornamental-foliage" plants, much less amongst ornamental flowers. Still, it is worth any amount of pains to introduce it, and of care to cultivate it as a veritable curiosity. The other figures consist of:—*Pycnostachys urticifolia*, an African Labiate with an ovate terminal head of deep violet flowers, and nettle-like leaves, sent by Dr. Livingstone to Messrs. Backhouse. The curious form of the corollas gives interest to the plant, which from its fine colour must be ornamental, if of a desirable habit. *Impatiens bicolor*, a suffruticose species from the peak of Fernando Po, remarkable for its two-coloured flowers, crowded in the axils of the upper leaves; the mouth formed of the "lateral sepals" and "vexillum" is white, and the "lip," which is saccate with a blunt incurved tail, is of a deep red purple. *Monochætum Humboldtianum*, "one of the most lovely of Melastomaceous plants," a somewhat slender fruticose species, with square stems, bright green elliptic leaves, and large rich rosy-coloured flowers abundantly produced.

Garden Memoranda.

Messrs. Cutbush's Exhibition of Hyacinths at Highgate.—This has been open to the public during the past week, and, judging by the freshness and beauty of the flowers, it may, doubtless, yet be inspected for some time to come. Seldom have the plants been finer than they are this year, or the bloom more perfect. Many hundreds of varieties of all shades of colour—reds, blues, blacks, whites, and yellows, are effectively arranged in a lean-to show-house, which at present may be said to be literally a blaze of flower. On a flat table in front are placed all the finer varieties, whose pots are covered with Moss, from among which the flower stalks and leaves issue with excellent effect. Among these we noticed beautiful examples of the new kinds mentioned in another column. Among others not recorded in the list just referred to are Noble par Merite, delicate pink, conspicuously striped with crimson; Cosmos, a fine variety in the way of Macaulay; and Miss Burdett Coutts; the last, though not altogether new, is one of the best whites, its bells being large, of great substance, and nicely arranged on the spike. At the entrance are masses of Amaryllids, Cytisus, Tulips, and Hyacinths, and here and there are vases filled with the same charming mixtures, all of which serve to vary the general appearance and heighten the effect of the exhibition, which is well supported at the back by a stage full of Primroses, Mignonette, Cyclamens, Fairy Roses, Early Tulips and other plants in flower.

Miscellaneous.

Sales.—The following have lately been effected by Mr. Stevens. Lilies:—A small boxful of these, imported from Japan and stated to probably contain rare and valuable sorts, realised upwards of 300*l*. Competition for them was great, and some of the lots fetched as much as 23*l*. each, while none went for less than 25*s*. per lot. Camellias and Ghent Azaleas:—These realised from 5*s*. to 10*s*. per lot of 6 plants each. Roses:—Standards fetched from 9*s*. to 18*s*. per dozen; Moss varieties, 4*s*. to 5*s*. per bundle; and ordinary dwarf bushy plants, from 7*s*. to 10*s*. per bundle. Carnations and Picotees:—the finest named yellows fetched from 9*s*. to 14*s*. per lot of 12 pairs. Pear Trees:—A consignment from France, consisting of standards from 10 feet to 12 feet in height, realised from 4*s*. to 9*s*. per lot of 10 plants each. Conifer Seeds:—That of Abies Nordmanniana, Pattoniana, grandis, amabilis, &c., fetched from 1*l*. to 2*l*. per oz.; and packets of similar weight of clean seed of Wellingtonia from 2*l*. to 2*l*. 10*s*. per packet.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—This house should now be gay with Camellias, spring bulbs, and other early flowering plants. Stock exhausted by forcing should be placed in a pit or frame by itself to regain its lost vigour. A bottom heat of 80° with frequent syringings will in due time restore it to perfect health and put it in proper order for another campaign. Orchids should now be allowed a slight advance in temperature, and if this can be effected by shutting up early in the afternoon, so much the better. Fuchsias in mixed greenhouses and pits will be benefited by frequent applications of weak manure water. Cinerarias for late blooming may now receive a shift, and see that they are properly supplied with water at the root, as nothing conduces more to the establishment of ill health than suffering plants to become checked through drought. Follow up matters of propagation, and see that cuttings and young stock are carefully shaded when necessary.

FORCING DEPARTMENT.

Pinery.—It is to be hoped that the cautions so oft-repeated about root-burning have been sedulously attended to. It is absolutely impossible to attain even a moderate share of success where this sad evil is allowed to take place; over-excitement of this kind tends, amongst other evils, to greatly increase the crown.

Vineries. — Thinning and shoulder-tying being finished in early Vineries, little is necessary to be done, except to pursue an even course in regard to heat and atmospheric moisture. See that all the principal leaves, on which so much depends, have fair play as to a free exposure to light, and endeavour to prevent their coming in contact with the glass. Follow up stopping, more especially with the grosser shoots, and allow lower branches to ramble a little, to equalise the sap. Late Vines as before; keep the wood moistened at least twice a day.

Peach Houses.—Early fruit will in many cases be stoning. Remember that this process will not bear pushing. If such be attempted, the trees will cast their fruit. See that young wood is carefully trained to the trellis; this is a most important point at all times. The true way to accelerate the ripening period is to endeavour by all means to promote the healthy secretions of the plant. No plant requires more sunlight than the Peach, and abortive blossoms commonly spring from inattention to the summer training.

Figs, Cherries, &c.—More Figs are lost through drought than by any other evil. A constantly moist state of the soil is indispensable to their success, when confined in boxes or pots. They succeed admirably when a pit of leaves in a state of fermentation can be given up to them. Plunged in a bottom-heat of 70° or 75°, in this way, and allowed to ramble at the root, with close stopping in the wood, and a humid atmosphere of 65° or 70°, they will be everything that can be desired.

Strawberries as before.

Cucumbers and Melons. — Get out successional crops, if not done. Take every precaution to avoid burning at the roots. To this end, when making the hills for them, form a hole three parts the depth of the bed in the centre of each light; half fill it with raw turf chopped slightly, and on this place the compost for the hills. Never finally soil over the beds until all danger from burning is past, and then only half at a time, taking care that the linings are in good order at that period, or an injurious depression of the temperature will suddenly take place.

FLOWER GARDEN AND SHRUBBERIES.

This is an excellent time to sow a good collection of Annuals, whether hardy or tender. For the latter, a slight hotbed is requisite. The more choice hardy Annuals should be sown in patches, and covered with a garden pot, taking care to remove it when they are coming up in the day time, covering them again at night. If any unimportant shrubbery borders require a little gaiety, and business presses, a mixture of some of the hardier sorts, such as Collinsias, Clarkias, Malopes, Larkspurs, and Candytufts, might be made, and strewed at random over the open parts of the border, after a thorough cleaning. Dahlias should be increased without delay, and an early batch of Chrysanthemum cuttings or suckers put out. Lobelias should be potted, and put into a dung bed. German and Ten-week Stocks should be sown in fresh soil, in a cold frame, or one that will soon cool down; and a few early German Asters on a slight heat. Let walks in ill condition be turned forthwith, and fresh coated with gravel, filling them nearly brimful; they harmonise better with the surrounding scenery than when deep.

KITCHEN GARDEN AND ORCHARD.

Proceed with the business indicated in former Calendars. In Asparagus planting it is of the utmost importance to give every attention to a proper rotation of crops. Where Celery is grown in what are called Scotch beds, the latter make capital Asparagus ground. The preparation consists in trenching it much deeper than the rest, and in burying a considerable quantity of raw vegetable matter in the bottom of the trench: old refuse, vegetables, Cabbage stalks, weeds, or what is very good (if it can be obtained) half-rotten leaves with which some little manure has been blended for linings in the previous year. The upper part of the beds has some rotten manure of course for the Celery. In taking up the Celery for use, the bed is broken up a great depth, and the alleys with it, and thrown into a ridge, which ridge remains fallow until planting time, when it is merely levelled down. It should not be planted until the early part of next month.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending March 18, 1863, as observed at the Horticultural Garden

March.	Month's Age	Barometer.		Temperature. Of the Air.			Of the Earth 1 foot deep	Of the Earth 2 feet deep.	Wind.	Rain.
		Max.	Min	Max.	Min.	Mean				
Thurs. 12	17	29.422	29.069	51	27	39.0	43½	43	S.E.	.04
Friday 13	23	29.401	29.237	56	23	39.5	44	43	W.	.60
Satur 14	24	29.478	29.289	51	30	40.5	44	43½	S.	.18
Sunday 15	25	29.403	29.170	50	34	42.0	44	43	N.E.	.08
Mon. 16	26	29.985	29.780	49	32	40.5	44	43½	N.E.	.01
Tues. 17	27	30.161	30.143	48	21	34.5	44	43	N.	.00
Wed. 18	28	29.975	29.914	49	32	40.5	43	43½	N.W.	.00
Average.		29.689	29.514	50.5	28.4	39.5	43.8	43.2		.25

March 12—Uniformly overcast, rain; slight fog and frost.
— 13—Fine, very fine; masses of low white clouds; sharp frost.
— 14—Dense fog, fine; low dusky white clouds; rain.
— 15—Overcast, fine, rain at night.
— 16—Overcast, slight showers; cloudy; rather boisterous; fine.
— 17—Clear and cold; dusky and snow-like clouds; sharp frost.
— 18—Frosty, fine, cloudy, fine, but cold.
Mean temperature of the week, 3 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending March 28, 1863.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 22	50.4	34.5	42.5	18	0.44 in	7	3	4	2	4	8	5	4
Mon. 23	50.5	33.8	42.1	16	0.60	6	6	1	2	1	12	4	4
Tues. 24	50.8	32.2	41.5	13	0.13	4	5	4	1	4	6	8	6
Wed. 25	50.6	32.9	41.8	13	0.50	3	10	5	—	2	6	7	5
Thurs. 26	51.9	32.5	42.2	14	0.17	—	7	4	2	5	6	6	7
Friday 27	51.0	34.6	44.3	13	0.37	2	7	4	2	3	7	10	2
Satur. 28	53.2	34.1	43.6	15	0.68	4	7	6	2	2	6	7	3

The highest temperature during the above period occurred on the 27th, 1850—therm. 75 deg.; and the lowest on the 25th, 1850—therm. 14 deg.

Notices to Correspondents.

Ants: *Amateur*. We really cannot say. It is difficult to keep them away by any process short of killing them, which may be done by boiling water, provided you can get at them without doing injury to the contents of the bed. The Cauliflower leaves are more likely to have been eaten by wood-lice.

Fig-tree: *Hortus ubi*. We cannot account for your tree under glass losing its leading shoots, inasmuch as the winter has not been severe enough to injure those which are fully exposed; unless, indeed, you kept it in an excited and unripened condition too late in the autumn, and its soft watery shoots, owing to their immature condition, have been injured by the one or two sharpish frosts we have experienced.

Insects: *T S P*. Velia rivulorum in the apterous state. Look sharp for the rarer winged specimens. *W*.

Law: *A Z*. We make it a general rule not to answer questions on this subject, nevertheless we think your question one, which being uncommon, should form an exception to the rule. You ask whether—"If a person rents a house from year to year and receives notice to quit at the expiration of a year, can the tenant upon leaving the premises take away a stock of first-class hybrid perpetual Roses or Rhododendrons, he having been at the expense of buying the selection himself, or do they fall to the portion of the landlord, the same as forest trees or fruit trees." We fear they do; but it does not appear that the question has ever been tried in a court of law. Why not try it yourself? If they really do fall to the landlord the law is very absurd. They are mere ornaments, and should be regarded as such, not as forest trees.

Names of Plants: *W T T*. Notylia punctata.—*A C*. 1, Maxillaria uniflora; 2, Some Dendrobium quite shrivelled up.

Peat Earth: *Hortus ubi*. Your best course would be to apply for samples to those who do advertise this article, or who have done so. You will get ample choice if you do so, even though it may not be exactly the material about which you inquire. Some of the leading nurserymen supply the best kind of selected peat for particular purposes.

Pelargoniums: *Old Subscriber*. Your scarlet Pelargoniums are most probably in an unhealthy condition at the root, from being placed in unsuitable soil, or from being kept too wet, or even from having stood in an unfavourable position, where they were too cold and moist during winter. If so, the best remedy is to shake them out, repot them in good fresh porous soil not manured, and give them the advantage of a mild moist heat to start them fairly. We cannot, without knowing all the facts, suggest a better remedy.

Variegated Coronilla: *R L*, who inquires whether it is not a very unusual thing for Coronilla glauca to be variegated, and who has a fine plant raised from seed last year, of which many of the shoots are quite white and others variegated, is informed that there is a distinctly variegated variety of this Coronilla, not uncommon in cultivation. "R L.'s" plant may be from seed obtained from this source. If not, it is just a sport, as the one we have alluded to was originally. Of course the white parts cannot be perpetuated or kept for any length of time, independent of the green parts.

Zoophytes: *J T*. Zoophytes are animals resembling plants in their manner of growth.

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RYE GRASS. per bush.—s. d.		CLOVERS. Per lb.—s. d.		MANGEL WURZEL. Per lb.—s. d.		SWEDES. Per lb.—s. d.		OTHER TURNIPS. Per lb.—s. d.		CARROTS. Per lb.—s. d.	
Italian Imported ...	6 0	English Red	6d. to 0 9	Fisher Hobbs, true	1 6	Plymouth Improved Purple-top ...	1 0	Scotch in Vars. ...	0 9	White Belgian ...	1 0
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The advantages of which have been proved for several years past,

(SEE THE FOLLOWING LETTERS.)

These are not mere Testimonials in the ordinary acceptation of that term, but show distinctly that the Seeds which Messrs. SUTTON have had grown from large selected Bulbs are altogether superior in germinating properties, and in the quality and trueness of their produce, to the Seed raised in the usual manner.

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From Mr. Gray, *Bailiff to* G. Rawlins, Esq., *Bullington House.*

"I believe we had one of the finest lots of Mangels and Swedes in the country. We had not quite enough of your seed of Mangel, and *sent elsewhere for some to finish the field, and though sown the same day and with exactly similar treatment, we had not so much weight by one third as on the part sown with your seed.*"

From the Right Hon. Lord Berwick, *Cronkhill.*

"Let me have the same Globe Mangel as last year, which has given me the best crop I ever grew; good both as to bulk of crop, and also in the fineness of roots and freedom from fangs and irregular growth; when pulled, the roots were nearly as clean and free from fibre as a Globe Turnip, and I had 50 loads per acre and more."

From George Beaumont, Esq., *Bridgeford Hill, near Nottingham.*

"We have had 4 acres of Mangel (Yellow Globe), three of which were sown with your seed, and one acre with seed grown in this neighbourhood. I am quite sure your seed produced from 8 to 10 tons per acre more than the other. I had nearly an acre weighed (from your seed), and found we had 55½ tons per acre."

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ROYAL AGRICULTURAL SOCIETY of ENGLAND.

WORCESTER MEETING, 1863.

STOCK and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to

H. Hall Dare, Secretary.

12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MARCH 21, 1863.

The theorist will tell you that plants obtain their food dissolved in water, which takes up those soluble parts of the soil which they need, and being sucked in by their roots introduces carbon, oxygen, nitrogen, hydrogen, phosphorus, chlorine, soda, potash, and all the other elements they require. He will also tell you that the soluble parts of the soil alone being food for plants, and the soil a thin layer, spread so thinly over the country and there washed annually by eight or ten times its quantity of so powerful a solvent as rain water is, you may wonder how it is a year's rainfall does not destroy fertility.

He has told you in the lately published Blue Book of evidence taken before the Sewage Committee of the House of Commons, that water is by itself worth any money as a fertiliser; that, let alone the fertilising ingredients it contains, it would often pay the farmer well to pay for water "pure and simple" to be pumped upon his crops,

his Grass lands, and his corn. And in the same publication he has told you that the reason why sewage does not realise upon the land all the promises of chemists who have analysed it is that it is too much diluted with mere water. He will tell you that the only probable solution of the difficulties of turning the waste of our villages and towns to agricultural account is by employing water as a carrier to the field; and he will tell you that earth is the true deodoriser, and that earth closets, not water closets, are what every true economist will advocate.

Opinions thus are various enough, and various as they are, practice can be quoted for them all, and every one of them may be defended by experience.

Water sometimes saves a crop and it sometimes mars a crop—it will carry a manure sometimes safely and sometimes wastefully—water drills and dry drills both have experienced advocates—floods and droughts are equally mischievous. Water sometimes feeds a crop and sometimes starves a crop; it will sometimes warm the roots of plants, and they will sometimes perish from the cold which is due to it—and agricultural experience is a medley from which facts may be quoted in defence of any extravagance you may choose to utter. And after each of them has been "proved," another theorist with a somewhat wider range of view shall come and reconcile them all by reference to such circumstances as time, and quantity, and degree, which have far more influence than men of merely one idea are willing to admit.

The English Agricultural Society have lately done a good deal to the discussion of many of these various aspects of the relation of water to the farmer. In the current volume of their Journal we have Mr. LAWES discoursing upon the difficulties of the sewage question, and Mr. MOULE writing on the merits of earth as the best conveyer of fertilising matter to the soil. And at last Wednesday's meeting of the Society in Hanover Square, Mr. DENTON discoursed of the advantages of land drainage. The truth is that the habits of our plants require to be consulted by the men who grow them—one of succulent growth needs a constant soaking; another, yielding seed, requires two or three months' drought. And then, again, water is mischievous or not according as it is stagnant in the soil or circulating through it.

The former of these conditions is enough to account for one half the difference of opinion which exists, and the latter will explain the rest.

The former gives, indeed, the only explanation which seems possible of what we learned last Wednesday—that Grass-land farmers on the London clay still object to under-drainage, on the score that it will diminish produce. Mr. LAWES, who writes on Grass lands in the current Number of the Agricultural Society's Journal, has taught us how perfectly the plants of our pastures are amenable to treatment—how plants disappear or "come," according to the food supplied to them. And it may very easily be that so great a change as land drainage should in the first instance destroy much herbage capable of great produce in the former state of the land, and that its first effect should be to diminish the annual yield of Grass. Other and better plants will however take the place of the aquatic growth—and Grass lands are in the long run no exception to the rule that land drainage increases the value of farm produce.

THE volume just published of the English Agricultural Society's Journal—chiefly noticeable according to a contemporary for the absence of practical agriculturists from the list of its contributors — fairly illustrates and justifies the remarks made in these columns when its present Editor received his appointment. "The Committee," it was said, "on whom the responsibility of this appointment rests, seem to have assumed that it is the business of an agricultural editor to teach the farmers who may read his pages; and an acquaintance with the agricultural literature of other countries and of other ages has thus been held indispensable."—"Mr. FREERE, however," it was added, "will succeed in the discharge of his duties in proportion, not as he brings the maxims of French, of German, of Italian, or of Roman agriculture to bear upon his readers—not as he uses any influence from without to modify the practice of the English farmer, but just as he shall succeed in inducing and enabling English agriculturists to teach each other. Whether a man so entirely unknown to the body over whom an influence of this kind ought to be exerted in the Journal be the best fitted successfully to wield it, may be doubted."

The history of the Journal during its present editorship, though it bears ample testimony to the earnest and laborious exertions of the Editor, has not removed this doubt. As to the current Number of the work, not only is there nothing whatever in it from the pen of the experienced tenant farmer, but one-third of it is filled with accounts of French and of Italian agriculture. The whole effort of the Editor appears, indeed, to have been brought to bear on that very enforcement from without of continental practice and continental maxims which was deprecated on his appointment. No attempt has been made, or if made it has been fruitless, to present the corresponding picture, so much more useful, of English agricultural success, or of English agricultural experience.

The Journal has now for several years been silent on steam cultivation. Excepting by the scanty and altogether inadequate report of the Farningham trials, and of other annual adjudications, we know nothing whatever from its pages of the progress of our agricultural machinery. Cultivation by steam power, reaping and mowing by horse power, have been left for their progress and achievements altogether to private enterprise. Of course, if that will not ensure their success no external patronage will do it; but it is the very purpose of agricultural publications to stimulate this private enterprise by publishing its results. These, however, have been left altogether unsung, and instead of them we have the praises of the French method of silver cups and money payments presented by the Government for "remarkable agricultural results," declared by juries which are "moved by pleasant pictures"—of "mutual confidence"—"of family devotion and union," &c., &c.

All this is utterly beside the questions which arable and dairy farmers are anxiously asking here. Is steam-ploughing economical? — is the mowing machine profitable? Let a good jury answer questions like these, and we will thank them—and when business is over, we may have leisure for the due appreciation and enjoyment of any sentiment, generous, pathetic, or what not, picked up in the course of their duties: but it is the custom in this country to "let business be business," and to do one thing at a time.

We venture to submit that a few pictures such as we this day give of an English farm, drawn up in the greater detail which a portly octavo volume would enable, would have been more instructive to English readers, and more suggestive of how success is to be achieved by others, than the scanty records of French enterprise which are here collected in honour of the French system of Government patronage and reward.

We entirely agree with what is said in the well written opening sentences of Mr. FREERE'S statement, nevertheless there is an easy possibility of having "Russian pass books for labourers," and French farm practice with the methods by which its improvement is encouraged, and even Italian irrigation, too much urged on English agricultural readers. And if these exclude the account which ought to be rendered of English practice, and experience, and improvements, no one will say —thanks.

As to the other aspect which Mr. FREERE'S appointment to the editorship of the Journal presented at the time—the admitted superiority over all his competitors which a University education had given him—a word or two may be added on what in these pages it has enabled him to do.

We should like to know the opinion now of a leading member of the Journal Committee who was consistent throughout in declaring that an Oxford or a Cambridge man ought to preside over the literary department of the Society's labours — and who accordingly was never more consistent than when he succeeded in appointing Mr. FREERE to that position. Is it in the writings of the present Editor that he will look for that example of pure and lucid English which, read as it is in every country of the world, he desired that the Journal should present? We referred just now to certain well-written sentences from his pen; they are not obedient to the general rule. But as reference is made elsewhere to this subject we must not discuss it further here.*

* One example out of many must however be permitted. Mr. FREERE wants to teach a plain farmer that "the cost of an article as food is hardly any criterion of its value as manure." He therefore says:—

"Indeed, since the refuse of a product is often in this respect more valuable than the extract, it might almost as well be asserted that the cheaper article had the higher manurial value; the relation of Wheat flour to bran and of oil to oil-cakes being cases in point, of which the former is material to the question before us; since if the value of man's excreta were calculated on the supposed number of bushels of Wheat required for the supply of the population, the sum arrived at would be too high, because that part of the Wheat which has the highest manurial value, viz., the bran, would practically not be consumed by him."

—Read it again!

Certain however it is—there never was a more complete collapse of an exploded idea than has here occurred of that which was urged three years ago, that a university education assuredly enables a man to write good English.

Let us however now leave this subject. Mr. FREERE'S papers on French and Italian agriculture, though not of immediate utility, will interest the general reader. His papers on the money value of night soil and on cooperative farms, so far as they are intelligible, are also interesting to the agriculturist; but the main value of the volume hinges on the communications of Dr. VOELCKER, Mr. LAWES, and Mr. MOULE.

The first speaks of top-dressings for Wheat, and of the application of phosphatic manures to root crops. The second contributes valuable and elaborate reports on the effect of manures on the mixed herbage of Grass land, and on the utilisation of town sewage. The third writes on earth *versus* water for the removal and utilisation of excrementitious matter. Besides these we have a short readable essay on Land-agency, by Mr. TUCKETT; and papers on the Supply of Horses adapted to the English army, by Mr. WILKINSON; on Co-operative Farms at Assington, by Mr. GURDON; on the Live Stock Consumption in the Metropolis, by Mr. HERBERT; also short useful fragments from Mr. LAWRENCE, Mr. GURDON, and Mr. FREERE, on Carrot and Cabbage Culture, on Transplanting Mangels, and on the Growth of Barley after Grass. It is to be hoped for those members who read their Journals that these short and directly useful communications may hereafter occupy a larger number of pages. To some of them we shall hereafter direct attention.

—— THE prizes awarded in the heifer classes at the annual shows of the English Agricultural Society are in every case reserved until the 31st January in the following year, before which the prize animals must have produced live calves, or they become disqualified. It is interesting, as illustrating the effect of the prize system upon young breeding animals, to know in how many cases the preliminary fattening process proves harmless. It appears from the list just published that the Duke of MONTROSE'S first prize heifer in the Short-horn class has failed, and that Mr. DOUGLAS'S *Queen of Athelstane*, the "reserved number" in that class, has not yet calved. Of Devon heifers, Mr. MERSON'S second prize heifer is not in calf. Of Sussex heifers, Mr. HEASMAN'S first prize heifer has produced a dead calf. Of "Norfolk and Suffolk" heifers, Lord SONDES' first prize heifer has not yet calved; and similar mishaps are recorded of heifers in the South Wales, Kerry, and Jersey classes.

AN EAST SUSSEX DOWN FARM.

ALL along the northern edge of the Sussex Downs, where they touch upon the Weald in the vale below, a great variety of soils exists in immediate neighbourhood. Within the flight of a bullet, and therefore often (indeed generally) between the upper and lower sides of a single farm, there lie the flinty red soil covering the upper level of the down, the thin chalk soil of the steep hill side itself, the light chalky soil at its foot getting gradually more marly and adhesive as you descend, the rich calcareous loam of the upper green sand, the stiff yellow clay of the gault, the free and fertile loam of the lower green sand, and the stoneless soils of various degrees of stiffness and difficulty of tillage which characterise the Wealden district. Where equal energy is applied throughout upon so various a district, one expects to see a variety of management corresponding to such various circumstances: but the bands of land of separate quality are so narrow, and the influence of the Down itself with sheep farming as its leading feature is so predominant, that the whole comes under one style of practice; and if that is quite inapplicable, as to some undrained wet gault clays it necessarily is, these are left almost neglected. The consequence is that all along the lower edge of the well managed chalk district there is a narrow belt where this gault occurs of poor, wet, generally Grass fields, whose ill grazed surface and ill fenced boundaries proclaim neglect. Such fields will rot the sheep which are the main stock of the district, and they are only available for the teams of horses and of oxen which are turned out upon them during the summer months.

The following paper describes one of the farms which stretch nearly throughout the series of soils thus enumerated. It includes 100 acres of level red soil on the hill top, 230 acres or thereabouts of the down itself, some 300 acres of arable land below the hill, of

which about 80 acres are on the stiff gault clay, and 170 acres of pasture and meadow land partly on the green sand and partly on the clay. The farm is managed with 12 horses, worked either in three teams of four each, or four teams of three each, and 20 oxen worked in three teams of six each, and two over for changes.

It is stocked with a flock of about 420 Sussex Down ewes with their produce; and seven or eight cows are kept by which 30 calves are reared and kept till two years old, when they are sold in good condition from the marsh land, of which 50 acres are attached to the farm. These, with a few well bred breeding sows of the small white or Windsor breed, make up the stock.

The chief points to be noted in a history of the farm, are the peculiarities of cropping and arable management, the introduction of Teazel culture to an entirely new district, the economy of ox labour, the growth of the flock, and the rearing and management of calves.

The 100 acres of arable land on the top of the down are managed on the four-field course of cropping, one half being in Oats every year, one quarter in Turnips and Rape, and one quarter in Rye-grass for sheep; this being seeded with 2 bushels of Rye-grass per acre and 6 lbs. of Trefoil and White Clover. Of the 300 acres of arable land below, 100 or thereabouts are Wheat, 50 acres are Oats, 40 are Beans and Peas, 20 are in Rape, 20 in Clover, 20 to 30 are in Teazels, 20 or 30 or thereabouts in bare fallow, 10 or thereabouts in Swedish Turnips, and as much in Mangel Wurzel.

Here we have 190 acres in grain crop, and 20 or 30 in Teazels, all crops sold off the land, against 40 acres in Rape and Swedes and Mangels, 20 acres in Clover, and 30 acres in bare fallow. The cropping is thus exceedingly severe; and that great crops are usually grown notwithstanding, proves that the lower chalk soils are naturally extremely fertile, and that the stiff gault clays prove fertile under good tillage.

The Wheat crop is taken after all the Clover, after all the Beans and Peas, after all the bare fallow, after most of the Rape below the hill, and generally after the Mangel Wurzel. The Oat crop is taken after Wheat, and occasionally after late fed Rape and Turnips, though here it is becoming more and more the practice to take spring or April Wheat in its place. The rest of the Wheat stubble is broken up for Beans or Peas, or for Swedes. The Oat stubble is either in Clover, or is broken up for Rape or Mangel Wurzel. Vetches are occasionally taken also, to be followed by late sown Rape or Turnips.

There is very little of a rotation followed—Wheat, Oats, Beans, Wheat, Rape, Wheat, Clover, Wheat, &c., do on some of the land succeed each other uninterruptedly—a portion now and then being planted with Mangel Wurzel, which is then heavily manured. The sheepfold is the great machinery for manuring the land; but bulky crops of straw are fed and trod in yards by oxen, calves, yearlings, and 2-year-olds during winter, and taken out as dung to the lands which are to be in Wheat next year, *i.e.*, as to Clover, Bean stubble, bare fallow, &c. All Wheat is sown either after a direct application of manure or after the sheepfold. The dung cart also goes on the stubbles intended for Rape, Mangel Wurzel, Swedes, or Vetches The Oat and Bean crops taken after Wheat get no manure. On the lighter red soil on the level at the top of the downs, which was broken up 25 years ago, and then received a heavy dressing of chalk, the Turnips and Rape receive 2 or 3 cwt. of superphosphate of lime or 2 quarters of bonedust to the acre, besides a portion of the dung made in the yards up there, where the straw of all the Oats (grown on half the land) is consumed and trodden down by cattle in stalls and courts. The rest of the dung made there goes on the Rye-grass stubble, which has been fed by sheep during the summer, and is broken up for Oats in the autumn.

On the lower chalk and on the green-sand soils, and on the stiff Gault soils, no artificial manures are used. On the last named, of which about 80 acres are arable, the cultivation is either for Teazels, or Wheat, or Beans, or bare fallow. Many fields here are so stiff and intractable that during the wet seasons of 1860 and 1861 they were utterly unmanageable. There are fields here, through which drains 4 feet deep and 7 or 8 yards apart have been dug, out of which no water ever came; they were, in fact utterly useless, and no drainage ensued from the costly operation. Since then drains in the furrows, 30 inches deep, have been placed, and help to make the land somewhat more manageable; but even here, as already said, a wet season utterly disables the cultivator, and there were fields during the past summer then two or three years in fallow, which last autumn were at length planted to Wheat after a long time of neglect enforced by the utterly unmanageable condition of the land.

One cannot help thinking when seeing the 4-horse or 6-ox teams slowly labouring over land of this quality, that there never was a contrivance so adapted to the utter destruction of drainage. The failure of 4-feet drains, which here has been unquestionable, seems sufficiently explained by the mischievous effect of such a trampling, and if the 30-inch or 3-feet drains are to a certain extent effective in spite of this trampling, it must be because they are useful merely for draining off the surface water, which, sinking to the bottom of the ploughing, there rolls along the surface to the furrow and finds its way down through the loosened soil to the drains 18 inches lower.

We believe that if the cultivation of these soils were done by steam power, which would stir the land much deeper than it has ever hitherto been moved, without any poaching of the surface soil in doing it, it would be found that these stiff soils would be drainable by the 4 feet drains, and would thus become fertilised and useful to a much greater depth than hitherto.

As it is, the gault clays yield occasionally good but often scanty crops of Wheat and Beans, with a bare-fallow annually over a great portion of their surface.

Teazel Culture.—Till of late years a great portion of the arable clay land here was useless, and the cost of cultivation so far trenched on the produce that this portion of the farm was a tax and burden on the rest. Latterly, however, Teazel culture has been introduced successfully into Sussex upon this farm, where both climate and soil suit the crop as well as anywhere in the island.—For 30 acres of the crop about 10 are sown, some 20 lbs. of seed being scattered per acre in April, and harrowed in upon a single ploughing of a Wheat stubble which has been well harrowed down in spring. The young plants are singled out in autumn about 2 feet apart; and the thinnings are planted out in November over twice as much land which has been ploughed and tilled after a Bean or Wheat crop. The sown crop is dug over shallow between the plants with a long bent narrow spade adapted for surface digging. Several such diggings between the plants, in the first year, and during the growth of the whole crop in the second year, cost in all about 6*l.* per acre.

The harvesting commences in July, and continues for 6 or 8 weeks; the men who do it being continually amongst them, cutting the heads in handsful and hanging the bunches on the plant itself till partly dry. They are then strung on long poles, which are kept in open sheds till the heads are dry. In winter the whole are sorted over and are tied in bunches of 25 each, 20 of which are strung on 3-feet rods, 40 of which make a pack. There are thus 20,000 to a pack of the middling size, which are the best, and of the small heads which are less valuable. The top heads of the plants —generally the largest of the lot—are called "Kings," 9000 of which go to a pack. As many as 8 to 10 packs are not uncommon per acre. And a very large money produce per acre, considering that over two thirds it is the crop of only one year, is thus obtained from land which used to be really valueless. The spade culture of the crop makes the Teazel a capital preparation for Wheat, which is a more certain crop here than even after a fallow, for that is a very uncertain process on these clays.

This, then, is an instance, as already said, of the rarely achieved success which attends an altogether new cultivation. It has however been successful owing to the introduction of an almost entirely new staff of labourers from Gloucestershire accustomed to the management of the crop, which would seem to be a necessary thing, for strange to say, though it has undoubtedly proved a profitable crop upon this farm, an attempt to introduce it on a neighbouring farm has failed. The French seed was first used, and the seed of the crops grown from it has since been used; and a very good sample, the result of a poor stiff soil, seed of a good sort, and a very dry summer climate, has been generally united here with unusual productiveness.

A certain portion of the hazard which attends the culture of the Teazel, has however been experienced even here. A luxuriant growth and magnificent promise of a crop has been once or twice (as elsewhere more frequently has happened) destroyed by a fortnight's rain just at the critical time when the heads are shedding their blossom and should be acquiring the horny tips to the flower cups, which make them useful in the finishing processes of the manufacture of woollen goods. They are worth ½*d.* to ¾*d.* per dozen for this finishing process = 3*l.* 10*s.* to 5*l.* per pack of 20,000. Damp weather immediately before and during harvest rots the heads and destroys them.

There is also another calamity which befalls the crop, the explanation of which probably requires the attention of both chemist and physiologist, whose services must be united whenever any problem connected with the growth of a living plant has to be solved. The difficulty here is the cabbaging of the plant on ground which has several times grown the crop. This "disease" has made its appearance on some of the fields here which appear to have grown the crop with extraordinary luxuriance at first from being entirely new. Experienced Teazel growers declare that when once the liability to "cabbaging" has declared itself in any field, it is useless to risk the crop again. It will certainly come to naught in this way. And it would be interesting to learn what there is either of poison or of deficiency detectable by the chemist in soils thus affected to account for this singular misfortune.

Details of Arable Management—Let us now turn to some of the original peculiarities of management characteristic of the farm and of the district. The above is one of the instances in which the good judgment of the tenant has transplanted with success the management of another county. It was however equally proved by his accepting without hesitation many of the peculiarities of the district to which he came a stranger. On the spring morning when he arrived, some 15 years ago, he was startled at seeing all the oxen on the farm arranged in S-fashion on the ground; each, however, walking straight down the hill, over a Wheat field, so as to trample and apparently obliterate the plant, a firm and compact soil being essential to a good crop. This trampling is still continued whenever necessary.

The usual cultivation for Wheat is, after Clover, a single ploughing, if on heavy land; or on lighter soils a scarifying after the second cut, followed by a bastard fallow, which includes two ploughings and the seed furrow. After Beans the land is broad-shared, either by Bentall's tool or by the Kentish turn-wrest plough, armed with a wide chisel-edge share. The land is cleaned and scarified, and when consolidated so as to cut out solid in ploughing, it is ploughed and pressed and sown broadcast. If it cannot be got firm in any other way, it is trod by cattle before ploughing; 10 pair of oxen, each walking straight up and down hill, are arranged S fashion on the field for convenience of guidance and marched up and down, getting over 6 or 8 acres a day. The seed is sown broadcast, 2 to 3 bushels an acre according to the time of the year; and a sack to the acre is still not uncommon in the neighbourhood. The tenant, originally an advocate for thin sowing, has in this case, after numerous experiments, found the best result from 2 bushels to 10 pecks per acre. The average produce of the farm is about 36 bushels an acre, but it has often been 5 quarters. The sorts grown are Morton's *Red-straw White*, sown at all times, spring and autumn; *White Chaff Essex*, a short-strawed Wheat, of good quality; *Golden Drop*, one of our best red Wheats; and the *April* Wheat, a red Wheat, which has latterly come into very general use. Three bushels of it per acre are sown all through April, and often into May, and excellent crops are grown. We saw in October last the last portion of the Wheat crop cut upon the farm on the very edge of the down, and promising over half of it, a very good crop, and over the rest a fair produce. The seed was sown in the former case on the 16th of May, four months and a half before, and on the latter as late as the 26th of May! The young crop is rolled hard or trod in spring, and often fed off with sheep. There is no hoeing, but hand-weeding of Docks and Thistles is practised, and the stubbles are generally clean.

Oats are sown on the Wheat stubble ploughed in autumn, and sown rather late in spring. Six to eight bushels of Black Tartarian Oats are generally sown in the district. On this particular farm the seeding was increased (as the result of experience) from 4 bushels to 6 bushels per acre. The crop will average over a series of years 8 quarters per acre over the whole extent sown; but 10 to 12 quarters are not unfrequent.

Beans are sown on one ploughing of a Wheat stubble, and are drilled in rows 12 inches apart, at the rate of 2 bushels of a small Tick Bean per acre. Swedes are sown to a small extent, in rows 2 feet apart on the flat; and Mangel Wurzels are drilled on the ridge in rows 30 inches apart. In both cases a heavy manuring with farm dung is given. Mangels are a very severe crop upon the land, taken from it as they are and fed in yards. Swedes, too, are very severe in their effect whether fed off or not. Whether it be that their cultivation so loosens the soil as to render it unadapted to the Wheat crop, which seems on these chalky soils to require every possible means of consolidating its seed bed, or not, we cannot say—but we are assured that a Turnip crop is in many cases a perfect "poisoning" of the land, from which it does not soon recover. The principal green crop of the arable land therefore is Rape. It is sown broadcast, ½ a gallon of seed per acre, over a manured and cultivated Wheat and Oat stubble—a succession of seedings during the spring and summer months, being intended to keep the sheep in autumn, winter, and early spring. When sown too thick it is sometimes thinned by passing the harrow over it, but otherwise it receives no cultivation whatever, and produces a large quantity of most useful sheep food at little cost.

Horse and Ox Labour.—The cultivation of the crops, the carriage of manure, the harvesting of the hay and corn and Mangel Wurzel crops, marketing, &c., furnish employment for 12 horses and 20 oxen: the former with three men and three boys with an extra man and boy when wanted, at a cost for wages of 13*s.* a week for the man and 3*s.* or 3*s.* 6*d.* for the boys; and the latter with two men and four boys at wages of 13*s.*, 12*s.*, 7*s.*, and 4*s.* respectively. During considerable part of the year of course these men are at other work, and the oxen are in the yards or pastures.

Let us estimate the cost of horse-labour in the first place. The horses each receive 2½ bushels of Oats and ½ bushel of Beans, and one truss of hay weekly for six months of the year, with Wheat chaff *ad lib.* During the summer months they have cut green food in the stable and pasturage, without corn; and they may then be supposed to cost 6*s.* a week a piece, or 7*l.* 16*s.*

in all. During six months of corn feeding they consume 16 sacks of Oats, 13 bushels of Beans, and 13 cwt. of hay apiece, worth 14*l.* 16*s.* The annual cost of food is thus 22*l.* 12*s.* apiece.

Food for 12 horses at 22*l.* 12*s.*	£271	4	0
Wages (the extra man and boy sometimes required being repaid by the occasional employment of the carters at other work)	128	14	0
Shoeing, 11*s.* per horse	6	12	0
Saddlers' bill	14	0	0
Blacksmiths'	25	0	0
Total	£445	10	0

The horses are worth 40*l.* apiece. Two colts are bred annually, and the stock is thus kept good at no expense, the sales being sufficient to repay the cost of feeding and rearing the colts till three years old, when they are either sold or brought into the teams. The cost of extras is somewhat less in this case than in general, owing to one of the labourers on the farm being a carpenter, and a handy man in other respects, capable of home repairs, which would otherwise be the subject of tradesmen's charges.

Let us now turn to the oxen:—Bought at 15*l.* a piece, and kept three years, they may then if all has gone well, be worth 21*l.* each. The difference must be put to their credit. On the other hand, it is perhaps right that 5*l.* per cent. on their value should be charged annually to meet risk by disease or death. If, therefore, over 20 oxen there is an increase of value equal to 40*l.* a year, on the other hand, 15*l.* to 20*l.* a year must be charged for losses; leaving an annual increase of value of about 22*l.* or 23*l.* in all.

They have 20 acres of pasture and the aftermath of other 20 acres. They get straw during winter, and hay once a day—about 1 cwt. a day to the lot, with a few roots daily—during the spring months. Apparently nothing can be less expensive. But their keep would maintain 3 cows, 20 calves, and 20 yearlings, from which an annual sale of 20 yearlings at 10*l.* each, or from 8*l.* to 9*l.* more than was given for them would take place, producing about 170*l.* a year, at which therefore, the maintenance of the oxen must be valued. We estimate it in this way, because the rearing of calves is one great department of farm management here, and its profits can be fairly stated.

	£	*s.*	*d.*
Food of 20 oxen	170	0	0
Wages of men and boys for 40 weeks of the year	88	0	0
Shoeing four times a year, at 1*s.* 6*d.*	6	0	0
Harness, &c., probably cost more than	3	0	0
Total	263	0	0
Deduct annual increase of value	23	0	0
Cost of ox labour	£240	0	0

For this sum you get the use of three teams of six each, and the keep of other two oxen which take their places occasionally in the team. For 445*l.* 10*s.* you get the use of three teams of four horses, or of four teams of three horses each. Twelve horses cost nearly twice as much as 20 oxen. But it is plain that nothing is thereby proved as to the relative cheapness of the work done by them respectively. It is, however, certain that ox labour is going out in this district. It used to be much more general. Sussex oxen are not so generally used as formerly, and Welsh runts and Short-horns are taking their place in the teams where they are still used.

We believe that the inability of words and figures to state the case fairly between horses and oxen arises out of their inability to put down the effect of horses and of oxen respectively on the labourers of the farm. Estimated in £ *s.* and *d.*, it seems plain that oxen are a much cheaper power than horses; and unless you go upon the farm itself for a number of years, it is puzzling to explain how it is that oxen are gradually disappearing as draught animals. The real explanation we believe to be in the sluggish influence of the system of ox-labour on the whole farm management. A quick-stepping team of horses adds directly to the quantity and to the quality of the work done. And just as steam cultivation, which makes everybody *run*, has that in its favour when it is compared with horse-labour—so horse-culture, which makes men and boys at least step out, will beat oxen, with a team of which they creep along at the rate of about 1½ miles an hour.

Young Stock.—Another point to which attention has to be directed on this farm is the rearing of calves. Seven or eight milch cows are kept, and the calves of the large cows in the milk dairies near Hastings are purchased generally at 2*l.* a head and reared. The cows come to the pail during September and October, and 30 calves gradually brought to them are reared during the winter, 15 to 20 calves being kept at a time. The calves are fed from the bucket, receiving at first 4 quarts of the new milk a-day apiece, and they pick at hay from the very first, and soon eat a little which has been cut into chaff and had a few ground Oats sprinkled over it. By-and-by the Oats are increased to a pint a day apiece, reaching the full quantity as the milk diminishes and is withdrawn, which it is when the calf is 10 or 12 weeks old. The cows receive hay only during winter, being foddered in the field as long as they can remain out. The calves are not turned out at all during the first summer. They get green Rye, Italian Rye-grass, and Vetches in April, May, June, and July in the yards, with water as much as they require in troughs, first getting out when any aftermath is ready for them in July or August. They are brought in again early in October and turned into yards, where they receive roots and straw, with a feed of hay once a day all through the winter. They are turned out next spring, then from 16 to 18 months old. Very unusual success has attended this management of the young stock. The keeping the calves in till 9 or 10 months old, feeding them in yards, letting them out first in August or thereabouts on to aftermath, seems to be a security against the "hask."

The Flock.—The farm is especially interesting for its flock. The tenant, formerly a Cotswold breeder, was too well satisfied that the practice of a district is the result of long and safe experience to think of introducing the large long-woolled sheep where the small framed Southdown sheep were naturalised. He gradually procured his flock some 16 years ago from well known flocks in his neighbourhood, purchasing from Messrs. Farncomb, Sampson, Grantham, and Cooper, all of them well known Sussex flockmasters. And during subsequent years, by careful attention to the characteristic points of the several families within the flock thus gathered and selecting and using rams adapted to them, there has been a constant aim to acquire and maintain the character of the pure bred Sussex Down. In the earlier years of the flock rams from Mr. Hart, of Beddingham, Mr. J. Ellman of Glynde, and Mr. Sampson of Blatchington, were used. Then two rams from Mr. Farncombe, of Bishopston, near Seaford; and rams of their produce were then used over the whole flock for two or three years. A ram descended from Mr. Rigden's flock was then employed. Then one of the old Glynde blood from Mr. Thos. Ellman, of Bedingham. Rams of Mr. Overman, of Weasenham, Norfolk; then one of Jonas Webb's; and at present rams descended from a sheep presented by the Earl of Chichester, and descended from the Goodwood flock, which gained the 2d prize at the Carlisle meeting. No very unusual expense has been incurred, 50*l.* for the hire of a Babraham ram being the utmost; but by careful attention and good judgment and management both in choosing and rejecting sheep, the flock has acquired a very good character as characteristic pure bred Sussex Downs.

Sheep have been repeatedly shown from it at the Smithfield and the Royal Agricultural Society's, and the local shows; and especially at the last, where Sussex men compete and Sussex men adjudicate, a considerable amount of success has been achieved, in competition with sheep from first-class flocks—those of the Duke of Richmond and of Mr. Rigden, &c. The first prize also for ewe tegs was won at the Paris show in 1855. And from a flock purchased 15 or 16 years ago at 30*s.* a head, ewes have been sold at 100 to 120 guineas a score, and rams from 10*l.* up to 40 guineas apiece. The number of ewes usually lambed down in March and April exceeds 400; 150 of the ewe lambs are every year retained, and the rest of the lambs are sold early in the autumn at the ordinary lamb fairs, where they realise from 1*l.* to 1*l.* 10*s.* a head. 150 ewes are sold annually to make room for the ewe tegs each year put to the ram. The fleece weighs on an average 3½ lbs., being of the finest quality; and the fat sheep average 9 stone at 18 months old.

A good deal might be added in this desultory account of an East Sussex Down Farm on the relation of master and servant. The labourers were almost all of them old servants, many of them having lived from childhood on the farm. They are a stronger and better made set of men than one generally sees among agricultural labourers. Wages are better than in the Western Counties—13*s.* a week being as common here as 9*s.* are there. Out of this, 1*s.* a week goes for a cottage and garden.

The land appears generally to be in the hands of a wealthy body of men, and the existence of the costly system of valuations on entry which prevails is against much change in the tenantry. So far also it is a check to competition for farms when vacant.

The particular occupation we have been referring to is a good specimen of farm management in several important points, as (1) in the instances described of the adoption and retention of local practice by a stranger; (2) in the careful and well considered introduction of novelties in management, *e. g.*, Teazel culture, and the rearing of dairy stock; (3) in the gradual creation of a well-bred flock by care and judgment, at comparatively little cost; and (4), especially in the relation which exists between master and servants.

Taking as a stranger to the men of the farm 16 years ago the tenant of this farm retains them still—boys grow up to manhood with him, or better places are found for them elsewhere. The old foreman and all under him, inheriting a sort of contemptuous feeling for a man "*out of the shires*," were soon taught the respect which a good master will inspire. The gardener beats all the county for Roses, flowers, and garden fruits. Every one is encouraged to do his best, sure that one whose good opinion is worth acquiring is over him; and nowhere, accordingly, are the real interests of the master looked after by a better affected set of men.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

A MEETING OF THE COUNCIL took place at the Society's Rooms, Hanover Square, on Wednesday, Mr. Raymond Barker in the Chair. The subject fixed upon for discussion was "The Effect of Under Drainage on the Rivers and Arterial Channels of the Country." Mr. BAILEY DENTON, in introducing the subject, said:—

He intended to confine himself to facts which experience and observation assured him were sound and deserving the attention of the Society. The result of close investigation showed that of the total extent of Great Britain, which was 56,352,000 acres, there was about 22,390,000 acres of wet land capable of improvement by drainage, including such proportion as had been already drained, and the wet lands were nearly equally divided between those characterised as "clays" and those called free soils. The extent of land already permanently drained did not exceed 1,700,000 acres, so that there remained upwards of 21,000,000 acres yet to be drained. The utmost extent of land drained under the Public and Private Moneys Acts, and under the several drainage companies Acts did not exceed 1,100,000 acres, as the total outlay up to the present time did not reach 6,000,000*l.* The drainage of a permanent character executed by landowners with private funds, though very largely increasing, was still much less than the extent done with borrowed capital; and at the present rate of progress it might fairly be assumed that it would take at least a century to complete the under drainage of the country. The number of pipe yards or brick yards making pipes in Great Britain was estimated at 2800, and assuming the number of pipes made at each yard to be on the average 150,000 a year, the number made annually might be taken at 420,000,000. As 1250 pipes were used in underdraining an acre, 336,000 acres might be drained per annum; but as a large number of the pipes were applied to temporary, shallow, and unconnected works, it was not possible to ascertain from such data the extent of permanent drainage executed. Assuming, however, that a quarter of a million acres were permanently drained per annum, it would take a century before the work was completed.

The first effort in the way of agricultural drainage was the raising of the surface of wet land into the form of ridge and furrow. This might be called the aboriginal mode. The second step was the placing of bush drains under the furrows at a depth just sufficient to conduct the water under ground rather than along the surface of the furrow. The third step was the substitution of horse-shoe drains and pipes for bushes; and the fourth was that taken by Mr. Smith, of Deanston, upon his farm near Sterling, in a country where high backed lands were unknown, when he adopted a uniform system of parallel under drains. To Mr. Smith must be accredited the origination of systematic drainage, but his principles had been proved to be erroneous in many particulars. He drained both clays and free soils alike, and was the first to lead the country wrong in that particular. The next step was that of Mr. Parkes, who adhered to the parallel system of drainage, but on philosophical grounds recommended increased depth. By his able scientific papers Mr. Parkes effected a great national benefit, and an opposite correction of the system recommended by Mr. Smith; but the parallel arrangement of drains, which had been and continued to cause loss and derangement in many instances, was still advocated as suitable to all lands suffering from wetness.

It was at this juncture that the Public Moneys Drainage Act passed. That act passed in 1845, since which time five different companies had obtained special acts of parliament to supply funds to landowners, as the public money became exhausted, and landowners were still found draining under rules laid down 17 years ago. In the meantime the result had been to affect our river system prejudicially, which evil had been greatly increased by the misapplication of the parallel and frequent drain system to the free soils.

All soils having a proportion of alumina greater than 15 per cent. might be termed clay soils, and required frequent parallel drains to overcome their peculiar retentive character. These sorts could not be aerated too much, as it was only by aeration that their retentive nature could be overcome and their bulk rendered permeable. Soils with less than 15 per cent. of alumina, admitted of percolation more or less rapid as the proportion became less and the retentiveness was diminished. Aeration was not necessary for drainage in wet soils altogether devoid of clay, and they were therefore called "free soils." Whereas in dense clays too many drains could not be put in, it was the *ne plus ultra* of the drainage of free soils to reduce to a minimum the number of under conduits by which to relieve the land of stagnant water. Test holes decided the number with accuracy, and wherever test holes were the guide of operations parallelism was the exception and not the rule. It was found that practically the clay lands could not be drained by means of test holes. All that was necessary in the case of free soils was to set the water in motion, and the fewer the number of drains that would effect this object the more perfect the drainage and the better the natural powers of the soil were developed.

To realise the effect of close parallel drainage of the clay lands on the arterial channels of the country, they must remember that the extent of clay lands not drained and yet to be drained was 9 millions of acres. These 9 millions were dispersed all over the country, and the quantity of land that might be placed under water by default of outfall (say 10 inches deep) were the full extent drained, would be upwards of 200,000 acres. The free soils formed a proportion of more than half of the lands still requiring drainage; they were estimated at 12,000,000 acres. They consisted of a very large proportion of the wet land of the West of England, of Wales, and of the north of England and Scotland. The Devonian, the Silurian, and Cumbrian districts were of this character, and the saturated beds of the old red sandstone, the new red sandstone, the Bagshot sand, and the various drift superficial deposits might also be so classified. These lands suffered by reason of their formation and position from an excess of water beyond that which fell in the shape of rain upon them; and they were therefore immense stores from which we should draw with care and economy. It had been stated that drainage did not diminish evaporation, but reflection and observation of facts must dispel such a notion.

Numerous experiments clearly demonstrated that directly the water on the soil rose to the level of the drains, the drains began to discharge, and that were it not for those drains the water which found vent at the drains would gradually rise to the surface, and from thence pass off as vapour into the air. These remarks applied only to free soils. Not only in the action of water through the land, but in the hygrometric influence of the atmosphere, the two descriptions of soil were differently affected, and it was a complete fallacy to apply the same principles of drainage to both. Not long ago he read a paper upon this subject before the Institution of Civil Engineers, and there was only one opinion expressed upon the effect of under-drainage on the arterial system, which was that the floods were more quickly precipitated into the valleys in proportion to the extent of under drainage in the various river basins, and that the continuance of flood depended upon the capability of the main

outfall. It was stated that heavy rainfalls now produced a flood in two days, whereas it formerly took a week or more to do the same thing. Doubt was expressed by several eminent engineers, whether the effect of under-drainage of the free soils could possibly increase the perennial supply of water to the rivers, but that was the reduction to which his experience had brought him, and he attributed it to the circumstance that hitherto the free soils for the most part had been drained in the same way as the clays, and had rather increased the evil of sudden flood than been made the means of regulating and of improving the supply in summer.

So important did he deem it that this view should be well understood, that he ventured to exhibit the plans of two works on free soil drainage. One was in Wales, on the Silurian district; and the other was in the south of England, on the Bagshot sand formation. In both cases parallel drainage was originally intended by the owners, though their intentions gave way to occasional or test-hole drainage. In the first instance a contract was entered into, but was fortunately abandoned, by which a parallel system of one uniform depth and interval was to be carried out, and the number of rods per acre would have been 132, and the cost 11*l.* 10*s.* per acre. In lieu of 132 rods of drains only 34 were put in, and instead of being of uniform depth they varied in depth from 5 to 8 feet, and were more expensive in character. The result of this drainage had been a considerable saving in cost, the creation of a constant supply of water to the river in summer, the lessening of sudden floods in winter and spring, and the maintenance of a greater amount of moisture in the ground itself without stagnation within it. The second case was very similar in the circumstances attending it. The same mode of drainage had been adopted on the Ribston estate in Yorkshire, which was only particularly mentioned as a gentleman present had watched with great care the progress of the work, and could speak to its effect. He referred to Mr. Dent, M.P., who would corroborate the statement that previously to the adoption of a wide and occasional system of drainage based upon good outfalls and carried out as deep as those outfalls would admit, a very different mode of operating would have been adopted. At the present moment the drainage was being carried out by test holes, which regulated the number of drains to be put in. It was not exaggerating the case to say that less than one third the number of drains were now adopted than would formerly have been used, and with better effect, and necessarily at less cost. Previously to the adoption of this system at Ribston the parallel system was in vogue.

Upon an adjoining estate with similar soil the close parallel system was now in operation, with a far different effect upon the question of our water economy. The Land Drainage Act of 1861 was, in his opinion, a good basis upon which to form districts for the improvment of valleys and outfalls, and for the conservation of drainage waters discharged in the spring for use during periods of drought in those districts which suffered in the summer seasons. The mode and results of draining the clay soils was fully understood, and but little advantage was to be gained by discussion. It was the drainage of the free soils to which attention was due and which could not be too much discussed, for with them it was possible to moderate the evil of sudden discharge, and instead of committing injury, to improve by their appropriate drainage the water supply of the country. It was altogether a misapplication of the term to designate systematic drainage as a scientific operation. So directly was it the reverse of science that 50 years hence our children would look upon it as an absurdity as great as the adoption of under drains 18 inches deep was now regarded by those who were draining 4 feet and more deep. In truth, up to this time the engineering element had been entirely absent from the under drainage of land.

Equi-distant parallel drainage was not science, though it required the scientific writing of Parkes to render adequate depth acceptable. But while care and diligence were requisite in the clays, the best judgment and skill were required in the drainage of the free soils. Frequently the source of evil was far from the land about to be drained, and the quantity of water to be removed was many times the quantity that fell on its surface. The criterion of sufficiency applicable to the clays in no way applied. If water stood above the pipes after draining the clays, it was quite certain that the drainage was not right; but if the water stood above the pipes in free soils, and the quantity of water discharged from the outlet was in excess of that which fell on the surface, the drainage was doing its work, whether the water was above the pipes or not. He might mention a case in which the outlets were discharging from a few drains adapted for the drainage of a large area as much as 3 inches of water over the whole superficies per diem, although but little rain had fallen on the surface for a considerable period. In that case, the water stood above the pipes. A superficial observer would declare the land not drained, though the effect of the drainage had been to discharge in the last month (February) more than twice the average quantity of water that fell annually on the surface. Again, such was the porosity of certain districts, that 1*l.* per annum well spent in securing a deep and effective outfall was equal to many pounds spent in shallow and frequent under drains, although the outfall was not sufficient of itself to effect a cure without subordinate under drains, few and far between. On the occasion of a recent flood the open outfall cuts on the Ribston estate were filled with water, and one field was observed to be in a very wet and quaggy state, so rotten in fact that it was hardly possible to walk across the field. The drainage was for the moment considered defective, although the test holes had responded to the drains that were put in with perfect satisfaction. Upon going to the outlet the water was many feet above it, on a level with the land itself, and an index well within the field was found to be full of water, up to the brim. Within a week of this observation the waters in the outfalls had receded, the outlet and well became clear, and the soil became as firm as ever. He thought that some measure for river reform was imperatively required.

The injury they were suffering was progressive and accumulative. They did not extend only to the increase of the floods but to the contamination of the water. Towns were discharging their sewage into rivers previously pure, but until the floods had increased so as to involve loss of life, until the waste that had been occasioned by the inappropriate drainage of free soils had told its own story, and until our rivers were made insufferably foul, we should find no remedy. As one who had been interested, from its infancy, in drainage as a system, and who from active employment up to the present time had become acquainted practically with existing defects, he trusted he should not be reproached with placing himself unduly prominent in forewarning that Society of approaching evils.

He felt that he could not do better than close this paper with a passage which he wrote more than 20 years ago, when struggling to obtain the first Act which founded the Drainage Commission. It was this:—"If it is thought fit that each owner and occupier of land should add their proportionate quota to our wealth as an agricultural nation by the application of science to their calling, then it is not only equitable, but it is imperatively necessary, that a general law should be laid down for the clearing and maintenance of outfalls; and that a systematic order should be adopted, with a due regard to the water of drainage as discharged. We have seen the evil of disorganisation in the sewerage of towns, and we are about to apply a remedy. No better result will follow the operation of any partial system for draining land; apathy will prevail in some cases, prejudice in others; and as each district when drained will be independent of surrounding ones, a medley of works as specific in themselves, as dissimilar in construction, will start, in defiance of order and contempt of system, into inefficient existence." That was precisely our present position.

In answer to a question from Mr. P. H. Frere,

Mr. Denton said that the 22,000,000 of undrained land he had referred to did not include unimprovable land.

Mr. Dent, M.P., gave some account of the estate of his father, in Yorkshire, alluded to by Mr. Denton, observing that it was a very wet district, and exceedingly unpleasant to ride over. About 35 or 36 acres were Grass land of a tenacious character, but the estate comprised almost every variety of soil from quicksand to clay. He had for some years tried to drain it on the parallel system, but had not been able to get to the requisite depth. The first work they did was to enlarge the outfalls, which tended greatly to improve the neighbouring soils. In one field he had tried Mr. Denton's system with test holes, and the result seemed very satisfactory. He wanted to ask Mr. Denton a question on one particular point. He had been staying for the last fortnight in Middlesex, and he was much surprised at observing the extremely wet state of the land. He had always understood that there was no district of the country in which better hay was grown than in the neighbourhood of London, and when he had pointed out the wet state of the land, and expressed his surprise that it would grow anything, he had been told by the farmers that it was of no use draining it, and that if they drained at all they should drain shallow, because if they drained deep the land caked to such an extent in dry seasons that all its Grass-growing power was destroyed. With respect to draining porous land, he had no doubt whatever that the system recommended by Mr. Denton was a proper one, but he expressed some doubt respecting its beneficial application to clay lands.

Mr. Holland, M.P., observed that he had as severe and stiff kind of clay to deal with as any man could have. It was what was called by Mr. Denton corrugated, and the draining could only be done by a very slow process, in consequence of the subsoil as well as the surface being in that state. The consequence was that he was obliged to drain in the furrows, which were 40 or 50 feet apart. Their clay drains were therefore not complete, but as they had adopted cultivation by the steam plough, he thought in time they would be able to make the surface of the land level and their clay drains perfect by introducing one on the top of the ridge. They could not otherwise make their drains deep enough.

Mr. Denton, in reply to Mr. Dent, stated that he had been recently over the estate of Lord Northwick, near Harrow, in company with the noble lord, and some friends and tenants. On that occasion the question of the reluctance of hay farmers to drain the land was discussed, and the farmers said that as they always had a great deal of custom in London for hay, of whatever quality it was, they did not seek so much for quality as for quantity, and consequently did not think it worth while to drain the land for feeding purposes, although they admitted that draining made the herbage sweeter and better for cattle. The present system, under which the Grass land of the Harrow district had been cultivated for many years, alike impoverished the hay farmers and the land; and he was of opinion that if drained, the latter would produce Grass of a much better quality, and equally as much in quantity. He thought a good plan would be to feed off part of the land and put the other into hay.

The Chairman called attention to the condition of the low-lying land near Reading and in Oxfordshire, in which vast quantities had been under floods of late years. He had hoped that they would have had more information with respect to the influence of under drainage upon the rivers.

Mr. Denton replied that there was great difficulty in ascertaining what quantity of water percolated through porous soils or passed over the surface of clay lands. He also mentioned the fact that every inch of rainfall on the land was equivalent to 100 tons of water per acre.

Professor Simonds entered into some calculations as to the cost of cutting and getting hay to market, and contended that the position of the hay farmers in the Harrow district was, under the present system of cultivation, far from desirable. He corroborated the opinions that had been expressed with reference to the advantage of under draining land, and stated that some meadows which he had drained produced a much superior quality of Grass, while it was quite equal in quantity to that grown before. He also spoke of the present system pursued as one of a very impoverishing character.

After some further discussion Sir J. Johnstone proposed, and Mr. Fisher Hobbs seconded, a cordial vote of thanks to Mr. Bailey Denton for his able treatment of this important subject, and the meeting separated.

Reviews.

Journal of the Royal Agricultural Society of England. Vol. XXIV., Part 1. J. Murray.

A large portion of this Number is contributed by the Editor. We have an account of the prize farms of France, a description of Brittany cows, and a review of Italian irrigation from the pen of Mr. Frere, and if English agriculture had in him a historian as anxious and as able to present as glowing a picture of her achievements, one as proud of her self-directed and undecorated successes as he appears to be of the continental system with its pass-books for labourers, its Government patronage superintendence and direction, his readers would have reason for self-gratulation.

We have in the account of the prize farms of France a number of histories, not in sufficient detail to be of any great serviceableness to English farmers, but exceedingly interesting to the general reader.

We are told that M. Aubry on 200 acres of arable land keeps 600 head of sheep and 30 head of cow stock of all ages. M. Papin on 215 acres by the use of lime and English seed, has doubled his Wheat crops, and the produce of his meadows has likewise been doubled. The status of himself and his predecessor is thus contrasted:—

	New Inventory.	Old Inventory.
Cow stock	30	6
Horses	13	8
Ewes	220	150
Lambs	200	140
Wheat crop in sheaves	24,000	14,000
Oat crop in sheaves	7,000	5,000
Rape-seed	13½ bush. (?)	6⅔ bush.
Mangel	150 tons	0

M. Papin's services were held to deserve special recognition, but we are not yet in the front rank of the race. The spirit—from Mangels—manufacture which he conducts is a leading feature of farming in the department of the Lower Seine.

M. Lange holds a farm of 242 acres near Fauville.

"The rent of this farm when let, was 280*l.*; the average net profit since the owner took it in hand, has been 336*l.*; 'that is to say, the net produce has been more then doubled.' The inventory of December 31, 1859, showed a farm capital of 4119*l.*, or 17*l.* per acre. The total value of the produce was in 1848, 1858*l.*, or 8*l.* per acre under cultivation; in 1858, 3231*l.*, or 14*l.* per acre.

We then come to the leading instance of success, "M. Dargent of Reneville near St. Léonard, who at nine years of age was left an orphan, and at 20 determined himself to occupy the little farm of the family (126 acres), that he might keep together and maintain his three brothers and sisters, who had no one but him to look to for support. Of this small property, 12½ acres were in sea-rushes, in roads, and shelter-belts against strong gales; of the pasture, if part was good, the rest was but a sheep walk on the cliffs; of the arable (77 acres), only 6½ acres were rated in the first class, and 19 acres in the second (both these had a clay subsoil); the rest were third and fourth-class lands."

The jury estimated the crops of the year as follows:—

"We estimated the first cut of the Clover crop, which we saw growing, at 2 tons 7 cwt. per acre. The Wheat-crop is stated to average 360 sheaves, and to yield 42 busbels of corn, weighing 1 ton 4 cwt. (nearly 64 lbs. per bushel); in 1854, it averaged 50 bushels. The Oat-crop averages 320 sheaves, and 57 bushels of corn, weighing 18 cwts. 3 qrs. per acre. The Rape-seed, 44 bushels (21½ 1-fifth cwt.) 'The Beet crop, 2500 hectolitres, weighs 150,000 kilogrammes; in 1857, they weighed 167,000, a fact recorded in a Report to the Society of Agriculture.' Until the disease came, M. Dargent grew 440 bushels of Potatoes per acre. After trying many varieties of seed Wheat, French and English, he keeps to the Red Wheat, there called 'Scotch,' finding that the straw, which is short, but stiff and strong, best resists the gales which are so formidable at Saint-Léonard."

The report goes on to describe the dairy stock and the flock.

"A farm managed with so much prudence, intelligence, and perseverance, could hardly fail to show a good balance-sheet. The following facts are gathered from the books:—

	£
The farm at Reneville was let in 1794 for	56
And again let from 1800 to 1811 (a time of high prices) for	96
Mr. Dargent values the farm when he took it at (A liberal allowance, for land was then hardly worth 30 years' purchase.)	2680
The stock he took was valued at	1200
Making a total of	4080
There were charges on the property of	1760
Which left a clear capital of	£2320

The jury when examining the books found that, for the 13 years from 1846 to 1859, the profits amounted to 3175*l.*, or 244*l.* on the average. The three last years showed a higher average of 252*l.*

	£
Mr. Dargent thinks he may fairly value the estate at	6800
The stock, as by inventory, at	2320
He had in bank or invested in 1859	2495
He had paid for exemption from military service (!)	777
For dower for his nieces	2400
For purchase of land	160
His capital had therefore increased from	£2320 to 14,952

"Thus after weathering several storms—the destruction of his buildings by fire—the failure of the sugar-mill with which he was connected—the conscriptions—M. Dargent has attained his aim, never diverted from it but for a while in old times to serve in the 'Cohorts,' and again at the critical period of 1848, when the discrimi-

nation of his fellow-citizens constrained him to exhibit his good sense, modesty, and integrity in the General Assembly. The jury, when comparing M. Dargent's performances with those of his competitors, find he has done more than they, better than they, sooner than they; his younger rivals may then well make way for this 'Master of Practical Agriculture.'"

Mr. Frere concludes as follows:—

"This account has run to some length; but if more compressed it would hardly have shown either the working of this magnificent prize under favourable circumstances, or the condition of agriculture in a thriving but not a pre-eminent district. The manner in which it brought into notice and rewarded modest, persevering worth, cannot but be hailed with extreme satisfaction by all the friends of the genuine farmer."

We are of opinion that "genuine farmers" will take more pride in winning a sweepstakes, the whole management of which has lain above board and challengeable by any one in the hands of a committee of themselves, than in carrying off the annual prize offered by the Government, of which the administration is certainly so much more liable to abuse. It is a remarkable confirmation of the view that "genuine farmers" do *not* look with satisfaction on "the manner" in which this prize is awarded, that from a whole province there are but 20 competitors, of whom 9 are disqualified, for a prize of 200*l.* in money and a silver cup worth 120*l.* In the Loiret again there are but two competitors, the successful candidate having made "nearly 4½ per cent." of his money by his management! Mr. Frere concludes with a recommendation to English agriculturists to become subscribers to the *Journal d'Agriculture Pratique*, "the most readable of all modern publications which combine agricultural intelligence with scientific research," from whose pages his accounts of French farms have been obtained.

Mr. Frere gives us also an interesting account of Italian irrigation in the form of a review of Colonel Baird Smith's report; and both of these papers will be read with ease and interest. We cannot say so much for some of his shorter pieces, written probably with less care. A man who was selected for his office on account of his University education, and for that example of a pure and simple English style which he was to set before his readers, ought to be more intelligible than in these shorter papers he sometimes is. Mr. Moule has written clearly and simply of his method of utilising inoffensively the whole waste of the house and cottage, and Mr. Frere follows him, apparently to correct his estimate of the money value of night soil. There is not a greater contrast between order and confusion, between simplicity and muddle, than these two essays. The following is an extract from the latter, in which Mr. Frere, speaking as a practical farmer, says:—

"I am disposed to complain that all our chemists put on the constituents of manure a value in some cases too high, in others almost imaginary. In truth, the question of value does not belong to science but to commerce; and all the advice which a scientific man, as such, can offer will be on the comparative value of different sources of the same fertiliser.

"To the eye of science all elements of plant-food have an equal importance—are equally essential; their value only varies according to the difficulty experienced in securing a supply, and of this difficulty commerce is the sole arbiter, the purchaser limiting the course of trade by refraining from an unremunerative purchase. Yet from questions of value the philosopher cannot stand quite aloof: and therefore from time to time, startled, it may be, by local abuses, he sounds an alarm, in which his want of familiarity with the marts is as striking as his scientific knowledge is admitted. But the practical man, not much moved by general accusations of wasting plant-food or the mineral constituents of plants, will review his requirements in detail, when the list will appear to be neither very long nor very formidable.

"On the nitrogen he will have kept a pretty sharp look-out, as an element of which the waste is considerable and the difficulty of supply great. In regard to phosphate, he will probably have been for some years a greater buyer than seller, and he will thank God's providence for the mineral stores now disclosed in England and France, and no doubt hidden elsewhere. Of the alkalies, he will husband his store by not selling straw, if his land be light and the subsoil do not contain stores of wealth in reserve. For carbon he may in the long run rely on the atmosphere, which supplies carbonic acid freely enough, however scanty may be its available supplies of nitrogen. As to lime, if any difficulty exist, it is one he can easily measure, and probably remedy at no great cost. In this instance a natural defect in the soil, not any conceivable waste of man, will generally be the obstacle to be overcome. Silica and silicates will puzzle him, perhaps, but not him only; and he will wait till a special indictment is laid against him for wasting substances which do not appear to impart much value to granitic detritus, whether it be in the offscouring of our granite-paved streets, or the deposits borne by streams from primæval mountains. And at this point he will have about exhausted the list of elements, which, spoken of in the abstract, sounds such a formidable bugbear!"

What is it all about? To the practical farmer, in whose name it is uttered, it will sound more like jargon than anything else. The conclusion arrived at is stated in the last sentence:—

"Whatever, then, be the value of the excreta of the average man when priced at guano rates, since those rates give to farmyard-manure a value of 13*s.* per ton, it remains for the farmer who does not set so high a figure even on his good bullock-manure, to make a deduction accordingly, so as to reconcile the valuation with the prices of the times."

This is almost as clear and conclusive as the sentence in which the same writer sums up his opinions of Mr. Gurdon's co-operative farm, of which we gave a report the other day. The following is the last sentence of the editorial comment:—

"In these days when strikes and other combinations antagonistic to freedom, to intelligence, and to progress are rife, for the short-sighted purpose of protecting one calling to the injury of the community at large (and especially of the largest and poorest class, whose right to gain an entrance into a trade or craft is thwarted), any plan which assists workmen legitimately to unite in an undertaking on which their sympathies, their experience, and their intelligence may be brought to bear—an undertaking which holds out a prospect of considerable, and, on the whole, steady profits, seems worthy of consideration and of such discussion as the leading features of the scheme naturally suggest." [!]

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. SPEARING, Moulsford, near Wallingford, Berks, during the week ending March 18, 1863.

Day of Week.	Day of Month.	At 9 A.M., Railway Time. Reading of: Barometer corrected to Freezing Point at Mean Sea Level.	Dry Bulb Thermometer.	Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0-6	Amount of Cloud 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday ..	12	29 39	38	37	S.E.	2	7	42	27	53*	24	0.04	42	44
Friday ..	13	29.30	38	36	W.	1	1	45	26	55	23	..	41½	43½
Saturday ..	14	29.49	35	34	S.W.	2	5	52	25	82	21	..	41½	43
Sunday	15	29.24	40	38	N.W.	2	7	50	31	71	29	0 12	41½	43
Monday....	16	29.91	40	38	N.	3	7	47	31	76	27	0.01	42	43
Tuesday ..	17	30.17	39	37	N.	2	1	47	28	79	22	..	42	43
Wednesday	18	30.02	38	35	W.	1	6	48	24	92	20	..	41½	43

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Notices to Correspondents.

EWE AND LAMB: *Breton* says:—A ewe of my flock, numbering 50, yeaned a male lamb on Monday, March 16th inst., having previously yeaned a ewe lamb on the 18th of February last; both lambs are strong and likely to do well. I should like to know if this is not of very rare occurrence.

HORSE POWER, &c.: *Brass Spurs.* The publication of your letter may obtain for you the information you require. You can see the horse power at work at a livery stable in Guildford Street, Russell Square.—"Looking over some old memoranda I have come upon the following note—' To obtain Mr. Joseph Whitworth's report on the horse-power machine now brought into extensive use in America; commended as particularly applicable to pumping, easily moved from place to place, and of cheap construction, costing in England 20*l.* to 30*l.* May be made for two horses or oxen. Plan of the machine is in possession of Mr. Chadwick, C.E.'—I don't recollect when I made this mem., but fancy it was three or four years ago, if not more. Can you, or any of your readers, kindly tell me where I may procure the report adverted to? Will you add to your kindness by giving me a few hints on the following points? I am an old officer preparing to emigrate to one or other of our Australian colonies, hoping there to provide better for my boys than it is probable I should do in our native land. I purpose buying or clearing a farm of two or three hundred acres, and to bring about half the quantity under cultivation, and as labour is scarce in all our colonies I wish to take out with me such machines as (whilst simple of their kind) may facilitate my future operations. What would you suggest my purchasing? Steam-power on a homestead is very delightful in England, but it requires skilled labour to work it, and in the event of an accident, repairs to an engine could not be effected in the bush. For this reason I am anxious to learn what is the best mode of applying animal power (horse or oxen) now in use in England or America. Can such power be readily adapted to the various operations on a homestead beside threshing, such as chaff-cutting, pulping, churning, pumping, sawing, &c.? Would it be better to take out a threshing machine, or get one built in the colony? Would you recommend a reaping machine, or rather a combined machine, to cut both hay and Wheat, and from what maker? Would it be advisable to take hay-tedders, drills, cultivators, rollers, ploughs, &c., and I to what extent; or would you advise me, as a settler, to content myself at first with the rough colonial implements? I am told of orders being constantly sent home for machines and implements, and so fancy it may be good economy to provide myself with such before I start. Did you ever hear of a really good washing machine? that is one that actually does what it purposes to do, and to get up small articles as well as the larger ones, such as sheets, &c. [On all these points we shall be glad to receive information from any one who has an experience to relate. We have understood that emigrants have expressed regret on arriving at their destination that they had burdened themselves with a lot of useless purchases, and had not trusted to being able to obtain what they really required in the Colony.]

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Legal Notice.

To RAILWAY COMPANIES, CONTRACTORS, LANDED PROPRIETORS, SHIPPERS, IRON FOUNDERS, WIRE FENCE MAKERS, AND OTHERS.

WHEREAS, FRANCIS MORTON, of James Street, Liverpool, in the County of Lancaster, Engineer, having obtained Letters Patent for Improvements in the construction of Posts or Pillars for Wire and Iron Fences, which are dated the 31st of March, 1859, and amended by disclaimer 4th July, 1861, and having ascertained that Imitations of these Improvements had been attempted and advertised by various parties in the United Kingdom, brought an Action before the Court of Session, in Scotland, against ROBERT MIDDLETON, Commission Agent and Wire Merchant, of No. 3, Greenside Street, Edinburgh, for an Infringement of said Letters Patent, in which action Issues were adjusted and tried before the Lord President and a Jury, on the 22nd, 23rd, and 24th days of December last, and a unanimous Verdict upon all the issues raised, was returned in favour of the said FRANCIS MORTON, thereby establishing the Patent.

AND FURTHER, the said ROBERT MIDDLETON having by his Counsel, moved the first Division of the said Court of Session for a New Trial, on the ground of the said verdict being contrary to evidence, in support of which it was pleaded that the foresaid Specification was a defective Specification, and also, that the invention had partly been in use before the date of the Patent; the Judges of the said Division after hearing a full argument upon the Legal Objections to the Specification and the Patent, and having made avizandum, they on the 6th of March, 1863, unanimously refused the Motion, thereby sustaining the Validity of the Patent.

NOTICE IS THEREFORE HEREBY GIVEN, that all Persons who have manufactured, sold, bought, contracted for, or used, any Imitation of the said POSTS or PILLARS, have been guilty of an infringement of the said Letters Patent, and have rendered themselves liable in damages therefor—and that all Persons who may hereafter manufacture, sell, buy, contract for, or use, any Imitation of the said Posts or Pillars, shall be guilty of an Infringement of the said Letters Patent, and will be prosecuted accordingly.

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THE REFUSE, in bags containing Three Bushels, will be delivered at any Booking Office in the City of London, at 1*s.* 6*d.* per bag, and elsewhere within 2½ miles of Charing Cross, for 2*s.* per bag. Ten bags, or more, will be delivered at any of the London Railway Stations or Steam Packet Wharves, at the prices following—viz., 10 bags, 14*s.*; 20 for 27*s.*; 30 for 40*s.*; 40 for 50*s.*; 50 for 60*s.*; 60 for 70*s.*; and 1*s.* 1*d.* per bag for any number exceeding 70.

Fourpence is allowed for each empty bag returned carriage paid and not damaged.

Each bag of Refuse weighs about 84 lbs., but the weight cannot be stated with certainty, as it depends on the moisture in the Refuse.

The Railway Companies have promised to take *large quantities* at the same rate as *manure*.

We fill a coal truck with the loose Refuse, without bags, at the Kingston Station, for 35*s.*, the carriage from thence to be paid by the purchaser. A truck holds about 4 tons, and can be passed on to any Railway in communication with the South Western.

We can also fill a barge on the Thames at Kingston to be shipped in London, at a very low rate; but the cost of shipping from the barge or wharf, and also the freight or carriage beyond London, must be paid by the purchaser.

There are two sorts of REFUSE, *Old* and *New*. For nearly all purposes the *Old* is considered the best. For Flowers and Bulbs it may be used as *a substitute for peat and leaf mould, and should be mixed with loam*. It is a remarkable fact that this Refuse does not produce Fungi.

Ferns, Begonias, Heaths, Gloxinias, Cyclamens, Fuchsias, Rhododendrons, Azaleas, and every kind of Bulb and Plant thrive well in it, and make root rapidly.

Cuttings of delicate Flowers and of Vines, Roses, &c., strike in it surprisingly, and for plunging pots in there is nothing better.

It has been tried with great success for Potatoes, Jerusalem Artichokes, Asparagus, Sea-kale, and all kinds of roots. If spread round *Strawberry* plants it keeps the fruit clean, and ground moist.

It is an excellent *medium* for mixing with *artificial manures;* and even spread alone on Meadow and Pasture Land improves the herbage, and prevents the land from parching and cracking.

It greatly improves heavy clay soil, and many persons have spoken very favourably of it for poor, sandy soil.

When *quite dry* it is a nonconductor, and may be used as a lining for cold pits and frames.

We daily receive orders for a further supply from parties who have used it.

THE SHORT FIBRE.—There is nothing so durable and efficient for *drainage* in flower-pots as this. For *Orchids* it is highly recommended by Mr. Veitch, and others. It is perfectly sweet and tasteless, and, consequently, most useful to pack and preserve from frost Apples and all kinds of Fruit and Vegetables. It is very light, and will last many years. Price 10*s.* per cwt.

N.B. Parties giving Orders should particularly state which is required, OLD *or* NEW REFUSE *or* FIBRE.

We respectfully request the favour of *Post Office Orders* payable to J. BARSHAM & Co., Kingston-on-Thames, or *Postage Stamps, to accompany Orders.*

Seldom is a Number of the *Gardeners' Chronicle* or of *The Journal of Horticulture* published without something being stated in its favour.

In the *Gardeners' Chronicle* (Sept. 6, 1862, page 836), edited by Professor LINDLEY, is the following article:—

"A substance called Cocoa-nut waste is now beginning to make its appearance in gardens, and as it is said to be of some importance, we have caused inquiry to be made about it. Few substances promise to prove more universally useful in gardening than this. As a mere mechanical agent for working into stiff soils it bids fair to be valuable. It makes an excellent MULCHING material, and in the finer kinds of composts for potting it will be found to form a good substitute for leaf mould. It is sometimes called Cocoa-nut FIBRE, but that is a mistake; it is the PULP or REFUSE from the outer husk of the Cocoa-nut after the fibre has been thoroughly separated from it by machinery for brush and mat-making. At the Cocoa-nut Fibre Company's Works, near Kingston-on-Thames, this refuse has been accumulating for years, and at the present time little mountains of it may be seen near the Works in question. When we saw them the other day, carts from our great Metropolitan Nurseries were being loaded at a cost of 3*s.* per one-horse cartload . . . . Practically, its uses will be found to be the same as those of PEAT or LEAF MOULD, as far as gardening is concerned. Mixed with soil most plants grow in it with unusual vigour, and even in the light, spongy material itself roots prove to be wonderfully active, filling every interstice of it with their little fibres. For ORCHIDS it looks as if it might be useful, and for Ferns it is known to be suitable, as is proved by a case of them (with Begonias and other plants), in the *International Exhibition*, from the Proprietor of the Works under notice. These are growing in (old) Cocoa-nut Refuse alone, firmly rammed down in the first instance, and well watered, but elsewhere they are found to succeed best when loam is mixed with the Refuse.*

"It is a good medium for plunging pots in. Begonias, Gloxinias, and things of that description, also grow freely in it. In short, as far as plants in pots are concerned, most things appear to thrive astonishingly in it; and when placed about a foot thick over hot-water pipes or tanks, it maintains a very steady heat. It must be kept quite wet, for if suffered to get dry round the pipes, it becomes a nonconductor of heat. Cuttings of all kinds strike readily in it; even hardwood plants, not before struck from cuttings, have succeeded in it.

"POTATOES grown in it turn out almost as clean as if washed, and an excellent crop, but not free from disease. For ASPARAGUS, especially in stiff ground, it seems important; heads, which came up crooked before, now push through the superincumbent soil, lightened by its application, straight and marketable, while previously they were nearly valueless. For other crops it promises to be equally useful, *especially where the ground is clayey or stiff.*

"As MULCHING for newly-planted trees, both forest and fruit, it cannot fail to be extremely advantageous, and for putting between rows of STRAWBERRIES, in spring, to keep the fruit clean, it may be found even better than stable litter. At KEW it has been applied as a mulching for bedding plants, and it has also been found useful there for other purposes. It parts with and absorbs heat very slowly, and is an excellent preventive of evaporation in hot weather. It keeps the surface of the ground cool; therefore, is well suited for placing round newly-planted plants in beds or borders.

"For stuffing the interior of hollow wooden walls of cold pits it has been found to be more efficient than sawdust, and, if kept dry, to resist a great amount of frost; in fact, we have been informed, that, in pits thus constructed and well covered overhead, Geraniums were kept safe even during the severe winter of 1860-61. For this purpose, however, SHORT FIBRE or cuttings of Mats are better than the Refuse. This Fibre also makes excellent DRAINAGE for flower-pots, as it does not readily decay, and on that account keeps open and porous for a great length of time. In pots DRAINED with this FIBRE, into which Cocoa-nut Refuse has been introduced, HYACINTHS have been found to give the greatest satisfaction, growing with unusual freedom, and blooming in much beauty. Other Bulbs in pots, treated in the same way, may also be expected to succeed."

In the same page Mr. RIVERS gives directions for making a compost for "SURFACE DRESSING OF ORCHARD-HOUSE TREES." The REFUSE would form an excellent substitute for the kiln dust, and the FIBRE would be the best thing for thorough DRAINAGE, which he speaks of as being so very essential.

In page 861, Mr. JAMES VEITCH writes as follows:—

"We have two substances produced from the husk of the Cocoa-nut in use here—viz., first, the Cocoa-nut FIBRE itself, and secondly, the PULP or REFUSE; the former is pure Fibre, while the latter is the substance (like sawdust) separated from the Fibre. I have used the Fibre by itself for Orchids as well as mixed with peat and moss, and so far the plants appear to do very well in it. I am also trying the PULP for several kinds of terrestrial Orchids. The Fibre possesses the following properties:—

"1st. It does not decay and become sour as soon as moss.

"2d. It allows water to run freely through it, which renders it well suited for this class of plants.

"3d. No insects, such as woodlice or cockroaches, can live in it.

"4th. It presents a very cleanly appearance.

"We use the Pulp or Refuse for any of the ordinary purposes to which leaf mould would be applied. So far as I have at present found the result has been very satisfactory, plants seem to root freely in it and grow with an increased vigour."—JAMES VEITCH, *Royal Exotic Nursery, King's Road, Chelsea.*

GEORGE TOLL, Gardener to J. A. Turner, Esq., M.P. (*Gardeners' Chronicle*, February 14, 1863), says:—

"I have repotted the greater part of our collection of Orchids in Cocoa-nut Fibre and Sphagnum Moss, and find they root into it very freely, and make great progress in a very short time, quite different to what they did on the old peat-and-moss system. I consider it the greatest boon ever offered to Orchid-growers."

The following are extracts from *The Journal of Horticulture*, March, 1862, page 519:—

"Cocoa-nut Refuse is a first-rate material for growing Ferns, Orange Trees, Gloxinias, Camellias, Azaleas, and Begonias. I was induced to give it a trial about this time last year through what was said in its favour in *The Journal of Horticulture*. Twelve plants of an equal size were chosen for the Fern experiment. Six were potted in the usual Fern compost—viz., one-half turfy peat, one quarter loam, and one quarter silver sand. The other six were potted in the refuse." (A table is given of the results, greatly in favour of the Refuse.) "Unfortunately, the bursting of a flue which heated the house brought trouble. Gymnogrammas and Northochlœnas in the Fern compost were sent to the rubbish-heap; but those in the *Refuse* showing signs of life were preserved, and are doing well.

"The Refuse was tried in another way. HALF LOAM and HALF REFUSE, with a *little* sand but *no* peat, which raised Pteris argyræa 2 feet high within eight months into a plant 5 feet 6 inches high and 5 feet in diameter. Also a Drynaria morbillosa, 4 feet across, with six fronds, was potted with the Refuse compost, and the same plant is now 12 feet in diameter. Again, a plant of Davallia polyantha, with 12 fronds, and the plant 2 feet in diameter, was treated to a pot full of the Refuse, the pot 1 foot 6 inches in diameter. Well, it is at present 5 feet in diameter, and very strong.

"Then, again, an ORANGE TREE last March had become deciduous; it was potted in a 12-inch pot in a compost of half Refuse and turfy loam. About May-day it began to shoot, and made during the summer ample growth, so as to be nicely green all over, and it has kept its leaves this winter, though treated precisely as it had been previously. Upon that very tree are 200 blossom-buds ready to unfold, and more swelling.

"This Refuse restores the impaired constitutions of sickly Camellias, entirely removes the variegation on their leaves, and promotes healthy root-action. Begonias like it; Azaleas thrive well in it; and Gloxinias become half-shrubby."—GEORGE ABBEY, *Gardener, Horton Hall, Bradford.*

"It answers capitally for SEEDLINGS, but mix one-half soil with it, and pass the whole through a coarse sieve. In that state all kinds of Seedlings take to it better than any other soil we have ever tried.

"There is nothing we know which is a better dressing for all Flower-beds and all kinds of Bedding Plants. We have used it for the last seven years as such."—April, 1862, pp. 15 and 16.

"Two parts strong mellow loam, one part thoroughly decayed stable manure (such as from an old hotbed), and one part of the Cocoa-nut REFUSE would make a good compost for a FUCHSIA-BED."—Page 146.

"In May last we visited the works (Kingston-on-Thames) for the first time, and found upwards of 30,000 tons of it as black as bog peat at the bottom of the mass, such as was from 8 to 12 years old. We have no doubt whatever but all American plants would do in it as well, if not a vast deal better, than in the best Wimbledon peat."—Pp. 231, 262.

"For the last 7 years I have been telling how good I found the Cocoa-nut Refuse for all plants. The best of us do not know yet one-fourth of its value. There is not a kind of soil but it will improve. The very stiffest clay, if you drain the water from it, might be rendered as mellow by it as to do for potting Cinerarias in, or Ferns, or any plant; and the sand of the desert is not so dry but it will cool and moisten it. For all market garden plants, and for Asparagus in particular, I have full testimonials that nothing can excel it. My own garden, which was a poor, black sand, is now one of the most fertile in Surrey."—D. BEATON, *Journal of Horticulture*, July 8, 1862.

"One half of that dust (Refuse), and one half of very good loam, is a first-rate compost for CYCLAMENS. We have hundreds of them in it now."—*Ibid*, page 281.

* The reason for using the pure Refuse was to give the public a fair opportunity of judging of its valuable uses. The case is perforated with holes at the bottom, and covered with SHORT FIBRE 3 inches for DRAINAGE. The plants were watered only four times from the 1st of May to the closing of the Exhibition.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

THE FARMERS' BAROMETER, 50*s.*, a new Instrument by NEGRETTI & ZAMBRA, will correctly indicate whether the Barometer falls for Rain or for Wind.

Particulars by enclosing stamp, 1, Hatton Garden, E.C.; 59, Cornhill, E.C.; and 122, Regent Street, W.

THE RAIN and the COLD.—Every Change in the Weather foretold, and FARMING and GARDENING operations greatly assisted, by the use of L. CASELLA'S POPULAR INSTRUMENTS for the WEATHER. Reliable Thermometer for Registering Cold, 4*s.* 6*d.*; the Gardener's Barometer, 12*s.* 6*d.* to 25*s.*; Rain Gauge, 15*s.* 6*d.*

The New ILLUSTRATED LIST of PRICES free by post.

L. CASELLA, Sole Medalist of the Patent Thermometer for Registering Cold, and Maker to the Admiralty, the Ordnance, &c., 23, Hatton Garden, London, E.C.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

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These Patent Mangers and Stable Fittings obtained the Commendation and the Silver Medal of the Royal Agricultural Society of England and the Royal Agricultural Society of Ireland, are adopted by the Royal Veterinary College, and Professor Spooner of that Institution states that they should be used by all who value the health and comfort of their Horses. They can be had Plain, Galvanised, or Enamelled.

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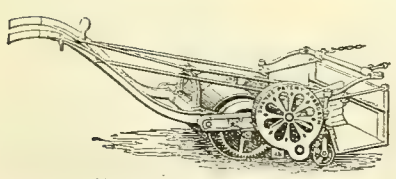
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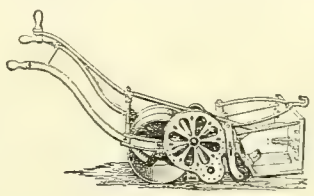
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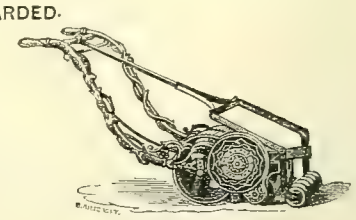
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NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved, and their success established.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	... ... 40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	... ... 40*s.* „
No. 3.—36-inch Machine ...	22 0 0	... ... 30*s.* „
No. 4.—30-inch Machine ...	19 0 0	... ... 30*s.* „

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

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No. 7.—25-inch Machine ...	12 10 0	... ... 25*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

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The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £3 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of may be at once returned.*

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FOR THE PRESENT SEASON 1863,

FOR WHICH HER MAJESTY'S ROYAL LETTERS PATENT HAVE BEEN OBTAINED.

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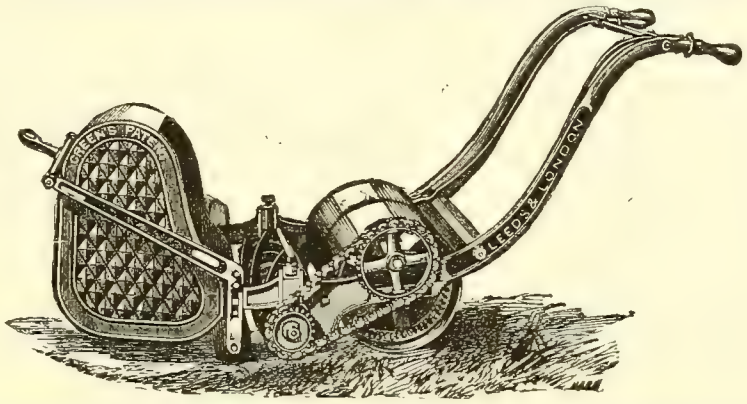
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These were the only Machines highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862.

(No Prizes were given).

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS DURING THE SEASON OF 1862.

THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, have much pleasure in stating that the important Improvements which were added to their Machines for last season (which combined simplicity of construction, durability, and lightness of draught), have proved them to be superior to anything of the kind ever brought before the Public, inasmuch as they have given entire satisfaction wherever used, and have gained the largest sale of any Machines extant. They have carried off every Prize that has been given in all cases of competition.

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To Cut 10 inches	£3	10	0	Suitable for a lady.	
„ 12 „	5	0	0	Suitable for one person.	If with internal gear, 10s. extra.
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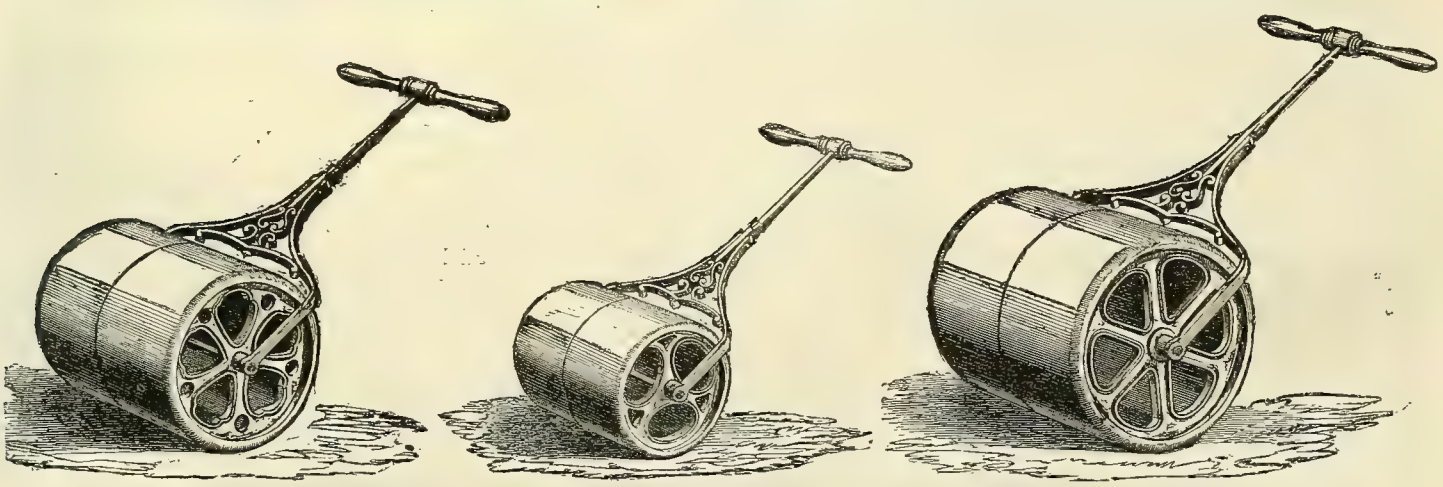
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„ 42 „	26 0 0	... 28 2 0
„ 48 „	29 0 0	... 31 8 0

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The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

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Diameter 20 inches, length 22 inches, price £3 5*s.* | Diameter 16 inches, length 17 inches, price £2 10*s.* | Diameter 24 inches, length 26 inches, price £4 5*s.*
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Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

T. GREEN AND SON in introducing the above are well aware that the extremely simple character of this Implement cannot admit of any very radical change, yet they are confident that the Improvement just effected (and secured by Letters Patent) is a real one, and is strikingly apparent when compared with any other Garden Roller. In previous Rollers a limit was always set to weight in consequence of marks being left on the gravel, and the power required to work them, but the present one is nearly double the ordinary weight, yet is considerably easier to turn in consequence of the Roller being divided in two parts, and the outer edges being rounded off or turned inwards, thus avoiding the *unsightly marks* left by all others hitherto in use. They can be used by the most unskilful with the greatest certainty of producing a beautifully even surface, either on *Lawns or Gravel Paths*, and for the *Bowling Green and Cricket Field are really indispensable.* They are manufactured of the best materials, and got up in a manner surpassing any ever yet brought out.

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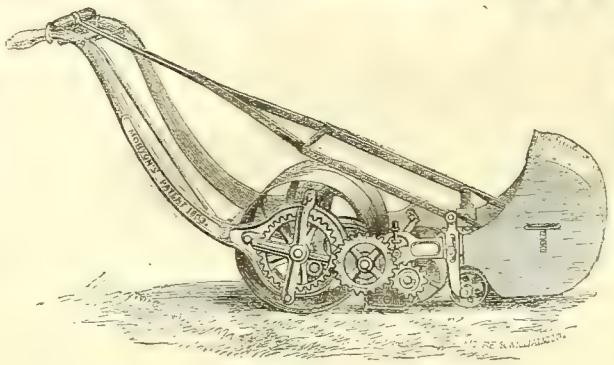
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WHERE SAMPLES MAY BE SEEN.

MORTON'S PATENT NOISELESS LAWN MOWER.

This Machine Rolls, Collects, and Delivers the Grass, and combines all the most recent Improvements, including those secured by her Majesty's Royal Letters Patent for 1863. For efficiency and simplicity it cannot be surpassed, and can be worked by any one unskilled in Machinery. It is superior to all other Machines yet introduced to the notice of the Public for keeping Lawns and Pleasure Grounds in the highest state of perfection, and is likely to be the Leading Machine of the Season. No place, however small, should be without one.



Terms, Net Cash.

To Cut				
12 ins.	£1	15	0	*Suitable for a Lady or Gentleman*
14 „	5	5	0	*Suitable for one Person*
16 „	6	7	6	*Suitable for one Man or two Boys*
18 „	7	7	6	*Suitable for one Man and Boy*
20 „	8	0	0	*Do. do.*
22 „	8	8	0	*Suitable for two Men*
24 „	8	17	6	*Do. do.*

All Machines fitted with Silent Movement, without extra charge.

Catalogues, with Prices, can be obtained free on application to

GRIMMOND, LAIRD, AND CO., 15, CANNON STREET WEST, LONDON, E.C.; or, to the PATENTEE, CATHERINE STREET ENGINE WORKS, ARBROATH.

*** *Agents Wanted in every Town. Apply as above.*

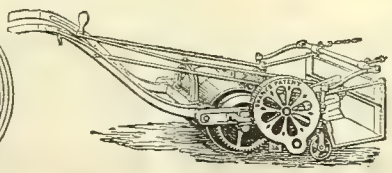
SHANKS' NEW PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

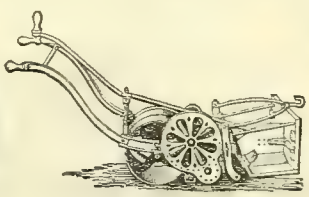
NEW PATENTED IMPROVEMENTS THIS SEASON.

EXHIBITION PRIZE MEDAL AWARDED.

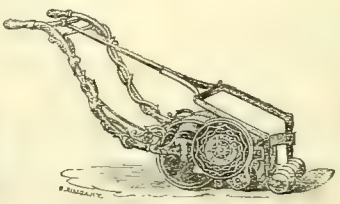




HORSE MACHINE.



PONY MACHINE.



NEW HAND MACHINE.



SHANKS' NEW PATENT MACHINE

ows the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at half the expense.

NO PERSON HAVING A LAWN SHOULD BE WITHOUT A MOWING MACHINE.

The first practical Gardeners of the day who have devoted their attention in examining all the different Lawn Mowers offered, do not hesitate in recommending SHANKS' Machine as *the best Mower for general use.* The important Improvements introduced last season have undergone a thorough practical test, and satisfied the most sanguine expectations. *Further Improvements, simplifying the Machine, and adding to its efficiency, have been introduced into the* NEW PATENT LAWN MOWER for 1863.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for Use.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.				
No. 1.—48-inch Machine	£28	0	0	*Drawn by a Horse.*
No. 2.—42-inch Machine	26	0	0	
No. 3.—36-inch Machine	22	0	0	
No. 4.—30-inch Machine	19	0	0	*Drawn by a Horse or strong Pony.*

Patent Delivering Apparatus for Nos. 1 and 2 Machines, 40*s.*; for Nos. 3 and 4 Machines, 30*s.*; Box with complete Set of Tools, 10*s.*; Silent Movement, 20*s.*; Boots for Horses' Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.				
No. 5.—30-inch Machine	£15	15	0	*Drawn by a Pony.*
No. 6.—28-inch Machine	14	10	0	
No. 7.—25-inch Machine	12	10	0	*Drawn by a Donkey.*

Patent Delivering Apparatus for Nos. 5 and 6 Machines, 30*s.*; for No. 7 Machine, 25*s.*; Box with complete Set of Tools, 7*s.* 6*d.*; Silent Movement, 12*s.* 6*d.* Boots for Pony, 21*s.*; Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for use.

Width of Cutter.				
No. 8.—24-inch Machine	£8	17	6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8	7	6	
No. 10.—19-inch Machine	7	12	6	*Do. by a Man and a Boy.*

Width of Cutter.				
No. 11.—16-inch Machine	£6	17	6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6	2	6	*Do. by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.*; Box, with complete Set of Tools, 5*s.*; Silent Movement, 7*s.* 6*d.*

No. 16.—12-inch Machine for Pushing only, £5 5*s.*; easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of may be at once returned.*

AGENTS:

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

Exhibition Prize Medal 1862.

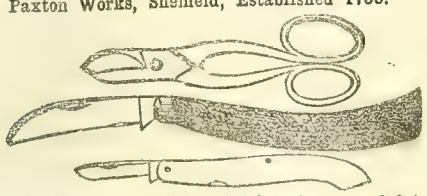
MUSGRAVE'S PATENT STABLE FITTINGS and HARMLESS LOOSE BOXES, PATENT IRON COW HOUSE FITTINGS, and IRON PIGGERIES.



These inventions are recommended as possessing numerous advantages not to be found in anything hitherto made. At the late Meeting of the Royal Agricultural Society at Leeds, MUSGRAVE BROTHERS received a Silver Medal, and two Awards of "Highly Commended," being the only Prizes conferred on any competitor in this class.

Particulars sent on application to the Inventors and Makers, MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

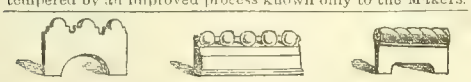
Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal is just awarded to SAYNOR & COOKE for superiority of quality in Pruning and Budding Knives, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.



GARDEN BORDER-EDGING TILES. — These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

To be obtained at F. & G. ROSHER'S Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied.

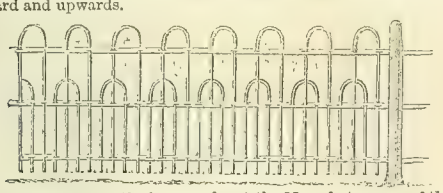
ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.



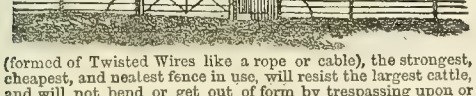
For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

Prices Reduced.

H. J. MORTON AND CO., Galvanised Iron Works,
2, Basinghall Buildings, Leeds.
GALVANISED IRON ROOFING

for Farm Buildings and other Roofs; the cheapest, most durable, and neatest Roofing in use; also Spouting at 10½*d.* per yard.

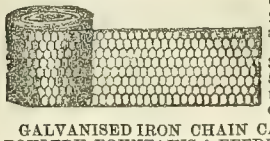
WIRE STRAND CABLE FENCING



(formed of Twisted Wires like a rope or cable), the strongest, cheapest, and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Price, with five lines of the Galvanised Strand, iron main posts, and pronged Standards, from 1*s.* per yard.

This fence is far cheaper than posts and rails, or any kind of iron fencing; and possesses four times the strength of solid bars. Will not rust nor corrode. Upwards of 1200 miles of this Fencing supplied.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 4*d.*, 4½*d.*, and 6¾*d.* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 2¾*d.*, 3¾*d.*, and 5½*d.* per yard. The Netting made any width, and with openings of any size.

GALVANISED IRON CHAIN CAMP STOOLS & CHAIRS, POULTRY FOUNTAINS & FEEDERS, PRONGED DAHLIA RODS and ROSE STAKES, &c.

Strong CATTLE HURDLES from 2*s.* per yard.

PATENT IMPROVED GAS WORKS

of all sizes, for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c. Works from 10 to 500 lights estimated for. The works can be entrusted to an ordinary labourer.—Apply to

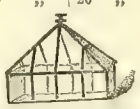
HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

THOMAS MILLINGTON,
87, Bishopsgate Street Without, E.C.
HORTICULTURAL GOODS.



PROPAGATING GLASSES.

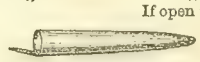
3 inches	..	0*s.* 4½*d.* each.	12 inches	..	1*s.* 9*d.* each
4 ,,	..	0 5½ ,,	13 ,,	..	2 0 ,,
5 ,,	..	0 6½ ,,	14 ,,	..	2 6 ,,
6 ,,	..	0 8 ,,	15 ,,	..	3 0 ,,
7 ,,	..	0 10 ,,	16 ,,	..	3 6 ,,
8 ,,	..	1 0 ,,	17 ,,	..	4 0 ,,
9 ,,	..	1 2 ,,	18 ,,	..	5 0 ,,
10 ,,	..	1 4 ,,	19 ,,	..	6 6 ,,
11 ,,	..	1 6 ,,	20 ,,	..	7 0 ,,



HAND GLASSES.

12 inches	..	6*s.* 0*d.* each	18 inches	..	9*s.* 0*d.* each
14 ,,	..	7 0 ,,	20 ,,	..	10 0 ,,
16 ,,	..	8 0 ,,	24 ,,	..	12 0 ,,

If open top, 1*s.* extra.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1*d.* per running inch.



ROLLING PINS.
From 12 inches long, 1½*d.* per running inch.

Improved ANTI-CORROSION and other PAINTS.
GAS and LAMP GLASSES, GLOBES, &c.
CHIMNIES of every description.
Not accountable for Breakage.

Monmouthshire, near Raglan.

TO BE LET, a capital FARM, consisting of about 138 Acres of Land which has been thoroughly drained. The Buildings are in good repair. Distant one mile from a Railway Station.

For particulars apply to Mr. BAILEY DENTON, 52, Parliament Street, S.W.; or to Mr. W. F. BATT, Solicitor, Abergavenny.

Sales of Philosophical Instruments, Photographic Apparatus, Books, &c.

MR. ARTHUR PLEWS has the honour to announce that he purposes establishing SALES of the above description of property at his GREAT SALE ROOMS, 11, Catherine Street, Strand, W.C., EVERY THURSDAY throughout the year.

Particulars and Scale of Charges can be had on application.

Horticultural Stock, Seeds, Bulbs, &c.

MR. ARTHUR PLEWS has the honour to announce that he purposes establishing SALES of HORTICULTURAL STOCK at his GREAT SALE ROOMS, 11, Catherine Street, Strand, W.C., EVERY TUESDAY and FRIDAY throughout the year.

Particulars and Scale of Charges can be had on application.

Sales of Poultry, Rabbits, Pigeons, and Fancy Birds.

MR. ARTHUR PLEWS has the honour to announce that he purposes establishing SALES of POULTRY, RABBITS, PIGEONS, &c., at his GREAT SALE ROOMS, 11, Catherine Street, Strand, W.C., EVERY WEDNESDAY throughout the year.

Particulars and Scale of Charges can be had on application.

Sales by Auction.

9000 Scotch Firs, 10,000 Quick, Fruit Trees, Shrubs, &c.

MR. ARTHUR PLEWS will SELL by AUCTION, at his Great Sale Rooms, 11, Catherine Street, Strand, W.C., on TUESDAY, March 24, at half-past 12 o'Clock, a large collection of SCOTCH FIRS, QUICK, FRUIT TREES, SHRUBS, a fine specimen of VARIEGATED HOLLY, and various Horticultural and Floral Produce.

May be viewed the Morning of Sale, and Catalogues had.

Great Horticultural Sale Rooms, 11, Catherine Street, Strand, W.C.

MR. ARTHUR PLEWS will SELL by AUCTION, at his Great Sale Rooms, on FRIDAY NEXT, March 27, at half-past 12 o'clock precisely, a fine Collection of HORTICULTURAL and FLORAL PRODUCE, full particulars of which will be shortly announced.

May be viewed the Morning of Sale, and Catalogues had.

Ruddington Manor.

IMPORTANT SALE OF CHOICE STOVE AND HOTHOUSE PLANTS.

WM. WRIGHT is honoured with instructions from Sir Thomas Parkyns, Bart., to SELL by AUCTION, on TUESDAY, March 24, at 11 o'clock precisely, the following Rare Specimens of STOVE and GREENHOUSE PLANTS, consisting of—

Marantas
Allamandas
Rhynchospermums
Rondeletias
Echites
Thunbergias
Aerides odoratum, 7 stems, 4 feet high; 34 spikes of bloom last year
And other Orchids.
Dracæna terminalis
Strelitzia Reginæ, 2 large plants.
Cacti
Franciscæas
Chorozemas
Epacris
Ericas
Aphelexis
Azaleas, Standards & others
Kennedyas
Pimeleas
Lapageria rosea, a remarkably fine specimen, showing 37 blooms at one time last season.

And numerous other Stove and Greenhouse Plants.

LARGE COLLECTIONS of FUCHSIAS, GERANIUMS, FERNS, CALCEOLARIAS, CINERARIAS, &c.

The above valuable Lots have been collected by Sir Thomas Parkyns with great care, regardless of expense, he having been almost in every instance a successful Exhibitor in taking away the best Prizes at the Horticultural Shows.

In consequence of the change of Residence to some distance, the Lots, consisting of about 400 in number, are all to be disposed of.

Ruddington Manor is within 4 miles of Nottingham Railway Station. The Gardener will be attendance 10 days prior to Sale, where particularized Catalogues may be had, as also at the *Guardian* Office, Nottingham; *Mercury* Office, Derby; and of the Auctioneer, Thrumpton, Kingston, Derby.

Forthcoming Sales.

MR. J. C. STEVENS begs to announce that he has received instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on

Saturday, March 21. — Ornamental Flower Baskets, Moss Roses, Bulbs, Rhododendrons, Conifers, &c.

Monday, March 23.—1000 Pear Trees, 200 Apricot Trees, 600 Rhododendrons, 200 Azaleas, &c., all splendid plants just arrived from France.

Tuesday, March 24.—The collections of British Insects of the late John Walton, Esq, F.L.S, &c; also several other private collections of Coleoptera and Lepidoptera, Cabinets, Entomological Books, &c.

Wednesday, March 25.—A splendid assortment of Plants, consisting of Carnations, Pinks, Dianthus, Conifers, Laburnums, Laurels, Dielytras, Delphiniums, Phloxes, Gazanias, Iris, Clematis, Lilium giganteum, Gladioli, Dahlias, Pæonies, Violets, &c.

Thursday, March 26.—Choice Rose Trees, Conifers, Fruit Trees, Rhododendrons, Hollies, Forsythias, Syringas, and other Plants just arrived in splendid condition from a well known nurseryman in Holland.

Friday, March 27.—Valuable Photographic Lenses, Microscopes, Photographs, Opera Glasses, Stereoscopes and Slides, Watercolour Drawings, Jewellery, &c.

Saturday, March 28.—Moss Roses, Conifers, Laurels, Ornamental Evergreens, Fruit Trees, &c.

Tuesday, March 31.—Choice Poultry and Pigeons, about 250 Pens, from the yards and lofts of well known breeders and exhibitors.

Wednesday, April 1.—Pinks, Carnations, Picotees, Conifers, Fruit Trees, and other Plants.

Thursday, April 2.—Electrical and other Apparatus, the property of a gentleman deceased, Philosophical Instruments, Photographic Apparatus, &c.

Tuesday, April 7.—250 lots of Choice Poultry and Pigeons.

Wednesday, April 8.—Important Collection of Established Orchids, containing many Rare and Valuable Plants.

Thursday, April 9.—Valuable Collection of Shells, the property of a gentleman.

Friday, April 10.—Philosophical Instruments, &c.

Also in APRIL and MAY.

Several collections of Established Orchids.
An interesting collection of Turquoises from Arabia Petrea.
Importation of rare Araucarias from Sydney.
An important collection of British Birds' Eggs.
50,000 choice Bedding Plants, four entire Sales.
Hardy and Ornamental Plants, Bulbs, &c., two entire Sales.
500 lots of Poultry and Pigeons, two entire Sales.
A large collection of Bird and Animal Skins, Horns, &c.
Several Importations of Orchids from India and other parts.
Valuable Collection of Skeletons of Birds and Animals.
Collection of Eggs and Bird Skins from Lapland.
Interesting Photographic Negatives, Photographs, &c, of the celebrated Photographer, Mr. Roger Fenton.
200 Rows of valuable Tulips of R. Headly, Esq., of Staplehurst, near Cambridge.
Dr. Bird's Anatomical Museum and Medical Books.
Cabinet of Shells, the property of a well-known collector.
Valuable Collection of Birds' Eggs, the property of a gentleman.
128 lbs. weight of Clean Seed of Cedrus Deodara from India.

Catalogues of any of the above Sales will be forwarded on receipt of Two Stamps, to Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Standard Roses, Fruit Trees, Camellias, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, March 27, at 12 o'clock, about 300 handsome STANDARD and DWARF ROSES, Selected FRUIT TREES, choice AMERICAN PLANTS, &c. Also some fine Double Camellias, Azalea indica, Cinerarias, and other Plants in Bloom; Lilium lancifolium, Gladiolus Brenchleyensis, Fuchsias, Verbenas, Dahlias in dry roots, &c.

On view the Morning of Sale. Catalogues had at the Mart; and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Banbury, Oxon.

TO NOBLEMEN, AGRICULTURISTS, LAND STEWARDS, FARMERS, AND OTHERS.

Highly important SALE of First-class AGRICULTURAL MACHINERY, at Messrs. KIRBY & BARROWS', Engineers, Cherwell Works, Banbury.

MESSRS. CLARKE AND BARROWS have received instructions to SELL by PUBLIC AUCTION, on THURSDAY NEXT, March 26 (in consequence of a dissolution of partnership, and in contemplation of new and extensive arrangements by Mr. Barrows, the remaining partner), 26 Valuable and Highly-finished Portable Steam Engines, for Ploughing, Thrashing, &c, from 2 to 10-horse power; a 4-horse power Fixture Engine; 6 valuable Combined Thrashing and Finishing Machines; a set of valuable Steam Cultivating Apparatus; several useful Second-hand Portable Steam Engines and Thrashing Machines, by eminent makers, from 2 to 8-horse power; Saw Benches; 2 Patent Mop Stale Turning Machines, &c.

Luncheon at 11 o'Clock; Sale to commence at 12 o'Clock precisely.

Detailed particulars are given in Catalogues, to be had of Mr. T. W. BARROWS, the Works, and at the London Depôt, 76, Cannon Street West, E.C.; or of the AUCTIONEERS, 1½, Temple Street, Birmingham.

Babraham, near Cambridge.

EXTENSIVE AND MOST IMPORTANT SALE OF THE ENTIRE HERD OF FIRST-CLASS SHORTHORNED CATTLE.

MESSRS. H. STRAFFORD AND J. CARTER JONAS, who are jointly concerned on this occasion, are honoured with instructions from the Executors of the late Mr. Jonas Webb to offer for SALE by AUCTION, without any reserve, the far-famed BABRAHAM HERD of First-class SHORTHORNS, consisting of about 150 head of Bulls, Cows, and Heifers, which are chiefly descended from the following celebrated Cows: "Celia," "Dodona," "Belinda," "Bodice," "The Beauty,' and "Daffy Gwynne," which on reference to the Herd Book will show a fine combination of good blood, and a marvellous illustration of the prolific character of the two former tribes in the hands of the late Proprietor for the last 20 years, during which time has been used some of the best blood of the day. The Herd will be divided in two portions, the first of which will be offered on WEDNESDAY, April 15, and the remainder on WEDNESDAY, the 15th July next.

The Auctioneers beg to call attention to the high honour gained by this Herd in winning the Gold Medal with "First Fruits," for the best Short-horned Bull exhibited at the recent Battersea Show, and to assure Breeders and Buyers of Shorthorns, that their instructions from the Executors are most positive, and that the whole will be sold without the slightest reserve.

Catalogues, with Pedigrees, and other particulars, may be had on application to Mr. J. CARTER JONAS, Land Agent, Cambridge; or of Mr. STRAFFORD, 13, Euston Square, London, N.W.

THE HYDROPULT,

THE HYDROPULT
IS INVALUABLE FOR

WATERING GARDENS,

EXTINGUISHING FIRE at its COMMENCEMENT,

PROTECTING a ROOF from FIRE,

CLEANSING TREES from INSECTS,

DRESSING with LIQUID MANURE,

SPRINKLING PLANTS,

WASHING WINDOWS,

WETTING SIDEWALKS,

SPRINKLING STREETS,

WASHING CARRIAGES,

WETTING SAILS,

A SPRAY BATH,

&c. &c.



Caution.— Unprincipled parties are now palming on the public an infringement of the Hydropult Patent. This is to notify, that said pirates and all persons using or vending this article will in due time be prosecuted. No machine contained in a bucket is the Hydropult. Every Hydropult has a Trade Label affixed, as follows:—

"The Hydropult, a Portable Fire Annihilator and Garden Engine.

"Griffith & Browett, Manufacturers, Birmingham;

"Charles P. Button, General Agent.

"Vose's Patent;"

and is sold at the uniform rate of Two Guineas, complete, with 2½ feet suction and 3-feet delivery hose, Galvanised Wire Strainer, Rose or Sprinkler, and Fire Jet. It is an easy matter to imitate the Hydropult in appearance, and thereby deceive the public; therefore this caution.

AN INVENTION FOR THROWING WATER BY HAND POWER.

SECURED BY ROYAL LETTERS PATENT.

PRICE TWO GUINEAS,

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Small Jet.

The Hydropult is a simple, effective, and convenient Apparatus for throwing Water by hand. It weighs but 8 lbs., is made of Brass and Copper, costs but Two Guineas, and will throw 7 or 8 gallons of water per minute 50 feet when worked by the power of one man.

FIRE! FIRE! FIRE!

THE HYDROPULT IS THE MOST EFFECTIVE FIRE ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.
ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

Extracts from Testimonials.

Read the following from Thos. Rivers, Esq., the eminent Florist and Nurseryman:—

"The Hydropult is admirably adapted for Nurseries, and will be found invaluable for Watering and Syringing Plants and Trees in pots."

Shirley Hibberd, Esq., says in the "Gardeners' Magazine:"

"It will perhaps surprise the reader to be told that this little contrivance, which is pretty as a toy, and can be carried under the arm as easily as a trumpet, will throw from 7 to 8 gallons of water per minute a distance of 50 feet. But it will do it, as we know from having tried it, finding the experiment an agreeable exercise, and of special service in washing down a stuccoed wall, which it accomplished quite as well as if we had sent for the parish engine. Gardeners will not need to be told the value of a Portable Force Pump of this simple kind. It can be used to produce a powerful stream to extinguish a Fire, or a gentle shower to Syringe a whole house full of Plants, without the necessity of moving a single step from the position most convenient for a supply of water. Wherever a Pump or Syringe is needed the Hydropult can be brought into use, to remove Water from a Cellar or a Boat, to cleanse a Cistern, wash a Pavement, or drench the Foliage of Trees loaded with soot, or annihilate at one fell swoop the whole Insect population of a Plantation of Roses. But we will not enlarge upon its merits, they are obvious, and having a Hydropult in use we can say that it will soon pay for its cost in a Garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water."

"There can be no doubt but that it can be made available in the earlier stages of Fire in Warehouses, Manufactories, or Private Houses, in preventing large conflagrations.

"Percy M. Dove, Esq.,
"Manager Royal Insurance Company."

"The invention will prove extremely valuable for all the purposes to which such Machines are applied.

"Swinton Boult, Esq.,
"Secretary Liverpool and London Insurance Company."

Important to Yachting Clubs.

We take pleasure in presenting to the public the following Testimonial from Lieut.-Colonel Wheatley:—

"I have much pleasure in stating that both I myself and several friends have used your Hydropult for Wetting Yachts' Sails and Washing and Baling out Boats with the greatest success; and, for an instrument of its size, consider it most useful and applicable to Yachting purposes, obviating the necessity of a large engine or skeats during a match.

(Signed) "W. Wheatley."

Important communication from William Christian, Esq., Manager of the Baldock Bank:—

"February 19, 1863.

"Mr. Charles P. Button.—Dear Sir,—It gives me great pleasure to forward you particulars respecting the cottages in this town that were saved on the 1st of January by the use of your Hydropult. The property consisted of a row of 10 cottages, separated only from the fire that was devastating three thatched cottages by a narrow passage about one yard wide. By this useful little instrument I was able to keep the gable end, immediately facing the fire, continually wet, so that when the flames reached it, they had very little or no effect. Every one on the spot seemed very much astonished at the power of this little engine, among whom was the owner of the cottages, who is perfectly convinced, had it not been for the Hydropult, his property must have been consumed.

"On the same night I had been to another fire in the town, with the same instrument, and did great service. Feeling so satisfied with its performance there, made me take it to the second fire, so that this little engine was pumping away for over six hours altogether, without doing it the slightest injury.

"I remain, yours truly, "W. Christian."

The *Hertford Mercury* in speaking of the above fire, says:—

"The town engine was as soon as possible upon the spot, but found of little use, owing to the inconvenience of getting water. The adjoining range of tenements were saved almost entirely through the exertion of Wm. Christian, Esq., Manager of the Baldock Bank, who brought to the scene a Hydropult, which, being kept well supplied with water by hand buckets, was made to play with great effect."

Prospectus, with Testimonials, on application at either Office.

Hydropult Office: 27, LEADENHALL STREET, LONDON, E.C.; and 309, REGENT STREET.
CHARLES P. BUTTON, Proprietor.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 13.—1863.] SATURDAY, MARCH 28. {Price Fivepence. {Stamped Edition, 6*d*.

INDEX.

Artificial Manures	301 *b*	Grasses, sea-side	299 *b*
Aucuba, fruiting of	295 *a*	Henery, French	299 *c*
Babraham herd	298 *c*	Hyacinths	292 *a*
Books, noticed	295 *c*	Indoor gardening	293 *b*
Botanical Collections, Rocky Mountain	296 *a*	Larch rot	294 *c*
Caladiums, treatment of	296 *c*	Lastrea Standishii	292 *c*
Cattle pedigrees	298 *c*	Law, garden	294 *b*
Cedars, leaf casting in..291 *c*–294 *c*		Leaf shedding ..291 *c*–294 *c*	
Chelmsford Spring Assizes, trial at	302 *b*	London trees	291 *b*
Chlorosis, remedy for	293 *a*	Milk, value of	297 *c*
Cork trees	292 *b*	Moles	300 *a*
Cottages' labourers	299 *c*	Orange, the	293 *c*
Dies Orchidianæ	292 *b*	Pear, Beurré Brettonneau	295 *a*
Drill, Smith's	299 *b*	Quercus Suber	292 *b*
Dog show	301 *b*	Society, Entomological	295 *b*
Dry rot	296 *c*	— Botanical of Canada	295 *b*
Farm life, Pampas	300 *a*	— Bath Agricultural	300 *c*
Farmers' Account Book	302 *a*	Steam cultivation	299 *c*
Farmers' Club, Kingscote	301 *b*	Stephanophysum Baikiei	292 *b*
— — East Penwith	302 *a*	Strawberries, culture of	294 *c*
Ferns, new garden	292 *c*	— British Queen	295 *a*
Garden law	294 *b*	Threshing machines	299 *c*
Grass lands	298 *a*	Trees, London	291 *b*
		— Cork	292 *b*
		Trichomanes anceps	293 *a*

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.
A MEETING of this COMMITTEE will take place on TUESDAY, March 31.
The Subjects for examination must be at South Kensington, for entry, by 11 A.M.
THOS. MOORE, Secretary to the Committee.

ROYAL BOTANIC SOCIETY,
REGENT'S PARK.
EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, May 13, June 3, and 24.
AMERICAN PLANTS, MONDAY, June 8.
Tickets can be obtained at the Gardens by orders from Fellows of the Society. Price on or before May 2, 4*s*.; after that day, 5*s*.; or on the days of Exhibition, 7*s*. 6*d*. each.
The next SPRING EXHIBITION, SATURDAY, April 11.

New Roses of 1863.
PAUL AND SON have now ready their usual fine Plants of the finest Novelties of the season. DESCRIPTIVE LIST on application.
"Old" Cheshunt Nurseries, Herts.

ALL the NEW ROSES of 1863.—In fine strong Plants now ready.
DESCRIPTIVE LISTS on application.
WM. WOOD & SON, Woodlands Nursery, near Uckfield, Sussex.

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Strong healthy Plants are now ready.
A GENERAL CATALOGUE may be had on application.
Lea Bridge Road Nurseries, N.E.—March 28.

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CHARLES NOBLE has a nice assortment, one-year, established in 32-pots, ready for Forcing. They are healthy vigorous plants, and cannot fail to give satisfaction. He has also a large stock of Dwarfs and Half-Standards suitable for planting in Roseries; they are offered very cheap.
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THE MONTHS OF APRIL AND MAY ARE CONSIDERED THE MOST ELIGIBLE FOR PLANTING OUT ROSES FROM POTS.
WM. WOOD AND SON have an enormous stock of fine healthy plants, now ready to send out. CATALOGUES sent Post-free on application.
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DOUBLE DWARF POPPIES.—The most beautiful Stock in cultivation. Colours varied and brilliant; flowers as double as a Hollyhock. Seed 1*s*. per packet, Post free. To the Trade, 3*s*. 6*d*. per ounce.
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Choice Kitchen Garden Seeds.
B. S. WILLIAMS'S Advertisement on last page of *Gardeners' Chronicle*, Jan. 31.
Paradise and Victoria Nurseries, Holloway, London, N.
*** PRICED and DESCRIPTIVE CATALOGUE post free on application.

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N.B. Warranted true to name.

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Seed Establishment, 181, High Holborn, London, W.C.

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12 Hardy Annuals	1 0	2 0	3 0
18 ,, ,, ...	1 6	3 0	4 6
24 ,, ,, ...	2 0	4 0	6 0
36 ,, ,, ...	3 0	6 0	9 0
50 ,, ,, ...	4 2	8 0	12 6
100 ,, ,, ...	8 4	15 0	25 0
12 Half Hardy Annuals ..	1 6	2 6	4 0
24 ,, ,, ,, ..	3 0	5 0	8 0
50 ,, ,, ,, ..	6 0	10 0	16 0
12 Tender Annuals	4 0	6 0	10 0
12 Biennials or Perennials ..	1 9	3 0	4 0
24 ,, ,, ..	3 0	5 6	7 6
50 ,, ,, ..	3 6	12 0	15 0
12 Greenhouse Seeds	3 6	6 0	10 6
24 ,, ,, ...	6 0	10 6	20 0
12 Climbers	2 0	3 0	5 0
12 Rockery Seeds	1 6	2 6	4 0
6 Ornamental Grasses ..	1 6	2 0	3 0
12 ,, ,, ...	2 6	3 6	6 0
24 ,, ,, ...	4 0	6 0	10 6
6 Everlastings	1 3	2 0	3 0
12 ,, ...	2 0	3 6	6 0
6 Ornamental Gourds ..	1 0	1 6	2 6
12 ,, ...	2 0	3 6	5 0
25 ,, ,, ...	4 6	6 6	10 6

Collections of Hardy, Half-hardy, and Tender ANNUALS, a proportion of each, at 4s. 6d., 9s., and 18s., for 25, 50, or 100 packets.

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,, ,, 18 vars. ..	3 0
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ZINNIA, ELEGANS, FL. PLENO, 12 vars.	1 6
DIANTHUS HEDDEWIGII, HYBRIDUS FL. PLENO, ATROPURPUREUS, LACINIATUS, and LACINIATUS FL. PLENO, each..	0 6
TAGETES SIGNATA, PUMILA, and PATULA NANA STRIATA	0 6
PHLOX DRUMMONDII, deep scarlet, and LEOPOLDII	0 6
AMARANTHUS MELANCHOLICUS RUBER	0 6
MIMULUS CUPREUS	0 6

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Intending purchasers of this beautiful tribe of plants, will on inspection of those grown by W. B., at once see the precedency of the English stock over the Foreign one. These grown and grafted in England on the proper stock are doubly vigorous, bloom quite as profusely, and the flowers are of much more perfect form and colour. W. B. has not the slightest wish to deprecate the continental culture of the Azalea, he merely invites the public generally to an inspection of his plants. All doing him the favour of a visit will have ocular demonstration of the advantage gained by grafting the Azalea in this manner, on a stock very little known (if at all) to any one with the exception of W. B., who discovered it after many years of practical experience and observation, and has proved it to be the stock for Indian Azaleas to flourish upon.

Many of the beautiful specimens which have been exhibited (and obtained prizes) at the Metropolitan and Provincial Shows, were grown at this Nursery.

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PICCADILLY, LONDON, W.

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WHITE SWEDE,
IMPROVED SKIRVING'S SWEDE.
WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
DOBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
IMPROVED YELLOW GLOBE DITTO,
IMPROVED ORANGE GLOBE DITTO,



IMPROVED LONG RED MANGEL,
IMPROVED LONG YELLOW MANGEL
IMPROVED RED GLOBE MANGEL,
IMPROVED WHITE FIELD BEET,
RED CLOVER, | COWGRASS,
WHITE, YELLOW, and ALSIKE CLOVERS.
PACEY'S PERENNIAL RYE-GRASS, and other sorts.
ITALIAN RYE-GRASS, FOREIGN and ENGLISH SEED.
NATURAL GRASS SEEDS, in mixture or separate, suitable for various soils and localities.
LIGHT RYE-GRASS and other CHEAP GRASSES, for Sowing on Railway Banks and Waste Places.

Orders for Exportation promptly attended to.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN,
28, KING STREET, CHEAPSIDE, NEAR the GUILDHALL; and
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INTERNATIONAL EXHIBITION.

PRIZE MEDALS 1851 AND 1862

AWARDED FOR SUPERIORITY AND GENERAL EXCELLENCE TO

BUTLER & McCULLOCH, SEED MERCHANTS,

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(ESTABLISHED UPWARDS OF A CENTURY.)

COLLECTIONS OF FLOWER SEEDS (Carriage Free).

NEW ANNUALS.

12 Extra fine Varieties ... ... 10s. 6d. | 6 Extra fine Varieties ... ... 5s. 0d.

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100 Finest selected Varieties ... ... 30s. 0d. | 25 Finest selected Varieties ... ... 7s. 6d.
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100 Finest selected Varieties ... ... 20s. 0d. | 30 Finest selected Varieties ... ... 5s. 0d.
50 ditto ditto ... ... 10s. 0d. | 15 ditto ditto ... ... 2s. 6d.

B. & McC. strongly recommend their COLLECTIONS of STOCKS, ASTERS, and BALSAMS to Amateurs and Exhibitors; neither trouble nor expense have been spared in procuring the very best.

NEW LARGE FLOWERING GERMAN DWARF TEN-WEEK STOCKS.

12 Splendid Vars., of the most beautiful colours 2s. 6d. | 12 Splendid Vars., smaller packets ... ... 1s. 6d.

DWARF GERMAN TEN-WEEK STOCKS.

12 Splendid Vars., of the most beautiful colours 2s. 6d. | 12 Splendid Vars., smaller packets ... ... 1s. 6d.

NEW FRENCH PÆONY-FLOWERED PERFECTION ASTER (TRUFFAUT'S).

12 Splendid Vars., of the most beautiful colours 3s. 6d. | 12 Splendid Vars., smaller packets ... ... 2s. 6d.

NEW FRENCH DWARF CHRYSANTHEMUM-FLOWERED ASTER (TRUFFAUT'S).

8 Splendid Vars., of the most beautiful colours 2s. 6d. | 8 Splendid Vars., smaller packets ... ... 1s. 6d.

DOUBLE BALSAMS.—12 Splendid Varieties, of the most beautiful colours ... ... 2s. 6d.

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BARR & SUGDEN
12 KING ST. COVENT GARDEN

STRONG FLOWERING CANNA ROOTS.

A PORTION OF THE UNRIVALLED COLLECTION OF OUR "SARDINIAN CORRESPONDENT."

Well managed, the CANNA ROOTS we offer will make splendid plants for a summer and autumn display.

If associated with Gladioli, Hollyhocks, &c., in large beds on the lawn, or in mixed flower and select shrubbery borders, the varied and beautiful foliage of this plant cannot fail to make it one of the most conspicuous and desirable for ornamental foliage.

Of late years fine foliaged plants, and such as are of stately growth, have been much sought after for the adornment of the flower garden, terraces, pleasure grounds, lawns, select shrubberies, carriage drives, &c.; besides relieving the monotony too frequently to be met with in such places, plants of this character impart a somewhat Oriental aspect.

Amongst such the CANNA stands unrivalled; its large picturesque foliage, and spikes of vivid-coloured flowers, produce a truly magnificent effect, especially when planted in groups, whether on the lawn, in the centre of large beds, or in the mixed flower border.

To bring out the characteristic beauties of the CANNA during the early summer as well as autumn months, plant the roots in pots as early as convenient, placing them in a frame, greenhouse, sitting-room window, or wherever there is warmth. Towards the latter end of May, or beginning of June, plant them out in the warmest situations at command, and water liberally during hot dry weather with weak guano water. The plants delight in deep rich soil, therefore trench the ground to the depth of 2 or 3 feet, and manure heavily before planting out.

For DESCRIPTIVE LIST of CANNA SEED, see "GUIDE to FLOWER GARDEN."

			s.	d.
3179	100	Roots assorted, our own selection, in 25, 30, and 40 varieties	5	0
3180	50	Ditto, ditto	2	15 6
3181	25	Ditto, ditto	1	10 6
3182	12	Ditto, ditto, 12s., 18s., to	1	1 0
		Each	s.	d.
3183		CANNA ACHYRAS, dark red, 5 ft., from Mendoza	1	0
3184	,,	ANGUSTIFOLIA NANA PALLIDA, light red, 1 foot, from South America	1	0
3185	,,	ANNEI WARSCEWICZOIDES, raised by Mr. Anne, a most splendid variety	2	6
3186	,,	BICOLOR DE JAVA, red and yellow, 3 feet, from Java	1	6
3187	,,	COCCINEA VERA, scarlet, very fine, 4 to 5 feet, from South America	1	0
3188	,,	COMPACTA ELEGANTISSIMA, large, red-dish-yellow, free-flowering, 2 feet, from South America	1	6
3189	,,	CRENULATA, undulated or wavy foliage, 6 ne	2	6
3190	,,	CUBENSIS, scarlet, fine long foliage, 6 feet	2	6
3191	,,	ELEGANS, deep carmine, graceful variety, 6 to 7 feet	2	0
3192	,,	FINTELMANNII, yellow, magnificent variety, 3 feet, from South America	1	6
3193	,,	FLACCIDA, dwarf habit, handsome foliage, very large brilliant golden yellow flower, 3 feet	2	0
3194	,,	FLORIBUNDA, red, shaded with yellow, 3 feet, from Africa	1	6
3195	,,	GIGANTEA, fine, scarlet, enormous leaves, exquisite, 3 feet, from India	1	6
3196	,,	,, AURANTIACA, orange red, very fine, 10 feet	1	6
3197	,,	HOOKERII, carmine, exceedingly handsome and graceful, 4 feet	1	6
3198	,,	KALOSANTHA, bright red flowers, with long petals, 3 to 4 feet	1	6
3199	,,	KARSTEINIANA, fine maroon, 3 feet, from India	1	6
3200		CANNA KEGELII, shaded carmine, 3 ft., from India	1	6
3201	,,	LÆTAL, yellow and red, 3 feet	1	0
3202	,,	LEPTOPHYLLA, ruby, handsome foliage, 4 feet, from Lagona	1	6
3203	,,	LAMBERTII, scarlet, 4 feet, from Trinidad	1	6
3204	,,	LIMBATA MAJOR, intense scarlet, edged with yellow, very striking, 4 ft., from Brazil	2	6
3205	,,	LINDLEYANA, very remarkable foliage, 5 ft.	2	6
3206	,,	LUTEA PICTA, shaded yellow, 4 ft., from Brazil	1	0
3207	,,	MEGELII, scarlet flowers, very large, 5 feet	2	0
3208	,,	NEPALENSIS, clear yellow, very beautiful, 3 feet, from Nepal	1	6
3209	,,	PATENS SUPERBA, deep red, splendid, 5 ft., from Rio Janeiro	2	6
3210	,,	PEDUNCULATA, scarlet, 5 feet, from Rio Janeiro	1	6
3211	,,	ROSEA MULTIFLORA, salmon-colour, magnificent, 4 feet	2	6
3212	,,	SANGUINEA CHATEI, blood red, dark foliage and stems, 6 feet	2	6
3213	,,	SELLOWII, scarlet, profuse blooming, 4 to 5 feet, from Africa	1	0
3214	,,	species of Guatemala, brilliant red, 4 feet	1	6
3215	,,	SPECIOSA, red, 4 feet, from South America	1	6
3216	,,	SPECTABILIS, red spotted, 4 feet, from South America	1	6
3217	,,	STENOGYNA, magnificent foliage, 6 feet	1	6
3218	,,	SUBULATA RUBRA, brilliant carmine, with magnificent foliage, 3 feet, from Africa	2	6
3219	,,	WARSCEWICZII, brilliant red, foliage striped, 3 feet, from Central America	1	0
3220	,,	ZEBRINA, beautiful zebra-striped foliage, 5 ft.	2	0
3221	,,	VARIABILIS, red, changeable, 3 ft., from India	1	6
3222	,,	VARIEGATA, shaded foliage, most elegant habit, 6 feet	2	0
3223	,,	VALOSA, scarlet, leaves magnificent, 3 feet, from India	2	6

GARDEN SEEDS.

S. GLENDINNING & SONS,

NURSERYMEN AND SEEDSMEN

(SUCCESSORS TO THE LATE R. GLENDINNING),

Are now sending out their COLLECTIONS of KITCHEN GARDEN SEEDS.

No. 1 contains	36 Quarts of PEAS, and all other Seeds in proportion				£5	5 0
No. 2	,, 28 Quarts	ditto	ditto	ditto	4	4 0
No. 3	,, 20 Quarts	ditto	ditto	ditto	3	3 0
No. 4	,, 12 Quarts	ditto	ditto	ditto	2	2 0
No. 5	,, 6 Quarts	ditto	ditto	ditto	1	1 0

COLLECTIONS of FLOWER SEEDS.

No. 1, containing	100 Large Packets of Best Hardy Annuals			...	...	£0 18	0
No. 2,	,, 50	ditto	ditto	ditto	... ...	0 9	6
No. 3,	,, 24	ditto	ditto	ditto	... ...	0 5	0
No. 4,	,, 25	ditto	Half-Hardy Annuals		... ...	0 7	6
No. 5,	,, 12	ditto	ditto	ditto	... ...	0 4	0
No. 6,	,, 25	ditto	Tender Annuals		... ...	0 12	6
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The above Collections consist only of best and most useful varieties, and are of the finest quality.

S. G. & Sons' CATALOGUE of KITCHEN GARDEN, AGRICULTURAL, and FLOWER SEEDS, is now ready, and may be had on application.

CHISWICK NURSERY, LONDON, W.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

50 in 25 extra choice varieties			£2	2s. 0d.
25 in 25	,,	,,	1	5 0
12 in 12	,,	,,	0	12 0
50 in 50 choice varieties			2	12 6
50 in 25	,,	,,	1	5 6
25 in 25	,,	,,	0	13 6
12 in 12	,,	,,	0	5 0

Extra fine mixed, 2s. 6d. per doz., 17s. 6d. per 100.

Butler & McCulloch, Seed Merchants, Covent Garden Market, W.C.

New Verbenas and Fuchsias. Double and Single Petunias of 1862.

WM. KNIGHT offers strong well-established Plants of all the best varieties of the above for Bedding or Exhibition, having been one of the most successful exhibitors of the above. Nothing but first-rate proved flowers in their classes are offered. VERBENAS, 5s. per doz.; FUCHSIAS, 6s. per doz.; PETUNIAS, 6s. per doz.

Floral Nursery, Hailsham, near Hurst Green, Sussex.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS; ditto COWSLIP; Florist's Flower, POLYANTHUS, Roots or Seed; also SCARLET PRIMROSE—Double Crimson, Double Purple, Double White, Double Yellow, and Double Lilac ditto. COWSLIP from the Himalayas; DOUBLE POLYANTHUS; and other varieties, all of which may be had on application to

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FIRST CLASS NEW FUCHSIAS. — Coloured Drawings by Mr. Andrews of SANSPAREIL, BRIDESMAID, CONSPICUA, and HERCULES, are now ready, and will be forwarded in exchange for 12 postage stamps.

G. S. begs to offer the above as the most Superb FUCHSIAS yet offered to the Public. For description, with price, and also time of sending out, see CATALOGUE, now ready.

George Smith, Tollington Nursery, Hornsey Road, Islington, London, N.

A PRICED and DESCRIPTIVE CATALOGUE of all the new and leading kinds of Show, Spotted, French, Fancy, Scarlet, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready in exchange for one postage stamp.

George Smith, Tollington Nursery, Hornsey Road, Islington, London, N.

Genuine Seeds.—Carriage Free.

WM. CUTBUSH and SON beg to intimate that they are now prepared to execute orders for GENUINE GARDEN SEEDS, for which their house is extensively known.

Mr. C. gives his personal attention to this branch of our business, and we can confidently recommend all offered as being of the best quality, at as moderate prices as consistent.

CATALOGUES free on application.

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Notice.—American Plants.

WATERER and GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by Waterer & Godfrey, Knap Hill, near Woking.

E. G. HENDERSON and SON offer First-class quality of CINERARIA,

CALCEOLARIA, and PRIMULA SINENSIS FIMBRIATA, 1s. and 2s. 6d. per packet.

CINERARIA WEBBI.—The interest and value of this species consists in its having a shrub-like branched habit of growth, attaining from 3 to 4 feet in height. This remarkable plant is expected to originate a new and desirable class of varieties for exhibition purposes, in having already passed into all the colours found in florist varieties of the present time, and no doubt but higher improvements in form, and other essential properties, will be obtained in connection with its superior culture. It will be found well adapted for decorative purposes, by its taller growth, and longer continuance in bloom. 2s. 6d.

Wellington Nursery, St. John's Wood, London, N.W.

Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER'S CATALOGUE of the above popular plants, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants.

It describes faithfully the colours of all the Rhododendrons, thereby rendering every facility for making selections.

It likewise contains an abridged List of really Hardy Conifers, with their heights and prices.

The American Nursery, Bagshot, Surrey.

Bedding Plants.

MARSH and PERKINS, 42, Drapery, Northampton, have pleasure in offering the following strong autumn-struck Plants:—

TOM THUMB GERANIUMS, CALCEOLARIA AUREA FLORIBUNDA, ,, MACKAYII, ,, PRINCE OF ORANGE. } 8s. per 100 when equal quantities of each are taken.

N.B. Cash or reference from unknown correspondents.

AMARANTHUS MELANCHOLICUS (var. ruber).—Habit very compact, height 1 to 1½ feet, with striking blood-red foliage; a most valuable bedding plant for Flower Garden decoration, after the style of Perilla Nankinensis. Price per packet, 6d., 1s., and 2s. 6d. The Trade supplied.

E. P. Dixon & Sons, Seedsmen and Florists, 57, Queen Street, Hull.

WELLINGTONIA GIGANTEA.—The attention of the Nobility, Gentry, and the Trade, is invited to the largest stock of 1-year SEEDLING PLANTS in the Kingdom, established in single pots and fit for Spring planting. Price per dozen, 12s.; per 100 or 1000 on application. A Sample free by post for 12 stamps.

J. Henchman, Edmonton, London.

RUSSELL'S PYRAMID PRIMULAS.—Seed of this unequalled strain is now ready, in packets, price 2s. 6d.

The great satisfaction which these kinds have given in previous seasons, renders further comment on their merits unnecessary. The additional care taken however in saving the seed last year will probably result in producing flowers much superior to any ever seen.

Printed notes on raising them, and their culture, forwarded with each packet; payment can be made in postage stamps.

George Clarke, Nursery, Streatham Place, Brixton Hill, London, S.; and 4, Windsor Terrace, Pimlico, S.W.

New Roses.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites attention to the following NEW ROSES, which will be ready for delivery very shortly.

LORD HERBERT, H.P.—Rosy carmine, the petals reflexing at the summits in the way of Beauty of Waltham, large, full, and finely formed, and altogether of first-rate excellence. *7s. 6d.*

LORD MACAULAY, H.P.—Velvety crimson, in the way of General Jacqueminot, but brighter in colour, thicker in the petal, and more double. The flowers are of good average size, produced abundantly and in rapid succession; the habit is good, and foliage handsome. *7s. 6d.*

MRS. WILLIAM PAUL, H.P.—Bright violet red, shaded with fiery red; flowers constantly, and in clusters, large and full. Raised by M. Verdier, of Paris, the raiser of Madame Furtado, and others of our finest Roses. *5s.*

RED ROVER, H.P.—Bright red petals, large, thick, and round; flowers abundantly and in succession up to Christmas. Not double enough for a show Rose, but the most effective pillar Rose ever offered. *3s. 6d.*

WILLIAM PAUL, H.P.—A seedling from Senateur Vaisse, but brighter in colour. Raised at Lyons by the raiser of Lord Raglan, Senateur Vaisse, and other first-class sorts. *5s.*

BEAUTY OF WALTHAM, H.P.—Bright rosy crimson, of good size, form, and substance, and deliciously sweet. This Rose is found to surpass the description originally given of it. *3s. 6d.*

All the new French Roses, *3s. 6d* to *5s.* each, or *42s.* per dozen. The best of the old Roses at lowest advertised prices. The plants are well established, and in the finest possible health.

PRICED CATALOGUE free by post.
Nurseries and Seed Warehouse, Waltham Cross, N.

Cloth of Gold, and Golden Fleece Geraniums.

STEPHEN SHILLING has to offer the above Plants, good, strong, and well-established in pots, at *31s. 6d.* per 100. As it will save a great expense in the carriage, he will supply the same turned out of pots, carefully packed, at the following prices. *25s.* per 100.; *10l.* per 1000.

Delivered to the Winchfield and Basingstoke Stations, on the South Western Railway.

Orders executed in strict rotation as received.
North Warnboro' Nursery, Odiham, Hants—March 28.

BEDDING GERANIUMS, *2s. 6d.* per dozen. Twelve dozen choice Bedding GERANIUMS, in 12 varieties, purchaser's selection, for *32s. 6d.*, basket and package included; or any kind separately, at *3s. 6d.* per dozen.

VARIEGATED.	ZONALE.	ZONALE.
Golden Chain	Scarlet Perfection	CrystalPalaceScarlet
Reine d'Or	Lady of Loretto	Blackheath Beauty
Golden CeriseUnique	Little David	Princess of Prussia
Flower of Spring	Beauté de Meldoise	M. Martin
Alma	Lady Middleton	Mde. Chardine
Hendersonii	Christina	Paul L'Abbé
Bijou	Rose Queen	Imperial Crimson
St. Clair	Scarlet Queen	Model Nosegay
Countess of Warwick	Indispensable	Minimum Nosegay
Shottesham Pet	Bishopstowe Scarlet	Purple Nosegay

All the leading kinds at moderate prices. Price to the Trade on application.

A remittance respectfully requested from unknown correspondents. Post Office Orders to be made payable to ALFRED FRYER, Chatteris, Cambridgeshire.

Green Hollies.

CORNELIUS WHITEHOUSE, Brereton Nursery, Rugeley, Staffordshire, offers an immense stock of well-grown healthy extra Transplanted HOLLIES, exceedingly well-rooted, from 12 to 15, 15 to 18, 18 to 24, 24 to 30 inches. Also very handsome SPECIMEN PLANTS from 3 to 5 feet; also ENGLISH YEWS from 2 to 2½ feet, 2½ to 3 feet and upwards. The above growing on ground to be cleared for other stock, the price will be liberal. Trade price on application.

GEORGE BAKER begs to offer the following, a selection from his extensive Stock:—

ARAUCARIA IMBRICATA, 3 feet, 6 feet, 9 feet, 14 feet.
ABIES DOUGLASII, 3 feet, 5 feet, 10 feet, 14 feet, 25 feet.
ARBOR-VITÆ (WAREANA), 3 feet, 6 feet, 8 feet.
CEDRUS DEODARA, 3 feet, 6 feet, 12 feet, 20 feet.
CUPRESSUS LAWSONIANA, 3 feet, 5 feet.
,, DISTICHA, 3 feet, 8 feet, 12 feet.
CEDRUS LIBANI, 6 feet, 8 feet, 10 feet.
CHINESE JUNIPER, 3 feet, 5 feet, 6 feet.
IRISH YEW, 4 feet, 6 feet, 8 feet.
JUNIPERUS RECURVA, 8 feet.
PICEA CEPHALONICA, 3 feet, 4 feet, 11 feet.
PINUS CEMBRA, 3 feet, 5 feet, 7 feet.
,, EXCELSA, 10 feet, 15 feet.
THUJA GIGANTEA, 4 feet, 5 feet, 6 feet.
THUJOPSIS BOREALIS, 1 foot, 2 feet.
PINUS AUSTRIACA, 3 feet, 4 feet.
,, BENTHAMIANA, 3 feet, 4 feet.
WEYMOUTH PINE (fine), 1½ foot, 2 feet.
SPRUCE FIR, 1 foot, 2 feet.
AZALEAS (to name)
ANDROMEDAS (to name).
RHODODENDRONS (to name).
,, STANDARDS (to name).
KALMIA LATIFOLIA.
,, ,, STANDARDS (very fine heads).

Prices free by Post, on application. Also G. B.'s GENERAL PRICED LIST is now ready.

American Nursery, near Bagshot, Surrey, about 1¼ mile from Sunningdale Station, S. W. R.

TO THE TRADE.—SPECIAL OFFER.

ABIES MENZIESII, 9 to 12 inches, *3s.* per dozen; *20s.* per 100.
18 to 24 inches, *6s.* per dozen; *40s.* per 100.
24 to 30 inches, *9s.* per dozen; *60s.* per 100.
PINUS INSIGNIS, 4 to 5 feet, *3s. 6d.* each; *30s.* per dozen.
5 to 6 feet, *5s.* each; *42s.* per dozen.
BERBERIS DARWINII, 6 to 9 in., *5l.* per 1000, or *12s. 6d.* p. 100.
9 to 12 ins, *3s.* per doz.; *15s.* per 100.
18 to 24 ins., *9s.* per doz.; *60s.* per 100.
CUPRESSUS LAWSONIANA, 2 to 3 feet, *200s.* per 100.
3½ to 4½ feet *30s.* per dozen.
4½ to 5 feet, *36s.* per dozen.
5 to 6 feet, *5s.* to *7s. 6d.* each.
THUJA LOBBI, 18 to 24 in., *12s.* per doz.; or *75s.* per 100.
2 to 3 feet, *18s.* per doz.; or *100s.* per 100.
BLUSH CHINA ROSES, *25s.* per 100.
RHODODENDRON PONTICUM, fine large bushy stuff, 1½ to 2½ feet, *40s.* to *60s.* per 100.
2 to 3 feet, *70s.* per 100.
3 to 4 feet, *126s.* per 100.
WELLINGTONIA GIGANTEA, 4½ to 5 feet, *42s.* to *50s.* each.
5 to 6 feet, *50s.* to *63s.* each.
6 to 7 feet, *63s.* to *84s.* each.
7 to 8 feet, *84s.* to *105s.* each.

The above are all fine healthy, well rooted stuff.

TRADE CATALOGUE of GENERAL NURSERY STOCK on application.

THOMAS CRIPPS, Nurseryman, Tunbridge Wells, Kent.

Bedding Tropæolum.—Ball of Fire.

ARTHUR HENDERSON and SON intend sending out the above brilliant BEDDING TROPÆOLUM on the 1st of May.

For description and full details see figure and remarks in the *Floral Magazine* for January, 1863, Plate 129, colour of Tom Thumb Geranium. This will prove one of the best and most beautiful Bedding Plants of the season.

Per 100 Plants	.. £3 10 0	Per 25 Plants	.. £1 10 0
,, 50 ,,	.. 2 2 0	,, 12 ,,	.. 0 18 0
1 Plant ..	.. 2s. 6d.		

Pine Apple Place, Edgeware Road, London, W.



HOLLYHOCKS (MIXED)

from the finest Show Varieties.

Strong Blooming Roots,

4s. to *6s.* per dozen; *25s.* per 100.

RICHARD SMITH,
THE NURSERIES,
Worcester.

To Vine and Orange Growers.

WANTED, some Young Plants of TANGERINE and MALTA, or BLOOD ORANGES, and of the MONUKKA GRAPE.

Apply to WILLIAM COLES, Beckenham Place, Kent, S.E.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

NEW CUCUMBERS, at *1s.* per packet.

Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

CARTER'S CHAMPION CUCUMBER, recommended by the Royal Horticultural Society as being an excellent bearer. Fruit solid and firm, and the best of the Sion House class. *1s.* per packet. A few ounces of our own saving to offer the Trade.

237, 238, & 261, High Holborn, London, W.C.

Seed Trade.

JAMES CARTER AND CO., Holborn, W.C., have a few lbs. of the following to offer to the Trade:—

MELVILLE'S GARNISHING KAIL,
VARIEGATED BEET, for garnishing,
SNOW'S WINTER BROCCOLI, true,
LITTLE PIXIE CABBAGE.
NEW FEATHER STEM SAVOY,
DANVER'S YELLOW ONION.
TOMATOE DE LAYE.
HENDERSON'S PINE-APPLE BEET.

GIANT ASPARAGUS ROOTS, *2s. 6d.* per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see RICHARD SMITH'S SEED LIST for 1863.

Strong Transplanted SEA KALE, *2s.* per doz.
RICHARD SMITH, Nurseryman, Worcester.

GRAYSON'S TRUE MORTLAKE GIANT ASPARAGUS, grown on the ground where the late Mr. GRAYSON brought it to such perfection, so that Grayson's Asparagus is preferred everywhere.

Seed saved from the Mortlake Beds	..	*6d.* per oz.
Plants 1-year old		*2s. 6d.* per 100
,, 2 years old		*4s. 0d.* per 100

FRANCIS R. KINGHORN, Sheen Nursery, Richmond, S.W.

To the Seed Trade.

H. AND F. SHARPE have a Surplus Stock of true—

Early Long Pod Beans	Ne Plus Ultra Peas
Mackie's Monarch ditto	Laing's Imperial Swede Turnip
Broad Windsor ditto	Early Green Top Yellow ditto
Early Emperor Peas	Fine Red Surrey Carrot
Woodford's Green Marrow do.	Early Nonpareil Cabbage
Flack's Blue Imperial ditto	,, Emperor ditto
British Queen ditto	,, Enfield Market ditto

which they can offer at a low figure.

Seed-growing Establishment, Wisbeach.

Seeds for the Kitchen Garden, Flower Garden, and Farm.

JOHN CATTELL'S DESCRIPTIVE CATALOGUE of the above is now ready, and will be forwarded, post paid, on application; it contains select lists only, and includes every novelty worthy of cultivation.

All parcels of Seeds of the value of 21*s.* and upwards carriage paid to any Railway Station in England.

Nursery and Seed Establishment, Westerham, Kent.

Cabbage Plants.

W. VIRGO and SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at *3s.* per 1000:—

EARLY YORK CABBAGE	EARLY NONPAREIL
,, BATTERSEA	DRUMHEAD
,, BARNES	

RED CABBAGE, *4s.* per 1000. All strong, healthy, and well rooted.

Wonersh Nursery, near Guildford, Surrey.

To Seedsmen and Others.

THOMAS AYRES, SEEDSMAN and GROWER, Biggleswade, Beds, begs to offer the following SEEDS of his own growth of 1862, viz:—

WHITE SPANISH ONION SEED,
MANGEL WURZEL SEED, various kinds.
SWEDE, and COMMON TURNIP, ,,
SEED POTATOES of the following varieties:—EARLY ASH LEAF KIDNEY, MYATT'S PROLIFIC do., EARLY SHAW and REGENTS.
SCARLET RUNNER BEANS (English grown).

A PRICE LIST forwarded upon application.



The King and Queen Potatoes.

SUTTON AND SONS have much confidence in recommending these two new sorts of POTATOES, as decidedly the finest and best in cultivation.

The following Prizes have been awarded to Mr. Spencer for these Potatoes:—

The Prize at the Crystal Palace, 1861.

Three Prizes at the International Show at the Royal Horticultural Society's Gardens, South Kensington, in October last.

The Prize at the Birmingham Cattle and Root Show, Bingley Hall, in December last; and upwards of 20 other Prizes in various parts of the kingdom.

To be had of Messrs. SUTTON & SONS, Reading. Price *5s.* per Peck (of 14 lbs.)



KING of the POTATO.—The original Stock as received from the Raiser, Mr. Spencer, and sent out by us. Pronounced by all who have grown it, to be one of the MOST PRODUCTIVE AND BEST VARIETIES in cultivation. No Blight affects it.

Price 12*s.* 6*d.* per cwt., or 12*l.* per ton.

JAMES DICKSON & SONS,
The "Newton" Nurseries, Chester.

The King of Potatoes.

JOS. H. ROBINSON, SEEDSMAN, Coventry, has a limited quantity of the above superior POTATO to offer at *2s.* per peck, or *7s.* per bushel. Also MYATT'S ASHLEAF, *2s.* and *7s.* EARLY LEMONS, the earliest and best Ashleaf out, *2s.* and *6s. 6d.* DALMAHOY SECOND EARLY, *1s. 3d.* and *4s.* FLUKES, *1s. 3d.* and *4s.*

The "King" may fairly be said to be the finest Potato in cultivation; gaining the First Prize at the Royal Horticultural Society's Show, and at Birmingham

POTATOES for PLANTING.—MYATT'S PROLIFIC, *22s.* per sack of 2 cwt.; ASHLEAF KIDNEY, *22s.*; do. DALMAHOY, FORTYFOLD, SHAW'S, FOX'S SEEDLING, FLUKES, *10s.* per sack; FLOUR BALLS and SHORT TOP SCOTCH, *8s.*

Sacks, *1s. 6d.* each. Terms, cash.

CHRISTMAS QUINCEY, Seed Grower and Seedsman, Peterborough



WHEELER'S LITTLE BOOK for 1863.

WHEELER'S TOM THUMB LETTUCE.

WHEELER'S IMPERIAL LETTUCE

The price of the Lettuce is *1s.* per packet, post free.

J. C. WHEELER & SON beg to inform the Trade that their "Little Book" is entered at Stationers' Hall, and that they cannot allow it to be copied.

J. C. WHEELER & SON, Seed Growers, Gloucester.

NEW HARDY WHITE SWEDE.—The Favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills. Grows rather coarse on some soils or when sown early; but it is very productive, hardy, and it is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor land.

Seed *1s.* per lb., or *42s.* per bushel.

Supplied by RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

MANGEL WURZEL SEED, &c., from well selected and Transplanted Bulbs.—YELLOW GLOBE, *4d.* per lb., *30s.* per cwt.; RED ditto, *4d.*, *32s.* per cwt.; ORANGE GLOBE, *5d.*, *40s.* per cwt.; a reduction for larger quantities. ENGLEFIELD YELLOW GLOBE, *3d.* per lb.; PURPLE-TOP SWEDE, *8d.* per lb.; *25s.* per bushel of 50 lbs. HARDY WHITE SWEDE, *9d.* per lb.; *30s.* per bushel (Bags included).

ALTRINGHAM CARROT SEED, *1s.* per lb.; selected ditto. *1s. 6d.* Terms cash.

CHRISTMAS QUINCEY, Seed Grower and Seedsman, Peterborough.

Vegetable and Flower Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully announces that his SEED CATALOGUE is now ready, free by post.

The COLLECTION of VEGETABLES recently Commended by the Royal Horticultural Society was grown from Seeds furnished by him.

Nurseries and Seed Warehouse, Waltham Cross, N.

International Exhibition. Prize Medals 1851 and 1862,

AWARDED FOR "EXCELLENT SEED CORN AND SEEDS," TO

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED MERCHANTS and GROWERS, Basingstoke, Andover; and 89, Seed Market, Mark Lane, London, E.C.

Samples of all kinds of AGRICULTURAL SEEDS and SEED CORN, sent post free on application.

Agricultural Seeds of First Quality.

COW CABBAGE, CARROTS, KOHL RABI, MANGEL WURZEL, RAPE, WHITE MUSTARD, TURNIPS, SWEDES, CLOVERS, RYE-GRASSES, GRASSES FOR PERMANENT PASTURE, FURZE OR GORSE, SERADELLA, &C., &C.

WM. WOOD AND SON beg to offer Seeds of the above, genuine and unadulterated, and will be happy to forward samples and prices (which are very moderate) on application.

DESCRIPTIVE PRICE LIST of AGRICULTURAL SEEDS now ready.

☞ Orders amounting to *10s.* and upwards, sent carriage free.—See List.

Seed Warehouse, Maresfield, near Uckfield, Sussex.

N.B. Special quotations at reduced rates for large quantities

Good Clover Seeds at Market Prices.

SUTTON AND SONS have now ready, at very moderate prices, fine new RED, WHITE, and ALSIKE CLOVER SEEDS. As also new Rye Grasses, Turnip, Mangel Wurzel, and other Agricultural Seeds, a Priced List of which may be had post free.

Address SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Grass Seeds for all Soils.

SUTTON AND SONS have one of the largest stocks in Europe of the PERMANENT NATURAL GRASS and CLOVER SEEDS, which they mix expressly to suit the soil for which they are required.

The following letter has been received, besides many others:

From Professor LINDLEY, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

PRESENT PRICES ARE—	Per Acre. s.	d.
Best quality MIXTURES for Laying Down to PERMANENT PASTURE	30	0
Cheaper MIXTURES, omitting certain sorts 20s. to	26	0
Best quality ditto, for Three or Four Years' Lay ..	22	0
Ditto ditto, for One or Two Years' Lay 15s. to	18	6
CLOVERS and fine GRASSES for Renovating Old Pastures .. .. 6s. to	9	0
Finest LAWN GRASS SEEDS .. .. per bushel	18	0
PARK LAWN GRASS SEEDS .. .. ,,	16	0

The First Prize Medal was awarded to SUTTON & SONS for their Grass and Clover Seeds at the Great International Exhibition of Roots and Cereals at South Kensington in October last.

A Copy of Mr. MARTIN SUTTON'S "Essay on Pastures" is sent with each lot of Grass Seeds.

Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.

PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

CHEAP GRASS SEEDS for HILL SIDES and RAILWAY BANKS.—Rough Grasses, Sainfoin Siftings, &c., suitable for the above purpose, at 2*s.* per bushel and 3*d.* per lb.

Address, RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

GENUINE RED WELSH CLOVER.—The RED CLOVER saved in the cold climate of North Wales is found to be decidedly hardier, and to produce a much more robust and vigorous Plant than the Seed of any other country. Our supply is limited. Early application is necessary.

Apply to J. ROBERTS & SON, Seedsmen, Denbigh, N.W.

SEED CORN from the CHALK.—All the most approved varieties supplied by RAYNBIRD, CALDECOTT, & BAWTREE. Samples and prices on application.

Address, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

FARM SEEDS of the finest quality, are offered at fair Market Value.

A LIST of PRICES at which they can be delivered carriage free, and 5 per cent. discount allowed for Cash, is contained in

WHEELER'S "LITTLE BOOK"

for 1863.

FARM SEEDS OF GENUINE QUALITY (at Market Prices). *Carriage Free.*

RICHARD SMITH, SEED MERCHANT, Worcester.

GRASS SEEDS for LAYING DOWN LAND to PERMANENT PASTURE or MEADOW.

Having been amongst the very first in this country to recommend the use of the Natural Grasses in the formation of Permanent Pasture, and having over a long period of years given the subject a considerable share of attention, we, from the marked success which has attended their culture, feel quite warranted in recommending our carefully prepared Mixtures or Assortments to the notice of those who purpose laying down land for a period of years. In choosing for these Mixtures, our aim is to imitate, as near as possible, the varieties composing the rich old pastures of Britain, and which it is obvious cannot be obtained by adopting the too common mode of sowing down with Ryegrass and Clover only, for although these yield heavily at first they are soon exhausted, and leave the land bare, to be filled up in course of time by an inferior herbage.

Parties ordering will please state the nature and extent of the land to be sown, and whether with or without a grain crop. When not instructed to the contrary, the Seeds will be sent out mixed and ready for the sower. The mixing being a most important operation, is much more perfectly done by our practised hands than it can be by those unaccustomed to it. After numerous carefully tested experiments, we find it the best plan to sow light and heavy seeds together.

When requested, we will be glad to furnish a list of the varieties and quantities suited to any given description of land. The Cost for a full Supply of Seeds will range from 25*s.* to 28*s.* per statute acre.

Carriage of Seeds paid to the principal Railway Stations throughout the kingdom.

W. DRUMMOND & SONS, Stirling.

*** PRICED CATALOGUES of all the leading descriptions of Seeds required for the Farm or Garden, may be had prepaid on application.

TRADE MARK.

HALLETT'S PEDIGREE. NURSERY WHEAT.

"The best Spring Wheat known. Drill in February and March, six pecks per acre."

Produced (1862) 62 bushels per acre, weighing 64 lbs. a bush.

Price ONE GUINEA A BUSHEL, including bag sewed up and sealed, delivered at the Brighton Railway Station, with Printed Directions for Planting, on Receipt of Cheque or Post-office Order, which must in all cases accompany the Order. Less than One Bushel will not be supplied. Name of Station and Railway should accompany the Order.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

WANTED, GREEN HOLLIES, YEWS, PORTUGAL LAURELS, COMMON LAURELS, AUCUBAS, EVERGREEN OAKS, LAURUSTINUS, BIRCH, LIME, THORNS, BOX, for Cash on delivery.

Send size and price to J. G. C., care of Eyre & Co., 32, Bouverie Street, Fleet Street, E.C.

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.

Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.

Can be obtained through the principal Nurserymen and Seedsmen in England.

A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.

PAGE & TOOGOOD, Seed Merchants, Southampton.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE CO., Limited.

Blight.

BROWN'S PATENT FUMIGATOR.—A Portable Instrument for Fumigating Greenhouses, Stoves, and Frames, or Shrubs and Flowers in the open air, without injuring the most delicate plant; delivering the smoke cold, in a dense mass, and effecting a great saving of Tobacco. Price 10*s.* and upwards.

Manufactured and supplied to the Trade by Messrs. BARBER & GROOM, London; and may be had of all Ironmongers, Seedsmen, and Florists.

BENJAMIN EDGINGTON'S MARQUEES and PAVILIONS for Royal and Noble parties for the Season, 1863. Rick Cloths with Poles, &c., Complete, New, and Second-hand. Netting and Bunting for Fruit Trees, Garden Mats, &c. A quantity of FLAGS, used at the Royal Procession, to be Sold as Second-hand.

Address, BENJAMIN EDGINGTON, 2, Duke Street, Southwark, foot of London Bridge, S.E. No other Establishment.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

ANNUAL GRAND EXHIBITION of UNFORCED HYACINTHS

MESSRS. ARTHUR HENDERSON & CO.'S

ANNUAL DISPLAY of the above GALAXY of FLOWERS will be held in the LAPAGERIA HOUSE, Commencing April 1, and ending on April 12.

THE NURSERIES, PINE APPLE PLACE, EDGWARE ROAD, LONDON, W.

NEW PLANTS FOR 1863.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Has much pleasure in offering the following NOVELTIES for the first time, to be sent out after April 20:—

New Achimenes.

The following choice varieties are the seedling productions of that successful gardener, Mr. Parsons, of Welwyn, and they will be found great acquisitions to this beautiful class of plants, and quite equal to the descriptions given:—

ACHIMENES MAUVE QUEEN.—This splendid variety is, without exception, the finest of all that useful and most desirable class of summer-flowering plants; a great improvement on longiflora major; producing an abundance of beautiful large mauve-coloured flowers, with a conspicuous light chocolate eye, splendid form, and of extraordinary waxy substance. Was exhibited by the Raiser at the Floral Committee of the Royal Horticultural Society, and was awarded a First-class Certificate. Figured in the "Floral Magazine," November, 1862. Price 10*s.* 6*d.* each.

ACHIMENES CARMINATA ELEGANS.—Another beautiful variety, and is, without doubt, the finest of the small and free-flowering sections, producing spikes 18 inches in length; being of good branching habit, is capable of producing specimens 3 or 4 feet in diameter, thus making it a charming object for the, summer and autumn months. Price 7*s.* 6*d.* each.

*** Coloured Illustrations of each of the above by ANDREWS will be forwarded in exchange for six postage stamps.

New Petunias.

The following valuable varieties were raised by Mr. Holland, of Isleworth, and are a small collection selected from a large quantity of Seedlings. They are confidently recommended for general excellence, being great improvements on all others previously offered.

PETUNIA CRIMSON GEM.—A compact branching and free growing variety; flowers of a soft velvety crimson, with dark throat; of great substance and fine form; an improvement on Phaeton and all in that way. This is, without exception, the highest coloured Petunia yet offered. Received a First-class Certificate from the Royal Botanic Society, May, 1862. Price 5*s.* each.

PETUNIA FLOWER OF THE DAY.—This remarkable flower has four broad stripes of pure white, and four bright purple above, equally divided; very constant and beautiful. Received a First-class Certificate from the Royal Botanic Society, May, 1862. Price 5*s.* each.

PETUNIA ROSA BELLA FORME.—A free flowering and shrubby variety, of first-class habit for bedding and other purposes, being of short-jointed growth; producing an abundance of beautiful bright Magenta flowers, with a clear white throat, of great substance and perfect form. This will, without doubt, prove to be the best bedding Petunia yet offered. Price 5*s.* each.

*** Coloured Illustrations of Petunia Rosa Bella Forme, and Flower of the Day, by ANDREWS, will be forwarded in exchange for six postage stamps.

New Zonale Geranium.

CONQUEROR OF EUROPE (HOLLAND).—Beautiful soft carmine; fine form and substance; extra large truss; long flower stalks, producing enormous heads of bloom well above the foliage; good and compact habit; fine for pot culture. Was awarded a First-class Certificate at the Royal Horticultural Society's meeting, June 1862. Price 5*s.* each.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

EXTRACTED FROM

J. C. WHEELER & SON'S "LITTLE BOOK,"

OR

SELECT SEED LIST FOR 1863.

AGRICULTURAL GRASSES.

AS NATURAL GRASSES form so large a proportion of the Plants of the Farm, a knowledge of the more useful species can hardly fail to be acceptable to the Farmer. Indeed, so many questions are involved in a due understanding of "the Grass of the Field," that in the present day we feel bound, as it were, to dissect our Meadows and to mark the nature and habits of the various plants which may enter into their composition. So far from thinking that a Pasture is all Weeds, or that any mixture of Herbs may be good, we now begin to find out that its goodness depends upon the presence of some kinds of Grasses and the absence of others; and as England, with its varied soils, presents the perfection of Meadow verdure, so then the study of Grasses will show us that their numerous species, both separately or conjointly, may so far mark the nature and composition of our soil as to enable us not only to judge of quality, but to adapt our Farming to the condition which a knowledge of Grasses will unfold to us.

In order then to enlist the sympathies of our Agricultural friends in a pursuit so useful as the study of the Grasses, we have introduced the preceding portraits of some of the more important Farm species, to each of which we have appended such scientific and practical notes as we hope will be useful as stimulating to further inquiry.

We were so impressed with the value of this kind of knowledge to those engaged in the Seed Trade as to induce us to offer Four Prizes to our Assistants and Workmen for the Four best Collections of Grasses growing in the rich Meadows of this district. On the day appointed Eight Collections were entered for competition, and the Prizes were awarded by Professor Buckman. In reference to this event the following paragraph recently appeared in the "Popular Science Review:"—

"We recently had the pleasure of examining some large and beautiful Collections of our Wild Grasses, which were made under such interesting circumstances that we cannot forbear referring to the fact. Messrs. WHEELER, Seed Growers, of Gloucester, having for some time become aware of the importance of a personal acquaintance with the Plants, the Seeds of which they sold, offered Prizes for Competition among their Commercial Travellers, Clerks, and Warehousemen, for the best Collection of Wild Grasses. The result was a very spirited contest, which led those engaged into scenes of beauty they would perhaps not otherwise have visited; and this made them acquainted not only with the appearance, but also with the habits of a Tribe of Plants, the observation of which, we venture to say, is better calculated to discipline the mind than is that of any other group in the Vegetable Kingdom."

As the result of our experience it may not perhaps be out of place for us to name some of the components of the MIXTURES which we recommend for

PERMANENT PASTURE,

the varieties and quantities differing with the various soils and circumstances under which they are sown.

UNDER TREES, for instance, as in ORCHARDS and PARKS, we should include a good proportion of Poa nemoralis (fig. 9) and Poa nemoralis sempervirens, Dactylis glomerata (fig. 10), Lolium perenne and italicum (fig. 5), a small proportion of Anthoxanthum odoratum (fig. 1), a liberal allowance of Cow Grass Clover (Trifolium pratense perenne) and Honeysuckle Clover (Trifolium repens).

FOR GAME COVERTS, and THICK WOODY PLANTATIONS, we should diminish the quantity of Loliums (fig. 5), and should add a little of Arrhenatherum avenaceum (fig. 8), Bromus giganteus and Aira cæspitosa (fig. 15).

FOR OPEN MEADOW LAND, soil of medium quality, we should prescribe 12 lbs. of heavy seed (Clovers), consisting of Trifolium repens, T. pratense perenne, T. hybridum, and Medicago lupulina, and 2 bushels of Grass seeds (which are more equally distributed over the land if sown separately and not mixed with the heavy Clover seeds); we always send them out separately, leaving it to the option of our customers, whether to mix them before sowing, or to sow them separately, as they think most desirable; we recommend, however, the latter plan, and would suggest the desirability of choosing a mild, still day, for the operation, as if sown in rough windy weather the light seeds are blown about hither and thither.

The Grass seeds consist of the following: Lolium perenne (fig. 5), a little L. italicum, which, dying out after a year or two, leaves room for the other varieties (which do not until that time attain their full vigour) to occupy its space more worthily; Sweet Vernal, Anthoxanthum odoratum, (fig. 1); Cocksfoot, Dactylis glomerata (fig. 10); Phleum pratense (fig. 3); Poa, in sorts, (fig. 9); Festuca (fig. 11); a very small proportion of Avena flavescens (fig. 14); and a more liberal allowance of Meadow Foxtail, Alopecurus pratensis (fig. 2).—*This Mixture will produce a fine rich Permanent Pasture, and which we can offer at 30s. per Acre—everything included.*

IF THE LAND is HEAVY CLAY, we should increase the quantity of Phleum pratense (fig. 3), and Poa trivialis.

IF LIGHT SANDY or BRASHY SOIL, we should add Avena (fig. 14), Festuca rubra, Cynosurus cristatus (fig. 4), and increase the quantity of Poa pratensis (fig. 9).

FOR WET MARSHY GROUNDS, we should include a large proportion of Agrostis stolonifera (fig. 6), and some of the Water Poas.

We have figured Holcus lanatus (fig. 7), Bromus mollis (fig. 12), and Briza media (fig. 14), *merely to point them out as sorts to be avoided altogether.*

The figures refer to the illustrations in our "Little Book."

Grasses and Clovers for One or Two Years' Lay, usually called "Seeds."

The quantity required per acre will be about 15 lbs. of mixed Clover Seed, and from one to two pecks of Grass Seeds, to be sown about the end of March, or the beginning of April, with either Wheat, Oats, or Barley. "The land is then to be harrowed or *bush-harrowed* across the drills of corn—if these are up—and rolled."

We are extremely careful in the selection of the finest and heaviest Grasses, and the cleanest and purest samples of Clovers for these "Seeds." We can highly recommend our mixtures as being of the very best quality—it is comprised as follows:—

FOR ONE YEAR'S LAY—the principal varieties are Lolium perenne, L. italicum, Trifolium pratense, T. repens, Medicago lupulina, with a sprinkling of Phleum pratense and Anthoxanthum odoratum.

FOR TWO YEARS' LAY—in addition to the foregoing, we recommend Trifolium pratense, T. hybridum, and Dactylis glomerata (fig. 10). *These varieties produce a most luxuriant crop.*

FOR RENOVATING OLD PASTURES—we recommend a similar mixture to that prescribed for Permanent Pasture—the application of about 10 lbs. per acre, applied in the Spring, and well bush-harrowed in, with a top dressing of manure, is attended with most excellent results.

We offer our most Carefully Selected and most Carefully Cleaned Grass Seeds, at the Prices Annexed:

		s.	d.
GRASS and CLOVER SEEDS for PERMANENT PASTURE—of the most suitable sorts and varieties, all carefully arranged and mixed for any soil or situation which may be described to us	per acre	30	0
GRASSES and CLOVERS for ONE YEAR'S LAY	„	14	6
„ „ for TWO YEARS' LAY	„	17	6
RENOVATING MIXTURE	per lb. 9d.—per cwt.	80	0
ITALIAN RYE-GRASS—imported Seed, genuine	per bush.	7	0
„ „ English grown, clean seed	„	6	0
PERENNIAL RYE-GRASS—(Lolium perenne)—fine	„	6	0
„ „ PACEY'S EXTRA FINE	„	7	0
EVERGREEN RYE-GRASS (RUCK'S)	„	7	0

Clovers.

Most carefully selected pure clean Seed, perfectly genuine.

		s.	d.
RED or BROAD (Trifolium pratense)	per lb.	0	8
COW GRASS (T. pratense perenne)	„	0	10
WHITE DUTCH or HONEYSUCKLE (T. repens)	„	0	10
TREFOIL (Medicago lupulina)	„	0	5
ALSIKE (T. hybridum)	„	1	0
CRIMSON (T. incarnatum)	„	0	6

In addition to paying carriage, we allow a discount of 5 per cent. on all Farm and Garden Seeds, if the amount is remitted within a week of receipt of goods.

J. C. WHEELER AND SON, SEED GROWERS, GLOUCESTER.

Superb Double Hollyhocks.

THIS BEING THE BEST TIME FOR PLANTING THEM OUT.

WILLIAM CHATER has an immense stock of healthy Plants.

CATALOGUE of PRICES to be had on application.

WILLIAM CHATER, Nurseries, Saffron Walden.

Superb Hollyhocks.

R. B. BIRCHAM begs to state that he has a very large Stock of fine healthy Plants now ready for planting out, and shall be happy to supply orders upon the most liberal terms.

CATALOGUES sent upon application.

Hedenham Rosery, Bungay, Suffolk.

Select Double Hollyhocks.

WILLIAM PERRY begs to announce that he has for SALE a good and healthy stock of Young Plants of the above that will flower well this season. If selection is left to W. P., the price per dozen will be 9*s*., 12*s*., 18*s*., 24*s*., 30*s*.

Sawbridgeworth, Herts.

EDWIN HOLLAMBY begs to inform his Patrons and Friends that his DESCRIPTIVE PRICED CATALOGUE of VEGETABLE, FLOWER, AGRICULTURAL SEEDS, and GLADIOLUS is now ready, and may be had gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells, Kent.

Bedding Plants, mostly 2s. 6d. per dozen.

J. SCOTT'S FLOWER GARDEN and ANNUAL DIRECTORY will be ready to forward, from the 1st week of April, at 6*d*.

"All who wish to have their Gardens gay, at a moderate price, should procure the above."

Merriott, Crewkerne, Somerset.

10,000 Fuchsias and Geraniums.

G. WELLS, GROVE NURSERY, Coleman Street, Camberwell, S., begs to offer the above in strong healthy Plants, including the newest and best sorts in cultivation. FUCHSIAS at 5*s*. per dozen, or 36*s*. per 100; GERANIUMS from 2*s*. 6*d*. and upwards. Package included.

Chrysanthemums, Dahlias, Fuchsias, Verbenas, Geraniums, Pelargoniums, Petunias, Calceolarias, &c.

W. HOLMES'S CATALOGUE of the above is now ready, and may be had in exchange for One Stamp.

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THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE is hereby given that an ELECTION of TWO PENSIONERS on the Funds of this Institution will take place in JULY NEXT. All persons desirous of becoming Candidates are required to send in their Testimonials and Certificates to the Committee on or before SATURDAY, April 25, after which time they will not be received.

Preference will be given to those persons who have been Subscribers for 15 years and upwards, but should there not be a sufficient number of that class of applicants, then the claims of those who have not been Subscribers so long, or not at all, will be considered.

Printed Forms of Petition can be had upon application to the Secretary. By order. EDW. R. CUTLER, Secretary.

14, Tavistock Row, Covent Garden, W.C., March 28.

The Gardeners' Chronicle.

SATURDAY, MARCH 28, 1863.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, March 31—Royal Horticultural (Floral Committee) at South Kensington .. 12 noon

THURSDAY, April 2—Linnean .. .. 8 P.M.

WE are glad to find the leading journal speaking out on the question of the injury done to the TREES of LONDON and its vicinity, by the deep cuttings, of whatever kind, which engineers are so fond of perpetrating—a question to which we invited attention some time since in reference to sewers. Now, the monster comes forth in the shape of a railway.

In recently animadverting on the ravages that rival railway companies are proposing to make in London—ravages too which are for the most part mere trade speculations, undertaken with the view to enrich the shareholders, the *Times* very truly says, "that some Bills which bear the most harmless of suburban titles are likely, if passed, to do a lasting injury to the metropolis itself. Such are the Bills promoted by the London and Brighton Company, and the London, Chatham, and Dover Company, both of whom actually propose to take their lines through Greenwich Park, the most ancient, and by far the most beautiful, of all the Parks round London. The promoters of these schemes say that they 'intend to studiously avoid injuring the Park,' and only mean to 'take the line through the Park by a tunnel about half a mile long.' This tunnel, however, must be constructed, we believe, on what engineers call 'the cut and cover" system; that is to say, a broad and deep cutting is first made, the tunnel then built, and the earth filled in again. A disfigurement of this kind for some 12 months or so while the works are progressing ought in itself to be a sufficient reason for the rejection of the Bill, but this will not be the least of the evil, for the formation of any tunnel through the Park will drain the moisture from the trees and kill all the noble Elms and Chesnuts in its neighbourhood. In the matter of Railway Extension the Legislature has taken special care of the north side of the metropolis, while the south side has been left to the mercy of every angry company or hungry projector. It is most earnestly to be hoped that they will not permit this last act of desecration, and that this old, historic playground of the south of London will be left in its natural beauty."

We endorse all that is said in the foregoing quotation as to the destruction of trees by these cuttings. The sewers are answerable for the greater part of the damage done to trees situated more immediately in London; and a railway cutting would not be less injurious than a sewer, whether made on the cut and cover system or by tunnelling. The great damage is done by excessive drainage, which follows in either case. We trust there will be a sharp scrutiny of all these schemes, not only southwards of the metropolis, but in every other direction. Not one tree should be suffered to be destroyed; and even to damage a mature or ancient one should be held to be a sacrilege.

So much for our Parks. As to our London squares, Colonel YOLLAND, in his report to the Board of Trade, is made to say:—"The policy of authorising the appropriation of the squares in the metropolis for the purposes of terminal stations, covering the area with lofty railway buildings, is exceedingly doubtful. In some instances circumstances might justify it; but there are no grave objections to railways passing under the squares and parks, provided the drainage and sewerage were not interfered with." To this last assertion we object *in toto*, if it means, as appears on the face of it, that provided drains and sewers are not obstructed, railways in these positions will do no harm. On the contrary, such cuttings and borings will reduce the already deficient moisture of the soil—from which more London trees die, be it remembered, than from any other cause—and destroy the vegetation it is now able, however feebly, to support. The R. Horticultural Society's Arboricultural Committee has here some pressing work on which to try its hand.

IT was remarked lately in the *Gardeners' Chronicle* (1863, p. 270) with reference to some CEDARS casting their leaves unexpectedly in winter, that it arose probably from the effect of severe cold a year or two since. Many a failure may be accounted for in the same way. Red Cedar, the common Arbor-vitæ, the Sweet Himalayan Honeysuckle, with other cases within our own experience, after flourishing last summer are now partially dead or dying, if not absolutely destroyed. The case of the Arbor-vitæ is very curious, the flat sprigs falling off bodily though quite green and apparently healthy, the fall being sometimes confined to one side of the branch, sometimes extending to both. In the case of the Himalayan Honeysuckle, cuttings have not fared better than the original plant. They flourished through the winter, but now, like the stock, they are perishing.

The explanation of all this is not very difficult. In point of fact the same thing constantly takes place in delicate trees like the Peach and Apricot, and is one main source of gumming. The ill-ripened wood is partially affected by the frost, but not to such an extent as to destroy the vitality of the whole. The consequence is that for a year or two vegetation is actively carried on by the sound part, a very small strip of healthy tissue being sufficient to carry up the nutritive sap, which, as in branches ringed or constricted, tends to produce an abundant show of blossoms or fruit. The portions of the tissue which have been injured, soon however contaminate those which are connected with them, and in the end the whole cease to perform their functions, and death ensues. If the evil is more partial, the branches or twigs which are immediately connected with the dead bark perish at the base, and either remain upon the tree or break off, though the upper part is still fresh and green.

In the case of evergreen leaves the effect of frost is often at first partial. We see this constantly in the leaves of the common Araucaria, and according to circumstances the leaves remain on the stems half dead, or, as in the case of the Cedars alluded to above, they fall off entirely.

While speaking of the effect of cold, an observation respecting the perishing of the tips of Fig trees during the late mild winter may not be out of place; we have ourselves seen precisely what our correspondent alludes to, and it appears to us quite certain that it is due to the November frost, which acted powerfully on the ill ripened wood. We have seen however an instance of decay from

a very different cause, which may be mentioned by way of caution. The branches of some trees in an orchard house, in vigorous growth, and laden with leaves, were tied together with a view to protect them from frost, the consequence of which has been, that both leaves and young shoots rotted from the pent-up moisture. *M. J. B.*

—— THOSE who saw the close ranks of gay and varied uniforms in which the corps of HYACINTHS was passed under review at South Kensington on the occasions of the floral gatherings of February and March, will, we imagine, freely admit that in this flower we have emphatically *the flower* for early spring display: a conclusion which the experience of similar meetings last year abundantly supports. In recalling some of the materials of which these displays have been made up, as well as of those observed in the home exhibition of Mr. CUTBUSH, which, as usual, is this year well worth seeing, we are glad to find that novelties continue to make their appearance, and that if they are not always acquisitions of high merit, at least a fair proportion of them show a very decided improvement in some one or other of the features which go to make up a first-class variety. Some sorts of this character were noted by us last year, and we have found that such varieties as Reine des Jacinthes, Pelissier and Macaulay among the reds, Snowball and Madame Van der Hoop among the whites, Haydn among the violet-mauves, and Duc de Malakhoff, a red-striped buff, keep up their position, notwithstanding that the past season had not been one of the best for maturing the bulbs. Macaulay is, we fancy, destined to take a very prominent position, commercially, for to its bright colour, bold spike, and more than usually smooth flowers, qualities which render it exceedingly attractive, it adds, as we learn, a good constitution, which will admit of a market supply being provided. No one will regret growing this. Reine des Jacinthes, or Queen of Hyacinths as it is sometimes called, is still the best red for colour, a clear intense crimson-lake, and altogether very fine. Pelissier is similar, and nearly as good. Snowball, a good white, is unapproached for the form of its individual flowers, which make up a close but not a very lengthened spike. Madame Van der Hoop is purer, with the large bells well displayed on longish footstalks. Haydn comes out well, being thoroughly distinct, good in quality, and telling in colour—not so much intrinsically perhaps, as by contrast. Duc de Malakhoff, a buff or fawn colour striped with red, is this season rather more suffused with the red tint than it was last year; in either condition, however, it is very handsome and well-marked. Koh-i-noor, one of the pinks, deserves special mention as having borne the premier flower-spike in the March (unforced) exhibition, Mr. PAUL'S plant of it being remarkably fine; it is a Hyacinth which generally throws a good spike of flowers, and yet one which in other respects we cannot highly praise, on account of the narrowness and pinched up appearance of the perianth segments—defects which are for the most part hidden from the casual observer by the dense packing of the flowers. A noticeable feature of the show just referred to, was the liberal infusion and the excellence of the yellow varieties, the prominent one being Ida, an excellent free-growing, bold-spiked, clear canary-coloured sort, far in advance of the yellows we have been in the habit of seeing. Another pleasing Hyacinth, on account of its distinctness and delicate colouring, was Johanna Christina, not new, but little known, here shown as an almost pure white, with a deep red stripe on each of its segments.

Turning to actual novelties, those which most pleased us, were Fair Maid of Denmark, Lamplighter, San Francisco, Feruk Khan, and one shown (by whom we failed to notice) as Lord Palmerston. Fair Maid of Denmark is remarkable for the solidity and substance of its smooth-surfaced bells, which are pure white, clean and smooth, and hang well on the spike by footstalks of moderate length. It comes between Madame Van der Hoop and Queen of the Netherlands, but has rather smaller flowers than the first, and longer footstalks than the last; the bells, which are remarkable for their purity smoothness and substance, without being scattered, hang so that each is distinctly seen. Lamplighter is quite novel, a blackish violet with a white eye, very distinct as a dark flower with pale centre, but rather small and narrow in the spike, probably attributable to the small size of the bulb. San Francisco is another good clear yellow, with a close spike, rather deeper-coloured than Ida, and therefore a decided acquisition if it proves, as appears likely, of free habit. Feruk Khan is a deep blue, producing well-furnished spikes. Lord Palmerston is a paler-coloured Argus, the tube being bright blue, the throat nearly white, and the limb a light lilac-tinted blue. We hear of another and very different Lord Palmerston as forthcoming another year.

The class of WHITE-EYED HYACINTHS begins to assume sufficient importance to be recognised amongst growers and compilers of catalogues. Lamplighter, one of the novelties of the year, is the darkest of them—a blackish violet surrounding the white. Then, we have in this way Argus, with a face of indigo blue; the Lord Palmerston just mentioned, in which it is of a lilac-tinted palish blue; and L'Honneur d'Overeen, a reddish or pucy violet—the latter closer in truss and much better coloured this year than we remember to have previously seen it. The pale eye is conspicuous in all these, and forms a pleasing feature. It is already tolerably pure; but there is no reason why the strain should not be followed up, till we get it purer still, and more thoroughly defined.

—— MR. BABINGTON tells us in the new *Journal of Botany* (No. 2) that our Cork trees are not Quercus Suber, as we had always been led to believe. At least this is an inference from the statement he makes, which is this:—M. J. GAY has pointed out in the *Bulletin de la Société Botanique de France*, that the Quercus Suber of the coasts of the Atlantic in France and Spain is not the tree so called on the shores of the Mediterranean, which latter he names Q. occidentalis. The acorns of this Q. occidentalis are said to require 14 or 15 months for their maturation, while those of the true Q. Suber ripen in four or five; and other differences of a structural character are mentioned. Now, there exists near the city of Cork, a very large Cork tree, recorded by Loudon in 1828 and still flourishing. Specimens of this tree, which grows at Summertown, have been examined by M. GAY, and he decides that it is Q. occidentalis, and not Q. Suber. We have now to learn, adds Mr. Babington, if there are any other old Cork trees in England or Ireland, and if such exist, to ascertain their species. The probabilities are, he thinks, very much against any old tree of the true Q. Suber being found. Some of our readers may be able to assist in this inquiry.

—— In a paper on African Acanthaceæ read before the Linnean Society, Dr. T. ANDERSON, the greatest living authority on the plants of the Acanthaceous family, puts us right in respect to the name and native country of the very ornamental stove undershrub to be found in cultivation under the name of Stephanophysum Baikiei. This, which was said to have been received at Kew from Western Africa, is in reality, according to Dr. ANDERSON, the Siphonacanthus repens, of NEES, a species confined to Brazil; and he accordingly names it, according to botanical law, STEPHANOPHYSUM REPENS. Some mistake, he adds, must have occurred in recording the source whence the Kew plant was obtained. "It was probably sent from South America by HERBST, from whom a case was received at about the same time as one from Dr. BAIKIE of the Niger Expedition."

—— We hear that Mr. MOORE, the talented Curator of the Botanic Garden, Glasnevin, who has been holding scientific communication during a number of years with some of the leading botanists of Switzerland, has had the degree of Doctoris Philosophiæ conferred on him by the Senate of the University of Zurich, for his contributions to the advancement of natural science.

DIES ORCHIDIANÆ.—No. VI.

(*Continued from* p. 197.)

As the spring is now considerably advanced, it is quite necessary to remind my readers that I am still supposed to be roaming about among my favourite Orchids in the dull month of November. And dull indeed that month would be, at least to the eyes of all but Chrysanthemum lovers, were it not for the interest and the charm which even at such an untoward season the Orchids never fail to impart to their shrines. This remark, while more or less true of all collections, is peculiarly apposite now that I come to speak of Mr. Day's at Tottenham, which at the time referred to was absolutely gay with Cattleyas, Lælias, and a host of other beautiful things. The Orchidaceous appetite has here evidently grown with what it fed on, for house has been added on to house, and you pass from one to another as through the chambers of a Nautilus, making at least one entire revolution before the tour is complete!

The houses are all low and small, a circumstance that in a measure accounts for the admirable health of the plants they contain; indeed houses that are neither low nor small are an abomination to Orchids, which—the epiphytal portion of them at all events—thrive the better the nearer they are to the glass. Mr. Day belongs to the modern eclectic school, admitting little into his collection that cannot boast of having what we botanists call *flores conspicui*; but then having chosen his favourites,

> "—— they come not single file,
> But in battalions."

Here, for instance, are to be found, not duplicates merely, but triplicates and multiplicates of all the most showy species of such genera as Cattleya, Lælia, Dendrobium, Cypripedium, and Phalænopsis. Of the grand old Cattleya labiata—which still holds its own against all neophytes—there were many superb varieties in flower, quite enough, indeed, to make up a show by themselves. Lælia præstans, perhaps, came next in point of attractiveness, hanging on blocks close to the rafters; while Sophronitis grandiflora, treated in the same way, was a good third. In this portion of the collection I could not fail to observe the large size and perfect health of divers specimens of Cattleya elegans, Lælia purpurata, &c. But more marvellous than all was a pyramid of Saccolabium guttatum, 5 feet high, and covered with branches on every side, each branch a fine plant in itself! It was the largest specimen Orchid I had ever seen, and had been purchased, I believe, at Dr. Butler's sale. Almost equally monstrous were certain Dendrobia, *e.g.*, D. chrysanthum and D. cucullatum var., each of which had bulky stems from 5 to 6 feet long.

The lovely genus Phalænopsis had a *quartier* of its own, damp and dark as has been already remarked, where all the known species were assembled in great force. P. rosea had longer and stronger spikes of flower than I had ever seen before; but at the best it is but a poor thing. Not so P. Lowii, the exquisitely beautiful flowers of which I now beheld for the first time, and not without regret that it had not pleased our learned professors to allow the species to retain the somewhat uncouth name given to it by its discoverer, "proboscidoidea" to wit. Certainly, the peculiar form of the anther-case must suggest the idea of a proboscis to the most careless observer. Several varieties of P. Schilleriana had been secured, varieties at least as regards the mottling and tinting of their leaves, for flowers had not been produced at the period of my visit. Since then, some I hear have bloomed in good style, though still left far behind by the wondrous spike produced on Mr. Warner's plant, which had hard upon 100 flowers upon it, and nearly three-fourths of them all open at the same time. But your readers will have already noticed the account of this given in the *Gardeners' Chronicle* (p. 246). It is to be regretted that Mr. Warner did not give us the particulars of his treatment, for, as I before observed, we are not yet agreed as to the best mode of treating the various kinds of Phalænopsis. One grand difficulty is the tendency in all the species to flower themselves to death; they are so bent on producing blossoms that they neglect altogether the production of leaves, and yet, unless both these matters proceed, *pari passu*, the plants are sure to languish. I believe the tendency in question is less perceptible in P. Schilleriana than in the other kinds, which is a great point in its favour.

Mr. Day has also some remarkably fine plants of P. amabilis and P. grandiflora, both most beautiful in their way, although the examination of a large number of imported specimens at Messrs. Low's and elsewhere, has satisfied me that these two so-called species are really varieties of one and the same thing. It had been thought that the purplish tint and rounder outline of the leaves of P. amabilis were a trustworthy criterion, but some Borneo specimens at Clapton were exactly intermediate, both in the tints and form of their leaves and in the marking of their flowers.

Cypripedium is a favourite genus with Mr. Day, and it is indulged with a house almost entirely to itself, in which I noticed many plants of C. Stonii—so named in compliment to Mr. Day's gardener. In another and cooler compartment the genus Odontoglossum mustered strong, and nothing could exceed the health and beauty of the plants. Of the charming O. nævium there were some splendid specimens, which were in the constant habit of flowering profusely every year. And so also were many other members of this most aristocratic genus (*e.g.*, O. Pescatorei, O. nebulosum, O. Cervantesii, &c.), which, now that we have learned the secret of its treatment, bids fair to take the foremost place in public favour.

Before I close this imperfect notice of Mr. Day's collection, I ought to mention two features in his *ménage* that are not, as yet, of everyday occurrence in the Orchid-growing world—a hospital and a studio! In the former, invalid or recently imported plants are stowed, while in the latter an artist finds all the needful appliances ready to his hand whenever the flowering of some remarkable novelty may put his services in requisition. In November I found him employed upon a very striking variety of Cattleya labiata that I believe exists only in Mr. Day's collection. *Serapias.*

NEW GARDEN FERNS.

LASTREA STANDISHII, *Moore.* POLYSTICHUM CONCAVUM, *Moore, Proc. Roy. Hort. Soc.* ii. 377.

Fronds ample, ovate, quadripinnate or decompound, spreading, the secondary pinnæ and pinnules deflexed from the plane of their rachides; ultimate pinnules crowded, obliquely ovate, obtuse, more or less lobed, the margins rather sharply but shortly toothed, and curved upwards so that the upper surface of the pinnules is concave; veins forked, not reaching to the margin, and somewhat thickened at their apices; sori medial; indusium pale-coloured reniform, entire; stipes clothed thickly at the base with brown lanceolate scales; caudex thick, decumbent, scaly.

This very handsome Fern was sent to England by Mr. Fortune, who met with it in one of the nursery gardens which he visited in Japan. Along with his other Japanese collections it passed into the hands of Mr. Standish, by whom it was exhibited during the summer of 1862 under the provisional name of Polystichum concavum, which was given to it in allusion to the remarkably concave upper surface of its fronds, and under the impression that it would prove to be a species of Polystichum. On producing its fructification later in the season, it was however, found to belong to the Lastrea family, and as the retention of the specific name first employed might lead to its being confounded with one of our English species, of which Lastrea concava is a synonym, we have taken the opportunity to associate with it the name of Mr. Standish, which is so well known to English horticulturists in connection with the Japanese intro-

ductions of Mr. Fortune. The plant is of a lovely bright pale green; and its spreading fronds, deflected pinnæ, and concave pinnules, give it a very distinct and well-marked character, while from their size and the multitude of their crowded divisions arising from their decompound structure, they are also very ornamental and effective. It is certainly almost hardy and probably quite so, the mother plant having stood uninjured in a cold moist house, where it was subjected to several degrees (about 12° as we learn from Mr. Standish) of frost. The caudex is stout and scaly, and increases slowly in a lateral direction. It will form one of the finest acquisitions for the hardy Fernery which have yet been introduced; and appears to have been hitherto quite unknown.

Trichomanes anceps, *Hooker, Sp. Fil.* i. 135, t. 40 c.

Fronds tufted, erectish, ovate, acuminate, pinnate, with the primary rachis winged, the lower pair of pinnæ broader on the posterior side; pinnæ twice or thrice pinnatifid, the primary segments oblong, the ultimate ones narrow linear, simple or sometimes bifid; sori supraaxillary, replacing (usually) the lowest anterior ultimate segment; involucres free cylindrical tapered below, with a spreading mouth, remarkably decurved from the plane of the frond; stipes slightly scabrous, terete below, flattened and margined above.

This very handsome West Indian Film Fern was shown at a recent meeting at South Kensington by Mr. W. Bull of Chelsea, who had imported it under the glowing and certainly not inappropriate name of T. magnificum. It is indeed one of the finest of the genus, remarkable for the size of its fronds, for their flatness, and for their seeming breadth of surface, notwithstanding that they are really in the most perfectly developed parts divided on a quadripinnatifid plan. This breadth of appearance results from their flatness, and from the presence of a connecting membrane between the segments. The fronds are of the deep olivaceous green hue often seen in the plants of this family, and have more or less of a metallic lustre, which is well shown off by their smooth glossy surface. A plant of so great beauty, received, as it well deserved, one of the highest class of certificates. *M.*

A REMEDY FOR VEGETABLE CHLOROSIS.

Monsieur A. Gris, assistant naturalist to the Museum of Natural History at Paris, has published in the "Bulletin de la Societé d'Acclimation," the results of some interesting experiments on the application of salts of iron to vegetation. Plants in a good soil, with plenty of light and air, are often observed to be affected with a total loss of the green colouring matter in the leaves, which are also insufficiently developed. From the manner in which these leaves curl, shrivel, fade, and fall, and by their general state of languor and weakness, plants like these may be said to be in a state of chlorosis. The problem of restoring colour and health to such diseased plants has been solved by M. Eusèbe Gris, professor of chemistry at Chatillon-sur-Seine, who some years since conceived the happy idea of treating vegetable chlorosis in the same manner as chlorosis in the human subject.

It has been long known that ferruginous preparations have a remarkable effect in certain anemic affections, where the blood is poor in red particles; the restoring tonic, iron, being used either as a simple preparation, or as a carbonate, citrate, or sulphate, and in the form of pills, potions, or baths. By this treatment the blood is enriched, the ruddiness of health returns to the pale cheeks of the invalid, and his strength is restored.

Upon the roots of chlorotic plants, M. E. Gris applied soluble salts of iron. He observed that plants, under the influence of this root treatment, revived, became green, threw out young shoots, produced finer flowers with intensified colour, and in fact showed all the signs of reinvigorated tissue. Does then the sulphate of iron operate in the same direct manner as other salts of iron, or, reacting upon the constituents of the soil, does it produce sulphate of lime or chalk, of which the effects on vegetation have been long known? It is easy to reply to this question. Similar results are obtained by the solution of chloride and azotate of iron, and also when operating in soils altogether siliceous, or containing very slight traces of carbonate of lime. Sulphate of lime, moreover, does not effect any change in the colour of chlorotic plants.

Another experiment by which the iron was carried into the tissues of a plant without the mediation of the soil, has demonstrated, in the most complete manner, the direct and special action of the salts of iron upon vegetation. A branch affected with the disease, was impregnated with a ferruginous solution, and from a pale yellow became changed to an intense and healthy green. The experiments have been repeated in the Jardin des Plantes by MM. Brongniart, Decaisne, Payen, Newmann, Pepin, and others, who have verified the results claimed by M. Eusèbe Gris. The following experiment on Azaleas will be interesting. Seven or eight Azaleas, affected with chlorosis, were dipped in a solution of sulphate of iron, 30 grains to the quart, so as to be thoroughly soaked, leaves and branches. In eight days a decided improvement was observed. The operation was then repeated, and in addition the earth in the pots was sprinkled with a stronger solution—½ of an oz. to the quart. Under the influence of this double absorption by the roots and stem, the sickly Azaleas not only became quite green, but threw out a bunch of young bright green leaves showing every appearance of vigorous vegetation. No other method giving these rapid results could have been adopted with such slight expense and trouble. From the pleasure garden the experiment has been extended to the orchard. Mulberries, Peaches, Pears, Vines, and Wheat have all given the same happy result.

The influence of salts of iron is not only apparent upon unhealthy plants but upon those that are healthy, the effect being immediate. From experiments made on Haricot Beans an excess of 60 in the 100 was gained, weight for weight, in those submitted to ferruginous treatment, over those which had not received the stimulant. In the cultivation of Clover an astonishing advantage has been gained by the salts of iron over superphosphate of lime; and sulphate of iron has the additional recommendation of being very cheap, and causing precocity in the plant. In the farm the experiments have at present been very small; several have been favourable, as might be expected, and where failures have occurred they may be traced to improper administration.

Sulphate of iron decomposes quickly when put dry on the ground, and it requires water to dissolve it and carry it down to the roots. The conditions of application to be observed are: the plant to be operated on, if in a pot, should be dipped, leaves and branches, in a solution containing 30 grains of sulphate of iron to 1 quart of water. This should be done immediately the iron dissolves. Plants with thick leathery leaves should be immersed a considerable time. Upon trees in the open ground, where it is not possible to immerse, the solution should be sprinkled so as to wet the leaves thoroughly; upon this the success of the operation greatly depends. The roots should also receive, like those in pots, an application of the solution of greater strength, as already indicated.

Such is the remedy for plant sickness proposed by M. Eusèbe Gris. It is a subject of so much importance, that I venture to send this English version of a French fact to your valuable Paper, hoping that it may attract the attention of some of our scientific horticulturists and agriculturists. The trial has been long and patiently carried out in France by well-known experimentalists, who have added the weight of their names to the report of its value. I have myself remarked that in soils where iron is present, trees, especially Pears are greener and more healthy than in chalky soils. In the alluvial gardens of the Touraine I have seen Pear trees positively yellow; and though this want of colour does not seem to affect their health, the treatment recommended by M. Eusèbe Gris would in all probability restore them to their natural hue. The same treatment pursued in this country would, I have no doubt, be found extremely beneficial in making many a sickly and yellow tree put on its proper garb of green. *T. Francis Rivers, Sawbridgeworth.*

Indoor Gardening.

It seems that the Vallota purpurea is not so much grown as it might be, and yet of all our window plants it is one of the easiest managed and least injured by neglect. It may also be had in flower almost at any season; this being apparently regulated entirely by good watering while the leaves are growing, and by judicious dryness when they have made their growth.

I had half a dozen of these plants last spring, then just beginning to grow. They stood the whole summer in a window, and were watered well. Towards August I think it was, the watering of one or two was lessened, and then in a very few days the bright scarlet flowers came up and looked extremely brilliant. They are remarkably striking and glowing flowers. These plants retained their leaves, which was a great point of beauty, but others were kept watered, so that the leaves have hardly yet quite died away, and on one of these as soon as the leaves had died and considerable dryness had set in, a strong looking flower-stem rose, and now advances rapidly. It is extremely good for these bulbs, if liable to neglect, to have the surface soil covered with Cocoa fibre so as to prevent extra evaporation. These plants are in 5-inch pots, and the pots have never been sunk at all. In fact, the August flowers seemed partly due to the heat and dryness the roots thus acquired, though sponging the leaves occasionally perhaps kept them bright and green.

My plant case at the present time is quite a little Orchid house. I suppose, in point of fact, one is not yet "out of the wood;" but my Orchids have been for 10 days here, and are unspotted and lovely, while on each of the plants I have, new buds have either opened or advanced a great deal.

The loveliest of all perhaps is a Phalænopsis grandiflora. This hangs its beautiful butterflies between the other two.

The Ionopsis on one side has the loveliest little white clusters, somewhat reminding one somehow of Lilies of the Valley, though only, I think perhaps, by its excessive whiteness; Dendrobium Pierardi on the other side has its own beautiful flowers growing out of most queer looking sticks.

These plants, growing on blocks, require now and then soaking. I put the said blocks in a tumbler of lukewarm water, or in a little basin, and then with a large camel's hair pencil wash the water over the roots. This has been done at present about every three days, but that is scarcely often enough; for on one occasion a Dendrobium petal did flag. The case in which these plants are is heated at least once a day, that is in the afternoon; but the water is not made quite boiling, as great heat is not now requisite. On a sunny morning the sun fills the case with warm vapour, but if the day is cloudy I have the heating done early.

The case is kept closed all night, and till about 9 o'clock next morning, when I find it generally in rather a steamy state. It is opened a little bit then, and afterwards more so, till by 11 or 12 o'clock the air seems thoroughly dried, and has, I conclude, got changed enough. The case is not however entirely closed till evening, and though in the morning the flowers look bright and blooming, they never seem to have the least become tarnished or stained. All dripping is prevented by a warm woollen cover at night, and there is no condensation of vapour upon the flowers. The blocks are hung by wires upon the silk cord my plants creep on.

The Cissus antarctica has now nearly crossed the case, and its beautiful leaves (somewhat resembling those of a large Fuchsia) look delightfully green and fresh always. The Passion-flower (kermesina) mingles its tendrils with them, and from the opposite corner an Ivy grows across.

Ficus repens and Lygodium scandens are two more little creepers, and as I have also a plant of Lapageria rosea and of Cissus discolor, I fear as some of them grow bigger that two will have to turn out. As long as they are but low-growing they fill up the two ends prettily.

The Lycaste that has been so green and fresh-looking all the year is now again very vigorous, though I wish that my water-economy had not so long delayed its flowering. At present it seems very hopeful for soon giving the bright glow of its exquisite crimson blossoms.

Some Ferns do to fill up, and one of the Maiden-hairs is at last beginning to thrive again. In winter without heat the case was almost too cold to bring it into good growth.

A white Azalea has been blossoming the last three weeks at the cooler end, and as I find new flower buds still forming in great abundance, it evidently may be expected to last a long time more. So that the root heat is kept from it, the warmth and air circulation is entirely in its favour.

The opportunity now of seed raising is extremely well timed. The Ipomæas especially will be so little in the way while they make their first four leaves growth.

Any one, also, who wants to grow the Lilies of the Valley will only have to place pots of them at the warmer end, and if the points have started they will be out within three weeks; if they have still to begin, it may be about four or five. When once the blossom buds show, the pots must go off to the cool end, and be kept always next the light. They should have plenty of water (always warm of course), and then they will last long in flower, and the leaves will last longer still.

The Lycopodium denticulatum in my case is growing best of all self planted upon some dead Moss, which covers another pot. A layer of this material on many of our flower pots would really look very pretty with the vivid green sprays upon it. *E. A. M.*

THE ORANGE.

The following is a portion of a paper read lately at Melbourne, Australia, by Mr. Carson, and abridged from the *Melbourne Yeoman*:—

Taking much pleasure in gardening generally, and the cultivation of the Orange in particular, I was naturally, as an amateur in quest of information, induced to refer to the many large and valuable works treating on this subject; but knowing, at the same time, that the tree I was most interested in was only grown in Britain as an exotic, it was not expected that any precise instructions applicable to its growth as an open-air standard would be found, yet considerable disappointment was felt, that works looked upon as authorities, some of them published so lately as 1855, should blindly copy previous writers, in this way perpetuating many fallacious ideas.

We are informed for instance that the acrid nature of the essential oil in the rind, and the acidity of the pulp, form an effectual protection against the attacks of insects; and in Victoria, a learned member of the Royal Society there informed the members that in Portugal the trees were trained with a clean stem for several feet, and that washing this stem with soap and water with a brush was the mode of cure for insect pests. Those who have seen an Orange tree infested with scale covering every leaf and branch, and adhering so firmly that they would seem to be part of the tree itself, can form some notion what effect any amount of scrubbing at the stem would have.

So much for theory; practically there was something to learn. For several years the Orange trees I had were under the management of an excellent gardener, yet ignorant of the treatment required by them, as under his care none were thriving and some dying; "but (said he) you must not mulch, you must not water, or you will bring the roots to the surface." So, rather than that this should happen, many of the trees themselves were removed from the surface, having, under this practice, been starved to death.

So far as my own observation goes, situation is not of so much consequence as many other apparently unimportant details of management. I have observed the trees in all aspects and at various elevations; and, where the treatment was judicious, all appeared to be successful. But till this point is more fully established, I would be disposed to recommend, where a choice exists, the site so well known to be that most favourable to all trees—the side of a hill, neither the top nor the bottom; the latter is subject to frosts, the former to high winds, which are very injurious to this tree.

Soil is intimately connected with situation; and of the influence, when combined, they exert on the tree, I have lately had a very convincing proof at Rockbear, the residence of

Thomas H. Bear, Esq., where a large number of Orange trees have been planted. This estate, embracing both sides of the Darebin Creek, has on one side the heavy rich black soil combined with the bluestone, similar to the banks of the Merri Creek; on the other side, a similar formation to Studley Park—that white rotten stone—on the sloping bank facing the north-west. This was broken up, terraced, and planted three years since. Already the produce is, without exception, the finest I have seen in Victoria, and I doubt if better can be found even in New South Wales. The larger quantity of trees, some hundreds, planted at the same time in the black soil, with an eastern aspect, in what was considered the best soil and situation, are barely existing, and are totally unproductive.

May not the undoubted success attained in this instance be attributable to the perfect drainage of the fissured rock, which freely admits the roots to any depth in search of moisture; and the failure, as justly chargeable to the want of these conditions?

The soil considered as most suitable to the Orange is a rich surface resting on a clay subsoil, this tree having two distinct classes of roots—one a strong tap root, that strikes down deep in the soil, as an anchor to hold the tree in its place; the other, and more important, to which I invite particular attention, are fine fibrous roots that run through the upper portion of the soil to the very surface. The tap roots may be likened, when four or five years old, to a stockwhip, while the latter would more resemble curled hair, and are chiefly, if not altogether, the principal feeding roots of the plant.

A proper preparation of the soil for the Orange must commence with drainage; and for so enduring a tree this ought to be of the most permanent character—say, well made pipe drain-tiles, placed not less than 4 feet deep (this is the least depth allowed by the British Land Drainage Act, as a charge on entailed estates), for any less depth would soon be choked by the roots getting in. A moderate fall, few curves, and a correct plan of the drains, to facilitate opening, should repairs be needed, are important details in underground drainage.

The preparation of the soil will also include trenching, say not less than 2 feet deep, being careful to go through any seams of gravel that may be met with. For the Orange it is not desirable to bring the clay to the surface, as may be easily understood, if we bear in mind what has been remarked concerning the roots. If it is desired to place the plants in the most favourable condition for their growth (unless the land were naturally more than usually fitted for the reception of the trees), it would be much better that the trenched land should be cropped for a year, using a very liberal supply of manure, well rotted, and the surface repeatedly turned over one spade deep. This thorough preparation of the soil is particularly required, as, when the trees start into growth, the surface is soon filled with their fibrous roots, when a careless digging with the spade is always injurious, and often fatal, according to the more or less active state of the plant at the time when this wholesale pruning of the roots takes place. The principal digging should be done in winter, using a fork, and taking care that the small roots are as little disturbed as possible. During the year the surface may be kept clean and open, by pointing over with the fork to a depth of two or three inches. This, in dry weather, will be of great service to the trees, as it acts like a mulching, yet is free from several drawbacks attending that operation.

The idea has become general that the Orange cannot have too much strong manure. I am of opinion that here also, there is a happy medium. It is not needful that trees growing 20 feet to 30 feet apart should have so rich a soil as those in a box or flower pot; yet if the same care were taken in the preparation of compost as for pot plants, no harm would be likely to arise. But when, instead of the 10 or 20 years' preparation—as in some parts of Europe,—the rankest offal is heaped on the roots, what but ultimate disease can be expected from so unnatural a process.

I have more than once, while admiring the Orange trees at Versailles, thought of the careful management that has preserved some of them for a period of 440 years growing in a box, 1421 being the date marked on some of the boxes as the period of their introduction to Versailles.

To be in a position to plant successfully, the trees require to be taken from their previous situation with the greatest care, and with as little loss or injury to the roots as possible. The operation of planting is too well known to need description. I would, however, give the caution to have the holes larger than the roots are able to cover, and that the bottom be made so firm that no settlement is likely to take place afterwards. I am the more particular on this point, as I differ altogether from those who direct that the Orange should be planted a little deeper than they were growing before—this little deeper may mean, with different parties, 3, 6, or 12 inches—an irregular surface at the time of planting may add a few inches to it. The bottom of the hole having been loosened to a depth of 2 feet or more, is sure to sink, and the tree may eventually stand, as I have found some of my trees, 18 inches to the top tier of roots. This mode of planting, it will readily be seen, places the roots in a cold, unnatural position, almost shut out from the action of the air. To such a plant the spring comes not; the warmth of the returning sun and the genial showers are alike powerless to penetrate to the abode of its damp and dormant roots, while its fellows luxuriate in the joyous season, and send their thousand feelers far and wide, perfect their ample growth in proper season, and, with a healthy development, secure comparative freedom from insect foes, power to resist atmospheric changes, beauty and productiveness. But while this is the case with a tree in a proper position in the ground, how is it with the deep planted? By the time that sufficient warmth has penetrated to their roots, and their feeble powers are called into play, the fiery rays of an almost vertical sun burn and dry up the little tender and untimely shoots—the growth is soon checked. A rather more successful attempt is indeed made in the autumn, as the heat of the summer is retained, and the return of moisture for a time gives promise of better things. But, alas! before the new-formed shoots have acquired any firmness, the remorseless hand of King Frost is upon them, and the lately beautiful green branches hang their heads. Black and blasted, they rot, and carry death below their point of origin, and the miserable tree, in vain attempts at growth, becomes the sport of the weather, and the prey of insects. Out of several Orange trees planted during my absence in England, I was able to point out the deep planted by their appearance only, and did so before they were examined. The most vigorous trees had the collar barely covered; in the worst, we had to dig 18 inches before coming to a root. I say, then, do not plant deep, let the upper roots be merely covered; look at our gums and wattles, their root can hardly be said to be under the sod, but rather through it. Nature in this, as in many other respects, is our safest guide to follow.

For the benefit of young gardeners of the amateur class, I may add that, as the Orange-tree is frequently obtained from the nurseryman in pots, they must never be planted with the ball; for it usually happens that the roots if they have been any time in the pot, are a tangled mass. If planted thus, and a vigorous growth set in (although this is not very likely), the enlargement of the roots must cause them in a short time to strangle one another. To prevent this turn out the plant from the pot, and place the ball for a short time in a tub of water, when a shake or two will remove the soil; the roots can then be seen, and in planting should be carefully disentangled, and spread so as to radiate to all points of the compass. I had lately a pot plant that, when treated in this way, showed that the tap-root had the year before been looped up into the form of a figure 8, and passed through the bend twice; this must soon have destroyed the tree. In no case of winter planting should I water at the time, as the ground at that season is moist enough; and as the roots are all more or less bruised or broken, any excess of moisture is apt to rot the injured parts, while moderate dryness assists the formation of callus and new roots.

But should it be necessary to plant in hot or dry weather, a complete soaking may be given after planting. With the view of checking the evaporation, it is sometimes recommended that the leaves should be stripped off. In some circumstances this may be a good practice, but I prefer to save the foliage, and shade the trees from the sun till a healthy growth has set in. This is managed very well by taking both ends out of a flour barrel, and placing it over the newly planted tree. These barrels are open enough to ensure efficient ventilation, and the removal of a stave now and again prepares the tree for being finally uncovered.

It is of great importance to the Orange that it should be sheltered from strong winds, as in a state of nature its position is said by naturalists to be that of a half undergrowth.

For the successful treatment of the Orange, the power to water, or rather to irrigate, is so necessary, that in the vicinity of Seville the first thing that is done when it has been determined to plant an Orange grove, is to make provision for an ample supply of water, so that the trees may be well irrigated at intervals of ten days during the summer months, when the natural supply of moisture is insufficient for the demands of the plant.

After the first year, when the trees are established, advantage may be taken of times of watering to add an occasional supply of liquid manure, and it should always be borne in mind that the watering should be abundant, and that you should wait (as an old gardener once said to me) till they ask for it This they do very plainly, by curling the leaves so as to show a great portion of the under surface, presenting a thin shrivelled appearance; now is the time to water abundantly. An occasional watering overhead with a syringe or garden engine is very beneficial, especially to trees near towns or roads, whose foliage is likely to become covered with dust and dirt; in all cases it will dislodge numerous insects who take up their abode within shelter of the evergreen leaves.

A deficiency of water will cause them to shed their leaves, when it will take two or three years of careful cultivation to recover them. The loss of foliage to evergreens is at all times a serious matter, not soon got over.

Home Correspondence.

Garden Law: No. 4, Fences.—My fences were rotting and tumbling down, and my neighbour required me to repair them. I replied, why should I? They were mine, I put them up, the land on which they stood was my own; I had nothing beyond a cat which could stray on his land, and I preferred to remove the fences than spend more money in keeping them up. My neighbour disapproved altogether of their removal, because he had goats and other animals which were only kept within bounds by my fences, and he saw that if I took them away he would be put to some expense in keeping his beasts off my land. But this was his affair, not mine. I removed the fences and gave him notice that if I found his goats in my garden I should impound them and hold him answerable for any damage they might do. My lawyer told me that in the absence of an agreement, or such a long continued state of things as is required to create a right by prescription, a man is no more bound to keep up his fences than he is to keep up his house. He is bound to keep his own cattle off other people's land, but not to keep their cattle off his own land. I acted upon this and left my neighbour to take what course he pleased. He grumbled and threatened to go to law, but he found out that I was in the right and prudently left me alone. This was not my only difficulty with respect to my fences. When I bought my property I had some trouble to ascertain which fences were mine and which not. Some had been put up by a former proprietor wholly on his own land, and these beyond dispute were mine. Another was a wall which had been recently built at the joint expense of my predecessor and his neighbour upon the boundary between their two properties, and resting half on the land of one of them and half on the land of the other. The consequence of this was that one half of this wall belonged to me and one half to my neighbour, and that each of us might cut away that half which stood on his own land, although the other half would be so weakened by the operation as to fall down. I had no desire, however, to try this experiment, and both my neighbour and myself have been contented to train fruit trees on our own sides of the wall, which it is plain we are both entitled to do. There was another old wall, the history of which was unknown. It had evidently existed for many years, and had been used by the proprietors of the property on either side pretty well as they liked. One side supported a shed, and on the other were trained fruit trees protected from frost by a short sloping roof fastened to the wall. No one knew on whose land the wall stood, whether wholly on mine, or wholly on my neighbour's, or partly on both. In point of law this wall would be considered as belonging in common to my neighbour and myself. Both he and I therefore are entitled not only to place sheds, &c., against it, and to train trees along it, but also, as said by an eminent living judge, to amuse ourselves by running along the top of it. Of this valuable privilege neither of us can it seems lawfully deprive the other, by putting broken glass or building upon the wall. If a wall or fence belongs to two persons in common, either of them may rebuild or repair it at his own expense, but in the absence of special circumstances neither can apparently compel the other to repair his side, or to contribute to the expense of rebuilding or repairing the whole. The joint owners of a party wall should therefore always come to some distinct agreement with each other to share the expense of repairs when needed. *Lincoln's Inn.*

Leafless Cedars of Lebanon.—A case similar to the one spoken of by your correspondent at p. 246, occurred here in the autumn of 1861. Two Cedars of Lebanon of about 50 years' growth, some 300 yards apart on the same kind of soil, became yellow and sickly looking; the points of the young shoots shrunk, and the leaves fell in quantities. One of the trees, in an important position near our new terrace, was, by Col. Tighe's orders, operated upon in the following manner. A deep drain was cut 15 feet from the stem; this was filled to the top with stones. Between the drain and the stem, the whole surface soil as far as the roots would permit was cleared away and replaced by fresh earth, but a layer of good clean leaf-mould was first laid over the roots. The tree has regained its leaves and made a considerable amount of young growth. The other tree, which was formerly the healthiest, died last June. It was not operated upon in any way. The wood was sound, but all the young roots were gone, as if the tissues had given way from excess of moisture. *Charles M'Donald, Woodstock Park.*

Strawberry Culture.—"The circumstance" (says Mr. De Jonghe) "of a variety not producing a superabundance of runners, is considered one of its meritorious characters by the most intelligent cultivators." I can only judge of things as they are here. The testimony derived from persons whose circumstances are different from mine, will be different. In this fickle climate, with the variety of situations, with the liability of winter jumping on the back of summer, early establishment is a great point. This cannot be effected except by spring planting, the best way, if, after cropping, the Strawberry plant runs slowly and sparsely. As regards the inconvenience of early running before the crop is off, I find no difficulty. My servant's little girl goes from plant to plant and cuts the strings off with scissors, till the fruit is "set" and begins to "swell." There is then no further trouble on this account till the fruit is off. This inconvenience, so easily met, is not so objectionable as not being able to get runners till it is too late to establish them before the winter sets in and ruins them. Strawberry plants are generally ruined by being planted too late, and cropped in a state of weakness. I would never allow my plants to run at all, if I could get the plants, true to sort, of a nurserymen, so as to be able to put them in the first genial weather of spring. They have then more than a year to form crowns, and perfect their volume of perpendicular oblique and horizontal roots. The perpendicular roots will, under proper cultivation, descend far deeper than people suppose, especially if the ground has been trenched and manured throughout. The old Hautbois, now gone from here, in two years even in untrenched ground, sent its roots down 27 inches. I think there is one thing that both Mr. De Jonghe and Mr. Gloede overlook, or do not sufficiently weigh, viz., the difference between the climate of England and that of Belgium and France. From the noble Pears and delicious Grapes grown out of doors, kindly sent to me by Mr. Gloede, I think that France must be a forcing house out of doors. The Pears were very fine and good (not so good as Marie Louise), viz., Duchesse d'Angoulême, Beurré d'Anjou, and Délices d'Hardenpont, which he says is the same as Glou Morceau. The Grapes were full of saccharine, juicy, and sweet as honey; they were a small amber-coloured Grape, called White Chasselas. They were not a "show" sort, but I never ate any Grapes more delicious. They would doubtless grow well in an orchard house; to attempt to grow and ripen them out of doors in England would be "simply absurd." Can any one wonder then, that we should occasionally differ a little about a Strawberry plant, or its fruit. Last season, at the time that we were deluged and chilled, Mr. Gloede complained in a letter to me that, if he did not get rain soon, his plants would be burnt up. In fact, it was a case of "well" *versus* "frying pan." The sun is the soul of the natural world; and if I cannot get a burning sun I can do nothing here. But we are near perfection. Here is Model and Bijou; but alas! if they run slower and more sparingly than La Constante, I fear that they will not give me that delectation which I should wish to experience. I may, however, say in conclusion, that I am never prejudiced, that I judge of things by the evidence of my senses, and that I "stick to the bridges that carry me over." *W. F. Radclyffe.*

Larch Rot.—The account of this disease in your Paper of the 7th inst. reminds me of a loss which I sustained, probably from a similar cause, in reference to my drooping Larches. About 30 years ago the variety originated here from seed, and was found to grow along the ground in a prostrate manner. After some time I propagated it by inarching it standard high. I had the variety advertised, and disposed of a considerable number of plants, both in this country and on the continent. A few years ago, however, they became sadly infested by what was called "American blight." A remedy was sought for, but the general reply was, that no practicable method of curing the evil was known. And after trying many experiments on both trunk and branches, with the hope of saving a splendid specimen plant, the disease was not at all retarded but apparently increased, for the tree scarcely made any growth, and was cut down. It had been a striking object, and much admired; the branches

extended 9 feet in every direction around the bole or trunk, which was 8 feet high and 9 inches in diameter. The young stock of plants suffered also to the same extent, and I have only three now left to the tender mercy of the pest. I observed the roughness of the young shoots mentioned in your Paper, and the buff leathery appearance of the inner bark; and I have no doubt that the disease is rot, which, if it becomes general, will prove a serious visitation in a national point of view. *Wm. Godsall, Nurseryman, Hereford.*

British Queen Strawberry.—As this Queen of Strawberries never fails here in producing excellent crops, perhaps a few hints as to the nature of the soil and culture may be acceptable to those growers who have failed with it. I am convinced this particular variety does best in an open and dry situation, and that the soil cannot be too strong and stiff for it if well drained. It would be difficult to find a more stiff and adhesive soil than that we had to encounter here, where the new kitchen garden was formed. All the red clay from the drains, and a part from the subsoil, was burnt and mixed with the surface, and this forms the particular soil wherein the British Queens do so well. I usually force about 1000 plants in pots of this variety, and one half are annually planted out, after being forced, to keep up a succession, as I never allow any variety of Strawberry to remain longer than three years in the same place. I have however a few rows of the British Queen, planted out in the autumn of 1859, which after facing the severe winter of '60 and '61 are now as healthy, and promise to produce as good a crop as when first planted out. All that is done here in the way of culture after planting them out of pots, is to spread a good surfacing of half rotten manure on the rows in the autumn. This shelters them in severe winters; and when the young leaves begin to grow in the spring, they bind the litter from blowing about, and it keeps the fruit clean. Last year I had to prop the British Queen Strawberries up with forked sticks, the crop was so abundant, and many of the largest fruit weighed one and a half ounce each. *William Tillery.*

Aucuba japonica.—The appearance of small red berries upon this handsome and well-known evergreen shrub, is by no means so rare an occurrence as might be inferred from the remarks that have recently been made about it in your columns. In your volume for 1843, p. 286, will be found a sketch of the so-called fruit, which in size, form, and colour is said to have considerable resemblance to that of the Berberry. The flesh is stated to be dry and mealy, rather insipid, and of a yellowish white colour. The kernel is roundish, tapering to both ends, and somewhat paler than the pulp. The inside is waxy and bitter. According to Kæmpfer, the perfect fruit of this plant is a red oblong drupe, like a Laurel berry; and as this is confirmed by the specimens that have been brought to this country by Mr. Fortune and Mr. J. G. Veitch, who have also introduced the male form of this truly beautiful shrub, we may naturally expect that in due time we shall have plants bearing fruit of a proper size, instead of the abortions above noticed, which will render the Aucuba even still more valuable as an ornamental evergreen, than it is at present. *B.*

The Royal Wedding.—Will you kindly correct the last part of the statement in your Paper of March 21, headed "The Royal Wedding Day," and signed G. Toll, Manchester. The last tree planted was not a Cedrus Deodara presented by Messrs. Lucombe, Pince, & Co., but another Wellingtonia gigantea, presented by ourselves, and named "the Princess of Wales's" tree, as companion to the former. *James Veitch & Son, Nurseries, Exeter.*——A fine young specimen of Wellingtonia gigantea, the gift of Mr. Cranston, of the King's Acre Nurseries, was planted in the Cathedral Close of the ancient and loyal city of Hereford on the 10th ult., in commemoration of the marriage of H.R.H. the Prince of Wales. *Gulielmus.*

Foreign Correspondence.

Beurré Bretonneau Pear.—At page 149 I observe a note relative to this variety of Pear. Mr. Cramb has not been able to obtain it fit for the dessert, either from a wall, dwarf, or standard. In the month of June the fruit was neither good for the dessert nor for cooking. A similar remark I have heard from others. On making inquiries of these as to the nature of the soil in which the trees were planted, the answer has been that it was cold, very heavy, and moist. Others, from trees planted in a light deep soil and against a west wall, have obtained fruit as melting as that of the Bergamotte Esperen, or nearly so. Having obtained the same results in my own grounds, I can support the statements just made. I am not interested in recommending the Beurré Bretonneau. It was not sent out by me, and I have only propagated a few trees of it for specimens. As many cultivators are in possession of this variety of Pear, they will doubtless be interested in knowing the result of 20 years' experience of growing it. It may be considered a posthumous fruit of the late Major Esperen of Malines. After his decease his seedling Pears came into the possession of M. Berckmans, of Heyst-op-den-Berg, who named the variety in question in compliment to his friend Dr. Bretonneau, of Tours. It is very vigorous in growth, hardy and productive. There are few Pears so well suited for orchard culture, in the shape of a standard on the free stock. It grows well in any light, warm, deep soil. If grown on a cold, heavy, damp soil, in an unfavourable climate, and rather cold season, one is nevertheless certain of having an excellent stewing Pear, from December till March. Taking all things into consideration, I would not advise any cultivator to entirely discard the Beurré Bretonneau until it has undergone further trial. *J. De Jonghe.* [We think so too:—The Beurré Bretonneau grown to *not above medium size*, proved very good and useful for this season of the year as a dessert fruit; but grown to a *large size*, as far as our experience goes, it is always bad, except perhaps for stewing.]

Societies.

Entomological: *March* 2.—F. Smith, Esq., President, in the chair. Donations to the library from the Royal Society and the Societies of Vienna, Stettin, Entomological Society, France; Nassau, Society of Arts, &c., were announced. Mr. G. R. Waterhouse exhibited some minute British Coleoptera, belonging to the genera Mycetoporus, Bryophorus and Homalota, of the family Staphylinidæ, and read some remarks on them. Mr. F. Bond exhibited a specimen of the reputed British blue butterfly, Polyommatus Dorylas, which had been sent to him as a variety of P. Adonis, together with other insects taken in the West of England. Although figured by Lewin, it has been long rejected as a British species; the name had also been misapplied by Leach to the common English blue, P. Alexis. Professor Westwood read descriptions of two new species of Lucanidæ from New Holland, and the President exhibited and read descriptions of the various species of honey bees and wasps from Brazil, which were exhibited with specimens of their honey and wax in the International Exhibition for 1862. Eleven new species of Trigona and two of Melipona were described. No species of the restricted genus Apis was found in South America, although introduced and now common in the North, and the Brazilian honey bees were stingless. It was also the opinion of the writer that there are numerous females in a nest of Trigona, thus differing from the economy of the hive bee.

Botanical, of Canada.—The first meeting of the third session was held in the University Hall, Kingston, C. W., on the 26th January, Professor J. R. Dickson, M.D., Vice-President, in the chair. Nineteen new members were elected. Office bearers for 1863 were elected:—*Patron:* His Excellency Lord Monck, Governor-General; *President:* Very Rev. Principal Leitch; *Vice Presidents:* Professors Litchfield, M.D., Dickson, M.D.; Williamson, LL.D.; and Thomas Briggs, Esq.; *Secretary:* Professor Lawson, LL.D.; *Auditor:* A. Drummond, Esq.; *Treasurer:* Rev. Professor Murray; *Librarian:* R. V. Rogers, B.A. An Herbarium Committee was also appointed.

Professor Lawson stated that through the kindness of Professor Caruel, formerly of Florence, now at Pisa, an ample supply had been obtained of living cocoons of the new Chinese silk moth, Saturnia Cynthia, which yields the Ailantine silk, now so successfully raised in France and Italy. The eggs which may be obtained from the moths in May next, it is proposed to distribute to such members of the Botanical Society as may desire to aid in the experiment of rearing them in Canada. This silk worm feeds on the Ailantus glandulosa, a tree that is quite hardy in Canada. Members desirous of obtaining eggs were invited to send in their names to Professor Lawson. The chief obstacle in manufacturing this silk seems to be the difficulty of unwinding or carding the cocoons, which will no doubt be overcome by the method of soaking them in caustic potash, which Mrs Lawson has found to answer so well in the case of the much larger parchment-like cocoons of the Canadian Cecropia; the potash disintegrates the parchment-like membrane into its constituent threads by dissolving the adhesive substance which glues them together.

The following communications were read:—

1. On Plants collected in Canada, by Philip W. Maclagan, M.D., Berwick-upon-Tweed.

Dr. Maclagan's detailed observations were contained in two MS. volumes, embracing original information respecting nearly 900 species of Canadian plants.

2. On the Physical Character of the East Riding of Northumberland, Canada West, with a List of the Plants. By John Macoun, Belleville. The list embraced 800 species of flowering plants, all collected by Mr. Macoun within two years. Indications were given, by reference to ancient lake terraces, &c. of the former existence of lakes at a higher level than any that now occur in the district, a point of much interest in Canadian geology as bearing upon the history of the great inland seas still existing.

3. Account of an exploration of Gaspé, during the summer of 1862. By John Bell, B.A., who accompanied a party of the Geological Survey of Canada.

This paper was accompanied by a systematic list of the plants observed during a five-months' exploration of Gaspé, in the Gulf of St. Lawrence. The party, of which Mr. Bell was a member, camped in the woods all the time; they started from Quebec on board the S. S. Lady Head on 30th May, and proceeded down the St. Lawrence to Gaspé. On the tops and sides of the mountains there was still plenty of snow, especially on the south bank of the river. Mount Albert, the highest point of the Shick Shocks, showed itself as a pure white cone. Reaching Gaspé, the forests were found to be composed of Black and White Spruce, Balsam, White Birch, and Poplar, Spruce being by far the most plentiful, found in fact everywhere from the seashore to the limits of arboreous vegetation on the highest summits,—the white growing along streams and the coast, while the black was more at home on the cold mountain sides. Snow was still (in the beginning of June) deep in the woods, and a nightly crust of ice formed on water in exposed places. Yet, two weeks afterwards all the spring flowers were in blossom, together with Birches and Willows, and the Coniferæ were filling the air with their sulphur-like pollen. On 7th June the pollen could be taken up in handfuls from the surface of the water in Douglastown lagoon and bay. Whole acres of ground were covered with continuous beds of Epigæa repens in flower. The white settlers use the bark of White Birch to line the holds of ships in which dried codfish are exported in bulk, and to such an extent has it been used that near the coast unstript trees are now scarce. Of the same bark the Indian makes his canoe his hut, his flambeaux, dishes, and boxes for domestic use, and when out hunting he sometimes even boils his venison in a birch bark "corseau." The wood is used for paddles, salmon spears, and in the construction of canoes. Thus from this tree alone, he procures means of obtaining food, shelter, and conveyance. On the old Birch trees from the cracking of the outside layers of bark there is always a large quantity of it hanging in loose sheets and shreds, and with the disintegrated pieces the crotches are filled. In a dark night, a match applied to the foot of the trees affords a grand scene. The fire rushes up the trunk like a flash of lightning, enwrapping the tree in a mass of flame, which shoots up to an immense distance, producing a noise not unlike a peal of thunder. The long tough roots of the Spruce called watap are used by the Indians for sewing together the Birch bark of their canoes, and the resin or "gum" with that of Pine and Balsam, for rendering the seams impervious to water. The bark of the Spruce can be separated at certain seasons in pieces containing 30 or 40 square feet, and such are used for temporary huts and sometimes for canoes. The total absence from the Gaspé forests of such trees as Beech, Basswood, Butternut, Hickory, Hemlock, Oak, and Ironwood, as well as the great rarity of Elm and Oak, (all common Canadian trees) is very remarkable. Four Maples occur, and there are some profitable sugar bushes near the Bay of Chaleur. In many places, especially near escarpments of rocks, young trees are seen of Balsam and Spruce, with the upper part of their bark gnawed away; this is the work of the Porcupines. Spruce trees are also frequently seen, which have been peeled by bears, in order that they might lick the sweet juice found between the bark and trunk. They seize the bark at the very base, and tearing it from the tree from about 5 or 7 feet, leave it dangling in long strips, which often remain for years attached to the trees. The summits of the Shick Shock mountains are quite bare of trees, and the Spruces which ascend the highest are very stunted, their trunks tapering like cones, and as hard as bone. On the Dartmouth River a case of natural layering was observed in two Spruce boughs. They had been weighed down by snow, and in that part, becoming covered with leaves and Moss, had sent out several strong roots. A large Cedar also was observed sending down large roots to some mould that had collected in a fork five feet from the ground. In ascending the Dartmouth River, Mr. Bell observed large quantities of Alder, Red Osier, Dogwood and Willows, the latter forming an almost impenetrable border along the river. The dried bark of the Dogwood, commonly called Red Willow, was used for smoking by the Indians before they were supplied with Tobacco, and many still, from motives of economy, mix it largely with their Tobacco. There was plenty of wild Onions or Chives along the shores of the stream, which kept the party in fresh vegetables. Dryas, Shepherdia, Anemone multifida, Potentilla fruticosa, and other showy plants formed a constant feature of the river scenery. The river banks abounded with Anemone parviflora, Pinguicula, Primulæ, &c.; and on the rich flats Aspidium Braunii produced fronds 3 ft. in length. Calypso borealis was abundant. Although considerable quantities of fine timber have been exported from Gaspé, yet it was of a quality far inferior to that made on the Ottawa, and the accessible trees worth manufacturing are now nearly all cut away. In descending the Dartmouth, which occupied but three or four days, the vegetation was observed to be much further advanced near the sea-shore than inland. "One experiences a strange and delightful feeling on getting back to broad open clearings, with floods of unbounded sunshine and fields of waving hay, speckled with Clover and Buttercups, after being nearly a month in the shade of a gloomy Spruce forest." The summer in Gaspé being a moist one, the hay crop was excellent. Haying began about the beginning of August, and in September many fields of uncut hay were still to be seen. The cold spring and moist summer caused the grain crop to be backward, and not a little of it was ruined by the September frosts.

4. On Ailantine, the silk yielded by the Saturnia, or Bombyx Cynthia, with remarks on the Ailantus glandulosa, or False Varnish Tree of China, upon which the worm feeds, by Robt. Paterson, M.D., F.R.C.P.E., Corr. Mem. Bot. Soc. Ca.

In illustration of this elaborate and valuable paper, the author sent a very interesting series of specimens, which were exhibited to the meeting, showing the eggs, the larvæ in various stages, the cocoon, and the perfect moths, male and female.

5. List of Plants collected in Ramsay and adjoining localities, during 1861-62, by John K. McMorine.

6. List of Plants collected chiefly at Fort Garry, Red River Settlement, by John C. Schultze, M.D.

7. List of Plants of Beckwith and Ramsay, C.W., by Josiah Jones Bell.

8. Lists of Plants collected at Wellington, during the summer of 1862, by John A. Kemp, M.D.

Notices of Books.

The members of the *Alpine Club* have started a Quarterly Journal of their own (Longmans). It is to be a record of mountain adventure and scientific observation. The first paper by Mr. Kennedy is only to be read with bated breath. It records the skilful ascent of a virgin mountain called Monte della Disgrazia. Hear how this prince of Alpineers records the result.

"We gradually wind up rather steep bits, but such as present no real difficulties, and at ten o'clock reach the notch in the chain, with Picco della Speranza on our left, and the highest peak of the Disgrazia on our right. Hence we look down upon the deep valley of Chiaraggio beneath us; beyond is the Monte Nero; higher up, and in the back-ground rises the Tremoggia, the whole surmounted by the grand range of the Bernina. Immediately at our feet, and a little to the left, is the crevassed glacier that we had traversed three or four days previously, and commanding, as we now do, its whole surface, we pause in astonishment to admire the skill which had enabled Melchior to lead us through its wonderful intricacies. Having rested at this spot some twenty minutes to enjoy the grand view, and to make another breakfast, we began the real work of the day. This embraced the usual characters of a mountain ridge, a snow cornice on our left, steep couloirs of ice varied with ribs of rock on our right; our actual line of advance over some rocky tooth, up a steep slope of snow, an occasional descent, and finally, a general scramble that placed us, at half-past eleven, on the final peak. And then, indeed, a shout of exultation burst from all.

"What was our first thought? Was it, 'How shall we get down again?' or, 'How magnificent is the panorama!' or, 'Where is the top that I may pocket it;' or, 'Can we find any stones wherewithal we may build up a memorial?' or, 'What have we got to eat and to drink?' or, 'Who has the tobacco-pouch?' or, 'Where is the barometer and the boiling-water apparatus?' or was it—if it may be called a thought—the simple passive consciousness of success? This is, to

many, itself the great reward. The descent is trying, and gladly would I avoid it. The view is sublime, and I enjoy it. The top is an object in every way worthy of attainment, and as an heir-loom to posterity would I transmit it. The memorial to succeeding generations raises a feeling gratifying to the pride of man, and I am a partaker in it. The crust of bread recruits exhausted strength, and I devour it; the wine is nectar itself, and I relish it: the pipe is universal, but I nauseate it. The scientific observation is of the utmost importance, and with most unfeigned satisfaction do I behold others trying to keep their hands warm while they are conducting it. But, to my mind, each and every one of these sources of gratification sink into insignificance when compared with the exhilarating conciousness of difficulty overcome, and of success attained by perseverance."

Bravo! ye gallant sons of Britain—who but ye could have dared such an adventure, and achieved it.

The *Florist and Pomologist* figures two of the finest new varieties of Verbenas, Lord Leigh and Lord Clyde, very indifferently drawn and coloured however, and by no means worthy of the initials attached to the plate. This work has latterly shown a falling off in respect to the colouring of its floral illustrations. There is, however, a very good figure of the Belle Agathe Cherry, a September variety, with sweet crackling flesh like the Bigarreaus. The number contains an interesting article by Mr. Hill, on the varieties of Grape cultivated at Keele Hall, a place which has become famous for its exhibitions of this fruit.

The *Illustrated Bouquet*, issued by Messrs. E. G. Henderson & Son, has at least not the fault just indicated, but on the other hand, perhaps a *leetle* tendency to overdo the subjects figured. The 15th part now before us opens with a very showy figure of *Imantophyllum miniatum*, a remarkably handsome plant certainly, which as a winter and spring bloomer is said to form one of the finest decorative objects that can be obtained for a warm conservatory from January till June. The figure represents a much finer example than those which are usually seen, but if our memory serves us, Messrs. Henderson have exhibited it nearly or quite equal to the picture they put forth. Another plate is devoted to the curious and really distinct Fern-leaved Chinese Primrose, *P. sinensis filicifolia*, the drawing of which, however, by Mrs. Withers we cannot praise either for its perspective or colouring. The plant nevertheless is a desirable one, differing from the common sorts in its oblong leaves, which are divided half-way to the midrib into coarsely-toothed lobes. It is a sport from the common sort, obtained, we understand, some years since by Mr. Kay of Finchley, but not increased to any extent till it fell into other hands, though it reproduces itself readily from seeds. The form figured has red fringed flowers, but there is a white variety with similar foliage. *Swainsona violacea* is a fine suffruticose greenhouse plant, with noble spikes of large deep violet pea-shaped flowers. This is said to be the most stately and beautiful of its family. It is Australian. The remaining plate contains representations of the *Titien Strawberry*, recommended as a hardy vigorous sort, "succeeding well in cold soils;" and of *Sanseviera carnea variegata*, here called *Reineckia*, a tolerably pretty dwarf tufted plant with striped grassy leaves, and spikes of flesh-coloured starry flowers. It was introduced by Siebold, from Japan; and it is suggested that though identified by authors as a variety of S. carnea, there are differences which indicate that it may belong to another species. Here the base of the leaf is uniformly the widest part, sheathing around those above it, whilst the original form of S. carnea has the leaves contracted at the base.

Miscellaneous.

Botanical Collections in the Rocky Mountains.—The botanical readers of this Journal are familiar with the results of Dr. Parry's reconnaissance of the mountains of Colorado Territory, at and beyond the mining district, last year, that is, in the summer of 1861. The limited collections he then made being much in demand, and his desire for exploration still unsated, Dr. Parry revisited this interesting region early last summer (1862), accompanied by Messrs. E. Hall and J. P. Harbour, the party ascending Pike's Peak, and also crossing the principal range into Middle Park, &c. Dr. Parry remained in the mountain region until autumn, for the purpose of collecting the seeds of Coniferæ. Having devoted much of his time to geographical and barometrical observations, the larger part of the botanical collections, except towards the close of the season, are due to the sedulous labours of his associates, Messrs. Hall and Harbour. Most of the species collected in 1861,—often too scantily for general distribution—have now been gathered anew, and many additional ones have been secured, some of them of great rarity or novelty. Messrs. Hall and Harbour likewise collected the more interesting plants of the plains of Nebraska. A systematic enumeration of the plants collected, with characters of new species, &c., now in preparation by the present writer, will immediately be published. The principal collections of the joint expedition, distributed into sets under Messrs. Hall and Harbour's tickets, extend to 695 numbers. These sets will be extended by the addition of from 50 to 100 or more alpine plants from the special collection of Dr. Parry, distributed under and in continuation of his former numbers; so that, in the whole, the flora of the Rocky Mountains will be adequately represented. The specimens are very good and well made; and the collection as a whole is particularly interesting. 30 sets are offered to botanists. About 15 of them are nearly complete and full, and are offered at eight dollars the 100 numbers. The remainder fall off to 600 or 500 numbers, and the specimens often less copious; these are held at six dollars the 100, at which rate they are most desirable acquisitions, and they will doubtless be appropriated as soon as they are known. Applications may be addressed to Mr. Elihu Hall, Athens, Illinois, or especially to Prof. A. Gray, Cambridge.

British Columbian Mosses.—The mountain sides in the neighbourhood of Kamloops are covered with a bright yellow Moss, called by the Indians Quillmarcar. It is used by them as a dye, and when boiled gives them that yellow which is so familiar to those who have travelled among them in their dog-hair mats and other native work. There is also a kind of Lichen, which grows here, called by them "Whygelkine;" and which is one of their most important articles of food (L. jubatus). In its natural state it somewhat resembles horse-hair, and being boiled it is pressed into cakes 3 or 4 inches thick, looking not unlike our gingerbread. Its taste is very earthy and rather bitter. Our companion, St. Paul, gave us this, which they call "Wheela," with milk, upon our return to his hut, but two or three mouthsful were all we cared to take. *Mayne's British Columbia.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Those who desire to have Camellias in blossom from October until May must, as a matter of course, force the plants into wood successively. Let the stock be divided into say three portions; let one of these be pushed forward early in January, a second in February, and a third retarded if possible until April. The first lot of plants should now be in good condition; they should be screened from sunlight on bright days, and syringed frequently overhead; in fact, they should be kept continually moist. Maintain a temperature of about 60°, and give air whenever the weather is favourable. Weak tepid manure water may be freely administered during the growing season, but as soon as the plants cease to make wood its use should be discontinued, and a drier root management instituted. This will favour the setting of blossom buds of the two remaining portions, one of which may be treated in a manner similar to that just described; the other should be allowed to break of its own accord. In mixed greenhouses a place should be found for freely blooming Hybrid Perpetual Roses. Cuttings of these struck last season and wintered in store pots will, if potted off immediately and put under high cultivation, make nice bushes for next autumn and the ensuing spring. They should be got forward in-doors for a month or so until established in 5-inch pots, when they may receive a final shift. Pinch off all bloom buds during the summer, and keep the plants free from green fly or other insects. Cuttings of young wood struck now may be induced to flower late this autumn; but as a rule it is best for them to be older before they are allowed to blossom.

FORCING DEPARTMENT.

Pineries.—Secure good linings to plants in dung-pits. Young stock will now be in rapid growth; take care to give air freely night and day, if the thermometer can be kept above 60°. In the afternoon, however, syringe and shut up at 90°, if possible, for a couple of hours. Pines swelling will, of course, now require liberal waterings of warm liquid manure. Those who can find time should syringe the surface of their tan slightly, both morning and evening. It is impossible to keep up too much atmospheric humidity in Pine stoves at this period.

Vineries.—Those who started early will now or soon have Grapes in their last stage of swelling. A mistaken notion prevails with many, that in order to produce well-coloured Grapes, the laterals, at a given period, should be reduced so as to admit the sun to shine on the berries. The most powerful sunshine will not colour Grapes in perfection, unless the Vines possess a fair proportion of leaf and healthy roots. Some of the blackest Grapes we have ever seen, and possessing the finest bloom, were in situations in which we might almost say the sun's rays never shone on them.

Peach-house.—See that the trees are in a wholesome state as regards moisture at the root.

Melons, Cucumbers, &c.—Give free airings all the early part of the day. Both require a rather dry atmosphere in order to promote fecundation.

FLOWER GARDEN AND SHRUBBERIES.

Those who grow Neapolitan Violets, should, for the next three weeks or a month, propagate a stock, either by means of cuttings or runners. Young stock of choice Pansies, of last autumn's striking, should now be got out in the flower-garden beds, or on borders. If the soil is in any way exhausted, a little fresh material should be put in every hole; viz., such as old rotten loamy turf, mixed with old leaf soil, a little soot, and a little coarse sand. Too much manure may enlarge the blooms for awhile, but it soon makes the plant over luxuriant. Sow Sweet Peas and Mignonette. Ranunculuses are now beginning to make their appearance above ground; as they advance, it will be a necessary precaution to keep the soil well round the crown of the plant; when this is neglected, the bloom is sure to suffer; though if the surface of the bed is composed of sand to the depth of half an inch there will not be much danger.

ORCHARD AND KITCHEN GARDEN.

Follow up sowings of Peas, Beans, Radishes, Horn Carrots, Salading, &c., according to directions in previous Calendars. Sow a little Parsley, some early Beet, &c, and look well after some good and forward seed-beds of Celery. That sown early in boxes will soon want pricking out. The old plan is very good, viz., some very rotten and mellow dung, on a sound bottom. On this, the plants, pricked 3 inches apart, will produce many fibres, and will remove with the trowel, in balls, with the most trifling amount of check. The chief reason why Celery runs, is that luxuriance of growth is succeeded by a sudden check. The buttoning of the Cauliflower is also traceable to the same cause, as is likewise premature fructification in many other plants.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending March 25, 1863, as observed at the Horticultural Garden

March.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. of the Air. Max.	Min.	Mean	of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 19	○	30.047	30.019	58	25	41.5	43	43	N.	.04
Friday 20	1	29.998	29.787	59	41	50.0	44	44	S.W.	.01
Satur 21	2	30.149	29.965	53	24	38.5	45	43½	N.W.	.00
Sunday 22	3	30.356	30.310	62	35	48.5	45	44	N.W.	.00
Mon. 23	4	30.157	30.375	65	30	47.5	46	44	W.	.00
Tues. 24	5	30.409	30.398	64	30	47.0	47	45	S.W.	.00
Wed. 25	6	30.462	30.306	69	31	50.0	47½	45	N.W.	.00
Average		30.261	30.017	61.4	30.8	46.1	45.3	44.0		.05

March 19—Cloudy; fine but cold; overcast; rain.
— 20—Slight rain, cloudy and fine, rather boisterous.
— 21—Clear and boisterous, cloudy and fine; dry air; clear; frosty.
— 22—Fine, fine throughout.
— 23—Foggy, exceedingly fine; very slight frost at night.
— 24—Fine, very fine throughout.
— 25—Fine; hot with bright sun, very fine.
Mean temperature of the week 4 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending April 4, 1863.

March and April	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 29 ..	53.8	33.6	43.7	12	0.33 in	1	5	8	3	2	7	8	3
Mon. 30..	53.6	31.6	44.1	16	0.50	3	5	5	1	6	9	5	3
Tues. 31..	54.9	34.3	44.6	16	0.30	3	7	2	3	8	6	5	3
Wed. 1 ..	54.7	34.9	44.8	21	0.76	3	8	2	3	5	10	1	4
Thurs. 2 ..	55.3	36.5	45.9	20	1.19	4	4	4	3	4	12	3	3
Friday 3 ..	56.6	35.3	46.0	13	0.30	5	3	3	1	3	12	6	4
Satur 4 ..	56.5	36.2	46.4	14	0.48	4	7	3	3	6	5	5	4

The highest temperature during the above period occurred on the 3d, 1848—therm. 78 deg.; and the lowest on the 1st, 1838—therm. 16 deg.

Notices to Correspondents.

Alpinias: *J R E R.* Such as are now in the country, would be obtained for you by any of the leading nurserymen.

Amaranthus melancholicus ruber: *S S* inquires if this Amaranthus grows as freely and as vigorously as the Perilla nankinensis. Will some correspondent who has grown it, report on its habit in this respect.

Books: *Old Sub.*: Kemp on How to Lay out a Garden.

Cinerarias: *X X.* These flowers seem to have run nearly their length as to variety, unless new blood can be found. The produce is however so satisfactory from a good "stram" of seed, that as decorative plants the named sorts are of little moment. Indeed few of the seedlings stand out sufficiently distinct and marked, to be worth naming.—*A M Elcombe.* No safe opinion can be formed on withered blooms; you had better send the plant to the next meeting of the Floral Committee.

Dry-rot: *M F.* Make a strong solution of corrosive sublimate in boiling water and brush every thing well with it, and in all probability you will be free from dry-rot for some years, perhaps 8 or 10. The effect is not however permanent. *M J B.*

Garden Law: *Reader.* We really cannot undertake to answer such legal questions. By all means consult your solicitor.

Hollies: *H B B.* The fine broad-leaved variety you allude to is probably that called Shepherdii, one of the finest of all. Those called the Golden Queen and Silver Queen are amongst the best of the variegated sorts. Mr W. Paul lately exhibited a very handsome one called Walthamensis.

Hybrid Digitalis: *J S.* The late Professor Henslow's paper on hybrid Digitalis is printed in the Transactions of the Cambridge Philosophical Society, iv., 257—278, tt. 15-18.

Lapageria rosea: *J R E R.* The cause of the injury to the leaves is heat and dryness at the root, the actual injury being the work of thrips. Deluge the bed with water: the roots cannot have too much; and let the leaves be thoroughly cleaned by washing with a sponge. The insects will probably be killed in the process, but if any should escape or reappear they must be destroyed by repeated careful but thorough fumigations.

Names of Plants: *J B.* Nothochlæna distans.—*S P.* Primula denticulata, a very pretty species from the Indian mountains.—*J G W.* 1, Polystichum angulare; 2, P. aculeatum. Botanists are not agreed about their distinctness, but they are at least different enough for garden purposes.—*B L.* Azalea amœna, one of the loveliest of its race, and as we are informed quite hardy.—*H S.* The female of the variegated form of Aucuba, which is the form commonly grown. There are no male plants, we believe, but those recently imported by Mr. Fortune, examples of which in blossom have recently been exhibited by Mr. Standish.—*F U.* Fabiana imbricata.—*W M.* Dendrobium Pierardi.—*F Tuckett.* It is an Oxalis, and probably O. stricta, but the specimens are so fragmentary that the habit cannot be made out from them.—*J L A.* The spotted leaf is Erythronium Dens-canis; the other Sisyrinchium grandiflorum.—*T Corder.* It appears to be a starveling of Cardamine hirsuta, but is not enough advanced for critical examination.—*M M.* We do not recognise the seeds, but will sow them and report.

Variegated Pelargoniums: *D M.* Many of these are sports, and all are sportive. In other words, several well known sorts have originated from a sported branch, which has been propagated and perpetuated. Under liberal treatment any one of them would be liable to throw out a green shoot, but these should be cut away as soon as observed.

Misc.: *F J.* can have both the Numbers mentioned in his note.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1863 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from Messrs. Gibbs: Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

TENANT FARMERS' MANURE COMPANY.
ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME,

MANUFACTURED BY THE PATENT

NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),

Consisting of TENANT FARMERS, occupying upwards of 30,000 Acres of Land.

Chairman.—JOHN CLAYDON, Esq., Littlebury, Essex.

Particulars of these Standard Manures may be obtained at the Offices. C. T. MACADAM, Secretary.

Or of the Local Agents.

Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex, N.E.

POTTER'S GUANO (established 21 years) 7*l.* per Ton.

POTTER'S CONCENTRATED MANURE, guaranteed by analysis, 10*l.* per Ton.

PURE GYPSUM, 25*s.* per Ton, bags included.

Address, 28, Clapham Road Place, S.

Manures for Present Use.

PERUVIAN GUANO, Genuine as Imported by the Contractors of the Peruvian Government, Deliveries direct from the Docks; NITRO-BIPHOSPHATE (Blood and Offal Manure), Fish Offal ditto (PHOSPHATE); SUPERPHOSPHATE of LIME (made from Bone), see Royal Agricultural Society's Journal, vol. 6, page 2; and all others of known value, may be had on the best terms by application to MARK FOTHERGILL, 23 & 24, Great Tower Street, Mark Lane, E.C.

Established 1839.

Established 1848.

THE BLAYDON MANURES.—Two Prizes were last season awarded, under the auspices of the Rutland Agricultural Society, for Turnips grown with the above Manures, viz.:—

1st.—A Silver Cup, value Five Sovereigns, was given by the Town and Trade of Oakham to Mr. T. W. Fowler, Exton, for the best Turnips (not being Swedes) grown within the County of Rutland. These Turnips were raised with 3 cwt. per acre of the 7*l.* 10*s.* Blaydon Manure, used with a moderate dressing of Farm-yard Manure.

2d.—Three Sovereigns (the 2d premium), given by the Right Hon. Viscount Campden, were awarded to Mr. Fowler, Exton, for Swedish Turnips. These Turnips were grown with 3 cwt. per acre of the 7*l.* 10*s.* Blaydon Manure, along with a moderate quantity of Farm-yard Manure.

Manufactured by the Blaydon Chemical Company, Blaydon-on-Tyne.

Managing Partner, EDWARD RICHARDSON, Jun.

AGRICULTURAL and HORTICULTURAL TOOLS.—Threshing Machines for Steam and Horse Power, Ploughs, Waggons, Carts, Turnip Cutters, Cake Breakers, Chaff Cutters, 50*s.*, &c. Price List free. Illustrated Catalogues on receipt of six postage stamps.

BURGESS & KEY, 95, Newgate Street, E.C.
Works: Brentwood, Essex.

To Flock Farmers.

ANTHYLLIS VULNERARIA, or LADIES' FINGERS; a newly-introduced Forage Plant. Excellent food for Sheep, of which they are very fond. Very productive on Light Sandy and Chalky Soils; the plant covers the ground like a thick mat—its stems run up from a foot to 18 inches high. On sandy and chalk flock farms it is invaluable, growing where other seeds fail. It is very healthy food, on which sheep never scour, let the weather be ever so wet. It is an exceedingly good change for Clover and Sainfoin, producing as much or more food. Very kind for the Wheat plant. It is perennial. On referring to Sowerby's "Botany," he says the plant is highly worthy of cultivation as a food for cattle, and productive of milk. The plant was first brought into cultivation in 1858, by H. Stebbing, the present Grower.

Quantity of Seed per acre, 16 lbs, to be sown with the Barley. Price 1*s.* 9*d.* per lb. Orders will be received by

Mr. H. STEBBING, The Hall Farm, Stow Bedon, Attleboro', Norfolk.

Important to Flock-masters and Cattle-feeders.

CONDIMENTAL MEAL VERSUS LINSEED CAKE. 10*l.* 5*s.* per Ton is now the price of THORLEY'S CONDIMENTAL FEEDING MEAL, in Buyers' Own Sacks, free to rail. One ton of this delicious compound is equal in value to one ton and a half of the best Linseed Cake obtainable in the market. Farmers' 4 bushel sacks, 1*s* 6*d* each.

Remittance must be made payable to the Inventor, JOSEPH THORLEY, Caledonian Road, King's Cross, London, N.

F. C. CALVERT'S PHENYLINE (the active principle of coal-tar) is an unfailing remedy for Foot-rot, Distemper, Grease, Glanders, Scab, Mange, &c., and may be obtained of any of the following Agents:—

JOHN BELL & Co., 338, Oxford Street, London; A. PATTISON & Co., 67, Buchanan Street, Glasgow; CLAY & ABRAHAM, Liverpool; J. WOOLLEY, Manchester; HARVEY & REYNOLDS, Leeds; H. BRADEY, Newcastle-on-Tyne; J. REED, Arundel; C. CORTIS, Worthing.

PROFESSOR BROWN, VETERINARY INSPECTOR to the Bath and West of England Agricultural Society, 13 years Lecturer on Veterinary Surgery at the Agricultural College, may be consulted on Diseases of Horses, Cattle, Sheep, Dogs, &c.

Infirmary, White Horse Yard, New Cavendish Street, Portland Place, W.

Land Drainage.

WORKS of DRAINAGE of any extent are EXECUTED by the GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY on all descriptions of property, whether freehold, entailed, mortgaged, trust, ecclesiastical, corporate, or collegiate.

Repayment may be made by the Landowner as successive portions of the works are completed; or the actual expenditure, with a commission thereon, may be charged on the property improved, by way of rentcharge on the estate created for various terms of years so as to adapt the rate per cent. of annual charge to the circumstances of the tenants.

No investigation of title being required, or notices given to Reversioners or Mortgagees, no legal expenses are incurred.

Works of Irrigation, Enclosing, Wood Grubbing, Road Making, and Farm Buildings are executed in a similar manner.

Landowners desirous to execute any of the Improvements by their own Agents, and charge the outlay and expenses on the Estate, may obtain Loans for the purpose.

Applications to be made to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, S.W.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Special Act of Parliament in 1853.

2, Old Palace Yard, Westminster, S.W.

TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c. IN ENGLAND AND WALES AND IN SCOTLAND.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

AGRICULTURAL and CHEMICAL COLLEGE, 37 and 38, Lower Kennington Lane, London, S.
ASSAYS and ANALYSES promptly attended to by J. C. NESBIT, LANSDELL & Co.

AGRICULTURAL and CHEMICAL COLLEGE, KENNINGTON.—Manufacturers and others engaged in making Artificial Manures may obtain every necessary instruction for their economical and efficient preparation by applying to J. C. NESBIT, LANSDELL & Co., 37 and 38, Lower Kennington Lane, London, S.

Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and despatch.

Gentlemen, Farmers, or others, desirous of practical knowledge in Chemical Analysis, or Assaying, may receive instruction at the College, where the extensive Laboratories give ample facility for pursuing their studies, and there is accommodation for a limited number of Resident Students.

Full particulars of terms will be forwarded on application.

Drainage, &c.

MR. JOSEPH BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.

Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements. Valuations made for Sales, or the re-letting of Farms.

22, Parliament Street, Westminster, S.W.

INTERNATIONAL AGRICULTURAL EXHIBITION, to be held at HAMBURG on JULY 14, 15, 16, 17, 18, 19, and 20.

The Prizes offered are on a very liberal scale. For the Classes devoted to British Bred Stock exclusively they amount to nearly 800*l.*, while all the others are open to general Competition.

All Entries of Stock, Implements, &c., must be made upon the Printed Forms prescribed. These can be obtained from the Secretary, and must be returned on or before May 1, the last day of Entry.

The General Steam Navigation Company, London; Messrs. Drolenvaux & Bremner, 14, Mark Lane, London; Messrs. Brownlow, Lumsden, & Co., Hull; Messrs. Lofthouse, Glover, & Co., Hull; Mr. Thomas W. Peters, Hull; Messrs. Pile, Spence, & Co., West Hartlepool; Mr. John Sutcliffe Grimsby; and Messrs. Ormston, Dobson & Co., Newcastle-on-Tyne, are authorised to receive payments from Exhibitors for Space required, which, according to the printed regulations, are required to be paid before Certificates of Admission will be granted, and are to be paid at the following rates:—

2 Prussian Thalers for each Horse, Bull, Cow, or Heifer.
1 Prussian Thaler for each Ram or each lot of three Sheep, each Boar, each Sow including a litter of Young Pigs.
¾ Thaler per foot Frontage and 10 feet in depth, for Machinery, Implements, &c., in Covered Sheds.
1½ Thaler per foot Frontage and 20 feet in depth, for Machinery, &c., in Covered Sheds.
½ Thaler per foot Frontage, and not exceeding 20 feet in depth in the Machinery in Motion Yard (Uncovered).

The Thaler to be reckoned equal to 3*s.* sterling. In making payments, the receipt of the same to be returned, with the filled-up form of application, to the Secretary, at Hamburg.

It is particularly requested to send description marks, number, weight, value, and contents of everything, with bills of lading, to Messrs. James R. M'Donald & Co., Hamburg.

By order of the Executive Committee,
GERHARD HACHMANN, Dr., Secretary, Hamburg.

To whom applications for particulars of the Prizes, &c., are to be made.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
WORCESTER MEETING, 1863.

STOCK and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to
H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MARCH 28, 1863.

WE are asked, "WHAT IS THE VALUE OF A GALLON OF MILK?" Our correspondent says:—

"Mr. MECHI quotes from the report of the Sewage Commissioners a calculation as to the value of sewage Grass for Milch Cows, taking the value of milk at 8*d.* per gallon. This I feel sure is above its value to the farmer, although not so in the case of a milk walk where there is a ready money sale for new milk. But where it has to be turned into cheese or butter the case is very different. It takes rather more than a gallon to produce one pound of new cheese, and in summer from 3½ to 4 gallons to produce one pound of butter. Of course there are exceptional cases, but I believe I am not far from the average. Is not 6*d.* enough, if not rather too much?"

The value of milk, as of every other kind of farm produce, to its producer is just what he can make of it, and "the value of milk to the farmer" depends on the kind of market to which he has access. (1) If he sells his milk direct to the consumer he may get 3*d.* or even more per quart, from which he has to deduct the cost of distribution, and costs and losses on the collection of debts. (2) If he sells milk to the wholesale dealer, he will get 1*d.* a pint, or 8*d.* per gallon. (3) If he makes milk into butter and skim-milk cheese, the following may be his returns:—600 gallons of milk, the annual produce of a good cow will make 230 lbs. of butter and 500 lbs. of cheese; the one at 1*s.* per lb. and the other at 3*d.* per lb. are worth 16*l.* or a little more than 6¼*d.* per gallon. (4) If he makes milk

REDUCTION IN PRICE.

PHOSPHO GUANO.

The Prices for the Season 1863 are as follows, delivered Free on Board, or on the Rails at Liverpool.

For 30 Tons and upwards	£10	5	0	per Ton, net cash.	
For 10 Tons up to 30 Tons	10	10	0	,,	,,
For 5 Tons up to 10 Tons	10	15	0	,,	,,
For smaller quantities	11	0	0	,,	,,

The Price will not exceed 12*s.* per Ton additional if delivered at any other Port in Great Britain.

PETER LAWSON & SON, CONTRACTORS.
GEO. SEAGRAVE & CO., BROKERS.
WILLIAM DIXON & CO., GENERAL AGENTS.

28, KING STREET, CHEAPSIDE; AND 15, LAWRENCE LANE, LONDON, E.C.

wholly into cheese, he may get from 600 gallons 4 cwt. to 5 cwt. of cheese, and perhaps 2*l.* in bacon and butter per annum from the whey. And as 4 cwt. of cheese is a much more common return than 5 cwt. per annum from even a good cow, it is probable that 15*l.* per cow per annum is a more common return than 16*l.* in this way, so that 6*d.* per gallon is as much as can be expected here. (5) If he uses the milk wholly for fatting veal at the rate of 10, 16, 20, 24, 27, 30 and 32 gallons in seven successive weeks, using 160 gallons or thereabouts in that time for the addition of 1 cwt. of veal to the weight of the calf, each cow will thus feed 4 cwt. of veal per annum, which at 7*d.* per lb. will yield 13*l.* and upwards annually per cow. From this however must be deducted the value of whatever other food the calf consumes, and also a certain sum at which the risk attending the management of young stock must be valued, a risk which does not accompany the other modes of turning milk into money. Here therefore the value per gallon realised from milk is about 5*d.*; but on the other hand it must be remembered that the milk is here consumed at home, and it is an understood thing that the value of the manure realised from it (which must be a minimum in the case of calves), makes the spending value of farm produce less than its selling value.

From these facts our correspondent will be able himself to answer his inquiry.

He may also if he please take his answer from the results of Dr. VOELCKER's experiments reported in the 23d volume of the English Agricultural Society's Journal. In these experiments (*a*) 1000 gallons of new milk yielded 8 cwt. of whole-milk-cheese, which were sold at 70*s.* per cwt., for 28*l.*—or nearly 6¾*d.* per gallon. (*b*) 1000 gallons of new milk yielded 6 cwt. 2 qr. 16 lb. of cheese and 1 cwt. 1 qr. of butter, which sold for 26*l.* 18*s.*, or close on 6½*d.* per gallon. (*c*) 1000 gallons of new milk produced 6 cwt. 24 lbs. of skim-milk cheese and 2½ cwt. of butter selling for 29*l.* 10*s.* 8*d.*, or rather more than 7*d.* per gallon. And (*d*), 1000 gallons of new milk produced 3 cwt. 12 lbs. of skim-milk cheese, and 4¾ cwt. of extra rich (Stilton) cheese which sold for 24*l.* 7*s.* 10*d.*, or rather less than 6*d.* per gallon. In these cases the latter sold for 1*s.* per lb., the "extra rich" cheese sold for 70*s.* per cwt., the whole-milk cheese sold for 70*s.* per cwt., the ordinary cheese sold for 60*s.* per cwt., and the skim-milk cheese for 50*s.* per cwt.—all of them (except the latter), beyond the present market prices.

Lastly, if our Correspondent will turn to page 130 in the *Agricultural Gazette* for Feb. 7, 1863, he will find the experience of the Frocester Court dairy farm, from which it appears that during the past six years 204,523 gallons of milk have been converted—180,770 gallons into 16,802 lbs. of cheese and 15,617 lbs. of butter, the remainder being given to calves and pigs—and the whole produce when sold was 551l., or about 6¾*d.* per gallon. This last fact will, from the magnitude and duration of the data out of which it comes, be considered as an authoritative and conclusive answer to our correspondent's question.

We may mention that the statements in the outset of this article are taken from MORTON's "Handbook of Dairy Husbandry," published by LONGMANS; and that our correspondent will find in the volume of Farm Reports published many years ago by the Useful Knowledge Society, an account of a Gloucestershire vale or dairy farm, in which there are other facts bearing on his question, on which however we are unable at the moment to lay our hands.

WE have another question which requires a fuller answer than can be given in a single sentence. It will be found on page 229, where "H. G." points out how defective general agricultural publications are on the mutual obligation of landlord and tenant in the care of Grass lands. He says: "I own a Grass farm within 2 miles of the centre of one of our very large towns; and of course its application is for dairy purposes. It is almost entirely depastured by milch cows; and, besides milk, the tenant sells hay without stint. His neighbours do the same. They claim to be under the single condition of bringing back in return for each ton of hay sold, 2 tons of stable manure or 4 tons of 'short' manure, meaning cinders and broken crockery from the town 'mixens;' but the landlord has no means of knowing the quantity sold; and on the weekly hay market day it is rare to see the hay carts and waggons returning from the town otherwise than empty. The tenants consider themselves under no obligation to manure land which they do not mow, though daily carrying off its phosphates in their milk. Allow me to ask you what one might fairly require of the tenant in this case, or what treatment will save the land from losing heart."

Our correspondent does not say whether the land really *is* losing heart under the existing state of things. We shall be very much surprised to hear that it is. We should consider no agency in the world for improving a poor Grass farm, comparable to the establishment within two miles of it, of a large market for milk at 8*d.* to 1*s.* per gallon, and of hay at 5*l.* or more per load. If a good market for produce will not induce a tenant to do all he can to provide the raw material of that produce, nothing else can be expected to do it. If he can sell any quantity of hay at 5*l.* and 6*l.* per load, and any quantity of milk at 8*d.* to 1*s.* per gallon, from a limited extent of land, he will certainly do all he knows to make that land grow Grass. This large market town where he gets a ready sale for his produce, at the same time provides him in its "town mixens," "cesspools," &c., with the means of dressing his land more cheaply than he can do it in any other way. We should be disposed under such circumstances to leave "phosphates" or any other theoretical expressions alone, satisfied that the interest of the tenant in producing milk and hay will lead him so to strive after the production of Grass, that the land can never be permitted to get out of heart.

But perhaps it may be replied—"The land *is* getting out of heart, notwithstanding your *à priori* argument to the contrary." Then we must presume that this is because the tenant is liable to be dispossessed, and his cows to be driven off, to make room at short notice for bricks and mortar. The effects of uncertainty of occupation are nowhere more visible and striking than close by "our very large towns," where land on lease for a term will often command three or four times the sum which a tenant liable to abrupt dismissal from the builder can afford to give. Of course the agricultural value and the builder's value of the land so placed are two very different things, and a landlord cannot realise the former to its utmost if all he does is with a view to the speedy realisation of the latter.

What the law declares in the absence of any special agreement as to the mutual obligation of landlord and tenant under such circumstances is, we presume, that which men call the custom of the country. Very probably "H. G.'s" tenants are right in their definition of it, and "H. G." may very well require them at audit day to present vouchers of the quantity of manure purchased in accordance with its requirements. Probably 2 tons of good stable manure are worth as much as all that would be made at home by the consumption of a load of hay, and so far the landlord is safe from injury; but we can only repeat that the stimulant of good prices for produce appears to us so much the greater security for his safety, that to fall back upon his rights as *against* his tenants in this matter seems to us a blunder.

If, finally, the case is one of obstinate indifference, wrong-headedness, and stupidity in the tenant, who is letting the land waste under his mismanagement, and whom ordinary motives cannot spur into activity—for certainly there are such extraordinary cases—then give him notice to quit, and choose one of the 500 "ordinary" men who will offer in his place.

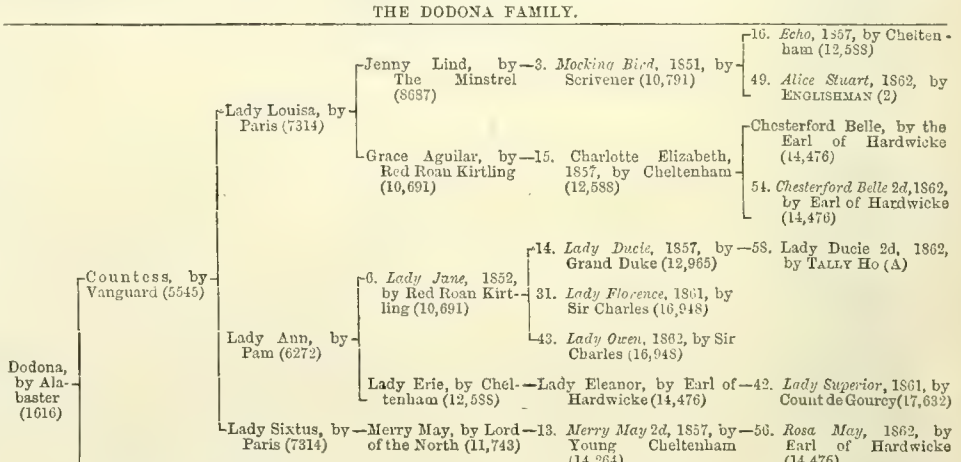
THE BABRAHAM HERD.

THE terms "Pastoral," "Grazing," Corn-growing," have hitherto applied to districts of distinct and very different agricultural character. They all *equally* apply to Babraham.

Here are no upland pastures—no "hills of flock," as the poet calls them—and yet here originated, grew, "blossomed," and bore fruit the best, most useful, and most celebrated flock of sheep our island ever knew. Here dwelt the most successful and distinguished flock-master of our century.

Babraham is an open tract of light Barley soil, all plough land and all well cultivated. There are no rich grazing grounds within its limits; very little permanent Grass of any kind whatever. This is not the place a man would choose wherein to acquire a name or achieve success as the breeder and the feeder of first-class stock, and yet here within the past quarter of a century, and especially within the past 10 years, such stock has grown—marching with the very first upon the list of English herds, "cultivated" by an independent man, who followed no one's judgment but his own—who trod after neither Bates nor Booth—who, had he only lived, would have made a "rage and fashion" of his own; and Babraham would have been as well known a landmark in

THE DODONA FAMILY.



Besid es these, Chesterford Belle, by the Earl of Harwicke (14,470), has a Bull calf, No. 17 in the Catalogue, viz.:—
CHESTERFORD BEAU, 1862, by Crown Prince (17,647).

the history of the Short-horned ox, as it is in that of the Southdown sheep.

The fact is, Mr. Jonas Webb did not accept, he *made* success; and while his own good judgment would always have forbidden his aiming at impossibilities, we cannot doubt that wherever he had been located, his mind and will would have dominated, overborne, and *used* his circumstances—moulded and converted them to whatever end or purpose he contemplated.

These are not the times in which resignedly to accept your lot—to follow in the beaten track; or, where the rut is deep and difficult, lie down and call on Jupiter for aid. And we owe to Mr. Jonas Webb not only the direct and immediate good of so many "sires" and "dams," transmitting all over this and other countries the power of converting green crops into meat at a cheaper rate than ever has been done before—but the inconceivably superior benefit of a successful and inspiriting example, which will in a thousand instances reproduce the energy, good judgment and resolution which he himself so remarkably displayed.

On Wednesday, the 15th of April, Messrs Strafford and Carter Jonas are to sell by auction one-half of the herd which Mr. Webb has left. There are six families, distinct as to their origin, but all united by the use of bulls of common origin, of which members will then be sold; and the following account of the herd refers to them in succession:—

1. THE "DODONA" FAMILY.—*Dodona* was bought by Mr. Strafford from the late Earl Spencer in the year 1838, and she was immediately sold by him to Mr. Webb. Mr. Strafford had previously offered 50 guineas for a bull calf of hers, that being the standard price at which Lord Spencer disposed of his bull-calves; but this animal, like many others of families which his lordship did not think well to continue, had, notwithstanding this price offered for him, been made a steer of. And his lordship's steward, Mr. Hall, offered the barren cow for 30 guineas to the young man who was then at the commencement of that connection with the breed which he has since in so many useful ways maintained.

The cow was purchased and sent to Babraham. She had been off breeding for a year or more and was thus too fat; her walk into Cambridgeshire however proved to be for her health and prosperity, and though she

had previously refused to breed, she and her descendants, under the extraordinarily successful management of Mr. Webb, have numbered since no fewer than 189. Her first calf, a steer at Wiseton, was followed by twins—Duchess and Marchioness—in 1839 at Babraham; a cow calf, *Countess*, in 1841; and subsequently a bull calf—Oberlin. From *Duchess* and *Countess* there are stock in the herd at present. The former has had 6 calves, the latter 10, from 3 of which, as will be seen in the annexed table, a considerable number of descendants will be sold next Wednesday fortnight. It may be here noted that in these Tables the numbered names are those of stock in the Catalogue, the names in Italics being cows and heifers, those in capitals being bulls. The dates of both are given in all the cases of animals for sale, and the names and numbers of the bull's will enable owners of the Herd Book to trace out for themselves the strains of blood united in these animals. Of course besides the stock here enumerated, there are large numbers of other descendants of *Dodona*, which have been disposed of elsewhere during past years, or are retained for the second sale in July. Thus *Countess*, as already said, had seven calves besides the three enumerated here. *Lady Sixtus* had eleven calves besides the one here named; *Lady Ann* has had 12 (!) besides the two here named; *Lady Jane* has had nine calves in all; *Lady Louisa* has had seven; and so on. The fecundity of this family in Mr. Webb's hands has indeed been something extraordinary; and that it is due to his management is plain from *his* similar experience in the case of other families.

Dodona was from Mason's No. 6 in the Catalogue of the Chilton sale in 1829, which was then sold, a fine-deep framed, massive red cow seven years old. *Dodona* was put to Vanguard, a bull also of Lord Spencer's breeding, then in the possession of Mr. Webb's landlord, the late Mr. Adeane, and produced twins.

Of the bulls used on her produce and that of the other original cows of the Babraham herd, we may as well here give some account.

The Minstrel (8607) was bred by Mr. J. C. Adkins, of Milcote, by Accordian (5708), dam *Charmer* by Little John (4232), granddam *Graceful* by Caliph, g. g. d. *Sylph* by Sir Walter, and thus related to the Belinda family, presently to be described.

Cheltenham (12,588) was bought by Mr. Webb at the Tortworth sale. He was bred by the late Earl of Ducie by Duke of Gloster, dam *Chaff* by Duke of Cornwall, and so back to the Rev. H. Berry's Shorthorns.

Lord of the North (11,743) was out of *Belinda* by Minstrel, and so on both sides descended from *Sylph* by Sir Walter.

Scrivener (10,791), another bull of Earl Ducie's breeding, was by Usurer (9763), dam *Cream* by Orontes, g.d. No. 25 at the Chilton sales and so back to Mason's herd, whence *Dodona* herself was derived.

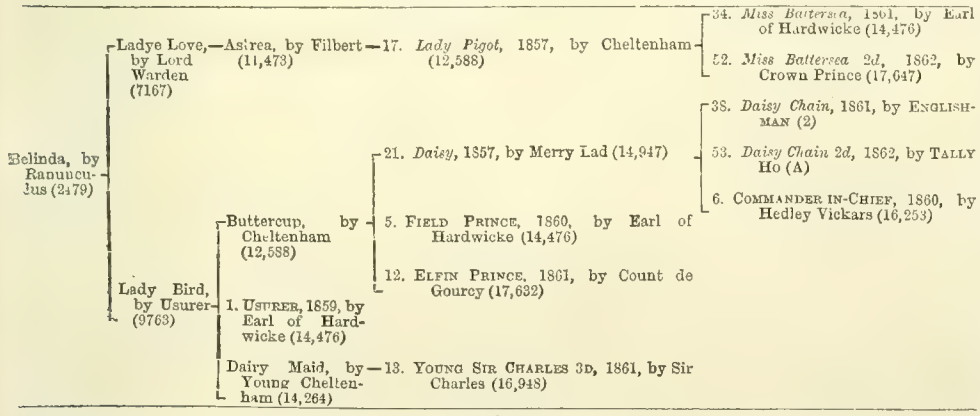
Grand Duke (12,965) was by Cheltenham, dam *Podice*, both of them bought by Mr. Webb at the Tortworth sale.

Sir Charles (16,948) was also by Cheltenham, dam *Erminstade*, now an old cow, bought a heifer at the Fawsley sale, by Friar's Cowl, g.d. *London Pride*, by Janizary, and so from Sir C Knightley's stock.

Earl of Hardwicke (14,476), by Marquis of Bute, dam *Countess of Hardwicke*, is a Babraham bull of another family, descended form *Celia*, purchased at Mr. Beauford's, of Bletsoe, near Bedford, 17 years ago, to which we shall next week refer. We may, however, now mention that her descendants have been even more prolific than those of *Dodona*, no fewer than 180 animals having been bred from them within the last 17 years at Babraham; besides her descendants in this and foreign countries. She was bought a two-year old heifer in 1846—she had bred nine calves up to 1855. Of these, four have bred at Babraham, and there are stock of all four in the sale next month. One of them has had 14 calves, another five, the third and fourth nine apiece, and from some of them 7, 10, 11 calves respectively have since been bred, so that here again the fertility of the family has been something marvellous. *Celia* was by the 3d Duke of Northumberland, hired from Kirklevington, and it will be found that *Dodona*, *Celia*, *Belinda*, Bodice, *Daffy Gwynne*, and The Beauty, both in themselves and in their descendants, unite strains of some of the most celebrated families of the Short-horn breed. Chilton, Wiseton, Kirklevington, Fawsley, Tortworth, are all well represented at Babraham; and they have not lost caste in the hands of Mr. Jonas Webb.

The Belinda Family.—*Belinda* was purchased

THE BELINDA FAMILY.



by Mr. Webb at the Wiseton sale. By no means prepossessing, it was not until the question—Have you seen her daughter?—was put by Mr. Strafford, that he was induced to purchase her. This daughter of hers, *Lady Beautiful* by Usurer, was bought by Mr. Dudding of Panton. *Her* daughter, *Lady Mary Bountiful* by Baron Warlaby, and her granddaughter and her grandson Lord of the Manor by Lemnos, sold for 480 guineas at the Panton sale. *Belinda's* dam, *Sylph*, was bought by Earl Spencer at Sir C. Knightley's sale in 1842, and she was sold at the Wiseton sale 17 years old, her calf "Brownie" by her side, fetching 70 guineas. *Belinda* is thus related to the *Charmer* family, which made Mr. Adkins's sale at Milcote in 1860: *Charmer* being bred from *Graceful*, another daughter of *Sylph*.

Belinda, and the relationships of so many of her family as are to be sold next month, are represented in the adjoining Table. We shall next week refer in more detail to some of her descendants, as well as to the other families to be sold next Wednesday fortnight.

(To be continued.)

Home Correspondence.

Steam Cultivation at Blenheim.—In reading your article on the Duke of Marlborough's Steam Cultivating Apparatus, made by us, we understand it to say, that 25*l.* had been expended in the purchase of new rope, and as we had not supplied any, we wrote to Mr. Scott, the steward, asking for an explanation. We find that although the apparatus has done upwards of 1000 acres, no new rope has been purchased, and the old rope is still fit for use. This amount of work, 7 or 8 inches deep, at an average of 7 acres per day, with a consumption of only 7 or 8 cwt. of coal, is, we believe, as good a result as any you have recorded. We understand further, that little or nothing has been spent in the way of repairs. *James and Frederick Howard, Britannia Iron Works, Bedford, March* 19. [Our statement meant that 25*l.* worth of wear had taken place.]

Seaside Grasses.—A colonist in the province of Nelson, New Zealand, importunes me to send him some seed of such Grasses as grow in situations (he specifies Es-ex, on the Thames) subject to the overflow of sea-water at each spring tide. He states that a large quantity of alluvial land on the sea-shore, which when first surveyed was a fresh-water marsh, has, subsequent to its drainage and culture, so subsided in level that the sea-water at spring-tides now overflows it, rendering it unproductive. Can you give the names of the Grasses which predominate in situations such as the salt pastures on the Thames or the Severn? I would not trouble you, but have previously consulted the most eminent Grass-seed salesmen, and my correspondent in New Zealand has already received from me the seeds of such English Grasses as the seedsmen have recommended, and also seeds of the Tussack Grass of the Falkland Isles, none of which, however, have vegetated. Possibly the seeds sent him had lost their vitality before he sowed them. I fear that the fact is that here in England such pastures arrived at maturity and vigour on rich land before it was liable to any overflow of salt water, and that infinitely less than what such can survive might be fatal to the vegetation of their seed, and the early growth of the young Grasses. *F. Tuckett.*

Smith's Steam Drill and Grubber.—I thank you for visiting Woolston, and publishing what you saw. Allow me to report some further working of the machine, and give the opinions of practical men who saw it at work. My heavy land field containing 10 acres, in which the tackle was placed on Friday morning, the 5th inst., and in which you saw the machine at work as stated in your article, was finished at 1 P.M. on Saturday, the tackle was then shifted to my heavy land field, containing 12 acres after roots fed on, and over which you passed, seeing it lay in the state in which the sheep left it ready for work on Monday, and at 12 A.M. on Tuesday the machine had passed over the whole of the field, cultivating and seeding it with Barley at one blow into a most beautiful seed bed. My men then had a dinner of roast beef and plum-pudding, and spent the rest of the day in keeping the Prince of Wales's wedding. On Wednesday that tackle was all shifted on to Loughton, to a field of Mr. Bignell's, containing 20½ acres after roots fed on. The tackle was placed, and started in the afternoon, doing a few short pikes and a portion of the headlands; on Thursday we worked half a day, the afternoon being wet; on Friday we worked all day, and on Saturday at 1 P.M. the whole field was done. From solicitation, and a desire to give the public an opportunity of seeing my machine at work on different soils, I consented to allow it with the tackle to be passed on a distance of seven miles to do a field containing 16 acres, after roots fed on, of Mr. Nichols's, of Moulsoe. At 9 A.M. on Monday the machine began to operate upon the field, and on Tuesday at 5.55 the whole field was done. Here is the opinion of some practical agriculturists who came by appointment to see the machine at work of its efficiency:—

"Woolston, March 12, 1863.

"We the undersigned have to day witnessed the operation of Mr. Smith's combined cultivator and drill, at work on the Farm of Mr. Bignell, at Loughton, on a mixed clay soil on Turnip fed land, without any previous operation. Unhesitatingly pronounce that the work was done in a most effective manner, that the land was thoroughly and well cultivated, and the seed deposited in a nice and uniform bed. We also walked over Mr. Smith's own farm, where he has recently drilled his Barley and Beans, and were perfectly satisfied that the machine is such a one that from its simplicity of construction and easiness of working, is calculated to come into general use. J. T. Coleman, Dunton Lodge, Bedfordshire; G. S. Brown, Dunton, Bedfordshire; J. Francis, Knapwell, Cambridgeshire; L. E. Barnard, Dry Drayton, Cambridgeshire; W. Reynolds, Cotons, Cambridgeshire; Robert Norfolk, Louth Park, Lincolnshire."

Here is a word from Mr. Bignell:—

"Loughton, March 16, 1863.

"Dear Sir, I forward by request your combined machine, with many thanks for its use. While drilling our Barley we had many visitors, and one and all pronounced the work done as first-rate—I remain yours truly. "F. W. Bignell.

"To Mr. Smith."

Here is the opinion of some practical farmers who witnessed the working of the machine at Moulsoe:—

"Moulsoe, March 17, 1863.

"The cultivating and sowing machine of Mr. Smith's working on Mr. Nichols's land after roots fed on well cultivates the land, and drills the seed Barley into a very nice seed bed. The necessary after harrowings will be very light, and with some dry March winds will destroy the few weeds there are left loose upon the land. Thomas Pike, Moulsoe, Bucks; Ambrose West, Pembery, Kent; George Payne, Milton Keynes, Bucks; Henry Pestell, Broughton, Bucks; W. Ridgway, Broughton, Bucks; George Payne, jun., Milton Keynes, Bucks; Charles T. Riley, Milton Keynes, Bucks; Charles H. Price, Newport Pagnell, Bucks; G. G. Price, Olney, Bucks."

And here are a few words from Mr. Nicholls:—

"Moulsoe, March 17, 1863.

"Sir,—We got the tackle fixed and started at 9 A.M. yesterday, and we finished the 16 acres at 5.55 P.M. to-day. The field consists of various soils, a considerable part of it is of a stiff binding nature difficult to work. The machine did its work well, cultivating the land and seeding it with Barley in the best way I ever saw, so convinced am I of its usefulness that as soon as you have proved the new one you say you are bringing out I will order one. I have sent the tackle back and am obliged. In addition to this I add my best thanks.—Yours respectfully. "Wm. Nichols."

"To Mr. W. Smith."

A remark from me on all this is unnecessary, but I tender my best thanks to Mr. Bignell and Mr. Nichols, for the use of their fields to work my machine upon, and to other gentlemen for their names as witnesses of its efficiency. *William Smith, Woolston, Bletchley Station, Bucks, March* 18.

Threshing Machines.—There appeared in the *Weekly Times* of last week, an account of an accident which happened at Chearsley with a steam threshing machine; whereby a woman lost her leg, and ultimately her life, by stepping back upon the drum. Now, Sir, the feeding boxes in those machines are so constructed that the feeder may sit at either side, his proper place therefore is to sit with his back to the rick he is threshing, thereby, "without any inconvenience to himself," keeping the two women employed on the machine perfectly clear of the drum. I hereby, through your columns, call the attention of masters, bailiffs, and machine feeders, to what I have stated as a prevention from such accidents. *T. Trotter, Farm Bailiff, Uffcott, Swindon, Wilts. March* 17.

The Great French Henery.—In the *Agricultural Gazette* of the 31st January last, an article extracted from "Bell's Messenger" is inserted. A friend from the country writes, "This is more like an American than a French account." May I inquire whether there has been any corroboration of this account? It is very desirable that such an extraordinary communication should be authenticated, as if it can be done in France, surely it may be accomplished here. A business with such useful results and yielding a profit of 35,000*l* a year, should not be lost sight of. It seems incredible that 8000 dead horses could be obtained in one year. *Enquirer.*

The Crowded State of the Cottages of the Working Classes is disgraceful in a county like England, abounding in wealth, and well able to provide better

accommodation; thus enabling the poor to carry out, in a practical manner, the precepts taught them, and at the same time give them opportunities of following examples pointed out as worthy of imitation. The immorality resulting from men, women, and children, living together day and night, without the possibility of getting away from each other, is shown by the early depravity existing amongst the youth of both sexes. Reference to the statistical returns of crime throughout England, published by the authority of Government, will too plainly prove this lamentable fact. No amount of supervision on the part of clergymen, no exertions of the well disposed, will beneficially affect the masses till an improvement takes place in their dwellings, on ordinary occasions the separation of boys and girls being impracticable for want of room. What must the misery be when sickness visits the humble dwelling! The sufferer will either be disturbed by having companions in his bed, or the other inmates of the cottage will be even more crowded than usual. What happens if the disease is infectious? There is no escape from constantly breathing an atmosphere saturated with disease. The healthy and the sick must live together; should death release the patient, until the body is buried the wretchedness of the survivors is increased to a fearful extent. This is no exaggerated picture; the truth is known to those accustomed to visit the labouring classes at their homes. The consequence of the discomfort experienced by a man who has been toiling ten hours and reaches his cottage wet and weary without the prospect of enjoying a change of clothes, a warm supper and quiet after fatigue, is a resort to the public, whereat he can dry himself, and drown his cares, for the moment, in drinking. Many an honest man might be saved from destruction had he the common comforts at home instead of being driven away to seek them elsewhere. *Falcon.*

Moles.—I thank Mr. Smith, of Woolston, for his article on moles inserted in the *Agricultural Gazette*, at page 180. I am particular in giving the page, as I wish my readers to turn to the article, which, like most others which are written in hostility to the devoted "Vicar of Wix," is very unique in its kind. * * * You, Mr. Smith, to address you personally, have invented some artificial grubbers with which you seem to be desperately in love; and I, on the other hand, have some natural ones with which I am as deeply in love; but then I have never exhibited any partiality for your lovers, nor should I become jealous of you, should you fall, and deeply, in love with mine. Then, my friend, why on your side all this jealousy? * * * * My dear friend, calm your mind, and sleep sound; I assure you on the honour of a Christian I shall never change my doxy for yours. But your father was a mole-catcher, and so deadly, you write, "was his fight against them," that he killed "his hundreds," nay, "perhaps his thousands;" indeed, so proficient a mole catcher was the old gentleman that he destroyed them all except a single solitary one which made his escape and flew for protection — whither, my gentle readers? whither? Turn to Mr. Smith's letter and see. Truth compels me to omit nothing so important; but to use Mr. Smith's own language, "but that one," he writes, "fixed himself on my"—what?—bottom—farm." Whereon, after we conclude Mr. Smith had lustily shouted out for mercy, he called for assistance and had the daring intruder destroyed! Then again the Caleb Quotum of a village schoolmaster and parish clerk, and a leader of a company of singers, had killed their thousands also? Do such statements as these refute my convictions, that moles do an immensity of good and little or no harm? or that the little injury they sometimes may perhaps do, is counterbalanced by the thousands of times more good that they do? * * * But your father was a mole-catcher also, because otherwise moles would have gotten into his drains; but had I, or any one who understands how to drain land, put drains into your father's land, moles would not have gotten into them. "No, no, no!" If any one should doubt this, let him consult the Draining Companies, and all will tell him that moles cannot get into drains made by any of them—impossible, and hence Mr. Smith, senior, might have been a cunning entrapper of innocent moles, but a wretcher drainer of land if moles could injure his drains; he proved himself to have been. And once more: 25 years ago I, myself, thoroughly drained two fields, the drains of which, though a mole has never once been destroyed in those fields, are now in the same beautiful manner that they did when first made; and 10 years ago I also drained another field, which remains just the same. And this statement, my respected friends, will, I think, show the *animus* of the renowned son of Æsculapius, who in the *Agricultural Gazette* of the 7th of this month, wrote that I had but 1½ acre of land; but as he has thrown down the gauntlet before me, I take it up, and if I do not give him hereafter a few somersaults for the amusement of my friends, they shall never hear of me more. *G. Wilkins, Wix Parsonage, March* 16.

[We have been forced to shorten this letter one half.]

Foreign Correspondence.

Farm Life on the Pampas: *Buenos Ayres, Jan.* 12, 1863. * * * At last we were ready to start. Everything promised well, as the storm had apparently gone away, and six coach horses were ready. Then the trumpet sounded, whips cracked, men shouted, and off we went, all in capital spirits, and chattering away. And a pretty sight it was for all—the yellow coach crowded on every side, two postilions in front, and a man to drive; and then we passed street after street, and got at last out of the town, and made a short halt. Just time for to fill the pipe and light it, when off we again went at a gallop; but the rain we had had made the roads heavy, and the work for the horses somewhat difficult. You, of course, know how the roads are here—not like home, where they are always kept in repair, and large rucks filled up; but here the greatest caution in some places was required, or else over we certainly should have gone. And now I even wonder we often did not turn over, for at times we would get such a pitch as to throw you nearly off your seat. On we went, through mud and water, and the poor beasts, not good ones unfortunately, after a couple of leagues began to falter a little, but their riders not. These gauchos are all the same, and have not the slightest pity for a horse; they say "gallop," and do it they will, at any cost. However, after some 2½ leagues we suddenly came to a stop, and nearly got upset, for the wheels sunk in mire, and could not get out again. Every one of us, ladies of course excepted, had to dismount and give his shoulder to the wheel, and after some five minutes' exertion managed to get the wheels out. We then mounted and were off again, but only to be again ingulphed; but this time it was under a shower of rain, which gradually grew thicker and thicker. We were now some 5½ leagues on the road, and still a league from the first post-house, where we were to change horses. At last, finding it impossible to get the coach out without fresh horses and shovels, it was proposed to walk gently on and let the coach overtake us. On we went accordingly, the ladies excepted, and on we walked until we at last found ourselves at the post-house. Once arrived, we made a hearty breakfast of sardines, biscuits, and bad French wine. After our repast was over, and still longer waiting, the trumpet was heard and the coach arrived. We by degrees got along the road all right without further accidents, passing San Vicente. About 8.30 P.M. we arrived at Ranchos, our halting-place for the night. Patience for an hour and a half brought us at length our dinner. Ranchos is about 20 leagues from Buenos Ayres; a small uninteresting place, of not more than 500 or 600 inhabitants, but possessing a little church with two large bells. Being Christmas eve there was a midnight mass, so I, travel-stained and jolly, after a fairish repast, attended it. As midnight struck, &c. * * *

—— But, to resume, after breakfast a peon who brought horses for Don Alejandro and myself from Monte Grande, for us to use in taking the sheep over, met us at Ranchos. Accordingly, we mounted our horses, the diligencia going no further, and commenced to ride for the Estancia, distant some five leagues. To make it short, after narrowly escaping a most severe thunder storm by seeking shelter in a puesto, and waiting there till it was over, we re-saddled, and about 5 P.M. arrived at the Estancia, at "Espartillar." Being Christmas Day the manager was away; but fortunately Mr. —— was there, who gave us a hearty welcome, and quickly putting our saddles away out of the second storm, which was just beginning, rushed into the house and enjoyed our good fortune over a glass of caña and water and a good pipe.

Jan. 13, 1863.—The next day, Friday (Dec. 26), was engaged in parting out sheep and rams from a flock, and next morning we had collected all that we had to take over to Monte Grande, in one "point," ready. At "Espartillar" there are 30 puestos, and six more in course of construction, and fully 30,000 sheep. Some oxen and horses, of course there are, but not more than a few hundreds of each. The manager is a good-looking young man, about 30 years old, who returned on the 26th; a Scotchman, who has certain shares in the sheep as payment for his work. A "puesto" is a sheep station.

On the Saturday afternoon (27th) we left with our charge, 2792 sheep and 121 rams. Besides the Frenchman and myself were three native peones to assist with the sheep, and another one to drive the bullock cart behind, to take up the little lambs or sheep that got knocked up on the road: so there were six of us altogether. We each had a horse, and three spare ones followed behind, in case of need. We had no dogs. The way we managed was this:—two peones would cut off a point of sheep, say about 60 or 70, and drive them on ahead, keeping them always on the move by shouting and waving their ponchos—the other sheep would then run after this point and try and catch them, bleating all the way—then another rode up and down the line to keep them up to the point (my business), and often the line was a mile long; perhaps the line would get broken, and then was the work to cut off another "point" and drive them on at a gallop to overtake the ones ahead, and all this in clouds of dust, sometimes so thick that it was impossible to see the sheep under your horse's legs; but on you went, shouting whistling, cracking your whip and hitting your saddle, and often the horse, just to make a noise to frighten the sheep on. The first night we arrived close to "Ranchos," where, in fairish pasture, the sheep remained all night. Of course, on the road we gave the sheep every now and then a rest. Whilst the four peones kept guard at night, Don Alejandro and I went to the village to get a good dinner, for we had had nothing but maté since breakfast. Hungry and thirsty, dirty, and dusty, we entered the place: we were like sweeps, but got cleaned for dinner about 9 P.M. Two bottles of English ale soon disappeared, followed by two of wine—our dinner was an excellent one, wound up by a little cognac and cigars. After dinner my friend and self felt very much contented, and whilst over our café, who should come in but an English gentleman, &c. * * *

Next morning at sunrise Alejandro and I were off to the flock, and in a few minutes after on the road to "Sutton's," distant some seven leagues. The first thing is to make a fire, about sun-rise, and cook the breakfast, which consists of roasted mutton (asádo), followed by maté and a smoke: no bread nor anything else. The way you eat is this:—All sit round the great piece of roasted mutton, on your saddle cloths, with legs crossed, each one in turns then draws from behind him his large knife, and with meat in one hand and knife in the other, cuts off as much as he wants. After it is cut off the joint he places one end in his mouth, and then cuts up, close to his teeth, and so continues till he has finished the strip. Water there is, and one tin pot to drink out of: a tea-kettle is also taken to boil the water for making maté.

14th inst.—Breakfast being concluded, and the two oxen yoked to their heavy cart, off we start, and pursue the road until about half-past 11 o'clock, when we make a halt, let the horses and oxen go for a feed, make a fire, roast some more mutton, and make a dinner exactly similar to our breakfast. When the dinner is concluded we take our "siesta" under the cart on our saddles, which we enjoy for some two or three hours, after which the horses and oxen are brought back to the cart, and everything prepared for the next half-day's march, which continues until sunset, when preparations are made for the night. The usual meal is cooked, and, if near a grog shop (pulperia), one of the men goes for a few biscuits and a bottle of caña or gin, to make a good day's finish. My friend and self spent the evening of each day at some neighbouring village, where our greatest treat was to get some soup, or a piece of fresh bread. As for the sleeping accommodation—why, if I had again to go over the same ground with my flock of sheep, I certainly should prefer the night in the camp, with clean saddle-rugs for my bed; for in the little hotels you meet, the beds in general are crammed with fleas, and the room with mosquitos. It is a fact what I now say: one night my compañero and I slept at a certain hotel, and the fleas were so numerous that you could put your hand on your body anywhere, and, after closing it, make sure of its being pretty full. In the morning, before sunrise, I was glad to leap out of the bed and bed-room and dress in the open yard, and felt so disgusted that I would not even wash myself in the iron basin set apart for that purpose.

On the Monday (29th Dec.) we had a severe storm, so that we could not proceed on our way, so had to pass the day as best we could, in a little storehouse which we happened to be near. We only lost four sheep in the night.

At length on Wednesday (31st) we arrived at our destination, and next day, New Year's day, had the great satisfaction of finding our sheep in good condition and up to the proper number, and receiving the expressed pleasure of the manager as to the manner in which they had come. So that we were really only four days doing the 20 leagues, although five days on the road.

On the 2d inst. I returned to town, a perfect lobster in appearance, but extremely pleased with my trip, which was most useful, in many ways, as it opened my eyes a little and made me learn a trifle of local experience.

The other week I paid a visit to a friend of mine, some five leagues out of town, who introduced me to a gentleman who has a little flock of his own, of not more than 500 or 600 ewes in all: he has also rams, young and old, but very few of the latter. The ewes are some Mestizas and others, a cross between the Mestiza ewe and Rambouillet ram: he has two extremely fine Rambouillet rams, and others also good. From each of his ewes he got at last shearling season from 7 to 15 lbs. of wool, and from the two rams mentioned, one gave 28 lbs. and the other 24 lbs. of wool! On each of the ewes' backs was marked the number of lbs. it gave, and several I saw 10 and 12 lbs. For a little ram, a cross from Rambouillet father and Mestiza mother, not a year old, being born last March, he charges 5*l.* 10*s.* (English). Every year this gentleman raises the standard for his weight of fleece, and finds a ready market when he wishes to sell. His wool fetched per arrobe (arr. = 25 lbs.), the highest price in the market, about 1*l.* 2*s.* *F. M.*

N.B. The Spanish pound weight is nearly one-seventh lighter than that of England.

Societies.

The Bath and West of England, whose attention has been latterly directed to the improvement of the breeds of Horses in the district comprised within the sphere of its operations, held a show of Stallions on Friday last, at Exeter, as a preparatory step to the general annual meeting which will be held in the same city in the month of June next. The experiment, notwithstanding its novelty, was on the whole a very fair success; and there is no doubt that in future years it will meet with a more general response on the part of breeders, and a more lively and extensive interest among western agriculturists. It seemed to be the opinion of those in authority that as in the year 1864 the Society will hold its meeting in the important city of Bristol, it will be a very convenient arrangement for

the next stallion show to take place on the occasion of Bristol March fair (1864), and unless the time of the year be thought too early, there can be no doubt that many reasons may be adduced in its favour. The horses shown at Exeter, on Friday last, were there for practical purposes, and those which obtained the Society's diploma will not be entitled to receive the prize unless they are respectively present in the general show yard on the 9th and 10th of June next, and unless their owners produce satisfactory evidence, on or before the 5th of July, that they have served at least 40 mares in the current season, in the counties of Cornwall, Devon, Dorset, Somerset, Wilts, and Gloucester. The entries closed on the 7th of March, with nine thoroughbreds, and 14 agricultural horses, one of whom, however, failed to make his appearance good, though the fact was little observed in the presence of two animals shown as extra stock.

The exhibition took place in the cavalry barrack yard, which had been granted for the purpose by the Secretary of State for War, and a more eligible spot could scarcely have been selected for the purpose in any part of England. Early in the morning a strict examination of the animals was made by Prof. Brown, the Society's veterinary inspector, and at 10 o'clock they were paraded before the judges and such of the public as chose to be present, in a capacious ring which enabled the public to observe without the possibility of interfering. Open judging has therefore been adopted by the Society under very auspicious circumstances, and it is much to be hoped that arrangements equally satisfactory may be made when the attendance is larger and space more valuable.

The Judges for Thorough-breds, for Hacks, or Hunters (9 entries) were Mr. John Waters, of Salisbury, and Mr. Gibson, of Haldon, South Devon, and their awards were as follows:—1st Prize of 50*l.* to Mr. W. Barret, Puddaven, Totnes, Devon, for a chesnut horse, Ratan, aged 22 years, bred by Mr. Crockford; sire, Buzzard; sire of dam, Picton. 2d Prize of 15*l.* to Mr. R. G. Luxton, Bruskford, Wembworthy, Devon, for a chesnut horse, the Baldfaced Stag, aged 8 years, 2 months, 3 weeks, and 2 days, bred by General Peel; sire, Harkaway; dam Palma; sire of dam, Plenipotentiary.

In this class there was no limitation as to age, and certainly the antecedents of Ratan from the time that he ran for the Derby and won the Two Thousand Guinea stakes until the present moment, would seem to indicate that there was no necessity for adopting any stringent rule. Ratan, who is now 22 years old, and whose hocks show the consequences of active service, is nevertheless wonderfully preserved: such a shoulder, for development of muscle and general symmetry, is very rarely seen; and taking into account the number of mares he served during last season, the horse's condition and "freshing" are marvellous. For hunters he was just the animal, and to the unanimous satisfaction of the public, the judges awarded him the first prize without hesitation. With reference to Baldfaced Stag, who carried off the second prize mainly in virtue of his pedigree, there was much diversity of opinion. His white face, however much in fashion in some quarters, evidently told against him in others; and whatever his qualifications as a race-horse may be, it was very generally felt that owing to his slight build, he was scarcely the animal to be looked upon with confidence as the sire of hacks and hunters. A brown horse, Frederick (eight years), bred by the Marquis of Exeter, by Melbourne out of As You Like It, attracted much notice, and though a slight animal, was thought by many to be more deserving of the second prize than the animal to whom it was awarded. It is worthy of remark, that in this class of nine animals not less than three were disqualified: one as not being thoroughbred; one for ophthalmia, and a third for sprained tendon and contracted feet.

For Agricultural Horses (14 entries, 1 absentee), the judges were Mr. G Badham, Bulmer Eye, Sudbury, and Mr. Whippell, Barton, near Exeter. Their awards were as follows:—

First prize of 30*l.*, to Mr. W. King, Tiverton, for a roan cart horse, Model, aged 6 years, bred by Mr. J. Gibbons, Rackenford; sire, Warrior; dam, Brown.

Second prize of 10*l.*, to Mr. J. Horswell, North Melton, for a dark brown "Clydesdale" draught horse, Stapleton, aged 3 years 10 months; sire, Young Blythe; sire of dam, Ayrshire Champion. [Not eligible to succeed Model, as first prize, in event of his disqualification.]

Commended, and reserved number for the second prize only, a brown Clydesdale Horse, Young Redmount, aged 4 years and 8 months, bred by the owner, Mr. Charles Noble, Swansea.

Taken as a class there was a decided improvement as compared with the animals usually seen at the annual meetings of this Society, and it is probable that the entries would have been more numerous, excepting for the regulation which limited the competition to animals "not exceeding six years old." Another year it may be presumed that greater latitude will be allowed; for strange to say, the first prize horse, Model, though what is usually termed a "six years old," could not be certified by the Society's inspector as "not exceeding six years;" and if this circumstance should be construed as a ground of disqualification, the judges have recorded their opinion that no other horse is entitled to take the first diploma. Speaking of the class generally, it may be remarked that of bulk there was quite enough and to spare, but of limbs developed in proportion there was the usual dearth. Hairy legs were unhappily the rule instead of the exception. Small feet were observed in several instances, and in more than one case there was an absurd and injurious abundance of fat, interfering with the animal's proportions and encumbering his movements. The 1st-prize horse, Model, was a fine animal, very compact, with small head, thick cobby-looking neck, and well-placed shoulder, but with a deficiency of muscular development of the fore-arms and thighs, which seemed almost too light for the body they had to support. The 2d prize, Stapleton, though entered as a Clydesdale, had few indications of the breed beyond a hollow back and well-formed head, but his action for his weight was very good. Mr. Noble's Young Redmount was deservedly commended by the judges; for, without pinning faith to his reputed Clydesdale descent, he is a strong handsome horse, with very good action. A north-country horse named Sampson was remarkable for his great bulk, arising from obesity; he had, in other respects, some points to recommend him, but his hind quarters were deficient in squareness and breadth. The animals disqualified in this class were, one for cataract in the eye and enlarged hocks, and one as being over the age stated by his owner.

The acting stewards of the department were Mr. C. Gordon, of Wiscombe Park, Honiton, and Mr. Adair, of Heatherton, Taunton, and the general direction of the yard was entrusted as usual to Mr. Widdicombe, of Torr Hill, Ivybridge. Financially speaking the show was a greater success than the Council were prepared to anticipate, but a large proportion of the visitors were admitted free of charge on producing evidence that they were members of the Society. It was very currently rumoured that the citizens of Exeter are preparing to receive the Society in June next, in a manner even more brillant and demonstrative than that which characterised their memorable reception of the Royal Society ten or twelve years ago.

The Dog Show, Chelsea.— During the past few days, Ashburnham Hall has been crowded with spectators of the thousand dogs here gathered in competition for prizes offered by Mr. E. T. Smith and awarded by competent judges. This paragraph is intended rather as a mere record than a report of the Show. It may however be mentioned that the larger breeds are not so well illustrated as the smaller—the small terrier breeds being certainly the best represented of them all.

Class 2—Fox Terriers—is well filled with good specimens, Mr. Woolton, of Nottingham, carrying off the chief prizes. Blood hounds, Deer hounds, Otter hounds, Harriers, Beagles, Greyhounds—the succeeding classes—are not so well filled. Pointers, Setters, and Retrievers, and Spaniels, though not so numerous as at Birmingham and Islington, are fairly shown. By far the larger portion of the show, however, is of dogs not used in field sports.

Magnificent specimens of the larger classes—Mastiffs, Newfoundlands, Mont St. Bernards, &c., are present, but the most numerous classes are the Terriers of all kinds, black and tan, white, blue, Scotch, English, Skye, Dandie Dinmont, &c. Pug dogs, Italian Greyhounds, Blenheim, King Charles and other Spaniels, Maltese dogs, Poodles, and Foreign dogs made up the rest of the show, which includes upwards of 1200 entries, and probably upwards of 1000 actual animals exhibited.

Farmers' Clubs.

(*Continued from p.* 254.)

Kingscote: *Feb.* 3.—We continue our report of Mr. Drew's interesting paper on *Artificial Manures.*

The following is information given to him by correspondents:—

(*a*) The first report is from an agriculturist in Scotland; it tends to show the extent to which it is used there more than anything else. He says, the use of artificials depended in some degree upon the rotation of cropping pursued as well as the enterprise of the farmer. Taking the six-course-shift, the system followed on most good Wheat producing soils, the method on a farm of 300 acres in divisions of 50 acres each would be somewhat as follows

	Acres.		£	s.	d.
1st, seeds	20.	pastured (no manure)			
	30.	mown, manured with 1 cwt. nitrate of soda, and ½ cwt. guano per acre, cost	32	12	6
2d, Oats	20.	pastured, (no manure),			
	30.	mown, 2½ cwt. guano and 2 cwt. salt, cost	53	12	6
3rd, Potatoes	40.	12 loads dung, artificials 25*s.* per acre	50	0	0
	10.	Vetches, Cabbages, &c, 30*s.* ,, ..	15	0	0
4th, Wheat,	25.	Farm yard dung.			
	25.	2 cwt. guano per acre	38	15	0
5th, Roots,	30.	12 to 15 loads dung. 1½ cwt. guano, 13*s.* 6*d.*, and 2 cwt. dissolved bones, bone meal, bone dust or superphosphate, costing 8*s.* 6*d.* per cwt. ..	55	17	6
	20.	2 cwt. guano and 4 cwt. bones or phosphate	61	0	0
6th, Barley sown with Grasses.					
	50.	The part manured with artificials only receives 10 loads dung if the roots are hauled off.			
		Total	£306	17	6

It adds—This statement will hold good on the best conducted farms in this locality, and from inquiries, that 20*s.* per acre over the area of the farm for manures is within the mark, and that it is found an economic practice. The Potato crop, he says, is a great drain upon the land, but realises on an average about 17*l.* per acre. With respect to their value and use he considers them better applied conjointly, 1½ cwt. of guano and 2 cwt. of bones with dung giving a better crop of roots than 3 cwt. of guano and the dung, and 2 cwt. of guano and 4 cwt. bones or phosphate a heavier weight and better quality than 5 cwt. of guano alone. On farms where the five and seven course is adopted, from 10*s.* to 15*s.* per acre over the whole area is about the sum annually expended for artificials; in that case the seeds lie two years, being only partially mown the first year, and wholly grazed the second.

(*b*) Mr. Stiles Rich, of Didmarton, says:—For roots he generally drills with a moderate quantity of ashes, 1½ to 2½ cwt. of superphosphate, or 1 cwt. of bones per acre in conjunction with well fermented farm yard dung; where the Wheat plant has been weak, (although the land may be in good condition) he found 1¼ cwt. of nitrate of soda per acre act as a good and paying stimulant, that the same manure had been found beneficial when applied to young Clover; soot also had acted well, but from its disagreeableness in using, was not extensively used. On the whole he did not consider top-dressings needful, artificial feed being now so extensively used greatly assisted in maintaining the land in good heart.

Mr. H. Cox had applied 2½ cwt. of guano per acre to Carrots, Potatoes, and Peas in the same field; it trebled the crop of Carrots, assisted the Potatoes a little, but was not perceptible in the Peas. These crops were followed by Barley, and without any addition of manure showed quite the reverse of the former year, the plot where the Peas grew now being the best, whilst that after the Carrots were the worst. He adds that he differs from most farmers in the mode of applying manures; he considered that instead of being placed by the drill in immediate contact with the roots they should be mixed and commingled with the soil as much as possible. He had always found in the end the result a better and more healthy crop; his experience told him that guano answered better on strong cold land than on dry brashy soils, and payed better in cold damp seasons than in dry and hot ones; on the contrary, all preparations from bones are more effective on light land—that ammoniacal manures depended much on the weather for their usefulness. Mr. Cobban, of Whitfield Farm, had for many years used guano, nitrate of soda, salt, soot and other substances with the most satisfactory results on every description of soil; he considered a mixture as the most sure and lasting in its effects, excepting in the case of a weak plant of Wheat or other grain, where he used guano and nitrate of soda, otherwise the use of artificials was mainly confined to the root crops, about 3 cwt. per acre, with farmyard dung, and he was quite satisfied that the increased bulk well repaid the extra outlay. On the pasture land he had used half-inch bones in quantities of 16 to 20 bushels per acre, say once in 12 years, occasionally dressing with dung, and sometimes with 2 cwt. guano and nitrate of soda mixed; this would increase the crops.

Mr. J. Ritchie in 1844 applied 5 tons of guano (he does not say what kind) to a poor field of 11 acres for Swedes, and although the plant was good all over the field the crop was not worth 10*s.* per acre. He had since tried bones, guano, superphosphate without manure for Swedes, Mangel, and Turnips, two out of six of which only paid either on light or heavy land; 20*s.* to 30*s.* worth of superphosphate, in addition to from 8 to 12 loads of dung, he found to pay very well. With respect to their application to corn crops, the only ones he found to pay was nitrate of soda and soot with salt. Now, so far as the value of these fertilisers show themselves in what I have laid before you, we find (1st as regards their application to our corn crops), that the results quite coincide with the rules laid down by chemical Professors, that nitrogenous manures, such as guano, nitrate of soda, soot, sulphate of ammonia, and the like, are those most suitable for grain crops, and that of these different artificials for Wheat, nitrate of soda has given the best results, having yielded the largest profit in four cases to one over any of the others. Guano, sulphate of ammonia, and soot seem much on a par, the specially prepared manures pressing close upon them; the dissolved bone, so far as the Wheat is concerned, appears almost a failure; the increased produce from salt on the Royal Agricultural College farm is astounding, giving last year a net profit of 2*l.* 15*s.* 9½*d.* per acre for an outlay of 3*l.* I am sure this calls for further trial, and I have myself determined on making it. Some say salt should always accompany the use of highly concentrated fertilisers, as it in a measure checks the tendency to over-luxuriancy and strengthens the straw; it is, however, somewhat remarkable, although salt itself gives such a result, that in only one instance in the College trials does its addition make a return for the extra outlay, small as it is. The propriety of artificial manuring our Barleys is not so clearly demonstrated as in the case of the Wheat crop. On the whole, however, on the College farm the balance of success is on the side of the manures; although it left a loss in two cases out of seven in each year, it occurred with different manures, one of those, Proctor's special manure, leaving a loss in 1860, making the best return in 1861. The use of salt again attracts the attention, and presents some rather curious coincidences. In 1860, salt alone gives a profit of 9*s.* 9*d.*; nitrate of soda alone, a profit of 11*l.* 7*s.* 6*d.*, but the two united, a profit of only 19*s.* 3*d.*, thus tending to show that the union was rather injurious than otherwise. In 1861, the gain from salt alone was only 6*s.* 10½*d.*; nitrate alone (the best return last year, now fourth), a gain of 1*l.* 2*s.* 10½*d.*, the two combined a gain of 1*l.* 12*s.* 3½*d*, thus paying the extra outlay, and leaving a profit besides. The order of value on the average of the two years is much the same as for Wheat—1st, nitrate of soda and salt; 2, nitrate alone, then the special Wheat manures, soot and guano. My experience with regard to their use for the Oat crop, as also for the class, is so little, that I shall not enter into them, suffice to say that when any of these crops are to be taken on land not in condition to carry a full crop, I think and believe an application of some one or more of them would be attended with advantage. Next, with regard to our root crops: here our experience again tallies with theory, but not so conclusive as with the grain crops—guano or nitrogenous manure (still containing a good proportion of phosphate) having in some instances proved more efficacious than the phosphatic manures. Generally speaking, however, those abounding in phosphates are the most successful; those prepared from bone, containing a good per-centage of soluble potash, being mostly prepared. I do not, however, myself think it necessary, if you get bone superphosphate, that the soluble portion should so much exceed the insoluble as some advocate. I am aware it quickly stimulates the young plant in its early stages of growth, but I have often observed, when they grow so rapidly and arrive early at maturity, they are oftentimes more liable to decay. So far as their actual value is decided by the cost of raising a ton of roots, in the experiments I have tried, in two cases out of the three super had the advantage, a mixture of Turnip manure and bones first in the other, bones second in one, Turnip manure in another, and Turnip manure, and guano in the third. It would thus seem that super stands first, special Turnip manure and bones second. Little difference however exists between the super, guano, Turnip manure Bones, or a combination of any two of them; all of them you will observe are before the yard dung and artificials combined as far as cost per ton for manure is concerned, but it does not exactly end here, and we will further consider the matter by entering on the last division of our subject—"The economic application of artificial manures to farm crops." This, like the former, is rather an intricate one, and there are several circumstances claiming our attention in carrying

out or bringing into practice this part of the subject. In the first place care is necessary in purchasing, adulteration and trickery being carried on to an enormous extent; this however is not carried to the pitch in our neighbourhood as in some others, and our principal manufacturers, Messrs. Procter, Messrs. Robinson, and Messrs. Matthews, each send out as good articles as is possible to be produced consistent with their rate of charges. After procuring the right article, the next thing is to use it judiciously. This consists not in stinting the quantity to be applied, but by paying attention to other matters on which in a great measure success depends. The mechanical state or condition of the land must first be looked to, the time and mode also of using them has to be considered. The dressing in the little experiment with Barley by my friend in Hants plainly proves this, his second experiment also shows that some importance is to be attached to the effect different manures have on future crops—the superphosphate applied to Turnips giving 7¼ cwt. more roots than the partially dissolved bone; whilst in the Barley crops, following the portion where the bone was used, yielded 4½ bushels over the other, and ½ lb. per bushel heavier in weight, the increase in straw being 3¼ cwt. per acre. Other points for decision are—to what crops and to what amount can or ought we to use them? Now, under the systems chiefly followed in this district—the four-field on the strongest and the five-field on the lightest land—I do not consider there is much necessity for applying stimulants to our corn crops; in fact where there is a good plant, and the land in good heart or condition, I question its answering; but wherever the plant is thin and weak, whatever the condition of the soil, I believe their application to be most decidedly beneficial. As an assistant or auxiliary in the production of forage and roots for the maintenance of our stock, they are an indispensable requisite, and I doubt not, ere many years, will be much more extensively used than at present—not but there is a limit to which it is profitable to use them. The most economic mode is in applying that quantity of that kind and in that state which will give the greatest return of money value for the several items expended in producing a given crop, at the same time leaving the land in the best possible state for future crops. In order that we may the better understand this, I will refer back to the experiments I tried with Swedes, in the first of which an increase of weight of nearly 5 tons per acre was gained by the application of nearly 30 bushels of ashes, or a cost for manure on the whole quantity raised of only 2½*d.* per ton. Now with farm yard dung and artificial manure in addition, the cost for manure was higher than for either one of the artificials, being 3*s.* 8½*d.* per ton. It does not however end here, and there are the cultivations, hoeings, rent, taxes, rates &c., all to be brought into account, which when we come to sum up and add to the manure applied and then divide over the bulk grown, another feature presents itself: in the first instance 12 tons 3 cwt. 0 qrs. 9 lbs. were grown at a cost of 2*s* 6*d.* for manure; to this must be added, say 65*s.* for et ceteras, making the total cost of the roots about 5*s.* 7*d.* per ton—with the large cost of 5*l.* 5*s.* 6*d* for manure, more than double the quantity of roots were grown, being about 28¼ tons; the cost would still exceed the lesser quantity by about 1*s.* per ton, on the other hand this greatly increased amount of keep must be of considerable benefit, not only in keeping of stock, but in materially assisting the fertility of the soil; with respect to the given quantity that may be beneficially used I have observed and found from experiment that a full dressing answers better than a half one—that is the roots may be grown at a less rate per ton. You may ask—What do I call a full dressing? I answer, where no natural manure is used, 8 bushels of bone-dust, 1 cwt. of guano, and 2 cwt. of superphosphate. Some little, doubtless, depends on the character and condition of the soil; on some less might do, whilst on others more might be added with advantage, even to the sum of 10*s.* worth more. Above that I think we do not get a corresponding return. Roots are the mainstay and support of the light land arable farmer, and he should endeavour always to secure a good crop. Artificials are better in conjunction with our dung, and I believe if we, in this neighbourhood, made it go over a greater breadth of our Turnip break, supplying the deficiency with artificials, it would be more to our advantage. Again, I believe it might be further extended to our seeds. I dressed 1 acre of my old seeds last spring with prepared bone as a further trial with Wheat, but cannot say what effect it had on increasing the quantity of keep, it being sown across the middle of a field, the stock having access to the whole. One thing I can say, it in some way affected the quality of the herbage, it being kept down much closer than the other part of the field, and was a darker colour the whole season. When we consider what our northern brethren are doing in this way (I believe the calculation of 20*s.* per acre to the whole farm is considered generally to be expended), we must be a long way behind them, there being about 24,000,000 acres under cultivation; if the value of artificial manures consumed is only something over 4,000,000*l.*, this for the United Kingdom would not average more than 3*s.* 6*d.*, or about one-sixth of what is given for Scotland. Again, if they apply it to such an extent it must greatly diminish the proportion here. Our seven corn, root, and green crops, if to succeed, require equal attention to the other department of our business, the production of stock. To produce good and fat stock it must be well and liberally fed, so also with our growing crops; if we expect them to flourish and be bulky, we must supply and furnish means for their doing so.

Mr. HARRISON proposed a vote of thanks to Mr. Drew, which was readily and heartily responded to on all sides.

EAST PENWITH.—At the annual preliminary meeting, held last week at Camborne, when the election of officers, the fixing of the day for the show, and other routine business was disposed of, the members dined together at Tyacks', (where an excellent repast was prepared), and the subsequent proceedings were characterized by sound sense and practical utility, the speeches delivered by Professor Buckman, Mr. Burgess, and other gentleman, being far above the kind of post-prandial effusions which one is accustomed to hear at those bucolic and festive assemblies. In the evening Professor Buckman, of Cirencester Agricultural College, delivered an able and instuctive lecture on a subject which could not fail to be of deep and absorbing interest, not alone to farmers, but to every philanthropist and well-wisher of science, progress and material improvement.—"How to make two blades of Grass grow where one did before," was entertainingly and instructively treated by the learned professor.

Reviews.

The Farmer's Account Book. By John Scott, of Kiddington. Published by W. Eccles, Bookseller and Stationer, Woodstock, Oxon.

It might suffice as a description of this large thin folio volume to give its title page in full, which declares it to contain forms for day-labour and contract work, farm accounts with permanent improvements, woods, buildings, gardens, stables, hall; also summary of fortnightly payments, accounts of the produce and disposal of Wheat, Barley, Oats, Beans, Peas, and Vetches; with separate accounts for horses, cattled sheep, hogs, and poultry, "of dairy produce and of sundry," sold. It also includes forms for the record of various other disbursements, as rent, tythes, rates and taxes, tradesmen's bills, manure, food for live stock, and incidental expenses—for valuations at the beginning and end of the year, and general cash account.

The book contains 139 pages, 17 inches long by 11 inches wide. Of these, the first 58, namely 29 folios, are set apart in columns for recording the work of the 12 days of the fortnights work by day labourers, with money columns for the fortnightly payment of wages.

Then follow 14 pages for a record of contract work and wages paid for it: two for statements of team work and day work connected with permanent improvements during the year: four for team work and manual labour connected with woods: two each for similar statements of work done in connection with buildings, gardens, and stables: four for accounts of milk, butter, eggs, poultry, meat, and grain supplied to the Hall. Then two in columns for summaries of fortnightly payments. Then a number of pages for records of sales and receipts on account of Wheat, Barley, Oats, Beans, Peas, and Vetches—Horses, Cattle, Sheep, Hogs, Poultry and Eggs, and sundries.

Then follow pages arranged with money columns, in which to enter disbursements on account of rates, tithes, rents, tradesmen's bills, manures and food for live stock, and lastly for incidental expenses. The whole concludes with columns for valuations at the beginning and end of the year, and with plenty of room for a general cash account.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. SPEARING, Moulsford, near Wallingford, Berks, during the week ending March 25, 1863.

Day of Week.	Day of Month.	At 9 A.M., Railway Time. Reading of Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Dry Bulb Thermometer.	Reading of Wet Bulb Thermometer.	Wind. Direction	Wind. Force, 0-6	Amount of Cloud 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday ..	19	30 14	41	38	N.W.	2	3	50	30	82	26	0.02	41½	43
Friday ..	20	29 92	49	47	S.W.	2	4	52	34	76	28	0.02	42	43
Saturday ..	21	30.10	46	41	N.W.	4	3	58	41	99	37	..	43½	43
Sunday	22	30.40	41	39	N.	1	1	54	26	88	22	..	44	43½
Monday....	23	30.45	48	47	W.	1	6	60	34	98	30	..	44½	44
Tuesday ..	24	30.50	48	46	W.	1	1	61	31	107	26	..	45	44
Wednesday	25	30.55	46	44	N.W.	1	6	64	31	111	29	..	46	45

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Miscellaneous.

CHELMSFORD:—*Spring Assizes, March* 12: *Keys v. Main.*—This was a "horse cause," which raised some curious questions, puzzling both to farmers and lawyers. It was an action for the price of a horse sold for 20*l.*, and, as this was just the sum which would be within the County Court Act's jurisdiction, a demand of 6*d.* was added for "interest," a notice that interest would be demanded having been given on the 10th November, and the action being brought on the 19th of November last. The horse was bargained for at the price mentioned, and then the parties went to lunch, after which the buyer observed something about the horse which led him to doubt its soundness; but the seller, according to the evidence for the buyer, said, "Oh, he's sound," and the buyer then took the horse home. On its arrival it fell ill of the "gripes," and died within 12 hours.

Mr. Hawkins, Q.C., and Mr. Pearce were for the plaintiff; Mr. Philbrick was for the defendant. The case was commenced yesterday and lasted a great part of to-day, 15 witnesses being examined. The learned Judge, who observed that the case had taken a long time, left it to the jury whether the horse was warranted, and, if so, whether it was unsound at the time of the bargain. The jury, composed chiefly of farmers, were much perplexed, and took some time to consider their verdict. At last they said that the horse was warranted sound, and that it was sound at the time of the bargain. Thereupon Mr. Philbrick, counsel for the defendant, raised the point that the bargain was not binding under the Statute of Frauds (as it was not in writing, and the price was above 10*l.*) until the acceptance, and that as the warranty was not till then, the question was whether the horse was unsound at that time. The learned Judge then asked the Jury that question, which seemed to perplex them still more, as it was pretty plain that the horse had the gripes then. The Jury at length asked if the gripes was unsoundness? This point, which thus puzzled a jury of farmers, appeared also a little to perplex the Judge, who rather, in fact, avoided answering it directly, telling the Jury that it was for them. He suggested that the question might be whether the horse then had the gripes, and whether that was the disease of which he died; and, if so, was that in their opinion unsoundness, which might depend on whether, if the buyer had used proper means, the horse might have recovered. The Jury at last said that the horse did die of the disease, and had it when sent home and accepted, but that it might have recovered if properly treated; and that it was not unsound at that time, as they thought that the gripes was a disease, but not necessarily unsound. The learned Judge said this came to a verdict for the plaintiff for the price bargained for. But then the question would arise as to the 6*d.* claimed for interest. There could be no doubt it was only claimed with a view to costs, under the County Court Act. Did the Jury think that the 6*d.* was really due for costs. The Jury said "No." The verdict, therefore, was entered only for the 20*l.*, and the effect will be that each party will pay his own costs.

Calendar of Operations.

[The following passages are extracted from *Morton's Farmers' Calendar.* Routledge]

The manure heap a nursery for Weeds.—All sorts of seeded plants are unhesitatingly mixed with manure, under the impression that as the leaves and stems of weeds decay, so must the seeds also; but let any one examine the plants that grow on the top of an exposed manure heap, and he will see Weeds seeding in sufficient quantity to stock his farm, and if but a few plants seed in this position, how regularly they become sown when the manure is spread. In no other way can we account for the frequent introduction into Turnip fields of such plants as Anthemis, stinking Chamomile, Chenopodium, "fat hen" of some countries, Stellaria media, Chickweed, Capsella bursa pastoris, Shepherd's Purse, and others of a like kind, which are almost wholly confined to manure tillage. The farmyard is again a source from whence weeds are sent to the muck heap, in refuse from threshing, which is often thrown out under the impression that fowls will eat these useless seeds, and though it is true that they do in reality destroy some, yet not one-half are picked up by them, and of those that are so, only a small portion becomes destroyed in the process of digestion. Some few years since we commenced the growth of Flax, and our first crop introduced to the field a large crop of Sinapis nigra, Black Mustard, a plant to which it was before a stranger—Sinapis arvensis, or Charlock, being the previous Mustard weed. The seed of this Flax was afterwards sown in another part of the farm, thus introducing the Black Mustard in a new place in an aggravated degree. Afterwards some of the Linseed was threshed at the farm buildings, and in various ways its weeds got to a manure heap which was traced to a field of Beans of which they were seen to occupy a large strip in the middle, the boundary lines circumscribing the growth of Black Mustard; and this is now the general Charlock of the farm, it having nearly expelled the former common Sinapis arvensis, owing to the greater fecundity of the former—

Sinapis arvensis, Charlock, yielding generally 4000 seeds to a plant.

Sinapis nigra, Black Mustard, yielding generally 8000 seeds to a plant.

Waste places weed nurseries.—Fields in their proximity are overrun with their peculiar species in spite of the most careful farming. If we have Thistles in a wild hedge-row or neglected corner, we shall never be free from them in our fields. We cannot have Coltsfoot or Dandelion by the roadside without these weeds causing us the greatest trouble both in adjoining and in far-off fields. It has more than once been attempted, both for England and Ireland, to get a clause introduced in local Acts of Parliament making weeding compulsory in such situations, yet it has remained for our colonists in Melbourne to be the first to make a state law compelling, under penalty, the eradication of Thistles. From the regularity with which weeds are sown from all these sources, it is no wonder that so many men have come to look upon them as a necessity. Let, however, more correct knowledge become general as regards the nature and habits of weeds, and processes of weed destruction be devised in accordance therewith, and we feel quite sure that our enemies will be kept in abeyance.

Early hoeing of weeds is necessary to this end, for that weeds are often multiplied by the very processes employed to get rid of them there can be but little doubt. This may be done, either by subdivision of creeping forms, such as Coltsfoot and Couch, or by sowing seeded weeds in hoeing. A few seasons back we had a dirty piece of Beans containing, amongst other weeds, three circular patches of Coltsfoot; this was ploughed and scuffled, and the next summer Coltsfoot was tolerably evenly spread over its whole extent. The creeping root of Couch is in this way cut into bits by the plough, and though much be picked off the surface, enough of it usually is buried in some instances to increase the evil, and in all to insure its continuance. As regards sowing weeds by hoeing, it may be remarked that it is too much the practice to treat all weeds alike, and so attack them all at once in a regulation time of hoeing, and thus as some will be in seed while others are progressing to that point, though we may destroy the latter, yet at the same time we sow the former. It cannot be too strongly urged that as different soils and districts present weeds of different species which do not all arrive at their most mischievous point of growth at the same period, so the only possible way in which to effect the destruction of all is to kill them as soon as they are fully formed, and before they bloom. During March, therefore, the hoe should be at work in dry weather among young Wheats. Patches of Coltsfoot should be carefully forked out, and no bloom allowed to seed.

WESTER ROSS: *March* 23.—We have now had, for a full month, a continuation of wonderfully seasonable weather, and labour is correspondingly advanced. A larger proportion of our spring sowing is now accomplished than has been at this early period for several years. On many farms the sowing of Oats is completed, and everywhere, in the earlier districts, it is well advanced, and all has been harrowed in in excellent condition. The change is advantageous as it was sudden and unexpected. About the middle of February the whole country was flooded; now March dust is no scarce commodity; the fields are unusually dry, and mills propelled by water are

already receiving short supplies. Advantage has been taken of the fine condition of the ground for sowing a considerable breadth of Wheat which, from the incessant fall of rain, could not have been accomplished in winter. Autumn sown Wheat is promising, although by no means too far advanced, having been kept in check by the cold winds and frosty nights we have lately had. The pasture fields are becoming beautifully green, and the country generally is putting on a spring-like appearance. Although labour is well advanced, there is much still to do. Our Barley, which we seldom sow earlier than the middle of April, has yet to be sown, and part of the ground to be ploughed; Potato-planting has not been commenced, and the whole green crop lot has to be cleaned and prepared for Turnips. Cattle throve well through the winter, and are now selling at highly remunerative prices, Sheep are returning to their summer grazings on the hills in greatly better condition than was anticipated two months ago. Turnips have of late been so plentiful, that they were difficult to dispose of at any price. Very little of our last year's crop of Wheat has as yet been sold; the quality is so inferior, that it is scarcely worth sending south, and the millers at home cannot safely grind a larger proportion than 5 qrs. to each 100 qrs. of foreign, so that we, in the north, have this winter been dependent upon the foreign grower for 9 tenths of every loaf we ate. These spring winds will soon put our Wheat into its best condition, when we expect to get rid of it in one shape or another, and we would fain hope that we would never see its like again.

Notices to Correspondents.

Cow-Milking Machine: *C W.* The Company can be addressed at the Lacteal Works, Birmingham. We should be glad to obtain information for you; but it is not our business to advertise their wares.

Elvetham Mangel: *W B S.* We do not know the "Ox Noble" Mangel. The Elvetham is a long red Mangel with a bulge in it, something the shape of a half-blown bladder pulled out at either end. It is probably the best Mangel grown.

Grasses: *George Frost.* The sample of seed of the Lolium perenne, Perennial Rye-grass—Eaver, West of England—is mixed with Bromus mollis, Soft Brome (Lop) of the farmer; 2, Plantago lanceolata, Narrow-leaved Plantain; 3, Medicago lupulina, the Trefoil of the farmer; 4, Ranunculus repens (Creeping Buttercup); 5, Myosotis arvensis? (Corn Forget-me-Not); 6, Some small Stellaria, &c. Of these, 1, 3, 5, & 6, are common weeds in seeds; 2, though sometimes purposely mixed with seeds, we consider but little, if any better, than a weed. The packets of seeds are as follow:—No. 1, Bromus mollis, Lop; 2, Aira caryophyllea, Hair Grass; 3, Myosotis arvensis? Corn Forget-me-Not (of this we are not quite certain; 4, Stellaria, or some small plant of the Nat. Ord. Caryophyllaceæ.

Imports in 1862, compared with 1861:—

Articles.		Quantities Imported	
		1861.	1862.
Animals—Oxen	No	81,194	68,818
Calves	,,	25,902	29,069
Sheep and lambs	,,	312,923	299,472
Swine and hoggs	,,	30,308	18,162
Flax (dressed and undressed)	cwt.	1,333,679	1,798,351
Guano	tons	178,423	141,636
Hemp (dressed and undressed)	cwt.	792,054	981,765
Jute, &c.	,,	932,638	969,943
Oil seed cakes	tons	113,725	101,156
Potatoes	cwt.	385,446	1,354,636
Provisions—Bacon and hams	,,	515,953	1,345,694
Beef, salt	,,	141,683	187,640
Pork, salt	,,	125,313	226,470
Butter	,,	992,772	1,037,371
Cheese	,,	706 395	703,909
Eggs	No.	203,213,360	235,230,360
Lard	cwt	324,691	530,090
Saltpetre	,,	313,803	443,248
Cubic Nitre	,,	512,860	794,318
Seeds—Clover	,,	198,120	168,974
Flaxseed and Linseed	qrs.	1,160,270	1,088,472
Rape	,,	249,635	189,307
Wool, sheep and lambs'—From Hanse Towns and other parts of Europe	lbs.	24,407,987	43,544,747
British possessions in South Africa	,,	18,676,286	18,930,886
British East Indies	,,	19,161,004	17,959,404
Australia	,,	68,506,222	71,339,092
Other countries	,,	13,315,334	17,080,084
Total	,,	144,066 833	168,854,213
Wool, Alpaca and the Llama tribe	,,	3,106,008	3.106,758
Woollen rags, torn up to be used as wool	,,	17,027,696	20,097,280
Yeast, dried	cwt.	92,199	102,202

2d—Articles Subject to Duty.

Articles.	Imported.		Entered for Home Consumption.	
	1861.	1862.	1861.	1862.
Corn — Wheat — From Russia qrs.	1,041,461	1,327,158	1,047,436	1,333,100
Prussia	1,027,733	1,450,484	1,033,058	1,457,403
Denmark	228,157	145,338	229,468	145,697
Mecklenburg	122,248	93,161	122,351	93,340
Hanse Towns	214,146	156,701	216,350	157,858
France	180,903	224,835	182,279	224,874
Turkey and Wallachia and Moldavia	231,044	390,068	231,382	391,299
Egypt	339,811	759,036	342,310	761,810
United States	2,507,744	3,724,770	2,534,951	3,769,481
British North America	549,525	861,452	556,855	870,973
Other countries	470,043	336,267	470,405	336,528
Total	6,912,815	9,469,270	6,966,845	9,542,363
Barley	1,400,401	1,854,944	1,405,981	1,863,683
Oats	1,859,781	1,609,816	1,875,574	1,623,449
Peas	399,799	227,716	402,932	230,133
Beans	560,531	475,332	564,478	479,229
Indian Corn, or Maize	3,090,352	2,723,791	3,106,596	2,751,267
Wheatmeal and Flour —From Hanse Towns cwts.	279,609	256,973	281,901	259,016
France	460,775	790,040	461,387	792,965
United States	3,794,865	4,499,534	3,858,562	4,574,220
British North America	805,339	1,108,591	813,065	1,135,544
Other countries	812,350	551,975	814,363	552,574
Total	6,152,938	7,207,113	6,234,278	7,314,319
Indian Corn Meal	9,441	9,192	9,618	9,173
Fruit—Currants, cwts.	832,757	875,099	626,872	701,371
Raisins	399,084	278,750	283,354	279,460
Hops	149,617	133,791	99,714	574,14

*** Communications have been received from *Drayton* and *Alfred*, which will appear next week.

FOWLER'S

STEAM PLOUGHING AND CULTIVATING PATENTS.

RANSOMES & SIMS, Orwell Works, Ipswich,

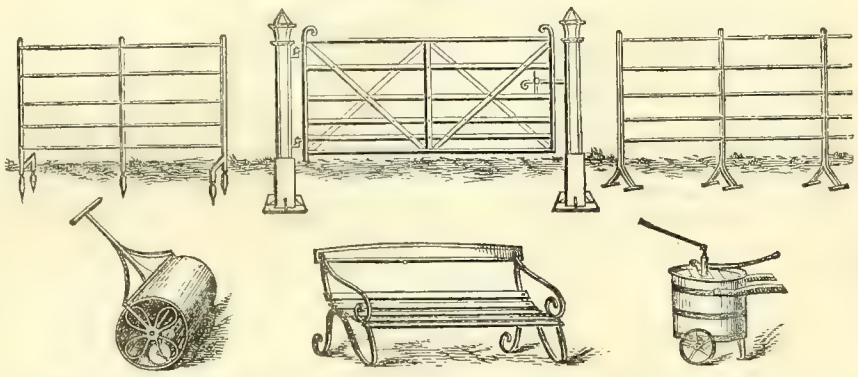
Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

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CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED, IN VARIOUS STYLES.



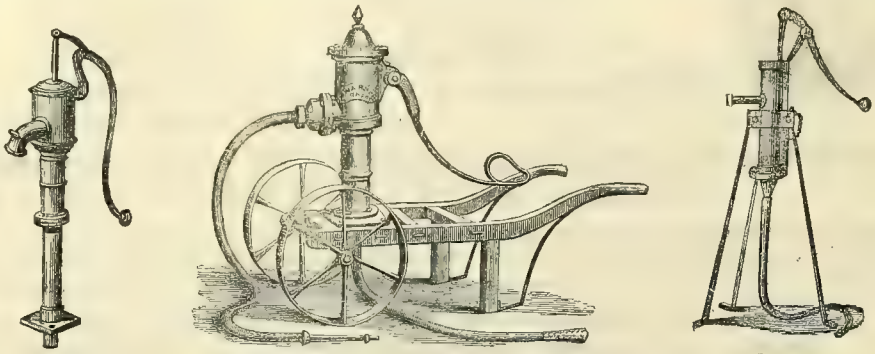
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BELL AND BRASS FOUNDERS TO HER MAJESTY,

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No. 35. No. 36½. Improved Cast-Iron Lift and Force Pump. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
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No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET. When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

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4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

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SHAW'S TIFFANY.
For samples and prices apply to
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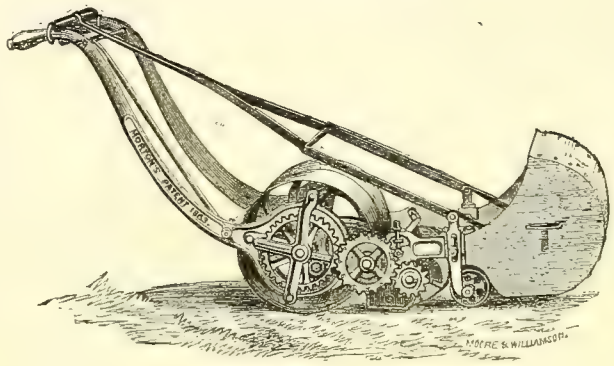
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Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.
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Galvanised Iron Water Cistern
for Cottage Houses, &c., to contain 50 gallons, 26*s.*; 80 gallons, 31*s.* each; and 140 gallons, 37*s.*, and fitted with tap, keeping the water perfectly sweet and clean; will not rust or corrode. Cisterns of all sizes.
Galvanised Iron Pumps
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Price 3*d.* each; extra thick, 6*d.* each.
To be had Retail of all Seedsmen, Nurserymen, and Stationers, and Wholesale at the Manufactory,
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MORTON'S PATENT NOISELESS LAWN MOWER.

This Machine Rolls, Collects, and Delivers the Grass, and combines all the most recent Improvements, including those secured by her Majesty's Royal Letters Patent for 1863. For efficiency and simplicity it cannot be surpassed, and can be worked by any one unskilled in Machinery. It is superior to all other Machines yet introduced to the notice of the Public for keeping Lawns and Pleasure Grounds in the highest state of perfection, and is likely to be the Leading Machine of the Season. No place, however small, should be without one.



Terms, Net Cash.

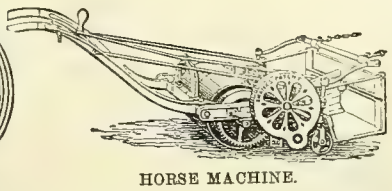
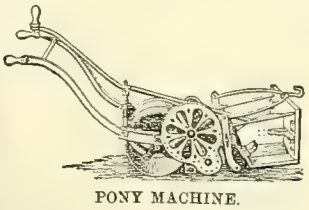
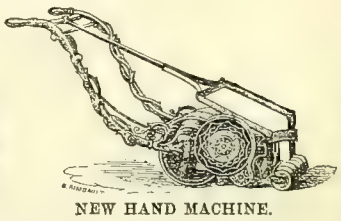
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12 ins.	£4	15	0	*Suitable for a Lady or Gentleman*
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All Machines fitted with Silent Movement, without extra charge.

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NEW PATENTED IMPROVEMENTS THIS SEASON.
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NEW HAND MACHINE.


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NO PERSON HAVING A LAWN SHOULD BE WITHOUT A MOWING MACHINE.

The first practical Gardeners of the day who have devoted their attention in examining all the different Lawn Mowers offered, do not hesitate in recommending SHANKS' Machine as *the best Mower for general use.* The important Improvements introduced last season have undergone a thorough practical test, and satisfied the most sanguine expectations. *Further Improvements, simplifying the Machine, and adding to its efficiency, have been introduced into the* NEW PATENT LAWN MOWER for 1863.

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Width of Cutter.				
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No. 3.—36-inch Machine	22	0	0	
No. 4.—30-inch Machine	19	0	0	*Drawn by a Horse or strong Pony.*

Patent Delivering Apparatus for Nos. 1 and 2 Machines, 40*s.*; for Nos. 3 and 4 Machines, 30*s.*; Box with complete Set of Tools, 10*s.*; Silent Movement, 20*s.*; Boots for Horses' Feet, 24*s.* per set.

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No. 8.—24-inch Machine	£8	17	6	*Easily Worked by Two Men.*
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The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.*; Box, with complete Set of Tools, 5*s.*; Silent Movement, 7*s.* 6*d.*

No. 16.—12-inch Machine for Pushing only, £5 5*s.*; easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

Machines kept in Stock, from which Orders can be at once executed.

*** *The Machines are warranted to give ample satisfaction, and if not approved of may be at once returned.*

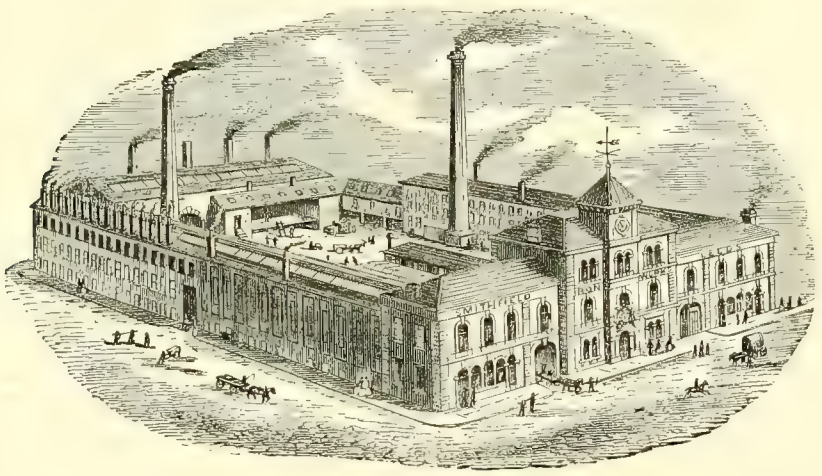
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J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

THOMAS GREEN & SON,

SMITHFIELD IRON WORKS, LEEDS,

AND

2, VICTORIA STREET, HOLBORN HILL, LONDON, E.C.



THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOMAS GREEN FOR HIS PATENT LAWN MOWERS.

GREEN'S LAWN MOWERS were the ONLY MACHINES HIGHLY COMMENDED at the ROYAL HORTICULTURAL SOCIETY'S GREAT SHOW HELD at SOUTH KENSINGTON, MAY 21, JUNE 11, and July 2, 1862. (No Prizes were given)

GREEN'S

PATENT NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

FOUNTAINS, VASES, GARDEN SEATS, AND GARDEN CHAIRS.

GARDEN ENGINES, SYRINGES, WATER BARROWS AND PUMPS.

HORTICULTURAL AND AGRICULTURAL IMPLEMENTS OF EVERY DESCRIPTION.

STABLE FITTINGS and ENAMELLED MANGERS.

ENTRANCE AND FIELD GATES, IRON HURDLES, AND CONTINUOUS IRON FENCING.

PLAIN AND GALVANIZED WIRE NETTING.

☞ *Illustrated Price Lists Free on application.*

To the Nursery and Seed Trade.

BROWN'S FLORAL SHADING, the cheapest and best material for protecting Fruit Trees from Frost. Prices on application to CHAS. BROWN, Greenheys, Manchester.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

TANNED NETTING for the protection of Fruit Trees at 1*d.* per square yard: 200 yards, 14*s.*; 500 yards, 20*s.*; 1000 yards, 50*s.*; SCRIM CANVAS for Wall Fruits; SUN BLINDS, AWNINGS, TULIP COVERS, &c.

Be particular JOHN EDGINGTON & Co., 17, Smithfield Bars, E.C.; 108, Old Kent Road, S.E.; and 18, Piccadilly, W.

TANNED NETTING, at reduced prices.—1*d.* per square yard; 200 yards, 14*s.*; 500, 30*s.*; 1000 yards, 50*s.* SCRIM CANVAS, for Wall Fruit; GARDEN MATS; GREENHOUSE SHADES.

Be particular, FREDERICK EDGINGTON & Co., Rick Cloth Manufacturers, Thomas Street, Old Kent Road, London, S.E.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS), HORTICULTURAL VALUER, begs to inform his friends and the public that he has REMOVED from Priory Road, Wandsworth Road, to No. 1, Devonshire Terrace, Fulham Road, S.W.

Do as Others Do!

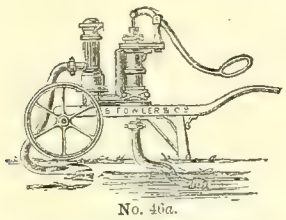
BUY YOUR SEED BAGS from JAMES T. ANDERSON, SACK and BAG MAKER, and RUSSIA MAT MERCHANT, 15, SHERBORNE LANE, King William Street, London, E.C., who will supply you with a first-rate article at a low price. ARCHANGEL MATS, the pick of the season. Russian and Prussian Dunnage Mats. Prices sent free on application.

BENJAMIN FOWLER & CO.,

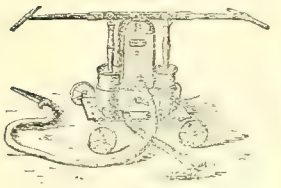
MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

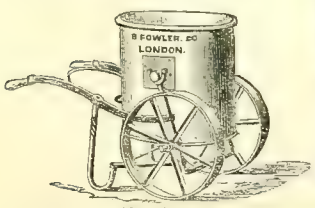
WHITEFRIARS STREET, FLEET STREET, LONDON.



No. 46*a*.



No. 50.



No. 49 *a*.

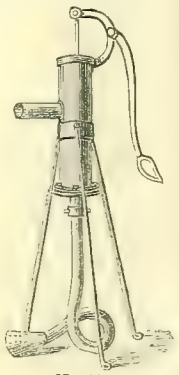


THE Landscape Sketch shows an adaptation of THE IMPROVED HYDRAULIC RAM for forcing water to considerable heights and distances to supply Mansions, Farms, &c., where a few feet fall can be obtained. Full particulars of this useful Self-acting Machine can be had on application.

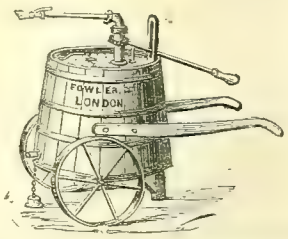
No. 4. FOWLER'S Useful YARD, GARDEN, and COTTAGE PUMPS, from 1*l.* 5*s.* each.
No. 38. FOWLER'S Portable LIQUID MANURE PUMPS, with flexible suction pipe.
No. 46*a*. FOWLER'S DOUBLE-ACTION PORTABLE FORCE PUMPS and FIRE ENGINES for Water or Liquid Manure.



No. 4.



No. 38.



No. 49.

No. 50. FOWLER'S Improved (Holman's Patent) DOUBLE-BARREL FARM FIRE ENGINES and IRRIGATING PUMPS.
No. 49. GARDEN ENGINES of all sizes.
No. 49*a*. Improved SWING WATER CARRIERS, holding 24 and 35 gallons, for Garden Use.

Further Particulars, Estimates, and Illustrated Price Lists on application.

THE HYDROPULT,

THE HYDROPULT

IS INVALUABLE FOR

WATERING GARDENS,

EXTINGUISHING FIRE JUST COMMENCED,

PROTECTING a ROOF from FIRE,

CLEANSING TREES from INSECTS,

DRESSING with LIQUID MANURE,

SPRINKLING PLANTS,

WASHING WINDOWS,

WETTING SIDEWALKS,

SPRINKLING STREETS,

WASHING CARRIAGES,

WETTING SAILS,

A SPRAY BATH,

&c. &c.



Price Two Guineas.

CAUTION.—Unprincipled parties are now palming on the public an infringement of the Hydropult Patent. This is to notify, that said pirates and all persons using or vending this article will, in due time, be prosecuted. No machine contained in a bucket is the Hydropult. Every Hydropult has a Trade Label affixed, as follows:—

"The Hydropult, a Portable Fire Annihilator and Garden Engine.
"GRIFFITH & BROWETT,
Manufacturers, Birmingham;
"CHARLES P. BUTTON,
General Agent.
"VOSE'S Patent;"

and is sold at the uniform rate of Two Guineas, complete, with 2½ feet Suction and 3-feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Fire Jet.

It is an easy matter to imitate the Hydropult in appearance, and thereby deceive the public; therefore this caution.

The Hydropult WEIGHS BUT 8 LB.; will throw 7 or 8 Gallons of Water per minute 50 FEET when worked by the power of one man.

Has been recommended as an efficient FIRE ENGINE by the principal FIRE INSURANCE COMPANIES of GREAT BRITAIN. Thomas Rivers, Esq., the eminent Florist; Shirley Hibberd, Esq., and other well known gentlemen, recommend it as an invaluable GARDEN IMPLEMENT. J. Spencer, Esq., Inspector of the Royal Society for the Protection of Life from Fire, certifies to its efficiency in saving valuable Property in Bayswater from destruction. The City and Provincial Press accord to the invention the utmost praise. All who purchase the Hydropult are satisfied with its action; each Machine guaranteed to be perfect.

AN INVENTION FOR THROWING WATER BY HAND POWER.

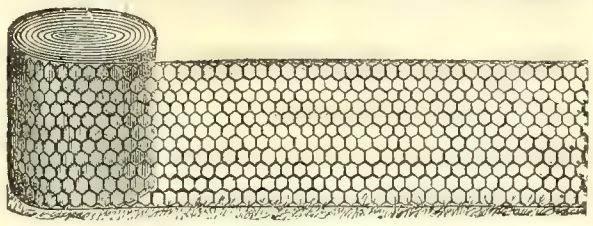
Prospectus, with Testimonials, on application at either Office.

HYDROPULT OFFICE: 27, LEADENHALL STREET, LONDON, E.C.; and 309, REGENT STREET.

CHARLES P. BUTTON, PROPRIETOR.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH:—

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2½ inch	Hares, Dogs, Poultry	3d.	4d.	3½d.	5d.	4½d.	6d.	5½d.	7d.
2 inch	Game or Poultry Netting	3½d.	4½d.	4d.	5d.	5d.	6½d.	6½d.	8d.
1⅝ inch	Small Rabbits, Hares, &c.	4d.	4¾d.	4¾d.	6d.	5½d.	7d.	7d.	9d.
1½ inch	Smallest Rabbits.....	5d.	6d.	5¾d.	7d.	7d.	9d.	9d.	11d.

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

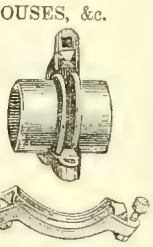
J. B. BROWN & CO., 18, CANNON STREET, CITY, LONDON, E.C.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.



GARDEN BORDER-EDGING TILES. — These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are unvaluable.

To be obtained at F. & G. Rosher's Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.

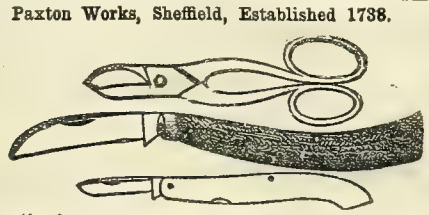
Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability. Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. Rosher, at their Premises as above.

Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal is just awarded to Saynor & Cooke for superiority of quality in Pruning and Budding Knives, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

Caution.—None are genuine unless marked Saynor. Other marks would cause disappointment, as these Knives are empered by an improved process known only to the Makers.

Farnham, Surrey.

FARM TO LET.—Two hundred Acres, more or less, comprising 30 acres well-known productive Hop Land, some valuable Water Meadows, and the remainder Arable Land, situate near the town and within the parish of Farnham, and forming a desirable occupation.

For particulars and to treat, apply to the executors of the late Thomas Simmonds, of Rock House, Farnham, Surrey.

TO BE DISPOSED OF, the Stock and Goodwill of a NURSERY and SEED BUSINESS, in a fine locality near Edinburgh.

Apply to Messrs. Jardine, Stodart, & Fraser, W.S., 31, Princes Street, Edinburgh.

TO BE LET, with immediate possession, for a term of years, The FANT NURSERY, Maidstone. A comfortable Modern Residence, containing Counting House, two Parlours, three Bedrooms, Store Closet, Kitchen, Scullery, Cellar, Pantry, &c. There are two Greenhouses, a Potting House, Frames, &c. 1a. 1r. 7p. of very superior Land around the above, and in a beautiful situation.

For terms apply to Mr. Tootell, Land Surveyor, Maidstone.

Guildford, Surrey.

To Nurserymen, Florists, Seedsmen, Market Gardeners, &c.

TO BE LET, with Immediate Possession, all that truly valuable old-established NURSERY GARDEN and SEED BUSINESS, known as the Guildford Nursery Grounds, in a good state of cultivation, close to the entrance of the town; has been in the same name upwards of 50 years. This opportunity is worthy the attention of those seeking a profitable and increasing business, being the only Nursery near this improving neighbourhood. The present Stock is small and saleable.

Inquire of Mr. Drury, Guildford, Surrey.

Sales by Auction.

Roses, Fruit Trees, Shrubs, &c.

MR. ARTHUR PLEWS will SELL by AUCTION, at his Great Sale Rooms, 11, Catherine Street, Strand, W.C., on TUESDAY, March 31, at half-past 12 o'clock precisely, an excellent collection of HORTICULTURAL and FLORAL PRODUCE, comprising Apple, Pear, Plum, Cherry, Apricot, and other Fruit Trees; Roses; Ornamental Shrubs, &c.

May be viewed the Morning of Sale, and Catalogues had.

Valuable Rifles by Westley Richards.

MR. ARTHUR PLEWS will SELL by AUCTION, at his Great Sale Rooms, 11, Catherine Street, Strand, W.C., on WEDNESDAY, April 1, at 2 o'clock precisely; ELEVEN VALUABLE RIFLES of Government Bore, manufactured by Westley Richards, and admirably adapted for prizes.

May be viewed the Morning of Sale, and Catalogues had.

Poultry, Pigeons, Rabbits, &c.

MR. ARTHUR PLEWS will SELL by AUCTION at his Great Sale Rooms, 11, Catherine Street, Strand, W.C., on WEDNESDAY, April 1, at half-past 12 o'clock precisely, a variety of COCHIN, CREVECŒUR, DORKING, HAMBURGH, and other FOWLS, Choice PIGEONS of numerous varieties, DUCKS, &c.

May be viewed the Morning of Sale, and Catalogues had.

Notice to Owners.—Property can be Included in this Sale, even if Sent to the Rooms on the Morning of Sale.

SALE THIS DAY, AT HALF-PAST 12.

Roses.

Highly Important Sale.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, March 28, at half-past 12 o'clock precisely, 1000 STANDARD, HALF STANDARD, MOSS, and DWARF HYBRID PERPETUAL ROSES, all the newest and best varieties, from one of the first and largest Rose-growers in England; some Fruit Trees, Pinks, and Carnations, &c.

On view the Morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on TUESDAY, March 31, at 12 o'clock precisely, a choice Assortment of POULTRY, consisting of Dorkings, Buff and Partridge Cochins, Spanish, Bramahs, Game, Bantams, Hamburghs, &c., from the Yards of Mrs. Stow, Rev. G. Gilbert, Messrs. Leno, Brown, and other well known Fanciers. Also a splendid Lot of Carrier and other PIGEONS, from Messrs. Oliver, Everett, Else, and others.

On view the Morning of Sale, and Catalogues had.

Highly Important Sale of Established Orchids.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 8, at half-past 12 o'Clock precisely, a valuable COLLECTION of ESTABLISHED ORCHIDS, comprising the following well-known sorts.

Aerides quinquevulnerum
,, Fieldingii
,, Lindleyana
,, Warneri
,, rubrum
,, Schrœderi
Calanthe vestita (crimson eye)
Cymbidium eburneum
Cypripedium villosum
,, hirsutissimum
,, Stonii
,, caudatum
,, species nova (Veitch)
Dendrobium albo sanguineum
,, Farmeri
,, Dalhousianum
,, taurinum
,, lutuiflorum
Lælia purpurata
,, elegans
Oncidium Lanceanum
Phalænopsis amabilis
,, grandiflora
,, roseum
,, Schilleriana
,, species nova
Saccolabium Blumei major
,, guttatum
,, Reedi
,, rubrum
Tricopilia crispa
,, suavis
Uropedium Lindeni
Vanda Batemanni
,, gigantea
,, Lowii
,, suavis (Veitch)
,, violacea
,, tricolor, &c., and many other very choice sorts.

On view the Morning of Sale, and Catalogues had of Mr. J. C. Stevens, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

To Gentlemen, Nurserymen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, E.C. on THURSDAY, April 2, at 12 o'clock, about 300 handsome STANDARD and DWARF ROSES, a first-class collection of Carnations, Picotees, and Pinks; choice Azalea indica, Camellias, Ericas, Cinerarias, and other Plants in bloom, with a fine assortment of American Plants, Fruit Trees, &c.

On view the Morning of Sale. Catalogues had at the Mart, and of the Auctioneers and Valuers, American Nursery, Leytonstone, Essex.

Stratford, Essex.

To Gentlemen, Nurserymen, Builders, and Others.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Garvie to SELL by AUCTION on the Premises, Stratford Nursery, Leytonstone Road, and within five minutes walk of the Stratford Station, on the Great Eastern Railway, on WEDNESDAY, April 8, at 11 o'clock, the ground being immediately required for the formation of a new road, the whole of the GREENHOUSE and BEDDING PLANTS, including the usual assortment; also five newly erected Greenhouses, several ranges of Pits and Frames; erection of Shed, Light Spring Cart, Summer House, two capital Nests of Seed Drawers, Shop Fixtures, quantity of Lights: Garden Pots, Bricks, Grindstone, Compost, and numerous other effects.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

Important Sale of many Thousands of Choice Greenhouse and Bedding Plants, 30 Greenhouses, and other Effects.

To Noblemen, Gentlemen, Nurserymen, Florists, & Others.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executrix of the late Thomas Gaines, deceased, to submit to an unreserved SALE by AUCTION, on the Premises, Surrey Lane, Battersea, on MONDAY, April 27, and following days, at 11 o'Clock each day, the ground being required for building upon, the whole of the Valuable GREENHOUSE PLANTS, including all the magnificent specimens of Azalea indica, which for so many years have rendered this establishment famous, having obtained prizes at the various Metropolitan Floral Fêtes, and now, being beautifully furnished with bloom, and in such fine condition, offer an opportunity of rare occurrence to gentlemen requiring large handsome specimens for furnishing their Conservatories.

Large double Camellias, Ericas, Epacris, Crassulas, Epiphyllum (sorts); Acacia armata, Callas, Hydrangeas, Daphne indica rubra; a quantity of compact and healthy plants of Gardenias (sorts), Gloxinias, Begonias, double Primulas, Ficus elastica, Roses in Pots, Ardisias, Stephanotis; Show, Fancy, and French Pelargoniums, Scarlet Geraniums, &c. An extraordinary large assortment of Bedding Plants, too numerous to mention; some brilliant varieties of Amaryllis, Hardy and Exotic Ferns, Lilium lancifolium (sorts), &c.; together with 30 Greenhouses, several ranges of Pits, 1, 2, 3, and 4-light Boxes, thousands of feet of 3, 4, and 6-inch Hot Water Piping, Saddle and other Boilers, Erection of Sheds, quantities of Brick, Slate Shelving, Stand Glasses, Garden Pots, Mats, 3 Spring Market Vans, useful Bay Gelding, Brewing Utensils, Iron Roller, Nest Seed Drawers and Seeds, Barrows, Garden Tools, and sundry effects.

May be viewed on week prior to the Sale. Catalogues may be had, 6d. each, returnable to purchasers, on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, Leytonstone, Essex.

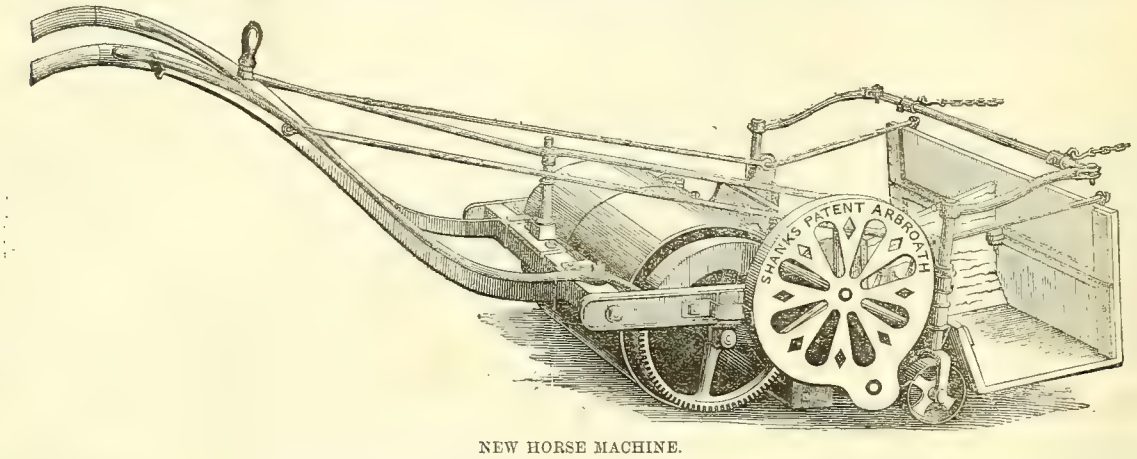
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

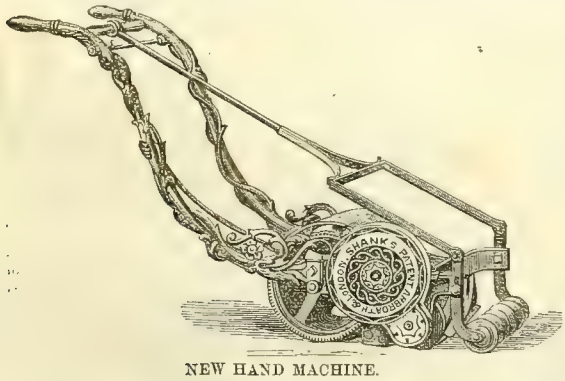
FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



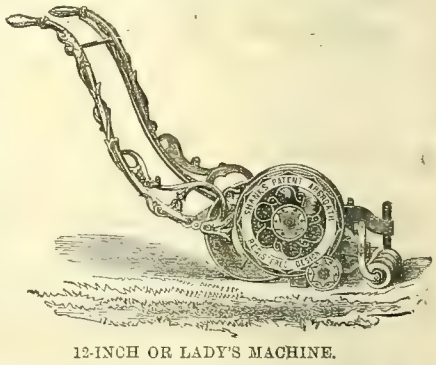
NEW HORSE MACHINE.

ALEXANDER SHANKS & SON are fully aware that one of the most important considerations in making a Machine fit to be put into the hands of a labourer, to work without any difficulty, is simplicity of construction and arrangement, combined with strength and durability of the whole working parts, and they have much pleasure in intimating that their efforts to attain this end have been completely successful. Their improved Machines for Horse and Pony power, combining with these advantages the additional one of Delivering the Grass without stopping the Machine, make them peculiarly fit for all the purposes of Mowing, whether for Grass Walks, the Flower Garden, or the open Lawn. The style in which the work is executed by all the Machines, whether for Horse, Pony, or Hand Power, cannot be surpassed, and it is quite immaterial whether the Lawn be level or otherwise, or whether the Grass be wet or dry. An immense amount of labour is saved by using these Machines, while the constant action of the Rollers on the Turf greatly improves its appearance.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved, and their success established.



12-INCH OR LADY'S MACHINE.

A. SHANKS & SON have also introduced into their NEW PATENT HAND MACHINE for 1863 important Improvements, which simplify it, and at the same time add to its efficiency. The whole Machine has been remodelled, and everything tending to increase friction carefully constructed to reduce the draught to the smallest possible amount. The Machines are admirably adapted to mow on uneven Lawns without injury to the Turf. They are fitted with loose Rollers for ease in turning; have Wheels properly guarded, so as to prevent injury to Plants or Flowers, and may be used on a verge, or close to a Flower-Bed, or on the open Lawn without any change of Rollers. The Grass Box is not shown in the above illustrations.

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No. 1.—48-inch Machine ...	£28 0 0	40*s.* extra.
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Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

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No. 13.—22-inch Machine ...	£7 5 0	*Easily Worked by a Man and Boy.*
No. 14.—19-inch Machine ...	6 15 0	
No. 15.—16-inch Machine ...	£6 5 0	*Easily Worked by a Man.*

No. 16.—12-inch Machine, for pushing only, £5 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

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A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 14.—1863.] SATURDAY, APRIL 4. {Price Fivepence. Stamped Edition, 6d.

INDEX.

Apple, Nova Scotian	317 a	Oak Hill, gardens at	319 c
Anthyllis vulneraria	325 a	Orange, the	317 c
Babraham herd	322 b—323 a	Peach protection	318 a
Books, noticed	319 a—326 c	Picotees and Carnations	315 c
Carnations and Picotees	315 c	Potato culture	325 b
Carrot culture	325 c	Primroses, Fern-leaved Chinese	316 a
Colonial machinery	325 c	Protection, spring	318 a
Cork trees	318 b	Seeding, thin, and mildew	324 a
Emigration	325 a	Society, Royal Horticultural	318 b
Ewes, parturition in	325 a	— Royal Botanic	318 c
Ferns and Ferneries	316 a	— Linnean	318 c
Hemp	327 a	— Van Mons	319 a
Herd, Babraham	322 b—323 a	— Royal Agricultural	326 b
Horse power	325 b	Sparrows	326 a
Indoor gardening	317 b	Steam cultivation	322 c
International Agricultural Exhibition	322 b	Strawberries from seed	317 b
Irritability, vegetable	315 b—313 a	Sutton's Amateurs' Guide	326 b
Mignonette, tree	316 a	Tartar Steppes	319 a
Mildew and thin seeding	324 a	Vegetable irritability	315 b—313 a
Mushrooms	318 b	Weather predictions	321 c
Nuts, trade in	316 c	Xanthoxylon fraxineum	320 a

ROYAL BOTANIC SOCIETY.
REGENT'S PARK.
The SECOND SPRING EXHIBITION, AZALEAS and HYACINTHS, &c., will take place on SATURDAY NEXT, April 11.
Tickets can be had at the Gardens by orders from Fellows of the Society. Price 2s. 6d. each; or in packets of 10 for 1l. per packet. Gates open at 2 o'Clock. Band at half past 2.
N.B. Fellows, Members, and Bearers of Ivory Tickets only admitted free as on the General Exhibition days.

ROYAL BOTANIC SOCIETY,
REGENT'S PARK.
EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, May 13, June 3, and 24.
AMERICAN PLANTS, MONDAY, June 8.
Tickets can be obtained at the Gardens by orders from Fellows of the Society. Price on or before May 2, 4s.; after that day, 5s.; or on the days of Exhibition, 7s. 6d. each.

TUNBRIDGE WELLS HORTICULTURAL SOCIETY.
A GRAND FLOWER SHOW and MUSICAL PROMENADE will take place on FRIDAY, July 3, in the grounds adjoining the Calverley Park Hotel. Entrance thereto opposite the Railway Station. Prizes open to all England will be given; also to Gardeners and Amateurs, and to Cottagers.
Schedules of the Prizes may be obtained of Mr. E. F. Loov, Secretary, 8, Parade, Tunbridge Wells.

New Roses of 1863.
J. AND J. FRASER'S DESCRIPTIVE LIST of the best varieties will be forwarded Post Free on application.
Strong healthy Plants are now ready.
A GENERAL CATALOGUE may be had on application.
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ALL the NEW ROSES of 1863.—In fine strong Plants now ready.
DESCRIPTIVE LISTS on application.
WM. WOOD & SON, Woodlands Nursery, near Uckfield, Sussex.

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BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.
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PAUL AND SON have now ready their usual fine Plants of the finest Novelties of the season. DESCRIPTIVE LIST on application.
"Old" Cheshunt Nurseries, Herts.

40,000 Dwarf Roses in Pots for Bedding.
THE MONTHS OF APRIL AND MAY ARE CONSIDERED THE MOST ELIGIBLE FOR PLANTING OUT ROSES FROM POTS.
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ROSES.—An extensive assortment of beautiful healthy ROSES in POTS, just coming into flower; also fine strong Plants of the leading kinds out-doors, now in good condition for Planting. An inspection solicited.
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Strong Fruiting Vines.
JAMES CRAWFORD has several hundreds of the above still on hand, which, in order to effect a clearance he offers at the low price of 18s. per doz.
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TO BE DISPOSED OF, by a gentleman leaving for town and giving up his House, &c., about 100 good healthy PINE PLANTS, this and last year's growth.
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(Crystal Palace Scarlet), Seed scarce.
Per packet, 1s. and 2s. 6d.
BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market.

New Garden Seeds of our own Growth.
JAMES CARTER AND CO. are now prepared to execute orders for the above, saved at their Seed Farms.
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J. DIXON has a few Quarters of the above Seed left. Samples and price on application.
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Strong well-ripened plants in 9-inch pots, 42*s.* and 60*s.* p. doz.
If purchased in large numbers a considerable reduction will be made in price.
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100 packets of the most Showy HARDY and HALF-HARDY varieties	..	..	..	20	0
50 ditto	ditto	ditto	..	10	0
25 ditto	ditto	ditto	..	5	0
12 ditto	ditto	ditto	..	2	6

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For description and full details see figure and remarks in the *Floral Magazine* for January, 1863, Plate 129, colour of Tom Thumb Geranium. This will prove one of the best and most beautiful Bedding Plants of the season.

Per 100 Plants	.. £3 10 0	Per 25 Plants	.. £1 10 0
„ 50 „	.. 2 2 0	„ 12 „	.. 0 18 0
	1 Plant .. .. 2*s.* 6*d.*		

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50 in 25 extra choice varieties	..	..	£2	2*s.*	0*d.*
25 in 25	„	„	..	1	5 0
12 in 12	„	„	..	0	12 0
50 in 50 choice varieties	..	..	..	2	12 6
50 in 25 „	„	..	..	1	5 6
25 in 25 „	„	..	..	0	13 6
12 in 12 „	„	..	..	0	5 0

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Exotic Nursery, Tooting, Surrey, S.

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DROPMORE SWEDE,
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GREEN-TOP SWEDE,
WHITE SWEDE,
IMPROVED SKIRVING'S SWEDE.
WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
DOBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
IMPROVED YELLOW GLOBE DITTO,
IMPROVED ORANGE GLOBE DITTO,



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IMPROVED LONG YELLOW MANGEL
IMPROVED RED GLOBE MANGEL,
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NATURAL GRASS SEEDS, in mixture or separate, suitable for various soils and localities.
LIGHT RYE-GRASS and other CHEAP GRASSES, for Sowing on Railway Banks and Waste Places.

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NEW WHITE BEDDING VERBENA, WHITE LADY.

Raised by Mr. SKINNER, Gardener at Hengrave Hall, near Bury St. Edmunds.

THIS is the WHITE BEDDING VERBENA of the Season, and by far the finest in its section hitherto offered. It is 12 inches in height, with an erect, close, compact habit, approaching that of Purple King. The truss is large, forming a perfect ball, from 2 to 2½ inches in depth, and the same in diameter; a bed of this and Mrs. Holford presented a very remarkable difference by contrast. The clearness of colour, and absence of all shade in the White Lady showed on comparison a large dark centre eye, or spot in the disc of Mrs. Holford, and the effect was still further enhanced by nearly double the quantity of bloom in the same space produced in the variety now offered. We could not have accredited the great superiority of one over the other had we not seen it ourselves, not only as to the purity of its colour, but also in the amount of bloom being so great. Its delightful fragrance will add to its first-class merits for bedding purposes, and other decorative designs, in ribbon-lines, &c. Each, 1*s.* 6*d.*; 12 Plants, 12*s.*; 25 Plants, 20*s.*; 50 Plants, 36*s.*

BLUE KING (Grieves).

Good habit, seedling from Purple King, colour good; an improvement upon Blue Bonnet. Each, 1*s.* 6*d.*; 12 Plants, 12*s.*; 25 Plants, 20*s.*; 50 Plants, 33*s.*; 100 Plants, 50*s.*

ST. CLAIR (Grieves).

Rich plum-colour, large truss, habit same as Purple King, being a Seedling from it; a fine bedder. Each 1*s.* 6*d.*; 12 Plants, 12*s.*; 25 Plants, 20*s.*; 50 Plants, 33*s.*; 100 Plants, 50*s.*

NEW VERBENAS FOR EXHIBITION AND BEDDING PURPOSES.

Raised by Mr. EDMONDS.

Eulalie, Effie Deans, Glendower, Nora, Peep-o'-Day, Stella, Princess.

Admiral Mitford,

Raised by Mr. SMITH, Gardener to Admiral Mitford, of Hunmanby.

2*s.* 6*d.* each.

☞ *Orders for the above executed on and after the 27th of April.*

E. G. HENDERSON and SON,
WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

NEW RHODODENDRONS,

PRINCE OF WALES, | PRINCESS OF WALES.

The above beautiful RHODODENDRONS will be ready for sending out early in the Autumn.
Full description will appear in future Advertisements.

MAURICE YOUNG (Son and Successor to the Late William Young),
MILFORD NURSERIES, near GODALMING.

BARR & SUGDEN
12 KING ST COVENT GARDEN

STRONG FLOWERING CANNA ROOTS.

A PORTION OF THE UNRIVALLED COLLECTION OF OUR "SARDINIAN CORRESPONDENT."

Well managed, the CANNA ROOTS we offer will make splendid plants for a summer and autumn display.

If associated with Gladioli, Hollyhocks, &c., in large beds on the lawn, or in mixed flower and select shrubbery borders, the varied and beautiful foliage of this plant cannot fail to make it one of the most conspicuous and desirable for ornamental foliage.

Of late years fine foliaged plants, and such as are of stately growth, have been much sought after for the adornment of the flower garden, terraces, pleasure grounds, lawns, select shrubberies, carriage drives, &c.; besides relieving the monotony too frequently to be met with in such places, plants of this character impart a somewhat Oriental aspect.

Amongst such the CANNA stands unrivalled; its large picturesque foliage, and spikes of vivid-coloured flowers, produce a truly magnificent effect, especially when planted in groups, whether on the lawn, in the centre of large beds, or in the mixed flower border.

To bring out the characteristic beauties of the CANNA during the early summer as well as autumn months, plant the roots in pots as early as convenient, placing them in a frame, greenhouse, sitting-room window, or wherever there is warmth. Towards the latter end of May, or beginning of June, plant them out in the warmest situations at command, and water liberally during hot dry weather with weak guano water. The plants delight in deep rich soil, therefore trench the ground to the depth of 2 or 3 feet, and manure heavily before planting out.

For DESCRIPTIVE LIST of CANNA SEED, see "GUIDE to FLOWER GARDEN."

3179	100 Roots assorted, our own selection, in 25, 30, and 40 varieties .. 5*l.* 5*s.*, 6*l.* 6*s.*, and £7	7 0
3180	50 Ditto, ditto	2 15 6
3181	25 Ditto, ditto	1 10 6
3182	12 Ditto, ditto .. .. 12*s.*, 18*s.* to	1 1 0
	Each.—	*s. d.*
3183	CANNA ACHYRAS, dark red, 5 feet, from Mendosa	1 0
3184	,, ANGUSTIFOLIA NANA PALLIDA, light red, 1 foot, from South America	1 0
3185	,, ANNEI WARSCEWICZOIDES, raised by Mr. Anne, a most splendid variety	2 6
3186	,, BICOLOR DE JAVA, red and yellow, 3 feet, from Java	1 6
3187	,, COCCINEA VERA, scarlet, very fine, 4 to 5 feet, from South America	1 0
3188	,, COMPACTA ELEGANTISSIMA, large, reddish-yellow, free-flowering, 2 ft., from S. America..	1 6
3189	,, CRENULATA, undulated or wavy foliage, fine ..	2 6
3190	,, CUBENSIS, scarlet, fine long foliage, 6 feet ..	2 6
3191	,, ELEGANS, deep carmine, graceful variety, 6 to 7 feet	2 0
3192	,, FINTELMANNII, yellow, magnificent variety, 3 feet, from South America	1 6
3193	,, FLACCIDA, dwarf habit, handsome foliage, very large brilliant golden yellow flower, 3 feet ..	2 0
3194	,, FLORIBUNDA, red, shaded with yellow, 3 feet, from Africa	1 6
3195	,, GIGANTEA, fine, scarlet, enormous leaves, exquisite, 3 feet, from India	1 6
3196	,, ,, AURANTIACA, orange red, very fine, 10 ft.	1 6
3197	,, HOOKERII, carmine, exceedingly handsome and graceful, 4 feet	1 6
3198	,, KALOSANTHA, bright red flowers, with long petals, 3 to 4 feet	1 6
3199	,, KARSTEINIANA, fine maroon, 3 feet, from India	1 6
3200	CANNA KEGELII, shaded carmine, 3 ft., from India	1 6
3201	,, LÆTAL, yellow and red, 3 feet	1 0
3202	,, LEPTOPHYLLA, ruby, handsome foliage, 4 feet, from Lagona	1 6
3203	,, LAMBERTII, scarlet, 4 feet, from Trinidad ..	1 6
3204	,, LIMBATA MAJOR, intense scarlet, edged with yellow, very striking, 4 feet, from Brazil ..	2 6
3205	,, LINDLEYANA, very remarkable foliage, 5 feet ..	2 6
3206	,, LUTEA PICTA, shaded yellow, 4 ft., from Brazil	1 0
3207	,, MEGELII, scarlet flowers, very large, 5 feet ..	2 0
3208	,, NEPALENSIS, clear yellow, very beautiful, 3 feet, from Nepal	1 6
3209	,, PATENS SUPERBA, deep red, splendid, 5 feet, from Rio Janeiro	2 6
3210	,, PEDUNCULATA, scarlet, 5 ft., from Rio Janeiro	1 6
3211	,, ROSEA MULTIFLORA, salmon colour, magnificent, 4 feet	2 6
3212	,, SANGUINEA CHATEI, blood red, dark foliage and stems, 6 feet	2 6
3213	,, SELLOWII, scarlet, profuse blooming, 4 to 5 feet, from Africa	1 0
3214	,, species of Guatemala, brilliant red, 4 feet ..	1 6
3215	,, SPECIOSA, red, 4 feet, from South America ..	1 6
3216	,, SPECTABILIS, red spotted, 4 ft., from S. America	1 6
3217	,, STENOGYNA, magnificent foliage, 6 feet	1 6
3218	,, SUBULATA RUBRA, brilliant carmine, with magnificent foliage, 3 feet, from Africa ..	2 6
3219	,, WARSCEWICZII, brilliant red, foliage striped, 3 feet, from Central America	1 0
3220	,, ZEBRINA, beautiful zebra-striped foliage, 5 feet	2 0
3221	,, VARIABILIS, red, changeable, 3 feet, from India	1 6
3222	,, VARIEGATA, shaded foliage, most elegant habit, 6 feet	2 0
3223	,, VALOSA, scarlet, leaves magnificent, 3ft., from India	2 6

GARDEN SEEDS.

S. GLENDINNING & SONS,

NURSERYMEN AND SEEDSMEN

(SUCCESSORS TO THE LATE R. GLENDINNING),

Are now sending out their COLLECTIONS of KITCHEN GARDEN SEEDS.

No. 1	contains	36 Quarts	of PEAS,	and all other Seeds	in proportion	£5	5	0
No. 2	,,	28 Quarts	ditto	ditto	ditto	4	4	0
No. 3	,,	20 Quarts	ditto	ditto	ditto	3	3	0
No. 4	,,	12 Quarts	ditto	ditto	ditto	2	2	0
No. 5	,,	6 Quarts	ditto	ditto	ditto	1	1	0

COLLECTIONS of FLOWER SEEDS.

No. 1,	containing	100	Large Packets of	Best Hardy Annuals	... ...	£0	18	0
No. 2,	,,	50	ditto	ditto	ditto	0	9	6
No. 3,	,,	24	ditto	ditto	ditto	0	5	0
No. 4,	,,	25	ditto	Half-Hardy Annuals	... ...	0	7	6
No. 5,	,,	12	ditto	ditto	ditto	0	4	0
No. 6,	,,	25	ditto	Tender Annuals	... ...	0	12	6
No. 7,	,,	12	ditto	ditto	ditto	0	6	0

The above Collections consist only of best and most useful varieties, and are of the finest quality.

S. G. & Sons' CATALOGUE of KITCHEN GARDEN, AGRICULTURAL, and FLOWER SEEDS, is now ready, and may be had on application.

CHISWICK NURSERY, LONDON, W.

Seeds for the Flower Garden offered by

B. S. WILLIAM S.

	s. d.
An Assortment of 12 Fine Selected Varieties of HARDY ANNUALS	1 6
An Assortment of 12 Fine Selected Varieties of HALF-HARDY ANNUALS	2 6
An Assortment of 12 Fine Selected Varieties of HARDY BIENNIALS and PERENNIALS, suitable for Rockwork	2 6
An Assortment of 12 Splendid Annual kinds of ORNAMENTAL GRASSES	2 0

Paradise and Victoria Nurseries, Holloway, London, N.

Free by Post.

CHOICE GERMAN and FRENCH FLOWER SEEDS from the best growers, at Reduced Rates.

	per packet—*s. d.*
DWARF GERMAN TEN WEEK STOCKS, 24 vars. ..	3 0
12 vars.	2 0
TRUFFAUT'S DOUBLE " FRENCH PÆONY-FLOWERED ASTER, 24 vars. ..	4 0
,, ,, 18 vars. ..	3 0
,, ,, 12 vars. ..	2 0
VILMORIN'S QUILLED GERMAN and RANUNCULUS Do, 12 vars.	2 0
AFRICAN MARIGOLD, 10 vars.	1 6
STOCK-FLOWERED DOUBLE LARKSPUR, 10 vars. ..	1 0
TALL DOUBLE LARKSPUR, 8 vars.	1 0
DWARF DOUBLE HYACINTH-FLOWERED do., 8 vars.	1 0
DOUBLE FRENCH BALSAMS, VILMORIN'S, 28 vars.	3 6
,, 14 vars.	2 0
WALLFLOWER, GERMAN, 10 vars.	2 0
ZINNIA ELEGANS, FL. PLENO, 12 vars.	1 6
DIANTHUS HEDDEWIGII, HYBRIDUS FL. PLENO, ATROPURPUREUS, LACINIATUS, and LACINIATUS FL. PLENO, each..	0 6
TAGETES SIGNATA, PUMILA, and PATULA NANA STRIATA	0 6
PHLOX DRUMMONDII, deep scarlet, and LEOPOLDII	0 6
AMARANTHUS MELANCHOLICUS RUBER	0 6
MIMULUS CUPREUS	0 6

Wood & Ingram, Nurseries, Huntingdon.

EDWIN HOLLAMBY begs to inform his Patrons and Friends that his DESCRIPTIVE PRICED CATALOGUE of VEGETABLE, FLOWER, AGRICULTURAL SEEDS, and GLADIOLUS is now ready, and may be had gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells, Kent.



HOLLYHOCKS

(MIXED)

from the finest Show Varieties.

Strong Blooming Roots,

4*s.* to 6*s.* per dozen; 25*s.* per 100.

RICHARD SMITH,
The Nurseries,
Worcester.

WELLINGTONIA GIGANTEA.—The attention of the Nobility, Gentry, and the Trade, is invited to the largest stock of 1-year SEEDLING PLANTS in the Kingdom, established in single pots and fit for Spring planting. Price per dozen, 12*s.*; per 100 or 1000 on application. A Sample free by post for 12 stamps.

J. Henchman, Edmonton, London.

GREEN HOLLY, &c., 1 to 1½ foot, 1½ to 2 feet, and 2 to 3 feet, strong Transplanted, and all other sorts of EVERGREENS of the most suitable sizes and ages for removal.

This and the ensuing month considered best time for the transplanting of Evergreens.

James Dickson & Sons, The "Newton" Nurseries, Chester.

Green Hollies.

CORNELIUS WHITEHOUSE, Brereton Nursery, Rugeley, Staffordshire, offers an immense stock of well-grown healthy extra Transplanted HOLLIES, exceedingly well-rooted, from 12 to 15, 15 to 18, 18 to 24, 24 to 30 inches. Also very handsome SPECIMEN PLANTS from 3 to 5 feet; also ENGLISH YEWS from 2 to 2½ feet, 2½ to 3 feet and upwards. The above growing on ground to be cleared for other stock, the price will be liberal. Trade price on application.

To Gentlemen engaged in Planting.

LARGE extra Transplanted EVERGREENS, consisting of YEWS, BOX, PORTUGAL LAUREL, WHITE CEDARS, SIBERIAN and AMERICAN ARBOR-VITÆ, PINUS CEMBRA and EXCELSA, &c. Also a large stock of GREEN HOLLIES of various sizes.

For prices, which will be found exceedingly low, apply to William Boosey, Nurseryman, Middlewich, Cheshire.

New Hardy Bedding Plant,

Pentstemon compactum nanum (Wemyss).

STUART AND MEIN have much pleasure in offering this very desirable variety. It was awarded a Certificate by the Floral Committee of the London Horticultural Society at its Meeting, Oct. 8, 1862, and is thus noticed in the *Gardeners' Chronicle*, Nov. 15, 1862:—"One called Compactum was particularly remarkable for its sturdy compact growth, its abundant blossoms, and its deep crimson colour, which had more of richness in the hue than commonly occurs amongst these plants." It was bedded last season, and attracted universal admiration. Its compact dwarf habit, attaining not more than 12 inches, and the profusion and brilliancy of its colour, recommend it as a most desirable bedding plant, particularly in cold wet seasons like the last, when Verbenas and other tender plants almost universally failed.

The following among others saw it in flower the past season:—

"When I saw your dwarf Pentstemon compactum nanum about the middle of October, I was much pleased with its dwarf compact habit, fine dark green foliage, and showy crimson flowers, when (as to flowers) the Geraniums, Calceolarias, and Verbenas were all gone. It will undoubtedly prove a great acquisition to the present stock of bedding plants." John Smith, Gardener to his Grace the Duke of Northumberland, Syon House.

"I was exceedingly pleased with your Seedling Pentstemon compactum nanum when I saw it in flower in September. I had not previously seen any other variety to be compared to it, and fully believe it will prove a first-rate bedder." William Dodds, Gardener to Sir J. H. Greville Smyth, Bart., Ashton Court.

Plants sent out first week in May, 12*s.* per doz., or 50*s.* per 100. Usual discount to the Trade.

Stuart & Mein, Rosebank Nurseries, Kelso, N. B.

Old Cheshunt Nurseries, Herts, N.—Roses.

PAUL AND SON have the pleasure to announce that their NEW HYBRID PERPETUAL ROSE, LORD CLYDE, will be ready for delivery in April next, at 7s. 6d. each. Usual allowance to the Trade when three are taken. A Coloured Plate, by Andrews, post free for 12 stamps.

The NEW ROSES of other Raisers will be ready in March.

They have still to offer fine Home grown STANDARD and DWARF ROSES.

DESCRIPTIVE LISTS of the New Roses, Gladioli, and Genuine Seeds now ready.

New Roses.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites attention to the following NEW ROSES, which will be ready for delivery very shortly.

LORD HERBERT, H.P.—Rosy carmine, the petals reflexing at the summits in the way of Beauty of Waltham, large, full, and finely formed, and altogether of first-rate excellence. 7s. 6d.

LORD MACAULAY, H.P.—Velvety crimson, in the way of General Jacqueminot, but brighter in colour, thicker in the petal, and more double. The flowers are of good average size, produced abundantly and in rapid succession; the habit is good, and foliage handsome. 7s. 6d.

MRS. WILLIAM PAUL, H.P.—Bright violet red, shaded with fiery red; flowers constantly, and in clusters, large and full. Raised by M. Verdier, of Paris, the raiser of Madame Furtado, and others of our finest Roses. 5s.

RED ROVER, H.P.—Bright red petals, large, thick, and round; flowers abundantly and in succession up to Christmas. Not double enough for a show Rose, but the most effective pillar Rose ever offered. 3s. 6d.

WILLIAM PAUL, H.P.—A seedling from Senateur Vaisse, but brighter in colour. Raised at Lyons by the raiser of Lord Raglan, Senateur Vaisse, and other first-class sorts. 5s.

BEAUTY OF WALTHAM, H.P.—Bright rosy crimson, of good size, form, and substance, and deliciously sweet. This Rose is found to surpass the description originally given of it. 3s. 6d.

All the new French Roses, 3s. 6d. to 5s. each, or 42s per dozen. The best of the old Roses at lowest advertised prices. The plants are well established, and in the finest possible health.

PRICED CATALOGUE free by post.

Nurseries and Seed Warehouse, Waltham Cross, N.

High Beech, Essex.

JAMES CRAWFORD begs to call attention to his NEW CALCEOLARIA EMPEREUR DE MAROC, it being the finest dark shrubby Calceolaria in cultivation for either bedding or pot culture. He also recommends his New FUCHSIA BEAUTY of HIGH BEECH, as being the best of its class.

Cloth of Gold, and Golden Fleece Geraniums.

STEPHEN SHILLING has to offer the above Plants, good, strong, and well-established in pots, at 31s. 6d. per 100.

As it will save a great expense in the carriage, he will supply the same turned out of pots, carefully packed, at the following prices. 25s. per 100.; 10l. per 1000.

Delivered to the Winchfield and Basingstoke Stations, on the South Western Railway.

Orders executed in strict rotation as received.

North Warnboro' Nursery, Odiham, Hants.—April 4.

BEDDING GERANIUMS, 2s. 6d. per dozen. Twelve dozen choice Bedding GERANIUMS, in 12 varieties, purchaser's selection, for 32s. 6d., basket and package included; or any kind separately, at 3s. 6d. per dozen.

VARIEGATED.	ZONALE.	ZONALE.
Golden Chain	Scarlet Perfection	CrystalPalaceScarlet
Reine d'Or	Lady of Loretto	Blackheath Beauty
Golden CeriseUnique	Little David	Princess of Prussia
Flower of Spring	Beauté de Meldoise	M. Martin
Alma	Lady Middleton	Mde. Chardine
Hendersonii	Christina	Paul L'Abbé
Bijou	Rose Queen	Imperial Crimson
St. Clair	Scarlet Queen	Model Nosegay
Countess of Warwick	Indispensable	Minimum Nosegay
Shottesham Pet	Bishopstowe Scarlet	Purple Nosegay

All the leading kinds at moderate prices. Price to the Trade on application.

A remittance respectfully requested from unknown correspondents. Post Office Orders to be made payable to ALFRED FRYER, Chatteris, Cambridgeshire.

NOW READY, GEO. GLENNY, JUN.'S LIST of SEEDS, containing Cultural Directions for the management of upwards of 64 beautiful Flowers, together with other valuable information. The above LIST and a packet of DOUBLE CANTERBURY BELL will be presented to any one forwarding two stamps to 41, Carlton Road, Kentish Town, N.W.

THE NOVELTY OF THE SEASON

Is GEO. GLENNY, Jun.'s, 20 Penny Packet of Annuals, &c.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

FRUITING VINES. — Exceedingly strong well ripened wood, full of Fruiting buds.

Black Hamburgh	Muscadine
Golden ditto	Chasselas Musqué
Mill Hill ditto	Trentham Black
Muscat of Alexandria	Buckland's Sweetwater
,, ,, Bowood	Ingram's Hardy Prolific
,, Eschola superba	Muscat

ESCHOLATA SUPERB MUSCAT, good Vines for Rafter Planting, 3s. 6d. and 5s. each.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Vegetable and Flower Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully announces that his SEED CATALOGUE is now ready, free by post.

The COLLECTION of VEGETABLES recently Commended by the Royal Horticultural Society was grown from Seeds furnished by him.

Nurseries and Seed Warehouse, Waltham Cross, N.

Seeds for the Kitchen Garden, Flower Garden, and Farm.

JOHN CATTELL'S DESCRIPTIVE CATALOGUE of the above is now ready, and will be forwarded, post paid, on application; it contains select lists only, and includes every novelty worthy of cultivation.

All parcels of Seeds of the value of 21s. and upwards carriage paid to any Railway Station in England.

Nursery and Seed Establishment, Westerham, Kent.

NEW CUCUMBERS, at 1s. per packet.

Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

CARTER'S CHAMPION CUCUMBER, recommended by the Royal Horticultural Society as being an excellent bearer. Fruit solid and firm, and the best of the Sion House class. 1s. per packet. A few ounces of our own saving to offer the Trade.

237. 238, & 261, High Holborn, London, W.C.

GIANT ASPARAGUS ROOTS, 2s. 6d. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see RICHARD SMITH'S SEED LIST for 1863.

Strong Transplanted SEA KALE, 2s. per doz.

RICHARD SMITH, Nurseryman, Worcester.

GRAYSON'S TRUE MORTLAKE GIANT ASPARAGUS, grown on the ground where the late Mr. GRAYSON brought it to such perfection, so that Grayson's Asparagus is preferred everywhere.

Seed saved from the Mortlake Beds	.. 6d. per oz.
Plants 1-year old	2s. 6d. per 100
,, 2 years old	4s. 0d. per 100

FRANCIS R. KINGHORN, Sheen Nursery, Richmond, S.W.

Seed Trade.

JAMES CARTER AND CO, Holborn, W.C., have a few lbs. of the following to offer to the Trade:—

MELVILLE'S GARNISHING KAIL,
VARIEGATED BEET, for garnishing,
SNOW'S WINTER BROCCOLI, true,
LITTLE PIXIE CABBAGE,
NEW FEATHER STEM SAVOY,
DANVER'S YELLOW ONION.
TOMATOE DE LAYE.
HENDERSON'S PINE-APPLE BEET.

To Seedsmen and Others.

THOMAS AYRES, SEEDSMAN and GROWER, Biggleswade, Beds, begs to offer the following SEEDS of his own growth of 1862, viz:—

WHITE SPANISH ONION SEED,
MANGEL WURZEL SEED, various kinds.
SWEDE, and COMMON TURNIP, ,,
SEED POTATOES of the following varieties:—EARLY ASH LEAF KIDNEY, MYATT'S PROLIFIC do., EARLY SHAW and REGENTS.
SCARLET RUNNER BEANS (English grown).

A PRICE LIST forwarded upon application.

Cabbage Plants.

W. VIRGO and SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 3s. per 1000:—

EARLY YORK CABBAGE	EARLY NONPAREIL
,, BATTERSEA	DRUMHEAD
,, BARNES	

RED CABBAGE, 4s. per 1000. All strong, healthy, and well rooted.

Wonersh Nursery, near Guildford, Surrey.

The King of Potatoes.

JOS. H. ROBINSON, SEEDSMAN, Coventry, has a limited quantity of the above superior POTATO to offer at 2s. per peck, or 7s. per bushel. Also MYATT'S ASHLEAF, 2s. and 7s. EARLY LEMONS, the earliest and best Ashleaf out, 2s. and 6s. 6d. DALMAHOY SECOND EARLY, 1s. 3d. and 4s. FLUKES, 1s. 3d. and 4s.

The "King" may fairly be said to be the finest Potato in cultivation; gaining the First Prize at the Royal Horticultural Society's Show, and at Birmingham.

To the Seed Trade.

H. AND F. SHARPE have a Surplus Stock of true—

Early Long Pod Beans	Ne Plus Ultra Peas
Mackie's Monarch ditto	Laing's Imperial Swede Turnip
Broad Windsor ditto	Early Green Top Yellow ditto
Early Emperor Peas	Fine Red Surrey Carrot
Woodford's Green Marrow do.	Early Nonpareil Cabbage
Flack's Blue Imperial ditto	,, Emperor ditto
British Queen ditto	,, Enfield Market ditto

which they can offer at a low figure.

Seed-growing Establishment, Wisbeach.



WHEELER'S LITTLE BOOK for 1863.

WHEELER'S TOM THUMB LETTUCE.

WHEELER'S IMPERIAL LETTUCE

The price of the Lettuce is 1s. per packet, post free.

J. C. WHEELER & SON beg to inform the Trade that their "Little Book" is entered at Stationers' Hall, and that they cannot allow it to be copied.

J. C. WHEELER & SON, Seed Growers, Gloucester.

International Exhibition. Prize Medals 1851 and 1862,

AWARDED FOR "EXCELLENT SEED CORN AND SEEDS," TO

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED MERCHANTS and GROWERS, Basingstoke, Andover; and 89, Seed Market, Mark Lane, London, E.C.

Samples of all kinds of AGRICULTURAL SEEDS and SEED CORN, sent post free on application.

Agricultural Seeds.

JOHN K. KING, SEED GROWER, Coggeshall, Essex, (Established 1793), has now ready for delivery from his genuine carefully selected roots,

YELLOW GLOBE MANGEL WURZEL.
KING'S CHAMPION ESSEX ORANGE GLOBE MANGEL WURZEL.
RED GLOBE MANGEL WURZEL.
ELVETHAM LONG RED and LONG YELLOW.
SKIRVING'S SWEDE TURNIP and PURPLE-TOP.

The above sorts have all been proved to grow well.

PRICED LISTS with testimonials post free on application.

MANGEL WURZEL SEED, &c., from well selected and Transplanted Bulbs.—YELLOW GLOBE, 4d. per lb., 30s. per cwt.; RED ditto, 4d., 32s. per cwt.; ORANGE GLOBE, 5d., 40s. per cwt; a reduction for larger quantities. ENGLEFIELD YELLOW GLOBE, 8d. per lb.; PURPLE-TOP SWEDE, 3d. per lb.; 25s. per bushel of 50 lbs. HARDY WHITE SWEDE, 9d. per lb.; 30s. per bushel (Bags included).

ALTRINGHAM CARROT SEED, 1s. per lb.; selected ditto. 1s. 6d. Terms cash.

CHRISTMAS QUINCEY, Seed Grower and Seedsman, Peterborough.

NEW HARDY WHITE SWEDE.—The Favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills. Grows rather coarse on some soils or when sown early; but it is very productive, hardy, and it is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor land.

Seed 1s. per lb., or 42s. per bushel.

Supplied by RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Two Hundred and Fifty Guineas in Ten Prizes.



FOR FIVE YEARS SUCCESSIVELY HIS LATE ROYAL HIGHNESS THE PRINCE CONSORT'S PRIZE CUPS HAVE BEEN AWARDED TO

SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Bucks Agricultural Societies.

New Seed now ready, 1s. per lb., or 45s. per bushel, carriage free.

Royal Berkshire Seed Establishment, Reading.

GENUINE RED WELSH CLOVER.—The RED CLOVER saved in the cold climate of North Wales is found to be decidedly hardier, and to produce a much more robust and vigorous Plant than the Seed of any other country. Our supply is limited. Early application is necessary.

Apply to J. ROBERTS & SON, Seedsmen, Denbigh, N.W.

CHEAP GRASS SEEDS for HILL SIDES and RAILWAY BANKS.—Rough Grasses, Sainfoin Siftings, &c., suitable for the above purpose, at 2s. per bushel and 3d. per lb.

Address, RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.



Lupine Seed for Field Culture.

SUTTON AND SONS, SEED GROWERS, Reading, can supply the proper kinds of LUPINE SEEDS for Field Culture, as recommended by Baron Herm Von Nathusiel, and Mr. Thos. Crisp, in the "Journal of the Royal Agricultural Society," No. XLIII.

Instructions on Cultivation sent with the Seed. PRICED LISTS post free.

Royal Berkshire Seed Establishment, Reading.



Clovers and Rye-Grass Seeds.

SUTTON AND SONS can supply the proper quantities of the best kinds of CLOVER and RYE-GRASS SEED, either Common or Italian Rye-Grass, at 16s. per acre; or Clovers without Rye-Grass at 14s. per acre.

The sorts of Clovers supplied by SUTTON & SONS are the Alsike, the Common Red, and the White Clover (14 lb. per acre).

The great produce of the above-named Mixture is shown by the following:—

From C. F. THRUSTON, Esq., *Talgarth, Machynlleth, July* 31.

"I cut a crop of Grass on June 2, which had been previously dressed with soot and guano. It was full ripe, and the Italian Rye-Grass was really 4 feet high, Clover in proportion. I am now (July 31) getting a second crop from it equally heavy."

In ordering it is only necessary to state that "Clovers and Italian Rye-Grass," or "Clovers and Common Rye-Grass," or "Clovers only," are required for so many acres, when the proper quantities will be sent.

Royal Berkshire Seed Establishment, Reading.

Grass Seeds for all Soils.

SUTTON AND SONS have one of the largest stocks in Europe of the PERMANENT NATURAL GRASS and CLOVER SEEDS, which they mix expressly to suit the soil for which they are required.

The following letter has been received, besides many others:

From Professor LINDLEY, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

PRESENT PRICES ARE—	Per Acre. s.	d.
Best quality MIXTURES for Laying Down to PERMANENT PASTURE	30	0
Cheaper MIXTURES, omitting certain sorts 20s. to	26	0
Best quality ditto, for Three or Four Years' Lay ..	22	0
Ditto ditto, for One or Two Years' Lay 15s. to	18	6
CLOVERS and fine GRASSES for Renovating Old Pastures .. .. 6s. to	9	0
Finest LAWN GRASS SEEDS .. .. per bushel	18	0
PARK LAWN GRASS SEEDS .. .. ,,	16	0

The First Prize Medal was awarded to SUTTON & SONS for their Grass and Clover Seeds at the Great International Exhibition of Roots and Cereals at South Kensington in October last.

A Copy of Mr. MARTIN SUTTON'S "Essay on Pastures" is sent with each lot of Grass Seeds.

Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.

PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading

SUTTON'S PRICED LIST
OF
MANGEL WURZEL SEED.

CHEAPER BY THE CWT.

	Per lb.—s.	d.		Per lb.—s.	d.
YELLOW GLOBE ...	0	6	YELLOW OVAL (or Olive shaped)	0	6
ORANGE GLOBE ...	0	6			
RED GLOBE	0	6	RED OVAL (or Olive shaped)	0	6
LONG RED	0	6			

The above sorts are all fine new Seed, and have been proved to grow well.

Improved Sorts of Mangel Wurzel.

Per lb.—s. d.

SUTTON'S LARGE YELLOW GLOBE; saved from large roots, selected for their solidity and excellence of shape. A very heavy cropper, and thrives in all soils. This is also the hardiest Mangel known. (*The first Prize Medal was awarded to us for this sort at the Great International Exhibition of Roots and Cereals in October last*) 0 8

Presuming that this superior Yellow Globe Mangel will generally be preferred for the main crop, we invariably send this sort, unless the Common Yellow, (see above,) or one of the kinds described below, is mentioned.

SUTTON'S ORANGE GLOBE; beautiful shape, with smaller greens than other sorts 0 8

FISHER HOBBS' ORANGE GLOBE; a very fine and popular sort 0 8

LONG YELLOW; this is a heavy cropper, and of fine texture. (*A special Prize Medal awarded to us for this at the International Root Show*) 0 8

ELVETHAM LONG RED; an improved sort, in great demand 0 8

Price per Cwt. on application.

Sutton's Mangel Wurzel Seed is Saved Exclusively from Fully Developed Roots,

The advantages of which have been proved for several years past,

(SEE THE FOLLOWING LETTERS.)

These are not mere Testimonials in the ordinary acceptation of that term, but show distinctly that the Seeds which Messrs. SUTTON have had grown from large selected Bulbs are altogether superior in germinating properties, and in the quality and trueness of their produce, to the Seed raised in the usual manner.

P. H. Frere, Esq., *Cambridge, Editor of the Royal Agricultural Society's Journal.*

"I write to say how well satisfied I am with the Mangel seed that you furnished me with in the late trying season. It was tried on one-half of two fields, the one strong, the other light land, the other portions being sown with seed bought of a respectable local dealer. On the strong land your seed gave me a decidedly better plant—on the light land three or four times as many plants as the other dealer's seed."

From Mr. Gray, *Bailiff to* G. Rawlins, Esq., *Bullington House.*

"I believe we had one of the finest lots of Mangels and Swedes in the country. We had not quite enough of your seed of Mangel, and *sent elsewhere for some to finish the field, and though sown the same day and with exactly similar treatment, we had not so much weight by one-third as on the part sown with your seed.*"

From the Right Hon. Lord Berwick, *Cronkhill.*

"Let me have the same Globe Mangel as last year, which has given me the best crop I ever grew; good both as to bulk of crop, and also in the fineness of roots and freedom from fangs and irregular growth; when pulled, the roots were nearly as clean and free from fibre as a Globe Turnip, and I had 50 loads per acre and more."

From George Beaumont, Esq., *Bridgeford Hill, near Nottingham.*

"We have had 4 acres of Mangel (Yellow Globe), three of which were sown with your seed, and one acre with seed grown in this neighbourhood. I am quite sure your seed produced from 8 to 10 tons per acre more than the other. I had nearly an acre weighed (from your seed), and found we had 55½ tons per acre."

Many PRIZES at Birmingham and other Shows throughout the Kingdom have been taken by Messrs. Sutton's Customers, both for MANGEL and for SWEDES.

PRICED LISTS of other kinds of MANGEL, SWEDES, TURNIPS, GRASSES, &c., will be sent gratis and post free. ☞ *Carriage Free to all parts, except small parcels.*

SUTTON and SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

REDUCTION IN PRICE.

PHOSPHO GUANO.

The Prices for the Season 1863 are as follows, delivered Free on Board, or on the Rails at Liverpool.

For 30 Tons and upwards	**£10 5 0**	**per Ton, net cash.**
For 10 Tons up to 30 Tons	**10 10 0**	**,, ,,**
For 5 Tons up to 10 Tons	**10 15 0**	**,, ,,**
For smaller quantities	**11 0 0**	**,, ,,**

The Price will not exceed 12*s.* per Ton additional if delivered at any other Port in Great Britain.

PETER LAWSON & SON, Contractors.
GEO. SEAGRAVE & CO., Brokers.
WILLIAM DIXON & CO., General Agents.

28, KING STREET, CHEAPSIDE; and 15, LAWRENCE LANE, LONDON, E.C.

LAWES'S MANURES. The Manures manufactured by J. B. Lawes for the present season of 1863 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. Lawes, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from Messrs. Gibbs: Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address John Bennet Lawes, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

POTTER'S GUANO (established 21 years) 7*l.* per Ton.
POTTER'S CONCENTRATED MANURE, guaranteed by analysis, 10*l.* per Ton.
PURE GYPSUM, 25*s.* per Ton, bags included.
Address, 28, Clapham Road Place, S.

Manures for Present Use.

PERUVIAN GUANO, Genuine as Imported by the Contractors of the Peruvian Government, Deliveries direct from the Docks; NITRO-BIPHOSPHATE (Blood and Offal Manure), Fish Offal ditto (PHOSPHATE); SUPERPHOSPHATE of LIME (made from Bone), see Royal Agricultural Society's Journal, vol. 6, page 2; and all others of known value, may be had on the best terms by application to Mark Fothergill, 23, Great Tower Street, Mark Lane, E.C.
Established 1839.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. Purser, Secretary.
116, Fenchurch Street, E.C.

TENANT FARMERS' MANURE COMPANY.
ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME,
Manufactured by the Patent NITRO-PHOSPHATE or BLOOD MANURE COMPANY (Limited),
Consisting of TENANT FARMERS, occupying upwards of 30,000 Acres of Land.
Chairman.—John Claydon, Esq., Littlebury, Essex.
Particulars of these Standard Manures may be obtained at the Offices. C. T. Macadam, Secretary.
Or of the Local Agents.
Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex, N.E.

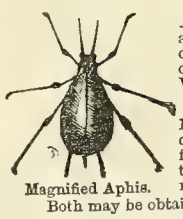
Established 1848.

THE BLAYDON MANURES.—Two Prizes were last season awarded, under the auspices of the Rutland Agricultural Society, for Turnips grown with the above Manures, viz.:—
1st.—A Silver Cup, value Five Sovereigns, was given by the Town and Trade of Oakham to Mr. T. W. Fowler, Exton, for the best Turnips (not being Swedes) grown within the County of Rutland. These Turnips were raised with 3 cwt. per acre of the 7*l.* 10*s.* Blaydon Manure, used with a moderate dressing of Farm-yard Manure.
2d.—Three Sovereigns (the 2d premium), given by the Right Hon. Viscount Campden, were awarded to Mr. Fowler, Exton, for Swedish Turnips. These Turnips were grown with 3 cwt. per acre of the 7*l.* 10*s.* Blaydon Manure, along with a moderate quantity of Farm-yard Manure.
Manufactured by the Blaydon Chemical Company, Blaydon-on-Tyne.
Managing Partner, Edward Richardson, Jun.

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.
Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.
Can be obtained through the principal Nurserymen and Seedsmen in England.
A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.
Page & Toogood, Seed Merchants, Southampton.

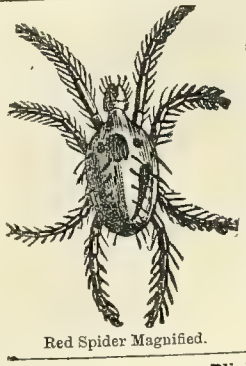


COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. Barsham & Co.
Barsham's BRUSHES and MATS are sold in every town.
Caution.—Every Brush is stamped 'J. Barsham's Patent'



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of Geo. Glenny, Esq., in his Works on Gardening, &c.
NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.
Both may be obtained of all principal Seedsmen.
Patentee: J. Neal, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.
This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by Price's Patent Candle Co., Limited.

Blight.

BROWN'S PATENT FUMIGATOR.—A Portable Instrument for Fumigating Greenhouses, Stoves, and Frames, or Shrubs and Flowers in the open air, without injuring the most delicate plant; delivering the smoke cold, in a dense mass, and effecting a great saving of Tobacco. Price 10*s.* and upwards.
Manufactured and supplied to the Trade by Messrs. Barber & Groom, London; and may be had of all Ironmongers, Seedsmen, and Florists.

New Chrysanthemums.

JOHN SALTER'S DESCRIPTIVE CATALOGUE of CHRYSANTHEMUMS, including the new varieties, which he will send out this Spring, as well as "HARDY VARIEGATED PLANTS," and other novelties, is now ready, and will be sent post free on receipt of two stamps.

Versailles Nursery, William Street, near Hammersmith Turnpike, London, W.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, begs to inform his friends and the public he can supply from his great Stock of the above 20 pairs of the best large Varieties for 10s.; and 25 pairs of best POMPONES for 10s.; 20 pairs of Cuttings of the large Varieties for 5s.; and 25 pairs of Pompones ditto for 5s.

New CATALOGUES ready for one stamp.

N.B. To save trouble all orders to be paid to J. H. BIRD, Stoke Newington.

Chrysanthemums, Dahlias, Fuchsias, Verbenas, Geraniums, Pelargoniums, Petunias, Calceolarias, &c.

W. HOLMES'S CATALOGUE of the above is now ready, and may be had in exchange for One Stamp.

P.S. STOCK VERBENAS—The Moor, Foxhunter, Defiance, Dante, Ætna, Fireball, Nemesis, &c., cheap. Price per 100 upon application.

Reference or remittance from unknown Correspondents.

Frampton Park Nursery, Hackney, N.E.

FIRST CLASS NEW FUCHSIAS. — Coloured Drawings by Mr. ANDREWS of SANSPAREIL, BRIDESMAID, CONSPICUA, and HERCULES, are now ready, and will be forwarded in exchange for 12 postage stamps.

G. S. begs to offer the above as the most Superb FUCHSIAS yet offered to the Public. For description, with price, and also time of sending out, see CATALOGUE, now ready.

GEORGE SMITH, Tollington Nursery, Hornsey Road, Islington, London, N.

A PRICED and DESCRIPTIVE CATALOGUE of all the new and leading kinds of Show, Spotted, French, Fancy, Scarlet, and Variegated Pelargoniums, Fuchsias, Verbenas, Petunias, Dahlias, Chrysanthemums, Bedding Plants, &c., is now ready in exchange for one postage stamp.

GEORGE SMITH, Tollington Nursery, Hornsey Road, Islington, London, N.

New Verbenas and Fuchsias. Double and Single Petunias of 1862.

WM. KNIGHT offers strong well-established Plants of all the best varieties of the above for Bedding or Exhibition, having been one of the most successful exhibitors of the above. Nothing but first-rate proved flowers in their classes are offered. VERBENAS, 5s. per doz.; FUCHSIAS, 6s. per doz.; PETUNIAS, 6s. per doz.

Floral Nursery, Hailsham, near Hurst Green, Sussex.

New Plant Catalogue.

WM. RUMLEY AND SON'S NEW DESCRIPTIVE CATALOGUE of New and Choice Fuchsias, Verbenas, Geraniums, Cinerarias, Petunias, Dahlias, Chrysanthemums, Hollyhocks, Phloxes, Calceolarias, Antirrhinums, Tropæolums, Stove, Greenhouse, Bedding, and Hardy Plants, at very reduced prices, is now ready, and may be had on application.

Gilling, near Richmond, Yorkshire.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

Genuine Seeds.—Carriage Free.

WM. CUTBUSH AND SON beg to intimate that they are now prepared to execute orders for GENUINE GARDEN SEEDS, for which their house is extensively known.

Mr. C. gives his personal attention to this branch of our business, and we can confidently recommend all offered as being of the best quality, at as moderate prices as consistent.

CATALOGUES free on application.

Highgate, London, N.

Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER'S CATALOGUE of the above popular plants, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants.

It describes faithfully the colours of all the Rhododendrons, thereby rendering every facility for making selections.

It likewise contains an abridged List of really Hardy Conifers, with their heights and prices.

The American Nursery, Bagshot, Surrey.

Bedding Plants, mostly 2s. 6d. per dozen.

J. SCOTT'S FLOWER GARDEN and ANNUAL DIRECTORY will be ready to forward, from the 1st week of April, at 6d.

"All who wish to have their Gardens gay, at a moderate price, should procure the above."

Merriott, Crewkerne, Somerset.

Bedding Plants.

MARSH AND PERKINS, 42, Drapery, Northampton, have pleasure in offering the following strong autumn-struck Plants:—

TOM THUMB GERANIUMS, CALCEOLARIA AUREA FLORIBUNDA, „ MACKAYII, „ PRINCE OF ORANGE.	8s. per 100 when equal quantities of each are taken.

N.B Cash or reference from unknown correspondents.

RUSSELL'S PYRAMID PRIMULAS.—Seed of this unequalled strain is now ready, in packets, price 2s. 6d.

The great satisfaction which these kinds have given in previous seasons, renders further comment on their merits unnecessary. The additional care taken however in saving the seed last year will probably result in producing flowers much superior to any ever seen.

Printed notes on raising them, and their culture, forwarded with each packet; payment can be made in postage stamps.

GEORGE CLARKE, Nursery, Streatham Place, Brixton Hill, London, S.; and 4, Windsor Terrace, Pimlico, S.W.

ANNUAL GRAND EXHIBITION of UNFORCED HYACINTHS

MESSRS. ARTHUR HENDERSON & CO.'S

ANNUAL DISPLAY of the above GALAXY of FLOWERS will be held in the LAPAGERIA HOUSE, Commencing April 1, and ending on April 12.

THE NURSERIES, PINE APPLE PLACE, EDGWARE ROAD, LONDON, W.

SPLENDID NEW SCARLET VERBENA, LORD LEIGH.

S. PERKINS & SON,

In offering the above SCARLET VERBENA, have much pleasure in stating that it has been awarded a First-Class Certificate by the Floral Committee of the Royal Horticultural Society, June 11, 1862; First-Class Certificate by the Royal Botanic Society, July 9; First-Class Certificate at the Crystal Palace, Sydenham, Sept. 4 and 5; First-Class Certificate by the Rugby Floricultural Society, August 29; First Prize by the Birmingham Botanic Society, July 10.

After the above Awards, S. P. & Son think it needless to offer any remarks, further than that it is of a free habit and will prove a first-class Bedding variety; colour the most dazzling scarlet that can be conceived, with a clear white eye; truss and pip extremely large, and of the finest shape and quality.

See Editor's remarks in *Gardeners' Chronicle*, August 30, 1862, and December 27, 1862; "Journal of Horticulture," Sept. 9, 1862. An Engraving will appear in the April Number of the "Florist and Pomologist."

Plants after April 15, 5s. each. Special Price by the dozen on application to the

PARK NURSERY, COVENTRY.

NEW SHRUBBY CALCEOLARIAS.

MESSRS. JOHN & CHARLES LEE

Having purchased the entire stock of Seedling SHRUBBY CALCEOLARIAS, raised by Mr. Watson, of St. Alban's, in 1861 and 1862, have selected four distinct colours, which they intend to offer to the Public the first week in May. They are the finest high coloured Shrubby Calceolarias yet raised, and in point of habit and quality are everything that can be desired for bedding or pot culture. They are decidedly shrubby and of good constitution, with a dwarf spreading habit and good foliage. The flowers rise just above the leaves, forming an even mass of exquisite colouring.

Price 5s. each, or 15s. the set, as under:—

PRINCESS ALEXANDRA.—Rich orange buff, of very dwarf habit, free blooming and conspicuous. Quite a new colour in Calceolarias.

MAGNIFICENT.—Deep orange flowers, of large size with close mouth, flower stalks short and stiff, a good dense habit, and first-rate in every respect.

PRINCE LOUIS of HESSE.—Rich crimson flowers of medium size, free blooming, habit very dwarf and showy.

FIREFLY.—Intense orange scarlet flowers of good size, free blooming dwarf habit, the brightest colour yet raised.

Terms to the Trade on application.

ROYAL VINEYARD NURSERY AND SEED ESTABLISHMENT, HAMMERSMITH, LONDON, W.

NEW PLANTS FOR 1863.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Has much pleasure in offering the following NOVELTIES for the first time, to be sent out after April 20:—

New Achimenes.

The following choice varieties are the seedling productions of that successful gardener, Mr. Parsons, of Welwyn, and they will be found great acquisitions to this beautiful class of plants, and quite equal to the descriptions given:—

ACHIMENES MAUVE QUEEN.—This splendid variety is, without exception, the finest of all that useful and most desirable class of summer-flowering plants; a great improvement on longiflora major; producing an abundance of beautiful large mauve-coloured flowers, with a conspicuous light chocolate eye, splendid form, and of extraordinary waxy substance. Was exhibited by the Raiser at the Floral Committee of the Royal Horticultural Society, and was awarded a First-class Certificate. Figured in the "Floral Magazine," November, 1862. Price 10s. 6d. each.

ACHIMENES CARMINATA ELEGANS.—Another beautiful variety, and is, without doubt, the finest of the small and free-flowering sections, producing spikes 18 inches in length; being of good branching habit, is capable of producing specimens 3 or 4 feet in diameter, thus making it a charming object for the, summer and autumn months. Price 7s. 6d. each.

*** Coloured Illustrations of each of the above by ANDREWS will be forwarded in exchange for six postage stamps.

New Petunias.

The following valuable varieties were raised by Mr. Holland, of Isleworth, and are a small collection selected from a large quantity of Seedlings. They are confidently recommended for general excellence, being great improvements on all others previously offered.

PETUNIA CRIMSON GEM.—A compact branching and free growing variety; flowers of a soft velvety crimson, with dark throat; of great substance and fine form; an improvement on Phaeton and all in that way. This is, without exception, the highest coloured Petunia yet offered. Received a First-class Certificate from the Royal Botanic Society, May, 1862. Price 5s. each.

PETUNIA FLOWER OF THE DAY.—This remarkable flower has four broad stripes of pure white, and four bright purple above, equally divided; very constant and beautiful. Received a First-class Certificate from the Royal Botanic Society, May, 1862. Price 5s. each.

PETUNIA ROSA BELLA FORME.—A free flowering and shrubby variety, of first-class habit for bedding and other purposes, being of short jointed growth; producing an abundance of beautiful bright Magenta flowers, with a clear white throat, of great substance and perfect form. This will, without doubt, prove to be the best bedding Petunia yet offered. Price 5s. each.

*** Coloured Illustrations of Petunia Rosa Bella Forme, and Flower of the Day, by ANDREWS, will be forwarded in exchange for six postage stamps.

New Zonale Geranium.

CONQUEROR OF EUROPE (HOLLAND).— Beautiful soft carmine; fine form and substance; extra large truss; long flower stalks, producing enormous heads of bloom well above the foliage; good and compact habit; fine for pot culture Was awarded a First-class Certificate at the Royal Horticultural Society's meeting, June 1862. Price 5s. each.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

ROYAL HORTICULTURAL SOCIETY.—FRUIT COMMITTEE.

A Meeting of the Fruit Committee will be held on WEDNESDAY, 15th inst., when the following Prizes are offered:—

	First prize.	Second prize.
Class A.—For the best three dishes of DESSERT APPLES, distinct sorts	15s.	10s.
„ B.—For the best three dishes of KITCHEN APPLES	15s.	10s.
„ C.—For the best dish of STRAWBERRIES, 30 fruits	20s.	10s.

And for the Examination of any other Fruits or Vegetables that may be submitted for the opinion of the Committee. Chair to be taken at 12 o'clock.

Packages to be delivered at the Rooms at South Kensington, W., by 11 o'clock on the day of Meeting, and along with any communications, to be addressed to

Robert Hogg, LL.D., Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.

LIST OF AWARDS, March 31.

First Class Certificate.

Camellia Filippo Parlatore. Antirhinum Scherzerianum. Dendrobium lituiflorum. } From Messrs. Veitch & Son, Chelsea.

Second Class Certificate.

Primula sinensis filicifolia rubra. [alba. } From Messrs. E. G. Henderson
Primula sinensis filicifolia } & Son, St. John's Wood.
Amaryllis Brilliant.

Commendation.

Forcing Pelargonium, Mrs. Lewis Loyd, from Messrs. Jackson & Son, Kingston.

Wallflower, Yellow Perfection, from F. J. Graham, Esq., Cranford.

Amaryllis, Fire King, from Mr. W. Bull, Chelsea.

Special Certificate.

To Messrs. E. G. Henderson & Son, for a collection of Flowering Plants.

The next Meeting of the Committee will take place on April 15, in connection with the Azalea and Rose Spring Show.

Thomas Moore, Secretary to the Committee.

ROYAL BOTANIC SOCIETY of LONDON.—AWARDS of PRIZES, MARCH 28, 1863.

12 HARDY CONIFERS.

1st prize, to Mr. J. Standish, Nurseryman, Ascot

6 CAMELLIAS in Pots (Amateurs).

2d do., to Mr. W. Young, Gr. to R. Barclay, Esq., West Hill, Highgate

6 CAMELLIAS in Pots (Nurserymen).

1st prize, to Messrs. J. Veitch & Son, Nurserymen, Chelsea

12 CAMELLIAS, Cut Blooms (Amateurs).

1st prize, to Mr. F. Todman, Gr. to R. Hudson, Esq., Clapham Common

12 CAMELLIAS, Cut Blooms (Nurserymen).

1st prize, to Messrs. J. & C. Lee, Nurserymen, Hammersmith

12 CYCLAMENS.

1st prize, to Mr. J. Holland, Gr. to R. W. Peake, Esq., Spring Grove, Isleworth

2d do., to Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth

3d do., to W. W. Howard, Gr. to B. Edgington, Esq., Wandsworth

12 CHINESE PRIMROSES.

1st prize, to Mr. F. Todman, Gr. to R. Hudson, Esq , Clapham Common

2d do., to Messrs. W. Cutbush & Son, Nurserymen, Highgate

6 CHINESE PRIMROSES (double-flowered).

1st prize, to Messrs. F. & A. Smith, Nurserymen, Dulwich

6 MISCELLANEOUS FOLIAGE and FLOWERING PLANTS.

1st prize, to Messrs. J. Veitch & Son, Nurserymen, Chelsea
2d do., to Mr. W. Bull, Nurseryman, Chelsea
3d do., to Messrs. J. & C. Lee, Nurserymen, Hammersmith
4th do., to Mr. B. S. Williams, Nurseryman, Holloway
4th do., to Messrs. A. Henderson & Co., Nurserymen, Edgeware Road

MISCELLANEOUS PRIZES.

Silver Medal, to Messrs. Paul & Son, Nurserymen, Cheshunt, Herts, for 7 Boxes of Roses
Small Silver Medal, to Messrs. Paul & Son, Nurserymen, Cheshunt, Herts, for Collection of Roses in Pots
Ditto, to Messrs. W. Cutbush & Son, Nurserymen, for 100 Hyacinths
Ditto, to Mr. W. Paul, Nurseryman, Waltham Cross, for 5 Boxes of Roses
Ditto, to Mr. W. Bull, Nurseryman, for a Group of New and Rare Plants
Bronze Medal, to Mr. J. Standish, Nurseryman, for 3 Camellias
Ditto, to Messrs. W. Cutbush & Son, for 50 Tulips.
Ditto, to Mr. W. Paul, Nurseryman, for Collection of Hyacinths
Small Bronze Medal to Messrs. W. Cutbush & Son, for 12 Amaryllis
Do. to Mr. W. Paul, Nurseryman, for Collection of Tulips.
Do. to Mr. J. Cross, Gr. to Sir F. H. Goldsmid, Bart., for 6 Greenhouse Plants
First Class Certificate of Merit to Messrs. E. G. Henderson, Nurserymen, St. John's Wood, for Amaryllis Brilliant
Do. to Messrs. E. G. Henderson & Son, for Primula sinensis filicifolia alba
Do. to Messrs. E. G. Henderson & Son, for Primula sinensis filicifolia rubra
Do. to Mr. W. Young, Gr. to R. Barclay, Esq., for Pandanus elegantissimus
Do. to Messrs. J. & C. Lee, Nurserymen, for Pandanus elegantissimus
Do. to Mr. W Bull, Nurseryman, for Pandanus elegantissimus
Do. to Messrs. A. Henderson, Nurserymen, for Pandanus elegantissimus.
Do. to Mr. J. Standish, do., for Skimmia japonica vera
Do. to Mr. J. Standish, do., for Skimmia, new sp. from Japan
Do. to Messrs. J. Veitch & Son, do., for Camellia Filippo Parlatore
To Mr. W. Bull, do., for Trichomanes anceps
Do. to Mr. B. S. Williams, do., for Caladium Lowii
Do. to Mr. B. S. Williams, do., for Phalænopsis Schill eriana, a superior variety
Do. to Messrs. A. Henderson, do., for Dracæna cannæfolia
Second Class Certificate of Merit to Mr. W. Bull, do. for Nephalaphyllum cordatum.
Do. to Mr. W. Bull, do. for Amaryllis Fire King
Do. to Messrs. J. Veitch & Son, for Camellia Giardino Santarelli
Do. to Mr. J. James, gr. to W. F. Watson, Esq., for Cineraria Emperor
Do. to Messrs. F. & A. Smith, Nurserymen, for Azalea Surprise
Do. to Messrs. F. & A. Smith, Nurserymen, for Hemerocallis elegans fol. var.

March, 1863. James Flood.

ROYAL HORTICULTURAL SOCIETY.—The FLORAL COMMITTEE proposes to undertake during the present season an examination at Chiswick of the varieties of the following Flowers, namely:—HOLLYHOCKS, BEDDING and POMPON DAHLIAS, LANTANAS and CANNAS, together with NOVELTIES in the classes already reported on, especially PELARGONIUMS, VERBENAS, PENTSTEMONS, FUCHSIAS, and ANNUALS.

The Growers of these flowers, and the raisers of Seedlings are invited to send collections and novelties for comparison.

Contributions of this nature for the use of the Committee should be addressed to Mr. Eyles, Royal Horticultural Society, Chiswick. Thomas Moore, Secretary to the Committee.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

Notice is hereby given that an ELECTION of TWO PENSIONERS on the Funds of this Institution will take place in JULY NEXT. All persons desirous of becoming Candidates are required to send in their Testimonials and Certificates to the Committee on or before SATURDAY, April 25, after which time they will not be received.

Preference will be given to those persons who have been Subscribers for 15 years and upwards, but should there not be a sufficient number of that class of applicants, then the claims of those who have not been Subscribers so long, or not at all, will be considered.

Printed Forms of Petition can be had upon application to the Secretary. By order. Edw. R. Cutler, Secretary.
14, Tavistock Row, Covent Garden, W.C., April 4.

Superb Double Hollyhocks.

This being the best time for Planting them out.

WILLIAM CHATER has an immense stock of healthy Plants.

CATALOGUE of PRICES to be had on application.

William Chater, Nurseries, Saffron Walden.

Superb Hollyhocks.

R. B. BIRCHAM begs to state that he has a very large Stock of fine healthy Plants now ready for planting out, and shall be happy to supply orders upon the most liberal terms.

CATALOGUES sent upon application.
Hedenham Rosery, Bungay, Suffolk.

Select Double Hollyhocks.

WILLIAM PERRY begs to announce that he has for SALE a good and healthy stock of Young Plants of the above that will flower well this season. If selection is left to W. P., the price per dozen will be 9s., 12s., 18s., 24s., 30s.
Sawbridgeworth, Herts.

International Exhibition Prize Medals 1851 and 1862.

Awarded for Superiority and General Excellence to

BUTLER AND McCULLOCH,
Covent Garden Market, London, W.C.
(Established upwards of a Century.)

COLLECTIONS of FLOWER SEEDS, Carriage Free.

NEW ANNUALS.

12 Extra fine varieties 10s. 6d. | 6 Extra fine varieties 5s. 0d.

HALF-HARDY ANNUALS.

100 Finest selected vars. 30s. 0d. | 25 Finest selected vars. 7s. 6d.
50 do. do. 15 0 | 12 do. do. 4 0

HARDY ANNUALS.

100 Finest selected vars. 20s. 0d. | 30 Finest selected vars. 5s. 0d.
50 do do. 10 0 | 15 do. do. 2 6

The Gardeners' Chronicle.

SATURDAY, APRIL 4, 1863.

MEETINGS FOR THE ENSUING WEEK.

Wednesday,	April 6	Microscopical Society of Arts	8 P.M.
Saturday,	— 11	Royal Botanic (Spring Show)	2 P.M.

A very interesting paper by Prof. Cohn has lately appeared in the Transactions of the Silesian Horticultural and Agricultural Society, of which an excellent abstract was given by Mr. Arlidge in the March number of Taylor's Annals of Natural History. A great portion of the observations is far too abstruse for general reading; it may not however be uninteresting to give some notice of the objects of the memoir.

Various instances of irritability in the vegetable world have long been recorded, and more or less carefully examined, a large portion of them being manifested by the stamens, which, it may be observed, are almost the only organs in which a measurable increase of temperature has been observed, and that at the time when their functions are brought most actively into play. The phenomena which take place at that period in *Berberis*, *Parietaria*, *Cactus*, *Cistus*, &c., are well known to most botanists, while the leaves and stems of various plants also exhibit analogous phenomena.

Professor Cohn has more especially examined the irritability of the stamens in the *Cynareæ*, which is of especial interest as giving a striking instance in support of Mr. Darwin's favourite notion, that one great object in nature is to prevent self-impregnation.

If a floret of some *Centaurea* is isolated and its corolla carefully cut away on one side, "the filaments which have hitherto been straight and in close apposition with the central style are seen to curve themselves outwards, leaving their terminal anthers still closely applied to the upper part of the style. This bending proceeds until it reaches its maximum, when each filament stands out in a half circle from the style. On now touching a filament with a needle, they all, so to speak, collapse and resume their vertical direction and close apposition with the style. Bearing in mind the fact that the filaments are fixed at their two extremities (at the upper by the anthers which are immoveable, and at their lower by their insertion into the receptacle of the floret), it becomes evident that to produce the remarkable curvature they exhibit, they must undergo considerable elongation." This elongation, indeed, amounts to as much as a fourth or seventh of the whole length of the filament. The touch of the needle therefore induces a contraction, and this it appears is in direct proportion to the intensity of the action. Electricity and other agents have a similar effect.

The theory that such effects are due to mechanical action, or to the principle of endosmose and exosmose as explained by Dutrochet, has long since been regarded with dissatisfaction, and all wiser philosophers seem agreed in referring it to something like nervous energy, though since there are no nerves and muscles as in the higher animals, it must be regarded rather, as more strictly analogous to that irritability which is exhibited by some of the lowest members of the animal world.

At present it seems premature to determine in what precise organ this exists, though it is probable that the elasticity which tends to restore matters to their normal condition after the irritability has subsided resides in the outer cell wall.

A correspondent asks us whether the simultaneous effect produced on the several filaments by the irritation, of one is not in some degree similar to the universal collapse of the electrified hairs of a figure-head attached to an electrifying machine when one is touched. That there is some analogy cannot be denied, but analogy may exist where causes are very different. The effect, whatever it is, must be communicated rapidly from cell to cell; but whether it be the same in kind with nervous energy in animals, or whether that may not be a mere modification of electricity, as Dr. Faraday has long since conceived respecting galvanism, chemical affinity, or magnetism, is a question which at present scarcely admits of an answer.

As however a measurable increase of temperature has been observed in plants at one period only, though it is more than probable that actual changes of temperature take place under other circumstances, though not sufficiently intense to admit of estimation, so it is probable that though certain tissues only exhibit signs of irritability, all may possess the same quality, though in a less degree, and one which we are incapable of measuring.

As regards the irritability of the stamens of *Cynareæ* in particular, it may be observed that the anthers and stigmata are not matured at the same time, so that the effect of irritability is to discharge from the anthers little pellets of pollen, destined by the action of insects to fertilise other florets in which the stigmata are in a proper state for causing the germination of the pollen grains. The pollen of a particular floret will, therefore, never fertilise its own stigma, an instance similar to the numerous examples which have been so luminously displayed in Mr. Darwin's admirable work on the fertilisation of Orchids. *M. J. B.*

In a recent number of the *Floral Magazine* we observe excellent figures of a charming Carnation and a Picotee, brought out by Mr. Turner, of Slough. Along with them appeared the following observations by the Editor.

"There can be no question but that the growth of these flowers has very considerably diminished in the metropolitan district for some time past, a fact which we believe may be taken, not as an evidence of any growing unpopularity, but of the value of that healthy stimulus which public exhibitions give to the growth of flowers; as a rule, they come into flower after the great shows are over, and even at them, when they are in bloom, but little encouragement is given to exhibitors, and hence gradually people give up that which few people see, and which is only confined to a select class of *cognoscenti*. Mr. Charles Turner, of Slough, does indeed send sometimes boxes of marvellous blooms, but they are either labelled not for competition, or thrust into that marvellously heterogeneous class 'miscellaneous,' and are probably awarded a 5s. prize. These observations do not apply to the northern or midland districts; there, new flowers are annually raised, and exhibitions are expressly held for them; and the fact that there is a National Show of them, manifests that they are somewhere in the country in considerable favour: we are only referring to the decline of the interest in them around London.

We see that the northern florists are contemplating the formation of a Society for the Encouragement of Florists' Flowers there, it having been found that the difference of latitude makes a very material difference in the time in which flowers come into bloom."

It may be true that these beautiful flowers are insufficiently rewarded; we ourselves are of that opinion. But another cause for the decline of their popularity may be perhaps assigned with greater truth. It is now expected of all show plants that they should have good foliage, or at least not bad. Lovers of gardens are not satisfied with the transient colours of a Pink or an Auricula; ephemeral beauty is disregarded, and men desire that when flowers are away, agreeable foliage should be present. Now it is difficult to conceive anything less attractive than the "grass" of a Carnation. In the late Exhibition, we had specimens of what was undistinguishable from the real thing, although made of paper or muslin; but if leaves not distinguishable from those of nature can be made artificially out of such materials, why have the trouble of growing natural leaves? Why waste time and money upon producing with infinite care what a ballet-girl can buy for a penny, or herself make for less?

This is, we suspect, the true history of the unpopularity of Carnations and Picotees, and until that difficulty can be got over, we fear that no revival of popularity can be expected.

—— The production of tolerable samples of Tree Mignonette has generally been regarded as something of a feat in gardening; and hence we must confess to having felt some interest as to what was to be the result of competition in these subjects, stimulated by the liberal prize offered for their production at a late show at South Kensington. We must confess further to a feeling of disappointment at the actual result. Not, indeed, that we for a moment question the fact that a large amount of skill had been expended in the rearing of such gigantic specimens as were brought from the garden of Lord Londesborough, for on this score we believe both great credit and the full amount of the prize to have been fairly won by Mr. Richards. But this only made it the more evident that huge Tree Mignonettes are a mistake, and our regret was rather that so much skill should have been wasted upon the production of objects so unsightly, without one redeeming feature of grace or beauty to compensate for their mop-headed ugliness. Had the same amount of skill been devoted to the production of pyramidal plants, such as were to be seen on a smaller scale at the same show, an exhibition of much more pleasing and useful character would have been the result. Small samples of well proportioned Tree Mignonettes, well-grown, and well-flowered, are indeed sometimes admissible, when of a size which will permit of their being associated with the ordinary flowering plants commonly employed for the decoration of conservatories; but trees of 5 feet high, with heads of a couple of feet through or more, incapable of bearing up their own weight without the aid of an unsightly prop, however meritorious they may be as examples of skilful cultivation—and they were in this case highly meritorious—are not to be approved as exhibitions of refined taste.

—— The Fern-leaved Chinese Primroses, which were alluded to at p. 296, have again made their appearance at the floral meetings of the past week, and prove to be far better than the figures of them represent. There is about them a degree of vigour which cannot fail to recommend them to the notice of cultivators; while their distinct and elegant foliage will always render them ornamental, even when flowers are not present—the flowers themselves moreover being fully equal to those of good breeds of the ordinary fringed varieties. This being so, we have no hesitation in stating that they are highly deserving of general cultivation.

—— In the same page (296) as that just referred to, a slight error occurs in reference to the name of the Verbenas figured in the *Florist*: the variety which is spoken of as Lord Clyde should have been called Lord Craven. It is, as we have already stated, one of the most meritorious of the novelties of last year.

FERNS AND FERNERIES.—No. II.

(*Continued from p.* 269.)

Presuming that you have been able to adopt dimensions sufficiently large—for instance, suppose a length of 9 to 12 feet, and a width of 6 or 8 feet, the shorter measurement being from the window entrance—you will now procure several barrow loads of broken bricks and lime rubbish. The crumbling remains of one of those old garden walls, so frequently removed in these days for the clearing of "eligible building sites," will suit us admirably; let this be laid to the depth of 6 inches or somewhat more, throwing it in carelessly over the bottom. Then you should, if you have opportunities among your acquaintance, collect some stones such as those used in constructing the unpicturesque walls dividing the fields or bounding the roads in Derbyshire, Somerset, or Wales. If, however, you have no means of obtaining these, you must have recourse to the next brick-field, where, if the proprietor has been unlucky with his recent kilns, you may possess yourself, at the expense of the cost of their carriage, of a quantity of burnt bricks or burrs. Setting aside some of the most crooked and unbricklike—shall we say the most "amorphous" of these for after use as "rockwork," let the remainder be heaped in irregularly, but yet with so much attention to a studied variety of elevation as will result from your placing them one on the other to a height of 3 or 4 feet at the corner towards the noonday sun; at the corner diagonally opposed to this to a height of from 12 to 18 inches. At the two remaining angles let the heaps rise to a height mid-way between these extremes; you have then a space somewhat out of the centre, upon which no stones have been placed—a valley we may say, from which in rugged masses your mountains rise in irregular slopes on every hand. You have now provided for that thorough drainage which is above all things essential. Next, throw in sufficient bog-earth, or peat mould, to form a stratum of about six inches (as loosely thrown in) over all this, digging it in among the crevices of your previous work, but without caring absolutely to fill them up; and you are ready to begin your planting.

In procuring your Ferns there are, if not more, yet three methods you may elect to follow:—the one, by purchase from those that sell—this is the easiest perhaps, but the least interesting; another, by begging of your country friends—this plan creates agreeable obligations and is a good one; the last is the digging them up yourself in the localities in which they grow—and this without question is the best plan of all, for as you gather each you learn its habits, and its natural conditions, and these in each case you have to endeavour to imitate. In the first establishment of a Fernery, however, either plan is too gradual in practice. A combining of them all, and in the order in which I have stated them, will probably succeed the best; yet let the filling your Fernery be gradual—at least extended through the spring and summer; they will thrive the better the following year. In reference to the digging up of Ferns in their native homes, I may here caution you against trusting to a trowel purchased of the ironmonger. When you have just succeeded in moving a fine "Mas" or "Hart's-tongue," on which you have set your affections, it will infallibly break in your hands. Provide yourself instead with one of steel; employ to make it a surgical instrument maker, and let it be so fashioned that the handle and blade may be of one piece of metal, the width at the greatest being not more than two inches, tapering to a point. The concave side should be hollowed in a section of a circle of about six inches; the other, being rounded to a section of much smaller diameter, will leave sufficient strength in the middle line, and cause the edges to be sharp; the handle part will have rivetted upon it a piece of hard wood, to make it of a shape and size convenient to hold, without being inconveniently heavy, which it would be were it wrought to a rounded form in solid steel.

The stronger British species, Filix-mas, Filix-fœmina, and dilatata may be planted in this mould, near your outer wall, filling in with fresh earth to each as you proceed, and banking up with the rugged pieces of stone which have been set aside for this purpose. The last named may be placed high up in your rockwork, having somewhat of a drooping character when well grown. Lobatum and aculeatum may be placed within these; then the smaller kinds, for instance, Polypodium Phegopteris, Thelypteris, and Oreopteris. Several hardy exotics may be introduced as you work upwards on either hand, and with these you will find the refuse of Cocoa-nut fibre work, lately so much commended by the gardeners, very useful. Towards the higher parts of your rockwork place Aspl. Trichomanes, and on the sunny side the Ceterach, if planted among broken tiles and decayed mortar, will perhaps be so amiable as to grow. Crown the uppermost ridge with the common Polypody, obtaining this, if you can, attached to the rugged stump of a pollard, as it grew. In the foreground, in the shady hollow we have carefully preserved for our favourites, you should have a specimen of the Killarney Fern, Trichomanes speciosum, that its delicately cut fronds and very curious fructification may be easily examined; and near to it Aspl. marinum may be placed, using with this some sand. Allosorus crispus is a beautiful small Fern, but rebels against much nursing, and will only grow in a dry, yet shaded corner. The Davallias are also very fastidious, and are not fond of so moist an atmosphere as delights most others of their kind. For Polypodium calcareum you must supply a quantity of small broken limestone, that he may be pleasantly reminded of his native haunts at Cheddar cliffs, just as Ceterach, which I lately mentioned, must be cheated into the belief that he is rooted in a churchyard wall. Should you have room for those magnificent, although in some localities common Ferns, Osmunda regalis and Scolopendrium vulgare, place under them a garden saucer, or what would be better, a fragment of a larger earthen pan, such as will sufficiently retain water within reach of their roots, but yet not restrain or cramp their growth. Several Adiantums will also thrive well; these require leaf-mould mixed with sand. Hymenophyllum will grow luxuriantly if simply laid upon a garden saucer turned upside down, over which some sand has been previously sprinkled. This last, and Trichomanes, will need that a bell-glass be kept over them till they are well rooted and established.

We have yet said nothing of Pteris aquilina, the most common, most hardy, and free growing of British Ferns; sometimes so grandly graceful as it climbs among the bramble, sometimes in a shorter growth sheltering the young deer: in old times the cottage thatcher's frequent resort, and even now serving for a bed, and a healthy one too, to the farm labourer's family. The fact is, this strong savage, like many another, is most difficult to tame. Fibrous masses dug up with a spadeful of forest earth will occasionally surprise you in the spring, by shooting up in bright green little crooks, developing into luxuriant thick stemmed plants, covered with short hair, yet weakly and needing support; one or two will overshadow their neighbours. But now perhaps, the analogy with the human savage may be still recognised in this—early in autumn they will wither, and in the succeeding year their place will know them no more.

Several kinds of Lycopodium make a beautiful green undergrowth, and in a short time will quite conceal the earth and even the rockwork. Especially L. denticulatum is useful in this, protecting the young and tender fronds, without checking their development. But root out all Ivy, and of course every blade of Grass as it shows itself; and besides (and here I advise with much regret) destroy each plant of Oxalis. Destroy it remorselessly and before it blooms, or you will not have the heart to do it; for otherwise the many white rootlets of this pretty little forester will spread so extensively as to cause many of your smaller Ferns to wither and die. You will probably find it desirable to remove, the following year, several of the pieces of stone, which in originally planting your Ferns were necessary to keep the earth about them; this you may do readily, or when the ground has become more solid and the Ferns well established, and if the case is not already crowded too thickly you may put plants in their places. *Z.*

THE TRADE IN NUTS.

Of the commerce in fruit in this country, that in Nuts of various kinds forms a very considerable share, furnishing a carrying trade of at least 10,000 tons. The average value of the foreign Nuts sold amounts to upwards of 400,000*l*. There are but five kinds specified in the official trade returns—Almonds, Chestnuts, Cocoa-nuts, Small Nuts (Hazel Nuts), and Walnuts. But there are various other kinds forming articles of commerce in a smaller degree, among which may be mentioned Brazil Nuts, Pistachio Nuts, Cashew Nuts, Souari and Sapucai Nuts, Hickory, and Peccan Nuts.

We present a summary of the imports of the foreign Nuts during the last nine years, compiled from the Board of Trade Returns, and shall proceed to furnish some few details respecting each.

	1853	1854	1855	1856	1857	1858	1859	1860	1861	Value in 1861
	[cwt.									
Almonds, Sweet,	21,743	23,561	24,581	34,043	33,465	33,176	24,619	19,638	29,307	£158,976
,, Bitter, cwt.	6,352	5,910	7,366	9,194	6,184	8,370	10,125	7,361	7,517	16,168
Chestnuts, bush.	35,300	31,809	64,756	67,270	77,197	35,300	57,048	25,218	53,711	26,792
Cocoa-nuts, No. .	1,388,774	1,730,963	2,217,350	1,879,388	2,129,993	2,508,869	2,484,423	2,479,251	2,804,657	17,114
Small Nuts, bush.	148,680	243,458	256,396	254,415	200,900	177,859	222,218	198,562	218,548	156,721
Walnuts ,,	50,125	21,949	34,832	50,534	60,128	56,468	68,363	52,090	71,699	27,453
										£403,224

In 1850 the following quantities of foreign Nuts were sold in the markets of London and Liverpool:—

	London Markets	Liverpool Imports
Cocoa-nuts, ... No.	1,250,000	325,000
Black Spanish, Barcelona, Black Sea Nuts, &c., ... bushels	72,500	66,000
Brazil Nuts .. .. .. ,,	11,700	27,000
Chestnuts .. .. .. ,,	26,250	3,000
Walnuts .. .. ,,	36,000	2,000
Other sorts .. .. .. ,,	8,000	3,000

A comparison of prices with those of seven or eight years ago, will show that the variations are considerable in some kinds, especially in Almonds, which, as respects the Sweet Almonds, have nearly doubled in price. The price of Chestnuts has risen fully 50 per cent. Cocoa nuts, although the imports are so much larger, keep up in price. Walnuts are about the same, but Small Nuts have advanced in price.

Average Prices of Nuts.

	1854.	1861.
Almonds, Jordan, per cwt...	£6 10 0	£7 6 10
,, Spanish do. ..	3 17 6	6 11 7
,, Morocco do. ..	2 10 0	4 4 6
,, Bitter do. ..	3 0 0	2 9 0
Chestnuts, per bushel ..	0 6 9	9*s.* 3*d.* to 10*s.*
Cocoa-nuts, per 100.	0 14 3	8*s.* 11*d.* to 12*s.* 5*d.*
Small nuts, per bushel ..	0 10 0	13*s.* to 14*s.* 6*d.*
Walnuts, per bushel	0 7 6	6*s.* 9*d.* to 8*s.* 8*d.*

The duties have varied as follows:—On 9th July, 1812, a duty of 1*l.* 6*s.* 3*d.* per cwt. was fixed on Jordan Almonds, and 10*s.* 6*d.* per cwt. on other than Jordan. On the 4th June, 1853, the duty on all kinds of Sweet Almonds was reduced to 10*s.* per cwt. Bitter Almonds were made free of duty on the 19th March, 1845; and Sweet Almonds in March, 1860. Chestnuts and Cocoanuts have been free of duty since 1845. Small Nuts and Walnuts, on which a duty of 2*s.* 1*d.* per bushel was levied in May, 1840, were lowered to 1*s.* per bushel on the 4th June, 1853; and have been entered free of duty since the 7th March, 1860.

Almonds.—The Almond gives rise in France, Spain, and Italy, to a large commerce. Although there are a great number of varieties arising from cultivation, all are derived from the Amygdalus communis. There are, however, two well-defined kinds of fruit, the bitter and the sweet.

The sweet variety of the Almond was well represented at the late Exhibition in the French Court, by M. de Bec, Director of Agriculture at the School of Montaurone, Bouches de Rhone, whose description of the principal varieties was recently published in this Journal. The production of Almonds is for Provence a very fertile source of revenue, as the quality of the product is excellent and the frost does not kill the blossoms. The ordinary varieties produced there are the Crombecs and other semi-hard kinds called Aberanes, Matherones, and Molières, sold generally in the shell; the Princesses, consumed in France, Belgium, Holland, Germany, and Russia; the variety called Ladies, sent exclusively to the United States, and where the import of Almonds is from 3 to 5 million pounds a year; and the "flot" variety, employed chiefly for confectionery and burnt Almonds. This last kind is peculiar to Lower Provence, the best being grown about Aix. These are consumed entirely in Paris, and double the quantity is sold of that of other sorts, because they keep best.

The Jordan Almonds which come from Malaga were formerly the highest priced of any, but those from France, from the care in cultivating good varieties, now fetch a better price. The imports of Almonds into France in 1860 were 714,256 kilogrammes, and the exports 2,379,839 kilogrammes. In this country, although many kinds are now imported, we have chiefly clung to two varieties, known as Jordan and Valencia Almonds. The Jordan Almond is characterised by a longer narrower and more pointed kernel, about 1 inch long. The Valencia Almond is somewhat shorter, and broad in proportion to its length. Nearly half the Sweet Almonds now imported, 11,000 cwt., come from Morocco, 11,000 cwt. more from Spain and Gibraltar, and about 2000 cwt. each from Italy, Portugal, and France.

The Bitter Almonds, 7000 or 8000 cwt. in quantity, come almost exclusively from Morocco, chiefly from Mogadore. They are employed in the preparation of noyeau, macaroons and ratafia cakes. By the cook and confectioner they are used for flavouring, and are occasionally employed for medicines.

In France the fine Almonds, as the Princesses, the Ladies, &c., are sold wholesale in the shell, and the hardshelled Almonds also, the expense of breaking them being repaid by the value of the shells, which serve for fuel. Different varieties of Almonds yield of course different proportions of kernel and shell. According to M. Arnaud, 16 decalitres of wild Almonds in the shell yielded 16 kilogrammes of Almonds; the same quantity of large green, 18 kilogrammes. Again 16 decalitres of "flots or trochets" gave 26 kilogrammes of Almonds. The hectolitre of Almonds in the shell weighs about 56 kilogrammes. The price varies, but the average a few years ago was for the Princesses 100 francs the 100 kilogrammes; for Les Dames 50 francs, for Common Almonds 25 francs, and for Wild, 18 francs. *P. L. S.*

(To be continued.)

APPLE FROM NOVA SCOTIA.

"This is by far the best Apple I ever tasted." Such was the opinion expressed by no mean Pomologist, on the 16th of March, 1863. It was sent, with others, packed in fresh burnt plaster of Paris, by R. G. Halliburton, Esq., at the suggestion of the Rev. G. Honeyman.

Fruit rather above the middle size, heavy, roundish; eye slightly open in a flattened depression, surrounded with small obtuse eminences; stalk ¾ inch long, moderately thick, in an evenly rounded cavity; skin smooth, glossy, lemon yellow on the shaded side, sprinkled with small brown dots, and on the sunned side having a fine blush of red intermixed with ocellated spots. Flesh firm, white, juicy and rich. A very handsome fruit, which would probably, from its firmness, retain its beauty and goodness till May.

Mr. Halliburton states that the specimens were produced in the orchard of Mr. Joseph Kaye, and, he adds: "The season is now too far advanced for some of the finest sorts of Apples which he raises; those now sent are hardly fair samples of what his orchard produces." They were, however, very beautiful, and the sort in question will form a useful and ornamental late-keeping variety wherever the climate proves suitable to it.

We ought to remark that the mode of packing in fresh-burned plaster of Paris answered in the case of the above specimens exceedingly well; and the circumstance of its doing so may furnish a very useful hint, either as regards the keeping of fruit, or sending it to a distance.

RAISING STRAWBERRIES FROM SEED.

Strawberry growing is in every sense a fruitful subject, and if your readers have not had already more than enough of it, some of them may be interested in the practice of an amateur in raising them from seed. I give the experience of many years, and can promise, that to a lover of gardening the pastime has unusual interest.

To begin at the beginning. I place in a common garden frame, in 6-inch pots, at the end of November, ten or a dozen of the most approved varieties; for the present year I have Marguerite, as one of the very earliest; La Constante, excellent for form and flavour; British Queen, of world-wide celebrity; Frogmore Late Pine, Eugénie, Crimson Queen, Carolina Superba, &c. With ordinary care these plants bloom well in the spring. I give abundance of air and freely admit the bees. The finest and best formed berries I select for seed, and do not gather them until a little past maturity; even then I leave them in a window some days. When so far prepared, with a sharp penknife I pare off the surface containing the seed as thinly as possible, and lay these little strips of seed on writing paper, placing them on a table in a sunny window to dry and harden. With the thumb and finger the seeds are easily rubbed off the paper. In a few days I sow them on the surface of carefully prepared earth, in seed pans, strewing very fine earth over the seeds until quite concealed. I do this in wet weather if possible, as a good soaking of soft rain fixes the seed in the earth.

The seed pans are then placed in a frame, and kept rather damp, slightly shading from fierce sunshine. In three or four weeks the seed-leaf of some will appear, and when the perfect leaves of the earliest plants have attained the size of White Clover, I carefully remove them into other seed pans.

I keep them in a cold frame during the winter, and plant them in the open ground the following April, in rows 2 feet apart and 1 foot from each other.

Over-manuring induces too much foliage, and retards the fruiting. Some few plants will bear fruit the first summer, *i. e.*, at the age of one year; and all that are likely to be of a productive habit and consequently of any merit, will bear fruit the second year.

The result will be satisfactory to the grower, if his hopes are proportionate to the disappointment common to most things in this life. *K. C.*

Indoor Gardening.

Last year I determined to try what became of old bulbs kept on. My Hyacinths, Crocuses, and Snowdrops, which bloomed in water or in plates of sand, were therefore planted out in mere banks of earth, being just pushed out of the dishes, and some earth heaped on the roots. This spring they have been flowering very well indeed, not indeed fine flowers, but exceedingly gay and pretty. They were left to die off in their heaps, and planted in the late autumn in the garden borders.

My finest Hyacinths this year, however, by far, have been a "Rustic Robin" group. The flowers have quite surprised me by the unfailing accuracy with which they have come up and opened. All colours are included; the palest and very dark blue, white, and blush, and cream-colour, delicate pink and deep rose; and though the Snowdrops and splendid Crocuses had faded in great measure before the Hyacinths came into beauty, they made the group very pretty while growing up in the windows, and even now they form a beautiful green ground. The large spikes of flowers stand many of them quite upright; but those that are near the edge are apt to wave out sideways. If any one disliked this, a small stick in the centre hole and wires attached to it would prevent its happening; but to me it looks very charming to see the wide-spreading flowers, and flowers that are let alone are so very far prettier than they can be when trained and tortured.

The whole of the treatment that this beautiful vase has met with, has been being placed in a dark cellar for a month on its first arrival—the bulbs being already planted; then it came out to a window and created a weekly astonishment, when I was informed emphatically that that dish did drink an immense deal, the tone being one that implied—might so thirsty a thing be satisfied. The fact was, indeed, the roots had enough to feed! Such a crowd of flowers I scarcely ever saw, and yet coming in succession it never has looked too crowded.

Sometimes a few Tulips are mixed in with the Crocuses, and when pale blue Crocuses and those of white streaked with a reddish purple, are used with vermilion or red Van Thol Tulips, the effect before Hyacinths come is very nearly as good as afterwards. In this "Rustic Robin," however, there are two blue Hyacinths that look remarkably lovely; one an exceedingly pale tint, almost a silver grey, the other a large striped flower, which is very odd and good looking. The Crocuses were yellow, white with a pinkish stripe, and blue—La Majestueuse, I believe. The yellow kind however ought certainly to be omitted as it does not harmonise with the other colours. This beautiful vase was sent to me ready planted by Messrs. Barr & Sugden.

I do not generally like anything with holes! It seems as if the flower roots were in a kind of prison instead of in soft brown mould; but to this plan anybody may become a convert. The entire absence of any sort of risk or trouble further than seeing that the dish is first kept quite dark, then light, and always fully watered, is really a remarkably great gain for new beginners in gardening, and if only they introduce a few more white Crocuses, some Bulbocodium, or some Scilla sibirica in place of the yellow Crocuses, the group will be, I am sure, most popular next season.

The Hyacinths used are *not* miniatures, but very fine single flowers of the usual class. *E. A. M.*

THE ORANGE.

(Continued from p. 294.)

Whatever differences of opinion may exist respecting the advantages or disadvantages of pruning trees, in general most agree that to the Orange the application of an annual curtailment is inapplicable and injurious. The removal of branches will necessitate the loss of foliage; this on any tree has a weakening effect, and in the Orange is so great as frequently to cause the branch to die back, much to the loss and disfigurment of the head.

The natural form of most of the varieties, which is that of a pyramid, is the best adapted for carrying the heavy burden of fruit at most times to be found on a healthy tree, and is also as handsome a form as can be given. All then that is desirable is to stop with the finger and thumb any large water-shoot that may mar the symmetry of form; remove any dead spray that may be in the centre of the tree, and let the lower branches extend as far, and keep as close to the ground as possible, so that they do not lay on it. By so doing several advantages are gained: the pyramid having a good base will protect the roots from the sun, and what is of equal importance, the lower branches, extending beyond those above them, will get the advantage of rain, dew, and light. Deprived of these they must eventually perish, while by keeping the lowest branches longest all have nearly equal advantages, and, of course, the trees go on from year to year increasing in beauty as in productiveness. But should an irregular form with several leading branches be allowed to go on for a few years, so soon as a load of fruit comes many branches will bend to the ground, the uppermost covering and destroying the lower, while the handsome natural form of the tree is gone for ever.

The standard, with a stem clear of branches for several feet, is objectionable, for the reason already given—that the sun would in the summer months dry up the surface roots near the tree, and also that the exposed stem would be so hardened from the exposure, that it would become what is called "bark-bound;" when the barbarous cure of ripping the tree from top to bottom would likely be resorted to, a quite unnecessary operation if the natural protection of the stem is permitted to remain till the bark, from age, has acquired the power to protect itself with a rough loose outer cover, to be seen on all trees after a few years' growth.

Thinning the fruit may properly be considered as a pruning operation, and is particularly needed with the Orange tribe, as they bloom so freely, and usually set so much fruit, that the tree overbears itself while very young. The exceptions are, where some of the strong-growing sorts have been placed in favourable circumstances for growth; although longer in coming into bearing, when they do the crop is likely to be too large; so that thinning with a free hand is the best and wisest plan, as by so doing the tree gains size and strength. You will also by this means insure annual crops, that will not be got without, as this tree, like all others, if allowed an exhaustive crop, will take a season or more to recover. For want of thinning, we are told from Sydney, that some kinds give a full crop only every second or third year.

It is strongly recommended by some of our most experienced growers that the thinning should be that of the blossom, so that what is to be removed may be done in the very earliest stage. If this were done where there are a number of trees in bearing, the flowers could be used for the manufacture of orange-water; and some idea of their value may be got from the fact, that the flowers at the Tuileries and at Versailles sell annually, the one for 150*l.*, the other for 200*l*, for this purpose.

A second thinning may also be given when the fruit is the size of a Walnut, when it may be preserved in the manner we see done by the Chinese.

As the fruit ripens irregularly it should be gathered in the same manner, and it will be found in the early part of the season to be much improved if kept a week or so after being taken from the tree.

In the neighbourhood of Melbourne, in early situations, they will begin to ripen in July, in late gardens in August or September, but in all cases they will continue in prime condition for several months, when, if not removed, they will become dry, and the bulk of them remain on the tree till the following year,—it is said even for three years, and that on each return of the ripening season the flow of the sap will take place to the old fruit also, and make them year after year more rich and juicy than they were before; this is said to be done at Genoa, the fruit being then sold to connoisseurs at very high prices in Milan, Turin, and other places.

My experience does not accord with this, as I have found a portion of the fruit to remain on for one year, when all dropped off, as some of them had been doing throughout the whole of the time. At no time was the fruit improved, but to the last were dry and worthless. I am also aware that, in another garden where the Orange has been most successfully treated, this experiment has produced similar results. I do not say that it is not to be done, but only that we do not as yet know in what way. It may be that we err in leaving the succeeding crop. If all young fruit were removed the flow of the sap to the old fruit might then take place and produce the improvement as stated. This is one of the many interesting experiments that the amateur may follow up.

Notwithstanding some writers dilate on the immunity enjoyed by the Orange from the attacks of insects, their theory being that the pungent essential oil in the rind of the fruit furnishes a complete protection, yet the fact is far otherwise, as the aphis settles on the tender shoots, while the grass-hoppers make free with the leaves and young fruit, as do also the caterpillars of several kinds. Slugs, also, are particularly fond of the Orange, and any fruit or foliage that lays on the ground will soon be destroyed if slugs are about. I have had buds with an inch or more of growth eaten by them in one night. This, of course, caused the loss of an entire season. But the damage done by these has, as yet, been trifling in comparison with that produced by the coccus, commonly known as the scale or turtle bug.

There are several varieties of these insects, and on climbing plants, trained on verandahs, it frequently happens that they become so numerous as to give the branches the coral-like appearance of sea-washed rocks without the cleanness, as plants so affected are soon covered with the excrement, so as to give the idea that they have been well dusted with soot. Of the two sorts of scale preying on the Orange, one is about the

size and form of the impression taken from a pin head, and may be found on many of the Sydney fruit, alive and dead, looking like so many fly spots. The other, when full grown, is more like the disgusting bed bug. When a tree becomes affected they soon spread, covering every part—stem, branches, and leaves, back and front. The young are almost invisible to the eye, and are very active for a short time, till they have selected a spot to settle, where they remain and spend their days and nights in draining the tree of its sap.

Ants frequent the Orange tree at the period of flowering, that they may share with the bee and others the sweets it contains; but they are also constantly present on those trees infested with scale. I have often had it remarked to me, when looking at diseased and neglected trees, "Oh, I shall have them clean now, for the ants have taken to them, and they will soon eat them up." That the ants carry the scale from place to place on the trees, I can confirm from personal observation. We also found, while hand-cleaning, leaf by leaf, that if any branch was left undone for a day or two, it was hardly possible to tell the branches cleaned from those that were not. I cannot think the scale travelled themselves, but that they were carried.

A very excellent paper was lately read before the Gardeners' Mutual Improvement Society, by Mr. Wm. Ferguson, on the culture of the Orange in Victoria. The insects that preyed on the Orange were fully discussed, and to illustrate the extent of their ravages at times the fact was noticed, that in 1843, so complete was the destruction by these insects, that at the island of Fayal (one of the Azores) the entire produce was lost from this cause alone. The usual exportation from Fayal was 12,000 chests annually, but in that year not a single chest was exported.

And now another instance of extensive destruction is taking place in New South Wales, large numbers of trees, from the plant of six months to the tree of 60 years' growth, are dying from a disease of the roots. The cause is, as yet, not clearly understood.

Mr. Holroyd has attributed the successful results of his experiments to a proper system of draining, trenching, and shelter, with a limited use of bone as a manure.

Mr. Scott says, in reference to manure, that it ought to be dug in when the trees are very young, and before their roots reach it they ought never to be disturbed. The ground ought, however, at times to be slightly broken on the surface, so as to admit the moisture and air to the roots, but they ought not to be disturbed.

Home Correspondence.

Cork Trees.—The following varieties of Oak with corky barks are known to the writer; the cork is by no means equally good, though in appearance not very different:—1. Quercus Suber, of Italy; 2. Q. Cookii, Spain; 3. Q. Pseudosuber, Italy, very like the next; 4. Q. var. the Corky Lucombe Oak; 5. Q., a Cork tree var. with handsomer foliage than the common. It may be added that Q. australis, and another Spanish Oak, called Encina in Spain, show great tendency to form a corky bark as they grow old. *I.*

Contractile Tissues of Plants.—I have just read a treatise on the contractile tissues of plants, and the experiment on the stamens of the Centaurea made by M. Cohn, there mentioned, has much interested me. The curve which the stamens assumed soon after a portion of the corolla had been removed to expose them was instantly arrested by bringing a needle point in contact with one of them, causing them all instantly to collapse. In like manner the sensitive Mimosa, with leaves expanded and leaf-stalk erect, on one of these being touched, all the leaves close and the stalks fall down on the stem. Now it struck me that there was some similarity between these movements and those which I have seen exhibited on a figure head adorned with hair attached to an electrical machine, which, on turning a few times, causes the hair to bristle up and to stand erect from the head, while on touching one of these hairs with the finger all immediately collapse in the same way as the leaves on the Mimosa by the abstraction of the repulsive electric force. I know that the plants droop at night in the same way, but does not light and its absence influence electric actions? Is there any sense in my idea? *Julia.* [See a leading article published to-day.]

Peaches.—Owing to last summer being so wet and sunless, I do not think that Peaches out of doors will be generally abundant this year. The wood of most trees, that I have seen, has been either too large or too small, and in either case unripe. I have lately visited my friend Mr. Sturt, at his palatial residence of Critchill, where George IV., when Prince of Wales, resided, and I reviewed his various glass houses, which are good. He has a glass-cased south wall, well worthy of inspection. It is about 160 feet in length, and about 5 feet wide. The fall is about 11 feet. The whole glass casing, from top to bottom, may be thrown open by a crank in the centre: near to which is a pump within the casing—an article generally too scarce, both in large and small establishments. The walls are lofty; and the trees are well trained, and producing abundance of bloom. Mr. Sturt has extensive Vineries, and also an Orchard-house, giving great promise of Figs, which I consider to be one of the best of fruits. The forced Strawberries: Keens' Seedlings, and Black Princes, looked healthy, and were beginning to ripen. Sooner or later, people who wish to grow Peaches and Moor Park Apricots with certainty, must glass-case their walls, especially their south walls, which are the most insidious. If, however, cultivators cannot afford to glass-case, I can assure them that the next best way is to use sheeting 2 yards wide, which costs (the double yard), 1*s.* 1½*d.* per yard. I never got any Peaches till I used it; and I have never failed since. I cut the sheeting the length of the trees; I then nail it to three or four Fir poles, place the ends of the poles in catches under the coping, and the lower ends between two fixed triggers. The trees are now in beautiful bloom from top to bottom, and are fast setting their fruit. I grow the Peaches on spurs or fan fashion, as the case may be, always removing the spurs after bearing. The trees, three in number, are on a south wall, close to a rivulet, and having nothing westwards but a high thick Thorn hedge. I never allow the walls to be wetted after the buds swell, but give water at the stumps, according to judgment. The three trees are very strong and yet very old; the youngest is 26 years old, and the other two are 42 years old. I know the date of the first by the testimony of the Rev. Cossley Saunders, rector of Tarrant Hinton, who remembers its being planted, when his father was rector of Rushton. The date of the other two trees I know by the testimony of Mr. James White, a gardener now living in this parish, who told me last spring that he was 57 years of age, and that they were planted when he was a boy 15 years old. Looking at their ages, your readers will wonder at my saying they are strong trees, well wooded, and in good bloom from top to bottom. This must be explained. Finding when I came here that the trees were "naked as lances," having wood too big at the top and little or none in the centre and base, I determined to have them cut down within about a yard of the base; I then had the roots cut off beyond a radius of 30 inches, and also all the perpendicular roots, some of which were as thick as my wrists. I then carefully removed the earth from the surface over the 30 inches of roots left, and supplied new maiden earth and rotten dung above and around them; I thus soon made nice trees of them. The first two years I did not take account of the fruit. I did not then cover with sheets, and I believe that I got but little. The next year I covered with sheets, and gathered 1040 Peaches, the next year 197; then 775; then 480; and last year I only saved 94. I think that I shall have a good crop this year. I do not know what sort the Peaches are; they are good and very red. Had your readers seen the face of my old gardener (now dead) when I ordered him to cut the trees down, and cut the roots, both horizontal and perpendicular, they would have seen a sight that would have caused in them—

> "Sport that wrinkled Care derides,
> And Laughter holding both his sides."

Finally, I should mention that in wet, windy, or sleety weather I keep on the sheets day and night, but take them off at 10 in the morning, and put them on at 4 or 5 o'clock in the afternoon in fine weather. Quick transition from cold to heat, or *vice versâ*, is bad for Peach blossoms. *W. F. Radcliffe, Rushton.*

The Royal Wedding.—Permit me, in reply to Messrs. Veitch, to say that I am not responsible for the statement which appeared in your columns of March 21st, headed "The Royal Wedding Day," as I extracted it from a report on the subject in the *Western Times*, and being a native of Exeter myself I naturally take an interest in all that goes on there. *G. Toll.*——Having seen in your Paper of March 28, that Messrs. Veitch inform you that the last tree planted was not a Cedrus Deodara, presented by Messrs. Lucombe, Pince, & Co., but a Wellingtonia gigantea presented by themselves, I beg to say that the last tree planted was Cedrus Deodara, presented by Messrs. Lucombe, Pince, & Co.; it was planted by Mr. Pince, and named the Princess Alexandra's tree. *J. Pike, Exeter Nursery.*

Mushrooms.—I beg to forward for opinion a box of Mushrooms from a bed made of such spawn as is described in your Paper of March the 14th. The bed from which these Mushrooms were gathered was spawned on the 28th of February, and what I send is the first produce from it. I have already stated (see p. 248) how I make my spawn, and I have never failed to have Mushrooms every day for many years. I may just add that I put one barrow-full of turfy loam to every six barrowfuls of horse droppings when making the bed, and that I spawn the moment the bed is made and cover it at the same time with 1 inch or so of mould taken from an old Melon bed; the soil is kept dry in a shed after having been used for the Melons. *J. Harley, Fairford Park, Gloucestershire.* [The sample sent consisted of half-grown excellent Mushrooms.]

Societies.

Royal Horticultural: *March* 31 (*Floral Committee*).—A few interesting new flowers were shown at this meeting. The most noticeable, perhaps, was the neat and attractive Anthurium Scherzerianum, which appeared for the first time at one of the shows of last summer, but now looked brighter and more vigorous. This desirable little Orontiad has stalked lance-shaped dark green foliage, and a bright scarlet inflorescence, the ovate spathe of which is flattened out, and reflexed against the stalk which supports it. Another beautiful thing was a Camellia called Filippo Parlatore, a blush-white with rosy stripes, the petals remarkably smooth and even, and the flower of excellent form. Both these, as well as the rare and attractive Dendrobium lituiflorum, came from Messrs. Veitch's nursery, and received 1st class certificates. A large-flowered bright yellow Wallflower, shown by F. J. Graham, Esq., Cranford, was commended; as also were a crimson forcing Pelargonium from Messrs. Jackson & Son, Kingston, and named Mrs. Lewis Loyd; and a very bright light scarlet Amaryllis or Hippeaster called Fire King, from Mr. Bull, Chelsea. Another Amaryllis named Brilliant, from Messrs. E. G. Henderson & Son, St. John's Wood, was of a deeper colour, a bright crimson, and being of better form, obtained a second-class certificate. Similar awards were given to the two forms—white and red flowered—of the Fern-leaved Chinese Primrose, which came from the same establishment. Mr. Bull showed one or two promising seedling Horse-shoe Pelargoniums; and an attractive Azalea called Surprise was sent by Messrs. F. & A. Smith, Dulwich. This variety has flowers of a veiny salmon pink paler at the edges, and is very conspicuously spotted, and occasionally barred with deep red, its attractiveness being owing to its bold spotting. A plant of Phædranassa obtusa, with its curious drooping red and green tubular flowers, was sent from Edinburgh by Isaac Anderson Henry, Esq.

Royal Botanic: *March* 28 (*First Spring Show*).—Collections of Miscellaneous Plants were furnished on this occasion by Messrs. Veitch, Bull, Lee, Henderson, Williams, and Cross; and from Mr. Williams came a small group of Orchids in which was a flowering plant of the charming Phalænopsis Schilleriana. A specimen of this beautiful Phalænopsis was also shown by Mr. Wiggins, gr. to W. Beck, Esq., of Isleworth. A collection of Japanese plants, all of which have already been fully noticed in our columns, was produced by Mr. Standish. Camellias came from Messrs. Veitch, Mr. Young, gr. to R. Barclay, Esq., of Highgate, and Mr. Standish, and there were also stands of cut Camellias from Mr. Todman, gr. to R. Hudson, Esq., of Clapham, and from Messrs. Lee of Hammersmith. Different varieties of Cyclamen persicum came from Mr. Holland, gr. to R. W. Peake, Esq., Mr. Wiggins, gr. to W. Beck Esq., of Isleworth, and Mr. Howard, gr. to B. Edgington, Esq., of Wandsworth; and some well grown plants of Chinese Primroses were contributed by Mr. Todman and Messrs. Cutbush. Beautiful boxfulls of cut Roses were exhibited by Messrs. Paul and Son, and Mr. William Paul, and the former also sent Roses in pots well grown and flowered. Hyacinths and Tulips came from Messrs. Cutbush, and Mr. Wm. Paul; but this time they were evidently past their best. From Messrs. E. G. Henderson & Son came a striking Amaryllis called Brilliant, and the same nurserymen also showed handsome pink and white Fern-leaved varieties of Chinese Primula. Pandanus elegantissimus was communicated by several exhibitors; and from Mr. Bull came the pretty Trichomanes anceps, and a glowing Amaryllis named Fire King. Messrs. Smith, of Dulwich, exhibited a variegated-leaved Hemerocallis, and a promising decorative Azalea called Surprise. Cineraria Emperor, from Mr. James, gr. to W. F. Watson, Esq., was considered worthy of a certificate; as were also Camellias Filippo Parlatore and Giardino Santarelli, from Messrs. Veitch, Mr. Williams showed the handsome Caladium Lowii; Mr. Bull Nephalaphyllum cordatum, and a flowering plant of Bougainvillæa spectabilis, growing in a small pot; and Messrs. A. Henderson Dracæna cannæfolia, the last a fine addition to plants remarkable for the beauty of their leaves. Hoteia or Spiræa japonica, a handsome shrub, with white feathery heads of blossoms, was shown by Messrs. Veitch; and Messrs. E. G. Henderson had a small plant of Portlandia platantha. Pansy blooms came from Mr. Bragg; and a group of Cineraria Conqueror from Messrs. Dobson, of Isleworth.

Linnean: *March* 19.—G. Bentham, Esq., President, in the chair. W. H. Baily, Esq., G. Dickie, Esq., M.D., Augustus Thorne, Esq., and W. T. Locke Travers, Esq., were elected Fellows. The following papers were read:—1. "A description of some remarkable malformations affecting the genus Lolium," by Dr. Masters. The simplest of the changes described consisted in the mere lengthening of the axis of the spikelet, by which means the constituent florets became separated by wide intervals, the axis itself sometimes also becoming remarkably flexuose. In other instances the change consisted in the spikelets assuming a more rounded outline than usual, and in the number of florets being reduced to three, in one or all of which considerable modification had taken place. The inner pales were in some of these flowers placed opposite the outer one and on the same level with it, and in others were split into two, thus rendering the symmetry of the whorl complete. Within the pales, in place of stamens and pistils was a confused mass of numerous scales, some of which resembled pales, and others were in various stages intermediate between scales and feathery stigmas; no stamens or ovules were found in any of these. In a third series, while, in the lower part of the spike the spikelets were of the ordinary form and arranged singly and alternately on the sides of the grooved rachis, the spikelets in the upper part of the spike were arranged in pairs on each notch of the rachis, as in Elymus and Hordeum, the spikelets themselves being more or less spherical, each with an outer and inner glume of the ordinary aspect, and each made up of a number of florets, arranged not in two rows but in several, which owing to the shortening of the rachis became densely tufted. So closely were the florets crowded that sometimes a fusion of the outer pales of two contiguous florets was found to have taken place. The union was occasionally found to extend to the inner pales, and in one case the inner pales of three florets had become united. In addition to this, the axis of the spikelet just within the outer glumes was occasionally seen to separate into two diverging branches, each bearing its tuft of florets. In the fork

between the two branches, was placed in some but not in all, a single floret, which thus terminated the main axis of the spikelet. This floret had an outer whorl of two pales, placed directly opposite each other, and resembling the ordinary outer pales; within these, at right angles to them, were two more, precisely resembling ordinary inner pales; and within these again a number of thin membranous scales, some of which had more or less the appearance of stigmas. Thus, in these curious specimens the following deviations from the ordinary structure of Lolium occurred: There was an alteration in the form of the spikelets; they were arranged in pairs, instead of singly on each notch of the rachis, and in more than two vertical rows; the florets were disposed in close tufts or whorls; the outer and inner pales became more or less fused; the inner parts of the florets were multiplied, and changed to scales, which exhibited transitional stages between scales and stamens; the axis of the spikelet was bifurcated and a peculiarly constructed floret occupied the angle of divergence of the two branches. The specimens all belonged to Lolium perenne.—2. "On the species of Fusidæ which inhabit the seas of Japan," by Arthur Adams, Esq.

Van Mons Society of Belgium: *Annual Report — Tenth Publication.* — In 1859 there appeared for the first time the destruction produced by the Scolytus, the ravages of which were not perceived till then, so little was it thought that this insect would attack Pear trees. In cutting up one of the trees the inside was found entirely perforated, and individuals of the Scolytus were found measuring 6 to 7 centimetres long, and 3 to 4 centimetres in circumference. Various remedies have been tried to destroy this hidden enemy. The trees have been stripped of their bark to the inner rind, and washed with milk of lime; but what has produced the best result is a composition which was received from Scotland under the name of "Gishurst Compound," which, diluted with a certain quantity of water, was introduced with the small syringe into the perforations caused by the Scolytus, and destroyed them. *Signed: Le Directeur-Général, A. Bivort; Le Président, A. Roger.*

Notices of Books.

Recollections of Tartar Steppes and their Inhabitants. By Mrs. Atkinson. (Murray.) Small 8vo.

For a lady to travel from Russia to China across country is not only a very unusual occurrence, but one necessarily attended by so much danger, fatigue, and novelty, that an account of her adventures cannot fail to be read with interest. That any woman could be found willing to undertake such a journey seems astonishing. However, here we have a most fascinating account of all that befel one, who actually accompanied her husband wherever he went, shared his fortune or misfortunes as the case might be, and seemed rather to enjoy the hardships than to repine at them. Mrs. Atkinson married from the house of a Russian gentleman in St. Petersburg, and immediately started with her husband on his journey across the Tartar steppes. Their travels did not consist of being drawn about in a carriage and pair, over macadamised roads, or moving from place to place in luxuriously stuffed railway carriages with comfortable hotels to receive them at night; but partly in sledges drawn by six or more horses over the roughest, wildest country night and day; and then on horseback, actually living in the saddle for days together. When indulged by a night of repose, the pair frequently passed it in the open air or under a tent. The book is so full of anecdotes, each one equally amusing in its way, that it is rather difficult to make a selection; however, we give the following extracts as a specimen of the style in which it is written:—

"At 5 o'clock the horses were ready for our departure. All the women had turned out to see me off. One old woman with tears had entreated me not to go—no lady had ever attempted the journey before. There were Kalmuk women living beyond, but they had never seen them. In the early part of the day she had offered to let her daughter go to take care of me; however, when the daughter came in, a healthy strong girl some 35 summers old, she stoutly refused (to my delight) to move; the mother tried to persuade and did all she could—it was of no use, and I was left in peace. We mounted our horses, I riding *en cavalier*. I must tell you that I took from Moscow with me a beautiful saddle, which I was occupied one day in Barnaoul examining, when Colonel Sokolovsky entered. He demanded what I was going to do with it; my reply was, to ride: 'I cannot do so without one, and the Kalmuks I presume, have no such things.'—'No!' said he sarcastically, 'and they will be enchanted to see yours; but what will please them most will be the sight of an English lady sprawling on the steppes, or with a broken leg in the mountains. But,' said he 'seriously speaking, you cannot go with such a saddle: first, the horses are not accustomed to them; and secondly, in the mountains it is quite out of the question.' He then offered me one of his own, which I accepted, and left mine till our return; and thankful am I that I did so, otherwise I should not be here to tell the tale of our narrow escapes. At times, we have had ledges of rock to ride round, where, had I had a side-saddle, my legs would have been crushed to pieces or torn off. At times, I have had to lift my feet on to the saddle, there being barely room for the horse to pass between high masses of rock. Then there were passes to ride over, formed by the granite mountains, in places quite perpendicular down to the Bia. Our horses have stood on many points, where we could see the water boiling and foaming probably 1000 feet below us; just imagine me on one of these places with a side-saddle!"

The kind of society into which they were thrown was sometimes very droll; the following is an account of a ball given in honour of Mrs. Atkinson:—

"Having heard that some of the officers' wives had arrived, I thought it my duty to visit them, as is customary in Siberia, but was told by our host that it was needless, and, indeed, he would rather I should not; that a building was being temporarily erected in which he intended giving a ball to commemorate his arrival as governor or priestoff, and in honour of us, and then I could make the acquaintance of the ladies. To this arrangement I readily consented. The house was at length completed, and the invitations sent out for the same day. Having but one dress besides my travelling one, I drew it forth and looked with dismay at its tumbled appearance. I had a small iron with me fortunately, the only one in Kopal, so I despatched our Cossack to and fro to the kitchen to have it heated. Thus, with a flannel petticoat for an ironing blanket, and a box for a table, I managed to make it decent, and forthwith I commenced my toilet. The guests were bidden for 5 o'clock, but our host begged of me to be ready earlier to receive his lady visitors. In the midst of my dressing a bouran (a storm of wind and snow) arose. I was obliged to rush to one side of the tent to hold it down, my candle was blown out, leaving me in total darkness.

"Mr. Atkinson ran outside to call the men, who were heard screaming and running in all directions, as the kitchen, with all the delicacies for the coming feast, was being nearly swept away; at last, with ropes and beams of wood, it, as well as our tent, was secured. With some difficulty I got a light, and resumed my dressing; in the meantime I received three notes to hasten operations.

"Having smartened myself to the best of my ability, we started; it was only three paces, for all our tents had been bodily moved to the vicinity of the house. We found our host in full uniform; he was scarcely recognisable; indeed he laughed to see himself. Then there was his body-guard, a Kirghis, by name Yarolae, the grandest man in the place; he wore a magnificent new dressing gown, a splendid shawl round his waist, and a tall-pointed silk cap, and red boots; altogether he looked and felt superb.

"The room had wooden stools placed round; the carpenter had been several days busy preparing them, and at one end of it a few planks were raised from the ground; these were covered over with a carpet, and served as a sofa. This being the place of honour, I was seated here to await the coming guests, who shortly made their appearance.

"Yarolae's bearing was usually calm and dignified, but hearing the wail of the camel he became quite excited, and giving a caper, he said, 'Here they are!' and made a rush down stairs. He shortly returned, followed by two ladies; and walking like a prince into the centre of the apartment, he announced in a voice of thunder, 'Madame Ismaeloff and Madame Tetchinskoy.' The contrast between them and the gaily attired Kerghis was too striking. The former lady was a saucy faced old body, with a bright shining skin, a clean dark coloured cotton dress, a white collar which reached to her shoulders, a white cap with a very full border, a lilac silk shawl, and brown worsted gloves, completed her attire; her companion, a small person, had a similar dress, but instead of the shawl she wore a pink satin mantle trimmed with lace. They came up to me, each giving me three kisses, and took a seat on either side of me, without uttering a word. Yarolae was again off; the next visitor was proclaimed by the roaring of a bull. The door was thrown open very wide, and 'Anna Pavlovna' was announced. My gravity was this time sorely tried, and more so as I glanced at the Baron. His face was irresistible; he went forward to shake Anna by the hand; her deep-toned sonorous voice resounded through the room. She was a tall stout woman, dressed in the Russian peasants' dress, a cotton of the brightest and most variegated colours, very short, and round the bottom it was edged with pink, about two inches deep; a pair of good strong shoes with nails, and no stockings, and bound round her head was a red cotton handkerchief. As you may imagine, she was gloveless; but what an arm and hand she had! big enough to knock down any one who approached her ungraciously. But her face was beaming with smiles and good-nature. She, too, came forward like the others, and bowing down low saluted my cheeks three times, and then took her seat."

To add to the difficulties of travelling in these wild regions, Mrs. Atkinson became one fine day a happy mother; her little son was named after the mountain at the foot of which it was born, and so ever after went by the name of Alatau. A singular practice amongst the Siberians is mentioned by her under the name of a Baby Pie. "This custom first came under my notice when Alatau was about two months old; he was very restless one day when my visitor called (I knew we were going to have a storm), but she proposed he should be baked. 'Baked!' I shrieked.—'Yes.' Explanations were entered into, when I learned it was quite a common custom to do so; but if I did not like to have him placed in an oven, I could cover him with a crust and put him on the hot stove, when hairs would come out on the back; these plucked out, the child would be perfectly easy. I mentioned the circumstance to a friend in this town, who tells me it is quite true that Siberian peasants bake their children. There is a particular disease they have, it is said, can only be removed by baking. A crust is made of Rye-flour, when the child is enclosed within it, in the same way as a fowl in a pasty, leaving a small aperture for the child to breathe through; then it is placed in the oven with its door closed, but only a few seconds, and it is said that it proves a sure remedy."

As no more space can be spared for further extracts, we advise any one who wants a few hours' amusement to get the book and read it.

Garden Memoranda.

Oak Hill, East Barnet, the Suburban Residence of Charles Baring Young, Esq.—At one time this place was famous for the size and general excellence of its Grapes; it was from a Vinery here that a cluster* of Black Hamburgh, weighing 8 lbs. 6 oz. (see *Gard. Chron.* 1843, p. 825), astonished visitors to the July exhibition of the Horticultural Society, in whose garden at Chiswick it was shown in 1836. Since then, however, its character for high cultivation has not been maintained. During the last 10 years or more the garden has been let for the growth of vegetables and fruit for market, and lately everything has been allowed to fall into bad repair. The walls, which appear to have been well built, are still in good condition, as are also most of the glass houses; but the trees both on open quarters and trained are all but a complete wreck. Since it has come into the possession of its present owner, however, the spirit of improvement seems to be actively at work. Old trees have been cleared away and new ones now occupy their places, most of the glass houses have been furnished with Ormson's boilers and heating apparatus, borders have been remade, and quarters trenched. To the mansion new wings are being added, and pleasure grounds in character with its improved appearance are we believe about to be laid out. The reputation of Oak Hill Gardens may therefore now be expected to revive.

The mansion is pleasantly situated on the brow of the hill, overlooking an extensive and beautiful valley, and backed up and surrounded by Oaks of unusual vigour, the soil being apparently very suitable for the growth of this particular kind of tree. To the left lies the kitchen garden, in which the alterations just recorded are being skilfully carried out by Mr. Richardson, Mr. Baring Young's gardener. The principal compartment forms a square, against the south-west wall of which are two large late Vineries, and on either side of these are Peaches and Nectarines, both of which promise to produce good crops. Against the east wall has been planted the better sorts of dessert Cherries, on the north Morello Cherries, and on the west, Plums. The borders for these have been trenched nearly 3 feet deep and well manured, and this year, on account of want of accommodation elsewhere, seeds of root crops have been sown on them. Among Plums, have been planted Kirke's, Green Gage, Jefferson, Woolston Blue Gage, a fine dessert variety, Angelina Burdett, Coe's Golden Drop, Reine Claude de Bavay, and Ickworth Imperatrice. Nectarines consist of Violette Hâtive, Elruge, Downton, and Pitmaston Orange. Of Peaches there are Noblesse, Red Magdalen, Royal George, Violette Hâtive, Barrington, Téton de Venus, and Late Admirable. Among Cherries there are Reine Hortense, Bigarreau, Elton, May Duke, and Black Tartarian. The open quarters of this compartment are to be chiefly planted with bush fruits, but at present they are occupied with Cauliflowers, Peas, Beans, Spinach, and other vegetables. Cauliflower plants have been put out about three weeks; but as yet they have made little progress, no less than 8°, 10°, and 12° of frost having lately been experienced here. For the earliest crops of Peas, Sangster's No. 1 and Dickson's Early Favourite have been selected, and these are to be succeeded by Champion, a strong-growing productive variety. In another compartment is an Apricot wall, consisting of Moor Park and Shipley, the last a variety which when well grown is stated to be excellent. Under the walls in warm situations may be found Brown Cos Lettuces, which, however, appear to have an unusual disposition to run this season.

As regards glass houses, the early Vinery now presents a highly satisfactory appearance. The bunches promise to be large in size, the berries are stoning, and the foliage is healthy and vigorous.

In the centre of this house is a bed of Oak leaves, which being kept constantly damp affords a moist genial atmosphere for the Vines. This bed has also been employed this spring for the forcing of Rhubarb, and it has been found useful for starting early Potatoes previous to their being planted elsewhere. The Vine border, both outside and in, has been carefully examined; a considerable portion of exhausted earth has been removed, and a mixture of good sound loam and horse droppings substituted. To this, therefore, as well as to a good thinning out of superfluous wood, must be attributed much of the increased vigour

* This was not, strictly speaking however, one bunch; but two or three issuing from the same bud.

which has been infused into the Vines. A Muscat house is just coming into flower, and a second house of Black Hamburghs is also in a forward state. In Peach houses, which are heated by pipes from the boiler that warms the early Vinery, good crops have set.

Pine Apples are grown here with success, as are also Strawberries and early vegetables. A long frame is filled with early Potatoes, among which there is not at present the slightest trace of disease, and another is occupied by Radishes, among which Carrots are sown as soon as the Radishes have fully developed their seed leaves. By the time the Carrots are well above ground the Radishes are cleared off; about half an inch in depth of soil sifted over the Carrots at the time of sowing, nicely covers the crowns of the Radishes, and renders what would otherwise be hard and uneatable, crisp and enjoyable. Other pits are filled with Cucumbers and Melons, which are grown on dung beds.

Mushrooms are raised successfully on beds made on the Mushroom-house floor, on which Rhubarb and Seakale are also forced. One bed is just coming into bearing, and others are being formed to succeed it; in this way Mushrooms are obtained all the year round.

Slugs and weeds on walks are kept in check by strewing salt thickly over them just before rainfall.

Miscellaneous.

Arum canariense for making Arrow-root.—We noticed in the Annual Report of the Acclimatisation Society a short notice of an Arum suited for making Arrow-root, and producing lucrative returns to the cultivator. As considerable doubt existed as to the correct botanical name of the plant, we applied to H. M. Sheriff, in Guernsey, and received a specimen which Dr. Schott, of Vienna, the greatest authority on Aroideæ, declared to be Arum canariense, peculiar to Madeira and the Canary Islands, but hitherto unknown to him from the Azores. We further learn from Mr. Martin's letter, dated Guernsey, January 6, 1863, that he made about 300 lbs. of Arrow-root last summer, and that the Arum canariense is now perfectly naturalised in Guernsey; also that he forwarded roots to the Crystal Palace Company, the Kensington Museum, and the Acclimatisation Society. "This Arum," says Mr. Martin, "was introduced by me into the island of Guernsey, and I have been cultivating it for the last seven years. It first came under my notice through the means of a plant brought in a pot from the Azores, and given to a brother-in-law of mine, as a plant producing Arrow-root. I at once determined to try its powers of enduring our climate; and I have found it perfectly hardy, bearing well the severest of our winters. Growing, however, the winter through, it required the shelter of a walled garden, or land otherwise protected from high winds, which break the leaves and thus retard its growth. The digging of the crop and the replanting takes place at the end of July or commencement of August:—It might be done simultaneously, the smaller corms being planted as they are separated from the larger ones destined for Arrow-root. They, however, can remain out of the ground for some weeks—a longer time if kept quite dry. In planting, I have, after repeated trials of various modes, adopted the following:—I dig a trench as for Potatoes, but levelling the bottom with the spade, so as to have a level surface of about 6 inches in breadth and as much as possible of uniform breadth; then drop into this furrow very thickly the small corms. These latter, though not attaining the size of the larger ones, will yet acquire a respectable size. I lay them thick for two reasons: one is that many of the corms will not grow the first year, and the second is that it has become evident to me that the corms, on increasing their size, require the assistance of each other to get the better of the pressure of the soil, which, after winter rain, gets hard. Between each row I leave a space of 18 inches, or, when I plant in very rich soil, 2 feet. The corms so planted I leave two years before taking them up. A crop may, however, be obtained yearly by planting corms of the size of a good-sized egg; but I prefer the other mode. At the second year, the plants not having been disturbed, are up much earlier, and become much finer and healthier plants than those planted one year for the other, and produce much finer corms for the next planting. To obtain a first-rate crop, the soil needs to be rich and well manured. If this is done at the time of planting, the more rotten and decayed the manure is, the better. If, however, you prepare your soil early the previous spring, you can turn in manure in its ordinary state. The manure in all cases is spread upon the soil and forked in. This plant seems to delight, like our common Arum maculatum, in rich vegetable mould; and, like it, seems to do best in large clumps or close patches. This was what first suggested to me the propriety of planting thick. The produce of this plant is enormous; from 1½ perch I manufactured one year 60 pounds of arrow-root, which I sold at the rate of 1*s.* per pound, being at the rate of 78*l.* per Guernsey vergée or 193*l.* sterling the English acre. This was planted with corms the size of an egg, in rows one foot apart and three inches in the rows. That was a remarkably good year for bringing the plants to perfection; I have never succeeded so well since. It has never failed, however, in paying me well for the ground it occupied, and the labour required by it. In some years it has been attacked with a disease peculiar to the plant. Early in spring I have found the leaves and stalks acquire a rusty appearance, and this gradually spreading, until the plant disappeared altogether. On digging the corm, it was perceived that it had stopped its swelling from the time of attack. I have observed this same disease in the common Arum, and in Arum serpentaria, which I have also in my garden. With regard to the extraction of the fecula, this operation is performed just in the same way as potato-starch is obtained, and therefore does not need any particular explanation here. There resides in this, as well as in the common Arum of our hedges, an acrid principle, which would make it very dangerous if eaten in its undried state. By drying, however, its poisonous qualities entirely disappear by evaporation, and in this state it becomes really superior to the Potato. This has led me to believe that if this root was kiln-dried, it might afterwards be stored and used as Potatoes the winter through. I have not yet, however, made the experiment, save with a few roots dried before a fire, and so far proving perfectly successful." *Seemann's Journal of Botany.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Trimming and dressing as well as constantly exchanging the plants, will now be the order of the day. Endeavour to maintain a proper temperature without any great amount of fire heat, which after this time should be dispensed with as much as possible. Young stove plants in free growth will require prompt attention in the way of shifting and watering, and great attention must be paid to newly imported Orchids; they should have a mild constantly moist atmosphere, but no water should be given until they begin to push, and then it should be applied with moderation and care. In mixed greenhouses, let the leading shoots of Epacrises, Chorozemas, Correas, Heaths, with many other choice plants, which produce the best effect in a bushy condition, be frequently pinched or stopped, in order to form good specimens. Give shifts, when necessary, to specimen plants, and, above all things, secure efficient drainage. Such portions of cold pits as are not filled with young stock, may now be usefully occupied with some of the hard wooded tribes of the conservatory, or mixed greenhouse, in order to make way for a free and healthy growth in the rising generation, and to afford choice specimens abundance of room.

FORCING DEPARTMENT.

Pineries.—Montserrats, or Jamaicas, intended for fruiting early next autumn, or perhaps later in the season, will soon begin to show; these are easily injured by over-watering, especially if not in a high temperature. They will, however, now require a moderate supply, which should be enriched with good but clear liquid manure. See that the bottom heat does not decline at this period: on the contrary maintain it steadfastly at 80° or 85°; to this end frequently introduce a little new tan between the pots.

Vineries.—Attend to disbudding late Vines, which may now be breaking; see that all is right at the root. A tarpaulin would be an excellent thing to draw on the borders should heavy rains occur; the pernicious consequences resulting from saturated borders are still unfortunately too much underrated.

Peaches and Nectarines.—Keep the shoots well tied in in the early house, and be careful not to get them crowded. In disbudding, the bearing wood of the present year should be divested of all shoots except the terminal one and those near the base. When a deficiency occurs in any part of the tree, more may be tied in. Ventilate freely in fine weather, and be careful to close up early in the afternoon. Syringe once or twice daily, and keep a moist atmosphere by throwing plenty of water on the paths, borders, &c. Attend to the disbudding and thinning of the fruit in the second house.

Figs.—As the season advances gradually raise the temperature of the house. Syringe mornings and afternoons. Keep a moist atmosphere. When the borders require watering, give them a good soaking. Plants in pots and tubs should have some weak manure water occasionally.

Cucumbers and Melons.—Do not let the advancing season lull you into a belief that linings may be neglected. In so fitful a climate as ours, they will bear slight renewals through most of the summer months, provided fine fruit be the object. Stop the young shoots of Cucumbers at every second eye. But after once stopping in the seedling state, suffer the Melon leaders to stretch nearly to the side of the pit or frame before stopping them.

FLOWER GARDEN AND SHRUBBERIES.

If no scheme has been formed for the disposition of mass flowers, it should be done forthwith, in order that sufficient stock may be got together without delay. Not a moment's time should be lost in propagating extra things for such purposes. Choice Carnations, if at hand, should be turned out in beds or borders; three in a group, in rich soil, produce a bold and gay effect. Beds of Pinks must be kept thoroughly clean, and small sticks may be put to the plants; it is better done now than when they are further advanced. Ranunculuses are making progress; cover the beds with mats from heavy rains as well as on frosty nights. Pansies ought to be covered as just recommended for Ranunculuses; and if the cultivator will look his bed over about 9 or 10 o'clock in the evening, with a candle and lanthorn, he will not lose his labour, for at that time snails and other vermin may frequently be found hard at work with his collection.

HARDY FRUIT AND KITCHEN GARDEN.

Peaches, Nectarines, and Apricots on open walls promise to produce good crops. Even under the protection of common fishing nets they are setting satisfactorily. Pear trees, too, are loaded with blossom buds ready to expand; in the south, at least, therefore, there is at present every prospect of a good fruit season. In the kitchen garden Scarlet Runners, and an early crop of French Beans, may now be sown. The ground for the Runners should be well manured, and deeply dug; and the shoots when about 5 feet high should be constantly stopped. This will save the necessity of using unwieldy sticks, and will secure a succession. The first Kidney Beans will be best raised in a hothouse or frame, and transplanted. They, however, must be gradually hardened before transplantation. Nasturtiums may now be sown, as also an early sowing of Gherkins. These may be raised as recommended for Kidney Beans. Sow also a little early Red Beet, Scorzonera, and Salsafy. Globe Artichokes should now be dressed: remove a little soil, and pull away all the suckers but about four or five, and fill up with a dressing of rich manure. A row transplanted now in good soil will succeed the main crops, if well watered and attended to. Box-edgings should be clipped, if not already done.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending April 1, 1863, as observed at the Horticultural Garden.

March and April	Moon's Age	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 26	7	29 291	29.253	60	27	43 5	48	45½	W.	.00
Friday 27	8	30.366	30.131	58	40	49 0	47½	45½	W.	.00
Satur. 28	9	29 930	29.807	60	49	54.5	48	45½	W.	.00
Sunday 29	10	29.834	29.773	59	44	51 5	48	45½	E.	.00
Mon. 30	11	30 027	29 962	61	46	53.5	49	45½	E.	00
Tues. 31	12	30 183	30.159	57	21	39.0	49	46	E.	00
Wed. 1	13	30 109	29.997	61	24	42 5	48½	46	E.	.00
Average.		30.106	30.011	59 2	35.8	49.6	48.3	45.9		.00

March 26—Very fine, cloudy; very fine; slight frost.
— 27—Very fine; becoming overcast, very fine.
— 28—Cloudy; fine, rather boisterous; overcast
— 29—Overcast, very fine; fine at night.
— 30—Fine throughout.
— 31—Light hazy clouds; very fine, clear; sharp frost.
April 1—Frosty, clear and fine; frosty at night.
Mean temperature of the week 5 1-5th deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending April 11, 1863.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 5	57 0	36 2	46.6	17	0.30 in.	2	6	4	2	3	6	12	2
Mon. 6	57.1	36.4	41.7	13	0.30	3	9	4	2	4	12	2	1
Tues. 7	57.5	37.0	42.3	17	0.50	2	8	4	2	2	12	6	1
Wed. 8	55.6	35.5	45.6	20	0.69	2	6	7	1	5	8	6	2
Thurs. 9	54.4	35.1	44.8	18	0.73	2	7	7	1	4	6	6	1
Friday 10	55.3	33.2	44 2	14	0.27	2	6	8	3	3	6	6	3
Satur. 11	55.2	35 3	45 3	18	0.51	2	8	5	—	2	12	2	6

The highest temperature during the above period occurred on the 7th, 1859—therm. 79 deg.; and the lowest on the 10th, 1860—therm. 20 deg.

Notices to Correspondents.

Azaleas: *R D.* The varieties sent are inferior to sorts already in cultivation.

Books: *G T S.* The work you inquire about is passing through the press.

Caladiums: *N C.* The tubers of these plants should be kept quite dry in a cool place safe from frost, after having been well ripened off in autumn. They may be started any time in spring, as required. Do not water them at first, nor until they begin to start.

Camellias: *J M W.* Some varieties are very liable to produce blotched leaves, especially the double striped, which yours resembles. It probably arises from a close and too damp condition of the soil.

Cannas: *Jane.* Apply to any nurseryman or seedsman. There is no difficulty in obtaining any quantity. They are fine things in sheltered places.

Cinerarias: *W J W.* Large and showy as a decorative plant, being of good colour, but of no merit as a florist's flower.

Coleus Verschaffeltii: *S A M.* Though this plant may be grown in a greenhouse, or even out-doors in summer in favourable seasons, it is properly a stove plant. Farfugium grande should be admissible amongst greenhouse plants, as it is not thoroughly hardy, and cannot be grown in a state fit for exhibition except under glass.

Dahlia Showing: *W H.* Certainly, if it is advisable to keep exhibitors' names out of reach of the judges—and while exhibitors think it is necessary, it may be politic to do so—it is equally necessary that the stands made use of should be uniform, that no writing of any kind, (*i.e.* by the exhibitors) should be permitted, and that new flowers "not out," should be altogether excluded. We quite approve of the suggestion that Societies holding exhibitions should furnish the stands—for their own sakes, as well as for that of the exhibitors.

Diseased Mulberry: *Constant Sub.* We find neither eggs nor grubs in your Mulberry branches, but in their stead plenty of a little Fungus, Fusarium lateritium, whose presence is incompatible with life. Whether, however, the branches had perished before they were attacked by the Fungus is a knotty point which we cannot answer. Prune out the dead wood, and if a healthy growth does not follow, the case is hopeless. *M J B.*

Names of Plants: *C J D L.* Asplenium lanceolatum.—*J A.* 1, Scilla sibirica; 2, Muscari botryoides; 3, Muscari moschatum.

Rhododendrons: *J Snow.* They are near campanulatum, but apparently not superior to it.

Strawberries: *Saxmundham.* Your plants, at least the two you have sent, swarm with red spider. They break very weakly, and we should doubt if they were well established, before they were taken into the house. We have seen a complete failure from this latter cause for the last two years, and we have heard of many similar cases. *M J B.*

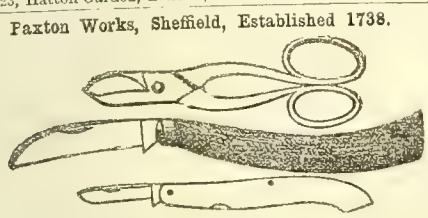
AGRICULTURAL and HORTICULTURAL TOOLS.—Threshing Machines for Steam and Horse Power, Ploughs, Waggons, Carts, Turnip Cutters, Cake Breakers, Chaff Cutters, 50s., &c. Price List free. Illustrated Catalogues on receipt of six postage stamps.
BURGESS & KEY, 95, Newgate Street, E.C.
Works: Brentwood, Essex.

BURGESS AND KEY'S REAPING and MOWING MACHINES.
No. 1. McCORMICK'S NEW PATENT REAPING MACHINE delivers the Corn in Sheaves by self-acting Rake; price 31*l.*
No. 2. BURGESS and KEY'S SCREW DELIVERY REAPER delivers the Corn in Swathe; price 30*l.*
No. 3. BURGESS and KEY'S COMBINED REAPER and MOWER. The Corn is raked off this Machine by a man; price 30*l.*
No. 4. BURGESS and KEY'S MOWER for Natural and Artificial Grasses; price 25*l.*
All the above are STANDARD IMPLEMENTS, and as to their efficiency BURGESS & KEY refer intending purchasers to the list of Prizes received from various Agricultural Societies, and, with still more confidence, to the large number of Agriculturists who have them in use in all parts of the world.
Immediate Orders are requested to ensure timely delivery.
Full particulars and drawings forwarded on application to
95, Newgate Street, London, or Brentwood, Essex.

THE FARMERS' BAROMETER, 50*s.*, a new Instrument by NEGRETTI & ZAMBRA, will correctly indicate whether the Barometer falls for rain or for wind.
Particulars by enclosing stamp, to 1, Hatton Garden, E.C.; 59, Cornhill, E.C.; and 122 Regent Street, W.

THE RAIN and the COLD.—Every Change in the Weather foretold, and FARMING and GARDENING operations greatly assisted, by the use of L. CASELLA'S POPULAR INSTRUMENTS for the WEATHER. Reliable Thermometer for Registering Cold, 4*s.* 6*d.*; the Gardener's Barometer, 12*s.* 6*d.* to 25*s.*; Rain Gauge, 15*s.* 6*d.*
The New ILLUSTRATED LIST of PRICES free by post.
L. CASELLA, Sole Medalist of the Patent Thermometer for Registering Cold, and Maker to the Admiralty, the Ordnance, &c., 23, Hatton Garden, London, E.C.

Paxton Works, Sheffield, Established 1738.

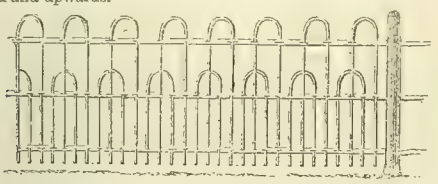


International Exhibition Prize Medal is just awarded to SAYNOR & COOKE for superiority of quality in Pruning and Budding Knives, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.
Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.



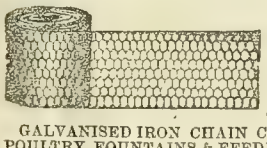
For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster. S.W.

Prices Reduced.

H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.
GALVANISED IRON ROOFING
for Farm Buildings and other Roofs; the cheapest, most durable, and neatest Roofing in use: also Spouting at 10½*d.* per yard.
WIRE STRAND CABLE FENCING



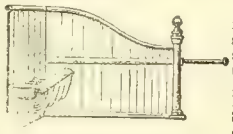
(formed of Twisted Wires like a rope or cable), the strongest cheapest, and neatest fence in use, will resist the largest cattle and will not bend or get out of form by trespassing upon or over. Price, with five lines of the Galvanised Strand, iron main posts, and pronged Standards, from 1*s.* per yard.
This fence is far cheaper than posts and rails, or any kind of iron fencing; and possesses four times the strength of solid bars. Will not rust nor corrode. Upwards of 1200 miles of this Fencing supplied.
GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 4*d.*, 4½*d.*, and 6¾*d.* per yard.
Galvanised, 24 ins. wide, 3-inch mesh, 2¾*d.*, 3¾*d.*, and 5½*d.* per yard. The Netting made any width, and with openings of any size.
GALVANISED IRON CHAIN CAMP STOOLS & CHAIRS, POULTRY FOUNTAINS & FEEDERS, PRONGED DAHLIA RODS and ROSE STAKES, &c.
Strong CATTLE HURDLES from 2*s.* per yard.
PATENT IMPROVED GAS WORKS
of all sizes, for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c. Works from 10 to 500 lights estimated for. The works can be entrusted to an ordinary labourer.—Apply to
HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

Exhibition Prize Medal 1862.

MUSGRAVE'S PATENT STABLE FITTINGS and HARMLESS LOOSE BOXES, PATENT IRON COW HOUSE FITTINGS, and IRON PIGGERIES.



These inventions are recommended as possessing numerous advantages not to be found in anything hitherto made. At the late Meeting of the Royal Agricultural Society at Leeds, MUSGRAVE BROTHERS received a Silver Medal, and two Awards of "Highly Commended," being the only Prizes conferred on any competitor in this class.
Particulars sent on application to the Inventors and Makers, MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

Liquid Manure Distributor.



THE JUDGES of the Liverpool, Manchester, and Staffordshire Agricultural Shows, 1861, have each awarded the First Prize to I. JAMES, Tivoli Works, Cheltenham, for his LIQUID MANURE DISTRIBUTOR, making a total of 17 Prizes. It is also well adapted for Watering Streets, supplying the Steam Plough, Irrigating, or for a Fire Engine. Also his last great improvement in WASHING MACHINES, which have been awarded several First Prizes, and will wash 20 Shirts in 20 minutes.

To Flock Farmers.

ANTHYLLIS VULNERARIA, or LADIES' FINGERS; a newly-introduced Forage Plant. Excellent food for Sheep, of which they are very fond. Very productive on Light Sandy and Chalky Soils; the plant covers the ground like a thick mat—its stems run up from a foot to 18 inches high. On sandy and chalk flock farms it is invaluable, growing where other seeds fail. It is very healthy food, on which sheep never scour, let the weather be ever so wet. It is an exceedingly good change for Clover and Sainfoin, producing as much or more food. Very kind for the Wheat plant. It is perennial. On referring to Sowerby's "Botany," he says the plant is highly worthy of cultivation as a food for cattle, and productive of milk. The plant was first brought into cultivation in 1858, by H. Stebbing, the present Grower.
Quantity of Seed per acre, 16 lbs, to be sown with the Barley. Price 1*s.* 9*d.* per lb. Orders will be received by
Mr. H. STEBBING, The Hall Farm, Stow Bedon, Attleboro', Norfolk.

TO MERCANTILE FIRMS of high respectability with Capital.—In a National Point of View, LICENCES are now being granted on Royalty for the MANUFACTURE of THORLEY'S CONDIMENTAL FEEDING MEAL throughout the World.
For further particulars, apply, GEO. FRANCIS COOKE, Esq., Solicitor for the Inventor, JOSEPH THORLEY, 30, King Street, Cheapside, London, E.C.

PROFESSOR BROWN, VETERINARY INSPECTOR to the Bath and West of England Agricultural Society, 13 years Lecturer on Veterinary Surgery at the Agricultural College, may be consulted on Diseases of Horses, Cattle, Sheep, Dogs, &c.
Infirmary, White Horse Yard, New Cavendish Street, Portland Place, W.

Land Drainage, and other Agricultural Improvements.

MR. BAILEY DENTON, C.E., maintains a large staff for the execution of Land Improvements by a commission of 5*s.* per acre for Under Drainage, and a fixed charge for Outfall and other works.
For particulars apply to him, at 52, Parliament Street, Westminster, S.W.

Drainage, &c.

MR. JOSEPH BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements. Valuations made for Sales, or the re-letting of Farms.
22, Parliament Street, Westminster, S.W.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
To LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c. IN ENGLAND AND WALES AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
WORCESTER MEETING, 1863.
STOCK and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to
H. HALL DARE, Secretary.
12, Hanover Square, London, W.

INTERNATIONAL AGRICULTURAL EXHIBITION, to be held at HAMBURG on JULY 14, 15, 16, 17, 18, 19, and 20.
The Prizes offered are on a very liberal scale. For the Classes devoted to British Bred Stock exclusively they amount to nearly 300*l.*, while all the others are open to general Competition.
All Entries of Stock, Implements, &c., must be made upon the Printed Forms prescribed. These can be obtained from the Secretary, and must be returned ON or BEFORE MAY 1, the LAST DAY of ENTRY.
The General Steam Navigation Company, London; Messrs. Drulenvaux & Bremner, 14, Mark Lane, London; Messrs. Brownlow, Lumsden, & Co., Hull; Messrs. Lofthouse, Glover, & Co., Hull; Mr. Thomas W. Peters, Hull; Messrs. Pile, Spence, & Co., West Hartlepool; Mr. John Sutcliffe, Grimsby; and Messrs. Ormston, Dobson & Co., Newcastle-on-Tyne, are authorised to receive payments from Exhibitors for Space required, which, according to the printed regulations, are required to be paid before Certificates of Admission will be granted, and are to be paid at the following rates:—
2 Prussian Thalers for each Horse, Bull, Cow, or Heifer.
1 Prussian Thaler for each Ram or each lot of three Sheep, each Boar, each Sow including a litter of Young Pigs.
¾ Thaler per foot Frontage and 10 feet in depth, for Machinery, Implements, &c., in Covered Sheds.
1½ Thaler per foot Frontage and 20 feet in depth, for Machinery, &c., in Covered Sheds.
½ Thaler per foot Frontage, and not exceeding 20 feet in depth in the Machinery in Motion Yard (Uncovered).
The Thaler to be reckoned equal to 3*s.* sterling. In making payments, the receipt of the same to be returned, with the filled-up form of application, to the Secretary, at Hamburg.
It is particularly requested to send description marks, number, weight, value, and contents of everything, with bills of lading, to Messrs. James R. M'Donald & Co., Hamburg.
By order of the Executive Committee,
GERHARD HACHMANN, Dr., Secretary, Hamburg.
To whom applications for particulars of the Prizes, &c., are to be made.

AGRICULTURAL and CHEMICAL COLLEGE, 37 and 38, Lower Kennington Lane, London, S.
ASSAYS and ANALYSES promptly attended to by J. C. NESBIT, LANSDELL & Co.

AGRICULTURAL and CHEMICAL COLLEGE, KENNINGTON.—Manufacturers and others engaged in making Artificial Manures may obtain every necessary instruction for their economical and efficient preparation by applying to J. C. NESBIT, LANSDELL & Co., 37 and 38, Lower Kennington Lane, London, S.
Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and despatch.
Gentlemen, Farmers, or others, desirous of practical knowledge in Chemical Analysis, or Assaying, may receive instruction at the College, where the extensive Laboratories give ample facility for pursuing their studies, and there is accommodation for a limited number of Resident Students.
Full particulars of terms will be forwarded on application.



FARM SEEDS of the finest quality, are offered at fair Market Value.
A LIST of PRICES at which they can be delivered carriage free, and 5 per cent. discount allowed for Cash, is contained in
WHEELER'S "LITTLE BOOK" for 1863.



FARM SEEDS OF GENUINE QUALITY (at Market Prices).
Carriage Free.
RICHARD SMITH,
SEED MERCHANT,
Worcester.

SEED CORN from the CHALK.—All the most approved varieties supplied by RAYNBIRD, CALDECOTT, & BAWTREE. Samples and prices on application.
Address, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Notice.

PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS.
For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Agricultural Gazette.

SATURDAY, APRIL 4, 1863.

MEETING FOR THE ENSUING WEEK.

MONDAY, April 6 { London Farmers' Club .. .. 6 P.M. (Mr. Dobito on Land Drainage.)

SANGUINE men already speak of "THE GLORIOUS SUMMER OF 1863!"
We have had a magnificent equinoctial week, and Mr. DU BOULAY tells us that we shall, there-

fore have a May, June, July, August, and September, during which "neither heat nor cold, drought nor moisture will anywhere so predominate as to interfere with a great and final result on the crops."—"The produce of Wheat may be superlative in quantity and quality."—"Spring crops also, including Barley, Oats, Beans, Peas, and Potatoes, may all be thoroughly good. Mangel Wurzels when once up, so far as weather is concerned, should be enormous." Nor does Mr. DU BOULAY see "why the early crop of hay should not be good, though it is quite possible that the latter pastures may be rather bare from dryness and heat; and that Turnips in England in the months of August and September may be inclined to mildew from the same cause. The crops in England, Scotland, and Ireland, are likely to be housed in the best condition before the arrival of the autumnal rains."—"The only influence" known to Mr. DU BOULAY "that might disturb these views of the probable summer, is that of the larger comets, should any of them arrive." His observations "apply to all three countries—England, Scotland, and Ireland—for, speaking generally, the equinoctial week has been uniform over all."

Now, what is this equinoctial week, whose weather, according to Mr. DU BOULAY, is always characteristic of the ensuing summer? There is nothing whatever special, during its continuance, in those relations of the sun and earth on which the leading features of our weather hinge, which can be expected to make their influence more durable or greater then than at any other time. The equinoctial week is one of a series which very closely resemble one another. Ever since mid-winter the northern limit of that hemisphere of day upon the earth at which the sun is always looking, has been creeping northwards: by and by it reaches the north pole: and for one instant on a particular day in this equinoctial week, the line separating day and night upon the earth becomes coincident with a great circle passing through the poles. But there is no stoppage of its gradual movement; in fact it is hurrying forwards then more rapidly than ever; there is nothing on which to build the theory of any special impress then made upon the earth. This movement of the northern edge of daylight is continual during its annual oscillation between the winter and the summer solstice,—marching at the rate of so many yards a minute, and not much above a hundred miles a week upon an average. What is there in the hundred miles, or two, of circum-polar sea which are the utmost of its traverse during this equinoctial week to make the relation of the sun and earth more lasting or more powerful in their weather influence than at any other time?

Weather prophets of Mr. DU BOULAY'S class seem to forget that these relations are *always* gradually changing, and changing at a rate which, taken from day to day and even from week to week, may be considered uniform. The daily increase in the length of days, owing to this movement of the northern limit of sunlight upon earth, is in our latitude about four minutes or thereabouts, at the vernal equinox, when it is the greatest; but for weeks on either side of the 21st of March it is still marked in our almanacs as 4′ or alternately 3′ and 4′—the difference is a matter of seconds: and there is nothing whatever in those two points of time which divide this particular week from its neighbours to make its meteorological character in any respect more significant or influential than theirs.

But it may be replied:—"No one asks for any explanation—*the fact* is all we care for. Having *that*, we are able to foresee our lot, and make provision for its circumstances." To this the right rejoinder is:—"You have not got the fact: the whole thing is a delusion arising from remembrance of the circumstances which favour it, and forgetfulness of all others." We remember 30 summers, but not one in which "this extraordinary season" was not spoken of. And no induction of particulars, though gathered from the lifetime of the oldest man, will furnish any "law" to which the details of so variable and at all times so capricious a thing as English climate will be found obedient.

Mr. DU BOULAY may be right in his prediction; certainly we do not undertake to say the early hay crop will not be as good as he foretells. We know nothing about it; the only thing indeed of which we are equally certain is that neither does he. Either of us, however, may make a lucky shot, and so contribute one, as we may imagine, towards that myriad which must be forthcoming before a reasonable Englishman will believe that he has got a clue to the mysteries of English weather.

As for another writer * on meteorology and "planetary influences," who, shut up within the London fog of Wednesday week, thought that Neptune had been playing him a trick, and that "Mars had consequently suffered a loss of his sustaining influence"—it may be interesting to him to know that Mars was altogether in the ascendant in the country. There never was a more glorious spring morning—Neptune had no influence at Babraham at all events, where we spent the day. Mars had it all his own way there. We learn however that he was to arrive "at the transition point on Tuesday last, and that the efforts of Herschel on the 7th April will probably cause a downfal!" Certainly the publication of such maundering as this ought to be confined to "All-fool's-day."

THE greater portion of our space is this week occupied with an account of the Babraham herd to be sold by Messrs. STRAFFORD and CARTER JONAS, on Wednesday week.

A few additional words must be allowed us here on the forthcoming sale. The catalogue of the Babraham sale, exceedingly instructive and detailed, evidently drawn up by a master of Short-horn pedigrees, and worthy of the editor of the "Herd-book," who is to officiate as auctioneer, shows how strikingly that advantage of a long pedigree to which we have elsewhere alluded is in every instance possessed by the animals which it names.

Celia, the descendant of an old Teeswater family, which Mr. COATES, the predecessor of Mr. STRAFFORD, had of the Millbanks of Barningham: *Dodona*, whose progenitor *Fortune*, was bred by Mr. CHARLES COLLING: *Belinda*, descended from *Sylph*, and thus tracing immediately to HUBBACK: *Bodice*, in like manner tracing to the STUDLEY BULL: the *Beauty*, tracing almost immediately from Kirklevington: and the *Gwynnes* from COLLING'S *Princess* by FAVORITE:—these are the mothers of the herd; and the six families from them, which have multiplied in Mr. WEBB'S hands in a most surprising manner, are divided over two days' sale, the former of which takes place on Wednesday week. The Short-horn breed to which they belong, formerly little better than a local tribe, is now the dominant race of beef-producing animals in all civilised countries. In our own, herds tracing from the common Teeswater origin, lie along the whole length and across the whole breadth of the island. Mr. STRAFFORD has, ere now, travelled direct from one sale to another 700 miles apart. He is next week to officiate in a county not hitherto distinguished for the excellence of its cattle, and we hope that the herd now to be scattered there may thus distribute the seed of a better class of stock than has hitherto prevailed in the eastern counties.

THE INTERNATIONAL AGRICULTURAL EXHIBITION which is intended to be held at Hamburg during the week commencing with the 14th July next bids fair to open up a new and extensive market for the sale of British stock, machinery, and implements.

Not that either the stock or the implements will be new to the Port of Hamburg, as for years past there has been a constantly increasing demand for both for that part of Germany of which Hamburg is the port of admission; but the past supply, satisfactory and encouraging though it may have been, will be but small when compared with the future demands from the same and from fresh quarters, if this Exhibition be as successful as it at present bids fair to be.

The Committee entrusted with its organisation and management comprises most of the best known and esteemed names in the city.

The site of the Show ground, about 80 acres in extent, is well chosen, being within a very short distance of the city, the railroad, and the river; the Committee undertaking that the delivery of machinery, &c., from the steamers to the ground, including lighterage, cartage, labour, &c., shall not exceed 3*s.* 6*d* per ton.

The Prize Sheet is very liberally arranged—special classes being formed for British stock—horses, cattle, sheep, and pigs.

In the Machinery and Implement classes, a Prize of 1000 Thalers (about 150*l.* sterling) is offered for steam ploughs; while medals will be given to such other articles as the judges consider worthy of reward.

Medals will also be given for agricultural produce of every description.

Great Britain has been invited to nominate a Juror for each division of the Exhibition.

Already we are informed that nearly all the leading implement-makers of this country will be well represented there; and that, notwithstanding the closeness of the date of the meeting to that of the Royal Agricultural Society, many applications have also been received from owners of Stock.

The President of the Great German Agricultural Society, Baron VON NATHUSIUS of Hundisburg, Prussia, who has greatly interested himself in the forthcoming Exhibition, states "That all good stock that may be sent from Great Britain will meet with ready purchasers if the owners are disposed to sell; that his opinion is formed from having heard from all parts of Germany of the intention of the leading breeders to attend the show for the purpose of making purchases."

The Governments and Agricultural Associations on the continent have in many instances voted sums of money for the purpose of enabling exhibitors to attend at a reduced expenditure to themselves.

Sweden pays all the freight of exhibitors' stock and machinery, both to and from the show—and all the railways and steamers running to Hamburg have made a considerable reduction in their rates of transport.

Intending exhibitors from Scotland can learn the rates of entry and of transport from Messrs. J. CURRIE & Co., of Leith; or Mr. THOMAS COUPER, of Dundee, who are, we understand, the authorised agents of the executive committee of the Exhibition.

STEAM CULTIVATION.

PEASEMORE, NEWBURY, BERKS.

AN account of this farm, and of the experience of Mr. Plummer, tenant of it, as to steam cultivation was given in these pages two years ago. Mr. Plummer was the purchaser of Fowler's apparatus in 1860. He then paid 780*l.* for a 12-horse engine, 800 yards of rope, anchorage, and balance plough and rope porters. He has since then bought the following quantities of rope:—Sept. 4, 1860, 500 yards; June 10, 1861, 500 yards; July 6, 1861, 200 yards; May 2, 1862, 500 yards. He has also had his engine and tackle altered up to the latest improvements. His whole expenditure on rope, repairs and alterations, since March 17, 1860, the date of the purchase, and up till now has been 320*l.* The whole of the tackle is in good working order, and the rope will last another year. To this 320*l.*, therefore, we have only to add the cost of fuel, oil, wages, &c., and we shall have the whole actual outgoings incurred by steam cultivation on this farm; and putting the sum thus reached against the work accomplished we shall arrive at its actual cost per acre to Mr. Plummer. It may be alleged that in order to determine exactly what it has cost him, we ought to value the apparatus for sale, when probably it would be found that another 200*l.* or 300*l.* must be charged against the work. But it is sufficient to know that the apparatus is practically and intrinsically better than it was when originally bought, so that the sum per acre at which the cost of repairs, purchases, fuel, oil, and wages amounts to is really the cost of the work to Mr. Plummer.

The farm is 770 acres arable and 30 acres pasture; it is a strong clay soil, resting on chalk—the depth of the work is from 6 to 9 inches; and the value of the ploughing by horse-power at that depth may be put at 16*s.* per acre, and of grubbing at that depth by horse-power at 9*s.* Now, during the spring of last year 140 acres were ploughed and 405 acres were grubbed by steam power, and during the autumn 170 acres were ploughed and 210 acres were grubbed. At the prices just named the ploughing was worth 248*l.*, and the grubbing was worth 276*l.* 15*s.* In all the work was worth 524*l.* 15*s.*

What did it cost by steam power? It cost 87*l.* 1*s.* 8*d.* in wages, including water cart; 60*l.* 1*s.* 8*d.* in fuel; 6*l.* in oil; and 98*l.* in repairs, including all purchase of rope. In all it cost 251*l.* 12*s.* 4*d.*—in short it cost rather less than half what horse work would have

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* "6. Great alterations take place in the electric affinity of any place, owing to previous saturation with moisture, or electricity from the fall of a great storm. Hence all that the meteorologist can do is to point out the great periods of change from warm to cold, wet to dry, &c., and *vice versâ*, and the probable change or break up of the existing condition of the atmosphere, and thus rendering warnings of the instruments with great accuracy. Take a case in point—the present time. The weather was splendid up to the 24th instant; on the 25th, under the influence of Neptune, Mars suffered a loss of his sustaining heat, and consequently influence (*vide* table). Latent moisture became visible in remarkable fog, instead of developing itself in rain, hail, or thunder, from previous great heat and evaporation; but the close influence of Mars (being only 4° of longitude) exerts its absorbing power, and holds up the moisture. But on arriving at the transition point on the 31st instant, the effects of Herschel on the 7th of April will probably cause a downfal: Herschel being antagonistic to Mars will probably succeed in turning the balance from dry to wet." *Mr. W. H. White in the Mark Lane Express of March* 30.

cost. 8*s.* an acre for ploughing and 4*s.* 6*d.* an acre for grubbing will cover all the cost of repairs, rope, fuel, oil, and wages. This work, 925 acres altogether, was done in 118 days, including all kinds of stoppages—at the rate therefore of close on 8 acres a day. The tenant reports that the tilth of the soil since steam cultivation has been adopted cannot be better, and the produce is much improved.

Will any one say that Mr. Plummer has reason to regret his purchase of Mr. Fowler's apparatus? His is one of the few instances in which accurate records have been kept. His work since his purchase of the apparatus has been as follows:—in 1860 not a full year, for there is many an apparatus which had ploughed this year 100 acres before March 17, when the steam plough came to Peasemore in 1860—in 1860, 320 acres were ploughed and 465 were grubbed; in 1861, 180 acres were ploughed, and 860 were grubbed; in 1862, 175 acres were ploughed, and 750 were grubbed. The work of 1862 was done at the rate of close on 8 acres a day in 118 days, during which wages including water cart, cost 14*s.* 9*d.* a day, fuel cost 10*s.* 3*d.* a day, and oil cost close on 1*s.* a day, or 26*s.* in all. Using these averages to ascertain the expense in 1860 and 1861, and supposing that only 7 acres a day were done in the first two years, the 1828 acres which during that time were worked, must have occupied 261 days, and cost in fuel, oil, and wages, 339*l.* 6*s.*; add for the work of 1862, 153*l.* 12*s.* 4*d.*, for wages, fuel and oil as already specified, and add 320*l.*, the whole cost of repairs and purchases during the past three years; and we have the whole outgoings to Mr. Plummer (since he bought the apparatus for 780*l.*). They amount to 812*l.* 18*s.* 4*d.*, for which 675 acres of stiff clay soil have been ploughed from 6 to 9 inches deep, and 2078 acres have been grubbed from 6 to 9 inches deep. If the ploughing be charged at 8*s.* 8*d.*, and the grubbing at 5*s.* per acre, the sum to be charged for the work done is 815*l.* 6*s.* 8*d.* This, therefore, is the cost of steam cultivation at Peasemore. And let it be remembered, that there was in these years all the cost of an apprenticeship—and all the expenses of accident and of very considerable alterations.

Mr. Plummer's farm used to be worked with 36 horses—it is now worked with 19. It is not too much to say that the 17 horses worked in five teams must have cost 500*l.* a year, and that the three years of them, which were saved, must have been worth 1500*l.*, the substituted steam power costing little more than half as much, while there is ample testimony to the great superiority of its work.

THE BABRAHAM HERD.

(*Continued from* p. 299.)

The value of any particular Short-horn for breeding purposes depends on two considerations: *first*, on its possession of those qualities which you wish it to hand down to its posterity, and *secondly*, on its descent through a long line of ancestry in which those same qualities have been exhibited.

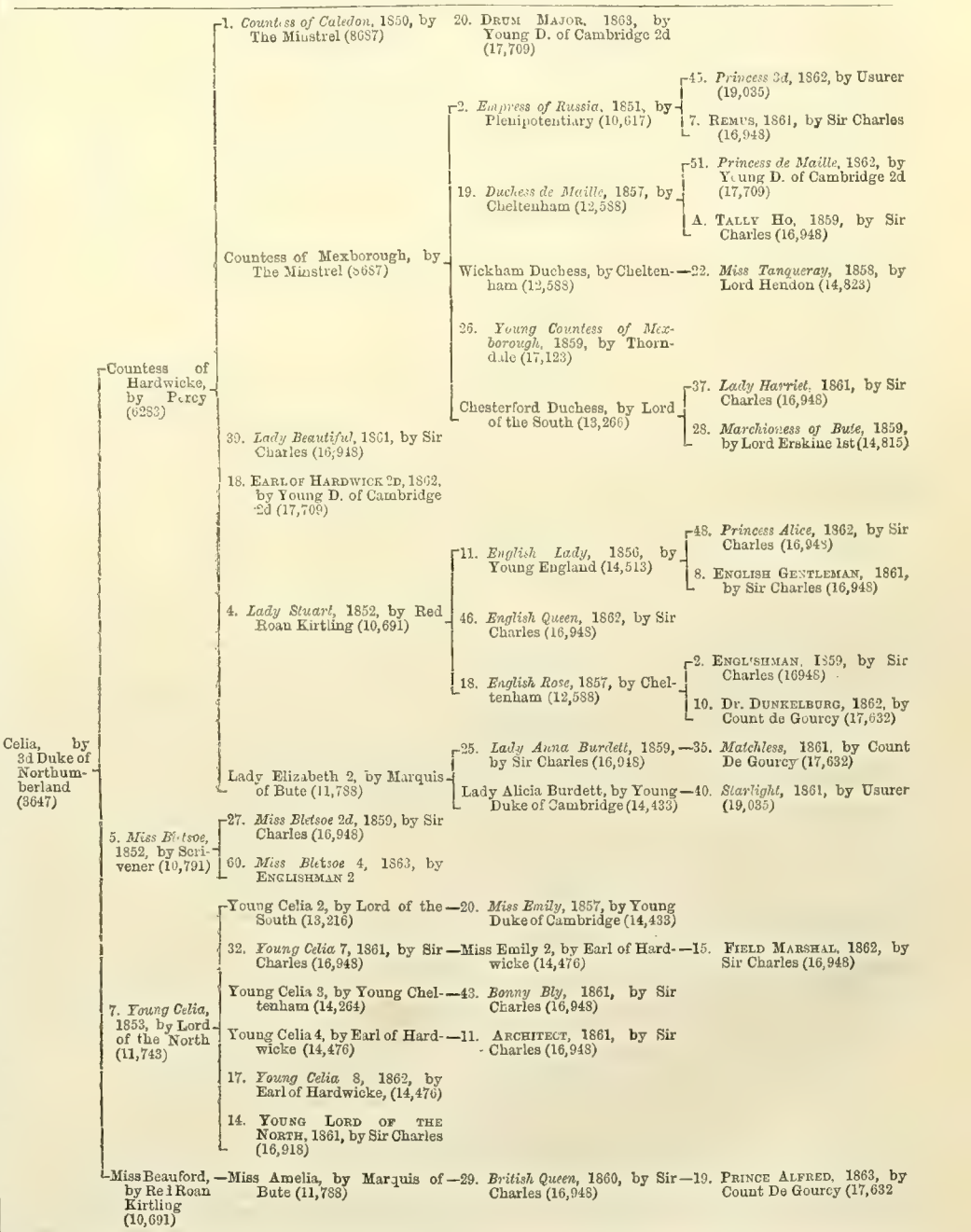
The former of course is a consideration of great value. On it alone depends the decision of judges at our cattle shows. They do not know the animal before them. They handle it and realise its "quality" by the kindliness of its touch, on which more than on any other thing the grazier depends for a judgment of its probable profitableness as a feeder. And they scan the outline and realise the proportions of its frame, the development of its various "points," on which more than on any other thing depends the proportion between coarse and fine meat in the fattened animal. Our judges do not know the animal or its family descent when it comes before them for the adjudication of a prize; but it is a striking testimony to the influence of a good ancestry that their awards are so rarely given away from members of the more distinguished families of Short-horns known to students of the Herd Book. There have been cases nevertheless in which animals with short pedigrees have beaten all competitors. The prize bull at the York meeting of the English Agricultural Society, was, if we remember right, a case in point. In such a case the value of the animal as it appears to the judge of mere form and quality, would fall as soon it became known that its merits were merely individual, and had not been inherited through a pedigree of any length. This is owing to the fact, that the power of an animal to hand down its good qualities depends very much upon their having been inherited by itself; and upon the number of previous generations through which they have been thus inherited. It would appear that there is such a thing as momentum in this matter, and that the force with which the qualities of a generation are transmitted depends on the number of previous generations through which they have been received. It is thus that the pedigree of an animal becomes the very highest element in the determination of its value, and that there is use in a written report, owing to its undoubted power of stating all that is known of its descent, however short it may fall of ability to depict an individual animal, or to present it accurately to the mind of the reader.

The Babraham herd will be admitted by all who will during the ensuing fortnight examine it to possess all the qualities of kindly handling, massive and symmetrical form, with every indication of good condition and robust constitution, and there is not one of its families (to two of which we referred last week), which does not possess the great advantage of inheriting these merits through a long ancestry.

The Rose Tribe.—Let us take the family of *Roses* in the herd, which will probably stand as high as any on the priced list next Wednesday week, and which being more definitely in our memory than any other after the short inspection made the other day, may be named more confidently than any other in illustration of the power of a report to indicate the value of an absent animal.

Mr. Jonas Webb attended the Cobham Park sale four years ago, when Mr. Harvey Combe's herd was dispersed; and he then bought *The Beauty*, then 5 years and 9 months old, and in calf by Mr. Tanqueray's celebrated bull Marmaduke (14,897), by the equally celebrated bull Duke of Gloster (11,382). *Beauty*, for which 160 guineas were paid, is now an oldish cow, of a strawberry-roan colour, not very large, and though well made and symmetrical, of a somewhat slender build, and apparently not of such vigorous constitution as her produce show that she possesses. Her calf to Marmaduke, *Red Rose*, dropped at Babraham two months after the Cobham sale, is now a large deep-framed red cow, massive everywhere, but with just that preponderance of development in the hind quarter which makes her the model of a dairy cow. She had a red bull calf, Lord Chancellor, by Usurer (19,035), when barely two years old. Usurer, one of the *Belinda* tribe, and named last week, is the first on the list of bulls for sale next Wednesday week. The Lord Chancellor is now being used at Babraham, and will figure at the sale in July. Again, on March 29, 1862, less than 11 months after the Lord Chancellor, she had twins, one of them a roan heifer, called *Cambridge Belle*, now a handsome yearling, by Young Duke of Cambridge 2d (17,709), also for sale next week, of first rate descent, through *Duchess* blood and Lord Ducie's *Bodice*.—*Again*, in less than 11 months after *Cambridge Belle*, on Feb. 29, 1863, she has had twins a second time—heifer calves, red and white, 61 and 62 in the Catalogue—*Red Rose* 2*d* and 3*d*, by Englishman, a *Celia* bull whose descent is given further on. So much for the first of *Beauty's* calves *Red Rose*, now less than 4 years old, and the mother of five animals! *Beauty* calved again in 1861 to Sir Charles, descended from the Fawsley herd by Cheltenham, bought at Tortworth, and a descendant from the herds of Mr. Bates and Mr. Berry. Her calf this time was a bull, Guelder Rose, a well made 2-year old white bull, to be sold next week. And again, May 14, 1862, she had a heifer calf by Count de Gourcy, a *Celia* bull by Young Duke of Cambridge 2nd, to be referred to in the sequel. Mr.

DESCENDANTS OF CELIA.



Besides these *Miss Tanqueray* (No. 22), by Lord Hendon (14,823) above, has a heifer calf and a yearling heifer of 1861 and 1862 respectively, named *Miss Tanqueray* 2*d*, and 3*d*, the former by Usurer (19,035), and the latter by Englishman (Lot 2), which stand 41 and 59 in the Catalogue.

Jonas Webb was then disabled by illness, and it is a trait of his enthusiasm, that unwilling to wait till he could walk out to the yard, he had the young calf brought into the drawing room next morning for his inspection. Hence her name, *Drawing Room Rose*. She is a long well made calf of a good roan colour, and with a wonderfully strong coat of hair. The table on our next page contains a list of the descendants of *The Beauty*.

Let us now look at the descent of the *Drawing Room Rose* in illustration of the fact which may be also alleged of all the other Babraham animals, that the pedigrees go back to the oldest Shorthorn herds of which any record has been kept. The granddam of *Drawing Room Rose*, Cambridge Rose 6th, was bought for 70 guineas at the Kirklevington sale by Mr. Harvey Combe. She is the 3d generation from the Cambridge Premium Rose, so called as being the animal with

which Mr. Bates took the prize in the cow class at the 2d annual meeting of the English Agricultural Society. *Cambridge Rose 6th* was by 3d Duke of York (10,166), a pure *Duchess* bull, being from *Duchess* 51, by 4th Duke of Northumberland; and so, on both sides of her descent we have pure Bates's blood, which is traced from Robert Colling's herd. The sire of *The Beauty* was Puritan (9523), bred by Lord Ducie by Duke of Cornwall (5947), out of *Lady Fairfax*. *Lady Fairfax*, of the *Fairfax* family, was bred by Mr. Whittaker; his sire was by 4th Duke of Northumberland, which thus stands in the same relationship to the sire as it does to the dam of *Beauty*. The dam of the Duke of Cornwall, *Lily*, was by Young St. Leger (2585). We thus through Bates, Lord Ducie, and Whitaker, trace the *Beauty's* descent direct from the herds of Charles and Robert Colling.

Look, now, at the *sire* of *Drawing Room Rose*. Count de Gourcy (17,623), was the g.g. son of *Celia*, a cow by the 3d Duke of Northumberland, already named, and tracing on her mother's side from the very beginnings of the family of Mr. Coates' connection with Shorthorns. Her daughter was put to the Minstrel (8687) bred by Mr. Adkins, from one of the Charmer tribe, and, by Accordian, a descendant of "Lady Marion," a celebrated cow of Lord Carlisle's. The *Countess of Caledon*, the produce of this union, was the dam of Count de Gourcy, by the Young Duke of Cambridge (14,433) which is on the mother's side a *Gwynne*, and on the father's side a pure Bates bull, being *Duke of Cambridge* (12,742) by Grand Duke (10,284), who was from *Duchess 55th*, out of *Cambridge Rose 7th*, own sister to the dam of *The Beauty*.

It is plain then that the *Rose* tribe, and this member of it in particular, unites the blood of some of the best and oldest families known to the Short-horn breeder; and no one looking at *Red Rose* and her produce, or at Guelder Rose and *Drawing Room Rose*, the other produce of the *Beauty*, can say that it has degenerated in the hands of Mr. Jonas Webb.

The Celia Family, though a very much more numerous tribe, must not occupy so much of our time. *Celia*, from whom they have all descended, was bought at Mr. Beauford's of Bletsoe, near Bedford, 17 years ago. She was by a Bates bull, as already mentioned, and on her mother's side she traces through *Columbine*, bred by Mr. Kelk, to Regent, a bull bred by Mr. R. Colling, and *Charlotte Palatine*, a cow bred by Mr. Coates, the author of the "Herd Book." The relationships to her of that portion of her family to be sold next week are given in our previous page.

These, though a large family, are but a tithe of the produce of this extraordinary cow. We have before us the complete list of her descendants, excepting those which have been sold out of the country. They number 178—9 in the first generation, and (from 4 of these) 38 in the second generation, and (from 15 of them) 68 in the 3d generation, while from some of these there are families of 6 and 10. The bulls employed upon *Celia* and her descendants were named last week; some of them were bred by Earl Ducie, Mr. Adkins, and Mr. Clover, and others by Mr. Jonas Webb, from one or other of the six families to which his herd was confined. It is worth noting that Englishman, the sire of First Fruits (the gold medal bull at Battersea last year, is a *Celia* bull, his name

DESCENDANTS OF THE BEAUTY.

- 8. *The Beauty*, 1853, by Puritan (9523)
  - 24. *Red Rose*, May 5, 1859, by Marmaduke (14,897)
    - 44. *Cambridge Belle*, 1862, by Young Duke of Cambridge (17,709)
    - 61. *Red Rose 2d*, 1863, by Englishman (2)
    - 62. *Red Rose 3d*, 1863, by Englishman (2)
    - B. Lord Chancellor, 1861, by Usurer (19,035)
  - 9. Guelder Rose, 1861, by Sir Charles (16,948)
  - 47. *Drawing Room Rose*, 1862, by Count de Gourcy (17,632)

DESCENDANTS OF BODICE.

- Bodice, by Usurer (9763) .. ..
  - 9. *Duchess of Gloster*, 1853, by Duke of Gloucester (11,382)
    - 4. Young Duke of Cambridge 2d (17,709) 1859, by Young Duke of Cambridge (14,433)
      - 36. *Duchess of Gloster 6th*, 1861, by Usurer (19,035)
      - 51. *Duchess of Gloucester 7th*, 1862, by Earl of Hardwicke (14,476)
    - 23. *Duchess of Gloster 4th*, 1858 by Young Duke of Cambridge (14,433)
  - 3. Grand Duke 3d (17,994), 1859, by Young Duke of Cambridge (14,433)
  - 10. Grand Duke 4th, 1861, by Count de Gourcy (17,632)

THE GWYNNES.

- Daffy Gwynne, by Sir Harry (10,819)
  - 12. *Young Daffy Gwynne*, 1856, by Young England (14,513)
    - Prince Gwynne (D), 1861, by Sir Charles (16,948)
  - 30. *Young Daffy Gwynne 3d*, 1860, by Lord Royston 2d (16,449)
    - 55. *Young Daffy Gwynne 5th*, 1862, by Young Duke of Cambridge 2d (17,709)

appearing in the table on the previous page in the 4th generation from her. The Englishman was 2d in the young bull class at Leeds.

Bodice and Daffy Gwynne and their descendants.—These two families, of which ten members are to be sold next Wednesday week, must be referred to very shortly.

Bodice, by Usurer (9763), was bought by Mr. Jonas Webb at the Tortworth sale for 115 guineas. She traces back to the Stubley Bull (627), one of the earliest of the Short-horns recorded in the "Herd Book." Her produce has been by *Duchess* bulls, as will be seen in the above list.

Of the *Gwynnes* only three are to be sold next week. *Daffy Gwynne* was bought at the Hendon sale in 1855. Her descendants will be found above. They trace from Colling's *Princess* by Favourite (252), a cow to which we owe some of the best animals of the breed. And they unite in themselves families of as great merit and antiquity as have been named in the case of the *Roses*. But we have not room for the detailed history which they deserve. It must suffice for the present that we have thus presented to our readers the relationships and names of the animals in Mr. Strafford's catalogue of the first Babraham sale. To the remainder of the herd, which will be sold in July, we shall hereafter call attention.

THIN SEEDING AND MILDEW.

—I owe a letter to Mr. Ford, in reply to his farewell one, and as some of the readers of your Journal are expecting one from me, and as I consider the subject highly important, I hope you will favour me with a column or a part of it, as it may be, for what I am about to write, and *in limine* I will inform Mr. Ford that it has been from no want of courtesy towards him, but from my having had a rather severe cold, that I have not replied to his letter before.

But it appears from this farewell letter that Mr. Ford has dropped upon a congenial spirit in the person of a Mr. Loft; who has once in his life, among many of his trials, and from, I conclude, a long practice, had one good crop of Wheat from Mr. Ford's minimum quantity of seed, namely 57 bushels of crop from two bushels of seed, an exploit which puts both these gentleman into high glee, and makes Mr. Loft a kind of farming hero, and gives Mr. Ford the opportunity of being his voluntary bugleman, and of praising his own system of thick seeding at the same time. But it appears Mr. Loft has performed his feat but once, and as one swallow does not make a summer, neither does the opportune success of one trick make a conjuror; Mr. Loft must try again, and repeat his exploit; or, let his bugleman sound his praises through his horn until he has blown all the breath out of his body, his hero will be lost to fame, and soon, like many other marvel-workers, sink into oblivion and be heard of no more.

No, no; if Mr. Ford's friend would maintain his reputation, he must repeat the feat again, and I should say also again and again; and why not? "Why not? Parson Wilkins, I did not expect such a question from you; why not? do you not see, that if Mr. Loft were often to repeat this trick, that others, clever men, would learn it of him, and then again others of them, until corn would become so plentiful, that it would not be worth the growing." But, after all, these fears may be vain, for only look at the enormous importations into this country of all kinds of provisions which are recorded in public prints, and which are so absolutely required to the keep the inhabitants of it from perishing by want; and look again at the diminutively small quantities that the British farmers themselves grow in it. For one example; from March 2 to March 5, in 3 days only, and it is the same all the year round, but in those 3 days only the foreign arrivals were 26,090 qrs. of Wheat, 1,510 sacks, and 24,380 barrels of flour, whilst of English there were only 1440 quarters, and 1130 sacks; and the same proportions as to all other kinds of grain, and the same proportions of importations of all other kinds of grain. Awful and alarming, my readers, is the contemplation of this state of things; England might equally as well be a mere rock, for were from any accident importations stopped for six months only, dreadful would be the sufferings, and if for 12 months famine would depopulate the land.

And painful it is to know, that though it is evident that the lands of the country, by really scientific cultivation, and I add rational seeding, might be made to support, or nearly support, all the population of it, yet it is as certain that at this time they do not produce corn enough for the consumption of 17 weeks out of the 52 of the whole year! and hence the rational alarm. And still more painful it is to know, that when any farmer or other person, by adapting science to his practice, produces from smaller quantities of seed twice or three times the produce that the jog-trot gentlemen do, then immediately as marked men persecution follows them, hunts them whithersoever they may go or wherever they may be. "Is this true, Mr. Wilkins?" True? I have now a file of letters sufficient to make, if printed, a tolerable sized volume, some anonymous, and some not, but all proclaiming that their farming practices are capable of great improvements, but they dare not openly advocate them, from a fear of the persecutions that would be sure to follow them as raisers of rents! and even from Mr. Ford's own neighbourhood, I have a letter this week from an evidently educated gentleman, who clearly knows farming well, and who says that some years since the Rev. A. Huxtable, under the fiercest opposition, effected great improvements in the growing of root crops, and to whom the country, he adds, is greatly indebted; and he goes on to state, "that still greater improvements were required in the growing of corn crops, and that the lands were ruinously over seeded." This gentleman posts his letter at Blandford, and yet apologised for not giving his name, from a fear of the ill feeling towards him which would be sure to follow his doing so.

Another, but not from Dorsetshire, sends me an account of his produce for many years, and the seed used to produce it, and which is very small, but the produce marvellous; and he entrusts his name to me, but begs of me not to publish it, as some years back he was mobbed out of the market "as an enemy to his brother farmers, and a raiser of rents!" and so they go on, all denouncing the present system, but none daring openly to advocate a change. A nobleman's steward also writes in the same strain; he is also a thin seeder, but is looked on with suspicion and jealousy, because he advocates better tillage, more economy in saving manures, and the using of less seed!

But, my readers, permit me to give you a few out of many examples of a better practice.

After last harvest, when driving through a bye lane some 30 miles from my home, I saw a farmer in a field with his men, and ploughs, and harrows, preparing it for Wheat sowing. On seeing that the work was unusually well done, I stopped and had some conversation with him, who was quite a stranger to me, and I to him. He told me that he farmed on the plan of the parson of Wix; that his quantity of seed was one bushel only, and that the next field to that he was in, had on it last year exactly six quarters of very fine Wheat an acre, which he had sold at a very high price. Had he mildew? No. Then, again, I passed a very large field in another part before harvest, of a very intelligent gentleman well-known to me; and so I called to see him, and to go through the field—a very large one, and which had been drilled in slips of different quantities of seed, from two pecks to, I think I remember, six pecks; but, as he will read this letter I must ask him to correct me if I make a mistake. But we went through the field, when he asked me to point out the parts seeded with the largest and of smallest quantities of seed; but I was not able to do so; and he told me that many farmers had tried the same, but all had likewise failed, and that he himself should not have known except from a paper he held in his hands, and some marks he had set up; but the whole of the crops were very fine; indeed, it was the fine appearance of them that led me to wish to walk through the field before I knew how it had been seeded. But had not the owner mildew? No; he is too sensible, and cultivates too well to have mildew. This, my readers, is true, refute it who can. But, again, a most valuable friend of mine farms of his own land many hundred acres; and some 30 years back his farm and neighbourhood were notorious for mildew; but my friend cut down his high hedges, threw several small fields into one, drained his lands, and cultivated well, and thus banished his mildew. I know all his lands well, and have often seen them, but I have not seen a crop mildewed for very many years—indeed, I repeat that mildew cannot be bred, except upon badly cultivated, undrained, and over-seeded land; or certainly not on well drained, well cultivated and properly seeded land. But again, some 20 years since and more, I knew an old gentleman who farmed his own lands of about 300 acres; his seed of Wheat was 2 and 2½ bushels, and his crop 4 and some chance times 4½ quarters an acre, but 4 quarters he often told me was a good crop.

Well, about 16 years since the old gentleman died, and the farm was sold and let to a tenant who gave an unusually high rent for it, the highest I knew. The man had never been on a farm before, and knew nothing of farming, and all the farmers proclaimed that

he would—indeed, that he must—break. But he commenced, and let me observe, his subsistence and that of a large family depended solely on his farming. But he set-to in earnest, disregarded all the farming around him, but copied from the gardeners, and his farm soon became like one large garden. He cultivated the best I had ever seen, double ploughing all his land, and to as great a depth as the ploughs could be made to go. He seeded as Nature and his own strong and good sense taught him; of Wheat one bushel of seed only, and Barley, &c., in like proportions, and his root crops are all so marvellous every year that they are worth going miles to see them. But what are his crops? Of Wheat he averages nearer six quarters than five every year from his one bushel of seed, and his other crops are all equally as large and fine. But has he not mildew? Mildew, indeed! He is again too good a judge to admit mildew into his fields, or anything else except what he sows for. Mr. Ford, of course, doubts the truth of what I am writing, but if before next harvest, he will kindly pay me a visit, he shall have the best treatment I can give him. I will obtain permission to show him over this farm; and now from the experience of the past, I will venture to predict that the Wheat crops on it shall average 44 fold for all the seed drilled to produce them, and other crops in like perfection, but I cannot undertake to do this to more than one person; except I by letter may induce a noble neighbour of Mr. Ford's, well known to me, to accompany him.

But, Mr. Ford, to be very serious—how is it that the best farmers I know—those like the above, who produce the largest returns from given quantities of land, were not bred farmers. How, did I say? The answer is obvious; they entered on their operations without ancient prejudices; went into the market gardens, and not on farms, for information, and hence their success. A few years since in one of such what I call gardens, 5 acres of land were in Peas, in rows 2¼ feet apart; and when I observed to the owner of the plot, that a farmer would have put in four or five rows where he had but one—"Yes," said he, "he would, but I give 4*l*. an acre for my land, and so I must grow corn, and not merely straw only, while farmers can afford to grow straw who give but 30*s*. an acre for theirs." *G. Wilkins, Wix Parsonage, March* 11, 1863.

Home Correspondence.

Anthyllis vulneraria.—What can Mr. Stebbing mean by calling the common Anthyllis vulneraria a "newly introduced plant?" Why it is as old as this tight little island itself, and may be found wild on every chalky down here in the south. *Viator.*

Emigration.—In your Notices to Correspondents of March 21, I noticed a letter from a gentleman about to emigrate to one of the Australian colonies, inquiring about horse power and agricultural implements. I have been thinking of emigrating to Queensland myself. I am by trade a millwright, and have had a good experience in the manufacture of agricultural machinery at Mr. B. Samuelson's, Banbury, and other places I was seven years with the late Mr. Newberry, of Hook Norton, the manufacturer of the dibbling machine, and have had experience in corn mills, both wind and water. I have lately turned my attention to market gardening, &c., with a small dairy farm, but my lease expires in a short time, and my land is about to be sold. I have a family of six children to provide for, and I think I shall be able to do better for them in Queensland than here. As I shall not have capital to take out machinery and implements, I think of taking out tools, lathes, &c., for the manufacturing of such things as may be required; and if my experience will be of any service to your correspondent I shall be glad to communicate with him, or if Queensland should be his destination, I might be of some service to him there. *William Burbury, White Moor Gardens, Kenilworth.*

Parturition of Ewes.—In your Notices to Correspondents (March 21) it is asked whether it is not a very rare occurrence for a ewe to yean a lamb on the 18th of February, and then to yean another on the following 16th of March; having had much experience amongst lambing ewes, I am inclined to think no such case ever occurred. When a boy, assisting with a large flock in the lambing season, I fancied I had made the same discovery as "Breton," but our more experienced shepherd soon dispelled the illusion. The case to which I allude happened in this wise. We folded the ewes every night, and in the mornings, generally, several ewes had lambed; on this occasion one ewe amongst others had a lamb following her in the morning, to which she showed all the maternal feeling, letting it suck, &c. She was put into a field amongst the ewes that had lambed; by and by, about a fortnight after, she had dropped twins; hence my astonishment, and hence my pride in being able to chronicle an extraordinary case, but my pride was doomed to get a fall; the shepherd indignantly told me it was my stupidity in having allowed the ewe to retain a lamb that she had enticed from its mother (that probably had produced twins), that was the foundation of my marvellous case; and in truth that the ewe of my wonderful story had only become a mother in reality when she dropped the twins. I shall say nothing of the scepticism I had on the subject, and in my ignorance the contempt I felt for the man who so ruthlessly set aside what I had seen, or fancied I had seen, but after years proved to me that the more I knew the less likely would I be to scout the experience of older and more practical men. Since that time I am sure that I have seen not less than 20 cases where ewes have enticed a newly dropped twin lamb from the mother, and where we knew by examination that the ewe claiming the lamb had not then yeaned, and in some cases where we thought the ewe so claiming to be a mother before the time would only produce one lamb, we have allowed her to retain the adopted one, and when she yeaned, allowed her to retain both; but if, as has happened with us, twins came when only a single lamb was expected, we generally took away the adopted lamb, especially if it was two or three weeks old, as in such cases the newly-arrived lambs had little chance in the struggle for life with the elder and more robust foster-companion. These facts are so well known amongst Leicester flocks that I am sure I could find almost endless corroborative testimony to what I have stated, and so well assured am I upon the point, that, unless I saw a ewe produce a lamb, say to-day, and then saw her produce another, say a fortnight hence, that I would be inclined to think "Breton's" case like my own when I was a tyro in such matters. *R. P., Cumberland, March* 25.

Horse Power.—In answer to "Brass Spurs," I have been residing in the British American colonies for the last 32 years, and have had some experience in very many separate departments of labour-saving machines, and if you write to Mr. Garthshaw, of Dundas, Canada West, North America, you can there obtain the price and plan of the machine that is used there. It is used for cutting fire-wood, for pumping where a great deal of water is needed, for cutting chaff, or threshing grain. It is worked by two horses or oxen, but oxen are best for general use for three or four years, such as clearing land, &c. It is best to go and see what you want first, and send home for all machines that you require. You want no reaping or mowing machine, no hay tedders, drills, cultivators, rollers, or ploughs for a bush farm for the first three or five years. A good washing machine you can get out there that will wash, clean, and do its work quick. I am going out the beginning of next month, and shall commence making them as soon as I get there. Go out and see for yourself before you buy anything. *Samuel Calver, Westleton, Suffolk.*

The Potato and its Culture.—The season has been so remarkably fine, that Potato planters have been enabled to get their land in a very forward state, and planting has already commenced to a considerable extent. It has become such an important branch of British husbandry, particularly in the richer districts, that any light which can be thrown upon its better management and most acceptable varieties, cannot fail to be valuable to every grower. The varieties of the Potato most cultivated for the London and the chief consuming markets, are the Flukes and Regents, but there have lately come into demand several other useful varieties; such as the Rocks, Snowballs, Dalmahoys, Walker's Early Regents, Skerry Blues, Bellahaddarens, and many others, either as varieties or sub-varieties. The writer of this short paper has in the past season cultivated the Flukes, Regents, Snowballs, Dalmahoys, Walker's Regents, Skerry Blues, and Bella-haddarens. So far as his experience goes, the Dalmahoys, Bella-haddarens, and Walker's Regents are so much alike in their size, shape and growth, that they might be taken to be very nearly allied, if not the same kind. The Walker's Regents did certainly arrive somewhat earlier to their full growth, and they had a few more diseased tubers amongst them, than the other sorts; all, however, were remarkably free from disease. The Skerry Blues were altogether free, and one acre of the latter would produce as great a weight of Potatoes as the other three put together, *i. e.*, three times the quantity. I have seen nothing to equal them in quantity under suitable culture since the commencement of the Potato disease, and the quality is exceedingly good, being very "mealy and floury," and excellent in flavour and colour. The Flukes, Regents, and Snowballs were my field crop; the others were grown in experiment, *i. e.*, I had five sacks of seed Skerry Blues, one do. each of the others, and one of Flukes as a test; the latter the worst crop. The whole were well got in upon soil in fine condition in two distinct situations as a further proof, and every crop was good, but the Skerry Blues far exceeded my expectations, although planted much too thickly, as I discovered upon witnessing the large crop of haulm they produced. The Flukes in this neighbourhood have all produced excellent crops this year, and also in the last, but the previous year this sort did not at all yield favourably, and was much diseased; however, it is now the popular kind, and much sought after. Regents, Rocks, and Snowballs (the latter very similar to the Regent), are also quite favourites with the larger cultivators. I would remark that there are thousands of acres grown in this (the writer's) district; it is a chief crop. The varieties of Potatoes named above all stand very high in character wherever they are grown. Many have been the experiments tried in this district to prove the best mode of cultivation, and the best method of planting. It is universally allowed that poor land and even good land, if out of condition, is not well adapted for the growth of Potatoes. All the open deep loams are sought after for this purpose, and high prices are given for permission to grow Potatoes. The free and open loams of considerable depth are considered best adapted for the Potato crop, and these are got into as fine a tilth as possible. The planting commences early in March and will be continued up to the middle of May; but the earlier the better, if the soil and season is suitable. The result of all the long tried experiments has been the adoption and almost general practice with our best cultivators of ridging the soil at about 30 inches intervals, then to deposit from 8 to 12 loads per acre of well rotted dung, over which is sown about 2 cwt. of Peruvian guano. The sets, which are always large, are then planted nearly in the bottom between the ridges, 16 to 18 inches apart, and the ridge is ploughed over them. If the weather is very dry they are lightly rolled down; but in suitable seasons they are best undisturbed till the first horse-hoeing takes place. They generally receive three horse-hoeings and two hand hoeings before moulding up. The moulding time requires watchfulness; every advantage is taken of favourable rains. The great object is to produce a heavy crop of tubers; hence the Potato sets are prepared with care; every one is looked over, and superfluous eyes are cut out. It is far preferable that the plant should have but two or three good stalks so as to produce large Potatoes only. Many stalks will produce many Potatoes, but they are too small to be marketable; hence some growers pluck off superabundant stalks to make the plant more vigorous. *O. F.*

Agricultural Machinery for the Colonies.—In a recent Number, page 278, a correspondent who intends emigrating is desirous of information relative to what would be the best machinery, &c., to take out with him to work a farm. As one who has had for the last 20 years experience in colonial life, although not a farmer, perhaps he will allow me to submit one suggestion to him. It is quite in accordance with what you mention at the end of the paragraph, that is, let him take nothing whatever with him in the shape of farming machinery. It will be far better for him, he will find, to go to a colony with his money, in bank drafts, in his pocket, and when located to his mind to look round him and see what implements his neighbours use, or what are generally used by the best farmers in the colony. He will thus profit by the experience of others, and which, it may be, they have found rather expensive experience. As a rule, also, the merchants of all English colonies are too alive to their own interests to allow the requirements of any class there to be unsupplied, and of course, if farmers require machinery for the cultivation of their lands, it is their interest to supply such as is known to be effective. If it is not so it is left on their hands. The question is simply whether an emigrant chooses to pay an importer in the colony, say 25 per cent. profit, so that he may have exactly what suits his purpose and no more; or whether he chooses to take out with him an assortment of machinery according to his own ideas of what he may want, and knowing nothing whatever of the land on which it is to be applied, or the labour he may be able to command in its application. Another thing to be considered is the risk of damage to machinery in its transit. I pity any unlucky individual who may have chanced to get into such a hobble; the knocking about from pillar to post between the captain and mates of the ship, the agents, the draymen, and in fact all concerned, is seldom submitted to more than once in a lifetime. The merchants accustomed to this sort of thing soon get such matters straight, but any private person in such circumstances endures so much annoyance, loss of time, and expense, that he will find purchasing what suits him in the colony is by far the cheapest in the end. In the meantime let him and the boys, before they leave this country, see as much as possible of all the appliances of machinery in actual operation on farms and if possible understand them thoroughly. He will then be able if necessary to send home for such as he may want if he cannot get it in the colony. He can always reckon on what it will cost him there (say Australia), as any merchant will import for him, if he prefers keeping his own money in use on his farm, at a profit of about 20 per cent., cash paid on delivery, and in good order, in about five or six months' time, the merchant paying all charges of every description in the transit. The merchant has also certain advantages on this side—such as discounts, &c., to which the purchaser on the other side has a right, and which a small purchaser here seldom, if ever, gets. If, however, he would like to take out articles connected with domestic matters, I would recommend his doing so. If he intends going far into the bush, a steel mill for grinding Wheat and sifting the flour he would find useful. He and the boys, all of them, ought to learn to use this, make their own yeast, and bake their own bread. They ought also to have some idea of cooking a savoury dish. Such things may never be required of them, but their knowing how to do them can do no possible harm. A coming set of good carpenter's tools is of course absolutely essential, and generally whatever is found to be of use in domestic matters ought to be purchased here and taken out. They are generally not bulky. But there is one thing which I should say is almost imperative in regard to those, and that is that the way of using them properly ought to be known and practised here by all of them, old and young, before they go, so that when they do settle down they may set about their work without requiring to be shown how to do this or that, and know also how to repair any thing that may require it. As I

have no doubt your Correspondent will find plenty of advisers who will recommend all manner of things in the shape of steam ploughs, reaping machines, winnowing machines, &c., I thought if he made up his mind to purchase nothing whatever till he had got on his farm, that he might as well know there are people who agree with him in thinking that to be his best plan. *Alfred, Gravesend, March* 23. [Thanks.]

Sparrows.—I have read with inconceivable surprise in a local paper a letter from the Rev. George Wilkins, of Wix Parsonage, Essex, on sparrow murder, which was, I believe, copied from your columns. As that letter contains some egregious errors, which if spread abroad are likely to do much mischief among persons who know but little of natural history, the sooner they are rectified the better. Mr. Wilkins says that the house sparrow, Fringilla domestica, does not eat caterpillars, and will sooner perish than do so; and that he has repeatedly proved this to be the fact. Perhaps Mr. W. is unaware that there are certain caterpillars which few or no birds will eat. The larvæ of our three common White Cabbage butterflies, Pontia Brassicæ, Rapi and Napi, are I believe hateful to the stomach of every British bird except the garden warbler, Sylvia hortensis. As far as I know, the Cuckoo is the only bird which will feed on that destructive pest, the larva of the Gooseberry saw-fly, Nematris ventricosus. Now if Mr. Wilkins shut up some sparrows with a lot of these caterpillars, I am not in the least surprised at their loathing such noxious pabulum, even to the death. You might just as well shut up some starving men in a hay loft, and be surprised to find them dead, and the hay untouched. It is an undoubted and incontrovertible fact, that sparrows do eat caterpillars, and largely too, together with all sorts of insects. It is really almost past belief, that in the latter half of the 19th century any person living in the country, and possessing the most ordinary powers of observation, can be found capable of asserting that this bird is not insectivorous. During the breeding season it is almost entirely so. Every one who has the slightest acquaintance with the house Sparrow in its wild and natural state is as well aware of this fact as he is of his own existence. It is the height of folly and ignorance to deny it. I shall not easily forget some years since taking a young and nearly fledged sparrow from the nest and hanging it up to a tree in a cage, for the old ones to feed. In the course of three or four hours the whole of the bottom of the cage was covered with a thick stratum of insects, consisting of caterpillars of various kinds both large and small, butterflies, moths, &c. Among the beetles were a goodly number of the genus Elater, the larvæ of which are the destructive and too well-known wireworms. There was not a grain or seed amongst all this mass of food brought by the parent birds to their young ones. Mr. Wilkins hurls sneers at the head of Dr. Bree, and with an egotistical coolness which is to say the least astounding, designates the doctor's unanswerable arguments as a house of snow melting away beneath the blaze of ornithological light emanating from Wix Parsonage. Fortunately for himself and the cause of natural history, the Doctor's reputation as a painstaking, accurate, and veracious naturalist has been so long established with the general public, that he can afford to smile at all such antagonists. He needs no advocacy from private friends. I may however state that I have for some years had the pleasure of being intimately acquainted with Dr. Bree, and know him to be one who never asserts a thing unless he has previously by long personal and practical experience proved it to be true. Sparrows are no doubt mischievous, and their numbers must be thinned; but on the whole they do more good than harm by their enormous destruction of insects injurious to crops. Our colonists are at the present time giving as much as 12*s.* per pair to introduce them into the colonies; and were our English farmers and gardeners once to succeed in exterminating the species, they would be only too glad to buy it back at a much dearer rate. *H. Harpur Crewe, The Rectory, Drayton-Beauchamp, near Tring, March* 23.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, April* 1.—Present, Viscount Eversley, President, in the chair; Lord Feversham, Lord Tredegar, the Hon. General Hood, the Hon. A. Vernon, Sir A. K. Macdonald, Bart., Sir Watkin W. Wynn, Bart, M.P., Mr. Raymond Barker, Mr. Barthropp, Mr. Bramston, M.P., Mr. Cantrell, Mr. Druce, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Holland, M.P., Mr. Hudson, Mr. Pain, Mr. Randell, Mr. Sanday, Mr. Shuttleworth, Mr. Turner, Mr. Wells, Mr. Wilson (of Stowlangtoft), Professor Wilson, and Dr. Voelcker.

The following Members were elected:—

Allnutt, Henry, 200, Fleet Street, London
Beamand, William, Newcastle, Clun, Salop
Bulmer, Jeffrey, jun., Middleton-on-Row, Darlington
Clark, Joseph H., Altwood House, Maidenhead
Clarke, William, Brack Farm, Luton
Coventry, Earl of, Croome Court, Kempsey, Worcestershire
Curtis, Thomas, The Hall, Berkhampsted
Errington, George, 10, Rutland Square, Dublin
Evans, E. Bickerton, Whitbourne Hall, Worcester
Fawcett, Theodore, 119, Pall Mall, London
Fisher, Peter, Prospect House, Whitehaven
Fitzwygram, Frederick, Lieut.-Colonel, Carlton Club, London
Ford, Charles Henry, Bishopton, Stockton-on-Tees
Gibson, John Kirk; Ingleby, Lincoln
Grant, Sir George MacPherson, Bart., Ballindalloch Castle, N. B.
Gunn, Robert, Great Dalby Lodge, Melton Mowbray
Hardy, Peter, The Grange, Claines, Worcester
Herbert, William, Kempsey, Worcester
Hill, Thomas Rowley, Catherine Hill House, Worcester
Holdrooke, George, Attenborough, Nottingham
Holehouse, John, Llangathock House, Abergavenny
Homer, Thomas Alner, Tolpuddle, Dorchester, Dorset
Howman, Henry Arthur, Bexwell Rectory, Downham Market
Lane, Ebenezer, Honey Street, Marlborough
Morris, John, Town House, Madley, Hereford
Morris, Philip S., Woodmanton, Worcester
Oldrin, John, Rushmere, Wangford, Suffolk
Owen, William, Withybush, Haverfordwest
Pickernell, John, Holt Castle, Worcester
Pullen, William, Worcester
Ramsden, John Charles, Oxton Hall, Tadcaster
Richmond, William, 62, South John Street, Liverpool
Savill, John, Orange Hall, Gosfield, Halsted
Smith, James, Little Moyle, Carlow, Ireland
Southall, Thomas, Worcester
Talbot, G. G. Chetwynd, Hon. and Rev., Withington, Cheltenham
Tamplin, R. G., Morrastone, Ross, Hereford
Thompson, James, Bishop Auckland, Durham
Tooke, Rev. J. T. Hales, Scawby Vicarage, Brigg
Tucker, Edwin, Frogmore Street, Abergavenny
Waller, F. S., Whittington Court, Andoversford
Ward, Samuel R. C., Yafforth, Northallerton
Watson, John, Waresby, Kidderminster
Welby, E. Montague Earle, Denton Hall, Grantham

FINANCES.—The Hon. Major General Hood presented the report, from which it appeared that the Secretary's receipts during the past quarter had been examined by the Committee and by Messrs. Quilter and Ball, the Society's accountants, and were found correct. The balance in the hands of the bankers on 31st March was 3093*l.* 15*s.* 9*d.* The balance sheet for the quarter, and the statement of subscriptions and arrears, were laid on the table, the amount of arrears then due being 401*l.* The Committee recommended that 2000*l.* be placed on deposit with the Society's bankers.

JOURNAL.—Mr. Holland, M.P., on behalf of the Committee, informed the Council that Sir Charles Domvile has placed at the disposal of the Journal Committee the sum of 25*l.* to be offered as a prize for an approved Essay on the *Farm Management best suited to the vicinity of large Towns.*

The Committee recommended the following subjects for lectures or discussions on the under-mentioned days, viz.:—

April 15 Lecture by Professor Voelcker on Oilcake.
" 29. Lecture by Professor Simonds on the Natural History of Parasites affecting the internal parts of the bodies of animals, with the nature, symptoms, and treatment of the diseases to which they give rise.
May 13. Steam Cultivation, by Mr. Ruck.

GENERAL WORCESTER.—Mr. Fisher Hobbs reported that the Committee recommended the issue of the usual advertisements for tenders for the Supply of Refreshments and green forage during the Show. The contractor reported that the siding on the railway being ready, he proposed to commence the erection of the works in the week after Easter.

MEETING OF 1864.—Memorials with plans and sections were presented, signed by the Mayors and Town Clerks and the authorities of Darlington, Durham, and Newcastle-upon-Tyne, soliciting the Council to hold the Society's Country Meeting at those places in the year 1864, and a Committee was appointed to inspect the various sites offered for show yard and trial fields, and to report to the Council on the 6th of May.

The Council having given directions for replies to various letters, granted the Secretary leave of absence for a week at Easter, and adjourned over Easter week to the 15th inst., when Professor Voelcker will deliver a lecture on Oilcake at 12 o'clock.

Reviews.

Sutton's Amateur's Guide, Reading, contains, as its title page declares, much useful information in horticulture and agriculture. Messrs. Sutton's Farm Seed List also contains valuable instruction on Grass seed and sowing. And we extract from its pages the following on Carrot culture, written by a successful grower of that root, in Wiltshire:—

"For several years past this valuable root has been gradually extending itself in importance in many parts of the country as an article adapted for field culture, and large breadths are now grown annually.

"The soil best suited to the growth of the Carrot is a sandy loam, which should be prepared early in the autumn. If after a grain crop, the stubble should be raftered, scarified, and nicely cleaned off, then apply a fair dressing of good farmyard manure, and the whole surface of the land clean ploughed about four inches deep; let it remain in this state for about three weeks, then give it two lines with the harrow, and plough the whole as deeply as possible, in which state it may remain the whole of the winter; but if the season should be fine, and circumstances of time permit, a ridging up crossways, with a double mould-board, would ameliorate and altogether improve the soil. About the 1st of March it should be harrowed down very fine, and allowed to remain so for a month, during which time nearly all the annual weed-seeds will have germinated; the land should then have a shallow ploughing and remain for a fortnight (unless the weather should be very dry), then nicely dressed down with the harrow and rolled lightly, and it will then be in a fit state for drilling, which should be done between the 20th and 25th of April.

"*Directions for Drilling.*—The best method of drilling Carrots is to mix 6 lbs. of Carrot seed, rubbed through a fine sieve (to separate it), and ¼ lb. Mustard seed with 2 bushels of very dry sand, sifted, and apply it with the corn barrel of any of the Suffolk corn drills, at the rate of 2 bushels to the acre. No. 22 wheel in Garrett's drill will accomplish this very nicely, and the seed by this method will be distributed almost as evenly and regularly as if it were dropped by the hand. But for thi purpose it is essential to have the sand perfectly dry, otherwise it will clog the cups. It is a good plan to secure a few bushels of road dust in March, which when run through a fine sieve is the best material which can be used for the purpose, on account of its extreme weight, which causes the seed to be deposited as evenly as possible. The distance of the drills from each other should depend upon the sort to be sown, of which for the purpose of cattle feeding the White Belgian is the heaviest cropper; the Red Altringham is also nearly equal to it per acre when well grown. The Red Intermediate is becoming a great favourite, and will grow a great weight per acre, on account of their being allowed to stand thicker on the ground than the other sort, and it is the most valuable for culinary purposes. The White Belgian should be drilled 16 inches apart, the Red Altringham 14 inches, and the Red Intermediate 12 inches.

"The Mustard will very soon show where the drills are, and as soon as the rows can be discerned, the spaces should be lightly and carefully hoed, whether the annual weeds have made their appearance or not. By this method you will steal a march in advance of them, and probably save your delicate young crop of Carrots from being prematurely smothered. After this is completed, put some women or girls to pull up the Mustard, and in a very few days the rows of Carrot will be sufficiently advanced to admit of being singled out. This should be done by careful hands with a 3-inch hoe, with a light handle about 2 feet long. Three or four men will get over a considerable space of ground in a day. There will be no necessity for leaving them positively single. If two or three are occasionally left in a bunch, the crop will not be any the less in weight, but where persons will go to the expense and trouble of singling them by hand, the sample will be so much the more even in size. After they are singled, the spaces should be again flat-hoed, and nothing more will be required until they are fit to dig, which, with cutting off the tops, can be well done at from 20*s.* to 25*s.* per acre; when they should be hauled and pitted, or "clamped" in the usual way, and secured from the frost. *R. C.*"

Year Book of Agricultural Facts and Annual Record of Farming Progress for 1862. Edited by Robert Scott Burn.

In this annual volume, a well devised framework or skeleton is clothed around with the facts of the year, so as to present in a symmetrical body the agricultural history of the period. "The field" constitutes the first division of the book, and under this head we have all the facts relating to steam culture, drainage, manures, seeds and sowing, harvesting, and cross cultivation. The live stock of the farm, the dairy, pigs and poultry, diseases of cattle and sheep, occupy other four divisions. Implements, buildings, the labour question, and a miscellaneous section occupy the remaining divisions of the book. A good index enables it to be used as a work of reference. We cordially recommend the work to any who wish to retain a record of agricultural progress.

McLean and Hope's Descriptive Catalogue and Price List of Manures, Feeding Stuffs, &c. 1, King's Stables, Grassmarket, Edinburgh. An octavo of 150 pages includes an essay on vegetable physiology and plant nutrition, reviews of the state of trade as regards our principal imported and manufactured manures and feeding stuffs, an instructive essay on the analysis and valuation of manure, a very useful descriptive account of the varieties of Wheat, Barley, Oats, Beans, Peas, Potatoes, Turnips, Grasses, and Clover in cultivation, and a blank diary for the entry of engagements throughout the year, together with an almanac, besides the usual trade and other advertisements.

Wheeler and Son's Little Book, or Select Seed List for 1863, Gloucester, contains useful essays on Grass land culture, with woodcuts of the principal Grasses, and remarks on the cultivation of Turnips and other roots.

We have received a Russian translation, published at St. Petersburg, of Morton's *Handbook of Dairy Husbandry*. (Longmans).

Calendar of Operations.

APRIL.

NORTHUMBERLAND FARM.—A few days of beautiful and genial weather formed the greater part of the first week of March, during which period large breadths of Clover lea were seeded with Oats on the lighter soils of this country; but it was otherwise with us on the strong loams and clays, which were baked to such an extent by the previous winds and dry weather as to render them utterly impervious to the teeth of the harrow. The rain, however, which fell during the greater part of the following week, with the addition of a night's frost, had a most salutary effect on our stubborn leas, for as soon as fairly dry on the top, we started drilling in good earnest on the morning of the 20th, the land being previously double-harrowed long way as well as across the furrow, the drill of course following in the same direction as the latter process. Since commencing, our drill has been kept continuously at work, and has put in, in very nice order, 90 acres of Oats, including 16 acres (instead of Barley) after Turnips, as well as 17 acres after Beans, which last year took the place of Clover in the rotation. Especial care has been taken to have the land thoroughly pulverised previous to drilling, which is so much preferable to so many harrowings afterwards. The Bean stubble, which had been deeply ploughed in the autumn, was first run over with the clod crusher, and then broad-shared across the furrow, which with numerous harrowings produced a most desirable seed bed; the broadshare having the combined effect of breaking up the soil, as well as checking any weeds which may have germinated:—the land after Turnips was also well reduced with grubbers, &c. The description of Oats sown, have been Potato (on the best land), Blainslie and Early Angus, at the varying rate of from 2½ to 2¾ bushels per acre—the width apart of the drills being 7½ inches on the lea, and 9 inches on the Turnip and Bean land. No Barley has been yet sown, though, weather permitting, we may probably choose the first week in April for that purpose. On the whole we have had a most favourable seed time; and though we know not what may be the succeeding weather, or how the harvest may turn out, yet one thing is quite certain, that we have had a much better start than last year, which may be considered generally speaking as one of the worst ever known. Besides the above, the draughts have been engaged in carting manure (in bad weather), broadsharing, ploughing, grubbing, and otherwise preparing Swede land; rolling Wheat in prepa-

ration for the horse-hoe, carting stones from Clover fields, and such like; the women and other labourers being occupied in barn work, picking stones on Clover land, repairing hedges, turning manure heaps; the stones have also been gathered on the Wheat and Oat fields so as to remove any obstruction that could present itself to the reaping machine. *Stock*.—The treatment of both fat and grazing cattle closely resembles that of February; no sales or purchases have been made this month, the only difference in this department being in the case of the cows, some of which have calved, and others approaching that stage. The *Sheep* stock has engrossed our especial attention during the whole of the month. Commencing during the last week of February, the ewes have continued to lamb ever since, with very fair success, our loss in lambs so far only amounting to 3 per cent.; the latter part of the month, however, has been somewhat too dry, and showers would be beneficial in many ways to our flock. At present we have 156 lambs following 102 ewes, which is a fair average, though we have often had it higher; 25 ewes are yet to lamb. The ewes previous to lambing receive a liberal allowance of yellow Turnips, and after lambing are removed into first year's Clover field, in which temporary houses are erected, so that they and their lambs may be nightly housed. The wether hoggets, since they came from the Turnip break, have been receiving cut Turnips and hay chaff in an old Grass field, whilst the genuine hoggets are running over old Grass also, but will soon be put on 2d year's Grass. The young rams are having cut Swedes, chaff, corn, and cake. The appearance of the crops generally is satisfactory, though the late dry winds have checked vegetation. Wheat still sticks well to the ground, and in many places is too thick, though on the whole it is very promising; and young Clovers are very thriving and most luxuriant. The annual hiring of our hinds took place during the first week of March, and with one exception on this farm they were all re-engaged at wages similar to last year. The general feeling of this neighbourhood is that corn wages were the same as last year, but money wages a shade lower. *J. W.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. Spearing, Moulsford, near Wallingford, Berks, during the week ending April 1, 1863.

Day of Week.	Day of Month.	Barometer corrected to Freezing Point at Mean Sea Level.	At 9 A.M., Railway Time. Reading of Dry Bulb Thermometer.	Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0-6	Amount of Cloud in 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday	26	30.38	49	45	W.	2	6	65	39	108*	33		47	46¾
Friday	27	30.44	47	42	N.W.	3	2	59	34	90	29		47	46
Saturday	28	30.02	55	50	N.W.	3	6	56	42	99	39		47½	46
Sunday	29	29.88	49	46	N.W.	3	6	57	45	88	41		47½	46
Monday	30	30.04	50	46	N.W.	3	7	58	45	95	42		48	46
Tuesday	31	30.26	42	39	N.W.	2	1	57	39	96	37		47	46
Wednesday	1	30.16	42	39	S.E.	1	1	58	36	102	32		47	46½

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Notices to Correspondents.

Breeze, &c.: *N.* Breeze and coal ashes are of little value as manure, except for their mechanical influence on the texture of clay soils. Resistance to draught is made up, (*a*) of friction, and (*b*), that share of the weight of the body drawn which on a hill side would, if there were no friction, make it roll down hill. And the ability of the draught animal to overcome it, depends on the position in which the animal stands. The posture marked *b*, depends on the inclination of the hill, and is in proportion to the whole weight of the animal as the height is to the length of slope. If then 7 and 10 in your formula are the length of the slope, then the draught should be in the one case one seventh, in the other case one tenth of the weight, *plus* the percentage in either case due to friction—the difficulty which the horse will find in overcoming the friction increases rapidly with the slope, not so much on account of the increasing weight, but in consequence of his being placed at a disadvantage for overcoming it.

Coppice Wood: *Improver.* Your plan is no doubt the cheapest, and it will, in all probability answer sufficiently well. Any of the old stools which retain unusual vigour can be grubbed up as necessary. We shall be happy to name Grass seeds adapted to such a situation, if the sward should prove defective.

Hemp: *J C N.* A rich deep loamy soil, the best for all other plants, is also the best for Hemp. Sow 2 bushels of seed, or 10 pecks, very early in May, on deeply tilled land which has received a good dressing of well rotted manure. It is generally sown broadcast, harrowed in, and afterwards hand weeded. It is grown to some extent in South Lincolnshire, and also in Dorsetshire.

FOWLER'S

STEAM PLOUGHING AND CULTIVATING PATENTS.

RANSOMES & SIMS, Orwell Works, Ipswich,

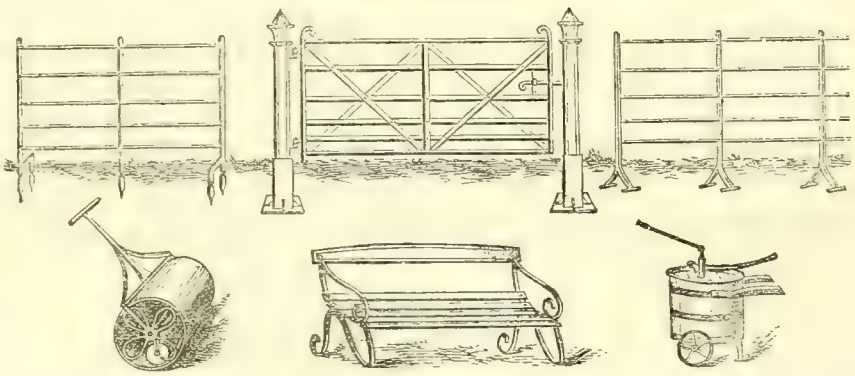
Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

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CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED, IN VARIOUS STYLES.



IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.
VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.
The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

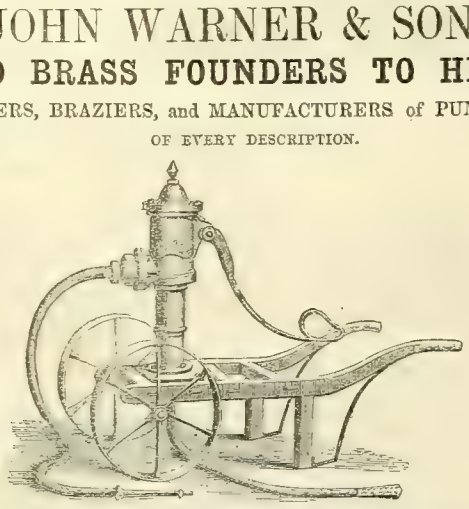
Illustrated CATALOGUES and DRAWINGS free on application to
COTTAM & CO., ENGINEERS and IRON FOUNDERS,
2, WINSLEY STREET (Opposite the Pantheon), OXFORD STREET, LONDON, W.

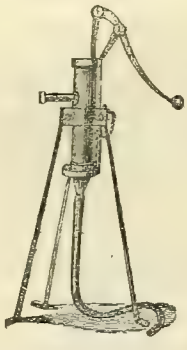
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BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.







No. 35 — No. 36½. Improved Cast-Iron Lift and Force Pump. — No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0
1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4
2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0
3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump one man will force the water in a continuous stream to a height of 50 feet.
When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

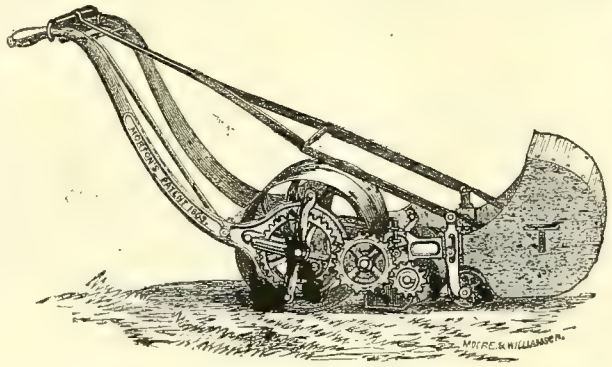
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4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
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MORTON'S PATENT NOISELESS LAWN MOWER.

This Machine Rolls, Collects, and Delivers the Grass, and combines all the most recent Improvements, including those secured by her Majesty's Royal Letters Patent for 1863. For efficiency and simplicity it cannot be surpassed, and can be worked by any one unskilled in Machinery. It is superior to all other Machines yet introduced to the notice of the Public for keeping Lawns and Pleasure Grounds in the highest state of perfection, and is likely to be the Leading Machine of the Season. No place, however small, should be without one.



Terms, Net Cash.

To Cut				
12 ins.	£4	15	0	*Suitable for a Lady or Gentleman*
14 „	5	5	0	*Suitable for one Person*
16 „	6	7	6	*Suitable for one Man or two Boys*
18 „	7	7	6	*Suitable for one Man and Boy*
20 „	8	0	0	*Do. do.*
22 „	8	8	0	*Suitable for two Men*
24 „	8	17	6	*Do. do.*

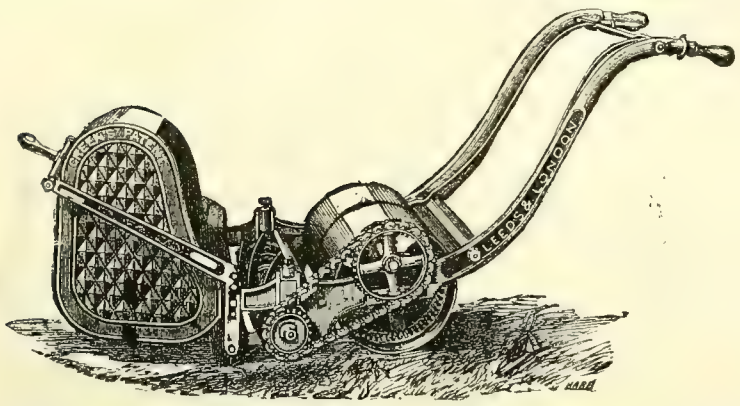
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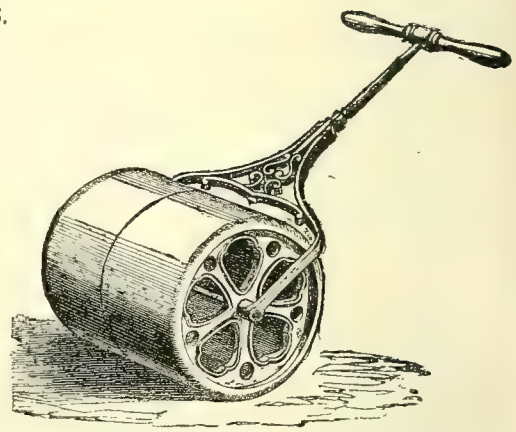
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FOR THE PRESENT SEASON 1863.



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GREEN'S NEW PATENT GARDEN ROLLER.

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PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS DURING THE SEASON OF 1862.

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"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"Dear Sir,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, Geo. Eyles."

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"Dear Sir,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

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To Cut 10 inches	£3	10	0	Suitable for a Lady.		
„ 12 „	5	0	0	Suitable for One Person.	If with internal gear, 10*s.* extra.	
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„ 20 „ ...	8	0	0	Do. Do.	9	5 0
„ 22 „ ...	8	10	0	Suitable for Two Men ...	9	17 6
„ 24 „ ...	9	0	0	Do. Do. ...	10	7 6

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	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	... ... £12 10 0
„ 26 „	12 10 0	... ... 13 12 0
„ 30 „	16 14 0	... ... 18 0 0

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To Cut 30 inches	£20 0 0	... £21 10 0
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„ 42 „	26 0 0	... 28 2 0
„ 48 „	29 0 0	... 31 8 0

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TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at Chas. Wright's, 376, Strand, W.C.

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Also Vases, Flower Baskets, Figures, Art Flower Pots, &c.

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Waterfalls, Ferneries, Caves, and other Rockwork, executed in perfect imitation of nature.

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Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any station in the kingdom.

Apply to Hill & Smith, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

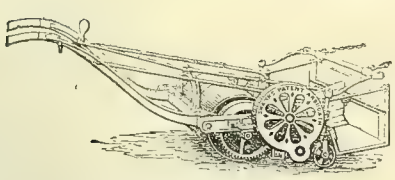
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

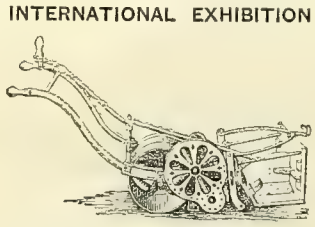
WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

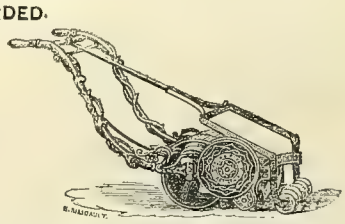
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved, and their success established.

These Machines will Mow equally well on Uneven as on Level Lawns, and whether the Grass be wet or dry. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	40*s.* „
No. 3.—36-inch Machine ...	22 0 0	30*s.* „
No. 4.—30-inch Machine ...	19 0 0	30*s.* „

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine ...	£15 15 0	30*s.* extra.
No. 6.—28-inch Machine ...	14 10 0	30*s.* „
No. 7.—25-inch Machine ...	12 10 0	25*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine ...	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine ...	8 7 6	
No. 10.—19-inch Machine ...	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine ...	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine ...	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £5 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS and SON, DENS IRON WORKS, ARBROATH, N. B.

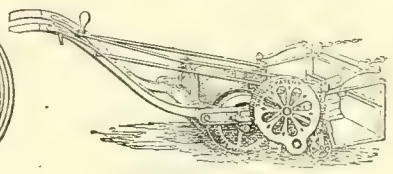
LONDON OFFICE and SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

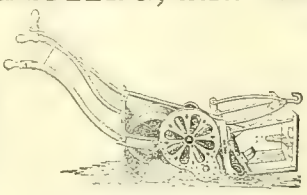
SHANKS' NEW PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

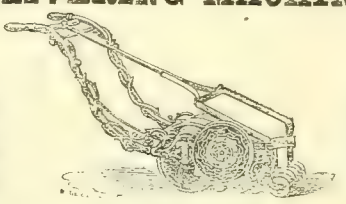




HORSE MACHINE.



PONY MACHINE.



NEW HAND MACHINE.



SHANKS' NEW PATENT MACHINE

Mows the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at half the expense.

The first practical Gardeners of the day who have devoted their attention in examining all the different Lawn Mowers offered, do not hesitate in recommending SHANKS' Machine as *the best Mower for general use.* The important Improvements introduced last season have undergone a thorough practical test, and satisfied the most sanguine expectations. *Further Improvements, simplifying the Machine, and adding to its efficiency, have been introduced into the* NEW PATENT LAWN MOWER for 1863.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for Use.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.				
No. 1.—48-inch Machine	£28	0	0	*Drawn by a Horse.*
No. 2.—42-inch Machine	26	0	0	
No. 3.—36-inch Machine	22	0	0	
No. 4.—30-inch Machine	19	0	0	*Drawn by a Horse or strong Pony.*

Patent Delivering Apparatus for Nos. 1 and 2 Machines, 40*s.*; for Nos. 3 and 4 Machines, 30*s.*; Box with complete Set of Tools, 10*s.*; Silent Movement, 20*s.*; Boots for Horses' Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.				
No. 5.—30-inch Machine	£15	15	0	*Drawn by a Pony.*
No. 6.—28-inch Machine	14	10	0	
No. 7.—25-inch Machine	12	10	0	*Drawn by a Donkey.*

Patent Delivering Apparatus for Nos. 5 and 6 Machines, 30*s.*; for No. 7 Machine, 25*s.*; Box with complete Set of Tools, 7*s.* 6*d.*; Silent Movement, 12*s.* 6*d.* Boots for Pony, 21*s.*; Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for use.

Width of Cutter.				
No. 8.—24-inch Machine	£8	17	6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8	7	6	
No. 10.—19-inch Machine	7	12	6	*Do. by a Man and a Boy.*

Width of Cutter.				
No. 11.—16-inch Machine	£6	17	6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6	2	6	*Do. by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.*; Box, with complete Set of Tools, 5*s.*; Silent Movement, 7*s.* 6*d.*

*** *The Machines are warranted to give ample satisfaction, and if not approved of may be at once returned.*

AGENTS:

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

THE HYDROPULT,

THE HYDROPULT

IS INVALUABLE FOR

WATERING GARDENS,

EXTINGUISHING FIRE JUST COMMENCED,

PROTECTING a ROOF from FIRE,

CLEANSING TREES from INSECTS,

DRESSING with LIQUID MANURE,

SPRINKLING PLANTS,

WASHING WINDOWS,

WETTING SIDEWALKS,

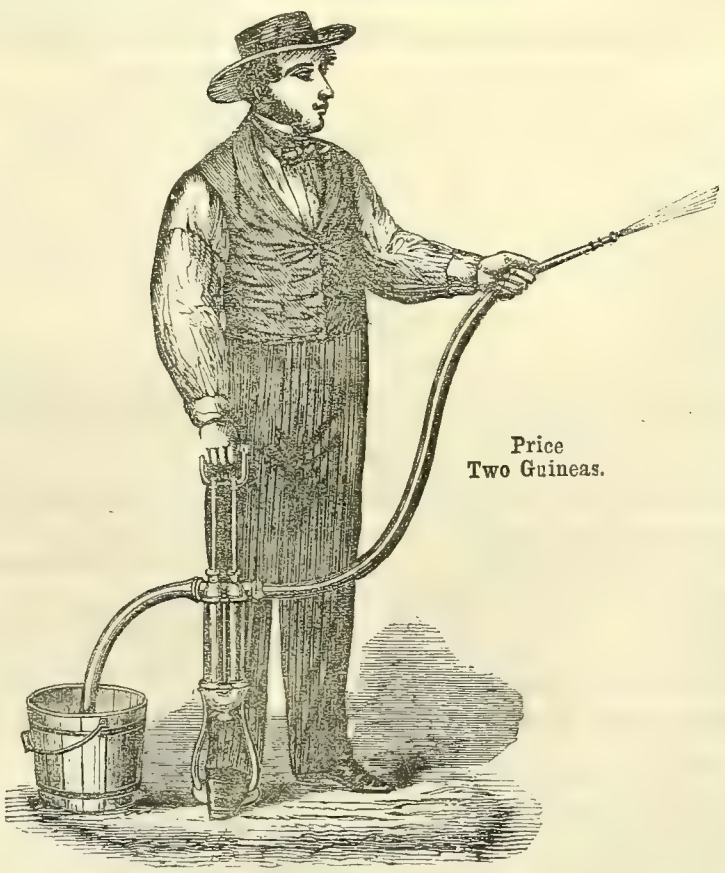
SPRINKLING STREETS,

WASHING CARRIAGES,

WETTING SAILS,

A SPRAY BATH,

&c. &c.



Price Two Guineas.

CAUTION.—Unprincipled parties are now palming on the public an infringement of the Hydropult Patent. This is to notify, that said pirates and all persons using or vending this article will, in due time, be prosecuted. No machine contained in a bucket is the Hydropult. Every Hydropult has a Trade Label affixed, as follows:—

"The Hydropult, a Portable Fire Annihilator and Garden Engine.
"GRIFFITH & BROWETT, Manufacturers, Birmingham;
"CHARLES P. BUTTON, General Agent.
"VOSE'S Patent;"

and is sold at the uniform rate of Two Guineas, complete, with 2½ feet Suction and 3-feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Fire Jet.

It is an easy matter to imitate the Hydropult in appearance, and thereby deceive the public; therefore this caution.

The Hydropult WEIGHS BUT 8 LB.; will throw 7 or 8 Gallons of Water per minute 50 FEET when worked by the power of one man.

Has been recommended as an efficient FIRE ENGINE by the principal FIRE INSURANCE COMPANIES of GREAT BRITAIN. Thomas Rivers, Esq., the eminent Florist; Shirley Hibberd, Esq., and other well known gentlemen, recommend it as an invaluable GARDEN IMPLEMENT. J. Spencer, Esq., Inspector of the Royal Society for the Protection of Life from Fire, certifies to its efficiency in saving valuable Property in Bayswater from destruction. The City and Provincial Press accord to the invention the utmost praise. All who purchase the Hydropult are satisfied with its action; each Machine guaranteed to be perfect.

AN INVENTION FOR THROWING WATER BY HAND POWER.

Prospectus, with Testimonials, on application at either Office.

HYDROPULT OFFICE: 27, LEADENHALL STREET, LONDON, E.C.; and 309, REGENT STREET.

CHARLES P. BUTTON, PROPRIETOR.

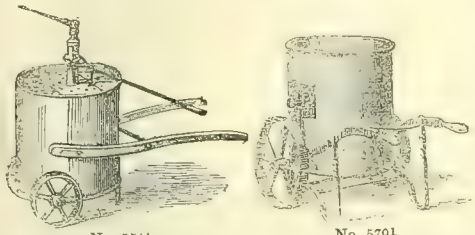
PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. Glenny."

Every variety of Gutta Percha articles, such as Mill Bands Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, E.C.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.



No. 554½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons	..	£2 15 0
16 ,,	..	3 15 0
24 ,,	..	5 0 0

Larger sizes may be had in either Wood or Iron.

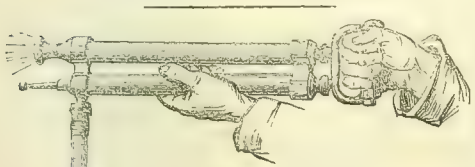
No. 579½.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	..	£2 10 0
20 ,,	..	2 0 0



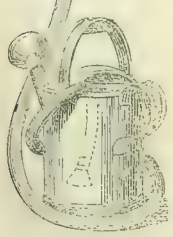
BRASS SYRINGES of all kinds from 9s. to 21s.



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 6 feet Flexible Suction Pipe,

21s.,



Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

There are no suction or delivery Valves, hence much friction and liability to choke with leaves and dirt is avoided.

AMERICAN PORTABLE FIRE ANNIHILATOR and GARDEN ENGINE.



£2 2s.

An efficient means of Extinguishing Fires at their commencement Nine out of ten Fires in London are put out on their first appearance by the London Fire Brigade with Hand Pumps of considerably less power.

One man will throw 7 or 8 gallons per minute from 40 to 50 feet with it.

It is an effective Garden Engine for cleansing or syringing Wall-fruit or Rose Trees, Plants, or Vines.

It may be used to draw water from the pail in which it is fixed, or from a tank or pond by the addition of the required length of suction. It is simple in its construction, having no suction or delivery valves to clog with dirt or leaves.

No Establishment, either private, commercial, or manufacturing, should be without one.

Six feet of Flexible Suction, with Union and Suction Rose, &c., extra, 12s. Longer lengths of Suction at 1s. 6d. per foot.

The above may be obtained of all Ironmongers and Seedsmen in Town and Country, or of the Manufacturers,

John Warner & Sons, 8, Crescent, Cripplegate, London, E.C.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. Tylor & Sons' GALVANIZED IRON TUB GARDEN ENGINES, with Registered Spreader.

8 gal.	12 gal.	16 gal.
£2 13 6	£3 5 0	£3 15 0
24 gal.	30 gal.	
£5 0 0	£5 18 0	



Fig. 571.

J. Tylor & Sons' OAK TUB GARDEN ENGINES, with Registered Spreader.

15 gal.	28 gal.
£5 12 6	£7 2 0.



Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 8 0 each.
No. 2. Ditto ditto .. 1 2 6 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,



Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 11s. 6d. each.
,, 589. Middle Ditto ditto .. 10 3 ,,
,, 588. Small Ditto ditto .. 9 0 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 7 6 ,,

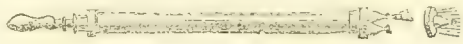


Fig. 591. READ'S SYRINGE, with two roses and one jet, 17s. 6d.
READ'S SYRINGE, with one rose and jet, 15 0
,, 592. Improved ditto ditto large 14 0

Garden Engines and Syringes of J. Tylor & Sons' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. Tylor & Sons, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

GREENHOUSES and CONSERVATORIES HEATED without special fire by the KITCHEN RANGE. See best methods, "Catalogue of Modern Inventions," post free.
London: Brown Brothers, 43, Cranbourn Street, W.C.

Landscape and Ornamental Gardening.

MR. J. W. CHAPMAN undertakes the Laying-out and Alteration of Gardens and Pleasure Grounds, Forming and Thinning Plantations, and the general improvement of Estates.
Plans and Drawings for all these purposes are furnished.
Hermitage Road, Richmond, Surrey, S. W.

Notice.

MR. A. CHANDLER (of the late Firm of Chandler & Sons), HORTICULTURAL VALUER, begs to inform his friends and the public that he has removed from Priory Road, Wandsworth Road, to No. 1, Devonshire Terrace, Fulham Road, S.W.

To Nurserymen and Others.

TO BE DISPOSED OF, by PRIVATE TREATY, and with Immediate Possession, an old established NURSERY, with Hothouses and Greenhouses, doing a good business; in an excellent situation, and within a few miles of Liverpool. The whole to be taken at a valuation.
For particulars apply (by letter, post paid,) to M. S., care of Wren & Sons, Tea and Coffee Merchants, Temple Court, Liverpool.

TO BE LET or SOLD about One Acre of good GARDEN LAND, Freehold, with a HOT-HOUSE 75 feet long, close to a town and station, 14 miles from London.
Address to A. B. C., Post Office, Watford, Herts.

TO BE LET, with immediate possession, for a term of years, The FANT NURSERY, Maidstone. A comfortable Modern Residence, containing Counting House, two Parlours, three Bedrooms, Store Closet, Kitchen, Scullery, Cellar, Pantry, &c. There are two Greenhouses, a Potting House, Frames, &c. 1a. 1r. 7p. of very superior Land around the above, and in a beautiful situation.
For terms apply to Mr. Tootell, Land Surveyor, Maidstone.

Farnham, Surrey.

FARM TO LET.—Two hundred Acres, more or less, comprising 30 acres well-known productive Hop Land, some valuable Water Meadows, and the remainder Arable Land, situate near the town and within the parish of Farnham, and forming a desirable occupation.
For particulars and to treat, apply to the executors of the late Thomas Simmonds, of Rock House, Farnham, Surrey.

Sales by Auction.

Poultry, Pigeons, Ducks, Singing Birds, &c.

MR. ARTHUR PLEWS will SELL by AUCTION, at his Great Sale Rooms, 11, Catherine Street, Strand, W.C., on WEDNESDAY, April 15, at half-past 12 o'clock precisely, a fine collection, comprising about 200 Lots of POULTRY, PIGEONS, &c.

Lists of Property to be included in this sale should be forwarded by Wednesday, April 8.

May be viewed the day previous to the Sale, and Catalogues had.

2000 Gladiolus Brenchleyensis, 4000 Scotch Firs, Cinerarias, Azaleas, Bedding-out Plants, and Greenhouse Plants.

MR. ARTHUR PLEWS will SELL by AUCTION at his Great Sale Rooms, 11, Catherine Street, Strand, W.C., on FRIDAY, April 10, at half past 12 o'Clock precisely, an excellent collection of HORTICULTURAL and FLORAL PRODUCE of the above description.

May be viewed the Morning of Sale, and Catalogues had.

Important Sale of Agricultural Seeds, &c.

MR. J. C. STEVENS has been favoured with instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 8, at half-past 12 o'Clock precisely, a consignment of AGRICULTURAL SEEDS, comprising about 3 tons of Carrot and Onion Seeds; also 3 tons of TREE SEEDS, consisting of Alder, Spruce, Larch, &c., and 1500 2-years Seedlings of Abies Pinsapo, Cephalonica, Apollinis and Cilicica.

On view the Morning of Sale, and Catalogues had.

Highly Important Sale of Established Orchids.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 8, at half-past 12 o'Clock precisely, a valuable COLLECTION of ESTABLISHED ORCHIDS, comprising the following well-known sorts.

Aerides quinquevulnerum	Oncidium Lanceanum
,, Fieldingii	Phalænopsis amabilis
,, Lindleyana	,, grandiflora
,, Warneri	,, roseum
,, rubrum	,, Schilleriana
,, Schroederi	,, species nova
Calanthe vestita (crimson eye)	Saccolabium Blumei major
Cymbidium eburneum	,, guttatum
Cypripedium villosum	,, Reedi
,, hirsutissimum	,, rubrum
,, Stonii	Trichopilia crispa
,, caudatum	,, suavis
,, species nova (Veitch)	Uropedium Lindeni
Dendrobium albo sanguineum	Vanda Batemanni
,, Farmeri	,, gigantea
,, Dalhousianum	,, Lowii
,, taurinum	,, suavis (Veitch)
,, lutuiflorum	,, violacea
Lælia purpurata	,, tricolor, &c., and many
,, elegans	other very choice sorts.

On view the Morning of Sale, and Catalogues had of Mr. J. C. Stevens, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Important Sale of Hardy and Ornamental Plants.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY, April 9, at half-past 12 o'clock precisely, 1000 Choice CARNATIONS, PINKS, and PICOTEES, 1000 Gladioli Bulbs, 600 Evergreen Privets, 500 Berberis, and 3000 CHOICE PLANTS, consisting of Phloxes, Laurels, Delphiniums, Gazanias, Iris, Polyanthus, Dahlias, Fuchsias, Pæonies, Pentstemons, Geraniums, Hollyhocks, Strawberry Plants, Gooseberry and Currant Trees, Raspberry Canes, &c.

On view the Morning of Sale, and Catalogues had.

Stratford, Essex.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Garvie to SELL by AUCTION on the Premises, Stratford Nursery, Leytonstone Road, a few minutes' walk from the Stratford Station, on the Great Eastern Railway, on WEDNESDAY, April 8, at 11 o'clock, the ground being immediately required for the formation of a new road, all the GREENHOUSE and BEDDING PLANTS, including a fine assortment; a quantity of Evergreens, Fruit Trees, Standard Roses; five capital Greenhouses, Ranges of Pits, New Lights; Shed, Light Spring Cart, Summer House, Seed Drawers, Bricks, Grindstone, and other effects.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seed Shops in London; and of the Auctioneers and Valuers, American Nursery, Leytonstone, Essex.

To Gentlemen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, E.C., on FRIDAY, April 10, at 12 o'Clock, a first-class COLLECTION of CARNATIONS, PICOTEES, and PINKS; choice Azalea Indica, Pelargoniums, Ericas, and other Plants in bloom; Standard Roses, American Plants, fine Seedling Calceolarias, Fuchsias, Verbenas, Dahlias in dry roots, an assortment of Herbaceous Plants, &c.

On view the Morning of Sale. Catalogues had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N E.

Important Sale of 300,000 Choice Greenhouse and Bedding Plants, 30 Greenhouses, and other Effects.

To Noblemen, Gentlemen, Nurserymen, Florists, & Others.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executrix of the late Thomas Gaines, deceased, to submit to an unreserved SALE by AUCTION, on the Premises, Surrey Lane, Battersea, on MONDAY, April 27, and following days, at 11 o'Clock each day, the ground being required for building upon, the whole of the Valuable GREENHOUSE PLANTS, including all the magnificent specimens of Azalea indica, which for so many years have rendered this establishment famous, having obtained prizes at the various Metropolitan Floral Fêtes, and now, being beautifully furnished with bloom, and in such fine condition, offer an opportunity of rare occurrence to gentlemen requiring large handsome specimens for furnishing their Conservatories.

Large double Camellias, Ericas, Epacris, Crassulas, Epiphyllum (sorts); Acacia armata, Callas, Hydrangeas, Daphne indica rubra; a quantity of compact and healthy plants of Gardenias (sorts), Gloxinias, Begonias, double Primulas, Ficus elastica, Roses in Pots, Ardisias, Stephanotis; Show, Fancy, and French Pelargoniums, Scarlet Geraniums, &c. An extraordinary large assortment of upwards of 50,000 Bedding Plants, too numerous to specify; some brilliant varieties of Amaryllis, Hardy and Exotic Ferns, Lilium lancifolium (sorts), &c.; together with 30 Greenhouses, several ranges of Pits, 1, 2, 3, and 4-light Boxes, thousands of feet of 3, 4, and 6-inch Hot Water Piping, Saddle and other Boilers, Erection of Sheds, quantities of Brick, Slate Shelving, Stand Glasses, Garden Pots, Mats, 3 Spring Market Vans, useful Bay Gelding, Brewing Utensils, Iron Roller, Nest Seed Drawers and Seeds, Barrows, Garden Tools, and sundry effects.

May be viewed on week prior to the Sale. Catalogues may be had, 6d. each, returnable to purchasers, on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, Leytonstone, Essex.

HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.

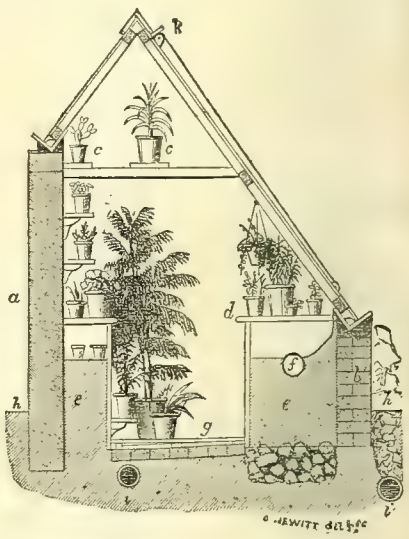
COMBINING SIMPLICITY, CHEAPNESS, EXCELLENCE, AND DURABILITY.

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.

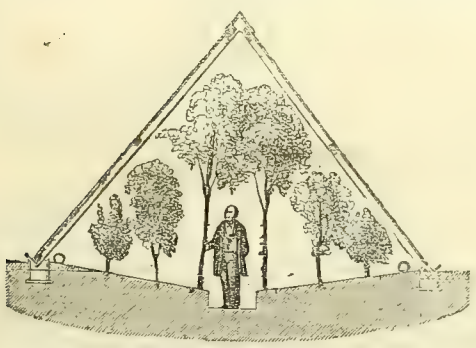
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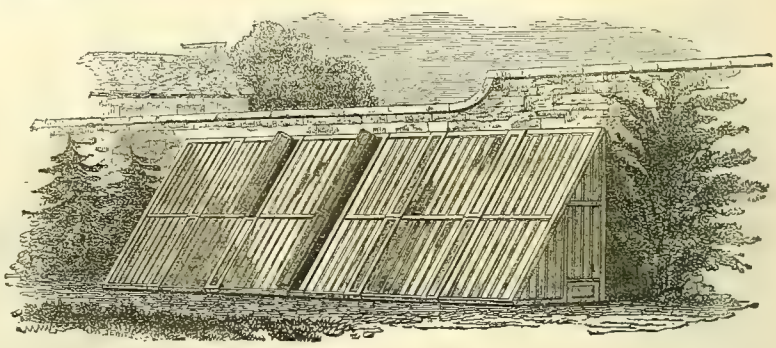


ORNAMENTAL CONSERVATORY, ERECTED AT EDENBRIDGE, KENT.

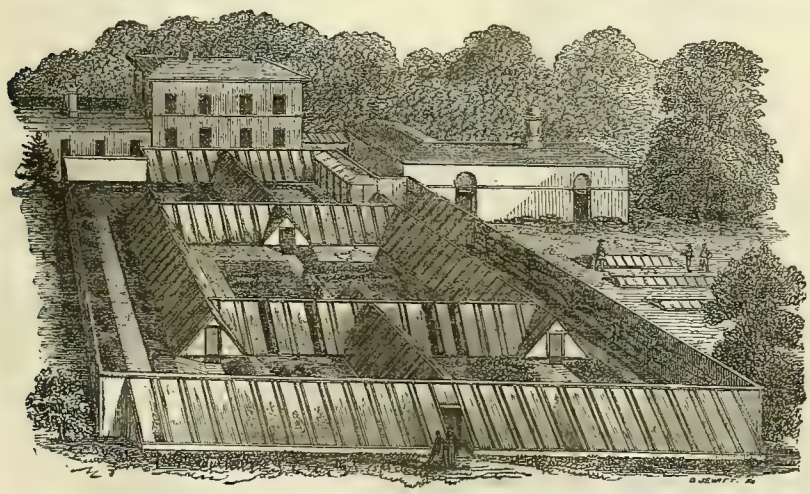


SECTION OF SEMI-SPAN PATENT ROOF.





These PATENT GLASS HOUSES are composed of simple parts, and may be lengthened and arranged to form the boundaries of Gardens; they cost less than Brick Walls, and insure a certain crop of Fruit. As Portable Structures they may be removed and refixed at little expense; and though calculated for Gardens of the highest order, they are, from their cheapness, desirable for Market Gardens, where they may be made to cover any extent, as also for Suburban Villas and Cottage Gardens.



This figure shows a large connected Winter Garden, which has been erected for R. L. Chance, Esq., at Summerfield House, Birmingham, consisting of Span-roofs of 14 feet Sashes, with Lean-to Roof against the wall, so arranged as to form an extensive promenade of several hundred feet in length. The superficial area covered is about 10,500 feet, and the area of Glass useful for Fruit Growing is upwards of 15,000 feet. Fruit Trees are planted at intervals near the side of the walks of the Span-roofs, and Grapes hang overhead from Vines trained under the glass. Various and rare Fruits grown in pots occupy different parts; Vegetables, Early and Late, fill up all the available space, and form an important feature during the whole of the winter and early spring.

"We have seen them in operation, and taken note of every detail of their construction; and we say, without hesitation, that for simplicity portability, and efficiency for the practical pursuit and enjoyment of horticulture, they are of unquestionable excellency, and they place the horticultural public in a position of obligation to Sir Joseph Paxton, as having wrought into practice an original and ingenious idea."—*Floral World*, October, 1860.

Circulars with LISTS of PRICES and CARDS to VIEW Houses in operation in the neighbourhood of London, also ESTIMATES for ORNAMENTAL CONSERVATORIES, &c., can be had on application to

SAMUEL HEREMAN, 7, PALL MALL EAST, LONDON, S.W.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. Hereman, price 1*s.*; post free, 1*s.* 1*d.*

"We strongly recommend this attractive shilling's worth, conscious that none who purchase it will be disappointed."—*Shirley Hibberd, Esq., in Floral World*, May, 1862.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 15.—1863.] SATURDAY, APRIL 11. {Price Fivepence. Stamped Edition, 6*d*.

INDEX.

Abies Albertiana	340 *a*	Mentmore, steam culture at..	346 *a*
Caladiums	344 *c*	Milk pans	347 *c*
Cannas	342 *c*	Osmanthus aquifolius	341 *c*
Cattle food adulteration	350 *c*	Pandanus odoratissimus	343 *a*
Cork trees	342 *b*	Peach trees, covering	342 *b*
Cottages, labourers'	349 *a*	Pear, Beurré Bretionneau	342 *a*
Deodorisation, earth	349 *c*	Potato mould	339 *b*
Draining experiences ..348 *c*—349 *c*		Pippins, Easter	341 *c*
— systematic	349 *b*	Rhœa fibre	342 *b*
Emigration	349 *b*	Rhododendron Aucklandii	342 *c*
Farmers' Club, London	349 *c*	Rockets	342 *c*
Farm Memoranda	351 *a*	Rose mould	339 *c*
Fibre, Rhœa	342 *b*	Salsafy	339 *c*
Fish and fishing	340 *c*	Short horn sale	351 *b*
Forcing houses, hygrometrical condition of atmosphere in..	339 *b*	Society, Bath Agri. — Hor. of Edinburgh	349 *c* 343 *a*
Garden law	342 *a*	Small pox in sheep	347 *a*
Gram	344 *c*	Steam cultivation	346 *a*
Harvest of 1862	345 *b*	Stephanophysum Baikiei	342 *c*
Holly leaves	342 *c*	Storax, ancient	344 *a*
Huxley (Prof.) on Man's Place in Nature	343 *a*	Succulent plants	341 *b*
Hyacinths, Messrs. Henderson's	343 *b*	Superphosphate Makers, rev..	350 *b*
Law, garden	342 *a*	Turnip seeds	345 *c*
Manure, valuation of	348 *b*	Walls, glass facings for	342 *b*
		Weather in the Fens	349 *c*

ROYAL HORTICULTURAL SOCIETY'S AZALEA and ROSE SHOW at South Kensington, on WEDNESDAY NEXT. Open at 1 o'clock, Band at 2. Admission, 2*s*. 6*d*.

The Show will be in the Southern Arcade, and the Exhibition Building will be open to the Visitors.

Until APRIL 30 Packets of Twenty-five 5*s*. Tickets, price 5*l*., admitting One or Two persons, according to the daily charge, to the Fêtes and Promenades during the season, can be obtained at the Offices.

ROYAL HORTICULTURAL SOCIETY. FLORAL COMMITTEE.

The next MEETING of this Committee for the Exhibition of NEW PLANTS and SEEDLINGS will be held in conjunction with the Show of Spring Flowers, which will take place in the Gardens of the Society on April 15. The subjects exhibited must be in the Gardens by 8 30 A.M., in accordance with the regulations for the Show, but may be entered without previous notice. All persons are at liberty to exhibit.

THOMAS MOORE, Secretary to the Floral Committee.

ROYAL HORTICULTURAL SOCIETY. FRUIT COMMITTEE.

A MEETING of the Fruit Committee will be held on WEDNESDAY, 15th inst., when the following Prizes are offered:—

	First prize.	Second prize.
CLASS A.—For the best three dishes of DESSERT APPLES, distinct sorts	15*s*.	10*s*.
„ B.—For the best three dishes of KITCHEN APPLES	15*s*.	10*s*.
„ C.—For the best dish of STRAWBERRIES, 30 fruits	20*s*.	10*s*.

And for the Examination of any other Fruits or Vegetables that may be submitted for the opinion of the Committee. Chair to be taken at 12 o'clock.

Packages to be delivered at the Rooms at South Kensington, W., by 11 o'clock on the day of Meeting, and along with any communications, to be addressed to

ROBERT HOGG, LL.D., Secretary to the Committee.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.

EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, May 13, June 3, and 24.

AMERICAN PLANTS, MONDAY, June 8.

Tickets can be obtained at the Gardens by orders from Fellows of the Society. Price on or before May 2, 4*s*.; after that day, 5*s*.; or on the days of Exhibition, 7*s*. 6*d*. each.

The next MEETING of the Fellows for the Election of New Candidates, Saturday, April 25.

RUGBY HORTICULTURAL and COTTAGE GARDENER'S SOCIETY.

President.—The Right Hon. the Earl of DENBIGH.

The ANNUAL EXHIBITION will be held at RUGBY on FRIDAY, AUGUST 28, when, in addition to the usual Prizes, Two Silver Cups, and upwards of 120 Prizes, open to all England, will be offered for competition.

Schedules of Prizes can be obtained by sending two postage stamps to Mr. SAVAGE, 49, Church Street, Rugby, the Honorary Secretary.—Rugby, April 11.

ALL the NEW ROSES of 1863.—In fine strong Plants now ready.

DESCRIPTIVE LISTS on application.

WM. WOOD & SON, Woodlands Nursery, near Uckfield, Sussex.

New Roses for 1863.

BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.

St. John's Street Nursery, Colchester.

New Roses of 1863.

PAUL AND SON have now ready their usual fine Plants of the finest Novelties of the season. DESCRIPTIVE LIST on application.

"Old" Cheshunt Nurseries, Herts.

Paul's Nurseries, Waltham Cross.

WM. PAUL (Son and Successor to the late A. PAUL), has a large Stock of all the NEW ROSES, now ready for delivery.

Splendid plants at lowest advertised prices.

PRICED CATALOGUE free by post.

40,000 Dwarf Roses in Pots for Bedding.

THE MONTHS OF APRIL AND MAY ARE CONSIDERED THE MOST ELIGIBLE FOR PLANTING OUT ROSES FROM POTS.

WM. WOOD AND SON have an enormous stock of fine healthy plants, now ready to send out. CATALOGUES sent Post-free on application.

Woodlands Nursery, Maresfield, Uckfield, Sussex.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH, SEED MERCHANTS, Covent Garden Market, London, W.C.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Agricultural Seeds.

GEORGE GIBBS AND CO., SEEDSMEN, 26, Down Street, Piccadilly, London, W.

Agricultural and Garden Seeds.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbeach. Special PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

ANDRÉ LEROY'S NURSERIES, at Angers, the largest and richest in France. CATALOGUES sent on application.

AUGUSTE VAN GEERT'S NURSERY, Ghent, one of the finest on the Continent. CATALOGUES may be had on application, or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

Pelargoniums, Verbenas, Fuchsias, and Pansies.

J. DOBSON AND SONS have a fine healthy Stock to offer of all the best kinds at moderate prices. Woodlands Nursery, Isleworth.

Imported Asters, Stocks, &c.

WM. CUTBUSH AND SON have a few Collections left of the above, which they can confidently recommend. For price, &c., see CATALOGUE, free. Highgate Nurseries, London, N.

GARDEN SEEDS and FLOWER SEEDS of the finest and most rare varieties, at the lowest prices at which they can be delivered, carriage free, are quoted in WHEELER'S "Little Book" for 1863.

J. C. WHEELER & SON, Seed Growers, Gloucester.

Choice Kitchen Garden Seeds.

B. S. WILLIAMS'S Advertisement on last page of *Gardeners' Chronicle*, Jan. 31.

Paradise and Victoria Nurseries, Holloway, London, N.

*** PRICED and DESCRIPTIVE CATALOGUE post free on application.

Dahlias.

JAMES FAIRHEAD AND SON beg to announce that their CATALOGUE of DAHLIAS, including Pompone or Bouquet and Bedding varieties, is now ready, and may be had gratis on application.

7, Borough Market, London, S.E.

New Garden Seeds of our own Growth.

JAMES CARTER AND CO. are now prepared to execute orders for the above, saved at their Seed Farms. 237, 238, & 261, High Holborn, W.C.

CARTER'S SELECT LIST of New and Choice VEGETABLE, FLOWER SEEDS and PLANTS is now published, gratis and post free. 237, 238, & 261, High Holborn, London, W.C.

NOVELTIES.—The Novelties of the Season, Illustrated in CARTER'S GARDENER'S and FARMER'S VADE MECUM, post free for 12 stamps.

JAMES CARTER & Co., 238, High Holborn, W.C.

TROPÆOLUM LOBBIANUM ELEGANS (Crystal Palace Scarlet), Seed scarce. Per packet, 1*s*. and 2*s*. 6*d*.

BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market.

Pine Plants.

TO BE DISPOSED OF, by a gentleman leaving for town and giving up his House, &c., about 100 good healthy PINE PLANTS, this and last year's growth.

Apply by letter to Mr. F. STEAD, 23, Jarratt Street, Hull.

STRAWBERRIES.—A New DESCRIPTIVE CATALOGUE of more than 200 varieties of Strawberries, from good plants, of nearly every variety, can now be supplied by the Grower,

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WANTED to PURCHASE, large Specimen Plants of the good old varieties; or if preferred, good new varieties may be had in exchange.

ROBERT WARNER, Broomfield, Essex.

DOUBLE DWARF POPPIES.—The most beautiful Stock in cultivation. Colours varied and brilliant; flowers as double as a Hollyhock. Seed 1*s*. per packet, Post free. To the Trade, 3*s*. 6*d*. per ounce.

HOOPER & Co., Seedsmen, Covent Garden Market, London, W.C.

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SUTTON & SONS, Reading, Berks.

CHARLES TURNER'S DESCRIPTIVE LIST of PLANTS for the SEASON is now ready, and may be had free on application.

The Royal Nurseries, Slough.

Dahlias, &c., by the Hundred or Thousand.

C. E. ALLEN'S CATALOGUE of the above is now ready, and can be had on application.

Shacklewell, near London, N.E.

J. IVERY AND SON beg to announce that their new PRICED and partially DESCRIPTIVE CATALOGUE of HARDY BRITISH FERNS is now ready, and will be forwarded on application.

Dorking Nursery.

Pine Apple Place, Edgware Road, London, W.

ARTHUR HENDERSON AND Co. beg to announce that their CATALOGUE of NEW and CHOICE FLOWER SEEDS, containing all the Novelties up to the present time, is now ready, and will be forwarded Free on application.

New Purple Verbena Lord Craven.

DOWNIE, LAIRD, AND LAING will be prepared to execute all orders for the above magnificent Flower after April 23. See *Gardeners' Chronicle* of March 14, page 243. 5*s*. each, 42*s*. per dozen.

Stanstead Park, Forest Hill, S.E.; and Edinburgh.

WELLINGTONIA GIGANTEA.—The attention of the Nobility, Gentry, and the Trade, is invited to the largest stock of 1-year SEEDLING PLANTS in the Kingdom, established in single pots and fit for Spring planting. Price per dozen, 12*s*.; per 100 or 1000 on application. A Sample free by post for 12 stamps.

J. HENCHMAN, Edmonton, London.

NEW CUCUMBERS, at 1*s*. per packet.

Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

NEW CELERY.—WILLIAMS'S MATCHLESS RED, a very superior variety, 2*s*. per packet.

B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N.

MUSHROOM SPAWN.—We offer the above to the Trade, of best quality and on low terms.

JAMES DICKSON & SONS, The "Newton" Nurseries, Chester.

Dioscorea Batatas, or Chinese Yam.

J. IVERY AND SON beg to offer whole Roots of this useful Esculent, from 3*s*. to 4*s*. 6*d*. per dozen; Cut Sets, 1*s*. per dozen. Dorking Nursery.

WHEELER'S GLOUCESTERSHIRE KIDNEY POTATO.—This is one of the earliest, the most productive, the best flavoured, and the most profitable Potato ever introduced,

For price and all particulars, see WHEELER'S "Little Book."

POTATOES.—SKERRY BLUES, the best adapted for field culture, price 5*s*. per bushel of 56 lbs., sack included if 4 bushels be taken.

Remit to EDWIN LADNINE, Widemarsh Street, Hereford.

HOW'S EARLY FLUKE is the best keeping, most prolific, and whitest EARLY POTATO grown. Price 10*s*. per bushel of 56lbs. See former Advertisements.

W. A. HOW, Redmarly, Newent, Gloucester.

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F. G. GODWIN has a surplus lot of the EARLY ROUND HANDSWORTH POTATO, which he offers at 7*s*. 6*d*. per cwt., to clear out.

Nos. 3 & 4, Norfolk Market Hall, Sheffield.

Good Clean Clover Seed.

FOR SAMPLES AND PRICES APPLY TO

SUTTON AND SONS, stating quantities required, and whether for Cash payment or otherwise.

Royal Berkshire Seed Establishment, Reading.—April 11.

NEW SUBSTITUTE for VETCHES, "SERADELLA."

See SUTTON'S SEED LIST, which may be had post free.

Royal Berkshire Seed Establishment, Reading.

Munster Farm, Fulham.

SEA KALE SEED being scarce this season, has induced me to offer the SEA KALE SETS for next winter's Forcing for making fine large crowns, which can be had at 10*s*. per 1000. The Trade liberally supplied.

WILLIAM BAGLEY.

Yellow Tankard Turnip.

JAMES FAIRHEAD AND SON have a SURPLUS STOCK of above, which they can recommend with the greatest confidence. Price on application, 7, Borough Market, London, S.E.

MANGEL WURZEL SEED in every variety, supplied at very moderate rates, direct from the Grower, Mr. SIMON A. DAINTREE, of Feudrayton, St. Ives, Hunts.

SEED CORN from the CHALK.—All the most approved varieties supplied by RAYNBIRD, CALDECOTT, & BAWTREE. Samples and prices on application.

Address, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

CHOICE CAMELLIA SEED, saved from one of the finest Collections in Europe. 1*s* per packet.
James Carter & Co., 237 and 238, High Holborn, W.C.

The Best Primula in Cultivation is

WILD'S VILLAGE MAID.—Mauve with silvery margin; for size, form, substance and colour, is unrivalled. Free by Post on receipt of 2*s*. 6*d*. postage stamps
Thos. Wild, The Primulary, Ipswich.

New Verbenas and Fuchsias. Double and Single Petunias of 1862.

WM. KNIGHT offers strong well-established Plants of all the best varieties of the above for Bedding or Exhibition, having been one of the most successful exhibitors of the above. Nothing but first-rate proved flowers in their classes are offered. VERBENAS, 5*s*. per doz.; FUCHSIAS, 6*s*. per doz.; PETUNIAS, 6*s*. per doz.
Floral Nursery, Hailsham, near Hurst Green, Sussex.

Notice.—American Plants.

WATERER and GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.
The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by Waterer & Godfrey, Knap Hill, near Woking.

Bedding Plants, mostly 2*s*. 6*d*. per dozen.

J. SCOTT'S FLOWER GARDEN and ANNUAL DIRECTORY will be ready to forward, from the 1st week of April, at 6*d*.
"All who wish to have their Gardens gay, at a moderate price, should procure the above."
Merriott, Crewkerne, Somerset.

Bedding Plants.

MARSH and PERKINS, 42, Drapery, Northampton, have pleasure in offering the following strong autumn-struck Plants:—

TOM THUMB GERANIUMS, CALCEOLARIA AUREA FLORIBUNDA, " MACKAYII, " PRINCE OF ORANGE. } 8*s*. per 100 when equal quantities of each are taken.

N.B. Cash or reference from unknown correspondents.



HOLLYHOCKS (MIXED)
from the finest Show Varieties.
Strong Blooming Roots,
4*s*. to 6*s*. per dozen; 25*s*. per 100.

RICHARD SMITH,
The Nurseries,
Worcester.

Superb Hollyhocks.

R. B. BIRCHAM begs to state that he has many thousands of fine Plants of the leading kinds of HOLLYHOCKS, which he will be happy to offer upon the most advantageous terms to any Nurseryman or Florist who may require them. Price per hundred upon application.
Purchasers requiring Blacks, Whites, or Yellows can be supplied at per dozen.
Hedenham Rosery, Bungay, Suffolk.

Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER'S CATALOGUE of the above popular plants, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants.
It describes faithfully the colours of all the Rhododendrons, thereby rendering every facility for making selections.
It likewise contains an abridged List of really Hardy Conifers, with their heights and prices.
The American Nursery, Bagshot, Surrey.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.
Richard Smith, Nurseryman, Worcester.

Green Hollies.

CORNELIUS WHITEHOUSE, Brereton Nursery, Rugeley, Staffordshire, offers an immense stock of well-grown healthy extra Transplanted HOLLIES, exceedingly well-rooted, from 12 to 15, 15 to 18, 18 to 24, 24 to 30 inches. Also very handsome SPECIMEN PLANTS from 3 to 5 feet; also ENGLISH YEWS from 2 to 2½ feet, 2½ to 3 feet and upwards. The above growing on ground to be cleared for other stock, the price will be liberal. Trade price on application.

GREEN HOLLY, &c., 1 to 1½ foot, 1½ to 2 feet, and 2 to 3 feet, strong Transplanted, and all other sorts of EVERGREENS of the most suitable sizes and ages for removal.
This and the ensuing month considered best time for the transplanting of Evergreens.
James Dickson & Sons, The "Newton" Nurseries, Chester.

Seeds for the Kitchen Garden, Flower Garden, and Farm.

JOHN CATTELL'S DESCRIPTIVE CATALOGUE of the above is now ready, and will be forwarded, post paid, on application; it contains select lists only, and includes every novelty worthy of cultivation.
All parcels of Seeds of the value of 21*s*. and upwards carriage paid to any Railway Station in England.
Nursery and Seed Establishment, Westerham, Kent.

Vegetable, Flower, and Agricultural Seeds.
New and Rare Plants, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing select descriptive and priced lists of AGRICULTURAL, KITCHEN GARDEN, Imported GERMAN, and other FLOWER SEEDS; NEW and RARE PLANTS; Variegated, Ornamental Foliaged, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now published, and will be forwarded Post Free to all applicants.
Exotic Nursery, Tooting, Surrey, S.

GRASS SEEDS AND CLOVER SEEDS.

J. C. WHEELER & SON,

SEED GROWERS, of GLOUCESTER,

ARE IN A POSITION TO OFFER

GRASS SEEDS and CLOVER SEEDS

ON EXTREMELY LIBERAL TERMS.

KITCHEN GARDEN SEEDS,

FLOWER SEEDS.

In Collections including all the new and approved kinds, or separate to order.

Detail CATALOGUES post free.

THOS. GIBBS & Co. Corner of HALF-MOON St. PICCADILLY, London. (Appointed Apl. 3, 1844) THE SEEDSMEN

AGRICULTURAL SEEDS,

GRASS SEEDS,

FARM SEEDS,

of all descriptions.

Thomas Gibbs & Co.

CORNER OF
HALF-MOON St.
Piccadilly. London, W.

NEW PLANTS FOR 1863.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Has much pleasure in offering the following NOVELTIES for the first time, to be sent out after April 20:—

New Achimenes.

The following choice varieties are the seedling productions of that successful gardener, Mr. Parsons, of Welwyn, and they will be found great acquisitions to this beautiful class of plants, and quite equal to the descriptions given:—

ACHIMENES MAUVE QUEEN.—This splendid variety is, without exception, the finest of all that useful and most desirable class of summer-flowering plants; a great improvement on longiflora major; producing an abundance of beautiful large mauve-coloured flowers, with a conspicuous light chocolate eye, splendid form, and of extraordinary waxy substance. Was exhibited by the Raiser at the Floral Committee of the Royal Horticultural Society, and was awarded a First-class Certificate. Figured in the "Floral Magazine," November, 1862. Price 10*s*. 6*d*. each.

ACHIMENES CARMINATA ELEGANS.—Another beautiful variety, and is, without doubt, the finest of the small and free-flowering sections, producing spikes 18 inches in length; being of good branching habit, is capable of producing specimens 3 or 4 feet in diameter, thus making it a charming object for the, summer and autumn months. Price 7*s*. 6*d*. each.

*** Coloured Illustrations of each of the above by Andrews will be forwarded in exchange for six postage stamps.

New Petunias.

The following valuable varieties were raised by Mr. Holland, of Isleworth, and are a small collection selected from a large quantity of Seedlings. They are confidently recommended for general excellence, being great improvements on all others previously offered.

PETUNIA CRIMSON GEM.—A compact branching and free growing variety; flowers of a soft velvety crimson, with dark throat; of great substance and fine form; an improvement on Phaeton and all in that way. This is, without exception, the highest coloured Petunia yet offered. Received a First-class Certificate from the Royal Botanic Society, May, 1862. Price 5*s*. each.

PETUNIA FLOWER OF THE DAY.—This remarkable flower has four broad stripes of pure white, and four bright purple above, equally divided; very constant and beautiful. Received a First-class Certificate from the Royal Botanic Society, May, 1862. Price 5*s*. each.

PETUNIA ROSA BELLA FORME.—A free flowering and shrubby variety, of first-class habit for bedding and other purposes, being of short jointed growth; producing an abundance of beautiful bright Magenta flowers, with a clear white throat, of great substance and perfect form. This will, without doubt, prove to be the best bedding Petunia yet offered. Price 5*s*. each.

*** Coloured Illustrations of Petunia Rosa Bella Forme, and Flower of the Day, by Andrews, will be forwarded in exchange for six postage stamps.

New Zonale Geranium.

CONQUEROR OF EUROPE (Holland).—Beautiful soft carmine; fine form and substance; extra large truss; long flower stalks, producing enormous heads of bloom well above the foliage; good and compact habit; fine for pot culture Was awarded a First-class Certificate at the Royal Horticultural Society's meeting, June 1862. Price 5*s*. each.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

GEORGE SMITH

BEGS TO OFFER HIS MOST SUPERB

NEW SEEDLING FUCHSIAS, ZONALE GERANIUMS,

AND LOBELIA ALBA CŒRULEA,

As undermentioned, as the GREATEST NOVELTIES of 1863, and at the same time is persuaded that they will give entire satisfaction, as they are far in advance of all others in general cultivation, viz.:—

Fuchsias.

HERCULES.—Extra large, a smooth and compact double kind, with deep violet corolla, handsome tube and sepals, free, and of fine habit. To be figured in the "Floral Magazine" for February, 1863. 10*s*. 6*d*. per plant.

BRIDESMAID.—White tube, and sepals well reflexed, corolla rosy violet. This is a noble and stout flower, and by far the best of all light varieties yet offered; habit suitable for all purposes. 10*s*. 6*d*. per plant.

SANSPAREIL.—Tube and sepals scarlet, the underside lighter than the upper, finely incurved, corolla large pure white. This splendid variety was exhibited at the Royal Botanic Gardens in July last, and was admired by all who saw it, and also considered the finest white-corolla Fuchsia ever exhibited. A First-class Certificate was awarded it. To be figured in the "Floral Magazine" in February, 1863. 10*s*. 6*d*.

CONSPICUA.—Tube and sepals brilliant scarlet, of fine form, well reflexed, corolla pure white, with a small feather of carmine half down the corolla. This flower is remarkably bold and pure, of free growth, and one of the most profuse bloomers ever offered, throwing from 12 to 18 blooms at a joint, thus making it one of the most effective Fuchsias yet offered. It also continues to flower throughout the season from May to November, with the same beautiful effect. It received a Certificate from the Horticultural Society's Floral Committee. 10*s*. 6*d*. each.

DANDY.—This is a remarkable dwarf variety, growing at from 9 to 12 inches high, tube and sepals crimson, corolla carmine salmon, very double, constant, and free flowering. It received a First Class Certificate at the Royal Botanic Gardens in July last. 7*s*. 6*d*. per plant.
They will be sent out after the 20th of April, in strong plants.
*** Coloured Illustrations of the four first named by Mr. Andrews, in exchange for 12 postage stamps.

New Zonale Geraniums.

This now most splendid class of flowers is deserving, from their great improvement, to be more generally cultivated, varying from pure white to the most dazzling scarlet, with form all but perfection.

G. S. recommends the following three, as most worthy to be added to the best collections, viz.:—

PRESIDENT.—Rosy carmine, large truss of great substance, and one of the best yet produced. 5*s*. each.

FASCINATION.—Rosy pink, with a margin of blush white, a fine variety, with good form and truss. 5*s*. each.

SENATOR.—Brilliant vivid scarlet, large truss of flowers nicely shown above the foliage, fine habit. This is in every way a first-class variety. In good strong plants after the 20th April. 5*s*. each.

Lobelia.

ALBA CŒRULEA.—This very distinct and beautiful bedding plant will be found a great acquisition to the flower garden, being a profuse bloomer; the flowers are very large, being three-quarters of an inch across, with conspicuous white centre edged with blue; good habit. To be sent out after the 20th of April at 1*s*. 6*d*. per plant, 12*s*. per dozen, or 3*l*. 10*s*. per 100. The usual discount to the Trade.

TOLLINGTON NURSERY, HORNSEY ROAD, ISLINGTON, LONDON, N.

E. G. HENDERSON AND SON offer First-class quality of CINERARIA,

CALCEOLARIA, and PRIMULA SINENSIS FIMBRIATA, 1s. and 2s. 6d. per packet.

CINERARIA WEBBI.—The interest and value of this species consists in its having a shrub-like branched habit of growth, attaining from 3 to 4 feet in height. This remarkable plant is expected to originate a new and desirable class of varieties for exhibition purposes, it having already passed into all the colours found in florist varieties of the present time, and no doubt but higher improvements in form, and other essential properties, will be obtained in connection with its superior culture. It will be found well adapted for decorative purposes, by its taller growth, and longer continuance in bloom. 2s. 6d.

Wellington Nursery, St. John's Wood, London, N.W.

DAHLIAS.

CHARLES TURNER ..	KEYNES..	8	First-class	Certificates
LORD WILTSHIRE ..	DODD ..	3	do.	do.
PRINCESS ALICE ..	EDWARDS			
COUNT CAVOUR ..	,,	3	do.	do.
SERENITY	RAWLINGS			
MRS. HOGG	,,			
EARL RUSSELL.. ..	SILVER ..	4	do.	do.
BELLONA	HARRISON	4	do.	do.
PATENT	NAIRN ..	6	do.	do.
BRIDE	RAWLINGS	2	do.	do.
MRS. WICKHAM ..	,,			
THE BEAU	,,			

It is respectfully announced that these 12 First-class Flowers will be ready for distribution the first week of May.

CATALOGUES with full descriptions will be forwarded on desire.

JOHN KEYNES, Castle Street Nursery, Salisbury.

Superb New Fuchsias.

LUCOMBE, PINCE, AND CO. have much pleasure in announcing that they purpose sending out the first week in May, their two unrivalled SEEDLING FUCHSIAS, which have been selected with great care, and proved the second season; they can therefore be confidently recommended as being of sterling merit, short jointed, distinct, compact in habit, and abundant bloomers, and they are, without exception, two of the finest single varieties ever introduced.

The following is a description of them given in the "Gardeners' Weekly Magazine," by Shirley Hibberd, Esq., to whom the Flowers were submitted last season.

"The EARL of DEVON (PINCE'S).—Sepals broad, stout, reflexed, coral-red; corolla cup-shaped; petals broad extra stout, overlapping freely, so as to produce a remarkably smooth edge; colour, rich velvety purple; base of each petal stained crimson.

"A large, massive, and very symmetrical flower, in the style of Prince Leopold, which it surpasses in the entire absence of indentations." 10s. 6d. each.

"EXHIBITOR (PINCE'S).—Tube short; sepals broad, well reflexed; lively carmine; corolla cup-shaped, expanded; petals thick, overlapping liberally, smooth; reddish purple.

"A noble flower, and a first-class exhibition variety." 10s. 6d. each.

A liberal allowance will be made to the Trade.

Exeter Nursery, Exeter.

New Shrubby Calceolarias.

MESSRS. JOHN AND CHARLES LEE having purchased the entire stock of Seedling SHRUBBY CALCEOLARIAS, raised by Mr. Watson, of St. Alban's, in 1861 and 1862, have selected four distinct colours, which they intend to offer to the Public the first week in May. They are the finest high-coloured Shrubby Calceolarias yet raised, and in point of habit and quality are everything that can be desired for bedding or pot culture. They are decidedly shrubby and of good constitution, with a dwarf spreading habit and good foliage. The flowers rise just above the leaves, forming an even mass of exquisite colouring.

Price 5s. each, or 15s. the set, as under:—

PRINCESS ALEXANDRA.—Rich orange buff, of very dwarf habit, free blooming and conspicuous. Quite a new colour in Calceolarias.

MAGNIFICENT.—Deep orange flowers, of large size with close mouth, flower stalks short and stiff, a good dense habit, and first-rate in every respect.

PRINCE LOUIS of HESSE.—Rich crimson flowers of medium size, free blooming, habit very dwarf and showy.

FIREFLY.—Intense orange scarlet flowers of good size, free blooming dwarf habit, the brightest colour yet raised.

Terms to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

NEW HARDY BEDDING PLANT,

Pentstemon compactum nanum (Wemyss).

STUART AND MEIN have much pleasure in offering this very desirable variety. It was awarded a Certificate by the Floral Committee of the London Horticultural Society at its Meeting, Oct. 8, 1862, and is thus noticed in the *Gardeners' Chronicle*, Nov. 15, 1862:—"One called Compactum was particularly remarkable for its sturdy compact growth, its abundant blossoms, and its deep crimson colour, which had more of richness in the hue than commonly occurs amongst these plants." It was bedded last season, and attracted universal admiration. Its compact dwarf habit, attaining not more than 12 inches, and the profusion and brilliancy of its colour, recommend it as a most desirable bedding plant, particularly in cold wet seasons like the last, when Verbenas and other tender plants almost universally failed.

The following among others saw it in flower the past season:—

"When I saw your dwarf Pentstemon compactum nanum about the middle of October, I was much pleased with its dwarf compact habit, fine dark green foliage, and showy crimson flowers, when (as to flowers) the Geraniums, Calceolarias, and Verbenas were all gone. It will undoubtedly prove a great acquisition to the present stock of bedding plants." JOHN SMITH, Gardener to his Grace the Duke of Northumberland, Syon House.

"I was exceedingly pleased with your Seedling Pentstemon compactum nanum when I saw it in flower in September. I had not previously seen any other variety to be compared to it, and fully believe it will prove a first-rate bedder." WILLIAM DODDS, Gardener to Sir J. H. Greville Smyth, Bart., Ashton Court.

Plants sent out first week in May, 12s. per doz., or 50s. per 100. Usual discount to the Trade.

STUART & MEIN, Rosebank Nurseries, Kelso, N. B.

New Roses.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites attention to the following NEW ROSES, which will be ready for delivery very shortly.

LORD HERBERT, H.P.—Rosy carmine, the petals reflexing at the summits in the way of Beauty of Waltham, large, full, and finely formed, and altogether of first-rate excellence. 7s. 6d.

LORD MACAULAY, H.P.—Velvety crimson, in the way of General Jacqueminot, but brighter in colour, thicker in the petal, and more double. The flowers are of good average size, produced abundantly and in rapid succession; the habit is good, and foliage handsome. 7s. 6d.

MRS. WILLIAM PAUL, H.P.—Bright violet red, shaded with fiery red; flowers constantly, and in clusters, large and full. Raised by M. Verdier, of Paris, the raiser of Madame Furtado, and others of our finest Roses. 5s.

RED ROVER, H.P.—Bright red petals, large, thick, and round; flowers abundantly and in succession up to Christmas. Not double enough for a show Rose, but the most effective pillar Rose ever offered. 3s. 6d.

WILLIAM PAUL, H.P.—A seedling from Senateur Vaisse, but brighter in colour. Raised at Lyons by the raiser of Lord Raglan, Senateur Vaisse, and other first-class sorts. 5s.

BEAUTY OF WALTHAM, H.P.—Bright rosy crimson, of good size, form, and substance, and deliciously sweet. This Rose is found to surpass the description originally given of it. 3s. 6d.

All the new French Roses, 3s. 6d. to 5s. each, or 42s. per dozen. The best of the old Roses at lowest advertised prices. The plants are well established, and in the finest possible health.

PRICED CATALOGUE free by post.

Nurseries and Seed Warehouse, Waltham Cross, N.

J. LINDEN'S ESTABLISHMENT for the INTRODUCTION of NEW PLANTS, Royal Zoological and Horticultural Gardens, Brussels.

The NEW CATALOGUE for 1863 is just published, and contains a great number of newly introduced plants.

Agents in London, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C., who will forward the Catalogue on application.

Choice Gladioli.

WM. CUTBUSH AND SON can supply the most choice kinds in strong flowering Bulbs, selection being left to them, as follows:—

No. 1 Collection.—100 Bulbs in 50 of the most choice and handsome varieties, with names, 5l.

No. 2 Collection contains 100 Bulbs in 30 ditto, ditto, 3l. 15s.

No. 3 Collection contains 100 Bulbs in 25 ditto, ditto, 2l. 10s.

Fine Selections will be supplied at 9s., 12s., 18s., to 30s. per dozen.

For description, &c., see CATALOGUE, free per post.

Highgate Nurseries, London, N.

GLADIOLUS, SEEDLINGS of GANDAVENSIS.

50 in 25	extra choice varieties	..	..	£2	2s.	0d.
25 in 25	,,	,,	..	.. 1	5	0
12 in 12	,,	,,	..	.. 0	12	0
50 in 50	choice varieties	..	..	.. 2	12	6
50 in 25	,,	,,	..	.. 1	5	6
25 in 25	,,	,,	..	.. 0	13	6
12 in 12	,,	,,	..	.. 0	5	0

Extra fine mixed, 2s. 6d. per doz., 17s. 6d. per 100.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, W.C.

Cloth of Gold, and Golden Fleece Geraniums.

STEPHEN SHILLING has to offer the above Plants, good, strong, and well-established in pots, at 31s. 6d. per 100.

As it will save a great expense in the carriage, he will supply the same turned out of pots, carefully packed, at the following prices. 25s. per 100.; 10l. per 1000.

Delivered to the Winchfield and Basingstoke Stations, on the South Western Railway.

Orders executed in strict rotation as received.

North Warnboro' Nursery, Odiham, Hants.—April 11.

BEDDING GERANIUMS, 2s. 6d. per dozen. Twelve dozen choice Bedding GERANIUMS, in 12 varieties, purchaser's selection, for 32s. 6d., basket and package included; or any kind separately, at 3s. 6d. per dozen.

VARIEGATED.	ZONALE.	ZONALE.
Golden Chain	Scarlet Perfection	CrystalPalaceScarlet
Reine d'Or	Lady of Loretto	Blackheath Beauty
Golden CeriseUnique	Little David	Princess of Prussia
Flower of Spring	Beauté de Meldoise	M. Martin
Alma	Lady Middleton	Mde. Chardine
Hendersonii	Christina	Paul L'Abbé
Bijou	Rose Queen	Imperial Crimson
St. Clair	Scarlet Queen	Model Nosegay
Countess of Warwick	Indispensable	Minimum Nosegay
Shottesham Pet	Bishopstowe Scarlet	Purple Nosegay

All the leading kinds at moderate prices. Price to the Trade on application.

A remittance respectfully requested from unknown correspondents. Post Office Orders to be made payable to ALFRED FRYER, Chatteris, Cambridgeshire.

New Verbenas and Geranium.

RODERICK ELPHINSTONE, Sprowston Nursery, Norwich, respectfully begs to intimate that he intends sending out on May 1st, the following SIX VERBENAS; they were selected out of 2000 grown by himself, and he has no hesitation in saying that for size, shape, and substance, combined with compact habit, they will prove themselves universal favourites, both for Bedding and Exhibition purposes. Price 3s. 6d. each, with the usual allowance to the Trade:—

PRINCE OF WALES.—Bright rose, of extraordinary size, with large yellow eye; strong compact growth.

PRINCESS OF WALES.—Light, or Cobalt blue; of extra size, shape, and substance; clear white eye; of large size, a strong compact grower, and very sweet scented.

GEM OF THE EAST.—Brilliant crimson, large white eye; dwarf compact habit, extra size, form, and substance.

MRS. MEADE.—Crimson-purple, with a light eye, surrounded with prisms of a darker purple; nsw in colour.

ALEXANDER.—The most compact and free flowering scarlet ever offered, and for the flower garden will prove a decided acquisition.

ANNIE.—Fiery crimson, fine white eye surrounded with a dark ring, a fine show variety.

BEDDING GERANIUM FIREBRAND.—Is of the Nosegay section, habit most desirable; dwarf and compact, with small flat foliage. The bloom, which is shown well above the foliage, is of a bright blood colour; a profuse bloomer. It obtained the following Certificates of Merit:—

First-Class Certificate awarded by the Norwich and Norfolk Horticultural Society, June, 1862.

First-Class Certificate awarded by the Colchester and East Essex Horticultural Society, July, 1862.

First-Class Certificate awarded by the Ipswich Horticultural Society, July, 1862.

Plants, 30s. per dozen; single plants, 3s. each.

BARR & SUGDEN, 12 KING ST. COVENT GARDEN

All orders 21s. and upwards sent Carriage paid.

STRONG FLOWERING CANNA ROOTS.

A PORTION OF THE UNRIVALLED COLLECTION OF OUR "SARDINIAN CORRESPONDENT."

The CANNA, when associated with GLADIOLI, HOLLYHOCKS, DAHLIAS, RICINUS, &c., in large beds on the Lawn, Flower Borders, select Plantations or Shrubbery Borders, is one of the most picturesque and beautiful of Foliage Plants.

100 Roots assorted, our own selection, in 25, 30, and 40 varieties, £5 5s., £6 6s., and £7 7 0

50 Ditto, ditto 2 15 6

25 Ditto. ditto 1 10 6

12 Ditto, ditto ... ... 12s., 18s. to 1 1 0

For a named Collection of 40 magnificent varieties of CANNA ROOTS, see last week's Advertisement, p. 311

STRIKING NOVELTIES.—Continued from the "*Gardeners' Chronicle*" of March 21, p. 263.

Phlox Drummondi.—See page 68 of our "Guide to the Flower Garden."

		s.	d.
1914	PRINCESS ALEXANDRA, a most beautiful variety; flowers scarlet with black centre	1	6
1919	TWILIGHT, an exquisite variety; flowers finely formed and very large, of a rich violet colour with black centre, producing a splendid effect in beds..	1	6

Phygelius.—See page 68 of our "Guide to the Flower Garden."

3258 PHYGELIUS CAPENSIS AURANTIACUS.—A magnificent variety of this favourite genus, with large orange tubular-shaped flowers of great beauty. A very desirable plant for flower beds and borders, also for the ornamentation of the Conservatory or Greenhouse. Cultural treatment, same as Pentstemon, which it much resembles 1 0

Potentilla.—See page 70 of our "Guide to the Flower Garden."

1991	POTENTILLA CARDINALIS.—An exceedingly fine variety, with handsome scarlet flowers	1	0
1998	,, MARGINATA.—A beautiful variety, with purple and white flowers	1	0
2002	,, RESPLENDENS.—Carmine and rose, very beautiful	1	0
2003	,, SPLENDIDISSIMA.—Flowers of a beautiful vermilion colour	1	0

Quercus.—See page 71 of our "Guide to the Flower Garden."

2033 QUERCUS MIRBECKII.—A magnificent species of African Oak, with a picturesque glossy variegated foliage and majestic growth .. 0 6

Rhodanthe.—See our "Guide to the Flower Garden."

		s.	d.
2039	RHODANTHE MACULATA.—Amongst the prettiest novelties of the season; resembling the well-known and highly prized Rhodanthe Manglesii, but with flowers 2 inches in diameter, of a bright rosy-purple, and yellow disc, surrounded by a conspicuous dark crimson ring; of robust growth, and altogether better adapted for out-door culture than R. Manglesii	1	0

Ricinus.—See page 72, also Engraving on 3d page of Wrapper of "Guide to the Flower Garden."

2050	RICINUS ROSEUS SUPERBUS.—A magnificent variety, with large picturesque foliage and beautiful rose-coloured fruit changing to blood-red ..	1	0
2056	RICINUS VARIABILIS SPLENDENS.—The most picturesque and beautiful variety known; foliage large and exceedingly ornamental, stems rich vermilion, fruit bronzy green, covered with carmine prickles; these combining with its stately growth, render it a most desirable variety for conspicuous parts of shrubberies, flower borders, woodland walks, &c.	1	0

Solanum.—See page 76 of our "Guide to the Flower Garden."

2203	SOLANUM PRINCESS BEATRICE.—This is one of the many remarkably beautiful varieties it has been our good fortune to bring before the notice of our patrons. The plant is of a neat compact bushy habit, covered for months in succession with the most lovely soft vermilion-coloured fruit, which forms a striking contrast to its pretty foliage. A FIRST-CLASS NOVELTY	1	6
2200	SOLANUM LANCEOLATUM.—A fine species of upright growth, with Cbænestes-like foliage, and large flowers of a beautiful intense blue	1	0

New White Verbena, White Lady.

B. W. KNIGHT, FLORIST, &c., Battle, Sussex, begs to offer the above splendid variety. It is the best white yet produced; the blooms are large, of a pure white with primrose eye, pips even and smooth, large truss well up in the centre, free grower, a useful variety either for bedding or exhibition, It can with confidence be depended upon for all purposes. Plants the end of April, 3*s.* 6*d.* each.

CATALOGUES of other superb SEEDLINGS sent on application.

20,000 Indian Azaleas.

WILLIAM BARNES has the above to offer for Sale, of all the known varieties worth growing (both English and Continental), sizes varying from 1 foot to the noble specimen of 6 feet in height and 3 feet 6 inches in diameter, all in the most perfect state of health and vigour, and models in form.

Intending purchasers of this beautiful tribe of plants, will on inspection of those grown by W. B., at once see the precedency of the English stock over the Foreign one. Those grown and grafted in England on the proper stock are doubly vigorous, bloom quite as profusely, and the flowers are of much more perfect form and colour. W. B. has not the slightest wish to depreciate the continental culture of the Azalea, he merely invites the public generally to an inspection of his plants. All doing him the favour of a visit will have ocular demonstration of the advantage gained by grafting the Azalea in this manner, on a stock very little known (if at all) to any one with the exception of W. B., who discovered it after many years of practical experience and observation, and has proved it to be the stock for Indian Azaleas to flourish upon.

Many of the beautiful specimens which have been exhibited (and obtained prizes) at the Metropolitan and Provincial Shows, were grown at this Nursery.

Prices on application.

Camden Nursery, Camberwell, S.

JEAN VERSCHAFFELT begs respectfully to announce that he is now taking orders for the two following new INDIAN AZALEAS, which he will send out for the first time in May next. Full description of the same may be found in J. V.'s NEW CATALOGUE, to be obtained on application either to himself or to his Agents, Messrs. R. SILBEBRAD & SON, 5, Harp Lane, Great Tower Street, London:—

AZALEA INDICA SECRETAIRE CLAUS (J. V.), 7*s.* each.
AZALEA INDICA VICOMTE DE FORCEVILLE (J. V.), 10*s.* each.

One Plant over on every three to the Trade.

Early Orders are solicited, to be directed to JEAN VERSCHAFFELT, Nurseryman, 43, Rue de la Caverne, Ghent Belgium).

NEW PRIZE MELONS, at 1*s.* 6*d.* per packet.

Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria,

For descriptions see GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

NEW MELON, PRINCESS ALEXANDRA.—A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1*s.* per packet.

JAMES CARTER & Co., 237, 238, & 261, High Holborn, W.C.

THE GREAT VINE at HAMPTON COURT.—The Subscribers being the holders of the Royal Kitchen Gardens, Hampton Court, are enabled to offer genuine the famous and truly excellent HAMPTON COURT BLACK HAMBURGH GRAPE.

Strong well-ripened plants in 9-inch pots, 42*s.* and 60*s.* p. doz.

If purchased in large numbers a considerable reduction will be made in price.

JACKSON & SON, Nurseries, Kingston, S.W.

EXTRA STRONG FRUITING VINES.—All the leading varieties, from Eyes, with stout well ripened rods, for FRUITING in POTS this YEAR. Price, from 7*s.* 6*d.* each; smaller, for Planting-out, from 3*s.* 6*d.* each. A reduction in price will be made to large purchasers.

"We can especially recommend the above, our strong Vines having for some years given unqualified satisfaction."—*Vide* Leading Article in *Gardeners' Chronicle* for December 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries, Chester.

FARM AND GARDEN SEEDS

CARRIAGE FREE.

BANGHOLM SWEDE,
EAST LOTHIAN SWEDE,
WARD'S BEAUTY SWEDE,
DROPMORE SWEDE,
MARSHALL'S CHAMPION SWEDE,
GREEN-TOP SWEDE,
WHITE SWEDE,
IMPROVED SKIRVING'S SWEDE.
WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
DOBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
IMPROVED YELLOW GLOBE DITTO,
IMPROVED ORANGE GLOBE DITTO,



IMPROVED LONG RED MANGEL,
IMPROVED LONG YELLOW MANGEL,
IMPROVED RED GLOBE MANGEL,
IMPROVED WHITE FIELD BEET,
RED CLOVER, | COWGRASS,
WHITE, YELLOW, and ALSIKE CLOVERS.
PACEY'S PERENNIAL RYE-GRASS, and other sorts.
ITALIAN RYE-GRASS, FOREIGN and ENGLISH SEED.
NATURAL GRASS SEEDS, in mixture or separate, suitable for various soils and localities.
LIGHT RYE-GRASS and other CHEAP GRASSES, for Sowing on Railway Banks and Waste Places.

Orders for Exportation promptly attended to.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN,
28, KING STREET, CHEAPSIDE, NEAR the GUILDHALL; and
15, LAWRENCE LANE, LONDON, E.C.

NEW WHITE BEDDING VERBENA, WHITE LADY.

RAISED BY MR. SKINNER, GARDENER AT HENGRAVE HALL, NEAR BURY ST. EDMUNDS.

THIS is the WHITE BEDDING VERBENA of the Season, and by far the finest in its section hitherto offered. It is 12 inches in height, with an erect, close, compact habit, approaching that of Purple King. The truss is large, forming a perfect ball, from 2 to 2½ inches in depth, and the same in diameter; a bed of this and Mrs. Holford presented a very remarkable difference by contrast. The clearness of colour, and absence of all shade in the White Lady showed on comparison a large dark centre eye, or spot in the disc of Mrs. Holford, and the effect was still further enhanced by nearly double the quantity of bloom in the same space produced in the variety now offered. We could not have accredited the great superiority of one over the other had we not seen it ourselves, not only as to the purity of its colour, but also in the amount of bloom being so great. Its delightful fragrance will add to its first-class merits for bedding purposes, and other decorative designs, in ribbon-lines, &c. Each, 1*s.* 6*d.*; 12 Plants, 12*s.*; 25 Plants, 20*s.*; 50 Plants, 36*s.*

BLUE KING (Grieves).

Good habit, seedling from Purple King, colour good; an improvement upon Blue Bonnet. Each, 1*s.* 6*d.*; 12 Plants, 12*s.*; 25 Plants, 20*s.*; 50 Plants, 33*s.*; 100 Plants, 50*s.*

ST. CLAIR (Grieves).

Rich plum-colour, large truss, habit same as Purple King, being a Seedling from it; a fine bedder. Each, 1*s.* 6*d.*; 12 Plants, 12*s.*; 25 Plants, 20*s.*; 50 Plants, 33*s.*; 100 Plants, 50*s.*

NEW VERBENAS FOR EXHIBITION AND BEDDING PURPOSES.

RAISED BY MR. EDMONDS.

Eulalie, Effie Deans, Glendower, Nora, Peep-o'-Day, Stella, Princess.

Admiral Mitford,

RAISED BY MR. SMITH, GARDENER TO ADMIRAL MITFORD, OF HUNMANBY.

2*s.* 6*d.* each.

☞ *Orders for the above executed on and after the 27th of April.*

E. G. HENDERSON AND SON,
WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

GENUINE SEEDS FOR THE FARM AT LOW PRICES.

THE PLYMOUTH SEED COMPANY, PLYMOUTH,

Have a large and pure Stock of all kinds of GRASS SEEDS for PERMANENT PASTURES, Mixtures of which can be had expressly to suit any soil. The quantity recommended per Acre is 2 bushels of the Light Grass Seeds, and 12 lb. of Clovers.

Mixtures for Permanent Pasture ... ... **per acre, 22s. to 30s.**
Mixtures for Permanent Lawns ... ... **per bushel, 16s.; per lb. 1s.**
Mixtures for Uplands and Sheepwalks ... ... **per acre, 22s. to 30s.**
Mixtures for Water Meadows ... ... **per acre 24s.**
Mixtures for Cemeteries, Churchyards, &c. ... ... **per bushel, 16s.; per lb. 1s.**

RYE GRASS.	per bush.—*s.* *d.*
Italian Imported ...	6 0
Italian, English saved	6 0
Perennial, in varieties	4*s.* to 7 0

CLOVERS.	Per lb.—*s.* *d.*
English Red	6*d.* to 0 9
Foreign Red	6*d.* to 0 8
White or Dutch	9*d.* to 1 0
Trefoil ...	4*d.* to 0 6
Alsike	1 6

MANGEL WURZEL.	Per lb.—*s.* *d.*
Fisher Hobbs, true	1 6
Long Red	0 6
Yellow Globe ...	0 6
Red Globe	0 6
Long Yellow ...	0 6

SWEDES.	Per lb.—*s.* *d.*
Plymouth Improved Purple-top ...	1 0
Skirving's	0 9
Purple-top	0 9
Green-top	0 9

OTHER TURNIPS.	Per lb.—*s.* *d.*
Scotch in Vars. ...	0 9
White Globe ...	0 8
Green Globe ...	0 8
Red	0 8
Grey Stone ...	1 0
Orange Jelly ...	0 10
Tankards	0 9

CARROTS.	Per lb.—*s.* *d.*
White Belgian ...	1 0
Yellow do. ...	1 3
Altringham ...	1 6
Long Surrey ...	1 3

And all other AGRICULTURAL SEEDS at Moderate Prices.

THE FARM SEED LIST IS NOW READY, AND CAN BE HAD GRATIS ON APPLICATION.

Complete Collections of Garden Seeds, 10s. 6d., 15s., 20s., 40s., 60s. For particulars see General Price Current.

Seeds Carriage Free.

ADDRESS, PLYMOUTH SEED COMPANY, PLYMOUTH, DEVON.

EDWIN HOLLAMBY begs to inform his Patrons and Friends that his DESCRIPTIVE PRICED CATALOGUE of VEGETABLE, FLOWER, AGRICULTURAL SEEDS, and GLADIOLUS is now ready, and may be had gratis and post paid on application.
Nursery and Seed Establishment, Tunbridge Wells, Kent.

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs respectfully to announce that he has just published a SUPPLEMENT to his CATALOGUE of PLANTS, which may be had on application to his Agents, Messrs. R. Silberrad, 5, Harp Lane, London, E.C.

Introduction of New Plants.

AMBROISE VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to announce that his NEW CATALOGUE (No. 72) is ready, and contains all his NOVELTIES to be sent out this season.
The Catalogue will be forwarded on application.

L. T. DAVIS begs to offer the following PLANTS at very low prices :—

Specimen Plants.
SCARLET RHODODENDRONS.
CRIMSON Do.
COMMON Do. (Ponticum)
VARIEGATED HOLLIES, of sorts
GREEN HEDGEHOG, Do.
PERNETTYA MUCRONATA.
AMERICAN ARBORVITÆ.
BERBERIS DULCIS.
DOUBLE WHITE PRIMROSES.
,, LILAC Do.
,, PURPLE Do.

☞ The above can be had of various sizes. Prices will be given on application. Carriage paid to Belfast.
Ogle's Grove Nursery, Hillsborough, County Down.

WM. Hy. TREEN, Victoria Nursery, Rugby, Warwickshire, begs to announce that his NEW VERBENA and FUCHSIA CATALOGUE, containing several Novelties, is now ready, and will be sent free on application. The following Prizes were awarded to W. H. T. for Verbenas alone during 1862 :—
Crystal Palace, Sydenham, May 24, 1862.—24 Varieties, three of each. First Prize.
Jephson Gardens, Leamington, May 28.—24 Varieties, five of each. First Prize.
Warwick Castle, July 1.—24 Varieties, five of each. First Prize.
Royal Horticultural Society, South Kensington, July 2.—24 Varieties, five of each. Extra Prize, although no prize was offered.
Royal Botanic Gardens, Regent's Park, July 9. — 24 Varieties, five of each. Special Certificate.
Stamford, July 17.—24 Varieties, five of each. First Prize, 24 Varieties, five of each. Extra Prize.
Rockingham Castle, August 8.—24 Varieties, five of each. First Prize.
Newnham Paddox, August 13.—24 Varieties, five of each. First Prize.
Kenilworth Castle, August 19.—24 Varieties, five of each. First Prize.
Rugby, August 29.—24 Varieties, five of each, (Prize offered by the Society, Mr. C. J. Perry and Mr. W. H. Treen; Mr. Perry exhibiting). First Prize to W. H. Treen.
Leicester, September 4.—24 Varieties, five of each.—First Prize.
Royal Horticultural Society, September 10.—24 Varieties, five of each. Extra Prize. New Verbena. First Class Certificate.
Stamford, September 17.—48 Varieties, five of each. First Prize. Silver Medal.
Besides 39 Prizes for other productions.

CARTER'S CHAMPION CUCUMBER, recommended by the Royal Horticultural Society as being an excellent bearer. Fruit solid and firm, and the best of the Sion House class. 1s. per packet. A few ounces of our own saving to offer the Trade.
237, 238, & 261, High Holborn, London, W.C.

GIANT ASPARAGUS ROOTS, 2s. 6d. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see Richard Smith's SEED LIST for 1863.
Strong Transplanted SEA KALE, 2s. per doz.
Richard Smith, Nurseryman, Worcester.

Seed Trade.

JAMES CARTER and CO., Holborn, W.C., have a few lbs. of the following to offer to the Trade :—
MELVILLE'S GARNISHING KAIL,
VARIEGATED BEET, for garnishing,
SNOW'S WINTER BROCCOLI, true,
LITTLE PIXIE CABBAGE.
NEW FEATHER STEM SAVOY,
DANVER'S YELLOW ONION.
TOMATOE DE LAYE.
HENDERSON'S PINE-APPLE BEET.

To Seedsmen and Others.

THOMAS AYRES, Seedsman and Grower, Biggleswade, Beds, begs to offer the following SEEDS of his own growth of 1862, viz :—
WHITE SPANISH ONION SEED,
MANGEL WURZEL SEED, various kinds.
SWEDE, and COMMON TURNIP, ,,
SEED POTATOES of the following varieties :—EARLY ASH LEAF KIDNEY, MYATT'S PROLIFIC do., EARLY SHAW and REGENTS.
SCARLET RUNNER BEANS (English grown).
A PRICE LIST forwarded upon application.

Cabbage Plants.

W. VIRGO and SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 3s. per 1000 :—

EARLY YORK CABBAGE	EARLY NONPAREIL
,, BATTERSEA	DRUMHEAD
,, BARNES	

RED CABBAGE, 4s. per 1000. All strong, healthy, and well rooted.
Wonersh Nursery, near Guildford, Surrey.

Turnip and Mangel Wurzel Seed.

H. and F. SHARPE can supply the Trade with the following Varieties, true to name, all of their own growth, new and genuine, and on very advantageous terms.

Turnip.	Turnip.
Improved Purple-top Swede	Lincolnshire Red Globe
Champion do.	Improved Green Norfolk
Skirving's Improved do.	Fine White Stone
Marshall's Improved do.	
Yellow Tankard	Mangel Wurzel.
Pomeranian White Globe	Elvetham Long Red
Drummond's Early Field	Fine Orange Globe
Yellow	,, Long Yellow
Green-top Scotch	,, Red Globe

Seed Growing Establishment, Wisbech.



The King Potato.

SUTTON and SONS have much confidence in recommending this new POTATO, as decidedly the finest and best in cultivation.
The following Prizes have been awarded to this Potato :—
The Prize at the Crystal Palace, 1861.
The First Prize at the International Show at the Royal Horticultural Society's Gardens, South Kensington, in October last.
The First Prize at the Birmingham Cattle and Root Show, Bingley Hall, in December last; and many other Prizes in various parts of the kingdom.
To be had of Messrs. Sutton & Sons, Reading. Price 5s. per Peck (of 14 lbs.), or cheaper in large quantities.



WHEELER'S LITTLE BOOK for 1863.
WHEELER'S TOM THUMB LETTUCE.
WHEELER'S IMPERIAL LETTUCE
The price of the Lettuce is 1s. per packet, post free.
J. C. Wheeler & Son beg to inform the Trade that their "Little Book" is entered at Stationers' Hall, and that they cannot allow it to be copied.
J. C. Wheeler & Son, Seed Growers, Gloucester.

REIGATE SILVER SAND.—Best quality, 8s. per ton; second quality, 6s. per ton, put on the rail at Reigate PEAT SOILS, LOAM, &c. The Railway rates are lower when not less than 4 tons are conveyed in a Truck.
W. Short, Reigate Heath, Surrey.

Manures for Present Use.

PERUVIAN GUANO, Genuine as Imported by the Contractors of the Peruvian Government, Deliveries direct from the Docks; NITRO-BIPHOSPHATE (Blood and Offal Manure), Fish Offal ditto (PHOSPHATE); SUPERPHOSPHATE of LIME (made from Bone), see Royal Agricultural Society's Journal, vol. 6, page 2; and all others of known value, may be had on the best terms by application to Mark Fothergill, 23, Great Tower Street, Mark Lane, E.C.
Established 1839.

LAWES'S MANURES. The Manures manufactured by J. B. Lawes for the present season of 1863 are now ready for delivery at his Factories, at the following prices :—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. Lawes, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from Messrs. Gibbs: Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address John Bennet Lawes, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. Purser, Secretary.
116, Fenchurch Street, E.C.

Established 1848.

THE BLAYDON MANURES.—Two Prizes were last season awarded, under the auspices of the Rutland Agricultural Society, for Turnips grown with the above Manures, viz. :—
1st.—A Silver Cup, value Five Sovereigns, was given by the Town and Trade of Oakham to Mr. T. W. Fowler, Exton, for the best Turnips (not being Swedes) grown within the County of Rutland. These Turnips were raised with 3 cwt. per acre of the 7l. 10s. Blaydon Manure, used with a moderate dressing of Farm-yard Manure.
2d.—Three Sovereigns (the 2d premium), given by the Right Hon. Viscount Campden, were awarded to Mr. Fowler, Exton, for Swedish Turnips. These Turnips were grown with 3 cwt. per acre of the 7l. 10s. Blaydon Manure, along with a moderate quantity of Farm-yard Manure.
Manufactured by the Blaydon Chemical Company, Blaydon-on-Tyne.
Managing Partner, Edward Richardson, Jun.

POTTER'S GUANO (established 21 years) 7l. per Ton.
POTTER'S CONCENTRATED MANURE, guaranteed by analysis, 10l. per Ton.
PURE GYPSUM, 25s. per Ton, bags included.
Address, 28, Clapham Road Place, S.

TENANT FARMERS' MANURE COMPANY.
ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME,
Manufactured by the Patent
NITRO-PHOSPHATE or BLOOD MANURE COMPANY (Limited),
Consisting of TENANT FARMERS, occupying upwards of 30,000 Acres of Land.
Chairman.—John Claydon, Esq., Littlebury, Essex.
Particulars of these Standard Manures may be obtained at the Offices. C. T. Macadam, Secretary.
Or of the Local Agents.
Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex, N.E.

TURF.—A quantity of capital Turf for Sale. Apply to Mr. H. D. Austin, Castle Hill, Ealing.

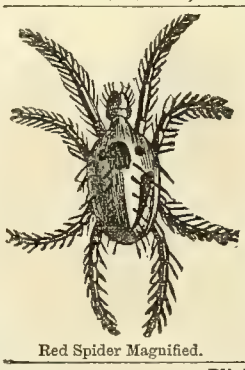
PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.
Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.
Can be obtained through the principal Nurserymen and Seedsmen in England.
A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.
Page & Toogood, Seed Merchants, Southampton.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2s. per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. Barsham & Co.
Barsham's BRUSHES and MATS are sold in every town.
Caution.—Every Brush is stamped 'J. Barsham's Patent'


Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1s. and 2s. per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of Geo. Glenny, Esq., in his Works on Gardening, &c.
NEAL'S PLANT SOAP, 1s. per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.
Both may be obtained of all principal Seedsmen.
Patentee: J. Neal, Edward Street, Birmingham.


Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.
This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen in boxes, 1s., 3s., and 10s. 6d. each.
Wholesale by Price's Patent Candle Co. Limited.

Blight.

BROWN'S PATENT FUMIGATOR. — A Portable Instrument for Fumigating Greenhouses, Stoves, and Frames, or Shrubs and Flowers in the open air, without injuring the most delicate plant; delivering the smoke cold, in a dense mass, and effecting a great saving of Tobacco. Price 10s. and upwards.
Manufactured and supplied to the Trade by Messrs. Barber & Groom, London; and may be had of all Ironmongers, Seedsmen, and Florists.

REDUCTION IN PRICE.

PHOSPHO GUANO.

The Prices for the Season 1863 are as follows, delivered Free on Board, or on the Rails at Liverpool.

For 30 Tons and upwards	**£10 5 0**	**per Ton, net cash.**
For 10 Tons up to 30 Tons	**10 10 0**	**,, ,,**
For 5 Tons up to 10 Tons	**10 15 0**	**,, ,,**
For smaller quantities	**11 0 0**	**,, ,,**

The Price will not exceed 12s. per Ton additional if delivered at any other Port in Great Britain.

PETER LAWSON & SON, Contractors.
GEO. SEAGRAVE & CO., Brokers.
WILLIAM DIXON & CO., General Agents.

28, KING STREET, CHEAPSIDE; and 15, LAWRENCE LANE, LONDON, E.C.

RUSSELL'S PYRAMID PRIMULAS.—Seed of this unequalled strain is now ready, in packets, price 2*s.* 6*d.*

The great satisfaction which these kinds have given in previous seasons, renders further comment on their merits unnecessary. The additional care taken however in saving the seed last year will probably result in producing flowers much superior to any ever seen.

Printed notes on raising them, and their culture, forwarded with each packet; payment can be made in postage stamps.

GEORGE CLARKE, Nursery, Streatham Place, Brixton Hill, London, S.; and 4, Windsor Terrace, Pimlico, S.W.

Choice Ferns, &c.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer at very reasonable terms the following in good healthy plants:—

LOMARIA DISCOLOR, at 18*s.* per dozen.
WOODWARDIA ORIENTALIS, 18*s.* per dozen.
GYMNOGRAMMA LUTEA ALBA, 18*s.* per dozen.
PTERIS CRETICA fol. ARGENTEIS, 6*s.* per dozen.
THUJA VERVAENEANA, 18*s.* per dozen.

N.B.—A. V. G. begs to say that his new hardy large flowering RHODODENDRON, AUGUSTE VAN GEERT, of which a drawing can be seen at his Agent's, Mr. R. SILBERRAD, Harp Lane, London, will be sent out next September. Good plants at 7*s.* 6*d.* to 21*s.* each. Orders can now be booked.

New Chrysanthemums.

JOHN SALTER'S DESCRIPTIVE CATALOGUE of CHRYSANTHEMUMS, including the new varieties, which he will send out this Spring, as well as "HARDY VARIEGATED PLANTS," and other novelties, is now ready, and will be sent post free on receipt of two stamps.

Versailles Nursery, William Street, near Hammersmith Turnpike, London, W.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, begs to inform his friends and the public he can supply from his great Stock of the above 20 pairs of the best large Varieties for 10*s.*; and 25 pairs of best POMPONES for 10*s.*; 20 pairs of Cuttings of the large Varieties for 5*s.*; and 25 pairs of Pompones ditto for 5*s*

New CATALOGUES ready for one stamp.

N.B. To save trouble all orders to be paid to J. H. BIRD, Stoke Newington.

Chrysanthemums, Dahlias, Fuchsias, Verbenas, Geraniums, Pelargoniums, Petunias, Calceolarias, &c.

W. HOLMES'S CATALOGUE of the above is now ready, and may be had in exchange for One Stamp.

P.S. STOCK VERBENAS—The Moor, Foxhunter, Defiance, Dante, Ætna, Fireball, Nemesis, &c., cheap. Price per 100 upon application.

Reference or remittance from unknown Correspondents.
Frampton Park Nursery, Hackney, N.E.

Grass Seeds for all Soils.

SUTTON AND SONS have one of the largest stocks in Europe of the PERMANENT NATURAL GRASS and CLOVER SEEDS, which they mix expressly to suit the soil for which they are required.

The following letter has been received, besides many others:
From Professor LINDLEY, *Royal Horticultural Society, London.*
"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

PRESENT PRICES ARE—	Per Acre. s.	d.
Best quality MIXTURES for Laying Down to PERMANENT PASTURE	30	0
Cheaper MIXTURES, omitting certain sorts 20*s.* to	26	0
Best quality ditto, for Three or Four Years' Lay ..	22	0
Ditto ditto, for One or Two Years' Lay 15*s.* to	18	6
CLOVERS and fine GRASSES for Renovating Old Pastures .. .. 6*s.* to	9	0
Finest LAWN GRASS SEEDS .. .. per bushel	18	0
PARK LAWN GRASS SEEDS .. .. ,,	16	0

The First Prize Medal was awarded to SUTTON & SONS for their Grass and Clover Seeds at the Great International Exhibition of Roots and Cereals at South Kensington in October last.

A Copy of Mr. MARTIN SUTTON'S "Essay on Pastures" is sent with each lot of Grass Seeds.

Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.

PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

AUSTRALIAN TREE FERNS—DICKSONIA ANTARCTICA & ALSOPHILA EXCELSA.

HUGH LOW & CO.

Have pleasure in offering very fine specimens of the above-named TREE FERNS, suitable for the decoration of GREENHOUSES and CONSERVATORIES. The Trees are in the most luxuriant health, and a selection may be made from upwards of 100, varying in height of stem from 1 foot to 5 feet 9 inches, in circumference of stem from 1 foot 3 inches to 2 feet 6 inches, and fronds of many of the specimens spread 6 feet.

Prices, which are very moderate, can be had on application.

CLAPTON NURSERY, LONDON, N.E.

CALADIUM (ALOCASIA) LOWI.

HUGH LOW & CO.

Have much pleasure in offering this noble Ornamental Foliage Plant, introduced by them from Borneo. It has been so extensively exhibited and sold that it is now pretty generally known. A specimen in the Clapton Nursery measures 2 feet 6 inches in height, by 2 feet 6 inches in diameter, with leaves 19 inches in length, by 9 inches in width; shape of leaves sagittate, colour of upper surface bright green, intersected by veins of ivory whiteness, and a belt or margin of the same colour completely encircles the leaf; the under surface of the leaves is reddish or crimson purple; a shining metallic lustre overspreads the upper surface. The plant is of the easiest possible culture, retains its leaves perfectly, and as an exhibition plant will be generally preferred to Alocasia metallica. Higher praise than this it would be difficult to award.

Price of good well-established Plants, 31s. 6d. each.

CLAPTON NURSERY, LONDON, N.E.

ORCHIDS FROM BRAZIL, THE PHILIPPINE ISLANDS, VENEZUELA,

THE TENASSERIM PROVINCES, BORNEO, AND THE MALAYAN ARCHIPELAGO.

HUGH LOW & CO.

Have for Sale, at very moderate prices, large quantities of ORCHIDS received direct from their Collectors and Correspondents in the above-named countries, and they respectfully invite gentlemen interested in Orchid Cultivation, to visit the Nursery and inspect the Collection, which contains many species quite new, and as yet undescribed. Orchidaceous plants at the Clapton Nursery are at present date grown in seven span-roofed houses, and the collection is steadily augmented by a regular system of monthly and bi-monthly importations.

H. L. & Co. subjoin names of some of the species now on Sale, and they have only to add that Purchasers will be treated with great liberality.

AERIDES CRISPUM.
,, LOBBI.—Amongst our importations of this fine species many beautiful varieties have appeared.
,, LINDLEYANA.
,, MACULOSUM.
,, QUINQUEVULNERUM.
,, SUAVISSIMUM.
,, ,, Borneo variety, very much superior to the ordinary type of the species.
,, REICHENBACHI.
,, VIRENS.
,, WARNERI.
,, Species Moulmein, with very broad leaves, a most abundant flowering species, as native specimens in possession of H. L. & Co. prove.
BOLBOPHYLLUM, species Moulmein, with reticulated sheaths over the bulbs.
BURLINGTONIA DECORA.
,, FRAGRANS.
,, VENUSTA.
CIRRHOPETALUM STRIATUM.
CYMBIDIUM TIGRINUM.
CALANTHE VESTITA LUTEA.
,, ,, NIVALIS.
,, ,, ROSEA.
CATTLEYA AMETHYSTINA.
,, CITRINA.
,, CRISPA.
,, LEOPOLDI.
,, LOBATA.
CATTLEYA MOSSIÆA in many varieties.
,, ELEGANS (Lælia).—Many of the plants imported by H. L. & Co. have recently flowered. Some are the dark varieties in various shades of colour, others light in the way of Lælia Schilleriana, L. Stelzneriana, and L. Warneri.
CHYSIS LIMMINGHI.
CŒLOGYNE CILIATA.
,, ELEGANS.
,, LOWI.
,, PANDURATA (asperata).
,, PARISHI (papagena).
,, SCHILLERIANA.
CYPRIPEDIUM BARBATUM GRANDIFLORUM.
,, BARBATUM SUPERBUM.
,, FAIRRIEANUM.
,, HOOKERÆ
,, HIRSUTISSIMUM.
,, STONEI.
,, VILLOSUM.
DENDROBIUM AGGREGATUM MAJUS.
,, ALBO SANGUINEUM.
,, BICOLOR,
,, CHRYSOTOXUM.
,, CRETACEUM.
,, CUCULLATUM GIGANTEUM.
,, DALHOUSEANUM.
,, DENSIFLORUM.
,, EBURNEUM.
,, FARMERI.
DENDROBIUM FIMBRIATUM.
,, FORMOSUM GIGANTEUM.
,, FYTCHEIANUM. — Imported by this name, may possibly prove to be the rare D. Heyneanum.
,, INFUNDIBULUM.
,, LUCENS (Reichenbach fil).
,, LOWI.
,, NODATUM.
,, PAXTONI.
,, PIERARDI.
,, PICTUM.
,, SCULPTUM (Reichenbach fil).
,, TORTILE.
ERIA CONVALLARIOIDES.
IONOPSIS PANICULATA.
LEPTOTES BICOLOR.
LÆLIA BRYSIANA.
,, ELEGANS (see Cattleya elegans).
,, PERRINI MAJOR.
,, PURPURATA.—Many varieties and plants of various sizes. Our stock of this superb Orchid exceeds 1000 plants.
LIMATODES ROSEA.
,, ,, SUPERBA.
,, ,, VESTALIS (Reichenbach fil).
LUISIA PSYCHE (Reichenbach fil).
ONCIDIUM BARBATUM.
,, PAPILIO MAJOR.
,, PUBES.
,, Several Brazilian species.
PHALÆNOPSIS AMABILIS.
,, ROSEUS.
PHALÆNOPSIS GRANDIFLORA.—Borneo variety. The best white-flowered Phalænopsis yet known. The bloom are produced in the greatest profusion and on very small plants. During the winter months H. L. & Co. have rarely had fewer than from 100 to 150 plants in bloom, and at one time the number reached 300.
SACCOLABIUM CURVIFOLIUM.
,, AMPULLACEUM.
,, BLUMEI.
,, ,, MAJUS.
,, ,, ,, variety DAYI—on very small imported plants of this beautiful species the flower spikes measure 22 inches in length.
,, REIDI.
,, VIOLACEUM.
SARCANTHUS PARISHI.
,, GRACILIS.
SOPHRONITIS CERNUA.
,, GRANDIFLORA.—Many of our imported plants bloomed, and amongst them were fine varieties, very bright in colour and large in size.
VANDA CŒRULEA.
,, GIGANTEA.—Flower spikes on imported plants, clearly prove this to be a much finer species than it was supposed to be.
,, HOOKERIANA.
,, INSIGNIS.
,, SUAVIS.
,, TRICOLOR.

Twenty-four Cases (containing DENDROBIUMS, LÆLIAS, CATTLEYAS, AERIDES, MILTONIAS, and SACCOLABIUMS) have been received since the 1st of April, by steamers *Ripon* and *Parana*. This lot is well worth inspection by intending Purchasers before the Plants are potted and divided.

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50 do. do. 15 0 | 12 do. do. 4 0

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For description and full details see figure and remarks in the *Floral Magazine* for January, 1863, Plate 129, colour of Tom Thumb Geranium. This will prove one of the best and most beautiful Bedding Plants of the season.

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25 ditto ditto ditto	5	0
12 ditto ditto ditto	2	6

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The Gardeners' Chronicle.

SATURDAY, APRIL 11, 1863.

MEETINGS FOR THE ENSUING WEEK.

Wednesday, April	15	Royal Horticultural (Fruit and Floral Committees) at S. Kensington	10 A.M.
		Azalea and Rose Show, ditto	1 P.M.
Thursday, —	16	Linnean	8 P.M.

We have just received from an eminent Rose grower in Surrey a deplorable account of the ravages committed by the little parasite Peronospora sparsa, which was described and figured in this Journal, April 5, 1862.

The disease made its appearance in a quantity of Roses grafted this spring, between 3000 and 4000 in number, and it bids fair to exterminate the whole. *Old* stock plants in a house that had been closely shut up some time, with heat on an average of from 55° to 65°, unfortunately got the first batch of 2000 grafts put in with them, before the disease was noticed. The infected leaves were at once removed, and the old plants taken away in the hope of saving the grafts from contagion, but to no purpose. Sulphur was applied; the plants were dipped in a solution of the Gishurst compound; they were removed to another house, which was painted and whitewashed last summer—but in spite of every precaution the parasite soon reappeared, always in the first place occupying the most fully developed leaves, and extending even to the young wood. The only method which now suggests itself is to trust them to the open air, with protection from frost and nightly radiation.

Unfortunately, in a case like the present, there is little hope from external remedies. Like the Potato mildew, *Peronospora infestans*, the Mould in the first instance burrows amongst the tissues of the leaves, and therefore cannot very easily be acted upon by any chemical mixture or gas, which would not at the same time destroy the tissues of the mother plant itself. A plant which we had last year, strongly infested with the parasite, was failing day by day, when in despair it was turned into the open ground, and improved very little in its new place of growth. It has however made a tolerably strong shoot this spring, which we have this morning carefully examined with a lens, but can find no trace of the Fungus. So far, then, there is some encouragement for the success of the plan which has been adopted by our Correspondent. We can suggest no other treatment, for the reasons above stated.

It is not, however, certain that sublimed sulphur, though so efficacious in the cases of Hop and Vine mildew, is a specific in every attack from Mould. The disastrous results which were produced in a valuable collection of young Conifers, a few years since in Kent, and which seemed to arise principally from a little dark-stemmed Mould belonging to the genus *Polyactis*, a Mould it should be observed whose mode of growth was entirely superficial, were not arrested in the slightest degree by sulphur, in whatever way it might be applied. No sulphur fumes, which were not sufficiently strong to kill the Conifers, had the slightest effect upon the Mould, which ran from plant to plant with extreme rapidity, and soon destroyed every twig on which it was established. We have seen the same thing since amongst young Wellingtonias, but it spread very little, and seemed to be arrested at once by free exposure to the air.

It may be remarked respecting the infected Rose leaves forwarded to us from Surrey, that the fungus is very sparingly scattered over them, insomuch that we could only certify its existence by carefully scraping the surface with a sharp scalpel, by which means we obtained both spores and threads, which placed the matter beyond all doubt. The substance however of the leaves, or as botanists call it the parenchyma, is far more affected, in consequence of which the whole under surface is of a beautiful Rose colour.

Rose growers, especially those who pay much attention to forced Roses, would do well to watch their stock, and if they see traces of the parasite, which may be recognised with a common pocket lens, to destroy at once the "scabby sheep." The Mould, it should be observed, does not look like meal, but has a slightly downy appearance like that of the Mould which later in the year is so destructive to different kinds of Onions. The colour of the threads, especially above, is, like that, of a pale reddish grey, by which the species may be readily known. *M. J. B.*

Every gardener of the most moderate pretensions knows, that he cannot succeed in the management of a stove or conservatory without constant attention to the thermometer. On the contrary, there are very few who know the least about the hygrometer, though a knowledge of the exact condition of the air as regards its comparative moist or dry condition is of quite as much importance as that of its temperature.

"The fitness of an atmosphere for maintaining a healthy vegetation," says Dr. Lindley in his "Theory and Practice of Horticulture," "depends upon the amount of moisture suspended in it, and upon its temperature. The *hygrometer* indicates the former, as the *thermometer* does the latter.

"The effect of bringing warm moist air into contact with a cold surface is to rob the air of a part of its moisture. Thus in a cold night the glass roof of a greenhouse may be seen streaming with water, which runs down and forms 'drip,' and in this often unsuspected manner air is rendered dry, notwithstanding the operations of syringing, steaming, &c."

It is scarcely possible for the cultivator to bear these facts too strongly in mind, while he makes sufficient allowance for the absorbing power of heated flues, and the increase of dryness due to the raising the night temperature above what is absolutely necessary for the maintenance of vitality. It is of the utmost consequence that he should be fully aware of the fact, that with every decrease of internal temperature the difference between the temperature of the external and internal air is diminished, and in consequence the tendency to drip. "In an atmosphere of heat and moisture, the Vine leaves may actually die of drought, and that this occasionally happens, and is a frequent, though unsuspected cause of injury to tender foliage near a glass roof, is perfectly certain."

These truths have been forcibly brought before us by the withered condition of certain Vines and Kidney Beans in a case which lately came under our notice, where it was quite certain, as both were equally affected, that the withering arose from some condition of the house, and not from anything in the plants themselves. Since these were submitted to us, we have had occasion to witness another most singular but highly instructive case. A particular Vine in a house of moderate size, has for some years been subject to lose its leaves soon after expansion, while all its companions remained sound and healthy. The leaves did not fail all at once, and those parts which showed the first indications of weakness, were at once discernable from the excessive development of down on the under surface. After a few days certain patches became discoloured and ultimately dried up, and in many instances the whole leaf withered. The reason for all this was at once obvious. The Vine was precisely that which was planted in the very hottest part of the house, where the moisture was most absorbed by the walls along the flue, and where consequently there was the greatest difference between the external and internal temperature. As the peculiar arrangements of the house did not readily admit of alteration, the gardener, after some years of disappointment, has determined to root out the Vine altogether.

In an adjoining house, devoted principally to the growth of early Cucumbers, a great bottom heat was kept up, and the consequence has been, as we pointed out at first, that the leaves would wither, and, as we expected, the crop has failed, as there were no means of protecting the glass from the effect of radiation or frost.

The gardener was at first unwilling to allow his mistake, and, as is so frequently the case where unexpected mischief arises, the condition of his plants was ascribed to thrips, though not the slightest trace of an insect could be found, and the leaves did not look as if they had been attacked by these insidious enemies.

We may indeed remark that, fatal as the ravages of thrips occasionally are, the mischief referred to them is more frequently the consequence of some mistake in cultivation, than of a parasite. Like some words of doubtful meaning which are used by doctors to satisfy patients who insist upon having a name for every malady, thrips serves many a turn where the cause of disease is unknown. Within our own experience a valuable collection of Orchids, which suffered greatly under injudicious management, was pronounced at once to be affected by thrips. But when a proof of the presence of the parasites was demanded, not a single individual could be found. We are always, therefore, philosophically sceptical where this is alleged as a cause, and especially as the matter is plain enough when the insects abound in a collection, as for example in one of Ferns.

We believe that in most cases the real cause of vegetable diseases can be made out by a little patience and moderate intelligence; and we most strongly recommend our horticultural friends to eschew, as far as possible, all explanations which merely skim over the surface, without diving into the essential causes. Repeated failure and a complete loss of self-respect, without taking into view the ultimate estimation of others, can only be the result of a contrary practice. *M. J. B.*

As the season for active operations in garden cropping is approaching, we especially invite the attention of all whom it may concern, to a paper on the subject of growing Root Crops in general, and Salsafy in particular, which will be found at p. 53 of our present volume. Mr. Earley, the gardener at Digswell House, near Welwyn, in Hertfordshire, distinguished himself at a meeting of the Royal Horticultural Society in December last, by an exhibition of remarkably well grown roots, amongst which his Salsafy was conspicuous. Indeed a sample of the same excellent vegetable subsequently sent to us, and referred to at the page above quoted, resembled beautifully grown small Parsneps, so admirably had it been managed. The treatment by which this result had been obtained, is explained in the paper to which we refer, and it is to the *rationale* of the mode of treatment which was in this case adopted that we now desire to invite attention.

Given, the seed of a Salsafy or other similar garden root, the question is, how to convert it

into a presentable esculent. The answer is this:—Let it be sown in poor but well wrought upper soil; and let there be moreover, beneath this poor upper stratum, at a depth of 7 or 8 inches, a good bed of earth well manured. Then, unless accidents intervene, it will occur, that the tap root not finding suitable pabulum near the surface will push its way downwards until it reaches the good soil, and being there supplied with abundant nourishment it will acquire the necessary size and succulence, whilst the small rootlets given off in its progress through the poorer soil above will dwindle away, instead of acquiring bulk and impoverishing the main root as they otherwise would be likely to do.

There can be no question that this, which is the groundwork of the treatment Mr. Earley practises, and which he has so well explained, is the proper way of managing all crops of this nature. The presence of manure in the upper soil can indeed result in nothing but the encouragement of strong lateral roots, which are themselves not only a useless portion of the crop, but seriously disfigure as well as diminish the substance of the principal roots.

Let us add a word in recommendation of Salsafy, which though not commonly grown, is one of the most wholesome and delicate of all our garden roots. It is indeed rarely seen in a decent condition, though here and there may be found a gardener who sends good specimens into the kitchen. More commonly, nothing better is produced than a bundle of forks not so big as a lady's little finger—such samples being indeed excellent illustrations of what root growers appropriately call "fingers and toes." We trust that the sensible and highly practical remarks of our correspondent, by helping to render Salsafy crops a success, may not be without result in introducing so desirable an esculent more frequently and more freely to our tables.

New Plants.

255. Abies Albertiana, *A. Murray, Proc. Roy. Hort. Soc.*, iii., 149, with figure.

In the publication above quoted, Mr. A. Murray has shown that the Oregon plant to which the name of Abies Mertensiana has become affixed in gardens, is not the plant so named by Bongard, the latter being found in the island of Sitcha.

"In 1851," he writes, "seeds were received from Jeffrey, while on his Oregon expedition, which have produced a most beautiful and elegant Hemlock Spruce. Subsequent importations of seeds of the same tree have taken place from Oregon and British Columbia, and from these, young trees are now being gradually distributed over Britain. Jeffrey sent home his seeds and specimens under the name of Abies taxifolia. This was at once seen to be a misnomer, but in the absence of other denomination or description it was usually spoken of as 'Jeffrey's Abies taxifolia,' with a sort of reservation that this was a wrong name. Mr. Gordon, however, in his 'Pinetum,' pronounced it to be Abies Mertensiana, and as such it is now generally recognised, some good arboriculturists, however, reserving their opinion, and preferring to distinguish it by the name of the Californian Hemlock Spruce. Specimens of Jeffrey's species are preserved in the Kew and Edinburgh Botanic Museums, and specimens of young branches and leaves are to be had in most nurseries; but until now no specimens of Bongard's species were accessible in this country. We have, however, lately received, through the kindness of Professor Regel, of St. Petersburgh, specimens of Bongard's Abies Mertensiana collected by Eschscholtz in Sitcha. From an examination of these it appears clear beyond a doubt that Jeffrey's plant is not Bongard's Abies Mertensiana. Both are true Hemlock Spruces, but in Jeffrey's the pulvini are small and widely separated, while in Bongard's they are placed unusually close to each other; we know of no Hemlock Spruce which has them so close to each other, and Bongard, in his description, takes particular notice of this character: he says that 'the branches and branchlets are very much tuberculated after the leaves have fallen.' The cones, also, are different, Jeffrey's having a slight resemblance to those of A. Pattoniana, and Bongard's being exceedingly like the cone of the Japanese Larix leptolepis, or rather the allied Larix japonica brought home by Mr. J. G. Veitch."

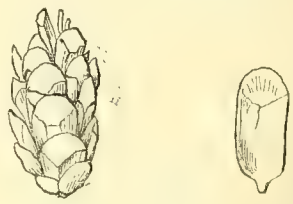
The true Abies Mertensiana has not yet been introduced into this country.

Jeffrey's Californian Hemlock Spruce, first known as Jeffrey's Abies taxifolia, and now being introduced as Abies Mertensiana, is not then the latter plant, nor is it Lambert's A. taxifolia, but a new species; and a name being required by which to distinguish it, "none more fitting can be suggested by any one connected with the Horticultural Society than that of their deeply lamented President the Prince Consort. Nor is it alone His Royal Highness's connection with the Horticultural Society that seems to invite such a recognition. It is perhaps not generally known, but is not the less true, that His Royal Highness took much interest in coniferous trees, and had made a very complete collection at Osborne, of those kinds which would thrive under exposure to the sea breeze. It is, therefore, more justly to His Royal Highness in his quality of a lover of Conifers, that the only mark of distinction which Botanists have it in their power to bestow upon those whom they delight to honour, is now applied with mournful respect."

The following is the description of Abies (Tsuga) Albertiana given by Mr. Murray in the journal already quoted:—

Tsuga foliis subdistichis planis acutiusculis margine minutissime serrulato subtus glaucis, strobilis parvis quinque seriebus squamarum, bracteis linearibus obtusis, squamis elongato-ovatis.—Habitat in Oregon et Californiâ Superiori.

"A tree of 100 to 150 feet in height. Branches flexible and weeping. Branchlets slender, with a dirty-brown bark, pubescent. Pulvini slightly angularly decurrent, thickened at the apex, wholly adpressed to the branchlet; phyllulæ semi-orbicular. Buds small, surrounded at the base by pulvini, and enclosed by one row of about five scales. Leaves from 3 to 7 lines long, perennial, subdistichous, petiolate, linear, somewhat pointed, entire, above glabrous and without stomata, below with a midrib, on each side of which are about 9 or 10 irregular and inconspicuous rows of stomata. Inflorescence not observed. Cones fawn-coloured, about an inch in length, elongate-ovate, with five rows of scales in the longitudinal spiral, amounting to about 25 scales in all. Scales elongate, oblong-oval, about 6 or 7 lines in length, and 3½ lines in breadth, coriaceous, somewhat glabrous, and substriated on the outside where exposed, tomentose inside and where covered by the neighbouring scales, stipitate, eared at the base on one side, rounded on the other, margins slightly irregular. Bracts linear, blunt at the point, with the margins entire, about 3 lines in length, and three-quarters of a line in breadth. Seeds small, inequilateral, easily separated from the wing, which is about three times the length of the seed, and one and a half times its breadth.



Abies Albertiana.



Abies Mertensiana.



Abies Albertiana.

"Agassiz, in his 'Lake Superior,' says, 'There are in all continents remarkable differences between the vegetation of the shores of a continent east and west within the same limit, or the same isothermal line.' We may add that it seems that the western coasts of continents under such conditions are more likely to have similar conditions of climate than an opposed east and west coast, even although they be nearer in position. Hence that we may *à priori* expect, under the same isothermal lines, to find the plants of the western coast of America more likely to thrive in this country than those of the eastern coast, and that we may reasonably anticipate that the Abies Albertiana will thrive better than the common Abies canadensis, a supposition which is confirmed by the more rapid growth and greater hardiness of the young plants of Abies Albertiana already tried.

"Along with this we give a figure of the tree itself, copied from a photograph of a specimen growing on Mr. George Patton's property of the Cairnies in Perthshire. This was raised from the first consignment of seeds received from Jeffrey in 1851: is consequently about 11 years old. It is about 15 feet high, and the place where it is growing is on the southern slope of the Grampian Hills, about 10 miles west of Perth, and consequently in a much worse climate and more exposed district than will be found in three-fourths of the kingdom. Another beautiful specimen, 14 feet 6 inches high, is to be seen at Hafodunos, the property of H. R. Sandbach, Esq.

"Specimens of the cone and leaves of Abies Mertensiana and of Abies Albertiana may be seen in the collection of the Royal Horticultural Society."

FISH AND FISHING.—No. III.

"Patience and perseverance" might have been the motto or moral of my first letter, and assuredly it may be of this. I may add, moreover, that it ought to be and must be that of every angler; for without those virtues an angler *non est* in these days of scarcity of inland fish. I now purpose exemplifying the motto in a phase more of "fishing" than of "fish." Formerly I spoke of the advantages of those virtues attendant on mining and on fish preservation. Now

I shall carry them out with me in my fishing basket, and go, in spirit, a-fishing. In spirit, indeed—for I must imagine myself somewhere about 40 years younger, a fancy rather hard to carry out.

Some time between the years 1821 and 1825 I was on a visit at Newmarket, then of all places the dullest of the dull, except for racing, coursing, and gambling, none of which were to my taste. I had taken down with me my fishing-tackle, because I was promised good use for it at Mildenhall, about nine miles distant. Something intervening to prevent my journeying in that direction for several days, I began to make the inquiry, "Is there not fishing nearer at hand?" No; none had ever heard of such a thing. "Nothing but racing and coursing here." After awhile that excellent fellow, that merry, noble, generous, dauntless spirit, H—— (my subsequent brother-in-law), arrived. He was more than half a fisherman, and we laid our wise heads together. "What's to be done? No fishing? Is there no stream or water nearer at hand than Mildenhall where we can try?"—"Alas," says he, "there's none. That wealthy fellow C—— has expended thousands of pounds near this town in the endeavour to bring even a tiny rivulet to flow thro' his extensive grounds; but all in vain! Yet wait, now I think on it, there's Exning with its mill; let us try that:" and with a will off we bounded, hope lending wings to our feet. But there, alas! we only found just water enough to drown all hope.

'Twas very like one attempt at fishing I made in hot Jamaica. "Come," said my friend; "come catch my callipeva." Of river fish this is the greatest delicacy in Jamaica; but perhaps, for want of scientific trying, it had never been taken with rod and line, tho' I think that fishing, as tho' for barbel in deep and rapid streams near the coast, would have succeeded. This fish's mouth is small, not unlike the barbel. It grows to 7 or 8 lbs. weight, from 20 in. to 3 ft. in length, and I have no doubt would prove a game fish on the hook. It is migratory, and found in rivers not far from the sea. It is sometimes left in "ponds" near the sea, formed after subsidence of heavy floods. In colour it is very white and silvery, with large scales. The flesh is white, but very fat and rich. Without semblance of flavour or exterior appearance, but merely because it is a rich delicacy, I suppose, it is called the Jamaica salmon. Scientifically it is the Mugil (mullet) liza.

Well, wishing to emulate my younger fishing days, but yet with sore distrust, I accepted my Jamaica friend's invitation: I went, I saw the so-called "pond," but did not conquer the fish which might have been therein. There was the "pond" water clear to the bottom and still as crystal, not 4 feet deep, the sun shining bright as sun can shine in hot Jamaica; and tho' my two servants groaned beneath the weight of every artifice we anglers can invent to cheat the fish, not one attempt was made; the thing was utterly hopeless, as old experience had told me. I may as well also confess that I had some slight fear of "master alligator" upon me; for it was just the sort of place for him to lurk in. So, in like manner from Exning, I returned that day with drooping spirits.

Next morning came, and with it another hope. "My Uncle's moat," said he. "I've dreamt of it all night. I wonder if there be fish! 'Tis only four miles off!"—"We can but look and try," I straight replied. We went and there we found what had been once a splendid moat round the ancient mansion; but, now, alas! 'twas sadly choked with rubbish and foul weeds. Nathless, with tackle fine, we tried to catch, e'en a roach, if such there were in the small watery space that still remained, but all in vain; we could not see a fin. "By heavens! H——, what is that? That's surely not a log under those Lily leaves. There, don't you see it? Stand still. See, there it moved, I vow! Why 'tis a monstrous pike, basking in the sun!! Ye gods! that I had pike tackle here!"—"Indeed it is; but what would you do?" quoth H——.—"Catch him, to be sure," cried I.—"Wait till I next go to my ship. I'll borrow a cable," said he. And there we stood gazing in morbid silence upon that truly monstrous pike, near 4 feet long, without one means of taking him. The sight provoked me into folly and loss, if not to madness. My rod was slight, my line but single gut, without e'en running tackle; yet the ruling passion strong upon me, I could withstand no longer. Stepping aside I soon secured a frog and placed it on my slender hook, small as it was for small fry. I pitched it in, close to the monster's jaws, rather on one side. One turn of that broad tail! The fish was gone; so was my frog, and hook, and line. Of course! That was a mad attempt certainly, and so ended hope No. 2. But, thought H—— and I, "he lives—and so do we—to fight another day." Were we not busy that night? Our trolling hooks new gymped, our lines well tested—all in fact prepared. Next morn we salled forth, armed—doubly, trebly armed—with every kind of rare device to catch this monster pike. But, to anticipate, all we caught again was disappointed hopes; so full of which is this dear art of mine!

For at his door next day, just returned home, we met H——'s Uncle, who welcomed us right heartily. "What brings you here, and with fishing rods?"—"To catch a pike," said H——, "which in your absence yesterday we saw in the old moat."—"What! catch my pet, tame pike? Sure you would not wish to do so. 'Tis the only one in the water, and has been fed by our family's hand for years. 'Tis a kind of heirloom, a kind of Pusey Horn, by which, almost, we hold as it were our tenure here. You would not surely wish to catch that fish! So come in, take some refreshment, and I'll tell you what to do if you want fishing, and do not grudge a walk. At Burwell there must be fish," said Uncle, "seeing that the poor Rush-cutters often bring them thence, tho' nothing very large." With somewhat dampened ardour, yet with a gleam of hope refreshed, as also was the inward man, following Uncle's directions, once more we sallied forth. Two miles' walk brought us to the upper portion of the fen at Burwell, which is drained into the Cam by a steam-engine some four miles further on. Soon we got to work, and almost every bait we cast into the dead, still, but coloured water, yielded us a small perch; and we returned at evening well pleased, with basket filled, although with tiny prey. With this we were not satisfied. Next day we went again, and further on. As many, but still larger fish we carried home, our arms aching with our divided burthen. The next day saw us—still insatiate mortals—at our work again, but further still we went, until we reached the Cam itself, and there we had some sport! H——'s two younger brothers went with us to aid the carrying home, and well it was they did, though twice such strength were not too much to carry our burthen. Reaching the Cam, to us an unknown river, we found a humble inn, a punt, and fisherman, and all were put in requisition. Close by we found, too, the steam-engine employed to drain off the fen into the Cam. "Wait a while, good sirs," said Palinurus, "the engine will soon be working, and then's the time." And soon we found it so. Mooring the boat on one side of the narrow creek, which now ran briskly from off the engine, in water not three feet deep, H—— and I commenced in earnest, two hooks on each line, baited with minnows. Great shade of Isaak Walton, what sport we had! We fished for four hours—thereabouts. At every swim we hooked one fish each, and at almost every swim two fish each; and, as fast as we could bait, the line went in and float went down, giving us no time to bait ourselves. Not one that we did catch weighed less than half a pound, most were 2 lbs., and some were 3 lbs. and one was 5 lbs. weight! In fact it became perfectly ridiculous, catching every perch till we exhausted every card of invitation which our minnow can afforded. And then we got some worms and fished again, insatiate dogs! We laughed and laughed until our sides ached, and H—— was really ill with mirthfulness. Seeing the rain approaching, for it had lowered all the day—ourselves "an hungered," and 10 miles from home, at last we gave it up—this murderous work! And then we ate a monstrous dish of grease-fried eels at the small inn, and for want of better beverage must fain drink bad brandy and water. The rain already down, 'twas time to retrace our homeward path. Path! D—l a path there was! But under the pilotage of H—— we plodded along the great Roman Dyke, and across the dreary waste of Downs. But our fish? What of them? Why, handerchiefs were called into requisition to aid the two large baskets we had with us—not mere fishing creels. The larger basket, filled to overflowing, H—— and I bore on a stake between us; the boys carried the lesser one, and each of us, in the otherwise disengaged hand, carried his handkerchief crammed in like fashion. The rain held off. We plodded on in line, Indian file, weary enough, and by degrees, finding our loads too great, we were forced to leave perhaps one-half our fish as food for birds upon the way—for there were no poor cottagers in our line of march! Weary outright, at last we reached Newmarket, and then it rained in torrents. How many fish we caught that day we never reckoned—at least one hundred weight and a half! and having for two days supplied all my host's friends around with goodly perch, many which reached Newmarket were thrown at last to rot upon the dunghill! Such sport as that in point of weight and numbers I never had before, or since. This at Newmarket, where fishing was not known to exist! True, that was murderous work! and you will say we ought to have abstained earlier, and so we ought; yet you will remember we had worked and walked hard and far to get this sport, and the fish would be caught. However, such days are few and far between, one only perhaps happening in a fisher's life. *E. C.*

SUCCULENT PLANTS.

For the last nineteen years I have been a grower of Succulents, and have about 800 or 1000 different varieties, so you will see that at least there is one private collection in London, and I know of another more extensive, which belongs to a successful grower in "the trade." Let me ask you, Mr. Editor, the reason why you would leave out the Echinocacti in your suggested exhibition class, at p. 6? Surely in the Echinos (my special favourites) there are beauties to be found worth the most minute inspection. Were I to give my opinion I should set Echinocactus first, Mammillaria second, Cereus third, and so on. Again, you say these plants have gone out of cultivation, because of the ugliness of many sorts which used to be mixed up in collections with more sightly varieties, and so the good went out of fashion along with the bad. Pardon me when I say that I differ from you in opinion. I believe the main cause to be, first of all, fashion. As in our parterre fashion, which you have made a noble stand against lately, so with succulents, fashion, "degraded fashion," has been doing enough in our gardens to ruin them all by the rule of "everlasting sameness."

Again, few persons know how to grow succulents. I visited Messrs. Loddiges' collection about 20 years ago, and I don't think there was a single plant (among many valuable sorts which they had there) but what was in such a starved condition as to be a perfect cripple for life; and this was the rule in all the collections which I knew, instead of the exception. The late Mr. C. Palmer, of Shacklewell, was once advocating the "dry system" to me, when I told him he did not know how to grow his plants, and he admitted it too, when he witnessed the small collection which I then possessed, and saw what I could do in one season. Since then I have learned a little more, and I am of opinion that I can grow in 3 months in summer now what then I could not do in 18 months! The fact is, that when we have a high summer temperature—and the higher the better—we may water succulents as freely as an Oleander or a Fern, provided they are properly potted, in all respects. They want, to grow them in perfection in this country, a wet and a dry season; the wet one accompanied with a high temperature, in summer; the dry one with a temperature of not less than 40° at any time, in winter; and during the dry season a little water now and then should be given. It may be said they do not need any water in the dry season; I reply, they can do without it altogether, but they do better with it. On the 14th June, 1859, I broke off a hard piece of a woody branch of Opuntia monacantha, which I tied by a piece of copper wire to an iron rod near the roof in my greenhouse, and there it is still alive, and there it shall remain as long as it has any life. I merely name this to show how they will cling to life. Not a single root has it made, and yet it lives!—struggling hard against death, and having had to endure a temperature of 130° many a day, in summer, since then. Again, you speak of "large Aloes which never flower." Pray do not thus speak of Aloes; with proper treatment nearly all will flower, almost every year or so—I say if properly treated, but alas, who treats them properly! The collection of W. Wilson Saunders, Esq., of Reigate, is, however, a fine exception to the rule; Aloes can be grown there, as well as many other succulents, including Sempervivums, which may be said to be in a state as near perfection as it is possible to desire. It just occurs to me that you may mean the "Agaves," which are commonly called "Aloes;" of course these do not flower except to die, but yet they are noble plants in their proper place. Again, the poor Stapelias appear to have offended you, and that lately too, I suppose, as you gave them a good character in your leading article a few years ago. I must say a word in their favour. I think when S. variegata is in flower it would beat for beauty a great many of our "grand Orchids." I once pointed it out to a gentleman in Kew Gardens, and soon he brought a number of ladies to see it; I may truthfully say it had quite an ovation paid to it. And again: S. grandiflora, S. patula, S. quinquenervia, and others, are beautiful as well as curious, even though ill as regards the scent of them. A few years ago I plucked a flower from Stapelia grandiflora, of a rather large size, to show to some friends, who I can assure you, were wonderfully delighted with it, and have spoken of it many times since. Such things plainly prove that variety is appreciated in plants and flowers still.

I much like your suggestion as to plant cases filled with Succulents; they could I believe be made wonderfully attractive. I would just throw out a hint. Let the bottom be filled with earth, and then build up rockwork in the centre; let the earth be covered with some of the graceful kinds of Stonecrop, and plant the case with plants of great variety in their appearance and habit—a few different kinds of Cerei of robust habit in the centre, Echinos of different sorts next; Mammillarias, white-spined mixed with black-spined, forming edgings and borders; and the whole intermixed here and there with other kinds—a few Haworthias for instance, such as H. tessellata, H. radula, H. papillosa, and H. fasciata, to give effect. Then, again, from the top of the case could be suspended Cereus flagelliformis to hang down, while Cereus triangularis could climb over all. Then, as a set-off against the prevailing colour of green, Pachyphytum bracteosum, Echeveria pumila, Kleinia Haworthii, and others, could be introduced. Such cases of plants could be got up with taste and would please everybody.

As to the details of growing them: let them have a light porous soil, tolerably rich, and well drained. They want free exposure to light always. When you have command of a high temperature in summer (and the higher the better then), plenty of water can be given at all times, but it *must* be accompanied with heat. About September and October gradually withhold water, but give plenty of light and air, only taking care never to suffer a lower temperature than about 45° at this time. In winter I give a little water just now and then, to keep them from flagging. This is the year's course of treatment. One mistake old Succulent growers made was this: they forgot that the plants had dew at night in the hot

seasons in their natural state, and overlooking this they were led to carry the dry treatment to such an excess as to make most of their plants cripples. But treat them well and they will reward you for it; indeed their wants are not pressing at any time. If they want watering to-day, and it is a scorching hot summer day, and you make them wait a week, they will take your neglect very patiently, and this is a grand thing in their favour; but it is not wise to carry this neglect too far, for this has done more in my opinion to set people against succulents than everything else besides. When Messrs. Loddiges' succulents were sold off by Stevens about 16 years ago, Mr. C. Palmer, of Shacklewell, remarked to me that they were nearly all irrecoverably starved—and he was an advocate for the dry treatment too! *N. Burgess, Hackney.*

Home Correspondence.

Garden Law: No. 5, Trees.—Trees belong to the owner of the soil in which they grow. If land is let on lease, neither the landlord nor the tenant can lawfully cut down the trees without the consent of the other; but if the trees are blown down, or are wrongfully cut by the tenant or by a stranger, the wood belongs to the landlord. Bushes and underwood may be cut by the tenant, and the cuttings, whether made by himself or not, belong to him, and not to the landlord. The tenant, moreover, is entitled to the fruit produced on his land during his lease. If an ordinary tenant plants a tree it becomes a fixture which he cannot remove without his landlord's leave. Nurserymen indeed are entitled to remove what they have planted with a view to sell in the way of their trade. But even a nurseryman has no right to destroy what he has planted, if it has grown so large as to be incapable of removal. A tenant, who is not a gardener by trade, cannot remove a Box edging planted by himself; and the same rule is usually considered as applying to ordinary bulbs and flowers planted in the earth. With respect to these, it is certainly not easy to understand why they should not be regarded as ornamental fixtures, and as forming, on that ground, an exception to the general rule. A learned judge, however, who was once asked whether a tenant could not remove flowers which he had planted in the ground, answered no; and it would not be safe for a tenant to go to law to test the soundness of this opinion. At the same time the question as to the right of an ordinary tenant to remove flowers and bulbs has never, that I know of, been actually decided, and until it has it may be considered as doubtful. Curious questions occasionally arise with reference to boundary trees. If a tree is clearly in my land, the mere fact that its roots or branches extend into or over my neighbour's land does not confer upon him any property in the tree or in its fruit. But if the tree has not projected beyond the boundary long enough to give rise to a prescriptive right, he may cut off so much of the branches as are over his land, and even if the tree is thereby killed I have no remedy. So he may cut off those parts of the roots which are in his soil, and however much the tree may suffer, I am in the position of a man who sustains a loss, but no injustice. It is as the lawyers say *damnum absque injuria.* On the other hand, the tree being mine, I can cut it down if I like. A real boundary tree, however, is one which cannot be said clearly to grow in the land of one man rather than in that of another. It grows on the boundary of two or more properties; its trunk is on the border, its roots and branches extend in all directions and equally or nearly so into and over all the adjoining land. In such a case as this, the tree is considered as belonging to all the owners of the lands on the boundaries of which it grows. It is their common property, and none of them can lawfully destroy it without the consent of the rest. If in any particular case there are any circumstances tending to show that the tree belongs to one individual only, the result may of course be different. But where there is nothing to judge by except the tree's position, and that is as above supposed, the better opinion is that the tree is common property. *Lincoln's Inn.*

Beurré Bretonneau Pear.—I beg to differ from Mr. De Jonghe (see p. 295) as to the merits of this Pear. My statements are derived exclusively from personal experience, therefore I can rest upon them with the greatest security. Our soil is not what Mr. De Jonghe would infer, wet and uncongenial, which is proved from the fact that some of the delicately constituted varieties ripen their fruit satisfactorily, planted in the same situation as Beurré Bretonneau. But let us dismiss this position and take the case of trees trained on a south and west wall. During the formation of this garden nine years ago all the original soil was removed to the depth of 3 feet; 1 foot of stones was placed over the bottom, and the remaining space was filled with fibrous sandy loam, a medium for the roots that ought to meet every requirement and satisfy the most fastidious. No vegetable cropping has ever been allowed, with the exception of a few early Potatoes or Spring Lettuce, but withal Beurré Bretonneau has invariably proved quite worthless, whether large or small. Between Beurré Bretonneau and Bergamotte d'Esperen there exists no comparison as regards quality. Both are growing with us on the same aspect, in the same kind of soil, therefore I am able to strike a comparison of merit with the greatest accuracy, during a course of several years. Bergamotte d'Esperen ripens its fruit well, whether grown as a dwarf or pyramid, and that too in rather exposed situations; but from a wall the fruit is double the size, more tender, juicy, melting, and higher flavoured. No one possessing accommodation and who values late Pears should omit Bergamotte d'Esperen. Occasionally a few may prove uncertain as to ripening, but this occurrence is rare, and hardly or ever takes place unless during sunless summers. Allied in quality to Bergamotte d'Esperen in size and time of ripening I may mention Beurré Sterckmans, which is a splendid Pear, that may be grown as a dwarf or pyramid, but its rich sugary and vinous properties are never so fully brought out as when grown against a south, east, or west wall. The usual period of ripening is during the end of January or February, but it may be kept till March if packed in boxes among dry sand. Like Bergamotte d'Esperen it possesscs the property of ripening gradually, extending over a couple of months. *A. Cramb, Tortworth Court.*

Peaches.—There is a slight inaccuracy in my last article. The numbers of Peaches should be 1024, 197, 755, 480, 94. In the year 1861, 510 were left on, but 480 only were gathered; 30 dropped at stoning time. There are two causes of dropping, viz., want of water, and leaving on too many. Since writing my last article they have set regularly and abundantly, and many have burst their skins. The leaves are beautiful, and free from blister; the foliage is always beautiful here, and but slightly blistered. I attribute this to covering the trees, and to giving them water in dry sultry weather, even though the nights be cold. I have invariably found that after watering they have immediately set their blooms. The wetter the winter the more water things require, as the sun and dry winds "set" the ground. Moreover, I believe that gum proceeds from the juices being stewed out for want of water. I have watered with cold water, but, doubtless, water with the chill taken off would be preferable. As the trees have been covered off and on since the 13th of Feb., I have let the rain to-day (Monday) into them, as the rain is from the south, and the sky is too cloudy for a morning frost. I have not this year covered my Apricots, and the hoar frosts have killed all the blossoms, which were very abundant. *W. F. Radclyffe.*

Rheea fibre.—I have a sample of Rheea fibre grown in Jamaica and prepared in England, which was sent home to me to ascertain its commercial utility and value. I heard that it is worth 14*l.* per cwt., or 280*l.* per ton; but cannot learn for what purpose it is used, or whether such price be really obtainable. I shall feel greatly obliged if some one will give me the required information. *Inquirer.* [Will some reader answer this query.]

Fruit Wall.—I am contemplating putting up a wall for Peaches, Nectarines, and Apricots, and will be glad to learn from your own experience, or that of your Correspondents whether it would not be advisable to grow them under glass instead—I mean with the aid of sufficient artificial heat to keep out frost. I would propose to plant out the trees instead of keeping them in pots. Notwithstanding Mr. Rivers's partiality for Orchard-houses (without artificial heat), I find that most people end by introducing a pipe and boiler into their houses; and as gardeners never have room enough under glass for the present system of bedding out plants, these fruit houses, when thus adapted, can be put to good service. *Australian.* [Certainly adopt glass, and the means of warming too, if the expense of doing so is not a consideration.]

Cork Trees.—Referring to your article in the *Gardeners' Chronicle*, page 292, I beg to say the finest specimen of Quercus Suber I have yet seen, stands on the left hand, and close to the road leading direct from Parson's Green to Fulham, in the nursery grounds of Messrs. Osborne, and only a short distance from the celebrated Fulham Oak. A portrait of this Cork tree is to be found in the 8th volume of Loudon's Arboretum. In the days of Whitley, Brames, & Milne, I measured the thickness of the cork on the bark of this fine specimen, and found it in some parts equal to the length of the blade of a pruning knife, and quite sufficient for a "long cork," and of quality not bad considering that it had never been disbarked. At the time referred to it produced acorns sparingly, and the seedlings were remarkable for their dissimilarity to the parent tree, and to one another. One of these forms a beautiful evergreen on my lawn here (Forres), about 16 feet high, perfectly hardy, and with foliage close to the surface of the ground. Having never been pruned to a single trunk it has not yet produced any cork. It blossoms abundantly, but as yet has produced no ripe acorns; they fall off every winter, whether on account of severe frost or for want of being properly fertilised I cannot tell. Enclosed are specimens, and from these you may be able to determine whether the fructification is annual, or biennial. But respecting Quercus Cerris, Loudon says at page 1846 of the "Arboretum," it flowers in April, and ripens its acorns in the climate of London in October of the second year, and sometimes in the autumn of the first year. If this is correct, respecting a deciduous Oak, may it not occur also with an evergreen? *J. G.* [The young acorns were dead. We have sent the specimens for inquiry.]——By a slip of the pen you have said (p. 292) that the Mediterranean plant is *Q. occidentalis*, whereas it is the tree of the Atlantic coast that is to be so called: that of the Mediterranean being *Q. Suber. C. C. B.*

Stephanophysum Baikiie.—I must decline the honour of having introduced this, as mentioned at p. 292. Instead of having sent it to Kew, I was myself indebted for it to the kindness of Sir William Hooker, who sent it to me with many other valuable plants, when I was in Rio de Janeiro. I found that it grew and flowered best in the open ground, exposed to the full sun in the hottest part of the year, and did not require the shade nor the constant moisture of a forest, in which most of the South Brazilian Acanthaceous plants delight. I therefore was led to believe that if Brazilian, the plant must come from the drier and warmer provinces of the north. The only new plant of the same family which I recollect having sent to Kew is a Dipteracanthus named after me by Sir W. Hooker. *Hermann Herbst, Thurlow Cottages, White Horse Road, Croydon, Surrey.*

Rhododendron Aucklandii.—This is now in flower here. There are five heads of bloom on it, averaging six flowers each, the largest being about 5 inches across. It is remarkably handsome, and incomparably superior either to Edgworthii or Dalhousiæ. *W. H. Rawson, Jun., Hill House, near Halifax.*

Rockets.—Can you inform me if the old White Rocket is now in existence. Years ago it was the only sort known in this neighbourhood, and abounded in every garden, and very plentifully in my own; but from some cause with which I am unacquainted it has entirely disappeared, and I have tried on many occasions to obtain it again without success. Most nurserymen say they have it; but when plants are obtained, they are found to be a rough-leaved kind of recent introduction, having flowers of a French white colour, and with blossoms more diffused; and this sort seems the only one common for sale in the shops of florists and seedsmen at this season of the year. The old sort was a pure white, the spike of flowers close and well-formed, and the upper surface of the leaves brownish. It certainly is, if existing, a plant too beautiful to be lost, and I should be glad to obtain it once more. *George Wood, Rochford, Essex.*

Canna iridiflora.—You mentioned this plant a short time ago, but where can it be obtained? it certainly is one of the most beautiful of the class. I once had it from the Horticultural Society's Garden, but being very impatient of wet when at rest it was lost in consequence. I have seen it advertised in the seedsmen's catalogues, but I pointed out to several of them that it could not be true, or, if so, it could not be sold at the price offered. I have bought several packets of seeds at various times, but not a seed of it ever came up, though the class is extremely easy to raise. The only catalogue in which I have seen plants of it advertised, and that recently, is Mr. Van Geert's, of Gand, in Belgium, but the price (25 francs) seems very high, and to denote its scarceness. *George Wood, Rochford, Essex.*

The Poet and "the Holly Tree."—In the April Number of the Proceedings of the Royal Horticultural Society, which has just been presented to the Fellows, there is a very interesting paper by Mr. Wm. Paul, of Waltham Cross Nursery, on the Varieties of our English Holly. The author quotes Southey's well-known lines on the Holly Tree:—

> Below a circling fence its leaves are seen,
> Wrinkled and keen;
> No grazing cattle through their prickly round
> Can reach to wound;
> But as they grow where nothing is to fear
> Smooth and unarmed the pointless leaves appear,

and remarks, "It may seem ungracious to throw a doubt on so charming a fantasy, and my opportunities of observation have not been sufficiently extended to allow me to speak decidedly; but as far as I *have* observed, the evidence is not conclusively in favour of Southey's view." I had always believed there was no doubt of its being a fact that two kinds of leaves are frequently produced upon old Holly trees, just as the poet describes them, and I have some recollection of having met with such trees myself. Of the Chinese Holly (Ilex cornuta), which is a species somewhat like our own, I can speak with more confidence. When fully grown it has, in almost all instances, prickly leaves near the base, "wrinkled and keen," while above

> "Smooth and unarmed the pointless leaves appear."

R. Fortune.

Cannas.—Many no doubt will be trying their hand at growing Cannas out of doors through the summer season this year for the first time. To experimentalists in the matter, therefore, I beg to offer a few practical hints in addition to the remarks you gave at page 268. Let us presume that next month on a dry day a bed has been emptied of the soil to the depth of 2 feet, and that the bulk of the mould taken therefrom has been mixed with some more invigorating material, such as rotten dung, leaf-mould, or peat, and that the bed is filled up to within 6 inches of the surface with fermenting material as you have recommended. After treading well in, put on 6 inches of the mixed soil, spread evenly over, and if procurable and the soil is any way heavy, river sand and charred rubbish may be sprinkled over all with advantage; the bed will now be filled up to the surrounding level. Procure from any source, tubers that have not yet been started into growth, place them if healthy on the bed already prepared for them, 2 feet apart, and cover with the remaining soil, giving the bed a fall from the centre of 8 inches if 6 feet wide; thus elevated they will be, in addition to the slight bottom heat, benefited by the sun's rays. This plan was adopted here last year with perfect success,

and this year 2000 will be so planted: with this exception, that we trench deeply, mixing dung with the soil without the aid of fermenting material. Canna Annei we find the hardiest of all varieties; many beds of it were not removed from their summer to their winter quarters in an old ice house, and now I see that they are beginning to show themselves above ground; this variety grows 10 feet high, and a mass in a bed some 14 feet in diameter, with a row of one of the dark-foliaged kinds, edged with Caladium esculentum alternately planted with Perilla or Coleus Verschaffelti, produces a very pleasing effect on a lawn. Though this is easily accomplished here, it may, by following your advice to apply simple bottom-heat, be done also in England. *H. K., France.*

Societies.

Botanical of Edinburgh: *12th March.*—Prof. Archer in the chair. Several donations to the library were laid on the table. The following communications were read:—I. Professor Balfour gave a description of Pandanus odoratissimus, or Fragrant Screw Pine, which has recently produced pistilliferous flowers in the Palm-house at the Royal Botanic Garden. This Pandanus is a native of the East Indies, China, and the Islands of the Pacific Ocean. The plant in the garden is about 50 years old, and is about 40 feet in height, with a stem about 2 feet in circumference. It has 16 large alternate branches and is provided with 60 aërial roots, some of them 5 feet long. The leaves vary in length from 3½ to 5 feet. The plant has produced two globular spadices of pistillate flowers. As no staminate flowers have appeared on any of the plants in the Palm-house, the fruit will not be perfected. The fragrance is chiefly confined to the staminate flowers. The plant is used for hedges and for various economical purposes, such as the preparation of matting, bags, baskets, &c. A specimen of the pistilliferous spadix was exhibited. The species, so far as known, has not previously produced flowers in the botanic gardens of this country.——II. *On a Method of taking Impressions of Plants by means of Printers' Ink.* By W. Elliot, Esq., of Wolfelee. Mr. Elliot explained to the meeting the process of taking impressions of fresh plants by means of a press and printers' ink. The specimens are covered equally on both sides with the ink by means of a roller, and then placed in the press between sheets of paper, and pressure applied. The whole process, which however, is one well known, is exceedingly simple.——III. *Remarks on the economical uses of the Carnauba Palm (Copernicia cerifera).* By Prof. Archer.——IV. *Notes regarding some new and rare British Mosses.* By Mr. J. Sadler, F.R.P.S.——V. *Second List of the Flowering of Spring Plants in the open air at the Royal Botanic Garden.* By Mr. M'Nab. Knappia agrostidea, Feb. 13; Symplocarpus fœtidus, Feb. 15; Daphne Mezereon, Feb. 16; Tussilago nivea, Feb. 16; Muscari botryoides, Feb. 20; Dondia Epipactis, Feb. 23; Orobus vernus, Feb. 25; Arabis albida, Feb. 28; Scilla bifolia cœrulea, Feb. 28; Ribes sanguineum, March 2; Scilla bifolia alba, March 4; Erythronium Dens-canis, March 4; Draba aizoides, March 4; Orobus cyaneus, March 6; Narcissus pumilus, March 8; Primula nivalis, March 8; Puschkinia scilloides, March 9; Scilla sibirica, March 10; Scilla bifolia rubra, March 10; Corydalis nobilis, March 11; Pulmonaria mollis, March 11; Hyoscyamus Scopolia, March 12; H. orientalis, March 12.

Notices of Books.

Evidence as to Man's Place in Nature. By Thomas Henry Huxley, Fellow of the Royal Society. Pp. 159. Williams & Norgate, London.

Not long after the appearance of Mr. Darwin's remarkable book, the scientific world and the general public alike began to experience an uncomfortable sensation, that perhaps, after all, mankind were not so totally separated from the anthropoid apes as they had previously flattered themselves. In some quarters, and especially in the "Quarterly Review," attempts were made to repudiate the relationship altogether. On the other hand, individuals in this country, and on the other side of the Atlantic, among the latter Professor Asa Gray, looked the difficulties connected with Man's place steadily in the face, and took on the whole a very cheerful view of things. Meanwhile, M. du Chaillu's arrival from the coast of Africa, with a budget of wonderful stories about the Gorilla and other matters, and the reception which this traveller and his marvellous tales met with from some of our most distinguished scientific men, forced this Gorilla question more and more prominently before the public. The champions on one side had occasionally the opportunity of a few rounds with those of the opposite opinion: sharp things were said on either side, and these provoked retorts more cutting than courteous. Perhaps the latest of these encounters took place at a recent meeting of the British Association at Cambridge, where such terms as "cerebrum and cerebellum," "hippocampus minor," and "posterior cornu" became for a time familiar words. People formed their own conclusions as to which of the learned Professors had the better of the contest, but they naturally enough felt, that readiness at repartee, though it adds life and piquancy to a discussion, affords no fair test of truth. What we want is to have these matters calmly and plainly stated, that we may judge for ourselves. This, Professor Huxley proposes to do in the little book now before us, which contains three essays:—1, on the natural history of the man-like apes; 2, on the relation of man to the lower animals; 3, on some fossil remains of man. These will all be found deeply interesting, but more especially the second. The Preface informs us that the substance of them all has been published in the form of oral discourses during the last three years. The Professor's line of argument is of this kind:—

"No one doubts that the sloth and the ant-eater, the kangaroo and the opossum, the tiger and the badger, the tapir and the rhinoceros, are respectively members of the same orders, and that, notwithstanding that they differ, some of them, from one another immensely, in the proportion and structure of their limbs, the number of their dorsal and lumbar vertebræ, the adaptation of their frames to climbing leaping or running, the number and form of their teeth, and the character of their skulls, and of the contained brain. Yet, with all these differences, the fundamental characters of their organisation are such that zoologists must group the above pairs of animals together, as belonging, each pair of them, to one order. A newly discovered animal is soon put into its proper group. Now, bearing in mind this obvious course of zoological reasoning, let us endeavour for a moment to disconnect our thinking selves from the mask of humanity; let us imagine ourselves scientific Saturnians, if you will, fairly acquainted with such animals as now inhabit the earth, and employed in discussing the relations they bear to a new and singular 'erect and featherless biped,' which some enterprising traveller, overcoming the difficulties of space and gravitation, has brought from that distant planet for our inspection, well preserved, it may be, in a cask of rum. We should at once place him among the 'mammalian vertebrates,' then with the 'placental mammals;' then, excluding whales and hoofed creatures, sloths and anteaters, carnivorous cats, dogs, and bears, rodent rats and rabbits, insectivorous moles and hedgehogs and bats, there would remain but one order for comparison, that of the Apes (using that word in its broadest sense), and the question for discussion would narrow itself to this;—Is Man so different from any of these apes that he must form an order by himself? Or, does he differ less from them, than they differ from one another, and hence must take his place in the same order with them?"

The Professor having by this ingenious supposition placed himself free from all real or imaginary personal interest in the results of the inquiry thus set afoot, proceeds as an unconcerned Saturnian to weigh the arguments on one side and on the other with judicial calmness, and lays before us in detail the facts which seem to him to leave us no choice but to adopt the alternative of placing man in the same order with the apes.

Taking either the Chimpanzee or the Gorilla, (for it matters not which we take), as the subject for comparison, on the one hand with Man, and on the other with the rest of the Primates, and tracing in order the remarkable differences which exist between the Gorilla and Man; in the general proportions of the body and limbs; in the vertebral column itself; in the ribs and pelvis, in the skull and its capacity; in the teeth (which constitute in man a regular and even series); in the hand, the foot and the brain, which have usually been considered characteristic in man:—allowing, in every case, the very great differences which exist in all these respects, between the Gorilla and Man, which he illustrates by a series of excellent figures, among which, the skeletons of the Gibbon, Orang, Chimpanzee, Gorilla, and Man are peculiarly interesting; the horrid *refrain* of his song is always this—*the proposition still holds good, that the differences between Man and the Gorilla are of smaller value than those between the Gorilla and some other apes.*

Strictly speaking then, we are bound to confess that the Saturnian, judging from the premises placed before him, arrived at the correct conclusion; though we cannot help feeling, that if the learned gentleman had made his observations upon the living animal, instead of merely examining a specimen preserved in spirits; or, better still, had he taken a day-ticket to earth, and observed the manners and customs of the animal, it is quite possible that he might have judged otherwise.

But, seriously speaking, so long as man continues to draw up systems of natural history for men, he has an undoubted right to place the genus "Homo" apart, and in the first rank; and when, in future ages, Mr. Gorilla sits in the professorial chair, and delivers lectures on comparative anatomy to his compeers and fellows, we shall be perfectly ready to take our place among the Primates; nay, more, we promise not to complain, even if the said learned Professor should venture in *his* system to place the Gorilla *first and alone*, for he'd have a perfect right to do so.

In a *Report upon some of the Colonial Medicinal Contributions to the International Exhibition* (a pamphlet; Churchill), Mr. Charles Hunter gives in some detail the result of his examination of the vegetable drugs, chiefly from British Guiana, which arrived in a state for a tolerable investigation. As always happens in these cases the information sent home with the specimens was very far indeed from being what it should have been, but such as it was, Mr. Hunter made the best of it. In all 24 substances were the subject of special examination, and 127 cases are separately reported on. For details the medical reader will refer to the pamphlet itself. We can only say that though many of the Guiana remedies appear to be unimportant in this country, yet others have proved "of undoubted value, and worthy a place in our Pharmacopœia." Among these a Liane or climber called Tasso, the Bou-iari, and Coutarea are more especially commended. In addition to these we have a very careful account of the Wourali poison, made famous by Waterton—a drug which acts fatally when introduced into a wound, but which may be taken with impunity into the stomach. It completely relieved a severe case of chorea in six days, during which 3½ grains of the drug were swallowed. Mr. Hunter has done his work well, and should receive the thanks of the profession; but it is our duty to add that the printer has by no means performed his part with corresponding care.

Garden Memoranda.

Messrs. Henderson's Nursery, Pine-Apple Place—During the past week Messrs. Henderson & Co. have held an interesting exhibition of unforced Hyacinths and other bulbs in their Lapageria house, which, being efficiently shaded with tiffany, and freely ventilated, will no doubt preserve them in freshness and beauty for some days to come. The plants were arranged in this house with very good effect, the principal stage, a parallelogram in form, being occupied by a close bank of moderate-sized Araucarias down its centre, and by three rows of Hyacinths, plunged in Moss; the extreme edge consisting of a row of the little Isolepis, so much used for decorative furnishing. This centre platform contained all the finest named varieties. The side stages were occupied by Hyacinths, Narcissi, and Tulips. At one end was a group of the principal varieties of Epacrises—a set of plants one is surprised not to see shown more largely at the spring meetings which have now become fashionable in London; and at the opposite end were various baskets and vases, both rustic and decorated, tastefully filled, for the most part with bulbs. One of these, a wire basket, was thus filled:—In the centre, well elevated, was a white Hyacinth; then came a circle of one of the gay deep rosy red Hyacinths, such as L'Ami du Cœur; then another circle of deep blue and black Hyacinths, alternately mixed; then a circle of white Hyacinths, and a margin of Cloth of Gold Pelargonium—dwarf plants in good leaf, the drooping Isolepis forming the extreme edge. Some stems of Ivy were trained over the wire work below. These materials being closely set, made up a very attractive pyramid of flowers. The entire display in this house was gay and brilliant, as fresh Hyacinths always are. The following varieties were the most striking at the time of our visit, and our notes will convey some notion of their character under cool treatment, the remarks on these flowers already made in our columns, it must be remembered, having had reference to forced plants. Among Whites, the best was Madame Van der Hoop, pure as the snowflake, and next to it Mont Blanc, which was only inferior as being less perfect in form. Of Blues, Couronne de Celle and Grand Lilas, pale sorts with large bells having an azure tube and pallid limb, were fine; as were also Porcelain Sceptre and Robinson, two sorts which differ from the former chiefly in the somewhat deeper and reddened tint (a blue lilac) of the segments; they have azure tubes, and the eye is paler than the face of the segments. Emicus, thus grown, came of a deepish bright blue with a pale eye, resembling Argus, but not so dark; Charles Dickens, with a blue tube, had a palish eye, and a grayish violet tint. Haydu looked very distinct as a reddish mauve colour. Then of Reds, Sultan's Favourite, a bold flower, was blush white, with a deep red stripe on each segment; Maria Theresa was blush with deep rosy stripes; Jenny Lind was a straw white with red stripes; and Circe, a pale salmony straw-colour with red stripes. These red striped sorts appear to develope their colours well under cool treatment; so also did La Dame du Lac, which comes of a very pleasing shade of lake pink. These were all single varieties; but there was a fair share of doubles intermixed. Of the Polyanthus Narcissi, none were more showy than Soleil d'Or, with its full yellow perianth and deep orange cup; but a few with less familiar names were decidedly better in form, being fuller and smoother. These last were mostly of a canary yellow, with orange-yellow cups: such, at least, were Guerrier, Malakhoff, Perfection, and Regina. Near the entrance to the nursery was a very good display of Hyacinths growing in open beds, the late fine, dry, bright weather having been specially favourable for their development.

The stoves were gay with flowering Begonias, amongst which B. Ingrami, which is found very useful in winter and spring, was most prominent. Imantophyllum miniatum, one of the most useful of plants for private gardens, was also flowering; it may be had in flower at any season. Here were good collections of Ferns, of variegated-leaved Begonias, and of Caladiums—some very fine specimen plants of the latter

being under treatment for exhibition. These Caladiums, which are amongst the most beautiful of all gay-leaved plants, are especially handsome at this season, when the leaves are all fresh and newly-formed. The best we noticed were Wightii, Belleymei, Chantinii, pœcile, and bicolor magnificum, the latter a splendid red-centred sort; to which picturatum and Troubetskoi must be added as smaller growers of distinct form, and the little argyrites, which is a perfect gem for summer furnishing, and for table decoration. Among basket-Ferns, an extremely useful set of plants, Davallia dissects, and D. pentaphylla are found to be two of the best.

A pretty variegated-leaved variety of Rhynchospermum jasminoides, imported from Japan, and supposed to be at present unique, was seen in one of the propagating houses. We also noticed that the Variegated Bamboo of Japan, which is thoroughly variegated when grown cool as exhibited by Mr. Standish, has a strong tendency to revert to the green state when pushed on vigorously in a stove temperature. Those who desire to keep these plants variegated will therefore do well to avoid powerful stimulants.

Among greenhouse plants was a capital houseful of New Holland species, half-grown, and in other stages of progression towards the condition of "specimens." Of these, Boronias, Eriostemons, Chorozemas, Correas, and such, like, were now in blossom. A good collection of Camellias is kept up here; and in the Camellia house we specially noticed a very beautiful variety named De la Reine, which is not half so well known as it deserves to be; its flowers are very large, beautifully cupped, pure white, faintly streaked here and there with rose-colour. The variegated Cobæa scandens was thriving admirably in one of the houses devoted to soft-wooded plants, and proves to be a most desirable creeper. Another house yielded more Epacrises, and hosts of Cyclamens in full blossom, though they were only a year old. These were sown on the 1st of April last year, and were grown on in the cutting-house, in a temperature often reaching as high as 85°; they are now well established plants, each bearing several flowers. In the same house were some plants of a new Tropæolum called Ball of Fire, which is stated to be several shades brighter than any other variety previously known, and is certainly exceedingly brilliant, and a most prolific bloomer, throwing out not merely single flowers but short branches of blossoms from the axils of its lobe-margined leaves. This cannot but be an acquisition for the flower garden, if, as is stated to be the case, its habit is adapted for bedding.

The show-house was gay, as all show-houses should be at this season, if ever, with a great variety of flowering and foliage plants, and among them were specially noticeable plants of Clematis azurea grandiflora, gently brought forward in an orchard house, freely budding for blossom; and a most effective-looking variegated shrub, with distinctly-marked leaves broadly edged with creamy-white, which on close inspection proved to be the variegated Syringa, or Mock Orange.

Miscellaneous.

Storax.—The proposition that the solid storax of the ancients was derived from Liquidambar and not from Styrax is one from which I entirely dissent; still I am free to admit that a solid resin derived from the former tree may have passed as Storax in ancient times, though I am entirely unacquainted with such a substance. Professor Krinos assumes that as no resin produced by Styrax officinale now finds its way into commerce, it is impossible to believe that that tree ever really yielded any. In this I do not concur; I have already shown that two respectable authors of the last century, Duhamel and the Abbé Mazéas, actually collected Storax from this tree, the one in Provence, the other in the neighbourhood of Rome. I have also ascertained within the last few weeks from Dr. Kotschy of Vienna, that in the neighbourhood of Alexandretta, the Styrax, which there grows to a tree, still yields its odorous resin. On the other hand I am bound to acknowledge that the endeavours I have hitherto used to obtain the resin from trees in the south of France, Asia Minor and Syria, have not been successful. In Syria it is now rare to find the Styrax forming anything better than a large bush, owing to the practice of cutting it periodically for fuel, and though I have myself examined many such bushes I have failed to find upon their stems any exudation. I believe however that where the Styrax attains the dimensions of a tree, better results will be obtained, and the correctness of the ancient accounts will be fully vindicated. Not only does the statement of Dioscorides that the Storax tree resembles a Quince indicate that he could not possibly have had the Liquidambar in view, but moreover the allusion made by him, and especially by Pliny, to localities in Syria where Styrax trees, but not Liquidambar are still found, lend some weight to the argument. The geographical distribution of Liquidambar orientale is very restricted, in which respect it differs from Styrax. In the extreme south-west of Asia Minor it is gregarious, forming forests of trees of from 20 to 60 feet in height. Dr. Kotschy informs me that he has reason to believe it occurs at Narkislik, a village near Alexandretta, and also on the Orontes. He also tells me that six fine old trees, certainly planted, exist at the convent of Antiphoniti on the north coast of Cyprus, but that there are no others in the vicinity; that the tree is there called ξύλον τοῦ Ἐφέντη (Governor's wood), and that it and the bark are used as incense in the churches. He adds that there are two trees of the same kind at the convent of Neophiti near Papho, but no others on the island. Professor Krinos states that the Liquidambar is common in Syria, a fact which is not borne out by the researches of botanists who have visited that country, not one of whom has noticed its occurrence. For these reasons, I am not prepared to renounce the opinion that the Storax tree of Dioscorides and other ancient writers was the Styrax officinale of modern botanists, nor can I abandon the idea that, like its congener S. Benzoïn, it is capable of yielding an aromatic resin, which was once obtained in sufficient abundance to form an article of trade. *Hanbury in Pharmaceutical Journal.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Great care should always, but especially at this season, be bestowed on the operation of watering. Too much, too little, or an injudicious mode of appliance, are equally fatal to high cultivation. Many plants are seriously injured at the periods of shifting or potting off, by improper watering. It is the fashion to recommend what is termed a thorough soaking to newly potted stock, and we fear that in this very act the foundation of what is technically termed 'sourness' is frequently laid. A very fine rosed pot, and slight applications of water, at intervals, close on the heels of potting, is the best way, as a general rule, to penetrate the mass, and to cause the particles of soil so to arrange themselves that atmospheric influence shall be somewhat modified, but by no means intercepted. This advice has reference chiefly to newly potted stock in pots; but equal attention must be paid to ordinary conservatory specimen plants. Shrubs newly put out in the beds will now require careful watering. Specimens in tubs must also have a liberal supply, provided the drainage is in perfect order, as it should be. This is the period for the free use of liquid manure, but take care that it is perfectly clear, and not too strong. Large Orange trees should now enjoy a copious application of this renewing element. Where these trees produce gross wood, disbud or remove it altogether, and let the lower shoots take its place. Pay due attention to the watering, shifting, stopping, &c., of stove-plants. Make cuttings as they can be obtained in a young state, of Geissomeria, Plumbago, Eranthemum, Justicia, Clerodendron, Vinca, Euphorbia, Brugmansia, Begonia, Thunbergia, &c., in order to keep up a succession of clean young stock. See that growing Orchids have abundance of atmospheric moisture, with a liberal circulation of air early in the morning, shutting up close betimes, and taking care to observe moderation in the use of fire-heat, in order that a pure atmosphere may be inclosed for the night. Growing Dendrobiums will now require liberal supplies of water; and plants on blocks, frequent syringings. Propagate stock of mixed Greenhouse plants. Most of these will succeed where a medium between the cold greenhouse and the stove is observed. See to cuttings of Heaths, as soon as the wood is in a somewhat firm state. Fumigate the moment an insect appears; this is best done, in a moderate way, two evenings in succession. Some of the hard-wooded things, of no particular importance, might in a week or two be removed, to furnish more room for growing young stock and fine specimens in flower. Some protection will, however, be necessary. Old lights, or a tarpauling on poles as a lean-to, the lowest part next a south wall, and the front opening well to the sun, would answer. Mats may be hung at the front and sides at night.

FORCING DEPARTMENT.

Pineries.—Attend to regulating the air, heat, and atmospheric moisture, as directed last week. Fruiting houses or pits should [now average 80° by day, and about 70° at night; 85° or 90° may be allowed, however, from 3 o'clock to 5 in the afternoon. Dung pits must not be so warm by 5°, as the plants in them are more liable to become drawn.

Vineries.—Where crowded, some of the laterals may be removed in the earliest house, where the Grapes are beginning to ripen: not, however, to throw sunlight immediately on the berry, but in order to promote a perfect secretion in the principal leaves, with a view to heighten the flavour of the fruit, and to organise plump buds for the ensuing year.

Cucumbers and Melons.—Follow up successions. This is a good time to sow for a crop of autumn Melons; at least with those who have nothing but dung beds to grow them in.

Mushroom House.—Take care to provide a humid atmosphere. Beds made after this, should possess more moisture in the manure.

Strawberries.—In order to get fine fruit, pick off all flowers as soon as two or three are set on each plant, which will be enough. Place them near the glass and give plenty of liquid manure; also keep up a moist warm growing atmosphere until the fruit begins to colour. There will be no difficulty in getting fruit set after this, if the plants are kept near the glass, and are allowed on all favourable occasions to have abundance of air.

FLOWER GARDEN AND SHRUBBERIES.

A thorough re-arrangement of all the herbaceous tribes should take place every spring; if this has not been done no time should be lost. Some of the grosser kinds get into too large masses, and thereby destroy all proportion in the mixed beds. Continue sowing annuals wherever required. Early struck Verbenas, Calceolarias, &c., may be planted out 2 or 3 inches apart in beds with a slight protection; they will make nice plants by the middle of May, and may be removed either to masses or borders, where they will bloom directly.

HARDY FRUIT AND KITCHEN GARDEN.

This is an excellent time to plant a full crop of Potatoes. Kidneys, with well-protected sprouts, or any other early kinds planted now, will be little later than those planted in February. This, however, requires a little extra care; the sets should be placed in baskets, a single layer thick, on damp litter, and carefully handled; they should by no means be planted during either sunshine or wind. Those with sprouts 2 or 3 inches long, if managed thus, and covered at night until the second week in May, will closely succeed those in frames. Let a sowing of all the winter and spring Broccoli be made forthwith. Cape Broccoli and Cauliflower for Michaelmas may, however, be sown later. See that plenty of Green Kale, Savoys, Brussels Sprouts, Leeks, Scorzonera, Salsafy, Beet, &c., is got in without delay. Continue successions of Horn Carrots; indeed sow a bed every month from January to September; this is the best way to be independent of the grub. Ridge Cucumbers should be got forward; also Tomatoes and Vegetable Marrow. As soon as your young Asparagus is from 3 to 6 inches high, let new plantations be made.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending April 8, 1863, as observed at the Horticultural Garden

April.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 2	14	30.096	30.050	61	26	43.5	48	46	N.E.	.00
Friday 3	15	30.206	30.104	65	32	48.5	48	46	E.	.00
Satur 4	○	29.973	29.900	56	29	42.5	48	46	S.W.	.04
Sunday 5	17	29.851	29.711	55	46	50.5	48	46	S.W.	.00
Mon. 6	18	29.591	29.465	59	44	51.5	48½	46½	S.W.	.06
Tues. 7	19	29.520	29.442	55	31	43.0	49	47	W.	.01
Wed. 8	20	29.665	29.590	50	47	53.0	49½	47	S.	.11
Average.		29.843	29.751	58.6	39.3	47.5	48.4	46.3		.22

April 2—Frosty; clear; quite cloudless; very fine; frosty.
— 3—Light hazy clouds, fine, clear at night.
— 4—Overcast; cloudy, fine; rain at night.
— 5—Fine; boisterous, cloudy.
— 6—Densely clouded, fine; overcast; rain.
— 7—Fine but cold; hail shower in afternoon; slight rain.
— 8—Clear, rain; showery at night.
Mean temperature of the week 2 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending April 18, 1863

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 12..	55.4	36.7	46.0	24	0.56 in.	8	6	3	3	3	6	7	1
Mon. 13..	55.2	33.7	44.4	15	0.45	8	6	3	3	3	6	7	1
Tues. 14..	56.9	36.7	46.8	14	0.36	4	8	3	3	2	6	2	9
Wed. 15..	57.6	37.7	47.6	19	0.47	1	9	4	1	5	8	2	6
Thurs. 16..	56.9	36.4	46.6	16	0.63	6	9	5	2	3	5	3	4
Friday 17..	57.2	35.8	46.5	14	0.32	8	7	6	2	1	7	0	3
Satur. 18..	58.2	35.8	47.0	15	0.49	5	6	7	1	4	4	7	3

The highest temperature during the above period occurred on the 14th, 1852—therm. 73 deg.; and the lowest on the 16th, 1847, and 15th, 1862—therm. 20 deg.

Notices to Correspondents.

Balsams: *T W.* The old seed is said to be the best, but a good deal depends on the treatment.

Boilers: *Australian.* We believe the tubular boilers are the quickest in their action; but, all points considered, we are inclined for ourselves to prefer the simple saddle boiler, when rapid action is not a consideration. In all cases much depends on the setting.

Books: *G H P.* Thompson's "Gardener's Assistant."

Caladiums: *W Roy.* We should recommend you to grow Chantinii, bicolor magnificum, Belleymei, and Wightii, and the beautiful little argyrites as a furnishing plant. This last is a capital table plant for vases.

Camellia Potting: *G W.* Shift them in July, when the buds are well set, keeping them sufficiently fed in the meanwhile, that this bud-setting may be satisfactorily accomplished.

Easter Pippins: *E G.* The French have a capital way of managing these fruits; and we think you will be of opinion, after trying it, that Easter Pippins are amongst the housekeeper's most useful winter store. 1, Scoop out the inside of the Apple by the stalk, leaving the eye unpierced; 2, Fill the hole with fresh butter; 3, Place the Apple on a plate (*not tin*), crown upwards; 4, Sprinkle it thickly with powdered sugar; 5, Set it to bake *very slowly* in an oven; 6, Eat it before it cools. This was probably invented by Pomona herself—that is to say, if the great Lady had a kitchen, and anything better to eat than roasted acorns. *Vichy.*

Flower Beds: *J Silver.* No doubt a courteous inquiry would meet with a courteous reply. We are not sure of the name, but it is immaterial to your inquiry.

Fungi: *John Cranston.* The fungus which infests your frames is the Common Morel, one of the most valuable of fungi, whether dressed fresh, dried for future use, or made into ketchup. Still, as it is an intruder, you will do well to try the effect of quicklime or salt upon it, which will probably destroy it. Take care, however, that at the same time you do not injure your young plants.—*S T.* Your fungus is the Common Morel. *M J B.*

Gram: *M M.* Gram is the Chick Pea, Cicer arietinum, which is extensively grown as a pulse in the East, and also in the warmer parts of Europe. The leaves exude an acid juice which is collected for medicinal purposes.

Names of Plants: *J R.* 1, Acacia grandis; 2, Akebia quinata. —*H B.* Not Polystichum Lonchitis, but an immature state of P. lobatum, itself but a form of P. aculeatum.—*F B D.* The large-flowered variety of Limnanthes Douglasii.—*J E.* Aubrietia purpurea.

Osmanthus aquifolius: *Mary.* This plant as well as its variegated varieties appear to be perfectly hardy, and are beautiful evergreens, promising some day to rival the Holly, which is saying a good deal. Of course, being so recently imported they have not yet had the actual trial of a severe winter, but we have *seen* them quite fresh after exposure to the trying early frost of last autumn.

Strelitzia Quensoni: *St. Bertin.* Received, with thanks.

Notice.

PURCHASERS of LARGE QUANTITIES of MANGEL WURZEL, CARROT, TURNIP or other FARM SEEDS will be supplied liberally by SUTTON AND SONS.

For prices apply (stating quantity required) to

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

SUTTON'S YELLOW GLOBE MANGEL WURZEL,

THE HEAVIEST AND BEST SORT KNOWN.

Price 8*d.* per lb.; cheaper by the cwt. Common sorts of Mangel, 6*d.* per lb. Good growing Seed.

PRICED LISTS of FARM SEEDS post free.

Royal Berkshire Seed Establishment,
Reading.

Two Hundred and Fifty Guineas in Ten Prizes.

FOR FIVE YEARS SUCCESSIVELY HIS LATE ROYAL HIGHNESS THE PRINCE CONSORT'S PRIZE CUPS HAVE BEEN AWARDED TO SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Bucks Agricultural Societies.

New Seed now ready, 1*s.* per lb., or 45*s.* per bushel, carriage free.

Royal Berkshire Seed Establishment, Reading.

NEW HARDY WHITE SWEDE.—The Favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills. Grows rather coarse on some soils or when sown early; but it is very productive, hardy, and it is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor land.

Seed 1*s.* per lb., or 42*s.* per bushel.

Supplied by RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Turnip and Mangel Wurzel Seeds, Crop 1862.

RAISED FROM EXTRA SELECTED STOCKS, & TRANSPLANTED BULBS
SPECIAL QUOTATIONS TO THE TRADE ON APPLICATION.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London.

N.B. A few Bushels of our celebrated LEWISHAM SWEDE on offer.

FARM SEEDS
OF GENUINE QUALITY
(at Market Prices).
Carriage Free.

RICHARD SMITH,
SEED MERCHANT,
Worcester.

FARM SEEDS

of the finest quality, are offered at fair Market Value.

A LIST of PRICES at which they can be delivered carriage free, and 5 per cent. discount allowed for Cash, is contained in

WHEELER'S "LITTLE BOOK"

for 1863.

CHEAP GRASS SEEDS for HILL SIDES and RAILWAY BANKS.—Rough Grasses, Sainfoin Siftings, &c., suitable for the above purpose, at 2*s.* per bushel and 3*d.* per lb.

Address, RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Clovers and Rye-grass Seeds.

SUTTON AND SONS can supply the proper quantities of the best kinds of CLOVER and RYE-GRASS SEED, either Common or Italian Rye-grass, at 16*s.* per acre; or Clovers without Rye-grass at 14*s.* per acre.

The sorts of Clovers supplied by SUTTON & SONS are the Alsike, the Common Red, and the White Clover (14 lb. per acre).

The great produce of the above-named Mixture is shown by the following:—

From C. F. THRUSTON, Esq., *Talgarth, Machynlleth, July* 31.

"I cut a crop of Grass on June 2, which had been previously dressed with soot and guano. It was full ripe, and the Italian Rye-grass was really 4 feet high, Clover in proportion. I am now (July 31) getting a second crop from it equally heavy."

In ordering it is only necessary to state that "Clovers and Italian Rye-grass," or "Clovers and Common Rye-grass," or "Clovers only," are required for so many acres, when the proper quantities will be sent.

Royal Berkshire Seed Establishment, Reading.

International Exhibition. Prize Medals 1851 and 1862,

AWARDED FOR "EXCELLENT SEED CORN AND SEEDS," TO

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED MERCHANTS and GROWERS, Basingstoke, Andover; and 89, Seed Market, Mark Lane, London, E.C.

Samples of all kinds of AGRICULTURAL SEEDS and SEED CORN, sent post free on application.

Agricultural Seeds.

JOHN K. KING, SEED GROWER, Coggeshall, Essex, (Established 1793), has now ready for delivery from his genuine carefully selected roots,

YELLOW GLOBE MANGEL WURZEL.
KING'S CHAMPION ESSEX ORANGE GLOBE MANGEL WURZEL.
RED GLOBE MANGEL WURZEL.
ELVETHAM LONG RED and LONG YELLOW.
SKIRVING'S SWEDE TURNIP and PURPLE-TOP.

The above sorts have all been proved to grow well.

PRICED LISTS with testimonials post free on application.

INTERNATIONAL AGRICULTURAL EXHIBITION, to be held at HAMBURG on JULY 14, 15, 16, 17, 18, 19, and 20.

The Prizes offered are on a very liberal scale. For the Classes devoted to British Bred Stock exclusively they amount to nearly 800*l.*, while all the others are open to general Competition.

All Entries of Stock, Implements, &c., must be made upon the Printed Forms prescribed. These can be obtained from the Secretary, and must be returned ON or BEFORE MAY 1, the LAST DAY of ENTRY.

The General Steam Navigation Company, London; Messrs. Drolenvaux & Breminer, 14, Mark Lane, London; Messrs. Brownlow, Lumsden, & Co., Hull; Messrs. Lofthouse, Glover, & Co., Hull; Mr. Thomas W. Peters, Hull; Messrs. Pile, Spence, & Co., West Hartlepool; Mr. John Sutcliffe, Grimsby; and Messrs. Ormston, Dobson & Co., Newcastle-on-Tyne, are authorised to receive payments from Exhibitors for Space required, which, according to the printed regulations, are required to be paid before Certificates of Admission will be granted, and are to be paid at the following rates:—

2 Prussian Thalers for each Horse, Bull, Cow, or Heifer.
1 Prussian Thaler for each Ram or each lot of three Sheep, each Boar, each Sow including a litter of Young Pigs.
¾ Thaler per foot Frontage and 10 feet in depth, for Machinery, Implements, &c., in Covered Sheds.
1½ Thaler per foot Frontage and 20 feet in depth, for Machinery, &c., in Covered Sheds.
½ Thaler per foot Frontage, and not exceeding 20 feet in depth in the Machinery in Motion Yard (Uncovered).

The Thaler to be reckoned equal to 3*s.* sterling. In making payments, the receipt of the same to be returned, with the filled-up form of application, to the Secretary, at Hamburg.

It is particularly requested to send description marks, number, weight, value, and contents of everything, with bills of lading, to Messrs. James R. M'Donald & Co., Hamburg.

By order of the Executive Committee,
GERHARD HACHMANN, Dr., Secretary, Hamburg.

To whom applications for particulars of the Prizes, &c., are to be made

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

A LECTURE by Dr. VOELCKER on the ADULTERATION of OILCAKES and other FEEDING MATERIALS will be delivered to the Members, at the Society's House, 12, Hanover Square, London, at half-past 12 o'Clock, on WEDNESDAY NEXT, April 15. By Order of the Council.

H. HALL DARE, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

Besides the usual Prizes for Cattle, Horses, Sheep, and Pigs, SPECIAL PRIZES, amounting to £500, including ESSAYS for FRUIT, CIDER and PERRY, HOPS, and SALT, are offered by the Local Committee, to be competed for at the Worcester Meeting. For Prize Sheets and particulars apply to

H. HALL DARE, Esq.,
12, Hanover Square, London, W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
WORCESTER MEETING, 1863.

STOCK and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to

H. HALL DARE, Secretary.

12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, APRIL 11, 1863.

MEETING FOR THE ENSUING WEEK.

WEDNESDAY, April 15 { Agri. Society of England.. .. Noon (Dr. Voelcker on Oilcake)

THE sale of the late Mr. JONAS WEBB'S Shorthorn herd will take place at Babraham on Wednesday the 15th inst.; we are requested to say that for the convenience of visitors, the same arrangements as have been made for the Southdown sales will be carried out on this occasion, conveyances being provided for the transit between the Whittlesford station and Babraham. All trains up and down, except the express, will stop at Whittlesford on the day of sale. Passengers arriving at Cambridge from Norwich, Ipswich, Bury St. Edmunds, Peterborough, and intermediate stations, can take the 9.40 train for Whittlesford, the first trains from Bedford and Hitchin arriving at Cambridge in time for it.

THE *Mark Lane Express* of last Monday contained a very elaborate report of the harvest of 1862, drawn up from the returns of 600 correspondents in different parts of the country.

These returns state of the grain crops that they are "under average," "average," or "over average," respectively; and they still farther specify whether in the judgment of the reporters they are one-sixth, one-fifth, one-third, or half over or under average. Disregarding these lesser distinctions, the following under the three principal heads are the results of the inquiry:—

Crops.	Under average..	Average.	Over average.	Total.
Wheat	508	100	10	618
Barley	264	263	31	558
Oats .. .	111	335	116	562
Beans	158	224	48	430
Peas	191	191	23	405

Let us compare with these returns, taken from men who have threshed out a portion of their crops and are able to speak from actual knowledge, the reports published in these columns in August last from correspondents who then of course could give us only *estimates* which they had formed from mere examination and inspection of the standing crops and of the harvest work then going on. The following is the Table we then published:—

Crops.	Under average.	Average.	Over average.	Total.
Wheat	150	37	1	188
Barley	53	108	26	187
Oats	55	108	37	200
Beans	13	80	42	135
Peas	23	73	10	106

The two reports very fairly agree with one another, which confirms us in the belief that a very fair opinion can be formed at harvest time of the probable yield of crops. Thus, of the reports of the Wheat crop to our contemporary, 16 per cent. state it to be average, and 82 or 83 per cent. declare it to be under average. Of our own reports, about 18 per cent. declared it to be average, and 80 per cent. stated it as under average.

Our reports of the Barley crop were considerably more favourable than those now published—of which only 6 per cent. are over average—47 per cent., or thereabouts, being average and under average respectively. Our correspondents reported in no fewer than 14 per cent. of their returns that the Barley crop was over average, 57 per cent. being average, and the remainder under average.

Of the Oat crop our returns agree more nearly: 20 per cent. of the *Mark Lane Express* returns being over average and as many under average, 60 per cent. or thereabouts being average; whilst of the returns to the *Agricultural Gazette* last August about 19 per cent. were over average, 27 per cent. were under average, and 54 per cent. were average.

The Bean crop is reported by both Journals to have been inferior. 36 per cent. of the returns to the *Mark Lane Express* being under average, about 52 per cent. being average, and 12 per cent. being over average. While of the returns published in our columns, 31 per cent. were under average, 10 per cent. over average, and 59 per cent. an average.

Of the returns about the Pea crop published in the *Mark Lane Express*, 6 per cent. were over average, and 47 were average and under average respectively. Our own reports are more favourable, 10 per cent. being over average, and only 20 per cent. under average.

The year, so far as grain crops are concerned, has been a very bad one for the farmer. In both price and produce he has suffered. A better home crop would have checked importation, and would have sold at a higher price than has been realised.

IN the month of April, 1861, we directed the attention of our readers to a series of experiments on the germination of several samples of Turnip seeds, including both the common and Swedish sorts which we had tested in September, 1860. The results of carefully conducted experiments on no less than 50 packets from various sources led us to the following conclusions:—

1. That ten samples were genuine, the seed failing only to the amount of 8 per cent.

2d. That forty of the samples bore evidence of having been mixed, or old, or both, as they failed on an average to the extent of 28.2 per cent.

Now, having kept the packets of seeds which we considered genuine, we were induced after a lapse of two years—that was in September, 1862—to repeat our experiments; for, as it is a matter of importance to ascertain experimentally the effect of keeping seed longer than one season, it must be equally so to have within our reach a simple method of ascertaining the germinal power of seeds at all times.

In the following table, then, we repeat the results of the trials conducted in 1860, adding those of 1862 by way of comparison, and as we still preserve the samples, we shall take care to repeat the experiments hereafter, as we cannot but expect that they may afford us as much informa-

tion from year to year as they do in the two columns of figures which we now present:—

Germination of 10 Sorts of Turnips.

No.	Name.—Copy of Label.	Came up. Sept. 1860.	Came up. Sept. 1862.	Remarks.
		per cent.	per cent.	
1	Mousetail, 1859 ..	96	46	Old Seeds in Sept. 1860, when the experiments were made.
2	Pomeranian or White Globe, 1859	86	44	
3	Yellow Tankard, 1859	92	62	
4	Nimble Green Round, 1859	96	94	
5	Lincolnshire New Red Globe, 1860	90	58	New Seeds in Sept. 1860, when the experiments were made.
6	Smart's Mousetail, 1860	98	92	
7	Green Top Stone, 1860	84	84	
8	Sutton's Imperial Green Globe, 1860 ..	98	80	
9	Green Topped Scotch, 1860	90	86	
10	Early Six Weeks, 1860	90	70	
	Came up, 1859 ..	92	61	
	Failed, 1859	8	39	
	Came up, 1860 ..	90	78	
	Failed, 1860	10	22	

Here, then, these experiments show us, on comparing the seeds of 1859 with those of 1860, that the previous year's samples were slightly superior. 1859 was an extraordinary year for the growth and ripening of seeds and fruits of all descriptions, and 1860 was just the reverse; and the season has a marked influence on the quality of seed.

In this case, therefore, seeds of 1859 being so well grown, a year's keeping did not show them to be inferior, but rather the reverse, when compared with new samples.

Now, if we look at the column for 1862, we shall find that the samples of 1859 represent seeds three years old, and those of 1860, seeds of 2 years old, when the experiments were made, and we have then as a result:—

	Per cent.
a. Germination of Seeds 3 years old	61
Failed ditto ditto	39
	100
b. Germination of Seeds 2-year old	78
Failed ditto ditto	22
	100

From these results we may conclude that however good and well saved seeds may be, the keeping of them over two, especially three seasons, causes a sad falling off in their powers of germination.

If, however, we examine the samples separately, we shall find that there is after all no uniformity in the results, for while some of them fall off to a great extent, yet others seem to have suffered but little during the time we have kept them. Taking the whole series, however, there can be no doubt that keeping Turnip seeds tends greatly to their injury, and we here have reason to conclude that the evil is one which increases in an accelerated ratio in proportion to the increase in time.

Now as we are informed that little is thrown away in the seed trade, but that the overplus of a glut year finds its way into the market at a future season or seasons, it becomes a matter of importance to ascertain the nature of the injury thus inflicted. We know that seedsmen do sometimes try experiments of the kind we have tabulated; but, as we may expect, and indeed happen to know, in some instances only in order to regulate them in their bargains.

These cheap seeds then, if of sorts in demand, are sold with all kinds of recommendations, and if genuine they become with keeping about equal to the new seeds prepared by the admixture of "000" seeds: this being, as our readers will recollect, the trade-mark for killed Charlock for Turnip seed mixing—in fact our genuine samples, though 3 years old, would bear 8 per cent. of mixing with 000 seeds, and then be equal to the usual market samples.

STEAM CULTIVATION.

MENTMORE, NEAR LEIGHTON BUZZARD.

There was no lesson of detail in the whole course of the agricultural lectures of the late Professor Low, of the Edinburgh University, which he urged more strongly upon his students than the impolicy of a too early spring cultivation of clay soils. It lives in my mind after the lapse now of a quarter of a century as if we had been taught that the whole produce of the season hinged upon running no risk here. We might, indeed, if February and March had been dry, plough back the autumn ridges; either "gathering in" over the old furrows, thus making new ones where the crowns of the ridges stood, or, what was better, as providing ampler surface drainage, of which we heard a great deal more than of any other kind, retaining the old furrows, ploughing our first slices not into but on either side of them, thus doubling the number of outlets for whatever rain might fall. Certainly however nothing like a deep cross cultivation of the land was allowed until towards May, or April showers might make us rue our recklessness, all the ensuing season. And many a tenant farmer on the clays will say Professor Low was right, and they praise him justly as having been a trustworthy teacher of farm practice.

We saw two weeks ago, however, a large tract—some 40 acres—of stiffer clay than any known to the Scottish agriculturist, which was being "smashed up" any how, with no regard to surface drainage at all, and with no regard whatever to the effect which subsequent rain might have upon their tilth. It had been drained 4 feet deep and 11 yards apart, and it was then being cultivated without any surface trampling of the land whatever. A rather foul Bean stubble had been broken up 8 inches deep, and crossed from the same station by Bedford the 3-tined grubber last autumn, and now a 10-horse engine, stationed in the middle of one side of the piece, had drawn the 5-tined implement an inch or two deeper east and west through the whole of it, without once shifting its place. Then it had drawn the same tool equally deep through it, crossing and recrossing the first tillage, and when I saw it the other day, it was accomplishing a third crossing with the 5-tined tool in the direction of the first grubbing that was given. Over the foulest portion one turn of Howard's powerful steam drag-harrows had made a capital seed-bed for spring corn. The whole breadth was thus stirred and smashed up, any root weeds were on the surface, the tool had left no glaze or trampled soil behind it. The land was as dry as thorough drainage all the winter and a dry February and March could make it. Being clay of course it was moist enough; but there was no poaching or trampling to make rain dangerous, and the drill was following the cultivator as fast as possible. In the trampling of the teams while getting in the seed, however, there was still some risk of injury, and the operation would have been a better illustration of how steam cultivation, after good land drainage, enables one to set at naught the maxims of old-fashioned farming, if the drill or sowing machine had been combined with this last cultivator in one, as in Mr. Smith's last patent they are. The weather of the week which has since elapsed, however, has been propitious, and Mr. Taylor may be congratulated on having accomplished his Oat sowing in first-rate order with very little else than steam power.

Mentmore is the mansion and estate of The Baron Meyer de Rothschild, M.P. The purchase about 15 years ago of some 500 acres in this neighbourhood has proved the nucleus around which a lordly estate, extending over some 20 square miles, has gathered in the interval. And on one of the rising grounds above the Vale of Aylesbury, in which for the most part the property lies, a mansion has arisen from Sir Joseph Paxton's designs, corresponding with the wealth thus represented. And some 1200 acres of the estate around this mansion are in the owner's hands, mainly with a view to the formation of a Park. Many miles of hedgerows have been grubbed up and fields thus thrown together—many miles of roads have been at great expense constructed, and communication thus opened with the main public highways on every side. Many acres of plantations have been made on deeply trenched and well drained sites, and the general designs have been formed and carried out under the direction of Sir Joseph; the whole of these operations, including the agricultural details, being under the immediate superintendence of Mr. George Taylor.

The estate lies for the most part on the so-called Gault formation, a stiff calcareous clay which, dug out of the subsoil, whitens as it dries, but forms naturally a dark adhesive surface soil extremely difficult to work, and extremely poor and infertile, except when drained.

Looking from the hill top on which the village stands, you are struck with the poor stunted growth of timber in the hedgerows of the vale below; and it is hard to believe that land which turns out such poor timber trees, and which, moreover, still yields (in places) such extremely poor pasture, yet grows 5 quarters of white Wheat, 8 to 10 quarters of Oats per acre, and heavy crops of Mangels, Clover, and of Beans. In further illustration of increased productiveness of this clay farm under liberal treatment in connection with thorough drainage, and the steam cultivation afterwards adopted, it may be mentioned that the harvest of 1861 yielded of Essex Rough chaff white Wheat 5½ quarters per acre over a large breadth—the produce of other corn crops, as also of green crops, being in proportion to that of Wheat.

This, then, is what drainage and steam tillage have enabled it to do—that represents the natural and unaided fertility of the land. The Mentmore estate has been, indeed, as good an example as one might desire of that sort of poverty which arises from the key of the treasure box not having been yet discovered. The lock has however here been already picked by land drainage and steam ploughing, and the natural wealth of the land is being now annually exhibited.

Previous to the Cheddington farm coming into Baron Rothschild's hands in 1854—5, this then poverty-stricken undrained tract was in "common field," let to a numerous tenantry at the annual rental of 12*s.* or 13*s.* per acre—two crops and a dead fallow being the "rotation" then adopted. It need scarcely be added that the amount of produce under such adverse conditions could be more appropriately described in bushels than in quarters, and moreover that green crops were here either wholly unrepresented or unknown. Snipes and plovers were here in abundance 10 years ago. The crops were usually sold standing, there being no homestead on the land. Wheat was grown more for the sake of its reed-like straw than for corn, there being in this locality a great demand for straw (termed "reed") of that kind, owing to the proximity of Dunstable and its bonnet factories. Previous to a systematic plan of sub-drainage being effected, this low-lying tract of poor clay was all but submerged in seasons of extraordinary wetness. When, owing to the exceeding slackness of the natural outfall, and the conspicuous absence of any artificial contrivance for the escape of surface water—the arable portion especially being gathered into high backed lands some 2 feet or more above their furrows—the water was retained on the surface in such abundance as to give it the appearance from any rising ground at a distance, of a bog-like tract some 500 acres in extent, in the deep artificial furrows of which a flat bottom boat might float! Sheep stock—the poor ewes which were run over the stubbles and grassy portion of so large a waste—were greatly liable to the rot, and mutton of that description was at a great discount in "Cheddington Field," A.D. 1853.

The state of much of the pasture laid down undrained some years ago, contrasted with the magnificent arable crops on well drained steam ploughed land close by—teaches as forcible a lesson as can be desired on the difference between clay land drained and tilled and clay land wet and poached. Mentmore will hereafter certainly be a striking illustration of that improveableness of our calcareous clay lands which they will owe to the introduction of steam cultivation after drainage.

Let me now describe the management of the home farm in more detail. There are about 1200 acres in hand, of which between 400 and 500 acres are arable, the remaining 700 to 800 acres being in pasture, park, and groups of ornamental trees and drives. It is being all gradually drained on the parallel or "gridiron" plan, 4 to 5 feet deep, the whole tract consisting of either a strong gault or stiff calcareous clay underlaid with gault, there being a total absence of either stone or gravel on this portion of the estate suitable to its numerous requirements of road-making, &c. The drainage of the arable section of the estate was begun in 1854-5, and completed the following year. Steam-power drainage (with pipes) of the whole tract was primarily contemplated; but on an examination of the system and inspection of works in progress at the time, it was abandoned for hand labour, and it was decided even at that early stage in the history of steam cultivation to resort to steam as an aid to tillage if possible rather than as a help to drainage operations.

In commencing drainage, it was necessary to look forward to the eventual conversion of the arable farm into a portion of the intended park. Hence covered outlets, in lieu of open ditches or watercourses, were resolved upon, especially as the outfall was for the most part flat and slack; and mains required to be deeply driven for great distances, in order to ensure sharp outlet-run for so large an area of land-drainage, to the uniform depth for lateral drains of 4 feet.

These main outlets are made to embrace, as far as natural levels admit, each about 100 statute acres; they consist of 12 and 9-inch bore round pipes in 2-feet lengths, having circular openings in some of them at 5 to 8-chain intervals, for the insertion of 4 and 6-inch mains, laid diagonally across the land, to receive the sectional divisions of lateral drains, consisting of 2-inch round pipes, 1 foot in length.

The old furrow lines, being generally in fair parallels, and equidistant throughout, about 30 feet apart, and lying moreover in the line of greatest fall, it was deemed the most prudent course to adhere to them as the best plan of lateral drainage under the circumstances, and none the less so because these furrows had for so long a period relieved the land of its surface waters. The efficient sub-drainage of this clay land bog was thus, it will readily be inferred, a far more costly work than in the case of ordinary drainage of enclosed land, where open ditches are usually worked to form the outlet and main carriers.

Owing to the difficulties of the natural level, the covered outlet has varied in depth from not less than 5 feet to 15 feet occasionally; and the mains themselves are not unfrequently laid 6 to 9 feet deep, in order to obtain the requisite depth of 4 feet for subsidiary drains throughout the entire area of some 500 acres of tenacious clay-land.

Through the subsequent operation of levelling down the high-backed ridges (mainly by the action of the steam cultivator) during the subsequent 5 or 6 years, the average depth of the general drainage is now increased to nearly 5 feet, and the issue of these proceedings is the complete and perfect removal of stagnant water from an immense tract of now fertile corn-land, which so recently stood at the very minimum of agricultural value. Finally, it may be remembered, whilst on the subject of drainage, that the same general plan is being pur-

sued with the Grass land, with, however, this distinction—that the lateral drains are all set out in exact parallels across ridge and furrow, upon the greatest line of fall at the distance of half a chain apart, and 4 feet 6 inches to 5 feet deep.

The cost of the drainage thus described has been proved over now some 800 acres of arable and pasture land to be just about 6*d.* per statute acre in all, or say 5*s.* to 10*s.* per lineal chain for labour only in the case of outfall, and of mains; and 2*s.* 6*d.* to 3*s.* per chain ditto for 4 feet to 5 feet lateral drains.

Large circular ponds for live stock, a rood or more in extent, are contrived in some good central positions favourable to the surface levels (for the water accommodation of about 150 acres in each case). Circular excavations are preferred, as, owing to their arch-like shape, they are found to stand better than any other form when the side is battered to a good even slope. To facilitate the approach of all kinds of stock for drinking, or for loading water-carts, graduated mouths are dug out quite to the bottom, in order that the water may be reached in the driest season. Owing to the depth thus excavated—to full 8 or 9 feet below the drainage levels, and still more owing to the plastic character of the soil, no puddling is found requisite—not even in the driest summers. Similar reservoirs (not so large, however) are also dug out in the most suitable places as to levels, cart ways, &c., upon the arable portion of the farm to meet the requirements of steam cultivation; and it may be useful to note that the large mass of clay thus taken out is either wholly or partially burned during the process of excavation in order to provide a good material (in the absence of gravel) for ballasting roads or drives—forming the bases of farm-yards, not omitting the mouths or bottoms of the ponds themselves.

Moreover the burnt, clay is occasionally employed as a manure on the farm, and there is a promise of valuable results through its use, especially when first employed, either alone or in conjunction with straw, in littering down the yards filled with live stock in winter. When burning the clay is not thus resorted to for estate and farm purposes, it is used most advantageously to fill up the many old surface ponds and ditches laid dry by the action of recent land-drainage, or for making good any natural or artificial hollows required to be brought to a fair surface in the formation of the park. In one instance a reservoir of this kind is made to supply an adjacent farmyard of some 80 head of stock in winter; as well as the cattle, &c., depastured in summer over some 150 acres of surrounding Grass-land. An immense extent of enormous hedgerows has been grubbed up, and much remains to be done in that way to destroy the thin and liny aspect presented by the many miles of poor unthrifty trees composing the hedgerow timber. The bushes, faggot wood, and roots thus cleared are turned to an economical account almost on the spot by using the former to construct roads, drives, &c., on the American or "Corduroy" plan of laying down a floor of brushwood on which to lay the ballast or gravel for a base; whilst the latter are stacked into large ricks on the farm, and when dried and seasoned as fuel are used as such for burning clay into ballast, for steam cultivation, &c. By the removal of these irregular hedgerows, the refilling of the ditches, &c., much that was formerly almost useless and encumbered ground is thus reclaimed and made of considerable agricultural value over so large an extent of land. Owing to the absence of stone or gravel before alluded to, permanent roads or carriage drives are made at a great cost at Mentmore, notwithstanding that in their formation, owing to the thorough character of the land drainage as a whole, no special drainage for roads, beyond laying down the floor of faggots to keep the clay down and prevent intermixture with the ballast, is needed. The materials are placed, as far as level admit of it being done, upon the surface for a new road, to the depth of about 9 inches thick, which when well solidified by cartage, &c., is covered by a layer of broken flints, 3 or 4 inches in thickness—the only local material sufficiently durable for surface wear and tear—and which costs 1*s.* 8*d.* per cubic yard four miles off, or at the costly rate, for road-making, of about 5*s.* per cart-load at home.

(*To be continued.*)

SMALL-POX IN SHEEP.

[The following is the report to the members of the Wilts Mutual Insurance Sheep Association, and adopted by them at their recent meeting at Devizes, as reported in the *Devizes Gazette*.]

The period having arrived up to which it was originally intended that the Wilts Mutual Sheep Association should continue, its members will naturally expect from the committee some report of the steps which have been taken to carry out the object for which the Association was formed, and of the disposal of the funds which were placed in its hands.

At the time the Association was called into existence, a disease called "small-pox," hitherto unknown in this county, was raging to a considerable extent among the flocks of Wiltshire; hundreds of sheep had already died in one flock in the immediate neighbourhood of Devizes, and the dangerous system of inoculation, which had been introduced among sheep hitherto unaffected, bid fair to propagate disease in all directions. The object of the Association, which was formed on the 11th of September last year, was, therefore, in the first place to prevent the spread of that malady by such unnatural means; and in the next, by mutual combination, to afford compensation to those who might sustain losses from its attack; and the committee may congratulate the members generally that the prompt action which was taken to accomplish the first object was the means of preventing any necessity for the second.

An order in Council had, it is true, been issued at the time the Association was formed with reference to infected districts, but this order contained no prohibition against inoculation; and looking at the open area over which thousands of sheep in this county intermingle, it seemed next to impossible, unless some decided check were put to such a source of contagion, to prevent the communication of small-pox to a large portion of the flocks upon the Downs of Wiltshire. One of the first measures, therefore, adopted by your Association was to stop at once a resort to inoculation; to separate, bury and destroy any sheep that might become infected; and thus exterminate at the outset all chance of contamination from infected animals. The result of this step, promptly taken, was, the committee have reason to believe, the means of eradicating the disease from the immediate neighbourhood in which it originally broke out, and was the means of preserving thousands of others on all sides; and, as a consequence, the demand for compensation upon the funds of the Association has been, comparatively, *nil*, the Secretary having received claims from two infected flocks only, in one of which (a flock of 450) two cases only occurred, and these having been immediately separated from the rest of the flock effectually stayed the ravages of the malady.

Your committee would, however, but imperfectly have discharged their duty had their attention been limited merely to the extinction of the disease where it was found to exist. They therefore put themselves into communication, through their Secretary, with several gentlemen in Norfolk, who had had considerable experience of the small-pox of sheep, when that disease was imported into England some 10 years ago, and, among others, with Mr. Allan Ramsay, who was said to have tried, with success, the preventive effects of vaccination in several large flocks in that county.

The communications received from these gentlemen were of a very encouraging nature, and your committee proceeded forthwith to put the matter to a practical test. With this object in view, your Chairman (Mr. George Brown) procured six healthy sheep from Mr. Pritchard, of Longcot, near Swindon, and had them vaccinated by Mr. Parker, a medical gentleman, of Shrivenham. Having taken the vaccine satisfactorily, two of these sheep were, on the 9th of October, forwarded to Mr. Church, at Aldbourne, where they were placed with two very bad cases of small-pox, so bad that the animals afterwards died in a most loathsome state of disease; the vaccinated sheep, however, appeared in no way affected, and on the 29th they were removed to Mr. Hulbert's flock at Langley, where small-pox was raging in its most virulent form, and where, it should be stated, the four other vaccinated sheep had been previously sent on the 23d of October. Here the six vaccinated sheep remained until the 3d of November, mingling with a mass of diseased sheep, resisting all contagion, and continuing all of them in a perfectly healthy state.

But Mr. Brown determined to put the experiment to the most extreme test; and on the 3d of November he accompanied Mr. Parker to Mr. Hulbert's, and there had the six sheep inoculated. That there might be no question about the matter, each sheep was inoculated in two places, and on the following week there was strong evidence of their having all taken the disease; indeed, the fact was soon placed beyond doubt, for on the 13th one of them died in a very bad state, followed by the death of another on the 19th, two more being at the same time exceedingly ill, with pustules fully out; but the remaining two appeared little affected, and with the other two have since quite recovered.

It will be observed, therefore, that up to the time of inoculation—during the 25 days that a portion of the vaccinated sheep were exposed to the small-pox in its most virulent form—the resisting effect of the vaccine was complete. How far the six sheep might have continued to escape contagion it is impossible to say; and your committee cannot but regret that the severe experiment of inoculation was not limited to three of the sheep only, leaving the other three to test the permanent effect of vaccination. The experiment has, however, exemplified one result, that inoculation is not always certain to produce the disease in a mild form, two of the sheep thus artificially impregnated with the virus having died in a shocking state; and in Mr. Hulbert's flock the losses were greater, by about 14 per cent., among the inoculated cases than in the natural ones.

Another good result has also, in the opinion of your committee, been satisfactorily established, viz., that separation, and not inoculation, is the proper mode of dealing with affected cases; for in every instance which has come within the knowledge of your committee, and there were many, where separation was practised at the outbreak of the disease, its effects were confined to those animals only first affected in each flock, and these having been removed from the others, in no single case did the disease extend further; whereas, in all cases where inoculation was practised, the disease has been extended, and its virulence and fatality have been as great, and in some instances greater, than where it was allowed to wear itself out naturally.

So far your committee have endeavoured to fulfil some of the objects for which the Association was formed; but they feel that the Association would have existed to little purpose if it allowed its members to separate without urging upon the Government the positive necessity of adopting a more strict supervision of the Import Laws. It is to the reckless importation of diseased foreign animals, under the guise of "Free Trade," that the immense losses to which the stock and flockmasters of Great Britain have been subjected since the year 1842, are directly traceable, and to which your committee cannot but ascribe the direful malady which was the means of bringing this Association into existence. They are credibly informed that the Privy Council are at this moment in possession of such a mass of facts condemnatory of the present system of importation as will render it almost impossible to resist an appeal to prompt action; facts which show that there has, throughout the past year, been a continuous transit of foreign animals from the most diseased districts of Holland, Germany, Prussia, and Hanover, into the various ports of disembarkation in this country; and further, that in March and April last, just prior to the appearance of small-pox in our English flocks, there was a large importation into London of sheep known to have been drawn not only from infected districts, but from infected flocks.

Your committee trust, therefore, that the Association will not allow the opportunity of its meeting on this occasion to pass without adopting a memorial to Government asking that greater vigilance may be exercised, than now prevails, to check the risks to which the farmers of England are at present exposed; that they will ask for the publication of the reports of their own officials, now in the possession of the Privy Council—reports which, if the committee mistake not, will show that since 1842 the diseases of cattle in this country have risen from 1 to 1½ to a common yearly average of 5, 6, and 10 per cent. Nay, "farmers may open their ears (says a Government commissioner in a recent publication) when I tell them that last year we did not lose, in England alone, less than three times the total amount of cattle we imported, and if we calculate the loss over the three kingdoms, it will be found that, for every animal we purchased from foreign dealers, we did not lose less than six or seven of our own!!!"

Surely it can form no part of a proper commerce, that our stock should be destroyed by the very animals we admit to compete with us in our markets! The matter is indeed one of the deepest importance, not merely to the members of this Association, but to the public generally, and your committee feel that they would but imperfectly have discharged their duty if they did not urge it strongly upon the consideration of the present meeting. They might well ask if it be free trade to contaminate the country with pestilence, to poison the very meat we eat, and to rob the English farmers of thousands by diseases which, prior to 1842, were hardly known in this country?

It only remains, however, now for your Committee to resign the trust reposed in them by the members of this Association, and in conclusion to express their warmest thanks to Mr. George Brown, the chairman, for the time, and trouble, and exertion he has devoted to this, as is his invariable practice to every other object in which the interest of the farmers in Wiltshire is involved; they feel that but for the personal attention and energy which Mr. Brown has given to all matters connected with the Association, much valuable information would have been lost; and they are persuaded that they only echo the unanimous voice of the members when they thank him heartily for the prominent part he has taken in endeavouring to carry into effect the objects for which the Wilts Mutual Sheep Association was called into existence.

H. Kent Norris, Secretary.

MILK PANS.

[The following are extracts from a paper read by Mr. Cunningham at a late agricultural meeting in Cork.]

Visitors to the Munster Agricultural School Farm almost invariably put the following questions:—'Which kind of milk pan is preferred? and which kind throws up the largest quantity of cream or ultimately gives the largest produce in butter? The first question is easily answered, as glass pans are the favourites, owing to their cleanliness and economy in management. To the second question no decided answer could be given, and with the view of eliciting reliable particulars on this point, the following experiments were undertaken. The pans selected were three years in use, and of the following kinds—glass, earthenware (black glaze), delft, tinned iron, and wooden vessels. In order to carry out the experiment with the greatest accuracy, the feeding of the cows was change, and the temperature of the dairy varied at each experiment, The milk as it came from the cows was strained into a large vessel and then measured accurately into the pans. The quantity of milk set in all cases was 8 gallons, and the cream from this was about from 5 to 6 pints. I do not set much value on the measurement of the cream, as a great deal depends upon the state of the milk and the dexterity of the dairymaid in taking it off. One week was allowed to elapse before

the next experiment was commenced.—In all four experiments were made. In the first experiment the feeding was of a rich nature, and a large produce of butter was expected, and the temperature of the dairy was high for the season, viz., 55°. The feeding consisted of White Turnips, Swedes, Rape-cake (3 lbs. to each cow per day), grains, and hay. The expectation as to large yield of butter was realised, as two of the vessels gave the highest produce—3 lbs. of butter from 8 gallons of milk. In the second experiment the temperature of the dairy was lowered to 48°, and the feeding was Aberdeen Turnips, Swedes, Grains, and hay. In the third experiment the temperature was raised to 50°, and the feeding was Mangels, Swedes, Aberdeen Turnips, and hay. The temperature was 52° in the fourth experiment, and the feeding was Mangels, Swedes, grains, and hay. The produce in butter is summarised in the following table:—

Milk vessels.	Experiment No. 1.	Experiment No. 2.	Experiment No. 3.	Experiment No. 4.	Average of the four experiments.
	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.
Glass	3 0	2 10	2 12	2 14	2 13
Earthenware (black glaze) ..	3 0	2 10	2 12	2 14	2 13
Delft	2 14	2 8	2 10	2 12	2 11
Tinned iron ..	2 14	2 8	2 10	2 12	2 11
Wooden (keelers)..	2 4	2 4	2 6	2 7	2 5½

On tabulating the 1st experiment I was under the impression that an error had occurred in the case of the wooden vessels, as the quantity of butter yielded, when compared with the other vessels, was very small. It was then the thought struck me to vary the temperature of the dairy and to alter the feeding of the cows, as I had not the least doubt but by so doing I would vary the quantity of butter in all the vessels, and which would tend to confirm the accuracy of the experiment, or the reverse. In the 2d experiment no Rape cake was given to the cows, and the temperature of the dairy was lowered to 48 degrees. It is a well-known fact that a low temperature has the effect of preventing the cream from rising, and this was exemplified in a remarkable degree in this trial, as all the pans with the exception of the wooden ones, produced the smallest quantity of butter. When we consider that the material of the wooden vessels, as compared with the materials of the other vessels, is less liable to be acted upon by a variation in the temperature, or, in other words, is a greater non-conductor, hence the produce of butter remained the same as in the first experiment, while in that of the other pans the produce was lessened very much. I believe from experiments conducted during the past season at the Albert Institution, Glasnevin, it was found that Rape cake did not add to the increased richness of the milk, but that it tended to bring the cattle into a higher condition, so that the absence of Rape cake in the feeding does not account for the sudden decrease in butter, but that it wholly arose from the sudden depression in the temperature. I may here take the liberty of stating one or two facts with regard to Rape cake. The milch cows on the Munster Farm receive about three pounds of this cake per day during the winter months, and it has the effect of counteracting in a great degree the unpleasant flavour of the Turnips, so much so, that although the tops are often given with the Turnips, still we have had no complaint from our numerous customers of the Turnipy flavour in butter. The Rape-cake gives to butter a closeness of grain and a soft consistency even in frosty weather, and it is to the use of this Rape-cake that the Belgian farmer is able to command so high a price in the London market during the winter months. In the third and fourth experiments the temperature of the dairy was gradually raised, and a higher class of feeding was given, so that all the vessels gave a corresponding higher produce of butter. The milk turns sour or thickens in the course of from 12 to 18 hours in the wooden vessels, and in the delft and tinned iron a few hours sooner than in glass and earthenware ones. A vessel that will keep the milk longest sweet will have more time to throw up a larger quantity of cream, a circumstance which these experiments tend to corroborate—200 lbs. of butter are considered a fair average produce for a cow during 12 months, and if we take this quantity as realised from the glass and earthenware pans there will be a loss of 9½ lbs. of butter, or 5 per cent., by using pans of delft or tinned iron, and a loss of 36 lbs., or 18 per cent., by using vessels of wood. To manage a dairy successfully, cleanliness is a most essential requisite; and dampness should by all means be avoided, as it soon taints the milk, and the butter is consequently deteriorated. Vessels that require much cleansing and scrubbing, as wood, and certain sorts of earthenware, should be at once thrown aside, as the moisture absorbed soon taints the milk, as I have had ample experience in a tour of inspection, as a judge of green crops, &c., in Kerry and the West of Ireland, where I found in dairies having vessels of wood, the milk, in almost all cases, was corrupted before the cream was taken off, and this more especially if the dairies were damp and not properly cleaned. The conclusion I have come to is that glass pans have the decided advantage that they are easily cleaned, that the milk keeps longer sweet in them, and that they give the highest produce in butter, which is of a superior quality. As to breakages, the dairymaid at this farm has just received a small gratuity for her care in managing these pans, as not one was broken during the last 18 months. I purpose continuing these experiments still further as soon as some additions to the dairy are completed, and I shall be most happy to bring the results before you.

VALUATION OF MANURE.

[Dr. Evan Pugh, whose name is well known to scientific men in England, and to our readers as having contributed to our columns a number of interesting letters on agricultural education on the Continent, writes thus in a recent number of the *Albany Country Gentleman*.]

Agricultural College, Centre Co., Pa.,
December 8, 1862.

I herewith send you a copy of a letter written to Dr. Voelcker and his reply. It was written during the summer, in consequence of my attention having been called to the fact that an attempt was being made by parties interested in the sale of bad manures I had exposed, to show that Dr. Voelcker and myself differed upon the subject of the efficacy of chemical analysis in ascertaining the value of manures. From a two-and-a-half years' residence in England, and a most intimate association with Dr. Voelcker, I might at once have stated that there was no essential difference of opinion between us, but I chose to write to him. His letter will speak for itself. If those manufacturers of quack manures who fled to him for refuge from the expositions of science will read his letter, they will find little consolation for their illegitimate traffic. They may rest assured that the combined chemico-agricultural knowledge of the present time is against them, and as that knowledge spreads, their traffic will be circumscribed and curtailed. A manure which will not stand the test of valuation founded upon chemical analysis, will be driven from the market—its manufacturer, like the fortune-telling gipsy, can deal only with the ignorant and credulous, who will accept as science the vagaries of quacks. Evan Pugh.

1. Dr. Evan Pugh to Dr. A. Voelcker.
Agricultural College, Pa., United States,
July 14, 1862.

My dear Dr. Voelcker,— . . . I now more particularly wish to write to you in relation to the analysis and valuation of manures. Some things have fallen from your lips, or escaped from your pen, that have been used by manufacturers of quack manures in this country to show that there is an antagonism between your views and my own in regard to the standard of valuation in manures. I recently published the analysis of a number of artificial manures manufactured in the country. All but three or four proved to be very bad, *intolerably* bad manures — "superphosphates," without any superphosphate in them; "nitrogenised manures," destitute of nitrogen, &c. &c. I estimated the value of each according to the value of its several constituents, and the value of its several constituents I fixed at what they could be purchased for in the market. I did not claim to give their value to the farmer—that is, their correct agricultural value—but simply the cost at which the materials composing them could be purchased in the market, were he disposed to manufacture his own manure; this would allow a liberal profit to the manufacturer who purchased wholesale quantities of the raw material. A ton of manure, composed of half gypsum and half bone, was rated in value equal to the cost of half-a-ton of plaster of Paris, added to the cost of half-a-ton of bones, in the market. Phosphoric acid in combinations soluable in water was estimated at what it could be made for from the cheapest material used in manufacturing, &c., &c., all of which you will see by the copy of what I published, that I send you. I am fully aware that you offer some objections to the use some quack analysts make of the tables for the calculation of the value of manures from analysis. Indeed, you once advised me never to publish any such tables, as your doing so had involved you in much difficulty. I have not entirely followed your advice, because I think we have different circumstances here from those that induced you to give it. I do not expect ever to analyse manures for pay, but simply to do so gratuitously, in order to drive worthless manures out of the market, and get good ones in their stead. My reward will be the pleasure of thus rendering the agricultural interest of our country a little service. To do this I wish to enlighten agriculturists on the composition of manures—to impress upon them the fact that manures are valuable for certain tangible substances in them, capable of being estimated by the agricultural chemist—that phosphates are valuable for the soluble and insoluble phosphoric acid they contain, and that this soluble phosphoric acid (*i.e.*, phosphoric acid in combinations soluble in water) can be made for a certain minimum cost, more than which they should not pay for it. I want to insist that there can be no doubt about the fact, that this soluble phosphoric acid (thus made at a minimum cost) is, for agricultural purposes, precisely identical in value with that rendered soluble by any possible means, and from any possible source. Some quacks in this country, either through ignorance or design, confuse unscientific farmers with clap-trap about the origin of phosphoric acid, previous to being made soluble, having much to do with its value in a superphosphate. The value of insoluble phosphate is not so easily fixed, since the degree of its insolubility depends very much upon its origin. It is worth more in finely ground than in coarse bones, and more in burned than in unburned bones (as the organic matter of the unburned bone by fermentation and decomposition helps to disintegrate the bone). It is worth more in bone than in mineral phosphates, because more easily disintegrated in the former than in the latter. Yet I have fixed the price of phosphoric acid at what it costs in ground bones; this can do no manufacturer injustice. Nitrogen I have fixed at very little below what it costs in sulphide of ammonia, and above its cost in Peruvian guano. Sulphuric acid was fixed a little above what it cost in common gypsum, and potash at about what it would cost the farmer in wood ashes.

Now I hold—

1st. That high-priced manures (those worth from 40 dols. to 50 dols. per ton) are valuable only for the phosphoric acid, nitrogen, sulphuric acid, and potash they contain.

2d. That the chemist can tell by analysis not only the quantity of these substances present, but he can recognise the condition in which they exist, so far as to be able to find other sources of them in a similar condition (in regard to assimilability by plants), from the price of which, in the market, he can obtain the proper commercial value of each of them in any manure.

Such, in short, are my views. They are not original, but simply those of agricultural chemists generally. I feel confident that you will not take exception to them, and would thank you for an expression of opinion upon the subject that I may publish. Believe me most sincerely yours,

E. Pugh.

2. Dr. Voelcker to Dr. E. Pugh.
Royal Agricultural College, England,
September 30, 1862.

My Dear Dr. Pugh.—I have delayed replying to your note in the hope of being able to send you with my answer a copy of a paper on the commercial value of artificial manures. The *Journal* of the Royal Agricultural Society, in which it will appear, however, is not yet out, and I will not longer delay writing to you. Let me at once express my entire agreement with your views, situated as you are. Your valuations are fair, and even liberal, and to the honest and intelligent manufacturer they must prove satisfactory, and the course which you are pursuing cannot fail in a short time to silence the voice of interested and designing men. You will readily convince intelligent men that manures owe their fertility to certain material constituents which may be bought at different market prices, and that the quality and quantity of the different compounds of a manure mainly determine its money value. The time has long passed away in which the cause of the efficiency of some manures, and the inefficiency of others, was involved in mystery. We know at present perfectly well what constituents give particular value to certain manures, and why other fertilisers are more or less ineffective. In intrinsically valuable manures there will be found, as you well know, soluble phosphate of lime, insoluble phosphate of lime, potash, and nitrogen, in the shape of ammoniacal salts, or in the form of organic matters, readily yielding ammonia on decomposition, or in the shape of nitrates. These are the most effective, and at the same time the most valuable manuring constituents. In bad or indifferent manures these ingredients are either altogether absent, or present only in small quantities, and the manure mainly consists of gypsum, chalk, marl, or various cheap refuse material, and other similar matters which possess little or no commercial or agricultural value. It is therefore evident that a chemist who can accurately determine the amount of the different constituents in manuring mixtures, and who knows at what price these constituents can be readily procured for, in the same or similar conditions in which they exist in the manure, can form a very good estimate of the amount which the farmer should pay for his fertilisers. Valuations are utterly impossible without analysis. Both have had a powerful influence in England in rendering the trade in artificial manures an honest legitimate undertaking, and they will do so in America. In England we have advanced a step further as regards the manufacture of artificial manures. Fraudulent manures are now quite the exception with us, and the trade has passed into the hands of men who, possessing capital, scientific and commercial knowledge, produce at the present time artificial manures, which they can sell at prices which are much lower than their value estimated according to the least favourable money valuation of our agricultural chemists. It was for this reason that I pointed out to the agricultural public some time ago that the consumer ought to expect something more in a good manure than agreement between the estimated money value and the price at which it was actually sold, and that the standard valuation tables have now become obsolete. The money value of manures, I believe, is now regulated in England by the price at which certain standard manures, such as superphosphates or guano of definite composition, can be obtained in almost every town. Ten years ago manure dealers tried to confound the practical men in England, as some of them now do with you, and now many dealers are anxious to sell according to the analysis of chemists who have published valuation tables, well knowing that these valuation tables, which are even lower than your own, give the money value too high in comparison with the price at which similar and superior manures are sold by other makers. In short, the money valuations by chemists, according to certain standard price lists, are not to the advantage of the English farmer, and they encourage the manufacture of inferior manures. After much consideration I have therefore determined not to be hampered any longer by any such tables in estimating the money values of the manures. The case is different with you, and if you will allow me, I would advise you to persevere in estimating the money value of your artificial manures according to the tables you have adopted, until the majority of manufacturers have reached your standard. If you think the publishing of this note will in any way serve your countrymen, you are at liberty to publish it.—With regard, yours very truly, Aug. Voelcker.

Home Correspondence.

Experience in Land Draining.—When so much money is being spent in land draining, and opinions differ so widely as to the plans and cost of doing it, I may usefully employ a leisure hour in giving some account of what I have learnt in 30 years' practice and 16 years' inspection of the works of others. I saw at a very early period of my farming, the serious injury that water did my young corn; not only when it rested on the land, but also when it was to be found standing within 2 or 3 feet of the surface. I saw, too, that drains of 4 feet discharged the most water and drained the land the greatest distances in all soils, as compared with 3 feet drains; and that straight lines of drains in the direction of the greatest fall of ground were the most effectual. I also noticed that corn and trees flourished on the edges of precipices and in soils where rain disappeared as fast as it fell, and inferred from this that rain enriched the soil by carrying down nutriment, and leaving it within reach of roots, in its percolation through the soil, and that when it was discharged from the surface by open drains, this nutriment was lost to the land. I also saw that while land was undrained, the laying it up in high ridges was necessary for getting rid of the water which would otherwise accumulate on the surface; but that after land has been well drained this was no longer necessary or desirable, but on the contrary, is mischievous in depriving the land of much valuable matter that rain carries and should leave behind it. In practice I soon found the necessity for carefully planning the drains with reference to the subsoil, fall of the land, and position of the outfalls, and that there was no security for the work being well done if the laying of the pipes were left to the drainers, or paid for by measurement; and that it was most necessary the

work should be done under a trusty experienced foreman at liberal day wages, kept constantly with the men to watch the work, set out and measure the drains, and assist in pipe laying. I had arrived at this stage when Mr. Parkes published his essays "On the Philosophy and Practice of Land Draining," which I read with much advantage. These, with "Gisborne's Agricultural Drainage" (first published in the Quarterly Review), and "The Minutes of Information on Draining, by the General Board of Health," continue to afford the most valuable information on land draining. The introduction of 4 feet drains, especially in clay soils, was at first generally opposed by farmers, who could not understand how water could penetrate soils they looked upon as impervious under all circumstances, but their opposition has greatly diminished since the progress of efficient deep draining in all directions has shown them their error, and few are now found advocating shallower drains who have tried 4 feet. The change effected in all soils by draining, but more particularly in clays, is very great, and may be said to be changing the feeling in favour of light soils. Strong soils as they become drained are fast recovering the estimation they formerly held, when they alone were thought suited to the growth of Wheat, and when much of the light land now in cultivation lay waste, or in commons. I will now give what I have found to be the best mode of draining, and the cost. The result of my experience is that all clay soils admit of being drained by 4 feet drains, at 27 to 36 feet distances, with pipes of 1½ and 2-inch bore for the side drains, and of 3 to 6 inch and upwards for the mains; the side drains nowhere being less than 4 feet deep, and the mains 4 feet 3 inches, going deeper through brows, &c., so as to maintain these depths in hollows. The cost of the cutting varies from 6½*d.* to 8*d.* per rod, for 4 feet side drains, and 9*d.* to 11*d.* for 4 feet 3 inch mains, together amounting to from 45*s.* to 60*s.* per acre, allowing something extra where large stones are met with, or these depths are exceeded, or the cutting is done in very dry weather. The foreman and pipe layers' wages are from 20*s.* to 30*s.*, and 15*s.* to 18*s.* per week, and usually amount together to from 7*s.* to 10*s.* per acre. The cost of 1½ and 2-inch pipes a foot long is from 14*s.* to 21*s.* per 1000, and of larger in proportion; and amounts to from 28*s.* to 35*s.* per acre, exclusive of carting. These charges, with 5*s.* an acre for extras in mains, &c., and deepening outfalls, and 7*s.* to 8*s.* 6*d.* per acre for engineering and expenses, amount to from 4*l.* 10*s.* to 6*l.* an acre, and this may be taken as a fair estimate of the cost of draining of clay land in England. Lighter soils admit of wider and deeper draining, and the cost varies in proportion to the hardness of the subsoil and the distances between the drains, but it seldom need reach the cost of close draining of clay soils, and is generally very much less, notwithstanding the cost per rod of the cutting may be very much more, so much farther do drains draw in these soils; while in loose sands and gravels it is still much less, these often requiring only occasional drains in places where the water comes nighest to the surface, where one or two deep drains are often all that are necessary, and the cost is proportionately less. *Hewitt Davis, March* 31.

Labourers whose Wages do not average 12*s.* per week, in consequence of wet days being deducted, cannot afford to pay a high rent for their cottages, and yet require decent accommodation as well as the man who earns a guinea or 25*s.* The distress of the agricultural labourers is very great during the winter months, aggravated by the dilapidated tenements they are compelled to inhabit; in many instances quite unfit for human beings, cold in winter, stifling hot in summer, damp, badly drained and ill-ventilated. Visit the farms on the estates of the noblemen and gentlemen of England. The cattle, horses, and pigs are well housed. Thousands of pounds are expended in improving the land—and very wise it is to call into operation the most improved system of cultivation—implements are kept in first-rate order, carefully preserved in covered sheds. Turn towards the cottages of the men and women employed upon the farm, on whose industry and intelligence their employer's success depends, and the contrast is most melancholy and depressing. The steam-engine, carts, ploughs, harrows, &c., are well looked after; the animals properly attended to in clean dry sheds. But, those who have the charge of them, are worse provided for than the quadrupeds themselves! where self-respect does not exist, advice is but a passing shadow, having nothing to rest upon. The finer feelings of our nature are totally destroyed by the impossibility of preserving the common decencies of life amongst hundreds of our fellow-creatures. Is it right, is it just, that the class who are occupied in what are considered the lower branches of labour should be neglected, in a matter in which they cannot help themselves? In towns and villages, small houses are generally in the hands of speculators who have made a few pounds in trade, and invest their money in property which pays a high per centage, from the market being under stocked. This, with the exorbitant price asked, even for single rooms, are serious and alarming evils, throwing insurmountable obstacles in the way of moral and social improvement, which all the lecturing, talking, and abuse will never remedy till the "Slough of Despair" is bridged over. *Falcon.*

Emigration.—I am exceedingly obliged to your correspondents "Alfred," "Samuel Calver," and "William Burbury," whose communications all appear in your issue of the 4th inst. I think I shall act upon the advice of the two former gentlemen, and take few (if any) agricultural implements with me when I bid adieu to these shores; but I admit I have a hankering after such a machine as Mr. Calver describes. How is it that such machines, apparently so well suited to th esmall farmer, are unknown in England and Australia? Cuthbert and Co., of Bedale, seem to manufacture a cheap and efficient reaper, adapted to the means and the requirements of the holder of a few acres; would it not be admirably supplemented by one of the Canadian machines to thresh and cut chaff, &c.? Why, then, does not some English house introduce it, as Burgess & Co. have done by M'Cormick's reaper? I wish Mr. Burbury all success in Queensland. It is doubtless a colony where money may be made; but, for my own part, having had much experience of tropical and semi-tropical climates, I do not wish to end my days in or to take a young family to a country where the Pine Apple and Banana ripen in the open air. I would rather see my lads grow up stout and healthy in Tasmania or New Zealand. *Brass Spurs.*

Systematic Land Drainage.—I have looked forward with anxious interest to the discussion on under-ground drainage, which took place in the Council Rooms of the Royal Agricultural Society of England on the 18th. I must confess I felt disappointed at not seeing a report of some engineers taking a part in so important a discussion. There was one fact that came out in the discussion which would surprise me much more, did I not know that some of the holders of coarse undrained pasture and meadow land in Ireland entertain the same objections to drainage held by the holders of such lands in Middlesex.—Mr. Denton made a statement, which, however well founded, may have excited the surprise if not the opposition of land drainers, who glory in talking "in the language of science." I shall quote some of his words:—"It was altogether a misapplication of the term to designate systematic drainage as a scientific operation: so directly was it the reverse of science that 50 years hence our children would look upon it as an absurdity as great as the adoption of under drains 18 inches deep was now regarded by those who were draining 4 feet and more deep. In truth, up to this time, the engineering element had been entirely absent from the under drainage of land. Now, I have been myself engaged to a considerable extent in the drainage of every description of land in Ireland for nearly half a century, and for all the purposes of agriculture, horticulture, arboriculture, &c., and although I could subscribe to much of what Mr. Denton has stated in the foregoing extract, I would not like to subscribe to the whole of this. Yet I believe that the man who is unmindful of the laws embraced in the various sciences, or who will set any one or more of them at defiance, will fail as signally in his practice as did both the great J. Smith, of Deanston, whose memory I revere, or the great Mr. Parkes, whose name I respect, in their public drainage of the Phœnix Park, Dublin, under the patronage of her Majesty's Commissioners of Woods and Forests, and under the eyes of her Majesty's Board of Works in Ireland. The cause of Mr. Smith's failure was attributed to his system, which was an injustice both to him and it. The true cause of its failure was the imperfect manner in which the work was done in his absence, and for which he should not have been so much blamed. The cause of Mr. Parkes's still greater failure was not so much in his system either, had he not set certain laws of Nature at defiance, as did his own men—and for aught I know under his own eye—set all the laws of common sense at utter and absolute defiance, and hence it is, as I was the first to predict in 1847, as the work was being done, and as so lately exposed by my successor of the *Irish Farmers' Gazette*, the public drainage in the Phœnix Park is as great a disgrace to the nation as is all the drainage done in the same way throughout Ireland ever since, a loss not only to the owners but to the cultivators of the land so drained; nay, to all classes of the community. Of this I could adduce some hundreds of proofs, practical in different parts of Ireland; indeed, I need not go from the spot where I write this for such a proof. I have hinted in the foregoing my want of being better informed on the extract given from Mr. Denton's excellent lecture. I want other information of still greater importance. I respectfully ask your scientific readers if they know of any work on land drainage or landscape gardening in which there is described a perfect means of keeping out of drainage pipes, either the rootlets of plants or the oxide of iron, carbonate of lime, or other sedimentary matters which choke them up as they were choked up in the Phœnix Park, Dublin, and in so many other parts of Ireland, and perhaps of England too? The cause of my being so personally interested in this important matter is, I have myself by oft repeated experiments fully succeeded in accomplishing this purpose, and have been advised to take out a patent for the protection of my discovery, which after all may not be worth much if others have succeded in doing so more cheaply, of which I have some very strong doubts, at least in as far as the most difficult and important cases in Ireland are concerned. *Edward Carroll, Kilgreany Lodge, Carlow.*

"*Earth as a Deodoriser.*"—It is matter of regret that among the various letters inserted on the subject of fertilisation in the *Times* a few weeks ago, no one appears to have touched upon the simplest of all methods of saving house waste—one that would purify every country cottage, and be applicable to the suburbs of towns. The Rev. H. Moule's shilling and penny pamphlets (Bradbury & Evans), demonstrate that any dry earth will absorb sewage and render it at once inoffensive—nay more than this, that the compound being allowed to dry, may be used over and over again many times for the same purpose, and be carried away to garden or field inoffensive at last. I am glad to see by your Paper of the 21st inst., that this gentleman claims public attention to his plan in the Royal Agricultural Society's Journal. It has been tried, without any machinery, at the schools of the workhouse with which I am connected; one old man being required to remove and supply earth—which is quickly done, morning and evening. Not to dwell upon the fact of our having relieved the children from an intolerable ordeal, allow me to say that the refuse of 55 children in 5 months, earth and all, when perfectly dry, was contained in a cartload and a half (30 cwt.,) and that its appearance was simply "earth." I should state that this was artificially dried; but there is no necessity for such extreme dryness: at the same time I must say from experience, that the success of the patent closet placed within the walls of a house does depend upon the earth being dry enough to run. As some of our eminent authorities are so wedded to liquid irrigation as to overlook this simple yet concentrated solid manure, I venture in the cause of humanity to ask you to assist again in bringing it under the notice of those who, however willing, could not prepare and utilise liquid sewage. If I might trespass further upon your space, I would claim for the solid system greater cleanliness than appertains to the other. At the Wellington College, for instance, where sewage-irrigation is so well carried out, it is necessary (as has been stated in your columns) to have the tanks cleaned out every two or three weeks by men, and the semi-filtering layers renewed, an operation which cannot but be wet and dirty to a considerable extent. The attendant at the workhouse need not soil hand or foot from first to last. *North Wilts.*

Weather in the Fens.—Since I forwarded my report the other day, we have had another severe night, the thermometer registering 5° of frost, followed by a burning day, brilliant sunshine without cloud. The effect upon our crops on the Fen lands has been disastrous. The general appearance of the crop is fully 30 per cent. worse than it was two or three days ago. Rain and freedom from frosts is our only hope. With a few more such nights and days we fear much of the Wheat must be destroyed. We still hope, however, for more favourable weather, which would doubtless soon improve the withered appearance of our fields. *A. S. R., April* 3.

Societies.

Bath and West of England.—At the Monthly Council Meeting of this Society, on Saturday last, under the presidency of the Marquis of Bath, the programme of the approaching Exeter meeting was brought up and ordered to be printed. The stock and poultry will be openly judged on Monday, 8th June (the first day of the show); a horticultural department, under the stewardship of Mr. Jonathan Gray, is to be added to the other features of the meeting; and the shoeing of horses is to take place on the Wednesday, at portable forges within the show yard. Some conversation ensued as to the recent show of stallions at Exeter, and the stewards were requested to lay a complete statement of the cost and results of the experiment before an early meeting of Council. It appeared to be the general opinion that at any future show of the kind it will be necessary to make a distinct announcement, that the certificate of the Veterinary Inspector as to the unsoundness or disqualification of any animal will be held to be final and irreversible. The Journal Committee were requested to collect, revise, and classify the standing orders of the Society, with a view to their being printed.

Farmers' Clubs.

London: *April* 6.—*The Recent Land Drainage Experience.*—The following paper by Mr. G. Dobito was read:—

Mr. Dobito said: I can imagine some men being astonished at the re-introduction of a drainage discussion into our programme for this year, and saying, "Drainage? why, the subject's worn threadbare! every farmer knows, or ought to know, all that can be said upon that subject by this time;" but while I see lands of very similar kinds, and sick with a very similar complaint (call it dropsy if you like), treated in such a variety of ways, I am convinced that there's great occasion yet for "line upon line, precept upon precept" relating to this foundation work for good farming. I have not proposed the discussion of this subject with any idea of teaching you, and through the publicity of our proceedings the public generally, what

are my views of the theory of draining, or of setting myself up as an authority on the matter, neither have I the slightest intention of entering the field with Mr. Bailey Denton, Mr. Hewitt Davis, and others, as one of the professional men: but having watched with interest the many changes in opinion that have occurred during the last 20 or 30 years, and believing that it is experience that sifts right from wrong, I thought we could not do better (five years being past since our last discussion on the subject) than devote one evening to talk the matter over, and as somebody must introduce it, I volunteered to be the victim. So much for the reason why you see a new man with a paper in his hand before you. I shall not take up your time with accounts of the varied systems of underdraining that have been practised in the eastern counties in former times—I know not how long (certainly before the present century commenced): they were all variations of the plan first brought into the notice of the rest of the British Isles by Smith of Deanston, known as the frequent drain-system. Nor shall I enter into any theoretical argument, comparing his opinions with those of Josiah Parkes, who, as you all know, advocated inch pipes, put in not less than 4 feet deep, at wide intervals. In fact, I do not propose to have anything to do with the theory of draining: if any of you are not well up in that, let me recommend the study of the admirable lecture delivered in this room in 1857 by Mr. Nesbit. My subject is, What does recent experience teach?

My object in proposing it was to enable our members to record any changes in opinion or practice that have recently come to their knowledge; and that I may show I had grounds for assuming there would be some few, at any rate, you must allow me to remind you that between 1845, the date of Parkes' evidence before a committee of the House of Lords (and mainly in consequence of whose opinions I believe the drainage commissioners insisted on a minimum depth of 4 feet), and 1854, the date of a most interesting discussion in this room, introduced by Mr. Bailey Denton, that gentleman, largely employed in drainage as he had been, could but see and acknowledge that we knew more about it than we did in 1845, that Parkes was quite out in the cost per acre, and that depth would not compensate for distance between the drains on clay soils; but he still maintained that 4 feet ought to be the minimum depth, upon the theory (I maintain it was, and still is, only a theory) that it gave a foot more of active soil. 1857 arrived: another discussion took place, introduced by Mr. Nesbit (the one I alluded to as containing such sound theory); but I call attention to it now to note that experience had again taught wisdom, and, among others, to our pleasant-looking friend Mr. Mechi, who found that his land drained 2 feet 8 inches deep at 12 feet intervals was in a better state than that drained deeper at wider intervals. Many speakers recorded their experience on that occasion, and a resolution was unanimously passed to the effect, as regards retentive clays, that they require draining at moderate depths and distances. Most surely those three years had been prolific in causing more knowledge of the subject. But, gentlemen, notwithstanding what I have recited, hundreds of acres of retentive clays are still being drained at immoderate depths and distances, and I have introduced this discussion that we may have a chance of hearing "the reason why."

I am now about to give you the result of my recent experience, hoping that others will be kind enough to do the same; but before doing so, will just say that I have not alluded to draining on gravelly and other porous soils, because I don't profess to have had much experience with them; my remarks apply to clay soils, varying somewhat as to their retentive powers.

With regard to frequent drains *v.* deep ones at wider intervals: in 1854, the Rev. W. S. M'Doual was presented to the living of Owsden, Suffolk, the income principally derived from a poor clay farm. The deceased rector had just drained about 10 acres 2 feet 8 inches deep, 5½ yards apart, filling up with bushes. The new rector obtained a Government loan, and drained the remainder of the farm 4 feet deep, at 11 yards apart. The fields were laid together, so that the shallow and part of the deep-drained land were one field; the plough, drill, &c., went across both of them every turn. In partnership with my reverend friend, I carried on the farm until 1859, and I pledge my word to the fact that every spring the land worked properly, earlier by two or three days on the frequent drained part than it did on the deep drained part. I went to the farm the other day to enquire, and both the bailiff and ploughman told me it was just the same now. On the same farm, in 1860, the new tenant finding one field where the deep draining had been done 11 yards apart particularly wet midway between the drains, put a shallow one in between each, and tells me that it does very well now, and what one would scarcely expect, that although these shallow drains cross the main of the deep ones, when a very heavy rain has fallen they run well at the eyes; of course, after light rains the water soaks into the loosened earth, where it crosses the main deep drain. There is another field he intends doing in the same way, how he has proved it to answer. In 1856, by way of experiment, on this farm about 4 acres were drained at 3 feet deep instead of 4 feet, at the same time, and exactly in the same manner, depth only excepted. The drains being 11 yards apart, neither portion dries so quickly as it ought; but there has been no perceptible difference between the two portions of the field.

I have now to record a fact that surprises me much, and which would seem to indicate that on some lands, let the draining be done ever so perfectly, it will require renewing after a lapse of years, because the clay will have regained its solidity, I don't exactly state this to be my opinion, but I don't know how else to explain the following.

W. King, of Brinkley Hall, Cambridgeshire, has some stiff clay land that has been drained many times; among others it was drained with the old-fashioned tiles—not pipe tiles, but nearly the shape of a donkey's shoe—before 1830. The bailiff on the farm came there in that year; they were done before he came 16 years ago. The land having again become wet, Mr. King drained it over again with pipe tiles, at 5½ yards apart, but not more than 3 feet deep, scarcely so much. After this renewal all went well for a time, but wetter and wetter these fields have been gradually becoming, and during the past winter he has had them drained again with Fowler's steam drain plough, as applied to windlass and common farm engine by Eddington of Chelmsford (it is done nearly 3 feet deep at 4 yards apart). While this work was being done, I went over to inspect it, Mr. King having told me that the pipes were quite open, but that the clay had regained its solidity, and that the water could not get in. I repeat that I don't father that opinion, neither do I dispute it—I won't theorise. I found a number of holes dug 4 yards apart about 3½ feet deep near the lower headland, ready for the draining plough to start from. I found some of these holes full of water to within 6 or 7 inches of the surface; I found some full to within 18 inches of the surface, and some to a level with the old drains. But mark this: in one hole they had happened to hit upon an old tile drain, and in another upon a pipe tile drain, and both were quite open and water running in them well; of course no water standing above that level, the pipe drain as perfect as when it was made; yet the next hole 4 yards off stood full of water, except to the depth of the last ploughing, within 6 inches of the surface. Heavy rain had fallen about three days before, but none within 48 hours. If I am told it was the puddling these holes in digging them that made the water stand in them, I answer, why did it not stand in all, or at least in the majority? I can only account for the variation of water in these holes by their proximity or otherwise to some of these old drains.

I have one more case of recent experience to report. Mr. G. Cooke, of Horseheath Park Farm, Linton, Cambs, purchased in 1860, of Eddington, of Chelmsford, a Fowler's steam drain plough: he works it by his own 6-horse power engine that he uses for other farm purposes, hoisted for this purpose on Eddington's patent windlass. (I am aware that Fowler's steam drain plough is considered to have failed by many men, but it was in trying to lay pipes in the channel the mole had made).

In its mole-plough form only, Mr. Cooke has drained about 300 acres with it in the last two years at leisure times; the average cost of the work, including ample allowance for wear and tear, has been 16*s.* 6*d.* per acre, making the drains 2 feet 6 inches deep, and only 16 feet apart. He was formerly a pupil of mine, and I often visit him. I know few heavy land farms so well managed or so dry as his home farm is, and when witnessing the working of this draining plough, I have been particularly struck with it as by far the cheapest, yet an effective way of draining clay lands; the windlass gives such power that the clay is forced to form itself into a pipe (certainly an unburnt one) the entire length of the drain. I have had the drains opened to examine them, and a more perfect channel for the water can't be imagined; of course I can't at present say from experience how long they will last, but to oblige me he has had some of those that have been made the longest (over two years) examined last week; where the fall is rapid the drains are now slightly increased in size, and where more nearly level there is some sediment deposited, but at the worst place there was room to insert a common fork handle. He adds that he has land drained by the old horse windlass mole-plough 20 years ago, where some drains are still open.

In conclusion, I will only say that I hope the day is not far distant when so arbitrary a clause as a minimum depth of 4 feet will be expunged from all draining companies' regulations. I don't say that there are not thousands of acres on which 4 feet is the right depth (I know there are many thousands where 4 feet is not deep enough), I may hear to-night reports which prove drains 4 feet deep to be better than shallower ones; I shan't dispute their truth on certain lands, but hundreds of such reports would not disprove the facts I have stated, or the conclusion I draw from them, that similar lands should be treated in a similar manner, although whether certain lands are similar or not may admit of an argument. I believe the regulation I am condemning is only a remnant left from Parkes's opinions 18 years ago, and when we consider that by (I think I may say) all scientific drainers of clay land, his "pipes of an inch bore, the best known conduit," are no longer used, but instead thereof pipes carrying three times that amount of water; that the wide intervals he advocated are reduced to at least half the width; and that his estimated cost of drainage soon proved to be very erroneous—we are not bound to retain his remaining theory of "not less than 4 feet deep," as if it was the instruction of a man who had never been mistaken in his directions. Let it stand or fall by its merits, not be retained as an indispensable condition, where money has to be advanced. I have endeavoured, gentlemen, to condense my introduction of this subject, to give time for you to report progress also. I hope I have not wearied you, and beg indulgence for all failings, finding myself in a position I am totally unused to.

Reviews.

Agriculturists their own Superphosphate Makers, with Illustrations. By A. G. Lock, Redbridge Vitriol Works, Southampton.

In a pamphlet of 22 pages, to be had of the author, you are here taught how to make superphosphate at home, and so avoid all those risks which we owe to roguery in the manure manufacture. There are however another set of risks arising from bad making, which we owe to incompetency and want of skill in the manufacture; and against such risks as these no instructions are likely to be a complete safeguard. Those whose business it is are likely to make a better article than will be made by the amateur at home. The instructions here given are nevertheless extremely precise and detailed. And where there are special facilities for obtaining acid and bones, the raw material of the manufacture, it may be the interest of the farmer to make his superphosphate for himself.

It is not fair to the author to extract largely from his pages. The following passage is however given in illustration of the detail in which his instructions are written. And it must be added that they are rendered still more explicit and unmistakeable by several woodcuts in which the processes described are depicted:—

"To make superphosphate in the ash-heaps in the field, you, in the first place, are to screen the ashes. Decide on what quantity per acre you will use; then multiply by the number of acres you intend to manure, and lay the ashes in a heap in some convenient part of the field. If the field is a large one, or if you intend using some in other fields which are not contiguous, make more than one heap, placing them in the most convenient positions, but especially taking care that the ground on which the ash-heaps are made is perfectly level. Lay out the ashes 12 feet wide, letting them extend to the length they may last out, at a uniform thickness of 1 foot; beat them down hard in the centre for a width of 6 feet, as it is on this hard part that the bones have to be laid.

"Care must be taken that the ashes underneath are solid, in order to prevent the escape of the acid when applied.

"Draw the half-inch bones alongside, and empty the bags on that part of the ashes previously trodden hard, letting them have a width of 5 feet at the base, with a margin of 6 inches of hard ashes on each side, heaping them to a point at the top.

"The half-inch bones then have a width of 5 feet at the base, placed in the middle of the ash-heap, with a gutter or drain all round composed of ashes trodden hard, and a space at each side and the ends of 3 feet, to walk round and carry on the further operations.

"Having these disposed as I have pointed out, they are now ready for the application of the water, preparatory to dissolving. Bring a water-cart alongside the heap, and with a large water-pot saturate the bones evenly all over, until they have absorbed as much water as they will hold. When they will absorb no more, the water will run out at the bottom on to the hard gutter of ashes previously described. As soon as this is observed to be the case, no more water must be added. This watering will have to be performed three successive days, care being taken each day to apply the water evenly, and to leave off as soon as it runs out on the hard gutter. The first time the bones are watered they will take up a considerable quantity; the next time not near so much; and the last time but a small quantity. On the fourth day the bones will be ready to receive the acid; but, before commencing this process, move the hard gutter of ashes at the foot of the bones with a spade, to the depth of about 3 inches, and lay them at the foot of the bones. This course of proceeding will prevent any of the acid escaping. You now bring the carboys of vitriol to the side of the heap, taking care to have a bucket or two of water close at hand, in case of getting any upon you, as previously set forth. In the meantime, take one of the largest-sized water-pots, with a 'rose' to it; it must be quite sound, without any holes in the bottom. Take off the rose, open the holes in it thoroughly, so that the acid may pass out freely. Having done this, place the rose firmly on, seeing that it fits tightly, otherwise the acid will run back. Let two men take one of the carboys (the stopper being removed), lift it up, and rest it upon anything convenient—a spadeful or two of ashes will do—about a foot from the ground; one of them holding the water-pot in front. The carboy is then to be gently lowered; and the water-pot three parts filled. The man, now walking on the 3 feet space of ashes round the bones, proceeds to pour out of the water-pot the acid evenly all over the bones. As soon as about half the quantity of acid is applied, the bones will begin to smoke, bubble, and shrink down visibly. Do not now lose any time in putting on the remainder, and the moment afterwards, the men should begin at one end with spades, and with the 3 feet of ashes that lay around the bones, let them cover the bones up as thick as the ashes will permit, carrying them up to a point, and beating them hard over the whole surface, to prevent the escape of the steam from within, and the penetration of wet from without. As soon as the water-pot is done with, pour the buckets of water into and over it, to wash off the acid, and it will be none the worse for the use it has undergone in the course of the process.

"The heap must remain for at least a fortnight before it is disturbed; it must then be turned carefully four or five times, thoroughly to mix the dissolved bones and the ashes."

Cattle Food Adulteration. W. H. Harris, F.C.S., Northampton. Longman.

This is a guide to the farmer in the purchase of oil-cake. Extra food used to be consumed almost exclusively in winter time. When half fat cattle are taken off rich pastures, they need oilcake to make the hay and Turnips equally good with the food they have left. It is now however the practice to give oilcake at all times of the year. You see the troughs out in the Grass field all the summer; and there is no better way of making our second-rate pastures equal to the first in their immediate effect upon the feeding animal, or of gradually raising the land itself to the higher rank.

In this little pamphlet we have coloured lithographs professing to give the appearance of oilcake in the microscope—showing that genuine cake, *i. e.*, cake which is all that it professes to be, is often a mixture of extremely various composition.

The author of this pamphlet contends that chemical analysis is the only true test of quality. The following is an extract on this subject:—

"This one thing let the farmer do: let him depend rather upon the tabulated results of analysis than the simple report of genuineness or the reverse. Let him keep in mind that when he buys food he buys meat; that he is simply buying meat in one market that he may sell it in another: for in the sample of food which

he buys there is just a given quantity of that substance and no more. Let him remember that all the art in the world cannot make it produce more than a given quantity. And we may fairly suppose that if he knew the whole science of physiological chemistry he would have but to hold in his hand at the moment of purchase an analysis of a sample of a given bulk of food, in order to tell the exact quantity of fat beef or mutton it would enable him to place upon the butcher's stall. At present, let him cast his eyes over the analysis of a food, and, as it meets a quantity of oil, let him say, "out of that I can make fat; as so many per cent. of starch, sugar, and gum meet his attention, 'out of those I can make the same substance by a less direct process of assimilation;' so many per cent., again, of nitrogenous compounds, 'and out of this,' he may say, 'I can make flesh.' But when he calculates the amount of mineral matters, indigestible fibre, or inorganic matter of any kind, let him say, 'out of these substances I can never make that which goes to the butcher.' Whenever he sees a low figure against these latter substances and a high figure against the others respectively, he may consider he is right in purchasing such food, if there is no objection on the part of his cattle to eat it."

In connection with the value as a feeding substance which analysis indicates, Mr. Harris draws attention to the value of American Nut cake, which stands exceedingly high. Now we must differ from Mr. Harris, and say that this by no means *proves* that it will stand equally high in the experience of the farmer. The quality of a cake does not depend wholly on its composition, as the chemist declares it: mere aroma, texture, and will often upset the predictions of the analyst. But on all these points we shall next week have an authoritative declaration from Dr. Voelcker, in a lecture on oilcake, at the Hanover Square Meeting of the English Agricultural Society.

Farm Memoranda.

CHATTERIS, ISLE OF ELY, CAMBRIDGESHIRE: *April* 1.—We have now come to the time when spring weather may be reasonably anticipated. The winter has been one of unusual mildness, and on no occasion have we seen the ground covered with snow, and since November we have had no really severe frosts. But notwithstanding this general exemption from the usual characteristics of an English winter, the Wheat is by no means "winter-proud." We have a full and vigorous plant, and the promise of an abundant crop. Frosty nights and warm sunny days are most commonly injurious to the plant on our fen soils; but just now they appear to exert but very little influence that is pernicious. So far as Wheat goes then, we report favourably, and should we continue to get the glorious and much-longed-for weather which some of our prophets in such glowing terms predict, we have every prospect of a fine and luxuriant crop. We finished our Oat seeding on the 21st of March, having commenced on the 24th of February. We have sown 102 acres of Polands, 85 acres of which have been put in with superphosphate of lime and the water-drill. Of Frieslands we have 18 acres, and of Black Tartarians, 24 acres; 13 acres and 8 acres of which have also been put in with the water-drill and manure. These are sown after Coleseed and Mangels principally, a few after Peas, Wheat, and Potatoes. The first sown are up and look strong and healthy.

We finished Barley seeding yesterday; our Barley, 30 acres, is all sown on Wheat stubbles, and which, had it not been for steam cultivation, would have required a naked fallow. We have put all in with the water-drill and 3 cwt. of artificial manure per acre. We have a tract of high land, which, with proper cultivation and free manuring, will grow continuously Barley, Beans, and Wheat. But until we cultivated it by steam, we were compelled, not for the purpose of rest, but for cleaning, to give a full summer's fallow every five or six years. This necessity will, we doubt not, now be obviated.

Our Beans and Peas, 34 and 9 acres respectively, are just up, and present a healthy appearance. All our lands would now be benefited by a good shower.

We have just steam-cultivated one small field for Mangels. The land was stiff and hard, the subsoil being clay, but the cultivator has worked it to as fine a tilth as could be desired. In this respect the application of steam exceeds our expectations. We were prepared for the beneficial effects resulting from autumnal "smashings up," but did not anticipate such signal service from its application in the spring. We conceive both on our Barley and Mangel lands, we have been spared three ploughings. The results are far more satisfactory. It is not merely a question of money saved, or cheapness of work accomplished, but far more one of fitness for the reception of seed and production of the crop desired. Here we have been eminently successful, whereas with ploughs and horse cultivation we should have had, if equally cleaned land, hard unyielding clods, waiting the teeming shower, ere we could get a seed bed at all. Our experience of steam cultivation is therefore highly encouraging and assuring.

We are now clipping our yarded sheep. We put 240 shearlings into yards in December, giving them cut Mangels, a little Clover chaff, and 1 pint of Peas daily. We have sold 130 at an average of about 52*s.* to 53*s.* per head, and they have made for wool 13*s.* 6*d.* each, making a total of from 65*s.* 6*d.* to 66*s.* 6*d.* per sheep. These are results we are not at all disposed to complain of. We also wintered 210 lambs in yards; these have done well, and are now going to Grass, having finished their Mangels. To these we gave similar food to the shearlings, but only half a pint of Peas per day each.

We have just sold some store pigs at 40*s.* and 54*s.* each, fed on Mangels and 1 pint of Peas daily. We have another lot nearly fit for the butcher, living on Mangels and 2 st. of meal per pig per week. The meal is composed of 1 quarter Beans, 1 quarter Peas, 2 quarters black Oats, and 2 quarters tail Barley, all of our own growth.

The high price of sheep has led us to purchase for our Grass requirements some growing cattle. We have just bought 30 Galloway Scots, at 11*l.* 10*s.*; and 34 Short-horn Steers from Darlington fair last month, averaging 11*l.* 7*s.* each. These are for sale again in June. For keeping through the summer we have bought 30 younger Scots, averaging about 8*l.* 6*s.* each. These will run amongst the hoggets we have wintered, and will go on until the June of next year before being sold.

Grass is forward, and should it receive no severe check, will be fit to stock in two or three weeks. We think of putting out 64 bullocks on the 18th. Ours is early land, and produces a good deal of keeping, and does stock well in the spring; but burns in the summer, and when dry weather prevails, affords but little food. *A. S. R.*

Miscellaneous.

Short-horn Sale at Thrapston.—On Tuesday and Wednesday Mr. Strafford disposed by auction of the late Mr. Yorke's herd of Short-horns. Among the prices reached, were 60 guineas for *Violet*, a four-year-old cow, purchased by Mr. Kelk, of Stanmore; 46 guineas for *Vermilion*, a three-year-old cow, her half-sister, bought by Mr. Wood; 27 guineas and 21 guineas for a yearling and a calf respectively, the produce of *Violet*; and 24 guineas for VOLTAIRE, a yearling bull, the produce of *Vermilion*. Among the purchasers were Lord Suffield, Messrs. Kelk, Wood, Owen Wallis, Bailey Denton, &c.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. SPEARING, Moulsford, near Wallingford, Berks, during the week ending April 8, 1863.

Day of Week.	Day of Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Dry Bulb Thermometer.	Reading of Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0–6	Amount of Cloud, 0–10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday	2	30.18	44	41	S.E.	1	1	61	27	108*	24		47½	47
Friday	3	30.26	51	47	S.W.	1	1	59	29	105	26		47	47
Saturday	4	30.02	48	46	S.W.	2	6	65	40	114	33		47	47
Sunday	5	29.80	47	45	S.W.	3	7	55	37	78	32	0.02	47	47
Monday	6	29.61	50	48	S.W.	4	8	56	46	88	32	0.23	48	47
Tuesday	7	29.50	46	43	S.W.	3	3	53	33	90	34	0.18	48	47
Wednesday	8	29.69	50	46	S.W.	3	5	55	33	106	30		48	47

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Notices to Correspondents.

ANALYSIS OF SOILS: *Noon Goff.* Read the late Mr. Rham's Essay on this subject in Vol. 1 of the Journal of the Agricultural Society. No book will teach you to perform such an analysis as you require. You must pay a large fee and spend two years in the laboratory of a professional analyst before you will acquire the skill. But if you want to know if a soil is fertile, look at the crops it bears—that is a better indication than any weight in the pan of a chemist's scales can be.

THE AGRICULTURAL COLLEGE: *W. E., Gloucester.*—You should append your name. The more the subject is *openly* discussed the better.

Glass.

THOMAS MILLINGTON,
HORTICULTURAL WAREHOUSE,
87, Bishopsgate Street Without, London, E.C.
ESTABLISHED 1750.
NEW REDUCED TARIFF.
SMALL SHEET SQUARES.

Best. 20s.	2nds. 16s.	3rds. 12s. 6d.	4ths. 11s.	Per 100 feet
6 in. by 4 in.	9½ in. by 7½ in.		14 in. by 10 in.	
6½ ,, by 4½ ,,	10 ,, by 8 ,,		15 ,, by 10 ,,	
7 ,, by 5 ,,	11 ,, by 9 ,,		12 ,, by 11 ,,	
7½ ,, by 5½ ,,	12 ,, by 9 ,,		13 ,, by 11 ,,	
8 ,, by 6 ,,	13 ,, by 9 ,,		13½ ,, by 11½ ,,	
8½ ,, by 6½ ,,	12 ,, by 10 ,,			
9 ,, by 7 ,,	13 ,, by 10 ,,			

Best. 23s. 18s. 6d.	2nds. 14s. 6d.	3rds. 12s. 8d.	4ths.	Per 100 feet
15 in. by 11 in.	16 in. by 12 in.		24 in. by 14 in.	
16 ,, by 11 ,,	17 ,, by 12 ,,		22 ,, by 15 ,,	
17 ,, by 11 ,,	18 ,, by 12 ,,		24 ,, by 15 ,,	
18 ,, by 11 ,,	22 ,, by 12 ,,		20 ,, by 16 ,,	
13 ,, by 12 ,,	17 ,, by 13 ,,		20 ,, by 17 ,,	
14 ,, by 12 ,,	23 ,, by 13 ,,		20 ,, by 18 ,,	
15 ,, by 12 ,,	22 ,, by 14 ,,			

ORCHARD-HOUSE SIZES, as supplied to Mr. Rivers & others

Best.	2nds.	3rds.	4ths.	
16 oz.	22s. 0d.	18s.	15s. 0d.	12s. 6d. Per 100 feet
21 oz.	33 6	28	21 6	17 0

0 in. by 12 in. | 20 in. by 13 in. | 20 in. by 14 in. | 20 in. by 15 in.

GLASS, cut according to size not on the List.
16 oz. 4ths. 1½*d.* 2*d.* and 2½*d.* per foot.
,, 3rds. 2½*d.* 2¾*d.* and 3*d.* ,,
21 oz. 4ths. 2¾*d.* 3*d.* and 3¼*d.* ,,
,, 3rds. 3¼*d.* 4*d.* and 4½*d.* ,,

Various thicknesses of Sheet Glass to the foot.

15 oz. 26 oz. 21 oz. 32 oz.

Paints, Colours, Brushes, &c., Linseed Oil, Boiled Oil, Turpentine.
Genuine White Lead, 32*s.* p. cwt | Linseed Oil Putty, 8*s.* per cwt.
Anticorrosion Paint, 34*s.* ,, | Patent Dryers, 28*s.* to 42*s.* ,,
CRYSTAL GLASS SHADES. EBONY and GILT STANDS.
HARTLEY'S IMPROVED PATENT ROUGH PLATE.
*** Not accountable for breakage.
SHEET LEAD, PIPE, &c., at the lowest wholesale prices.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—

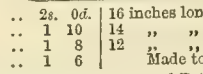
PROPAGATING  GLASSES.

Each—	s.	d.		Each—	s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9	
3 ,, ,, ..	0	4½	13 ,, ,, ..	2	0	
4 ,, ,, ..	0	5½	14 ,, ,, ..	2	6	
5 ,, ,, ..	0	6½	15 ,, ,, ..	3	0	
6 ,, ,, ..	0	8	16 ,, ,, ..	3	6	
7 ,, ,, ..	0	10	17 ,, ,, ..	4	0	
8 ,, ,, ..	1	0	18 ,, ,, ..	5	0	
9 ,, ,, ..	1	2	19 ,, ,, ..	6	0	
10 ,, ,, ..	1	4	20 ,, ,, ..	7	0	
11 ,, ,, ..	1	6				

HAND  GLASSES.

Each—	s.	d.		Each—	s.	d.
12 inches	6	0	18 inches	9	0	
14 ,, ...	7	0	20 ,, ...	10	0	
16 ,, ...	8	0	24 ,, ...	12	0	

Painted and Glazed with 16 oz. Sheet Glass.
If Open at Top, 1*s.* extra.

CUCUMBER  GLASSES.

24 inches long ..	2s.	0d.	16 inches long ..	1s.	4d.
22 ,, ,, ..	1	10	14 ,, ,, ..	1	2
20 ,, ,, ..	1	8	12 ,, ,, ..	1	0
18 ,, ,, ..	1	6	Made to any length.		

London Agents for Hartley's Improved Patent Rough Plate.
Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.
180, Bishopsgate Street Without, London, E.C.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

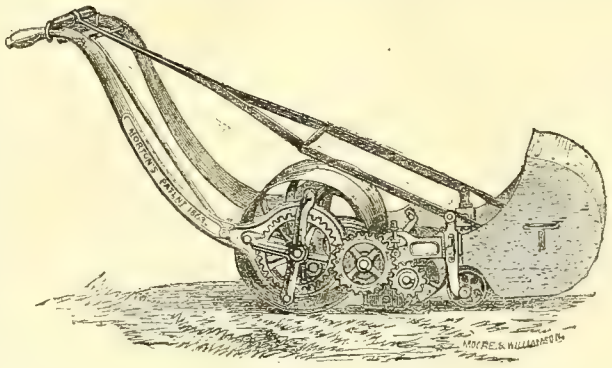
"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

MORTON'S PATENT NOISELESS LAWN MOWER.

This Machine Rolls, Collects, and Delivers the Grass, and combines all the most recent Improvements, including those secured by her Majesty's Royal Letters Patent for 1863. For efficiency and simplicity it cannot be surpassed, and can be worked by any one unskilled in Machinery. It is superior to all other Machines yet introduced to the notice of the Public for keeping Lawns and Pleasure Grounds in the highest state of perfection, and is likely to be the Leading Machine of the Season. No place, however small, should be without one.



Terms, Net Cash.

To Cut				
12 ins.	£4	15	0	*Suitable for a Lady or Gentleman*
14 „	5	5	0	*Suitable for one Person*
16 „	6	7	6	*Suitable for one Man or two Boys*
18 „	7	7	6	*Suitable for one Man and Boy*
20 „	8	0	0	*Do. do.*
22 „	8	8	0	*Suitable for two Men*
24 „	8	17	6	*Do. do.*

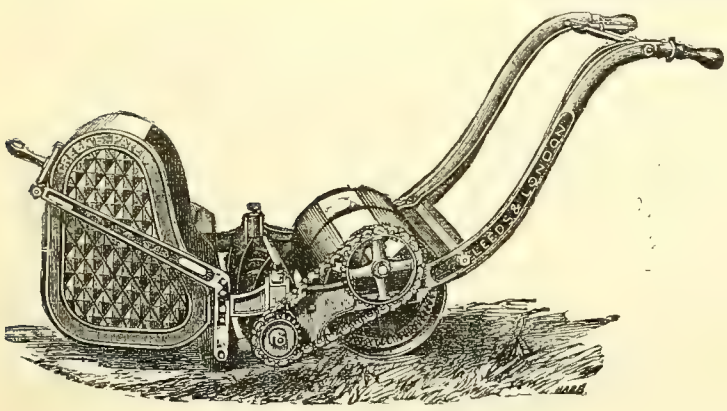
All Machines fitted with Silent Movement, without extra charge.

Catalogues, with Prices, can be obtained free on application to

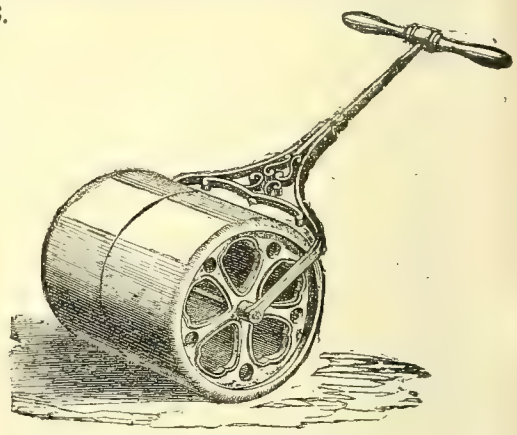
GRIMMOND, LAIRD, AND CO., 15, CANNON STREET WEST, LONDON, E.C.; or to the PATENTEE, CATHERINE STREET ENGINE WORKS, ARBROATH.

*** *Agents Wanted in every Town. Apply as above.*

GREEN'S LATEST IMPROVED PATENT
NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES
FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS.

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS DURING THE SEASON OF 1862.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

Upwards of 14,000 of the above Machines have been sold since the year 1856, and thousands of letters have been received by the Patentees testifying to their efficiency. They do not deem it necessary to publish more than the two following :—

TESTIMONIALS.

"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"Dear Sir,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, Geo. Eyles."

"Royal Gardens, Windsor, March 27, 1863.

"Dear Sir,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

"To Mr. Green." "Yours very truly, Thomas Ingram."

PRICES.

						If with Patent Delivery Box.
To Cut 10 inches	£3	10	0	Suitable for a Lady.		
„ 12 „	5	0	0	Suitable for One Person.	If with internal gear, 10s. extra.	
„ 14 „	5	10	0	Do. Do. Do. Do.	10s. extra.	
„ 16 „	6	10	0	Suitable for One Man or Two Boys.		
To Cut 18 inches ...	£7	10	0	Suitable for One Man and Boy	£8	15 0
„ 20 „ ...	8	0	0	Do. Do.	9	5 0
„ 22 „ ...	8	10	0	Suitable for Two Men	9	17 6
„ 24 „ ...	9	0	0	Do. Do.	10	7 6

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	£12 10 0
„ 26 „	12 10 0	13 12 0
„ 30 „	16 14 0	18 0 0

Leather Boots for Donkey, 16*s.*; for Pony, 20*s.*

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	£21 10 0
„ 36 „	23 0 0	24 16 0
„ 42 „	26 0 0	28 2 0
„ 48 „	29 0 0	31 8 0

Leather Boots for Horse, per set, 1*l.* 4*s.*

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5*s.* | Diameter 16 inches, length 17 inches, price £2 10*s.* | Diameter 24 inches, length 26 inches, price £4 5*s.*
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

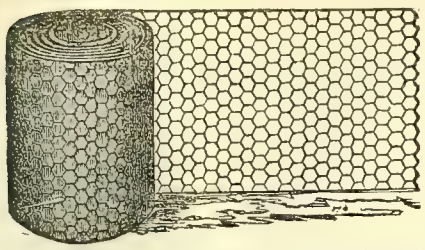
GARDEN ENGINES, SYRINGES, WATER BARROWS, and PUMPS. CAST IRON FOUNTAINS, VASES, GARDEN SEATS, and GARDEN CHAIRS. IRON HURDLES, WIRE FENCING, WIRE NETTING, &c. Also every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS.

Illustrated Price Lists free.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

BARNARD, BISHOP, AND BARNARDS,
Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.

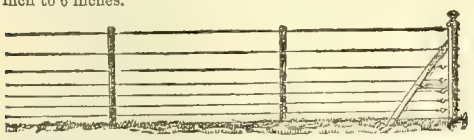


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised, per yard.	Japanned Iron, per yard
2-inch mesh, 24 inches wide..	No. 19	4¼d.	3¼d.
2-inch " " " .. "	18	5	4
2-inch " " " .. "	17	6½	5
2-inch " " " .. "	16	8	6½
1⅝-inch " " " .. "	19	4¾	4
1⅝-inch " " " .. "	18	6	4¾
1⅝-inch " " " .. "	17	7	5½
1⅝-inch " " " .. "	16	9	7

All the above kinds can be made any width (under 6 feet), at proportionate prices.

Strong Galvanised Poultry Netting, 7½d. per yard, 3 feet wide, Galvanised Sparrow-proof Netting for Pheasantries, 11d. per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10d. per yard.

The same with Galvanised Wire Rope, 1s. per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

"Excellence of Quality."—See Jurors' Report.

NORTH BRITISH RUBBER COMPANY (LIMITED), 56, Cannon Street West, London, E.C.; and Castle Mills, Edinburgh, MANUFACTURERS of INDIA RUBBER and CANVAS HOSE, for Breweries, Fire and Garden Engines, &c.

SUCTION HOSE, TAPERS, and HAND-JOINTS of any size and length.

N.B. This Company are the only Manufacturers in Great Britain to whom Medals were awarded in 1862 for Mechanical Rubber and Hose.

AGRICULTURAL and HORTICULTURAL TOOLS.—Threshing Machines for Steam and Horse Power, Ploughs, Waggons, Carts, Turnip Cutters, Cake Breakers, Chaff Cutters, 50s., &c. Price List free. Illustrated Catalogues on receipt of six postage stamps.

BURGESS & KEY, 95, Newgate Street, E.C.
Works: Brentwood, Essex.

To the Nursery and Seed Trade.

BROWN'S FLORAL SHADING, the cheapest and best material for protecting Fruit Trees from Frost.
Prices on application to CHAS. BROWN, Greenheys, Manchester.

HENRY J. MORTON AND CO.,
2, Basinghall Buildings, Leeds.

Galvanised Iron Water Cistern
for Cottage Houses, &c., to contain 50 gallons, 26s.; 80 gallons, 31s. each; and 140 gallons, 37s., and fitted with tap, keeping the water perfectly sweet and clean; will not rust or corrode. Cisterns of all sizes.

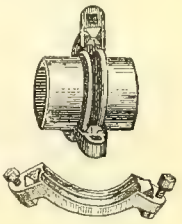
Galvanised Iron Pumps
for Liquid Manure or Domestic Use, 3 inches diameter, 30s. and 32s. 6d. each; Tail Pipe for same at from 10d. per foot.

Galvanised Iron Swing Water Barrows
for Garden or Farm use, containing about 20 gallons, entirely formed of iron, 35s. 0d. each.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.





T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

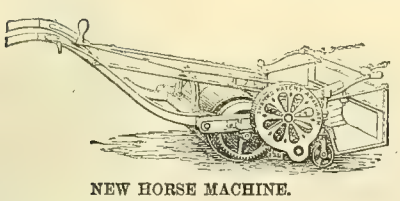
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

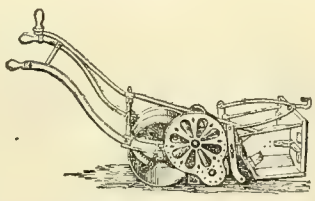
WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

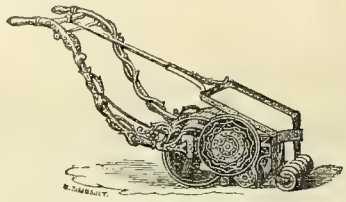
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW P NY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved, and their success established.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40s. extra.
No. 2.—42-inch Machine ...	26 0 0	40s. "
No. 3.—36-inch Machine ...	22 0 0	30s. "
No. 4.—30-inch Machine ...	19 0 0	30s. "

Silent Movement, 20s. extra; Boots for Horse's Feet, 24s. per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine ...	£15 15 0	30s. extra.
No. 6.—28-inch Machine ...	14 10 0	30s. "
No. 7.—25-inch Machine ...	12 10 0	25s. "

Silent Movement, 12s. 6d. extra; Boots for Pony, 21s. per set; ditto for Donkey, 16s. per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine ...	£8 17 6	Easily Worked by Two Men.
No. 9.—22-inch Machine ...	8 7 6	Easily Worked by Two Men.
No. 10.—19-inch Machine ...	7 12 6	Ditto by a Man and Boy.
No. 11.—16-inch Machine ...	£6 17 6	Easily Worked by a Man.
No. 12.—13-inch Machine ...	6 2 6	Ditto ditto by a Boy.

The Patent Delivering Apparatus, if attached to the Hand Machine, 25s. extra; Silent Movement, 7s. 6d. extra.

No. 16.—12-inch Machine, for pushing only, £5 5s. Easily worked by a Lady or a Boy; Silent Movement, 4s. extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

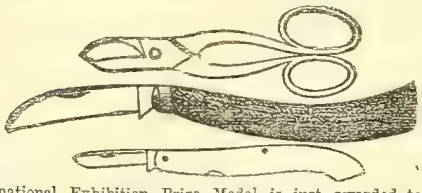
PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

Paxton Works, Sheffield, Established 1738.

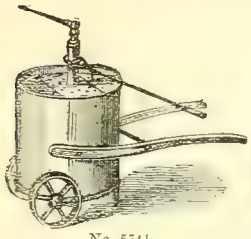


International Exhibition Prize Medal is just awarded to Saynor & Cooke for superiority of quality in Pruning and Budding Knives, &c.

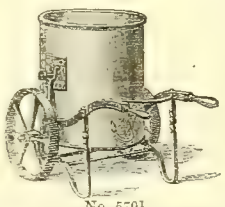
SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

Caution.—None are genuine unless marked Saynor. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.



No. 534½.



No. 579½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons	.. ..	£2 15 0
16 ,,	.. ..	3 15 0
24 ,,	.. ..	5 0 0

Larger sizes may be had in ther Wood or Iron.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	..	£2 10 0
20 ,,	..	2 0 0



BRASS SYRINGES of all kinds from 9s. to 21s.



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 6 feet Flexible Suction Pipe,

21s.,

Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

There are no suction or delivery Valves, hence much friction and liability to choke with leaves and dirt is avoided.

AMERICAN PORTABLE FIRE ANNIHILATOR and GARDEN ENGINE.



£2 2s.

An efficient means of Extinguishing Fires at their commencement. Nine out of ten Fires in London are put out on their first appearance by the London Fire Brigade with Hand Pumps of considerably less power.

One man will throw 7 or 8 gallons per minute from 40 to 50 feet with it.

It is an effective Garden Engine for cleansing or syringing Wall-fruit or Rose Trees, Plants, or Vines.

It may be used to draw water from the pail in which it is fixed, or from a tank or pond by the addition of the required length of suction. It is simple in its construction, having no suction or delivery valves to clog with dirt or leaves.

No Establishment, either private, commercial, or manufacturing, should be without one.

Six feet of Flexible Suction, with Union and Suction Rose, &c., extra, 12s. Longer lengths of Suction at 1s. 6d. per foot.

The above may be obtained of all Ironmongers and Seedsmen in Town and Country, or of the Manufacturers,

John Warner & Sons, 8, Crescent, Cripplegate, London, E.C.

FOWLER'S
STEAM PLOUGHING AND CULTIVATING PATENTS.

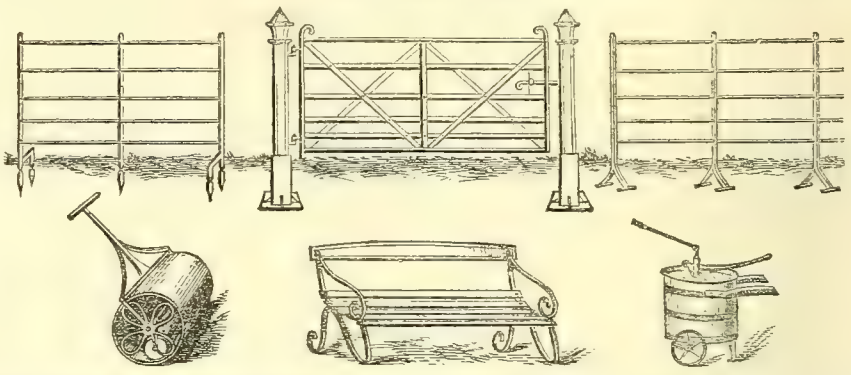
RANSOMES & SIMS, Orwell Works, Ipswich,

Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

COTTAM'S
CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED, IN VARIOUS STYLES.

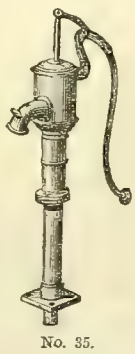


IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.
VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.
The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

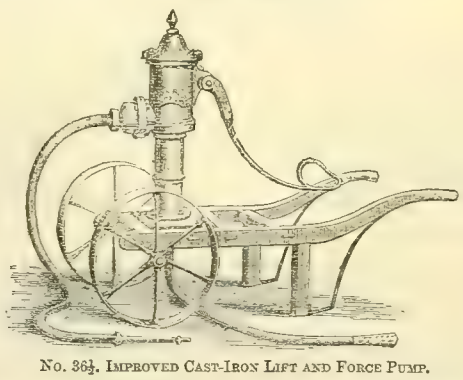
Illustrated CATALOGUES and DRAWINGS free on application to
COTTAM & CO., ENGINEERS and IRON FOUNDERS,
2, WINSLEY STREET (Opposite the Pantheon), OXFORD STREET, LONDON, W.

JOHN WARNER & SONS,
BELL AND BRASS FOUNDERS TO HER MAJESTY,

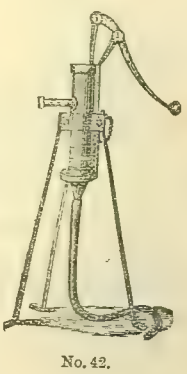
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35.



No. 36½. Improved Cast-Iron Lift and Force Pump.



No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3l. 3s.) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3l. 15s.) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump one man will force the water in a continuous stream to a height of 50 feet.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2l. 15s.; 2-inch Flexible Rubber and Canvas Suction Pipe, 2s. 5d. per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

PATENTEES and MANUFACTURERS,
JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. TYLOR & SONS' GALVANIZED IRON TUB GARDEN ENGINES, with Registered Spreader.

8 gal.	12 gal.	16 gal.
£2 13 6	£3 5 0	£3 15 0
24 gal.	30 gal.	
£5 0 0	£5 18 0	



Fig. 571.

J. TYLOR & SONS' OAK TUB GARDEN ENGINES, with Registered Spreader.

15 gal.	28 gal.
£5 12 6	£7 2 0.



Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 8 0 each.
No. 2. Ditto ditto .. 1 2 6 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,



Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 11*s.* 6*d.* each.
,, 589. Middle Ditto ditto .. 10 3 ,,
,, 588. Small Ditto ditto .. 9 0 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 7 6 ,,

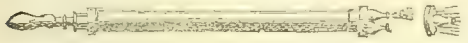


Fig. 591. READ'S SYRINGE, with two roses and one jet, 17*s.* 6*d.*
READ'S SYRINGE, with one rose and jet, 15 0
,, 592. Improved ditto ditto large 14 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.



GARDEN BORDER-EDGING TILES. — These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

To be obtained at F. & G. ROSHER'S Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.

PROTECTION from the COLD WINDS & MORNING FROST. "FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. .. 1*s.* 6*d.* per yard run.
Four yards wide .. .. .. 3*s.* per yard.
An improved make, 2 yards wide, 1*s.* 8*d.* per yard.
An improved make, 3 yards wide, 2*s.* 6*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 4*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon St., City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

Prize Medal at the International Exhibition, 1862.

E. WOLFF AND SON'S SOLID INK PENCILS in CEDAR for GARDEN TALLIES.—These Pencils are the Best and Cheapest Invention ever used for Writing on Garden Tallies of all descriptions, the action of the air, rain, &c., not having the slightest effect upon them. The advantages resulting from their use are—Firstly, the simplicity of an ordinary lead pencil; secondly, the superiority and portability of a dry pencil over liquid Ink, or Paint; and, thirdly, their reasonable price, which places them within the reach of all classes. These Pencils are also useful for all kinds of Writing, Memoranda, &c.

Price 3*d.* each; extra thick, 6*d.* each.

To be had Retail of all Seedsmen, Nurserymen, and Stationers, and Wholesale at the Manufactory,

22 & 23, Church Street, Spitalfields, N.E.

Notice.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS), HORTICULTURAL VALUER, begs to inform his friends and the public that he has REMOVED from Priory Road, Wandsworth Road, to No. 1, Devonshire Terrace, Fulham Road, S.W.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 20, Oxford Street, Manchester.

TANNED NETTING for the protection of Fruit Trees at 1*d.* per square yard: 200 yards, 14*s.*; 500 yards, 20*s.*; 1000 yards, 50*s.*; SCRIM CANVAS for Wall Fruits; SUN BLINDS, AWNINGS, TULIP COVERS, &c.

Be particular. JOHN EDGINGTON & Co., 17, Smithfield Bars, E.C.; 103, Old Kent Road, S.E.; and 18, Piccadilly, W.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

Netting for Fruit Trees, Seed Beds, Ripe Strawberries, &c.

TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard, or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard.

Can be had in any quantity of EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

Do as Others Do!

BUY YOUR SEED BAGS from JAMES T. ANDERSON, SACK and BAG MAKER, and RUSSIA MAT MERCHANT, 15, SHERBORNE LANE, King William Street, London, E.C., who will supply you with a first-rate article at a low price. ARCHANGEL MATS, the pick of the season. Russian and Prussian Dunnage Mats.

Prices sent free on application.

1863.—BENJAMIN EDGINGTON respectfully informs the Public that he has a large quantity of NEW and SECOND-HAND RICK CLOTHS, with Poles, complete, now on Sale. MARQUEES and PAVILIONS for Royal and Noble parties, with boarded floors and elegantly decorated, on Hire. The Flags used at the Royal Procession to be Sold as Second-hand.

NETTING and BUNTING for Fruit Trees, &c.

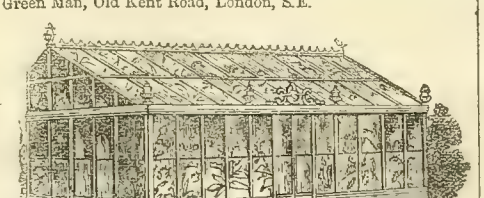
Address, BENJAMIN EDGINGTON, 2, Duke Street, London Bridge, S.E. No other Establishment.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.

For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOTWATER APPARATUS MANUFACTURERS, near the Green Man, Old Kent Road, London, S.E.



200 CUCUMBER and MELON BOXES and LIGHTS, and from
400 to 500 LIGHTS for PITS of all SIZES kept in STOCK.

Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the kingdom.

10 dozen strong Zinc HAND GLASSES, Glazed and Painted complete, ready for immediate use, 18, 20, and 22, all shifting tops.

References to the Nobility, Gentry, and Trade in most of the counties in England.

To Nurserymen and Others.

TO BE DISPOSED OF, by PRIVATE TREATY, and with Immediate Possession, an old established NURSERY, with Hothouses and Greenhouses, doing a good business; in an excellent situation, and within a few miles of Liverpool. The whole to be taken at a valuation.

For particulars apply (by letter, post paid,) to M. S., care of Wren & Sons, Tea and Coffee Merchants, Temple Court, Liverpool.

Farnham, Surrey.

FARM TO LET.—Two hundred Acres, more or less, comprising 30 acres well-known productive Hop Land, some valuable Water Meadows, and the remainder Arable Land, situate near the town and within the parish of Farnham, and forming a desirable occupation.

For particulars and to treat, apply to the executors of the late THOMAS SIMMONDS, of Rock House, Farnham, Surrey.

Sales by Auction.

Preliminary Notice.

MR. J. WILLMER begs to announce that he is favoured with instructions from the Executrix of the late Mr. W. Lawrence, of the Lion Hotel, Hampton, to submit to Public Auction, without the least reserve, in May next, the whole of his costly COLLECTION of TULIPS, TULIP STAGE CLOTHS, CABINETS, &c.

Full particulars will be duly announced.

Important Sale of Seeds from India.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 16, at half-past 12 o'Clock precisely, 128 lbs. of CLEAN SEED of CEDRUS DEODARA, and 12 lbs. of ASSORTED SEEDS, just arrived in fine condition from India, lotted to suit private buyers and the trade. Also 300 splendid SPECIMEN IRISH YEWS, 4 and 5 feet high, very healthy and well-grown plants.

On view the Morning of Sale, and Catalogues had.

12,000 Choice Bedding-out Geraniums.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, April 18, at half-past 12 o'Clock precisely, a very fine ASSORTMENT of GERANIUMS, comprising the following Choice and well-known Sorts:—

Lady Middleton	Flower of the Spring
Countess of Warwick	Blackheath Beauty
Christina	Jane
Golden Chain	Beauty
Hendersoni Nana	Baron Hugel
Minimum Nosegay	Alma
Rose Queen	Lady of Loretto
Beauté de Meldoise	Indispensable
Bishopstone Scarlet	Model Nosegay
Countess	Hendersoni
Burning Bush	Julia
Red Nosegay	Scintillatum
Reine d'Or	Purple Nosegay
Paul l'Abbé	Little David
Golden Fleece	Cloth of Gold
Scarlet Queen	Madam Vaucher
St. Clair	Shottesham Pet
Golden Cerise Unique	Daybreak

All very healthy and well-grown plants.

On view the Morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 22, at half-past 12 o'Clock precisely, a valuable COLLECTION of ESTABLISHED ORCHIDS, comprising fine healthy Plants of the following well-known sorts:—

Aerides Schroederi	Cattleya citrina
,, crispum	,, labiata splendens
,, quinquevulnerum	,, Trianæi
,, rubrum	Cypripedium hirsutissimum
,, roseum	,, barbatum
Dendrobium formosum	,, caudatum
,, lituiflorum	Vanda tricolor
Phalænopsis amabilis	,, suavis
,, rosea	,, insignis
,, grandiflora	&c. &c.

On view the Morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS begs to announce that he will include in his SALE at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 22, 30 Lots of BURLINGTONIA CANDIDA, 7 Lots of ONCIDIUM LANCEANUM, and 3 Lots of RODRIGUEZIA, all healthy imported Plants, just received in the finest possible condition. Also 12 fine established masses of CATTLEYA SUPERBA, all very healthy and strong.

On view the Morning of Sale, and Catalogues had.

Gladioli, Firs, Azaleas, Greenhouse Plants, &c.

MR. ARTHUR PLEWS will SELL by AUCTION, at his Great Sale Rooms, 11, Catherine Street, Strand, W.C., on FRIDAY NEXT, April 17, at half-past 12 o'clock, a fine Collection of HORTICULTURAL and FLORAL produce.

May be viewed the day previous, and Catalogues had.

Poultry, Pigeons, Ducks, Rabbits, &c.

MR. ARTHUR PLEWS will SELL by AUCTION, at his Great Sale Rooms, 11, Catherine Street, Strand, W.C., on WEDNESDAY NEXT, April 15, at half-past 12 o'clock precisely, a fine collection of Crêvecœur, Bramah, Cochin, Dorking, Hamburgh, Game and other Fowls, Pigeons, Rabbits, Ducks, &c.

Lots can be included up to 11 o'clock on the Morning of Sale.

May be viewed the day previous, and Catalogues had.

To Gentlemen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at the Mart, on FRIDAY, April 17, at 12 o'Clock, a first-class COLLECTION of CARNATIONS, Picotees, and Pinks, 200 Standard and Dwarf Roses, Azalea indica, Ericas, Epacris, Cinerarias, and a variety of other Plants in bloom, Choice American Plants, strong roots of Pampas Grass, and Herbaceous Plants, together with an assortment of the best Verbenas, Fuchsias, Dahlias, &c.

May be viewed the Morning of Sale. Catalogues had at the Mart; and of the Auctioneers, American Nurseries, Leytonstone, Essex, N.E.

Important Sale of 300,000 Choice Greenhouse and Bedding Plants, 30 Greenhouses, and other Effects.

To NOBLEMEN, GENTLEMEN, NURSERYMEN, FLORISTS, & OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executrix of the late Thomas Gaines, deceased, to submit to an unreserved SALE by AUCTION, on the Premises, Surrey Lane, Battersea, on MONDAY, April 27, and following days, at 11 o'Clock each day, the ground being required for building upon, the whole of the Valuable GREENHOUSE PLANTS, including all the magnificent specimens of Azalea indica, which for so many years have rendered this establishment famous, having obtained prizes at the various Metropolitan Floral Fêtes, and now, being beautifully furnished with bloom, and in such fine condition, offer an opportunity of rare occurrence to gentlemen requiring large handsome specimens for furnishing their Conservatories.

Large double Camellias, Ericas, Epacris, Crassulas, Epiphyllum (sorts); Acacia armata, Callas, Hydrangeas, Daphne indica rubra; a quantity of compact and healthy plants of Gardenias (sorts), Gloxinias, Begonias, double Primulas, Ficus elastica, Roses in Pots, Ardisias, Stephanotis; Show, Fancy, and French Pelargoniums, Scarlet Geraniums, &c. An extraordinary large assortment of upwards of 50,000 Bedding Plants, too numerous to specify; some brilliant varieties of Amaryllis, Hardy and Exotic Ferns, Lilium lancifolium (sorts), &c.; together with 30 Greenhouses, several ranges of Pits, 1, 2, 3, and 4-light Boxes, thousands of feet of 3, 4, and 6-inch Hot Water Piping, Saddle and other Boilers, Erection of Sheds, quantities of Brick, Slate Shelving, Stand Glasses, Garden Pots, Mats, 3 Spring Market Vans, useful Bay Gelding, Brewing Utensils, Iron Roller, Nest Seed Drawers and Seeds, Barrows, Garden Tools, and sundry effects.

May be viewed on week prior to the Sale. Catalogues may be had, 6*d.* each, returnable to purchasers, on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, Leytonstone, Essex.

THE HYDROPULT,

THE HYDROPULT
IS INVALUABLE FOR

WATERING GARDENS,

EXTINGUISHING FIRE at its COMMENCEMENT,

PROTECTING a ROOF from FIRE,

CLEANSING TREES from INSECTS,

DRESSING with LIQUID MANURE,

SPRINKLING PLANTS,

WASHING WINDOWS,

WETTING SIDEWALKS,

SPRINKLING STREETS,

WASHING CARRIAGES,

WETTING SAILS,

A SPRAY BATH,

&c. &c.



CAUTION. — Unprincipled parties are now palming on the public an infringement of the Hydropult Patent. This is to notify, that said pirates and all persons using or vending this article will in due time be prosecuted. No machine contained in a bucket is the Hydropult. Every Hydropult has a Trade Label affixed, as follows:—

"The Hydropult, a Portable Fire Annihilator and Garden Engine.

"GRIFFITH & BROWETT, Manufacturers, Birmingham;

"CHARLES P. BUTTON, General Agent.

"VOSE'S Patent;"

and is sold at the uniform rate of TWO GUINEAS, complete, with 2½ feet Suction and 3-feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Fire Jet. It is an easy matter to imitate the Hydropult in appearance, and thereby deceive the public; therefore this caution.

AN INVENTION FOR THROWING WATER BY HAND POWER.

SECURED BY ROYAL LETTERS PATENT.

PRICE TWO GUINEAS,

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Small Jet.

The Hydropult is a simple, effective, and convenient Apparatus for throwing Water by hand. It WEIGHS BUT 8 LBS., is made of Brass and Copper, costs but Two Guineas, and will throw 7 or 8 gallons of water per minute 50 FEET when worked by the power of one man.

FIRE! FIRE! FIRE!

THE HYDROPULT IS THE MOST EFFECTIVE FIRE ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.
ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

EXTRACTS FROM TESTIMONIALS.

Read the following from THOS. RIVERS, Esq., the eminent Florist and Nurseryman:—

"The Hydropult is admirably adapted for Nurseries, and will be found invaluable for Watering and Syringing Plants and Trees in pots."

SHIRLEY HIBBERD, Esq., says in the "Gardeners' Magazine:"

"It will perhaps surprise the reader to be told that this little contrivance, which is pretty as a toy, and can be carried under the arm as easily as a trumpet, will throw from 7 to 8 gallons of water per minute a distance of 50 feet. But it will do it, as we know from having tried it, finding the experiment an agreeable exercise, and of special service in washing down a stuccoed wall, which it accomplished quite as well as if we had sent for the parish engine. Gardeners will not need to be told the value of a Portable Force Pump of this simple kind. It can be used to produce a powerful stream to extinguish a Fire, or a gentle shower to Syringe a whole house full of Plants, without the necessity of moving a single step from the position most convenient for a supply of water. Wherever a Pump or Syringe is needed the Hydropult can be brought into use, to remove Water from a Cellar or a Boat, to cleanse a Cistern, wash a Pavement, or drench the Foliage of Trees loaded with soot, or annihilate at one fell swoop the whole Insect population of a Plantation of Roses. But we will not enlarge upon its merits, they are obvious, and having a Hydropult in use we can say that it will soon pay for its cost in a Garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water."

"There can be no doubt but that it can be made available in the earlier stages of Fire in Warehouses, Manufactories, or Private Houses, in preventing large conflagrations.

"PERCY M. DOVE, Esq.,
"Manager Royal Insurance Company."

"The invention will prove extremely valuable for all the purposes to which such Machines are applied.

"SWINTON BOULT, Esq.,
"Secretary Liverpool and London Insurance Company."

IMPORTANT TO YACHTING CLUBS.

We take pleasure in presenting to the public the following Testimonial from Lieut.-Colonel WHEATLEY:—

"I have much pleasure in stating that both I myself and several friends have used your Hydropult for Wetting Yachts' Sails and Washing and Baling out Boats with the greatest success; and, for an instrument of its size, consider it most useful and applicable to Yachting purposes, obviating the necessity of a large engine or skeats during a match.

(Signed) "W. WHEATLEY."

Important communication from WILLIAM CHRISTIAN, Esq., Manager of the Baldock Bank:—

"February 19, 1863.

"Mr. CHARLES P. BUTTON.—Dear Sir,—It gives me great pleasure to forward you particulars respecting the cottages in this town that were saved on the 1st of January by the use of your Hydropult. The property consisted of a row of 10 cottages, separated only from the fire that was devastating three thatched cottages by a narrow passage about one yard wide. By this useful little instrument I was able to keep the gable end, immediately facing the fire, continually wet, so that when the flames reached it, they had very little or no effect. Every one on the spot seemed very much astonished at the power of this little engine, among whom was the owner of the cottages, who is perfectly convinced, had it not been for the Hydropult, his property must have been consumed.

"On the same night I had been to another fire in the town, with the same instrument, and did great service. Feeling so satisfied with its performance there, made me take it to the second fire, so that this little engine was pumping away for over six hours altogether, without doing it the slightest injury.

"I remain, yours truly, "W. CHRISTIAN."

The *Hertford Mercury*, in speaking of the above fire, says:—"The town engine was as soon as possible upon the spot, but found of little use, owing to the inconvenience of getting water. The adjoining range of tenements were saved almost entirely through the exertions of Wm. CHRISTIAN, Esq., Manager of the Baldock Bank, who brought to the scene a Hydropult, which, being kept well supplied with water by hand buckets, was made to play with great effect."

Prospectus, with Testimonials, on application at either Office.

HYDROPULT OFFICE: 27, LEADENHALL STREET, LONDON, E.C.; and 309, REGENT STREET.

CHARLES P. BUTTON, PROPRIETOR.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 16.—1863.] SATURDAY, APRIL 18. {Price Fivepence. Stamped Edition, 6d.

INDEX.

Adulteration of Linseed cakes 373 a
Annuals 364 a
Apricots, seedling 364 b
Babraham herd, sale of 369 c
Bougainvillea 368 a
Decalsne's Jardin Fruitier du Museum 367 c
Ewes, lambing of 373 a
Farmers' Clubs, Strathearn 374 a
Fish and fishing 364 c
Fruits, seedling 364 b
Gardeners' English 365 c
Grass seeds 370 a
Green fly, cure for 366 a
Heating Vine borders 366 a
Heifers, roaring 373 a
Holly leaves 366 a
Jeans, Death of Rev. G. 364 a
Kohl Rabi, feeding value of 371 c
Lambs, twin 372 c
Linseed cake, adulteration of 373 a
Mangel, feeding value of 371 c
Miller's (Hugh) Tales and Sketches 367 b
Moles 373 a
Oxford University Park 363 b
Pyrus Sorbus 366 a
Reaping machines 374 a
Roaring heifers 373 a
Roses, Bourbon 365 b
Sales by Auction 368 b
Sclerotium 363 c
Sheep, jaundice in 372 c
Society, Royal Agricultural 373 a
— Royal Horticultural 366 a
— Royal Botanic 367 a
Steam cultivation 370 b
Swyncombe House, Bougainvillea at 368 a
Vine borders, heating 366 a
Weather prognostics 372 c
Xylaria pedunculata 364 a

ROYAL BOTANIC SOCIETY, Regent's Park.

LAST SPRING EXHIBITION, ROSES, PELARGONIUMS, &c., will take place on SATURDAY NEXT, April 25.

Tickets can be had at the Gardens by Orders from Fellows of the Society, price 2s. 6d. each, or in packets of 10 for 1l. per packet. The Gates open at 2 o'clock. Band at half-past 2.

ROYAL BOTANIC SOCIETY, Regent's Park.

EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, May 13, June 3, and 24.
AMERICAN PLANTS, MONDAY, June 8.

Tickets can be obtained at the Gardens by Orders from Fellows of the Society. Price on or before May 2, 4s.; after that day, 5s.; or on the days of Exhibition, 7s. 6d. each.

The next Meeting of the Fellows for the Election of New Candidates, Saturday, April 25.

CRYSTAL PALACE FLOWER SHOWS.—The GREAT FLOWER SHOW on SATURDAY, May 23, and the ROSE SHOW on SATURDAY, June 27.

Schedules for the first are now ready, and can be had on application to Mr. W. Houghton, Secretary to the Flower Shows, Crystal Palace, Sydenham, S.E.

STAMFORD HORTICULTURAL SOCIETY.—The Schedules of Prizes with Rules for the FETE and ROSE SHOW on JULY 8, are now ready, and may be had free on application to
Messrs. Laxton & Hewitt, Hon. Secs., Stamford.

BIRMINGHAM ROSE SHOW, 1863.—The NEXT SHOW will be held in the Town Hall, Birmingham, on THURSDAY and FRIDAY, July 16 and 17.

Applications for Prize Lists and Regulations to be made to the Secretary, Queen Chambers, Cherry Street, Birmingham.

GRAND HORTICULTURAL and FLORAL EXHIBITION at WORCESTER.

The Committee of the Worcestershire Horticultural Society have arranged to hold a GRAND SHOW of FRUIT, FLOWERS, and VEGETABLES, on TUESDAY, WEDNESDAY, and THURSDAY, July 21, 22, and 23, being the week of the annual assembling of the Royal Agricultural Society in Worcester.

The Show will be open to all England, and copies of the Schedules (which will contain Prizes to the amount of nearly 200l.) may be obtained by applying to the Honorary Secretary, Mr. T. H. Wheeler, No. 2, Foregate Street, Worcester, on or after the 21st April inst.

JOHN SANGSTER returns his sincere thanks to those kind friends who supported him at the last Election of the Gardeners' Royal Benevolent Institution, and now again begs to solicit their VOTES and INTEREST at the ELECTION in JULY NEXT. Proxies will be thankfully received.
Address J. S., Plumstead Road, Norwich.

HARDY SHOWY FLOWER SEEDS.—SUTTON'S DESCRIPTIVE CATALOGUE post free.
Sutton & Sons, Reading, Berks.

ARAUCARIA IMBRICATA will now move admirably. Thousands of all heights, up to 10 feet, are offered for SALE by
H. Lane & Son, Great Berkampstead.

TROPÆOLUM LOBBIANUM ELEGANS (Crystal Palace Scarlet), Seed scarce.
Per packet, 1s. and 2s. 6d.
Butler & McCulloch, Seed Merchants, Covent Garden Market.

BOX EDGING.—Enough to plant 1400 yards, of first-rate quality, and to be disposed of at a very low price.—Apply to W. H. Davis, Rose Nursery, Newbury.

Orchids.

WANTED to PURCHASE, large Specimen Plants of the good old varieties; or if preferred, good new varieties may be had in exchange.
Robert Warner, Broomfield, Essex.

WANTED, a DATE PALM, not less than 12 feet high.
Address, stating particulars, to P. L., *Gardeners' Chronicle* Office, W.C.

WANTED, a Quantity of DOUBLE WHITE, YELLOW, CRIMSON, and PURPLE PRIMROSE, with price per 100.
Youell & Co., Royal Nurseries, Great Yarmouth.

The Best Primula in Cultivation is

WILD'S VILLAGE MAID.—Mauve with silvery margin; for size, form, substance and colour, is unrivalled. Free by Post on receipt of 2s. 6d. postage stamps.
Thos. Wild, The Primulary, Ipswich.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS,
Seed Growers and Merchants,
Royal Berkshire Seed Establishment, Reading.

BARR AND SUGDEN,
Seed Merchants,
12, King Street, Covent Garden, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON,
Nurserymen and Seed Merchants,
Maresfield, near Uckfield, Sussex.

Agricultural Seeds.

GEORGE GIBBS AND CO.,
Seedsmen,
26, Down Street, Piccadilly, London, W.

Agricultural and Garden Seeds.

H. AND F. SHARPE,
Seed Growers and Merchants, Wisbeach.
Special PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
Seed Farmers and Nurserymen,
237 and 238, High Holborn, London, W.C.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH,
Seed Merchants,
Covent Garden Market, London, W.C.

AUGUSTE VAN GEERT'S NURSERY, Ghent, one of the finest on the Continent.
CATALOGUES may be had on application, or of his Agents, Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, London, E.C.

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs respectfully to announce that he has just published a SUPPLEMENT to his CATALOGUE of PLANTS, which may be had on application to his Agents, Messrs. R. Silberrad, 5, Harp Lane, London, E.C.

Introduction of New Plants.

AMBROISE VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to announce that his NEW CATALOGUE (No. 72) is ready, and contains all his NOVELTIES to be sent out this season.
The Catalogue will be forwarded on application.

EDWIN HOLLAMBY begs to inform his Patrons and Friends that his DESCRIPTIVE PRICED CATALOGUE of VEGETABLE, FLOWER, AGRICULTURAL SEEDS, and GLADIOLUS is now ready, and may be had gratis and post paid on application.
Nursery and Seed Establishment, Tunbridge Wells, Kent.

Imported Asters, Stocks, &c.

WM. CUTBUSH AND SON have a few Collections left of the above, which they can confidently recommend. For price, &c., see CATALOGUE, free.
Highgate Nurseries, London, N.

Dahlias.

JAMES FAIRHEAD AND SON beg to announce that their CATALOGUE of DAHLIAS, including Pompone or Bouquet and Bedding varieties, is now ready, and may be had gratis on application.
7, Borough Market, London, S.E.

New Garden Seeds of our own Growth.

JAMES CARTER AND CO. are now prepared to execute orders for the above, saved at their Seed Farms.
237, 238, & 261, High Holborn, W.C.

CARTER'S SELECT LIST of New and Choice VEGETABLE, FLOWER SEEDS and PLANTS is now published, gratis and post free.
237, 238, & 261, High Holborn, London, W.C.

NOVELTIES.—The Novelties of the Season, Illustrated in Carter's GARDENER'S and FARMER'S VADE MECUM, post free for 12 stamps.
James Carter & Co., 238, High Holborn, W.C.

Dahlias, &c., by the Hundred or Thousand.

C. E. ALLEN'S CATALOGUE of the above is now ready, and can be had on application.
Shacklewell, near London, N.E.

CHARLES TURNER'S DESCRIPTIVE LIST of PLANTS for the SEASON is now ready, and may be had free on application.
The Royal Nurseries, Slough.

JIVERY AND SON beg to announce that their new PRICED and partially DESCRIPTIVE CATALOGUE of HARDY BRITISH FERNS is now ready, and will be forwarded on application.
Dorking Nursery.

New Purple Verbena Lord Craven.

DOWNIE, LAIRD, AND LAING will be prepared to execute all orders for the above magnificent Flower after April 23. See *Gardeners' Chronicle* of March 14, page 243. 5s. each, 42s. per dozen.
Stanstead Park, Forest Hill, S.E.; and Edinburgh.

Calceolaria, Crawford's Empereur de Maroc.

JAMES CRAWFORD has much pleasure in offering the above magnificent SEEDLING. It is said to be the best dark Calceolaria ever offered to the public. It will be a great addition to the flower garden, and also to the pot stands in Covent Garden. It is now offered at 3s. 6d. each.
High Beech, Essex, N.E.

New Roses for 1863.

BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.
St. John's Street Nursery, Colchester.

Paul's Nurseries, Waltham Cross.

WM. PAUL (Son and Successor to the late A. Paul), has a large Stock of all the NEW ROSES, now ready for delivery.
Splendid plants at lowest advertised prices.
PRICED CATALOGUE free by post.

ROSES in POTS, for planting out in beds, to be had in endless variety and number at
H. Lane & Son, Great Berkhampstead.

ALL the NEW ROSES of 1863.—In fine strong Plants now ready.
DESCRIPTIVE LISTS on application.
Wm. Wood & Son, Woodlands Nursery, near Uckfield, Sussex.

40,000 Dwarf Roses in Pots for Bedding.

The Months of April and May are considered the most Eligible for Planting out Roses from Pots.

WM. WOOD AND SON have an enormous stock of fine healthy plants, now ready to send out. CATALOGUES sent Post-free on application.
Woodlands Nursery, Maresfield, Uckfield, Sussex.

LUCOMBE, PINCE, AND CO.'S PRICED DESCRIPTIVE CATALOGUE of NEW and CHOICE PLANTS, CHOICE ROSES, SOFT-WOODED, BEDDING, and other PLANTS, is now ready, and will be sent Gratis on application.
Exeter Nursery, Exeter.

Pelargoniums, Verbenas, Fuchsias, and Pansies.

J. DOBSON AND SONS have a fine healthy Stock to offer of all the best kinds at moderate prices.
Woodlands Nursery, Isleworth.

Pine Plants.

TO BE DISPOSED OF, by a gentleman leaving for town and giving up his House, &c., about 100 good healthy PINE PLANTS, this and last year's growth.
Apply by letter to Mr. F. Stead, 23, Jarratt Street, Hull.

Vines.

JAMES CRAWFORD having a large Stock of fine strong healthy Grape Vines, many of them equal to bearing a Crop of Fruit, and wishing to effect a Clearance, begs to offer them at the low price of 18s. per dozen.
High Beech, Essex, N.E.

STRAWBERRIES.—A New DESCRIPTIVE CATALOGUE of more than 200 varieties of Strawberries, from good plants, of nearly every variety, can now be supplied by the Grower,
Mary Nicholson, Egglescliffe, Yarm, Yorkshire.

NEW CUCUMBERS, at 1s. per packet.
Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.
Barr & Sugden, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

GIANT ASPARAGUS ROOTS, 2s. 6d. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see Richard Smith's SEED LIST for 1863.
Strong Transplanted SEA KALE, 2s. per doz.
Richard Smith, Nurseryman, Worcester.

Dioscorea Batatas, or Chinese Yam.

J. IVERY AND SON beg to offer whole Roots of this useful Esculent, from 3s. to 4s. 6d. per dozen; Cut Sets, 1s. per dozen. Dorking Nursery.

HOW'S EARLY FLUKE is the best keeping, most prolific, and whitest EARLY POTATO grown. Price 10s. per bushel of 56 lbs. See former Advertisements.
W. A. How, Redmarly, Newent, Gloucester.

POTATOES, a few sacks of each, EARLY ASHLEAF, FORTYFOLD, SHAW, DALMAHOY, and FLUKES, to clear out at cash price.
Geo. Cornwell, Seedsman, &c., Barnet, Herts, N.

Yellow Tankard Turnip.

JAMES FAIRHEAD AND SON have a SURPLUS STOCK of above, which they can recommend with the greatest confidence. Price on application, 7, Borough Market, London, S.E.

MANGEL WURZEL SEED in every variety, supplied at very moderate rates, direct from the Grower,
Mr. Simon A. Daintree, of Fendrayton, St. Ives, Hunts.

Turnip and Mangel Wurzel Seeds, Crop 1862.

Raised from extra Selected Stocks, & Transplanted Bulbs.
Special Quotations to the Trade on Application.

JAMES FAIRHEAD AND SON, Seed Growers and Merchants, 7, Borough Market, London.
N.B. A few Bushels of our celebrated LEWISHAM SWEDE on offer.

SEED CORN from the CHALK.—All the most approved varieties supplied by Raynbird, Caldecott, & Bawtree. Samples and prices on application.
Address, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

CHEAP GRASS SEEDS for HILL SIDES and RAILWAY BANKS.—Rough Grasses, Sainfoin Siftings, &c., suitable for the above purpose, at 2s. per bushel and 3d. per lb.
Address, Raynbird, Caldecott, & Bawtree, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Chrysanthemums, Chrysanthemums.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, begs to inform his friends and the public that he can supply from his great Stock of the above 20 pairs of the best large Varieties for 10*s.*; and 25 pairs of best POMPONES for 10*s.*; 20 pairs of Cuttings of the large Varieties for 5*s.*; and 25 pairs of Pompones ditto for 5*s.*

New CATALOGUES ready for one stamp.

N.B. To save trouble all orders to be paid to J. H. BIRD, Stoke Newington.

Chrysanthemums, Dahlias, Fuchsias, Verbenas, Geraniums, Pelargoniums, Petunias, Calceolarias, &c.

W. HOLMES'S CATALOGUE of the above is now ready, and may be had in exchange for One Stamp. Reference or remittance from unknown Correspondents.

Frampton Park Nursery, Hackney, N.E.

New Chrysanthemums.

JOHN SALTER'S DESCRIPTIVE CATALOGUE of CHRYSANTHEMUMS, including the new varieties, which he will send out this Spring, as well as "HARDY VARIEGATED PLANTS," and other novelties, is now ready, and will be sent post free on receipt of two stamps.

Versailles Nursery, William Street, near Hammersmith Turnpike, London, W.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. Annual Sale exceeds 2000 packets. In sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each.

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE PRIMULA SINENSIS SEED. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth.

Ericas and Epacris.

YOUELL AND CO. beg to offer fine BLOOMING PLANTS of the above, comprising the best leading kinds in 48 size Pots at 12*s.* per dozen. Trade price per 100 on application.

All Orders of 2*l.* and upwards are delivered Carriage Free to London, Hull, Manchester, Liverpool, Peterborough, and Newcastle, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nurseries, Great Yarmouth.

Hardy Climbers in Pots.

WM. WOOD AND SON have an immense stock of fine strong Plants of the above, suitable for planting out at once against walls, trellises, or pples, consisting of the best kinds of ROSES, CLEMATIS, BIGNONIAS, IVIES, JASMINES, PASSIFLORAS, WISTARIA, &c., at very reasonable prices.

Woodlands Nursery, Maresfield, Uckfield, Sussex.

RUSSELL'S PYRAMID PRIMULAS.—Seed of this unequalled strain is now ready, in packets, price 2*s.* 6*d.*

The great satisfaction which these kinds have given in previous seasons, renders further comment on their merits unnecessary. The additional care taken however in saving the seed last year will probably result in producing flowers much superior to any ever seen.

Printed notes on raising them, and their culture, forwarded with each packet; payment can be made in postage stamps.

GEORGE CLARKE, Nursery, Streatham Place, Brixton Hill, London, S.; and 4, Windsor Terrace, Pimlico, S.W.

E. G. HENDERSON AND SON offer First-class quality of CINERARIA, CALCEOLARIA, and PRIMULA SINENSIS FIMBRIATA, 1*s.* and 2*s.* 6*d.* per packet.

CINERARIA WEBBI.—The interest and value of this species consists in its having a shrub-like branched habit of growth, attaining from 3 to 4 feet in height. This remarkable plant is expected to originate a new and desirable class of varieties for exhibition purposes, it having already passed into all the colours found in florist varieties of the present time, and no doubt but higher improvements in form, and other essential properties, will be obtained in connection with its superior culture. It will be found well adapted for decorative purposes, by its taller growth, and longer continuance in bloom. 2*s.* 6*d.*

Wellington Nursery, St. John's Wood, London, N.W.

Bedding Tropæolum.—Ball of Fire.

ARTHUR HENDERSON AND SON intend sending out the above brilliant BEDDING TROPÆOLUM on the 1st of May.

For description and full details see figure and remarks in the *Floral Magazine* for January, 1863, Plate 129, colour of Tom Thumb Geranium. This will prove one of the best and most beautiful Bedding Plants of the season.

Per 100 Plants	£3 10 0	Per 25 Plants	£1 10 0
„ 50 „	2 2 0	„ 12 „	0 18 0
1 Plant	2*s.* 6*d.*		

Pine Apple Place, Edgeware Road, London, W.

Superb New Fuchsias.

LUCOMBE, PINCE, AND CO. have much pleasure in announcing that they purpose sending out the first week in May, their two unrivalled SEEDLING FUCHSIAS, which have been selected with great care, and proved the second season; they can therefore be confidently recommended as being of sterling merit, short jointed, distinct, compact in habit, and abundant bloomers, and they are, without exception, two of the finest single varieties ever introduced.

The following is a description of them given in the "Gardeners' Weekly Magazine," by Shirley Hibberd, Esq., to whom the Flowers were submitted last season.

"The EARL of DEVON (PINCE's).—Sepals broad, stout, reflexed, coral-red; corolla cup-shaped; petals broad extra stout, overlapping freely, so as to produce a remarkably smooth edge; colour, rich velvety purple; base of each petal stained crimson.

"A large, massive, and very symmetrical flower, in the style of Prince Leopold, which it surpasses in the entire absence of indentations." 10*s.* 6*d.* each.

"EXHIBITOR (PINCE's).—Tube short; sepals broad, well reflexed; lively carmine; corolla cup-shaped, expanded; petals thick, overlapping liberally, smooth; reddish purple.

"A noble flower, and a first-class exhibition variety." 10*s.* 6*d.* each.

A liberal allowance will be made to the Trade.

Exeter Nursery, Exeter.

NEW RHODODENDRONS

PRINCE OF WALES, | PRINCESS OF WALES.

The above beautiful RHODODENDRONS will be ready for sending out early in the Autumn. Full description will appear in future Advertisements.

MAURICE YOUNG (SON and SUCCESSOR to the LATE WILLIAM YOUNG), MILFORD NURSERIES, NEAR GODALMING.

BARR & SUGDEN, 12 KING ST. COVENT GARDEN

All orders 21s. and upwards sent Carriage paid.

STRONG FLOWERING CANNA ROOTS.

A PORTION OF THE UNRIVALLED COLLECTION OF OUR "SARDINIAN CORRESPONDENT."

The CANNA, when associated with GLADIOLI, HOLLYHOCKS, DAHLIAS, RICINUS, &c., in large beds on the Lawn, Flower Borders, select Plantations or Shrubbery Borders, is one of the most picturesque and beautiful of Foliage Plants.

100 Roots assorted, our own selection, in 25, 30, and 40 varieties, £5 5s., £6 6s., and £7 7 0

50 Ditto	ditto	2 15 6
25 Ditto	ditto	1 10 6
12 Ditto	ditto	1 1 0

For a named Collection of 40 magnificent varieties of CANNA ROOTS, see *Gard. Chron.*, No. 14, p. 311.

Statice.—See page 78 of our "Guide to the Flower Garden."

2225 STATICE ARBORESCENS.—An exceedingly beautiful variety, with silvery Sage-like foliage, and large trusses of beautiful blue flowers 1 6

2227 STATICE BRASSICÆFOLIA.—Remarkable for its large handsome foliage and immense heads of bloom, much darker and richer in hue than S. Halfordii 1 6

2238 STATICE ROSEUS SUPERBUS.—It is impossible to say too much in praise of this exquisite variety. The growth of the plant is dwarf and compact, the flowers are bright rose, and produced in the greatest profusion; dried and used for winter bouquets, no Everlasting can equal them. A first-class novelty 1 6

Stachytarpheta.

2223 STACHYTARPHETA ARABICA.—An exceedingly pretty half-hardy annual, with rich violet-coloured flowers. A fine bedding-plant, 1½ ft. .. 1 0

Tagetes.

2208 TAGETES PUMILA.—An exquisite miniature variety of this highly ornamental genus; its growth is dwarf and compact, forming a dense tuft about a foot in height, and covered with bright yellow flowers, striped crimson; these are produced in a continuous succession throughout the summer and autumn months; a fine bedding plant, and which would doubtless produce a most remarkable effect, if edged with Lobelia speciosa 1 0

3259 TAGETES MULTIFLORA FLORE PLENO.—A beautiful free-flowering dwarf variety, with golden-yellow flowers, regularly striped with brown; exceedingly effective in flower beds, ribbons, and groups in the borders 1 0

Tropæolum.

2619 DUC DE MALAKOFF.—A remarkably beautiful variety of this elegant tribe of climbing plants, now extensively used for bedding purposes; the lateral shoots pegged down, the blooms rise above the foliage, and present to the eye a pleasing contrast of flower and foliage; straw colour, edged with rose, and spotted with blood-red .. 1 0

2633 TROPÆOLUM MADAME QUERCIER LACOMBE.—Flowers citron spotted rose and beautifully fringed. This exquisite variety is unsurpassed. First-class novelty 1 0

2639 TROPÆOLUM NE PLUS ULTRA.—A splendid variety, with dark red flowers, black centre, perfect form, and great beauty 1 0

Veronica.

3260 VERONICA VERSCHAFFELTII.—Most beautiful foliage, and fine trusses of scarlet flowers .. 1 6

Per Pkt.

3262 RHODORHIZA (CONVOLVULUS) FLORIDA.—A beautiful greenhouse trailing perennial, with numerous pretty white flowers 1 0

2592 RHYNCHOSPERMUM JASMINOIDES.—A splendid trailing shrub, with panicles of delightfully fragrant flowers 1 0

2093 RUELLIA FORMOSA.—A handsome greenhouse evergreen shrub, with intense scarlet Salvia-like flowers 1 0

NEW WHITE BEDDING VERBENA, WHITE LADY.

RAISED BY MR. SKINNER, GARDENER AT HENGRAVE HALL, NEAR BURY ST. EDMUNDS.

THIS is the WHITE BEDDING VERBENA of the Season, and by far the finest in its section hitherto offered. It is 12 inches in height, with an erect, close, compact habit, approaching that of Purple King. The truss is large, forming a perfect ball, from 2 to 2½ inches in depth, and the same in diameter; a bed of this and Mrs. Holford presented a very remarkable difference by contrast. The clearness of colour, and absence of all shade in the White Lady showed on comparison a large dark centre eye, or spot in the disc of Mrs. Holford, and the effect was still further enhanced by nearly double the quantity of bloom in the same space produced in the variety now offered. We could not have accredited the great superiority of one over the other had we not seen it ourselves, not only as to the purity of its colour, but also in the amount of bloom being so great. Its delightful fragrance will add to its first-class merits for bedding purposes, and other decorative designs, in ribbon-lines, &c. Each, 1*s.* 6*d.*; 12 Plants, 12*s.*; 25 Plants, 20*s.*; 50 Plants, 36*s.*

BLUE KING (Grieves).

Good habit, seedling from Purple King, colour good; an improvement upon Blue Bonnet. Each, 1*s.* 6*d.*; 12 Plants, 12*s.*; 25 Plants, 20*s.*; 50 Plants, 33*s.*; 100 Plants, 50*s.*

ST. CLAIR (Grieves).

Rich plum-colour, large truss, habit same as Purple King, being a Seedling from it; a fine bedder. Each, 1*s.* 6*d.*; 12 Plants, 12*s.*; 25 Plants, 20*s.*; 50 Plants, 33*s.*; 100 Plants, 50*s.*

NEW VERBENAS FOR EXHIBITION AND BEDDING PURPOSES.

RAISED BY MR. EDMONDS.

Eulalie, Effie Deans, Glendower, Nora, Peep-o'-Day, Stella, Princess.

Admiral Mitford,

RAISED BY MR. SMITH, GARDENER TO ADMIRAL MITFORD, OF HUNMANBY.

2*s.* 6*d.* each.

Orders for the above executed on and after the 27th of April.

E. G. HENDERSON AND SON,

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

Good Clean Clover Seed.

For Samples and Prices apply to

SUTTON AND SONS,

stating quantities required, and whether for Cash payment or otherwise.

Royal Berkshire Seed Establishment,
Reading.—April 18.

Improvement of Grass Lands
By Sowing Good Seeds of the Most Suitable Kinds.

SUTTON'S RENOVATING GRASS SEEDS

should now be sown.

These Seeds consist of PERENNIAL CLOVERS and FINE GRASSES for improving the bottom.

Price 9*d.* per lb., or 80*s.* per cwt. 8 to 12 lb. per acre will be sufficient, and will effect a great increase in the produce.

Sutton & Sons,
Royal Berkshire Seed Establishment,
Reading.

KITCHEN GARDEN SEEDS,
FLOWER SEEDS.

In Collections including all the new and approved kinds, or separate to order.

Detail CATALOGUES post free.

THOS. GIBBS & Co.
Corner of
HALF-MOON St.
PICCADILLY,
London.

AGRICULTURAL SEEDS,
GRASS SEEDS,
FARM SEEDS,
of all descriptions.

Thomas Gibbs & Co.
CORNER OF
HALF-MOON St.
Piccadilly, London, W.

FARM AND GARDEN SEEDS

CARRIAGE FREE.

BANGHOLM SWEDE,
EAST LOTHIAN SWEDE,
WARD'S BEAUTY SWEDE,
DROPMORE SWEDE,
MARSHALL'S CHAMPION SWEDE,
GREEN-TOP SWEDE,
WHITE SWEDE,
IMPROVED SKIRVING'S SWEDE.
WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
DOBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
IMPROVED YELLOW GLOBE DITTO,
IMPROVED ORANGE GLOBE DITTO,

IMPROVED LONG RED MANGEL,
IMPROVED LONG YELLOW MANGEL,
IMPROVED RED GLOBE MANGEL,
IMPROVED WHITE FIELD BEET,
RED CLOVER, | COWGRASS,
WHITE, YELLOW, and ALSIKE CLOVERS.
PACEY'S PERENNIAL RYE-GRASS, and other sorts.
ITALIAN RYE-GRASS, FOREIGN and ENGLISH SEED.
NATURAL GRASS SEEDS, in mixture or separate, suitable for various soils and localities.
LIGHT RYE-GRASS and other CHEAP GRASSES, for Sowing on Railway Banks and Waste Places.

Orders for Exportation promptly attended to.

PETER LAWSON and SON, THE QUEEN'S SEEDSMEN,
28, KING STREET, CHEAPSIDE, near the Guildhall; and
15, LAWRENCE LANE, LONDON, E.C.

SPLENDID NEW SCARLET VERBENA, LORD LEIGH.

S. PERKINS & SON,

In offering the above SCARLET VERBENA, have much pleasure in stating that it has been awarded a First-Class Certificate by the Floral Committee of the Royal Horticultural Society, June 11, 1862; First-Class Certificate by the Royal Botanic Society, July 9; First-Class Certificate at the Crystal Palace, Sydenham, Sept. 4 and 5; First-Class Certificate by the Rugby Floricultural Society, August 29; First Prize by the Birmingham Botanic Society, July 10.

After the above Awards, S. P. & Son think it needless to offer any remarks, further than that it is of a free habit and will prove a first-class Bedding variety; colour the most dazzling scarlet that can be conceived, with a clear white eye; truss and pip extremely large, and of the finest shape and quality.

See Editor's remarks in *Gardeners' Chronicle*, August 30, 1862, and December 27, 1862; "Journal of Horticulture," Sept. 9, 1862. An Engraving will appear in the April Number of the "Florist and Pomologist."

Plants after April 15, 5s. each. Special Price by the dozen on application to the
PARK NURSERY, COVENTRY.

International Exhibition Prize Medals 1851 and 1862.
Awarded for Superiority and General Excellence to
BUTLER AND McCULLOCH
Covent Garden Market, London, W.C.
(Established upwards of a Century.)
COLLECTIONS of FLOWER SEEDS, Carriage Free.

NEW ANNUALS.			
12 Extra fine varieties	10*s.* 6*d.*	6 Extra fine varieties	5*s.* 0*d.*
HALF-HARDY ANNUALS.			
100 Finest selected vars.	30*s.* 0*d.*	25 Finest selected vars.	7*s.* 6*d.*
50 do.	do. 15 0	12 do.	do. 4 0
HARDY ANNUALS.			
100 Finest selected vars.	20*s.* 0*d.*	30 Finest selected vars.	5*s.* 0*d.*
50 do	do. 10 0	15 do.	do. 2 6

Select Stove and Greenhouse Plants, &c.

ROBERT PARKER begs to invite attention to his Collections of AMARYLLIS, AZALEA INDICA, EXOTIC ORCHIDS, FERNS, and LYCOPODS; ORNAMENTAL and VARIEGATED FOLIAGED PLANTS; MISCELLANEOUS, STOVE, GREENHOUSE, and HARDY PLANTS; all of which are healthy and clean. Purchasers of large or small quantities will be treated on the most liberal terms.

PRICED and DESCRIPTIVE CATALOGUES are published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

L. T. DAVIS begs to offer the following PLANTS at very low prices:—

SCARLET RHODODENDRONS.
CRIMSON Do.
COMMON Do. (Ponticum)
VARIEGATED HOLLIES, of sorts } Specimen Plants.
GREEN HEDGEHOG, Do. }
PERNETTYA MUCRONATA.
AMERICAN ARBORVITÆ.
BERBERIS DULCIS.
DOUBLE WHITE PRIMROSES.
" LILAC Do.
" PURPLE Do.

The above can be had of various sizes. Prices will be given on application. Carriage paid to Belfast.

Ogle's Grove Nursery, Hillsborough, County Down.

DAHLIAS					
CHARLES TURNER ..	Keynes ..	8	First-class	Certificates
LORD WILTSHIRE ..	Dodd ..	3	do.	do.
PRINCESS ALICE ..	Edwards			
COUNT CAVOUR ..	"	3	do.	do.
SERENITY	Rawlings			
MRS. HOGG	"			
EARL RUSSELL ..	Silver ..	4	do.	do.
BELLONA	Harrison	4	do.	do.
PATENT	Nairn ..	6	do.	do.
BRIDE	Rawlings	2	do.	do.
MRS. WICKHAM ..	"			
THE BEAU	"			

It is respectfully announced that these 12 First-class Flowers will be ready for distribution the first week of May.

CATALOGUES with full descriptions will be forwarded on desire.

John Keynes, Castle Street Nursery, Salisbury.



HOLLYHOCKS
(MIXED)
from the finest Show Varieties.
Strong Blooming Roots,
4*s.* to 6*s.* per dozen; 25*s.* per 100.

RICHARD SMITH,
The Nurseries,
Worcester.

Superb Hollyhocks.

R. B. BIRCHAM begs to state that he has many thousands of fine Plants of the leading kinds of HOLLYHOCKS, which he will be happy to offer upon the most advantageous terms to any Nurseryman or Florist who may require them. Price per hundred upon application.

Purchasers requiring Blacks, Whites, or Yellows can be supplied at per dozen.

Hedenham Rosery, Bungay, Suffolk.

SUTTON'S YELLOW GLOBE MANGEL WURZEL,
the heaviest and best sort known.

Price 8*d.* per lb.; cheaper by the cwt. Common sorts of Mangel, 6*d.* per lb. Good growing Seed.

PRICED LISTS of FARM SEEDS post free.

Royal Berkshire Seed Establishment,
Reading.

HUGH LOW & CO.

Have pleasure in announcing that they propose selling in the first week of May, Plants of the undermentioned SEEDLING VERBENAS, all of which they believe to be varieties of great merit. The six first-named were raised by John Miller, Esq., of Upwey (the raiser of "Foxhunter," &c.), whose name will be of itself a sufficient recommendation of the Varieties selected from the large Stock of Seedlings annually bloomed by that enthusiastic admirer of the Verbena.

FLORA.—Pink, with large white centre, fine truss, retains its colour well, and is very good in the autumn.
RUBY.—Rich deep ruby, light centre, a new and attractive colour, with dwarf free-blooming habit, and excellent bedder.
ROSALIE.—Deep salmon-rose, light centre, a new shade of colour, a fine truss, with large pips.
PURPLE EMPEROR.—Rich plum-purple, white centre, colour fine.
AMARANTH.—Bright pure purple, light centre, a strong grower, with large truss.
CHIEFTAIN.—Scarlet, large white centre, with good habit, an effective flower.
ARKANSAS (Nichols).—Bright carmine crimson, large pip extra.
THE BRIDE (Nichols).—Fine light rose, white eye, large truss.

Price 30s. the collection.

CLAPTON NURSERY, LONDON, N.E.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

Bedding Plants, mostly 2s. 6d. per dozen.

J. SCOTT'S FLOWER GARDEN and ANNUAL DIRECTORY will be ready to forward, from the 1st week of April, at 6*d*.

"All who wish to have their Gardens gay, at a moderate price, should procure the above."

Merriott, Crewkerne, Somerset.

Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER'S CATALOGUE of the above popular plants, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants.

It describes faithfully the colours of all the Rhododendrons, thereby rendering every facility for making selections.

It likewise contains an abridged List of really Hardy Conifers, with their heights and prices.

The American Nursery, Bagshot, Surrey.

Seeds for the Kitchen Garden, Flower Garden, and Farm.

JOHN CATTELL'S DESCRIPTIVE CATALOGUE of the above is now ready, and will be forwarded, post paid, on application; it contains select lists only, and includes every novelty worthy of cultivation.

All parcels of Seeds of the value of 21*s*. and upwards carriage paid to any Railway Station in England.

Nursery and Seed Establishment, Westerham, Kent.

Cloth of Gold, and Golden Fleece Geraniums.

STEPHEN SHILLING has to offer the above Plants, good, strong, and well-established in pots, at 3*s*. 6*d*. per 100.

As it will save a great expense in the carriage, he will supply the same turned out of pots, carefully packed, at the following prices. 25*s*. per 100.; 10*l*. per 1000.

Delivered to the Winchfield and Basingstoke Stations, on the South Western Railway.

Orders executed in strict rotation as received.

North Warnboro' Nursery, Odiham, Hants.—April 18.

New Shrubby Calceolarias.

MESSRS. JOHN AND CHARLES LEE having purchased the entire stock of Seedling SHRUBBY CALCEOLARIAS, raised by Mr. Watson, of St. Alban's, in 1861 and 1862, have selected four distinct colours, which they intend to offer to the Public the first week in May. They are the finest high-coloured Shrubby Calceolarias yet raised, and in point of habit and quality are everything that can be desired for bedding or pot culture. They are decidedly shrubby and of good constitution, with a dwarf spreading habit and good foliage. The flowers rise just above the leaves, forming an even mass of exquisite colouring.

Price 5*s*. each, or 15*s*. the set, as under:—

PRINCESS ALEXANDRA.—Rich orange buff, of very dwarf habit, free blooming and conspicuous. Quite a new colour in Calceolarias.

MAGNIFICENT.—Deep orange flowers, of large size with close mouth, flower stalks short and stiff, a good dense habit, and first-rate in every respect.

PRINCE LOUIS of HESSE.—Rich crimson flowers of medium size, free blooming, habit very dwarf and showy.

FIREFLY.—Intense orange scarlet flowers of good size, free blooming dwarf habit, the brightest colour yet raised.

Terms to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

New White Verbena, White Lady.

B. W. KNIGHT, FLORIST, &c., Battle, Sussex, begs to offer the above splendid variety. It is the best white yet produced; the blooms are large, of a pure white with primrose eye, pips even and smooth, large truss well up in the centre, free grower, a useful variety either for bedding or exhibition. It can with confidence be depended upon for all purposes. Plants the end of April, 3*s*. 6*d*. each.

CATALOGUES of other superb SEEDLINGS sent on application.

New Verbenas and Fuchsias. Double and Single Petunias of 1862.

WM. KNIGHT offers strong well-established Plants of all the best varieties of the above for Bedding or Exhibition, having been one of the most successful exhibitors of the above. Nothing but first-rate proved flowers in their classes are offered. VERBENAS, 5*s*. per doz.; FUCHSIAS, 6*s*. per doz.; PETUNIAS, 6*s*. per doz.

Floral Nursery, Hailsham, near Hurst Green, Sussex.

New Verbenas and Geranium.

RODERICK ELPHINSTONE, Sprowston Nursery, Norwich, respectfully begs to intimate that he intends sending out on May 1st, the following SIX VERBENAS; they were selected out of 2000 grown by himself, and he has no hesitation in saying that for size, shape, and substance, combined with compact habit, they will prove themselves universal favourites, both for Bedding and Exhibition purposes. Price 3*s*. 6*d*. each, with the usual allowance to the Trade:—

PRINCE OF WALES.—Bright rose, of extraordinary size, with large yellow eye; strong compact growth.

PRINCESS OF WALES.—Light, or Cobalt blue; of extra size, shape, and substance; clear white eye; of large size, a strong compact grower, and very sweet scented.

GEM OF THE EAST.—Brilliant crimson, large white eye; dwarf compact habit, extra size, form, and substance.

MRS. MEADE.—Crimson-purple, with a light eye, surrounded with prisms of a darker purple; new in colour.

ALEXANDER.—The most compact and free flowering scarlet ever offered, and for the flower garden will prove a decided acquisition.

ANNIE.—Fiery crimson, fine white eye surrounded with a dark ring, a fine show variety.

BEDDING GERANIUM FIREBRAND.—Is of the Nosegay section, habit most desirable; dwarf and compact, with small flat foliage. The bloom, which is shown well above the foliage, is of a bright blood colour; a profuse bloomer. It obtained the following Certificates of Merit:—

First-Class Certificate awarded by the Norwich and Norfolk Horticultural Society, June, 1862.

First-Class Certificate awarded by the Colchester and East Essex Horticultural Society, July, 1862.

First-Class Certificate awarded by the Ipswich Horticultural Society, July, 1862.

Plants, 30*s*. per dozen; single plants, 3*s*. each.

Splendid New Double Fuchsia Grand Admiral.

GEORGE WHEELER, NURSERYMAN, Warminster, Wilts, will be prepared to send out the above the first week in May. Tube and sepals bright crimson scarlet, sepals broad and well reflexed, corolla deep violet purple, large and full, a most profuse bloomer, the branches curving very gracefully, makes the habit unexceptionable. It has been declared by the best judges to be the finest double Fuchsia ever offered either for Exhibition or Greenhouse Decoration.

G. W. feels confident it will give general satisfaction. Price 7*s*. 6*d*. each.

20,000 Indian Azaleas.

WILLIAM BARNES has the above to offer for Sale, of all the known varieties worth growing (both English and Continental), sizes varying from 1 foot to the noble specimen of 6 feet in height and 3 feet 6 inches in diameter, all in the most perfect state of health and vigour, and models in form.

Intending purchasers of this beautiful tribe of plants, will on inspection of those grown by W. B., at once see the precedency of the English stock over the Foreign one. Those grown and grafted in England on the proper stock are doubly vigorous, bloom quite as protusely, and the flowers are of much more perfect form and colour. W. B. has not the slightest wish to depreciate the continental culture of the Azalea, he merely invites the public generally to an inspection of his plants. All doing him the favour of a visit will have ocular demonstration of the advantage gained by grafting the Azalea in this manner, on a stock very little known (if at all) to any one with the exception of W. B., who discovered it after many years of practical experience and observation, and has proved it to be the stock for Indian Azaleas to flourish upon.

Many of the beautiful specimens which have been exhibited (and obtained prizes) at the Metropolitan and Provincial Shows, were grown at this Nursery.

Prices on application.

Camden Nursery, Camberwell, S.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

WELLINGTONIA GIGANTEA.—The attention of the Nobility, Gentry, and the Trade, is invited to the largest stock of 1-year SEEDLING PLANTS in the Kingdom, established in single pots and fit for Spring planting. Price per dozen, 12*s*.; per 100, 3*l*. 10*s*. A sample free by post for 12 stamps.

J. HENCHMAN, Edmonton, London.

Green Hollies.

CORNELIUS WHITEHOUSE, Brereton Nursery, Rugeley, Staffordshire, offers an immense stock of well-grown healthy extra Transplanted HOLLIES, exceedingly well-rooted, from 12 to 15, 15 to 18, 18 to 24, 24 to 30 inches. Also very handsome SPECIMEN PLANTS from 3 to 5 feet; also ENGLISH YEWS from 2 to 2½ feet, 2½ to 3 feet and upwards. The above growing on ground to be cleared for other stock, the price will be liberal. Trade price on application.

The Exotic Nursery, Sculcoates, Hull.

E. P. DIXON AND SONS have much pleasure in offering the following CHOICE PLANTS, which cannot fail to give every satisfaction:—

CALADIUM (ALOCASIA) LOWI, a charming ornamental foliage plant. 31*s*. 6*d*. each.

STOVE.	*s.*	*d.*
Alocasia metallica ..	15	0
Caladium argyrites ...	1	6
,, Belleymei ..	2	6
,, bicolor superba ..	1	6
,, discolor	1	6
,, Chantinii	2	6
,, Wightii	2	6
The six varieties for 10*s*.		
Coleus Verschaffelti ..	1	0
Croton variegatum ..	1	6
Chameranthemum Beyrichii	5	0
Clerodendron Thompsonii	3	6
Dracæna ferrea	2	6
,, terminalis	2	6
Eranthemum verbenaceum	3	6
Handsome variegated foliage.		
Eucharis amazonica ..	2	6
Gardenia radicans ..	2	6
Nidularium Meyendorfi	7	6
Reichardia alba maculata	5	0

	s.	*d.*
Vriesia splendens ..	3	6
Xylophyllum latifolium	1	6
FERNS.		
Gymnogramma Peruviana argyrophylla ..	2	6
Pteris cretica alba lineata		
12 choice greenhouse Ferns for .. 15*s*. &	18	0
12 choice hardy Ferns ..	12	0
Struthiopteris germanica	5	0
GREENHOUSE.		
Aphelexis macrantha purpurea		
Aphelexis humilis superb		
Acacia Drummondi ..	1	6
Blandfordia nobilis ..	5	0
Chorozema Laurenciana	1	6
,, varium elegans ..	1	6
Centaurea argentea ..	2	6
Dracophyllum gracile ..	1	6
Erica Mediterranea alba	1	6
,, Cavendishii ..	1	6

GNAPHALIUM LANATUM, a woolly-leaved edging plant; 6*s*. per dozen, 42*s*. per 100.

BALLOTA NIGRA, a variegated edging plant. 4*s*. per doz.

Choice Pelargoniums, Fuchsias, Bedding Plants, &c.

Exotic Nursery, Sculcoates, Hull.

NEW HARDY BEDDING PLANT,

Pentstemon compactum nanum (Wemyss).

STUART AND MEIN have much pleasure in offering this very desirable variety. It was awarded a Certificate by the Floral Committee of the London Horticultural Society at its Meeting, Oct. 8, 1862, and is thus noticed in the *Gardeners' Chronicle*, Nov. 15, 1862:—"One called Compactum was particularly remarkable for its sturdy compact growth, its abundant blossoms, and its deep crimson colour, which had more of richness in the hue than commonly occurs amongst these plants." It was bedded last season, and attracted universal admiration. Its compact dwarf habit, attaining not more than 12 inches, and the profusion and brilliancy of its colour, recommend it as a most desirable bedding plant, particularly in cold wet seasons like the last, when Verbenas and other tender plants almost universally failed.

The following among others saw it in flower the past season:—

"When I saw your dwarf Pentstemon compactum nanum about the middle of October, I was much pleased with its dwarf compact habit, fine dark green foliage, and showy crimson flowers, when (as to flowers) the Geraniums, Calceolarias, and Verbenas were all gone. It will undoubtedly prove a great acquisition to the present stock of bedding plants." JOHN SMITH, Gardener to his Grace the Duke of Northumberland, Syon House.

"I was exceedingly pleased with your Seedling Pentstemon compactum nanum when I saw it in flower in September. I had not previously seen any other variety to be compared to it, and fully believe it will prove a first-rate bedder." WILLIAM DODDS, Gardener to Sir J. H. Greville Smyth, Bart., Ashton Court.

Plants sent out first week in May, 12*s*. per doz., or 50*s*. per 100. Usual discount to the Trade.

STUART & MEIN, Rosebank Nurseries, Kelso, N. B.

Choice Gladioli.

WM. CUTBUSH AND SON can supply the most choice kinds in strong flowering Bulbs, selection being left to them, as follows:—

No. 1 Collection.—100 Bulbs in 50 of the most choice and handsome varieties, with names. 5*l*.

No. 2 Collection contains 100 Bulbs in 30 ditto, ditto, 3*l*. 15*s*.

No. 3 Collection contains 100 Bulbs in 25 ditto, ditto, 2*l*. 10*s*.

Fine Selections will be supplied at 9*s*., 12*s*., 18*s*, to 30*s*. per dozen.

For description, &c., see CATALOGUE, free per post.

Highgate Nurseries, London, N.

CONSERVATORY PLANTS.—A private gentleman has a number of ORANGE, LEMON, PALM, and other CONSERVATORY and HOTHOUSE TREES and PLANTS to DISPOSE OF on moderate terms, as they have outgrown him in number and size.

Apply to the Rev. J. C. D., Messrs. Sawyers, 1, Castle Court, Birchin Lane, London, E.C.

To Noblemen and Gentlemen.

TO BE DISPOSED OF, 100 good and clean SUCCESSION PINE PLANTS, sorts, chiefly Old Jamaica, with White Providence, Enville, St. Vincent, Queen, and others. Also about 100 more PINE PLANTS, of smaller size. The lot would be a valuable acquisition to any one, being thoroughly free from bug and white scale.

Apply by letter to A. Z., Post Office, Southwell, Notts.

JEAN VERSCHAFFELT begs respectfully to announce that he is now taking orders for the two following new INDIAN AZALEAS, which he will send out for the first time in May next. Full description of the same may be found in J. V.'s NEW CATALOGUE, to be obtained on application either to himself or to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London:—

AZALEA INDICA SECRETAIRE CLAUS (J. V.), 7*s*. each.

AZALEA INDICA VICOMTE DE FORCEVILLE (J. V.), 10*s*. each.

One Plant over on every three to the Trade.

Early Orders are solicited, to be directed to JEAN VERSCHAFFELT, Nurseryman, 43, Rue de la Caverne, Ghent, Belgium.

New Plants.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, will be ready to supply during next May the following interesting NOVELTIES, which he can recommend as first-rate:—

10 New PETUNIAS of Mr. Rendatler and others for 7*s*. 6*d*.
10 ,, FUCHSIAS of Mr. Cornelissen for 30*s*.
12 ,, PENTSTEMONS for 10*s*. 6*d*.
12 ,, PHLOXES, superb, for 10*s*. 6*d*.
20 ,, Italian-striped VERBENAS, extra, of 1862, for 21*s*.
12 ,, ,, ,, for 1863, 21*s*.
12 ,, LILLIPUTIAN DAHLIAS of 1862, 21*s*.
12 ,, ,, ,, for 1863, 42*s*.
PHLOX TRICOLOR, 5*s*.
DIELYTRA SPECTABILIS ALBA, 21*s*.
LOPHOSPERMUM SCANDENS GRANDIFLORA, 3*s*. 6*d*.

Early orders are solicited, and will be sent in strict rotation.

Choice Ferns, &c.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer at very reasonable terms the following in good healthy plants:—

LOMARIA DISCOLOR, at 18*s*. per dozen.
WOODWARDIA ORIENTALIS, 18*s*. per dozen.
GYMNOGRAMMA LUTEA ALBA, 18*s*. per dozen.
PTERIS CRETICA fol. ARGENTEIS, 6*s*. per dozen.
THUJA VERVAENEANA, 18*s*. per dozen.

N.B.—A. V. G. begs to say that his new hardy large flowering RHODODENDRON, AUGUSTE VAN GEERT, of which a drawing can be seen at his Agent's, Mr. R. SILBERRAD, Harp Lane, London, will be sent out next September. Good plants at 7*s*. 6*d*. to 21*s*. each. Orders can now be booked.

LOUIS VAN HOUTTE'S NURSERIES, at Ghent, Belgium.—The CATALOGUE No. 96, containing all kinds of NOVELTIES in HARDY, GREENHOUSE, and STOVE PLANTS, is to be had from Messrs. R. SILBERRAD & SON, 5, Harp Lane, London.

☞ Number IV. of the XVth Vol. of VAN HOUTTE'S "Flore" is published. It contains LILIUM AURATUM (in folio), the new ITALIAN STRIPED VERBENAS (one plate, the following will appear in Number V.; now in the press). STENOGASTER CONCINNA, FORTUNE'S NEW STRIPED BAMBOO, PRUNUS TRILOBA, and CLERODENDRON THOMSONÆ, &c. Price for Great Britain, free by post, 1*l*. 12*s*.

A FEW EXTRACTS FROM LOUIS VAN HOUTTE'S PRICE LIST, No. 96

HOTHOUSE.

ALOCASIA
macrorhiza fol. var, 7*s*. 6*d*. to 21*s*.
metallica, 20*s*.
zebrina (FLORE), 60*s*.
Strong plants.
AMARYLLIS
fulgida flore pleno (FLORE), 16*s*.
ARISTOLOCHIA [2*s*. 6*d*.
ornithocephala (FLORE),
ATACCIA
cristata (FLORE), 7*s*. 6*d*. to 40*s*.
BILLBERGIA
bivittata, 7*s*. 6*d*. to 10*s*. 6*d*,
fasciata fol. vittatis, 40*s*.
gigantea, 40*s*,
Leopoldi, 2*s*. 6*d*.
Libomana (FLORE), 2*s*. 6*d*.
Rohamana, 10*s*. 6*d*., &c.
CALADIUM, all kinds.
CANNA
iridiflora (FLORE), 20*s*.
CLIVIA
cyrtanthiflora, 4*s*. to 30*s*.
CRINUM
giganteum (FLORE), dwarf blooming, 4*s*.
DRACÆNA
versicolor stricta (FLORE), splendid, with large deep carmine-striped leaves, 20*s*., &c.
MUSA [160*s*.
vittata (true), very strong,
PANDANUS
Candelabrum, 4*s*. to 20*s*., &c.
STRELITZIA
Nicolai (FLORE), 40*s*. to 160*s*., &c. &c.

HOTHOUSE—*continued*.

THEOPHRASTA
imperialis, very strong, 120*s*. to 320*s*., &c. &c.
BEGONIAS, all the best kinds
FERNS, hot and greenhouse.
GESNERIACEOUS PLANTS.
ORCHIDS.
PALMS.

GREENHOUSE PLANTS.

CACTUSES.
CANNA, a very extensive stock of the finest novelties.
CEPHALOTUS, a stock.
COLEUS, a black-leaved novelty, with a very distinct green edge.
CONIFERS of all descriptions.
CYCLAMEN, by the hundred and thousand.
CYPRIPEDIUM CALCEOLUS, in quantities.
GUNNERA SCABRA, a large stock. A plate is in preparation to be given in the "Flore."
LOBELIA, the finest kinds.
PÆONIES, tree and herbaceous.
PELARGONIUMS, all the novelties.
PETUNIAS, all the novelties.
PHLOXES.
PRIMULAS.
SALVIAS.
VERBENAS, English, French, and striped from Italy.
FERNS, hardy.
PERENNIALS, striking novelties.

J. LINDEN'S ESTABLISHMENT for the INTRODUCTION of NEW PLANTS, Royal Zoological and Horticultural Gardens, Brussels.

The NEW CATALOGUE for 1863 is just published, and contains a great number of newly introduced plants.

Agents in London, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C., who will forward the Catalogue on application.

NEW DAHLIAS.—On and after April 20, vigorous, hardy, and strong-rooted Specimens of our new picked sorts of this favourite Flower will be ready for transporting in pots. Lists of prices, with a description of the various sorts (GRANDIFLORA and LILLIPUTIANS—the latter principally for pots in small gardens) may be had on application, by prepaid letter, to our Agents, Messrs. STREET BROS., 11, Serle Street, Lincoln's Inn, London, W.C.

Twelve Sorts, selected by us, of these magnificent varieties, for 1*l.* 16*s.*, when ordered direct, by post-paid letter, from the Establishment mentioned below. The whole Collection (33 sorts) for 6*l.* The usual allowance to the Trade.

Horticultural Establishment of H. LAURENTIUS, Leipzig, Saxony.

TO THE TRADE.—Last NOVELTIES at low prices.

	£	s.	d.
ANEMONE JAPON. HYBR. HONORINE JOBERT, beautiful novelty, pure white flowers, as large and abundant as the red one, per doz., 15*s.* .. per 100	5	0	0
ASPIDIUM FRIZELLIÆ, strong plants, .. per doz.	0	12	0
per 100	4	0	0
CHEILANTHES BORSIGIANA, very charming, rarest and finest of all the Gold Ferns; according to size, per doz. .. .. 2*l.* to	4	0	0
CYSTOPTERIS OBTUSA, per doz., 8*s.*.. per 100	2	0	0
GERANIUM ZONALE EUGÉNIE MÉZARD, undoubtedly one of the best novelties of this season; bright salmon, large white eye, white borders, fine large truss, extra .. .. .. per dozen	1	0	0
GYMNOGRAMMA HYBRIDA DAVALLIÆFOLIA; this new, very pretty, and distinct variety, per doz.	1	5	0
DITTO STELZNERI; this magnificent new hybrid, according to size each .. .. 5*s.*, 10*s.*, and	1	0	0
LOMARIA PUNCTATA; young plants of this rare and fine Fern .. .. per dozen	1	10	0
LYGODIUM MEXICANUM, one of the finest climbing Ferns .. .. per doz.	0	16	0
PETUNIA, best French novelties of 1863; 12 beautiful single flowering sorts, and 10 double flowering ones, Madame Bretagne, Madame Lemoine, and the famous papaveracea amongst them; the 22 sorts ..	1	0	0
PENTSTEMON, do. do., 8 splendid new sorts; the set at	0	10	0
VERONICA, Wm. Henry Jacotot, Gloire de Lorraine, and Anne de Beaujen; the set of these three splendid new sorts	0	5	0
IN STRONG PLANTS.			
GYMNOGRAMMA GRACILIS VAR. .. per doz.	0	10	0
,, LANATA .. ,,	0	7	6
,, LAUCHEANA .. ,,	0	10	0
PHEGOPTERIS REFRACTA .. .. ,,	0	16	0
PTERIS TRICOLOR .. .. .. ,,	0	7	6
,, CRETICA FOL. VAR. .. .. per 100	1	0	0

STELZNER & MEYER, Ledeberg Nursery, Ghent, in Belgium.

Cabbage Plants.

H. AND R. STIRZAKER can supply in any quantity fine DRUMHEAD CABBAGE PLANTS, EARLY CURLED SAVOY, CAULIFLOWER, &c., RED for Pickling, all Autumn sown.

Also many thousand ENGLISH YEWS, PORTUGAL and COMMON LAUREL, in sizes from 1½ to 5 feet, will move with fine roots, and good furnished plants. Prices on application.

The Nurseries, Lancaster.

Cabbage Plants.

W. VIRGO and SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 3*s.* per 1000:—

EARLY YORK CABBAGE	EARLY NONPAREIL
,, BATTERSEA	DRUMHEAD
,, BARNES	

RED CABBAGE, 4*s.* per 1000. All strong, healthy, and well rooted.

Wonersh Nursery, near Guildford, Surrey.

GRAYSON'S TRUE MORTLAKE GIANT ASPARAGUS, grown on the ground where the late Mr. GRAYSON brought it to such perfection, so that Grayson's Asparagus is preferred everywhere.

Seed saved from the Mortlake Beds .. 6*d.* per oz.
Very fine Plants, 2 years old .. .. 4*s.* per 100.

This is the best month to plant, as I have satisfactorily proved.

F. R. KINGHORN, Sheen Nursery, Richmond, S.W.

HYBRID SEEDLINGS.—A gentleman, curious in raising SEEDLING POTATOES from the best sorts, has a few Quarts to spare; they are small but sound, 3 years old, and have been proved of excellent quality; he has also a few dozen FUCHSIAS from the best double and white varieties carefully hybridised, and some of the finest strain of Red and Blue GLOXINIAS, which if well grown, will bloom this season.

For price and particulars, apply to X. Z., Emsworth, Hants.



FARM SEEDS

OF GENUINE QUALITY

(at Market Prices).

Carriage Free.

RICHARD SMITH,

SEED MERCHANT,

Worcester.

Agricultural Seeds.

JOHN K. KING, SEED GROWER, Coggeshall, Essex, (Established 1793), has now ready for delivery from his genuine carefully selected roots,

YELLOW GLOBE MANGEL WURZEL.
KING'S CHAMPION ESSEX ORANGE GLOBE MANGEL WURZEL.
RED GLOBE MANGEL WURZEL.
ELVETHAM LONG RED and LONG YELLOW.
SKIRVING'S SWEDE TURNIP and PURPLE-TOP.

The above sorts have all been proved to grow well.

PRICED LISTS with testimonials post free on application.

Turnip and Mangel Wurzel Seed.

H. AND F. SHARPE can supply the Trade with the following Varieties, true to name, all of their own growth, new and genuine, and on very advantageous terms.

TURNIP.	TURNIP.
Improved Purple-top Swede	Lincolnshire Red Globe
Champion do.	Improved Green Norfolk
Skirving's Improved do.	Fine White Stone
Marshall's Improved do.	
Yellow Tankard	MANGEL WURZEL.
Pomeranian White Globe	Elvetham Long Red
Drummond's Early Field	Fine Orange Globe
Yellow	,, Long Yellow
Green-top Scotch	,, Red Globe

Seed Growing Establishment, Wisbech.

NEW HARDY WHITE SWEDE.—The Favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills. Grows rather coarse on some soils or when sown early; but it is very productive, hardy, and it is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor land.

Seed 1*s.* per lb., or 42*s.* per bushel.

Supplied by RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Skirving's "King of the Swedes."

WILLIAM SKIRVING, Queen Square, Liverpool, begs to acquaint the Farmers of the United Kingdom, that he has fixed the price this season for the Seed of his new variety of SWEDE at 1*s.* 3*d.* per lb., bags included.

W. S. can with confidence recommend this variety of Swede as the best now in cultivation, in every respect. This assertion is made after several years' experiments with every sort of Swede known.

The Seed of this variety having all been grown on his own Farm, he begs to say it can only be had direct from himself, this being the second year of its introduction.

All other sorts of Farm Seeds of the most superior quality, at their present market value.

International Exhibition. Prize Medals 1851 and 1862,

AWARDED FOR "EXCELLENT SEED CORN AND SEEDS," TO

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED MERCHANTS and GROWERS, Basingstoke, Andover; and 89, Seed Market, Mark Lane, London. E.C.

Samples of all kinds of AGRICULTURAL SEEDS and SEED CORN, sent post free on application.

To Seedsmen and Others.

THOMAS AYRES, SEEDSMAN and GROWER, Biggleswade, Beds, begs to offer the following SEEDS of his own growth of 1862, viz:—

WHITE SPANISH ONION SEED,
MANGEL WURZEL SEED, various kinds.
SWEDE, and COMMON TURNIP, ,,
SEED POTATOES of the following varieties:—EARLY ASH LEAF KIDNEY, MYATT'S PROLIFIC do., EARLY SHAW and REGENTS.
SCARLET RUNNER BEANS (English grown).

A PRICE LIST forwarded upon application.

Munster Farm, Fulham.

SEA KALE SEED being scarce this season, has induced me to offer the SEA KALE SETS for next winter's Forcing for making fine large crowns, which can be had at 10*s.* per 1000. The Trade liberally supplied. Also a large quantity of DELPHINIUM FORMOSUM for Sale. Fine 2-year old plants at 3*s.* per dozen. Trade supplied liberally.

WILLIAM BAGLEY.

NEW BEDDING GERANIUM, "LITTLE DOT."—"The Doctor's Boy" has placed the SALE of the above NEW GERANIUM in my hands. 20 per cent. of the proceeds to go towards helping the Distressed Lancashire Botanists. Two-year-old Plants, with plenty of cuttings on, will be sent out at 5*s.* each, and autumn-struck plants at 14*s.* per dozen, or 1*s.* 6*d.* each.

"'Little Dot' is the most dwarf I have seen of the Lucia rosea breed; it is also the best horseshoe leaf I have seen in that strain, and it is the most profuse bloomer I have yet seen of that much admired section of the bedding classes."—D. BEATON, in *Journal of Horticulture*, page 691, Dec. 2, 1862.

N.B. The Trade supplied.

JOHN HAGUE, 36, Mount Street, Ashton-under-Lyne.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; second quality, 6*s* per ton, put on the rail at Reigate. PEAT SOILS, LOAM, &c. The Railway rates are lower when not less than 4 tons are conveyed in a Truck.

W. SHORT, Reigate Heath, Surrey.

REIGATE SILVER SAND, which is known by its superior whiteness and fine quality, and is much used in the Propagation and Growth of Greenhouse Plants, &c., in Bags, delivered to any of the railway carriers or wharfs in London, in not less than Half-Ton lots, at 2*l.* per Ton.

All orders and remittances to be addressed to JAMES GAWKROGER, 21, Union Street, Halifax, Yorkshire.

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.

Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.

Can be obtained through the principal Nurserymen and Seedsmen in England.

A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.

PAGE & TOOGOOD, Seed Merchants, Southampton.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by

PRICE'S PATENT CANDLE CO. Limited.

NEW PLANTS FOR 1863.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Has much pleasure in offering the following NOVELTIES for the first time, to be sent out after April 20:—

New Achimenes.

The following choice varieties are the seedling productions of that successful gardener, Mr. Parsons, of Welwyn, and they will be found great acquisitions to this beautiful class of plants, and quite equal to the descriptions given:—

ACHIMENES MAUVE QUEEN.—This splendid variety is, without exception, the finest of all that useful and most desirable class of summer-flowering plants; a great improvement on longiflora major; producing an abundance of beautiful large mauve-coloured flowers, with a conspicuous light chocolate eye, splendid form, and of extraordinary waxy substance. Was exhibited by the Raiser at the Floral Committee of the Royal Horticultural Society, and was awarded a First-class Certificate. Figured in the "Floral Magazine," November, 1862. Price 10*s.* 6*d.* each.

ACHIMENES CARMINATA ELEGANS.—Another beautiful variety, and is, without doubt, the finest of the small and free-flowering sections, producing spikes 18 inches in length; being of good branching habit, is capable of producing specimens 3 or 4 feet in diameter, thus making it a charming object for the, summer and autumn months. Price 7*s.* 6*d.* each.

*** Coloured Illustrations of each of the above by ANDREWS will be forwarded in exchange for six postage stamps.

New Petunias.

The following valuable varieties were raised by Mr. Holland, of Isleworth, and are a small collection selected from a large quantity of Seedlings. They are confidently recommended for general excellence, being great improvements on all others previously offered.

PETUNIA CRIMSON GEM.—A compact branching and free growing variety; flowers of a soft velvety crimson, with dark throat; of great substance and fine form; an improvement on Phaeton and all in that way. This is, without exception, the highest coloured Petunia yet offered. Received a First-class Certificate from the Royal Botanic Society, May, 1862. Price 5*s.* each.

PETUNIA FLOWER OF THE DAY.—This remarkable flower has four broad stripes of pure white, and four bright purple above, equally divided; very constant and beautiful. Received a First-class Certificate from the Royal Botanic Society, May, 1862. Price 5*s.* each.

PETUNIA ROSA BELLA FORME.—A free flowering and shrubby variety, of first-class habit for bedding and other purposes, being of short jointed growth; producing an abundance of beautiful bright Magenta flowers, with a clear white throat, of great substance and perfect form. This will, without doubt, prove to be the best bedding Petunia yet offered. Price 5*s.* each.

*** Coloured Illustrations of Petunia Rosa Bella Forme, and Flower of the Day, by ANDREWS, will be forwarded in exchange for six postage stamps.

New Zonale Geranium.

CONQUEROR OF EUROPE (HOLLAND).—Beautiful soft carmine; fine form and substance; extra large truss; long flower stalks, producing enormous heads of bloom well above the foliage; good and compact habit; fine for pot culture Was awarded a First-class Certificate at the Royal Horticultural Society's meeting, June 1862. Price 5*s.* each.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

Notice.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS), HORTICULTURAL VALUER, begs to inform his friends and the public that he has REMOVED from Priory Road, Wandsworth Road, to No. 1, Devonshire Terrace, Fulham Road, S.W.

NEW MELON, PRINCESS ALEXANDRA.—A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1*s.* per packet.

JAMES CARTER & Co., 237, 238, & 261, High Holborn, W.C.

NEW PRIZE MELONS, at 1*s.* 6*d.* per packet.

Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria.

For descriptions see GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

EXTRA STRONG FRUITING VINES.—All the leading varieties, from Eyes, with stout well ripened rods, for FRUITING in POTS this YEAR. Price, from 7*s.* 6*d.* each; smaller, for Planting-out, from 3*s.* 6*d.* each. A reduction in price will be made to large purchasers.

"We can especially recommend the above, our strong Vines having for some years given unqualified satisfaction."—*Vide* Leading Article in *Gardeners' Chronicle* for December 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries, Chester.

FLOWER SEEDS, FREE BY POST.

				s.	*d.*
100 packets of the most Showy HARDY and HALF-HARDY varieties	..	..	..	20	0
50 ditto	ditto	ditto	..	10	0
25 ditto	ditto	ditto	..	5	0
12 ditto	ditto	ditto	..	2	6

WM. WOOD & SON, Seed Merchants, Maresfield, near Uckfield, Sussex.

Old Cheshunt Nurseries, Herts, N.—Roses.

PAUL AND SON have the pleasure to announce that their NEW HYBRID PERPETUAL ROSE, LORD CLYDE, will be ready for delivery in April next, at 7*s.* 6*d.* each. Usual allowance to the Trade when three are taken. A Coloured Plate, by Andrews, post free for 12 stamps.

The NEW ROSES of other Raisers will be ready in March.

They have still to offer fine Home-grown STANDARD and DWARF ROSES.

DESCRIPTIVE LISTS of the New Roses, Gladioli, and Genuine Seeds now ready.

New Roses.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites attention to the following NEW ROSES, which will be ready for delivery very shortly.

LORD HERBERT, H.P.—Rosy carmine, the petals reflexing at the summits in the way of Beauty of Waltham, large, full, and finely formed, and altogether of first-rate excellence. 7*s.* 6*d.*

LORD MACAULAY, H.P.—Velvety crimson, in the way of General Jacqueminot, but brighter in colour, thicker in the petal, and more double. The flowers are of good average size, produced abundantly and in rapid succession; the habit is good, and foliage handsome. 7*s.* 6*d.*

MRS. WILLIAM PAUL, H.P.—Bright violet red, shaded with fiery red; flowers constantly, and in clusters, large and full. Raised by M. Verdier, of Paris, the raiser of Madame Furtado, and others of our finest Roses. 5*s.*

RED ROVER, H.P.—Bright red petals, large, thick, and round; flowers abundantly and in succession up to Christmas. Not double enough for a show Rose, but the most effective pillar Rose ever offered. 3*s.* 6*d.*

WILLIAM PAUL, H.P.—A seedling from Senateur Vaisse, but brighter in colour. Raised at Lyons by the raiser of Lord Raglan, Senateur Vaisse, and other first-class sorts. 5*s.*

BEAUTY OF WALTHAM, H.P.—Bright rosy crimson, of good size, form, and substance, and deliciously sweet. This Rose is found to surpass the description originally given of it. 3*s.* 6*d.*

All the new French Roses, 3*s.* 6*d.* to 5*s.* each, or 42*s.* per dozen. The best of the old Roses at lowest advertised prices. The plants are well established, and in the finest possible health.

PRICED CATALOGUE free by post.

Nurseries and Seed Warehouse, Waltham Cross, N.

Grass Seeds for all Soils.

SUTTON AND SONS have one of the largest stocks in Europe of the PERMANENT NATURAL GRASS and CLOVER SEEDS, which they mix expressly to suit the soil for which they are required.

The following letter has been received, besides many others:

From Professor LINDLEY, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

PRESENT PRICES ARE—		Per Acre. *s.*	*d.*
Best quality MIXTURES for Laying Down to PERMANENT PASTURE	.. ..	30	0
Cheaper MIXTURES, omitting certain sorts	20*s.* to	26	0
Best quality ditto, for Three or Four Years' Lay	..	22	0
Ditto ditto, for One or Two Years' Lay	15*s.* to	18	6
CLOVERS and fine GRASSES for Renovating Old Pastures	6*s.* to	9	0
Finest LAWN GRASS SEEDS	per bushel	18	0
PARK LAWN GRASS SEEDS	,,	16	0

The First Prize Medal was awarded to SUTTON & SONS for their Grass and Clover Seeds at the Great International Exhibition of Roots and Cereals at South Kensington in October last.

A Copy of Mr. MARTIN SUTTON'S "Essay on Pastures" is sent with each lot of Grass Seeds.

Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.

PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

BEDDING GERANIUMS, 2*s.* 6*d.* per dozen. Twelve dozen choice Bedding GERANIUMS, in 12 varieties, purchaser's selection, for 32*s.* 6*d.*, basket and package included; or any kind separately, at 3*s.* 6*d.* per dozen.

VARIEGATED.	ZONALE.	ZONALE.
Golden Chain	Scarlet Perfection	CrystalPalaceScarlet
Reine d'Or	Lady of Loretto	Blackheath Beauty
GoldenCeriseUnique	Little David	Princess of Prussia
Flower of Spring	Beauté de Meldoise	M. Martin
Alma	Lady Middleton	Mde. Chardine
Hendersonii	Christina	Paul L'Abbé
Bijou	Rose Queen	Imperial Crimson
t. Clair	Scarlet Queen	Model Nosegay
Countess of Warwick	Indispensable	Minimum Nosegay
Shottesham Pet	Bishopstowe Scarlet	Purple Nosegay

All the leading kinds at moderate prices. Price to the Trade on application.

A remittance respectfully requested from unknown correspondents. Post Office Orders to be made payable to ALFRED FRYER, Chatteris, Cambridgeshire.

CARTER'S LIST OF NEW PLANTS FOR 1863.

New Geraniums.

MR. BEATON, the well-known raiser of the improved varieties of Nosegay and other sections of Bedding Geraniums, has selected the undermentioned from his large collection of Seedlings, and recommends them as being some of the most valuable Bedding varieties ever offered to the public; he has placed them in our hands for distribution. The Set of six varieties for 10*s.* 6*d.*

NOSEGAY VARIETIES.

LORD PALMERSTON (BEATON).—This is unquestionably the finest of the whole group of Nosegay Geraniums. It was raised by Mr. Beaton about three years since, and sent by him to be proved at the Gardens of the Royal Horticultural Society and the Crystal Palace, and by the Directors of the respective Gardens was selected from the whole mass of bedding plants to form the most prominent Beds of last Season, where it was universally admired. The flowers are deep crimson, produced in immense trusses in the greatest profusion, as many as 130 pips, or flowers, having been counted on a single truss. As this is a variety that has been thoroughly proved, we are induced to offer large quantities at a cheap rate, so that our customers may plant largely this season.

STRONG PLANTS.

Single plant	2*s.*	3 dozen	32*s.*
1 dozen	18*s.*	4 ,, ...	38*s.*
2 ,, ...	25*s.*	8 ,, ...	63*s.*

SPREAD EAGLE (BEATON).—This is also one of the most profuse blooming of the Nosegay section; colour, deep orange scarlet, with the dwarf habit of Mangles' Silver variegated. The breadth of petal of this and the succeeding variety far exceeds that of any others of the Nosegay tribe, and will doubtless go far to satisfy the exigent requirements of the most particular Florists. Price 2*s.* 6*d.* and 3*s.* 6*d.* each.

MERRIMAC (BEATON).—This is a great improvement on "Imperial Crimson;" it has the additional breadth of petal to which we have before alluded; and in addition to being very useful for Beds and Ribands, it is very effective for Vases, &c. Price 2*s.* 6*d.* and 3*s.* 6*d.* each.

MISS PARFITT (BEATON).—The upper petals of this beautiful variety are deep crimson, the lower glowing scarlet with a white centre or eye; very dwarf and compact habit. Price 2*s.* 6*d.* and 3*s.* 6*d.* each.

ZONALE or HORSE-SHOE-LEAVED VARIETIES.

HELEN LINDSAY (BEATON).—This is a rival of the well known "Christine," which is so extensively used for Bedding purposes in all Public and Botanic Gardens; the colour is a much richer rose, whilst the trusses of bloom are larger, and more profusely produced throughout the season. This variety is also free from the objectionable seeding propensities of Christine (which renders that otherwise admirable kind so very troublesome to keep in good order, beds of it after Midsummer assuming a ragged appearance if the seed pods are not constantly gathered). Its habit is similar to that of "Tom Thumb," leaves slightly zonale. This will be the Gem of Bedding Geraniums this season. Price 1*s.* 6*d.* each; per dozen, 12*s.*

RUBENS IMPROVED (BEATON).—Of this excellent variety it is only necessary to say that it blooms as freely as its progenitor, but with much larger trusses of the same beautiful form and colour; leaves slightly zonale: it has also the additional merit of withstanding well the sun and rain, a quality much needed in the old variety. Price 2*s.* 6*d.* and 3*s.* 6*d.* each.

New Tropæolums.

The undermentioned are decidedly the finest varieties yet offered:—

ELEGANS "OTHELLO."—A beautiful deep maroon coloured variety of the "Crystal Palace elegans," having the same short-jointed habit and profuseness of bloom; when grown in a mass its effect is striking in the extreme. Price, 1*s.* 6*d.* each; per dozen, 12*s.*

KING OF TOM THUMBS.—A variety of the well-known T. Brilliant—habit very dwarf and compact, with a profusion of bright scarlet flowers, thrown well up above the foliage; this variety is quite distinct in colour of flower and foliage from all other varieties of Dwarf Tropæolums: the flower is very similar in shade of colour to Boule de Feu Geranium, and the habit is much more compact than any of the Tom Thumb varieties of Nasturtiums. Price 1*s.* 6*d.* each; per dozen, 12*s.*

Lobelia Paxtoniana.

This valuable acquisition to our Summer Gardens was raised by Mr. Gordon, the indefatigable Superintendent of the Crystal Palace Gardens, and named Paxtoniana by desire of Sir Joseph Paxton, in whose garden (as well as the Crystal Palace Gardens) its merit has been proved. It is a seedling from the well-known true Crystal Palace variety of Lobelia speciosa, quite as robust as its parent, with a much more compact habit. The individual flowers are much larger, with a pure white centre or eye; the outer margin or prevailing colour (blue) more nearly resembling in tint that of the pretty annual, Nemophila insignis, than any other flower with which we are acquainted. It forms a very effective contrast and companion plant with its parent in the decoration of the summer garden, and will be largely used at the Crystal Palace during the ensuing season. Price 9*d.* each; 6*s.* per dozen.

Lobelia Gordoniana.

A very beautiful and effective variety, fully as compact in habit as the well-known L. speciosa; it has a large pure white centre or eye, with a broad margin of intense blue; strongly recommended. Price 9*s.* per dozen; each 1*s.*

Lobelia speciosa alba.

This (in conjunction with the two before-named varieties) has been raised by Mr. Gordon, of the Crystal Palace Gardens, Sydenham, where it will be much employed this season to add to the bedding effects there so much admired. The lower petals, which are very large, are pure white, and the upper just faintly tinged with blue. Price 9*s.* per dozen; each 1*s.*

Echeveria metallica.

A strikingly beautiful succulent plant; has received a First-class Certificate from the Floral Committee of the Royal Horticultural Society; was produced from E. Gibbiflora, and is undoubtedly the finest of its genus. It is a great acquisition to the conservatory or cool greenhouse, as it blooms most profusely throughout the winter, and its dense succulent leaves shine with a lustrous metallic brilliance. Price 7*s.* 6*d.* each.

New Antirrhinums.

The following are undoubtedly the finest varieties of this pretty flower ever offered. Price 1*s.* 6*d.* each; the set of 13 varieties, 12*s.*:—

QUEEN OF YELLOWS.—Yellow, deep orange throat, very showy and good.

COQUETTE.—Upper lips vermilion, shading to scarlet, lower deep yellow, with bright red spots.

VULCAN.—Orange red ground, splashed and marked with crimson.

THE MOOR.—Upper lip orange red, lower crimson with yellow throat.

EMPRESS.—Pure white ground, delicately pencilled with magenta.

MIRA.—Deep rose ground, white throat.

GARIBALDI.—Upper lip deep purple, lower shaded buff, deep orange throat.

ALBA PERFECTA.—Pure white, fine bedder.

EOLA.—White ground, upper lip broadly striped with purple

JUNG BAHADOOR.—Deep crimson, yellow throat.

SHIRZA.—Upper lips light purple, lower white and yellow striped.

ENSIGN.—Upper lips deep crimson, lower light red.

PEREGRINA.—Pure sulphur coloured; one of the best of the yellows.

Streptocarpus Saundersi.

This elegant Greenhouse Plant is by far the finest of its tribe; it was raised by Wilson Saunders, Esq., of Reigate, and flowered most beautifully at Kew in 1861; strongly recommended. Price 7*s.* 6*d.* and 10*s.* 6*d.* each.

New Perpetual-Flowering Pink—"Optima" (Dr. WALLACE).

We have much pleasure in introducing the above extraordinary Pink—an entire novelty, and we believe destined to be the forerunner of a new class of perpetual-flowering Pinks, which will be as great favourites as the Perpetual Carnations and Picotees are for late autumn, winter, and spring decoration in Conservatories and Greenhouses. The above was raised by Dr. Wallace, of Ballynema, an enthusiastic cultivator of all the tribe for the last ten years, and he considers it far superior to any other Pink grown, in form, lacing, colour, and habit, independent of its peculiar qualities as a perpetual bloomer. Dr. Wallace has proved it in his own garden for three years, and it has always remained in bloom until cut off by severe frost. Plants in pots in frames continue blooming all the winter.

DESCRIPTION.—Rich dark purple, very broad lacing, smooth petals of great substance, very bold flower, extraordinary robust habit, and perpetual bloomer. Per pair, 3*s.* 6*d.*; each, 2*s.* 6*d.*

New Petunias.

We can confidently recommend the following as very superior Bedding varieties; we have proved them with several hundred sorts. Price 1*s.* 6*d.* each; the set of 5 varieties, 6*s.*:—

STRIATA PERFECTA.—Deeply striped in the way of Madame Ferguson; the edges are fimbriated in a very novel manner.

COLLEEN BAWN.—Deep scarlet ground, beautifully striped and splashed with white, very effective.

EPHEMERA.—Crimson shaded.

CAPTIVATION.—Light lavender ground, beautifully pencilled with deep maroon.

PANTALOON.—A very curious and beautiful variety, white ground, pencilled with lavender, with green spots on the border, very effective in groups.

PLANT SUPPLEMENT TO

CARTER & CO.'S GARDENERS' VADE MECUM FOR 1863,

Containing FULL LISTS of STOVE, GREENHOUSE, and BEDDING PLANTS, now ready, post free on application.

JAMES CARTER & CO., 237 & 238, HIGH HOLBORN, LONDON, W.C.

Two Hundred and Fifty Guineas in Ten Prizes.



For Five Years Successively His Late Royal Highness the Prince Consort's Prize Cups have been awarded to

SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Bucks Agricultural Societies.

New Seed now ready, 1s. per lb., or 45s. per bushel, carriage free.

Royal Berkshire Seed Establishment, Reading.

CHOICE CAMELLIA SEED, saved from one of the finest Collections in Europe. 1s. per packet.

James Carter & Co., 237 and 238, High Holborn, W.C.

Hybrid Rhododendrons.

W. H. ROGERS, Red Lodge Nursery, Southampton, can offer the above, fine bushy Plants, averaging 1 foot, 20s. per 100; 2 feet, 40s. per 100; and 3 feet, 60s. per 100; also KALMIA LATIFOLIA, strong budded, 6 inches, 10s. per 100, or 80s. per 1000; AZALEA PONTICUM, 1 foot, bushy, 30s. per 100; GAULTHERIA SHALLON, 30s. per 100; and GAULTHERIA PROCUMBENS, 20s. per 100.

ROYAL BOTANIC SOCIETY of LONDON.

AWARDS of PRIZES, APRIL 11, 1863.

6 AZALEAS (Amateurs).

1st, Mr. J. Cross, Gr. to Sir F. H. Goldsmid, Bt., M.P., Regent's Park.
2d, Mr. T. Todman, Gr. to R. Hudson, Esq., Clapham Common.
3d, Mr. G. Taylor, Gr. to C. A. Hanbury, Esq., Belmont House, East Barnet.

6 AZALEAS (Nurserymen).

1st, Mr. C. Turner, Slough, Bucks.
2d, Messrs. J. Ivery & Son, Dorking and Reigate.
3d, Mr. W. Cutbush, Barnet, Herts.

3 NEW AZALEAS of 1860, 1861, and 1862.

1st, Mr. C. Turner, Nurseryman, Slough, Bucks.
2d, Mr. T. Todman, Gr. to R. Hudson, Esq.

12 HYACINTHS (Amateurs).

1st, Mr. A. Carr, Gr. to B. Noakes, Esq., Hope Cottage, North Hill, Highgate.
2d, Mr. G. Taylor, Gr. to C. A. Hanbury, Esq.
3d, Mr. G. Fox, Gr. to R. Gibbs, Esq., Southampton Villa, Highgate Rise.

12 HYACINTHS (Nurserymen).

1st, Messrs. W. Cutbush & Son, Highgate.

6 AMARYLLIS.

1st, Mr. R. Parker, Nurseryman, Tooting, Surrey.
2d, Messrs. W. Cutbush, Nurserymen, Highgate.

12 BRITISH FERNS.

1st, Miss Clarkson, 40, Avenue Road.
2d, Messrs. J. Ivery & Son, Nurserymen, Dorking and Reigate.

6 MISCELLANEOUS PLANTS.

1st, Messrs. J. & C. Lee, Nurserymen, Hammersmith.
2d, Mr. W. Bull, Nurseryman, Chelsea.
2d, Messrs. A. Henderson & Co., Nurserymen, Edgeware Road.
3d, Mr. B. S. Williams, Nurseryman, Holloway.

MISCELLANEOUS and NEW PLANTS.

Silver Medal, Mr. W. Paul, Nurseryman, Waltham Cross, for 8 Boxes of Cut Roses.
Do., Mr. B. S. Williams, Holloway, for Collections of New and Rare Plants.
Small Silver Medal, Mr. W. Paul, Waltham Cross, for 12 Roses in Pots.
Do., Messrs. Paul & Son, Nurserymen, Cheshunt, for 7 Boxes of Cut Roses.
Do., Mr. W. Bull, Chelsea, for Collections of New and Rare Plants.
Bronze Medal, Mr. J. Cross, Gr. to Sir F. H. Goldsmid, for 12 Greenhouse Plants.
Do., Messrs. F. & A. Smith, Dulwich, for 6 Foliage Plants.
Small Bronze Medal, Mr. R. Parker, Tooting, for Collection of Amaryllis.
Do., Mr. W. R. Bragg, Slough, Bucks, for 2 Boxes of Cut Pansies.
First Class Certificate of Merit, Mr. C. Turner, Slough, Bucks, for Azalea Louise von Baden.
Do., Messrs. A. Henderson & Co., for Dracæna Rumphii.
Do., Messrs. A. Henderson & Co., for Tropæolum Ball of Fire.
Do., Mr. W. Paul, for Magnolia Lenné.
Do., Mr. W. Bull, for Anthurium species.
Do., Messrs. F. & A. Smith, for Pandanus elegantissimus.
Second Class Certificate of Merit, Messrs. J. Ivery & Son, for Athyrium Filix-fœm. mucronatum.
Do., Messrs. J. Ivery & Son, for Athyrium Filix-fœm. Iveryanum.
Do., Mr. W. Bull, for Anœctochilus argyræus.
Do., Mr. W. Bull, for Trichomanes membranaceum.
Do., Messrs. E. G. Henderson, for Cupressus Lindleyana alba.
Do., Mr. B. S. Williams, for Aralia Sieboldii variegata.
Do., Mr. B. S. Williams, for Aralia species.
Do., Mr. C. Turner, for Auricula Princess of Wales.

Royal Botanic Gardens, Regent's Park, London, N.W.

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.

LIST OF AWARDS, April 15.

First Class Certificate.

Magnolia Lennè, from Mr. W. Paul, Waltham Cross.
Alocasia zebrina, from Messrs. Veitch & Son, Exeter and Chelsea.
Cheilanthes Borsigiana, from Messrs. Veitch & Son.
Greenovia aurea, from Mr. W. Bull, Chelsea.
Azalea Louise von Baden, from Mr. Turner, Slough.
Retinospora leptoclada, from Messrs. E. G. Henderson & Son, St. John's Wood.

Second Class Certificate.

Cineraria Snowflake, from Mr. Page, gr. to J. M. Strachan, Esq., Teddington.
Azalea Madame Verschaeffelt, from Messrs. Veitch & Son.
Azalea Beauty of Dorking, from Messrs. Ivery & Son, Dorking.
Auricula Ensign, from Mr. Turner.

Commendation.

Valdivia Gayana, from Messrs. Veitch & Son.
Anthurium (sp.) S. America, from Mr. Bull.
Alpine Auricula Supreme, from Mr. Turner.
Pansy Exquisite, from Mr. Turner.
Fancy Pansy Feu de Joi, from Mr. Turner.
Kerria japonica variegata, from Mr. Standish, Bagshot.
Double-flowered Japanese Cherry, from Mr. Standish.

Special Certificate.

To Mr. Turner, Slough; and to Mr. Bull, Chelsea; for plants of Bougainvillæa speciosa, blooming in small pots.

The next Meeting will be held on May 5.

Thomas Moore, Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY.

AZALEA and ROSE SHOW, WEDNESDAY, April 15.

Awards of the Judges.

Class 1.—9 AZALEAS, distinct kinds (Nurserymen).
1st, Messrs. Veitch & Son, Exeter and Chelsea, 2*l.*

Class 2.—9 AZALEAS, distinct kinds (Amateurs)
1st, Mr. Thos. Todman, Gr. to R. Hudson, Esq., Clapham Common, 2*l.*
2d, Mr. M. Higgs, Gr. to Mrs. Barchard, Putney Heath, S.W., 1*l.* 10*s.*

Class 3.—6 AZALEAS, distinct kinds (Open).
1st, Messrs. Veitch & Son, Royal Exotic Nurseries, Exeter and Chelsea, 1*l.* 10*s.*
2d, Messrs. J. Ivery & Son, Dorking and Reigate Nurseries, 1*l.*
3d, Mr. Thos. Todman, Gr. to R. Hudson, Esq., Clapham Common, 15*s.*

Class 4.—6 ROSES, distinct kinds (Nurserymen).
1st, Mr. Chas. Turner, The Royal Nurseries, Slough, 2*l.*
2d, Mr. W. Paul, Nurseries and Seed Warehouse, Waltham Cross, 1*l.* 10*s.*
3d, Messrs. Paul & Son, The Old Nurseries, Cheshunt, Herts, 1*l.*

Class 5.—6 ROSES, distinct kinds (Amateurs).
No competition.

Class 6.—4 ROSES, distinct kinds (Open).
1st, Messrs. Paul & Son, The Old Nurseries, Cheshunt, 1*l.* 10*s.*
2d, Mr. Charles Turner, The Royal Nurseries, Slough, 1*l.*

Class 7.—6 CINERARIAS, distinct kinds (Open).
1st, Mr. H. Lamb, Gr. to Captain Cahill, Southall, 1*l.* 10*s.*
2d, Mr. P. Lamb, Gr. to Miss Thackerwaite, near Southall, 1*l.*
3d, Mr. C. Turner, The Royal Nurseries, Slough, 15*s.*

Class 8.—4 CINERARIAS, distinct kinds (Amateurs).
1st, Mr. H. Lamb, Gr. to Captain Cahill, Southall, 1*l.*
2d, Mr. P. Lamb, Gr. to Miss Thackerwaite, near Southall, 15*s.*
3d, Mr. J. Holland, Gr. to R. W. Peak, Esq., Isleworth, S., 10*s.*

Class 9.—4 GREENHOUSE ACACIAS, distinct kinds.
No competition.

Class 10.—12 AURICULAS, 3 of each kind (Nurserymen).
1st, Mr. Charles Turner, Slough, 1*l.* 10*s.*

Class 11.—8 AURICULAS, 2 of each kind distinct (Amateurs).
1st, Mr. J. Butcher, 1, South Street, Camberwell, S., 1*l.* 10*s.*
2d, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth, 1*l.*
3d, Mr. Thomas Potts, 35, Glengall Grove, Old Kent Road, S.E., 15*s.*

Class 12.—6 ALPINE AURICULAS, distinct kinds (Amateurs).
1st, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth, 1*l.*

Class 13.—6 POLYANTHUS, distinct kinds (Amateurs).
1st, Mr. J. Butcher, 1, South Street, Camberwell, S. 1*l.*

Class 14.—4 CYCLAMENS, distinct kinds (Amateurs).
1st, Mr. James Holland, Gr. to R. W. Peak, Esq., Isleworth, 15*s.*

Class 15.—24 PANSIES, Cut Blooms, 12 distinct kinds (Open).
1st, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth, 10*s.*

Class 16.—8 PANSIES, Fancies, in pots, distinct kinds (Open).
Mr. Bragg, Slough (not for competition) Highly Commended.

Class 17. MISCELLANEOUS COLLECTION of PLANTS in FLOWER.
Extra, Mr. Chas. Turner, for a large collection of Azaleas, 3*l* 10*s.*
1st, Messrs. Veitch & Son, for Collection of Plants in Flower, 2*l.* 10*s.*
2d, Messrs. J. & C. Lee, for Collection of Plants in Flower, 2*l.*
Extra, Mr. W. Bull, for Collection of Fine Foliaged and Flowering Plants, 1*l.* 5*s.*
Ditto, Messrs. Paul & Son, for 8 Boxes of Cut Roses, 1*l.* 10*s.*
Ditto, Mr. William Paul, for 8 Boxes of Cut Roses, 1*l.*
Ditto, Messrs. H. Lane & Son, for Collection of 12 Azaleas, 1*l.*
Ditto, Mr. Daniels, for Bougainvillæa speciosa, 1*l.*
Ditto, Mr. C. Turner, for Collection of 28 Auriculas, 1*l.*
Ditto, Messrs. W. Cutbush & Son, for Collection of 30 Hyacinths, 15*s.*
Ditto, Mr. M. Higgs, for Collection of 6 Lycopodiums, 15*s.*
Ditto, Messrs. J. Ivery & Son, for Collection of 12 Hardy Ferns, 15*s.*
Ditto, Mr. J. James, for Collection of 6 Calceolarias, 15*s.*
Ditto, Messrs. H. Lane & Son, for Collection of 12 Roses in Pots, 15*s.*
Ditto, Mr. J. James, for Collection of 12 Pansies in Pots, 10*s.*
Ditto, Messrs. F. & A. Smith, for Collection of 15 Stove and Greenhouse Plants, 10*s.*

The Gardeners' Chronicle.

SATURDAY, APRIL 18, 1863.

MEETING FOR THE ENSUING WEEK.

Friday, April 24 { Royal Horticultural (Election of Fellows and Ballot for Plants) at S. Kensington 2 P.M.

Although the subjects that usually occupy the attention of our ancient Universities pertain to questions with which the *Gardeners' Chronicle* has no concern, we may perhaps be permitted to offer a few remarks on some extensive works in which Oxford is about to engage, and which contemplate the formation of a magnificent Park in connection with the splendid new Museum that she has recently completed. This building, as many of our readers are doubtless aware, was first thrown open to the public when the British Association for the Advancement of Science met in Oxford in the summer of 1860, and the strikingly picturesque appearance presented by its stately halls, when thronged of an evening by the distinguished guests, will be for ever impressed on the memory of all who were privileged to witness it. With this there will perhaps mingle a certain feeling of regret that a collection of stuffed birds, and beasts, and fishes should now monopolise the space that had seemed so admirably adapted for a réunion of living men; but ere long it may possibly be reclaimed from its present occupants, and permanently devoted to a higher purpose. Indeed, the great popularity of the Curator, Professor Phillips, and the rapidly increasing attendance at his classes and lectures, while it shows that the benefits of the Museum are even now appreciated, points also to the speedy advent of a time when an amount of accommodation largely in excess of what is afforded by the present building will be imperatively required.

We have therefore heard with pleasure that through the exercise of a wise prevision on the part of the Delegates, (the select body to whom Convocation has *delegated* the chief management of the affair), some such eventual extension as that to which we have adverted, has from the very first been kept steadily in view; and hence the easterly side of the building—the only direction in which the contemplated extension could possibly take place—has received no architectural embellishment whatever, and is ready at any time, and without any waste of previous labour, to receive the requisite additions. These ulterior plans then, even if their execution be postponed for a while, must necessarily control in a great degree whatever designs the architect or landscape gardener may propose for the laying out of the ground in the immediate vicinity of the Museum.

Another element in the problem to be solved, and one to which a very influential body in the University would seem to think that all other considerations must succumb, is the provision of extensive cricket grounds. We trust however that the Delegates, while ceding everything that can reasonably be required by the votaries of this truly English game, will not forget that in the laying-out of an extensive park other interests than those of the cricketer will have to be consulted. Its main object, as it would seem to us, should aim at the supply of what in Oxford has long been an acknowledged want, by providing a sort of extensive pleasance, or παραδεισος, in which, excluded from the outer world, the lover of nature or the victim of Euripides may find recreation and refreshment among the thousand beauties of nature and art that in such a situation might readily be combined. Oxford has already her Botanic Garden, and therefore need not disfigure her projected park by attempting the introduction of an endless multitude of trees and shrubs, without any regard to their suitableness for the climate or position. She has also her trim parterres and formal walks in rich abundance; these likewise should be eschewed, except in immediate conjunction with the rectangular mass of the Museum buildings, where anything approaching to a curved line would be altogether out of place. No doubt the combination of these two styles—the natural and the formal—with a graceful and easy transition from the one to the other, will not only require a large extent of ground, but also demand no small amount of judicious arrangement and artistic skill. The former has happily been already secured by the purchase, on behalf of the University, of the land intervening between the Museum and the river Cherwell, and which, added to the dreary field called of old "the Parks," has brought up the total area intended to be included in the operations to 80 acres or thereabouts. Here we have a truly magnificent plateau, on which the formal accessories of the Museum, the vast exigencies of cricket, and the diversified requirements of landscape scenery, may each and all find their appropriate home.

The success of the projected improvements will of course mainly depend upon the amount of skill and taste evinced in the designs selected by the Delegates, and upon the amount of the supplies voted for carrying them into effect; but as we have reason to believe, after a careful inspection of the plans, that they are such as will do honour to the University, so we have every hope that they will neither be stinted nor stunted through the want of the requisite funds. On a future occasion we hope to have the pleasure of communicating to our readers a more exact description of the ground with which it is proposed to deal, and some details of the treatment to be adopted in laying it out.

In our Notices to Correspondents, Dec. 20, 1862, a curious Sclerotium is mentioned, which was produced in great abundance in Cornwall in the Mushroom beds of the Rev. T. Phillpott, in which it occupied a good deal of the space which ought to have produced good Mushrooms.

It is now well known that the productions referred to this genus are not perfect Fungi, but merely the winter or dormant condition of various species, whose perfect form will appear when circumstances are favourable to their development, and then only. Mr. Phillpott, at our request, kindly sent us a further supply for experiment, and we had the pleasure of hearing some few days since that Mr. F. Currey, who has paid so much

attention to these anomalous Fungi, had coaxed the Sclerotium into producing perfect fruit.

The Sclerotium itself presented a curious appearance, consisting of irregular cylindrical masses variously combined together, and anastomosing with each other. The general hue was black, but in parts there was a tinge of green or reddish brown, and the whole was naked and tolerably even. One or two of the most promising specimens were transmitted to Mr. Currey, and after three months sojourning in a damp atmosphere they have produced perfect heads, with large well developed fruit. With our own kept in light soil we have not at present had any success.

The plant turns out to be a *Xylaria*, one species of which is familiar to every gardener from its frequent growth at the base of garden stakes, looking like the snuff of a candle. The *Xylaria* produced under Mr. Currey's auspices proves to be quite new, being allied to *Xylaria pedunculata*, a species which used formerly to be found abundantly in Northamptonshire on rabbits' dung buried in mole hills. That before us has undoubtedly been developed on the dung which entered into the composition of the Mushroom bed, which consisted, as we are assured, simply of horse dung. Mr. Currey will shortly lay figures and a detailed account before the Linnean Society. Meanwhile we feel deeply indebted to Mr. Phillpott for calling our attention to such a curious fact in the history of Mushroom growth, apart from the peculiar interest attached to the species itself. *M. J. B.*

—— Annuals are flowers for the million, and as such will ever hold their place in many gardens, as they will do in the esteem of very many lovers of flowers. This is particularly evident at the present season, when we are besieged by inquiries such as these:—What Annuals do you recommend? Are there any good novelties this year amongst Annuals? What Annuals can we trust ourselves to buy, after having been disgusted with the advertised "choice collections?"

Without making any specific replies, it may, therefore, perhaps, prove generally useful if we just run over the inventory of Annuals, and tick off the most noteworthy amongst them; by doing which we shall doubtless supply the information sought by our correspondents.

Of course everyone would grow Mignonette, and Stocks, and Asters, and few would omit besides Convolvuluses, Larkspurs, and Everlastings. There is not much to choose among the sweet Mignonettes, only one variety which is called large-flowered, and which is rather stronger habited than the ordinary plant, being grown; it is quite immaterial which of these is taken for common use. Among annual Stocks the new Large-flowering German Ten-week, and the new Giant Pyramidal, a few colours in each, will supply all ordinary wants; these last are indeed the finest of all annual Stocks. Of Asters the Dwarf Chrysanthemum-flowered, the Pæony-flowered, and a good quilled strain are all that need be cared for, the interminable "collections" of "splendid" varieties being carefully eschewed. The Convolvulus major is now sold in separate colours if desired, but it looks better mixed for general purposes. Convolvulus minor now yields a rich dark blue form called monstrosus, which is very attractive. Among Larkspurs, after the double-flowered Rocket Larkspur, the most desirable is a double striped-flowered form of the branching kind, called tricolor elegans. Of Everlastings, none compare for a moment with the incurved series, which some seedsmen persist in calling compositum maximum, and whose large, almost globular flower-heads are often of the richest colours.

Besides these, which no one should omit, there are many other annuals of great interest and beauty, of which we may notice a few. Acroclinium roseum has charming rose-pink composite flower-heads, and is of the half-hardy series. Calliopsis tinctoria, one or other of its forms, which vary in colour, and C. Drummondii, which is a yellow with crimson spots round the disk, are amongst the most beautiful of late-flowering composites; and Cosmidium Burridgii, a variety of filifolia, is another equally handsome and of similar character. Clarkia pulchella pulcherrima, and florepleno, both high-coloured, are fine in their way; so are Collinsia bicolor, multicolor, and candidissima, the latter pure white, the two former differently marked with purple. Eschscholtzia crocea is one of the richest and most floriferous of annuals which yield pure intense orange-coloured flowers; so also is Erysimum Peroffskianum, which, however, with its Wallflower-like flowers and habit, is very different from the Poppy-like Eschscholtzia. Gilia tricolor and its different coloured forms are amongst the prettiest of dwarf species; and not far removed from them are the still prettier and showier Leptosiphons, amongst which two or three quite distinct types occur. Linaria bipartita splendida gives a profusion of rich deep purple flowers; as also does a newish form of Candytuft, Iberis umbellata atropurpurea; both of these are acquisitions. Linum grandiflorum, which forms a mass of glowing crimson, should never be omitted in choosing annuals, for it is decidedly one of the best of modern introduction. Of Lupines, those called Dunnettii superbus and hybridus insignis are very handsome, and remarkable in the well contrasted colours of their flower spikes. Malope grandiflora, a rich crimson Mallow, may well be selected for its beauty, as also may Hibiscus africanus, whose flowers are cream colour with a black centre. Nemophila insignis is not beaten, but maculata is very pretty, and there are besides several pretty new varieties in this family, which by the bye requires protection from cats. Phlox Drummondii yields colours of extreme richness, and is every way a most desirable border plant. So are the fine old Portulacas, Thellusoni and splendens, in places which suit them, such as hot dry rockwork. Silene Atocion is one of the prettiest amongst the dwarf pale pink Catchflys, and S. pseudo-Atocion is still more ornamental, of larger growth, and deeper colour. Good double Marigolds, of the giant, or the medium, or the minimum forms, are all especially handsome, but they have the drawback of a scent that is not agreeable to every one. Tagetes signata pumila, another of the Marigold family, forms a particularly elegant dwarf mass, and its orange-yellow flowers are showy withal. Then there is the Tom Thumb breed of Nasturtiums, of which at least the scarlet, the yellow, and the dark crimson are most telling flowers for masses, either in beds or borders. Rhodanthe maculata quite eclipses old Manglesii, lovely as that is. The Viscarias are both graceful in habit and attractive in blossom, especially that called V. oculata splendens. The yellow Canary Creeper, Tropæolum aduncum, is one of the best of common annual creepers, well supported by Major Convolvuluses and Sweet Peas. The varied Marvel of Peru, with its showy and scented blossoms, is another most desirable and pleasant-looking flower. And, finally, there is Zinnia elegans, which in its single state, with mixed colours, is one of the most attractive of the whole series; and in its double form, at least when the strain is a good one, is good indeed.

Here then, are some of the best of the Annuals, old and new, as they stand in our estimation. We have by no means exhausted the list of worthy subjects, but those who have no previous experience to guide them in making a selection, will do well to confine their choice within the limits we have indicated.

—— We regret to have to record the death of the Rev. George Jeans, Vicar of Alford, a most estimable man, and one who has been well known in the floricultural world, not only as an independent and honest writer on floral subjects, but also as a successful cultivator and exhibitor of the Auricula.

SEEDLING FRUITS.

Apricots.—Without the aid of the orchard-house seedling Apricots are tedious to rear, for under the usual mode of cultivation many years may elapse before they come into bearing, and with our usual popular sorts, such as the Moor Park and Peach Apricot, but little variation can be expected. Still, like all seedling fruits, they are interesting. If the stones are planted in pots in the autumn, and placed in a forcing-house in January, the young plants will soon make their appearance, and if frequently shifted into larger pots, they become stout trees of 3 feet in height by the end of the first summer; but to obtain this growth they must have bottom-heat, and be under glass all the first summer of their growth. In the season following they may be grown in the common orchard-house in 10-inch pots, and about the fourth or fifth year they will come into bearing. The great object with the raiser should be to obtain early and late varieties, for no Apricot can excel the Moor Park and Peach in their season. The most interesting additions to our early kinds are some recently introduced Sardinian Apricots (Abricotiers de Sardaigne); these are of the Musch Musch race, the small Turkish or Persian variety now pretty well known, early but too small, and in flavour not rich; besides that it is a shy bearer and delicate grower. One of these "Sardinian" varieties is, however, much superior to two or three others under the same name, as its fruit is larger and it bears abundantly; from this, crossed with the Moor Park, we may expect some valuable additions to early Apricots. The Early Red Masculine, hitherto considered one of our earliest sorts, has produced here a variety paler in colour than its parent, as early, but not larger, consequently it is not worthy of cultivation. The Kaisha has reproduced itself, as has the Large Early, and the Peach.

Apricots, like many other of our long domesticated fruits, seem to form races from which, unless crossed, their seedlings deviate but slightly. Thus those cultivated so largely on the hills of India and throughout the East, are small and firm-fleshed, so that they dry well and form a valuable article of food. Some trees received some years ago from Astracan are remarkable for their wild luxuriant growth, with small leaves and a spreading habit, as if they would even here form themselves into large trees. Tristram, in his "Travels in the Great Sahara," mentions the vast number of Apricot trees grown in the oases, their fruit being used largely, stewed, and forming a valuable article of consumption. Some writer has mentioned the Red Masculine Apricot as the sort grown so largely on the Mediterranean coast of Africa: which, owing to the English sailors devouring them in large quantities whenever they had an opportunity, and thus bringing on dysentery and death, the natives called "Kill-Johns;" as this sort is the most delicate of all the varieties grown here, this seems very probable; they may not be the same varieties, but of the same race. The Breda and Brussels Apricots seem also to form a race, and seedlings adhere very closely to the type; they are not worth the trouble of raising seedlings from here, for, however hardy the trees may be, the early blossoming of the Apricot, unless in warm sheltered sites in the south, makes its cultivation as a standard almost a hopeless task; while the inferior quality of the fruit of the Breda class (unless for preserving) as compared with the Moor Park, renders it unworthy of a place in the orchard house, which seems the situation above all others calculated for obtaining good crops of fine well ripened fruit. A large span-roofed house, say 26 or 24 feet wide and 12 feet high, and well ventilated, will be found best adapted for an Apricot house. In a house of such dimensions the fruit sets freely, and no injury from spring frosts, which in April are often so severe, need be apprehended.

Oullins, a small town in France on the Rhone, is famous for its Apricots, and two or three early varieties cultivated there are found to be of great excellence. One of them, the Early Peach Apricot, is one of our finest early sorts, and yet such is the carelessness of some of the French gardeners that I have, after 10 years application, only recently received the true kind. I certainly received from three or four business friends the "Abricotier Pêche Hâtive d'Oullins," but when the trees bearing the name bore fruit, they proved anything but early. About three years since I fortunately received the true variety, which is nearly as large as the Moor Park, and ripens as early as the Red Masculine and Sardinian; the latter, in 1861, ripened on the 13th of July, and the Early Peach on the 16th. The only large Apricot approaching it in size is the Large Early, which is however very inferior in flavour. Seedlings from this fine variety have been raised here, crossed, it is hoped, with the Peach Apricot, so that we may now look forward to a valuable race of very early Apricots with large fruit.

The hard-fleshed Apricots so much used for food in warm climates may be found worthy of notice even here, for our melting sorts when ripe and full of flavour are too soft for compotes and tarts; a variety called Duc d'Ecully received from Lyons, seems a free-growing and free-bearing variety. *Thos. Rivers.*

FISH AND FISHING.—No. IV.

The weather connected with that grand climax in my Letter III., that great catch of Perch, that marvellous "catch," militated most decidedly against one of the theories of fishing, namely, that "fish would not feed when rain was about to fall;" and it made a deep impression on my mind. Young as I then was, I had begun to study the science of Fishing, and to think of the mysteries of weather in connection therewith. I had learned most of the standing theories, and as a young hand, had had some "views," because the thoughts were also connected with my juvenile propensities for gardening. As experience in fishing grew, so I found that those theories were full of exceptional cases—so full that at last I began to look for a primary cause, a law of nature, far above all those theories for good or bad fishing days. I shall state those theories presently. I have looked for that primary cause for years in vain. I look for it now into my own brain, still in vain. I may wonder and wish to know; but am thrown back upon myself, from a conviction that it requires far higher knowledge than I possess to solve the difficult question, granted that human capacity can ever solve it—

"The wind bloweth where it listeth," &c.

But I have a fancy that a combination of talent perhaps, in one mind, else in a conjunction of minds, may ultimately lead to some good result—not useful to anglers alone; not useful to anglers and horti-flori-, agri-, arbori-culturists, all combined, alone; and not with these combined "those who go down into the sea in ships" alone, but to the whole world—I fancy a careful investigation of this subject as connected with fishing may prove useful practically. At the outset, I admit that we require a singular combination of great-mindedness—the talented meteorologist, electrician, and piscator, all conjoined; and added to these a most patient and persevering observer on all points. Such an one is not to be discovered in a day.

I believe the cause of the many disappointments which the best anglers meet with nine times out of ten, or the converse, the cause of good fishing days, is a subject that has never yet been properly thought upon. It is a subject upon which no work on angling has ever yet ventured to touch, and one which, if you ask the best anglers to solve, you ask in vain. Question: "How is it the fish won't rise to-day?" Answer: "Oh! they are not on the feed." If followed any further as to the why and wherefore, it is "Oh! the water was too low," or "too high," or "too bright," or "too much" or "too little coloured;" "the wind was too low," or "too high;" "there's rain coming," or

"we want rain;" "the river was rising," or "falling;" or "it is too hot," or "too cold!" In fact, a "too" of some kind is the universal refuge:—a cloak which covers the ignorance of us all. If we examine the first assigned cause, viz., "they are not on the feed," we find it to be a mere effect; and if we press for a reason why any one, or more of the "toos" produce the effect, our sagacious one is "dumb-founded!" How strange is this! How disgracefully strange that among the many men of first-rate talent, and men of science, who grace and have graced by their practice this beautiful art, this most delightful pastime,—"the contemplative man's recreation," an art which should teach us to "find sermons in stones, books in the running brooks," and although the effect has been observed since fishes were first sought with line and hook, none have ever turned their thoughts to the investigation of the primary cause. What is it which forbids fish to feed as other animals do? Offer any terrestrial animal food at stated intervals, he will not, be he wild or tame, reject it; but offer a fish "the double refined quintessence of an angel" when you will, you cannot *depend* on his acceptance of it. And yet no philosopher has risen hitherto to investigate so curious an anomaly! It is indeed true that—

> "There are more things in heaven and earth, Horatio,
> Than are dreamt of in our philosophy;"

and it requires more time for experiment, and the aid of far more depth in the profoundest sciences than I possess, to bring so curious a question to its conclusion. To the assistance of other inquiring minds, when I have propounded the question, I look for the beneficial result; and if that is ever arrived at—for the observation of Shakspere applies with even greater truth to the "waters on the earth,"—all I should have to boast of is having incited others to produce it. Shame! shame on us all, that still so little is known of the habits and economy of our prey, that they baffle us at every turn!

Let us consider what we do know and have observed. Fish will sometimes feed well for a week or more together, sometimes for one day, sometimes only for one hour during a week; while sometimes we may fish for many weeks in vain. Terrestrial animals take food every day when they can get it; or, as in the viper tribe, as soon as that which they have eaten is digested. As it is well known that fish never gorge themselves sufficiently to attribute their eccentricity in feeding to non-digestion, their digestive organs being very rapid in their work, we may agree they are essentially different from those other creatures. They are not hungry so frequently, or there is something we have yet to find out, which so operates on them, being hungry, that they will not or cannot take food. To suppose them so highly gifted with the powers of forbearance that they will not, is unnatural; so we may decide there is something operating which renders them incapable. Now what is that? or what causes them sometimes to feed so well?

It is generally said that when trout rise during a certain hour in a given day, it is because a particular fly is coming down the water; or because there is a fresh supply of water, or a peculiar colour, at the moment, or some other temporary like state, in the particular river.

But if we compare notes, we shall find that this has little or nothing to do with it. We all know that in different parts of a stream, miles distant, fish often rise freely during the same half hour in the day only, and although the same flies have preceded and followed that half hour in as great abundance, the fish, *extra* that period, have remained motionless. Often, too, I have been fishing for trout in one river, say the Colne, near Uxbridge; and my friends for chub in another, say the Lea, near Waltham, perhaps 20 miles off, and the same phenomenon has occurred. Here, then, it is not likely that a similarity of movement among flies could have produced the effect, nor could it have been any accidental state or change in the water. And in the case of salmon, observing often the same habit, I am more particularly impressed; because it is absurd to suppose they ever take our "flies" for natural flies, even assuming they take them as food of any kind; yet many a day have I been out on a river pretty thickly studded with rods, and up to a given hour it has been to us all, for miles up and down, on rapids and in deeps, a perfect blank; and then on a sudden salmon in all parts of the river have simultaneously taken to the fit of taking our flies, and so they've been taken. Therefore it is neither the swarm of a particular fly, nor the peculiar state of the water, in a limited sense. Again, it is said that success attends a peculiar colour of the water. But since we as often find the same colour unsuccessful, whether it be produced by rain or by innocent sheep washing or other causes, it is not that. So a good breeze is sometimes successful; but as often it fails; and as often with fine throwing we take fish in a calm. It is not that. So a south, sou'-west, or west wind, is proverbially good; but not only do these very often fail, but as often, almost, do we meet with sport with the wind at east, nor'-east and north. I remember that in 1839 my best days were with an easterly wind, and my worst with a sou'-west, both trout and salmon. It is not these. Again, a cloudy sky is upheld; but as often does that fail, and the sun sometimes gives us success. So it is not that. It is not dry weather, else would the spring of 1839 (which was, throughout, as bad a fishing year as ever remembered by fly-fishers), have yielded success. Nor is it wet weather, else would the autumn and summer of that year have done ditto. It is not the mere temperature of the water, else as water is not liable to rapid changes, we should not so frequently witness the sudden cessations or commencements of fish rising. It is not the mere temperature of the air, else would a freezing change, or a hoar-frost, or a glowing sun, by lowering or raising it, assist us. Nor is it always the water being colder or warmer than the atmosphere, *per se*, else would melting snow, chilling the water, be beneficial, and many experiments which prove the contrary, be erroneous, in the one case; and, contrary to observation, would frosty mornings, chilling the atmosphere, be of advantage, and the occasional experience of many a wader that the water is warmer than the air during the daytime, and yet no sport, be thrown away. Moreover, it is not coming or actual rain, both proverbially bad, which check our sport; for innumerable instances of the height of good sport happening at such times might be mentioned. Nor does the rising or falling of a river necessarily have the effect; for occasions have given a different result.

The general habit of cessation from feeding, immediately before rain, has been ingeniously ascribed to this, that a "fresh" brings greater quantity of food, and that instinct points this out to fish, so they prefer waiting. But this surely were strange instinct,—a wisdom incomprehensible,—for if a thick flood comes, and happens to last for a few weeks, they may starve for their wisdom.

> "Good reasons must, of force, give place to better."

E. C.

ROSES.—No. IV.

By Mr. William Paul, F.R.H.S., Paul's Nurseries, Waltham Cross.

The Bourbon Perpetuals form a small but beautiful group of Roses, embracing those Hybrid Perpetuals of some catalogues in which the features of the Bourbon Rose predominate. In other words they approach nearer to the Bourbon than to the Hybrid Perpetual, but are distinct from both. The flowers are remarkable for their circular outline; they are not very large, but are more than usually abundant. The growth is moderate, and the foliage fine and handsome, remarkable for the breadth of the leaflets. The varieties are best suited to form low standard, dwarf standard, and bush Roses, and if planted in a rich soil and pruned closely, they bloom constantly and well throughout the summer and autumn. Baron Gonella is one of the best of this group; the flowers are pink and lilac shaded, large, full, and beautifully cupped; the petals are large, well-rounded at their circumference, and of unusual substance. Baronne de Noirmont is also a good Rose, deeper and brighter in colour than the preceding, and very sweet, but not so prolific. Catherine Guillot is a gem, fine everywhere, but especially so under glass; the flowers are pink, of good average size, and quite full; the form perfect. Comtesse Barbantanne is a flesh-coloured flower, large, full, and distinct, of hardy habit and vigorous growth. L'Avenir has glossy pink flowers, large, full, and beautifully cupped; the growth is vigorous, the foliage fine. Lord Palmerston is an exceedingly pretty Rose, with flowers of an empyreal brightness, which the pen of the writer and the pencil of the artist have hitherto alike failed to reach: bright rosy cherry colour is an approximation to the description; the flowers are neither large nor full, but they are nicely formed, produced abundantly, and very sweet; the effect of the tree in the garden, when in full bloom, is brilliant in the extreme. Louise Odier is a good hardy sort, with bright rose-coloured flowers, a first-rate pot Rose, and excellent either as a standard or bush. Madame Bruni is not so well known as it deserves to be; the flowers are peach-colour, Provence-scented, large, full, and of good form; a good show Rose when well grown. Mademoiselle Thérèse Appert is a peach-coloured flower, large, full, and nicely cupped; a free and constant blooming Rose of moderate growth. Marguérite Appert is a pretty and distinct Rose; flowers blush, tinted with lavender, large and full. Modèle de Perfection is, in its best state, one of the loveliest Roses I have yet seen; it must, however, be grown well to realise this character, for it is apparently not the freest of the group; the flowers are lively pink, large, full, and globular. Reynolds Hole is a distinct and desirable sort; the flowers are pink, increasing in brilliancy as they advance in age; the petals are large, well formed, and of great substance, but not very numerous; the foliage is fine.

The Rose de Rosomène is a new group formed by the withdrawal from the Hybrid Perpetuals of certain varieties which differ therefrom in general aspect. In the last group are some of the most perfectly formed Roses grown; in the present are some of the most brilliantly coloured. They are mostly of free growth, and such are the very best of high-coloured wall Roses; a few, however, are of dwarf growth, and these are equally desirable for the garden generally, or for beds on lawns. As the colours of the different varieties so nearly resemble each other it seems unnecessary to describe them individually; for walls or palings, Desgaches, Eclair de Jupiter, Gloire de Rosomène, Mdlle. Haiman, Oriflamme de St. Louis, Princesse Mathilde, and Souvenir de Montceau are the best; for beds and borders, Comte d'Eu, Comte de Falloux, Léonice Moise, and Louis XIV. may be safely recommended.

The Bourbon Roses are, in my judgment, in nowise depreciated by the newly-arisen splendour of their kinsfolk, the Hybrid Perpetuals. It is a quieter but not lower order of beauty which greets us here. They are not so well suited for show Roses, because they lack size; but they are many times more valuable for those gardens where Roses *must* abound in autumn, because they flower much more abundantly at that season. Few of the Hybrid Perpetual Roses bloom freely, some not at all, late in autumn; whereas the Bourbons flower best and freest at that season. If the plants are pruned closely in spring, and the soil kept rich and moist, so that they be kept growing, flowers, bright, sweet, and plentiful, will be sure to follow. Acidalie, the first on my list, is not so pure in blood as some, being hybridised, possibly with the Provence Rose; it is nevertheless very desirable, being a good globular-shaped white Rose, of vigorous growth, very sweet, and blooming tolerably freely in the autumn. Armosa, which has a little of the Chinese blood in it, is one of the most prolific of autumn Roses, yielding its pink flowers almost without end. Aurore du Guide produces handsome flowers, sometimes purplish violet, sometimes crimson scarlet; one of the finest of the group, but rather shy and uncertain. Bouquet de Flore is a good hardy free kind, old enough it is true, but still most desirable; the flowers are light glossy carmine, large and double. Comte de Montijo is a pretty free-flowering variety, rich reddish crimson, sometimes shaded with purple. Dr. Leprestre has brilliant purplish flowers, sometimes shaded with red, large and full. Duchesse de Thuringe has white flowers delicately tinged with lilac, and usually arranged in elegant clusters. Dupetit Thouars is one of those brilliant crimson flowers which one cannot pass by in any garden; it withal, flowers freely to the very confines of winter. Empress Eugénie has rosy blush flowers with purplish edges, large and full, and is one of the freest, hardiest, and best. Ferdinand Deppe is a good Rose, with reddish violet flowers. George Peabody came originally from America, and is one of the very few from that country that is worthy of general cultivation; the flowers are rich crimson shaded with purple; hardy, free, and good. Julie de Fontenelle is a beautiful Rose, similar in colour to the last, inferior to it in size, but superior in form. Justine is a free-blooming sort, with clear rose or rosy pink flowers. La Quintinie is one of the finest of this group, but uncertain; the flowers are bright crimson, changing to blackish violet, large, full, and of good form. Madame Angelina is a rich cream-coloured flower with fawn or salmon centre, and is a beautiful and distinct Rose, of rather dwarf growth. Marquis Balbiano is a good, free, hardy sort; flowers rose colour tinged with lilac, large and full. Marquis de Moyra and Menoux are both good sorts of the same colour—carmine. Mrs. Bosanquet is still a first-rate, free-blooming, late autumn Rose, not a true Bourbon however, but slightly partaking of the Chinese; the flowers are white tinged with flesh colour. Omar Pacha is a fine brilliant red Rose, free and hardy. Pierre de St. Cyr has pale glossy pink flowers, of good size and form, and usually abundant. Queen is one of the freest and best; flowers salmon flesh, often tinged with buff; excellent for masses. Reveil is a fine hardy dark variety; its flowers crimson, shaded with violet. Sir Joseph Paxton is of a growth more than usually vigorous; the flowers are bright rose, shaded with crimson, large and full. Souvenir de Malmaison is one of the best Roses yet raised, and in place everywhere; the flowers are delicate, flesh colour, their margins almost white, very large and full; excellent for massing. Souvenir d'un Frère is a very showy free-flowering Rose, with brilliant crimson flowers. Vicomte de Cussy is a good Rose; flowers cherry colour tinged with purple; large and almost full. Victor Emmanuel is a good dark purplish flower shaded with maroon, large and double. Vorace is sometimes fine but rather uncertain; the flowers are dark crimson purple, large and full.

Home Correspondence.

Gardeners' English.—I had often thought that the Queen's English is more murdered, and the dead languages are more barbarously treated by horticulturists, than by any other class of men, not even excepting quacks and inventors. Of course I do not expect that our gardeners, of whose intellectual as well as moral characteristics I have the very highest opinion, should be perfectly instructed in all the laws regulating the forming or compounding of Greek and Latin words, or the coining of English, but mistakes are frequently made by those who cannot plead ignorance, and are still more frequently allowed to go uncorrected by those who must be alive to them. Who, one would like to know, is answerable for that which offends the eye just now in more than one of your advertising columns? Either some Geranium peculiarly adapted for the belts which are now the rage, has been named "Geranium zonale," or some Frenchman has named the floricultural class "zonale."

But that is no reason why the nurserymen's lists for the coming season should include "the following new zonale Geraniums," unless the advertisers have adopted a new floricultural orthography, and recommend their varieties as "capitale specimens of the principale and most ornamentale kinds adapted for the zonale style of bedding." If they have not done this, let them be assured that zonal is a perfectly good English word, and requires no final *e*, whether mute or sounded. *C. J. G.* [The use of the term objected to has no doubt arisen from the employment of the specific name —zonale—of the parent of the horse-shoe group, to distinguish the particular series of garden varieties of Pelargoniums which have sprung from it.]

Ailantus Silkworm.—May I take the opportunity of asking through your columns, where eggs or young worms of the Ailantus silkworm are to be purchased? *C. J. G.*

Heating Vine Borders.—I was much struck on the occasion of a recent visit to the Viceregal Gardens, Phœnix Park, by a plan for the heating of Vine borders adopted (I believe for the first time) by Mr. Smith, the intelligent head gardener to his Excellency the Earl of Carlisle. In order to equalise the temperature of the border and that of the house, Mr. Smith caused an excavation to be made, and had arches built over the roots of the Vines running under and into within 2 feet of the back wall of the Vinery. Into these recesses he put manure, covering the roots of the Vines; and in order that a fresh supply of heat might be supplied, if needed, he had trap doors placed over each arch. The idea is quite original, and one I think likely to be of great value, as it is well known that the roots of plants in general require encouragement as well as the branches. *E. A. M., Dublin.*

The Poet and the Holly Tree.—I am gratified that a remark of mine should have induced so keen and practised an observer as Mr. Fortune to favour your readers with his views on this subject. My observations accord with those of Mr. F. as to the fact "that two kinds of leaves are frequently produced on old Holly trees," but not "just as the poet describes them." If I were obliged to draw conclusions from my present observations, which have been made in this neighbourhood only, they would be as follows:—1, That the English Holly varies exceedingly when raised from seed; 2, That the dominant forms are—1, a strong-growing tree-like sort, whose leaves are smooth from top to bottom; 2, a dwarfer and more bush-like sort, whose leaves are prickly from top to bottom; and, 3, an intermediate form, which has both smooth and prickly leaves alike at top and bottom. I have not yet met with any tree the whole of whose lower leaves were prickly, and whose upper leaves were altogether smooth, or sufficiently so to establish the general truth of the poet's view. But I offer these remarks as provisional only, as I am still seeking opportunities of extending my observations. My object is not to establish my present view, but to bring out the truth on a subject which must be interesting to students and lovers of natural history. It would promote this object if practised observers would examine a given number of trees in different districts, and report the result. *Wm. Paul, Waltham Cross, N.*—At this place (Burnchurch, Co. Kilkenny), where there are many beautiful old Evergreens—Portugal and common Laurels 45 yards in circumference of branches, and Hollies in proportion, I find some specimens which support Southey's lines on the Holly tree. I send a "wrinkled and keen" leaf from the lower branches, and a "smooth and pointless" one from the top of one tree; this tree is about 35 feet high, and in form like the Lombardy Poplar. I also send a sprig from the lower branches of another tree, bearing on it both kinds of leaves [the wrinkled one uppermost]. I observe this to be common here. There are several large old Hollies here, whereon the leaves are prickly to the top. *Henry Cavendish Browne.*

Green Fly.—I find that green fly infesting the young and tender shoots of Roses, &c., is completely and instantly killed by immersing the shoot for two or three seconds in water at a temperature of 135°, and this without injuring the foliage in the least. *A. M. C.*

Pyrus Sorbus (*P. domestica of Smith*).—I beg to invite the readers of the *Gardeners' Chronicle* to give some information concerning this tree. It is supposed to be indigenous, but I am satisfied it is rare, and seldom found in collections. I have looked for it in vain in some of the best London nurseries; and elsewhere, plants of a totally different nature are offered in its place. There is a large tree of it in the Oxford Botanic Garden, and Mr. Baxter kindly gave much information about it to the writer two years ago. From experience, it may be added that it is of extremely difficult propagation. Buds on all kinds of Pyruses and Cratægus have hitherto failed with the writer. *G.*

Loquat and Lee-chee—I should feel greatly obliged if some of your Correspondents would give a few practical hints on the culture of the Loquat and Lee-chee, with the object of fruiting them. *Lee-chee.*

Societies.

Royal Horticultural: *April* 15 (*Third Spring Meeting*).—Azaleas, which formed on this occasion the principal feature of the Show, were contributed in considerable abundance, and, as a whole, they were in excellent condition. From Mr. Turner, of Slough, came a large group of beautifully flowered plants, among which were the yellow A. sinensis, Iveryana, still one of the best of the carnation-striped kinds; Prince Jerome and Holfordi, both red sorts; Standard of Perfection; Criterion, Gem, Frost's Perfection, Roi Leopold, Rosy Circle, and Vesta, the last a good white kind. In another collection contributed by the same exhibitor were Gen. Williams, Chelsoni, Admiration, Model, Trotteriana, Rosalie, Iveryana, Gem, and the beautiful new kinds Duc and Duchesse de Nassau, the first rich purple and the last salmon strikingly blotched with violet in the upper petals. These plants were shut out from competition in consequence of a mistake in the size of the pots.

In collections of nine Azaleas the best came from Messrs. Veitch, who furnished handsome plants of Souvenir de l'Exposition, Perryana, Comte de Hainault, Duc de Nassau, Iveryana, Magnificent, Conqueror, Roi Leopold, and Rubens. In a group from Mr. Todman, gr. to R. Hudson, Esq., were good examples of Roi Leopold, Model, Iveryana, Dr. Livingstone, and The Bride, the last a good white variety. Mr. Higgs, gr. to Mrs. Barchard, sent, among others, useful sized well-flowered plants of Magnificent and Louise Margottin, the last a semi-double white variety.

Of groups of six Azaleas considerably the best came from Messrs. Veitch, who showed admirable examples of Petuniæflora, a finely formed purplish rose coloured kind; Iveryana; Apollo, a vivid dark orange red; Splendens, Triumphans, and Queen Victoria, the last a white kind striped with purple, not by any means first-rate in shape, but very useful for purposes of ordinary decoration. From Messrs. Ivery, of Dorking, came the charming rose-coloured variety called Crispiflora, Baron de Vriere, a sort in the way of Criterion; Gem, Model, and Louise Margottin, the last white, occasionally striped with purple. In a group from Mr. Todman, of Clapham, were Præstans, violet purple, with crimson centre, and Dr. Livingstone.

From Messrs. Lane, of Great Berkhampstead, came a group of 12 Azaleas, among which were one or two fine specimens. Of these, perhaps the most striking was Conspicua purpurea, a well-known kind, remarkable for the large size of its flowers, which are purplish lilac, conspicuously blotched with crimson on the upper petals.

Roses, both in pots and in a cut state, were excellent. Of those in pots, Mr. Turner sent a fine group of six plants, consisting of Victor Verdier, in admirable condition; Souvenir d'un Ami, Coupe d'Hébé, Souvenir de Malmaison, General Jacqueminot, and Baronne Prevost. Mr. Wm. Paul furnished Madame Damaizin, Madame Villermoz, Souvenir d'un Ami, Madame Boll, Cardinal Patrizzi, and Anna Alexieff. From Messrs. Paul & Son came Madame Damaizin, Charles Lawson, a very fine rose; Jules Margottin, Madame de Vatry, Paul Ricaut, and President. Messrs. Lane & Son furnished a miscellaneous group, in which was President Lincoln, a promising new kind, with a colour equal to that of Senateur Vaisse. Moiré, a variety in the way of Gloire de Dijon; Madame Falcot, golden yellow, and other equally good sorts, were also conspicuous.

Nothing in their way could possibly be finer than the groups of 4 Roses in pots. In that produced by Mr. Turner, the blooms were large and beautiful, and the foliage clean and healthy. The sorts consisted of Souvenir de Comte Cavour, a charming kind, vigorous in growth, and with flowers, though a shade darker and more velvety in appearance, equally brilliant as those of General Jacqueminot. The other varieties were President, Comtesse Cecile de Chabrillant, and Queen of Denmark, the last a blush-coloured variety. Messrs. Paul & Son sent Belle de Bourg la Reine, Souvenir d'un Ami, General Jacqueminot, and Victor Verdier.

Among cut Roses, of which an extensive display was furnished by Messrs. Paul & Son and Mr. Wm. Paul, were many familiar names, foremost amongst which was Senateur Vaisse; but there were also some newer kinds, which we hope to see again.

Of Cinerarias several well managed collections were produced. One from Mr. Turner, the only exhibitor amongst nurserymen, contained Alarm, crimson self; Constancy, a dark-eyed white sort, edged with purple; Reynolds Hole, rosy crimson self; Vicar of Caunton, white with blue edge; Bridesmaid, white, with narrow purple edge; and Bellissima, a large white-ground kind, broadly margined with purple. Mr. Lamb, gr. to Capt. Cahill, furnished fine examples of Reynolds Hole, Lady Seymour, Modesta, and Duke of Cambridge. From Mr. James, gr. to Mrs. Watson, and Mr. Holland, gr. to R. W. Peak, Esq., also came well flowered groups of finely grown plants. Among these were Pilot, blue self; Masterpiece, Blue Bonnet, Duchess of Sutherland, Admiration, and other well-known kinds.

Hyacinths of English growth, still in good bloom, were contributed by Mr. Cutbush and others; and there was also a collection of cut spikes shown from Haarlem by Messrs. E. H. Krelage. These had received too much injury from travelling to admit of critical inspection. Among them however were one or two good yellows; and a single sort called L'Enfant de France appeared to be new in colour; it may therefore prove an acquisition.

Cut specimens of the handsome Bougainvillæa glabra were exhibited by Mr. Daniels, gr. to the Rev. C. E. Ruck Keene, Swyncombe, near Henley-on-Thames. Collections of Miscellaneous Plants were shown by Messrs. Veitch, Bull, Lee, and E. G. Henderson.

Auriculas were exhibited in considerable quantity, and seldom have we seen them better grown or bloomed than they were on this occasion. Mr. Turner had remarkably fine collections, in which, among the *Green-edged* varieties, the most conspicuous were Beeston's & Hudson's Apollo, Stretch's Alexander, Dickson's Duke of Wellington, Traill's General Neill, Oliver's Lovely Ann, and Dickson's Prince Albert. *Grey-edged* kinds comprised among others, Dickson's Duke of Cambridge, Cheetham's Lancashire Hero, Chapman's Maria, Bone's Perfection, Lightbody's Richard Headly, and Maclean's Unique. *White-edged*, Lee's Bright Venus, Summerscale's Catharina, Taylor's Glory, Fletcher's Mary Ann, Gairn's Model, Campbell's Robert Burns, Spalding's Mary Gray, Lightbody's Meteor Flag, Martin's Mrs. Sturrock, Netherwood's Othello, and Headly's Royal Purple. Among *Selfs* the best was perhaps Spalding's Blackbird. Mr. Butcher of Camberwell, Mr. James of Isleworth, and Mr. Potts, Old Kent Road, also all showed good collections. Among *Alpines* the best were Dazzle, Brutus, and Conspicua.

Several sorts of Polyanthus were shown; but unless closely inspected they appeared to be all one and the same kind. Pansies well flowered in pots were shown by Mr. James; we also noticed cut blooms from the same exhibitor, and a group of Fancy varieties from Mr. Bragg. Calceolarias came from Mr. James, Mr. Higgs showed extremely well grown Lycopods in pans, and Messrs. Ivery had an interesting little group of Ferns. The beautiful white-blossomed Rhododendron Sesterianum was shown by Messrs. Veitch, who also furnished a small collection of Orchids, and the singular-looking scarlet Anthurium Scherzerianum. From Mr. Holland came some good Cyclamens, and little trees of Mr. Fortune's deep coloured rose-flowered Chinese Peaches were furnished by Messrs. Glendinning. A good plant of Aerides Fieldingi came from Mr. Page, Teddington.

In the department of the Floral Committee, one of the most noticeable objects was a fine new French Magnolia of the conspicua class called Lenné, shown by Mr. W. Paul; this was a purple-flowered sort, remarkable for the bold rounded form of its flowers before full expansion, and will be a most valuable acquisition among out-door shrubs. An Azalea called Louise von Baden from Mr. C. Turner was a charmingly pure white, and had flowers of great smoothness and substance. Alocasia zebrina, the motley-stalked Philippine Island plant shown last year, and Cheilanthes Borsigiana, a scarcely new, but very rare dwarf gold Fern, were sent by Messrs. Veitch. Messrs. E. G. Henderson & Son had small plants of an elegant pyramidal Conifer called Retinospora leptoclada; and Greenovia aurea, an old-fashioned plant, of a class of which it was thought advisable to bring out again by an award to some of the more showy species, came from Mr. Bull. All these obtained First-class Certificates. A grade lower in merit were placed an Azalea called Madame Verschaffelt, a veiny pink, spotted with dark red, and remarkably gay as a decorative sort, shown by Messrs. Veitch; an Azalea called Beauty of Dorking, a fine-shaped sort with white flowers mottled with red, but wanting in purity, shown by Messrs. Ivery & Son; an Auricula of the grey-edged class called Ensign, shown by Mr. Turner; and a white Cineraria called Snowflake, from Mr. Page, gr. to J. M. Strachan, Esq., Teddington. Messrs. Veitch had a very distinct and novel looking Chilian herbaceous plant, shown as Valdivia Gayana, which had long serrated rugose root leaves, and a short pyramidal panicle of pretty rose-coloured flowers; this, which may perhaps be a useful plant for early flowering with slight shelter, was Commended. The same acknowledgment was also given to the single-flowered variegated-leaved Kerria japonica, and a blush-white semi-double-flowered Cherry, both shown by Mr. Standish, and both recently introduced from Japan. Also to an Anthurium with clean looking deep green leathery cordate leaves, on slender erect polished stalks, shown by Mr. Bull; to a gay maroon-crimson Alpine Auricula with golden eye, called Supreme; to a white-ground Pansy called Exquisite; and to a finely shaped mulberry-shaded Fancy Pansy, called Feu de Joi, all from Mr. Turner. Mr. Bull and Mr. Turner showed some small plants of Bougainvillæa speciosa, flowering in small pots; these it was understood had been grown by the latter exhibitor, and Special Certificates were awarded for them. Mr. W. Paul had a very pleasing and promising Rose, called Lord Herbert, of a bright carmine rose-colour; but as the plant had only one flower no award was made. Mr. Mills also showed a seedling Rose of very free character —a seedling from Mrs. Bosanquet, which appeared likely to be useful as a market flower. A couple of plants, in an overblown state, of the Tropæolum Ball of Fire were sent by Messrs. Henderson & Co., of Pine-apple Nursery. An Azalea called Surprise, shown by Messrs. F. & A. Smith, was not distinguishable from Madame Verschaffelt. Mr. Bragg, of Slough, brought a showy creamy-white bedding Pansy named Desirable. Finally, a plant of the pretty white-bordered Camellia, called Giardino Santarelli, was sent by Messrs. E. G. Henderson & Son from the Wellington Nursery.

Foremost among Fruit, of which there was little, were five admirable bunches of new Black Hamburgh Grapes, black as Sloes, and in all respects beautiful

specimens of skilful cultivation, from Mr. Hill, gr. to R. Sneyd, Esq., Keele Hall, Staffordshire. These were shown, Mr. Hill stated, as examples of the description of Grapes he has been cutting since the 25th of last month, when he finished his last year's ripened fruit. Mr. H. added that he has never been without Grapes fit to cut any day for the last three years. Of dessert Apples, the best came from Mr. Whiting, gr. at The Deepdene, near Dorking; the sorts were Herefordshire Pearmain, Mickleham Pearmain, and Court Pendu Plat, all in a state of good preservation. Mr. Hall, gr. to Captain Tyrrell, Fordhook, Ealing, came next with Bess Pool, Golden Russet, and Cluster Golden Pippin. The last named exhibitor obtained the first prize for Kitchen Apples, which consisted of Wellington, Yorkshire Greening, and Norfolk Beefing. Mr. Earley was placed second with Wellington, Hertfordshire Codlin, and Norfolk Beefing. Mr. Whiting had a very fine dish of Royal Russet, which looked as if it might keep perfectly good for a month or two yet to come. A seedling Kitchen Apple resembling the Alfriston was shown by W. B. Tyringham, Esq., and good samples of Beurré Rance Pears came from Mr. Ingram, Belvoir Castle. A very fine cluster of unripe fruit of Musa Cavendishii, grown under Vines, was exhibited by T. B. Horsfold, Esq., M.P., Rugeley. Mr. Turner sent fruit of President Strawberry, which appears to be a promising kind; and fine examples of Keens' Seedling Strawberry, Norfolk Beefing Apples, and Empress Eugénie and Cuthill's Prince Albert Cucumbers were shown by Mr. Barnwell, gr. to E. Mills, Esq., Bistern Park, Hants. The same exhibitor had likewise good Portsmouth Broccoli, Early Cabbages, and other vegetables. Mr. Terry, gr. to L. Ames, Esq., St. Albans, also showed a small collection of vegetables.

Examples of Dr. Watson's Fern column, a brick-coloured contrivance with projecting niches on the sides for the Ferns to grown in, surmounted by a little vase, covered by a glass shade, were shown by Messrs. Rosher, of Queen's Road, Chelsea.

Royal Botanic: *April* 11 (*Second Spring Show*).—Collections of Azaleas, consisting of handsome little well-flowered plants, were shown on this occasion by Mr. Cross, gr. to Sir F. H. Goldsmid, Bart., M.P.; Mr. Todman, gr. to R. Hudson, Esq., of Clapham; Mr. Taylor, gr. to C. A. Hanbury, Esq., of East Barnet; and in the nurserymen's class by Mr. Turner, Messrs. Ivery, and Mr. Cutbush. Of new Azaleas Mr. Turner and Mr. Todman furnished one or two fine kinds, the most striking among which were President, Perfection, Duke of Cambridge, and Dr. Livingstone. From Messrs. Smith, of Dulwich, came the showy double white variety called Flag of Truce, and Mr. Turner had a charming single white kind named Louise von Baden. Hyacinths were contributed in considerable numbers from Highgate and East Barnet, and collections of Amaryllis came from Mr. Parker, of Tooting, and Messrs. Cutbush. Among British Ferns, collections of which were exhibited by Miss Clarkson, of Avenue Road, St. John's Wood, and Messrs. Ivery, of Dorking, were well-grown examples of Hymenophyllum Tunbridgense, and Trichomanes speciosum. From Messrs. Ivery also came the pretty new varieties of Athyrium Filix fœmina called mucronatum and Iveryanum; and Mr. Bull sent the interesting little Trichomanes membranaceum. Of Miscellaneous Stove and Greenhouse plants, collections were exhibited by Messrs. Lee, Bull, A. Henderson & Co., Smith, Williams, and Cross; and of cut Roses several beautiful boxfulls came from Mr. Wm. Paul and Messrs. Paul & Son. Among these were charming blooms of Chas. Lawson, C. Lefebre, President, Beauty of Waltham, Lælia, Senateur Vaisse, Victor Verdier, Model of Perfection, Gloire de Dijon, Madame Furtado, Jules Margottin, Madame Rivers, Madame de St. Joseph, Mrs. Chas. Wood, Maurice Bernardin, Vicomtesse Decazes, and other equally fine kinds. From Mr. Wm. Paul also came a well-bloomed collection of Roses in pots. Of other kinds of plants, Messrs. A. Henderson & Co. sent the graceful dark green-leaved Dracæna Rumphii, and the brilliant Tropæolum Ball of Fire. From Mr. Wm. Paul came the handsome Magnolia, named Lenné, and Mr. Bull sent the pretty Anæctochilus argyræus; and a useful looking species of Anthurium. Pandanus elegantissimus was shown by Messrs. Smith; the red-leaved Tradescantia odorata, a white-edged variety of Aralia Sieboldi, and another kind of Aralia, by Mr. Williams; Cupressus Lindleyana alba by Messrs. E. G. Henderson; and a pretty purple-edged Auricula, named Princess of Wales, by Mr. Turner, of Slough. From Mr. Bragg came boxes of Pansy blooms. Mr. Bull again showed Bougainvillæa speciosa in flower in 5-inch pots. Boxes of cut Camellia blooms came from Messrs. Lee and A. Henderson, and Mr. Perkins furnished the very fine pale-eyed scarlet Verbena called Lord Leigh. Cinerarias, Azaleas, Petunias and varieties of horse-shoe Pelargoniums came from Mr. Bull. In a collection of rare Orchids, Ferns, and other plants, Mr. Williams showed the charming Phalænopsis Schilleriana, and Messrs. Ivery had an interesting group of Double Primroses, consisting of white, lilac, yellow, and crimson sorts. The handsome large white-blossomed Rhododendron Veitchii was shown by Messrs. E. G. Henderson, and the pink-tinged white Rhododendron Countess of Haddington, came from Mr. Parker, of Tooting. Various collections of variegated-leaved Begonias were shown, and we also noticed a small group of hard-wooded greenhouse plants from Mr. Cutbush, of Barnet.

Notices of Books.

Tales and Sketches. By Hugh Miller. Edited by Mrs. Miller. A. & C. Black, 1863.

This book will scarcely add to its author's reputation; and perhaps he thought so himself, since the "tales and sketches" which his widow now gives to the world, seem to have been laid aside amongst his papers for many years. Let us not therefore blame him for their publication; a posthumous work should ever be lightly dealt with. Who can tell how much the author might have retrenched or altered before allowing his bantlings to come forth to the light of day? Moreover, these tales are not only posthumous, but they were written at an early period of Hugh Miller's career; and naturally therefore exhibit the prolixity and weakness which are the usual accompaniments of the tentative efforts of all but master minds. On the other side of the Tweed they may perhaps meet with more approval than in England, since the subjects are of more interest to a Scotchman, who besides will not find them the less attractive by reason of the broad Scotch in which most of the dialogues are carried on. He must have a mournful temperament, however, who does not feel oppressed by the dismal melancholy of most of the stories: it is quite an exception and a relief to find one that ends well.

Perhaps it is from its possessing this distinction that we thought "Bill Whyte" rather the most interesting of the set, although Mrs. Miller is evidently right in doubting its truth. The "Recollections of Ferguson" are sad memorials of a wasted life, too sketchy to bear much moral, or to tell much to those who hear of this poet for the first time. As for the "Recollections of Burns," Mrs. Miller candidly remarks—"but of Burns' share in the dialogue the reader is the best judge. Some may hold that he is too like Hugh Miller himself." And we entirely agree with her. Occasionally we meet with descriptions and short passages which are interesting as giving us glimpses into the old Scottish life, as different from the modern English as can well be imagined. How little, for instance, does the following account of the festivities at a "lykewake" accord with our ideas of the solemnity befitting a funeral. "It is not yet 90 years since lykewakes in the neighbouring Highlands used to be celebrated with music and dancing; and even here, on the borders of the low country, they used invariably, like the funerals of antiquity, to be the scenes of wild games and amusements never introduced on any other occasion. You remember how Sir Walter describes the funeral of Athelstane? The Saxon ideas of condolence were the most natural imaginable. If grief was hungry they supplied it with food; if thirsty they gave it drink. Our simple ancestors here seem to have reasoned by a similar process. They made their seasons of deepest grief their times of greatest merriment; and the more they regretted the deceased the gayer were they at his wake and his funeral. A friend of mine, now dead, a very old man, has told me that he once danced at a lykewake in the highlands of Sutherland. It was that of an active and very robust man, taken away from his wife and family in the prime of life; and the poor widow, for the greater part of the evening, sat disconsolate beside the fire, refusing every invitation to join the dancers. She was at length, however, brought out by the father of the deceased. 'Little, little, did he think,' he said, 'that she would be the last to dance at poor Rory's lykewake.'"

The scene here described could, however, have been matched in the sister country of Ireland, where superstitions so strongly resembling those of the Highlanders are met with, that their common origin might almost be inferred from them. One of the firmest beliefs of the Irish people was that of the power of fairies to substitute a withered changeling for their babies, and this too was believed in Scotland up to a late date, in illustration of which Hugh Miller gives an amusing anecdote.

"The fairies were in ill repute at the time, and long before, for an ill practice of kidnapping children, and annoying women in the straw; and no class of people could dread them more than fishers. But they were at length cured of their terrors by being laughed at. One evening when all the men were setting out for sea, and all the women engaged at the water's edge in handing them their tackle, or launching their boats, a party of young fellows, who had watched the opportunity, stole into their cottages, and disfurnishing the cradles of all their little tenants, transposed the children of the entire village, leaving a child in the cradle of every mother, but taking care that it should not be her own child. They then hid themselves amid the ruins of a deserted hovel to wait the result. Up came the women from the shore, and, alarmed by the crying of the children and the strangeness of their voices, they went to their cradles and found a changeling in each. The scene that followed baffles description. They shrieked, and screamed, and clapped their hands, and rushing out to the lanes like so many mad creatures, were only unhinged the more to find the calamity so universal. Down came the women of the place to make inquiries and give advice, some recommending them to have recourse to the minister, some to procure baskets and suspend the changelings over the fire,—some one thing, some another; but the poor mothers were regardless of them all. They tossed their arms, and shrieked, and halloed, and the children, who were well-nigh as ill at ease as themselves, added, by their cries, to the confusion and the uproar. A thought struck one of the townswomen: 'I suspect, neighbours,' she said, 'that the loons are at the bottom of this. Let's bring all the little ones into one place, and see whether every mother cannot find her own among them.' No sooner said than done; and peace was restored in a few minutes. Mischievous as the trick was it had this one effect, that the fairies were in less repute in Cromarty ever after, and were never more charged with the stealing of children. A popular belief is in no small danger when those who cherished learn to laugh at it, be the laugh raised as it may."

A few more interesting passages will occasionally reward the perusal of this volume, but the main portion of it is so ponderous and dreary, that we cannot recommend any one to make the attempt.

We have received a continuation of *The Jardin Fruitier du Muséum* up to the 60th part. The beautifully executed drawings of the later parts represent a larger proportion of the new varieties of Pears than appeared in the earlier numbers. According to the descriptions many of the old sorts are bad, and some of the new ones that have been highly spoken of are not worth cultivating.

Poire Willermoz.—A large handsome pyramidal yellow fruit, slightly tinged with red, and sprinkled with brown dots; flesh breaking or half breaking, granular, somewhat perfumed, and slightly astringent. A third-rate Pear.

Œuf de Cygne.—The plate correctly represents a good specimen of our Swan's Egg, which is, according to Prof. Decaisne, of English origin, and must not be confounded with the French *la P. Œuf*, a summer fruit, which is synonymous with the Colmar d'Été de Wizbourg, a comparatively inferior sort—at least so it proved when grown in this country.

Poire de Saint Gall: syn. Poire au Vin.—This name probably bears allusion to the wine colour of its skin when very young. Only fit for stewing.

Bonne Malinoise.—This is what is now so well known in this country by the name of Nelis d'Hiver, or Winter Nelis; and admitted by all to be, as regards flavour, a Pear of the highest excellence. It was raised by Jean Charles Nelis, who was born at Mechlin in 1748, and died in the same town in 1834. Fruit of it was first received in England by the Horticultural Society from M. Stoffels, of Mechlin, in 1818, under the name of La Bonne Malinoise.

Suzette de Bavay.—Fruit middle-sized, roundish or roundish-turbinate, the eye surrounded with five protuberances, more or less prominent. Skin smooth, yellowish green, with some specks of brown; flesh firm, or but half melting, very juicy, sweet, perfumed. Season: February—April. Its principal recommendation is its long keeping.

d'Esperen: syn. Bergamotte Esperen.—This was raised about 1830 by Pierre Joseph Esperen, of Ghent, who was born in that city in 1780, entered the army as a volunteer in 1804, left it at the Restoration to indulge in his taste for pomology, re-entered the service for a short time in 1830, and obtained the rank of Major. [It would appear that he again betook himself to raising new fruits, to one of which he chose to give the name of Soldat Laboreur]. The Esperen is a middle-sized or large Pear, roundish or bergamot-shaped, greenish yellow, spotted with brown; the flesh white, fine-grained, melting and rich. Season: March, April. One of the best late keeping Pears.

Poire de Dame.—In appearance this resembles the Bergamot d'Automne [of the French, not our Autumn Bergamot], and it is sometimes sold in the markets for that sort; but it is a bad Pear at its best, and decays rapidly.

Sageret.—A middle-sized roundish obovate Pear; but only half-melting; juicy, but not highly flavoured. Season: December.

Briffaut.—Medium size, pyramidal; skin smooth, the shaded side green, the other red; flesh greenish white, fine, melting, with an acidulated sugary juice. Season: August. It has the fault to which all the early Pears are subject, that of soon decaying; but the tree is an abundant bearer, and this property, together with the brilliant colour of the fruit, may render it worthy of cultivation.

Augier.—Of the form of St. Germain, and keeps till April. Nevertheless Prof. Decaisne says it is a very bad fruit, which ought not to be introduced in any collection. Pears are so numerous that it is important to know from such good authority what ought to be avoided.

Culotte de Suisse: [syn. Verte-Longue Panachée].—A variety of the Verte-Longue or Mouille-Bouche. The striped is not so good as the green, but it is ornamental, and a tree of it may be cultivated in extensive collections on that account.

Sanguinole: syn. Blood Pear.—Under this name several distinct varieties are confounded. Some have the skin green, and the flesh entirely red. The one figured is red next the sun. The flesh is white, mottled with bright rose colour, granular, half melting, sweet, and slightly perfumed. Season, end of August; but it is only grown for curiosity.

[The ancients attributed the colour of the Sanguinole Pear to the trees having been grafted on the Black Mulberry, but it is now well known that this pretended graft never can succeed.]

Van Marum: syn. Grosse Calebasse, Grise Longue, Frédéric Lelieur, Triomphe de Hasselt, Calebasse Monstrueuse du Nord.—This enormous Pear sometimes grows to the length of 8 inches, and to more than a foot in circumference. It is of a long pyriform shape, yellow, with fawn-coloured russet specks, and slightly tinged with red next the sun. Flesh white, half melting, with an acidulated sweetness, but not highly flavoured. As is the case with many large Pears, it is very difficult to know the moment when it is fit for use. If eaten a few days before it attains its point of maturity it is without flavour, and and resembles a stewing Pear; and after it is fully ripe it soon decays. Season: October.

Garden Memoranda.

Swyncombe House, near Henley-on-Thames.—Bougainvillæa is again in glorious bloom under Mr. Daniels' skilful management. For the last month and more it has covered the roof of plant stoves 30 feet in length and 14 feet wide. In one of these we have Bougainvillæa speciosa, the plant which, commencing in 1857 as a sprig in a thumb pot, yielded in 1860 a profusion of its pink translucent bracts. It now girths 10 or 12 inches around its woody stem, and nothing can be more beautiful than the mass of bloom which covers its branches. In the other stove B. glabra is just coming into bloom; of hardly the same depth or richness of tint in its blossom as the other, it possesses the advantage of being almost a perpetual bloomer, having been in flower during 10 months of last year. The stoves are full of handsome ornamental foliage. There is a fine specimen of Cyanophyllum magnificum, 9 feet high, and clothed with healthy foliage to the pot, the leaves measuring 6 feet from tip to tip of a pair, and 19 inches across. Caladiums, Marantas, Dracænas, Crotons, Aphelandras, Tradescantias, and a large collection of tropical Ferns beautify the place with foliage; and Begonias, Euphorbias, Hoyas, Rhynchospermums, Cape Jasmines, Achimenes, Gloxinias make it gay with blossoms; all being overshadowed with the glorious amethystine canopy of Bougainvillæa. The whole display affords a capital proof of successful management. Mr. Daniels has a great deal of glass, and a large extent of garden ground under his superintendence. There are two forcing pits 50 feet by 10, and 30 feet by 12 respectively. They contain in great abundance Cucumbers, Melons, Strawberries, French Beans, &c. In one an enormous crop of Keens' Seedling was just in perfection, many of the plants having 10 to 14 full-sized fruit, admirably coloured. In the Vineries there is ample but not early promise of Grapes; also fine crops of ripe Strawberries of the Black Prince variety, and others in various stages of growth; also thousands of bedding-out plants. A large greenhouse is gay with Cinerarias, Primulas, Geraniums, Azaleas, Boronias, Aphelexis, Leschenaultias, Dielytras, Eriostemons, Tropæolums, Cyclamens, Heaths, &c. In an orchard house, 90 feet by 12, pot-culture answered well for four or five years, producing very fine fruit in great abundance—but ultimately the trees became weaker, and they have been replaced by trained trees, which were planted two years since, and now nearly cover the roof, and have set their fruit well. It is considered here that pot trees bear large numbers of fruit, but of small size and inferior quality. Thousands of bedding-out plants are kept here from the beginning of February, great care being taken to bring in nothing that is subject to green-fly. In a lofty conservatory attached to the mansion, there is a beautiful show of flowers—fine specimens of Azaleas, Heaths, Camellias, Cytisus, Acacias, Monochætums, Chorozemas, Eriostemons, Cinerarias, &c.; also a fine specimen of Araucaria Cunninghami, 12 feet high; with A. excelsa, Cookii, and others. Amongst Ferns we noticed fine plants of Cyathea dealbata, C. medullaris, and Dicksonia antarctica, &c.

In the flower garden the system of winter bedding is adopted, and the beds are extremely gay with Wallflowers, Myosotis, Arabis, Alyssum, Tulip, Pansy, Hyacinths, &c. The terrace and garden are decorated with ornamental vases, which in the summer are filled with flowering plants. In the kitchen garden we noticed some very fine Fig trees, which are covered every year as soon as they cast their leaves with a thick coat of Spruce Fir branches, which remain on them till March. Many bear and ripen abundant crops of fruit every year.

Swyncombe lies just below the edge of the Oxfordshire chalk hills, not 200 feet lower than Nettlebed, one of the highest tracts in the southern counties. It is very much exposed, and being naturally but a poor and shallow chalky soil, both good judgment and application were needed, and have been exhibited by Mr. Daniels, the intelligent gardener.

A Pinetum is being formed. Pinus austriaca is found thoroughly hardy; Spruce Fir and Beech die down to the extent of 50 per cent. in new plantations, but P. austriaca stands the severity of the weather and exposure. There are many fine specimens of Deodar and other Cedars on the grounds—and striking illustrations are presented of the advantages of trenching and deeply moving the soil before planting.

Miscellaneous.

Sales by Auction.—Prices as follows have recently been realised at Stevens's, viz., Gladiolus Brenchleyensis, from 5*s.* 6*d.* to 9*s.* per 100; 50 mixed sorts, 7*s.* to 9*s.*; Pinks, Picotees, and Carnations, from 8*s.* to 12*s.* per 12 pair; Dwarf named Bedding Dahlias, from 12*s.* to 14*s.* per dozen; Moss and other Roses, from 5*s.* to 10*s.* per ten plants; Californian Conifer seeds, including Wellingtoniagigantea, from 7*s.* to 1*l.* 15*s.* per packet of about an ounce each. Hardy Rhododendrons from 6*d.* to 9*d.* per plant. Standard Apricots 12 feet in height, 3*s.* 6*d.* per 6 plants; Dwarf Apples and Pears from 4*s.* 6*d.* to 5*s.* per 20 plants; Raspberries from 5*s.* to 6*s.* 6*d.* per 50 plants; Orchids, established, consisting of the usual kinds, from 2*l.* to 26*l.* per plant, the last named sum being obtained for Dendrobium lituiflorum; Aerides Schröderi fetched 16*l.*, Phalænopsis Schilleriana, 11*l.*; Cymbidium eburneum, 15*l.* 10*s.*; Trichopilia crispa, 25*l.* 10*s.*; Uropedium Lindeni, 6*l.*; Cypripedium caudatum, 7*l.* 10*s.*; and Vanda Lowii 9*l.* 15*s.* Altogether the sale, which consisted of 195 lots, realised about 400*l.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—See that climbers and all plants of rambling habit have due attention in the way of stopping and watering. Camellias forced into wood should have a trifling check as soon as the young leaves have attained their full size; this is best accomplished by diminishing the supply of water at the root. Continue, however, to shade and syringe morning and evening. See that growing Orchids receive attention as regards shading and atmospheric moisture; the latter is often deficient in many structures, or, if present in sufficient amount, of too fluctuating and capricious a character to be of real value. In mixed greenhouses let us presume that a climate is maintained somewhat in advance of that of the cool greenhouse. By keeping one end of such a house (the end where the hot water enters) closer, using more atmospheric moisture, and at the same time a greater amount of air at the other end, it is by no means impossible for the amateur to indulge in many of the luxuries of larger establishments. Repot and propagate Begonias. This is one of the most useful families of plants that can be grown. Keep up a proper system of cultivation, by means of sweet and healthful soils, and skilful potting, together with complete drainage, and the constant use of weak and clear liquid manure, during the growing season. Cold pits will now be occupied with some of the early struck or potted off stock, hardening for the flower-garden. Any spare room may be occupied with the thinnings of other plant houses.

FORCING DEPARTMENT.

Pineries.—See that good mellow turfy soil is ready under cover for shifting processes; also materials for thorough drainage, such as broken crocks, rough bones, charcoal, &c. Use clear liquid manure to swelling fruit, when necessary; and keep up a lively heat, with plenty of atmospheric moisture.

Vineries.—Late Grapes, such as West's St. Peter's, Lady Downe's Seedling, Black Damascus, Muscats, &c., will now be budding fast. Let disbudding, tying, stopping, &c., be duly attended to, according to principles laid down for the earlier houses.

Peaches and Nectarines.—Continue to keep the shoots well tied in in the early house, and be careful not to get them crowded. In disbudding, the bearing wood of the present year should be divested of all shoots except the terminal one and those near the base. When a deficiency occurs in any part of the tree, more may be tied in. Ventilate freely in fine weather, and be careful to close up early in the afternoon. Syringe once or twice daily, and keep a moist atmosphere by throwing plenty of water on the paths, borders, &c. Attend to the disbudding and thinning of the fruit in the second house.

Figs.—As the season advances gradually raise the temperature of the house. Syringe mornings and afternoons. Keep a moist atmosphere. When the borders require watering, give them a good soaking. Plants in pots and tubs should have some weak manure water occasionally.

Melons and Cucumbers.—Effect a second sowing of ridge Cucumbers; get the earliest sown hardened forthwith, preparatory to turning out, and let trenches for them be prepared. A trench thrown out 3 feet wide and 2 feet deep, and filled to a foot above the ground level with such materials as litter, Grass mowings, or leaves, with a little hot manure, all thoroughly blended, will make an excellent bed. When completed, raise mounds of soil 3 or 4 feet apart, to receive the hand-glasses, leaving the residue uncovered with soil for the present.

FLOWER GARDEN AND SHRUBBERIES.

Thorough-dress all beds and borders; prepare stations on lawns for extraordinary specimens of ornamental plants, as large Fuchsias, &c., putting drainage in the bottom, and good turfy and mellow compost above. Trim and prune all climbers on out-door trellises, or conservative walls; and prepare stations for plants to fill up blanks.

Take care that the soil is close round the neck of rising plants of Ranunculus; remove all weeds as they appear, and if the beds are infested with worms, pour lime-water in the holes which they make on the surface. The forward state of Tulips this season demands for them especial attention. When the flowers begin to show colour, the top cloths of the awning may be put on. Carefully examine all diseased foliage, and expose the affected parts as much as possible to air. Apply sticks as soon as possible to Carnations and Picotees, if delayed much longer the roots will be injured by their insertion.

HARDY FRUIT AND KITCHEN GARDEN.

Lime is well known to be useful for destroying snails and slugs; it is, however, not always at hand in a quick state. Cinder ashes riddled to the size of Radish seeds, all dust being excluded, will therefore be found a good substitute. These strewed over young crops when just emerging from the ground will be found to be an efficient protection. A handful of good Peruvian guano, blended minutely with these ashes, would also prove to be a ready mode of manuring a weak seed bed. A sloping bank should now be prepared, and planted with nice runners of the Alpine Strawberry, for fruiting in September and October; plant three in a patch, at intervals of 15 inches; the ground between should be covered with slates when the plants are established. Sow for succession round Spinach in a cool aspect; and let all Beet, Scorzonera, Salsafy, &c., be got in, if not done, these root-crops as Mr. Earley (see p. 53) directs. Secure plenty of good Parsley in highly manured beds, and examine and renew Herb plantations. Make a fresh bed or two of the last for next year's planting; this should be done every second year in all gardens, as the old plants are liable to wear out. If not already done, thin suckers from Raspberries, leaving four or five to each stool, and thoroughly clean all Strawberry plantations.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the Week ending April 15, 1863, as observed at the Horticultural Garden

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 9	21	29.938	29.726	57	48	52.5	49	47	S.	.06
Friday 10	22	29.775	29.621	60	48	54.0	50	48	S.	.05
Satur. 11	23	29.826	29.745	60	45	52.5	51	48	N.	.02
Sunday 12	24	29.900	29.786	63	35	49.5	51	49	N.E.	.01
Mon. 13	25	29.942	29.908	62	34	48.0	51	49	E.	.00
Tues. 14	26	29.910	29.856	61	27	44.0	51	49	S.	.00
Wed. 15	27	29.954	29.921	66	36	51.0	50½	49	E.	.00
Average.		29.892	29.794	61.3	39.1	50.2	50.5	48.4		.13

April 9—Overcast, densely clouded; fine and mild at night; rain.
— 10—Overcast; cloudy; overcast; lightning and slight rain at night.
— 11—Very fine; overcast; fine; slight shower.
— 12—Slight shower; fine; overcast.
— 13—Fine; very fine throughout.
— 14—Uniform haze; overcast, fine; frosty at night.
— 15—Fine; very fine throughout.
Mean temperature of the week 4¼ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending April 25, 1863

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 19	58.1	35.0	46.5	18	0.45 in.	6	11	3	3	1	7	6	1
Mon. 20	59.6	34.8	47.2	14	0.39	5	7	5	2	—	9	5	3
Tues. 21	58.6	37.1	47.8	14	0.28	4	6	6	3	2	5	8	3
Wed. 22	58.3	37.6	47.9	20	0.32	5	8	5	3	1	5	7	3
Thurs. 23	58.3	37.0	47.6	20	0.52	2	8	5	1	4	6	5	6
Friday 24	58.2	35.9	47.1	15	0.60	5	6	6	5	2	8	3	3
Satur. 25	59.1	37.6	48.3	16	1.40	5	7	5	3	7	5	2	3

The highest temperature during the above period occurred on the 25th, 1840—therm. 80 deg.; and the lowest on the 24th, 1854, therm. 18 deg.

Notices to Correspondents.

Aponogeton distachyon: *H W.* If the tubers are planted under water at a sufficient depth to be beyond the reach of frost, it will stand uninjured through the winter. Of course it will not bloom so early thus treated, as when grown indoors, or in water which is at all influenced by heat.

Books: *J J D.* You will probably find what you want in the volumes of the "Florist" for 1859 and 1860, or in M'Intosh's Greenhouse; but the subjects are treated on, in most gardening periodicals.—*Clara.* The best account of the varieties of British Ferns is in the 8vo edition of the Nature-Printed British Ferns, in two volumes; and the most useful portable book on the subject is Moore's Handbook of British Ferns.—*C R.* Thompson's Book of Annuals, with its Supplement, will afford you useful information.

Cloth of Gold Rose: *Catharina.* Plant it against a south or east wall, and prune very little. Then when it becomes well established, you will probably get flowers. Consult the new Edition of Mr. Paul's Rose Garden.

Emigration: *N Z.* will be obliged by some of our Correspondents informing him what chance of success there is for a Gardener in New Zealand, and the rate of wages paid to good men of his class in that colony.

Grapes: *R W.* Yours is not a solitary case. We have always considered such an affection to be one of early shanking, and if we are correct in our notion, you must look to the condition of the roots, which you will probably find unhealthy, or exposed to some unfavourable influence. *M. J. B.*

Hollies: *Ilex.* The berries are best gathered after becoming fully ripe in the early part of winter, stored in heaps intermixed with sand, and sown the following autumn. There is nothing gained in the way of a crop by sowing sooner.

Names of Plants: *G.* Yes, Abies Albertiana.—*G Hall.* Narcissus incomparabilis, apparently.—*J B.* Fritillaria Meleagris.—*W H Laing.* It is not Lanopetalon, but Lasiopetalum ferrugineum, an old-fashioned greenhouse shrub.

Old Myrtle: *A M C.* If it is merely affected by thrips you should be able to cleanse it by two or three good fumigations repeated on successive evenings, and supplemented by good engine washings. It may be all the better to prune moderately close as you propose, in order to cleanse the wall by washing it thoroughly. Probably the roots are dry, which would favour the thrips. Hot water of the temperature you name would not be likely to do any injury, unless to very young growth.

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MR. BAILEY DENTON, C.E., maintains a large staff for the execution of Land Improvements by a commission of 5*s.* per acre for Under Drainage, and a fixed charge for Outfall and other works.
For particulars apply to him, at 52, Parliament Street, Westminster, S.W.

AGRICULTURAL and CHEMICAL COLLEGE, 37 and 38, Lower Kennington Lane, London, S.
ASSAYS and ANALYSES promptly attended to by J. C. Nesbit, Lansdell & Co.

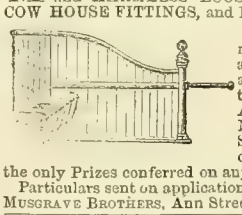
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Gentlemen, Farmers, or others, desirous of practical knowledge in Chemical Analysis, or Assaying, may receive instruction at the College, where the extensive Laboratories give ample facility for pursuing their studies, and there is accommodation for a limited number of Resident Students.
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MR. JOSEPH BEAUMONT, Land Agent, Surveyor, and Drainage Engineer (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements. Valuations made for Sales, or the re-letting of Farms.
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THE LANDS IMPROVEMENT COMPANY.—Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
To Landowners, the Clergy, Estate Agents, Surveyors, &c. in England and Wales and in Scotland.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
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Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable William Napier, Managing Director, 2, Old Palace Yard, Westminster, S.W

PROFESSOR BROWN, Veterinary Inspector to the Bath and West of England Agricultural Society, 13 years Lecturer on Veterinary Surgery at the Agricultural College, may be consulted on Diseases of Horses, Cattle, Sheep, Dogs, &c.
Infirmary, White Horse Yard, New Cavendish Street, Portland Place, W.

To Flock Farmers.
ANTHYLLIS VULNERARIA, or LADIES' FINGERS; a newly-introduced Forage Plant. Excellent food for Sheep, of which they are very fond. Very productive on Light Sandy and Chalky Soils; the plant covers the ground like a thick mat—its stems run up from a foot to 18 inches high. On sandy and chalk flock farms it is invaluable, growing where other seeds fail. It is very healthy food, on which sheep never scour, let the weather be ever so wet. It is an exceedingly good change for Clover and Sainfoin, producing as much or more food. Very kind for the Wheat plant. It is perennial. On referring to Sowerby's "Botany," he says the plant is highly worthy of cultivation as a food for cattle, and productive of milk. The plant was first brought into cultivation in 1858, by H. Stebbing, the present Grower.
Quantity of Seed per acre, 16 lbs, to be sown with the Barley. Price 1*s.* 9*d.* per lb. Orders will be received by
Mr. H. Stebbing, The Hall Farm, Stow Bedon, Attleboro', Norfolk.

Exhibition Prize Medal 1862.
MUSGRAVE'S PATENT STABLE FITTINGS and HARMLESS LOOSE BOXES, PATENT IRON COW HOUSE FITTINGS, and IRON PIGGERIES.

These inventions are recommended as possessing numerous advantages not to be found in anything hitherto made. At the late Meeting of the Royal Agricultural Society at Leeds, Musgrave Brothers received a Silver Medal, and two Awards of "Highly Commended," being the only Prizes conferred on any competitor in this class.
Particulars sent on application to the Inventors and Makers, Musgrave Brothers, Ann Street Iron Works, Belfast.

AGRICULTURAL and HORTICULTURAL TOOLS.—Threshing Machines for Steam and Horse Power, Ploughs, Waggons, Carts, Turnip Cutters, Cake Breakers, Chaff Cutters, 50*s.*, &c. Price List free. Illustrated Catalogues on receipt of six postage stamps.
Burgess & Key 95, Newgate Street, E.C.
Works: Brentwood, Essex.

Do as Others Do!
BUY YOUR SEED BAGS from JAMES T. ANDERSON, Sack and Bag Maker, and Russia Mat Merchant, 15, SHERBORNE LANE, King William Street, London, E.C., who will supply you with a first-rate article at a low price. ARCHANGEL MATS, the pick of the season. Russian and Prussian Dunnage Mats.
Prices sent free on application.

THE FIRST GREAT INTERNATIONAL SHOW of SPORTING and OTHER DOGS will be held at the AGRICULTURAL HALL, Islington, on MAY 25, 26, 27, 28, 29, and 30, when upwards of ONE THOUSAND POUNDS will be distributed in Prizes, in Cash or Plate at the option of the Winners, amongst which will be the following:—

	£	*s.*	*d.*
FOX HOUNDS.			
Stud Dogs, not less than three-season hunters—First Prize	20	0	0
Second Prize	10	0	0
Bitches, not less than three-season hunters, having reared a litter of Puppies in 1862—First Prize	15	0	0
Second Prize	10	0	0
(Unentered Hounds.)			
Best Dog—First Prize	10	0	0
Best Bitch—First Prize	10	0	0
For the best Three Couple of Hounds from a Pack having hunted last season	25	0	0
HARRIERS (Not exceeding 20 inches in height.)			
For the best Three Couple from a Pack hunted last season	£15	0	0
BEAGLES (Not exceeding 14 inches.)			
For the best Three Couples of Dogs or Bitches from any Pack hunted last season—First Prize	15	0	0
GREYHOUNDS. (Champion Class.)			
For Winners of a 32, or more Dog-stake, or having won Stakes to the amount of 500*l.* at any Public Coursing Meeting—Best Dog	40	0	0
(Champion Class.)			
Best Bitch, ditto ditto ditto	25	0	0
(Dogs not eligible for Champion Class.)			
First Prize	£15	0	0
Second Prize	10	0	0
(Bitches not eligible for Champion Class.)			
First Prize	£15	0	0
Second Prize	10	0	0
Best Brace of Sapling Dogs born on or after January 1, 1862—First Prize	15	0	0
Second Prize	10	0	0
POINTERS—Large Size, over 55 lb. weight. (Champion Class.)			
Best Stud Dog	£20	0	0
(Dogs not eligible for Champion Class.)			
First Prize	£10	0	0
Second Prize	5	0	0
(Bitches over 50 lb. weight.)			
First Prize	10	0	0
Second Prize	5	0	0
(Best Brace of Puppies under Six Months Old).			
First Prize	£10	0	0
Second Prize	5	0	0

(Pointers, Small Size under 55 lb. weight, same Prizes as Large Size.)
Full Prize Lists and Forms of Entry may be obtained on application to the Secretary, at the Offices of the Company, Barford Street, Liverpool Road, N., where Entries must be made. By Order. S. Sidney, Secretary.
Offices of the Company, April 18.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
Besides the usual Prizes for Cattle, Horses, Sheep, and Pigs, SPECIAL PRIZES, amounting to £560, including ESSAYS for FRUIT, CIDER and PERRY, HOPS, and SALT, are offered by the Local Committee, to be competed for at the Worcester Meeting. For Prize Sheets and particulars apply to
H. Hall Dare, Esq.,
12, Hanover Square, London, W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
WORCESTER MEETING, 1863.
STOCK and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to
H. Hall Dare, Secretary.
12, Hanover Square, London, W.

REDUCTION IN PRICE.

PHOSPHO GUANO.

The Prices for the Season 1863 are as follows, delivered Free on Board, or on the Rails at Liverpool.

For 30 Tons and upwards	£10	5	0	per Ton, net cash.
For 10 Tons up to 30 Tons	10	10	0	,, ,,
For 5 Tons up to 10 Tons	10	15	0	,, ,,
For smaller quantities	11	0	0	,, ,,

The Price will not exceed 12*s.* per Ton additional if delivered at any other Port in Great Britain.

PETER LAWSON & SON, Contractors.
GEO. SEAGRAVE & CO., Brokers.
WILLIAM DIXON & CO., General Agents.

28, KING STREET, CHEAPSIDE; and 15, LAWRENCE LANE, LONDON, E.C.

The Agricultural Gazette.

SATURDAY, APRIL 18, 1863.

The Babraham sale on Wednesday last, by which one-half the herd of the late Mr. Jonas Webb was scattered over England, Scotland, and Ireland, and some of it was despatched to Germany and even to Australia, resulted in the realisation of a very high average price. Eighty-two animals fetched 55*l.* 15*s.* apiece, or 4571*l.* 14*s.* in all. Sixty-two cows and heifers realised 59*l.* 12*s.* 7*d.* each, and 20 bulls averaged 43*l.* 14*s.* 9*d.* apiece. It may still further indicate the character of the sale if we say that 17 heifer calves fetched close on 50*l.* apiece—one of them, *Drawing Room Rose*, to which our report particularly referred the other day, realising no less than 225 guineas.

The following are the average prices of the six different families:—39 *Celias* averaged 51*l.* 15*s.* 6*d.*; 15 *Dodonas* averaged 50*l.* 5*s.* 2*d.*; 11 *Sylphs* averaged 55*l.* 7*s.* 3*d.*; 7 of the *Beauties* averaged 102*l.* 18*s.*; 7 from *Bodice* fetched 44*l.* 5*s.* each; and 3 *Gwynnes* realised 53*l.* 4*s.* apiece. The priced list, while it indicates remarkable evenness and uniformity of general value, yet illustrates sufficiently the effect, whether of Kirkleavington breeding, or, as some will say, of mere fashion. Thus Mr. Hales, of North Frith, Tonbridge, the sale of whose herd we reported last autumn, unable to resist the attractions of the Short-horn breed, is again a buyer, purchasing *The Beauty*, now a 10-year old cow, one of a distinguished Kirkleavington family, which Mr. Webb bought four years ago at Cobham Park for 160 guineas.

Put up now at 35 guineas, the next bid was 70, and the last 100 guineas. Mr. HALES had bought her daughter and sister, *Blush* and *Moss Rose*, for 110 and 260 guineas respectively at Cobham. Mr. BETTS bought the latter at North Frith last autumn; and he has here become the purchaser of *Red Rose*, another daughter, for 160 guineas, and of *her* twin-calves *Red Rose* 2*d* and 3*d*, seven weeks old, for 53 and 50 guineas respectively. He fought well also for the possession of *Drawing-room Rose*, another daughter of the old cow, but Australian gold proved victorious, and Mr. IRVING, of Sydney, became the purchaser for no less than 225 guineas.

Next to the descendants of *Beauty*, those of *Belinda*, a daughter of *Sylph*, realised the highest average price. Mr. PAWLETT, who was a purchaser of some of the same family at the Milcote sale, was a purchaser here, paying 84 guineas for *Daisy*, a four-year-old cow; and Mr. WALKER, of Birmingham, paid 100 guineas for *Miss Battersea*, a yearling heifer, another of the *Sylph* family. Among the prices realised by the *Celias* may be named 100 guineas for *Miss Emily*, a red cow shown at Battersea, bought by Mr. SHARP, of East Grinstead, and 100 guineas given for *Marchioness of Bute* by Mr. Irving, of Sydney. Prices of 100 guineas and upwards were also realised for descendants of *Dodona*. Eighteen of the animals go to Austria and Prussia, and several, as already said, to Australia. A large number are distributed throughout the Eastern and Midland Counties, and many go to Scotland and to Ireland.

A very large company were present to witness the dispersal of the herd by Mr. STRAFFORD and Mr. CARTER JONAS. A finer day could not have been desired, nor, although many distinguished men who have frequently attended Babraham sales were absent, more fortunate circumstances in every way.

The remainder of the herd will be disposed of on the 24th of June. The 15th of July, which had been previously named for it, has been abandoned because it is in the week of the International Show at Hamburg.

A CORRESPONDENT has sent us the following letter, which, as directing attention to a most important subject, we give here entire:—

"I enclose a sample of "finest Lawn Grass Seeds," sold by a nurseryman in this county to a neighbour of mine at the rate of 1*s.* per lb. Would you be kind enough to inform me how many of them are not common Rye-grass, besides a sprinkling of White Clover. On my representing to him that I thought he had been grossly imposed upon, he applied to a most respectable Edinburgh house, from whom I understand he has got a proper mixture, and, curious enough, at a fraction more than half the price of the rubbish first sent him. I beg to hand my address. *D.*"

A cursory glance at the small sample sent convinced us that there was so much of truth in our Correspondent's strictures that we determined to make as careful an analysis as we could of the contents of the packet sent us, which we here give, remarking that our estimates are made up for the imperial pint, which we conclude weighs somewhere about 5 oz., being at the rate of about 20 lb. as the weight of a bushel, which was consequently sold at the rate of 20*s.* the bushel. The contents consisted of weeds; other plants, though not weeds, useless for fine pasture; and a few good Grasses, in which most certainly the Rye-grass prevailed, while some good lawn Grasses were not even represented.

TABLE OF CONTENTS OF A PINT OF GRASS SEEDS ("FINE LAWN!")

Botanical Names.	Trivial Names.	In a Pint.	Remarks.
1. Plantago lanceolata	Lance-leaved Plantain	1,600	Weeds even in pasture, much less in lawn.
2. Myosotis arvensis ..	Corn Forget-me-Not	800	
3. Holcus lanatus ..	Woolly Soft Grass	400	
4. Bromus mollis ..	Soft Brome or Lop Grass	160	
5. Lolium perenne ..	Perennial Rye-Grass	36,000	
6. Anthoxanthum odoratum	Sweet Vernal Grass	6,400	A bad lawn Grass
7. Festuca ovina ..	Sheep's Fescue	4,000	
8. Trifolium repens, &c.	White Dutch Clover	11,520	
9. Medicago lupulina .	Nonsuch Trefoil	960	Of doubtful propriety.

A few others not computed.

Now, looking at this table of contents, we can only conclude that—5, Rye-grass; 6, Sweet Vernal; 7, Fescue; 8, Dutch Clover; and 9, Trefoil, were meant to be the mixture for what is here termed "finest lawn Grass seeds," whilst we will give credit to the *nurseryman* for estimating—1, Plantain; 2, Forget-me-Not; 3, Soft Grass; and 4, Lop Grass as weeds in a lawn of any description; these latter then were probably impurities of the Rye-grass, &c.

Now did this nurseryman know that the seeds were so dirty?—if so, why did he so call the bulk from which our sample was taken? If he did not know, what an exhibition of carelessness has he made. But perhaps, after all, he was not the author of the mixture; he might have got it from a wholesale house; but even then, if he knew his business, he had a fine margin for profit, and if he had not, his seedsmen must have put it into him rather stiffly. So that, viewed in any light, here appears to us to be a case of gross ignorance or worse.

We are bound to say that in as far as the seeds go they are equal if not superior to those usually sent out for Grass mixtures, for although it is true they contained a little more mouse dirt than we like, yet they were probably not very old shopkeepers; but in saying this we must warn our readers that good seeds are necessarily good kinds, or that they are mixed in proper proportions.

What we require in Grass admixtures is that they shall be good sorts for our purpose, chosen by men of intelligence; that the seeds themselves should be of good quality and mixed in the best possible proportions, and no one ought to refuse to pay a little beyond the seed value for such intelligence; but experience teaches us that seldom are these conditions complied with—anything and everything is not too bad for Grass admixtures. Our Correspondent states that "he has got a proper mixture from a respectable house at a fraction more than half the price of the rubbish." Now let it be understood that we know nothing of any of the parties here concerned; but we can well understand how a customer may be safer with a "respectable house," and we cannot help thinking that houses of this character will show their respectability all the more strongly by aiding us in the exposure of malpractices like those to which we now point.

And now, as regards the examination of specimens of this kind, all who have done it must know that it is no slight or enviable task, as they are not matters that we can lay in the balance with that accuracy which the chemist can the constituents of a sample of guano; still, even the chemist will necessarily have the charge brought against him of a difference in analysis, for where men are rogues enough to knowingly vend a spurious article, they may easily fabricate specimens and cases for analysis.

Let, however, the botanist or the chemist choose his specimens, and we cannot but think that the one as well as the other will be enabled to affix a money value for a mixture, whether of superphosphate or of seeds; and as regards the latter, this is becoming every day a matter of the greatest importance, as nurserymen and seedsmen are everywhere advertising such wonderful Grass mixtures—of which this specimen of "finest lawn Grass seed" is no uncommon sample.

STEAM CULTIVATION.

MENTMORE, NEAR LEIGHTON BUZZARD.

(*Concluded from* p. 347.)

THERE being no farm steading on the land suitable to its manifold requirements previous to 1857, the first corn crops grown here were sold standing—and, in consequence, much London stable dung as well as grain had to be purchased for the following season's crops. Capital London manure is delivered per canal and carted on to the land for 6*s.* 6*d.* per ton.

In illustration of the primary measures of improvement, &c., up to that date adopted, Mr. Taylor states that 300 acres of white corn, namely 225 acres Rough Chaff White, and Red Lammas Wheat, and 75 acres Canadian Oats, were sold by auction (the right to buy back the straw being reserved however). This sale realised nearly 3000*l.*

After four years of steam cultivation had been carried on, the Cheddington Farm was cropped, and yielded as follows in 1861:—

White Wheat ..	100 acres	producing nearly	5½ qrs. per acre
Oats	70 ,,	,,	8 quarters per acre
Beans	30 ,,	,,	6 ,,
Mangels	40 ,,	,,	30 tons per acre
Swedes	50 ,,	,,	20 ,,
Turnips and Kohl Rabi	30 ,,	,,	25 ,,
Clover and Seeds ..	80 ,,	about	2 ,,
Tares, Vetches, Cole seed, &c.	50 ,,	luxuriant crops of each.	

The remainder of the land was in dead fallow.

The Wheat realised in London market, 65*s.* per quarter on the average. All the spring corn was consumed at home on the land.

The usual cultivation of the clay lands in the neighbourhood is on the 3-year rotation, Wheat, Beans, fallow, with occasional Vetches and seeds. The cropping of the above 500 acres on the Mentmore Home Farm was last year as follows:—

Wheat	50 acres
Beans	40 ,,
Oats	45 ,,
Clover and seeds	80 ,,
Mangels	30 ,,
Swedes	50 ,,
Vetches	40 ,,
Kohl Rabi and Rape	30 ,,

The rest bare fallow.

The cropping is taken in any order, according to requirements:—the "Mentmore rotation" being followed—by which we are to understand that it is the landlord or his deputy, over whom no penalty for the infraction of rules of cultivation lies, whose will or judgment decides each year of every field what crop it shall bear.

When Baron Rothschild entered as a tenant as well as a landlord on the first portion of his land, a great deal of hired horse labour was employed, and 20*s.* per acre was the charge for a four or five-horse plough team, driven by a man and a boy. The work thus accomplished was perhaps 4 or 5 inches deep, and about 3 roods per diem were got over per team. If the land were in good order it was turned over in untrodden slices, and another half day's work of the same team with the harrows would reduce it to something like tilth. How imperfect the work, and how much more costly than that of the steam-drawn grubber, any one can judge.

The cultivation and regular carriage of the home estate is now done by 20 horses; which are worked in the neighbourhood four or five horses in a plough team. But for the extra work of improvements, &c., being carried on, as distinguished from farming operations proper, cartage is hired in the neighbourhood at the rate of 5*s.* per diem for one horse and cart including drivers (generally boys, managed by the owner of the teams), the time employed being the same as for day labourers.

Five and six horses per 100 acres of tillage land are a common allowance for the cultivation of the neighbourhood, and taking into account the great extent of pasture land attached, it is not too much to say that the farm here could not be worked by less than 30 horses without aid from steam; so that at least 10 are saved by the adoption of steam power.

All the farm horses are managed by one experienced horse keeper, receiving 15*s.* per week, and by boys receiving 6*s.* to 9*s.* per week, which of course includes the necessary attendance on Sundays. They get good hay chaff and Oat straw to browse *ad lib.*, 1 bushel of Oats a week all the year round, with half a bushel to 3 pecks of Beans during the severest portion of the working year. Rock salt in lumps is placed in the mangers, and a few Mangels or Kohl Rabi are thrown in also in their season, which the horses are found to relish much.

Vetches, Rye-grass, &c., are cut green for them, and they are fed in the large roomy cattle yards during the summer months, by which plan the stock of manure is largely increased even at that season of the year. The shoeing and other blacksmiths bill for the year is 35*l.* for the farm. The harness and saddlery expenses, the cost of repairs of carts and waggons, &c., amount to about 50*l.* per annum on the average. The farrier does not cost 5*l.* a year. Putting the horses at 40*l.* apiece, they will cost 4*l.* a head per annum for deterioration of value and for risk of death. And any one adding all these items together and charging 3*l.* a ton as spending price for the hay; 3*s.* a bushel for the Oats, 5*s.* for the Beans, and 9*d.* a cwt. for the cut and carried Vetches, will find that the team of 20 horses costs Baron Rothschild at least 700*l.*, and that supposing he saves 10 horses by his steam cultivation, he saves 350*l.* in this way. Let us now see what the substituted steam power costs him. He was one of the earliest adopters of steam cultivation.

He purchased Smith's apparatus as made by Messrs. Howard in the summer of 1857. He has thus had five years' experience of it. The windlass (waggon fashion), an 8-horse-power single cylinder engine by Butlin, 1400 yards of iron wire rope, and the cultivators, anchors, rope-porters, and snatchblocks cost 500*l.* The iron wire rope gave way the first year, and 1600 yards of steel wire rope, costing 70*l.* was purchased in 1858. The whole apparatus, windlass, grubber, *this* wire rope, and engine, were in use up till Midsummer, 1862. The rope is still good enough for second cultivation, *i. e.*, of land already once moved by the grubber. The engine is nearly as good as ever, and so are the windlass and grubber. Nevertheless, in the autumn of 1862, Baron Rothschild having work for another engine, and perceiving the need soon of purchasing another rope, and moreover not perfectly satisfied with the performance of the Woolston grubber, which has been found at Mentmore less steady to its work, more liable to jump out of work than it ought—resolved to try Messrs. Howard's own apparatus, and so procured Clayton & Shuttleworth's 10-horse power engine and the Bedford grubber, windlass, and apparatus generally, together with the 3-furrow balance plough, which has just been declared an infringement of Fiskin's patent owned by Mr. John Fowler. When over Mentmore lately I saw Butlin's single cylinder 8-horse power engine, six years old, but none the worse for wear, busily engaged in chaff cutting and corn crushing, and the new 10-horse power engine

and Bedford apparatus cross grubbing in the field. The repairs of the whole apparatus, including tear and wear of rope and engine, Mr. Taylor says have not exceeded 40*l.* a year. This is on a valuation of the apparatus to the farm on which it is at work. A valuation for sale would no doubt be a good deal lower. The original apparatus, it may be mentioned, *is* for sale. And probably there would be on it, engine and all, a loss of at least 300*l.* on the original purchase; while the actual bills for repairs, including one new rope, 70*l.*, must be at least £185 up till now. Putting however this utmost charge that can be laid against the work of steam cultivation on the score of expense, it will prove in the end to have been much cheaper as well as much better than that of horses.

The following has been the daily expenditure hitherto:—

	s.	*d.*
Fuel for 8-horse power engine, less than ½ a ton daily, costing 15*s.* a ton on the ground	7	6
Labour.—Engineer, 2*s*; 2 anchormen, 5*s.*; ploughman, 2*s* 6*d.*; 2 windlassmen, 5*s.*; 2 boys at 1*s.* 2*d.*; water cart, 3*s.*	20	10
Oil	1	0
	29	4

For this, with the 3-tined cultivator, 4 acres of first cultivation have been daily accomplished over any stubble land, 6 to 8 inches deep; and for this 7 acres have been accomplished of crossing this first grubbing with the 3-tined grubber. The first grubbing costs about 7*s.* an acre, the second grubbing costs about 4*s.* an acre; and for 11*s.* there is thus accomplished an acre of better work than with plough and harrow used to cost from 30*s.* up to 40*s.* an acre. In addition, however, to 11*s.* must be added the annual charge for tear and wear. A sum of 240*l.* in all, or 40*l.* per annum, must be thus charged against the work accomplished; and this, divided amongst the number of acres grubbed, amounts to 1*s.* 10*d.* per acre.

The following table gives the repairs and quantity of work done by the old apparatus since its purchase in 1857:—

Actual Repairs.

	£	*s.*	*d.*	
From Oct. 1857 .. to Oct. 1862 ..	185	10	9	including rope at about 17*l.* per an., 4 years.
	53	5	3	cost price of wire rope worn out in the first year.
Six years..	£238	16	0	

Or about 40*l.* per annum over six years.

Year.	No. of Acres grubbed.	No. of Days at work.
Autumn of 1857	275	68
,, 1858	400	83
,, 1859	475	102
,, 1860	415	87
,, 1861	455	98
Spring and Summer of 1862	225	47
Total	2245	485
Autumn of 1862..	350	75*

* Including removals.

The last items are to the credit of the new apparatus; and in addition to these there must be put down since the first Tuesday in February, and up to Thursday, the 19th of March, during which only two days had been lost in shifting the apparatus; during 36 days, therefore, 40 acres of Oat stubble ploughed once for Beans 8 or 9 inches deep, and harrowed by steam power with a tool which drags the whole of the moved earth, 5 acres of Turnip land ploughed for Oats, 35 acres of Bean stubble for Oats, stirred or grubbed once with the 3-tined grubber and crossed with the same tool, and 20 acres of it crossed another time with the 5-tined grubber. Here are 45 acres of ploughing and 90 acres of grubbing, and 45 acres of heavy dragging equal to a grubbing, accomplished in 36 days, equal to 180 acres altogether, or 5 acres a day, which is a lower average than usual; first, because in February the days are short, and next because the 45 acres of ploughing with Howard's 3-furrow balance plough were done at a slower rate than usual—owing to its being a new tool to which the men were as yet unaccustomed.

This work has been accomplished at a cost of 56*l.* 8*s.* for fuel, oil, and wages, or at the rate of 6*s.* 3*d.* an acre. By horse power, at 1*l.* a day for a team of five, the 45 acres of ploughing would have cost at least 60*l.* The 45 acres of harrowing could not have been done at all by horse-power as steam-ploughing did it—but it would have taken at least 10 days of a team to do it anyhow after the same fashion, costing 10*l.* The 35 acres of grubbing would have taken six horses 10 days, and the crossing, which could not have been done by horses at all without doing more harm than good, would have taken four horses as many days, and the third operation over 20 acres would have taken five or six days more. To 70*l.* for the ploughing and harrowing there must therefore have been added 30*l.* for the cultivating, or 100*l.* in all—nearly twice as much as steam power cost, and for very inferior work to that done by it.

The tear and wear of the new apparatus hitherto has been nothing, but if the same charge per acre as that already estimated on this account be added, it still makes the thoroughly efficient work of steam-drawn cultivation wonderfully cheap.

Mr. Taylor speaks with great confidence in praise of Howard's grubber, which he admires for its steadiness at work, and for the facility with which it can be drawn back for clearance when it gets clogged by filth or depth of work. He also speaks of the great satisfaction which Clayton & Shuttleworth's 10-horse power engine gives. It is a draught engine capable of self-propulsion, and dragging windlass and everything else behind it from the field, so that in place of six (generally on his soil) horses to the engine, three horses to the waggon-shaped windlass carrying rope, rope porters, &c., and a team to the cultivator, and at least half a day of all this force and of the men in thus shifting from one field to another and in setting to work, which used to be the rule, now the engine of itself if the roads be good, or at most with one horse in the shafts for guidance, hooks on everything and trains out of one field into another without difficulty. But the land lies open at Mentmore, and a great deal of it has been laid in very large fields, so that the labour of removals is not great. In the case quoted above, the engine had not shifted while three times the grubbing of a 35-acre piece had been accomplished. This self-propelling power of the engine it is intended hereafter to use in draught work of coals, &c., along roads from the station, and perhaps in getting crops off the fields, though here the advantage seems more doubtful. The whole apparatus as now used, costs—for engine, with wrought iron wheels, 420*l.*—for plough cultivator, windlass, rope, and rope porters, snatch-blocks, anchors, &c., including 400 yards of extra rope, 299*l.* The daily expenses are as stated above 29*s.* 4*d.*, for the new engine consumes only 10 cwt. of coal, and working at 45 to 65 lbs. of steam is quite master of the heavy work which the Mentmore soil gives it to do.

There are many other particulars of interest to the agriculturist which one gleans on a visit to Mentmore. The mowing machine is employed on 200 acres of permanent Grass land as well as on the Clover. Both Burgess & Key's and Cranstoun's tool do satisfactory work cheaper than hand labour, notwithstanding that here it is the custom to let the mowing, the pitching in the field to waggons, and the *superintendence* of the building in the yard, to the same party—who will undertake it for 5*s.* an acre and one gallon of beer per acre. This seems so much less than is paid elsewhere quite as far from London, that it is worth while recording it.

The best land, consisting of about 100 acres prime old pasture (in one division of the intended park arrangement) is stocked with a mixed herd of some 50 or 60 head of Short-horn, Hereford, and Devon oxen, usually bought in in the spring at three or four years old, grazed during summer; and through the aid of 2 or 3 lbs. of cake, given them daily on the land after midsummer, the greater part of them get off fat from the pastures in autumn, the remainder being kept on for stall feeding. There is also usually kept a small herd of mountain cattle (Kerry cows and heifers) obtained direct from Ireland every year, and brought in to winter in open yards on Oat-straw (cut) and roots sliced or pulped for them. They graze along with any barren cow stock from the dairy herd, the secondary pastures during summer. They are found when thus liberally treated in winter, and not too thickly laid at Grass, to do exceedingly well here, the whole of them being usually got off the pastures fat by October. All the grazing land is filled in with ewes and lambs until the latter are weaned or sold off fat. 100 head or thereabout of 2-year old Durham or Short-horn heifers, are bought partly at Darlington and partly in the home counties in May, and sold in calf after 10 or 11 months keeping, bulls being kept on the farm for serving them. There are also about 30 milch cows in the dairy herd, chiefly for home supply, and large numbers of calves are bought and sold, some of them fat if they turn out of a kindly sort for feeding, others as heifers in calf, and others again are parted with younger, those being kept which are likeliest to do well. In rearing young stock the calf sucks the cow for three or four weeks, and is afterwards gradually weaned, being fed from the pail, and receiving hay chaff with meal and cut Carrots, which are bought for the purpose, 3 or 4 miles off, at 30*s.* to 40*s.* a ton. There are also 500 ewes, generally half breds or Shropshires, which are bought every autumn and sold fat with their produce during the following summer and autumn. The wether flock, about 500, are folded on the arable farm all summer, and receive cake and corn at Vetches until finished in autumn on Cole-seed or the Clover aftermath, which is invariably fed off here. Early lamb is not attempted. The lambing season commences in February, and the first fat lamb goes off in July, when 6*s.* to 6*s.* 4*d.* a stone are common prices, or 33*s.* to 35*s.* a head; the ewes, too, command 50*s.* besides their fleece The pay for the year's keep of ewes and lambs is thus the difference between purchase at perhaps 45*s.* and the 50*s.*, together with the value of the fleece, perhaps 10*s.*, and 35*s.* the value of the lamb, or 2*l.* in all.

During the ensuing year it is intended to keep on the heifers which would otherwise be sold in calf—rearing a larger number of calves than usual, and sending any surplus milk into London. In this way the risks of marketing are diminished; and they are considerable—it being an understood thing that any lot of newly bought stock goes through the distemper as soon as it gets home. But little is done to them while undergoing the disease, they are merely dosed with sulphur water and a cooling drink or two, and fed with hay on the pastures for awhile if keep is short or the weather cold. Feeding liberally a large head of stock, the cake and meal will average at least 1000*l.* a year. Besides this, considerable purchases of superphosphate and guano are made, and large quantities of bones from the Mentmore kennels are crushed in a bone-mill in connection with the other barn implements driven by steam-power, so that the land by tillage and by feeding is not likely to lose its fertility in Baron Rothschild's hands.

Farm buildings of a temporary character—substantial enough however, though wooden—painted *blue!* and roofed with slate—have been built with probably the idea of removal when the Park is completed. Comfortable yards surrounded by very deep sheds (slated and 20 feet wide)—now filled with a large stock of in-calf heifers—machinery for threshing, chaff cutting, and corn crushing—roomy granaries—long tiers of stalls and boxes for cattle feeding—implement sheds, &c., make up the ample accommodation provided in these quadrangular buildings. They are surrounded by ricks of Wheat and Oats showing strong clean bright straw—and in the fields the stubbles, filled with a capital plant of red and Alsike Clover, look clean and strong. The Alsike Clover is approved as producing a crop almost equal in strength to the Cow-grass, and somewhat of a change on land where common Clover may be taken too frequently.

Among other crops which seem to suit the soil is Kohl Rabi, which is said to yield good produce—capital for the cows and heifers when pulped and mixed with hay chaff.

Here then is the case of a mixed farm of heavy soil on which labour formerly so swallowed up returns that poor Grass land, throwing upwards to the sun as poor an annual growth as is yielded anywhere, was preferred to ploughland cultivation—on which by drainage, steam tillage, cattle feeding, and the direct application of manure, costly, bare fallows have been changed for heavy crops of Beans and Mangel Wurzel. And instead of scanty dairy produce, large sales of Wheat, of mutton, beef, and breeding stock, have been substituted with great immediate advantage to the country, and with ultimate advantage we doubt not to the spirited owner and occupier of the land.

THE FEEDING VALUE OF KOHL-RABI, WITH A FEW REMARKS ON MANGEL WURZEL.

[The following instructive report by Mr. T. Baldwin, Albert Institution, Glasnevin, has been lately published in the Irish Agricultural Papers.]

Some Kohl Rabi having been grown last year on the Albert Model Farm, it occurred to me that it would be instructive to our pupils, and interesting and not uninstructive to the public, if we tested its feeding value practically in the cattle byre. On mentioning the matter to Dr. Kirkpatrick, he, with his usual kindness and desire to promote every object of public utility, encouraged me to carry out my views; and for this purpose we selected four beasts, on which was tried, as carefully as we could, the experiment which forms the subject of this memorandum. On the evening of January 2 last the animals were placed in a four-stall stand, in a very well constructed byre, and given in charge to a pupil named Patrick Hill, remarkable for his steadiness and good conduct. For convenience of reference, we shall divide them into—

Nos. 1 and 2, making up Lot I. Fed on Kohl Rabi, oilcake, and hay.

Nos. 3 and 4, making up Lot II. Fed on Swedish Turnips, oilcake, and hay.

Nos. 1 and 4 were more than "half fat" (using the expression in the sense in which it is employed in "Ewart's Cattle Gauge") when the experiment was commenced, as they had been stall-fed on Swedish Turnips, oil-cake, and hay for some time previously. As they differed very little in weight and condition, they made a good match; and I can say this the more confidently, because I had for several months been in the habit of seeing them at least once a day. Nos. 2 and 3 were young milch cows, which also made a capital match, being as nearly as possible equal in weight and quality.

As the animals fed on Kohl Rabi did not relish it, and as it was desirable to allow for the change which a change of food may produce in the system, the experiment did not really commence till the 12th January. At half-past 4 o'clock, p.m. on that day, I found they weighed as follows:—

No. 1	10	cwt	1 stone.
,, 2	7	,,	4 ,,
,, 3	7	,,	5 ,,
,, 4	10	,,	2 ,,

From that date till the 25th January they got the following kinds and quantities of feeding daily:—

	No. 1.	No. 2.	No. 4.	No. 4.
Roots, stones .. .	7½	6	6	7½
Oilcake, lb.	4½	3	3	4½
Hay, lb.	10½	10½	10½	10½

The roots were given in three feeds, viz., at half-past 6 A.M., 12 noon, and at half-past 6 P.M.; and the cake in three feeds, at 10 A.M., 3 P.M., and half-past 8 in the evening. These hours were adopted because Nos. 1

and 4 had been fed at the same time before I took any part in their feeding. From the commencement, Nos. 1 and 2 showed an unwillingness to eat the Kohl Rabi; but as we presented it to them in as clean a state as possible, they had managed to eat it before the subsequent feed of oilcake. I would have preferred to mix the cake with the roots from the start, but we were unwilling to make too many changes in the feeding all at once.

On the evening of the 24th of January I wrote out the following scale of feeding, which came into use on the morning of the 25th :—

		No. 1.	No. 2.	No. 3.	No. 4.
At 6.30 P.M.	Roots, stones ..	3	2½	2½	3
	Cake, lbs.	1½	1	1	1½
At 12.30 P.M.	Roots, stones ..	3	2½	2½	3
	Cake, lbs.	1½	1½	1	1½
At 6.30	Roots, stones ..	3	2½	2½	3
	Cake, lbs.	1½	1	1	1½
At 9 30	Hay, lbs.	7	7	7	7

In this way the Kohl Rabi was eaten up more quickly than before; still, on no one occasion did I find that they were used in so short a time as the Swedes; and I may here observe that the cows fed on this root showed almost as much unwillingness to eat it at the close as at the commencement of the experiment, notwithstanding that it lasted 40 days. The cattle were again put upon the weighing machine, between 4 and 5 o'clock P.M, on the 11th February, and weighed as follows :—

No. 1	.. .. ..	10 cwt.	4 stones	(barely)
,, 2	.. .. ..	7 ,,	6 ,,	,,
,, 3	.. .. ..	8 ,,	3 ,,	,,
,, 4	.. .. ..	10 ,,	7½ ,,	,,

The increase in live weight in each beast and lot for 30 days may be put thus :—

		Weight on 12th Jan.	Weight on 11th Feb.	Increase in 30 days.
		Cwt. st.	Cwt. st.	Stones.
No. 1 }	Lot 1, fed on Kohl	10 1	10 4	3
,, 2 }	Rabi, &c. ..	7 4	7 6	2
			Total	5
No. 3 }	Lot 2, fed on	7 5	8 3	6
,, 4 }	Swedish Turnips, &c. ..	10 2	10 7½	5½
			Total	11½

It thus appears that the lot fed on Swedish Turnips, oil-cake, and hay increased in live weight in the same time more than twice as much as the lot fed on the same quantities of Kohl Rabi, oilcake, and hay. This experiment and my previous observations leave little doubt on my mind that Swedish Turnips are, weight for weight, better for stall-feeding than Kohl Rabi; and when we add to this, that the average acreable yield of the two crops on the Model Farm last season was 25 tons of Swedes against 13½ tons of Kohl Rabi, their relative value for stall-feeding is soon decided.

I am aware that others have spoken very highly of the crop for feeding purposes; but I have not seen any comparative experiments in support of their views.

I am also aware that in the able and elaborate paper on Kohl Rabi, contributed by Mr. Lawson, of Edinburgh, to the *Journal of the Royal Agricultural Society of England* (vol. xx.), an organic analysis of the root by Dr. Anderson is given, from which it would appear that it ought to possess far higher feeding value than Swedes.

It may be interesting to compare this analysis, which has also appeared in Professor Wilson's work on "Farm Crops," with Dr. Voelcker's proximate average composition of Swedes, as given in his "Chemistry of Food;" and as I propose to offer a few remarks on Mangel Wurzel, I also give its average composition from the same work.

	Kohl Rabi.	Swedes.	Mangel Wurzel.
	Anderson.	Voelcker.	Voelcker.
Water	86.740	89.460	87.780
Nitrogenised compounds or flesh-formers	2.750	1.443	1.540
Respiratory compounds, heat-givers, and fat producers ..	8.620	5.932	8.600
Fibre	0.770	2.542	1.120
Ash	1.120	0.623	0.960
	100.000	100.000	100.000

If these figures represented the average composition of these roots, and if chemical analyses were an unerring test of the absolute or comparative feeding value of the several articles of food, Kohl Rabi would possess far higher value than Swedes, and Dr. Anderson would be perfectly justified in saying, as he has said, in a passage quoted from him by Mr. Lawson, that "Kohl Rabi materially surpasses the best Swedes, which rarely contain more than 9 or 10 per cent. of solid matters, and about 1-5th per cent. of nitrogenised compounds."* It is not, however, safe to found any conclusions on the analysis of a single specimen of any root; and, in the present state of science, it is almost as dangerous to attempt to form an opinion as to the feeding value of any substance by chemical analysis alone. This is not the place to enter more fully into the merits and demerits of chemical analysis, nor do I wish to pass the boundary that separates the domain of the scientific agriculturist from that of the professional analyst; but I must say, in the interest of practical agriculture, that any attempt to found a system of cattle feeding on chemical analysis alone is liable to end in disappointments and losses. The chemist has been eminently useful to the cattle feeder; but the chemist is not in his laboratory competent to form a correct and reliable opinion of the actual relative or absolute value of feeding stuffs.

All my observations on Kohl Rabi as a feeding substance incline me to think that it is better adapted for the production of milk than flesh and fat. I have found that a given weight of it produces fully as much milk and of better flavour than Swedes. The experiment more immediately under consideration is very much in favour of the former root both as regards the quantity and quality of the milk. Thus, the two heifers, which were giving about the same quantity of milk when the experiment began, yielded in 30 days—

No. 2. Fed on Kohl Rabi, &c.	.. ..	92½	quarts.
*No. 3. Fed on Swedes, &c.	.. ..	78	,,

And again, I used lactometers of the same size and construction for the purpose of determining the quantity of cream in the milk, and that produced from Kohl Rabi gave a higher per centage than the other, the excess varying from 1 to 2 per cent., the average of the trials giving 1½ per cent.

It is generally believed that cows fed on Swedes give milk richer in cream than those fed on Mangels; but taking into account the greater flow of milk obtained from Mangel Wurzel, the better flavour of the milk so obtained, the greater certainty of the crop in many cases, more especially where, from being too often repeated on the land, the Swedish Turnip fails, and the greater weight of roots obtained when the soil and climate are adapted to its growth, I hope it will not be amiss if in this statement I express the opinion that the extension of the area under Mangel Wurzel in Ireland is a problem worthy of the consideration of those who are sincerely desirous of promoting the agricultural interests of the country.

We have in Ireland upwards of 15,000,000 of acres of arable land. Of these, we had in 1862, 377,149 acres under Turnips, and only 23,245 acres under Mangel Wurzel; or 1 acre of the latter for every 16 and a half acres of the former. Comparing the areas under these crops in the four provinces for 1862, I find—

In Leinster one acre of Mangels for every	9.8	acres of	Swedes.
In Munster	,,	,,	20.7 ,,
In Ulster	,,	,,	22 ,,
In Connaught	,,	,,	36.8 ,,

When we consider the advantage which the Mangel crop possesses, its great freedom from those diseases which often destroy the Turnip crop; the increased chances of growing better Turnips by alternating or rotating it with Mangel, as those crops come round in the rotation; its greater production when the land is made deep and rich, as it ought to be; its admirable adaptation for milch cattle; and its well known property of keeping sound for a long time in pits, I submit that the above proportions might be materially altered in favour of this crop.

It must not be inferred from this statement that I advocate any curtailment of Turnip husbandry: what I advocate is, not a decrease in the area under any of our well established green crops, but an extension of that which I believe to be the most productive on the deeply tilled and well manured lands of this country; and if the total area under green crops is not increased, that the Mangel should receive more attention than has been hitherto bestowed upon it. I desire to see its cultivation better understood, and its properties better appreciated by the tenant farmer. On the Glasnevin soil we find it a far more productive and a safer crop than Swedes, and it is not a little interesting to find that without a single exception the average yield of the Mangel, as shown in the returns of the Registrar-General, has exceeded that of Turnips since the collection of these statistics were begun in 1847. Through the courtesy of Mr. Donnelly, I am enabled to compile the following table of the annual acreable yield of those crops.

	Mangel Wurzel.	Turnips.
	Tons.	Tons.
1847	18.0	15.5
1848	17.5	14.3
1849	18.5	16.1
1850	17.9	15.7
1851	18.0	15.9
1852	18.1	15.9
1853	17.7	16.4
1854	17.2	15.8
1855	18.0	16.6
1856	13.0	12.9
1857	13.9	12.5
1858	13.7	12.9
1859	11.4	10.7
1860	9.1	8.3
Average of 14 years	17.2	14.2

* In explanation of the small yield of milk, I may add that these are very young cattle, and a considerable time has elapsed since they calved.

If these figures and the reflections in which I have indulged possess any interest or value, their consideration is just now opportune for many reasons. In the first place, the proper season for preparing the ground for Mangel Wurzel is not very far distant; and secondly, every agricultural suggestion possessing any value, no matter how little, should receive the fullest consideration at the hands of those who are patriotically using their influence to alleviate the pressure of the times and to raise the small farmer to a position in which he would be able to cope with those vicissitudes of seasons, which will always weigh heavily upon him, so long as he relies mainly on grain crops to meet his engagements. Under these circumstances, I venture to suggest the propriety of enlarging the area under Mangel Wurzel, not only because it is a productive and profitable root, but also because it will extend green crop husbandry, which, bringing in its train more productive industry, more meat, more dairy produce, and even more corn, I regard as the great foundation on which to build up the permanent agricultural prosperity of Ireland.

Home Correspondence.

The International Agricultural Meeting at Hamburgh.—Will you kindly say in your paper of this week, that the following are the agents in London to the International Agricultural Exhibition (Hamburg). *Shanks Barker & Sons, the General Steam Navigation Company, Messrs. Drolenvaux & Brennen*, 14 *Mark Lane.*

Summer Forecasts.—Your hostility to my Summer Forecasts is rather too uncompromising in its principle. It pre-supposes that no one can fairly pretend to forecast a summer season, who cannot at the same time so reduce the elements of his calculation to positive terms, as to enable others to judge as well as himself for the future and the present, and so as to make the records of the past simply minister proofs of his correctness. It has been observed in scientific treatises, that long experience and observation, and personal assiduity and application, may give a shadowy foreknowledge of atmospheric changes to come which is hardly communicable to others, and receives no accession in the progress of ages. I do not pretend that this is the case with me, but I may refer to my expressed convictions last year, "that there exists no cycle of the seasons, properly speaking, in the British isles, no real return of the peculiar changes which mark every individual summer," and therefore, as I will now add, every individual vernal equinox also. The circumstances attendant on one vernal equinox are never the same as those which surround another; and a cautious induction from all that is observed, reviewed in the light of a long and chequered experience, may therefore best describe the process to be followed each year. I conclude thus: I considered that I had something to say before I began to address others on this subject. I do not fear to find myself wrong if I am wrong, and I intend to make the first of April the day of all my future publications, if any, on this matter, as I do not mind a little harmless badinage about "All Fools' Day." *Thomas Du Boulay, Sandgate, April* 15.

Twin Lambing.—In your Number for April 4th, I find that "R. P., Cumberland," suggests a well known propensity of certain ewes to adopt the lambs of other ewes at various periods anterior to their own parturition, as an answer to my question of March 21st. I cannot take the fact above suggested as an answer. My shepherd is quite positive that all the well known signs of parturition were exhibited in both cases. The first lamb of Feb. 18th was small and weak for a few days and has not grown well, the lamb of March 16th was large and strong from the first, and now, April 14, bids fair to outstrip its sister. *Breton.*

Jaundice in Sheep.—It may interest your readers to have some particulars concerning a disease which has affected a portion of the College flock, and which I am informed has appeared in other localities. The ewes chiefly affected were purchased last fall, in moderate condition, off dry healthy land; they wintered well on Turnips and straw, lying at night in a straw yard. Soon after lambing they began to lose flesh, and on being removed from a field of Swedes, where the ewe pen was placed, on to some late sown Turnips after Vetches, a rapid change for the worse took place; several ewes died, and on being opened the flesh was found of a bright yellow colour, and the organs much diseased, congestion of lungs and liver, the latter being particularly disorganised. The urine was very dark coloured, though the kidneys appeared less diseased than other parts. The membrane of the eye was tinged with yellow and very pale, and the blood appeared thin and poor. Some of our own ewes were slightly affected, but the worst cases were amongst the purchased sheep. As several of the ewes died, the remainder of the flock was changed back to the Swedes, and corn was given—1 pint of bruised Oats and ¼ lb. of Nut meal. At the same time we gave the following dose, from a recipe of Prof. Brown:—Extract of taraxacum, ½ ounce; sulphate of magnesia, 4 ounces; carbonate of iron, 2 drachms; water, 1 pint. A fourth part of this mixture was given once or twice a day. An improvement took place almost immediately, the yellow tinge disappeared and was replaced by a more healthy red appearance, and the animals fed better. Portions of the dead animals were forwarded to Professor Brown, who, after a careful examination,

* Since the publication of Dr. Anderson's analysis of Kohl Rabi, Dr. Voelcker has analysed both the green and purple varieties, the results of which are published in the 21st volume of the Journal of the Royal Agricultural Society of England. "Theoretically," he observes, "Kohl Rabi is fully equal, if not superior, to Swedes or Mangels;" but he very properly adds—"These remarks, however, apply only to the specimens which I had an opportunity of examining. Future examinations, and above all, practical feeding experiments, are required to establish fully the comparative feeding value of Kohl Rabi."—Page 95.

came to the following conclusions:—1st, that there was a fibrinous condition of blood, induced by feeding on watery and innutritious food; 2d, derangement of liver and imperfect secretion of bile, with defective formation of blood corpuscles and fat elements; 3d, general congestion, arising from the reflux of blood upon a system already predisposed. He recommends the continuance of the Taraxacum draught, substituting for the carbonate of iron, a solution of acetate of ammonia, 1 ounce; probably it would be well to give the first-mentioned dose until the worst symptoms were removed, and until red blood was seen in the eye. If the effect of the medicine should be to cause purging, reduce the proportion of sulphate of magnesia. I am pleased to be able to state that this treatment has been very efficacious. *John Coleman, Royal Agricultural College Farm, Cirencester.*

"Roaring" Heifers. — Case 1. When I was a schoolboy I well recollect my father's herdsman taking a heifer from the field that was purchased for fatting, and tying her up in the stall. I asked him what that was for. He said she must be fatted in the house—she is a "roarer." I could not make out the meaning of a "roarer." He explained it thus: she is as bad as a bull, and is always riding and teazing her company, and hooks and breaks the fences very much. I thought the man was for sending me off with a flying story. So I went to my father and asked him the meaning of it. He explained it to me, and told me that it often happened to some of the best Devons; and that he believed it to arise from their high living and high breeding, and also from their not being allowed to go to the bull. *Case* 2. My father purchased for me five very well bred Devon heifer calves at a sale. One of them became, as I have before described, noisy and restless; in a word a complete "roarer." So I sold her to a butcher. These calves were bred principally from the stock of Mr. Quartly, and their flesh was of the best quality. I always kept them well, allowing them three pounds of cake per day with their ordinary food. The "roarer" was especially good and level; and had she gone on well, I had intended in due time to have exhibited her at the Smithfield Show, where I once had the good luck to win a first prize with a Devon cow, bred by Lord Portman, the lamented Prince Consort being second. *Case* 3. Roaring, however, is not confined to the Devon breed. I had in my stall, a few years ago, a pure bred Hereford heifer, which I bought when only a few days old. She was fed summer and winter in the yard and stall. When she was about three years old, I was surprised at seeing her udder fill, just as heifers will before calving. A neighbour, an experienced cattle breeder, called upon me at the time, to whom I related the circumstance. He looked at her and said she would become a roarer within a month. He was right; in less than 10 days, such was the case. I have not related these things with a view of instructing experienced men, but for the sake of young graziers and stall feeders who might otherwise be vainly tempted to keep such animals. The best cure is to sell them at once to the butcher. *John Ford, jun., Rushton.*

Lambing of Ewes.—I see in the *Agricultural Gazette* of the 21st ult. that a Correspondent says he has a ewe that dropped a ewe lamb on the 18th of February, and a male one a month after, and he writes to know if this is common. We have had a similar case. A ewe dropped a dead lamb about the 25th of January, and was then turned over to the part of the flock that had lambed; her milk did not come then, and about the 24th of February she had another, alive at the present time. I have never seen any other case like it. *G. S.*

Moles.—My friend Mr. Wilkins, let us work, not talk. What's the good of moles? That's the question. I have shown that my crops do not suffer from their destruction. This does not appear to satisfy you. Then let me tell you that mole killing has been very general in this neighbourhood for very many years. Yet for all that the crops do not suffer from wire worm, except occasionally on a bit of newly broken-up land for the first year or so, where turf burning or other known remedies have not been resorted to. Then, "my dear friend, calm your mind, and sleep sound," if you can, over these plain facts. *William Smith, Woolston, Bletchley Station.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

A Meeting of the Members of the Royal Agricultural Association took place on Wednesday last at their rooms, in Hanover Square, Mr. Raymond Barker in the Chair.

ADULTERATION OF LINSEED CAKE.

Professor Voelcker, in introducing to the notice of the meeting the subject of the adulteration of Linseed cake, said that it was a subject of special importance at the present time, when not only oilcake but all kinds of feeding mixtures were largely employed by the British farmer in fattening cattle. It was no doubt owing to the great demand for all kinds of feeding materials that those which admitted of ready adulteration were frequently found to be mixed up sometimes with matter which was injurious to health, and at other times with substances which possessed no feeding properties, or feeding properties of a very doubtful character; in point of fact, the increasing demand for oilcake had led to an amount of adulteration of the extent of which the practical farmer was hardly aware. Any one who looked at the various descriptions of oilcake exhibited for sale at the stalls in any large market, could not fail to be struck with the very great difference which was apparent in its colour and composition. No such difference was visible in the seed, samples of which he had before him, whereas if they contrasted the various specimens of oilcake which lay upon the table, they would find some specimens nearly as white as Poppy cake, and others nearly as dark as Rape-cake, while one specimen was exhibited which gave them a proper idea of the agreeable colour of the Linseed itself. It therefore did not require any great amount of analytical skill to convince them that in the one case the oilcake was adulterated with white Poppy cake, and that the dark coloured cake was in all probability adulterated with Rape, while the medium colour specimen would represent the pure Linseed-cake. The very appearance of the cake exhibited showed that it had undergone some other process than the mere crushing for the extraction of the oil, and which process would in all probability influence its quality. Those manufacturers who confined themselves to the operation of mixing Linseed of an inferior description with that of a superior quality inflicted less injury upon the practical farmers than others who were guilty of adulterating it with foreign substances, because in such cases the farmers lost in point of money only, because they paid a high price for inferior cake like Rape-cake, whereas in many instances the cattle were seriously injured and even poisoned by eating oilcake adulterated with foreign matter. He would in the first place direct their attention to those admixtures which were in themselves injurious, and secondly, to admixtures which became injurious during the time the cake was being kept. There were a variety of things added to oilcake which deteriorated the quality of meat by imparting a bad flavour to it, which was the reason why butchers would not give the same price for cattle fed upon inferior and bad tasting oilcake which they would for those fed upon cake of a superior quality. A good pure Linseed-cake ought to be made of nothing but fair Linseed—he did not mean to say absolutely pure, because none such was to be found in the market, and the purity of Linseed varied to such a degree that it was in many cases no guarantee when a manufacturer advertised his oilcake as being made from pure Linseed as imported. He had before him a variety of samples which had been collected at random as Linseed ordinarily sold in our markets, and in one of those samples, which was termed as of middling quality, he found no less than 34½ per cent. of foreign seeds which were not Linseed. A manufacturer, therefore, who stamped such seed as genuine Linseed would not be dealing honestly with his customers, even although it might be sold as imported. In order to show to what an extent the impurities existed in the ordinary Linseed, as sold in the market, he had found on actual examination of the samples that in Bombay Linseed they were 4¼ per cent., in a sample of fine quality 1¾ per cent.; in Black Sea Linseed, 20 per cent.; in a second sample, 12 per cent.; in Odessa Linseed, 12½ per cent.; in medium Riga seed, 35 per cent.; in Merzhanski Linseed, 7 per cent.; in fine Black Sea Linseed, imported in 1861 and 1862, and considered of good average quality, 19 per cent.; in fine Petersburgh, 3 per cent.; in the common Petersburgh Rigelf Linseed, 41 per cent.; second quality, 43½ per cent.; and in the average quality of Riga crushing Linseed the impurities were no less than 45½ per cent. In another specimen of the common Riga Linseed, imported in 1862, the impurities amounted to 42 per cent., consisting 22 per cent. of Spurry (Specula arvensis), 3 per cent. of Lolium temulentum (Darnel), 3 per cent. of Dodder (Carmelina), 2 per cent. of Knot Grass (Polygonus aviculare), 1 per cent. of Chenorodium, and 11 per cent. of Mustard and other seeds; and above all, he found that in the common Petersburgh Rigelf Linseed, a large portion of which found its way to Hull and other ports, the impurities actually amounted to no less than 70 per cent., while even that which came from Archangel was adulterated to the extent of 34½ per cent. In the samples which he had examined he had detected, not only many seeds injurious to the quality of the cake, but several which were actually poisonous. He had taken the trouble of separating from several samples of Linseed the foreign seeds, and in one particular sample he counted no less than 29 different kinds of weed seeds, and among those which were more or less injurious were the common Darnel and the Corncockle, which often produced very injurious effects on the animal system. In some samples the wild Radish seed occurred, which was a very pungent seed. Wild Rape was frequently found in foreign Linseed. Then they found Charnock or common wild Mustard. There were seeds which were positively known to be injurious to cattle, but there were many others in the ordinary Linseed cake sold in the market which impaired the quality of the meat, though not so injurious to the health of the animals. Such were the seeds of the Gold of Pleasure plant, which imparted a disagreeable taste to the meat, and a deep yellow colour to the fat. The Parching Flax was another description of seed that injured cattle, but which he had found in the sample of oilcake before him. Good oilcake ought to be of a bright colour, and when mixed with water to form a smooth and an agreeable tasting and smelling jelly, while that which was adulterated by the admixture of other injurious seeds did not only not powder and mix well, but often had a disagreeable smell as if it had been kept too long. If oilcake when mixed with water did not become gelatinous, it was not cake of the best description, but it did not therefore follow that it was a good cake simply because it might become gelatinous by being so mixed, because it would become equally gelatinous when adulterated with such seeds as Rape, with Mustard, or Dodder seeds, which latter were in point of fact more gelatinous than Linseed itself. When cake containing these seeds was mixed with water, a strong pungent smell of Mustard was developed, and oilcake ought always to be tested in that way. Rape cake, especially that which was sold as Indian Rapecake, generally contained a large amount of wild Mustard seed, and when mixed often became so pungent as to be highly injurious to cattle; and he had before him a sample of that description of cake which had actually killed three oxen. Good Rape cake, when examined with an ordinary pocket lens, ought to exhibit nothing but the husks of the Linseed when made into a jelly, but in the specimens before him they could easily discover and single out the seeds of other plants. They could easily recognise the husks of other seeds in that way even in comparatively pure Linseed-cake, whether it was made of bad seed, or seed intermixed with other seeds, such as the hard Polygonia seeds or the seed of the climbing Buckwheat, because the husks must be left in the cake. In that way they could discover the admixture of Cotton Seed from the very peculiar character of the husk. He had before him a sample of cake branded as pure which contained Cotton husks which were very easily recognisable. He had not included bran in his list of adulterating materials, because it possessed some feeding properties and might be advantageously given with Linseed cake; but it was much more desirable for the farmer to buy bran and pure oilcake separately than to buy the two mixed together; because it was impossible to say how much bran was mixed with the oilcake; and it was often used for adulterating it to such an extent that it might be separated mechanically. There were certain seeds which were peculiarly rich in albuminous matter, or, in other words, which contained a good deal of nitrogenous substances, in which refuse matter, like bran, was rather deficient; and by mixing Linseed with bran, and at the same time adding Rape seed, they made up for the deficiency of nitrogenous matter in the bran by its excess in the Rape seed. Mere analysis of the cake did not give any idea of its purity, for he had before him samples which contained bran in such large proportion that it could be separated mechanically, and yet which on analysation was found to contain an abundance of nitrogenous matter. The best kind of Cotton-cake was hardly ever seen in the market now, in consequence of the American war; but whole seed Cotton-cake was very injurious, because it was not decottonated, or, in other words, being made from the husk, as well as the kernel, the whole of the Cotton fibre was not extracted, and the animal had not the power of ejecting it from the stomach; a stoppage took place in the lower intestines, inflammation ensued, and death followed. All the results followed in fact which would be produced by a strong irritant metallic poison; and it was, therefore, highly dangerous to give indiscriminately whole seed Cotton-cake to cattle. He had found masses of matter in such cases in the lower intestines, almost as large and as hard as cricket balls. Earth-nut cake was very nutritious when made from the kernel alone, but if made from the husk as well, the same disagreeable and injurious properties became apparent. By Earth-nut he did not mean the ordinary nut-cake which was made from the refuse kernel of the Palm nut; earth-nut was a different thing; it produced a hard light kernel which made a nutritious cake; but the whole seed cake was not so nutritious. There was another kind of nut-cake which ought by no means to be used for feeding purposes, but was only fit for manure. It was made from the Curcus Bean, a parching Bean growing in the Cape de Verd Islands, three or four of which were sufficient to produce a very powerful affection of the bowels. He had known several cases of cattle poisoning in consequence of eating cake adulterated with Curcus Bean Poppy cake was a good cake when it could be had in a fresh condition. It was remarkably sweet to the taste and very nutritious, but in a country like England, where there was not a constant demand for it, and where it was a truck in the market, in consequence of not finding a ready sale it became mouldy and acid to the taste, consequently more or less injurious to cattle. All kinds of oilcake would spoil by being kept too long or kept in damp places, and often proved a serious injury to cattle. A mixture of bran would very often produce mouldiness in oilcake, and that was one very great objection to the use of bran, because it admitted into the cake more readily the damp air. That showed the necessity of stowing the cake in dry places. If that were not done the worst description of cake, containing bran and other impurities, would become very mouldy, while the good cake itself would lose many of its qualities. Whatever may have been the original quality of the cake it became most injurious to cattle as soon as it became mouldy, and he could find no other explanation for the undoubted injury which oilcake had done to cattle, and which at one time was of a most destructive character. If oilcake was kept for a long time a sort of fungus was produced which could only be detected by a microscope, which fungus did a great deal of mischief, and mouldy Oats had in several cases proved highly injurious. Analysis might be useful to determine the amount of albuminous matter, and the other chemical constituents of the cake, but it could not indicate whether it was wholesome or not. What use would it be analysing mouldy cake, when it was known in many cases to have caused the death of cattle? All refuse matters had a tendency to become mouldy. He had before him a strong mixture, which had been bought at a very low price, and on examining it he found it to consist of the sweepings of an oil mill. He found it very injurious to cattle, but on carefully separating the constituents of the cake he could not find anything injurious in them. On examining it, however, with a microscope he discovered incipient fungi, which had since developed itself all through the cake. The use of that cake had actually killed 14 sheep, 3 horses, and a pony, all within two days he believed, which abundantly demonstrated the danger of buying any cheap description of oil-cake, and trusting to analytical results to ascertain whether it was good or not. It was not always safe even to trust to feeding with Barley-meal, which farmers themselves sent to the millers to be ground, for if he had the misfortune to fall into the hands of a dishonest miller he might have his meal returned with a mixture of sawdust or sand, as had actually occurred in two instances, in which the meal having been found to disagree with cattle had been submitted to him to discover the cause. The only safeguard the farmer had was to deal with well known firms, and he must always remember that it was impossible to get a good description of oilcake at a low price, for the simple reason that the low priced oilcake was always mixed with other feeding materials of a less expensive nature, while, as he had shown, even the "genuine as imported" oilcake was too often mixed with foreign seeds of a character injurious to the cattle. He had not treated the question upon the present occasion either chemically or analytically, his intention merely being to call the attention of the farming community to the different description of seeds, and to the materials by which oilcake was adulterated, and to point out the simple means of detecting them, namely by an examination of the husks. The whole subject was one of great importance, and many points in reference to oilcake had, he was convinced, been hitherto overlooked, which notwithstanding had a material bearing upon the interest of the farmer, and would well repay him by their investigation.

Lord Faversham, in moving a cordial vote of thanks to the learned Professor for his valuable lecture, took the opportunity of asking him whether his attention had been directed to the feeding properties of malt, and whether he considered that the present duty on malt operated as an impediment to farmers in feeding cattle. He mentioned the point because he perceived that the Chancellor of the Exchequer had, in reply to a deputation on the subject of the malt duty, expressed a wish to obtain the opinion of agriculturists of experience as to the advantage of feeding cattle upon malt. If that experience was favourable, changes might be made which would do away with the necessity of buying the adulterated oilcake now in use. This question of feeding cattle was the more important because it had been stated that large quantities of land both in England and Ireland were passing out of cultivation as far as regarded cereal crops.

Mr. Fisher Hobbs, in seconding the vote of thanks, observed that the statements they had heard from the learned Professor, fully bore out the results of an investigation made some years ago as to the extensive adulteration of Linseed-cake. It was quite evident that there was now the greatest imaginable difficulty in getting anything like good pure oilcake. With respect to the feeding properties of malt, they were really so great, that whenever he entered animals for competition he invariably fed them on that material, and with the most successful results; and as far as his experience went it would be far preferable to oilcake if it could be obtained at a reasonable rate.

Professor Voelcker, in reply to Lord Faversham's question, was of opinion that they hitherto had very few experiments of a conclusive character in regard to the feeding qualities of malt, and he had great hesitation in expressing anything like a decided opinion upon the subject. The only experiments that he knew of were those made by Mr. Hudson of Castle Acre. Mr. Lawes had a few desultory experiments by Dr. Hartley Thompson,

which were made on a very limited scale; at the same time there was a good deal of floating experience which he thought might be carefully collected. Feeders of stock he knew spoke very highly of malt when an animal was to be got into prime condition, and it had to have a large amount of food supplied to it in order to develop rapidly. Malt when judiciously administered seemed to help the digestion of animals wonderfully. Another question which struck him as being of considerable practical importance was whether food which in itself was of a somewhat indigestible character, might not be made more available by the addition of malt. He could not in the present limited state of their experience say whether it would be desirable altogether to replace Barley-meal with malt, but he had no hesitation whatever in saying that in certain particular instances, permission to farmers to convert Barley into malt for feeding purposes would be a great boon to the farming community.

Mr. Frere was of opinion that some of the oilcakes which had been mentioned by the learned Professor might be given with great advantage to store sheep, and would be extremely valuable in correcting a purgative tendency. They might be given without the danger of inflammation, which arose when those cakes were given in excess to beasts.

Mr. Holland, M.P., wished to ask the learned Professor a question as to the feeding properties of pure Linseed cake compared with those of oilcake mixed with bran. Supposing them to be mixed in proper proportions, would not cake mixed with bran be better for feeding purposes than pure oilcake, weight for weight?

Professor Voelcker had no hesitation in answering in the affirmative, namely, that a certain proportion of bran would be very useful, but it was very desirable that the farmer should mix it himself. Milking-cows fed on oilcake mixed with bran gave a larger supply of milk, while at the same time it was of a richer quality than if they were fed on oilcake alone. There was no doubt but that bran bettered the digestion. In most descriptions of oilcake there was a very large proportion of albuminous matter, and the addition of bran rendered a very considerable portion of that albuminous matter valuable which would otherwise pass off in the dung.

Mr. Holland, M.P., said the difficulty of the farmer was, that when he went into the market he found the pure oil-cake cried down, while at the same time he had to pay as high a price for oil-cake mixed with bran.

Professor Voelcker thought the objection would vanish if oil-cake were professedly sold as oil-cake mixed with bran.

Mr. Lee suggested whether it would be possible by some chemical means to advance the Barley a stage or two in the direction of malting, but at the same time prevent its being rendered valuable for brewing purposes, because he thought the Chancellor of the Exchequer would hardly give up so large a duty as that derived from malt, merely to enable the farmers to feed cattle on it.

Mr. Holland reminded the meeting that several years ago, when the malt-duty question was under discussion, a committee, which took into consideration the feeding qualities of malt, came to the conclusion that it was very good to mix with other food, but that as a food itself it was not worth considering.

The subject then dropped, and a vote of thanks to the Chairman concluded the proceedings.

Farmers' Clubs.

Central Strathearn: *Reaping Machines.*—Mr. Dunn opened the discussion on this important subject by reading the following essay:—Since the International Exhibition of 1851 there has been no greater increase in the application of machinery to any purpose than to the cutting of grain; and in these intervening years the systems of reaping have undergone a change so thorough and so sudden as will be difficult to match in the mechanical details of arts or manufactures. This goes some way to show that farmers are not so wedded to old and antiquated systems as is sometimes reported, and that they have not been behindhand in availing themselves of discoveries and inventions in science or art which may economise time and money in their various operations. In opening the subject of the evening, I may be allowed to take a retrospective glance at the different systems of harvest work which have successively been employed throughout the country. The ancient mode of cutting grain was by the toothed hook or sickle. The toothed hook is now, however, numbered among the things that were. It was superseded by its foster brother, the scythe-hook, which, in the hands of the few, is a first-rate implement; but in the hands of the many one of the worst that was ever invented, on account of the quality of its work. The use of the scythe-hook is, or should be, confined to much-twisted pieces of crop, and the scythe to ground inaccessible to the machine; leaving all land adapted for its operation to be reaped by machinery, which, in almost every case and in every instance of proper management, surpasses both hook and scythe at a much cheaper rate per acre. It is now more than 30 years since the first attempt of any consequence to cut the crop by aid of machinery was made in this country. To our countryman, Bell, is due the highest honour as the inventor of such an implement; and, whatever may now be the merits of his "original" reaper, or of the numerous branches which have sprung from the work of his genius, the reaping machine inventor will in future ages be considered a benefactor of his country. In 1832, one of Bell's machines was at regular work on the farm of a member of an agricultural society in Fife; and satisfactory evidence of his success was found in his having gained the Society's sweepstakes "for the best and cheapest cut farm," and in having offered the same for many years without being taken up. The machines which of late years have been the competitors for public favour are constructed on the three distinctive principles of Bell, M'Cormick, and Hussey. The prices of the different sorts are:—Bell's original, about 42*l.*; Crosskill's improved Bell, about 45*l.*; M'Cormick's, by Burgess and Key, about 42*l.* 10*s.*; and Hussey's machine, by various makers throughout the United Kingdom—Dray; Cuthbert; Bamlett; Picksley, Sims, & Co.; Gardner & Lindsay; Brown & Young; Kept, Murray, & Nicholson, &c.—can be had from 19*l.* to 22*l.*, according to style and finish. With respect to draught, is has been found that Crosskill's Bell cuts 5 feet 4 inches at 4 cwt.; Burgess & Key's cuts 5 feet 4 inches at 2¾ cwt.; Dray's Hussey cuts 4 feet 3 inches at 3 cwt.; Cuthbert's, which deserves to be classed among the very lightest machines yet known, cuts 4 feet 6 inches at 1 cwt. 7 stone 10 lb. Before entering on the comparative merits of these different machines, I may mention that the superiority of any particular sort of machine over another is a matter entirely to be determined by local circumstances. For a considerable length of time it has been customary among farmers in this locality to scythe-cut as much of their crop as possible by their ordinary yearly servants, in addition to their staff of shearers or scythes hired for the harvest; and it is in these cases, I believe, that reaping-machines prove of the greatest practical value in our district; when, instead of scythe-cutting by his ploughmen and other yearly servants, the farmer employs them with a machine, by which the work can be done in a more satisfactory manner; and in the case of a heavy crop it will do its work in splendid style, where the scythe would make what is vulgarly termed a "hash." I now proceed to glance at the distinctive peculiarities of each, with the view of forming an opinion as to which may be considered the best machine for the general purposes of the members of the Strathearn Central Agricultural Society.

The propulsion of Bell's has the advantage of enabling it to enter a field at once without any previous aid from scythe or sickle; but this seems more than counterbalanced by the excessive draught on the horses and its great weight, which causes the machine to choke so often on soft land. The self-supplying and side delivery of the Bell & M'Cormick machines have been thought an immense improvement, because by one man with Bell's, and one boy in charge of M'Cormick's (as advertisements say), there can be cut down and laid in swathes from 12 to 15 acres by the former, and by the latter 20 acres of crop in a day: and that in fine weather or a windy day the grain can be cut and lie till binders can be conveniently sent to stook it up; whereas, in the case of machines on Hussey's principle, it is compulsory to stook up immediately behind the machine to make way for next cut. In fine weather, my humble opinion is, that the best plan is to bind and set up immediately behind the reaper; and in bad catching weather I believe the same practice more advisable than the trust in Providence system of allowing grain to lie in swathe exposed to the tender mercies of a changeable climate. If the cut-to-day-and-bind-to-morrow system should, however, by circumstances be rendered necessary, a new arrangement by some of the makers on the Hussey principle is going on, where the corn will be raked off in sheaves at sufficient distance from the standing crop to allow the horses to pass. With reference to lifting, it is an important point to observe that, as the side delivery machines can cut independent of binding and setting up, the labourers have the entire control of their own progress; while, when cutting, lifting, and stooking go on simultaneously with one of our hand-delivery machines, a certain pull is obtained upon the hands employed which the other system cannot command. The lifting after this machine is much more quickly performed, every sheaf being laid down separately, cleanly, and evenly; and it will also be found that Hussey's controls the men, not the men the machine.

Now for the expenses. Reaping machines in general have been found to do their work at a rate per acre so nearly similar that any difference which may exist is not worthy of consideration; and the superiority of any machine must therefore in great measure be decided by its workmanship and general advantages. I subjoin a statement of my daily expense with Cuthbert's reaper during the past two seasons:—

	£	s	
Driver and Raker, at 3*s.* 4*d.*	0	6	8
4 Binders, at 2*s.* 8*d.*	0	10	8
4 Lifters, at 2*s.* 6*d.*	0	10	4
4 Ropemakers, at 10*d.*	0	3	0
Bread and Beer	0	5	0
Oil, Knife-sharpening, &c...	0	1	0
	£1	16	8

Thus, by employing 14 able and half able labourers, there can be cut down by this machine, when cutting two sides of the field, six or six and a-half Scotch acres a day of 10 hours; and with the crop so situated as to allow cutting right round the field, double that quantity might be secured by the addition of extra hands. It will be found, however, in the majority of seasons, that cutting one way only will be the most suitable for a satisfactory job. In that case a lifter, roper, and bandster are dispensed with; and as less work will be done, there remains the fewer hands to do it, leaving the expense per acre as near as near be the same—viz., 6*s.* per Scotch acre, which, compared with shearing at 12*s.* 6*d.*, or scythe work at 10*s.*, shows a difference which requires no comment. It will be observed that I charge nothing for horse labour, as the animals at that season require exercise; and, if not at the reaper, are just employed at the thriftless occupation of "eating off their own heads." I may mention that during the past two seasons I have cut by machine with my ploughman and a few extra hands hired in to assist, 80 Scotch acres, 40 per annum, at 6*s.* per acre. The machine originally cost me 21*l.* sterling; so profits stands thus:—

	£	s	
Difference of 4*s.* per acre on 40 acres, ..	£8	0	0
Deduct tear and wear (included in estimate of expenses)			
Interest on purchase, 21*l.*, at 5 per cent.	1	0	0
Annual profit ..	£7	0	0

Which shows that in three years I will save the price of the machine, and by proper attention leave it in as good order as when it began. Bell's or M'Cormick's machine, from the greater breadth of cut, and the greater number of hands employed, may clear more ground per day than Cuthbert's, or any other machine of the Hussey principle, but it remains to be proved that they can do it at less cost per acre. There are many advantages in favour of the smaller class of machines—in price, draught, delivery, in lifting the cut grain, and in convenience of removal. With reference to the first—viz., price—little logic is necessary to prove the superiority of 21*l.* against 42*l.* The draught is also a most important point; and I have no hesitation in saying that the machine which requires three horses to work it has much need of improvement. No machine should require more than two horses to manage it comfortably, and the machine of lightest draught should at all times have the preference. The back-delivery in sheaves of the smaller machines is decidedly preferable to the swathe of the side-delivery reapers. The sheaves laid off by the rake of the former, when lifted with precision, leave nothing for the rake, and make a fine square-bottomed sheaf; while the swathe of the latter machine is very unmanageable, particularly in the case of a heavy crop, where the grain as it is cut is rolled off in a most irregular manner, and consequently the sheaf-bottoms are no cleaner than coarse scythe work; and further, in this case there is no control over the size of the sheaves, which in all probability, to save trouble, will be made as near as possible in the form of bunches; whereas, by the rake delivery, the sheaf can be put off to any size to suit the weather and crops. And the Hussey machines possess also the advantage of being easily driven from one field through ordinary gates to another scene of operation. That the machines of self-delivery and broader cut are more suitable for occupiers of land whose fields are large, and whose land can grow crops fit to be cut entirely by machinery, no one will deny; but I must state that my humble opinion, founded on personal observation and a careful consideration of each system in connection with the crops and land of this locality, is, that machines on the Hussey principle, which can be effectually managed by comparatively few hands, are the most useful reapers for the general purposes of this district. I now conclude my random remarks by proposing the following resolutions:—

1. The want of good shearers, along with the high price of their labour and the coarse manner in which scythe work is generally performed, have rendered the use of reaping machines imperative, and their perfection highly desirable, to the agricultural community.

2. That the machine of lightest draught, with manual back-delivery, is the best for this district.

3. That the best mode of moving reaping machines is by side draught, that the smooth-edged knife is preferable to the serrated, and that every machine ought to be provided with shafts for convenient backing.

4. That every farmer in this district should possess one.

Calendar of Operations.

APRIL.

West Sussex.—We have now got well into spring, and have had a very favourable one for farming operations. March dust is said to be valuable, and we have had it in abundance. The wind has for a great part of the month been rather cold and bleak, and vegetation has not advanced rapidly, but perhaps this is better than that we should have them early, when there is the more chance that they will be cut down by late frosts. Wheat is not far advanced considering the very mild winter, but it is even on the ground and looks very healthy, and with the remainder of the season favourable we may expect a good crop. Early sown spring corn is up and looking well; Peas have a very regular appearance. The Clover seeds are not so good as at one time they promised to be, many fields are very bad. Trifolium is fair, but it appears not to do so well now as it did some years ago; the failures are more plentiful, and even where there is plant enough, it does not prosper as formerly. And it may be well to try to find out the reason for this, which I believe is that its being a Clover plant is often ignored, and though we generally do not sow broad Clover oftener than once in eight or 10 years, we do not hesitate to have an intermediate sowing of Trifolium. This I believe to be the cause of our not getting it so good as formerly, and no doubt it causes a failure in the other Clover at times, and if we are to grow it well we must not take it so soon after broad Clover as we do, and as it is a valuable forage plant it cannot be dispensed with, and it makes rather coarse hay; it may be best to devote a part of the broad Clover course to it for cutting as green food, and as it does not produce a second crop, plough up immediately after, and put in Rape or Turnips to feed off ready for Wheat sowing. Every kind of food for cattle and sheep is abundant, and many will hardly be able to get rid of their roots in time to get in corn after them. It is a practice here sometimes to sow Rape or Turnips after late

fed Swedes, to be followed by Wheat, and this is likely to be done this year to more than the usual extent, so that we may look for plenty of food during the autumn. We have still plenty of beef and mutton in market, and prices about the same. Store cattle are not yet in much demand. Good cows and calves are seldom seen in the market, though we see many in the county, and they are very dear. Large store pigs are a very dull sale, and so are fat ones, but smaller are more readily disposed of. *G. S.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. SPEARING, Moulsford, near Wallingford, Berks, during the week ending April 15, 1863.

Day of Week.	Day of Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Dry Bulb Thermometer.	Reading of Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0-6	Amount of Cloud, 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday ..	9	29.75	52	51	S.W.	2	7	53	47	84*	43	0.09	48½	47½
Friday ..	10	29.79	54	53	S.	2	8	59	47	79	45	0.01	49	47½
Saturday ..	11	29.84	53	50	S.W.	1	5	63	42	80	37	0.20	49½	48
Sunday	12	29.96	47	46	N.	1	7	56	40	89	34	..	50½	48½
Monday	13	29.99	51	48	E.	1	6	63	38	110	34	..	51	49
Tuesday ..	14	29.96	47	45	S.E.	1	7	64	39	103	35	..	51	49
Wednesday	15	30.03	50	48	S.	1	4	66	34	113	30	0.15	51	49½

[* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Notices to Correspondents.

BREEZE, &c.: *N.* The notice published at p. 327 may possibly furnish the information you want. Breeze and coal ashes are of little value as manure, except for their mechanical influence on the texture of clay soils.—Resistance to draught is made up. (*a*) of friction, and (*b*), that share of the weight of the body drawn which on a hill side would, if there were no friction, make it roll down hill. And the ability of the draught animal to overcome it, depends on the position in which the animal stands. The portion marked *b*, depends on the inclination of the hill, and is in proportion to the whole weight on the animal as the height is to the length of slope. If then 7 and 10 in your formulæ are the length of the slope, then the draught should be in the one case one-seventh, in the other case one-tenth of the weight, *plus* the percentage in either case due to friction. The difficulty which the horse will find in overcoming the draught increases rapidly with the slope, not so much on account of the increasing weight, as in consequence of his being placed at a disadvantage for overcoming it.

BONEDUST: *P P P.* For clay land you had better apply it dissolved in acid. Mangel Wurzels grown on clay soil, autumn cultivated, and manured with farm-yard dung, will repay an additional dressing of 3 cwt. per acre of super-phosphate of lime. It is not however at all likely that on clay land well tilled, dependence on farm-yard dung is likely to result in any appreciable diminution in fertility—the way which A. B. has pointed out.

CLOVER: *M P., Walthamstow.* Mr. Lawes' "mixed mineral manure," used in his experiments on Meadow land, has been found greatly to increase the growth of Clover. It consisted of 3 cwt. of superphosphate of lime, 300 lbs. of sulphate of potash, 200 lbs. of sulphate of soda, 100 lbs. of sulphate of magnesia. If you apply these they should be mixed and sown broadcast early in spring. Probably two thirds of these quantities would be a sufficient dressing

COTTAGE ACCOMMODATION: *Agricola.* Landowners can borrow money of the Land Improvement Companies, giving a rent charge on their estates for a period long enough for the repayment of principal and interest.

EGGS: *Anna* asks the best mode of preserving eggs. She has been recommended to pack them in lime.

POTATO CULTURE: *X Z.* We would apply about 3 cwt. of guano per acre broadcast over the land just before you rib it for Potatoes; then plant the Potatoes and cover them in the usual way. You should not send the plough by the young plants when the young tubers are beginning to be formed; but it may be safely done as soon as the first shoots appear above the surface. The practice is copied from the drill cultivation of Turnips, and in both cases a deep and thorough stirring of the soil when it is dry, as late as you can safely do it, is a good thing.

SEED: *Enquirer.* We cannot with certainty decide as to the name of the seed you have sent, but it certainly is not Clover Dodder.

SERADELLA: *C Parsons* says he should feel obliged by being informed what Seradella is. Is it a Leguminous plant? Annual, biennial, or what? and of what value is it as a forage plant, and at what time of year?

FOWLER'S

STEAM PLOUGHING AND CULTIVATING PATENTS.

RANSOMES & SIMS, ORWELL WORKS, IPSWICH,

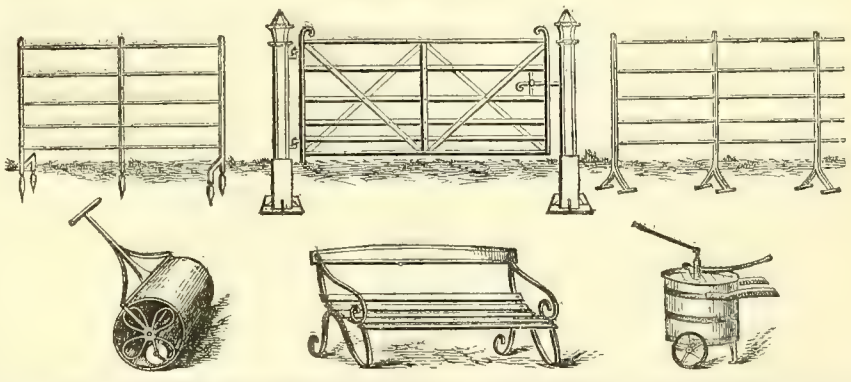
Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquirits respecting them, and execute any Orders promptly.

COTTAM'S

CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED, IN VARIOUS STYLES.



IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHIN ES WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes. VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c. The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

Illustrated CATALOGUES and DRAWINGS free on application to

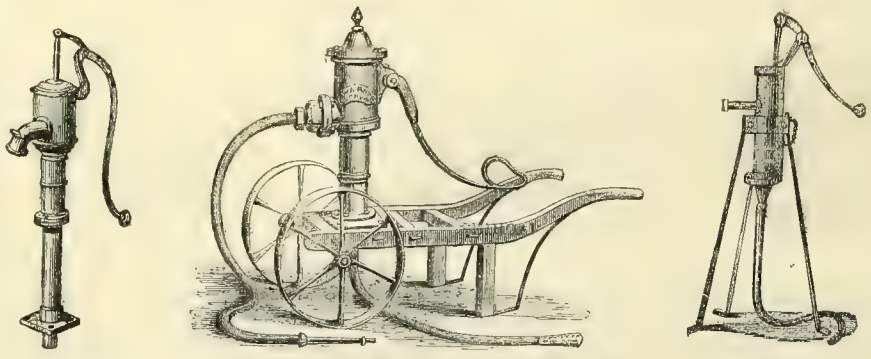
COTTAM & CO., ENGINEERS and IRON FOUNDERS,

2, WINSLEY STREET (OPPOSITE the PANTHEON), OXFORD STREET, LONDON, W.

JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

PATENTEES and MANUFACTURERS,

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

THE HYDROPULT,

EXTRACTS FROM TESTIMONIALS.

"Royal Insurance Office, Liverpool.
"My dear Sir,—I have much pleasure in expressing the high satisfaction, and indeed surprise, with which I witnessed the working of your Hydropult. There can be no doubt that it can be available in the earlier stages of fire in warehouses, manufactories, or private houses, in preventing large conflagrations, while its applicability to gardening and other purposes will be manifest to any one observing its operation.—I am, my dear Sir, yours truly, "Percy M. Dove, Manager."
"Chas. P. Button, Esq."

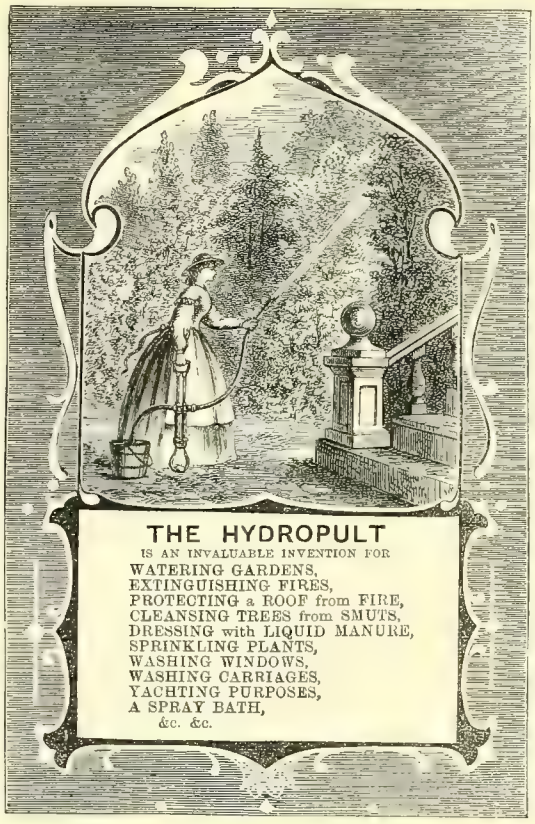
"The invention will prove extremely valuable for all the purposes to which such machines are applied.—Swinton Boult, Secretary, Liverpool and London Insurance Company."

"Its portability and facility of operation recommend it to the general notice of the public.—Henry Lowe, Secretary, District Fire Company."

"With the object of putting out incipient fires, and for greenhouse and garden purposes, I consider it admirably adapted.—William Douglas, Secretary, North British Insurance Company."

"In a blowing or mixing room it would be of especial service.—F. J. Hallows, Secretary, Caledonian Insurance Company."

"38, Portland Street, London, W.C.
"Mr. Charles P. Button. Sir, I am perfectly satisfied from the statement of Mr. Green, the conductor of our fire-escape at Notting Hill, that a large amount of valuable uninsured property was saved from destruction by the timely and efficient use of the Hydropult, which was fortunately on the adjoining premises during the fire which consumed the drapery establishment of Mr. Thomas, of 4, Coburg Place, Bayswater, on Friday evening last. Your little engine was used most effectually in keeping the roof of the adjoining house saturated with water, thereby preventing the spread of the flames, as the engines of the regular district fire brigade did not arrive on the spot until more than one half hour after the fire broke out.
"A fire, at its commencement, can readily be extinguished by means of this little annihilator, and infinite service rendered in staying the progress of the flames during the interval which must elapse before fire-engines can, under any circumstances, be brought into action.—Yours truly, T. Spencer, Inspector of the Royal Society for the Protection of Life from Fire."



EXTRACTS FROM THE PRESS.

The Hydropult.—"The machine is certainly the most compact and efficacious force pump of its size that we have ever seen."—*Daily Telegraph.*

The Hydropult.—"All Londoners and other town residents who care for their gardens and greenhouses should avail themselves of such engines."—*Gardeners' Chronicle and Agricultural Gazette.*

The Hydropult.—"We strongly recommend it to our readers."—*Journal of Horticulture and Cottage Gardener.*

The Hydropult.—"It will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water."—*Gardeners' Weekly Magazine.*

The Hydropult.—"Country readers who order it on our recommendation, will not only not repent, but thank us for calling attention to a machine which, having once used, they will never care to be without."—*Floral World and Garden Guide.*

The Hydropult.—"We can only say that no public establishment or private house should be without one of these useful machines."—*Commercial Daily List.*

The Hydropult.—"We are satisfied that all housekeepers ought to have one, and we are equally satisfied that if they once see it they will order it."—*Liverpool Daily Post.*

The Hydropult.—"We commend it to the notice of the proprietors of warehouses and other buildings, public and private, in the metropolis and provinces."—*Mechanics' Magazine.*

Caution: Important to the Public.—The extensive sale of the Hydropult has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the Public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the City and Provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting, as they are often placed under or near the Hydropult show card. The Proprietor therefore issues this caution, and respectfully intimates that parties wishing to purchase the Hydropult, should examine the Machine offered for sale, and see if it have attached thereto a Label, with the following words:—"The Hydropult, a Portable Fire Annihilator and Garden Engine. Griffiths & Browett, Manufacturers, Birmingham; Charles P. Button, General Agent. Vose's Patent." Unless this label be attached, the Machine is not the Hydropult.

AN INVENTION FOR THROWING WATER BY HAND POWER (Secured by Royal Letters Patent), price **TWO GUINEAS**

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, and Small Jet. Weighs but 8 lbs. Will throw 8 gallons of water per minute 50 feet.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

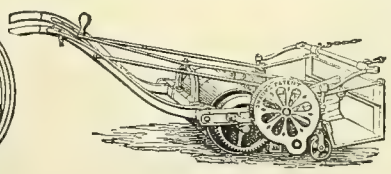
Prospectus, with Testimonials, at the

Hydropult Offices: 27, LEADENHALL STREET, LONDON, E.C.; and at 309, REGENT STREET, LONDON, W. CHARLES P. BUTTON, Proprietor.

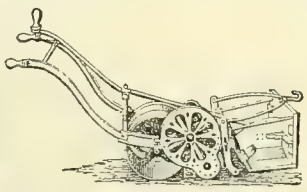
SHANKS' NEW PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

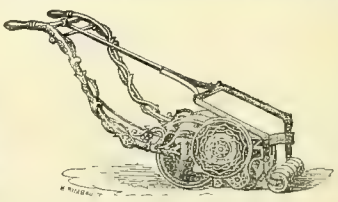




HORSE MACHINE.



PONY MACHINE.



NEW HAND MACHINE.



SHANKS' NEW PATENT MACHINE

Mows the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at half the expense.

The first practical Gardeners of the day who have devoted their attention in examining all the different Lawn Mowers offered, do not hesitate in recommending Shanks' Machine as *the best Mower for general use.* The important Improvements introduced last season have undergone a thorough practical test, and satisfied the most sanguine expectations. *Further Improvements, simplifying the Machine, and adding to its efficiency, have been introduced into the* New Patent Lawn Mower for 1863.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for Use.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		
No. 1.—48-inch Machine	£28 0 0	*Drawn by a Horse.*
No. 2.—42-inch Machine	26 0 0	
No. 3.—36-inch Machine	22 0 0	
No. 4.—30-inch Machine	19 0 0	*Drawn by a Horse or strong Pony.*

Patent Delivering Apparatus for Nos. 1 and 2 Machines, 40*s.*; for Nos. 3 and 4 Machines, 30*s.*; Box with complete Set of Tools, 10*s.*; Silent Movement, 20*s.*; Boots for Horses' Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		
No. 5.—30-inch Machine	£15 15 0	*Drawn by a Pony.*
No. 6.—28-inch Machine	14 10 0	
No. 7.—25-inch Machine	12 10 0	*Drawn by a Donkey.*

Patent Delivering Apparatus for Nos. 5 and 6 Machines, 30*s.*; for No. 7 Machine, 25*s.*; Box with complete Set of Tools, 7*s.* 6*d.*; Silent Movement, 12*s.* 6*d.* Boots for Pony, 21*s.*; Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for use.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Do. by a Man and a Boy.*

Width of Cutter.		
No. 11.—16-inch Machine	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6 2 6	*Do. by a Boy.*

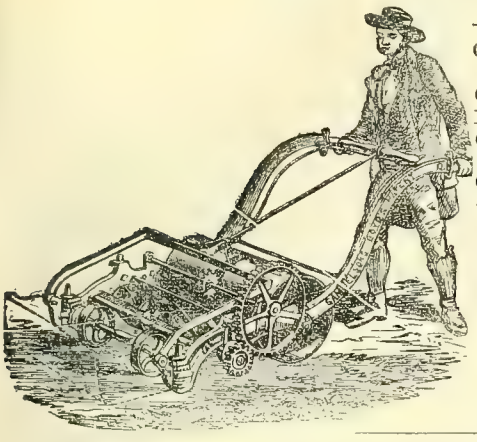
The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.*; Box, with complete Set of Tools, 5*s.*; Silent Movement, 7*s.* 6*d.*

*** *The Machines are warranted to give ample satisfaction, and if not approved of may be at once returned.*

AGENTS:

J. B. BROWN and CO., 18, CANNON STREET, CITY, LONDON, E.C.

DEANE & COMPANY'S
HORTICULTURAL TOOLS.



DEANE'S MOWING MACHINES, with Patented Improvements, 4*l.* 12*s.*, 6*l.* 10*s.*, 7*l.*, 8*l.*
GARDEN ENGINES, Galvanised Iron. Prices 55*s.*, 65*s.*, 78*s.*, 90*s.*, 100*s.*, 110*s.*
GARDEN ENGINES, Wood, 90*s.*, 110*s.*, 138*s.*
FLOWER STANDS, 4*s.* 6*d.* each.
CAST-IRON ORNAMENTAL FLOWER STANDS, to hold Seven Vases, 27*s.*
GREEN'S PATENT MOWING MACHINES.
GREENHOUSE SYRINGES, 8*s.*, 10*s.*, 18*s.* 6*d.*
GARDEN ROLLERS, 1*l.* 14*s.* 6*d.*, 2*l.*, 2*l.* 12*s.*, 3*l.* 3*s.*, 3*l.* 18*s.*, 4*l.* 13*s.*, 5*l.* 12*s.*, 7*l.* 10*s.*
GARDEN STOOLS, 4*s.* 6*d.*
GARDEN SEATS, from 25*s.*
BOYD'S SELF-ADJUSTING SCYTHE, 10*s.* 6*d.*
WIRE WORK, 18 in., 4*d.* per yard run.

Every Implement for Garden use on the lowest terms.

DEANE'S NEW ILLUSTRATED HORTICULTURAL LIST POST FREE ON APPLICATION.

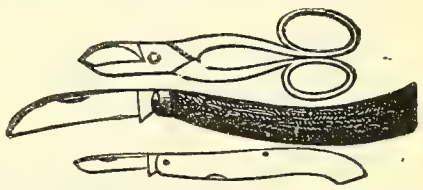
DEANE'S, Opening to the MONUMENT, LONDON BRIDGE, E.C.

BEFORE ORDERING LAWN MOWERS, see the "Sun and Planet Motion," with Patent Compound Wheel, in MORTON'S NEW PATENT LAWN MOWING MACHINE for 1863, allowed to be the best of the season.

Prices and particulars of Horse, Pony, or Donkey, and Hand Machines, to be had from GRIMMOND, LAIRD, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath.

*** Agents wanted in every Town. Apply as above.

Paxton Works, Sheffield, Established 1738.

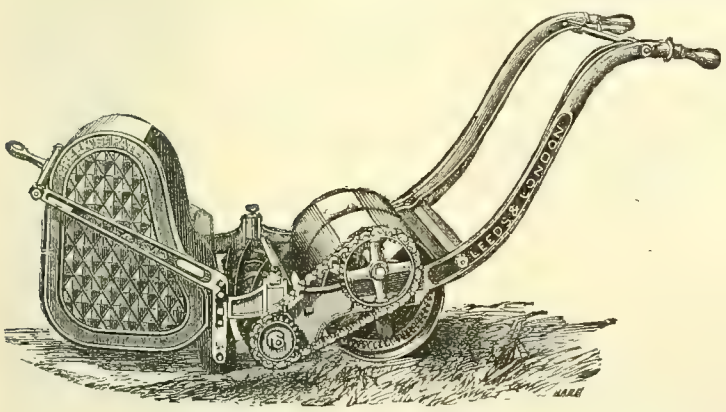


International Exhibition Prize Medal is just awarded to SAYNOR & COOKE for superiority of quality in Pruning and Budding Knives, &c.

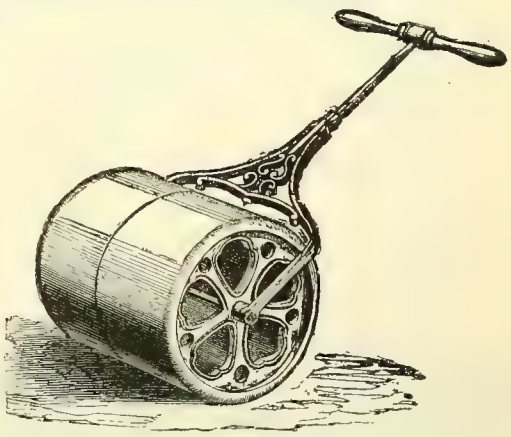
SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

GREEN'S LATEST IMPROVED PATENT
NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES
FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS.

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS DURING THE SEASON OF 1862.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

Upwards of 14,000 of the above Machines have been sold since the year 1856, and thousands of letters have been received by the Patentees testifying to their efficiency. They do not deem it necessary to publish more than the two following :—

TESTIMONIALS.

"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"DEAR SIR,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, GEO. EYLES."

"Royal Gardens, Windsor, March 27, 1863.

"DEAR SIR,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

"To Mr. Green." "Yours very truly, THOMAS INGRAM."

PRICES.

						If with Patent Delivery Box.
To Cut 10 inches	£3	10	0	Suitable for a Lady.		
„ 12 „	5	0	0	Suitable for One Person.	If with internal gear, 10*s.* extra.	
„ 14 „	5	10	0	Do. Do. Do. Do.	10*s.* extra.	
„ 16 „	6	10	0	Suitable for One Man or Two Boys.		
To Cut 18 inches ...	£7	10	0	Suitable for One Man and Boy	£8	15 0
„ 20 „ ...	8	0	0	Do. Do.	9	5 0
„ 22 „ ...	8	10	0	Suitable for Two Men	9	17 6
„ 24 „ ...	9	0	0	Do. Do.	10	7 6

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	£12 10 0
„ 26 „	12 10 0	13 12 0
„ 30 „	16 14 0	18 0 0

Leather Boots for Donkey, 16*s.*; for Pony, 20*s.*

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	£21 10 0
„ 36 „	23 0 0	24 16 0
„ 42 „	26 0 0	28 2 0
„ 48 „	29 0 0	31 8 0

Leather Boots for Horse, per set, 1*l.* 4*s.*

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

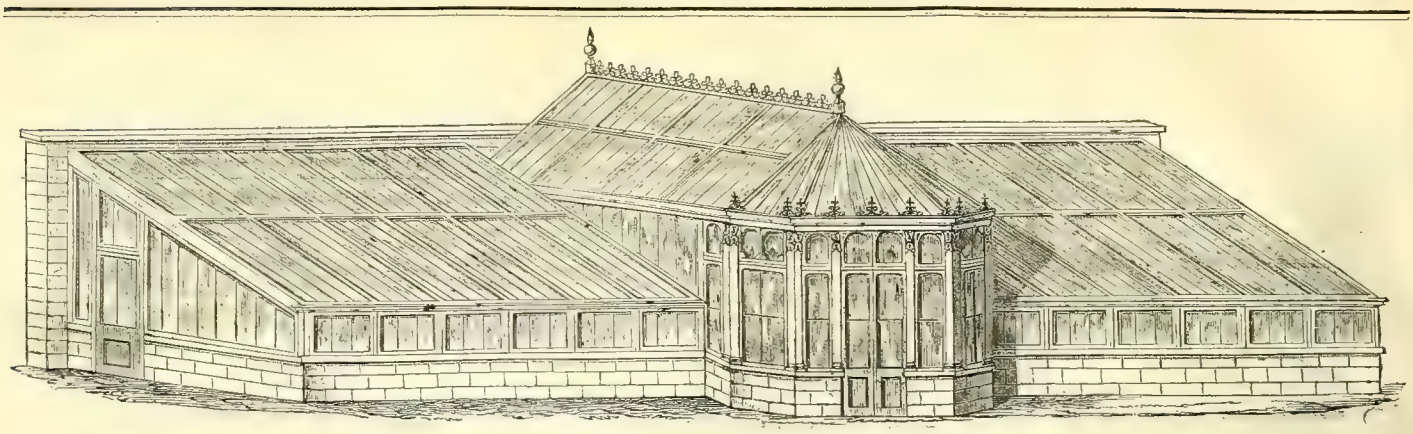
Diameter 20 inches, length 22 inches, price £3 5*s.* | Diameter 16 inches, length 17 inches, price £2 10*s.* | Diameter 24 inches, length 26 inches, price £4 5*s.*
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

GARDEN ENGINES, SYRINGES, WATER BARROWS, and PUMPS. CAST IRON FOUNTAINS, VASES, GARDEN SEATS, and GARDEN CHAIRS. IRON HURDLES, WIRE FENCING, WIRE NETTING, &c. Also every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS.

Illustrated Price Lists free.

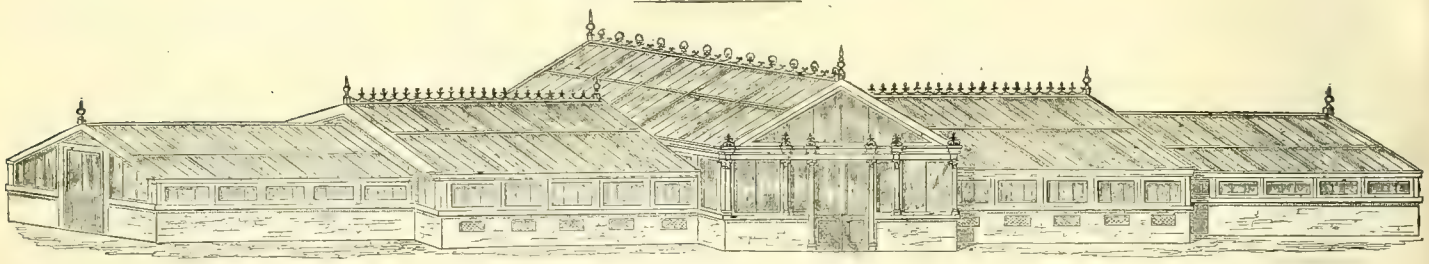
T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

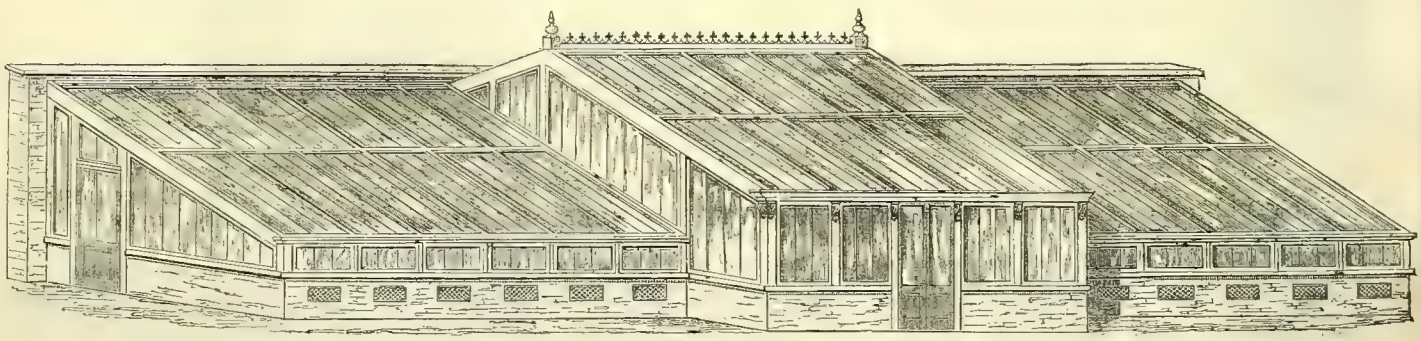
LOWEST PRICES AND BEST MATERIALS.



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THE FOLLOWING IS THE REASON WHY

ORMSON'S ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become so universally adopted on account of their superior power, great safety, and economy.



ORMSON'S No. 1 BOILERS are heating upwards of 250 feet of Pipe.
ORMSON'S No. 2 BOILERS „ „ 600 „
ORMSON'S No. 3 BOILERS „ „ 1300 „
ORMSON'S No. 4 BOILERS „ „ 3500 „
ORMSON'S No. 5 BOILERS „ „ 7000 „

Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

H. Ormson having a most complete Set of Steam-power Machinery, is in a position to execute Orders with the greatest despatch, and at considerably reduced prices.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk o disappointment.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, Horticultural Builder to Her Majesty,

AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

FOR SALE, two pure-bred BLACK SPANISH HENS and COCK. 13 months old, beautiful plumage, and without fault. Price 1*l.* 10*s.*

Apply to Mr. Exton, Paddock, Huddersfield.

FOR SALE, in consequence of the owner's ill health, RABBITS, Angora, Chinchilla, Chinese, Black and White lop-eared Doe, &c.; in all 14. Nest of 12 Hutches, (eight Breeding, four Buck), on a stand. An AVIARY, 7 feet high, 5 feet long, 3 feet deep, zinc roof A FLIGHT CAGE on Stand, NIGHTINGALE and other CAGES, and a few BIRDS; among them good specimens of the Crossbill, Hawfinch, Redwing, and Mountain Sparrow. Also an AQUARIUM, 2 feet 6 inches, slate bottom; price 2 guineas, cost 3.

Apply to Mr. Squire, Chemist, Hanwell, W.

Surrey.

TO BE LET, within one mile of Chiddingfold and Witley Station, a small detached SIX-ROOMED COTTAGE in good repair, with 1½ Acre of Meadow Land, Garden, Cow House, and a place for a Horse and Pigs. Rent will not exceed 15*l.* a year.

The place can be seen at any time, and further particulars had by applying to Mr. Berry, Combe Court, Godalming.

To Fruiterers and Seedsmen.

TO BE DISPOSED OF, with immediate possession, a BUSINESS in the above line, in the High Street, Uxbridge, established seven years, with a good connection. Incoming moderate. Unexpired Lease of seven years.

For particulars, apply to C. W. Ashton, High Street, Uxbridge.

To Nurserymen and Others.

TO BE DISPOSED OF, by PRIVATE TREATY, and with Immediate Possession, an old established NURSERY, with Hothouses and Greenhouses, doing a good business; in an excellent situation, and within a few miles of Liverpool. The whole to be taken at a valuation.

For particulars apply (by letter, post paid,) to M. S., care of Wren & Sons, Tea and Coffee Merchants, Temple Court, Liverpool.

Farnham, Surrey.

FARM TO LET.—Two hundred Acres, more or less, comprising 30 acres well-known productive Hop Land, some valuable Water Meadows, and the remainder Arable Land, situate near the town and within the parish of Farnham, and forming a desirable occupation.

For particulars and to treat, apply to the executors of the late Thomas Simmonds, of Rock House, Farnham, Surrey.

Sales by Auction.

Preliminary Notice.

MR. J. WILLMER begs to announce that he is favoured with instructions from the Executrix of the late Mr. W. Lawrence, of the Lion Hotel, Hampton, to submit to Public Auction, without the least reserve, in May next, the whole of his costly COLLECTION of TULIPS, TULIP STAGE CLOTHS, CABINETS, &c.

Full particulars will be duly announced.

Greenhouse Plants, Bedding-out Plants, Carnations, Gladioli, Azaleas, Roses, Cinerarias, &c.

MR. ARTHUR PLEWS will SELL by AUCTION, at his Great Sale Rooms, on FRIDAY NEXT, April 24, at half-past 12 o'Clock precisely, a fine collection of the above description of Property.

May be viewed the day previous, and Catalogues had of the Auctioneer, at his Great Rooms, No. 11, Catherine Street, Strand, W.C.

Periodical Sale of Poultry, Pigeons, Ducks, Rabbits, Fancy Birds, Dogs, &c.

MR. ARTHUR PLEWS will hold his next SALE of the above description of Property at his Great Sale Rooms, No. 11, Catherine Street, Strand, W.C., on WEDNESDAY, April 29.

Entries for this Sale should be sent to the Auctioneer by Thursday next at the latest.

Thorney, Cambridgeshire.

Important Sale of Eleven Valuable Cart Horses and Implements of Agriculture.

MR. JOHN FOX will SELL by AUCTION, on MONDAY, April 27, the property of A. Goodman, Esq., at his Thorney Fen Farm, the estate of the Duke of Bedford. The IMPLEMENTS comprise Waggons, Carts, sets of Harrows, Cultivators, Bentall's, Coleman's, and Biddell's Broadshares, Cambridge Clodcrusher, Roller, Suffolk Corn and Manure Drill, Ridge Drill, Land Presser, Ransome's Ploughs, Horse Hoes, Harness for 20 Horses, Plough Tackle, &c. The HORSES will be found valuable, and in first-rate working condition.

The Auctioneer directs particular attention to the above, the whole of which will be sold without reserve in consequence of the Proprietor's intention to substitute Steam Cultivation for Horse-power on a large scale on his farm. A set of Fowler's Steam Ploughing Tackle will be at work on the Farm for public inspection the same day, before and after the Sale.

Luncheon will be provided at 12 o'Clock, and the Sale will commence punctually at 1 o'Clock. Catalogues (which are in preparation) may be had at the principal Inns in Thorney and neighbourhood; and of the Auctioneer, 14, Narrow Street, Peterborough.

To Gentlemen, Florists, and Others.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, E.C., on FRIDAY, April 24, at 12 o'Clock, a first-class COLLECTION of CARNATIONS, PICOTEES, and PINKS; choice Azalea indica, Pelargoniums, Ericas, and other Plants in bloom; Standard Roses, American Plants, fine Seedling Calceolarias, Fuchsias, Verbenas, Dahlias in dry roots, an assortment of Herbaceous Plants, &c.

On view the Morning of Sale. Catalogues had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Camberwell.

MESSRS. PROTHEROE and MORRIS are directed by Mr. George Wells to SELL by AUCTION, on the Premises, 9, Grove Place, Coleman Street, near St George's Church, Camberwell, S., on SATURDAY, May 2, at 12 o'Clock, 16,000 GREENHOUSE and BEDDING PLANTS, including the usual assortment.

May be viewed prior to the Sale. Catalogues had on the Premises; of the principal Seed Shops in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

Important Sale of upwards of 600,000 Greenhouse and Bedding Plants.

MESSRS. PROTHEROE and MORRIS are instructed by the Executrix of the late Thomas Gaines, deceased, to SELL by AUCTION, on the Premises, Surrey Lane, Battersea, on MONDAY, April 27, and following days, at 11 o'Clock each day, the whole of the Valuable GREENHOUSE PLANTS, including all the magnificent specimens of Azalea indica, which for so many years have rendered this establishment famous, having obtained prizes at the various Metropolitan Floral Fêtes, and now, being beautifully furnished with bloom, and in such fine condition, offer an opportunity of rare occurrence to gentlemen requiring large handsome specimens for furnishing their Conservatories.

Large double Camellias, Ericas, Epacris, Crassulas, Epiphyllum (sorts); Acacia armata, Callas, Hydrangeas, Daphne indica rubra; a quantity of compact and healthy plants of Gardenias, Gloxinias, Begonias, double Primulas, Ficus elastica, Stephanotis, some brilliant varieties of Amaryllis, Tropæolum Jarrattii, Exotic and Hardy Ferns, Roses in pots, Lilium lancifolium (sorts), Deutzias, Cytisus, Ardisia, Show, Fancy, and French Pelargoniums, Scarlet Geraniums, &c.; about 50,000 Bedding Plants, including an extraordinary large assortment of fine grown stuff, too numerous to mention; a quantity of Tree and other Carnations, Picotees, Myrtles, &c.

May be viewed one week prior to the Sale. Catalogues may be had, 6*d.* each, returnable to purchasers, on the Premises; of the principal Seedsmen in London; at the Raven Inn, Battersea Square; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Clearance Sale for the South London Railway.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION on the Premises, Hanover Nursery, Rye Lane, Peckham, on WEDNESDAY, April 22, at 11 o'clock, without Reserve, the ground being required immediately to be cleared for the Works of the South London Railway, the valuable EVERGREENS and SHRUBS, consisting of very handsome Cedrus Deodara, 3 to 7 ft.; Araucaria imbricata, Thujopsis borealis; quantities of Green Hollies, Chinese Arbor-vitæ, Green Box, Ligustrum, sorts; Aucuba, Portugal Laurels, English and Irish Yews; Standard and Dwarf Roses, Hardy Climbers; Standard and Dwarf-Trained Peaches, Herbaceous Plants, Box Edging; above 100 yards of capital Privet Hedge, &c.; also Greenhouse and Bedding Plants, capital 12-light Pit, 42 ft. by 9 ft., and Brickwork, &c.

May be viewed prior to the Sale. Catalogues had on the Premises; Hanover Arms, Peckham; Seed shops in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Battersea.

To Gentlemen, Nurserymen, Builders, and Others.

MESSRS. PROTHEROE and MORRIS are instructed by the executors of the late Thomas Gaines, deceased, to SELL by AUCTION, on the Premises, Surrey Lane, Battersea, S.W., on MONDAY, May 11, at 11 o'clock, a newly-erected SHOW HOUSE, 41 ft. 10 in. by 32 feet over; 29 capital Greenhouses, several ranges of Pits; 1, 2, 3, and 4-light Boxes, 3 Spring Vans, thousands of feet of 3 and 4-inch Hot-water Piping, Saddle and other Boilers, Erection of Sheds, quantities of Bricks, Slate Shelving, York Paving, Hand Glasses, Garden Pots, Mats; useful Bay Gelding; Brewing Utensils, Iron Roller, Nest Seed Drawers, Barrows, Garden Tools, and sundry effects. May be viewed prior to the Sale.

Catalogues may be had (6*d.* each, returnable to purchasers) on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Important Notice of Forthcoming Sales by Auction in April and May.

MR. J. C. STEVENS begs to announce that he has received instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on

Saturday, April 18.—An immense assortment of Bedding-out Geraniums, all the newest and best varieties.
Tuesday, April 21.—Poultry, Pigeons, and Rabbits, from well known breeders and exhibitors.
Wednesday, April 22.—Several Collections of Established Orchids, comprising choice Aerides, Vandas, &c.
Friday, April 24.—Valuable Philosophical Instruments, Photographic Apparatus, Books, Prints, Pictures, Natural History Specimens, &c.
Saturday, April 25.—10,000 choice Bedding Plants, consisting of Verbenas, Calceolarias, Geraniums, &c.
Tuesday, April 28.—A choice assortment of Hardy Plants.
Wednesday, April 29.—An importation of Plants, from Ghent, consisting of Ferns, Azaleas, Rhododendrons, Cannas, &c.
Friday, May 1.—Valuable Philosophical Instruments, Photographic Apparatus, &c.
Saturday, May 2.—A very fine assortment of Bedding Plants.
Tuesday, May 5.—Poultry, Pigeons, and Fancy Birds.
Friday, May 8.—Photographs, Stereoscopes, and Miscellaneous Items.

Also the following, the Days of Sale of which will shortly be announced.

Importation of rare Araucarias, from Sydney.
An important Collection of British Birds' Eggs.
Several Importations of Orchids, from India and other parts.
Collection of Eggs and Bird Skins, from Lapland.
Cabinet of Shells, the property of a well known Collector.
Dr. Bird's Anatomical Museum and Medical Books.
Library of Historical and other Works, the property of a gentleman.
Interesting Photographic Negatives, Photographs, &c., of the celebrated Photographer Mr. Roger Fenton.
Valuable Collection of British Birds' Eggs, the property of a gentleman.
Interesting Collection of Skeletons of Birds and Animals.
A large Collection of Bird and Animal Skins, Horns, &c.
Valuable Collection of Minerals and Fossils, from the Continent.
An Importation of Tree Ferns, from New Zealand.
The Collections of Minerals and Fossils, contained in Four Cabinets, the property of a gentleman deceased.
The Duplicates of the late Saull's Museum, consisting of Minerals, Fossils, &c., removed from the Metropolitan Institution.
Several valuable Herbariums.
A fine collection of Bird Skins.
Several Private Collections of Insects.
A large assortment of Poultry and Pigeons.
Cabinet of Rare and Valuable Shells, the property of a gentleman, deceased.

Also in the AUTUMN.

Several very extensive and important Collections of Hardy and Ornamental Plants in Surrey, Buckinghamshire, and Warwickshire; expected to be about 15 days sale. More detailed particulars, with the days of Sale, will shortly be announced, and Catalogues will be ready one month prior, and will be forwarded on receipt of Two Stamps, to Mr. J. C. Stevens, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

SALE THIS DAY AT HALF-PAST TWELVE PRECISELY.

12,000 Choice Bedding-out Geraniums.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, April 18, at half-past 12 o'Clock precisely, a fine ASSORTMENT of GERANIUMS, comprising the following Choice and well-known Sorts:—

Lady Middleton	Flower of the Spring
Countess of Warwick	Blackheath Beauty
Christina	Jane
Golden Chain	Beauty
Hendersoni Nana	Baron Hugel
Minimum Nosegay	Alma
Rose Queen	Lady of Loretto
Beauté de Meldoise	Indispensable
Bishopstowe Scarlet	Model Nosegay
Countess	Hendersoni
Burning Bush	Julia
Red Nosegay	Scintillatum
Reine d'Or	Purple Nosegay
Paul l'Abbé	Little David
Golden Fleece	Cloth of Gold
Scarlet Queen	Madam Vaucher
St. Clair	Shottesham Pet
Golden Cerise Unique	Daybreak

All very healthy and well-grown plants.
On view the Morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on TUESDAY, April 21, at half-past 12 o'clock precisely, 200 Lots of Choice POULTRY and PIGEONS, consisting of Dorkings, Crévecœurs, Spanish, Game, Cochins, Brahmas, Bantams, Geese, &c., from the Yards of the Rev. G. Gilbert, Mr. Jones, and other well-known Breeders. Also a capital Lot of PIGEONS, from J. H. Craigie, Esq., Messrs. Green, Else, Fulton, and other well-known Fanciers, consisting of Barbs, Runts, Pouters, &c., many of which are Prize Birds. Also a few RABBITS, &c.

On View the Morning of Sale, and Catalogues had.

Established and Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 22, at half-past 12 o'Clock precisely, portions of THREE PRIVATE COLLECTIONS of ESTABLISHED ORCHIDS, comprising healthy well-grown and fine masses of the following choice sorts, many of which are in flower.

Aerides Schroederi, 2 plants	Cattleya superba, 12 fine masses
crispum, 2 plants	maxima, 3 plants
suavissimum, 3 plants	citrina, 2 fine plants
Fieldingii	Mossiæ
Cypripedium hirsutissimum, 5 plants	Syon House
barbatum, 6 plants	labiata splendens
villosum	xanthina superba, 3 plants
Lowii	Acklandiæ, 6 plants
Stonii	Leopoldi, 4 plants
purpuratum	Cymbidium eburneum
Epidendrum prismatocarpum, 6 plants	Dendrobium lituiflorum
	Phalænopsis amabilis, 10 fine plants
Saccolabium curvifolium	grandiflora, 3 plants
retusum	rosea, 6 ditto
violaceum, 11 plants	Vanda tricolor marginata
Blumei, 3 plants	insignis, 3 plants
Trichopilia suavis	suavis (Veitch)
coccinea	tricolor, 2 plants
species nova	&c. &c.

Also an Importation just arrived in splendid condition of the following very rare sorts, consisting of 30 Lots of BURLINGTONIA CANDIDA, 7 Lots of ONCIDIUM LANCEANUM, and 3 Lots of RODRIGUEZIA.

On view the Morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS begs to announce that he will include in his SALE at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 22, 30 Lots of BURLINGTONIA CANDIDA, 7 Lots of ONCIDIUM LANCEANUM, and 3 Lots of RODRIGUEZIA, all healthy imported Plants, just received in the finest possible condition. Also 12 fine established masses of CATTLEYA SUPERBA, all very healthy and strong.

On view the Morning of Sale, and Catalogues had.

Bedding-out Plants.—Extensive Sale.

MR. J. C. STEVENS begs to announce that he has received instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, April 25, at half-past 12 o'clock precisely, the First Portion of the Stock of 250,000 choice BEDDING PLANTS, from a well known grower, consisting of Geraniums, Calceolarias, Fuchsias, Heliotropes, Verbenas, Cupheas, Salvias, Gazanias, Alyssums, Ageratums, &c. Also a quantity of Roses and Geraniums established in pots, of the best market sorts, just coming into bloom.

On view the Morning of Sale, and Catalogues had.

Hardy Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, April 28, at half-past 12 o'Clock precisely, a fine COLLECTION of PLANTS, consisting of Carnations, Pinks, Picotees, Epacris, Dianthus, Geraniums, Delphiniums, Polyanthus, Phloxes, Fuchsias, Violets, Gazanias, Hollyhocks, 2500 Gladiolus Bulbs, Lobelias, Pampas Grass, Calceolarias, Raspberry Canes, Pansies, Hollyhocks, and other Hardy and Ornamental Plants, in all about 400 Lots.

On view the Morning of Sale, and Catalogues had.

Consignment of Greenhouse and other Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 29, at half-past 12 o'Clock precisely, JAPANESE and NEW ZEALAND FERNS, consisting of 100 fine Plants of Woodwardia orientalis and 200 Lomaria discolor, 100 Bonapartea gracilis, 100 Indian Azaleas, 200 Hardy Rhododendrons, 300 Cannas, 200 Delphinium formosum, 200 Thuja aurea, 100 mixed Greenhouse Plants, 50 Gunnera scabra, 100 Pæonies, 50 Thuja Vervaeneana, &c.

On view the Morning of Sale, and Catalogues had.

Preliminary Notice.

Importation of rare Araucarias from Sydney.

MR. J. C. STEVENS begs to announce that he has received instructions to SELL by AUCTION at his Great Room, 38, King Street, Covent Garden, W.C., an IMPORTATION of RARE and VALUABLE ARAUCARIAS expected to arrive shortly in 6 Cases, ex "Sarah Newman" from Sydney, comprising

200 ARAUCARIA RULII | 50 DWARF ARAUCARIAS
120 DAMMARA MOORII, and other Choice Plants.

The above have all been shipped in a fine healthy state, and are expected to arrive in good order. The day of Sale will shortly be announced, and Catalogues ready one week before.

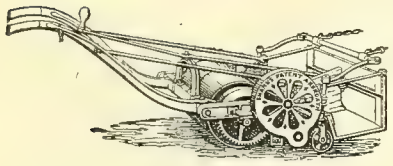
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

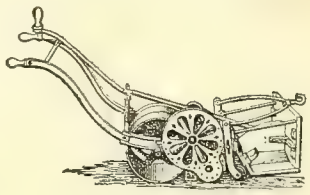
WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

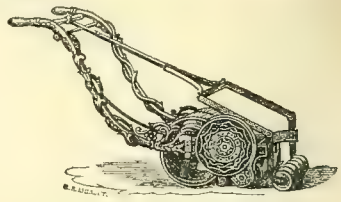
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	40*s.* ,,
No. 3.—36-inch Machine ...	22 0 0	30*s.* ,,
No. 4.—30-inch Machine ...	19 0 0	30*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine ...	£15 15 0	30*s.* extra.
No. 6.—28-inch Machine ...	14 10 0	30*s.* ,,
No. 7.—25-inch Machine ...	12 10 0	25*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £3 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

ALEXANDER SHANKS AND SON have for upwards of 20 years devoted their attention to the IMPROVEMENT and MANUFACTURE of LAWN MOWERS They have carefully avoided the useless inventions (of late years introduced into Lawn Mowers) which have simply *novelty, not improvement,* as their recommendation, and which are far better suited for the "*Trial Ground*" than for the *Practical Gardener.* They have at the same time manufactured their MACHINES with that regard to durability and efficiency as to secure their giving every satisfaction not simply for *one or perhaps two,* but for *many seasons,* and from the hundreds of unsolicited Testimonials they have received, and the large and increasing demand, A. S. & SON are glad to find that their MACHINES have not yet been *equalled for the qualities* that constitute a *really good Lawn Mower* fit for general use, and to afford *lasting satisfaction,* by any MACHINE yet before the public.

A. S. & SON subjoin a few Testimonials which fully bear out what has been said in favour of their MACHINES.

TESTIMONIALS:—

From MR. GEORGE EYLES, *late Chief Superintendent of the Grounds and entire Horticultural Department of the Crystal Palace, Sydenham, and now Superintendent of the Horticultural Society's New Gardens, Kensington Gore, and The Gardens, Chiswick—(the 30-inch Horse-power Machine used on the Lawns of the Crystal Palace.)*

"I have much pleasure in bearing testimony to the excellence of the 30-inch Shanks, Patent Lawn Mowing Machine you sent us. We have had it in use almost daily up to the end of the mowing season, and it has always performed its work in the most satisfactory manner, *and has never been once out of repair.* The contrivance for emptying the Grass-box is *a great acquisition, and effects a considerable saving of time.*"

From Mr. J. SMITH, *Royal Gardens, Kew.*

"I herewith send you a cheque in payment for the Shanks' Mowing Machine (a 42-inch Horse Machine), lately supplied to this Garden. The Machine gives perfect satisfaction, and is in daily use nine hours a-day. . . . . Our old Shanks' Machine (a 42-inch Horse Machine, supplied 14 years ago to Kew Gardens), has all along worked well, and it does not mind wet and long Grass. It is astonishing the amount of work it has done, and has given us complete satisfaction."

From Sir JOHN BURGOYNE, Bart., *Sutton Park, St. Neot's.*

"The Lawn Mower (a No. 9, 22-inch Hand Machine with Patent Delivering Apparatus) has arrived quite safe, and answers admirably, and mows better and in less time than it is possible for two men to do."

From Mr. THOMAS INGRAM, *Royal Gardens, Frogmore, Windsor.*

"Sirs,—The Mowing Machine you sent here has given the greatest satisfaction, and is a great saving of labour.—Yours very truly, THOS. INGRAM."
"Messrs. A. Shanks & Son."

Extract from a Memorandum received 10th April, 1863, from Mr. ROSE, *Superintendent, Crystal Palace Company.*

"Your Machines in the grounds are working beautifully."

From Mr. WHITE, *late Superintendent (under* Mr. EYLES) *in the Royal Horticultural Society's Gardens, Kensington.*

"Gentlemen,—For the last 3 years I have had the charge of all the Mowing Machines in the Gardens of the Royal Horticultural Society, South Kensington, but have now left and commenced business as Garden Contractor, Florist, &c. I am so satisfied of the superiority of your Machines that I intend to use and recommend them in preference to all others. They cannot be surpassed for their style of cutting, and are by far the most durable of any. Please send me some of your circulars.—Yours truly, WM. W. WHITE."

From J. SPENCER, Esq., *Factor to the* Most Hon. the MARQUIS OF LANSDOWNE, *Bowood, Wilts.*

"The Horse Machine you sent me is now doing its work quite as well as it did in 1847 (14 years ago), and this is saying very much of its great value and durability, for within the time named it has cut annually from 40 to 50 acres of Grass five times over; and frequently the Grass has been long and difficult to get over. I have no doubt that good as your earlier Machines were, those you now turn out are superior in many respects, and next spring I shall take a 42-inch one for myself, and shall feel great pleasure in recommending your really valuable Machine whenever I have the opportunity."

From MR. SHEARER, *Gardener to the* MARQUIS OF TWEEDDALE, *Yester Garden.*

"Gentlemen,—Allow me to congratulate you on the success of your improved Grass-Cutting Machine, which we got the other day from you, especially the delivering part. It is a mechanical triumph. You know that I expressed my doubts to you about it before I got the Machine, but having cut all our Grass with it, I must say that it acts far beyond my expectation, and it performs all you say in your prospectus. We can now go on the whole day without stopping, except to oil the parts that require it. *The men are quite in love with it*—a good proof of its utility.—I am, Gentlemen, yours respectfully, ALEXANDER SHEARER."

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 17.—1863.] SATURDAY, APRIL 25. {Price Fivepence. {Stamped Edition, 6d.

INDEX.

Agricultural machinery	396 b	Mentmore	394 c
Books, various	391 c	Milk poisoning	390 b
Botany, prizes in	392 a	Mimuluses, hybrid	388 a
Bougainvillea speciosa	388 b	Mistletoe on Conifers	390 b
Cattle, to measure	399 a	Museums, village	387 b
Couch-grass	393 c	Oats, Roman	388 b
Dies Orchidiance	388 c	Orchids, cool treatment of	388 a
Eggs	397 b	Peach protection	390 b
Farmers' Club, Wigton	397 c	Ploughing, steam	393 c
— Oxford	398 b	Poinciana Playfairii	388 c
Food, malt as	395 a	Poisoning rooks	398 c
Fortune on Japan, rev.	391 a	— milk	390 b
Fruit lore, ancient	389 a	Rhododendron Nuttallii	392 a
Garden law	390 a	Rook poisoning	398 c
Holly leaves	390 b	Roses	389 b
Implements, agricultural	396 b	Salix, plant	392 a
Indoor gardening	390 a	Sewage	394 a—397 b
Japan, Fortune on, rev.	391 a	Shorthorns	394 c
Land, how to value	398 b	Society, Entomological	391 a
Law, garden	390 a	— Linnean	390 c
Lee-Chee	390 c	Soils, how to value	398 b
Loquat	390 c	Steam cultivation	394 c—397 c
Lycioplesium pubiflorum	388 b	Village museums	387 b
Malt	394 c—395 a	Wireworm	390 b

ROYAL BOTANIC SOCIETY, Regent's Park.

EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, May 13, June 3, and 24.

AMERICAN PLANTS, MONDAY, June 8.

Tickets to be obtained at the Gardens by Orders from Fellows of the Society. May 2 is the last day upon which the 4s. Tickets will be issued; price after that day, 5s.; or on days of Exhibition, 7s. 6d. each.

CRYSTAL PALACE FLOWER SHOWS.—The GREAT FLOWER SHOW on SATURDAY, May 23, and the ROSE SHOW on SATURDAY, June 27.

Schedules for the first are now ready, and can be had on application to Mr. W. Houghton, Secretary to the Flower Shows, Crystal Palace, Sydenham, S.E.

GRAND HORTICULTURAL and FLORAL EXHIBITION at WORCESTER.

The Committee of the Worcestershire Horticultural Society have arranged to hold a GRAND SHOW of FRUIT, FLOWERS, and VEGETABLES, on TUESDAY, WEDNESDAY, and THURSDAY, July 21, 22, and 23, being the week of the annual assembling of the Royal Agricultural Society in Worcester.

The Show will be open to all England, and copies of the Schedules (which will contain Prizes to the amount of nearly 200l.) may be obtained by applying to the Honorary Secretary, Mr. T. H. Wheeler, No. 2, Foregate Street, Worcester, on or after the 21st April inst.

Vines.

JAMES CRAWFORD having a large Stock of fine strong healthy Grape Vines, many of them equal to bearing a Crop of Fruit, and wishing to effect a Clearance, begs to offer them at the low price of 18s. per dozen.
High Beech, Essex, N.E.

Pine Plants.

TO BE DISPOSED OF, by a gentleman leaving for town and giving up his House, &c., about 100 good healthy PINE PLANTS, this and last year's growth.
Apply by letter to Mr. F. Stead, 23, Jarratt Street, Hull.

PINES.—A large quantity of very strong and finely rooted QUEEN PINE PLANTS, in all sizes, warranted from a stock that never had scale.
Apply to M. Rochford, Market Gardener, Page Green, Tottenham, N.

VINES in POTS, of the leading kinds, now showing an abundance of Fruit, price 7s. 6d. each. They can be removed safely. Smaller plants, well adapted for borders, 3s. 6d. to 5s. each, all raised from Eyes. Seakale for Planting, 3s. 6d. to 5s. per 100.
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NEW MELON, PRINCESS ALEXANDRA.—A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1s. per packet.
James Carter & Co., 237, 238, & 261, High Holborn, W.C.

NEW PRIZE MELONS, at 1s. 6d. per packet.
Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria,
For descriptions see GUIDE to the KITCHEN GARDEN.
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WANTED, a Quantity of DOUBLE WHITE, YELLOW, CRIMSON, and PURPLE PRIMROSE, with price per 100.
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Nice bushy plants, 8 to 10 inches, 18s. per dozen.
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Good Seeds, Carriage Free, at Market Prices.

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Seed Growers and Merchants,
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Introduction of New Plants.

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THE FINEST EVER RAISED.

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Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.
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Printed notes on raising them, and their culture, forwarded with each packet; payment can be made in postage stamps.

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Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

New White Verbena, White Lady.

B. W. KNIGHT, FLORIST, &c., Battle, Sussex, begs to offer the above splendid variety. It is the best white yet produced; the blooms are large, of a pure white with primrose eye, pips even and smooth, large truss well up in the centre, free grower, a useful variety either for bedding or exhibition, It can with confidence be depended upon for all purposes. Plants the end of April, 3s. 6d. each.

CATALOGUES of other superb SEEDLINGS sent on application.

Splendid New Double Fuchsia Grand Admiral.

GEORGE WHEELER, NURSERYMAN, Warminster, Wilts, will be prepared to send out the above the first week in May. Tube and sepals bright crimson scarlet, sepals broad and well reflexed, corolla deep violet purple, large and full, a most profuse bloomer, the branches curving very gracefully, makes the habit unexceptionable. It has been declared by the best judges to be the finest double Fuchsia ever offered either for Exhibition or Greenhouse Decoration.

G. W. feels confident it will give general satisfaction. Price 7s. 6d. each.

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JOHN WATERER'S CATALOGUE of the above popular plants, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants.

It describes faithfully the colours of all the Rhododendrons, thereby rendering every facility for making selections.

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For description, &c., see CATALOGUE, free per post.

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WILLIAM BARNES has the above to offer for Sale, of all the known varieties worth growing (both English and Continental), sizes varying from 1 foot to the noble specimen of 6 feet in height and 3 feet 6 inches in diameter, all in the most perfect state of health and vigour, and models in form.

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Many of the beautiful specimens which have been exhibited (and obtained prizes) at the Metropolitan and Provincial Shows, were grown at this Nursery.

Prices on application.

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"'Little Dot' is the most dwarf I have seen of the Lucia rosea breed; it is also the best horseshoe leaf I have seen in that strain, and it is the most profuse bloomer I have yet seen of that much admired section of the bedding classes."—D. BEATON, in *Journal of Horticulture*, page 691, Dec. 2, 1862.

N.B. The Trade supplied.

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Twelve dozen choice Bedding GERANIUMS, in 12 varieties, purchaser's selection, for 32s. 6d., basket and package included; or any kind separately, at 3s. 6d. per dozen.

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Golden Chain	Scarlet Perfection	CrystalPalaceScarlet
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Golden CeriseUnique	Little David	Princess of Prussia
Flower of Spring	Beauté de Meldoise	M. Martin
Alma	Lady Middleton	Mde. Chardine
Hendersonii	Christina	Paul L'Abbé
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St. Clair	Scarlet Queen	Model Nosegay
Countess of Warwick	Indispensable	Minimum Nosegay
Shottesham Pet	Bishopstowe Scarlet	Purple Nosegay

All the leading kinds at moderate prices. Price to the Trade on application.

A remittance respectfully requested from unknown correspondents. Post Office Orders to be made payable to ALFRED FRYER, Chatteris, Cambridgeshire.

New Verbenas and Geranium.

RODERICK ELPHINSTONE, Sprowston Nursery, Norwich, respectfully begs to intimate that he intends sending out on May 1st, the following SIX VERBENAS; they were selected out of 2000 grown by himself, and he has no hesitation in saying that for size, shape, and substance, combined with compact habit, they will prove themselves universal favourites, both for Bedding and Exhibition purposes. Price 3s. 6d. each, with the usual allowance to the Trade:—

PRINCE OF WALES.—Bright rose, of extraordinary size, with large yellow eye; strong compact growth.

PRINCESS OF WALES.—Light, or Cobalt blue; of extra size, shape, and substance; clear white eye; of large size, a strong compact grower, and very sweet scented.

GEM OF THE EAST.—Brilliant crimson, large white eye; dwarf compact habit, extra size, form, and substance.

MRS. MEADE.—Crimson-purple, with a light eye, surrounded with prisms of a darker purple; new in colour.

ALEXANDER.—The most compact and free flowering scarlet ever offered, and for the flower garden will prove a decided acquisition.

ANNIE.—Fiery crimson, fine white eye surrounded with a dark ring, a fine show variety.

BEDDING GERANIUM FIREBRAND.—Is of the Nosegay section, habit most desirable; dwarf and compact, with small flat foliage. The bloom, which is shown well above the foliage, is of a bright blood colour; a profuse bloomer. It obtained the following Certificates of Merit:—

First-Class Certificate awarded by the Norwich and Norfolk Horticultural Society, June, 1862.

First-Class Certificate awarded by the Colchester and East Essex Horticultural Society, July, 1862.

First-Class Certificate awarded by the Ipswich Horticultural Society, July, 1862.

Plants, 30s. per dozen; single plants, 3s. each.

Green Hollies.

CORNELIUS WHITEHOUSE, Brereton Nursery, Rugeley, Staffordshire, offers an immense stock of well-grown healthy extra Transplanted HOLLIES, exceedingly well-rooted, from 12 to 15, 15 to 18, 18 to 24, 24 to 30 inches. Also very handsome SPECIMEN PLANTS from 3 to 5 feet; also ENGLISH YEWS from 2 to 2½ feet, 2½ to 3 feet and upwards. The above growing on ground to be cleared for other stock, the price will be liberal. Trade price on application.

BARR & SUGDEN

12 KING ST. COVENT GARDEN

All orders 21s. and upwards sent Carriage paid.

SURPLUS STOCK.

STRONG FLOWERING CANNA ROOTS.

A PORTION OF THE UNRIVALLED COLLECTION OF OUR "SARDINIAN CORRESPONDENT."

The CANNA, when associated with GLADIOLI, HOLLYHOCKS, DAHLIAS, RICINUS, &c., in large beds on the Lawn, Flower Borders, select Plantations or Shrubbery Borders, is one of the most picturesque and beautiful of Foliage Plants.

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50 Ditto ditto in 25 varieties	...	...	2	10 6
25 Ditto ditto			1	5 0
12 Ditto ditto			0	12 0

For a named Collection of 40 magnificent varieties of CANNA ROOTS, see *Gard. Chron.*, No. 14, p. 311.

	Per packet.—s. d.
2179 SIPANEA CARNEA.—A fine shrub, with large handsome foliage and a profusion of terminal corymbs of beautiful rose-coloured flowers changing to violet	1 0
2185 SOLANUM AMAZONICUM ATROPURPUREUM.—A beautiful conservatory plant, with handsome flowers, and neat elegant growth	1 0
2193 SOLANUM DIPHYLLUM.—A remarkably compact growing greenhouse shrub, with pretty miniature scarlet berries	1 0
2596 SOLANUM MACRANTHUM. — A magnificent climbing plant, with very large handsome leaves upwards of 2 feet in length, and about the same in breadth	0 6
2597 STEPHANOTIS FLORIBUNDA.—A deliciously fragrant snow-white flower, much used by the bouquet makers of Covent Garden for Bridal Bouquets	1 0
2275 STROBILANTHES AURICULATA.—A beautiful shrub of upright growth, rose flowers, and regularly disposed branches	1 0
2323 TUNICA SAXIFRAGA. — A fine free-flowering hardy perennial rock plant, with pretty pale red flowers and purple rays	0 6
2326 URTICA NIVEA. — Besides its beauty as a fine foliage plant for the adornment of centres of beds and mixed flower borders, U. nivea is celebrated as yielding the fibre called Chinese Grass. The upper side of the leaves are rich bronze green, the under silvery-white. When agitated by the wind the appearance of the plant is novel ..	1 0
ZINNIA ELEGANS FLORE PLENO. — Too much cannot be said in praise of this truly magnificent plant, covered during the autumn months with large handsome flowers, resembling moderate sized Dahlias .. .. 1s., 2s., 3s., &	5 6

TO TURNIP AND MANGEL GROWERS.

Growers of the above will find the following Varieties well worth their attention:—

DRUMMOND'S EXTRA IMPROVED SWEDE TURNIP, 1s. per lb.—A large handsome oval-shaped root with clear purple skin. Is a remarkably free grower, and may be relied on as the heaviest cropper in cultivation. This is the identical stock that last year carried off the 50l. cup offered by J. B. Lawes, Esq., to the farmers in Ireland for the best 10 Irish acres, and for which there were a great many competitors; and in reference to this Swede the gentleman who managed the premium crop writes:—"*Allow me to congratulate you on your present stock of 'Drummond's Swede Seed,' which I have tested on my four farms here and in Scotland, and I believe it to be the best Swede out, beating*"—(here is mentioned the names of several regularly advertised varieties) "*all of which I had procured from the best authorities, and for shape, size, and quality, surpassing them all.*"

GREEN TOP YELLOW ABERDEEN IMPROVED TURNIP 10d. per lb.—As now *improved* this is unquestionably the most valuable Yellow Turnip grown, for while the crop is large, it is more nutritious, hardier, and a better keeper than any other variety. Hence its extensive culture by the great stock breeders throughout Scotland.

NEW OVAL-SHAPED YELLOW MANGEL, 10d. per lb.—The New Oval-Shaped Yellow recently introduced by us has been thoroughly tested, and has proved a most superior sort. It is of a remarkably vigorous growth, with finely shaped roots intermediate in length between the Long and the Globe, and producing several tons more per acre than any other variety. *This stock has been re-selected and is very superior.*

LONG RED MANGEL, 9d. per lb.—This is a very large free-growing root, stands well out of the ground, and lifts much cleaner than an inferior stock will.

With every other valuable variety of TURNIP and MANGEL in cultivation, PRICED DESCRIPTIVE LISTS of which may be had Post Free on application.

N.B. Parcels of Seeds amounting to 2l. and upwards are delivered CARRIAGE PAID to all the principal Railway Stations and Shipping Ports throughout the Kingdom, to which there is daily and quick transit from Stirling.

W. DRUMMOND AND SONS, SEED AND IMPLEMENT WAREHOUSE, STIRLING, N.B.

KITCHEN GARDEN SEEDS,

FLOWER SEEDS.

In Collections including all the new and approved kinds, or separate to order.

Detail CATALOGUES post free.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND
THOS. GIBBS & Co.
Corner of
HALF-MOON St.
PICCADILLY,
London.
APPOINTED APR. 3, 1844
THE SEEDSMEN

AGRICULTURAL SEEDS,
GRASS SEEDS,
FARM SEEDS,

of all descriptions.

Thomas Gibbs & Co.
CORNER OF
HALF-MOON St.
PICCADILLY, LONDON, W.

FARM AND GARDEN SEEDS

CARRIAGE FREE.

BANGHOLM SWEDE,
EAST LOTHIAN SWEDE,
WARD'S BEAUTY SWEDE,
DROPMORE SWEDE,
MARSHALL'S CHAMPION SWEDE,
GREEN-TOP SWEDE,
WHITE SWEDE,
IMPROVED SKIRVING'S SWEDE.
WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
DOBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
IMPROVED YELLOW GLOBE DITTO,
IMPROVED ORANGE GLOBE DITTO,



IMPROVED LONG RED MANGEL,
IMPROVED LONG YELLOW MANGEL,
IMPROVED RED GLOBE MANGEL,
IMPROVED WHITE FIELD BEET,
RED CLOVER, | COWGRASS,
WHITE, YELLOW, and ALSIKE CLOVERS.
PACEY'S PERENNIAL RYE-GRASS, and other sorts.
ITALIAN RYE-GRASS, FOREIGN and ENGLISH SEED.
NATURAL GRASS SEEDS, in mixture or separate, suitable for various soils and localities.
LIGHT RYE-GRASS and other CHEAP GRASSES, for Sowing on Railway Banks and Waste Places.

Orders for Exportation promptly attended to.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN,

28, KING STREET, CHEAPSIDE, NEAR the GUILDHALL; and

15, LAWRENCE LANE, LONDON, E.C.

NEW PLANTS FOR 1863.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Has much pleasure in offering the following NOVELTIES for the first time, to be sent out after April 20:—

New Achimenes.

The following choice varieties are the seedling productions of that successful gardener, Mr. Parsons, of Welwyn, and they will be found great acquisitions to this beautiful class of plants, and quite equal to the descriptions given:—

ACHIMENES MAUVE QUEEN.—This splendid variety is, without exception, the finest of all that useful and most desirable class of summer-flowering plants; a great improvement on longiflora major; producing an abundance of beautiful large mauve-coloured flowers, with a conspicuous light chocolate eye, splendid form, and of extraordinary waxy substance. Was exhibited by the Raiser at the Floral Committee of the Royal Horticultural Society, and was awarded a First-class Certificate. Figured in the "Floral Magazine," November, 1862. Price 10*s.* 6*d.* each.

ACHIMENES CARMINATA ELEGANS.—Another beautiful variety, and is, without doubt, the finest of the small and free-flowering sections, producing spikes 18 inches in length; being of good branching habit, is capable of producing specimens 3 or 4 feet in diameter, thus making it a charming object for the, summer and autumn months. Price 7*s.* 6*d.* each.

*** Coloured Illustrations of each of the above by ANDREWS will be forwarded in exchange for six postage stamps.

New Petunias.

The following valuable varieties were raised by Mr. Holland, of Isleworth, and are a small collection selected from a large quantity of Seedlings. They are confidently recommended for general excellence, being great improvements on all others previously offered.

PETUNIA CRIMSON GEM.—A compact branching and free growing variety; flowers of a soft velvety crimson, with dark throat; of great substance and fine form; an improvement on Phaeton and all in that way. This is, without exception, the highest coloured Petunia yet offered. Received a First-class Certificate from the Royal Botanic Society, May, 1862. Price 5*s.* each.

PETUNIA FLOWER OF THE DAY.—This remarkable flower has four broad stripes of pure white, and four bright purple above, equally divided; very constant and beautiful. Received a First-class Certificate from the Royal Botanic Society, May, 1862. Price 5*s.* each.

PETUNIA ROSA BELLA FORME.—A free flowering and shrubby variety, of first-class habit for bedding and other purposes, being of short-jointed growth; producing an abundance of beautiful bright Magenta flowers, with a clear white throat, of great substance and perfect form. This will, without doubt, prove to be the best bedding Petunia yet offered. Price 5*s.* each.

*** Coloured Illustrations of Petunia Rosa Bella Forme, and Flower of the Day, by ANDREWS, will be forwarded in exchange for six postage stamps.

New Zonale Geranium.

CONQUEROR OF EUROPE (HOLLAND).—Beautiful soft carmine; fine form and substance; extra large truss; long flower stalks, producing enormous heads of bloom well above the foliage; good and compact habit; fine for pot culture. Was awarded a First-class Certificate at the Royal Horticultural Society's meeting, June 1862. Price 5*s.* each.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

Bedding Tropæolum.—Ball of Fire.

ARTHUR HENDERSON AND SON intend sending out the above brilliant BEDDING TROPÆOLUM on the 1st of May.

For description and full details see figure and remarks in the *Floral Magazine* for January, 1863, Plate 129, colour of Tom Thumb Geranium. This will prove one of the best and most beautiful Bedding Plants of the season.

Per 100 Plants	.. £3 10 0	Per 25 Plants	.. £1 10 0
,, 50 ,,	.. 2 2 0	,, 12 ,,	.. 0 18 0
	1 Plant .. .. 2*s.* 6*d.*		

Pine Apple Place, Edgeware Road, London, W.

Seeds for the Kitchen Garden, Flower Garden, and Farm.

JOHN CATTELL'S DESCRIPTIVE CATALOGUE of the above is now ready, and will be forwarded, post paid, on application; it contains select lists only, and includes every novelty worthy of cultivation.

All parcels of Seeds of the value of 21*s.* and upwards carriage paid to any Railway Station in England.

Nursery and Seed Establishment, Westerham, Kent.

Bedding Plants, mostly 2s. 6d. per dozen.

J. SCOTT'S FLOWER GARDEN and ANNUAL DIRECTORY will be ready to forward, from the 1st week of April, at 6*d.*

"All who wish to have their Gardens gay, at a moderate price, should procure the above."

Merriott, Crewkerne, Somerset.

E. G. HENDERSON AND SON offer First-class quality of CINERARIA,

CALCEOLARIA, and PRIMULA SINENSIS FIMBRIATA, 1*s.* and 2*s.* 6*d.* per packet.

CINERARIA WEBBI.—The interest and value of this species consists in its having a shrub-like branched habit of growth, attaining from 3 to 4 feet in height. This remarkable plant is expected to originate a new and desirable class of varieties for exhibition purposes, it having already passed into all the colours found in florist varieties of the present time, and no doubt but higher improvements in form, and other essential properties, will be obtained in connection with its superior culture. It will be found well adapted for decorative purposes, by its taller growth, and longer continuance in bloom. 2*s.* 6*d.*

Wellington Nursery, St. John's Wood, London, N.W.

New Shrubby Calceolarias.

MESSRS. JOHN AND CHARLES LEE having purchased the entire stock of Seedling SHRUBBY CALCEOLARIAS, raised by Mr. Watson, of St. Alban's, in 1861 and 1862, have selected four distinct colours, which they intend to offer to the Public the first week in May. They are the finest high-coloured Shrubby Calceolarias yet raised, and in point of habit and quality are everything that can be desired for bedding or pot culture. They are decidedly shrubby and of good constitution, with a dwarf spreading habit and good foliage. The flowers rise just above the leaves, forming an even mass of exquisite colouring.

Price 5*s.* each, or 15*s.* the set, as under:—

PRINCESS ALEXANDRA.—Rich orange buff, of very dwarf habit, free blooming and conspicuous. Quite a new colour in Calceolarias.

MAGNIFICENT.—Deep orange flowers, of large size with close mouth, flower stalks short and stiff, a good dense habit, and first-rate in every respect.

PRINCE LOUIS of HESSE.—Rich crimson flowers of medium size, free blooming, habit very dwarf and showy.

FIREFLY.—Intense orange scarlet flowers of good size, free blooming dwarf habit, the brightest colour yet raised.

Terms to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

NEW HARDY BEDDING PLANT,

Pentstemon compactum nanum (Wemyss).

STUART AND MEIN have much pleasure in offering this very desirable variety. It was awarded a Certificate by the Floral Committee of the London Horticultural Society at its Meeting, Oct. 8, 1862, and is thus noticed in the *Gardeners Chronicle*, Nov. 15, 1862:—"One called Compactum was particularly remarkable for its sturdy compact growth, its abundant blossoms, and its deep crimson colour, which had more of richness in the hue than commonly occurs amongst these plants." It was bedded last season, and attracted universal admiration. Its compact dwarf habit, attaining not more than 12 inches, and the profusion and brilliancy of its colour, recommend it as a most desirable bedding plant, particularly in cold wet seasons like the last, when Verbenas and other tender plants almost universally failed.

The following among others saw it in flower the past season:—

"When I saw your dwarf Pentstemon compactum nanum about the middle of October, I was much pleased with its dwarf compact habit, fine dark green foliage, and showy crimson flowers, when (as to flowers) the Geraniums, Calceolarias, and Verbenas were all gone. It will undoubtedly prove a great acquisition to the present stock of bedding plants." JOHN SMITH, Gardener to his Grace the Duke of Northumberland, Syon House.

"I was exceedingly pleased with your Seedling Pentstemon compactum nanum when I saw it in flower in September. I had not previously seen any other variety to be compared to it, and fully believe it will prove a first-rate bedder." WILLIAM DODDS, Gardener to Sir J. H. Greville Smyth, Bart., Ashton Court.

Plants sent out first week in May, 12*s.* per doz., or 50*s.* per 100. Usual discount to the Trade.

STUART & MEIN, Rosebank Nurseries, Kelso, N. B.

HUGH LOW & CO.

Have pleasure in announcing that they propose selling in the first week of May, Plants of the undermentioned SEEDLING VERBENAS, all of which they believe to be varieties of great merit. The six first-named were raised by JOHN MILLER, Esq., of Upwey (the raiser of "Foxhunter," &c.), whose name will be of itself a sufficient recommendation of the Varieties selected from the large Stock of Seedlings annually bloomed by that enthusiastic admirer of the Verbena.

FLORA.—Pink, with large white centre, fine truss, retains its colour well, and is very good in the autumn.

RUBY.—Rich deep ruby, light centre, a new and attractive colour, with dwarf free-blooming habit, and excellent bedder.

ROSALIE.—Deep salmon-rose, light centre, a new shade of colour, a fine truss, with large pips.

PURPLE EMPEROR.—Rich plum-purple, white centre, colour fine.

AMARANTH.—Bright pure purple, light centre, a strong grower, with large truss.

CHIEFTAIN.—Scarlet, large white centre, with good habit, an effective flower.

ARKANSAS (NICHOLS).—Bright carmine crimson, large pip extra.

THE BRIDE (NICHOLS).—Fine light rose, white eye, large truss.

Price 30*s.* *the collection.*

CLAPTON NURSERY, LONDON, N.E.

Superb Hollyhocks.

R. B. BIRCHAM begs to state that he has many thousands of fine Plants of the leading kinds of HOLLYHOCKS, which he will be happy to offer upon the most advantageous terms to any Nurseryman or Florist who may require them. Price per hundred upon application.

Purchasers requiring Blacks, Whites, or Yellows can be supplied at per dozen.

Hedenham Rosery, Bungay, Suffolk.



HOLLYHOCKS

(MIXED)

from the finest Show Varieties.

Strong Blooming Roots,

4s. to 6s. per dozen; 25s. per 100.

RICHARD SMITH,

THE NURSERIES,

Worcester.

Bedding Plants, 2s. per Dozen.

MARSH AND PERKINS have great pleasure in offering the following, all strong healthy Plants:—

GERANIUMS: Variegated Flower of the Day, Osborn's Brilliant, Nymph, Tom Thumb, Scarlet, and Horse-shoe Leaf. CALCEOLARIAS: Aurea floribunda, Prince Albert, and Prince of Orange. Ageratums; Alyssums, variegated; Cupheas, of sorts; Gazania splendens; Heliotropes; Lobelias, Scarlet and Dark Blue; Musk; Perilla nankinensis; Pentstemons, of sorts; Salvias, of sorts; Verbenas, of sorts, &c.

A DESCRIPTIVE PRICED CATALOGUE may be had on application to 42, Drapery, Northampton.

Cash or reference required from unknown Correspondents.

DAHLIAS.

CHARLES TURNER ..	KEYNES..	8	First-class	Certificates
LORD WILTSHIRE ..	DODD ..	3	do.	do.
PRINCESS ALICE ..	EDWARDS			
COUNT CAVOUR ..	,,	3	do.	do.
SERENITY	RAWLINGS			
MRS. HOGG	,,			
EARL RUSSELL.. ..	SILVER ..	4	do.	do.
BELLONA	HARRISON	4	do.	do.
PATENT	NAIRN ..	6	do.	do.
BRIDE	RAWLINGS	2	do.	do.
MRS. WICKHAM ..	,,			
THE BEAU	,,			

It is respectfully announced that these 12 First-class Flowers will be ready for distribution the first week of May.

CATALOGUES with full descriptions will be forwarded on desire.

JOHN KEYNES, Castle Street Nursery, Salisbury.

NEW DAHLIAS.—On and after April 20, vigorous, hardy, and strong-rooted Specimens of our new picked sorts of this favourite Flower will be ready for transporting in pots. Lists of prices, with a description of the various sorts (GRANDIFLORA and LILLIPUTIANS—the latter principally for pots in small gardens) may be had on application, by prepaid letter, to our Agents, Messrs. STREET BROS., 11, Serle Street, Lincoln's Inn, London, W.C.

Twelve Sorts, selected by us, of these magnificent varieties, for 1*l.* 16*s.*, when ordered direct, by post-paid letter, from the Establishment mentioned below. The whole Collection (33 sorts) for 6*l.* The usual allowance to the Trade.

Horticultural Establishment of H. LAURENTIUS, Leipzig, Saxony.

J. LINDEN'S ESTABLISHMENT for the INTRODUCTION of NEW PLANTS, Royal Zoological and Horticultural Gardens, Brussels.

The NEW CATALOGUE for 1863 is just published, and contains a great number of newly introduced plants.

Agents in London, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C., who will forward the Catalogue on application.

Cheap Plants.

WM. DILLISTONE will forward (carriage free to London) the under-mentioned, in 100 strong Plants in pots, upon receipt of Post-office Order for 25*s.*, or half for 13*s.* 6*d.* (on Castle Hedingham).

18 Distinct FUCHSIAS, new, of 1862
18 Distinct VERBENAS, new, of 1862
6 VERBENA FOXHUNTER, new, of 1862
6 VERBENA MRS. HOLFORD, new, of 1862
12 LOBELIA SPECIOSA KERMESINA, new, of 1862
12 AMARANTHUS MELANCHOLICUS, new, of 1862
12 Finest Named PETUNIAS
12 Distinct Named VARIEGATED GERANIUMS
2 CALCEOLARIA CANARIENSIS
2 MIMULUS GAIETY

TOM THUMB, FLOWER OF THE DAY, and other kinds of GERANIUMS, VERBENAS, Purple, White, and Named Sorts, CALCEOLARIAS, &c., by the 100 or 1000.

Munro Nursery, Sible Hedingham, Essex.

Choice Ferns, &c.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer at very reasonable terms the following in good healthy plants:—

LOMARIA DISCOLOR, at 18*s.* per dozen.
WOODWARDIA ORIENTALIS, 18*s.* per dozen.
GYMNOGRAMMA LUTEA ALBA, 18*s.* per dozen.
PTERIS CRETICA fol. ARGENTEIS, 6*s.* per dozen.
THUJA VERVAENEANA, 18*s.* per dozen.

N.B.—A. V. G. begs to say that his new hardy large flowering RHODODENDRON, AUGUSTE VAN GEERT, of which a drawing can be seen at his Agent's, Mr. R. SILBERRAD, Harp Lane, London, will be sent out next September. Good plants at 7*s.* 6*d.* to 21*s.* each. Orders can now be booked.

New Plants.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, will be ready to supply during next May the following interesting NOVELTIES, which he can recommend as first-rate:—

10 New PETUNIAS of Mr. Rendatler and others for 7*s.* 6*d.*
10 ,, FUCHSIAS of Mr. Cornelissen for 30*s.*
12 ,, PENTSTEMONS for 10*s.* 6*d.*
12 ,, PHLOXES, superb, for 10*s.* 6*d.*
20 ,, Italian-striped VERBENAS, extra, of 1862, for 21*s.*
12 ,, ,, ,, for 1863, 21*s.*
12 ,, LILLIPUTIAN DAHLIAS of 1862, 21*s.*
12 ,, ,, for 1863, 42*s.*
PHLOX TRICOLOR, 5*s.*
DIELYTRA SPECTABILIS ALBA, 21*s.*
LOPHOSPERMUM SCANDENS GRANDIFLORA, 3*s.* 6*d.*

Early orders are solicited, and will be sent in strict rotation.

JEAN VERSCHAFFELT begs respectfully to announce that he is now taking orders for the two following new INDIAN AZALEAS, which he will send out for the first time in May next. Full description of the same may be found in J. V.'s NEW CATALOGUE, to be obtained on application either to himself or to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London:—

AZALEA INDICA SECRETAIRE CLAUS (J. V.), 7*s.* each.
AZALEA INDICA VICOMTE DE FORCEVILLE (J. V.), 10*s.* each.

One Plant over on every three to the Trade.

Early Orders are solicited, to be directed to JEAN VERSCHAFFELT, Nurseryman, 43, Rue de la Caverne, Ghent, Belgium.

To Seedsmen and Others.

THOMAS AYRES, SEEDSMAN and GROWER, Biggleswade, Beds, begs to offer the following SEEDS of his own growth of 1862, viz:—

WHITE SPANISH ONION SEED,
MANGEL WURZEL SEED, various kinds.
SWEDE, and COMMON TURNIP, ,,
SEED POTATOES of the following varieties:—EARLY ASH LEAF KIDNEY, MYATT'S PROLIFIC do., EARLY SHAW and REGENTS.
SCARLET RUNNER BEANS (English grown).

A PRICE LIST forwarded upon application.



SUTTON'S YELLOW GLOBE MANGEL WURZEL,

THE HEAVIEST AND BEST SORT KNOWN.

Price 8*d.* per lb.; cheaper by the cwt. Common sorts of Mangel, 6*d.* per lb. Good growing Seed.

PRICED LISTS of FARM SEEDS post free.

Royal Berkshire Seed Establishment, Reading.

Mangel Wurzel and Turnip Seed.

MARSH AND PERKINS, 42, Drapery, Northampton, have pleasure in offering the following, all the growth of 1862, from Transplanted Bulbs:—

YELLOW GLOBE MANGEL WURZEL, 6*d.* per lb.
LONG RED Do. Do., 6*d.* per lb.
GOLDEN GLOBE SWEDE, the heaviest cropper in cultivation, 9*d.* per lb.
GREEN BARREL, the best Common Turnip grown, 6*d.* per lb.

Cash or reference required from unknown Correspondents.

Turnip and Mangel Wurzel Seed.

H. AND F. SHARPE can supply the Trade with the following Varieties, true to name, all of their own growth, new and genuine, and on very advantageous terms.

TURNIP.	TURNIP.
Improved Purple-top Swede	Lincolnshire Red Globe
Champion do.	Improved Green Norfolk
Skirving's Improved do.	Fine White Stone
Marshall's Improved do.	MANGEL WURZEL.
Yellow Tankard	Elvetham Long Red
Pomeranian White Globe	Fine Orange Globe
Drummond's Early Field	,, Long Yellow
Yellow	,, Red Globe
Green-top Scotch	

Seed Growing Establishment, Wisbech.

NEW HARDY WHITE SWEDE.—The Favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills. Grows rather coarse on some soils or when sown early; but it is very productive, hardy, and it is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor land.

Seed 1*s.* per lb., or 42*s.* per bushel.

Supplied by RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Skirving's "King of the Swedes."

WILLIAM SKIRVING, Queen Square, Liverpool, begs to acquaint the Farmers of the United Kingdom, that he has fixed the price this season for the Seed of his new variety of SWEDE at 1*s.* 3*d.* per lb., bags included.

W. S. can with confidence recommend this variety of Swede as the best now in cultivation, in every respect. This assertion is made after several years' experiments with every sort of Swede known.

The Seed of this variety having all been grown on his own Farm, he begs to say it can only be had direct from himself, this being the second year of its introduction.

All other sorts of Farm Seeds of the most superior quality, at their present market value.

GRAYSON'S TRUE MORTLAKE GIANT ASPARAGUS, grown on the ground where the late Mr. GRAYSON brought it to such perfection, so that Grayson's Asparagus is preferred everywhere.

Seed saved from the Mortlake Beds .. 6*d.* per oz.
Very fine Plants, 2 years old .. .. 4*s.* per 100.

This is the best month to plant, as I have satisfactorily proved.

F. R. KINGHORN, Sheen Nursery, Richmond, S.W.



KING of the POTATO.—The original Stock as received from the Raiser, Mr. Spencer, and sent out by us. Pronounced by all who have grown it to be one of the MOST PRODUCTIVE AND BEST VARIETIES in cultivation. No Blight affects it.

Price 12*s.* 6*d.* per cwt., or 12*l.* per ton.

JAMES DICKSON & SONS,

The "Newton" Nurseries, Chester

CABBAGE PLANTS.—Late Drumhead Cabbage Plants, Early York ditto, Dwarf German Greens, and Savoys. All at 2*s.* 6*d.* per 1000, and grown from fine pure stocks.

Also clean light PERENNIAL RYE-GRASS SEED at 2*s.* 6*d.* per bushel. Prices to the Trade on application.

THOMAS IMRIE & SONS, Nurserymen and Seedsmen, Ayr.

Cabbage Plants.

H. AND R. STIRZAKER can supply in any quantity fine DRUMHEAD CABBAGE PLANTS, EARLY CURLED SAVOY, CAULIFLOWER, &c., RED for Pickling, all Autumn sown.

Also many thousand ENGLISH YEWS, PORTUGAL and COMMON LAUREL, in sizes from 1½ to 5 feet, will move with fine roots, and good furnished plants. Prices on application. The Nurseries, Lancaster.

Cabbage Plants.

W. VIRGO and SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 3*s.* per 1000:—

EARLY YORK CABBAGE	EARLY NONPAREIL
,, BATTERSEA	DRUMHEAD
,, BARNES	

RED CABBAGE, 4*s.* per 1000. All strong, healthy, and well rooted.

Wonersh Nursery, near Guildford, Surrey.

International Exhibition. Prize Medals 1851 and 1862,

AWARDED FOR "EXCELLENT SEED CORN AND SEEDS," TO

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED MERCHANTS and GROWERS, Basingstoke, Andover; and 89, Seed Market, Mark Lane, London, E.C.

Samples of all kinds of AGRICULTURAL SEEDS and SEED CORN, sent post free on application.

NEW BEDDING VERBENAS.

WHITE LADY. | BLUE KING. | ST. CLAIR.

THE THREE BEDDING VARIETIES FOR THE SEASON.

Other first-class Show Varieties raised by Mr. EDMONDS.

With the above will be sent out BEATON'S NEW NOSEGAY GERANIUMS; BANKS'S NEW FUCHSIAS; GERANIUM ALEXANDRA, the improved form of Christine, of a richer coloured pink, large truss, and better form; with many other New Plants, which will appear in the SPRING CATALOGUE, to be Published the 1st of May.

NOSEGAY GERANIUMS.

RATAZZI (BEATON).—This is a remarkable improvement on Baron Ricasoli in all essential features, but differs in the pale horse-shoe zone on the leaf of the present one; trusses and flowers much larger than in the last-named one, and in colour it is a rich deep tint of what cultivators term a "dark lateritia" colour, or otherwise a bright flamed red. In style of growth it is as free and close as Ricasoli, and nearly as strong and compact as Tom Thumb, with which it would and will make a good contrast; its unique tint, withstanding all usual sun and rain, forms a suitable feature between or against higher scarlets or deeper crimsons. It is a first-class bedder, distinct from all others. 3*s.* 6*d.*

RIVAL NOSEGAY (BEATON).—This fine variety is a dominant rival to Nosegay "Stella," and N. Fothergilli, the purplish pink Nosegay of Sweet's Geranaceæ, but is distinct and superior in colour to either of them, in being a bright crimson-scarlet, with a magenta tint in centre; in the truss and flower being larger than Stella, whilst the flower lobes are larger and still more perfect as a nosegay than those of Fothergilli. Its superiority in the section entitle it to be named Champion, or Model Nosegay, had the latter not been pre-occupied. The leaf, habit, and profuse flowering are in the style of Punch. Its bloom is unhurt by sun or rain, and forms a valuable and beautiful kind for beds or ribbon rows. 3*s.* 6*d.*

RUBROCINCTUM (BEATON).—One of the most beautiful of all varieties yet raised for vases and plant boxes. Its style of growth is scarcely as strong as Tom Thumb, but more spreading and rather lower. It blooms very profusely in trusses collectively as large as in Stella, but more brilliant, being a deep shade of scarlet, suffused with crimson. 3*s.* 6*d.*

RIVAL STELLA (BEATON).—A charming bedding variety, with flowers and trusses as large as Rival Nosegay; its style of growth is as close, but less robust than Tom Thumb. The foliage is peculiarly distinct by its light Spanish-brown coloured leaf-zones or horse-shoe outlines. As a true nosegay it forms a very effective bed by its abundant trusses of rich crimson-tinted scarlet blossoms. 3*s.* 6*d.*

CARMINATUM IMPROVED (BEATON).—A great improvement on Carmine Nosegay, in leaf, flower, truss and colour, proportionately smaller in the first feature, and richer by its carmine-tinted crimson colour in the latter. Not so strong as Tom Thumb in growth, but a very fine trussing variety for groups, and exceedingly effective for groups when planted tolerably close. 3*s.* 6*d.*

The above new Bedding varieties, after two inspections, were selected as the best in the group. HELEN LINDSEY, and other NOSEGAY GERANIUMS were refused by reason of being considered not equal in merit to the foregoing kinds.

ALEXANDRA.—A rival to, and improvement upon Christine; habit vigorous and compact, 12 to 16 inches in height; leaves with dark zone; trusses globular and large, blossoms bright magenta tinted rose, with a light shade in the upper centre. Adapted for large groups or ribbon lines, and forming an exquisite middle row between darker tints. Its profuse blooming habit, with a richer tinted Christine colour, constitutes a beautiful and effective feature in the arrangement of colours. 3*s.* 6*d.*

E. G. HENDERSON AND SON,

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.



FARM SEEDS
OF GENUINE QUALITY
(at Market Prices).
Carriage Free.

RICHARD SMITH,
SEED MERCHANT,
Worcester.

LUPINE SEED, the entire Growth of Mr. THOMAS CRISP, of Butley Abbey, may be obtained of Mr. HENRY EDWARDS, Merchant, Woodbridge.—This Plant has been cultivated for several years with the greatest success on the poorest sandy soils, producing abundant crops of valuable Food for Sheep for summer and autumn feeding. Price 10*s.* per bushel; and new Sacks, 2*s.* each, at Woodbridge Station.
Woodbridge.—April 25.

TURF.—A Quantity of capital Turf for Sale. Apply to Mr. H. D. AUSTIN, Castle Hill, Ealing.

TAN GRATIS, in the immediate neighbourhood of Covent Garden Market.
Apply at WILLIAM ESSEX & SON, 28, Stanhope Street, Clare Market, W.C.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; second quality, 6*s.* per ton, put on the rail at Reigate.
PEAT SOILS, LOAM, &c.
Collections of NEW, RARE, and BEAUTIFUL PLANTS of all kinds, carefully selected and supplied at current Prices.
W. SHORT, Salesman, Agent, &c., Reigate, Surrey.

THE best Quality of SILVER SAND, carriage paid to the South Eastern Railway Company's Station at Bricklayers' Arms, London, in Four Ton trucks and upwards, 11*s.* per ton, cash. In fine bags in One Ton lots, delivered to the General Carriers and Shipping Wharfs in London, 30*s.* per ton. Single bags of two bushels delivered to Messrs. Pickford & Co., Red Hill, 4*s.* 2*d.* per bag, and forwarded to all parts by enclosing 50 Postage Stamps. Small dry FULLER'S EARTH for improving the Growth of Lawns, Roses, &c, 4*s.* 2*d.* per bag of two bushels.
All orders and remittances to be addressed to JAMES GAWKROGER, 21, Union Street, Halifax, Yorkshire.

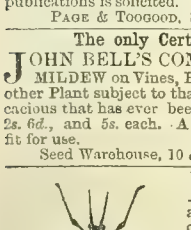


COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.
Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.
Can be obtained through the principal Nurserymen and Seedsmen in England.
A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.
PAGE & TOOGOOD, Seed Merchants, Southampton.

The only Certain Remedy for Mildew.

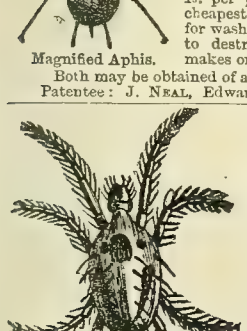
JOHN BELL'S COMPOSITION for DESTROYING MILDEW on Vines, Peaches, Nectarines, Roses, and every other Plant subject to that pest, is proved to be the most efficacious that has ever been offered. Sold in Bottles at 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* each. A 1*s.* 6*d.* Bottle will make 12 gallons fit for use.
Seed Warehouse, 10 & 11, Exchange Street, Norwich.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP,
1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.
Both may be obtained of all principal Seedsmen.
Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.
This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by
PRICE'S PATENT CANDLE CO. Limited.

HORSES' LEGS and OTHER PARTS fomented by streams of hot water (or cold) by Patent Apparatus of Vulcanized Rubber; perforated tube 12*s.*, if regulated by a tap 15*s.* Also for weak ancles, and inflammation in any part of the Human frame.
BLACKWELL, Saddler, &c., 259, Oxford Street, W.; and Wholesale of SILVER & Co., 3, Bishopsgate Street, E.C.

JOCKEYS.—GUTTA PERCHA JOCKEYS, 5*s.* to 60*s.*, Hire 2*s.* a week; Safety Springs. Driving and Riding Reins, 8*s.* to 12*s.*; Anti Crib Biters, 18*s.*; Springs for Straps, Rollers, 2*s.*; Fetlock, Speedy, Leg, and Knee Boots.
BLACKWELL, 259, Oxford Street, near the Marble Arch, W.

Glass.

THOMAS MILLINGTON,
HORTICULTURAL WAREHOUSE,
87, Bishopsgate Street Without, London, E.C.
ESTABLISHED 1750.
NEW REDUCED TARIFF.

SMALL SHEET SQUARES.

Best. 20*s.*	2nds. 16*s.*	3rds. 12*s.* 6*d.*	4ths. 11*s.*	Per 100 feet
6 in. by 4 in.		9½ in. by 7¼ in.		14 in. by 10 in.
6½ ,, by 4½ ,,		10 ,, by 8 ,,		15 ,, by 10 ,,
7 ,, by 5 ,,		11 ,, by 9 ,,		12 ,, by 11 ,,
7½ ,, by 5½ ,,		12 ,, by 9 ,,		13 ,, by 11 ,,
8 ,, by 6 ,,		13 ,, by 9 ,,		13½ ,, by 11½ ,,
8¾ ,, by 6½ ,,		12 ,, by 10 ,,		
9 ,, by 7 ,,		13 ,, by 10 ,,		

Best. 23*s.*	2nds. 18*s.* 6*d.*	3rds. 14*s.* 6*d.*	4ths. 12*s.* 8*d.*	Per 100 feet
15 in. by 11 in.		16 in. by 12 in.		24 in. by 14 in.
16 ,, by 11 ,,		17 ,, by 12 ,,		22 ,, by 15 ,,
17 ,, by 11 ,,		18 ,, by 12 ,,		24 ,, by 15 ,,
18 ,, by 11 ,,		22 ,, by 12 ,,		20 ,, by 16 ,,
13 ,, by 12 ,,		17 ,, by 13 ,,		20 ,, by 17 ,,
14 ,, by 12 ,,		23 ,, by 13 ,,		20 ,, by 18 ,,
15 ,, by 12 ,,		22 ,, by 14 ,,		

ORCHARD-HOUSE SIZES, as supplied to Mr. Rivers & others

Best.	2nds.	3rds.	4ths.	
16 oz. 22*s.* 0*d.*	18*s.*	15*s.* 0*d.*	12*s.* 6*d.*	Per 100 feet
21 oz. 33 6	28	21 6	17 0	

20 in. by 12 in. | 20 in. by 13 in. | 20 in. by 14 in. | 20 in. by 15 in.

GLASS, cut according to size not on the List.
16 oz. 4ths. 1¾*d.* 2*d.* and 2¼*d.* per foot.
,, 3rds. 2½*d.* 2¾*d.* and 3*d.* ,,
21 oz. 4ths. 2¾*d.* 3*d.* and 3½*d.* ,,
,, 3rds. 3½*d.* 4*d.* and 4½*d.* ,,
Various thicknesses of Sheet Glass to the foot.


15 oz.


26 oz.


21 oz.


32 oz.

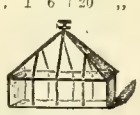
Paints, Colours, Brushes, &c., Linseed Oil, Boiled Oil, Turpentine.
Genuine White Lead, 22*s.* p. cwt | Linseed Oil Putty, 8*s.* per cwt.
Anticorrosion Paint, 34*s.* ,, | Patent Dryers, 28*s.* to 42*s.* ,,
CRYSTAL GLASS SHADES. EBONY and GILT STANDS.
HARTLEY'S IMPROVED PATENT ROUGH PLATE.
*** Not accountable for breakage.
SHEET LEAD, PIPE, &c., at the lowest wholesale prices.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

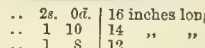
PROPAGATING  GLASSES.

Each—	*s.*	*d.*		Each—	*s.*	*d.*
2 inches in diameter ..	0	3½	12 inches in diameter ..		1	9
3 ,, ,, ..	0	4½	13 ,, ,, ..		2	0
4 ,, ,, ..	0	5½	14 ,, ,, ..		2	6
5 ,, ,, ..	0	6½	15 ,, ,, ..		2	0
6 ,, ,, ..	0	8	16 ,, ,, ..		3	6
7 ,, ,, ..	0	10	17 ,, ,, ..		4	0
8 ,, ,, ..	1	0	18 ,, ,, ..		5	0
9 ,, ,, ..	1	2	19 ,, ,, ..		6	0
10 ,, ,, ..	1	4	20 ,, ,, ..		7	0
11 ,, ,, ..	1	6				

HAND  GLASSES.

Each—	*s.*	*d.*		Each—	*s.*	*d.*
12 inches	6	0	18 inches		9	0
14 ,, ...	7	0	20 ,, ...		10	0
16 ,, ...	8	0	24 ,, ...		12	0

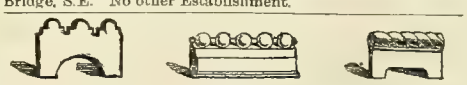
Painted and Glazed with 16 oz. Sheet Glass.
If Open at Top, 1*s.* extra.

CUCUMBER  GLASSES.

	s.	*d.*		*s.*	*d.*
24 inches long ..	2	0	16 inches long ..	1	4
22 ,, ,, ..	1	10	14 ,, ,, ..	1	2
20 ,, ,, ..	1	8	12 ,, ,, ..	1	0
18 ,, ,, ..	1	6	Made to any length.		

London Agents for Hartley's Improved Patent Rough Plate.
Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.
180, Bishopsgate Street Without, London, E.C.

1863.—BENJAMIN EDGINGTON has a large quantity of NEW and SECOND-HAND RICK CLOTHS, with Poles, complete, now on Sale. MARQUEES and PAVILIONS for Royal and Noble parties, with boarded floors and elegantly decorated, on Hire. The FLAGS used at the Royal Procession to be Sold as Second-hand.
NETTING and BUNTING for Fruit Trees, &c.
Address, BENJAMIN EDGINGTON, 2, Duke Street, London Bridge, S.E. No other Establishment.



GARDEN BORDER-EDGING TILES.—These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.
To be obtained at F. & G. ROSHER'S Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.
Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability. Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.

Notice.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS), HORTICULTURAL VALUER, begs to inform his friends and the public that he has REMOVED from Priory Road, Wandsworth Road, to No. 1, Devonshire Terrace, Fulham Road, S.W.

SHAW'S TIFFANY'
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

TANNED NETTING for the protection of Fruit Trees at 1*d.* per square yard: 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; SCRIM CANVAS for Wall Fruits; SUN BLINDS, AWNINGS, TULIP COVERS, &c.
Be particular. JOHN EDGINGTON & Co., 17, Smithfield Bars, E.C.; 108, Old Kent Road, S.E.; and 18, Piccadilly, W.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.
VARNISHED FLOWER STICKS:—1 foot, 3*d.*: 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

Netting for Fruit Trees, Seed Beds, Ripe Strawberries, &c.

TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard, or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard.
Can be had in any quantity of EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

"Excellence of Quality."—See Jurors' Report.

NORTH BRITISH RUBBER COMPANY (LIMITED), 56, Cannon Street West, London, E.C.; and Castle Mills, Edinburgh, MANUFACTURERS of INDIA RUBBER and CANVAS HOSE, for Breweries, Fire and Garden Engines, &c.
SUCTION HOSE, TAPERS, and HAND-JOINTS of any size and length.
N.B. This Company are the only Manufacturers in Great Britain to whom Medals were awarded in 1862 for Mechanical Rubber and Hose.

HORTICULTURAL IMPLEMENTS and GARDEN TOOLS of every description, for the amateur or practical gardener, and of warranted quality.—DEANE & Co.'s ILLUSTRATED PRICED LIST of the above, gratis on application, or post free, includes Lawn Mowing Machines, Garden Engines, Boyd's Patent Self-adjusting and Vulcan Scythes, Garden Rollers (from 30*s.*), Flower-Stands, Garden Seats, &c. Galvanised Game Netting from 6*d.* per yard. Ornamental Wire Work made to order. Garden Arches, Flower Baskets, &c. Lingham's Permanent Labels. Saynor's celebrated Pruning Knives.
DEANE & Co. (opening to the Monument), London Bridge, E.C.
Established A.D. 1700.

F. A. HAAGE'S FLOWER STICKS and TALLIES, commended by the Royal Horticultural Society, can now be had Wholesale, of all sizes, on application to
Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.—April 25.

HENRY J. MORTON AND CO.,
2, Basinghall Buildings, Leeds.

Galvanised Iron Water Cistern

for Cottage Houses, &c., to contain 50 gallons, 26*s.*; 80 gallons, 31*s.* each; and 140 gallons, 37*s.*, and fitted with tap, keeping the water perfectly sweet and clean; will not rust or corrode. Cisterns of all sizes.

Galvanised Iron Pumps

for Liquid Manure or Domestic Use, 3 inches diameter, 30*s.* and 32*s.* 6*d.* each; Tail Pipe for same at from 10*d.* per foot.

Galvanised Iron Swing Water Barrows

for Garden or Farm use, containing about 20 gallons, entire formed of iron, 35*s.* 0*d.* each.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.
Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.
For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

BEFORE ORDERING LAWN MOWERS, see the "Sun and Planet Motion," with Patent Compound Wheel, in MORTON'S NEW PATENT LAWN MOWING MACHINE for 1863, allowed to be the best of the season.
Prices and particulars of Horse, Pony, or Donkey, and Hand Machines, to be had from GRIMMOND, LAIRD, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath.
*** Agents wanted in every Town. Apply as above.

To Noblemen, Gardeners, Farmers, and Others.

AMIES AND BARFORD beg to call particular attention to their NEW PATENT WATER BALLASTING FIELD and GARDEN ROLLERS, which have the following advantages over all others. They are made entirely of Wrought Iron, are made water-tight, and are loaded with water to obtain increased weight at pleasure, which is moreover employed with the greatest possible per centage of crushing power directly upon the surface of the soil. The weight of a Garden Roller can thus be doubled in a few minutes, and a one, two, or three Horse Land Roller is secured, as desired, in one implement.
Great numbers have already been sold, and are giving the greatest satisfaction, and whether for Gardens, Lawns, Cricket Grounds, Road-making, or for farmers' use, they will be found superior to all others.
For Illustrated Price Lists apply to Messrs. AMIES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

NEW AND BEAUTIFUL PLANTS FOR 1863.

WILLIAM BULL, F.R.H.S., F.R.B.S.,

NURSERYMAN AND NEW PLANT MERCHANT, KING'S ROAD, CHELSEA, LONDON, S.W.,

IS NOW SENDING OUT THE FOLLOWING NOVELTIES FOR THE FIRST TIME.

In announcing the following NEW FLOWERS, W. B. begs to intimate that he has purposely made the descriptions as brief as possible; did merit depend on description, that to each should be most elaborate.

From the large numbers of NEW FLOWERS in each class, it may appear marvellous that all should be good and real improvements; but W. B. invites an inspection at the blooming season of the thousands of Seedlings raised at his Establishment, and the pains taken in hybridising to obtain New Varieties.

New Verbenas, 3s. 6d. each.

The following varieties are all conspicuous showy sorts, not such as can only be grown in pots, but all excellent bedders, which they thoroughly proved themselves during the last unfavourable summer, and therefore can be confidently recommended.

ALICE, rose shaded with violet, crimson centre, large primrose eye
ANTONY, bright crimson with dark velvet centre, white eye, fine truss
BRIGHT EYE, deep bright rose, with large yellow centre
CORDELIA, rich claret, light centre, distinct and novel
DUCHESS, crimson, with large white centre, good shape
DUNDREARY, violet rose, crimson centre, large white eye
EUPHRA, rich ruby, maroon centre, large white eye
FAVOURITE, maroon, black centre, large white eye
KATHLEEN, rich violet purple, maroon centre, large white eye
SPLENDID, light crimson shaded with scarlet, large yellow centre
THE CLIPPER, brilliant vermilion, flowers large, and perfect in shape, fine truss
THE COLONEL, bright scarlet, crimson centre, white eye, an improvement on Spark.

New Petunias, Single Flowered Varieties, 3s. 6d. each.

The following are confidently offered as very superior kinds; they are a small selection made from many thousand seedlings, the result of the most careful hybridisation.

ADELINE, French white, violet throat, each petal broadly margined with bright red, attractive
AMETHYST, lavender with violet centre, veined and reticulated with violet, and margined with white
ATHLEEN, splendid crimson, rayed with black, large black centre
BEAUTY, violet crimson or mauve, broadly margined with pure white
CAPTIVATION, pure white, beautifully rayed with violet crimson
ELLA, rose, nerved with purple, dark throat
LADY MARIA SCOTT, purple crimson, margined with light rose, rayed and reticulated with violet crimson, black throat
LILIAN, white blotched with mauve
LONGFELLOW, bright violet, white centre
PRESIDENT, French white, nerved and shaded with violet, crimson centre, dark throat, a fine flower and good shape
SOUVENIR, very bright, rose shaded with violet, large white centre
VERNON, French white, dark purple centre, veined and reticulated with dark purple
WALLACE, pure white, striped and blotched with crimson.

New Petunias, Double Flowered Varieties, 3s. 6d. each.

CHARMER, bright crimson, centre petals white
CORNELIA, bright violet pink
FATIMA, rich carmine, beautiful imbricated form
OPTIMUM, bright crimson, good form, like a rosette
PLEASANT, rich amaranth, very full and fine
PRINCESS ALEXANDRA, rich crimson, fine and large bold flower.

New Fuchsias, 7s. 6d. each.

The following are all so distinct and good, they are sure to please: as there are so many it may be as well to remark that besides my own seedlings, to ensure putting out a good collection, the entire stocks have been purchased from three different raisers, and hence so much variety.

BEATRICE, large and pure white tube and sepals, the latter beautifully reflexed; corolla large and full, rich violet rose margined with scarlet, white base, very attractive
ETTIE, monstrous bright rose, sepals of unusual size and length, beautifully reflexed; large purple corolla with red base, very showy
FAIRY, broad sepals, completely reflexed, of the darkest and richest crimson; large pure white corolla, red at the base, extremely elegant
JOSEFA, rich dark crimson tube and sepals, the latter very broad, elegantly reflexed and of great substance; corolla rich dark purple, very evenly shaped, wax-like and fine
LYDIA, long and elegant pure white tube and sepals, the latter beautifully reflexed; corolla rich carmine scarlet, of great substance, very attractive
MARGARET, short tube and sepals, the latter completely reflexed; large and long blue corolla, peculiarly expanded, very novel in shape
MATCHLESS, rich dark scarlet tube and sepals, the latter well reflexed; corolla rich purple, very novel and immensely large, extra
MILDRED, tube and sepals very dark crimson and of great substance, sepals beautifully reflexed, large well formed rich purple corolla
NELLY, pure white tube and sepals elegantly reflexed, bright rosine corolla, pure white at the base
PAULINE, sepals of the richest vermilion, remarkably broad, reflexing back to the tube: beautiful rich purple corolla, thick, wax-like and well formed
ROLAND, coral-red tube and sepals, the latter beautifully reflexed; long and large light blue corolla, very distinct
TIBBY, bright carmine tube and sepals, the latter completely reflexed; large expanded light blue corolla, particularly novel and striking, a gem.

New Zonale Geraniums, 7s. 6d. each.

Two years since all the best English and Continental sorts were collected, carefully hybridised, and thousands of seedlings raised; these have been reduced to about 500 promising kinds, which will be flowered and proved again; meanwhile the following have been selected as of unquestionable merit.

ALFRED, clear orange scarlet, very large flowers of a magnificent form, shell-like petals, and large truss
AURICULA, soft flesh with bright rose coloured centre, white eye
BONNIE DUNDEE, rosy pink, large very round flower, horse-shoe foliage, fine
CECILIA, bright rose shaded with scarlet, immense flower and fine truss
DR. LINDLEY, light scarlet, the largest and best formed flower ever offered
ERIN GO BRAGH, blush margined with white, horse-shoe foliage
LUCILLA, beautiful soft clean rose, flowers of enormous size and most perfect form, trusses fine
NORA, bright rose shaded with scarlet, very fine flower and large truss, horse-shoe foliage
REALLY GOOD, vivid scarlet, white eye
ROSETTA, very deep bright pink, excellent
THE SWAN, pure white, large flower, fine shape
VISITOR, brilliant rose, immense flower, excellent form

New Pentstemons, 5s. each.

"In illustration of the advances which this flower has made, we may refer to a series of varieties which have been sent out this year by Mr. Bull, of Chelsea, and which we have had an opportunity of observing. They are remarkable for the advance in quality they show beyond the varieties hitherto grown." (Extract from *Gardeners' Chronicle*, Nov. 15, 1862, *vide* page 1075).

The varieties now offered far eclipse any that have preceded them. Not the most unimportant feature is the improvement in their habit, and the greater redundancy of their blossoms.

ANGELINA, puce, pure white throat, distinct and pretty
CONSTANCE, dark violet-crimson lobes and tube, white throat blotched and striped with maroon
DORA, dwarf stiff habit, scarlet tube and lobes, light throat blotched and pencilled with crimson
FLORENCE, mauve tube and lobes, large pure white mouth and throat, flowers large and very attractive
HELEN, scarlet tube and lobes, very pure white throat
MAGGIE, light red tube and lobes, white throat striped with crimson
OLIVIA, deep violet-rose tube and lobes, white throat prettily pencilled and striped with crimson
SPECIAL, crimson-purple tube, violet-purple lobes, pure white throat; distinct
STANDARD, throat and lobes pure white, lobes margined with rose, violet-rose tube
UNDINE, white slightly tinged with blush
VIVIAN, bright crimson tube and lobes, white throat, mouth blotched with dark crimson
WINIFRED, rose tube, white lobes and throat, lobes edged with bright red, very dwarf

French Spotted New Pelargoniums, 21s. each.

The following are offered for their extreme beauty, free flowering character, and their rich, novel and varied colours:—

AILEEN, dark crimson, upper petals surrounded with fiery crimson, and margined with white; pure white under petals, lightly spotted with fiery crimson
ALICIA, rich maroon upper petals, margined with rose violet; under petals rose violet, blotched with deep crimson
ANNETTE, dark crimson upper petals, margined with carmine violet; under petals rose violet, spotted with crimson
CORAL, fiery crimson; upper petals blotched with maroon, under petals slightly spotted with dark crimson
FIREBALL, upper petals fiery scarlet, blotched with rich maroon; under petals bright red, spotted with crimson
INTERNATIONAL, rich maroon upper petals, margined with rose; bright rose under petals, shaded with fiery crimson, heavily spotted with maroon
JOSEFA, rich maroon upper petals, edged with cerise; under petals pink, spotted with dark crimson; light centre
MABEL, maroon upper petals, margined with crimson; bright red under petals, spotted with crimson; violet throat
NICOLA, fiery red upper petals, shaded with scarlet, and spotted with maroon; under petals distinctly spotted with maroon, violet centre
NINA, deep crimson upper petals, edged with rose lilac; lower petals bright scarlet, heavily blotched with deep crimson, and margined with violet pink
ROSARIO, bright red upper petals, with light margin, blotched with maroon and shaded with violet; under petals bright red, shaded with violet, and largely spotted with crimson
VICEROY of EGYPT, rich maroon upper petals, margined lilac rose; under petals lilac rose, spotted with crimson

New Bedding Tropæolums, 3s. 6d. each.

FIREFLY, vivid scarlet, rich dark throat, exceedingly stiff shell-like petals, good form
GLORY, golden yellow, all the petals cleanly spotted with maroon, excellent shape
MARVEL, cream colour, cleanly spotted with crimson on each petal, very pretty

New Lobelia (Erinus) Favourite, 3s. 6d. each.

Very bright turquoise blue, with clean pure white centre, flowering in the most profuse manner; very distinct and exceedingly pretty and attractive, habit dense and compact; a most desirable variety for edging or bedding purposes.

New Show Geraniums, 15s. each.

ADELINE, pure white; upper petals blotched with bright crimson, very fine
GLORY, upper petals maroon surrounded with violet crimson and edged with rose, lower petals pink, large white centre
HERO, fiery red, upper petals blotched with deep crimson, and margined with rosy violet; lower petals soft rose, pure white centre.

New Fancy Geraniums, 21s. each.

BERTHA, rich maroon upper petals edged with white; lower petals rosy purple margined with white, pure white centre
CHARM, dark maroon upper petals, edged with pure white, lower petals bright crimson edged with white, white centre
LADY DOROTHY NEVILLE, deep rose, upper petals shaded with violet; lower petals violet rose, pure white centre, fine shape.

Erect Gloxinias, 5s. each.

The following select and very beautiful collection has been selected from an immense number of seedlings, and are great improvements upon those at present in cultivation.

ANONYMA, blue lobes margined with lavender, white mouth and throat spotted at the base
BEAUTY, pink lobes, pure white mouth and throat
BRILLIANT, bright crimson, the lobes margined with rose, rich violet throat
CELESTIAL, rose lobes, throat encircled with deep violet, base of the tube white spotted with brown
CUPID, light blue lobes, with white marking, pure white throat
FAIRY, white tube and lobes, the mouth peculiarly encircled with violet crimson
FAVOURITE, bright rose shaded with crimson, throat encircled with violet, white tube
MODEL, pink shaded with violet, white tube
PEERESS, rich purple, the lobes margined with blue, base of the throat white spotted with brown
PRINCESS ALEXANDRA, white lobes margined with porcelain blue
ROSALIND, soft violet pink with immensely broad lobes, the mouth encircled with violet, white tube and throat
SERENA, soft rose, half of each lobe encircled with white tube and throat white.

Drooping Gloxinias, 5s. each.

The following may be depended upon as a very superior and beautiful selection.

ACME, blue lobes edged and prettily marked with white, violet throat
ASPROMONTE, broad clear rose lobes, pure white throat spotted at the base
BEAUTY, bright blue lobes encircled with purple, white throat
FLORA, rose lobes shaded with violet crimson and marked with white, pure white throat
ILLUMINATOR, beautiful rich crimson, the lobes broadly margined with bright red
LAURETTA, blue marbled with white, very distinct and attractive
MATCHLESS, lobes rose shaded with violet crimson, white mouth, the tube prettily striped and spotted with rose
OPTIMA, deep rose encircled with violet, white throat, very distinct
PRINCESS BEATRICE, porcelain blue, each lobe spotted with violet, pure white throat
QUEEN OF PORTUGAL, rose, rich violet mouth, the base of the throat white spotted with crimson
SANSPAREIL, pure white, each lobe spotted with crimson, and the throat encircled with violet crimson, very delicate and pretty
VIRGINIE, blush, under lobes bright crimson, violet throat.

New Bedding Shrubby Calceolarias, 5s. each.

DISTINCTION, crimson or scarlet brown, primrose cap, very showy
ECLIPSE, bright golden yellow, minutely freckled with crimson spots
GOLDEN QUEEN, bright orange, large flowers thrown well above the foliage, dwarf compact habit, blossoms well perpetuated throughout the season
LIVELINESS, rich maroon, bright yellow cap, very attractive, an improvement on Sparkler.

New Mimulus, "Attraction," 3s. 6d. each.

SULPHUR, with orange throat, margined and blotched with dark crimson, gigantic flowers, very free bloomer.

New Bedding Dahlia, "Gem of the Dwarfs," 7s. 6d. each.

"Of BEDDING DAHLIAS, a variety which is to be called Gem of the Dwarfs, and which is in the hands of Mr. Dean, of Shipley, appears likely to be an acquisition in its way. It is a crimson red tipped with white, and is said to be the dwarfest bedding variety yet seen, the plants never exceeding and seldom attaining so much as 18 inches in height. The variety has proved constant to this habit for three seasons, and is described as a most profuse bloomer, looking amazingly bright and showy in a bed. The blooms we have seen lead us to believe that it really deserves this good character."—(Extract from *Gardeners' Chronicle*, Nov. 8, 1862, *vide* page 1050.)

As the above has been so strongly recommended, Mr. WILLIAM BULL has purchased the entire stock.

EXTRA STRONG FRUITING VINES.—All the leading varieties, from Eyes, with stout well ripened rods, for FRUITING in POTS this YEAR. Price, from 7s. 6d. each; smaller, for Planting-out, from 3s. 6d. each. A reduction in price will be made to large purchasers.

"We can especially recommend the above, our strong Vines having for some years given unqualified satisfaction."—*Vide* Leading Article in *Gardeners' Chronicle* for December 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries, Chester.

To Noblemen and Gentlemen.

TO BE DISPOSED OF, 100 good and clean SUCCESSION PINE PLANTS, sorts, chiefly Old Jamaica, with White Providence, Enville, St. Vincent, Queen, and others. Also about 100 more PINE PLANTS, of smaller size. The lot would be a valuable acquisition to any one, being thoroughly free from bug and white scale.

Apply by letter to A. Z., Post Office, Southwell, Notts.

"Old" Cheshunt Nurseries, Herts, N.—Roses.

PAUL AND SON have the pleasure to announce that their NEW HYBRID PERPETUAL ROSE, LORD CLYDE, will be ready for delivery in the course of a few days, at 7s. 6d. each. Usual allowance to the Trade. A Coloured Plate, by Andrews, from "Floral Magazine," for 12 stamps. They have a splendid stock of Dwarf Roses, both new and old; also Hollyhocks.

DESCRIPTIVE LISTS of the New Roses, Hollyhocks, and Bedding Plants now ready.

New Roses.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites attention to the following NEW ROSES, which will be ready for delivery very shortly.

LORD HERBERT, H.P.—Rosy carmine, the petals reflexing at the summits in the way of Beauty of Waltham, large, full, and finely formed, and altogether of first-rate excellence. 7s. 6d.

LORD MACAULAY, H.P.—Velvety crimson, in the way of General Jacqueminot, but brighter in colour, thicker in the petal, and more double. The flowers are of good average size, produced abundantly and in rapid succession; the habit is good, and foliage handsome. 7s. 6d.

MRS. WILLIAM PAUL, H.P.—Bright violet red, shaded with fiery red; flowers constantly, and in clusters, large and full. Raised by M. Verdier, of Paris, the raiser of Madame Furtado, and others of our finest Roses. 5s.

RED ROVER, H.P.—Bright red petals, large, thick, and round; flowers abundantly and in succession up to Christmas. Not double enough for a show Rose, but the most effective pillar Rose ever offered. 3s. 6d.

WILLIAM PAUL, H.P.—A seedling from Senateur Vaisse, but brighter in colour. Raised at Lyons by the raiser of Lord Raglan, Senateur Vaisse, and other first-class sorts. 5s.

BEAUTY OF WALTHAM, H.P.—Bright rosy crimson, of good size, form, and substance, and deliciously sweet. This Rose is found to surpass the description originally given of it. 3s. 6d.

All the new French Roses, 3s. 6d. to 5s. each, or 42s. per dozen. The best of the old Roses at lowest advertised prices. The plants are well established, and in the finest possible health.

PRICED CATALOGUE free by post.

Nurseries and Seed Warehouse, Waltham Cross, N.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

WELLINGTONIA GIGANTEA.—The attention of the Nobility, Gentry, and the Trade, is invited to the largest stock of 1-year SEEDLING PLANTS in the Kingdom, established in single pots and fit for Spring planting. Price per dozen, 12s.; per 100, 3l. 10s. A sample free by post for 12 stamps.

J. HENCHMAN, Edmonton, London.

Dracæna (Cordyline) indivisa, from Mount Egmont, New Zealand.

BUTLER AND McCULLOCH have received a supply of Seed of the above strikingly beautiful fine-foliaged Plant, of which the following is an extract from their correspondent's letter which accompanied it. "When known," he says, "few of your nobility can be without this splendid plant in their gardens. I believe, indeed, that it will stand your winters out of doors with moderate protection. It grows here from 10 to 15 feet high, leaves 6 feet long and 8 inches broad, of a deep green hue, having a midrib of brilliant orange yellow, with red veins running parallel with it."

The Seed we now offer our correspondent says was gathered in the snowy ranges; Plants therefore raised from it may be expected to possess more than usual hardy constitutions. Price 1s. and 2s. 6d. per packet.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

HENRY WALTON has much pleasure in offering the following selections of Choice Plants:—

GERANIUMS, Show, Fancy, and Spotted Varieties of 1862, at 15s. to 18s. per dozen. A large collection of choice varieties of previous years, in strong plants, at 6s. and 9s. per dozen, selections left to H. W.

ROSES, in large quantities, on their own roots and the Manetti, at 9s., 12s., and 18s. per dozen. Also now ready, all the Varieties of 1862, at 2s. 6d. each, or 24s. per dozen. John Hopper, 3s. 6d. each, 30s. per dozen.

DAHLIAS, Choice Varieties of 1862, 9s. per dozen; Select Older Varieties, 4s. 6d. per dozen, selections left to H. W.; 30s. per 100. Lilliputian or Bouquet Varieties, 4s. 6d. to 9s. per dozen.

FUCHSIAS of 1862, 5s. to 9s. per dozen.

HOLLYHOCKS, fine varieties, from 9s. to 24s. per dozen.

PANSIES, New Show and Belgian varieties, 9s. to 12s. per dozen; Older Varieties, 4s. 6d. to 6s. per dozen.

PHLOXES, a fine selection, 4s. 6d. to 9s. per dozen.

CHRYSANTHEMUMS of 1862, 6s. per dozen; Older ditto, 4s. 6d. per dozen.

VERBENAS of 1862, 4s. 6d. to 6s. per dozen; Older Varieties, from 3s. per dozen.

PETUNIAS of 1862, from 5s. to 9s. per dozen.

BEDDING PLANTS, in varieties, 3s. to 6s. per dozen.

LONICERA AUREO-RETICULATA, 2s. each, or 18s. per dozen.

CATALOGUES of the above on application, enclosing stamp.

AZALEA INDICA.—Several thousands of the above, including all the leading varieties, in fine grafted plants, such as will soon make fine specimens. The Stock is in robust health, and all home-worked. CATALOGUES and Prices on application, enclosing stamp.

Edgend Nurseries, Marsden, near Burnley, Lancashire.

Two Hundred and Fifty Guineas in Ten Prizes.

FOR FIVE YEARS SUCCESSIVELY HIS LATE ROYAL HIGHNESS THE PRINCE CONSORT'S PRIZE CUPS HAVE BEEN AWARDED TO SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Bucks Agricultural Societies.

New Seed now ready, 1s. per lb., or 45s. per bushel, carriage free.

Royal Berkshire Seed Establishment, Reading.

Sutton's Grass Seeds for all Soils.

SUTTON AND SONS HAVE NO AGENTS, AND THEY DO NOT SUPPLY SEEDS TO SELL AGAIN; but they deliver Goods Carriage Free to all parts of the Kingdom (except very small parcels), whereby the necessity for Agency is avoided.

The following letter has been received:—

From Professor LINDLEY, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

The First Prize Medal was awarded to SUTTON & SONS for their Grass and Clover Seeds at the Great International Exhibition of Roots and Cereals at South Kensington in October last.

A Copy of Mr. MARTIN SUTTON'S "Essay on Pastures" is sent with each lot of Grass Seeds.

Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.

PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

To Persons Interested in

BRITISH WILD FLOWERS.—Some specimens of the ORCHIS TRIBE can be forwarded fresh when they flower.

For particulars apply by letter to L. C., care of Mr. Groom, 37, Wigmore Street, Cavendish Square, W.

International Exhibition Prize Medals 1851 and 1862.

AWARDED FOR SUPERIORITY AND GENERAL EXCELLENCE TO

BUTLER AND McCULLOCH

Covent Garden Market, London, W.C.

(Established upwards of a Century.)

COLLECTIONS of FLOWER SEEDS, Carriage Free.

NEW ANNUALS.

12 Extra fine varieties	10s. 6d.	6 Extra fine varieties	5s. 0d.		

HALF-HARDY ANNUALS.

100 Finest selected vars.	30s. 0d.	25 Finest selected vars.	7s. 6d.				
50 do.	do.	15 0	12 do.	do.	4 0		

HARDY ANNUALS.

100 Finest selected vars.	20s. 0d.	30 Finest selected vars.	5s. 0d.				
50 do	do.	10 0	15 do.	do.	2 6		

The Gardeners' Chronicle.

SATURDAY, APRIL 25, 1863.

THE return of spring-tide, when all Nature is gushing forth with life and beauty, affords a fitting opportunity to recal the attention of our readers to the subject of the establishment of LOCAL MUSEUMS, a class of institutions which under good management exercise a powerful and most important influence in originating in some of the persons brought in contact with them, and in fostering in others, a love of Natural History pursuits. Indeed, so much is this the case, that it might well be desired that wherever an institution of this kind does not exist, there the establishment of one should be set about forthwith. As a first step thereto, a Natural History Club, be it village, town, or parish club, should be organised, and so constituted as to be the means of furnishing instruction and amusement to all classes in its neighbourhood by bringing them together in friendly intercourse at its different meetings, while it should also and especially be calculated to meet the wants of the working part of the community as regards the provision of innocent and improving recreation.

A little book, recently published,* now lying before us, gives a very interesting account of the working of such a club, which has been in successful operation for several years at Wimbledon, in Surrey. "There appears," says the writer of this book, "to be no reason why a local club, of the character of the Wimbledon Village Club, should not exist in every village or town, or in each parish of a large city." An institution like this, adopting such means of usefulness as meetings, lectures, lecturets, readings, excursions, or what we here find designated as chat-meetings, would "prove a healthy mental stimulus to those intelligent inhabitants who desire to take part in one of the most delightful of duties, namely, the conveyance to the minds of others, of an interest in those pleasing and elevating subjects, from which happily their own minds derive gratification." From the experience acquired in the actual management of a successful museum and club like that referred to, some useful hints may be obtained by those who may desire to engage or co-operate in a work so useful and practical.

An institution such as that to which we have been alluding should, then, be strictly local in its aims and objects, and especially anything of interest existing in the locality—and which would of course vary in each particular case—should be prominently brought out. Something no doubt would always depend on the presence of some one or more persons qualified by the extent of their knowledge, and by a happy facility of imparting it, to take a leading part in the proceedings, but no locality should hesitate to set about a work of this kind, because it cannot lean on the support of the great and the learned. Let the residents rather put trust in themselves, and work with a will towards effecting the object in view; above all let them work with geniality of feeling, and they will be sure of at least enough success to repay them for the effort. The amount of success might, and indeed, no doubt would, differ in each case, according to the advantages enjoyed, but even the humblest and least successful might be sure of a reward worth the reaping, a harvest that would lead to more abundant returns in the coming time.

Let us see how these Wimbledonians have set about their work of forming a Village Museum—premising that they already had a Village Club which had been for some years in successful operation. They determined then, in the first place, that the Museum should be purely local, consisting solely of such objects of interest characteristic of the neighbourhood, as might be found within a radius of five miles from the parish church. Secondly, that the objects selected should be specimens illustrating the nature of the soil, the tribes of living beings—plants and animals, and the antiquities of the neighbourhood. Thirdly, that the specimens (which should be in good preservation, and in a proper state for keeping so) should be accompanied by the name and address of the collector, the name of the object, the exact place and time of collection, or other circumstances of interest, all legibly written. Fourthly, that all classes of inhabitants should be invited to take part in its formation. Fifthly, that drawings or photographs should be kept when the objects themselves could not be retained or preserved; also magnified drawings of objects or parts too small to be seen by the naked eye. Sixthly, that records should be made by several persons during a series of years, of the dates of the yearly appearance and disappearance of flowers, plants, and animals. Seventhly, that a record of facts interesting in Natural Science should be preserved in the Museum. Eighthly, that a list of the plants and animals found in the Museum area should be drawn up, printed, and circulated. Ninthly, that an accurate register of the daily reading of the barometer, thermometer, and hygrometer should be kept in the Museum. Tenthly, that a descriptive catalogue of the contents of the Museum should be kept. Eleventhly, that a collection of works on Natural Science should be kept at the Museum for reference by subscribers.

The Club itself, we learn, consists of Honorary members, who pay 10s. yearly, and of Ordinary members (artisans, labourers, &c.,) who pay 8d. monthly, 1s. 6d. quarterly, or 5s. yearly. Lady members are admitted to the Honorary class, and persons residing temporarily in the district may be admitted as visitors on the introduction of a member by payment of 2s. 6d. monthly if of the Honorary, or 1d. per day if of the Ordinary class. The management rests with a Committee composed of both classes of members, elected annually by each class, out of its own body. There is a Reading Room supplied with daily and weekly newspapers, periodicals, and books, and a Smoking Room, in which chess, draughts, dominoes, and newspapers are provided; these rooms being open to members on week days from 8 to 10 A.M., 1 to 2 P.M., and 5 to 10 P.M.; and on Sundays, the Reading Room only, from 8 to 10 P.M. There is a Library from which quarterly subscribers may borrow books. And there is a Lecture Room, in which lectures, penny lecturets, penny readings with music, chat-meetings, or tea-meetings are held weekly during the season. The payment at a lecture, lecturet, and reading is 1d., or 6d. for reserved seats; at a chat-meeting 2d. It is gratifying to read that "financially and otherwise these entertainments are most successful."

It may be an encouragement to those who desire to promote the formation of a Museum of this character, to know, from the experience thus gained, that if they start with right views, that is to say, if they take a real interest in Nature's works, and are possessed by a desire to bring them to light for the instruction and enjoyment of themselves and their neighbours; if they are not too ambitious to make their Museum a show,

* Hints on the Formation of Local Museums. By the Treasurer of the Wimbledon Museum Committee. London: Hardwicke.

then there is scarcely a possibility of failure. If only a few volumes of Natural History or Botany are got together, if only a few pebbles and plants and animals are collected, arranged, and preserved by a few inhabitants of a village, still a worthy beginning has been made, and if the matter is carried no further it is not a failure; for the collection, small though it may be, is there, for the instruction and incitement onward of those, the young especially, whose tastes are daily growing and require to be directed aright. Such a simple collection too must not be thought insignificant, for in reality it signifies much. From its component parts may be learned the great lesson, that God's creatures, common, diminutive, and unattractive as many of them may be, yet one and all bear impress of the Creator's goodness; and they are, therefore, fitting objects for the careful study and contemplation of that nobler portion of His handywork, which was made in His own image.

We would direct the attention of Orchid growers to a communication from our correspondent "Serapias" on the subject of cool treatment, that will be found in another column. We have ourselves again and again protested against the monstrous folly and injustice of the ordinary practice, under which Orchids from the sultry swamps of Singapore, or from the mild slopes of the Mexican and Peruvian Andes, have been subjected to precisely the same regime. No other tribe has fared so ill. For the accommodation of plants in general we have houses of varying temperature—the stove for such as come from hot, and the greenhouse for such as come from temperate regions; and we never hear of the denizens of a hot climate being placed in the greenhouse, or of the *habitués* of a mild climate being consigned to the stove. Why, in the case of Orchids alone, this common-sense system should have been departed from, is more than we were ever able to understand. And yet because an East Indian Aerides, that in its native habitat has a mean temperature of 80°, is found to thrive under a high degree of artificial heat, *ergo*, the same conditions must suit a Peruvian Odontoglossum, accustomed in its own country to a mean temperature of 60°, and even capable of enduring several degrees of frost! Certainly the success of the experiment has not been such as to justify this exceptional violation of all the dictates of reason and experience, for the cool country Orchids have almost invariably found an early grave, instead of a congenial home, among the salamanders of the East; and except where, as in the case of certain kinds from Guatemala, the casualties have been made good by constant importation, our collections of Orchids are still reft of half their charms. Now, however, that our "growers" have discovered that by simply applying to Orchids the rules that regulate the culture of all other plants whatever, they can do well, and with scarcely any trouble or expense, what before with immense trouble and great expense they could not do at all, we may soon expect to see the Orchid-mania revived amongst us in more than all its former intensity. Nor will it soon spend itself through lack of fuel, for the beautiful forms that still lurk in the highlands of New Granada and Peru would fill a dozen "cool" houses such as we rejoice to hear are now in request.

— We have received from Mr. Bull, of Chelsea, a boxfull of Mimulus flowers the produce of a new cross, the recently introduced Mimulus cupreus being one parent, and a fine large-flowered spotted sort, called Gaiety, the other. The plants resulting from this intermixture are said to be of the same dwarf habit as cupreus itself, while the flowers are full-sized (about 2 inches across), and very richly marked. Some of the blossoms now before us are exceedingly beautiful, reminding one in their curious spotting of the Tydæas, or of some of the handsomely marked herbaceous Calceolarias which were seen in the days when Calceolarias were popular. In these novel Monkey-flowers the ground colour is yellow. Some of them have the two upper and two lateral segments thickly dotted with small distinct spots or specks of a bright coppery red, while the lower segment has this kind of spotting confined to the border, and its central part is clear yellow, with a distinct bar of coppery crimson, the spotting being again continued over the palate down to the very base of the tube. Others have similar spotting on the four upper segments, but the finer dots are collected into a sort of belt, and those in the centre of each segment are just a little larger as if by confluence, the upper edge of the tube being dashed with specks of a more orange-tinted hue, and the lower segment more boldly spotted. Such as these are so lightly spotted that they may be classed as pale flowers, though marked over nearly the whole surface. But in others, the spots, while equally crowded, are larger, or there is a flush of the deep coppery tint in addition to the spots, or the spots themselves coalesce into larger variously shaped blotches, and sometimes so much so as to produce a dark ground flower with yellow specks. Some are singularly elegant, others singularly fantastic in their markings. Altogether this may be set down as a remarkably successful cross, and Mr. Bull may be congratulated on having procured for our gardens some very gay and sparkling novelties amongst Monkey-flowers.

— It is worthy of especial mention, that Mr. Turner of Slough has succeeded in blooming a large number of plants of Bougainvillæa speciosa, in small pots. Several of these plants have been lately exhibited growing in pots of 5 inches diameter. Their bracts have not indeed been comparable for size or brilliancy with those borne on the noble specimens Mr. Daniels has familiarised us with; but it is something to have conquered so stubborn a plant, and samples which have been produced by Mr. Turner himself were sufficiently well developed to be really ornamental. We understand that the secret of this success, as of that at Swyncombe, is found in the thorough ripening of the last year's growth, and the absolute winter rest of the plants, which have been subsequently brought forward in an intermediate house.

— The *Phytologist* records the occurrence on a farm at Pepper Moor, near Alnwick, occupied by Mr. Binks, of what are supposed to be Roman Oats. The land whereon they grew, occupies the site of an ancient encampment, enclosed with a mound, and which tradition ascribes to the Romans. The lapse of time and the spirit of improvement has gradually obliterated the traces of the encampment, and about a year ago, the last of the Whins which time out of mind had covered the surface, was cut down, and the land ploughed and sown with Barley. The space sown was about 2 acres. Mr. Binks states that he has been on the farm for 63 years, and never saw anything occupying the land but Whins. However, amongst the Barley thus sown, there were found at reaping time heads of strange-looking Oats, some unusually tall and strong with long branching stemlets, others with globular heads resembling the head of an Onion. There were no less than 75 varieties collected, which had never been seen in the district before. These have been sown separately, and are to be exhibited in autumn at the Alnwick Horticultural Show. If, observes the writer of this account, these varieties "differ from the varieties in cultivation in Great Britain, it will be strong presumptive evidence in support of the opinion of those who assert that the seeds of the cultivated cereals retain their vitality for very long periods, when placed in conditions favourable to their preservation. Whether the encampment was formed during the Roman occupation of the country or not, is a question for antiquarians to determine. If the camp was formed during the period of any of the invading inroads which have taken place in England—Roman, Scandinavian, or Saxon, the fact may be established that since the period the camp was occupied, the grains of the Oat buried in the soil have retained their vitality unimpaired."

New Plants.

256. Lycioplesium pubiflorum, *Griesbach; Botanical Magazine*, t. 5373.

This handsome Solanaceous plant, to which Dr. Philippi has given the name of Latua venenata, has been introduced from South Chili by Messrs. Veitch



& Son, through their collector Mr. R. Pearce. It is said to be a spiny shrub, but the spines do not appear to be always present, and are perhaps only developed with age. The plant has something the aspect of a Habrothamnus, and bears acute elliptic leaves, from whose axils little fascicles of smaller leaves issue, and along with them, terminating the very much abbreviated axillary branchlets, are large pendent reddish-purple flowers, whose corollas have a swollen five-angled tube, a contracted mouth, a spreading five-lobed limb, and a felt-like surface of short close down. From the large size and profusion of these flowers this Chilian shrub may claim a place in the ranks of ornamental garden plants; amongst which it will be all the more welcome from its being, as is reported, hardy, at least as a wall plant. In such a situation as that just indicated, with a very slight amount of precautionary protection, the Messrs. Veitch were enabled to bloom it in the month of February last.

According to Dr. Philippi, this Lycioplesium is found in the moist woods of Valdivia and in the island of Chiloë. The inhabitants call it Latué, Palomato, and Palo de los bruyos, or tree of the magicians, and regard it with great superstition. The bark and fruit, like those of many other Solanaceæ, contain a strong narcotic poison. It was known that the Indians were in possession of a secret means of making people mad by means of a vegetable poison, but the plant from which it was obtained was not ascertained till a few years since, when Father Romualdo, a missionary at Daglipulli, found it to be the Latué. This shrub closely resembles the Tayu, or Palo Santo, Flotowia diacanthoides, in its growth, its thorns, and its leaves, and hence cases of involuntary poisoning often occur, the Tayu in the form of a decoction being regarded as an excellent remedy for bruises, concussions, &c. Dr. Philippi obtained much information as to the Latué and its effects from Mr. Juan Renous. One of Mr. Renous' wood cutters having received a violent blow with the blunt end of an axe, went into the forest to fetch the bark of the Tayu, but by error got the Latué instead, and drank of the decoction. Almost immediately after he became mad, and ran into the forest, where he remained three days in an unconscious state. Some days, indeed, sufficed to restore him, but he had a violent head-ache for several months. The fruit, which is as poisonous as the bark, has from its colour and size, some resemblance to young apples. It is stated that persons who were on their way from Osorno to Moullin, were induced to eat a few fruits by the way, and that they arrived almost without consciousness, and entirely prostrated.

Poinciana Playfairii.—This I see you mention as living at Kew. It is a manuscript name given by me on collecting the plant at Aden in February 1861, after the publication of my "Florula Adenensis." I have specimens in my herbarium in good flower and fruit, and a young plant 5 feet high raised from seed recently received from Aden, is also in this Garden. I hope soon to describe the species if it proves to be different from P. elata, Linn. *T. Anderson, Botanic Garden, Calcutta.*

DIES ORCHIDIANÆ.—No. VII.

(*Continued from p.* 292.)

The next collection to which I paid a visit was that of Mr. M'Morland, of Haverstock Hill. The Orchids here, though not very numerous, belonged to the very *élite* of their order, and were superlatively grown. The Cattleyas were in splendid health, and I noticed with especial interest what purported to be three distinct varieties of Cattleya Warscewiczii *alias* C. Trianæi, two of which were pushing into bloom at the time of my visit (November), but did not open their flowers until considerably after Christmas. By the kindness of Mr. M'Morland, a spike of each of these was sent to me, and on comparing them with native specimens gathered by Warscewicz himself, there could be no doubt as to their being all entitled to bear that veteran traveller's name. Although exceedingly beautiful, the colouring was not what the appearance of the wild specimens would have led one to expect; the latter having quite a rosy tint, while those produced in Mr. M'Morland's stove were nearly white, and exactly corresponded with the figure of C. Warscewiczii delicata, as given in Mr. Warner's work. They also approached very closely the Cattleya pallida of Lindley (a Mexican species figured in the Botanical Register). Still I believe that rose-coloured varieties really exist, and so it would seem does also Professor Reichenbach, for in his "Xenia Orchidacea," the species is represented with flowers of a hue such as Cattleya labiata itself might have borne. At any rate C. Warscewiczii is a very fine thing, and specially valuable as producing its flowers in the dreariest season of the year.

Another plant that rivetted my attention was Cypripedium caudatum, which at a distance looked like a fine specimen of Angræcum eburneum, its stem being nearly half a yard high and its leaves 22 inches long! Surely this cannot be the same species that we are accustomed to see flowering freely and finely without any stem at all, and with leaves barely a span in length? Mr. M'Morland's plant was in full bloom when I saw it, but the flowers were scarcely so large or so showy as those of the ordinary C. caudatum, a circumstance that somewhat strengthens the idea that two distinct species may be at present included under one name. The subject deserves investigation, and will I hope receive it at the hands of the first botanist who may have the opportunity of comparing fresh flowers of the

two rivals. I may add that the subject of the preceding notice had been purchased from Mr. Veitch, who procured it from the collection of Madame Yenisch, Flotbeck, near Hamburgh, which is famous for its Cypripediums. Mr. Veitch may possibly have obtained other specimens from the same quarter, as I noticed in the King's Road several plants that were evidently related to the giant of Haverstock Hill. They were growing freely in a mixture of Cocoa-nut refuse and Sphagnum, a prescription that seems to suit all the Cypripedia. Dendrobium albo-sanguineum is another charming plant that Mr. M'Morland manages to perfection. He suspends it on a block of wood close to the light, in which position it thrives amazingly, and produces flower spikes innumerable. Every Orchid-lover ought to include this species in his list, however exclusive such list may be.

The above were all growing in houses of a temperature such as Orchids ordinarily affect; but the greatest gems of Mr. M.'s collection were stowed in a cool greenhouse, for here there was a colony of the most illustrious Odontoglossa, one and all being undeniably in robust health. I shall not attempt to enumerate all the kinds, but I would single out for special comment two magnificent plants of O. Phalænopsis, because this species is not only pre-eminent for its beauty, but is usually regarded as one of the most intractable of Orchids. Here, however, it is as completely under control as the most vicious colt after half an hour with Mr. Rarey. As the subject of treatment is all important, I shall give the account of Mr. M'Morland's system of managing the Odontoglossa in his own words:—"First and above all," he writes, "they must be kept cool. The house we use is scarcely warmer than a cool greenhouse, and the plants are kept near to the door, which in summer is frequently left open. Of course we do not allow cold easterly winds to touch them, but we take advantage of all suitable days. Another very great point is to keep them near to the glass, indeed as close as possible—firmly believing from positive experiments that this is only second in importance to a low temperature. We have had two plants of O. nævium close together, one at the distance of 3 feet, the other nearly as many inches from the glass, the result being immensely in favour of the latter position. I need only add that our plants are potted in cocoa-pulp and Sphagnum (we use here very little of the fibre), and the roots absolutely revel in the mixture. Water must be given freely, and therefore good drainage is indispensable." As the best practical commentary upon Mr. M'Morland's system I may be allowed to add that he has now (April) a plant of O. nævium majus, with 18 fine spikes of flower upon it (two of the pseudobulbs bearing three spikes apiece), and that his tussocks—for such they are—of O. Phalænopsis will soon be a sheet of bloom. After all there is nothing very difficult or very wonderful in all this; plants from a cool climate thrive if you keep them cool, and perish if you roast or boil them; yet it has taken us some 30 years, and lost us treasures and pleasures innumerable, to learn this simple truth! It was at Mr. Veitch's nursery about two years ago that I first saw Orchids in a really cool house, and they were thriving wonderfully. Mr. Day's experience and Mr. Rucker's also—for both these celebrated "growers" have now their "cool" houses—points in precisely the same direction. So likewise do the experiments in Mr. Skinner's drawing-room, in which there is a plant of Lycaste Skinneri, that has never been elsewhere for two years or more, and it is now growing and flowering freely.

And let me add a little incident in my own experiences. Some five-and-twenty years ago I received in mid-winter and during a very severe frost a cargo of Orchids from Oaxaca, containing, *inter alia*, the first plants ever imported of Cattleya citrina, Odontoglossum nebulosum, &c. Of course I gave them up for lost, but to my delight and amazement, after a few weeks' time a large proportion began to push freely! Yet, although they had endured without injury a temperature many degrees below the freezing point, they were not proof against the heat of the Orchid-houses of those days, and in the course of a twelvemonth all had disappeared! *Serapias.*

ANCIENT FRUIT LORE.—No. I.

We have no doubt our readers will be interested, as we have been, by the very quaint and often shrewd remarks on matters relating to the management and preservation of fruits, which form the subject of a rare old book published in the early part of the reign of King James I., and of which we purpose from time to time to reprint a portion in our columns. This book, which is written by Mr. N. F., bears the following minutely particular title:—

"The Feviterers Secrets: Containing directions, for the due time, and manner, of gathering all kindes of fruite, aswell stone-fruite as other: and how they are afterwards to be ordered in packing, carrying and conueighing them by land or by water; then in separating or culling them into diuers sorts; and lastly, in reseruing or laying them vp, so, as may bee for their best lasting and continuance. Enterlaced with diuerse other secrets (and their naturall causes) touching trees, and their fruite. No Treatise, to this purpose, being heretofore published. At London, Printed by R. B. and are to be solde by Roger Iackson, at his shop in Fleete-streete, neere the conduit. 1604."

Then comes a dedication "To the right honorable, Charles, Earle of Deuonshire, Lo: Lieutenant of Ireland, and one of his Maiesties most honorable Priuie Councell," to whom N. F. wisheth long life with increase of honour, and as "one Irish-borne who by long experience hath made triall of that which he deliuereth to others" craves his Lordship's countenance, that his worke "may have free passage, in despite of malitious and scornfull tongues, into the hands of all such as desire to eat the fruite of their owne vineyards, in their due season." The Epistle to the Reader which follows this dedication, is in these terms:—

"Gentle Reader, as there haue been diuers bookes set forth for the good of this land, and the great encrease of fruite; As of planting, setting, proyning and grafting, also of preseruing them, after the order of the Apothecary: so amongst the rest, bestowe the Reading of this little worke; wherein you shall finde the true order of gathering, carrying, and keeping of all sorts of fruites, in their season, and how you shall know what time your seuerall fruites are ready to be gathered; especially all kinde of pippins, and apples, all kinde of peares, wardens, Quinces, and Medlers, also cherries and other stone fruite whatsoeuer.

"I omit the nominating of all kind of fruites; for they bee too many to be seuerally named. And commonly euery fruite country hath their seuerall names, although one kinde of fruite. As, Iohn-apples be, in some places, called Dewzings or long-lasters: and Gooddings be called old Wines, &c. Yet although not seuerally named, you shall by this Treatise know the due course how to gather all kindes in their prime and season, and afterwards to carry or conueigh them, either by land or by water, and then how to reserue or keep them, to endure longest. And, afore I proceede to the Treatise it selfe, I thinke meete to acquaint thee, from whence our great plentie of fruite, in England, came.

"One Richard Harris, of London, borne in Ireland, Fruiterer to King Henry the eight, fetched out of Fraunce great store of graftes, especially pippins: before which time there was no right pippins in England. He fetched also, out of the Lowe Countries, Cherrie grafts, & Peare grafts, of diuers sorts: Then tooke a peece of ground belonging to the King, in the parrish of Tenham in Kent, being about the quantitie of seauen score acres; whereof he made an Orchard, planting therein all those foraigne grafts. Which Orchard is, and hath been from time to time, the chiefe Mother of all other orchards for those kindes of fruites in Kent, and of diuers other places. And afore that these said grafts were fetched out of Fraunce, and the Lowe Countries, although that there was some store of fruite in England, yet there wanted both rare fruite, and lasting fine fruite. The Dutch & French, finding it to be so scarce, especially in these countries neere London, commonly plyed Billings-gate, & diuers other places with such kinde of fruite. But now (thankes bee to God) diuers Gentlemen and others, taking delight in grafting (being a matter so necessary and beneficial in a Comon-wealth) haue planted many Orchards; fetching their grafts out of that Orchard, which Harris planted called the New-garden. And by reason of the great increase that now is growing in diuers parts of this Land, of such fine & seruiceable fruit, there is no need of any foraigne fruite, but we are able to serue other places.

"Now therefore, since it hath pleased Almighty God, to giue encrease & plenty of fruite in this land, and that diuers haue taken paines in the maintenance thereof, of all degrees: (the better sort for their pleasure, & in that they doe delight to see the worke of their owne handes prosper, as also to eate the fruite thereof; the common sort, for profit, and for the better reliefe of their family). In regard, I say, of the great paines that haue been taken, in planting, setting, grafting, & proyning, whereby a great deale of ground hath been taken vp, which might serue for other good purposes; I thought good to shew what course might bee taken, that mens Labours be not lost, nor such great quantity of ground, wherein fruite doth growe, lye in waste (as it were) and become vnprofitable, through ignorance of well handling the fruite, after God hath giuen it.

"For if there be not as great care taken for the well gathering, and good vsage of fruite, as hath been for the planting thereof, I account most of the labour in planting lost, and the grounds wherein they growe to lye partly waste, and better to be vsed for some other good purpose. But, the fruite being well handled & vsed, the ground can bee turned to no better profit. And so (committing both thy endeuours, and these my labours, to the blessing of God) I hasten to the Directions themselues.—Thy well-willer, N. F."

ROSES.—No. V.

By Mr. William Paul, F.R.H.S., Paul's Nurseries, Waltham Cross.

It was originally my intention to have completed my remarks on old Roses before dealing with the new, but I am reminded that any information on the latter is of more value in April than in May. Therefore this digression. To-day I will review the new Roses of 1861-62, next week those of 1862-63, and subsequently resume my remarks on older varieties of Roses.

Nearly all the good new Roses of 1861-62—and there are many—belong to the group Hybrid Perpetual. Alphabetical arrangement compels me to open this series with a flower of my own raising, Beauty of Waltham; some thousands of plants having been sold within the year, this Rose will doubtless soon be well known; in my judgment it is not yet equalled for the combined qualities of brilliancy, substance, form, vigour, and hardihood. Charles Lefebvre is certainly one of the finest of that set; the flowers are crimson shaded with maroon, intensely rich and glowing, of large size, good substance, and perfect form. Duc de Rohan is also a first-class Rose, of vigorous growth, with handsome foliage; the flowers are large, full and globular, in colour bright vermilion. François Lacharme is a rich rosy crimson flower, large, full, and of good form, quite first-rate. La Brillante is of the most exquisite colour when newly expanded, but soon pales even without the sun! it is of good average size, perfectly cupped, and nearly full. Louise Darzins is quite a gem, producing its pure white exquisitely formed flowers in great abundance; it might almost be called a perpetual Madame Hardy. Madame Charles Wood is a robust-growing sort with large showy crimson flowers, and beautiful foliage; in size, form of petal, and substance, quite a show Rose, although the flower expands rather quickly, and is soon overblown. My ideal of a Rose has always been, and still is, a half blown deeply-cupped or globular flower; the old Baronne Prevost is beautiful of its kind, and so is Lafontaine, but neither of these forms, call them compact, expanded, or what you may, is at all comparable with the globular or deeply-cupped flower. Madame Ernest Dréol is a good Rose of the Baronne Prevost style, but brighter in colour, and with petals of greater substance. Madame Julie Daran has with me been a little uncertain, but this may be accidental, rather than constitutional; it appears a good hardy Rose, with large globular glossy vermilion-coloured flowers. Maurice Bernardin is quite first-rate, large, and full; in colour brilliant vermilion. Monte Christo is a beautiful Rose, indeed one of the most beautiful, but rather difficult to manage; the flowers are blackish purple painted or flushed with scarlet—not the natural flush of health, but rather a hectic glow, too clear and beautiful to be associated with hardihood and longevity; one flower is, however, a sufficient recompense for a year's care. Olivier Delhomme is a bold showy crimson Rose, of good form and hardy constitution, the foliage particularly handsome. Prince Camille de Rohan is quite distinct from any Rose I have yet seen; the flowers are dark velvety maroon, the circumference inclining to blood red, the colours very rich and splendid. Professor Koch may be called a crimson Coupe d'Hébé flowering in the autumn; a Rose of first-rate quality. Robert Fortune belongs to the useful rather than the brilliant; it does not flower so freely as some; but the flowers, which are rosy crimson, are large, full, sweet, well-formed, and always good. Souvenir de Lady Eardley yields an abundance of large almost full reddish scarlet flowers; the growth is exceedingly vigorous, the foliage fine. Souvenir de Comte Cavour (Margottin) is a good enough Rose, though not over large; the flowers are crimson and black shaded, very rich-looking and effective on the tree. Vulcain was good last year and has been better in the forcing houses this spring; the flowers are bright purplish violet, shaded with black, very dark and distinct.

The foregoing were the best of the last year's Hybrid Perpetuals with me. The experience of other growers may have been different, and I should be glad to hear their views. There were also two Tea-scented sorts which pleased me much—Gloire de Bordeaux and Triomphe de Guillot fils. Belle de Bordeaux, which is a year older than the first mentioned, was exhibited several times last year under the name of Gloire de Bordeaux. The latter was with me lighter in colour, and finer in form, but they resemble each other almost too closely. Triomphe de Guillot fils is white shaded with rose and salmon, very large, full, and sweet. If an addition to the foregoing be required, the following stand next in rank in my note book for that year:—Alexandre Dumas, Gloire de Chatillon, Madame Caillat (very good), Maréchal Vaillant, Souvenir de M. Rousseau, Paul Féval, Wilhelm Pfitzer, Madame Clemence Joigneaux (good but common in colour), Turenne, Mdlle. Claudine d'Offay, and Francois Louvat.

The number of good new Roses brought out in 1861-62 was certainly above the average, and there was a large accession of what are termed Velvety Roses. Velvety Roses! It may fairly be asked, what are they? There is a something on the face of the petals of certain Roses that we have hitherto endeavoured to express by the word "velvety." But this word is wholly inadequate to convey the real appearance. The richest velvet, however soft and pleasing, is dull and heavy-looking beside our flower; the latter has all the softness and richness of velvet and a something superadded which I have never met with except in the petals of flowers, the coats of insects, or the plumage of birds. The pen cannot describe it, the pencil cannot paint it. What we should call it I do not know. May we look on it as analogous to the youthful tint on the human cheek—the "glow of life" which forms so broad a line of demarcation between the animate and inanimate,

which constitutes alone an immeasurable distance between the simplest works of Nature and the highest efforts of art.

Indoor Gardening.

Hanging baskets are about this time always in great requisition. There is a particularly pretty small square sort that looks like a frame of Pine sticks, made in Staffordshire ware, and exceedingly easy to fill. I had one this winter with red Tulips and Snowdrops in it, and little pale blue Scillas crept charmingly out through the holes. This is an inexpensive thing (I think mine cost 3*s.* 6*d.*), and filled with blue Lobelias, or Sedums, or Moss and Ferns, (especially with the beautiful and favourite Maiden-hair), or else with a trailing Thunbergia or Achimenes, it would be very beautiful. There is a hole at the bottom, which I filled up with a cork. A layer of charcoal will drain it, and the cork can be taken out sometimes in case of an accumulation of water beneath the soil.

Chinese Primroses would be very nice to plant in a frame of this kind. Very small pots suffice for them, and they flower the more profusely. If, we will then suppose, one of the pretty fringed white-flowered kinds were sunk in a 3-inch flower pot in the centre of such a tray, and the space all round the little pot were filled up with the Cocoa refuse, and with little red or pink Tulips planted in knots in the corners—there would be a little basket all ready, bright and blooming. The Scillas that have been blooming in other dishes might move too—merely wetting the sand most thoroughly before withdrawing them. A little dry sand should then be poured in round the transplanted roots—or else the tray should be watered so well as to settle the soil round. In fact, when I speak of planting things in Cocoa refuse, I am apt to forget to mention that it is supposed to be mixed with sand, which keeps it close and moist.

Many people have a great weakness for a regular cottage "Musk plant"—it grows so quickly and greenly, and smells so sweet after rain—and then its long hanging shoots droop down so very prettily, when it can be kept in some place where it will not scent the house too much, or where an enduring owner will tolerate much from a flower. It would be just the thing to plant now in a common flower pot or in a bowl of any shape, with a supply of charcoal drainage. I once saw a fine Musk plant suspended in a broth basin, the string going through the handles! And as the proprietor bore it, and the Musk plant thrived in it, there was nothing to do but record it.

The Musk delights in water, washing over its head, and deluging the soil—supposing drainage is possible, which it certainly is in most cases; it thrives extremely well in a soil composed of Cocoa refuse and silver sand, or else of good leaf mould of rather a peaty tendency. The baskets when planted may be hung to very great advantage inside the window curtains,—between the window and them at night, if the room is much warmed and lighted generally in the evening. I have at present some Primroses doing very well which are treated thus. The nearer the light the basket hangs the better, and it seems to me a sad mistake to hang them very high up. Of course the lower they hang, the more perpendicular is the light they get.

I am told that the Paxton flower basket is very convenient, and very pretty when arranged. I mention it here to suggest the use of oak stain for colouring such things, as the dark rich brown is far better than a brighter colour amidst leaves. This basket has a case to keep the water from dropping, but to use in a greenhouse and in a great many other ways it would be well to try for it a lining of close-pared turf. Scarcely anything looks so pretty and is so easily kept in order, being merely clipped with some garden scissors now and then. Gay bright flowers especially, look so well in these green things; the red and brilliant white flowers shining above the green wall. The larger flower-stands also never look more gay, and at the same time more green than when thus arranged. A window-box or a balcony frame, or a standing flower basket on the lawn, may be set up in this way:—A mere frame of twisted sticks from some old Oak or Apple tree, perhaps an inch in diameter, and split if wood is scarce, nailed roughly into a shape upon a board for a floor, and stained with the oak stain I mentioned just now, or varnished, then lined with the thinly pared turf, filled with some close-fitting substance (from Cocoa refuse to sand), and planted with a few gay plants put in to remain all summer, and growing better as summer goes on. Scarlet Geraniums, Heliotropes, and white Ivy-leaf Geraniums, are the three best things, I think; or Mignonette and Stocks, also Mignonette and Verbenas; or rivalling the first, if not indeed outshining it, a group of perhaps three Arums, surrounded by crimson Roses, of the lovely long-flowering sweet semi-double sort. *E. A. M.*

Home Correspondence.

Garden Law.—Will our kind friend "Lincoln's Inn" enlighten us on the following points?—1. I am a nurseryman living in the country. My parish is being reassessed, and because my business is large, or as my brother parishioners think profitable, they wish my nursery land to be assessed at 200 per cent. more than the land of my neighbours; say their assessment is at 30*s.* per acre, they wish my land, parted from it by a hedge and ditch occupying a space of 4 feet, and of exactly the same nature both in subsoil and surface soil, to be assessed at 4*l.* 10*s.* per acre. I naturally object to this, and tell them that by digging and manuring I may have made my soil worth 10*s.* per acre more than theirs, but that they have no business either with the profit I derive from it or my trees. 2. My neighbours say that I have a large number of glass houses and pits which they think ought to be rated, but finding that Lord Kenyon's opinion is against this, they are willing to give up the idea; still they consider that they add to the value of the ground they stand on, and that such ground should be assessed at a much higher rate than that part of the nursery occupied by trees only. 3. A clerical gentleman at the board of assessors compared greenhouses and hothouses to a manufactory, and stated as his opinion that as a manufacturer would be rated for his building in which he placed his engines, for the purpose of manufacturing cloth, a gardener should be rated for his houses in which by the aid of hot water he manufactured plants. Rather 'cute' this, but I think it will not hold even cold water. *Observer.*

Mistletoe on Conifers.—It is generally believed that this parasite is either not found at all, or very rarely found, on coniferous trees. Bearing on this question I remember to have somewhere seen a statement not very long since, from which it appeared that the Mistletoe, which was said to be abundant in the forest of the Vosges, was not unfrequently found growing on the Black Fir, though not noticed on the Pine. Is it so? *Viscum.*

Royal Horticultural Society's Show.—The show held on the 15th inst. was attractive for the season, and the beauty of the weather added much to its attractiveness. The ladies might be seen enjoying the warm sunshine outside, in preference to the cold air of the arcade where the flowers were staged. The managers might take a hint from this; and hereafter select the warmer and pleasanter parts of the garden for the early spring shows, reserving the sunless situations for the midsummer exhibitions. *F.R.H.S.*

Euphorbias and Poisonous Milk.—At p. 126, one of your correspondents, referring to some cases of reported poisoning from the use of goats' milk, which had occurred at Malta, and mentioning that the mischief was attributed to the animals feeding on a species of Euphorbia called Tenhuta, asks what plant is referred to under this name. I find from a statement in the "Annales d'Hygiène Publique," that this Tenhuta is the common Euphorbia helioscopia, or Sun Spurge, a plant plentiful enough in our own country, but upon which fortunately our milk-yielding animals do not browse. Probably, however, its properties may become more concentrated in the climate of Malta. *J. C.*

Peaches.—I have now disfruited the three Peach trees referred to in one of your preceding Numbers. The trees are about 9 feet high and 53 feet wide. The Peaches are regular all over the trees, and there is not a single diseased or curled leaf on them. In two or three places I see gum. I never saw it in any preceding year. Top Peach 46 years old: disfruited 73, left on 96. Middle tree, 46 years old: disfruited 359; left on 320. Lower tree, 26 years old, next the rivulet: disfruited 178, left on 140. Total left on, 556. If these be added to the five years' proceeds already referred to, it will be seen, that since I have covered with sheets, these old cut down trees, now in giant strength and well wooded, have borne for six consecutive years above the average of 500 Peaches per annum. The place they stand in was once a duck pond. They are all three close to the rivulet. Mr. Sturt is much pleased with the glass case article (see p. 318), and permits me to say that his glasseries are open to inspection. Mr. Newton is the head gardener. His direction is Critchill, Wimborne, Dorset. I am four miles off, and shall be happy to entertain any of the friends of the *Gardeners' Chronicle*. *W. F. Radclyffe, Rushton.*

Holly Leaves.—I am fully prepared to support Mr. Paul's assertions respecting the Holly assuming the different forms of growth he mentions (see p. 366), as we have fine specimens of different varieties growing here in the pleasure grounds. One, 30 feet high, has smooth foliage from bottom to top; one is rough; and one has rough leaves at bottom and perfectly smooth ones at top. Another tree has both rough and smooth foliage all over; this is in direct opposition to Southey's lines. *E. Welch, Gardener, The Palace Gardens, Armagh, Ireland.*

Wireworm.—Permit me to ask your readers if there is any method of destroying the wireworm, *i. e.*, if I can apply anything to the ground it infests that will drive it away. Two years ago a friend of mine built a vinery, made a border of turf and manure mixed together, and planted Black Hamburghs. Three of the Vines having made little or no progress, he was induced to examine the border, and found it full of wireworms—the three Vines were literally eaten up with them, roots and stem being nearly all destroyed. He picked out of that part of the border where he had taken up the three Vines no less than a quart measure full. I never before anywhere saw anything approaching the quantity. The other Vines are doing pretty well, so that if it can be avoided he would not like to disturb them. If any of your Correspondents can give any idea as to what to apply to the border to destroy these pests, the information will greatly oblige *Jemmy Watson, Rotherham.*

The Loquat (*Eriobotrya japonica*).—In reply to your Correspondent (see p. 366), I beg to say that this fruit, belonging as it does to the natural order of Appleworts, is best grafted upon the Quince. It may however be propagated by means of seed sown as soon as it is ripe, or by cuttings made of side shoots 1 or 2 inches in length in sand under a bell glass and struck in heat. By grafting, however, which is to be recommended, excessive robustness is got rid of, and thus managed the plants may be admitted into a Peach or intermediate house; otherwise treated they would doubtless be too coarse for ordinary houses. When the Loquat is grown in the open air, it should be allotted a very warm sheltered situation, and protected from frost during the winter. The temperature of a Peach-house is, however, most suitable. With regard to soil, it should be observed that good loam and peat are best, allowing the former to predominate. It may be grown in pots if turned out to rest in summer and introduced into a stove in winter. By this means fruit may be obtained in April. *M. A., Frindsbury.*

The Lee-Chee (*Nephelium Litchi*).—This Evergreen fruit tree your Correspondent (see p. 366) will find may be propagated by seed sown in spring, or by layers or cuttings of half ripened shoots put in sandy soil and struck under a bell-glass in heat. A temperature of from 45° to 55° during winter, and from 60° to 80° in summer, and a soil consisting of sandy loam and leaf mould, appear to be most suitable for its growth. *M. A., Frindsbury.*

Societies.

Linnean: *April* 2. G. Bentham, Esq., President in the chair. Mr. John Bain was elected an Associate. The following papers were read:—1. "On the identification of the Acanthaceæ of the Linnean Herbarium," by Thos. Anderson, Esq., M.D. The author observed, that as the Acanthaceæ are eminently tropical, comparatively few species of the order were known to botanists of the time of Linnæus. Consequently the limits of the genera were very indefinite, so much so, that many of the old genera are co-extensive with the tribes and sub-tribes now adopted. Only five genera were described in the fourth edition of the "Genera Plantarum," and with the exception of Thunbergia, a genus of later date, these are the only ones recognised in Linnæus's Herbarium. The number of species found was 67, distributed thus:—Thunbergia 1, Ruellia 18 Barleria 9, Acanthus 11, Justicia 26, Dianthera 2, There were among these 67 species, representatives of 28 genera according to the views entertained by Dr. Anderson, and of many more if the opinions of Nees von Esenbeck as stated in the Prodromus were adopted. The paper consisted chiefly of a list of these species under the Linnean generic names, with copious synonyms of other authors, and occasional remarks.—2. "A Succinct Review of recent attempts to explain several remarkable facts in the Physiology of Spiders and Insects," by John Blackwell, Esq. A spider if placed on a rod set upright in a glass vessel with perpendicular sides, and containing a sufficient quantity of clean water to immerse its base, would in vain attempt to effect an escape in a still atmosphere, but should the individual thus insulated be exposed to a current of air, either naturally or artificially produced, it would instantly turn its abdomen in the direction of the breeze, and emit from its spinners a little of its viscid secretion, which being carried out in a line by the current would become connected with some object in the vicinity, and afford the spider a means of regaining its liberty. It was deduced from this, that the lines produced by spiders are not propelled from the spinners by any physical power possessed by the animals, as some maintain, but are drawn from them by the mechanical action of external forces.—3. "Monograph of the family of Nitidulidæ: part 1," by Andrew Murray, Esq. This paper was illustrated by a long series of beautifully finished drawings of the insects described, with figures of dissections.

April 16.—G. Bentham, Esq., President, in the chair. Dr. Ernest Adams and R. H. Barnes, Esq., were elected Fellows. The following communications were read:—1. The commencement of a Memoir on the Restiaceæ, by Dr. Masters. 2. "On some new Species of Amomum from West Africa," by Prof. Oliver and D. Hanbury, Esq. The authors stated that they had in preparation a monograph of the West African species of Amomum, but as there were certain points remaining to be cleared up before this could be completed, brief diagnoses of the new species were in the meanwhile laid before the Society. The technical characters of eight new species were given. The meeting then resolved itself into a special general meeting to consider certain recommendations of the Council, with respect to the disposal of a portion of the Society's collections. It appears from a statement addressed by the Council to the Fellows, that in the earlier years of the Linnean Society presents of numerous objects of Natural History and several collections were received with the general and somewhat vague idea of forming a Museum, which, together with the Library, should be open to the Fellows for consultation; but that as these collections, from their increasing number and bulk, were rapidly

filling up the Society's apartments, without the prospect of being made available for use, the Council, some years ago, after much deliberation, laid it down as a rule for their guidance, "that the income of the Society should be applied chiefly to the increase and maintenance of the Library, in such a manner as to afford to the Fellows the greatest facilities for consulting it; to the enlargement and dissemination of the Society's publications; and to the arrangement and maintenance of the Linnean and some other detached collections which have great value and importance in themselves, independently of a general Museum." Notwithstanding this resolve, it would seem that a gradual accumulation has since been taking place, and now, when more space is required for book shelves, the following proposals have been submitted for the sanction of the Fellows:—"1. That, in addition to the Library, the following collections be retained, and maintained in the manner best calculated to be of practical use to the Fellows of the Society and Science in general:—The Linnean Herbarium and Collections of every description; the Herbarium and collections of the late Sir James Edward Smith; the East Indian Herbarium presented by the East India Company, with the additions made to it from Dr. Horsfield's Java Collection and others; the British Herbarium; the arranged Australian Herbarium; the Collection of Fruits and other objects in the Cabinets presented by Mr. Janson; the Collection of British Birds' Eggs of the late Mr. Salmon; the collection of Algæ of the late Mrs. Griffiths, and some others which, being bound in books, may be considered as portions of the Library. The Council would have been very desirous to add to these a general European Herbarium, had they not found that it could not be effected without withdrawing from the general objects of the Society, Zoological as well as Botanical, funds which could ill be spared for this special purpose. 2. That the Collection of Insects and Shells of the late Sir Joseph Banks be presented to the British Museum. 3. That the duplicate set of Dr. Wallich's East Indian Herbarium be presented to the Botanic Garden, Calcutta. 4. That the General Herbarium of the late Mr. Winch be presented to the Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne. 5. That the remaining Miscellaneous Collections be sold: viz.:—Caley's Collection of Australian Birds and Mammals; Dr. Pulteney's Collection of Shells; two Cabinets containing a Miscellaneous Collection of Insects, &c.; a Cabinet containing animals in bottles and other articles; Acharius's collection of Lichens; Salmon's European Flora; and various unarranged Collections of Plants. 6. That the proceeds of these sales be applied to the purchase of books for the library." After discussion, the meeting resolved, on the motion of Dr. Seemann, that the further consideration of the question, whether it would be expedient to part with any portion of the Society's collection, should be postponed until the 4th of June.

Entomological: *April* 5.—F. Smith, Esq., President, in the Chair. Professor Lacordaire, Dr. Hagen, and Dr. Leconte of New York, were elected honorary members of the Society. General Sir J. B. Hearsey exhibited a case of beautiful Indian moths. Mr. G. R. Waterhouse read some notes on a small species of Staphylinidæ, Aleochara inconspicua. The President made some observations on the habits of the curious Claviger testaceus, which he had found in ants' nests near Croydon, and kept alive, feeding it with moistened sugar upon blotting paper. Mr. J. Lubbock made some inquiries relative to the two moths, Acronycta Psi and tridens, which, although scarcely distinguishable in the moth state, have very different caterpillars. Mr. Lowndes gave a very interesting account of the habits of different species of ants in Australia, of which he exhibited a considerable number of species captured by himself. A letter was read from Mr. C. A. Wilson, of Adelaide, giving an account of an exploration across the interior of the continent, with notices of some of the insects observed. Mr. Hewitson read descriptions of two new and very beautiful species of butterflies from Bogota, one being named Morpho Alexandra, in honour of our young Princess of Wales, and the other Papilio Burchallii. Mr. Rowland Trimen sent descriptions of some new species of butterflies from the neighbourhood of the Cape of Good Hope, specimens of which had been forwarded to the Society in a post letter. A notice was also read from Mr. Vollenhoven, giving an account of a great work in which he is engaged on the zoological collections formed by the Dutch Government in the possessions in the Eastern Archipelago.

Notices of Books.

Yedo and Peking: a Narrative of a Journey to the capitals of Japan and China, with Notices of the Natural Productions, Agriculture, Horticulture, and Trade of those countries, and other things met with by the way. By Robert Fortune, Hon. Member of the Agri.-Hort. Society of India; with Map and Illustrations. John Murray, 1863.

The last 10 years have been prolific in books of travels, American and English, in China and Japan; amongst all, however, that we have perused there are none, save those of Mr. Fortune, which give us an exact notion of the native and cultivated vegetable products of these remarkable countries. In saying this we are not unmindful of the valuable catalogue of the Japanese Flora by Mr. Black, appended to Hodgson's Japan, and of the notices of ornamental and useful plants, furnished by Mr. J. Veitch to Alcock's standard work on the same country; but good as these are in their way, they neither of themselves afford any picture of the vegetation of the Islands nor enable the reader to make much of the vague and often incorrect botanical allusions with which many otherwise excellent narratives abound. With Mr. Fortune's works the case is very different; in all these, from the first, which details his two visits to the Tea districts of China in 1843-52, to this, his last, he has been ever careful to give truthful delineations of all floral and sylvan scenes, whether natural or artificial—accurately describing the garments with which the countries he has visited are clothed, in language intelligible to any educated reader, without "word painting," and without pedantry. This is his great merit; and to this is due the enduring popularity of his works, which in spite of some literary defects, will hold a deservedly high rank as standard authorities, long after two-thirds of their more elegant contemporaries shall have been consigned to oblivion.

This, Mr. Fortune's fourth visit to the seas of China and Japan, was undertaken with the view of introducing useful and ornamental plants into England, in which object he has been eminently successful; his consignments being made, as we gather from his work, to Mr. Standish, of Bagshot, who has already exhibited some most beautiful new Japanese plants of his introduction. Arriving in Nagasaki, the southernmost part of Japan, in October, 1860, Mr. Fortune proceeded almost immediately to Yokuhama and Kanagawa, ports near Yedo, which capital he visited, making large collections, chiefly in the suburban nurseries. In November he left Yedo, and traversed the remarkable inland sea (or Kino Channel), which separates the island of Niphon from those of Sikok and Kiu-siu; and he reached Shanghae in January. Early in 1861 he returned to Japan, and passed the following seven months in the same localities, and others in the neighbourhood of Yedo. In August he went to North China, visited Pekin, made an excursion thence to the Western Mountains, and finally left the "Flowery land" for England, in September 1861.

The greater part of the volume is taken up with sketches of Japan and the Japanese, and very full of interest they are. Mr. Fortune's estimate of the people and of their relative position to us, strikes us as eminently fair and sensible; the natives are neither the innocents which some romancers have depicted, nor the licentious debauchees, nor the malignant insulters of foreigners, that others describe, but are an average people as people go; habitually industrious, far beyond what is common amongst semi-civilised races, rather more drunken than most Orientals, naturally (and perhaps advisedly) mistrustful of foreigners, whose sole object is obviously self-aggrandisement; but actuated as much by a sincere desire of warding off insult and averting danger as by jealousy or suspicion, in insisting that travellers should be accompanied by native officials in their wanderings. From this work and other narratives we judge, that far too much of the acts of the officials is attributed to a definite policy on the part of the supreme power; we assume that the Government of a nation situated as Japan is towards us, is central, despotic, consistent, and above all, that it knows its own mind, not reflecting that we have by forcing ourselves upon its friendship and demanding its good offices, suddenly placed it in a perplexing position, one for which it has no precedent, and the consequences of which, whether immediate or remote, are beyond its' powers to calculate or even to guess. Under like circumstances what reception would a Japanese Mr. Fortune experience from the London police, and how would his visits be welcomed at our nurseries? Assuredly not as our botanical travellers have been at the Budhist temples and gentlemen's gardens, the nurseries of Yedo, with courtesy and even kindness. For the policy of his Government in forcing a trade and treaty on an unwilling people, however, Mr. Fortune is not answerable; no more legitimate advantage of these could be taken, than that he has availed himself of; and no one better deserves the success that attended its exercise, whether for his energy in his calling, or the good feeling he everywhere displays, when speaking of the people amongst whom he was at best but an unwelcome visitor. Another point upon which we accept Mr. Fortune's testimony with unfeigned satisfaction, is the evidence his narrative affords of the general high character and excellent qualifications of the official representatives of Great Britain in Japan; and it is no small matter this, such testimony being all the more valuable as coming from an unbiassed and unprejudiced observer, who has himself experienced its effects, and whose judgment is not likely to be impeached.

We shall now turn to some of his interesting descriptions of Japan vegetation and horticulture, referring our readers to his work for his graphic account of the people and their ways, and the stirring narratives of those massacres and earthquakes for which Japan is now, as heretofore, unhappily notorious:—"One marked feature of the people is a love for flowers. Almost every house which has any pretence to respectability has a flower garden in the rear, often times small indeed, but neatly arranged. This adds greatly to the comfort and happiness of the family. * * * Many of these are exceedingly small, some not much larger than a good sized dining-room; but the surface is rendered varied and pleasing by means of little mounds of turf, on which are planted dwarf trees kept clipped into fancy forms, and by miniature lakes, in which gold and silver fish and tortoises disport themselves. It is quite refreshing to the eye to look out from the houses upon these gardens. The plants generally met with in them are the following:—Cycas revoluta, Azaleas, the pretty little dwarf variegated Bamboo introduced by me into England from China, Pines, Junipers, Taxus, Podocarpus, Rhaphis flabelliformis and some Ferns. These gardens may be called the gardens of the respectable working classes."

Amongst the upper classes, of course more extensive though still small, and often magnificent, garden and pleasure grounds are found; these are about a quarter of an acre in extent; like the smaller, they are turfed and covered with mounds and lakes, and contain plants of great size and beauty, as Azaleas 40 feet in circumference, clipped all round and over the top, like a table; Farfugium grande; also stages of potted plants, arranged as in our conservatories, amongst which are seen stunted plants of Sciadopitys verticillata, several Retinosporas, Thujopsis dolabrata, species of Laurus, Bamboo, Aroideæ, Hoya, &c.; all or most of them in both a green and variegated state.

Leaving the towns, the Budhist temples present the most attractive features to the horticulturist. In the enclosures around them he finds noble Camphor trees, Pinus chinensis and Massoniana, and Cryptomeria, the latter often planted as a fence and kept clipped like our Yews, forming an impervious screen. But the great ornament of the temple where it occurs is the Umbrella Pine, Sciadopitys verticillata, which at Yedo attains a height of 100 feet, is of a conical form, and the leaves and branches so densely crowded that the trunk above is completely hidden from view. Unfortunately Mr. Fortune's sketch of this wonderful Pine fails to convey the impression of a noble or beautiful plant; anything more positively ugly it is impossible to conceive, nor one that would more assuredly be scouted by every landscape gardener of taste. Let us hope that the artist here is to blame, as the author certainly is in describing the leaves as broad, and in calling it a "new Pine," seeing that it was, as he himself observes, named and figured by Siebold many years ago, Our space however compels us to break off here, promising to return immediately to this excellent narrative.

Messrs. Black, the Edinburgh publishers, have commenced a monthly reissue of *Kitto's Cyclopædia of Biblical Literature*, in sixpenny parts, the reissue being intended to bring the work within the reach of all classes.—The fourth of Mr. W. Longman's *Lectures on the History of England* (Longmans) delivered at Chorleywood, has just been issued, and comprises the reign of Edward I. from A.D. 1272 to A.D. 1307. It consists of a very interesting record of the leading historical facts of the period, and contains some quaint illustrations.—A *Comparative List of British Plants* (Pamplin) compiled and arranged by A. G. More, F.L.S., for the purpose of showing the different names and species adopted respectively in the Floras of Babington, Bentham, and Hooker and Arnott, and in the London Catalogue, has been reprinted from the Phytologist, and issued as a separate pamphlet.—*Porquet's Fables Parlantes* (Simpkin & Marshall), or Speaking Fables in French, seem to offer a ready means whereby learners may not only become readers, but also speaking scholars of the French language. The system of teaching is remarkably simple.—*Thompson's Spring*, by W. M'Leod (Longmans) is another educational book, and is intended for the use of pupils qualifying for the Oxford local examinations. The poem is accompanied by critical explanatory and grammatical notes, and by an analysis of sentences.

The illustrations of the *Botanical Magazine* for April are: *Cœlogyne lagenaria*, one of the beautiful dwarf Indian species of the Pleione set, the markings of whose blossoms, and the singular form of whose pseudo-bulbs, recommend it to every Orchid grower. The curious clustered bottle-shaped conical-necked pseudo-bulbs are green mottled with brown, and the large rosy flowers have a white lip, crested in the centre, crisped at the margin, and beautifully marked with yellow and red. It is some drawback, that it blossoms before the leaves appear. "The secret of their successful cultivation in England lies in keeping them cool and dry while at rest, and forcing them with heat, moisture, and light, as long as they are inclined to grow." *Encephalartus horridus trispinosus*, a spiny-leaved Cape Cycad, long cultivated at Kew. *Codonopsis cordata*, a climbing Campanulaceous perennial, with slender stems, heart-shaped leaves, and greenish-white bell-shaped flowers; native of moist woods in Java. *Lycioplesium pubiflorum*, a purple-flowered Solanad noticed in another page. *Cyrtanthus lutescens*, a slender Cape bulb, with tubular fragrant pale yellow blossoms whose limb is spreading and whitish; it has been recently introduced by W. Wilson Saunders, Esq.

Calanthe Veitchii, a very handsome hybrid Orchid, noticed fully by us at p. 1016 of our Volume for 1859.

The *Florist and Pomologist* has good figures of two fine garden varieties of *Chrysanthemum—Princess Alexandra* and *Talbot*, which rank amongst the most distinct and useful that the late Chrysanthemum season yielded. There is also a plate of the Canino Grosso Apricot, an early vigorous-habited Italian variety; "fruit larger than the Royal, and if there is any difference in that respect a little later in ripening, of the same melting flesh and excellent flavour as the Peach Apricot, the finest of all." The principal articles relate to Roses, Petunias, and Ixoras.

The *Floral Magazine* figures what are called the Free-flowering Monochætum; the new disk-shaped [!] Nemophila, a form of discoidalis; the striped Japanese Chrysanthemum, one of Fortune's novelties, but here very unlike the state in which it was shown; and some pretty new varieties of Heaths named profusa and affinis, raised by Messrs. Rollisson, the first obtained between Macnabiana rosea and aristata major, the second between Cavendishiana and depressa.

The recent numbers of *Gossip of the Garden* contain useful notes on Florists' Novelties of 1862; as well as sundry observations on the subject of classifying Dahlias, upon the general features of which all seem agreed. Pansies, Auriculas, Tulips, Polyanthuses, and Gladioli, come in for a share of attention; and Mr. Cranston and Mr. Keynes both give their experience with respect to new Roses.

Garden Memoranda.

S. RUCKER'S, ESQ, WEST HILL, WANDSWORTH.—There is now in bloom here a magnificent bush, or rather small tree, of the Bhotan Rhododendron called R. Nuttallii, certainly one of the most glorious plants in cultivation, not yielding precedence even to any Rhododendron with which we are acquainted. With noble leaves of the largest size, it bears masses of golden-eyed snow-white flowers, deliciously fragrant, and measuring individually fully 18 inches round the edge. On the specimen under notice seven branches terminate in close corymbose heads, each consisting of from five to six beautiful blooms of the dimensions just stated. Unfortunately the species requires a greenhouse, not being able, we believe, to bear even an inconsiderable degree of frost. For conservatory decoration it will, however, be found invaluable, as, under the protection of glass, it grows freely, and when it has attained sufficient size, little difficulty is experienced in inducing it to bloom. Mr. Rucker's plant, which is a standard, measures about 8 or 9 feet in height.

Miscellaneous.

Prizes in Botany.—The Society of Apothecaries annually offer to Students in Medicine two prizes for proficiency in the knowledge of botany—systematic, descriptive, and physiological. The prizes consist of a gold medal awarded to the candidate who most distinguishes himself upon examination; and of a silver medal, and a book, or books, to the candidate who does so in the next degree. The examination, which is conducted by printed papers and *viva voce* questions, is held at the Hall of the Society early in August. Students intending to compete for these prizes have to send in a written notice of their intention on or before the 1st of August, which notice must be accompanied by evidence of having entered upon the Second Summer Session of their medical studies, and by certificates from their teachers of having attended the respective lectures and class examinations with diligence and regularity.

Sales by Auction.—A collection of ORCHIDS was sold by Stevens the other day, and realised from 1*l.* 10*s.* to 20*l.* per lot. The last named sum was paid for a flowering plant of Cypripedium Lowii, 16*l.* 10*s.* was obtained for Aerides Schröderi, 15*l.* for Cymbidium eburneum, 12*l.* 12*s.* for Saccolabium curvifolium, 10*l.* 10*s.* for Woolley's variety of Sobralia superba, 9*l.* for Dendrobium lituiflorum, 6*l.* 6*s.* for Cattleya superba, 6*l.* 10*s.* for C. maxima, 5*l.* 5*s.* for the larger variety of Rodriguezia secunda, 4*l.* for Odontoglossum hastilabium, 4*l.* 18*s.* for Phalænopsis amabilis, 4*l.* 4*s.* for Aerides suavissimum, 4*l.* 10*s.* for Cypripedium Stonei, 6*l.* 10*s.* for C. villosum, and 4*l.* 4*s.* for Vanda tricolor marginata. Altogether the sale, which consisted of 237 lots, realised nearly 500*l.*—BEDDING-OUT PELARGONIUMS, comprising among others the following kinds, viz.:—Lady Middleton, Countess of Warwick, Christina, Golden Chain, Hendersoni nanum, Minimum Nosegay, Rose Queen, Beauté de Meldoise, Bishopstowe Scarlet, Countess, Burning Bush, Red Nosegay, Reine d'Or, Paul Labbé, Golden Fleece, Scarlet Queen, St. Clair, Golden Cerise Unique, Flower of Spring, Blackheath Beauty, Jane, Beauty, Baron Hugel, Alma, Lady of Loretto, Indispensable, Model, Nosegay, Julia, Scintillatum, Purple Nosegay, Little David, Cloth of Gold, Madame Vaucher, Shottesham Pet, and Daybreak, fetched on an average 1*s.* 6*d.* a dozen. Three dozen of Madame Vaucher realised 15*s.*, and similar sums were obtained for the same quantities of Hendersoni nanum, and Golden Chain. Three dozen of Cloth of Gold fetched 9*s.* 6*d.*, and a similar lot of Burning Bush, 16*s.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Azaleas will now be in full bloom, and every attention must be paid to keep them in beauty as long as possible. By judicious arrangement both borders and shelves may now be rendered extremely gay with flowering plants, and if a few red and white coloured Azaleas in the shape of standards are introduced among dwarf plants, either of the same or of other kinds, the general appearance of the house will be greatly improved. Standard plants of Deutzia gracilis, now in full blossom, as well as Cinerarias, and things of that description, will likewise be found useful for purposes of decoration, as will also forced Roses, which are flowering unusually well this season. With regard to cultivation, the instructions lately given with respect to the Camellia will be found in the main applicable to Azaleas. If wanted early they must be forced to make wood betimes in the spring; a trifling amount of check may be permitted in order to induce them to form flower-buds, and lastly they must be allowed a considerable period to rest and harden before they are again started into growth. Plants intended for flowering next January and February should be forced gently into growth as soon as they have done blooming. In stoves, Begonia fuchsioides, Gloxinias, and Amaryllises will now be in good condition. Among the last, the best dark-crimson kind appears to be Ackermanni pulcherrima. Among Orchids, Cattleya Skinneri and some of the different kinds of Dendrobium will now be getting showy, and must be kept comparatively cool and shaded on bright days. In the case of growing plants, continue to increase the temperature gradually, more especially when it can be done by means of sun heat, and accompanied by a very considerable amount of atmospheric moisture. This will be best accomplished between three o'clock in the afternoon and five, when the thermometer may sink to 65° for the night. In cool houses, early flowering plants of Chinese Primroses, now exhausted, should be removed to a pit or frame, likewise Cinerarias past their best, and other fading stock.

FORCING DEPARTMENT.

PINERIES.—Early potted suckers or young succession plants will soon have filled their pots with roots. Where such is the case, give them a liberal shift. When dry they had better be watered occasionally with weak liquid manure, *i. e.*, after the plants shall have become sufficiently established to enable them to receive it with advantage.

VINERIES.—In most places early Grapes will now be ripe. Let it, therefore, be remembered that a tolerable amount of dryness in the atmosphere is necessary, in order to obtain good flavour. A free and wholesome circulation of air early in the morning (not later than 8 o'clock), continued until 5, will be found to increase both colour and flavour. Be very moderate in fire-heat until late Vines approach the period of blossoming. Keep the syringe employed morning and evening until the flowers begin to open; after that it must be discontinued. The preservation of a fine bloom on Grapes should always be deemed of the highest importance; in fact they cannot be said to be first-rate, however large or well-coloured they may be, unless they possess untarnished bloom. An injudicious use of the syringe is sure to destroy it; therefore if red spider makes its appearance while the syringe cannot be employed, persist in cleanliness, in the use of sulphur on the pipes, and in the abundant application of water on all floors and surfaces available for that purpose.

STRAWBERRIES.—These will want abundance of water. They must not be allowed to flag by any means, and if the weather continues bright, they may be removed to a cooler and somewhat shady shelf.

FLOWER GARDEN AND SHRUBBERIES.

Let manuring and dressing proceed as required. Highly dressed ground should be mown at least once a week after this period, for a well kept lawn is always a pleasing object. Let all herbaceous or mixed beds or borders be finished dressing without delay, and prepare stations where blanks exist to receive Verbenas, Fuchsias, Heliotropes, Calceolarias, &c., now in course of hardening for this purpose, and for forming masses. Self-sown annuals and Pansies may be transferred with balls, to fill up blanks. See that runners of Neapolitan Violet are secured for next winter. It sometimes happens that Pansies assume a straggling habit; in such cases the shoots must be pegged down to the surface of the bed, and covered with soil after the manner of layers; thus treated they will emit new roots from the old stems, acquire fresh vigour, and flower well and abundantly for a long time. The beds ought also to be constantly examined, and every means used to trap snails and other pests; if this is not attended to, the chance of obtaining perfect blooms will be small. As seedlings flower, remove bad ones, and take cuttings of those which it is desirable to retain, as there is great risk in removing seedling Heartsease when in flower. Protect Tulips as usual from frosts, and attend to the fastening of elongating flower-stalks. Let seedling Ranunculuses in pans have the benefit of warm showery weather when it arrives. Do not allow the surface soi in the pot about Carnations and Picotees to become hard; stir it from time to time, and finish putting in the supporting sticks without delay. Pinks will also require small rods. Dahlias must not be planted out for some time yet.

HARDY FRUIT AND KITCHEN GARDEN.

This is an excellent time to make a principal sowing of all the late or spring Broccolies, such as Portsmouth, Sulphur, Dwarf Late White, Knight's Protecting, and Somers's Particularly Late White. The last is the latest; it comes in between late spring Broccoli and the band-glass Cauliflowers. Sow Rampion, Chervil, Chicory, and a bed of Sweet Marjoram on a warm slope. This last is much hardier than Basil, and will do very well in this way. Disbud Peaches and Nectarines. Do not suffer green fly to establish themselves for a day, if possible. Thin out the suckers of double bearing Raspberries to about three of the strongest; these should be staked out thinly and should be well manured. On all kinds of hardy fruit trees there is at present every appearance of abundant crops. Cherries are set, as are also Pears in warm situations. Apple trees are covered with bloom.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending April 22, 1863, as observed at the Horticultural Garden

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 16	28	29.980	29.941	68	32	50.0	51	49½	N.	.00
Friday 17	29	30.101	30.046	66	46	56.0	52	50	W.	.00
Satur 18,	●	30 210	30.173	64	27	45.5	52½	50	N.	.00
Sunday 19,	1	30.171	29.884	68	30	49.0	52	50½	N.E.	.00
Mon. 20,	2	29 908	29.834	69	30	49.5	52	50	W	.00
Tues. 21,	3	29.856	29.778	61	45	53.0	52	50	S.W.	.00
Wed. 22	4	29.846	29.661	62	35	48.5	52	50	W.	.02
Average.		30.153	30.045	65.4	35 0	50.2	51.9	50		.02

April 16—Overcast; very fine, clear and fine.
— 17—Very fine throughout; mild at night.
— 18—Partially overcast; fine, frosty at night.
— 19—Clear, bright sun; fine; very fine, slight frost.
— 20—Cloudy; fine; very fine; slight frost.
— 21—Fine, overcast, densely clouded, very fine at night.
— 22—Densely clouded; rather boisterous, heavy shower; cloudy fine.

Mean temperature of the week 3 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending May 2, 1863

April and May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 26..	59 4	36 0	47.7	16	0.53 in.	4	3	3	3	1	10	3	5
Mon. 27..	58.1	35.2	46.6	16	0.14	11	2	3	2	5	5	3	1
Tues. 28..	60.2	35.8	48 0	14	0.64	4	6	6	4	5	5	4	3
Wed. 29..	61.0	37 7	49.4	12	0.75	4	4	8	2	4	8	1	6
Thurs. 30..	61.7	40.2	50.4	15	0.31	5	3	8	2	3	7	4	5
Friday 1..	61.5	39.9	50.2	13	0.51	3	6	7	4	5	7	4	1
Satur. 2..	62 5	39.4	50 4	13	0.72	4	8	10	1	5	6	2	2

The highest temperature during the above period occurred on the 28th, 1849—therm. 81 deg.; and the lowest on the 29th, 1861, therm. 18 deg.

Notices to Correspondents.

CEPHALOTAXUS FORTUNI. Messrs. Jackman & Son, of Woking, have sent us the short-leaved variety of this Conifer now in flower. It had been previously supposed to be a female, but proves to be a male. Until it flowered the sex could not be ascertained.

DISEASED VINE LEAVES: *J C N.* We have never seen precisely the same affection on Vine leaves. It appears, though deeper in colour, to be of the same nature as the spongy spots which are so common, and which in the case of potted Vines we have found to arise from the young rootlets being dead or dying. The affection may exist without any injury to the crop, though shanking may be expected to follow it. If your Vines are making young healthy roots, you need not be afraid of any bad result. *M. J. B.*

INSECTS: *C W S.* The small objects forwarded are the dried up pupæ of a small two-winged fly belonging to the genus Phora, the larvæ of which have subsisted upon the dead bodies of the bee grubs in the comb of your starved out hive. They are not otherwise injurious to the colony. *W.*

LONICERA AUREO-RETICULATA: *Erin.* We believe there is no doubt of this being a variety of L. brachypoda, which is hardy enough in the situations in which it is usually planted, namely against a wall.

NAMES OF FRUITS: *A B.* Of the two varieties of Apples, which you say are good bearers and good keepers in the light soil of East Suffolk, No. 1 is not known; it is soft and too sweet; it wants briskness. No. 2 is Coe's Golden Drop, and very excellent.—*E S W.* Dumelow's Seedling.‖

NAMES OF PLANTS: *Amateur.* 1, Asplenium viride; 2, Lastrea æmula.—*C R.* Asarum europæum.—*J B.* 1, Sparmannia africana, a good old-fashioned greenhouse plant, flowering freely if not allowed to grow too rampant.—*T S* 1, Cochlearia danica; 2, Armeria maritima. — *J. Matheson.* It is probably C. lathyrifolia in a young state; but the leaflets are unusually broad.—*J W.* Willows in such a plight as those sent cannot be named satisfactorily; 1 has no leaves; 2 and the other may be S. herbacea.—*Oulton Park.* Dendrobium Lawanum.

PENTSTEMONS: *H H.* The following sorts will give you satisfaction:—Euclide, Adrienne Boppe, Charles Klein, Le Dante, Lord Clyde, Dr. Hogg, Laurent Lowerque, Rose of England, Purple Prince, Mrs. Steans, Blue Beauty.

PINE APPLES: *A D M.* Remove a portion of the superabundance of suckers with which your Pine plants are infested now; the remainder may be left on till the fruit is ripe.‡

RHODANTHE MACULATA: *Enquirer.* We understand that this fine new Rhodanthe requires to be grown vigorously and out of doors in order to develop its size and markings. Enquirer had better not nurse his plants too tenderly. They come very fine grown about three in a 6-inch pot, under cool pit treatment, and then transferred to an airy greenhouse when in bloom. It is a mistake to sow such things too early, and in much heat. The other sort is not yet sent out.

ROSE MILDEW: *A, Hants.* We do not find either in your forced or out-door Roses any trace of the Peronosporæ, but both are covered with Oidium leucoconium. It is, however, probable from their appearance that they were at first attacked by the Peronospora. Sulphur is generally efficient against the Oidium, and we should recommend you to persevere. *M. J. B.*

VINES: *E H.* It is impossible to state with certainty the cause of your young and tender Vine shoots drying off, in some cases at their extremities, without knowing all the circumstances connected with their vegetation. Shoots that are overstrained at their bases in tying them down will sometimes droop and die at the ends; or shoots that happen to be too near the glass in frosty nights, will exhibit a similar appearance.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

POTTER'S GUANO (established 21 years) 7*l.* per Ton.
POTTER'S CONCENTRATED MANURE, guaranteed by analysis, 10*l.* per Ton.
PURE GYPSUM, 25*s.* per Ton, bags included.
Address, 28, Clapham Road Place, S.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. Purser, Secretary.
116, Fenchurch Street, E.C.

TENANT FARMERS' MANURE COMPANY.
ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME,
Manufactured by THE Patent
NITRO-PHOSPHATE or BLOOD MANURE COMPANY (Limited),
Consisting of TENANT FARMERS, occupying upwards of 30,000 Acres of Land.
Chairman.—John Claydon, Esq., Littlebury, Essex.
Particulars of these Standard Manures may be obtained at the Offices. C. T. Macadam, Secretary.
Or of the Local Agents.
Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex N.E.

Established 1848.
THE BLAYDON MANURES.—Two Prizes were last season awarded, under the auspices of the Rutland Agricultural Society, for Turnips grown with the above Manures, viz.:—
1st.—A Silver Cup, value Five Sovereigns, was given by the Town and Trade of Oakham to Mr T. W. Fowler, Exton, for the best Turnips (not being Swedes) grown within the County of Rutland. These Turnips were raised with 3 cwt. per acre of the 7*l.* 10*s.* Blaydon Manure, used with a moderate dressing of Farm-yard Manure.
2d.—Three Sovereigns (the 2d premium), given by the Right Hon Viscount Campden, were awarded to Mr. Fowler, Exton, for Swedish Turnips. These Turnips were grown with 3 cwt per acre of the 7*l.* 10*s.* Blaydon Manure, along with a moderate quantity of Farm-yard Manure.
Manufactured by the Blaydon Chemical Company, Blaydon-on-Tyne.
Managing Partner, Edward Richardson, Jun.

LAWES'S MANURES. The Manures manufactured by J. B. Lawes for the present season of 1863 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. Lawes, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from Messrs. Gibbs: Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address John Bennet Lawes, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.
PROTECTION from the COLD WINDS & MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.
Two yards wide .. .. .. 1*s.* 6*d.* per yard run.
Four yards wide .. .. .. 3*s.* per yard.
An improved make, 2 yards wide, 1*s.* 8*d.* per yard.
An improved make, 3 yards wide, 2*s.* 6*d.* per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 4*d.* per yard run.
Elisha Thomas Archer, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon St., City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

Glass and Mixed Paints (Ready for Use.)
For Factories, Hot-houses, Conservatories, Garden Frames, Pits, and Dwelling-Houses, &c.
THE LONDON CO-OPERATIVE OIL and COLOUR COMPANY (Limited), from their connection with some of the largest British and Foreign Glass and Lead Manufacturers, are prepared to supply White Lead, Zinc Paint, Mixed Paints in all Colours; and strong Sheet, Rough Plate, and every other description of Glass in Crates, Cases, or Cut to Size for Home Use or Export at the very lowest wholesale prices. Gardeners, Nurserymen, and others advised as to the best mode of Erecting, Heating, Ventilating, and Glazing Pineries and other Forcing Houses. Farmers, Stewards, Market Gardeners, &c., supplied with Stucco, Anticorrosion, Metallic Oxide, and Mixed Paints ready for use for Dwelling Houses, Farm Buildings, Park Fences, Ships' Bottoms, &c
Apply for ILLUSTRATED LISTS to Mr. Thompson, Manager, 65, 66, & 67, St. George's Street, London Docks, E.

Oil Paint no longer Necessary.
HILL and SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any station in the kingdom.
Apply to Hill & Smith, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

Drainage, &c.
MR. JOSEPH BEAUMONT, Land Agent, Surveyor, and Drainage Engineer (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements. Valuations made for Sales, or the re-letting of Farms.
22, Parliament Street, Westminster, S.W.

Land Drainage.
WORKS of DRAINAGE of any extent are EXECUTED by the GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY on all descriptions of property, whether freehold, entailed, mortgaged, trust, ecclesiastical, corporate, or collegiate.
Repayment may be made by the Landowner as successive portions of the works are completed; or the actual expenditure, with a commission thereon, may be charged on the property improved, by way of rentcharge on the estate created for various terms of years so as to adapt the rate per cent. of annual charge to the circumstances of the tenants.
No investigation of title being required, or notices given to Reversioners or Mortgagees, no legal expenses are incurred.
Works of Irrigation, Enclosing, Wood Grubbing, Road Making, and Farm Buildings are executed in a similar manner.
Landowners desirous to execute any of the Improvements by their own Agents, and charge the outlay and expenses on the Estate, may obtain Loans for the purpose.
Applications to be made to William Clifford, the Secretary, at the Offices of the Company, 52, Parliament Street, S.W.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
To Landowners, the Clergy, Estate Agents, Surveyors, &c. in England and Wales and in Scotland.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable William Napier, Managing Director, 2, Old Palace Yard, Westminster, S.W

PROFESSOR BROWN, Veterinary Inspector to the Bath and West of England Agricultural Society, 13 years Lecturer on Veterinary Surgery at the Agricultural College, may be consulted on Diseases of Horses, Cattle, Sheep, Dogs, &c.
Infirmary, White Horse Yard, New Cavendish Street, Portland Place, W.

ALFRED SIBSON, F.C.S., Author of "Agricultural Chemistry," &c., late First Assistant in the Laboratory of the Royal Agricultural College, has REMOVED his LABORATORY to 11, Eaton Terrace, St. John's Wood, London, N.W., where Samples for Analysis should be addressed.
He is now prepared to give Instruction in Agricultural and Analytical Chemistry, &c.

AGRICULTURAL and CHEMICAL COLLEGE, 37 and 38, Lower Kennington Lane, London, S.
ASSAYS and ANALYSES promptly attended to by J. C. Nesbit, Lansdell & Co.

AGRICULTURAL and CHEMICAL COLLEGE, Kennington.—Manufacturers and others engaged in making Artificial Manures may obtain every necessary instruction for their economical and efficient preparation by applying to J. C. Nesbit, Lansdell & Co., 37 and 38, Lower Kennington Lane, London, S.
Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c, and Assays of Gold, Silver, and other Minerals, are executed with accuracy and despatch.
Gentlemen, Farmers, or others, desirous of practical knowledge in Chemical Analysis, or Assaying, may receive instruction at the College, where the extensive Laboratories give ample facility for pursuing their studies, and there is accommodation for a limited number of Resident Students.
Full particulars of terms will be forwarded on application.

ROYAL AGRICULTURAL COLLEGE.—In consequence of the RESIGNATION of the PROFESSOR of AGRICULTURE, the Council are ready to receive APPLICATIONS from Gentlemen desirous of competing for the post of Professor of Agriculture at the College.
Letters to be addressed to the Principal, Cirencester.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
A LECTURE by Prof. Simonds, on the "Natural History of Parasites affecting the internal parts of the Bodies of Animals, with the Nature, Symptoms, and Treatment of the Diseases to which they give rise," will be delivered to the Members, at the Society's House, 12 Hanover Square, London, at 12 o'Clock, on WEDNESDAY NEXT, April 29
By Order of the Council. H. Hall Dare, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
WORCESTER MEETING, 1863.
PRIZE SHEETS and CERTIFICATES will be forwarded on application.
Caution.—LAST DAY of ENTRY for IMPLEMENTS, May 1. All Certificates received after that date will be returned to the Senders. H. Hall Dare, Secretary.
12, Hanover Square, London, W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
Besides the usual Prizes for Cattle, Horses, Sheep, and Pigs, SPECIAL PRIZES, amounting to £500, including ESSAYS for FRUIT, CIDER and PERRY, HOPS, and SALT, are offered by the Local Committee, to be competed for at the Worcester Meeting. For Prize Sheets and particulars apply to
H. Hall Dare, Esq.,
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, APRIL 25, 1863.

What is the plant which most occupies the attention and engages the interest of the British Farmer? We happen to reside in a district of extremely various soil—a land of hill and valley, river-side and down. The cropping of the country is thus extremely various, and the situation therefore is good for forming an opinion on this subject. There is all the influence of varying elevation and exposure, of varying soil and of varying superintendence, to produce various management. And it only needs a glance from any of the neighbouring hills to perceive what a patchwork of cultivation the landscape presents. There is the margin of green along the river-side below, and the bleak uncovered down or the Beechen Pine or Larch plantation on the upper grounds, where the soil is thin and high; and between the two we have green of all shades, where the young spring crops are now covering the fields; occasional squares of yellow where the Turnip plant is coming into bloom, with various shades of brown and white where the naked soil appears. But the variety is still more apparent if you take a walk or ride across the country. A few hours' stroll lately taken over the arable land which here stretches for miles, enables us to give a more exact report. We traversed chalk and sand and clay, light and heavy soils, deep and shallow, poor and rich, high and low, dry and wet. The young Wheat was covering the ground with a very even plant, almost everywhere of good dark colour. Oats and Barley were coming through. Winter Beans were unusually luxuriant and forward, and the spring sown crop was showing itself in long straight lines of healthy green. Vetches were already almost fit for the sheep fold, only waiting until the rather too-abundant supply of winter sheep keep should be exhausted. Clovers were looking vigorous and healthy—heaps of Mangel Wurzel, still remaining, occasionally lay on the

REDUCTION IN PRICE.

PHOSPHO GUANO.

The Prices for the Season 1863 are as follows, delivered Free on Board, or on the Rails at Liverpool.

For 30 Tons and upwards	£10	5	0	per Ton, net cash.	
For 10 Tons up to 30 Tons	10	10	0	,,	,,
For 5 Tons up to 10 Tons	10	15	0	,,	,,
For smaller quantities	11	0	0	,,	,,

The Price will not exceed 12*s.* per Ton additional if delivered at any other Port in Great Britain.

PETER LAWSON & SON, Contractors.
GEO. SEAGRAVE & CO., Brokers.
WILLIAM DIXON & CO., General Agents.

8, KING STREET, CHEAPSIDE; and 15, LAWRENCE LANE, LONDON, E.C.

roadside edge of fallow fields. And the autumnal furrow, now being crossed again with plough or cultivator, was gradually being prepared for the Mangel and the Turnip crops of the coming year.

Which then of all the plants we saw was the most upon the mind of the cultivator? The Clover as a preparation for the great food crop of our country, Wheat—the young Wheat plant itself, promising so well for the harvest of 1863—Vetches, to be followed by Turnips as food for the sheep stock, which in this district furnishes so large a part of the annual returns of the farm—Barley, which nowhere yields a better sample or attains a higher price than here:—Any of these might well be named in answer to this question. We have, however, no hesitation in saying it was neither Wheat nor Barley, Vetches nor the Turnip crop, nor was it Oats or Beans, or any other plant then showing the promise of a crop upon the land.

What was all the labour of the farm engaged upon? We saw long lines of men with hoes, detachments everywhere of women at work in the field; teams of horses at plough, cultivator and harrow—industry in almost every field busily at work—and all engaged in connection with this one plant to which we are referring. It was not Wheat, or Beans, or Peas, or Oats, or Barley, Clover, Vetches, or Turnips, Rape, or any other so-called cultivated plant—it was COUCH GRASS. It is this which is the universal growth and produce of the land. Light or heavy, deep or shallow, wet or dry, whatever be the soil—it is always *Couch*. Grain or green crop, "seeds" or Sainfoin, cultivated plant or fallow, whatever be the crop—*it is always Couch.*

Is it to this end that all our tillage processes are so laboriously conducted—for this *purpose* that harrows, cultivators, hoes, and ploughs are so constantly and so expensively at work? One might easily imagine it. Certainly there is no more constant companion or attendant on our management. These processes, professedly for its extirpation, do not extirpate it. On the contrary they are annual, recurring as regularly as seed time or as harvest; and one cannot *à priori* with any confidence declare that they are not intended, or at least that they do not contribute, to propagate and continue it. This of course however is denied: the land "*breeds*" the plant, perhaps that is the explanation; and all the fallow operations, hoeing, Couch picking, burning, are annual and continual, simply because they are inevitable.

The explanation is not satisfactory—the land does not breed the plant, and its continuance is not inevitable. We have on the chalk downs immediately above the fields, an uncommon British plant, the Pasque Flower (Anemone pulsatilla). This too is a plant which has been seen at every Easter time throwing up its large blue blossoms to the April sun; but the land does not breed it, and operations for its destruction are not necessarily perennial. Industrious collectors have already nearly destroyed it in some of its accustomed places, and a little more of this industry will destroy it altogether. All that is necessary is that work of this kind be thorough and complete for only once, and the chain which has hitherto tied its annual appearances together will have broken.

Why not try this simple remedy for Couch? It is half work which breeds the plant. The annual scraping of the land with hoes will only create the need for its endless repetition. Even ploughing does but transplant the living weed and increase the vigour of its growth. Repeated fallow operations of course reduce it—and a hot sun withers it—but half work of this or any other kind will only reproduce it—and a year's rest in Grass or a few years' rest in Sainfoin will bring all the evidences of its vitality before us again as unmistakable as ever.

The cultivator is a better tool for dealing with it than the plough—and steam power is better than horses for dragging such a tool, and for breaking up the whole soil, and combing to the surface whatever root weeds it holds. But there is better work than can be done even by steam cultivation—and the hand-worked fork for dealing with the remnants left by the more wholesale operation of the grubber, is the only security for the ultimate extinction of the plant. This in autumn, among the fallow crops and among the Clovers before the land is turned over for the succeeding grain crop, is the best, and therefore in the end the cheapest of all our means for dealing effectually with this great enemy of the English Agriculturist.

ON Friday last (April 19) Dr. BRADY called the attention of the House of Commons to the reports of the Royal Commission appointed to inquire into the best mode of utilising the sewage of towns, contending that the Rugby experiments instituted under that Commission were fallacious, and that while it was the fact that sewage manure contained everything that land or plants can want, yet the farmers of England had been taught otherwise by the paid agents of the artificial manure manufacturers.

There never was a more complete vindication than that which the Commissioners, including Lord ESSEX, Mr. LAWES, and Professor WAY, received during the debate. Mr. K. SEYMER said:—The Commissioners had first inquired into the possibility of utilising the solid residuum of sewage, and failing that they had turned their attention to the utilization of the liquid; and they had visited the various places where liquid manure was used on farms, in order to ascertain the mode of distribution adopted. With regard to the continuance of the Rugby experiments for the present year, the hon. member's own committee had recorded its opinion that that course was desirable. How they came, however, to adopt the hon. gentleman's analysis of the evidence it was impossible to say, but that analysis had certainly been received with ridicule and contempt by the agricultural world. Mr. SEYMER referred also not only to the general conduct of the Commission, but to the position and interests of the individual members of it. Mr. LAWES had discovered valuable manures and dealt in them; but he was also an English gentleman, and entirely incapable of being actuated by those motives which had been attributed to him by the Chairman of the committee. Mr. LAWES made no manures to lay on land in the neighbourhood of large towns; and there must remain millions of acres in England, for which the manures of Mr. LAWES, and persons of his stamp, would still be in request. Mr. LAWES was well known. The farmers of England, never having been deceived by him, thoroughly trusted him; and he did not believe his character would be at all affected by what the hon. member had said of him. Mr. WAY had also been spoken of as if he were an agricultural manure dealer, but he was no such thing. He might as well say the Chairman of the committee (Mr. BRADY) was himself a dealer in manure because his name had appeared in the list of a blood manure company. Lord ESSEX had also been referred to by the hon. member, and the first sentence of his evidence was enough to put the hon. member out of court. Lord ESSEX had said experiments ought to be conducted on Italian Rye-grass, and Mr. LAWES was now conducting experiments on Italian Rye-grass. Lord ESSEX used 6000 tons of sewage in the year on his Italian Rye-grass, but he said he had none to spare for Wheat. Large quantities of sewage were required over a very small area. Practical men found they could not expend it over a large area of land. The object of the Chairman always appeared to be to find witnesses who would say that sewage was worth 2*d.* per ton, but he could not get them to say that. All they could be got to say was that the chemical ingredients in it amounted to that, taking guano as a standard; but it was impossible to get rid of the enormous dilution of water. Lord ESSEX said it would pay at ½*d.* or ¾*d.* per ton, or, perhaps, at 1½*d.*, but not at 2*d.* per ton. Professor WAY, who the Chairman of the committee said was influenced by his interest against the use of sewage, had done more for it than any other man, because he was the first to show that within five minutes after its application to the land it became entirely deodorised. But they could not always be throwing water on land; they wanted at times to keep it dry. The Chairman had laid great stress on the high character and experience of Mr. MILES; but Mr. MILES had expressed great dislike to be examined, because he had not accurate figures to lay before the committee, and he had found the sewage somewhat of a nuisance, having applied it rather near his house.

The expenditure of public money had latterly been confined to the experiments at Rugby, which he believed to be most carefully conducted. The truth of the matter was, that if the Royal Commission had reported that the sewage was worth 2*d.* a ton, and might be spread over a large area in small quantities, the House would have heard nothing about spending the public money on the Royal Commission. Various projects in all directions had been checked for the moment by the cold wind of the report of the Royal Commission; but let any slur be cast on the proceedings of that Commission, and then all those projects would bask in the sunshine of the analysis of evidence referred to by the hon. Chairman of the select committee; they would come into flower, but he believed they would never produce any fruit.

—— IN another column will be found the opinions of practical men on the value of malt as food for cattle. On this subject Dr. VOELCKER was last week imperfectly reported in our columns. In his recent lecture on oilcake before the English Agricultural Society, he referred to malt as an article of food, saying that the only trustworthy experiments with which he was acquainted, were those made by Mr. HUDSON, of Castleacre, and Mr. LAWES, of Rothamsted. Besides these, a few experiments had been made by Dr. R. D. THOMPSON, from which, however, no trustworthy conclusions can be drawn, as they were made with, we believe, only a couple of cows. He mentioned specially, that Mr. LAWES' experiments were not favourable to the substitution of malt for Barley, and contrasted them with Dr. R. D. THOMPSON's trials, against which objections may properly be raised.

—— On Wednesday next Mr. WETHERELL will sell by auction the entire herd of first-class Shorthorned cattle, the property of Mr. AMBLER, of Watkinson Hall, Halifax, who has long been known as standing in the very first rank of successful Short-horn breeders. He has carried off high honours at all the principal shows of the kingdom for many years—having won no fewer than 600 prizes, exclusive of a large quantity of silver plate and gold and silver cups and medals.

STEAM CULTIVATION.

MENTMORE, NEAR LEIGHTON BUZZARD.

[We have received the following additional more general agricultural memoranda since the publication of our report. And we take this opportunity of correcting a misprint in column *c*, page 370, where the Oat crop (5th line of column) is put at only 45 acres—it should have been 145, the bare fallow being between 30 and 40 acres, not 130 or 140, as would be inferred from the published statement.]

Owing to the general surface of the land having now been brought to a pretty fair state of levelness, the Sussex fore-steerage drill and horse-hoe to match have been introduced with advantage. Wheat is drilled 9 inches apart in the rows to admit of the use of the duplicate arrangement of the hoes. 1½ bushel is found a sufficient seeding now in October, especially where the fallow crop has been fed off with cake or corn given to the wethers.

A piece of Hallett's Pedigree Wheat is looking well, treated partly on his single-grain seeding method, and in part drilled at the rate of one bushel per acre. For this experiment, which promises well at present, the Baron has paid his two guineas per bushel "like a man," he having himself bought the seed of Mr. Hallett, at Battersea show, last year. The experimental plot consists of about four acres after Tares fed off, and in order to induce increased stiffness to the straw a top-dressing of silicate of potash has been given this spring, and hoed in. About half a dozen acres of very poor pasture (which formerly had been rented at 10*s.* per acre) have been drained, broken up, burnt, steam cultivated, and now sown down again to a crop of Italian Rye-grass—using 4 bushels seed to the acre—for the purpose of "soiling" stock in the yards in summer, and affording a supply of forage for cart horses, dairy cows, &c., the same period.

The vicinity of the basin of the chief outfall for arable land drainage has been selected for this forage crop; in order to freely irrigate which, a large "catch" has been excavated below adjacent drains, deep enough to contain some thousands of gallons of water for engine and hose distribution, close after each cutting and removal of the Grass are made. Moreover, owing to the principal overflow of farm-yard tanks being conducted to this outfall, the drainage waters of this chief section of arable land drainage are of course highly charged with liquid manure running direct from the yards, stables, cattle-shedding, &c. But in case that source of liquiform manure should be found too limited in summer, it is intended to compensate by applying a top-dressing of guano to the Rye-grass, close upon each cutting and irrigation of the plot.

A telling instance or two, showing the value of deep working of the most tenacious clay lands both for agricultural and arboricultural purposes, having occurred here, may now not inappropriately be adduced, even though occurring through circumstances of an accidental, rather than of a direct experimental character.

The luxuriant annual growth, indeed, of masses of ornamental trees and shrubs, both evergreen and deciduous, of rare as well as of common sorts within the park—is of itself sufficiently indicative of the immense importance of "picking the lock" of the aluminous treasure-box at Mentmore. Two feet to a yard in depth, after drainage, are the minimum of delving and trenching accomplished at 10*l.* or 11*l.* per acre for the plantations which have here been formed, commencing about a dozen years ago.

Trees and shrubs of the domain thus growing in

fullest vigour, in a stiff soil overlying stiffer gault, though most eloquent exponents of the advantages of this treatment, do, after all, but speak the same language spoken under similar conditions by the more lowly plants of the farm.

In one of the instances of deep cultivation under notice, the formation of a fox covert was the original intention. And for that purpose some half-a-dozen acres of well-drained arable land, of average condition, of a tenacious calcareous clay, similar to the farm land generally here, had been spade-trenched about 2 feet in depth to produce a thicket—the planting of which was, however, subsequently abandoned, and, consequently, the land thus dug turned over again to the farm. Wheat was the crop previously taken. The work of digging being done by contract in the winter proved a tough job for the men, the cost being considerable, namely, 1*s.* 4*d.* per perch, or at the rate of 10*l.* 13*s.* 4*d.* per acre. The plot lay all winter when dug in order to accomplish a thorough pulverising of the clay brought up. No manure was applied the first or second year; and the crops taken in successive seasons were as follows:—

1st. Several sorts of long Mangels—chiefly Elvetham Red, which without the aid of a particle of manure applied, yielded full 30 tons per acre.

2d. One steam grubbing was given, and Globe Mangels—both red and orange tubers—yielded a good even crop of upwards of 20 tons an acre.

3d. A moderate manuring for the next crop and two steam grubbings were given for spring Beans drilled, which yielded full 7 quarters per acre.

Part Swedes, part Carrots, were grown last year with a light dressing of dung ploughed in after once "forking" over the Bean stubble before winter with the steam cultivator; the result was a good average crop of the former, and a fair crop of the latter, which, however, was got in late, and greatly thinned down by hares. For the present season, a heavy manuring was laid on, and one steam ploughing done by the new furrow or turnover implement, about which all the legal commotion has arisen recently at Guildhall. One turn of Howard's steam drag harrow — than which there is not a more efficacious tool for the purpose —made an excellent tilth before the Sussex drill for spring Beans, which thus far at all events look well.

The experimental plot here alluded to was but an averaged conditioned example of the Cheddington Clay Farm generally, and partly for that reason was selected for the fox covert originally contemplated.

I will now advert to one other instance of what may be considered conspicuous results of a deeper cultivation of our clay staples here. It occurred last year over some 30 acres of tillage land laid down a permanent pasture with an Oat crop. This breadth had but recently been acquired, and it being desirable to include it, rather hastily, in the park arrangement, it was underdrained with land adjacent to it in 1861, fallowed and cleared immediately, and ultimately seeded down as above. Unfortunately the steam cultivation of this field could only be conducted over half of it in time for laying down altogether then —the remainder therefore was subjected to the usual routine tillage by horse power. The whole having been drained alike, cropped alike, and laid down to permanent Grass alike less the steam tillage adopted as a portion of the *modus operandi*.

Last winter and early this spring we had much rain here—the land is now Grass, and the aspect of the steam-grubbed half as compared with the other portion of the piece is most striking.

The Oats were pretty uniform throughout as a crop, but there is a wide dissimilarity apparent in the new Grass and Clover plant. Owing to the parched and sodden state of the horse-ploughed section—which it may be remarked was the upper part of the piece—the drainage, though it did not fail, certainly could not act as well as in the other case, and the consequence was that most of the Grass and nearly all the Clovers have perished. In the steam-cultivated or lower half of the field, the drainage of course would act immediately, a new tilth being made by steam for the very plants most likely to relish it; sound land and a full plant of both Grass and Clover being the present result of the different modes of cultivation adopted; whereas the upper part of this piece now requires reseeding. Such lessons as experience thus gained teaches us cannot be ignored, nor regarded as unworthy illustrations of what it is now the fashion to describe as deep drainage failures, when not succeeded by a deeper cultivation of our unwrought clay soils.

MALT AS FOOD FOR CATTLE.

The following are passages on this subject from the addresses of Mr. Booth, of Warlaby; Mr. Arkell, of Swindon; and Mr. J. Williams, of Baydon, at the recent interview of the deputation with the Chancellor of the Exchequer:—

Mr. Booth (Warlaby) said: My father and myself have, I believe, prepared more animals for the exhibitions of the Royal Agricultural and other leading Societies than almost any one else in England, and I can declare from experience that malt is superior to any other article for feeding cattle up to the very tip-top condition to which they require to be brought when they are intended for the show yard. A great number of the animals which obtained the highest honours at the Battersea Show last year were fed on malt. I have had some experience in the feeding of sheep on malt, and I can state that at the Yorkshire Show last year the prize Leicesters were animals which had been fed for the most part on malt. I can get good Barley for malting at 7*l.* per ton, and the malting will bring the cost up to 8*l.* I am now paying 10*l.* per ton for Linseed cake, being of course obliged to put up with the manufactured article which is offered me; and I should much prefer using malt, if the law permitted me to do so, for the feeding of stock.

Mr. Thomas Arkell said: As regards the feeding of stock, the malt tax of course affects us, as farmers, more injuriously than other classes of the community. Of course, as consumers, we are affected by it in the same way as other classes; but it affects us as farmers peculiarly, by preventing us from using rough second rate Barley for the feeding of stock. I believe that if Barley were malted for feeding purposes, it would be more digestible and wholesome, and would produce far better results. Pigs will eat Barley in a raw state, but not so cattle or sheep; and while the market price of pork is 5*d.* per lb., that of mutton and beef is 7*d.*, being a difference of 40 per cent. in favour of pork. If I give sheep Barley, many of them die; but it does not kill pigs. Pigs will consume raw meal without experiencing any injurious effects; but ruminating animals, which yield the finest quality of meat, cannot assimilate grain in the raw article. Barley acts injuriously on their stomach, and requires something to counteract it; and for that reason I am obliged to use oil-cake. I would here remark that I wrote to Dr. Voelcker, the eminent agricultural chemist, in order to ascertain whether his views on this point coincided with my own. His reply was, that there could be no doubt that malt was more digestive than raw meal, and that when used as an addition to other food in the feeding of stock it was beneficial even in the case of pigs. I contend that the lower qualities of Barley would be more digestible, both as food and as condiment, if we were allowed to convert Barley into malt. Given as a vegetable it would be more digestible, animals would assimilate its feeding properties more readily, we should enjoy the advantage of mashing it up with such food as chaff and straw, and there would be more beef and mutton for the community.

Mr. J. Williams referred also to other injurious effects of the malt tax. He said:—I consider that the labourers and the artisans are the persons most injured by this tax, much as the farmer may and does suffer from its operation. The labourer is physically affected by it, inasmuch as he has to work under a burning sun during harvest, and, while his master wishes to give him a sufficient quantity of the national beverage, beer, he is compelled, on account of the pressure of the duty, to furnish him with it only to a very limited extent. Again, the malt-tax is objectionable on moral grounds. I believe that the greater part of the drunkenness which occurs in this country arises from the duty on malt. The production and use of beer at their own dwellings used to be regarded by labourers as a national birthright; but now they have no opportunity of obtaining it at home. What is the consequence? The higher class of society, although they have full command of the luxuries of life, are not, generally speaking, in the habit of drinking to excess. Again, the middle class, and especially farmers, have opportunities of drinking to excess; they have plenty of drink at their command; but they do not, as a rule, abuse it. I, for example, have always a barrel of good beer within reach in my own house, but I do not on that account take too much. Neither the upper nor middle class, as a rule, get inebriated. But a very large proportion of the lower class are found drinking to excess on Saturday evenings, and going about the streets and roads in a state of intoxication. Why is there this difference? It is, I believe, because the upper and middle classes have plenty to drink at home, and because the poor man has nothing to drink at home, and is therefore driven to other places. Moreover, when the poor man gets to those places he does not obtain a pure article for his money, but one which has been adulterated. Let the duty on malt be abolished, and we should have the pure essence of malt and Hops, made from our own produce, and the temptation to intoxication would be to a great extent lessened. There is one point relating to the feeding of stock, which appears to have been overlooked by the preceding speakers. A gentleman residing in my own neighbourhood, Mr. Pargiter, last year fed 300 sheep on malt. He is a maltster, and he did not know what else to do with the malt thus employed, as it was not good enough for brewing. Having, under these circumstances, fed 300 sheep on malt, he sought to obtain a remission of the duty; but it was not remitted, and he had to pay the whole 22*s.* 8*d.* per quarter for the malt thus employed. Had a foreigner, living just the other side of the Channel, say near Calais or Boulogne, purchased in England an equal quantity of malt, there would have been a drawback of the whole amount of the duty, on its being exported from the English shores; and after feeding 300 French sheep upon it, he might have competed with them in the London market against Mr. Pargiter, perhaps on the very same day on which that gentleman's sheep were offered for sale. Thus, while the foreigner might have the advantage of feeding his sheep on malt for the English market without paying any duty, the British farmer, if he wished to feed his sheep on malt, was subject to a tax of 22*s.* 8*d.* per quarter. These are facts of which every English agriculturist can appreciate the importance, without diving very deeply into the subject. Mr. Fisher Hobbs will tell you that some of the best animals he has ever produced were fed on malt. That was the case as regards his entire horse, which won the first prize last year at the Battersea Show. A gentleman who comes from Essex can also inform you that his best stallions have been fed in the same manner. I ask, is it an English system of treatment, to compel persons to pay 22*s.* 8*d.* per qr. on what is used solely in feeding their animals, and that, too, while foreigners are exempted from the burden of the duty? I hope you will now reduce this duty with the view of ultimately taking it off entirely, in order that instead of being compelled to use oilcake, linseed, and other articles of the same class, which we have to buy of others for the feeding of cattle and sheep, we may be enabled to use produce of our own, which is superior for the purpose to any article that can be purchased.

STEAM PLOUGHING, AND THE PICTURESQUE.

One Sunday afternoon, not long ago, I was rambling alone in a very beautiful part of the county of Kent, and enjoying the scenery as those do who have few opportunities of getting away from a city's smoke, when I suddenly emerged from a little wood, through which I had made my way with difficulty, into a large field which lay beyond the limits of the wood. It gave me a shock to see in the middle of that field a great locomotive engine with its wheels deeply embedded in mud, and with a considerable lurch over to one side, where I suppose the ground was softest. It was Sunday, and the machine was not working, nor was there any human being in the field, or, indeed, anywhere within sight. Over against the engine, but at a considerable distance, were a couple of grim iron ploughing instruments, which it was the business of the engine to drag across the different parts of the field by means of twisted metal ropes. They had been left, when it was time to give up working the night before, arrested in mid-career. They had savagely torn up a good mass of earth, and worried it, and they seemed to be looking towards the locomotive with ferocious eagerness, like chained bull-dogs longing for their master to give the signal for beginning again. All round the field, monstrous pegs of iron—their heads all split and broken with ferocious blows—were dug deep into the earth. The wire-twisted ropes were passed round them, so that the two bull-dog-looking machines could be dragged over all parts of the enclosure without the necessity of shifting the locomotive. Some of these iron ropes were even carried into my little wood and secured round the trunks of the trees, in order to get a firmer purchase. The whole thing looked ruinous, disconsolate, truculent, and wicked. And not only was this particular field, in which the machinery lay, rendered hideous by it, but even the country which I had just before been admiring, seemed contaminated too. It was a bad business.

But a day or two before that, as the winter sun was setting, I watched, upon a certain rising ground, another kind of machine at work. It was the old plough. Two old horses, wholly free from the infectious hurry of the age, and an old labourer, to whose movements the pace of those worthy animals was peculiarly well adapted, were engaged in working this ancient machine. How slowly it made its way along the hill-side! How long each furrow was in the making, and at the end of each what a good opportunity for rest as the turn was made! The slow undulating movement of the plough had something infinitely graceful in it. The earth was lifted gently and graciously and as if it were touched by friends—not torn and lacerated by the teeth of enemies. There was peace here. It was all in harmony; in harmony with the cawing of the mighty flight of crows, in harmony with the bare trees, with the little brown woods, with the golden clouds—with the mind of the chance wayfarer who paused to look and listen. He could scarcely be better employed than in so looking and so listening, for the scene and all its accompaniments were perfect. Eye and ear were both made happy. In this chord there was no one jarring note to spoil the melody. Can a time ever come when the jar of the steam-engine will assimilate with a lovely scene, and when the clatter of the threshing-machine will mar the pleasure of a winter ramble no more than the measured thump of the flail? The threshing-machine may separate the Wheat from the straw better than the flail, the ploughing machine may turn up a whole field in an incredibly short time, but these things will never harmonise with nature, and if we get to be indifferent to them, and to admire nature in spite of them, that is the very utmost that we may venture to hope for.

The interests of the Poetical and of the Picturesque are both concerned in this agricultural-implement question. There was, until lately, both poetry and picturesqueness mixed up with almost every agricultural pursuit. If steam-farming is to go on and prosper, it can be so no longer. And doubtless it will go on, and will prosper; and the beautiful, as is usual, and I suppose right, will fall before the practical. Alas! I am afraid I must put it on record that the Picturesque is in a bad way. I don't complain. It has had its day. We have enjoyed it long, and it will take a long time

to destroy it everywhere. But it is on its last legs. It is inconvenient and unprofitable. I am told, and it is my business to chronicle it, that even the old thatched roof is doomed. It did not answer. It harboured insects. It was dreadfully inflammable, and lo! the new barns are being built with coverings of slate—slate that looks hard, and blue, and cold—slate that never becomes beautiful, even with age—slate that the moss and the lichens abhor—slate that is clean, and easily kept in repair, and makes the best roof in the world. Yes, we are to have farm-houses, and barns, and out-buildings of brimstone-coloured brick and blue slate—good sensible edifices, well in character with the steam-plough and the threshing-machine.

But how beautiful that old roof was! It was always out of repair—bless it! Half of it at least was covered with patches of dense green moss. The straw stuck out in places where it had been mended. The line of it against the sky, too, was always so irregular, for it was the practice of the wooden structure beneath it to give way here and there, and in those places the thatch would sink, and so a break was made in the line, which would otherwise have been too straight. That was the roof in which the birds could make themselves comfortable, and portions of which vagrant sparrows who lived at a distance could abstract when repairs became necessary in their sylvan residences. They will not find slate so convenient for their purpose. That, too, was the roof of our infant story-books. Little Red Riding-hood's grand-mother lived under it. The farmer guiltless of steam-ploughing, who appeared in the Christmas piece, welcoming the labourers who were returning with the last harvest-load—this jolly individual always stood at the door of a house with a roof of thatch painted bright yellow, and in a most triumphant state of repair. Lastly, it was in that roof that the dormer window appeared peeping out of the thatch, with its latticed panes, its clean white curtain, and its frame of fragrant honeysuckle,

I do not despair of seeing the day when we shall have slate roofs to our haystacks—roofs that will lift on and off, and that can be clapped over the newly made rick, like a dish cover on a leg of mutton.

The useful is the enemy of the Picturesque. There is no part of a house more agreeable to the eye than its roof—a high roof—a steep roof with gable points. But this is inconvenient. The rooms in that roof are cold, their ceilings are sloping, low in one part, high in another. The dormer windows, too, built out in the roof's surface, are liable to many objections. You attain a much greater degree of comfort by carrying—as we now do—the wall straight up to the top of the house; your upper rooms have flat ceilings, are rooms, not garrets, are warm and comfortable. But the high roof was the prettiest, for all that.

I hope nobody will imagine for a moment that I am objecting either to steam-agriculture, or to square topped houses. If by mechanical ploughing and wire fencing the ends of agriculture are forwarded, we must have steam-ploughs and iron fences. If the slate house-top answers better than the thatch, I am afraid we must own that it would be folly not to adopt it; and if your house is more comfortable with a flat and invisible roof than with a high and sloping one, your choice is soon made; only let us acknowledge that in connexion with our modern improvements there is loss as well as gain.

The loss of the old plough, and the old barn, and the old thatched house, is a serious loss. It is a loss of nearly half the attractiveness of rural England. The old forms of agriculture were so inseparable from one's delight in the country? All day long, and at any time of the day, there was something going on that it was pleasant to watch. All day long, the plough, or the harrow, or the reaping-hook and scythe, according to the season, were at work. Winter and summer there was always agricultural work a-doing. And then there was the mid-day rest, and the group of peasants beneath some shady old tree. Imagine the repose of a congregation of engineers and stokers, surrounding a grim locomotive planted in the middle of a half-ploughed field! What a group that would be for a landscape painter! Plenty of lamp-black would be wanted, at any rate. And when the night fell in the old time, when the labourer unyoked his team, and man and horse went their slow and weary way back to their master's home, when the unbroken colts gathered about the gate that opened on the lane to exchange a passing neigh with their friends who had been at work, the said colts looking vague and enormous in the darkness—and later, when the candle in the old horn lantern was kindled, and was to be seen slowly moving about the farm-yard as the hind visited the different objects of his charge before seeking rest himself—were not all these things associated with happy memories of the country, and does not the mere presence of a steam-engine in one of those out-buildings walk away with at least half of the poetry of the scene? There is a great noisy rampant threshing machine, which is always travelling about a certain part of the country with which I am familiar, and which machine goes among the natives by the name of "Puffing Billy." Good Heaven! how that engine mars the landscape as it passes! Horses go raving mad at its approach, and have to be held by the nose as it goes by. Poor things, they know they are powerless against it. "Puffing Billy" could crush them with ease, but what could they do against his iron sides?

It may be that when the first shock inseparable from these great changes is over, when our senses are more accustomed to iron, and smoke, and clatter of machinery, a new Poetry and a new Picturesqueness will become developed. *All the Year Round.*

ENGLISH AGRICULTURAL MACHINERY.

[The following is the introduction to the Report of the Jury in Class IX. to Her Majesty's Commissioners of the late International Exhibition.]

THE machinery of the farm which is illustrated here includes implements (*a*) of tillage, and (*b*) of carriage; (*c*) tools directly connected with the cultivation of plants, and (*d*) implements used in harvesting their produce; (*e*) the machinery of the barn; and (*f*) the tools and implements of the feeding house and dairy.

The plough, the cultivator, the harrow, and roller, in the first class; carts and waggons in the second; sowing machines, whether of manure or seed, and horse hoes in the third; reaping and mowing machines, hay tedders and horse rakes in the fourth class; threshing machinery, winnowers, corn separators, weighing machines, &c., in the fifth class; and corn and cake crushers, flour mills, Turnip cutters and pulpers, chaff-cutters, steaming and cooking apparatus, churns, cheese-making apparatus, and dairy utensils in the sixth class:—These make up the list of the principal implements in which the agriculturist is directly interested. Most of them are well represented in the International Exhibition of 1862; but more perfectly than any of them is the "power" exhibited by which most of them may be turned to account.

The Jury have expressly recorded in their minutes that they are unable to give in their report any detailed illustrations of the advance in agricultural machinery, which the Great Exhibitions of 1851 and 1862 prove to have been effected during the interval between them; but there are at least four particulars in which that progress has been so marked, that some reference to them is unavoidable.

1.—One of these is the immensely increased use of the movable steam engine. Although the fixed steam engine had long been employed for thrashing corn in some districts of the country, it was not till, with its boiler and its furnace, it was placed on wheels that steam power came into general use in England for this purpose. How rapid the extension of its employment thus has been, may be gathered from the number of movable engines made by one firm alone, for this is but a specimen of the general experience of manufacturers. Messrs. Clayton and Shuttleworth of Lincoln were reported by Mr. J. Evelyn Denison, M.P., in his account of the Paris Exhibition in 1855, to have sold in 1852, 243 movable engines, amounting in the aggregate to 1349 horse-power. They now sell more than double that number of a triple aggregate power annually.

This of course includes and represents an enormous foreign demand as well as the manufacture for home use; but there can be no doubt that it also represents a very great alteration in the whole style and character of one very important department of English farm management. And it must be distinctly understood that this is but one of similar illustrations which the same progress receives in the experience of many other makers, as will be subsequently shown.

The work of thrashing corn may now be said to be done in England almost entirely by steam power. Since the date of the previous International Exhibition here, the use of the flail has been gradually disappearing, and with the flail the whole character of the winter employment of a large body of agricultural labourers has changed; barns are disappearing, and other parts of our homesteads and farm buildings are partaking of the alteration.

2. It has contributed, and will still more contribute to increase the manufacture and employment of movable steam engines, and especially those of extra power, that within the last few years the cultivation of the land has been successfully effected by steam-power. Of this nothing like a certain promise existed in 1851, though long before that time the problem had occupied the minds of sanguine men.

Steam-ploughs and cultivators constitute one of the leading features of the agricultural section of the Exhibition of 1862.

Mr. Fowler of Leeds (2115) exhibits his 14-horse power engine, which travels along a headland, while from it around a horizontal pulley underneath, a wire rope extends to the other end of the field, there embracing a corresponding horizontal pulley underneath a low carriage on sharp wheels, which, sinking into the ground, constitutes an anchorage against a lateral pull. The pulley under the engine has movable rims which grip the rope tightly wrapped round it; and so, as the engine works this pulley, it draws the rope to and fro around the anchor pulley. The engine travels along its headland, and the anchorage travels along the opposite headland, and the rope, drawn to and fro between them, drags as a link in its length a framework of ploughs or cultivators, which thus turn over or stir the land in their course.

Mr. Howard of Bedford (2131) exhibits an ordinary threshing steam engine, which he uses for cultivation in the manner adopted by Mr. W. Smith, of Woolston, Buckinghamshire. He stations it in a corner of the field that is to be cultivated: by it he works a double windlass, one barrel of which winds up a wire rope while the other lets it off alternately, and thus this wire rope is drawn to and fro around pulleys stationed in the corners of the field that is being worked. As a link in this rope, a three or five tined grubber, or, as in Mr. Fowler's apparatus, a ploughing machine, is placed: it is thus drawn to and fro from end to end of the field, and so breaks up the stubble or unploughed land on which it works.

Other exhibitors show modifications of different parts of steam cultivating machinery; thus Mr. Hayes of Stony Stratford (2209) exhibits a very ingenious windlass for regulating the to-and-fro draught of the wire rope in steam ploughing, and Mr. Steevens, of 6, Godolphin Road, Hammersmith (2189), a clever ploughing apparatus to be drawn to and fro by it. The two principal plans introduced respectively by Fowler and by Smith of Woolston, are, however, the only ones that are thoroughly represented. Both are now unquestionable agricultural successes, and are receiving rapid adoption throughout the country.

3.—The third feature in which our agriculture in 1862 entirely differs from that of 1851, though really originating long before that time, may be said practically to have arisen then, and to be one of the results for which we have to thank the first Great International Exhibition.

Reaping and mowing by machinery are now generally practised, and for this we are indebted to the American exhibitors of 11 years ago. Hussey's and M'Cormick's machines, then first shown in England,—and Bell's reaper, which had for many years previously been annually used by the brother of its inventor on his farm in Scotland—have, since then, in the hands of Cuthbert and many other makers, Burgess & Key, and Crosskill, respectively, been greatly improved and adapted to the circumstances of English crops; and machines, especially on the "Hussey" principle, have been introduced by Cranston and by Burgess & Key for mowing Grass. There is now no large arable district in the country where the reaping machine is not employed, nor any extensive district of pasture land where the mower is not at work. In some counties most of the reaping is now done by machinery, and the practice is every year extending. All the different forms of both are well shown here by many different firms.

4. The last point to which the Reporter has to call attention, as a novelty of recent date in English farm management, is the employment of machinery for pulping the food given to our live stock. Since the Lincoln meeting of the Royal Agricultural Society of England; Messrs. Bentall of Maldon, Woods and Cocksedge of Stowmarket, Barnard and Bishop of Norwich, and others, have found a large demand for machines which should not, as hitherto, merely cut into slices or finger-shaped pieces the Turnips and Mangel Wurzels given to sheep and cattle, but reduce them to a state of thorough comminution, so that when mixed with chaff of hay or straw, the whole should rapidly ferment and heat. The process has two advantages: it mixes up, past all power of separation, the various qualities of hay and straw employed, which are thus uniformly interpenetrated with the juices of the root thus mixed with them, and so there is now no power, nor indeed any desire in the feeding animal to select certain parts and waste others, which is continually seen when they are fed on long hay; and it also, by the fermentation which ensues, subjects the food thus prepared to a sort of preliminary digestion, which is found to be of great use in the fattening process.

All the particulars thus pointed out as novelties of recent date in English agriculture, are well represented here. Steam engines, both fixed and movable, steam ploughs and cultivators, reapers and mowers, and the whole class of machines for preparing food are exhibited by many manufacturers, and those which have obtained Medals and Honourable Mentions are named below.

It may be added that, with the exceptions thus pointed out, no very essential changes have taken place during the past 10 or 11 years in English agricultural machinery, as illustrated at the two Great Exhibitions respectively.

Implements of Tillage, excepting the steam plough and steam cultivator, remain pretty much as they were. Ploughs are not essentially different. Harrows remain nearly unaltered, the only exception to this being the use of the chain harrow—a surface of interlaced quadrangular 4-inch links of iron, which, drawn over the land, is found efficiently to break down the smaller clods and cover seed, or evenly distribute manure upon Grass land. Rollers exhibit in many forms the principle which ten years ago was the exclusive and patented peculiarity of one—viz. Crosskill's clod-crusher. Grubbers and cultivators and broadshares have not materially changed in ten years, though Bentall, Coleman, Clay, &c., each make implements of this class which were then unknown.

Machines of Carriage.—Carts and waggons are pretty much what they were.

Tools employed in the cultivation of Plants.—Sowing machines and horse hoes do not materially differ from the best of those of ten years ago. We have now, however, the water drill, which we had not then, a machine which not only deposits seeds and manure, but washes them into the ground, and thus prepares an artificially moistened seed-bed, where they shall

sprout in spite of drought. And we have in the Turnip field, but merely as an exceptional curiosity, the revolving horse hoe, by which rows of young plants are bunched out, to facilitate their being afterwards singled out by hand-hoes. All the principal machines of this class exhibited here, though certainly improved in parts and in details, are however essentially the same as they were in 1851.

In Harvest Machinery, as already said, a great advance has been made. Besides, however, the reaper and the mower, there are in this class the hay-tedder and horse rake, in which the improvement effected has been nearly of the kind just named—one of detail of construction, involving nothing essentially new. Perhaps the straw weaving machine of Messrs. Maggs & Hindley of Bourton, Dorset (2148), for preparing a fabric of straw which may at once be laid as thatch upon the rick, should be named in this class as a successful introduction of the last few years.

The Machinery of the Barn, including threshing machines, winnowers, corn and cake crushers, weighing machines, mills, &c., certainly have exhibited great improvement of late years—but here, too, it is one of parts and of details. The movable threshing machine is much more efficient and compendious than it was, and it includes many new devices for shaking the corn and straw apart, and for lifting the former and its chaff from one part of the machine to another, and even for lifting the latter to the rick. The grain, too, is turned out from it, weighed and sorted, and thoroughly cleaned and ready for market; but here, too, the alterations are of construction and detail.

The Tools of the Feeding House include the pulper, to which reference has already been made. Beyond this, no entire novelty occurs in this class of tools.

In the dairy we have cheese-making machines, by Keevil and by Cockey, in which the separation of the curd and whey is effected by a uniform and systematic process, instead of being dependent on the irregular movements of the dairy-maid; and hand presses for squeezing butter dry are exhibited by Messrs. Hancock (2124). Otherwise no novelty of any important kind is exhibited here in that section of Class IX. which belongs to the United Kingdom.

While, however, with the exceptions already specified, the agricultural machinery of 1862 and that of 1851 do not exhibit many entire differences of principle or design in their construction, those obvious alterations which are exhibited, whether here or in the field, are of the very greatest importance. No one has visited both the Exhibitions without being struck with the immense improvement of manufacture since the former; and everybody knows how the use of implements in the field has extended since that time. Of this, the enormous manufacture of steam-engines, drills, reapers, mowers, threshing-machines, chaff-cutters, Turnip-cutters, and pulpers, which has arisen during the interval is sufficient proof. And it is plain that along with the rapid adoption of the few novelties which have been introduced, no better illustration can be given of our agricultural improvement of late years, than the general use which now obtains of machines known formerly to comparatively few, and much better made now than then.

Mention has been made of the manufacture of steam-engines by one particular firm, because Mr. Denison, with reference to the Paris show of 1855, had quoted the extent of manufacture by that firm: but the progress thus illustrated has been equally well shown in the general extension of the manufacture; and the following figures, which show the extent of manufacture of several kinds of agricultural machines, have been obtained by throwing together in one sum the returns received from many of our leading firms. It must be mentioned that several leading manufacturers, and a great number of others in a less extensive way of business, have declined to answer our inquiries. The first column of the table in every case names the number of firms, the extent of whose manufacture of the several implements is here year by year related.

Annual Manufacture of Agricultural Machines since 1851.

Implements.	No. of Firms.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.
		No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Steam-engines	6	270	353	439	615	680	587	552	721	824	898
Ploughs	2	..	..	..	7,500	8,106	9,499	9,582	9,389	9,104	9,309
Cultivators	4	..	..	..	..	..	..	1,012	1,348	1,132	1,199
Corn-drills	3	338	450	453	606	686	545	488	529	635	703
Corn horse hoes	3	..	..	..	356	451	408	377	360	511	383
Reaping-machines	4	..	..	..	..	..	..	32	100	516	1,715
Hay-tedders	2	..	..	..	50	75	190	505	478	781	721
Horse rakes	5	611	658	681	767	947	1,116	1,099	1,499	1,823	1,739
Threshing-machines ..	6	327	245	396	625	790	796	715	884	850	1,084
Chaff-cutters	3	..	..	..	1,004	1,258	942	1,117	2,126	5,712	4,905
Corn-bruisers	5	64	98	549	2,297	1,949	2,664	2,136	2,461	2,781	2,680

This table is not to be taken as representing anything like the whole manufacture of agricultural machines. As already said, although, with few exceptions, all the leading firms have kindly answered our inquiries, yet a number have not unnaturally declined laying their personal affairs thus open to our inspection; and the great majority of the less important firms have not thought it necessary to give returns. And, besides this, a great many machines largely manufactured are not named upon the list at all.

Thus of Turnip-cutters and Turnip-pulpers, unmentioned here, there is an immense manufacture, one firm alone turning out 4000 annually. Of corn-dressing machines single firms turn out 300 or 400 annually. Sets of field harrows are made by single firms to the extent of 2000 every year. Manure drills or distributors are another large class of implements made by single firms to the number of 150 to 200 yearly. Steaming apparatus is made by a single firm in increasing numbers,—300 sets having been sent out during the last four years, and 100 during the first nine months of 1862.

Of reapers and mowers, the returns given are a most inadequate representation of the manufacture; at least three of the principal manufacturers being unrepresented in them. And before an accurate impression is gathered from our table, even of the implements there enumerated, it must be remembered that the individual power and capability of the machines now manufactured have risen very greatly of late years. The average power of the movable steam engine now sent out is at least 50 per cent. higher than it was seven or eight years ago. And threshing-machines, of which single firms sell 300 or 400 each per annum, correspond in their increasing size and power to the increasing power of the engines which drive them.

Perhaps there is no better illustration, whether of the enormous extent of demand which exists in English agriculture for improved machines, or of the enormous power which our manufacturing firms possess for the supply of it, than the very rapid growth of the manufacture of any particular implement which proves to be really useful. The manufacture of the reaping-machine and mower, imperfectly represented in our table, is sufficiently illustrative of this. And the corn-screen of Mr. Boby of Bury St. Edmunds, of which nearly 4000 have been sent out by a single firm in five years, is another illustration.

It is right that this report, without invidiously naming individual manufacturers, should thus call the attention of foreigners as well as native agriculturists to the ability which, thanks to British capital and ingenuity, we possess of meeting any conceivable demand for the best and newest agricultural machinery. And although the present Reporter does not pretend to give any account of the machines in the foreign sections of this class, yet he would not omit acknowledging that here also, in many an instance, there is ample proof of ingenuity, ability, and skill. *John C. Morton, Reporter.*

Home Correspondence.

Sewage Manure.—I rejoice that the utilisation of town sewage has at length been deemed worthy of a discussion in Parliament. Permit me to say, with reference to that discussion, that I am not, nor shall I be, in any way connected with any sewage or manure company—my sole object in agitating is to prevent a ruinous waste and national discredit. The Government commission which is experimenting at Rugby, is doing good public service, proving that no cost or quantity of ordinary manure can compete with town sewage in the production of Grass. Every farmer knows that land which has produced good Grass abundantly, will, when broken up, give the best results in cereal and other crops, and yet we hear almost everyone saying that sewage is only good for Grass, while, indirectly at least, it is the very best producer of all our food. The objection about over dilution is a mere bugbear, for every acre of British soil gets an annual rainfall of 2600 tons. Without this the farmer would be badly off, although he only mixes with it the manure of two or three sheep. Sewage, then, is infinitely stronger than farmer's ordinary manure. A practical experience of 10 years with home sewage teaches me its value, and makes me regret that I have not a town or village near my farm. Let me recommend every doubter about sewage to read that wonderful book of Liebig's, just published, "The Natural Laws of Husbandry," and he will then be astonished that an intelligent agriculturist (Sir John Shelley) should say in the House of Commons, "But of all 'manure doctors' (in his opinion) none were so dangerous as those who talked of utilising the sewage of towns." Ratepayers and farmers are already arriving at a very different conclusion. *J. J. Mechi, Tiptree Hall, near Kelvedon, Essex, April* 20.

Eggs.—Perhaps "Anna," who in your last Number expresses a wish to know something about preserving eggs, may like to hear of the following practical experiment. In 1857, when on the point of leaving England for Port Phillip, and having a young family with me, I bought for their use on the voyage 20 dozen of the newest eggs I could get from the farmers near my residence; I got them all together, and with some of the freshest and sweetest butter I could procure, I gave them all a slight coating all over. I then packed them carefully, and so that they did not touch each other, in common coarse table salt in a stout box; I took them on board with us on the 5th October, we landed on the 17th January, and during that interval we had always good sweet eggs in store, and for 3 weeks after landing what remained were excellent for puddings, &c. This was the third time I had done the same thing, with the same result. *Alfred, Gravesend, April* 18.

Steam Culture.—Mr. Lawrence's letter, sent herewith, is evidence proving that it is not only the cost of an operation that we must look to, but that we must look to quality of work as well; for it can only be a waste of labour and tackle to work implements over land five or six, and even more times, as I read some persons do, when one operation will do better. But I will say no more, and leave the letter to speak for itself. *William Smith, Woolston, Bletchley Station, Bucks, April* 16.

"Cirencester, March 28, 1863.

"My dear Sir,—You will no doubt bear in mind my visit to Woolston when I remind you it was, if I remember rightly, on the same day on which my friend Mr. Morton had been with you. I should have been very glad to have met him there had it so chanced. I intended writing to you subsequently to express something more than the pleasure I had in seeing you and your implement sowing the Beans; but I have been prevented from doing so from one cause or another. I was very much surprised and pleased at seeing Beans so satisfactorily sown on land roughly turned up in the autumn without any intermediate preparation. I have always inclined to the opinion long since advocated by Mr. Chandos Wren Hoskyns, that the rotatory was the true action to be attached to steam-power in turning over the land in the autumn, as presenting the greatest surface to the atmospheric influences during the winter. That impression was much confirmed by a comparison of the state of the land on which you were operating as compared with the state of my own land in the spring of last year and this year, which had been turned over to a depth of 9 to 10 inches by the steam plough. We have had two wet autumns and winters with little frost, and the huge unbroken furrows turned down by the plough I find in an unmanageable state as compared with your well weathered lumps. I have a strong impression that in such winters as the last two I should have succeeded in getting a better tilth at this time and at much less cost if the land had remained unturned till the present month. The fine dry weather of the last three or four weeks has weathered the surface, and that is all; for under a depth of an inch or two the land is just in the same state in which it was in the autumn, except that it is much wetter than when it was ploughed in October. Your land on the contrary was in perfect condition even for sowing spring corn. I hope you will succeed, and without loss of time, in making the implement you mention as in contemplation to reduce the cost of your combined cultivating and sowing implement, for which there will be an ample demand from those who have seen the present one in operation. I shall be much interested in hearing of your progress, and

"I remain, my dear Sir, your very obedient servant,

"Mr. Smith." "Charles Lawrence."

Farmers' Clubs.

Wigton: *Steam Cultivation.*—Sir Robert Brisco, President of the Club, occupied the chair.

Mr. William Lawson, of Brayton Hall, read a paper on steam cultivation:—As to the advantages connected with adopting a system of steam culture, they seem to be greater on stiff clay than on any other kind of land. 1. On heavy land the treading of the horses' feet is often very injurious, and by the adoption of steam culture this evil is avoided. 2. There is the great saving of horse labour which the system effects. 3. Steam culture must have a good influence upon the labourer intellectually. "With steam the head must be used, consequently must be better taught, and made to reflect on what the hands and the machinery under its care have to do." It creates a demand for highly paid labour; "and there is perhaps no means of bettering the labourer's condition and improving his morals so readily as by an increase of wages." 4. There are all the advantages of deep cultivation, and I think no intelligent man will deny that they are many and great. Deep down below the surface soil is a rich storehouse filled with the inorganic elements required by plants, and ready to be made into good soil by exposure to the atmosphere. Stir the ground to three times the depth it has ever been stirred before, and you make three times the quantity of soil available for the growth of crops. Break the pan that may have been trodden on by horses for years, loosen the subsoil, and you let the water get away quickly and easily down to the drains. The roots of the plants will penetrate deep into the earth, and there obtain sufficient moisture during a drought that would parch up shallow cultivated ground. I believe you will raise the temperature of the soil, and therefore be able to sow earlier, and grow a good crop with a smaller quantity of seed. In short, with an increased depth of soil, we can increase the quantity and quality of our crops without a proportionate increase of our expenditure in the shape of rents, rates, labour and taxes. 5. Steam culture enables us to do a great deal of work in the busy season, when the farmer's time is particularly valuable. We can do the right sort of work at the right time of year. I will now mention some of the difficulties which may have to be encountered in carrying out steam cultivation. 1st, the first cost of the tackle is a large item in the expense; of course, the charge for interest and depreciation diminishes in proportion to the amount of work it is made to perform. 2d, The small size and irregular shape of many of our fields stand very much in the way of profitable steam culture. This difficulty may not only be overcome, but

uch an increased available surface gained by the emoval of fences as will abundantly compensate for the expenditure required. 3d, The steam plough does not work satisfactorily where the land is laid out with the round narrow ridges and deep furrows common in this county. 4th. The prevalence of earth-fast stones forms a serious obstacle to success, causing frequent breakages of the cast-metal, consequently great expense and delay. 5th. The want of good roads for the engine to travel on is a difficulty worthy of mention. 6th. There is the necessity of training farm-labourers to the working of an entirely new system. Let us now examine the subject in a practical point of view. In my own case, the introduction of Fowler's 12 horse-power set of steam-cultivating apparatus has been attended with pecuniary loss, arising from causes not necessarily connected with the system, such as my own inexperience, and other difficulties not encountered by all steam-cultivators. This year, under tolerably favourable circumstances, I have found the cost of steam ploughing and cultivating to be about as follows:—

Ploughing 10 *Acres of Lea.*

	£	s.	d.
Wages of steam-plough people during half a day occupied in removal, at 13*s.*	0	6	6
A man and pair of horses employed in helping to move the tackle, quarter day, at 10*s.*	0	2	6
Wages to steam-plough people during two days' ploughing, at 13*s.*	1	6	0
The interest on a capital of 915*l.* at 5 per cent., is 45*l.* 15*s.*; distributing this amount over 200 working days in the year, we have a charge of 4*s.* 7*d.* a day. Two and a half days at 4*s.* 7*d.*	0	11	5½
Two and a-half days' wear and tear and depreciation, 12½ per cent., 11*s.* 5½*d.* a day	1	8	7½
Horse and man supplying coals and water for two and a-half days, at 6*s.* 6*d.*	0	16	3
Coals—18 cwt. at 6*d.*	0	9	0
Oil—2½ quarts at 1*s.* 4½ per quart	0	3	5
Four shares broken, at 1*s.* 3*d.*	0	5	0
Total	£5	8	9¼

Cost per acre, 10*s.* 10½*d.*

Cost of Scarifying 20 *acres of Stubble the second time over.*

	£	s.	d.
Wages for half a day occupied in removal, at 13*s.*	0	6	6
Wages for working one-and-half a-day, at 13*s.*	0	19	6
Two days' interest, at 5 per cent., at 4*s.* 7*d.* per diem	0	9	2
Two days' wear and tear and depreciation—12½ per cent.—11*s.* 5½*d.* per diem	1	2	11
Man and horse supplying coals and water for two days, at 6*s.* 6*d.*	0	13	0
Coals—30 cwt. at 6*d.*	0	15	0
Oil, 2 quarts at 1*s.* 4½*d.*	0	2	9
Four shares at 8*d.*	0	2	8
Two porter wheels broken, 2*s.* 6*d.*	0	5	0
Man and pair of horses quarter day for removal at 10*s.*	0	2	6
Total	£4	19	0

Cost per acre, 4*s.* 11½*d.*

Cost of Scarifying 12 *Acres twice over, April* 1863.

	£	s.	d.
Removals—Steam-plough people three-quarters of a day, at 13*s.* 8*d.* a-day	0	10	3
One man and two horses, half day	0	5	0
Wages for 2¾ days' work, at 13*s.* 8*d.*	1	17	7
Three men half day washing out boiler	0	4	7
Extra porter man and boy half day	0	1	10
Two carts of coals at 6*s.* 3*d.* per cart	0	12	6
Oil, three-quarters of a gallon, at 5*s.* 6*d.* per gallon	0	4	1½
Three porter wheels, at 2*s.* 6*d.* each	0	7	6
Eight socks, at 8*d.* each	0	5	4
Interest on money expended—4 days, at 4*s.* 7*d.*	0	18	4
" depreciation—4 days, at 11*s.* 5½*d.*	2	5	10
Man and water-cart—4 days, at 6*s.* 6*d.* a-day	1	6	0
Breakage of anchor	1	10	0
Total	£10	8	10½

Cost per acre, 8*s.* 8½*d.*; or 17*s.* 5*d.* for the double operation.

Mr. Lawson read statements from other parties, giving a more favourable view of the cost of cultivation with Fowler's and Howard's implements, and also the following regarding the cost of the new method of Savory. A gentleman in the neighbourhood of Evesham has kindly written the following particulars of work done by Mr. Savory's tackle:—

"March 5, 1863.

"Sir, having purchased the first set of Mr. Savory's tackle, he has forwarded me your letter, wishing me to give you my experience of the same. We have two traction engines, a Fowler's three-furrows plough, and Howard's cultivator. We can cultivate with ease 10 acres per day of 10 hours, and plough about 6 in the same time; on good light soils and large fields we can cultivate 12 or 13 acres per day, but against that we sometimes should have stiff clays to contend with, and a few hindrances, so I have put the average at 10 acres, feeling sure that I have under, rather than over, estimated the quantity of work we can do; the cost per day I put as under, and which I am sure I have put on the safe side, especially the item for wear and tear:—

	£	s.	d.
2 Engine men, 3*s.* each	0	6	0
1 Ploughman, 2*s.* 6*d.*	0	2	6
2 Porter boys, 1*s.*	0	2	0
Man and horse for water cart	0	5	6
1 ton of coals delivered	0	14	0
Interest of money, wear and tear, and extra expenses	1	10	0
	3	0	0

"I am, Sir, yours respectfully,

"To William Lawson, Esq."

Another gentleman writes that a pair of Savory's engines have been worked satisfactorily the whole of one night in this neighbourhood. Without now discussing those parts of the tackle which have given me most trouble, and which appear to be most open to objection, we will proceed at once to consider the question, Is steam cultivation economical? It is undoubtedly economical under certain circumstances. Wherever the agency of steam is required as a prime mover, the steam-engine must be adapted to the work, and the work to the engine. A railway locomotive is a very good thing in its proper place, but would be very unsatisfactory if used on a turnpike road. So it is with the steam-plough. Give it a fair trial on suitable ground, and it will do its work well and cheaply; and yet, be it remembered, that the economy of steam culture is not to be looked for so much in the cheapness of the performance as in the superior quality of the work performed. I think the benefit of deep cultivation was shown in my Turnip crop last year, and in that of a gentleman well known to many of us, on whose farm my steam scarifier worked last spring. What conditions are more or less essential to the successful prosecution of steam culture? 1st. The man who would engage in it should have command of a large quantity of arable land. With my apparatus last year I only ploughed 75 acres, scarified 183¼, and stitched up 11¾; so that I did much too little work to make it pay. 2d. Let him begin with an engine of sufficient power. Though mine is a good 12 horse-power one, I have already seen it in circumstances where greater power would have been advantageous. 3d. Let him pull down all the crooked fences on his land, and have large fields. When we go to cultivate a field that can be done in one day, a day and a-half is charged for the working of that field, so that the cost per acre would be very much less in the case of a field large enough to require a week's work for one setting down. As a removal usually costs about 17*s.* 6*d.*, it adds 1*s.* 9*d.* per acre to the cost of cultivating a 10-acre field; 10½*d.* to that of doing 20 acres, and 5¼*d.* to that of doing 40 acres. 4th. Let him have good roads. My engine has too often stuck in the mud for want of them; but I am now laying out my farm with good straight roads parallel with and at right angles to each other, for the use of carts as well as the engine. 5th, Let him beware of setting his tackle to work in any field where the headlands are ploughed up. In cases where this precaution has not been taken, a great deal of delay and expense has arisen from the dragging of the anchor, which is at the best an unwieldy implement. 6th, Let him get rid of all the earth-fast stones in his land as soon as possible. Last spring I steam-ploughed a very stony 10-acre lea field at a total cost of very nearly 20*s.* per acre. Before sowing Oats, as many as possible of the stones were removed, and in the autumn I deeply steam-scarified that field at a cost of not more than 7*s.* per acre. I have said little about ploughing, for I have been led to believe that grubbing is generally to be preferred.

Oxford: *How to Estimate the Nature and Value of Lands by the Grasses growing upon them.*—Professor Buckman, of the Royal Agricultural College, Cirencester, commenced by explaining that, though we speak of natural meadow, there is in reality no such thing as meadow; even the best left to a state of nature would become little better than a jungle. Meadow was kept of that even texture in which the best will be found by depasturing, rolling, and, if made into hay, manuring; and the quality of meadow depended upon a majority of nutritious as opposed to innutritious Grasses. In all meadows there will be found many Grasses of no real use to the pasture; if the meadow be good, the good species will nearly, though not quite, smother out the bad; if the meadow be impoverished, or "out of heart," the bad will preponderate, and so nearly exterminate the good. The lecturer next pointed out the usual character of harsh, rough, woody, or hairy Grasses, dwelling upon the fact that, as these are objectionable to cattle from their mechanical hindrances, as well as from their poor quality, farmers had got to call them sour, as though there was in reality a sourness of taste that caused them to be rejected. There are, however, some Grasses very bitter to the taste, but the good Grasses contain a quantity of saccharine matter, and are besides highly succulent. The next subject for consideration was that of the nature of good and bad meadows. If, said the lecturer, a meadow was full of rough Grasses, such for example as the Tussack Grass (Aira cæspitosa), there could be no doubt but that it required draining, and this pest would soon die out as the drains began to act; but, however well drained, pastures might soon get poor from too great greed in taking off hay and returning no manure, in which case, as nature had provided that poor spots as well as rich shall be occupied with vegetation, poor Grasses soon gain the ascendancy, and the better ones are all but exterminated; this war of extermination being very eloquently insisted upon as of constant and universal occurrence in meadows, so that the real state of a meadow could at once be told by the condition of its contained Grasses. The distribution of species of Grass according to soil was next adverted to. Two limestone species marked on the oolites of the Coltswolds, namely, the Bromus erectus, Upright Brome Grass, and Brachypodium pinnatum, false Brome Grass, were both denizens of the oolite; and as the spoils of the Cotswold scarps were taken into the Vale of Gloucester, these species had followed them, and so marked exactly the position to which such drifts had extended. As regards the sand-loving Grasses, the Hordeum murinum, Wall-Barley, had been marked as accompanying the Red Poppy, Papaver Rhœas, in all lands, especially in those in the sand beds of Cheltenham and Gloucester, but being absent in the lias clays between. Again, the Cotswolds being free from sand beds, this Grass was absent along their whole line. A curious instance occurred of a very pretty Grass, the Aira caryophyllea, suddenly appearing in the middle of a slope of the Great Western Railway cutting near Cirencester, because such cutting had laid bare a line about two feet thick of forest marble sand. These, and such rough Grasses as Avena pratensis and Aira cæspitosa in clays, clearly pointed out that remarkable specimens only occur under certain conditions; and hence, by observing whether they are remarkable, that is, whether they like their position and thrive there, or on the contrary starve, afford clear evidence of the indication of the nature of the soil by the Grasses. The changes effected in soil by irrigation, and the difference between irrigated and flooded meadows, formed the next subject of inquiry, and was very clearly illustrated. The Professor described the flooded meadow as one subject to river floods, which were uncontrollable as to time or extent, the irrigated meadow being one in which water can be made to flow through and between (not flood over) the roots of the herbage, and this at our own chosen time, and, when turned off, the meadow should in a few hours be dry and sound, in consequence of perfect drainage. The changes which herbage undergoes upon irrigation were clearly pointed out, and from observed facts it was ascertained to have more than doubled in four years, and the process, while it nearly kills out all bad Grasses (or, if not, improves them in quality), wonderfully encourages the growth of true Grasses of the best kind.

Mr. Clutterbuck expressed the great gratification with which he had heard the lecture, which had been exceedingly plain and intelligible. He would not venture to speak of Oxfordshire, but in that part of Berkshire in which he lived nothing so urgently required attention as Grass cultivation. Only the other day he was walking over a field where the farmer was having bullpates cut up, and he pointed to the furrows and told him that if he only got rid of that water the bullpates would die of themselves. In a paper which he recently read before the Ashmolean Society, on Port Meadow, he had shown how a scientific botanist might walk over the meadow and determine to an inch where the land was good and where it was bad, accordingly as it was higher or lower than the ordinary drainage level. Nothing in this neighbourhood was capable of greater improvement than that locality. In the low places (where the water, though not visible, was only a very little below the surface) Carnation Grass, and other bad species flourished, while on the little knolls, though consisting of exactly the same kind of soil, they found sweet Grass.

Miscellaneous.

Rook Poisoning.—I regret to learn that, notwithstanding the many excellent remarks which have appeared in the *Times, Gardeners' Chronicle,* and elsewhere against the destruction of insectivorous birds, the poisoning of rooks by grain steeped in arsenic at this season, when they are in the midst of nest building, and feeding their young, is greatly on the increase in this neighbourhood. In a small rookery, near Oxford, no fewer than 32 dead rooks have been picked up within the last few days. At Godstow rooks have been seen to drop down dead from the trees, and on being opened, poisoned Wheat has been found in their stomachs. I have also seen them lying dead in the fields near Sandford. Such a proceeding is one of the most unjustifiable which the farmer can commit. He ought to know that birds which prey upon insects are his best friends, and if he had taken the trouble last year to examine carefully at the International Exhibition, as I did, the very striking and instructive collection sent from France of the birds and other animals of that country, with the contents of their stomachs carefully arranged and displayed, he would have been surprised to find how useful, as insect destroyers, many of his supposed enemies really are. Impressed with the practical utility of such a collection, I am desirous of forming a similar one in our New Museum, and shall be happy to receive the assistance of our agriculturists in carrying out this object. Long ago Mr. Spence, whose claims upon the attention of the farmer ought to be respected, even if he had done nothing beyond the publication of his work, "England's Independent Commerce," showed the absurdity of interfering with the operations of these birds. When walking with a gentleman on his estate in Yorkshire, his attention was attracted by several circular patches of dead grass, each having a stick with rags suspended to it in the centre. He at once discerned that the larva of the cockchafer had eaten the roots of the Grass, which being pulled up by the rooks, that devour this mischievous grub, these birds had been mistaken by the tenant for the cause of the evil, and the rags were placed to frighten away his best friends. On enquiry why he had set up these sticks, he replied, in his broad Yorkshire dialect, "He couldn't beer to see'd nasty craws pull up all'd Gress, and sae he'd set'd bairns to hing up some and clouts to flay 'em away!" There is another argument which I may be allowed to allude to, showing that it is in support of the general economy of nature that at this season the rook should be protected. It is in the months of April and May that the increase in the number of these birds and their voracity are at the greatest, and it is precisely at the same time that the grubs of the cockchafer, which constitute so great a part of their food, are at their full size. All these kinds of coincidences in nature are planned by an all-wise Creator for special purposes. Nothing is done in vain, and we may be sure that if the farmer interferes

with and interrupts the operations of nature in this manner, he will suffer the penalty by the over production of enemies far more destructive than those which he has destroyed, since the preservation of a single full-grown cockchafer grub ensures the development of a numerous progeny on its arrival at the perfect state, each of such progeny taking three years to complete its transformation, during the greater part of which time it is voraciously attacking the produce of his fields. *J. O. Westwood, Hope Professor of Zoology, in the Oxford Journal.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. Spearing, Moulsford, near Wallingford, Berks, during the week ending April 22, 1863.

Day of Week.	Day of Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Dry Bulb Thermometer.	Reading of Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0-6	Amount of Cloud 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday ..	16	30·65	49	47	W.	1	6	64	33	118*	30	..	51	49½
Friday ..	17	30·17	52	48	N.W.	1	1	68	36	117	32	..	52	50
Saturday ..	18	30·38	51	49	N.	2	5	63	44	114	40	..	52½	50
Sunday	19	30·20	51	48	S.E.	1	1	60	33	113	34	..	53	50½
Monday	20	29·96	55	50	S.	2	2	68	40	114	37	..	53	51
Tuesday ..	21	29·88	58	49	S.W.	1	4	66	33	112	34	..	53	51
Wednesday	22	29·71	53	52	W.	3	6	61	47	99	43	..	52½	51

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Calendar of Operations.

Wester Ross: *April* 20.—Our spring sowings have been completed in first-rate condition, the weather having been all that could have been desired. If the harvest be not abundant, it certainly will not be from the lack of a dry seed bed, nor of March dust. The earlier sowings of Oats are already well above the ground, and appear close and vigorous. From the dryness of the soil, the germinating and brairding process has advanced speedily. Autumn-sown Wheat, although by no means too far advanced, appears abundantly promising. Although the weather has been particularly suitable for seed-sowing, we have had a sufficiency of east wind, and keen night frost, to keep vegetation satisfactorily in check. We are now busily occupied with Potato planting, and will be thus employed for several days; the kinds principally grown with us, now-a-days, are Regents, Rocks, and Orkney Reds; the kinds to which we were introduced in our early days being now all among the things that were. Potato planting being completed, field labour will be very much confined to preparing the ground for Turnips, and having them sown. We find it advisable to have the sowing of Swedes completed before the end of May, and as a considerable breadth, perhaps about one-third of the whole extent, is now sown with Swedes, there is no time to lose in having the ground prepared. Turnips which latterly proved so abundant that several fields were offered to be eaten off with sheep for nothing, are now all but finished and already some of the cattle are on Grass; the sheep have returned to their hill-grazings in greatly better condition than we at one time anticipated; and our winter stock of cattle have been sold off at prices higher than we ever before realized. Well it is that in a year so disastrous to the farmer there continue such a demand for stock at prices so remunerating. For Wheat there is little demand at prices ranging, according to quality, from 28*s.* to 44*s.* per qr., and the average yield per acre being from 1 to 2 qrs. the money realized would do little more than pay for seed and ploughing.

Notices to Correspondents.

Measurement of Cattle.—*J. O.* Take the length from the front of the shoulder (one third of the way down from the withirs) to the insertion of the tail, or to such a point as that a plumb line from it will most fairly inclose the hind quarters of the ox. Take the girth where smallest, behind the shoulder. Multiply the girth in feet and inches by itself, and the product by the length. The resulting figures are then to be multiplied by the decimal ·23, and the result will be the weight in imperial stones. The last factor may be ·2 up to ·28, according to the breed and fatness of the animal. A fat Short-horn bull might need as high a factor as ·3, while a half-fat, ill bred cow, would not need a higher factor than ·2. ·22 to ·24 are the most generally useful.

THE HYDROPULT,

EXTRACTS FROM THE PRESS.

The Hydropult. — "The machine is certainly the most compact and efficacious force pump of its size that we have ever seen."—*Daily Telegraph.*

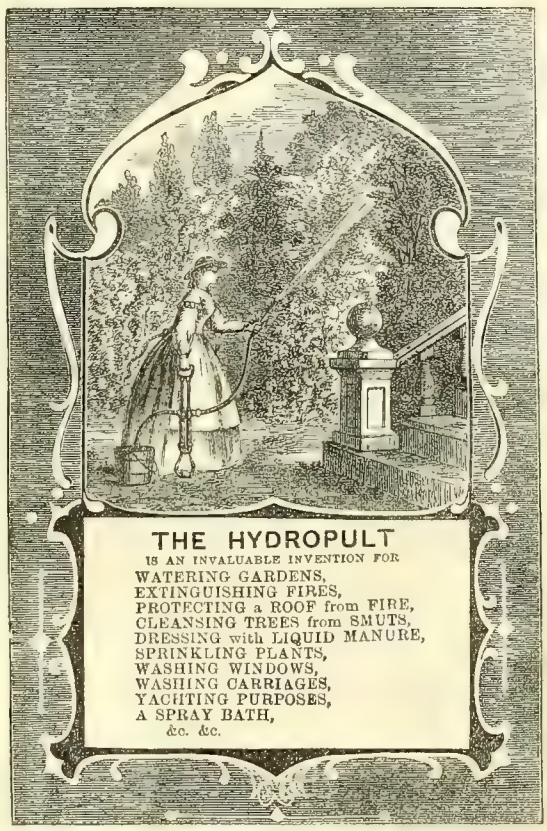
The Hydropult. — "All Londoners and other town residents who care for their gardens and greenhouses should avail themselves of such engines." — *Gardeners' Chronicle and Agricultural Gazette.*

The Hydropult. — "We strongly recommend it to our readers." —*Journal of Horticulture and Cottage Gardener.*

The Hydropult. — "It will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water." — *Gardeners' Weekly Magazine.*

The Hydropult. — "Country readers who order it on our recommendation, will not only not repent, but thank us for calling attention to a machine which, having once used, they will never care to be without."—*Floral World and Garden Guide.*

The Hydropult. — "We can only say that no public establishment or private house should be without one of these useful machines."—*Commercial Daily List.*



EXTRACTS FROM THE PRESS.

The Hydropult. — "We are satisfied that all housekeepers ought to have one, and we are equally satisfied that if they once see it they will order it." — *Liverpool Daily Post.*

The Hydropult. — "We commend it to the notice of the proprietors of warehouses and other buildings, public and private, in the metropolis and provinces."—*Mechanics' Magazine.*

The Hydropult. — "It is admirably adapted for sprinkling gardens, trees, graperies, washing windows, carriages, and for household purposes, its simplicity and portability being its strong recommendation." — *Illustrated News of the World.*

The Hydropult. — "Nothing has yet been introduced for watering gardens equal to the Hydropult, as any one standing close to his house can water, in a few minutes, any ordinary suburban garden, thus saving much time, and performing the task in an easy, satisfactory manner."—*Builders' Reporter.*

The Hydropult. — "Many of the most scientific men of the age are daily inspecting and testing its uses."—*Age We Live In.*

AN INVENTION FOR THROWING WATER BY HAND POWER

(Secured by Royal Letters Patent),

Price **TWO GUINEAS.**

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Small Jet. Weighs but 8 lbs.

Recommended as an efficient and useful Fire Engine by the principal Fire Insurance Companies of Great Britain.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

Thomas Rivers, Esq., the eminent Florist, Shirley Hibbard, Esq., and other well-known gentlemen, recommend it as an invaluable Garden Implement.

EXTRACTS FROM TESTIMONIALS.

"Royal Insurance Office, Liverpool.

"My dear Sir,—I have much pleasure in expressing the high satisfaction, and indeed surprise, with which I witnessed the working of your Hydropult. There can be no doubt that it can be available in the earlier stages of fire in warehouses, manufactories, or private houses, in preventing large conflagrations, while its applicability to gardening and other purposes will be manifest to any one observing its operation.—I am, my dear Sir, yours truly, "Percy M. Dove, Manager."

"Chas. P. Button, Esq."

"The invention will prove extremely valuable for all the purposes to which such machines are applied.—Swinton Boult, Secretary, Liverpool and London Insurance Company."

"Its portability and facility of operation recommend it to the general notice of the public.—Henry Lowe, Secretary, District Fire Company."

"In a blowing or mixing room it would be of especial service. —F. J. Hallows, Secretary, Caledonian Insurance Company."

"38, Portland Street, London, W.C.

"Mr. Charles P. Button. Sir, I am perfectly satisfied from the statement of Mr. Green, the conductor of our fire-escape at Notting Hill, that a large amount of valuable uninsured property was saved from destruction by the timely and efficient use of the Hydropult, which was fortunately on the adjoining premises during the fire which consumed the drapery establishment of Mr. Thomas, of 4, Coburg Place, Bayswater, on Friday evening last. Your little engine was used most effectually in keeping the roof of the adjoining house saturated with water, thereby preventing the spread of the flames, as the engines of the regular district fire brigade did not arrive on the spot until more than one half hour after the fire broke out.

"A fire, at its commencement, can readily be extinguished by means of this little annihilator, and infinite service rendered in staying the progress of the flames during the interval which must elapse before fire-engines can, under any circumstances, be brought into action.—Yours truly, T. Spencer, Inspector of the Royal Society for the Protection of Life from Fire."

CAUTION: Important to the Public.—The extensive sale of the HYDROPULT has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting, as they are often placed under or near the Hydropult show card. The Proprietor therefore issues this caution, and respectfully intimates that parties wishing to purchase the Hydropult, should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, a Portable Fire Annihilator and Garden Engine; Griffiths & Browett, Manufacturers, Birmingham; Charles P. Button, General Agent (Vose's Patent)." Unless this label be attached, the machine is not the Hydropult."

THE HYDROPULT is MADE of BRASS and COPPER, weighs but 8 lbs., AND WILL THROW EIGHT GALLONS of WATER PER MINUTE FIFTY FEET, WHEN WORKED BY THE POWER of ONE MAN.

Public and private buildings have been saved from destruction by its agency. T. Spencer, Esq., Inspector of the Royal Society for Protection of Life from Fire, certifies to its efficiency in saving valuable property at Bayswater from destruction.

FIRE! FIRE! FIRE! THE HYDROPULT IS THE MOST EFFICIENT FIRE-ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.

It can be used for all purposes for which a hydrant or force pump is applicable, and in situations where other contrivances are useless.

CHARLES P. BUTTON, Proprietor,

HYDROPULT WAREHOUSE, 27, LEADENHALL STREET, LONDON, E.C.

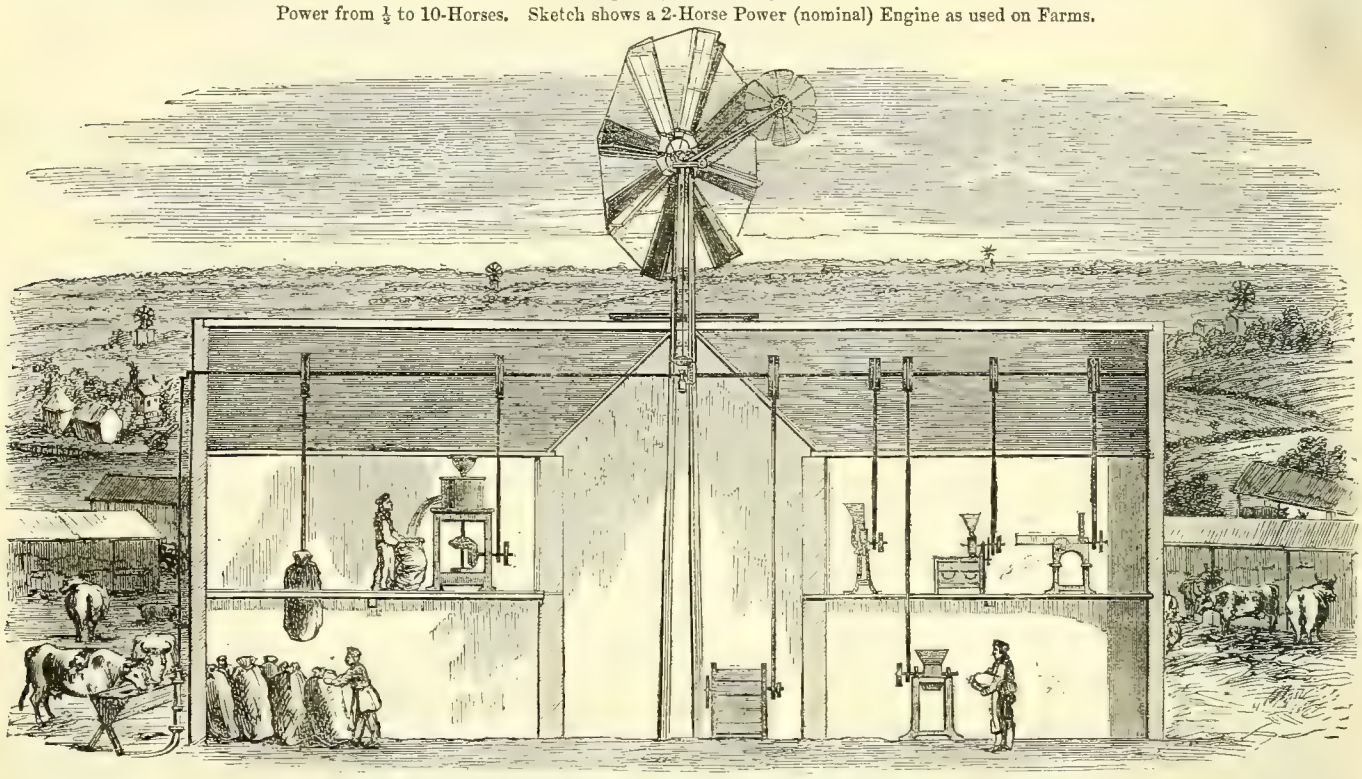
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WIND ENGINE,—Patent Self-Regulating,

FOR PUMPING, OAT-CRUSHING, GRINDING, CHAFF-CUTTING, SAWING, OR DRIVING OTHER MACHINES.

For FARM PURPOSES most economical.—Costing nothing to work.—Erection simple and cheap. For PUMPING PURPOSES invaluable, working day and night, requiring no watching.

Power from ½ to 10-Horses. Sketch shows a 2-Horse Power (nominal) Engine as used on Farms.



The LORDS of the ADMIRALTY, the VICEROY of EGYPT, NOBLEMEN, PRACTICAL FARMERS, PUBLIC INSTITUTIONS, and COLONISTS, now use these ENGINES for all purposes.

BURY AND POLLARD, SOLE MANUFACTURERS,
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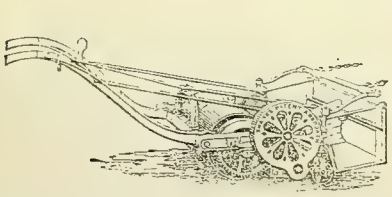
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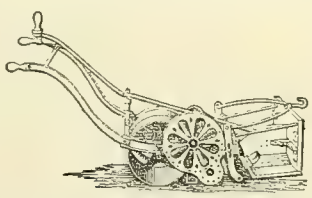
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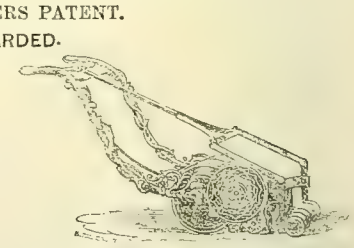
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SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	... ... 40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	... ... 40*s.* „
No. 3.—36-inch Machine ...	22 0 0	... ... 30*s.* „
No. 4.—30-inch Machine ...	19 0 0	... ... 30*s.* „

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

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No. 5.—30-inch Machine ...	£15 15 0	... ... 30*s.* extra.
No. 6.—28-inch Machine ...	14 10 0	... ... 30*s.* „
No. 7.—25-inch Machine ...	12 10 0	... ... 25*s.* „

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No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
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The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £5 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

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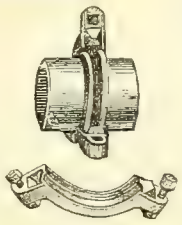
A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



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Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet... ...	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet... ...	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet... ...	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

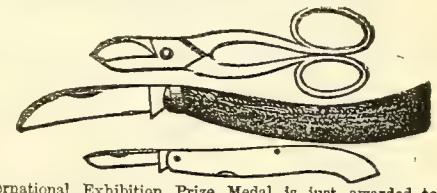
Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

Do as Others Do!

BUY YOUR SEED BAGS from JAMES T. ANDERSON, Sack and Bag Maker, and Russia Mat Merchant, 15, SHERBORNE LANE, King William Street, London, E.C., who will supply you with a first-rate article at a low price. ARCHANGEL MATS, the pick of the season. Russian and Prussian Dunnage Mats.
Prices sent free on application.

Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal is just awarded to Saynor & Cooke for superiority of quality in Pruning and Budding Knives, &c.

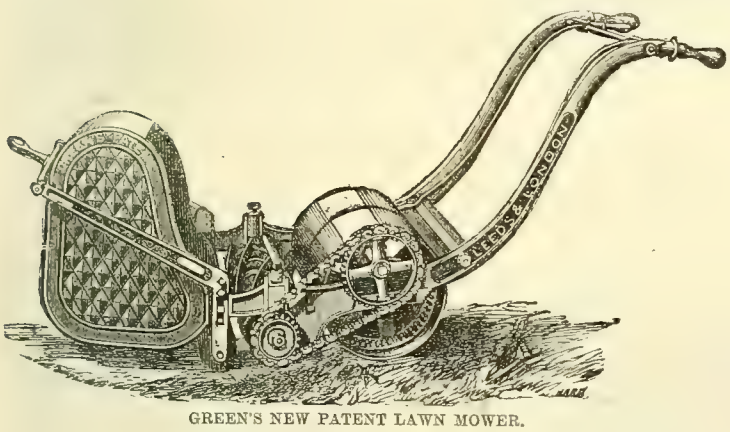
SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

Caution.—None are genuine unless marked Saynor. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

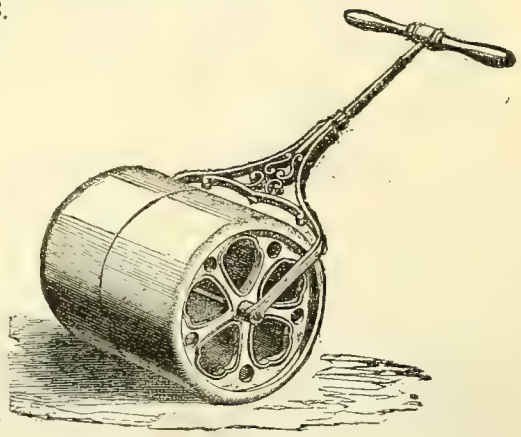
GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS.

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS

DURING THE SEASON OF 1862.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

Upwards of 14,000 of the above Machines have been sold since the year 1856, and thousands of letters have been received by the Patentees testifying to their efficiency. They do not deem it necessary to publish more than the two following:—

TESTIMONIALS.

"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"Dear Sir,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, Geo. Eyles."

"Royal Gardens, Windsor, March 27, 1863.

"Dear Sir,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

"To Mr. Green." "Yours very truly, Thomas Ingram."

PRICES.

To Cut 10 inches	£3	10	0	Suitable for a Lady.					
„ 12 „	5	0	0	Suitable for One Person. If with internal gear, 10s. extra.					
„ 14 „	5	10	0	Do.	Do.	Do.	Do.	10s. extra.	
„ 16 „	6	10	0	Suitable for One Man or Two Boys.					

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	... £12 10 0
„ 26 „	12 10 0	... 13 12 0
„ 30 „	16 14 0	... 18 0 0

Leather Boots for Donkey, 16s.; for Pony, 20s.

								If with Patent Delivery Box.
To Cut 18 inches ...	£7	10	0	Suitable for One Man and Boy				£8 15 0
„ 20 „ ...	8	0	0	Do.	Do.	...	9 5 0	
„ 22 „ ...	8	10	0	Suitable for Two Men		...	9 17 6	
„ 24 „ ...	9	0	0	Do.	Do.	...	10 7 6	

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	... £21 10 0
„ 36 „	23 0 0	... 24 16 0
„ 42 „	26 0 0	... 28 2 0
„ 48 „	29 0 0	... 31 8 0

Leather Boots for Horse, per set, 1l. 4s.

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

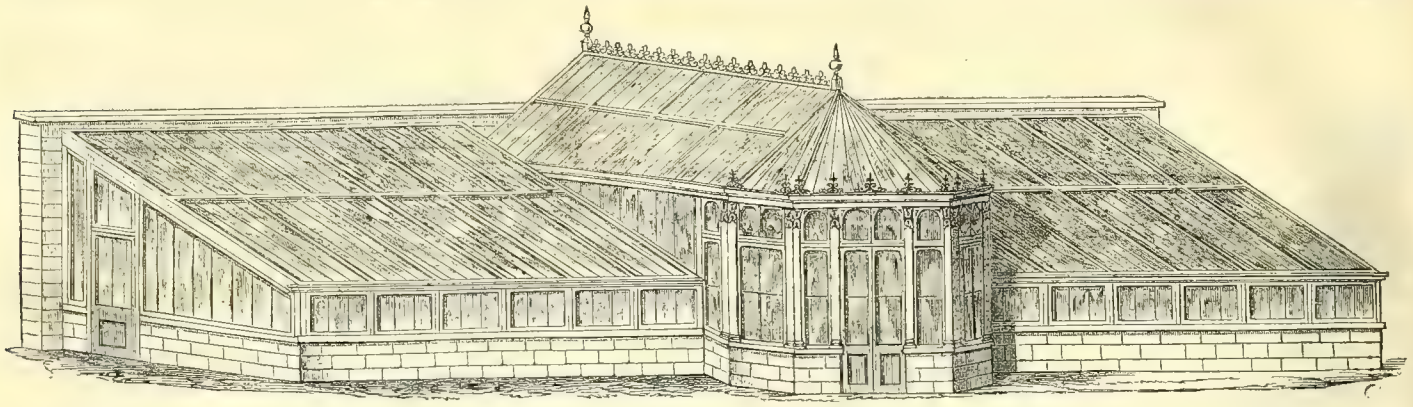
Diameter 20 inches, length 22 inches, price £3 5s. | Diameter 16 inches, length 17 inches, price £2 10s. | Diameter 24 inches, length 26 inches, price £4 5s.
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

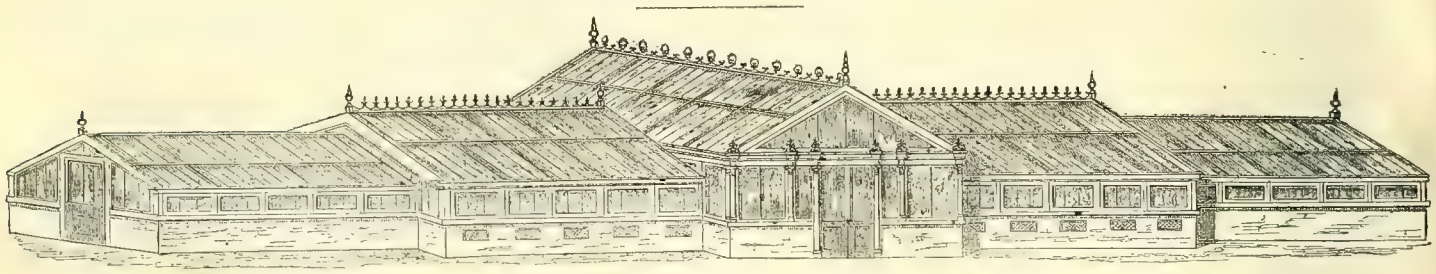
GARDEN ENGINES, SYRINGES, WATER BARROWS, and PUMPS. CAST IRON FOUNTAINS, VASES, GARDEN SEATS, and GARDEN CHAIRS. IRON HURDLES, WIRE FENCING, WIRE NETTING, &c. Also every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS.

Illustrated Price Lists free.

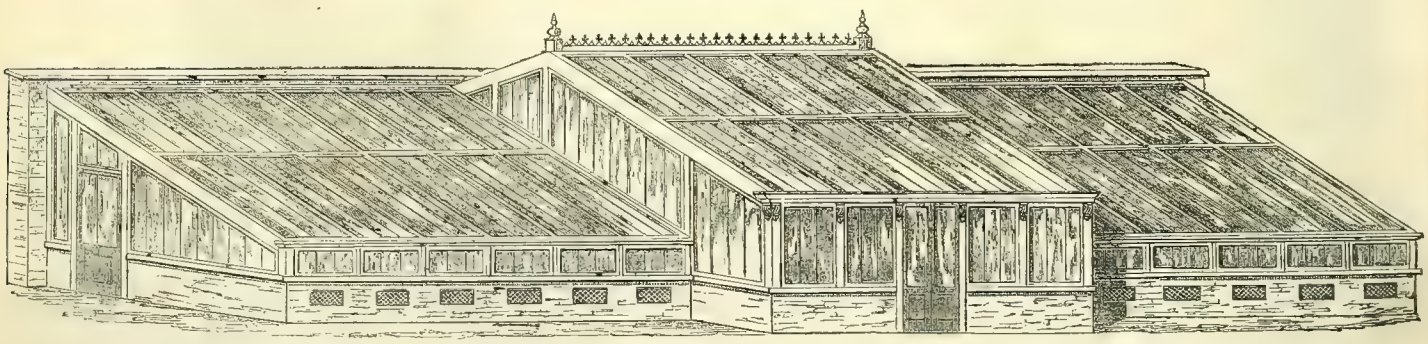
T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.

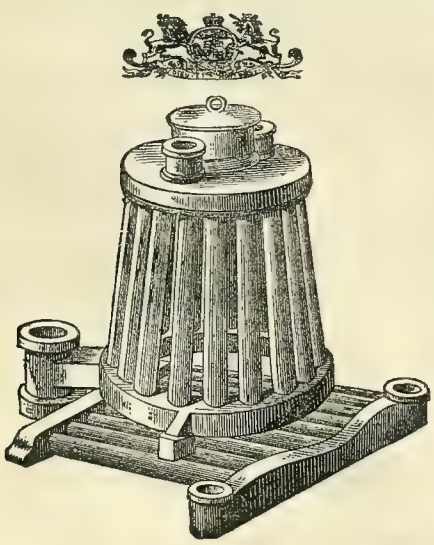


HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.

THE FOLLOWING IS THE REASON WHY

ORMSON'S ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become so universally adopted on account of their superior power, great safety, and economy.



ORMSON'S No. 1 BOILERS	are heating upwards of	250	feet of Pipe.	
ORMSON'S No. 2 BOILERS	„	„	600	„
ORMSON'S No. 3 BOILERS	„	„	1300	„
ORMSON'S No. 4 BOILERS	„	„	3500	„
ORMSON'S No. 5 BOILERS	„	„	7000	„

Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

H. Ormson having a most complete Set of Steam-power Machinery, is in a position to execute Orders with the greatest despatch, and at considerably reduced prices.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, Horticultural Builder to Her Majesty,
AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF
HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Prize Medal at the International Exhibition, 1862.

E. WOLFF AND SON'S SOLID INK PENCILS in CEDAR for GARDEN TALLIES.—These Pencils are the Best and Cheapest Invention ever used for Writing on Garden Tallies of all descriptions, the action of the air, rain, &c., not having the slightest effect upon them. The advantages resulting from their use are—Firstly, the simplicity of an ordinary lead pencil; secondly, the superiority and portability of a dry pencil over liquid Ink, or Paint; and, thirdly, their reasonable price, which places them within the reach of all classes. These Pencils are also useful for all kinds of Writing, Memoranda, &c.

Price 3*d.* each; extra thick, 6*d.* each.

To be had Retail of all Seedsmen, Nurserymen, and Stationers, and Wholesale at the Manufactory,

22 & 23, Church Street, Spitalfields, N.E.

WANTED, a SETTER,—also a RETRIEVER.—Address E., *Gardeners' Chronicle* Office, 41, Wellington Street, London, W.C.

KERRY COWS, of the most Select Kind, FOR SALE, by

Richard G. Campion, Esq., Youghal, County Cork.

To Exhibitors of Small Machinery, Garden Implements, Saddlery, and other Light Goods.

TO BE LET, SPACE for EXHIBITION and SALE of GOODS, in AGRICULTURAL HALL, during the DOG SHOW, to be held during the week commencing May 25.

Apply at the Offices of the Company, Barford Street, Liverpool Road, N., between 2 and 5 o'clock.

TWO capital NURSERIES on a small scale, three miles west of London, about 200*l.* each. An eligible Partnership, about 200*l.* GLENNY'S GIFT BOOK, illustrated, 1*s.* 6*d.* and 1*s.* GLENNY'S LIST of the 60 best FLOWER SEEDS for Amateurs, free for a directed envelope.

G. Glenny, Fulham, S.W.

Surrey.

TO BE LET, within one mile of Chiddingfold and Witley Station, a small detached SIX-ROOMED COTTAGE in good repair, with 1½ Acre of Meadow Land, Garden, Cow House, and a place for a Horse and Pigs. Rent will not exceed 15*l.* a year.

The place can be seen at any time, and further particulars had by applying to Mr. Berry, Combe Court, Godalming.

Guildford, Surrey.

To Nurserymen, Florists, Seedsmen, Market Gardeners, &c.

TO BE LET, with Immediate Possession, all that truly valuable old-established NURSERY GARDEN and SEED BUSINESS, known as the Guildford Nursery Grounds, in a good state of cultivation, close to the entrance of the town; has been in the same name upwards of 50 years. This opportunity is worthy the attention of those seeking a profitable and increasing business, being the only Nursery near this improving neighbourhood. The present Stock is small and saleable.

Inquire of Mr. Drury, Guildford, Surrey.

TO BE LET, HOTHOUSES, GARDENS, &c., with immediate possession, on advantageous terms, as the Proprietor has not time to attend to them. The Houses are above 250 feet long by 16 wide, and heated with a Tubular Boiler, and in good working order. They are well stocked with Pines, Vines, &c., which can be taken, or left with a substantial guarantee that the value of the Stock be not diminished. They are within 80 miles north of London, and near a Railway Station. None but Churchmen need apply.

Address, Mr. J. C. D., Messrs. Sawyer's, 1, Castle Court, Birchin Lane, London, E.C.

To Nurserymen and Others.

TO BE DISPOSED OF, by PRIVATE TREATY, and with Immediate Possession, an old established NURSERY, with Hothouses and Greenhouses, doing a good business; in an excellent situation, and within a few miles of Liverpool. The whole to be taken at a valuation.

For particulars apply (by letter, post paid,) to M. S., care of Wren & Sons, Tea and Coffee Merchants, Temple Court, Liverpool.

To Nurserymen and Gentlemen's Gardeners.

TO BE SOLD, the LEASE, STOCK, and GLASS of a SMALL NURSERY within four miles of Covent Garden, containing about one acre and a-half of Land, and 15,000 feet of Glass in good order, with every convenience for carrying on a large Trade. Has been successfully carried on by the present Proprietor for the last 17 years, who now is giving up business. Part of purchase-money could remain for a term agreed upon at 5 per cent. Among the Houses are four Vineries built and planted within the last seven years, and three of them are now in full bearing. Immediate Possession can be had for 1000*l.*

For further particulars apply to Messrs. Protheroe & Morris, American Nursery, Leytonstone, Essex, N.E.

Sales by Auction.

Late Show Tulips.—Unrivalled Collection.

WILL be SOLD by PUBLIC AUCTION, the most valuable Collection of Late Show TULIPS, and the most extensive in Europe, the property of that eminent raiser of new Tulips and Hyacinths, Mr. V. Van der Vinne, of Haarlem, Holland. Days of Sale not yet fixed.

Catalogues of the entire Collection can be had free and post paid, on application to Messrs. Barr & Sugden, Seed Merchants, 12, King Street, Covent Garden, W.C.

Thorney, Cambridgeshire.

Important Sale of Eleven Valuable Cart Horses and Implements of Agriculture.

MR. JOHN FOX will SELL by AUCTION, on MONDAY, April 27, the property of A. Goodman, Esq., at his Thorney Fen Farm, the estate of the Duke of Bedford. The IMPLEMENTS comprise Waggons, Carts, sets of Harrows, Cultivators, Bentall's, Coleman's, and Biddell's Broadshares, Cambridge Cloderusher, Roller, Suffolk Corn and Manure Drill, Ridge Drill, Land Presser, Ransome's Ploughs, Horse Hoes, Harness for 20 Horses, Plough Tackle, &c. The HORSES will be found valuable, and in first-rate working condition.

The Auctioneer directs particular attention to the above, the whole of which will be sold without reserve in consequence of the Proprietor's intention to substitute Steam Cultivation for Horse-power on a large scale on his farm. A set of Fowler's Steam Ploughing Tackle will be at work on the Farm for public inspection the same day, before and after the Sale.

Luncheon will be provided at 12 o'Clock, and the Sale will commence punctually at 1 o'Clock. Catalogues (which are in preparation) may be had at the principal Inns in Thorney and neighbourhood; and of the Auctioneer, 14, Narrow Street, Peterborough.

Important Sale of upwards of 300,000 Greenhouse and Bedding Plants.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executrix of the late Thomas Gaines, deceased, to SELL by AUCTION, on the Premises, Surrey Lane, Battersea, on MONDAY, April 27, and following days, at 11 o'Clock each day, the whole of the Valuable GREENHOUSE PLANTS, including all the magnificent specimens of Azalea indica, which for so many years have rendered this establishment famous, having obtained prizes at the various Metropolitan Floral Fêtes, and now, being beautifully furnished with bloom, and in such fine condition, offer an opportunity of rare occurrence to gentlemen requiring large handsome specimens for furnishing their Conservatories.

Large double Camellias, Ericas, Epacris, Crassulas, Epiphyllum (sorts); Acacia armata, Callas, Hydrangeas, Daphne indica rubra; a quantity of compact and healthy plants of Gardenias, Gloxinias, Begonias, double Primulas, Ficus elastica, Stephanotis, some brilliant varieties of Amaryllis, Tropæolum Jarrattii, Exotic and Hardy Ferns, Roses in pots, Lilium lancifolium (sorts), Deutzias, Cytisus, Ardisia, Show, Fancy, and French Pelargoniums, Scarlet Geraniums, &c.; about 50,000 Bedding Plants, including an extraordinary large assortment of fine grown stuff, too numerous to mention; a quantity of Tree and other Carnations, Picotees, Myrtles, &c.

May be viewed one week prior to the Sale. Catalogues may be had, 6*d.* each, returnable to purchasers, on the Premises; of the principal Seedsmen in London; at the Raven Inn, Battersea Square; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

To Gentlemen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, E.C., on FRIDAY, May 1, at 12 o'Clock, first-class CARNATIONS, PICOTEES, and PINKS, a variety of Plants in Bloom and for Bedding Out.

On view Morning of Sale. Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex, N.E.

Important Sale of Upwards of 16,000 Greenhouse and Bedding Plants.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. George Wells to SELL by AUCTION, on the Premises, 9, Grove Place, Coleman Street, near St. George's Church, Camberwell, on SATURDAY, May 2, at 12 o'Clock, a large portion of VALUABLE GREENHOUSE PLANTS, including fine Show, Fancy, and French Pelargoniums, Scarlet and Variegated Geraniums, Acacia Mimosa, Oleander, Cinerarias, Herbaceous and Shrubby Calceolarias, Cytisuses, Callas, Hydrangeas, Fuchsias, Fuchsia fulgens, &c., with a large collection of Ornamental Plants for Bedding, comprising the usual Miscellaneous assortment, Climbing Plants various, Roses in Pots, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers, American Nurseries, Leytonstone, N.E.

Camden Town.

Ornamental Conservatory, Greenhouse, Bedding and other Plants. Carriages, Horses, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, St. Paul's Lodge, St. Paul's Road, Camden Town, N.W., within five minutes' walk of the Camden Road Railway Station, on THURSDAY, May 7, at 11 o'Clock, by order of R. Richardson, Esq., who is leaving the neighbourhood, a Choise Assortment of GREENHOUSE and BEDDING PLANTS; also a nearly new Ornamental Rustic Lean-to wing Conservatory, with middle Transept, 37 feet long by 16 feet over, elaborately fitted, and glazed with large squares and stained glass margins; span-roof and lean-to Greenhouses, Forcing Pits, Saddle and other Boilers, Hot-water Piping, Rustic Summer-houses and Garden Seats, Ornamental Stone Fountain, &c.; together with a new town-built Waggonette, a fashionable sociable-headed Chaise; a superior match pair of Bay Geldings 15 hands 2 high, with black points; sets of Harness, Alderney Cow in Calf, and numerous other effects.

May be viewed three days prior to the Sale. Catalogues may be had of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Battersea.

To Gentlemen, Nurserymen, Builders, and Others.

MESSRS. PROTHEROE AND MORRIS are instructed by the executors of the late Thomas Gaines, deceased, to SELL by AUCTION, on the Premises, Surrey Lane, Battersea, S.W., on MONDAY, May 11, at 11 o'clock, a newly-erected SHOW HOUSE, 41 ft. 10 in. by 32 feet over; 29 capital Greenhouses, several ranges of Pits; 1, 2, 3, and 4-light Boxes, 3 Spring Vans, thousands of feet of 3 and 4-inch Hot-water Piping, Saddle and other Boilers, Erection of Sheds, quantities of Bricks, Slate Shelving, York Paving, Hand Glasses, Garden Pots, Mats; useful Bay Gelding; Brewing Utensils, Iron Roller, Nest Seed Drawers, Barrows, Garden Tools, and sundry effects. May be viewed prior to the Sale.

Catalogues may be had (6*d.* each, returnable to purchasers) on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Mile End Nursery.

10,000 Bedding and Other Plants.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Mile End Nursery, Bow Road, E. (within five minutes walk of the Bow Railway Station on the North London Line), on THURSDAY, May 14, at 12 o'Clock, about 10,000 GREENHOUSE and BEDDING PLANTS (presenting a rare opportunity to proprietors of Public Gardens, and to those gentlemen who appreciate the advantages of obtaining full grown healthy Plants, suitably adapted for Bedding out at once and for immediate effective purposes), including the usual miscellaneous assortment.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Important Sale.

MR. W. BARNES has been directed by the Executors of the late Miss Traill, of Hayes Place, Bromley, Kent, to arrange for SALE by PUBLIC AUCTION, which will take place on the Premises on FRIDAY, May 15, the Splendid Collection of ORCHIDACEOUS, STOVE, GREENHOUSE, ERICAS, and other PLANTS, that have for so many years gained such celebrity at the principal London and other Shows. They consist chiefly of magnificent specimens, many of which are acknowledged to be unsurpassed, if not unequalled, by any in this country.

May be viewed one day prior to the Sale. Catalogues are now being printed, and may be obtained in a few days on application to Mr. John Nettlefold, Auctioneer, Bromley, Kent, S.E.; or to Mr. W. Barnes, Camden Nursery, Camberwell, S.

N.B. Frequent Trains run from London Bridge and Victoria Stations to Bromley Station, which is one mile and a half from the place of Sale.

SALE THIS DAY, AT HALF-PAST TWELVE PRECISELY.

Bedding-out Plants.—Extensive Sale.

MR. J. C. STEVENS begs to announce that he has received instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, April 25, at half-past 12 o'clock precisely, the First Portion of the Stock of 250,000 choice BEDDING PLANTS, from a well known grower, consisting of Geraniums, Calceolarias, Fuchsias, Heliotropes, Verbenas, Cupheas, Salvias, Gazanias, Alyssums, Ageratums, &c. Also a quantity of Roses and Geraniums established in pots, of the best market sorts, just coming into bloom.

On view the Morning of Sale, and Catalogues had.

Hardy Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, April 28, at half-past 12 o'Clock precisely, a fine COLLECTION of PLANTS, consisting of Carnations, Pinks, Picotees, Epacris, Dianthus, Geraniums, Delphiniums, Polyanthus, Phloxes, Fuchsias, Violets, Gazanias, Hollyhocks, 2500 Gladiolus Bulbs, Lobelias, Pampas Grass, Calceolarias, Raspberry Canes, Pansies, Hollyhocks, and other Hardy and Ornamental Plants, in all about 400 Lots.

On view the Morning of Sale, and Catalogues had.

Consignment of Greenhouse and other Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 29, at half-past 12 o'Clock precisely, JAPANESE and NEW ZEALAND FERNS, consisting of 100 fine Plants of Woodwardia orientalis and 200 Lomaria discolor, 100 Bonapartea gracilis, 100 Indian Azaleas, 200 Hardy Rhododendrons, 300 Cannas, 200 Delphinium formosum, 200 Thuja aurea, 100 mixed Greenhouse Plants, 50 Gunnera scabra, 100 Pæonies, 50 Thuja Vervaeneana, &c.

On view the Morning of Sale, and Catalogues had.

Bedding-out Plants.

MR. J. C. STEVENS will SELL by AUCTION at his Great Room, 38, King Street, Covent Garden, W.C., on SATURDAY, May 2, at half-past 12 o'Clock precisely, the SECOND PORTION of the STOCK of 250,000 CHOICE BEDDING PLANTS, consisting of Geraniums, Calceolarias, Fuchsias, Heliotropes, Verbenas, Cupheas, Salvias, Gazanias, Alyssums, Ageratums, &c.

On view the Morning of Sale, and Catalogues had.

Importation of Tree Ferns just arrived from New Zealand.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, May 4, at half-past 12 o'Clock precisely, an IMPORTATION of TREE FERNS, just arrived ex "Asterope" from NEW ZEALAND.

On view the Morning of Sale, and Catalogues had.

Valuable Pigeons.

MR. J. C. STEVENS begs to announce that he has received instructions from Major Hassard (who is parting with the whole of his Stock), to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, May 5, his Valuable Collection of CARRIER PIGEONS, BUFF and WHITE COCHINS, &c.

Full Particulars will be given in the Catalogues, which will be ready one week prior, and will be forwarded on receipt of two Stamps, to Mr. J. C. Stevens, Auctioneer and Valuer, 38, King Street, Covent Garden, W.C.

Established Orchids and Hardy Ferns.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 14, at half-past 12 o'Clock precisely, a Collection of ESTABLISHED ORCHIDS, comprising, amongst many others, the following choice varieties:—

Saccolabium Dayii	Trichopilia crispa
,, guttatum superbum	Cymbidium eburneum
Aerides nobile	Dendrochilum filiforme
,, Warneri	Vanda suavis
,, Lindleyanum	,, tricolor
,, Lobbii	Lælia elegans
,, maculosum	Cattleya Trianæ
,, suavissimum	,, Quindiu
Cypripedium Veitchii	,, Boothiana
,, villosum	,, labiata
,, caudatum	Sobralia macrantha splendens
,, hirsutissimum	&c., &c.

Also some valuable HARDY FERNS, including some very choice varieties of Lastrea dilatata, and other good sorts.

On view the Morning of Sale, and Catalogues had.

Preliminary Notice.

MR. J. WILLMER begs most respectfully to announce that he is instructed by the Executors of the late Mr. William Nayler, to SELL by AUCTION, without reserve, in MAY NEXT, the whole of his costly COLLECTION of TULIPS, Tulip Stage, Cabinets, &c.

Full particulars will be duly announced.

To Tulip Growers and Others.

MR. J. WILLMER begs most respectfully to announce that he is favoured with instructions from the Executors of the late Mr. W. Lawrence, of the Lion Hotel, Hampton, to SELL by AUCTION, without the least reserve, on the Premises, the Lion Hotel, Hampton, on THURSDAY, May 14, at 11 o'Clock, precise time, the whole of the COSTLY COLLECTION of TULIPS, Stage, Cloths, Irons, Show Boxes, Cabinets, &c.

Catalogues will be ready by May 1, and may had on the Premises; or by forwarding two postage stamps to the Auctioneer, Springfield Nursery, Sunbury, Middlesex, S.W.

Crevecœurs, Cochins, Hamburghs, Game Bantams, Dorkings, &c.; Pigeons, Ducks, Rabbits, Fancy Birds, Dogs, &c.

MR. ARTHUR PLEWS will SELL by AUCTION, at his Rooms, 11, Catherine Street, Strand, W.C., on WEDNESDAY NEXT, April 29, a fine Collection of the above description of Property. Lots can be received up to 11 o'Clock on the Morning of Sale.

May be viewed the day previous, and Catalogues had.

Greenhouse Plants in Bloom, Bedding-out Plants, Carnations, Gladioli, and various Floral Produce.

MR. ARTHUR PLEWS will SELL by AUCTION, at his Great Sale Rooms, on FRIDAY NEXT, May 1, at half-past 12 o'Clock precisely, a fine Collection of the above description of Property.

May be viewed the day previous, and Catalogues had of the Auctioneer, 11, Catherine Street, Strand, W.C.

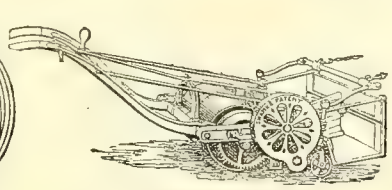
SHANKS' NEW PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

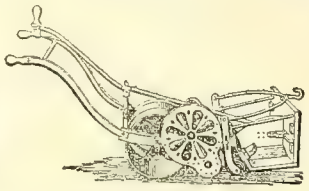
NEW PATENTED IMPROVEMENTS THIS SEASON.

EXHIBITION PRIZE MEDAL AWARDED.

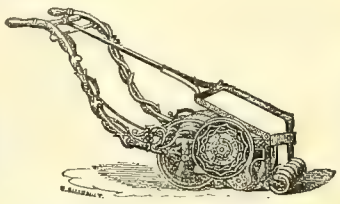




HORSE MACHINE.



PONY MACHINE.



NEW HAND MACHINE.



SHANKS' NEW PATENT MACHINE

Mows the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at half the expense.

NO PERSON HAVING A LAWN SHOULD BE WITHOUT A MOWING MACHINE.

The first practical Gardeners of the day who have devoted their attention in examining all the different Lawn Mowers offered, do not hesitate in recommending SHANKS' Machine as *the best Mower for general use.* The important Improvements introduced last season have undergone a thorough practical test, and satisfied the most sanguine expectations. *Further Improvements, simplifying the Machine, and adding to its efficiency, have been introduced into the* NEW PATENT LAWN MOWER for 1863.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for Use.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		
No. 1.—48-inch Machine	... £28 0 0	*Drawn by a Horse.*
No. 2.—42-inch Machine	... 26 0 0	
No. 3.—36-inch Machine	... 22 0 0	
No. 4.—30-inch Machine	... 19 0 0	*Drawn by a Horse or strong Pony.*

Patent Delivering Apparatus for Nos. 1 and 2 Machines, 40*s.*; for Nos. 3 and 4 Machines, 30*s.*; Box with complete Set of Tools, 10*s.*; Silent Movement, 20*s.*; Boots for Horses' Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		
No. 5.—30-inch Machine	... ... £15 15 0	*Drawn by a Pony.*
No. 6.—28-inch Machine	... ... 14 10 0	
No. 7.—25-inch Machine	... ... 12 10 0	*Drawn by a Donkey.*

Patent Delivering Apparatus for Nos. 5 and 6 Machines, 30*s.*; for No. 7 Machine, 25*s.*; Box with complete Set of Tools, 7*s.* 6*d.*; Silent Movement, 12*s.* 6*d.*; Boots for Pony, 21*s.*; Donkey, 10*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for use.

Width of Cutter.		
No. 8.—24-inch Machine	... ... £8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	... ... 8 7 6	
No. 10.—19-inch Machine	... ... 7 12 6	*Do. by a Man and a Boy.*

Width of Cutter.		
No. 11.—16-inch Machine	... ... £6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	... ... 6 2 6	*Do. by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, and which is only recommended for the two larger sizes, 25*s.*; Box, with complete Set of Tools, 5*s.*; Silent Movement, 7*s.* 6*d.*

No. 16.—12-inch Machine for Pushing only, £5 5*s.*; easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of may be at once returned.*

Machines are kept in Stock, from which Orders can be at once executed.

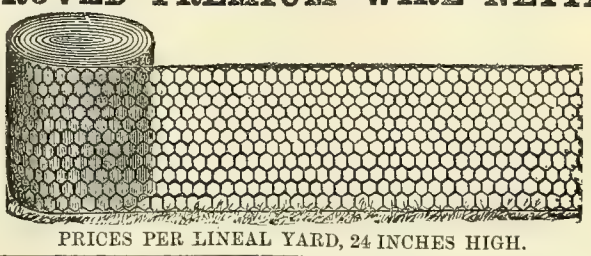
SHANKS' MOWING and ROLLING MACHINE is in successful operation in HER MAJESTY'S GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the EMPEROR of the FRENCH; in the GROUNDS of his ROYAL HIGHNESS the PRINCE of PRUSSIA; in many other places throughout the Continent, as well as in the United States, British America, India, Australia, and other parts Abroad. It is also used in most of the Gardens of the principal Nobility and chief Landed Proprietors in the Kingdom; *and everywhere its merits have been fully proved, and its success established.*

AGENTS:

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Japanned.	Galvanised.	Japanned.	Galvanised.	Japanned.	Galvanised.	Japanned.	Galvanised.
		s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
2¼ inch	Dogs or Poultry...	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 inch	Poultry	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ inch	Small Rabbits, Hares, &c....	0 4	0 4¾	0 4¾	0 6	0 5½	0 7	0 7	0 9
1½ inch	Smallest Rabbits	0 5	0 6	0 5¾	0 7	0 7	0 9	0 9	0 11
1 inch	Pheasantries, &c.	0 9	0 11	0 10½	1 1½	1 3	1 6	1 9	2 0
¾ inch	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	...	...

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland. *Any width of Netting up to 6 feet made at proportionate prices.*

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

DIAMOND WIRE TRELLIS for Training Plants, made to any size of Mesh, and in pieces of any required dimensions for Walls, House Fronts, &c.

GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, IRON and WIRE ARCHWAYS, CAST-IRON VASES, and every description of Horticultural Machines, Tools, and appliances. *Every article guaranteed to be satisfactory.*

☞ Catalogues of Agricultural Implements, &c., in Parts as under, Free on application:—

Part I. Implements of Tillage, &c. | Part II. Harvesting and other Machines. | Part III. Barn Machinery and Miscellaneous.

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 18.—1863.] SATURDAY, MAY 2. {Price Fivepence. STAMPED EDITION, 6*d*.

INDEX.

Agricultural statistics of Ireland	420 *a*	Palermo, spring at	414 *a*
Araucaria imbricata, seedling	412 *a*	Paris, hort. exhibition at	412 *a*
Azalea, blue	413 *b*	Peaches	413 *c*
Boiler explosions	417 *c*	Plants, popular names of British	412 *a*
Boilers	413 *c*	Recent agricultural progress	419 *a*
Calabar Bean, new use of	412 *a*	Roses, new	413 *a*
Conifers, Mistletoe on	413 *c*	Royal Agri. Benevolent Institution	423 *c*
Cotton as food for labourers	419 *a*	Sales, plant	415 *c*
Fattening cattle on light farms	420 *b*	Society, Royal Agricultural	421 *c*
Fish and fishing	412 *c*	— Royal Horticultural	411 *c*
— — French	413 *a*	— Royal Botanic	414 *b*
General Steam Cultivation Company	421 *c*	— Bot. of Edinburgh	414 *b*
Grafting	412 *b*	Sparrows	421 *b*
Holly, the	415 *c*	Steam cultivation	419 *b*
International Show, Hamburg	418 *a*	Systematic drainage	521 *c*
Jardin Fruitier du Museum	415 *b*	Tecophilea violæflora	412 *a*
Larch rot	411 *b*	The Summer of 1863, rev.	422 *b*
London Pride	413 *b*	Veronica syriaca	413 *c*
Lyell on Antiquity of Man	414 *c*	Vines, grafting	412 *b*
Mistletoe on Conifers	413 *c*	Weather, the	413 *c*
Moles and sparrows	418 *b*	Wireworm	413 *b*
Oats, Roman	413 *c*	Zinnias, new double	412 *a*

Royal Horticultural Society.
10TH JUNE, 1863.

UNCOVERING of MEMORIAL of EXHIBITION of 1851, in the presence of their RR HH.'s the PRINCE and PRINCESS of WALES.

The Cards of Admission can now be purchased, price 15*s*. each, if obtained before the 27th of May; 20*s*. from 27th to 6th of June, and 30*s*. after that date. A. MURRAY.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.

A MEETING of this COMMITTEE will take place on TUESDAY, May 5, at 12 o'Clock. The subjects to be examined must be at South Kensington for entry by 11 o'Clock, A.M.

THOS. MOORE, Secretary to the Committee.

EXHIBITION of SCULPTURE, at the ROYAL HORTICULTURAL GARDEN, South Kensington, TUESDAY, May 5. Open at 1 o'clock. Band at 2. Admission, Half-a-Crown.

ROYAL BOTANIC SOCIETY,
REGENT'S PARK.

The FIRST EXHIBITION of PLANTS, FLOWERS, and FRUIT, will take place on WEDNESDAY, May 13.

Tickets to be obtained at the Gardens by Orders from Fellows of the Society, price 5*s*.; or on the day of the Exhibition, 7*s*. 6*d*. each. The Gates open at 2 o'Clock.

Candidates for the Fellowship whose recommendations are received at the Office before May 9 will be admitted to the above Exhibition.

CRYSTAL PALACE FLOWER SHOWS.—The GREAT FLOWER SHOW on SATURDAY, May 23; and the ROSE SHOW on SATURDAY, June 27.

Schedules for the first are now ready, and can be had on application to Mr. W. HOUGHTON, Secretary to the Flower Shows, Crystal Palace, Sydenham, S.E.

Admission 7*s*. 6*d*. on the day; by day ticket purchased prior to the day, 5*s*.; and by Season Tickets free.

STAMFORD HORTICULTURAL SOCIETY.—The Schedules of Prizes with Rules for the FETE and ROSE SHOW on JULY 8, are now ready, and may be had free on application to

Messrs. LAXTON & HEWITT, Hon. Secs., Stamford.

TUNBRIDGE WELLS HORTICULTURAL SOCIETY.

A GRAND FLOWER SHOW and MUSICAL PROMENADE will take place on FRIDAY, July 3, in the grounds adjoining the Calverley Park Hotel. Entrance thereto opposite the Railway Station. Prizes open to all England will be given; also to Gardeners and Amateurs, and to Cottagers.

Schedules of the Prizes may be obtained of Mr. E. F. LOOF, Secretary, 8, Parade, Tunbridge Wells.

Pine Plants.

TO BE DISPOSED OF, by a gentleman leaving for town and giving up his House, &c., about 100 good healthy PINE PLANTS, this and last year's growth.

Apply by letter to Mr. F. STEAD, 23, Jarratt Street, Hull.

Dahlias now Ready.

C. E. ALLEN has a large Stock of the above at low prices. CATALOGUES on application.

Shacklewell, near London, N.E.

Tropæolum Lobbianum elegans,
OR CRYSTAL PALACE NASTURTIUM, true variety.

C. E. ALLEN has a large Stock of the above from Cuttings. Price on application.

Shacklewell, near London, N.E.

Golden Chain Geranium.

WILLIAM HUSSEY begs to offer the above, strong plants, well established in small pots, 25*s*. to 30*s*. per 100, or 3*s*. to 4*s*. per dozen.

Horticultural Gardens, Norwich.

Hendon Park Nurseries, N.W.

LONICERA AUREO RETICULATA (Japan), the finest variegated Climber ever offered, gold, green, and crimson, quite hardy. The Trade liberally dealt with.

PANSIES, all the leading sorts for show, from 6*s*. per dozen.

EDWARD SHENTON.

THUJA AUREA (GOLDEN ARBOR-VITÆ) as a Bedding Plant. Habit very dwarf and compact, perfectly hardy, and for several months in the year of a beautiful golden colour.

Nice bushy plants, 8 to 10 inches, 18*s*. per dozen.

E. COOLING, Mile Ash Nurseries, Derby.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON,
NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Agricultural Seeds.

GEORGE GIBBS AND CO.,
SEEDSMEN,
26, Down Street, Piccadilly, London, W.

Agricultural and Garden Seeds.

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbeach.
Special PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH,
SEED MERCHANTS,
Covent Garden Market, London, W.C.

Good Turnip Seeds, Carriage Free.

SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

BARR AND SUGDEN,
SEED MERCHANTS,
12, King Street, Covent Garden, W.C.

Introduction of New Plants.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to announce that his NEW CATALOGUE (No. 72) is ready, and contains all his NOVELTIES to be sent out this season.

The Catalogue will be forwarded on application.

Dulwich, London, S.

F. AND A. SMITH'S CATALOGUE of NEW PLANTS, containing all the Novelties of 1863, is now ready, free on application.

CHARLES TURNER'S DESCRIPTIVE LIST of PLANTS for the SEASON is now ready, and may be had free on application.

The Royal Nurseries, Slough.

Variegated and other Bedding Geraniums.

CHARLES TURNER'S Stock of the above comprises the best kinds in the finest plants, at moderate prices. CATALOGUES may be had on application.

The Royal Nurseries, Slough.

New Verbenas.

CHARLES TURNER'S Set of Nine New Varieties is now ready, including the finest White for Bedding purposes. Price 24*s*.

The Royal Nurseries, Slough.

SPLENDID NEW SCARLET VERBENA, LORD LEIGH.—Strong Plants now ready, 5*s*. each, 42*s*. per dozen.

CATALOGUES also ready, and will be forwarded Post-free on application to

S PERKINS & SONS, Park Nursery, Coventry.

Dahlias.

JAMES FAIRHEAD AND SON beg to announce that their CATALOGUE of DAHLIAS, including Pompone or Bouquet and Bedding varieties, is now ready, and may be had gratis on application.

7, Borough Market, London, S.E.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs respectfully to announce that he has just published a SUPPLEMENT to his CATALOGUE of PLANTS, which may be had on application to his Agents, Messrs. R. SILBERRAD, 5, Harp Lane, London, E.C.

JVERY AND SON beg to announce that their new PRICED and partially DESCRIPTIVE CATALOGUE of HARDY BRITISH FERNS is now ready, and will be forwarded on application.

Dorking Nursery.

Calceolaria, Crawford's Empereur de Maroc.

JAMES CRAWFORD has much pleasure in offering the above magnificent SEEDLING. It is said to be the best dark Calceolaria ever offered to the public. It will be a great addition to the flower garden, and also to the pot stands in Covent Garden. It is now offered at 3*s*. 6*d*. each.

High Beech, Essex, N.E.

Narcissus Bulbocodium.

WANTED, a few hundred of the above. Send price, with a bloom, to

H. HARMAN, Denham, near Uxbridge.

Filix Frizelliæ.

J. SHAW, having a large stock of this rare and beautiful HARDY FERN, offers them by the dozen at 2*s*. 6*d*. each, half dozen 3*s*. each, single plants 3*s*. 6*d*.

Stamford Nursery, Bowdon, Cheshire.

Unbloomed Seedling Calceolarias.

MR. HENRY MAJOR, Knosthorpe, near Leeds, is now prepared to supply unbloomed SEEDLING CALCEOLARIAS, nice young plants, raised from seeds saved from his unrivalled collection, at 5*s*. per parcel of 20, or 3 parcels for 12*s*., post free. These will all bloom this year. Postage stamps taken in payment.

New Roses for 1863.

BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.

St. John's Street Nursery, Colchester.

Paul's Nurseries, Waltham Cross.

WM. PAUL (Son and Successor to the late A. PAUL), has a large Stock of all the NEW ROSES, now ready for delivery.

Splendid plants at lowest advertised prices.

PRICED CATALOGUE free by post.

ALL the NEW ROSES of 1863.—In fine strong Plants now ready.

DESCRIPTIVE LISTS on application.

WM. WOOD & SON, Woodlands Nursery, near Uckfield, Sussex.

NEW ROSES for 1863.—All the best and latest introductions to be obtained at the Nurseries of H. LANE & SON, Great Berkhampstead.

40,000 Dwarf Roses in Pots for Bedding.

THE MONTHS OF APRIL AND MAY ARE CONSIDERED THE MOST ELIGIBLE FOR PLANTING OUT ROSES FROM POTS.

WM. WOOD AND SON have an enormous stock of fine healthy plants, now ready to send out. CATALOGUES sent Post-free on application.

Woodlands Nursery, Maresfield, Uckfield, Sussex.

THOMAS BUNYARD AND SONS give notice to the Trade, that they have taken the Ashford Nursery, which they intend to carry on jointly with theirs at Maidstone.

In the autumn they will have to offer STANDARD ROSES of all the leading kinds in quantity. Price on application.

High Beech, Essex.

JAMES CRAWFORD having upwards of 20,000 Choice BEDDING PLANTS, strong and healthy, also a select collection of all the newest and best sorts of ROSES, &c., in pots, most respectfully solicits the inspection of ladies and gentlemen.

Pelargoniums, Verbenas, Fuchsias, and Pansies.

J. DOBSON AND SONS have a fine healthy Stock to offer of all the best kinds at moderate prices.

Woodlands Nursery, Isleworth.

New Purple Verbena Lord Craven.
THE FINEST EVER RAISED.

DOWNIE, LAIRD, AND LAING, are now sending out Strong Plants of the above magnificent flower. Price 5*s*. each; 42*s*. per dozen.

Stanstead Park, Forest Hill, London, S.E.; and Edinburgh.

TROPÆOLUM LOBBIANUM ELEGANS (Crystal Palace Scarlet), Seed scarce.

Per packet, 1*s*. and 2*s*. 6*d*.

BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market.

To Persons Interested in

BRITISH WILD FLOWERS.—Some specimens of the ORCHIS TRIBE can be forwarded fresh when they flower.

For particulars apply by letter to L. C., care of Mr. Groom, 37, Wigmore Street, Cavendish Square, W.

NEW CUCUMBERS, at 1*s*. per packet.

Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Cabbage Plants.

H. AND R. STIRZAKER can supply in any quantity fine DRUMHEAD CABBAGE PLANTS, EARLY CURLED SAVOY, &c., RED for Pickling, all Autumn sown.

The Nurseries, Lancaster.

Dioscorea Batatas, or Chinese Yam.

JVERY AND SON beg to offer whole Roots of this useful Esculent, from 3*s*. to 4*s*. 6*d*. per dozen; Cut Sets, 1*s*. per dozen. Dorking Nursery.

DIOSCOREA BATATAS (Chinese Potatoes).—Roots 6 to 10 inches long, 6*s*. per 100, 50*s*. per 1000.

Supplied by JOHN CATTELL, Westerham, Kent.

Trade price on application.

NEW TURNIP SEED from SELECTED BULBS at Low Prices.

PRICED LISTS post free.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

MANGEL WURZEL SEED.
Good Seed at low Prices.

For prices apply, stating quantity required, to SUTTON & SONS, Seed Growers, Reading, Berks.

MANGEL WURZEL SEED in every variety, supplied at very moderate rates, direct from the Grower, Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts.

SKIRVING'S SWEDE TURNIP SEED for Sale.

Apply to Mr. WILLIAM CANT, Myland Lodge, Colchester.

SEED CORN from the CHALK.—All the most approved varieties supplied by RAYNBIRD, CALDECOTT, & BAWTREE. Samples and prices on application.

Address, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

CHEAP GRASS SEEDS for HILL SIDES and RAILWAY BANKS.—Rough Grasses, Sainfoin Siftings, &c., suitable for the above purpose, at 2*s*. per bushel and 3*d*. per lb.

Address, RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Bedding Plants, mostly 2s. 6d. per dozen.

J. SCOTT'S FLOWER GARDEN and ANNUAL DIRECTORY will be ready to forward, from the 1st week of April, at *6d.*

"All who wish to have their Gardens gay, at a moderate price, should procure the above."

Merriott, Crewkerne, Somerset.

RUSSELL'S PYRAMID PRIMULAS.—Seed of this unequalled strain is now ready, in packets, price *2s. 6d.*

The great satisfaction which these kinds have given in previous seasons, renders further comment on their merits unnecessary. The additional care taken however in saving the seed last year will probably result in producing flowers much superior to any ever seen.

Printed notes on raising them, and their culture, forwarded with each packet; payment can be made in postage stamps.

GEORGE CLARKE, Nursery, Streatham Place, Brixton Hill, London, S.; and 4, Windsor Terrace, Pimlico, S.W.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

Chrysanthemums, Dahlias, Fuchsias, Verbenas, Geraniums, Pelargoniums, Petunias, Calceolarias, &c.

W. HOLMES'S CATALOGUE of the above is now ready, and may be had in exchange for One Stamp. Reference or remittance from unknown Correspondents.

Frampton Park Nursery, Hackney, N.E.

Splendid New Double Fuchsia Grand Admiral.

GEORGE WHEELER, NURSERYMAN, Warminster, Wilts, is prepared to send out the above. Tube and sepals bright crimson scarlet, sepals broad and well reflexed, corolla deep violet purple, large and full, a most profuse bloomer, the branches curving very gracefully, makes the habit unexceptionable. It has been declared by the best judges to be the finest double Fuchsia ever offered either for Exhibition or Greenhouse Decoration.

G. W. feels confident it will give general satisfaction. Price *7s. 6d.* each.

Fuchsias.

WILLIAM HUSSEY begs to offer the undernamed collection, new varieties of 1862, for 10*s.*, package included, viz.:—Turban, De Tollenaère, Minnie, M. Biaemt, Universal, Secretaire Mottin, Sensation, Ruy Blas, Comet, Madame Meldert, Lily of Killarney, Comte Lanney, International, President Muller, Brightness, Dante, Bravo, The Best.

Horticultural Gardens, Norwich.

Select Stove and Greenhouse Plants, &c.

ROBERT PARKER begs to invite attention to his Collections of AMARYLLIS, AZALEA INDICA, EXOTIC ORCHIDS, FERNS, and LYCOPODS; ORNAMENTAL and VARIEGATED FOLIAGED PLANTS; MISCELLANEOUS, STOVE, GREENHOUSE, and HARDY PLANTS; all of which are healthy and clean. Purchasers of large or small quantities will be treated on the most liberal terms.

PRICED and DESCRIPTIVE CATALOGUES are published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Dracæna (Cordyline) indivisa, from Mount Egmont, New Zealand.

BUTLER AND MCCULLOCH have received a supply of Seed of the above strikingly beautiful fine-foliaged Plant, of which the following is an extract from their correspondent's letter which accompanied it. "When known," he says, "few of your nobility can be without this splendid plant in their gardens. I believe, indeed, that it will stand your winters out of doors with moderate protection. It grows here from 10 to 15 feet high, leaves 6 feet long and 8 inches broad, of a deep green hue, having a midrib of brilliant orange yellow, with red veins running parallel with it."

The Seed we now offer, our correspondent says was gathered in the snowy ranges; Plants therefore raised from it may be expected to possess more than usual hardy constitutions. Price 1*s.* and 2*s.* 6*d.* per packet.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

WELLINGTONIA GIGANTEA.—The attention of the Nobility, Gentry, and the Trade, is invited to the largest stock of 1-year SEEDLING PLANTS in the Kingdom, established in single pots and fit for Spring planting. Price per dozen, 12*s.*; per 100, 3*l.* 10*s.* A sample free by post for 12 stamps.

J. HENCHMAN, Edmonton, London.

Green Hollies.

CORNELIUS WHITEHOUSE, Brereton Nursery, Rugeley, Staffordshire, offers an immense stock of well-grown healthy extra Transplanted HOLLIES, exceedingly well-rooted, from 12 to 15, 15 to 18, 18 to 24, 24 to 30 inches. Also very handsome SPECIMEN PLANTS from 3 to 5 feet; also ENGLISH YEWS from 2 to 2½ feet, 2½ to 3 feet and upwards. The above growing on ground to be cleared for other stock, the price will be liberal. Trade price on application.

Cheap Plants.

WM. DILLISTONE will forward (carriage free to London) the under-mentioned, in 100 strong Plants in pots, upon receipt of Post-office Order for 25*s.*, or half for 13*s.* 6*d.* (on Castle Hedingham).

18 Distinct FUCHSIAS, new, of 1862
18 Distinct VERBENAS, new, of 1862
6 VERBENA FOXHUNTER, new, of 1862
6 VERBENA MRS. HOLFORD, new, of 1862
12 LOBELIA SPECIOSA KERMESINA, new, of 1862
12 AMARANTHUS MELANCHOLICUS, new, of 1862
12 Finest Named PETUNIAS
12 Distinct Named VARIEGATED GERANIUMS
2 CALCEOLARIA CANARIENSIS
2 MIMULUS GAIETY

TOM THUMB, FLOWER OF THE DAY, and other kinds of GERANIUMS, VERBENAS, Purple, White, and Named Sorts, CALCEOLARIAS, &c., by the 100 or 1000.

Munro Nursery, Sible Hedingham, Essex.

BEDDING PLANTS, &c.

E. G. HENDERSON & SON'S

NEW SPRING CATALOGUE FOR 1863

CONTAINS A LIST OF THE BEST NOVELTIES FOR THE SEASON.

The stock or property of many beautiful Novelties has been purchased by Messrs. E. G. HENDERSON & SON, at a considerable expense, from among extensive selections at home and abroad. Great care and time has been expended by examinations and repeated trials of their respective merits as improvements on existing varieties. Among them are plants emanating from the first hybridisers in each leading section, of whom are EDWARD BANKS, Esq., for Fuchsias; Mr. EDMONDS for Verbenas; Mr. GRIEVES for Variegated Geraniums, the raiser of the beautiful varieties Sunset and Mrs. Pollock; Mr. BREEZE for Gloxinias; Mr. BELANGER for the Erythrinas, to whom we are indebted for all the fine kinds recently brought into notice. By the aid of a favourable climate and repeated issue of successful experiments, this gentleman has obtained a break or diverse strain from the old crimson-flowered types, by the production of varieties with a dwarfer habit, larger blossoms and longer flower spikes, such as indicate a certainty that this truly splendid tribe will now add a magnificent feature to summer flower groups; also Mr. BEATON, to whom the amateur cultivator of flowers is more indebted for garden embellishment and how to sustain it than to any other individual for Nosegay Geraniums, which this year are much in advance of previous ones. The newest colour in the Geranium, with fine formed petals and large flowers, is very finely illustrated by Beaton's Ossian, and even surpasses in novelty M. Baboullard's beautiful white with carmine centre varieties, which are about to add charming additions to the flower garden; but one striking exception has been achieved by the last named raiser, in his very beautiful variety Alexandra, which is a true beat upon Christine, and also quietly passes by Beaton's Helen Lindsay, leaving both behind in effective beauty.

Among Bedding Dahlias we offer varieties with medium sized bouquet-like flowers, having habit of growth suitable for grouping. In Conifers are two species as hardy as the garden kinds, and with features so distinct as to prove effective in any selection. Besides the foregoing English Garden Hybrids, &c., are other Plants of special interest from Japan, China, Australia, Germany, France, South America, &c.

Coleus atropurpureus (nigricans).

NEW INTRODUCTION FROM JAVA.

It resembles in no way C. Verschaffelti; the foliage is flat, smooth, and of thick substance, even in its style of growth, and more robust and branching, and of hardier constitution than the last named species.

LONICERA SCHMITZIANA.—The finest of the scarlet-flowered species yet introduced.

VERBENA "WHITE LADY."—The purest in colour, most abundant in bloom for bedding, &c.

VERBENA "BLUE KING."—A Seedling from "Purple King;" colour and habit good; an improvement upon Blue Bonnet.

VERBENA "ST. CLAIR."—A Seedling from, and habit same as "Purple King;" rich plum colour; large truss.

New Geraniums, "Zonale Section."

OSSIAN (BEATON).—A splendid garden or conservatory variety; trusses very large, with individual blossoms of fine shape, which in their colour show a fine combination of the brilliant violet-puce and crimson colour seen in Cactus speciosissimus. The centre of the flowers is a deep shade of magenta, with an orange-scarlet tint in the top petals; colours proof against sun and rain. A beautiful and most brilliant colour.

MADAME RUDERSDORFF.—As a bloomer this is the finest variety in its section for adaptation to planting in extensive beds and ribbon lines; flowers bright carmine-salmon finely margined with white; trusses large, compact, and numerous, rising well up above the leaves; the individual blossoms of a good form, close lobed, colours proof against sun and rain; habit of growth compact, and of medium vigour, 12 to 16 inches in height, forming a beautiful and distinct new feature in the flower garden, well adapted for a middle row between a higher and a lower colour. 3*s.* 6*d.*

This variety has proved a beautiful bedder, giving more trusses (full size balls of flowers) than any other we know.

ALEXANDRA (E. G. H. & SON).—A rival to, and improvement upon Christine; habit vigorous and compact, 12 to 16 inches in height; leaves with dark zone; trusses globular and large; blossoms bright magenta tinted rose with a light shade in the upper centre. Adapted for large groups or ribbon lines, and forming an exquisite middle row between darker tints. Its profuse blooming habit, with a richer tinted Christine colour, constitutes a beautiful and effective feature in the arrangement of colours. 3*s.* 6*d.*

New Bedding Dahlias.

CRIMSON DWARF.—Rich red-crimson self-colour; style of growth compact, and well branched, 2½ feet in height; flowers of medium size, fine form, and profusion of bloom; clear and effective in contrast with lighter shades.

FIREBALL.—Orange-scarlet, 2 to 2½ feet in height, the most dazzling in effect of any Dahlia known; flower as round as a ball, borne on firm footstalks, rising well above the leaves; size moderate, intermediate between the show and bouquet varieties; suitable for small masses, or specimens.

METEOR (E. G. H. & SON).—Brilliant golden yellow, with a well-branched and compact growth, 2½ to 3 feet in height; flowers of a medium size (resembling the Bouquet Dahlia); fine form, and a profuse-blooming habit.

Retinospora leptoclada.

A beautiful new Coniferous shrub or small tree, to which a FIRST-CLASS CERTIFICATE was awarded by the Royal Horticultural Society, April 15, 1863. It assumes an erect pyramidal outline of growth, from 2 to 6 feet or more in height, branching proportionately wide at the base, and tapering upwards to a gracefully attenuate point. The colour of its growth is a fine silvery glaucous tint. In its native habitat it is described as a "densely branched compact pyramidal evergreen shrub, furnished with branches down to the ground, and thickly covered with numerous horizontal branchlets and small spray, densely clothed with imbricated more or less glaucous foliage, and thus presenting a beautiful object."

This fine shrub is quite hardy, being uninjured beside Cedrus Deodara, and Araucaria imbricata, when the latter were affected by cold.

New Show Geranium.

VIRGINIE MIELLEZ IMPROVED.—This charming variety originated by a branch sporting off from the well known Virginie Miellez of the continental collections, a flower that has perhaps been a greater favourite, and more sought after, than any other in its section.

Dianthus hybridus "Maire Paré."

NEW WHITE MULE-PINK.—After the production of the well-known Dianthus hybridus floribundus, two new varieties were raised, the first a striped flowered one, the second the present form, a beautiful white-flowered kind. Its growth is equally free and vigorous, about the same height and habit, with large terminal clusters of bloom, freely produced in successive months, forming a fine plant for border groups or pot-culture in late conservatory and greenhouse decoration. Its adaptation to the flower-garden throughout the bedding season will prove a welcome addition to summer and autumn display.

New Cypress. Cupressus Lindleyana alba.

A very elegant Cypress-tree of a clear silvery white aspect, the extremities of the young branchlets being also tipped with still purer white. Its neat, erect, and compactly branched sub-conical growth forms a distinct and picturesque feature in groups of evergreen shrubs, and presents a beautiful contrast when planted singly on lawns, or slightly elevated mounds. It is a valuable addition to the shubbery, or arboretum, and worthy of a place in every collection of hardy shrubs.

A CERTIFICATE OF MERIT was awarded to this species by the Royal Botanic Society of London, on April 11, 1863.

New Forcing Geranium.

EXPRESS.—A valuable variety for very early bloom. Habit of growth free and vigorous, with a profusion of large and very rich red-crimson blossoms, well above the leaves; the upper flower-lobes are marked with dark crimson blotches, and prettily shaded with a rosy-lilac centre.

It is a seedling between G. Crimson King and Washington, and as early as the last named, which is known as the best hitherto in its colour, the present variety being an improvement upon it in colour and shape.

Ligularia Kæmpferi argentea marginata.

A beautiful plant for decoration in the Conservatory, forming a more compact plant than the Farfugium grande, never assuming a sickly yellow spotted feature as in that species, but showing its silvery white margin and bars of a more permanent and picturesque character.

New Italian Varieties of Verbenas.

E. G. H. & Son beg to call attention to a new section of this favourite flower, quite distinct from any other previously introduced. In growth and habit similar to the bedding kinds, but producing parti-coloured flowers, in some instances beautifully mottled, in others striped and flaked, and some with opposite coloured margins.

New Gazanias.

G. AURANTIACA.—Fine bright yellow, with a conspicuous black ring in the centre, spotted white.

G. GRANDIFLORA.—Larger flowers, with broader petals than in G. splendens; colour brighter, and the ring in the centre more conspicuous.

G. SOUCI.—Large golden-yellow flower, with a jet-black, central ring, blotched white.

Salvia splendens Jungengeri.

Salvia splendens is almost universally known as the most beautiful of its tribe for decoration. The present variety is a desirable improvement by its dwarfer growth, more prolific bloom, and earlier expansion of its flowers by some weeks than the original one. In the latter respect it is of vast importance to the flower-garden, in which it is suitable for groups or any ornamental purpose. Its long flower-spikes of brilliant scarlet are not equalled by any other bedding or garden-flowering plants; for pot culture it is unique among autumn plants for conservatory decoration.

Anemone japonica "Honorine Jobert."

A beautiful new, hardy, herbaceous plant, being a pure white-flowered variety of Anemone japonica, having the free-blooming habit of A. japonica hybrida, but not derived from it. A vigorous growing plant, and valuable for summer effect in beds.

BANES's Collection of NEW FUCHSIAS. Collection of new DROOPING GLOXINIAS. GENISTA PROSTRATA. STATICE IMBRICATA LONGIFOLIA. TROPÆOLUM COMET and SPARKLER, prolific flowerers, scarlet, and crimson. Dr. CLARKE'S new HYBRID GERANIUM, with sweet scented foliage. Carnation-striped MULE-PINK (Dianthus hybridus striatiflorus). CULFORD BEAUTY, the finest double-flowered Carnation-striped Petunia. QUEEN of COQUETTES, the most beautiful mottled single Petunia. LUCY GRIEVE, the most distinct light crimson with light green margin, or belt, neat habit and fine form.

New FRENCH ROSES of 1863, 42*s.* and 60*s.* the 12 varieties. Rose JOHN HOPPER, 2*s.* 6*d.* and 3*s.* 6*d.* Rose LORD CLYDE, 7*s.* 6*d.* Rose CINDERELLA, or Fairy Climbing Rose, strong plants, 2*s.* 6*d.* each.

New Winter-flowering EPIPHYLLUM; a beautiful new collection, of brilliant colours and variegated flowers. See Catalogue. LAPAGERIA ROSEA: 1*s.* 6*d.*, 2*s.* 6*d.*, to 7*s.* 6*d.* each. The Trade supplied. CLIANTHUS DAMPIERI, 3*s.* 6*d* each.

BOUGAINVILLEA, four varieties—B. glabra, B. speciosa (spectabilis), B. splendens, and B. Weissiana—2*s.* 6*d.* to 3*s.* 6*d.* each. MIMULUS CUPREUS, 9*d.* each, 6*s.* per dozen. BEATON'S first selected NOSEGAY GERANIUMS, in five varieties. PRIMULA SINENSIS ATROROSEA PLENA, the finest of all double Primulas, brilliant in colour, and a beautiful plant for winter bloom. New Silver-leaved SOLANUM CAPSICASTRUM; also the Sulphur-coloured variety. ASTILBA RIVULARIS RUBRA, a beautiful hardy harbaceous plant, and rival to the elegant Humea elegans in its graceful plume of feather-like flowers. Fern-leaved PRIMULA SINENSIS, white and crimson-flowered varieties, with fringed blossoms, 5*s.* each. Seven New JAPANESE CHRYSANTHEMUMS, including the "Yellow" and "Bronze Dragon," "grandiflora," and "Striata."

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

MIMULUS MACULOSUS.

ADELINE.	FAVOURITE.	LADY FERMOY.	SPLENDID.
CHARM.	HERO.	MARVEL.	SPECIAL.
FLORETTA.	LAURETTA.	SOUVENIR.	STARTLER.

Price 5s. each.

Twelve distinct Varieties of this exquisite New Strain will be sent out for the first time on and after the 18th inst.

This new cross has been effected with the Chilian species "Cupreus," and a showy Monkey-flowered variety named Gaiety.

For detailed description of these exceedingly beautiful hybrids, *vide* description in *Gardeners' Chronicle* of last week, page 388.

Hundreds of flowers of these NEW MIMULUSES are now expanded, and Mr. WILLIAM BULL will be happy to show them to any one who will favour him with a visit.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

NEW SHRUBBY CALCEOLARIAS.

MESSRS. JOHN & CHARLES LEE

Having purchased the entire stock of Seedling SHRUBBY CALCEOLARIAS, raised by Mr. Watson, of St. Alban's, in 1861 and 1862, have selected four distinct colours, which they are now prepared to send out. They are the finest high coloured Shrubby Calceolarias yet raised, and in point of habit and quality are everything that can be desired for bedding or pot culture. They are decidedly shrubby and of good constitution, with a dwarf spreading habit and good foliage. The flowers rise just above the leaves, forming an even mass of exquisite colouring.

Price 5s. each, or 15s. the set, as under:—

PRINCESS ALEXANDRA.—Rich orange buff, of very dwarf habit, free blooming and conspicuous. Quite a new colour in Calceolarias.

MAGNIFICENT.—Deep orange flowers, of large size with close mouth, flower stalks short and stiff, a good dense habit, and first-rate in every respect.

PRINCE LOUIS of HESSE.—Rich crimson flowers of medium size, free blooming, habit very dwarf and showy.

FIREFLY.—Intense orange scarlet flowers of good size, free blooming dwarf habit, the brightest colour yet raised.

Terms to the Trade on application.

ROYAL VINEYARD NURSERY AND SEED ESTABLISHMENT, HAMMERSMITH, LONDON, W.



CARTER'S

LIST OF NEW PLANTS FOR 1863.



NEW GERANIUMS.

Lord Palmerston (BEATON).

This is unquestionably the finest of the whole group of Nosegay Geraniums. It was raised by Mr. Beaton about three years since, and sent by him to be proved at the Gardens of the Royal Horticultural Society and the Crystal Palace, and by the Directors of the respective Gardens was selected from the whole mass of bedding plants to form the most prominent Beds of last Season, where it was universally admired. The flowers are deep crimson, produced in immense trusses in the greatest profusion, as many as 130 pips, or flowers, having been counted on a single truss. As this is a variety that has been thoroughly proved, we are induced to offer large quantities at a cheap rate, so that our customers may plant out large beds this season.

STRONG PLANTS.

Single plant	2s.	3 dozen	32s.
1 dozen	18s.	4 ,, ...	38s.
2 ,, ...	25s.	8 ,, ...	63s.

Helen Lindsay (BEATON).

This is a rival of the well-known "Christine," which is so extensively used for Bedding purposes in all Public and Botanic Gardens; the colour is a much richer rose, whilst the trusses of bloom are larger, and more profusely produced throughout the season. This variety is also free from the objectionable seeding propensities of Christine (which renders that otherwise admirable kind so very troublesome to keep in good order, beds of it after Midsummer assuming a ragged appearance if the seed pods are not constantly gathered). Its habit is similar to that of Tom Thumb, leaves slightly zonale. This will be the GEM of BEDDING GERANIUMS this season.

Price 1s. 6d. each; per dozen, 12s.

NEW TROPÆOLUMS.

The following Varieties are decidedly the best ever offered.

Elegans "Othello."

A beautiful deep maroon-coloured variety of the "Crystal Palace elegans," having the same short-jointed habit and profuseness of bloom; when grown in a mass its effect is striking in the extreme.

Price, 1s. 6d. each; per dozen, 12s.

King of Tom Thumbs.

A variety of the well-known T. Brilliant—habit very dwarf and compact, with a profusion of bright scarlet flowers, thrown well up above the dark bluish green foliage; this variety is quite distinct in colour of flower and foliage from all other varieties of Dwarf Tropæolums: the flower is very similar in shade of colour to Boule de Feu Geranium, and the habit is much more compact than any of the Tom Thumb varieties of Nasturtiums. Price 1s. 6d. each; per dozen, 12s.

FURTHER LIST of NOVELTIES, see PLANT SUPPLEMENT to

CARTER & CO.'S GARDENERS' VADE MECUM FOR 1863,

Containing FULL LISTS of STOVE, GREENHOUSE, and BEDDING PLANTS, now ready, post free, on application.

JAMES CARTER & CO., 237 & 238, HIGH HOLBORN, LONDON, W.C.

New Scarlet Geraniums.

WM. PAUL (Son and Successor to the late A. PAUL) has now ready for SALE two superb new SCARLET GERANIUMS. Price 10s. the pair.

WALTHAM PET.—Very bright scarlet, with fine large white eye, dwarf as "Harkaway," but much finer in truss and flower; the best dwarf scarlet for small beds or edgings. First-class Certificate from Royal Horticultural Society. Certificate also from Royal Botanic Society.

RED DRAGON.—An exceedingly smooth dark scarlet, with a peculiarly rich nap on the flower; habit of "Boule de Feu"—the best dark scarlet. All the best "Bedding" plants, 3s. per dozen and upwards.

PAUL'S Nurseries, Waltham Cross, N.

Cloth of Gold and Golden Fleece Geraniums.

STEPHEN SHILLING has to offer the above Plants, good, strong, and well-established in pots, at 3ls. 6d. per 100.

As it will save a great expense in the carriage, he will supply the same turned out of pots, carefully packed, at the following prices. 25s. per 100.; 10l. per 1000,

Delivered to the Winchfield and Basingstoke Stations, on the South Western Railway.

Orders executed in strict rotation as received.

North Warnboro' Nursery, Odiham, Hants.—May 2.

MRS. POLLOCK GERANIUM.—Twelve of the best kinds of VARIEGATED and ZONALE GERANIUMS for pot culture, including Mrs. Pollock, Rainbow, Madame Vaucher, &c., for 22s. 6d., basket and package included.

The above are strong well grown Plants, mostly in 5 or 6-inch pots, or can be sent shaken out to save expense in carriage.

A remittance respectfully requested from unknown correspondents.

ALFRED FRYER, Chatteris, Cambridgeshire.

BEDDING GERANIUMS, 2s. 6d. per dozen. Twelve dozen choice Bedding GERANIUMS, in 12 varieties, purchaser's selection, for 22s. 6d., basket and package included; or any kind separately, at 3s. 6d. per dozen.

VARIEGATED.	ZONALE.	ZONALE.
Golden Chain	Scarlet Perfection	CrystalPalaceScarlet
Reine d'Or	Lady of Loretto	Blackheath Beauty
Golden CeriseUnique	Little David	Princess of Prussia
Flower of Spring	Beauté de Meldoise	M. Martin
Alma	Lady Middleton	Mde. Chardine
Hendersonii	Christina	Paul L'Abbé
Bijou	Rose Queen	Imperial Crimson
St. Clair	Scarlet Queen	Model Nosegay
Countess of Warwick	Indispensable	Minimum Nosegay
Shottesham Pet	Bishopstowe Scarlet	Purple Nosegay

All the leading kinds at moderate prices. Price to the Trade on application.

A remittance respectfully requested from unknown correspondents. Post Office Orders to be made payable to ALFRED FRYER, Chatteris, Cambridgeshire.

5000 Tom Thumb Geranium, and 5000 Aurea floribunda Calceolaria.

ALEXANDER LAING offers fine Bushy Plants of the above in pots for bedding out at 15s. per 100 (cash), or 12s. per 100 turned out of pots, and tied up with Moss. A large quantity can be sent to any distance at a very small expense in carriage. The above are all autumn-struck plants, very vigorous and strong, and cannot fail to give satisfaction. Early orders solicited.

A GENERAL CATALOGUE of BEDDING PLANTS may be had on application, gratis, and post free.

Nurseries, Beverley, Yorks.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. Annual Sale exceeds 2000 packets. In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each.

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1s., 2s. 6d., and 5s.

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE PRIMULA SINENSIS SEED. In sealed packets, 1s., 2s. 6d., and 5s.

J. DOBSON & SONS, Seedsmen, Isleworth.

Superb Hollyhocks.

R. B. BIRCHAM begs to state that he has many thousands of fine Plants of the leading kinds of HOLLYHOCKS, which he will be happy to offer upon the most advantageous terms to any Nurseryman or Florist who may require them. Price per hundred upon application.

Purchasers requiring Blacks, Whites, or Yellows can be supplied at per dozen.

Hedenham Rosery, Bungay, Suffolk.



HOLLYHOCKS (MIXED) from the finest Show Varieties. Strong Blooming Roots, 4s. to 6s. per dozen; 25s. per 100.

RICHARD SMITH, THE NURSERIES, Worcester.

20,000 Indian Azaleas.

WILLIAM BARNES has the above to offer for Sale, of all the known varieties worth growing (both English and Continental), sizes varying from 1 foot to the noble specimen of 6 feet in height and 3 feet 6 inches in diameter, all in the most perfect state of health and vigour, and models in form.

Intending purchasers of this beautiful tribe of plants, will on inspection of those grown by W. B., at once see the precedency of the English stock over the Foreign one. Those grown and grafted in England on the proper stock are doubly vigorous, bloom quite as profusely, and the flowers are of much more perfect form and colour. W. B. has not the slightest wish to depreciate the continental culture of the Azalea, he merely invites the public generally to an inspection of his plants. All doing him the favour of a visit will have ocular demonstration of the advantage gained by grafting the Azalea in this manner, on a stock very little known (if at all) to any one with the exception of W. B., who discovered it after many years of practical experience and observation, and has proved it to be the stock for Indian Azaleas to flourish upon.

Many of the beautiful specimens which have been exhibited (and obtained prizes) at the Metropolitan and Provincial Shows, were grown at this Nursery.

Prices on application.

Camden Nursery, Camberwell, S.

Choice Variegated Plants, for Edging and Ribbon Borders.

B. S. WILLIAMS begs to intimate that he has a large Stock of the undermentioned, and can supply strong plants at the following prices:—

ARABIS ALBIDA VARIEGATA, 6s. per dozen; less by the 100.
AMARANTHUS MELANCHOLICUS RUBRA, 6s. per doz.
CERASTIUM TOMENTOSUM, 4s. per dozen.
CINERARIA MARITIMA, 4s. per dozen.
FESTUCA OVINA GLAUCA, 6s. per dozen.
GNAPHALIUM LANATUM, 4s per dozen; less by the 100.
STACHYS LANATA, 3s. per dozen; 20s. per 100; less price per 1000.
TUSSILAGO FARFARA VARIEGATA, 6s. per dozen.

Paradise and Victoria Nurseries, Holloway, London, N.

New White Verbena, White Lady.

B. W. KNIGHT, FLORIST, &c., Battle, Sussex, begs to offer the above splendid variety. It is the best white yet produced; the blooms are large, of a pure white with primrose eye, pips even and smooth, large truss well up in the centre, free grower, a useful variety either for bedding or exhibition, It can with confidence be depended upon for all purposes. Plants the end of April, 3s. 6d. each.

CATALOGUES of other superb SEEDLINGS sent on application.

LOUIS VAN HOUTTE'S NEW CATALOGUE, No. 96, is to be had at Messrs. R. SILBERRAD & SON, 5, Harp Lane, London, E.C.

☞ L. v. H.'s goods will be delivered free out of the Custom House in London, without any expense whatever to the buyer, but per contra 5s. will be charged for each package.

Ghent, Belgium.

New Roses.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites attention to the following NEW ROSES, which will be ready for delivery very shortly.

LORD HERBERT, H.P.—Rosy carmine, the petals reflexing at the summits in the way of Beauty of Waltham, large, full, and finely formed, and altogether of first-rate excellence. 7s. 6d.

LORD MACAULAY, H.P.—Velvety crimson, in the way of General Jacqueminot, but brighter in colour, thicker in the petal, and more double. The flowers are of good average size, produced abundantly and in rapid succession; the habit is good, and foliage handsome. 7s. 6d.

MRS. WILLIAM PAUL, H.P.—Bright violet red, shaded with fiery red; flowers constantly, and in clusters, large and full. Raised by M. Verdier, of Paris, the raiser of Madame Furtado, and others of our finest Roses. 5s.

RED ROVER, H.P.—Bright red petals, large, thick, and round; flowers abundantly and in succession up to Christmas. Not double enough for a show Rose, but the most effective pillar Rose ever offered. 3s. 6d.

WILLIAM PAUL, H.P.—A seedling from Senateur Vaisse, but brighter in colour. Raised at Lyons by the raiser of Lord Raglan, Senateur Vaisse, and other first-class sorts. 5s.

BEAUTY OF WALTHAM, H.P.—Bright rosy crimson, of good size, form, and substance, and deliciously sweet. This Rose is found to surpass the description originally given of it. 3s. 6d.

All the new French Roses, 3s. 6d. to 5s. each, or 42s. per dozen. The best of the old Roses at lowest advertised prices. The plants are well established, and in the finest possible health.

PRICED CATALOGUE free by post.

Nurseries and Seed Warehouse, Waltham Cross, N.

Hardy Ferns.

WILLIAM HUSSEY begs to offer the undernamed Collection, fine Plants, well established in Pots, for 18s. Hamper and Package included.

Lastrea rigida
" cristata
" uliginosa
" spinulosa
" dilatata
" Filix-mas cristata
" Thelypteris
Athyrium Filix-fœmina
" " " crispa
Scolopendrium officinarum
" " ramosum
" " multifidum
" " emarginatum
Polystichum angulare
" aculeatum
Asplenium viride
" viride bifidum
" Adiantum nigrum
Blechnum boreale
Cystopteris fragilis
Polypodium Dryopteris
" calcareum
" vulgare
Osmunda regalis
Botrychium lunaria

Horticultural Gardens, Norwich.

New Plant from Dr. Livingstone.

PYCNOSTACHYS URTICIFOLIA.

JAS. BACKHOUSE AND SON beg to draw attention to this interesting plant, the seeds of which were received from Dr. Livingstone. It is figured in the "Botanical Magazine," Tab. 5365, where Sir W. Hooker thus speaks of it:—"This species is at once distinguished by the large, nettle-shaped leaves, the broad, ovate, almost pyramidal shape of the spike or verticillastra, and the rich colour—a fine mazarine blue—of the corollas; and these spikes are more than 1½ inch broad. We are much mistaken if this does not become a great favourite in our gardens ere long, and not the less so from its being one of the many interesting discoveries of our most distinguished of African travellers." It is only necessary to add that the plant flowered in January of the present year; and as it was gathered at an altitude of 3000 feet, affording the greatest probability of doing well in an ordinary greenhouse, there can be no doubt of its proving a valuable addition to the few beautiful flowers of that season of the year. Good plants now ready. Price 15s.

GLEICHENIA DICARPA.—Good plants of this beautiful Fern at 10s. 6d. each.

LOMARIA L'HERMINIERI.—The most beautiful, perhaps, of all Ferns that have rose-coloured fronds, far surpassing L. attenuata. 7s. 6d. to 10s. 6d.

LILIUM LANCIFOLIUM COMPACTUM.—A fine dwarf free flowering variety, not more than 2 feet high, with large high coloured flowers. 5s. to 21s.

LYTHRUM ROSEUM SUPERBUM.—J. B. & Son have pleasure in offering this beautiful but little known plant. Being of compact growth, with a free branching habit, and producing numerous large spikes of rosy red flowers continuing for a long time, it is an excellent border plant and well adapted for ribbon planting, growing 2 to 2½ feet. It is hardy and deciduous. 1s. 6d. each; 12s. per dozen.

MYOSOTIS ALPESTRIS (the Alpine Forget-me-Not).—For the handsomest of all the species. A true perennial, of very dwarf and compact habit. Heads and individual flowers large and of brilliant blue; sweet scented. 1s. each; 75s. per 100.

ALPINE PLANTS.—A rich and varied collection, consisting of Gentianas, Primulas, &c. One hundred by name (one of each), at 52s. 6d., 75s., and 100s., according to quality.

J. B. & SON'S NEW CATALOGUE of FERNS and ORCHIDS is now ready; also of STOVE and GREENHOUSE PLANTS, either of which can be had upon application.

York Nurseries.—May 2.

DAHLIAS.

CHARLES TURNER ..	KEYNES..	8	First-class	Certificates
LORD WILTSHIRE ..	DODD ..	3	do.	do.
PRINCESS ALICE ..	EDWARDS			
COUNT CAVOUR ..	,,	3	do.	do.
SERENITY	RAWLINGS			
MRS. HOGG	,,			
EARL RUSSELL.. ..	SILVER ..	4	do.	do.
BELLONA	HARRISON	4	do.	do.
PATENT	NAIRN ..	6	do.	do.
BRIDE	RAWLINGS	2	do.	do.
MRS. WICKHAM ..	,,			
THE BEAU	,,			

It is respectfully announced that these 12 First-class Flowers will be ready for distribution the first week of May.

CATALOGUES with full descriptions will be forwarded on desire.

JOHN KEYNES, Castle Street Nursery, Salisbury.

New Dahlias.

HENRY LEGGE intends to send out the first week in May the following NEW DAHLIAS:—

SYMMETRY.—Bright buff speckled with crimson, the best Fancy of the year; received a First-class Certificate at Bishop Auckland. A good bedder and constant. Height, 20 inches. Extra for Exhibition. Per plant, 10s. 6d.

BEAUTY OF EDMONTON.—White tipped crimson, the most splendid bedding Dahlia in the world, and fine for pot culture; very free. Height, 2 feet. 10s. 6d.

SNOWBALL.—Blush white; a complete ball in form, very free. First-class for bedding or pots. 18 inches high. 10s. 6d.

BLOOMER.—Bright crimson; a profuse blooming variety. High centre and constant; fine for beds or pots. Height, 20 inches. 7s. 6d.

CANARY.—Pale yellow, free, good form and constant. Height, 2 feet. 7s. 6d.

PRINCE OF WALES.—Clear yellow, tipped pure white; fine form, constant. Partly let out last season, the stock being short. 1s. 6d. per plant, or 12s. per dozen.

Choice DAHLIA SEED, 2s. 6d. per 50 seeds. CATALOGUES can be had prepaid.

Marsh Side, Lower Edmonton.

NEW DAHLIAS.—On and after April 20, vigorous, hardy, and strong-rooted Specimens of our new picked sorts of this favourite Flower will be ready for transporting in pots. Lists of prices, with a description of the various sorts (GRANDIFLORA and LILLIPUTIANS—the latter principally for pots in small gardens) may be had on application, by prepaid letter, to our Agents, Messrs. STREET BROS., 11, Serle Street, Lincoln's Inn, London, W.C.

Twelve Sorts, selected by us, of these magnificent varieties, for 1l. 16s., when ordered direct, by post-paid letter, from the Establishment mentioned below. The whole Collection (33 sorts) for 6l. The usual allowance to the Trade.

Horticultural Establishment of H. LAURENTIUS, Leipzig, Saxony.

Introduction of New Plants.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer the following Novelties ready to send out now:—

	£	s.	d.
CALADIUM FORMOSUM..	0	8	0
,, MACROPHYLLUM	0	8	0
,, MIRABILE	0	16	0
,, SCHMITZII VIRIDE	0	12	0
,, THELEMANNII	0	12	0
,, VANDEN HECKEII	0	12	0
DIOSCOREA ARGYRÆA..	1	0	0
DIPLACUS GODRONII, VERSCHAFFELTII, SPLENDIDUS } the Set	0	10	0
SYRINGA PRESIDENT MASSART	0	8	0
,, AMBROISE VERSCHAFFELT	0	12	0
VIOLA ARBOREA BRANDYANA	0	8	0

The New CATALOGUE, No. 72, and a specimen Number of the "Illustration Horticole, can be obtained Gratis by writing to AMBROISE VERSCHAFFELT.

New Plants.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, will be ready to supply during next May the following interesting NOVELTIES, which he can recommend as first-rate:—

10 New PETUNIAS of Mr. Rendatler and others for 7s. 6d.
10 ,, FUCHSIAS of Mr. Cornelissen for 30s.
12 ,, PENTSTEMONS for 10s. 6d.
12 ,, PHLOXES, superb, for 10s. 6d.
20 ,, Italian-striped VERBENAS, extra, of 1862, for 21s.
12 ,, ,, for 1863, 21s.
12 ,, LILLIPUTIAN DAHLIAS of 1862, 21s.
12 ,, ,, for 1863, 42s.
PHLOX TRICOLOR, 5s.
DIELYTRA SPECTABILIS ALBA, 21s.
LOPHOSPERMUM SCANDENS GRANDIFLORA, 3s. 6d.

Early orders are solicited, and will be sent in strict rotation.

TO THE TRADE.—Last NOVELTIES at low prices.

	£	s.	d.
ANEMONE JAPON. HYBR. HONORINE JOBERT, beautiful novelty, pure white flowers, as large and abundant as the red one, per doz., 15s. .. per 100	5	0	0
ASPIDIUM FRIZELLLÆ, strong plants, .. per doz.	0	12	0
per 100	4	0	0
CHEILANTHES BORSIGIANA, rarest and finest of all the Gold Ferns. Received a First-class Certificate at the last meeting of the Royal Horticultural Society. Per doz. .. .. 2l. to	4	0	0
CYSTOPTERIS OBTUSA, per doz., 8s.. .. per 100	2	0	0
GERANIUM ZONALE EUGÉNIE MÉZARD, undoubtedly one of the best novelties of this season; bright salmon, large white eye, white borders, fine large truss, extra .. .. .. per dozen	1	0	0
GYMNOGRAMMA HYBRIDA DAVALLIÆFOLIA; this new, very pretty, and distinct variety, per doz.	1	5	0
DITTO STELZNERI; this magnificent new hybrid, according to size each .. .. 5s., 10s., and	1	0	0
LOMARIA PUNCTATA; young plants of this rare and fine Fern .. .. per dozen	1	10	0
LYGODIUM MEXICANUM, one of the finest climbing Ferns .. .. per doz.	0	16	0
PETUNIA, best French novelties of 1863; 12 beautiful single flowering sorts, and 10 double flowering ones, Madame Bretagne, Madame Lemoine, and the famous papaveracea amongst them; the 22 sorts ..	1	0	0
PENTSTEMON, do. do., 8 splendid new sorts; the set at	0	10	0
VERONICA, Wm. Henry Jacotot, Gloire de Lorraine, and Anne de Beaujen; the set of these three splendid new sorts	0	5	0
IN STRONG PLANTS.			
GYMNOGRAMMA GRACILIS VAR. .. per doz.	0	10	0
,, LANATA .. .. ,,	0	7	6
,, LAUCHEANA .. .. ,,	0	10	0
PHEGOPTERIS REFRACTA .. .. ,,	0	16	0
PTERIS TRICOLOR .. .. .. ,,	0	7	6
,, CRETICA FOL. VAR. .. .. per 100	1	0	0

STELZNER & MEYER, Ledeburg Nursery, Ghent, in Belgium.

NEW PRIZE MELONS,

at 1s. 6d. per packet.

Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria.

For descriptions see GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

NEW MELON, PRINCESS ALEXANDRA.—

A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1s. per packet.

JAMES CARTER & Co., 237, 238, & 261, High Holborn, W.C.

VINES in POTS, of the leading kinds, now showing an abundance of Fruit, price 7s. 6d. each. They can be removed safely. Smaller plants, well adapted for borders, 3s. 6d. to 5s. each, all raised from Eyes. Seakale for Planting, 3s. 6d. to 5s. per 100.

GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, near London, S.

EXTRA STRONG FRUITING VINES.—All the leading varieties, from Eyes, with stout well ripened rods, for FRUITING in POTS this YEAR. Price, from 7s. 6d. each; smaller, for Planting-out, from 3s. 6d. each. A reduction in price will be made to large purchasers.

"We can especially recommend the above, our strong Vines having for some years given unqualified satisfaction."—*Vide* Leading Article in *Gardeners' Chronicle* for December 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries, Chester.

Hardy Climbers in Pots.

WM. WOOD AND SON have an immense stock of fine strong Plants of the above, suitable for planting out at once against walls, trellises, or poles, consisting of the best kinds of ROSES, CLEMATIS, BIGNONIAS, IVIES, JASMINES, PASSIFLORAS, WISTARIA, &c., at very reasonable prices.

Woodlands Nursery, Maresfield, Uckfield, Sussex.

AZALEAS.—A Splendid Lot just arrived from Belgium, full of Flower Buds, 18s. to 30s. per dozen. British and Foreign FERNS, largest stock in the Trade. Greenhouse and Stove Plants, Evergreens, &c.

R. GREEN, 154, Kingsland Road, and Bedford Conservatories, Covent Garden Market, W.C.

Pansies, Pansies, Pansies.

W. BRAGG can now offer a fine Stock of the above in good Plants and Varieties, by the 100 or 1000 to the Trade; and 10,000 Seedlings in bloom, cheap.

Pansies, Pansies, Pansies.

W. BRAGG offers BELGIAN and the EARLY CLIEVEDEN BEDDING, Blue, Purple, and Yellow Varieties in quantities.

DAHLIAS, DAHLIAS, DAHLIAS, in great or small Collections. All the best SHOW and FANCIES yet out, and BEDDING VARIETIES. Trade supplied.

W. BRAGG can supply HOLLYHOCKS, PICOTEES, CARNATIONS, PINKS (Old), the Clove Yellow PICOTEES, nearly all kinds of BEDDING PLANTS, &c.

W. BRAGG, Star Nursery, Slough.

NEW HARDY WHITE SWEDE.—The Favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills. Grows rather coarse on some soils or when sown early; but it is very productive, hardy, and it is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor land.

Seed 1s. per lb., or 42s. per bushel.

Supplied by RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Skirving's "King of the Swedes."

WILLIAM SKIRVING, Queen Square, Liverpool, begs to acquaint the Farmers of the United Kingdom, that he has fixed the price this season for the Seed of his new variety of SWEDE at 1s. 3d. per lb., bags included.

W. S. can with confidence recommend this variety of Swede as the best now in cultivation, in every respect. This assertion is made after several years' experiments with every sort of Swede known.

The Seed of this variety having all been grown on his own Farm, he begs to say it can only be had direct from himself, this being the second year of its introduction.

All other sorts of Farm Seeds of the most superior quality, at their present market value.

Turnip Seeds.

MESSRS. BENJAMIN REID AND CO., SEEDSMEN, Aberdeen, Scotland, have published their LIST of SELECT TURNIP SEEDS, and will be happy to send a copy to any address.

ABERDEENSHIRE TURNIPS are widely celebrated for their bulk, solidity, and nutritious qualities.

All orders above 40s. will be sent carriage paid to any Railway Station in England or Scotland, and to the principal Irish Shipping Ports.

Seed, Plant, and Implement Warehouse, 132, Union Street, Aberdeen, N.B.

Turnip and Mangel Wurzel Seeds, Crop 1862.

RAISED FROM EXTRA SELECTED STOCKS, & TRANSPLANTED BULBS.

SPECIAL QUOTATIONS TO THE TRADE ON APPLICATION.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London.

N.B. A few Bushels of our celebrated LEWISHAM SWEDE on offer.

Turnip and Mangel Wurzel Seed.

H. AND F. SHARPE can supply the Trade with the following Varieties, true to name, all of their own growth, new and genuine, and on very advantageous terms.

TURNIP.	TURNIP.
Improved Purple-top Swede	Lincolnshire Red Globe
Champion do.	Improved Green Norfolk
Skirving's Improved do.	Fine White Stone
Marshall's Improved do.	MANGEL WURZEL.
Yellow Tankard	Elvetham Long Red
Pomeranian White Globe	Fine Orange Globe
Drummond's Early Field	,, Long Yellow
Yellow	,, Red Globe
Green-top Scotch	

Seed Growing Establishment, Wisbech.

International Exhibition. Prize Medals 1851 and 1862,
AWARDED FOR "EXCELLENT SEED CORN AND SEEDS," TO
RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED MERCHANTS and GROWERS, Basingstoke, Andover; and 89, Seed Market, Mark Lane, London, E.C.

Samples of all kinds of AGRICULTURAL SEEDS and SEED CORN, sent post free on application.



FARM SEEDS
OF GENUINE QUALITY
(at Market Prices).
Carriage Free.

RICHARD SMITH,
SEED MERCHANT,
Worcester.

LUPINE SEED, the entire Growth of Mr. THOMAS CRISP, of Butley Abbey, may be obtained of Mr. HENRY EDWARDS, Merchant, Woodbridge.—This Plant has been cultivated for several years with the greatest success on the poorest sandy soils, producing abundant crops of valuable Food for Sheep for summer and autumn feeding. Price 10*s.* per bushel; and new Sacks, 2*s.* each, at Woodbridge Station.

Woodbridge.—May 2.

To Seedsmen and Others.

THOMAS AYRES, SEEDSMAN and GROWER, Biggleswade, Beds, begs to offer the following SEEDS of his own growth of 1862, viz:—
WHITE SPANISH ONION SEED,
MANGEL WURZEL SEED, various kinds.
SWEDE, and COMMON TURNIP, ,,
SEED POTATOES of the following varieties:—EARLY ASH LEAF KIDNEY, MYATT'S PROLIFIC do., EARLY SHAW and REGENTS.
SCARLET RUNNER BEANS (English grown).
A PRICE LIST forwarded upon application.

NEW RHODODENDRONS

PRINCE OF WALES, | PRINCESS OF WALES.

The above beautiful RHODODENDRONS will be ready for sending out early in the Autumn.
Full description will appear in future Advertisements.

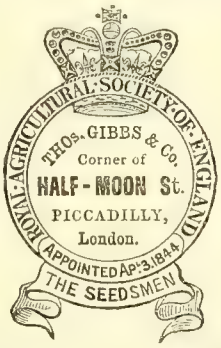
MAURICE YOUNG (SON and SUCCESSOR to the LATE WILLIAM YOUNG),
MILFORD NURSERIES, NEAR GODALMING.

KITCHEN GARDEN SEEDS.

FLOWER SEEDS.

In Collections including all the new and approved kinds, or separate to order.

Detail CATALOGUES post free.



AGRICULTURAL SEEDS,
GRASS SEEDS,
FARM SEEDS,
of all descriptions.

Thomas Gibbs & Co.
CORNER OF
HALF-MOON St.
PICCADILLY. LONDON. W.

FARM AND GARDEN SEEDS

CARRIAGE FREE.

BANGHOLM SWEDE,
EAST LOTHIAN SWEDE,
WARD'S BEAUTY SWEDE,
DROPMORE SWEDE,
MARSHALL'S CHAMPION SWEDE,
GREEN-TOP SWEDE,
WHITE SWEDE,
IMPROVED SKIRVING'S SWEDE.
WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
DOBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
IMPROVED YELLOW GLOBE DITTO,
IMPROVED ORANGE GLOBE DITTO,



IMPROVED LONG RED MANGEL,
IMPROVED LONG YELLOW MANGEL,
IMPROVED RED GLOBE MANGEL,
IMPROVED WHITE FIELD BEET,
RED CLOVER, | COWGRASS,
WHITE, YELLOW, and ALSIKE CLOVERS.
PACEY'S PERENNIAL RYE-GRASS, and other sorts.
ITALIAN RYE-GRASS, FOREIGN and ENGLISH SEED.
NATURAL GRASS SEEDS, in mixture or separate, suitable for various soils and localities.
LIGHT RYE-GRASS and other CHEAP GRASSES, for Sowing on Railway Banks and Waste Places.

Orders for Exportation promptly attended to.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN,
28, KING STREET, CHEAPSIDE, NEAR the GUILDHALL; and
15, LAWRENCE LANE, LONDON, E.C.

TO TURNIP AND MANGEL GROWERS.

Growers of the above will find the following Varieties well worth their attention:—

DRUMMOND'S EXTRA IMPROVED SWEDE TURNIP, 1*s.* per lb.—A large handsome oval-shaped root with clear purple skin. Is a remarkably free grower, and may be relied on as the heaviest cropper in cultivation. This is the identical stock that last year carried off the 50*l.* cup offered by J. B. Lawes, Esq., to the farmers in Ireland for the best 10 Irish acres, and for which there were a great many competitors; and in reference to this Swede the gentleman who managed the premium crop writes:—"*Allow me to congratulate you on your present stock of 'Drummond's Swede Seed,' which I have tested on my four farms here and in Scotland, and I believe it to be the best Swede out, beating*"—(here is mentioned the names of several regularly advertised varieties) "*all of which I had procured from the best authorities, and for shape, size, and quality, surpassing them all.*"

GREEN TOP YELLOW ABERDEEN IMPROVED TURNIP 10*d.* per lb.—As now *improved* this is unquestionably the most valuable Yellow Turnip grown, for while the crop is large, it is more nutritious, hardier, and a better keeper than any other variety. Hence its extensive culture by the great stock breeders throughout Scotland.

NEW OVAL-SHAPED YELLOW MANGEL, 10*d.* per lb.—The New Oval-Shaped Yellow recently introduced by us has been thoroughly tested, and has proved a most superior sort. It is of a remarkably vigorous growth, with finely shaped roots intermediate in length between the Long and the Globe, and producing several tons more per acre than any other variety. *This stock has been re-selected and is very superior.*

LONG RED MANGEL, 9*d.* per lb.—This is a very large free-growing root, stands well out of the ground, and lifts much cleaner than an inferior stock will.

With every other valuable variety of TURNIP and MANGEL in cultivation, PRICED DESCRIPTIVE LISTS of which may be had Post Free on application.

N.B. Parcels of Seeds amounting to 2*l.* and upwards are delivered CARRIAGE PAID to all the principal Railway Stations and Shipping Ports throughout the Kingdom, to which there is daily and quick transit from Stirling.

W. DRUMMOND AND SONS, SEED AND IMPLEMENT WAREHOUSE, STIRLING, N.B.

Cabbage Plants.

WM. VIRGO and SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 3*s.* per 1000:—

EARLY YORK CABBAGE	EARLY NONPAREIL
,, BATTERSEA	DRUMHEAD
,, BARNES	

RED CABBAGE, 4*s.* per 1000. All strong, healthy, and well rooted.

Wonersh Nursery, near Guildford, Surrey.



KING of the POTATO.—The original Stock as received from the Raiser, Mr. Spencer, and sent out by us. Pronounced by all who have grown it to be one of the MOST PRODUCTIVE AND BEST VARIETIES in cultivation. No Blight affects it.

Price 12*s.* 6*d.* per cwt., or 12*l.* per ton.

JAMES DICKSON & SONS,
The "Newton" Nurseries, Chester

TAN GRATIS, in the immediate neighbourhood of Covent Garden Market.
Apply at WILLIAM ESSEX & SON, 28, Stanhope Street, Clare Market, W.C.

THE best Quality of SILVER SAND, carriage paid to the South Eastern Railway Company's Station at Bricklayers' Arms, London, in Four Ton trucks and upwards, 11*s.* per ton, cash. In fine bags in One Ton lots, delivered to the General Carriers and Shipping Wharfs in London, 30*s.* per ton. Single bags of two bushels delivered to Messrs. Pickford & Co., Red Hill, 4*s.* 2*d.* per bag, and forwarded to all parts by enclosing 50 Postage Stamps. Small dry FULLER'S EARTH for improving the Growth of Lawns, Roses, &c, 4*s.* 2*d.* per bag of two bushels.
All orders and remittances to be addressed to JAMES GAWKROGER, 21, Union Street, Halifax, Yorkshire.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; second quality, 6*s.* per ton; best quality, packed in strong canvas bags, 16*s.* per ton; ditto 2*s.* 6*d.*, 2 cwt. bags, stamps, put on the rail at Reigate and forwarded to all parts of the United Kingdom.
PEAT SOILS, LOAM, &c.
Collections of NEW, RARE, and BEAUTIFUL PLANTS of all kinds, carefully selected and supplied at current Prices.
W. SHORT, Salesman, Agent, &c., Reigate, Surrey.

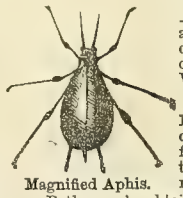


COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

The only Certain Remedy for Mildew.

JOHN BELL'S COMPOSITION for DESTROYING MILDEW on Vines, Peaches, Nectarines, Roses, and every other Plant subject to that pest, is proved to be the most efficacious that has ever been offered. Sold in Bottles at 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* each. A 1*s.* 6*d.* Bottle will make 12 gallons fit for use.
Seed Warehouse, 10 & 11, Exchange Street, Norwich.

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.
Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.
Can be obtained through the principal Nurserymen and Seedsmen in England.
A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.
PAGE & TOOGOOD, Seed Merchants, Southampton.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.
Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by
PRICE'S PATENT CANDLE Co. Limited.

ROYAL HORTICULTURAL SOCIETY.

REMAINING ARRANGEMENTS for the EXHIBITIONS and MEETINGS in 1863,

TO BE HELD AT

THE GARDEN, SOUTH KENSINGTON, W.

Tuesday, May 5	Opening of Exhibition of Sculpture, at 1. Floral Committee, at 12. Fruit Committee, at 12.
Saturday, May 16	Promenade. Band at 4.
Wednesday, May 20	Promenade. Band at 4.
Saturday, May 23	Promenade. Band at 4.
Wednesday, May 27	First Great Exhibition, at 1. Bands at 2. Floral Sub-Committee, at 10. Fruit Sub-Committee, at 10.
Friday, May 29	Council, at 11. Meeting for Election of Fellows, Ballot for Plants, &c., at 2.
Saturday, May 30	Promenade. Band at 4.
Wednesday, June 3	Promenade. Band at 4.
Wednesday, June 10	Uncovering of Memorial of Exhibition of 1851.
Saturday, June 6	Promenade. Band at 4.
Wednesday, June 10	Promenade. Band at 4.
Saturday, June 13	Promenade. Band at 4.
Wednesday, June 17	Second Great Exhibition. at 1. Bands at 2. Floral Sub-Committee, at 10. Fruit Sub-Committee, at 10.
Saturday, June 20	Promenade. Band at 4.
Wednesday, June 24	Promenade. Band at 4.
Friday, June 26	Council, at 11. Meeting for Election of Fellows, at 2.
Saturday, June 27	Promenade. Band at 4.
Wednesday, July 1	Third Great Exhibition—Roses, New Plants, &c., at 1. Bands at 2. Floral Sub-Committee, at 10. Fruit Sub-Committee, at 10.
Saturday, July 4	Promenade. Band at 4.
Tuesday, July 7	Floral Committee, at 12. Fruit Committee, at 12.
Wednesday, July 8	Promenade. Band at 4.
Saturday, July 11	Promenade. Band at 4.
Wednesday, July 15	Promenade. Band at 4.
Saturday, July 18	Promenade. Band at 4.
Tuesday, July 21	Floral Committee, at 12. Fruit Committee, at 12.
Wednesday, July 22	Promenade. Band at 4.
Friday, July 24	Council, at 11. Meeting for Election of Fellows, at 2.
Saturday, July 25	Promenade. Band at 4.
Wednesday, July 29	Promenade. Band at 4.
Tuesday, August 4	Floral Committee, at 12. Fruit Committee, at 12.
Tuesday, August 25	Floral Committee, at 12. Fruit Committee, at 12.
Wednesday, Sept. 9	Autumn Flower Show, at 1. Band at 2. Floral Committee, at 10. Fruit Committee, at 10.
Tuesday, Sept. 22	Floral Committee, at 12. Fruit Committee, at 12.
Friday, Oct. 2	Council, at 11. Meeting for Election of Fellows, at 2.
Tuesday, Oct. 6	Floral Committee, at 12. Fruit Committee, at 12.
Friday, Nov. 6	Council, at 11.
Tuesday, Nov. 10	Floral Committee, at 12. Fruit Committee, at 12.
Friday, Dec. 4	Council, at 11.
Tuesday, Dec. 8	Floral Committee, at 12. Fruit Committee, at 12.
Friday, Dec. 18	Council, at 11.

ELECTION OF FELLOWS.

Gentlemen and Ladies wishing to become Fellows have to be proposed by some one already a Fellow, to whom they are personally known. The subscription is Two Guineas Entrance Fee, and Two Guineas or Four Guineas a year according to the privileges wished.

ADMISSION OF THE PUBLIC.

Previous to April 30, packets of 25 tickets may be bought by Fellows for 5*l.* per packet. These tickets are available for any Show or Promenade during the year—admitting numbers corresponding to the prices of the day: *i.e.*, one on a 5*s.* day; two on a 2*s.* 6*d.* day; and five on a 1*s.* day.

1. HORTICULTURAL EXHIBITIONS AND PROMENADES.

May 5. Opening of Exhibition of Sculpture.. 2*s.* 6*d.*
Sept. 9. Autumn Flower Show .. .. .. 2*s.* 6*d.*

Free to Fellows and the Transferable Cards, and also admission by payment at the door or by Tickets previously purchased.

2. GREAT EXHIBITIONS.

May 27. First Great Exhibition ..
June 17. Second Great Exhibition ..
July 1. Third Exhibition and Great Rose Show .. .. ..

Free to Fellows and the Transferable Cards, and also admission by Tickets, price 5*s.* each, purchased previously to the day of the Show. If payment is made at the door, 7*s.* 6*d.* will be charged for each admission.

3. PROMENADES.

Wednesday,	May 20	Free to Fellows and the Transferable Cards, and also admission by payment at the door of 2*s.* 6*d.*
,,	June 3, 24	
,,	July 8, 15, 22, 29	
Saturdays,	May 16, 23, 30	
,,	June 6, 13, 20, 27	
,,	July 4, 11, 18, 25	

4. SPECIAL.

June 10. The Uncovering of the Memorial of the Exhibition of 1851, and Statue of H.R.H. The Prince Consort, in the presence of their Royal Highnesses The Prince and Princess of Wales.

Fellows and the Transferable Cards will be Free.

Prices of Admission and Programme of the Ceremony will be announced in a few days.

FIRST GREAT EXHIBITION, WEDNESDAY, MAY 27.

LIST OF PRIZES.

Class.	1st Prize.	2d Prize.	3d Prize.	4th Prize.
	£ *s.*	£ *s.*	£ *s.*	£ *s.*
1. 15 Stove and Greenhouse Plants .. .. (*Open*)	20 0	15 0	10 0	5 0
2. 12 Stove and Greenhouse Plants .. (*Nurserymen*)	10 0	7 0	5 0	3 0
3. 9 Stove and Greenhouse Plants .. .. (*Amateurs*)	9 0	7 0	5 0	3 0
4. 6 Stove and Greenhouse Plants .. .. (*Amateurs*)	6 0	4 0	3 0	2 0
Note.—Two Plants of a Genus will be admitted in Classes 1, 2, and 3. Exhibitors can only show in one of the Classes 1, 2, 3, and 4. Orchids and Florists' Flowers are excluded.				
5. 20 Orchids, exotic species .. .. .. (*Amateurs*)	20 0	15 0	10 0	5 0
6. 12 Orchids, exotic species .. .. (*Nurserymen*)	10 0	7 0	5 0	3 0
7. 10 Orchids, exotic species .. .. .. (*Amateurs*)	10 0	7 0	5 0	3 0
8. 6 Orchids, exotic species .. .. .. (*Amateurs*)	6 0	4 0	3 0	—
Note.—Exhibitors can only compete in one of the Classes 5, 6, 7, and 8.				
9. 9 Greenhouse Azaleas. Distinct kinds .. (*Amateurs*)	12 0	9 0	7 0	5 0
10. 9 Greenhouse Azaleas. Distinct kinds (*Nurserymen*)	10 0	7 0	5 0	3 0
11. 6 Greenhouse Azaleas. Distinct kinds .. (*Amateurs*)	6 0	4 0	3 0	2 0
12. 6 Rhododendrons in pots. Distinct kinds (*Open*)	4 0	3 0	2 0	—
Indian and Bhotan kinds might be shown here.				
13. 6 Roses in Pots. Distinct kinds .. .. (*Amateurs*)	6 0	5 0	4 0	—
14. 12 Roses in Pots. Distinct kinds .. (*Nurserymen*)	10 0	7 0	5 0	4 0
15. 6 Cape Heaths. Distinct kinds .. .. (*Open*)	5 0	3 0	2 0	—
16. 9 Pelargoniums. Distinct kinds .. (*Amateurs*)	8 0	6 0	4 0	2 0
17. 12 Pelargoniums. Distinct kinds (*Nurserymen*)	8 0	6 0	4 0	2 0
18. 6 Pelargoniums. Fancies. Distinct kinds (*Amateurs*)	5 0	4 0	3 0	—
9. 6 Pelargoniums. Fancies. Distinct kinds (*Nurserymen*)	4 0	3 0	2 0	—
Note.—Plants in Classes 16, 17, 18, and 19, are to be grown in Pots 8 inches in diameter.				

Class.	1st Prize	2d Prize.	3d Prize.	4th Prize.
	£ *s.*	£ *s.*	£ *s.*	£ *s.*
20. 6 Cinerarias. Distinct kinds .. .. (*Open*)	3 0	2 0	1 0	—
21 New or Rare tender Plants in flower .. (*Open*)	S.K.	S.B.	B.	
22. New or rare tender Plants not in flower .. (*Open*)	S.K.	S.B.	B.	
23. New Orchids in flower .. .. .. (*Open*)	S.K.	S.B.	B.	
24. New or rare hardy Ornamental Plants .. (*Open*)	S.K.	S.B.	B.	
N.B.—Exhibitors may compete for all the prizes in Classes 21, 22, 23, and 24. Plants exhibited at any Metropolitan Show in a previous season will not be eligible.				
25. Newly introduced Plants that have received special recognition from the Floral Committee during 1860, 1861, and 1862 .. .. .. (*Open*)	Six Certificates in order of merit.			
26. Seedling Florists' Flowers and Garden Hybrids (*Open*)	Certificates.			
27. Group of Plants, showing effective arrangement for decorating a small Conservatory. .. (*Open*)	10 0	6 0	4 0	—
N.B.—A space 15 feet by 10 feet will be set apart for each Exhibitor. The test of merit will be effective arrangement with the smallest number of plants. It is not desirable to fill the whole space. Valuable Plants not required. Florists and growers for market are invited to compete.				
28. Miscellaneous .. .. (*Open*)	2 0	1 10	1 0	0 10
N.B.—Nothing can be admitted here which is provided for in any other class.				

Royal Horticultural Society.

10th JUNE, 1863,

CEREMONIAL to be OBSERVED at UNCOVERING the MEMORIAL of the EXHIBITION of 1851, and STATUE of H.R.H. THE PRINCE CONSORT, in the presence of their RR.HH.'s the PRINCE and PRINCESS of WALES and other Members of the Royal Family.

The guests invited to take part in the procession will assemble at the West Dome of the International Building.

Whilst assembling Military Bands will play.

The Royal Party will be received by the Executive Committee of the Memorial Committee, who will conduct their RR.HH.'s to a reserved place on the platform under the Western Dome

Their RR.HH.'s will then proceed down the Nave to a balcony over the Southern entrance of the Horticultural Gardens, and their arrival will be announced by a flourish of trumpets. "God Save the Queen" will be played by three Military Bands united in the Ante-Garden.

The Council of the Horticultural Society will present an address and receive a reply.

Military Bands will again play.

After which the Memorial Committee will read a short address and receive a reply.

H.R.H. the Prince of Wales will order the UNCOVERING OF THE MEMORIAL, which will be announced by a flourish of trumpets and a salute of Artillery, after which military music will be performed and the fountains will play.

The Royal party, headed by the procession, will then walk round the Gardens, stopping at various points to see the Memorial and the Garden.

The line of the procession will be marked by barriers and banners, and it is requested that during the procession the spectators will remain stationary.

In the event of rain the line of procession will keep under the cover of the Arcades.

The Exhibition Building will be thrown open to the visitors to the Garden.

The details of the procession will be made public as soon as possible.

GEORGE GODWIN, Hon. Sec. Memorial Committee.
W. WILSON SAUNDERS, Hon. Sec. of the Horticultural Society.

ROYAL HORTICULTURAL SOCIETY.

FRUIT COMMITTEE.

A MEETING of the FRUIT COMMITTEE will be held on TUESDAY, 5th inst., when the following Prizes are offered:—

	First Prize.	Second Prize.
CLASS A.—The best three dishes of DESSERT APPLES, distinct kinds ..	15s.	10s.
,, B.—Best dish of PEACHES, any variety	25s.	15s.
,, C.—Best dish of NECTARINES ..	25s.	15s.
,, D.—Best three dishes of STRAWBERRIES, distinct kinds, 30 fruits of each	20s.	10s.
,, E.—Best dish of CHERRIES	20s.	10s.

And for the Examination of any other Fruits or Vegetables that may be submitted for the opinion of the Committee. Chair to be taken at 12 o'clock.

Packages to be delivered at the Rooms at South Kensington, W., by 11 o'clock on the day of Meeting, and along with any communications, to be addressed to

ROBERT HOGG, LL.D., Secretary to the Committee.

ROYAL BOTANIC SOCIETY.

LIST of AWARDS, APRIL 25, 1863.

6 ROSES in Pots.

1st, Mr. W. Paul, Nurseryman, Waltham Cross, N.
2d, Messrs. Paul & Son, Nurserymen, Cheshunt, Herts.
2d, Mr. C. Turner, Nurseryman, Slough, Bucks.
3d, Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, Herts.

24 ROSES, Cut Blooms.

1st, Messrs. Paul & Son.

ROSES, Boxes of Cut Blooms.

1st, Messrs. Paul & Son.
2d, Messrs. H. Lane & Son.
3d, Mr. W. H. Treen, Nurseryman, Rugby.

6 CINERARIAS (Amateurs).

1st, Mr. H. Lamb, Gr. to Captain Cabill, Southall, Middlesex.
2d, Mr. J. Smith, Gr. to Duke of Northumberland, Syon House, Isleworth.
3d, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth.

6 CINERARIAS (Nurserymen).

2d, Mr. C. Turner.

6 PELARGONIUMS.

1st, Mr. C. Turner.
2d, Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth.
3d, Mr. J. Cross, Gr. to Sir F. H. Goldsmid, Bart., St. John's Lodge, Regent's Park.

6 AURICULAS (Amateurs).

1st, Mr. J. James, Gr. to W. F. Watson, Esq.
2d, Mr. F. Potts, Glengall Grove, Old Kent Road.
3d, Rev. H. H. Dombrain, Deal, Kent.
3d, Mr. J. Butcher, 1, South Street, Camberwell.

6 AURICULAS (Nurserymen).

1st, Mr. C. Turner.
2d, Messrs. W. Cutbush & Son, Highgate, N.

24 PANSIES, Cut Blooms.

1st, Mr. J. James, Gr. to W. F. Watson, Esq.
2d, Mr. W. Bragg, Nurseryman, Slough, Bucks.

6 MISCELLANEOUS PLANTS.

1st, Messrs. J. & C. Lee, Nurserymen, Hammersmith.
2d, Messrs. A. Henderson & Co., Nurserymen, Edgeware Road.
2d, Mr. B. S. Williams, Nurseryman, Holloway, N.
3d, Mr. J. Smith, Gr. to Duke of Northumberland.

ORNAMENTAL BASKETS, &c.

1st, Mr. W. Bull, Nurseryman, King's Road, Chelsea.
2d, Messrs. A. Henderson & Co.

MISCELLANEOUS GROUPS.

Silver Medal, Mr. C. Turner, for 7 Azaleas.
Do., Mr. W. Bull, for Collection of New and Rare Plants.
Small Silver Medal, Mr. C. Turner, for 60 Auriculas.
Do., Mr. W. Paul, for 10 Roses in Pots.
Do., Messrs. H. Lane & Son, for 6 Azaleas.
Do., Mr. B. S. Williams, for Collections of New and Rare Plants.
Bronze Medal, Mr. J. James, Gr., for 9 Calceolarias.
Small Bronze Medal, Mr. W. H. Treen, for Stand of Cut Verbenas.
Do., Mr. J. James, Gr., for 12 Pansies in Pots.
First Class Certificate of Merit, Mr. C. Turner, for Bougainvillæa speciosa.
Do., Mr. W. Bragg, for Pansy Vesuvius
Do., Mr. J. Holland, Gr., for Auricula Rev. G. Jeans.
Do., Mr. W. Bull, for Pogonia discolor.
Second Class Certificate of Merit, Mr. W. Bull, for Serissa fœtida marginata.
Do., Mr. B. S. Williams, Pteridophyllum filicifolium.
Do., Mr. G. Baker, Gr., for Azalea Fascination.
Do., Mr. C. Turner, for Strawberry President.
Do., Messrs. J. Dobson & Sons, for Cineraria Snowflake.
Do., Messrs. J. Dobson & Sons, for Cineraria Princess Dagmar.
Do., Messrs. F. & A. Smith, for Azalea Lord Palmerston.

GRAND HORTICULTURAL and FLORAL EXHIBITION at WORCESTER.

The Committee of the Worcestershire Horticultural Society have arranged to hold a GRAND SHOW of FRUIT, FLOWERS, and VEGETABLES, on TUESDAY, WEDNESDAY, and THURSDAY, July 21, 22, and 23, being the week of the annual assembling of the Royal Agricultural Society in Worcester.

The Show will be open to all England, and copies of the Schedules (which will contain Prizes to the amount of nearly 200*l.*) may be obtained by applying to the Honorary Secretary, Mr. T. H. WHEELER, No. 2, Foregate Street, Worcester, on or after the 21st April inst.

Bedding Tropæolum.—Ball of Fire.

ARTHUR HENDERSON AND SON are now sending out the above brilliant BEDDING TROPÆOLUM.

For description and full details see figure and remarks in the *Floral Magazine* for January, 1863, Plate 129, colour of Tom Thumb Geranium. This will prove one of the best and most beautiful Bedding Plants of the season.

Per 100 Plants .. £3 10 0 | Per 25 Plants .. £1 10 0
,, 50 ,, .. 2 2 0 | ,, 12 ,, .. 0 18 0
1 Plant .. .. 2*s.* 6*d.*

Pine Apple Place, Edgeware Road, London, W.

E. G. HENDERSON AND SON offer First-class quality of CINERARIA, CALCEOLARIA, and PRIMULA SINENSIS FIMBRIATA, 1*s.* and 2*s.* 6*d.* per packet.

CINERARIA WEBBI.—The interest and value of this species consists in its having a shrub-like branched habit of growth, attaining from 3 to 4 feet in height. This remarkable plant is expected to originate a new and desirable class of varieties for exhibition purposes, it having already passed into all the colours found in florist varieties of the present time, and no doubt but higher improvements in form, and other essential properties, will be obtained in connection with its superior culture. It will be found well adapted for decorative purposes, by its taller growth, and longer continuance in bloom. 2*s.* 6*d.*

Wellington Nursery, St. John's Wood, London, N.W.

International Exhibition Prize Medals 1851 and 1862.

AWARDED FOR SUPERIORITY AND GENERAL EXCELLENCE TO

BUTLER AND McCULLOCH
Covent Garden Market, London, W.C.
(Established upwards of a Century.)

COLLECTIONS of FLOWER SEEDS, Carriage Free.

NEW ANNUALS.

12 Extra fine varieties 10*s.* 6*d.* | 6 Extra fine varieties 5*s.* 0*d.*

HALF-HARDY ANNUALS.

100 Finest selected vars. 30*s.* 0*d.* | 25 Finest selected vars. 7*s.* 6*d.*
50 do. do. 15 0 | 12 do. do. 4 0

HARDY ANNUALS.

100 Finest selected vars. 20*s.* 0*d.* | 30 Finest selected vars. 5*s.* 0*d.*
50 do do. 10 0 | 15 do. do. 2 6

The Gardeners' Chronicle.

SATURDAY, MAY 2, 1863.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, May 4—Entomological .. .. .. 7 P.M.
TUESDAY, — 5—Royal Horticultural (Fruit and Floral Committees) at S. Kensington Noon
Opening of Exhibition of Sculpture, at ditto .. .. .. 1 P.M.
THURSDAY, — 7—Linnean .. .. 8 P.M.

Two interesting though short papers have lately appeared in the Transactions of the Scottish Arboricultural Society, the one on the Diseases of Larch, the other on the Planting of Scotch Fir after Crops of old Scotch Fir, both of which are well worthy of the attention of the numerous landed proprietors who have invested or are investing capital in planting.

As regards the Larch, the subject is divided into two heads, the first treating of Larch rot, the second of the aphis disease. The latter scarcely admits of remedy. It is well, however, when the trees fail from the tips of the branches and from above downwards, that it should be generally known that their failing condition is in most cases due to a little insect which attacks the trees in such myriads as to make it a hopeless task to attempt any remedy. If the trees do not recover in a year or two, which may possibly be the case should circumstances occur year after year favourable to the development of the insects, nothing remains but to make the most of the timber, while it is still in a growing state.

The Larch rot, on the contrary, though when it once makes its appearance there is no remedy, may certainly in the first instance frequently be prevented by judicious planting. Certain soils are clearly favourable to its development, while in others it is comparatively rare. As soon as the red wood is formed, it commences its attack from below upwards, and as it is almost entirely confined to the more central wood, the outer rings may be as flourishing as ever, while the heart is a mass of decay, and the tree itself

"All green and wildly fresh without, but worn and grey within."

Larch rot occurs occasionally in almost every kind of soil, but in poor moorish tracts or on very light sandy loams resting on freestone or limestone rocks, especially where these are nearly impervious, it is almost universal. Now as the Scotch Fir will flourish in such situations, except where the subsoil is a conglomerate, it is clear that it should be substituted for Larch. Our author however suggests very properly that Larch might be alternated with Scotch Fir, with a view to its being thinned out at the proper time; but always in such a manner that the thinning may be made systematically, and the Scotch Fir left as the permanent crop, where under proper management it will yield timber of a large scantling.

He considers the soil really adapted for Larch to be a free loam on the slopes of hills, especially if on a shattery bottom resting on slate or granite. It is, however, clear that more detailed information on this point is most desirable, and we would suggest to extensive Larch growers that much good might be done by forwarding correct statements as to conditions under which Larch has proved sound or affected by heart-rot. Such information might be communicated directed to our office, under some form like the following, marked in the corner of the envelope "Larch-rot return."

Answers should be given to the following questions:—

1. What is the name of the Parish and County in which your Larch plantations are situated?
2. What the geological formation, and the nature of the soil and subsoil?
3. What is the date at which the plantations were made?
4. What the proportion of sound and unsound trees, specifying any differences of soil in different plantations?
5. Were the plantations made on virgin soil, or where woods had previously existed?

Could we obtain trustworthy answers to such questions in any number, the result might be much ultimate importance, and we should be glad to use all possible pains in collating them.

Different, however, as the result may be on different soils, it must always be kept in mind that this difference depends greatly on the facility which the soil affords for the growth of those Fungi which produce the heart rot. It is possible that in certain soils the main roots may decay more readily than in others, but even supposing this to be the case, Fungi will be more rapidly developed on the dead root in one case than in another. In many cases, however, the evil arises not directly from the decay of the root, but from the action of fungous matter already existing in the soil, which attacks the living roots and destroys them. It is on this account that where Larch is planted on ground that has already been occupied by forest, or where the roots of Ling are very strong, decay after a time takes place.

Our author says, truly enough, "As soon as the fibrous roots of the young Larches come in contact with the decayed old Fir stools, they are generally affected with dry rot, and thereby the disease is conveyed to the trunk of the tree."

And the caution is more necessary, as "in consequence of the great demand which exists at present for Scotch Fir, many proprietors have cut down extensive plantations of old Fir, with the view of planting up the same ground as soon as cleared with Larch. I would respectfully caution them against so injudicious a procedure; for although the fatal consequences of it may not be perceptible for a long time, yet ultimately they will not fail to discover themselves. The Larch planted upon such ground will not have arrived at 25 years of age before it will be found affected with dry rot and rendered comparatively useless."

Together with Mr. MCCORQUODALE'S paper, we received an instructive section of a decaying Larch from the neighbourhood of Windermere, which demands an especial notice, as, contrary to the usual habit, the deepest heart wood is not the point of attack, but merely the external rings. The cause of this would probably have been ascertained had the but been grubbed up and a vertical section made through the centre. The tree is of 30 years' growth, and other individuals from the same locality, in the Upper Silurian, on a shallow poor stony stoil, are similarly affected. Where, however, the soil is deeper on the same bottom, the decay does not appear to have been less.

We must reserve for another week that part of our author's communication which relates to the Scotch Fir. *M. J. B.*

—— THE Council of the Royal Horticultural Society are beginning the season in earnest. We understand that at their last meeting it was decided on the application of an eminent manufacturer, that Garden Implements may be shown at the great shows of this year, and further, that the implements shown at the first meeting (May 27), may remain in the Garden until the shows are concluded.

An Exhibition of Sculpture which has been some time in preparation, and for which the Garden at

South Kensington is well adapted, opens on Tuesday next; the Promenades begin on Saturday, May 16, on which day her Royal Highness the Princess of Wales will be proposed as a Fellow; and finally, the ceremonial on the occasion of uncovering the Memorial of the Exhibition of 1851, and the Statue of his Royal Highness the Prince Consort, in the presence of their Royal Highnesses the Prince and Princess of Wales and other members of the Royal Family, will take place on Wednesday, the 10th of June, when Fellows, holders of transferable tickets and debenture nominees will be free; while other visitors will be admitted by tickets, price 15*s.* each if purchased on or before May 27th (the day of the First Great Floral Exhibition), 1*l.* up to June 9th inclusive, and 1*l.* 10*s.* on the day of the Ceremonial. Fellows, however, will obtain them at a much lower price. A Special Meeting for the election of persons wishing to have the privileges of Fellows will take place on May 23d, at half-past 3 o'clock.

—— A Great Exhibition of Horticultural Produce is to take place in Paris in the Rue Chaussée d'Antin, No. 11, from the 9th to the 14th of May inclusive. On this occasion gold, gilt, silver, and bronze medals will be awarded. Information upon the subject may be had by application to Monsieur Rouillard, Secretary, 28, Rue de Longchamp, Paris. The details are described in a pamphlet of 16 pages.——It is also announced that there will be a great exhibition of Fruit and New Plants next autumn at the House of the Imperial Horticultural Society (84, Rue de Grenelle, Saint Germain, Paris). The precise time is as yet unsettled, but it will be somewhere between September 20 and October 10.

—— Messrs. Vilmorin-Andrieux et Cie., of Paris, announce in their *Supplement aux Catalogues*, amongst other novelties for this year, a double scarlet Zinnia elegans, which during two years they have been engaged in "purifying," though it may still have, they say, some tendency to vary so far as to produce a few plants with orange or copper-coloured flower-heads. The Zinnia aurea named by us long since (1861, p. 114), and which also bears the garden name of Sanvitalia mexicana, they call Z. Ghiesbreghtii; the notice of this latter plant is accompanied by a capital woodcut.

—— Mr. Miers objects to the new natural order Tecophileaceæ, proposed by Dr. Leybold for Tecophilea violæflora *alias* Distrepta vaginata, and Phyganthus vernus. He also objects to the association of this Chilian herb with the Iridaceæ, the Narcisseæ, or the Hæmodoraceæ, as suggested by different authors; and himself refers it to a group of the Liliaceæ called Conantheræ, along with Zephyra, Cumingia, Conanthera and Cyanella. In all these plants the ovary, he observes, is wholly or partially superior, but they differ much in the form and mode of dehiscence of the anthers. "It is therefore doubtful whether they possess sufficient general characters to form a valid tribe ranking among the Asphodeleæ; they should certainly either follow as a separate group, or form part of the Hyacintheæ. At all events they possess no claims to rank as a distinct natural family."

—— The office of Colonial Botanist at the Cape of Good Hope, vacant by the death of Dr. Pappe, has, says the *Journal of Botany*, been conferred on Mr. Brown, of Aberdeen, who has travelled over a considerable part of Africa. Another Mr. Brown, a student of Edinburgh University, has gone to British Columbia on behalf of an Edinburgh Association, to collect plants and seeds suitable for cultivation at home.

—— Dr. A. Robertson proposes to use the Calabar Bean, Physostigma venenosum of Balfour, as a new ophthalmic agent, having an action somewhat opposite to that of Belladonna. It induces a condition of short-sightedness, and occasions contraction of the pupil, and sympathetic dilatation of the pupil of the other eye. See also p. 247 of our present volume.

—— In the last Number of the *Florist and Pomologist* Mr. Barnes, of Bicton, records the rearing, at that place, of home-grown seeds of Araucaria imbricata. He further states that a large female plant growing there has for the last 19 or 20 years produced cones, and some seasons to such an extent, that it has been necessary to thin them out. "I have heard," he continues, "of its coneing at Kew and some other places, but have heard but little of the male plants, which are distinct, producing catkins." There is a fine male plant at Bicton, which it appears has produced crops of catkins for the last five or six years, and another which began to produce them last season. Another catkin-bearing tree at Lady Molesworth's beautiful place, Pencarrow, in Cornwall, is also mentioned. There is no difference, Mr. Barnes states, observable in the growth and appearance of the male and female trees by which they can be distinguished previous to their producing cones or catkins, notwithstanding that such has been stated to be the case, and "masculine" plants have been actually sent out.

—— Dr. Prior asks in *Seemann's Journal of Botany* (p. 94) for the meaning and origin of the following Popular Names of British Plants—not the Anglo-Saxon translation, but the reason for their use:—Avens; Bennet as applied to Hemlock; Charlock, Carlock, Callock, Skellock; Chedlock, Kedlock, Chadlock; Cheet; Christopher as applied to Actæa, Osmunda, and Pulicaria; Cowslip; Daffadowndilly; Darnel, some better explanation than in Wedgwood; Dock; Fat Hen; Hardock; Hare's Beard; Haymaids or Hedgemaids; Hindheal; Hollyhock; Honeysuckle; Hurrburr; London Pride; Love-lies-bleeding; Maple; March Mazzard; Mercury's Moist Blood; Nancy Pretty; None-so-pretty; Paigle; Prattling Parnel; Rampe; Raspberry; Seggrum; Tentwort; Wake-Robin. Some of our ingenious readers may be able to assist in the enquiry.

ON GRAFTING; WITH ESPECIAL REFERENCE TO THE VINE.

It appears from the *Revue Horticole* that a discussion on the subject of Grafting has arisen between M. Boisselet and M. Carrière, chiefly respecting the merits, as compared with the usual way of cleft grafting, of a mode of performing the operation, and of an instrument employed for the purpose by Daniel Hooibrenk. M. Boisselet, in the first place, defends the mode of cleft grafting, which M. Carrière says was unnecessary, as it was not attacked; and secondly, he states that he has frequently tried grafting with the instrument above alluded to, but has never succeeded. On the other hand, M. Carrière affirms that with the same kind of instrument he has operated successfully not only in grafting the Vine, but also the following plants:—In spring, in the open air: Apricot, Cherry, Plum, Apple, Pear, Poplar, Amygdalopsis, Cytisus, all the species. In autumn (September), in the open air: Apricot, Cherry, Pear, Plum, Cotoneaster, Purple Filbert, Syringa, Thorn. In autumn (September) under glass: the fruit trees above mentioned, together with the Birch, Oak, Beech, Thorn, Lime, Cotoneaster, and Conifers. Here M. Carrière mentions the time and circumstances under which he operated; but of these, in the case of his opponent, we are not informed. Now, in our opinion, the season, or state of vegetation of the plant, is the main point. If grafting is done at the right time, which may be sooner or later according to the nature of the subject operated upon, almost any instrument with a cutting edge will do; but if done at the wrong season, the most ingeniously constructed instrument, and with an edge as sharp as that of a razor, will not ensure success, and more especially in the case of the Vine.

Many years ago, Mr. Braddick, of Thames Ditton, generally failed in grafting the Vine at the usual time of grafting in spring. He however received some Vine cuttings from abroad in summer, after his Vines were in full leaf, and anxious to preserve the sorts, and for the sake of experiment, he then grafted them, though almost hopeless of success; but as it turned out, to his surprise, the grafts took well. By subsequent experiments, the results of which he communicated to the Horticultural Society, he established the fact that Vines ought not to be grafted till the stock or plant on which the scion is placed is in leaf. Most probably, therefore, M. Boisselet's complete failure, with the Vine at least, has occurred, like that of many others, in consequence of grafting at a season when the plant ought not to be cut on any account whatever, that is after the sap is in motion, and before the buds expand. Any incision made during that period, permits the Vine to bleed, but most profusely, if made just before the buds open; and the more vigorous the Vine, the worse the bleeding. When large limbs of Apple and other trees are cut and grafted just as they are on the point of bursting into leaf, the flow of sap is often so great as to "drown the graft," as suffusion from the overflow of sap is technically termed. But the loss of the graft is not the only bad consequence of the untimely operation. The unabsorbed extravasated sap ferments, becomes putrid or acid, and kills the vital tissue lying between the alburnum and inner bark. The stock consequently dies back to a greater or less distance below the wound, instead of keeping alive or healing over, as would be the case if cut back in autumn or winter. Many persons complain that their Pears on Quince stocks do not succeed well. They should recollect that the Quince is amongst the earliest of deciduous trees in coming into leaf, and therefore it should be headed back for grafting early in the year at latest; for when done at the time of grafting or after its sap is in active flow, it dies or cankers at the grafted part, so that a perfect union cannot possibly take place.

Presuming that due attention is paid to the proper time for grafting, the operation may be successfully performed in various ways. On the whole we consider that in most cases whip-grafting is the most preferable; and what is termed in the *Revue Horticole*, Daniel Hooibrenk's system, appears to be nothing more nor less than whip-grafting. It is better than cleft-grafting, because more of the sections of the inner barks of the stock and scion can be made to coincide than by other modes. M. Carrière, who is a very intelligent horticulturist, details a case in which Hooibrenk's mode, or, what we may as well call whip-grafting, succeeded better than cleft-grafting. In the beginning of September, he took two Vine shoots, of which the wood was then half-herbaceous. One he cut in lengths of 5 or 6 inches, each piece being cut immediately under a bud at its base, and close above one at its top, exactly as if prepared for a cutting, but a slice at top was taken off as in whip-grafting to receive the scion formed of a portion of the other shoot, which latter was cut so as to preserve a bud and leaf at its top, whilst its base was cut sloping to fit exactly its counterpart at the top of the other piece intended for the stock. The parts were then tied, and covered with grafting wax. Each grafted cutting or cutting stock was then inserted about half its length in a pot, and placed under a hand or bell glass in a propagating house. The leaf at the top of the scion continued to act, and contributed to the formation of roots, and the union of the graft.

This mode is not much required for propagating the Vine, because it can be so readily struck from eyes; yet it might be usefully employed where it is desirable that any particular sort should be put upon a vigorous stock, such as the Black Hamburgh. There are however many other plants for the propagation of which it might occasionally be very advantageously adopted.

FISH AND FISHING.—No. V.

To recapitulate:—it is neither mere hunger or a state of emptiness,—satiety, or indigestion,—a certain swarm of flies coming down,—a peculiar state of the water,—a peculiar colour of water,—a good breeze,—a particular wind,—a cloudy sky,—dry weather or wet,—the mere positive, or *per se*, comparative temperature of the water or atmosphere,—coming or actual rain, nor the rising or falling of the water, that produces good or bad fishing days.

There is one thing, I believe, which almost invariably affects fish, a coming thunder storm, though I have heard instances of immense sport during fearful storms of this kind. So far so good: but thunder and storm can only be considered as an isolated case. I cannot help thinking that, for the primary cause I am now in search of, we must look to the electrical influences always operating in our atmosphere more or less. That electricity has, at its highest state, as before and during thunder, a great effect, we must conclude, if we are to give any credence to Yarrell's valuable work on British fishes. Speaking on the Loach, he says:—"They are said to be particularly restless before and during stormy weather, and have been preserved in vessels like the leach, as living barometers, from a notion that certain movements and alterations of position or situation indicate particular changes about to take place in the weather. The species of this genus are remarkable in having six barbules about the mouth. Fishes thus provided are known to feed at or near the bottom of the water; and it is stated, that those species which reside constantly so near the bottom as to acquire the name of ground-fish, have a low standard of respiration, and a high degree of muscular irritability. In the animals possessing this duration of the power of muscular contractility, as the eels, flat-fish, and many others, there is reason to believe there exists also greater susceptibility of any change that occurs in the electrical relations of the mediums in which they reside; the restless movements of eels and other ground fish during thunder, receive at least a probable explanation in the belief that no alteration in the weather takes place without some previous change in the electrical state of the atmosphere, which, by quality or quantity, may affect the water." Eels are known to be migratory, and perhaps their running during thunder and floods is rather attributable to their instinct or experience that the rain which accompanies thunder will enable them to "run," as their ascent or descent of a river is technically termed." "The Chinese, who breed and rear great quantities of gold carp, find that thunder does them harm, and even sometimes kills them. Pennant says, lobsters fear thunder, and are apt to cast their claws on a loud clap. These effects may be referred to spasmodic action of the muscles, induced by electrical influences. If fishes of opposite habits, such as surface-swimmers and ground-fish, are put together into the same vessel of water, and a slight galvanic discharge passed through the fluid, the ground-fish, with the lowest degree of respiration, will be the most agitated."

Sir F. Chantrey usually carrying a thermometer with him while fishing, found that when the water was colder than the air, it proved a bad fishing day. Other well known observant fly-fishers remind me that we may expect a good day, when the first fish taken, comes out, and feels warm in the hand; but when the water only has been felt to be much warmer than the air, either to the hand or legs in wading, it is generally observed to be a bad fishing day. In none of these cases has the exact temperature of the fish or elements been ascertained. In questions of this kind, facts are always important. As a general rule, fish will not rise when the water is rising: yet one day, I remember, when the water was low, and much rain was falling in the mountains, the water felt very warm. Up till three o'clock, myself and companion had not caught anything, but then the river began to swell, and by the time we got to another stream higher up, it had risen three feet, and was still rising. To our wonder, we each hooked two fine salmon, all in a quarter of an hour; and others were rising around us evidently in fly-taking mood! Of course, the fresh supply of water had reduced the previous temperature of the river. But how much we do not know.

To these cases may be added that I have never known any success in fly-fishing during a fog or thick

mist. I do not speak of mere haze—though even that may be added. In this case there is of course a superabundance of moisture in the air, immediately above the earth or river. *E. C.*

ROSES.—No. VI.

By Mr. William Paul, F.R.H.S., Paul's Nurseries, Waltham Cross.

Last year's brood, the proved new Roses, have been already dealt with, and they were, as a whole, the best lot ever issued in a single year. Let us now endeavour to obtain some glimpses of this year's novelties, the forthcoming brood, some of which only have yet bloomed in England, and these under glass. The opinions expressed concerning them must not be taken as fixed and unalterable; although the majority were seen and described in the raiser's grounds last summer, and are now blooming in the forcing houses here. But Roses as grown and shown by the raisers in the dry warm climate of France, afford no precise information as to their suitability for British gardens, nor can we gather this with certainty from flowers produced here under glass. I never make up my mind as to the quality of a new Rose, till I have seen it flower in my own hands out of doors. But a little light is better than darkness or obscurity, and we need not refuse to look on them in the twilight, because they have not yet shown themselves in the full broad light of day. Taken as a whole the forthcoming brood appears more varied than that of last year; there is more novelty, but hardly so many bold and striking Roses. The best of the two years put together make a splendid and richly varied group. Alfred de Rougemont, H.P., a rose from the "Sunny South," is crimson purple, shaded with fiery red, very bright and large; double only with me, not "full" as the raiser describes it. Full is a term too freely used by our *confrères* on the other side of the Channel, and must be taken with due caution, because applied to new Roses which *we* should not describe as more than double. Alba Rosea (Tea scented), "a seedling from Devoniensis," may be pronounced promising; the flowers are white with a slightly rosy centre, large, double (not "full") and very sweet. Baron Adolphe de Rothschild, H.P., is a grand Rose, highly decorative, but not floriculturally perfect; the growth is vigorous, the foliage splendid; the flowers are red, produced in large clusters as in Chénédole, beautiful when first expanding, but corrugating and losing colour quickly, and hardly full enough. Baron de Rothschild, H.P., is a more perfect, though a less showy Rose than the last; the flowers are dark reddish carmine sometimes shaded with violet; petals smooth and of good substance; form, size, and habit above the average. Beauté Française, H.P., will please generally as a garden Rose; the flowers are violet red, velvety, the reverse of the petals fiery red, large and full; somewhat in the style of Lion des Combats. Duc d'Anjou, H.P., is a purplish crimson flower shaded with dark red in the way of Baronne Prevost, but much darker and very sweet; the flowers are very large and full, the growth vigorous. Emotion is a good Bourbon Rose in the way of Souvenir de Malmaison, not so large, but with higher and more exquisite colouring, and perfect form. The flowers of Gustave Rousseau, H.P., are Bishop's purple shaded with violet red, of good form and size, the summits of the petals reflexing. Imperatrice Maria Alexandrina, H.P. is a blush or almost white Rose, not large, but of good form, and full, very promising. Jean Goujon, H.P., is one of the boldest and showiest of this year's brood; the flowers are usually clear red, though sometimes shaded with purple; large and full. John Hopper, H.P., is a good rose-coloured flower, with darker centre, large and full, with fine foliage; I saw this Rose growing by the thousand with the raiser last summer, and admired it much, but am not sure that it will prove constant in autumn. La Esmeralda, H.P., is of the Jules Margottin race, but darker and brighter; large, full, and very promising. La Tour de Crouy, H. P., introduced by the same raiser as the last, is a rose-coloured sort shaded with white, very large and full. Lady Emily Peel, H.P., is described by the raiser as "white, *bordered* (*liséré*) with carmine;" I have never seen it otherwise than most delicately tinted with carmine; it is, however, a prettily-shaped Rose of delicate beauty. L'Eclatante, H.P., is a fine bright red Rose, changing to violet red as the flower advances in age; of good form, and almost full; colours and habit fine. Le Rhone, H.P., is vermilion, a large, brilliant, well-shaped flower, but not "full" as described by the raiser; it is, notwithstanding, a very promising Rose. Lord Clyde, H.P., is a fine showy Rose, crimson and purple, deeply shaded; the petals are not very numerous, and some might pronounce it a little coarse. This is one of a batch of seedlings I raised; but we parted company some three years ago, up to which time it had bloomed in summer only. Lord Herbert, H.P., is one of the Beauty of Waltham race, at present in my nurseries only; it is of quite a new colour, and stands described as rosy carmine, but blue pink would perhaps more nearly express the colour; it is a large, full, and finely shaped flower. Lord Macaulay, H.P., is a velvety scarlet crimson flower of great substance and brilliancy, of good size and form, with splendid foliage. This and the last mentioned was two of the finest that I saw in France last year. Louise Margottin, B.P., is a pretty delicate peach-coloured flower, not over large, but nicely formed, in the way of Louise Odier. Madame Alfred de Rougemont, H.P., is pure white, delicately tinged with rose or carmine; a fair-sized, full, and beautifully formed flower, as free as Louise Darzins, and something of the same habit. Madame Brianson, H.P., is a very large, quite full flower, reddish carmine shaded with light red; form perfect, foliage fine; it is quite possible that in some soils this Rose will not always open freely. Madame Emain, H.P., is a fine purplish red Rose, globular, large, and almost full. Madame Freeman, H.P., is white, slightly tinted with lemon, of average size, globular in form, and full; a nicely formed white Rose, of free growth and thoroughly perpetual. Mrs. Wm. Paul, H.P. (so named by Verdier, of Paris) is one of the best of the season; the flowers are bright violet shaded with fiery red, large and full, usually produced in clusters and thoroughly perpetual. Mademoiselle Adèle Jougant, T., produces pale but clear yellow flowers, not large nor very double, but pleasing and very sweet; the growth is free, and it forces well. Murillo, H.P., is a large, full, and well formed Rose of vigorous growth, flowers rich purplish red shaded with carmine and violet. Princess Alice, H.P., has flowers of a bright salmon pink, the reverse of the petals whitish, large, full, and very sweet; the flowers, which are abundant, are usually produced singly; the growth is erect and free, the shoots almost thornless. Red Rover, H.P., is a fiery red Rose, large and very showy, not very double, but the finest of all late blooming brilliant climbing or pillar Roses. Sœur des Anges, H.P., is a delicate rosy white flower, very large and full, distinct and beautiful. Souvenir de Charles Montault is a free-flowering variety of the Rose de Rosomène group, producing large double cupped flowers of a brilliant red; the habit is good, the growth free. Triomphe d'Angers, H.P., pleased me much both abroad and at home; the flowers are red, shaded with blackish violet, brilliant and velvety, full, of good size and form; it grows and flowers freely. Triomphe de Nancy, H.P., is a blackish velvety-crimson cupped flower, with large round petals; one of the darkest. William Paul, H.P., so named by Guillot, of Lyons, the raiser of Géant des Batailles and Senateur Vaisse, is a descendant of the "Senateur," and will be a favourite with lovers of colour; it reminds one of the most brilliant of the old "French" Roses, now discarded because so transitory; black, edged with scarlet, though not literally true, conveys the appearance of the colour; it is of average size, in the early stage of the flower nicely cupped, sufficiently full and very durable; the plant appears hardy, the growth free.

The above-named sorts are described from my own notes taken from plants in bloom. In addition to these I am growing the following:—Baronne de Lassus de Saint Genies, Caravane de Nismes, Comtesse de Courcy, Comtesse de Polignac, Deuil de Prince Albert, Dr. Spitzer, Duc de Bassano, Grandiflora, Hortense, Blachette, Le Juif Errant, Madame Charles Roy, Madame Crespin, Madame Helye, Madame Valembourg, Peter Lawson, Prince Henri des Pays Bas, Senateur Favre, Vainqueur de Goliath, Veloutée d'Orléans, all Hybrid Perpetuals; and Comtesse de Brossard, Tea-scented. This second undescribed list I have either not yet seen, or seen only in such condition that I cannot speak favourably of them. To condemn them on present evidence would, however, be unfair. Nothing is more uncertain than the first year's blooming of a Rose that has spent a week or more on a French railway, and afterwards been tossed about by sea and land. For these, then, I must beg a remand. Time, which proves all things, will shortly enable us to form a correct estimate of their value.

Home Correspondence.

London Pride.—In the "Journal of Botany" I notice a passage relative to the local or common names of plants, in which it was stated that "London Pride is said to be so called because London is proud of almost the only flower (Saxifraga) that grows to perfection, even in the most crowded parts of the town." Now, I know that I have somewhere read that Saxifraga umbrosa was called London Pride because it was a great favourite of London, the partner in the firm of London & Wise, the celebrated Royal Gardeners of the early part of the last century. *R. H.*

Blue Azalea.—Sir R. Alcock, in his "Capital of the Tycoon," makes mention of a Blue Azalea, a variety I did not know existed. He says, vol. 2, p. 71:—"In the hedges, the Honeysuckle and the Thistle reminded us of home, while the Azaleas, pink, blue and white, in all their delicacy of hue and texture, mingling with the Camellia and Cape Jasmine, which grew wild by the hedge-side, spoke of other climes than our own." Perhaps it may interest some of your correspondents to have this passage brought to their notice, should the Blue Azalea be, as I believe, unknown in England. *Brinsley Marlay, St. Katherine's Lodge, Regent's Park.*

Wireworm (see p. 390).—Last year we were much troubled with this pest in our Vine borders. The plan I adopted for curing the evil was this: I cut Potatoes in slices, half an inch thick, and inserted them in the border 2 inches below the surface, placing a small stick in the traps to denote their whereabouts. The Potatoes were regularly inspected every morning for about three weeks, and scores of wireworms were daily found to have eaten into them. In this way they were easily caught and destroyed, and by following up the plan perseveringly I quite cleared the borders of this worst of all pests. *T. E., Hartham.* [This is a very old plan, and the only good one.]

Veronica syriaca.—Permit me to call attention to this beautiful little plant, which seems to be overlooked by those who require a brilliant porcelain blue for bedding or other purposes. I grew it in clumps of about six roots in a border last summer, the soil light and dry, and I found it had many good qualities. It began to bloom when only 2 inches high, and continued to improve, lasting as long as most annuals. *J. E., Richmond.*

French Pisciculture.—Some of your readers who may only skim over the columns of the *Times* may be interested in the substance of a letter on this subject by Mr. A. Smee, which appeared therein a few days since. He states that the French system of hatching fish, devised by Professor Corte, of the College of France, in Paris, and practised on a large scale at Huninguen (which system consists in placing the ova on a gridiron of glass, where they remain with a jet of water passing over them till the young fish are hatched), is absolutely perfect, and leaves nothing to be desired, provided excess of light is excluded. Any number of fish may be hatched at a cost and trouble almost nominal. He himself did not lose 5 per cent. this year of good eggs subjected to the process. Much, however (he observes), has to be learnt with respect to the treatment of the young fry, for it is still a debateable question whether we should place them in small streams full of weeds and animalculæ—their natural food, or cram them, as the French recommend, with the flesh of frogs or powdered bullock's liver. He further states that the great liberality and kindness of the French Government in gratuitously aiding English pisciculturists is beyond all praise, but the time has surely arrived when an English Society might imitate the works of the French State, and stock our rivers with salmon, trout, and grayling. As you have opened your columns to the subject of fishing, I have thought this statement worth sending you. *Piscator.*

Meteorology.—We have had some weeks of bright dry weather with white morning frosts; then after a long preparation, some showers and slight gales of N. and W. winds; four days since the clouds presented long feathers running from north to south, terminating in fan-shaped points at the two poles; two days afterwards similar magnetic lines sprang from the east and the western points, and arched over the heavens. Does this prognosticate anything in the weather? *L., Taunton.*

Boilers.—Will any person who has experience of the management of plants tell me what they know of the working of Riddell's patent slow combustion cottage boiler for the circulation of hot-water? also of Bury & Pollard's improved conical boiler? The principle of Riddell's, and likewise of Musgrave's, appears admirable—only the latter does not propose applying his to the circulation of hot-water. Can Riddell's be applied to heat a Rendle's tank in a pit, as described in Paxton's little book on greenhouse gardening? *Ignoramus.* [Perhaps some one acquainted with these boilers will kindly give our Correspondent the information he requires.]

Peaches.—As a humble imitator of Mr. Rivers I have been trying an orchard house, and practising "pinching." Some of my Peach trees in pots are vigorous, with fine fruit, and early. I brought them forward by watering with hot water, as hot as the hand would bear, for the first three weeks in March. But both these and those on walls out of doors are destitute of leaves on all the fruit-bearing shoots which had been pinched last summer, from April to August inclusive. I wish to know what error I have committed? The shoots are about 2 inches long, or sometimes less, with places for four leaves on them. The Wall Peaches out of doors were kept quite dry all the winter, with boards over the border; now they have liquid manure and water every week. They are pouring out gum, and their leaves become very fleshy, thick and bunchy, and curled. Are they over-fed? [Yes, doubtless.] I have only sun-heat in the orchard-house. *L.*

Mistletoe on Conifers.—Where the Fir (Pinus sylvestris) is the dominant tree, as in the sandy plains of Northern Germany, it is not at all uncommon to see it crowded with Mistletoe, though I do not remember ever seeing this parasite on Pinus Abies. If my memory serves me right, I think I saw in the mountains of Mexico some species of Viscum (besides the V. Oxycedri common there) growing on Fir trees. *Berthold Seemann.*

Roman Oats.—At p. 388 you notice prominently an article in the *Phytologist* on the growth of what are supposed to be Roman Oats, on a farm at Pepper Moor, near Alnwick. Mr. Binks exhibited specimens of the Oats referred to at Messrs. Lawson's stand, at Battersea Park Show in 1862, and I could not make out more than two or three varieties, all of which were similar to those already known, and none of them superior. As for the rather startling description of the variety which had globular heads like Onions, there was not the slightest approach to such a singular production in any of the specimens. If Mr. Binks will favour us by giving us his experience of last year, and

if his extraordinary statements are confirmed thereby, it will then be worth while to consider the subject seriously; but until this is done he must expect the public to consider him as labouring under an hallucination. *Wm. Baxter Smith*, 28, *King Street, Cheapside.* [Our object was to elicit the real facts of the case.]

Foreign Correspondence.

The Spring at Palermo: *Palermo, April* 20.—Palermo, from whence I write, has the reputation of being one of the best European winter climates, and is therefore a place of great interest. I have reached it by a rapid journey from the vicinity of Nice in order to see what is going on in the vegetable world, and to compare its vegetation with that of the Riviera of Genoa, my usual winter quarters. This latter region I carefully scrutinised a few days ago on my way.

Palermo is situated nearly 6° more south than the Riviera, some 350 miles in a direct line. On the other hand the Riviera lies exposed in full to the southern sun, at the base of the maritime Alps, which protect it from the north. Palermo, on the contrary, is turned directly to the north. Singularly enough this protection afforded by high mountains, especially in the more sheltered portions of the Riviera, such as Villa Franca, in the suburbs of Nice, Mentone, St. Remo and Alassio, and the direct exposure of the coast line to the south sun, appear to make up for the great difference in latitude, as far as vegetation is concerned.

Thus, on Saturday, the 18th inst., I made a list of most of the flowers familiar to English gardeners which I found in full blossom at the Palermo Botanical Gardens. This list may be interesting to your readers as showing what a southern sun can do in a northern exposure in latitude 38°. Some of these plants blossom all winter in the Riviera, and no doubt here likewise. Some were going off. I may add that the formation and character of the soil is cretaceous or calcareous, as throughout the Riviera. This is my list: Salvias, Iris, Roses, white, red, and Tea, Wallflowers, Anemones, Petunias, Verbenas, Mignonette, Sunflower, Gladiolus, Spiræa, Nasturtium, Poppy, Marigold, Geranium, Candytuft, Hollyhocks 3 feet high but not in blossom, Stocks, Carnations, Tulips, Peonies, Auriculas, Cyclamen, Eschscholtzia, Banksian Roses, Judas tree, Chestnut tree, Elder tree, Hawthorn just ready to blossom, Alyssum, shrubby Euphorbias, Yellow Jasmine, Nettles, and Asphodel. Peaches set were as large as small Walnuts. We had Strawberries in profusion at the hotel, but I think they came from the south side of the Palermitan mountains. Lemon groves of large old trees, and Orange groves are abundant; but only in the more sheltered part of the plain at the foot of the mountains, behind the town. The orchards, too, are protected by high walls, partly as a security, but also partly as a protection from the winds.

All these flowers, shrubs, and trees I had left equally advanced and flourishing five days previously on the Western Riviera. Palermo is situated in the centre of a bay formed by an amphitheatre of mountains, with their concavity directed northward, so that the northern winds must strike the bay and town in full. Coming from the huge snow-covered Apennine chain, they would be much colder were it not that they have to pass over nearly 200 miles of sun-warmed sea. In this passage they absorb moisture, which the high mountains behind and round Palermo precipitate in rain. Thus Palermo, without being cold, is damp, and has 131 days on which rain falls, instead of 40 like Malaga, or 60 like Nice. I quote from the learned Palermitan Professor Scina, who has written a valuable work on the meteorology of his native town. As, likewise, only 21 inches of rain fall in the year (at Nice it is 25, at Algiers 45) we may conclude that the rain is often rather of a northern character, small and drizzling. In confirmation, I may mention that I did not see the numerous deep, wide, stony watercourses which are met with on the Riviera, and in the regions where the rain falls in a tropical manner—several inches in 12 or 24 hours. The sides of the western hills, too, were clothed with verdure from their base to their summit, and were very different from the naked sun-burnt summits of the mountain tops at Mentone and at Nice. They clearly indicated a moister climate.

The deciduous trees were rather behind-hand, scarcely as far advanced indeed as in the Riviera five days previous. The Hawthorn had not blossomed, and the Fig, Mulberry, and Plane trees were only just beginning to show leaves. Many deciduous trees peculiar to the south were totally devoid of leaves. This advanced condition of spring and early flower vegetation, and rather retarded state of deciduous tree vegetation, speak of the cold nights that characterise the south of Europe until May. The sun is very ardent, and warms the surface of the soil; but the heat does not appear to penetrate deep enough to reach the roots of trees until the spring be far advanced.

The Botanical Garden itself at Palermo, although interesting, is in rather a neglected state, and shows the want of an energetic modern direction. The plants are still classified according to the Linnean system, as forty years ago. All the trees, shrubs, and plants in the ground are unlabelled; part of those in pots only are so honoured. Many of the labels themselves are illegible from time and rust; indeed the garden struck me as being rather left to common gardeners than directed by a scientific botanist.

In conclusion, it would appear to me, judging from vegetation, that in coming so far south as Palermo there is nothing gained in temperature over the Riviera, and there is a loss in increased dampness. The higher mean temperature of Palermo, mentioned by authors, is probably attained through the sirocco or African wind, which blows occasionally, and is very hot and oppressive. *Henry Bennet, M.D., The Ferns, Weybridge.*

Societies.

Royal Botanic: *April* 25 (*third Spring Show*).—The principal objects of attraction on this occasion were Azaleas, Roses, both cut and in pots; Auriculas, Cinerarias, and Miscellaneous Stove and Greenhouse Plants. The best Roses in pots came from Messrs. Wm. Paul, C. Turner, and Paul & Son. Conspicuous among them were Souvenir de Malmaison, Madame de Cambacérès, Paul Ricaut, Paul Perras, Chénédole, Madame Boll, Empereur de Maroc, Anna Alexieff, Souvenir d'un Ami, Charles Lawson, Beauty of Waltham, Senateur Vaisse, Victor Verdier, and other favourite kinds. Mr. Cross, gr. to Sir F. Goldsmid, Bart., and Messrs. Lane also showed good groups of Roses. Collections of miscellaneous stove and greenhouse plants and others remarkable for the beauty of their leaves, were furnished by Messrs. A. Henderson, Williams, Bull, and Lee. From Mr. Smith, gr. to the Duke of Northumberland, at Syon, also came handsome fine-foliaged and other stove plants. Mr. Williams had remarkably fine examples of Cyanophyllum magnificum, and of the extremely pretty Gleichenia dicarpa. Cinerarias, chiefly consisting of varieties previously described by us, came from Messrs. Lamb, Turner, Smith, and others. Mr. Wiggins, gr. to W. Beck, Esq., contributed Pelargoniums, as did also Mr. Turner, and Mr. Cross, gr. to Sir F. Goldsmid. Auriculas were exhibited by Mr. Turner; Mr. James, gr. to W. Watson, Esq.; Mr. Potts, Glengall Grove, Kent Road, and the Rev. H. H. Dombrain. Among the varieties, all of which were exceedingly well grown, were Spalding's Metropolitan, Oliver's Lovely Ann, Cheetham's Lancashire Hero, Meteor Flag, Dickson's Duke of Cambridge, Campbell's Pizarro, Maggie Lauder, and other equally fine sorts. Pansies, profusely flowered in pots, were shown by Mr. James; and cut blooms of the same useful spring flower from Mr. Bragg, of Slough. From Mr. Turner came a magnificent group of Azaleas; and good specimens of the same description of plant also came from Messrs. Lane & Son. Messrs. Perkins showed fine trusses of their showy Verbena Lord Leigh, and from Mr. Treen came amongst others, Fox-hunter Verbena, another brilliant variety. Gloxinias and other plants were shown by Messrs. Smith, who also had a large, well-formed bright rosy purple Azalea called Lord Palmerston. Calceolarias, well grown and bloomed, were contributed by Mr. James; and Snowflake Cineraria, a highly promising white sort with a dark eye, came from Messrs. Dobson & Sons. Finally, from Messrs. A. Henderson & Co., and Mr. Bull, came tastefully arranged hanging baskets and rustic vases filled with flowering plants, in some instances intermixed with Ferns, and edged with the drooping, bright green, grass-like Isolepis gracilis.

Botanical of Edinburgh: *April* 9.—Professor Maclagan, President, in the chair. H.R.H. the Prince of Wales was elected an honorary fellow of the Society, and a congratulatory address to H.R.H. was adopted. ——Mr. Macintosh presented a specimen of Equisetum limosum, exhibiting a beautiful spiral arrangement of the sheaths on the stem; the specimen was collected in Possil Marsh, near Glasgow, by Mr. James Lambie, Kilwinning. Professor Liston sent specimens of Petasites alba, which he had collected in a wild state in several spots near Falkirk.——The following communications were read:—1. "*Note on Lemania variegata of Agardh.*" By George Lawson, LL.D.——2. "*Some account of Paullinia sorbilis and its products.*" By T. C. Archer, Esq. The author remarked: There is no more remarkable plant in the order Sapindaceæ, if regarded from an economic point of view, than Paullinia sorbilis, although, as a plant, it is not well known to the botanical world. From its large seeds is manufactured the substance called "Guarana," which is extensively used in Brazil, Guatemala, Costa-Rica, and other parts of South America, as a nervous stimulant and restorative. The seeds deprived of their coverings are pounded into a paste, which, hardened in the sun, constitutes Guarana. It is used both as a remedy for various diseases, and also as a material for making a most refreshing beverage; and it adds another of those incidents so puzzling in human history of the discovery of such qualities in plants least likely to be suspected: such, for instance, as that the leaves of Tea, the seeds of Coffee and Cacao, the leaves and twigs of the various American Ilexes, and other plants, should have this wonderful restorative effect on the nervous system, and that this should not be a mere vague notion, such as attaches to thousands of other plants, but that it should really depend upon the presence of a chemical principle, the same in all, and the operation of which can be satisfactorily explained. The presence of an alkaloid, which he called Guaranine, was discovered some years ago in Guarana by Dr. Theodore von Martius of Erlangen, but its identity with Theine was soon established, and subsequent analyses, especially one by Dr. Stenhouse in 1856, proved that not only was the active principle of Guarana identical with Theine, but that, as far as is known, no other substance yields it so abundantly, the amount being 5.07 per cent. as against good black Tea, which yields 2.13, and Coffee from 0.8 to 1.00. The mode of using the Guarana is curious and interesting. It is carried in the pocket of almost every traveller, and with it the palate bone, or a scale of the large fish (Sudis gigas) locally called "pirarucu," the rough surfaces of which form a rasp upon which the Guarana is grated, and a few grains of the powder so formed are added to water, and drunk as a substitute for tea. The effect is very agreeable, but as there is a large portion of tannic acid also present it is not a good thing for weak digestions. Its remarkable restorative power has given it a further great reputation as an aphrodisiac. Another species of this genus, Paullinia Cupana, also enters into the composition of a favourite national diet drink. Its seeds are mingled with cassava and water, and allowed to pass into a state of fermentation, bordering on the putrefactive, in which state it is the favourite drink of the Orinoco Indians. ——3. "*Notice of Observations by F. Cohn, Breslau, on the Contractile Filaments of the Stamens of Thistles.*" Communicated by Dr. Alex. Dickson.——4. "*On an easy and effective style of Nature Printing,*" by Mrs. Stirling, Kippenross; communicated by T. C. Archer, Esq. The leaves of the specimens to be printed are smeared quickly and evenly with ink prepared from lamp black, and then gently pressed on crayon paper, the stem, branches, and footstalks, being put in with lithographic chalk, which fixes at once, and blends better with the printing than any crayon or glossy pencil. It was found that a group of Acacia or Elm leaves could be done together; but that Horse Chestnut, Ash, or Walnut leaves required to be separated. The leaves must be perfectly fresh.——5. "*Notice of the Tallow Tree of China* (*Stillingia sebifera*), *lately introduced into the Punjaub.*" By William Jameson, Esq., Saharunpore; communicated by Professor Balfour. ——6. "*Memorandum on Local Museums in the Punjaub.*" By Hugh Cleghorn, M.D.——7. "*Notice of an Ash Tree struck by Lightning at Dunipace.*" By the Rev. Thomas Robertson.——8. "*Register of Plants in Flower in the open air at the Royal Botanic Garden.*" By James M'Nab, Esq. Third Spring List:—Asarum europæum, March 15; Saxifraga crassifolia, March 18; Fritillaria imperialis, March 22; Dalibarda geoides, March 28; Corydalis solida, March 24; Narcissus moschatus, March 25; N. pseudo-Narcissus, March 28; Anemone nemorosa, April 2; Adonis vernalis, April 7. Fruit trees, &c., in flower on 9th April:—Cherry, Gean, Pear, Plum, Apricot, Currant, Gooseberry, in full flower; Apple and Thorn with buds nearly expanded; Elm, Norway Maple, Canadian Mespilus, Pyrus nivalis, in full flower; Thorn in full leaf, covered with the fruit of 1862; Thorn in full leaf, with the leaves of 1862 still green.

Notices of Books.

The Geological Evidences of the Antiquity of Man. By Sir Charles Lyell, F.R.S. Pp. 520. John Murray, London. 1863.

Only a few years ago no geologist entertained the notion that man's antiquity extended beyond a very few thousand years. It is true that so early as the first year of the present century, Mr. Frere, of Hoxne, near Diss, in Norfolk, had discovered rude implements of flint, which seemed to claim for their fabricators a vastly earlier date than people then were willing to concede. He stated that "the flints were evidently weapons of war, fabricated and used by a people who had not the use of metals." Specimens of these flint spear-heads were deposited in the British Museum, but the world was not ripe for the appreciation of his discovery. In truth, some experience is necessary, both to decide that a given flint is really an implement wrought by man's art, and not a mere natural product, and then, again, to pronounce positively that it was actually found *in situ*, or in a stratum that had not previously been disturbed.

These flint localities did not produce human bones. The very few specimens of human remains that were found in other parts of the world, always had some serious drawback, in the shape of doubts as to their true origin. Insomuch that, if we mistake not, Sir C. Lyell himself was once sceptical as to the great antiquity of man.

In other sciences important discoveries have often been made independently, but almost simultaneously, and so it has been with Geology. Flint implements and other signs of man's handiwork have of late turned up abundantly, and in many places: in deep formations of peat, beneath regular beds of gravel, in the deep bed of lakes, where they must have remained thousands of years, and in caves, where they were associated with bones of extinct mammalia. Treasures long hidden have come to light in abundance; human remains are not wanting, nor skulls, of a Laplander type; and one undoubted burial place has been discovered, full of interesting remains, and containing evidences of strange antiquity.

Sir Charles Lyell gives us, in the charming book

before us, information which may be relied on respecting all these recent discoveries, together with his own estimate of their value; all this he does in such a way that the unscientific reader will have no difficulty in following him through all the region of fact. In the latter part of the volume, where he enters the region of speculation, it is possible that the reader may not be quite so well satisfied with his guidance. We give a condensed extract from the 2d chapter.

There are in Denmark deposits of peat varying in depth from 10 to 30 feet. The lowest stratum, 2 or 3 feet thick, consists of swamp-peat, composed chiefly of Moss or Sphagnum, above which lies another growth of peat, not made up exclusively of aquatic or swamp plants. In fact, Scotch Firs, often 3 feet in diameter, must have grown upon the margin, and frequently fallen in. But this tree is not now, nor has ever been in historical times, a native of the Danish islands, and when introduced it has never thriven. The Scotch Fir was supplanted by the sessile variety of the common Oak, and that again by the pedunculated (Quercus Robur). The Oak has now, in its turn, been superseded in Denmark by the common Beech. Splendid Beech-trees characterised the Danish islands, we know, in the time of the Romans, and this feature of their forest scenery remains unaltered to the present time. Now at a great depth in the peat, and immediately under a buried Scotch Fir, a stone implement was found. By collecting and studying a vast variety of such implements, and other articles of human workmanship preserved in peat, in sand-dunes, and in shell-mounds, to be described presently, the most celebrated naturalists and antiquaries have succeeded in establishing a chronological succession of periods, which they have called the ages of stone, of bronze, and of iron, named from the materials which have each in their turn served for the fabrication of implements. The general result arrived at is, that the age of stone in Denmark coincided with the period of the first vegetation, or that of the Scotch Fir; a considerable portion of the Oak period coincided with the age of bronze; while the age of iron corresponded more nearly with that of the Beech tree. Skulls from the peat, and supposed to belong to the stone period, have been found, but these need not necessarily carry us back more than a comparatively moderate time.

Along the shores of the Danish Islands mounds are seen, varying in height from 3 to 10 feet, some of them 1000 feet long, and from 150 to 200 wide, consisting chiefly of thousands of cast-away shells of the oyster, cockle, and other mollusks, of the same species as those which are now eaten by man. These shells are plentifully mixed up with the bones of various quadrupeds, birds, and fish, which served as the food of the rude hunters and fishers by whom the mounds were accumulated. The Danes call these mounds Kjokken-möding, kitchen-middens, or "kitchen-refuse-heaps." Scattered all through them are flint knives, hatchets, and other instruments of stone, horn, wood, and bone, with fragments of coarse pottery, mixed with charcoal and cinders, but never any instruments of bronze, still less of iron. The habits of the people who lived in those days are inferred from the contents of their kitchen-middens. In the same way, the spoils of the ancient Swiss Lake-dwellings built on piles, of which so much has been said lately, are scrutinised, the evidence as to what tame animals they had, and what wild animals, whether of extinct or of living species, is all brought to light, and the fact that they split the bones containing marrow.

In 1833-34, Dr. Schmerling, a skilful anatomist and paleontologist, examined more than 40 caverns in the neighbourhood of Liège. These he considered not to have been dens of wild beasts, but that their organic and inorganic contents had been swept into them, by streams communicating with the surface of the country. Artificially shaped flints were universally found in these caves, and he adds, "none of them could have been subsequently introduced, being precisely in the same position as the remains of the accompanying animals." Human remains were rarely found. Dr. Schmerling accumulated ample evidence to prove that man had been introduced into the earth at an earlier period than geologists were then willing to believe, and Sir Charles, in admitting that he did not give the Doctor's opinions, in 1834, the fair weight to which he now considers them entitled, can only plead, that a discovery which seems to contradict the general tenor of previous investigations is naturally received with much hesitation, and, at that time, he had neither leisure nor courage to follow the Belgian philosopher through every stage of his difficult task.

The next important step towards establishing the great antiquity of man was made by M. Boucher de Perthes, between the years 1841—1847, who found in ancient alluvium, at Abbeville, in Picardy, some flint implements, whose antiquity was attested by their geological position. This gentleman was possessed of antiquarian knowledge, enough to recognise in their rude and peculiar type a character distinct from that of the polished stone weapons of a later period, usually called "celts." Still, the scientific world had no faith in the statement that works of art, however rude, had been met with in undisturbed beds lying close upon the white chalk. M. Boucher de Perthes has, if we mistake not, just made the discovery of human bones in the same strata—the one thing that was wanting to complete and crown his labours.

But we have said enough. Everybody who desires to be put in possession of authentic information on this extremely interesting subject, must study Sir Charles Lyell's book; and we venture to say that the description of the Brixham cave near Torquay, and its treasures, and the exploration of the sepulchral vault of the post-pliocene period, found at Aurignac, in the department of the Haute Garonne, near the Pyrenees, will be read with the deepest interest, not unmixed in most cases with wonder and surprise.

We continue from p. 368 our notice of the *Jardin Fruitier du Muséum.*

Poire Tougard—Syn. Calebasse Tougard. Medium sized, oblong-pyriform, green speckled with brown. Flesh salmon-coloured, melting, sugary, and agreeably perfumed. Season: October, November. A singular variety on account of the colour of its flesh.

Saint-Waast.—Syn. Beurré Beaumont, Besi Waët, Besi Va, Bezi Vath, Wahette (Bezi Vaet in England, under which name it was first described, in 1824, in Hort. Society's Trans., v. 5, p. 407). It derives its name, we are informed, from the ancient abbey of Saint Waast, founded at Arras by Theodoric 1st in 672; and in the gardens of that abbey the Pear in question was found about the end of the last century. It is not described as altogether first-rate in the work before us; and grown in this country it proves inferior to so many others that its cultivation may be very well dispensed with.

Poire d'Auch.—Syn. Bon Chrétien d'Auch, Bon Chrétien Turc, d'Amour (of some), Belle Bessa. This is quite different from the d'Auch of our English collections, which has proved to be the same as the Old Colmar. Among imported Pears, specimens of the present are sometimes seen in London, but it is only fit for stewing, or for show.

Lesbre.—Raised by M. J. L. Jamin, nurseryman, Bourg-la-Reine, and named by him in compliment to M. Lesbre of Ebreuil. Fruit middle-sized, obovate or obtusely turbinate; flesh fine, very melting and juicy; an excellent fruit. Season: end of August.

Tuerlinckx.—This is one of the new Pears; very large, pyriform, olive green, speckled with brown; flesh white, breaking; only fit for stewing. Season: December, January.

Poiteau.—Syn. Bergamotte Poiteau. Small or middle-sized, roundish, bergamot-shaped, yellow, spotted with brown, orange, with reddish russet specks next the sun; flesh remarkably juicy, melting and sugary, with a Crassane flavour. Season: September and October. An excellent fruit.

Gros Blanquet Rond.—Syn. Gros Roi Louis. An old sort, only half melting.

Poire de Grumkow.—Syn. Grumkower Winterbirn Moriseau. A middle-sized and somewhat irregularly formed turbinate fruit, of an olive green colour. Flesh firm, not very juicy nor rich, at most only fit for kitchen use, according to Professor Decaisne; but probably the climate of France does not suit it, for it is highly esteemed in the north of Europe. In Dittrich's *Systematisches Handbuch der Obstkunde*, it is stated that the Grumkower Winterbirne was discovered by Herr Roberstein in a cottage garden at Grumkow near Rugenwalde, in Pomerania; that it is a little gritty near the core, but elsewhere its flesh is buttery, juicy, melting, and sugary, with a rich cinnamon flavour. Season: November, December. Dittrich adds that the tree forms a fine healthy standard, and is an abundant bearer. Prof. Decaisne quotes an account of it by Ed. Lucas, *Abbild. Württembergischer Obstsort.* p. 43 (1858), who describes it as having firm flesh, very juicy, and of excellent flavour. In Wurtemberg specimens of it are frequently met with in the markets, which weigh upwards of half a pound. The tree, Lucas adds, is adapted for clay soils, and bears very abundantly. It is extensively cultivated in orchards in the low lands adjoining the Vistula, and thence the fruit is sent to St. Petersburg. From the above it appears that there is a great difference of opinion as regards the quality of this fruit between Prof. Decaisne and the German authors. This difference must be owing to climate, by which all fruits are more or less affected, but some much more than others; and what may be good in Pomerania may prove very inferior in France. For example, in the latter country the Ribston Pippin is dry and worthless compared with what it is when grown in Yorkshire. There is yet much to be done before it can be ascertained what varieties are most suitable for different countries, and likewise for various localities of the same country. We think the Grumkower may prove a suitable Pear for the north of England; at all events it is certainly worthy of trial. It may succeed as well there as on the shores of the Baltic.

Monchallard.— Syn. Belle Épine Fondante, Épine d'Été (of some), Épine Rose. Fruit middle-sized, form of a Doyenné, but more elongated, citron yellow, marbled with brown, and sometimes tinged with red next the sun. Flesh fine, very melting and juicy, with a particular acidulated sugary flavour. Season: August. This early sort is brought from Bordeaux to Paris, where the fruit is sold in the markets at an average of 25 cents. apiece. It was found in the Department de la Dordogne near the Château de Marvel on the estate of M. Monchallard, whose name it bears.

Triomphe de Jodoigne.—Fruit large, sometimes very large, pyriform, greenish yellow, sprinkled with brown dots and specks, and sometimes tinged with red next the sun. Flesh melting, juicy, sugary, and perfumed. Season: end of November and in December. It should be allowed to hang on the tree as long as possible, and succeeds on the Quince. Jodoigne or Judoigne, in Latin Judonia, Gildonacum, Gildornacum, in Flemish Geldenacken, is a small town in the province of Namur, from which this Pear takes its name.

Giffard.—Syn. Beurré Giffard. This is described as a very good early Pear; small or middle sized, pyriform, greenish yellow, tinged with red next the sun; flesh fine, melting, juicy and rich. Season: end of July and beginning of August, being some days earlier than the Jargonelle. It should be gathered before it readily parts from the tree. It is an abundant bearer, although the authors of *La Pomologie de Maine-et-Loire* say the contrary. This variety might well supersede some indifferent or bad early Pears at present cultivated in this country.

Amiré Roux.—Syn. Archiduc d'Été, Oignonet. Small, turbinate, yellow, washed with red next the sun; flesh only half melting. Season: beginning of August. One of the old French sorts, which do not succeed well in the climate of England.

If any of our readers, weary of the realities of life, seek for an hour's amusement, we would most strongly recommend as an antagonist to blue devils, one of the cleverest *jeux d'esprit* in our language. Under the title of *Lispings from Low Latitudes*, or extracts from the diary of the Hon. Impulsia Gushington (Murray), we have before us a series of extremely amusing sketches illustrating the adventures of a middle-aged lady in search of something to excite and soothe her. To effect this desirable object the damsel resolved upon Eastern travel, and to follow in the steps of the "fascinating" author of Eöthen. How she managed to reach Cairo, what were her adventures, her opinions upon camel-riding, an old Sheikh's ideas about crinoline, her own feelings upon being called a cockatrice by an indignant Lady Fitzdoldrum, who proves not to be Lady Fitzdoldrum at all, but one Higgs, who "had left two or three husbands in India," and how the fair Impulsia was eventually soothed by a Monsieur de Rataplan, who was suffered to call her "son Impulsia;" all these and 20 other things are not only described with infinite humour, but illustrated by three and twenty of the cleverest sketches we remember to have seen. As a drawing-room book for the season it is without a rival. Lord Dufferin introduces it to the world, and intimates that if well received a second volume may be expected narrating Miss Gushington's "harrowing and heartrending" adventures "in connection with her attachment for Monsieur de Rataplan." About the reception of the present laughable diary there can be no doubt, if our English love for fun and merriment has not perished.

We observe that Messrs. Longman have commenced the issue in monthly 5*s.* numbers of a new *Dictionary of Chemistry*, founded by Mr. Henry Watts upon the well known work of Ure. The two parts before us, which reach from Abichite to Arsenic, hold out a guarantee that the work will be worthy, not only of the author, but of the many distinguished men who are associated with the Editor in so important an undertaking.

Mr. Wm. Paul has produced a second edition of his useful little volume called *The Rose Garden* (Kent & Co.) much reduced in price by the rejection of coloured plates, which now find a more fitting place in the author's Rose Annual. What gives this edition peculiar value is the *omission* of many of the varieties which have been surpassed by more modern sorts; for ourselves we could have wished to see the process of elimination carried much further.

The third and fourth numbers of *Seemann's Journal of Botany* are accompanied by illustrations of new or rare British Hymenomycetal Fungi, and of Gladiolus illyricus, one of the more recent additions to the British Flora. They also contain various interesting communications on subjects relating to British and foreign botany.

Miscellaneous.

Sales by Auction.—Small plants of Japanese and New Zealand Ferns, sold the other day by Mr. Stevens, fetched from 6*d.* to 9*d.* each; Indian Azaleas and choice hardy Rhododendrons, 5*s.* per lot of 6 plants; Canna, in lots of 10 plants each, 3*s.*; Thuja aurea, in sets of 8, 6*s.*; and Gunnera scabra, in sets of 6, 4*s.* Bedding plants, consisting of Calceolarias, Verbenas, Geraniums, Gazanias, Fuchsias, and Heliotropes, realised from 4*s.* to 7*s.* per lot of 50 plants. Gladiolus Brenchleyensis fetched 6*s.* per 100. Pinks, Carnations, and Picotees, 3*s.* per dozen; and Variegated Double Daisy, 3*s.* 6*d.* per dozen.

The Holly.—The Holly forms an admirable single tree, or group of trees, alike appropriate on lawns, or in woods and hedgerows. It is also the densest and warmest of hedge plants, though of slow growth in comparison with the Hawthorn. It is again invaluable as an undergrowth in plantations and preserves. Many exquisite pictures of Holly and Hawthorn carelessly intertwined exist in Epping Forest, and they

are scarcely less lovely when the Hawthorn is in blossom than when the Holly is in berry. The Holly hedges at Tynninghame, in Scotland, planted about 1705, by Thomas, sixth Earl of Haddington, have attained a world-wide celebrity. They are 2952 yards in length, from 16 to 25 feet in height, and from 14 to 17 feet broad at the base. Mr. Lees, the intelligent gardener there, informs me that they are clipped annually in April. The soil is a fine deep yellow loam resting on gravel. A clipped Holly hedge, near one of my nurseries here, was once a source of attraction to every passer by. Though now neglected, it originally formed a dense, impenetrable fence, inaccessible to birds, and impregnable to those boys to whom palings, walls, and ordinary fences offer but slight difficulties, tempting even for the pleasure of overcoming them. The varieties do not reproduce themselves true from seed, and are consequently increased by cuttings, layers, budding, and grafting. From a large sowing of the berries of the variegated Holly once made in these nurseries only one plant reproduced the variegation; the others reverted to the type. Some years ago I met with a beautiful Holly, with broad prickly leaves, in the Botanic Gardens of Edinburgh, which the late Mr. McNab informed me was raised from the Ilex Perado hybridised with the English Holly. In a recent correspondence with Mr. James McNab, he obligingly furnished me with leaves of several seedlings still growing there, raised from the I. Perado, supposed to be fertilised with the English Holly, a large flowering plant of which was growing in the immediate vicinity. It is interesting to note the variation of these seedlings. Not one has the smooth entire leaves of the female parent (I. Perado), but all bear more or less resemblance to the English Holly. One is scarcely distinguishable from the latter; another has almost ovate leaves; a third, large broad leaves 3 to 4 inches in diameter; while the young shoots of a fourth are of a purplish hue. Some of these varieties are reported to be less hardy than the English Holly, which unfortunately diminishes their value for cold, exposed situations. It is worthy of remark that the green varieties seem in many cases to repeat themselves as to form in both a gold and silver dress; and I willingly indulge the hope that at no distant period some at least of those splendid acquisitions of modern times, as I. latifolia and I. Tarajo, may, by the skill of the hybridiser or cultivator, or by some natural freak, be brought to assume distinctly variegated forms. There are fine specimens of the Gold Holly at the Grange, Hoddesdon, the residence of the Rev. C. G. Chittenden, growing on a gravelly soil; three of which are the variety known as the "Old Gold," while the fourth is the "Queen." Previous to the winter of 1860-61, these and two of the Silver variety formed the most perfect living pyramids imaginable, averaging 30 feet in height, their lower branches sweeping the ground. The Silvers were killed by that winter; the Golds, although much injured, are gradually recovering. There is still a magnificent pyramid of the Silver Holly, probably matchless for size and beauty, growing on the lawn at the Misses Harman's, Theobalds, near Waltham Cross. It is 40 feet high, and 30 feet in diameter at the base, and each year is literally covered with berries. The soil here is sand or gravel; the subsoil clay. There exists a difference of opinion as to the best season for transplanting Hollies. Some say transplant in summer, immediately after the first growth; others say early in autumn; and others again late in spring. Now, I have transplanted with success at all these seasons; but am in favour of early autumn or late spring; attaching great importance to the adherence of soil to the roots, and looking for more complete success if the weather is showery at the time and immediately after the work is done. The Holly in a young state likes the shade, and flourishes most in a rich sandy soil that is tolerably dry; it is however less particular in this respect than many trees. *W. Paul, in Proc. Roy. Hort. Soc.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—This house should now be a blaze of floral beauty, which must be kept up by means of forcing pits for some weeks yet to come. Climbers on rafters should now have a portion of their branches pruned in harder than usual, with the view of inducing the production of shoots for late autumn flowering. Training of young growths as they progress must also have regular attention, in order that they may at all times present a neat appearance. In doing this, however, carefully avoid stiffness, for if the house is lofty climbers never look so well as when they are permitted to fall in graceful festoons from the roof. Roses, Cinerarias, Pelargoniums, and Azaleas should now be in excellent condition. Due care must therefore be paid to shading whenever the weather is warm and sunny. At such times air must also be liberally admitted. Push forward potting; as young half hardy plants get established remove them to a cool frame. Continue to propagate soft-wooded things as required. In training avoid making the stakes too prominent, and allow the natural habit of the plants to which they are applied to develope itself as much as possible. Gardenias will now be showing bloom; a pit with dung linings is most congenial to their growth. Air must be admitted to them with caution, and atmospheric fluctuations avoided. Have an eye in due time to the propagation of stock for succession or winter flowering. Secure cuttings of such plants as Brugmansias, Clerodendrons, Erythrinas, Poinsettias, Eranthemums, Euphorbia jacquiniflora and Gesnera bulbosa. Remember what was stated last week respecting the cool treatment of Orchids. Those who have only one house in which to grow their whole stock, must make a compromise in point of temperature between the natives of the hot and moist valleys, or shady woods of the east, and those from the western hemisphere, which inhabit high and airy regions. To accomplish this, we would advise a very free circulation of air during the earlier part of the day, and even a little all night if possible, accompanied with a great amount of atmospheric moisture; while to accommodate, with the least sacrifice, such genera as Aerides, Saccolabium, Dendrobium, &c., we would shut up with a considerable amount of heat, very early in the afternoon.

FORCING DEPARTMENT.

Pinery.—Let shifting take place as soon as the plants have filled their pots. Give air freely to all growing stock, and above all plenty of atmospheric moisture.

Vineries.—Let late Vines now breaking have every attention in regard to disbudding, &c. The litter or dung covering should now be removed from all borders, whether early or late. Litter in an unfermenting state keeps the soil cool instead of imparting warmth in the early part of summer.

Peaches and Nectarines.—Continue to keep the shoots well tied in the early house, and be careful not to get them crowded. In disbudding, the bearing wood of the present year should be divested of all shoots except the terminal one and those near the base. Where a deficiency occurs in any part of the tree, more may be tied in. Ventilate freely in fine weather, and be careful to close up early in the afternoon. Syringe once or twice daily, and keep a moist atmosphere by throwing plenty of water on the paths, borders, &c. Attend to the disbudding and thinning of the fruit in the second house.

Figs.—As the season advances gradually raise the temperature of the house. Syringe mornings and afternoons. Keep a moist atmosphere. When the borders require watering, give them a good soaking. Plants in pots and tubs should have some weak manure water occasionally.

Melons.—If there be any room to spare on kerbs or over back flues of houses "at work," some of the finer Melons may be placed thereon in pots or boxes. These, however, should be roomy and filled with mellow turfy-loam, out of which the loose soil has been separated.

FLOWER GARDEN AND SHRUBBERIES.

Work up arrears with all possible speed while the weather is favourable. Rolling and mowing should be proceeded with unremittingly. Newly laid turf should be levelled and rolled whenever the ground is at all damp, in order that an even surface may be obtained. Ungenial weather may yet be expected; therefore beware of exposing tender plants too soon. Prick out annuals, and push forward all preparations for the embellishment of the flower garden. Inspect carefully all recently transplanted shrubs, and see that the soil is well closed over their roots. Also support them if necessary with stakes. Roses will soon want close attention. Keep aphides in check, and remove superfluous buds and suckers. In order that half-hardy flowers may be induced to make rapid progress when planted out, it is absolutely necessary that those taken from indoor protection should undergo a hardening process for at least a week. In no case is the old adage of "the more haste the worse speed" more applicable than in this affair. To be well established in their pots, and well hardened, is to insure success. Many, however, cannot command frame or pit room sufficient to receive a host of potted off Verbenas, Calceolarias, Heliotropes, Petunias, Fuchsias, Pelargoniums, &c.; such, therefore, cannot pot off stock singly. The next best plan is to prepare some raised beds, in the kitchen garden, with old vegetable mould (light and sandy), and to transplant, or, as gardeners term it, prick out the struck cuttings from their store pots into these beds, about 3 inches apart—in fact, so that they can be taken up by a trowel, with a ball of earth; they must have hoops and mats, or some good covering every night, and in bad weather perhaps all day. In the second or third week in May, they may be transferred to their destination, removing with good balls of earth.

ORCHARD AND KITCHEN GARDEN.

Sea-kale should now have all superfluous shoots thinned away—about four or five to each stool is sufficient. Keep down all blossom-stems from both Rhubarb and Sea-kale; these exhaust the plant. Stir the ground between rows of early Potatoes. Weed all Carrot and Onion-beds as soon as the weeds can be got hold of. Those who are short of hands will find this the best economy. Let those who would have first-rate Asparagus see that plenty of manure or half-rotten vegetable matter is dug into the alleys forthwith. Disbud Peaches and Nectarines. Pinch off the foreright shoots in Apricots, leaving a leaf or two at the base; these will sometimes cause natural spurs to develope themselves.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending April 29, 1863, as observed at the Horticultural Garden

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs 23	5	30.194	29.997	60	26	43.0	51½	50	N.W.	.00
Friday 24	6	30.364	30.263	58	30	44.0	51½	50	W.	.00
Satur 25	7	30.260	30.206	68	29	48.5	52	50½	W.	.00
Sunday 26	D	30.200	30.146	71	28	49.5	53	50½	N.W.	.00
Mon. 27	9	30.076	29.942	66	44	55.0	52½	51	W.	.00
Tues. 28	10	29.839	29.695	58	34	46.0	52½	51	W.	.02
Wed. 29	11	29.911	29.810	53	35	44.0	52½	51	N.W.	.04
Average		30.120	30.0[illegible]	62.0	32.2	47.1	52.2	50.5		.05

April 23—Clear, fine; low dusky white clouds, fine; frosty.
— 24—Clear, dry air; fine
— 25—Fine, very fine, clear at night, slight frost.
— 26—Very fine, bright, with hot sunshine, frosty at night.
— 27—Quite clear with bright sun, very fine throughout.
— 28—Overcast, dusky clouds moving in strata, showers.
— 29—Clear and cold, fine, sometimes squally; showery.
Mean temperature of the week 2 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending May 9, 1863

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 3	61.5	40.2	50.3	17	0.58 in.	2	7	10	1	4	6	1	6
Mon. 4	62.2	38.2	50.2	13	0.70	6	10	8	—	6	4	2	1
Tues. 5	62.3	39.1	50.2	19	1.26	5	11	4	3	8	4	1	1
Wed. 6	61.0	38.9	50.0	14	0.68	—	11	5	4	4	6	4	3
Thurs. 7	58.8	40.3	49.6	16	0.81	4	6	6	2	6	7	3	2
Friday 8	61.3	39.3	50.3	16	0.62	2	6	7	—	6	6	6	4
Satur. 9	61.2	39.7	50.1	15	0.60	3	9	7	1	4	11	2	—

The highest temperature during the above period occurred on the 6th, 1862—therm. 84 deg.; and the lowest on the 8th, 1855—therm. 21 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

Bulbs: *A Constant Subscriber.* It is not advisable to leave Tulips in the ground and plant bedding-out stock among them. You must take them up as soon as the leaves begin to ripen, keeping the sorts separate, and the arrangement, if desired to be repeated, must be recorded on a plan. The same remarks apply to Hyacinths, which, if allowed to mature their foliage, and to become well ripened, produce fair border flowers another year. The Anemones had better be removed. All of them may, however, be lifted in masses as soon as the leaves begin to turn off yellowish, and the full ripening may be completed in any convenient out-of-the-way place.

Caterpillars: *Z,* who inquires what is the best remedy he can adopt for the destruction of caterpillars on his Plum and Apricot trees under glass, without injury to the foliage and bloom, is recommended to hand-pick them. It is a rather tedious but safe remedy. Or he might try dusting with white Hellebore powder, as is done with Gooseberry bushes.

Cucumber Disease: *D M.* It is the disease which for some 10 years past has been so prevalent amongst Cucumbers. No remedy, as far as we know, has ever been discovered. We believe it to be constitutional. *M J B.*

Diseased Bark: *J R W.* The white substance is produced by a Coccus. When it occurs on Beech it is sometimes much more developed than in the specimen you have sent, and has been described as a fungus under the name of Psilonia nivea. Where practicable the trees should be brushed with soap and water, and a mixture of tar or grease rubbed in, which we find very efficacious against the common American blight. *M J B.*

Fungi: *R W.* Your Fungus from Cocoa-waste is a mere mycelium. It is impossible, therefore, to tell to what tribe it belongs, or whether it is likely to be injurious. Our own impression from its character is, that it is harmless, but we cannot pledge ourselves to this effect. If it produces perfect Fungi, send us a specimen, and we will endeavour to name it *M J B.*

Insects: *T S P.* The Beetle is Rhagium bifasciatum, and the fly Ichneumon castigator, as well as we can guess from the figure. *W.*

Late Broccoli: *J C.* Almost all the late spring Broccolis are more or less modified forms of Knight's Protecting; and, indeed, the best stocks of these late sorts are for the most part genuine Knight's. So it was found at Chiswick last year, where some hundred or more of reputed 'sorts' were grown for trial. Ward's Superb, a late form of Knight's, was found to be one of the best late spring whites in the whole series. Snow's Superb, as a winter white, and Mitchinson's Penzance for early spring were also found to be exceedingly good. The true Autumn Whites, like Grange's, seem to have vanished; for in the whole series there was nothing to fill up the gap between Walcheren at the end of August, and Snow's Superb at the beginning of December.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*A L.* Cydonia japonica.—*E M.* Ribes speciosum—*Green Cop, Tipperary.* 1, Aubrietia purpurea; 2, Arabis alpina; 3, Saxifraga—probably palmata—very young.—*Torquay.* Berberis japonica.—*H B.* A bit no doubt of Weinmannia pinnata. Why not direct your letter to this Office instead of a place to which the Editor has not been for years.

Strawberry Tile: *J P Estlin.* Your tiles, of red pottery, consisting of thick semi-circular plates with a hollow to receive the neck of the plant, seem to be as good as any others—and we must add as bad, for tiles of this kind always harbour slugs, at least when used on damp heavy soils, and they appear to be reasonable in price. On light dry soils they are more useful.

Transplanting Cedar of Lebanon: *F. C.* Your best course will be to dig a trench around the stem as proposed, at about a yard from it, and then to effect the removal in mild open weather as early as possible next spring. It is too late now to do it without great risk.

Vine Leaves: *F W P.* The little green excrescences on the under sides of your leaves are not considered to be a disease; they, however, clearly indicate that the atmosphere of your house is kept too close and damp. A more complete circulation of air moderately charged with moisture will, we have no doubt, be found to cure the evil.

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ALFRED SIBSON, F.C.S., Author of "Agricultural Chemistry," &c., late First Assistant in the Laboratory of the Royal Agricultural College, has REMOVED his LABORATORY to 11, Eaton Terrace, St. John's Wood, London, N.W., where Samples for Analysis should be addressed.
He is now prepared to give Instruction in Agricultural and Analytical Chemistry, &c.

Great International Dog Show at the Agricultural Hall.

On the representation of several important Exhibitors and for the convenience of parties who have Dogs at the Paris Show, the closing of the entries of the International Dog Show will be deferred until Monday, May 11, next.

THE FIRST GREAT INTERNATIONAL SHOW of SPORTING and OTHER DOGS, will be held at the AGRICULTURAL HALL, Islington, in the Week commencing MAY 25 next, when upwards of One Thousand Pounds will be distributed in Prizes, in cash or plate (suitably engraved) at the option of the Winners.

The body of the Hall, the ample accommodations of which were fully tested at the last Smithfield Club Show, will be devoted to the Sporting and larger breeds of Dogs, for whom raised wooden platforms will be erected. The Toys and small breeds will be placed in the Galleries, which are both warm and well ventilated. Kennels will be erected for the Foxhounds and Harriers of each exhibitor when they are not less than three couple. A walled yard, more than 200 feet in height, will be daily used for exercising purposes. Mr. Brailsford, Secretary of the Birmingham National Dog Show, with his experienced staff of keepers, has been specially engaged to take charge of the internal arrangements.

These shows will be conducted at the cost and risk of the Agricultural Hall Company, by whom the payment of the Prizes is guaranteed, and by whom also food, ample in quantity, and of the best quality, will be provided.

Prize Lists and forms of Entry may be obtained on application to the Secretary, at the Offices of the Company, Barford Street, Liverpool Road, N.; and at Austin's Ticket Office, St. James's Hall, Piccadilly, where Entries must be made on or before May 11. Certificates of Entry sent by post must be accompanied by Post Office Orders, payable to Samuel Sidney, at the Post Office, Upper Street, Islington.

By Order, S. Sidney, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
Besides the usual Prizes for Cattle, Horses, Sheep, and Pigs, SPECIAL PRIZES, amounting to £500, including ESSAYS for FRUIT, CIDER and PERRY, HOPS, and SALT, are offered by the Local Committee, to be competed for at the Worcester Meeting. For Prize Sheets and particulars apply to
H. Hall Dare, Esq.,
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MAY 2, 1863.

MEETINGS FOR THE ENSUING WEEK.

Monday,	May 4	London Farmers' Club .. .. (Mr. Spearing on Agricultural Influence of Climate.)	6 P.M.
Wednesday,	— 6	Agri. Society of England ..	Noon

—— A writer in the *Times* of April 27, calls attention to the frequent cases of accident resulting from the use of agricultural machinery. In the Hereford Infirmary the number of machine accidents requiring amputation was 9 during the year 1861, 10 during 1862, and 4 up to April, 1863; and the house surgeon reports that the minor accidents not requiring amputation exceeded these in number during the same period. The following remarks accompany these statistics. "I am not aware what proportion, with regard to the population employed, these cases bear to those occurring in the manufacturing districts before the public feeling was aroused to the necessity for the compulsory boxing off the gearing, &c. in mills; but it appears to me that the lamentable loss of limb in a country so thinly populated, disclosed by this return taken from the books of the Infirmary, is deserving attention with a view to such a remedy as may tend to lessen the risk of these accidents. At present I am not aware that there is any legislative obligation on the part of those using agricultural machinery to guard against accidents liable to occur from their use by men and frequently by boys, some of them not of the highest intelligence."

It is worth adding the following from a report of Mr. Holland's paper on Boiler Explosions read last year before the Agricultural Society in Hanover Square:— "As agriculturists we have not many accidents in the form of boiler explosions, but there are a great many minor accidents

REDUCTION IN PRICE.

PHOSPHO GUANO.

The Prices for the Season 1863 are as follows, delivered Free on Board, or on the Rails at Liverpool.

For 30 Tons and upwards	£10	5	0	per Ton, net cash.	
For 10 Tons up to 30 Tons	10	10	0	,,	,,
For 5 Tons up to 10 Tons	10	15	0	,,	,,
For smaller quantities	11	0	0	,,	,,

The Price will not exceed 12*s.* per Ton additional if delivered at any other Port in Great Britain.

PETER LAWSON & SON, Contractors.
GEO. SEAGRAVE & CO., Brokers.
WILLIAM DIXON & CO., General Agents.

28, KING STREET, CHEAPSIDE; and 15, LAWRENCE LANE, LONDON, E.C.

connected with steam machinery which might be avoided by systematic inspection. A gentleman in Gloucestershire says in a letter to me: 'My brother-in-law, a Gloucestershire manufacturer, is guardian of a union, four-fifths of which is certainly manufacturing; but he finds on investigation that the cases which come before him requiring relief on account of accidents are not only relatively but absolutely more numerous in the agricultural parishes."

On Wednesday next the choice of the Agricultural Society will be declared, of Newcastle, Darlington, and Durham, which is to be the scene of the great Country Meeting in 1864. The committee of the Council appointed to examine the localities made their examination last week, and their report will no doubt decide this matter. There is of course a natural desire that fresh ground should every year be selected, and that when two towns come into competition for a visit the new one should be chosen. Unfortunately the towns named above compete on terms which are otherwise exceedingly unequal. And the railway accommodation, the house accommodation, the accommodation for implement trials and for live stock exhibition, are all on the side of the town which has already received the annual visit of the Society. Newcastle, which was visited 16 or 17 years ago, has three railways from Scotland, which would, no doubt, send many competitors and many visitors; and it has also direct railway communication with the south. A show ground—the famous Town Moor, of 1400 acres—is placed at the disposal of the Society free of charge, with a railway station adjoining; and the trial ground for small implements is also close by. The population of Newcastle with Gateshead is over 100,000, and they possess many hundred hotels, inns, and lodging-houses, and capital river transit, besides their railway accommodation. Darlington and Durham, either of which the Society might wish to visit, cannot afford adequate lodging room for visitors, and do not provide a local population large enough to fill the yards with visitors.

Every other year of late the Society has lost a large sum by its show. Its funds are not in a position to risk another deficit of this kind. The locality which provides the largest local population is to be preferred on this ground, even though its rivals have the powerful plea in their behalf that they have never yet received a visit from the Society.

—— It is announced that the period for receiving applications on the part of intending exhibitors of live stock at the coming Hamburg International Show is extended to June 1 *for Scotland*. One does not understand why this extension of time is expressly limited to the Scottish exhibitors: and in all probability it would be found that any English exhibitor who may still desire to enter horses, cattle, sheep, or pigs would find on application for schedules to Dr. Hachmann, the Secretary, at Hamburg, that a protest on the manifest unfairness of granting time to the Scottish exhibitor and refusing it to the English would be allowed, and that a schedule would be sent to him for the due entry of his stock, which would be admitted if entered before June 1. The following is extracted from Dr. Hachmann's letter on the subject, published in the *North British Agriculturist*:—

"The committee authorise you to state that the period for receiving applications on the part of exhibitors of live stock, will be extended for Scotland to the 1st June. They request me also to say that they trust you will use this extension of time in a discretionary manner, as it is most desirable to have applications made as early as possible, in order to enable the Committee to meet the requirements for space, shedding, &c., also to have the catalogue ready. I beg to send you a ground plan of the show field. As the field is some 80 acres in extent, there will be plenty of room for any requisite extension.

"The Hamburg Committee trust that the Committee which has been formed (in Scotland) will be successful in awakening a warm interest amongst your breeders and agriculturists for our exhibition. I am glad to inform you that in Germany the matter is being taken up with great warmth, and everything worth seeing in the shape of cattle, sheep, and other live stock, will be exhibited. The Governments and Agricultural Societies are sending Commissioners, who will doubtless be authorised to purchase good stock and machinery. Every facility is being given by the railways, to enable exhibitors to attend, and in many cases the Agricultural Societies have voted money to pay expenses of exhibitors, or to purchase suitable specimens for sending to our Exhibition. Some of the letters from exhibitors on your side apprehend a difficulty in not being able to understand the language, and it might be well to make the fact known that they will find the greatest portion of intelligent German agriculturists acquainted with English, and in this city, even among the lower classes, English is understood by a great many."

MOLES AND SPARROWS.

"Denique quid verbis opus est? spectemur agendo."

I am glad my friend Mr. Smith, for such I now gladly designate him, since he has paid me the same compliment, has been dipping into his classics, and has taken the language out of the mouth of the renowned Grecian warrior in his contest with Ulysses for the shield of Achilles, and applied it to me in my contest with him on the destruction or preservation of the mole. "*Quid verbis opus est? spectemur agendo*," we are told, was the boast of the haughty Greek, and which, my friend, Mr. Smith, I opine has correctly translated thus—

"Let us work, not talk."

But, let me remind my friend Mr. Smith, that he himself began the talk with his friend Mr. Wilkins, and rather fiercely too. But Mr. Smith asks, and rather exultingly, "What's the use of moles?" I reply, is not my friend aware, or if he be not, I opine again, he ought to be, that one of the most philosophical writers on agriculture of modern times wrote under the signature of "Mole," or of "Talpa," which Mr. Smith knows means the same thing? And would that very classical and clever writer and scholar have adopted this signature unless he believed that there was more to be learnt by farmers carefully observing the very useful and ingenious operations of the mole than those of any other creature, not excepting man himself?

But, again, the Almighty Creator himself created moles, and purposely for them to destroy grubs, or rather so far to keep down the numbers of them that they should not be a detriment to the cultivation of land; and hence the reason for calling them, as many people do, "grubbers." But, my friend, you have made machinery to grub under ground on the model of the working of moles, and give it the euphonious title of "grubber" also, as I hear you do, and now, if you could, you would exterminate every vestige of the models from which you yourself work, and on the perfection of which your fame and fortune seem to depend?

This, my friend, is not fair, it is not ingenuous; but the reverse exactly.

But come, let us reason together calmly on this subject. The Creator, if we believe modern philosophers, some millions of years back made these "grubbers," which have been at work grubbing incessantly ever since to the present day, and doing an immensity of good in the world: and I am not sure but these grubbers, which you so much despise, are not the creatures from which great men like yourself have sprung and developed themselves, and arrived at what they now are; but on this head I refer you to Mr. Darwin and other savans like himself, for better information than my humble pen can give you. But if their philosophy be correct, I really believe that the mole or grubber—call him by which name you please—was the animal from which, through the several intermediate stages, man has developed himself, and which stages, as you know, my friend, have the name of "correlations." Thus, the correlation of mankind is this—"mole, marmoset, monkey, man!" or grubber, goat, giraffe, gorilla, which you please, as one is just as rational as the other.

But, my friend, be thoughtful, will you? and think seriously before you speak, and especially before you write. Moles, you have written, should not be preserved because your venerable father and your parish clerk, who was also a schoolmaster, and a leader of a choir also, were mole-catchers; and because, of course, the preserving of moles would destroy that portion of their profession. But in your last article you advocate the preserving of moles, because "mole-killing has been very general in your neighbourhood for very many years."

My dear friend, I am aware that you mean well; but do you not destroy yourself, and with your own weapons also? The cultivating of land with oxen and horses has been general in your neighbourhood for many years also; and yet you are applying all your energies of body and mind to destroy this mode of land cultivation, and to introduce your modern grubbers in the stead of it; and I most heartily wish you, my friend, success, and if I can in any way help you in this laudable undertaking, it would be a pleasure to me to do so. But do lay aside this jealousy, and for once at least let two of a trade agree; do you not destroy nor injure my grubbers; and I assure you I will not injure yours. But you ask "what is the good of Moles?" I reply to this that two gentlemen, very extensive farmers, to the amount between them of near 2000 acres, and whose reputations are as high as any in this kingdom, and whose names I will give the Editor of this Paper, and who have farmed full half a century, shall answer your question, and if not to you, to others satisfactorily.

These gentlemen by letter and verbally have thanked me very heartily for the articles on Moles, which you as heartily condemn, and they ask me to write again on them for the benefit of farmers; and why? Because for very many years neither has allowed a mole to have been killed on his estate, and the consequence has been that neither has a wireworm on his estate; nor have the moles done them a farthing's worth of injury, but all this very great good. This, my friend Mr. Smith, is a reply to your question "*Quid verbis opus est? spectemur agendo*"—and what's the use of moles?

2. *Sparrows.*—A press of professional business, and not forgetfulness or wilful neglect, has prevented my before fulfilling my promise to reply to my old opponent Dr. Bree of Colchester, my neighbour; and I am not sorry the doctor has removed the venue, as the lawyers would call it, from a provincial paper, wherein, some time since, it was carried on rather warmly, to the *Agricultural Gazette*, wherein both sides will have fair play, with no local partiality or prejudice.

Nor am I sorry that the Rev. H. H. Crewe, or the crew of an opposite craft, as a witty friend of mine calls him, has stepped forward, or sailed up, whichever it may be, to help his friend off the rock against which he saw he was splitting, or to drag him out of the mud wherein he saw he was so fast sinking—no! but I rejoice that Mr. Crewe has shown so much chivalrous generosity, and I hope he will ultimately place his friend, the doctor, on firm and safe ground, and not, as his craft is, to put men under it.

But though the Rev. H. H. Crewe has generously done all this, I am surprised at it nevertheless, since it is the general custom for gentlemen of his profession to bury doctors' faults and mistakes, rather than accept them as their own, as the Rev. H. H. Crewe has done those of his friend, Dr. Bree. But to charge me, as Dr. Bree does, and which his reverend friend indorses, with advocating the destruction of small birds, either insect eaters or seed eaters, my friends and readers in general will allow me to state is most unjust, since all my life I have carried out the doctrines of Pythagoras as far as I have been able, and have never written nor spoken one single word advocating the destruction of any kind of birds; but on the contrary, as all my friends know, and, as I think, the readers of the *Agricultural Gazette* will remember, I have written as earnestly and forcibly as I have been able in behalf of the preservation of birds, and against their being killed in any way whatever; indeed, many years since I left off shooting because I would not kill a pheasant or a partridge; and since then I have not shed the blood of a single creature, except of a rat or mouse, or a flea which has hopped off my dog upon his master, and commenced his phlebotomising practices upon my own person; and I defy Dr. Bree or his reverend backer to produce a single individual who has ever heard me utter a word, or has seen a word that I have written, advocating the killing of any kind of birds.

Is it not, therefore, strange that I should be accused by a doctor and a divine of committing and advocating the committing of acts which are abhorrent to my nature, and which I have always written and spoken against? And if these two professional gentlemen, the doctor and the parson, have agreed together to turn my bird-preserving feelings and practices into ridicule, I feel certain that all humane and properly-thinking people will lament that they were not more wisely and profitably employed.

But Dr. Bree has written and published many letters, in which he stated that to kill a sparrow was "to commit a murder," because sparrows, he said, eat caterpillars; his reverend friend endorses this teaching, and the Doctor headed his numerous articles to the *Essex Gazette*, *London Standard*, *Agricultural Gazette*, &c., "Sparrow Murder," and to those articles I replied, calling to my recollection that murder could only be committed by the breaking of the sixth commandment of the Decalogue, and that as the killing of a sparrow, whether a cock or a hen, was not the breaking of that commandment, it could not, in the sight of Almighty God or of His rational creature, Man, be considered a murder; nor, I said, did it make it constitute a murder if the cock or hen sparrow, as Dr. Bree wrote, and as his reverend friend backs, did actually kill and eat caterpillars. Nay, my readers, I went further, and stated, and I now reiterate what I wrote, that sparrows did not eat caterpillars at all; but if they did it would no more make the killing of them the committing of murder, than do their eating of small insects, and which they, as other birds do, devour with so much eagerness and gusto.

I now state that cats will not eat robins; but because I write this, can I be fairly represented as stating that cats will not eat any or all other small birds? But because I write that sparrows will not eat caterpillars, and if they did it would not make the taking away their lives murders, I am made a laughing stock of, and my Pythagorean principles and practices of not shedding blood turned into ridicule! This is not fair.

But as for its being a murder to kill a cock or hen sparrow, I added further that Almighty God created kestrels and hawks on purpose to kill sparrows, and as man, I added, had nearly destroyed all the kestrels and hawks, and as sparrows had everywhere become destructively numerous on this account, man must supply the place of the kestrels and hawks, and by killing and keeping within bounds the numbers of sparrows. This I wrote, but here I stop for the present, but shall return to the subject another week.

Suo sibi gladio hos—the Dr. and his backer—jugulo.

Geo. Wilkins, Parsonage, Wix, April 23.

RECENT AGRICULTURAL PROGRESS.

[The following passages are extracted from a review of Liebig's recent work "On the Natural Laws of Husbandry," in the *Athenæum* of April 25.]

When Mr. Glaisher got up nearly five miles high above the smoke of London he could see probably the whole area of the "farm" which supplies the metropolis with food,—all Essex, Kent, Herts, Middlesex and Surrey, most of Sussex, much of Hampshire, Berks, Bucks, Oxfordshire, Cambridgeshire and Suffolk. Of course, as everybody knows, the food supply of London also comes from more distant counties and from far off countries. The cattle trains which every week unload at Paddington and King's Cross come from west and east and north as far as railroads reach, and the grain which is daily transferred to our warehouses comes literally from the ends of the earth. The counties named do, nevertheless, feed a population equal to that of London, most of whom reside in the metropolis. It is the material of their soil and of the air which floats above it, out of which the annual food of all that multitude is built; and every year for centuries the grain and meat thus grown have been sold off from it, never to return. The soluble parts of both air and soil on which plants feed have thus been annually exported from this district; and, to aggravate the loss, as one would think, every year the soil has been washed by five times its bulk of that powerful solvent, rain-water, which carries all it can to sea. What process can be imagined more perfectly adapted to the rapid deterioration of the land and the reduction of its fertility? But what is the actual fact? What would Mr. Glaisher have seen from a similar elevation a few centuries ago? The landscape may have been as green, but it was for the most part waste and wild. Trees and gorse and scrub covered the greater portion of it — perennial plants, often taking years to gather up the power to yield an occasional autumnal produce. And the soil itself, where it was inclosed, was most of it every year in bare fallow, or only naturally clothed; thus taking years to yield an occasional and scanty crop of grain. There is not a plant the farmer grows which does not give a threefold produce, four or five times as often, from tenfold the acreage within this district, now, as compared with then,—not an animal he feeds that does not now in tenfold numbers produce double the amount of flesh in one-third the time that it did five centuries ago. And it is, of course, from an increased fertility of the soil that this immense increase of production is originally derived.

This wonderful agricultural progress and success has, indeed, been equally witnessed in all parts of the island, and local examples might be named which would even more strikingly illustrate it. On the Prince Consort's Flemish Farm of stiff clay soil, now drained, steam cultivated, equipped with farm buildings, and producing heavy crops of Wheat, Oats, Beans, &c., a few deer used to find a scanty living amidst gorse and rushy Grass and woodland glades. Tiptree Farm was Tiptree Heath not 50 years ago. We take the general aspect of Mr. Glaisher's landscape, however, in preference to any particular locality within it, because it is the feeding ground of wasteful London. Its produce traverses first the streets and then the sewers of the metropolis; and the enormous drain is enough to impoverish a province. That the province is, notwithstanding, being rapidly enriched is to some extent, no doubt, owing to the guano, nitre, bones, oilcake, grain, and all kinds of food annually imported by the river which carries the elements of all these things to waste. Even more, it is owing to those agricultural improvements which put the natural resources of our growing crops in soil and air to their fullest use. And it is further due to improvements in the plants and animals themselves by which these resources are so economically utilized. But the fact remains, however it may be explained, that improvement, not impoverishment, is visible in all directions; and the circumstances, therefore, certainly are not favourable to the reception of the warning voice which, in the volume before us, Baron Liebig utters in the ears of British agriculturists.

British agriculturists, let us say at once, owe much to Professor von Liebig. It is to the faith which he inspired in the chemistry of vegetable and animal growth that we owe the rapid rise of the manufacture of artificial manures among us as well as the safety and extension of so-called "artificial" feeding in the meat-manufacture, and both of these events are of first-class agricultural importance. His confident argument, bristling with apposite illustrations, has often aroused both thought and effort, the good effects of which remain, notwithstanding the diminished confidence with which, as time has tried his theories and assertions, some of them have been ultimately received. He is here again as arrogant as ever,—warning us of our coming ruin, foreshadowed as it is by the Clover sicknesses and Turnip failures, which indicate the exhaustion of our subsoils,—laughing our scientific men to scorn, and especially sarcastic and unfair towards Messrs. Lawes and Gilbert, who have supplanted him as authorities on the chemistry of agriculture in this country.

We now grow more bread and meat than ever we have done before; and, what is a still greater proof of national prosperity, even so, we do not keep pace with the increasing numbers and demands of our population. We supply all countries with our improved breeds of cattle and sheep. Ayrshire, Durham, Hereford and Devon, but a few square miles apiece, supply the agriculturists of all nations with breeds which are unequalled anywhere. We have taught our neighbours the fertilizing influence of land-drainage, by which we have ourselves immensely benefited;—we have supplied them with all the machinery of the farm;—we have at length shown them how to apply steam-power in the cultivation of the soil, as it has been already successfully applied in most other agricultural processes. Our Example Farms, the work of private enterprise, headed by those of the late Prince Consort, furnish now the rule of ordinary practice in every county; our farmers produce more food per acre than those of any other country. And although, according to all the rules of German philosophy, we ought to be languishing and moribund, certainly we have not learnt as yet "how not to do it." Leaving the work of abstract reasoning to others, true to the instincts of our race, we succeed in the accomplishment of our work. We do not, indeed, accept the Chinese as our exemplars; but, preferring cleanliness and health, we have thus saved energy and life more than sufficient to replace, by labour in other fields, whatever our cleanliness may in the meantime have cost us. And our German censors may rest assured that, as soon as the profitableness of any process for the purpose shall be proved, *vis inertiæ* will no more hinder us than abstract reasoning hitherto has urged us; but the work of saving London sewage, and so of inaugurating the "only safe system" of agriculture, will very soon be done.

It is in some such mood as may be thus expressed, that most readers will rise from a perusal of Baron Liebig's work. The proofs which they everywhere perceive of our agricultural progress and success cannot fail to clash grotesquely with his predictions of our failure and exhaustion; and, moreover, it is not without a mixed feeling of indignation and amusement that they will find our scientific leaders, whose good services have been long and gratefully acknowledged, treated by him with insolence.

Let us not, however, following the example of his strong personal prejudice and bias, refuse to admit the useful light which he has once more thrown on the phenomena of vegetation and of cultivation. While his arrogant self-confidence repels us, let it not hinder us as agriculturists or persons interested in agriculture, from examination of his arguments and assertions. Meanwhile, it is gratifying to find, of so energetic and powerful a teacher, that these pages betray no signs whatever of that age which he confesses in such characteristic terms, "when the elements of the mortal body betray a certain tendency to commence a new circle of action."

STEAM CULTIVATION.

EWE FARM, NEAR WALLINGFORD.

Mr. Deane, who here occupies 800 acres of land, his own property—600 acres of which are arable—has worked Howard's cultivator since July, 1861. The land varies between a stiff calcareous clay and a less adhesive soil, in which there are many flints. It lies across the gault, green sand, and lower chalk, where the natural bed or rock is occasionally obscured by layers of flinty gravel. There are thus two qualities of land, one of which is the best possible for steam cultivation—the stiff and stoneless calcareous clay of the gault, and the other the most expensive of all soils to work by the steam cultivator, where land is full of flint and yet stiff enough to hold the flint firm while the wire rope is dragged over it.

Recently purchased, the land is still very badly out of order—a great deal has been done in breaking up the staple to a greater depth than has been reached before; and in throwing small fields together in order to make the land adapted to steam cultivation; but a great deal remains of both these kinds to do. Meanwhile Mr. Deane is very well pleased with the apparatus. This time last year, *i. e.*, on May 1, 1862. He wrote:—

"We began work just before last harvest, and kept on as long as the weather would allow, and after cultivating 209 acres, put up the apparatus for the winter. We intended to commence again at the beginning of March, but the weather was so wet and unfavourable, we did not begin till the 15th of April; since then we have only lost one day, and have done 72 acres very well, and have moved the apparatus into another field at some distance, ready for starting again. I shall be working it now every day for some time to come, if nothing happens, and I shall be very pleased for any one to come and see it, and shall be happy to show them the difference between my steam-cultivated and horse-cultivated fields, and give them all the information I can. Although we have done nearly 300 acres, we have not been hindered a single day with any breakage whatever. My neighbours now begin to think it will answer, although some of them found all the fault they could with it at first; the Earl of Macclesfield's agent came over the other day, and he was quite pleased with the work just finished. I showed him some Wheat growing on steam cultivated land, and he thought it looked remarkably well. Our crops on the land that has been steam-cultivated all look very well, and I think if we can get on through the summer as we have done during the last fortnight, I may venture to say that your Steam Cultivators will be very plentiful in this neighbourhood. Although it is very good corn land, this is one of the hardest working farms in the county, and if your cultivator does the work well on Ewe Farm, there is hardly a farmer in Oxfordshire but what it would satisfy."

The 72 acres referred to above were accomplished in 13 days, which is very good work. Since that date, *i. e.*, during the past year, though Mr. Deane has not kept a record of his work, I gathered from the list of fields given me by his ploughmen that he must have accomplished from 500 to 600 acres of steam tillage, at the rate of 5 acres a day, when the 3-tined grubber is used, and at the rate of 8 acres a day when crossing first work with the 5-tined tool.

Coals cost about 20*s.* a ton on the ground; but they are taking to the use of hedgerow wood as fuel, which will reduce the cost of this item. At present the 10 cwt. to 12 cwt. of coal burned daily by the 10-horse engine, may be put at 12*s.* The labourers employed are: engineer, 15*s.* a week; ploughman, 15*s.*; two anchor-men, 10*s.* each; windlass lad, 8*s.*; two porter lads, 5*s.* each; water, boy, and horse, 24*s.*; oil, 6*s.*: in all 4*l.* 18*s.* a week, or 16*s.* 6*d.* a day. The cost of fuel and labour is thus 5*s.* 9*d.* an acre first time over, and 3*s.* 7*d.* the second time over per acre.

The cost of rope has been considerable. The 1400 yards of rope bought in July, 1861, which had cultivated 280 acres by this time last year, and has probably worked 600 acres since, is already almost worn out, and breakages are frequent even in crossing land already worked by plough or grubber. This is owing to the very flinty soil which has been worked, and over which it seems to have been insufficiently carried. It is also in some measure owing to breakages where the cultivator has been crossing old hedgerows. Probably the cost of rope must thus be put as high as at least 1*s.* 6*d.* per acre. Beyond this however the expenditure has been hardly anything. There have been no accidents beyond an occasional breakage of rope, and the engine, which is used for threshing as well as cultivating, is as good as the day it was bought.

Mr. Deane has no former experience of his farm with which to compare that of the past year during which steam cultivation has been adopted. He works 20 horses in addition to the 10-horse engine, but these are employed in much other work connected with the improvement of an estate out of order, besides the mere labour of cultivation.

COFFEE AS AN ARTICLE OF FOOD FOR LABOURERS.

Doctor Petit, of Chateau Thierry, has recently published a pamphlet "On the Prolongation of Human Life by the Use of Coffee," a pretentious title, which the writer of a brief review of it in "Connaissances Utiles" designates as a bold attempt to solve a problem which in the middle ages occupied the minds of alchemists and sorcerers. Without dwelling on the fanciful and figurative features of the subject, I shall practically propose the question which suggests itself to me on reading the review. Should we recommend a more extended use of coffee amongst our agricultural and other workpeople in preference to tea, which is so frequently adulterated, and always of very inferior quality in the village shops, where labourers purchase it by the ounce at a cost of 20 per cent. above the price charged at respectable shops, where the quantities are mostly sold in pounds. Milk is quite unobtainable unless in small quantities during many months of the year even by a large proportion of rural labourers, who have to substitute for plain milk, tea or coffee weak with a colouring of milk. Neither of these can be considered nutritious, but we have to consider which of the two is the better. Now, besides its defectiveness in tonic and digestive qualities and its relaxing property, cheap tea is rarely unadulterated or of grateful flavour, and the inexperienced consumer has no certain means of detecting imposition, or guarding against it. Coffee on the other hand, if purchased in its berry state, cannot be deceptive, and there is no real difficulty in supplying a village roaster and mill to any village of labourers by joint stock process. By such means a great saving in the price of coffee would be gained, with the certainty of having it pure. And if in the decoction a portion of chicory should be desirable, from economical motives or from taste, the chicory can be bought separately at a much cheaper rate than the coffee, and mixed with it in any proportions desired. There again is a saving; chicory is not unwholesome, and its bitterness improves the taste of coffee in the judgment of many coffee drinkers, and it is an economical addition undoubtedly; but it ought not to be charged at coffee price merely because coffee is mixed with it by a dishonest grocer. A saving of one-fourth of the nourishment necessary for the human frame, through the use of coffee, is urged by Doctor Petit as one of his arguments, which, if well founded, is obviously important. Some evidence of this assumed fact are observable, says M. Petit, in the good condition of the labourers in the oil-mines, near Charleroi, where they work 12 hours a day without sunlight in an atmosphere loaded and vitiated with dust, and yet are in vigorous health—their allowance of meat being but 1 lb. per

week, some Potatoes, their daily beverage—coffee soup (we are not informed whether with or without milk) three or four times a day. My Hibernian countrymen would cry out—the Potatoes! the Potatoes! and discredit the value of the coffee altogether. The expression "quelques pommes de terre" is rather vague; but a good deal of the argument turns on this very point. If there were only a few Potatoes (as the above French phrase would estimate) supplied as food, coffee soup would have the claim to the high favour with which M. Petit invests it; but if Potatoes were the only solid food afforded (the 16 or 17 ounces of meat in 160 hours being left out of the calculation), would not Potatoes *versus* coffee have a strong case? It would be desirable to know something, too, of the quality of the Potatoes—fine dry mealy Potatoes, taken *ad libitum!* and, the Attorney-General of Ireland arguing the case, would not a verdict be recorded against coffee soup?

An important omission in the French statement of defendant's case must be noticed. We are not told that the coffee-soup drinkers had any bread whatever. Surely the notion of hard-working miners thriving on a few Potatoes and coffee alone is preposterous. Had they bread in abundance? or in any measure? and of what quality? Let the plea be amended.

M. Petit brings forward a more satisfactory illustration of his theory. Some country weavers and others who lived a few years ago in great poverty in one of the Bohemian valleys at the base of the Carpathian mountains, were so wan, emaciated, and enfeebled a race as to excite the benevolent attention of a physician. He tried on them a course of coffee, the Austrian Government withdrawing the duty of it there. The result is perceptible in the healthy appearance of the peasantry, the decided alteration for the better in their habitations, and much comfort consequent on the increase of employment, where the want of it had prevailed. Would not all this in itself be a cause of the amelioration described? A fully employed peasantry in a mountain district would gradually acquire more goats and sheep and even cows and milk, and increased animal food too, with other articles of plentiful food and comforts, would be more likely to act as renovators of the previously debilitated people than M. Petit's panacea.

Yet I do not question the good qualities of coffee, and its general claim to preference over tea, as tonic and digestive, and exhilarating, and also sedative in some cases. Used as it always is by the poor in a very diluted state there is no danger of nervousness, and tremors, and sleeplessness arising among them from the excessive use of it, especially in youth, when it should not be taken in strong doses. Similar objections however rest against the use of tea taken in excess.

The French reviewer of the pamphlet refers, in some just and moderate approbation of M. Petit's theory, to the statement that the French soldiers have been supported against the debilitating influences of the climates of Africa and Mexico by the use of coffee.

In a few words are given the scientific explanation of the *modus operandi* by which coffee is maintained by the author of the pamphlet to prolong life. "There is a constant double process of composition and decomposition of molecular particles operating in our system. In proportion as the old tissues change and wear out, new tissues are formed from nutritive substances, the elements of which we assimilate. Coffee retards this double vital action, by slackening the waste of the absorbed substances. Therefore the need of recomposition and consequently of nutriment ought to be less."

Coffee is also lauded as a means of relieving "cerebral congestions and bleeding from the head, that are often attributable to obstruction in the blood vessels, caused by the particles of phosphate of lime, which detach themselves from bone tissue (more easily in advanced life), and (through the blood circulation) at last obstruct the capillary vessels."

In the East and in the Antilles, where Coffee is used in great quantities, gout and gravel are scarcely known: but why? If the reader wants the solution let him buy the pamphlet, or the November number of "Connaissances Utiles," if he understands French, and if not, let him learn the language without delay. *Martin Doyle.*

AGRICULTURAL STATISTICS OF IRELAND.

THE following extracts are from the annual report of Mr. Donnelly, the Registrar-General:—

The tables of the estimated average produce exhibit, for 1861 and 1862, the yield of cereals in quarters, barrels, and tons. A table of the extent under crops, the average produce per statute acre, and the estimated total yield of the principal crops in 1847, and in each year from 1849 to 1862, is given for all Ireland. The area under each of the principal crops in 1861 and 1862, by counties and provinces, is also shown. The extent under the principal crops, the estimated average produce per statute acre, and the total produce of the land, in 1861 and 1862, also the increase or decrease in the latter year, are given in the following tables. The decrease in the average yield of the crops in 1862 compared with 1861—Potatoes and Flax alone excepted—may, I conceive, be justly attributed to the very unfavourable season of 1862. And here I would beg to remark that the benefits resulting from thorough drainage were most forcibly exemplified during last year, as well as in 1860 and 1861—in each of which years the quantity of rain was unusually great—notwithstanding which, occupiers of well-drained land were enabled to put in their crops at a seasonable period, and to reap them comparatively early in the autumn, whilst those farming under-drained land were unable to work it until very late in the spring; and owing to the continued wet and ungenial seasons, the estimated yield of cereals in many parts of the country was much below the average, and in several instances the crops did not arrive at maturity, especially on lands requiring drainage.

TABLE I.—The extent under each of the principal crops in 1861 and 1862, and the increase or decrease in the latter year:—

CROPS.	Extent cultivated in		Increase or Decrease in 1862.	
	1861	1862	Increase.	Decrease.
	Acres.	Acres.	Acres.	Acres.
Wheat	401,243	356,321	..	44,922
Oats	1,999,160	1,977,528	..	21,632
Barley	198,955	192,302	..	6,653
Bere and Rye ..	11,582	12,128	546	..
Potatoes	1,133,504	1,018,112	..	115,392
Turnips	334,104	376,715	42,611	..
Mangel Wurzel ..	22,833	23,114	281	..
Cabbage	30,020	30,543	523	..
Flax	147,957	150,070	2,113	..
Hay	1,546,206	1,552,924	6,718	..
Total decrease				135,807

TABLE II.—The Estimated Produce per Statute Acre in 1861 and 1862, and the increase or decrease in 1862:—

CROPS.	Produce per acre.		Increase or Decrease in 1861.	
	1861	1862	Increase.	Decrease.
Wheat, in barrels of 20 stns.	3.6	3.2	..	.4
Oats, in barrels of 14 stns.	6.1	5.9	..	.5
Barley, in brls. of 16 stns.	6.2	6.2	..	..
Bere, in barrels of 26 stns.	6.4	6.1	..	.3
Rye, in barrels of 20 stns.	4.3	3.7	..	.6
Potatoes, in brls. of 20 stns.	13.1	16.9	3.8	..
Turnips, in tons	10.2	10.1	..	.1
Mangel Wurzel, in tons ..	10.3	9.6	..	.7
Cabbage, in tons	10.4	8.4	..	2.0
Flax, in stones of 14 lbs. ..	24.4	25.9	1.5	..
Hay, in tons	1.8	1.8	..	..

TABLE III.—The total produce of the principal crops grown in 1861 and 1862, and the increase or decrease in the latter year:—

Crops.	Estimated Produce.		Increase or Decrease in 1862.	
	1861.	1862.	Increase.	Decrease.
	Quarters.	Quarters.	Quarters.	Quarters.
Wheat	851,871	683,048	..	168,823
Oats	8,045,689	7,283,400	..	762,289
Barley	685,381	661,823	..	23,548
Bere	12,531	11,567	..	964
Rye	22,626	21,238	..	1,418
	Tons	Tons.	Tons.	Tons.
Potatoes	1,858,433	2,148,432	289,969	..
Turnips	3,392,884	3,792,682	399,798	..
Mangel Wurzel ..	235,633	221,678	..	13,960
Cabbage	310,907	256,425	..	54,482
Flax	22,568	24,258	1,690	..
Hay	2,810,352	2,781,529	..	28,823

Mr. Donnelly remarks that the particulars required for these returns continue to be most readily communicated by the landed proprietors and tenant farmers, and the public, without whose valuable and generous assistance these returns could not be satisfactorily obtained by the enumerators, however efficient in the discharge of their duties.

ON FATTENING SHEEP, CATTLE, OR PIGS ON LIGHT LAND FARMS.

THE general advantage or benefit to be derived from fattening stock on light lands is to be found in the value of the good manure which is left on the soil, especially where much Corn or cake has been consumed. The actual clear profit from fattening, or it may be loss, must of course depend on a variety of circumstances, amongst which I may briefly notice the cost and supply of food of the various kinds, seasons, and I may also here add the situation viewed with regard to shelter; then again, the age, quality, and general description of animal, selected or otherwise, the degree of fatness attained, and the state of the market when sold. To make any animal pay for feeding, the process should be conducted in moderation, allowing the animal food sufficient to keep it in a thriving condition, but not of a too expensive kind, being enabled by those means to allow it more time to make flesh at the same amount of cost. Thus, for instance, if we take two lots of lean sheep, equal in numbers, and nearly alike in quality and live weight, giving one lot ½ lb. of cake per day, with roots and hay in fair allowance, to the other 1 lb. of oilcake, with the same roots and hay as the first receive, we shall no doubt find—that with 1 lb. of cake the increase of weight would be greater than with ½ lb.; but then, again, allowing them to be thus fed, say for 16 weeks each lot, I would ask, shall we find the extra increase of weight by the highest fed lot over the other pay us for the extra money expended in the shape of extra food?

Connected with the increase in the weight of sheep for a given amount of food, I refer to various experiments, reports of which are published in the Royal Agricultural Society's Journals. The experiments I allude to were carried on by Mr. Lawes. In No. 28 of the Journal referred to, we have a report of experiments on the comparative fattening qualities of different breeds of sheep; many similar ones have appeared since. The breeds here alluded to are the Hampshire and Sussex Downs, which, being so near those kept in our district, has induced me to name this particular report rather than any subsequent one. The experiment commenced by giving to each lot a weight of dry food proportionately to the respective live weights previously ascertained. The Hampshires, found to be 113 lb. live weight, received 1 lb. oilcake per day, and 1 lb. Clover chaff each sheep; the Sussex, whose average weight was 88 lb., received food in similar proportion, about four-fifths of a pound of oilcake, and the same of Clover chaff. Swedes were given to each lot as many as they chose to eat, but from quantities which had been previously ascertained by weighing them. Both lots of sheep were weighed every four weeks, as nearly as possible at the same hour of the day. Taking the Hampshires first, we find that during the first twenty weeks they received 1 lb. of oilcake and 1 lb. of chaff daily, eating about 100 lb. of Swedes each week per head for the twenty weeks together, and taking the average of them all. At this date, March 27, they were shorn, and their oilcake increased to 1½ lb. per day each; but the chaff remained as before. Of roots they consumed rather more; the quantity stated is 135 lb. weekly as the average of the following month. The two weeks which remained to complete the 26 weeks they ate rather less—viz., 112 lb. of Swedes weekly, with 1½ lb. of cake, and 1 lb. of chaff daily. The increase in live weight per head was 2 lb. 11 oz. weekly during the first month (November), 2 lb. 6½ oz. weekly during the second month (December), 2 lb. 6 oz. the third month (January), 2 lb. 12½ oz., the fourth, and 2lb. 14 oz. weekly during the fifth month; the sixth month, although with an extra quantity of cake, they only increased 2lb. 6½ oz. weekly; the fortnight remaining they increased 3 lb. 10½ oz. weekly. Thus it seems they decreased in proportionate gain during the first few weeks after their cake was increased, at the same time eating more Swedes; but this might have arisen perhaps somewhat from their being shorn just at that time, as afterwards they showed a considerably increased gain.

Now let us take the Sussex. These were fed in the same manner proportionately as the Hampshires, with this difference, that at the end of twenty weeks the Sussex, by a mistake of the man attending them, received the precise weight of hay as the Hampshires, while before they had given them only in proportion to their relative live weight. Their increase in live weight weekly during the first month was 2 lbs. 8¾ oz.; the second month, 1 lb. 11 oz. weekly; third month, 1 lb. 5 oz.; fourth month, 2 lb. 0¾ oz.; fifth month, 1 lb. 3½ oz. This brings us to the time when they were shorn, and their food increased. The sixth month they averaged weekly 2 lb. 12 oz., and the last two weeks, which concluded the experimental period, they increased live weight weekly 3 lbs. 3½ oz.

I could have wished to draw some more satisfactory conclusion from a comparison of the two lots of sheep, taking them together, than it appears I am able to do, as we find that at one time (the month after shearing) the Hampshires lost in weight compared to previous weighings, whilst the Sussex increased very considerably; then during the last fortnight the Hampshires gained more than the Sussex in proportion. One thing will be observed in which both agree—that is the increased live weight weekly was less during December and January than the periods before and after. The experiments were interesting, as they commenced early in the winter, and were carried on through it into the spring; the misfortune was their being shorn before the experiment so far had terminated. If we take both lots together for the whole period, and average them, we find they consumed weekly for the whole period per head 7 lb. 1½ oz. oilcake, 6½ lb. chaff (nearly), 92 lbs. of Swedes—increase in live weight, 2 lbs. weekly. Their live weight (the average of both lots) when put up was about 100 lbs. each, from which it does not appear they were very heavy sheep. No doubt the more correct way to deal with these figures would be by putting those calculations at so much per 100 lb. live weight, rather than so much per head, but it would not appear quite so clear at first sight. I may, however, state that the mean average gain in weight per 100 lb. live weight over the whole time was 1 lb. 11½ oz. weekly, whilst at the commencement of the experiment it was found for 100 lb. live weight there was an increase of 2 lb. weekly. Mr. Lawes observes, in reference to one point, the tables showing that as the experiment proceeded a larger amount of food was required to yield a given amount of increase in live weight—"that the experiments led to the belief that in this seeming diminished effect of the food the difference was more apparent than real, for as the animal ripens the increase is found to be much less aqueous than during the earlier periods of growth." So it becomes necessary, in drawing our conclusions from any experiment whatever, to comprehend all the various conditions by which it is surrounded.

I will now to consider the fattening of oxen and sheep relatively. Taking one view of the matter, in speaking of the "relative" advantages of sheep and beasts, I would first inquire, how many sheep are equal in consuming powers to one bullock?—a question which is

certainly one not to be answered satisfactorily in a moment. Various opinions exist, differing considerably one from another—some believe four, others six, some eight to one. My own opinion is that, taking beasts of four or five years old and sheep of two years old, feeding them under equal conditions of food, warmth, and shelter, six sheep are more in proportion to one bullock than any less number, but then the profit or loss may vary considerably, according to the system of management pursued. I would place them in this way—the beasts under cover, the sheep in a sheltered yard, but not of an expensive kind, both being provided with a fair amount of good food—

6 sheep to consume			
4½ lb cake per day=31½ lb. weekly, at 11*l.* per ton		3	1
90 lb. Swedes per day=630 lb. weekly, at 7*s.* per ton..		2	1
6 lb. hay per day=42 lb. per week, at 3*l.* per ton		1	1½
Attendance		0	4½
		6	8
Increasing in weight 11 lb. meat, at 8*d.* ..		7	4

1 bullock to consume			
4½ lb. cake per day=31½ lb. weekly, at 11*l.* per ton		3	1
90 lb. Swedes per day=630 lb. per week, at 7*s.* per ton		2	1
8 lb. hay per day=56 lb. per week, at 3*l.* per ton		1	6
Attendance		0	8
		7	4
Increasing in weight 12 lb. at 7½*d.* per lb. ..		7	6

These calculations are based on my own experience on our own farms; the quantities of food named are what I believe to be moderately good keep for sheep or beasts—that is supposing we feed both on the same kinds of food for comparison's sake only. Although I have given hay in the statement for beasts, I believe straw as fodder pays better than hay. Beasts thrive better when fed on mixed kinds of food; instead of giving the full value of cake, give them, say one-half in cake, the other half in meal, with due consideration to the relative market value of the two. Then, again, with roots—Swedes in the early part of the winter are as good, and perhaps better (weight for weight), than Mangels, but in the spring I prefer Mangels instead of Swedes for bullocks. Sheep also pay better with a mixture of cake and corn together than with cake alone. The proportion of increased weight to food consumed, which I have stated in the case of sheep, is about what I have found from the average of many weighings over several lots of sheep from time to time, whilst fattening, up to 16 or 20 weeks. Mr. Lawes found with the Hampshire sheep, for the 26 weeks, that with 8 lbs. of oilcake, 7 lbs. of chaff, and 106 lbs. of Swedes weekly, that the average weekly increase in live weight was 2¾ lbs. In some other experiments he states (No. 47, Royal Agricultural Society's Journal, page 215), referring to oxen and sheep, as the general results over large numbers of animals to which he arrived, that an ox consumed 12 lbs. to 13 lbs. dry substance of food to produce 1 lb. live weight increase, whilst sheep, consuming 15 lbs. to 16 lbs. dry substance of food, should yield 1¾ lb. increase, showing that beasts give the least proportion of increase for a given amount of food; he also stated they expended in respiration more than sheep.

Although I have said much in reference to sheep under cover, I wish to be understood that on light lands during the autumn and the spring, if the weather is favourable for them to remain out in the field, they make nearly, perhaps quite, as much flesh as if they were under cover, leaving their manure evenly over the field, giving solidity to the land, and saving the expenses of drawing the roots home and the manure back, which are considerable advantages on the side of sheep over beasts, which require their food in house. It is when fattening sheep on the land during the autumn that we have an opportunity of carting away a portion of roots to the homestead, the loss to the land being made up in the cake or corn there consumed, the roots removed being consumed by bullocks, or kept in store for the same sheep when the weather becomes unfavourable for them to remain longer in the field.

I do not consider, taking light-land farms, that much bullock fatting is of advantage, as the quantity of roots which I have just mentioned are almost the only ones which ought to be removed from the land, if intended for Wheat, believing that, except in a very few instances, the whole of the other roots would be more advantageously fed by the store sheds entirely, without any taken away. Where the root land is intended for Barley, then more roots may be taken away without loss to the following crop, with a view to converting the surplus straw of the farm into good manure, rather than to derive any large profit from grazing. The haulage and storing of roots to the homestead is somewhat expensive, and cannot be performed at less than 10*d.* to 1*s.* per ton for a mile distance, even under very favourable conditions. In such a case I would prefer putting up a cheap sheltered yard in the field for sheep to lie in during bad weather, thus making manure where it would be wanted at a future day.

These latter remarks apply to pigs the same as to sheep or bullocks. The value of pig manure to light land is considerable; but the profit in other ways depends very much on the nature and quantity of the food the pig receives. Pigs can be made to pay if fed on Barley-meal, given to them in small quantities at the commencement, with roots besides, and also a few grains, if they can be procured. Taking a pig eight months old, I consider 1 peck of Barley-meal per week, and about 3 bushels of roots per week, sufficient to begin with, to be gradually increased until the pig is fat. In this manner pigs can be made to pay for the food they consume; but if a pig is fattened on meal, and that only, I do not think 10*s.* per score will fairly show a balance in its favour. There is one advantage in having some pigs to consume any refuse food, and the litter which may be supplied them is not necessarily so good as that required by other stock. Taking a general view of the whole subject throughout, the conclusions to which I have arrived are these—that the fattening of stock, as a whole, on light land farms, is a benefit to the land, in supplying the means of converting the surplus straw into good manure, more than the profit derived directly in money value. Thus mixed kinds of stock possess their respective advantages at different times. To sheep I give the preference, as I believe it can be shown their profit over beasts is greater under the same conditions; the advantage to the land, at those periods of the year when sheep can be kept to consume their food there, added, gives it in their favour. Our experience tells us the simple return of manure, of which light land may have been deprived, will not of itself supply all that it requires. The extent to which the fattening of pigs can be carried on with advantage rests in a great measure on the quantity of surplus straw on the farm, and the facility with which a quantity of roots may be brought to the homestead, the loss to the land from their removal being weighed, and the manner in which it may be replaced.

[The above is condensed from a paper by Mr. C. Saunders, lately read before the Dorchester Farmers' Club. The following remarks upon it were made at the time:—]

Mr. Genge took particulars of the feeding of some oxen last year, and the profit was so small that it would not be advisable for him to advise box feeding. At Michaelmas he put up three oxen in fair condition, two valued at 18*l.* each and one at 12*l.* The food they consumed in 24 weeks cost 26*l.* 13*s.* 6*d.*, cake at that time being so dear that he considered meal more economical. They "proved" as well as any animals could; and at the end of the period named he sold them for 80*l.*, which, adding together their original value and the cost of keep, only left him a profit on the three of 5*l.* 6*s.* 6*d.* The average cost of their keep was 7*s.* 4*d.* per head per week, and the profit only 1*s.* 5½*d.* They of course left a great quantity of very good manure, but if he had been fatting on a large scale, and had lost a bullock or two, it would have swallowed up the profit. In feeding out sheep liberally, however, they paid him very well, independent of the manure they left.

Mr. T. H. Saunders said he had for some years been in the habit of weighing sheep alive to see how they "proved." He had given a pint of corn a day and found they paid for it; but when he doubled that allowance, although in the same field of Turnips, they did not pay for their extra quantity. He had made similar experiments with pigs as well as sheep, and found slow feeding paid best. As to feeding sheep out of doors when the weather was bad, it was almost impossible to make them pay. His practice had been, instead of carting the Swedes home, to put up a temporary yard at the expense of about 20*s.*, which would hold about a couple of hundred sheep, so that they could walk out to eat their food and go in to shelter at night. Where the land was light, the solidity given to the soil by the treading of the sheep was almost as useful as the manure they left behind. He also liked to put a rick where the yard would do for two years instead of one. As long as the weather was favourable in autumn he should not put sheep in a yard, for he found that during fine weather they gained most out of doors, but when it got wet they did better in the yard. If they had a yard in the corner of a field, they could take some Turnips and place them in a row close by the yard, so that they would be there to feed when the weather got bad just where they grew, and where the manure was required. He alluded to the necessity of sheep being also well looked after and regularly fed, which was of no less importance than their having plenty of food.

Mr. Wood, the Chairman, said he had seven beasts in the Repository sale to-day which were grazed on roots and hay, without a morsel of cake or corn. He thought they averaged about 22*l.* per head, and it would not be unfair to say that the animals were worth about 12*l.* or 13*l.* each at the end of November. He was not fond of oilcake bills, though he did not say they should not feed on oilcake or a good substitute for it; but he thought they ought as much as possible to grow their fattening food on their own farms. He also argued that they should always keep all their stock, even breeding stock, in good condition, not only as affecting the animals themselves, but also the manure which they left behind. It was also of the utmost importance to keep the young stock well the first year, both sheep and calves; and in pursuance of this principle, he had for some years past cut the Turnips for all his lambs through the winter, and though there was a little more expense he was amply repaid for it. He considered that the evidence of good or bad farming was, whether there was any unused or surplus straw lying about.]

Home Correspondence.

Sparrows.—Having read in your useful Paper many arguments concerning the use or destruction of the sparrow, I crave your indulgence for a few observations as I belong to that class most exposed to the depredations of insects, and to the damage the sparrow is said to do. On all small cultivations, such as an acre or two of corn, or a garden plot where a few seeds are grown, no doubt the seed will be thinned, or the acre of grain will be damaged, but upon a larger scale the sparrow does not do the mischief reported by some of your correspondents. Always, as the harvest approaches, some one is appointed to watch the crops with gun (with powder only), or lads with other annoying notice, to drive the small birds away, if corn of any description is sown near a hedge, or Quick, &c. In such localities no doubt great trouble will be occasioned, but on a 10 or 20 acre piece this will not happen. With regard to recommending the wholesale destruction of the sparrow, you may just as well destroy the rooks because they clear the rows of Beans and Peas immediately after they are planted, or just as the young plant makes its appearance, or because they pull your headland Barley or Wheat down as it becomes ripe; these are trifles all cultivators are subject to. The sparrow destroys the larva of the elater [wireworm] by hundreds daily during the breeding season, one of the greatest nemies the farmer has to contend with, both in the meadow and the tilled land; this all good farmers know well. Let those who advocate their destruction watch this bird, with its living pest of insect in its beak, carrying this food to its young five or six times in the hour from sunrise to sunset. Its young are fed with thousands of grubs picked up from and out of the earth at this season. There is no corn or other food so acceptable to their young as these pests, the greatest enemy to the husbandman and the tiller of the soil. *Newbury.*

General Steam Cultivation Company.—I am glad to find a General Steam Cultivation Company is at length about to be formed, and hope it will soon be well established, receiving, as a society of this nature should, the support of the patriot as well as the capitalist (and no doubt the two are often united). I am not acquainted with the directors, or any person whose name appears in the prospectus, and have not therefore at present more interest in the speculation than any other agriculturist; but if a moderate scale of charges be fixed upon, and the best implements known (and only the best), used without favour or affection to any inventor or manufacturer, I shall take some shares and place a set of tackle upon my estate, and wish we could have availed ourselves of this unusually fine spring. If the company do not send out implements until after the great gathering at Worcester, I hope advantage will be taken of the latest improvements shown. I am anxious upon this point, having some time ago hired two ploughs by different makers, both of which were immediately afterwards superseded, and neither of which did the work in the satisfactory manner I have since witnessed. Thus, unfortunately, the farmers in Bœotia (my district) are rather more prejudiced against steam power than if it had not been introduced. Perhaps one of the best immediate means of promoting the use of steam-cultivators would be for the Company to issue a good and concisely written pamphlet, wherein the effects were described, and the increased produce per acre given, by a thoroughly practical man, who could be seen and spoken to, for I fear that many farmers believe the majority of "writers" to be myths, and all to be muffs. *H. V.*

Systematic Drainage.—It is desirable in a matter of national importance that any words upon which passing stress is laid should be quoted accurately. In the communication of Mr. Carroll in last Saturday's *Agricultural Gazette* he unintentionally makes me say what is most certainly directly opposed to my opinions. No one has greater deference to systematic drainage than I have. Within inverted commas Mr. Carroll places these words as uttered by me:—"It is altogether a misapplication of terms to designate systematic drainage a scientific operation." What I did say, and what I most emphatically repeat, were these words:—

"It is a custom to designate systematic drainage a scientific operation; and, of all misapplications of terms, it is impossible to conceive anything so inappropriate as to call the drainage of free soils by a parallel system a scientific work. So directly is it the reverse of science, that, 50 years hence, our children will look upon it as an absurdity as great as the adoption of under-drains 18 inches deep is now regarded by those who are draining 4 feet, and more, deep. In truth, up to this time, the engineering element has been entirely absent from the under-drainage of land. Equidistant parallel drainage is not science, though it required the scientific writing of Parkes to render adequate depth acceptable. But, while care and diligence alone are requisite in the clays, the best judgment and skill are required in the drainage of free soils. Frequently the source of evil is far from the land we are about to drain, and the quantity of water to be removed many times the quantity that falls on its surface."

Systematic drainage is not necessarily parallel drainage; on the contrary parallelism, which is correct in homogeneous soils with regular surfaces, is an unmitigated absurdity when applied to mixed soils, or to free soils with irregular surfaces. It is in fact as ridiculous as the act of a gardener who would put all plants in the same soil and the same sized pot, or that of a tailor who would provide a large household with clothes from the measure of one of its members. Systematic drainage, as recognised in science, is the connection of the appropriate modes of draining different soils and varying surfaces one with another, so as to secure uniform action and perfect discharge by a proper outfall. *J. Bailey Denton, April* 16.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

A Meeting of this Society was held last Wednesday at their Rooms, Hanover Square. Professor Wilson in the chair.

The subject for discussion was the natural history of parasites on the bodies of animals, and the treatment of the diseases to which they gave rise.

Professor Simonds commenced by observing that the subject was one of so comprehensive a character that he proposed to deal only with a portion of it, viz., that which related to the parasites which were found in the bodies of animals, and which were the cause of many of the diseases to which they were subject. There were first the Epizoa, which fixed themselves in the skin of the domesticated animals; next the Entozoa,

inhabiting the internal structure of the animal, without reference to any particular organ; third, the Ectozoa, a kind of lice, ticks, and mites in the skin of animals which produced scab in sheep and mange in horses. These different varieties were also subdivided into classes according to the parts of the body which they chiefly affected.

In noticing the worm which was the most common, the Filaria bronchealis, he observed that it was met with in the bronchial tubes of the sheep, and indeed in the bronchial tubes of almost every domestic animal. Of late years this worm had excited a good deal of attention on the part not only of the public, but of the practical farmer, in consequence of the sad losses which had resulted from its existence, especially among lambs. This worm existed in the form of perfect males and perfect females, but the sexes were by no means equal, there being probably 50 or 60 females to one male. The oviparous worm, the young worm, would be hatched occasionally, while the ova was in the body of the female, and would exist there as a living worm, escaping from the oviduct as a living worm. The chief reason why these worms were so destructive to sheep and other animals was that they were perfect in the part within which they were deposited; and supposing only one impregnated female to inhabit the bronchial tube of an animal, that female would in process of time produce myriads of worms, to which the animal must eventually fall a sacrifice. It was difficult to say how the animal received these worms. Although the worm was oviparous, and found its proper habitat within the bronchial tubes of the animal, it was equally true that ova ejected with any mucus which might be coughed up (and cough was a leading symptom of the disease in the sheep), would remain on the pasture ground for an indefinite time without losing its vital property and power of development, and then when the animals fed on the ground where the ova were they would receive these ova, from which the young worm would very speedily be produced. They would thus find their way into the bronchial tubes, the impregnated female would soon perfect the egg, and then there would speedily be a considerable brood of these creatures, which, passing into the air cells of the lungs, created irritation in the lung, caused a condensation of the lung structure, produced organic changes in the lung, and destroyed that part of the lung as an aerifying organ; the lung degenerated into a fleshy-like substance, the animal would fall off in condition, have a constant cough, waste away, and eventually become affected by a diarrhœa which usually carried them off. It was not uncommon for 50, 60, or 70 per cent. of a flock of lambs to be destroyed by these creatures. The means of getting rid of them consisted in resisting their attacks, endeavouring to destroy them in the situation in which they were placed, and then expelling them from the body. In the first place it was necessary to give strength and energy to the constitution of the animal, and make the habitat of the parasites unpleasant to them, and expel them from the system as dead matter. To strengthen the constitution of the animals, the most generous food in a concentrated form should be given, taking care to throw into the organization as much food containing nitrogenous matter as possible. Cake, corn, and so on might be used unsparingly in every case of this kind, but care should be taken to give that food early, because if they waited until the diarrhœa came on that would be evidence that the system was in such a weakened condition that food of this kind would be absolutely of no use at all. The diarrhœa in this case depended upon the weakened condition of the powers of digestion and assimilation. With regard to medical treatment, and that class of agents which were called anthelmintics, some of them were good and powerful for parasitic affections, and some were of no use at all. Turpentine in conjunction with a little oil, and with some preparation of asafœtida, was as nice a compound as could be given. What was wanted was to bring something to bear directly on the parasites in the situation which they occupied; but as they occupied the ramifications of the bronchial tubes, it was difficult to get anything that would be productive of good to go down the trachea. In the case of a calf from half an ounce to 1 ounce of turpentine ought to be given; or 3 ounces of oil and 2 ounces of tincture of asafœtida. That compound might be administered daily for three or four days in succession, when it should be discontinued for the same space of time, and then again administered. Other means might be resorted to besides those of strengthening the system, such as alternating with the anthelmintics ordinary tonic agents, such as sulphate of iron and ginger in combination, to give tone and vigour to the digestive organs. Another simple plan was to impregnate the atmosphere with the fumes of sulphur.

Mr. Simonds then noticed another parasite which did great mischief to lambs and sheep, especially owing to its producing diarrhœa. There was one form of scour that was directly due to the presence of entozoons. These were termed the hairy-headed worm. As a rule they inhabited the larger intestines of the sheep and were oviparous. They were productive of mischief from the circumstance that they inserted their heads into the mucous membrane, and fed directly upon the animal tissue itself. They drew their nutriment directly from the blood. In consequence of the irritation they caused diarrhœa increased, and as it would not yield to the ordinary treatment, a great number of sheep were lost from this cause. With regard to the means of getting rid of them, they were in principle the same as those he had already mentioned. The next worm upon which he would make a few remarks was the Placia hemata. This had only recently been brought under his notice, and he thought he was justified in saying that it was new in this country, or at any rate it was an undescribed variety of Filaria. In 1858, a gentleman found that although he took every possible care of his lambs, they wasted away in condition until they died; various changes were made in their feeding, but without avail, and at length he (Professor Simonds) was asked to go down and investigate the case. The most careful examination failed to elicit the existence of any kind of disease. At length it struck him that parasites might be found in the animals. Some of the animals were killed, and after examining various parts of them without any satisfactory result, there was only the true digestive stomach left, and upon cutting that open he was hardly prepared for what he observed. The stomach was literally as thickly covered with these worms as the head of a ram with hair. There they hung, their heads buried in the mucous membrane of the stomach in myriads. No breed of sheep appeared to be exempt from these parasites, and he had subsequently met with instances of the presence of this worm in the most remote Western, as well as in the most remote Eastern Counties of England. Various means had been resorted to for the purpose of getting rid of these parasites. After making various experiments he determined to try the effect of a large dose of salt administered as a draught, and it turned out to be the most efficient agent he could have desired. In one instance he took as much as three-quarters of an ounce, and in another a whole ounce of salt, dissolved it in a half-pint of water, and gave it to the sheep. By this means he removed hundreds and thousands of these creatures, and from that moment might be dated the recovery of the animal. He had made experiments frequently in the same way and with the like success. These doses of salt must not however be repeated often, for they were poisonous if carried to too great an extent; but there was no reason for apprehending danger or mischief from one or two such doses administered at proper intervals. He understood that some farmers in Suffolk had found that where their lambs were affected with this description of worm in their stomach they had been got rid of by feeding the sheep upon Green Rape. The learned lecturer concluded by observing that he hoped his observations would be the basis for a paper on the subject, for a future number of the Journal of the Society.

After a short conversation, on the motion of Lord Berners a vote of thanks was given to Professor Simonds, and the proceedings terminated.

Notices of Books.

The Summer of 1863, *founded on the Vernal Equinox; with Observations on the Summers of England, coupled with Remarks on the Locality and Meteorology of Great Britain.* By Thomas Du Boulay. Rogerson & Tuxford, 246, Strand.

We referred the other day to the worthlessness of weather prophecy, and to the apparent baselessness of Mr. Du Boulay's theory or speculation in particular. Let the author, nevertheless, state his theory himself. The following is his statement—

"Opinion differs as to the nature of the causes which make some summer seasons in Great Britain more than 5° on the average of the summer months, hotter or colder than other summer seasons. Some suppose that the sun himself varies in the amount of power emitted by his rays, and that the whole Northern hemisphere may thus during some summers be less heated by him than during others. The author adheres to an explanation of the probable causes, which he offered for consideration in a paper read at Oxford in June, 1860, before one of the Sections, at the meeting of the British Association for the Advancement of Science. That suggestion was substantially this: That the sun during every summer, is as undeviating in his power as in his place in the heavens, but that the state of things down below on the earth which each winter leaves behind it at its close, in different parts of the northern hemisphere, varies from year to year, and that to this diversity and not to the varying powers of the sun, the differing character of our summers is ultimately to be traced. All allow that surface temperatures of land or sea, however caused, have an influence in originating aërial currents, and that the weather prevailing at any given time in any given place is mainly determined by the currents of air there and then prevailing. It is not to be disputed that each winter varies in different parts of the northern hemisphere, both in the degree and the depth of cold which it imparts to the surface of land or sea. At the close of each winter, not only the position and temperature of the northern ice fields vary, but the temperature of the great plains of Europe, Asia, and America, vary also; as likewise, though perhaps less in degree, the temperature of the North Atlantic, and other waters of the Northern hemisphere; and all these again are ever further varying in their relationship of warmth and moisture to each other. Hence let the sun be as uniform as he may in the power of his rays, and in the place which he occupies in the heavens during summer, the temperatures prevailing over the varied surface of sea and land throughout the northern hemisphere can never, year by year, during summer, be the same, since they are necessarily compounded, not only of the degrees of heat imparted by the sun's rays, but also of those inherent but ever-varying temperatures which each winter may there have left behind it at its close. Thus may arise, during every summer, in the north temperate zone, different classes and combinations of dominant atmospheric currents, sometimes causing in one country, sometimes in another, seasons normal or abnormal, as the case may be. At the present moment, whilst these observations are being penned in Kent, the vernal equinox is not yet come, but is not far off; winter, therefore, has nearly done its work, and everywhere throughout the northern hemisphere, the temperatures that it is going to leave behind it at its close are nearly fixed. The weather also, is now, and has lately been in Kent very fine, but this fact throws no light whatever on the nature of the ensuing summer, because throughout the northern hemisphere it is still winter, though near its close; that is, night is still somewhat longer than day. But the question which is interesting as regards the future is this—viz., what, under the given circumstances of temperature, &c., now prevailing over the northern hemisphere in its different parts, will be the tendency of the aërial currents when day becomes longer than night; that is, when summer comes? The general tendency of those summer currents, and the nature of the alteration, if any, to be effected in the winter ones by the change from winter to summer, may, in a certain manner, and in a certain degree, be discerned at the period of the vernal equinoctial week."

This is the general equinoctial theory which Mr. Du Boulay has proposed for acceptance. And the following is his prediction, in accordance with it, of the summer of 1863:—

"The stillness and warmth and beauty of atmosphere during the latter portion of the equinoctial week in the kingdom at large, undoubtedly presents a striking contrast, as compared with the more stirring character of its earlier part; and though in some parts of the north of Ireland, and perhaps in Scotland, this stillness did not everywhere prevail, the wind being, in some parts of those countries, towards the latter part of the week, brisk or squally, west; still, that period was, in almost all parts, accompanied by so much fineness, and such a very unusually high and steady barometer for days together, that for the whole kingdom a fine summer and very fine July, August and September must be inferred.

"The summer comprises May, June, July, August, and September (not April); and bearing in mind the normal tendencies of the weather at certain periods of it, *vide* 'Summer of 1862,' the equinox as a whole may be said to present the prospect of such a complete balancing of desirable weather elements in every part of the summer, as to lead to the hope and expectation of a glorious return from the land at harvest, throughout England, Scotland, and Ireland. It is not considered probable that either heat or cold, or drought or moisture, will anywhere at any time so predominate as to interfere with a great final return from the cereal, or even leguminous crops, though there must ever be small but decided local differences of climate. Not only may it be expected that Wheat may yield a superlative return in quantity and quality, but that the spring crops also, including Barley, Oats, Beans, Peas, and Potatoes, may all be thoroughly good. Mangel Wurzel, when once fairly up, may be expected to grow very large; and there seems no reason why the early crop of hay should not be good also, though it is quite possible that the latter pastures may be rather bare from dryness and heat, and that the growing Turnips in England during August and September, may be inclined to mildew from the same cause. It may be expected that the crops throughout England, Scotland, and Ireland will be safely housed in excellent condition before the arrival of the autumnal rains.

"In this forecast neither the possible ravages of insects on Peas or Beans, &c., is taken into consideration, nor the disturbing influence of a larger comet, should it appear."

The remainder of the pamphlet is occupied with a discussion of the influence of comets and of the general subject of meteorology; but the author's complete discussion of this subject is to be found in his first publication, entitled "The Summer of 1862."

Miscellaneous.

Royal Agricultural Benevolent Institution.—Her Majesty the Queen has been graciously pleased to signify to the Secretary, through Sir Charles Phipps, her consent to become the patron of this valuable institution.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. Spearing, Moulsford, near Wallingford, Berks, during the week ending April 29, 1863.

Day of Week.	Day of Month.	Reading of Barometer corrected to Freezing Point at Mean Sea Level. At 9 A.M., Railway Time.	Reading of Dry Bulb Thermometer. At 9 A.M., Railway Time.	Reading of Wet Bulb Thermometer. At 9 A.M., Railway Time.	Wind. Direction. At 9 A.M., Railway Time.	Wind. Force, 0-6 At 9 A.M., Railway Time.	Amount of Cloud 0-10. At 9 A.M., Railway Time.	Reading of Self-Registering Thermometers. Max. in Air.	Reading of Self-Registering Thermometers. Min. in Air.	Reading of Self-Registering Thermometers. Max. in Rays of Sun.	Reading of Self-Registering Thermometers. Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday	23	30.69	52	45	W.	3	3	61	39	100*	34	0.01	52	51
Friday	24	30.43	46	42	W.	2	2	60	32	107	32	0.01	52	51
Saturday	25	30.34	55	50	W.	3	5	60	32	111	39	...	52	51
Sunday	26	30.30	56	51	N.W.	2	2	65	44	111	39	...	52½	51
Monday	27	30.12	56	53	W.	3	2	67	34	113	34	...	53	51
Tuesday	28	29.89	49	47	W.	4	6	64	42	104	32	...	53½	51½
Wednesday	29	29.87	49	46	N.	2	6	58	37	107	31	0.04	53½	51½

[* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Notices to Correspondents.

Agricultural Wages: *Constant Sub.* Probably Wiltshire stands lowest on the list of English Counties.

Bath Cheese: *Young Housekeeper.* To one gallon of new milk add two quarts of cold spring water, and two table spoonfuls of rennet. When thick take it gently out of the vessel with the skimming dish, and lay it in a small vat of suitable size, a canvas cloth being previously placed in it. Apply dry cloths every 12 hours for two days, when it should be turned out on a plate with another over it. The cheese should be turned occasionally, and it will be fit for use in about a fortnight.

Chancellors' Livings and Clerical Controversy: *H D R.* Thanks: but the subjects are not agricultural.

Co-operative Farm: *Tunbridge Wells.* The paper you have been good enough to send us will appear next Saturday. It is too late for this week.

Consanguinity: *Porco.* Get a cross from another family.

Cream Cheese: *Young Housekeeper.* Take a quart of cream, or if not desired very rich, add one pint of new milk, warm it in hot water (if necessary) until it is the temperature of milk from the cow. Add a tablespoonful of rennet, let it stand till thick, then break it slightly with a spoon and place it in a frame 8 inches square and 4 inches deep, in which a fine canvas cloth has been placed. Press it slightly with a weight, let it stand 12 hours, then put a finer cloth in the frame—a little powdered salt should be put over the cloth, it will be fit for use in a day or two.

Gas Lime: *Agricola.* You will find all about gas lime in Johnston's "Agricultural Chemistry," or in Morton's "Cyclopædia of Agriculture." Lime takes up sulphur, &c., from the gas, and after long process of oxidation by exposure to the air, it becomes to that extent an inferior gypsum. You should lay it up in heaps, and turning it frequently in composts it will improve by exposure, and may be used with safety and benefit to the land. Or it may be spread broadcast (3 or 4 tons per acre) over the stubbles.

Natal: *A D.* We can but repeat the advice already given. In a long-established colony the wants of colonists have long since been considered by tradesmen on the spot. You had better take out nothing with you but things of personal or domestic need, about which there can be no doubt. Money will buy on the spot whatever agricultural implements and seeds are necessary.

Sewage Committee: *X.* Dr. Brady's analysis of the evidence given before the Sewage Committee of last session was last Tuesday cancelled by a vote of the House of Commons. Of course this would not have been done had the analysis, whatever its onesidedness, been the report of the committee of the House. But this it was not; it was merely the work of one of the members of that committee. It was Dr. Brady's doing, and the committee was appointed not to report to the House the opinion of individual members, but to report the evidence which should be given before it. If the Committee had adopted the Doctor's analysis as its report, the House would not have refused to receive it. But the analysis was not the report of the Committee, it was merely the opinion of Dr. Brady. Indeed it is most probable that if, instead of being a collation and selection of evidence in favour of certain foregone conclusions, it had fairly represented the whole body of testimony to which it referred, the attention of the House of Commons would never have been directed to the irregularity of which the Committee had been guilty in printing this analysis with its Report.

Subscription for the Benefit of Mr. W. Woofe: *The Inventor of the Patent Paring Plough.* Public Assistance is asked in aid of the above long and severely afflicted Inventor, until he becomes again able to attend to business. A published list of subscribers has reached us. Mr Woofe is disabled by serious illness. We owe to him the Patent Paring Plough, which is manufactured by Messrs. Snowden, of Gloucester, who will doubtless forward to their client any sums which may reach them for him.

THE HYDROPULT,

EXTRACTS FROM THE PRESS.

The Hydropult. — "The machine is certainly the most compact and efficacious force pump of its size that we have ever seen."—*Daily Telegraph.*

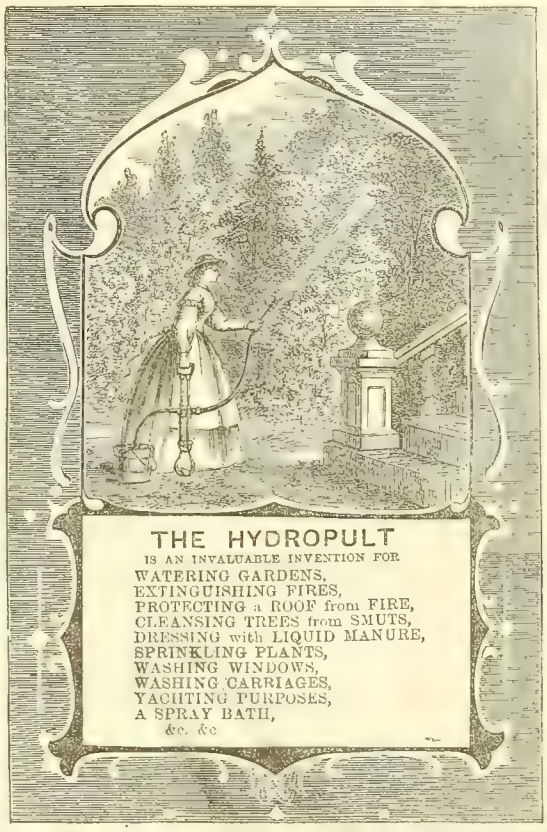
The Hydropult. — "All Londoners and other town residents who care for their gardens and greenhouses should avail themselves of such engines." — *Gardeners' Chronicle and Agricultural Gazette.*

The Hydropult. — "We strongly recommend it to our readers." —*Journal of Horticulture and Cottage Gardener.*

The Hydropult. — "It will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water." — *Gardeners' Weekly Magazine.*

The Hydropult. — "Country readers who order it on our recommendation, will not only not repent, but thank us for calling attention to a machine which, having once used, they will never care to be without."—*Floral World and Garden Guide.*

The Hydropult. — "We can only say that no public establishment or private house should be without one of these useful machines."—*Commercial Daily List.*



EXTRACTS FROM THE PRESS.

The Hydropult. — "We are satisfied that all housekeepers ought to have one, and we are equally satisfied that if they once see it they will order it." — *Liverpool Daily Post.*

The Hydropult. — "We commend it to the notice of the proprietors of warehouses and other buildings, public and private, in the metropolis and provinces."— *Mechanics' Magazine.*

The Hydropult. — "It is admirably adapted for sprinkling gardens, trees, graperies, washing windows, carriages, and for household purposes, its simplicity and portability being its strong recommendation." — *Illustrated News of the World.*

The Hydropult. — "Nothing has yet been introduced for watering gardens equal to the Hydropult, as any one standing close to his house can water, in a few minutes, any ordinary suburban garden, thus saving much time, and performing the task in an easy, satisfactory manner."— *Builders' Reporter.*

The Hydropult. — "Many of the most scientific men of the age are daily inspecting and testing its uses."— *Age We Live In.*

AN INVENTION FOR THROWING WATER BY HAND POWER

(Secured by Royal Letters Patent),

Price **TWO GUINEAS.**

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Small Jet. Weighs but 8 lbs.

Recommended as an efficient and useful Fire Engine by the principal Fire Insurance Companies of Great Britain.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

Thomas Rivers, Esq., the eminent Florist, Shirley Hibbard, Esq., and other well-known gentlemen, recommend it as an invaluable Garden Implement.

EXTRACTS FROM TESTIMONIALS.

"Royal Insurance Office, Liverpool.

"My dear Sir,—I have much pleasure in expressing the high satisfaction, and indeed surprise, with which I witnessed the working of your Hydropult. There can be no doubt that it can be available in the earlier stages of fire in warehouses, manufactories, or private houses, in preventing large conflagrations, while its applicability to gardening and other purposes will be manifest to any one observing its operation.—I am, my dear Sir, yours truly, "Percy M. Dove, Manager."

"Chas. P. Button, Esq."

"The invention will prove extremely valuable for all the purposes to which such machines are applied.—Swinton Boult, Secretary, Liverpool and London Insurance Company."

"Its portability and facility of operation recommend it to the general notice of the public.—Henry Lowe, Secretary, District Fire Company."

"In a blowing or mixing room it would be of especial service.'—F. J. Hallows, Secretary, Caledonian Insurance Company."

"38, Portland Street, London, W.C.

"Mr. Charles P. Button. Sir, I am perfectly satisfied from the statement of Mr. Green, the conductor of our fire-escape at Notting Hill, that a large amount of valuable uninsured property was saved from destruction by the timely and efficient use of the Hydropult, which was fortunately on the adjoining premises during the fire which consumed the drapery establishment of Mr. Thomas, of 4, Coburg Place, Bayswater, on Friday evening last. Your little engine was used most effectually in keeping the roof of the adjoining house saturated with water, thereby preventing the spread of the flames, as the engines of the regular district fire brigade did not arrive on the spot until more than one half hour after the fire broke out.

"A fire, at its commencement, can readily be extinguished by means of this little annihilator, and infinite service rendered in staying the progress of the flames during the interval which must elapse before fire-engines can, under any circumstances, be brought into action.—Yours truly, T. Spencer, Inspector of the Royal Society for the Protection of Life from Fire."

CAUTION: Important to the Public.—The extensive sale of the HYDROPULT has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting, as they are often placed under or near the Hydropult show card. The Proprietor therefore issues this caution, and respectfully intimates that parties wishing to purchase the Hydropult, should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, a Portable Fire Annihilator and Garden Engine; Griffiths & Browett, Manufacturers, Birmingham; Charles P. Button, General Agent (Vose's Patent)." Unless this label be attached, the machine is not the Hydropult."

THE HYDROPULT is MADE of BRASS and COPPER, weighs but 8 lbs., and WILL THROW EIGHT GALLONS of WATER PER MINUTE FIFTY FEET, WHEN WORKED by the POWER of ONE MAN.

Public and private buildings have been saved from destruction by its agency. T. Spencer, Esq., Inspector of the Royal Society for Protection of Life from Fire, certifies to its efficiency in saving valuable property at Bayswater from destruction.

FIRE! FIRE! FIRE! THE HYDROPULT IS THE MOST EFFICIENT FIRE-ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.

It can be used for all purposes for which a hydrant or force pump is applicable, and in situations where other contrivances are useless.

CHARLES P. BUTTON, Proprietor,

HYDROPULT WAREHOUSE, 27, LEADENHALL STREET, LONDON, E.C.

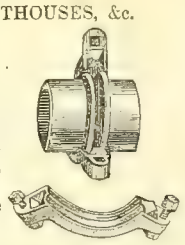
WEST END DEPOT, 309, REGENT STREET, W.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

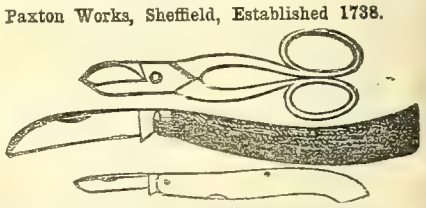
Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

Do as Others Do!

BUY YOUR SEED BAGS from JAMES T. ANDERSON, SACK and BAG MAKER, and RUSSIA MAT MERCHANT, 15, SHERBORNE LANE, King William Street, London, E.C., who will supply you with a first-rate article at a low price. ARCHANGEL MATS, the pick of the season. Russian and Prussian Dunnage Mats. Prices sent free on application.

Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal is just awarded to SAYNOR & COOKE for superiority of quality in Pruning and Budding Knives, &c.

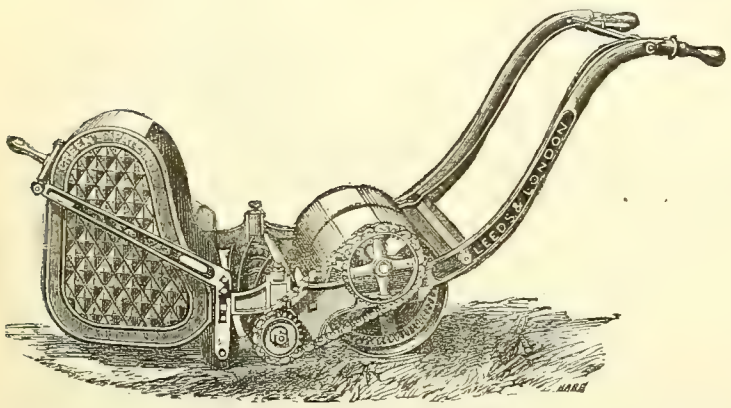
SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

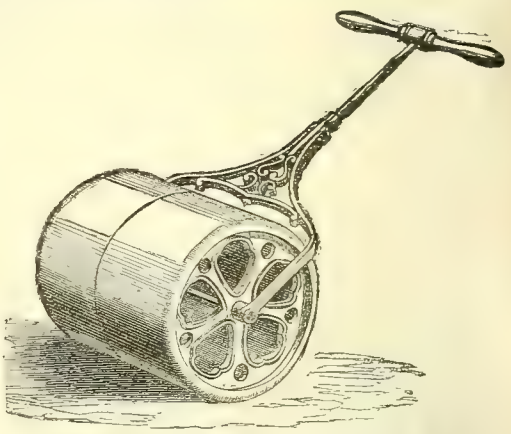
GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS.

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS

DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

Upwards of 14,000 of the above Machines have been sold since the year 1856, and thousands of letters have been received by the Patentees testifying to their efficiency. They do not deem it necessary to publish more than the two following:—

TESTIMONIALS.

"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"DEAR SIR,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, GEO. EYLES."

"Royal Gardens, Windsor, March 27, 1863.

"DEAR SIR,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

"To Mr. Green." "Yours very truly, THOMAS INGRAM."

PRICES.

					If with Patent Delivery Box.
To Cut 10 inches	£3	10	0	Suitable for a Lady.	
„ 12 „	5	0	0	Suitable for One Person. If with internal gear, 10s. extra.	
„ 14 „	5	10	0	Do. Do. Do. Do. 10s. extra.	
„ 16 „	6	10	0	Suitable for One Man or Two Boys.	
To Cut 18 inches ...	£7	10	0	Suitable for One Man and Boy	£8 15 0
„ 20 „ ...	8	0	0	Do. Do. ...	9 5 0
„ 22 „ ...	8	10	0	Suitable for Two Men ...	9 17 6
„ 24 „ ...	9	0	0	Do. Do. ...	10 7 6

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	... £12 10 0
„ 26 „	12 10 0	... 13 12 0
„ 30 „	16 14 0	... 18 0 0

Leather Boots for Donkey, 16s.; for Pony, 20s.

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	... £21 10 0
„ 36 „	23 0 0	... 24 16 0
„ 42 „	26 0 0	... 28 2 0
„ 48 „	29 0 0	... 31 8 0

Leather Boots for Horse, per set, 1l. 4s.

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5s. | Diameter 16 inches, length 17 inches, price £2 10s. | Diameter 24 inches, length 26 inches, price £4 5s.
Diameter 30 inches, length 32 inches, price £7.

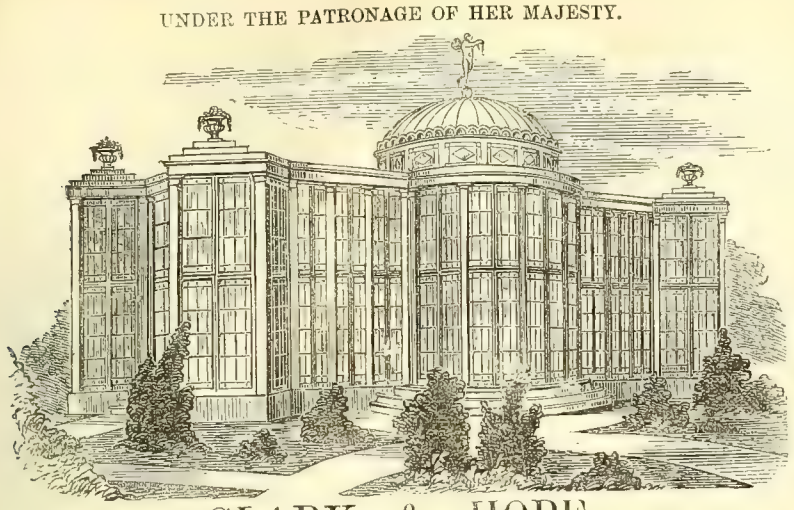
Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

GARDEN ENGINES, SYRINGES, WATER BARROWS, and PUMPS. CAST IRON FOUNTAINS, VASES, GARDEN SEATS, and GARDEN CHAIRS. IRON HURDLES, WIRE FENCING, WIRE NETTING, &c. Also every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS.

Illustrated Price Lists free.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

UNDER THE PATRONAGE OF HER MAJESTY.



CLARK & HOPE

(LATE CLARK),

HORTICULTURAL BUILDERS, COPPER, SASH,

AND

HOT-WATER APPARATUS MANUFACTURERS,

55, LIONEL STREET, BIRMINGHAM.

ESTABLISHED A.D. 1818.

DEANE & COMPANY'S

HORTICULTURAL TOOLS.



DEANE'S MOWING MACHINES, with Patented Improvements, 4*l.* 12*s.*, 6*l.* 10*s.*, 7*l.*, 8*l.*

GARDEN ENGINES, Galvanised Iron. Prices 55*s.*, 65*s.*, 78*s.*, 90*s.*, 100*s.*, 110*s.*

GARDEN ENGINES, Wood, 90*s.*, 110*s.*, 138*s.*

FLOWER STANDS, 4*s.* 6*d.* each.

CAST-IRON ORNAMENTAL FLOWER STANDS, to hold Seven Vases, 27*s.*

GREEN'S PATENT MOWING MACHINES.

GREENHOUSE SYRINGES, 8*s.*, 10*s.*, 18*s.* 6*d.*

GARDEN ROLLERS, 1*l.* 14*s.* 6*d.*, 2*l.*, 2*l.* 12*s.*, 3*l.* 3*s.*, 3*l.* 18*s.*, 4*l.* 13*s.*, 5*l.* 12*s.*, 7*l.* 10*s.*

GARDEN STOOLS, 4*s.* 6*d.*

GARDEN SEATS, from 25*s.*

BOYD'S SELF-ADJUSTING SCYTHE, 10*s.* 6*d.*

WIRE WORK, 18 in., 4*d.* per yard run.

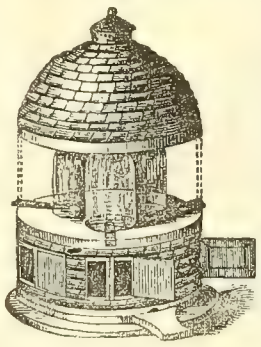
Every Implement for Garden use on the lowest terms.

DEANE'S NEW ILLUSTRATED HORTICULTURAL LIST POST FREE ON APPLICATION.

DEANE'S, OPENING TO THE MONUMENT, LONDON BRIDGE, E.C.

Bee-Hives.

PRIZE MEDAL AWARDED TO G. N. & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.



NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three glasses, and thermometer, price 35*s.*, securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit, by the most timid; its arrangements are so perfect that the Honey may be taken at any time of the gathering season without at all injuring the Bees.

Early applications addressed to GEO. NEIGHBOUR & SONS, 127, High Holborn, W.C., or 149, Regent Street, London, W., will receive prompt attention.

Their newly-arranged Catalogue of other Improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool .. JAMES CUTHBERT, 12, Clayton Street.
,, Manchester . J. WILSON, 50, King Street.
,, Birmingham J. H. COTTRELL, 15, Bull Ring.
,, Dublin .. EDMONDSON, BROTHERS, 10, Dame Street.
,, Glasgow .. AUSTIN & M'ASLAN, 168, Trongate.

To Noblemen, Gardeners, Farmers, and Others.

AMIES AND BARFORD beg to call particular attention to their NEW PATENT WATER BALLASTING FIELD and GARDEN ROLLERS, which have the following advantages over all others. They are made entirely of Wrought Iron, are made water-tight, and are loaded with water to obtain increased weight at pleasure, which is moreover employed with the greatest possible per centage of crushing power directly upon the surface of the soil. The weight of a Garden Roller can thus be doubled in a few minutes, and a one, two, or three Horse Land Roller is secured, as desired, in one implement.

Great numbers have already been sold, and are giving the greatest satisfaction, and whether for Gardens, Lawns, Cricket Grounds, Road-making, or for farmers' use, they will be found superior to all others.

For Illustrated Price Lists apply to Messrs. AMIES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

For Watering Gardens, Lawns, and Washing Windows, Carriages, &c. India-Rubber Hose-Pipes and Tubing.

JAMES LYNE HANCOCK, MANUFACTURER, has a large Stock of all sizes. Also BRASS HAND-BRANCHES, with SPREADERS, STOP-COCKS, JETS, and UNION JOINTS to connect the HOSE to CISTERNS.

INDIA-RUBBER FIRE-ENGINE HOSE for Private Houses, Mansions, and Breweries, and also the necessary FIRE-BRANCHES and UNION SCREWS.

Illustrated Price Lists on application.

JAMES LYNE HANCOCK, Vulcanized India-Rubber Works, 266, Goswell Road, London, E.C.

BEFORE ORDERING LAWN MOWERS, see the "Sun and Planet Motion," with Patent Compound Wheel, in MORTON'S NEW PATENT LAWN MOWING MACHINE for 1863, allowed to be the best of the season.

Prices and particulars of Horse, Pony, or Donkey, nd Hand Machines, to be had from GRIMMOND, LAIRD, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath.

*** Agents wanted in every Town. Apply as above.

Lawn-Mowing Machines.

WITH RECENT IMPROVEMENTS.

MAPPLEBECK AND LOWE,

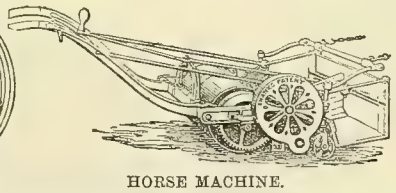
MACHINISTS AND MANUFACTURERS,

Birmingham.

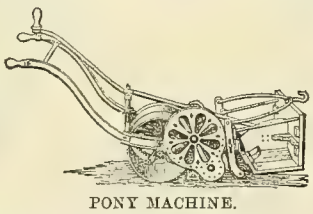
Drawings and Prices on application.

SHANKS' NEW PATENT LAWN MOWERS for 1863.

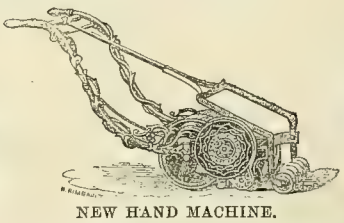




HORSE MACHINE.



PONY MACHINE.



NEW HAND MACHINE.



PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for Use.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.				
No. 1.—48-inch Machine	£28	0	0	*Drawn by a Horse.*
No. 2.—42-inch Machine	26	0	0	
No. 3.—36-inch Machine	22	0	0	
No. 4.—30-inch Machine	19	0	0	*Drawn by a Horse or strong Pony.*

Patent Delivering Apparatus for Nos. 1 and 2 Machines, 40*s.*; for Nos. 3 and 4 Machines, 30*s.*

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.				
No. 5.—30-inch Machine	£15	15	0	*Drawn by a Pony.*
No. 6.—28-inch Machine	14	10	0	
No. 7.—25-inch Machine	12	10	0	*Drawn by a Donkey.*

Patent Delivering Apparatus for Nos. 5 and 6 Machines, 30*s.*; for No. 7 Machine, 25*s.*

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for use.

Width of Cutter.				
No. 8.—24-inch Machine	£8	17	6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8	7	6	
No. 10.—19-inch Machine	7	12	6	*Do. by a Man and a Boy.*

Width of Cutter.				
No. 11.—16-inch Machine	£6	17	6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6	2	6	*Do. by a Boy.*

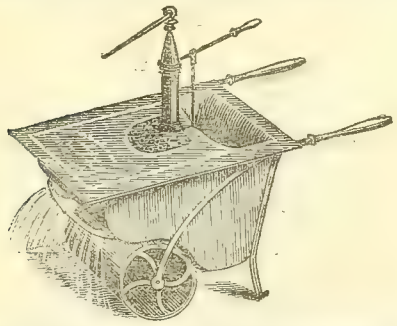
No. 16.—12-inch Machine for Pushing only, £5 5*s.*; easily worked by a Lady or a Boy.

*** *The Machines are warranted to give ample satisfaction, and if not approved of may be at once returned.*

AGENTS:

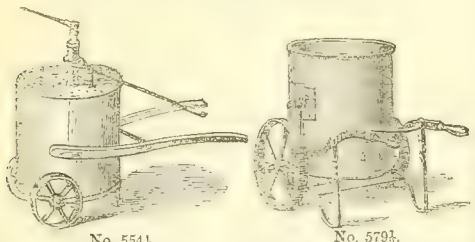
J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

THE IMPROVED PATENT GARDEN WATER and ROLLING ENGINE may be had at J. DORE's, the Sole Manufacturer, 17, Exmouth Street, Clerkenwell, London.



The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet, and is so portable that any ordinary domestic may use it. It contains about 20 gallons. Price 5*l.* 10*s.*; 25 gallons, 6*l.* 10*s.*

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.



No. 554½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and ow price—viz.:

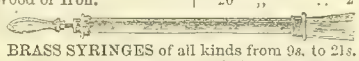
10 gallons	.. ..	£2 15 0
16 ,,	.. ..	3 15 0
24 ,,	.. ..	5 0 0

Larger sizes may be had in other Wood or Iron.

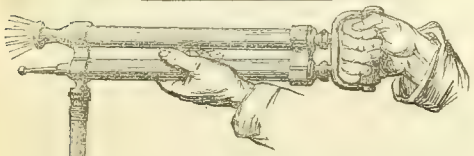
No. 579½.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	..	£2 10 0
20 ,,	..	2 0 0



BRASS SYRINGES of all kinds from 9*s.* to 21*s.*



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 6 feet Flexible Suction Pipe,

21s.,

Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

THERE ARE NO SUCTION OR DELIVERY VALVES, hence MUCH FRICTION AND LIABILITY TO CHOKE with leaves and dirt IS AVOIDED.

AMERICAN PORTABLE FIRE ANNIHILATOR and GARDEN ENGINE.



£2 2s.

An efficient means of Extinguishing Fires at their commencement. Nine out of ten Fires in London are put out on their first appearance by the London Fire Brigade with Hand Pumps of considerably less power.

One man will throw 7 or 8 gallons per minute from 40 to 50 feet with it.

It is an effective Garden Engine for cleansing or syringing Wall-fruit or Rose Trees, Plants, or Vines.

It may be used to draw water from the pail in which it is fixed, or from a tank or pond by the addition of the required length of suction. It is simple in its construction, having no suction or delivery valves to clog with dirt or leaves.

No Establishment, either private, commercial, or manufacturing, should be without one.

Six feet of Flexible Suction, with Union and Suction Rose, &c., extra, 12*s.* Longer lengths of Suction at 1*s.* 6*d.* per foot.

The above may be obtained of all Ironmongers and Seedsmen in Town and Country, or of the Manufacturers,

JOHN WARNER & SONS, 8, Crescent, Cripplegate, London, E.C.

FOWLER'S
STEAM PLOUGHING AND CULTIVATING PATENTS.

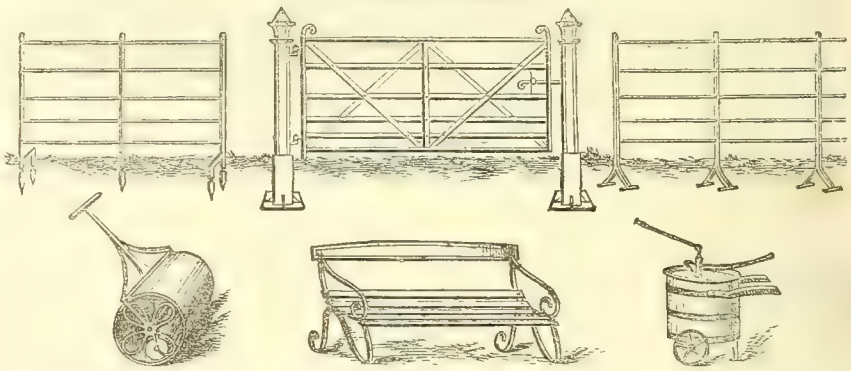
RANSOMES & SIMS, ORWELL WORKS, IPSWICH,

Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

COTTAM'S
CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED, IN VARIOUS STYLES.

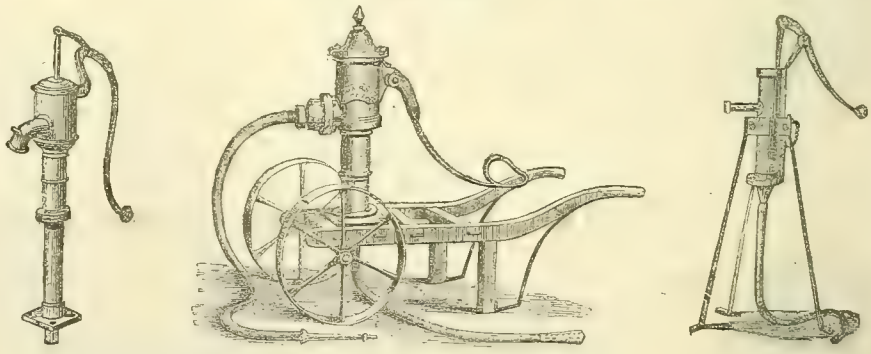


IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.
VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.
The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

Illustrated CATALOGUES and DRAWINGS free on application to
COTTAM & CO., ENGINEERS and IRON FOUNDERS,
2, WINSLEY STREET (OPPOSITE the PANTHEON), OXFORD STREET, LONDON, W.

JOHN WARNER & SONS,
BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1½-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

PATENTEES and MANUFACTURERS,
JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

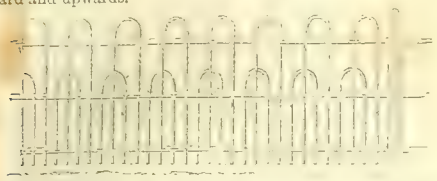
THE RAIN and the COLD.—Every Change in the Weather foretold, and FARMING and GARDENING operations greatly assisted, by the use of L. CASELLA'S POPULAR INSTRUMENTS for the WEATHER. Reliable Thermometer for Registering Cold, 4s. 6d.; the Gardener's Barometer, 12s. 6d. to 25s.; Rain Gauge, 15s. 6d.

The New ILLUSTRATED LIST of PRICES free by post.

L. CASELLA, Sole Medalist of the Patent Thermometer for Registering Cold, and Maker to the Admiralty, the Ordnance, &c., 23, Hatton Garden, London, E.C.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4d. to 1s. 6d. per yard and upwards.



For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

Prices Reduced.

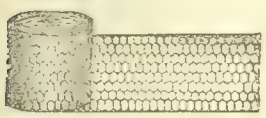
H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.
GALVANISED IRON ROOFING
for Farm Buildings and other Roofs; the cheapest, most durable, and neatest Roofing in use: also Spouting at 10½d. per yard.
WIRE STRAND CABLE FENCING



(formed of Twisted Wires like a rope or cable), the strongest, cheapest, and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Price, with five lines of the Galvanised Strand, iron main posts, and pronged Standards, from 1s. per yard.

This fence is far cheaper than posts and rails, or any kind of iron fencing; and possesses four times the strength of solid bars. Will not rust nor corrode. Upwards of 1200 miles of this Fencing supplied.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 4d., 4½d., and 6¾d. per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 2¾d., 3¾d., and 5½d. per yard. The Netting made any width, and with openings of any size.

GALVANISED IRON CHAIN CAMP STOOLS & CHAIRS, POULTRY FOUNTAINS & FEEDERS, PRONGED DAHLIA RODS and ROSE STAKES, &c.

Strong CATTLE HURDLES from 2s. per yard.

PATENT IMPROVED GAS WORKS
of all sizes, for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c. Works from 10 to 500 lights estimated for. The works can be entrusted to an ordinary labourer.—Apply to
HENRY J. MORTON & CO., 2, Basinghall Buildings, Leeds.

KERRY COWS, of the most Select Kind, FOR SALE, by
RICHARD G. CAMPION, Esq., Youghal, County Cork.

To Exhibitors of Small Machinery, Garden Implements, Saddlery, and other Light Goods.

TO BE LET, SPACE for EXHIBITION and SALE of GOODS, in AGRICULTURAL HALL, during the DOG SHOW, to be held during the week commencing May 25.

Apply at the Offices of the Company, Barford Street, Liverpool Road, N., between 2 and 5 o'clock.

TO BE LET, HOTHOUSES, GARDENS, &c., with immediate possession, on advantageous terms, as the Proprietor has not time to attend to them. The Houses are above 250 feet long by 16 wide, and heated with a Tubular Boiler, and in good working order. They are well stocked with Pines, Vines, &c., which can be taken, or left with a substantial guarantee that the value of the Stock be not diminished. They are within 80 miles north of London, and near a Railway Station. None but Churchmen need apply.

Address, Rev. J. C. D., Messrs. Sawyer's, 1, Castle Court, Birchin Lane, London, E.C.

TO BE LET, with immediate possession, Kensington Nursery, Bath, Somerset. This very excellent and well situated GARDEN and NURSERY GROUND, with long range of Hot and Greenhouses, stocked with the choicest Vines, Forcing Pits, &c., situated on the London Road, with a Shop and Greenhouse facing the road, and a Cottage Residence.

For particulars, apply to Messrs. MORRIS & SON, Upholsterers, &c., 22, Milsom Street, Bath.

To Corn Dealers.

TO BE DISPOSED OF, by Order of Executors, an Old Established WHOLESALE and RETAIL BUSINESS in one of the most populous parts of the City of London. The Premises are fitted with every convenience for the trade, and have extensive Warehouses, Stables, &c.

For particulars, apply to Mr. VIGERS, 3, Fredericks Place, Old Jewry, E.C.

To Nurserymen, Carrot and Potato Growers.

TO BE LET, FREEHOLD, 280 Acres, the whole or part, at the following rates:—For the first seven years, the yearly rent of 15s. per acre; for the next seven years, 20s. per acre; and for a term of 900 years, at the yearly rent of 30s. per acre. No Tithe or Land Tax.

Apply to Mr. BLAKE, 22, College Hill, London, E.C.

TO BE LET, a FARM, five miles from Whitechapel, within 10 minutes walk of a Railway Station; 64 Acres, half Arable, half Pasture. The Lease unexpired for 13 years from Michaelmas 1863. Well adapted for Market Gardening.

For particulars apply to J. HUNT, Phillibrook Farm, Leyton, Essex.

To Nurserymen and Gentlemen's Gardeners.

TO BE SOLD, the LEASE, STOCK, and GLASS of a SMALL NURSERY within four miles of Covent Garden, containing about one acre and a-half of Land, and 15,000 feet of Glass in good order, with every convenience for carrying on a large Trade. Has been successfully carried on by the present Proprietor for the last 17 years, who now is giving up business. Part of purchase-money could remain for a term agreed upon at 5 per cent. Among the Houses are four Vineries built and planted within the last seven years, and three of them are now in full bearing. Immediate Possession can be had for 1000*l*.

For further particulars apply to Messrs. PROTHEROE & MORRIS, American Nursery, Leytonstone, Essex, N.E.

Newark-upon-Trent, Nottinghamshire.
To NURSERYMEN AND OTHERS.

TO BE DISPOSED OF, at a Valuation, under a deed of assignment, for the benefit of creditors, the GOOD WILL, BUSINESS, and GROWING STOCK in the NURSERY GROUNDS, now and for many years past carried on by Mrs. Girton and her predecessors at Newark-upon-Trent, in the county of Nottingham. There are two Nursery-grounds well stocked with young thriving Plants of almost every description. One of such grounds, situate at a short distance from the town of Newark, on the road leading to Winthorpe, contains about 8 acres, and the other, which is close to the Great Northern Railway Station at Newark, contains about 2 acres.

Applications to treat for the same, either together or separately, may be made to us, and further information obtained at our Offices.

TALLENTS, BURNABY, & GRIFFIN, Solicitors to the Assignees.

Sales by Auction.

Late Show Tulips.—Unrivalled Collection.

WILL be SOLD by PUBLIC AUCTION, on May 13 and 15, the most valuable Collection of Late Show TULIPS, and the most extensive in Europe, the property of that eminent raiser of new Show Tulips, Mr. V. VAN DER VINNE, of Haarlem, Holland.

Catalogues of the entire Collection can be had free and post paid, on application to Messrs. BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

Camden Town.
ORNAMENTAL CONSERVATORY, GREENHOUSE, BEDDING AND OTHER PLANTS, CARRIAGES, HORSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, St. Paul's Lodge, St. Paul's Road, Camden Town, N.W., within five minutes' walk of the Camden Road Railway Station, on THURSDAY, May 7, at 11 o'Clock, by order of R. Richardson, Esq., who is leaving the neighbourhood, a Choice Assortment of GREENHOUSE and BEDDING PLANTS; also a nearly new Ornamental Rustic Lean-to wing Conservatory, with middle Transept, 37 feet long by 16 feet over, elaborately fitted, and glazed with large squares and stained glass margins; span-roof and lean-to Greenhouses, Forcing Pits, Saddle and other Boilers, Hot-water Piping, Rustic Summer-houses and Garden Seats, Ornamental Stone Fountain, &c.; together with a new town-built Waggonette, a fashionable sociable-headed Chaise; a superior match pair of Bay Geldings 15 hands 2 high, with black points; sets of Harness, Alderney Cow in Calf, and numerous other effects.

May be viewed three days prior to the Sale. Catalogues may be had of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

N.B. Part of the Land to be Let on Building Lease.

To Gentlemen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, on FRIDAY, May 8, at 12 o'Clock, a first-class Collection of CARNATIONS and PICOTEES, choice AZALEA INDICA, PELARGONIUMS, ERICAS, ACACIAS, and other Plants in Bloom, with a fine assortment of Scarlet and Variegated GERANIUMS, and a variety of Ornamental Plants for Bedding.

On view the Morning of Sale, and Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nursery, Leytonstone, Essex, N.E.

Battersea.
To GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by the executors of the late Thomas Gaines, deceased, to SELL by AUCTION, on the Premises, Surrey Lane, Battersea, S.W., on MONDAY, May 11, at 11 o'clock, a newly-erected SHOW HOUSE, 41 ft. 10 in. by 32 feet over; 29 capital Greenhouses, several ranges of Pits; 1, 2, 3, and 4-light Boxes, 3 Spring Vans, thousands of feet of 3 and 4-inch Hot-water Piping, Saddle and other Boilers, Erection of Sheds, quantities of Bricks, Slate Shelving, York Paving, Hand Glasses, Garden Pots, Mats; useful Bay Gelding; Brewing Utensils, Iron Roller, Nest Seed Drawers, Barrows, Garden Tools, and sundry effects. May be viewed prior to the Sale.

Catalogues may be had (6*d*. each, returnable to purchasers) on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Mile End Nursery.
10,000 BEDDING AND OTHER PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Mile End Nursery, Bow Road, E. (within five minutes' walk of the Bow Railway Station on the North London Line), on THURSDAY, May 14, at 12 o'Clock, about 10,000 GREENHOUSE and BEDDING PLANTS (presenting a rare opportunity to proprietors of Public Gardens, and to those gentlemen who appreciate the advantages of obtaining full grown healthy Plants, suitably adapted for Bedding out at once and for immediate effective purposes), including the usual miscellaneous assortment.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Brighton.
20,000 Bedding and Other Plants.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. A. Mackenzie to SELL by AUCTION on the Premises, Bristol Nurseries, Kemp Town, Brighton, on WEDNESDAY, May 20, at 11 o'clock, about 20,000 GREENHOUSE and BEDDING PLANTS, including fine Show and Fancy Pelargoniums, Fuchsias, Verbenas, Petunias, Gazanias, Heliotropes, Salvias, Ageratums, Scarlet and Variegated Geraniums, &c.

May be viewed three days prior to the Sale. Catalogues had on the premises of the principal Seedsmen in London; and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Bedding-out Plants.

MR. J. C. STEVENS will SELL by AUCTION at his Great Room, 38, King Street, Covent Garden, W.C., on SATURDAY, May 2, at half-past 12 o'Clock precisely, the SECOND PORTION of the STOCK of 250,000 CHOICE BEDDING PLANTS, consisting of Geraniums, Calceolarias, Fuchsias, Heliotropes, Verbenas, Cupheas, Salvias, Gazanias, Alyssums, Ageratums, &c.

On view the Morning of Sale, and Catalogues had.

Postponement of Sale of Tree Ferns from New Zealand.

MR. J. C. STEVENS begs to announce that the SALE advertised for NEXT MONDAY, at his Great Rooms, 38, King Street, Covent Garden, W.C., is unavoidably withdrawn in consequence of the very bad condition in which many of the plants have arrived, the greater part of them being quite dead.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, May 5, at 12 o'Clock precisely, VALUABLE POULTRY and PIGEONS, consisting of Cochins, Game Bantams, Spanish, Game, Ducks, Pea Fowls, &c., including the entire Stock of Game Bantams of R. B. Postans, Esq., of Brentwood, whose Birds have been successfully exhibited at Manchester, Devizes, Crystal Palace and other shows. Also the entire stock of Buff Cochins and Carrier Pigeons of Major Hassard, who is obliged to part with them solely on account of his anticipated removal to a foreign station. The Birds are in capital condition, and comprise many Prize Birds, besides many others quite fit for exhibition. Also a Capital Black and White Newfoundland Dog.

On view the Morning of Sale, and Catalogues had.

Bedding Plants and Conifer Seeds.

MR. J. C. STEVENS will SELL by AUCTION, on SATURDAY, May 9, at half-past 12 o'Clock precisely, at his Great Rooms, 38, King Street, Covent Garden, W.C., an immense assortment of Bedding-out GERANIUMS, CALCEOLARIAS, VERBENAS, &c. Also just received from California a few ounces of clean Seed of Wellingtonia gigantea, Picea amabilis, Libocedrus decurrens, and Pinus species (supposed to be new).

On view the Morning of Sale, and Catalogues had.

Established Orchids and Hardy Ferns.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 14, at half-past 12 o'Clock precisely, a Collection of ESTABLISHED ORCHIDS, comprising, amongst many others, the following choice varieties:—

Saccolabium Dayii	Trichopilia crispa
,, guttatum superbum	Cymbidium eburneum
Aerides nobile	Dendrochilum filiforme
,, Warneri	Vanda suavis
,, Lindleyanum	,, tricolor
,, Lobbii	Lælia elegans
,, maculosum	Cattleya Trianæ
,, suavissimum	,, Quinduiana
Cypripedium Veitchii	,, Boothiana
,, villosum	,, labiata
,, caudatum	Sobralia macrantha splendens
,, hirsutissimum	&c., &c.

Also some valuable HARDY FERNS, including some very choice varieties of Lastrea dilatata, and other good sorts.

On view the Morning of Sale, and Catalogues had.

To Tulip Growers and Others.

MR. J. WILLMER begs most respectfully to announce that he is favoured with instructions from the Executors of the late Mr. W. Lawrence, of the Lion Hotel, Hampton, to SELL by AUCTION, without the least reserve, on the Premises, the Lion Hotel, Hampton, on THURSDAY, May 14, at 11 o'Clock, precise time, the whole of the COSTLY COLLECTION of TULIPS, Stage, Cloths, Irons, Show Boxes, Cabinets, &c.

Catalogues may had on the Premises; or by forwarding two postage stamps to the Auctioneer, Springfield Nursery, Sunbury, Middlesex, S.W.

Staines, Middlesex.

MR. J. WILLMER begs most respectfully to announce that he is favoured with instructions from the Executors of the late S. M. Sanders, Esq., to SELL by AUCTION, without reserve, on the Premises, Staines Villa, Staines, Middlesex, on SATURDAY, May 16, at 11 o'Clock, the whole of his celebrated COLLECTION of TULIPS, which comprise nearly all the gems of the day. Also an excellent Iron Tulip Stage, 82 ft. long by 12 ft. wide, with circular ends, set in stone piers, top and side cloths, lines, and rollers; Tulip Irons, Tulip Cabinets, Show Box, &c.

May be viewed two days prior to the Sale on application to the Gardener. Catalogues had on the Premises, and of the Auctioneer, Springfield Nursery, Sunbury.

Holloway.

MR. J. WILLMER begs to announce that he is instructed by the Executors of the late Mr. William Nayler, to SELL by AUCTION, without reserve, on the Premises, Brunswick Place, Alma Road, Junction Road, Upper Holloway, on THURSDAY, May 21, at 11 o'Clock, the whole of his COLLECTION of TULIPS; comprising most of the leading varieties, of the most celebrated growers.

Catalogues will be ready on May 11, and may be had on the Premises, at 37, Buckingham Street, Caledonian Road, Islington; and of the Auctioneer, Springfield Nursery, Sunbury.

Preliminary Notice.

MR. J. WILLMER begs most respectfully to announce that he is instructed by the Executors of the late Mr. William Nayler, to SELL by AUCTION, without reserve, in MAY NEXT, the whole of his costly COLLECTION of TULIPS, Tulip Stage, Cabinets, &c.

Full particulars will be duly announced.

Important Sale.

MR. W. BARNES has been directed by the Executors of the late Miss Traill, of Hayes Place, Bromley, Kent, to arrange for SALE by PUBLIC AUCTION, which will take place on the Premises on FRIDAY, May 15, the Splendid Collection of ORCHIDACEOUS, STOVE, GREENHOUSE, ERICAS, and other PLANTS, that have for so many years gained such celebrity at the principal London and other Shows. They consist chiefly of magnificent specimens, many of which are acknowledged to be unsurpassed, if not unequalled, by any in this country.

May be viewed one day prior to the Sale. Catalogues are now being printed, and may be obtained in a few days on application to Mr. JOHN NETTLEFOLD, Auctioneer, Bromley, Kent, S.E.; or to Mr. W. BARNES, Camden Nursery, Camberwell, S.

N.B. Frequent Trains run from London Bridge and Victoria Stations to Bromley Station, which is one mile and a half from the place of Sale.

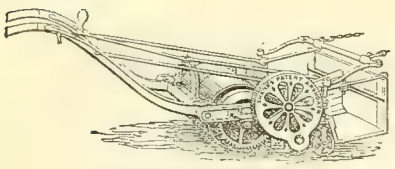
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

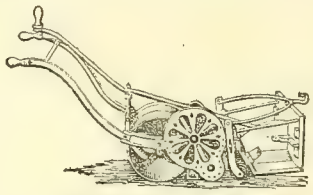
WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

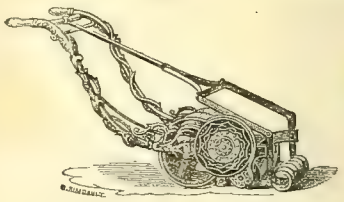
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE, COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will Mow equally well on Uneven as on Level Lawns, and whether the Grass be wet or dry. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	40*s.* „
No. 3.—36-inch Machine ...	22 0 0	30*s.* „
No. 4.—30-inch Machine ...	19 0 0	30*s.* „

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine ...	£15 15 0	30*s.* extra.
No. 6.—28-inch Machine ...	14 10 0	30*s.* „
No. 7.—25-inch Machine ...	12 10 0	25*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine ...	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine ...	8 7 6	
No. 10.—19-inch Machine ...	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine ...	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine ...	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £5 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

ALEXANDER SHANKS and SON have for upwards of 20 years devoted their attention to the IMPROVEMENT and MANUFACTURE of LAWN MOWERS. They have carefully avoided the useless inventions (of late years introduced into Lawn Mowers) which have simply *novelty, not improvement,* as their recommendation, and which are far better suited for the "*Trial Ground*" than for the *Practical Gardener.* They have at the same time manufactured their MACHINES with that regard to durability and efficiency as to secure their giving every satisfaction not simply for *one or perhaps two,* but for *many seasons,* and from the hundreds of unsolicited Testimonials they have received, and the large and increasing demand, A. S. & Son are glad to find that their MACHINES have not yet been *equalled for the qualities* that constitute a *really good Lawn Mower* fit for general use, and to afford *lasting satisfaction,* by and MACHINE yet before the public.

A. S. & Son subjoin a few Testimonials which fully bear out what has been said in favour of their MACHINES.

TESTIMONIALS:—

From Mr. George Eyles, *late Chief Superintendent of the Grounds and entire Horticultural Department of the Crystal Palace, Sydenham, and now Superintendent of the Horticultural Society's New Gardens, Kensington Gore, and The Gardens, Chiswick—(the 30-inch Horse-power Machine used on the Lawns of the Crystal Palace.)*

"I have much pleasure in bearing testimony to the excellence of the 30-inch Shanks, Patent Lawn Mowing Machine you sent us. We have had it in use almost daily up to the end of the mowing season, and it has always performed its work in the most satisfactory manner, *and has never been once out of repair.* The contrivance for emptying the Grass-box is *a great acquisition, and effects a considerable saving of time.*"

From Mr. J. Smith, *Royal Gardens, Kew.*

"I herewith send you a cheque in payment for the Shanks' Mowing Machine (a 42-inch Horse Machine), lately supplied to this Garden. The Machine gives perfect satisfaction, and is in daily use nine hours a-day. . . . . Our old Shanks' Machine (a 42-inch Horse Machine, supplied 14 years ago to Kew Gardens), has all along worked well, and it does not mind wet and long Grass. It is astonishing the amount of work it has done, and has given us complete satisfaction."

From Sir John Burgoyne, Bart., *Sutton Park, St. Neot's.*

"The Lawn Mower (a No. 9, 22-inch Hand Machine with Patent Delivering Apparatus) has arrived quite safe, and answers admirably, and mows better and in less time than it is possible for two men to do."

From Mr. Thomas Ingram, *Royal Gardens, Frogmore, Windsor.*

"Sirs,—The Mowing Machine you sent here has given the greatest satisfaction, and is a great saving of labour.—Yours very truly, Thos. Ingram."

"Messrs. A. Shanks & Son."

Extract from a Memorandum received 10th April, 1863, *from* Mr. Rose, *Superintendent, Crystal Palace Company.*

"Your Machines in the grounds are working beautifully."

From Mr. White, *late Superintendent* (*under* Mr. Eyles) *in the Royal Horticultural Society's Gardens, Kensington.*

"Gentlemen,—For the last 3 years I have had the charge of all the Mowing Machines in the Gardens of the Royal Horticultural Society, South Kensington, but have now left and commenced business as Garden Contractor, Florist, &c. I am so satisfied of the superiority of your Machines that I intend to use and recommend them in preference to all others. They cannot be surpassed for their style of cutting, and are by far the most durable of any. Please send me some of your circulars.—Yours truly, Wm. W. White."

From J. Spencer, Esq., *Factor to the* Most Hon. the Marquis of Lansdowne, *Bowood, Wilts.*

"The Horse Machine you sent me is now doing its work quite as well as it did in 1847 (14 years ago), and this is saying very much of its great value and durability, for within the time named it has cut annually from 40 to 50 acres of Grass five times over; and frequently the Grass has been long and difficult to get over. I have no doubt that good as your earlier Machines were, those you now turn out are superior in many respects, and next spring I shall take a 42-inch one for myself, and shall feel great pleasure in recommending your really valuable Machine whenever I have the opportunity."

From Mr. Shearer, *Gardener to the* Marquis of Tweeddale, *Yester Garden.*

"Gentlemen,—Allow me to congratulate you on the success of your improved Grass-Cutting Machine, which we got the other-day from you, especially the delivering part. It is a mechanical triumph. You know that I expressed my doubts to you about it before I got the Machine, but having cut all our Grass with it, I must say that it acts far beyond my expectation, and it performs all you say in your prospectus. We can now go on the whole day without stopping, except to oil the parts that require it. *The men are quite in love with it*—a good proof of its utility.—I am, Gentlemen, yours respectfully, Alexander Shearer."

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS and SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE and SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 19.—1863.] SATURDAY, MAY 9. {Price Fivepence. {Stamped Edition, 6*d*.

INDEX.

Analysis of sewage	441 *c*	Plant sales	438 *a*–440 *a*
Arbor-vitæ	440 *c*	Protection, spring	438 *b*
Books, noticed	439 *c*	Rhododendron Dalhousianum	438 *b*
Botanical Garden, Cape of Good Hope	438 *c*	Roses new	437 *c*
Bulb farms at Haarlem	436 *c*	— Lord Clyde	438 *a*
Cultivation by steam	442 *a*	Rose show, Birmingham	440 *a*
Dahlias, classification of	436 *a*	Scotch Fir	435 *c*
Farmers' Club, London	445 *c*	Sculpture, Exhibition of	439 *a*
Short horns, sale of	446 *a*	Sewage, analysis of	441 *c*
Fish and fishing	437 *a*	Sicily, spring in	438 *c*
Haarlem bulb farms	436 *c*	Society, Royal Agricultural	445
Indoor gardening	437 *b*	— Bath & West of England	445 *a*
Melon leaves	440 *c*	— Royal Horticultural	429 *a*
Orchids	435 *b*	— Royal Vet. College	445 *c*
Pisciculture	438 *b*	Steam cultivation	441 *a*
		Wireworm	438 *a*

Royal Horticultural Society.

10TH JUNE, 1863.

UNCOVERING of MEMORIAL of EXHIBITION of 1851, in the presence of their RR HH.'s THE PRINCE and PRINCESS of WALES.

Cards of Admission, price 15*s*., if obtained before the 27th of May; 20*s*. up to 9th of June, and 30*s*. on day. A. MURRAY.

ROYAL HORTICULTURAL SOCIETY'S FIRST-GREAT SHOW, WEDNESDAY, May 27, at South Kensington. Open at 1 o'clock. Bands commence at 3 o'clock. Admission, 7*s*. 6*d*.; or by Tickets previously purchased, 5*s*.

Gardeners' Tickets may be had at half-price until May 22, on application to Mr. GEORGE EYLES; Post-office Order to accompany the letter.

EXHIBITION of HORTICULTURAL IMPLEMENTS at the ROYAL HORTICULTURAL SOCIETY'S GREAT SHOW, on WEDNESDAY, May 27.

Application for space must be made to Mr. EYLES at least 10 days before the Show, and the articles to be Exhibited must be sent not later than Friday, the 22d.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.

The FIRST EXHIBITION of PLANTS, FLOWERS, and FRUIT, will take place on WEDNESDAY NEXT, May 13.

Tickets can be obtained at the Gardens by Orders from Fellows of the Society, price 5*s*.; or on the day of Exhibition, 7*s*. 6*d*. each. The Gates open at 2 o'Clock.

CRYSTAL PALACE FLOWER SHOWS.—The GREAT FLOWER SHOW on SATURDAY, May 23; and the ROSE SHOW on SATURDAY, June 27.

Schedules for the first are now ready, and can be had on application to Mr. W. HOUGHTON, Secretary to the Flower Shows, Crystal Palace, Sydenham, S.E.

Admission 7*s*. 6*d*. on the day; by day ticket purchased prior to the day, 5*s*.; and by Season Tickets free.

BIRMINGHAM ROSE SHOW, 1863.—The NEXT SHOW will be held in the Town Hall, Birmingham, on THURSDAY and FRIDAY, July 16 and 17.

The Prize Lists are now ready, and may be obtained from the Secretary, Mr. A. FORREST, Queen Chambers, Cherry Street, Birmingham.

NEW ROSES of 1863.—Good Plants of all the finest sorts are now ready, as well as all the finest of last season. DESCRIPTIVE PRICED LISTS on application.
PAUL & SON, Old Nurseries, Cheshunt, Herts.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON). Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7*s*. 6*d*. each, will be shortly ready.
Old Cheshunt Nurseries, Herts.

New Roses for 1863.

BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.
St. John's Street Nursery, Colchester.

Paul's Nurseries, Waltham Cross.

WM. PAUL (Son and Successor to the late A. PAUL), has a large Stock of all the NEW ROSES, now ready for delivery.

Splendid plants at lowest advertised prices.
PRICED CATALOGUE free by post.

ALL the NEW ROSES of 1863.—In fine strong Plants now ready.
DESCRIPTIVE LISTS on application.
WM. WOOD & SON, Woodlands Nursery, near Uckfield, Sussex.

NEW ROSES for 1863.—All the best and latest introductions to be obtained at the Nurseries of H. LANE & SON, Great Berkhampstead.

Dwarf Roses in Pots for Bedding.

WM. KNIGHT is now daily executing orders from his immense Stock of only the most approved kinds, which he offers at low prices. CATALOGUES free on application.
Floral Nursery, Hailsham, near Hurst Green, Sussex.

40,000 Dwarf Roses in Pots for Bedding.

THE MONTHS OF APRIL AND MAY ARE CONSIDERED THE MOST ELIGIBLE FOR PLANTING OUT ROSES FROM POTS.

WM. WOOD AND SON have an enormous stock of fine healthy plants, now ready to send out. CATALOGUES sent Post-free on application.
Woodlands Nursery, Maresfield, Uckfield, Sussex.

Agricultural Seeds.

GEORGE GIBBS AND CO., SEEDSMEN,
26, Down Street, Piccadilly, London, W.

Agricultural and Garden Seeds.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbeach.
Special PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH, SEED MERCHANTS,
Covent Garden Market, London, W.C.
WANTED to PURCHASE, SHALLOTS.

BARR AND SUGDEN, SEED MERCHANTS,
12, King Street, Covent Garden, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Agricultural Seeds.

JOHN K. KING, SEED GROWER, Coggeshall, Essex.
PRICED LISTS Post free.

Introduction of New Plants.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to announce that his NEW CATALOGUE (No. 72) is ready, and contains all his NOVELTIES to be sent out this season.
The Catalogue will be forwarded on application.

Dulwich, London, S.

F. AND A. SMITH'S CATALOGUE of NEW PLANTS, containing all the Novelties of 1863, is now ready, free on application.

J. IVERY AND SON beg to announce that their new PRICED and partially DESCRIPTIVE CATALOGUE of HARDY BRITISH FERNS is now ready, and will be forwarded on application.
Dorking Nursery.

Pelargoniums, Verbenas, Fuchsias, and Pansies.

J. DOBSON AND SONS have a fine healthy Stock to offer of all the best kinds at moderate prices.
Woodlands Nursery, Isleworth.

WM. KNIGHT offers strong Plants of DAHLIAS, FUCHSIAS, PETUNIAS, VERBENAS, and various other BEDDING PLANTS, at low prices.
CATALOGUES free.
Floral Nursery, Hailsham, Sussex.

Dahlias.

JAMES FAIRHEAD AND SON beg to announce that their CATALOGUE of DAHLIAS, including Pompone or Bouquet and Bedding varieties, is now ready, and may be had gratis on application.
7, Borough Market, London, S.E.

Superb Hollyhocks, &c.

W. MINCHIN AND SON have a large collection of strong healthy Plants of the above, also VERBENAS and other BEDDING PLANTS. Prices moderate.
CATALOGUES on application.
Hook Norton, Oxon.

New Purple Verbena Lord Craven.

THE FINEST EVER RAISED.

DOWNIE, LAIRD, AND LAING are now sending out Strong Plants of the above magnificent flower. Price 5*s*. each; 42*s*. per dozen.
Stanstead Park, Forest Hill, London, S.E.; and Edinburgh.

SPLENDID NEW SCARLET VERBENA, LORD LEIGH.—Strong Plants now ready, 5*s*. each, 42*s*. dozen.
CATALOGUES also ready, and will be forwarded Post free on application to
S. PERKINS & SONS, Park Nursery, Coventry.

Filix Frizelliæ.

J. SHAW, having a large stock of this rare and beautiful HARDY FERN, offers them by the dozen at 2*s*. 6*d*. each, half dozen 3*s*. each, single plants 3*s*. 6*d*.
Stamford Nursery, Bowdon, Cheshire.

THUJA AUREA (GOLDEN ARBOR-VITÆ) as a Bedding Plant. Habit very dwarf and compact, perfectly hardy, and for several months in the year of a beautiful golden colour.
Nice bushy plants, 8 to 10 inches, 18*s*. per dozen.
E. COOLING, Mile Ash Nurseries, Derby.

Chrysanthemums, Dahlias, Fuchsias, Verbenas, Geraniums, Pelargoniums, Petunias, Calceolarias, &c.

W. HOLMES'S CATALOGUE of the above is now ready, and may be had in exchange for One Stamp.
Reference or remittance from unknown Correspondents.
Frampton Park Nursery, Hackney, N.E.

Camellias.

TO BE SOLD, about 100 CAMELLIAS, of various choice kinds, ranging from 2 to 20 feet in height. The property of the late John Allnutt, Esq.
Apply to Mr. DRUMMOND, Gardener, Clapham Common, S.

Good Turnip Seeds, Carriage Free.

SUTTON AND SONS, SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

NEW TURNIP SEED from SELECTED BULBS at Low Prices.
PRICED LISTS post free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

SKIRVING'S SWEDE TURNIP SEED for Sale.
Apply to Mr. WILLIAM CANT, Myland Lodge, Colchester.

Turnip and Mangel Wurzel Seeds, Crop 1862.

RAISED FROM EXTRA SELECTED STOCKS, & TRANSPLANTED BULBS.
SPECIAL QUOTATIONS TO THE TRADE ON APPLICATION.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London.
N.B. A few Bushels of our celebrated LEWISHAM SWEDE on offer.

MANGEL WURZEL SEED.
Good Seed at low Prices.
For prices apply, stating quantity required, to SUTTON & SONS, Seed Growers, Reading, Berks.

MANGEL WURZEL SEED in every variety, supplied at very moderate rates, direct from the Grower, Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts.

NEW CUCUMBERS, at 1*s*. per packet.
Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Cabbage Plants.

H. AND R. STIRZAKER can supply in any quantity fine DRUMHEAD CABBAGE PLANTS, EARLY CURLED SAVOY, &c., RED for Pickling, all Autumn sown.
The Nurseries, Lancaster.

Dioscorea Batatas, or Chinese Yam.

J. IVERY AND SON beg to offer whole Roots of this useful Esculent, from 3*s*. to 4*s*. 6*d*. per dozen; Cut Sets, 1*s*. per dozen. Dorking Nursery.

DIOSCOREA BATATAS (Chinese Potatoes).—Roots 6 to 10 inches long, 6*s*. per 100, 50*s*. per 1000.
Supplied by JOHN CATTELL, Westerham, Kent.
Trade price on application.

THOMAS BUNYARD AND SONS give notice to the Trade, that they have taken the Ashford Nursery, which they intend to carry on jointly with theirs at Maidstone.
In the autumn they will have to offer STANDARD ROSES of all the leading kinds in quantity. Price on application.

Bedding Plants, Florists' Flowers, and New Roses for 1863.

JAMES DICKSON AND SONS have an IMMENSE STOCK of the above, which they offer at VERY MODERATE PRICES, for exceedingly FINE VIGOROUS PLANTS.
DESCRIPTIVE CATALOGUE upon application.
The "Newton" Nurseries, Chester.

BLOOMING PELARGONIUMS.—Fine Plants, in 4 and 5-inch pots, just coming into bloom, of leading Show, French and Fancy varieties, at from 4*s*. to 6*s*. per dozen.
SPRING CATALOGUE free on prepaid application.
WOOD & INGRAM, Huntingdon.

NEW PRIZE MELONS, at 1*s*. 6*d*. per packet.
Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria.
For descriptions see GUIDE to the KITCHEN GARDEN.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

NEW MELON, PRINCESS ALEXANDRA.—A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1*s*. per packet.
JAMES CARTER & Co., 237, 238, & 261, High Holborn, W.C.

VINES in POTS, of the leading kinds, now showing an abundance of Fruit, price 7*s*. 6*d*. each. They can be removed safely. Smaller plants, well adapted for borders, 3*s*. 6*d*. to 5*s*. each, all raised from Eyes. Seakale for Planting, 3*s*. 6*d*. to 5*s*. per 100.
GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, near London, S.

Pine Plants.

TO BE DISPOSED OF, by a gentleman leaving for town and giving up his House, &c., about 100 good healthy PINE PLANTS, this and last year's growth.
Apply by letter to Mr. F. STEAD, 23, Jarratt Street, Hull.

Unbloomed Seedling Calceolarias.

MR. HENRY MAJOR, Knosthorpe, near Leeds, is now prepared to supply unbloomed SEEDLING CALCEOLARIAS, nice young plants, raised from seeds saved from his unrivalled collection, at 5*s*. per parcel of 20, or 3 parcels for 12*s*., post free. These will all bloom this year. Postage stamps taken in payment.

New Fuchsias and Verbenas of 1862.

B. W. KNIGHT, FLORIST, &c., Battle, Sussex, can supply the NEW FUCHSIAS of 1862, in good plants, at 4*s*. per dozen.
VERBENAS, 3*s*. per dozen. Scarlet, Purple, Crimson, and Blue VERBENAS, 2*s*. 6*d*. per dozen.
MIMULUS CUPREUS, 4*s*. per dozen.
CATALOGUES sent on application.

Dracæna (Cordyline) indivisa, from Mount Egmont, New Zealand.

BUTLER AND McCULLOCH have received a supply of Seed of the above strikingly beautiful fine-foliaged Plant, of which the following is an extract from their correspondent's letter which accompanied it. "When known," he says, "few of your nobility can be without this splendid plant in their gardens. I believe, indeed, that it will stand your winters out of doors with moderate protection. It grows here from 10 to 15 feet high, leaves 6 feet long and 8 inches broad, of a deep green hue, having a midrib of brilliant orange yellow, with red veins running parallel with it."

The Seed we now offer, our correspondent says was gathered in the snowy ranges; Plants therefore raised from it may be expected to possess more than usual hardy constitutions. Price 1*s.* and 2*s.* 6*d.* per packet.

BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

WELLINGTONIA GIGANTEA.—The attention of the Nobility, Gentry, and the Trade, is invited to the largest stock of 1-year SEEDLING PLANTS in the Kingdom, established in single pots and fit for Spring planting. Price per dozen, 12*s.*; per 100, 3*l.* 10*s.* A sample free by post for 12 stamps.

J. HENCHMAN, Edmonton, London.

Green Hollies.

CORNELIUS WHITEHOUSE, Brereton Nursery, Rugeley, Staffordshire, offers an immense stock of well-grown healthy extra Transplanted HOLLIES, exceedingly well-rooted, from 12 to 15, 15 to 18, 18 to 24, 24 to 30 inches. Also very handsome SPECIMEN PLANTS from 3 to 5 feet; also ENGLISH YEWS from 2 to 2½ feet, 2½ to 3 feet and upwards. The above growing on ground to be cleared for other stock, the price will be liberal. Trade price on application.

Bedding Tropæolum.—Ball of Fire.

ARTHUR HENDERSON AND SON are now sending out the above brilliant BEDDING TROPÆOLUM.

For description and full details see figure and remarks in the *Floral Magazine* for January, 1863, Plate 129, colour of Tom Thumb Geranium. This will prove one of the best and most beautiful Bedding Plants of the season.

Per 100 Plants	.. £3 10 0	Per 25 Plants	.. £1 10 0
,, 50 ,,	.. 2 2 0	,, 12 ,,	.. 0 18 0
1 Plant ..	.. 2*s.* 6*d.*		

Pine Apple Place, Edgeware Road, London, W.

Choice Variegated Plants, for Edging and Ribbon Borders.

B. S. WILLIAMS begs to intimate that he has a large Stock of the undermentioned, and can supply strong planis at the following prices:—

ARABIS ALBIDA VARIEGATA, 6*s.* per dozen; less by the 100.
AMARANTHUS MELANCHOLICUS RUBRA, 6*s.* per doz.
CERASTIUM TOMENTOSUM, 4*s.* per dozen.
CINERARIA MARITIMA, 4*s.* per dozen.
FESTUCA OVINA GLAUCA, 6*s.* per dozen.
GNAPHALIUM LANATUM, 4*s.* per dozen; less by the 100.
STACHYS LANATA, 3*s.* per dozen; 20*s.* per 100; less price per 1000.
TUSSILAGO FARFARA VARIEGATA, 6*s.* per dozen.

Paradise and Victoria Nurseries, Holloway, London, N.

Bedding Plants, 2s. per Dozen.

MARSH AND PERKINS have great pleasure in offering the following, all strong healthy plants:—

GERANIUMS: Variegated Flower of the Day, Osborn's Brilliant, Nymph, Tom Thumb, Scarlet, and Horse-shoe Leaf.
CALCEOLARIAS: Aurea floribunda, Prince Albert, and Prince of Orange. Ageratums; Alyssums, variegated; Cuphea, of sorts; Gazania splendens; Heliotropes; Lobelias, Scarlet and Dark Blue; Musk; Perilla nankinensis; Pentstemons, of sorts; Salvias, of sorts; Verbenas, of sorts, &c.

A DESCRIPTIVE PRICED CATALOGUE may be had on application to 42, Drapery, Northampton.

Cash or reference required from unknown Correspondents.

New Plant from Dr. Livingstone.

PYCNOSTACHYS URTICIFOLIA.

JAS. BACKHOUSE AND SON beg to draw attention to this interesting plant, the seeds of which were received from Dr. Livingstone. It is figured in the "Botanical Magazine," Tab. 5365, where Sir W. Hooker thus speaks of it:—"This species is at once distinguished by the large, nettle-shaped leaves, the broad, ovate, almost pyramidal shape of the spike or verticillastra, and the rich colour—a fine mazarine blue—of the corollas; and these spikes are more than 1½ inch broad. We are much mistaken if this does not become a great favourite in our gardens ere long, and not the less so from its being one of the many interesting discoveries of our most distinguished of African travellers." It is only necessary to add that the plant flowered in January of the present year; and as it was gathered at an altitude of 3000 feet, affording the greatest probability of doing well in an ordinary greenhouse, there can be no doubt of its proving a valuable addition to the few beautiful flowers of that season of the year. Good plants now ready. Price 15*s.*

GLEICHENIA DICARPA.—Good plants of this beautiful Fern at 10*s.* 6*d.* each.

LOMARIA L'HERMINIERI.—The most beautiful, perhaps, of all Ferns that have rose-coloured fronds, far surpassing L. attenuata. 7*s.* 6*d.* to 10*s.* 6*d.*

LILIUM LANCIFOLIUM COMPACTUM.—A fine dwarf free flowering variety, not more than 2 feet high, with large high coloured flowers. 5*s.* to 21*s.*

LYTHRUM ROSEUM SUPERBUM.—J. B. & Son have pleasure in offering this beautiful but little known plant. Being of compact growth, with a free branching habit, and producing numerous large spikes of rosy red flowers continuing for a long time, it is an excellent border plant and well adapted for ribbon planting, growing 2 to 2½ feet. It is hardy and deciduous. 1*s.* 6*d.* each; 12*s.* per dozen.

MYOSOTIS ALPESTRIS (the Alpine Forget-me-Not).—Far the handsomest of all the species. A true perennial, of very dwarf and compact habit. Heads and individual flowers large and of brilliant blue; sweet scented. 1*s.* each; 75*s.* per 100.

ALPINE PLANTS.—A rich and varied collection, consisting of Gentianas, Primulas, &c. One hundred by name (one of each), at 52*s.* 6*d.*, 75*s.*, and 100*s.*, according to quality.

J. B. & SON'S NEW CATALOGUE of FERNS and ORCHIDS is now ready; also of STOVE and GREENHOUSE PLANTS, either of which can be had upon application.

York Nurseries.—May 9.

E. G. HENDERSON & SON'S

NEW SPRING CATALOGUE FOR 1863

CONTAINS A LIST OF THE BEST NOVELTIES FOR THE SEASON.

ORNAMENTAL PLANTS, WITH VARIEGATED AND GLAUCOUS FOLIAGE, ADAPTED FOR BEDDING, EDGING, AND THE RIBBON SYSTEM.

Achillea Clavennæ.

A neat dwarf hardy perennial Alpine plant, 3 to 6 inches in height, with spathulate leaves, the lower half narrowed to the base, and the upper half from 1 to 3 inches in length, and ¾ of an inch in width, cut into unequal oblong side lobes, with secondary small marginal blunt teeth-like indentures. The entire plant is of an uniform rich silvery tint, and yielding, when bruised, a slight balsamic odour. The flowers are white, borne in flattish clusters, but by pinching these off close to the leaf-base, the plant forms an excellent compact belt or ribbon-row, 4 to 6 inches in height during the whole season. Its partially open growth is quite free from a formal outline, and becomes a desirable plant where diversity of feature is sought for, and still more so by naturally retaining its uniform height and compactness throughout the summer, without any training whatever. 1*s.* 6*d.* each; 12*s.* the dozen.

Alyssum dentatum variegatum.

An ornamental, variegated, branching plant of free vigorous habit, with lanceolate lobed margined leaves, prettily and uniformly belted with creamy yellow, and which, by pinching out the fore-shoots, forms a dense short growth suitable for an edging, 6, 9, or 12 inches in depth and width as required. Its light open growth produces an elegant effect and pleasing contrast to other plants of darker verdure. 1*s.* 6*d.* each.

Artemisia argentea.

A very neat half-shrubby plant of erect branched habit, and greyish stems, with elegant silvery-grey tripinnate leaves, formed of unequally twin or triply-forked linear-oblong lobes; habit of growth by once clipping, low, bushy, and compact, from 6 to 9 inches in height, forming a very effective belt for borders or large groups of evergreens, retaining its decorative features until November. This desirable plant is remarkably free and vigorous, not subject to any failure or excessively exuberant growth, but well adapted for an uniform band, ribbon, or line, around masses of dark verdure, whether of evergreen shrubs or of chocolate-crimson-leaved plants. It also appears to advantage when planted as detached groups in select shrubberies and arboretums. Plants of the current year's growth will make elegant low margins from 6 to 8 inches high, whilst one-year-old plants make firm broad belts or lines from 8 to 12 inches in height, with an equal width. The facility of its increase, and pretty style of growth, will enable cultivators to multiply it rapidly, and adapt it for extensive rows or broad picturesque summer and autumn masses. 1*s.* each; 9*s.* per dozen; 16*s.* for 25 plants.

Arabis alpina variegata.

THE BEST OF THE VARIEGATED ARABIS.

A dwarf, compact, evergreen, Alpine-like plant, its leaves being disposed in tuft-like crowns; the former are oblong-spathulate in shape, 2 to 3 inches in length, with round or obtuse ends, and toothed margins, which are picturesquely marked with a clear creamy yellow belt or border. Its free growth in the summer season, by forming lateral or side leaf tufts, adapts it for making very close and dense front row or ribbon lines. From autumn until spring, its variegation shows a yellow tint, but by full exposure to light it assumes a creamy hue.

By closely pinching off its flower-stems, it forms a very neat and mound-like growth throughout the year, its value being enhanced by its adaptation to ordinary garden soils. There are other species of Arabis with variegated foliage, but none of equal merit to this. Each, 9*d.*; per dozen, 8*s.*

Cerastium grandiflorum.

A hardy perennial herbaceous plant of erect tuft-like growth, 6 to 9 inches in height, with numerous slender, yet firm wiry stems, and linear lanceolate leaves from ½ to an inch in length, of an uniform silvery-white tint, quite distinct in character from Cerastium tomentosum. The free and vigorous, yet slender growth of this remarkably neat plant spreads laterally at the base or root, and forms an elegant broad silvery belt from 10 to 12 inches wide throughout the flower season. It is well adapted for an effective ribbon-line round rich masses or beds of evergreens, or forming beautiful contrasts to inner groups of chocolate-crimson-leaved plants, such as Perilla nankinensis, and others. Its style of growth being slender, yet compact, its well-built habit makes an excellent broad band against a green bank, and its latent tendency to form any flower-stems, preserves its compact yet graceful outline throughout the summer and autumn months. 1*s.* each; 9*s.* per dozen.

Diotus maritima.

A pretty, low, hardy suffruticose shrub of trailing habit, with oblong crenately-margined leaves; densely surfaced with a close silvery-blue tinted grey nap; its growth requires close pegging down, and fore-shoots shortening to form a uniform surface growth with its short side-shoots. To be fully effective it requires potting up each season, and replanting; the current year made plants are too thin for effect. It is a plant of distinct habit, free growth and lively contrast. Each 1*s.* and 1*s.* 6*d.*

Hedera (Ivy).

		s.	*d.*		*s.*	*d.*
1.	ALGERIENSIS	1	0	Algerian Ivy	1	6
2.	CANARIENSIS	1	0	Irish Ivy	1	6
3.	,, ARBORESCENS	1	0	Tree Ivy	1	6
4.	,, AUREA MACULATA	1	6	Golden-blotched Irish Ivy	2	6
5.	,, MARMORATA	1	6	Marbled leaved ,,	2	6
6.	,, ,, ELEGANS LATIFOLIA MACULATA	1*s.* 6*d.*,		Elegantly marbled ,,	3	6
7.	,, PALMATA (HIBERNICA PALMATA)	1	6	Palmate lobed ,,	2	6
8.	HELIX	1	0	English Ivy	1	6
9.	,, ARBORESCENS	1	0	Tree Ivy	1	6
10.	,, ,, ALBA LUTESCENS	1	6	White belted English Tree Ivy	2	6
11.	,, ,, AUREA MACULATA	1*s.* 6*d.*,		Golden clouded ,,	3	6
12.	,, ,, BACCIFERA LUTEA	1	6	Yellow berried ,,	2	6
13.	,, ,, MARGINATA ARGENTEA	1*s.* 6*d.*,		Silver margined ,,	3	6
14.	,, ,, MINOR LUTEA	2	6	Miniature yellow ,,	3	6
15.	,, AUREA MACULATA	1*s.* 6*d.*,		Gold blotched English Ivy	2	6
16.	,, ,, DENSA	1	6	Clouded gold ,,	2	6
17.	,, ,, MINOR	2	6	Smaller ,,	3	6
18.	,, BACCIFERA LUTEA (CHRYSOCARPA, English form)	1	6	Yellow berried ,,	2	6
19.	,, CHRYSOCARPA (North Indian variety)	2	6	Golden ,, ,,	3	6
20.	,, CRENATA	...		Notched lobed ,,	1	6
21.	,, DIGITATA	1	6	Digitate or finger-leaved English Ivy	2	6
22.	,, GRACILIS	1	6	Slender branched ,,	2	6
23.	,, LOBATA	...		Lobed leaved ,,	1	6
24.	,, MARGINATA ARGENTEA	1	0	Silver margined ,,	1	6
25.	,, ,, CANESCENS	1*s.* 6*d.*,		Silvery grey ,,	3	6
26.	,, ,, CULLISSI	1	6	Cullis's silver margined ,,	2	6
27.	,, ,, ELEGANS	1	6	Elegant ,, ,,	2	6
28.	,, ,, ELEGANTISSIMA	2	6	Most elegant ,, ,,	3	6
29.	,, ,, LATIFOLIA	...		Broader leaved ,, ,,	2	6
30.	,, ,, MAJOR	1	6	Larger ,, ,,	2	6
31.	,, ,, PULCHELLA	1	6	Pretty ,, ,,	2	6
32.	,, ,, ROBUSTA	2	6	Stronger branched ,,	3	6
33.	,, MINOR DONERAILENSE	1	6	Miniature Doneraile ,,	2	6
34.	,, ,, MARMORATA ELEGANS	2	6	Elegant marbled miniature ,,	3	6
35.	,, PALMATA	...		Palmate margined ,,	1	6
36.	,, ,, AUREA	1	6	Golden clouded palmate ,,	2	6
37.	,, PENNSYLVANICA	1	6	Pennsylvanian (type) ,,	2	6
38.	,, POETICA	...		Poet's ,,	1	6
39.	,, SAGITTÆFOLIA	1	6	Arrow-head leaved ,,	2	6
40.	,, TAURICA	1	6	Taurian (type) ,,	2	6
41.	,, ,, LEEANA	...		Lee's variety ,,	1	6
42.	,, JAPONICA ARGENTEA	...		Silver-margined Japan Ivy	7	6
43.	,, RŒGNERIANA	...		Rœgner's Ivy	1	6

The foregoing species and varieties of Ivies are offered from an extensive collection obtained from the most reliable sources, and arranged, for the convenience of amateur cultivators, under their sections of allied habit, growth, &c. The most esteemed kinds for surface covering, with large green leaves, are those by Nos. 1, 2, and 43, the second one being the most adapted for extensive planting. The arborescent or tree-like green forms are recognised by Nos. 9 and 12; these, with the variegated tree Ivies, are adapted for planting in shrubberies or arboretums. The green climbing varieties of free secondary vigour and size of leaves, are those by Nos. 37, 40, 21, 18, 22, 38, 41. Varieties of medium size, with pretty palmately-lobed leaves, are Nos. 37 and 21. No. 19 has elegant narrow-lobed leaves with silvery-white veins. The smallest and narrowest-lobed leaved variety, of graceful yet vigorous growth, is No. 33. The golden-fruited tree form is No. 12. The varieties of medium yet free growth, forming a close leaf-covering to the wall, are Nos. 40, 18, 23, 21, 37.

Amongst the finest variegated-leaved ones, the beautiful silver-belted free varieties are indicated by Nos. 10 and 13. The rich golden-blotched and belted tree forms are Nos. 11 and 14. The elegantly marmorated, large-leaved silver variety is No. 6. The picturesque, slender silver margined leaved kinds are Nos. 27, 26, 30, 32, 31, and 24. The small-leaved variety, with beautiful silvery-marbled leaves, is No. 34. For miniature growth on comparatively low walls, and close leaf-growth, Nos. 21, 33, 19, 21, 34, 26, 23, 31, may be chosen.

Many of the above variegated varieties are finely adapted for forming belts or margins to the Flower Garden, the slowly-formed lateral growth of the Ivy being specially suited, and equally so for training around the wicker or basket work around beds. The smaller kinds, with elegant silver margins, are also very effective in blending with plants, for suspended Baskets in Conservatories, &c.

E. G. HENDERSON AND SON'S ADVERTISEMENT—*Continued.*

New Hybrid Mimulus.

Having succeeded in obtaining a new strain of hybrid varieties between Mimulus cupreus and several varieties of M. luteus, including the white, golden yellow, and rich brimstone-ground colours of the latter species, we call the attention of cultivators to their value and interest for Flower-garden Decoration. The habit of the plants is intermediate between the two species referred to, but approach the nearest to the former in their neat, ovate, crenately-margined leaves and comparatively compact branching growth, averaging from 6 to 9 or 12 inches in height.

The brilliant coppery red or crimson tint of M. cupreus, blended with the finest colours of M. luteus, are productive of the richest coppery and bronze crimson colours upon lustrous golden grounds, with elegantly marmorated yellow bands and margins, whilst the broad bronze side belts are sprinkled or speckled over as with refulgent gold dust upon a carpet of bronze velvet.

Mimulus cupreus offers the best habit in its tribe for groups and beds in the Flower Garden; but in the present hybrids this desirable feature is greatly enhanced by combining a dwarf growth with the addition of a branching habit and the large effective flowers of the common Garden Mimulus.

A Collection of these hybrid Varieties, in 10 kinds, will be sent out by the middle of May,

For 25s.: Six Varieties, 15s.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

Splendid New Double Fuchsia, Grand Admiral.

GEORGE WHEELER, NURSERYMAN, Warminster, Wilts, is prepared to send out the above. Tube and sepals bright crimson scarlet, sepals broad and well reflexed, corolla deep violet purple, large and full, a most profuse bloomer, the branches curving very gracefully, makes the habit unexceptionable. It has been declared by the best judges to be the finest double Fuchsia ever offered either for Exhibition or Greenhouse Decoration.

G. W. feels confident it will give general satisfaction. Price 7*s.* 6*d.* each.

AUSTRALIAN TREE FERNS—DICKSONIA ANTARCTICA & ALSOPHILA EXCELSA.

HUGH LOW & CO.

Have pleasure in offering very fine specimens of the above-named TREE FERNS, suitable for the decoration of GREENHOUSES and CONSERVATORIES. The Trees are in the most luxuriant health, and a selection may be made from upwards of Two Hundred, varying in height of stem from 1 foot to 5 feet 9 inches, in circumference of stem from 1 foot 3 inches to 2 feet 6 inches, and fronds of many of the specimens spread 6 feet.

Prices, which are very moderate, can be had on application.

CLAPTON NURSERY, LONDON, N.E.

ALOCASIA LOWI.

HUGH LOW & CO.

Have much pleasure in offering this noble Ornamental Foliaged Plant, introduced by them from Borneo. It has been so extensively exhibited and sold that it is now pretty generally known. A specimen in the Clapton Nursery measures 2 feet 6 inches in height, by 2 feet 6 inches in diameter, with leaves 19 inches in length, by 9 inches in width; shape of leaves sagittate, colour of upper surface bright green, intersected by veins of ivory whiteness, and a belt or margin of the same colour completely encircles the leaf; the under surface of the leaves is reddish or crimson-purple; a shining metallic lustre overspreads the upper surface. The plant is of the easiest possible culture, retains its leaves perfectly, and as an exhibition plant will be generally preferred to Alocasia metallica. Higher praise than this it would be difficult to award.

Price of good well-established Plants, 31s. 6d. each.

CLAPTON NURSERY, LONDON, N.E.

ORCHIDS FROM BRAZIL, THE PHILIPPINE ISLANDS, VENEZUELA,

THE TENASSERIM PROVINCES, BORNEO, AND THE MALAYAN ARCHIPELAGO.

HUGH LOW & CO.

Have for Sale, at very moderate prices, large quantities of ORCHIDS, received direct from their Collectors and Correspondents in the above-named countries, and they respectfully invite gentlemen interested in Orchid Cultivation to visit the Nursery and inspect the Collection, which contains many species quite new, and as yet undescribed. Orchidaceous plants at the Clapton Nursery are at present date grown in eight span-roofed houses, and the collection is steadily augmented by a regular system of monthly and bi-monthly importations.

H. L. & Co. subjoin names of some of the species now on Sale, and they have only to add that Purchasers will be treated with great liberality.

AERIDES CRISPUM.
„ LARPENTÆ.
„ LOBBI.—Amongst our importations of this fine species, many beautiful varieties have appeared.
„ LINDLEYANA.
„ MACULOSUM.
„ SUAVISSIMUM.
„ „ Bornean variety, very much superior to the ordinary type of the species.
„ REICHENBACHI.
„ VIRENS.
„ WARNERI.
„ Species Moulmein, with very broad leaves, a most abundant flowering species, as native specimens in possession of H. L. & Co. prove.
BOLBOPHYLLUM, species Moulmein, with reticulated sheaths over the bulbs.
„ CAREYI.
BURLINGTONIA DECORA.
„ FRAGRANS.
„ VENUSTA.
CIRRHOPETALUM STRIATUM.
CYMBIDIUM TIGRINUM.
CALANTHE VESTITA LUTEA.
„ „ ROSEA.
CATTLEYA AMETHYSTINA.
„ CITRINA.
„ CRISPA.
„ ELEGANS (Lælia).—Many of the plants imported by H. L. & Co. have recently flowered. Some are the dark varieties in various shades of colour, others light in the way of Lælia Schilleriana, L. Stelzneriana, and L. Warneri.
CATTLEYA IRORATA.
„ LEOPOLDI.
„ LABIATA.
„ LOBATA.
„ MOSSIÆA in many varieties.
CHYSIS LIMMINGHI.
CŒLOGYNE CILLIATA.
„ ELEGANS.
„ LOWI.
„ PANDURATA (asperata).
„ PARISHI (papagena).
„ SCHILLERIANA.
CYPRIPEDIUM BARBATUM GRANDIFLORUM.
„ BARBATUM SUPERBUM.
„ CAUDATUM.
„ FAIRRIEANUM.
„ HOOKERÆ.
„ HIRSUTISSIMUM.
„ STONEI.
„ VILLOSUM.
DENDROBIUM AGGREGATUM MAJUS.
„ ALBO SANGUINEUM.
„ BICOLOR.
„ CHRYSOTOXUM.
„ CRETACEUM.
„ CUCULLATUM GIGANTEUM.
„ DALHOUSEANUM.
„ DENSIFLORUM.
„ EBURNEUM.
„ FARMERI.
„ FIMBRIATUM.
„ FORMOSUM GIGANTEUM.
„ FYTCHEIANUM.—Imported by this name, may possibly prove to be the rare D. Heyneanum.
„ INFUNDIBULUM.
DENDROBIUM LUCENS (Reichenbach fil).
„ LOWI.
„ MACROPHYLLUM VARIETY DAYANUM.—A very beautiful Bornean Orchid, intermediate between D. macrophyllum and D. anosmum, but more richly coloured than either of these species. H.L. & Co. have imported plants which have bloomed on 4 feet 9 inches in length of the bulbs.
„ NODATUM.
„ PAXTONI.
„ PIERARDI.
„ PICTUM.
„ SCULPTUM (Reichenbach fil).
„ TORTILE ROSEA.
ERIA CONVALLARIOIDES.
IONOPSIS PANICULATA.
LEPTOTES BICOLOR.
„ SERRULATA.
LÆLIA BRYSIANA.
„ ELEGANS (See Cattleya elegans).
„ PERRINI MAJOR.
„ PURPURATA.—Many varieties and plants of various sizes. Our stock of this superb Orchid exceeds 1000 plants.
LIMATODES ROSEA.
„ „ SUPERBA.
„ „ VESTALIS (Reichenbach fil).
LUISIA PSYCHE (Reichenbach fil)
ONCIDIUM BARBATUM.
„ PAPILIO MAJOR.
„ PUBES.
„ VARIEGATUM.
„ Several Brazilian species.
PHALÆNOPSIS AMABILIS.
„ ROSEUS.
„ GRANDIFLORA.—Bornean variety. The best white-flowered Phalænopsis yet known. The blooms are produced in the greatest profusion, and on very small plants. During the winter months H. L. & Co. have rarely had fewer than from 100 to 150 plants in bloom, and at one time the number reached 300.
SACCOLABIUM CURVIFOLIUM.
„ AMPULLACEUM.
„ BLUMEI.
„ „ MAJUS.
„ „ „ variety DAYI—on very small imported plants of this beautiful species the flower spikes measure 22 inches in length.
„ GUTTATUM.
„ REIDI.
SARCANTHUS PARISHI.
„ GRACILIS.
SOPHRONITIS CERNUA.
„ GRANDIFLORA.—Many of our imported plants bloomed, and amongst them were fine varieties, very bright in colour and large in size.
VANDA CŒRULEA.
„ GIGANTEA.—Flower spikes on imported plants, clearly prove this to be a much finer species than it was supposed to be.
„ HOOKERIANA.
„ INSIGNIS.
„ SUAVIS.
„ TRICOLOR.

Twenty-five Cases (containing DENDROBIUMS, VANDAS, CYPRIPEDIUMS, CALANTHES, AERIDES, and SACCOLABIUMS) came to hand on the 4th of May by steamer *Ripon*. This lot is well worth inspection by intending Purchasers.

A PRICED CATALOGUE can be had on application.

CLAPTON NURSERY, LONDON, N.E.

LOBELIA GORDONIANA.—A very beautiful and effective variety, fully as compact in habit as the well-known L. speciosa. It has a large pure white centre or eye, with a broad margin of intense blue; strongly recommended. Price 9*s.* per dozen; each 1*s.*

JAMES CARTER & Co., 237 & 238, High Holborn, W.C.

LOBELIA SPECIOSA ALBA.— Raised by Mr. Gordon, of the Crystal Palace Gardens, Sydenham, where it will be much employed this season to add to the bedding effects there so much admired. The lower petals, which are very large, are pure white, and the upper just faintly tinged with blue. Price 9*s.* per dozen: each 1*s.*

JAMES CARTER & Co., 237 & 238, High Holborn, W.C.

LOBELIA PAXTONIANA.—This valuable acquisition to our Summer Gardens was raised by Mr. Gordon, the indefatigable Superintendent of the Crystal Palace Gardens, and named Paxtoniana by desire of Sir Joseph Paxton, in whose garden (as well as the Crystal Palace Gardens) its merit has been proved. It is a seedling from the well-known true Crystal Palace variety of Lobelia speciosa, quite as robust as its parent, with a much more compact habit. The individual flowers are much larger, with a pure white centre or eye; the outer margin or prevailing colour (blue) more nearly resembling in tint that of the pretty Annual Nemophila insignis, than any other flower with which we are acquainted. It forms a very effective contrast and companion plant with its parent in the decoration of the summer garden, and will be largely used at the Crystal Palace during the ensuing season. Price 9*d.* each; 6*s.* per dozen.

JAMES CARTER & Co., 237 & 238, High Holborn, W.C.

NEW TROPÆOLUMS.—The following varieties are decidedly the best ever offered:—

ELEGANS "OTHELLO."—A beautiful deep maroon coloured variety of the "Crystal Palace elegans," having the same short-jointed habit and profuseness of bloom; when grown in a mass its effect is striking in the extreme. Price 1*s.* 6*d.* each; per dozen, 12*s.*

KING of TOM THUMBS.—A variety of the well-known T. Brilliant—habit very dwarf and compact, with a profusion of bright scarlet flowers, thrown well up above the dark bluish green foliage; this variety is quite distinct in colour of flower and foliage from all other varieties of Dwarf Tropæolums: the flower is very similar in shade of colour to Boule de Feu Geranium, and the habit is much more compact than any of the Tom Thumb varieties of Nasturtiums. Price 1*s.* 6*d.* each; per dozen, 12*s.*

JAMES CARTER & Co., 237 & 238, High Holborn, W.C.

R. M. STARK has to offer a nice healthy Stock of the undernoted Plants at very moderate rates:—

LASTRÆA FILIX-MAS CRISTATA.
POLYSTICHUM LONCHITIS.
TRICHOMANES RADICANS.
IBERIS CORIFOLIA, the richest flowering of the Evergreen species.
PINGUICULA GRANDIFLORA, large bluish purple.
RUBUS ARCTICUS, rich crimson, a dwarf species.
With many others of equal interest.
Prices to the Trade on application.

The Exotic Nursery, Sculcoates, Hull.

E. P. DIXON AND SONS beg to call attention to the following choice Plants, which they have to offer in healthy condition

	s.	*d.*
ALOCASIA METALLICA .. .. each	15	0
CALADIUM ARGYRITES .. .. ,,	1	6
,, BELLEYMEII .. .. ,,	2	6
,, BICOLOR SPLENDENS .. .. ,,	1	6
,, DISCOLOR .. .. ,,	1	6
,, CHANTINI .. .. ,,	2	6
,, WIGHTI .. .. ,,	2	6
(The six for 10*s.*)		
,, CANNARTI (new) .. .. .. ,,	15	0
COLEUS VERSCHAFFELTI per doz. 6*s.* and 9*s.* ,,	1	0
CROTON VARIEGATUM .. .. each 1*s.* 6*d.* and	2	6
CHAMÆRANTHEMUM VERBENACEUM (silvery foliage) .. .. each	3	6
CLERODENDRON THOMSONÆ .. each, 2*s.* 6*d* and	3	6
DRACÆNA FERREA .. .. each	2	6
,, TERMINALIS .. .. ,,	2	6
EUCHARIS AMAZONIA (strong) .. .. .. ,,	2	6
GARDENIA RADICANS (strong) .. .. .. ,,	2	6
NIDULARIUM MAYENDORFI, strong blooming plants .. .. ,,	12	6
REICHARDIA ALBO MACULATA .. .. .. ,,	5	0
VRIESIA SPLENDENS .. .. ,,	3	6
XYLOPHYLLUM LATIFOLIUM .. .. .. ,,	1	6
Ferns.		
ADIANTUM ASSIMILE, per doz., 6*s.* .. .. ,,	0	9
,, PEDATUM .. .. ,,	2	6
,, SANCTA KATHARINA .. .. .. ,,	10	6
ALSOPHILA AUSTRALIS .. .. ,,	21	0
CIBOTIUM PRINCEPS (good plants) .. .. ,,	21	0
GYMNOGRAMMA PERUVIANA ARGYROPHYLLA (strong) .. ,,	2	6
,, WETENHALLIANA (strong) ,,	10	6
LEUCOSTEGIA IMMERSA .. .. ,,	3	6
ONOCLEA SENSIBILIS .. .. ,,	3	6
PTERIS ARGYRÆA .. .. per doz. 6*s.* ,,	1	0
,, CRETICA ALBO-LINEATA ,, 9*s.* ,,	1	6
,, SCABERULA .. .. ,,	1	6
,, TRICOLOR .. .. ,,	1	6
TODEA PELLUCIDA .. .. ,,	3	6
STRUTHIOPTERIS GERMANICA.. each, 3*s.* 6*d.* and	5	0
LASTREA FILIX-MAS CRISTATA ANGUSTATA .. .. ,,	3	6
12 CHOICE GREENHOUSE FERNS per doz. 12*s.* to	18	0
12 ,, HARDY FERNS .. .. ,, 6*s.* to	18	0
Greenhouse Plants.		
APHELEXIS MACRANTHA PURPUREA each, 1*s.* 6*d.* and	2	6
,, HUMILIS SUPERBA ,, 1*s.* 6*d.* and	2	6
ACACIA DRUMMONDII .. .. each	1	6
BORONIA TETRANDRA .. .. ,,	1	0
,, SERRULATA (strong) .. .. .. ,,	5	0
CHOROZEMA LAURENCIANA .. .. .. ,,	1	6
,, VARIUM ELEGANS .. .. .. ,,	1	6
CENTAUREA ARGENTEA .. .. ,,	2	6
DRACOPHYLLUM GRACILE .. .. .. ,,	1	6
EUGENIA UGNI (strong) .. .. .. ,,	1	0
,, APICULATA (strong .. .. .. ,,	1	0
ERIOSTEMON PULCHELLUM .. .. .. ,,	2	6
LOMATIA SILAIFOLIA .. .. ,,	3	6
SEDUM LABANUM .. .. ,,	0	9
THUJA DONIANA (fine) .. .. each, 2*s.* 6*d.* to	5	0
WEIGELA AMABILIS VARIEGATA .. .. each	1	6
,, ROSEA .. .. ,,	2	6
GNAPHALIUM LANATUM .. per doz., 4*s.*; per 100	25	0
BALLOTA NIGRA .. .. .. per doz.	4	0
SCROPHULARIA NODOSA VARIEGATA .. ,,	4	0

Choice PELARGONIUMS, FUCHSIAS, BEDDING PLANTS, &c.

Exotic Nursery, Sculcoates, Hull.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. Annual Sale exceeds 2000 packets. In sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each.

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE PRIMULA SINENSIS SEED. In sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Seedsmen, Isleworth.

New Shrubby Calceolarias.

MESSRS. JOHN AND CHARLES LEE having purchased the entire stock of Seedling SHRUBBY CALCEOLARIAS, raised by Mr. Watson, of St. Alban's, in 1861 and 1862, have selected four distinct colours, which they intend to offer to the Public the first week in May. They are the finest high-coloured Shrubby Calceolarias yet raised, and in point of habit and quality are everything that can be desired for bedding or pot culture. They are decidedly shrubby and of good constitution, with a dwarf spreading habit and good foliage. The flowers rise just above the leaves, forming an even mass of exquisite colouring.

Price 5*s.* each, or 15*s.* the set, as under:—

PRINCESS ALEXANDRA.—Rich orange buff, of very dwarf habit, free blooming and conspicuous. Quite a new colour in Calceolarias.

MAGNIFICENT.—Deep orange flowers, of large size with close mouth, flower stalks short and stiff, a good dense habit, and first-rate in every respect.

PRINCE LOUIS of HESSE.—Rich crimson flowers of medium size, free blooming, habit very dwarf and showy.

FIREFLY.—Intense orange scarlet flowers of good size, free blooming dwarf habit, the brightest colour yet raised.

Terms to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

LOUIS VAN HOUTTE'S NEW CATALOGUE, No. 96, is to be had at Messrs. R. SILBERRAD & SON, 5, Harp Lane, London, E.C.

☞ L. v. H.'s goods will be delivered free out of the Custom House in London, without any expense whatever to the buyer, but per contra 5*s.* will be charged for each package.

Ghent, Belgium.

New Plants.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, will be ready to supply during May the following interesting NOVELTIES, which he can recommend as first-rate:—

10 New PETUNIAS of Mr. Rendatler and others for 7*s.* 6*d.*
10 ,, FUCHSIAS of Mr. Cornelissen for 30*s.*
12 ,, PENTSTEMONS for 10*s.* 6*d.*
12 ,, PHLOXES, superb, for 10*s.* 6*d.*
20 ,, Italian-striped VERBENAS, extra, of 1862, for 21*s.*
12 ,, ,, ,, for 1863, 21*s.*
12 ,, LILLIPUTIAN DAHLIAS of 1862, 21*s.*
12 ,, ,, ,, for 1863, 42*s.*
PHLOX TRICOLOR, 5*s.*
DIELYTRA SPECTABILIS ALBA, 21*s.*
LOPHOSPERMUM SCANDENS GRANDIFLORA, 3*s.* 6*d.*

Early orders are solicited, and will be sent in strict rotation.

Bedding Plants, mostly 2s. 6d. per dozen.

J. SCOTT'S FLOWER GARDEN and ANNUAL DIRECTORY will be ready to forward, from the 1st week of April, at 6*d.*

"All who wish to have their Gardens gay, at a moderate price, should procure the above."

Merriott, Crewkerne, Somerset.

BEDDING PLANTS.—Scarlet and Variegated Geraniums, Verbenas, Lobelia speciosa, Agathæas, plain and variegated; Amaranthus, new purple-leaved; Ageratums, Calceolarias, Cerastiums, Cineraria maritima, Gnaphalium lanatum, Perillas, Pentstemons, Petunias, Tagetes signata pumila, Tropæolums, &c.; all thoroughly established in single pots. And extra fine sturdy plants from 2*s.* per doz.

CATALOGUES on prepaid application.

WOOD & INGRAM, Huntingdon.

Cheap Bedding Plants.

WM. DILLISTONE will forward (Carriage free to London), upon receipt of Post Office Order for 18*s.* on Castle Hedingham, 100 Strong Plants in Pots; consisting of GERANIUMS, FUCHSIAS, DAHLIAS, VERBENAS, CALCEOLARIAS, &c.

N.B. The above are warranted to give satisfaction. CATALOGUES upon application.

Munro Nursery, Sible Hedingham, Essex.

DAHLIAS.

CHARLES TURNER ..	KEYNES..	8	First-class	Certificates
LORD WILTSHIRE ..	DODD ..	3	do.	do.
PRINCESS ALICE ..	EDWARDS			
COUNT CAVOUR ..	,,	3	do.	do.
SERENITY	RAWLINGS			
MRS. HOGG	,,			
EARL RUSSELL.. ..	SILVER ..	4	do.	do.
BELLONA	HARRISON	4	do.	do.
PATENT	NAIRN ..	6	do.	do.
BRIDE	RAWLINGS	2	do.	do.
MRS. WICKHAM ..	,,			
THE BEAU	,,			

It is respectfully announced that these 12 First-class Flowers will be ready for distribution the first week of May.

CATALOGUES with full descriptions will be forwarded on desire.

JOHN KEYNES, Castle Street Nursery, Salisbury.

NEW DAHLIAS.—On and after April 20, vigorous, hardy, and strong-rooted Specimens of our new picked sorts of this favourite Flower will be ready for transporting in pots. Lists of prices, with a description of the various sorts (GRANDIFLORA and LILLIPUTIANS—the latter principally for pots in small gardens) may be had on application, by prepaid letter, to our Agents, Messrs. STREET BROS., 11, Serle Street, Lincoln's Inn, London, W.C.

Twelve Sorts, selected by us, of these magnificent varieties, for 1*l.* 16*s.*, when ordered direct, by post-paid letter, from the Establishment mentioned below. The whole Collection (33 sorts) for 6*l.* The usual allowance to the Trade.

Horticultural Establishment of H. LAURENTIUS, Leipzig, Saxony.

FARM AND GARDEN SEEDS

CARRIAGE FREE.

BANGHOLM SWEDE,
EAST LOTHIAN SWEDE,
WARD'S BEAUTY SWEDE,
DROPMORE SWEDE,
MARSHALL'S CHAMPION SWEDE,
GREEN-TOP SWEDE,
WHITE SWEDE,
IMPROVED SKIRVING'S SWEDE.
WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
DOBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
IMPROVED YELLOW GLOBE DITTO,
IMPROVED ORANGE GLOBE DITTO,



IMPROVED LONG RED MANGEL,
IMPROVED LONG YELLOW MANGEL,
IMPROVED RED GLOBE MANGEL,
IMPROVED WHITE FIELD BEET,
RED CLOVER, | COWGRASS,
WHITE, YELLOW, and ALSIKE CLOVERS.
PACEY'S PERENNIAL RYE-GRASS, and other sorts.
ITALIAN RYE-GRASS, FOREIGN and ENGLISH SEED.
NATURAL GRASS SEEDS, in mixture or separate, suitable for various soils and localities.
LIGHT RYE-GRASS and other CHEAP GRASSES, for Sowing on Railway Banks and Waste Places.

Orders for Exportation promptly attended to.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN,

28, KING STREET, CHEAPSIDE, NEAR the GUILDHALL; and

15, LAWRENCE LANE, LONDON, E.C.

TO TURNIP AND MANGEL GROWERS.

Growers of the above will find the following Varieties well worth their attention:—

DRUMMOND'S EXTRA IMPROVED SWEDE TURNIP, 1*s.* per lb.—A large handsome oval-shaped root with clear purple skin. Is a remarkably free grower, and may be relied on as the heaviest cropper in cultivation. This is the identical stock that last year carried off the 50*l.* cup offered by J. B. Lawes, Esq., to the farmers in Ireland for the best 10 Irish acres, and for which there were a great many competitors; and in reference to this Swede the gentleman who managed the premium crop writes:—"*Allow me to congratulate you on your present stock of 'Drummond's Swede Seed,' which I have tested on my four farms here and in Scotland, and I believe it to be the best Swede out, beating*"—(here is mentioned the names of several regularly advertised varieties) "*all of which I had procured from the best authorities, and for shape, size, and quality, surpassing them all.*"

GREEN TOP YELLOW ABERDEEN IMPROVED TURNIP, 10*d.* per lb.—As now *improved* this is unquestionably the most valuable Yellow Turnip grown, for while the crop is large, it is more nutritious, hardier, and a better keeper than any other variety. Hence its extensive culture by the great stock breeders throughout Scotland.

NEW OVAL-SHAPED YELLOW MANGEL, 10*d.* per lb.—The New Oval-Shaped Yellow recently introduced by us has been thoroughly tested, and has proved a most superior sort. It is of a remarkably vigorous growth, with finely shaped roots intermediate in length between the Long and the Globe, and producing several tons more per acre than any other variety. *This stock has been re-selected and is very superior.*

LONG RED MANGEL, 9*d.* per lb.—This is a very large free-growing root, stands well out of the ground, and lifts much cleaner than an inferior stock will.

With every other valuable variety of TURNIP and MANGEL in cultivation, PRICED DESCRIPTIVE LISTS of which may be had Post Free on application.

N.B. Parcels of Seeds amounting to 2*l.* and upwards are delivered CARRIAGE PAID to all the principal Railway Stations and Shipping Ports throughout the Kingdom, to which there is daily and quick transit from Stirling.

W. DRUMMOND AND SONS, SEED AND IMPLEMENT WAREHOUSE, STIRLING, N.B.

Sutton's Grass Seeds

AT THE ROYAL FARMS, THE ALDERSHOT CAMPS, THE CRYSTAL PALACE, THE PEOPLE'S PARK, HALIFAX, &c.

SUTTON'S GRASS SEEDS for PERMANENT PASTURE, PARKS, and LAWNS are now Sown at the Royal Farms; the Crystal Palace, Sydenham; the Horticultural Society's Gardens, and on most of the largest Estates in the Kingdom.

☞ Messrs. SUTTON'S GRASS SEEDS being mixed expressly to suit the soil for which they are required, are never known to fail. The prices are moderate, particulars of which may be had post free.

Address,
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

For Present Sowing.

THE HEAVIEST CARROT AND MOST CERTAIN CROPPER IS THE GREEN-TOP YELLOW BELGIAN.

SUTTON AND SONS have some fine fresh imported Seed now selling at 1s. 3d. per lb., or cheaper in large quantities (8 lb. Seed per Acre is abundance).

Also ALTRINGHAM, the largest RED CARROT.

SUTTON & SONS,
Seed Growers, Reading.

Skirving's Swede—Sutton's Selected Stock.

SUTTON AND SONS have a choice Stock of SKIRVING'S SWEDE SEED, growth of 1862, which they can strongly recommend. 9a. per lb., or *cheaper in large quantities.*

Also SUTTON'S CHAMPION, Hardy PURPLE-TOP, and Hardy WHITE SWEDE; but the Stock of "Champion" Swede, though saved from upwards of 50 Acres of Land, being small compared with the demand, this sort cannot be supplied under 1s. per lb., or 45s. per bush.

Royal Berkshire Seed Establishment,
Reading.

NEW HARDY WHITE SWEDE.—The Favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills. Grows rather coarse on some soils or when sown early; but it is very productive, hardy, and it is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor land.

Seed 1s. per lb., or 42s. per bushel.

Supplied by RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Turnip Seeds.

MESSRS. BENJAMIN REID AND CO., SEEDSMEN, Aberdeen, Scotland, have published their LIST of SELECT TURNIP SEEDS, and will be happy to send a copy to any address.

ABERDEENSHIRE TURNIPS are widely celebrated for their bulk, solidity, and nutritious qualities.

All orders above 40s. will be sent carriage paid to any Railway Station in England or Scotland, and to the principal Irish Shipping Ports.

Seed, Plant, and Implement Warehouse, 132, Union Street, Aberdeen, N.B.

Mangel Wurzel and Turnip Seed.

MARSH AND PERKINS, 42, Drapery, Northampton, have pleasure in offering the following, all the growth of 1862, from Transplanted Bulbs:—

YELLOW GLOBE MANGEL WURZEL, 6d. per lb.
LONG RED Do., Do., 6d. per lb.
GOLDEN GLOBE SWEDE, the heaviest cropper in cultivation, 9d. per lb.
GREEN BARREL, the best Common Turnip grown, 6d. per lb.

Cash or reference required from unknown Correspondents.

Turnip and Mangel Wurzel Seed.

H. AND F. SHARPE can supply the Trade with the following Varieties, true to name, all of their own growth, new and genuine, and on very advantageous terms.

TURNIP.	TURNIP.
Improved Purple-top Swede	Lincolnshire Red Globe
Champion do.	Improved Green Norfolk
Skirving's Improved do.	Fine White Stone
Marshall's Improved do.	
Yellow Tankard	MANGEL WURZEL.
Pomeranian White Globe	Elvetham Long Red
Drummond's Early Field	Fine Orange Globe
Yellow	,, Long Yellow
Green-top Scotch	,, Red Globe

Seed Growing Establishment, Wisbech.

Cabbage Plants.

W. VIRGO and SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 3s. per 1000:—

EARLY YORK CABBAGE
,, BATTERSEA
,, BARNES
EARLY NONPAREIL
DRUMHEAD

RED CABBAGE, 4s. p. 1000. All strong, healthy, and well rooted.
Wonersh Nursery, near Guildford, Surrey.

Introduction of New Plants.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer the following Novelties ready to send out now:—

	£	s.	d.
CALADIUM FORMOSUM	0	8	0
,, MACROPHYLLUM	0	8	0
,, MIRABILE	0	16	0
,, SCHMITZII VIRIDE	0	12	0
,, THELEMANNII	0	12	0
,, VANDEN HECKEII	0	12	0
DIOSCOREA ARGYRÆA	1	0	0
DIPLACUS GODRONII, ,, VERSCHAFFELTII, ,, SPLENDIDUS (the Set)	0	10	0
SYRINGA PRESIDENT MASSART	0	8	0
,, AMBROISE VERSCHAFFELT	0	12	0
VIOLA ARBOREA BRANDYANA	0	8	0

The New CATALOGUE, No. 72, and a specimen Number of the "Illustration Horticole, can be obtained Gratis by writing to AMBROISE VERSCHAFFELT.

International Exhibition. Prize Medals 1851 and 1862,

AWARDED FOR "EXCELLENT SEED CORN AND SEEDS," TO RAYNBIRD, CALDECOTT, AND BAWTREE, SEED MERCHANTS and GROWERS, Basingstoke, Andover; and 89, Seed Market, Mark Lane, London, E.C.

Samples of all kinds of AGRICULTURAL SEEDS and SEED CORN, sent post free on application.



FARM SEEDS
OF GENUINE QUALITY
(at Market Prices).
Carriage Free.

RICHARD SMITH,
SEED MERCHANT,
Worcester.

TAN GRATIS, in the immediate neighbourhood of Covent Garden Market.

Apply at WILLIAM ESSEX & SON, 28, Stanhope Street, Clare Market, W.C.

REIGATE SILVER SAND.—Best quality, 7s. 6d. per ton; second quality, 6s. per ton; best quality, packed in strong canvas bags, 16s. per ton; ditto 2s. 6d., 2 cwt. bags, stamps, put on the rail at Reigate and forwarded to all parts of the United Kingdom.

PEAT SOILS, LOAM, &c.

Collections of NEW, RARE, and BEAUTIFUL PLANTS of all kinds, carefully selected and supplied at current Prices.

W. SHORT, Salesman, Agent, &c., Reigate, Surrey.

THE best Quality of SILVER SAND, carriage paid to the South Eastern Railway Company's Station at Bricklayers' Arms, London, in Four Ton trucks and upwards, 11s. per ton, cash. In fine bags in One Ton lots, delivered to the General Carriers and Shipping Wharfs in London, 30s. per ton. Single bags of two bushels delivered to Messrs. Pickford & Co., Red Hill, 4s. 2d. per bag, and forwarded to all parts by enclosing 50 Postage Stamps. Small dry FULLER'S EARTH for improving the Growth of Lawns, Roses, &c, 4s. 2d. per bag of two bushels.

All orders and remittances to be addressed to JAMES GAWKROGER, 21, Union Street, Halifax, Yorkshire.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'



Magnified Aphis.

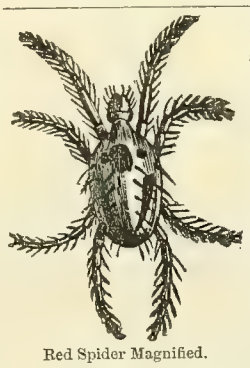
NEAL'S PATENT APHIS PASTILS, 1s. and 2s. per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP,

1s. per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT CANDLE CO. Limited.

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.

Can be obtained through the principal Nurserymen and Seedsmen in England.

A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.

PAGE & TOOGOOD, Seed Merchants, Southampton.

The only Certain Remedy for Mildew.

JOHN BELL'S COMPOSITION for DESTROYING MILDEW on Vines, Peaches, Nectarines, Roses, and every other Plant subject to that pest, is proved to be the most efficacious that has ever been offered. Sold in Bottles at 1s. 6d., 2s. 6d., and 5s. each. A 1s. 6d. Bottle will make 12 gallons fit for use.

Seed Warehouse, 10 & 11, Exchange Street, Norwich.

POTTER'S GUANO (established 21 years) 7l. per Ton.

POTTER'S CONCENTRATED MANURE, guaranteed by analysis, 10l. per Ton.

PURE GYPSUM, 25s. per Ton, bags included.

Address, 28, Clapham Road Place, S.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

TENANT FARMERS' MANURE COMPANY.
ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME,

MANUFACTURED BY THE PATENT

NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),

Consisting of TENANT FARMERS, occupying upwards of 30,000 Acres of Land.

Chairman.—JOHN CLAYDON, Esq., Littlebury, Essex.

Particulars of these Standard Manures may be obtained at the Offices. C. T. MACADAM, Secretary.

Or of the Local Agents.

Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex, N.E.

LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1863 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from Messrs. Gibbs: Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

F. C. CALVERT'S PHENYLINE (the active principle of coal-tar) is an unfailing remedy for Foot-rot, Distemper, Grease, Glanders, Scab, Mange, &c., and may be obtained of any of the following Agents:—

JOHN BELL & Co., 338, Oxford Street, London; A. PATTISON & Co., 67, Buchanan Street, Glasgow; CLAY & ABRAHAM, Liverpool; J. WOOLLEY, Manchester; HARVEY & REYNOLDS, Leeds; H. BRADEY, Newcastle-on-Tyne; J. REED, Arundel; C. CORTIS, Worthing.

To Machinists.

WANTED, MACHINES that will COMPRESS 4 lb. of HAY and CLOVER CHAFF, together with 3 lb. of Meal, into a Paper Bag of Small Compass.

Sample Bags containing the above-mentioned 7 lb. of MIXTURE may be had for experiment on application at THORLEY'S Steam Chaff Cutting and Condimental Feeding Mill Meals, Thornhill Bridge, Caledonian Road, King's Cross, London, N.

Blight.

BROWN'S PATENT FUMIGATOR.—A Portable Instrument for Fumigating Greenhouses, Stoves, and Frames, or Shrubs and Flowers in the open air, without injuring the most delicate plant; delivering the smoke cold, in a dense mass, and effecting a great saving of Tobacco. Price 10s. and upwards.

Manufactured and supplied to the Trade by Messrs. BARBER & GROOM, London; and may be had of all Ironmongers, Seedsmen, and Florists.

REDUCTION IN PRICE.

PHOSPHO GUANO.

The Prices for the Season 1863 are as follows, delivered Free on Board, or on the Rails at Liverpool.

For 30 Tons and upwards	**£10**	**5**	**0**	**per Ton, net cash.**	
For 10 Tons up to 30 Tons	**10**	**10**	**0**	,,	,,
For 5 Tons up to 10 Tons	**10**	**15**	**0**	,,	,,
For smaller quantities	**11**	**0**	**0**	,,	,,

The Price will not exceed 12s. per Ton additional if delivered at any other Port in Great Britain.

PETER LAWSON & SON, CONTRACTORS.
GEO. SEAGRAVE & CO., BROKERS.
WILLIAM DIXON & CO., GENERAL AGENTS.

28, KING STREET, CHEAPSIDE; AND 15, LAWRENCE LANE, LONDON, E.C.

New Scarlet Geraniums.

WM. PAUL (Son and Successor to the late A. PAUL) has now ready for SALE two superb new SCARLET GERANIUMS. Price 10*s.* the pair.

WALTHAM PET.—Very bright scarlet, with fine large white eye, dwarf as "Harkaway," but much finer in truss and flower; the best dwarf scarlet for small beds or edgings. First-class Certificate from Royal Horticultural Society. Certificate also from Royal Botanic Society.

RED DRAGON.—An exceedingly smooth dark scarlet, with a peculiarly rich nap on the flower; habit of "Boule de Feu"—the best dark scarlet. All the best "Bedding" plants, 3*s.* per dozen and upwards.

PAUL'S Nurseries, Waltham Cross, N.

MRS. POLLOCK GERANIUM.—Twelve of the best kinds of VARIEGATED and ZONALE GERANIUMS for pot culture, including Mrs. Pollock, Rainbow, Madame Vaucher, &c., for 22*s.* 6*d.*, basket and package included.

The above are strong well grown Plants, mostly in 5 or 6-inch pots, or can be sent shaken out to save expense in carriage.

A remittance respectfully requested from unknown correspondents.

ALFRED FRYER, Chatteris, Cambridgeshire.

BEDDING GERANIUMS, 2*s.* 6*d.* per dozen. Twelve dozen choice Bedding GERANIUMS, in 12 varieties, purchaser's selection, for 32*s.* 6*d.*, basket and package included; or any kind separately, at 3*s.* 6*d.* per dozen.

VARIEGATED.	ZONALE.	ZONALE.
Golden Chain	Scarlet Perfection	CrystalPalaceScarlet
Reine d'Or	Lady of Loretto	Blackheath Beauty
Golden CeriseUnique	Little David	Princess of Prussia
Flower of Spring	Beauté de Meldoise	M. Martin
Alma	Lady Middleton	Mde. Chardine
Hendersonii	Christina	Paul L'Abbé
Bijou	Rose Queen	Imperial Crimson
St. Clair	Scarlet Queen	Model Nosegay
Countess of Warwick	Indispensable	Minimum Nosegay
Shottesham Pet	Bishopstowe Scarlet	Purple Nosegay

All the leading kinds at moderate prices. Price to the Trade on application.

A remittance respectfully requested from unknown correspondents. Post Office Orders to be made payable to ALFRED FRYER, Chatteris, Cambridgeshire.

CLOTH OF GOLD and GOLDEN FLEECE GERANIUMS.—The above fine scarlet variegated Geraniums can now be had in any quantity. Their bright scarlet flowers being perfect, the contrast with their fine golden foliage and with other plants when used for edging or in lines, is pleasing and complete.

Good strong Plants established in pots, 31*s.* 6*d.* per 100
Do., out of pots, to save part package and carriage, 25*s.* per 100; 10*l.* per 1000
Do., in pots, 4*s.* 6*d.* per dozen

P.S. Nearly 50,000 BEDDING PLANTS as follows:—
SCARLET HORSE-SHOE GERANIUMS, in varieties
Do., silver variegated, in varieties
CALCEOLARIAS, FLORIBUNDA and others
DAHLIAS, in variety
HELIOTROPIUMS of sorts
HOLLYHOCKS, fine named in pots
VERBENAS, of sorts

And other plants for Beds and Edging, can be supplied, strong and well established, turned out of pots and carefully packed, at 16*s.* per 100, in selections; in less quantities than 4 dozen, at 3*s.* per dozen. All plants delivered to the Winchfield Station, on the South Western rail, or the Reading Station, on the Great Western rail.

STEPHEN SHILLING, North Warnboro Nursery, Odiham, Hants.

5000 Tom Thumb Geranium, and 5000 Aurea floribunda Calceolaria.

ALEXANDER LAING offers fine Bushy Plants of the above in pots for bedding out at 15*s.* per 100 (cash), or 12*s.* per 100 turned out of pots, and tied up with Moss. A large quantity can be sent to any distance at a very small expense in carriage. The above are all autumn-struck plants, very vigorous and strong, and cannot fail to give satisfaction. Early orders solicited.

A GENERAL CATALOGUE of BEDDING PLANTS may be had on application, gratis, and post free.

Nurseries, Beverley, Yorks.

Select Stove and Greenhouse Plants, &c.

ROBERT PARKER begs to invite attention to his Collections of AMARYLLIS, AZALEA INDICA, EXOTIC ORCHIDS, FERNS, and LYCOPODS; ORNAMENTAL and VARIEGATED FOLIAGED PLANTS; MISCELLANEOUS, STOVE, GREENHOUSE, and HARDY PLANTS; all of which are healthy and clean. Purchasers of large or small quantities will be treated on the most liberal terms.

PRICED and DESCRIPTIVE CATALOGUES are published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

HENRY WALTON has much pleasure in offering the following selections of Choice Plants:—

GERANIUMS, Show, Fancy, and Spotted Varieties of 1862, at 15*s.* to 18*s.* per dozen. A large collection of choice varieties of previous years, in strong plants, at 6*s.* and 9*s.* per dozen, selections left to H. W.

ROSES, in large quantities, on their own roots and the Manetti, at 9*s.*, 12*s.*, and 18*s.* per dozen. Also now ready, all the Varieties of 1862, at 2*s.* 6*d.* each, or 24*s.* per dozen. John Hopper, 3*s.* 6*d.* each, 30*s.* per dozen.

DAHLIAS, Choice Varieties of 1862, 9*s.* per dozen; Select Older Varieties, 4*s.* 6*d.* per dozen, selections left to H. W.; 30*s.* per 100. Lilliputian or Bouquet Varieties, 4*s.* 6*d.* to 9*s.* per dozen.

FUCHSIAS of 1862, 5*s.* to 9*s.* per dozen.

HOLLYHOCKS, fine varieties, from 9*s.* to 24*s.* per dozen.

PANSIES, New Show and Belgian varieties, 9*s.* to 12*s.* per dozen; Older Varieties, 4*s.* 6*d.* to 6*s.* per dozen.

PHLOXES, a fine selection, 4*s.* 6*d.* to 9*s.* per dozen.

CHRYSANTHEMUMS of 1862, 6*s.* per dozen; Older ditto, 4*s.* 6*d.* per dozen.

VERBENAS of 1862, 4*s.* 6*d.* to 6*s.* per dozen; Older Varieties, from 3*s.* per dozen.

PETUNIAS of 1862, from 5*s.* to 9*s.* per dozen.

BEDDING PLANTS, in varieties, 3*s.* to 6*s.* per dozen.

LONICERA AUREO-RETICULATA, 2*s.* each, or 18*s.* per dozen.

CATALOGUES of the above on application, enclosing stamp.

AZALEA INDICA.—Several thousands of the above, including all the leading varieties, in fine grafted plants, such as will soon make fine specimens. The Stock is in robust health, and all home-worked. CATALOGUES and Prices on application, enclosing stamp.

Edgend Nurseries, Marsden, near Burnley, Lancashire.

KITCHEN GARDEN SEEDS,

FLOWER SEEDS.

In Collections including all the new and approved kinds, or separate to order.

Detail CATALOGUES post free.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND
THOS. GIBBS & Co.
Corner of
HALF-MOON St.
PICCADILLY,
London.
APPOINTED APL 3, 1844
THE SEEDSMEN

AGRICULTURAL SEEDS,

GRASS SEEDS,

FARM SEEDS,

of all descriptions.

Thomas Gibbs & Co
CORNER OF
HALF-MOON St.
PICCADILLY, LONDON, W.

MIMULUS MACULOSUS.

ADELINE.	FAVOURITE.	LADY FERMOY.	SPLENDID.
CHARM.	HERO.	MARVEL.	SPECIAL.
FLORETTA.	LAURETTA.	SOUVENIR.	STARTLER.

Price 5s. each.

Twelve distinct Varieties of this exquisite New Strain will be sent out for the first time on and after the 18th inst.

This new cross has been effected with the Chilian species "Cupreus," and a showy Monkey-flowered variety named Gaiety.

For detailed description of these exceedingly beautiful hybrids, *vide* description in *Gardeners' Chronicle* of April 25, page 388.

Hundreds of flowers of these NEW MIMULUSES are now expanded, and Mr. WILLIAM BULL will be happy to show them to any one who will favour him with a visit.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

NOTICE.—*We are sorry to observe that a respected House in the Nursery Trade has endeavoured in their Advertisements to depreciate some of the Novelties placed in our hands for sale by* Mr. BEATON. *We are quite content after this notice to let the matter stand as it is, resting assured that our Patrons and the Public have sufficient confidence in* Mr. BEATON *and ourselves to believe that we would not recommend any Plants of a second-rate character.*



CARTER'S

LIST OF NEW PLANTS FOR 1863.



NEW GERANIUMS.

Mr. BEATON, the well-known Raiser of the improved varieties of NOSEGAY and other sections of BEDDING GERANIUMS, has selected the undermentioned from his large Collection of Seedlings, and recommends them as being some of the most valuable Bedding varieties ever offered to the Public; he has placed them in our hands for distribution.

The Set of Six Varieties for 10s. 6d.

NOSEGAY VARIETIES.

Lord Palmerston (BEATON).

This is unquestionably the finest of the whole group of Nosegay Geraniums. It was raised by Mr. Beaton about three years since, and sent by him to be proved at the Gardens of the Royal Horticultural Society and the Crystal Palace, and by the Directors of the respective Gardens was selected from the whole mass of bedding plants to form the most prominent Beds of last Season, where it was universally admired. The flowers are deep crimson, produced in immense trusses in the greatest profusion, as many as 130 pips, or flowers, having been counted on a single truss. As this is a variety that has been thoroughly proved, we are induced to offer large quantities at a cheap rate, so that our customers may plant out large beds this season.

STRONG PLANTS.

Single plant ..	.. 2*s.*	3 dozen ..	.. 32*s.*
1 dozen ..	.. 18*s.*	4 ,, ..	.. 38*s.*
2 ,, ..	.. 25*s.*	8 ,, ..	.. 63*s.*

Spread Eagle (BEATON).

This is also one of the most profuse blooming of the Nosegay section; colour deep orange scarlet, with the dwarf habit of Mangles' Silver variegated. The breadth of petal of this and the succeeding variety far exceeds that of any other of the Nosegay tribe, and will doubtless go far to satisfy the exigent requirements of the most particular Florists. Price 2*s.* 6*d.* and 3*s.* 6*d.* each.

Miss Parfitt (BEATON).

The upper petals of this beautiful variety are deep crimson, the lower glowing scarlet with a white centre or eye; very dwarf and compact habit. Price 2*s.* 6*d.* and 3*s.* 6*d.* each.

Merrimac (BEATON).

This is a great improvement on "Imperial Crimson;" it has the additional breadth of petal to which we have before alluded; and in addition to being very useful for Beds and Ribands, it is very effective for Vases, &c. Price 2*s.* 6*d.* and 3*s.* 6*d.* each.

ZONALE or HORSE-SHOE-LEAVED VARIETIES.

Helen Lindsay (BEATON).

This is a rival of the well-known "Christine," which is so extensively used for Bedding purposes in all Public and Botanic Gardens; the colour is a much richer rose, whilst the trusses of bloom are larger, and more profusely produced throughout the season. This variety is also free from the objectionable seeding propensities of Christine (which renders that otherwise admirable kind so very troublesome to keep in good order, beds of it after Midsummer assuming a ragged appearance if the seed pods are not constantly gathered). Its habit is similar to that of Tom Thumb, leaves slightly zonale. This will be the GEM of BEDDING GERANIUMS this season. Price 1*s.* 6*d.* each; per dozen, 12*s.*

Rubens Improved (BEATON).

Of this excellent variety it is only necessary to say that it blooms as freely as its progenitor, but with much larger trusses of the same beautiful form and colour; leaves slightly zonale. It has also the additional merit of withstanding well the sun and rain, a quality much needed in the old variety. Price 2*s.* 6*d.* and 3*s.* 6*d.* each.

For FURTHER NOVELTIES *vide* PLANT SUPPLEMENT to

CARTER & CO.'S GARDENERS' VADE MECUM FOR 1863,

Containing FULL LISTS of STOVE, GREENHOUSE, and BEDDING PLANTS, now ready, post free on application.

JAMES CARTER & CO., 237 & 238, HIGH HOLBORN, LONDON, W.C.

Superb New Fuchsias.

LUCOMBE, PINCE, AND CO. are now sending out fine strong Plants of their unrivalled SEEDLING FUCHSIAS—

THE EARL OF DEVON and EXHIBITOR.

For particulars and descriptions of which, see *Gardeners' Chronicle* for April 11 and 18.

DESCRIPTIVE SPRING CATALOGUE may be had gratis on application.

Exeter Nursery, Exeter.

Hardy Climbers in Pots.

WM. WOOD AND SON have an immense stock of fine strong Plants of the above, suitable for planting out at once against walls, trellises, or poles, consisting of the best kinds of ROSES, CLEMATIS, BIGNONIAS, IVIES, JASMINES, PASSIFLORAS, WISTARIA, &c., at very reasonable prices.

Woodlands Nursery, Maresfield, Uckfield, Sussex.

New Roses.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites attention to the following NEW ROSES, which will be ready for delivery very shortly.

LORD HERBERT, H.P.—Rosy carmine, the petals reflexing at the summits in the way of Beauty of Waltham, large, full, and finely formed, and altogether of first-rate excellence. *7s. 6d.*

LORD MACAULAY, H.P.—Velvety crimson, in the way of General Jacqueminot, but brighter in colour, thicker in the petal, and more double. The flowers are of good average size, produced abundantly and in rapid succession; the habit is good, and foliage handsome. *7s. 6d.*

MRS. WILLIAM PAUL, H.P.—Bright violet red, shaded with fiery red; flowers constantly, and in clusters, large and full. Raised by M. Verdier, of Paris, the raiser of Madame Furtado, and others of our finest Roses. *5s.*

RED ROVER, H.P.—Bright red petals, large, thick, and round; flowers abundantly and in succession up to Christmas. Not double enough for a show Rose, but the most effective pillar Rose ever offered. *3s. 6d.*

WILLIAM PAUL, H.P.—A seedling from Senateur Vaisse, but brighter in colour. Raised at Lyons by the raiser of Lord Raglan, Senateur Vaisse, and other first-class sorts. *5s.*

BEAUTY OF WALTHAM, H.P.—Bright rosy crimson, of good size, form, and substance, and deliciously sweet. This Rose is found to surpass the description originally given of it. *3s. 6d.*

All the new French Roses, *3s. 6d.* to *5s.* each, or *42s.* per dozen. The best of the old Roses at lowest advertised prices. The plants are well established, and in the finest possible health.

PRICED CATALOGUE free by post.

Nurseries and Seed Warehouse, Waltham Cross, N.

E. G. HENDERSON AND SON offer First-class quality of CINERARIA,

CALCEOLARIA, and PRIMULA SINENSIS FIMBRIATA, *1s.* and *2s. 6d.* per packet.

CINERARIA WEBBI.—The interest and value of this species consists in its having a shrub-like branched habit of growth, attaining from 3 to 4 feet in height. This remarkable plant is expected to originate a new and desirable class of varieties for exhibition purposes, it having already passed into all the colours found in florist varieties of the present time, and no doubt but higher improvements in form, and other essential properties, will be obtained in connection with its superior culture. It will be found well adapted for decorative purposes, by its taller growth, and longer continuance in bloom. *2s. 6d.*

EXPERIENCED GARDENERS recommended to gentlemen.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Notice.

JOHN WATERER'S EXHIBITION of RHODODENDRONS and other AMERICAN PLANTS will be exhibited at the Royal Botanic Gardens, Regent's Park, at the End of the present Month, and will continue on VIEW throughout the MONTH of JUNE.

American Nursery, Bagshot, Surrey.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.

The TENTH ANNUAL SUMMER SHOW will take place on WEDNESDAY and THURSDAY, June 10 and 11, at the Royal Pavilion, on the same grand scale as on former years.

Schedule of Prizes to be had on application to the Secretary, 96, St. James Street, or of E. SPARY, Superintendent of the Exhibition, Queen's Graperies.

By Order of the Committee,

Brighton, May 9. EDWARD CARPENTER, Secretary.

GRAND HORTICULTURAL and FLORAL EXHIBITION at WORCESTER.

The Committee of the Worcestershire Horticultural Society have arranged to hold a GRAND SHOW of FRUIT, FLOWERS, and VEGETABLES, on TUESDAY, WEDNESDAY, and THURSDAY, July 21, 22, and 23, being the week of the annual assembling of the Royal Agricultural Society in Worcester.

The Show will be open to all England, and copies of the Schedules (which will contain Prizes to the amount of nearly 200*l.*) may be obtained by applying to the Honorary Secretary, Mr. T. H. WHEELER, No. 2, Foregate Street, Worcester.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.

LIST OF AWARDS, May 5.

FIRST CLASS CERTIFICATE.

ROSE H.P. LORD MACAULAY, from Mr. W. Paul, Waltham Cross.

CLEMATIS DOUBLE WHITE (Japan), from Mr. Standish, Bagshot and Ascot.

CLEMATIS PURPLE (Japan), from Mr. Standish.

CASSIOPE FASTIGIATA, from Messrs. Veitch & Son, Exeter and Chelsea.

OURISIA PEARCH, from Messrs. Veitch & Son.

DRACOPHYLLUM (sp.) from Messrs. Veitch & Son.

SARMIENTA REPENS, from Messrs. Veitch & Son.

RHODODENDRON PICOTEE ROSEA, from Messrs. Veitch & Son.

ATHYRIUM FILIX-FŒMINA SAGITTATUM, from Mr. W. Bull, Chelsea.

MIMULUS MACULOSUS MARVEL, from Mr. Bull.

SECOND CLASS CERTIFICATE.

BROWALLIA (sp.) from Messrs. Veitch and Son.

SPECIAL CERTIFICATE.

To Mr. Sherratt, Gr. to J. Bateman, Esq., for MOUTAN PEONIES.
To Mr. Earley, Gr., Digswell House, Welwyn, for CUT ROSES.
To Mr. Batley, Nurseryman, Rugby, for CUT ROSES.

The next MEETING will be held in connection with the First Great Show on May 27.

THOMAS MOORE, Secretary to the Committee.

Royal Horticultural Society.
10th JUNE, 1863,

CEREMONIAL to be OBSERVED at UNCOVERING the MEMORIAL of the EXHIBITION of 1851, and STATUE of H.R.H. THE PRINCE CONSORT, in the presence of their RR.HH.'s the PRINCE and PRINCESS of WALES and other Members of the Royal Family.

The Guests invited to take part in the Procession will assemble at the West Dome of the Exhibition Building.

Whilst assembling Military Bands will play.

The Royal Party will be received at the West Dome Entrance by the Executive Committee of the Memorial Committee.

Their RR.HH.'s will proceed down the Nave to a balcony over the Southern entrance of the Horticultural Gardens, and their arrival will be announced by a flourish of trumpets. "God Save the Queen" will be played by three Military Bands united in the Ante-Garden.

The Council of the Horticultural Society will present an address.

Military Bands will again play.

After which the Memorial Committee will read an Address.

H.R.H. the Prince of Wales will order the UNCOVERING OF THE MEMORIAL, which will be announced by a flourish of trumpets and a salute of Artillery, after which military music will be performed and the fountains will play.

The Royal party, headed by the procession, will then walk round the Gardens, stopping at various points to see the Memorial and the Garden.

The route will be marked by barriers and banners, and it is requested that during the procession the spectators will remain stationary.

In the event of rain the line of procession will keep under the cover of the Arcades.

The Exhibition Building will be thrown open to the visitors

GEORGE GODWIN, Hon. Sec. Memorial Committee.
W. W. SAUNDERS, Hon. Sec. of the Horticultural.

LINDLEY TESTIMONIAL.

EXTRACT FROM MINUTES OF ANNUAL MEETING OF THE ROYAL HORTICULTURAL SOCIETY, HELD ON FEB. 10, 1863.

"It was moved by Mr. WILSON SAUNDERS, seconded by Mr. Alderman COPELAND, M.P., and unanimously agreed to, that the best thanks of the Society be given to Dr. LINDLEY on his retiring, after 40 years' service, from the Secretarial duties, for the eminent services he had rendered to the Society.

"It was also agreed, on the motion of Mr. Alderman COPELAND, M.P., seconded by Mr. BATEMAN, of Biddulph Grange, that a circular should be issued calling attention to the vote of thanks, and inviting subscriptions for a Testimonial to Dr. LINDLEY, each subscription to be limited to One Guinea."

In order to carry out these resolutions, a committee has been formed, consisting of Alderman COPELAND, M.P.; G. CORNWALL LEGH, Esq., M.P.; W. WILSON SAUNDERS, Esq., F.R.S., and JAMES BATEMAN, Esq., F.R.S., who will be glad to receive subscriptions, to be paid at the Accountant's Office of the Society, South Kensington.

The Gardeners' Chronicle.

SATURDAY, MAY 9, 1863.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, May 13	Royal Botanic	.. .. ..	2 P.M.
	Microscopical	.. .. ..	8 P.M.
	Society of Arts	.. .. ..	8 P.M.

MOST of our Orchidophilists have some favourite genus, the species of which they foster with peculiar affection, and cultivate with more than ordinary care. Mr. HUNTLEY in his day clung to ONCIDIUM, but that genus, extensive as it is, could now scarcely furnish forth a longer list of distinct and beautiful forms than might be reckoned up under the genus that bears Mr. HUNTLEY's own name, were all the species that still abide by his standard, or have been violently separated from it, gathered together in one phalanx. CATTLEYA, notwithstanding its ungainly habit, has always been surrounded by a devoted band of admirers; while the more graceful LÆLIA has followers not a few. All these genera belong exclusively to the western hemisphere; but from the east come DENDROBIUM and AERIDES and VANDA, each of which has its eager devotees. Some hands are held up for the African ANGRÆCUMS; while a single species of DISA (*D. grandiflora*) has almost monopolised the attentions of a well-known enthusiast at Clapham. Then there is CYPRIPEDIUM, which belongs alike to the Old World and the New, now rapidly and deservedly pushing itself into public favour.

To these leaders in the world of Orchidaceous fashion, there must now be added yet another genus—ODONTOGLOSSUM—which, although until very lately almost unknown to fame, appears at length to have a brilliant future before it. This genus is confined to tropical America, and was founded by the illustrious HUMBOLDT on a plant (*O. epidendroides*) discovered during his memorable wanderings in the New World about the commencement of the present century. All its species, with perhaps one doubtful exception, are *mountaineers*; they are scattered in vast profusion over the Andes of Mexico, New Granada, and Peru, preferring an elevation of from 6000 to 8000 feet above the sea level, though sometimes ascending to a still greater height. The climate therefore in which they luxuriate must be essentially different from that of the West Indies, or of the sultry coasts of Guiana and Brazil, whence our first importations of S. American Orchids were derived, as well as our first notions of what was required for their artificial cultivation. But our system of hot treatment, while it answered well enough so long as we had to deal with the natives of hot localities, broke down altogether when it came to be applied to plants accustomed to a totally different climate, and constitutionally incapable of enduring the heat of our stoves. Hence came the disappointments to which we adverted in a recent article, and which seemed to have pressed so heavily on the spirits of our Orchid-growers, that it was long before they could be induced to venture upon the easy and natural expedient of applying cool treatment to plants accustomed to a cool climate.

It is owing to the tardy recognition of these simple principles that ODONTOGLOSSUM has been kept in the background so long, for few of its species can endure, and none of them prefer, the heat of the ordinary Orchid-house; but now that juster views have prevailed, we are beginning to appreciate the rich abundance of beautiful forms that this marvellous genus has in store for us. This, however, will perhaps be better understood if we glance briefly at the history of its progress. Founded, as we have already remarked, more than 60 years ago by HUMBOLDT, on a single species, it received no accessions (except three Mexican species described by LEXARZA) until after the publication of the first edition of Dr. LINDLEY's *Genera and Species*, and yet in the second edition of that work, published some dozen years later, the roll of its constituents had risen to nearly 70, and so many splendid additions have been recently made that we may safely venture to set down the total number already known to us as scarcely, if at all, less than a hundred.

But not less remarkable than the aggregate of its species is the large proportion of showy and interesting plants that this genus offers to the notice of the cultivator; for if we except such as belong to the section Trymenium, which may possibly have eventually to be constituted into a separate genus, almost every Odontoglossum with which we are as yet acquainted is worth growing. Such plants as O. grande (according to Mr. SKINNER the finest plant of the Guatemala flora), the lovely O. Cervantesii and O. citrosmum (well termed pulcherrima by their original discoverer, LEXARZA), and the still more striking O. nævium, O. Pescatorei, O. Phalænopsis, and O. triumphans, from New Granada—these and a host of others may well be left to tell their own tale. And when zealous collectors shall have explored the sources of the thousand streams that water the marvellous country through which

"Huge Orellana rolls his affluent flood,"

we shall doubtless see almost innumerable additions made to the already well filled ranks of the glorious genus that has its head-quarters in the district of which we speak.

But besides the intrinsic beauty of its species, ODONTOGLOSSUM has other passports to popularity. In the first place it loves a cool temperature, and if grown as it ought to be in a house with a northern aspect it may be approached at all hours, and when the heat of the ordinary Orchid house is often unbearable. Second only in importance to this consideration is the fact that a great majority of its species flower during the dull winter season, and continue in bloom for months together. Many kinds, too, are deliciously sweet, while none send forth what are in the slightest degree offensive odours, like too many other Orchids we could name. If to all this we add a neat compact habit, surely we have here more than enough to explain the high place that the genus to which we have devoted this article has already taken in public favour.

It would be unfair to a zealous continental traveller to leave this subject without acknowledging the deep debt of gratitude that Orchid lovers owe to M. LINDEN of Brussels, to whose own zeal and that of other collectors connected with his establishment, we are indebted for the introduction of at least 20 species of Odontoglossum, many of which are eminently beautiful, as the plates of *Pescatorea*, where about 10 of them are figured, abundantly testify.

THERE is a general impression that a new plantation of SCOTCH FIR will not succeed where an old Fir forest has been cut down, and experience has gone very far to prove the justice of the impression, though natural forests have existed for centuries without being exhausted. Doubtless in many cases evil arises from the old roots which are left behind, and which prove a deadly poison to the young plants from the fungous spawn which is generated upon them. It has however been found that where the greatest pains have been taken to grub out the old stumps, new plan-

tations will not always succeed, and Mr. M'Corquodale has shown satisfactorily that this arises in a great measure from the myriads of a Curculio called by Entomologists *Hylobius abietis* which find shelter amongst the chips and fragments of bark which were the result of the last felling.

Different methods of planting have been tried with a view of checking the evil, but as might be supposed none were perfectly successful; though the ravages of the insects appear to have been checked more or less where the surface of the soil round the young trees was made as even as possible, so as to yield them no shelter. One method, however, appears to have been completely successful. The land which it was proposed to plant was carefully inclosed so as to prevent the intrusion of anything which might graze on the herbage, and as soon as a strong dry head of Grass was obtained, the whole was set on fire, to the destruction of insects, eggs, and grubs, and in its proportion too, of rudiments of Fungi which in their turn might prove injurious. Strong two-year-old plants were then carefully inserted, and not after the common idle fashion of slitting, and the result has been successful far beyond the hopes of its suggester. It remains indeed to be seen whether after a time the trees may not suffer from the contagion of the old roots; but this is an after consideration, the difficulty in the former case being to get the plants to grow at all.

A correspondent in Ireland complains of the condition of the Scotch Firs in his demesne and adjacent plantations. While the old trees are perfectly healthy, the young trees, from 6 to 18 years old, whether on dry or moist soils, are rapidly decaying. As the dead leaves still cling perseveringly to the branches, it is certain that they have died suddenly, as the effect of any gradual failure of vigorous growth would have been to cause the branches to cast their leaves. This does not look like the work of insects, or of any decay from the presence of old roots in the ground, and we are unable from a bare report of the facts to assign any probable cause.

Much is still to be learnt about the successful management of forests, and unfortunately practical men are not always sufficiently acquainted with the several elements which form necessary parts of preliminary knowledge. *M. J. B.*

—— The remarks which we made some time since on the Classification of Dahlias, recalling the attention of florists to the subject, have resulted in a discussion, carried on chiefly in the pages of *Gossip*, from which it appears that the arrangements proposed by "Telegram" and ourselves have met with general approval, and only await general adoption. Some collateral questions which have been mooted in the course of this discussion, call for a few further observations on our part.

It had been suggested, and of course has been all along intended, that the mode of grouping proposed to be adopted should not remain a barren theory, but that it should bear some fruit; first, in the reformation of the catalogues of dealers; and secondly, in the improvement of exhibition prize schedules, in both of which it has been the general practice to adopt what some writers very truly designate as the "absurd division" into "show" and "fancy" classes, without attaching any intelligible meaning to the terms employed. If we could secure the first of these reforms, the second would follow. But what new arrangement would really improve our exhibitions? That is a question to which probably the replies would not be unanimous.

One of the malcontents, indeed, who signs himself "Amateur," asks, "Who could seriously imagine that such a fusion should ever be attempted or thought of, as that of [showing] self and variegated blooms in the same stand?" We ask in reply—why not? What is a variegated bloom? If the words are to have any meaning, the terms self and variegated must apply respectively to whole-coloured and parti-coloured blooms. Well then, taking things as they have been, it has been the common practice to mix up selfs and parti-coloured flowers in the same stand, and "Amateur" must have made strange use of his eyes if he has failed to see this. But the absurdity of the common practice was this, that while selfs and variegated flowers of that set in which the ground colour was white with darker tips were on all hands intermixed, the variegated flowers in which the ground colour was dark with light tips were shut out to form another class, to which the term "fancy" was applied—for no reason that we can discover, but, as we imagine, from a freak of fancy on the part of some wag. Why, we again ask, if light-ground blooms with dark tips may be mixed up, as they always are and have been, with selfs, should not dark-ground blooms with light tips be equally admitted with them into the same stand? We for ourselves see no reason to the contrary, but everything in favour of such an amalgamation now that there are flowers in each of the sections alluded to, which are so closely up to the mark in points of technical excellence [as] not to disgrace each other by association. And this we find is also the view of "Telegram," for he says, that "such a fusion is not only a thing to be thought of, but a thing to be done;" and he adds, that if well done, the effect would be marvellously brilliant. So we believe.

The same Amateur expresses himself puzzled—uncertain to what kind of dulness to refer his difficulty—in attempting to comprehend how the selfs and variegated sorts are to be "pleasingly dispersed," and yet "kept distinct for the examination of the judges." As often happens with people who get into difficulties, Amateur's perplexity is of his own making. We at least, and he refers to us, have never suggested that at the same show the blooms should be intermixed and yet kept distinct. What we said was this:—"In all exhibitions which are strictly confined to florists' flowers, it would be quite legitimate, and we imagine would be an advantage to florists, as well as tend to the production of improved novelties, to offer separate prizes in each class." That is to say, we recommend class showing when the show is a florists' show—at a National Dahlia Show, for example, on a large scale, or at any local florists' meeting on a small scale. But we have further said:—"In all general exhibitions, on the other hand, where the minor details of floriculture could not have prominence assigned to them, it would be preferable, as productive of a more varied display, to admit all classes [of flowers] to equal competition"—florists and amateurs competing separately, so that the one class of persons may not be swamped by the other. This equalised competition was intended to prevent the comparatively few brightly-tipped flowers from being placed in juxtaposition, and to secure their being scattered throughout the stands, so as to give life and brilliancy to the whole display. We are still inclined to the same opinion; and we fail to see anything to be puzzled about in these propositions. But after all, this question of arrangement in a flower show is a much less important matter than the adoption of an intelligible mode of classification, which latter once launched must soon right itself, not only as it affects the garden and the office, but also as it concerns the exhibition table. The exhibition of blooms in four classes would indeed of itself do something to distribute without actually intermixing the flowers of different character; and an actual trial, fairly made, would do more than any words to prove what arrangements would be best in practice. For ourselves we should be quite content with that which proved to be the best.

Then as to sported blooms, the expressed opinions are against us. We have said that every variety should be referrible to one of the distinct classes proposed, and that it should be shown in that class only—we mean in those cases where the system of class-showing is adopted. And this being so, we said that a sported self bloom produced by a variety which should bear parti-coloured blooms, ought not to be admitted at all in class showing. We adhere to this opinion. Of course in mixed showing the point is altogether immaterial.

As to what groups to invite at our Exhibitions, instead of the usual stands of "show" and "fancy" blooms, several suggestions have been made, some referring to class-showing, some to mixed showing. "W. H." proposes 12 or 6 selfs, and the same of each of the other groups—laced, tipped, and striped. Mr. Keynes suggests 24 or 12 selfs, and the same numbers of variegated blooms, the latter to include all three of the above-named parti-coloured sections. "Telegram" pictures his idea of a perfect stand of 24 blooms thus: 12 selfs and 12 parti-coloured, made up of four from each of the sections. Mr. Rawlings would have dealers show 36 selfs, and 12 of each of the other sections, separately, making a total equal to the numbers now usually shown: viz., 48 of self and light ground laced varieties together = the present stand of "show" flowers; and 24 of striped and tipped sorts = to the present stands of "fancies." He, however, asks what should be done with flowers which are both tipped and striped, and is answered by the editor of *Gossip* that "until they become sufficiently numerous to form a fifth class," they may be shown either as tipped or striped. We should prefer to say they should go to that section whose character predominates in their colouring. We fancy "Telegram's" suggestion as to numbers would come out best at a mixed show; while for a classified show the suggestion of Mr. Rawlings looks like a good one, if the proportion of selfs could be somewhat reduced.

One other point has been mooted in this discussion, viz., the exhibition in competition stands of seedlings "not let out." This is manifestly wrong, there being too a plurality of objections to the adoption of such a practice. We quite agree therefore, that a rule should be inserted in all schedules to prevent so unseemly a custom. We also fall in entirely with the proposal, that societies should, wherever they can do so, provide uniform stands, and prevent lettering or numbering or marking of any kind, which may tend to render the ownership of the blooms apparent.

Such are some of the questions which just now affect the exhibition of Dahlias. We trust some or all the points may be fairly submitted to trial in the ensuing season, by those societies whose schedules have not been already made out on other bases; and that they may be all examined into and discussed thoroughly, so that the "best" course may be uniformly adopted another year. Our great dealers and our great societies should lead the way in a reform of this kind. We shall be ready to devote a portion of our space to any remarks elucidatory of the several questions involved.

A VISIT TO THE BULB FARMS OF HAARLEM.

No. I.

In walking along our streets, or in visiting our horticultural auction rooms during autumn and winter, every one is struck with the extraordinary quantity of Hyacinths, Tulips, Narcissus, and other bulbous-rooted plants which are exposed for sale. Early in the year the same things are met with in bloom in every greenhouse, and in almost every window. But if we wish to form a correct idea of the extent of this trade, and of the effect produced upon the landscape by hundreds of acres of land being covered with such plants in full flower, we must pay a visit to Haarlem in the month of April. As I have just had an opportunity of seeing these Bulb farms in their gayest attire, a short account of them will probably have some interest for the readers of the *Gardeners' Chronicle*.

The railroad from Rotterdam to Amsterdam has been laid along the coast within a short distance of the sea, and passes the towns of The Hague, Leyden, and Haarlem, in the order in which I have placed them. Between Rotterdam and Leyden the land is chiefly used for grazing purposes, and is evidently not suitable for Bulb cultivation. On reaching Leyden, however, a change was observable, the land appeared more sandy in its formation, and was evidently affected by the adjoining sand hills. Patches of Hyacinths, Tulips, and other bulbous plants were now observed in full bloom on each side of the road. As we proceeded northwards the cultivation appeared gradually more extensive, but it was only when we reached Haarlem that we found ourselves actually in the heart of the great Bulb country.

Many portions of Holland are considerably below the level of the ocean. A belt of sand hills or *Dunes* has been thrown up along the coast by the action of the winds and waves, and now forms a protection against the encroachments of the sea. These "Dunes," which extend along the coast for a great distance, are from one to three miles in width, varying from 40 to 50 feet in height, and when looked down upon present a succession of little hills and valleys to the eye not unlike the waves of a stormy sea. The Bulb farms of Haarlem are situated on the inner edges of these sandhills.

On our arrival at Haarlem we were most kindly received by Messrs. Krelage, and Messrs. Polman Mooy, of that place; and by Messrs. Byvoet and Van Velson, jun., of Overveen, a village two miles to the west of Haarlem. Mr. Krelage has a large garden in the town as well as a number of farms in the country. His town garden is remarkable for a beautiful bed of Tulips, about 600 feet in length, and formed so as to resemble a walk of flowers. Wooden arches are thrown over it at intervals for effect, and its sides are lined with tall Lilies (Crown Imperial). The views from either end of this "Tulip walk" were most remarkable and beautiful. The masses of red and scarlet Tulips were very striking, particularly when formed of the varieties known as Vermillon Brillant, and scarlet Duc van Thol. In this garden there was also a large canvas tent under which were arranged all the finest varieties of Hyacinths. Under it there were two long beds containing 110 rows in each bed (six plants in each row), the one being filled with the single kinds, and the other with double. The different colours were arranged in an artistic manner so as to heighten the effect of each other, and the whole had an excellent effect. Out of doors, besides the "Tulip walk" just noticed, there were whole fields of Hyacinths, Tulips, Narcissi, Japan and other Lilies, Fritillarias, Cape bulbs, Ranunculuses, Anemones, &c.

In the afternoon of our first day we drove out with Mr. Krelage to see his country farms, and those of Messrs. Byvoet and Van Velson, jun., at Overveen. On the road sides as we went along we observed fields of Hyacinths and Tulips in every direction covered with bloom, and the sweet scent from the former perfumed the air. The fields are all perfectly level, and are divided into squares by clipped hedges and close wooden paling for the purpose of lessening the force of the wind, and of preventing the loose sand from doing too great an injury to the flowers, as it flies about here like dry snow. The bulbs are arranged in beds, and the different kinds are kept together in masses, by which means a very beautiful effect is produced.

Having examined Mr. Krelage's country farms, we then went onwards to Overveen, to those of Messrs. Byvoet. Here the squares into which the land is divided appeared to be larger than those nearer Haarlem. Whole fields were covered with Hyacinths, Tulips, Anemones, Crocuses, Ranunculuses, &c. The Hyacinths appeared to be remarkably good; indeed, it is only necessary to say that the superb prize collections exhibited in London this spring by Messrs. Cutbush, of Highgate, and Mr. Wm. Paul, of Cheshunt, were furnished by this establishment. Many of the flowers had been already cut off, but enough remained

to give a good idea of their appearance and beauty. I do not pretend to have the knowledge of the florist, and intended to refrain from giving the names of any of the sorts with which I was particularly pleased, but I will venture to name the following as well worthy of notice:—Solfatara and Macaulay (single reds), Snowball (single white), General Havelock (single blue), Florence Nightingale (single red), La Dame du Lac (single red or salmon), and Van Speyk (double blue). The early Tulips were now at their best, and very beautiful they were. In England we have no idea of the effect produced by fields of bright colours, lying in broad masses, and arranged so as to heighten the brilliancy of each other. Here again, as elsewhere, the effect produced by the fine scarlet or crimson kinds was most striking. Broad masses of Vermillon Brillant, scarlet Duc van Thol, and a double kind named Imperator rubrorum, when viewed amongst the lighter varieties, seemed to set the fields "all in a glow."

At Mr. Van Velson's whom we visited next, we found the Hyacinth in full beauty, as he had not begun to cut the flowers. His grounds lie on each side of the road which leads from Haarlem to Overveen, and at this time of the year are the admiration of many a passing traveller. One field was covered with the flowers of the scarlet Duc van Thol Tulip already noticed, and was worth going a long way to see.

Our next day in Haarlem was spent under the guidance of Messrs. Polman Mooy—father and son. After examining the home grounds, which are much like those of the other growers I have already described, we drove out into the country to see some other farms, and to get a general idea of the extent of Bulb cultivation. As we went along the fields appeared painted with lovely colours of every hue. Almost every cottage and farm house we passed had its Bulb garden, crowded with Hyacinths and Tulips in full bloom, while now and then we came upon the more extensive fields of the regular cultivators.

In the afternoon we left our carriage on the highway and walked for some distance straight into what seemed to be the centre of Bulb cultivation. After examining field after field we took up a position somewhere in the middle of the whole. Here the scene which was presented to our view was certainly a most extraordinary one, and one which it was well worth coming from England to enjoy. Whichever way we turned, to the right or to the left, before or behind, there was nothing but flowers and masses of bright and brilliant colours. Millions of Tulips and Hyacinths surrounded us on every side, and the air was loaded with the most delicious perfumes. On leaving this "Flowery Land" the impression produced upon us was this—that no one can form any idea of it without seeing it himself, and that it is impossible to describe it when seen. On inquiring if many of our countrymen visited Haarlem in the spring, for the purpose of seeing these Bulb fields, we were told with great good humour that "Cockneys sometimes come in the autumn!—after their tour on the Rhine." *Robert Fortune.*

FISH AND FISHING.—No. VI.

If there be the slightest analogy between animals breathing air and animals breathing water, let us ask, why should not fishes be equally affected as are men, dogs, pigs, horses, nay the very birds of the air, by the frequent and sudden transitions in our atmosphere? How dull and heavy we feel in close damp weather!—how chilled and shrivelled in cold easterly March winds!—how brisk and lively, by comparison, in fresh open weather! In the first, the dew point and temperature so nearly coincide, that our insensible perspiration, instead of rising into upper air, becomes condensed upon our bodies into vapour, and the action of our respiratory organs through the pores of the skin is checked, producing languor and disinclination, sometimes even inability, for active exertion. Easterly winds, producing an excess of dryness in the atmosphere, beyond that which is required for our healthful vitality, carry off and absorb the insensible perspiration so quickly as to render the skin hard and dry; and from that cause produce nearly similar results as excess of moisture. And it is only in fresh open weather, when the air is neither overcharged with the one excess or the other, that we can really enjoy ourselves in activity. The entire body, as well as our lungs, is equally affected by these three states of atmosphere, and, in many cases, life itself depends on the temperature, and state of dryness or humidity of the climate or room in which an individual resides.

Terrestrial animals live and breathe in air slightly impregnated with aqueous vapour, and fish exist in water slightly aërated. And we may assume that the same exactness in the proportions of the component parts of water is as necessary to the activity of fish as those of the air are to us.

In our climate a temperature of about 65° Fahr. is most congenial to man, while his blood heat is about 98°. British fishes have also a certain blood heat, which, it is assumed, seldom or never varies, but, like that of man, is fixed and determinate according to the species or genus to which they belong; they die by 4 minutes immersion in water heated to 96° Fahr.*, and sustain life for a considerable period in ice, retaining water around them by the heat which their bodies emit.

According to Mr. Shaw's experiments* salmon's spawn vivifies

In 114 days,	water at	temperature	of	36°
In 101	,,	,,	,,	43°
In 90	,,	,,	,,	45°

So that as regards the ova of fishes a difference of 9° temperature hastens vitality 24 days — whence we might reasonably infer that the warmer temperature is more congenial than the colder.

Again, it must be borne in mind that different fish require different temperatures of water. Trout and salmon will bear much colder water than grayling; and *a fortiori*, colder than ground or pond fish.

I have made incisions in the stomachs of live pike, and found the thermometer to stand at 40°, the temperature of water then being at 42°, and of the air at 33°; and in a pike which was more nearly dead on the same day, the thermometer in the stomach stood at 39°.

In order to arouse attention to and provoke discussion, I propose the following questions to men of science:—

1. Is the blood-heat of British fishes known, and if so, at what temperature does it generally range?

2. If their blood-heat be *x*, what to them will be the most congenial temperature of the water?

3. Is there any and what objection to their requiring a peculiar temperature of water to render them most active?

4. Why it is that water clears by cold and thickens (particles of mud rising to the surface) by warmth; and whether is it the temperature of the air or of water which produces these phenomena?

5. Can the state of the atmosphere affect the air in water which fishes breathe? and in what manner?

6. Can the hygrometric state of the atmosphere affect the air in water or the component parts of water so as to operate in any way on fishes?

7. Can sudden changes in the atmosphere affect any and which of the components of water; especially so speedily as to account for the sudden risings or cessations from feeding, of fishes, and how?

These and many other questions will occur to the different minds which will take up the subject, and I pause for a reply. All that is required in the abstract being—"What is it that produces good or bad fishing days?" *E. C.*

* But see Humboldt, *contra.*

* See Yarrell's Supplement to British Fishes, as to the growth of salmon.

Indoor Gardening.

I do not know how the Lilies of the Valley have got on this year with others, but with some of my friends and myself they have caused a good deal of trouble, and now that at last the mystery is explained, all parties may hope perhaps to be better off in future.

It will be remembered by those who have tried my plan, that I wrote of having Lilies exceedingly early in spring, being able to have such successions that I had seen them in flower from just after Christmas (the 6th of January was, I think, the earliest) till late in the autumn—September and October.

After writing this, and after inducing half my acquaintance to start Lilies, fancy my vast dismay on hearing that the Lilies refused to grow at the early time expected of them. Some pots of my own had done so several years without trouble, and now what could be the reason that the beautiful large fat roots sent out by Mr. Veitch, would not make in their turn the early start we looked for? It was a perfect puzzle. Well, it was really trying, I could not get at the root of it. I thought that it was the moving. No, they all were moved equally. I thought those I had formerly must have been moved with much soil. No, not a bit of it; and I was thoroughly posed.

The plants are a *different sort*, and I am quite delighted. For now we may really hope to have two different crops of Lilies.

The sort that blossoms earliest it seems has smaller flowers. I never should [have known it without comparing the two, for I suppose to have any is a thing to content one in winter; but now that it is pointed out to me, the difference is quite evident. The leaves of the earlier kind are also very much the larger. The later kind apparently has almost as much bloom as leaf, and makes the whitest masses of the sweet and beautiful Lily.

When I speak of the "late" kind it is, after all, not very late; only for the January forcing the smaller sort is the right; and this I am bound to say, to avoid misleading any one. The smaller sort, with large leaves, I have seen in bloom in Worcestershire just about Christmas time, and this is, no doubt, the same sort that grows wild in such profusion in the Shrawley and Ribbesford Woods, and which is found again, I believe, in many more southern counties. This sort I have never succeeded in getting to buy in London, except of Mrs. Conway, whose late foreman, Norford, has a garden now at Old Brompton (7, Prospect Place), where, to my great joy, these Lilies reappear. The large-flowered sort is that sold by Mr. Veitch. Of this I have some most beautiful plants that are just now in blossom, which never have had any heat, but have merely been kept all winter standing in a cool window. I think between the two sorts that every one should do well. And perhaps next year we may manage to have some of the smaller kind in flower before Christmas, while the many white bells of the larger kind will open again in their course, as I think they did this year indeed, in time for the earliest flower show. It is however to the first-named kind that my forcing remarks apply.

To people who have aquariums I want to recommend strongly the Aponogeton distachyon, one of the sweetest of water plants, and, as I hear, very hardy. Its pretty forked-shaped spikes of white flowers are so sweet that one scents a whole room, and its long narrow leaves look charming upon the water.

A little plant of this in a very small flower-pot may be fixed at the bottom of a tank, and covered and hidden with bits of spar and rock.

Those who have no greenhouse or means of striking cuttings, may now be able to strike some pretty plants in windows. I think as a general rule that most things which are able to be struck in sand and water will be found to grow in windows under this treatment now. One year I was much interested in a saucer nursery, containing Verbenas, Lobelias, atoms of Myrtle, and morsels of sweet Verbena.

I think that the water on the sand keeps the air a little moist, but a sheet of paper leaning against the glass, or a blind, should be used to shade from too bright sunshine. A common china saucer, with an inch of silver sand in it, and soft rain water poured in till it stands just above the sand, is the way to plant these things. Any kind of mild root-heat seems to ensure their growing, and that too most rapidly, into the most charming little plants; but if root-heat cannot be given the chances still are that they will grow. Everybody has had plants begin to grow in pure water, and in vases, too, with a little charcoal still more. Begonias and such things only then need planting in sand, with a little mixture of cocoa refuse added, taking especial care not to break or bruise the young rootlets.

Now is the time, too, for setting up trellises to screen windows—of wicker work or bamboo, or even, at worst, of wire. I say at worst of wire, because I know it burns things; and not only that, but if the paint wears off it ironmoulds hands and dresses. I wish people would use more ivy. It is always so green and pretty, and makes such a perfect background to any flower trained on it. If the fashion gained ground a little of having common hardy things as a perennial filling up, we could at all times so easily introduce a little embellishment in the shape of a lovely Rose or of a new Geranium, and thus really have more variety than a total change now and then gives us.

Most window-gardeners, however, who now are wanting climbers, had better buy a few pots of those which are ready raised and sold in Covent Garden, or at nurseries everywhere, and which might now with a little care be kept out in the balcony. I think it also answers very well to get early a few Tom Thumbs and Heliotropes, and so on, and to nurse them up in the window, giving abundant water and equally abundant air, till in another month or so they go out as fine looking plants. At present we have plenty of Stocks and Pansies for outside. When we have turned out also Geraniums and Heliotropes, we may begin to indulge in Arums and Crimson and White Roses, which perhaps after all form the prettiest of all groups, especially when edged with the graceful down-hanging Isolepis gracilis. *E. A. M.*

Home Correspondence.

Roses.—I waited for your Paper of May 2 to see if any amateur would answer Mr. W. Paul's appeal in the previous Number, but no one makes a sign. It is no wonder that Rosarians are such a learned body, for they keep all their knowledge to themselves, seeming to admire the old Latin dogma, viz., that "a man's knowledge is worth nothing if he communicates what he knows to another!" Mr. W. Paul is right in appealing to amateurs and growers generally, because the land and appliances (glass especially) of nurserymen are so superior, that growers for sale are not the best judges of what will suit the inferior circumstances of the public generally. I should be silent, were it not for the sake of both the nurserymen and young amateurs. It is not too late to purchase Roses on their own roots, or on the Manetti stock. I will therefore first recommend hardy and good varieties of the older kinds, which are the *fundamentum, stabilimentum, et momentum* of a gratifying and lasting Rosery. *H. P.'s:* W. Griffiths, La Ville de St. Denis, Anna de Diesbach, Anna Alexieff, Cécile de Chabrillant, Senateur Vaisse, Duc de Cazes, Empereur de Maroc, Princesse Mathilde, François Arago, Amiral Gravina, Maria Portemer, General Washington, Madame C. Crapelet, Madame Boll, Victor Verdier, Triomphe d'Alençon, Eugène Appert, L'Elégante, Madame Eugène Verdier, Belle de Bourg la Reine, Gloire de Vitry (own roots), Mathurin Regnier, Duchesse d'Orléans, Duchesse de Cambacérès, Souvenir de la Reine d'Angleterre, La Fontaine, Madame Knorr, Jules Margottin, Gen. Jacqueminot, Caroline de Sansal, Comte de Nanteuil, Baronne Prévost, Géant des Batailles, Pius the 9th, Triomphe de Paris, Pauline Lansezeur, Alexandrine Bachmeteff,

Madame Louise Carique, and Madame Laffay, the last on her own roots, or on Manetti. These are the cream of constitutional Roses. They are Roses for the public generally. I regret to be obliged to leave out many first-class Roses. *Bourbons:* Acidalie, Malmaison, Paxton, Louise Odier, Catherine Guillot; George Peabody, a better Rose than has ever been acknowledged; the raiser, Mr. G. Pentland, sent me 6 plants from Baltimore. *Noisettes:* Solfaterre, Triomphe de Rennes, Célestine Forestier. *Teas:* Adam, Devoniensis, Bougère, Safrano, Rubens, Sombreuil, Gloire de Dijon, Souvenir d'Elise, Souvenir d'un Ami. *Roses of* 1862. *H. P.'s:* Duc de Rohan, Madame Camille de Rohan, Beauty of Waltham, Madame Clemence Joigneaux, John Hopper, Alphonse Damaizin, Archevêque de Paris. These are sure to gratify everybody. For amateurs with good land and protected situations, I most highly commend Emile Dulac, and Gloire de Chatillon. Madame C. Wood is a good Rose for the public, but it is not circular nor quite right in the centre, when fully unfolded; in a word, it belongs to the class of Anna de Diesbach, which is defective in outline and centre. *Roses of* 1863: Sœur des Anges, President Lincoln, Deuil du Prince Albert, M. Freeman, and La Tour du Crouy are fine growers with good foliage. The following are very good plants:—Baron de Rothschild, Duc de Bassano, M. Helye, Peter Lawson, Mrs. W. Paul, Emotion (Bourbon), Alfred de Rougemont, Jean Goujon, Murillo, Vainqueur de Goliath, and Madame Brianson. Caravane de Nimes and L'Eclatante were cut down before they came. I have three small plants of Triomphe d'Angers, one of which has bloomed. The bloom was, for a small bloom on a weak plant, first-rate; its colour was clear scarlety red without stain; it blooms freely, and yet without confusion; its petals are close packed and even. I cannot say whether it will be a good grower. Of the *Roses of* 1862, I have excellent plants of these, most of which are in good and abundant bud, but, as I have not proven them, I must refer your readers to others:—viz., Olivier Delhomme, Simon St. Jean, François Lacharme, Charles Lefebvre, Vulcain, La Brillante, Maréchal Vaillant, M. Ernest Dreol, M. Julie Daran, Professor Koch. The two last are as fine plants as you would wish to see, and well stocked with buds. This information, coupled with Mr. W. Paul's articles, may much assist buyers. *W. F. Radclyffe, Rushton.*

Mrs. Gaines's Sale of Plants.—The whole of the stock of plants belonging to this once celebrated nursery was disposed of by auction the other day, and generally fetched satisfactory prices. Messrs. F. and A. Dickson, of Chester, purchased the largest specimen Azaleas, which fetched 5 guineas each. Miss Mac-Pherson Grant, of Craigellachie, was also a large buyer of specimen Azaleas. Amongst other purchasers of large lots were Mr. Bennett, gr. to G. S. Foljambe, Esq., Worksop; Mr. Pullinger, gr. to — Rust, Esq. Mitcham, who purchased for 5 guineas the Rhododendron aureum, so many times exhibited by the late Mr. Gaines; also many other lots. A gentleman from Newcastle was likewise a large buyer. For many years this nursery stood almost unrivalled for florist's flowers; the Auricula, Pansy, Calceolaria, Dahlia, and Geranium, have each been cultivated here in great perfection, and for 50 years few persons in the flower way had more respect shown her than the late Mrs. Nancy Gaines, who for exactly that period was an attendant at Covent Garden Market. Latterly, the nursery has been used for market plants. The late Mr. Gaines, finding he was so surrounded with buildings, that specimens could not be successfully grown for exhibition, turned his attention almost exclusively to the growth of plants for market. The houses, I understand, are to be sold by auction early next week. I may add that the very first Geranium possessing really good properties, was sent out from this nursery; it was called Gaines's King. *E. Bennett, Osberton.*

Wireworm.—In reply to the query of your correspondent of the 25th ult., respecting the best mode of dealing with this destructive pest, both of the field and garden, I cannot do better than refer you to an experiment of the late Earl of Albemarle, as related by him at the Holkham sheep-shearing of 1815. I took down his lordship's words at the time, and can vouch for their correctness:—"I think I may with confidence state that oil-dust destroys wireworm. I ground my assertion on the successful result of two experiments, one on Turnips, the other on Wheat. The first was an old Sainfoin layer for Turnips, a small part of which was sown with oil-dust, at the rate of half a ton to an acre, before the last ploughing for Turnips. When they came up there was a perfect plant all over the field, but soon went off in every part, except where the dust was sown. They continued to look strong and healthy. The portion which failed, was ploughed and sown again with Turnips. Again the wireworm destroyed them. They were for the third time sown with Coleworts, which shared the same fate as the Turnips; the dusted part remaining all this time uninjured, and produced a fine crop. In order," continued the noble lord, "more fully to prove that it was the oil-dust, and no incidental change of soil, which thus preserved my Turnips, I must explain to you that the dust was not sown as the stetches were drawn out but, most fortunately for the success of my experiment, diagonally. This direction was, in the first instance, purely accidental. I verily believe that you might see exactly the path in which the seedsman walked. The next was a piece of Wheat which had been partially sown with oil-dust. In the spring the wireworms attacked it, but on examining the roots I found five wireworms dead in one piece of oil paste; it sustained but little injury, produced 8 coombs (32 bushels) per acre, and, I have no reason to doubt, was preserved by the oil-dust." At the sheep-shearing of the following year (1816), the subject was renewed by Lord Albemarle, who "hoped that he could now bring proof of what he had advanced respecting the efficacy of oil-dust in preserving a crop, though it had operated in a different way from what he had stated last year. For this additional light on the subject he was indebted to the ingenuity of Mr. Paul, who had made a series of experiments, which had enabled him to decide positively, that though he had mistaken the cause of the preservation of his Turnips and Wheat, the effect was the same. The fact was that the wireworm fed on the oilcake rather than on the plant. He had broken up an old Lucerne and Sainfoin layer, dressed it well with oil dust, and it had escaped the wireworm." General Walpole corroborated the above statement, adding that he had dressed two pieces of Wheat, one with long muck, the other with oil-dust. The first was attacked by the wireworm, the second not at all. It may be proper to observe that the oil-dust just mentioned was simply pulverised Rape-cake, not however into so fine a powder but that here and there were certain lumps, which were even more destructive to the enemy than the finer particles, as for instance in the case of the five dead wireworms found by Lord A. in what he calls a lump of oil-paste; *i.e.*, a piece of rape-cake. The fact is they eat their way into the cake, and there they stick, till suffocated; being unable to extricate themselves from the pillory in which their own greediness has placed them. *Samuel Taylor, Gloucester.*

Lord Clyde Rose.—Mr. Wm. Paul says (p. 413) that "this Rose is one of a batch of seedlings I raised, but we parted company some three years ago, up to which time it had bloomed in summer only." If this is intended to imply that it is a summer-blooming variety, the statement is incorrect; for it is a good autumnal Rose. As it only blossomed for the first time in August, 1860, when it was cut down and worked as far as possible, it could not flower again that season. As regards colour, it is a rich scarlet crimson, not a crimson and purple, and it will be, we feel assured, a first-rate garden Rose. With regard to this seedling, Beauty of Waltham, &c., which are named as being raised by Mr. Wm. Paul, it should have been stated that they were all raised at the old nurseries before he left them. *George Paul, "Old" Cheshunt Nurseries, Herts.*

Rhododendron Dalhousianum.—Our plant of this, which bloomed beautifully last year, has again upwards of 70 trusses of blossom on it this season. Some of the blooms measured as much as 19 inches round the edge of the corolla, 5 inches from tip to tip, and the cup fully 4 inches deep. *James Leith, The Gardens, Balgowen.*

Mistletoe on Conifers.—I have seen some years ago, the Mistletoe growing on a Cedar of Lebanon, at Chipley, near Taunton, in Somersetshire. *W. C. Trevelyan.*

Protecting Fruit-tree Blossoms.—I should be glad to be informed if it is universally admitted that the protection of wall trees is absolutely necessary to insure a crop of fruit. My trees have been protected, but the crop has generally been very scanty; and some gardeners, who are considered experienced men, attribute the failure to the protection, therefore I should be glad to have the experience of others in this matter. *C. W., Maidstone.*

Pisciculture (see p. 413).—That "Piscator" is right in urging the formation of a Piscicultural Society no one who has turned his attention for one moment to the present depreciated position of our fisheries can doubt. The exertions in the cause of salmon are to a great extent taking care of Salmo Salar. But Salmo Salar for our Thames, and Salmo Trutta for everywhere, are at this moment also of the utmost importance. If our Thames becomes more pure, through this most extensive main drainage expenditure, in the course of two or more years, we ought to be prepared to stock it with young fish—salmon fry; and we ought always to be stocking the Thames and all other rivers with all kinds of fish. Truth to tell, such is the pollution going on in almost every river, that we must keep up the stock of fish artificially, or we may bid good bye to fishing. "Rome was not built in a day," neither, were the Thames pure enough to-morrow to turn young salmon into it with a chance of success, are young salmon of sufficient size and age to be procured on the spur of the moment. We ought, therefore, to be prepared for any emergency by the formation and active operations of a Piscicultural Society of some kind, ready a year or two hence to pour any quantity of every kind of young fry into any river or pond where it may be required. I will give a hint. I am, say, owner of a trout stream so spoiled by, say pollution, that I must every year get "stores" somewhere, and I get them—whether by gift or by poaching (of which I know nothing)—I get them. But still I must be conscious that the principle is only that of "robbing Peter to pay Paul." Whereas, if a Society of Pisciculture existed, I could buy as I pleased, and rob or spoil no other river. The details of a Piscicultural Society I leave to more plodding heads. Large funds and some extent of suitable "land covered with water" would be needed. I cannot help thinking that (not to mention clubs) we have fishery societies enough; and that if funds were poured in liberally into the coffers of the Fisheries Preservation Association, or the Thames Angling Society, and either of these bodies could be induced seriously to take up the matter, it would be less expensive and more certain of success, than the formation of a third independent Piscicultural Society. I will support the proposition to the best of my ability. *E. C.*

Foreign Correspondence.

Cape of Good Hope: *Colonial Botanic Gardens.*—In a list, professing to give the names and official designations of the gentlemen charged with the care and management of Colonial Botanic Gardens, which appears at p. 75 of your present volume, occurs this statement:—"Africa: Cape of Good Hope.—Botanic Gardens, Cape Town, Directorship vacant by the decease of Dr. L. Pappe." I beg leave to inform you that the late lamented Dr. Pappe did not hold such an office, nor does such an official title exist in the Cape colony. Except during the first year of its existence the Botanic Gardens, Cape Town, have been continuously under the care and superintendence of the same person, whose official designation is Superintendent of Botanic Gardens.

When the office of "Colonial Botanist" was created for Dr. Pappe three years ago, he was at the same time appointed a member of the "Committee of the Botanic Gardens." This body, composed of gentlemen who have held the honorary distinction since the founding of the institution, control the finances, and otherwise lend their influence to further its interest. This was the simple link which connected Dr. Pappe with the gardens. *James M. Gibbon, Superintendent, &c., Botanic Gardens, Cape Town, Cape of Good Hope, March* 20.

The Spring in Sicily: *Messina, April* 27, 1863.—Since I wrote from Palermo, (see p. 414), I have carefully examined the vegetation of the eastern coast of Sicily, from Messina to Catania and Syracuse. On progressing southwards, I have become more and more impressed with the influence and importance of protection from the north, in estimating vegetation and climate.

Messina is beautifully situated in the centre of a bay, at the base of a semicircle of low mountains, on the north-eastern shore of the straits. It is near the narrowest part, where the extreme north-eastern point of Sicily is only separated from the main land or Calabrian mountains by a space of three miles. The straits widen rapidly until, half a dozen miles south of Messina, they are 12 miles across. Messina receives the south-eastern sun in full, and is protected from the north-west, but immediately in front are the high mountains of Calabria, still covered with snow at their summits (April 21). Prominent among them stands Aspromonte, where Garibaldi was shot and taken prisoner; thence come north-easterly blasts, as is visible by the vegetation of the mountain amphitheatre above and around Messina. It is still very backward; the Fig trees are only just beginning to show leaves and fruit, and the Vines are only just sprouting. There are few flowers, scarcely any Lemon trees, and the Orange trees in the garden are small. On the hills are Olive trees low down, Pine trees higher up. Messina is situated in the same latitude as Palermo, and is protected from the north-west, which Palermo is not, but the proximity of the cold snow-covered Calabrian mountains bring its northern suburbs to the level of Cannes.

With the mountains behind and to the north of Messina, begins a chain, at first granitic, then calcareous, which runs along the coast for 70 miles to the south, just as the Maritime Alps run along the Riviera or Genoa coast. The coast line itself dips to the south-west. On the other side of the straits, the Calabrian mountains rapidly lose their great altitude, and expire at the end of the Italian mainland, some 15 miles lower down.

Owing to the above physical condition, a decided undercliff or Riviera commences at the south suburbs of Messina, protected from the north and north-west by the coast chain, and gradually less and less exposed to the north-east as it descends southwards. The influence of this protected situation at once becomes evident, not so much on the advanced or more exposed headlands, which still catch the north-east wind, as in the intervening bays or sheltered ravines. Here the vegetation assumes a very advanced and southern character. Orange trees, sometimes as large as moderate-sized Oaks, and Lemon trees sometimes overtopping a two-storied house, become the rule. I saw Oleanders, too—trees 30 feet high. The white Mulberry tree and the Almond tree were in full leaf; the latter had fruit full size, evidently stoning. The Fig trees, moreover, were in full leaf, and the fruit large. The Vines had made shoots 4 or 5 feet long. What they call the black Mulberry tree was still all but leafless, as at Palermo, only a few buds and terminal leaves appearing. Few if any cultivated flowers were to be seen, with the exception of Carnations in full bloom in pots or vases on the balconies, which most houses of any pretension possess. Wild flowers were numerous in the orchards and fields, and prominent among them

the Gladiolus, which was seen in great profusion. Barley and Oats were in the ear, Wheat some 2 feet high.

In the midst of this exuberant fertility was a numerous population, which appeared very poor, squalid, and badly fed. The men are better looking than the women, who seem to have even the beauty of youth ground out of them by work, insufficient food, and exposure to the sun. They wear no covering on their heads, except occasionally a handkerchief thrown over the back part. To screen the eyes from the ardent sun, therefore, they contract a habit of frowning, which impresses premature wrinkles on the youngest brow. Thus the girl of 15 appears 20, the woman of 20, 30; the one of 30, 50; and the one of 50, 80.

About 15 miles from Messina the mountain chain leaves the coast and takes an inland or westerly direction, skirting for some distance the northern foot of the Etna. Thus, at Giardini begins the domain of the king of European volcanoes, of Mount Etna. No better view of Mount Etna can be obtained than from the road from Messina to Catania. For 30 miles the road skirts the eastern or sea base. The entire circumference of the base of Mount Etna is 120 miles. Thus does the traveller become gradually impressed with the real grandeur of this magnificent mountain. At first it is difficult to believe that it is more than 10,500 feet high. The rise up to the plain at the summit, from which issues the small final cone, is so gradual, and the plain itself extends over such an extensive area—at least 20 miles from north to south—that the great volcano looks more like a snow-covered ridge than a single mountain. The snow at this time of the year covers at least the upper third of the huge mountain, a vast superficies.

From this moment the scene changes. The soil is merely decomposed lava, a mixture of large masses like scoria or slag from a manufactory, of smaller pieces like cinders, and of a brownish black earth like ashes, The more modern currents of lava seem to resolve themselves into these elements. When cultivation commences, the large masses are dug up and piled up for walls, the small ones are used to Macadamise the roads, and the ash-like remains constitute the soil. A very fertile soil it appears to be, merely requiring water to produce anything that is sown.

The southern character of the vegetation recedes under the cooling influence of the vast snow-covered plains of Mount Etna. The Fig trees have only terminal leaves, and the fruit is very small. The White Mulberry trees and Vines have also only a few leaves. The black Mulberry trees are mere sticks, scarcely having their buds formed. Lemon and Orange trees still appear, but only in sheltered valleys and depressions, and are often protected by high walls; neither are they as large, as vigorous, as tree-like. The Olive tree, however, holds his own, as also do the Opuntiæ or Barbary Figs. The latter are extensively cultivated throughout Sicily as hedges, and for the sake of their fruit. They grow to the height of some 12 or 15 feet, in a very singular grotesque manner, and assert their claim to being dicotyledonous plants by becoming regular trees, with a large round trunk and bark. This transformation of the flat, fleshy, leaf-shaped branches is quite remarkable.

The geologically celebrated Val di Bove, with its dykes, is seen at a distance, a wide and long chasm on the flanks of the mountain, also the Oak and Chestnut forests below the snow line. They appear as mere black patches. As we approach Catania the very peculiar grim, coal-mouth character of the region becomes more and more apparent. The walls on the road-side and in the fields and the outhouses are all made of clinkers, the road of cinders, the soil of ashes. Vineyards are numerous; the Vines—indeed, nearly every thing in Sicily—are planted in the fields between ridges or pyramids, some 18 inches high, of the loose black soil, in order to retain moisture. Even Wheat is planted in this way in tufts at the bottom of furrows between ridges. In flower gardens the same system is followed.

This soil, formed of decomposed lava, appears to contain all the elements of nutrition required for vegetation. Every thing seems to flourish and thrive in it, provided there is water. The ground vegetation shows less difference than that of the trees. Beans and Peas are ripe. The Vetches are in full blossom. Lupines, white and blue, are very abundant; they are extensively cultivated as fodder everywhere. Hellebore in flower and very common. Almond trees in full leaf, and fruit natural size. White and Red Convolvulus and Scarlet Poppies common. Occasionally, near water, Poplars in full leaf; in the same situations, Bamboos with new shoots, 3 or 4 feet long. They grow to 20 feet or more and are much used for light fencing, as supports to Vines, and for a variety of purposes. Pomegranate trees are often seen from 10 to 20 feet in height. *J. Henry Bennett, M.D., The Ferns, Weybridge.*

(To be continued).

Societies.

Royal Horticultural: *May 5 (Exhibition of Sculpture.)*—One of the duties left for this Society to perform by H.R.H. the late Prince Consort, was that of working out his idea of making the Society's Garden at South Kensington subservient to the encouragement of art, by holding out inducements to sculptors to exhibit their works in the garden, which his Royal Highness thought would present a field for displaying sculpture to advantage, such as was not to be had elsewhere in London. He anticipated, moreover, that such display might react in developing a taste for art in the people, as well as prove of advantage to sculptors in enabling them to get their works seen, appreciated, and sold. Following out this idea, the Council of the Society organised an exhibition of sculpture, which was opened on Tuesday, and will continue open for three months. At the suggestion of H.R.H. they also offered a sum of 500*l.* to be employed in the purchase of some one or more of the works exhibited; and they have with much judgment entrusted the entire management, superintendence, and placing of the works to the Council of the Sculptors' Institute, who have not only most ably performed this responsible and difficult task, but have themselves largely contributed to the exhibition, The result is a collection of statues, busts, groups, &c., executed in plaster, bronze, or marble, to enumerate the exhibitors of which would merely be to give a list of the most eminent British sculptors of the day.

The opening of the exhibition was honoured by the presence of their Royal Highnesses the Prince and Princess of Wales. They arrived shortly before 12 o'clock, and were received by the Council of the Royal Horticultural Society, with their President, the Duke of Buccleuch, and their Vice Presidents, Sir Wentworth Dilke. Dr. Lindley, and Mr. Blandy at their head. The Council of the Sculptors' Institute, Mr. Weekes, Mr. Foley, Mr. Calder Marshall, Mr. Woodington, and Mr. Stephens, were also present, and had the honour of accompanying their Royal Highnesses round the exhibition, and giving them information regarding the different works exhibited.

Nearly 50 statues, several of them of marble, were placed in the Conservatory, and have added increased beauty to its many charms. A still larger number is placed in each of the arcades, on either side of the Conservatory, nearly filling the eastern upper arcade, and half filling the western. Besides these, a successful feature of the arrangement was the placing a number of larger models (almost entirely portrait statues) on the walks and terraces in front of the Conservatory.

The most interesting of these to horticulturists is the model of a statue by Stephens of Sir Thomas Dyke Acland, an old and valued Fellow of the Royal Horticultural Society, erected in marble in Exeter. With less association with horticulture, but not less claim to recognition as works of art, are Foley's statue of Goldsmith, to be erected in bronze in front of Trinity College, Dublin, and an admirable statue to be erected in marble in Bombay of a celebrated Asiatic, Weekes' statue of the Marquis Wellesley, Woodington's model of the statue of Steele erected at Carlisle, and Durham's bronze statue of the Queen, which was intended to have been placed on the Memorial of the Exhibition of 1851, and with which their Royal Highnesses seemed much pleased.

May 5 (Floral Committee).—Various highly interesting subjects were furnished on this occasion. A special Certificate was awarded to Mr. Sherratt, gr. to J. Bateman, Esq., for most beautiful cut blooms of white and purple-flowered varieties of Moutan Peonies, indicating superior cultivation. A similar mark of distinction was also conferred upon two boxes of Cut Roses, one from Mr. Earley, gr., Digswell House, Welwyn; the other from Mr. Batley, nurseryman, Rugby. To the brilliant rich crimson scarlet new Hybrid Perpetual Rose Lord Macaulay, from Mr. Wm. Paul, a First-class Certificate was awarded; and two new Japanese Clematises, one with blossoms perfectly double, measuring at least 6 inches across, the other single, with purple flowers shaded with rose, also earned two similar awards for Mr. Standish. From Messrs. Veitch came Cassiope fastigiata, a small white-flowered Heath-like plant; Ourisia Pearcii, with slender upright red-stained stalks, each bearing towards the top six or seven drooping brilliant crimson scarlet Pentstemon-like flowers; a little white-blossomed Dracophyllum, different in habit of growth from gracile; the creeping scarlet-flowered Sarmienta repens, described by us on former occasions; and a handsomely spotted purple Rhododendron named Picotee rosea. To all these First-class Certificates were awarded; and a Second-class one was given to a Browallia loaded with round bright orange yellow blossoms, shown by the same firm. First-class Certificates were awarded to Mr. Bull, King's Road, Chelsea, for a pretty new Fern, Athyrium Filix-fœmina sagittatum, and Mimulus maculosus Marvel, a charming variety belonging to the set of new hybrids noticed at p. 388. From Messrs. Veitch likewise came the white Rhododendron Princess Alice, the lilac-flowered singular looking Calceolaria punctata, and Stenogastra multiflora. Mr. Bull sent a veined Petunia named President, several Geraniums of the scarlet class, and two bushes of Thuja occidentalis globosa. Mr. Watson, St. Albans, furnished Dracæna Veitchii, and some smaller plants of other Dracænas closely related to that kind. Mr. Treen, nurseryman, Rugby, had Verbenas, among which Foxhunter and Firefly were conspicuous. Mr. Batley also showed Verbenas, among which Colossus was remarkable for its size, and one named Dr. Temple was also a large brilliant carmine scarlet variety. From Mr. Kinghorn came a double whitish Azalea, called ochroleuca.

May 5 (Fruit Committee).—May Duke Cherries, ripe and of fair size, were contributed by Mr. Freeman gr. to the Countess of Derby at Knowsley, and Mr. Sclater, gr. to the Earl of Cawdor at Stackpole, Pembroke. A first prize was awarded to Mr. Hall, gr. to Captain Tyrrell, for 3 dishes of Apples, consisting of Golden Russet, Cluster Golden Pippin, and Bess Pool, all in a state of fair preservation, except perhaps the last, which was evidently considerably past its best. To Mr. Green, gr. to Mrs. Honeywood, Mark's Hall, Kelvedon, was awarded a second prize for Apples, consisting of Cockle Pippin, Ashmead's Kernel, and a kind unknown. Mr. Rodgers, gr. to J. Noble, Esq., Berry Hill, Taplow, showed a good white-fleshed Melon, named Golden Gem; and specimens of the Archerfield Muscat Grape, good, but scarcely ripe, were furnished by Mr. Thomson, who stated that they had been grown in a house along with Black Hamburghs. From Messrs. Downie, Laird, and Laing, came heads of a fine-looking white Broccoli, said to be a favourite in the neighbourhood of Edinburgh.

Notices of Books.

Sermons preached before H.R.H. the Prince of Wales, during his Tour in the East. By Arthur Penrhyn Stanley, D.D. Pp. 232. John Murray. London.

Our Prince of Wales has enjoyed a very great advantage, which has not heretofore fallen to the lot of English Princes in general, viz., that of visiting foreign lands. Now, of all countries in this world, there are none so capable of exciting the youthful imagination, at once pleasurably and profitably, as Egypt and the Holy Land. Who is there, with a spark of enthusiasm in his nature, that would not willingly live on dry bread for a twelvemonth, to procure the wherewithal to convey him to these sacred regions! These our Prince had the privilege of being introduced to, under the auspices of the late lamented General Bruce and Professor Stanley, the very best guides that could have been selected; the one, full of information respecting these countries, which he had made his study, and possessed of the happy art of imparting his knowledge in the most agreeable manner; the other a most accomplished, judicious, and invaluable companion.

On the Sundays during this tour Dr. Stanley preached sermons, which derived additional interest from the circumstances under which, and the localities where, they were delivered, and these are published by her Majesty's command. To these 14 sermons, which are thus records of thoughtful hours during this well-arranged journey, Dr. Stanley has added, for the information of others, notices of some of the localities in the East which were visited. The first of these is Hebron, with the tombs of the patriarchs, Abraham, Isaac, and Jacob, and this will be found peculiarly worthy of attention, not only from the interest which must attach to this venerable sanctuary, first Jewish, then Christian, now Mussulman, which is supposed to cover the cave of Machpelah, all the circumstances of which we have so often read with delight; but, of all the Holy Places in Palestine, there is none that rests on better historical evidence, and it had this additional charm, that it was supposed to be absolutely inaccessible to a Christian. How great was the difficulty of obtaining access to it, and how the obstacles were eventually overcome, we are told in the narrative, which is sufficiently gratifying to an Englishman—

"On opening the shrine of Abraham the guardians groaned aloud. But their chief turned to us with the remark, 'The princes of any other nation should have passed over my dead body sooner than enter. But to the eldest son of the Queen of England we are willing to accord even this privilege.' He stepped in before us, and offered an ejaculatory prayer to the dead Patriarch, 'Oh, friend of God, forgive this intrusion. We then entered."

The other notices are of the Samaritan Passover on Mount Gerizim, Galilee, with Gennesareth, and its hallowed associations, Hermon and Lebanon with its famous Cedars (all these are accompanied with maps); and lastly, Patmos, suggesting much of the sublime imagery of the Apocalypse.

A Yachting Cruise in the Baltic. By S. R. Graves, Commodore of the Royal Mersey Yacht Club. London, Longmans.

In this volume, which gives a spirited account of a northward trip, such as would have had charms for the adventurous, we find sundry notices which are not without interest for our readers. Thus: in Copenhagen the Commodore tells us, "every window is filled with pretty flower-pots, in which Roses, Pinks, and Fuchsias seem to thrive to perfection. These beautiful plants give a neat effect to the fronts of the houses, and tell the passing stranger of the deeply-rooted love of flowers which forms part of the national character of the Danes as well as of the Swedes." In the Cathedral of Upsala the writer met with the memorials of Linnæus, which he thus describes:—"The greatest of the Swedish worthies who await the final judgment in the vaults of Upsala Cathedral, lies beneath the organ, with the following inscription to mark his last resting-place: it was placed over his grave by his wife, the daughter of a physician named Moræus, with whom Linnæus

became acquainted while lecturing on mineralogy and practising as a physician at Fahlun:—'Ossa Caroli A Linne, Eq. aur—Marito optimo Filio unico Carolo A Linne Patris successori et sibi Sara Elizabetha Moræa.' In the side chapel, on the north side of this grave-stone, the disciples and admirers of the great Botanist have erected to his memory a fine mural tablet of Elfdal red porphyry containing a medallion bronze portrait of Linnæus in profile, by Sergell. It bears the following inscription, which has the merit of being somewhat more intelligible than that marking his grave:—"Carolo A Linné Botanicorum principi.—Amici et discipuli. mdcccxviii." The expense of this monument, plain and simple as it is, amounted to 2000 dollars (upwards of 460*l.* sterling) of which sum 400 (93*l.*) were expended upon the letters alone. This monument was erected just 20 years after the death of Linpæus." In Moscow, the Commodore had an opportunity of witnessing the Apple Festival, one of the most important in the Russian calendar. "There are many holy days observed by the Russian Church, but the most prominent are the Honey Festival on the 1st of August, and the Apple Feast. Both are peasant festivals and much regarded; at the former the honey is blessed, and at the latter the Apple. No Russian ever thinks of eating an Apple before the 6th of August (old style), when the day's ceremony has blessed the fruit — a restriction which must be attended with very good results in a country pre-disposed to cholera. The Cathedral of the Repose, Uspenski Sabor, was the first we entered; and the congregation was pressing forward to the priests who stood in front of the Ikonostast. The leading priest, magnificently dressed, held a gold and diamond-studded cross to all who presented themselves to imprint upon it their eager kiss. On his right stood another, who had dishes of blessed Apples on a table before him; and we observed that all who had kissed the cross received an Apple." Other places and scenes and customs come in for their share of observation; and in due time the "Ierne," which had borne the cruisers over the northern waters, was safe again at her moorings in the Mersey.

Miscellaneous.

Birmingham Rose Show.—Our readers will perceive, on reference to an advertisement in another column, that Thursday and Friday, the 16th and 17th of July, are the days fixed for holding the next show. It is also announced that the prize list and regulations are now ready, and may be had on application to the Secretary.

Sales by Auction.—A large assortment of bedding plants sold the other day by Mr. Stevens, realised the following prices:—viz., Calceolaria floribunda and other sorts in lots of 60 plants, fetched from 3*s.* to 5*s.* per lot; Verbena Lord Raglan, and other kinds in similar lots, from 3*s.* to 5*s.* per lot; Mangles' Silver Bedding Geranium in sets of 36, 5*s.* per set; other varieties of Geranium, amongst which were Trentham Rose, Tom Thumb, Perry's Eclipse, Pink Nosegay, Cottage Maid, Compactum, Flower of the Day, and Brilliant, from 4*s.* to 7*s.* per lot of 36 plants. Ageratums, Heliotropes, Cupheas, Petunias, Gazanias, and Variegated Alyssums, from 3*s.* to 4*s.* per lot of 60 plants; and a few lots of Roses in pots, realised 7*s.* per lot of 6 plants each.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—The gaiety of this house will still be maintained chiefly by means of Azaleas; after they have done flowering examine the state of their roots, and, if necessary, give them a shift previously to starting them into growth. Exhausted stock that has been forced should have a pit or frame fitted up especially for its reception. It should not be allowed to mix with plants in general. The amateur may carry out this principle with a small frame. A bed of fermenting material of a mild character, covered 6 or 8 inches deep with tan, and well topped up with linings and mats at night, is the thing required. A bottom-heat of 80°, with frequent syringing and the plants plunged, of course, will restore them to perfect health and prepare them for another campaign. Orchids should now be allowed a slight advance in temperature, especially by shutting up early. Fuchsias will be benefited by the application of clear liquid manure. Very liberal shifts will be necessary at this period, more especially with those intended for very large specimens. Cinerarias for late blooming should, if pot-bound, be shifted; likewise let plants in need of water have immediate attention—nothing conduces more to the encouragement of insects than suffering plants to become checked through drought. By starting Camellias into growth about this time, and getting their wood ripened early, they will be in full blossom in November, at which season their flowers retain their beauty much longer than after the sun becomes powerful in spring. Proceed as diligently as possible with the repotting of such of the hard-wooded greenhouse plants as require it, so as to afford them every chance of making vigorous growth. Be careful, however, before potting, to have the ball in a nice moist state, and avoid giving large shifts to weakly growers.

FORCING DEPARTMENT.

Pineries.—Attend carefully to the bottom-heat, particularly where this is produced by fermenting materials, as tan, &c., and see that it is not allowed to rise too high, which it is apt to do after fresh materials have been added, either during bright weather or where there are pipes under the bed. Where much fire heat is used it requires some experience to be able to keep the soil in a proper state as regards moisture, but this must be effected at any expense of attention if success is to be insured. Maintain a thoroughly moist atmosphere, but do not push young stock too fast. Avoid allowing water to lodge in the hearts of plants showing fruit, and spare the flowers of those in bloom in syringing. Pot off or plant out suckers as they can be obtained sufficiently strong, and attend to keeping up regular successions.

Vineries.—See that houses in which Vines are not yet started are properly cleansed, the Vines painted with the usual composition of soft soap, sulphur, &c., and everything put into proper working order; also get the rods bent in time to induce the buds to push regularly. Attend to disbudding and stopping, &c., as may be necessary, in succession houses, and see that inside borders are kept properly moist, giving tepid manure-water as may be necessary to effect this, and do not be afraid of giving too much of it to Vines in pots.

Melons.—Encourage those newly planted out with a moist warm atmosphere, so as to get them into full growth as quickly as possible; but plants that are fairly established should be kept cooler, admitting air on every favourable opportunity, in order to secure short-jointed fruitful wood. Keep the shoots thin and regular, pinching out any not wanted, but avoid stopping the main shoots until they reach the sides of the pit, when by pinching out the points the laterals will start into growth and show fruit abundantly; and by this time the plants will have gained sufficient strength to set and carry a fair crop. Do not exceed 65° at night, and admit air when the thermometer rises to 75°, but do this very carefully on cold days. Endeavour to maintain a steady bottom-heat of about 80° or 85°, and keep the soil in a healthy state as to moisture. See to providing young plants for succession crops.

Cucumbers.—Stop, thin, and water freely. See that the ball of earth, in such as are newly put out, is well soaked with water previous to planting.

FLOWER GARDEN AND SHRUBBERIES.

If not already done, a good collection of annuals may yet be sown. For such as are tender a slight hot-bed is requisite. The choicer hardy kinds may be sown in patches and covered with a garden pot, taking care to remove it when they are coming up. If any rough or unimportant shrubbery borders require a little gaiety, and business presses, a mixture of some of the hardier sorts might be made, such as Collinsias, Clarkias, Mallows, Larkspurs, and Candytufts, &c., and strewed at random over the open parts of the border after a thorough cleaning. Dahlias should be pushed forward without delay. Lobelias may be potted and put into a dung bed. Follow up matters of propagation, and see that cuttings of young stock are carefully shaded when necessary. Recently transplanted evergreens are suffering greatly this spring, and must receive attention in the way of watering, both overhead and at the root. Those who took our advice and planted last September, are now congratulating themselves on their success, few of the plants moved in autumn having perished.

HARDY FRUIT AND KITCHEN GARDEN.

Attend carefully to the protection of blossoms of Apricots, Peaches, and Nectarines; but remove the covering as frequently as may be convenient on fine days, so as to fully expose the trees to sun and air. Get a supply of tobacco water in readiness to attack aphides immediately they make their appearance. In some places they are very numerous this year. Sow Broccoli on beds of light dry rich soil in an open situation for the main crop, and Cabbages, Cauliflowers, Lettuces, &c., in succession. Also attend to sowing small breadths of Turnips about once a fortnight, so as to secure having a regular supply in a fit state for use. Put in a small breadth of some early variety of French Bean soon on a warm dry sheltered border, and plant a quantity in small pots to be raised in a cold frame and planted out as soon as all danger of frost is over. Use the hoe liberally among growing crops. The frost of last week has in some localities, we learn, blackened the tops of Potatoes.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON, For the Week ending May 6, 1863, as observed at the Horticultural Garden.

April and May.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 30	12	30.161	30.058	50	24	37.0	52	50½	N.	.12
Friday 1	13	30.231	30.153	62	27	44.5	51½	50	N.E.	.00
Satur 2	14	30.123	29.985	64	31	47.5	51	50	N.E.	.00
Sunday 3	○	29.939	29.800	72	41	56.5	51½	50½	W.	.00
Mon. 4	16	29.830	29.800	70	44	57.0	53	51	W.	.00
Tues. 5	17	29.942	29.793	70	32	51.0	54	51	S.W.	.01
Wed. 6	18	30.002	29.953	72	38	55.0	54	51½	W.	.00
Average.		30.029	29.936	65.7	33 8	49.8	52.4	50.6		.13

April 30—Cloudy and cold; blustering wind and showers; frosty at night.
May 1—Frosty, 8 deg. below freezing, early A.M.; clear and fine; slight frost.
— 2—Clear; fine throughout.
— 3—Clear and fine; cloudy and fine; clear at night.
— 4—Overcast, fine; clear; fine at night.
— 5—Fine, very fine, hot sun, shower; fine.
— 6—Dry haze, very fine throughout.
Mean temperature of the week ½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK, During the last 37 years, for the ensuing Week, ending May 16, 1863.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 10	61 9	40 0	50.4	16	0.33 in.	6	8	3	1	5	7	3	2
Mon. 11	62.4	40.5	51.4	15	0 52	6	7	8	1	5	5	2	3
Tues. 12	63.4	41 1	52 2	17	1.14	2	10	6	2	3	7	4	3
Wed. 13	63.6	38 9	51.2	17	1.10	3	8	8	1	4	7	4	2
Thurs. 14	63.4	40 7	52.0	14	0.66	4	10	3	2	8	7	2	1
Friday 15	61.8	41.1	52 9	13	0 46	6	6	6	—	2	12	3	2
Satur. 16	66.1	43.1	54.1	14	0 34	2	7	4	1	4	11	4	4

The highest temperature during the above period occurred on the 13th, and 17th, 1833—therm. 86 deg.; and the lowest on the 15th, 1850—therm. 25 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

Arbor Vitæ: *Ignoramus.* This is not difficult to raise from seeds, which should be sown in loamy soil. If they are sown in autumn, as soon as gathered, they will germinate the following summer, but if kept till the spring, it frequently happens that they do not germinate for a whole year. Probably yours would have grown if you had waited a little longer. Lignum vitæ is a very different thing; not a Conifer at all.

Books: *A W E.* The Greenhouse, by Macintosh, will probably suit you.

Cardamine pratensis: *Alfred.* You are mistaken; abortive ovaries are what you have sent, not the "fruit" of this plant, by which term is meant the ripe ovary with perfectly formed seed.

Cedar of Lebanon Seeds: *L R.* Drive an iron pin down the axis of the cone. This will break it up, and admit of the seeds being picked out from between the scales. Of course some care is necessary to avoid crushing the seeds themselves.

Copyright: *W C.* You should consult your solicitor.

Diseased Grapes: *Young Beginner.* Your case is unhappily no uncommon one. We have the sanction of the best Grape-growers that the affection depends upon something defective in the condition of the roots. In your case there is no Fungus *M J B.*

Garden Law: *Cheltenham.* We by no means undertake to answer legal questions. We can only give you information to be applied by yourself. In the absence of a special agreement to the contrary, a nurseryman may remove hothouses, pits, &c, erected by himself for the purposes of his trade, but not a dwelling house. He is not entitled to a longer notice to quit than other people.

Melon Leaves: *H S.* The under surface of your Melon leaves is sprinkled with patches of a white mealy mould which alone is sufficient to destroy your plants, but besides these the leaves are affected apparently with the common Cucumber disease, in consequence of which the tissues are so delicate that they cannot bear exposure to the sun. Their recovery is precarious. Shading from the sun and plenty of air are the most probable palliatives. *M J B.*

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. It is requested that not more than four plants may be sent us at any one time.—*Ignoramus.* The leaf of your so-called Laurel is that of the Croton variegatum of gardens. The cause of your ill success with this and the other plants referred to, is doubtless the want of a sufficiently high temperature for them. They cannot be cultivated without stove heat. Air plants are not generally or purposely grown upside down, but the direction is immaterial to them; hence, they may be seen hanging in all directions when grown on blocks.—*G L R* 1, Symphytum officinale; 2, Nepeta Glechoma; 3, Ajuga reptans.—*C W S.* We regard it as Vicia hybrida.—*W T T.* Possibly some Isochilus; but we are unable to determine it from so bad and incomplete a specimen.—*C* asks if some reader who may be in the neighbourhood of Cirencester, will kindly say what flowering shrub is at the present time blooming in such abundance on the railway banks near the junction?—*Harry.* 1, Cercis Siliquastrum; 2, Andromeda pulverulenta; 3, Kölreuteria paniculata; 4, Acer spicatum.—*G M.* 1, Cerastium tomentosum; 3, Tetratheca verticillata; 4, Mahernia incisa.—*W M.* Lonicera Ledebourii.—*W D.* The beautiful orange-flowered Natal plant which you send is Sandersonia antiaca.—*Lover of Wild flowers.* Lithospermum officinale.

Pampas Grass: *R T K.* Plant it in good soil, and it will take care of itself; though when making its growth, that is in summer, it is benefited by having plenty of moisture given to it, with some manure.

Pentstemons: *H H.* The following sorts will give you satisfaction:—Euclide, Adrienne Boppe, Charles Klein, Le Daute, Lord Clyde, Dr Hogg, Laurent Loweique, Rose of England, Purple Prince, Mrs. Steans, Blue Beauty.

Preparing Soil for a New Garden: *N F.* The more of the clay you can add to your 14 inches of poor porous soil, on gravel, the better. Spread it on the surface in autumn, that it may be well disintegrated by frost, and then fork it up so as to mix it intimately with the soil. Six inches thick of this dressing, or even a foot if it can be got, will not be too much, especially as the clay is not very stiff, if it is turned about so as to be well aërated and broken up by exposure. A moderate dressing of the old mortar might be added, but we would not recommend the application of fresh lime.

Primrose Leaves: *L T D.* If you examine your Primrose leaves with a lens you will find that the discoloured parts are imperfectly nourished. Sulphur, Gishurst Compound, &c, will do you no good. The remedy, if any is to be found, must pass through the roots into the system. Have you tried a *weak* solution of sulphate of iron? You should, however, endeavour to discover the cause. Examine the tips of the roots and see if they are sound. If not we fear the case is hopeless. *M J B.*

Pruning Conifers: *L.* The less "pruning" they get the better. If, however, you merely wish to trim a little here and there for the sake of symmetry, we should advise its being done by and by when the new growth is completed.

Vine Leaves: *C D H.* The affection of your Vine leaves is very curious, but we can make nothing of it from crushed leaves. Be so good as to send some fresh leaves in a little box by post directed "M. J. B., King's Cliff, Wansford," and we shall then be able to study the matter more fully. *M J B.*

Vine Mildew: *G M G.* We are sorry to say that you are quite right in supposing your Vines attacked by Oidium. Persevere in the use of flowers of sulphur, especially when the fruit is forming, or as long as you see any of the white mould. *M J B.*

Vine Roots: *W T.* From the nature of the scraps of soil which adhere to your Vine roots, it is probable that the manure employed was far too rank for permanently healthy growth, though the eyes at first seem to have rooted very freely. We do not find the slightest particle of mycelium about the roots, or anything except the manure likely to have produced the mischief. *M J B.*

AGRICULTURAL and CHEMICAL COLLEGE 37 and 38, Lower Kennington Lane, London, S.

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Full particulars of terms will be forwarded on application.

THE FIRST GREAT INTERNATIONAL SHOW of SPORTING and other DOGS will be held at the Agricultural Hall, Islington, N., in the Week commencing MAY 25.

Private view on MONDAY, May 25 (after 4 P.M.), when the Fox Hounds will be judged in public in front of the great Orchestra.

	PRICES OF ADMISSION.	s.	d.
MONDAY,	May 25 (after 4 P.M.)	5	0
TUESDAY,	,, 26	2	6
WEDNESDAY,	,, 27		
THURSDAY,	,, 28		
FRIDAY,	,, 29 each day	1	0
SATURDAY,	,, 30		

For the use of Schools, &c., Forty Tickets, admissible before 11 A.M. on WEDNESDAY, THURSDAY, FRIDAY, and SATURDAY, for 1*l.*, may be obtained on application to the Secretary, at the Office, Barford Street, Liverpool Road, N.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

WORCESTER MEETING, 1863.

PRIZE SHEETS and CERTIFICATES for ENTRY of STOCK will be forwarded on application.

LAST DAY of ENTRY, JUNE 1.

CAUTION.—All Certificates received after that date will be returned to the Senders. H. HALL DARE, Secretary.

12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MAY 9, 1863.

MEETING FOR THE ENSUING WEEK.

WEDNESDAY, May 13 { Agri. Society of England .. .. Noon (Mr. Ruck on Steam Cultivation.)

OUR pages are this week full of a subject which has occupied us weekly, more or less, for several years. The application of a new power to the cultivation of the land, will indeed so entirely revolutionise arable farming that no apology is needed for continually directing attention to steam-tillage. And we have to-day accordingly given details of experience in almost all the plans of rival manufacturers and rival inventors. Clients respectively of Messrs. FOWLER, HOWARD, and SMITH, have all contributed reports. And by an examination of the tables, and of the individual histories which accompany them, our readers will learn the cost of wages, fuel, wear of rope, repairs, &c., under the variety of circumstances in which steam-tillage is now being prosecuted in almost every county in the kingdom.

We shall not here attempt to give the averages, which may be calculated from these tables under the several methods of applying steam-power. Any one who is curious in the subject would, however, give a very significant and instructive contribution to next Wednesday's discussion in Hanover Square, when Mr. RUCK is to relate what he has done in steam-cultivation on his farm at Castle Hill; if he should present, to the meeting which Mr. RUCK is to address, the averages of cost and of performance, under the three rival systems this day illustrated in our columns. We prefer, however, to believe in individual experience, when a full history of circumstances is given. The best results, and not the mere averages, are what ought to be expected, and may be obtained, if the requisite energy and perseverance are applied. And Mr. RUCK—like many another public-spirited and energetic man whose experience is recorded in our pages to-day—is better worth listening to when he describes his own individual practice and its results, than if he should try to estimate the average experience of all who have endeavoured to follow in their steps.

We have only to add here, that another method of applying steam-power has been introduced by Messrs. SAVORY, of Gloucester, of which, in the tables and reports in the following pages, no report is given.

There is, in fact, but one case in which the plan has been adopted on an English farm, and that for as yet so short a time that no report of a year's experience has yet been possible. Having been over that farm last Thursday, we may however very shortly here describe the plan.

Mr. BOMFORD, of Pitchill, near Evesham, occupying 800 acres of land, 600 of which are arable, heretofore worked by 34 or 35 horses, has been enabled to put down 10 or 12 of them, and will hereafter be able to put down more, by the adoption of steam-cultivation. His land lies on the junction of the lias and the new red sandstone, the latter presenting either a marly or a gravelly soil, the former a stiff clay. The four-course rotation of crops is adopted on the lighter soils; the six-course, with Wheat every other year, on the heavy land. Nothing can look better than the Wheat, Barley, Beans, and Clover at present promise on the farm; and Mr. BOMFORD is satisfied that his management, under which small and numerous fields have been thrown into large rectangular enclosures, divided by the cleverest fences we have anywhere seen; and drained, cultivated, seeded, and fed or harvested all in an exceedingly "husbandlike," practical, and successful manner—is being wonderfully facilitated, improved, intensified and cheapened by steam-tillage.

It will enable him to take two green crops always in the year in place of one—it will cheapen, quicken, and, where formerly impossible, enable fallow operations. The cost is an altogether second-rate and almost immaterial consideration. The ability to work clay land when it ought to be worked makes all the difference between failure and success in clay-land farming. We saw last Thursday a foul clay-land field, which in 10 days, at three operations, had been smashed, deeply broken up by steam-power, roasted by this unusual drought, and thoroughly cleaned accordingly—which could not have been worked by horse-power efficiently, if at all. It now has to be stiffe burned at the rate of 100 to 150 cubic yards per acre; and it will, piecemeal, be prepared and sown with Rape, to be afterwards fed off, and followed by Wheat next year, thus yielding not only a fallow crop, as a preparation for the succeeding grain crop, but receiving, one can not but feel, a permanent accession to its fertility by the process to which it has been subjected.

Mr. BOMFORD, in the first place, adopted the Woolston system of applying steam-power; he has also FOWLER'S 3-furrow balance plough and HOWARD'S cultivator. He speaks in the highest terms of the efficiency of this cultivator; but he has given up the plan of a stationary engine, and of the rope "all round" coiled and uncoiled from a stationary windlass. There is unquestionably a difficulty at certain times of the year, and in certain conditions of the soil, of getting about with a movable engine; but at such times and in such a condition of the land, he says, no steam tillage at all ought to be undertaken. He uses two engines, one at each end of the furrow. They carry surrounding their boilers, revolving on friction rollers, large cylindrical drums, on which the rope coils and uncoils, being regulated in this particular by an exceedingly ingenious traversing hand, to which a to-and-fro motion is given at just the rate required to avoid overlapping and ensure close coiling. There is but one line of rope across the field, and in it as a link, drawn to and fro, is the cultivator, or whatever tool is used. The one engine stands and pulls, while the other engine moves on one step to the station from which it next will pull while the other unwinds. A great speed is attained—the tool goes habitually 4 or 5 miles an hour, and we saw it going faster the other day, tearing up the soil to a great depth, and in the most thorough way. Two engineers, one ploughman, and two porter lads, costing perhaps 10*s.* a day (for wages): two 8 or 10-horse power engines, consuming 16 to 20 cwt. a day (for fuel): 800 yards of rope, only 400 in use at a time, carefully coiled, and thus subjected to a minimum of waste: a cost of probably 1*s.* 6*d.* a day for oil, considerably more than where one engine suffices:—very great facility in moving from one field to another with all the apparatus:—a double allowance, not necessarily a double difficulty or expense, of water: an ability to draw the cultivating apparatus to and fro with unusual speed: a diminished liability to accident, owing to the tool being always drawn by the engine to itself: an increased first cost, owing to two engines being required: a greater usefulness for threshing and other purposes. These are among the particulars, *pro* and *con*, on the merits of which any intending purchaser must make up his mind before determining on the choice of Mr. SAVORY'S apparatus.

As to the bearing on them of Mr. BOMFORD'S experience at Pitchill, near Evesham, we must defer our remarks.

DR. BRADY'S analysis of the evidence given before the Sewage Committee of last session was on Tuesday of last week cancelled by a vote of the House of Commons. Of course this would not have been done had the analysis, whatever its one-sidedness, been the report of the committee of the House. But this it was not; it was merely the work of one of the members of that committee. It was Dr. BRADY'S doing, and the committee was appointed not to report to the House the opinion of individual members, but to report the evidence which should be given before it. If the Committee had adopted the Doctor's analysis as its report, the House would not have refused to receive it. But the analysis was not the report of the Committee, it was merely the opinion of Dr. BRADY. Indeed it is most probable that if, instead of being a collation and selection of evidence in favour of certain foregone conclusions, it had fairly represented the whole body of testimony to which it referred, the attention of the House of Commons would never have been directed to the irregularity of which the Committee had been guilty in printing it.

Mr. KER SEYMER was however impressed, not only with a sense of this irregularity, but with the ludicrous unfairness of the analysis itself. He rightly said the so-called analysis has been treated in "a very irreverent manner by agriculturists;" and as he contended that it really was not what it professed to be, he moved that the so-called analysis appended to the report of the Select Committee on Sewage of Towns be cancelled. Mr. PAGET seconded the motion. It was not until long after this analysis was ordered to be printed, that he had discovered it was not an analysis, but consisted of deductions from evidence, animadversions on evidence, and statements as to the opinions of the committee upon such and such points. It was not right that such a document should be published to the world as containing the opinions of the committee when that committee had not enjoyed the usual opportunity of expressing their opinions. Dr. BRADY made his reply the occasion of quoting LIEBIG as to the utter worthlessness of Mr. LAWES'S researches—Mr. LAWES had been described as a great benefactor to his country, but the opinion of LIEBIG was something very different. There were three propositions he wished to submit to the House—(1) That English agriculture was at present in want of manure; (2) that the manufacture of artificial manure was to some extent a supply; (3) that it was not for the interest of those engaged in that trade that any change should be made in the existing state of things. Dr. BRADY'S discussion was, however, cut short on the score of irrelevancy. He was called to order—the question being not the value of Mr. LAWES'S services or their disinterestedness, to which ample testimony was borne—but the fairness of Dr. BRADY'S own analysis of the evidence brought before the Sewage Committee.

The upshot of the discussion was that Mr. KER SEYMER'S motion was assented to, and thus it is no longer before the public on the authority of a Parliamentary Committee that, as compared with solid manure, sewage possesses many advantages in its application to the land—that its liquidity stops all loss from evaporation, and brings every particle of it into immediate action on the crop—that its "heat" is of great benefit to agriculture—and that its mere water is of great agricultural use. It is no longer a Parliamentary Committee which declares that sewage has been applied to roots and grain crops with great advantage, and to Grass with the effect of increasing the richness of the milk of cows fed on it. All these assertions are henceforth to be taken as expressing merely the opinions of Dr. BRADY—not of the Committee of which he was the Chairman.

The real value of his analysis has already been the subject of discussion in our columns. We believe that the present use of London sewage, and that of many other large towns, is most wasteful, and that it will hereafter be turned to better account, but it will not be by means of or because of the agricultural value of its water or of its heat, nor because the crop to which it may be applied will be benefited only by the manure contained in that portion of the sewage which is absorbed by the soil within reach of the roots of the plant. Neither will the problem be solved by what the "analysis" declares to be the "economical" use of hose and jet in place of open carriers.

STEAM CULTIVATION IN 1862.

THE following particulars have been given to us in return to a circular of inquiries asking (1) for the horse-power of the engine; (2) for the number of acres ploughed and cultivated during 1862; (3) for the depth of the work; (4) for the number of days at work; (5, 6, 7, & 8) for the wages, coal, oil, and repairs paid for. Accompanying these bare details are a number of particulars relating to the history of the several cases in previous years, which will enable readers to gather an impression of the cost and profits of Steam Culture in the instances thus described.

FOWLER'S STEAM PLOUGH, 1862.

No.	Power of Engine	Acres Cultivated.		Depth of Work.	Days at Work.	Wages Paid.	Coals.	Oil.	Repairs and Rope.
		Ploughed.	Grubbed.						
				Inches.		£ s. d.	£ s. d.	£ s. d.	£ s. d.
1	12	310	615	6 to 9	118	87 1 8	60 10 8	6 0 0	98 0 0
2	14	270	240	..	56	45 0 0	42 0 0	2 16 0	20 0 0
3	12	73½	184	..	81	50 14 0	10 10 0	6 12 0	23 0 0
4	14	320	285	..	121	85 0 0	48 16 0	11 10 0	48 0 0
5	10	240	400	..	..	104 11 2	94 0 0	8 0 0	83 3 0
6	12	57	246	6 to 12	38½	..	..	..	3 13 0
7	14	462	116	7 to 8	96	62 12 0	69 2 0	7 4 0	22 9 6
8	12	50	1400	7 to 10	220	19 4 0*	..	..	42 0 0
9	14	287	76	..	64½	52 10 0	31 0 0	3 15 0	14 0 0
10	10	509	..	..	125	92 9 0	67 18 0	5 0 0	49 3 8
11	10	335	115	..	80½	63 7 7	45 0 0	2 5 0	69 10 3
12	14	236	63	9 to 10	..	..	..	..	22 1 6
13	14	500	200	7 to 9	150	120 0 0	..	10 0 0	..
14	12	712		..	169	100 10 0	56 0 0	10 0 0	..
15	12	232	..	..	..	56 5 10	..	..	51 12 7
16	12	257	200	..	..	..	..	..	5 0 0
17	10	282	357	..	..	..	..	..	3 13 0

1. Mr. S. M. PLUMMER, Peasemore, Berks.—Size of farm: arable, 770 acres; pasture, 30. Character of soil, strong clay resting on chalk. Rotation of cropping adopted, four-field. Number of horses formerly employed, 36; 19 employed now. Apparatus purchased March 17, 1860, cost 780*l*. Length of rope originally bought, 800 yards. Number of yards bought since:—Sept. 4, 1860, 500 yards; June 10, 1861, 500 yards; July 6, 1861, 200 yards; May 2, 1862, 500 yards. Cost of alterations since purchase, none. Repairs since purchase, 320*l*.; including rope. Horse power of engine, 12. Daily cost of wages:—Engineman, 3*s*.; ploughman, 3*s*.; anchorman, 2*s*.; 3 boys for rope, 2*s*. 6*d*.; total, 10*s*. 6*d*. Cost of water-cart a day, 4*s*. 6*d*., including boy. Daily consumption of coal, 14 cwt. Cost of coal per ton on the ground, 14*s*. 8*d*. Acres done each year since first purchase:—Ploughing: 1860, 320; 1861, 180; 1862, 175. Grubbing: 1860, 468; 1861, 860; 1862, 750. The depth of the work done varies from 6 to 9 inches. The tilth of the soil could not be better, and the produce much improved. The whole of the tackle is in good working order, and rope enough to last another year.
2. Mr. GILES EDMONDS, Eastleach, Gloucestershire.—Size of farm: arable, 2050 acres; Pasture, 425. Soil, stiff clay, sandy loam, stone brash and light stone brash. Rotation of cropping adopted: 3-field on heavy, 4-field on brash, and 5-field on light stone brash, (two years' seeds). Number of horses formerly employed, 43; employed now, 40. Number of oxen formerly employed, 50 in seven teams; employed now, 16 in two teams. A much larger deduction may be made—as a proof, 8 or 10 of our horses have been and are laid up with influenza, yet our work is as forward as it can be. Apparatus bought August, 1862. Rope originally bought: 800 yards besides headland ropes. None bought since. No alterations since purchase. Repairs since purchase, about 20*l*. including shares. Horse-power of engine, 14-horse. Daily cost of wages; one at 3*s*. 6*d*., one at 2*s*. 6*d*., one at 2*s*. 2*d*., in some cases we find it convenient to have another man in attendance; three boys at 1*s*, 3*s*.; Water-cart, 4*s*. a day. Coal 15 cwt., costing 20*s*. per ton. Having so recently had the plough cannot speak as to the effect of any increased depth of tillage, &c.; as far as I can see the engine and apparatus are worth as much as when bought, though we know that wear and tear must detract from the value. I should consider 12½ per cent. on the year would be sufficient to keep up the whole machinery. March 3, 1863, we have worked our cultivator lately, 12 days, doing 172 acres and moving seven times, twice out of the seven about two miles.
3. Mr. WILLIAM LAWSON, Brayton, Carlisle.—Size of farm: arable, 233 acres; meadow, 13. Apparatus bought Jan. 4th, 1862; cost 825*l*. Length of rope originally bought, 800 yards steel wire, and 350 yards iron wire; none bought since. Alterations, 6*l*. Repairs, 23*l*. since purchase. Horse-power of engine, 12. Daily cost of wages: Engineman, 3*s*. 4*d*.; ploughman, 3*s*.; anchorman and 2 porter men, 2*s*. 6*d*. each; total, 13*s*. 10*d*. for 5 men. Cost of water-cart, 6*s*. 6*d*. daily. Coal, 12 cwt. a day; only 10*s*. a ton. We scarify to a greater depth than horse-cultivation usually goes Turnip crops have been remarkably good after my steam-scarifying. The engine and apparatus are probably now worth 700*l*. at least.
4. Mr. JOHN WALKER WATTS, Orlingbury.—Farm: 540 acres arable, and pasture 250 acres. Four-course cropping on the stiffest land, and six-course on the lightest. Number of horses formerly employed, 22; now 12 Date of purchase of apparatus, October, 1861; cost, 875*l*. Length of rope originally bought, 800 yards; none bought since. 14-horse power engine. Daily wages: enginemun, 3*s*.; ploughman, 2*s*.; anchorman, 2*s*.; 2 porter boys, 1*s*. each. Water-cart, 3*s*. 6*d*. a day; coal, 14 cwt. a day, costing 11*s*. 6*d*. a ton. Did 100 acres of ploughing in 1861. The harvest of 1863 will be the first test of the additional productiveness of the land, but the great depth of culture obtained, the manner in which the seed went in, and the universal healthy appearance of the crops, leave no doubt as to the highly beneficial results.
5. Mr. COLEMAN, Royal Agricultural College, Cirencester.—Size of two farms: arable, 1060 acres; pasture, 140. Soil, principally medium, some stiff marl and some portion light thin brash. Rotation of cropping adopted, 4 and 5-course. Number of horses formerly employed, 24; employed now, 19. Oxen formerly employed, 20; employed now, none. Date of purchase of apparatus, Oct. 1861; cost, 833*l*. 19*s*. Length of rope originally bought, 800 yards; none bought since, but 2 headland ropes have been purchased; this is not included in the 800 yards. Cost of alteration and repairs since purchase, 95*l*. Engine, 10-horse power. Daily wages: Engineer, 3*s*.; ploughman, 2*s*. 6*d*.; anchor-boy, 1*s*. 6*d*.; 3 boys, 1*s*. Cost of water-cart a-day, 2*s*. 6*d*. Daily consumption of coal, 15 cwt.; costing 16*s*. 6*d*. a ton. 135 acres of ploughing done in 1862. The nature of the work done has been most satisfactory; on account of the engine being small a large cultivator has not been purchased, so that all the work, whether ploughing or smashing, has been done by the same implement. The land being in parts very shallow and also hilly is not naturally suitable for steam culture. The average work of each day has been about 5 acres, and this in a season which was very unfavourable, and as the work of the first year is satisfactory.
6. Mr. S. STRICKLAND, Headley Hall, Tadcaster. — Farm: arable, 300 acres; pasture, 30. Soil, strong limestone. Rotation of cropping adopted: 1st, Clover and Italian Rye Grass; 2d, Wheat or Barley; 3d, Potatoes; 4th, Wheat; 5th, Turnips; 6th, Barley. Number of horses formerly employed, 14; employed now 10, but 5 of them in foal; could do quite as well with 8. Date of purchase of apparatus, 31st July, 1862. Cost, 548*l*., at an auction at Leamington, but cost in April, 1862, 900*l*. Length of rope originally bought, 900 yards. Cost of alterations since purchase, 42*l*. 11*s*. 3*d*. before set to work, and 3*l*. 13*s*. repairs since. Engine of 12-horse, self moving. Wages, 2*s*. 6*d*., 2*s* 6*d*., 2*s*., 2*s*., 1*s*. Cost of water-cart a day, 5*s*., with man. Daily consumption of coal, ½ ton of slack, costing on the ground, say 7*s*. a ton. Began cultivating in October, and have ploughed and cultivated the number of acres named above; the men having beasts and horses to attend to never work with engine, &c., more than 8 hours per day. As yet I cannot speak to the productiveness of the farm, but very much like the prospect, it lying so very much dryer. When at work with 3-furrow plough 12 inches deep by 13 inches, cannot plough that depth more than 1 acre in two hours, the subsoil being so very strong, and never ploughed before more than 5 inches. When cultivating we can do comfortably 10 acres in eight hours, though we have stones to contend with often. I cannot see but the engine and everything is now as good as when set to work; of course there will be some wear and tear. I thresh with the engine also.
7. Mr. COOPER, Fen Drayton, Cambs.—Size of farms: arable, 450 acres; pasture, 50. Soil gravelly and stiff. Rotation of cropping adopted: 1st, Wheat; 2nd, Barley and Oats; 3d, Onions, Cucumbers, Potatoes and roots; 4th, Turnip seed. Number of horses formerly employed, 19; now, 14. Date of purchase of apparatus, 26th of July, 1862. Cost 945*l*. with cultivator. Length of rope originally bought, 800 yards. Cost of repairs since purchase, 22*l*. 9*s*. 6*d*. Horse-power of engine, 14 horse-power. Wages: engine-man, 3*s*. 6*d*.; ploughman, 3*s*. 6*d*.; anchor boy, 1*s*. 8*d*.; 2 porter boys, 1*s*. 5½*d*. each; water-cart boy, 1*s*. 5½*d*.; total, 13*s*. 0½*d*. Cost of water-cart a-day, 4*s*. Daily consumption of coal, 18 cwt., costing 16*s*. a ton on the ground. Horse for water-cart, 19*l*. 4*s*. Out of the 462 acres put down to ploughing, 284 were done with digging breasts. Included in the 22*l*. 9*s*. 6*d*., put down to "cost of repairs," is the price of new shares, blacksmith's bill, &c. The average depth of ploughing and digging is 8 inches; and of cultivating, 7 inches. As to the quality of the work, there is no comparison between horse and steam tillage. Steam ploughing is so effectual, that I consider that all work done by the end of September improves the land three times more than the cost of ploughing. In your form there is no item for shifting from one field to another; these I put down at 5*s*.—there are 31, making 7*l*. 15*s*. The engine has travelled 39 miles to do this work, and with the rest of the apparatus appears to be in as good condition as when purchased.
8. Mr. THOMAS M. RICHARDSON, Hibaldstow, Kirton-in-Lindsey. —Farm: arable, 400 acres, and many acres worked on hire for neighbours; Soil, light as well as strong clay. Rotation of cropping adopted: 4-course system on the light land, and Beans in lieu of Turnips on the clay soil. Number of horses formerly employed, 12; now, 6; oxen, 4; now, none. Date of purchase of apparatus, one set in October, 1860, made by myself. Cost about 700*l*., with the engine. Length of rope originally bought, 1800 yards; none bought since. Cost of alterations since made, 25*l*. Cost of repairs since made, 74*l*. Horse-power of engine, 12 horse-power, with double cylinders, improved traction, and made by myself. Daily cost of wages, 4 men at 2*s*. 6*d*. each; 2 boys at 10*d*. each. Cost of water-cart a day, 4*s*. per day. Daily consumption of coal, 8 cwt. on the light land and 12 cwt. on strong land. Cost of coal per ton on the ground, 12*s*. 150 acres grubbed in 1860 and 700 grubbed in 1861. The strong land was ploughed at a depth of 9 and 10 inches, and the light land at a depth of 7 inches, and the effect was very satisfactory in the following crop of Swedes, being very superior to any ever seen grown in any previous year, but on the whole I prefer cultivating the land to ploughing it, as the frost penetrates deeper, and the whole is more thoroughly pulverised, and no weeds are buried. The engine is in all respects as good as ever, having had new brasses, and well attended to on all occasions. My apparatus may be described "An engine fixed and worked on the triangular system with large pulleys and iron anchors, with self-acting porters on the sides, and Fowler's cultivator, and it is well adapted for working irregular and oblong fields, but is not to be compared with the direct system in large square fields. I have, however, now purchased Mr. Fowler's clip-drum apparatus attached to an anchor windlass, which is driven forward on the headland by the engine attached to it, and a movable anchor on the opposite headland, and with his large cultivator I commenced working in August, 1862, immediately on the removal of the Wheat crop, and have continued working it during the winter months, both on my own farm and my neighbours, and have very frequently done from 15 to 20 acres per day on our cliff soils at the following charges to neighbours, viz., 8*s*., 7*s*. 6*d*., and 7*s*. per acre, the occupier finding coals and leading water. During the spring I have already (March 12) cultivated 300 acres with this system, and only had one breakage of the small anchor by great neglect of the man in attendance, and I fully expect to do 500 more before the 1st of May, as the weather is more favourable and the days are longer, and I allow the men 3*d*. per hour for extra hours after 6 o'clock. In fact the farmers in this neighbourhood would almost prefer to allow the engine to cross-cultivate their fallows than bring their horses out of the stable, as our work is so superior to horse work, as it pulverises it well, and to a depth of 9 inches really subsoils it, which work horses could not possibly do at any price, and brings out all the Couch Grass by the roots without cutting it (as the plough unfortunately did); consequently the harrows soon collect it together, for it dries quickly with a little wind and sun. I employ my other set now only in irregular fields, as I cannot do more than three fourths of the work in the same time, and at the same expense. The engine being a traction one removes and conveys the whole of the apparatus, with only the assistance of a horse to lead water when on the road. *T. M. Richardson.*
9. Mr. GROSVENOR HODGKINSON, M.P., Winthorpe Hall, near Newark.—Size of farm; arable 700 acres, pasture 60 acres Soil, principally a moderately stiff clay on limestone. No regular rotation is adopted. Number of horses formerly employed, 26; now, 14. Date of purchase of apparatus, Sept. 6, 1862. Cost, 960*l*. Length of rope originally bought, 850 yards; none bought since. No alterations since purchase. Repairs since purchase, probably about 14*l*. Engine, 14-horse power. Wages: 5 hands employed, at a daily cost of about 11*s*.; water-cart, about 5*s*. 6*d*. a day, including driver. Coal, about 15 cwt a day, costing 12*s*. 6*d*. per ton on the ground. Acres done each year since first purchase: ploughing, from the purchase of the engine to the present time, 287 acres; grubbing ditto, 76 acres. I have not had the apparatus sufficiently long to give any opinion as to the effect on the productiveness of the farm, but I am satisfied that the thoroughness of the tillage is far superior to that produced by horse power, and that the percolation of the water has been more perfect on the land cultivated by the apparatus than on that ploughed by horses.
10. Mr. J. M. READ, Elkstone, Cheltenham. — Farm: arable, 780 acres; pasture, 243. Soil: part light, rocky, and sideland; mostly Fuller's earth clay; most difficult land to cultivate. Cropping: mostly on the 4-field rotation. Number of horses formerly employed, 16; employed now, 16. Number of oxen formerly employed, 30; employed now, none. Apparatus bought Jan. 1861; cost, 703*l*.; slack gear added, 10*l*., and drags, 21*l*. Rope originally bought, 800 yards, bought 800 yards since; a plough rope, costing 41*l*., put in to begin 1862. Old one used after for other ropes. Some of the old plough ropes used now, 1863, for headland ropes. Horse-power of engine, 10. Wages: engineman, 3*s*.; ploughman, 2*s*.; anchorman, 1*s*. 6*d*.; 3 porter boys at 10*d*., 2*s*. 6*d*. Cost of water-cart a day, 4*s*; daily consumption of coal, very variable; cost of coal per ton on the ground, 20*s*. Ploughed 713 acres, and grubbed 500 acres in 1861. Land more deeply cultivated; a better tilth obtained; surface water escapes more quickly, and larger crops follow, particularly upon the heavy lands. Engine, and ploughs, and anchors, little worn; ropes and porters more so.
11. Mr. E. MARJORIBANKS, Fawley Court and Greenland Farms, Henley-on-Thames.—Size of farm: arable, 440 acres; pasture, 381. Soil, chalk and gravel. Four-course cropping. Number of horses formerly employed, 24; employed now, 14. Date of purchase of apparatus, September, 1859; cost, 735*l*. Length of rope originally bought, 800 yards. Bought since: Sept., 1860, 430 yards steel rope; Oct., 1861, 150 yards steel rope; Oct., 1862, 450 yards steel rope—about one-fourth worn. Cost of alterations since purchase, including shares, ropes, &c., 200*l*. 12*s*. 9*d*. Horse-power of engine, 10. Wages: Engineer, 2*s*. 6*d*. per day; stoker, 1*s*. 2*d*.; ploughman, 2*s*. 2*d*.; anchor-man, 2*s*.; 2 rope boys, 2*s*. 4*d*.; water-boy, 1*s*. 8*d*.; in all 11*s*. 10*d*. Extra overtime: men, 3*d*. per hour; boys, 2*d*. per hour; and 6*d*. per acre for more than 6 acres ploughed daily. Water-cart, 1 horse, 3*s*.; daily consumption of coal, from 8 to 14 cwt.; cost of coal per ton on the ground, 20*s*. Ploughed, 753 acres; and grubbed 100 acres, up to end of 1861. The usual depth of ploughing is about 7 inches. The soil appears much improved in texture by the deep cultivation. The young Wheat looks strong and healthy on the deep ploughed land, and am of opinion that the deep ploughing and early sowing is more favourable to the Wheat than shallow ploughing. The engine has just gone to be altered and have all the improved gear fixed on it. I hardly dare fix a price on the engine and apparatus, as every part appears so very durable excepting the shares, ropes, and other usual wearing parts that can be easily replaced.
12. Mr. JAMES CHRISTY, Jun., near Chelmsford, Boynton Hall. Farm: arable, 677 acres; pasture, 92. Soil: heavy; stiff marl. Cropping adopted: 4-course; and latterly since the introduction of steam, 5-course. Number of horses formerly employed, 28; employed now, 20. Apparatus bought July 7th, 1862; cost with grubber, 935*l*. Length of rope originally bought, 800 yards; none bought since. Cost of alterations and repairs since purchase, 22*l*. 1*s*. 6*d*., including shares, points, &c. Engine, 14-horse power. Daily wages: driver, 3*s*. 4*d*.; 2 men, 2*s*. 4*d*. each; 3 boys, 2*s*. 6*d*.; total, 10*s*. 6*d*. Cost of water-cart a day, 5*s*. Coal, 12 cwt. a day, costing 20*s*. a ton on the ground. A considerable portion of the land ploughed with the digging breasts in the autumn, 9 and 10 inches deep, has now been sown with Barley; and notwithstanding the absence of frost during the winter it was (to use a local expression) "like an ash-heap," and I never saw so thorough a tillage. The same applies to the land intended for Wurzel, although left on the flat. Some of the work, as above stated, was done for neighbours, and as the engine has done some threshing, I cannot fill in all the particulars. I have only felt my way as to the reduction of horses, as they were so cheap last autumn, but have no doubt of very considerably reducing the number still further.
13. Mr. S. HEAD, Swindon, Wilts.—Apparatus bought March 8, 1862, costing with grubber, draining plough, and certain additions, 965*l*. Length of rope originally bought, 800 yards;

none bought since. Horse-power of engine, 14. Daily wages: engineman, 3s. 6d. when ploughing, 2s. 6d. when not; ploughman, 2s. 6d. when ploughing, 2s. when not; anchorman, 1s. 10d. when ploughing, 1s. 3d. when not; 2 porter boys, 1s. 8d. when ploughing. 1s. 2d. when not. Cost of water cart a day, 4s. Daily consumption of coal, about 14 cwt, costing on the ground 15s. to 20s. per ton. Present value of engine and tackle, with additions and extras as above, 800l. General depth from 7 to 9 inches. To all appearance the effect has been most beneficial. We worked by contract for the farmers, who did all the best of their work themselves, and saved up the worst for "the steamer." No water has stood on our work during the winter, though it often did before. The farmers are all very anxious to be able to hire the steam plough this year when they want it. Where the farm is adapted for it, and the machinery is well managed, the steam plough will pay for itself in two or three years.

14. Mr. E. HOLLAND, Dumbleton Hall, Evesham.—Farm: arable, 363 acres; pasture, 374. Cropping: Wheat and green crops alternately. Number of horses formerly employed, 25; now, 10. Apparatus bought in 1858, costing 751l. 19s. 6d. Rope originally bought, 1000 yards; bought since, 900 yards. Alterations since purchase, 40l. 19s. 6d.; repairs and rope since purchase, 316l. 9s. 6d. Engine, 12 horse-power. Daily wages: 5 men and boys, 11s. 2d. Water-cart a-day, 3s. Coal, 10 cwt. a-day; costing 14s. per ton. The engine and tackle, with the additional repairs, is, with the exception of fire-box, as good as when started.

15. The EARL OF RADNOR; E. HANKEY, Esq.; Messrs. W. STRATTON and C. BELCHER; Coleshill, Berks.—Size of farms: 830 acres; pasture, 1230. Soil varies greatly; sand, stone brash, and strong retentive clays. Rotation, usually the 4-course. No alteration in the horses employed, the steam-plough having been added as an experiment, and rather supplementary than otherwise. Date of purchase of apparatus, Feb., 1861. Cost, 840l. Cost of alterations and repairs since purchase: 1861, 72l. 4s. 3d.; 1862, 51l. 12s. 7d. Horse power of engine, 12. The company has charged 12s. per acre for ploughing, and 9s. for scarifying with the breasts off the plough. In 1861 we had nothing for a dividend; in 1862 we paid 5 per cent.; but then we did not take into account the present value of engine, &c., or I fear we should have exhibited a heavy loss. The work has been thoroughly done, at an average depth of 8 inches. The effect on the productiveness of the farm cannot be stated, as only one operation has taken place on the same land. The value of the work done was probably quite equal, if not in excess of the cost, say 18s. per acre, including labour, coal, oil, and watercart. The following was the account for 1861-2:—

RECEIPTS.	£	s.	d.	PAYMENTS.	£	s.	d.
1861. For Ploughing	197	6	6	1861. Labour ..	102	0	2½
1862. ,, ,,	139	4	0	Bills ..	48	4	7
				,, ...	8	12	6
				,, ...	23	19	8
				1862. Labour ..	56	5	10½
				Bills ..	51	12	7
				Div. 5 per cent.	42	0	0
				Balance ..	3	15	1
	£336	10	6		£336	10	6

16. Mr. HENRY CODD, Ashe, near Overton.—Farm: arable, 477 acres; pasture, 7. Soil, chalk. Cropping, 5-course. Number of horses formerly employed, 14; employed now, 6. Date of purchase of apparatus, Feb. 28, 1862, cost 900l. Length of rope originally bought, 800 yards; none bought since. No alterations since purchase. Repairs, 5l. Horse-power of engine, 12. Daily wages:—three men and two porter boys, anchor man, 1s. 8d. per day; ploughman, 2s.; engineman, 3s.; porter boys, 1s. each; total, 8s. 8d. per day. Cost of water-cart a day, 5s. Daily consumption of coal, 10 to 12 cwt. per day. Cost of coal per ton on the ground, 1l. The Barley and Oats after the steam plough and grubbing are decidedly better than after the horses—at least three sacks per acre, also the Turnip and Swedes. The number of days I have not kept an account of, so cannot fill up the cost of work. We plough 8 acres in a full day in summer, and 6 acres in winter; 16 acres a day scarifying once in a place, and half that quantity twice in a place. About 1s. worth of oil per day.

17. Messrs. HY. & W. HOLE, Corton, near Heytesbury.—Farm: arable, 740 acres; down and pasture, 360 acres. Soil: chalk. Rotation of cropping adopted: 200 acres in 5-field, and 540 acres in 4-field system. Number of horses formerly employed, 22; now 12. Number of oxen formerly employed, 6; now, 6. Date of starting the apparatus, 25th Sept, 1861; cost, 800l. Length of rope originally bought, 800 yards; none bought since. No alterations since purchase. Repairs since purchase, 25l. 12s. 6d. Horse-power of engine, 10. Daily wages: engine-driver, 2s. 6d.; ploughman, 2s.; anchor lad, 1s.; three porter boys, at 8d., 2s.; total, 7s. 6d per day. Cost of water-cart a day, 7s.; coal, from 8 to 10 cwt. a day, costing per ton on the ground, 14s. 6d. Ploughing, 274 acres; grubbing or scarifying, 357 acres; raftering, 75 acres; in all, 706 acres, from 25th Sept. 1861, to 8th Nov. 1862. The great advantage of steam cultivation in our opinion is, that the work is done just at the time it is required, and is far superior to that done by horses; and there is no expense attached to the apparatus when not at work as with horses. The engine and apparatus is in good repair, and, apparently little the worse after the twelve months' wear. I will here mention that we have dragged (after ploughing and scarifying) 315 acres, and pressed with a heavy four-wheeled presser 67 acres at the same time when ploughing for our last Wheat crop; this is a considerable advantage. The raftering is very well done by the plough. We also use the engine for threshing the corn grown on the farm; and when dry weather, she will take the whole apparatus with her, which is a great boon when busy with our horses. The above account perhaps will seem but a small quantity of work done in the time, but as you will see we lost the spring of 1861, and the best month (March) of 1862, which was wet every day; and also, the land not having been thoroughly cultivated before, there were large flints, &c., which came in contact with the plough, and were a great hindrance, being obliged to drive slow, or the breakage of skives and shares would have been considerable; therefore did not exceed 4 acres per day, *i. e.*, including all hindrances and removals; but now on working the land a second time that difficulty is overcome, and we can now get over from 5½ to 7 acres per day. Perhaps you will think the price I have mentioned for water-cartage rather high; but we are badly situated for water, and are obliged sometimes to haul it up steep hills, requiring two horses, and I believe it costs us from 1s. to 1s. 6d. per acre in water.

18. WM. F. BETHELL, Rise, near Hull.—3 Farms: arable, 540 acres; pasture, 220. Soil: chiefly strong clay and clayey loam. Number of horses formerly employed, 24; employed now, 24; I expect to lay down six, but they are used for other purposes at times. Date of purchase of apparatus, August, 1862; cost 953l. 15s. Length of rope originally bought, 800 yards. Cost of alterations and repairs since purchase, trifling. Horse-power of engine, 14. Daily wages:—engineer, 4s. 6d.; ploughman, 3s.; anchorman, 2s. 6d.; 1 man, 2s. 6d.; 1 boy, 1s.; total, 13s. 6d. Cost of water-cart a-day, 5s. Coal 15 cwt. a day, costing 17s. 6d. per ton on the ground. Ploughing and digging in autumn, 60 acres. You will see that I have scarcely used the apparatus owing to circumstances, viz.:—I had to redrain much of the land intended to plough, and was advised not to risk the tackle upon the soft new drains. The work done was chiefly digging from 6 to 8 inches; soil very strong, daily average about 5½ acres; calculated expense, allowing 72s. per day for all charges, including wear and tear, &c., at 40s., at about 13s. per acre. The quality of work very good, and quite superior to horse work; I should say well worth 20s. per acre. Wages here are high, and as I do not keep an engineer at present I have to pay rather more for one when required.

19. Mr. C. WHITEHEAD GRIFFIN, Werrington, near Peterborough.—Farm: arable, 300 acres; pasture, 180. Soil, part strong clay, part gravel, part Fen soil, peat. Number of horses formerly employed, 13; employed now, 11. Apparatus bought April, 1862; cost, 800l. Length of rope originally bought, 800 yards; none bought since. Cost of repairs since purchase, about 20l. Engine, 12 horse-power. Daily wages: 2 men at 3s.; 1 man, 2s. 6d.; 2 boys, 1s. 6d. Water-cart a day, 7s. Coal from 12 cwt. to 1 ton a day, costing per ton on the ground, 14s. Ploughed about 400 acres last autumn. Upon some very strong land we went from 10 to 12 inches, but finding we were having so many breakages resolved to let 10 inches be the very outside; having now got used to the tackle, we have no difficulty in doing about 8 acres a day. The tillage is far preferable to work done by horse-power, owing to the speed; at present I do not feel disposed to say much for the result; but with greater experience shall be happy to give more information. I will only add we have done about 250 acres without a breakage.

20. Mr. J. KING, Chadhurst Farm, near Runton, Warwick.—As regards my own personal experience of steam cultivation after four years' trial I do not hesitate one moment in saying that upon good sized farms, especially clay farms, steam is far superior and much more economical than horse power in the cultivation of soil. The farm I occupy is a little over 600 acres, of which nearly one-half is arable, being a mixed clay soil, some parts very tenacious. Before I began steam cultivation, which I did four years ago (having for a partner in the steam plough my friend Mr. E. Righton, of Thornton), the number of horses kept was from 12 to 15, and the summer work consisted of 50 acres of fallow, with 10 or 12 acres of Turnip fallow. Through the medium of Fowler's steam plough I have been able to do away with the 50 acres of dead fallow, the same being either in crop or seeds. The number of horses I shall require for work until next harvest will be five, just enough to work three carts. One result of steam culture I must not forget to mention; viz., the superior seed-bed we obtain over horse culture. I find the land that is steam-worked lies much sounder for future operations, is more impressible and yielding to the drill, &c., and is much readier cleaned. With these few remarks I must beg to add that the steam tackle I am speaking about is not employed upon my farm one-fourth of its working time, as we let it out on hire when not employing it ourselves. I will venture to say, without fear of contradiction, that no person having tried steam culture upon a large clay farm would ever be induced to farm such land without this masterpiece of machinery.

21. Mr. STRATTON, Broad Hinton, Swindon.—Farm: arable, 1100 acres; pasture, 830 acres, Soil, heavy. Number of horses formerly employed, 30, and 20 oxen; employed now, 28 horses. Date of purchase of apparatus, Oct. 1859. Length of rope originally bought, 800 yards. Cost of alterations since purchase, 240l. Horse-power of engine, 12. Daily wages, 12s. 6d. when ploughing. Water-cart a day, 4s. 6d. Coal, 11 cwt., costing 19s. a ton on the ground. Cultivated nearly 1000 acres last year. As I have before told you I think the advantage we gain in doing work well and at the right season, is of greater consideration than the saving in expense.

SMITH'S CULTIVATOR—1862.

No.	Power of Engine	Acres Grubbed.	Depth of Work.	Days at Work.	Wages Paid.	Coals.	Oil.	Repairs.
					£ s. d.	£ s. d.	£ s. d.	£ s. d.
1	10	1075	6 to 8	116	133 8 0	39 2 0	5 10 0	..
2	10	240	..	42	40 8 6	10 10 0	2 2 0	3 17 10
3	8	170	..	24	15 12 0	9 12 0	1 0 0	..
4	10	161	..	23	33 7 10	9 0 0	1 3 0	1 0 0
5	8	591	5 to 8	79	..	..	..	..
6	8	527	5 to 9	88	68 4 0	39 10 6	4 10 0	5 15 0
7	10	100	5 to 6	14	10 10 0	5 0 0	1 7 6	..
8	10	323	6	50	35 0 0	17 10 0	1 0 0	10 0 0
9	12	37	6 to 8	7½	3 14 6	2 0 0	0 4 0	0 5 6
10	8	176	5 to 6	33	53 19 0	9 14 0	2 10 0	13 0 0
11	10	212	9	52	33 16 0	21 19 0	1 7 6	2 0 0
12	10	58	..	14¼	12 12 8	5 0 0	15 0 0	2 0 0
13	10	174	..	35	28 17 6	15 8 0	1 15 0	9 0 0
14	8	95	..	15	13 10 0	7 8 0	..	..
15	8	408	4 to 10	52	..	..	..	..
16	..	162	..	18	..	..	..	..

1. Mr. FRANCIS SOWERBY, Aylesby, near Great Grimsby.—Farm: arable, 600 acres; pasture, 300. Soil loamy, strong clay subsoil. Rotation, 4-course. Horses formerly employed, about 24. Employed now, about 17. Apparatus bought Sept, 1859, cost 503l. 2s., with 8-horse engine, which was exchanged for 10-horse, in August, 1862. Rope originally bought, 1400 yards; bought since, 1400 yards, March, 1862. No alterations since purchase. Cost of repairs since purchase difficult to come at, as the engine has threshed upwards of 1000 tons of Corn annually, as well as cultivating land; but I should say that 10l. a-year would cover all repairs (except the rope), both for engine and cultivating apparatus, including wear of shares. The first rope did upwards of 1300 acres; the second has done 1000, and appears as if it would do twice as much more, it being much better than the first—the last made by Howard. Horse-power of engine, 8-horse for 3 years, 10-horse, 1862. Wages about 23s. per day; 5 men averaging 4s. each, and 3 boys, 1s. each, including water-cart boy. The men work by piece, engine man and windlass man 6d. per day extra. Cost of water-cart a day, 2s. 6d.; daily consumption of coal, 8 cwt.; costing per ton on the ground about 17s. Acres grubbed each year: 251 in 1859, 361 in 1860, 692 in 1861, and 1075 in 1862. Depth from 6 to 8 inches, the land thoroughly worked, roots and other crops have been very good. The cultivating apparatus appears almost as good as when first bought. The 8-horse engine worth at present 160l.

2. Mr. C. RANDALL, Chadbury, Evesham.—Farm: arable, 450 acres; pasture, 160. Soil, generally clay. Rotation of cropping adopted: 1st, green crop; 2nd, Wheat; 3rd, part seeds, part Beans; 4th, Wheat. Number of horses formerly employed, 28; employed now, 20. Date of purchase of apparatus, June 1857; cost 450l. Length of rope originally bought, 1200 yards. Bought since: July, 1859, 1200 yards; 1861, 1000 yards steel rope. No alterations since purchase. Repairs since purchase, about 60l., including shares. Horse-power of engine, 10 horse-power. Daily wages, 3s. 6d. per acre; or about 19s. 3d. per day, divided among 5 men and 2 boys. Cost of water-cart a-day, 2s. 6d. (1 horse). Daily consumption of coal, 10 cwt.; costing 10s. per ton on the ground. Acres grubbed each year: 136 in 1857; 280 in 1858; 245 in 1859; 127 in 1860; 153 in 1861 (wet summers); 240 in 1862. The effect of the application of steam to the cultivation of clay land is, that the work is better done; and of greater importance still, more of it is done while dry weather lasts. Instead of the subsoil being compressed, as formerly, by the action of the horses' feet, it is now cracked by the tines of the cultivator, and the drainage thereby rendered more effective; while the autumn cultivation, which should be commenced during harvest so soon as a field is cleared, goes far to ensure a crop of roots upon land, where without the aid of steam, there would be difficulty and much uncertainty in obtaining them. On light land the steam cultivation is valuable, as by its use such land is more effectually and more economically kept clean; but on clays, in addition to these advantages, it enables the occupier to take advantage of dry weather to effect an amount of work therein which no application of horse-power could do—or do as well. There is scarcely anything about the apparatus to get out of repair; the rope will wear out, and 20l. per annum may be required to replace it. The same sum should be also charged for the use of the engine, which must be kept for threshing if there were no cultivator.

3. Mr. GEORGE MARTIN, Hubert's Bridge, near Boston.—Farm: arable, 498 acres; pasture, 130. Soil, part strong clay and part loamy soil. Number of horses formerly employed, 16; no alteration at present. Apparatus bought Sept. 16, 1862, costing 180l.; the engine I had previously. Rope originally bought, 1400 yards. Cost of alterations and repairs since purchase, under 30s. Horse-power of engine, 8. Daily wages, 3 men at 2s. 6d. per day, 2 men at 2s. per day, 3 boys at 8d. per day; total, 13s. 6d. Water-cart very seldom required; water in ditches next fields. Daily consumption of coal, 8 cwt., costing per ton on the ground, 14s. You will see by the date of my purchase of the apparatus that I cannot speak as to the produce, but I am well satisfied with the cultivation so far. Mine is a very good as well as a cheap set of tackle, manufactured by Mr. Ashby, Louth, Lincolnshire.

4. ——, near Salisbury.—Farm: arable, 600 acres; pasture, 200. Soil, principally a chalk loam, with clay and sand in the vale. Rotation of cropping, the 5 and 4-course. Number of horses formerly employed, 20; employed now, 16 Apparatus bought Sept. 12, 1861. Cost, 327l. 17s. Length of rope originally bought, 1400 yards; none bought since. Cost of alterations since purchase, 2l. 13s. Horse-power of engine, 10. Daily wages:—6 men scarifying at 2s. per acre; extra wages, 1s.; engine driver, 6d. windlass boy, 8d. per day. Cost of water-cart a day, 10s. on the hill and 5s. in the vale. Daily consumption of coal, 8 cwt. per day up to Nov., 1862, afterwards a daily decrease of 3 cwt. on account of new bars, "Patent," costing per ton on the ground, 1l. As regards the productiveness of the farm I imagine that the work was done too deep, as my Barley and Turnip crops were lighter than common. 16 acres in the lowland which I did were trodden by the sheep in wet weather feeding off Rye, and much parched by the sun, and it was with difficulty that it could be done at all the first time, the consequence being the rope was broken twice, and little work also done in the day, not perhaps over 4 acres the first time of doing and 6 the second. The rope was repaired by my own men. The engine—one of Clayton's—I think to be as good as at first. The apparatus was manufactured by Messrs. Tasker, Andover; independently of the windlass the other parts are very much shaken.

5. Mr. MARSHALL HANLEY, Croft, Boston.—Farm: arable, 510 acres; pasture, 500 acres. Soil: loam on silt and loam on clay. Rotation of cropping: Fallows, Oats, Wheat, seeds, Peas or Beans, and Wheat; 5-field. Number of horses formerly employed, 22; now 18. Date of purchase of apparatus, August 29th, 1860; cost, 231l. 4s. Length of rope originally bought, 1400 yards, and bought since, 800 yards, Jan. 18, 1862; 800 yards August 1, 1863; both these very good, and at less cost than the 1400 yards. Horse-power of engine, 8-horse. Daily wages, 15s. 10d., 6 men and 2 boys. Cost of water-cart a day, only occasionally in very dry weather, 4s. Daily coal, half a ton, costing per ton, 16s. Depth of grubbing from 5 to 8 inches. My farming is not all together, the apparatus frequently had to be moved 3 to 5 miles. I calculate I can work my engine and apparatus at 50s. per day, covering all expenses and interest of capital. I think no person farming 350 acres of arable land at the present day ought to be without an 8-horse portable engine,

and if he has one he would find Ashley's, of Louth, Lincolnshire, apparatus, a great assistance. He is licensed by Mr. Smith, of Woolston; the cost is 180*l.* cash, at Louth.

6. Mr. THOS. INSKIP, Fenstanton, near St. Ives, Huntingdonshire.—Farm: arable, 600 acres. Soil, heavy land with a portion of gravel land and red loam. Cropping, four-shift. Number of horses formerly employed, 21. I took another farm in 1860, when I bought my steam tackle which saved me 6 horses at least. Date of purchase of apparatus, Jan. 1860; cost 241*l.* Length of rope originally bought, 1400 yards; bought since, 1400 yards, Feb. 1862. Repairs since purchase, about 20*l.* Horse-power of engine, Clayton & Co, 8-horse double cylinder. Daily wages: Engine-driver, windlassman, 4 field men, 1 water-boy, 15*s.* 6*d.* per day. Cost of water-cart a-day, 4*s.* Coal, 10 cwt. a-day; 18*s.* per ton. Grubbed; 425 acres in 1860; 400. in 1861; 527, in 1862. We cultivate from 5 to 8 or 9 inches deep. The engine and apparatus is in good working order, and does not seem to be materially injured.

7. Mr. JOHN WHITE, Zeals Farm, Mere, Wilts.—Farm: arable, 470 acres; pasture, 300 acres. Soil, sandy loam. Cropping adopted, 4-course system. Number of horses formerly employed 18, now 18; formerly 8 oxen, now put down. Date of purchase of apparatus, August 1, 1862, cost 540*l.* Length of rope originally bought, 1600 yards; none bought since. No alterations nor repairs since purchase. Horse power of engine, 10. Daily wages:—three men at 2*s.* 6*d.* each; 2 men at 2*s.* each; 1 hauling water, 1*s.* 6*d.*; 2 boys, 1*s.*; in all, 15*s.* Cost of water-cart a day, 1 horse at 4*s.* Daily consumption of coal, about 7 cwts. at 20*s.* a ton. The land cultivated with steam by me, was from 5 to 6 inches in depth, which land was well "smashed up" and brought to a fine tilth. Having bought the apparatus rather late last summer, I have not as yet had much opportunity of judging the merits as to the productiveness at my farm, in consequence of land being cultivated by steam, but what I have seen, I am perfectly satisfied. I now estimate the steam engine and apparatus to be worth 530*l.*

8. Mr. J. W. TUBB, Melcomb, Banbury.—Farm: arable, 165 acres; pasture, 113. Soil: part clay, part red soil on stone. Horses employed now, 6. Apparatus bought September, 1859; cost 243*l.* Length of rope originally bought, 1400 yards; bought since, 400 yards, June 1862. Repairs since purchase, about 25*l.* Horse-power of engine, 10. Daily wages, 2 men at 2*s.* 6*d.*, 3 men at 2*s.*, and 1 boy, 1*s.* Water-cart about 2*s.* a-day. Coal, 8 to 10 cwt., costing 16*s.* per ton. Grubbed 260 acres in 1860; 332 in 1861; 325 in 1862. The general depth of the work has been about 6 inches. I find the crops, both here and at other places where the tackle has worked, better after the steam than after horses, especially on clay land, though I consider the great advantage of steam cultivation to be in the quantity of work that can be done in the time and the cheapness of it. As regards the present value of the apparatus, the windlass and the cultivators appear nearly as good as ever they were, and have cost scarcely anything in repairs; the rope, snatch-blocks, &c., are much worn, though still able to do a good deal of work. I have sent you as good an account of my work as I can, it is very near the truth, though I have not kept a correct account of anything except the quantity of work done, but have put the number of days and expenses rather over than under the mark.

9. Mr. JOHN ELLIOT, Tarbert Mains, Park Hill, Ross-shire.—Farm: arable, 164 acres; pasture, 30. Soil, light sandy loam. Cropping: 5 years' course, or 2 years Grass, 1 year Oats, 1 year Turnips and Potatoes, 1 year Barley and Wheat. Number of horses formerly employed, 6; and 6 now. Apparatus bought 1860, costing 770*l.* 14*s.* 6*d.* Length of rope originally bought, 1400 yards; none bought since. Alterations since purchase, 1*l.* 5*s.* 6*d.* Repairs since purchase, 5*s.* 6*d.* Engine, 12-horse power. Daily wages: 3 men at 1*s.* 8*d.* each, and one at 1*s.* Water-cart, 4*s.* a day. Coal, 7 cwt. a day, at 16*s.* a ton. Engine and apparatus none the worse. We saw wood and thresh with the engine. The tillage is much better than with horses. General depth in spring, 6 inches, and in autumn ploughing, 8 inches. The Turnips were much better on the part of the field ploughed by steam than on that ploughed with horses, and, I may add, much easier cleaned. We had fully 2 quarters per acre of Oats more after the steam plough than that ploughed with horses, all in the same field. I have just finished a field of 24 acres, which I see by your paper I cannot enter, as you want to know the number of acres done in 1862. Our plough is a three-furrow one, and we just plough 1 acre in two hours. The inclosed answers give the expenses when working, removing the engine and apparatus to the field and home again. I cannot give the actual expenses, therefore I leave that part out just now. But if you require any information in future I will keep an exact account of the removals. I will now try to explain how I do with so few men and boys. Our ground is so very soft that it would not hold the anchors. I got two strong chains 40 yards long, and eight wooden posts 4 feet long 10 inches square, and fixed them thus. (A plan showing field with posts stationed at intervals around it.) By having 9 inches of the top of the post round, and a ring with a hook to slip on the top of the post, and hook the ends of the chain on, you may go on for a day and never stop; but when the chains are wrought up just lift the ring off No. 1 post and put it on No. 2, and No. 3 on No. 4. The two men that attend the plough and rope porters get the holes made for the posts when the steam is getting up; and the man that drives the water assists, too, in making the holes and keeping right the porters or rollers. You may ask why I did not plough more with the steam plough than I have done, seeing the great advantage derived from it. My answer is, that I want to test it fairly with horse ploughing before I adopt it altogether. Our climate is not steady; although I had 2 quarters of Oats more to the acre, and a considerably heavier crop of Turnips, still the season might have something to do with it.

10. —— Warwickshire.—Farm: arable, 300 acres; pasture, 140 acres. Soil: heavy adhesive clay and gravel, which sets hard after rain, lying between lias and new red sandstone formations. Number of horses formerly employed, 16; now, 15; to be reduced to 10 or 11 this year. Apparatus bought, Jan. 1861. costing 267*l.*; engine valued at 240*l.* bought, Length of rope originally bought, 1400 yards; bought since, 500 yards, Aug. 1862. Alterations since purchase, 37*l.* 3*s.*, including 29*l.* 8*s.* for new rope, and 7*l.* 10*s.* for rope porters, &c. Repairs since purchase, about 20*l.* Horse-power of engine, 8; Clayton, Shuttleworth & Co.'s. Daily wages: engineer, 3*s.* 6*d.*; 4 men, at 1*s.* 10*d.* or 2*s.*; and 1 lad, 1*s.* Water-cart, 4*s.* 6*d.* a day, not always required; three men, 1*s.* 10*d.*, to carry water, say average, 3*s.* 6*d.*; coal, about 8 cwt. a day, at 14*s.* a ton. Grubbed, 300 acres in 1861; 283 acres in 1862. A greater depth than from 5 to 6 inches can rarely be obtained on first breaking up, and from 2 to 3 inches more for each subsequent crossing may be gained if desired. The effect upon productiveness of land has not so far been very marked, either for or against. Wear and tear upon engine and windlass is apparently slight, but rope has suffered chiefly from working my neighbours' fields, which were very gravelly. Rope porters are also much worse for wear, but I think 10 per cent. per annum an ample provision for deterioration. I have done 107 acres for neighbours, working at 9*s.* an acre, employer finding coal and water-cart. You will see by this account that the expenses of steam cultivation for last year were heavy, partly owing to the wet autumn allowing of little work being done and causing much delay, and partly to the wear of rope caused by cultivating a neighbour's fields, which were very gravelly, of irregular shape, and having very high-backed ridges running in various directions; these caused such wear of rope that it was constantly breaking near the cultivator end, causing much delay and the necessity of turning the rope end for end, and the addition of 500 yards of an extra thickness. All these circumstances of course much hindered our getting on, so that little more than 3 acres a day was the result. I have generally deducted 10 per cent. for wear and tear, though when only worked 63 days in the year this will in all probability prove too much. 20*l.* should be deducted yearly for use of engine in threshing, sowing, &c. I have put down the wages as per day wage here, but in truth the work on our own farm was let to the men at 1*s.* 10*d.* per acre, with the 3-tine cultivator, and 1*s.* 3*d.* per acre with the 5-tined cultivator, exclusive of engineer and waterman. The horse-power has not been hitherto reduced, owing to the desire to clean the land, which the last three years have tended to render very foul, but I anticipate reducing the number to 10 or 11 very shortly.

11. Mr. JOHN S. CRAWLEY, Hackwood, Luton.—Farm: arable, 262 acres; pasture, 173. Soil, strong clay. Rotation of cropping, five-course. Number of horses formerly employed, 22; now, 17. Apparatus bought July 1860; cost, 606*l.* Rope originally bought, 1200 yards; bought since, 1400, Sept. 1861. Horse-power of engine, 10. Daily wages, 13*s.*: viz., engine driver, 2*s.* 6*d.*; ploughman, 1*s.* 10*d.*; 2 lads for rope-porters at 1*s.* 3*d.*, 2*s.* 6*d.*; 2 anchor-men, 1*s.* 10*d.*, 3*s.* 8*d.*; 2 boys, 9*d.*, 1*s.* 6*d.*; beer, 1*s.* Water-cart, 4*s.* Coal, 8½ cwt. a day; 20*s.* a ton. Average depth 9 inches; steam cultivation combined with draining has increased the yield of the soil and improved the quality of the produce. The cost above represents the price of Chandler & Oliver's set, but the plough was found not to answer, and Smith's cultivator substituted.

12. —— near Burford, Oxon.—Farm: arable, 500 acres; pasture, 55 acres. Soil: medium soil on stone-brash. Rotation, four-field. Number of horses formerly employed, 17, and 4 oxen; now 10 horses. Apparatus bought October 1862; cost with 10-horse engine, 530*l.* Rope 1200 yards, none bought since. No alterations or repairs. Daily wages: engine man, who also attends to windlass, 3*s.*; ploughman, 2*s.* 6*d.*; two anchor-men, 2*s.* each, 4*s.*; one porter-lad, 1*s.* 6*d.*; total, 11*s.* Water-cart, 3*s.* 8*d.*; coal, 8 cwt., heavy work, 10 cwt. 18*s.* a ton. The wages, &c., equal 12*l.* 12*s.* 8*d.*, are made up of—Wages to men, 8*l.* 1*s.* 8*d.*; water-cart, 2*l.* 12*s.* 2*d.*; moving tackle, 1*l.* 18*s.* 10*d.*; total, 12*l.* 12*s.* 8*d.* Having the tackle only in October, 1862, cannot say as to its effect on my farm. Engine and apparatus still good.

13. Mr. W. SIMMONDS, Wanborough, near Guildford.—Farm: arable, 520 acres; pasture, 56; wood, waste, roads, &c., 30. Soil: a chalk hill, loam resting upon chalk, and heavy loam resting upon clay, and a small portion very stiff clay, altogether a heavy working soil. Rotation 4-course, as nearly as circumstances and season will permit Number of horses formerly employed 13; now 11: but the acreage increased by the addition of a small farm adjoining, (130 acres) last Michaelmas. N.B. One extra man in addition to permanent staff only. Apparatus bought April 8, 1862. Cost 250*l.*; smith's tackle complete, 300*l.*; 10-horse power engine (Clayton & Co.) Rope originally bought, 1400 yards; none bought since. No alterations since purchase. Repairs since purchase, 6*l.*, not including shares; this expense arising almost entirely from broken anchors, caused by the stubborn nature of the subsoil, broken in the driving in. Horse-power of engine, 10, double cylinder. Daily wages, 15*s.* 6*d.* per day, without water-cart; engineer, 3*s.* 6*d.*, windlass man, 2*s.* 6*d.*, ploughman, 2*s.* 6*d.*, 2 anchor men, 2*s.* 6*d.* each, 2 porter boys, 1*s.* each. Water-cart, 4*s.* Coal, 8 cwt. a-day, costing 22*s.* a ton. The tillage has been thorough and effectual, and being below any previous cultivation, will account for some extra expenses in consequence of the bound and flinty nature of the subsoil. The engine is well up to its work, and the apparatus has stood its work well. An 8-horse power single cylinder engine would not have answered for this farm; of that I am satisfied. I find 4 or 5 acres per day about the average when going deep with the three-tined implement. Too early to form an opinion upon the probable increased production of the farm; but a considerable increase confidently anticipated. Diminished quantity of seed corn; superior quality, increase of crop from deep tillage and early sowing. The roots were very good, and the Wheat plant is looking well.

14. ——, near Chichester.—Farm: arable, 400 acres. Soil: part rather strong red soil on the chalks, mixed with many and some rough flints; part light chalky land; for the most part stiff ploughing land. Rotation of cropping adopted: part 4-course, part 5-course, viz., 2 years Turnips, Wheat, seeds, Oats. Horses formerly employed, 12 to 14; now, 12 to 14. Apparatus bought April, 1861; cost, 250*l.* Rope originally bought, 1400 yards; none bought since. No alterations nor repairs since purchase. Power of engine, 8-horse. Daily wages: engineer, 3*s.*; 4 men, 8*s.*; 2 lads, 2*s.*; total, 13*s.* Cost of water-cart a day, a man and part of horse's time, 5*s.* Daily consumption of coal, about 7 cwt., at 26*s.* per ton. Grubbed 168 acres in 1861. The land has been cultivated to the same depth as before. The tillage is complete; the earth is most minutely broken to pieces. The engine and apparatus seem to be in very good condition. I have not reduced my horse strength yet. I have used the steam cultivator as an extra and a very efficient power, when additional strength has always been wanted on a farm; especially during some few fine days in spring. As to cost, I have not included the cost of engine. My cultivating tackle was more expensive than the same would be now, for I bought mine of Messrs. Howard just at the moment when Smith and H. quarrelled. I have not added the item, but I have considered 7*s.* per day would be a reasonable charge for wear and tear.

15. Mr. GEO. ARMSTRONG, Graffham, near St. Neots.—Farm: arable, 605 acres; pasture, 152 acres. Soil: clay; about ¼ woodland. Rotation: 4-course shift generally; 5-course occasionally. Horses formerly employed, 25; employed now, 18. Apparatus bought 1858. Rope originally bought 1400 yards; bought since, 1400 yards in 1859; and 1400 yards in 1861; 3d. rope nearly worn out. Horse-power of engine, 8. Daily wages: 1 engineman, 2*s.* 6*d.*; 5 other men, 2*s.*; 1 water-cart boy, 1*s.* Coal, ¼ ton per day. Grubbed 400 acres in 1858; 718 acres in 1859; 433 acres in 1860; 761 acres grubbing, and 23 acres ploughing in 1861; 408 acres in 1862. Depth from 4 to 10 inches; with regard to the effect on the farm, I would not be without it for double the cost.

16. Mr. JOHN WYATT DAY, Wootton.—Farm: arable, 160 acres; pasture, 10 acres. Soil: wold land. Rotation of cropping adopted: 4-course shift has been adopted for 40 years; do not sow seeds or Turnips; substitute Tares and Potatoes; have no sheep; move the land twice a year, spring and autumn, when I can. Number of horses now as formerly, 6. Apparatus bought in 1861; cost, 180*l.* Length of rope originally bought, 700 fathoms; none bought since. No alterations nor repairs since purchase. I hire a 10-horse engine, at 15*s.* a day, and they find oil. Daily wages: 2 anchormen, 2*s.* 3*d.*; 2 boys, 6*d.*; 1 man to oil, 2*s.* 6*d.*; 1 windlass man, 2*s.* 6*d.*; and they find oil. Daily wages: 2 anchormen, 2*s.* 3*d.*; 2 boys, 6*d.*; 1 man to oil, 2*s.* 6*d.*; 1 windlass man, 2*s.* 6*d.*; and they find oil. Water-cart, 3*s.*, including man. Grubbing averages 10 or 15 acres per day. Broke the wire rope once from the windlass man allowing the rope to get in the cogs, but splicing it only detained half an hour; made a good joint of it so that we could not find it. I have done near 20 acres in a day, I reckon it far better than ploughing.

[We have several additional reports from other customers of Mr. Smith, but we must defer their publication till next week.]

HOWARD'S CULTIVATOR.

No.	Horse-power of Engine.	Acres Cultivated.	Depth.	Number of Days Work.	Wages.	Fuel.	Oil.	Repairs.
			Inches.		£ s. d.	£ s. d.	£ s. d.	£ s. d.
1	10	508*	12	77	67 7 6 11 11 0	35 9 0	4 7 0 1 10 0	12 18 0 7 0 0
2	8	468	6	60	..	..	1 16 0	5 0 0
3	8	284	..	43	111 0 10	21 10 0	3 0 0	..
4	8	399	..	..	..	..	..	..
5	8	466	..	103	65 4 8	36 1 0	2 11 6	2 12 0
6	8	213	7	36	..	..	..	..

1. Mr. JOSEPH BAYLEY, Pyrgo Park, Romford.—Farm: arable, 204 acres; pasture, 229. Soil, loam; cropping, 4 years' system. Horses employed now, four pairs. Apparatus bought 1862, cost 630*l.*; rope originally bought, 1600 yards, none bought since; alterations since purchase, 5*l.*: repairs since purchase, 12*l.* 18*s.*; engine, 10-horse power. Daily wages: engineman, 3*s.* 6*d.*; windlass man, 2*s.* 4*d.*; ploughman, 2*s.* 4*d.*; two anchormen, 2*s.* 2*d.*; two porters' boys, 1*s.* 4*d.*; waterman, 2*s.* 4*d.*; water-cart, 3*s.*; coal, 8½ cwt. a-day, at 1*l.* 1*s.* 8*d.* a ton. In 1862 508 acres grubbed, 50 harrowed. 12 inches the average depth.

2. Mr. ROBERT BARTON, Wigan Farm, St. Ives.—Farm: arable, 520 acres; pasture, 140. Soil, heavy clay; cropping, 4-course system. Horses formerly employed, 27; now, 23; but have 110 acres more land now. Apparatus bought July 1861, cost 200*l.*, exclusive of engine; rope originally bought, 1400 yards, bought since, 800 yards, July 1862 and 800 yards February 1863; alterations since purchase, 17*l.*, and 70*l.* for new rope; repairs since purchase, 20*l.* exclusive of rope; engine, 8-horse. Daily wages: piece-work, 2*s.* 7*d.* per acre for men and boys, including removals and carting water, I finding horses for water-carting and removal: coal 1*s.* an acre; water cart a-day, horse 3*s.*; coal, 10 cwt. a-day, at 16*s.* per ton. Grubbed 206 acres twice over in 1861.

3. Mr. J. HENDERSON, The Shrubbery, Sandwich.—Farm: arable, 200 acres, pasture 100. Soil, loam; cropping, one-third Wheat, one-third Barley and Oats, one-third Clover, Beans, and roots. Horses formerly employed, 10, and one or two odd; now six horses, and two odd, sometimes at work, at other times remaining in the yard. Apparatus bought August 1861, cost 200*l.*; rope originally bought 1400 yards, none bought since; alterations since purchase, 45*l.*; repairs, not exceeding 5*l.* altogether; engine, 8-horse power. Daily wages: five men altogether; engine, 8-horse power. Daily wages: five men are paid 2*s.* 6*d.* per acre; water cart, 3*s.* 2*d.*, two porters and water cart boys 1*s.* per acre in addition to their usual pay, and the men receive 3*s.* for each remove from field to field; coal, ½ a ton, at 1*l.* per ton. The engine is never driven beyond 60 lbs. pressure per square inch, therefore is not more injured by cultivating than by any other work. I have hardly had the apparatus sufficiently long to say much about the effect of the work on the productiveness of the farm. The land is moved 12 inches deep for roots, and 8 inches for Barley; I am satisfied the result will be good. The men share their 2*s.* 6*d.* per acre thus—engine-driver, 7*d.*, windlass man, 6*d.*, others 5*d.* each; 2*d.* goes to a common fund.

4. Messrs. R. T. & J. WITCOMBE, Pirton Court, Churchdown, Gloucester.—Farm: arable 300 acres; pasture 200. Soil, half clay and half sand; cropping, Wheat, Beans or Clover, and Wheat on clay,—roots, Barley, Beans or seeds and Wheat on sand. Horses formerly employed, 14, and 20 oxen; 14 horses employed now, no oxen. Apparatus bought Sept. 1, 1861, cost 483*l.*; rope originally bought, 1400 yards, bought since 1400 yards, Sept. 25, 1862, costing 47*l.* 10*s.*; no alterations; repairs since purchase, about 5*l.* 10*s.*; horse-power of engine, 8. Daily wages: engine-man, 3*s.*, windlass ditto, 2*s.* 6*d.*, two anchor ditto, 4*s.*, ploughman, 2*s.*, three porter boys, 3*s.*; water-cart, 4*s.* 6*d.*; coal, 10 cwt. at 11*s.* per ton. Grubbed 240 acres in 1861 and dragged 75 acres, besides 400 acres of grubbing in 1862. We have broken up our very heavy land deeper and better with the steam cultivator than it was possible to do it with horse, and I think has grown better crops. There is nothing much worn but the rope.

5. Mr. J. LANCASHIRE, Micheldever, Micheldever Station.—Farm: arable, 710 acres; pasture, 14. Soil: on the chalk subsoil; great portion light. Cropping: on the 4 and 5 field system. Number of horses formerly employed, 18 by

my predecessor; now 15. Apparatus bought Sept. 1861, cost 210*l.*, with driving belt, &c. Rope originally bought, 1400 yards; bought since, 200 yards the next spring. No alterations since purchase. Repairs, 52*s.* Engine, 8-horse, but being extra stayed with thicker boiler plate, is worked up to 12-horse. Daily wages:—engineer, 3*s.*; windlass, 2*s.*; cultivator lad, 1*s.*; 2 anchor men, 3*s.* 4*d.*; 2 porter lads, 1*s.* 8*d.*—11*s.*; water cart man, 1*s.* 8*d*; in all, 12*s.* 8*d.* Water cart, 3*s.* 6*d.* Coals, 7*s.* per day, 20*s.* per ton. Grubbed 130 acres in 1861; and 446 in 1862. Steam cultivation gives that quick fine tilth not to be obtained by horse power. To those who have not yet purchased an apparatus, my advice is, chose that which allows your engine to be stationary; your first outlay will be less, and your repairs will be less. My land was not only very foul, but some of it had lain undisturbed till late, and was an additional cost in working.

6. R. Pullen, Shackerley, Wolverhampton.—Farm: arable, 230 acres; pasture, 100 acres. Soil: sandy loam. Cropping, 4-course. Horses formerly employed, 10; now, 8. Oxen formerly employed, 4; none now. Apparatus bought at Leeds meeting, 1861; cost, 200*l.*, exclusive of engine. Rope originally bought, 1400 yards; none bought since. Alterations since purchase, 15*l.* 7*s.* 1*d.* Repairs since purchase, 5*l.* 13*s.* 6*d.* Engine: 8-horse power. Daily wages: 2*s.* 6*d.*, 2*s.* 6*d.*, 2*s.*, 2*s.*, 2*s.*, 1*s.*; total, 12*s.* Water-cart, 8*s.*; coal, 8 cwt., at 10*s.* a ton. I have cultivated the above acres about 7 inches in depth; should have gone deeper, but was prevented by sand-stone rock. I am perfectly satisfied with the result, but shall be able to speak more confidently after another season. My impression is, that steam culture is most beneficial on strong land. The rope has been broken several times, and I should think that 15 per cent. would not more than cover the depreciation.

[We have several additional reports from other customers of Messrs. Howard, but we must defer their publication till next week.]

Societies.

Bath and West of England.—The Monthly Council meeting was held at Taunton on Saturday last, the Marquis of Bath in the Chair. The Journal Committee reported that Dr. Crisp's Prize Essay on the Lamb Disease, respecting which many inquiries have been made, forms one of the papers in Vol. XI., pt. 1, of the Journal, which is now in the course of distribution among members. Mr. Jonathan Gray, as Steward of the new department of Horticulture, announced that by an arrangement with the representatives of the late Mr. Lawrence, of Devonshire Buildings, Bath, the whole of that gentleman's celebrated collection of Horticultural specimens would be exhibited at the Exeter meeting, on condition that on the following day (Saturday, June 13th), they should be sold by auction in the Horticultural tent in the Society's show yard. A number of resolutions, in the nature of standing orders, for the regulation of the Society's future proceedings, were discussed and agreed to. Several new members were elected, and the Council adjourned.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, May* 6.—Present, Viscount Eversley, President, in the Chair; the Duke of Marlborough, Earl Cathcart, the Earl of Powis, Lord Berners, Lord Feversham, Lord Portman, Lord Tredegar, Lord Walsingham, the Hon. W. Cavendish, M.P.; the Hon. General Hood, Sir John Johnstone, Bart., M.P.; Sir E. C. Kerrison, Bart., M.P.; Sir A. K. Macdonald, Bart., Mr. Amos, Mr. Raymond Barker, Mr. Barthropp, Mr. Barnett, Mr. Bowly, Mr. Bramston, M.P.; Mr. Buller, M.P.; Mr. Cantrell, Col. Challoner, Mr. Dent, M.P.; Mr. Druce, Mr. Exall, Mr. Brandreth Gibbs, Mr. Hammond, Mr. Fisher Hobbs, Mr. Wren Hoskyns, Mr. Hudson, Mr. Humberstone, M.P.; Mr. Jonas, Mr. Lawes, Mr. Lawrence, Mr. Milward, Mr. Pain, Mr. Pope, Mr. Randell, Mr. Rigden, Mr. Shuttleworth, Mr. Robert Smith, Mr. Thompson, M.P.; Mr. Torr, Colonel Towneley, Mr. Turner, Mr. Wallis, Mr. Burch Western, Mr. Wilson (of Stowlangtoft), Professor Wilson, Mr. Frere, and Dr. Voelcker.

The following new Members were elected:—

Allerton, Alexander Rice, Colemans, Prittlewell, Essex
Abell, Martin, Worcester
Archer, James, Combermere Abbey, Whitchurch, Salop
Asten, William, Oddingley, near Droitwich, Worcester
Ashwin, Manley Connell, Ryon Hill, Stratford-on-Avon, Warwick
Armstrong, William James, Killylea, Co. Armagh
Barnes, William, Toft, Bourne
Button, William, Botley, Oxford, Berks
Bosworth, John Green, Greetham, Oakham, Rutland
Begg, David, Canons Park, Edgware, Middlesex
Bishop, James, Stretton Hall, Penkridge, Stafford
Blathways, George William, Dyrham, Chippenham, Gloucester
Carew, R. R., Carpenders Park, Watford, Herts
Caldwell, John, Inworth, Kelvedon, Essex
Coulson, Robert Cummins, Burnigill House, Durham
Cooke, William, Stanford, Worcester
Davies, Robert Joseph, Cwrtmaur, Llangeitho, Cardigan
Druce, A. F. Milton, Eynsham, Oxford
Fenton, William, Beaumonds, near Rochdale, Lancaster
Gilford, William, North Luffenham, Uppingham
Gilliatt, W. J., Ashby Puerorum, Horncastle, Lincolnshire
Hemming, Richard, Bentley Manor, Bromsgrove, Worcestershire
Hooper, Robert N., Llansannor Court, Cowbridge, Glamorgan
Hutchinson, John, Brougham Castle, Penrith, Westmoreland
Holder, William, Eastham, Tenbury, Worcestershire
Hartell, Jeremiah, Willenhall, Wolverhampton, Stafford
Haddock, Henry, 6, Gloucester Place, Regent's Park, N.W.
Jones, Benjamin, Talardd, Llangbyther, Carmarthen
Jones, W. H., Canon Bridge, Madley, Hereford
Jones, George, Whitley Court, Upton St. Leonard's, Gloucester
Kimber, James Weaving, Tubney Warren, Abingdon, Berks
Kelham, Robert, Bleasby Hall, Southwell, Notts
Lunn, Robert, Norton, Evesham, Worcestershire
Lathbury, John, Westmore Hall, Burton-on-Trent, Staffordsh.
Lee, Jessie, Church Gate, Leicester
M'Cann, George, Malvern, Worcestershire
Morris, William Rudkin, North Luffenham viâ Leicester, Rutland
Morgan, Roger, Llanellen, Abergavenny, Monmouth
Morse, Joseph Ramey, Lound, Lowestoft, Suffolk
M'Laren, James, London
Oldacres, Walter, Broad Fields, Lichfield, Stafford
Oakley, James, Wilford, Nottingham
Padmore, Richard, M.P., Worcester
Page, Henry Robert, Beckenham Place, S.E.
Pursell, Samuel, Oxley, Wolverhampton
Randle, Thomas, Ombersley, Droitwich, Worcestershire
Randall, Robert G., Wingfrith, Dorchester, Dorset
Symondson, George, Upshire Hall, Waltham Abbey, Essex
Scawin, Thomas, Durham
Smith, Charles, Kent Street, Liverpool
Smith, Alexander M., Kent Street, Liverpool
Sweeten, Benjamin, Thomas, Ash Grove, Penrith, Cumberland
Somerset, John, Milton, Pewsey, Wilts
Simpson. Sam. Matthews, Kingham Hill, Chipping Norton, Oxen
Teverson, Henry W. F., Bocking, Braintree, Essex
Turner, George, Jun., Beacon Downes, Exeter, Devonshire
Thompson, William, Tregoyd Farm, Hay, Breconshire
Thompson, George, Dudley, Worcestershire
Turk, William, Charlton Rings, Cheltenham, Gloucestershire
Vernon, Harry Foley, M.P., Hanbury Hall, Droitwich, Worcestershire
Wingfield, Charles, Onslow Hall, Shrewsbury, Salop
Watton, James, Cwmliecoediog, near Cemmes, Montgomeryshire
Ward, Robert, Harringworth, Uppingham, Northampton shire
Warren, Samuel, Newtown Iron Works, Ledbury, Herts.
Whitaker, John, Leigh, Lancashire
Yeoman, George Dundas, Hill House, Richmond, Yorkshire

Finances.—The Hon. Major-General Hood, Chairman, presented the report of the committee, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on April 30 was 2820*l.* 10*s.* 6*d.*

Journal.—Mr. Thompson, M.P., Chairman, reported the following arrangements for the weekly meetings of the Council. Wednesday, May 13, Mr. Ruck will deliver a lecture on Steam Cultivation; June 10, Mr. Coleman, of Cirencester, on breeding and feeding Sheep, with a view to increasing the sheep stock per acre.

Veterinary.—The report of the Governors of the Royal Veterinary College for the year 1862 was reserved for consideration at the next Monthly Council.

General Worcester.—Lord Portman, Chairman, reported that the arrangements for the Worcester Meeting on July 20 were all making satisfactory progress.

Country Meeting of 1864.—The report of the Committee appointed to inspect the various sites offered to the Society at Darlington, Durham, and Newcastle, having been read, the Council were favoured by the attendance of the following deputations:—

Darlington Deputation.—Henry Pease, Esq., M.P., and James Farrer, Esq., M.P., Members for South Durham; The Hon. W. E. Duncombe, M.P., and W. S. Morritt, Esq., M.P., Members for North Riding of York; F. A. Milbank, Esq., Hart, county of Durham; the Hon. E. J. Yorke, Esq., M.P., and H. Paull, Esq., M.P., representing the Banking interests of the county of Durham; W. J. Scarth, Esq., Agent of Duke of Cleveland. *Local Committee.*—Edmund Backhouse, Esq., Chairman; John Michell, Esq., Forsett Park; and H. F. Pease, Esq., Brinkburn. *Tenant Farmers.*—Messrs. D. Nesham, J. Fertham, John Wood, and R. Kay. Messrs. J. Parrington, Cleveland Agricultural Society; and R. Scarth, Secretary of do. Mr. John Hodgson, Secretary of Northern Counties Fat Cattle Society. Mr. T. B. Special, Hon. Sec. of Local Committee.

City of Durham Deputation.—The Right Hon. the Earl of Durham, Lord Lieutenant of the County of Durham, Lambton Castle; the Right Hon. the Viscount Boyne, Brancepeth Castle; the Very Rev. the Dean of Durham, D.D., Warden of the University; the High Sheriff of the County of Durham, Horsley, Durham; the Right Hon. the Attorney-General, M.P.; the Right Hon. R. J. Mowbray, M.P.; R. D. Shafto, Esq., M.P., Whitworth Park; Lord Adolphus Vane Tempest, M.P.; Henry Fenwick, Esq., M.P. (for Sunderland), South Hill; W. S. Lindsay, Esq., M.P. (for Sunderland); the under-Sheriff of the County of Durham; John Fawcett, Esq., J.P., North Bailey, Durham; Henry John Baker Baker, Esq., J.P., Elemore Hall, Durham; John Henderson, Esq., J.P., Leazes House, Durham; Samuel Rowlandson, Esq., J.P., The College, Durham (on behalf of the Dean and Chapter of Durham, and the University of Durham); Edward Peele, Esq., Registrar to the Dean and Chapter of Durham; William Boyd, Esq., Alderman of Durham; Thomas Calvert, Esq., Councillor of Durham: Mr. John Furneis, Coxhoe, Chairman of the Durham County Agricultural Society's Committee; Mr. R. C. Coulson, Burnigill, Secretary to the Durham County Agricultural Society; Mr. William Crozier, C.E., Surveyor to the County of Durham. —W. R. Fitzgerald and Joseph Hatton, Secretaries to the Joint Committees.

Newcastle-upon-Tyne Deputation.—Corporation of Newcastle: Mayor of Newcastle, Alderman Headlam, and Alderman Laycock. Farmers' Club of Newcastle: Sir Matthew White Ridley, Bart., M.P., President; Mr. G. H. Ramsay, Mr. J. Wilson, and Mr. E. J. Browell, Secretary. Northumberland Agricultural Society: Sir Edw. Blackett, Bart.; Hon. Henry George Liddell, M.P.; and Henry Silvertop, Esq. Landowners, &c.: Earl of Tankerville; Lord Lovaine, M. P. for North Northumberland; Wentworth B. Beaumont, Esq., M.P. for South Northumberland; Rt Hon. T. E. Headlam, and Somerset Beaumont, Esq., Members for Newcastle; Robert Ingham, Esq., M.P. for South Shields, county of Durham; Mr. J. C. Tone, C.E., Engineer of Railway to the Yard; Right Hon. William Hutt, M.P. for Gateshead, in county of Durham; Richard Hodgson, Esq., M.P. for Tynemouth.

These gentlemen having communicated to the Council the fullest local information connected with their respective districts, and having answered satisfactorily the inquiries made of them by the Council, the President expressed to them the best thanks of himself and the Council for their kindness in having attended the meeting that day, and for the deep interest they had evinced in promoting the objects of the Society.

The Deputations having withdrawn, the Council proceeded to the consideration of the particular locality best suited, under all circumstances, for holding the County Meeting next year; and after some discussion of the respective advantages of each position to which their attention had been called, it was decided on the motion of Mr. Milward, seconded by Lord Portman, in favour of Newcastle-upon-Tyne, by 21 votes to 18.

House List.—Agreeably with the bye-laws the Council arranged by ballot the following election list to be recommended by them for adoption at the ensuing General Meeting on the 22d inst.:—

Attendances (from the Rising of the Leeds Meeting, in 1861, to the Present Time).

Names.	Monthly Councils. Total, 18.	Special Councils, Total, 4.	Weekly Councils. Total, 23.	Committees. No. of Meetings.	Committees. Attendances.
Acland, Thomas Dyke, Spry-doncote, Exeter, Devon	2	1	0	19	2
Barnett, Charles, Stratton Park, Biggleswade, Beds	7	2	1	60	23
Buller, James Wentworth, M.P., Downes, Crediton, Devon	1	1	0	0	0
Cantrell, Charles, Riding Court, Datchet, Bucks	11	2	8	41	26
Cathcart, Earl, Thornton-le-Street, Thirsk, Yorkshire	4	1	2	7	5
Clayden, John, Littlebury, Saffron Walden, Essex	—	—	—	—	—
Dent, John D., M.P., Ribston Hall, Wetherby, Yorkshire	9	0	3	14	10
Hamond, Anthony, Westacre Hall, Brandon, Norfolk	5	0	0	11	1
Hood, Major-General the Hon. Alex. Nelson, Cumberland Lodge, Windsor, Berks	15	4	11	92	60
Hudson, John, Castleacre Lodge, Swaffham, Norfolk	5	2	0	11	0
Humberston, Philip Stapylton, M.P., Mollington, Cheshire	3	0	1	5	1
Milward, Richard, Thurgarton Priory, Southwell, Notts	8	3	0	58	22
Pain, Thomas, Laverstock Hall, Salisbury, Wilts	10	1	7	52	27
Pope, Edward, Great Toller, Maiden Newton, Dorset	8	1	0	5	1
Ridley, Sir Matthew White, Bart., M.P., Blagdon, Morpeth, Northumberland	—	—	—	—	—
Rigden, William, Hove, Brighton, Sussex	11	2	1	5	2
Stanhope, James Banks, M.P., Revesby Abbey, Horncastle, Lincolnshire	2	1	1	0	0
Torr, William, Aylesby Manor, Great Grimsby, Lincolnshire	11	2	0	57	35
Turner, George, Beacon Downes, Exeter, Devon	5	1	0	0	0
Vernon, Hon. Augustus, Sudbury, Derby	9	4	7	34	14
Wallis, Owen, Overstone Grange, Northampton	5	1	0	6	4
Western. Thomas Burch, Felix Hall, Kelvedon, Essex	10	3	5	0	0
Wilson, Henry, Stowlangtoft Hall, Bury St. Edmunds, Suffolk	8	2	3	0	0
Wilson, Professor John, Iver, Uxbridge, Bucks	7	0	4	16	9
Wynn, Sir Watkin Williams, Bart., M. P., Wynnstay, Rhuabon, Denbighshire	7	2	0	0	0

The applications of firms who had neglected to make their entry for the Worcester Show by the prescribed date were directed to be returned.

The Council then adjourned to their Weekly Meeting on the 13th inst., when Mr. Ruck will read a paper on Steam Cultivation.

Mr. Turner having moved that the Society hold their Country Meeting in 1865, in the district comprising the counties of Cornwall, Devon, Dorset, and Somerset, it was seconded by Mr. Milward and adopted.

Royal College of Veterinary Surgeons.—The annual meeting of this body was held on Monday last at the College, Red Lion Square, the President, Professor Simonds, in the chair. The annual report read by the Secretary stated that the number of the members of the College practising in the kingdom was 1018, while the number of those who improperly assumed the title of veterinary surgeon was 1244, and those practising as farriers 1189. It was strongly urged by several speakers that legislative interference should be sought to protect the legitimate members of the profession from the false representations of unqualified practitioners, and also to secure immunities and exemptions for the members in reference to serving as jurors; and it was stated that a special committee had been appointed by the Council for the carrying out of those objects. After some discussion the report was unanimously adopted. The following gentlemen were elected to fill the vacancies occasioned by the retirement in rotation of six members of the Council: Messrs. Cartledge, Silvester, Braby, Jex, Gamjee, and Secker. A vote of thanks to the President terminated the proceedings. In the evening the members of the College dined together at the Freemasons' Tavern.

Farmers' Clubs.

London: The Monthly Meeting of this Club was held on Monday last, at the Club House, Blackfriars, Mr. Bradshaw presiding. The subject for discussion, which was introduced by Mr. J. B. Spearing, of Moulsford, Wallingford, was announced as "*Practical Remarks on the Effect of Temperature on Cultivation, from Observations of the Three past Seasons.*" After a few opening remarks from the Chairman, Mr. Spearing said:—

The subject of meteorology is one which for the last few

years has received a very considerable amount of attention, and has so far become interesting to almost all classes of society that we scarcely see a public journal which does not contain either the regular recorded observations of those who are known to study the subject, or notes from others who make casual comments; to say nothing of the many predictions which others give as to what the future weather or temperature may be. Surely, then, a subject which is so interesting to the many, must be especially so to agriculturists, whose spirits, operations, success, and I may almost say very existence depends upon the weather or temperature, and how it affects the produce of the land. In preparing this paper I have studiously avoided everything purely scientific, and if I have introduced anything that may be considered so it is only in those instances where it is brought to bear especially upon practice.

When we look around us in the spring and admire the works of Nature, we cannot but feel that all is governed by a law which is not to be calculated by time, but rather by heat or temperature; and it will be my business here to show that the more the cultivators of the soil study these laws, the less frequent will mistakes be made as to the times of planting, &c., and the more certain will be the results of their labours. If I may be allowed to use so mechanical an expression, I will say that our trees and plants are to the earth what the safety-valve is to the engine: when the pressure or temperature reaches a certain height, then vegetation opens some at one degree of heat, some at another, but all and each in beautiful order, and in their respective places. One case in point will be sufficient to show the correctness of this assertion. Take the apple tree, which bursts into blossom when the temperature of the earth reaches 52° or 53°. Here let me remark that wherever degrees of heat or temperature are spoken of in this paper, the Fahrenheit scale is referred to. In 1860 I observed the first Apple-blossom on the 7th of May, on which day the temperature of the earth was 54°. In 1862 I observed the first blossoms just ready to burst on the 4th of April, the temperature of the earth being 51½°. I believe they would have opened in a day or two had the temperature risen, but the weather suddenly changing, it gradually receded to 46° on the 17th. The blossoms were kept in this state of suspended animation for 21 days. When the temperature of the earth reached 52° on the 25th they then came out. The trees produced a moderate crop of fruit, but they were not fine, and did not keep. I believe this accounts for the crop of Apples being so partial last year. In those localities where they were farther advanced on the 4th of April than mine, I think there were none (except on those blossoms in the most sheltered parts of the trees); but in those districts more backward, I believe the crop to have been large and fine.

I have for some years taken trouble in ascertaining at what temperature different plants came into blossom, but I was led to keep a regular record from a simple fact, which it may not be out of place here to relate. In front of my house is a fine Horse-chesnut tree, which, from yearly coming into flower several days earlier than any other in the neighbourhood, and on the same level, appeared to be quite an exception to the general rule, and perplexed me much, until I accidentally discovered an old well, about 15 yards from its base. On clearing it out, for the purpose of erecting a pump, it was found to be entirely filled with small fibrous roots from the tree, to within 7 or 8 feet of the surface. These were all removed, and ever since the tree has come out later, and about the same time as others in the neighbourhood, and now bears fruit, which it had never done before. The difference of 4° in the temperature of this well at 18 feet deep, and of the soil at 1 foot deep, quite explains its being earlier in flower.

In all accounts I have read of the effect of temperature on cultivation, the temperature of the air has been taken, and all calculations made therefrom. In the remarks I have to make, the temperature of the earth at 1 foot deep is given, as I consider, for all agricultural purposes, it is more simple and more easily ascertained; and, moreover, the mean temperature of the earth at 1 foot deep, and the mean temperature of the air, are so nearly alike, for any given period of time, that the difference, so far as agriculture is concerned, is immaterial. We know that England is subject to a very variable climate, from the constant antagonism of a warm climate on the west side, with a cold continental one on its east. We also know by experience that the three last summers have been remarkable for the great absence of anything like excessive heat; and although hot summers are considered to be neither productive or beneficial for stock or crops, yet there is an amount of heat absolutely necessary to mature our crops, more especially for Wheat, and two or three degrees below the required amount is of the utmost consequence.

It is said that summers with a temperature of 63° are the most congenial to the produce of this country. In the summer of 1860 the temperature of the soil reached 64° in the valley of the Thames. This being a very early district, our Wheat ripened well, and we had a fair average crop of good quality; but I went over much land where the temperature never reached 62°; here the Wheat was by no means good either in quantity or quality; and there was a great deal of strong land in high and cold situations where the temperature of the soil never reached 60°, and it is needless to say that here the Wheat was miserably bad, and it cannot be said that it ever ripened at all, for when cut in a withered state it was still green. If, therefore, Wheat will ripen at 64°, and not under 60°, I think we must all be impressed with the necessity of deep drainage on cold lands; for I have observed where land has been thus drained, the temperature of the soil is raised 2° or 3°, and this is of the utmost importance in cold wet seasons, besides bringing the harvest somewhat earlier. I am not prepared to say the precise maximum temperature under which our crops will flourish, but there is abundant information on the subject to satisfy us that Wheat thrives best where the mean summer temperature is 10° or 12° higher than ours. As we travel farther south, we see in those countries where heat is greater annuals cannot flourish, as they are unable to make their way down so as to extract the necessary nourishment; consequently shrubby plants and trees are cultivated, as Olives, Vines, Figs, &c., whose roots penetrate deeper, and enable them to thrive.

We may infer, then, that although our climate is changeable, yet lying as it does between the two extremes, is, on the whole, most suitable and encouraging for the full development of agriculture, affording as it does ample provision for stock which thrive better in our latitude than any other; and, at the same time, produces cereal crops which in most seasons can compete with the produce of any other country.

I will now remark on the crops which most affect the farmer, and speak first of the Wheat plant. There seems great diversity of opinion as to the best or proper season of planting; many contend that on poor land it is desirable to begin sowing by new Michaelmas Day, others as early in October as possible, while only a few think November soon enough. The result of my observations is, that it is not a question of time. I do not think it is safe to plant Wheat in the autumn until the temperature of the earth is reduced to 50°, which is seldom if ever the case until the last week in October on warm soils, and the middle of October on cold and more backward ones. In 1860 mine was reduced to 50° on the 30th of October; in 1861, on the 31st October; and in 1862, on the 1st of November. If Wheat is sown before the temperature is sufficiently reduced, it does not remain long enough in the ground to take good root, and I have seldom seen a good crop of Wheat grow from seed that came up in less than 30 days. In 1860, Wheat drilled on the 26th of October came up on the 28th of November, lying 32 days in the ground, and took 1426° of heat, at a daily average of 44°. In 1862, that which was drilled on the 30th of October came up on the 1st of December, lying 31 days in the ground, and took 1379° of heat, at a daily average of 44½°. Another disadvantage arises from sowing when the temperature is too high: weeds vegetate which could not at a later period, and if not impossible are certainly very difficult to eradicate. The first thing the young Wheat plant has to contend with is the winter season. Under most circumstances I think we may safely say that from its hardiness the severity of the winter season is of but little consequence provided the seed was sown sufficiently late so as not to become too gay or winter proud. I do not mean to say that Wheat under propitious circumstances never recovers a check thus received, but I think you will all agree with me that it is desirable, if possible, to avoid subjecting it to such a test. The plant commences its growth in the spring as soon as the temperature of the soil reaches 43° or 44°. In 1860 I first perceived the Wheat begin to grow on the 28th of March, when the temperature of the soil was 44°. It was 145 days to the 20th of August before it was ripe, from which we must deduct 12 days when the temperature was below 42° (when Wheat cannot grow or progress); this leaves 133 days for it to mature in. In 1861, I noticed the Wheat begin to grow on the 24th of March, when the temperature was 43°, and it was 130 days to the 2d of August before it was ripe. The temperature was not once below 42°, so that there was no deduction to be made from the 130 days. In 1862 the temperature of the soil reached 43° on the 11th, 12th, and 13th of January. It then receded for 17 days, after which it gradually increased for five days, reaching 46° on the 4th of February. It ranged from 39° to 46° again up to the 11th of March; so that the Wheat was constantly growing above ground the whole of the spring, consequently it did not take good or deep root in the soil, and was not likely to produce a heavy or even an average crop. The weather in March is of the utmost, or I may say vital, importance to the Wheat plant. As the land becomes dry in March, the roots keep penetrating deeper and deeper into the soil to obtain moisture, and by so doing ample provision is made for the plant to extract that nourishment and support which is necessary for its future wellbeing and development; but on the contrary, if we have much wet in March, accompanied, as it generally is, by a high temperature, then the plants grow above ground, and the roots being supplied with moisture on the surface are not induced to penetrate sufficiently into the soil so as to be able at the required time to draw that amount of nourishment from the land which alone can enable it to produce a heavy crop. Nor would it be able to do so if the summer afterwards should prove to be more than usually dry and propitious. The amount of rainfall for March, 1861, was 2.06 inches; for March, 1862, was 4.29 inches; and for March, 1863, only 0.63 inches. The next critical period through which Wheat has to pass is from the time of its coming into ear to the time when the blossom is fully set. At this time the temperature of the air is of more importance than at any other stage of its growth. Extreme heat is not desirable, but a medium temperature, with the least possible daily range; for I have never observed red gum, rust, or mildew to any extent unless there had been a difference of from 32° to 35° between the mean maximum or heat of the day and the mean minimum or cold at night; and it prevails to a greater or less degree just in proportion as the range of temperature increases or diminishes. I have known Wheat to vary from 49 to 70 days from the time of its coming into ear to the time it was ready for the sickle, according to the amount of heat, as it requires 3000° to 3500° to mature it. In 1860, the Wheat which came into ear on the 12th June took 69 days to ripen, and 4191° of heat, from which we must deduct 562°, for 10 days, when the temperature was below 58°, this leaves 3,629° for the 59 days, at an average of 61½°. The greatest heat the soil reached this season was 64° on the 14th and 15th July, after which time the earth gradually lost its heat. In 1861, Wheat which came into ear on the 5th of June took 55 days to ripen, and 3506° of heat, from which deduct 281° for five days, when the temperature was below 58°. This leaves 3225° for 50 days, at an average of 64½°. The greatest heat the soil reached this year was 67° on the 20th of June, and on the 13th and 14th of August. In 1862, Wheat which came into ear on the 19th June, took 3406° of heat, and 56 days at an average of 61°. The highest temperature of the soil was 64° on the 30th July, where it remained for seven days. It only reached 64° once more this year, viz., on 29th August.

With regard to Barley it cannot be said that it is so universally grown to advantage as Wheat, and the effect of temperature on it is even more striking. The proper period for planting is of the utmost importance, for though Barley may be sown too early in the spring, yet as a general rule the early sown is the most productive, because the temperature being low, the seed remains sufficient time in the ground, and grows but slowly when it comes up, which enables it to take deep root in the soil. Late sown Barley is very unproductive in warm seasons; the temperature of the soil being high at the time of planting, it comes up quickly, and continues to grow so rapidly that it makes no root, consequently cannot extract much nourishment from the land or produce a heavy crop; if, however, the weather is cold about the beginning of June (which has been the case one or two seasons lately), this backward Barley then receives a seasonable check, which enables it to take deeper root, and not unusually produces a crop nearly equal to the forward sown. In my opinion it is a great mistake to leave the roots on the best and highest conditioned land to feed off last, as in the generality of seasons it produces three or four sacks of Barley less per acre than it would if sown early, whereas the poorer land will almost invariably grow as much sown late as it would if sown forward, and should it not, the difference will never be more than one or two sacks per acre, from the fact of its having longer time to develope by not being forced to maturity so quickly. In 1860 Barley drilled on the 3d of April came up on the 23d, remaining 19 days in the ground, and took 802° of heat, at a daily average of 42°; whereas that which was drilled on the 24th of April came up on the 5th of May, lying 10 days in the ground, and took only 500° of heat, at an average of 50°. In 1861 Barley drilled on the 25th of March came up on the 11th of April, remaining 16 days in the ground, and took 736° of heat, at an average of 46°; whereas that drilled on the 9th of May came up on the 20th, lying 10 days in the ground, and took only 512° of heat, at an average of 51°. In 1862 Barley drilled on the 1st of April came up on the 19th, lying 17 days in the ground, and took 831° of heat, at a daily average of 48°; whereas that drilled on the 6th of May came up on the 14th, remaining only seven days in the ground, and took no more than 397° of heat, at a daily average of 56°; had the temperature continued to increase, this Barley last spoken of could not have produced anything like a satisfactory crop, but it decreased considerably the last two weeks in May, which so far checked it that the yield was about three sacks per acre less than the earlier sowing on land close adjoining and of similar quality. Barley does not require so much heat as Wheat, which is testified by the fact of its being cultivated some degrees beyond the northern limit of the growth of Wheat; we must also have observed that our best Barley-growing districts do not produce so good a quality in those seasons when the summer temperature is above 63° as it does when it is below. I may also add that in those summers when the mean temperature ranges above 63°, much of the strong and colder lands produce a good fair average quality, and where this description of land has been well and deeply drained, some of our finest qualities of Barley are grown in warm seasons.

I will not detain you by speaking of Oats, as they require a lower temperature than either Barley or Wheat, and grow finest in moist and cool climates, they therefore require the least attention and skill in their cultivation.

I must not close without speaking of root crops, although I fear you will consider my figures uninteresting. The system of autumn cultivation or cleaning of stubble for roots is yearly gaining ground, and must, I think, eventually become universal, as frequent ploughings in the spring and summer months raise the temperature of the soil too much for roots, and often materially injure the crop, more especially in dry and warm seasons. Moderately warm and moist summers are best suited for the growth of roots, as they cannot take up their food from the soil unless supplied with a proper amount of moisture. I wish here especially to speak of the Swedish Turnip, because I think there are many very grievous mistakes made in their cultivation; first, as to the time of sowing, which should not take place until the temperature of the soil has been 55° for some few days in succession, as they cannot grow freely at a lower temperature, consequently they are a long time coming to the hoe, and the hardier weeds growing freely choke up the plants, and render the operation of hoeing more tedious and expensive. I maintain that Swedes should be grown with one of two objects in view—either for storing or for consuming on the land without pulling; if for storing, the system most generally adopted is good, viz., of drilling the manure and depositing the seed immediately over it, some on the ridge, others on the flat. If the land is at all strong and cold, the ridge is generally found to answer best, and the temperature of the soil in which the seed is deposited is somewhat raised by so doing; on the other hand on warm gravel, loam, or chalky soils they are considered to do as well on the flat. The plants, when singled out, are forced to the greatest extent, having their food placed so close to them; but they are not thereby induced to throw out many roots in search of food, and are consequently not in a position to stand even a moderate frost. If Swedes are grown for the purpose of consuming on the land without being previously stored or pitted, then I think it is very clear the former mode of cultivation is both injudicious and unsafe. The land for this purpose should be previously got into good condition, either by farm-yard or artificial manure, some time before the seed is planted, and previous to the last ploughing; the seed should then be drilled with only a very small portion of artificial manure, so as to start the plants and bring them to the hoe; they will then have to work for their own good, and in so doing will fulfil the law of nature, and throw out sufficient roots to enable them to stand almost any degree of frost they are likely to be subjected to. I acknowledge that there is not so heavy a crop grown under this system, but what is the use of growing a heavy crop that will not stand a moderate winter, when they are grown for the express purpose? I must here confess I am not a very strong believer in what is called the hardiness of this or that sort of Swede; I believe them all to be hardy in their natural state, and are still so under judicious treatment, but that they are only rendered tender by excessive cultivation. I venture to say this much on the point, from having some years ago grown in a field of about 30 acres nearly 20 different varieties of Swedes for experiment, a land of each, all cultivated alike and planted at the same time; they were subjected to quite an average amount of frost, and I could perceive but little, if any difference, in their capability of standing it; but I observed that the green of those which I had from the North of England did not run so soon by several days in the spring as those which came from the South. I also had a fair opportunity of ascertaining what soils were most preferred by the hares, and I gave them credit for being first-rate judges.

Kohl Rabi, which only a few years ago was introduced into this country as an extremely hardy plant, capable of standing the most severe northern winter (the truth of which we can none of us doubt); when grown in a warmer climate, and forced to a considerable extent, it proves to be anything but hardy; that which I grew in 1859 and 1860 was killed each winter by the frost. The springs of 1860 and 1861 afforded ample opportunity for testing the correctness of what I have asserted on the cultivation of the Swedish Turnip. In the spring of 1860 a very large proportion of the Swedes standing in the fields in my locality were rotted, and I believe it was very generally so. I took considerable interest in examining and trying to ascertain the cause, because we had no degree of frost to justify such a fact. I have no doubt that many of you remember that after a moderate amount of frost, accompanied by a fall of snow, we had a sudden thaw for two days, which slacked the soil about five inches below the surface, and saturated it with the melted snow; it suddenly changed and froze again for several days: after the frost went away it was discovered that many of the roots were rotting, and it was found that it was only from the bottom at the taproot the mischief began, and it was rapidly spreading upwards. Now none of those Swedes I examined that were deeper embedded in the soil with good roots to them, and had been cultivated in the manner I last described, were the least affected, except now and then a plant which had not taken sufficient root in the soil. At Christmas, 1860, and early in January, 1861, the roots in my neighbourhood were saved after a very severe frost by a most remarkable coincidence. Christmas eve and the night of the 28th December were two of the hardest frosts known in this country for many years; in the air the thermometer went 6° below zero, making 38° of frost. The temperature of the soil at one foot deep rapidly went down from 35° on the 19th of December to 32° on the 28th, and to 31° on the 29th and 30th; had it receded another degree I believe there would not have been a sound root left, but a sudden thaw commenced on the 30th, and continued for three days, during which the sun shone brightly, and raised the temperature of the earth to 36°. On the 2d January it began freezing again, and continued very severe for 18 days, but the earth never lost its heat or went below 36° again, so that the roots were not affected by the frost, and it was the three days' sun which saved them. I did hear of some places where the Swedes were partially rotted, but they could not have been deeply rooted in the ground, as it takes 2° or 3° of frost to destroy the taproot of the Swede. This I think must be another convincing argument in favour of deep draining, as 1° or 2° in the temperature of the soil not only give to the Wheat that gluten on which the real value of the flour depends, but occasionally saves a crop of roots from destruction. I could go on multiplying instances of this kind if it was desirable; but I trust sufficient has been said to convince in a measure some who have hitherto felt no interest in meteorological observations, and have not taken the trouble to consider how much the effect of temperature on cultivation is a farmer's question, and one he would do well to study. Perhaps one more observation on the subject may strengthen my remarks. A few years since, when the project was started for building distilleries in this country for the purpose of extracting spirit from the Mangel Wurzel or Beet-root, would a knowledge of climate and its effect upon the production of spirit allow any one for a moment to sup-

port that such an operation was at all likely to be successful? I speak of it because at the time I was powerfully persuaded to join in the undertaking; but the statement and calculation produced at once convinced me that they were based upon experience gained in the south of France. A slight knowledge of the subject would satisfy one that that which was a decided success there would in all probability be a disastrous failure here; even if a good spirit could have been produced, the fact of having to work down nearly 50 tons of roots to gain the amount of spirit which could be obtained from about one-fourth of the quantity in the south of France, was in reality to multiply the working expenses by four or five, and thereby leave no profit upon the manufactured article. I believe there are seasons when our mean summer temperatnre ranges above 64° that spirit could be distilled from roots at a profit, but the roots should not be from our most fertile valleys, where 40 or 50 tons per acre are not unfrequently grown, but on some of the warm and sheltered hill-sides facing the south, where about 20 tons per acre would be considered a good crop, as we must bear in mind that sun is very necessary in the production of sugar or spirit. We all know that our wall fruit grown in the most sheltered situations, and exposed to the full rays of the sun, have but little flavour in summers when there is a deficiency of heat.

It might have been expected that I should have spoken more of the amount of rainfall and moisture, but I have not done so because those summers which have been more than usually cold have generally been accompanied by a large fall of rain; the rain, in fact, being rather the cause than the effect of the low temperature.

Miscellaneous.

Sale of Mr. Ambler's Short-Horns.—The sale of the entire stock of Short-horned cattle belonging to Mr. H. Ambler, the well-known eminent Yorkshire breeder, took place in a large field at Watkinson Hall, near Halifax, on the 29th ult., and was attended by about 1000 persons, including agriculturists and gentlemen interested in the rearing and feeding of cattle from all parts of the kingdom. Mr. Wetherell, of Aldborough, near Darlington, was the auctioneer, and previous to beginning the sale announced that every animal which entered the ring would be sold, and that neither Mr. Ambler nor anybody on his behalf would bid 1*s.* The competition was keen throughout the sale; 25 cows and heifers sold for 1207*l.* 10*s.*, being an average of 48*l.* 6*s.* each; 10 bulls, 454*l.* 13*s.*, an average of 45*l.* 9*s.* 4*d.* each; eight dairy cows, 181*l.* 13*s.* an average of 22*l.* 16*s.* 8*d.* each; 24 pigs were afterwards sold, which realised 122*l.* 5*s.*, or 5*l.* 2*s.* each. The total proceeds of the sale amounted to 1966*l.* 1*s.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. SEARING, Moulsford, near Wallingford, Berks, during the week ending May 6, 1863.

Day of Week.	Day of Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Dry Bulb Thermometer.	Reading of Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0-6	Amount of Cloud 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
Thursday ..	30	Inches. 30.15	44°	42°	N.E.	3	6	55°	32°	106*	27°	Inches. 0.02	52°	51½
Friday ..	1	30.30	47	43	N.E.	2	1	55	24	109	21	0.01	50½	51
Saturday ..	2	30.18	52	46	N.E.	2	1	60	30	121	25	..	52	50½
Sunday	3	29.99	49	47	N.E.	2	6	62	35	123	31	..	52	51
Monday	4	29.87	56	53	N.W.	2	7	70	46	128	43	..	53	51
Tuesday ..	5	29.52	61	56	W.	3	6	68	46	116	40	..	54	52
Wednesday	6	30.06	54	50	N.	1	3	66	36	115	33	0.02	54	52

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 80° higher than an exposed blackened bulb.

Notices to Correspondents.

MANGEL WURZEL: *E S T.* The Mangels will keep very well over the summer. Keep them dry enough to hinder their sprouting, and not so dry as to get quite withered. You may easily feed stock on Mangels all the year round.

REFINERS' REFUSE. *M.D.* It will be a useful superphosphate if treated with sulphuric acid. Guano has in certain experiments proved the more efficient for a moistening with sulphuric acid before application to the land. But there is no need of doing this except in dry windy weather and broadcast application.

THE HYDROPULT,

EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "The machine is certainly the most compact and efficacious force pump of its size that we have ever seen."—*Daily Telegraph.*

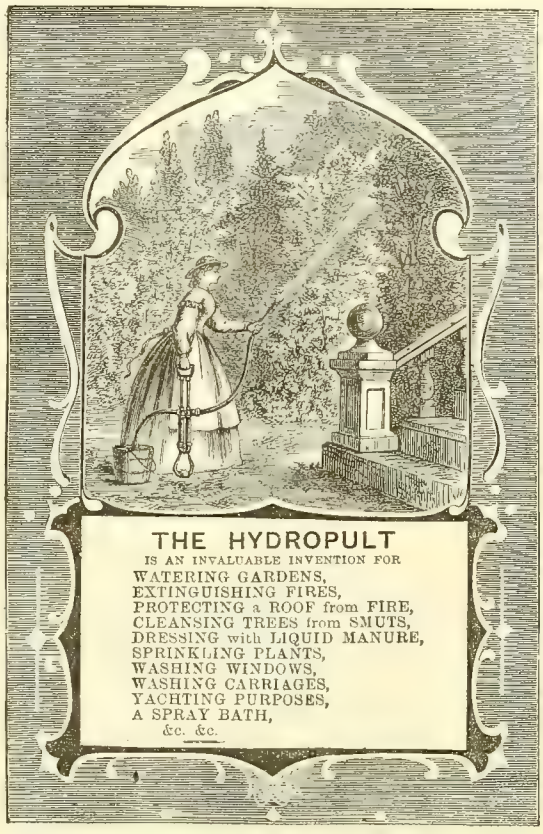
THE HYDROPULT. — "All Londoners and other town residents who care for their gardens and greenhouses should avail themselves of such engines." — *Gardeners' Chronicle and Agricultural Gazette.*

THE HYDROPULT. — "We strongly recommend it to our readers." —*Journal of Horticulture and Cottage Gardener.*

THE HYDROPULT. — "It will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water." — *Gardeners' Weekly Magazine.*

THE HYDROPULT. — "Country readers who order it on our recommendation, will not only not repent but thank us for calling attention to a machine which, having once used, they will never care to be without."—*Floral World and Garden Guide.*

THE HYDROPULT. — "We can only say that no public establishment or private house should be without one of these useful machines."—*Commercial Daily List.*



EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "We are satisfied that all housekeepers ought to have one, and we are equally satisfied that if they once see it they will order it." — *Liverpool Daily Post.*

THE HYDROPULT. — "We commend it to the notice of the proprietors of warehouses and other buildings, public and private, in the metropolis and provinces.' — *Mechanics' Magazine.*

THE HYDROPULT. — "It is admirably adapted for sprinkling gardens, trees, graperies, washing windows, carriages, and for household purposes, its simplicity and portability being its strong recommendation." — *Illustrated News of the World.*

THE HYDROPULT. — "Nothing has yet been introduced for watering gardens equal to the Hydropult, as any one standing close to his house can water, in a few minutes, any ordinary suburban garden, thus saving much time, and performing the task in an easy, satisfactory manner." — *Builders' Reporter.*

THE HYDROPULT. — "Many of the most scientific men of the age are daily inspecting and testing its uses." — *Age We Live In.*

AN INVENTION FOR THROWING WATER BY HAND POWER

(SECURED by ROYAL LETTERS PATENT),

Price **TWO GUINEAS.**

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Small Jet. Weighs but 8 lbs.

Recommended as an efficient and useful Fire Engine by the principal Fire Insurance Companies of Great Britain.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

THOMAS RIVERS, Esq., the eminent Florist, SHIRLEY HIBBARD, Esq., and other well-known gentlemen, recommend it as an invaluable Garden Implement.

EXTRACTS FROM TESTIMONIALS.

"Royal Insurance Office, Liverpool.

"My dear Sir,—I have much pleasure in expressing the high satisfaction, and indeed surprise, with which I witnessed the working of your Hydropult. There can be no doubt that it can be available in the earlier stages of fire in warehouses, manufactories, or private houses, in preventing large conflagrations, while its applicability to gardening and other purposes will be manifest to any one observing its operation.—I am, my dear Sir, yours truly, "PERCY M. DOVE, Manager."

"Chas. P. Button, Esq."

"The invention will prove extremely valuable for all the purposes to which such machines are applied.—SWINTON BOULT, Secretary, Liverpool and London Insurance Company."

"Its portability and facility of operation recommend it to the general notice of the public.—HENRY LOWE, Secretary, District Fire Company."

"In a blowing or mixing room it would be of especial service. — F. J. HALLOWS, Secretary, Caledonian Insurance Company."

"38, Portland Street, London, W.C.

"Mr. Charles P. Button. Sir, I am perfectly satisfied from the statement of Mr. Green, the conductor of our fire-escape at Notting Hill, that a large amount of valuable uninsured property was saved from destruction by the timely and efficient use of the Hydropult, which was fortunately on the adjoining premises during the fire which consumed the drapery establishment of Mr. Thomas, of 4, Coburg Place, Bayswater, on Friday evening last. Your little engine was used most effectually in keeping the roof of the adjoining house saturated with water, thereby preventing the spread of the flames, as the engines of the regular district fire brigade did not arrive on the spot until more than one half hour after the fire broke out.

"A fire, at its commencement, can readily be extinguished by means of this little annihilator, and infinite service rendered in staying the progress of the flames during the interval which must elapse before fire-engines can, under any circumstances, be brought into action.—Yours truly, T. SPENCER, Inspector of the Royal Society for the Protection of Life from Fire."

CAUTION: Important to the Public.—The extensive sale of the HYDROPULT has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting, as they are often placed under or near the Hydropult show card. The Proprietor therefore issues this caution, and respectfully intimates that parties wishing to purchase the Hydropult, should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, a Portable Fire Annihilator and Garden Engine; GRIFFITHS & BROWETT, Manufacturers, Birmingham; CHARLES P. BUTTON, General Agent (Vose's Patent)." Unless this label be attached, the machine is not the Hydropult."

THE HYDROPULT is MADE of BRASS and COPPER, weighs but 8 lbs., and WILL THROW EIGHT GALLONS of WATER PER MINUTE FIFTY FEET, WHEN WORKED by the POWER of ONE MAN.

Public and private buildings have been saved from destruction by its agency. T. SPENCER, Esq., Inspector of the Royal Society for Protection of Life from Fire, certifies to its efficiency in saving valuable property at Bayswater from destruction.

FIRE! FIRE! FIRE! THE HYDROPULT IS THE MOST EFFICIENT FIRE-ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.

It can be used for all purposes for which a hydrant or force pump is applicable, and in situations where other contrivances are useless.

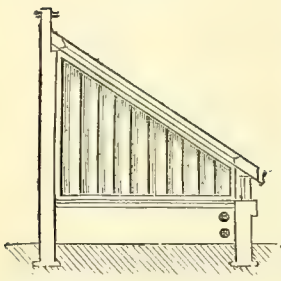
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WEST END DEPOT, 309, REGENT STREET, W.

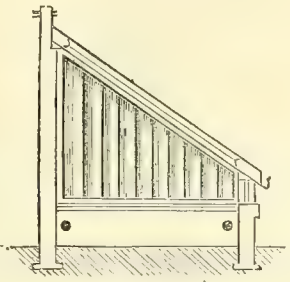
J. JONES'S HOT-WATER APPARATUS.

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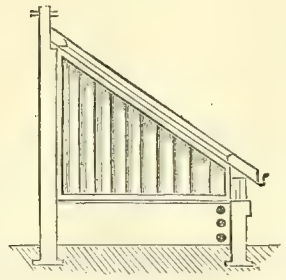
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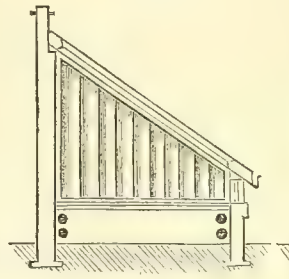
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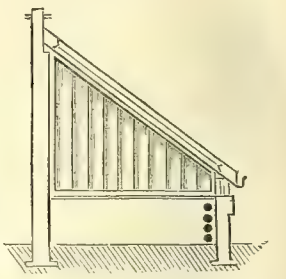
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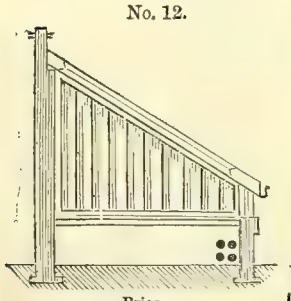
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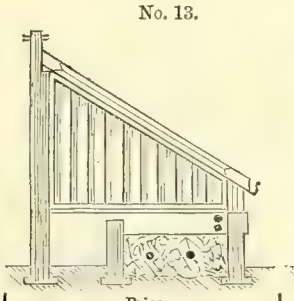
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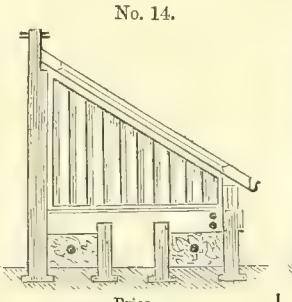
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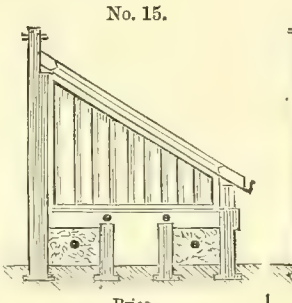
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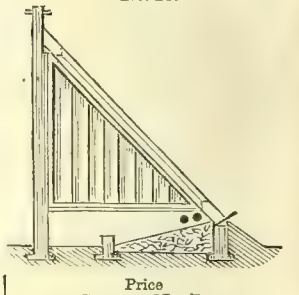
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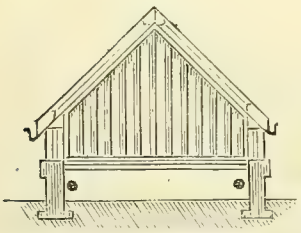
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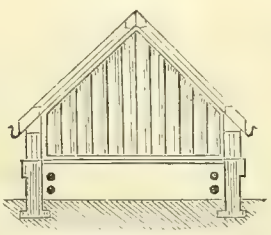
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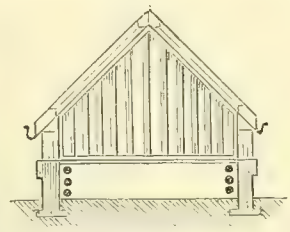
Size of House.	Price
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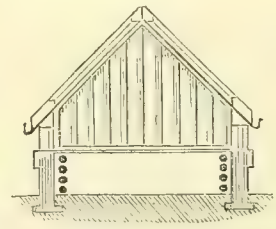
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No. 19.



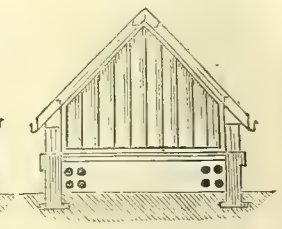
Price
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24 0 0
29 0 0
34 0 0
39 0 0
44 0 0
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54 0 0

No. 20.



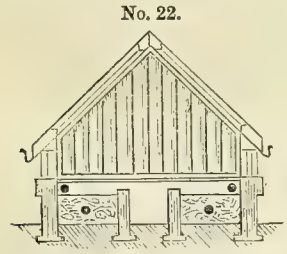
Price
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36 10 0
42 10 0
49 0 0
56 0 0
63 0 0
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No. 21.



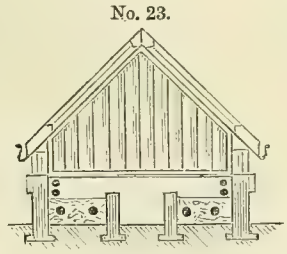
Price
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36 10 0
42 10 0
49 0 0
56 0 0
63 0 0
70 0 0

No. 22.



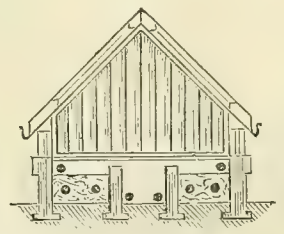
Size of House.	Price
20 by 10 feet	£15 0 0
30 „ 12 „	21 0 0
40 „ 15 „	25 0 0
50 „ 15 „	29 0 0
60 „ 15 „	33 0 0
70 „ 15 „	37 0 0
80 „ 15 „	41 0 0
100 „ 15 „	45 0 0

No. 23.



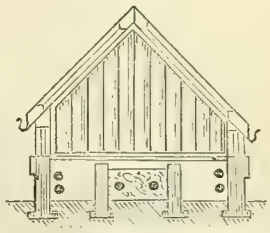
Price
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44 10 0
51 10 0
58 0 0
65 0 0
72 0 0

No. 24.



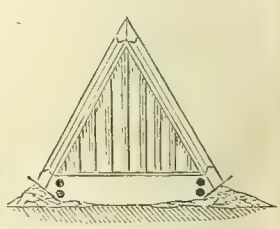
Price
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32 0 0
38 10 0
44 10 0
51 10 0
58 0 0
65 0 0
72 0 0

No. 25.



Price
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25 0 0
30 0 0
35 0 0
40 0 0
45 0 0
50 0 0
55 0 0

No. 26.



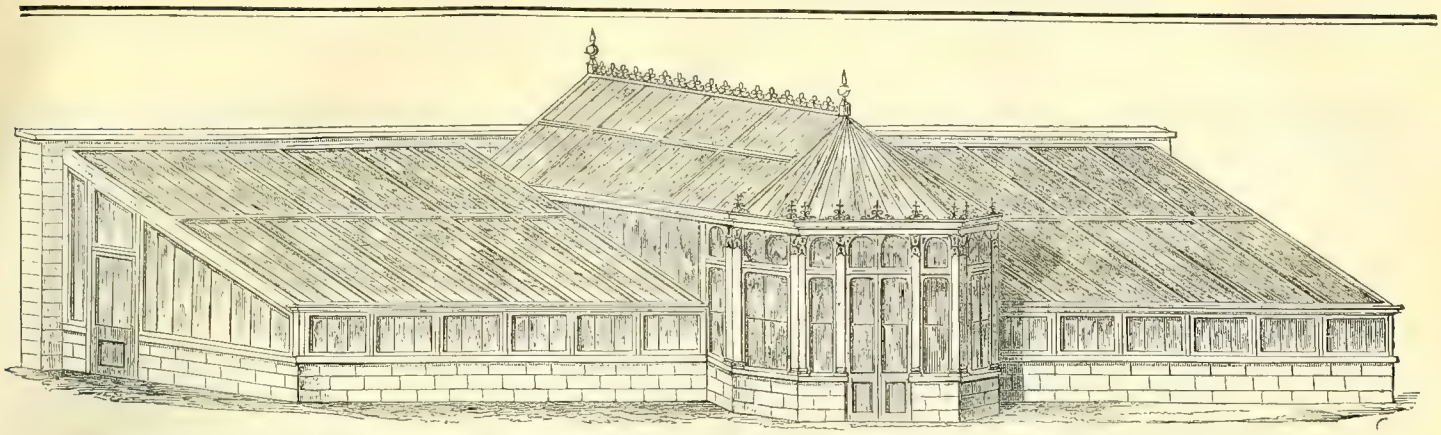
Price
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

J. JONES will be happy to supply HOT-WATER APPARATUS for HOUSES according to any of the above Plans, delivered Free to any Station in England at the prices named, which include strong CAST-IRON CYLINDER or SADDLE BOILER, FURNACE DOORS, FIRE BARS, SOOT DOORS, CISTERN and DAMPER, 4-inch HOT-WATER PIPES and CONNECTIONS, all of the best quality; or he will forward ESTIMATES for WORK erected complete, with WROUGHT or CAST-IRON BOILER of any sort, at a small addition to the above prices.

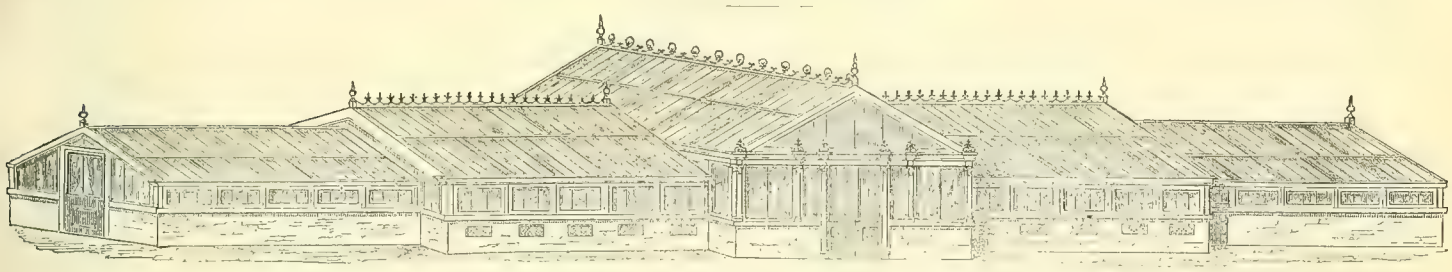
☞ *The Black Circles on Sections of Houses show the arrangement of Pipes.*

Illustrated Catalogues and further particulars post free on application to

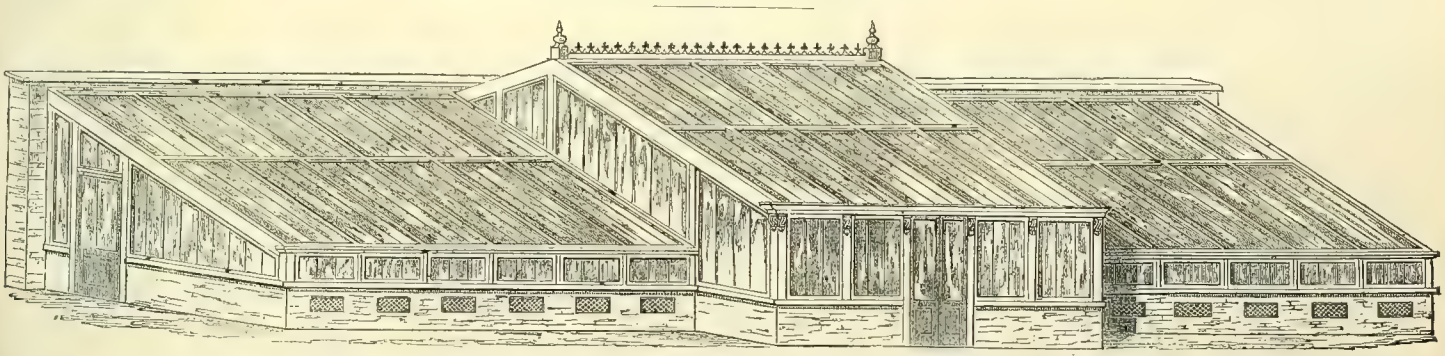
J. JONES, IRON MERCHANT AND HORTICULTURAL ENGINEER, 6, BANKSIDE, LONDON, S.E.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.

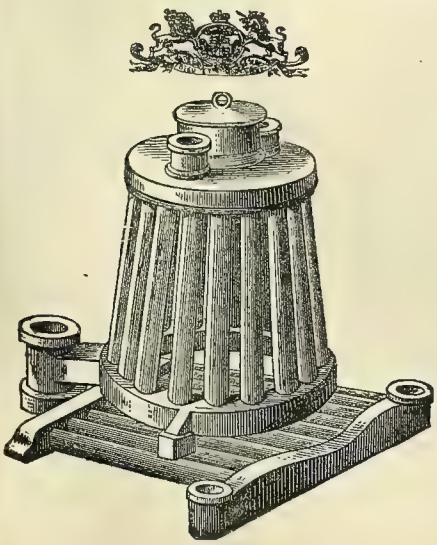


HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.

THE FOLLOWING IS THE REASON WHY

ORMSON'S ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become so universally adopted on account of their superior power, great safety, and economy.



ORMSON'S No. 1 BOILERS	are heating upwards of	250	feet of Pipe.	
ORMSON'S No. 2 BOILERS	„	„	600	„
ORMSON'S No. 3 BOILERS	„	„	1300	„
ORMSON'S No. 4 BOILERS	„	„	3500	„
ORMSON'S No. 5 BOILERS	„	„	7000	„

Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

H. ORMSON having a most complete Set of Steam-power Machinery, is in a position to execute Orders with the greatest despatch, and at considerably reduced prices.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,
AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF
HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

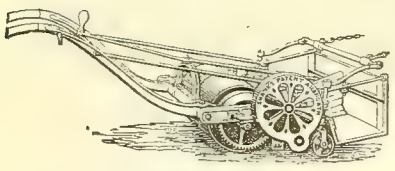
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

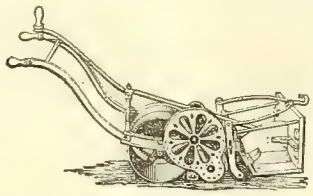
WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

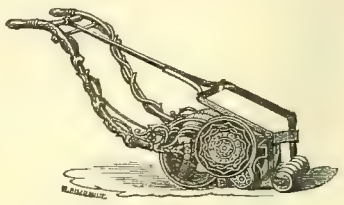
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will Mow equally well on Uneven as on Level Lawns, and whether the Grass be wet or dry. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	40*s.* „
No. 3.—36-inch Machine ...	22 0 0	30*s.* „
No. 4.—30-inch Machine ...	19 0 0	30*s.* „

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine ...	£15 15 0	30*s.* extra.
No. 6.—28-inch Machine ...	14 10 0	30*s.* „
No. 7.—25-inch Machine ...	12 10 0	25*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine ...	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine ...	8 7 6	
No. 10.—19-inch Machine ...	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine ...	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine ...	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £5 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS and SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE and SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

Continental Agents.—Messrs. Scott, Burn, Brown, & Co., 13, Cannon Street, City, E.C.

Agents:—Messrs. J. & C. Lee, Vineyard Nursery, Hammersmith, W.; Messrs. J. B. Brown & Co., 18, Cannon Street, City, E.C.

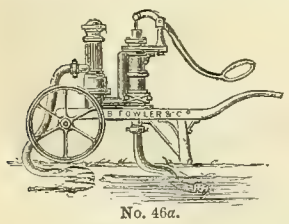
CLINTON & OWENS

(LATE BENJAMIN FOWLER & CO.),

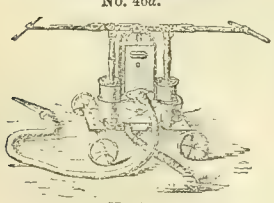
MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

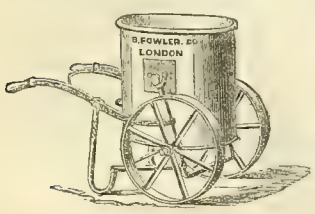
WHITEFRIARS STREET, FLEET STREET, LONDON.



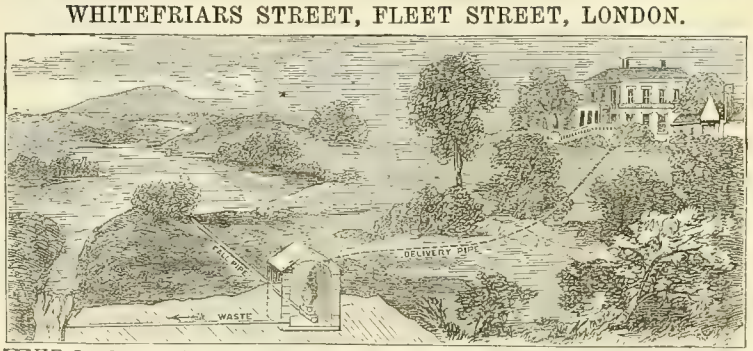
No. 46*a*.



No. 50.

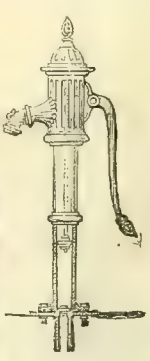


No. 49*a*.

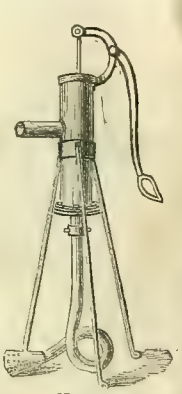


THE Landscape Sketch shows an adaptation of THE IMPROVED HYDRAULIC RAM for forcing water to considerable heights and distances to supply Mansions, Farms, &c., where a few feet fall can be obtained. Full particulars of this useful Self-acting Machine can be had on application.

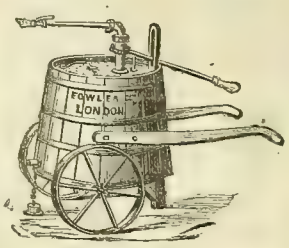
No. 4. Fowler's Useful YARD, GARDEN, and COTTAGE PUMPS, from 1*l.* 5*s.* each.
No. 38. Fowler's Portable LIQUID MANURE PUMPS, with flexible suction pipe.
No. 46*a*. Fowler's DOUBLE-ACTION PORTABLE FORCE PUMPS and FIRE ENGINES for Water or Liquid Manure.



No. 4.



No. 38.



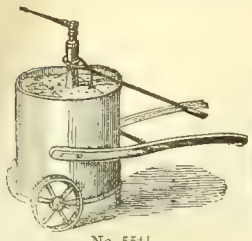
No. 49.

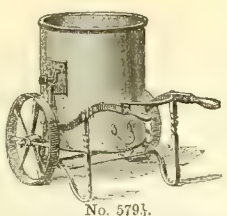
No. 50. Fowler's Improved (Holman's Patent) DOUBLE-BARREL FARM FIRE ENGINES and IRRIGATING PUMPS.
No. 49. GARDEN ENGINES of all sizes.

No. 49*a*. Improved SWING WATER CARRIERS, holding 24 and 35 gallons, for Garden Use.

Further Particulars, Estimates, and Illustrated Price Lists on application.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.


No. 554½.


No. 579½.

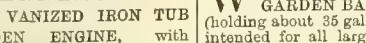
WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

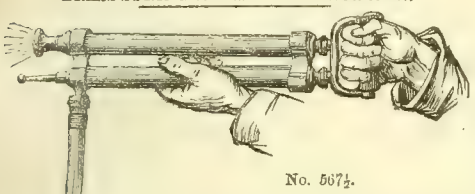
10 gallons ..	.. £2 15 0
16 ,, ..	.. 3 15 0
24 ,, ..	.. 5 0 0

Larger sizes may be had in either Wood or Iron.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

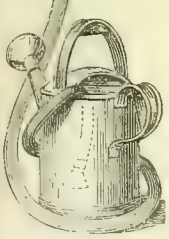
35 gallons	.. £2 10 0
20 ,,	.. 2 0 0


BRASS SYRINGES of all kinds from 9s. to 21s.


No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 6 feet Flexible Suction Pipe,

21s.,



Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

THERE ARE NO SUCTION OR DELIVERY VALVES, hence MUCH FRICTION AND LIABILITY TO CHOKE with leaves and dirt IS AVOIDED.

AMERICAN PORTABLE FIRE ANNIHILATOR and GARDEN ENGINE.



£2 2s.

An efficient means of Extinguishing Fires at their commencement. Nine out of ten Fires in London are put out on their first appearance by the London Fire Brigade with Hand Pumps of considerably less power.

One man will throw 7 or 8 gallons per minute from 40 to 50 feet with it.

It is an effective Garden Engine for cleansing or syringing Wall-fruit or Rose Trees, Plants, or Vines.

It may be used to draw water from the pail in which it is fixed, or from a tank or pond by the addition of the required length of suction. It is simple in its construction, having no suction or delivery valves to clog with dirt or leaves.

No Establishment, either private, commercial, or manufacturing, should be without one.

Six feet of Flexible Suction, with Union and Suction Rose, &c., extra, 12s. Longer lengths of Suction at 1s. 6d. per foot.

The above may be obtained of all Ironmongers and Seedsmen in Town and Country, or of the Manufacturers,

JOHN WARNER & SONS, 8, Crescent, Cripplegate, London, E.C.

KERRY COWS, of the most Select Kind, FOR SALE, by
RICHARD G. CAMPION, Esq., Youghal, County Cork.

WHITE-CRESTED BLACK POLISH FOWLS' EGGS, from Prize-bred Stock of the true variety, One Guinea the Sitting of 13, can now be obtained of E. G., care of Mrs. Dutton, Register Office, City Walls, Chester. London reference: Miss Davies, 141, Marylebone Road, N.W.

RABBITS.—Angora, Chinchilla, Chinese, Black and White, Lop-eared, Doe, &c., in all 12 Nests of Hutches (eight Breeding, four Buck) on a stand. An AVIARY, 7 feet high, 5 feet long, 3 feet deep, zinc roof. A Flight Cage on stand, Nightingale and other Cages; and a few Birds among them—a Crossbill, Hawfinch, Redwing, and Mountain Sparrow. Also an AQUARIUM, 2 feet 6 inches, slate bottom, price 2 guineas—cost 3.
Apply to Mr. SQUIRE, Chemist, Hanwell, W.

TO BE LET, with immediate possession, Kensington Nursery, Bath, Somerset. This very excellent and well situated GARDEN and NURSERY GROUND, with long range of Hot and Greenhouses, stocked with the choicest Vines, Forcing Pits, &c., situated on the London Road, with a Shop and Greenhouse facing the road, and a Cottage Residence.
For particulars, apply to Messrs. MORRIS & SON, Upholsterers, &c., 22, Milsom Street, Bath.

To Nurserymen and Gentlemen's Gardeners.

TO BE SOLD, the LEASE, STOCK, and GLASS of a SMALL NURSERY within four miles of Covent Garden, containing about one acre and a-half of Land, and 15,000 feet of Glass in good order, with every convenience for carrying on a large Trade. Has been successfully carried on by the present Proprietor for the last 17 years, who now is giving up business. Part of purchase-money could remain for a term agreed upon at 5 per cent. Among the Houses are four Vineries built and planted within the last seven years, and three of them are now in full bearing. Immediate Possession can be had for 1000*l*.
For further particulars apply to Messrs. PROTHEROE & MORRIS, American Nursery, Leytonstone, Essex, N.E.

Newark-upon-Trent, Nottinghamshire.
TO NURSERYMEN AND OTHERS.

TO BE DISPOSED OF, at a Valuation, under a deed of assignment, for the benefit of creditors, the GOOD WILL, BUSINESS, and GROWING STOCK in the NURSERY GROUNDS, now and for many years past carried on by Mrs. Girton and her predecessors at Newark-upon-Trent, in the county of Nottingham. There are two Nursery-grounds well stocked with young thriving Plants of almost every description. One of such grounds, situate at a short distance from the town of Newark, on the road leading to Winthorpe, contains about 8 acres, and the other, which is close to the Great Northern Railway Station at Newark, contains about 2 acres.
Applications to treat for the same, either together or separately, may be made to us, and further information obtained at our Offices.
TALLENTS, BURNABY, & GRIFFIN, Solicitors to the Assignees.

Sales by Auction.

Late Show Tulips.—Unrivalled Collection.

WILL be SOLD by PUBLIC AUCTION, in Haarlem, Holland, on May 13 and 15, the most valuable Collection of Late Show TULIPS, and the most extensive in Europe, the property of that eminent raiser of new Show Tulips, Mr. V. VAN DER VINNE, of Haarlem, Holland. Intending purchasers can have their commissions attended to through any Seedsman who has a Dutch correspondent.
Catalogues of the entire Collection can be had free and post paid, on application to Messrs. BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

Staines, Middlesex.

MR. J. WILLMER begs most respectfully to announce that he is favoured with instructions from the Executors of the late S. M. Sanders, Esq., to SELL by AUCTION, without reserve, on the Premises, Staines Villa, Staines, Middlesex, on SATURDAY, May 16, at 11 o'Clock, the whole of his celebrated COLLECTION of TULIPS, which comprise nearly all the gems of the day. Also an excellent Iron Tulip Stage, 82 ft. long by 12 ft. wide, with circular ends, set in stone piers, top and side cloths, lines, and rollers; Tulip Irons, Tulip Cabinets, Show Box, &c.
May be viewed two days prior to the Sale on application to the Gardener. Catalogues had on the Premises, and of the Auctioneer, Springfield Nursery, Sunbury.

Holloway.

MR. J. WILLMER begs to announce that he is instructed by the Executors of the late Mr. William Nayler, to SELL by AUCTION, without reserve, on the Premises, Brunswick Place, Alma Road, Junction Road, Upper Holloway, on THURSDAY, May 21, at 11 o'Clock, the whole of his COLLECTION of TULIPS; comprising most of the leading varieties, of the most celebrated growers.
Catalogues will be ready on May 11, and may be had on the Premises, at 37, Buckingham Street, Caledonian Road, Islington; and of the Auctioneer, Springfield Nursery, Sunbury.

To Tulip Growers and Others.

MR. J. WILLMER begs most respectfully to announce that he is favoured with instructions from the Executors of the late Mr. W. Lawrence, of the Lion Hotel, Hampton, to SELL by AUCTION, without the least reserve, on the Premises, the Lion Hotel, Hampton, on THURSDAY, May 14, at 11 o'Clock, precise time, the whole of the COSTLY COLLECTION of TULIPS, Stage, Cloths, Irons, Show Boxes, Cabinets, &c.
Catalogues may had on the Premises; or by forwarding two postage stamps to the Auctioneer, Springfield Nursery, Sunbury, Middlesex, S.W.

Tredegar Nursery, Addington Road, Bow, E.,
Near the Railway Arch.
To GENTLEMEN, FLORISTS, AND OTHERS.

MR. J. WILLMER begs most respectfully to announce that he is instructed by Mr. G. McRae, to SELL by AUCTION, on the premises, on TUESDAY, May 19, at 12 o'clock, 100,000 SHOW and BEDDING PLANTS, comprising Calceolarias, Verbenas, Intermediate Stocks, Scarlet Geraniums, Cuphea, Heliotropes, Lobelia speciosa, Variegated Alyssum, Hydrangeas, Fuchsias, Pelargoniums, Variegated Geraniums (Flower of the Day and Brilliant), Ageratums, Salvias, Petunias, Crassula coccinea, Gazania splendens, Dahlias, &c.; Climbing Plants, Cobœa scandens, Tropæolum canariensis, Passiflora, Clematis, &c.
May be viewed the day preceding and morning of Sale. Catalogues had on the Premises, and of the Auctioneer, Springfield Nursery, Sunbury, Middlesex, S.W.

Preliminary Notice.

MR. J. WILLMER begs most respectfully to announce that he is instructed by the Executors of the late Mr. William Nayler, to SELL by AUCTION, without reserve, in MAY NEXT, the whole of his costly COLLECTION of TULIPS, Tulip Stage, Cabinets, &c.
Full particulars will be duly announced.

Important Sale.

MR. W. BARNES has been directed by the Executors of the late Miss Traill, of Hayes Place, Bromley, Kent, to arrange for SALE by PUBLIC AUCTION, which will take place on the Premises on FRIDAY, May 15, the Splendid Collection of ORCHIDACEOUS, STOVE, GREENHOUSE, ERICAS, and other PLANTS, that have for so many years gained such celebrity at the principal London and other Shows. They consist chiefly of magnificent specimens, many of which are acknowledged to be unsurpassed, if not unequalled, by any in this country.
May be viewed one day prior to the Sale. Catalogues are now being printed, and may be obtained in a few days on application to Mr. JOHN NETTLEFOLD, Auctioneer, Bromley, Kent, S.E.; or to Mr. W. BARNES, Camden Nursery, Camberwell, S.
N.B. Frequent Trains run from London Bridge and Victoria Stations to Bromley Station, which is one mile and a half from the place of Sale.

SALE THIS DAY, AT HALF-PAST 12 O'CLOCK PRECISELY.

Bedding-plants and Conifer Seeds.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., THIS DAY (Saturday), May 9, at half-past 12 o'clock precisely, an immense assortment of BEDDING-OUT GERANIUMS, CALCEOLARIAS, VERBENAS, POT-ROSES, &c. Also just received from California, a few ounces of Clean Seed of WELLINGTONIA GIGANTEA, PICEA AMABILIS, LIBOCEDRUS DECURRENS, and PINUS species, supposed to be new.
On view the Morning of Sale, and Catalogues had.

38, KING STREET, COVENT GARDEN, LONDON, W.C.

Important Sale of Specimen Greenhouse Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C. on TUESDAY, May 26, at half-past 12 o'clock precisely, a Collection of about 3000 GREENHOUSE PLANTS, consisting of Ericas, Epacris, Aphelexis, Polygalas, Pelargoniums, Leschenaultia formosa, Erythrina crista-galli, Canna indica, Begonias, Ferns, and Miscellaneous Greenhouse Plants, including many very fine specimens fit for exhibiting.
On view the Morning of Sale and Catalogues had.

Established Orchids and Hardy Ferns.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 14, at half-past 12 o'Clock precisely, a Collection of ESTABLISHED ORCHIDS, comprising, amongst many others, the following choice varieties:—

Saccolabium Dayii	Trichopilia crispa
,, guttatum superbum	Cymbidium eburneum
Aerides nobile	Dendrochilum filiforme
,, Warneri	Vanda suavis
,, Lindleyanum	,, tricolor
,, Lobbii	Lælia elegans
,, maculosum	Cattleya Trianæ
,, suavissimum	,, Quindiu
Cypripedium Veitchii	,, Boothiana
,, villosum	,, labiata
,, caudatum	Sobralia macrantha splendens
,, hirsutissimum	&c., &c.

Also some valuable HARDY FERNS, including some very choice varieties of Lastrea dilatata, and other good sorts.
On view the Morning of Sale, and Catalogues had.

Bedding-out Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, May 16, at half-past 12 o'clock precisely, the Fourth Portion of the Stock of 250,000 Choice BEDDING PLANTS, consisting of Geraniums, Calceolarias, Verbenas, Cupheas, Ageratums, Fuchsias, Salvias, &c., from a well-known Nurseryman in the Midland Counties.
On view the Morning of Sale, and Catalogues had.

Battersea.—IMPORTANT SALE OF 30 GREENHOUSES, RANGES, PITS, VANS, BRICKS, &c.

MESSRS. PROTHEROE AND MORRIS are directed by the Executrix of the late Thomas Gaines, deceased, to SELL by AUCTION, on the Premises, Surrey Lane, Battersea, within five minutes walk of Battersea Park, on MONDAY and TUESDAY, May 11 and 12, at 11 o'clock each day, a newly-erected SHOW HOUSE, 41 feet 10 inches by 32 feet over; 29 capital Greenhouses, several Ranges of Pits; 1, 2, 3, and 4-light Boxes; Thousands of feet of 3 and 4-inch Hot-water Piping, Saddle and other Boilers, Erection of Sheds, Slate Shelving, York Paving, three Capital Market Spring Vans, two powerful Geldings, Sets of Harness, a capital Break, Light Spring Cart, Brewing Utensils, sundry Lights, some Thousands of feet of Glass, quantities of Bricks, Tiles, Hand Glasses, Garden Pots, Mats, Water Pots, Baskets, three capital Syringes, heaps of Compost Dung, and numerous other effects.
May be viewed prior to the Sale. Catalogues may be had (*6d.* each, returnable to purchasers) on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Mile End Nursery.
10,000 BEDDING AND OTHER PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Mile End Nursery, Bow Road, E. (within five minutes' walk of the Bow Railway Station on the North London Line), on THURSDAY, May 14, at 12 o'Clock, about 10,000 GREENHOUSE and BEDDING PLANTS (presenting a rare opportunity to proprietors of Public Gardens, and to those gentlemen who appreciate the advantages of obtaining full grown healthy Plants, suitably adapted for Bedding out at once and for immediate effective purposes), including the usual miscellaneous assortment.
May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Greenhouse and Bedding Plants.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, May 15, at 12 o'Clock, a choice collection of GREENHOUSE PLANTS, consisting of Show and Fancy Pelargoniums, Ericas, Acacias, and a variety of other Plants in bloom, with a large Assortment of Scarlet and Variegated Geraniums, and a variety of Ornamental Plants for Bedding out.
On view the Morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

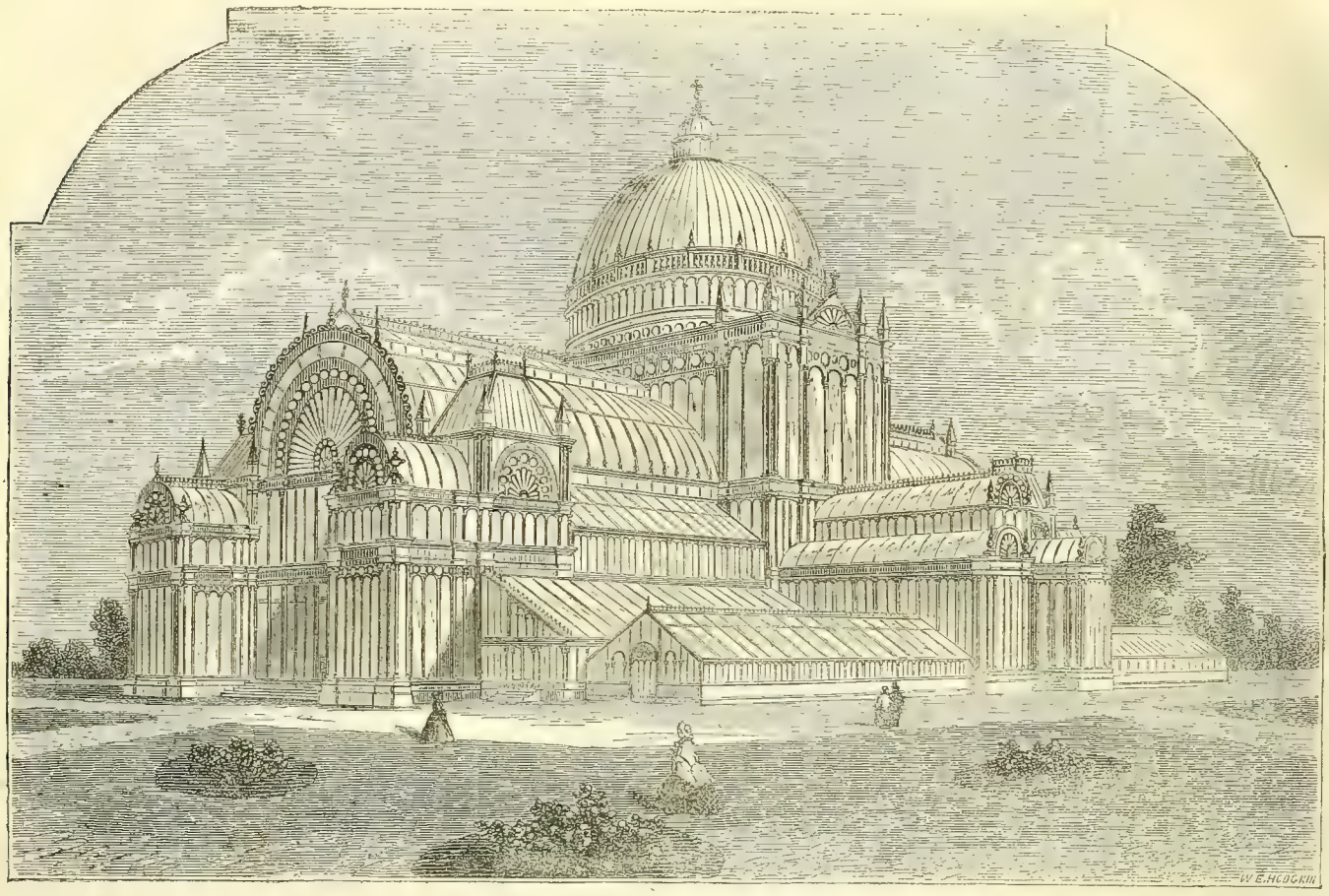
Important Sale of Valuable Tulips.

MESSRS. PROTHEROE AND MORRIS respectfully inform the cultivators of Tulips that they have received instructions from Mr. Thomas Quelch to SELL by AUCTION, without reserve, on the premises, Swiss Cottage, John Street, Albany Road, Old Kent Road, S.E., on MONDAY, May 18, at 2 o'clock, his best bed of TULIPS, containing some of the first gems in cultivation. Also some fine Seedling Breeders of the late Mr. Groom.
On view during the Bloom, and Catalogues had on the Premises, and of the Auctioneers, American Nurseries, Leytonstone, Essex, N.E.

Brighton.
20,000 Bedding and Other Plants.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. A. Mackenzie to SELL by AUCTION on the Premises, Bristol Nurseries, Kemp Town, Brighton, on THURSDAY, May 21, at 11 o'clock, about 20,000 GREENHOUSE and BEDDING PLANTS, including fine Show and Fancy Pelargoniums, Fuchsias, Verbenas, Petunias, Gazanias, Heliotropes, Salvias, Ageratums, Scarlet and Variegated Geraniums, &c.
May be viewed three days prior to the Sale. Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

A FIRST-CLASS PRIZE MEDAL WAS AWARDED TO J. W. & CO. FOR THE GREAT IMPROVEMENTS IN HEATING.



NOVELTY OF DESIGN.

THE ABOVE WAS SPECIALLY DESIGNED BY

J. WEEKS & COMPANY

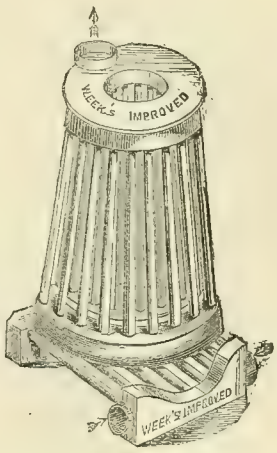
FOR THE LATE COLONEL COLT, CONNECTICUT, AMERICA.

This Building may be said to comprise in itself every description of Hothouse necessary to form a complete HORTICULTURAL ESTABLISHMENT, ranging from the Winter Garden or large Conservatory to a Propagating Pit. It contains 33 divisions, and so arranged that each compartment forms an independent house, receiving direct external light and ventilation. By the arrangement of the levels of the floors a commanding view of the whole Establishment is obtained from the centre promenade, which presents a very grand aspect.

The whole of the Ventilation is arranged upon WEEKS'S IMPROVED PRINCIPLE, and adjusted by means of their IMPROVED VENTILATING APPARATUS The Heating on WEEKS'S "ONE-BOILER SYSTEM."

The Classification of the Establishment is as follows :—

		feet.		feet.
1 WINTER GARDEN ...	about	220	by	90
4 LATE VINERIES	„	70	„	18
2 EARLY VINERIES ...	„	30	„	18
4 PINE STOVES	„	30	„	20
1 EARLY PEACH-HOUSE ...	„	30	„	20
1 EARLY FIG-HOUSE ...	„	30	„	20
1 CHERRY-HOUSE	„	26	„	17
1 CUCUMBER-HOUSE ...	„	28	„	16
1 APRICOT and PLUM HOUSE	„	36	„	18
1 STRAWBERRY, &c. „	„	26	„	16
1 ORCHID HOUSE ...	„	36	„	22
1 FERNERY „ ...	„	30	„	18
1 PLANT STOVE	„	30	„	18
1 GREENHOUSE	„	30	„	20
1 TROPICAL HOUSE ...	„	36	„	20
1 PROPAGATING HOUSE ...	„	36	„	20
1 FORCING HOUSE ...	„	30	„	20
4 PLANT-HOUSES	„	20	„	16
1 CAMELLIA HOUSE ...	„	30	„	20
4 ORCHARD HOUSES ...	„	60	„	25



WEEKS AND CO.'S ONE BOILER SYSTEM of Heating by Hot Water has so thoroughly eclipsed every other method of Heating, as to have earned for itself the eminent reputation of being "The Certain Apparatus of the Day." It has been most successfully employed by all the leading Nurserymen of Great Britain and the Continent, who pronounce it the only system whose genuine merits are economy of fuel and labour, cleanliness, efficiency, and durability.

Testimonials of the highest compliments have been received, copies of which can be furnished. This system has also been adopted by the following distinguished Patrons :—

HER MAJESTY THE QUEEN
HIS LATE R.H. THE PRINCE CONSORT
HIS ROYAL HIGHNESS PRINCE DEMIDOFF
THE GOVERNMENT OF GREAT BRITAIN
HER MAJESTY'S COMMISSIONERS OF WORKS, IRELAND
THE TOWER OF LONDON
THE ROYAL HORTICULTURAL SOCIETY, LONDON
THE ROYAL BOTANIC SOCIETY, REGENT'S PARK, LONDON
THE ROYAL BOTANIC SOCIETY, DUBLIN
THE ROYAL BOTANIC SOCIETY, LIVERPOOL
THE ROYAL ZOOLOGICAL SOCIETY, LONDON
THE CRYSTAL PALACE, SYDENHAM
And NUMEROUS PUBLIC COMPANIES.

J. WEEKS AND COMPANY, HORTICULTURAL BUILDERS and HOT WATER APPARATUS MANUFACTURERS, KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 20.—1863.] SATURDAY, MAY 16. {Price Fivepence. STAMPED EDITION, 6*d*.

INDEX.

Aphides	461 *c*	Jardin Fruitier du Museum	463 *b*
Birds	464 *c*	Liebig's Husbandry	461 *c*
Books, various	463 *c*	Melons	464 *c*
Bougainvillæa spectabilis	463 *c*	Moles	469 *c*
Bulb farms, Haarlem	460 *b*	Orchard houses	461 *c*
Carrots and Cabbage	467 *c*	Orchids, cool	461 *b*
Conifers and Mycelium	461 *c*	Paper Fungus	459 *c*
Essays and Reviews	462 *c*	Plum, new	461 *b*
Farm, Northumberland	470 *c*	Rose exhibitions	461 *b*
Farms, foreign	470 *b*	— Lord Clyde	461 *c*
Fish and fishing	460 *c*	Roses	461 *a*
Fruits, new	461 *b*	Society, Royal Agricultural	468 *c*
Fungus, paper	459 *c*	— Royal Botanic	459 *c*—463 *a*
Grapes, setting Muscat	461 *b*	Soils, properties of	466 *a*
Grass seeds	471 *a*	Statistics, agricultural	466 *a*
Haarlem bulb farms	460 *b*	Steam cultivation	466 *b*—468 *c*
Hazel nuts	461 *a*	Veitch (Mr.), death of	459 *b*
International Exhibition Memorial	459 *b*	Weather wisdom	465 *c*
		Wireworm	461 *c*

THE FIRST PROMENADE at the HORTICULTURAL GARDEN will be on SATURDAY, May 16 (THIS DAY); after that on each WEDNESDAY and SATURDAY in May, June, and July (special Fête Days excepted). Free to Fellows and two friends. The public admitted by payment of 2*s*. 6*d*. each. Band at 4 o'clock.

HORTICULTURAL SOCIETY.—Notice is hereby given, that a SPECIAL GENERAL MEETING of FELLOWS, for the election of H.R.H. the Princess of Wales, is called for (THIS DAY) SATURDAY, May 16, the first Promenade Day, at half-past 3 o'clock. No other business will be transacted. ANDREW MURRAY, Assistant Secretary.

HORTICULTURAL SOCIETY.—A SPECIAL MEETING, for the ELECTION of Persons wishing to obtain the privileges of Fellows before the first Fête and the Ceremonial, is hereby called for SATURDAY, May 23, the third Promenade day, at 2 o'clock.
ANDREW MURRAY, Assistant Secretary.

ROYAL HORTICULTURAL SOCIETY'S FIRST GREAT SHOW, WEDNESDAY, May 27, at South Kensington. Open at 1 o'clock. Bands commence at 3 o'clock. Admission, 7*s*. 6*d*.; or by Tickets previously purchased, 5*s*.
Gardeners' Tickets may be had at half-price until May 22, on application to Mr. GEORGE EYLES; Post-office Order to accompany the letter.

EXHIBITION of HORTICULTURAL IMPLEMENTS at the ROYAL HORTICULTURAL SOCIETY'S GREAT SHOW, on WEDNESDAY, May 27.
Application for space must be made to Mr. EYLES at least 10 days before the Show, and the articles to be Exhibited must be sent not later than Friday, the 22d.

Royal Horticultural Society.
10TH JUNE, 1863.

UNCOVERING of MEMORIAL of EXHIBITION of 1851, in the presence of their RR.HH.'s THE PRINCE and PRINCESS of WALES.
Cards of Admission, price 15*s*., if obtained before the 27th of May; 20*s*. up to 9th of June, and 30*s*. on day. A. MURRAY.

CRYSTAL PALACE FLOWER SHOWS.—The GREAT FLOWER SHOW on SATURDAY, May 23; and the ROSE SHOW on SATURDAY, June 27.
Schedules for the first are now ready, and can be had on application to Mr. W. HOUGHTON, Secretary to the Flower Shows, Crystal Palace, Sydenham, S.E.
Admission 7*s*. 6*d*. on the day; by day ticket purchased prior to the day, 5*s*.; and by Season Tickets free.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.
The TENTH ANNUAL SUMMER SHOW will take place on WEDNESDAY and THURSDAY, June 10 and 11, at the Royal Pavilion, on the same grand scale as on former years.
Schedule of Prizes to be had on application to the Secretary, 96, St. James Street, or of E. SPARY, Superintendent of the Exhibition, Queen's Graperies.
By Order of the Committee,
Brighton, May 16. EDWARD CARPENTER, Secretary.

BIRMINGHAM ROSE SHOW, 1863.—The NEXT SHOW will be held in the Town Hall, Birmingham, on THURSDAY and FRIDAY, July 16 and 17.
The Prize Lists are now ready, and may be obtained from the Secretary, Mr. A. FORREST, Queen Chambers, Cherry Street, Birmingham.

Notice.

JOHN WATERER'S EXHIBITION of RHODODENDRONS and other AMERICAN PLANTS will be exhibited at the Royal Botanic Gardens, Regent's Park, at the End of the present Month, and will continue on VIEW throughout the MONTH of JUNE.
American Nursery, Bagshot, Surrey.

WANTED, SEEDLING and BEDDED HOLLIES, &c.
Apply to JOSEPH TREMBLE & SONS, Nurserymen and Seedsmen, Penrith.

Camellias.

TO BE SOLD, about 100 CAMELLIAS, of various choice kinds, ranging from 2 to 20 feet in height. The property of the late John Allnutt, Esq.
Apply to Mr. DRUMMOND, Gardener, Clapham Common, S.

Chrysanthemums, Dahlias, Fuchsias, Verbenas, Geraniums, Pelargoniums, Petunias, Calceolarias, &c.

W. HOLMES'S CATALOGUE of the above is now ready, and may be had in exchange for One Stamp.
Reference or remittance from unknown Correspondents.
Frampton Park Nursery, Hackney, N.E.

Agricultural and Garden Seeds.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbeach.
Special PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH, SEED MERCHANTS, Covent Garden Market, London, W.C.
WANTED to PURCHASE, SHALLOTS.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Agricultural Seeds.

JOHN K. KING, SEED GROWER, Coggeshall, Essex.
PRICED LISTS Post free.

Good Turnip Seeds, Carriage Free.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

Agricultural Seeds.

GEORGE GIBBS AND CO., SEEDSMEN, 26, Down Street, Piccadilly, London, W.

New Roses for 1863.

BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.
St. John's Street Nursery, Colchester.

Paul's Nurseries, Waltham Cross.

WM. PAUL (Son and Successor to the late A. PAUL), has a large Stock of all the NEW ROSES, now ready for delivery.
Splendid plants at lowest advertised prices.
PRICED CATALOGUE free by post.

ALL the NEW ROSES of 1863.—In fine strong Plants now ready.
DESCRIPTIVE LISTS on application.
WM. WOOD & SON, Woodlands Nursery, near Uckfield, Sussex.

NEW ROSES of 1863.—Good Plants of all the finest sorts are now ready, as well as all the finest of last season. DESCRIPTIVE PRICED LISTS on application.
PAUL & SON, Old Nurseries, Cheshunt, Herts.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON). Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7*s*. 6*d*. each, will be shortly ready.
Old Cheshunt Nurseries, Herts.

Dwarf Roses in Pots for Bedding.

WM. KNIGHT is now executing orders from his immense Stock of only the most approved kinds, offered at low prices. CATALOGUES free on application.
Floral Nursery, Hailsham, near Hurst Green, Sussex.

40,000 Dwarf Roses in Pots for Bedding.

THE MONTHS OF APRIL AND MAY ARE CONSIDERED THE MOST ELIGIBLE FOR PLANTING OUT ROSES FROM POTS.

WM. WOOD and SON have an enormous stock of fine healthy plants, now ready to send out. CATALOGUES sent Post-free on application.
Woodlands Nursery, Maresfield, Uckfield, Sussex.

Pelargoniums, Verbenas, Fuchsias, and Pansies.

J. DOBSON AND SONS have a fine healthy Stock to offer of all the best kinds at moderate prices.
Woodlands Nursery, Isleworth.

Dulwich, London, S.

F. AND A. SMITH'S CATALOGUE of NEW PLANTS, containing all the Novelties of 1863, is now ready, free on application.

J. IVERY AND SON beg to announce that their new PRICED and partially DESCRIPTIVE CATALOGUE of HARDY BRITISH FERNS is now ready, and will be forwarded on application.
Dorking Nursery.

WM. KNIGHT offers strong Plants of DAHLIAS, FUCHSIAS, PETUNIAS, VERBENAS, and various other BEDDING PLANTS, at low prices.
CATALOGUES free.
Floral Nursery, Hailsham, Sussex.

Dahlias.

JAMES FAIRHEAD AND SON beg to announce that their CATALOGUE of DAHLIAS, including Pompone or Bouquet and Bedding varieties, is now ready, and may be had gratis on application.
7, Borough Market, London, S.E.

BLOOMING PELARGONIUMS.—Fine Plants, in 4 and 5-inch pots, just coming into bloom, of leading Show, French and Fancy varieties, at from 4*s*. to 6*s*. per dozen.
SPRING CATALOGUE free on prepaid application.
WOOD & INGRAM, Huntingdon.

NEW TURNIP SEED from SELECTED BULBS at Low Prices.
PRICED LISTS post free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

NEW CUCUMBERS, at 1*s*. per packet.
Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Cabbage Plants.

H. AND R. STIRZAKER can supply in any quantity fine DRUMHEAD CABBAGE PLANTS, EARLY CURLED SAVOY, &c., RED for Pickling, all Autumn sown.
The Nurseries, Lancaster.

NEW GREEN KOHL RABI SEED, from Transplanted Roots, at 1*s*. 6*d*. per lb. direct from the Grower, Mr. R. O. M. YOUNG, Flint Hall, Hambleden, Henley-on-Thames.

DRUMHEAD CABBAGE PLANTS at 2*s*. 6*d* per 1000.
JOHN PERKINS, 52, Market Square, Northampton.

Dioscorea Batatas, or Chinese Yam.

J. IVERY AND SON beg to offer whole Roots of this useful Esculent, from 3*s*. to 4*s*. 6*d*. per dozen; Cut Sets, 1*s*. per dozen. Dorking Nursery.

DIOSCOREA BATATAS (CHINESE YAM).—Good sound Roots, in fine condition for Planting, 5*s*. to 7*s*. 6*d*. per 100, according to size, are offered by
GEORGE WHEELER, Nurseryman, Warminster, Wilts.

MANGEL WURZEL SEED.
Good Seed at low Prices.
For prices apply, stating quantity required, to SUTTON & SONS, Seed Growers, Reading, Berks.

MANGEL WURZEL SEED in every variety, supplied at very moderate rates, direct from the Grower, Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts.

Turnip and Mangel Wurzel Seeds, Crop 1862.

RAISED FROM EXTRA SELECTED STOCKS, & TRANSPLANTED BULBS.
SPECIAL QUOTATIONS TO THE TRADE ON APPLICATION.
JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London.
N.B. A few Bushels of our celebrated LEWISHAM SWEDE on offer.

International Exhibition. Prize Medals 1851 and 1862,

AWARDED FOR "EXCELLENT SEED CORN AND SEEDS," TO
RAYNBIRD, CALDECOTT, AND BAWTREE, SEED MERCHANTS and GROWERS, Basingstoke, Andover; and 89, Seed Market, Mark Lane, London, E.C.
Samples of all kinds of AGRICULTURAL SEEDS and SEED CORN, sent post free on application.

For Ribbons and Large Beds.

THE best DWARF DAHLIA for the above purposes is the PURPLE ZELINDA, that may be had at 3*s*. per dozen, on application to JOHN SMITH, Basingstoke, Hants.

Filix Frizelliæ.

J. SHAW, having a large stock of this rare and beautiful HARDY FERN, offers them by the dozen at 2*s*. 6*d*. each, half dozen 3*s*. each, single plants 3*s*. 6*d*.
Stamford Nursery, Bowdon, Cheshire.

THUJA AUREA (GOLDEN ARBOR-VITÆ) as a Bedding Plant. Habit very dwarf and compact, perfectly hardy, and for several months in the year of a beautiful golden colour.
Nice bushy plants, 8 to 10 inches, 18*s*. per dozen.
E. COOLING, Mile Ash Nurseries, Derby.

Introduction of New Plants.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to announce that his NEW CATALOGUE (No. 72) is ready, and contains all his NOVELTIES to be sent out this season.
The Catalogue will be forwarded on application.

Bedding Plants, Florists' Flowers, and New Roses for 1863.

JAMES DICKSON AND SONS have an IMMENSE STOCK of the above, which they offer at VERY MODERATE PRICES, for exceedingly FINE VIGOROUS PLANTS.
DESCRIPTIVE CATALOGUE upon application.
The "Newton" Nurseries, Chester.

SPLENDID NEW SCARLET VERBENA, LORD LEIGH.—Strong Plants now ready, 5*s*. each, 42*s*. per dozen.
CATALOGUES also ready, and will be forwarded Post-free on application to
S. PERKINS & SONS, Park Nursery, Coventry.

Hollyhocks.

JOHN HARRISON has a Surplus Stock of strong healthy Plants of the above, all hardened and ready for planting out; they contain nearly all the best varieties in cultivation. Prices exceedingly low. CATALOGUES on application. DAHLIAS, &c.
Darlington Nursery.

Bedding Plants, mostly 2s. 6d. per dozen.

J. SCOTT'S FLOWER GARDEN and ANNUAL DIRECTORY will be ready to forward, from the 1st week of April, at 6*d*.
"All who wish to have their Gardens gay, at a moderate price, should procure the above."
Merriott, Crewkerne, Somerset.

GARDENERS' CHRONICLE ONE PENNY

Choice Variegated Plants, for Edging and Ribbon Borders.

B. S. WILLIAMS begs to intimate that he has a large Stock of the undermentioned, and can supply strong plants at the following prices:—

ARABIS ALBIDA VARIEGATA, 6s. per dozen; less by the 100.
AMARANTHUS MELANCHOLICUS RUBRA, 6s. per doz.
CERASTIUM TOMENTOSUM, 4s. per dozen.
CINERARIA MARITIMA, 4s. per dozen.
FESTUCA OVINA GLAUCA, 6s. per dozen.
GNAPHALIUM LANATUM, 4s. per dozen; less by the 100.
STACHYS LANATA, 3s. per dozen; 20s. per 100; less price per 1000.
TUSSILAGO FARFARA VARIEGATA, 6s. per dozen.

Paradise and Victoria Nurseries, Holloway, London, N.

Cheap Bedding Plants.

WM. DILLISTONE will forward (Carriage free to London), upon receipt of Post-Office Order for 18s. on Castle Hedingham, 100 Strong Plants in Pots; consisting of GERANIUMS, FUCHSIAS, DAHLIAS, VERBENAS, CALCEOLARIAS, &c.

N.B. The above are warranted to give satisfaction. CATALOGUES upon application.

Munro Nursery, Sible Hedingham, Essex.

BEDDING PLANTS—BEDDING PLANTS.—The undersigned beg to offer the above, of all the popular kinds in well hardened Plants, per 100, 20s., prepaid hamper included. Cheaper by the thousand. Carriage paid to Brick Lane Station.

A CATALOGUE of 35 pages sent upon application, enclosing a stamp. Post-office Orders payable at Halstead.

Messrs. DILLISTONE & Co., Sturmer and Woodlands Nurseries, near Halstead, Essex.

BEDDING PLANTS. — Scarlet and Variegated Geraniums, Verbenas, Lobelia speciosa, Agathæas, plain and variegated; Amaranthus, new purple-leaved; Ageratums, Calceolarias, Cerastiums, Cineraria maritima, Gnaphalium lanatum, Perillas, Pentstemons, Petunias, Tagetes signata pumila, Tropæolums, &c.; all thoroughly established in single pots. And extra fine sturdy plants from 2s. per doz.

CATALOGUES on prepaid application.

WOOD & INGRAM, Huntingdon.

Bedding Plants, 2s. per Dozen.

MARSH AND PERKINS have great pleasure in offering the following, all strong healthy plants:—

GERANIUMS: Variegated Flower of the Day, Osborn's Brilliant, Nymph, Tom Thumb, Scarlet, and Horse-shoe Leaf. CALCEOLARIAS: Aurea floribunda, Prince Albert, and Prince of Orange. Ageratums; Alyssums, variegated; Cuphea, of sorts; Gazania splendens; Heliotropes; Lobelias, Scarlet and Dark Blue; Musk; Perilla nankinensis; Pentstemons, of sorts; Salvias, of sorts; Verbenas, of sorts, &c.

A DESCRIPTIVE PRICED CATALOGUE may be had on application to 42, Drapery, Northampton.

Cash or reference required from unknown Correspondents.

New Scarlet Geraniums.

WM. PAUL (Son and Successor to the late A. PAUL) has now ready for SALE two superb new SCARLET GERANIUMS. Price 10s. the pair.

WALTHAM PET.—Very bright scarlet, with fine large white eye, dwarf as "Harkaway," but much finer in truss and flower; the best dwarf scarlet for small beds or edgings. First-class Certificate from Royal Horticultural Society. Certificate also from Royal Botanic Society.

RED DRAGON.—An exceedingly smooth dark scarlet, with a peculiarly rich nap on the flower; habit of "Boule de Feu"—the best dark scarlet. All the best "Bedding" plants, 3s. per dozen and upwards.

PAUL's Nurseries, Waltham Cross, N.

CLOTH OF GOLD and GOLDEN FLEECE GERANIUMS.—The above fine scarlet variegated Geraniums can now be had in any quantity. Their bright scarlet flowers being perfect, the contrast with their fine golden foliage and with other plants when used for edging or in lines, is pleasing and complete.

Good strong Plants established in pots, 31s. 6d. per 100
Do., out of pots, to save part package and carriage, 25s. per 100; 10l. per 1000
Do., in pots, 4s. 6d. per dozen

P.S. Nearly 50,000 BEDDING PLANTS as follows:—
SCARLET HORSE-SHOE GERANIUMS, in varieties
Do., silver variegated, in varieties
CALCEOLARIAS, FLORIBUNDA and others
DAHLIAS, in variety
HELIOTROPIUMS of sorts
HOLLYHOCKS, fine named in pots
VERBENAS, of sorts

And other plants for Beds and Edging, can be supplied, strong and well established, turned out of pots and carefully packed, at 10s. per 100, in selections; in less quantities than 4 dozen, at 3s. per dozen. All plants delivered to the Winchfield Station, on the South Western rail, or the Reading Station, on the Great Western rail.

STEPHEN SHILLING, North Warnboro Nursery, Odiham, Hants.

BEDDING GERANIUMS, 2s. 6d. per dozen. Twelve dozen choice Bedding GERANIUMS, in 12 varieties, purchaser's selection, for 32s. 6d., basket and package included; or any kind separately, at 3s. 6d. per dozen.

VARIEGATED.	ZONALE.	ZONALE.
Golden Chain	Scarlet Perfection	CrystalPalaceScarlet
Reine d'Or	Lady of Loretto	Blackheath Beauty
Golden CeriseUnique	Little David	Princess of Prussia
Flower of Spring	Beauté de Meldoise	M. Martin
Alma	Lady Middleton	Mde. Chardine
Hendersonii	Christina	Paul L'Abbé
Bijou	Rose Queen	Imperial Crimson
St. Clair	Scarlet Queen	Model Nosegay
Countess of Warwick	Indispensable	Minimum Nosegay
Shottesham Pet	Bishopstowe Scarlet	Purple Nosegay

All the leading kinds at moderate prices. Price to the Trade on application.

A remittance respectfully requested from unknown correspondents. Post Office Orders to be made payable to ALFRED FRYER, Chatteris, Cambridgeshire.

5000 Tom Thumb Geranium.

ALEXANDER LAING offers fine Bushy Plants of the above in pots for bedding out at 15s. per 100 (cash), or 12s. per 100 turned out of pots, and tied up with Moss. A large quantity can be sent to any distance at a very small expense in carriage. The above are all autumn-struck plants, very vigorous and strong, and cannot fail to give satisfaction. Early orders solicited.

A GENERAL CATALOGUE of BEDDING PLANTS may be had on application, gratis, and post free.

Nurseries, Beverley, Yorks.

DAHLIAS.

CHARLES TURNER	..	KEYNES..	8	First-class	Certificates
LORD WILTSHIRE	..	DODD ..	3	do.	do.
PRINCESS ALICE	..	EDWARDS			
COUNT CAVOUR	..	,,	3	do.	do.
SERENITY	..	RAWLINGS			
MRS. HOGG	..	,,			
EARL RUSSELL..	..	SILVER ..	4	do.	do.
BELLONA ..	..	HARRISON	4	do.	do.
PATENT ..	..	NAIRN ..	6	do.	do.
BRIDE ..	..	RAWLINGS	2	do.	do.
MRS. WICKHAM	..	,,			
THE BEAU	..	,,			

It is respectfully announced that these 12 First-class Flowers are now ready for distribution.

CATALOGUES with full descriptions will be forwarded on desire.

JOHN KEYNES, Castle Street Nursery, Salisbury.



Sutton's Grass Seeds

AT THE ROYAL FARMS, THE ALDERSHOT CAMPS, THE CRYSTAL PALACE, THE PEOPLE'S PARK, HALIFAX, &c.

SUTTON'S GRASS SEEDS for PERMANENT PASTURE, PARKS, and LAWNS are now Sown at the Royal Farms; the Crystal Palace, Sydenham; the Horticultural Society's Gardens, and on most of the largest Estates in the Kingdom.

☞ Messrs. SUTTON'S GRASS SEEDS being mixed expressly to suit the soil for which they are required, are never known to fail. The prices are moderate, particulars of which may be had post free.

Address,
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Dracæna (Cordyline) indivisa, from Mount Egmont, New Zealand.

BUTLER AND McCULLOCH have received a supply of Seed of the above strikingly beautiful fine-foliaged Plant, of which the following is an extract from their correspondent's letter which accompanied it. "When known," he says, "few of your nobility can be without this splendid plant in their gardens. I believe, indeed, that it will stand your winters out of doors with moderate protection. It grows here from 10 to 15 feet high, leaves 6 feet long and 8 inches broad, of a deep green hue, having a midrib of brilliant orange yellow, with red veins running parallel with it."

The Seed we now offer, our correspondent says was gathered in the snowy ranges; Plants therefore raised from it may be expected to possess more than usual hardy constitutions. Price 1s. and 2s. 6d. per packet.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Introduction of New Plants.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer the following Novelties ready to send out now:—

	£	s.	d.
CALADIUM FORMOSUM..	0	8	0
,, MACROPHYLLUM	0	8	0
,, MIRABILE	0	16	0
,, SCHMITZII VIRIDE	0	12	0
,, THELEMANNII	0	12	0
,, VANDEN HECKEII	0	12	0
DIOSCOREA ARGYRÆA.. .. }	1	0	0
DIPLACUS GODRONII } the Set ..			
,, VERSCHAFFELTII }	0	10	0
,, SPLENDIDUS }			
SYRINGA PRESIDENT MASSART	0	8	0
,, AMBROISE VERSCHAFFELT	0	12	0
VIOLA ARBOREA BRANDYANA	0	8	0

The New CATALOGUE, No. 72, and a specimen Number of the "Illustration Horticole, can be obtained Gratis by writing to AMBROISE VERSCHAFFELT.

NEW RHODODENDRONS

PRINCE OF WALES, | PRINCESS OF WALES.

The above beautiful RHODODENDRONS will be ready for sending out early in the Autumn.
Full description will appear in future Advertisements.

MAURICE YOUNG (SON and SUCCESSOR to the LATE WILLIAM YOUNG),
MILFORD NURSERIES, NEAR GODALMING.

NOTICE.—*We are sorry to observe that a respected House in the Nursery Trade has endeavoured in their Advertisements to depreciate some of the Novelties placed in our hands for sale by* Mr. BEATON. *We are quite content after this notice to let the matter stand as it is, resting assured that our Patrons and the Public have sufficient confidence in* Mr. BEATON *and ourselves to believe that we would not recommend any Plants of a second-rate character.*



CARTER'S

LIST OF NEW PLANTS FOR 1863.



NEW GERANIUMS.

Mr. BEATON, the well-known Raiser of the improved varieties of NOSEGAY and other sections of BEDDING GERANIUMS, has selected the undermentioned from his large Collection of Seedlings, and recommends them as being some of the most valuable Bedding varieties ever offered to the Public; he has placed them in our hands for distribution.

The Set of Six Varieties for 10s. 6d.

NOSEGAY VARIETIES.

Lord Palmerston (BEATON).

This is unquestionably the finest of the whole group of Nosegay Geraniums. It was raised by Mr. Beaton about three years since, and sent by him to be proved at the Gardens of the Royal Horticultural Society and the Crystal Palace, and by the Directors of the respective Gardens was selected from the whole mass of bedding plants to form the most prominent Beds of last Season, where it was universally admired. The flowers are deep crimson, produced in immense trusses in the greatest profusion, as many as 130 pips, or flowers, having been counted on a single truss. As this is a variety that has been thoroughly proved, we are induced to offer large quantities at a cheap rate, so that our customers may plant out large beds this season.

STRONG PLANTS.

Single plant	2s.	3 dozen	32s.
1 dozen	18s.	4 ,, ...	38s.
2 ,, ...	25s.	8 ,, ...	63s.

Spread Eagle (BEATON).

This is also one of the most profuse blooming of the Nosegay section; colour deep orange scarlet, with the dwarf habit of Mangles' Silver variegated. The breadth of petal of this and the succeeding variety far exceeds that of any other of the Nosegay tribe, and will doubtless go far to satisfy the exigent requirements of the most particular Florists. Price 2s. 6d. and 3s. 6d. each.

Miss Parfitt (BEATON).

The upper petals of this beautiful variety are deep crimson, the lower glowing scarlet with a white centre or eye; very dwarf and compact habit. Price 2s. 6d. and 3s. 6d. each.

Merrimac (BEATON).

This is a great improvement on "Imperial Crimson;" it has the additional breadth of petal to which we have before alluded; and in addition to being very useful for Beds and Ribands, it is very effective for Vases, &c. Price 2s. 6d. and 3s. 6d. each.

ZONALE or HORSE-SHOE-LEAVED VARIETIES.

Helen Lindsay (BEATON).

This is a rival of the well-known "Christine," which is so extensively used for Bedding purposes in all Public and Botanic Gardens; the colour is a much richer rose, whilst the trusses of bloom are larger, and more profusely produced throughout the season. This variety is also free from the objectionable seeding propensities of Christine (which renders that otherwise admirable kind so very troublesome to keep in good order, beds of it after Midsummer assuming a ragged appearance if the seed pods are not constantly gathered). Its habit is similar to that of Tom Thumb, leaves slightly zonale. This will be the GEM of BEDDING GERANIUMS this season. Price 1s. 6d. each; per dozen, 12s.

Rubens Improved (BEATON).

Of this excellent variety it is only necessary to say that it blooms as freely as its progenitor, but with much larger trusses of the same beautiful form and colour; leaves slightly zonale. It has also the additional merit of withstanding well the sun and rain, a quality much needed in the old variety. Price 2s. 6d. and 3s. 6d. each.

For FURTHER NOVELTIES *vide* PLANT SUPPLEMENT to

CARTER & CO.'S GARDENERS' VADE MECUM FOR 1863,

Containing FULL LISTS of STOVE, GREENHOUSE, and BEDDING PLANTS, now ready, post free, on application.

JAMES CARTER & CO., 237 & 238, HIGH HOLBORN, LONDON, W.C.

E. G. HENDERSON & SON'S

NEW SPRING CATALOGUE FOR 1863

CONTAINS A LIST OF THE BEST NOVELTIES FOR THE SEASON.

Cephalotus follicularis.

This most singular and highly interesting little object is the New Holland Pitcher-plant, forming a neat dwarf growth of 1 to 2 inches in height, with small oblong leaves and remarkable roundly-oblong depressed pitcher-shaped organs of a comparatively large size. It forms one of the most wonderful illustrations of vegetable structure and economy yet known.

Dionæa Muscipula.

This is the well-known Carolinian Venus Flytrap. The structure of this comparatively small plant is perhaps equal in interest, by the wonderful power manifested in the involuntary contraction and expansion of its leaf-organs, to any other known plant, and being of a similar size in growth to the equally remarkable Australian Pitcher-plant, it is a fitting companion to it, and as such, is probably unparalleled for miniature, novelty, proportion and design, by any other twin vegetables in creation. These plants thrive well in any ordinary cold pit kept close, and if removed into a warm green-house in the spring they will make rapid progress, with the precaution of placing a bell-glass over each plant, as a protection from cold, or occasional exposure to air. *3s. 6d.* and *5s.* each.

Bedding Verbenas.

The best bedding varieties are Blue King, St. Clair, and White Lady. The two former are the habit of Purple King, and the latter is the purest white, yielding the greatest quantity of bloom.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

KITCHEN GARDEN SEEDS,

FLOWER SEEDS.

In Collections including all the new and approved kinds, or separate to order.

Detail CATALOGUES post free.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND
THOS. GIBBS & Co.
Corner of
HALF-MOON St.
PICCADILLY,
London.
APPOINTED APRIL 1864
THE SEEDSMEN

AGRICULTURAL SEEDS,

GRASS SEEDS,

FARM SEEDS,

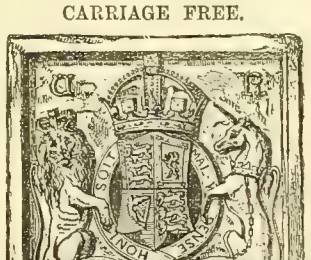
of all descriptions.

Thomas Gibbs & Co.
CORNER OF
HALF-MOON St.
PICCADILLY, LONDON, W.

FARM AND GARDEN SEEDS

CARRIAGE FREE.

BANGHOLM SWEDE,
EAST LOTHIAN SWEDE,
WARD'S BEAUTY SWEDE,
DROPMORE SWEDE,
MARSHALL'S CHAMPION SWEDE,
GREEN-TOP SWEDE,
WHITE SWEDE,
IMPROVED SKIRVING'S SWEDE.
WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
DOBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
IMPROVED YELLOW GLOBE DITTO,
IMPROVED ORANGE GLOBE DITTO,



IMPROVED LONG RED MANGEL,
IMPROVED LONG YELLOW MANGEL,
IMPROVED RED GLOBE MANGEL,
IMPROVED WHITE FIELD BEET,
RED CLOVER, | COWGRASS,
WHITE, YELLOW, and ALSIKE CLOVERS.
PACEY'S PERENNIAL RYE-GRASS, and other sorts.
ITALIAN RYE-GRASS, FOREIGN and ENGLISH SEED.
NATURAL GRASS SEEDS, in mixture or separate, suitable for various soils and localities.
LIGHT RYE-GRASS and other CHEAP GRASSES, for Sowing on Railway Banks and Waste Places.

Orders for Exportation promptly attended to.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN,

28, KING STREET, CHEAPSIDE, NEAR the GUILDHALL; and

15, LAWRENCE LANE, LONDON, E.C.

TO TURNIP AND MANGEL GROWERS.

Growers of the above will find the following Varieties well worth their attention:—

DRUMMOND'S EXTRA IMPROVED SWEDE TURNIP, 1s. per lb.—A large handsome oval-shaped root with clear purple skin. Is a remarkably free grower, and may be relied on as the heaviest cropper in cultivation. This is the identical stock that last year carried off the 50*l.* cup offered by J. B. Lawes, Esq., to the farmers in Ireland for the best 10 Irish acres, and for which there were a great many competitors; and in reference to this Swede the gentleman who managed the premium crop writes:—"*Allow me to congratulate you on your present stock of 'Drummond's Swede Seed,' which I have tested on my four farms here and in Scotland, and I believe it to be the best Swede out, beating*"—(here is mentioned the names of several regularly advertised varieties) "*all of which I had procured from the best authorities, and for shape, size, and quality, surpassing them all.*"

GREEN TOP YELLOW ABERDEEN IMPROVED TURNIP, 10*d.* per lb.—As now *improved* this is unquestionably the most valuable Yellow Turnip grown, for while the crop is large, it is more nutritious, hardier, and a better keeper than any other variety. Hence its extensive culture by the great stock breeders throughout Scotland.

NEW OVAL-SHAPED YELLOW MANGEL, 10*d.* per lb.—The New Oval-Shaped Yellow recently introduced by us has been thoroughly tested, and has proved a most superior sort. It is of a remarkably vigorous growth, with finely shaped roots intermediate in length between the Long and the Globe, and producing several tons more per acre than any other variety. *This stock has been re-selected and is very superior.*

LONG RED MANGEL, 9*d.* per lb.—This is a very large free-growing root, stands well out of the ground, and lifts much cleaner than an inferior stock will.

With every other valuable variety of TURNIP and MANGEL in cultivation, PRICED DESCRIPTIVE LISTS of which may be had Post Free on application.

N.B. Parcels of Seeds amounting to 2*l.* and upwards are delivered CARRIAGE PAID to all the principal Railway Stations and Shipping Ports throughout the Kingdom, to which there is daily and quick transit from Stirling.

W. DRUMMOND AND SONS, SEED AND IMPLEMENT WAREHOUSE, STIRLING, N.B.

LOBELIA GORDONIANA.—A very beautiful and effective variety, fully as compact in habit as the well-known L. speciosa. It has a large pure white centre or eye, with a broad margin of intense blue; strongly recommended. Price *9s.* per dozen; each 1*s.*

JAMES CARTER & Co., 237 & 238, High Holborn, W.C.

LOBELIA SPECIOSA ALBA.—Raised by Mr. Gordon, of the Crystal Palace Gardens, Sydenham, where it will be much employed this season to add to the bedding effects there so much admired. The lower petals, which are very large, are pure white, and the upper just faintly tinged with blue. Price *9s.* per dozen; each 1*s.*

JAMES CARTER & Co., 237 & 238, High Holborn, W.C.

LOBELIA PAXTONIANA.—This valuable acquisition to our Summer Gardens was raised by Mr. Gordon, the indefatigable Superintendent of the Crystal Palace Gardens, and named Paxtoniana by desire of Sir Joseph Paxton, in whose garden (as well as the Crystal Palace Gardens) its merit has been proved. It is a seedling from the well-known true Crystal Palace variety of Lobelia speciosa, quite as robust as its parent, with a much more compact habit. The individual flowers are much larger, with a pure white centre or eye; the outer margin or prevailing colour (blue) more nearly resembling in tint that of the pretty Annual Nemophila insignis, than any other flower with which we are acquainted. It forms a very effective contrast and companion plant with its parent in the decoration of the summer garden, and will be largely used at the Crystal Palace during the ensuing season. Price *9d.* each; *6s.* per dozen.

JAMES CARTER & Co., 237 & 238, High Holborn, W.C.

NEW TROPÆOLUMS.—The following varieties are decidedly the best ever offered:—

ELEGANS "OTHELLO."—A beautiful deep maroon coloured variety of the "Crystal Palace elegans," having the same short-jointed habit and profuseness of bloom; when grown in a mass its effect is striking in the extreme. Price 1*s.* 6*d.* each; per dozen, 12*s.*

KING of TOM THUMBS.—A variety of the well-known T. Brilliant—habit very dwarf and compact, with a profusion of bright scarlet flowers, thrown well up above the dark bluish green foliage; this variety is quite distinct in colour of flower and foliage from all other varieties of Dwarf Tropæolums: the flower is very similar in shade of colour to Boule de Feu Geranium, and the habit is much more compact than any of the Tom Thumb varieties of Nasturtiums. Price 1*s.* 6*d.* each; per dozen, 12*s.*

JAMES CARTER & Co., 237 & 238, High Holborn, W.C.

New Fuchsias and Verbenas of 1862.

B. W. KNIGHT, FLORIST, &c., Battle, Sussex, can supply the NEW FUCHSIAS of 1862, in good plants, at 4*s.* per dozen.

VERBENAS, 3*s.* per dozen. Scarlet, Purple, Crimson, and Blue VERBENAS, 2*s.* 6*d.* per dozen.

MIMULUS CUPREUS, 4*s.* per dozen.

CATALOGUES sent on application.

New Shrubby Calceolarias.

MESSRS. JOHN AND CHARLES LEE having purchased the entire stock of Seedling SHRUBBY CALCEOLARIAS, raised by Mr. Watson, of St. Alban's, in 1861 and 1862, have selected four distinct colours, which they now offer to the Public. They are the finest high-coloured Shrubby Calceolarias yet raised, and in point of habit and quality are everything that can be desired for bedding or pot culture. They are decidedly shrubby and of good constitution, with a dwarf spreading habit and good foliage. The flowers rise just above the leaves, forming an even mass of exquisite colouring.

Price 5*s.* each, or 15*s.* the set, as under:—

PRINCESS ALEXANDRA.—Rich orange buff, of very dwarf habit, free blooming and conspicuous. Quite a new colour in Calceolarias.

MAGNIFICENT.—Deep orange flowers, of large size with close mouth, flower stalks short and stiff, a good dense habit, and first-rate in every respect.

PRINCE LOUIS of HESSE.—Rich crimson flowers of medium size, free blooming, habit very dwarf and showy.

FIREFLY.—Intense orange scarlet flowers of good size, free blooming dwarf habit, the brightest colour yet raised.

Terms to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Turnip and Mangel Wurzel Seed.

H. AND F. SHARPE can supply the Trade with the following Varieties, true to name, all of their own growth, new and genuine, and on very advantageous terms.

TURNIP.	TURNIP.
Improved Purple-top Swede	Lincolnshire Red Globe
Champion do.	Improved Green Norfolk
Skirving's Improved do.	Fine White Stone
Marshall's Improved do.	
Yellow Tankard	MANGEL WURZEL.
Pomeranian White Globe	Elvetham Long Red
Drummond's Early Field	Fine Orange Globe
Yellow	,, Long Yellow
Green-top Scotch	,, Red Globe

Seed Growing Establishment, Wisbech.

For Present Sowing.



THE HEAVIEST CARROT AND MOST CERTAIN CROPPER IS THE GREEN-TOP YELLOW BELGIAN.

SUTTON AND SONS have some fine fresh imported Seed now selling at 1*s.* 3*d.* per lb., or cheaper in large quantities (8 lb. Seed per Acre is abundance).

Also ALTRINGHAM, the largest RED CARROT.

SUTTON & SONS,
Seed Growers, Reading.

Skirving's "King of the Swedes."

WILLIAM SKIRVING, Queen Square, Liverpool, begs to acquaint the Farmers of the United Kingdom, that he has fixed the price this season for the Seed of his new variety of SWEDE at 1*s.* 3*d.* per lb., bags included.

W. S. can with confidence recommend this variety of Swede as the best now in cultivation, in every respect. This assertion is made after several years' experiments with every sort of Swede known.

The Seed of this variety having all been grown on his own Farm, he begs to say it can only be had direct from himself, this being the second year of its introduction.

All other sorts of Farm Seeds of the most superior quality, at their present market value.

NEW HARDY WHITE SWEDE.—The Favourite Swede of the Flockmasters on the Hampshire, Wiltshire, and Cotswold Hills. Grows rather coarse on some soils or when sown early; but it is very productive, hardy, and it is the only Swede that can be depended upon to keep sound through the winter without storing. Excellent for late sowing and upon poor land.

Seed 1s. per lb., or 42s. per bushel.

Supplied by RAYNBIRD, CALDECOTT, & BAWTREE, Basingstoke; and 89, Seed Market, Mark Lane, E.C.

Cabbage Plants.

W. VIRGO AND SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 2s. per 1000:—

EARLY YORK CABBAGE | EARLY NONPAREIL
,, BATTERSEA | DRUMHEAD
,, BARNES

RED CABBAGE, 4s. p 1000. All strong, healthy, and well rooted.

Wonersh Nursery, near Guildford, Surrey.



FARM SEEDS

OF GENUINE QUALITY

(at Market Prices).

Carriage Free.

RICHARD SMITH,

SEED MERCHANT,

Worcester.



Skirving's Swede—Sutton's Selected Stock.

SUTTON AND SONS have a choice Stock of SKIRVING'S SWEDE SEED, growth of 1862, which they can strongly recommend. 9d. per lb., or *cheaper in large quantities.*

Also SUTTON'S CHAMPION, Hardy PURPLE-TOP, and Hardy WHITE SWEDE; but the Stock of "Champion" Swede, though saved from upwards of 50 Acres of Land, being small compared with the demand, this sort cannot be supplied under 1s. per lb., or 45s. per bush.

Royal Berkshire Seed Establishment, Reading.

TAN GRATIS, in the immediate neighbourhood of Covent Garden Market.

Apply at WILLIAM ESSEX & SON, 28, Stanhope Street, Clare Market, W.C.

REIGATE SILVER SAND.—Best quality, 7s. 6d. per ton; second quality, 6s. per ton; best quality, packed in strong canvas bags, 16s. per ton; ditto 2s 6d., 2 cwt. bags, stamps, put on the rail at Reigate and forwarded to all parts of the United Kingdom.

PEAT SOILS, LOAM, &c.

Collections of NEW, RARE, and BEAUTIFUL PLANTS of all kinds, carefully selected and supplied at current Prices.

W. SHORT, Salesman, Agent, &c., Reigate, Surrey.

THE best Quality of SILVER SAND, carriage paid to the South Eastern Railway Company's Station at Bricklayers' Arms, London, in Four Ton trucks and upwards, 11s. per ton, cash. In fine bags in One Ton lots, delivered to the General Carriers and Shipping Wharfs in London, 30s. per ton. Single bags of two bushels delivered to Messrs. Pickford & Co., Red Hill, 4s. 2d. per bag, and forwarded to all parts by enclosing 50 Postage Stamps. Small dry FULLER'S EARTH for improving the Growth of Lawns, Roses, &c, 4s. 2d. per bag of two bushels.

All orders and remittances to be addressed to JAMES GAWKROGER, 21, Union Street, Halifax, Yorkshire.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1s. and 2s. per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1s. per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by

PRICE'S PATENT CANDLE CO. Limited.

The only Certain Remedy for Mildew.

JOHN BELL'S COMPOSITION for DESTROYING MILDEW on Vines, Peaches, Nectarines, Roses, and every other Plant subject to that pest, is proved to be the most efficacious that has ever been offered. Sold in Bottles at 1s. 6d., 2s. 6d., and 5s. each. A 1s. 6d. Bottle will make 12 gallons fit for use.

Seed Warehouse, 10 & 11, Exchange Street, Norwich.

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.

Can be obtained through the principal Nurserymen and Seedsmen in England.

A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.

PAGE & TOOGOOD, Seed Merchants, Southampton.

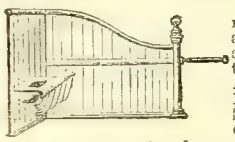
Blight.

BROWN'S PATENT FUMIGATOR.—A Portable Instrument for Fumigating Greenhouses, Stoves, and Frames, or Shrubs and Flowers in the open air, without injuring the most delicate plant; delivering the smoke cold, in a dense mass, and effecting a great saving of Tobacco. Price 10s. and upwards.

Manufactured and supplied to the Trade by Messrs. BARBER & GROOM, London; and may be had of all Ironmongers, Seedsmen, and Florists.

Exhibition Prize Medal 1862.

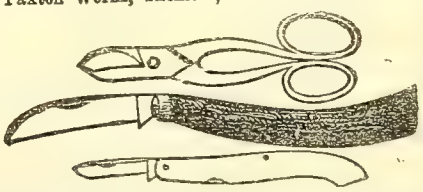
MUSGRAVE'S PATENT STABLE FITTINGS and HARMLESS LOOSE BOXES, PATENT IRON COW HOUSE FITTINGS, and IRON PIGGERIES.



These inventions are recommended as possessing numerous advantages not to be found in anything hitherto made. At the late Meeting of the Royal Agricultural Society at Leeds, MUSGRAVE BROTHERS received a Silver Medal, and two Awards of "Highly Commended," being the only Prizes conferred on any competitor in this class.

Particulars sent on application to the Inventors and Makers, MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal is just awarded to SAYNOR & COOKE for superiority of quality in Pruning and Budding Knives, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. TYLOR & SONS' GALVANIZED IRON TUB GARDEN ENGINES, with Registered Spreader.

8 gal.	12 gal.	16 gal.
£2 13 6	£3 5 0	£3 15 0
24 gal.	30 gal.	
£5 0 0	£5 18 0	



Fig. 571.

J. TYLOR & SONS' OAK TUB GARDEN ENGINES, with Registered Spreader.

15 gal.	28 gal.
£5 12 6	£7 2 0

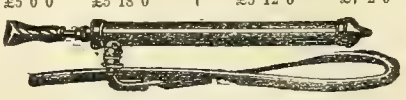


Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 8 0 each.
No. 2. Ditto ditto .. 1 2 6 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,

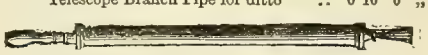


Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 11s. 6d. each
,, 589. Middle Ditto ditto .. 10 3 ,,
,, 588. Small Ditto ditto .. 9 0 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 7 6 ,,

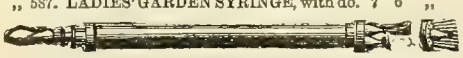


Fig. 591. READ'S SYRINGE, with two roses and one jet, 17s. 6d.
READ'S SYRINGE, with one rose and jet, 15 0
,, 592. Improved ditto ditto large 14 0

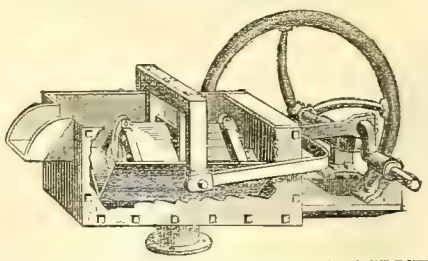
Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

Norton's Patent V Shaped Pumps,

REQUIRING NO PACKING.

CAN BE WORKED BY HORSE, STEAM, OR OTHER POWER.

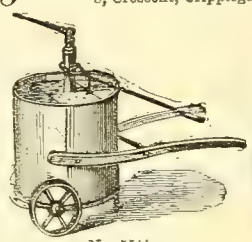


THE ATTENTION of ENGINEERS, AGRICULTURISTS, and others is invited to a 6-HORSE DIRECT ACTION STEAM V SHAPED PUMP, by Messrs. GEO. FORRESTER & Co., Liverpool, which will throw upwards of 60,000 Gallons per hour. Now on view at the Warehouse, Red Bull Wharf, 93, Upper Thames Street.

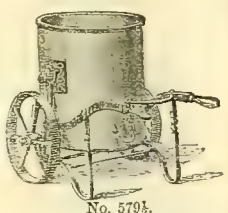
G. C. WARDEN & Co., Sole Licensees, 12, London Street, London, E.C.

JOHN WARNER AND SONS,

8, Crescent, Cripplegate, London, E.C.



No. 554½.



No. 579½.

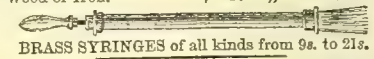
WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons	..	£2 15 0
16 ,,	..	3 15 0
24 ,,	..	5 0 0

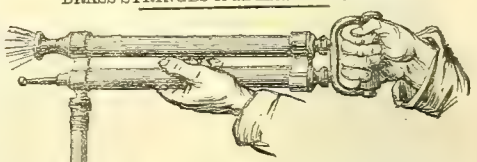
Larger sizes may be had in either Wood or Iron.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	..	£2 10 0
20 ,,	..	2 0 0



BRASS SYRINGES of all kinds from 9s. to 21s.



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 6 feet Flexible Suction Pipe,

21s.,

Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

THERE ARE NO SUCTION OR DELIVERY VALVES, hence MUCH FRICTION AND LIABILITY TO CHOKE with leaves and dirt IS AVOIDED.

AMERICAN PORTABLE FIRE ANNIHILATOR and GARDEN ENGINE.



£2 2s.

An efficient means of Extinguishing Fires at their commencement. Nine out of ten Fires in London are put out on their first appearance by the London Fire Brigade with Hand Pumps of considerably less power.

One man will throw 7 or 8 gallons per minute from 40 to 50 feet with it.

It is an effective Garden Engine for cleansing or syringing Wall-fruit or Rose Trees, Plants, or Vines.

It may be used to draw water from the pail in which it is fixed, or from a tank or pond by the addition of the required length of suction. It is simple in its construction, having no suction or delivery valves to clog with dirt or leaves.

No Establishment, either private, commercial, or manufacturing, should be without one.

Six feet of Flexible Suction, with Union and Suction Rose, &c., extra, 12s. Longer lengths of Suction at 1s. 6d. per foot.

The above may be obtained of all Ironmongers and Seedsmen in Town and Country, or of the Manufacturers,

JOHN WARNER & SONS, 8, Crescent, Cripplegate London, E.C.

FOWLER'S
STEAM PLOUGHING AND CULTIVATING PATENTS.

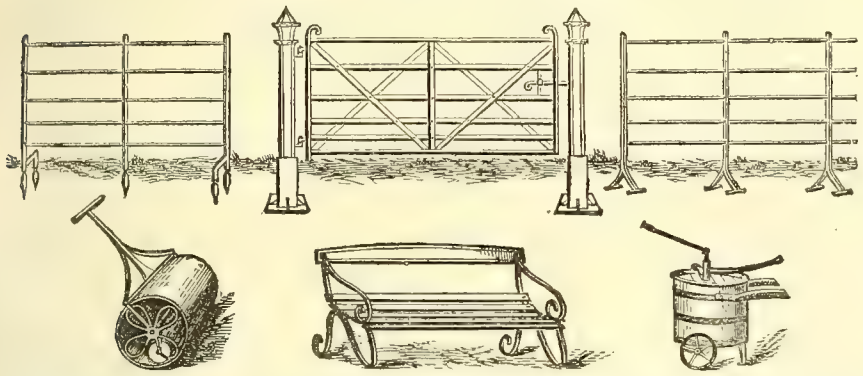
RANSOMES & SIMS, Orwell Works, Ipswich,

Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

COTTAM'S
CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED, IN VARIOUS STYLES.

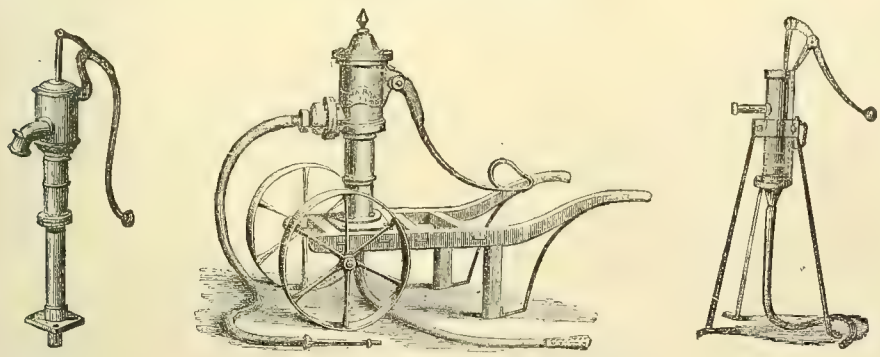


IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes. VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c. The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

Illustrated CATALOGUES and DRAWINGS free on application to
COTTAM & CO., ENGINEERS and IRON FOUNDERS,
2, WINSLEY STREET (Opposite the Pantheon), OXFORD STREET, LONDON, W.

JOHN WARNER & SONS,
BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. No. 36½. Improved Cast-Iron Lift and Force Pump. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

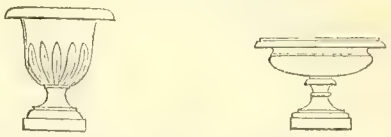
When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER and SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

AUSTIN, SEELEY, and CO.,
371-375, Euston Road, N.W.,



Have a large Collection of VASES for FOUNTAINS or FLOWERS, and every kind of GARDEN ORNAMENT.



GARDEN BORDER-EDGING TILES. — These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

To be obtained at F. & G. Rosher's Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied.

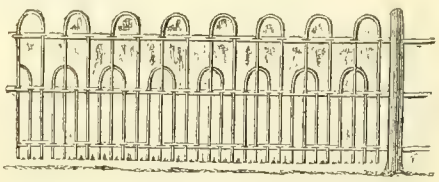
ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. Rosher at their Premises as above.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.



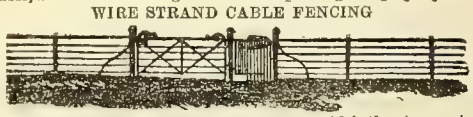
For further particulars apply at the Manufactory, or of th London Agent, Mr. R. Winder, 18, Abingdon Street, West minster. S.W.

Prices Reduced.

H. J. MORTON and CO., Galvanised Iron Works,
2. Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING
for Farm Buildings and other Roofs; the cheapest, most durable, and neatest Roofing in use; also Spouting at 10½*d.* per yard.

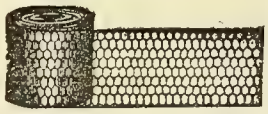
WIRE STRAND CABLE FENCING



formed of Twisted Wires like a rope or cable), the strongest, cheapest, and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Price, with five lines of the Galvanised Strand, iron main posts, and pronged Standards, from 1*s.* per yard.

This fence is far cheaper than posts and rails, or any kind of iron fencing; and possesses four times the strength of solid bars. Will not rust nor corrode. Upwards of 1200 miles of this Fencing supplied.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 4*d.*, 4½*d.*, and 6¾*d.* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 2¾*d.*, 3¾*d.*, and 5½*d.* per yard. The Netting made any width, and with openings of any size.

GALVANISED IRON CHAIN CAMP STOOLS & CHAIRS, POULTRY FOUNTAINS & FEEDERS, PRONGED DAHLIA RODS and ROSE STAKES, &c.

Strong CATTLE HURDLES from 7*s.* per yard.

PATENT IMPROVED GAS WORKS
of all sizes, for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c. Works from 10 to 500 lights estimated for. The works can be entrusted to an ordinary labourer.—Apply to
Henry J. Morton & Co., 2, Basinghall Buildings, Leeds.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. Glenny."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, E.C.

CALCEOLARIA, CINERARIA, and PRIMULA.

CALCEOLARIA, saved from carefully hybridised flowers, possessing all the recognised floral qualifications, viz., size, form, colours, and marking. Price, 1s. and 2s. 6d. per packet.
CINERARIA, extra choice, 1s. per packet.
PRIMULA SINENSIS FIMBRIATA, extra choice, 1s. and 2s. 6d. per packet.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

E. G. HENDERSON AND SON offer first-class quality of CINERARIA, PRIMULA SINENSIS FIMBRIATA, and PANSY. Also, CINERARIA WEBBI, new shrubby species.
All the above 1s. and 2s. 6d. per packet.
☞ EXPERIENCED GARDENERS recommended to Gentlemen.
Wellington Nursery, St. John's Wood, London, N.W.

Hardy Climbers in Pots.

WM. WOOD AND SON have an immense stock of fine strong Plants of the above, suitable for planting out at once against walls, trellises, or poles, consisting of the best kinds of ROSES, CLEMATIS, BIGNONIAS, IVIES, JASMINES, PASSIFLORAS, WISTARIA, &c., at very reasonable prices.
Woodlands Nursery, Maresfield, Uckfield, Sussex.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. Annual Sale exceeds 2000 packets. In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each.
J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1s., 2s. 6d., and 5s.
J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE PRIMULA SINENSIS SEED. In sealed packets, 1s., 2s. 6d., and 5s.
J. DOBSON & SONS, Seedsmen, Isleworth.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.
The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

Bedding Tropæolum.—Ball of Fire.

ARTHUR HENDERSON AND SON are now sending out the above brilliant BEDDING TROPÆOLUM.
For description and full details see figure and remarks in the *Floral Magazine* for January, 1863, Plate 129, colour of Tom Thumb Geranium. This will prove one of the best and most beautiful Bedding Plants of the season.

Per 100 Plants	.. £3 10 0	Per 25 Plants	.. £1 10 0
,, 50 ,,	.. 2 2 0	,, 12 ,,	.. 0 18 0
1 Plant ..	.. 2s. 6d.		

Pine Apple Place, Edgeware Road, London, W.

Select Stove and Greenhouse Plants, &c.

ROBERT PARKER begs to invite attention to his Collections of AMARYLLIS, AZALEA INDICA, EXOTIC ORCHIDS, FERNS, and LYCOPODS; ORNAMENTAL and VARIEGATED FOLIAGED PLANTS; MISCELLANEOUS, STOVE, GREENHOUSE, and HARDY PLANTS; all of which are healthy and clean. Purchasers of large or small quantities will be treated on the most liberal terms.
PRICED and DESCRIPTIVE CATALOGUES are published, and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

LOUIS VAN HOUTTE'S NEW CATALOGUE, No. 96, is to be had at Messrs. R. SILBERRAD & SON, 5, Harp Lane, London, E.C.
☞ L. v. H.'s goods will be delivered free out of the Custom House in London, without any expense whatever to the buyer, but per contra 5s. will be charged for each package.
Ghent, Belgium.

NEW PRIZE MELONS, at 1s. 6d. per packet.
Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria,
For descriptions see GUIDE to the KITCHEN GARDEN.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

NEW MELON, PRINCESS ALEXANDRA.—A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1s. per packet.
JAMES CARTER & Co., 237, 238, & 261, High Holborn, W.C.

Two Hundred and Fifty Guineas in Ten Prizes.

FOR FIVE YEARS SUCCESSIVELY HIS LATE ROYAL HIGHNESS THE PRINCE CONSORT'S PRIZE CUPS HAVE BEEN AWARDED TO
SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Bucks Agricultural Societies.
New Seed now ready, 1s. per lb., or 45s. per bushel, carriage free.
Royal Berkshire Seed Establishment, Reading.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.
RICHARD SMITH, Nurseryman, Worcester.

Green Hollies.

CORNELIUS WHITEHOUSE, Brereton Nursery, Rugeley, Staffordshire, offers an immense stock of well-grown healthy extra Transplanted HOLLIES, exceedingly well-rooted, from 12 to 15, 15 to 18, 18 to 24, 24 to 30 inches. Also very handsome SPECIMEN PLANTS from 3 to 5 feet; also ENGLISH YEWS from 2 to 2½ feet, 2½ to 3 feet and upwards. The above growing on ground to be cleared for other stock, the price will be liberal. Trade price on application.

ROYAL BOTANIC SOCIETY,

REGENT'S PARK.

FIRST EXHIBITION of PLANTS, FLOWERS, and FRUIT,

WEDNESDAY, MAY 13.

AWARDS OF THE JUDGES.

EXTRA GOLD MEDAL.

To Mr. B. Peed, Gr. to Mrs. Tredwell, St. John's Lodge, Norwood, for 16 Stove and Greenhouse Plants
To Mr. G. Baker, Gr. to A. Bassett, Esq., Stamford Hill, for 20 Exotic Orchids

LARGE GOLD MEDAL.

To Mr. P. Baxendine, Gr. to H. Smallpiece, Esq., Milmeade House, Ripley, Surrey, for 16 Stove and Greenhouse Plants
To Mr. R. Bullen, Gr. to A. Turner, Esq., Bow Bridge House, Leicester, for 20 Exotic Orchids

MEDIUM GOLD MEDAL.

To Messrs. J. & J. Fraser, Nurserymen, Leyton, Essex, for 10 Stove and Greenhouse Plants
To Mr. John Green, Gr. to Sir Edmund Antrobus, Bart., Lower Cheam, Surrey, for 10 Stove and Greenhouse Plants
To Messrs. J. Veitch & Son, Nurserymen, Chelsea, for 8 Greenhouse Azaleas
To Mr. J. Green, Gr. to Sir E. Antrobus, Bart., Lower Cheam, for 8 Greenhouse Azaleas
To Mr. B. Peed, Gr. to Mrs. Tredwell, for 20 Exotic Orchids
To Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, Herts, for 10 Roses in Pots
To Mr. T. Page, Gr. to W. Leaf, Esq., Park Hill, Streatham, for 12 Exotic Orchids

GOLD MEDAL.

To Messrs. J. & C. Lee, Nurserymen, Hammersmith, for 10 Stove and Greenhouse Plants
To Mr. H. Chilman, Gr. to Mrs. Smith, Ashstead House, Ashstead, for 10 Stove and Greenhouse Plants
To Messrs. Jackson & Son, Nurserymen, Kingston, Surrey, for 10 Cape Heaths
To Mr. B. Peed, Gr. to Mrs. Tredwell, for 8 Cape Heaths
To Mr. C. Turner, Nurseryman, Slough, for 8 Greenhouse Azaleas
To Mr. T. Page, Gr. to W. Leaf, Esq., for 8 Greenhouse Azaleas
To Mr. S. Woolley, Nurseryman, Cheshunt, Herts, for 8 Exotic Orchids
To Mr. W. Paul, Nurseryman, Waltham Cross, for 10 Roses
To Mr. C. Turner, for 12 Pelargoniums
To Mr. T. Bailey, Gr. to T. T. Drake, Shardeloes, Amersham, Bucks, for 10 Pelargoniums.

LARGE SILVER GILT MEDAL.

To Messrs. Jackson & Son, Nurserymen, Kingston, for 10 Stove and Greenhouse Plants
To Mr. Wm. Kaile, Gr. to Earl Lovelace, East Horsley Towers, Ripley, Surrey, for 10 Stove and Greenhouse Plants
To Mr. Page, Gr. to Wm. Leaf, Esq., Park Hill, Streatham, for 6 Stove and Greenhouse Plants
To Messrs. J. & C. Lee, Nurserymen, Hammersmith, for 10 Foliage and Flowering Plants
To Mr. O. Rhodes, Nurseryman, Sydenham Park, Kent, for 10 Cape Heaths
To Mr. T. Page, Gr. to W. Leaf, Esq., for 8 Cape Heaths
To Messrs. J. & J. Fraser, for 8 Greenhouse Azaleas
To Mr. J. Cross, Gr. to Sir F. H. Goldsmid, Bt., M.P., St. John's Lodge, Regent's Park, for 8 Greenhouse Azaleas
To Mr. C. Turner, Nurseryman, for 6 Greenhouse Azaleas
To Mr. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth, for 6 Exotic Orchids
To Mr. E. P. Francis, Nurseryman, Hertford, for 10 Roses
To Mr. T. Terry, Gr. to C. W. G. Puller, Esq., M.P., Youngsbury, Ware, Herts, for 6 Roses in Pots
To Messrs. J. & J. Fraser, for 12 Pelargoniums
To Mr. J. Weir, Gr. to Mrs. Hodgson, The Elms, Hampstead, for 10 Pelargoniums

LARGE SILVER MEDAL.

To A. Ingram, Gr. to J. J. Blandy, Esq., High Grove, Reading, Berks, for 6 Stove and Greenhouse Plants
To Mr. A. Ingram, Gr. to J. J. Blandy, Esq., for 6 Cape Heaths
To Messrs. H. Lane & Son, for 6 Greenhouse Azaleas
To Mr. Smith, Gr. to Duke of Northumberland, Syon House, Isleworth, for 6 Exotic Orchids
To Mr. C. Turner, for 6 Fancy Pelargoniums
To Messrs. J. & J. Fraser, for 6 Fancy Pelargoniums
To Mr. T. Bailey, Gr., for 6 Fancy Pelargoniums

SILVER GILT MEDAL.

To Mr. O. Rhodes, Nurseryman, Sydenham Park, Kent, for 10 Stove and Greenhouse Plants
To Mr. J. Wheeler, Gr. to J. Phillpott, Esq., Stamford Hill, for 6 Stove and Greenhouse Plants
To Messrs. A. Henderson & Co., Nurserymen, Edgware Road, for 10 Foliage and Flowering Plants
To Mr. R. Baxendine, Gr. to H. Smallpiece, Esq., for 8 Cape Heaths
To Mr. H. Chilman, Gr. to Mrs. Smith, for 6 Cape Heaths
To Mr. G. Clarke, Nurseryman, Brixton Hill, for 8 Greenhouse Azaleas
To Mr. W. Kaile, Gr. to Earl Lovelace, for 8 Greenhouse Azaleas
To Mr. J. Wheeler, Gr. to J. Phillpott, Esq., for 6 Greenhouse Azaleas
To Mr. J. Green, Gr. to Sir E. Antrobus, for 6 Exotic Orchids
To Mr. H. Lamb, Gr. to Captain Cahill, Southall, Middlesex, for 6 Cinerarias
To Mr. J. Weir, Gr., for 6 Fancy Pelargoniums

SILVER MEDAL.

To Mr. J. Wheeler, Gr. to J. Phillpott, Esq., for 6 Cape Heaths
To Mr. H. Chilman, Gr., for 6 Greenhouse Azaleas
To Mr. T. Pointer, Gr. to C. J. Perry, Esq., Castle Bromwich, Birmingham, for 6 Cinerarias

SILVER MEDAL.

To Mr. H. Lamb, Gr. to Captain Cahill, for 6 Fancy Pelargoniums
To Mr. B. S. Williams, Nurseryman, Holloway, for collection of New and Rare Plants
To Mr. W. Paul, for 7 Boxes of Roses
To Messrs. Paul & Son, Nurserymen, Cheshunt, Herts, for 6 Boxes of Roses
To Mr. H. Lavey, Gr. to E. A. De Grave, Esq., Fetcham, Surrey, for 30 British Ferns

SMALL SILVER MEDAL.

To Mr. J. Wheeler, Gr., for 6 Exotic Orchids
To Mr. H. Chilman, Gr. for 6 Exotic Orchids
To Mr. Venner, Gr. to C. J. Beecham, Esq., The Grove, Hanwell, for 6 Cinerarias
To Mr. Pepler, Gr. to Earl Granville, Golders Green, Hendon, for 6 Fancy Pelargoniums
To Messrs. Downie, Laird, & Laing, Nurserymen, Edinburgh, for 36 Pansies
To Mr. Fraser, Gr., Belmont, for 24 Pansies
To Mr. C. Turner, for 18 Tulips
To Mr. H. Lavey, Gr. to E. A. De Grave, Esq., Fetcham, Surrey, for 12 Exotic Ferns
To Messrs. Lane, Berkhampstead, for collection of Cut Roses
To Mr. Wm. Bull, Nurseryman, King's Road, Chelsea, for large group of New and Rare Plants
To Miss Clarkson, 40, Avenue Road, St. John's Wood, for 24 British Ferns
To Mr. J. Smith, Gr. to the Duke of Northumberland, for Napoleona imperialis

BRONZE MEDAL.

To Mr. G. Clarke for 6 Greenhouse Azaleas
To Mr. H. Lavey, Gr., for 6 Greenhouse Azaleas
To Mr. H. Hooper, Nurseryman, Bath, for 36 Pansies
To Mr. J. James, Gr., for 24 Pansies
To Mr. J. James, for 6 Calceolarias

CERTIFICATE.

To Mr. J. August, Gr. to the Rev. A. Bridges, Beddington, for 24 Pansies
To Mr. Wm. H. Treen, Nurseryman, Rugby, for Stand of Verbenas
To Messrs. Downie, Laird, & Laing, Sydenham and Edinburgh, for collection of Seedling Fancy Pansies
To Mr. C. Turner, Nurseryman, Slough, for collection of Auriculas
To Mr. Wm. Bull, King's Road, Chelsea, for group of new Hybrid Seedling Mimulus maculosus
To Mr. H. Dean, Nurseryman, Shipley, for collection of Pansies

FIRST-CLASS CERTIFICATES OF MERIT.

To Messrs. Veitch & Co., for Melastoma argyroneura
To Messrs. Veitch & Co., for Cheilanthes Borsigiana
To Messrs. Veitch & Co., for Litobrochia nobilis
To Messrs. Veitch & Co., for Dracophyllum species
To Messrs. Veitch & Co., for Rhododendron Picotee rosea
To Messrs. Veitch & Co., for Rhododendron Princess Alice
To Mr. B. S. Williams, for Caladium Lowii
To Mr. Standish, Nurseryman, Royal Nursery, Ascot, for Clematis Fortuni
To Mr. Standish, Nurseryman, Royal Nursery, Ascot, for Clematis florida Standishii
To Mr. W. Bull, Nurseryman, for Athyrium Filix-fœmina sagittatum
To Mr. W. Bull, Nurseryman, for Pogonia discolor
To Mr. W. Bull, Nurseryman, for Areca dealbata
To Mr. W. Bull, Nurseryman, for Caladium Lowii
To Mr. W. Bull, Nurseryman, for Yucca lineata lutea
To Mr. A. Verschaffelt, Nurseryman, Ghent, Belgium, for Dieffenbachia Verschaffeltii
To Mr. C. Turner, Slough, for Seedling Scarlet Pelargonium (second year of blooming) Orion
To Mr. C. Turner, for Seedling Pelargonium (second year of blooming) Prince of Wales
To Mr. C. Turner, for Seedling Tulip Richard Headley
To Mr. W. Paul, for Rosa Lord Herbert
To Mr. W. Paul, for Rosa Lord Macaulay
To Messrs. Henderson & Co., for Tropæolum Ball of Fire
To Mr. J. Holland, Gr. to R. W. Peake, Esq., Spring Grove, Isleworth, for Petunia Royalty

SECOND-CLASS CERTIFICATES OF MERIT.

To Messrs. Veitch & Co., for Ligularia Kæmpferi argentea
To Messrs. Veitch & Co., for Browallia Jamesoni var. multiflora
To Messrs. Veitch & Co., for Aglaonema commutatum
To Mr. J. Verschaffelt, Ghent, for Rhododendron Jean Verschaffelt
To Mr. B. S. Williams, for Aralia punctiloba
To Mr. C. Turner, Slough, for Azalea Louise von Baden
To Mr. W. Bull, Nurseryman, for Justicia variegata
To Mr. W. Bull, Nurseryman, for Anæctochilus argyræa
To Mr. W. H. Treen, Nurseryman, for Seedling Verbena Rugby Hero.

COMMENDATIONS.

To Messrs. Veitch & Co., for Hibiscus species
To Mr. W. Bull, for Saccharum violaceum
To Mr. G. W. Hoyle, Reading, for Seedling Pelargonium (first year blooming) The Prince
To Mr. G. W. Hoyle, Reading, for Seedling Pelargonium (first year blooming) Alexandra
To Mr. G. W. Hoyle, Reading, for Seedling Pelargonium (first year blooming) Emmeline
To Mr. G. W. Hoyle, Reading, for Seedling Pelargonium (first year blooming) Philo

New Roses.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites attention to the following NEW ROSES, which will be ready for delivery very shortly.

LORD HERBERT, H.P.—Rosy carmine, the petals reflexing at the summits in the way of Beauty of Waltham, large, full, and finely formed, and altogether of first-rate excellence. *7s. 6d.*

LORD MACAULAY, H.P.—Velvety crimson, in the way of General Jacqueminot, but brighter in colour, thicker in the petal, and more double. The flowers are of good average size, produced abundantly and in rapid succession; the habit is good, and foliage handsome. *7s. 6d.*

MRS. WILLIAM PAUL, H.P.—Bright violet red, shaded with fiery red; flowers constantly, and in clusters, large and full. Raised by M. Verdier, of Paris, the raiser of Madame Furtado, and others of our finest Roses. *5s.*

RED ROVER, H.P.—Bright red petals, large, thick, and round; flowers abundantly and in succession up to Christmas. Not double enough for a show Rose, but the most effective pillar Rose ever offered. *3s. 6d.*

WILLIAM PAUL, H.P.—A seedling from Senateur Vaisse, but brighter in colour. Raised at Lyons by the raiser of Lord Raglan, Senateur Vaisse, and other first-class sorts. *5s.*

BEAUTY OF WALTHAM, H.P.—Bright rosy crimson, of good size, form, and substance, and deliciously sweet. This Rose is found to surpass the description originally given of it. *3s. 6d.*

All the new French Roses, *3s. 6d.* to *5s.* each, or *42s.* per dozen. The best of the old Roses at lowest advertised prices. The plants are well established, and in the finest possible health.

PRICED CATALOGUE free by post.

Nurseries and Seed Warehouse, Waltham Cross, N.

Superb New Fuchsias.

LUCOMBE, PINCE, AND CO. are now sending out fine strong Plants of their unrivalled SEEDLING FUCHSIAS—

THE EARL OF DEVON and EXHIBITOR.

For particulars and descriptions of which, see *Gardeners' Chronicle* for April 11 and 18.

DESCRIPTIVE SPRING CATALOGUE may be had gratis on application.

Exeter Nursery, Exeter.

Splendid New Double Fuchsia, Grand Admiral.

GEORGE WHEELER, NURSERYMAN, Warminster, Wilts, is prepared to send out the above. Tube and sepals bright crimson scarlet, sepals broad and well reflexed, corolla deep violet purple, large and full, a most profuse bloomer, the branches curving very gracefully, makes the habit unexceptionable. It has been declared by the best judges to be the finest double Fuchsia ever offered either for Exhibition or Greenhouse Decoration.

G. W. feels confident it will give general satisfaction. Price *7s. 6d.* each.

FISHERIES PRESERVATION ASSOCIATION.—

THIS ASSOCIATION having obtained through the Government an Act for the Suppression of the Export of Salmon in a breeding state, are about to agitate the necessity of stopping the Pollution of rivers by mills and factories, as far as may be practicable, and of the Preservation of TROUT and other fish, in the hopes of eventually inducing legislation on these subjects also.

Under the belief that the exertions of this Association, by dealing so severe a blow at poaching through the cutting off of the export market for unseasonable fish, will be recognised as extremely serviceable to proprietors and others in the preservation of their fisheries, and that the measures the Council are about to take up will also be of great value to them and the public generally, the Council appeal to those interested, to assist them in their endeavours. Funds are required to carry out the objects of this Association. The means at the disposal of the Council have hitherto been very limited. Having however accomplished so much with such small means, they are justified in hoping that, if fairly supported by the Public, they may be able to carry into effect the difficult and onerous tasks they have undertaken.

All subscriptions and donations to be made payable to the Treasurer, P. HOOD, Esq., 15, Lower Seymour Street, Portman Square, W.

ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.

Patron—H.R.H. THE PRINCE OF WALES.

The SUMMER EXHIBITION of the above Society will be holden in the Gardens of Trinity College, Oxford, on TUESDAY, June 16, on which day H. R. H. THE PRINCE OF WALES and H. R. H. THE PRINCESS OF WALES intend to honour Oxford with a visit, when, in addition to the Prizes confined to Members, the following are offered, open to all England, entrance free:—

A.—STOVE or GREENHOUSE PLANTS (not Orchids, Fuchsias, or Geraniums), 9 varieties: 1st prize, 10*l.*; 2d ditto, 8*l.*; 3d ditto, 7*l.*

B.—CAPE HEATHS, 6 varieties: 1st prize, 5*l.*; 2d ditto, 4*l.*

C.—GERANIUMS (not Fancies), in 8-inch pots, 12 varieties: 1st prize, 6*l.*; 2d ditto, 5*l.*; 3d ditto, 4*l.*

D.—GERANIUMS (Fancies), in 8-inch pots, 12 varieties; 1st prize, 5*l.*; 2d ditto, 4*l.*; 3d ditto, 3*l.*

E.—FINE FOLIAGED and VARIEGATED PLANTS, 9 varieties: 1st prize, 4*l.*; 2d ditto, 3*l.*

F.—ROSES, CUT FLOWERS, 48 kinds, 3 trusses of each: 1st prize, 4*l.*; 2d ditto, 3*l.*; 3d ditto, 2*l.*; 4th ditto, 1*l.*

Exhibitors of Roses to show in their own stands, and on Moss.

No person will be allowed to take more than one Prize in each class.

Notice of intention to exhibit must be given, by post, on or before Monday, June 8.

The Flowers must be labelled with their names, and staged ready for the Judges by 10 o'clock on the morning of the day of Show, and will not be allowed to be removed till the close of the Exhibition (7 o'clock P.M.).

Exhibitors will be required to sign a declaration that the Flowers are *bonâ fide* their own property, or the property of their employers.

The Judges have the power of withholding the first or any other Prize if the Flowers exhibited are not worthy.

By permission of the Commanding Officers, the Bands of the Coldstream Guards and of the Second Oxon Rifle V.C. will play alternately during the afternoon.

W. R. HOBBS, Acting Secretary.

23, St. Giles's Street, Oxford, May 8, 1863.

Royal Horticultural Society.

10th JUNE, 1863,

CEREMONIAL to be OBSERVED at UNCOVERING the MEMORIAL of the EXHIBITION of 1851, and STATUE of H.R.H. THE PRINCE CONSORT, in the presence of their RR.HH.'s the PRINCE and PRINCESS of WALES and other Members of the Royal Family.

The Guests invited to take part in the Procession will assemble at the West Dome of the Exhibition Building.

Whilst assembling Military Bands will play.

The Royal Party will be received at the West Dome Entrance by the Executive Committee of the Memorial Committee.

Their RR.HH.'s will proceed down the Nave to a balcony over the Southern entrance of the Horticultural Gardens, and their arrival will be announced by a flourish of trumpets. "God Save the Queen" will be played by three Military Bands united in the Ante-Garden.

The Council of the Horticultural Society will present an address.

Military Bands will again play.

After which the Memorial Committee will read an Address.

H.R.H. the Prince of Wales will order the UNCOVERING OF THE MEMORIAL, which will be announced by a flourish of trumpets and a salute of Artillery, after which military music will be performed and the fountains will play.

The Royal party, headed by the procession, will then walk round the Gardens, stopping at various points to see the Memorial and the Garden.

The route will be marked by banners, and it is requested that during the procession the spectators will remain stationary.

If it rains the procession will keep under the Arcades.

The Exhibition Building will be thrown open to the visitors.

GEORGE GODWIN, Hon. Sec. Memorial Committee.
W. W. SAUNDERS, Hon. Sec. of the Horticultural.

LINNEAN SOCIETY,

BURLINGTON HOUSE, PICCADILLY, May 15.

The ANNIVERSARY MEETING of this Society will be held here, on MONDAY, the 25th of this Month, at 3 o'clock precisely, for the Election of a COUNCIL and OFFICERS for the ensuing Year; and the Members will afterwards DINE together at Willis's Rooms, King Street, St. James's, W.C. Dinner to be on the Table at 6 o'clock. Tickets for the Dinner, including Tea and Coffee, at *20s.* each, may be had of Mr. KIPPIST, at the Apartments of the Society; or at the Rooms.

GEORGE BUSK, Secretary.

The Gardeners' Chronicle.

SATURDAY, MAY 16, 1863.

WE have the painful duty of announcing the sudden death of Mr. JAMES VEITCH, the old and highly respected head of the great firm of VEITCH & SONS. He was seizedwith spasms at Exeter last Thursday morning, and in less than two hours was a corpse. What renders the sad event the more distressing, is that his wife had died suddenly only a few days previously.

AT length the last scene of THE GREAT INTERNATIONAL EXHIBITION OF 1851 is about to be presented to the public. It is officially announced that on the 10th of June there will be a grand Ceremonial in the Garden of the Royal Horticultural Society, when the Memorial of the Exhibition, consisting of a Statue of His late Royal Highness the deeply lamented PRINCE CONSORT, will be uncovered, in the presence of their Royal Highnesses the PRINCE and PRINCESS OF WALES and other members of the Royal Family. On this great occasion the guests specially invited to take part in the procession will assemble beneath the West Dome in the present International Exhibition Building. The Royal party is to arrive at four o'clock precisely, when it will be received by the Memorial Committee, who will conduct their Royal Highnesses to the place reserved for their reception. Their Royal Highnesses will proceed down the Nave of the building to a balcony over the entrance to the Horticultural Gardens, when the Council of the Society will present an address, and receive a reply. The Executive Committee of the Memorial Committee is next to read a short address, and receive a reply. His Royal Highness the PRINCE OF WALES will then order the MEMORIAL to be uncovered. After which the Royal party, headed by the procession, will pass round the Garden within a space marked by barriers and banners, unless it should rain, in which case the line of procession will keep under the cover of the Arcades. These proceedings will be accompanied by flourishes of trumpets, salutes of artillery, military music, and all the accessories required to give the greatest possible effect to a Great State Ceremonial. It may be convenient to our readers to know what are the regulations about tickets on the occasion.

All Fellows, holders of transferable tickets and debenture nominees, will be free. The price of cards of admission will be 15*s.* each if purchased on or before May 27th (the day of the first Great Floral Exhibition), 1*l.* up to June 9th inclusive, and 1*l.* 10*s.* on the day. But each Fellow paying or compounding for 2*l.* 2*s.* a year will be entitled at any time up to and inclusive of May 27th, to purchase three tickets at half-price. Fellows of 4*l.* 4*s.* (or 40 guineas), can in like manner buy six tickets. There will be a Special Meeting on May 23d, at half-past 3 o clock, for the election of candidates wishing to become Fellows before the ceremonial.

OUR leading article of Dec. 27, 1862, respecting the SPOTTING OF PAPER AND LINEN, excited so much interest, that we think it may not be unacceptable to make a few more observations on the subject. In one case which has recently come before us, some cardboard which had been damped for printing off some engravings, was in the course of 24 hours so spotted by a minute black mould, probably the young state of *Cladosporium herbarum*, that it was perfectly useless. We know of nothing which could have prevented this except the use of corrosive sublimate mixed with the size, but it is a question how far this could be used without the prospect of ulterior injury from the decomposition of the metallic salt.

We think it the more necessary to notice this because Professor BABINGTON has sent us lately some paper from his herbarium which has been stained by some black metallic deposit, apparently arising from the green paper with which his presses are lined.

The colour of the deposit was so exactly that of arsenic, that we thought we had an easy solution of the case. The green paper burnt exactly like touch paper, and we conceived that the paper had first been dipped in a solution of arsenite of potash and then immersed in a solution of nitrate of copper, the effect of which would be to form an arseniate of copper, while the potash and nitrogen combined to form saltpetre. But unfortunately, like many plausible theories, it failed from the fact, not only that our own rough analysis but a more legitimate one by Professor LIVEING failed to show the presence of arsenic, though there were traces of lead.

We are unable to explain exactly the matter as regards lead. As however chromates become green when treated with alcohol or hydrochloric acid, we might conceive a first immersion in a solution of bichromate of potash, and a second in nitrate of lead, when a result somewhat similar to the former might take place; or as the lead existed only in very small quantities, bichromate of potash without any salt of lead may have been used, and the trace of lead may be due to some impurity in the potash. Paper steeped in a solution of bichromate of potash, it is well known, affords excellent touch paper.

But be the proper explanation what it may, the case is suggestive, and indicates the necessity of rejecting papers coloured with mineral solutions for herbaria. Supposing paper to be coloured with arseniate of copper, we may expect discoloration, as the arseniates are not peculiarly stable.

Our former leader related principally to cases where paper or woven fabrics of Flax, Cotton, or other vegetable substances were submitted merely to damp air. If, however, actual moisture is present, there are several Fungi capable of producing variously-coloured stains, as brown, bright crimson or scarlet, yellow, deep blue, pink or other tints, disposed according to circumstances in roundish spots or broad patches. We have, for example, seen the thick calico curtains of a shower bath, which was in constant use, spotted with blotches of the brightest red, which were due to a species of *Epicoccum*, to the great consternation of neighbours, who imagined them to be "great gouts of blood." Yellow and brown are also very common, which, like crimson spots of a different nature, arise from some obscure gelatinous fungi, which we believe to be a peculiar condition of some of the common moulds. Blue is less frequent, but that also belongs to the same category with the cases just mentioned.

There exists, moreover, a host of black Fungi which render paper kept constantly damp black and smutty, while there are others which give it a green or yellow tint. In such cases it is vain to look for a preventive; but if books or paper be submitted merely to the ordinary action of the moisture contained in the atmosphere, which is sufficient to produce mischief even where the greatest pains are taken to prevent it, it is well to call to one's aid any appliances or precautions which may be likely to be useful, and to ascertain the sources of evil, without which we can scarcely be likely to suggest any remedy. *M. J. B.*

—— THE first of the great Metropolitan Flower Shows has come and gone, leaving behind, as the first show of the season always does, pleasant reminiscences of freshness and beauty such as none of the later exhibitions, brilliant as they may be, seem to be capable of

producing. This year the opening show has fallen to the lot of the Royal Botanic Society, and on Wednesday last the garden in the Regent's Park was *en fête*.

The general details of the exhibition will be found in another place. Here we confine ourselves to a brief sketch of the novelties produced, amongst which some interesting subjects occurred. Foremost amongst those of them which appeared in a flowery dress, was a new Japanese Clematis shown by Mr. Standish. This had double white flowers nearly 6 inches in diameter; it was evidently a free-growing and free-blooming plant, which may be expected to prove a valuable addition to this genus of hardy climbers. We hope to notice it more fully on some future occasion, and in the mean time apply to it the provisional designation of C. Fortunei, after its introducer. One of its most striking peculiarities is, that the downy sepals, of which there are several rows, are distinctly clawed, the narrow claw being about the same length as the lance-shaped blade. The flowers have a pleasant aromatic scent. Another fine Clematis from the same source, with deep violet-coloured flowers, which though less novel in aspect was not less beautiful, is perhaps, judging from its broad-based sessile sepals, a form of C. florida, and we therefore adopt for it the provisional name of C. florida var. Standishii. The deep violaceous tint of its flowers is very beautiful, and will make it especially welcome. From Mr. Veitch's collection was sent a little Dracophyllum from King George's Sound, which promises to be a first-class exhibition plant. Its kinsman, the well known D. gracile, is a plant which in these days, when sameness rules our shows, one is always glad to see brought out, but we have apparently in this novelty a much finer plant for exhibition purposes, its habit being stiffer, more branching, and more compact, and its foliage better developed, while its flowers are larger, of an equally pure white, and arranged in more compact heads. The same collection yielded a gay conservatory bush from the Andes of Ecuador, a twiggy soft-wooded shrub, with neat ovate leaves, and a profusion of shaded orange-yellow and deep orange flowers, exactly like Browallia Jamesoni, except in this one particular, that whereas that is a remarkably shy bloomer, this is altogether as free; hence it has been distinguished as B. Jamesoni var. multiflora. Mr. Veitch also had a fine hardy Rhododendron called Picotee rosea, a variety with close trusses of well-formed clear carmine rose flowers heavily spotted with black; it was superior in form but closely similar in colour, to another shown by Mr. J. Verschaffelt, and bearing the name of Rhododendron Jean Verschaffelt. Mr. Turner had a large-flowered white Indian Azalea, called Louise von Baden, remarkably pure in colour, though here and there sporting into rose stripes, and certainly a very telling variety, though now it had become fully blown, it was not equal in some points to the promise which it bore when shown earlier in the season. Mr. Veitch's curious Peruvian Calceolaria punctata, one of the Jovellana section, though not a showy plant, was interesting from its structure, which is so dissimilar from that of an ordinary Calceolaria.

A few better known flowering plants also appeared. Thus Mr. Veitch had a fine group of the hardy crimson Ourisia coccinea, which carried off awards last year; as also did his lovely hybrid white-flowered sweet-scented Rhododendron Princess Alice; and a little lilac-flowered stove Gesnerad, Stenogastra multiflora, which was bred between S. concinna and Gloxinia hirsuta.

Passing on to the plants of what is called the ornamental-foliage class, the most decided novelty, and the most beautiful withal, was a Melastomaceous plant from Messrs. Veitch, to which the temporary name of Melastoma? argyroneura has been applied, pending its bearing flowers. It is a shrub of moderate vigour, with bold, but not over large, elliptic leaves, which are densely clothed with short hairs, especially evident on the young parts, very rugose, and of a deep olivaceous green, lightened up by a broadish line of silvery brightness passing along the course of the midrib, this line being more permanent than such markings usually are, and continuing bright and clear on the mature and older leaves. The same establishment furnished Ligularia Kæmpferi argentea, a Japanese Coltsfoot, with cordately-reniform leaves, heavily bordered and a good deal variegated with cream-colour; and Aglaonema commutatum, a Philippine Island Arad, of compact dwarfish habit, with neat oblong acute leaves, slightly marbled with greyish-green—a plant which from its moderate size and close habit is likely to be useful in situations for which the usually rampant race of foliage-plants is unsuited. Mr. Bull had a Caladium called Cannærtii, which is said to be even better than Chantinii, but it was not enough developed to enable one to judge if it is really so. It is different in marking, though of the same general character, and may perhaps hereafter, when more fully grown, be found to be an acquisition. A beautiful Adam's Needle from the same establishment was called Yucca lineata lutea; it had singularly deflexed leaves, which were of a deep green at the edge, and a clear yellow in the centre, the markings being sharp and definite. A Justicia variegata, also from Mr. Bull, with green leaves marked by reddish ribs and dark brown patches, was pleasing, though not without a fast-living and weedy look. This cannot be said of a Brazilian Arad, Dieffenbachia Verschaffeltii by name, shown by Mr. A. Verschaffelt, which was every way a good-looking plant, having an erect stem, and ovate-oblong green leaves which were marked by a few white blotches, and supported by erect white ivory-like stalks, which contrasted pleasantly with the green parts of the foliage.

Some few more familiar but interesting and valuable plants were interspersed amongst the foregoing. Such were, the curious and rare one-leaved golden-haired Pogonia discolor, and the so-called Anæctochilus argyræus, a Physurus-like plant with lance-shaped leaves silvered along the centre, both from Mr. Bull. The valuable Alocasia Lowii, which made its appearance last autumn, and to which we shall again refer, was shown both by Mr. Bull and Mr. Williams; the former of whom also had a neat little sport of the Lady Fern, called sagittatum, from its narrow pointed fronds and refracted pinnæ; a handsome pinnated Palm, silvered beneath, called Areca dealbata; a neat little bushy shrub, Serissa fœtida marginata; the white-veined Echites argyræa; and the purple-stemmed Saccharum violaceum; and the latter a curious Aralia, shown as punctiloba, which had dark brown leaves like crassifolia, but marked by equi-distant blotches of bright green. Mr. Veitch had young plants of Litobrochia nobilis in the interesting white-ribbed sagittate condition which marks its juvenescence, so different from the ample palmate fronds of its mature growth.

One of the greatest rarities of the Exhibition was sent from the noble collection at Syon, in the form of a flowering branch of Napoleona imperialis, whose flowers are very singular in structure, and so entirely unlike all those which are familiar in our gardens.

Amongst seedlings we especially noticed two exquisite Roses from Mr. W. Paul: Lord Herbert, a rosy carmine, and Lord Macaulay, a crimson, both evidently front rank flowers. A Petunia from Mr. Holland, with flowers of magenta and white in ray-like stripes, was immeasurably superior to any we have hitherto seen in respect to form—so smooth and even, with the limb standing forward, as to resemble exactly, when seen at a little distance, the flower of a Convolvulus; this was called Royalty. Amongst the yearling Pelargoniums were two brilliant-coloured varieties of considerable promise, called Alexandra and The Prince.

A VISIT TO THE BULB FARMS OF HAARLEM.

No. II.

Having given a general view of the appearance presented by the Bulb fields near Haarlem in the month of April, when Hyacinths and Tulips are in full bloom, I shall now endeavour to describe the nature of the soil, and mode of cultivation and propagation, especially as regards the Hyacinth.

The natural ground about Haarlem is composed almost entirely of sand, furnished originally by the Dunes or sand-hills already noticed—

> "Holland that scarce deserves the name of land,
> As but the offscouring of the British sand;
> And so much earth as was contributed
> By English pilots when they heav'd the lead;
> Or what by the Ocean's slow alluvion fell,
> Of shipwreck'd cockle and the mussel-shell;
> This indigested vomit of the sea
> Fell to the Dutch by just propriety."

Water is found a very little below the surface of the ground—from 2 to 5 feet—depending, of course, upon situation, and the dryness or wetness of the season. Thus two of the requirements for successful cultivation, namely soil and moisture, are supplied by Nature. The natural soil is enriched from time to time by being mixed with fresh cow-dung, which is the only manure used in the cultivation of the Hyacinth. As Holland is a great grazing country, this manure can be obtained in abundance.

The ground is prepared for the bulbs in the following manner. It is trenched 2 or 3 feet deep in spring, and manured at the same time. The manure is placed about 9 inches below the surface, and is usually about 2 or 3 inches in thickness. A crop of vegetables, generally Potatoes, is then planted on the land, in order to bring it into proper condition for the Hyacinths. The Potatoes or other vegetables are taken up in the end of the summer, and then the ground is dug again, carefully levelled, and is ready for the reception of the bulbs. These are planted in the months of September and October.

Rotation of cropping is carefully observed. Hyacinths, as a rule, are not grown more than one year on the same land. The second year their place is occupied by Tulips and Crocuses; and the third by Narcissi, or vegetables again. About once in every six years, the land is trenched deeper than usual (3 or 4 feet), and fresh soil is brought nearer the surface. Hyacinths appear to be easily affected by the composition of the soil, and are liable to become diseased. Whenever a kind of gum oozes from the bulbs, it is a sure sign that the soil requires renewing, and this deep trenching is resorted to as a remedy.

It is estimated that 100 acres of land are annually under Hyacinth cultivation in the vicinity of Haarlem, and that 400 or 500 acres more are covered with other bulbs or tubers. The value of this land is about 300*l.* an acre, and the annual rental is about 25*l.* an acre. This "shipwrecked cockle and the mussel-shell" of the poet quoted above, would therefore seem, in these latter days, to be of considerable value. *Robert Fortune.*

FISH AND FISHING.—No. VII.

Many years ago I submitted my views, and certain questions about "good and bad fishing days," to the late Sir A. Carlisle. He was a great fisherman, and was full of experience and anecdote. I do not think he took time enough to study my subject with any depth, but wrote only his off-hand preconceived notions. But his anecdotes of his fishing days are livelily told, and tend to upset some ideas; for instance, that of rain, and of coming and actual thunder storm—so I give his reply in his own words, written A. D. 1840.

"Doctors differ," says Sir Anthony Carlisle, "about fishing as about many other things, because individual powers of observation and of reasoning vary in each person; if even the natural and mental faculties of men were exactly alike, the experience of every man necessarily differs from that of others.

"Having practised trout fishing for half a century, and in most of the rivers between the Tyne and the Wye, I have had as many good and bad days as most of my brother anglers; and it appears to me that the times of trout feeding are governed by the general demands of hunger; but the particular hours for feeding seem to be influenced by the visible temptations of food, such as flies, worms, and larvæ. The transmission of atmospheric temperature to running water is slow, and an exact correspondence between their respective heat seldom occurs; so that if fishes were to wait for this coincidence they would very seldom dine.

"Whenever, as early in the spring or in winter, the steady temperature of a river is 10 or 15 degrees below that of the air, the torporising effects of cold will abate both the power and the propensity of trout to move rapidly, and on this rapidity their predatory successes depend.

"When a sudden glow of warmth happens, much exceeding that of a river, flies, caterpillars, and worms stir about, and present themselves on the surface, or fall into the stream. These temptations, aided by a genial warmth, which enlivens the fish, send them abroad; and an unexpected abundance of trout is often displayed in places where none were to be seen under the double chills of cold air and cold water.

"In different rivers, the kinds as well as the supplies of food differ exceedingly, but a knowledge of these supplies in a given stream will inform the angler of the length of fasts imposed upon his prey by the preceding weather, and he may be assured of success when he fortunately unfurls his tackle after a long fast, and at the beginning of a feast. At this crisis appetite subdues fear, and the contest is between the largest and the strongest trout, often despite of man, and of their natural enemies.

"The best trout fishing days of my life were first as a boy about twelve years of age, in the river Greta at midsummer, and after a long continued drought. A thunder storm broke upon the distant Fells, but the river did not at first come down to my station at the head of a pool; I had no other tackle but worm lines, and being well provided with an old worsted stocking foot filled with brandling worms, I saw the rapid stream suddenly swell and become tinged with moor earths. At every throw in I hooked a fine trout, and within two hours I counted 41 fish; but now the river filled its banks and the water ceased to be transparent, when I hied my way home to the village of Bowes with my proud achievement.

"My second great day was at Chenies, where I rented a part of the river. The season was in May; the day broke with warmth and rain; I set out at 9 o'clock A.M., with a school-boy to carry my landing net and pannier. I put on two middle-sized flies, the dropper red from a partridge's tail, the other dun wings with peacock's hackle. The rain came in heavy drops, and kept the surface of the river covered with bubbles; there was not a breath of wind. The water was everywhere rolling with the waves of contending trout in eager pursuit of the falling flies, or heaving with the circles which marked the plunges of large fish. I did not once throw my line without drawing one, or often two trout; and such was my inexorable occupation that I only once had occasion to change a fly for one in which the peacock hackle had unfurled.

"By 4 o'clock I had sent four panniers filled to my hostess at a very humble alehouse, and, beginning to regard myself as a poacher, I wound up my line, and, with the rain-water—which had run in streams under my shirt—in my shoes, I proceeded to look over my doings. I had thrown back 30 brace of trout, each under half a pound, and counted the remainder, 60 brace, into a washerwoman's clothes-basket, put them into my carriage, and drove to London.

"My third exploit was at Hungerford, when I first showed Sir Humphry Davy the art of outwitting trout. The process of fly fishing seemed to him at first sight so simple that he took General Popham's keeper up the stream, and we met at the corn mill weir at noon to eat pigeon pie. My basket did not allow the lid to be closed from the cluster of tails sticking out, but he, alas! had "caught no fish." During the afternoon he caught one unsuspecting trout.

"The daylight was now 'going out of the sky,' and I well knew where some lusty lurking trout awaited the homeward steps of weary anglers. I therefore

rieged out my strongest bottom piece and adorned it with a large white moth. My companion sat down on the bank near to a plashy place where the beautiful Bog Bean was in full flower. At every throw I drew out a pound and a half or two pounder, until the complaining of my friend and a dinner message urged me to desist. I made only one condition, which was that after the first drawing in of my line without a fish I would renounce, and I threw in seven times successfully, after which a huge round-backed trout boldly gulped my fly, and darted under a batch of large entangled weeds. My triumph now recorded 20 large fish taken within an hour and a half.

"On another occasion, while fishing in the same stream, where it falls over the mill weir, I observed numerous large trout chasing the minnows; I waded into midwater, not more than knee deep, and with a live minnow lip-hooked on to a worm-line, I presently filled my pannier, after taking many fine fish within a few yards, and plainly within sight of myself.

"I will just add that trout are not day feeders, and excepting during evening twilight, or at the break of morning, you may fish in vain. When a boy I have passed many summer nights fishing without disturbing the midnight repose of a single trout, but my preceptor being an astronomer the time was beguiled by teaching me the constellations." *Anthony Carlisle, April*, 1840.

ROSES.—No. VII.

By Mr. William Paul, F.R.H.S., Paul's Nurseries, Waltham Cross.

I gladly return to the review of old Roses, highly interesting and important as are the new. There is less restraint; one breathes a freer air in company with old friends whose faces, habits, and sentiments are familiar to us. I always feel when talking or writing of new Roses much as I do when in a company of strangers—that to be at once truthful and polite, we must be guarded. If others experience the same feelings, I can understand the why and wherefore of Mr. Radclyffe's very just observation, that "Rosarians keep all their knowledge to themselves." But strangers should be talked to, and new Roses talked of, notwithstanding, and in order that the greatest amount of good may be derived from it, we should exercise to the utmost our own good nature, and draw in return on our neighbours' charity. Now to our old Roses.

The Noisette, as we remember it originally, is not worthy of comparison in point of size with the modern kinds which have descended from it, enriched as they have been with a plentiful infusion of the blood of the Tea-scented. There are only Aimée Vibert and Miss Glegg, white, and Fellenberg, crimson, of the old style of Noisettes (small flowers in large clusters), that we should consider worth recommending in the present state of Rose-culture. Amongst those mixed with the Tea-scented, America is a first-class Rose under glass, although it seldom opens clean and perfect out of doors; it is most beautiful at this moment planted out in one of my Rose-houses, quite equal though somewhat different to the finest Gloire de Dijon. Celine Forestier or Liesis is a hardy yellow Rose, and one that blooms freely enough out of doors; the growth is so vigorous that it forms an admirable variety for a weeper, wall, or house. Cloth of Gold is the finest of all yellow Roses, but difficult to manage; it is best planted against a south wall and pruned but little; if budded on the Dog-rose, the growth will usually be vigorous, and the flowers as plentiful as one can reasonably expect of so large a Rose. Cornelia Koch reached me from America some two or three years ago, and has been most beautiful in my forcing-houses; it is straw colour, large, full, and globular. Desprez à fleur jaune is still valuable as a wall or house Rose, on account of the distinctness of its flowers, which are red, buff and sulphur, the rapidity of its growth, and the magnificence of its foliage. Miss Gray, or Isabella Gray, was introduced by me from North America, although I never recommended it; it is a good Rose occasionally, but uncertain, even under glass, and of no use out of doors except against a south wall; it is, perhaps, the deepest yellow in this group. Lamarque is a charming sulphur-coloured Rose, large, full, and globular; this also is a good wall or conservatory Rose. Miss Glegg is a beautiful pure white Rose, of dwarf growth, flowering abundantly and in clusters, and therefore well suited for planting in masses. Ophirie is quite unique in colour, copper-colour, and a vigorous Rose, with handsome foliage; it is in character as a weeping standard, on a pillar, or against a wall. Solfaterre is a nice sulphur-coloured Rose, large and very double, of vigorous growth, but apt to cast its leaves, from which habit it is hardly to be recommended for general purposes. Triomphe de Rennes seems a good hardy canary-coloured sort, of vigorous growth, with fine foliage; the flowers are large, full, and fine. The best places for these Roses are in the conservatory to clothe pillars, or in the Rose-house; next in order, on walls or pillars in sheltered situations. Aimée Vibert, Fellenberg, and Miss Glegg, are an exception to these remarks, as they are best suited for borders or beds out-of-doors.

The Chinese or Bengal Roses are invaluable for flowering in small pots, or for planting in beds on lawns, as no Roses flower so abundantly and so late in the year. Archduke Charles is quite an oddity; the flowers expand shaded rose, changing to crimson on exposure to the sun, which is contrary to the general rule, as the sun usually lessens rather than heightens the colour of flowers after expansion. Cels multiflora is a pretty flesh-coloured Rose, large, full, free flowering, and very hardy. Cramoisie Supérieure is an admirable sort for bedding; the flowers are rich velvety crimson, not large, but full and abundant. Duchess of Kent forms a pretty enough variety, being white edged with rose; the habit is very dwarf. Eugène Beauharnais is something like Cramoisie Supérieure, but the colour is more purplish; it is a good hardy Rose of free growth. Fabvier is almost scarlet, and one of the best bedding Roses we have for placing on lawns, it blooms so profusely, and is so dazzling that a bed of it will make a garden radiant with splendour. Madame Breon is a large full flower, of a rich rose-colour, good and free. Madame Bureau produces pure white flowers, large and very double, is good for pot culture, but scarcely hardy enough for planting in beds out of doors. President d'Olbecque is one of the hardiest and freest of Chinese Roses; the flowers are cherry-red, very pretty and distinct; the plant is of hardy constitution, thriving equally well as a dwarf or as a standard.

NEW FRUITS.

Prune Decaisne.—Under this name a new Plum is figured in the *Revue Horticole*, where also it is described by M. Carrière. It is about the size of the Washington, and not unlike it in form and appearance. Carrière states that it was raised by MM. Jamin and Durand, nurserymen, at Bourg-la-Reine, near Paris, from a stone of Coe's Golden Drop, which was sown about 1846, and that the tree fruited for the first time in 1859.

The writer of the article, an eminent horticulturist, gives a full description of the tree and its fruit. The former is vigorous. The fruit is roundish-oblong, obtuse at both ends, not tapered to the stalk like its parent; its skin is thin, green, becoming yellowish at maturity; its flesh yellowish green, containing a large quantity of sugary juice. Season: September and October. This, which is considered an excellent fruit, comes in succession to the Green Gage. From the above brief extracts from M. Carrière's description, it would seem that this new and large-sized Plum is highly deserving of trial.

Home Correspondence.

Setting Muscat Grapes.—As it is well known that there is some difficulty in getting Muscats to set freely and well, I have been induced to furnish an account of a plan which I have tried with success. It consists in fanning the bunches with a common fan, such as ladies use. I begin fanning as soon as the bunches come into flower, three times a day—first in the morning, about an hour after giving air when the pollen is dry, again about the middle of the day, and lastly just before closing the house in the afternoon. I work the fan as near the bunches as possible without touching them, and strongly enough to put the whole bunch in motion. The result is I have a splendid crop of Muscats, and have had plenty to thin out; the berries are all of a good average size, and are growing rapidly. This is the first season in which the Vines have borne fruit, as they were only planted in the spring of last year. They were then strong healthy plants, well ripened and well rooted. *W. Eaton, Gardener, Haverfield, Kew, Surrey.*

Rose Exhibitions.—In country places exhibitors are often put to considerable inconvenience in not being able to procure Schedules of Societies for forthcoming exhibitions early enough. Under ordinary circumstances, by the time they reach us, it is too late to have plants in proper condition to meet their requirements. Last year, for instance, the Crystal Palace Schedule came out offering a prize of 5*l.* for 10 Roses in Pots, not exceeding 8 inches in diameter; we happened to have plants at the Show, and fine they were, in that sized pot, but as no others were shown the 1st prize was withheld, and a 2nd one, of 3*l.*, awarded. Competition amongst nurserymen is getting very great, and expenses serious, and when a prize is offered we are of opinion that it should be given. The Royal Botanic Society issued a Schedule in 1862, offering 10*l.* for the best 10 Roses in 13-inch pots in June, when we exhibited 10 plants, the finest we ever saw for the end of that month, and the 1st and 2nd prizes were withheld, and a 3rd awarded to us, merely because nobody showed against us. The plants exhibited on this occasion were much finer than some which received a larger Medal at the May Show. These hints, therefore, are thrown out in order that Societies, for their own sakes, may know better how to draw a straight line between themselves and exhibitors. The amount of money lost, is trifling compared with the disappointment of not getting a 1st or 2nd prize when we imagine that we have a right to it. *H. Lane & Son, The Nurseries, Great Berkhampstead, Herts.*

Orchids in a Cool House.—In desiring to carry out the principles enunciated at p. 388, of giving a cooler treatment to Orchids that naturally inhabit temperate regions, I feel (doubtless in common with others) the need of more information. First, with respect to the house. Will it answer to remove the plants to an ordinary cool greenhouse, containing such plants as are usually kept there, and freely ventilated night and day at this season? And, if so, may they be removed at once from a house which has had lately a temperature of 72° at night, and 85° by day? Then, when removed, will ordinary greenhouse treatment, as regards watering, shade, &c., serve for them? And, finally, as to the species which will thrive under this treatment. The following, from my own small collection, appear to me to be suitable, so far as I am able to judge; but will some one have the goodness to correct, if needful, and to enlarge the list?

Barkeria Skinneri	Lælia albida
? Cymbidium aloifolium	,, furfuracea
? ,, giganteum	Lycaste Skinneri
Cypripedium insigne	Odontoglossum grande
,, venustum	Oncidium ampliatum
? Cyrtochilum maculatum	? ,, sphacelatum
Dendrobium chrysanthum	Phajus Tankervilliæ
? ,, nobile	? Stanhopea tigrina
,, speciosum	? ,, venusta
Epidendrum aurantiacum	

I have prefixed an interrogation to those of which I am most doubtful. Any further information on the subject will oblige *W. T. T., South Devon.*

Liebig's "Natural Laws of Husbandry."—Baron Liebig, in his "Natural Laws of Husbandry," just published, states at page 7 that the gardener is aware that whilst the flat shining seeds of the Stock Gillyflower produce plants with single flowers, the shrivelled seeds produce double flowers throughout—by the word throughout I suppose he means that all the shrivelled seeds produce double flowers. Is this a fact? He goes on to say, "The influence of the soil and climate gives rise to different varieties of plants, which, like races, are possessed of certain peculiarities, and are propagated by means of seed as long as the conditions remain the same. Planted in another soil or in a different climate, the new variety will lose again some one or other of its distinguishing characteristics." Now I find that when I order from a respectable seedsman different varieties of garden vegetables, they invariably come true, and this without reference to soil or climate, so far as these islands are concerned; what then does the Baron mean? He goes on to tell us that seeds that have passed uninjured through the digestive system of animals are most likely to produce varieties, and as an instance names Byrsonima verbascifolia. What is Byrsonima verbascifolia? And is it more liable to produce varieties than Potato seed? I have looked through the "Natural Laws of Husbandry" in the hope that I might be rewarded, as I thankfully acknowledge I have been by the perusal of your "Theory of Horticulture," by valuable hints in the management of my garden, but I cannot understand it. *A Lady Gardener.* [The Byrsonima is a tropical tree.]

Aphides.—A Correspondent of yours a short time ago recommended immersing Rose shoots in water of 135° as the best cure for aphis. Where Rose trees are numerous, syringing would perhaps be more convenient; and, if any be desirous of trying the experiment without risking his thermometer cracking in hot water, he can obtain the desired temperature by mixing equal parts of boiling water and of water at 58°, for 212 + 58 ÷ 2 = 135. This mixture must of course be made in a vessel previously warmed, and, if a syringe be used, it must be warmed also. *G. S.*

Wireworm.—It is not explained whether the fine part of the oil-dust, when eaten by the worm, kills it; and if not, does the worm remain in the soil ready for another crop, or if not it, its progeny? (See p. 438, May 9.) A farmer next me had crop after crop eaten by wireworm. At last he tried Mustard, of which he had speedily a fine crop, which his sheep ate greedily, and throve upon it. This crop was untouched by the worm, and he has found it a corrective to grow it, and dig it in as dressing. *G.*

Orchard Houses.—Your Correspondent, who complains that the pinched in spurs of his orchard-house Peaches produce no leaf-buds, may possibly have cut off the ends in the autumn. If so, the result is natural, as spurs so pinched in, seldom produce any other leaf-bud than a terminal one. If, however, they were not shortened, I should recommend that the shoots be not pinched in so rigorously, but be allowed to extend a little more. Two inches seems a very small growth for a whole summer. *G. S.*

Mycelium and Conifers.—Those who are engaged in planting are aware, that in replanted lands a large amount of deaths occur among the young trees, after a few years' growth. This is chiefly to be observed among Larches, and the species of Pinus; rarely among either those of Picea or Abies, and seldom or never among the deciduous trees, such as Oak, Elm, Ash, and so forth. These losses are attributed, I believe correctly, to the growing roots coming into contact with the decayed roots of former plantations. Why some varieties should suffer, and others be exempt, appears remarkable. Again, if a plantation of Coniferous trees be thinned, the roots of the cut down trees of course decay, and the roots of the growing trees come into contact with them necessarily—yet no losses occur, as in the other case. If any light can be thrown on these points, it would be valuable to planters. *S., May 8.*

Rose Lord Clyde.—Permit me to assure Mr. G. Paul that in my description of the Rose Lord Clyde, I "intended to imply" nothing. I wrote out in plain English what I knew and thought of it. To have passed it by unnoticed when writing on new Roses would have been unfair to the advertiser; to have written otherwise than I knew or thought, unjust to the public, to the *Gardeners' Chronicle*, and to myself. However, he has seen more of it than I have, and I am glad to hear him report that it is "a rich scarlet crimson," and "a good autumna

Rose." The other remarks of his are not so easily dealt with. I am not disposed to yield up the honour of having originated these English Roses, although I willingly yielded a just share of the profit. It is true that I raised them when a partner in the defunct firm of "Adam Paul & Son," but no other individual except myself and one of my present foremen, had anything to do with the business, by word or deed, from the first act to the period of flowering. It is alike unfair and untrue to say that I "left" the "old nurseries." Mr. G. Paul is under an illusion in imagining that by assuming the name of "Paul & Son," he constitutes the old nurseries. The public should note that the present firm of "Paul & Son" is not the old and late firm of "Adam Paul & Son:" the partnership of the late firm expired by effluxion of time in 1860; the "old nurseries" were divided; one share (the half) having been willed to me by my late father. I am just planting my seed Potatoes, and to make use of a homely but apt simile, I opine that if an old Potato is cut in half, the one half remains as old as the other. *Wm. Paul, Paul's Nurseries, Waltham Cross, N.*

Vines.—I should feel obliged if any of your correspondents could inform me respecting the treatment of Vines when the buds have swollen and the bunches appear in spring. I have a Vinery which is not heated artificially this year. After reading many of the authors who have written upon Vineries, I find that they advise the stopping of the shoots, some at the joint where the bunch is, others at that above it. But no direction is given as to how long the shoot should extend before this is done. No mention is made whether water should be given to the Vines between the time of the bunches appearing, and the period when the flowers begin to open, which occupies from three weeks to a month. All authors agree that water should be withheld when they are in flower; but that steam may be admitted freely. *J. R., Liverpool.*

Societies.

Royal Botanic: *May* 13.—This was in most respects an excellent exhibition. The Azaleas and Pelargoniums were in fine flower, and made a brilliant display. The Roses, also, were produced in first-rate condition, and there was, as usual, a large assemblage of stove and greenhouse plants. The day, though cloudy, was favourable until late in the afternoon, when a heavy shower compelled the visitors, who were tolerably numerous, to seek shelter in the tents and conservatory. Their Royal Highnesses the Prince and Princess of Wales inspected the exhibition in the morning, previous to its being thrown open to the public.

Stove and Greenhouse Plants:—With the general appearance of masses of these most readers are familiar. Among the different subjects shown on this occasion, many well known forms were recognisable; but we did see, and with admiration, one striking novelty in the shape of a fine bush of Clerodendron Thomsonæ, from the nurseries of Messrs. Jackson, of Kingston. Few persons acquainted with this only in a small state, could have conceived that it would have made an effective exhibition plant; but that such was the case was universally admitted, its scarlet flowers, half hidden by a snow-white calyx, produced as they were in great abundance, appearing to advantage even at a distance. Of blue Leschenaultias there were many good specimens, as well as of other ordinary stove and greenhouse plants; from among which, however, we missed the usually brilliant collections of Mr. Spode and Mr. Collyer, neither of whom showed on this occasion. In the different groups were the following kinds, which, for convenience of reference, we have arranged alphabetically. The figures affixed to the different names indicate the number of specimens of the plant in question that were shown:—Acrophyllum venosum, 3; Adenandra fragrans, 1; A. uniflora, 1; A. speciosa, 1; Alocasia metallica, 2; Allamanda grandiflora, 2; Ananassa sativa variegata, 1; Aphelexis humilis rosea, 1; A. macrantha purpurea, 8; A. macrantha rosea, 2; A. sesamoides, 1; A. spectabilis, 2; Azalea alba elegans, 1; A. duplex rubra, 1; A. carminata, 2; A. coronata, 1; A. Criterion, 1; A. delecta, 1; A. Fielder's White, 1; A. Glory of Sunning Hill, 1; A. indica alba, 1; A. punctata rosea, 1; A. Souvenir de l'Exposition, 1; A. variegata, 1; Boronia Drummondii, 3; B. pinnata, 1; B. serrulata, 2; B. tetrandra, 1; Caladium Chantini, 1; Chorozema Henchmanni, 1; C. Lawrenceanum, 3; C. varium elegans, 3; Clerodendron Thomsonæ, 1; Cordyline indivisa, 1; Croton variegatum, 1; Cyathea Smithii, 1; Dracæna cannæfolia, 1; Dracophyllum gracile, 2; Epacris grandiflora, 2; E. pulchella, 2; E. miniata, 1; E. miniata grandiflora, 1; Erica ampullacea rubra, 1; E. Beaumontiæ, 1; E. Cavendishiana, 7; E. depressa, 4; E. fastigiata lutescens, 1; E. persicina nana, 1; E. ventricosa coccinea minor, 1; E. vestita rosea, 1; Eriostemon buxifolius, 2; E. intermedius, 2; E. neriifolius, 1; Franciscea calycina, 2; F. confertiflora, 3; F. latifolia, 1; Hederoma macrostegium, 2; H. tulipiferum, 5; Hovea Celsi, 1; Imantophyllum miniatum, 1; Ixora coccinea, 1; Jacaranda filicifolia, 1; Labichæa heterophylla, 1; Lælia purpurea, 1; Leptodactylon californicum, 1; Leschenaultia biloba, 2; L. intermedia, 1; Medinilla magnifica, 1; Mussænda frondosa, 1; Pimelea decussata, 1; P. Hendersonii, 4; P. spectabilis, 1; Phœnocoma proliferum, 1; Polygala cordata, 1; P. Dalmaisiana, 4; Rhopala magnifica, 1; Rhynchospermum jasminoides, 2; Stephanotis floribunda, 2; Tetratheca ericifolia, 2; T. verticillata, 2; Vinca rosea alba, 1.

Awards.—16 plants: 1st, Mr. Peed; 2d, Mr. Baxendine. 10 plants: 1st, Mr. Green; equal 1st, Messrs. Fraser; 2d, Messrs. Lee and Mr. Chilman; 3d, Mr. Kaile and Messrs. Jackson; 4th, Mr. Rhodes. 6 plants: 1st, Mr. Page; 2d, Mr. Ingram; 3d, Mr. Wheeler.

Orchids.—Of these there was the usual bank, but with one or two exceptions there was a general absence of fine specimens. The most remarkable plants, as far as good cultivation and fine flower were concerned, were Dendrobium primulinum, from Mr. Baker, Gr. to A. Bassett, Esq., of Stamford Hill; and a panful of Orchis foliosa from Mr. Bullen, Gr. to A. Turner, Esq., Leicester. Than these nothing in their way could possibly be finer. A striking variety of Lælia purpurata, possessing much more colour than usual, and with a large and beautiful lip, was also conspicuous. Mr. Bullen's plants, we may remark, indicated extremely good cultivation; but the large ugly, red painted tubs in which they were shown, completely spoiled the good effect which they should otherwise have produced. The following were the varieties exhibited, which we have arranged in the same manner as we have done in the case of Stove and Greenhouse plants:—Aërides affine, 1; A. crispum, 2; A. Fieldingii, 3; A. Lindleyanum, 1; A. Lobbii, 1; A. odoratum, 1; A. retusum, 1; A. roseum, 1; A. Veitchii, 1; A. virens, 2; Anguloa Ruckeri, 1; Brassia verrucosa, 1; Calanthe Masuca, 1; C. veratrifolia, 6; Camarotis purpurea, 1; Cattleya amethystina, 1; C. Forbesii, 1; C. labiata, 1; C. Mossiæ, 3; C. Skinneri, 2; Chysis bractescens, 1; Cypripedium barbatum, 8; C. caudatum, 1; C. hirsutissimum, 1; C. Lowii, 2; C. venustum, 1; C. villosum, 1; Dendrobium cærulescens, 1; D. chrysanthum, 1; D. Dalhousianum, 1; D. densiflorum, 2; D. Devonianum, 1; D. Farmeri, 1; D. formosum giganteum, 1; D. nobile, 4; D. primulinum, 1; Epidendrum crassifolium, 1; Lælia Boothiana, 1; L. cinnabarina, 1; L. purpurata, 3; Lycaste cruenta, 1; L. Skinneri, 1; Maxillaria tenuifolia, 1; Odontoglossum nævium, 1; Oncidium ampliatum majus, 5; O. crispum, 1; O. Lanceanum, 1; O. leucochilum, 1; O. pulvinatum, 1; O. Phillipsianum, 1; O. phymatochilum, 1; O. roseum, 1; O. sphacelatum, 1; Orchis foliosa, 1; Phaius Wallichi, 1; Phalænopsis amabilis, 2; P. grandiflora, 4; Saccolabium ampullaceum, 2; S. curvifolium, 2; S. guttatum, 4; S. Holfordi, 1; S. præmorsum, 1; S. retusum, 3; Trichopilia coccinea, 1; Vanda insignis, 2; Vanda suavis, 4; V. teres, 1; V. tricolor, 5.

Awards.—20 plants: 1st, Mr. Baker; 2d, Mr. Bullen; 3d, Mr. Peed. 12 plants: 1st, Mr. Page. 8 plants: 1st, Mr. Woolley. 6 plants: 1st, Mr. Wiggins; 2d, Mr. Smith; 3d, Mr. Green. 4th, Mr. Wheeler; equal 4th, Mr. Chilman.

Azaleas.—Most of those exhibited on this occasion were literally "mountains of bloom," a remark especially applicable to the fine specimens furnished by Messrs. Veitch and Mr. Turner, both of whose groups consisted of plants of large size; of the two Mr. Turner's collection was perhaps the most effective in point of flower; but Messrs. Veitch had the best grown plants, which were equally fine on all sides; in short they were models of skilful cultivation. The varieties were:—Admiration, 1; alba magna, 1; A. "Mellior," 1; Alexandra, 1; Apollo, 2; arborea purpurea, 1; Barclayana, 1; Broughtoni, 4; Beauty of Reigate, 1; carminata, 1; Chelsoni, 1; conspicua purpurea, 1; coronata, 2; Criterion, 3; delicata, 2; delecta, 2; Duke of Devonshire, 1; Eclipse, 1; Empress Eugenie, 2; exquisita, 3; Extrani, 2; Eulalie, 1; Fentoni, 1; Fielder's White; formosa, 1; Gem, 3; Gledstanesii formosa, 1; Glory of Sunning Hill, 2; Holfordi, 1; Iveryana, 5; Juliana, 5; lateritia, 2; Leeana, 1; Louise Margottin, 2; macrantha purpurea, 1; magnificans, 2; Magnificent, 1; magnifica flore pleno, 1; Maria Louise, 1; Minerva, 1; Mrs. Fry, 1; Murrayana, 1; narcissiflora, 1; optima, 2; perfecta elegans, 1; præstantissima, 1; rosea superba, 1; semiduplex maculata, 2; Sir Charles Napier, 1; speciosissima, 1; Stanleyana, 1; Symmetry, 2; triumphans, 7; The Bride, 1; variegata, 1; Vesta, 1; White Supreme, 1; violacea superba, 2; Woolerii, 1.

Awards.—8 plants: 1st, Messrs. Veitch; equal 1st, Mr. Green; 2d, Mr. Turner and Mr. Page; 3d, Messrs. Fraser; equal 3d, Mr. Cross; 4th, Mr. Clarke and Mr. Kaile. 6 plants: 1st, Mr. Turner; 2d, Messrs. Lane; 3d, Mr. Wheeler; 4th, Mr. Chilman: 5th, Mr. Clarke; equal 5th, Mr. Lavey.

Roses.—Seldom have collections in pots been shown in finer condition than on this occasion. Messrs. Lane's plants were truly magnificent, more especially one of Souvenir d'un Ami, which could not measure less than 8 or 9 feet in height, loaded with blooms. Mr. Wm. Paul had brilliant specimens of Lord Raglan and Senateur Vaisse; and from Mr. Terry came an extremely well-flowered plant of the bright yellow Vicomtesse Decazes. Among cut blooms were some unusually fine examples of Lælia, Celine Forestier, President, Safranot, Adam, and Amiral Gravina, the last a promising dark kind. The varieties in pots were—Baron Prevost, 2; Blairii No. 2, 1; Chas. Lawson, 3; Chénédolé, 2; Comte de Nanteuil, 1; Comte de Paris, 1; Comtesse Molé, 1; Coupe d'Hébé, 2; Gen. Jacqueminot, 1; Gloire de Dijon, 1; Jules Margottin, 3; La Reine, 1; Lion des Combats, 1; Lord Raglan, 1; Madame Chas. Jacquin, 1; Madame de St. Joseph, 1; Madame Willermoz, 1; Paul Perras, 3; Paul Ricaut, 3; Senateur Vaisse, 1; Souvenir d'un Ami, 3; Triomphe de Paris, 1; Vicomtesse Decazes, 1.

Awards.—10 plants: 1st, Messrs. Lane; 2d, Mr. Wm. Paul; 3d, Mr. Francis. 6 plants: 1st, Mr. Terry.

Heaths.—With the exception of Queen Victoria, a fine kind belonging to the aristata class, there was nothing new among these. The following varieties were shown, viz.:—affinis, 1; Alberti superba, 1; Beaumontiæ, 1; Bergiana, 1; Cavendishiana, 1; depressa, 3; depressa multiflora, 1; eximia, 1; Fairrieana, 1; fastigiata lutescens, 1; favoides elegans, 1; florida, 1; intermedia, 1; mirabilis, 1; mutabilis, 1; odora rosæ, 1; profusa, 1; propendens, 1; Queen Victoria, 1; Sindryana, 1; suaveolens, 1; tortiliflora superba, 1; tricolor dumosa, 1; tricolor Wilsonii, 2; vasiflora, 1; ventricosa Bothwelliana, 1; ventricosa coccinea minor, 3; ventricosa magnifica, 1; ventricosa perspicua nana, 1; ventricosa tumida, 1; Webbiana, 1.

Awards.—10 plants: 1st, Messrs. Jackson. 8 plants: 1st, Mr. Peed; 2d, Mr. Page; 3d, Mr. Baxendine. 6 plants: 1st, Mr. Ingram; 2d, Mr. Chilman.

Pelargoniums.—These were particularly well grown and flowered, and made a fine display. The sorts were—Ariel, 3; Aurelia, 1; Beadsman, 2; Candidate, 2; Desdemona, 3; Empress Eugénie, 1; Etna, 1; Fairest of the Fair, 3; Governor General, 1; Guido, 1; Leviathan, 3; lilacinum, 1; Lord Canning, 1; Mazeppa, 1; Mr. Marnock, 2; Monarch, 1; Osiris, 2; Peacock, 1; Picnic, 1; Pizarro, 1; Rose Celestial, 4; Sanspareil, 1; Sir C. Campbell, 2; The Belle, 2; Virginie (Miellez), 1.

Fancies.—Acme, 2; Arabella Goddard, 1; Carminata, 3: Celestial, 2; Clara Novello, 3; Clemanthe, 1; Cloth of Silver, 1; delicatum, 3; Electra, 1; Emily Witcher, 2; Evening Star, 2; Lady Craven, 2; Lady Hume Campbell, 1; Lady of the Lake, 1; Madame Sontag, 1; Madame Van der Weyer, 1; Mrs. Turner, 1; modestum, 1; Negro, 3; Queen of Roses, 1; Queen of the Valley, 2; Roi des Fantaisies, 1; Rosabella, 1; Zoë, 1.

Awards.—12 plants: 1st, Mr. Turner; 2d, Messrs. Fraser. 10 plants: 1st, Mr. Bailey; 2d, Mr. Weir. Fancies, 6 plants: 1st, Mr. Turner, Messrs. Fraser, and Mr. Bailey; 2d, Mr. Weir; 3d, Mr. Pepler; 4th, Mr. Lamb.

Cinerarias.—One or two collections of these were shown, but it was evidently past their season. The sorts were:—Bellissima, 1; Brilliant, 1; Colleen Bawn, 1; Conqueror, 1; Decorator, 1; Duchess of Sutherland, 1; Duke of Cambridge, 2; Eva, 1; Gaiety, 1; Goliath, 1; Great Britain, 1; Lord Elgin, 2; Luna, 1; Maria, 1; Masterpiece, 2; Miss Rosa, 1; Miss Todman, 1; Miss Eyles, 1; Mrs. Dickens, 1; Mrs. Eyles, 1; Mrs. F. Watson, 1; Perfection, 1; Precursor, 1; Purple King, 1; Queen Victoria, 1; Reynolds Hole, 1; Topsy, 1.

Awards.—6 plants: 1st, Mr. Lamb; 2d, Mr. Pointer; 3d, Mr. Venner.

Miscellaneous Plants.—Among these were interesting groups of seedling Calceolarias from Mr. James, Messrs. Dobson & Son, and others; collections of Ferns from Mr. Lavey of Fetcham, and Miss Clarkson; sets of fine foliaged and other plants from Mr. Williams of Holloway, and Mr. Bull of Chelsea; and various Auriculas, cut specimens of Tulips, Verbenas, and Pansies, from Mr. Turner, Mr. Treen, Messrs. Downie Laird & Laing, Mr. Dean, &c. A few pots of President Strawberry, a large-sized good new kind, were contributed by Mr. Turner.

Notices of Books.

Essays and Reviews: their origin, history, general character and significance, persecution, prosecution, the Judgment of the Arches Court—Review of Judgment. By the Rev. R. B. Kennard, M.A. Hardwicke. 8vo, pp. 313.

This is a work written with very great ability, by one who has evidently drunk deeply into the spirit of the Essayists, and we only wish the zealous author had refrained from using language so strong as to defeat his purpose, by raising up a feeling of antagonism in the mind; for people will not suffer themselves to be over-ridden by violence, or threatened into the belief of anything which does not commend itself to their calm judgment.

Mr. Kennard "puts forth his book with the hope of dispelling the cloud of prejudice and misrepresentation through which the volume of 'Essays and Reviews' has hitherto been regarded by what is commonly called the religious world." He thinks that, "as a consequence of the late judgment in the Court of Arches, the clergy of our national church may rest assured that there is nothing in the laws and constitution of that church which fetters the free and unbiassed exercise of their reason." As to the danger of free inquiry, Mr. Kennard thinks "it may reasonably be questioned, whether the real dangers which threaten the peace of our Zion do not arise from another and directly opposite quarter—from that spirit of insolent dogmatism which claims to dispense with inquiry, and substituting reckless assertion for argument and denunciation for proof, affects an authority which it is forsooth dangerous to question and impious to reject."

With this preface one is of course prepared to find a vigorous stream of indignation directed against those who have ventured to express opinions adverse to the Essayists; but surely nothing can be worse than the attack upon Dr. Whately: "if the command, Thou shalt not bear false witness against thy neighbour, is binding even upon archiepiscopal lips."

Our author gives his own account of the history of these "Essays and Reviews," tracing "their origin and spiritual parentage" to the Baconian philosophy which all men follow in their scientific pursuits, and which ought in his opinion to be applied to the investigations of theology. He brings in Bishop Hampden as approving of this principle by saying "we must study the Sacred Records as we study Nature;" Bishop Butler, who thinks it "not at all incredible that a book which has been so long in the possession of mankind should contain many truths as yet undiscovered;" and Archdeacon Hare, who asserts "that

though the truth is one and ever the same, it is also infinite, full of infinite riches, and capable of infinite expansion," &c.

Next Mr. Kennard informs us that there was a two-fold work commenced in 1854 under the name of "Oxford" and "Cambridge Essays," which however came to an end after the appearance of four volumes; and then "some of the leading members of the critical school in the church agreed to continue the publication with a more distinctly theological aim." Some such scheme was discussed so early as 1835 by Archdeacon Hare and Dr. Arnold, and to this Dr. Whately and Dr. Hampden were expected to contribute.

The Gorham controversy, he says, "had shown the really liberal and comprehensive character of the church formularies." Mr. Wilson's Bampton Lectures, the writings of Hare, Maurice, and Kingsley, as well as those of Dr. Stanley and Mr. Jowett, "seemed to prepare men's minds for receiving something better, deeper and truer, than the old mediæval theology, whether cast in a Tractarian or a Calvinistic form, had been able to supply;" "and the moral consciousness of the age had got beyond its recognised theology."

Mr. Kennard then gives an excellent summary of the leading objects and distinctive characteristics of each of the seven essays, introducing a short account of Bünsen and his death, not forgetting to tell us how much Dr. Arnold loved and revered that extraordinary man.

Then comes the history of the persecution, which he traces in its cause to "that conflict between reason and authority which is coeval with Christianity itself;" and in its immediate occasion to a couple of articles, the one in the "Westminster Review," written "with a desire to inveigle those who stood on more secure position, to the narrow ledge of the precipice, on the midway of which he (the writer of it) himself was standing; the other in the "Quarterly," which is characterised as displaying "astonishing ignorance of all that has passed of late in theological literature, as well as of science," and showing "an unreasoning dread lest inquiry into any part of theological truth should overturn the whole of religion." The alarm was sounded, and Dr. Irons (who it seems has a happy knack of cooking up illustrative extracts) in conjunction with Dr. M'Caul, solicited the signatures of the clergy to an address to the Archbishop of Canterbury. They signed it "on the strength of garbled extracts, wrested from their context, and so arranged as to conceal the real purpose of the writers, &c." Forth came an "episcopal manifesto" which Mr. K. and his friends think was a heavy "blow to the *prestige* of the English Episcopate," and which Dr. Deane in his pleading pronounced to be "a more unbecoming and cowardly act than any he had met with in the whole of his reading."

Next came the startling announcement that the Bishop of Salisbury intended to commence proceedings against Dr. Rowland Williams in the Court of Arches. This Bishop, we are reminded, had very lately "made a large claim for toleration in his own behalf, and that of his party in the church," in connection with Archdeacon Denison's case.

The history of the prosecution is then given, together with that of Mr. Wilson, another of the Essayists. The articles of charge are stated, the gist of the real questions in dispute being very clearly pointed out, with the most important part of the pleadings for the defence, and the grounds of the judgment, which are very freely commented upon and called in question; though it is acknowledged that "the learned judge approached his duty with an earnest desire to adhere to the principles of strict law and justice;" "of this (he says) we have the strongest proof in his determination to dismiss all charges of misinterpretation of Scripture as beyond his cognizance;" and accordingly his Lordship ruled "that the articles of objection must be reformed by striking out all reference to extracts from the Bible found in the Prayer-book." Mr. K. thinks the learned judge fell into a grave error in one part in what he calls "this unfortunate attempt to develope and define the doctrine of the church;" and in another part he strongly "objects to the inquisitorial character of the process by which the learned judge allows himself to guess at the author's opinions, and to impose his own inferences on his words;" and concludes by saying, "The spirit of ecclesiastical intolerance has done its worst, and this is the result."

The sentence passed against the defendants was this: "that they should be suspended *ab officio et beneficio* for one year, and that they should pay the costs." On their part an appeal to the Privy Council was immediately lodged, and thus, for the present, the case remains.

Mr. Kennard holds a very valuable living in Dorsetshire. His style is remarkably vigorous, and, unlike the majority of the Essayists, he writes most clearly; he is evidently thoroughly in earnest, perhaps enthusiastic, and he is not afraid of using strong language. Moreover, his book is printed in fine large readable type.

We continue from p. 415, our remarks on the *Jardin Fruitier du Muséum.*

Des Deux Sœurs.—Fruit middle-sized, oblong, often in form like the St. Germain, citron yellow; flesh melting, juicy, sugary, slightly astringent, but without perfume. Season: end of September, and November. The author remarks, that although recommended by most nurserymen, this fruit does not appear to him worthy of ranking among the best varieties. He says he had specimens of it from Mechlin, Namur, Grenoble, and Lyons, and, like those from the Garden of the Museum, he found the flesh very fine, and juicy, but without flavour. The original tree was found in the garden of the Demoiselles Knopp, of Mechlin, and M. Esperen gave it the name of P. des Deux Sœurs.

Comte de Flandres.—Syn. St. Jean-Baptiste. Fruit large, pyriform, greenish yellow, with a patch of fawn-coloured russet round the insertion of the stalk; flesh white, fine, melting, sugary, with a delicious aromatic perfume. Season: November to January. A first-rate fruit. It is remarkable for its core being without seeds, a circumstance which had escaped the notice of the Belgian pomologists, but was observed by Prof. Decaisne, and also, he says, by F. Jahn, in *Illustrirtes Handbuch der Obstkunde.* This variety is one of Van Mons' seedlings. It fruited for the first time in 1843.

Prévost.—Small or middle-sized, obovate, obtuse at the stalk, very smooth, yellow, washed with red next the sun, sprinkled with small points and russet specks; flesh firm, or breaking, not very juicy, and somewhat astringent; it ought rather to be considered a kitchen than a dessert fruit. Season: December to April. The tree is a great bearer. Named after Nicolas Joseph Prévost, editor of the *Pomologie de la Seine Inférieure.*

Conseiller de la Cour.—Syn. Baud de la Cour, Bô de la Cour, Duc d'Orléans, Grosse Marie, Maréchal de la Cour, Maréchal Decours. Middle-sized, oblong-obovate, yellow, spotted with brown; flesh white, somewhat granular, firm or half melting, juicy, partaking of the flavour of the Crassane. Season: October, November. Named by Van Mons, from the designation of his son, Conseiller à la Cour d'Appel, Brussels.

Catinka.—Middle-sized, obtusely-obovate, greenish yellow, sometimes obscurely tinged with red next the sun; flesh fine, melting, buttery, very juicy, and highly flavoured. Season: October; but when at maturity it speedily decays. One of Major Esperen's seedlings.

Vicomte de Spœlberg.—Syn. Beurré de Bruxelles, Beurré de Mons, Délices Van Mons. Middle-sized, turbinate, tapering into a thick fleshy stalk; skin citron yellow, sprinkled with small green dots; flesh white, fine and musky. Season: October, November. [There are considerable differences of opinion with regard to the quality of this Pear. Professor Decaisne found it a very good fruit, and so it is described to be by Willermez and Bivort; but Oberdieck says it possesses no superior qualities, even in such warm seasons as those of 1857 and 1859, and that it is greatly outrivalled by numerous other varieties. We are likewise of this opinion, judging from specimens of it which were produced in England.]

Bachelier.—Large, oblong; surface uneven like that of the Duchesse d'Angoulême; skin smooth, greenish yellow, with some patches of russet brown; flesh fine, very melting, juicy, and sugary, but not particularly high flavoured. Season: November, December. Raised by M. Louis-François Bachelier, horticulturist at Cappellebrouck, Département du Nord.

De Duvergnies.—Syn. Duvernay, Beurré Duverny, Beurré Duvery, Délices Van Mons. Middle-sized, obtuse-pyriform; stalk short; skin fine, greenish yellow, tinged with red next the sun. Flesh very fine, melting, juicy, sugary and rich. Season: September. A very good fruit; exquisite in warm seasons. This must not be confounded with the sort described in the *Annales de Pomologie Belge,* under the name of *Devergnies.*

Clairgeau.—Syn. Beurré Clairgeau, Clairgeau de Nantes.—[This sort has been frequently noticed in our columns, in which also a particular account of its origin has been given by M. De Jonghe of Brussels, who purchased, and doubtless still possesses, the original tree obtained from seed by Pierre Clairgeau, nurseryman at Nantes. It is a beautiful fruit, and the tree is remarkably healthy and vigorous, and bears abundantly at an early age. The fruit is not equal in quality to the Marie Louise and many others, the flesh being not quite melting; nevertheless, considering all its properties, it deserves cultivation. In the work before us, it is characterised as a very good fruit, and we may rest assured the author found it such when grown in France. Season: November, December. It should be worked on the Pear stock.]

Jules Bivort.—Syn. Délices de Lovenjoul, Délices de Lavienjan, Délices de Lavoyan. Large, oblong, obtuse at the extremities, speckled and marbled with russet, and tinged with reddish-brown next the sun. Flesh white, very fine, melting, juicy, sugary, and rich; a fruit of first-rate quality, and sometimes exquisite. Season: October, November. First made known by M. Bivort, who named it after one of his sons.

Hardy.—Syn. Beurré Hardy. Large, oblong or obtusely pyriform, olive yellow, but mostly covered with brown or ferruginous russet; flesh very fine, melting, juicy, sugary, and agreeably perfumed. Season: October. Raised by M. Bonnet, of Boulogne-sur-Mer, from whom it was obtained by M. Jamin, and named by him in compliment to Julien-Alexandre Hardy, formerly professor of arboriculture at the Garden of the Luxembourg. [It succeeds very well in this country, where it has been fruited, and proved excellent.]

Bonne-Jeanne. — Small, turbinate, yellow, and brilliant red; flesh white, not melting. Season, end of August or beginning of September. [This is described as an extraordinary bearer, as many as 20 fruits having been counted on a branch 10 or 12 inches long. It is only fit for vending in the streets, or as a common market Pear; but its high colour renders it especially attractive to children, and it consequently meets with a ready sale. Owing to this, and to the trees being very productive, this variety is rather extensively cultivated in some parts near Paris, and doubtless it pays just as bad sorts, but great bearers, do about London. A person on being asked which are the best Pears for a market gardener to grow near London? replied, "Perhaps the worst in quality I could name."—"You have said it," he remarked, "for if I had planted such I should have been a thousand pounds in pocket." This ought not to be the case, but doubtless it will be so, till sorts that are of good quality and at the same time abundant bearers, are better known.]

Handbook of Travel Talk (Murray) has appeared opportunely now that people are thinking of repairing to the Continent. In 329 closely printed pages we find in it almost every possible phrase of which a traveller in France, Germany, or Italy can have need; and who among us is not sometimes at a loss for the proper form of expression in those countries? When we add that the German is by Hausman revised by Wintzer, the French by Tarver revised by Chapman, and the Italian by Comelati revised by Ant. Biaggi, we have said all that is necessary to recommend the volume to the travelling public.

Among children's books worthy of special notice we must mention a very neat edition of *Sandford and Merton;* several continuations of *Laurie's Standard Reader;* and *Playtime with the Poets,* a small nice volume of extracts from our best authors, prepared by a lady (Longmans). *Bessy's Money,* an interesting story of the days when "bloody Queen Mary" lighted the fires of Smithfield (Hall & Co.), must also be received with favour.

Page's Introductory Text Book of Physical Geography, 12mo. (Blackwoods) is a well written, well-arranged, and, let us add, well selected array of facts relating to the state of the globe we inhabit, its crust, its land, its water, its climates, its plants and animals, and finally the races of men now existing upon it.

Garden Memoranda.

Bougainvillæa speciosa at Fir Vale, Sheffield. — Of the beauty of this fine plant, when in flower the other day at Swyncombe House, a full report will be found at p. 368. We now furnish an account of the satisfactory progress made by the same kind of Bougainvillæa at Fir Vale, under the skilful management of Mr. Payne.

Nothing can be more truly beautiful than the festoons of rosy mauve-coloured bracts that at present hang gracefully 4 or 5 feet in length, in a span-roofed stove at Fir Vale, where the plant has been extremely gay for these last five weeks, and to all appearance its grandeur will not be diminished for some time yet to come.

A point of some importance is the extreme ease with which this plant can be raised from cuttings, and the short space of time required to have it in flowering condition. Few plants except this can be induced in twelve months to yield wreaths of charming inflorescence that may be measured by the yard!

In managing this plant Mr. Payne's practice is as follows. On the 29th of April, 1862, he purchased a small plant, then about 4 inches in height; it was introduced into the stove and placed at the coolest end, where the temperature might average about 60°. This suited it well, and in the middle of May it was put into a larger pot, in two parts turfy loam, and one part leaf-soil and sand. Again, in the end of June it was found desirable to furnish it with a still larger pot, using the same material as that just mentioned; and in July, seeing that the plant progressed most rapidly, a still larger-sized pot (one about 12 inches in diameter) was given it. By October this pot became thoroughly filled with roots, and in order to induce the plant to produce flowers, Mr. Payne commenced lessening the supply of water to the roots, with the view of making the wood ripe and firm. This practice was carefully pursued until the beginning of last March, when liberal syringings of tepid water to the branches were administered, the roots receiving the same attention as before. The result was a profusion of glorious racemes of gay-coloured bracts, and in 12 months the plant had acquired 14 feet in length of flower-producing growth—a pretty good return for one year's cultivation. It will thus be seen that no bottom-heat was employed, and no atmospheric warmth beyond that of a common stove, so there is now no reason why this fine plant should not be found in full beauty in most places where plants are cultivated to any extent.

One peculiar feature in connection with this Bougainvillæa is that the spines on the wood of the present year's growth produce bloom with the greatest uniformity, while in every case in the wood of last year the spines retain their true character. From this it would seem that young wood will furnish flowers, as well as that of last season, but although it is singular to see bunches of bracts on the spines, the inflorescence is then by no means so imposing in appearance as that furnished by old wood.

Miscellaneous.

Hazel Nuts.—Hazel-nuts come into commerce under the general term of Small Nuts, but included in these are sometimes Pecean and Hickory Nuts from the United States. Of the imports of Hazel Nuts in 1861, 177,142 bushels came from Spain, 30,315 from Italy, and 4202 bushels from Turkey. Hazel Nuts are the fruit of the wild bush of Corylus Avellana, unchanged and unimproved by cultivation. The fruit differs from that of the domesticated varieties only in being smaller, while the tree is more hardy. This plant, which is a native of all the cooler parts of Europe, Northern Asia, and North America, is the parent of the many varieties of Nuts and Filberts now cultivated for their fruit. The trade in Hazel Nuts is very stationary in this country, and the consumption does not vary greatly. In 1846, we imported, chiefly from Spain, 182,702 bushels; in 1847, 207,784 bushels; and in 1848, 150,022 bushels. In the last 10 years the imports have ranged between 148,000 and 256,000 bushels per annum. In trade, though both produced by the variety barcelonensis, the Nuts are classed into two kinds: 1. The Spanish, which are the fresh nuts coming from Gijon, which will not keep for any time, and are said to be coloured by the Jew dealers with the fumes of sulphur. They are sold at public sales in barrels of about three bushels each. 2. The Barcelonas, which are kiln-dried and shipped from Tarragona; the annual export from thence is said to be about 8000 tons. The trade in Hazel Nuts in France is very inconsiderable, and only sufficient for local consumption; they are brought to Paris from the neighbourhood of Toulon and Languedoc. The nuts of the Constantinople variety (Corylus Colurna) are roundish and very hard; 160,000 cwt. of these nuts are annually raised at Trebizond and Kuirasond. Large and very fine nuts of this species grown in the Crimea were shown in the Russian collection at the late Exhibition, priced at 69*s.* 3*d.* the cwt. The Filbert is the fruit of the tubulosa variety of the Corylus Avellana. The term was originally applied to those kinds of Nuts which have very long husks, but owing to the number of varieties that have of late years been obtained, this distinction, which was never scientific, appears to be nearly disregarded, and Nuts and Filberts are almost synonymous terms, excepting that the wild uncultivated fruits, and those varieties which most nearly approach it, are never called Filberts. Filberts are mostly grown in Kent, where as much as 30 cwt. per acre has been raised on particular lands. In order to preserve Filberts in a fresh and plump state, it is only necessary to prevent their parting with their moisture by evaporation. Burying them in heaps in the earth, putting them in earthen jars in a wine cellar, and covering them with dry sand, are all excellent plans. It is estimated that 1000 tons of Filberts are annually sold in this country. *Technologist.*

Tree Mallow.—A company has been formed in New Jersey for the cultivation on a large scale of Hibiscus Moscheutos, a shrub belonging to the Mallow tribe, which grows freely in a wild state, in the swamps of New Jersey and the neighbouring States. The plant is a perennial, and forms every year (in proportion to the cutting it receives) a vast number of fibrous stems. The quantity of fibre obtained from 2½ acres of the plant is somewhere approaching 8 tons, and every ton of fibre is sold for 500 francs to the paper makers in North America. The company just formed is full of hope; for these provinces abound in vast swamps, at present uncultivated, but which, when planted with the Hibiscus, will yield an abundant harvest of fibre. A variety called Hibiscus tiliaceus is manufactured by the natives of Tahiti into mats, fishing nets, ropes and thread. *Les Mondes.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—The usual routine of watering, and keeping the plants clean and properly trained, will be all that is necessary here for some time to come. A few plants may require repotting now and then, and all young stock must be shifted by degrees, as it advances; but no precise time can be pointed out for this work, the whole depending upon the state of the plants, and means of the cultivator. Keep down the temperature in the Conservatory by all possible means, in order to prolong the beauty of plants in flower. Continue to encourage greenhouse plants to make rapid growth during this month, and maintain a moist atmosphere at night. As few plants, where there is a conservatory, are allowed to flower in the greenhouse, the syringe may be used freely in the afternoons of fine days. Heaths in full growth will require abundance of water, at least in bright weather. Many good specimens are lost through imperfect watering. The Erythrina Crista-galli is a fine old plant; cuttings may be made of the young shoots of those which have been headed down. Old plants started in heat in January, and now exhausted with flowering, if removed to a cool and light house, and suffered to go to rest, will bloom well a second time in September, by the excitement of heat and moisture, after resting a few weeks. After the stock for the flower-garden masses is removed from pits and frames, the surplus Verbenas, Fuchsias, Geraniums, Calceolarias, Petunias, &c., remaining in store, should be potted off forthwith into 3-inch pots, and should receive every attention in the way of cultivation. As soon as they grow freely they should be stopped, and made to form bushy plants. These will be a reserve, to succeed plants in full bloom at this period, and also to fill up gaps as they occur in the beds or borders.

FORCING DEPARTMENT.

Pineries.—If the weather should set in warm and bright, shading must be resorted to. Sprinkle the paths frequently; this will keep the foliage in a green healthy state. Many of the successions will now require repotting, and to prevent the plants receiving any check let the operation be done as soon as it is needed. Where fruit is ripening, water very little; the moisture of the atmosphere will furnish nearly all that is required at that stage of growth.

Vineries.—If outside borders have been kept covered with warm litter they will not require water, except in very dry situations. It will be proper, however, to examine them, and if water is found necessary use weak liquid manure from the farmyard, or guano-water. Continue to syringe in the afternoon, and to shut up early, at from 90° to 95°, in Vineries in which fruit is swelling; but avoid wetting the Grapes after they have begun to change colour. Give air early in the morning during bright sunshine, beginning with a little, and increasing gradually as the sun approaches the meridian.

Peach House.—Persist at all times in stopping gross shoots. Liquid manure should be applied with freedom to trees carrying a full crop; in fact it will benefit all, unless excessively luxuriant, provided the stopping of gross wood is constantly attended to.

Cherry House.—Give more air and keep a drier atmosphere where fruit is ripening. Administer plenty of water to trees now swelling off a crop. Syringe freely and keep the foliage clear of insects.

Fig House.—Avoid wetting the fruit after it begins to soften. Watering as the plants may require it, and keeping insects in check, must be duly attended to. Air must also be admitted on all favourable occasions.

Strawberries.—If these are not well supplied with water, they will not attain full size. Look them over often, watering only such as require it.

Melons.—Do not let the heat in the beds decline; but add fresh linings as required. If the plants want water, give it in the morning, in order that the vapour arising from the soil may pass off during the day. We have seen instances during the past week, of leaves being ruined by frost at night, owing to their being in a damp state, and too near the glass. Keep the shoots thin and regular.

FLOWER GARDEN AND SHRUBBERIES.

Watch Rose buds inserted last August; rub off those on the stock in a progressive way, and let all Roses, whether standard or dwarf, be well top-dressed with good rotten manure if not already done. The Moss and Provence kinds intended for forcing next winter should have a rich mulching, fairly covering the pots. Where Roses are infested with grub it will be necessary to go over the plants frequently to destroy this pest. Green-fly is also sometimes troublesome; a good washing with the garden-engine on two or three successive evenings will greatly assist in getting rid of these destructive pests, but this must be done after all danger of frost is over. Planting of bedding stock must be deferred for a week or so yet. Begin with Calceolarias, Verbenas, Scarlet Geraniums, &c., leaving Heliotropes, Lantanas, Anagallis, and such things as are usually injured by frost, until the planting of the more hardy kinds is completed. Branches of evergreens are easily obtainable in most places, and a sprinkling of these, stuck into the beds after planting, will be of great service in protecting the plants from the drying effects of bright sunshine, and will also help to ward off frost should it occur. In the meantime, as before recommended, get all beds well prepared for the reception of their summer occupants, thoroughly pulverising the soil by occasional diggings; also get arrangements for planting decided on, so as to be able to add manure or leaf-mould for such things as will be benefited by such additions to the soil.

HARDY FRUIT AND KITCHEN GARDEN.

Disbudding Peaches and Nectarines must soon be commenced, removing a few of the strongest shoots at first from the most vigorous branches, leaving weaker ones to be operated on hereafter. Go over Apricot trees and remove all strong shoots not required to fill up vacancies on the wall. The fruit will soon require thinning, an operation which must be performed at different times, and always with care and judgment. Pay attention to the destruction of insects in order to afford the young shoots a fair chance to make healthy growth. Look after caterpillars on Gooseberry trees. One way of getting rid of this pest is to give the trees a heavy washing with a powerful engine, throwing the water against the under sides of the leaves, which will wash off the caterpillars; they may then be readily killed on the ground. Trenches must soon be got filled with fermenting materials in readiness for Cucumbers, &c., and expose the plants rather freely to light and air, to prepare them for planting under the protection of hand-glasses. If not already done, see to sowing plenty of sweet Basil, Savory, &c., on a warm border of light rich soil. Every spare half hour may now be profitably employed in stirring the ground among growing crops. Vegetation is at length beginning to make progress, and weeds, like other things, grow apace; they therefore require sharp looking after. Planting, if any, in the way of Vegetables, should be done, as indeed it usually is, in drills. In that way, the plants get more effectually watered, and the first hoeing, by filling in the drills, acts as a slight earthing up. Keep paths clean, straighten their edges, and endeavour to render them not only neat, but otherwise as comfortable for walking on as circumstances will permit.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending May 13, 1863, as observed at the Horticultural Garden

May.	Month Ago.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 7	19	30.259	30.062	69	28	48.5	54	52	N.	.00
Friday 8	20	30 363	30.170	70	28	49.0	53½	52	E.	.00
Satur 9	21	30 088	29.963	71	31	51.0	53½	52	E.	.00
Sunday 10	22	29.965	29.956	66	32	49.0	54	52	S.E.	.00
Mon. 11	23	30.013	29 836	64	45	54 5	54	52	W.	.12
Tues. 12	24	29.722	29.505	57	49	53 0	54	52	S.W	.20
Wed. 13	25	29.679	29.595	65	43	54.0	54	52	S.W.	.10
Average.		30.012	29.856	66.0	36.5	51.2	53.8	52.0		.40

May 7—Overcast; fine, low dusky white clouds; fine; clear; frosty.
— 8—Overcast; fine with slight dry haze; fine, frosty at night.
— 9—Dry haze; overcast; fine, very fine.
— 10—Overcast; fine throughout.
— 11—Fine; cloudy and fine; rather boisterous with rain.
— 12—Rain; cloudy, drizzling rain, heavy showers.
— 13—Rain; showery; fine at night.
Mean temperature of the week ½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending May 23, 1863

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 17..	65 5	42 0	53.7	15	0.58 in.	2	7	4	1	4	11	4	4
Mon. 18..	65.2	42.8	54 0	16	0 17	2	7	5	3	3	11	5	1
Tues. 19..	66.5	43.1	54 8	12	0.50	2	7	7	2	4	5	3	1
Wed. 20..	66 6	43 3	54 9	17	0 44	2	6	7	3	4	10	1	4
Thurs. 21..	66.3	44 9	55.6	16	0.36	3	6	10	2	5	6	3	2
Friday 22..	65.7	43.5	54 6	17	0.30	6	6	4	3	3	10	3	2
Satur. 23..	67.9	45.4	56 6	13	0.53	1	6	6	3	3	9	4	

The highest temperature during the above period occurred on the 22d, 1847—therm 89 deg.; and the lowest on the 18th and 19th, 1854; 20th, 1853, and 19th and 20th, 1856—therm. 30 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

Birds: *A Correspondent* whose gardener complains most bitterly of the injury which has been and is being done by the birds to the fruit blossoms, particularly Black Currants and Apple blossoms, asks how far he ought to allow the gardener to shoot the birds. No one doubts how great is the injury done to a country by an indiscriminate and unlimited destruction of them; but on the other hand it is equally certain that they are to fruit growers a great nuisance. The best remedy is perhaps to net over bushes, and to scare them from trees by clappers, and strange objects hung among the branches, such as a man's hat, or the stuffed figure of a man or woman, a shot being occasionally fired at them, the victims being then hung up as a warning to others.

Daisies; *S.* The specimen, which has been returned, is by no means uncommon. It is merely a monster in what is called the cockscomb state. Try Berberis Aquifolium, planted thick.

Diseased Peach Leaves: *D M J.* You will find a case similar to that of your Peach leaves, fully discussed in our Number of May 31, 1862, p. 499. Your Peach trees, it appears are on the back wall, and have in all probability been chilled by a current of cold air from above. *M. J. B.*

Executors: *Crozier.* They cannot show, under the condition laid down.

Fungi: *R W.* Your Fungus is a delicate and beautiful form of Agaricus clypeolarius, a species which is not uncommon in stoves. We have never known it or its immediate allies to be injurious, and we think you need have no apprehensions about your Orchids. *M. J. B.*

Garden Law: *G. S.* Market Gardeners' Cucumber pits and frames, tool house, &c., are rateable to the poor.

Melons: *One who has been 30 Years in the Line* says that, up to Monday last, he had as fine a house of Melons as was possible, but on that morning he noticed a few of the leaves spotted, as though scalding water had been thrown upon them. On the following day he found them worse. He then whitened the glass, thinking the mischief might proceed from burning by the glass, but this had no effect. From the specimens sent us we should say that the leaves have been killed in consequence of condensation on very cold glass at night having deprived the air of its moisture, and so exhausted the leaves of theirs. The best remedy would, in that case, be an outside covering on those nights when frost prevails.

New Plants: *— & Co.* It is as we have stated. We have nothing whatever to re-consider. Private interests *must* be subordinate to those of the public; at least they always will be here.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. It is requested that not more than four plants may be sent us at any one time.—*J P.* 1, Appears to be Funkia subcordata; 2, Probably Isolepis gracilis; 3, Too young for determination. Specimens should be perfect. We do not undertake to name those that are not so, for the simple reason that we cannot.—*J F.* Polygala vulgaris.—*W D.* By an accidental misprint, the name of your specimen was given last week as Saudersonia antiaca, instead of S. amantiaca.—*W. Cull,* Paulownia imperialis.—*P.* Cratægus punctata, a North American Thorn.—*A B.* Some Proteaceous plant; probably a Grevillea—not to be named without flowers.—*Don.* Pelargonium tomentosum.—*W T T.* Isochilus prolifer.

Nardoo: *J E T.* This New Holland substance is the fructification of a Marsilea, a cryptogamic plant inhabiting the vast Australian plains. Wills speaks of sandhills black with it. As a food it is wretched; such nutritive qualities as it possesses are due to the starch it contains.

Pelargoniums: *D M.* It depends on the wording of the schedules. Sansparcil is a "spotted" variety certainly; but not French, having been raised by Mr. Hoyle. There have been two Sparklers, one spotted, the other not: which do you mean?

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SEWAGE of the METROPOLIS.—The METROPOLITAN BOARD of WORKS hereby give notice, that they have EXTENDED the TIME for receiving TENDERS for the DISPOSAL of the SEWAGE of the METROPOLIS until FRIDAY, the 10th July next. All tenders must contain a full description of the works proposed, and must be accompanied by a plan and section showing their several details. The Board will further require full information as to the manner in which the sewage is to be treated and employed, and, if by irrigation, as to the distribution of the sewage, the quantity and locality of the land over which it is to be distributed, the points at which the sewage is to be intercepted, the daily quantity to be employed, the mode of effecting junctions or communications with the Board's sewers, the provisions against floods, failure of pumping power, or other defect in the company's works, the mode of deodorisation or otherwise preventing the sewage from becoming a nuisance or injurious to health; the amount of capital to be invested, number and value of the shares, duration of the contract, and royalty agreed to be paid to the Board. The Board will not enter into any contract, or make any concession of sewage to any parties unless they take all steps necessary for carrying their project into effect within a time to be named by the Board; and in the event of failure to do so any agreement or concession on the part of the Board shall be void and of no effect; and in any contract provision must be made to secure to the Board the return of the sewage works, and the full power to re-let and deal with the same, and so that the Board may, in case of any failure of the contractors or their operations, be left to their full rights, and without any cost to the Board. The tender must contain the names of two or more sureties, to be approved by the Board, who shall be jointly and severally bound in a competent sum, for the due performance of the contract, and for the efficient execution of the works in accordance with the provisions, and subject to the limitations of the Metropolis Local Management and Main Drainage Acts, and for indemnifying the Board against all loss, damage, or injury, claims for compensation or legal proceedings arising out of the said works, or other operations of the contractors. The Board will not bind itself to accept the highest or any tender. The plans and sections of the sewers can be seen, and all information obtained at the office of the Engineer of the Metropolitan Board of Works, at their office in Spring Gardens, between the hours of 9 A.M and 4 P.M., or on Saturdays between 9 A.M. and 2 P.M. The Tenders are to be addressed to the Clerk of the Board, and must be delivered at this Office before 4 o'clock on THURSDAY, the 9th JULY NEXT, and no tender will be received after that hour. Parties who have already sent tenders, and who may be desirous of altering or amending their proposals, may obtain them on application to the Clerk of the Board.—By order, JOHN POLLARD, Clerk of the Board.—May 11, 1863.

BURGESS AND KEY'S REAPING and MOWING MACHINES.
No. 1. McCORMICK'S NEW PATENT REAPING MACHINE delivers the Corn in Sheaves by self-acting Rake; price 34*l.*
No. 2. BURGESS AND KEY'S SCREW DELIVERY REAPER delivers the Corn in Swathe; price 36*l.*
No. 3. BURGESS AND KEY'S COMBINED REAPER and MOWER. The Corn is raked off this Machine by a man; price 30*l.*
No. 4. BURGESS AND KEY'S MOWER for Natural and Artificia lGrasses; price 25*l.*
All the above are STANDARD IMPLEMENTS, and as to their efficiency BURGESS & KEY refer intending purchasers to the list of Prizes received from various Agricultural Societies, and, with still more confidence, to the large number of Agriculturists who have them in use in all parts of the world.
Immediate Orders are requested to ensure timely delivery.
Full particulars and drawings forwarded on application to
95, Newgate Street, London, or Brentwood, Essex.

Do as Others Do!
BUY YOUR SEED BAGS from JAMES T. ANDERSON, SACK and BAG MAKER, and RUSSIA MAT MERCHANT, 15, SHERBORNE LANE, King William Street, London, E.C., who will supply you with a first-rate article at a low price. ARCHANGEL MATS, the pick of the season. Russian and Prussian Dunnage Mats.
Prices sent free on application.

Land Drainage, and other Agricultural Improvements.
MR. BAILEY DENTON, C.E., maintains a large staff for the execution of Land Improvements by a commission of 5*s.* per acre for Under Drainage, and a fixed charge for Outfall and other works.
For particulars apply to him, at 52, Parliament Street, Westminster, S.W.

AGRICULTURAL and CHEMICAL COLLEGE 37 and 38, Lower Kennington Lane, London, S.
ASSAYS and ANALYSES promptly attended to by J. C. NESBIT, LANSDELL & Co.

AGRICULTURAL and CHEMICAL COLLEGE, KENNINGTON.—Manufacturers and others engaged in making Artificial Manures may obtain every necessary instruction for their economical and efficient preparation by applying to J. C. NESBIT, LANSDELL & Co., 37 and 38, Lower Kennington Lane, London, S.
Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and despatch.
Gentlemen, Farmers, or others, desirous of practical knowledge in Chemical Analysis, or Assaying, may receive instruction at the College, where the extensive Laboratories give ample facility for pursuing their studies, and there is accommodation for a limited number of Resident Students.
Full particulars of terms will be forwarded on application.

Drainage, &c.
MR. JOSEPH BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements. Valuations made for Sales, or the re-letting of Farms.
22, Parliament Street, Westminster, S.W.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
To LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c. IN ENGLAND AND WALES AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.
Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

THE FIRST GREAT INTERNATIONAL SHOW of SPORTING and other DOGS will be held at the Agricultural Hall, Islington, N., in the Week commencing MAY 25.
Private view on MONDAY, May 25 (after 4 P.M.), when the Fox Hounds will be judged in public in front of the great Orchestra.

PRICES OF ADMISSION.			s.	d.
MONDAY,	May 25 (after 4 P.M.)		5	0
TUESDAY,	,, 26	from 8 A.M. to 8 P.M.	2	6
WEDNESDAY,	,, 27	from 8 A.M. to 8 P.M.	1	0
THURSDAY,	,, 28			
FRIDAY,	,, 29			
SATURDAY,	,, 30			

For the use of Schools, &c., Forty Tickets, admissible before 11 A.M on WEDNESDAY, THURSDAY, FRIDAY, and SATURDAY, for 1*l.*, may be obtained on application to the Secretary, at the Office, Barford Street, Liverpool Road, N.

INTERNATIONAL AGRICULTURAL EXHIBITION at HAMBURGH.
The time of ENTERING LIVE STOCK for this EXHIBITION is extended from the 1st of May to the 1st of June.
By order of the Executive Committee.

HAMBURGH INTERNATIONAL AGRICULTURAL EXHIBITION.
NOTICE.—To insure insertion in the CATALOGUES, all ENTRIES of LIVE STOCK from Great Britain and Ireland should be made before the 25th of May.
All communications to be made post paid to the Secretary of the Committee, Dr. HACHMANN, Advocate, Hamburgh.
N.B. As all the Hotels at Hamburgh are engaged, a Committee of gentlemen has been formed who have undertaken to procure lodgings for strangers. Application must be made to Dr. H. DONNENBERG, Hamburgh, post paid, stating accommodation required.

YORKSHIRE AGRICULTURAL SOCIETY.—GREAT SHOW at SOUTH STOCKTON ON TEES, August 5, 6, and 7, 1863.
For Prize Sheets apply to JOHN HANNAM, Secretary.
Kirk Deighton, Wetherby.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
WORCESTER MEETING, 1863.
PRIZE SHEETS and CERTIFICATES for ENTRY of STOCK will be forwarded on application.
LAST DAY of ENTRY, JUNE 1.
CAUTION.—All Certificates received after that date will be returned to the Senders. H. HALL DARE, Secretary.
12, Hanover Square, London, W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
WORCESTER, 1863.
TENDERS for GREEN FODDER, HAY, and STRAW.
Persons desirous of Tendering for the supply of either of the following, viz.: 1st, about 10 Acres of GREEN FOOD, consisting of Green Vetches, and of Green Clover or Trifolium; 2d, of HAY, 30 Loads more or less of the best quality; 3d, of STRAW, about 50 Loads, of 36 Trusses each, for use in the Society's Show Yard at Worcester, from the 17th to the 25th of July, can obtain particulars, and Forms of Tender, on application to H. HALL DARE, Secretary.
12, Hanover Square, London, W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
The ANNUAL GENERAL MEETING of Members will be held at the Society's House, 12, Hanover Square, London, on FRIDAY, May 22, at 12 o'clock.—By order of the Council,
H. HALL DARE, Secretary.

The Agricultural Gazette.

SATURDAY, MAY 16, 1863.

THE delightful rains of the last few days have benefited alike those who do and those who do not keep rain gauges. The study of meteorology does not result in any alteration or improvement of our climate. The man who daily observes and records the weight, heat, and moisture of the air, like Mr. SPEARING, of Moulsford, to whom agriculturists are indebted for an extremely interesting paper on one class of meteorological facts, read at the Farmers' Club last week, does not thereby exert any influence on these phenomena or modify their power either over himself or over his neighbours. It is not even at all likely that he will obtain any greater insight into the weather of the future by his constant daily study of the weather of the present. The only forecasts on this subject that are of any value have been obtained by means of the telegraph, which informs us how the wind and weather are elsewhere. Putting them, however, on the lowest ground of probable utility, meteorological facts, like all other facts, are worth collecting as so much addition to our knowledge, and we may be confident that here, as everywhere, "knowledge is power." Whether it be statistics of profit or of loss—agricultural or commercial—every addition to our knowledge must ultimately prove serviceable; and neither our agricultural results, the food produce of our soils, depending so much on the efforts of the husbandman, nor the circumstances of weather to which these results are so largely due, even though they be altogether beyond his control, are any exception to the rule that whatever *is* is worth knowing.

Besides, although we cannot absolutely alter weather, we can do so virtually, both directly and

REDUCTION IN PRICE.

PHOSPHO GUANO.

The Prices for the Season 1863 are as follows, delivered Free on Board, or on the Rails at Liverpool.

For 30 Tons and upwards	... £10	5	0	per Ton, net cash.
For 10 Tons up to 30 Tons	... 10	10	0	,, ,,
For 5 Tons up to 10 Tons	... 10	15	0	,, ,,
For smaller quantities	... 11	0	0	,, ,,

The Price will not exceed 12*s.* per Ton additional if delivered at any other Port in Great Britain.

PETER LAWSON & SON, CONTRACTORS.
GEO. SEAGRAVE & CO., BROKERS.
WILLIAM DIXON & CO., GENERAL AGENTS.

28, KING STREET, CHEAPSIDE; AND 15, LAWRENCE LANE, LONDON, E.C.

indirectly; and therefore there is an immediate benefit derivable from our knowledge of it.

We do not live naked out of doors, and neither do our plants. It is of service to ourselves to know the climate of our habitation, that house and clothing may be furnished accordingly. Such knowledge is of use to us also as cultivators of plants, and for exactly the same reason. The greater part of a plant lives under cover, and that is all that we can say for ourselves. The covering may be cold or warm, inadequate or otherwise for a plant as much as for an animal. The underground temperature, contrasted with that of air, to the former of which the roots of plants are exposed, has as much to do with their prosperity as the temperature indoors compared with that outside has to do with the well-being of the farmer. And in this case we can directly alter climate. It is found that by deep tillage and land drainage the temperature at 9 to 15 inches deep, where the roots of plants reside, can be raised from 2° to 3° of FAHRENHEIT's thermometer. These 2° or 3° are all the difference that exists between the hill top and the valley, between a northern and a southern county, between success and failure in the growth of Wheat, of Mangel Wurzel, of Trifolium. On these two or three degrees, which are within our power, it depends whether the seed shall sprout early or at all, whether the spring growth shall be vigorous or tardy, whether the harvest shall be late or early.

The Horse Chesnut on Mr. SPEARING's lawn, which blossomed several days earlier than its neighbours, was found to have sent its roots down into the neighbouring well, whose water was 4° warmer than that of the surface soil. This was quite a sufficient explanation of the superiority it displayed; and there is many an instance of superiority in cultivated crops which is to be explained in a precisely similar manner. Mr. SPEARING has long been in the habit of recording underground temperatures with the eye of a farmer as well as of a scientific man. His paper—in which the direct effect of a warm subsoil, both as beneficially feeding the plant with warm food, and as sometimes injuriously hurrying it through the period of that root growth which in our variable climate should be deep and ample as a security against drought—is full of most valuable and interesting facts and reasonings, well deserving the study of the agriculturist.

If Apple trees and Horse Chesnuts, whose blossoms may be 20 or 30 feet from the ground, are so affected as this trustworthy and experienced observer declares by the temperature of the soil-water which these trees draw upwards through 30 or 40 feet of air—unquestionably the growth of the visible parts of our cultivated plants not a yard high must be still more dependent on those variations of the underground climate of our cultivated soils, which we can influence by our management.

ON Friday of last week an interesting lecture was delivered at the Royal Institution by Prof. AUG. VOELCKER, of the Cirencester Agricultural College, on some physical and chemical properties which manifest themselves in all cultivated soils. And he took occasion to animadvert upon LIEBIG's recent work on the Laws of Husbandry. There was ample ground for a defence both of English chemists and of English agriculturists against the attacks of the German philosopher in a discussion of this kind, and Dr. VOELCKER did not fail to point out the services rendered to the agricultural world by English scientific men in their contributions to a true theory of farm experience, and by English practical men in the example they have set to all the world of profitable and abundant food production.

Dr. VOELCKER's lecture will hereafter be published in full, but in the meantime he has been good enough to permit the publication in these columns of large extracts from it, which will appear next week.

WHATEVER doubt may be thrown upon the policy of publishing the statistics of farm produce or farm profits, no question can possibly arise of the advantages of making known the statistics of disaster. Whatever may be the department of industry affected, and whatever the source of injury or loss affecting it, a full publication of the extent and nature of that loss is certainly of benefit. It directs attention to the mischief and quickens efforts for the removal of it. In this way for example the returns of shipwreck annually published are of use to commerce by the impulse which they give to precautionary measures of all kinds. And in this way, too, English agriculturists would benefit if they too had annual returns of the loss and injury they suffer by preventible causes.

It is some such consideration as this which has no doubt urged Mr. HOLLAND, M.P., to introduce a Bill for extending and continuing the provisions of the Act of the 12th year of her Majesty's reign "to prevent the spreading of contagious or infectious disorders among cattle, sheep, and other animals." That Act, introduced on the first appearance of the sheep-pox, required the destruction of all infected animals exposed for sale; it forbade, under penalty, the exposure of such stock in public places; it gave power to her Majesty's Privy Council to place particular districts under the special operation of the Act whenever it might appear to them advisable; and it enacted penalties for any wilful obstruction put in the way of its operation. The original Act was to expire in 1850, but it has been maintained by various continuing Acts until the present time; the last of them, however, expires on the 1st of August of this year.

The Bill introduced now by Mr. HOLLAND and Sir W. MILES is mainly for the purpose of continuing the powers of the original Act, which was last year most usefully put in force for the abatement of the last attack of *variola ovina*.

The principal novelty in the Bill as now introduced, is the proposed appointment of an Inspector-General of meat and livestock, who shall have all the powers of inspection already possessed by clerks of markets and policemen, and whose power is guaranteed by the same penalties as are enacted in the previous Acts. It is to be the special duty of the Inspector to report annually to the Lords of Her Majesty's Privy Council on all such matters as relate to the health of live stock in the country.

The following is the clause defining the duties of his office:—

"It shall be lawful for the Lords and others of her Majesty's Privy Council to appoint from time to time an Inspector-General of Meat, Cattle, Pigs, Sheep, and other Animals, who shall be removable at pleasure, and who shall have power, within all parts of Great Britain and Ireland, at all times to inspect any Oxen, Bulls, Cows, Heifers, Calves, Pigs, Sheep, and other Animals landed from any any ship or vessel in port, or being in any fair, market, highway, or other public place; and such Inspector shall have all the same powers which the Clerk or Inspector of any Fair or Market, or any Constable or Policeman, have or has under the said first-recited Act or this Act; and such Inspector-General shall report annually to the Lords of her Majesty's Privy Council any Matter which may come to his knowledge, and in his judgment is necessary to be reported, as to any contagious or infectious Disease which may prevail among Cattle, Sheep, Pigs, or other animals within the said United Kingdom, together with the best means of Prevention and Cure thereof, and also whether any such Disease has been imported with Cattle, Sheep, and Pigs, or otherwise from foreign countries, with the particulars thereof, and generally on any matter of importance connected therewith, which Reports shall be annually laid before Parliament."

The office which it is thus proposed to create appears to us to be as much for the benefit of her Majesty's subjects in general, who are poisoned in large numbers by "measly" pork and diseased meat, as it is for the interest of the owners of cattle, sheep, and pigs, whose liability to the losses due to infectious and contagious disorders, might be reduced if the facts of the case were known with sufficient exactness, and on a sufficiently large scale. It is to be hoped that this view of the subject will be generally taken by county members, with whom the adoption or rejection of the measure will probably rest. The names on the back of the Bill are a sufficient guarantee of the goodwill towards the agricultural interest with which it has been drawn.

STEAM CULTIVATION IN 1862.

(*Continued from p. 292.*)

THE WOOLSTON CULTIVATOR.

[We continue our reports from last week, commencing with Smith's Cultivator.]

17. Mr. ROBERT MOORE, Haddenham, Bucks.—Soil, generally heavy. Apparatus bought October, 1860, cost, about 260*l*. Rope originally bought, 1400 yards; none bought since, but I am now having all new. Horse-power of engine, 8-horse. Daily wages: 6 men, 15*s*. per day. Farmers bring water. Daily consumption of coal, about 8 cwt. at 23*s*. per ton. Depth from 8 to 12 inches, generally very foul, but can see good effects on the crops. My windlass still in very good order; ropes bad; the porters, &c., want a little repairing. 61 acres twice, 15 once, with Mr. Smith's cultivator, 1860; 244 acres twice, 28 once, with ditto, 1861; 198 acres twice, 66 once, with ditto, 1862. Up to November, 1862. I have not any land in my occupation, but let my implements out by the acre; I have worked some of the heaviest and roughest land in this neighbourhood, and some in Middlesex.

18. Mr. R. NORFOLK, Oil Mills, Louth, Lancashire.—I was at Mr. Smith's of Woolston a week back. I met several experienced men there. I read over to them, intalking about expenses, the items annexed. They thought them correct. I hand them to you; this is all I think you require from me:—March, 1863. Cost in working (7 and 8 inches deep) Smith's of Woolston 3-tined cultivator, going over 500 acres of land. Engine driver and smith per day, 3*s*. 6*d*.; windlass man, 2*s*. 6*d*.; 2 anchor men, 5*s*.; water-cart and horse, 2*s*. 6*d*.; man or lad, 2*s*.; 3 porter lads, 3*s*. 6*d*.; coals, 6*s*. 6*d*.; oil, 6*d*.; total, 1*l*. 6*s*.; 5 acres per day, at 5*s*. 6*d*., 1*l*. 7*s*. 6*d*.; or 6½ acres the second time over, at 4*s*., 1*l*. 6*s*.; = 9*s*. 6*d*. per acre twice over. To work land twice over to be ready for seeds with Smith's 3-tine grubber, cost per acre, 9*s*. 6*d*.; wear of rope per acre, 4*s*.; wear of windlass and porters, 6*d*.; depreciation in the wear of steam-engine, 6*d*.; horses and men to move engine and tackle, 6*d*.; interest of money on the outlay, 1*s*. Total per acre, 16*s*.

19. ——, near Stony Stratford.—Farm: arable, 222 acres; 71 pasture. Soil, chiefly clay. Horses formerly employed, 10; now, 7. Apparatus bought 1858; cost 200*l*. without engine. Length of rope originally bought: 1400 yards iron wire; bought since, 1400 yards steel, May 1861. No alterations since purchase. Engine of 8 horse-power. Daily wages: 6 men and boy—engine-driver, 2*s*. 6*d*.; ploughman, 2*s*. 6*d*.; windlass-man, 2*s*.; 2 anchor-men, 2*s*. each; man to shift rollers, 2*s*.; odd boy, 1*s*.; total, 14*s*. Water-cart a-day, 3*s*. 6*d*. Coal: 7 or 8 cwt., at 17*s*. per ton. Average of annual cultivating and cross cultivating on own farm, about 100 acres: 70 acres last autumn, done in 14 days. Our usual depth is 7 or 8 inches, and when greater depth is required we subsoil between ridges. The general effect here is to keep the land drier in winter and more exposed for atmospheric action, so that it can be worked earlier in the spring and is more tractable. The land, owing to better tillage, is certainly more productive than I found it before commencing steam cultivation. The tackle, excepting fair wear and tear, is in as good working order as ever. The small acreage done in 1862 arose from the work having been pushed up so in 1861 that during the last summer I had no fallow except a small portion done by horses, and I do not expect to need another dead fallow while I hold the farm.

20. Mr. SIMEON RUDDLE, Knowl Hill Farm, Wimborne, Dorset.—Farm: arable, 300 acres; pasture, 250 acres. Soil: loam, with chalk subsoil. Rotation of cropping:—about 600 acres on the 5-field system, viz.:—Wheat, Turnips, Barley, and two years Grass; about 20 acres is laid down every year to Sainfoin in the Wheat field after two years Turniping, and remains until it comes in proper course for Wheat again. The Barley crop by so doing is alone lost. The other 200 acres in the four-field. Number of horses formerly employed, 23; employed now, 20. Oxen formerly employed, 12; now, 9. Apparatus bought August, 1862, cost 200*l*.; apparatus alone. Length of rope originally bought, 1400 yards; none bought since. No alterations since purchase. Repairs since purchase, 1*s*. 6*d*. Engine, 8-horse. Daily wages:—engine man, 3*s*.; two anchormen at 1*s*. 6*d*.; and 2 porter boys at 1*s*., 8*s*. Cost of water-cart a day, 4*s*. 6*d*. Coal about 8 cwt., or 1 cwt. per acre, at 24*s*. per ton; grubbed, 90 acres in 1862. The tillage has been performed about 6 inches in depth, and to the entire satisfaction of myself and those who have seen it. The Turnip crop for which it was used is very good. The soil is much more pulverised by its use than by the plough. The land I occupy was formerly in three farms, consequently extra work required doing, and the strength is not so much lessened.

21. Mr. T. T. RUDDLE, Whitsbury, Salisbury.—Farm: arable, 900 acres. Soil: chiefly down lands, very light; some thin sand and gravel. Cropping: 5 field. Apparatus bought May 21st, 1861; cost, 200*l*., windlass and scarifier. Rope originally bought, 1400 yards. No alterations or repairs since purchase. Engine: an 8-horse power to Dec. 10, 1861; since then, Brown & May's "Devizes" 10-horse traction engine, 400*l*. Wages in cultivating: 4 men, 2 boys, 1*s*. 6*d*. per acre at grubbing; windlass not requiring a man. Water-cart, 5*s*.; coal, depends on the depth, 25*s*. a ton. Grubbed, 233 acres in 1862. My roots did well after the scarifier, the greater part being ploughed only in the autumn; when in work (with long ridges) an acre an hour was smashed up. The traction engine saves much trouble in moving, in fact doing the work of 8 horses when moving from field to field. You see from the above I have not had it sufficient time to give it a thorough test.

22. Mr. JOHN S. EVENDEN, Meopham.—I cannot reply to your enquiries respecting steam ploughing in the manner you require. Having some traction engines used in thrashing, I purchased a set of ploughing tackle, not with any idea to reduce the cost per acre, but to obtain that deep cultivation that cannot be done with horses on my land. For this reason, the more horses I employ the more they tread and pave down the bottom of the furrow, which makes the land hold and retain the water as if in a basin, which is, as you are aware, most injurious to any crop. With my steam plough I have been enabled to break through that bottom that has been panned and trodden down by horses for ages, leaving the bottom, now shook and broken, ready to receive the next furrow slice; the water now, instead of standing on the surface, percolates freely through the soil, and the sequel has been that last harvest the crop was doubled to any ever grown on the same field before. I must tell you that I have used the Kent turn-wrest plough — a better implement never entered a field — although the *Times* spoke of them at the Farningham trial as strange looking implements. They also said exceedingly efficient—in this they were right. I imagine any person having to judge which was the most strange looking implement, a Kent plough or a Fowler's sailing across a field, he would not have a very difficult task. As to cost I cannot enter into it. I did not care what it was; it was impossible to obtain the same cultivation in any other way. I have always found the crop amply pay for it.

23. ——, near Wilton.—We have not had the cultivator long enough to give any reliable information. Apparatus bought in summer of 1862, costing 232*l*.; engine, 295*l*. Rope originally bought, 1600 yards. Engine, 10-horse power. Daily wages: We do our work by the acre, 2*s*. an acre, exclusive of water-cart. Coal, about 7 cwt. a day, at 1*l*. per ton. We can do from 8 to 10 acres per day, and find it more valuable in the spring than any other time in cutting across our fallows.

24. Mr. THOMAS ALBERT, Bromwich.—Apparatus bought May, 1860; cost, 527*l*. Rope originally bought, 1400 yards; bought since, Oct. 1861, 1400. Repairs since purchase about 70*s*. Engine, 8 horse-power, 2 cylinders. Daily wages, 1*l*., 7 men. Water-cart, 5*s*. Coal, 10 to 12 cwt. per day of 10 hours, at 10*s*. per ton. Grubbing about 4 to 5 acres per day heavy soil; 9 to 12 light lands, in a day of 10 hours. The work done by this engine and tackle is for hire, and at a cost of from 15*s*. to 27*s*. per acre to the employer, which in all cases has given universal satisfaction.

25. Mr. JOHN CORNISH KING, Broadway.—Farm: arable, 220 acres; pasture, 80. Soil, sticky clay. Wheat and Bean land. Only entered on it at Michaelmas, 1861, but feel sure could not have done the same work with 25 horses; employed now,

8. Apparatus bought Jan., 1862, cost 510*l*. Rope originally bought, 1400 yards. None bought since. Repairs, very trifling. Engine, 10-horse power, but not sufficient power. Daily wages:—Engineman, 2*s*. 8*d*.; windlass, plough, and 2 anchormen, 2*s* each; porter boy, 8*d*. Water-cart a day and man, 5*s*. Daily consumption of coal, about 8 cwt., at 12*s*. a ton. Grubbed 219 acres in 1862. Depth from 10 inches to 1 foot. The young Wheats after steam are all looking well. We admit to having taken a deal out of the tackle, having had 120 acres under summer fallow, as full of Squitch Grass as it possibly could be, some of it not having been cultivated for two years. We cultivated from 3 acres to 7 acres per day.

26. Mr. T. B. Dring, Claxby, Spilsby, Lincolnshire.—Farm consists of several holdings, including farms taken during the time very much out of condition, and quantity of horses regulated according to circumstances, but steam has always prepared me to undertake a farm out of condition, as I could go to work in a day's notice, which I found most valuable when I did not know where to go to get horses in a day's notice. Apparatus bought 1857; cost, engine and tackle complete, 450*l*. Length of rope originally bought, 1400 yards; bought since, 1400; alterations since purchase, good deal, having made many improvements; ordinary repairs trifling on engine and tackle. Horse-power of engine, 8. Daily wages: 5 men, 3*s*.; 2 boys, 1*s*. each. Coal, 6 cwt. a-day, at 16*s*. 6*d*. a ton. I have no account of quantity done each year, but a very great quantity. The engine made by Messrs. Clayton & Shuttleworth, Lincoln, in 1855, has done a very great deal of threshing, besides an immense quantity of grubbing, from 6 to 10 inches deep on strong land when very hard, and now appears none the worse, although at no cost in repairs, except trifling jobs. First set of ropes was iron, and with bad usage from the men not then understanding it lasted between two and three years; the second steel ropes now are nearly as good as ever, or say one-third worn.

27. (Second set). T. B. Dring, Claxby, Spilsby.—Farm: arable, 514 acres; pasture, 114. Soil: loamy soil took from lea. Cropping; some part four-course shift, other part six-course. Crops got in at proper time. Number of horses formerly employed, 30; employed now, 20, but 90 acres arable have been added, and much better master of the work. Engine made by Messrs. Roxby & Co., Lincoln. Apparatus bought April 1859; cost about 400*l*. Rope originally bought, 1400 yards; none bought since. Alterations since purchase, not great. Repairs since purchase; but little. Engine, 10-horse power. Daily wages; after harvest 5 men at 3*s*., engineer 1*s*. over, 2 boys 1*s*. each, during spring 2*s*. 3*d*. per day, engineer 1*s*. over, 2 boys 9*d*. each. Water-cart, a day, horse and boy 4*s*. Coal 10 cwt., costing 19*s*. per ton. Engine and tackle not much worse, one rope, iron, nearly worn out; the other, steel, (both got at a time), not above half or two-thirds worn out; general depth 7 to 8 inches deep, enough for this land. Engine (Roby's) with ropes on axle, no windlass, tackle made by our smith principally; so the outlay was reduced to the lowest point.

28. ——, Biggleswade.—Farm: arable, not quite 300 acres. Soil, chiefly clay. Number of horses formerly employed, 10; employed now, 7. Engine bought in 1854, the cultivating tackle in 1859. Length of rope originally bought, 1400 yards; bought 600 yards more steel rope in Sept. 1862, and had it joined to the former, in order to work a larger piece without so often moving the tackle; altogether now 1000 yards on each drum. Alterations since purchase very trifling; repairs, ditto. Engine, 7 horse-power (Hornsby's). Daily wages: engine and windlass men, 2*s*. 6*d*. each, with beer; four others, including the water-carting man, 2*s*. 2*d*. each, and a lad 1*s*., with beer. Coals, from 8 to 9 cwt. a day, depending on the depth of work and length of the days, costing about 16*s*. on the ground. Grubbed about 60 acres in 1859, 70 acres in 1860, 100 acres twice over in 1861, and about 120 acres in 1862. Depth of cultivation from 6 to 10 inches; the engine and tackle seem to be quite as effective as at the first. The rope has never yet broken from wear, but once it was snapped in two between the cogs of the wheel.

29. Mr. Wm. Ackroyd, Otley, Yorksbire.—Farm: arable 770 acres; pasture 200. Soil: clay. Cropping: 1, Green crop or fallow; 2, Wheat or Barley; 3, Beans or Clover; 4, Wheat; 5, Oats. Horses formerly employed, 19; now, 16. Apparatus bought in November, 1859; cost 494*l*. 16*s*. 6*d*. Rope originally bought, 1400 yards; bought since, 400 yards, June, 1862. Alterations, engine and rope, since purchase, 8*l*. 10*s*.; repairs since purchase, 32*l*. Horse-power of engine, 8. Daily wages, stating number of hands, and wages of each: engine-driver, 3*s*.; windlass-man, 2*s*. 4*d*.; 3 men, at 2*s*., 6*s*.; 2 boys, at 1*s*., 2*s*. Cost of water-cart a-day, 4*s*. Coal, 10 cwt., at 20*s* a ton. Neither moving nor oil are charged in this statement. Grubbing: Nov. 1859 to Nov. 1860, 627 acres; in 1861, 173; in 1862, 370. As to cost, I should say the work is better done rather than cheaper. My green crops have been better after steam cultivation than they were after the plough. I may say the same of Barley crops. There is not much improvement in the Wheat crops, although there is more straw. The deep cultivation has improved the drainage, as the land dries sooner after a heavy rain. My farm is decidedly cleaner and in a better state than when I commenced steam cultivation. The apparatus I should value at three-fourths of the original cost.

30. ——, near Blisworth.—Farm: arable, 504 acres. Pasture, 56 acres. Soil: loamy clay, subsoil blue clay and chalk stones. Cropping: Wheat, Beans, Wheat, seeds, Wheat, Tares, Wheat, Mangel or Turnips, part Wheat and Oats. Number of horses formerly employed, 15; employed now 12. Number of oxen formerly employed, 16; employed now, 8. I having only hired the engine and tackle cannot reply to many of your questions, the rope being nearly worn out when I had it, necessitating a new one. The general depth has been from 7 to 9 inches. The land runs to Twitch very much; I have known it in the Turnips grow above a yard long, and I have now in my office Twitch 5 feet long dragged out of the fallow by Mr. Smith's grubber. I much prefer grubbing to ploughing, although there may be circumstances in which ploughing is necessary. The opinion I have formed of the advantages of grubbing over ploughing are the destruction of Twitch, the comminuting and mixing of the soil rendering it more productive, and with steam the performance of the work at the proper time, which can scarcely be over estimated on stiff soils.

31. Mr. J. C. Robinson, Stevington, Bedford.—Farm: arable, 370 acres; pasture, 180 acres. Soil: strong clay generally. Cropping: 8-field course, viz., 1st, Roots; 2d, Barley; 3d, Red Clover; 4th, Wheat; 5th, Tares or seeds for sheep feed; 6th, Wheat or Barley; 7th, Beans; 8th, Wheat or Barley. Horses formerly employed, 20; now, 12. Apparatus bought Oct. 1859; cost, 250*l*., and engine, 255*l*. Rope originally bought, 1400 yards; bought since, 800 yards in August 1861, and 800 yards in May 1862. Repairs since purchase, say 15*l*. for snatch blocks, and the same for engine. Horse-power of engine, 8. Daily Wages: 13*s*. 4*d*.—5 men and a boy; driver, 3*s*. a day; other men, 2*s*. 2*d*. each; boy, 1*s*., beer included. Water-cart, horse and boy, say 3*s*. 6*d*. Coal, 5 to 8 cwt., according to work, at 17*s*. per ton, with carriage home to fields. I think since I have used the steam cultivator, about half of the work on the farm has been done by horses and half by steam. 1. General depth, 5 to 8 inches. 2. Tillage; I consider the air has freer access to the soil, as it lies lighter than when trodden. 3. Effect on productiveness of farm; my land before steam cultivation lay in high back lands, but I have almost got it flat now; the last three years it has been in a state of transition from one to the other, so I consider the principal effect has to be realised. But my root-crops have been better, and the soil now after the two or three years' steam cultivation will not offer that resistance it has done. 4. Engine &c.; unable to state its value, but it is not in a bad state of repair.

32. Mr. Joseph Topham, Great Stoughton.—Farm: arable, 500 acres; pasture, 180 acres. Soil: clay. Cropping, 6-course shift. Horses formerly employed, 18; now, 10. Apparatus bought July 1862, cost 234*l*. No alterations or repairs since purchase. Engine, 12-horse power. Grubbed, 228 acres in 1862; at 2*s*. per acre for wages; 1*s*. for fuel, and 1*d*. for oil in 28 days. In the autumn of 1858, Mr. G. Armstrong of Graffham and myself, purchased of Mr. Smith of Woolston, a set of his tackle, believing that to be best adapted for clay land. In 1862 we dissolved partnership, and both have in every way answered our expectations. The above is a correct account of the work done with the set I purchased in the autumn of 1862.

33. Mr. T. W. Dring, Lutton Marsh, Long Sutton, Lincolnshire.—Horses formerly employed, 13; now, 12, but less to do. Apparatus bought July, 1859; cost, 200*l*. 1*s*. 6*d*. Rope originally bought, 1400 yards; none bought since. No alterations, but trifling repairs since purchase. Engine, 10-horse power. Grubbed 170 acres in 1859, 140 in 1860, 150 in 1861, and 110 or thereabouts in 1862, at 3*s*. 6*d*. per acre for wages; 1 cwt. per acre of coal. Average work 7 acres per day. Depth of work done from 8 to 14 inches, but the latter depth only when crossed. I consider it a valuable implement on a farm, not so much to reduce the number of horses, but the value is in doing an extra quantity of work when it is required—that is in autumn and spring.

34. ——, Kimbolton Park Farm.—I can give but very imperfect answers to your questions, for the following reasons, viz., That when we purchased our cultivator four years ago the engine of "7-horse" power had been in use for seven years, and consequently was not likely to show so good a result as a new engine of greater power, particularly when our object was to cultivate to a greater depth than we had been previously ploughing. We therefore were obliged to put on a 3 feet driving pulley to gain power, which you are aware was at the expense of speed. Also our fields being generally small and most of them containing many trees, our average quantity of work is small compared with others who have greater advantages. As to results, I think we can equal if not surpass many, as previously to using the steam cultivator the quality of our corn was generally 2*s*. per quarter below the average (of the neighbourhood), and we could not get a plant of Clover at all. During the last two years we have not only grown splendid crops of Clover, but the quality of our corn has advanced 3*s*. per quarter, with an increase of from 4 to 8 bushels per acre; and I have no doubt will continue to increase. Our working expenses per day are as follows, viz.:—2 men, at 2*s*. 2*d*. per day, 4*s*. 4*d*.; 3 men, at 2*s*., 6*s*.; 2 porter boys at 8*d*., 1*s*. 4*d*.; 1 lad with water cart, 1*s*.; 1 horse, 4*s*.; 8 cwt. of coals, at 1*s*. 1½*d*., 9*s*.; oil, 1*s*.; total, 1*l*. 6*s*. 8*d*. Three acres and a half is our average quantity per day, and 7 acres the second time over. With regard to expense of repairs we cannot correctly ascertain, as we keep a smith on the estate, though I think it less than the same work would cost done by horses. The rope has not cost us anything for repairs, nor have we had any of it new; and I think it will wear one or two years more without further repairs. You see that our farm is not the best adapted for steam cultivation, consisting as it does of about 200 acres arable, 250 pasture, 240 park; the arable consisting partly of strong clay and recently broken-up Grass land. Yet I am satisfied that it answers our purpose, as it not only enables us to do a great deal of work at the best time (particularly in the autumn), when we go to the depth of 8 inches, thus thoroughly exposing the soil to the frosts of winter. We also put it to our drill at a time when the land is too moist to bear the tread of horses, which is a great advantage on our heavy land. With respect to the number of horses, we cannot gain so great an advantage as on a large farm, where nothing is required for the horses to do but the cultivation of the farm. It would, however, require 4 extra horses to do our work, and even then the work could not be done in the same manner or at the same time as now. As to our course of cropping, the four-course was the system, but now we have adopted Mr. Smith's rotation, viz., to take a crop of Clover the 4th year, and thus make it the eight-course system, and by it we get a large quantity of manure, and I have no doubt that in a few years we shall be able to dispense with artificial manure, except in the shape of oilcake. The land will also increase in value.

THE BEDFORD CULTIVATOR.

[The following are additional replies to inquiries concerning the operation of Howard's Cultivator.]

7. Mr. John W. Pell, Stanion, Thrapstone.—Farm: arable, 541 acres; pasture, 170. Soil, principally strong land, some Turnip land, very little good eating off. Cropping, four-field. Horses formerly employed, 18; now, 14; it is in two farms 10 miles apart, or could do with less. Apparatus bought, May 9, 1862; cost, 200*l*. Rope originally bought, 1400 yards; bought since, 700; no alterations since purchase; repairs, 19*l*. Engine, 8 horse power. Daily wages: engine-man, 3*s*. per day; windlass-man, 2*s*. 6*d*.; ploughman, 2*s*. 6*d*.; 2 anchor-men at 2*s*., 4*s*.; 2 porter boys at 9*d*., 1*s*. 6*d*.; water-cart, 1*s*. 6*d*.; in all, 15*s*. I will refer you to Messrs. Howard's Catalogue of January, 1863; there you will have the best information I can give. I can only say I am perfectly satisfied with it. I have broken up 28 acres twice over the last seven days.

8. Mr. William Pike, Stevington, Bedford.—Farm: arable, 442 acres; pasture, 270 acres. Soil, clay. Cropping: 4-course. Horses formerly employed, 22: now, 13. Apparatus bought April, 1861; engine 10-horse power. Daily wages, 15*s*.; 5 men and 2 boys; engine man, 2*s*. 6*d*.; the others usual pay, with 6*d*. per acre in lieu of beer for the lot. Coal, 10 to 12 cwt. a day, at 20*s*. a ton. Grubbed 460 acres in 1858; 720 acres in 1859; 750 acres in 1860; 310 acres in 1861; 333 acres in 1862. The first three years I did some for my neighbours with Smith's tackle, which accounts for the extra number of acres, and greater part cultivated twice over.

9. Mr. John D. King, The Hall, Thorpe Abbotts, Scole.—Farm; arable, 455 acres; pasture, 70. Soil; heavy, mixed and light land in equal proportions. Cropping; four-course. Horses formerly employed, 18; now 14. Apparatus bought June 1862. Cost 206*l*. Rope originally bought, 1600 yards. None bought since. Engine; 12-horse, traction, by Burrell, of Thetford. Daily wages: 2 men, 3*s*. 6*d*.; 3 men 1*s*. 10*d*., 2 boys, 6*d*. Coals, 10 cwt. a day, at 18*s*. a ton. Since purchasing my apparatus I have cultivated 73 acres twice, and 31 acres once over, at a depth of 6 inches, leaving the land in a fine state for the winter. I am perfectly satisfied it will answer my purpose; we have had no breakage except a porter, from the boy not being accustomed to his work.

10. Mr. Wm. Bulstrode, Cookham Dean, Maidenhead.—Farm: arable, 300 acres; pasture, 60. Soil, partly very stiff clay, partly sharp gravel, partly loam on chalk subsoil. Cropping, mostly 5-course—1, roots; 2, spring Corn; 3, Clover, &c.; 4, Wheat; 5, spring Corn. Horses formerly employed, 13; now, 8. Apparatus bought May 18, 1861; cost 250*l*. N B. This includes 4 extra snatch-blocks, 4 extra anchors, 40 roller-porters, and 4 patent lever porters, and patent drag-harrows. Rope originally bought, 1760 yards; none bought since. No alterations since purchase. Repairs chiefly confined to porters and windlass pinions broken through inattention. Engine, 10-horse power, double cylinder. Daily wages: driver, 2*s* 6*d*.; windlass man, 3*s*.; ploughman, 3*s*.; 2 anchor men, at 2*s*. 6*d*., 5*s*.; 2 porter men, 5*s*.; total, 19*s*. 6*d*. Water-cart, 5*s*., including man. Coal, 10 cwt. a day, at 19*s*. a ton. Drag-harrowed on my farm, 1861, 0, 1862, 55; on neighbours' farms, 1861, 75; 1862, 81. Grubbed, on my farm, 1861, 220; 1862, 333; on neighbours' farms, 1861, 140; 1862, 243. The tillage has been thoroughly satisfactory, varying in depth from 6 to 10 inches. The engine and apparatus are in excellent condition, with the exception of the rope, which is much worn, but still capable of doing a large amount of work. The number of acres cultivated per day has averaged about 7.

11. Mr. Charles Street, Cople, Bedford.—Farm: arable, 260 acres; pasture, 100. Cropping, 4-course. Horses formerly employed, 15; now 10. Apparatus bought August 19, 1861, cost 485*l*. 15*s*.; rope originally bought, 1600 yards; none bought since. Repairs since purchase, 12*l*. Engine, 10-horse power. Daily wages: engineer, 2*s*. 10*d*.; windlassman, 2*s*. 8*d*.; three men, 2*s*. 2*d*.; two boys, 6*d*. each. Water-cart a day, 3*s*. Coal, 10 cwt. a day, at 17*s*. per ton. Grubbed 240 acres in 1861, 386 in 1862.

12. Mr. Thomas Nock, Sutton Maddock, Shiffnal.—Farm arable: 255 acres; pasture, 25. Soil: strong loam. Cropping, 4-course. Horses formerly employed, 10; now 8. Apparatus bought April 1862, cost 490*l*. 5*s*. Rope originally bought, 1400 yards; none bought since. No alteration or repairs since purchase, Engine, 10-horse power. Daily wages, 15*s*., 5 men and 3 boys: water cart, 5*s*.; coal, 8 cwt. a day, or 10*s*. a ton. Grubbing, 152 acres in 1862, 72, 80.

13. Mr. W. C. Morland, Lamberhurst, Hurst Green.—Farm: arable, 180 acres; pasture, 250. Soil: stiff. Cropping: 6-course. Horses formerly employed, 6; now, 6. They were never so lightly worked as they have been this winter, though I took 60 acres additional land in hand last Michaelmas. Apparatus bought, April, 1862; cost, 200*l*. Rope originally bought, 1400 yards; none bought since. Additions since purchase, 40*l*.; repairs very small. Engine, 8-horse single cylinder. Daily wages: engine-driver, 2*s*. 6*d*.; windlass-man, 2*s*. 6*d*.; 2 anchormen, 4*s*.; ploughman, 2*s*.; 3 boys, 3*s*.—14*s*. Water-cart not required. Coal, 6 to 8 cwt. a day, at 26*s*. a ton. Grubbing in 1862, 230 acres, in 88 days. The work has been done at depths varying from 9 to 14 inches, the greatest depth having been attained when the land was in the driest state. I am much pleased with the working of the tackle, which I find simple and easy to manage. I consider that it leaves the land in a greatly improved condition, but I have as yet had no crops that will enable me to speak of the results. I observe, however, that the land dries much sooner, and treads sounder after heavy rains. The wear on the tackle has been small.

CARROTS AND CABBAGE.

By Mr. C. Lawrence.

(Extracted from the Royal Agricultural Journal.)

How does it happen that these valuable foods for stock are so rarely met with on ordinary farms?

Is it that their feeding qualities, as compared with other roots in common cultivation, are imperfectly known?

Is it that the comparative produce of food per acre has been under-estimated? or

Is it from misapprehension as to to the comparative expense and trouble of raising them, which may be attributable to defective preparation and subsequent management?

I had contemplated an illustration of our second question by giving a table of analyses of Carrots, Cabbage, Mangolds, and Swedes, compiled from those of various chemists which have been published in our Journal, and other works of authority, under the several heads of "Nitrogenised organic substances capable of producing flesh;" "Substances fitted for the support of animal heat and the formation of fat;" "Inorganic matters, (ash)," &c.; but every year's experience teaches us that however valuable and useful may be the indications afforded by the chemical laboratory, there exist occult operations in the animal laboratory that produce results which tend to discourage too close a reliance on such analyses. Moreover, all these roots yield very various analyses at different stages of their growth and maturity, and no comparative analyses that had not been made of each kind in a perfect state of maturity can be depended on. There are some very valuable observations on the first question under our consideration in a pamphlet recently published by Dr. Voelcker, being a report by him in the "Journal of the Bath and West of England Society," of the result of investigations which he had been requested to make "on the scouring lands of central Somerset." Feeders of stock, who may be free from the pest of scouring land, may pass over this article as inapplicable to their individual cases; but I commend to the attention of all stockmasters an attentive perusal of at least the observations commencing at page 16 of the pamphlet.

We have hitherto placed it seems too much reliance on the amount of the nitrogen disclosed by analyses in the various roots and green crops; while Dr. Voelcker's recent investigations, reported in the paper referred to, tend to show that a large proportion of nitrogen in such crops is rather an indication of their immaturity than of their feeding value. The Doctor observes on this point:—

"Not many years ago a high per centage of nitrogen in hay, Turnips, Mangels, and other kinds of agricultural produce, was regarded as a proof of their superior nutritive value; but a thorough investigation, which I undertook on account of the frequent discrepancies in the calculated theoretic nutritive value of various articles of food, and the value assigned to them by practical men, has shown me that the higher proportion of nitrogen in one of two samples of hay, Turnips, Mangels, &c., by no means indicates a higher feeding value, but the very

reverse. I have been actively engaged for more than three years with an inquiry into the changes which roots undergo in their various stages of growth, and especially when they approach maturity."

I know that Dr. Voelcker's opinion is that the practical feeding value of different foods depends more on the relative amount of sugar than of nitrogenised matters. In his very instructive pamphlet "On the Chemistry of Food," he thus writes of Cabbage:—

"Indeed, no kind of green food cultivated on a large scale in the field contains so much nutritious matter as Cabbage. Being much more nutritious, weight for weight, than Turnips, and at the same time very succulent, Cabbages form a valuable food for milk cows. Cattle are very fond of Cabbage, and dairy cows fed on it and some hay produce much and rich milk, and the butter made from the latter is free from the disagreeable flavour which it always has when cows are fed upon Turnips. Cabbages, for this reason, are a valuable substitute for Turnips, and deserve to be more extensively cultivated in England than they are present."

Dr. Voelcker states, in a letter to me, that "one ton of dry matter of Carrots is worth more than a ton of the dry matter of Cabbages."

Having disposed of our first inquiry, the second, as to the comparative produce of food per acre, will receive various estimates in different parts of England. Every farm will, however, in the course of three or four crops, show what is its average acreable produce of Cabbages, Carrots, Mangels, and Turnips. Dr. Voelcker has observed, in reference to the farm attached to our Agricultural College, which my farm joins, "the calcareous soil in the neighbourhood of Cirencester, on the whole, is not favourable to the growth of these roots (Parsnips and Carrots), it being in most instances too stony and shallow." Yet I have grown 32 tons of the white Belgian Carrot, the roots weighed without the tops, and the tops weighed separately, amounted to 7 tons—about 35 tons of Mangels, exclusive of leaves, and 24 tons of Swedes per acre. These crops were on fields in which we could plough 7 or 8 inches without meeting any obstruction from stones. I have never weighed a crop of Cabbages; but, from having frequently weighed a given number of plants at maturity, I am able to estimate about an average yield per acre as 30 tons. On similar land, under the same treatment, the average yield of Swedes would be about 18 tons, and of Mangels about 22 tons. We have weighed many heads of Cabbages in a crop weighing 26 lbs. and upwards; and I have seen specimens grown in the neighbourhood which, I was informed, weighed 36 lbs.; but under the treatment I have described I estimate 14 or 15 lbs. each as an average weight throughout the crop.

Considering the comparative ease with which a Cabbage crop is kept clean, we do not consider the cost of the cultivation of it to exceed that of Mangels and Swedes. The cost of labour attending the Carrot crop, when raised, will considerably exceed that required in maturing those crops; but it must be borne in mind that the tops of the Carrots, when the roots are taken up, greatly exceed in weight and nutritive value the tops of Mangels or of Swedes at the season at which the latter are usually heaped or fed off on the ground.

(To be continued).

THE STEAM-PLOUGH TRIAL.

BEADLE AND OTHERS v. HOWARD AND OTHERS.

This, tried in February last, resulted in a verdict for Mr. Fowler. Since then Messrs. Howard obtained a rule to enter a verdict for them, on the ground of the insufficiency of Mr. Fowler's specification. This rule came on for argument last week at Westminster Hall. It was discharged. Messrs. Howard, however, appealing, the cause came to a Court of Error.

The Lord Chief-Justice said: The question which we have had to consider is, What is the construction of the specification of Fowler's patent, and has there been an infringement of Fisken's patent, and has there been an infringement of Fowler's patent? The rule was granted in respect of the insufficiency of the specification, and whether there was evidence of an infringement. The specification is to be read as if by a party conversant with the state of knowledge at the time when the patent was granted. As to Fisken's patent, it is in evidence in this case that the ingenuity of men had been applied a number of times in endeavouring to use steam power in the cultivation of land, that is, in ploughing, which is the main operation, but also in using many of the other agricultural implements that go in and out of the land, but more particularly so as to adapt steam power to the turning of the plough. The problem was to apply steam power usefully to ploughing, and with steam power it was out of the question to get the turn of the plough. Various devices had been made to use it; Campbell's was one approximation to it, but it did not go to the entire point, and such being the state of knowledge, Fisken's invention attained the useful end. It was necessary to have three or four ploughs in one frame, working by steam, to be profitable; but then the weight of lifting three ploughshares out of the ground and getting three other ploughshares into the ground was a considerable difficulty, and the useful end that was invented by Fisken was that the principle of equipoise could be applied in working the ploughs, or as Fisken in their imperfect invention put two lever frames, but still counterbalancing each other. The principle of equipoise was the end which had occurred to Fisken. Fisken's patent discloses the mode of acting, and it is certain that Mr. Howard has not adopted the screw and sector contained in Fisken's; but I am of opinion that the screw and sector was an entirely unsubstantial part of the invention. The great invention was the putting the two lever frames so acting in correspondence, that gravitation would help to bring one down and the other up. It is clear to my mind that that part of the invention is found embodied in Mr. Howard's machine. Mr. Howard is answerable for appropriating the balance principle with a combination of mechanical means, so exactly similar to that of Fisken that the difference is to my mind colourable only; it was in substance the same. Then has Mr. Howard infringed Fowler's invention? The specification of Fowler is to be read by a person conversant with the state of knowledge, as I have said, at the time when it was granted. It is, in Fowler's mind, an improvement upon Fisken, from whom he bought the patent, and it is clearly to be read as intending to specify an improvement on Fisken's. There being in the mind of a person who reads Fowler's specification a knowledge of what Fisken had done down to that time, Fisken's invention was cumbrous, because he had two lever frames, where one upon one fulcrum would be more operative; it was cumbrous because he had the apparatus of the screw and sector, and the slotted lever, with the necessity for the ploughman turning the winch to bring the ploughs the requisite length; the ploughman turning the winch, the screw and sector gave the 6 inches of additional elevation wanted for the resting ploughs to enable the mechanism to work. Then what is Fowler's invention? He says: "I get rid of the two sets of lever frames, and put both sets of ploughs upon a double frame, turning upon one fulcrum," and he greatly simplified the machine by that process, "and I bring the working ploughs into the ground, and lift the resting ploughs the 6 inches above the surface that is required for the working of the machine, and I do that by applying the traction to one side of the lever frame, which pulls down the ploughs that are to work," and every inch that one set of ploughs is pulled down by the traction of the machine must lift the resting ploughs the very same space; and if the working ploughs are to go down 6 inches, the traction applied, as Mr. Fowler applies it, would lift the resting ploughs the required 6 inches. That is the improvement which is to be gathered from Fowler's specification, and which he made. Now, has Mr. Howard infringed upon it? Now one of Fowler's improvements is, instead of two single frames, carrying two sets of ploughshares; he has got one lever frame, a double frame carrying two sets of ploughshares acting in correspondence with one another. Has Mr. Howard taken his ploughshares in one lever frame? He has not. He has taken two lever frames, but he has joined those two lever frames with a chain which goes over the centre of that machine, making these two lever frames, for the purposes of applying gravitation, and bringing one set of ploughshares down, and the other set of ploughshares up—making those two lever frames as rigid as if they were one lever frame constructed upon Fowler's principle. The chain makes them act precisely as Mr. Fowler's acts. It is not so simple probably, for Mr. Howard might have had hopes that the similarity would not be found so clear, because to the eye there is the most beautiful simplicity that there could be in any machine of this sort existing in Fowler's; but, to the eye, there is considerable complexity about Mr. Howard's machine, and he might have hoped that that apparent dissimilarity would induce those who had to judge between these parties to say "Mr. Howard's is entirely unlike Mr. Fowler's; the one is beautiful in its simplicity, and the other has a great deal of complexity; and it is a further step in the road of improvement where there has been no borrowing of the idea of the former inventor, but it is a road which I have cut out for myself." I think Mr. Howard cannot maintain that he has not really taken the principle of Mr. Fowler. All we have to decide is, has he taken substantially the mechanical means for which Mr. Fowler was entitled to take out a patent? I think that he has got really one frame for his two sets of ploughshares; colourably two, and by the chain made one. Then Mr. Fowler had another grand improvement—by applying the traction, so that the working ploughshares could get into the ground, the resting ploughshares could be lifted the 6 inches that was required out of the ground; he did that by applying the traction to the lever frame which brought them down, and brought them into the ground. Has Mr. Howard done the same? I answer again substantially, Yes, he has applied his traction, not to the moveable frame carrying the ploughshares, but to the fixed frame upon which the whole apparatus rests. But he has applied the traction in that way so as to produce the same useful end that Fowler had invented by the application of traction. It seems to me, therefore, that Mr. Howard has adapted Mr. Fowler's invention, taken it and made a colourable variation. I do not use such a word as that with reference to Mr. Howard; he stands remarkably high, I believe, among the makers of agricultural implements, and I hope and trust that it was from a spirit of improvement, and a belief that it was an improvement. But I have nothing on earth to do with any merits or demerits more than to judge in point of law between these parties; and it is clear to my mind that the principle and the mechanical means to be found in Fowler's are to be found, in substance, in Mr. Howard's, and therefore Mr. Howard has infringed.

Mr. Justice Willes, Mr. Justice Byles, and Mr. Justice Keating concurred. Rule discharged, and the verdict for Mr. Fowler confirmed.

Home Correspondence.

Moles.—It is true that it was I who first began the work, (not the talk), with my friend Mr. Wilkins. Now let me remind him that it was he who first began and still keeps on talking. This reference to "Talpa" renders him but little aid, for in that work the mole's mode of working is referred to by way of comparison to mechanical action, not for the purpose for which Mr. Wilkins tells us the mole was created—to "destroy grubs." His only other bit of evidence is that of two gentlemen farming nearly 2000 acres, who thank him for his articles on moles, they themselves being preservers of moles, consequently their estates are free of wire-worms. Now what argument is there in the evidence thus brought? Little or none. The reference to "Talpa" is beside Mr. Wilkins's question, "the destruction of grubs," and the two farmers who have encouraged the mole have not proved that had they have been mole killers their crops would have suffered. It is asserted "that neither of them has a wireworm on his estate." This I will not believe, for I know the little long-legged fly that lays the eggs that breeds them, and I also believe that their eggs are laid and hatched on every man's land. It is of no use telling us that "the Almighty created moles for good," for upon the same ground we might defend the rat, the mouse, and the louse, especially the latter, for without doubt it was "created for good" to punish the slothful, and if we may believe history the mole may be looked upon "as good" for a similar cause, that of a punishment for idleness; for not keeping him under by killing what we can of him. The great naturalist Buffon tells us that the destruction caused by the mole is sometimes very great, and that they increase in such numbers that he himself caught 1300 of them in three weeks; besides this we are told that in Holland in 1742 they were so numerous that the hopes of the agriculturists were in danger. In addition to this we are told that even in ancient times they were considered as pests—even a temple was erected in Ælia to the destroyer of them. Even Darwin, to whom I am referred, was a mole killer, or why does he give us so much about the best methods of catching them? *William Smith, Woolston, Bletchley Station, Bucks, May 5.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

At the Meeting of the Council and Members of the Society on Wednesday last, the Right Hon. Lord Berners in the Chair, Mr. Ruck, of Cricklade, delivered a Lecture on Steam Cultivation, of which the following is a report:—

Mr. Ruck began by saying that he particularly wished to guard himself against being considered as an advertising medium, or as in any way favouring one system of steam ploughing to the detriment of another. Thirty years ago he found Baxter saying that the injudicious agriculturist went blundering on, in some of his operations being perfectly right without knowing why, whilst in others he was egregiously wrong, yet not able to detect the cause of his error. This observation, he hoped, would bring the farmers of the present day to think upon and study the subject of steam culture. Science had done much for agriculture during the last 10 years. Superphosphate had been a wonderful thing on light lands, and he believed that steam power was destined to do as much as superphosphate. He himself lived on a farm that had been occupied by his father and grandfather for upwards of 70 years, and he used to work 56 oxen, 7 teams in the morning and 7 in the afternoon. At that time his opinion was that he could do the work with oxen free of cost. Now he was entirely dependent on the profits of farming, and there was no system of culture worth mentioning if the balance sheet did not show that it was a profitable one. He had had considerable experience in steam cultivation, having now growing upwards of 400 acres of Wheat, all planted after the steam plough with Fowler's tackle. This remark brought him to the question: What is the proper size of a farm upon which the tenant may apply the use of steam tackle? He had been in the habit of using a 14-horse set, and he should put down the quantity of arable land at 800 acres. But, after all, a tenant could not be expected to embark in steam ploughing unless he had a proper holding. It would not be fair to require him to make a great outlay, if he had only a yearly tenancy and the chance of being turned out of his occupation on a six months' notice to quit. His order to Mr. Fowler was given at the Chester meeting of this Society in 1859. He then sold his oxen, and continued the use of steam in 1860, 1861, 1862, up to the present time, and the whole of the cultivation of his land had been done by that means. That was, so far as ploughing and heavy dragging were concerned. By the use of steam the land was turned into such a state as to constitute what he should call good land. They must have a deep surface soil with a porous subsoil, so that the water would in no way do it an injury, nor the sun burn it up. This was done on all land which was under spade husbandry, and they would always find that the land greatly improved. Allotments, for instance, were a great deal better to look at, and they were better, than lands alongside of them which might have been subjected to the plough for years. With respect to drainage, he used Fowler's draining plough without pipes by horse-power in the year 1851, and the drains were good now, and the line of the drains could be seen in the growing Wheat at that moment being so much better and of a darker colour. This he attributed in a large measure to the

aëration of the soil. During the last season, he had used one of Fowler's steam draining ploughs on the Manor Farm, and it had worked very successfully. The mode in which they used it without pipes was this: they started the mole-plough at the bottom of the field in the main drain or ditch, and worked it up hill, so that no water lay in the drain at all, but the moment it got into the drain it ran into the outfall and was gone. He only put three pipes to the mouth of each drain. This was when they had open drains, which he considered preferable to close drains upon clay lands. He had found that clay lands drained by the draining plough had answered better than when spade husbandry had been employed, the land on each side being well shaken for at least a yard. It was not his intention to trouble the meeting with a long array of figures. He preferred confining his remarks entirely to one day's work; and if he gave them the cost of the work done in a day, he thought they would be able to arrive at a better conclusion than by giving a lot of figures; because different farms implied different land, different labourers, and different management altogether. Now the prime cost of Fowler's 14-horse set was, he believed, about 945*l*. But with regard to figures, he had no doubt most of the gentlemen present had seen the *Gardeners' Chronicle* of the 9th of this month, in which there was an elaborate statement of the cost of work, and the quantity of work done. His outlay was, for the engine-man, 3*s*. 4*d*. a day; ploughman, 3*s*. 4*d*.; 2 portermen, at 2*s*., 4*s*.; anchor-man, 2*s*.; a man to supply water and coals, 2*s*.; 1 horse, 2*s*. 4*d*.; oil, 1*s*.; and coals, 10*s*.; making altogether 28*s*. as the daily cost. To that he added for wear and tear 12*s*., which made the total cost 2*l*. per day.

Mr. Holland, M.P., asked what quantity of coal that 10*s*. covered?

Mr. Ruck: 12 cwt. With this power they would be enabled to plough an acre of land in one hour, or 8 acres per day. They would also have sufficient power to attach the drag, and thus do the work twice over in a place. That work of 8 acres in a day, would cost 5*s*. per acre. Scarifying they could do at the rate of 16 acres a day, with a drag attached. This would cost 2*s*. 6*d*. an acre. The first work he had mentioned with plough and drag, he should estimate to cost 15*s*. an acre if done with horse-power. The second work with scarifier and drag attached, if done with horse power he should put at 7*s*. 6*d*. an acre. The ploughing would be done 6 inches deep, and the scarifying 10 inches deep; and he considered one operation with steam to be equal to two by horse-power.

He would now make a remark about the rotation of crops, and he would recommend in all cases after deep culture a crop of Beans to follow; as he thought the Bean crop was the best to get the soil into proper condition after it had been turned up deep. With regard to the advantage of steam culture to the landlord, he was inclined to place it very high. He was of opinion that the value of land might be increased one-third by the use of steam; he took it that a 14-horse set would do as much work in a day as 30 horses. They could use it whenever the weather was fine, and it ate nothing when it was not at work. The steam horse never tired. They could get up with their work by making longer days; and perhaps it might be advisable to use two sets of men. The work done was far superior to any done by horse-power. The land after steam culture drained very much better. He knew the case of a piece of land which had been drained 14 years, and had lain quite wet under horse and oxen culture; but since it had been cultivated by steam he had never seen a drop of water on its surface, though no alteration had been made in the drains, which were now just what they were 14 years ago. The soil was a particularly tenacious clay of the Oxford kind; and this land they could drain without using pipes. He believed that all land would be greatly improved by means of the application of steam-power; but he particularly wished to draw their attention to its use on light lands, for it was upon the light lands of England that he considered there would be the quickest return, inasmuch as by one operation they would entirely change the nature of the soil. They prevented its burning or frying up, and a great quantity of land would by the use of steam be rendered capable of growing Beans, for which it was now altogether unsuitable. He might just mention that he put the cost of ploughing by steam with drag attached at 5*s*. an acre, the cost of scarifying with drag attached at 2*s*. 6*d*. an acre, and the cost of digging at 5*s*. an acre.

The cost of draining with a mole as large as a decanter, and a yard deep, with pipes, he put at 3*d*. per chain, or 10*s*. an acre; at 40 chains to the acre, and 1 lug (a perch or pole), 16½ feet apart. The land worked better and quicker after rain when steam-ploughed than when horse-ploughed. In fact he had been drilling on clay land in wet weather, when his neighbours could not get upon their gravel or brashy land. The great advantage of steam cultivation was that when the day's work was finished, and the fire was put out, there was no baiting and no harness to take off horses. The labourer made the most of his time. He had not to walk in the morning first to the stable and then to the field; but he went direct from his home to the field, and returned direct to his home as soon as the day's work was done. Owing to the superior cultivation by steam he found the soil was much improved by atmospheric influences, and if, as had been stated, the rain-fall was 26 inches, it would seldom do any damage to land that was under that system of culture. This they might have noticed in the case of allotment ground, for it was not often that allotment ground required draining, in consequence of its superior cultivation, the land by being deeply cultivated, retaining the moisture without injury. Again, he found that superphosphate would act much better upon strong lands after being cultivated by steam than after horse-power. This he attributed to its working down into a finer tilth. Superphosphate upon clay lands in a rough state would do no good, but it would accomplish wonders upon clay soils if worked into a proper tilth. Further, under steam culture they increased the size of the worms, and there was no better criterion with regard to the state of land when it was fit to grow a crop than the size of the worms. Where they had no worms they would have no corn; and it was rather strange that nitrate of soda killed the worms in a half an hour from the time it was sown. He did not know how to account for that, but with the great amount of science which the Royal Agricultural Society had at its command, he had no doubt it could be accounted for why where there were the largest worms, and the greatest quantity of them, there they would have the largest crop. Whilst referring to worms he would observe that no Grass land which was subject to worm-cast could be good.

And here he would remark that if they could do as much work per day by the steam power he had mentioned as with 30 horses, the prime cost for the power he should put as equal. Allowing, then, 30 horses with harness to cost 900*l*., and the implements they worked 100*l*., that made together 1000*l*.; whilst the prime cost of a 14-horse set cultivator was 945*l*. It was not only for that reason steam culture was coming into use. Another reason was that farmers now generally used threshing machines; and upon a rough calculation the outside cost for threshing 800 acres of land would be about 80*l*. a year, and on the same farm the steam cultivation would come to 800*l*. There was a greater margin then for saving where they had an outlay of 800*l*. than where they had one of only 80*l*. He looked upon farmers like a flock of sheep running through a gap. It was very difficult to get one to start; but once he did start, they all ran in a body. The plough, from its wedge-like form, would turn over a greater weight of soil with less cost than any implement that had yet been brought out; and the injury done to the land by the treading of horses was avoided. They went an extra depth. They broke the pan without bringing up the subsoil to the surface. The pace of the plough, too, was of very great importance. With the horse system, to plough for a show-field they must go extremely slow, so that the furrow was turned over without being broken; but with steam power, by driving the plough, say at the rate of 3½ miles an hour, it was thoroughly broken and the cultivation much forwarded. He was inclined to think that there was very little land in England that could not be cultivated by steam. If the land were in ridges he would recommend that it should be ploughed lengthwise, and not levelled too quickly. He had a neighbour in Gloucestershire, Mr. Reed, of Elkstone, who had an extremely hilly farm, some of which was as steep as the roof of a house, and having many large stones in it bad to cultivate; yet he had worked it with steam very successfully. The wear and tear of the steam apparatus would be principally on the clip drum, the anchor, the rope, and the porters; and compared with horses in harness, shoeing, farriery, &c., he considered the wear and tear of the one and of the other to be so nearly the same in amount that he could scarcely say which he was paying most for.

In addition to other advantages, the risk of the steam-engine was not so great as the risk with horses. Horses were subject to all sorts of illnesses. They were often attacked with influenza, and frequently in the busiest times of the year he had known one half his horses disabled and rendered unfit for work. Not so with the steam engine, which was always fitted for work. They could also turn the steam-engine to account by threshing, grinding, and doing other things on the farm with it during the winter, when their horses were living expensively and standing idle. Now he would by all manner of means recommend any gentleman who was inclined to embark in steam culture at the first onset to buy sufficient power; for no more manual labour was required when they had a 30-horse power engine than when they had only a 5 or 6-horse power engine. If they had a 14-horse power engine, and upon a rough calculation the power of four horses was consumed in the draft of the rope and friction, they would then have 10-horse power left with which to cultivate the land; but if they had only an 8-horse engine, and the power of four was consumed by the draft of the rope and friction, they had only a 4-horse power to cultivate the land. The question, then, in his opinion, resolved itself simply into one of 12 cwt. of coals *versus* the keep of 30 horses. They got their work done at the proper time. They had no ridge or furrow, and no water-furrow was required. Drilling could be done in the same direction in which the land was ploughed, and this was a matter of very great importance. He had seen one-third more of Wheat grown in the same field when it had been drilled the same way in which it was ploughed, then when it was drilled across the furrow. There was moreover a saving of seed; and they had no difficulty with the horse-hoe. He had been in the habit of having all his crops horse-hoed for years past. He used Smith's horse-hoe at the rate of 10 acres a day with one horse. Having no furrows he had no difficulty with the reaping machine; the one he used being Cuthbert's. Neither had he any difficulty with the mowing machine (Burgess & Key's), whilst the carting could of course be done much better. He had yet this further advantage; no sheep died from being on their backs in furrows. By the use of steam too, he believed that summer fallow would be entirely extinguished. Again, rolling would not be required any more than it was required under spade husbandry, and the increase of crops he placed at one quarter to the acre. The increase of stock also must be very great. In the autumn they ploughed their land and planted it with Vetches or Rye at one operation, which in the spring of the year they fed off before they came on with their root crops: consequently their flock of sheep would be greatly enlarged. Their root crop would be of much greater weight and of better quality, and the land in a much better state for the sheep to be on, being drier and more healthy for the animals than when it had been horse-ploughed. And as to malting Barley, whenever he had sold any he had always had the maltster sending to him again for more, finding that the steam-ploughed Barley was superior to the horse-ploughed for malting purposes. The crops of seeds they would find to be wonderfully better in consequence of the extra depth of cultivation. Clover that would hardly stand more than once in five or six years with horse culture, they would have no difficulty in growing every three or four years with steam. But the benefits accruing from steam culture did not end here. The improvement resulting to the labouring man was also very considerable. Extra wages encouraged emulation; a desire was awakened to rise in the rank; and there was more time given for educating the boys, who were not required to come into the field when of so tender an age. Here he should like to notice the mistaken notion which some persons entertained with regard to the length of rope. He found that the plough travelled a few seconds faster from the engine to the anchor, say 400 yards, than from the anchor to the plough. The extra power required (as tested by a dynamometer) to move the anchor was only half a horse-power as the rope was running around the anchor 66 feet, and moving the anchor only 1 foot forward. Consequently it acted at a greatly reduced multiplier. The time required to move the engine forward, and to turn the plough, was only 15 seconds, which was quicker than any pair of Scotch horses could turn. The process of travelling with the engine from field to field or along the road was extremely simple. He had never had any difficulty whatsoever; and he would as soon trust his men with taking an engine from field to field as he would trust them with a one-horse cart. One argument which had been urged against the use of steam was that if they did away with horses they would have none to do their harvesting with. Now, in the north, it was the custom, the moment they began harvest, to turn out half their horses, and use very few of them with carts; and if they made their ricks in the field they easily got over that difficulty. He himself had put eight horses on a fine harvest, and by making the ricks in the field they had been enough to cart the corn upon 800 acres. With respect to making the ricks on the ground in the field during the summer months, the mice did them much less damage than when they were placed on saddles.

He would strongly recommend any gentleman who determined upon adopting steam culture not to cultivate too deeply at first. The Boydell system of travelling over the land was altogether out of the question, because of the large amount of power consumed to propel the engine, horse-hoe, &c., and the damage which was done by pressing the land. He would advise them to have ample power, for he found that sometimes in the same field he came upon a piece of clay, and that then he required double the power to draw the engine which was necessary to go through gravel or stone brash. Hence the propriety of being prepared with sufficient power to drive through the whole. Double power was required also where Couch existed—a very good reason he thought why Couch should be eradicated. In conclusion, having mentioned Mr. Fowler's tackle, it was no more than justice to that gentleman to say that he considered he was deserving the very best thanks of the country for the skill and energy, as well as the large amount of capital, which he had brought to bear in carrying out steam cultivation to a successful issue. For his own part, he could not consent to return to the old system of culture on any consideration. In fact, he would as soon pay rent for a farm and use steam, as have a farm of his own for life under the old system. He looked forward with confidence to the period when steam would effectually cultivate, plant, and completely finish all the operations upon the land at one time; and that would entirely abolish summer fallow. Seeing was believing; and although his farm was not the land of Goshen nor yet the garden of Eden, if any gentleman in that room was inclined to embark in steam culture, and would like to see what

changes he had made in his occupation, he should be most happy to show them to him.

Mr. Dent, M.P., had recently seen Howard's cultivator in operation on a strong piece of clay land at Bedford. It was working 9 inches deep, going at a great pace, and turning and breaking up the clods in a wonderful manner. From what he saw there it struck him that to a great extent the steam cultivating system would take the place of the system of inversion, and the crops in the neighbourhood of Bedford seemed to prove that steam culture must largely increase the production of corn.

Mr. Frere, referring to what Mr. Ruck had stated respecting Clover, observed that, according to Liebig, Clover was a deep-feeding plant, and its failure was attributable to the exhaustion of the available under soil.

In answer to the Chairman, Mr. Ruck said that he employed 12 horses on his farm, and had sold the whole of his 56 oxen.

The discussion was continued by Col. Kingscote, M.P., Mr. Bradshaw (Chairman of the Central Farmers' Club), Mr. Barker, and Mr. Sidney.

Mr. Holland, M.P.—I beg to propose a vote of thanks to Mr. Ruck for his kindness in attending here to-day, and to express the sense of the meeting of the valuable practical information he has laid before us in reference to this important subject. Steam cultivation is, no doubt, still in its infancy, and as long as it remains in its infancy it cannot be expected that any very general rule can be laid down for its application to particular soils. We know this, that in common life, though a medical man is a well-educated man professionally, he never dreams of applying his professional skill until he has felt the patient's pulse. So, just in the same way, steam cultivation must not be applied to any particular field or farm until the person occupying it has ascertained what he actually wants. This once decided would settle the question as to smashing up or turning over the land. Now, as far as I am concerned, I cannot do without turning over the land, because my land is very heavy, with a high ridge and a furrow that must be brought down considerably before I can cultivate properly. To get all the advantages of climate and rainfall, the land ought to be comparatively flat, and it takes much time, a long series of years, and great patience before that can be accomplished, much care being required not to turn over too rapidly, or until the subsoil brought up to the surface has been thoroughly aërated and chemically changed. But the day may come when some one else after me will extend steam cultivation after I have made the land comparatively flat; then will arise the question whether he will not change, and seeing there is a large amount of soil aërated at a great depth, cease to turn over, and take to smashing or breaking through the soil. I am glad to hear Mr. Ruck state his views with regard to ploughing light lands. Upon the land at the College there is a large body of clay, but the adjoining land was originally stone brash, and no doubt it has more or less blended with its neighbour. All beyond that, however, is stone brash, and although we cannot go deep there, it is a great advantage to be able to take a large area with the machinery in the course of a day; an area so large that it would be impossible to do it without considerable expense by horse-power, but is easily and economically accomplished by means of steam cultivation. The changes which take place in the course of cultivation are curious. Although we are obliged in the first instance to supply ourselves with a large amount of steam power, say from 12 to 14-horse power, yet after we have gone over the heavy land two or three times, we find that we must work our engine with less power; but a power that will be more practical for operations on other parts of the farm. One of the objections, indeed, to employing the large 14-horse power engine in threshing and other operations in connection with the farm-yard is, that it consumes more coal, and uses more power than we need; for we do not want anything like that power, yet we consume fuel in proportion to it. After we have got our fields into deep cultivation therefore, a less powerful engine than we required at first will answer our purpose; and I, myself, am now working fields at a pressure of from 55 to 60 lbs. the square inch, where in the first instance I worked from 80 to 85 lbs. to the inch. I find there is great economy in the employment of steam; and if in the course of time an engine can be got that will do the threshing and other work in the farm-yard more economically, be generally applicable, in short, to farming purposes, and at the same time less expensive for cultivating the land, the gain will be very great. With respect to the company mentioned by Mr. Ruck, I expect much good to result from its formation; because it is the want of money that has hitherto prevented steam power from being generally applied by tenant farmers to the land. However, now that Mr. Ruck has led the way, and as he says it is the habit of farmers to follow one another like sheep through a gap, I don't think we can have a better bell-wether than my friend. I feel certain we are progressing in the right direction, and in future I anticipate seeing steam culture making unprecedentedly rapid strides. I will only add, in repeating my thanks to Mr. Ruck for his able lecture, that the Royal Agricultural Society is moving in a right direction when such a question as this is introduced by a tenant farmer, and followed by a discussion in which other tenant farmers have borne a part; and I hope and believe that the lecture and discussion, when circulated throughout the country by means of the agricultural press, will serve to enlighten the farming community upon the subject, and be productive of widely extended good.

The motion of thanks was seconded by Col. Kingscote, carried unanimously, and briefly acknowledged by Mr. Ruck.

The meeting then separated.

Foreign Correspondence.

Uruguay: *Estancia del Guayavo*, Feb. 21, 1863.—On Monday, the 2d inst., I signed my contract to the satisfaction of all concerned. I am to have 1500 sheep, including 10 per cent. wethers; a homestead, with two rooms; a little out-house for a kitchen, a cattle pen, two horses, and two or three milch cows, to be returned in good condition by me, at end of agreement, viz., 31st December, 1865. Beef, half a bullock for consumption of homestead, for which I shall twice a week have to ride, almost a league, before sunrise. Rams for my flock will also be supplied at the proper season, free of cost. All expenses connected with shearing, washing, curing, &c., I have to pay. In remuneration for my services I am to have one-third of the increase and one-third of the wool. I don't expect to be much in pocket for at least some time to come, but I shall have, I hope, some 800 sheep of my own at the end of the term (three years). But time will show. Such is the sum and substance of my agreement.

The same evening (2d inst.) George and myself, together with a young fellow, late an officer on board one of the Royal Mail Steam Packet Company's boats, whom I shall designate as "Chip," left Buenos Ayres for Monte Video, where we arrived on Tuesday afternoon.

On arriving at Monte Video I went direct to the house of —— & Co., where I found Mr. James —— We had a welcome reception, and it was decided our baggage should leave for Guayavo next day in a bullock cart belonging to the Estancia, he had kept back expressly, which was very good of him, and we were to leave by the diligencia on the following Sunday (8th).

On Sunday morning, at half-past 4, A.M., Geo. Chip and I were inside the diligencia, ready to start. The conveyance was rather heavy, drawn by seven horses, and crammed with people, eight inside and four outside. We went on at a very good rate, and glad and happy I felt when I found we were among fine old hills and valleys once more. What a contrast to the treeless plains of Buenos Ayres! Our first halt for the night was at Florida, where, through the consideration and politeness of a fellow traveller, a Spaniard by birth, who had been through Peru and Chili, and acquainted with the town, showed us over an immensely fine orchard, where were trees, bending with fruit of every species — Apple trees, Pear trees, Peach, Quince, Walnut, Fig—and everything was so well kept that it was quite a treat. We went to bed early after a hearty dinner, and next morning before sunrise were again in the diligencia on the road to Durazno, which you can find in the map, I believe, some 25 leagues north of Monte Video. Knowing the road, our wise compañeros took our breakfast with them, ready, so that about 8 A.M., when we came to a halt, to change horses, we all dismounted, and soon found ourselves squatting in a circle, round a huge piece of beef, bread, and two or three bottles of wine, enjoying the meal wonderfully. In consequence of a small bet made between two passengers as to the hour of arrival at Durazno, and a promise on the part of the passenger, who wished to get in early, to the driver, that, if he did win, he, (the driver) should have the money, we arrived in splendid time, and coachee became the recipient of the wager. The landlord of the hotel where we stayed is the biggest man I have ever seen. I forget his weight, but it is enormous—I must again inquire and let you know. He holds the Englishman up as as a little god—nothing can be done too quickly for his English visitors, no one served before—the best of wine, &c., that he has; but don't he make Johnny pay for it all! And he owns to it too, for on one occasion, on being called to account for his immense charge, he quietly said, "Well, if it weren't for the Englishmen who come I could never live, as the natives pay me nothing." So what can a body do? He does everything to please you, and at the same time stands in bodily dread (literally) of them. After sunset we all sat in the open court, under an immense Vine, to dinner. It seemed a kind of table d'hôte, for natives (three or four) and two resident Englishmen also sat down with us; and a jolly meal we made, winding up the evening with a game or two at billiards, a smoke, and then to bed.

All the next day, Tuesday (10th), we stopped there, as the peon forgot to bring our horses in time in the morning. At breakfast, about 11 A.M., while sitting under the Vine, all of a sudden a band struck up some lively music, much to our pleasure—this band had come voluntarily to give us a welcome, and in the midst of the band playing, some of the waiters let off fireworks hard by. What a surprise, eh? This may show you how our countrymen are treated. Next morning (11th) we left Durazno for the Guayavo. We had a fine string of 15 horses, and being, with the peon, five in number, we had three each for the march—about 18 leagues. The Estancia is to the north-east of Durazno, but when I get a definite point of its position you shall have it. We crossed the rivers Yei, Carpentaria, and Guayavo, and five minutes ride above the latter put us down at this farm house, about half-past 7 P.M., just in time for a hearty dinner.

The whole establishment here consists of two separate branches, one called the Guayavo, the sheep establishment; and the other, San Jorge, the cattle establishment: in this latter there are no sheep whatever.

There is a general manager, who lives at San Jorge (a Mr. —— but at present there is no settled manager here (Guayavo), although there are two young Englishmen, one, I think, on probation, and the other is the bookkeeper, also having sheep of his own here, hiring a man to mind them. I have not got my sheep yet, but expect them next week.

We have therefore passed the time since we have been here at the farm house. It is a lovely country, and we spent the time first-rate. Every evening we go to the river (Guayavo) for a swim, which is in some parts extremely deep. I have been employing my time a little in the carpentering way, and have made myself a nice little strong stool, two sets of pegs, and a shelf for the chinaware. George has made three bookshelves. We also do a little at shooting and fishing.

Farm Memoranda.

Northumberland Farm: *Report for April.*—A month fraught with most interesting farm operations has just drawn to a close. The whole of April has been most favourable for the various processes of cultivation; a drying and cold north-west wind, which increased to a hurricane on the 29th, being the only drawback in checking the growth of Grass and spring corn. As a rule, spring corn has come away admirably on drilled land, though there are some complaints on broad-casted land, owing to the irregularity of the depth at which the seed is deposited. The Oats have been all rolled since they were a braird—a plan which we find to answer much better on strong land than rolling immediately after drilling. Barley was drilled during the second week of April at the rate of 2 bushels per acre, and 9 inches apart; the Grass seeds were harrowed in with it, and then all rolled down together, and it has since come away very regularly. Wheat has been horse-hoed—the Grass seeds being previously sown—since which it has grown apace and now entirely covers the ground, whilst its general appearance augurs well for a good harvest. Grass has been somewhat checked in growth by the above-mentioned dry winds, still it has a very thick bottom, and as a rule cattle will be turned out on full bite.

Horse Labour.—The chief employment of this branch of labour has been in broadsharing, grubbing, harrowing, rolling, and otherwise preparing the fallow land for Potatoes, Mangels, Turnips, &c.; horse-hoeing Wheat and Beans, carting manure to Potatoes, rolling Wheat, Oats, and Barley; drilling Barley and Grass seeds, and such like. For preparing Turnip land in the spring, the writer from several years' experience is now convinced that the broadshare stands unequalled; having the cutting action of the plough it mutilates the land in a similar manner without turning it over to be baked, parched, and thus robbed of its moisture, which is of such importance in brairding the seed. The grubber and harrow following it soon reduce the land to the finest mould, and readily bring to the top any Couch that may be below.

Hand Labour.—Our hands have been chiefly occupied in gathering Couch, spreading manure, planting Potatoes, the ordinary barn work, turning manure heaps, repairing hedges, in addition to the men whose labour is necessarily represented in connection with horse labour, as drilling, hoeing, &c.

Stock.—A portion of a lot of fat Irish bullocks, purchased during last autumn, have been disposed of, as our Swedes began to disappear more rapidly than desirable where justice had to be done to the whole herd. Store stock have been keeping their condition on a small quantity of Turnips, straw, and a little hay, but will have to be turned out to Grass early in May. A lot of fresh heifers have been purchased at Penrith Fair, which are likely to go off fat during July and August. The sheep stock is now distributed all over the farm, according to the requirements of their respective ages, and the end for which they are intended. The ewes have finished lambing, and with the exception of a slight loss among the ewes, we have not to report an average mortality among lambs. The ram and wether hoggets have been washed and shorn, and in the course of a few weeks the latter will go to to market. The process of washing and shearing the rest of the flock will follow about the middle of May. *J. W.*

Calendar of Operations.

MAY.

Berwickshire Merse Farm, *May 4.*—It is not often that we have a spring so favourable to the general work of the farm. Grass came unusually early, to make up for the deficiency of the Turnip crop, and hoggs have made great improvement on the change of food. The closing days of the month, no doubt, were cold and wintry, threatening starvation; but May has brought its own weather, and changed the grey to green again. The hail showers were very severe for several days, and the young Oat blade was more cut up than we ever saw it before. These two months have been remarkably

windy, and the occasional showers were dried up "in less than no time." The rainfall amounted to about an inch in March, and 2 inches in April; and it was only once or twice the land was too wet for profitable working. We faced winter with our work a month behind; but now it is well forward, and we may begin the drilling of Swedes by the middle of the month. Before the cold days corn was generally healthy and vigorous, and we trust it will soon recover. Beans have to a large extent taken the place of Potatoes, which proved a bad speculation. Potatoes may be said to present the *beau ideal* of a bad crop, when you sell 3*l.* worth off an acre, and the buyer forgets to pay for what he gets. Our hoggs have consumed large quantities of Corn, and we begin to clip them for the market this week. Cattle are being finished off with with Linseed cake in addition to the Barley meal they have got all winter, and they seem likely to meet a good demand. Our lambing is just finished, having been six weeks in hand. We have a very large number (10 per cent.) of barren ewes; yet, with numerous twins and few deaths, we expect to wean a very good crop. With dry weather and plenty of milk, the lambs are quite hearty. *J. T.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. SPEARING, Monkford, near Wallingford, Berks, during the week ending May 13, 1863.

Day of Week.	Day of Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Dry Bulb Thermometer.	Reading of Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0-6	Amount of Cloud 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday ..	7	30.12	54	52	W.	1	7	70	46	124*	41	..	55	52
Friday ..	8	30.32	56	51	E.	1	1	67	30	120	27	..	55	53
Saturday ..	9	30.38	56	51	S.E.	1	1	67	32	114	30	..	55	53
Sunday	10	30.11	54	50	N.	2	6	74	39	134	35	..	56	53
Monday	11	29.99	55	48	W.	2	3	65	32	118	27	..	55½	53
Tuesday ..	12	30.05	56	48	S.W.	3	8	60	47	120	45	0.11	55	53½
Wednesday	13	29.73	54	53	S.W.	3	7	60	46	96	43	0.21	56	53
		29.65	53	54		3	3							

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Notices to Correspondents.

CLOVER AND GRASS SEEDS: *Mr. Lovell.* The following is the result of the analyses of 10 samples:—

	Copy of Label.	Weed Seeds in a Pint.	Remarks.
I.	1. White Clover Seed, 1863	20,800	Principally Plantain
II.	2. Do. do. 1863	12,800	Various, but little Plantain
III.	1. Trefoil seed, 1863 ..	Pure	But poor seed
IV.	2. Do. 1863 ..	960	Brighter sample
V.	1. Alsike Clover seed, 1863	30,720	An uneven impure seed
VI.	2. „ „ 1863	23,040	Brighter; weed principally a small Grass seed
VII.	1. Red Clover seed, 1863..	9,600	Of which 8,000 Plantain
VIII.	2. „ „ 1863..	4,160	Of which ,640 Plantain, the rest mostly Umbelliferæ
IX.	1. Rib Grass seed, 1863 ..	67,200	Principally Clover seed, probably got from dirty Clover
X.	2. „ „ 1863 ..	19,200	Probably got in like manner

Upon these we would make the following remarks:—1. The samples are meant to be of seed of the year 1862. 2. Our estimate is founded upon the samples sent, which were small. They are made up to pints for convenience. 3. As regards the Plantain or Rib Grass in the Clovers, their seeds have been estimated as weeds, for however some people may like Plantain, it is out of place in a pure sample of Clover seed. 4. In like manner in IX. and X., labelled "Rib Grass Seed," the Clovers have been estimated as weeds upon the principle that "a Tulip in a Potato garden is a weed;" though we confess that for the sake of fodder we should prefer it all to be Clover. *J. B.*

ERRATA: In the report of Fowler's Steam Plough, p. 442, under the head wages, cancel 19*l.* 4*s.* opposite No. 8 in the table, which relates to it. Under the heading of Howard's Cultivator, p. 444, for No. 1, Mr. Joseph Bayley, read No. 1, Joseph Bray, Esq.; and in No. 3, report from Mr. J. Henderson, of Sandwich, for two porters and water cart boy, "1*s.* per acre," in addition to their pay, read "1*d.* per acre."— In 27th line from bottom, col. *b*, p. 418, for "advocate" read "deprecate."

THE HYDROPULT,

EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "The machine is certainly the most compact and efficacious force pump of its size that we have ever seen."—*Daily Telegraph.*

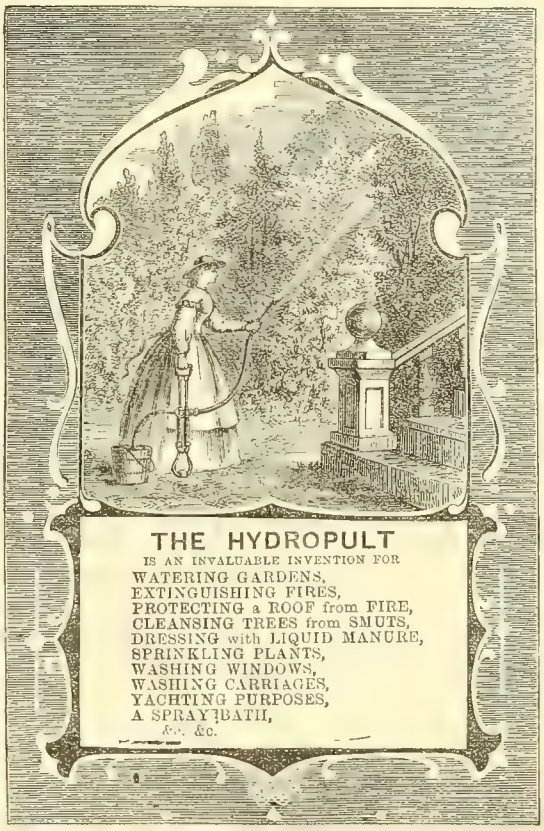
THE HYDROPULT. — "All Londoners and other town residents who care for their gardens and greenhouses should avail themselves of such engines." — *Gardeners' Chronicle and Agricultural Gazette.*

THE HYDROPULT. — "We strongly recommend it to our readers." —*Journal of Horticulture and Cottage Gardener.*

THE HYDROPULT. — "It will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water." — *Gardeners' Weekly Magazine.*

THE HYDROPULT. — "Country readers who order it on our recommendation, will not only not repent, but thank us for calling attention to a machine which, having once used, they will never care to be without."—*Floral World and Garden Guide.*

THE HYDROPULT. — "We can only say that no public establishment or private house should be without one of these useful machines."—*Commercial Daily List.*



EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "We are satisfied that all housekeepers ought to have one, and we are equally satisfied that if they once see it they will order it." — *Liverpool Daily Post.*

THE HYDROPULT. — "We commend it to the notice of the proprietors of warehouses and other buildings, public and private, in the metropolis and provinces.' — *Mechanics' Magazine.*

THE HYDROPULT. — "It is admirably adapted for sprinkling gardens, trees, graperies, washing windows, carriages, and for household purposes, its simplicity and portability being its strong recommendation." — *Illustrated News of the World.*

THE HYDROPULT. — "Nothing has yet been introduced for watering gardens equal to the Hydropult, as any one standing close to his house can water, in a few minutes, any ordinary suburban garden, thus saving much time, and performing the task in an easy, satisfactory manner." — *Builders' Reporter.*

THE HYDROPULT. — "Many of the most scientific men of the age are daily inspecting and testing its uses."— *Age We Live In.*

AN INVENTION FOR THROWING WATER BY HAND POWER

(SECURED by ROYAL LETTERS PATENT),

Price **TWO GUINEAS**

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Small Jet. Weighs but 8 lbs.

Recommended as an efficient and useful Fire Engine by the principal Fire Insurance Companies of Great Britain.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

THOMAS RIVERS, Esq., the eminent Florist, SHIRLEY HIBBARD, Esq., and other well-known gentlemen, recommend it as an invaluable Garden Implement.

EXTRACTS FROM TESTIMONIALS.

"Royal Insurance Office, Liverpool.

"My dear Sir,—I have much pleasure in expressing the high satisfaction, and indeed surprise, with which I witnessed the working of your Hydropult. There can be no doubt that it can be available in the earlier stages of fire in warehouses, manufactories, or private houses, in preventing large conflagrations, while its applicability to gardening and other purposes will be manifest to any one observing its operation.—I am, my dear Sir, yours truly, "PERCY M. DOVE, Manager."

"Chas. P. Button, Esq."

"The invention will prove extremely valuable for all the purposes to which such machines are applied.—SWINTON BOULT, Secretary, Liverpool and London Insurance Company."

"Its portability and facility of operation recommend it to the general notice of the public.—HENRY LOWE, Secretary, District Fire Company."

"In a blowing or mixing room it would be of especial service. — F. J. HALLOWS, Secretary, Caledonian Insurance Company."

"38, Portland Street, London, W.C.

"Mr. Charles P. Button. Sir, I am perfectly satisfied from the statement of Mr. Green, the conductor of our fire-escape at Notting Hill, that a large amount of valuable uninsured property was saved from destruction by the timely and efficient use of the Hydropult, which was fortunately on the adjoining premises during the fire which consumed the drapery establishment of Mr. Thomas, of 4, Coburg Place, Bayswater, on Friday evening last. Your little engine was used most effectually in keeping the roof of the adjoining house saturated with water, thereby preventing the spread of the flames, as the engines of the regular district fire brigade did not arrive on the spot until more than one half hour after the fire broke out.

"A fire, at its commencement, can readily be extinguished by means of this little annihilator, and infinite service rendered in staying the progress of the flames during the interval which must elapse before fire-engines can, under any circumstances, be brought into action.—Yours truly, T. SPENCER, Inspector of the Royal Society for the Protection of Life from Fire."

CAUTION: Important to the Public.—The extensive sale of the HYDROPULT has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting, as they are often placed under or near the Hydropult show card. The Proprietor therefore issues this caution, and respectfully intimates that parties wishing to purchase the Hydropult, should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, a Portable Fire Annihilator and Garden Engine; GRIFFITHS & BROWETT, Manufacturers, Birmingham; CHARLES P. BUTTON, General Agent (Vose's Patent)." Unless this label be attached, the machine is not the Hydropult.

THE HYDROPULT is MADE of BRASS and COPPER, weighs but 8 lbs., and WILL THROW EIGHT GALLONS of WATER PER MINUTE FIFTY FEET, WHEN WORKED by the POWER of ONE MAN.

Public and private buildings have been saved from destruction by its agency. T. SPENCER, Esq., Inspector of the Royal Society for Protection of Life from Fire, certifies to its efficiency in saving valuable property at Bayswater from destruction.

FIRE! FIRE! FIRE! THE HYDROPULT IS THE MOST EFFICIENT FIRE-ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.

It can be used for all purposes for which a hydrant or force pump is applicable, and in situations where other contrivances are useless.

CHARLES P. BUTTON, PROPRIETOR,

HYDROPULT WAREHOUSE, 27, LEADENHALL STREET, LONDON, E.C.

WEST END DEPOT, 309, REGENT STREET, W.

SHANKS' NEW PATENT LAWN MOWERS for 1863.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for use.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Do. by a Man and a Boy.*

Width of Cutter.		
No. 11.—16-inch Machine	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6 2 6	*Do. by a Boy.*

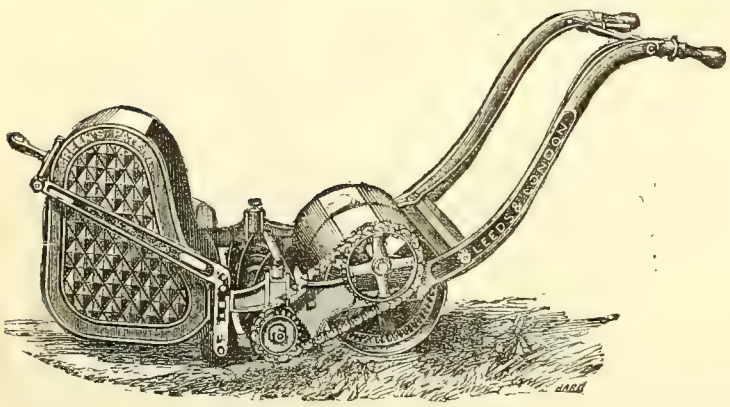
No. 16.—12-inch Machine for Pushing only, £5 5*s.*; easily worked by a Lady or a Boy.

*** *The Machines are warranted to give ample satisfaction, and if not approved of may be at once returned.*

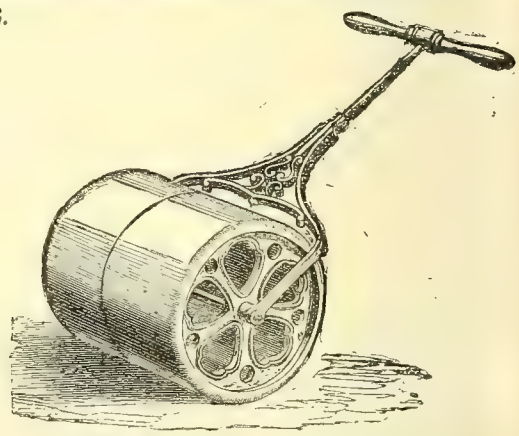
Machines are kept in Stock, from which Orders can be at once executed.

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GREEN'S LATEST IMPROVED PATENT
NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES
FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS,
PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS
DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

Upwards of 14,000 of the above Machines have been sold since the year 1856, and thousands of letters have been received by the Patentees testifying to their efficiency. They do not deem it necessary to publish more than the two following :—

TESTIMONIALS.

"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"DEAR SIR,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, GEO. EYLES."

"Royal Gardens, Windsor, March 27, 1863.

"DEAR SIR,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

"To Mr. Green." "Yours very truly, THOMAS INGRAM."

PRICES.

To Cut 10 inches	£3 10 0	Suitable for a Lady.
„ 12 „	5 0	Suitable for One Person. If with internal gear, 10*s.* extra.
„ 14 „	5 10 0	Do. Do. Do. Do. 10*s.* extra.
„ 16 „	6 10 0	Suitable for One Man or Two Boys.

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

		If with Patent Delivery Box.	
To Cut 18 inches ...	£7 10 0	Suitable for One Man and Boy	£8 15 0
„ 20 „	8 0 0	Do. Do. ...	9 5 0
„ 22 „ ...	8 10 0	Suitable for Two Men	9 17 6
„ 24 „ ...	9 0 0	Do. Do. ...	10 7 6

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	... £12 10 0
„ 26 „	12 10 0	... 13 12 0
„ 30 „	16 14 0	... 18 0 0

Leather Boots for Donkey, 16*s.*; for Pony, 20*s.*

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	... £21 10 0
„ 36 „	23 0 0	... 24 16 0
„ 42 „	26 0 0	... 28 2 0
„ 48 „	29 0 0	... 31 8 0

Leather Boots for Horse, per set, 1*l.* 4*s.*

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5*s.* | Diameter 16 inches, length 17 inches, price £2 10*s.* | Diameter 24 inches, length 26 inches, price £4 5*s.*
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

GARDEN ENGINES, SYRINGES, WATER BARROWS, and PUMPS. CAST IRON FOUNTAINS, VASES, GARDEN SEATS, and GARDEN CHAIRS. IRON HURDLES, WIRE FENCING, WIRE NETTING, &c. Also every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS.
Illustrated Price Lists free.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

DEANE & COMPANY'S
HORTICULTURAL TOOLS.



DEANE'S MOWING MACHINES, with Patented Improvements, 4*l.* 12*s.*, 6*l.* 10*s.*, 7*l.*, 8*l.*
GARDEN ENGINES, Galvanised Iron. Prices 55*s.*, 65*s.*, 78*s.*, 90*s.*, 100*s.*, 110*s.*
GARDEN ENGINES, Wood, 90*s.*, 110*s.*, 138*s.*
FLOWER STANDS, 4*s.* 6*d.* each.
CAST-IRON ORNAMENTAL FLOWER STANDS to hold Seven Vases, 27*s.*
GREEN'S PATENT MOWING MACHINES.
GREENHOUSE SYRINGES, 8*s.*, 10*s.*, 18*s.* 6*d.*
GARDEN ROLLERS, 1*l.* 14*s.* 6*d.*, 2*l.*, 2*l.* 12*s.*, 3*l.* 3*s.*, 3*l.* 18*s.*, 4*l.* 13*s.*, 5*l.* 12*s.*, 7*l.* 10*s.*
GARDEN STOOLS, 4*s.* 6*d.*
GARDEN SEATS, from 25*s.*
BOYD'S SELF-ADJUSTING SCYTHE, 10*s.* 6*d.*
WIRE WORK, 18 in., 4*d.* per yard run.

Every Implement for Garden use on the lowest terms.

DEANE'S NEW ILLUSTRATED HORTICULTURAL LIST POST FREE ON APPLICATION.

DEANE'S, Opening to the MONUMENT, LONDON BRIDGE, E.C.

WHY NOT PRESERVE YOUR HAY?—Benjamin Edgington, Rick-cloth, Marquee, and Tent Manufacturer, 2, Duke Street, London Bridge, S.E. A quantity of Second-hand Marquees, Tents, and Rick-cloths, at greatly reduced prices. An Illustrated Catalogue sent free per post.
Address, Benjamin Edgington, 2, Duke Street, Southwark, S.E. No other establishment.

To Noblemen, Gardeners, Farmers, and Others.
AMIES and BARFORD beg to call particular attention to their NEW PATENT WATER BALLASTING FIELD and GARDEN ROLLERS, which have the following advantages over all others. They are made entirely of Wrought Iron, are made water-tight, and are loaded with water to obtain increased weight at pleasure, which is moreover employed with the greatest possible per centage of crushing power directly upon the surface of the soil. The weight of a Garden Roller can thus be doubled in a few minutes, and a one, two, or three Horse Land Roller is secured, as desired, in one implement.
Great numbers have already been sold, and are giving the greatest satisfaction, and whether for Gardens, Lawns, Cricket Grounds, Road-making, or for farmers' use, they will be found superior to all others.
For Illustrated Price Lists apply to Messrs. Amies & Barford, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

BEFORE ORDERING LAWN MOWERS, see the "Sun and Planet Motion," with Patent Compound Wheel, in Morton's NEW PATENT LAWN MOWING MACHINE for 1863, allowed to be the best of the season.
Prices and particulars of Horse, Pony, or Donkey, and Hand Machines, to be had from Grimmond, Laird, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath.
*** Agents wanted in every Town. Apply as above.

SHANKS' NEW PATENT LAWN MOWERS for 1863.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for Use.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		
No. 1.—48-inch Machine	£28 0 0	*Drawn by a Horse.*
No. 2.—42-inch Machine	26 0 0	
No. 3.—36-inch Machine	22 0 0	
No. 4.—30-inch Machine	19 0 0	*Drawn by a Horse or strong Pony.*

Patent Delivering Apparatus for Nos. 1 and 2 Machines, 40*s.*; for Nos. 3 and 4 Machines, 30*s.*

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		
No. 5.—30-inch Machine	£15 15 0	*Drawn by a Pony.*
No. 6.—28-inch Machine	14 10 0	
No. 7.—25-inch Machine	12 10 0	*Drawn by a Donkey.*

Patent Delivering Apparatus for Nos. 5 and 6 Machines, 30*s.*; for No. 7 Machine, 25*s.*

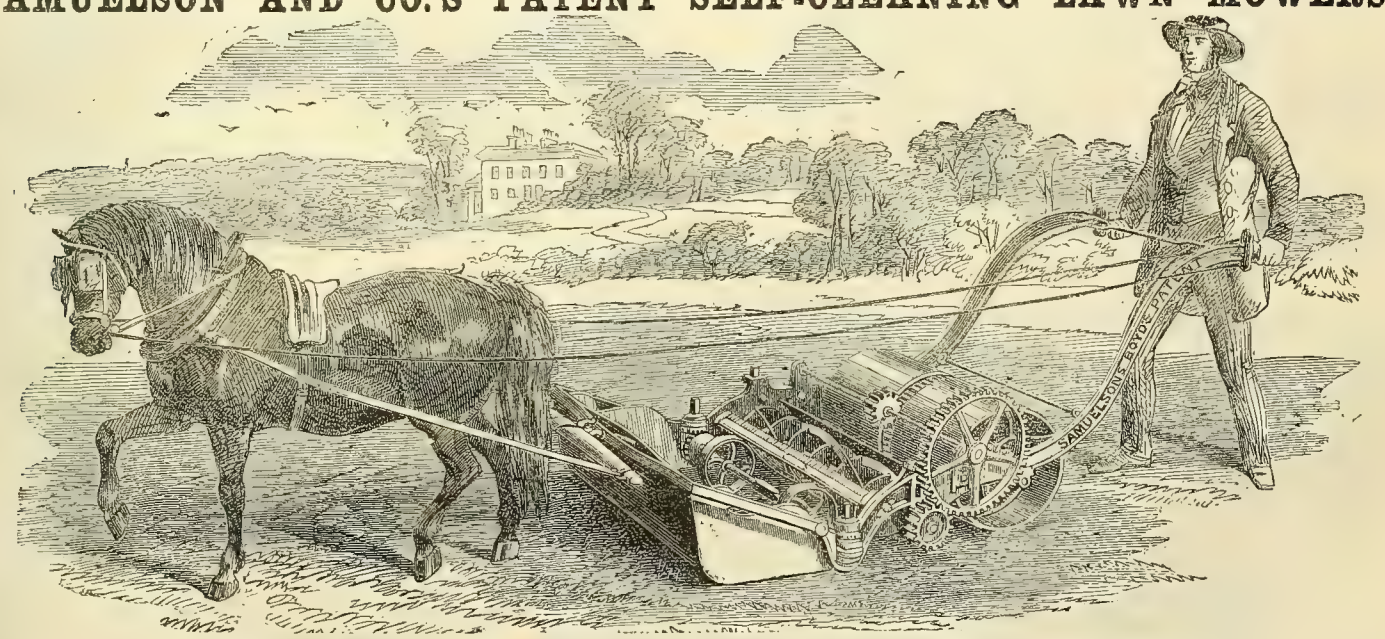
*** *The Machines are warranted to give ample satisfaction, and if not approved of may be at once returned.*

Machines are kept in Stock, from which Orders can be at once executed.

J. B. BROWN and CO., 18, CANNON STREET, CITY, LONDON, E.C.

THE GEARING OF SAMUELSON and CO.'S LAWN MOWING MACHINES IS NOT LIABLE TO DERANGEMENT.

SAMUELSON AND CO.'S PATENT SELF-CLEANING LAWN MOWERS.



PRICES, including Packing Case, and Carriage paid to any Railway Station or Shipping Port in the United Kingdom:—

MANUAL POWER	12 inches cut, suitable for a Lady	£4 12 0	PONY POWER	22 inches cut	£8 15 0
	16 „ suitable for One Person	6 10 0		25 „	11 10 0
	19 „ suitable for One Man and Boy	7 0 0		30 „	14 14 0
	22 „ suitable for Two Men	8 0 0			

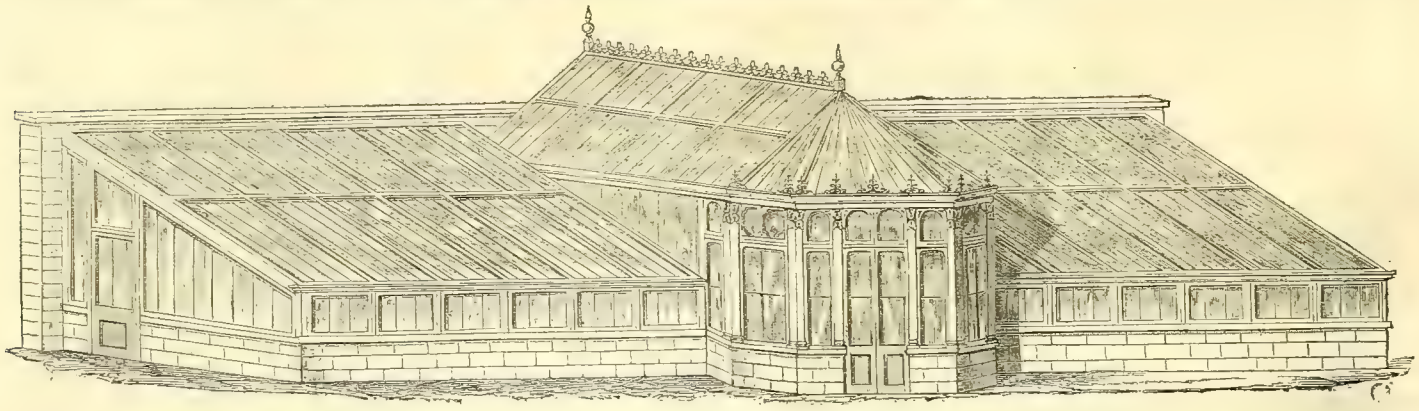
If with BOYD'S PATENT BRUSH, 15*s.* extra.

MESSRS. SAMUELSON and CO. are now supplying their 12-inch and 16-inch NEW PATTERN LAWN MOWERS, which they tested thoroughly last season. These Machines are handsome in appearance, lighter in draught, simpler and more durable than any Machine in the trade, and are sure to recommend themselves to the public.

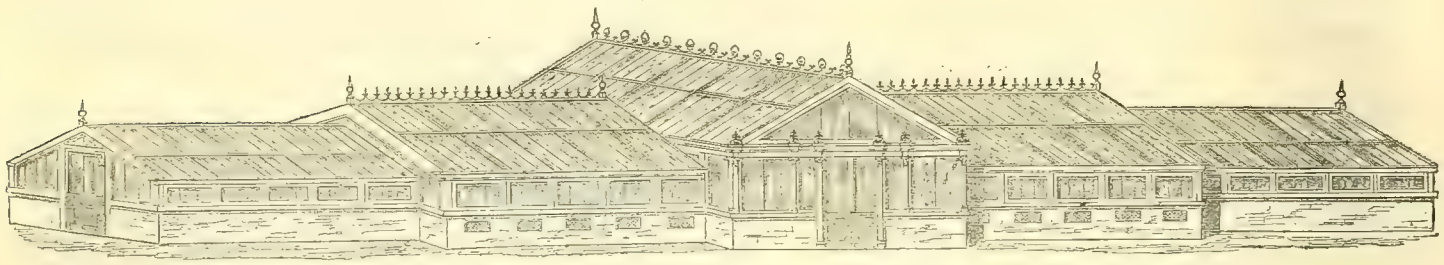
Prices as above.

All Orders direct or through Dealers will be executed according to priority of receipt. May be obtained at the Works, Banbury; or at Samuelson & Co.'s various Depôts; also of all Ironmongers and Seedsmen, and at

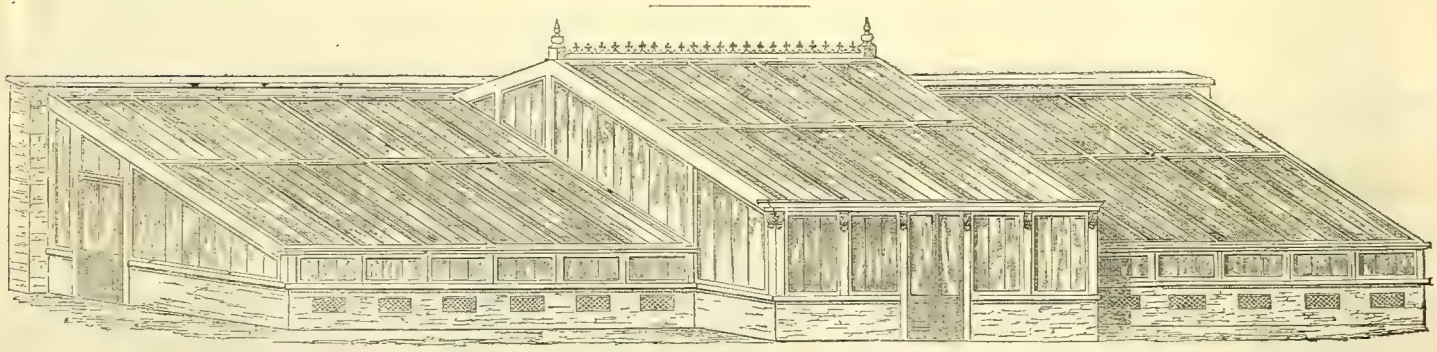
SAMUELSON and CO.'S WAREHOUSE, 76, CANNON STREET WEST, LONDON, E.C.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.

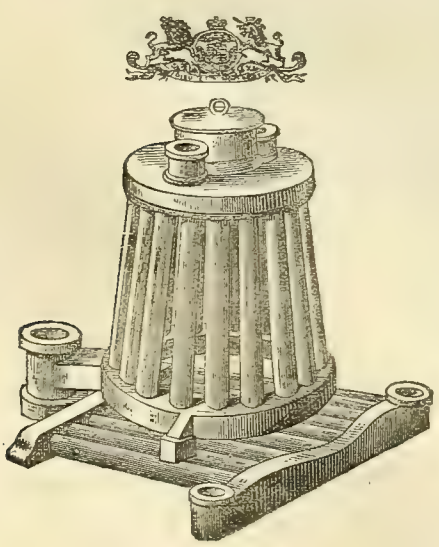


HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.

THE FOLLOWING IS THE REASON WHY

ORMSON'S ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become so universally adopted on account of their superior power, great safety, and economy.



ORMSON'S No. 1 BOILERS	are heating upwards of	250	feet of Pipe.	
ORMSON'S No. 2 BOILERS	„	„	600	„
ORMSON'S No. 3 BOILERS	„	„	1300	„
ORMSON'S No. 4 BOILERS	„	„	3500	„
ORMSON'S No. 5 BOILERS	„	„	7000	„

Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

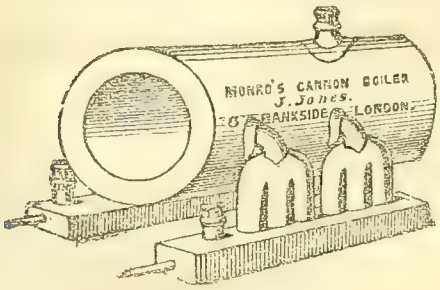
H. Ormson having a most complete Set of Steam-power Machinery, is in a position to execute Orders with the greatest despatch, and at considerably reduced prices.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, Horticultural Builder to Her Majesty,
AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF
HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

HEATING BY HOT WATER.



MONRO'S CANNON BOILER.

J. JONES,

HORTICULTURAL ENGINEER AND IRON MERCHANT,

SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

HEATING GREENHOUSES,

CONSERVATORIES,

FORCING PITS,

CHURCHES, CHAPELS, SCHOOLS,

HALLS,

BILLIARD ROOMS,

COACH HOUSES, HARNESS ROOMS, &c.,

OF THE BEST QUALITY, AND AT MODERATE CHARGES.

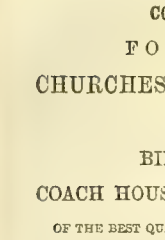
PLANS, ESTIMATES, and DESCRIPTIVE CATALOGUE

SENT POST FREE ON APPLICATION TO

J. JONES,

6, BANKSIDE, LONDON, S.E.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

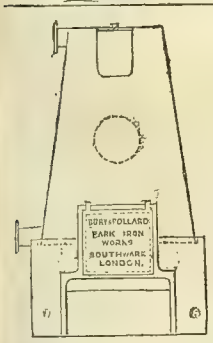


Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.



New Method of Heating by Hot Water.

THE IMPROVED

CONICAL BOILERS,

SOLELY MANUFACTURED BY

BURY AND POLLARD (Successors to JOHN R. PEILL, Late STEPHENSON & PEILL),

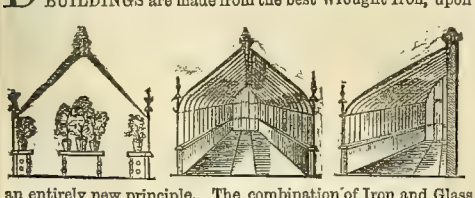
Have attained a celebrity far surpassing any other Boilers ever invented.

The annexed Sketch shows the improved arrangement, requiring

NO BRICKWORK SETTING.

All particulars on application to BURY & POLLARD, Park Iron Works, New Park Street, Southwark, S.

DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon

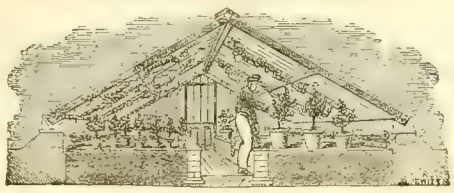


an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.

Hothouses for the Million.—AWARDED A PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, 1862.

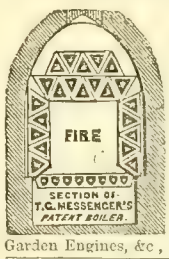


HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner, all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to SAMUEL HEREMAN, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1*s.*; post free, 1*s.* 1*d.*

T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.



T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES of the above, Glazing without Putty, Garden Engines, &c, sent upon application.

Under the Patronage of Her Majesty.

CLARK AND HOPE (late CLARK), HORTICULTURAL BUILDERS, COPPER, SASH, and HOT-WATER APPARATUS MANUFACTURERS, 55, Lionel Street, Birmingham.
Established A.D. 1818.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c

Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

HOT-WATER PIPES, at Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 50*s.* each. Valves from 11*s.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street Blackfriars Bridge, London, S.

GREENHOUSES and CONSERVATORIES HEATED without special fire by the KITCHEN RANGE. See best methods, "Catalogue of Modern Inventions," post free.

London: BROWN BROTHERS, 43, Cranbourn Street, W.C.

KERRY COWS, of the most Select Kind, FOR SALE, by
RICHARD G. CAMPION, Esq., Youghal, County Cork.

TO BE LET, with immediate possession, Kensington Nursery, Bath, Somerset. This very excellent and well situated GARDEN and NURSERY GROUND, with long range of Hot and Greenhouses, stocked with the choicest Vines, Forcing Pits, &c., situated on the London Road, with a Shop and Greenhouse facing the road, and a Cottage Residence.

For particulars, apply to Messrs. MORRIS & SON, Upholsterers, &c., 22, Milsom Street, Bath.

To Nurserymen and Gentlemen's Gardeners.

TO BE SOLD, the LEASE, STOCK, and GLASS of a SMALL NURSERY within four miles of Covent Garden, containing about one acre and a-half of Land, and 15,000 feet of Glass in good order, with every convenience for carrying on a large Trade. Has been successfully carried on by the present Proprietor for the last 17 years, who now is giving up business. Part of purchase-money could remain for a term agreed upon at 5 per cent. Among the Houses are four Vineries built and planted within the last seven years, and three of them are now in full bearing. Immediate Possession can be had for 1000*l.*

For further particulars apply to Messrs. PROTHEROE & MORRIS, American Nursery, Leytonstone, Essex, N.E.

Sales by Auction.

Tredegar Nursery, Bow.

MR. J. WILLMER begs to announce that the SALE Advertised to take place on TUESDAY NEXT, at the above Nursery, is WITHDRAWN.

Holloway.

MR. J. WILLMER begs to announce that he is instructed by the Executors of the late Mr. William Nayler, to SELL by AUCTION, without reserve, on the Premises, Brunswick Place, Alma Road, Junction Road, Upper Holloway, on THURSDAY, May 21, at 11 o'Clock, the whole of his COLLECTION of TULIPS; comprising most of the leading varieties, of the most celebrated growers.

Catalogues will be ready on May 11, and may be had on the Premises; at 37, Buckingham Street, Caledonian Road, Islington; and of the Auctioneer, Springfield Nursery, Sunbury.

SALE THIS DAY AT HALF-PAST 12 PRECISELY.

Bedding Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., THIS DAY (Saturday), at half past 12 o'Clock precisely, the fourth portion of the Stock of 250,000 choice BEDDING PLANTS, consisting of Geraniums, Calceolarias, Verbenas, Cupheas, Ageratums, Fuchsias, Salvias, &c.: also Roses in pots, from a well-known Nurseryman in the Midland Counties.

On view the Morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, May 19, at 12 o'clock precisely, a choice assortment of POULTRY and PIGEONS and CANARIES from the yards and lofts of well-known Breeders and Exhibitors, consisting of Cochins, Spanish, Bantams, Brahmas, Fantails, Jacobins, Canaries, &c.

On view the Morning of Sale, and Catalogues had.

Bedding-out Plants.

MR. J. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, May 23, at half-past 12 o'Clock precisely, a variety of BEDDING-OUT PLANTS, consisting of Geraniums, Calceolarias, Verbenas, Salvias, Ageratums, Pot Roses, &c., in lots suitable for private buyers.

On view the Morning of Sale, and Catalogues had.

Highly Important Sale of Stove and Greenhouse Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, May 26, at half-past 12 o'clock precisely, a Valuable Collection of Specimen and Half-specimen STOVE, GREENHOUSE, and ORNAMENTAL PLANTS, consisting of Ericas, Epacris, Acacias, Roellias, Myrtles, Coronillas, Clianthus, Clerodendrons, Pimeleas, Plumbagos, Polygalas, Olcifolias, Aphelexis, Pleromas, Leschenaultias, Gnideas, Rhododendrons, Croweas, Aotus, Dracophyllums, Lophospermums, Ceratopetalums, Vacciniums, Hibbertias, Chorozemas, Cytisus, Eugenias, Kalosanthus, Diosmas, Loniceras, Kennedyas, Jasminums, Physolobiums, Sollyas, Tecomas, Aristolochias, Passifloras, Rhynchosias, Rhynchospermum, Gardenias, Allamandas, Æschynanthus, Ardisias, Ixoras, Crotons, Marantas, Chiritas, Stephanotis, Cissus, Bignonias, Ficus, Justicias, Begonias, Euphorbiums, Caladiums, Cannas, Lilium giganteum, Rare Ferns, &c. All fine Plants, true to name, and in the best possible condition.

On view the Morning of Sale, and Catalogues had.

Important Sale of Valuable Tulips.

MESSRS. PROTHEROE AND MORRIS respectfully inform the cultivators of Tulips that they have received instructions from Mr. Thomas Quelch to SELL by AUCTION, without reserve, on the premises, Swiss Cottage, John Street, Albany Road, Old Kent Road, S.E., on MONDAY, May 18, at 2 o'clock, his best bed of TULIPS, containing some of the first gems in cultivation. Also some fine Seedling Breeders of the late Mr. Groom.

On view during the Bloom, and Catalogues had on the Premises, and of the Auctioneers, American Nurseries, Leytonstone, Essex, N.E.

Brighton.

20,000 Bedding and Other Plants.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. A. Mackenzie to SELL by AUCTION on the Premises, Bristol Nurseries, Kemp Town, Brighton, on THURSDAY, May 21, at 11 o'clock, about 20,000 GREENHOUSE and BEDDING PLANTS, including fine Show and Fancy Pelargoniums, Fuchsias, Verbenas, Petunias, Gazanias, Heliotropes, Salvias, Ageratums, Scarlet and Variegated Geraniums, &c.

May be viewed three days prior to the Sale. Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Greenhouse and Bedding Plants.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, May 22, at 12 o'Clock, a choice collection of GREENHOUSE PLANTS, consisting of Show and Fancy Pelargoniums, Ericas, Acacias, and a variety of other Plants in bloom, with a large Assortment of Scarlet and Variegated Geraniums, and a variety of Ornamental Plants for Bedding out.

On view the Morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Mile End Nursery.

10,000 BEDDING AND OTHER PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Mile End Nursery, Bow Road, E. (within five minutes' walk of the Bow Railway Station on the North London Line), on THURSDAY, May 28, at 12 o'Clock, about 10,000 GREENHOUSE and BEDDING PLANTS (presenting a rare opportunity to proprietors of Public Gardens, and to those gentlemen who appreciate the advantages of obtaining full grown healthy Plants, suitably adapted for Bedding out at once and for immediate effective purposes), including the usual miscellaneous assortment.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Babraham, near Cambridge.

EXTENSIVE AND MOST IMPORTANT SALE OF THE ENTIRE HERD OF FIRST-CLASS SHORT-HORNED CATTLE.

MESSRS. H. STRAFFORD AND J. CARTER JONAS, who are jointly concerned on this occasion, are honoured with instructions from the Executors of the late Mr. JONAS WEBB, to offer for SALE by AUCTION, without any reserve, on WEDNESDAY, June 24 NEXT, the entire remainder of the far-famed BABRAHAM HERD of First-class SHORTHORNS, consisting of between 60 and 70 head of Bulls, Cows, and Heifers, that are chiefly descended from the following celebrated Cows:—"Celia," "Dodona," "Belinda," "The Beauty," and "Daffy Gwynne," which on reference to the Herd Book will show a fine combination of good blood, and a marvellous illustration of the prolific character of the two former tribes in the hands of the late Proprietor for the last 20 years, during which time has been used some of the best blood of the day.

The Auctioneers beg to call attention to the high honour gained by this Herd in winning the Gold Medal, with "First Fruits," for the best Shorthorned Bull exhibited at the recent Battersea Show, and to assure Breeders and Buyers of Shorthorns that their instructions from the Executors are most positive, and that the whole will be sold without the slightest reserve.

Catalogues, with Pedigrees and other particulars, may be had on application to Mr. J. CARTER JONAS, Land Agent, Cambridge; or of Mr. STRAFFORD, 13, Euston Square, London.

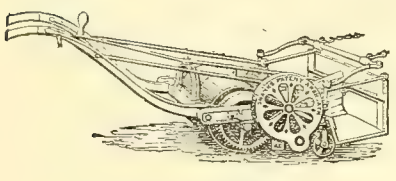
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

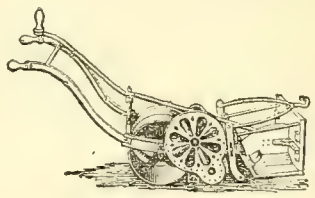
WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

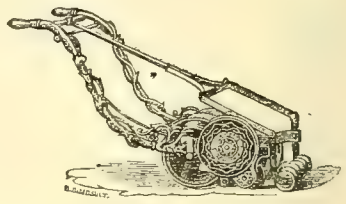
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will Mow equally well on Uneven as on Level Lawns, and whether the Grass be wet or dry. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	40*s.* ,,
No. 3.—36-inch Machine ...	22 0 0	30*s.* ,,
No. 4.—30-inch Machine ...	19 0 0	30*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine ...	£15 15 0	30*s.* extra.
No. 6.—28-inch Machine ...	14 10 0	30*s.* ,,
No. 7.—25-inch Machine ...	12 10 0	25*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £5 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

ALEXANDER SHANKS and SON have for upwards of 20 years devoted their attention to the IMPROVEMENT and MANUFACTURE of LAWN MOWERS. They have carefully avoided the useless inventions (of late years introduced into Lawn Mowers) which have simply *novelty, not improvement,* as their recommendation, and which are far better suited for the *"Trial Ground"* than for the *Practical Gardener.* They have at the same time manufactured their MACHINES with that regard to durability and efficiency as to secure their giving every satisfaction, not simply for *one or perhaps two,* but for *many seasons,* and from the hundreds of unsolicited Testimonials they have received, and the large and increasing demand, A. S. & Son are glad to find that their MACHINES have not yet been *equalled for the qualities* that constitute a *really good Lawn Mower* fit for general use, and to afford *lasting satisfaction,* by any MACHINE yet before the public.

A. S. & Son subjoin a few Testimonials which fully bear out what has been said in favour of their MACHINES.

TESTIMONIALS:—

From Mr. George Eyles, *late Chief Superintendent of the Grounds and entire Horticultural Department of the Crystal Palace, Sydenham, and now Superintendent of the Horticultural Society's New Gardens, Kensington Gore, and The Gardens, Chiswick—(the 30-inch Horse-power Machine used on the Lawns of the Crystal Palace.)*

"I have much pleasure in bearing testimony to the excellence of the 30-inch Shanks' Patent Lawn Mowing Machine you sent us. We have had it in use almost daily up to the end of the mowing season, and it has always performed its work in the most satisfactory manner, *and has never been once out of repair.* The contrivance for emptying the Grass-box is *a great acquisition, and effects a considerable saving of time.*"

From Mr. J. Smith, *Royal Gardens, Kew.*

"I herewith send you a cheque in payment for the Shanks' Mowing Machine (a 42-inch Horse Machine), lately supplied to this Garden. The Machine gives perfect satisfaction, and is in daily use nine hours a-day. . . . . Our old Shanks' Machine (a 42-inch Horse Machine, supplied 14 years ago to Kew Gardens), has all along worked well, and it does not mind wet and long Grass. It is astonishing the amount of work it has done, and has given us complete satisfaction."

From Sir John Burgoyne, Bart., *Sutton Park, St. Neot's.*

"The Lawn Mower (a No. 9, 22-inch Hand Machine with Patent Delivering Apparatus) has arrived quite safe, and answers admirably, and mows better and in less time than it is possible for two men to do."

From Mr. Thomas Ingram, *Royal Gardens, Frogmore, Windsor.*

"Sirs,—The Mowing Machine you sent here has given the greatest satisfaction, and is a great saving of labour.—Yours very truly, Thos. Ingram."

"Messrs. A. Shanks & Son."

Extract from a Memorandum received 10th April, 1863, from Mr. Rose, *Superintendent, Crystal Palace Company.*

"Your Machines in the grounds are working beautifully."

From Mr. Elijah Dean, *Gardener to the* Right Hon. the Earl of Harrowby, *Sandon Hall, Staffordshire.*

"I shall not fail to recommend your Shanks' Mowing Machine (a 30-inch, No. 4). In fact I have had two or three parties to look at it who have had Shanks' Mowing Machines already, and they pronounced this much superior in many respects, doing its work both easier for the horse and man. We work it four days per week, and it makes first-rate work; and when we did the work with the scythes we had six or seven men regularly every morning, and nearly the whole of the day, and then we could not get over it once in a fortnight."

From J. Spencer, Esq., *Factor to the* Most Hon. the Marquis of Lansdowne, *Bowood, Wilts.*

"The Horse Machine you sent me is now doing its work quite as well as it did in 1847 (14 years ago), and this is saying very much of its great value and durability, for within the time named it has cut annually from 40 to 50 acres of Grass five times over; and frequently the Grass has been long and difficult to get over. I have no doubt that good as your earlier Machines were, those you now turn out are superior in many respects, and next spring I shall take a 42-inch one for myself, and shall feel great pleasure in recommending your really valuable Machine whenever I have the opportunity."

From Mr. Shearer, *Gardener to the* Marquis of Tweeddale, *Yester Garden.*

"Gentlemen,—Allow me to congratulate you on the success of your improved Grass-Cutting Machine, which we got the other day from you, especially the delivering part. It is a mechanical triumph. You know that I expressed my doubts to you about it before I got the Machine, but having cut all our Grass with it, I must say that it acts far beyond my expectation, and it performs all you say in your prospectus. We can now go on the whole day without stopping, except to oil the parts that require it. *The men are quite in love with it*—a good proof of its utility.—I am, Gentlemen, yours respectfully, Alexander Shearer."

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS and SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE and SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 21.—1863.] SATURDAY, MAY 23. {Price Fivepence. Stamped Edition, 6d.

INDEX.

Barnes' (Mr.) nursery	487 b	Japan, Fortune on, rev.	486 b
Box Firs	485 c	London parks and squares	483 a
Boilers	485 c	Manure, house waste	489 c
Books, various	487 a	Montevideo	491 b
Bulb farms, Dutch	484 a	Orchids, cool treatment of	485 b
Cattle food	483 b	— sale of	487 c
Cotton, Illinois	483 b	Rose LordClyde	486 a
Devon, shrubs in South	485 b	Roses, new	483 c
Drainage, systematic	493 c	Stakes or no stakes	486 a
Farms, co operative	490 b	Steam cultivation	491 b
Firs, bog	485 c	Sheep, comparison of	490 c
Fish and fishing	484 c	Shrubs in South Devon	485 b
Forest, tropical	488 a	Society, Linnean	486 a
Fruit lore, ancient	484 b	— Nova Scotia	486 b
Fortune on Japan	486 b	— Royal Agricultural	494 b
Gardens, town	487 c	Strawberry, Cuthill's Black Prince	485 c
Haarlem bulb farms	484 a	Trees, London	483 a
Heating, boilers for	485 c	Vine disease	488 a
Hyacinth, Dutch mode of growing	484 a	Weeds, notes on	492 b
Husbandry, laws of	491 a	Wireworm	486 a

ROYAL HORTICULTURAL SOCIETY'S GREAT SHOW, WEDNESDAY NEXT, May 27. Open at 1 o'clock. Bands of Royal Artillery and Coldstream Guards at 3 o'clock. Admission, 7s. 6d.; or by Tickets purchased before the day, 5s.

HORTICULTURAL GREAT SHOW, at SOUTH KENSINGTON, WEDNESDAY NEXT, May 27. The Garden will not be open till 1 o'clock.

FIRST GREAT SHOW at SOUTH KENSINGTON, on WEDNESDAY NEXT. Tickets until Tuesday, 5s. each. To be had at the Garden and of the principal Librarians and Musicsellers.

Royal Horticultural Society.

16TH JUNE, 1863.

UNCOVERING of MEMORIAL of EXHIBITION of 1851, in the presence of their RR HH.'s THE PRINCE and PRINCESS of WALES.

Cards of Admission, price 15s., if obtained before the 27th of May; 20s. up to 9th of June, and 30s. on day. A. MURRAY.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.

The SECOND EXHIBITION of PLANTS, FLOWERS, and FRUIT, will take place on WEDNESDAY, JUNE 3.

Tickets can be had at the Gardens by Orders from Fellows of the Society, price 5s.; or on the day of Exhibition, 7s. 6d. each.

The EXHIBITION of AMERICAN PLANTS, MONDAY, JUNE 8.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.

The TENTH ANNUAL SUMMER SHOW will take place on WEDNESDAY and THURSDAY, June 10 and 11, at the Royal Pavilion, on the same grand scale as on former years. Schedule of Prizes to be had on application to the Secretary, 96, St. James Street, or of E. SPARY, Superintendent of the Exhibition, Queen's Graperies.

By Order of the Committee,
Brighton, May 23. EDWARD CARPENTER, Secretary.

STAMFORD HORTICULTURAL SOCIETY.—The Schedules of Prizes with Rules for the FETE and ROSE SHOW on JULY 8, are now ready, and may be had free on application to

Messrs. LAXTON & HEWITT, Hon. Secs., Stamford.

BIRMINGHAM ROSE SHOW, 1863.—The NEXT SHOW will be held in the Town Hall, Birmingham, on THURSDAY and FRIDAY, July 16 and 17.

The Prize Lists are now ready, and may be obtained from the Secretary, Mr. A. FORREST, Queen Chambers, Cherry Street, Birmingham.

Notice.

JOHN WATERER'S EXHIBITION of RHODODENDRONS and other AMERICAN PLANTS will be exhibited at the Royal Botanic Gardens, Regent's Park, at the End of the present Month, and will continue on VIEW throughout the MONTH of JUNE.

American Nursery, Bagshot, Surrey.

Pelargoniums, Verbenas, Fuchsias, and Pansies.

J. DOBSON AND SONS have a fine healthy Stock to offer of all the best kinds at moderate prices.

Woodlands Nursery, Isleworth.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.

Dorking Nursery.

FOR SALE, specimens of AZALEA INDICA, now IN BLOOM.

H. LANE & SON'S Nurseries, Great Berkhampstead.

PINE PLANTS.—Very fine QUEEN PINE PLANTS, in all sizes, warranted from a stock that never had scale.

Apply to M. ROCHFORD, Market Gardener, Page Green, Tottenham, N.

NEW MELON, PRINCESS ALEXANDRA.—A new hybrid of globular shape, very evenly quartered and netted, pale green flesh, with very little pulp in centre, delicate Pine Apple flavour. Can be highly recommended as a first-class variety. 1s. per packet.

JAMES CARTER & Co., 237, 238, & 261, High Holborn, W.C.

NEW PRIZE MELONS, at 1s. 6d. per packet.

Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria,

For descriptions see GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH, SEED MERCHANTS, Covent Garden Market, London, W.C.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Agricultural Seeds.

JOHN K. KING, SEED GROWER, Coggeshall, Essex. PRICED LISTS Post free.

Good Turnip Seeds, Carriage Free.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

Agricultural Seeds.

GEORGE GIBBS AND CO., SEEDSMEN, 26, Down Street, Piccadilly, London, W.

Agricultural and Garden Seeds.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbeach. Special PRICED LIST of NEW SEEDS on application.

SPLENDID NEW SCARLET VERBENA, LORD LEIGH.—Strong Plants now ready, 5s. each, 42s. per dozen.

CATALOGUES also ready, and will be forwarded Post-free on application to

S PERKINS & SONS, Park Nursery, Coventry.

Splendid Calceolarias.

J. DOBSON AND SONS' COLLECTION, unequalled for their habit, size, shape, and magnificent and varied colours and marking, is NOW in BLOOM, and may be seen any day except Sundays, free. Packets of Seed, 1s. 6d., 2s. 6d., and 5s. each.

Woodlands Nursery, Isleworth, W.

Arabis albida variegata.

WM. CUTBUSH AND SON can supply large quantities of this excellent SILVER VARIEGATED DWARF EDGING or RIBBON BORDER PLANT. Strong plants, 4s. per dozen; 30s. per 100.

Highgate Nurseries, London. N.

Primula, &c., very choice.

WM. CUTBUSH AND SON possess an unrivalled strain of

	Per packet.—s. d.
PRIMULA SINENSIS FIMBRIATA	2s. 6d. and 3 6
CALCEOLARIA, fine herbaceous	2 6
CINERARIA, from best named flowers	2 6

Free per Post.

Highgate Nurseries, London, N.

Dahlias.

JAMES FAIRHEAD AND SON beg to announce that their CATALOGUE of DAHLIAS, including Pompone or Bouquet and Bedding varieties, is now ready, and may be had gratis on application.

7, Borough Market, London, S.E.

WM. KNIGHT offers strong Plants of DAHLIAS, FUCHSIAS, PETUNIAS, VERBENAS, and various other BEDDING PLANTS, at low prices.

CATALOGUES free.

Floral Nursery, Hailsham, Sussex.

Dahlias! Dahlias! Dahlias!

5000 WELL-ROOTED GOOD SORTS at 12s. 6d. per 100; 2s. per 1 doz. Also Special List CHRYSANTHEMUMS, 2s. 6d. per doz.; 16s. per 100.

J. C. PADMAN, Providence Nurseries, Boston Spa, near Tadcaster.

Camellias.

TO BE SOLD, about 100 CAMELLIAS, of various choice kinds, ranging from 2 to 20 feet in height. The property of the late John Allnutt, Esq.

Apply to Mr. DRUMMOND, Gardener, Clapham Common, S.

Chrysanthemums, Dahlias, Fuchsias, Verbenas, Geraniums, Pelargoniums, Petunias, Calceolarias, &c.

WHOLMES'S CATALOGUE of the above is now ready, and may be had in exchange for One Stamp.

Reference or remittance from unknown Correspondents.

Frampton Park Nursery, Hackney, N.E.

Bedding Plants, mostly 2s. 6d. per dozen.

J. SCOTT'S FLOWER GARDEN and ANNUAL DIRECTORY will be ready to forward, from the 1st week of April, at 6d.

"All who wish to have their Gardens gay, at a moderate price, should procure the above."

Merriott, Crewkerne, Somerset.

MITCHINSON'S PENZANCE EARLY WHITE CORNISH BROCCOLI.—Good Plants of the above can be supplied at 2s. per 100, postage free, by sending Order and Stamps to

J. MITCHINSON, Seed Merchant, Truro, Cornwall.

New Roses for 1863.

BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.

St. John's Street Nursery, Colchester.

Paul's Nurseries, Waltham Cross.

WM. PAUL (Son and Successor to the late A. PAUL), has a large Stock of all the NEW ROSES, now ready for delivery.

Splendid plants at lowest advertised prices.

PRICED CATALOGUE free by post.

ALL the NEW ROSES of 1863.—In fine strong Plants now ready.

DESCRIPTIVE LISTS on application.

WM. WOOD & SON, Woodlands Nursery, near Uckfield, Sussex.

NEW ROSES of 1863.—Good Plants of all the finest sorts are now ready, as well as all the finest of last season. DESCRIPTIVE PRICED LISTS on application.

PAUL & SON, Old Nurseries, Cheshunt, Herts.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON). Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7s. 6d. each, will be shortly ready.

Old Cheshunt Nurseries, Herts.

Dwarf Roses in Pots for Bedding.

WM. KNIGHT is now executing orders from his immense Stock of only the most approved kinds, offered at low prices. CATALOGUES free on application.

Floral Nursery, Hailsham, near Hurst Green, Sussex.

40,000 Dwarf Roses in Pots for Bedding.

THE MONTHS OF APRIL AND MAY ARE CONSIDERED THE MOST ELIGIBLE FOR PLANTING OUT ROSES FROM POTS.

WM. WOOD AND SON have an enormous stock of fine healthy plants, now ready to send out. CATALOGUES sent Post-free on application.

Woodlands Nursery, Maresfield, Uckfield, Sussex.

Bedding Plants, Florists' Flowers, and New Roses for 1863.

JAMES DICKSON AND SONS have an IMMENSE STOCK of the above, which they offer at VERY MODERATE PRICES, for exceedingly FINE VIGOROUS PLANTS.

DESCRIPTIVE CATALOGUE upon application.

The "Newton" Nurseries, Chester.

Ferns.

WILLIAM MASTERS, Exotic Nursery, Canterbury, has to offer a most extensive collection of these popular Plants; and can supply them at very moderate prices.

The Trade treated very liberally, where not less than 100 Plants are taken.

Ferns.

EDWIN COOLING will have pleasure in forwarding his NEW PRICED CATALOGUE on application. Also his GENERAL LIST of CHOICE PLANTS suitable for the Conservatory and Flower Garden.

Mile Ash Nurseries, Derby.

Filix Frizelliæ.

J. SHAW, having a large stock of this rare and beautiful HARDY FERN, offers them by the dozen at 2s. 6d. each, half dozen 3s. each, single plants 3s. 6d.

Stamford Nursery, Bowdon, Cheshire.

For Present Sowing for Sheep Feed.

MUSTARD SEED, 10s. 6d. to 14s. per bushel.

RAPE, 12s. 6d. to 15s. per bushel.

ITALIAN RYE-GRASS, 6s. to 7s. per bushel.

SUTTON & SONS, Seed Growers, Reading.

NEW CUCUMBERS, at 1s. per packet.

Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Cabbage Plants.

H. AND R. STIRZAKER can supply in any quantity fine DRUMHEAD CABBAGE PLANTS, EARLY CURLED SAVOY, &c., RED for Pickling, all Autumn sown.

The Nurseries, Lancaster.

For Present Sowing.

NEW SUBSTITUTE for VETCHES.—"SERADELLA."

See SUTTON'S SEED LIST, which may be had post free.

Royal Berkshire Seed Establishment, Reading.

NEW GREEN KOHL RABI SEED, from Transplanted Roots, at 1s. 6d. per lb. direct from the Grower,

Mr. R. O. M. YOUNG, Flint Hall, Hambleden, Henley-on-Thames.

DIOSCOREA BATATAS (CHINESE YAM).—Good sound Roots, in fine condition for Planting, 5s. to 7s. 6d. per 100, according to size, are offered by

GEORGE WHEELER, Nurseryman, Warminster, Wilts.

MANGEL WURZEL SEED in every variety, supplied at very moderate rates, direct from the Grower,

Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts.

Turnip and Mangel Wurzel Seeds, Crop 1862.

RAISED FROM EXTRA SELECTED STOCKS, & TRANSPLANTED BULBS.

SPECIAL QUOTATIONS TO THE TRADE ON APPLICATION.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London.

N.B. A few Bushels of our celebrated LEWISHAM SWEDE on offer.

LOBELIA GORDONIANA.—A very beautiful and effective variety, fully as compact in habit as the well-known L. speciosa. It has a large pure white centre or eye, with a broad margin of intense blue; strongly recommended. Price 9s. per dozen; each 1s.

JAMES CARTER & Co., 237 & 238, High Holborn, W.C.

LOBELIA SPECIOSA ALBA.—Raised by Mr. Gordon, of the Crystal Palace Gardens, Sydenham, where it will be much employed this season to add to the bedding effects there so much admired. The lower petals, which are very large, are pure white, and the upper just faintly tinged with blue. Price 9s. per dozen: each 1s.

JAMES CARTER & Co., 237 & 238, High Holborn, W.C.

LOBELIA PAXTONIANA.—This valuable acquisition to our Summer Gardens was raised by Mr. Gordon, the indefatigable Superintendent of the Crystal Palace Gardens, and named Paxtoniana by desire of Sir Joseph Paxton, in whose garden (as well as the Crystal Palace Gardens) its merit has been proved. It is a seedling from the well-known true Crystal Palace variety of Lobelia speciosa, quite as robust as its parent, with a much more compact habit. The individual flowers are much larger, with a pure white centre or eye; the outer margin or prevailing colour (blue) more nearly resembling in tint that of the pretty Annual Nemophila insignis, than any other flower with which we are acquainted. It forms a very effective contrast and companion plant with its parent in the decoration of the summer garden, and will be largely used at the Crystal Palace during the ensuing season. Price 9d. each; 6s. per dozen.

JAMES CARTER & Co., 237 & 238, High Holborn, W.C.

NEW TROPÆOLUMS.—The following varieties are decidedly the best ever offered:—

ELEGANS "OTHELLO."—A beautiful deep maroon coloured variety of the "Crystal Palace elegans," having the same short-jointed habit and profuseness of bloom; when grown in a mass its effect is striking in the extreme. Price 1s. 6d. each; per dozen, 12s.

KING of TOM THUMBS.—A variety of the well-known T. Brilliant—habit very dwarf and compact, with a profusion of bright scarlet flowers, thrown well up above the dark bluish green foliage; this variety is quite distinct in colour of flower and foliage from all other varieties of Dwarf Tropæolums: the flower is very similar in shade of colour to Boule de Feu Geranium, and the habit is much more compact than any of the Tom Thumb varieties of Nasturtiums. Price 1s. 6d. each; per dozen, 12s.

JAMES CARTER & Co., 237 & 238, High Holborn, W.C.

Bedding Tropæolum.—Ball of Fire.

ARTHUR HENDERSON AND SON are now sending out the above brilliant BEDDING TROPÆOLUM.

For description and full details see figure and remarks in the *Floral Magazine* for January, 1863, Plate 129, colour of Tom Thumb Geranium. This will prove one of the best and most beautiful Bedding Plants of the season.

Per 100 Plants	.. £3 10 0	Per 25 Plants	.. £1 10 0
,, 50 ,,	.. 2 2 0	,, 12 ,,	.. 0 18 0
1 Plant .. .. 2s. 6d.			

Pine Apple Place, Edgeware Road, London, W.

Dracæna (Cordyline) indivisa, from Mount Egmont New Zealand.

BUTLER AND McCULLOCH have received a supply of Seed of the above strikingly beautiful fine-foliaged Plant, of which the following is an extract from their correspondent's letter which accompanied it. "When known," he says, "few of your nobility can be without this splendid plant in their gardens. I believe, indeed, that it will stand your winters out of doors with moderate protection. It grows here from 10 to 15 feet high, leaves 6 feet long and 8 inches broad, of a deep green hue, having a midrib of brilliant orange yellow, with red veins running parallel with it."

The Seed we now offer, our correspondent says was gathered in the snowy ranges; Plants therefore raised from it may be expected to possess more than usual hardy constitutions. Price 1s. and 2s. 6d. per packet.

BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Splendid New Double Fuchsia, Grand Admiral.

GEORGE WHEELER, NURSERYMAN, Warminster, Wilts, is prepared to send out the above. Tube and sepals bright crimson scarlet, sepals broad and well reflexed, corolla deep violet purple, large and full, a most profuse bloomer, the branches curving very gracefully, makes the habit unexceptionable. It has been declared by the best judges to be the finest double Fuchsia ever offered either for Exhibition or Greenhouse Decoration.

G. W. feels confident it will give general satisfaction. Price 7s. 6d. each.

New Scarlet Geraniums.

WM. PAUL (Son and Successor to the late A. PAUL) has now ready for SALE two superb new SCARLET GERANIUMS. Price 10s. the pair.

WALTHAM PET.—Very bright scarlet, with fine large white eye, dwarf as "Harkaway," but much finer in truss and flower; the best dwarf scarlet for small beds or edgings. First-class Certificate from Royal Horticultural Society. Certificate also from Royal Botanic Society.

RED DRAGON.—An exceedingly smooth dark scarlet, with a peculiarly rich nap on the flower; habit of "Boule de Feu"—the best dark scarlet. All the best "Bedding" plants, 3s. per dozen and upwards.

PAUL'S Nurseries, Waltham Cross, N.

CLOTH OF GOLD and GOLDEN FLEECE GERANIUMS.—The above fine scarlet variegated Geraniums can now be had in any quantity. Their bright scarlet flowers being perfect, the contrast with their fine golden foliage and with other plants when used for edging or in lines, is pleasing and complete.

Good strong Plants established in pots, 31s. 6d. per 100
Do., out of pots, to save part package and carriage, 25s. per 100; 10l. per 1000
Do., in pots, 4s. 6d. per dozen

P.S. Nearly 50,000 BEDDING PLANTS as follows:—
SCARLET HORSE-SHOE GERANIUMS, in varieties
Do., silver variegated, in varieties
CALCEOLARIAS, FLORIBUNDA and others
DAHLIAS, in variety
HELIOTROPIUMS of sorts
HOLLYHOCKS, fine named in pots
VERBENAS, of sorts

And other plants for Beds and Edging, can be supplied, strong and well established, turned out of pots and carefully packed, at 10s. per 100, in selections; in less quantities than 4 dozen, at 3s. per dozen. All plants delivered to the Winchfield Station, on the South Western rail, or the Reading Station, on the Great Western rail.

STEPHEN SHILLING, North Warnboro Nursery, Odiham, Hants.

Double Primroses.

L. T. DAVIS begs to offer DOUBLE WHITE, LILAC, PURPLE, and YELLOW PRIMROSES, at very moderate prices, which can be had on application (carriage free to Belfast).

Ogle's Grove Nursery, Hillsborough, County Down.

HARDY CLIMBERS.—The Executors of the late Mr. JOHN YOUNG beg to offer strong plants, in 48 and 60-size pots, of the following:—

Clematis Sophia	Wistaria sinensis
,, azurea grandiflora	Lonicera flexuosa
,, montana	,, brachypoda
,, viticella	,, Brownii
,, Flammula	,, floribunda
,, Hendersonii	,, magnavillea
Passiflora cœrulea	,, Belgicum
Virginian Creeper	,, fragrantissima
Jasminum nudiflorum	,, Standishii

5s. per dozen.

Wistaria sinensis, very strong; Wistaria sinensis alba, Clematis Sieboldii, 9s. per dozen.

A large Collection of CHOICE FERNS. PRICED LIST on application.

The Nurseries, Taunton.

New Shrubby Calceolarias.

MESSRS. JOHN AND CHARLES LEE having purchased the entire stock of Seedling SHRUBBY CALCEOLARIAS, raised by Mr. Watson, of St. Alban's, in 1861 and 1862, have selected four distinct colours, which they now offer to the Public. They are the finest high-coloured Shrubby Calceolarias yet raised, and in point of habit and quality are everything that can be desired for bedding or pot culture. They are decidedly shrubby and of good constitution, with a dwarf spreading habit and good foliage. The flowers rise just above the leaves, forming an even mass of exquisite colouring.

Price 5s. each, or 15s. the set, as under:—

PRINCESS ALEXANDRA.—Rich orange buff, of very dwarf habit, free blooming and conspicuous. Quite a new colour in Calceolarias.

MAGNIFICENT.—Deep orange flowers, of large size with close mouth, flower stalks short and stiff, a good dense habit, and first-rate in every respect.

PRINCE LOUIS of HESSE.—Rich crimson flowers of medium size, free blooming, habit very dwarf and showy.

FIREFLY.—Intense orange scarlet flowers of good size, free blooming dwarf habit, the brightest colour yet raised.

Terms to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

BRITISH and FOREIGN FERNS, immense variety. GREENHOUSE PLANTS, EVERGREENS, &c. GOLD and SILVER FISH, WATER TORTOISE, GREEN LIZARDS, &c. Virginian Nightingales, just arrived. Budgrigars, 20s. per pair. German, Belgian, and Norwich Canaries. Foreign Birds and Cages of every description.

R. GREEN, 154, Kingsland Road, N.E., and the Bedford Conservatories, Covent Garden Market, W.C.

To Exhibitors of Ferns.

J. WATSON, New Zealand Nursery, St. Alban's, has much pleasure in offering fine specimens of that beautiful TREE FERN, CYATHEA SMITHII, undoubtedly the finest in Europe, being from 1 to 6 feet in the stem; also fine plants of CYATHEA DEALBATA, LOMARIA DISCOLOR. Magnificent plants of TODEA PELLUCIDA. Several fine species of the HYMENOPHYLLUMS of New Zealand, with many other kinds too numerous for insertion.

Prices on application by Post.

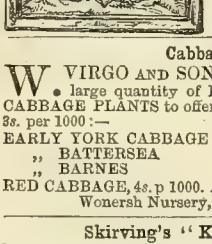
J. WATSON, New Zealand Nursery, St. Alban's, Herts.

New South Wales—Collections of Ferns.

M. GUILFOYLE begs to announce that he has made arrangements to execute Orders for Europe of COLLECTIONS of FERNS, selected from all the Australian Colonies and New Zealand by his Correspondents there, and also from the South Sea Islands, supplied by competent Collectors in New Caledonia, the New Hebrides, &c. Due care will be taken that none but well established plants in pots are sent out from his Nursery, and for such he has fixed the price of each case, containing at least 25 species of Australasian Ferns in duplicate, at 16l., (freight and case included), shipped by him for London to order. The Island Ferns, among which a constant succession of novelties may be expected for years to come, will be separately charged for, at prices extremely moderate.

M. GUILFOYLE will also be happy to execute Orders for Seeds, Bulbs, and Living Plants of all kinds from the Islands of the S. W. Pacific, especially including Orchids, Pines, &c.

Orders with remittances to be addressed to M. GUILFOYLE, Exotic Nursery, Double Bay, Sydney, N. S. Wales.



FARM SEEDS
OF GENUINE QUALITY
(at Market Prices).
Carriage Free.

RICHARD SMITH,
SEED MERCHANT,
Worcester.

Cabbage Plants.

W. VIRGO AND SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 3s. per 1000:—

EARLY YORK CABBAGE	EARLY NONPAREIL
,, BATTERSEA	DRUMHEAD
,, BARNES	

RED CABBAGE, 4s. p 1000. All strong, healthy, and well rooted.

Wonersh Nursery, near Guildford, Surrey.

Skirving's "King of the Swedes."

WILLIAM SKIRVING, Queen Square, Liverpool, begs to acquaint the Farmers of the United Kingdom, that he has fixed the price this season for the Seed of his new variety of SWEDE at 1s. 3d. per lb., bags included.

W. S. can with confidence recommend this variety of Swede as the best now in cultivation, in every respect. This assertion is made after several years' experiments with every sort of Swede known.

The Seed of this variety having all been grown on his own Farm, he begs to say it can only be had direct from himself, this being the second year of its introduction.

All other sorts of Farm Seeds of the most superior quality, at their present market value.



Skirving's Swede—Sutton's Selected Stock.

SUTTON AND SONS have a choice Stock of SKIRVING'S SWEDE SEED, growth of 1862, which they can strongly recommend. 9d. per lb., or *cheaper in large quantities.*

Also SUTTON'S CHAMPION, Hardy PURPLE-TOP, and Hardy WHITE SWEDE; but the Stock of "Champion" Swede, though saved from upwards of 50 Acres of Land, being small compared with the demand, this sort cannot be supplied under 1s. per lb., or 45s. per bush.

Royal Berkshire Seed Establishment, Reading.

Turnip and Mangel Wurzel Seed.

H. AND F. SHARPE can supply the Trade with the following Varieties, true to name, all of their own growth, new and genuine, and on very advantageous terms.

TURNIP.	TURNIP.
Improved Purple-top Swede	Lincolnshire Red Globe
Champion do.	Improved Green Norfolk
Skirving's Improved do.	Fine White Stone
Marshall's Improved do.	MANGEL WURZEL.
Yellow Tankard	Elvetham Long Red
Pomeranian White Globe	Fine Orange Globe
Drummond's Early Field	,, Long Yellow
Yellow	,, Red Globe
Green-top Scotch	

Seed Growing Establishment, Wisbech.

Show and Fancy Pelargoniums.

N. LAWRENCE begs to offer Extra Strong Plants in large 48-size Pots, full of Flower Buds: per doz., 5s.; per 100, 40s. Also all kinds of BEDDING PLANTS, from 2s. per doz.; DAHLIAS, 20s. per 100.

The Nurseries, New Road, Chatteris.

To Clover Growers.

WANTED Weekly, 100 LOADS of good sweet CLOVER.

Address, stating lowest nett cash price delivered, to THORLEY'S Steam Chaff Cutting Mills, Thornhill Bridge, Caledonian Road, King's Cross, London, N.

To Growers of Hay.

WANTED Daily, 50 LOADS of good sweet HAY.

Address, stating lowest nett cash price delivered, to THORLEY'S Steam Chaff Cutting Mills, Thornhill Bridge, Caledonian Road, King's Cross, London, N.

THE
ST. JOHN'S and NEWTON MOOR NURSERIES
and SEED WAREHOUSES
having been lately purchased, will in future be designated
THE ST. JOHN'S NURSERIES,
Under the Management of WILLIAM BARRATT, the late Sole Owner, to whom all communications are to be addressed.

The NURSERIES and SEED GROUNDS,
Covering above 40 Acres, are in a high and exposed situation, and from the Climate and nature of the soil are exceedingly favourable for the rooting of Trees and Shrubs, facilitating their removal with great safety.

The Stock consists of a first-class Collection of
ORNAMENTAL TREES,
equal to any in England;
FRUIT TREES,
Dwarfs, Standards, and Trained for Walls;
fine fruit-bearing PYRAMIDS;
EVERGREENS and SHRUBS in great abundance.
The finest Collection of
STRAWBERRY PLANTS in the Kingdom.

At the St. John's Place, there are Ten large Glass Structures filled with a healthy and extensive Stock of
GREENHOUSE and STOVE PLANTS,
VINES, FIGS, and ORANGES,
HERBACEOUS and ALPINE PLANTS.
In the season, Collections of
GARDEN SEEDS, FLOWER SEEDS,
IMPORTED DUTCH BULBS,
LAWN, PASTURE, and MEADOW GRASSES.

☞ The Proprietors are determined to carry on this old and well-known Establishment with great spirit, and to keep first-class articles in every department.

St. John's Nurseries, Wakefield—May 23.

REIGATE SILVER SAND.—Best quality, 7s. 6d. per ton; second quality, 6s. per ton; best quality, packed in strong canvas bags, 16s. per ton; ditto 2s. 6d., 2 cwt. bags, stamps, put on the rail at Reigate and forwarded to all parts of the United Kingdom.

PEAT SOILS, LOAM, &c.

Collections of NEW, RARE, and BEAUTIFUL PLANTS of all kinds, carefully selected and supplied at current Prices.

W. SHORT, Salesman, Agent, &c., Reigate, Surrey.

THE WORCESTER PLEASURE GROUNDS COMPANY (LIMITED).

The Directors are prepared to receive APPLICATIONS for SPACE from Persons desirous to EXHIBIT Statuary, Vases, Ornamental Wire Work, and other Decorations of Gardens, Horticultural Implements, Garden Seats, &c., in the Grounds of the above Company, at the HORTICULTURAL SHOW to be held there on TUESDAY, WEDNESDAY, and THURSDAY, July 21, 22, and 23, being the days on which the Royal Agricultural Show for England will be held at Worcester.

Applications for terms, stating the kind of articles to be exhibited and the space required, to be addressed to Mr. A. P. WATKINS, Secretary to the Company, 50, Foregate Street, Worcester.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

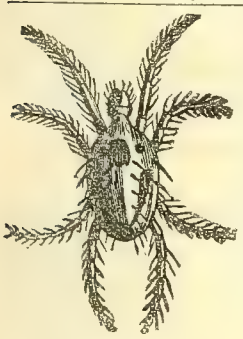
CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.
Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.
Can be obtained through the principal Nurserymen and Seedsmen in England.
A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.
PAGE & TOOGOOD, Seed Merchants, Southampton.

The only Certain Remedy for Mildew.
JOHN BELL'S COMPOSITION for DESTROYING MILDEW on Vines, Peaches, Nectarines, Roses, and every other Plant subject to that pest, is proved to be the most efficacious that has ever been offered. Sold in Bottles at 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* each. A 1*s.* 6*d.* Bottle will make 12 gallons fit for use.
Seed Warehouse, 10 & 11, Exchange Street, Norwich.


Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.
NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.
Both may be obtained of all principal Seedsmen.
Patentee: J. NEAL, Edward Street, Birmingham.


Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.
This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by PRICE'S PATENT CANDLE CO. Limited.

Blight.
BROWN'S PATENT FUMIGATOR.—A Portable Instrument for Fumigating Greenhouses, Stoves, and Frames, or Shrubs and Flowers in the open air, without injuring the most delicate plant; delivering the smoke cold, in a dense mass, and effecting a great saving of Tobacco. Price 10*s.* and upwards.
Manufactured and supplied to the Trade by Messrs. BARBER & GROOM, London; and may be had of all Ironmongers, Seedsmen, and Florists.

PATENT ELECTRICAL PLANT PROTECTOR for the preservation of Plants, Flowers, and Shrubs from Snails, Worms, Slugs, &c.
This Protector being composed of zinc and copper, or of any two metals combined in such a manner as to form an electrical couple, constantly gives off a certain amount of electricity, rendering plants entirely secure from the attacks of Slugs, &c., as it has been discovered to be perfectly impossible for any insect or worm to crawl over a combination of these two metals.
Being formed in plain and ornamental designs for borders, beds, &c., it is applicable to all gardens, terraces, &c.; it is also made in the form of Plant Guards to encircle the stems.
Illustrated Lists of Prices post free on application to ROBERT B. LEE & Co., Sole Manufacturers of the Patent Plant Protector, 22, Market Place, Manchester.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.
PROTECTION from the COLD WINDS & MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.
Two yards wide .. .. .. 1*s.* 6*d.* per yard run.
Four yards wide .. .. .. 3*s.* per yard.
An improved make, 2 yards wide, 1*s.* 8*d.* per yard.
An improved make, 3 yards wide, 2*s.* 6*d.* per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 4*d.* per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon St., City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—
"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.
The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

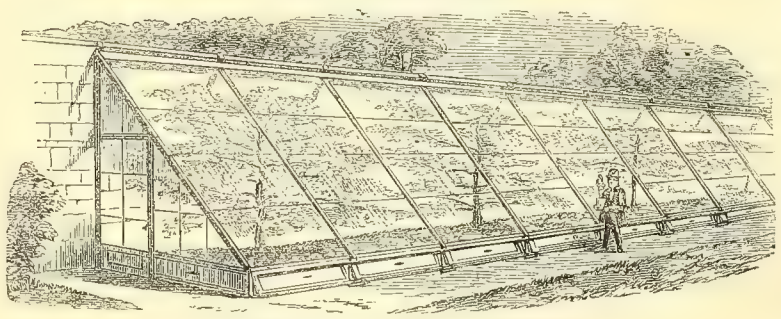
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STEAM PLOUGHING and CULTIVATING APPARATUS
WILL BE AT WORK NEAR BEDFORD THROUGHOUT THE SEASON.

Price of a Complete Set with 10-Horse Engine £515 0 0
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SCOTT'S GLASS WALLS,
Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
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PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.
Every description of IRONWORK. *Lists Free.*

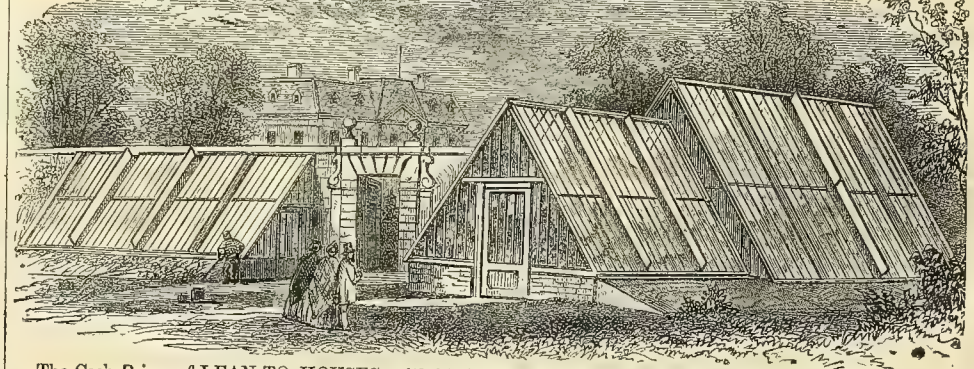
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HOTHOUSES FOR THE MILLION.
AWARDED A PRIZE MEDAL, 1862.
ON THE PRINCIPLE INVENTED AND PATENTED BY
SIR JOSEPH PAXTON, M.P.
COMBINING SIMPLICITY, CHEAPNESS, AND DURABILITY,
BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.



"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit can be obtained as the 'Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.
"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.



The Cash Prices of LEAN-TO HOUSES, with Water-troughs, Doors and Ends complete, are as follows:—

Ft. In.	8 ft. Lights	10 ft. Lights	Ft. In.	12 ft. Lights	14 ft. Lights	16 ft. Lights
20 7 in length	£12 0 0	£16 0 0	20 11 in length	£21 18 0	£28 10 0	£34 5 0
31 3 in length	16 10 0	21 2 6	31 9 in length	29 6 0	37 12 0	45 16 0
41 11 in length	20 18 0	26 18 6	42 7 in length	36 16 0	46 14 0	57 7 0
63 3 in length	30 6 0	38 10 0	64 3 in length	51 14 0	64 18 0	80 10 0
84 7 in length	39 6 0	49 11 6	85 11 in length	66 12 0	83 2 0	103 11 0
105 11 in length	48 17 6	60 12 6	107 7 in length	81 10 0	101 10 0	126 13 0

SPAN-ROOF HOUSES at double the above prices for each length of house.
Circulars with Lists of Prices and Cards to view houses in operation in the neighbourhood of London, also Estimates for Heating and Erection complete, can be had on application to
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A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN, price 1*s.*; post free, 1*s.* 1*d.*
"We cannot do better than advise every reader who has a spark of gardening spirit and taste in him to write at once for a Copy."—*Bell's Weekly Messenger*, March 17, 1862.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.

For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster. S.W.

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Galvanised Iron Water Cistern

for Cottage Houses, &c., to contain 50 gallons, 26*s.*; 80 gallons, 31*s.* each; and 140 gallons, 37*s.*, and fitted with tap, keeping the water perfectly sweet and clean; will not rust or corrode. Cisterns of all sizes.

Galvanised Iron Pumps

for Liquid Manure or Domestic Use, 3 inches diameter, 30*s.* and 32*s.* 6*d.* each; Tail Pipe for same at from 10*d.* per foot.

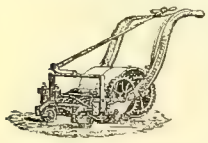
Galvanised Iron Swing Water Barrows

or Garden or Farm use, containing about 20 gallons, entirely formed of iron, 35*s.* 0*d.* each.

BEFORE ORDERING LAWN MOWERS, see the "Sun and Planet Motion," with Patent Compound Wheel, in MORTON'S NEW PATENT LAWN MOWING MACHINE for 1863, allowed to be the best of the season.

Prices and particulars of Horse, Pony, or Donkey, and Hand Machines, to be had from GRIMMOND, LAIRD, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath.

*** Agents wanted in every Town. Apply as above.



Lawn Mowers.

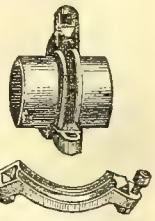
BURGESS AND KEY beg to direct attention to their NEW PATENT LAWN MOWING MACHINE. It is simple, efficient, easily worked, and not liable to derangement. GARDENING and HORTICULTURAL TOOLS of every description. Illustrated Price List free. Catalogues by post on receipt of six postage stamps.

BURGESS & KEY, 95, Newgate Street, London, E.C.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.





T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to
T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

SAMUELSON & CO.'S
PATENT LAWN MOWING MACHINES.

SAMUELSON AND CO.'S 12-INCH and 16-INCH NEW PATTERN LAWN MOWERS.
SAMUELSON AND CO.'S IMPROVED GARDEN ROLLERS AND GARDEN SEATS.

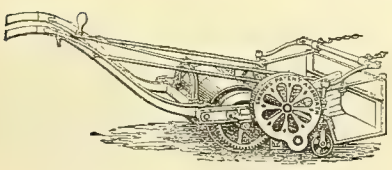
Catalogues Free, on application to BRITANNIA WORKS, BANBURY, or to
SAMUELSON AND CO.'S LONDON WAREHOUSE, 76, CANNON STREET WEST, CITY,
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SHANKS' NEW IMPROVED PATENT
LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

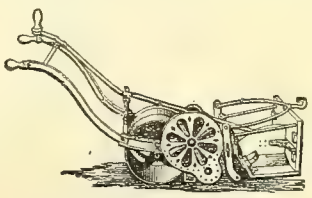
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FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

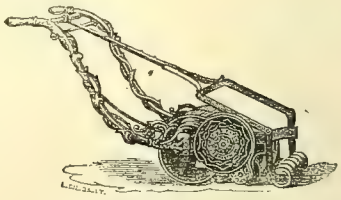
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	40*s.* „
No. 3.—36-inch Machine ...	22 0 0	30*s.* „
No. 4.—30-inch Machine ...	19 0 0	30*s.* „

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine ...	£15 15 0	30*s.* extra.
No. 6.—28-inch Machine ...	14 10 0	30*s.* „
No. 7.—25-inch Machine ...	12 10 0	25*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine ...	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine ...	8 7 6	
No. 10.—19-inch Machine ...	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine ...	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine ...	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £5 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

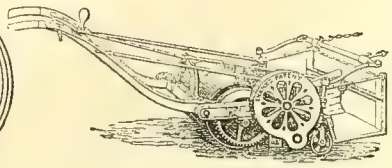
PATENTEES AND SOLE MANUFACTURERS:
ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.
LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

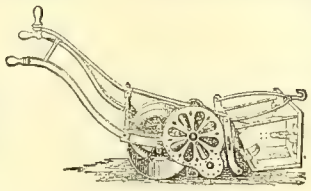
CONTINENTAL AGENTS: Messrs. SCOTT, BURN, BROWN, & Co., 13, Cannon Street, City, E.C.
AGENTS: Messrs. J. & C. LEE, Vineyard Nursery, Hammersmith, W.; Messrs. J. B. BROWN & Co., 18, Cannon Street, City, E.C.

SHANKS' NEW PATENT LAWN MOWERS for 1863.

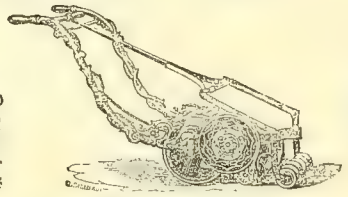




HORSE MACHINE.



PONY MACHINE.



NEW HAND MACHINE.



PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for Use.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.

No. 1.—48-inch Machine ... £28 0 0
No. 2.—42-inch Machine ... 26 0 0 } *Drawn by a Horse.*
No. 3.—36-inch Machine ... 22 0 0 }
No. 4.—30-inch Machine ... 19 0 0 *Drawn by a Horse or strong Pony.*

Patent Delivering Apparatus for Nos. 1 and 2 Machines, 40*s.*; for Nos. 3 and 4 Machines, 30*s.*

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.

No. 5.—30-inch Machine ... ... £15 15 0 } *Drawn by a Pony.*
No. 6.—28-inch Machine ... ... 14 10 0 }
No. 7.—25-inch Machine ... ... 12 10 0 *Drawn by a Donkey.*

Patent Delivering Apparatus for Nos. 5 and 6 Machines, 30*s.*; for No. 7 Machine, 25*s.*

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for use.

Width of Cutter.

No. 8.—24-inch Machine ... ... £8 17 6 } *Easily Worked by Two Men.*
No. 9.—22-inch Machine ... ... 8 7 6 }
No. 10.—19-inch Machine ... ... 7 12 6 *Do. by a Man and a Boy.*

Width of Cutter.

No. 11.—16-inch Machine ... ... £6 17 6 *Easily Worked by a Man.*
No. 12.—13-inch Machine ... ... 6 2 6 *Do. by a Boy.*

No. 16.—12-inch Machine for Pushing only, £5 5*s.*; easily worked by a Lady or a Boy.

*** *The Machines are warranted to give ample satisfaction, and if not approved of may be at once returned.*

AGENTS:

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

THOMAS MILLINGTON,

GLASS MERCHANT. (Established 1750.)

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

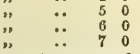
THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY T. MILLINGTON.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home use and for Exportation.



PROPAGATING GLASSES.

2 inches diam.	0*s.* 3½*d.* each.
3 ,, ..	0 4½ ,,
4 ,, ..	0 5½ ,,
5 ,, ..	0 6½ ,,
6 ,, ..	0 8 ,,
7 ,, ..	0 10 ,,
8 ,, ..	1 0 ,,
9 ,, ..	1 2 ,,
10 ,, ..	1 4 ,,
11 ,, ..	1 6 ,,
12 ,, ..	1 9 ,,
13 ,, ..	2 0 ,,
14 ,, ..	2 6 ,,
15 ,, ..	3 0 ,,
16 ,, ..	3 6 ,,
17 ,, ..	4 0 ,,
18 ,, ..	5 0 ,,
19 ,, ..	6 0 ,,
20 ,, ..	7 0 ,,



FLOWER TUBES.
2*d.* each, or 1*s.* 6*d.* per dozen.



ZINC HAND GLASSES.
Painted and Glazed with 16-oz. Sheet Glass.

12 inches ..	5*s.* 6*d.* each
14 ,, ..	6 6 ,,
16 ,, ..	7 6 ,,
18 ,, ..	8 6 ,,
20 ,, ..	9 6 ,,
24 ,, ..	11 6 ,,

If open top, 1*s.* extra.



BEE GLASSES.

4 inches diameter	0*s.* 6*d.* each
5 ,,	0 8 ,,
6 ,,	0 10 ,,
7 ,,	1 1 ,,
8 ,,	1 4 ,,
9 ,,	1 8 ,,
10 ,,	2 0 ,,
11 ,,	2 6 ,,
12 ,,	3 0 ,,



FLAT TOP BEE GLASSES.

Height	Width	*s. d.*
4 inches	by 7 inches	1 6 each
4½ ,,	by 7½ ,,	1 9 ,,
5½ ,,	by 7½ ,,	2 0 ,,
6½ ,,	by 8 ,,	2 3 ,,
7½ ,,	by 8½ ,,	2 10 ,,

FERN SHADES & STANDS.

Ins. dia. Shades.	Stands.
6 .. 1*s.* 4*d.* each.	1*s.* 0*d.* each
7 .. 1 8 ,,	1 3 ,,
8 .. 2 0 ,,	1 6 ,,
9 .. 2 6 ,,	1 9 ,,
10 .. 3 3 ,,	2 0 ,,
11 .. 4 0 ,,	2 6 ,,
12 .. 5 6 ,,	3 0 ,,
13 .. 7 6 ,,	3 6 ,,
14 .. 10 0 ,,	4 0 ,,
15 .. 14 0 ,,	4 6 ,,
16 .. 18 6 ,,	5 0 ,,



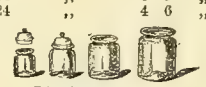
WASP TRAP, 2*s.* 6*d.* per doz.

Crystal Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimneys and Globes, &c.



MILK PANS.

6 inches diameter	0*s.* 6*d.* each
8 ,,	0 9 ,,
10 ,,	1 0 ,,
12 ,,	1 3 ,,
14 ,,	1 9 ,,
16 ,,	2 3 ,,
18 ,,	2 9 ,,
20 ,,	3 3 ,,
22 ,,	3 9 ,,
24 ,,	4 6 ,,



PRESERVE JARS.

In. diam.	Without Lids.	With Lids.
3 ..	0*s.* 4½*d.* ..	0*s.* 6½*d.* ea.
4 ..	0 6 ..	0 9 ,,
5 ..	0 8 ..	0 11 ,,
6 ..	0 10 ..	1 2 ,,
7 ..	1 0 ..	1 4 ,,
8 ..	1 4 ..	1 8 ,,
9 ..	1 8 ..	2 2 ,,
10 ..	2 0 ..	2 8 ,,

SHEET GLASS.
In Cases for cutting up, in Sizes as Manufactured.

	300 feet	200 feet.		
	15 oz.	21 oz.	26 oz.	32 oz.
Fourths quality	33*s.* 6*d.*	33*s.* 6*d.*	39*s.* 6*d.*	45*s.* 0*d*
Thirds do.	42 0	42 0	49 0	56 0
Seconds do.	62 0	64 0	74 6	85 0
Best do.	88 6	88 6	103 6	118 0

CRYSTAL SHEET GLASS.
For Pictures and best Glazing purposes.
Averaging 16 oz. to the foot.

Best quality, in cases of 200 feet .. .. .. 100*s.*
Second quality, in cases of 100 feet .. .. 82*s.*

Averaging 30 oz. to the foot.

Best quality, in cases of 100 feet .. .. .. 100*s.*
Second quality, in cases of 100 feet .. .. 82*s.*

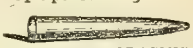


FISH GLOBES.

	Without feet.	With feet.
8 inches diam.		
9 ,,		
10 ,,		
11 ,,	Per lb.	
12 ,,	7*d.*	9*d.*
13 ,,		
14 ,,		
15 ,,		
16 ,,		



ROLLING PINS.
From 12 inches long, 1½*d.* per running inch.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1*d.* per running inch.

SQUARES, in 100 and 200 Feet Boxes.

Small Squares not exceeding 9½ inches by 7½ inches.

Ins. Ins.	Ins. Ins.	Ins. Ins.	Ins. Ins.
6 by 4	7 by 5	8 by 6	9 by 7
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½

Per 100 feet.

4ths.	3rds.	2nds.	Best.
9*s.* 9*d.*	11*s.* 3*d.*	13*s.* 9*d.*	16*s.* 9*d.*

Squares not exceeding 14 inches by 11 inches.

10 by 8	12 by 9	12½ by 10½	14½ by 10½
10½ by 6½	12½ by 9½	13 by 10	15 by 10
11 by 9	13 by 9	13½ by 10½	13 by 11
11½ by 9½	12 by 10	14 by 10	14 by 11

Per 100 feet.

4ths.	3rds.	2nds.	Best.
10*s.* 9*d.*	12*s.* 3*d.*	15*s.*	18*s.*

Squares not exceeding 20 inches by 18 inches.

15½ by 10½	14 by 12	17 by 13	24 by 16
16 by 10	14½ by 12½	18 by 13	20 by 17
14½ by 11½	15 by 12	18 by 14	22 by 17
15 by 11	15½ by 12½	22 by 14	24 by 17
15½ by 11½	16 by 12	24 by 14	20 by 18
16 by 11	16½ by 12½	22 by 15	22 by 18
13 by 12	17 by 12	24 by 15	24 by 18
13½ by 12½	18 by 12	22 by 16	

Per 100 feet.

4ths.	3rds.	2nds.	Best.
11*s.* 6*d.*	13*s.* 6*d.*	16*s.* 6*d.*	20*s.*

Orchard House Sizes, as recommended by Mr. Rivers.

Ins. Ins.	15 oz.		21 oz.	
20 by 12	4ths ..	11*s.* 6*d.*	4ths	15*s.* 0*d.*
20 by 13	3rds ..	13 6	3rds	19 0
20 by 14	2nds ..	16 6	2nds	25 0
20 by 15	Best ..	20 0	Best	30 0
20 by 16				

Per 100 feet.

Squares Cut to Sizes not on List.

	15 oz.				21 oz.			
Under	4ths.	3rds.	2nds.	1st	4ths.	3rds.	2nds.	1st.
1 ft. super.	1¼*d.*	1¾*d.*	2*d.*	2½*d.*	2½*d.*	2¾*d.*	3¼*d.*	4½*d.*
2 ft. super.	1¾	2	2½	3	2¾	3	4	5½
3 ft. super.	2	2½	2¾	3½	3	3½	4½	6
4 ft. super.	2½	2¾	3	4	3½	3¾	4½	6½

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

	Per cwt.—*s. d.*		Per gallon.—*s. d.*		Per gallon.—*s. d.*
GENUINE WHITE LEAD	.. .. 30 0	FINE OAK VARNISH	10*s.* to 12 0	LINSEED OIL	3 9
ANTI-CORROSION PAINT	..28*s.* to 34 0	,, CARRIAGE	12*s.* to 14 0	BOILED OIL	4 2
LINSEED OIL PUTTY	.. .. 8 0	PATENT DRYERS	per cwt. 28*s.* to 42 0	TURPENTINE	8 6

MILLED LEAD in Sheet and Pipe of all sizes. Old LEAD bought or taken in exchange.

LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of all kinds.

NETT CASH.

Sutton's Grass Seeds

AT THE ROYAL FARMS, THE ALDERSHOT CAMPS, THE CRYSTAL PALACE, THE PEOPLE'S PARK, HALIFAX, &c.

SUTTON'S GRASS SEEDS for PERMANENT PASTURE, PARKS, and LAWNS are now Sown at the Royal Farms; the Crystal Palace, Sydenham; the Horticultural Society's Gardens, and on most of the largest Estates in the Kingdom.

☞ Messrs. SUTTON'S GRASS SEEDS being mixed expressly to suit the soil for which they are required, are never known to fail. The prices are moderate, particulars of which may be had post free.

Address,
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. Annual Sale exceeds 2000 packets. In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each.
J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1s., 2s. 6d., and 5s.
J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE PRIMULA SINENSIS SEED. In sealed packets, 1s., 2s. 6d., and 5s.
J. DOBSON & SONS, Seedsmen, Isleworth.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.
RICHARD SMITH, Nurseryman, Worcester.

E. G. HENDERSON AND SON offer first-class quality of CINERARIA, PRIMULA SINENSIS FIMBRIATA, and PANSY. Also, CINERARIA WEBBI, new shrubby species.
All the above 1s. and 2s. 6d. per packet.
☞ EXPERIENCED GARDENERS recommended to Gentlemen.
Wellington Nursery, St. John's Wood, London, N.W.

Cheap Bedding Plants.

WM. DILLISTONE will forward (Carriage free to London), upon receipt of Post Office Order for 18s. on Castle Hedingham, 100 Strong Plants in Pots; consisting of GERANIUMS, FUCHSIAS, DAHLIAS, VERBENAS, CALCEOLARIAS, &c.
N.B. The above are warranted to give satisfaction. CATALOGUES upon application.
Munro Nursery, Sible Hedingham, Essex.

BEDDING PLANTS—BEDDING PLANTS.—The undersigned beg to offer the above, of all the popular kinds in well hardened Plants, per 100, 20s., prepaid hamper included. Cheaper by the thousand. Carriage paid to Brick Lane Station.
A CATALOGUE of 35 pages sent upon application, enclosing a stamp. Post-office Orders payable at Halstead.
Messrs. DILLISTONE & Co., Sturmer and Woodlands Nurseries, near Halstead, Essex.

BEDDING PLANTS.—Scarlet and Variegated Geraniums, Verbenas, Lobelia speciosa, Agathæas, plain and variegated; Amaranthus, new purple-leaved; Ageratums, Calceolarias, Cerastiums, Cineraria maritima, Gnaphalium lanatum, Perillas, Pentstemons, Petunias, Tagetes signata pumila, Tropæolums, &c.; all thoroughly established in single pots. And extra fine sturdy plants from 2s. per doz.
CATALOGUES on prepaid application.
WOOD & INGRAM, Huntingdon.

LOUIS VAN HOUTTE'S NEW CATALOGUE, No. 96, is to be had at Messrs. R. SILBERRAD & SON, 5, Harp Lane, London, E.C.
☞ L. v. H.'s goods will be delivered free out of the Custom House in London, without any expense whatever to the buyer, but per contra 5s. will be charged for each package.
Ghent, Belgium.

Choice Variegated Plants, for Edging and Ribbon Borders.

B. S. WILLIAMS begs to intimate that he has a large Stock of the undermentioned, and can supply strong plants at the following prices:—
ARABIS ALBIDA VARIEGATA, 6s. per dozen; less by the 100.
AMARANTHUS MELANCHOLICUS RUBRA, 6s. per doz.
CERASTIUM TOMENTOSUM, 4s. per dozen.
CINERARIA MARITIMA, 4s. per dozen.
FESTUCA OVINA GLAUCA, 6s. per dozen.
GNAPHALIUM LANATUM, 4s. per dozen; less by the 100.
STACHYS LANATA, 3s. per dozen; 20s. per 100; less price per 1000.
TUSSILAGO FARFARA VARIEGATA, 6s. per dozen.
Paradise and Victoria Nurseries, Holloway, London, N.

New Roses.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites attention to the following NEW ROSES, which will be ready for delivery very shortly.
LORD MACAULAY, H.P.—Velvety crimson, in the way of General Jacqueminot, but brighter in colour, thicker in the petal, and more double. The flowers are of good average size, produced abundantly and in rapid succession; the habit is good, and foliage handsome. 7s. 6d.
MRS. WILLIAM PAUL, H.P.—Bright violet red, shaded with fiery red; flowers constantly, and in clusters, large and full. Raised by M. Verdier, of Paris, the raiser of Madame Furtado, and others of our finest Roses. 5s.
RED ROVER, H.P.—Bright red petals, large, thick, and round; flowers abundantly and in succession up to Christmas. Not double enough for a show Rose, but the most effective pillar Rose ever offered. 3s. 6d.
WILLIAM PAUL, H.P.—A seedling from Senateur Vaisse, but brighter in colour. Raised at Lyons by the raiser of Lord Raglan, Senateur Vaisse, and other first-class sorts. 5s.
BEAUTY OF WALTHAM, H.P.—Bright rosy crimson, of good size, form, and substance, and deliciously sweet. This Rose is found to surpass the description originally given of it. 3s. 6d.
All the new French Roses, 3s. 6d. to 5s. each, or 42s. per dozen. The best of the old Roses at lowest advertised prices. The plants are well established, and in the finest possible health.
PRICED CATALOGUE free by post.
Nurseries and Seed Warehouse, Waltham Cross, N.

Hardy Climbers in Pots.

WM. WOOD AND SON have an immense stock of fine strong Plants of the above, suitable for planting out at once against walls, trellises, or poles, consisting of the best kinds of ROSES, CLEMATIS, BIGNONIAS, IVIES, JASMINES, PASSIFLORAS, WISTARIA, &c., at very reasonable prices.
Woodlands Nursery, Maresfield, Uckfield, Sussex.

Select Stove and Greenhouse Plants, &c.

ROBERT PARKER begs to invite attention to his Collections of AMARYLLIS, AZALEA INDICA, EXOTIC ORCHIDS, FERNS, and LYCOPODS; ORNAMENTAL and VARIEGATED FOLIAGED PLANTS; MISCELLANEOUS, STOVE, GREENHOUSE, and HARDY PLANTS; all of which are healthy and clean. Purchasers of large or small quantities will be treated on the most liberal terms.
PRICED and DESCRIPTIVE CATALOGUES are published, and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

CALCEOLARIA, CINERARIA, and PRIMULA.

CALCEOLARIA, saved from carefully hybridised flowers, possessing all the recognised floral qualifications, viz., size, form, colours, and marking. Price, 1s. and 2s. 6d. per packet.
CINERARIA, extra choice, 1s. per packet.
PRIMULA SINENSIS FIMBRIATA, extra choice, 1s. and 2s. 6d. per packet.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.
The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

FARM AND GARDEN SEEDS

CARRIAGE FREE.

BANGHOLM SWEDE,
EAST LOTHIAN SWEDE,
WARD'S BEAUTY SWEDE,
DROPMORE SWEDE,
MARSHALL'S CHAMPION SWEDE,
GREEN-TOP SWEDE,
WHITE SWEDE,
IMPROVED SKIRVING'S SWEDE.
WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
DOBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
IMPROVED YELLOW GLOBE DITTO,
IMPROVED ORANGE GLOBE DITTO,



IMPROVED LONG RED MANGEL,
IMPROVED LONG YELLOW MANGEL,
IMPROVED RED GLOBE MANGEL,
IMPROVED WHITE FIELD BEET,
RED CLOVER, | COWGRASS,
WHITE, YELLOW, and ALSIKE CLOVERS.
PACEY'S PERENNIAL RYE-GRASS, and other sorts.
ITALIAN RYE-GRASS, FOREIGN and ENGLISH SEED.
NATURAL GRASS SEEDS, in mixture or separate, suitable for various soils and localities.
LIGHT RYE-GRASS and other CHEAP GRASSES, for Sowing on Railway Banks and Waste Places.

Orders for Exportation promptly attended to.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN,
28, KING STREET, CHEAPSIDE, NEAR the GUILDHALL; and
15, LAWRENCE LANE, LONDON, E.C.

NOTICE.—*We are sorry to observe that a respected House in the Nursery Trade has endeavoured in their Advertisements to depreciate some of the Novelties placed in our hands for sale by* Mr. BEATON. *We are quite content after this notice to let the matter stand as it is, resting assured that our Patrons and the Public have sufficient confidence in* Mr. BEATON *and ourselves to believe that we would not recommend any Plants of a second-rate character.*



CARTER'S

LIST OF NEW PLANTS FOR 1863.



NEW GERANIUMS.

Mr. BEATON, the well-known Raiser of the improved varieties of NOSEGAY and other sections of BEDDING GERANIUMS, has selected the undermentioned from his large Collection of Seedlings, and recommends them as being some of the most valuable Bedding varieties ever offered to the Public; he has placed them in our hands for distribution.

The Set of Six Varieties for 10s. 6d.

NOSEGAY VARIETIES.

Lord Palmerston (BEATON).

This is unquestionably the finest of the whole group of Nosegay Geraniums. It was raised by Mr. Beaton about three years since, and sent by him to be proved at the Gardens of the Royal Horticultural Society and the Crystal Palace, and by the Directors of the respective Gardens was selected from the whole mass of bedding plants to form the most prominent Beds of last Season, where it was universally admired. The flowers are deep crimson, produced in immense trusses in the greatest profusion, as many as 130 pips, or flowers, having been counted on a single truss. As this is a variety that has been thoroughly proved, we are induced to offer large quantities at a cheap rate, so that our customers may plant out large beds this season.

STRONG PLANTS.

Single plant ..	.. 2s.	3 dozen ..	.. 32s.
1 dozen ..	.. 18s.	4 ,, ..	.. 38s.
2 ,, ..	.. 25s.	8 ,, ..	.. 63s.

Spread Eagle (BEATON).

This is also one of the most profuse blooming of the Nosegay section; colour deep orange scarlet, with the dwarf habit of Mangles' Silver variegated. The breadth of petal of this and the succeeding variety far exceeds that of any other of the Nosegay tribe, and will doubtless go far to satisfy the exigent requirements of the most particular Florists. Price 2s. 6d. and 3s. 6d. each.

Miss Parfitt (BEATON).

The upper petals of this beautiful variety are deep crimson, the lower glowing scarlet with a white centre or eye; very dwarf and compact habit. Price 2s. 6d. and 3s. 6d. each.

Merrimac (BEATON).

This is a great improvement on "Imperial Crimson;" it has the additional breadth of petal to which we have before alluded; and in addition to being very useful for Beds and Ribands, it is very effective for Vases, &c. Price 2s. 6d. and 3s. 6d. each.

ZONALE or HORSE-SHOE-LEAVED VARIETIES.

Helen Lindsay (BEATON).

This is a rival of the well-known "Christine," which is so extensively used for Bedding purposes in all Public and Botanic Gardens; the colour is a much richer rose, whilst the trusses of bloom are larger, and more profusely produced throughout the season. This variety is also free from the objectionable seeding propensities of Christine (which renders that otherwise admirable kind so very troublesome to keep in good order, beds of it after Midsummer assuming a ragged appearance if the seed pods are not constantly gathered). Its habit is similar to that of Tom Thumb, leaves slightly zonale. This will be the GEM of BEDDING GERANIUMS this season. Price 1s. 6d. each; per dozen, 12s.

Rubens Improved (BEATON).

Of this excellent variety it is only necessary to say that it blooms as freely as its progenitor, but with much larger trusses of the same beautiful form and colour; leaves slightly zonale. It has also the additional merit of withstanding well the sun and rain, a quality much needed in the old variety. Price 2s. 6d. and 3s. 6d. each.

For FURTHER NOVELTIES *vide* PLANT SUPPLEMENT to

CARTER & CO.'S GARDENERS' VADE MECUM FOR 1863,

Containing FULL LISTS of STOVE, GREENHOUSE, and BEDDING PLANTS, now ready, post free, on application.

JAMES CARTER & CO., 237 & 238, HIGH HOLBORN, LONDON, W.C.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.

The next Meeting of this Committee for the Exhibition of NEW PLANTS and SEEDLINGS will be held in conjunction with the First Great Show of the season, which will take place in the Gardens of the Society on May 27. The above subjects will form Classes 21, 22, 23, 24, and 26 of the Schedule for that day; and Sub-committees will be appointed to adjudicate upon them.

Class 21 is for New or Rare Tender Plants in flower.
Class 22 is for New or Rare Tender Plants not in flower.
Class 23 is for New Orchids in flower.
Class 24 is for New or Rare Hardy Ornamental Plants.
Class 26 is for Seedling Florist's Flowers, and Garden Hybrids of all kinds.

The subjects exhibited must be in the Gardens by Half-past Eight o'clock in the morning, in accordance with the regulations; but they may be entered without previous notice. It is however required that a written statement of the subjects for exhibition in the respective classes should be handed in by 9 o'clock, to allow time for the entries to be made before 10.

All persons are at liberty to exhibit.

Thomas Moore, Secretary to the Floral Committee.

Royal Horticultural Society.

10th JUNE, 1863,

CEREMONIAL to be OBSERVED at UNCOVERING the MEMORIAL of the EXHIBITION of 1851, and STATUE of H.R.H. THE PRINCE CONSORT, in the presence of their RR.HH.'s the PRINCE and PRINCESS of WALES and other Members of the Royal Family.

The Guests invited to take part in the Procession will assemble at the West Dome of the Exhibition Building.

Whilst assembling Military Bands will play.

The Royal Party will be received at the West Dome Entrance by the Executive Committee of the Memorial Committee.

Their RR.HH.'s will proceed down the Nave to a balcony over the Southern entrance of the Horticultural Gardens, and their arrival will be announced by a flourish of trumpets. "God Save the Queen" will be played by three Military Bands united in the Ante-Garden.

The Council of the Horticultural Society will present an address.

Military Bands will again play.

After which the Memorial Committee will read an Address.

H.R.H. the Prince of Wales will order the Uncovering of the Memorial, which will be announced by a flourish of trumpets and a salute of Artillery, after which military music will be performed and the fountains will play.

The Royal party, headed by the procession, will then walk round the Gardens, stopping at various points to see the Memorial and the Garden.

The route will be marked by banners, and it is requested that during the procession the spectators will remain stationary.

If it rains the procession will keep under the Arcades.

The Exhibition Building will be thrown open to the visitors.

George Godwin, Hon. Sec. Memorial Committee.
W. W. Saunders, Hon. Sec. of the Horticultural.

The Gardeners' Chronicle.

SATURDAY, MAY 23, 1863.

MEETINGS FOR THE ENSUING WEEK.

Wednesday, May 27 { Royal Horticultural (Fruit & Floral Sub-Committees) at S. Kensington 10 A.M. / First Great Exhibition, at South Kensington .. .. 1 P.M.

Not less important than the question of the preservation of the existing Trees of our Parks and Squares from the insidious burrowings and cuttings of railway engineers and sewer contractors, is the problem of ascertaining whether there can be found any other kinds of trees besides those commonly in use, affording variety of foliage and character, which are adapted to yield the shade and shelter so requisite to render our few out-door London promenades enjoyable, and which are at the same time suited to bear up against the depressing influences of a London atmosphere. The common Maple-leaved Plane may be instanced as one in every way adapted for the purpose, but we do not want to see this Plane usurping every place in which a tree can be planted, if we can get, besides it, some others which are of different aspect, and not less suitable.

There is indeed on every side abundant scope for the labours of an Arboricultural Committee—such as that which has been recently nominated by the Royal Horticultural Society, so comprehensive and extensive is the science of arboriculture; and, we may also add, so little generally understood. In every part of the country may be found a field for its labours, in one or other of the departments of profitable or ornamental tree-culture. We heartily trust, therefore, that it may lose no time in setting about the fulfilment of the important duties which have been assigned to it, inasmuch as a lifetime affords little enough space for the acquirement of much of the knowledge which is indispensable for their complete accomplishment. But leaving this broader field to be occupied as best it may, there is one little branch of arboriculture which we would at this moment most urgently press on the immediate attention of members of this committee, as a kind of inaugural duty, and that is, to ascertain experimentally how many appropriate and useful Shade Trees for London Parks and Gardens can be found which admit of general cultivation. What, indeed, with the meagreness of shadeless Poplars, the pitableness of dying Elms, and the sameness of ever-recurring Planes, there is need enough that the question should at once be taken up. Let us offer a few suggestions thereupon.

Of course there are two courses which might be simultaneously followed in carrying on such an enquiry. The one would be to ascertain the result of what has been done already. The other would be to set about doing something further, with the direct object of eliciting new information. Neither of them should be lost sight of, or avoided.

There are to be found in London and its suburbs a good many trees, in various stages of growth or decay; some of them indicative of what to adopt, and others of what to avoid in making further plantations. With the object therefore, of learning the result of what has been already done, a deputation of this committee might usefully explore the various districts of the metropolis, noting as they go the kinds of trees which are found, together with the soil in which they are growing, the circumstances under which they are placed, and the progress they have made or are making, in whichever direction it may tend. Some useful information would be obtained in this way, and at least some hints would be gathered up which would have a bearing on the more active measures which should be also undertaken.

The action which we think should be taken is that of planting trees for experiment, and of watching and reporting upon their growth, with the direct object of learning experimentally and making known which of them, in addition to those already employed, are suitable for general use as Shade Trees in London and other towns. In recommending such a work, we believe we are pointing to a very legitimate object to be undertaken by such a body as that we now refer to. The Committee would of course, either of its own knowledge, or by the aid of its officers, or of a selected sub-committee of its practical members, determine in the first place what trees amongst those to be found in cultivation, but not commonly planted in London, would be the most likely to thrive and assume an umbrageous character. This done, it would cast about for space whereon it might try the selection it had made, allowing the experimental trees every fair encouragement that a judicious preparation of the site might afford, but nothing more. As a committee of the Royal Horticultural Society, and in default of a wider field for experiment, we venture to think it might first try its hand within the limits of the 20 acres at South Kensington. Suppose a portion of the ante-garden were to be placed at its disposal, and a row or two of additional trees various in kind, were to be introduced therein, the garden itself would at least gain something in the matter of shade; and whatever trees might thus be planted, they could hardly be less adapted to yield an ornamental effect than some already placed there.

But in the investigation of a question so important to the public as that of finding out some distinct and varied kinds of trees fit to be planted about our towns and cities, the public might fairly be asked to lend its aid. We think therefore that certain portions of the several London parks which lie east, west, north, and south of St. Paul's, might very well be set apart for the trial; and we would advisedly include all these, in order that the inquiry might be made the more general, so as to yield a more complete answer. And even supposing that but half a dozen good intramural trees, various in character and unlike those now commonly used, were to be found out by all this effort, still a public benefit would have been realised, and one which would be quite worth all the labour and pains it had cost. By means, too, of such an inquiry as that which we have thus shadowed forth, if it were set about in earnest, we might reasonably hope that the water-side embankments of the metropolis (and not indeed of the metropolis alone), which are to sweep away so much that is loathsome to the sight, and to afford such facilities for the migration of the townspeople, would also in due time be furnished with stately avenues of shade-yielding trees such as would not disgrace our noble river. That alone would be a result which would ennoble the acts of an Arboricultural Committee.

In the "Genesee Farmer" for February, 1863, there is a short but interesting notice of a successful attempt to grow Cotton in Illinois during last summer. How much credit is due to it we cannot say, as there are such scanty details, but such as it is we present it to our readers. The writer is enthusiastic as to his success, and is confident that under existing circumstances Cotton may be raised at a profit of 10 cents per lb. He does not however give us any data by which we may test his conclusions.

The mode of cultivation adopted is said to be that which is used for Indian Corn, only the plants must in the first instance be raised on a hot-bed, and planted out as soon as all danger of frost is over. Furrows are first made with a horse-hoe, and then the soil thrown up on each side against the plant. A man must follow to straighten the plants and press up the soil with a hand-hoe. They must be planted rather thickly at first, and then gradually thinned, so as to ensure the retention of the most vigorous. It is presumed that they are left ultimately about three feet asunder.

As in ordinary Cotton cultivation, the ground must be well hoed and cleansed, and the plants must on no account be allowed to flag from want of water. It was, moreover, found that the best practice was to apply the water after the fashion of a syringe.

Unfortunately no exact account is given of the quantity or quality of the produce, though it is remarked "old planters said they never saw a heavier set on the same amount of land—never so heavy." The seed was the "green seed" from the State of Mississippi.

It is thought that Cotton may be raised with profit in other States if a proper mode of cultivation is adopted. We should, however, be glad to have more exact details, without which we should not be justified in building very much on the report. *M. J. B.*

—— The opinions which have been expressed by various competent Rosarians, widely separated by locality and circumstance, enable us to form a pretty good notion of the best and most generally useful of last year's Roses. When men so well versed in the subject as Radclyffe, and Paul, and Keynes, and Cranston pronounce, as they have pronounced in different publications, those who are less well informed may be tolerably certain of not being led astray by their statements. We have, therefore, devoted a "half-hour" to the agreeable task of comparing their several reports, with the view of finding out which of the varieties form the cream of the Roses of 1862. It is satisfactory to be told that they are generally of robust growth and free-flowering habit.

The result then of comparing notes in reference to that dominant class the H. P.'s, is that of the dozen sorts most highly praised, we find one is spoken of in the highest possible terms by all four of the above-mentioned authorities, whilst the eleven others receive very warm encomiums from three of them. No others gain so much praise on all sides. These 12 Roses may therefore be regarded as having established a reputation, and no one need hesitate to add them to his collection.

The enviable position of having most thoroughly won the suffrages of the aforenamed critics, is held by the Duc de Rohan, a brilliant crimson flower, which, according to Mr. Radclyffe, is "sure to gratify everybody," and to which the epithets superb and first-class are unhesitatingly applied. To the same series of richly-coloured crimson flowers belong Maurice Bernardin, which is said to be quite first rate; Oliver Delhomme, spoken of as one of the very best; Charles Lefebvre, a magnificent sort, and one of the finest, with the flowers shaded with maroon; Souvenir du Comte Cavour, a rich and effective crimson with dark velvety shading; and Madame Julie Daran, which is generally spoken of with satisfaction, though the terms used are not quite so ardent as in the other cases. These, then, are no mean accessions to the ranks of high-coloured Roses. Not inferior, but of another stamp, come Beauty of Waltham, a rosy crimson, which is not surpassed in beauty or in quality; François Lacharme, on which the epithets beautiful, exquisite, and quite first-rate are worthily bestowed; Robert Fortune, which is said to be both superb and useful; John Hopper, which is generally acknowledged to be first-class; and Madame Charles Wood, which is set down as quite a show variety. Such are the most decided acquisitions to the rosy-coloured series, the sorts varying among themselves in tint as well as in character. Lastly we have a white called Louise Darzins, with equally satisfactory vouchers, and pronounced to be quite a gem. These are all of the Hybrid Perpetual series.

Among Tea-scented Roses three of the authorities already quoted, speak in the highest possible terms of Gloire de Bordeaux, a variety with the habit and foliage of old Gloire de Dijon, from which it was raised, but with flowers quite different in colour, being of a "silvery white, the back of the petals rosy-pink." If it has the good qualities of its parent, it deserves all praise.

The exhibition of the coming 1st of July will, we should hope, afford opportunity for the critically inclined portion of the public to learn something further of the many other varieties introduced in 1862, some of which are hardly yet fully tested; and also for obtaining a glimpse of some of those of 1863. With this object, we suppose, classes have been provided: 1. For 18 New Roses of 1862 and 1863; 2, for 12

trusses of any new kind of 1862; and 3, for 20 New Roses in 8-inch pots. The Rose-growers should do themselves the justice of taking care that these classes are well represented, and not suffer them to be left, as on some previous occasions, little better than blanks.

Let us add further, that it is to be hoped that the invited Bouquets of Roses and Decorated Vases of Roses will be very much better set up on this occasion than they have been hitherto. These might be made very telling features of the show, if not spoiled by the vulgarity of their accompaniments.

A VISIT TO THE BULB FARMS OF HAARLEM.—No. III.

THE land having been prepared as I have described (p. 460), is then divided into beds 3½ feet wide, and the bulbs are planted, 6 inches apart, in rows, across the beds. This is the space usually given to full-grown bulbs; young, undersized ones, not requiring so much room, are planted closer together. They are then covered with about 3 or 4 inches of soil, the beds are neatly levelled, and the operation is considered completed.

The planting takes place in the months of September and October. The latter month is preferred, for if the bulbs are planted too early they are not unlikely to commence growing and throwing up leaves before the winter comes on, and this is not desirable. But when such a quantity of land has to be planted about the same period, it is often necessary to begin planting somewhat earlier than prudent in order to get through with the work. During the depth of winter the Hyacinths beds are covered over, 6 inches deep, with a reed indigenous to the country, in order to protect the bulbs from the frost. The covering is removed in spring, the beds are cleaned, and nothing more requires to be done until the plants come into bloom. The time of flowering varies, of course, with the earliness or lateness of the seasons, but as a general rule it may be put down at from the beginning to the middle of April.*

When the Hyacinth is in full bloom—not before, the flower-stems are removed, being cut off 2 or 3 inches above the soil. This is done, not to strengthen the bulbs as one might at first sight suppose, but to prevent the heavy fleshy flower-stems from falling over the leaves and rotting them during wet weather. The cultivators are therefore always anxious to have the operation over before the approach of heavy rains. It is their opinion that the bulbs, instead of being strengthened, would be injured were the flower-stems removed too early; and hence the idea that preventing a plant from flowering enables it to retain or renew its vigour does not find favour at Haarlem, in so far as the Hyacinth is concerned. Indeed in some varieties, such for example as one very largely cultivated—Ami du Cœur—the flower stems are allowed to wither on the plants; for it is found, if they are removed, the bulbs crack, throw off suckers, and become deteriorated. The cultivator has in view the production of sound marketable bulbs, and these, it is found, can only be obtained by allowing the flower stems to be fully developed before being cut off, or in some instances, like that just mentioned, by not being cut at all.

During the period when the flower-stems are being removed, it is a common sight to see cart-loads of the finest blooms lying like manure heaps in the corner of every field—a strange sight to the eyes of persons from other countries who are accustomed to bestow so much care in the rearing of the Hyacinth in glasses and flower pots, and to look with delight on the collections which are annually placed under tents at exhibitions. But so it is. During the latter part of our stay at Haarlem, millions of these flowers were cast to the dunghill or strewed on the roadsides and edges of the fields, where children had been playing with them. Some attempts have been made to extract the scent, and thus turn the flowers to some account, but they have failed; and indeed this is not surprising when we remember that the flowers of the Hyacinth, however sweet when just expanding, soon lose all fragrance, and become, if anything, rather disagreeable. Sometimes the flowers are strewed over newly prepared land, to prevent the sand from being blown about by the wind, and this is, I believe, the only use ever made of them.

Hyacinth bulbs are ripe, and are taken out of the ground in the beginning of June. They are laid on the surface of the beds with their roots to the sun, and after a little exposure they are covered with dry sand. Here they remain for 10 or 12 days, when they are again taken up, exposed to the sun and air for a while to dry up the moisture, and then they are picked or sifted; the rootlets are removed, the stems cut off, and they are finally taken into the drying house. Those for exportation are sometimes selected and arranged by themselves at once, and are usually sent out in the beginning or middle of August.

The drying houses on every farm play a very important part in Bulb culture. Those of Messrs. Byvoet at Overveen, which I had an opportunity of examining minutely, are admirably constructed for the purposes for which they are intended. They are fitted up with wooden shelves, tier above tier, somewhat like an English fruit room. They have large doors and windows, which can be thrown open on fine days, so as to allow the air to circulate freely amongst the bulbs. The roofs are either thatched with the reed of the country and covered with tiles, or with wood under the tiles. In either case they are made to a certain extent non-conducting, and an even temperature is consequently the result. Mr. Byvoet informed me that he prefers having a number of small drying houses to one large one, as his property is safer in case of fire. *Robert Fortune.*

Erratum.—In my first letter, for Mr. Wm. Paul of *Cheshunt*, read of *Waltham Cross.*

* The following is the order in which the various kinds of Bulbs come into bloom about Haarlem:—In March, Crocuses; April, Hyacinths, Tulips, Narcissi, Fritillarias; middle of May, Anemones; end of May and June, Ranunculi.

FISH AND FISHING.—No. VIII.

IN conclusion of the subject—good and bad fishing days—I am sorry to anticipate that many readers will "pooh-pooh" such an inquiry; first, because the subject is too deep for some anglers to trouble themselves with; and again, because some will ask for the "cui bono." The latter are content, and perhaps wisely so, to go out "a fishing" for mere air and exercise, indifferent as to whether they catch fish or not. But to these I would say, that if they value their time, and one day for going out is to them the same as another, and if they wish to catch fish, it would be well if they could ascertain, through any investigation, whether there existed a chance of success or not. London and Thames anglers, in particular, spend much money in travelling to their favourite place of resort, and in engaging their boat or punt, which they would rather have saved if they could have foreseen it would have been unproductive. In this limited view they might find the *cui bono* out.

What, of the *cui bono*, will he say who has a "ticket of leave" for one day only, to fish in a splendid preserve? A warning, of a character like unto Admiral Fitzroy's storm signals, which are only intended as "warnings,"—such as "Monday, or till

E. C.'s SCIENTIFIC ANGLER'S DIARY.

DATE, _____ PLACE, _____ COMPANION, _____

Point of Wind.	Quantity of Wind.	Temperature. Air.	Temperature. Water.	Kind of Day.	State of Water.	If Fish rising at natural flies, and the time.	If leaping out of water, and time.	Barometer.
		Morn.						
		Noon						
		Even.						

Kind of Fish taken or lost.	On top or under water.	Weight.	Length.	Girth.	Contents of Stomach.	Hour of Day.	Kind or Name of Spot where taken or lost.	Temperature of Stomach.	Bait or Fly.	Kind of Fly most on Water.	State of day and sky at the moment.	General Observations.

NOTE.—Many of these points might be recorded by a river-keeper, easily instructed for the purpose.

Wednesday next, are likely to be good fishing days," —would be invaluable to fishermen.

But there is a much higher view to take than the mere convenience of anglers.

Convinced I am that if the meteorologist-angler would study meteorology and fishing, and the electrician-angler would study electricity and fishing—in conjunction one with the other, or if a Fitzroy, a Glaisher, a Faraday, and a Piscator were combined in one person, he would, by viewing things through a new medium, hit on new discoveries, which would not only be interesting to hygienic science in particular, but would yield most valuable advantages to science in general.

Who at present can account for facts well known to medical men of high eminence in the tropics, viz., that certain powerful medicines are rendered inert or intense in their actions, according to the existing state of the atmosphere?

For the use of anglers in general, and especially for those who will aid this investigation by the accumulation of "facts" falling under their individual observation, I subjoin the plan of a note-book. To this the electrician and the meteorologist will of course add, interbound, leaves or columns for their particular observations on the electrometer, hygrometer, &c.; and I earnestly hope, as I believe, that a year's observation of "facts" may lead to the establishment of sound and useful "theory"—the discovery of another "Law of Nature" always affecting fish and man! *E. C.*

ANCIENT FRUIT LORE.—No. II.

(*Continued from p.* 389.)

THE preliminaries mentioned in a former article having been gone through, Mr. N. F. proceeds to discourse on Fruits as follows; and first—

Of Cherries.

Cherries are the first fruite that are to be gathered, especially which here shalbe mentioned: Of which fruite there are foure sorts here in England, (that is to say) Flemish cherries, English cherries, Gascoyne cherries, and blacke cherries, whereof two are chiefly to be mentioned, that is the Flemish and the English.

The Flemish cherries are not so called, in respect that they growe in Flaunders, but that the first grafts and chiefe original of them came from Flaunders, and therefore they are called Flemish cherries: and in what place soeuer in England these graftes be, or any trees growing from them, from time to time since the first beginning of them, they are sooner ripe then they that are naturally of themselues English Cheries, in some places foureteene daies sooner, in other some three weekes, according to the forewardnes or backwardnes of the grownds wherin they grow: But whersoeuer they grow, although in one plot or acre of grou̇d, you shall yet find that the one willbe ripe before the other chãge their cullor red. And as soone as you see your Cheries to change their color, & be red (that is, whẽ they begin to ripen) you must haue a care that you set one to keep thẽ frõ the birds, which wil be very busie about them, & especially at the breake of day, untill eight of the clocke in the forenoone: and so likewise when the heate of the day is past, beginning at foure or fiue of the clocke untill nine at night: The keeper must with a peece shoote, or make some other noise, to feare the birds, or with a sling to throw at them, being carefull to watch at those times. There are two kindes of birds especially, that hurt cheries most: the one is called a Jay: which must be narrowly looked vnto, or els she will pick the cheries as fast as they ripen. The other, which is called a Bulfinch, will eate stones and all: but you shall heare her chirpe before she lights vpon the tree.

The order of gathering of Cheries.

Now for the gathering of your cheries (because all cheries vpon a tree cannot be ripe and ready to be gathered at one time) prouide a fine light ladder: & looking about your tree, wher you see most store ripe, there set it vp. Be careful for placing thereof, for feare of breaking any boughes. Also you must haue a fine hooke in your hand called a gathering hooke, to pull the bough tenderly vnto you, which you cannot reach with your hand.

You must prouide you also a chery pot or kibzey to gather your cheries in: and to the same cherie pot there must be tyed with a string a little hooke, that when the gatherer sets to gather, he may hang his chery pot upon any bough neer, as occasion serues, and so to be remoued at his pleasure: Alwaies prouided, that the gatherer haue a great care that he pull no more but the very same stalke that the chery hangs by: for the next knot, or brut to the stalke, is it commonly that yeelds fruite, the yeare next ensuing.

At the gathering of your cheries there must be great heede taken that they be not roughlie handled: onely pull them off by the stalke and lay them into your pot. For much handling of them (being a very tender fruite) will make them change their colour, and turne blackish.

¶ *How to carry and conuey Cheries.*

If there be any great store of cheries that must be

caryed any farre way, from whence they be gathered, there must be prouided eyther fine baskets or siues: into which (when the chery pots be full) you must poure them out. Each of these siues should haue two laths in the bottome on the outside, not crost, but both one way: each lath must be about the breadth of two fingers: and about the breadth of the palme of a mans hand betwixt, or somewhat more asunder. The reason why I wish these laths to be vsed in the bottome, is, because that when they be caryed vpon ones head, the siue being weake bottomed of it selfe, the carryers head will make a dent therein, the breadth of his head, which wold cause the cheryes, in all that circle of his head, to breake and to be brused: but the two laths will keepe his head from spoyling of the cheryes, and so to be easily carryed, hauing a wreath or some such thing betwixt him and the laths, for hurting of his head.

The French men commonly vse to carry their cherries in the very same pots that they gather them in, & never put them out vntill such times as they are to be spent. The Dutchmen doe turne them out of their cherry pots, into deepe rod-baskets. This latter way is not so good. For, lying so thick one vpon another, it quickly bringeth them into a heat: and once being in a heat, they presently rot.

But the Fruiterers of London (whose way I holde to be the best) doe first gather them into kibseis, or little open baskets: and by reason of their great quantity they poure them out gently into their siues, or broad baskets made siue-fashion: so filling them that the siues or baskets may be three inches (or there about) emptie at the top. For when they be put into a Ship, Hoy, or boate, they are often (for want of roome) set one vpon another: which would hurt the cherries, if the siue or basket were full.

But otherwise, they that haue no great store to carry or conueigh by land, may conueigh them on horsebacke in a payre of panniers, on each side one, lyned thinne both in the bottom and top with fresh fearn. Prouided, that your panniers or baskets be full: or els the fruite will be spoiled with tossing.

EXTRACTS FROM THE NEW ACT FOR THE PROTECTION OF GARDEN OR ORNAMENTAL GROUNDS IN CITIES AND BOROUGHS.

1. Where in any city or borough any enclosed garden or ornamental ground has been set apart otherwise than by the revocable permission of the owner thereof in any public square, crescent, circus, street, or other public place, for the use or enjoyment of the inhabitants thereof, and where the Trustees, Commissioners, or other body appointed for the care of the same have neglected to keep it in proper order, or where such garden or ground has not been vested in or placed under the management of any Trustees, Commissioners, or other body for the care of the same, and from the want of such care, or from any other cause, has been neglected, the Metropolitan Board of Works, where the same is in any place under their jurisdiction, except the City of London (where the provisions of this Act shall be carried into effect by the Corporation of the said City), and the corporate authorities in any other city or borough, shall take charge of the same, putting up a notice or notices to that effect in such garden or ornamental ground, and if after due inquiry the person entitled to any estate of freehold in the same cannot be found, or if it shall be vested in any person by whom it is held, subject to any condition or reservation for keeping the same as and for a garden or pleasure ground, or that the same shall not be built upon, but not otherwise, shall cause any buildings or other encroachment made therein within the period of 20 years before the passing of this Act to be removed, and (if requested by a majority of two-thirds of the owners and of the occupiers of the houses surrounding the same) shall vest such garden or ornamental ground in a committee consisting of not more than nine nor fewer than three of the rated inhabitants of such houses to be chosen annually by such inhabitants, in order that the same may be kept as a garden or ornamental ground for the use of such inhabitants; and the vestry or board of any and every parish or district within which the same or any part thereof is situate shall from time to time cause to be raised the sums required by such committee for defraying the expenses of the maintenance and management of such enclosed garden or ornamental ground, or of such part thereof as is situate within their parish or district, by an addition to the general rate to be assessed on the occupiers of such houses; or if the said owners and occupiers shall not agree as aforesaid to undertake the charge of such garden or ornamental ground, the Metropolitan Board of Works or Corporate authority aforesaid shall, within six months after the notice herein-before mentioned shall have been put up within the same, or within such further time as the said Board or authority may think it expedient to allow for such agreement to be come to, vest the same in such Vestries or Boards, who shall thenceforth take charge of and maintain the same as an open place or street in such manner as shall appear to them most advantageous to the public, subject to the approval of the Metropolitan Board of Works or Corporate Authority, as the case may require; saving and always reserving to every person and persons, his and their heirs, executors, administrators, and assigns, all such estate, right, title, and interest as he, she, or they would or ought to have had and enjoyed of, in, to, from, or out of the gardens and grounds aforesaid in case this Act had not passed.

2. And whereas it is expedient that the same should be carefully protected from undue encroachment, where any right to require that any garden or ornamental ground as aforesaid be kept and maintained as such, or that the same shall not be built upon, shall belong to any person in right of any house or other property, and he shall by notice in writing signed by him addressed to the Metropolitan Board of Works where the same is in any place under their jurisdiction, except the City of London, where the same shall be addressed to the Corporation of the said city, or to the corporate authorities in any other city or borough, requesting the said Metropolitan Board of Works or Corporate Authority to protect the right before mentioned, the said Metropolitan Board of Works or Corporate Authority, after due inquiry, may, if they shall think fit, accede to such request, and then and thereupon the right of such person to require that such garden or ornamental ground to be maintained as such, or that the same shall not be built upon, shall thenceforth be vested in such Metropolitan Board of Works or Corporate Authority, who shall be fully empowered, for and in their own name, to exercise all the rights, powers and privileges in relation thereto, and take such legal proceedings for asserting, defending, and protecting the same, as the said person might have exercised or taken.

3. Any charge incurred by the Metropolitan Board of Works in the execution of this Act shall be deemed to be expenses of the said Board for payment whereof provision is made by the Act for the better local management of the metropolis; and the expenses incurred by any Corporate authority shall be deemed to be expenses necessarily incurred by them in carrying into execution within and for their city or borough the Act intituled An Act to provide for the Regulation of Municipal Corporations in England and Wales, and any other Act amending the same.

4. Where any such garden or ground is managed by any committee of the inhabitants of any square, crescent, circus, street, or place, such committee may make, and from time to time revoke and alter, bye-laws for the management of the same, and for the preservation of the trees, shrubs, plants, flowers, rails, fences, seats, summer-houses, and other things therein, which bye-laws shall be entered in a book kept for that purpose by the committee, signed by the chairman of the meeting at which the same shall be passed, and which book shall and may be produced and read, and taken as evidence of such byelaws, in all courts whatever, and any inhabitant or servant, or other person admitted to such garden by any inhabitant, offending against the same, after they shall have been duly allowed as herein-after provided, upon proof thereof before a magistrate acting for the district in which such garden is situate, shall be liable for each offence to a penalty not exceeding 5*l.*: Provided always, that such byelaws shall not come into operation until the same shall have been allowed by some judge of one of the superior courts, or by the Justices in quarter sessions; and it shall be incumbent on such judge or justices, on the request of such committee, to inquire into any byelaws tendered to them for that purpose, and to allow or disallow the same as they think meet.

5. Any police constable who shall see any person throwing any rubbish into any such garden, or trespassing therein, or getting over the railings or fence, or stealing or damaging the flowers or plants, or committing any nuisance therein, may apprehend such person, under the authority hereby given to him; and any person convicted before any magistrate acting for the district shall be liable for each and every offence aforesaid to a penalty not exceeding 40*s.*, or to imprisonment for any period not exceeding 14 days; and in case it shall be necessary to state in any proceedings the ownership of the property of such garden, flowers, or plants, it shall be sufficient to describe the same as the property of the committee by the name of A. B. and others.

6. The provisions contained in the 225th, 226th, 227th, and 228th Sections of the Act, passed in the Session of Parliament held in the 18th and 19th years of the reign of her most Gracious Majesty the Queen, Chapter 120, shall be incorporated in this Act, and shall apply to any penalty or forfeiture imposed by this Act, or any bye-law made in pursuance thereof, in and for every matter or thing done or omitted to be done within the metropolitan district; and the Act passed in the 12th year of the reign of her Majesty the Queen, Chapter 43, shall apply to every penalty or forfeiture imposed by this Act, or any bye law made in pursuance thereof, for any matter or thing done or omitted to be done within any other part of England and Wales.

7. Nothing in this Act shall extend to or include any garden, ornamental ground, or other land belonging to her Majesty in right of her crown or of her Duchy of Lancaster, or any garden, ornamental ground, or other land for the time being under the management of the Commissioners for the time being of her Majesty's Works and Public Buildings, or of the commissioners for the time being acting under the Crown Estate Paving Act, 1851, or to any garden, ornamental or other ground, for which special provision is made for the due care and protection thereof by any public or private Act of Parliament.

8. Nothing in this Act shall extend to Scotland or Ireland.

Home Correspondence.

Cool Treatment of Orchids.—The best reply I have it in my power to give to your correspondent who inquires (see p. 461) whether certain Orchids of his will succeed under cool treatment, is to furnish a list of such as I have myself subjected to it, all of which—so far as a few months' experience will enable me to judge—like it well. Your correspondent should, however, remember that the system I have been advocating is not intended to interfere with the hot treatment of plants that come from hot, but simply to supply cool treatment to such as come from cool localities, and which will not therefore endure being boiled or roasted alive. Unfortunately our catalogue of cool country plants is at present very meagre, simply because we have hitherto lost them as fast as they came, but we look confidently to the enterprise of our nurserymen, such as Messrs. Veitch and Messrs. Low, to provide materials for a fresh start. Even under cool treatment Orchids require air, shade, and humidity, and will not succeed unless treated very differently from other greenhouse plants. A cool house ought always to face the north. Ada aurantiaca, Brassia Gireoudiana, B. cinnamomea, Cypripedium Schlimii, Epidendrum sceptrum, E. vitellinum, E. verrucosum majus, Barkeria spectabilis and Skinneri, Cycnoches barbatum (Paphinia barbata), Cattleya citrina, Comparettia falcata, Cyrtochilum maculatum, Disa grandiflora, Eriopsis biloba and altissima, Cœlogyne cristata, Lælia autumnalis, and anceps, Lycaste Skinneri, Maxillaria venusta, Notylia bicolor, Masdevallia coccinea and tovariensis, Odontoglossum angustatum, O. aureo-purpureum, O. bictoniense, O. cariniferum, O. Cervantesii, O. cordatum, O. crinitum, O. grande, O. læve, O. nebulosum, O. nævium majus, O. Pescatorei, O. Phalænopsis, O. pulchellum, O. pretiosum, O. Reichenheimii, O. Uro-Skinneri, O. terrestre, O. stellatum, Oncidium ornithorhynchum, O. leucochilum, O. tigrinum, O. Skinneri, Paphinia tigrina, Pescatorea (Huntleya) cerina, Sophronitis cernua grandiflora, and pterocarpa, Uropedium Lindeni, Trichopilia picta and suavis, Warrea Lindeniana. The above include nearly all the American Orchids with which I am acquainted that not only delight in a cool house, but are worth growing in any house at all. A few more might, however, be added, such as Cypripedium insigne, Odontoglossum hastilabium, &c., to which a cool house is not essential. *Serapias.*

Shrubs in South Devon.—The late mild winter has been favourable to half-hardy plants in this county. I have Chamærops excelsa coming into flower. The large Chinese Guelder Rose, Viburnum macrocephalum, is covered with bloom and is really a fine thing. Would it not unite with the common Guelder Rose of our shrubberies, as budded or grafted standard high, it would be a very striking plant. A huge plant of Abutilon vitifolium is covered with its showy flowers; and blossoms, for the first time, will soon be developed on a new South American Buddlea, raised from seeds received from the Royal Horticultural Society a few years ago. These plants were all killed to the ground in 1860, but will soon be in flower, both against a wall, and as standards. My hybrid Rhododendrons have not bloomed as freely as usual, but, nevertheless, have been gorgeously beautiful, though none can yet compete with their Indian parent R. arboreum, which has produced glorious flowers this year in the open air. Of Sikkim Rhododendrons none have bloomed with me out of doors but ciliatum, glaucum, and blandfordiflorum; the latter is a very striking species, as it is totally unlike any other, being similar in form and colour to the Australian Lily, the name of which it bears. Would not its orange and yellow colour give novelty of hue if crossed with some free-seeding white or crimson variety? This species flowers freely with me, and seems very hardy. Through the kindness of Sir W. J. Hooker I received some years since a collection of these fine plants, but though they are not permanently injured by the coldness of our winters, they are nevertheless often damaged by spring frosts, as they start into growth far too early for safety. In the conservatory Dalhousiæ and Edgworthii have been very fine, and the late blooming Maddenii is generally beautiful, far superior to Dr. Hooker's figure, and much more fragrant than Edgworthii. I would also add that many perfect flowers of Magnolia exoniensis have opened this spring, and that the old but somewhat rare Iris Susiana has flowered abundantly. The Cloth of Gold Noisette Rose, and America, are blooming freely, with others. One plant of Ilex latifolia has produced berries the last season, but the fruit of this fine species is very inferior to its foliage. *A Devonian, May* 16.

Bog Firs.—Sir Charles Lyell, in his "Geological Evidences of the Antiquity of Man," speaks of an era of Scotch Fir; he also states that this Scotch Fir where introduced, has never thriven. The same might be said in respect of the bogs in this part of Ireland, for when planted on drained or reclaimed bogs, generally speaking Scotch does not thrive, while other Firs do. But I think it is assuming too much to say, that the timber found in the Irish bogs is the Scotch Fir. Whatever it may be in a Danish bog, I am strongly of opinion, from the appearance of the timber, that in those of Ireland it is not the Scotch Fir. I attach no importance to the colour of the timber, but to the grain, to the large amount of resin, and especially to the cleavage and general appearance of the timber. It most nearly resembles the Pitch Pine of commerce—speaking only from the appearance of the timber, as I have never seen leaves or cones in the bogs, nor have I heard of any having been found, unless it be one cone much broken and mutilated, given me by a person in Belmullet, and which was stated to have been found in digging turf 3 or 4 feet below the surface of a bog behind the canal that connects Blacksod Bay with Broadhaven Bay. This is quite a large cone, and very little decayed; but as bark is often found quite fresh in appearance, and not having seen this cone *in situ*, I do not attach much importance to it. The bogs here occupy equally the sides of hills and valleys, often extending under the sea to low-water mark, and are full of timber. I hope these remarks may be the means of eliciting more information on the subject. *Benjamin B. Billington, Roy Towers, May* 12. [We should like to see the cone.]

Boilers.—If your correspondent "Ignoramus," who inquired about Bury & Pollard's conical boilers, will refer to the *Gardeners' Chronicle* of March, 1842, and February, 1843, he will see that Professor Lindley offers his valuable testimony to the obvious advantages of these boilers for Rendle's tank system of heating. These conical boilers are those of Stephenson & Peill, to whose business Bury & Pollard have succeeded. *W.*

——In reply to the inquiry of "Ignoramus" respecting Bury & Pollard's improved conical boilers, I beg to say it is the well known boiler of Stephenson & Peill, whose successors Bury & Pollard are. This description of boiler is most economical in its consumption of fuel, and has been tested in these gardens nearly 20 years. One of them in use here, heating three Vineries and two Melon pits, works well, and could if required heat more. I have no doubt they might be easily applied to heat a Rendle's tank in a pit. *J. Miller, The Gardens, Frognal, Footscray, Kent.*

Roses.—Your Correspondent Mr. Radclyffe is evidently learned in Roses, and, what is more to the purpose, is plainly willing to impart to your readers his knowledge respecting the Queen of Flowers. Last year he wrote of white, red, and black mildew, telling us how to cure the two former, but not the latter, which in my experience is the most destructive of the three, attacking young and old leaves alike, and spreading with equal rapidity on each. If Mr. Radclyffe will now kindly supply the omission I allude to, I dare say he will oblige others as well as myself. *C. R. S.*

Cuthill's Black Prince Strawberry.—I have this day (Derby Day) about 10 early Black Prince Strawberries showing colour, and three or four, which the sparrows have half spoiled, ripe. This is earlier than any I have had before in the open ground without protection. *James Cuthill, Camberwell.*——I gathered a pottle of perfectly ripe fruit of Black Prince on Monday the 18th inst., and I have continued to do so every day

since. In the course of a week the ground will be covered with ripe fruit. The real value of this variety is, I consider, its earliness; and to get it thus early and prolific, it requires to be treated differently from other kinds. I grow it on a bank facing the south, thrown up as steep as possible, and composed of refuse from the gas works, such as old mortar, clinkers and clay. From experience I find my last summer's runners, no matter how late, are those which produce the earliest fruit. They will succeed on a rock, provided you have just soil enough to plant them in, and will continue bearing all the season up to Christmas should hard winter frost keep off. The Black Prince seems a very hardy kind, for the sharp frost we had some time since, when the fruit was as large as a horse bean, and the plants were covered with blossoms at the same time (in fact they are white with blossom even now), had not the least effect on it, although every blossom that was open of other sorts was killed. *Robert Shackell, Bath.*

Wireworm.—Prevention, it is said, is better than cure. On first entering my present service, which was in March, 1859, owing to the miserable condition the Vines were in, I found it necessary to plant the houses afresh. I had the privilege of walking over the estate to make choice of a plot of pasture from which I could take material for the border. I selected a piece which was well exposed, elevated, and laid due south; there was, however, in the soil a much greater mixture of sand than I could have wished. On the 20th of April, 1859, I had the turf cut 3 inches thick and stacked. On my examining the soil I found wireworm in it in great numbers, and the largest I ever saw. On the 18th May the stack of turf was chopped to pieces, and to every 8 cart loads of this chopped turf were added, 1 cart load of old dung, 1 ditto brick rubbish, and two bushels of soot. The soot was employed for the destruction of the wireworm. Upon the drainage of the border, turf of the same thickness was laid with the grassy side downwards, and upon this was strewed soot to the thickness of half an inch. On May 25 the soil was placed upon this sooted turf; on the 31st of the same month the Vines (Black Hamburgh) were planted, and 12 weeks after planting they reached the top of the house, a distance of 20 feet. They were cut down on the 15th December following, were allowed to break with the season, and finer canes I never witnessed. The following spring every eye showed three and some four bunches. They were permitted to carry a light crop, and some of the bunches weighed 3 and 4 lbs; they still give every satisfaction. Two years after I had occasion to make another border. The turf was cut and brought from the same spot, the soil prepared and Vines planted as above, and they are everything one could wish. I have been thus precise in my description, because I am anxious to show to those contemplating making Vine borders that they have nothing to fear from wireworm provided they follow the steps just laid down. *C. Squires, Heywood, Westbury, Wilts.*

Rose Lord Clyde.—In reply to Mr. Wm. Paul's assertions at p. 462 that my statements are "unfair, untrue," and respecting my "being under an illusion," allow me to explain that the Rose seed was gathered and mostly attended to as to sowing, budding, &c., afterwards, by separate parties in the nursery, and not exclusively by Mr. W. Paul and the man now his foreman. As to my claim of the old Cheshunt Nurseries, I was upwards of 14 years an equal partner with my late father, Mr. A. Paul (trading as A. Paul & Son), till his death in 1847, when Mr. Wm. Paul joined me as junior partner for an expressed period, at the expiration of which he left the Old Nurseries, retaining only a portion of 8 to 9 acres of the outer ground. *George Paul (Paul & Son), Old Cheshunt Nurseries, Cheshunt Street, Herts.* [Here this matter must stop.]

Stakes or no Stakes.—Mr. Editor: I'm a woodman least however I gets a living by selling steaks to gentlemen as grows them 'nation great plants for egsibishun and a perty good living it has bean I assure ye, but zir I vansy youl be surprised as I assure you I was when at a flower show tother day I heeard a young feller say as how them plants as was on the stages wasnt growd but factored by the woodman and rope maker, Zir I wishd youd a been thur or some of them chaps from Lunnun as could a talked to him and just a took the shine out on him as it was I felt it cumbent upon myself to ax him if he could show anything like um hisseif. he sed as how he had got some at whoam of the same sort as had all the graceful beauty of natur about um and that look at um anyhow they was all round alike and they hadnt no stiks in um. Of course zir I nor nobody else belived him and I told him so and then with a lot a fine talk he let on about big plants in Lunnon with teribie fine faces and hundreds of stiks in um end with hols behind big enough for a Friars cooking Kitchen. I thought zir he was just come strait from the Pope with his new fangled notions, and as I seed I had no chance to talk it out of him I would just write to you and ax you to help us. I am afeard our trade will suffer and that all on us who have druv such a roaring trade in stiking wood shall have to pine away in the workhouse fancy zir if plants was to be growd as this chap wanted um to be how could we get sale for our nice strait stiks why we couldnt sell um at any price and should have to make um all up at once into faggots to be burned. Why zir you dont know what he sed and it makes my blood tingle when I thinks on it why zir I heeard him say as how they could all be growd with next to no stiks and that he had Heeths and Hedromas Pimelers and Broniers and a lot of other plants 3 or 4 feet through um and would give more money than I ever seed for every stik I could find in um. Why zir I was to mad to take him at his word but I wish now I had, I shouldnt then have troubled you with this do Mr. Editor take it up for us and give this chap a rap over the knuckles for his presumption in meddling with we poor woodmen and our trade and I am sure we shall be all grateful to you. I shall look out perty sharp for your next peaper and till then beg to subscribe mysell zir yours &c. *A Regular Woodman.*

Societies.

Linnean: *May* 7.—G. Bentham, Esq., President, in the chair. A portrait, by Eddis, of J. J. Bennett, Esq., who till recently filled the post of Secretary to the Society, was presented by James Salter, Esq., Treasurer of the fund, in the name of 62 Fellows who had subscribed thereto. H. C. Bastian, Esq., and H. T. Mennell, Esq., were elected Fellows; and Prof. Alexander von Bunge, a Foreign Member. The following papers were read:—1. "On two aquatic Hymenoptera, one of which uses its wings in swimming." By J. Lubbock, Esq. Till now, the author stated, no aquatic Hymenoptera or Orthoptera had been discovered, though the former group alone has been estimated as comprising some 50,000 species, 3500 of which live in Great Britain. In a basin of pond water, on an early day in August last, he had been astonished to see one of these Hymenoptera, Polynema natans by name, quite at ease in the watery element, and actually swimming by means of its wings. At first he could hardly believe his eyes, but having found several specimens and shown them to some friends, the fact was undoubted. The same phenomenon, moreover, was again observed within a week by Mr. Duchess, of Stepney. Another of the aquarian Hymenoptera, now first described under the name of Walkeria aquatica, was found in the same pond, but this, unlike the former which swam by means of its wings, held its wings motionless when under water, and used its legs only; and though these were neither flattened nor provided with any well-developed fringe of setæ, they seemed very well to serve this purpose: indeed, the motion of this species was more rapid than that of the former. Both species are fond of creeping along the sides of the vessel in which they are kept, or on the leaves and stems of aquatic plants; but they frequently quit their support, and swim boldly out into the open water. In these insects respiration appears to take place in the usual way through spiracles. A common house fly placed under water ceased to move in half an hour, while the specimens now referred to lived under water for several hours without suffering any apparent inconvenience, and one was observed to be quite lively after having been so placed at least 12 hours, which it was stated, from further observation, is probably about the limit of their endurance. Drawings of the two insects accompanied the paper, which also contained a technical account of their organisation.——2. "Note on the embryo of Ancistrocladus." By G. Bentham, Esq., and J. D. Hooker, M.D. The authors stated that at page 191 of the first part of their "Genera Plantarum," they had fallen into an error in regard to this genus, (which they place in Dipterocarpeæ) in describing what Mr. Thwaites had called a ruminated albumen, as contortuplicate cotyledons. A further examination of ripe seeds communicated by Mr. Thwaites, had proved that they were at fault in doing so. The affinity of the genus they however still regard as being with Dipterocarpeæ, thus adding, they say, one more to the already large proportion of exalbuminous natural orders in which albuminous genera occur.

Nova Scotia Horticultural.—The annual meeting of the Shareholders of this Society took place the other day, when the report of the Directors was submitted, read and adopted. The financial affairs of the Society are satisfactory. During the year a large amount had been expended in erecting a Lodge, introducing gas, and repairing and putting up new fences; and it appeared that whilst a considerable amount had been expended, beyond the receipts of the Fruit and Vegetable Show held in the Gardens on the 30th September last, the articles for which prizes were awarded being sent to the London Exhibition, and receiving very marked notices from many of the leading London journals (thereby bringing the fruit of this province into notice), to this day, the Directors of the Society had not seen the medals awarded to the fruit, &c., by the Royal Horticultural Society, or been treated with common courtesy by the Committee, who induced the Directors to undertake and hold the exhibition here. A vote of thanks was passed to the Directors and others for their services. The following gentlemen were then elected to serve the ensuing year, viz.:—Dr. Chas. Cogswell, President; John Naylor, Esq., Vice-President; George McKenzie, James Cochran, J. T. Twining, Edwd. Binney, and James Thomson, Esqrs., Directors; and Arch. Scott, Esq., Sec. and Treasurer. The report stated that there was now on sale at the Society's Garden, over 3000 acclimated ornamental and fruit trees, 2000 Currant and Gooseberry bushes, with 2500 pot plants, besides bed plants, Dahlias, Hollyhocks, &c., with a well selected stock to arrive by the Roseneath from Glasgow.

Notices of Books.

Yedo and Peking: a Narrative of a Journey to the Capitals of Japan and China. By Robert Fortune. Murray, 1863. (Second Notice.)

(*Continued from* p. 391.)

Amongst the novel agricultural operations practised by the Japanese and Chinese, none appear to us more curious than that of preparing fresh vegetable matter for manure. This method of economising the weeds and such like natural enemies of the husbandman, seems to be extensively pursued, old men, women, and children, being seen employed on every hill-side, cutting Grass and weeds for the purpose. Mr. Fortune calls this (p. 182) using "vegetable matter in a fresh state for manure;" but it is not exactly so, for he goes on to describe the process as consisting in mixing the weeds with mud and water, when the compost rots after a very short time, and affords nourishment to the Rice crops.

Japan, he says, is of all the countries the most beautiful in spring. "The trees were now clothed with leaves of the freshest green, and many of the early kinds were in full blossom. On every hill-side and in every cottage garden there were some objects of attraction. The double-blossomed Cherry-trees and flowering Peaches were most beautiful objects, loaded as they now were with flowers as large as little Roses. Camellias, forming goodly-sized trees, were common in the woods, and Azaleas adorned the hill-sides with flowers of many hues. Here, the A. obtusa, with flowers of the most dazzling red, was peculiarly at home. Cydonia japonica was seen in a wild state creeping amongst the Grass, and covered with red blossoms; and several varieties of Primrose (P. cortusoides) were met with under trees in the shady woods."

Of the outskirts of Yedo he says, "Park-like scenery, trees and gardens, neatly clipped hedges, succeeded each other. The whole country here (the village of Su-mae-yah) is covered with nursery gardens. One straight road more than a mile in length is lined with them. I have never seen in any part of the world such a large number of plants cultivated for sale. Each nursery covers 3 or 4 acres of land, is nicely kept, and contains thousands of plants, both in pots and in the open ground. As these nurseries are generally much alike, a description of one will give a good idea of them all.

"On entering the gateway, a pretty little winding pathway leads up to the proprietor's house, usually situated near the centre of the garden. On each side of this walk are hardy ornamental trees and shrubs of the country, often dwarfed or clipped into round table forms. The beautiful little Yew (Taxus cuspidata) occupies a prominent place amongst dwarf shrubs. Then there are the different species of Pines, Retinosporas, Thujas, and the beautiful Sciadopitys verticillata, all duly represented. Plants cultivated in pots are usually kept near the house of the nurseryman, or enclosed with a Bamboo fence. Glass houses are not yet in use for rearing tender plants, instead of which sheds and rooms fitted with shelves are used, into which the Japanese huddles them for shelter during the cold months." Amongst other plants in the nurseries, Mr. Fortune notices Cacti, Aloes, Fuchsias, and other exotics to Japan, which are not yet introduced into China. In one garden he found nothing but varieties of Acorus growing in square Nanking pots, and in each pot was a rock of agate, crystal, or other rare stone, many of them representing the famous Fusi-yama, or "Matchless Mountain" of Japan.

We have already alluded to the frightful earthquakes that almost periodically devastate large tracts of these lovely plains. To their evil influence much that is singular in the domestic architecture of the Japanese, which has so charmed the eyes of all visitors, may, according to Mr. Fortune, be attributed. He says, "On carefully examining the structure of one of these buildings (which are a subject of admiration to every foreigner who visits Japan) one sees the principles upon which it is put up, and the reasons for its peculiar construction. Buildings such as we erect in England would be very unsafe in Japan. Here the main part of the house is a sort of skeleton framework. Every beam is tied or fastened to its neighbour, so that when the earth is convulsed the whole building may rock and sway together without tumbling down. In order to render these buildings more secure it seems necessary to have the roof of great strength and weight, and this accounts for their heavy and massive structure." We do not see the force of this reasoning as regards the roof, whose weight and solidity surely may be better accounted for by the fact that the houses would otherwise become the sport of the terrific tornadoes which infest this island, and do as much damage as the earthquakes.

Elsewhere it is stated, that in one year (1859-60) no less than 28 shocks had been felt; and that the natives do not hesitate to express their dread that some day their fair and beautiful land may disappear in the waters of the sea. As usual in all earthquake countries the natives dread the shocks more than strangers; the sound of creaking timbers, and his bed moving in a most uneasy manner, "as if some strong power was endeavouring to carry it bodily away, but changing his mind had set it down again," is told of by Mr. Fortune with perfect *sang froid*, though in Yedo alone, only eight years before his visit, it is supposed that 200,000 person fell victims to an earthquake and its consequent conflagrations.

Before leaving these pleasant pages, to which every lover of horticulture and natural scenery will often recur, we must allude to an episode in our traveller's wanderings which he himself details as reflecting on the conduct of our officials in Japan, but which according to his own showing leaves no one but himself to blame. We do this with reluctance, but fair play demands it. Yedo, it appears, is a sealed city to all foreigners but the resident ministers of the several foreign Powers, their establishments, and those persons alone to whom they grant passports,—the wisdom of which restriction is fully admitted by Mr. Fortune in his narrative. Being naturally anxious to visit Yedo,

however (and to no one could there be less objection to grant a passport), Mr. Fortune applied for permission, not to the representative of his own Government (Mr. Alcock's *locum tenens*), but to the American minister; and having thus obtained a passport he repaired forthwith to Yedo, without even reporting the step he had taken to the British Legation, the members of which he met on entering the city. Under these circumstances Mr. Fortune is surprised to receive that same evening a letter from the gentleman in charge of the embassy, requesting him to take his departure without delay. One would suppose that the least a traveller could do after this would be to solicit a personal interview, offer an apology for the disrespect he had thoughtlessly shown, and make a formal request for a permit. But no, he answers by letter, saying that he had been misinformed at Kanagawa as to the extent of powers left with Mr. Alcock's *locum tenens* at Yedo (an unlucky insinuation that the latter is a nobody); that Mr. Alcock would, had he been at Yedo, have granted the permission, and that he therefore hopes that his representative will not insist on his departure. Who can wonder that the answer to this is an order to leave Yedo at once. Mr. Myburgh would, had he adopted any other course, have been strangely wanting in what was his duty, not only to his Government, but to himself. Into the question of the propriety or otherwise of the American Minister giving an invitation to a British subject under the circumstances, we are not called upon to enter; but that Mr. Fortune's whole proceeding must have appeared contemptuous towards the British Legation can no more be questioned, than that it was wanting in consideration at the outset, and courtesy at the end.*

We have left little space for an allusion to Mr. Fortune's visit to China, all we can say of which is that it is highly interesting, but far too brief; the account of his excursion to the mountains west of Pekin is extremely suggestive, and we should like to hear much more of that curious country from him. In conclusion we may heartily congratulate our author on having written four books on the same country, of which all are good, and the last as good as the first.

The *Botanical Magazine* for the month of May figures the following plants:—*Alocasia Lowii*, a beautiful Bornean addition to the class of ornamental-leaved stove plants, having very much the character of A. Veitchii, but with the advantage of being a plant of freer growth. It is a fine thing. *Saxifraga Fortunei*, an evergreen Saxifrage introduced from Japan by Mr. Fortune. It has the general features of S. sarmentosa, but the cordate-reniform seven-lobed leaves are green, and the white unspotted flowers, which grow in a branched panicle, have the lower petal about three times as large as the rest, and notched with a few coarse teeth. It is a very pretty plant, but will be quite eclipsed by a variety in which the leaves are beautifully variegated, also introduced by Mr. Fortune to the nursery of Mr. Standish. *Hæmanthus natalensis*, a near ally of H. insignis, and a fine greenhouse bulb, with the sheaths at the base of the stem beautifully spotted and tipped with crimson, the leaves themselves oblong acute, and the flowers collected into a roundish head at the top of the scape, pale green with orange-yellow anthers, and surrounded by an involucre of rich ferruginous purple bracts; it comes from Natal. *Scilla natalensis*, another ornamental greenhouse bulb from Natal, with a tall scape supporting a long raceme of blue flowers, and broad lance-shaped leaves sheathing the stem by their broader base. *Heterotropa parviflora*, a neat little Japanese perennial, with a good deal the appearance of our common Asarabacca, except that the leaves are cordate approaching to sagittate, with a pallid stripe along the centre, and a good deal marked with blotches of grey.

The *Florist and Pomologist* figures *Delphinium elopecuroides*, a very handsome double purple perennial Larkspur, with close fox-brush-like flower-spikes, raised by Mr. Wheeler, of Warminster; and a Pear called Nouvelle Fulvie, one of Grégoire's seedlings, described as a delicious fruit, ripening in January and February. The fruit is large, of a long pyriform shape, considerably bossed and uneven in its outline, deep green before ripening, then yellowish, a good deal russetted; the flesh is fine-grained, buttery, and melting, with abundant sugary juice and perfumed flavour. There is a capital article by "R. T. C." on Cape Bulbs, a class of plants which have most undeservedly been suffered to fall out of cultivation, or nearly so; an account of a plan of assisting seedling fruits into early bearing, by Mr. Webster, of Gordon Castle; and a suggestion by Mr. Tillery to grow every year a batch of seedling Gladioli in Rhododendron clumps, which suit them to perfection, so that a supply of bulbs may be had for massing in the pleasure-ground.

In the present issue of *Gossip of the Garden*, Mr. C. J. Perry, a well known authority in Verbena matters, very properly recalls attention to the distinction that ought to be made between bedding and show varieties. A bedding Verbena, he says, has no better claim to a place among the show varieties than a bedding Dahlia has with Lord Derby. As a rule no Verbena with a large eye—a fine feature in the show sorts—is suitable for bedding, the eyes becoming in every sense eye-sores. We urged this subject of bedding Verbenas on the attention of seedling raisers some time ago, and we quite agree with Mr. Perry, that a great improvement might soon be worked out. What is required is, no doubt, a Verbena with a dwarf bushy growth, covering the ground completely as it grows, and requiring no pegs; the foliage moderate in size and dark in colour; the trusses erect on short footstalks, only just long enough to carry them out of the leaves, the trusses being flat, and not given to produce seed, but dying away and giving place to others as the pips fade, and the colours being positive. These qualities, he remarks, are combined in a vivid scarlet called Spark, sent out last season.

In the *Floral Magazine* are pictures of *Imantophyllum miniatum*; a fine crimson *Rose, François Lacharme*, one of the best of last year's varieties; *Camellia Duchesse de Berri*, one of the best of the double whites; and three blazing *Pelargoniums—Improvement, Censor*, and *Souvenir*, some of which might be described as reticulate-flowered if we dared trust the representations.

The Fifth Part of *Seemann's Journal of Botany* has a figure of *Tropæolum Heyneanum*, a little known species found by Mr. Markham in Southern Peru, and having small orange-coloured flowers remarkable for their multifidly-cut petals, the segments being blunt in the upper and awl-shaped in the lower petals. The plant was formerly cultivated in the German gardens. Mr. Syme, who has visited the Lyndhurst habitat for Gladiolus illyricus, and seen the plant growing, considers that it is really indigenous. "The best way of finding the plant is to stoop down and look through between the leafstalks underneath the fronds of the Pteris aquilina, when, if the Gladiolus be in flower, the crimson spikes may be discerned at a considerable distance." Mr. Syme acquiesces in the use of the name G. illyricus for this New Forest plant, "the only others with which it could be confounded being G. imbricatus and G. communis," plants which "seem to be merely subspecies of one superspecies to which the name communis properly belongs." A translation is given of a paper by Alph. De Candolle, on a new character in the fruit of Quercus, and on the best subdivision of that genus. In this it is stated, in reference to the question affecting the Cork tree mentioned at p. 292, that, long ago, André Michaux and his son pointed out that some Oaks ripen their fruit at the end of the first year, and others in the course of the year following. This character, which had been neglected for half a century, has had attention recalled to it by M. Gay, to whom we are especially indebted for the discovery that of two species confounded under the name of Quercus Suber, one has annual, the other biennial fruit. This character was particularly examined by M. De Candolle in hundreds of specimens of the same species, and he found that the duration of the fruit was most easily determinable even from a dried branch, and perfectly constant in each species. All that is required, was to see if the ripe fruit was fixed to the new wood, or to that of the previous year. This unfortunately is only an isolated character. A more important one apparently, discovered in the course of the learned Professor's inquiries, was found to be derived from the relative position of the atrophied ovules to the seed, which is always single. Applied to the species Suber and occidentalis this gives the following result:—In Suber the ovules originate slightly above the base of the ovary, and are found ultimately in a spiral line round the mature seed. In occidentalis, the specimens examined showed the atrophied ovules to be decidedly inferior. In the same number, is a paper on dimorphism in the genitalia of flowers by Professor Asa Gray.

The Popular Science Review, No. 7, contains among other matter an elaborate dissertation on a Beech twig, beginning in little and ending in less; with the exception of a speculative theory about buds, prepared by the author out of very old materials imperfectly understood.

Books Received.—*Observations on Wines.* By A. & H. Grainger & Co., 17 Walworth Road.——*The Technologist*, No. XXXIV. By P. L. Simmonds (Kent & Co.).——*A Manual of European Butterflies.* By W. F. Kirby (Williams & Norgate). A very nice systematical book, which is certain to be popular among Entomologists. It is accompanied by *a synonymic list* of European Butterflies, printed on one side only of each page, so that the names may be cut out for labelling Cabinets.——A fifth of his admirable *Lectures on the History of England* (Longmans), has appeared from the pen of Mr. Wm. Longman. It relates to the eventful reign of Edward the 2d, and is illustrated by most useful wood engravings.——*Journal of the Bath and West of England Society for the Encouragement of Agriculture*, Vol. XI., Part I. n. s. (Ridgway), is a capital number, full of most valuable practical information.——*Watts's Dictionary of Chemistry*, Part 3, (Longmans), extends from Arsenic to Bismuth.

Garden Memoranda.

Mr. Barnes' Nursery, Camberwell.—Since we last visited this nursery a marked improvement is observable in all its departments. The out-door stock comprises nearly everything that may be expected to be found in more extensive establishments; and, although the locality is not free from the smoke of London, yet under Mr. Barnes' skilful management few or no failures are experienced. Roses even succeed tolerably well, and annually produce a plentiful crop of bloom. To ensure this, however, considerable pains are taken. At planting time the ground is thoroughly trenched 3 feet deep, and the wants of the plants in the way of water are also well attended to. The quarters in which stools are growing are top-dressed in winter with half-rotten dung, which serves as a protection, and at the same time contributes materially towards the nourishment of the plants. Fruit trees in pots are also plunged and mulched in a similar manner, and nothing in their way can possibly be finer than their appearance is at the present time. With trained and other fruit trees this nursery is also well stocked; as it likewise is with Aucubas and certain other sorts of evergreens; even Conifers, especially Thuja aurea, disregarding the suburban situation, look as healthy as if they were miles in the country.

In-door Camellias have bloomed profusely this season, and are now in close pits making wood; even from the old Double White few buds have dropped. This may be owing to the atmosphere of the house in which they are growing being kept steady as to temperature, and otherwise in a favourable condition for promoting a healthy vegetation. Azaleas, of which Mr. Barnes has an extensive collection, also succeed here uncommonly well, even weakly growers attaining a vigour which under ordinary circumstances they seldom possess. This is no doubt correctly attributed to their being worked on A. Verschaffelti, which makes a more robust and suitable stock than phœnicea, and at the same time one which may be rapidly increased to any amount from cuttings. Among the different varieties with which the houses are stocked, Reine Blanche and Ivery's Queen appeared to be the best whites; Magnet, bright rosy salmon, is of fine habit, and a remarkably free grower; Bride of Abydos, white, striped and mottled with purple, is also a variety possessing an excellent constitution; and Leeana is likewise a good white, occasionally striped with pink. The best double white kind is undoubtedly Flag of Truce, and among double pinks Glory of Sunning Hill still holds a conspicuous position. If, however, we may judge from a single bloom which Mr. Barnes showed us, it is likely soon to be eclipsed by King of the Doubles, a bright rosy pink sort, with blooms as large as those of an Oleander, which therefore cannot, we think, fail to be considered a real acquisition.

In a house filled with greenhouse plants were many beautiful examples of Lonicera aureo-reticulata, a plant stated to strike from cuttings as freely as a Willow; we may therefore hope soon to see this fine new Japanese Honeysuckle as common as a China Rose. In other houses young Vines are grown in great abundance and perfection, and in a corner of a propagating house were some variegated Geraniums grafted on Emperor, a strong-growing scarlet. Of shy sorts, such as Mrs. Pollock, Sunset, and others of that description, Mr. Barnes expects to make in this way more vigorous plants, and thus cause them to attain greater size in a shorter time than they could be induced to do under ordinary cultivation. In stoves, on the roof of one of which Stephanotis floribunda is flowering beautifully, is a good stock of the usual inmates of such structures, including the singular looking Alocasia metallica, and a great variety of Caladiums and other plants kept chiefly for the beauty of their leaves. A tiffany house has just been put up for the accommodation of the hardier sorts of Ferns, which are about to be placed in it in tasteful order.

Gladioli, planted in the first week in April, are just coming up; for succession Mr. Barnes would recommend a second planting to be made this month, and another in June. He is of opinion that Gladioli are generally put in the ground too early, and that if planted as just indicated more satisfactory results would be obtained.

The show houses are gay with flowering plants, and altogether the nursery is now in excellent order, and well worth inspection. The walks, which are being put into good repair for the season, are being edged with Rosher's hard burnt blue Staffordshire tiles, which when well laid down have a neat appearance, and are said to resist the influence of frost.

Miscellaneous.

Sales by Auction.—Orchids, consisting of established plants, sold at Stevens' the other day, realised the following prices, viz.:—Cymbidium eburneum, 5*l.*; Aerides Veitchii, 6*l.* 10*s.*; A. maculosum speciosum, 4*l.* 10*s.*; Trichopilia crispa, 6*l.* 15*s.*; Vanda Batemanni, 4*l.* 4*s.*; V. cristata, 4*l.*; Cypripedium Veitchii, 4*l.*; C. caudatum, 4*l.*; C. villosum, 3*l.*; Camarotis purpurea, 3*l.* 3*s.*; Cattleya labiata picta, 3*l.*; C. marginata, 3*l.* 10*s.*; C. Mossiæ aurantiaca, 3*l.* 15*s.*; C. quadricolor, 4*l.* 8*s.*; Phalænopsis grandiflora, 4*l.* 10*s.*; P. amabilis, 3*l.* 15*s.*; Saccolabium ampullaceum, 3*l.* 15*s.*; S. Dayanum, 3*l.*; Miltonia candida grandiflora, 3*l.* 15*s.*; other lots

* We regret that we cannot agree with our experienced and able reviewer in this view of the dispute between Mr. Fortune and Sir Rutherford Alcock's *locum tenens*. Mr. Fortune had already visited the capital in the autumn, and was anxious to examine its gardens once more in spring, and states (p. 188) that his only reason for not applying to Mr. Myburgh in the first instance was, that "he might not have the power to grant the request, and that it would be disagreeable for him to refuse it." Mr. Fortune's letters were abundantly courteous, and considering that he was the guest of the Minister of a friendly Power, the language and acts of Mr. Myburgh were alike unjustifiable and uncalled for.

fetched from 10*s.* to 2*l.* 10*s.* per lot, of which there were in all 152. A few hardy Ferns, sold along with the Orchids just named, realised from 1*d.* to 8*d.* each.

Wood-lice in Churches.—A correspondent asks for information as to means of getting rid of wood-lice in a church. Various recipes for destroying insects of different kinds have been given in our columns; but we do not think "Keating's Insect destroying Powder" has been mentioned. We have found it effectual in destroying insects in a garden, and it is said to be equally useful in clearing away such pests as fleas, bugs, &c.; it might, therefore, be sprinkled about the resorts of the wood-lice; and we dare say that in a short time they may thus be got rid of. We should like to know the result. This powder (unlike Keating's Vermin-killing Powder) is said to be "harmless to animals," although destructive to all sorts of insects. For flying and some other insects it is used as a fumigant, sprinkled on red-hot coals or wood, or set fire to after being twisted up in a piece of paper. *The Builder.*

Tropical Forests.—Among the forms of tropical vegetation, the creeping plants, Bushropes, or Lianas (Cissus, Bauhinia, Bignonia, Banisteria, Passiflora), that contribute so largely to the impenetrability of the forests, hold a conspicuous rank. Often three or four Bushropes, like strands in a cable, join tree to tree, and branch to branch; others, descending from on high, take root as soon as their extremity touches the ground, and appear like shrouds and stays supporting the mainmast of a line-of-battle ship; while others send out parallel, oblique, horizontal, and perpendicular shoots in all directions. Frequently trees above 100 feet high, uprooted by the storm, are stopped in their fall by these amazing cables of Nature, and are thus enabled to send forth vigorous shoots, though far from their perpendicular, with their trunks inclined to every degree from the meridian to the horizon. Their heads remain firmly supported by the Bush-ropes; many of their roots soon refix themselves in the earth, and frequently a strong shoot will sprout out perpendicularly from near the root of the reclined trunk, and in time become a stately tree. No European is able to penetrate the intricate net-work of a forest thus matted together: astonished and despairing he stands before the dense cordage that impedes his path, and, should he attempt to force his way through the maze, the strong thorns and hooks with which the tropical creepers are generally armed would soon make him repent of his boldness. Even the Brazilian planter never thinks of entering the forest without a large knife, or without being accompanied by slaves, who, with heavy scythe-like axes attached to long poles, clear the way by severing the otherwise impenetrable cordage. But if the naturalist vents dire imprecations on the creepers, which render forest exploration so difficult, they are the delight of the monkeys and tiger-cats that climb them with astonishing celerity. The rapid ascension of the highest trees, or even the passage over streams, is rendered easy by their means to whole herds. No less pliable than tough, the lianas of the western hemisphere are used by the Brazilians as cordage to fasten the rafters of their houses, in the same manner as the equally flexible rattans are employed throughout the East Indian world. *Hartwig's Tropical World.*

Disappearance of the Vine Disease.—Dr. Télèphe, of Bordeaux, has been the first to remark, that since the appearance of Oïdium, the large kinds of edible fungi, and especially Boleti, have disappeared from those localities where the Vine has been diseased. This observation was made known in 1853 to the Linnean Society of Bordeaux; and it has been remarked that since the minute Cryptogams (such as Erysiphe oïdium on the Vine, Botrytis on the Potato, and Ustilago carbo on the Maize) have been attacking and destroying these necessaries of life, so have the large kinds of Mushrooms been comparatively rare. But since the autumn of 1862, the Agarics and Boleti have reappeared in great quantities about Bordeaux, and the markets of this large town have been encumbered with them. From this fact, Dr. Desmartis considers himself justified in foretelling the final disappearance before long of the Vine disease. *Les Mondes.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.— Climbing or trained plants while growing will require constant attention in the way of thinning and stopping, and if bright weather, which may now be expected, should set in, a slight shading will be of benefit on very hot days. As soon as the weather shall have become more genial, air must also be freely admitted, and pot plants, especially fine specimens, must be allowed abundance of room. Maintain a moist temperature, and see that nothing suffers for want of water. Inspect carefully young stock, especially that for blooming next winter. Early-sown Chinese Primroses and Cinerarias may be had in flower in October and November. Another sowing may be made shortly for spring decoration. Continue to start at intervals successions of Achimenes. Chrysanthemum cuttings may be put in; they will do without bottom heat; short-jointed wood will strike freely under a hand-light. Gloxinias require partial shade and a moist heat. Gesneras may be treated in the same way, but they like more light. Amaryllis may be removed to the conservatory for blooming, where they will prove a great acquisition. Where it can be accomplished watering should still be done in the morning, in order that all superfluous moisture may be dried up before evening.

FORCING DEPARTMENT.

Pineries.—Now is a good time to go through the whole stock of succession Pines, beginning with the largest. Let them be taken out of the pits and turn them out and examine their roots in order to see if a shift is required. After the larger plants have received attention, follow with those of smaller size, putting them into larger or smaller pots, according to the amount of vigour they possess. Some of the old tan will probably require replacing with new material; but it is requisite to use caution as to the depth of fresh tan at this season, for fear of overheating, and burning the roots. If the temperature of the old tan is not much below 85°, it will be sufficient to turn it over to the depth of a couple of feet. In replacing the plants take care to keep such as are likely to fruit in the autumn by themselves as much as possible, in order that when wanted they may be removed without disarranging the whole pit. Plenty of room must be allowed to prevent the plants from becoming drawn.

Vineries.—Houses in which Grapes are ripening should be kept at 90° or even higher, with sun heat, but if allowed to fall down to 70° at night, so much the better. On nights following clear sunny days, little or no fire will be necessary; avoid over-cropping, and take care to keep red spider in check.

Peach Houses.—Forced trees in pots that have ripened a few early fruit, should be kept in the house till the beginning of next month at least to finish their growth. Give them plenty of water, and syringe once a day. During the present cold weather it would be an advantage to fruit now ripening if a little fire were made in the day time, and some air given through the back ventilators.

Figs.—In favourable weather let these have plenty of air during the day, and abundance of water, and, except where fruit is ripening, use the syringe freely.

Cherries.—Spare lights placed now over trees of May Duke against walls would forward the crop very much without farther trouble than drawing the lights a little apart during sunshine, and pushing them close and closing the ends with canvas during the night. They must, however, be securely fastened during stormy weather like the present.

Melons.—This season has been remarkably favourable for early Melons, and with many these will be ripened, and the crop gathered in time to admit of a second set of plants being turned out in the same pit. This is much preferable to the plan of obtaining a second crop from the same plants; they will succeed if planted before the middle of next month.

FLOWER GARDEN AND SHRUBBERIES.

Recently planted shrubs will require constant inspection until the beginning of June. Masses of American plants, under or near large trees, should have a top-dressing of some kind to keep them cool, and to compensate for the exhaustion occasioned by the roots of the trees. A coating of bog-earth or half-rotten leaves will be suitable. Conservative walls, trellises, or ornamental arcades, should have close attention at this period. Get out masses of flowers as soon as they are hardened. Now is the time to establish a firm and even sward or lawn. The roller and scythe, or mowing machine, will be in frequent request, and much labour is involved in these operations properly carried out. See that edgings hitherto neglected are put in order for the summer; do not, however, cut beyond the original boundary, and keep the walks filled with gravel. Let the roller be passed frequently along the edges in order to level them down to the walk, this takes away the harshness of the outline. Tulip-roots should be taken out of the ground when the foliage has assumed a yellow, withered appearance. Ranunculuses will shortly be in bloom; these, to keep in perfection for some time, should have a light awning over them, when an occasional watering between the rows will be of service.

HARDY FRUIT AND KITCHEN GARDEN.

About London out-door fruit in open quarters got considerably shaken by the wind and rain on Monday and Tuesday last; but still sufficient is left for a crop. On walls trees fared better, and artificial thinning will in most cases have to be resorted to with an unsparing hand. Stopping and keeping down insects will also require attention. In the kitchen garden, where any of the main crops have failed more seed should be immediately sown, or where they have partially failed, procure plants, if possible, to fill up with. Destroy slugs with quicklime, which should be strewn over every part of the garden several nights or mornings in succession. Thin Beet to a foot apart. If the first crop has altogether failed, it is not yet too late to sow another. Make another sowing of both early and late Broccoli, the former to come in in October and November, and the latter late in the spring. Earth up Cabbages that were planted early in spring; tie up the leaves of a few of the most forward of the autumn-p'anted, to cause them to form hearts for early use. Continue to prick out Celery. In planting out a second time, before finally transplanting into trenches, make a bed of equal parts of rotten dung and loam, about 4 inches thick, on a piece of hard ground, so that at the time of planting the whole of the earth and dung may adhere to the roots after the trowel is passed between each of the plants. A few trenches should now be got ready for the earliest Celery. Give the rows a good width, because Celery should never be earthed up until it has nearly attained a size fit for use, and, therefore, the intervening spaces may be cropped with Lettuces, Early Dwarf Cabbages, and Cauliflowers, all of which would come off before the final earthing. Let ridge Cucumbers be got in without delay, and shade for a few days. At the same time a few lights may be sown with seeds of Vegetable Marrow and Cucumbers for succession and for Gherkins. For the latter purpose, on warm soils, seeds sown in the open border will suffice; but on colder soils it is better to forward them in pots, and have a sloping bank thrown up facing the south; plant them near the top, and train the stems downwards, stopping them occasionally.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending May 20, 1863, as observed at the Horticultural Garden

May.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 14	26	29.846	29.825	62	49	55.5	55	52½	S.W.	.08
Friday 15	27	29.879	29.753	65	41	53.0	55	52½	S.W.	.08
Satur 16	28	29.906	29.876	65	40	52.5	53½	52½	S.W.	.02
Sunday 17	☽	29.785	29.769	65	32	48.5	53	53	S.W.	.00
Mon. 18	1	29.851	29.821	67	40	53.5	55	53	N.E.	.40
Tues. 19	2	29.879	29.866	54	41	47.5	54	52½	N.E.	.22
Wed. 20	3	30.015	29.997	48	45	46.5	53½	52	N.E.	.21
Average.		29.884	29.815	60.9	41.1	51.0	54.7	52.5		1.01

May
— 14—Cloudy and fine; cloudy, rain at night.
— 15—Rain; showery and warm.
— 16—Cloudy; squally; fine but rather boisterous; fine at night.
— 17—Overcast, fine throughout.
— 18—Fine; overcast, boisterous with heavy rain at night.
— 19—Boisterous with cold rain; many trees blown down; very boisterous.
— 20—Boisterous with rain.

Mean temperature of the week 2 4-5th deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending May 23, 1863.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 17..	65.5	42.0	53.7	15	0.58 in	2	7	1	1	4	11	4	4
Mon. 18..	63.2	42.8	54.0	16	0.17	2	7	5	3	3	10	5	2
Tues. 19..	66.5	43.1	54.8	12	0.50	2	7	7	2	4	5	3	—
Wed. 20..	66.6	43.3	54.9	17	0.44	2	6	7	3	4	10	1	4
Thurs. 21..	66.3	44.9	55.6	16	0.36	3	6	10	2	5	6	3	2
Friday 22..	65.7	43.5	54.6	17	0.30	1	6	4	3	3	10	3	2
Satur. 23..	67.9	45.4	56.6	13	0.33	1	6	6	3	3	9	4	5

The highest temperature during the above period occurred on the 22d, 1847—therm. 89 deg.; and the lowest on the 18th and 19th, 1854; 20th, 1853; and 19th and 20th, 1856—therm. 30 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

Anthuriums: *H H.* These are not Arads, as you have been told, but Orontiads. Their affinity is with Pothos, not with Caladium. You cannot therefore show them in a group of Caladiums.

Florists' Flowers: *J H Smith.* If your Tropæolum leaves will retain their character, the sort will richly deserve the name of "Cloth of Gold." It is remarkably handsome.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. It is requested that not more than four plants may be sent us at any one time.—*C F.* 1, Amelanchier vulgaris; 2, We do not recognise; it is a very young female, and may possibly belong to Betula nana or diffusa. —*R M.* The deep yellow is Dendrobium chrysanthum; the other is Dendrobium Devonianum.—*W C.* 1. Phalænopsis intermedia; 2. Brassia cinnamomea.—*G H.* Some Carex extremely young—possibly C. flava.—*W R P.* 1, Veronica officinalis; 2, Lotus corniculatus; 3, Polygala vulgaris blue; 4, ditto, white.—*Joseph Dawson.* 1, Dracæna? imperfect specimen; 2, Eleocharis acicularis.

Roses: *E D D.* Catherine Guillot is a good, free-growing Rose, but likely to flower better on a south than on a west wall; Souvenir de Montceau, Princesse Mathilde, Mademoiselle Haiman, Oriflamme de St. Louis, and Laure Davoust are all suitable for a west wall. Madame Melanie is a good Hybrid Perpetual Rose of the colour of the old Tuscany.

Tobacco Water: *Amateur.* This is obtainable from the Tobacco manufacturers. When pure it is strong, and should be diluted with pure water, 1 gallon being mixed with from 3 to 5 of the liquor, according to its strength. You can make it yourself, if you please, by steeping strong rough Tobacco in boiling water, at the rate of about a quarter of a pound to the gallon, and keeping it close till cool, to retain the steam. It is to be applied with a syringe.

Variegated Raspberry: *Anon.* The leaf is very prettily variegated, and we do not remember to have seen anything in the same way. If permanent, and the plants are freely marked, it will be a desirable addition to the already crowded ranks of variegated plants in cultivation.

Verbenas: *E D D.* You will not be far wrong if you use Purple King, purple; Snowflake, white; Mars or Spark, scarlet; Lady Cotton Sheppard, rose; and Tweediana, crimson. There are some newer ones reputed to be better, but we cannot say if they are so.

Wistaria: *E D D.* The Wistaria is perfectly hardy, and will "do" anywhere, provided it has good soil to grow in. On a north aspect it would be later—that would be all the difference.

Wine: *A Constant Reader.* In our opinion the South African wines, especially what is called Port, are by no means as suitable to persons who only take them for their health, as European wines.

POTTER'S GUANO (established 21 years) 7*l.* per Ton.
POTTER'S CONCENTRATED MANURE, guaranteed by analysis, 10*l.* per Ton.
PURE GYPSUM, 25*s.* per Ton, bags included.
Address, 28, Clapham Road Place, S.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.
116, Fenchurch Street, E.C.

TENANT FARMERS' MANURE COMPANY.
ODAMS'S BLOOD MANURE for CORN.
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MANUFACTURED BY THE PATENT
NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),
Consisting of TENANT FARMERS, occupying upwards of 30,000 Acres of Land.
Chairman.—JOHN CLAYDON, Esq., Littlebury, Essex.
Particulars of these Standard Manures may be obtained at the Offices. C. T. MACADAM, Secretary.
Or of the Local Agents.
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Manufactory: Plaistow Marshes, Essex, N.E.

LAWES'S MANURES.
The Manures manufactured by J. B. LAWES for the present season of 1863 are now ready for delivery at his Factories, at the following prices:— Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME £6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES .. 5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES 8 0
These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from Messrs. Gibbs: Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

Drainage, &c.
MR. JOSEPH BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements. Valuations made for Sales, or the re-letting of Farms.
22, Parliament Street, Westminster, S.W.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
To LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c. IN ENGLAND AND WALES AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.
Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

AGRICULTURAL and CHEMICAL COLLEGE, 37 and 38, Lower Kennington Lane, London, S.
ASSAYS and ANALYSES promptly attended to by J. C. NESBIT, LANSDELL & Co.

AGRICULTURAL and CHEMICAL COLLEGE, KENNINGTON.—Manufacturers and others engaged in making Artificial Manures may obtain every necessary instruction for their economical and efficient preparation by applying to J. C. NESBIT, LANSDELL & Co., 37 and 38, Lower Kennington Lane, London, S.
Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and despatch.
Gentlemen, Farmers, or others, desirous of practical knowledge in Chemical Analysis, or Assaying, may receive instruction at the College, where the extensive Laboratories give ample facility for pursuing their studies, and there is accommodation for a limited number of Resident Students.
Full particulars of terms will be forwarded on application.

Land Drainage.
WORKS of DRAINAGE of any extent are EXECUTED by the GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY on all descriptions of property, whether freehold, entailed, mortgaged, trust, ecclesiastical, corporate, or collegiate.
Repayment may be made by the Landowner as successive portions of the works are completed; or the actual expenditure with a commission thereon, may be charged on the propert, improved, by way of rentcharge on the estate created for various terms of years so as to adapt the rate per cent. of annual charg to the circumstances of the tenants.
No investigation of title being required, or notices given Reversioners or Mortgagees, no legal expenses are incurred.
Works of Irrigation, Enclosing, Wood Grubbing, Road Making, and Farm Buildings are executed in a similar manner.
Landowners desirous to execute any of the Improvements by their own Agents, and charge the outlay and expenses on the Estate, may obtain Loans for the purpose.
Applications to be made to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, S.W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
WORCESTER MEETING, 1863.
PRIZE SHEETS and CERTIFICATES for ENTRY of STOCK will be forwarded on application.
LAST DAY of ENTRY, JUNE 1.
CAUTION.—All Certificates received after that date will be returned to the Senders. H. HALL DARE, Secretary.
12, Hanover Square, London, W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
WORCESTER, 1863.
TENDERS for GREEN FODDER, HAY, and STRAW.
Persons desirous of Tendering for the supply of either of the following, viz.: 1st, about 10 Acres of GREEN FOOD, consisting of Green Vetches, and of Green Clover or Trifolium; 2d, of HAY, 30 Loads more or less of the best quality; 3d, of STRAW, about 50 Loads, of 36 Trusses each, for use in the Society's Show Yard at Worcester, from the 17th to the 25th of July, can obtain particulars, and Forms of Tender, on application to H. HALL DARE, Secretary.
12, Hanover Square, London, W.

YORKSHIRE AGRICULTURAL SOCIETY.—GREAT SHOW at SOUTH STOCKTON ON TEES, August 5, 6, and 7, 1863.
For Prize Sheets apply to JOHN HANNAM, Secretary.
Kirk Deighton, Wetherby.

HAMBURGH INTERNATIONAL AGRICULTURAL EXHIBITION.
NOTICE.—To insure insertion in the CATALOGUES, all ENTRIES of LIVE STOCK from Great Britain and Ireland should be made before the 25th of May.
All communications to be made post paid to the Secretary of the Committee, Dr. HACHMANN, Advocate, Hamburgh.
N.B. As all the Hotels at Hamburgh are engaged, a Committee of gentlemen has been formed who have undertaken to procure lodgings for strangers. Application must be made to Dr. H. DONNENBERG, Hamburgh, post paid, stating accommodation required.

THE GENERAL STEAM CULTIVATION COMPANY (Limited).
Notice is hereby given, that NO FURTHER APPLICATIONS for SHARES will be RECEIVED from London after MONDAY, the 25th inst., and from the country after WEDNESDAY, the 27th inst.
By Order, W. SWIFTE, Secretary pro tem.
70, Cannon Street West.

ON SALE, in the GREAT INTERNATIONAL DOG and POULTRY SHOW, Islington, on E. & F. CROOK'S STAND, Registered POULTRY FOUNTAINS, FEEDING CAGES, and Vermin Proof PHEASANT FEEDING BOXES. Also Portable Brass Mantelshelf Fire Screens, enriched Brass Fire Screen Poles; and the new Royal Wedding Commemoration Candlesticks, containing Medallions with correct Likenesses in bas-relief of the Prince and Princess of Wales.
E. & F. CROOK, General Ironmongers and Manufaturers, 5, Carnaby Street, London, W.

THE FIRST GREAT INTERNATIONAL SHOW of SPORTING and other DOGS, will be held at the AGRICULTURAL HALL, Islington, during NEXT WEEK.

THE GREAT INTERNATIONAL DOG SHOW at the AGRICULTURAL HALL.—The Doors will open on MONDAY NEXT as soon after 4 P.M. as possible, when all the Classes have been judged except the HOUNDS, which will be judged in public in front of the Great Orchestra.

THE GREAT INTERNATIONAL DOG SHOW at the AGRICULTURAL HALL.

ADMISSION.	*s.*	*d.*
MONDAY, (after 4 o'Clock P.M.)	5	0
TUESDAY, open from 8 A.M. to 8 P.M.	2	6
WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, from 8 A.M. to 8 P.M. ..	1	0

INTERNATIONAL DOG SHOW, AGRICULTURAL HALL, Islington.—FISH HATCHING will be practically demonstrated at the International Dog Show by FRANK BUCKLAND, Esq., M.A. With the permission of the Proprietor of *The Field*, the Fish Hatching Apparatus from *The Field*, containing Living Salmon, Trout, Grayling, Danube Salmon, and Perch will be shown. The Ova of Salmon in the Process of Hatching, and various Illustrative Diagrams will also be exhibited.

THE GREAT INTERNATIONAL DOG SHOW.—The largest Show of FOX HOUNDS ever exhibited in London, including entries from the following Packs:—the Duke of Beaufort's, Lord Fitzhardinge's, The Cambridgeshire, The Cotswold, and The New Forest, &c, &c.

THE GREAT INTERNATIONAL DOG SHOW.—Selections from eight Packs of HARRIERS, including Three Couples from the Pack of his Royal Highness the Prince of Wales.

THE GREAT INTERNATIONAL DOG SHOW.—Upwards of Eight Hundred DOGS used in Field Sports, besides SAPLINGS and PUPPIES.

THE GREAT INTERNATIONAL DOG SHOW.—FOX-HOUNDS, STAG-HOUNDS, HARRIERS, and BEAGLES will be shown in open Kennels, not chained up.

GREAT INTERNATIONAL DOG SHOW.—Four Couples of the Old Breed of NEW FOREST BLOOD-HOUNDS from the celebrated Stag Hound Pack of THOS. NEVILLE, Esq., of Clelland.

GREAT INTERNATIONAL DOG SHOW.—Foreign Dog Classes—Tartar, Russian, Pyrenean, Algerian, Watch Dogs, Wolf Dogs, Boar Hounds, Slave Hunting Hounds—Chinese, Japanese, and Maltese Lap Dogs.

GREAT INTERNATIONAL DOG SHOW.—Bloodhounds, Mastiffs, Mount St. Bernards, Monster Dogs of many countries, &c.

GREAT INTERNATIONAL DOG SHOW.—Nearly 400 Toys and Fancy Dogs of the choicest and smallest breeds.

The Agricultural Gazette.

SATURDAY, MAY 23, 1863.

THE utilisation of house waste, to which attention was last week directed before the Society of Arts by Dr. THUDICHUM and the Rev. H. MOULE, is a thing on which both theoretical and practical men are now urgent. Very few however can claim a place in the latter of these classes. There used to be a great many more than there are. The cleaning of cesspools used to be a much larger business than it is; and many more acres used to be dependent upon this source of fertility in the neighbourhood of towns and even villages than is now the case. Water-closets have diminished the supply, and superphosphates and guano have been substituted for it. There can however be no doubt of the value of the stuff thus wasted. The only man we know at present who on any considerable scale has learnt and continues to realise this fact, grows much better Turnips at a cheaper rate upon the material thus collected every now and then from every privy in his village, and mixed up with earth and ashes until the time when it is wanted, than he can from superphosphate. And a fact like his experience is worth a good deal more in the estimation of agriculturists than all the angry protest on this subject on the part of scientific men. And it is not much more than *this* which has yet been addressed to us from without.

LIEBIG praises Oriental agriculturists at the expense of the Western "barbarians," because they have for so long a time known and acted on the fact on which Mr. ALDERMAN MECHI so frequently insists—that a man is at least as good as a sheep; writers have long urged on farmers that manure—"food *minus* growth"—must be better and more fertilizing when food is liberal and fattening is not desired, as it is where men are fed, than it is when food is merely vegetable, and the object is to place it on the body of the fatting animal—moreover, we come every now and then upon a

REDUCTION IN PRICE.

PHOSPHO GUANO.

The Prices for the Season 1863 are as follows, delivered Free on Board, or on the Rails at Liverpool.

For 30 Tons and upwards	£10	5	0	per Ton, net cash.
For 10 Tons up to 30 Tons	10	10	0	,, ,,
For 5 Tons up to 10 Tons	10	15	0	,, ,,
For smaller quantities	11	0	0	,, ,,

The Price will not exceed 12*s.* per Ton additional if delivered at any other Port in Great Britain.

PETER LAWSON & SON, CONTRACTORS.
GEO. SEAGRAVE & CO., BROKERS.
WILLIAM DIXON & CO., GENERAL AGENTS.

28, KING STREET, CHEAPSIDE; AND 15, LAWRENCE LANE, LONDON, E.C.

garden experience which seems to prove the value of what is now so generally neglected. But none of all this can tell in any given locality with anything like the effect which is produced when a successful Turnip grower tells his brother farmers at the market table that he has for many years been in the habit of paying half-a-crown apiece to his villagers for leave to come and take away the garden box as soon as it is full; and that he gathers in this way many thousand bushels of good stuff per annum, which he finds to be both cheaper and much better than superphosphate.

To all the more general considerations, however, which have been named, we have now to add the growing conviction that our successful efforts to cleanse our towns are washing out to sea an immense body of this valuable manure. Advertisements for proposals to utilise the immense body of waste which we are getting rid of in the metropolis, are appearing at the time when continental chemists are condemning our reckless mismanagement, and the Society of Arts have done well at such a time to direct the public attention once more to the possibility of turning this valuable material to account.

To this end they invited Dr. THUDICHUM and Mr. MOULE to address one of their weekly evening meetings. The former collected an immense quantity of information, which is published in the Journal of the Society of Arts, on the quantity and composition per individual of the material wasted, and suggested means of saving and collecting for sale the whole of the liquid portion of it. Mr. MOULE, on the other hand, whose experience as a clergyman among a poor population long ago directed his attention to this subject, again brought forward his plan for deodorising house waste of all kinds by means of earth, the material thus produced being, when well mixed and partly dried, capable of repeated and perfectly successful use for this purpose many times in succession.

We see in the papers that Mr. TAYLOR, of Romsey, has invented an apparatus by which it is intended to turn the solid parts only of manure to better use, just as Dr. THUDICHUM'S plan contemplates only the utilisation of the urine. It is the latter which is the most valuable part of what is now wasted, but there cannot be a doubt of the superiority of the plan of Mr. MOULE, by which both are saved. And he has the testimony not only of his own garden but of large agriculturists in his neighbourhood to the great fertilising power of what he thus obtains. A full detail of his plans, and of the experience by which their value has been proved, will be found in the last number of the English Agricultural Society's Journal.

Meanwhile the contrast which this cheap and simple method of feeding our fields presents to the costly method of applying artificial manures ought to obtain for it the favourable consideration of agriculturists. It is just lately that the East Lothian Farmers' Club have published the results of experiments in the growth of Turnips which had been planned for its members, and have since been carried out by them. Twelve or 13 different methods of manuring were directed, and have been adopted. They consist of various dressings of farmyard dung, Peruvian and Bolivian guano, superphosphate, bones, rape-dust, sulphate of ammonia, &c, varying in cost from 3*l.* 15*s.* up to 6*l.* 2*s.* per acre! And the resultant crops seem to have varied from 10 to 20 tons per acre — the cost of the increased produce due to the application amounting to 6*s.* to 10*s.* per ton—quite as much as they were worth. It will be a more satisfactory thing both to individual farmers and to the country at large when the increased fertility of which we have reason to boast is more cheaply bought by a careful husbanding and application of those homely sources of it of which we now make no use.

Certainly we are not disposed to acquiesce in LIEBIG'S declaration, that our management as a whole is tending to the exhaustion of our fertility; but there cannot be a doubt of his accuracy if his assertion is taken as meaning merely that this advance is not because of, but in spite of very much that is now a source of culpable and reckless waste.*

—— THE trial (BEADEL *v.* HOWARD) reported in our columns last week, was not an appeal, but the hearing of the arguments in the Court of Common Pleas upon the points of law reserved in the first trial. The appeal to the Court of Error has yet to be heard.

CO-OPERATIVE FARMS.

SINCE I published in the Royal Agricultural Journal the plan of my co-operative farms in Suffolk, I have received many letters from all parts of the kingdom, inquiring if I could not devise some means by which gentlemen might engage in agriculture as a profitable and agreeable profession. As it is, the necessity for constant supervision of your labourers, who are ever watching an opportunity for slighting their work or purloining, renders it profitless and irksome. In an intellectual point of view no profession can surpass it; the Mantuan Bard devoted two of his poems to the subject, and the cultivator is constantly reminded

"To look thro' nature up to nature's God."

How then is this state of things to be remedied? Make these selfsame labourers co-partners, then your interests will become theirs; you will then be ready to address them as in the days of old, "The Lord be with you," and they will be as ready to respond "The Lord bless thee." Co-operation thus comes in to our aid, and I would here just observe that societies founded upon these principles will be the bulwark of our land, ever ready to show a bold front against discontented and revolutionary demagogues. Co-operation I conceive to be the handmaid of sympathy; as our immortal bard says,

"One touch of nature makes the whole world kin."

Fourrier, a Frenchman, wrote upon the subject of farming co-operation, and my friend the late Lord Wallscourt carried it out most successfully on his estate in the county of Galway; a balance sheet was drawn out every Michaelmas, and the profits were divided between the landlord, bailiff, and labourers, similar to prize-money to a ship's company. On this basis I form my plan of agricultural co-operative societies, already proved to be practical and sound. By rules and regulations, I bind the parties more compactly together, and by the march of intellect I introduce machinery, store shops, &c., which have proved most advantageous to the general weal. *John Gurdon, Tonbridge Wells, May* 1.

For Example.—A younger son, or one possessing a few thousand pounds, having been educated at Cirencester College, or passed a certain time under an experienced agriculturist, invests his capital in a farm, at the rate of 1000*l.* for every 100 acres; he takes the farm on a running lease, the rent to be increased or decreased every eight years, without reference to the state of the land. As four men and perhaps a boy are required to cultivate 100 acres, he calls together a certain number of the best workmen, proportionate to the size of the farm, and offers to take them into partnership, subject to the following terms. The principal to find the capital, to receive out of the assets of the farm 5 per cent. interest; to inhabit the farmhouse and premises, and forage for one horse; his duty to consist of keeping the accounts, paying all liabilities, and receiving all assets; to select two of the members to form a committee with him as general managers of the farm; each member to pay down on being enrolled 2*l.*, as much more as they wish, to go into the general fund, for which they shall receive 5 per cent. interest; that quarterly meetings be held, and at the Michaelmas, or annual meeting the accounts to be balanced, and after paying rent, &c., interest on the capital, the surplus to be placed in the Government Savings Bank, to the amount of 200*l.*, as a reserved fund to meet contingencies; all extra monies to be paid as extra dividend according to each man's capital advanced; that the committee selected from amongst the members receive a certain remuneration, as may be voted out of the profits at the annual meeting; that a steam engine be fixed for threshing the corn, grinding it, heating the ovens, turning the bread-making machine, (Stevens' machine, 139, Cheapside), steaming food, &c.; that bread, beer, pork, bacon, milk, butter, &c., be provided; and a store and slop shop be established, similar to the one at Rochdale; that coals be contracted for in summer, and laid in to each member's dwelling after harvest; that any member convicted of fraud, or any other crime, or a frequenter of public houses, be excluded the society; that each member become enrolled in a benefit club founded on Government principles to insure against sickness; that the rules be laid before Tidd Pratt, Esq., to be duly registered under the Limited Liabilities Act; and that any of these rules may be altered at the annual meeting if carried by a majority of members.

Analysis of Benefits to the Members.—The principal receives 5 per cent. for capital expended in the farm and establishment; if it is a paternal farm or private property, the benefits will be greater, as each member will be off the parish rates); likewise he receives his share according to his capital of all surplus, over and above the reserve fund; he inhabits rent free the farmhouse, premises, and garden; one horse is kept for his especial use, while he pays market price for provender for any other horse or horses; he participates with the other members in the articles, &c., purchased at cost price; furthermore he would be relieved from the responsibility and irksomeness of overlooking and directing the men, and other daily duties, at a cost to the proceeds of the farm, of say 20*l.* for pork, and 10*l.* as remuneration for the two committee men.

The members to pay down 2*l.*, or more if they wish it, to merge in the general fund, for which they would receive 5 per cent., and a further dividend on the surplus profits, and all the necessaries of life at cost price. As there would be a good profit on Wheat reduced to bread, Barley to beer (both articles being sold to the society at market price), also on the store shop, &c., there would be a handsome dividend at the disposal of the members; there is no reason why others should not be allowed to deal at the store shop, but the surplus profit should belong exclusively to the members.

A COMPARISON OF SHEEP.

THE members of the Parlington Tenants' Club, having concluded their second experiment in winter feeding the following different breeds of shearling sheep, for the purpose of ascertaining with an equal or given quantity of food the class most profitably adapted to their locality, comply with the wishes of their friends in again publishing the result.

It may be remembered that in the summer grazing they tested with 12 sheep of each class, but in the winter feeding they selected six out of each class, and only tested with that number. The remaining 24 were again divided into 12, three of each class sent to Barrowby to feed upon cut Turnips alone, and the other 12—three of each class—were sent to Stourton Grange, to run with the occupier's shearlings, which had in the mass half-a-pound of cotton-cake per day in addition to cut Turnips; but as these were large sheep, it may be presumed they would take the lion's share, and would probably get 1 lb. per day. Tabular statements, showing the effect of this at Barrowby and at Stourton Grange, are also given.

To do away with the objection of the inequality of condition, lambs were bought, wintered, summer grazed, and then winter fed.

Reference to the tabular statement published in November, 1862, would show the increase of the Shropshire Downs over the others, and upon reference to the table published in October, 1861, this increase is well supported; for though upon that occasion they were second in the race, the Leicesters taking the lead, it must be borne in mind (and shown by these tables) that the Leicesters are less feeders. 12 of these were upon that occasion pitched against 10, the Leicesters being pretty well off for food, whilst the Shropshire Downs were short. In the winter feeding of the Shropshire Downs in 1861-62 they were second, but upon this occasion the result is adverse.

The experiment was carried out by close folding upon swathe, and though the ground was changed, they all showed lameness, but the Shropshire the more so. The remark that the Shropshire Downs had done their work is scarcely supported if reference is made to their progress in the tabular statement at Stourton Grange; and if again to that at Barrowby, the inference is that the allowance of cake, at one time ¼ lb. per day, and afterwards not more than ½ lb., was not sufficient to materially increase their weight. There is this remarkable fact, that whilst as hogs they only clipped 66 lb. of wool, as shearlings in 10 months they clipped 84 lb., showing a greater disposition to grow wool upon this soil and climate than the others. Therefore, as a whole, I see no reason to withdraw my observation in March last, viz, "The mutton of the Shropshire Down, with its increased wool, bears its own testimony, and will force its way with thinking men." The propensity of the north sheep to feed upon Turnips is fully borne out in these tabular statements, whilst the excess of wool in the improved Lincoln, with its greater proportion of flesh to that of the very pure Leicester, is an animal of great and increasingly great repute.

Living close upon the manufacturing town of Leeds,

* We add as a foot-note the remarks on the subject with which Dr. VOELCKER concluded his lecture at the Royal Institution the other day. It must not, however, be forgotten that the lecturer had previously admitted the great wastefulness of much that now characterises farm management and social arrangements.

So far from being in a progressive state of exhaustion, it might be readily demonstrated, if time permitted, that the productiveness of the soils of England has wonderfully increased during the past 50 years, and that the deplorable but hitherto unavoidable loss which the sanitary laws of a civilised country necessitate is perfectly insignificant in comparison with the immense amount of animal riches in the great majority of soils, and with the abundant restoration of fertilising matters to naturally poor land.

"But I must not enlarge on this subject, and be content in preference to my own experience on the Cotswold Hills to mention a few facts kindly supplied to me by Mr. J. Coleman, the intelligent manager of the Duke of Bedford's home farms at Woburn.

Farm in the parish of Oxnead, western part of Norfolk.

Crop, Wheat:			
1773	Produce per acre,	15	bushels
1784	,, ,,	23	,,
1796	,, ,,	28	,,

Average of 30 years to 1802, 26 bushels per acre. This district now produces 32 to 36 bushels as an average crop.

"Holkham, Norfolk: In 1800 the average produce in Holkham Park was 24 bushels per acre. Since that it has steadily been increasing, and yields now as an average of the last 10 years, 36 bushels.

"Waterden, near Wells, Norfolk: 1800, the average of 20 years previous was 24 bushels per acre. The present average is now 36 bushels.

Wymondham, near Norwich:

1800 Average of Wheat crop	20	bushels
1860 ,, ...	32	bushels

"Mr. Hudson, of Castle Acre, also informs me that in 1800 the average produce of Wheat round Lynn was 20 bushels—that now it is 32 to 36 bushels.

"Many other instances of increased productiveness of both heavy and light land, occur no doubt to every intelligent observer who has taken an interest in agricultural progress, and few people will doubt that agriculture has been more rapidly developed in England than in any other country.

we observe a change in the taste of the operative from that of excessive fat meat to one of a less wasteful and more fleshy description. Combining this with the results of these experiments may in some measure have modified our views and led to a more critical support of others, concluding that the cultivation of an animal of

Description of Sheep.	Number of Sheep.	Weight of Sheep on the 18th October, 1862.	Weight of Sheep on the 18th March, 1863.	Increase.	Weight of Sheep when shorn.	Weights of Mutton.	Weights of Wool.	Weights of Tallow.	Weights of Pelts.	Weight of Turnips consumed.	Weight of Linseed cake consumed.	Value of Turnips at 6s. 8d. per ton.	Value of cake at 10l. 10s. per ton.	Value of food consumed.	Mutton gained during the time of winter feeding upon Turnips and cake.	Price of mutton per lb.	Value of the mutton so gained.	Wool gained during the time of winter feeding.	Price of wool per lb.	Value of wool.	Value of mutton and wool added.	Loss upon mutton and wool.	Profit upon mutton and wool.
																						And showing the relative value that the several classes bear to each other.	
		st. lb.	st. lb.	lb.	st. lb.	lb.	lb.	lb.	lb.	stones	lb.	£ s. d.	£ s. d.	£ s. d.	lb.	d.	£ s. d.	lb.	s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Shropshire Downs ..	6	82 1	89 9	106	84 7	747	30½	101	80	1159	255	2 8 3½	1 3 10½	3 12 2½	67	6½	1 17 8½	19½	1 7½	1 12 1	3 9 9½	0 2 5	..
Lincolns	6	83 8	100 11	241	93 1	804	69	95	104	1305	357	2 14 4½	1 13 5½	4 7 10	148	6½	3 17 1	34½	1 8	2 17 6	6 14 7	..	2 6 9
Leicesters	6	73 13	84 0	141	78 10	718	42	83	76	1112	255	2 6 4	1 3 10½	3 10 2½	91	6	2 5 6	21	1 7½	1 14 1½	3 19 7½	..	0 9 4½
North Sheep	6	73 7	95 5	306	89 2	806	45	80	74	1421	306	2 19 2½	1 8 8½	4 7 10½	197	6½	5 6 8½	22½	1 7½	1 16 6½	7 3 3½	..	2 15 4½

Table showing the Result where Twelve Sheep, Three of each Class, were fed upon Turnips alone at Barrowby, from the 18th October, 1862, to the 18th March, 1863.

Description of Sheep.	Number of Sheep.	Weight of Sheep on the 18th October, 1862.	Weight of Sheep on the 18th March, 1863.	Increase.	Weight of Sheep when shorn.	Weights of Mutton.	Weights of Wool.	Weights of Tallow.	Weights of Pelts.	Mutton gained in the above time.	Price of mutton per lb.	Value of the mutton so gained.	Wool gained in the above time.	Price of wool per lb.	Value of wool.	Mutton and wool added, showing the relative value that the several classes bear to each other.
		st. lb.	st. lb.	st. lb.	st. lb.	lb.	lb.	lb.	lb.	lb.	d.	£ s. d.	lb.	s. d.	£ s. d.	£ s. d.
Shropshire Downs	3	38 2	39 1	0 13	35 12	303	24	44	35	7	6½	0 3 11½	12	1 7½	0 19 6	1 3 5½
Lincolns	3	36 0	41 11	5 11	38 10	321	34½	42	48	47	6¾	1 4 5¾	17¼	1 8	1 8 9	2 13 2¾
Leicesters	3	34 0	37 5	3 5	34 6	308	23	37	34	30	6	0 15 0	11½	1 7½	0 18 8½	1 13 8½
North Sheep	3	34 12	43 1	8 3	40 7	352	20½	42	36	71	6½	1 18 5½	10¼	1 7½	0 16 7½	2 15 1½

Table showing the Result where Twelve Sheep, Three of each Class, were Fed upon Cotton Cake and Turnip at Stourton Grange, the amount of Cake not given, having been fed when folded with other Sheep.

Shropshire Downs	3	37 8	46 2	8 8	42 10	377	20¼	45	38	75	6¾	2 2 2¼	10¼	1 7½	0 16 7¾	2 18 10
Lincolns	3	38 8	50 12	12 4	37 2	400	37	43	50	104	6¼	2 14 2	18½	1 8	1 10 10	4 5 0
Leicesters	3	34 1	39 0	4 13	36 4	317	24	31	39	43	6	1 1 6	12	1 7½	0 19 6	2 1 0
Lincolns	3	35 8	47 9	12 1	45 1	391	23½	42	39	104	6¼	2 16 4	11¾	1 7½	0 19 1	3 15 5

little muscle, but entirely given to laying on of fat, and consequently less wool, may not to ourselves be the most profitable.

Parlington, April 13, 1863. Thos. J. Fox.

THE LAWS OF HUSBANDRY.

[The following passages are extracted from a lecture lately delivered before the Royal Institution by Professor Aug. Voelcker.]

The analysis of all fertile soils has revealed in them the presence of a variable amount of organic matter, of ammonia, nitric acid, potash, soda, lime, magnesia, oxide of iron, chlorine; phosphoric, sulphuric, and silicic acid; in short, all the mineral constituents which are found in the ashes of plants. These mineral or ash-constituents, I need hardly observe, are not merely accidental, but essential materials, without a proper supply of which no plant can grow healthily and come to full maturity. In one sense they are all equally important, for the absence of any single one in the soil, be it lime or potash, phosphoric or silicic acid, is detrimental to the luxuriant development of the vegetable organism. No one who has given the slightest consideration to the clear arguments and abundant evidence with which Liebig enforced this truth will hesitate to give assent to this mineral theory. Whatever else may be the views of agricultural chemists with respect to the functions of ammoniacal salts or nitrates, or the form in which the soil-constituents must be presented to the growing plant, in order that it may thrive and bear fruit, all agree in considering this an established truth, which no subsequent discoveries can invalidate. It is therefore natural to expect in unproductive or barren soils a deficiency or total absence of one or more of those mineral constituents which enter into the normal composition of our crops. The chemical examination of soils has shown indeed that sterility is directly traceable in some instances to the absence or deficiency of lime, or to that of phosphoric acid, or the deficiency of potash in others. But in numerous other cases, indeed in the majority of instances, the low state of fertility or the barrenness of soils cannot be traced to the deficiency or total absence of an important mineral constituent, nor to the presence in the soil of a substance injurious to vegetation. The fault is frequently not connected with the absence but with the inaccessibility of the mineral constituents to the feeding organs of plants. All the substances needed by plants are often present in the soil in over abundance, the soil considered as a storehouse is full, and notwithstanding it is unproductive. This is the case for instance when the free circulation of air and the equal diffusion of the soil-constituents, and their accumulation in the surface soil, are rendered impossible by stagnant water. With the removal of the water by thorough drainage, such a soil is rendered at once productive.

However, excluding such and similar obvious causes of sterility, on which time does not allow me to enlarge, it is undeniable that the mere chemical analysis of soils explains but rarely why Wheat or Clovers grow luxuriantly on one soil and not on another, or why a fertiliser which is remarkably effective on one soil has scarcely any effect on another of apparently the same composition. It is indeed well known that the dissimilarity in soils in regard to the natural capacity of producing crops as a rule cannot be explained exclusively by the abundant or scanty presence of matters which are acknowledged to be essential mineral food-constituents of plants.

The combinations in which these substances exist in the soil, their unequal or uniform distribution in the surface soil, the composition and physical condition of the subsoil, the relative depth of both, the porosity of the land, especially the power of absorbing and retaining, as well as modifying in a variety of ways the crude manuring agents which are applied to the land, unquestionably are intimately connected with the great variations which we notice in the agricultural capabilities of different soils.

Before the appearance of Baron Liebig's celebrated work —"Chemistry, in its Application to Agriculture," which has given the death-blow to the humus-theory, the fertility or barrenness of a soil was generally considered to depend entirely upon its physical properties and the presence or deficiency of humus. Little or no importance was otherwise attached to its chemical composition. Soon after the publication of Liebig's writings, which have given such a powerful impetus to the study of agricultural chemistry in England and on the continent, scientific men fell into the opposite extreme, and expected the bare chemical analysis of a soil, and the ash-analyses of plants, would enable them to discover at once the means of restoring the fertility of land impaired by the crops raised upon it; to improve by certain purely mineral manuring mixtures every description of land, and to grow on it, irrespective of its natural adaptation to the growth of particular crops, any kind and almost any amount of agricultural produce.

These extravagant and unphilosophical views, I need hardly remark, have produced a reaction which has rendered agricultural chemistry somewhat less popular than formerly, but at the same time more scientific, and therefore more directly useful to the enlightened agriculturist. Till within the last 10 years the study of the characters of soils, it appears to me, has been prosecuted too much in a one-sided direction. On the one hand, merely the relative proportions of the more important mineral constituents, such as potash, phosphoric acid, lime, &c., in the various soils was deemed sufficient to account for all their agricultural peculiarities; and on the other hand, their physical properties were too much considered, independently of their chemical composition. It cannot be denied, however, that an intimate connection exists between the physical condition and the chemical composition of soils, but this relation has not been as yet fully recognised. For a long time we have been in the habit of looking upon the soil as inert matter, incapable of exerting any other influence upon the living plant than that which it produces in consequence of its containing potash, lime, magnesia, and other mineral plant-food.

A new direction to chemico-agricultural inquiries was given about 10 years ago by Prof. Way's researches into the absorptive powers of soils for manure. These investigations are highly important both in a theoretical and practical point of view, and well deserving of special mention, particularly as Prof. Way's merits in opening a new and extensive field for future researches have not been very generously acknowledged by continental chemists, who have built upon the foundation laid by him.

Prof. Way's investigations originated in an observation of Mr. Thompson, of Kirby Hall, near York, who, in 1845, first observed that soils have the faculty of separating ammonia from its solutions. This observation, and an experiment made by the Rev. Mr. Huxtable, in which this gentleman found that liquid manure, after the passage through a bed of an ordinary loamy soil, was deprived of smell and discoloured, induced Mr. Way to institute a series of experimental researches on the powers of soils to absorb manuring substances, which have not only fully confirmed Mr. Thompson's previous observations, but have also brought to light numerous highly important and unexpected facts, of which I will attempt to give a brief account.

On passing solutions of ammonia through different soils, Prof. Way found that all possess the powers of retaining ammonia, some more, some less. He also noticed that the amount of ammonia absorbed by the same soil varied with the strength of the ammoniacal solution, more ammonia being taken up by the soil from a stronger than from a weaker solution.

In similar filtration experiments he showed moreover that potash, lime, magnesia, and phosphoric acid are likewise absorbed by all soils to a considerable extent, and that in short they possessed the power to retain all the more important fertilising constituents of manure which may be passed through them in a state of solution.

Still more important than the facts respecting the rapid absorption of free alkalies and acids is the observation by the same chemist that all cultivated soils possess likewise the power of separating the ammonia, potash and other bases from their saline combinations. Thus when solutions of salts of ammonia, potash, magnesia, &c., were passed slowly through a layer of soil 5 or 6 inches deep, it was remarked that the clear liquid after filtration no longer contained any of the ammoniacal or other salts employed. A careful examination of the filtered liquids furnished the important result that the alkaline salt is not absorbed as such by the soil, but that the latter possesses a decomposing power, in consequence of which the acid of the alkaline salt passes through the soil, generally in combination with lime, whilst the base alone is absorbed by the latter.

These observations have since been confirmed by Liebig, by myself and many other chemists.

Prof. Way principally operated with simple salts; it may therefore be urged, with some plausibility, that in the case of a highly complex mixture of soluble substances, such as that presented in liquid manure, changes may take place in the soil, which are likely to lead to a waste of much manure, when applied long before the crop is sown which it is intended to benefit. Thus it may be urged that it by no means follows as a necessary consequence that because a soil absorbs ammonia when a solution of sulphate of ammonia is passed through it, the same absorption would take place when an ammoniacal salt mixed with some dozen other substances is filtered through it.

Fully impressed with the force of this argument, I endeavoured to study the changes which complex liquids, containing a variety of saline organic and inorganic combinations, undergo in passing through soils of known composition, and already in 1857 communicated some such filtration experiments to the pages of the Royal Agricultural Society. Three years later I published a second paper on the same subject, and have since been actively engaged in further studying the remarkable properties which all soils appear to possess of absorbing and retaining potash, ammonia, phosphoric and silicic acid, and other mineral constituents, and of modifying in the most varied way the

composition of complex saline solutions which are passed through them.

[Dr. Voelcker then referred to a tabulated statement of the results of a series of filtration experiments, from which the following conclusions were drawn :—]

1. It will be noticed that the liquid manure in contact with the calcareous clay-soil parted with a considerable quantity of ammonia, which in some form or other was taken up by this soil. The sandy soil, on the other hand, possessed in a very weak degree the power of absorbing ammonia from liquids.

2. The amount of organic matter in the liquid was less before than after filtration, whilst the proportion of mineral matter in the liquid was sensibly diminished in both cases in passing through the soils.

3. It is worthy of notice that the liquid originally contained no oxide of iron. Left in contact with the soils it dissolved from both appreciable quantities of oxide of iron.

4. The next point which I would notice is of special interest. It will be seen that the liquid manure in contact with the calcareous clay soil became much richer in lime. When salts of potash or of ammonia, or mixtures of various saline combinations, are passed through soils, as a rule a considerable proportion of the alkaline bases become fixed in the soil, and lime instead passes into the filtered liquid. But whilst this is quite true in the case of the majority of fertile soils, which always contain a good deal of lime, in the case of the sandy soil, instead of lime passing into the liquid, a considerable quantity of lime contained in the liquid manure was actually removed by the soil.

5. A striking difference in the composition of the liquid after its passage through the calcareous and through the sandy soil will likewise be noticed if the quantities of potash in the filtered liquids are compared with each other.

In the first experiment the small proportion of potash left in the liquid after contact with the soil is particularly interesting, inasmuch as it shows that the soil not only possessed the power of absorbing ammonia, but also potash with even greater avidity.

On the other hand, on passing through the sandy soil, the proportion of potash taken up by the soil is quite inconsiderable. We have in this result an indication that soils which do not manifest a high power of absorbing ammonia likewise have not much effect upon soluble compounds of potash.

6. In accordance with many other experiments, scarcely any chloride of sodium was absorbed by both soils. The power of soils to absorb the more important alkali, potash, presents us with a striking contrast to the apparent indifference of soils to absorb soda from its soluble combinations.

7. It is satisfactory to have in these experiments direct proofs of the power of soils to take up phosphoric acid from soluble combinations. The phosphoric acid in most soils is frequently insufficient to supply the wants of the crops we usually cultivate on the farm; it is therefore fortunate that soils possess the power of depriving manuring mixtures of a constituent so largely required for sustaining a healthy growth of plants. This property of soils to store up food for plants, it will be seen, is not confined to one particular kind of fertilizing matter, but it applies to them all and manifests itself in different ways. In most cases special power exists in soils to remove ammonia, potash, and phosphoric acid from liquid fertilisers brought in contact with them; and less important and more abundant materials pass into the liquid that drains away. But this order is reversed if liquid fertilizers act upon such soils as the one used in the experiment before us. Here lime, a cheap and usually abundant constituent of soils, is actually absorbed from liquid manure, and retained in a soil which is peculiarly deficient in lime. On this sandy soil, I may observe in passing, lime and marl benefit nearly all crops more than any other description of manures. Again, it may be noticed, that we have here an instance of phosphoric acid becoming absorbed from its soluble combinations by a purely sandy soil in which lime is almost altogether absent. At the same time it will be seen that phosphoric acid is not so completely removed by such a soil as by the stiffer and more calcareous soil.

8. Lastly, it will be seen that whilst in the first filtration experiment most of the silica was removed from the liquid in passing through the calcareous soil, the same liquid in contact with the siliceous soil dissolved an appreciable quantity of soluble silica.

It will also be noticed that neither these soils nor any other soil with which I have since experimented had the power of absorbing completely the whole of the ammonia, potash, or phosphoric acid contained in the liquid manure. A certain amount of these constituents always remained in the liquid which was left in contact with the soil. As the liquid manure contained a good deal of ammonia and potash, it may be urged that the quantity of soil employed in the experiments in relation to that of the liquid was insufficient for the purpose of complete absorption. But this argument certainly does not hold good in the case of phosphoric acid. Though the proportion of phosphoric acid in the liquid was but small, some of it passed through the soils unabsorbed. This is the case whether a solution containing much or little phosphoric acid is filtered through a clay soil or a calcareous, a sandy, or any description of soil. If a dilute solution of soluble phosphate of lime is passed through a soil, it may readily be ascertained that there is phosphoric acid in the filtered liquid. If now a fresh and stronger solution containing phosphoric acid be shaken with the soil through which the first solution has passed, it will be found that the soil takes up a fresh and much larger quantity of phosphoric acid. Operating in the same way with salts of ammonia or potash, precisely similar results were obtained. Though the soluble and most valuable constitutents of fertilising liquids in passing through various soils are rendered comparatively insoluble, even when large quantities of potash, ammonia, or phosphoric acid were contained in the liquid, in no instance were they rendered perfectly insoluble.

Indeed if the liquid which is filtered through a soil is very dilute, scarcely any absorption of the more important soluble fertilising constituents takes place, although it may be readily shown that the soil possesses in a high degree the power of rendering these constituents comparatively insoluble.

Thus sewage of towns in percolating a soil leaves scarcely any of its soluble constituents in the latter, simply I believe because the compounds of potash, ammonia, &c., which are formed in the soil under this circumstance, are sufficiently soluble to remain dissolved in the large quantity of water which ordinarily characterises town sewage.

Referring to another experiment the lecturer said,—Another point of special interest is the proportion of potash in the original liquid, and in the clear solution after its passage through the soil. Instead of diminishing when brought into contact with soil, the amount of potash in a gallon of the liquid manure left in contact with soil for three days was larger than in the original liquid before filtration. It thus appears that the soil contained, like most clay soils, abundance of alkaline silicates, which yielded to liquid manure a certain small amount of potash, and also soda, thus increasing the proportion of alkalies in the filtered liquid.

All soluble saline matters, however useful, are necessary; they may impede the rapid growth of plants if they are presented too abundantly, or in too concentrated a solution, to the roots of plants. It appears to be one of the functions of the soil to transform such readily soluble compounds into combinations which are so little soluble in water that in common life they pass as insoluble, but which are still sufficiently soluble to supply the growing plant with the necessary amount of mineral food. This beautiful power of soils effectually prevents the waste which heavy rains would occasion, and corrects any misapplication that may be made of fertilising matters. Soluble phosphates, salts of ammonia, and potash, without question are the most active and valuable mineral food-constituents of plants, but in order to be of benefit to plants they must be presented to them in extremely weak solutions, and all the mineral matters found in the ashes of plants--must be present in the soil. Now if fertilisers containing these important soluble saline matters are applied too copiously to sandy soils, and continued rain falls during autumn, or in next spring, the efficiency of our constituents is destroyed in a great measure, since sandy soils have not the power of absorbing and retaining soluble fertilising matters to the same extent as clay soils. On the latter description of soils heavy and long continued rain does not sensibly destroy the efficacy of guano, sulphate of ammonia, and similar saline constituents; on the contrary, heavy rains are most beneficial and necessary for the diffusion of these fertilisers in land which like clay-soils contain in many cases inexhaustible riches of mineral food. This store of mineral food is unavailable, and consequently of little or no benefit before it has undergone a variety of changes, which may be effected either by mechanical means, such as steam-ploughing, grubbing, harrowing, &c., or by the application of certain soluble manuring matters, which like salts of ammonia have the power of acting upon the mineral matters in the soil chemically, and producing soluble mineral matters in greater abundance than could otherwise be furnished to the growing plant.

(To be continued.)

NOTES ON WEEDS.

BY JAMES BUCKMAN, F.L.S., F.G.S., &c.; PROFESSOR OF BOTANY AND GEOLOGY.

The natural order of Wild Plants now to be described in their characters as weeds, belong to the natural order Rosaceæ, the varied forms of which, as ranging around the genus Rosa, have been arranged in an order bearing its name.

Like those of most other groups, many of its species can only be considered as weeds when they grow out of place, in which light, indeed, all plants may be so named, so that the following list only includes those that are common as weed pests.

LIST OF NATIVE ROSACEOUS WEED PLANTS.

a. Trees:—

1. Cratægus oxyacantha; Whitethorn.
2. Pyrus malus; Crab.
3. ,, torminalis; Wild Service.
4. ,, Aria; Whitebeam.
5. Prunus spinosa; Sloe, or Blackthorn.

b. Shrubs:—

6. Rosa canina, vars.; Common Wild Dog Rose.
7. ,, arvensis, vars.; Creeping Wild or Harvest Rose.
8. Rubus fruticosus; Blackberry.
9. ,, idæus; Raspberry.

c. Herbaceous Plants:—

10. Spiræa Ulmaria; Meadow Sweet.
11. ,, filipendula; Field Drop-wort.
12. Geum urbanum; Common Avens.
13. Potentilla anserina; Silverweed.
14. ,, reptans; Cinquefoil.
15. Agrimonia Eupatoria; Agrimony.
16. Sanguisorba officinalis: Great Burnet.
17. Poterium sanguisorba; False Burnet.

1. The *Whitethorn, Hawthorn, or May* would seem to have got its first name from the light colour of its bark when contrasted with that of the Blackthorn; Hawthorn, from its being the thorn bearing the fruit known as Haws, and May from the month in which its "Hawthorn hoar" is so conspicuous, and few can witness its beauty when—

> "From the Whitethorn the May-flower shed
> Its dewy fragrance round his head,"

without emotion, and as a well-grown ornamental tree it has all our sympathies. Again, as the best plant for growing live fences, we would give it its meed of praise, but when it is allowed to grow tall straggling hedges, keeping both sunlight and air from our fields, we deem it little better than a weed, and indeed so fully as to wish that at least half of the Hawthorn hedges in the country were rooted out.

But the more prominent position in which this plant occurs as a weed is neglected pastures. In districts where pastures have been deemed to be so poor as not to be worth attention, young Hawthorns come up with Gorse, Briars, Brambles, and others, making it one of the first requisites that any amelioration must begin with these interlopers, and here our plan would be to cut them down or root them up, burn all such rubbish to ashes, which scatter over the soil, roll, and depasture; you thus remove what would prevent Grass growing on the one hand, and would tear the coats of the sheep when put to feed on what did grow on the other.

2, 3, and 4. The genus *Pyrus* offers several species which from the large leaves they grow, and their more or less upright unarmed stems, are great pests where they find their way into a hedgerow, as they not only prevent the Quicks from growing as they should do by overshadowing them, but they always make weak places in the hedge. Cattle readily break through hedge bushes of Whitebeam or Wild Service; and who, seeking a short cut, would fear to pass through their lithe limbs; we would therefore recommend that in planting hedges care should be taken to exclude these and other shrubs of a like kind.

5. *The Sloe or Blackthorn* was formerly much planted with the Whitethorn for fences, it is however objectionable, as it will not bear cutting and plashing to the same extent; and if cut down its new shoots are comparatively flexile and unarmed. Like the Whitethorn, its seeds are everywhere sown by birds; a neglected pasture, therefore, in its transition to jungle, is seldom without a few thickets of the Blackthorn.

6, 7. *Wild Roses.* There are no greater pests in the hedge-rows than wild Roses, as their fast growth when compared with Quicks, their larger leaves, and with the second form in our list, their climbing habit, effectually prevents the growth of the best hedgerow plant, and though the prickles on the Rose briars are sufficiently repellant, yet as the old stems gradually die out they universally cause a weakness in the fence, which the Quicks seldom or never overcome unless the briars be sedulously weeded out at an early period. Besides the hedgerows, the woods and thickets become tangled with different forms of wild Roses, of which the harvest is the most troublesome, from its larger and more flexile stems.

8. The *Blackberry or Bramble* is as great a pest in the hedgerow as the Roses, and indeed as their branches are even longer, and those of many species which creep along the ground, form new plants by rooting near the extremity of the shoots, by which means they not only sometimes take possession of the length of the hedgerow, but extend outwards in, and beyond, the ditches, and so form a tangled mass, which takes up room, and prevents the growth of the Quicks, leaving only weak places, where its old stems die and decay, or else choke up everything subject to its young and rampant growth. Both the Roses and Brambles are pests in neglected places; they are too so widely distributed over the world that they have come to be recognised as the effect of the curse pronounced upon Adams disobedience.

> "Cursed is the ground for thy sake.
> Thorns also and Thistles shall it bring forth to thee."

Here, doubtless, the term thorns was applied indiscriminately to Briars and Brambles, which take possession of neglected places in an incredibly short space of time. If, however, these plants be considered as emblematic of waste land, and want of cultivation, it is quite certain that they cannot be maintained, when an opposite state of things is sedulously aimed at.

9. The *Raspberry* in hedgerows is objectionable from its large leaves, upright growth, and mostly unarmed stems, so that while it smothers out the Quicks it cannot even boast of a repellant armature.

10. The *Common Meadow Sweet* of our ditches,

hedgerows, and damp meadows is only a weed wherever it occurs. In the hedgerows it smothers the growth of the hedge. In the ditch it impedes drainage, and in the meadow it takes up much room which would be better occupied by more nutritious herbage. In the two first places it can be rooted out, but the wet meadow is soon cleared of it as the result of efficient drainage.

11. The *Field Dropwort* is a denizen for the most part of dry uplands on calcareous soils, where its tuft of leaves close to the ground renders it very objectionable, and from which it would be well to remove it with the hoe or spud, as the sweet herbage of Sheep's Fescue, frequent in such positions, suffers greatly from interlopers of this description.

12. The *Avens* is common in hedgerows, borders of fields, and waste places; it is of no use, and therefore about the farm it is only a weed.

13. The *Silver Weed* is a great pest in the arable field, and especially where some damp spots remain; it is of rapid growth, and its creeping habit of growth so close to the soil effectually prevents any crop plant from flourishing where it has taken possession. It often appears in "seeds," with which it is too often sown with the Barley, in which it increases by scions, so that the next year it may be noticed that the wished for crop has been smothered out, and this useless weed has taken its place. In pastures especially, in some damp spots it sometimes takes entire possession in quite large patches, and as it has nothing to add either for depasturing or the rick, wherever it so occurs, may be properly considered as wasted land.

14. The *Cinquefoil* affects drier soil than the previous species, and is even more remarkable for its spreading habit of growth, a single plant sometimes covering yards of ground in a season, as, like the Strawberry and the Creeping Buttercup, it multiplies by scions. This too is frequent in "seeds" forming complete patches of useless growth, and like the preceding is often sown with the crop seeds. In both cases the young plants should be looked for, as hoeing these out in the Barley stubbles will give the Rye-grasses and Clovers a chance by as early as may be destroying the hopes of a useless colony.

15. *Agrimony* is introduced into the list with some diffidence, as, although its spreading root-leaves would certainly take up much room in a pasture where it is a constant denizen, yet its spike of flowers yields something to the rick which may be deemed valuable, as it is a bitter aromatic plant, perhaps not objectionable in the hay; at the same time we notice that in depasturing, cattle usually avoid it, as the ground must be heavily stocked indeed to prevent its flowering. On the whole, therefore, in the sound pastures in which it so frequently abounds, it would perhaps be better to discourage this plant and encourage the growth of Grasses and Clovers in its stead. It is easily spudded or hoed out, and will give no further trouble.

16. The *Great Burnet* is sometimes so abundant in low meadows among calcareous soils, its habitat being for the most part rich moist marls, that it almost takes possession of the field; in this case it is decidedly objectionable. It is somewhat bitter and aromatic, but its woody stems render it objectionable in the rick, which is, indeed, much curtailed in useful matter where this plant gets possession. It is, however, easily kept under by thickly depasturing, and not making hay for a year or two, and we strongly advise this course to be pursued with reference to this, which is the real Burnet.

17. The *False Burnet*, as a wild plant, never attains any great size, and as it is a denizen of dry calcareous pastures and broken ground on limestones, and perfectly harmless in its properties, in this condition it is scarcely noticeable as a weed; indeed it is sometimes recommended for permanent pasture admixture on calcareous uplands. There is, however, a larger form of the False Burnet, which is now attracting considerable attention, as being by far too constant an attendant upon Sainfoin seed.

This plant is referred by Professor Babington and the Continental botanists to another species as Poterium muricatum, which is by them distinguished from the P. sanguisorba, but is "usually larger in all its parts" (Bab.) with a larger and more decidedly four-winged fruit. We however agree with Bentham in considering this to be a variety only, and in fact an agrarian form induced by its seed being gathered with a crop and treated as a crop plant, so that its larger form may be easily accounted for, and we are not wanting in evidence to show that under cultivation the P. sanguisorba greatly increases in size, while if left to grow wild the cultivated form relapses into the wilder state. But we incline to think that the agrarian Burnet has got into agriculture by being introduced with foreign seeds; and as its introduction seems to have been small at first, it attracted but little notice, for as the leaves both of the Burnet and Sainfoin were pinnate, the difference that the botanist would observe of the leaflets, in the former being serrate, and those of the latter having an entire margin, would hardly attract the attention of the farmer; however, it soon became so serious a matter, that some crops of so called Sainfoin in their second or third year presented as much as 90 per cent. of Burnet, and as the latter grew taller than the Sainfoin it effectually smothered it out, and in its place supplied a sticky, non-succulent and non-nutritious herbage that made farmers begin to inquire seriously about the seed.

Here however as the seeds, or rather the fruits, of both plants were pretty much of the same colour, and both wrinkled, samples of fully half Burnet passed muster in the seed market; and though these fruits are so different in shape and size, yet we were astonished to find that during the trial of an action against a seedsman for supplying Sainfoin seed containing a large quantity of Burnet, when good Sainfoin seed was paid for, the judge, jury, and most of the farmers present, confessed their inability to distinguish them; it becomes, therefore, at this point a duty to describe the two. Fig. 1. *a* represents a short wrinkled Pea-pod, broad at the back and thin in front, as seen in the section 1 *b*. In the interior is a single small pulse seed, which is easily freed from its wrinkled shell. Fig. 2, *a* is a drawing of a fruit of False Burnet. The section *b* shows it to be quadrangular, with a wing at each angle, and to possess two seeds in each capsule. The capsules are rather muricated (*i.e.*, furnished with short excrescences and not regularly wrinkled like the Sainfoin). Now the Burnet is easily separable from a sample of Sainfoin, as the former readily passes through the sieve; but the objection to sift it may be well understood when the bulk is diminished by the amount of the Burnet, and also that of the smaller Sainfoin seeds, which pass through at the same time.

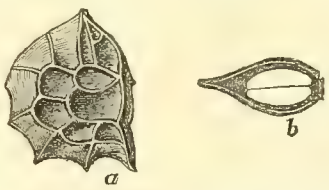


Fig. 1.—Sainfoin Seed decorticated $\frac{2}{1}$

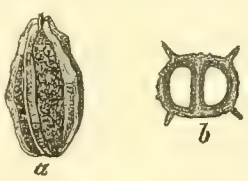


Fig. 2.—False Burnet Seed, $\frac{2}{1}$.

The best plan then to pursue is to mill the Sainfoin seed, in which case its outer covering is removed, and you simply have a sample of kidney-shaped pure seed like enlarged Clover seeds, in which the Burnet may be detected; because it will not mill, but simply gets its wings broken off, so that the wrinkled, two-seeded capsule still remains.

Now the fact of the Burnet being a two-seeded capsule is most important to be noticed, as from analyses we have made of dirty Sainfoin crops, we have estimated as follows:—

	Sainfoin Plant	Burnet Plant	Other Weeds
Crop in Berkshire, 3d year ..	10	50	40=100
Crop in Cirencester, 3d year ..	5	25	70=100

Here, then, we have a large proportion of Burnet, surely much more than could be accounted for from the number of capsules; at least we will hope so; but when we consider that the capsule of the Sainfoin is *single*-seeded, and that of the Burnet is *two-seeded*, we may readily conceive how each capsule of the latter may at least grow a single seed, but the best sample of the former could hardly be expected to all come up. Now as we have as many as 64,000 capsules of Burnet in a bushel of Sainfoin seed, that × 2 = 128,000 seeds, and when we consider that the Burnet grows so much faster than the Sainfoin, we have two elements for the success of the former, namely the certainty of getting its crop, and the equal certainty of smothering out a large proportional of what may germinate of the seeds of the Sainfoin.

This matter would not be of such importance if the Burnet was equal in point of feeding properties, but it is not so, for whatever quality may be in the smaller and more succulent P. sanguisorba form, the P. muricatum is, on the contrary, hard and woody, and almost useless.

Home Correspondence.

Successional Crops of Cattle Food.—The high price to which "butcher's meat" has attained makes it the imperative duty of all stock masters to do their best to make their farms produce as much food for the feeding and fattening of it as possible. It is impossible to say what the price, or rather the scarcity of animal food for man would have been during the past three years, had it not been for the large importations of pork and bacon, chiefly the latter. At the present time good American bacon is selling at 3½*d.* per lb., British at 6*d.* to 7*d.* per lb., pork at 5*d.* to 5½*d.* per lb., mutton and beef at 6*d.* to 8*d.* per lb. The difference between pork and other fresh meat is about 2*d.* per lb., which of course is owing to the large importations of such salted provisions. Of fresh meat we cannot receive any large quantity at any time. In the summer none at all. It must all come in the living animal. This with freight and risk makes the importation of fat stock expensive, so much so, that the British feeder can meet the importer fairly in the market. First, because of his superior breed of stock, and, secondly, from the superiority of his mode of grazing and judicious application of fatting foods. But the point to be aimed at is to grow on the farm as great an amount of food as possible, and to keep up a successional supply of it. Corn and bread stuffs can be imported to an unlimited extent. It is not so with meat, particularly fresh meat. It is to the economical production of fresh meat that every farmer or stock master must now pay especial attention, it having become the most essential and most profitable part of his business. It is not the province of every farm to produce this fatted meat. Some farms are to all intents and purposes breeding farms, for the supply of which others are fatting farms; but both are engaged in their respective ways to provide for the public wants—the public larder. To keep up a successional supply of nutritious food on every farm is no easy task. Throughout the summer, autumn, and winter, the difficulty is not great. The Grass pastures and grazing seeds make ample provision for the stock during the summer and autumn, and the root crops for the winter. It is only in the early spring months and autumn that any difficulty arises, *i. e.* the interim between roots and Grass and Grass and roots. Now, to provide against this uncertainty there are several common matters of business to be adopted and attended to. The culture of Mangel Wurzel should be universal, and a portion of the crop must be held to bridge over this space between Turnips and Grass till near Midsummer, then to be dealt out on grazing pasture or otherwise to the stock as required. The culture of Cabbage should, where practicable, be also adopted. In average seasons a supply of Cabbage of one variety or other may, with care and judgment, be maintained throughout the whole year. The large Drumhead Cabbage and early varieties would form the great feature in Cabbage culture, and if the Cabbage is carefully cut and carried to the stock, the stalks on putting out new shoots would yield a fresh supply, at least in early spring. The young Clovers and Grass seeds should always be reserved for these trying intervals to every grazier, and the Cabbage and Mangel Wurzel might be led on to their pasturage with advantage, both in eking out the pasturage and preventing a too sudden and direct change of keeping to the stock. The same process may be followed with early Cabbage on Eddishes, and aftermath Clovers. The order of management should be something like this. To commence in early spring with stocking the summer pastures and Grass seeds, the stock should have daily dealt out to them a requisite supply of reserved Mangel Wurzel, Cabbage Sprouts, roots and corn. As the pastures improve these supplies may be discontinued. In the autumn, prior to stocking the winter crops, *i.e.*, Coleseed, Turnips, &c., the stock should be amply supplied with early Cabbage on pasturage as named above. These early varieties should be planted in May, and will yield a large amount of food for September and October; next comes the winter provision of Swedes, Turnips, and Coleseed, the Mangel Wurzel being graved down for spring uses, and in March their consumption should commence partly in the fold-yard to cattle, and as above named, to sheep in the fields, aided by the reserved Drumhead Cabbage. This course will complete the round from summer stocking to summer stocking again. In all probability a course something like the above will ultimately become the most profitable, and lead to a great extension of root and Cabbage cultivation. Rye, Lucerne, Sainfoin, Tares, and artificial Grasses may in some cases be grown as substitutes, but they are generally of too slow growth to be of much service when most needed. Reserved roots are the chief dependence. *O. F.*

Systematic Drainage.—Permit me to thank Mr. Bailey Denton for having set me and some others right who have misunderstood his exact meaning, and consequently rendered liable to misrepresent his views to some extent on systematic drainage. I would more deeply regret my having unintentionally misrepresented his meaning, though quoting, as I supposed, his own words, had I not in doing so elicited his letter in the *Agricultural Gazette* of last Saturday, in regard to any part of which I trust there can now be no mistake. I am the more solicitous on this head as I am prepared to endorse many sentiments expressed in his last note. If I have correctly read it, Mr. Denton reiterates a sentiment of great importance, namely, "in truth up to this time the engineering element has been entirely absent from the underdrainage of land." When such has been the case in England, where there are so many of the first engineers in the world, it is little wonder that so much imperfect drainage has been done in Ireland, where so few of our really practical engineers have been engaged in the superintendence and inspection of such works, whether well or ill designed. Mr. Denton makes some other important announcements; thus "systematic drainage is not necessarily parallel drainage; on the contrary, parallelism, which is correct in homogeneous soils with regular surfaces, is an unmitigated absurdity when applied to mixed soils, or to free soils with irregular surfaces." Hence again the "unmitigated," nay the unparalleled evils that have occurred in Ireland by the enforcement of this "parallelism" which Mr. Denton so justly deprecates; and until Mr. Denton's strictures began to appear it would be little short of "treason felony" in Ireland for any practical man to give utterance publicly to such sentiments, though he might have privately in his practice "ran a coach and six" through the parallel lines marked out, or at best

approved by the Board of Works, the observance of which has been in many important cases so arbitrarily enforced by some of the Board's supposed most eminent drainage inspectors. Mr. Denton concludes his very useful letter by the following important sentence:—"Systematic drainage, as recognised in science, is the connection of the appropriate modes of draining different soils and varying surfaces one with another, so as to *secure uniform action and perfect discharge* by a proper outfall." I have emphasised the words "to secure uniform action and perfect discharge" in underground drainage, for that has been, and to most people still is, the great difficulty encountered in Ireland, and perhaps in many parts of England too, in rendering such drainage permanently useful. That difficulty I have succeeded in overcoming, but not being, nor am I yet aware if any one else has succeeded in doing so by an equally cheap and efficacious manner, I put the question in my last letter in hopes of having a reply from some of your scientific and practical readers before I would go to further trouble and expense in taking out a patent for my discovery, which, whatever its value might be to England, would under existing circumstances be of no small importance to Ireland at least. Mr. Denton's lectures and letters on underground drainage will, I hope, be studied by the promoters of the Bill now before Parliament, with the view of enabling landed proprietors in Ireland to drain their lands I should hope effectually. I have not seen the Bill yet, nor do I know in what manner this desideratum is intended to be accomplished. I am anxious that Mr. Denton's views should be well known to, and carefully studied by those engaged in teaching agriculture in Ireland; for if there be any one subject in connection with the management of land in Ireland which more than another demands the close attention of agricultural teachers, it is the thorough and perfect drainage of land. Yet in as far as I am acquainted with agricultural teachings in Ireland, there is none for which the Board of Education in Ireland is so badly prepared. But when I say this, let me not be supposed as seeking to detract from the merits of either teachers or inspectors. What I mean is that the Board has no suitable farms of adequate extent to enable the teachers to do their duty to anything like an adequate degree in this most important matter. *Edward Carroll, Kilgreany Lodge, Clonegal, May 4.*

Sewage Manure.—In your Paper of last week upon the utilisation of town sewage, Mr. Mechi reports in favour of it from his own experience of 10 years, and regrets that he has not a town or village near his farm. Last year, in the beginning of June, I read Mr. Thomas Ellis's letter to the Chairman of the Metropolitan Board of Works, in which is given a plan for utilising in its liquid state the sewage of the metropolis, together with a detailed estimate of cost, and suggestions for division of profits between the Metropolitan Board of Works and a projected company, by which there would be placed at the disposal of the Board of Works for the reduction of local taxation over the metropolitan area, an annual sum of not less than 700,000*l.*, that is, supposing that the farmers would pay 2*d.* per ton for it when delivered to them. Just at this moment it appears to me, any one that is able to give any information upon the importance or otherwise of such a subject, will be giving most useful information. For this purpose, on the 31st of June I went to Cuckoo Farm, Hanwell district school, to see the bailiff, Mr. Spelman; and get his report and experience of the utilising the sewage of that school, containing about 1200 persons, when he told me they did not apply the sewage properly from the want of means, or the proper application of steam power. In his opinion a 30-horse engine properly placed upon this farm, would enable him to apply the sewage with great advantage, but from the want of a better arrangement, the sewage was in general too powerful, and did as much harm as good. In some cases I saw it destroyed the Grass, in others it was so rank and thick in the growth as to become rotten at the bottom, from over-enriching the land; but when it was distributed over the land by the cart in lesser quantity, it had so improved the land that the produce of Grass was double in quantity to that where no sewage was applied. In all cases of the proper application of "house" sewage manure upon this farm they obtain one load per acre more hay. As they were mowing the Grass at the time I saw this to be a fact, and that the part of this field that was dressed with sewage manure was earlier by nearly a fortnight; and so thick as to rot the Grass at bottom. For the want of a plan of properly utilising the sewage, as I have said before, a vast waste was then going on, the 12-inch sewer pipe discharging the black liquid into the river Brent, half a mile from the school, and all running through the length of the farm. Mr. Spillman told me it was 120 acres, part of it in Grass and part arable. The purpose of this farm is to supply the school with milk and vegetables; the quantity of milk allowed is ½ pint for each person per day. Pigs are fed upon the waste. He had 100 pigs, 30 cows, 6 horses, and the sewage of 1200 persons to manure this farm, but he was sorry to say much was wasted for the want of an engine to apply the manure under the soil as well as upon the top; all that was wanted is to properly arrange the drains to be a system of land drainage, and likewise manurage, without interfering at all with the growing crop. He considered an underground system of manuring was wanted here. *Joseph Newton.*

Foreign Correspondence.

Montevideo: by a Northerly Route to the Interior of the Republic of Uruguay, or Banda Orientale of the River Plate, &c., (*the favourite area of English immigrants.*) On our journey of eleven hours by diligence, from Montevideo to Florida, we saw no end of ostriches and deer on either side of our road. It is a lovely country, and a striking contrast to the level treeless plains of Buenos Ayres. Here it is hill and dale; and every river side, but not elsewhere, is well wooded. On the 9th of February we again started and reached Durazno, after a seven hours' drive. There we quitted the diligence, to perform the rest of our journey on horseback, but, the rain falling in torrents all the next day, our cavalcade did not start from Durazno until the 11th. On arriving at the Estancia, or grazing farm, I was almost too tired to hold my horse. There we remained until the 28th, most kindly entertained by Messrs. S. and T., who gave us the loan of everything they had that we could make use of towards rendering our future abode tolerably comfortable. For instance, we constructed two stools, a table, and a lot of pegs. Food, &c., to be saved from the ravages of ants must hang by lines from pegs. Shelves are no security.

During our stay at this Estancia Mr. T., John, myself, and ——, our fellow traveller, went all four of us out to fish and shoot, with great success, for the rivers abound in fish, and the woodland in birds. Pigeons perch together so thickly, that when fired at hap-hazard in a tree, 20 or thereabouts would tumble down. Partridges are numerous, but young just now. Ostriches are not worth powder and shot; but when they get into full feather, by Jove, I shall have no trouble in killing 50 in one day. They feed in twenties close to our door, but deer are more difficult of approach, owing more to the intrusive flocks of sheep than to a shyness of man. On the 28th Feb. John and I left the hospitable Estancia, taking with us 1500 sheep (1350 ewes and 150 wethers), which last caused the flock to wander in the stormy afternoon of that day, and we were a bit tired out by the arduous task of keeping them together. Since then the weather has luckily been fine. That night of the 28th I did not sleep a wink on account of fleas. On the two following days I was fully engaged in cooking and in sweeping under the thatched roof. You should have have seen our cobwebs! when that job was finished, I had the walls white-washed, and next the earthen floor thoroughly swept. Our "presto," or residence is newly built, and a capital one it is, too, nicely thatched; the floor is even, and swept every morning, so that altogether our dwelling has quite a tidy appearance. I have acted as cook and housekeeper, whilst John has been supervising the flocks. Boots, bridles, saddlery, &c., are kept in "kit-order." He praises my cooking achievements, and we live very comfortably indeed together, nor have I ever once repented having come out here. The ground about us is rocky, but by spring I shall have fenced in a bit of garden. We get up at 5.30; go to bed at 9; and consume half a bullock per week amongst us all. Is not our soup strong, and our steaks of the choicest?

A young horse is to be broken in betimes to-morrow, so I must give over writing to-night, for what with the fleas and the fatigue of a busy day, I am getting tired of the pen.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Steam Cultivation.—The following is an extended report of the discussion following Mr. Ruck's paper last week:—

Lord Berners said: With regard to the different soils to be cultivated, and the different systems to be used, I believe that Fowler's system of 14-horse power is not suited to every up-and-down or hilly soil, especially where there are angles in the field. One of the first things that ought to be done is to throw your fields into a large size—I should say from 20 to 30 or 40 acres is the size I should recommend. The subject of breakage Mr. Ruck has not mentioned. That I experienced at the outset with Fowler's implement was very great; so much so, indeed, as to render its use most uneconomical. Since that Mr. Fowler has sent me another set of implements, and I have had scarcely any breakages, excepting the eyes of the ropes, which are constantly coming out. Now, Howard's apparatus has no eyes. I have one of their cultivators also, and nothing can possibly do the work better. When they first came in I felt that Fowler's system of traction was the best, and that it ought to be engrafted upon Smith's as it was then, and which is now improved by Howard's, than which nothing can do better. The great advantage I find to be that when the ground is as hard as a rock, and it is impossible for any number of horses to do the work, I have with Fowler's diggers burst the land up 9 and 10 inches deep. Mine is a 12-horse engine, but I cannot do anything approaching the quantity of work which Mr. Ruck mentions. From 2 to 2½ acres a-day with the diggers is as much as I have ever been able to accomplish. Mr. Ruck has also alluded to the drag, but he did not tell us what sort of drag he uses. I have recently employed a rotating harrow, which was sent me by Messrs. Smith & Co., of Stamford, and it is one of the best implements when attached to a steam cultivator that I know of. As I understand Mr. Ruck, his land does not require any rolling; but so far is this from being the case on my strong land, that I have never had so much clod-crushing and rolling to get my land into a state fit to sow it with Mangel as during this year.

Colonel Kingscote, M.P., said: Mr. Ruck has intimated that upon light lands he thinks steam cultivation would pay better than upon heavy lands. In our district there is a large tract of hilly country called the Cotswolds, the soil of which is very light and very poor, not being more than 5 inches deep. Does he not think that the cost of steam culture on the light land would very far exceed the cost of horse culture? You cannot plough deeper with the steam engine there than with horse-power, on account of the character of the subsoil. At the College of Cirencester adjoining, the steam-plough is used; but the soil is deeper, and you can hardly call it the same as the soil of the Cotswolds, upon whose light soil I have never yet seen a steam-plough in operation.

Mr. Bradshaw (Chairman of the Central Farmers' Club) said, that after hearing the remarks of one of the Council, inviting the gentlemen present to give the results of their experience of the working of steam cultivation, or smashing-up the soil, he would take the liberty of mentioning what had been his experience during the last three years. He commenced operations on the 15th of February, 1861; and upon an occupation of 400 acres of arable land, he calculated that at the end of the present year his steam engine and tackle would be all paid for. The price per acre of smashing-up came to 4*s.* 11*d.* for the first operation; 4*s.* 3½*d.* for the second, and 4*s.* 1*d.* for the third. But the same work by horse-power with manual labour would be 12*s.* an acre. He formerly employed 16 horses; he now used 10, had his land under perfect control, and at the end of the year his steam machinery would be free. He was a warm advocate in favour of smashing-up as against the plough. Indeed, he would never plough any land except Red Clover lea; and the reason he would plough that was, in order that he might have the full benefit of the under-growth of roots, which contained a large portion of carbon, and when decomposed furnished the best description of manure for Wheat. He had this season tried an experiment with land which had been merely smashed-up and made fallow of, and land which had been similarly treated with the addition of the plough for Wheat; and on the land without the plough the Wheat on the surface looked far superior to that whereon the plough had been used. The Couch upon some of his land measured 1½ foot in length; but there was not a particle of Couch now remaining on the land which had been steam cultivated twice. As far as regarded smashing-up, he would not advise any man to smash-up his land with steam tines in the autumn, unless he did it early enough to perfectly eradicate and destroy the weeds. He would rather plough 3 inches deep, and smash-up in the spring with a steam-cultivator; then he should obtain the finest preparation for Swedes or Mangels that he could desire, and that he had done this year.

Mr. Sidney had visited Mr. Ruck's farm more than once, and observed that he had the advantage of having a worthy landlord, and that a fine road ran through the estate; whilst Mr. Ruck himself was a man of an enterprising spirit, which enabled him to make the best use of these advantages. It would be universally agreed that we had now arrived at that point in the history o steam cultivation when it was no longer a theory but a practical matter, and there was no intelligent farmer occupying land of sufficient space and of a retentive soil but would be happy to avail himself of its use if he had it in his power. Mr. Ruck had remarked that it was necessary that those who entered upon steam-culture should have something more solid than a six months' tenure to depend upon; but the fact was that it was not every landlord who was able to give security of tenure, or to embark in such a large expenditure as he would have to incur where the construction of roads was required. Good roads would now become of the same importance to a farm as good drains; but in the mean time those who had not good roads must avail themselves of that description of machinery for cultivation which did not require them, and at the present moment it seemed as if the advantages were pretty evenly balanced between Fowler's and Howard's implements; the former having more power, whilst the latter dispensed with the necessity for good roads by cultivating from one corner.

Mr. Holland, M.P., proposed a vote of thanks to Mr. Ruck.

Col. Kingscote seconded the vote of thanks.

Mr. Ruck, in acknowledging the compliment, replied to the remarks of Col. Kingscote respecting light land, and said that the cost of steam culture with drag attached upon strong land was only 5*s.* an acre, and that fact he wished to stick in the gizzards of the light-land Gloucester farmers. He owned he was surprised to hear the noble Chairman say that he could only do 2½ acres of digging per day. Now, the digging and the ploughing were of the same width; and unless something very extraordinary took place, he could not see butthat the noble lord had had sufficient power to do 6 or 8 acres upon any land. With regard to breakages, he could only say that his bailiff had that morning put

an account into his hand of 222 acres ploughed, 437 acres dragged, and 247 acres scarified; and all that work had been done this year with one engine without breakage to the extent of a single sixpence. As to the remarks of Mr. Bradshaw about the comparative merits of smashing-up and ploughing, according to his (Mr. Ruck's) experience this year, the land that was dug for Wheat was beating the land that was ploughed for Wheat; but he would never recommend smashing-up in any case unless they planted in the autumn. If it was intended to go an extra depth, he thought the land should be ploughed and left exposed for the frost of winter. He had no doubt, however, that smashing-up for Barley was better than ploughing. Mr. Sidney had made an observation respecting a small farm which he (Mr. Ruck) had purchased at Lady Day, 1862. It was 300 acres, and its prime cost freehold was 13*l.* 6*s.* 8*d.* an acre. He had broken up and put into Wheat 160 acres, and the remaining 140 acres were for the present in Grass. Whether he should be sufficiently successful to grow Wheat enough in two years to pay for the land was yet to be seen. He was in hopes, however, of being able to do so, besides paying all expenses.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. Spearing, Moulsford, near Wallingford, Berks, during the week ending May 20, 1863.

Day of Month.	Day of Week.	At 9 A.M., Railway Time. Reading of Barometer corrected to Freezing Point at Mean Sea Level.	Dry Bulb Thermometer.	Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0-6	Amount of Cloud 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
14	Thursday ..	Inches. 29.89	56°	52°	S.W.	3	3	61°	46°	97°*	42°	Inches. 0.06	55°	53°
15	Friday ..	29.79	57	55	S.W.	3	5	64	49	104	47	0.10	55	53
16	Saturday ..	29.91	54	50	S.W.	3	4	64	45	94	41	0.21	55	53
17	Sunday	29.81	55	53	S.	2	7	63	45	102	42	0.02	55	53
18	Monday	29.91	57	53	N.E.	2	2	65	35	112	32	0.06	55	53
19	Tuesday ..	29.97	42	41	E.	3	8	65	41	117	33	0.11	55	53
20	Wednesday	30.09	46	44	E.	2	7	58	41	65	39	0.12	53	53

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Notices to Correspondents.

Butter Making: *C C F.* Mr. Grafton will much oblige us by mentioning if any progress has been made in the new butter-making principle which he described some months ago.

Colonies: *A Young Man* writes thus:—Knowing that your Paper is interested in the welfare of Agriculturists, I beg the insertion of this. I write to ask what Colony any of your readers would re commend for a young man of 20 with a few thousand pounds, for farming. Queensland and New Zealand, Canada and British Columbia, seem to be the Colonies most thought of now-a-days. If any of your readers would give an account of any of these Colonies from experience or otherwise, or would recommend any one of them, they would much oblige.

Coltsfoot: *J K.* Pull the flowers in early Spring, and cut off the leaves as soon as and whenever they appear, and if you can fork or fallow the land, get rid of the root; in fact, take every opportunity of destroying whatever of it you can get at

Growing Flax. The following is the extent of Flax grown in Ireland in each of the following years:—1854, 151,403 acres; 1855, 97,075 acres; 1856, 106,311 acres; 1857, 97,721 acres; 1858, 91,646 acres; 1859, 136,282 acres; 1860, 128,595 acres; 1861, 147,957 acres; 1862, 149,889 acres.

Pedigree Wheat: *H W M.* says:—I was induced last autumn to sow a considerable breadth of land with Pedigree Wheat. I am now informed that millers will not purchase it, and that I shall experience some difficulty in disposing of it. [The Wheat is coarse—and so will any Wheat become if sown excessively thin for a series of years.]

Profits of Farm: *X Y Z.* Your question is one that admits of more than one answer. If you charge on the crop all that it takes out of the land, and credit it with whatever it puts into the land, then it will follow that in a rotation, so long as it yields an average produce, every crop is alike profitable or alike a loss. 28 to 36 bushels of Wheat, at 7*s.* 6*d.*; 40 to 50 bushels of Barley, at 4*s.* 6*d.*; 50 to 70 bushels of Oats, 3*s.*, may be the ordinary yield of crops under good farming. Potatoes may yield from 3 to 6 tons per acre.

THE HYDROPULT,

EXTRACTS FROM THE PRESS.

The Hydropult. — "The machine is certainly the most compact and efficacious force pump of its size that we have ever seen."—*Daily Telegraph.*

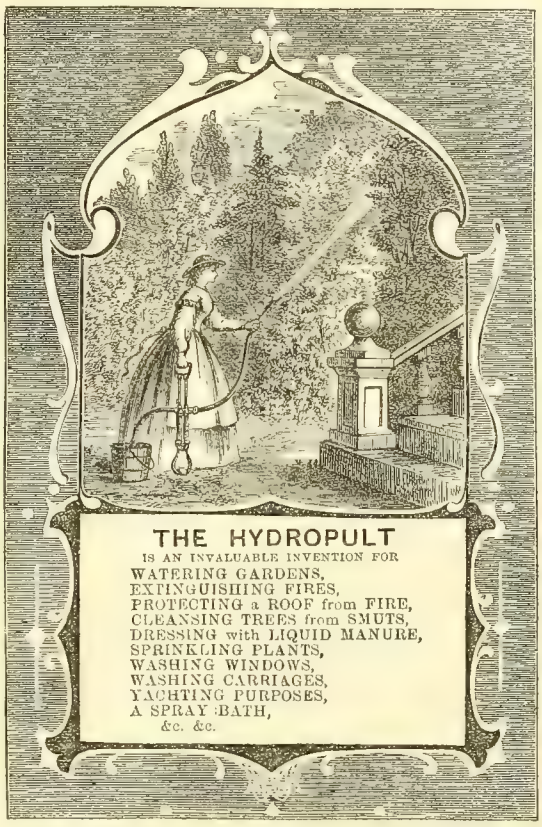
The Hydropult. — "All Londoners and other town residents who care for their gardens and greenhouses should avail themselves of such engines." — *Gardeners' Chronicle and Agricultural Gazette.*

The Hydropult. — "We strongly recommend it to our readers." —*Journal of Horticulture and Cottage Gardener.*

The Hydropult. — "It will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water." — *Gardeners' Weekly Magazine.*

The Hydropult. — "Country readers who order it on our recommendation, will not only not repent, but thank us for calling attention to a machine which, having once used, they will never care to be without."—*Floral World and Garden Guide.*

The Hydropult. — "We can only say that no public establishment or private house should be without one of these useful machines."—*Commercial Daily List.*



EXTRACTS FROM THE PRESS.

The Hydropult. — "We are satisfied that all housekeepers ought to have one, and we are equally satisfied that if they once see it they will order it." — *Liverpool Daily Post.*

The Hydropult. — "We commend it to the notice of the proprietors of warehouses and other buildings, public and private, in the metropolis and provinces.' — *Mechanics' Magazine.*

The Hydropult. — "It is admirably adapted for sprinkling gardens, trees, graperies, washing windows, carriages, and for household purposes, its simplicity and portability being its strong recommendation." — *Illustrated News of the World.*

The Hydropult. — "Nothing has yet been introduced for watering gardens equal to the Hydropult, as any one standing close to his house can water, in a few minutes, any ordinary suburban garden, thus saving much time, and performing the task in an easy, satisfactory manner." — *Builders' Reporter.*

The Hydropult. — "Many of the most scientific men of the age are daily inspecting and testing its uses."— *Age We Live In.*

AN INVENTION FOR THROWING WATER BY HAND POWER

(Secured by Royal Letters Patent),

Price **TWO GUINEAS**

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Small Jet. Weighs but 8 lbs.

Recommended as an efficient and useful Fire Engine by the principal Fire Insurance Companies of Great Britain.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

Thomas Rivers, Esq., the eminent Florist, Shirley Hibberd, Esq., and other well-known gentlemen, recommend it as an invaluable Garden Implement.

EXTRACTS FROM TESTIMONIALS.

"Royal Insurance Office, Liverpool.

"My dear Sir,—I have much pleasure in expressing the high satisfaction, and indeed surprise, with which I witnessed the working of your Hydropult. There can be no doubt that it can be available in the earlier stages of fire in warehouses, manufactories, or private houses, in preventing large conflagrations, while its applicability to gardening and other purposes will be manifest to any one observing its operation.—I am, my dear Sir, yours truly, "Percy M. Dove, Manager."

"Chas. P. Button, Esq."

"The invention will prove extremely valuable for all the purposes to which such machines are applied.—Swinton Boult, Secretary, Liverpool and London Insurance Company."

"Its portability and facility of operation recommend it to the general notice of the public.—Henry Lowe, Secretary, District Fire Company."

"In a blowing or mixing room it would be of especial service. — F. J. Hallows, Secretary, Caledonian Insurance Company."

CAUTION: Important to the Public.—The extensive sale of the HYDROPULT has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting, as they are often placed under or near the Hydropult show card. The Proprietor therefore issues this caution, and respectfully intimates that parties wishing to purchase the Hydropult, should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, a Portable Fire Annihilator and Garden Engine; Griffiths & Browett, Manufacturers, Birmingham; Charles P. Button, General Agent (Vose's Patent)." Unless this label be attached, the machine is not the Hydropult.

THE HYDROPULT is MADE of BRASS and COPPER, weighs but 8 lbs., and WILL THROW EIGHT GALLONS of WATER PER MINUTE FIFTY FEET, WHEN WORKED by the POWER of ONE MAN.

Public and private buildings have been saved from destruction by its agency. T. Spencer, Esq., Inspector of the Royal Society for Protection of Life from Fire, certifies to its efficiency in saving valuable property at Bayswater from destruction.

FIRE! FIRE! FIRE! THE HYDROPULT IS THE MOST EFFICIENT FIRE-ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.

It can be used for all purposes for which a hydrant or force pump is applicable, and in situations where other contrivances are useless.

THE HYDROPULT WILL BE ON EXHIBITION AND FOR SALE

AT THE

AGRICULTURAL HALL, ISLINGTON,

DURING THE

GREAT INTERNATIONAL DOG SHOW, MAY 25, 26, 27, 28, and 29.

CHARLES P. BUTTON, Proprietor,

HYDROPULT WAREHOUSE, 27, LEADENHALL STREET, LONDON, E.C.

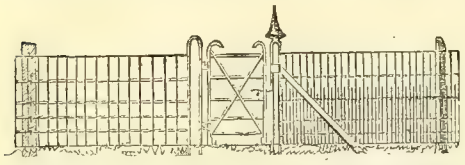
WEST END DEPOT, 309, REGENT STREET, W.

WHY NOT PRESERVE YOUR HAY?—BENJAMIN EDGINGTON, Rick-cloth, Marquee, and Tent Manufacturer, 2, Duke Street, London Bridge, S.E. PAVILIONS and TEMPORARY ROOMS for Royal and Noble Parties.

A quantity of SECOND-HAND MARQUEES, TENTS, and RICK-CLOTHS, at greatly reduced prices. An Illustrated Catalogue sent free per post.

Address, BENJAMIN EDGINGTON, 2, Duke Street, Southwark, S.E. No other Establishment.

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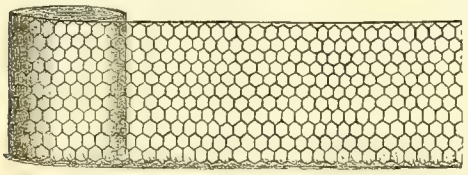
GREENING AND CO.'S IRON WIRE FENCES for FARMS, DEER PARKS, SHEEP FOLDS, GAME PRESERVES, POULTRY COURTS, GARDENS, &c., are manufactured by Patent Machinery, and possess the following advantages:—

1st. Are easily fixed by unskilled labourers.
2d. Require few and inexpensive supports.
3d. Are ornamental in appearance.
4th. Have increased strength from their peculiar construction.
5th. Are but half the price of similar hand-made Fences.

G. & Co. will be happy to forward, without charge, an explanatory Circular of the principal varieties. Their enlarged Catalogue of all kinds of Fences and Gates post free on receipt of three stamps.

Address GREENING & COMPANY, Victoria Works, 81, Oxford Street, Manchester.

NEW IMPROVED PREMIUM WIRE NETTING.
Great Improvement with Reduced Price.



PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light. Jap	Light. Gal.	Medium. Jap	Medium. Gal.	Strong. Jap	Strong. Gal	Extra Strong. Jap	Extra Strong. Gal.
2 in.	Poultry	3½d.	4½d.	4d.	5d.	5d.	6½d.	6½d.	8d.
1⅝ in.	Small Rabbits ..	4d.	4¾d.	4¾d.	6d.	5½d.	7d.	7d.	9d.

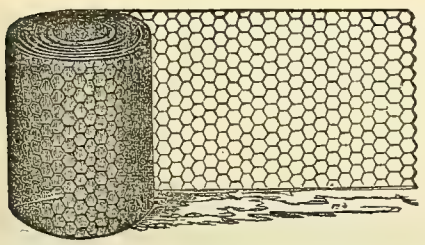
The above can be made any width (under 6 feet), at proportionate prices.

Strong GALVANISED POULTRY NETTING, 7½d. per yard, 3 feet wide. GALVANISED SPARROW-PROOF NETTING for PHEASANTRIES, 11d. per yard, 2 feet wide. WIRE NETTING of every mesh from half an inch to 6 inches.

*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.

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BARNARD, BISHOP, AND BARNARDS, Norwich.
FURTHER REDUCTION in the PRICE of WIRE NETTING.

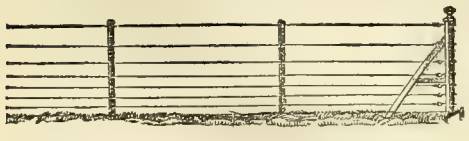


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard
2-inch mesh, 24 inches wide..	No. 19	4½d	3½d.
2-inch „ „ „ .. „	18	5	4
2-inch „ „ „ .. „	17	6½	5
2-inch „ „ „ .. „	16	8	6½
1⅝-inch „ „ „ .. „	19	4¾	4
1⅝-inch „ „ „ .. „	18	6	4¾
1⅝-inch „ „ „ .. „	17	7	5½
1⅝-inch „ „ „ .. „	16	9	7

All the above kinds can be made any width (under 6 feet), at proportionate prices.

Strong Galvanised Poultry Netting, 7½d. per yard, 3 feet wide, Galvanised Sparrow-proof Netting for Pheasantries, 11d. per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10d. per yard.

The same with Galvanised Wire Rope, 1s. per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

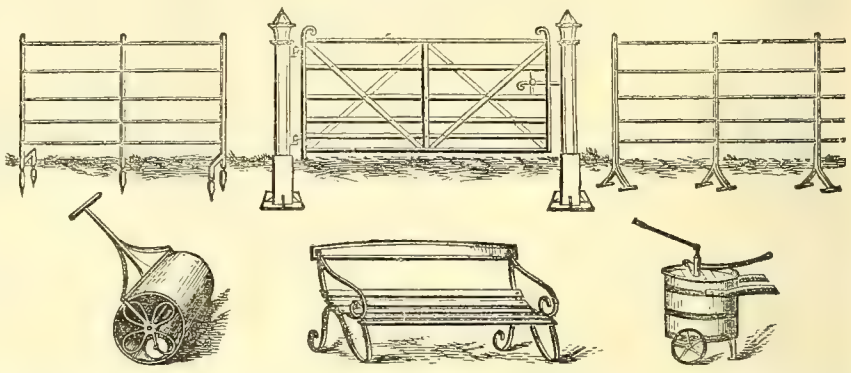
*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

FOWLER'S
STEAM PLOUGHING AND CULTIVATING PATENTS.

RANSOMES & SIMS, ORWELL WORKS, IPSWICH,

Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

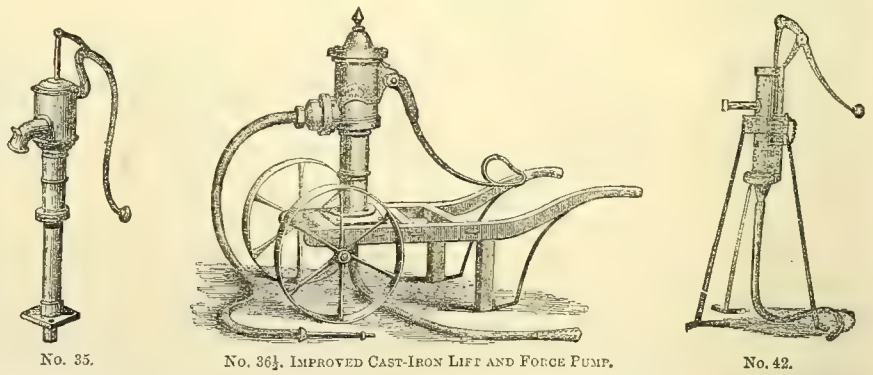
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CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,
MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.
PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED,
IN VARIOUS STYLES.



IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES
WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.
VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.
The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

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JOHN WARNER & SONS,
BELL AND BRASS FOUNDERS TO HER MAJESTY,
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS
OF EVERY DESCRIPTION.



No. 35. No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
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CLARK AND HOPE (late CLARK), HORTICULTURAL BUILDERS, COPPER, SASH, and HOT-WATER APPARATUS MANUFACTURERS, 55, Lionel Street, Birmingham.
Established A.D. 1818.

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Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

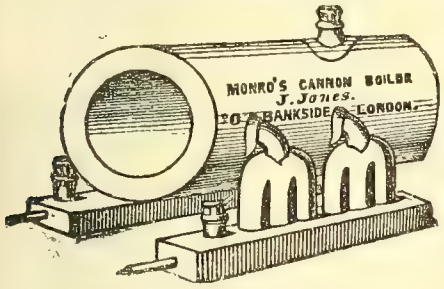
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HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c
Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.
N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

HOT-WATER PIPES, at Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 50*s* each. Valves from 11*s.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at
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MONRO'S CANNON BOILER.

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SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

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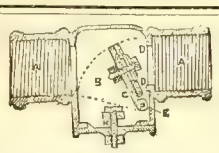
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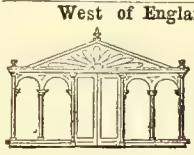
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6, BANKSIDE, LONDON, S.E.



T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough, has recently patented a VALVE which is unequalled for its efficiency, simplicity, durability, and cheapness. Prices as under.
Two-inch, 17*s.* 6*d.*; 3-inch, 23*s.*; 4-inch, 28*s.* A liberal discount to the Trade.
These Valves can be obtained in London of Mr. J. JONES, 6, Bankside, S.E.

West of England, Ireland, and Wales.

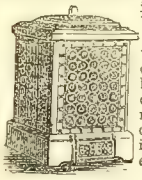




VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER. HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.
VINCENT SKINNER, Bridewell Street, Bristol.

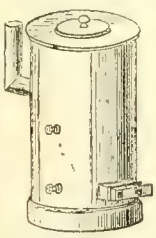
Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.—This Stove is the nearest approach to Warming by Hot Water, and an efficient aid in Ventilation.



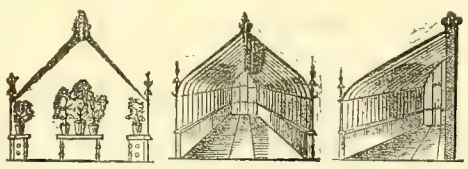
It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.
It is also made for Small Conservatories, with a vapour chamber, which maintains a moist atmosphere for 12 hours with once filling.
Particulars and prices post free on application to MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the
Patentee's Warehouse, 155, Cheapside, London, E.C.
Price complete from 3*l.* 10*s.*
Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon



an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.
The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.
For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

Horticultural Buildings and Heating by Hot Water

BURY AND POLLARD, Park Iron Works, New Park Street, Southwark, S.E., Manufacturers of every description of Buildings for Horticultural purposes, with their improved CONICAL BOILER for heating the same, are prepared to undertake works of any magnitude, and refer, among others, to the celebrated range of Forcing Houses at Her Majesty's Gardens, Frogmore; at Sir Robert Peel's, Drayton Manor, constructed under the superintendence of their manager, Mr. John Jones; and to the works at Frognal the seat of Viscount Sydney, the Lord Chamberlain, just completed by them.
Prices of Boilers and every particular on application.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING



GLASSES.

	Each—*s.*	*d.*		Each—*s.*	*d.*
2 inches in diameter	0	3½	12 inches in diameter	1	9
3 ,, ,,	0	4½	13 ,, ,,	2	0
4 ,, ,,	0	5½	14 ,, ,,	2	6
5 ,, ,,	0	6½	15 ,, ,,	3	0
6 ,, ,,	0	8	16 ,, ,,	3	6
7 ,, ,,	0	10	17 ,, ,,	4	0
8 ,, ,,	1	0	18 ,, ,,	5	0
9 ,, ,,	1	2	19 ,, ,,	6	0
10 ,, ,,	1	4	20 ,, ,,	7	0
11 ,, ,,	1	6			

HAND

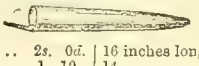


GLASSES.

	Each—*s.*	*d.*		Each—*s.*	*d.*
12 inches	6	0	18 inches	9	0
14 ,,	7	0	20 ,,	10	0
16 ,,	8	0	24 ,,	12	0

Painted and Glazed with 16 oz. Sheet Glass.
If Open at Top, 1*s.* extra.

CUCUMBER



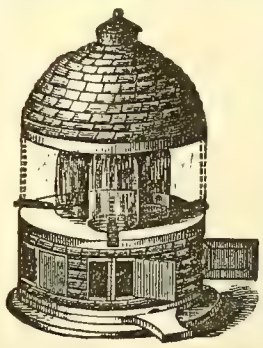
GLASSES.

24 inches long	2*s.*	0*d.*	16 inches long	1*s.*	4*d.*
22 ,, ,,	1	10	14 ,, ,,	1	2
20 ,, ,,	1	8	12 ,, ,,	1	0
18 ,, ,,	1	6	Made to any length.		

London Agents for Hartley's Improved Patent Rough Plate.
Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.
180, Bishopsgate Street Without, London, E.C.

Bee-Hives.

PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO G. N. & SONS, for BEE-HIVES & HONEY at the VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three glasses, and thermometer, price 35*s.*, securely packed for the country.
Several important novelties are introduced this season, including the WOODBURY STRAW BAR-AND-FRAME HIVE, price 18*s.* 6*d.*, &c. Also, the ENGRAVED PRESSING ROLLER for the guidance of Bees in the construction of Honeycomb on the Bars, and impressed WAX SHEETS, to assist in the formation of cells.
Address GEORGE NEIGHBOUR & SONS, 127, High Holborn, W.C., or 149, Regent Street, London, W.
Their newly-arranged Catalogue of other Improved Hives, with drawings and prices, sent on receipt of two stamps.
AGENTS:—Liverpool .. JAMES CUTHBERT, 12, Clayton Square,
,, Manchester . J. WILSON, 50, King Street.
,, Birmingham J. H. COTTRELL, 15, Bull Ring.
,, Dublin .. J. EDMONDSON, BROTHERS, 10, Dame Street.
,, Glasgow .. AUSTIN & M'ASLAN, 186, Trongate.

Do as Others Do!

BUY YOUR SEED BAGS from JAMES T. ANDERSON, SACK and BAG MAKER, and RUSSIA MAT MERCHANT, 15, SHERBORNE LANE, King William Street, London, E.C., who will supply you with a first-rate article at a low price. ARCHANGEL MATS, the pick of the season. Russian and Prussian Dunnage Mats.
Prices sent free on application.

AUSTIN, SEELEY, AND CO.,
371-375, Euston Road, N.W.,





Have a large Collection of VASES for FOUNTAINS or FLOWERS, and every kind of GARDEN ORNAMENT.



GARDEN BORDER-EDGING TILES.—These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.
To be obtained at F. & G. ROSHER'S Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.
Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability. Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.
To be obtained of F. & G. ROSHER at their Premises as above.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

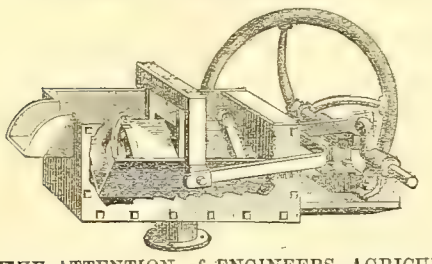
JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.
To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c. the Plant Cases will be found an inestimable boon.
The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.

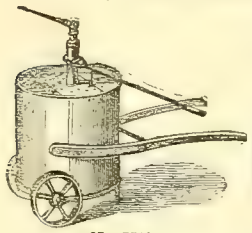
Norton's Patent V Shaped Pumps,
REQUIRING NO PACKING.
CAN BE WORKED BY HORSE, STEAM, OR OTHER POWER.



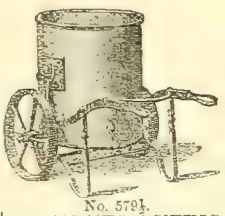
THE ATTENTION of ENGINEERS, AGRICULTURISTS, and others is invited to a 6-HORSE DIRECT ACTION STEAM V SHAPED PUMP, by Messrs. GEO. FORRESTER & Co., Liverpool, which will throw upwards of 60,000 Gallons per hour. Now on view at the Warehouse, Red Bull Wharf, 93, Upper Thames Street.

G. C. WARDEN & Co., Sole Licensees, 12, London Street, London, E.C.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.



No. 554½.



No. 579½.

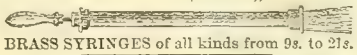
WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons ..	.. £2 15 0
16 ,, ..	.. 3 15 0
24 ,, ..	.. 5 0 0

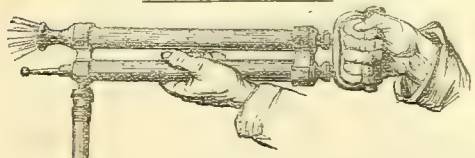
Larger sizes may be had in either Wood or Iron.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	.. £2 10 0
20 ,,	.. 2 0 0



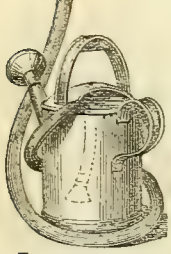
BRASS SYRINGES of all kinds from 9s. to 21s.



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 6 feet Flexible Suction Pipe,

21s.,



Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

THERE ARE NO SUCTION OR DELIVERY VALVES, hence MUCH FRICTION AND LIABILITY TO CHOKE with leaves and dirt IS AVOIDED.

AMERICAN PORTABLE FIRE ANNIHILATOR and GARDEN ENGINE.



£2 2s.

An efficient means of Extinguishing Fires at their commencement Nine out of ten Fires in London are put out on their first appearance by the London Fire Brigade with Hand Pumps of considerably less power.

One man will throw 7 or 8 gallons per minute from 40 to 50 feet with it.

It is an effective Garden Engine for cleansing or syringing Wall-fruit or Rose Trees, Plants, or Vines.

It may be used to draw water from the pail in which it is fixed, or from a tank or pond by the addition of the required length of suction. It is simple in its construction, having no suction or delivery valves to clog with dirt or leaves.

No Establishment, either private, commercial, or manufacturing, should be without one.

Six feet of Flexible Suction, with Union and Suction Rose, &c., extra, 12s. Longer lengths of Suction at 1s. 6d. per foot.

The above may be obtained of all Ironmongers and Seedsmen in Town and Country, or of the Manufacturers,
JOHN WARNER & SONS, 8, Crescent, Cripplegate, London, E.C.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. TYLOR & SONS'
GALVANIZED IRON TUB GARDEN ENGINES,
with Registered Spreader.

8 gal.	12 gal.	16 gal.
£2 13 6	£3 5 0	£3 15 0
24 gal.	30 gal.	
£5 0 0	£5 18 0	

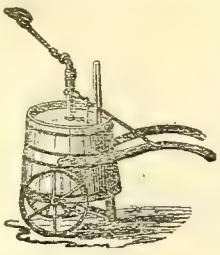


Fig. 571.

J. TYLOR & SONS'
OAK TUB GARDEN ENGINES,
with Registered Spreader.

15 gal.	28 gal.
£5 12 6	£7 2 0



Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 8 0 each.
No. 2. Ditto ditto .. 1 2 6 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,



Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 11s. 6d. each
,, 589. Middle Ditto ditto .. 10 3 ,,
,, 588. Small Ditto ditto .. 9 0 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 7 6 ,,

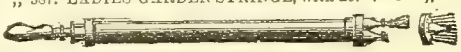
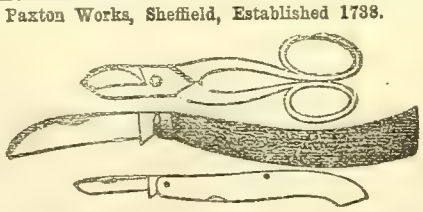


Fig. 591. READ'S SYRINGE, with two roses and one jet, 17s. 6d.
READ'S SYRINGE, with one rose and jet, 15 0
,, 592. Improved ditto ditto large 14 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

Paxton Works, Sheffield, Established 1738.

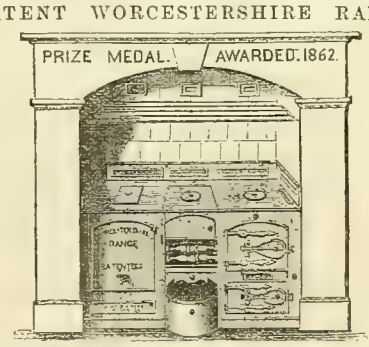


International Exhibition Prize Medal is just awarded to SAYNOR & COOKE for superiority of quality in Pruning and Budding Knives, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

PATENT WORCESTERSHIRE RANGE.



PRIZE MEDAL, 1862, AWARDED for EXCELLENCE.

The above RANGE is most complete, and strongly recommended for its unrivalled ECONOMY, CLEANLINESS, CONVENIENCE, DURABILITY, and is a certain CURE for SMOKY CHIMNEYS.

It is an entirely new invention, and consists of large MEAT ROASTER, PASTRY OVEN, and WROUGHT-IRON BOILER. The top forms a HOT PLATE for BOILING, STEWING, &c. The whole heated by ONE SMALL FIRE. One 5 feet wide is equal to an ordinary Range 8 feet wide.

Extracted from the *London Daily Telegraph*, May 19, 1862.
"INTERNATIONAL EXHIBITION, CLASS 31.

"Of the most recent inventions it should be said that Messrs. JONES & ROWE'S Patent Worcestershire Range has attracted very special attention, and has been commended by the best authorities. A valuable peculiarity of their Ranges is the placing of the OVEN and ROASTER one above the other instead of *side* by *side;* and the ROASTER is constantly replenished with fresh air."

Inventors and Manufacturers, JONES & ROWE, Worcester.

Agents for London: BARRON, SON, & WILSON, 436, Strand, W.C.

Illustrated Catalogues, with Testimonials and Prices, forwarded on application.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

To the Nursery and Seed Trade.

BROWN'S FLORAL SHADING, the cheapest and best material for protecting Plants under Glass from Sun. Prices on application to CHAS. BROWN, Greenbeys, Manchester

TANNED NETTING, at reduced prices, 1d. per square yard; 200 yards, 14s.; 500, 30s.; 1000 yards, 50s. SCRIM CANVAS, for Wall Fruit; GARDEN MATS; GREENHOUSE SHADES.

Be particular. FREDERICK EDGINGTON & Co., Rick Cloth Manufacturers, Thomas Street, Old Kent Road, London, S.E.

TANNED NETTING for the protection of Fruit Trees at 1d. per square yard: 200 yards, 14s.; 500 yards, 30s.; 1000 yards, 50s.; SCRIM CANVAS for Wall Fruits; SUN BLINDS, AWNINGS, TULIP COVERS, &c.

Be particular. JOHN EDGINGTON & Co., 17, Smithfield Bars, E.C.; 108, Old Kent Road, S.E.; and 18, Piccadilly, W.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½d.; 2 yards, 3d.; 3 yards, 4½d.; and 4 yards, 6d. per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

VARNISHED FLOWER STICKS:—1 foot, 3d.; 1½, 4d.; 2, 5d.; 2½, 7d.; 3, 10d.; 4, 1s. 6d. per dozen. DAHLIA do., per dozen:—3 feet, 1s. 6d.; 4, 2s. 3d.; 5, 3s.; 6, 3s. 6d. An allowance to Nurserymen.

Netting for Fruit Trees, Seed Beds, Ripe Strawberries, &c.

TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards, 20s.; 4 yards wide, 6d. per yard, or 50 yards, 20s. NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ½-inch mesh, 4 yards wide, 1s. 6d. per yard.

Can be had in any quantity of EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

Glass and Mixed Paints (Ready for Use.)
FOR FACTORIES, HOT-HOUSES, CONSERVATORIES, GARDEN FRAMES, PITS, AND DWELLING-HOUSES, &c.

THE LONDON CO-OPERATIVE OIL and COLOUR COMPANY (Limited), from their connection with some of the largest British and Foreign Glass and Lead Manufacturers, are prepared to supply White Lead, Zinc Paint, Mixed Paints in all Colours; and strong Sheet, Rough Plate, and every other description of Glass in Crates, Cases, or Cut to Size for Home Use or Export at the very lowest wholesale prices. Gardeners, Nurserymen, and others advised as to the best mode of Erecting, Heating, Ventilating, and Glazing Pineries and other Forcing Houses. Farmers, Stewards, Market Gardeners, &c., supplied with Stucco, Anticorrosion, Metallic Oxide, and Mixed Paints ready for use for Dwelling Houses, Farm Buildings, Park Fences, Ships' Bottoms, &c.

Apply for ILLUSTRATED LISTS to Mr. THOMPSON, Manager, 65, 66, & 67, St. George's Street, London Docks, E.

To Noblemen, Gardeners, Farmers, and Others.

AMIES AND BARFORD beg to call particular attention to their NEW PATENT WATER BALLASTING FIELD and GARDEN ROLLERS, which have the following advantages over all others. They are made entirely of Wrought Iron, are made water-tight, and are loaded with water to obtain increased weight at pleasure, which is moreover employed with the greatest possible per centage of crushing power directly upon the surface of the soil. The weight of a Garden Roller can thus be doubled in a few minutes, and a one, two, or three Horse Land Roller is secured, as desired, in one implement.

Great numbers have already been sold, and are giving the greatest satisfaction, and whether for Gardens, Lawns, Cricket Grounds, Road-making, or for farmers' use, they will be found superior to all others.

For Illustrated Price Lists apply to Messrs. AMIES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

Advertisement.

TO THE FARMERS OF ENGLAND!

GENTLEMEN,—I have perfected my New Patent Combined Machine, it weighs 10 cwt. less than the one shown at Battersea, yet it is quite as strong. It is 15*l.* cheaper and more efficient. To do what I can to give you the best opportunity of seeing it in operation, I shall send it to Worcester, and if there are any of you who would like to see it before, I will show it at work on my own land at any time down to the end of June.

I have invented and patented a Combined Cultivator and Drill upon the double action or balance principle. To show that I am not the surly dog in the manger—not wanting it myself will not allow others to use it—I at once inform manufacturers of the endless mode of traction, that I am prepared to arrange with at least one of them for the manufacture and sale of it.

My Tackle is so well-known and reported upon for its efficiency and durability (see the reports in the three leading agricultural papers), that it is needless for me to say much about it here, but I take this opportunity of informing you that I have received a testimony from the Messrs. Howard, of Bedford, showing that they like it better than they do their own. As you travel through the country you may see at many of the railway stations a Britannia board, placed there by the Messrs. Howard. At the bottom of the board and right-hand corner you may see the Woolston Four-wheeled Windlass and Implement in working form. It having hung there for two years since the Howards ceased to be agents of mine, is positive proof that they like it better than they do their own. Perhaps they will allow me to suggest an improvement—that the words "Smith's, of Woolston," be chalked on the top of it, and if they are disposed to be very kind, that the words "best in England" be chalked at the bottom.

I am, Gentlemen, &c., WILLIAM SMITH.
Woolston, Bletchley Station, Bucks.—May 14, 1863.

THE FARMERS' BAROMETER, 50*s.*, a New Instrument by NEGRETTI & ZAMBRA, will correctly indicate whether the Barometer falls for Rain or for Wind.
Particulars by enclosing stamp to 1, Hatton Garden, E.C.; 59, Cornhill, E.C.; and 122, Regent Street, W.

For Watering Gardens, Lawns, and Washing Windows, Carriages, &c. India-Rubber Hose-Pipes and Tubing.

JAMES LYNE HANCOCK, MANUFACTURER, has a large Stock of all sizes. Also BRASS HAND-BRANCHES, with SPREADERS, STOP-COCKS, JETS, and UNION JOINTS to connect the HOSE to CISTERNS.
INDIA-RUBBER FIRE-ENGINE HOSE for Private Houses, Mansions, and Breweries, and also the necessary FIRE-BRANCHES and UNION SCREWS.
Illustrated Price Lists on application.
JAMES LYNE HANCOCK, Vulcanized India-Rubber Works, 266, Goswell Road, London, E.C.

THE PERFECT SUBSTITUTE for SILVER.—The REAL NICKEL SILVER, introduced more than 30 years ago by WILLIAM S. BURTON, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver. A small useful set, guaranteed of first quality for finish and durability, as follows:—

	Fiddle or Old Silver Pattern.	Bead Pattern.	Thread or Brunswick Pattern.	King's or Lily, &c.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
12 Table Forks	1 13 0	2 0 0	2 4 0	2 10 0
12 Table Spoons	1 13 0	2 0 0	2 4 0	2 10 0
12 Dessert Forks	1 4 0	1 10 0	1 12 0	1 15 0
12 Dessert Spoons ..	1 4 0	1 10 0	1 12 0	1 15 0
12 Tea Spoons	0 16 0	1 0 0	1 2 0	1 5 0
6 Egg Spoons, gilt bowls..	0 10 0	0 12 0	0 12 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 9 0
1 Gravy Spoon	0 6 6	0 9 0	0 10 0	0 11 0
2 Salt Spoons, gilt bowls..	0 3 4	0 4 0	0 4 0	0 4 6
1 Mustard Spoon, gilt bowl	0 1 8	0 2 0	0 2 0	0 2 3
1 Pair of Sugar Tongs ..	0 2 6	0 3 6	0 3 6	0 4 0
1 Pair of Fish Carvers ..	1 4 0	1 10 0	1 10 0	1 10 0
1 Butter Knife	0 2 6	0 4 0	0 5 6	0 6 0
1 Soup Ladle	0 10 0	0 12 0	0 16 0	0 17 0
1 Sugar Sifter	0 3 3	0 4 6	0 4 6	0 5 0
Total	9 19 9	12 9 0	13 9 6	14 17 3

Any article to be had singly at the same prices. An Oak Chest to contain the above, and a relative number of Knives, &c., 2*l.* 15*s.* Tea and Coffee Sets, Dish Covers and Corner Dishes, Cruet and Liqueur Frames, &c., at proportionate prices. All kinds of re-plating done by the patent process.

WILLIAM S. BURTON'S GENERAL FURNISHING IRONMONGERY CATALOGUE may be had gratis, and free by post. It contains upwards of 500 Illustrations of his illimited Stock of Sterling Silver and Electro Plate, Nickel Silver, and Britannia Metal Goods, Dish Covers, Hot Water Dishes, Stoves, Fenders, Marble Chimneypieces, Kitchen Ranges, Lamps, Gasseliers, Tea Trays, Urns, and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1A, 2, 3, and 4, Newman Street; 4, 5 and 6, Perry's Place; and 1, Newman Yard, London, W.C.

Eau-de-Vie.

THIS PURE PALE BRANDY, 18*s.* per gallon, is peculiarly free from acidity, and very superior to recent importations of Cognac. In French Bottles, 38*s.* per dozen; or in a case for the country, 39*s.* Railway Carriage paid. No Agents.
HENRY BRETT & Co.,
Old Furnival's Distillery, Holborn, E.C.
and 30, Regent Street, Waterloo Place, S.W., London.
Prices Current free on application.

Sauce.—Lea and Perrins'

WORCESTERSHIRE SAUCE,
Pronounced by Connoisseurs
"THE ONLY GOOD SAUCE."
See Name on Wrapper, Label, Bottle, and Stopper, and to avoid Counterfeits
ASK FOR LEA AND PERRINS' SAUCE
*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c.; and by Grocers and Oilmen universally.

METCALFE, BINGLEY, AND CO.'S NEW PATTERN TOOTH BRUSHES, Penetrating Unbleached Hair Brushes, Improved Flesh Brushes, genuine Smyrna Sponges, and every description of Brush and Comb and Perfumery for the Toilet. METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box. The FAIRY BOUQUET; the OXFORD and CAMBRIDGE BOUQUET. In bottles, 2*s.*, 3*s.* 6*d.*, and 5*s.* each. 130 B, and 131, Oxford Street, W.

WHITE and SOUND TEETH are indispensable to personal attraction, and to health and longevity, by the proper mastication of food. ROWLANDS' ODONTO, or Pearl Dentifrice, preserves and imparts a pearl-like whiteness to the Teeth, eradicates Tartar and spots of incipient decay, strengthens the Gums, and gives a pleasing fragrance to the Breath. Price 2*s.* 9*d.* per box.
Sold by Chemists and Perfumers. Ask for "ROWLANDS' Odonto."

DINNEFORD'S PURE FLUID MAGNESIA has been during 25 years emphatically sanctioned by the Medical Profession, and universally accepted by the public, as the best remedy for acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion, and as a mild aperient for delicate constitutions, more especially for ladies and children.—It is prepared in a state of perfect purity and of uniform strength by DINNEFORD & Co., 172, New Bond Street, London, and sold by all respectable Chemists throughout the world.

F. C. CALVERT'S PHENYLINE (the active principle of coal-tar) is an unfailing remedy for Foot-rot, Distemper, Grease, Glanders, Scab, Mange, &c., and may be obtained of any of the following Agents:—
JOHN BELL & Co., 338, Oxford Street, London; A. PATTISON & Co., 67, Buchanan Street, Glasgow; CLAY & ABRAHAM, Liverpool; J. WOOLLEY, Manchester; HARVEY & REYNOLDS, Leeds; H. BRADEY, Newcastle-on-Tyne; J. REED, Arundel; C. CORTIS, Worthing.

TWO or THREE of PARR'S LIFE PILLS may be taken by young or old, at any time, place, or season, with a certainty of a beneficial result.
May be obtained of any Medicine Vendor, in boxes, 1*s.* 1½*d.*, 2*s.* 9*d.*, and in family packets, 11*s.* each. Directions with each box.

FURNISH YOUR HOUSE
WITH
THE BEST ARTICLES
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DEANE'S.

DEANE'S—Celebrated Table Cutlery, every variety of style and finish.
DEANE'S—Electro-plated Spoons and Forks, best manufacture, strongly plated.
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DEANE'S—Tin and Japan Goods, Iron Ware, and Culinary Utensils.
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DEANE'S—Gas Chandeliers, newly designed patterns in glass and bronze—three-light glass from 63*s.*
DEANE'S—Harness, Saddles, and Horse Clothing, manufactured on the premises, of the best material.
NEW ILLUSTRATED CATALOGUE and PRICED FURNISHING LIST gratis and post free.
Established A.D. 1700.
DEANE AND CO., LONDON BRIDGE, E.C.

To Plant Exhibitors.

TO BE SOLD, a large convenient VAN, with double floor.
For price, &c, apply to J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

To Orchid Growers.

TO BE SOLD, a Bargain, a quantity of ORCHID POTS with holes in them; these are in different sizes. Sold on account of the room being required for other purposes. Address JOHN TUCKER, The Nursery, Burnham, Somerset.

TO BE DISPOSED OF, an old established FLORIST, SEED, and FRUIT BUSINESS.
For further particulars, apply by letter, addressed T. W., care of Mr. G. Sanders, Stanway, near Colchester, Essex.

TO BE SOLD, the LEASE, STOCK, and GLASS of BLENHEIM NURSERY, Rye Lane, Peckham. Nearly 40 years unexpired. 20 years established in a good Border Trade. Contains 1 Acre of Ground, 5 Greenhouses, Cottage, Pits, &c. thereon. The present owner having other business to attend to.
Enquire on the Premises as above.

To Nurserymen and Gentlemen's Gardeners.

TO BE SOLD, the LEASE, STOCK, and GLASS of a SMALL NURSERY within four miles of Covent Garden, containing about one acre and a-half of Land, and 15,000 feet of Glass in good order, with every convenience for carrying on a large Trade. Has been successfully carried on by the present Proprietor for the last 17 years, who now is giving up business. Part of purchase-money could remain for a term agreed upon at 5 per cent. Among the Houses are four Vineries built and planted within the last seven years, and three of them are now in full bearing. Immediate Possession can be had for 1000*l.*
For further particulars apply to Messrs. PROTHEROE & MORRIS, American Nursery, Leytonstone, Essex, N.E.

TO BE LET, with immediate possession, Kensington Nursery, Bath, Somerset. This very excellent and well situated GARDEN and NURSERY GROUND, with long range of Hot and Greenhouses, stocked with the choicest Vines, Forcing Pits, &c., situated on the London Road, with a Shop and Greenhouse facing the road, and a Cottage Residence.
For particulars, apply to Messrs. MORRIS & SON, Upholsterers, &c., 22, Milsom Street, Bath.

Sales by Auction.

Brockley Farm, near Lewisham.

IMPORTANT SALE OF SHORTHORNS, SHEEP, &c.

MR. STRAFFORD has received instructions to SELL by AUCTION, without reserve, at the Brockley Farm, Lewisham, Kent, six miles from London Bridge, on TUESDAY, June 2, the entire Herd of very superior SHORTHORNED CATTLE, belonging to J. T. Noakes, Esq., consisting of about 45 head of Bulls, Cows, and Heifers, which have been bred from the famed stock of Sir C. Knightley, Sir J. W. Lubbock, Capt. Gunter, Messrs. Adkins, Bolden, Combe, Dixon, Dudding, Stratton, and Tracy. The young stock are chiefly by the celebrated Bull Cherry Duke 3d (15,763), and the Cows are served by him. Also will be Sold the select Flock of KENTISH SHEEP, consisting of 80 Ewes and their Lambs; as well as a few promising young Colts of the Don John blood. Mr. STRAFFORD, after a personal inspection of the Stock, can with confidence recommend them to the favourable notice of purchasers.
Catalogues, with pedigrees and other particulars, may be had of Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. NOAKES, and the BAILIFF, at the Farm.

Important Sale of Stove and Greenhouse Plants.

MR. JOHN WIDDICOMBE will SELL by AUCTION (without Reserve) on SATURDAY, June 13, at 11 o'Clock in the forenoon, in the Horticultural Tent of the Bath and West of England Society, at Exeter, the valuable collection of STOVE PLANTS, CHOICE AZALEAS, and other GREENHOUSE PLANTS, late the property of A. Lawrance, Esq., of Devonshire Buildings, Bath (deceased).
On view to persons visiting the Horticultural Department of the Bath and West of England Society's Exhibition, at Exeter, on the 8th, 9th, 10th, 11th, and 12th of June; where Catalogues, 6*d.* each, may be had at the Office of the Director, at the entrance of the Yard; or of Mr. JOHN WIDDICOMBE, Torrhill, Ivybridge.

Highly Important Sale of Stove and Greenhouse Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, May 26, at half-past 12 o'clock precisely, a Valuable Collection of Specimen and Half-specimen STOVE, GREENHOUSE, and ORNAMENTAL PLANTS, consisting of Ericas, Epacris, Acacias, Roellias, Myrtles, Coronillas, Chanthus, Clerodendrons, Pimeleas, Plumbagos, Polygalas, Oleifolias, Aphelexis, Pleromas, Lesche aultias, Gnideas, Rhododendrons, Croweas, Aotus, Dracophyllums, Lophospermums, Ceratopetalums, Vacciniums, Hibbertias, Chorozemas, Cytisus, Eugenias, Kalosanthus, Diosmas, Loniceras, Kennedyas, Jasminums, Physolobiums, Sollyas, Tecomas, Aristolochias, Passifloras, Rhynchosias, Rhynchospermum, Gardenias, Allamandas, Æschynanthus, Ardisias, Ixoras, Crotons, Marantas, Chiritas, Stephanotis, Cissus, Bignonias, Ficus, Justicias, Begonias, Euphorbiums, Caladiums, Cannas, Lilium giganteum, Rare Ferns, &c. All fine Plants, true to name, and in the best possible condition.
On view the Morning of Sale, and Catalogues had.

Importations of Rare and Valuable Plants and Bulbs

FROM JAPAN, NEW ZEALAND, SYDNEY, AND OTHER PARTS OF THE WORLD FOR ABSOLUTE SALE, COMPRISING MANY VERY VALUABLE PLANTS NEVER YET INTRODUCED INTO ENGLAND, THE GREATER PART EXPECTED TO ARRIVE DURING THE MONTH OF JUNE.

MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER), begs to announce that he has received instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, London, W.C., several very important and interesting CONSIGNMENTS of PLANTS and BULBS, expected to arrive shortly.
More detailed particulars and the days of Sale will be announced in future Advertisements.

Japan.

THREE WARDIAN CASES OF PLANTS FOR SALE, JUST ARRIVED.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, May 26, at 2 o'Clock precisely, an importation of JAPANESE PLANTS just received *ex* "Water Lily" from Japan, the whole for absolute Sale in Three Lots.
On view the Morning of Sale.

Sydney.

SEVEN CASES OF RARE ARAUCARIAS AND OTHER PLANTS FOR SALE.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, during the month of June, an IMPORTATION of VALUABLE and HARDY PLANTS expected to arrive *ex* "Sarah Newman" from Sydney, comprising in

Case No. 1, 49 Araucaria Rulei.
Case No 2, 62 do. do.
Case No. 3, 67 do. do.
2 Taxodium species New Caledonia.
Case No. 4, 96 Dammara Moorei.
Case No. 5, 31 Dammara Moorei.
50 Dwarf Araucarias.
Case No. 6, 18 Macrozania Denisonii.
2 ,, Mackenzii.
10 Areca sapida.
6 Eupomatia Bennetii.
6 Ficus species, North Australia.
10 Cycas species, New Caledonia.
Case No. 7, Dried specimens of
Araucaria Rulei.
,, Dwarf New California.
Dammara Moorei with cone.
Taxodium species, New California.
Cycas with seeds and male catkin.

The above have all been shipped in good order last February from Sydney.
Catalogues will be published shortly, and the day of Sale in future Advertisements.

Melbourne.

FOUR CASES OF TREE FERNS FOR ABSOLUTE SALE.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., during the month of June, an importation of valuable TREE FERNS, expected to arrive *ex* "Swiftsure" from Melbourne, comprising about 50 splendid Trees from 4 to 9 feet in height.
More detailed particulars and the days of Sale will be announced in future Advertisements.

Calcutta.

CASE OF IMPEYAN PHEASANT SKINS.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., during the Month of JUNE, an importation of 90 Skins in splendid condition, of the rare and valuable Impeyan Pheasant.
The Day of Sale will shortly be announced, and Catalogues ready one week before.

Arabia Petrea.

CASE OF VALUABLE TURQUOISES.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 28, at 1 o'Clock precisely, an importation of interesting specimens of TURQUOISES, comprising very handsome specimens for Jewellery, and many in the rough state for Museums.
On view the day prior and Morning of Sale, and Catalogues had.

Greenhouse and Bedding Plants.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, May 29, at 12 o'Clock, a choice collection of GREENHOUSE PLANTS, consisting of Show and Fancy Pelargoniums, Ericas, Acacias, and a variety of other Plants in bloom, with a large Assortment of Scarlet and Variegated Geraniums, and a variety of Ornamental Plants for Bedding out.
On view the Morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Mile End Nursery.

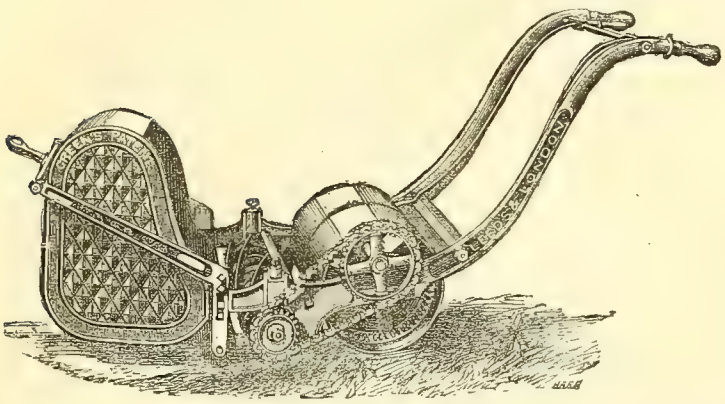
10,000 BEDDING AND OTHER PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Mile End Nursery, Bow Road, E. (within five minutes' walk of the Bow Railway Station on the North London Line), on THURSDAY, May 28, at 12 o'Clock, about 10,000 GREENHOUSE and BEDDING PLANTS (presenting a rare opportunity to proprietors of Public Gardens, and to those gentlemen who appreciate the advantages of obtaining full grown healthy Plants, suitably adapted for Bedding out at once and for immediate effective purposes), including the usual miscellaneous assortment.
May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

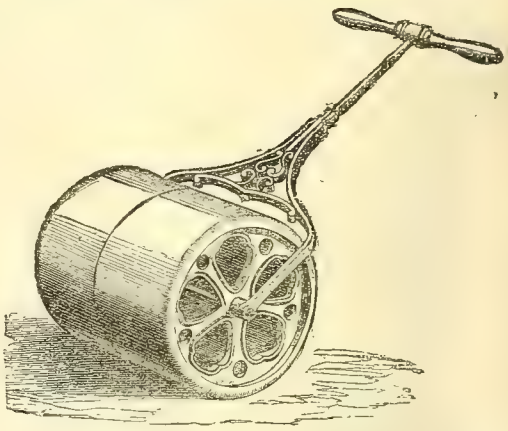
GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS,

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS

DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

Upwards of 14,000 of the above Machines have been sold since the year 1856, and thousands of letters have been received by the Patentees testifying to their efficiency. They do not deem it necessary to publish more than the two following :—

TESTIMONIALS.

"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"Dear Sir,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, Geo. Eyles."

"Royal Gardens, Windsor, March 27, 1863.

"Dear Sir,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

"To Mr. Green." "Yours very truly, Thomas Ingram."

PRICES.

						If with Patent Delivery Box.
To Cut 10 inches	£3	10	0	Suitable for a Lady.		
„ 12 „	5	0	0	Suitable for One Person. If with internal gear, 10s. extra.		
„ 14 „	5	10	0	Do. Do. Do. Do. 10s. extra.		
„ 16 „	6	10	0	Suitable for One Man or Two Boys.		
To Cut 18 inches ...	£7	10	0	Suitable for One Man and Boy	£8	15 0
„ 20 „ ...	8	0	0	Do. Do. ...	9	5 0
„ 22 „ ...	8	10	0	Suitable for Two Men	9	17 6
„ 24 „ ...	9	0	0	Do. Do.	10	7 6

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	... £12 10 0
„ 26 „	12 10 0	... 13 12 0
„ 30 „	16 14 0	... 18 0 0

Leather Boots for Donkey, 16s.; for Pony, 20s.

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	... £21 10 0
„ 36 „	23 0 0	... 24 16 0
„ 42 „	26 0 0	... 28 2 0
„ 48 „	29 0 0	... 31 8 0

Leather Boots for Horse, per set, 1l. 4s.

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5s. | Diameter 16 inches, length 17 inches, price £2 10s. | Diameter 24 inches, length 26 inches, price £4 5s.
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

PORTABLE and FIXED STEAM ENGINES; COMBINED THRESHING, SHAKING, and WINNOWING MACHINES;
REAPING and MOWING MACHINES; BONE CRUSHING MILLS; CORN CRUSHING and BEAN SPLITTING MILLS; CHAFF CUTTERS;
TURNIP SHEARS and PULPERS; IMPROVED HAY-MAKING MACHINES, and HORSE RAKES;
CLOD CRUSHERS, and WROUGHT IRON FIELD ROLLERS; PLOUGHS, HARROWS, and CULTIVATORS; VERANDAHS;
PATENT HYDROPULT, and all kinds of GARDEN ENGINES and SYRINGES; GARDEN CHAIRS and TABLES;
ORNAMENTAL FOUNTAINS and VASES; GARDEN TOOLS; PREMIUM CONTINUOUS IRON FENCING and HURDLES;
STRAINED WIRE FENCES, of all kinds; ESPALIER FENCES; GAME-PROOF WIRE NETTING and TRELLIS WORK;
ORNAMENTAL and PLAIN ENTRANCE, WICKET, and FOOTPATH GATES; WROUGHT IRON FIELD GATES; TREE GUARDS;
CATTLE and PIG TROUGHS; SHEEP RACKS; WASHING and WRINGING MACHINES; FIRE-PROOF IRON SAFES; IRON WHEELBARROWS;
IMPROVED IRON STABLE FITTINGS;
and every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;
and MANUFACTURERS of all kinds of IRONWORK for the IMPROVEMENT or EMBELLISHMENT of LANDED PROPERTY.

Illustrated Catalogues on application.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 22.—1863.] SATURDAY, MAY 30. {Price Fivepence. {Stamped Edition, 6*d*.

INDEX.

Assessments	506 *a*	Natural History Review	511 *b*
Bath Agri. Society's Journal	513 *a*	Oxford Farmers' Club	516 *b*
Birds	509 *b*	Peonies, tree	512 *c*
British Columbia	509 *a*	Peaches, dropping	509 *b*
Carrots and Cabbage	513 *a*	Plants, new	507 *a*
Crystal Palace Hort. Show	510 *c*	Profits of stock feeding	516 *a*
Dog show	512 *a*—514 *c*	Roses, black blotch in	509 *b*
Farmers' fallacies	516 *a*	Salmon ladders	508 *a*
Feeding stock	516 *c*	Society, Royal Hort.	505 *c*—509 *c*
Fish and fishing	509 *b*	— Royal Agricultural	516 *a*
Gutta percha	512 *a*	Short-horns, sale of	513 *a*
International Dog Show	514 *a*	Steam cultivation	512 *a*
Jardin Fruitier du Museum	511 *c*	Stock feeding	516 *c*
Law relating to assessments	506 *a*	Wellingtonia, fructification of	512 *a*

Royal Horticultural Society.
10TH JUNE, 1863.

UNCOVERING of MEMORIAL of EXHIBITION of 1851, in the presence of their RR.HH.'s THE PRINCE and PRINCESS of WALES.

Cards of Admission 10*s*., if obtained on or before the 9th of June, and 30*s*. on day. A. MURRAY.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.

The SECOND EXHIBITION of PLANTS, FLOWERS, and FRUIT, will take place on WEDNESDAY NEXT, JUNE 3.

Tickets can be had at the Gardens by Orders from Fellows of the Society, price 5*s*.; or on the day of Exhibition, 7*s*. 6*d*. each. The Gates open at 2 o'clock.

THREE MILITARY BANDS will attend.

The EXHIBITION of AMERICAN PLANTS, MONDAY, JUNE 8.

LEYTON and WALTHAMSTOW FLORICULTURAL SOCIETY.

The FIRST EXHIBITION of FLOWERS, FRUIT, &c., will take place on THURSDAY, June 11, in the pleasure grounds of J. G. BARCLAY, Esq., Knott Green, Leyton, Essex. Admission from 1 till 4 o'clock, 2*s*.; and from 4 till 7 o'clock, 1*s*. For cards and particulars, apply to E. GOAD, Hon. Sec. Beulah Road, Walthamstow, Essex, N.E.

Double Pyrethrums.

JOHN SALTER'S COLLECTION of these new and beautiful Flowers is NOW in BLOOM, and may be seen every day except Sunday.

Versailles Nursery, William Street, near Hammersmith Turnpike, W.

Grand Exhibition of Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER has the pleasure to announce that his matchless COLLECTION of the above plants is NOW on VIEW at the Royal Botanic Gardens, Regent's Park.

Orders of admission are granted by Fellows of the Society. Admission can also be obtained on application to Mr. WATERER, at the Gardens, any days excepting Wednesdays or Saturdays, or June 8.

The American Nursery, Bagshot, Surrey.

Paul's Nurseries, Waltham Cross.

WM. PAUL (Son and Successor to the late A. PAUL), has a large Stock of all the NEW ROSES, now ready for delivery.

Splendid plants at lowest advertised prices.
PRICED CATALOGUE free by post.

ALL the NEW ROSES of 1863.—In fine strong Plants now ready.
DESCRIPTIVE LISTS on application.
WM. WOOD & SON, Woodlands Nursery, near Uckfield, Sussex.

NEW ROSES of 1863.—Good Plants of all the finest sorts are now ready, as well as all the finest of last season. DESCRIPTIVE PRICED LISTS on application.
PAUL & SON, Old Nurseries, Cheshunt, Herts.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON).—Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7*s*. 6*d*. each, will be shortly ready.
Old Cheshunt Nurseries, Herts.

Dwarf Roses in Pots for Bedding.

WM. KNIGHT is now executing orders from his immense Stock of only the most approved kinds, offered at low prices. CATALOGUES free on application.
Floral Nursery, Hailsham, near Hurst Green, Sussex.

New Roses for 1863.

BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.
St. John's Street Nursery, Colchester.

40,000 Dwarf Roses in Pots for Bedding.

THE MONTHS OF APRIL AND MAY ARE CONSIDERED THE MOST ELIGIBLE FOR PLANTING OUT ROSES FROM POTS.

WM. WOOD AND SON have an enormous stock of fine healthy plants, now ready to send out. CATALOGUES sent Post-free on application.
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ROSY CRIMSON ZONAL GERANIUMS.—Fine Summer-struck plants of BRITISH FLAG, COUNTESS, HON. MRS. FELLOWES, LADY DOWNES, LADY MIDDLETON, FLORIAN, &c., 2*s*. 6*d*. per dozen. 20*s*. per 100.
WOOD & INGRAM, Huntingdon.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH, SEED MERCHANTS,
Covent Garden Market, London, W.C.

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Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Good Turnip Seeds, Carriage Free.

SUTTON AND SONS, SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

Agricultural Seeds.

GEORGE GIBBS AND CO., SEEDSMEN,
26, Down Street, Piccadilly, London, W.

Agricultural and Garden Seeds.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbeach.
Special PRICED LIST of NEW SEEDS on application.

NEW PRIZE MELONS, at 1*s*. 6*d*. per packet.
Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria.
For descriptions see GUIDE to the KITCHEN GARDEN.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Arabis albida variegata.

WM. CUTBUSH AND SON can supply large quantities of this excellent SILVER VARIEGATED DWARF EDGING or RIBBON BORDER PLANT. Strong plants, 4*s*. per dozen; 30*s*. per 100.
Highgate Nurseries, London, N.

Primula, &c., very choice.

WM. CUTBUSH AND SON possess an unrivalled strain of Per packet.—*s*. *d*.
PRIMULA SINENSIS FIMBRIATA 2*s*. 6*d*. and 3 6
CALCEOLARIA, fine herbaceous 2 6
CINERARIA, from best named flowers 2 6
Free per Post.
Highgate Nurseries, London, N.

PLANTS or CUTTINGS.—For AURICULAS, GERANIUMS, FUCHSIAS, PANSIES, &c., &c., and all the Novelties, see CATALOGUE sent free on application to A. GIBB, Broughty Ferry, N.B.
Cuttings sent safe by post at one-fourth the price of plants.

CARTERS FIRST CLASS SEEDS of
Per pkt.—*s*. *d*.
CALCEOLARIA 2 6
,, new blotched 2 6
CINERARIA 2 6
JAS. CARTER & Co., 237 & 238, High Holborn, W.C.

Beaton's "Good Gracious" Double Bedding Pansy. Dr. Wallace's New Perpetual Pink "Optima."

MESSRS. JAMES CARTER AND CO. beg leave to state that in consequence of the unusual demand for the above first-class Novelties, they will be unable to execute further orders for them until the autumn.
High Holborn, and Crystal Palace Nursery, Sydenham.

SPLENDID NEW SCARLET VERBENA, LORD LEIGH.—Strong Plants now ready, 5*s*. each, 42*s*. per dozen.
CATALOGUES also ready, and will be forwarded Post-free on application to
S. PERKINS & SONS, Park Nursery, Coventry.

WM. KNIGHT offers strong Plants of DAHLIAS, FUCHSIAS, PETUNIAS, VERBENAS, and various other BEDDING PLANTS, at low prices.
CATALOGUES free.
Floral Nursery, Hailsham, Sussex.

Dahlias! Dahlias! Dahlias!

5000 WELL-ROOTED GOOD SORTS at 12*s*. 6*d*. per 100; 2*s*. per 1 doz. Also Special List CHRYSANTHEMUMS, 2*s*. 6*d*. per doz.; 16*s*. per 100.
J. C. FADMAN, Providence Nurseries, Boston Spa, near Tadcaster.

Double Primroses.

L. T. DAVIS begs to offer DOUBLE WHITE, LILAC, PURPLE, and YELLOW PRIMROSES, at very moderate prices, which can be had on application (carriage free to Belfast).
Ogle's Grove Nursery, Hillsborough, County Down.

Bedding Plants, Florists' Flowers, and New Roses for 1863.

JAMES DICKSON AND SONS have an IMMENSE STOCK of the above, which they offer at VERY MODERATE PRICES, for exceedingly FINE VIGOROUS PLANTS.
DESCRIPTIVE CATALOGUE upon application.
The "Newton" Nurseries, Chester.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.
RICHARD SMITH, Nurseryman, Worcester.

For Present Sowing for Sheep Feed.

MUSTARD SEED, 10*s*. 6*d*. to 14*s*. per bushel.
RAPE, 12*s*. 6*d*. to 15*s*. per bushel.
ITALIAN RYE-GRASS, 6*s*. to 7*s*. per bushel.
SUTTON & SONS, Seed Growers, Reading.

NEW CUCUMBERS, at 1*s*. per packet.
Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

MITCHINSON'S PENZANCE EARLY WHITE CORNISH BROCCOLI.—Good Plants of the above can be supplied at 2*s*. per 100, postage free, by sending Order and Stamps to
J. MITCHINSON, Seed Merchant, Truro, Cornwall.

Cabbage Plants.

H. AND R. STIRZAKER can supply in any quantity fine DRUMHEAD CABBAGE PLANTS, EARLY CURLED SAVOY, &c., RED for Pickling, all Autumn sown.
The Nurseries, Lancaster.

Cabbage Plants.

W. VIRGO AND SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 3*s*. per 1000:—
EARLY YORK CABBAGE | EARLY NONPAREIL
,, BATTERSEA | DRUMHEAD
,, BARNES
RED CABBAGE, 4*s*. p. 1000. All strong, healthy, and well rooted.
Wonersh Nursery, near Guildford, Surrey.

DIOSCOREA BATATAS (CHINESE YAM).—Good sound Roots, in fine condition for Planting, 5*s*. to 7*s*. 6*d*. per 100, according to size, are offered by
GEORGE WHEELER, Nurseryman, Warminster, Wilts.

MANGEL WURZEL SEED in every variety, supplied at very moderate rates, direct from the Grower,
Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts.

Ferns.

EDWIN COOLING will have pleasure in forwarding his NEW PRICED CATALOGUE on application. Also his GENERAL LIST of CHOICE PLANTS suitable for the Conservatory and Flower Garden.
Mile Ash Nurseries, Derby.

Ferns.

WILLIAM MASTERS, Exotic Nursery, Canterbury, has to offer a most extensive collection of these popular Plants; and can supply them at very moderate prices.
The Trade treated very liberally, where not less than 100 Plants are taken.

To Exhibitors of Ferns.

J. WATSON, New Zealand Nursery, St. Alban's, has much pleasure in offering fine specimens of that beautiful TREE FERN, CYATHEA SMITHII, undoubtedly the finest in Europe, being from 1 to 6 feet in the stem; also fine plants of CYATHEA DEALBATA, LOMARIA DISCOLOR. Magnificent plants of TODEA PELLUCIDA. Several fine species of the HYMENOPHYLLUMS of New Zealand, with many other kinds too numerous for insertion.
Prices on application by Post.
J. WATSON, New Zealand Nursery, St. Alban's, Herts.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.
Dorking Nursery.

Camellias.

TO BE SOLD, about 100 CAMELLIAS, of various choice kinds, ranging from 2 to 20 feet in height. The property of the late John Allnutt, Esq.
Apply to Mr. DRUMMOND, Gardener, Clapham Common, S.

Bedding Plants, mostly 2s. 6d. per dozen.

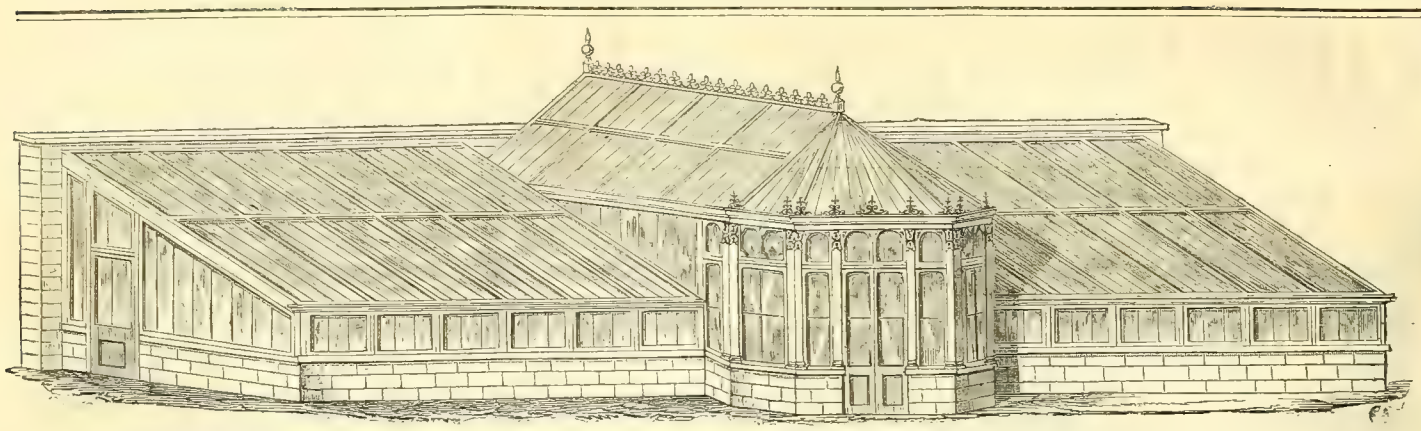
J. SCOTT'S FLOWER GARDEN and ANNUAL DIRECTORY will be ready to forward, from the 1st week of April, at 6*d*.
"All who wish to have their Gardens gay, at a moderate price, should procure the above."
Merriott, Crewkerne, Somerset.

Cheap Bedding Plants.

WM. DILLISTONE will forward (Carriage free to London), upon receipt of Post Office Order for 18*s*. on Castle Hedingham, 100 Strong Plants in Pots; consisting of GERANIUMS, FUCHSIAS, DAHLIAS, VERBENAS, CALCEOLARIAS, &c.
N.B. The above are warranted to give satisfaction. CATALOGUES upon application.
Munro Nursery, Sible Hedingham, Essex.

BEDDING PLANTS—BEDDING PLANTS.—The undersigned beg to offer the above, of all the popular kinds in well hardened Plants, per 100, 20*s*., prepaid hamper included. Cheaper by the thousand. Carriage paid to Brick Lane Station.
A CATALOGUE of 35 pages sent upon application, enclosing a stamp. Post-office Orders payable at Halstead.
Messrs. DILLISTONE & Co., Sturmer and Woodlands Nurseries, near Halstead, Essex.

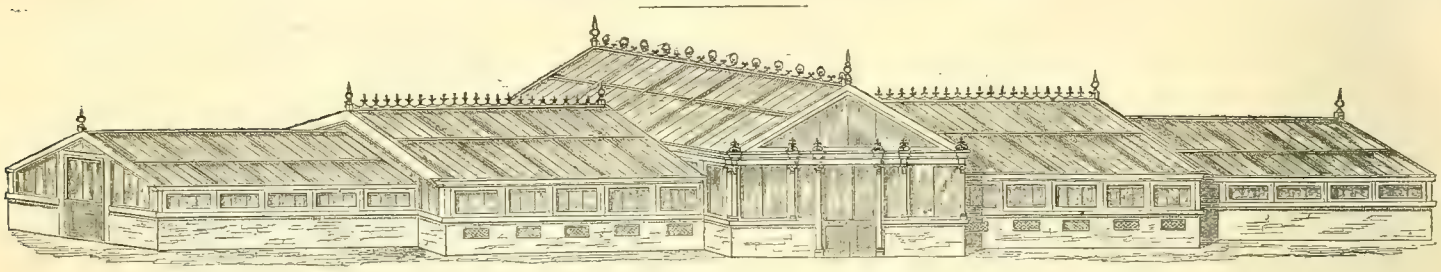
GERMAN STOCKS, ASTERS, &c.—Finest GERMAN STOCKS and LARKSPURS, German and French ASTERS and MARYGOLDS, now fit for planting out, post free, for 2*s*. 6*d*. per 100; finest FRENCH BALSAMS, just ready for potting, 5*s*. per 100. All raised from seed imported from the best German and French Growers. Postage stamps received as payment.
WOOD & INGRAM, Huntingdon.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

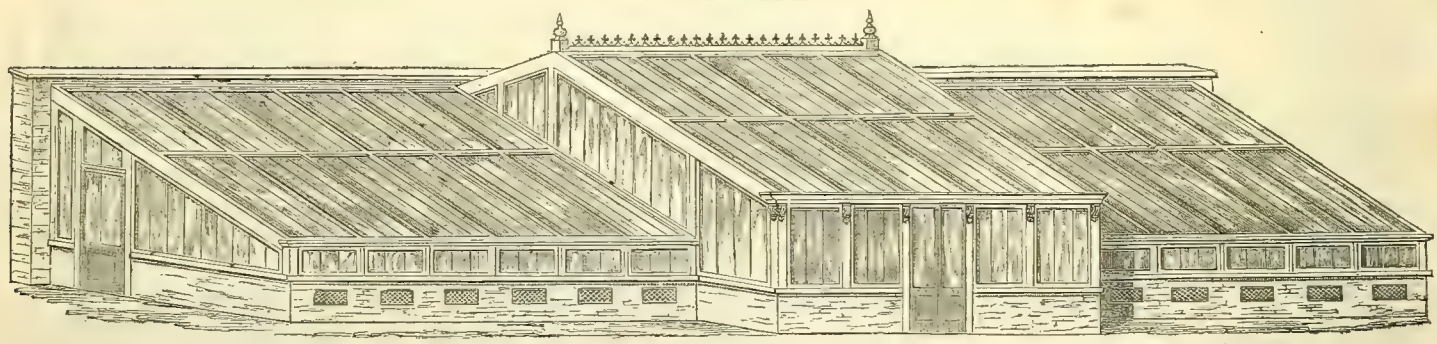
LOWEST PRICES AND BEST MATERIALS.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

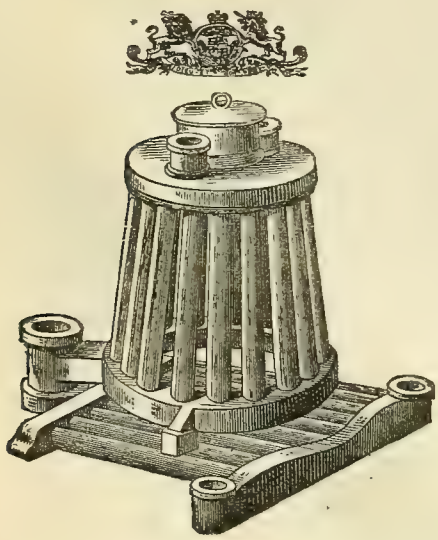
MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

THE FOLLOWING IS THE REASON WHY

ORMSON'S ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become so universally adopted on account of their superior power, great safety, and economy.



ORMSON'S No. 1 BOILERS	are heating upwards of	250	feet of Pipe.
ORMSON'S No. 2 BOILERS	„ „	600	„
ORMSON'S No. 3 BOILERS	„ „	1300	„
ORMSON'S No. 4 BOILERS	„ „	3500	„
ORMSON'S No. 5 BOILERS	„ „	7000	„

Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

H. Ormson having a most complete Set of Steam-power Machinery, is in a position to execute Orders with the greatest despatch, and at considerably reduced prices.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, Horticultural Builder to Her Majesty,

AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.



GARDEN BORDER-EDGING TILES. — These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

To be obtained at F. & G. Rosher's Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. Rosher at their Premises as above.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. Glenny."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, E.C.

WANTED, a CONSERVATORY or GREENHOUSE, one with a span or circular roof, about 20 feet by 16 feet, or larger.

Apply by letter, stating lowest cash prices, and full particulars, to J., care of Messrs. Saunders Bros., 104, London Wall, E.C.

THOMAS MILLINGTON,
Glass Merchant. Established 1750.
87, Bishopsgate Street Without, London, E.C.

Reduced Tariff for Sheet Glass and Horticultural Goods.

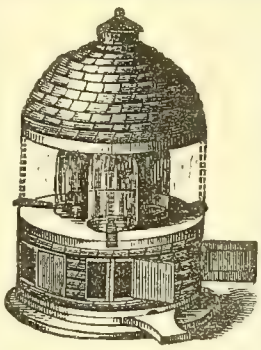
The Agricultural Hall, Islington, containing an Acre of Glass, was supplied by T. Millington.

Mr. Rivers, and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home Use and for Exportation.

For prices see last week's Advertisement.

Bee-Hives.

Prize Medal and Honourable Mention awarded to G. N. & Sons, for Bee-Hives & Honey at the various Exhibitions.



NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by George Neighbour & Sons, with all the recent improvements, three glasses, and thermometer, price 35s., securely packed for the country.

Several important novelties are introduced this season, including the Woodbury Straw Bar-and-Frame Hive, price 18s. 6d., &c. Also, the Engraved Pressing Roller for the guidance of Bees in the construction of Honeycomb on the Bars, and impressed Wax Sheets, to assist in the formation of cells.

Address George Neighbour & Sons, 127, High Holborn, W.C., or 149, Regent Street, London, W.

Their newly-arranged Catalogue of other Improved Hives, with drawings and prices, sent on receipt of two stamps.

Agents:—Liverpool .. James Cuthbert, 12, Clayton Square,
,, Manchester . J. Wilson, 50, King Street.
,, Birmingham J. H. Cottrell, 15, Bull Ring.
,, Dublin .. J. Edmondson, Brothers, 10, Dame Street.
,, Glasgow .. Austin & M'Aslan, 186, Trongate.

For Watering Gardens, Lawns, and Washing Windows, Carriages, &c. India-Rubber Hose-Pipes and Tubing.

JAMES LYNE HANCOCK, Manufacturer, has a large Stock of all sizes. Also BRASS HAND-BRANCHES, with SPREADERS, STOP-COCKS, JETS, and UNION JOINTS to connect the HOSE to CISTERNS.

INDIA-RUBBER FIRE-ENGINE HOSE for Private Houses, Mansions, and Breweries, and also the necessary FIRE-BRANCHES and UNION SCREWS.

Illustrated Price Lists on application.

James Lyne Hancock, Vulcanized India-Rubber Works, 266, Goswell Road, London, E.C.

Blight.

BROWN'S PATENT FUMIGATOR. — A Portable Instrument for Fumigating Greenhouses, Stoves, and Frames, or Shrubs and Flowers in the open air, without injuring the most delicate plant; delivering the smoke cold, in a dense mass, and effecting a great saving of Tobacco. Price 10s. and upwards.

Manufactured and supplied to the Trade by Messrs. Barber & Groom, London; and may be had of all Ironmongers, Seedsmen, and Florists.

The only Certain Remedy for Mildew.

JOHN BELL'S COMPOSITION for DESTROYING MILDEW on Vines, Peaches, Nectarines, Roses, and every other Plant subject to that pest, is proved to be the most efficacious that has ever been offered. Sold in Bottles at 1s. 6d., 2s. 6d., and 5s. each. A 1s. 6d. Bottle will make 12 gallons fit for use.

Seed Warehouse, 10 & 11, Exchange Street, Norwich.

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.

Can be obtained through the principal Nurserymen and Seedsmen in England.

A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.

Page & Toogood, Seed Merchants, Southampton.



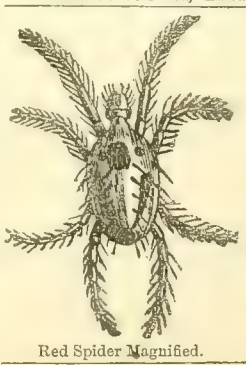
Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1s. and 2s. per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of Geo. Glenny, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP,
1s. per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. Neal, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
Price's Patent Candle Co. Limited.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped 'J. Barsham's Patent'

REIGATE SILVER SAND.—Best quality, 7s. 6d. per ton; second quality, 6s. per ton; best quality, packed in strong canvas bags, 16s. per ton; ditto 2s. 6d., 2 cwt. bags, stamps, put on the rail at Reigate and forwarded to all parts of the United Kingdom.

PEAT SOILS, LOAM, &c.

Collections of NEW, RARE, and BEAUTIFUL PLANTS of all kinds, carefully selected and supplied at current Prices.

W. Short, Salesman, Agent, &c., Reigate, Surrey.

LOUIS VAN HOUTTE'S NEW CATALOGUE, No. 96, is to be had at Messrs. R. Silberrad & Son, 5, Harp Lane, London, E.C.

☞ L. v. H.'s goods will be delivered free out of the Custom House in London, without any expense whatever to the buyer, but per contra 5s. will be charged for each package.

Ghent, Belgium.

THE
ST. JOHN'S and NEWTON MOOR NURSERIES
and SEED WAREHOUSES
having been lately purchased, will in future be designated
THE ST. JOHN'S NURSERIES,
Under the Management of William Barratt, the late Sole Owner, to whom all communications are to be addressed.

The NURSERIES and SEED GROUNDS,
Covering above 40 Acres, are in a high and exposed situation and from the Climate and nature of the soil are exceedingly favourable for the rooting of Trees and Shrubs, facilitating their removal with great safety.

The Stock consists of a first-class Collection of
ORNAMENTAL TREES,
equal to any in England;
FRUIT TREES,
Dwarfs, Standards, and Trained for Walls;
fine fruit-bearing Pyramids;
EVERGREENS and SHRUBS in great abundance.
The finest Collection of
STRAWBERRY PLANTS in the Kingdom.

At the St. John's Place, there are Ten large Glass Structures filled with a healthy and extensive Stock of GREENHOUSE and STOVE PLANTS, VINES, FIGS, and ORANGES, HERBACEOUS and ALPINE PLANTS. In the season, Collections of GARDEN SEEDS, FLOWER SEEDS, IMPORTED DUTCH BULBS, LAWN, PASTURE, and MEADOW GRASSES.

☞ The Proprietors are determined to carry on this old and well-known Establishment with great spirit, and to keep first-class articles in every department.

St. John's Nurseries, Wakefield—May 30.

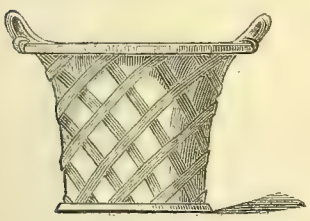
JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

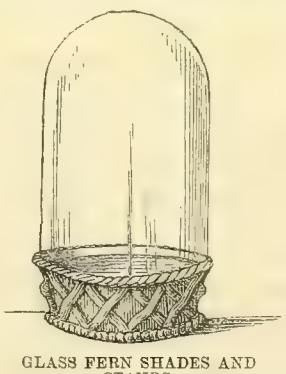
In submitting Drawings and Prices of the following Articles, we beg to say they are made of Fine Clay, well finished, and suited for the Sitting-room as well as the Garden.

No. 1.



FLOWER BASKETS.

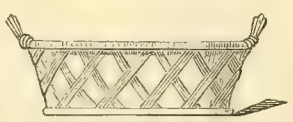
8 inch	.. .. ..	2s. 0d. each.
9 ,,	.. .. ..	2 3 ,,
10 ,,	.. .. ..	2 6 ,,
11 ,,	.. .. ..	2 9 ,,
12 ,,	.. .. ..	3 0 ,,
13 ,,	.. .. ..	3 3 ,,
14 ,,	.. .. ..	3 9 ,,
15 ,,	.. .. ..	4 6 ,,
16 ,,	.. .. ..	5 0 ,,
17 ,,	.. .. ..	5 6 ,,
18 ,,	.. .. ..	6 6 ,,
19 ,,	.. .. ..	7 6 ,,
20 ,,	.. .. ..	8 6 ,,
21 ,,	.. .. ..	10 0 ,,



GLASS FERN SHADES AND STANDS.

	Glass Fern Shades.	Clay Stands.	Glass Stands.
6 inches ..	1s. 4d...	1s. 6d...	1s. 0d.
7 ,, ..	1 8 ..	1 6 ..	1 3
8 ,, ..	2 0 ..	1 9 ..	1 6
9 ,, ..	2 6 ..	2 0 ..	1 9
10 ,, ..	3 3 ..	2 3 ..	2 0
11 ,, ..	4 0 ..	2 6 ..	2 6
12 ,, ..	5 6 ..	2 9 ..	3 0
13 ,, ..	7 6 ..	3 0 ..	3 6
14 ,, ..	10 0 ..	3 3 ..	4 0
15 ,, ..	14 0 ..	3 6 ..	4 6
16 ,, ..	18 6 ..	3 9 ..	5 0

No. 2.

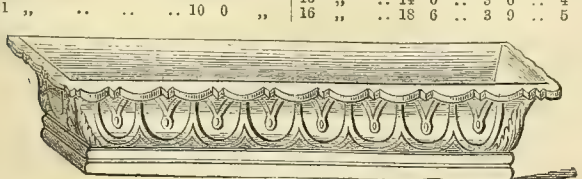


FLOWER BASKETS.

7 inch	.. .. ..	1s. 6d. each.
8 ,,	.. .. ..	1 9 ,,
9 ,,	.. .. ..	2 0 ,,
10 ,,	.. .. ..	2 3 ,,
11 ,,	.. .. ..	2 6 ,,
12 ,,	.. .. ..	2 9 ,,
13 ,,	.. .. ..	3 0 ,,
14 ,,	.. .. ..	3 3 ,,
15 ,,	.. .. ..	3 6 ,,
16 ,,	.. .. ..	3 9 ,,
17 ,,	.. .. ..	4 0 ,,
18 ,,	.. .. ..	4 6 ,,
19 ,,	.. .. ..	5 0 ,,
20 ,,	.. .. ..	5 6 ,,

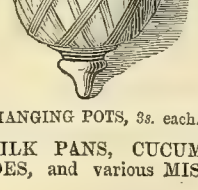
PLAIN SEED PANS.

6 inches diameter	.. ..	0s. 6d.
7 ,, ,,	.. ..	0 7
8 ,, ,,	.. ..	0 8
10 ,, ,,	.. ..	1 0
12 ,, ,,	.. ..	1 4
14 ,, ,,	.. ..	2 0



MIGNONETTE BOXES.

20 inches long	.. ..	4s. 0d. each.
30 ,, ,,	.. ..	6 0 ,,
37 ,, ,,	.. ..	8 0 ,,



HANGING POTS, 3s. each.

GLASS SHADES for ORNAMENTS, PROPAGATING GLASSES, MILK PANS, CUCUMBER TUBES, GLASS for HORTICULTURAL PURPOSES, PAINTS of all SHADES, and various MISCELLANEOUS ARTICLES. See SEPARATE LISTS.

New Scarlet Geraniums.

WM. PAUL (Son and Successor to the late A. PAUL) has now ready for SALE two superb new SCARLET GERANIUMS. Price 10*s.* the pair.

WALTHAM PET.—Very bright scarlet, with fine large white eye, dwarf as "Harkaway," but much finer in truss and flower; the best dwarf scarlet for small beds or edgings. First-class Certificate from Royal Horticultural Society. Certificate also from Royal Botanic Society.

RED DRAGON.—An exceedingly smooth dark scarlet, with a peculiarly rich nap on the flower; habit of "Boule de Feu"—the best dark scarlet. All the best "Bedding" plants, 3*s.* per dozen and upwards.

PAUL'S Nurseries, Waltham Cross, N.

VARIEGATED-LEAVED GERANIUMS. — Fine Summer-struck Plants of BIJOU, BRILLIANT, IVY-LEAVED, JANE, LADY PLYMOUTH, MANGLES' PINK and RED, PERFECTION, QUEEN VICTORIA, SHOTTISHAM PET, &c., 2*s.* 6*d.* per doz., or 20*s.* per 100.

WOOD & INGRAM, Huntingdon.

Splendid New Double Fuchsia, Grand Admiral.

GEORGE WHEELER, NURSERYMAN, Warminster, Wilts, is prepared to send out the above. Tube and sepals bright crimson scarlet, sepals broad and well reflexed, corolla deep violet purple, large and full, a most profuse bloomer, the branches curving very gracefully, makes the habit unexceptionable. It has been declared by the best judges to be the finest double Fuchsia ever offered either for Exhibition or Greenhouse Decoration.

G. W. feels confident it will give general satisfaction. Price 7*s.* 6*d.* each.

Lobelia Princess of Wales.

W. H. CAPARN AND SON have but a few dozens of this new and beautiful Lobelia left, to which they beg to call the attention of all lovers of a first-class Bedding plant; it equals the old speciosa in colour, while it has a much larger bloom, with conspicuous white eye; it is also a more robust grower. Very strong plants, 9*s.* per dozen; smaller, 6*s.* per dozen.

King's Road Nursery, Newark-on-Trent.

Notice.

B. S. WILLIAMS'S NEW GENERAL PLANT CATALOGUE will be ready in a few days, and will be forwarded post-free to all previous customers and applicants, containing a Descriptive List of New, Beautiful, and Rare Plants, also Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Herbaceous and Alpine Plants, Roses, Hardy Trees and Shrubs, Fruit Trees, &c.

Paradise and Victoria Nurseries, Holloway, London, N.

Select Stove and Greenhouse Plants, &c.

ROBERT PARKER begs to invite attention to his Collections of AMARYLLIS, AZALEA INDICA, EXOTIC ORCHIDS, FERNS, and LYCOPODS; ORNAMENTAL and VARIEGATED FOLIAGED PLANTS; MISCELLANEOUS, STOVE, GREENHOUSE, and HARDY PLANTS; all of which are healthy and clean. Purchasers of large or small quantities will be treated on the most liberal terms.

PRICED and DESCRIPTIVE CATALOGUES are published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

New Roses.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites attention to the following NEW ROSES, which will be ready for delivery very shortly.

LORD MACAULAY, H.P.—Velvety crimson, in the way of General Jacqueminot, but brighter in colour, thicker in the petal, and more double. The flowers are of good average size, produced abundantly and in rapid succession; the habit is good, and foliage handsome. 7*s.* 6*d.*

MRS. WILLIAM PAUL, H.P.—Bright violet red, shaded with fiery red; flowers constantly, and in clusters, large and full. Raised by M. Verdier, of Paris, the raiser of Madame Furtado, and others of our finest Roses. 5*s.*

RED ROVER, H.P.—Bright red petals, large, thick, and round; flowers abundantly and in succession up to Christmas. Not double enough for a show Rose, but the most effective pillar Rose ever offered. 3*s.* 6*d.*

WILLIAM PAUL, H.P.—A seedling from Senateur Vaisse, but brighter in colour. Raised at Lyons by the raiser of Lord Raglan, Senateur Vaisse, and other first-class sorts. 5*s.*

BEAUTY OF WALTHAM, H.P.—Bright rosy crimson, of good size, form, and substance, and deliciously sweet. This Rose is found to surpass the description originally given of it. 3*s.* 6*d.*

All the new French Roses, 3*s.* 6*d.* to 5*s.* each, or 42*s.* per dozen. The best of the old Roses at lowest advertised prices. The plants are well established, and in the finest possible health.

PRICED CATALOGUE free by post.

Nurseries and Seed Warehouse, Waltham Cross, N.

Sutton's Grass Seeds



AT THE ROYAL FARMS, THE ALDERSHOT CAMPS, THE CRYSTAL PALACE, THE PEOPLE'S PARK, HALIFAX, &c.

SUTTON'S GRASS SEEDS for PERMANENT PASTURE, PARKS, and LAWNS are now Sown at the Royal Farms; the Crystal Palace, Sydenham; the Horticultural Society's Gardens, and on most of the largest Estates in the Kingdom.

☞ Messrs. SUTTON'S GRASS SEEDS being mixed expressly to suit the soil for which they are required, are never known to fail. The prices are moderate, particulars of which may be had post free.

Address,

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading

Skirving's Swede—Sutton's Selected Stock.



SUTTON AND SONS have a choice Stock of SKIRVING'S SWEDE SEED, growth of 1862, which they can strongly recommend. 9*d.* per lb., or *cheaper in large quantities.*

Also SUTTON'S CHAMPION, Hardy PURPLE-TOP, and Hardy WHITE SWEDE; but the Stock of "Champion" Swede, though saved from upwards of 50 Acres of Land, being small compared with the demand, this sort cannot be supplied under 1*s.* per lb., or 45*s.* per bush.

Royal Berkshire Seed Establishment, Reading.



FARM SEEDS

OF GENUINE QUALITY

(at Market Prices).

Carriage Free.

RICHARD SMITH,

SEED MERCHANT,

Worcester.

Turnip and Mangel Wurzel Seed.

H. AND F. SHARPE can supply the Trade with the following Varieties, true to name, all of their own growth, new and genuine, and on very advantageous terms.

TURNIP.	TURNIP.
Improved Purple-top Swede	Lincolnshire Red Globe
Champion do.	Improved Green Norfolk
Skirving's Improved do.	Fine White Stone
Marshall's Improved do.	
Yellow Tankard	MANGEL WURZEL.
Pomeranian White Globe	Elvetham Long Red
Drummond's Early Field	Fine Orange Globe
Yellow	,, Long Yellow
Green-top Scotch	,, Red Globe

Seed Growing Establishment, Wisbech.

CALCEOLARIA, CINERARIA, PRIMULA, &c.

CALCEOLARIA, saved from carefully hybridised flowers, possessing all the recognised floral qualifications, viz., size, form, colours, and marking. Price, 1*s.* and 2*s.* 6*d.* per packet.

CINERARIA, extra choice, 1*s.* per packet.

PRIMULA SINENSIS FIMBRIATA, extra choice, 1*s.* and 2*s.* 6*d.* per packet.

DRACÆNA (CORDYLINE) INDIVISA, from Mount Egmont, New Zealand.—Beautiful fine foliaged plant, 1*s.* and 2*s.* 6*d.* per packet.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

HARDY CLIMBERS. — The Executors of the late Mr. JOHN YOUNG beg to offer strong plants, in 48 and 60-size pots, of the following:—

Clematis Sophia	Wistaria sinensis
,, azurea grandiflora	Lonicera flexuosa
,, montana	,, brachypoda
,, viticella	,, Brownii
,, Flammula	,, floribunda
,, Hendersonii	,, magnavillea
Passiflora cœrulea	,, Belgicum
Virginian Creeper	,, fragrantissima
Jasminum nudiflorum	,, Standishii

5*s.* per dozen.

Wistaria sinensis, very strong; Wistaria sinensis alba, Clematis Sieboldii, 9*s.* per dozen.

A large Collection of CHOICE FERNS. PRICED LIST on application.

The Nurseries, Taunton.

E. G. HENDERSON AND SON offer first-class quality of CINERARIA, PRIMULA SINENSIS FIMBRIATA, and PANSY. Also, CINERARIA WEBBI, new shrubby species.

All the above, 1*s.* and 2*s.* 6*d.* per packet.

☞ EXPERIENCED GARDENERS recommended to Gentlemen.

Wellington Nursery, St. John's Wood, London, N.W.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

Bedding Tropæolum.—Ball of Fire.

ARTHUR HENDERSON AND SON are now sending out the above brilliant BEDDING TROPÆOLUM.

For description and full details see figure and remarks in the *Floral Magazine* for January, 1863, Plate 129, colour of Tom Thumb Geranium. This will prove one of the best and most beautiful Bedding Plants of the season.

Per 100 Plants	.. £3 10 0	Per 25 Plants	.. £1 10 0
,, 50 ,,	.. 2 2 0	,, 12 ,,	.. 0 18 0
	1 Plant	2*s.* 6*d.*	

Pine Apple Place, Edgeware Road, London, W.

New Shrubby Calceolarias.

MESSRS. JOHN AND CHARLES LEE having purchased the entire stock of Seedling SHRUBBY CALCEOLARIAS, raised by Mr. Watson, of St. Alban's, in 1861 and 1862, have selected four distinct colours, which they now offer to the Public. They are the finest high-coloured Shrubby Calceolarias yet raised, and in point of habit and quality are everything that can be desired for bedding or pot culture. They are decidedly shrubby and of good constitution, with a dwarf spreading habit and good foliage. The flowers rise just above the leaves, forming an even mass of exquisite colouring.

Price 5*s.* each, or 15*s.* the set, as under:—

PRINCESS ALEXANDRA.—Rich orange buff, of very dwarf habit, free blooming and conspicuous. Quite a new colour in Calceolarias.

MAGNIFICENT.—Deep orange flowers, of large size with close mouth, flower stalks short and stiff, a good dense habit, and first-rate in every respect.

PRINCE LOUIS of HESSE.—Rich crimson flowers of medium size, free blooming, habit very dwarf and showy.

FIREFLY.—Intense orange scarlet flowers of good size, free blooming dwarf habit, the brightest colour yet raised.

Terms to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

THE WORCESTER PLEASURE GROUNDS COMPANY (LIMITED).

The Directors are prepared to receive APPLICATIONS for SPACE from Persons desirous to EXHIBIT Statuary, Vases, Ornamental Wire Work, and other Decorations of Gardens, Horticultural Implements, Garden Seats, &c., in the Grounds of the above Company, at the HORTICULTURAL SHOW to be held there on TUESDAY, WEDNESDAY, and THURSDAY, July 21, 22, and 23, being the days on which the Royal Agricultural Show for England will be held at Worcester.

Applications for terms, stating the kind of articles to be exhibited and the space required, to be addressed to Mr. A. P. WATKINS, Secretary to the Company, 50, Foregate Street, Worcester.

BISHOP AUCKLAND FLORAL and HORTICULTURAL SOCIETY.

The following Correspondence has passed between the Vice-Presidents of the Bishop Auckland Floral and Horticultural Society and the New Flower Show Committee:—

1.

To W. D. TROTTER, Esq., *Chairman.*

Mr. W. Edgar	Mr. R. Nelson
Mr. M. Braithwaite, jun.	Mr. T. Routledge
Mr. T. Sibbald	Mr. G. Oliver
Mr. R. Miller	Mr. A. D. Allason

The names of the undermentioned having been used without their permission and against their wish, they, the Vice-Presidents of the Bishop Auckland Floral and Horticultural Society, request that you will immediately and publicly withdraw from a schedule of prizes issued by you the names of the undermentioned Vice-Presidents, which have been most unwarrantably printed and circulated as connected with a Floral and Horticultural Society, of which you allege yourselves to be the Committee:—

G. E. Green, Chairman	R. D. Ward
W. Hodgson	T. Wilkinson
R. Bowser	N. Kilburn
G. Canney	T. Peacock
J. Jobson	T. B. Thwaites
V. Hutchinson	E. Healy, Hon. Sec.

2.

"Bishop Auckland, May 5, 1863.

"Rev. Sir,—I am directed by the Committee of the Bishop Auckland Floral and Horticultural Society to acknowledge the receipt of a copy of a notice from several of the Vice-Presidents requesting their names to be withdrawn from a Schedule of Prizes recently issued. I have to remind you that the names of the office-bearers of the Society are the same as those attached to the former Schedules, and the Committee did not consider they were justified in withdrawing the names remaining on the Society at the last Annual Meeting. The Committee will, however, be glad to attend to the wishes of several of the Vice-Presidents in any future publication and at the next Annual Meeting.

"I am also directed to request that the Vice-Presidents will transfer the funds of the Society remaining in their hands to Messrs. Backhouse & Co., the Treasurers of the Society.—I am, Rev. Sir, yours faithfully, "WM. V. THOMPSON,

"Honorary Secretary B.A.F. & H. Society."

"Rev. E. Healy, Bishop Auckland."

3.

"Bishop Auckland, May 13, 1863.

"Sir,—I am directed by the Vice-Presidents of the Bishop Auckland Floral and Horticultural Society, to acknowledge the receipt of your letter of May 5th.

"In reply, the Vice-Presidents beg to inform you that they do not recognise any other body as the Bishop Auckland Floral and Horticultural Society than that to which they belong, and feel much surprised at the request contained in the latter part of your letter.

"The Vice-Presidents must again beg that you will give publicity to the fact that their names were published by you without their authority, and which you have already been requested to withdraw.—I am, yours truly, E. HEALY."

"Mr. W. V. Thompson."

FARM AND GARDEN SEEDS

CARRIAGE FREE.

BANGHOLM SWEDE,
EAST LOTHIAN SWEDE,
WARD'S BEAUTY SWEDE,
DROPMORE SWEDE,
MARSHALL'S CHAMPION SWEDE,
GREEN-TOP SWEDE,
WHITE SWEDE,
IMPROVED SKIRVING'S SWEDE.
WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
DOBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
IMPROVED YELLOW GLOBE DITTO,
IMPROVED ORANGE GLOBE DITTO,



IMPROVED LONG RED MANGEL,
IMPROVED LONG YELLOW MANGEL,
IMPROVED RED GLOBE MANGEL,
IMPROVED WHITE FIELD BEET,
RED CLOVER, | COWGRASS,
WHITE, YELLOW, and ALSIKE CLOVERS.
PACEY'S PERENNIAL RYE-GRASS, and other sorts.
ITALIAN RYE-GRASS, FOREIGN and ENGLISH SEED.
NATURAL GRASS SEEDS, in mixture or separate, suitable for various soils and localities.
LIGHT RYE-GRASS and other CHEAP GRASSES, for Sowing on Railway Banks and Waste Places.

Orders for Exportation promptly attended to.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN,

28, KING STREET, CHEAPSIDE, NEAR the GUILDHALL; and

15, LAWRENCE LANE, LONDON, E.C.

ROYAL HORTICULTURAL SOCIETY.

THE FIRST GREAT SHOW,

WEDNESDAY, MAY 27.

AWARDS OF THE JUDGES.

CLASS 1.—15 STOVE and GREENHOUSE PLANTS (Open).

1st, Mr. B. Peed, Gr. to Mrs. Tredwell, Lower Norwood, 20*l.*
2d, Mr. J. Green, Gr. to Sir E. Antrobus, Bt., Lower Cheam, 15*l.*
3d, Mr. R. Baxendine, Gr. to W. H. Smallpiece, Esq., Guildford, 10*l.*
4th, Mr. O. Rhodes, Crystal Nursery, Sydenham, 5*l.*

CLASS 2.—12 STOVE and GREENHOUSE PLANTS (Nurserymen).

1st, Messrs. J. & J. Fraser, Lea Bridge Road, Leyton, 10*l.*
2d, Messrs. J. & C. Lee, Hammersmith, 7*l.*
3d, Mr. W. Cutbush, Barnet, Herts, 5*l.*
4th, Messrs. T. Jackson & Son, Kingston, S.W., 3*l.*

CLASS 3.—9 STOVE and GREENHOUSE PLANTS (Amateurs).

1st, Mr. H. Chilman, Gr. to Mrs. Smith, Epsom, 9*l.*
2d, Mr. W. Kaile, Gr. to the Earl of Lovelace, Ripley, Surrey, 7*l.*

CLASS 4.—6 STOVE and GREENHOUSE PLANTS (Amateurs).

1st, Mr. A. Ingram, Gr. to J. J. Blandy, Esq., Highgrove, Reading, 6*l.*
2d, Mr. T. Page, Gr. to W. Leaf, Esq., Streatham, 4*l.*
3d, Mr. C. Smith, Gr. to A. Anderson, Esq., Norwood Grove, S., 3*l.*
4th, Mr. J. Wheeler, Gr. to J. Phillpott, Esq., Stamford Hill, N., 2*l.*
Extra, Mr. C. Penny, Gr. to H. H. Gibbs, Esq., Regent's Park, 1*l.* 10*s.*
Ditto, Mr. J. Tegg, Gr. to Baron Hambro', Roehampton, 1*l.*

CLASS 5.—20 ORCHIDS, exotic species (Amateurs).

1st, Mr. W. Milford, Gr. to E. McMorland, Esq., Haverstock Hill, 20*l.*
2d, Mr. G. Baker, Gr. to A. Bassett, Esq., Stamford Hill, 15*l.*
3d, Mr. R. Bullen, Gr. to A. Turner, Esq., Leicester, 10*l.*
4th, Mr. B. Peed, Gr. to Mrs. Tredwell, Lower Norwood, 5*l.*

CLASS 6.—12 ORCHIDS, exotic species (Nurserymen).

1st, Messrs. Veitch & Son, Exeter and Chelsea, 10*l.*
2d, Mr. S. Woolley, Cheshunt, 7*l.*

CLASS 7.—10 ORCHIDS, exotic species (Amateurs).

1st, Mr. C. Penny, Gr. to H. H. Gibbs, Esq., Regent's Park, 10*l.*
2d, Mr. T. Page, Gr. to W. Leaf, Esq., Streatham, 7*l.*
3d, Mr. J. Green, Gr. to Sir E. Antrobus, Bt., Lower Cheam, 5*l.*
4th, Mr. H. Chilman, Gr. to Mrs. Smith, Ashtead House, Epsom, 3*l.*

CLASS 8.—6 ORCHIDS, exotic species (Amateurs).

1st, Mr J. Wiggins, Gr. to W. Beck, Esq., Isleworth, 6*l.*
2d, Mr. J. Smith, Gr. to The Duke of Northumberland, Isleworth, 4*l.*
3d, Mr. J. Wheeler, Gr. to J. Phillpotts, Esq., Stamford Hill, 3*l.*

CLASS 9.—9 GREENHOUSE AZALEAS, distinct kinds (Amateurs).

1st, Mr. J. Green, Gr. to Sir E. Antrobus, Bt., Lower Cheam, 12*l.*
2d, Mr. T. Page, Gr. to W. Leaf, Esq., Streatham, 9*l.*
3d, Mr. B. Peed, Gr. to Mrs. Tredwell, Lower Norwood, 7*l.*
4th, Mr. H. Lavey, Gr. to A. De Grave, Esq., Fetcham, 5*l.*

CLASS 10.—9 GREENHOUSE AZALEAS, distinct kinds (Nurserymen).

1st, Mr. Charles Turner, Slough, 10*l.*
2d, Messrs. Veitch & Son, Exeter and Chelsea, 7*l.*
3d, Messrs. J. & J. Fraser, Lea Bridge Road, Leyton, 5*l.*

CLASS 11.—6 GREENHOUSE AZALEAS, distinct kinds (Amateurs).

1st, Mr. C. Penny, Gr. to H. H. Gibbs, Esq., Regent's Park, 6*l.*
2d, Mr. T. Todman, Gr. to R. Hudson, Esq., Clapham Common, 4*l.*
3d, Mr. A. Ingram, Gr. to J. J. Blandy, Esq., High Grove, Reading, 3*l.*
4th, Mr. J. Wheeler, Gr. to J. Phillpotts, Esq., Stamford Hill, 2*l.*
Extra, Mr. H. Chilman, Gr. to Mrs. Smith, Epsom, 1*l.*
Ditto, Mr. H. Lavey, Gr. to E. A. De Grave, Esq., Fetcham, 1*l.*
Ditto, Mr. Wm. Kaile, Gr. to the Earl of Lovelace, Ripley, Surrey, 1*l.*

CLASS 12.—6 RHODODENDRONS, in pots, distinct kinds (Open).

1st, Mr. C. Noble, Sunningdale Nursery, Bagshot, 4*l.*

CLASS 13.—6 ROSES, in pots, distinct kinds (Amateurs).

1st, Mr. T. Terry, Gr. to C. W. Giles Puller, Esq., Youngsbury, Herts, 6*l.*

CLASS 14.—12 ROSES, in pots, distinct kinds (Nurserymen).

1st, Mr. Wm. Paul, Waltham Cross, 10*l.*
2d, Messrs. H. Lane & Son, Great Berkhampstead, 7*l.*
3d, Messrs. Paul & Son, Cheshunt, Herts, 5*l.*

CLASS 15.—6 CAPE HEATHS, distinct kinds (Open).

1st, Mr. T. Peed, Gr. to Mrs. Tredwell, Lower Norwood, 5*l.*
2d, Mr. T. Page, Gr. to W. Leaf, Esq., Streatham, 3*l.*
3d, Messrs. T. Jackson & Son, Nurserymen, Kingston, 2*l.*
Extra, Mr. H. Chilman, Gr. to Mrs. Smith, Epsom, 1*l.*

CLASS 16.—9 PELARGONIUMS, distinct kinds (Amateurs).

1st, Mr. J. Shrimpton, Gr. to A. J. Doxat, Esq., Putney Heath, 8*l.*
2d, Mr. J. Weir, Gr. to Mrs. Hodgson, Hampstead, 6*l.*

CLASS 17.—12 PELARGONIUMS, distinct kinds (Nurserymen).

1st, Mr. Charles Turner, Slough, 8*l.*
2d, Messrs. J. & J. Fraser, Lea Bridge Road, Leyton, 6*l.*

CLASS 18.—6 PELARGONIUMS, Fancies, distinct kinds (Amateurs).

1st, Mr. J. Weir, Gr. to Mrs. Hodgson, Hampstead, 5*l.*
2d, Mr. H. Lamb, Gr. to Capt. Cahill, Park House, Southall, 4*l.*

CLASS 19.—6 PELARGONIUMS, Fancies, distinct kinds (Nurserymen).

1st, Mr. C. Turner, Slough, 4*l.*
2d, Messrs. J. & J. Fraser, Lea Bridge Road, Leyton, 3*l.*

CLASS 20.—6 CINERARIAS, distinct kinds (Open)

1st, Mr. H. Lamb, Gr. to Capt. Cahill, Southall, 3*l.*
2d, Mr. J. Smith, Gr. to the Duke of Northumberland, Isleworth, 2*l.*

CLASS 21.—NEW or RARE TENDER PLANTS in FLOWER (Open).

Mr. J. Standish, for Clematis Fortunei, S.K.
Mr. J. Standish, for Clematis florida Standishii, S.B.
Messrs. Veitch & Son, for Dracophyllum sp., S.B.
Mr. J. Standish, for Weigela sp., B.

CLASS 22.—NEW or TENDER PLANTS NOT in FLOWER (Open).

Mr. Wm. Bull, for Caladium Lowii, S.K.
Messrs. Veitch & Son, for Miconia(?) argyroneura, S.B.
Messrs. Veitch & Son, for Eranthemum sp., S.B.
Messrs. Veitch & Son, for Pandanus elegantissimus, S.B.
Mr. Wm. Bull, for Pandanus elegantissimus, S.B.
Mr. W. Young, for Pandanus elegantissimus, S.B.
Mr. Wm. Bull, for Areca dealbata, S.B.
Mr. Wm. Bull, for Yucca lineata lutea, S.B.
Mr. J. Standish, for Acer sp., B.
Mr. A. Verschaffelt, for Dieffenbachia Verschaffelti, B.

CLASS 23.—NEW ORCHIDS IN FLOWER (Open).

Messrs. Low & Co., for Dendrobium Parishii, S.K.
Messrs. Veitch & Son, for Phalænopsis Lobbii, S.B.
Mr. C. Penny, for Odontoglossum Uro-Skinneri, B.

CLASS 24.—NEW or RARE HARDY ORNAMENTAL PLANTS (Open).

Messrs. Veitch & Son, for Abies firma, S.K.
Messrs. Veitch & Son, for Spiræa sp. California, S.B.
Mr. B. S. Williams, for Lastrea Oreopteris cristata, B.
Messrs. Ivery & Son, for Athyrium Filix-fœmina Applebyanum, B.
Mr. Wm. Bull, for Athyrium Filix-fœmina diffissum, B.
Mr. Wm. Bull, for Euonymus ovatus aureo-variegatus, B.

CLASS 25.—NEWLY INTRODUCED PLANTS (Open).

Messrs. Veitch & Son, for Lapageria alba, 1st Certificate
Messrs. Veitch & Son, for Sphærogyne latifolia, 2d Certificate
Mr. Wm. Bull, for Cibotium princeps, 3d Certificate
Messrs. Veitch & Son, for Lomaria gibba, 4th Certificate
Messrs. Veitch & Son, for Lonicera brachypoda aureo-reticulata, 5th Certificate
Messrs. Veitch & Son, for Anthurium Scherzerianum, 6th Certificate

CLASS 26.—SEEDLING FLORISTS' FLOWERS and GARDEN HYBRIDS (Open).

Messrs. Veitch & Son, for Rhododendron Sesterianum, 1st Class Certificate
G. W. Hoyle, Esq., for Pelargonium Diadem, 1st Class Certificate
G. W. Hoyle, Esq., for Pelargonium Artist, 1st Class Certificate
W. Beck, Esq., for Pelargonium Prince of Wales, 2d Class Certificate
W. Beck, Esq., for Pelargonium Princess of Wales, 2d Class Certificate
G. W. Hoyle, Esq., for Pelargonium The Prince, Commendation
G. W. Hoyle, Esq., for Pelargonium Penelope, Commendation
Mr. Wm. Bull, for Petunia Vernon, Commendation

CLASS 27.—GROUP of PLANTS for SMALL CONSERVATORY (Open).

1st, Mr. C. Turner, Slough, 10*l.*
2d, Messrs. Veitch & Son, Exeter and Chelsea, 6*l.*
3d, Messrs. J. & C. Lee, Hammersmith, 4*l.*

CLASS 28.—MISCELLANEOUS (Open).

1st, Messrs. Veitch & Son, for Collection of Plants, 3*l.*
1st, H. Lane & Son, for Collection of Azaleas, 3*l.*
2d, Messrs. J. Ivery & Son, for Collection of Hardy Ferns, 2*l.* 10*s.*
3d, Mr. Wm. Bull, for Collection of New and Rare Plants, 2*l.*
3d, Messrs. Paul & Son, for Collection of Cut Roses, 2*l.*
3d, Mr. W. Paul, for Collection of Roses in pots, 2*l.*
3d, Messrs. A. Henderson & Co., for Collection of Stove and Greenhouse Plants, 2*l.*
3d, Mr. Charles Turner, for Collection of Azaleas, 2*l.*
Extra, Mr. J. Salter, for Collection of Hardy Variegated Plants, 1*l.* 10*s.*
Ditto, Mr. J. Green, for Collection of 6 Tall Cacti, 1*l.*
Ditto, Mr. H. Lavey, for Collection of British Ferns, 15*s.*
Ditto, Mr. H. Lavey, for Collection of Exotic Ferns, 15*s.*
Ditto, Messrs. Downie, Laird, & Laing, for Collection of Pansies, 15*s.*
Ditto, Mr. J. Fleming, for Collection of Eucharis Amazonica, 15*s.*
Ditto, Mr. H. Hooper, for Collection of Pansies, 10*s.*

SPECIAL PRIZES for the BEST THREE GROUPS of FRUITS and FLOWERS for the DECORATION of the DINNER-TABLE are offered by Sir C. WENTWORTH DILKE, Bart., Vice-President of the Royal Horticultural Society, to be awarded at the Second Great Exhibition, WEDNESDAY, June 17. First Prize, Gold Knightian Medal, or 10*l.*; Second Prize, Gold Banksian Medal, or 7*l.*; Third Prize, Society's Large Silver Medal, or 3*l.*

Novelty of design and beautiful arrangement will be the test of merit; valuable Flowers or Fruits are therefore not demanded.

Each set must consist of three groups, and may be either one of Flowers and two of Fruit, or two of Flowers and one of Fruit, or Fruit and Flowers mixed in all three.

They may be shown either in épergnes, glass or china dishes, wicker or wire work, or in any other way, most to the taste of the exhibitor.

Ladies are invited to join in the competition.

The Prizes will be awarded by a Jury of Ladies.

The groups will be received as late as 9·30 o'clock on the morning of the Show, PROVIDED SPACE SHALL HAVE BEEN SECURED FOR THEM THE DAY BEFORE. Letters to be addressed to Mr. G. EYLES, Royal Horticultural Society's Garden, South Kensington, W.

The Gardeners' Chronicle.

SATURDAY, MAY 30, 1863.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	June 1—Entomological	.. .. ..	7 P.M.
WEDNESDAY,	— 3—Royal Botanic	.. .. ..	2 P.M.
THURSDAY,	— 4—Linnean	.. .. ..	3 P.M.

LAST Wednesday's exhibition at South Kensington must have been witnessed with feelings of exultation by all lovers of English Gardening, as well as by the Fellows of the Royal Horticultural Society. It has been our fate to inspect the earliest of these manifestations of skill in cultivation, which dawned under a little tent in the shrubbery at Chiswick between 30 and 40 years ago, and which now have reached the zenith in the architectural promenades of South Kensington: in other words, which in the beginning represented the long and wretched continental war, and now in the end display the results of long and prosperous peace. It has so happened that the plain old Horticultural Society, which was charged with the destinies of the art—the all-important art—of cultivation, struggling and struggling, and rising and rising by its own inherent strength, has at last received from Royalty an impetus worth the exertions of half a century.

Does any one recollect the state of gardening here after the battle of Waterloo? Do they remember the frowsy specimens, the dried up pot-plants, the sticks called hothouse things, when everything horticultural was miserable and ugly, except plantations, and weavers' windows? And do they call to mind these last? the Stapelias and Aloes, and Mesembryanthemums, and other succulents which were the pride of Norwich? Above all things do they remember the dingy places called Gardens, at Chelsea, and Kew, and Kensington, under the care of the AITONS, and DICKSONS, and SMITHS, and ANDERSONS, and MUNROS, and SWEETS of the day. We hope they are remembered by some at least, as they are by ourselves, and, if so, that our modern gardening will be compared with those strange days, when the name of "florist's flower" was ignominious, and when "Collection" was thought of far more importance than "cultivation."

To the old English Gardener the superb specimens shown on Wednesday would have been beyond all his ideas of possibility; to him Chinese Azaleas were unknown, or if known were small half starved twigs peeping out of a little Moss; of Rhododendrons he knew nothing beyond the wild ponticum, the worst of its race; what Pelargoniums were to him may be learned from the pages of *Sweet's Geraniaceæ;* Orchids hardly existed; and as for Roses in pots they did not deserve the name of flowers. Now-a-days, what with hybridizing, and raising from seed, and importation, and amplification, the superb Chinese Azaleas rival in magnitude a giantess's crinoline; Roses, envious of such dimensions, are rapidly extending their perfumed arms; and we soon shall learn that a flower-show, instead of being lost under a tent, can hardly be contained within the walls of a cathedral.

Soon do we say? Even on Wednesday the vast dimensions of the International Exhibition building were none too great for the occasion, and Captain FOWKE's beautiful nave with its exquisite tracery only formed a fitting canopy to the flowers. It cannot be doubted by any well informed person that these great results have been obtained by the steady and well directed action of the Horticultural Society, which for 50 years has been expending its funds in the diffusion of horticultural knowledge, founded on physiological science, and in constantly stimulating cultivators by prizes won at public exhibitions.

Let us hope that the old Chiswick Garden, the unquestionable parent of our present high cultiva-

tion, may not be wholly forgotten amidst the excitement of South Kensington. Although to a great extent neglected, its beautiful trees, now old enough to display their true characters, form a scene that will well repay a visit; and we can promise the lovers of thoroughly good management an instructive lesson in domestic gardening.*

For the details of the gorgeous scene of Wednesday, we must refer to the ample report to be found in another column, and to the long list of prizes officially published by the Society. It must be highly gratifying to the exhibitors to know that their inimitable productions were seen and appreciated by their Royal Highnesses the PRINCE and PRINCESS OF WALES, and a crowd of the greatest personages in the land.

THE Union Assessment Committee Act of last Session excited, as might have been expected, a great deal of attention throughout the country. Rating committees, valuation lists, the principles of assessment, and the rateable value of lands, have, ever since that Act came into operation, formed the staple of conversation at the dinner-table of every country gentleman, at every farmers' meeting, and in every country parsonage. And this was likely enough to be the case in rural neighbourhoods; partly because the duties of overseers, and the obligations of poor law guardians, are among the chief public concerns of the men of business in agricultural districts; and partly, and perhaps chiefly, because by the course of legislation on this subject, the occupier of the land has been chiefly burdened with the charge of maintaining the poor, and because, unhappily, in agricultural parishes and small country towns, the poor-rate forms but too important an element in the annual expenses of the tax-paying population.

The fact was, that by this Act of Parliament, although it introduced no new principle of assessment, the attention of every payer of poor-rate, and every person charged with its assessment, was called pointedly and freshly to the subject. And more than this, by the extension of the area, so to speak, of criticism, the assessment of each parish being brought at once under the notice and control of the neighbouring parishes of the union, overseers were put upon their mettle, the old assessment was revised, and not only the individual ratings of individual farms subjected to comparison one with the other, but the assessment of the whole parish, as compared with its neighbours, was narrowly watched. In short, not only was the critical glance of the assessor limited by the ambit of his own parish, but it travelled further afield over all the parishes composing the union.

This ferment has not yet entirely subsided, and we still from time to time have inquiries addressed to us on rating matters, which are no doubt of very general interest to many of our most valued correspondents. Although, therefore, we cannot profess to go very deeply or at any great length into the matter, we propose shortly to call attention to one or two points upon which information has been most frequently sought.

Many of the difficulties which have been stated to us have arisen from not referring at once to the language of the Parochial Assessment Act, which is still law, and regulates the whole matter. Many of those who have to deal with the subject proceed rather upon what they conceive *à priori* to be just and proper, or upon what they have heard from others, instead of applying at once to see what the Act of Parliament says. Let us refresh their memories. The rate, then, is to be made upon an estimate of "the net annual value of the property rated; that is to say, of the rent at which the same might reasonably be expected to be let from year to year, free of all the usual tenants' rates and taxes, and Tithe Commutation Rent-charge if any, and deducting therefrom the probable annual average cost of the repairs, insurance and other expenses (if any) necessary to maintain the property in a state to command such rent."

Now if our correspondents would bear in mind this definition, they might be left to answer their own questions. Whatever difficulty there may be in applying the definition to the rating of railways, gas mains, or tithe rent charge, there can be very little in applying it to the case of agricultural land or even of market gardens or nursery grounds. The same questions have to be answered, as are proposed in every case where the terms of tenancy for a farm, or a market garden, or a nurseryman's premises have to be arranged between the parties. The point is, what rent will a tenant give, he, the tenant, bearing the burden of all usual tenant's rates and taxes, and tithe commutation rent charge, if any be payable? What will he give, that is to say for the property in its present condition, for its present use: not as lessee for a term, but for the privilege of the occupation for the ensuing year? The next question is, what is a fair estimate to be made for the probable average annual cost of repairs, insurance, and other expenses of *the same nature* necessary to maintain the property in a state to command the rent?

Now, it is asked, by some of our subscribers, is it fair in assessing a nursery garden or a florist's premises, to take into account, as an element of increased value, the greenhouses, forcing pits, and hothouses standing on the premises? We answer, undoubtedly, yes. It is true that in some cases greenhouses and similar buildings may be what are technically called "trade fixtures," and may be removable therefore during the term, by the tenant who has erected them, but the question is—do they not enhance and increase the value of the land and premises which are occupied by the florist or nurseryman for the purpose of his trade? If so, we repeat they are to be taken into consideration; and on this general principle, than which nothing can be better known or established, that all real property should be rated at its actual annual value, and if that annual value be increased by any erection or improvement upon it, then that the value of that erection or improvement is to be taken into account. If, as has been said, the ability to carry on a gainful trade on land, adds to the value of the land, that value cannot be excluded, on the ground that it is referable to trade.

This subject will be found fully considered in the *Gardeners' Chronicle* of February 26, 1859. The law has not since been altered, and all our observations then made are applicable to the present state of things. We will, however, add two remarks for the benefit of those among our readers who may not have access to that Number of our Paper; the first, by way of caution, repeated; the second by way of reply to an objection lately urged. The caution is this: In assessing such a property as nursery grounds, or florists' premises, the assessor must not take into consideration the profits of the individual tradesman. The only questions to be answered are those above suggested—What are the premises, as they are, with all the greenhouses, &c., upon them, worth to let to a tenant in the same way of business? What is the amount of tithe commutation rent charge paid upon the property? And what is the average annual cost of repairs and such like expenses. Possibly these expenses may be great in the case of such property, and if this be so, the amount of the rateable value will be proportionately reduced. But it has been objected—Is not this taking of the value of greenhouses into consideration, just the same thing as if you were to assess manufactories at an increased value because of the value of the machinery annexed to them. The answer is, that it has been expressly decided over and over again that manufactories ought so to be rated. One instance out of many will suffice. The occupiers of certain premises, used by them for manufacturing iron from ironstone, were rated in respect of them, and of the machinery thereon—which although fixed to the freehold was in fact personal property, and it was agreed that personal property ought not to be rated. The Court held that they were properly rated for it, for that all real property should be rated according to its actual value, as combined with the machinery attached to it, without considering whether the machinery were real or personal property, whether it would go to the heir or executor, or whether it would on the expiration of a lease go to the landlord or the tenant.

Taking, therefore, the text suggested by one of our correspondents, we repeat what we said in the article already alluded to, that although greenhouses may not be rateable *per se*, as greenhouses, yet that, indirectly, the occupier pays poor rate in respect of their value, should their existence on the land on which they stand, increase the value of that land.

There are two other kindred points deserving notice. A Correspondent, a nurseryman, who by labour and expense seems to have improved his land, which was originally poor agricultural land, scarcely worth to let 10*s.* an acre, to such an extent that it is now valuable garden ground, thinks it hard that he should be assessed at any higher rate than his neighbour, who has allowed his land to remain in its natural poor condition. Reference to the Act of Parliament again furnishes an answer. The rent is the criterion: the rent, that is to say, at which a tenant would take the land to use it, as it is, for the year in which the assessment is made. Will our friend say, that the land which he has improved would not let at a higher rent than that of his neighbour, poor and barren as that remains? If he can say that it will not, then the two properties ought to be rated at the same figure. If, as he must admit to be the case, and as in fact he does admit by the very mode in which he has stated his grievance, the annual value of his land to let is very much greater than his neighbours, then he must pay poor-rate accordingly. We trust that he will have his reward for his industry, and that the produce of his land will be so increased as not only to enable him to pay the far higher rent which the landlord will no doubt demand at the expiration of the lease, and the increased poor-rate which the annually increasing value of the property calls upon the assessor to lay upon it, but also to leave a good margin of profit for one who seems so well to have deserved to prosper. Or again, to put a case which may be more agreeable to contemplate. Let him, unless restrained by his lease, become landlord instead of tenant. He will doubtless find a tenant in his turn, who will give him a rent for his improved land; higher, just in proportion to its improved productiveness, than the landlord of his neighbour receives for the poor stony field, or drowned bit of marsh, out of which the rich nursery was, so to speak, created. And thenceforth it will be left to his tenant, who as occupier will have to pay the increased poor-rate, to quarrel with the overseers of the parish.

There *is* one matter, however, on which overseers may go wrong, to the prejudice of the nurseryman. Of course, in estimating the value of the premises for the purposes of the rate, the assessor must not take into consideration the stock of trees and plants on the premises. These are like the goods on the tradesman's shelves, and in no way add to the annual value of the land as a letable property. To take these into consideration (if we may put a case, which may serve to illustrate both branches of the subject) would be as if the overseers were to assess greenhouses standing for exhibition and sale upon the premises of one of our greenhouse builders. These, it is evident, are in no sense connected with the land or its enjoyment or use, as are the greenhouses necessary for the purposes of the florist, but are mere chattels exposed for sale, just like the stock in trade of any other tradesman.

The last point to be noticed arises chiefly on the assessment of farm houses. It is often, but erroneously, alleged, and it is urged as an argument for exemption in other cases, that farm-houses are not and ought not to be rated to the relief of the poor. Nothing, we believe, is further from the fact than this. If, indeed, such be the case in any parish, there the assessors are wrong. But the real state of things is generally this. In the parish rate-books the assessment of a farm appears, not in detail, field by field, but as assessed generally at so much an acre. The farm house perhaps does not appear in the rate at all. But nevertheless it is *in effect* rated, and in this way. The farm is valued for rating purposes, and correctly so, as it would best let to a tenant, viz., at so much an acre; or rather at a lump sum, which, divided by the acreage, gives a result of so much an acre. But the careful assessor, in thus dealing practically with the total, has, or ought to have carefully considered the details of value; as, for instance, the existence and convenience and state of repairs of the farm-house, the lay of the lands, the distribution of pasture and arable, and all the conditions of profitable cultivation, and even the separate value of each field. In the result he deals practically with the matter, adds up his figures, and states in one sum total the rateable value of the farm. It is obvious, therefore, that during this process the farm-house has been practically rated at its value in the hands of the occupier, though its assessment does not appear separately in the rate book. A case however might easily be suggested which would at once show the fallacy of the theory, that farm houses are not, or at least *should not be* assessed. Suppose, what is by no means impossible, that the farm house is in one parish, and the lands or the greater part of them in another. Ought such a farm house to escape assessment in the parish in which it is situated? Obviously not. It is rateable property of assessable value, and so long as the parochial system of assessment prevails, the parish in which it is situated ought to have the benefit of this assessable value. This can only be

* This establishment, as well as that at South Kensington, is under the able management of Mr. EYLES, who, we are bound to say, is most ably seconded by BARRON and BEAUMONT, skilful young gardeners, now acting as his foremen at Chiswick.

done by a separate assessment. It is clear, that the neighbouring parish in which the lands are situated would get all the advantage, if the practical rule above described (which is correct enough in its results where farm houses and lands are situated in the same parish) were strictly followed, and the rateable value of the farm house, so to speak, merged in and distributed over the increased assessment of the lands attached to it.

—— The novelties produced at the Great Show held on Wednesday at South Kensington, deserve a separate notice. We take them in the order of entry.

The first class, consisting of New or Rare Tender Plants in flower, was not very fully represented. The finest subject was Clematis Fortunei, and the two next best, Clematis florida Standishii, and a Dracophyllum from King George's Sound, each of which has been already mentioned at p. 460. A white-flowered Japanese Weigela from Mr. Standish was quite novel, and seemed likely to be a very useful shrub in its class—but it would surely have classed better with hardy than with tender plants. Anthurium leuconeurum, a rather nice-looking Orontiad taken in respect of its foliage, is not at all improved in appearance by the addition of its green spathe and spadix, as shown by Mr. Bull. Two or three garden seedlings were wrongly set up in this class.

The New or Rare Tender Plants not in flower were more numerous. The best of them was, however, a plant already familiar from its appearance at the minor meetings, namely, Alocasia Lowii. Pandanus elegantissimus, a very elegant plant certainly, with its spiny red-edged and red-keeled arching leaves, came from three sources, which, with others that we may not happen to specify exactly, will be found particularised in our advertising columns. Mr. Veitch's Miconia? argyroneura, the same as that mentioned as a possible Melastoma at p. 460, was hardly so fresh-looking as on the occasion when we previously noticed it; but we have some faith in it as a useful stove plant, requiring less space than Cyanophyllum, and therefore useful in many places where that could not well be accommodated. A beautiful Acanthad from Peru, supposed to be an Eranthemum, also came from Mr. Veitch; this was dwarf habited like Eranthemum leuconeurum, but had the obtusely oval leaves picked out all over with rosy-pink reticulations, whence it might be designated rubronervium; but whatever name it may get, (and it will soon be in flower), it is a remarkably elegant plant. The yellow-centred Yucca lineata lutea, and the ivory-ribbed Dieffenbachia Verschaffeltii mentioned at the page already referred to, were again shown. Areca dealbata, a small-growing Palm, from Mr. Bull, is to be highly recommended for its elegant pinnate fronds, which were white beneath, and had spiny stipes. Here was also shown by Mr. Standish, a very distinct Japanese Acer, the leaves of which might be said to be mostly yellow speckled over with green, so abundant was the yellowish variegation. Here also Mr. Bull showed the singular Pogonia discolor, with its one cordate olivaceous golden-haired leaf, looking as if cut off, and stuck into a pot of soil; some Anæctochili—argyræus, which is Physurus-like with lance-shaped leaves silvered down the centre, and Dayii, which is like a dark Lowii; two or three Caladiums—mirabile, which is very promising, thickly white-spotted on green, with yellow-green ribs and primary veins, Cannartii which, whatever it promises, has not yet caught up to Chantinii, which it was said to beat, and Lemaireanum, which is not half so good as argyrites; several Ferns, of which Adiantum Féei and Litobrochia nobilis have already obtained the highest testimonials; Litobrochia alcyonis, one of Linden's plants, which is nothing but L. sagittata, breaking out into the subhastate form which is its highest development; and Gymnogramma "Stelzneri," which was not crested as Stelzneriana ought to be, and wanting the cristate appendages, is worthless. A Dichorizandra, called argenteo-marginata, from the same exhibitor, was a good thing in its way, but does not differ, if our memory serves us, from one which Linden sent over some two or three years ago under the name of albo-marginata, and for which a second prize was then awarded. Here also Messrs. E. G. Henderson & Son showed Coleus nigricans, a nettle-like plant with broadly ovate leaves of a dark brownish-purple, the tips of the blunt serratures only being green. We may mention besides, a Palm suitable for small collections, grown by Mr. Young, of Highgate, and called Thrinax elegans, which is really elegant, having light fan-shaped leaves, borne upon slender polished stalks.

Of New Orchids in flower very few were to be seen. Dendrobium Parishii from the Clapton nursery was the best and most novel in character; this has thickish deflexed stems, which, after ripening, bear two-flowered racemes (one flower constantly abortive in the plant shown) of clear bright rosy mauve-coloured flowers, not very large but abundant, the lip fringed all over, and of the same rosy hue as the sepals and petals down its centre, but marked with two large lateral intense crimson-purple blotches. Phalænopsis Lobbii, the same as intermedia, was shown by Mr. Veitch, and next to rosea is perhaps the least attractive species in our gardens of a genus which generally takes the highest rank amongst Orchids; its white flowers were about the size of those of Schilleriana, and had a rose-coloured lip. Mr. Penny, of St. Dunstan's Lodge, Regent's Park, had a very fair sample of Odontoglossum Uro-Skinneri.

Passing on to the New or Rare Hardy Ornamental Plants, we find the judges attached the most importance to some healthy examples of the Japanese Abies firma, now about a foot in height; these were from Mr. Veitch. It is singular that in this promising Conifer, the leaves, which are linear and bifid, and are distichously disposed, are set on on each side of the branch in three rows, in which they alternate with each other, the leaves themselves being also of three different lengths. Mr. Veitch further showed a Spiræa from California, a dwarf bushy shrub with wavy sessile ovate irregularly serrated leaves, and remarkably compact small corymbs of bright rosy flowers, with long projecting white anthers. A handsome Euonymus called ovatus aureo-variegatus, from Mr. Bull, had the shining bluntly oblong leaves of a deep green with a bright golden blotch in the centre, and was a very effective shrub. Two or three Ferns here shown also deserve mention, namely a handsome crested variety of Lastrea montana, which came from Mr. Williams; a much cut Lady Fern, Athyrium Filix-fœmina diffissum, from Mr. Bull; and from Mr. Ivery a sport of the Lady Fern called Applebyanum, a curious plant in which the characteristics of Frizelliæ and Fieldiæ appear in about equal proportions, a dichotomously forked apex being superadded.

Among Seedlings the Pelargoniums formed the most conspicuous feature, but few of them were fully up to the mark in technical properties. The best and most effective were Diadem and The Artist, two of Mr. Hoyle's flowers. The first of these, Diadem, was remarkably telling, being decided and distinct in colour, which, added to a good form and habit, and a considerable freedom in producing its flowers, left little to be desired; the colour was a deep and bright rosy purple, very decided in the lower petals, the throat clear white, and the upper petals very dark maroon, edged with rosy purple. The Artist had a good deal of general resemblance to this, but was more of a rose colour, less of a purple. Mr. Hoyle also had an attractive orange red flower called The Prince, the upper petals of which were light maroon, and the throat light, shaded with purple. Another, called Penelope, had the top petals dark maroon edged with rose, and the lower ones spotted and mottled with maroon. Of Mr. Beck's set Prince of Wales and Princess of Wales were the most noteworthy, the former being a bright crimson marbled with maroon in the lower, and bright maroon with a broad edge of crimson in the upper petals; the latter marbled with bright maroon on a crimson ground below, and dark maroon above, both being remarkable for their effectiveness. We also noticed Eurydice, a beautiful light variety, which received a high award last year, but is, we believe, not yet let out. Of the hosts of mediocrities and inferiorities in this and other flowers we have no room to speak. We observed examples of the hybrid spotted Mimuluses, to which we have already adverted, both from Mr. Bull and Messrs. E. G. Henderson & Son.

FISH AND FISHING.—No. IX.

SALMON LADDERS.

"A nice piece of Salmon, very pink and curdy and nicely boiled—delicious!"

"But, Papa, what is all this talk in the *Times* about 'Salmon Ladders'? What does it mean? Can Salmon climb? Is there a new species discovered, furnished with claws like West Indian Land Crabs?"

"No, darling, only the ordinary Salmon. Salmon Ladders are contrivances—er—I think they are also called 'Fish Passes'—er—well, you are quite right in inquiring, but in truth I must refer to C., for I know nothing about such matters." (And so E.C. replies.)

Nothing like a proper scientific name, for then we are at home at once as to family, genus, and species, but for Salmon Ladders there is no such scientific name; and well may you be at a loss, Paterfamilias, and daughter, loving, obedient, and good. Thousands who look over the *Times* are as ignorant of fishing matters in general, and of Salmon Ladders in particular, as you are; and doubtless an explanation will be acceptable. A Salmon Ladder, a Salmon or a Fish Pass, for they are the same in a general sense, is a contrivance to enable a salmon to ascend, or climb, or pass with facility over an otherwise difficult obstruction to its progress up a river or down. Salmon (vulgo) is a migratory species of fish called Salmo salar. It lives and fattens in the sea, and breeds and the young spend their youth in fresh water. The ovum or egg is deposited and vitalized by the parents in the shallows of a fresh-water river; when hatched, and after (say) one year or two years abiding in the river, the young one leaves the river, forcing its way to the sea. After a while (we won't specify the time) it again seeks a shallow in the fresh water or river in order to deposit its spawn, and reproduce. Its descent as young fry was easy, but on its return upwards as a fish of size, it finds an obstruction in the shape of a weir, or the more natural impediments of high rocks, and how is it to get over?

The leaping power of a salmon is certainly immense; certainly it is the strongest fish for which we angle that swims. To say, as some old authors do, that it can leap up a fall of 16 feet may be somewhat apocryphal, though I do not say it is so, it being foreign to my present object. You have only to examine a salmon's tail, to handle it, to judge of its immense muscularity. It is the only fresh-water fish (so to call it) of which you can take a firm grasp by the tail and lift it about, dead or alive, without its slipping out of your hand—as any other fish will do. In fact a cool angler having "first hooked his salmon!" can "land" it, without net or "gaff," by firmly grasping it above the tail.

Well, without reference to the height to which a salmon can leap, the object of a salmon ladder is to enable the fish to ascend to spawning ground without the exertion of leaping, especially considering that he or she may be heavy with spawn, milt or roe, and these salmon ladders may be contrived so as to assist a fish without unnatural exertion over an obstruction, not only of 6 feet, but of 60 or 100 feet in height, instinct telling them to force their way through opposing water, where there is depth and width enough for their bodies to wriggle.

The difficulty I now labour under is to make you understand the construction of a salmon ladder.

The principle is to erect an inclined plane from the lower to the higher level of water, with such breaks or rests intervening in the force of water—rising by degrees—as will enable the fish to rest and pass, step by step, upwards. Thence the term "ladder."

I go so far as to allege that if you have a natural obstruction across your river of 100 feet high, say a natural rock, and wish to open the water above it as spawning ground, there are no engineering difficulties; you may certainly do it, if you have money, &c., by cutting a narrow artificial inclined plane, with rests, through a portion of the width of the rock, with resting holes here and there from the lowest to the highest level of the water, without much decreasing the level of the water in the main stream, or as it is termed the milling power of the water, and you may be perfectly sure that salmon will work their way up to the highest point, and deposit their spawn in the shallows above, provided the gradients from step to step are properly adopted, about 18 inches one above the other.

This "ladder" once completed might be called a natural ladder. An artificial ladder, such as the *Times* and other papers now refer to, is comparatively a very minor easy affair.

In substance the salmon-ladder recommended by the Government Inspectors is only a very great improvement on the principle I have mentioned. Whether you make it of stone, or wood, or slate, or brick, or a mixture of these, does not affect the principle, but it must be of sufficient size and proper shape. If you want a salmon full of spawn to surmount without difficulty a sloping or a perpendicular weir—the higher water level being 6 feet above the lower—in principle you have to make a permanent sloping trough, say 30 feet long and 5 feet wide (inside measure), and sink the interior base of the upper end of it, say 18 inches into the top of the weir, or below the level of the water above. Then by upright rectangular partitions, say 18 inches high, you divide the trough, say into six compartments, only that instead of making each a distinct compartment closed off from each other, you leave an open space 9 inches wide at the longitudinal end of each partition, at one end of one and at the opposite end of the other, alternately. The water flowing down, instead therefore of flowing over each partition, flows from one compartment to another, round and through each 9-inch open space at the end of each partition in a serpentine course.

Each compartment is about 5 feet square, and as you will perceive, will contain 18 inches depth of water. The uppermost opening for the water, instead of 9 inches wide must be 12 inches width to allow for waste, &c., and a surplus to the 9-inch width of flow between the other compartments.

There can be no difficulty in an ascending salmon getting up such a contrivance, through each open space of 9 inches, unless he or she be of such an enormous weight and width that it could not pass through 9 inches, not very common! In each compartment there is necessarily back water and eddy, and the fish has time to rest if needful and ascend from one compartment to the other into the free water above with perfect ease and freedom from all risk of injury, though a salmon full of spawn.

If salmon be capable of pleasurable sensations, fancy their delight when, arrived at the top of the ladder, they once more plunge into the depths of the open expanse of waters free from all restraint. Would that I were happy as such a fish!

Of course I have not been labouring or intending to describe this salmon ladder in the way of an artistic specification of how it is to be built. I have only endeavoured to explain the broad principle. "Have I conveeyed myself," as an Irish gentleman used to say to the jury, or have I,

> "Like Mr. Parker,
> Made that darker
> Which was dark enough before?"

and describing the broad principle, I have endeavoured to enable you to judge of the merits of an honorable writer in his attempt to upset a broad principle known for years, and also, from the very nature of the thing, known to be correct.

Mr. Grantley Berkeley (in the *Times*, April 21), starts his attack against the plan suggested by the Inspectors of Fisheries or "Home Office" for salmon ladders very authoritatively. "I am convinced," he

says, that neither the fresh fish nor the kelts (that is fish which have spawned and are desirous of returning to the sea) will use the ladder," and he calls it "a speculative invention. On being called to account for this presumptuously sweeping condemnation by Mr. F. Fane (*Times*, April 23), in a second letter (*Times*, April 28), he brings forth his "facts and experience." These, as they appear in print, at least require a great deal more explanation to be rendered comprehensible to those who do not know the locality. Col. T. T. Whyte (*Times*, April 29), however shows that, up other ladders, salmon can and do ascend; and there are hundreds of other persons who have seen them in the act of ascent wherever these or any ladders are erected.

Salmon ladders in one form and another have existed and been found to work well for very many years in Ireland and Scotland, and they are, therefore, not mere "speculative inventions." But the perhaps greatest beauty of all salmon ladders is that at the "Falls of the Conway," N.W. In September, 1858, I went to visit them, and wished, in common with all other fisherman of those parts, that the upper waters could be opened as spawning ground by means of a ladder: the thing was talked of then—now it is done! A beautiful and simple salmon ladder runs through and up the solid rock, of 28 or 30 feet perpendicular height, and thousands of salmon ova are doubtless deposited above, where 4½ years ago no parent fish could by possibility reach.

I cannot resist the temptation to insert a short passage from the second report of the Inspectors, dated March 1863, as to these "Falls of the Conway."

"On the Conway proper, the greater proportion of the breeding ground was lost, shut up by the Falls of Conway. These falls are 28 feet high, and a pass or ladder has this year (1862), been constructed over them by two gentlemen owning water above, upon plans most kindly drawn and furnished by Mr. Forsyth, C.E. of the Board of Public Works in Ireland. The work will for long, probably, be the most remarkable of the kind constructed in England, and will no doubt be as great an object of curiosity and of interest as it promises to be of utility. It was completed too late for this breeding season, constant floods having delayed its progress; but that the year might not be entirely

PLAN, SECTIONS AND ELEVATION OF A SALMON PASS OVER A SLOPING WEIR 30 FEET BROAD AND 6 FEET HIGH.

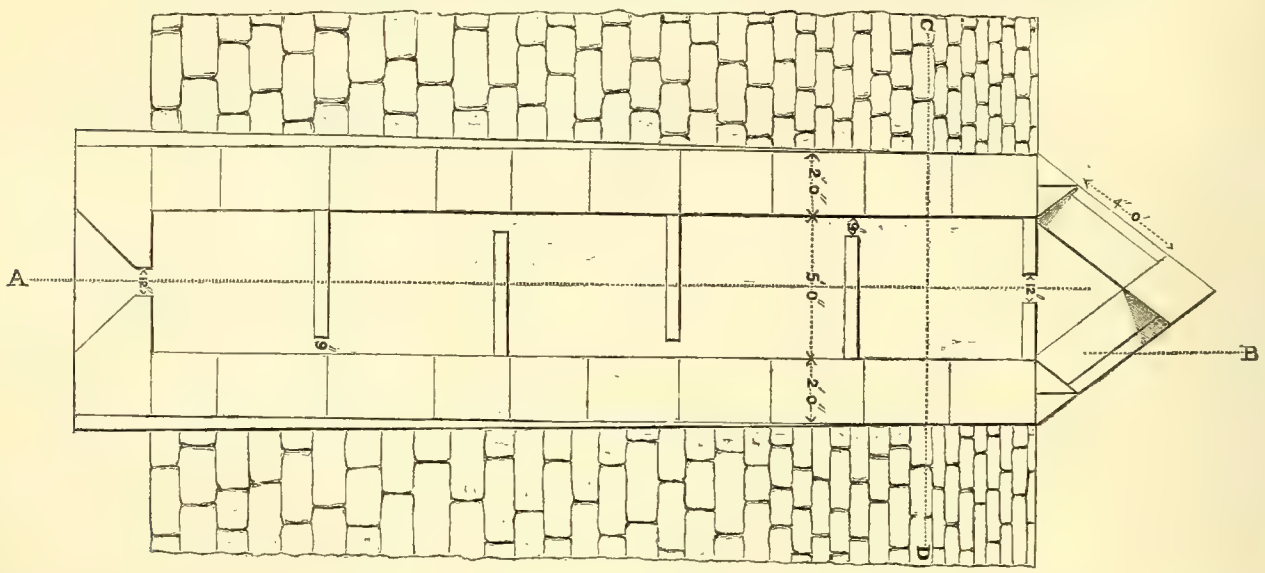


FIG. 1.

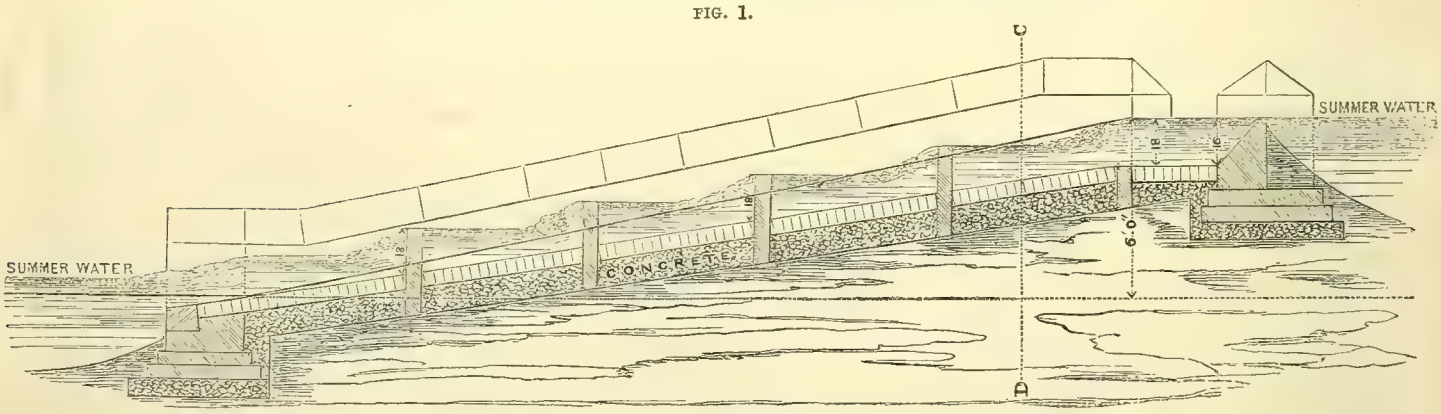


FIG. 2.

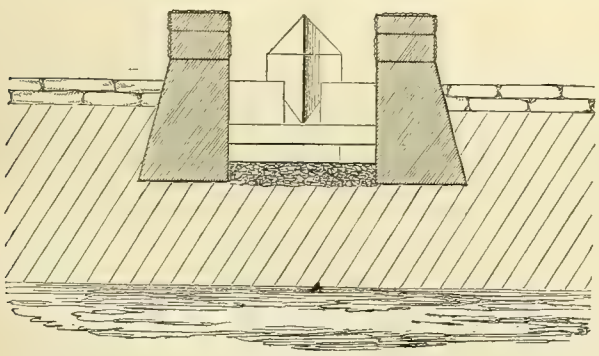


FIG. 3.

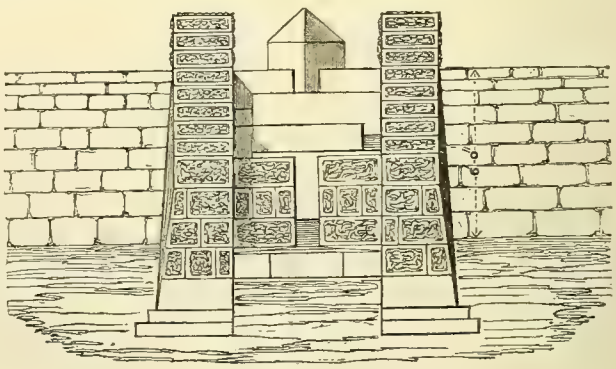


FIG. 4.

lost, five pair of salmon, male and female, were caught below and carried above the falls."

Facts! facts! Mr. Berkeley! I am therefore sorry that I must place myself in the ranks of the legion who condemn Mr. Berkeley's annihilation. Look at the principle of a salmon ladder, and especially at the details of that of the Inspectors or Home Office; consider the enormous muscular power of the salmon to ascend, and the enormous pressure of animal instinct and natural necessity in its seeking a fresh-water river to spawn in, at one season, and of a return to the sea, to live and fatten in, at another season—a similar and most wonderful instinct, implanted in the young fry, of "leaping" out of any place of confinement to the sea, how they can, for the first time in their lives: consider this, and can any reasonable mind doubt that these Salmon Ladders are of the utmost assistance to the fish, and of vital importance to the public for keeping up the breed and stock of salmon.

True that every ascending or descending fish may not find the entrance to the ladder up or down. But if some fish do find the entrance, especially ascending fish, and succeed in depositing their spawn far above, it will be a blessing conferred on our languishing salmon fisheries. Better that even only one pair of fish ascend rather than none, and British salmon become extinct. Far better would it be, if, instead of raising crotchets, Mr. Berkeley would accept the good the Home Office ladder may afford to hundreds of persons; and if, rather than objections, he would assist in devising schemes for improvements, so that salmon might be guided and steered to the ladder, its foot or head, and so enabled to ascend or descend in safety. But I suppose that would "not bring fish to his net!" *E. C.*

REFERENCES TO THE WOODCUTS.

FIG. 1. Plan or bird's-eye view of Salmon Ladder.—A is the lowermost end and B the uppermost. The Diamond near B, seen also in Figs. 2, 3, 4, is called an Ice Break, to "fend off" ice, and incline it to pass off away from the Ladder altogether and pass over the sloping stone-work of the weir, represented by rectangular blocks on each side—over where the dotted line passes from B, and on the corresponding side of the triangle marked ← 4 ft. → 2½ inches depth of water pass into the inner triangle—that gives 216 inches of water perpetually entering and passing through the 12 inch first gap, marked "12 in.," in Fig. 1, and in Fig. 2, "6 ft."

FIG. 2 shows the section on line A B, Plan Fig. 1, the fall of the water down the inclined plane of the ladder, and the different compartments into which a fish must enter and may rest.

FIG. 3 is the section on line C D on Plan, Fig. 1, and C D, Fig. 2, looking up the Ladder, with the Ice Breaker seen in the centre distance.

FIG. 4 is the "elevation" looking up stream from A on Plan (Fig. 1.), showing the entrance below and the different compartments the fish has to enter on his passage upwards,

BRITISH COLUMBIA.—No. I.

We have all read with much interest the reproduction in the *Gardeners' Chronicle* of the letters sent from New Westminster—and as 1862 is now ended, one can review with the eye of actual experience the progress of the vast system of internal communication through the awful gorges of the Fraser—so boldly sketched out by Governor Douglas in the programme for 1862. Let us take note of what has been done. Despite numerous and serious difficulties, that arose almost directly the road contracts had been given out, a very large portion of what was hoped for in June last, was completed by the 1st of October last; and as fine roads as any of the old countries of Europe can boast are the result. Rivers and streams spanned, mountains 5000 feet high scaled by zig-zags which remind one of Mont Cenis and Mont St. Bernard, tunnels blasted through precipitous gorges, excavations along the sides of "slides" (or slipping hill faces), marshes traversed, and forests cut through, preparatory to the application of Macadam, and the finer carpeting of gravel over all, attest the victory of man in his fight with nature, and the old story of the triumph of mind over matter.

At this moment you may get into your carriage (here it is a waggon) at Lillooet, and roll along, lolling back at your ease, till you get near Williams Lake, about 60 or 70 miles below Fort Alexandria.

On the other route, from Yale *viâ* Lytton to Alexandria, where there has been much heavier blasting, and consequently more delay and expense, a marvellous progress has been made. There is now a perfectly connected road, for waggons, from Yale to Lytton; thence to Cook and Kimbales Ferry on the Thompson; thence across the Bonaparte (partially completed only) to Maiden Creek, where the Lytton to Alexandria Road forms a junction with the Lillooet to Alexandria Road. The bridges across the Fraser have still to be done. From the junction they continue on together to Alexandria. The steamer from Alexandria towards Tête jaune Câche has been completed, under one of the enterprising steamboating family of Wright. An American, one of the road contractors on the line of the country, failed, and performed "sclattaway," which being translated means—paid off his creditors with the fore sheet. The other engineers—Moberly, Trutch, and Gus Wright, carried through their work like men, but have become prematurely old from the incessant anxiety and tax upon their energies which this single season's roadwork has brought with it. And every one of them has lost money by the operation. The Government has had its roads made, not only safely, but cheaper and better than I ever heard of in any country.

There is no investment of Government money which pays so well or so quickly as investing in roads in this country. The cost of carriage is reduced from famine price to a living one at one stroke. It is a fact, though I scarcely expect even you, posted as you are in B. Columbia matters, to believe it, that by the roads already made and making, the cost of freight of goods from Lillooet to Alexandria has been reduced from about 60 cents per lb. to 20 cents per lb.—or, calculating 2240 lbs. to the ton, a reduction of 896 dollars, or 179*l.* a ton.

In the face of such facts as these, repeated over and over again, *ad nauseam*, in our experience of roads, Government withdrew the Act the Governor had published for borrowing 100,000*l.* for the purpose of making these new roads in the spring of 1862, and lo and behold, a month or so afterwards, when the road-contracts are cut, it is withdrawn, and a loan for only 50,000*l.* substituted in its place. Had the second 50,000*l.* been at hand, I have no hesitation in saying that the roads would have been completed both by the Lillooet and Lytton, in every part up to Alexandria, by the 1st of December last.

The revenue is wonderfully springing and elastic—in spite of (humanly speaking) the most unexpected and adverse circumstances. From about 47,000*l.* in 1860, it rose to 60,656*l.* 6*s.* 11*d.* in 1861. Judging from the published Customs accounts, and the goods over the toll-roads, the revenue of 1862 cannot be less than 85,000*l.*, although fully two months of the cream of the mining season, as far as the customs is concerned, was cut off by the long and extraordinary winter of 1861-62, which killed thousands of mules and pack animals—our only means of transport—besides deferring the commencement of navigation for six or eight weeks. You may judge therefore how such a falling back in the loan affected the roads, and of course to that extent modified the expectations formed in June last from New Westminster.

The programme is still the same, and is being actively and energetically carried out, as far as means will allow. Considerable settlement on agricultural lands through which the Yale and Lytton route passes is already taking place.

The Canadian emigration last year was a wretched failure. Can it be that the chronic heart-disease of Canada, *i. e.* paid politicians and politics as a business, has already eaten like a canker into the heart of its manhood, and unfitted it to contend with difficulties? Whatever the reason may be, those who came were very soon "played out." I never saw men "cave in" at the first touch of difficulties in such a way as they did. The Canadians (including Blue Noses) are most rabid politicians—the curse of Canada. Politics—and such politics!—seem to stick to them. A few meet together, as at New Westminster, dub themselves "the people," and in the name of "the people" borrow about 100*l.*, and create some passing Canadian friend, only a week or two in the country, their delegate (though we can't even get an English jury)—shouting like madmen for "Responsible Government," or universal suffrage as I think it should be called. In other words they try to open the flood-gates to jobbery, to the ruin of the physique and morale of this young and rising country.

Though roads are the great subject of interest in the colony, I dare say some of your agricultural friends will like to hear about the climate. I therefore enclose a sample of the worst year in British Columbia for the benefit of your friends thinking of coming here. Will you interpret it for them. The emigration of women here, no doubt, will be preached to you as a great success. We married housekeepers, however, think it a "great failure." The half-servant, half-lady class, are sure to come to grief in a colony, though of course they supply a felt want. I repeat once more, every woman virtuous, and not pediculose, who reaches the colony and will work, may at once command from 60*l.* to 80*l.* a year, board and lodging, and as certain as the day is long, by patience and respectable conduct for little less than a year, a good, respectable, well-to-do husband. But every crinoline the moment she lands is literally hunted down (unless she herself seeks to be hunted, which many alas have done), and is obliged to marry to avoid the pressure of solicitations. There is not enough care taken on board ship, or in the selection. Lady philanthropists, choosing future servants merely by testimonials, are apt to "put their foot in it," and send on board a great deal more than a sprinkling of wolves in sheep's clothing. In the idle feverish "abandon" of ship life this evil leaven permeates by far too much of the seething living mass; and years may have to pass by before the taint so acquired is got rid of. It cannot be too frequently insisted on that the great danger to women is when at sea. The check of family emigration is the best. Like Belgium these weak ones are preserved by the jealousy of the surrounding powers.

If we had a loan of 300,000*l.*, or even half of that, we would get our roads for waggons right into Canada, to be followed by railroads. The gold I need not talk about. I'm sick of hearing and seeing so much about it, and of it. If seeing is believing, why our wealth for ages to come in that bright yellow commodity is past all doubt.

What are you at home going to do with us British Columbians? Are we to be tied to Vancouver's Island?—the continent where the wealth is, to the island where it is not? Are we to have a Council, or a change in the form of Government. If so, what? Is it to be elective? when as I said before, you can't get any jury of Englishman in any town except New Westminster, and there nearly all are Canadians.

Are we to lose our gallant old Governor in deference to the half dozen folks at New Westminster, who call themselves "the people," just when we want him most? *Victoria, Vancouver's Island, Feb.* 3, 1863.

Home Correspondence.

Roses.—Permit me to inform your correspondent "C. R. S." that black blotch prevailed here last year, 1862, extensively. No Rose tree is more subject to it than Baronne Hallez. As it was a very wet year here, I am inclined to think that what we call black mildew is nothing more than injury occasioned to the "lungs" by superfluity of moisture, and restraint of evaporation by the too cold temperature of the weather. I am not sure that it is a "fungus," properly so called. I never, with my glasses, could discover a spore. Now, until we can discover what it is, we cannot devise a preventive or cure. We must first know what the doctors call "the prognosis and diagnosis," before we can meet the evil or cure it. The checks of weather, after the sap rises, on the main stems may possibly produce the disease, which becomes manifest ultimately on the lungs. I believe canker and gum and curl on trees proceed greatly from the action of the weather injuring the general health of the trees. I used to think "curl in Peach leaves" to be the effect of insects, but I have abandoned that theory, as I never could detect an insect. I am persuaded that the curl in Peach leaves proceeds from exposure of the leaves during minority to the severity of weather. I believe also, that what we call "black mildew" is not mildew at all, but disease arising from overcharge of moisture met by estoppel of the proper function of the leaves, or at any rate finding its outlet there. "C. R. S." asks for a cure. I omitted the cure when last I wrote on this subject, because I was not sure of the origin or nature of the disease. I never knew trees permanently injured by this black blotch. Orange mildew will spoil a tree for the year; and some sorts it will kill. White mildew, if the wood is not ripe already, will spoil the new wood for another year. The best cure for orange mildew is to take the leaf with the nucleus of orange off (it is on the under side of the leaf) before it bursts and spreads its spores all over the leaves, both upper and under side. If a tree badly affected drops its leaves and makes new ones, they will be canary coloured. White mildew can be stopped from coming on, and cured when on the trees, by 2 ounces of blue vitriol dissolved with hot water, and put to a stable bucket of cold water, and poured over the leaves with a common watering pot. But supposing "black blotch" not to be a mildew, but proceeding from superfluity of moisture, would it not be a good plan to fork deeply about the roots, or cautiously take the plant up, shake it out, and put it back again. The mischief in all cases of injury to the leaves, whether by wind or mildew, is this; the sap rises, but the lungs are gone, or their functions stopped. I am on a dense chalk; and therefore I suppose that when "C. R. S." says this disease does him so much mischief, that he must be upon an impermeable clay. I think orange mildew is the most permanently injurious and destructive of the present and future welfare of a Rose tree, especially if it is not of a robust character. Taking all the enemies of Roses into consideration (including the Rosarian!) no Rose will last in this country for any length of time that has not these three marks—"vigorous growth, hardy constitution, and good foliage." The last is only another word for strong health. *W. F. Radclyffe, Rushton.*

Peaches Dropping.—Can any of your correspondents tell me the reason why my Peaches and Nectarines fall off. They are as large as good-sized Peas, and the trees are to all appearance in perfect health. They are under the system of pinching at every five or six joints; the wood is of equal size throughout the trees, perhaps a little strong. They are in pots, some of them plunged up to their rims and some not. There was a splendid crop, and some of them are still doing well, but others badly, though all are standing in the same house. I cannot see any cause for this. The house is a lean-to, 70 feet long, facing the east. All the lights open at the front, and the top-lights at the back. The house has been ventilated according to the weather, between 8 and 4 o'clock; the watering, syringing, and airing under my own superintendance; this is an orchard house. In another Peach-house standing due south the trees are suffering similarly; they are trained in the usual fan shape upon wires near the roof. I have had 12 years' experience amongst such trees, and have never had them fall off as they have done this season. Where three dozen would have been a fair crop I have only three to six fruit left. *E. M., Ipswich.* [Are you sure there has not been a chill at the root, nor drought? and how about the ripening of last year's wood?]

Birds.—At page 464, a Correspondent asks how far he ought to allow his gardener to shoot the birds that are so destructive among fruit trees. You state, and as far as my experience goes, truly, that the best remedy is to net over the bushes. I may however add, that clappers, old hats, &c., are of no use whatever. Gentlemen ought to allow sufficient nets to be bought to protect their fruit if they will not have the birds kept in moderation. Many places swarm with birds, and the gardener is neither allowed nets to protect the fruit, nor is permitted to kill the birds; still the same quantity of fruit is expected of him. A gardener in such a position is as much in a fix as the Egyptian brick makers. *S.*

Societies.

Royal Horticultural.—*May* 23 (*Election of Fellows*).—Henry Cole, Esq., C.B., in the Chair. The following candidates were elected Fellows, viz.:—

Mrs. W. B. Ashurst; Charles S Bagot, Esq.; The Countess of Bandon; Miss M. A. Biller; David Brandon, Esq., F.S.A.; Joseph Bravo, Esq.; Alfred C. Bridge, Esq.; Dr. Blakeley Brown; Mrs. Blakeley Brown; Edward Campbell, Esq.; Mrs. Campbell; General Count de Morella Carbrera; John Henry Challis, Esq.; Matthew Clark, Esq.; Miss Cohen; Michael Costa, Esq.; George W. Coutts, Esq.; Hermann Cox, Esq.; Miss Crawford; Sir Stuart Alexander Donaldson, Esq.; Miss D'Oyley; Miss Erskine; C. d. Augustine Fitzgerald, Esq.; Lady Maria Forrester; Henry Stanhope Freeman, Esq.; William Garnett, Esq.; William Henderson, Esq., F.G.S.; Mrs. Henry; Mrs. Charles Hitchcock; Mrs. John Hulbert; Mrs. G. Leake; Lewis Lloyd, Esq.; Mrs. Lewis Lloyd; Mrs. T. M. Mackay; Dr. Milligan; Henry Mitchell, Esq.; Mr. Charles Noble; Mrs. Malcolm Orme; Henry Pearse, Esq.; Colonel the Hon. E. Douglas Pennant, M.P.; George Potts, Esq., M.P.; Rev. James Pycroft; Mrs. Rackham; Mrs. James Ramsay; Charles Rivaz, Esq.; The Lady Mayoress (Mrs. Grace Rose); Lady Rowe; George Stagg, Esq.; Lady Taylor; George Todd, Esq.; George Trollope, Esq.; Mrs Turnbull; Mrs P. G. Vander Byl; Hon. Mrs. Warren Vernon; Augustus Wattenbach, Esq.; Mrs. Weddall; William Wheeler, Esq.; and Mrs. Wildes.

May 27 (*First Great Exhibition*).—Some account of the leading features of this in all respects wonderful display of gardening skill, will be found in another column. We therefore at once proceed to details.

Stove and Greenhouse Plants.—Never have we seen these produced in greater numbers or in better condition than on this occasion, and the long triple lines of them with which the great central promenade was guarded, elicited, as well they might, universal admiration. Nor was the proper disposition of colour overlooked, a point of vital importance in exhibitions of this description, where effect is the great object aimed at. Bright yellow was furnished by Allamandas and Cavendish Heaths, blush white and flame in the different tints of Azalea, lilac by the charming little half hardy Heath-leaved Tetratheca, and violet by the various species of Franciscea—altogether forming a bank only equalled in variety and beauty by that of Orchids themselves. Conspicuous in the different collections were Hoya bella, to which favourable allusion is made in our notice of the exhibition at the Crystal Palace. The only regret, in connection with it, and it was universal, was that the plant was not tilted up a little in front, so as to show to better advantage the under surfaces of its charming flowers, hanging as they did in multitudes, looking like clusters of rubies set in frosted silver. Of Genetyllis macrostegia there was an unusually well managed specimen from Mr. Green, loaded with flowers possessing more than ordinary colour. Dracophyllum gracile was present in more than one collection, and in every instance was all that could be desired as far as skilful cultivation was concerned; its numerous heads too of snow-white blossoms, served to give variety and character to the various groups of plants with which it was associated. Among Everlastings the greatest favourites seemed to be macrantha purpurea and humilis rosea, the last a really pretty kind. Pimeleas, from among which we now-a-days nearly altogether miss spectabilis, were chiefly confined to Hendersonii, of which some fine specimens were contributed. Of Rhynchospermum jasminoides several plants were furnished in great beauty, their clean-looking shining deep green leaves setting off their pure white blossoms with admirable effect; thus managed they vied in beauty even with the lovely Stephanotis floribunda itself. Different tints of blue were represented by Leschenaultia biloba and the Cabbage-leaved Statice, and purplish violet by Hardenbergia monophylla, a plant seldom now found on exhibition tables, but one which when properly managed cannot well be dispensed with. The following will show who were the successful exhibitors under this head:—

Awards.—15: 1st, Mr. Peed, gr. to Mrs. Tredwell; 2d, Mr. Green, gr. to Sir E. Antrobus, Bart.; 3d, Mr. Baxendine, gr. to W. H. Smallpiece, Esq.; 4th, Mr. Rhodes. 12: 1st, Messrs. Fraser; 2d, Messrs. Lee; 3d, Mr. Cutbush; 4th, Messrs. Jackson. 9: 1st, Mr. Chilman, gr. to Mr. Smith; 2d, Mr. Kaile, gr. to Earl Lovelace. 6: 1st, Mr. Ingram, gr. to J. J. Blandy, Esq.; 2d, Mr. Page, gr. to W. Leaf, Esq.; 3d, Mr. Smith, gr. to A. Anderson, Esq.; 4th, Mr. Wheeler. Mr. Penny and Mr. Tegg also showed in this class.

Orchids.—Chiswick, even in its best days, seldom furnished a finer display of these than was present at South Kensington on this occasion. Need we state, therefore, that they formed one of the most important features of the show. True, we missed the noble contributions to this section of the exhibition that were wont to come from Mr. Rucker's establishment at Wandsworth, and that of the Messrs. Veitch, of Exeter; but in place of these we had a new exhibitor from Leicester with a fine collection, whose only demerit was the large ugly red painted tubs in which it was shown. In a charming group from Mr. McMorland, were furnished the rare Peruvian Odontoglossum Phalænopsis with yellow-eyed comparatively large white flowers, stained and streaked with purplish rose;

various kinds of Lady's Slipper of the bearded species, of which there are now so many fine varieties; Lælia purpurata and its handsome near relations Brysiana and elegans; the singular-looking Odontoglossum nævium; the pale variety of Dendrobium Farmeri, various Aerides and other plants, all in unusually good condition. In a collection from Mr. Basset, were the yellow Cattleya citrina with three blooms on it; an excellent Anguloa Clowesi; Cypripedium Lowii, bearing three remarkably large and fine flowers; Saccolabium retusum; Aerides of different sorts; and Phalænopsis grandiflora. Conspicuous in other collections were Dendrobium nobile, beautifully in bloom even in a small state; the now seldom seen Arpophyllum giganteum, by no means in good condition, but sufficiently so to show the beautiful symmetrical arrangement of the little purple shell-like flowers on the spike; the fine Cœlogyne Lowii, mentioned below; and noble masses of Oncidium ampliatum majus and flexuosum; the last one of the most useful of all plants for cutting, from the light airy-looking sprigs of clear yellow blossoms which it produces, having a fine appearance in bouquets. In addition to these there were likewise good examples of Dendrobium densiflorum, loaded with pendulous clusters of yellow blossoms; the yellow D. chrysotoxum; Chysis Limminghii, in this instance really a handsome plant, the colours of the flowers being unusually well developed; and last but not least, the rare and beautiful Odontoglossum Pescatorei, one of the few flowers which are favourites with everybody.

Awards.—20: 1st, Mr. Mitford, gr. to E. McMorland, Esq.; 2d, Mr. Baker, gr. to A. Basset, Esq.; 3d, Mr. Bullen, gr. to A. Turner, Esq.: 4th, Mr. Peed. 12: 1st, Messrs. Veitch; 2d, Mr. Woolley. 10: 1st, Mr. Penny, gr. to H. H. Gibbs, Esq.; 2d, Mr. Page, gr. to W. Leaf, Esq.; 3d, Mr. Green: 4th, Mr. Chilman. 6: 1st, Mr. Wiggins, gr. to W. Beck, Esq.; 2d, Mr. Smith, gr. to the Duke of Northumberland.

Azaleas.—With the size and wonderful beauty of the noble specimens of these contributed by Mr. Turner and Messrs. Veitch, all were struck with amazement, and no wonder, for never before, perhaps, were Azaleas seen in better condition, or presenting greater variety of colour than they did on this occasion. Even surrounded as they were with flowers of every hue they were the admired of all admirers, and formed, it must be confessed, by far the most striking feature of the show. The varieties were:—Admiration, 1; alba magna, 1; Apollo, 2; arborea purpurea, 1; Barclayana, 1; Broughtoni, 4; Beauty of Reigate, 1; carminata, 1; Chelsoni, 1; conspicua purpurea, 1; coronata, 2; Criterion, 3; delicatissima, 1; delecta, 2; Duke of Devonshire, 1; Eclipse, 1; Empress Eugénie, 2; exquisita, 3; Extrani, 2; Fentoni, 1; Fielder's White; formosa, 1; Gem, 3; Gledstanesii formosa, 1; Glory of Sunning Hill, 2; Holfordii, 1; Iveryana, 5; Juliana, 5; lateritia, 2; Leeana, 1; Louise Margottin, 2; macrantha purpurea, 1; Madame Miellez, 1; magnificans, 2; Magnificent, 1; magnifica flore pleno, 1; Marie Louise, 1; Minerva, 1; Model, 1; Mrs. Fry, 1; Murrayana, 1; narcissiflora, 1; optima, 2; perfecta elegans, 1; petuniæflora, 1; præstantissima, 1; rosea superba, 1; semiduplex maculata, 2; sinensis, 1; Sir Charles Napier, 1; speciosissima, 1; Stanleyana, 1; Symmetry, 2; triumphans, 7; Trotteriana, 1; The Bride, 1; variegata, 1; Vesta, 1; White Supreme, 1; violacea superba, 2; Woolerii, 1.

Awards.—9: 1st, Mr. Turner; 2d, Messrs. Veitch; 3d, Messrs. Fraser. *Amateurs.*—1st, Mr. Green; 2d, Mr. Page; 3d, Mr. Peed; 4th, Mr. Lavey. 6: 1st, Mr. Penny; 2d, Mr. Todman; 3d, Mr. Ingram; 4th, Mr. Wheeler.

Roses.—Fine as these undoubtedly were on Wednesday last, it must be admitted that they lacked the freshness and delicacy of tint which they possessed earlier in the month. Some of the fine plants then in perfection have, however, been kept back with singular skill to grace the present gathering, a glorious instance of which was to be found in Messrs. Lane's large Souvenir d'un Ami, quite an exhibition in itself, loaded as it still is with blossoms. Mr. Wm. Paul had also a magnificent collection, remarkable in which were Charles Lawson and Chénédolé, two well-known kinds, apparently unusually well suited for purposes of pot culture. The exhibitions of Roses in small pots and of cut blooms were also highly creditable to those by whom they were furnished. The varieties in pots were—Adam, 1; Baron Prevost, 2; Blairii No. 2, 1; Chas. Lawson, 3; Chénédolé, 2; Comte Boubert, 1; Comte de Nanteuil, 1; Comte de Paris, 1; Comtesse Molé, 1; Coupe d'Hébé, 2; Gen. Jacqueminot, 1; Gloire de Dijon, 1; Jules Margottin, 3; Juno, 1; Lamarque, 1; Lælia, 1; La Reine, 1; Lion des Combats, 1; Louis Bonaparte, 1; Louise Peyronney, 1; Lord Raglan, 1; Madame Chas. Jacquin, 1; Madame de St. Joseph, 1; Madame Willermoz, 1; Mansais, 1; Niphetos, 1; Paul Perras, 3; Paul Ricaut, 3; Pauline Plantier, 1; Senateur Vaisse, 1; Souvenir d'un Ami, 3; Souvenir de la Reine d'Angleterre, 1; Triomphe de Paris, 1.

Awards.—12: 1st, Mr. W. Paul; 2d, Messrs. Lane; 3d, Messrs. Paul & Son. 6: 1st, Mr. Terry.

Cape Heaths—Queen Victoria still stands pre-eminent in the aristata class, and we also noticed very fine specimens of the following varieties, viz.:—affinis, 1; Alberti superba, 1; Beaumontiæ, 1; Bergiana, 1; Cavendishiana, 1; depressa, 3; depressa multiflora, 1; eximia, 1; Fairrieana, 1; fastigiata lutescens, 1; favoides elegans, 1; florida, 1; intermedia, 1; mirabilis, 1; mutabilis, 1; odora rosæ, 1; profusa, 1; propendens, 1; Queen Victoria, 1; Sindryana, 1; suaveolens, 1; tortiliflora superba, 1; tricolor dumosa, 1; tricolor Wilsoni, 2; vasiflora, 1; ventricosa Bothwelliana, 1; ventricosa coccinea minor, 3; ventricosa magnifica, 1; ventricosa perspicua nana, 1; ventricosa tumida, 1; Webbiana, 1.

Awards.—6 plants: 1st, Mr. Peed; 2d, Mr. Page; 3d, Messrs. Jackson. Mr. Chilman also showed in this class.

Pelargoniums—These were particularly well grown and flowered, and made a fine display. The sorts were—Ariel, 3; Aurelia, 1; Beadsman, 2; Candidate, 2; Desdemona, 3; Empress Eugénie, 1; Etna, 1; Fairest of the Fair, 3; Governor General, 1; Guido, 1; Leviathan, 3; lilacinum, 1; Lord Canning, 1; Mazeppa. 1; Mr. Marnock, 2; Monarch, 1; Osiris, 2; Peacock, 1; Picnic, 1; Pizarro, 1: Rose Celestial, 4; Sanspareil, 1; Sir C. Campbell, 2; The Belle, 2; Virginie (Miellez), 1. *Fancies.*—Acme, 2; Arabella Goddard, 1; Carminata, 3; Celestial, 2; Clara Novello, 3; Clemanthe, 1; Cloth of Silver, 1; delicatum, 3; Electra, 1; Emily Witcher, 2; Evening Star, 2; Lady Craven, 2; Lady Hume Campbell, 1; Lady of the Lake, 1; Madame Sontag, 1; Madame Van der Weyer, 1; Mrs. Turner, 1; modestum, 1; Negro, 3; Queen of Roses, 1; Queen of the Valley, 2; Roi des Fantaisies, 1; Rosabella, 1; Zoë, 1.

Awards.—12 plants: 1st, Mr. Turner; 2d, Messrs. Fraser. 9 plants: 1st, Mr. Shrimpton; 2d, Mr. Weir. Fancies, 6 plants: 1st, Mr. Turner; 2d, Messrs. Fraser. 1st, Mr. Weir; 2d, Mr. Lamb.

Rhododendrons.—A small group of crimson, purple, and pale blush coloured kinds was contributed by Mr. Noble, of Bagshot, in which were The Prince, Princess Alexandra, The Sentinel, The General, and Snowball.

Miscellaneous Collections of Plants.—Under this head Messrs. Veitch showed some wonderfully fine things, conspicuous among which were the variegated Musa vittata and Alocasia macrorhiza, also the beautiful A. zebrina, Dracænas, and variegated Yuccas of different sorts; the variegated Japanese Ligularia Kæmpferi, Lomaria gibba, the new variegated-leaved Japanese Honeysuckle, the double-flowered orange Hemerocallis disticha, and the singular-looking scarlet Anthurium Scherzerianum; tree Ferns, and standard Azaleas, Orchids, and Palms. From Mr. Williams, Mr. Bull, and Messrs. Lee and A. Henderson also came interesting collections of miscellaneous plants.

Ferns.—One of the most charming exhibitions of these we have seen for some time was furnished on this occasion by Messrs. Ivery, of Dorking, whose plants being arranged with skill and effect were much admired. The surface of the soil in the pots was tastefully covered with Dicranum hornum, a Moss well suited for the purpose, and which gave a green and cool aspect to the exhibition. From Mr. Lavey, of Fetcham, also came a small group of Ferns.

Miscellaneous Subjects.—Among these were excellent collections of cut specimens of Pansies, both fancy and other kinds, from Messrs. Downie, Laird & Laing, and Mr. Hooper, of Widcome Hill, Bath. Also Verbenas from Mr. Treen and others; beautiful variegated-leaved Geraniums from Messrs. E. G. Henderson, hardy variegated plants from Mr. Salter, of Hammersmith; and last but not least, a beautiful panful of Eucharis amazonica from Mr. Fleming, gr. to the Duke of Sutherland, at Cliveden.

Groups of Plants showing Effective Arrangement for Decorating a Small Conservatory.—For the display of these, a space of 15 feet by 10 feet was set apart for each exhibitor, and the test of merit was effective arrangement with the smallest number of plants; the intrinsic value of which was of little or no importance. The prizes offered under this head were contested by some six competitors; Mr. Turner, to whom the first prize was awarded, occupied his space with a dense square bank of flowering plants, placed thickly together, and consisting of beautifully flowered Azaleas, Pelargoniums, Calceolarias, Roses, Ferns, and similar plants, relieved here and there by the introduction of noble specimens of the large handsome-leaved Cyanophyllum magnificum, and edged with rows of Perilla and Stachys lanata, and of Variegated Arabis, which formed a boundary to the whole. Messrs. Veitch, to whom the second prize was awarded, contrary to the plan followed by Mr. Turner, grouped his plants in the space allotted to him for his exhibition. Against the back wall was a conical stage filled with red and white Azaleas, Calceolaria aurea floribunda, Pelargoniums, Fuchsias, Hydrangeas, and plants of that description, edged with a row of Stocks and Mignonette placed alternately. Right and left of this at short distances apart, so as to leave passages between, were wire baskets (set on pedestals of the same kind) filled with Rhopalas, surrounded with the gracefully drooping Isolepis gracilis. A little in advance of these again were other baskets filled with Fuchsias, Rhodanthe Manglesii, and Saxifraga sarmentosa, the latter hanging down in festoons, while at the corners, elevated on green-coloured china pedestals, were moss-covered columns overrun with Saxifragas, Ferns, Selaginella cæsia, and plants of that description. Low vasefuls of Ferns were also set in suitable positions in the intervening spaces, altogether forming an arrangement so very simple yet effective that in the opinion of many who were present, it should have been awarded a first prize. Messrs. Lee followed with a nicely managed group, as did also Mr. Bull and Mr. Shenton, that from Mr. Bull consisting chiefly of fine-foliaged and variegated plants of large size. A small set of little flowering plants placed one row above another in a corner very perfectly represented the old plan of greenhouse stage decoration.

Among Fruit, of which a little was shown, were one or two Black Prince and Smooth-leaved Cayenne Pine Apples; various examples of a handsomely netted green-fleshed Melon; Oscar and President Strawberries, the last a fine looking new kind from Mr. Turner; a few Peaches and Figs; and lastly, Mr. Cuthill sent a punnet of fruit of his Black Prince Strawberry gathered out of doors, being the first open-ground Strawberries that have made their appearance in public this season. Of Mushrooms, Mr. Cuthill had also some beautiful examples, comparatively large yet fresh, and quite pink in the gills, and another exhibition of the kind also came from Mr. Drummond of Bath.

Of Vegetables, there was one collection in which there were very good Asparagus, young Celery, new Potatoes, Carrots and Turnips, Cauliflowers, Cabbage, Onions, Spinach and Lettuces.

CRYSTAL PALACE: *May* 23 (*First Great Flower and Fruit Show*).—This, the Company's opening exhibition of the season, was in most respects highly satisfactory. Of stove and greenhouse plants there was a large display; Orchids were plentiful and finely in blossom; Azaleas were good, as were also Roses and Pelargoniums; and, considering the season, there was an excellent exhibition of fruit.

Stove and Greenhouse Plants.—Particularly noticeable among these were some remarkable examples of Tetratheca ericæfolia, in the shape of handsome pyramidal bushes literally loaded from top to bottom with lilac flowers, the most striking sample of which was in a collection of large and fine plants from Mr. Peed. Among Chorozemas, we noticed Henchmanni in one or two instances strained tightly over wire trellises, a system of treatment now discarded by most of our best cultivators. In skilful hands a few slight wooden stakes, hidden from view among healthy foliage and wreaths of scarlet blossoms, are all that is required for the support of this very beautiful Chorozema. Gompholobium polymorphum and plants of similar habit grown in this way are much more effective than stiff formal bushes like that just noticed. Barnes's variety of Phœnocoma proliferum well flowered, and other kinds of Everlastings, were conspicuous in most of the collections, in which were also noble specimens of Erica depressa, covering their pots with multitudes of greenish yellow blooms. Genetyllis (or Hedaroma) tulipifera when in good health and bloom is by no means a bad exhibition plant; but we fear the same cannot be said of G. macrostegia, which in exhibitors' phrase is not a "telling plant." Of Adenandra fragrans several were shown, and its round pink-flushed white blossoms, each as large as a shilling, served to set off to good advantage the collections in which it occurred. Among Allamandas were some charming specimens of Schottii and grandiflora; and we also remarked an example of the beautiful Meyenia erecta. This, however, together with Vincas, and some other plants that had evidently been pushed forward in heat to be ready for the occasion, suffered so much from the exposure to which they were subjected, that before the day was half over their withering blossoms were quite worthless as regarded effect. Of Hoya bella a charmingly-flowered specimen was shown by Mr. Smith, gr. to A. Anderson, Esq., of Norwood Grove; than this nothing could possibly be finer, and it received, as it deserved, universal admiration. The sweet-scented Rhododendon Gibsoni was furnished in beautiful condition by Mr. Green; among whose plants was also a nice Stephanotis floribunda. The following indicates the position in which the different collections stood as regards merit:—

Awards.—15: 1st, Mr. Peed, gr. to Mrs. Tredwell, Norwood: 2nd, Mr. Green, gr. to Sir E. Antrobus, Bart., Cheam. 12: 1st, Mr. Chilman, gr. to Mrs. Smith, Ashstead, Epsom. 8: 1st, Mr. Peed. 6: 1st., Mr. Page, gr. to W. Leaf, Esq., Streatham.

Orchids.—Of these the usual flowery bank attracted much attention. Mr. Bullen again showed his fine panful of Orchis foliosa, still nearly in as good condition as at Regent's Park; Anguloa Ruckeri, in the same collection, had 8 flowers on it, all of which however were not expanded. Associated with these, were fine plants of Aerides Lindleyanum, A. odoratum, with some 50 flower spikes on it; the charming Dendrobium Devonianum, the only fault of which was too much tying; Cypripedium caudatum, and Cattleya Mossiæ. From Mr. Bassett's gardener came Lælia cinnabarina, bearing nearly a dozen spikes of bright orange-scarlet flowers; a good plant of the large variety of Dendrobium macrophyllum, with noble pendulous spikes of Rhubarb-scented blossoms; Anguloa Clowesi, with nine bright yellow flowers; and a glorious specimen of Saccolabium retusum. Of the rare Aerides Schröderi, Messrs. Jackson furnished a good example; and in other exhibitions were the brown blossomed Oncidium crispum, showy masses of O. ampliatum majus, the pale variety of Dendrobium Farmeri, D. tortile, and D. pulchellum. From the garden of Mr. Gibbs, Regent's Park, came a beautiful plant of Cœlogyne Lowii, bearing a dozen or more good spikes of pale straw-coloured blossoms. Lælia purpurata in the same collection was also beautifully in bloom, as were likewise Trichopilia crispa, and one or two of the many fine varieties of bearded Lady's

Slipper, now to be found in most groups of Orchids. The following will show who the principal winners were in the different classes :—

Awards.—16 : 1st, Mr. Bullen, gr. to A. Turner, Esq., Leicester, and Mr. Baker, gr. to S. Bassett, Esq., Stamford Hill. 10 : 1st, Mr. Penny, Gr. to H. H. Gibbs, Esq., Regent's Park. 6 : 1st, Mr. Wiggins, gr. to W. Beck, Esq., Isleworth.

Azaleas.—The most successful exhibitor of these on this occasion was Mr. Turner, of Slough, in whose collections were large and effectively flowered plants, especially of Criterion, Perryana, Murrayana, the double sort called Glory of Sunning Hill, and Optima. Among newer varieties Messrs. Ivery had Flower of the Day, some of the pink-striped white blooms on which could not measure less than 4 inches across. Of soft rosy-flowered sorts with dark crimson eye few are more striking than Kinghornii; and of whites, one of the very best is certainly Louise von Baden. Comte d'Hainault is a showy salmon ; Brilliant, Mars, and Sir H. Havelock are all of the crimson scarlet class, to which they are worthy additions ; and to Double varieties have lately been added : Leviathan, white, and King of the Doubles, rich rose ; while of the character of Etoile de Gand are Salmonea alba cincta and President de Claëys, the last in this instance with a greater amount of colour in it than either of the other two. The older varieties were : Admiration, 1 ; alba magna, 1 ; Apollo, 1 ; arborea purpurea, 1 ; Barclayana, 2 ; Broughtonii, 4 ; carminata, 1 ; Chelsonii, 1 ; conspicua purpurea, 1 ; coronata, 2; Criterion, 3 ; delicata, 1; delecta, 2; Duke of Devonshire, 1 ; Eclipse, 1 ; Empress Eugenie, 2 ; Extranii, 2 : Eulalie, 1 ; Fentoni, 1 ; Fielder's White, 1; formosa, 1 ; Gem. 2 ; Gledstanesii formosa, 1; Glory of Sunning Hill, 2 ; Holfordii, 1 ; Iveryana, 3 ; Juliana, 3 ; macrantha purpurea, 1; magnificans, 2; Minerva, 1; Murrayana, 2 ; narcissiflora, 1 ; optima, 2 ; perfecta elegans, 1 ; præstantissima, 1; rosea superba, 1; semiduplex maculata, 2 ; Sir Charles Napier, 1 ; Stanleyana, 1 ; Symmetry, 2; triumphans, 4 ; variegata, 1 ; Vesta, 1 ; violacea superba, 2.

Cape Heaths.—We have still to repeat that, with the exception of Queen Victoria, a fine kind belonging to the aristata class, there was nothing new among these. Mundula, a pretty little white-flowered sort, was, however, exhibited in good condition ; as was also mirabilis, a kind not perhaps so commonly seen as most others. The following varieties were shown, viz. : Albertii superba, 1 ; Beaumontiæ, 2; Bergiana, 1; Cavendishiana, 3 ; depressa, 3 ; depressa multiflora, 1 ; eximia, 1; Fairrieana, 1; fastigiata lutescens, 1; favoides elegans, 1 ; florida, 1; intermedia, 1 ; mirabilis, 1; mundula, 1 ; mutabilis, 1 ; odore rosæ, 1 ; profusa, 1 ; propendens, 1 ; Queen Victoria, 1 ; Sindryana, 1 ; suaveolens, 1 ; tortiliflora superba, 1 ; tricolor dumosa, 1 ; tricolor Wilsoni, 2 ; vasiflora, 1 ; vestita coccinea, 1 ; ventricosa Bothwelliana, 1 ; v. coccinea minor, 3 ; v. magnifica, 1 ; v. perspicua nana, 1 ; v. tumida, 1 ; Webbiana, 1.

Awards.—6 : 1st, Messrs. Jackson, of Kingston-on-Thames.

Of *Tall Cacti* a few were produced, but they were by no means in such fine condition as we have seen them at Chiswick in years gone by. The varieties most worth naming were Epiphyllum speciosum elegans and E. Greenii, both excellent sorts, well deserving a place in every collection of plants of which tall Cacti form a part. We also noticed a plant of the creamy white E. crenatum.

Awards.—6 : 1st, Mr. Green, gr. to Sir E. Antrobus, Bart., Lower Cheam.

Roses.—Messrs. Lane again showed their finely blossomed plant of Souvenir d'un Ami, not less beautiful than it was the other day at Regent's Park ; Mr. Wm. Paul had also finely flowered plants well furnished with clean and healthy foliage ; and of smaller specimens Mr. Turner had a nice collection. Of cut blooms beautiful exhibitions were contributed by Mr. Wm. Paul and Messrs. Paul & Son. The varieties in pots were :—Baron Prevost, 1 ; Blairii No. 2, 1 ; Chas. Lawson, 2 ; Chénédole, 1 ; Comte de Paris, 1 ; Comtesse Molé, 1 ; Coupe d'Hébé, 3 ; Gen. Jacqueminot, 1 ; Gloire de Dijon, 1 ; Jules Margottin, 2 ; La Reine, 1 ; Lion des Combats, 1 ; Lord Raglan, 1 ; Madame Chas. Jacquin, 1 ; Madame de St. Joseph, 1 ; Madame Willermoz, 1 ; Paul Perras, 3 ; Paul Ricaut, 2 ; Senateur Vaisse, 1 ; Souvenir d'un Ami, 2 ; Triomphe de Paris, 1.

Awards.—10 : 1st, Messrs. Lane and Mr. Wm. Paul. ten in pots, not exceeding 8 inches in diameter : 1st, Mr. Turner.

Pelargoniums.—These being well grown and flowered, made a fine display. The spotted sorts especially were much admired ; but with these as with the ordinary kinds, more strikingly different variety of colour is wanted. Among Fancies there is less to complain of in this respect, though greater diversity of general appearance, even in these, would be an improvement. The sorts were—Ariel, 2 ; Beadsman, 2 ; Candidate, 1 ; Desdemona, 3 ; Empress Eugénie, 1 ; Etna, 1 ; Fairest of the Fair, 4 ; Governor General, 1 ; Guido, 1 ; Leviathan, 2 ; lilacinum, 1 ; Lord Canning, 1 ; Mazeppa, 1 ; Mr. Marnock, 2 ; Monarch, 1 ; Osiris, 1 ; Peacock, 1 ; Picnic, 1 ; Pizarro, 1 ; Rose Celestial, 3 ; Sanspareil, 2 ; Sir C. Campbell, 2 ; The Belle, 1. *Fancies.*—Acme, 2 ; Arabella Goddard, 1 ; carminatum, 2 ; Celestial, 2; Clara Novello, 1 ; Clemanthe, 1 ; Cloth of Silver, 1 ; delicatum, 4 ; Electra, 1 ; Emily Witcher, 2 ; Evening Star, 2 ; Lady Craven, 2 ; Lady Hume Campbell, 2 ; Lady of the Lake, 1 ; Madame Sontag, 1 ; Madame Van der Weyer, 2 ; modestum, 1 ; Negro, 3 ; Queen of Roses, 1 ; Queen of the Valley, 2 ; Roi des Fantaisies, 2 ; Rosabella, 1.

Awards.—10 : 1st, Mr. Bailey, gr. to T. T. Drake, Esq., Shardeloes ; 2d, Mr. Turner, Slough ; 3d, Messrs. Fraser, Lea Bridge. 6 : 1st, Mr. Shrimpton, gr. to A. J. Doxat, Esq., Putney Heath. *Fancies.*—6 : 1st, Mr. Turner.

Among Seedling Pelargoniums, the best in the opinion of the judges were Diadem, purple with white eye, and dark blotched top ; Artist, rose with pale eye and dark top ; Peliades, rose with white eye and maroon top ; and The Prince, crimson scarlet with white eye and dark blotched upper petals. Mr. Bull had some pretty kinds belonging to the scarlet class, to which favourable allusion has been made in previous reports.

New Plants.— Prominent among these were Mr. Standish's new Japanese Clematises, and a new snow-white flowered Weigela, also from Japan. Mr. Parker had a rosy-pink flowered Rhododendron named Countess of Haddington, which has been shown before ; and Mr. Bull various flowering plants and others remarkable for the beauty of their leaves.

Miscellaneous Subjects.—Among these were interesting groups of Seedling Calceolarias from Mr. James, of Isleworth ; fine collections of variegated and other plants from Mr. Hutt, gr. to Miss Burdett Coutts, and Messrs. Lee, of Hammersmith ; Ferns from Mr. Lavey, of Fetcham, and cut specimens of Tulips, Verbenas, and Pansies from Mr. Hunt, Mr. Turner, Mr. Treen, and Messrs. Downie Laird & Laing. The latter also showed a plant of the large-flowered Tree Carnation called Souvenir de Malmaison, a desirable and showy variety.

Among fruit were some two dozen good Pine Apples, consisting of two very fine specimens of Black Prince, a Providence or two, and the rest Black Jamaica and Queens. Of the last some good examples were furnished by Mr. Barnes, of Bicton.

Grapes consisted chiefly of Black Hamburgh, of which beautiful bunches came from Mr. Hill, gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, from whom also came very fine examples of Black Prince. Very good Black Hamburghs—scarcely thinned enough—came from Mr. Clements, East Barnet. Mr. Richardson, Oak Hill, likewise contributed well grown Black Hamburghs ; as did also Mr. Frost, gr. to E. L. Betts, Esq., Mr. M. Henderson and others. White Grapes, especially Muscats, were so unripe as to be unworthy of notice.

Of Cherries some were large and brilliant in colour. Mr. A. Henderson, gr. to the Duke of Sutherland, at Trentham, had beautiful specimens of Bigarreau Napoleon, Circassian and Elton ; and from Mr. Tillery, gr. to the Duke of Portland, at Welbeck, came large fruit of Black Tartarian. Of May Dukes a few were shown ; but not in first-rate condition.

Well grown Figs of the Brown Turkey kind were contributed by Mr. Cross, Regent's Park, and Mr. Frost.

Of Strawberries most beautiful examples of Sir Charles Napier, British Queen, and Empress Eugénie, were shown by Mr. Smith of Twickenham ; Mr. Tillery had some good British Queen, and Mr. Horwood, fine examples of Victoria ; other sorts consisting of Keens' Seedling, Alice Maude, President, and Oscar. Of the two last fine fruit was contributed by Mr. Turner of Slough. Strawberries in pots were also shown in good condition by Mr. Turner and others.

Melons generally looked good, the season having been favourable for ripening them ; the best, a pale-fleshed hybrid Cashmere, came from Mr. Meredith, Garston, to whom a second prize was awarded for Gem, in the scarlet-fleshed section. The best fruit in this group, however, came from Mr. Enstone.

Peaches and Nectarines, as might have been expected, were not numerous. The best were furnished by Mr. A. Henderson from Trentham, and by Mr. Evans, gr. to W. N. Newdigate, Esq. The varieties of Peach were Royal George, and of Nectarine, Violette Hâtive.

Notices of Books.

In *The Natural History Review*, No. 10, we find many able original papers and reviews, among which must especially be mentioned one on the extraordinary desert genus Welwitschia, evidently from the hand of a master in the science of Botany ; and a capital notice of Alph. De Candolle's treatise on Species. We can only find room for a single sentence.

"M. De Candolle is no doubt right in saying that every definition of a species is false, though he does not seem to appreciate the fact, that it is impossible to define what is (as he everywhere confesses) in its origin unknowable, and in its essence illimitable ; he is, however, unintentionally no doubt, unjust to Linnæus in quoting his aphorism, 'Species tot numeramus, quot diversæ formæ in principio sunt creatæ,' as his definition of species. If M. De Candolle will refer again to the Philosophia Botanica he will find that these 'characteres' are in no way given as definitions, but are expressions of facts in the author's opinion, and in so far as species were concerned, of the opinion of every contemporary author : it would be as inaccurate to call the preceding aphorism a definition, viz., 'Filum ariadneum Botanices est Systema, sine quo Chaos est res herbaria,' or that again preceding, 'Systema classes per appropriata membra resolvit : classes, ordines, genera, species, varietates ;' and not only are these in no way given as definitions, but the sagacious Swede everywhere so obviously avoids attempting the definition of the term species, that it is difficult to understand how any one familiar with the logical method of Linnæus's mind, as evinced in all his writings, could attribute to him so grave an error of judgment, as to propound a statement of fact for a definition."

There is also an admirable review of Lyell's book on the Antiquity of Man. The opening paragraph is this :—

"Until the great antiquity of this earth was admitted, geology could hardly be treated as a science, and as long as we endeavoured to compress the history of man into the narrow limits of 6000 years, the atoms of truth which we possessed were unable, for want of space, to arrange themselves in their proper order. Realising the difficulty, zoologists, more or less boldly, hinted at a diversity of origin ; philologists took refuge in the Tower of Babel ; and archæologists abandoned in despair all hope of ever reconstructing the past. Of late years, however, science has made immense progress, and although with singular disregard for truth, and scanty reverence for the book which we profess to venerate above all others, we still place at the commencement of our bibles Archbishop Usher's unfortunate estimate, 4004 B.C., yet there is perhaps no educated man in this country who is not well aware that the antiquity of the world is to be measured, not by thousands, but by millions of years. Without claiming for ourselves the gift of prophecy, we doubt not that the great antiquity of man will ere long be as generally recognised."

We now conclude, from p. 463, our notice of the *Jardin Fruitier du Muséum*, as far as Part 60 :—

Louise Bonne.—[This is not the Pear now so well known and much cultivated under the name of Louise Bonne (of Jersey), but the old French sort, described by Merlet, *Abrégé bons Fruits*, in 1675. It was found on the estate of Essars in Poitou, and called after the lady of the place, whose name was Louise. It is not suited for the climate of England ; and we are informed that it is often deficient in flavour in the northern departments of France ; but from Provence, Professor Decaisne states he has received it very highly flavoured.] Middle-sized, oblong, obtuse at stalk, pale green ; flesh greenish white, very juicy, sweet, but not rich. Season : October to January.

Fondante de Noël.—Syn. Belle après Noël. Middle-sized, roundish, smooth, yellow, beautiful red next the sun ; flesh fine, juicy, and sugary. Season : December, January. [A good bearer, and one of the new sorts which succeed in the climate of England.]

Orpheline d'Enghien.—[This is the now well-known Beurré d'Aremberg, and the figure given of it is admirably characteristic. It has many synonyms, which it may be useful to give in order to prevent the inconvenience which arises from obtaining and cultivating under various names the same variety.—Beurré d'Aremberg (or, as the French write it, Arenberg), Aremberg parfait, Beurré Burchardt, Beurré Deschamps, Beurré Hardenpont, Beurré des Orphelines, Colmar Deschamps, Crassane Steven, Délices des Orphelines, Duc d'Aremberg, De Parmentier, Petit Beurré d'Hardenpont. The name of Beurré d'Aremberg is so well-established in this country that any substitution would be inexpedient.]

Bernard.—Syn. Riaulot. Small, or medium, Apple-shaped ; stalk most remarkably short and thick. A very good Pear. Season : November, December.

De Stuttgard. — Syn. Bellissime de Provence, Rousselet de Stuttgard, Stuttgarter Gaishertenbirn. A small pyriform russet red Pear, of little merit.

De Montgeron.—Syn. Beurré de Montgeron, Vermillon d'Espagne. Medium size, roundish, obtuse at the stalk, which is very long and slender ; colour bright reddish brown next the sun ; flesh melting or half-melting, and juicy. Season : end of September. Attractive by its bright colour ; but its quality is not first-rate. It has been confused with other varieties. Originated in the hedge of an orchard on the farm of Bois-la-Dame, commune de Saint-Léger (Cher) ; thence grafts were taken to another property of the same family at Montgeron (Seine et Oise).

Orange Tulipée.—Syn. Poire aux Mouches. Medium, roundish, yellow and deep red, streaked. A very old French sort, described in the *Jardinier François* in 1665. Comes from the South of France in large quantity to Paris, where it is sold in the streets at a very low price. [Not worth growing.]

Saint Roch.—Syn. Doyenné Saint Roch. Middle-sized or large, regularly obovate. Quality only second rate. Season : September. Much cultivated in the department of La Gironde.

Impériale à Feuilles de Chêne.—Medium, oblong obovate or somewhat pyriform, with breaking flesh ; only fit for stewing. Keeps till April. [A very shy bearer, and not suited for the climate of England].

D'Œuf.—Syn. Colmar d'Eté de Strasbourg, Strasburger beste Birn (Best Pear), Eyerbirn. Small, oval, greenish, dotted with brown, red next the sun ; flesh half melting. Season : end of August. [This is not our Swan's Egg, which ripens later. The D'Œuf, according to Knoop, originated in Switzlerland, and

was described by Joh. Bauhin in 1650. As there are so many early Pears much superior in quality to this, it may be considered unworthy of cultivation. We have briefly noticed a good many such; and it may be said that they are unworthy of being so admirably figured and described as all varieties are in the *Jardin Fruitier du Muséum.* It is, however, important that not only the good, but likewise the indifferent and bad, should be well known, in order that the ground may not be encumbered with the latter; and the work under notice is of great value as regards realising this desideratum.]

Miscellaneous.

Gutta Percha.—The Isonandra Gutta, which furnishes the gutta percha, or gutta tuban, is a native of the eastern Archipelago and the adjacent lands. A few years since this substance, now so celebrated and of such wide extended use, was totally unknown in Europe, for though from time immemorial the Malays employed it for making the handles of their hatchets and creeses, it was only in the year 1843 that Mr. Montgomery, an English surgeon, having casually become acquainted with its valuable properties, sent an account of it, with samples, to the Royal Society, for which he was most justly rewarded with its gold medal. The fame of the new article spread rapidly throughout the world; science and speculation seized upon it with equal eagerness; a thousand newspapers promulgated its praise; it was immediately analysed, studied, and tried in every possible way, so that it is now as well known and as extensively used as if it had been in our possession for centuries. The Isonandra Gutta is a large high tree, with a dense crown of rather small dark green leaves, and a round smooth trunk. The white blossoms change into a sweet fruit, containing an oily substance fit for culinary use. The wood is soft, spongy, and contains longitudinal cavities filled with brown stripes of gutta percha. The original method of the Malays for collecting the resin consisted in felling the tree, which was then placed in a slanting position, so as to enable the exuding fluid to be collected in Banana leaves. This barbarous proceeding, which from the enormous demand which suddenly arose for the gutta would soon have brought the rapidly rising trade to a suicidal end, fortunately became known before it was too late, and the resin is now gathered in the same manner as caoutchouc, by making incisions in the bark with a chopping knife, collecting the thin, white milky fluid which exudes in large vessels, and allowing it to evaporate in the sun, or over a fire. The solid residuum, which is the gutta percha of commerce, is finally softened in hot water, and pressed into the form of slabs or flat pieces, generally a foot broad, a foot and a half long, and three inches thick. Gutta percha has many properties in common with caoutchouc, being completely insoluble in water, tenacious but not elastic, and an extremely bad conductor of caloric and electricity. The name of vegetable leather which has been applied to it, gives a good idea both of its appearance and tenacity. The uses of gutta percha are manifold. It serves for water-pipes, for vessels fit for the reception of alkaline or acid liquids which would corrode metal or wood, for surgical implements, for boxes, baskets, combs, and a variety of other articles. The wonder of the age, submarine telegraphy, could hardly have been realised without it, as it is only by being cased in so isolating a substance, and one so impermeable by water, that the metallic wire is able to transmit the galvanic stream through the depths of ocean from land to land. *Hartwig's Tropical World.*

Fructification of Wellingtonia.—The Marquis de Vibray, who lately exhibited in Paris the first fructification of Abies pinsapo, has brought before the Academy of Sciences the first cones of Wellingtonia gigantea, the Giant of California. These first cones, although not fertilised, have probably attained their normal condition, when we bear in mind their age. The young tree now in question has produced 39 cones, 30 have been gathered, and 9 of the finest have been left, in order to be able to study their further development at a later period. The female flowers appear in greater number than the male catkins, which is exactly the reverse of what has been observed upon monœcious resinous plants. Last spring only three male catkins could be found upon this same tree, of which but one had arrived at its normal condition; it was situated half a yard at least below the three lowest cones, and about a yard and half from the 36 others. "No doubt," observes M. de Vibray, "I could have tried upon this Conifer the same experiment which I have previously made upon Tsuga Douglasii and others, that is to say, I could have fertilised them artificially, which is the method I have employed to propagate both successfully and prematurely some of the species lately introduced; but Wellingtonia did not seem to be sufficiently rare to necessitate so delicate an operation, which in this case must be most especially uncertain in its result, on account of the very few grains of pollen available. It is extraordinary to see the Wellingtonia, which attains such an enormous size in California, fructify thus early, it being only 9 or 10 years since its seeds were first introduced. But the same thing has happened with other trees of large magnitude recently introduced. Even the common Spruce often produces its first cones when only 8 or 10 years old. The Editor of *Les Mondes,* from whom we borrow this statement, observes, that none of the seeds left at his office by M. de Vibray presented any appearance of having been fertilised; they were attached a little above the upper half of the scale, about three upon the upper scales, six upon the scales in the middle of the cone, and five upon the lower scales. The cone-bearing shoots are slightly thickened, and entirely covered with closely-packed imbricated scale-like leaves.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Continue to clear away exhausted specimens, in order to give place to Pelargoniums, Calceolarias, Roses, or other gay flowers now in perfection. If a canvas screen is used for shading from bright sunshine, some of the Orchids in flower, especially those found to stand cool treatment, may be removed to this house for the sake of prolonging their beauty. Take all possible precaution to avoid insects, remembering that, in this as in most cases, prevention is better than cure. Stanhopeas in baskets should be well examined, or fine flower spikes may be lost through coming in contact with the sides. Let the house have a thorough circulation of air early in the morning, regulating the amount by the warmth of the atmosphere. Continue to shift young growing stove plants, and to remove plants pushed on early for autumn or winter flowering to the cool shelves of the greenhouse, in order to harden their wood and prepare them for early excitability. See that growing Fuchsias have abundant watering. Let a stock of young things be got forward in cold pits forthwith. Achimenes, for late flowering, may be brought on gently in such places, as well as many other plants likely to be required for autumn and early winter decoration.

FORCING DEPARTMENT.

Pineries.—Spare no pains with young stock just commencing vigorous growth. If the pots are not well filled with roots, depend chiefly upon a great amount of moisture in the air of the pit. If the pots are well established, give free and frequent waterings with clear liquid manure. Keep down all useless suckers and gills.

Vineries.—Grapes ripening must have abundance of air every day, and a circulation all night if possible, with a dryish atmosphere. In succession crops encourage the growth of laterals in some degree, whilst the berries are stoning. Where borders are shallow and well drained, a coating of half rotten manure, 6 inches in depth, may be applied forthwith, provided the weather continues hot and dry. When this material has been spread for a couple of days, a thorough soaking of water may be given; not, however, all at once, rather on two mornings in succession.

Melons.—Where the fruit is swelling the soil should be kept in a properly moist state, and every means should be used to preserve the foliage in perfect health, as there is no possibility of obtaining good flavoured fruit unless the leaves are kept in health. Keep the Vines thin, and prevent their being encumbered with useless laterals, and remove any decaying leaves at once, as these when left only serve as a harbour for insects. There is yet plenty of time to secure a good crop in dung beds, and if any of the frames which have been used for getting up bedding-out plants can be spared for this purpose, the plants should be got out at once.

FLOWER GARDEN AND SHRUBBERIES.

Should the weather continue dry, much care will be necessary in watering plants recently put out in masses. All plants intended for specimens on highly relieved beds should, when planted out, by all means have a hollow basin or concave surface reserved around the stem, or rather on the upper side for a fortnight after planting; this will serve to retain water, and cause it to percolate the soil in contact with the roots. If this is not done, the water on such raised ground runs off, and in this act produces a glazed or puddled surface, under which no plant will thrive until the crust is broken. If not already done, Dahlias ought now to be planted out; at the same time supports for them should be put down, so that the roots may not be injured, which would probably be the case if delayed to a later period. Water and mulch the surface of the soil round the stems. Pansies may be struck under hand-glasses on a shady border; let the cuttings be as thin as possible. Polyanthuses will require some attention; they are extremely apt to suffer from the attacks of red spider; during dry weather shade is absolutely necessary for their successful cultivation.

HARDY FRUIT AND KITCHEN GARDEN.

A thorough picking of grubs or insects from fruit trees in general should now take place. Vines on walls or buildings must be attended to, as to disbudding, stopping, &c. Apricots must be well examined for the grub, and Peaches judiciously thinned both of wood and fruit. In the kitchen garden this is a proper time to make a sowing of some good white Broccoli, to supply the table through October and November. Cauliflowers sown now, will also head in the autumn, and may then be housed in cellars, sheds, or outhouses, and thus continued in use for many weeks in succession. It is a good plan to sow some Cape Broccoli in drills, prepared after the manner of a Celery trench. The seed should be dropped in patches about a foot apart, to be afterwards thinned to about three plants in a patch. Sow a little more of Knight's Protecting, and a sprinkling of some very late spring Broccoli; it may serve to prolong the succession next spring. Every attention should now be paid to Celery plants; they must have abundance of water in every stage. Those pricked out from the seed bed should have well prepared beds, the surface of which, for 2 inches deep, should consist of well rotted manure, soaked with water, and rolled or pressed level previous to pricking out the plants. If the weather proves sunny they should be shaded with boughs.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending May 27, 1863, as observed at the Horticultural Garden

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 21	4	30.134	30.093	58	30	44.0	53	52	N.E.	.00
Friday 22	5	30.007	29.856	57	30	43 6	53	52	N.E.	.00
Satur 23	6	29 822	29.788	63	26	44.5	53	52	N.E.	.00
Sunday 24	7	29.8s0	29.866	67	35	51.0	52¾	52	N.E.	.00
Mon. 25	D	29.984	29.897	58	26	42.0	52¼	53	N.E.	60
Tues. 26	9	30.177	30.111	70	30	56.0	53	52	N.	.00
Wed. 27	10	30.196	30.184	73	39	56.0	53	52	N.E.	.00
Average.		30.023	29.969	63.7	30 8	47.1	52.8	52.0		.10

May 21—Cloudy and cold; slight frost at night.
— 22—Fine, but cold; cloudy and cold, yet air very dry; slight frost.
— 23—Fine; low dusky white clouds; unusual frost at night for the period of the season.
— 24—Fine; clear and fine; cold at night.
— 25—Fine, but cold; low white clouds and clear intervals; frosty.
— 26—Frosty; fine throughout; cold but not frosty at night.
— 27—Very fine throughout.
Mean temperature of the week 10 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending June 6, 1863

May and June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 31	69 1	45 3	57.2	14	0.48 in.	2	8	6	1	5	8	5	2
Mon. 1	68.0	44.4	56 2	13	0.27	1	11	3	–	5	11	3	3
Tues. 2	68.0	43.7	55 4	16	0.87	1	4	3	4	3	10	6	5
Wed. 3	68.7	44 5	56 6	17	0.91	1	4	5	1	5	13	3	5
Thurs. 4	68 9	45.0	57 0	14	0.76	2	5	2	2	4	11	7	4
Friday 5	70.5	46.9	58.7	21	0.64	2	7	2	1	6	9	7	3
Satur. 6	66.5	48.1	57.3	19	0.28	5	7	2	2	4	10	4	3

The highest temperature during the above period occurred on the 6th, 1846—therm. 90 deg.; and the lowest on the 31st May, 1857—therm. 32 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

Aralia Sieboldi: *G.* We do not know enough of this plant to speak of its hardiness with confidence; but we believe it has that quality in dry warm gardens.

Broccoli: We have received from *Messrs. Sutton & Sons,* of Reading, a specimen of a very large White Broccoli weighing 17 lbs., after the removal of some of the outer leaves, and measuring (the close head, or flower) 4 feet in circumference. In appearance it was rather coarse and inclined to open, but when cooked it proved as tender and delicate as it is possible that any Broccoli can be.

Ferns: *S A M.* If the plants invariably produce the ragged fronds they are probably varieties which have sported into this depauperated condition. We have seen P. argyræa in this state. If only here and there affected the damage is possibly to be attributed to some local injury which has taken place while the fronds were in the young state, for which injury many causes, such as insects, mollusks, or drought, might be surmised. It may, however, after all, be attributable to some constitutional deficiency of vigour.

Fungi: *W M.* Your Fungus looks exactly as if the vesicles of some Mucor had fallen on the leaves. The structure is exactly the same. Be so good as to examine the horse-droppings to which you allude, and see if they are covered with a Mucor. If not, the matter, which is very curious, requires further investigation. The habit, but, as far as we can see, not the structure, is exactly that of Perisporium. *M. J. B.*

Glass: *S Y.* Good sheet glass, 21 oz. to the foot, is the best for roofing greenhouses and hothouses; a lighter would do for pits. But you should take care it is of the best quality.

Governess: *E T C.* There is no difficulty in finding a gentlewoman able and willing to take charge of the children provided she is properly paid. We don't understand your want of success. At all events we would readily relieve you of your perplexity, should you think it worth while to confide in us.

Names of Fruits: *Sub.* Your Apple is unknown. It is not the Sturmer Pippin, which is a much better sort.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. It is requested that not more than four plants may be sent us at any one time. — *M N S.* The specimens are so vilely sent that they cannot be recognised with certainty. We believe the Phlox to be stolonifera, and the Pentstemon may be the true procerus, a very bad name. *Repens* strictly means creeping *through* the ground or *into* it; *reptans* creeping *on* the ground. But this difference is far from being always remembered by writers.—*E B.* 1, Cardamine pratensis; another 1, Doronicum Pardalianches; 3, [probably Trifolium minus; 4, Cerastium vulgatum.—*Diss.* Some species of the Viticella section, and probably Sieboldi, as far as we can judge without seeing the leaves.

Tree Pæonies: *Ipswich.* The variety called Gloria Belgarum was raised from seed in Belgium by a gentleman named Goethals. It is a marvel among marvels, the like of which we have never seen. The flowers are of the deepest rose colour, nearly full double, and considerably more than a foot *in diameter,* that is to say about 4 feet round!

Vines: *M D.* The affection of your Vine leaves is very singular. Our belief is that they are over nourished, and in consequence the leaf-cells are either gorged with or discharge a gummy matter. It would be dangerous to tamper with the roots now, but if you have reason to believe that this is the case, pains should be taken to supply less generous food in the autumn after the crop is gathered. *M. J. B.*

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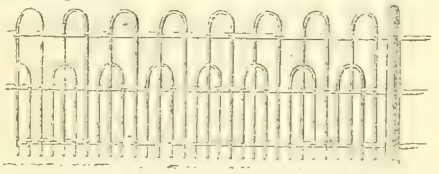
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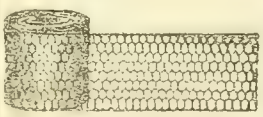
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YORKSHIRE AGRICULTURAL SOCIETY.—GREAT SHOW at SOUTH STOCKTON ON TEES, August 5, 6, and 7, 1863.
For Prize Sheets apply to JOHN HANNAM, Secretary.
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ROYAL AGRICULTURAL SOCIETY of ENGLAND.
WORCESTER MEETING, 1863.
PRIZE SHEETS and CERTIFICATES for ENTRY of STOCK will be forwarded on application.
LAST DAY of ENTRY, JUNE 1.
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The Agricultural Gazette.

SATURDAY, MAY 30, 1863.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	June 1	London Farmers' Club .. .. (Mr. Morton on Steam Cultivation.)	6 P.M.
WEDNESDAY,	— 3	Agri. Society of England ..	Noon

—— A FULL report will be found in another page of the great Dog Show in the Agricultural Hall, Islington, which during the past week has been attracting its thousands.

There will also be found elsewhere the report of a lecture before the Oxford Farmers' Club on recent experience in Steam Cultivation near Oxford.

A great deal of very old as well as of recent experience on that subject exists within a few miles of that city. Some of the oldest customers, both of Mr. FOWLER and of Mr. SMITH, occupy farms in that neighbourhood. Mr. LANGSTON, M.P., of Sarsden, and Mr. PULLEN, of Sutton Courtney, have had, the one about three years' experience of the steam plough and the other nearly five years' experience of the steam cultivator; and ample testimony exists in many other places in the county both to the quality and economy of the work performed by them.

During the past week Mr. MORTON has been engaged in putting both classes of implements "through their paces" on ground kindly supplied for the purpose by Mr. PULLEN, of Sutton Courtney—testing by means of the dynamometer the waste of steam power under the various methods of applying it in tillage work; and although unfortunately the machines thus tested were not all of one rank in their several classes, and the experiments may thus be of comparatively little value as determining the relative merits of the

REDUCTION IN PRICE.

PHOSPHO GUANO.

The Prices for the Season 1863 are as follows, delivered Free on Board, or on the Rails at Liverpool.

For 30 Tons and upwards	£10 5 0	per Ton, net cash.
For 10 Tons up to 30 Tons	10 10 0	,, ,,
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several plans in operation, yet a number of interesting positive results were obtained, which we hope to give next week.

It was not however to these trials that the lecturer referred on Wednesday last at the Oxford Farmers' Club, but to the more prolonged experiment which each man's experience who has worked a Fowler, Smith, or Howard, on his own farm for a year or two, supplies. And it will be found from the report, that there is now no room for doubt as to the superiority both as regards economy and quality of tillage done by steam over ordinary horse cultivation. In addition to the details of these experiments, we hope next week to give a report of work done during the last spring on a number of farms cultivated by Fowler's, Smith's, and Howard's apparatus respectively, in all parts of the country.

—— The eleventh volume of the Journal of the Bath and West of England Society (Part I.) has just made its appearance, full of substantial and useful agricultural information. The opening article is an attempt to correct certain criticisms on the Valuation of Horse-power and its Cost, which were made in the Journal of the English Agricultural Society, and ought to have been corrected there. The article contains a report of Dutch experience on this subject, which we shall hereafter transfer to our columns. Dutch Agriculture is also the subject of another extremely interesting article by Mr. Spender in this volume.

The subject of horse breeding is discussed by two very able men, Mr. Henry Corbet, the Secretary of the Farmers' Club, and Professor Brown. The former criticises and corrects ordinary agricultural mismanagement by that which his experience as a judge has taught him, as well as by his extensive knowledge of other men's experience where the breeding of hunters and hacks has been properly conducted. The other writes on the several breeds of agricultural horses exclusively—on the fitness of each to particular districts, and on the management needed for the improvement of the agricultural horse in the west of England. The two papers are together exhaustive of the subject.

An essay on the Lamb Disease, by Dr. Crisp, will be read with great interest by many who have suffered from the attack it describes.—Mr. Scott Burn summarises the facts on town sewage which have been lately published, and adds a great deal of the results of his own original research.—Mr. Luttrell, of Badgworth Court, describes the results of an experiment made for the purpose of testing the relative grazing values of Downs and Devonshire notts. The Rev. T. Philpotts contributes an interesting account of Cornwall market gardening; and there is a republication from the Journal of the English Agricultural Society of Prof. Simonds' report on Splenic Apoplexy. Altogether Mr. Goodwyn, the editor of the Journal, may be congratulated upon having produced a very excellent number of the work, one containing matter both of general interest and of that special local fitness, which in the organ of a provincial Society is to be expected.

—— The Short-horn herd of Mr. Noakes, of Brockley Farm, near Lewisham, six miles from London Bridge, is to be disposed of by auction on Tuesday next. Mr. Strafford, the Editor of the "Herd Book," announces that it is descended from first-class stock, numbering among its originals, animals bred by Sir C. Knightley, Capt. Gunter, Messrs. Adkins, Bolden, Combe, &c.

CARROTS AND CABBAGE.

BY MR. C. LAWRENCE, OF CIRENCESTER.

Mode of Cultivation.—First, as to Carrots. Under a strong impression of the feeding value of these roots, many years antecedent to the publications to which I have referred, I have for a long period given much attention to the treatment of this root as well as Cabbage, and I have devoted to them about one-sixth of my root-quarter. Assuming the selection of good clean seed, we allow 5 or 6 lbs. per acre. For some years the great difficulty we had to encounter was the rapid growth of the ordinary annual weeds of the field, as compared with the slow vegetation of the Carrot seed; the consequent continual labour and cost in keeping the rows clean, an expense which has led many persons to abandon the crop. Another difficulty was the peculiar adhesive nature of the seed, in consequence of which the patchy and irregular plant of Carrots in the field is matter of common observation. We have got over the latter difficulty by mixing a moderate quantity of dry ashes with the seed, and rubbing them together till the seed is well separated. We then put the entire quantity for the acreage to be sown, thus separated, in a heap, and moisten it with a watering-pot, turning it over until the whole is damp, but not wet. This should be done about ten days before sowing the seed, and the heap should be turned over two or three times during that interval, until the commencement of vegetation is perceptible. Before sowing, sufficient dry ashes should be scattered amongst the heap to insure its running freely through the drill.

Carrot-seed is commonly sown too early; it will not vegetate freely under a given temperature of the earth, prior to which the seeds of the common annual weeds will have made a vigorous start. We have successfully encountered this difficulty by harrowing down the land appropriated for Carrots about a fortnight before we propose to sow the seed; indeed, just before we begin to prepare the seed. During this time the seeds of the annual weeds brought to the surface by the harrowing will generally have vegetated, and the Carrot seed will have just sprouted. A second light-harrowing will upset the former, and the Carrot seed thus started will get sufficiently ahead of the weeds to render the destruction of any aftergrowth of them an easy matter. We drill the seed in rows 18 inches apart. As soon as the rows are distinctly visible we flat-hoe between the rows on a dry day, and use the horse-hoe when the plants are about 3 inches above the ground.

Carrots are so difficult to single with the hoe that the attempt does not answer. Our men cut them out 6 inches apart with a sharp hoe, leaving two or three in a bunch, at the cost of 5*s.* an acre; boys or girls holding down with one hand the Carrot to be left, drawing the rest with the other hand, at 3*s.* 6*d.* per acre. It must be seen that the men cut the plants off under the crowns, otherwise they will shoot again, and injure the crop by overcrowding. The Carrots will be left about 7 inches apart, and when about 6 inches high will require a second hoeing. We prepare the land for Carrots and Cabbages in the same way as for the other root crops, viz., by manuring immediately after harvest, and giving as deep a ploughing as the character of the soil admits of to lie during the winter. By these means we never fail in securing a perfectly regular plant, and covering the ground with a very valuable crop. We consume them mainly in feeding horses during the winter and spring months until Vetches are ready, and fatting pigs. About 1 peck of pulped or sliced Carrots, mixed with the chaff and corn at each feed, keeps the horses in good health and condition.

The lifting a good crop of Carrots without breaking them requires careful management. We use strong forks made for the purpose attached to a common spade handle, having two prongs 10 inches long, the space between them being 2½ inches at the points, and 1½ inch at the base, the iron on which they are formed extending 3 inches to the right of the handle, to enable the men to press the forks down into the ground with the foot. An iron plate should extend at least a foot up each side of the handle. The strain on the attachment of the fork to the handle is great in raising a long Carrot. The best mode of raising the Carrots is for each man to be followed by a boy or girl; the man raises the roots, and the attendant draws them by the top and lays them in regular rows. The cost of this varies considerably. A moderate crop, not running deep, in an open soil, can be raised at 15*s.* an acre; while a large crop, having long roots in a deep tenacious soil, will cost 30*s.* to raise carefully. When the men have got considerably in advance, women follow to top the roots. This requires careful supervision, or they will make a proper mess of it, and have roots and tops scattered in all directions, with dirt intermixed, involving much waste. When one row has been pulled, two rows on either side should be placed on the site of that row, in order to leave room for the carts without crushing root or top. The roots should be laid together, the tops lying right and left of the roots. The cutters will thus drop the tops in one heap and the roots on another; leaving in line alternate heaps of roots and tops, which can be carted away separately. The tops —very nutritious food, and relished by all animals— are thus kept free from dirt. A shilling per ton of roots is a proximate cost of raising the roots, topping, and placing them as described.

Cabbage.—Assuming 4 acres of ground to be set apart for this crop, I recommend planting 3 acres with Cabbage, and 1 acre with Savoys, which do better than Cabbage late in the winter. The seedsmen reckon 1 lb. of seed to produce plants for an acre. We sow the large Drumhead variety, and taking care to procure the best of seed, we find practically that with proper care in sowing and after management, 1 lb. produces plants sufficient for three acres of ground. We sow ½ lb. of the large Savoy seed. Prepare about 20 perches of ground, in July, sheltered from the north and east, and while moist, sow the Cabbage seed in drills 12 inches apart thinly, the last week in the month, or not later than the first week in August. When the plants are above ground keep them clean. By the middle of October draw the plants and reset them across the same ground, laid in shallow trenches, 3 or 4 inches from each other in the row, the trenches 9 inches apart. This plan forms strong, short-stemmed plants, with good fibrous roots which grow away as soon as planted out the next season; whereas, if left in the seed-bed, they get drawn up with long stems and less perfect roots, and are weeks recovering their removal in the spring. Ridge up the land as for Mangolds or Swedes, but let the ridges be 3 feet apart; and about the middle of April plant out half the Cabbage plot, setting the plants 3 feet apart in the rows. The rest of the ground may be planted about one month later.

The Savoy seed may be sown in March, and the plants set out in the end of May or early in June.

I extract from my "Handy Book for Young Farmers" our practice to insure accuracy in setting out the plants to facilitate hoeing, &c.

"This is accomplished by the use of a line attached to a stick just 3 feet long at each end of the line, which is laid across the ridges. As each row of plants has been set, the workers at each end of the line move it forward just the length of the stick to which it is attached. The plants should be loosened in their seed-bed before drawing by a small hand-fork, to prevent damage to the young root by pulling them from the firm ground, stowed in baskets by boys or girls, and carried to the ground, and laid down by them on the ridges just before the planters. The planting may be done by women, each of whom should be furnished with a trowel to open the ground freely on setting the plants. This is material when the land is moist, as it should be for the purpose, as the roots then strike out freely; the common setting pin being turned round forms a puddled hole, which obstructs the striking out of the young roots. The two outside setters may be men to manage the line. We have set out in this way 10,410 plants on upwards of two acres of ground between the hours of 8 and 12 in the morning, by 4 men, 6 women, and two boys to place the plants."

The purpose to which, more especially, we devote the crop of Cabbage is to feed the wether lambs after removing them from the young Clovers at the end of October, and before they get on the Swedes at mid-winter. We fold the lambs on the Cabbages as they stand, without any cutting; they eat up not only the Cabbage without any waste, but make their way into the stems. They are most useful for all stock during the autumn months, when Clovers are being ploughed up and the Grass grounds are dried up. *Agricultural Society's Journal.*

THE INTERNATIONAL DOG SHOW.

On Monday last, at the Agricultural Hall, Islington, commenced the most successful and the largest show of Dogs ever witnessed in this country. The Prince of Wales and his Princess began the week visiting it, and the example brought all the pride and beauty of the west in its train. Throughout Monday afternoon and Tuesday, a half-crown day, a stranger might have judged Islington to have been a fashionable quarter, by the splendid equipages which abounded in the locality.

The Royal party remained in the building for a considerable time, and the Hon. Col. Hood attended on Tuesday to convey to the Directors the expression of their satisfaction.

The dog has not unaptly been described as a gift of Providence to man—an aid almost indispensable for conquest and management of the lower animals. He is our friend and companion, uncalculating as regards his own comfort or convenience, and staunch in his fidelity, following his master through all shades of fortune. Unlearned in virtue, the dog, from the promptings of his own feelings alone, practises the most perfect integrity. A long course of domestication and peculiar treatment, have, as is well-known, divided the canine race into nearly a hundred varieties, all less or more distinct as respects size, appearance, and special qualities and dispositions. His is a chapter in the book of Natural History, which well deserves the attention it receives. There is something unnatural in an aversion towards a race which have such representatives as Argus, that faithful hound, which through the strange vicissitudes of twenty years cherished a remembrance of his absent master, and was the first to know "his lord"—

. . . . . "He knew, and strove to meet;
In vain he strove to crawl, and kiss his feet."

—as Montargis, which belonged to Aubry de Montdidier, and discovered to Charles V. the murderer of its master; as St. Leger's greyhound, which visited him daily for four years while he was a prisoner at Vincennes; as that faithful wolfhound, whose tragic death is told so touchingly in the ballad of "Gelert's Grave;" as Sirrah, who immortalized himself by performing that memorable night's work for the distracted shepherd, James Hogg, and saved a whole flock of lambs which he thought hopelessly sacrificed; and as those many Spaniels and Newfoundlands who have saved the lives of children and of sailors near the chill terrors of a watery grave.

All this veneration for the breed (the Egyptians held it sacred) is easily put to the test, however, at Islington. The incessant cry of nearly 2000 dogs in an echoing building is rather a difficult trial to bear. One is helped to endure this annoyance by the entire absence of another, that of smell.

The arrangements are exceedingly good. The Sporting or Field dogs occupy the ground floor, and the galleries are given to all dogs not thus classed. The former are accommodated upon low platforms running lengthwise of the building and extending round to the back beneath the orchestra. These platforms are ranged back to back with a boarded division between, to which the animals are chained and littered with straw. The promenades are broad enough for any dress that Fashion may import in her carriage from Belgravia. Kennels have been improvised for the Foxhounds, Harriers, and Beagles, which, owing to the use of a large meshed iron wire, have a light appearance. One of these, containing the famous pack, hunted in France by the Duke of

Beaufort, occupies a post of honour in the central part of the arena.

"The English Foxhound of the present day is a perfect living model," says a celebrated writer on dogs, "and how he became such it is in no one's power to determine." A century and a half ago there was no animal resembling the present breed of foxhounds; when hunted at all in Great Britain, the fox was hunted by a dog resembling the Welsh harrier, a rough-haired strong dog. The improvement in our horses, and the mixture of the blood from the race-course with that of the old-fashioned hunter, has out-fashioned the hound which used to "hang" upon the scent, and produced an animal which will suit the run of our hard-riding modern sportsmen, by "carrying a head." Such are Lord Fitzhardinge's stud dog Cromwell, Mr. C. F. Colmore's Royal, also his three couple from a pack hunted last season. The heads are moderately small, the fore legs straight as arrows, the back ribs, or "spur-place," deep, the hocks well let down, and the chests roomy. As a rule they are of a small size, though for a country which "carries" we fancy Mr. Villebois's taller animals have a better chance. Some of these we believe to stand 26 inches, or about 3 inches above the general height. Four couple of stag hounds, a sort of mongrel bloodhound, of the old New Forest breed, attracted a good deal of attention. They are from the kennel of T. Neville, of Chelland, Hants, and although not possessing the symmetry of the English foxhound, are fine majestic animals of their kind, and unerring in their scent. They are a heavy breed, black and tawn in colour, with pendent ears. The Harriers were well represented. His Royal Highness the Prince of Wales, J. Saxby, Esq., and the Right Honourable Earl Brownlow were amongst the exhibitors. George Race of Biggleswade won with his three couples. — The Beagle, a hound that dwells too long on the scent for modern habits, and is therefore getting neglected for swifter breeds, was not in great force.

The Bloodhounds were splendid and numerous. Their awfully deep but highly sonorous tongues could be heard beyond and above all others. These modern representatives of the breed are rather deficient in the wide forehead, expansive nostrils, lips, and long, smooth, pendulous ears, of from 8 to 9 inches in length, of a former breed, but they are swifter than their ancestors. They are generally about 26 inches in height. Some of these dogs can claim alliance with the Duke of Bedford's breed, as Mr. Boom's Welcome. The pedigree of the Duke's dogs can be traced back for 300 years. Mr. Forster's Forrister, and Mr. Stephenson's Baron are splendid animals. And we must not omit Mr. Best's Juno, by Mr. Ansdell's Lion. The colour for the most part is black and tawn. They are not often found except in the neighbourhood of a deer park, or in possession of "Associations for the prosecution of felons."

Of Otter hounds, a breed of dogs fast disappearing, the Show was confined to about six specimens of this rough-haired large-looking terrier breed. Of some the colour is twan and black, and white and tawn. The Hon. Rowland C. Hill's Priestess and Barmaid were the approved specimens.

Of the Deerhounds there were 38. Mr. Bridge's grizzle dog Oscar won the 1st prize; the Earl of Stamford and Warrington's Bran won the 2d; both are valued at 1000*l*. Mrs. Walbrey showed Bear, a great grandson of Sir Walter Scott's Maida. Another Oscar, Beresford Hope's, claims special notice for its beauty

Amongst the Foreign Hounds, were two exhibited by the Duchess of Manchester: Sultan, a Russian Wolfhound, a very tall dog with long head, terrific mouth, black and white skin of flossy silk, but withal a pleasant expression; and Juba, a North German Boar hound, to which the first prize was awarded. There was a German Otter hound, smaller and smoother than the English; a Polish Wolf hound, black, resembling Juba, a very "American dog," raw boned, gaunt, and leggy; a black and white Boar hound with square form; Cuba, a Slave-hunter of bloodhound mould.

The Monster dogs of any breed proved very attractive, particularly Lion, an African Slaver fairly bred; a noble black and tawn Tartar dog; Season, a Slaver, highly commended; a Russian Retriever; and an awful black brindle sour-looking monster, with two sinister green eyes.

Surely there never was such a show of Greyhounds, and it must be no little satisfaction to be a winner in a collection displaying such high merit. The hall contains nearly 100 of this breed. The blood of Figaro, King Cob, and Snowball, the Emperor, Bugle and Dusty Miller, goes to produce much of the beauty ranged upon the platforms accorded to this much improved race of dogs. Some measure 28 inches. The Saplings are exceedingly good. Amongst the Pointers, there is nothing like Mr. Newton's Ranger, whose *cartes* are selling at 1s. each, although the show is superlative and large. The judges in this and other classes for dogs engaged in field sports, except Harriers and Foxhounds, namely:—the Earl of Suffolk, Lord Suffield, Lord Bury, M.P., Colonel Leslie, M.P., George Moore, Esq., and Messrs. Ker, Randel, Wentworth, and Marshal, must in this first prize have experienced considerable difficulty in making their award. It must have required some nice discrimination to do justice to the varying claims of some 194 animals. A glance at the appended list will give the reader the knowledge he desires respecting the prizes, which were, to our thinking, very fairly given. Opinion seemed to run rather in favour of the small than of the large breed. The class of Setters was also fine and large. Mr. Bayley's Bob First, a white dog with tan head and flossy skin, was very beautiful; also Mr. Dixie's black and white Bounce; also Mr. Dodd's Spot, a most intelligent white and tan. Of the black and tan variety the show was good, and the braces of puppies were very pretty. The Irish setters won general commendation, particularly from those who are won by the affectionate look of a dog.

The Retriever, a universal favourite, was represented by 148 specimens. Besides the prize animals, we specify Lord Berner's Nero, Mr. Turner's Sailor, Capt. Copathy's Drake, Mr. Griffin's Charlie, a glorious playmate for children; Mr. Hill's two Jets, one a great prize-taker, a fine fellow, with close curling skin.

The Spaniels and Clumbers, a curious looking breed, with large heads, huge limbs, projecting elbows, long flossy hair, white or white and tan, and long ears, made a good show.

Beneath the orchestra were cages where bitches, selected from all these breeds, displayed the pleasures of maternity, and suckled their young or tumbled them about, as the case might be, to the great delight of crowds of admiring people.

The galleries, as we have before said, were devoted to dogs not used in field sports. Each gallery gave space for four lines of dogs, with ample room for the circulation of visitors between the platforms.

The Sheep Dogs form a very intelligent class. Mr. E. Greaves's Yarrow takes the lead. He looks much like the celebrated Yarrow tried at Edinburgh some years ago for preferring obedience to his master, who was a sheep stealer, to obedience to the law, and got hanged for it.

Amongst the Mastiffs every one stops at that princely fellow named The Governor, Mr. Lukey's, a fawn coloured dog with black muzzle. One naturally recalls the old story of Sir Harry Lee, saved from assassination at the hand of his Italian valet, by the favourite mastiff, who in spite of all opposition had secreted himself beneath his master's bed. A full length portrait of Sir Harry with the mastiff by his side, and the words "more faithful than favoured," is still preserved among the family pictures. Mr. Hamburgh's Duchess, connected by matrimonial alliance with Mr. Ansdell's Leo, is a formidable and magnificent animal, so also is Mr. C. C. Layard's, a light tawn, with black muzzle.

One class devoted to Foreign Mastiffs and Watch Dogs of any kind, contained some wonderful creatures, one or two possessing a striking approach to, or perhaps it would be best to say, scarcely any remove from the wolf.

The Mount St. Bernard breed mustered in great force; at least, there were 19 entries. Most of the dogs were of a red tan colour, with black muzzles. The class as a whole wore a let-me-alone-or-I'll-bite-you aspect, though a general air of benevolence shone through this savagery. This race of dogs exhibit the way in which special faculties are inherited. Their power of tracking footsteps does not show itself before the snow falls, when it seems suddenly to be aroused, even by those dogs which are in England, and who have never known an Alpine winter nor Hospice duty. Mr. Fyler's Thünn is certainly the most splendid specimen we ever saw.

The class of Newfoundlands was of course a great attraction to all lovers of the canine race. Their stately forms, sage bearing, and benevolent heads procures them not admirers only but lovers. Ladies and gentlemen were coaxing, nay some were fairly hugging these curly-coated favourites. Mr. Bowles's Leo, a black dog; Mr. Fisher's Pompey, Mr. Wright's Rover, were all three extremely fine specimens. Probably all these animals have so endeared themselves to their masters and mistresses that when they die they will be mourned as real friends. Who could, without deeply feeling the loss, be called upon to part with such a dog as Mr. Tolley's Neptune, a splendid black fellow with white shirt front. In that case the words of the pathetic Byron might be adopted.

> "But the poor dog, in life the firmest friend,
> The first to welcome, foremost to defend;
> Whose honest heart is still his master's own;
> Who labours, fights, lives, breathes, for him alone;
> Unhonoured falls, unnoticed all his worth,
> Denied in Heaven the soul he holds on earth.
> * * * * *
> To mark a friend's remains these stones arise;
> I never knew but one—and here he lies."

The Bull dogs have a large class of admirers; they are affected mostly by a class of men who hold about the same relation amongst men as the dogs do amongst their own species. The only redeeming point about them is their pluck and intensity of purpose, which is a quality which always makes itself respected, as was shown in the case of Tom Sayers, who in spite of his abominable profession, won the loudly expressed acclaim of the country. Bulldogs proper were divided by weight, those over and those under 20 lbs. being considered separately. The Bull Terriers, a large class, were similarly divided, as over and under 10 lbs. The uglier the animal the greater the chance of the prize. Of Black and Tan Terriers over and under 7 lbs., there was an endless show. The smaller ones were very beautiful, some were valued at exceedingly high rates, and many were established, like the toy dogs, in most luxurious apartments. One slate-coloured morsel of perfect symmetry, belonging to Mr. Higgins, named the Blue Prince, and valued at 1000*l*., very much surprised some visitors by giving tongue, which much resembled the sound of a cracked silver bell. The Skyes were wonderful, both for number and breeding. Pepper, Quix, Topsy, Sugar, Charlie, Monkey, Dandy, Celt, Topsy, Jim, Dan, Sancho, Plin, Jessie, Flo, Sandie, Trousers, were repeated in different size and colour, but with the same quaint, long body, and covert eyes, all up and down the platform devoted to the class, times without number. The Dandy Dinmonts seem to have become very popular. Of course we find Peppers, and Mustards, and Dandys, and Whiskeys, and Topsys, without end in this diverting class. Were the history of these rough-coated little fellows written as Scott wrote the history of his, or as Dr. J. Brown has written the history of Rab and his friends, and of "our dogs," and as well written, what a charming addition should we have to our canine biography!

The Italian Greyhounds are worthy of great admiration for their exquisite beauty. Mr. Burke's Sophy, in a glass-case, which she occupies with two large silver cups, won at former shows, possesses marvellous perfection. There are 12 specimens, of which Mr. Hanley exhibits 5. The King Charles Spaniels nearly all reside in glass cases, sleep upon velvet cushions, and drink out of tumblers. There are some very pretty creatures, but most of them seem afflicted with some nose or eye affection, and for all purposes for which a dog is to be desired, one of the Dandy Dinmont breed seems to be worth a dozen of them. Messrs. Mandeville and Gilbert's Blenheim Spaniels are beautiful creatures.

There was scarcely a chance of seeing the Toy Terriers for the bonnets which crowded round them. Thirty or 40 of them were to be found under 5 lbs. weight, and tended with the greatest luxury. They ranged in price from 5*l*. to 100*l*. The prettiest lot was that exhibited by Mr. Barton, of Minnie, Topsy, and Rose, black and tawn, occupying separate compartments in one cage. There were also prizes offered for dogs under 3 lbs. weight, and a class of 8 formed.

The Pomeranians were well represented by 18 specimens, some of which were valued at 1000*l*.

The Poodle, a dog which, under M. Leonard's tuition was made to talk, was not well represented. Of the Japanese there were several, one, Mr. B. D'Almella's, valued at 2000*l*.

The Esquimaux, a tawn, and tawn and white breed, with a good deal of the wolf type in look and manner, was well supported. Of the Dalmatian, or plum-pudding breed, formerly used to follow carriages, there were several species; also of the Maltese, a breed resembling the Dandy Dinmont, with long woolly hair. In this class was Mr. Mandeville's Fido, occupying a case filled with silver cups and gold medals, a little creature, covered with white flossy hair. This favourite's portrait was selling rapidly. Beyond these there were Greek and Manilla terriers, Silician dogs, Pugs, Indian, Australian (like a large fox), Chinese (white brindle, and slate colour), Brazilian dogs, and a large class comprising Various, in which were classed all the dogs that could not be otherwise disposed of.

The following is the award of the judges. We have only space for the principal prizes, which are as follows:—

DIVISION I.—DOGS USED IN FIELD SPORTS.

Class 1. Foxhounds. Stud Dogs.—1st prize of 20*l*., Lord Fitzhardinge, Berkeley Castle, Gloucestershire.

Class 4. Three Couples of Hounds.—Prize of 25*l*., Mr. C. F. Colmore, Moor End, near Cheltenham. (Cotswold Pack).

Class 5. Harriers. Three Couples of Hounds.—1st prize of 15*l*., Mr. G. Race, the Road Farm, Biggleswade. Highly Commended, His Royal Highness the Prince of Wales.

Class 7. Bloodhounds (Champion Class).—1st prize of 10*l*., Mr. T. A. Jennings, Pickering, Yorkshire.

Class 10. Otter hounds.—1st prize of 7*l*., Hon. R. C. Hill, Hawkestone.

Class 11. Deer hounds (Dogs).—1st prize of 10*l*., Mr. Bridge, Sandpit, Windsor Park; 2d, 5*l*., Earl of Stamford and Warrington.

Class 13. Foreign Hounds.—1st prize of 6*l*., Duchess of Manchester, Kimbolton Castle. North German boar houud.

Class 14. Greyhounds (Champion Class) Dogs.—1st prize of 40*l*., Mr. J. Spinks, Westfield House, Knotty Ash, Liverpool.

Class 18. Brace of Greyhound Saplings.—1st prize of 15*l*., Mr, R. Hatchett, Bedfont, near Hounslow, Middlesex.

Class 20. Pointers, large (Champion Class).—1st prize of 20*l*., Mr. W. G. T. Newton, Ranceby Lodge, Sleaford, Lincolnshire.

Class 21. Pointers (Dogs) not eligible for Champion Class.—1st prize of 20*l*., Earl Brownlow.

Class 22. Pointer Bitches (large size).—1st prize of 10*l*., Mr. W. G. T. Newton, Ranceby Lodge, Sleaford.

Class 23. Pointer Dogs (under 55 lb.) (Champion Class).—1st prize of 20*l*., Mr. G. Bayley, Stamford Lodge, Stalybridge.

Class 26. Brace of Pointer Puppies.—1st prize of 10*l*., Mr. G. Bayley, Stamford Lodge, Staleybridge. (Subject to investigation as to age.)

Class 27. Setters (Champion Class).—1st prize of 20*l*., Mr. G. Bayley.

Class 28. Setters (English Dogs).—1st prize of 10*l*., Mr. R. Taylor, Wimbledon Common, Surrey.

Class 15. Retrievers (Dogs).—1st prize of 15*l*., Mr. C. G. Hill, Commerce Square, Nottingham.

Class 36. Retrievers (Bitches).—1st prize of 15*l*., Sir St. G. Gore, Hopton Hall, Wirksworth.

DIVISION II.—DOGS NOT USED IN FIELD SPORTS.

Class 41. Sheep Dogs (Scotch Breeds).—1st prize of 5*l*., Mr. E. Greaves, M.P., Barford, Warwickshire.

Class 43. English Sheep Dogs.—1st prize of 5*l*., Mr. W. Guimmet, Biggleswade.

Class 44. Mastiffs.—1st prize of 15*l*., Mr. E. Hanbury, Highworth, Wilts.

Class 46. Mount St. Bernard's.—1st prize of 10*l.*, Mr. J. W. T. Fyler, Heffleton, near Wareham, Dorset.

Class 47. Newfoundlands.—1st prize of 10*l.*, Mr. F. W. Hammond, 373, Oxford Street.

Class 48. Bulldogs (over 20 lb.).—1st prize of 8*l.*, Mr. J. Lamphier, Soho Street, Handsworth, near Birmingham.

Class 50. Bull Terriers (over 10 lb. weight).—1st prize of 6*l.*, Mr. H. Kendrick, 4, Arthur Street, Gray's-Inn Road.

Class 51. Bull Terriers (under 10 lb.).—1st prize of 6*l.*, Mr. M'Donald, 27, Long Acre.

Class 52. White Smooth-haired Terriers.—1st prize of 6*l.*, Mr F. White, Crescent Lane, Clapham Common.

Class 53. Black and Tan Terriers (over 7 lb.)—1st prize of 6*l.*, Mr. G. Fitter, 3, High Park Corner, Nechells, Birmingham.

Class 54. Black and Tan Terriers (under 7 lb.)—1st prize of 6*l.*, Mr. J. Wade, 6, Meredith Street, Clerkenwell.

Class 55. Other English Terriers.—1st prize of 6*l.*, Mr. F. White, Crescent Lane, Clapham Common.

Class 56. Skye Terriers.—1st prize of 5*l.*, Mr. C. Stallibras, Finsbury.

Class 58. Other Scotch Terriers.—1st prize of 5*l.*, Mr. J. Spink, 18, Westgate, Bradford.

Class 59. Italian Greyhounds.—1st prize of 8*l.*, Mr. L. Burke, 14, Richmond Grove, Barnsbury Road.

Class 60. King Charles Spaniels.—1st prize of 10*l.*, Mr. J. Woolmington, 9, Farrington Mews.

Class 62. English Toy Terriers (under 5lb.).—1st prize of 8*l.*, Mr. J. Dale, 10, Thornton Street, Walworth.

Class 64. For best Monster Dog of any kind not included in preceding classes.—Prize of 10*l.*, Mr. N. A. Woods, Camberwell Grove. Samson, a lion mastiff from Algiers.

Class 65. For the smallest well shaped and healthy Dog under 3lb. weight, not included in preceding classes.—1st prize of 5*l.*, Mr. R. H. Bailey, 9, Orange Row, Kennington Road, Newington.

Class 66—First Division. Pomeranian Dogs.—1st prize of 3*l.*, Mr. D. J. Laskie, Hounslow.

Class 66 Fourth Division. Dalmatian.—1st prize of 3*l.*, Mr. W. Batty, Astley's Theatre.

Class 66—Seventh Division. Pugs.—1st prize of 3*l.*, to Mr. H. Gilbert, 23, Upper Phillimore Place, Kensington.

Home Correspondence.

Profits of Stock Feeding—Farmers' Fallacies.—I have frequently said, that in my practice, pigs lose less money than any other stock. In this farmers generally disagree with me, and take an opposite opinion. I could never ascertain the exact grounds on which they based their opposition until I read in your recent paper a discussion by the Dorchester Farmers' Club on a paper read by Mr. Saunders. The calculations arrived at by this meeting very much astonish me as a man of business, and if other portions of farming practice are resolved upon similarly erroneous estimates, we must consider our agronomic economy in a most unsatisfactory condition. If I make comparison between sheep, pigs, and bullocks, I charge them equitably or equally with the market price of their food. Not so the Dorchester farmers. They charge hay and roots to their sheep and bullocks at feeding prices; hay at 3*l.* per ton, and roots at 7*s.* per ton; but the pig food is charged at selling or market price! Now with us the market price of hay is 5*l.* per ton, and of roots 14*s.* per ton, so that the poor pig, consuming corn at market price, has to contend with a discrepancy of from 40 to 50 per cent. against him. This is unfair and unbusiness-like. There are obvious reasons why a pig should pay best. When you sell a pig you get paid meat price for his skin, which, as in all other animals, forms a material per-centage of his weight. Again his head, with the skin on, sells at quite half meat price. He makes a quicker return for his food, which being of a concentrated nature involves less cost of attendance; and, if properly attended to, he is rarely attacked with disease. The principal objection to pig feeding is a limited market, for, especially at certain seasons, the markets are soon overdone with pork, whereas there is always a market for beef and mutton. Thousands of pigs get diseased by burying themselves in manure, or holes rooted in the ground. A pig floor should always be either of brick covered with cement, or a wooden sparred floor; stable-dung or a thick bed of manure heats them, after exposure chills them, and they then get "heaves" or lung disease. When I had hundreds I seldom lost a pig. I have been a good deal snubbed because I maintain that live stock are necessary evils, but we never see any one, not being a farmer, fattening animals with purchased food as a source of profit. I commend, however, every farmer to keep much stock and purchase much food: for what he loses by his stock will be more than repaid by the extra produce resulting from abundant manure. There is no difficulty in making stock "appear" to pay if you knock off some 40 per cent. of the market price of the food which they consume. *J. J. Mechi.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

THE Half-yearly General Meeting of this Society was held on Friday of last week, the chair being taken by the President, Viscount Eversley. The election of the Council, proceeded with in the ordinary manner, resulted in the adoption of the already given House List.

Lord PORTMAN proposed, as President for the ensuing year, Lord Feversham.

Mr. ROBERT SMITH seconded the proposal, saying that he had long noticed the very able support which his lordship had long given to the cause of agriculture. As a tenant farmer he felt it an honour and a pleasure to second the proposal that Lord Feversham should be President of the Society for the ensuing year.

The motion was then carried unanimously. The Secretary read the following report:—

REPORT OF THE COUNCIL.

The Council have the satisfaction of reporting favourably of the progress made by the Society in the attainment of its practical and useful objects.

The number of its members at the present time differs only by 6 from the numbers at the date of the last general meeting, 205 names having been removed by death or otherwise from the list, while 211 new members have within the last five months been elected into the Society, which now consists of—

Life Governors	..	..	..	80
Annual ,,	..	..	..	88
Life Members	..	..	..	1263
Annual ,,	..	..	..	3735
Honorary ,,	..	..	..	17

making a total of 5283.

Mr. Bowly, of Siddington House, Cirencester, has been elected a member of Council in the place of the late Mr. Jonas Webb.

The funds of the Society are in a highly satisfactory state; every claim against it has been regularly discharged as it has become due; and while 16,488*l.* 17*s.* 10*d.* remains invested in the New Three per Cents., an ample cash balance is available for current purposes in the hands of the bankers. A deposit account having been opened with the bankers, the Society will receive interest on the funds which accumulate in the early part of the year, and will not be required till the show yard is erected.

The Council have to report the favourable progress of the preparations for the country meeting of the Society, to be held this year in the city of Worcester, in the week commencing on Monday, the 20th of July, which will be the day on which the judges will award the prizes in the classes of live stock. The show and trial yards will be open as follows:—

Wednesday, July 15: The trial-yard open from noon till 6 P.M.

Thursday, Friday, and Saturday, July 16, 17, and 18: The trial-yard open from 9 A.M. till 6 P.M.

Monday, July 20: Cattle-yard open from 8 A.M., when the judges will commence inspecting the live stock and making their awards; the implement-yard open from 8 A.M.; the show-yards will close at 6 P.M.

Tuesday, Wednesday, Thursday, and Friday, July 21, 22, 23, and 24: The general show open from 6 A.M. to 6 P.M.

Mr. Dent, M.P., has accepted the office of steward of stock; and Sir Archibald Macdonald that of steward of implements, in the place of the Hon. A. Vernon, resigned. The entries for implements are more numerous than in any previous year in all the three departments of shedding, seed and model sheds, and machinery in motion.

Papers have been read at the Weekly Meetings by Mr. Taylor, of 88, Parliament Street, on Materials for Cottage Building; by Mr. Bailey Denton, on the effect of Underdrainage on the Rivers and Arterial Channels of the Country; on the Adulteration of Oilcakes, by Professor Voelcker; on Animal Parasites, by Professor Simonds; and by Mr. Ruck, on Steam Cultivation.

The Council have decided, subject to the usual conditions, to hold the Society's Country Meeting next year at Newcastle-upon-Tyne.

The Country Meeting in the year 1865 will be held in the district comprising the counties of Cornwall, Devon, Dorset, and Somerset.

By order of the Council,
H. HALE DARE, Secretary.

After a vote of thanks to the auditors a discussion ensued on the needlessness of requiring a veterinary certificate of soundness from exhibitors of horses, considering that the Society's own inspector afterwards examined them.

A vote of thanks was then passed to Viscount Eversley, the President of the Society, who in acknowledging the compliment, referred to the agricultural progress of the period of the Society's operations, adding that as he had taken no part in this work of improvement he was entitled to speak of the success of this Society.

Farmers' Clubs.

OXFORD: *May 27.—Steam Cultivation.*—Mr. J. CHALMERS MORTON read the following paper:—

"The subject for discussion this afternoon is Steam Cultivation in the neighbourhood of Oxford, and if the announcement of it shall have induced those gentlemen who have adopted steam cultivation in this neighbourhood to be present for the purpose of relating their experience of it, my end in proposing this subject will have been fully answered. They know what their experience has been, of course much better than any stranger can do whom they have permitted to walk over their farms in order to become acquainted with it; and a word or two from them will have much greater weight whether for or against the adoption of steam cultivation than anything that he can say. And though I entirely believe in the ultimate success of steam cultivation on all large arable farms, as well as in the present success of it on the great majority of those farms where it has been already adopted—yet I for one shall be glad to hear the results of actual experience here or anywhere, whether it be favourable or otherwise to the extension of it. One cannot, I think, help taking some interest in the attempt to apply that great power to the manufacture of food which has proved such a wonderful aid and stimulant to the other great manufactures of the country. And it may be added—one cannot but hope that the enterprising men who have embarked many thousands of pounds in the attempt to apply this power in some simple and practical way to tillage operations may meet with an adequate reward.

But apart from these considerations—apart from the merely intellectual interest one feels in the successful solution of a difficult problem—apart from the patriotic interest one feels in what is certain one day to increase the food produce of our country—and barring the friendly regard which we all entertain towards Messrs. Fowler, Smith, and Howard, and the other enterprising inventors and capitalists who are in the van of this movement—(and of course all this is barring a very great deal indeed)—apart, however, from these considerations, I have no personal interest whatever in the success of steam cultivation, and it is nothing whatever to me whether any of the manufacturers whom I have named shall sink or swim.

They have all been exceedingly friendly, and I owe to them every help and facility which they could give for becoming acquainted with their plans and the results of them upon farms. During the past 10 days Mr. Fowler has at very considerable expense to himself placed at my disposal the whole of his apparatus which he is to show at the ensuing meeting of the Bath and West of England Agricultural Society; and Mr. Pullen of Sutton Courtney has been good enough to let me have 30 or 40 acres of land on which I might put it through its paces. Mr. Howard too sent his cultivator that it might be tried under the same circumstances. Smith's tackle has been on the ground as a regular implement of the farm for years. I owe thanks to every every one of these gentlemen, and especially on this occasion to Mr. Pullen and to Mr. Fowler—but excepting for services of this kind I am under no obligation whatever to any of them, and never shall be. Certainly therefore any powers of judgment I possess are in no way warped by thought of advantage to myself. We all want the mere truth upon the subject, and the chairman will, I hope, ask those gentleman who may have an unfavourable experience to report to be good enough to relate it. I ought, perhaps, to apologise for introducing my story with this talk about myself, but having formed a very confident opinion on this subject it seemed right in the first place to put it plainly that I claim to be an independent and disinterested witness.

Well now, there are three men in the neighbourhood of Oxford who have thought about steam cultivation. There is the man who has only a general knowledge of agriculture—the Theorist who occupies himself with it merely as a matter of scientific or national interest; there is the Practical man who has actually adopted steam cultivation, and has an experience to relate—and there is the Practical man who has as yet concluded against the adoption of it. Let us hear each of these gentlemen state his case, and first, for the Theorist.

He is of course, from the very first mention of the subject, confident that steam power must be of great benefit to agriculture. He knows what an impulse its creation, as we may say, by Watt, has given to all industry; how its application to the cotton, woollen, and other manufactures has increased, and in many places created these industries; how its successful application by Stephenson to locomotion has cheapened travelling, multiplied speed, diminished danger; how its successful application to navigation has shortened voyages, and how the walls (no longer wooden) of our own little island, have been heightened, strengthened, made impregnable, by its successful application to the art of Defence. Of course a general law, of whose force we have so many notable examples, can have no exceptions (that is *his* position), and agriculture which indeed already has for many years to some extent shared in the benefits so generally following the application of steam-power, has yet to receive an impulse like the rest. Besides, when he comes to inquire into the work of tillage, now done by hand or horse-power, he finds so many particulars in which steam-power is their superior, that any doubt he might have had vanishes at once. "What," he asks, "is the object of these long teams of cattle that I see traversing your fields at this season of the year, going to and fro twice for about every yard in width of the fields they traverse?—Are you aiming at the hardening and consolidation of the land?"—"Certainly not," is the reply; "we are ploughing the land, lifting the soil, exposing a fresh surface to the sun and air. What we aim at by these means is to mix and lighten up the layer of earth in which we place manure for the growth of plants—to soften and reduce it, so that the seeds we sow on it may be covered, each of them, by moist particles smaller than itself—to feed and mellow it so that the young plants shall spread their roots abroad without difficulty and find the food they need for growth."—"Well, but"—may not the answer be—"these teams with the men and boys and tools belonging to them, weigh 40 cwt. apiece, and to take those 40 cwt. trampling and sliding along every 9 or 10 inch width of the soil you want to 'lighten up' and 'soften,' is an odd way of going to work, isn't it?" The answer which is given to this is not satisfactory. "We well know," it is replied, "that there is nothing like treading with teams of horses or of oxen for hardening the ground. Indeed when the land is loose about the young Wheat plant it is in some districts in the early spring a common practice to adopt that plan of hardening it—but in ploughing they walk along the *furrow*, and the tool too slides along in their wake *below* the layer of the earth we move, which therefore may be lifted, broken, and loosened, untrodden, notwithstanding we are forced to use a team and a tool which must harden what they tread upon." This answer does not satisfy the Theorist, and I do not think it *ought* to satisfy either him or any other man.

Of course he immediately thinks of the difference in the fertility of deep and shallow soils—he thinks of the plants he has seen drooping in undrained flower pots—he thinks of the deep layer of cultivable material, beneath the foot-floor of these teams, which is covered by them with an impenetrable roof. And there are many other considerations which prove to

him that tools drawn over and through the ground which cannot go below a certain ordinary depth, nor there without doing as much mischief to what lies below them as they do good to what lies over them, are not the best adapted to tillage operations, and that is the predicament in which all horse and ox-drawn implements stand, excepting only those which are intended for the purpose of pressing the soil—rollers, land pressers, clod-crushers, and the like. But if you will have patience with the Theorist for about five minutes longer he shall speak his mind on the subject in his own fashion, and then we shall leave him and hear what the practical and experienced man has to say upon our subject.

The following then is the address of the Theorist to a company of agriculturists. He says:—

Gentlemen,—I think it will be generally admitted that we do get some good by considering the *reasons* of our practice, and by studying the way in which that which is done in the field is believed to tell at harvest time, even though no immediate alteration should follow in the plans which have been always adopted. It is well for example sometimes to talk of agriculture not merely as a business by which crops are grown and rent is paid, which of course it is, but also as a set of processes by which the powers of chemistry and of life are wielded for the growth of animals and plants, which of course it also is—a sort of natural and living chemistry, in fact, by which certain particles in the soil and air are gathered up and assorted and combined, so as to become food for living plants and animals. That of course is the truth, for it is simply on the combination of certain atoms in the soil and air that all growth of plants depends. If the atoms that are wanted from the soil are not in the soil, or are not *accessible* there, for that is the same thing in its result, the plants will starve, and if the wrong sorts are there the plants will be poisoned; and the operations of tillage are what experience has shown to be the best adapted to bring the particles of the soil and air into use in this way. Now it is the fact, ascertained by actual examination by men who know and can recognise these particles when they are present, that there is abundance of nearly all of them that plants can want in our soils and subsoils. You add ammonia in guano and in dung, you add phosphoric acid in bone dust and superphosphate; you add potash and soda in ordinary farm-yard dung, in wood ashes, and common salt; but there is already in all ordinary soils a much larger quantity of ammonia or nitrogen and potash, and even of phosphoric acid and some other things, without which plants cannot prosper, than any ordinary dressing of the usual manures contains. The small quantity added produces its effect, while the large quantity to which it is added is inert and ineffective, because the former is at once dissolved in the soil-water, and taken up by the roots of plants, while the latter is held locked up as in a treasure box of which the key cannot be found. A heap of earth out of which all the dissolvable material has been washed that will yield to washing, has not thereby lost it all. Let the heap lie exposed to air with the rain water trickling through it for a month, and it will yield another lot of soluble material to a second and third, and many successive washings; and this shows that the key to your treasure box consists in exposing it throughout its extent to the action of the air and rain. To do this you stir it deeply and you drain it. The latter enables the active rain water to trickle through it just as it does through the heap lying on the ground, and the former introduces active air directly into the land. If you dig a hole in the hardened ground, you will not easily get back into it all that you have taken out of it, and the heap remaining over represents the bulk of the air which you have introduced by stirring it. The fertility of a soil depends, then, upon the soil, not only actually but accessibly, containing abundance of the stuff on which plants feed—it depends on the right plants being put to feed upon this stuff—and it depends on the soil being fitted as to consistency, dryness, and warmth, to the habits and constitution of the plants in question. Over nearly all these circumstances tillage exerts immense influence. Of course you must choose the right plants to sow and grow in order to fertility.

Supposing however that the right plants are there, the feeding of them and the adaptation of the land as to consistency, drainage, and even warmth, are all greatly affected by the tillage of the soil. The land must be drained, there must be either an artificial or a natural drainage, the rain water, which is both food and feeder, must be allowed to pass through the land, and no doubt food must be directly applied in manure. Plants need a number of substances as food, and all of them are equally important. It is that one of the lot of which there is least in proportion to the wants of the plant as we cultivate it that rules the crop, and if Nature does not supply it, Art must. It is thus that ammoniacal dressings seem especially to favour the growth of Grasses—that bonedust containing phosphoric acid rules the growth of Turnips and so on. But the soil, and especially a clay soil, contains naturally abundance of these things. If however you stir only a shallow layer—only a half depth—of this soil, it is on the face of it plain that you have only half the feeding ground for your crop; or, going a full depth if you cultivate it imperfectly—if it be not reduced to tilth—you may thereby create only half the proper quantity of internal surface—that inner surface which wraps around all the particles of which the soil consists, which is doubled by every halving of the size of these particles, and on which depends the extent both of the pasturage within the soil on which plants can feed and on which air and rain-water can deposit or prepare the food plants feed upon. And moreover, supposing you have been able to cultivate a full depth of soil and to reduce it to a satisfactory tilth, if you do it in a way which lays a floor more or less impervious beneath it, through which the rain-water cannot readily pass, why then your work will not last, it will be liable to clog up again; and the chances are that the rain-water, lodging in the midst of it, will starve instead of feed the roots growing there, and the plants will perish of cold and of starvation, if not of poison. Now all this, especially on clay lands, horse cultivation is very apt to do. A floor *is* laid at 5 or 6 inches deep by the plan of perpetually trampling in the furrow, and drawing the tillage tool upon its sole plate there. Your scanty layer of earth upon this floor is teazed and worried year after year with very little chance, for want of drainage, of getting its treasures fairly opened for the use of the crop, and the land is cold and wet. Drain it and break up this pan, and expose a greater depth to the action of percolating rain water, and you will have food and warmth and proper dryness at once. It is the Theorist, remember, who is now speaking, but you no doubt know lots of instances near Oxford where all this has been done, where for poor, rushy, sedgy Grass, worth 10*s.* to 14*s.* an acre, there is now substituted the finest promise of Oats, and Wheat, and Beans, and so far as the appearance on the ground at present is concerned, the land looks tripled and quadrupled in value. All this has been done by tillage—by drainage, which is essentially a tillage operation—by steam cultivation, which on clay land is the only perfect method of effecting tillage, and thereafter by substituting for the starved growth of the natural surface the seeds of more useful plants for man and beast. Gentlemen, our little island contains stored up upon its surface an enormous supply of food for plants. The very guano island, transported bodily and spread over it, would not I believe be a very large proportionate addition to the quantity of our existing plant food. Of course it would add greatly to the fertility of the land, but that is because the stuff thus added would be immediately accessible—the larger inner natural store which we already have may however be made more immediately and directly useful than it is. The treasure box may be better opened than it is—horse tillage, which tramples down more than it lifts and softens—which rivets the bolts upon a better treasure box than that which it imperfectly unlocks, must be displaced by the employment of a greater power—one which will lift and shatter a greater body of earth—one which can be applied from a distance, and will not indurate and poach the land it does not move.

So much for the Theorist, and there are lots of examples in this neighbourhood which prove that he talks good sense, and although we call him mere theorist let us remember that he is talking of what he knows to be fact—it is not mere speculation and supposition that he is urging on us. It is the truth that a deeper tillage, were it possible—a more thorough tillage if we could manage it of that which is already moved, *would* lay open a treasure-box of which comparatively little use is at present made. The theorist is urging a most important fact upon our attention, and the only reason why we place him in a class apart from the so-called practical man—one carrying less weight with men in actual business—is that he knows nothing and professes to know nothing of the expense of what he recommends us to do. It may be very good advice, it is a very good thing that he advises us to do, but even gold may be bought too dear. We want to know the cost as well as the results of steam cultivation, and therefore we turn with even greater interest to what men who have put it to the test can tell us.

Let me then first name those farms over which I have had the pleasure of walking in Oxfordshire, where steam cultivation is adopted, and I shall take the liberty of putting the tenants of some of them in the witness box before you.

Mr. Pullen, of Sutton Courtney; Messrs. Druce, of Eynsham; and, I believe, Lord Dillon, use Smith's apparatus. Messrs. Newton & Taylor, of Campfield, near Woodstock; Mr. Frampton, of Benson, near Wallingford; Mr. Majoribanks, of Fawley Court; and Mr. Dodd, of Chakenden, near Henley; Mr. Taylor, of Tetsworth; Mr. Langston, of Sarsden, use Fowler's apparatus. Mr. Williams, of North Court, near Abingdon; Mr. Dean, of Ewe Farm, near Wallingford; and his Grace the Duke of Marlborough, use Howard's apparatus. I have walked over the farms of Messrs. Pullen, Druce, Newton, Frampton, Dodd, Marjoribanks, Langston, Williams, Deane, and the Duke of Marlborough, and they have been good enough, many of them, to give me full particulars of their expenditure and labour, and on all of them I could see the results, even where the expense had not been fully related.

Let us take Smith's tackle first, and as the oldest steam ploughman in this part of the country let us put Mr. Pullen in the witness box. Of course you will understand that in this evidence by him, I am putting words into his mouth, which however express the sense of what I have learned from him. He says:—

I bought Mr. Smith's apparatus immediately after the Chester Meeting of the English Agricultural Society in September 1858. The farm, which then consisted of 700 acres—600 arable—required 10 3-horse teams for its cultivation: 500 acres or more of the land are a free-working loamy soil—some few fields of a stiff clay soil. The apparatus cost 210*l.*; the 7-horse engine to work it cost, second-hand, 150*l.* With this there have been cultivated from 500 to 600 acres annually, and I have thus dispensed with four of my 3-horse teams. The annual cost of four teams is at least 400*l.*; the annual cost of the engine and apparatus is not more than 200*l.* There is thus a considerable saving in the actual money outlay in wages, food or fuel, and repairs annually. And there cannot be a doubt of the superiority of the work by steam power, crowded as it can all be into the best time of the year, instead of being tediously driven into short days and wet and wintry weather. The farm now consists of 800 acres, 700 being arable; the number of horses kept is 20. The steam cultivator is still kept constantly employed. After two years' use of the original 7-horse engine, it was sold at a loss of about 20*l.*, and a new 8-horse double-cylinder engine by Roby, of Lincoln, was bought for 300*l.* The very same cultivator that was originally purchased is still in use. A third rope was bought last year; the second rope is still to some extent useful, so that the rope lasts rather more than two years, costing thus 20*l.* to 25*l.* a year, or considerably less than 1*s.* an acre of the work done by it. The other annual out-goings are not more than 25*l.*—5*l.* for repairs of rope porters, 4*l.* for new shares for cultivator, 4*l.* for repairs of grubbers, and the remainder for repairs of engine.

The work done in the spring of 1862 was 166 acres of grubbing Turnip fold, &c., for Barley, and 129 acres of stubble for Turnips. The work done in the autumn was 206 acres, chiefly of Bean stubble and Clover lea for Wheat, and 50 acres of Wheat stubble for Barley. This amounts in all to 550 acres, which is about the average quantity accomplished in the year. Of this 263 acres were done the first time, the same quantity was done a second time, and 25 acres were done a third time over. The work done the first time with the three-tined implement is accomplished at the rate of 5 or 6 acres a day; the subsequent cultivating is done with the five-tined cultivator, at the rate of nearer 8 or 10 acres a day. This is on my lighter soil, of which, indeed, the greater part of the farm consists, which has been already repeatedly cultivated by steam power.

Labour, coals, and oil cost about 24*s.* a day. The engine being employed 30 days in accomplishing the tillage (one way) of 550 acres, the work was done at the cost of 3*s.* 6*d.* an acre for fuel and labour; 1*s.* an acre (25*l.* a year) must be charged for repairs; 1*s.* an acre must be charged for rope. And there may also be charged 2*s.* an acre, viz., 55*l.* a year, or 10 per cent., on capital—to create a sinking fund which shall reprovide the apparatus when it is worn out. And the whole cost of my steam cultivation is thus at most 6*s.* 6*d.* an acre on the work accomplished. Of course to be strictly correct, 25*l.* or thereabouts—another shilling an acre—is chargeable for ordinary interest on the capital employed.

On the other hand, however, it must be remembered that the engine is constantly at work in other ways—in threshing, &c.—and that to charge the whole sum to which it is liable for repairs and interest on the 80 days when it is ploughing is unjust. On the whole, therefore, I do not believe that cultivating by steam power costs me 7*s.* an acre; and that is a sum for which such work could not be done by horses. Besides, its efficiency is such that a number of horses can be dispensed with whose keep and management alone cost nearly double that amount over the work that is accomplished.

That then is Mr. Pullen's account of his experience. He is not likely to give up steam cultivation. He is much more likely to induce his neighbours to follow his example.

Take now Mr. Druce's farm near Eynsham. The one occupied by Mr. Joseph Druce is about 700 acres (500 being arable) of poor stiff clay—much of it till lately in very poor Grass. The other, occupied by Mr. Samuel Druce, a lighter but variable soil, for the most part on gravel, though here and there on the clay—about 500 acres, of which 400 are arable. The two farms used to be worked by 27 horses and 22 oxen. Smith's tackle has been at work on the farm for three years: all the oxen are gone and eight of the horses. The tackle gets over from 300 to 400 acres or thereabouts on each of the farms in the year, doing some thing like 7 acres a day, including first and second time of grubbing in one average quantity. Thus Mr. Samuel Druce tells me that this spring he has grubbed 70 acres at various depth, 7 inches and upwards, and he has grubbed these 70 acres a second time—thus doing 140 acres of work altogether in 20 days, besides which there were five removals. The coals, costing 14*s.* a ton on the ground, are consumed at the rate of 8 to 10 cwt. a day—the oil costs 1*s.* 6*d.* a day—the wages 15*s.* 2*d.*, viz. for five men and three boys—the water is provided in wells wherever needed, and the whole expenditure in fuel and wages in 20 days, barring removals, thus comes to 23*l.* 10*s.*, which is a very small amount indeed for 140 acres, not exceeding 3*s.* 6*d.* an acre, and leaving an ample margin for tear and wear of rope, for wear of engine and apparatus, and for interest on capital. Putting the annual quantity down at 700 acres at 3*s.* 6*d.* or even 4*s.* for fuel and wages, and 1*s.* for rope, and adding 50*l.* a year for repairs and sinking fund, and 25*l.* a year for interest of capital, we have a total expenditure of 250*l.* a year on steam cultivation, for which we have got rid of nine horses, and by the displacement of 28 oxen, as well as by the increased fertility of the land, we can keep so much more stock.

Mr. Druce has had Smith's windlass three years, and has not yet spent more than 4*l.* 10*s.* upon it in repairs. His example may certainly be quoted as a capital one to follow.

Let us turn now to Howard's apparatus and quote some instances of its adoption. Mr. Williams, of North Court, has had it for a year, working it with a 10-horse power engine, and he has done a great deal of work with it both on his own farm and on his neighbours—notwithstanding that he lets it out for work elsewhere, it has enabled him to part with one third of the draught labour on his own farm of 560 acres.

He has cultivated 670 acres—200 acres of it for neighbours—receiving generally 20*s.* to 25*s.* an acre for double work—the hirer supplying coals and water. The 470 acres which he has done at home have already enabled him to part with 10 oxen and 4 horses.

The average day's work of the apparatus is declared to be 5 to 6 acres of cultivation the first time over, and 6 to 8 acres of cultivation the second time over. In one instance 50 acres of land which had been cross-ploughed, were stirred with the three-tined grubber, and again with the five tined grubber, at the rate of 10 acres a day, including the labour lost in removals with the 7-horse power engine, working from 5 a.m. to 9 p.m.

The cost of repairs and of wear had not been great—6*l.*, or thereabouts, then would cover the whole of the breakages; in fact, 250 acres had been cultivated with breaking only one share. The wages paid are engineer, 15*s.* a week; windlass-man, 7*s.* a week; ploughman, 13*s.*; and the two anchormen, 12*s.* a week apiece. The two porter boys receive 4*s.* 6*d.* a week each; and the cost of water cart may be 21*s.* to 24*s.* a week. In addition to this, 3*d.* an hour for overtime is allowed to engineer, and 2½*d.* an hour for the other men engaged. The whole weekly cost, excluding overtime, is 4*l.* 10*s.* a week for wages and water. To this add 2*l.* 5*s.* a week for coal—half a ton being used daily, and coal costing 14*s.* to 15*s.* a ton in the field.

Mr. Williams's estimate of the cost is as follows:—

Wages and water per diem	£0 15 4
Coal	0 7 6
Oil	0 0 6
Interest	0 1 8
	£1 5 0

Equal to 5*s.* an acre over heavy work, or 3*s.* 6*d.* an acre over light work.

Besides this add per acre:—

For removal	£0 0 8
For rope	0 1 0
For repairs	0 1 0
For depreciation	0 2 0
	£0 4 8

Making the whole cost to vary from 8*s.* 2*d.* to 9*s.* 8*d.* per acre.

Mr. Deane, of Ewe Farm, Wallingford, has worked Howard's Cultivator since July, 1861.

His farm lies across two qualities of land, one of which is the best possible for steam cultivation—a stiff and stoneless calcareous clay, and the other the most expensive of all soils to work by the steam cultivator, where land is full of flint, and yet stiff enough to hold the flint firm while the wire rope is dragged over it.

He accomplished from 500 to 600 acres of steam tillage during 1862, at the rate of 5 acres a day, when the 3-tined grubber is used, and at the rate of 8 acres a day when crossing first work with the 5-tined tool. The 10 cwt. to 12 cwt. of coal burned daily by the 10-horse engine may be put at 12*s.* The wages and water cost 16*s.* 6*d.* a day. The cost of fuel and labour is thus 5*s.* 9*d.* an acre first time over, and 3*s.* 7*d.* the second time over per acre.

The cost of rope has been considerable, owing to the very

flinty soil which has been worked, and over which it seems to have been insufficiently carried. It must thus be put as high as at least 1*s.* 6*d.* per acre. Beyond this however the expenditure has been hardly anything. He has done 300 acres this spring.

Mr. Deane works 20 horses in addition to the 10-horse engine, but these are employed in much other work connected with the improvement of an estate out of order, besides the mere labour of cultivation.

Turn now to the results of Howard's apparatus on the Blenheim Home Farm, hitherto under the management of Mr. Scott :—

On a comparatively light and sometimes a brashy soil, the Duke of Marlborough has, since October, 1861, employed Howard's apparatus, drawn by a 10-horse power engine. The farm at the northern end of the park, a light brashy soil and 650 acres arable, and the other at the southern end of a heavier soil, 150 acres arable and as much pasture. Till lately the labour of the larger arable farm had been done by 22 horses. Since October, 1861, when the steam cultivator was purchased, both farms have been managed by 18 horses.. And as five or six horses may be fairly put aside for the land which has been added, it may be said that the labour of the home farm is now accomplished by 12 horses in place of 21 or 22. Mr. Scott estimates the cost of horse keep at 23*l.* 15*s.* per annum. Add wages, shoeing, harness, maintenance of value, and the cost of the 9 or 10 horses saved, come to at least 350*l.*

What does the substituted steam power cost? The wages spent daily are in all about 18*s.* The coals consumed cost 5*s.* 6*d.* to 6*s.* a day. The oil is charged at 6*d.* a day. The whole charge amounts to 23*s.* 6*d.* a day. The usual day's work has been about 7 acres. This, therefore, amounts to less than 3*s.* 6*d.* per acre for one-way work.

During last year 348 acres were done over twice, and 104 acres were done over once. At the rate of the work during the previous autumn it must have occupied about 70 days, costing, therefore, about 82*l.* for labour and fuel, 25*l.* for nearly half a new rope, not 21*l.* for repairs of all kinds, and about 52*l.* (10 per cent.) for an annual sinking fund to meet the effect of tear and wear. The total expenditure cannot be more than 200*l.* a year, against the much larger sum spent on the team of horses which have been displaced. What this work during the past spring has been I have not ascertained.

The witnesses for Messrs. Smith and Howard both tell a very satisfactory tale. Let me now turn to the examples of Fowler's apparatus, which, notwithstanding its greater cost, occurs in even larger numbers in this county.

Mr. Newton and Mr. Taylor, who have had a 10 horse-power threshing engine, furnished with Eddison's platform, carrying Fowler's clip drum and self-driving gear, which, with rope, and anchorage, and plough, and cultivator, cost about 500*l.*, have done rather more than a year's work with it on the two farms. About 800 acres have been grubbed a good depth—a good deal below that of ordinary horse tillage, and the effect is seen especially in the shallow and brashy soil, by the greater ability of the crop to withstand a drought. The remaining work of the farms, which used together to take 40 horses and some 16 oxen, has been done by 29 horses alone, so that 11 horses and 16 oxen have been saved by the partial use of a 10 horse-power engine applied in this way, for it does all the threshing of one of the farms besides.

On the larger farm of the two, however, it appears that too large a number of horses have been put down, and that the saving on the one farm may be put at six horses, and on the other it is more likely ultimately to be one or two horses only, with the 16 oxen which were formerly employed. The quality of the work, especially that of the cultivator, is first-rate; and certainly the cleanliness, colour, and vigour of the Wheat, Barley, and Bean crops on Mr. Newton's farm, through which I walked yesterday, prove that both the tillage and the manuring of the land are in the hands of a liberal and energetic manager. The quantity of the work has averaged 10 acres a day when cultivating. The wages paid are 1*l.* a week to both engineer and ploughman, 15*s.* to anchormen, 7*s.* or 8*s.* a week apiece to three boys. In all less than 4*l.* a week, or with the water-cart about 15*s.* a day; the fuel costs about 7*s.* 6*d.* a day, and the oil 1*s.*; so that the cost of fuel and wages and oil and water is less than half a crown the acre. The wear of rope has been considerable. The cost of repairs has been slight, barring one breakage, which was purposely done at a cost of 10*l.*, owing to the absence of a key which would have cost 1*s.* 6*d.* Mr. Newton and Mr. Taylor are pleased with their purchase and their experience, and I do not see how they could be otherwise than satisfied.

Take now the case of the Sarsden Farm of 1150 acres, 800 being under the plough.

Mr. Langston was the purchaser of a 10-horse power engine and Mr. Fowler's apparatus so long ago as July, 1858. Up to May, 1861, that is, during two years and two months, it had ploughed 680 acres, and scarified 450 acres. The ploughing was on the average at the rate of 5 acres a day, including all removals and stoppages, and the scarifying was at the rate of 10 to 12 acres daily. The whole daily cost in wages and water was 14*s.*; and as 680 acres of ploughing had taken about 135 days to do, and 450 acres of cultivating had taken about 35 days to do, there had then been wages paid on 170 days, equal to 119*l.* in all. Besides this 170 days' consumption of coal cost 84*l.* 10*s.*, and the cost of oil was about 8*l.* 10*s.*, or 93*l.* in all. The wear of rope, according to the experience of those first two years, was at the rate of 30*l.* every other year for a certain portion, and 25*l.* every three years for the rest—in all about 24*l.* a year, or for the period 52*l.* The cost of repairs had not been more than 18*l.* during the time. The cost of the apparatus, including new implements, had been 860*l.* This included various alterations. The sum chargeable for depreciation per annum, at 10 per cent., amounts to 86*l.* a year, or 176*l.* 8*s.* over the two years and two months. The whole expenditure for the period thus amounted to 546*l.* 10*s.*, or barely 10*s.* an acre over the work accomplished. Excluding the large item of 10 per cent. for depreciation of value, the expenses are barely 7*s.* an acre.

In the course of 1861 a new clip drum was put to the old engine, and the apparatus was parted with for use on another home farm. In August, 1860, a new 14-horse power engine, with the clip drum, a balance plough, and cultivator, with the arrangement in it for taking up the slack rope, was procured for the use of the Churchill Lodge Farm; and this did 525 acres of grubbing with the digging breasts upon the balance plough in the autumn of 1861 and the spring of 1862. Since the Battersea Meeting, and during the autumn of last year, it was again vigorously at work, accomplishing 504 acres of grubbing part seeds for Wheat, and of Wheat stubbles for Beans, Mangel Wurzel, &c. The rope purchased in 1861 has now done close on 1200 acres of work, and will last another year with ease. This is a great improvement upon the expense of the first two years, both as to quantity of work accomplished and as to tear and wear ofrope. The average daily work, too, is improved. They can now plough close on six acres a day, and cultivate with the digging breasts 8 to 10, including all the time lost in removals.

It is a great saving which, for the food of some nine or ten horses and ten bullocks, substitutes 1*s.* 6*d.* an acre for coals, 1*s.* 6*d.* an acre for wages, 1*s.* an acre for wear of rope, and perhaps 1*s.* 6*d.* an acre for tear and wear and depreciation of value.

Mr. Savidge reports thus of his spring work :—The season has been so favourable for steam work that it has truly been farming made easy. We commenced our spring work in February, and up to this time we have grubbed 431 acres at from 6 to 10 inches deep; our only breakage has been eight bottom clips and two rope eyes pulled off. I may here state that in several fields we have used a large 4-horse drag by the side. Our rope after two years' hard work is but little worn. Our crops are promising, particularly the Wheat, and the fallows all clean.

As a last detailed report I may refer to Mr. Frampton, of Benson, near Wallingford.

He occupies 600 acres of arable land, cultivated chiefly on the 4-field course. The cultivation has hitherto engaged 24 to 26 horses, mostly worked in 3-horse teams, besides two or three teams of oxen during winter. There are now 18 horses employed, and the work is done more easily now than formerly. The saving—equal, taking the oxen into account, to probably nearly three teams of horses, costing at least 300*l.* a year—has been effected by adopting Fowler's steam plough. In the spring of 1861 he purchased Fowler's 10-horse power engine and a four-furrow plough and all the necessary apparatus for steam cultivation; and in that year, including its remarkably dry and useful autumn, it did good work; ploughing 97 acres and cultivating 57 acres in 31 days, at the rate of 3 or 4 acres a day for ploughing, and twice as much for cultivating. There was the time and labour of six removals included in this time, and the cost was 17*l.* 9*s.* 2*d.* for wages, and 19*l.* 16*s.* 4*d.* for coals, &c. The cost of ploughing for these items was about 4*s.* 10*d.* per acre. During 1862 he ploughed 395 acres and cultivated 145 acres at a cost of manual labour (including water-cart and horse) of 73*l.* 10*s.*, and at a cost for coal and oil of 67*l.* 14*s.* This was at a cost of about 5*s.* 3*d.* per acre for these items.

This spring he reports that he has ploughed 196 acres, and grubbed 119 acres from 7 to 9 inches deep in 51 days at a cost of 42*l.* in coal, 2*l.* 11*s.* in oil, 25*l.* 6*s.* in wages and very trifling repairs. This performance has been at the rate of 5 acres a day ploughing, and 10 acres a day grubbing, at a cost of 70*l.* for coals, oil, and fuel, covered by 5*s.* 6*d.* an acre for the ploughing, and 2*s.* 9*d.* an acre for the cultivating. To this must be added the cost of tear and wear of rope and engine, and interest of capital.

In all these examples, then, we have on the one side an evident economy, and on the other an evident advantage from steam tillage. The reports universally are, that there is both a saving of expense and a superiority of tillage by the substituted steam power; and I do not know one in this neighbourhood where an absolute failure is confessed. There are, however, a great many, no doubt, who do not yet believe in either the economy or the advantage which is claimed. And if we put one of them into our witness box, he will probably ask—How is it that we find so many instances where the apparatus has been let out for hire at very much higher prices than any you have named where the proprietor and letter of the apparatus has not succeeded? I know two or three at this moment who have not succeeded, and several who have abandoned the speculation after losing hundreds, besides a whole company which tried it—in Gloucestershire, and were forced ultimately to call in their liquidator and divide—the *loss.*

In answer to this, it must be remembered that the *letter* of a steam cultivator is in a very different position from the man who owns one and uses it on his own land. He sends his apparatus long distances. He gets only the roughest jobs to do which horses cannot do. He always has fresh land, never cultivated so deep before, to undertake; and above all, he has a staff of men to maintain whether they are at work or not.

The farmer who owns a steam cultivator—removes at most from one field to another. Mr. Druce has had five removes this spring; he showed me one of them—the engine was moved barely 5 yards. If he had been letting out his tackle it would have been more probably five miles. His land once well steam ploughed carefully and cautiously, let us suppose even at a loss because of its slowness, is ever afterwards capable of being worked at double speed. No more land-fast stones or tree roots will break his tackle, and he can go ahead like Mr. Edmonds, of East Leach, who has this spring already cultivated 713 acres, and ploughed 15 with his 14 horse-engine in 48 days, at a cost of 36*l.* for coals, 3*l.* 12*s.* for oil, 31*l.* for wages, 18*l.* for water-cart, and 15*l.* to 20*l.* for repairs—under 100*l.* in all, or less than 3*s.* an acre. And, lastly, the man who works his own tackle on his own farm sets his men to other work when they are not steam ploughing.

But I am not satisfied with answering in this way the objections derived from the experience of those who let out their tackle for hire; I think the objection may be made to recoil upon the objectors; for look at the prices which men are willing to give for steam cultivation—10*s.* to 12*s.* an acre, besides coal and water, for ordinary work,—16*s.* to 20*s.* an acre for deeper and more difficult work. This is their own valuation of the work. Suppose a farmer was to put to his credit the work done upon his farm at rates such as these—take Mr. Edmonds for example, who has spent just 34*l.* 12*s.* for wages and oil, and 15*l.* to 20*l.* for repairs in doing 738 acres of work, for which he might claim so large a sum according to the minimum rate—do you suppose that there is no profit there—that the hundreds of pounds which he has thus earned over and above his expenditure are exhausted in tear and wear of rope or engine? And lastly, I think many do not know at what cost the less perfect horse tillage of their farms is done. Horses cost 30*l.* to 40*l.* apiece per annum, taking wages, food, tradesmen's bills, and tear and wear into account, and we can get rid of 8 or 10 of them on every large farm by an apparatus costing less to work and doing better work.

Doing better work: it is on that, the question hinges after all.—As I said before I have nothing whatever to do with any of the manufacturers of any of these machines, but being interested in agricultural questions, and it being my business as having charge of an agricultural journal, to examine and report on the examples of agricultural progress one sees all around him now-a-days—and nowhere more than here—I am glad of any opportunity of making known the success of the several plans they have devised, and I hope that those gentlemen who have an experience on this subject to relate will follow the example which, at the request of this Club, I have thus very imperfectly set them.

Miscellaneous.

Adulteration of Milk.—At the last meeting of the Board of Guardians of the South Dublin Union, the following report on the composition of the milk supplied to the workhouse, by Professor Cameron, M.D., was read :—

"Dublin, 6, Waterloo Terrace, Upper Leeson Street, May 5.

"Dear Sir,—I have been so very busy since I received the last specimen of milk which you desired to have analysed, that it is only now I have been able to bring my experiments upon, and in relation to it, to a close. Their results I beg to communicate to you for the information of your board of guardians. This specimen, as well as the previous ones which I examined for you, contained no ingredient foreign to milk, but its proportion of water was so considerable, and its per centage of butter so low as to indicate unmistakeably that the proportion of these constituents had been artificially adjusted by the milkman. This will be at once apparent if you compare the following analyses :—

Centesimal composition of pure milk (average quality).

Water	87.5
Butter	3.5
Caseïn and albumen (cheesy matter)	4.0
Sugar	4.5
Saline matter	0.5
Total	100.0

An analysis of milk (M'Cabe's) supplied to the South Dublin Union Poorhouse. One hundred parts contain :—

Water	91.28
Butter	2.16
Casein and albumen	3.37
Sugar	2.54
Saline matter	0.65
	100.00

"The above figures show that the milk supplied to the poorhouse contains 30 per cent. less of fixed or nutritive matter than is found in pure milk, and that, consequently, it is one-third less valuable as an article of food. Although the relative proportions of the nutritive constituents of milk vary considerably, the fluctuations in its amount of water are confined within very narrow limits. One specimen of milk may contain 50 per cent. more butter than another, but it will be relatively deficient in sugar or in casein, and in both the percentage of water will be nearly, if not quite, equal. With the view of ascertaining whether or not the proportion of water in normal milk is ever so low as that which I found in the suspected sample, I determined the amount of that constituent in 12 specimens of pure milk, the produce of different cows. The results were as follow :—

Per centage of water—			
No. 1	87.00	No. 7	87.88
No. 2	86.98	No. 8	88.42
No. 3	87.84	No. 9	87.30
No. 4	87.84	No. 10	88.06
No. 5	87.96	No. 11	87.35
No. 6	87.78	No. 12	87.30

"The proportion of water in the suspected sample was 91.23, or nearly 3 per cent. greater than the amount contained in the poorest sample of the pure milk. This circumstance, together with the fact of its being deficient in butter, clearly shows that it had been deprived of a portion of its cream, and abundantly diluted with water before it was delivered to you—facts which, no doubt, your lactometer failed to indicate, as that instrument is a most fallacious guide in the attempt to estimate the nutritive value of milk. It is a somewhat general belief that plaster of Paris, chalk, flour, and brains are employed as adulterants of milk; but, excepting one instance, where I found a small proportion of chalk, I have never detected any of these substances in milk. I have, however, rather frequently noticed the presence of common salt. In this respect my experience is in complete harmony with that of the London chemists who have devoted themselves to the detection of the adulteration of food. Dr. Hassall, the analyst to the Lancet Sanitory Commission, examined 23 specimens of the milk supplied to London; 12 of them were found to be genuine, and the others were adulterated with 10 to 50 per cent. of water; in no instance was any other adulterant detected. There is no doubt but that the milk supplied to the inhabitants of Dublin is almost invariably adulterated with water, and deprived of a portion of its cream before it comes into the hand of the consumer. As a necessary consequence, it is very deficient in nutritive power." *Charles A. Cameron, Public Analyst to the City of Dublin, in the Irish Farmers' Gazette.*

Grain-bearing Grasses.—Aullo (Paspalum frumentaceum), and Munyo and Kodro (P. scrobiculatum), supply in India a cheap grain, which is considered wholesome. The latter, under the name of Koodaka, is cultivated in the Gawel range north of Berar, and forms the staple food of the natives. Fundungi is a small edible grain produced by Paspalum exile, which is much cultivated and

esteemed in Sierra Leone and other parts of Western Africa by the natives, to whom it is known under the local name of Hungary Rice. It produces a semi-transparent cordiform grain, about the size of a Mignonette seed. The ear consists of two conjugate spikes, the grain being arranged on the outer edge of either spike and alternated; they are attached by a peduncle to the husk. It is sown in May and June, and ripens in September, and grows to the height of 18 inches; its stems, which are very slender, are bent to the earth by the mere weight of the grain. The grain is trodden out with the feet, and is then parched or dried in the sun, to allow of the more easy removal of the chaff and the process of pounding, which is performed in wooden mortars. It is then winnowed with a kind of cane fanner, on a mat. Teff (Poa abyssinica) is another African grain used for food. Bread is made of it by allowing the dough to become sour, when, generating carbonic acid gas, it serves instead of yeast to leaven it. It is then baked in circular cakes, which are white, spongy, and of a hot acrid taste, but easy of digestion. This bread, carefully toasted and left in water for three or four days, furnishes the bousa or common beer of the country, similar to the quas of Russia. Polish Millet, or Manna Kroup, is produced by Glyceria fluitans. This genus succeeds best in very wet districts, and produces such abundance of sweet seeds that they are exported from the Syrian coast and sold in Turkey, Hungary, and the South of Germany, under the name of sweet Manna seeds for the table, where they are presented in the form of soup, puddings, and confections of various kinds. In Russia and North America the seeds are also collected. Bryant, in his 'Description of California,' says he saw five old Indian women gathering Grass seed for bread. This process is performed with two baskets, one shaped like a round shield, and the other having a basin and handle. With the shield the top of the Grass is brushed, and the seed by the motion is thrown into the deep basket held in the other hand. *Technologist.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By Mr. J. B. Spearing, Monksford, near Wallingford, Berks, during the week ending May 27, 1863.

Day of Week.	Day of Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Dry Bulb Thermometer.	Reading of Wet Bulb Thermometer.	Wind. Direction.	Wind. Force, 0-6	Amount of Cloud 0-10.	Reading of Self-Registering Thermometers. Max. in Air.	Min. in Air.	Max. in Rays of Sun.	Min. on Grass.	Rain Fallen in previous 24 hours on the Ground.	Temperature of the Earth. 1 foot deep.	2 feet deep.
		Inches.	°	°				°	°	°	°	Inches.	°	°
Thursday	21	30.20	51	50	E.	2	6	54	44	67*	42		53	53
Friday	22	30.11	45	45	E.	2	7	57	34	83	31	0.17	52	52
Saturday	23	29.91	51	46	E.	3	5	55	30	92	27	..	51½	52
Sunday	24	29.92	54	50	E.	3	4	60	32	109	28	..	51½	52
Monday	25	30.09	54	50	E.	2	3	66	35	120	34	..	52½	52
Tuesday	26	30.20	50	47	E.	2	8	62	31	113	27	..	53	52
Wednesday	27	30.29	60	55	N.W.	1	2	63	30	122	32	..	53	52½

* These readings are taken from a Vacuum Solar Radiation Thermometer, which registers from 20° to 30° higher than an exposed blackened bulb.

Notices to Correspondents.

Books: *Enfield.* We do not know any work especially on your subject, but most agricultural works refer to it. It is matter more appropriately for an article in the *Agricultural Gazette*, and we shall refer to it soon.

Mangel: *G R A.'s* maggot between the skins of Mangel leaves is an Anthrax, which for the last dozen years or thereabouts has made havoc with Mangel in the north of England—hand picking and high cultivation are the only remedies.

Manure for Pasture: *Metropolis.* In the absence of farm yard or town dung, probably bone dust applied now will be most beneficial to the Grass. If you get some well broken and mix it with some damp mould to heat and rot before applying, it will be more immediately active: 16 bushels an acre are a good dressing.—The Thorn and hedges of it are to be grown just as any other plant is cultivated, by planting in land properly prepared, and taking care that no other plant is growing with it. Clean the hedge, stir the earth about the roots, and cover them up with good compost mould.

THE HYDROPULT,

EXTRACTS FROM THE PRESS.

The Hydropult. — "The machine is certainly the most compact and efficacious force pump of its size that we have ever seen."—*Daily Telegraph.*

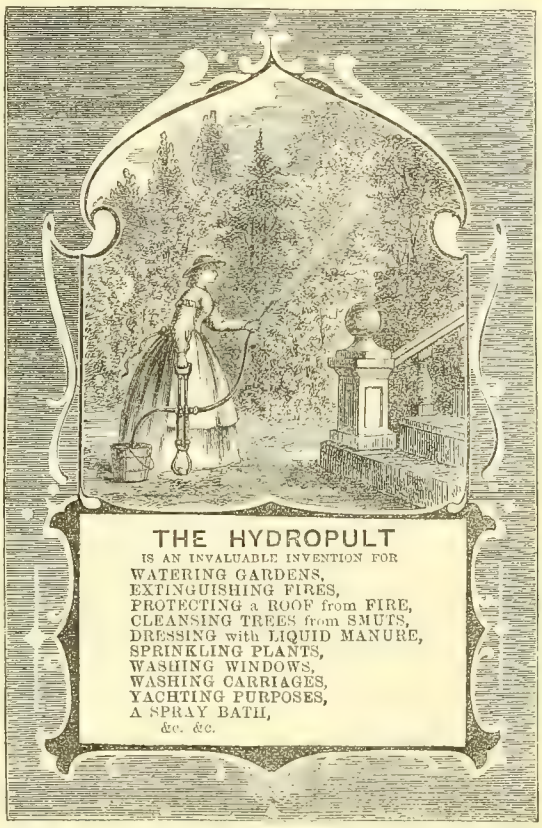
The Hydropult. — "All Londoners and other town residents who care for their gardens and greenhouses should avail themselves of such engines." — *Gardeners' Chronicle and Agricultural Gazette.*

The Hydropult. — "We strongly recommend it to our readers." —*Journal of Horticulture and Cottage Gardener.*

The Hydropult. — "It will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water." — *Gardeners' Weekly Magazine.*

The Hydropult. — "Country readers who order it on our recommendation, will not only not repent, but thank us for calling attention to a machine which, having once used, they will never care to be without."—*Floral World and Garden Guide.*

The Hydropult. — "We can only say that no public establishment or private house should be without one of these useful machines."—*Commercial Daily List.*



EXTRACTS FROM THE PRESS.

The Hydropult. — "We are satisfied that all housekeepers ought to have one, and we are equally satisfied that if they once see it they will order it." — *Liverpool Daily Post.*

The Hydropult. — "We commend it to the notice of the proprietors of warehouses and other buildings, public and private, in the metropolis and provinces.' — *Mechanics' Magazine.*

The Hydropult. — "It is admirably adapted for sprinkling gardens, trees, graperies, washing windows, carriages, and for household purposes, its simplicity and portability being its strong recommendation." — *Illustrated News of the World.*

The Hydropult. — "Nothing has yet been introduced for watering gardens equal to the Hydropult, as any one standing close to his house can water, in a few minutes, any ordinary suburban garden, thus saving much time, and performing the task in an easy, satisfactory manner."— *Builders' Reporter.*

The Hydropult. — "Many of the most scientific men of the age are daily inspecting and testing its uses."— *Age We Live In.*

AN INVENTION FOR THROWING WATER BY HAND POWER

(Secured by Royal Letters Patent),

Price **TWO GUINEAS**

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Small Jet. Weighs but 8 lbs.

Recommended as an efficient and useful Fire Engine by the principal Fire Insurance Companies of Great Britain.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

Thomas Rivers, Esq., the eminent Florist, Shirley Hibbard, Esq., and other well-known gentlemen, recommend it as an invaluable Garden Implement.

EXTRACTS FROM TESTIMONIALS.

"Royal Insurance Office, Liverpool.

"My dear Sir,—I have much pleasure in expressing the high satisfaction, and indeed surprise, with which I witnessed the working of your Hydropult. There can be no doubt that it can be available in the earlier stages of fire in warehouses, manufactories, or private houses, in preventing large conflagrations, while its applicability to gardening and other purposes will be manifest to any one observing its operation.—I am, my dear Sir, yours truly, "Percy M. Dove, Manager."

"Chas. P. Button, Esq."

"The invention will prove extremely valuable for all the purposes to which such machines are applied.—Swinton Boult, Secretary, Liverpool and London Insurance Company."

"Its portability and facility of operation recommend it to the general notice of the public.—Henry Lowe, Secretary, District Fire Company."

"In a blowing or mixing room it would be of especia service. — F. J. Hallows, Secretary, Caledonian Insurance Company."

CAUTION: Important to the Public.—The extensive sale of the HYDROPULT has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting, as they are often placed under or near the Hydropult show card. The Proprietor therefore issues this caution, and respectfully intimates that parties wishing to purchase the Hydropult, should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, a Portable Fire Annihilator and Garden Engine; Griffiths & Browett, Manufacturers, Birmingham; Charles P. Button, General Agent (Vose's Patent)." Unless this label be attached, the machine is not the Hydropult.

THE HYDROPULT is MADE of BRASS and COPPER, weighs but 8 lbs., and WILL THROW EIGHT GALLONS of WATER PER MINUTE FIFTY FEET, WHEN WORKED by the POWER of ONE MAN.

Public and private buildings have been saved from destruction by its agency. T. Spencer, Esq., Inspector of the Royal Society for Protection of Life from Fire, certifies to its efficiency in saving valuable property at Bayswater from destruction.

FIRE! FIRE! FIRE! THE HYDROPULT IS THE MOST EFFICIENT FIRE-ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.

It can be used for all purposes for which a hydrant or force pump is applicable, and in situations where other contrivances are useless.

THE HYDROPULT WILL BE ON EXHIBITION AND FOR SALE

AT THE

AGRICULTURAL HALL, ISLINGTON,

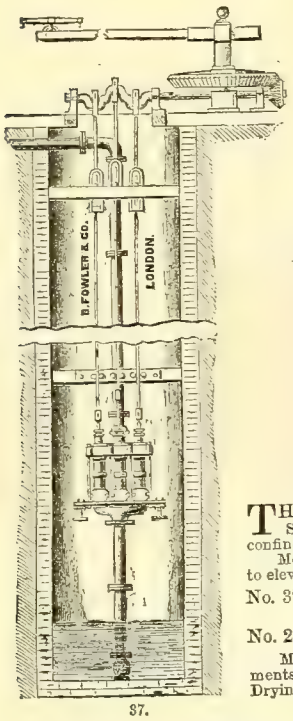
DURING THE

GREAT INTERNATIONAL DOG SHOW, MAY 25, 26, 27, 28, 29, and 30.

CHARLES P. BUTTON, Proprietor,

HYDROPULT WAREHOUSE, 27, LEADENHALL STREET, LONDON, E.C.

WEST END DEPOT, 309, REGENT STREET, W



37.

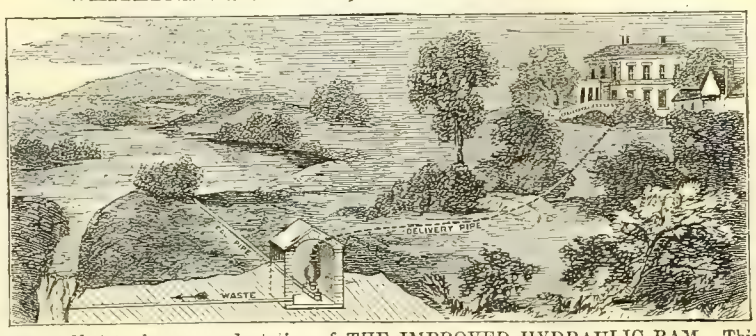
CLINTON & OWENS,

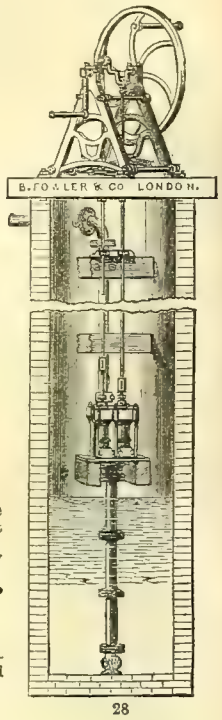
(LATE BENJAMIN FOWLER & CO.),

MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.





28

THE Landscape Sketch shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for raising water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c., free on application.

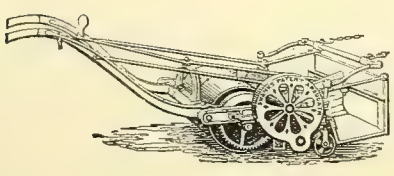
SHANKS' NEW IMPROVED PATENT

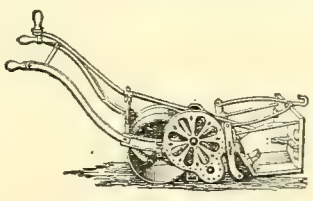
LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

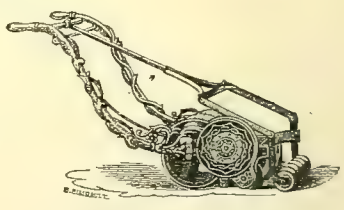
WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.


NEW HORSE MACHINE.


NEW PONY MACHINE.


NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	40*s.* „
No. 3.—36-inch Machine ...	22 0 0	30*s.* „
No. 4.—30-inch Machine ...	19 0 0	30*s.* „

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine ...	£15 15 0	30*s.* extra.
No. 6.—28-inch Machine ...	14 10 0	30*s.* „
No. 7.—25-inch Machine ...	12 10 0	25*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine ...	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine ...	8 7 6	
No. 10.—19-inch Machine ...	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine ...	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine ...	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £5 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

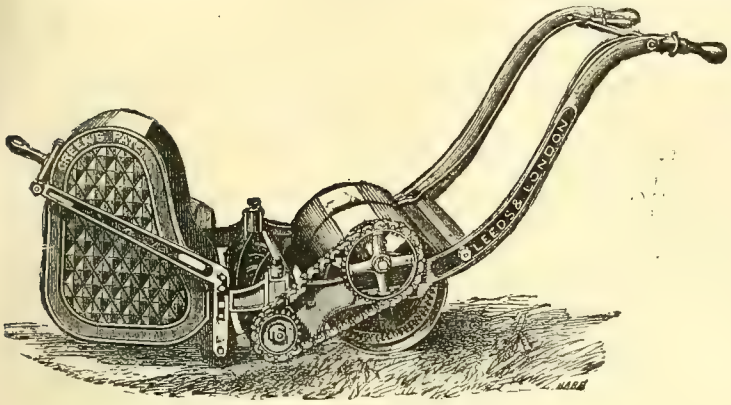
LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

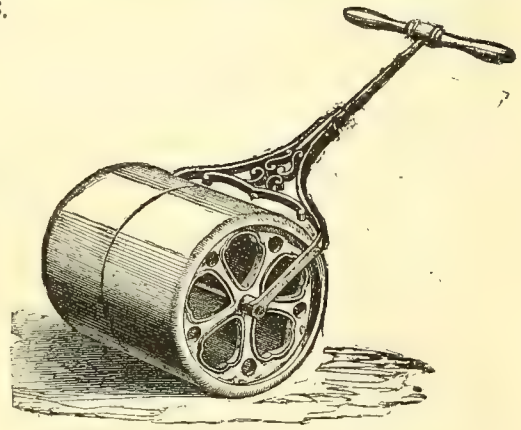
GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS,

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS

DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

Upwards of 14,000 of the above Machines have been sold since the year 1856, and thousands of letters have been received by the Patentees testifying to their efficiency. They do not deem it necessary to publish more than the two following :—

TESTIMONIALS.

"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"Dear Sir,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, Geo. Eyles."

"Royal Gardens, Windsor, March 27, 1863.

"Dear Sir,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

"To Mr. Green." "Yours very truly, Thomas Ingram."

PRICES.

To Cut 10 inches	£3	10	0	Suitable for a Lady.									
„ 12 „	5	0	0	Suitable for One Person. If with internal gear, 10*s.* extra.									
„ 14 „	5	10	0	Do.	Do.	Do.	Do.	10*s.* extra.					
„ 16 „	6	10	0	Suitable for One Man or Two Boys.									

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

To Cut 18 inches	...	£7	10	0	Suitable for One Man and Boy							£8	15	0
„ 20 „	...	8	0	0	Do.						...	9	5	0
„ 22 „	...	8	10	0	Suitable for Two Men						...	9	17	6
„ 24 „	...	9	0	0	Do.						...	10	7	6

If with Patent Delivery Box.

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	... £12 10 0
„ 26 „	12 10 0	... 13 12 0
„ 30 „	16 14 0	... 18 0 0

Leather Boots for Donkey, 16*s.*; for Pony, 20*s.*

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	... £21 10 0
„ 36 „	23 0 0	... 24 16 0
„ 42 „	26 0 0	... 28 2 0
„ 48 „	29 0 0	... 31 8 0

Leather Boots for Horse, per set, 1*l.* 4*s.*

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5*s.* | Diameter 16 inches, length 17 inches, price £2 10*s.* | Diameter 24 inches, length 26 inches, price £4 5*s.*
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

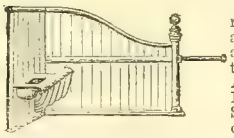
PORTABLE and FIXED STEAM ENGINES; COMBINED THRESHING, SHAKING, and WINNOWING MACHINES;
REAPING and MOWING MACHINES; BONE CRUSHING MILLS; CORN CRUSHING and BEAN SPLITTING MILLS; CHAFF CUTTERS;
TURNIP SHEARS and PULPERS; IMPROVED HAY-MAKING MACHINES, and HORSE RAKES;
CLOD CRUSHERS, and WROUGHT IRON FIELD ROLLERS; PLOUGHS, HARROWS, and CULTIVATORS; VERANDAHS;
PATENT HYDROPULT, and all kinds of GARDEN ENGINES and SYRINGES; GARDEN CHAIRS and TABLES;
ORNAMENTAL FOUNTAINS and VASES; GARDEN TOOLS; PREMIUM CONTINUOUS IRON FENCING and HURDLES;
STRAINED WIRE FENCES, of all kinds; ESPALIER FENCES; GAME-PROOF WIRE NETTING and TRELLIS WORK;
ORNAMENTAL and PLAIN ENTRANCE, WICKET, and FOOTPATH GATES; WROUGHT IRON FIELD GATES; TREE GUARDS;
CATTLE and PIG TROUGHS; SHEEP RACKS; WASHING and WRINGING MACHINES; FIRE-PROOF IRON SAFES; IRON WHEELBARROWS;
IMPROVED IRON STABLE FITTINGS;
and every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;
and MANUFACTURERS of all kinds of IRONWORK for the IMPROVEMENT or EMBELLISHMENT of LANDED PROPERTY.

Illustrated Catalogues on application.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

Exhibition Prize Medal 1862.

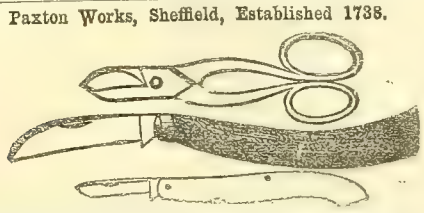
MUSGRAVE'S PATENT STABLE FITTINGS and HARMLESS LOOSE BOXES, PATENT IRON COW HOUSE FITTINGS, and IRON PIGGERIES.



These inventions are recommended as possessing numerous advantages not to be found in anything hitherto made. At the late Meeting of the Royal Agricultural Society at Leeds, MUSGRAVE BROTHERS received a Silver Medal, and two Awards of "Highly Commended," being the only Prizes conferred on any competitor in this class.

Particulars sent on application to the Inventors and Makers, MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal is just awarded to SAYNOR & COOKE for superiority of quality in Pruning and Budding Knives, &c.

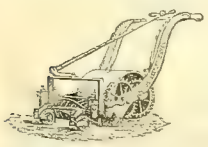
SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

BEFORE ORDERING LAWN MOWERS, see the "Sun and Planet Motion," with Patent Compound Wheel, in MORTON'S NEW PATENT LAWN MOWING MACHINE for 1863, allowed to be the best of the season.

Prices and particulars of Horse, Pony, or Donkey, and Hand Machines, to be had from GRIMMOND, LAIRD, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath.

*** Agents wanted in every Town. Apply as above.



Lawn Mowers.

BURGESS AND KEY beg to direct attention to their NEW PATENT LAWN MOWING MACHINE. It is simple, efficient, easily worked, and not liable to derangement. GARDENING and HORTICULTURAL TOOLS of every description. Illustrated Price List free. Catalogues by post on receipt of six postage stamps.

BURGESS & KEY, 95, Newgate Street, London, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement.

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

ST. PANCRAS IRON WORKS,

OLD ST. PANCRAS ROAD, N.W.

IRON HURDLES, FENCING, and GATES.

The PROPRIETORS of the ST. PANCRAS IRON WORKS, OLD ST. PANCRAS ROAD, LONDON,
WERE AWARDED THE
SILVER MEDAL of the ROYAL AGRICULTURAL SOCIETY for their IRON HURDLES and GATES, which, by their peculiar construction, are more than twice as strong and durable as those in ordinary use.

Lists per post on application. Gates from 30*s.* to 500*l.*

The Hurdles can be seen in process of Manufacture at the Works.

GAME WIRE NETTING.

PROFESSOR VARNELL'S ENAMELLED and WROUGHT-IRON STABLE FITTINGS.

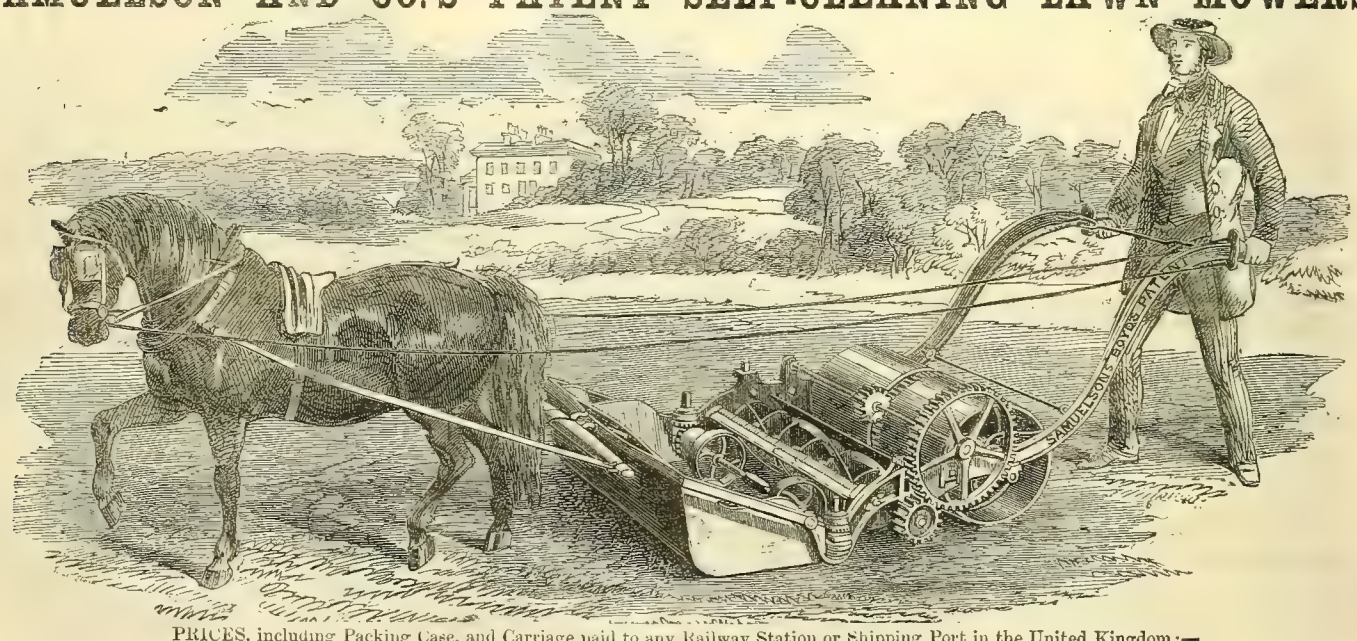
These Patent Mangers and Stable Fittings obtained the Commendation and the Silver Medal of the Royal Agricultural Society of England and the Royal Agricultural Society of Ireland, are adopted by the Royal Veterinary College, and Professor Spooner of that Institution states that they should be used by all who value the health and comfort of their Horses. They can be had Plain, Galvanised, or Enamelled.

A Show Room is devoted entirely to every description of Stable Furniture, and full-sized Stalls and Loose Boxes are erected for inspection at St. Pancras Iron Works.

ADDRESS—THE MANAGERS, ST. PANCRAS IRON WORKS,
OLD ST. PANCRAS ROAD, LONDON, N.W., OPPOSITE OLD ST. PANCRAS CHURCH.

THE GEARING OF SAMUELSON AND CO.'S LAWN MOWING MACHINES IS NOT LIABLE TO DERANGEMENT.

SAMUELSON AND CO.'S PATENT SELF-CLEANING LAWN MOWERS.



PRICES, including Packing Case, and Carriage paid to any Railway Station or Shipping Port in the United Kingdom:—

MANUAL POWER	12 inches cut,	suitable for a Lady	...	...	...	£4	12	0	PONY POWER	22 inches cut	...	£8	15	0
	16 „	suitable for One Person	...	...	...	6	10	0		25 „	...	11	10	0
	19 „	suitable for One Man and Boy	...	...		7	0	0		30 „	...	14	14	0
	22 „	suitable for Two Men ...	...	...	...	8	0	0						

If with BOYD'S PATENT BRUSH, 15*s.* extra.

MESSRS. SAMUELSON AND CO. are now supplying their 12-inch and 16-inch NEW PATTERN LAWN MOWERS, which they tested thoroughly last season. These Machines are handsome in appearance, lighter in draught, simpler and more durable than any Machine in the trade, and are sure to recommend themselves to the public.

Prices as above.

All Orders direct or through Dealers will be executed according to priority of receipt. May be obtained at the WORKS, Banbury; or at SAMUELSON & Co.'s various Depôts; also of all Ironmongers and Seedsmen, and at

SAMUELSON AND CO.'S WAREHOUSE, 76, CANNON STREET WEST, LONDON, E.C.

FOWLER'S
STEAM PLOUGHING AND CULTIVATING PATENTS.

RANSOMES & SIMS, Orwell Works, Ipswich,

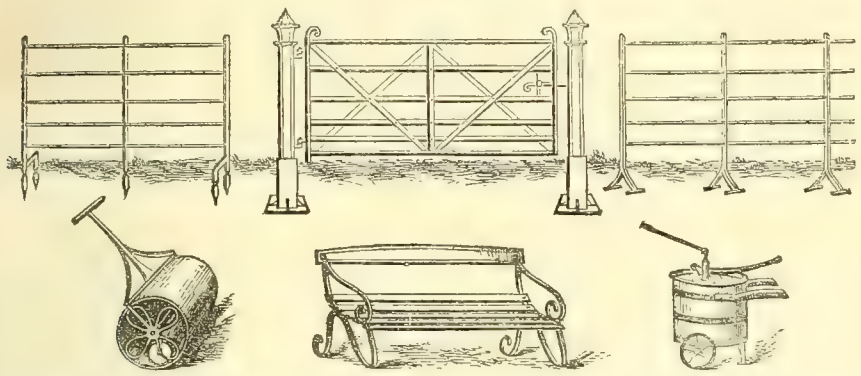
Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

COTTAM'S
CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED,

IN VARIOUS STYLES.

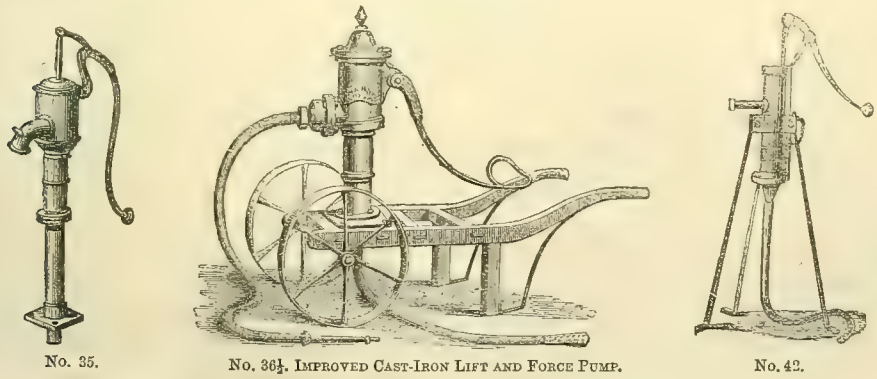


IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.
VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.
The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

Illustrated CATALOGUES and DRAWINGS free on application to
COTTAM & CO., ENGINEERS and IRON FOUNDERS,
2, WINSLEY STREET (Opposite the Pantheon), OXFORD STREET, LONDON, W.

JOHN WARNER & SONS,
BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. No. 36½. Improved Cast-Iron Lift and Force Pump. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4
2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0
3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.
When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER and SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C

Do as Others Do!

BUY YOUR SEED BAGS from JAMES T. ANDERSON, Sack and Bag Maker, and Russia Mat Merchant, 15, SHERBORNE LANE, King William Street, London, E.C., who will supply you with a first-rate article at a low price. ARCHANGEL MATS, the pick of the season. Russian and Prussian Dunnage Mats.
Prices sent free on application.

WANTED, a SMALL GRASS FARM, within 50 or 60 miles of London; or good COTTAGE with Fields. M. D., Barnes, Post Office, Campden Hill, Kensington, W.

To Gentlemen's Gardeners and others in Want of a Business.

TO BE LET, with immediate possession, a FLORIST'S and FRUITERER'S BUSINESS, in one of the best localities, 4 miles from London. Rent, 45*l.* a year; Let 15*s.* per week. Two Greenhouses and other convenience, with good Stock or otherwise. Full particulars.
D. B., Mr. Ballenger, Boot Warehouse, New Road, Hammersmith, W.

To Nurserymen and Gentlemen's Gardeners.

TO BE SOLD, the LEASE, STOCK, and GLASS of a SMALL NURSERY within four miles of Covent Garden, containing about one acre and a-half of Land, and 15,000 feet of Glass in good order, with every convenience for carrying on a large Trade. Has been successfully carried on by the present Proprietor for the last 17 years, who now is giving up business. Part of purchase-money could remain for a term agreed upon at 5 per cent. Among the Houses are four Vineries built and planted within the last seven years, and three of them are now in full bearing. Immediate Possession can be had for 1000*l.*
For further particulars apply to Messrs. Protheroe & Morris, American Nursery, Leytonstone, Essex, N.E.

Sales by Auction.

Little Ealing, Middlesex.

Choice Greenhouse Plants.

MR. J. C. STEVENS begs to announce that he will SELL by AUCTION on the Premises, Gunley House, Little Ealing, on THURSDAY, June 11, at half-past 12 o'Clock precisely, a choice collection of GREENHOUSE PLANTS, the property of a gentleman who is going to reside in London, consisting of Standard Camellias, Myrtles, Fuchsias, Orange trees, &c., many of them unique specimens of 18 years' growth and attention.

On view the day prior and Morning of Sale, and Catalogues had.

Gunley House is three-quarters of a mile from Brentford Station on the South Western Railway (loop line), and one and a-half mile from Ealing Station on the Great Western.

Greenhouse and Bedding Plants.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, June 5, at 12 o'Clock, SHOW, FANCY, and FRENCH PELARGONIUMS, CALCEOLARIAS, HELIOTROPES, and a variety of other Plants in bloom, with a useful and Ornamental assortment of Plants for Bedding out.

On view the Morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Important Sale of Stove and Greenhouse Plants.

MR. JOHN WIDDICOMBE will SELL by AUCTION (without Reserve) on SATURDAY, June 13, at 11 o'Clock in the forenoon, in the Horticultural Tent of the Bath and West of England Society, at Exeter, the valuable collection of STOVE PLANTS, CHOICE AZALEAS, and other GREENHOUSE PLANTS, late the property of A. Lawrance, Esq., of Devonshire Buildings, Bath (deceased).

On view to persons visiting the Horticultural Department of the Bath and West of England Society's Exhibition, at Exeter, on the 8th, 9th, 10th, 11th, and 12th of June; where Catalogues, 6*d.* each, may be had at the Office of the Director, at the entrance of the Yard; or of Mr. John Widdicombe, Torrhill, Ivybridge.

Brockley Farm, near Lewisham.

Important Sale of Shorthorns, Sheep, &c.

MR. STRAFFORD has received instructions to SELL by AUCTION, without reserve, at the Brockley Farm, Lewisham, Kent, six miles from London Bridge, on TUESDAY, June 2, the entire Herd of very superior SHORTHORNED CATTLE, belonging to J. T. Noakes, Esq., consisting of about 45 head of Bulls, Cows, and Heifers, which have been bred from the famed stock of Sir C. Knightley, Sir J. W. Lubbock, Capt. Gunter, Messrs. Adkins, Bolden, Combe, Dixon, Dudding, Stratton, and Tracy. The young stock are chiefly by the celebrated Bull Cherry Duke 3d (15,763), and the Cows are served by him. Also will be Sold the select Flock of KENTISH SHEEP, consisting of 80 Ewes and their Lambs; as well as a few promising young Colts of the Don John blood.
Mr. Strafford, after a personal inspection of the Stock, can with confidence recommend them to the favourable notice of purchasers.

Catalogues, with pedigrees and other particulars, may be had of Mr. Strafford, 13, Euston Square, London, N.W.; or of Mr. Noakes, and the Bailiff, at the Farm.

High Road, Lee, Kent.

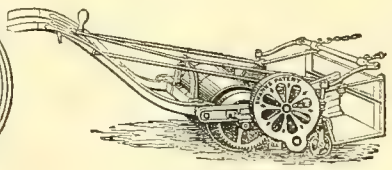
Nursery Stock and Fittings; Horse, Van, Gravel Cart, &c.

MR. DYER has been favoured with instructions from Mr. Saville to SELL by AUCTION, on his Premises, on THURSDAY, June 4, at 2 o'clock (the Ground being required immediately for Building Purposes), the NURSERY STOCK and FITTINGS, comprising the Glazed Framework and Staging of two Greenhouses, the Framework and Lights of three Forcing Pits, a quantity of Glazed Lights, two painted Eight-tier Flower Stands, a quantity of Bedding-out Plants, consisting of Flower of the Day and other Geraniums, Verbenas, Calceolarias, Lobelias, Heliotropes, and others; a fine large Double White Camellia japonica, quantity of Ferns, Variegated Aloes, Shrubs in Pots and in the Ground, comprising Aucubas, Arbor Vitæ, Drooping-Ash, Box, &c., &c.; Hollow Tree Butts, Rustic Baskets, Wire Border and other Frames, Edging Tiles, a very useful Horse, capital Spring Van with Patent Axles, Gravel Cart with Side Boards, Sets of Van and Cart Harness, Chaff Box and Knife, Truck with Iron Wheels, Hand and Navvy Barrows, the Erections of Sheds and Fowl-house, 40-Round Ladder, quantity of Quartering Planks and Rough Wood, Eight Hens and Rooster, and other effects.

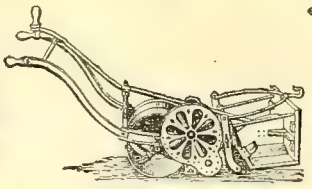
May be viewed the day prior to and on the Morning of Sale, and Catalogues obtained on the Premises; at the Estate Exchange, Change Alley, E.C.; and of the Auctioneer, Blackheath, S.E.

SHANKS' NEW PATENT LAWN MOWING MACHINE for 1863.

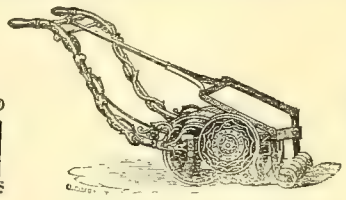




HORSE MACHINE.



PONY MACHINE.



NEW HAND MACHINE.



SHANKS' NEW PATENT MACHINE

Mows the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at half the expense.

The first practical Gardeners of the day who have devoted their attention in examining all the different Lawn Mowers offered, do not hesitate in recommending SHANKS' Machine as *the best Mower for general use.* The important Improvements introduced last season have undergone a thorough practical test, and satisfied the most sanguine expectations. *Further Improvements, simplifying the Machine, and adding to its efficiency, have been introduced into the* NEW PATENT LAWN MOWER for 1863.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for Use.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.

No. 1.—48-inch Machine ... £28 0 0 } *Drawn by a Horse.*
No. 2.—42-inch Machine ... 26 0 0 }
No. 3.—36-inch Machine ... 22 0 0 }
No. 4.—30-inch Machine ... 19 0 0 *Drawn by a Horse or strong Pony.*

Patent Delivering Apparatus for Nos. 1 and 2 Machines, 40*s.*; for Nos. 3 and 4 Machines, 30*s.*; Box with complete Set of Tools, 10*s.*; Silent Movement, 20*s.*; Boots for Horses' Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.

No. 5.—30-inch Machine ... ... £15 15 0 } *Drawn by a Pony.*
No. 6.—28-inch Machine ... ... 14 10 0 }
No. 7.—25-inch Machine ... ... 12 10 0 *Drawn by a Donkey.*

Patent Delivering Apparatus for Nos. 5 and 6 Machines, 30*s.*; for No. 7 Machine, 25*s.*; Box with complete Set of Tools, 7*s.* 6*d.*; Silent Movement, 12*s.* 6*d.*; Boots for Pony, 21*s.*; Donkey, 10*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for use.

Width of Cutter.

No. 8.—24-inch Machine ... ... £8 17 6 } *Easily Worked by Two Men.*
No. 9.—22-inch Machine ... ... 8 7 6 }
No. 10.—19-inch Machine ... ... 7 12 6 *Do. by a Man and a Boy.*

Width of Cutter.

No. 11.—16-inch Machine ... ... £6 17 6 *Easily Worked by a Man.*
No. 12.—13-inch Machine ... ... 6 2 6 *Do. by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, and which is only recommended for the two larger sizes, 25*s.*; Box, with complete Set of Tools, 5*s.*; Silent Movement, 7*s.* 6*d.*

No. 16.—12-inch Machine for Pushing only, £5 5*s.*; easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

Machines are kept in Stock, from which Orders can be at once executed.

*** *The Machines are warranted to give ample satisfaction, and if not approved of may be at once returned.*

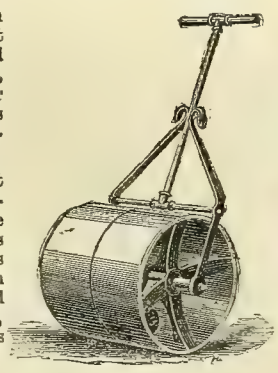
AGENTS:

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

NEW PATENT DOUBLE-CYLINDER GARDEN ROLLER.

This Roller will turn round the sharpest curves or angles, and even in its own length, without damaging or disfiguring either Grass or Gravel in the dampest weather.

Although the Patent Garden Roller is somewhat heavier than the ordinary Roller, it is used with much less labour, especially in winding walks and borders, and the work, especially on Grass, is much better done.

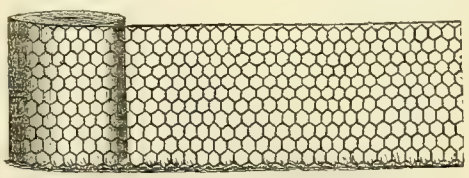


PRICES.

20 Inches	... £3	5	0	26 Inches	... £4	15	0
22 „	... 3	15	0	28 „	... 5	15	0
24 „	... 4	5	0	30 „	... 7	0	0

IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT, WITH REDUCED PRICE.



PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Jap	Gal.	Jap	Gal.	Jap	Gal	Jap	Gal.
2 in.	Poultry	3½d.	4½d.	4d.	5d.	5d.	6½d.	6½d.	8d.
1⅝ in.	Small Rabbits ..	4d.	4¾d.	4¾d.	6d.	5½d.	7d.	7d.	9d.

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.

GARDEN ENGINE.



Of improved make, painted Tub, with Registered Spreader complete—to hold 12 Gallons, £3 5*s.*; 16 Gallons, £3 15*s.*; 20 Gallons, £4 10*s.*; 30 Gallons, £5 5*s.*

GARDEN SEATS and CHAIRS, IRON and WIRE ARCHWAYS, CAST-IRON VASES, and every description of Horticultural Machines, Tools, and appliances.

Every article guaranteed to be satisfactory.

☞ CATALOGUES of AGRICULTURAL IMPLEMENTS, &c., in Parts as under, Free on application:—

Part I. Implements of Tillage, &c. | Part II. Harvesting and other Machines. | Part III. Barn Machinery and Miscellaneous.

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie St., in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, May 30, 1863.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 23.—1863.] SATURDAY, JUNE 6. {Price Fivepence. / Stamped Edition, 6d.

INDEX.

Architecture, Rudimentary Treatise on	535 b	New plants and flowers	531 c
Books received	535 c	Peas	534 b
Cinchonas in India	531 a	Principles of Design in Architecture	535 b
Clivedon	535 c	Quinine	531 a
Conifers, New Greek	534 b	Regents' Park Show	531 b
Farm valuation	538 b	Rhododendron Edgeworthii	534 c
Garden Memoranda	535 c	Roses	531 c
Gishurst Compound	534 b	R. H. S. May Show	534 b
Greenfly	536 c	Science of Life, rev.	535 b
Home Life, Science of	535 b	Small pox in sheep	539 c
Husbandry, laws of	538 b	Society, Royal Botanic	534 c
Law of rating	534 b	— Royal Agricultural	539 b
Lawns, weedy	536 c	Spontaneous generation	531 a
London Farmers' Club	540 b	Steam cultivation	538 a—540 b
Monstera deliciosa	534 c	Tacsonia ignea	536 c

Royal Horticultural Society.
10TH JUNE, 1863.

UNCOVERING of MEMORIAL of EXHIBITION of 1851, in the presence of their RR.HH.'s THE PRINCE and PRINCESS of WALES.
Cards of Admission, 20s., if obtained on or before the 9th of June, and 30s. on day. A. MURRAY.

ROYAL HORTICULTURAL SOCIETY.—In consequence of the preparations necessary to be made for the Ceremonial of June 10, the Garden will be CLOSED on TUESDAY, the 9th.
By Order of the Council. ANDREW MURRAY.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.
EXHIBITION of AMERICAN PLANTS, MONDAY NEXT, June 8.
Tickets to be obtained at the Gardens by Orders from Fellows of the Society, price 5s.; Monday, 7s. 6d. each. Gates open at 2 o'clock.
Two Military Bands will attend.
The next Meeting for the Election of new Subscribers, Saturday, June 13.

CRYSTAL PALACE.—The GREAT ROSE SHOW, SATURDAY, June 27, 1863.
Schedules are now ready, and can be had on application to Mr. W. HOUGHTON, Secretary to the Show.
The ENTRIES CLOSE on Saturday, June 20.
Admission to the Crystal Palace on the day, 2s. 6d.; children, 1s.

LEYTON and WALTHAMSTOW FLORICULTURAL SOCIETY.
The FIRST EXHIBITION of FLOWERS, FRUIT, &c., will take place on THURSDAY, June 11, in the Pleasure Grounds of J. G. BARCLAY, Esq., Knott Green, Leyton, Essex. Admission from 1 till 4 o'clock, 2s.; and from 4 till 7 o'clock, 1s. For cards and particulars, apply to E. GOAD, Hon. Sec.
Beulah Road, Walthamstow, Essex, N.E.

TUNBRIDGE WELLS HORTICULTURAL SOCIETY.
A GRAND FLOWER SHOW and MUSICAL PROMENADE will take place on FRIDAY, July 3, in the grounds adjoining the Calverley Park Hotel. Entrance thereto opposite the Railway Station. Prizes open to all England will be given; also to Gardeners and Amateurs, and to Cottagers.
Schedules of the Prizes may be obtained of Mr. E. F. LOOF, Secretary, 8, Parade, Tunbridge Wells.

Double Pyrethrums.
JOHN SALTER'S COLLECTION of these new and beautiful Flowers is NOW in BLOOM, and may be seen every day except Sunday.
Versailles Nursery, William Street, near Hammersmith Turnpike, W.

Chinese Herbaceous Pæonies.
JOHN SALTER'S extensive Collection of these noble Flowers is NOW in BLOOM, and may be seen every day except Sunday.
Versailles Nursery, William Street, near Hammersmith Turnpike.

Grand Exhibition of Hardy Scarlet and other Choice Rhododendrons.
JOHN WATERER has the pleasure to announce that his matchless COLLECTION of the above plants is NOW on VIEW at the Royal Botanic Gardens, Regent's Park.
Orders of admission are granted by Fellows of the Society. Admission can also be obtained on application to Mr. WATERER, at the Gardens, any days excepting Wednesdays or Saturdays, or June 8.
The American Nursery, Bagshot, Surrey.

TEN POUNDS REWARD.—A handsome Specimen Plant of DRACÆNA AUSTRALIS, 9 feet high, was exhibited at the last Flower Show at the Royal Horticultural Gardens, and between the time of being there on Tuesday evening and its return on Thursday morning, the top of the Plant was completely cut out and taken away.
Whoever will furnish such information to Mr. WILLIAM BULL as may lead to the conviction of the offender, shall receive the above reward.
Establishment for New and Rare Plants, King's Road, Chelsea.

NEW PRIZE MELONS, at 1s. 6d. per packet.
Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria.
For descriptions see GUIDE to the KITCHEN GARDEN.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Grape Vines.
JAMES CRAWFORD, High Beech, Essex, begs to offer fine strong healthy Plants, fit for immediate planting, at low prices; he will guarantee their travelling safe to any part of Great Britain.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.

Garden and Agricultural Seeds, Carriage Free.
WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Good Turnip Seeds, Carriage Free.
SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

Agricultural Seeds.
GEORGE GIBBS AND CO., SEEDSMEN, 26, Down Street, Piccadilly, London, W.

Best Seeds, Carriage Free.
BUTLER AND McCULLOCH, SEED MERCHANTS, Covent Garden Market, London, W.C.

NOVELTIES of 1863 at greatly reduced prices.—A CATALOGUE of 30 pages, containing full descriptions of nearly 500 New Choice Plants of the season, including the New Fuchsias and Verbenas, &c. Post free for one stamp.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

VARIEGATED-LEAVED GERANIUMS. — Fine Summer-struck Plants of BIJOU, BRILLIANT, IVY-LEAVED, JANE, LADY PLYMOUTH, MANGLES' PINK and RED, PERFECTION, QUEEN VICTORIA, SHOTTISHAM PET, &c., 2s. 6d. per doz., or 20s. per 100.
WOOD & INGRAM, Huntingdon.

ROSY CRIMSON ZONAL GERANIUMS.—Fine Summer-struck plants of BRITISH FLAG, COUNTESS, HON. MRS. FELLOWES, LADY DOWNES, LADY MIDDLETON, FLORIAN, &c., 2s. 6d. per dozen. 20s. per 100.
WOOD & INGRAM, Huntingdon.

Calceolarias.
CRAWFORD'S EMPEREUR DE MAROC is without exception the finest Dark ever offered for Sale, both for Bedding and Pot Culture, 3s. 6d. each. The Trade well used.

New Verbenas of 1863.
B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, has now ready to send out the NEW VERBENAS of 1863, at 4s. per dozen.
CATALOGUES of VERBENAS and other Novelties sent on application.

SPLENDID NEW SCARLET VERBENA, LORD LEIGH.—Strong Plants now ready, 5s. each, 42s. per dozen.
CATALOGUES also ready, and will be forwarded Post-free on application to
S. PERKINS & SONS, Park Nursery, Coventry.

Primula, &c., very choice.
WM. CUTBUSH AND SON possess an unrivalled strain of

	Per packet.—s. d.
PRIMULA SINENSIS FIMBRIATA	2s. 6d. and 3 6
CALCEOLARIA, fine herbaceous	2 6
CINERARIA, from best named flowers	2 6

Free per Post.
Highgate Nurseries, London, N.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.
RICHARD SMITH, Nurseryman, Worcester.

GERMAN STOCKS, ASTERS, &c. — Finest GERMAN STOCKS and LARKSPURS, German and French ASTERS and MARIGOLDS, now fit for planting out, post free, for 2s. 6d. per 100; finest FRENCH BALSAMS, just ready for potting, 5s. per 100. All raised from seed imported from the best German and French Growers. Postage stamps received as payment.
WOOD & INGRAM, Huntingdon.

Bedding Plants, mostly 2s. 6d. per dozen.
J. SCOTT'S FLOWER GARDEN and ANNUAL DIRECTORY will be ready to forward, from the 1st week of April, at 6d.
"All who wish to have their Gardens gay, at a moderate price, should procure the above."
Merriott, Crewkerne, Somerset.

Cheap Bedding Plants.
WM. DILLISTONE will forward (Carriage free to London), upon receipt of Post Office Order for 18s. on Castle Hedingham, 100 Strong Plants in Pots; consisting of GERANIUMS, FUCHSIAS, DAHLIAS, VERBENAS, CALCEOLARIAS, &c.
N.B. The above are warranted to give satisfaction. CATALOGUES upon application.
Munro Nursery, Sible Hedingham, Essex.

BEDDING PLANTS—BEDDING PLANTS.—The undersigned beg to offer the above, of all the popular kinds in well hardened Plants, per 100, 20s., prepaid hamper included. Cheaper by the thousand. Carriage paid to Brick Lane Station.
A CATALOGUE of 35 pages sent upon application, enclosing a stamp. Post-office Orders payable at Halstead.
Messrs. DILLISTONE & Co., Sturmer and Woodlands Nurseries, near Halstead, Essex.

New Roses of 1863.
E. G. HENDERSON AND SON offer strong healthy plants of the most select kinds at 42s. per dozen. The Trade supplied in any quantity.
Wellington Nursery, St. John's Wood, London, N.W.

New Roses for 1863.
BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.
St. John's Street Nursery, Colchester.

Paul's Nurseries, Waltham Cross.
WM. PAUL (Son and Successor to the late A. PAUL), has a large Stock of all the NEW ROSES, now ready for delivery.
Splendid plants at lowest advertised prices.
PRICED CATALOGUE free by post.

E. G. HENDERSON AND SON offer first-class quality of CINERARIA, PRIMULA SINENSIS FIMBRIATA, and PANSY. Also, CINERARIA WEBBI, new shrubby species.
All the above, 1s. and 2s. 6d. per packet.
☞ EXPERIENCED GARDENERS recommended to Gentlemen.
Wellington Nursery, St. John's Wood, London, N.W.

Extra Choice Cineraria Seed.
LUCOMBE, PINCE, AND CO. are now sending out their very superb CINERARIA SEED, which has been carefully saved from the choicest selected Flowers, and the high character of this year's strain enables them with great confidence to recommend the seed as being vastly superior to any previously offered. Sealed packets, free by post, 2s. 6d. each.
Exeter Nursery, Exeter.

LOUIS VAN HOUTTE'S NEW CATALOGUE, No. 96, is to be had at Messrs. R. SILBERRAD & SON, 5, Harp Lane, London, E.C.
☞ L. v. H.'s goods will be delivered free out of the Custom House in London, without any expense whatever to the buyer, but per contra 5s. will be charged for each package.
Ghent, Belgium.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.
Dorking Nursery.

Ferns.
EDWIN COOLING will have pleasure in forwarding his NEW PRICED CATALOGUE on application. Also his GENERAL LIST of CHOICE PLANTS suitable for the Conservatory and Flower Garden.
Mile Ash Nurseries, Derby.

To Exhibitors of Ferns.
J. WATSON, New Zealand Nursery, St. Alban's, has much pleasure in offering fine specimens of that beautiful TREE FERN, CYATHEA SMITHII, undoubtedly the finest in Europe, being from 1 to 6 feet in the stem; also fine plants of CYATHEA DEALBATA, LOMARIA DISCOLOR. Magnificent plants of TODEA PELLUCIDA. Several fine species of the HYMENOPHYLLUMS of New Zealand, with many other kinds too numerous for insertion.
Prices on application by Post.
J. WATSON, New Zealand Nursery, St. Alban's, Herts.

Ferns and Stove Plants.
TO BE DISPOSED OF, by a gentleman who is doing away with his Stove Plants and Ferns, a Choice COLLECTION of the above, by Private Contract or otherwise. A good opportunity for any lady or gentleman in want of such Plants.
Apply to G. ASHWELL, Wick Hill, Hove, Brighton, Sussex; or to H. SMYTHE, Nurseryman, Brighton.

To Gentlemen, Nurserymen, and Others.
TO BE SOLD, a very fine DOUBLE WHITE CAMELLIA TREE, standing 15 feet high, 8 feet 6 inches through. To be seen at the Kingsland Nursery, Ball's Pond, Islington, N.
For further particulars inquire of W. HAYLES, 5, Compton Street, Ball's Pond, N.

MANGEL WURZEL SEED in every variety, supplied at very moderate rates, direct from the Grower, Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts.

NEW CUCUMBERS, at 1s. per packet.
Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Turnip Seed
FOR SALE, a quantity of True POMERANIAN TURNIP SEED, will soon be ripe.
Apply to DENNETT AYLING, Sandhill, Rogate, Petersfield.

Cabbage Plants.
W. VIRGO AND SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 3s. per 1000:—

EARLY YORK CABBAGE	EARLY NONPAREIL
" BATTERSEA	DRUMHEAD
" BARNES	

RED CABBAGE, 4s. p. 1000. All strong, healthy, and well rooted.
Wonersh Nursery, near Guildford, Surrey.

ROYAL BOTANIC SOCIETY,

REGENT'S PARK.

SECOND EXHIBITION OF PLANTS, FLOWERS, AND FRUIT,

WEDNESDAY, JUNE 3.

AWARDS OF THE JUDGES.

EXTRA GOLD MEDAL.

To Mr. B. Peed, Gr. to Mrs. Tredwell, St. John's Lodge, Norwood, for 16 Stove and Greenhouse Plants
To Mr. G. Baker, Gr. to A. Bassett, Esq., Stamford Hill, for 20 Exotic Orchids

LARGE GOLD MEDAL.

To Mr. J. Green, Gr. to Sir E. Antrobus, Bart., Lower Cheam, Surrey, for 16 Stove and Greenhouse Plants
To Mr. W. Millford, Gr. to E. McMorland, Esq., Adelaide Road, Haverstock Hill, for 20 Exotic Orchids

MEDIUM GOLD MEDAL.

To Mr. R. Baxendine, Gr. to H. Smallpiece, Esq., Millmead House, Guildford, Surrey, for 16 Stove and Greenhouse Plants
To Messrs. J. & J. Fraser, Nurserymen, Leyton, Essex, for 10 Stove and Greenhouse Plants
To Mr. H. Chilman, Gr. to Mrs. Smith, Ashtead House, Epsom, Surrey, for 10 Stove and Greenhouse Plants
To Mr. W. Paul, Nurseryman, Waltham Cross, for 10 Roses
To Mr. B. Peed, Gr., for 20 Orchids
To Mr. C. Penny, Gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, for 12 Exotic Orchids

GOLD MEDAL.

To Mr. O. Rhodes, Nurseryman, Sydenham Park, Kent, for 10 Stove and Greenhouse Plants
To Mr. J. Wheeler, Gr. to J. Phillpott, Stamford Hill, for 10 Stove and Greenhouse Plants
To Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, Herts, for 10 Roses
To Messrs. T. Jackson & Sons, Kingston, Surrey, for 10 Cape Heaths
To Mr. B. Peed, Gr. for 8 Cape Heaths
To Mr. S. Woolley, Nurseryman, Cheshunt, Herts, for 8 Exotic Orchids
To Mr. T. Page, Gr. to W. Leaf, Esq., Park Hill, Streatham, for 12 Exotic Orchids
To Mr. C. Turner, Nurseryman, Slough, Bucks, for 12 Pelargoniums
To Mr. T. Bailey, Gr. to T. T. Drake, Esq., Shardeloes, Amersham, Bucks, for 10 Pelargoniums

LARGE SILVER GILT MEDAL.

To Mr. W. Cutbush, Nurseryman, Barnet, Herts, for 10 Stove and Greenhouse Plants
To Mr. W. Kaile, Gr. to Earl Lovelace, East Horsley Towers, Ripley, Surrey
To Mr. T. Terry, Gr. to C. W. G. Puller, Esq., M.P., Youngsbury, Ware, Herts, for 6 Roses in Pots
To Mr. T. Page, Gr. to W. Leaf, Esq., Park Hill, Streatham, for 6 Stove and Greenhouse Plants
To Mr. O. Rhodes, for 10 Cape Heaths
Mr. T. Page, Gr., for 8 Cape Heaths
To Mr. C. Penny, Gr., for 6 Greenhouse Azaleas
To Mr. C. Turner, for 6 Greenhouse Azaleas
To Mr. J. Green, Gr., for 12 Exotic Orchids
To Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth, for 6 Exotic Orchids
To Mr. Gardiner, Gr. to J. Sutton, Esq., Oak Lodge, Clapham Park, for 6 Fuchsias
To Messrs. J. & J. Fraser, for 12 Pelargoniums
To Mr. J. Shrimpton, Gr. to A. F. Doxatt, Esq., Putney Heath, for 10 Pelargoniums

LARGE SILVER MEDAL.

To Mr. J. Tegg, Gr. to Baron Hambro, Roehampton, Surrey, for 6 Stove and Greenhouse Plants
To Mr. H. Chilman, Gr., for 6 Cape Heaths
To Mr. J. Smith, Gr. to Duke of Northumberland, Syon House, Isleworth, for 6 Exotic Orchids
To Mr. C. Turner, for 6 Fancy Pelargoniums
To Mr. T. Bailey, Gr. to T. T. Drake, Esq., Shardeloes, Amersham, Bucks, for 6 Fancy Pelargoniums

SILVER GILT MEDAL.

To Mr. H. Chilman, Gr. for 12 Exotic Orchids
To Mr. R. Baxendine, Gr., for 8 Cape Heaths
To Messrs. Paul & Son, Old Cheshunt Nurseries, Herts, for 50 Cut Roses
To Mr. John Hollingsworth, Turkey Mills, Maidstone, for 25 Cut Roses
To Mr. J. Wheeler, Gr., for 6 Cape Heaths
To Mr. J. Green, Gr., for 6 Greenhouse Azaleas
To Messrs. J. & J. Fraser, for 6 Greenhouse Azaleas
To Mr. J. James, Gr. to W. F. Watson, Esq., for 6 Calceolarias
To Mr. J. Wheeler, Gr., for 6 Exotic Orchids
To Mr. A. Henderson, Gr. to the Duke of Sutherland, Trentham, for 1 dish of Peaches
To Mr. J. Weir, Gr. to Mr. Hodgson, The Elms, Hampstead, for 10 Pelargoniums
To Messrs. J. & J. Fraser, for 6 Fancy Pelargoniums
To Mr. Petch, Gr. to — Barrow, Esq., Ringwood Hall, Chesterfield, for dish of Nectarines
To Mr. H. Lamb, Gr. to Captain Cahill, Southall, Middlesex, for 6 Fancy Pelargoniums
To Mr. H. Cannell, Gr. to G. Jennings, Esq., Clapham, for 6 Fuchsias
To Messrs. A. Henderson, Nurseryman, Edgeware Road, for 6 Foliage Plants
To Messrs. A. Henderson, for 12 Exotic Ferns
To Mr. W. Jackson, Gr. to Lord Scarsdale, Kedleston, Derby, for Providence Pine
To Mr. J. Horwood, Gr. to G. H. Turnbull, Esq., The Rookery, Down, Bromley, for Queen Pine
To Mr. Clements, Market Gardener, Chase Side, East Barnet, for dish of Black Hamburgh Grapes
To Mr. W. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, for dish of Black Prince Grapes
To Mr. W. Hill, Gr., for dish of White Muscadine

SILVER GILT MEDAL.

To Mr. Petch, Gr., for dish of Frontignans
To Mr. C. Turner, for dish of Grapes

SILVER MEDAL.

Mr. J. Cross, Gr. to Sir F. H. Goldsmid, Bart., Regent's Park, for 6 Greenhouse Azaleas
To Mr. J. Weir, Gr., for 6 Fancy Pelargoniums
To Mr. J. Mitchell, Pilt Down Nurseries, Maresfield, Sussex, for 50 Cut Roses
To Mr. T. Terry, Gr. to C. W. Giles Puller, Esq., Youngbury, near Ware, for 25 Cut Roses
To Mr. B. S. Williams, Paradise Nursery, Holloway, for a Miscellaneous Collection of New and Rare Plants
To Messrs. Ivery & Son, Dorking, for 70 Hardy Ferns
To Mr. W. Carmichael, Gr. to Earl Dunmore, Dunmore Park, Falkirk, N.B., for dish of Peaches
To Mr. S. Evans, Gr. to the Hon. C. Newdegate, Arbury Park Gardens, Nuneaton, Warwickshire, for a dish of Peaches
To Mr. Taylor, Gr. to C. Hanbury, Esq., Belmont, East Barnet, for dish of Peaches
To Mr. Wm. Allen, Gr., Hopwood Hall, for 1 dish of Nectarines
To Mr. J. Smith, Gr., for 6 Calceolarias
To Mr. Hill, Gr., for 12 lbs. of Grapes
To Mr. W. Young, Gr. to R. Barclay, Esq., West House, Highgate, for 6 Fuchsias
To Mr. C. Hutt, Gr., for 6 Foliage Plants
To Mr. H. Lavey, Gr., for 12 Exotic Ferns
To Mr. T. Bailey, Gr., for Providence Pine
To Mr. S. Solomon, Market Gardener, Peckham, for Queen Pine
To Mr. J. R. Petch, for dish of Black Hamburgh Grapes
To Mr. C. Turner, for dish of Black Hamburgh Grapes
To Mr. O. Goldsmid, Gr. to Sir W. Farquhar, for dish of Black Prince Grapes
To Mr. C. Hutt, Gr. to Miss B. Coutts, Highgate, for dish of White Muscadine
To Mr. J. Drewett, Gr. to Mrs. Cubitt, Denbies, Dorking, for dish of Frontiguan Grapes
To Mr. J. Enston, Gr., for dish of Frontignans
To Mr. Clements, for dish of Grapes

SMALL SILVER MEDAL.

To Mr. Peppler, Gr. to Earl Granville, Hendon, for 6 Fancy Pelargoniums
To Mr. Wm. Paul, Waltham Cross Nursery, for 50 Cut Roses
To Mr. C. Turner, Royal Nurseries, Slough, for 24 Cut Roses
To Mr. T. Page, Gr., for 6 Greenhouse Azaleas
To Mr. W. Bull, for Miscellaneous collection of Plants
To Messrs. Fraser, for collection of 10 New Azaleas
To Mr. Gardiner, Gr. to Sir G. A. Phillips, Bart., Weston House, Shipston-on-Stour, Warwick, for dish of Peaches
To Mr. J. Tegg, Gr. to Baron Hambro, Roehampton, for dish of Nectarines
To Mr. A. Henderson, Gr. to the Duke of Sutherland, Trentham, for 1 dish of Black Cherries
To Mr. A. Henderson, Gr., for dish of White Cherries
To Mr. C. Turner, for 2 dishes of Strawberries
To Mr. W. Jackson, Gr., for 12 lb. of Grapes
To Mr. W. Jackson, collection of Providence Pines
To Mr. T. Burley, Nurseryman, Godstone, Surrey, for 6 Calceolarias
To Mr. H. Hooper, Nurseryman, Widcombe Hill, Bath, for 36 Pansies
To Mr. Howse, Charvey, near Slough, 24 Pansies
To Mr. J. Smith, Gr., for 6 Foliage Plants
To Mr. W. Young, Gr., for 12 Exotic Ferns
To Messrs. J. Ivery, for 12 British Ferns
To Mr. A. Henderson, for 3 Fancy Baskets
To Mr. Young, Gr. to C. Bailey, Esq., M.P., Aberaman Park, Aberdare, for Providence Pine
To Mr. J. Barnes, Gr. to Lady Rolle, Bicton House, Salterton, Devon, for Queen Pine
To Mr. Meredith, Pine Cottage, Liverpool, for Green-fleshed Melon
To Mr. Simmonds, Gr. to — Smith, Esq., Mickleham Hall, Dorking, for Green-fleshed Melon
To Mr. J. Pottle, Gr., for 1 Scarlet-fleshed Melon
To Mr. Hill, Gr., for 1 dish Black Hamburgh Grapes
To Mr. C. Penny, Gr., for 1 dish Black Hamburgh Grape
To Mr. Jackson, Gr., for 1 dish Black Hamburgh Grapes
To Mr. M. Henderson, Gr., for 1 dish Black Hamburgh Grapes
To Mr. T. Bailey, Gr., for 1 dish White Muscadine Grapes
To Mr. M. Henderson, Gr., for 1 dish Frontignan Grapes

BRONZE MEDAL.

To Messrs. Paul & Son, Old Cheshunt Nurseries, for 24 Cut Roses
To Mr. H. Chilman, Gr., for 6 Greenhouse Azaleas
To Mr. B. Peed, Gr., for 6 Greenhouse Azaleas
To Messrs. Hooper & Co., Covent Garden, for a collection of Ixias
To Mr. J. R. Petch, Gr. to R. Barrow, Esq., Ringwood Hall, Chesterfield, for dish of Peaches
To Mr. C. Turner, for dish of Peaches
To Mr. M. Henderson, Gr. to Sir Geo. Beaumont, Coleorton Hall, Ashby-de-la-Zouch, for a dish of Nectarines
To Mr. C. Robinson, Gr. to R. Benyon, Esq., Englefield, Reading, for 1 dish of Nectarines
To Mr. R. Wilson, Nurseryman, Warwick, for 1 dish of Black Cherries
To Mr. R. Wilson, for dish of White Cherries
To Mr. J. Pottle, Gr. to B. D. Colvin, Esq., Little Bealings, Woodbridge, Suffolk, for 2 dishes of Strawberries
To Mr. M. Henderson, Gr., for 12 lb. of Black Hamburgh Grapes
To Mr. J. Smith, Gr., for 1 dish of Figs
To Mr. Clements, Market Gardener, Chase Side, East Barnet, for 12 lb. of Grapes
To Mr. J. James, Gr., for 6 Fancy Pelargoniums
To Messrs. Downie, Laird, and Laing, Edinburgh, for 36 Pansies
To Mr. J. August, Buddington, Surrey, for 24 Pansies
To Miss Clarkson, 40, Avenue Road, for 12 British Ferns
To Mr. W. Young, Gr., for 3 Fancy Baskets
To Mr. A. Baruwell, Gr. to J. Mills, Esq., Ringwood, Hants, for Green-fleshed Melon

BRONZE MEDAL.

To Mr. T. Bailey, Gr., for Queen Pine
To Mr. J. Tegg, Gr., for 1 Green-fleshed Melon
To Mr. Simmonds, Gr., for 1 Scarlet-fleshed Melon
To Mr. A. Henderson, Gr., for dish of Black Hamburgh Grapes
To Mr. J. Pottle, Gr., for dish of Hamburgh Grapes
To Mr. M. Henderson, Gr., for dish of White Muscadine Grapes

CERTIFICATES.

To Mr. J. Hollingsworth, Esq., Turkey Mills, Maidstone, for 24 Cut Roses
To Mr. H. Lavey, Gr., for 6 Greenhouse Azaleas
To Messrs. Downie, Laird & Laing, for one box of Seedling Fancy Pansies
To Mr. C. Turner, for Collection of Cut Verbenas
To Mr. C. J. Perry, Castle Bromwich, Birmingham, for 36 bunches of Verbenas
To Mr. Cross, Gr. to Sir F. Goldsmid, Bart., for Miscellaneous Collection of Plants
To Mr. J. Beck, Gr. to Lord Broughton, Tedworth Gardens, Marlbro', for dish of Peaches
To Mr. J. Tegg, Gr. to Baron Hambro, Roehampton, for 1 dish of Peaches
To Mr. J. Enston, Gr. to Sir J. Duckworth, Bart., Ware House, Exeter, for dish of Nectarines
To Mr. J. Beck, gr. to Lord Broughton, for 1 dish of Black Cherries
To Mr. J. Hawood, Gr. to G. H. Turnbull, Esq., The Rookery, Down, near Bromley, for 2 dishes of Strawberries
To Mr. Jackson, Gr. to J. Tyler, Esq., Tixall Hall, Stafford, for 2 dishes of Strawberries
To Mr. J Petch, Gr., for dish of Strawberries
To Mr. H. Smith, Market Gardener, Isleworth, for 12 lbs. of Black Grapes
To Mr. E. Shenton, Nurseryman, Hendon, for 36 Pansies
To Mr. D. Weymouth, for 24 Pansies
To Mr. H. Lavey, Gr., for 12 British Ferns
To Mr. T. Bailey, Gr., for 1 Green-fleshed Melon
To Mr. A. Henderson, Gr., for 1 Green-fleshed Melon
To Mr. J. Beck, Gr., for 1 Green-fleshed Melon
To Mr. H. Chilman, Gr., for 1 Green-fleshed Melon
To Mr. T. Bailey, Gr., for 1 Scarlet-fleshed Melon
To Mr. O. Goldsmith, Gr. for 1 Scarlet-fleshed Melon
To Mr. Tegg, Gr., for 1 Scarlet-fleshed Melon
To Mr. J. Toy, Gr. to W. Tarn, Esq., Chiselhurst, Kent, for 1 Scarlet-fleshed Melon
To Mr. C. Bennett, Gr. to S. Foljambe, Worksop, Notts, for 1 Scarlet-fleshed Melon
To Mr. J. Toy, Gr., for 1 dish Black Hamburgh Grapes
To Mr. J. M'Pherson, Gr. to E. S. C. Pole, Esq., Radborn Hall, Derby, for 1 dish of Black Prince Grapes
To Mr. J. Tegg, Gr., for 1 dish of White Muscadine Grapes
To Mr. R. Marcham, Gr. to E. Oates, Esq., Hanwell, for 1 dish of Frontignan Grapes
To Mr. J. M'Pherson, Gr., for 1 dish of Grapes

FIRST-CLASS CERTIFICATES.

To Mr. B. S. Williams, Nurseryman, Holloway, for Lastrea Oreopteris cristata
To Messrs. H. Low & Co., Nurseryman, Clapton, for Erica exquisita
To Mr. Young, Gr. to R. Barclay, Esq, West Hill, Highgate, for Pandanus elegantissimus
To Mr. Young, Gr., for Thrinax elegans
To Messrs. Ivery, Dorking, for Adiantum F.-f. Applebyanum
To Mr. Bull, Nurseryman, King's Road, Chelsea, for Athyrium F.-f. coronatum
To Mr. W. Bull, for Adiantum Féei
To Mr. W. Bull, for Dichorizandra argentea variegata
To Mr. A. Henderson, Pine-apple Place, for Rhynchospermum jasminoides japonicus variegatus
To Messrs. Fraser, Leyton, for Azalea Van Houttei
To Messrs. Veitch & Co., Chelsea, for Retinospora sp. Japan
To Messrs. Veitch & Co., for Woodwardia orientalis Japan
To Messrs. Veitch & Co., for Lastrea erythrosora, Japan
To Messrs. Veitch & Co., for Eranthemum sp. Peru
To Messrs. Veitch & Co., for Eleocarpus reticulatus, N. S. Wales
To Messrs. Veitch & Co., for Marattia Cooperi, New S. Wales
To Messrs. Veitch & Co., for Pandanus elegantissimus
To G. W. Hoyle, Esq., Reading, for Seedling Pelargonium Diadem
To G. W. Hoyle, Esq., for Seedling Pelargonium Artist
To G. W. Hoyle, Esq., for Seedling Pelargonium Penelope
To Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth, for Seedling Pelargonium Excelsior
To Mr. Nye, Gr. to E. B. Foster, Esq., Clewer Manor, Windsor, for Seedling Pelargonium Jewess
To Mr. W. Bull, Nurseryman, Chelsea, Zonal Geranium Dr. Lindley
To Mr. J. Watson, Nurseryman, St. Albans, for Pelargonium Bijou

SECOND-CLASS CERTIFICATES.

To Messrs. Ivery & Son, Dorking, for Adiantum F.-f. diffissum
To Messrs. Ivery & Son, Dorking, for Polystichum Bayleyanum
To Mr. W. Bull, King's Road, Chelsea, for Athyrium F.-f. diffissum
To Mr. W. Bull, for Euonymus ovatus aureo-variegatus
To Mr. W. Bull, Chamcranthemum verbenaceum
To Mr. W. Bull, Chelsea, for Yucca alba spica
To Mr. W. Bull, for Echites argyræa
To Messrs. J. Veitch, for Rhaphis flabelliformis fol. var. Japan
To Mr. George Smith, Tollington Nursery, Hornsey Road, for Seedling Pelargonium Queen Bertha
To Mr. Hally, Nurseryman, Blackheath, for Seedling Pelargonium Adonis
To Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth, for Seedling Pelargonium Hero
To Mr. J. Wiggins, Gr., for Seedling Pelargonium Prince of Wales
To Mr. J. Wiggins, Gr., for Seedling Pelargonium The Maid of Honour
To Mr. J. Wiggins, Gr., for Seedling Pelargonium Princess of Wales
To Mr. Nye, Gr. to E. B. Foster, Esq., Clewer Manor, Windsor, for Seedling Pelargonium Asteroid
To Mr. J. Holland, Gr. to R. Peake, Esq., Spring Grove, Isleworth, for Petunia Duchess of Northumberland

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SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c

Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

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HOT-WATER PIPES, at Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 50*s.* each. Valves from 11*s.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S.

Hothouses for the Million.—AWARDED A PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, 1862.

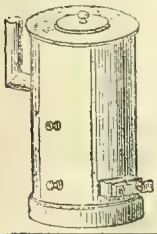


HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner, all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to SAMUEL HEREMAN, 7, Pall Mall East, London.

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RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

WILLIAM HASTINGS, HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, 235, Old Kent Road, London, S.E. (for many years with Weeks & Co.)

W. H.'s long experience in the above business enables him to Erect and Heat Hothouses, Pits, &c., in the most approved style at greatly reduced prices.

REGISTRY OFFICE for GARDENERS.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

Greenhouses, Orchard-houses, and Conservatories.

H. FREEMAN'S HORTICULTURAL WORKS, Triangle, Hackney, N.E. Established 20 years.

Good substantially made GREENHOUSES, glazed, ready for fixing, 42 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 28*l.*; 12½ feet by 10 feet, 15*l.* ORCHARD-HOUSES 10 per cent. cheaper.

A handsome CONSERVATORY, 46 feet by 19 feet, for Sale. Estimates given.

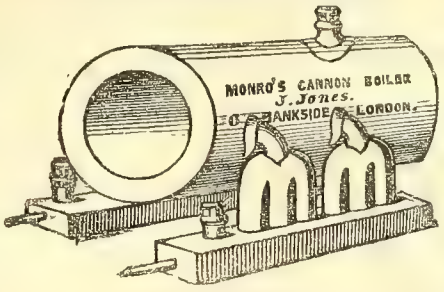
Horticultural Buildings and Heating by Hot Water.

BURY AND POLLARD, Park Iron Works, New Park Street, Southwark, S.E., Manufacturers of every description of Buildings for Horticultural purposes, with their improved CONICAL BOILER for heating the same, are prepared to undertake works of any magnitude, and refer, among others, to the celebrated range of Forcing Houses at Her Majesty's Gardens, Frogmore; at Sir Robert Peel's, Drayton Manor, constructed under the superintendence of their Manager, Mr. John Jones; and to the works at Frognal, the seat of Viscount Sydney, the Lord Chamberlain, just completed by them.

Prices of Boilers and every particular on application.

WANTED, a Second-hand GREENHOUSE.—Particulars of size, condition, and price, to be sent to Mr. S. GILBERT, Kent Cottage, Edmonton, N.

HEATING BY HOT WATER.



MONRO'S CANNON BOILER.

J. JONES,

HORTICULTURAL ENGINEER AND IRON MERCHANT,

SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

HEATING GREENHOUSES,

CONSERVATORIES,

FORCING PITS,

CHURCHES, CHAPELS, SCHOOLS,

HALLS,

BILLIARD ROOMS,

COACH HOUSES, HARNESS ROOMS, &c.,

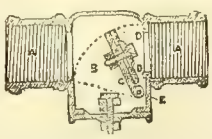
OF THE BEST QUALITY, AND AT MODERATE CHARGES.

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T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough, has recently patented a VALVE which is unequalled for its efficiency, simplicity, durability, and cheapness. Prices as under. Two-inch, 17*s.* 6*d.*; 3-inch, 23*s.*; 4-inch, 28*s.* A liberal discount to the Trade.

These Valves can be obtained in London of Mr. J. JONES, 6, Bankside, S.E.

West of England, Ireland, and Wales.



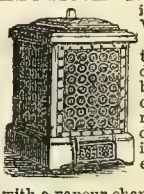


VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER. HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.

VINCENT SKINNER, Bridewell Street, Bristol.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.—This Stove is the nearest approach to Warming by Hot Water, and an efficient aid in Ventilation.

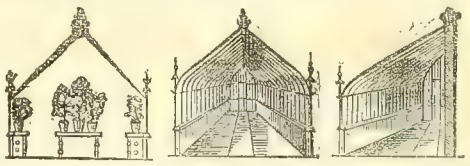


It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for Small Conservatories, with a vapour chamber, which maintains a moist atmosphere for 12 hours with once filling.

Particulars and prices post free on application to MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon



an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.

GREENHOUSES and CONSERVATORIES HEATED without special fire by the KITCHEN RANGE. See best methods, "Catalogue of Modern Inventions," post free.

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THE FARMER'S BAROMETER, 50*s.*, a New Instrument by NEGRETTI and ZAMBRA, will correctly indicate whether the barometer falls for rain or for wind.

Particulars by enclosing stamp to 1, Hatton Garden, E.C.; 59, Cornhill, E.C.; and 122, Regent Street, W.

THE RAIN and the COLD.—Every Change in the Weather foretold, and FARMING and GARDENING operations greatly assisted, by the use of L. CASELLA'S POPULAR INSTRUMENTS for the WEATHER. Reliable Thermometer for Registering Cold, 4*s.* 6*d.*; the Gardeners' Barometer, 12*s.* 6*d.* to 25*s.*; Rain Gauge, 15*s.* 6*d.*

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L. CASELLA, Sole Medalist of the Patent Thermometer for Registering Cold, and Maker to the Admiralty, the Ordnance, &c., 23, Hatton Garden, London, E.C.



GARDEN BORDER-EDGING TILES.—These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

To be obtained at F. & G. ROSHER'S Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied.

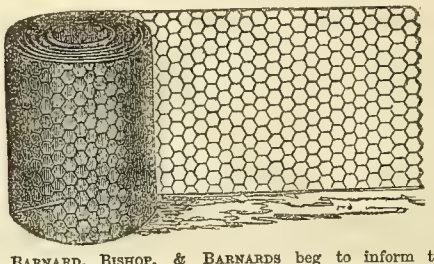
ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER at their Premises as above.

BARNARD, BISHOP, AND BARNARDS, Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.

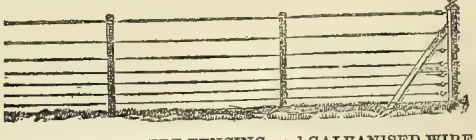


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard
2-inch mesh, 24 inches wide..	No. 19	4½*d.*	3½*d.*
2-inch " " " .. "	18	5	4
2-inch " " " .. "	17	6¼	5
2-inch " " " .. "	16	8	6¼
1⅝-inch " " " .. "	19	4¾	4
1⅝-inch " " " .. "	18	6	4¾
1⅝-inch " " " .. "	17	7	5½
1⅝-inch " " " .. "	16	9	7

All the above kinds can be made any width (under 6 feet), at proportionate prices.

Strong Galvanised Poultry Netting, 7½*d.* per yard, 3 feet wide, Galvanised Sparrow-proof Netting for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10*d.* per yard.

The same with Galvanised Wire Rope, 1*s.* per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

"The GEARING of SAMUELSON AND CO.'S LAWN MOWING MACHINES is not liable to Derangement."

SAMUELSON & CO.'S

PATENT LAWN MOWING MACHINES.

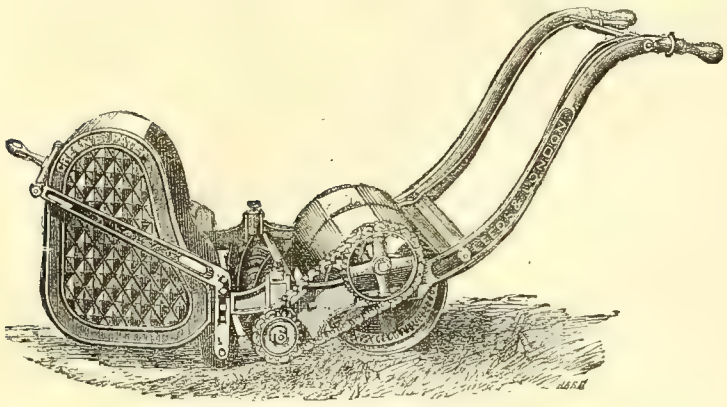
SAMUELSON AND CO.'S 12-INCH and 16-INCH NEW PATTERN LAWN MOWERS.
SAMUELSON AND CO.'S IMPROVED GARDEN ROLLERS AND GARDEN SEATS.

Catalogues Free, on application to BRITANNIA WORKS, BANBURY; or to
SAMUELSON AND CO.'S LONDON WAREHOUSE, 76, CANNON STREET WEST, CITY,
where Samples may be seen.

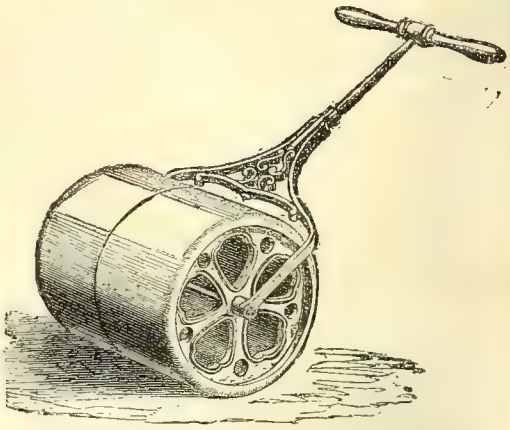
GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS,

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS

DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

Upwards of 14,000 of the above Machines have been sold since the year 1856, and thousands of letters have been received by the Patentees testifying to their efficiency. They do not deem it necessary to publish more than the two following :—

TESTIMONIALS.

"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"DEAR SIR,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, GEO. EYLES."

"Royal Gardens, Windsor, March 27, 1863.

"DEAR SIR,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

"To Mr. Green." "Yours very truly, THOMAS INGRAM."

PRICES.

To Cut 10 inches	£3	10	0	Suitable for a Lady.						
„ 12 „	5	0	0	Suitable for One Person. If with internal gear, 10s. extra.						
„ 14 „	5	10	0	Do.	Do.	Do.	Do.	10s. extra.		
„ 16 „	6	10	0	Suitable for One Man or Two Boys.						

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	... ... £12 10 0
„ 26 „	12 10 0	... ... 13 12 0
„ 30 „	16 14 0	... ... 18 0 0

Leather Boots for Donkey, 16s.; for Pony, 20s.

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To Cut 18 inches ...	£7	10	0	Suitable for One Man and Boy	£8 15 0
„ 20 „ ...	8	0	0	Do. Do. ...	9 5 0
„ 22 „ ...	8	10	0	Suitable for Two Men ...	9 17 6
„ 24 „ ...	9	0	0	Do. Do. ...	10 7 6

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	... £21 10 0
„ 36 „	23 0 0	... 24 16 0
„ 42 „	26 0 0	... 28 2 0
„ 48 „	29 0 0	... 31 8 0

Leather Boots for Horse, per set, 1*l.* 4*s.*

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5*s.* | Diameter 16 inches, length 17 inches, price £2 10*s.* | Diameter 24 inches, length 26 inches, price £4 5*s.*
Diameter 30 inches, length 32 inches, price £7.

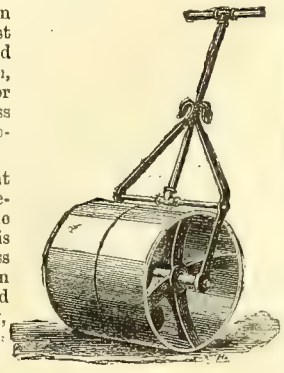
Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

PORTABLE and FIXED STEAM ENGINES; COMBINED THRESHING, SHAKING, and WINNOWING MACHINES;
REAPING and MOWING MACHINES; BONE CRUSHING MILLS; CORN CRUSHING and BEAN SPLITTING MILLS; CHAFF CUTTERS;
TURNIP SHEARS and PULPERS; IMPROVED HAY-MAKING MACHINES, and HORSE RAKES;
CLOD CRUSHERS, and WROUGHT IRON FIELD ROLLERS; PLOUGHS, HARROWS, and CULTIVATORS; VERANDAHS;
PATENT HYDROPULT, and all kinds of GARDEN ENGINES and SYRINGES; GARDEN CHAIRS and TABLES;
ORNAMENTAL FOUNTAINS and VASES; GARDEN TOOLS; PREMIUM CONTINUOUS IRON FENCING and HURDLES;
STRAINED WIRE FENCES, of all kinds; ESPALIER FENCES; GAME-PROOF WIRE NETTING and TRELLIS WORK;
ORNAMENTAL and PLAIN ENTRANCE, WICKET, and FOOTPATH GATES; WROUGHT IRON FIELD GATES; TREE GUARDS;
CATTLE and PIG TROUGHS; SHEEP RACKS; WASHING and WRINGING MACHINES; FIRE-PROOF IRON SAFES; IRON WHEELBARROWS;
IMPROVED IRON STABLE FITTINGS;
and every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;
and MANUFACTURERS of all kinds of IRONWORK for the IMPROVEMENT or EMBELLISHMENT of LANDED PROPERTY.

Illustrated Catalogues on application.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

NEW PATENT DOUBLE-CYLINDER GARDEN ROLLER.



This Roller will turn round the sharpest curves or angles, and even in its own length, without damaging or disfiguring either Grass or Gravel in the dampest weather.

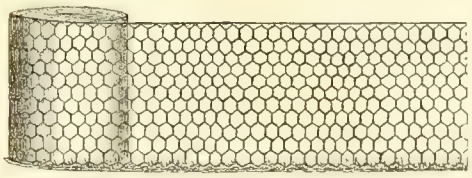
Although the Patent Garden Roller is somewhat heavier than the ordinary Roller, it is used with much less labour, especially in winding walks and borders, and the work, especially on Grass, is much better done.

PRICES.

20 Inches	...	£3	5	0	26 Inches	...	£4 15 0
22 „	...	3	15	0	28 „	...	5 15 0
24 „	...	4	5	0	30 „	...	7 0 0

IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT, WITH REDUCED PRICE.



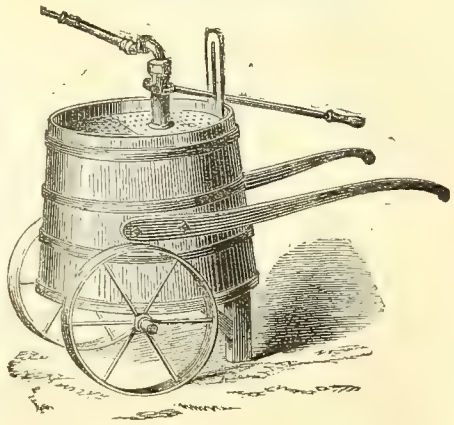
PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Jap	Gal.	Jap	Gal.	Jap	Gal	Jap	Gal.
2 in.	Poultry	3½d.	4½d.	4d.	5d.	5d.	6½d.	6½d.	8d.
1⅝ in.	Small Rabbits ..	4d.	4⅝d.	4⅝d.	6d.	5½d.	7d.	7d.	9d.

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.

GARDEN ENGINE.



Of improved make, painted Tub, with Registered Spreader complete—to hold 12 Gallons, £3 5*s.*; 16 Gallons, £3 15*s.*; 20 Gallons, £4 10*s.*; 30 Gallons, £5 5*s.*

GARDEN SEATS and CHAIRS, IRON and WIRE ARCHWAYS, CAST-IRON VASES, and every description of Horticultural Machines, Tools, and appliances.

Every article guaranteed to be satisfactory.

☞ CATALOGUES of AGRICULTURAL IMPLEMENTS, &c., in Parts as under, Free on application:—

Part I. Implements of Tillage, &c. | Part II. Harvesting and other Machines. | Part III. Barn Machinery and Miscellaneous.

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

THOMAS MILLINGTON,

GLASS MERCHANT. (Established 1750.)

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

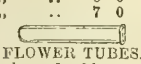
THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY T. MILLINGTON.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home use and for Exportation.



PROPAGATING GLASSES.

2 inches diam.			0*s.* 3½*d.* each.
3	„	..	0 4½ „
4	„	..	0 5½ „
5	„	..	0 6½ „
6	„	..	0 8 „
7	„	..	0 10 „
8	„	..	1 0 „
9	„	..	1 2 „
10	„	..	1 4 „
11	„	..	1 6 „
12	„	..	1 9 „
13	„	..	2 0 „
14	„	..	2 6 „
15	„	..	3 0 „
16	„	..	3 6 „
17	„	..	4 0 „
18	„	..	5 0 „
19	„	..	6 6 „
20	„	..	7 0 „



FLOWER TUBES.
2*d.* each, or 1*s.* 6*d.* per dozen.



ZINC HAND GLASSES.
Painted and Glazed with 16-oz. Sheet Glass.

12 inches	..	5*s.* 6*d.* each
14 „	..	6 6 „
16 „	..	7 6 „
18 „	..	8 6 „
20 „	..	9 6 „
24 „	..	11 6 „

If open top, 1*s.* extra.



BEE GLASSES.

4 inches diameter			0*s.* 6*d.* each
5	„	..	0 8 „
6	„	..	0 10 „
7	„	..	1 1 „
8	„	..	1 4 „
9	„	..	1 8 „
10	„	..	2 0 „
11	„	..	2 6 „
12	„	..	3 0 „



FLAT TOP BEE GLASSES.

Height		Width		*s. d.*
4 inches	by 7 inches	1	6 each	
4½ „	by 7½ „	1	9 „	
5½ „	by 7½ „	2	0 „	
6½ „	by 8 „	2	3 „	
7½ „	by 8½ „	2	10 „	

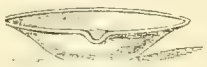
FERN SHADES & STANDS.

Ins. dia.	Shades.		Stands.
6 ..	1*s.* 4*d.* each.		1*s.* 0*d.* each
7 ..	1 8 „		1 3 „
8 ..	2 0 „		1 6 „
9 ..	2 6 „		1 9 „
10 ..	3 3 „		2 0 „
11 ..	4 0 „		2 6 „
12 ..	5 6 „		3 0 „
13 ..	7 6 „		3 6 „
14 ..	10 0 „		4 0 „
15 ..	14 0 „		4 6 „
16 ..	18 6 „		5 0 „



WASP TRAP, 2*s.* 6*d.* per doz.

Crystal Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimneys and Globes, &c.



MILK PANS.

6 inches diameter			0*s.* 6*d.* each
8	„	0	9 „
10	„	1	0 „
12	„	1	3 „
14	„	1	9 „
16	„	2	3 „
18	„	2	9 „
20	„	3	3 „
22	„	3	9 „
24	„	4	6 „



PRESERVE JARS.

In. diam.	Without Lids.		With Lids.	
3 ..	0*s.* 4½*d.*	..	0*s.* 6½*d.*	ca.
4 ..	0 6	..	0 9	„
5 ..	0 8	..	0 11	„
6 ..	0 10	..	1 2	„
7 ..	1 0	..	1 4	„
8 ..	1 4	..	1 8	„
9 ..	1 8	..	2 2	„
10 ..	2 0	..	2 8	„

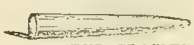


FISH GLOBES.

	Without feet.	With feet.
8 inches diam.		
9 „		
10 „		
11 „	Per lb.	
12 „	7*d.*	9*d.*
13 „		
14 „		
15 „		
16 „		



ROLLING PINS.
From 12 inches long, 1½*d.* per running inch.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1*d.* per running inch.

SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

	300 feet		200 feet.	
	15 oz.	21 oz.	26 oz.	32 oz
Fourths quality	33*s.* 6*d.*	33*s.* 6*d.*	39*s.* 6*d.*	45*s.* 0*d*
Thirds do.	42 0	42 0	49 0	56 0
Seconds do.	62 0	64 0	74 6	85 0
Best do.	88 6	88 6	103 6	118 0

CRYSTAL SHEET GLASS.

For Pictures and best Glazing purposes.

Averaging 16 oz. to the foot.

Best quality, in cases of 200 feet	100*s.*
Second quality, in cases of 100 feet	82*s.*

Averaging 30 oz. to the foot.

Best quality, in cases of 100 feet	100*s.*
Second quality, in cases of 100 feet	82*s.*

SQUARES, in 100 and 200 Feet Boxes.

Small Squares not exceeding 9½ inches by 7½ inches.

Ins. Ins.	Ins. Ins.	Ins. Ins.	Ins. Ins.
6 by 4	7 by 5	8 by 6	9 by 7
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½

Per 100 feet.

4ths.	3rds.	2nds.	Best.
9*s.* 9*d.*	11*s.* 3*d.*	13*s.* 9*d.*	16*s.* 9*d.*

Squares not exceeding 14 inches by 11 inches.

10 by 8	12 by 9	12½ by 10½	14½ by 10½
10½ by 6½	12½ by 9½	13 by 10	15 by 10
11 by 9	13 by 9	13½ by 10½	13 by 11
11½ by 9½	12 by 10	14 by 10	14 by 11

Per 100 feet.

4ths.	3rds.	2nds.	Best.
10*s.* 9*d.*	12*s.* 3*d.*	15*s.*	18*s.*

Squares not exceeding 20 inches by 18 inches.

15½ by 10½	14 by 12	17 by 13	24 by 16
16 by 10	14½ by 12½	18 by 13	20 by 17
14½ by 11½	15 by 12	18 by 14	22 by 17
15 by 11	15½ by 12½	22 by 14	24 by 17
15½ by 11½	16 by 12	24 by 14	20 by 18
16 by 11	16½ by 12½	22 by 15	22 by 18
13 by 12	17 by 12	24 by 15	24 by 18
13½ by 12½	18 by 12	22 by 16	

Per 100 feet.

4ths.	3rds.	2nds.	Best.
11*s.* 6*d.*	13*s.* 6*d.*	16*s.* 6*d.*	20*s.*

Orchard House Sizes, as recommended by Mr. Rivers.

Ins. Ins.	15 oz.		21 oz.		
20 by 12	4ths ..	11*s.* 6*d.*	4ths	15*s.* 0*d.*	Per 100 feet.
20 by 13	3rds ..	13 6	3rds	19 0	
20 by 14	2nds ..	16 6	2nds	25 0	
20 by 15	Best ..	20 0	Best	30 0	
20 by 16					

Squares Cut to Sizes not on List.

	15 oz.				21 oz.			
Under	4ths.	3rds.	2nds.	1st	4ths.	3rds.	2nds.	1st.
1 ft. super.	1½*d.*	1⅞*d.*	2*d.*	2½*d.*	2½*d.*	2⅞*d.*	3½*d.*	4½*d.*
2 ft. super.	1⅞	2	2½	3	2⅞	3	4	5¼
3 ft. super.	2	2½	2⅞	3¼	3	3½	4¼	6
4 ft. super.	2¼	2½	3	4	3¼	3⅞	4½	6½

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

	Per cwt.—*s. d.*		Per gallon.—*s. d.*		Per gallon.—*s. d.*
GENUINE WHITE LEAD	.. .. 30 0	FINE OAK VARNISH	.. 10*s.* to 12 0	LINSEED OIL	.. .. 3 9
ANTI-CORROSION PAINT	..28*s.* to 34 0	„ CARRIAGE	.. 12*s.* to 14 0	BOILED OIL	.. .. 4 2
LINSEED OIL PUTTY	.. .. 8 0	PATENT DRYERS	per cwt. 28*s.* to 42 0	TURPENTINE	.. .. 8 6

MILLED LEAD in Sheet and Pipe of all sizes. Old LEAD bought or taken in exchange.

LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of all kinds.

NETT CASH.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

To the Nursery and Seed Trade.

BROWN'S FLORAL SHADING, the cheapest and best material for protecting Plants under Glass from Sun. Prices on application to CHAS. BROWN, Greenheys, Manchester

TANNED NETTING, at reduced prices, 1*d.* per square yard; 200 yards, 14*s.*; 500, 30*s.*; 1000 yards, 50*s.* SCRIM CANVAS, for Wall Fruit; GARDEN MATS; GREENHOUSE SHADES.
Be particular. FREDERICK EDGINGTON & Co., Rick Cloth Manufacturers, Thomas Street, Old Kent Road, London, S.E.

TANNED NETTING for the protection of Fruit Trees at 1*d.* per square yard: 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; SCRIM CANVAS for Wall Fruits; SUN BLINDS, AWNINGS, TULIP COVERS, &c.
Be particular. JOHN EDGINGTON & Co., 17, Smithfield Bars, E.C.; 108, Old Kent Road, S.E.; and 18, Piccadilly, W.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.
VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

Netting for Fruit Trees, Seed Beds, Ripe Strawberries, &c.

TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard, or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard.
Can be had in any quantity of EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

Do as Others Do!

BUY YOUR SEED BAGS from JAMES T. ANDERSON, SACK and BAG MAKER, and RUSSIA MAT MERCHANT, 15, SHERBORNE LANE, King William Street, London, E.C., who will supply you with a first-rate article at a low price. ARCHANGEL MATS, the pick of the season. Russian and Prussian Dunnage Mats.
Prices sent free on application.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.
The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

Blight.

BROWN'S PATENT FUMIGATOR.—A Portable Instrument for Fumigating Greenhouses, Stoves, and Frames, or Shrubs and Flowers in the open air, without injuring the most delicate plant; delivering the smoke cold, in a dense mass, and effecting a great saving of Tobacco. Price 10*s.* and upwards.
Manufactured and supplied to the Trade by Messrs. BARBER & GROOM, London; and may be had of all Ironmongers, Seedsmen, and Florists.

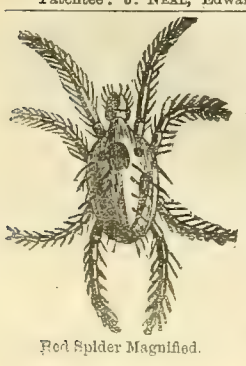
The only Certain Remedy for Mildew.

JOHN BELL'S COMPOSITION for DESTROYING MILDEW on Vines, Peaches, Nectarines, Roses, and every other Plant subject to that pest, is proved to be the most efficacious that has ever been offered. Sold in Bottles at 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* each. A 1*s.* 6*d.* Bottle will make 12 gallons fit for use.
Seed Warehouse, 10 & 11, Exchange Street, Norwich.


Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of Geo. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.
Both may be obtained of all principal Seedsmen.
Patentee: J. NEAL, Edward Street, Birmingham.


Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by
PRICE'S PATENT CANDLE Co. Limited.

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.
Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.
Can be obtained through the principal Nurserymen and Seedsmen in England.
A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.
PAGE & TOOGOOD, Seed Merchants, Southampton.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; second quality, 6*s.* per ton; best quality, packed in strong canvas bags, 16*s.* per ton; ditto 2*s.* 6*d.*, 2 cwt. bags, stamps, put on the rail at Reigate and forwarded to all parts of the United Kingdom.
PEAT SOILS, LOAM, &c.
Collections of NEW, RARE, and BEAUTIFUL PLANTS of all kinds, carefully selected and supplied at current Prices.
W. SHORT, Salesman, Agent, &c., Reigate, Surrey.

CALCEOLARIA, CINERARIA, PRIMULA, &c.

CALCEOLARIA, saved from carefully hybridised flowers, possessing all the recognised floral qualifications, viz., size, form, colours, and marking. Price, 1*s.* and 2*s.* 6*d.* per packet.
CINERARIA, extra choice, 1*s.* per packet.
PRIMULA SINENSIS FIMBRIATA, extra choice, 1*s.* and 2*s.* 6*d.* per packet.
DRACÆNA (CORDYLINE) INDIVISA, from Mount Egmont, New Zealand.—Beautiful fine foliaged plant, 1*s.* and 2*s.* 6*d.* per packet.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

New Bedding Scarlet Horse Shoe Geranium Adonis.

JOHN HALLY, NURSERYMAN, SEEDSMAN, and FLORIST, Blackheath, S.E., intends sending out the above on June 24. It is a distinct and good thing, and a great improvement on all existing Scarlets. Flowers of a bright, light, pure scarlet, with clear white eye, and of perfect shape. It was tried at Chiswick last year as a bedding plant, and is thus described by Mr. Moore in the Proceedings of the Royal Horticultural Society for March last. ADONIS * * * (the highest mark of merit), HALLY. Moderately vigorous habit, leaves darkly zoned. Flowers scarlet, of excellent form, with white eye—considered to be a superior novelty." It received a Certificate of Merit at the Royal Botanic Society's Show in Regent's Park, on June 3. Plants, 5*s.* each, with the usual discount to the Trade. The following Nurserymen have already ordered it in quantities, and will be able to supply it:—

Messrs. BACKHOUSE & SONS, York.
" BUNYARD & SON, Maidstone.
" " " for their Nursery at Ashford.
" DOWNIE, LAIRD, & LAING, Stanstead Park, Sydenham and Edinburgh.
" FRANCIS & SONS, Hertford.
" A. HENDERSON & Co., Pine Apple Nursery, Edgware Road.
" E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood.
" J. & C. LEE, Hammersmith.
" OSBORN & SONS, Fulham.
" LOW & Co., Clapton Nursery.
Mr. WM. IVERY, Hanover Nursery, Peckham.



Skirving's Swede—Sutton's Selected Stock.

SUTTON AND SONS have a choice Stock of SKIRVING'S SWEDE SEED, growth of 1862, which they can strongly recommend. 9*d.* per lb., or *cheaper in large quantities.*
Also SUTTON'S CHAMPION, Hardy PURPLE-TOP, and Hardy WHITE SWEDE; but the Stock of "Champion" Swede, though saved from upwards of 50 Acres of Land, being small compared with the demand, this sort cannot be supplied under 1*s.* per lb., or 45*s.* per bush.
Royal Berkshire Seed Establishment, Reading.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.
The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

Select Stove and Greenhouse Plants, &c.

ROBERT PARKER begs to invite attention to his Collections of AMARYLLIS, AZALEA INDICA, EXOTIC ORCHIDS, FERNS, and LYCOPODS; ORNAMENTAL and VARIEGATED FOLIAGED PLANTS; MISCELLANEOUS, STOVE, GREENHOUSE, and HARDY PLANTS; all of which are healthy and clean. Purchasers of large or small quantities will be treated on the most liberal terms.
PRICED and DESCRIPTIVE CATALOGUES are published, and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

J. C. PADMAN, Boston Spa, near Tadcaster, offers CALADIUMS, good Plants.

Caladium argyrites ..	1*s.* 6*d.*	Caladium Houlletii ..	2*s.* 0*d.*
" bicolor	1 0	" marmoratum ..	6
" " splendens .	1 0	" Mafaffa	2 0
" " picturatum	1 6	" pictum	2 0
" Chantinii ..	1 6	" Wightii	2 6
" esculentum ..	1 0		

One Set for 15*s.*; hamper and package included. Half Specimen Plants, 2*s.* 6*d.* & 3*s.* 6*d.*
SPECIAL CHRYSANTHEMUM LIST on application.

Lobelia Princess of Wales.

W. H. CAPARN AND SON have but a few dozens of this new and beautiful Lobelia left, to which they beg to call the attention of all lovers of a first-class Bedding plant; it equals the old speciosa in colour, while it has a much larger bloom, with conspicuous white eye; it is also a more robust grower. Very strong plants, 9*s.* per dozen; smaller, 6*s.* per dozen.
King's Road Nursery, Newark-on-Trent.

New Roses.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully invites attention to the following NEW ROSES, which will be ready for delivery very shortly.
LORD MACAULAY, H.P.—Velvety crimson, in the way of General Jacqueminot, but brighter in colour, thicker in the petal, and more double. The flowers are of good average size, produced abundantly and in rapid succession; the habit is good, and foliage handsome. 7*s.* 6*d.*
MRS. WILLIAM PAUL, H.P.—Bright violet red, shaded with fiery red; flowers constantly, and in clusters, large and full. Raised by M. Verdier, of Paris, the raiser of Madame Furtado, and others of our finest Roses. 5*s.*
RED ROVER, H.P.—Bright red petals, large, thick, and round; flowers abundantly and in succession up to Christmas. Not double enough for a show Rose, but the most effective pillar Rose ever offered. 3*s.* 6*d.*
WILLIAM PAUL, H.P.—A seedling from Senateur Vaisse, but brighter in colour. Raised at Lyons by the raiser of Lord Raglan, Senateur Vaisse, and other first-class sorts. 5*s.*
BEAUTY OF WALTHAM, H.P.—Bright rosy crimson, of good size, form, and substance, and deliciously sweet. This Rose is found to surpass the description originally given of it. 3*s.* 6*d.*
All the new French Roses, 3*s.* 6*d.* to 5*s.* each, or 42*s.* per dozen. The best of the old Roses at lowest advertised prices. The plants are well established, and in the finest possible health.
PRICED CATALOGUE free by post.
Nurseries and Seed Warehouse, Waltham Cross, N.

New Scarlet Geraniums.

WM. PAUL (Son and Successor to the late A. PAUL) has now ready for SALE two superb new SCARLET GERANIUMS. Price 10*s.* the pair.
WALTHAM PET.—Very bright scarlet, with fine large white eye, dwarf as "Harkaway," but much finer in truss and flower; the best dwarf scarlet for small beds or edgings. First-class Certificate from Royal Horticultural Society. Certificate also from Royal Botanic Society.
RED DRAGON.—An exceedingly smooth dark scarlet, with a peculiarly rich nap on the flower; habit of "Boule de Feu"—the best dark scarlet. All the best "Bedding" plants, 3*s.* per dozen and upwards.
PAUL'S Nurseries, Waltham Cross, N.

Bedding Tropæolum.—Ball of Fire.

ARTHUR HENDERSON AND SON are now sending out the above brilliant BEDDING TROPÆOLUM.
For description and full details see figure and remarks in the *Floral Magazine* for January, 1863, Plate 129, colour of Tom Thumb Geranium. This will prove one of the best and most beautiful Bedding Plants of the season.

Per 100 Plants ..	£3 10 0	Per 25 Plants ..	£1 10 0
" 50 " ..	2 2 0	" 12 " ..	0 18 0
1 Plant	2*s.* 6*d.*		

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WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
DOBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
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IMPROVED LONG RED MANGEL,
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ITALIAN RYE-GRASS, FOREIGN and ENGLISH SEED.
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SPECIAL PRIZES for the BEST THREE GROUPS of FRUITS and FLOWERS for the DECORATION of the DINNER-TABLE are offered by Sir C. WENTWORTH DILKE, Bart., Vice-President of the Royal Horticultural Society, to be awarded at the Second Great Exhibition, WEDNESDAY, June 17. First Prize, Gold Knightian Medal, or 10*l.*; Second Prize, Gold Banksian Medal, or 7*l.*; Third Prize, Society's Large Silver Medal, or 3*l.*

Novelty of design and beautiful arrangement will be the test of merit; valuable Flowers or Fruits are therefore not demanded.

Each set must consist of three groups, and may be either one of Flowers and two of Fruit, or two of Flowers and one of Fruit, or Fruit and Flowers mixed in all three.

They may be shown either in épergnes, glass or china dishes, wicker or wire work, or in any other way, most to the taste of the exhibitor.

Ladies are invited to join in the competition.

The Prizes will be awarded by a Jury of Ladies.

The groups will be received as late as 9·30 o'clock on the morning of the Show, PROVIDED SPACE SHALL HAVE BEEN SECURED FOR THEM TWO DAYS BEFORE. Letters to be addressed to Mr. G. EYLES, Royal Horticultural Society's Garden, South Kensington, W.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.

The TENTH ANNUAL SUMMER SHOW will take place on WEDNESDAY and THURSDAY, June 10 and 11, at the Royal Pavilion, on the same grand scale as on former years.

Schedule of Prizes to be had on application to the Secretary, 96, St. James Street, or of E. SPARY, Superintendent of the Exhibition, Queen's Graperies.

By Order of the Committee,
Brighton, June 6. EDWARD CARPENTER, Secretary.

The Gardeners' Chronicle.

SATURDAY, JUNE 6, 1863.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, June 10. { Royal Horticultural (Uncovering of Memorial of Exhibition of 1851), at South Kensington .. .. 1 P.M. / Microscopical .. .. 8 P.M.

IT may perhaps interest many of our readers to know that QUININE has been already extracted from Bark grown in India. A box has been transmitted to England by Mr. M'IVOR containing samples of bark of one and two years' growth, leaves, &c., which were transmitted to Mr. HOWARD for analysis. The result of the examination has been very successful. At present that gentleman has only operated upon 500 grs. proceeding cautiously, as the quantity of the bark sent was small. He found exactly the same constituents as in South American "Red Bark," and was able to obtain a first and second crystallisation of very white sulphate of Quinine, mixed (as is usual when obtained from Red Bark) with sulphate of cinchonidine. He has also obtained some cinchonine. This, Mr. HOWARD considers a very satisfactory and promising result, when the immature age of the bark is considered (viz., two years' growth), especially as the percentage product of alkaloid appears to him to be as great as would be met with in South America under the same circumstances. Shortly, he hopes to supply more definite information on this point, as well as on others of moment connected with these investigations.

Mr. M'IVOR in his last report of March 31, 1863, gives the number of Cinchona plants in the Nilghiri Hills, at 146,548, of which 35,750 are planted out. There is an increase by propagation during the month of March of 10,809, of which the average growth during that season is $4\frac{3}{11}$ inches; 1619 plants have been sold to private individuals, and 44,000 more have been applied for. Native heads of families, in Coorg alone, have applied for 5000 plants.

MONSIEUR PASTEUR, who has so deeply studied the question of SPONTANEOUS GENERATION, has lately directed his attention to the phenomena of decomposition in the animal kingdom, and has arrived at the conclusion that wherever putrefactive fermentation takes place, minute animals exist. Accordingly he finds that where every care is taken to prevent any access to the external air, meat will remain perfectly sound for an indefinite length of time.

The confines between animal and vegetable life, or rather between animal and vegetable organisms, for we are of opinion that there is no essential difference between the two, are so incapable of exact distinction, that it is very possible that some of those obscure bodies which appear on meat in an incipient state of putrescence, as for example the red substance which occurs in what is called blood-rain, and whose ultimate particles exhibit active molecular motion, may have been considered as belonging to the animal kingdom, though others consider them as vegetables.

We regard the subject as one of great interest in an economical point of view, as showing the circumstances under which alone we may expect to preserve animal substances for any considerable time free from taint, but it is, as we believe, of no less importance as regards morbid action in man. We have long believed that hospital gangrene, the most formidable and unmanageable of all complaints, and the cause often of the most painful interest to the surgeon, both in public and private practice, is the effect of one of these very minute organisms, whether rightly referred to the animal or vegetable world. And if this is really the case, there might be some hope of successful treatment. The first step to cure is a knowledge of the cause of disease. It is well known that many cutaneous disorders take their origin from inoculation through some of the more common and larger species of mould. It is not therefore improbable that the very minute bodies which occur in little gelatinous groups, consisting of myriads of individuals, wherever animal matter begins to ferment, may be capable of communicating disease. The subject is at the present moment of peculiar interest as connected with one or two sad cases which have lately occurred of disastrous effects from vaccination, and at the least suggests extreme caution in the choice of vaccine matter, if it be not capable of leading to very important results. *M. J. B.*

—— A GLORIOUS summer's day, a brilliant and ample display of flowers and fruits, and a throng of admiring visitors, were the three prominent characteristics of the flower show in the Regent's Park last Wednesday. As a further attraction must be added, the grand American show of Mr. JOHN WATERER, which was just in its prime, and is this year we fancy more gorgeous than ever, the only fault apparent being the almost total absence of names to the different varieties of Rhododendrons and other plants of which it is composed, so that as not one in a hundred could hope for the aid of a Cicerone, one might wander through the labyrinth of beauty, without becoming much the wiser for the effort.

We leave the general features of the exhibition to be dealt with elsewhere, and here take a hasty glance over the novelties produced. A considerable number of these have indeed already been noticed in our remarks on the May exhibitions. Such are the Messrs. VEITCH'S Miconia argyræa, Eranthemum rubronervium and Pandanus elegantissimus; Mr. IVERY'S Athyrium Filix-fœmina Applebyanum; Mr. WILLIAMS' Lastrea montana cristata; Mr. YOUNG'S Pandanus elegantissimus, and Thrinax elegans; and Mr. BULL'S Athyrium Filix-fœmina diffissum, and Euonymus ovatus aureo-variegatus; while others, as Sphærogyne latifolia, Lapageria rosea albiflora, Thujopsis lætevirens, Alocasia zebrina, Sarmienta repens, Yucca albo-spica, and Adiantum Fëei, all comparatively new, did but confirm the good opinions formed respecting them when first brought out in the preceding and previous years.

Of absolute novelty indeed amongst flowering plants there was little, if we altogether exclude garden seedlings, but taking these into account we may signalise as a grand acquisition to the ranks of hard-wooded greenhouse plants, an Erica called exquisita, from Messrs. LOW & Co., of Clapton. This Heath had apparently been bred between obbata and some of the varieties of tricolor, and was remarkable for its bulky tubular flowers, which were of the deep salmony red frequently seen in this class of Heaths, and had a dark ring at the mouth, and bold spreading blush-white limb segments. The great merit of the variety consisted in the enlarged diameter of its flower tubes, this quality being combined with clear and definite colours, and a good habit. An Osbeckia Wightiana from Mr. VEITCH, had erect hairy stems, small ovate hairy leaves, and close heads of large purple but fugacious flowers, which have a curious rusty-looking stellately hairy calyx. It did not appear to be of much importance for garden purposes. The comparatively new double-flowered Ghent Azalea, called Van Houttei, was shown by Messrs. FRASER, and is a very effective hardy shrub, having its orange-yellow flowers suffused with red.

The precedence amongst new plants not in flower must be accorded to Ferns, of which several very beautiful ones were shown. As evergreen species of a hardy character, Mr. VEITCH'S Woodwardia japonica and Lastrea erythrosora, both Japanese plants, must be regarded as fine acquisitions. The first has ovate pinnate fronds, of rather bold character, the pinnæ being broadish, notched with good-sized roundish shallow lobes. The second is taller and more graceful, of a shining green with ovate bipinnate fronds, which are most remarkable for having their under surface decorated with lines of red dots, these dots being in fact the indusia overlying the spore-cases in the form of deep red scales, which are very evident in the younger stages of the fructification. Another charming Fern, but somewhat doubtful as to its true designation, was also shown by Mr. VEITCH, under the provisional name of Marattia? Cooperi: a question which cannot be settled till it fructifies. The plant is one of the Marattia group, and one of the most elegant of that group yet introduced; its stipes dark-coloured, supporting about two pairs of branches, these branches bipinnate, with shortish oblong acuminate leaflets or pinnules, which are doubly inciso-serrate on the margin, and of a motley half-variegated green colour, the whole frond being most gracefully pendent from the upright stipes. British Ferns were represented by a very pretty Lady Fern, which has not before been exhibited in London, Athyrium Filix-fœmina coronatum, shown by Mr. BULL, a plant with the fronds narrow at the base, the apex forming a very large flattish crest spreading at right angles to the plane of the frond; and also by the curious Polystichum angulare Elworthii, miscalled Bayleyanum, shown by Mr. IVERY, a variety in which the place of the ordinary pinnæ is for the most part occupied by a pair of shorter divergent pinnæ, as occurs in Miss FIELD'S Lady Fern. Another of Mr. IVERY'S Ferns, Athyrium F.-f. Laveyanum, is a free dense leafy sport, with blunt pinnules and short blunt pinnæ, here and there irregular in growth, but though pretty as all Lady Ferns are, it is wanting in distinctness of character.

Amongst the plants of this category not being Ferns, one of the best and most novel was Rhynchospermum jasminoides variegatum, a Japanese variegated greenhouse shrub imported by Messrs. HENDERSON & Co., and now for the first time exhibited. This seems likely to be a very ornamental thing in its way, the leaves being freely edged with cream-colour in an irregular manner, the variegation sometimes occupying nearly the one half of the leaf. Messrs. VEITCH had a very nice looking Japanese shrub, called a Retinospora, but with a Thujopsis-like aspect, a very elegant evergreen plant with glaucous leaves; and from the same firm was a Juniperus rigida, and a so-called Cryptomeria, both Japanese, and both green bushy plants with needle-shaped foliage; also Aralia pandurifolia, an erect-habited New Holland shrub, with oblong blunt leaves 6 or 8 inches long, and Schistocasia Portei, a Philippine Island Arad, with pedately pinnatifid leaves, having broad linear oblong segments like those of a Phlebodium.

Passing on to the seedlings of florists' flowers, the Pelargoniums were the most noticeable. Diadem and Artist, the two finest of the season as yet, and both formerly noticed, were there; so were Prince of Wales and Princess of Wales, the latter a remarkably pleasing as well as brilliant flower. We were also much pleased in some respects with NYE'S Asteroid, and DOBSON'S Startler, two brilliant crimsons, having the lower petals a good deal clouded and marked with maroon, and the upper ones deep maroon with crimson edges. NYE'S Jewess was another beautiful flower something in the same way, but rather darker. These three have a certain distinctness of character as well as brilliance about them, which even in the absence of some points of merit, render them attractive. Among a host of the Zonal set of Pelargoniums were two very fine sorts, namely, Adonis from Mr. HALLY, and Dr. Lindley from Mr. BULL. The former has a very dark horse-shoe, and light scarlet flowers with a pale eye; the latter a broad but less deeply stained zone, and fine scarlet flowers, the shape and general properties in both being first-rate. Two Petunias also specially attracted our attention. One of these, called Duchess of Northumberland, was from Mr. HOLLAND, who appears to have a remarkably fine "strain" of this flower; the flowers in this variety were remarkably smooth, and not reflexed, white ground, with tolerably regular bars of magenta rose somewhat spread out near the margin. The other was much less perfect in shape and smaller in size, but novel and very pleasing in colour, a very deep magenta, marked with five distinct white bars, forming a well defined star. This was named pulchella, and came from Mr. WILLIS, of Muswell Hill.

Amongst some interesting Gloxinias from Messrs. E. G. HENDERSON & SON, we were particularly struck with one called Georgiana, a variety with horizontal scarcely drooping flowers, and remarkable for being as regular in the form of its limb as the erect-flowered kinds; the colour is a kind of pucy magenta, with a white spot extending from the throat in the direction of each segment; it was distinct and showy, and was in every way desirable. With it were some of the striped sorts, as Lady Victoria Howard, purple ground with white feathery streaks; and Lady Emily Villiers, red with white feathery streaks; also another unusual-coloured sort, punctata, the flowers of which were white dotted all over thickly with purple as in Sinningia.

We mention a very nice exhibition of cut flowers of Ixia, Sparaxis, and similar plants from Messrs. HOOPER, for the purpose of expressing a hope that some amongst the thousands who witnessed them on this occasion may have resolved that such lovely flowers shall no longer rest in the state of neglect to which fashion has of late years doomed them. They are worthy of any effort which modern skill can make, in perfecting their cultivation. One or two critical remarks relating to other matters we must defer for the present.

NEW PLANTS AND FLOWERS:

WHICH HAVE RECEIVED MEDALS AND CERTIFICATES FROM THE R.H.S. FLORAL COMMITTEE, FROM JULY 7, 1859, TO MAY 5, 1863.

A LIST of the subjects which have gained awards at the meetings of the Floral Committee of the Royal Horticultural Society, is in point of fact, a record of almost if not quite all the more deserving novelties in the shape of introduced plants, and seedling flowers, which have come before the public, since that very

useful body has been at work. Such a list, therefore, which we now print for the purpose of ready reference, will, we doubt not, be found serviceable to those of our readers who take interest in new introductions of whatever kind, amongst plants and flowers; whilst by those who are themselves but novices in the matter of plant-selection, it may be consulted as a very trustworthy guide. Doubtless in distributing its certificates, this Committee has made some mistakes both of omission and commission—for "to err is human,"—but even granting this, the awards have on the whole been marked by sound judgment, and the very existence of such a tribunal has acted as a wholesome check upon the crowd of worthless novelties which are ever being thrust forward to catch the unwary purchaser. The list is as follows:—

Abies excelsa aurea—Lee, Sep. 23, 1862—F. C.
Acanthad, Weir No. 39—R. H. S., April 22, 1862—C.
Achimenes Mauve Queen—Parsons, Aug. 26, 1862—F. C.
*Acer polymorphum atropurpureum—A. Henderson; Veitch, June 5, 1861—S. B.
Acer polym. rubro-variegatum—Standish, July 2, 1862,—S.K.
Acer sp. (dissected leaves)—Standish, July 2, 1862—S. B.
Acer sp. (1)—Standish, July 2, 1862—S. B.
Acer sp. (2)—Veitch, July 2, 1862—B.
Adelaster albivenis—Veitch, April, 23, 1861—C.
Adiantum chilense—Veitch, May 6, 1862—F. C.
Adiantum Féei—Linden, June 5, 1861—(1st pr.); Bull, Sep. 10, 1862—F. C.
Adiantum patens—Veitch, Feb. 9, 1860—F. C.
Adiantum scabrum—Veitch, May 6, 1862—F. C.
Adiantum sulphureum—Veitch, May 6, 1862—F. C.
Adiantum tinctum—Veitch, July 2, 1862—B.
Aërides hybridum—Veitch, June 11, 1862—F. C.
Aërides nobile—Veitch, Sep. 10, 1862—F. C.
Agathæa cœlestis fol. variegatis—Bull, March 12, 1861—F. C.
Agave americana elegantissima—Bull, Nov. 12, 1861—F. C.
Alocasia Lowii—Low, Sep. 23, 1862—F. C.
Alocasia macrorhiza variegata—Veitch, Oct. 8, 1861—F. C.
Alocasia metallica—Low, Sep. 22, 1859—F. C.
Alocasia Veitchii—Veitch, Sep. 8, 1859—F. C.
Alocasia zebrina—Veitch, June 11, 1862—S. K.; Id., April 15, 1863—F. C.
Alsophila glauca (contaminans)—Veitch, Nov. 12, 1861—F. C.
Amaranthus melancholicus ruber—Veitch, July 23, 1861—C.
Amaryllis Brilliant—E. G. Henderson, March 31, 1863—S. C.
Amaryllis Fire King—Bull, March 31, 1863—C.
Amaryllis Unique—Williams, March 19, 1862—F. C.
Anæctochilus argyræus—Bull, Feb. 25, 1863—S. C.
Anæctochilus Bullenii—Low, Aug. 27, 1861—F. C.
Anæctochilus Petola—See Macodes Petola
Anæctochilus Schælleri—Bull, Oct. 8, 1862—S. C.
Anæctochilus sp.—Osborn & Son, Oct. 8, 1861—F. C.
Angræcum sesquipedale—Veitch, Dec. 10, 1861—F. C.
Anthurium leuconeurum—Bull, Aug. 26, 1862—S. C.
Anthurium Scherzerianum—Wendland, July 2, 1862—B.; Veitch, March 31, 1863—F. C.
Anthurium sp.—Bull, April 15, 1863—C.
Aquilegia caryophylloides—Carter, June 14, 1860—C.
Aralia leptophylla—Veitch, April 9, 1862—F. C.
Aralia Sieboldii variegata—Veitch, May 28, 1861—C.
Araucaria Cunninghamii glauca—Bull, Oct. 8, 1862—F. C.
Araucaria sp. Port Molle—Bull, Sept. 10, 1862—S. C.
Arthrobotrya articulata—See Polybotrya Lowii
*Asplenium flabellifolium—Linden, June 5, 1861 (1st pr.)
Asplenium flabellulatum—See Asplenium myriophyllum var.
Asplenium myriophyllum—Linden, May 10, 1860—F. C.; Id., June 5, 1861 (1st pr.)
Asp. myriophyllum var.—Bull; Veitch, April 1, 1862—F. C.
Asplenium rachirhinæ—See Asplenium rachirhizon
Asplenium rachirhizon—Bull; Veitch, April 1, 1862—F. C.
Astrocaryum mexicanum—Bull, Oct. 8, 1862—C.
Athyrium Filix-fœmina Frizelliæ—Bull, Aug. 13, 1861—F. C.
Athyrium F.-f. Iveryanum—Ivery, Sept. 10, 1862—F. C.
Athyrium F.-f. mucronatum—Ivery, Sept. 10, 1862—F. C.
Athyrium F.-f. multiceps—Veitch, Aug. 11, 1859—F. C.
Athyrium F.-f. Parsonsiæ—Parsons, June 26, 1862—S. C.; Id. Sept. 10, 1862—F. C.
Athyrium F.-f. plumosum—Stansfield, June 28, 1860—F. C.
Athyrium F.-f. sagittatum—Bull, May 5, 1863—F. C.
*Aucuba japonica (vera fœm.)—Standish, June 5, 1861—B.
Aucuba japonica picturata—Standish, May 21, 1862—B.
Auricula Ensign—Turner, April 15, 1863—S. C.
Auricula Mrs. Eyles—Holland, April 9, 1862—C.
Auricula Rev. G. Jeans—Turner, April 9, 1861—C.
Auricula Richmond's North Star—Turner, May 10, 1860—F. C.
Auricula Volunteer—Turner, April 26, 1860—F. C.
Auricula (Alp.) Supreme—Turner, April 15, 1863—C.
Azalea amœna hybrida—Standish, June 14, 1860—C.
Azalea (indica) Beauty of Dorking—Ivery, Ap. 15, 1863—S. C.
Azalea (ind.) Bride of Abydos—Barnes, May 6, 1862—C.
Azalea (ind.) Duc d'Aremberg—F. & A. Smith, Ap. 9, 1862—F. C.
Azalea (ind.) elegantissima—Williams, May 21, 1862—C.
Azalea (ind.) Flag of Truce—Todman, March 26, 1861—F. C.
Azalea (ind.) Kinghornii—Kinghorn, April 9, 1861—F. C.
Azalea (ind.) Louise von Baden—Turner, April 15, 1863—F. C.
Azalea (ind.) Mad. A. Verschaffelt—Veitch, April 15, 1863—S. C.
Azalea (ind.) Magnet—Barnes, June 28, 1860—C.
Azalea (ind.) Mars—Kinghorn, May 24, 1860—C.
Azalea (ind.) President—Kinghorn, May 10, 1860—F. C.
Azalea (ind.) President Claeys—Veitch, Feb. 25, 1863—F. C.
Azalea (ind.) Souvenir du Prince Albert—J. Verschaffelt, May 6, 1862—S. C.
Azalea (sinensis) altaclerensis—Lee, May 6, 1862—F. C.
*Bambusa variegata—Standish, June 5, 1861—B.
Barkeria Skinneri superba—Veitch, Feb. 25, 1863—F. C.
†Begonia amabilis—Veitch, May 12, 1859—2d C.
Begonia blanda—Parker & Williams, Sep. 22, 1859—F. C.
Begonia Gem—Low, Sep. 22, 1859—C.
Begonia imperialis—Veitch, May 6, 1862—S. C.
Begonia Lowii—Low, Sep 22, 1859—F. C.
Begonia mutabilis—Harland, May 21, 1862—S. C.
†Begonia Queen Victoria—Veitch, May 12, 1859—3d C.
Begonia smaragdina—Veitch, May 6, 1862—S. C.
Begonia sp. Santa Martha—Salter, Nov. 12, 1861—C.
Begonia Zebra—Low, Sep. 22, 1859—C.
Bertolonia margaritacea—R. H. S., Aug. 26, 1862—F. C.
Biota sp. (penduloua)—Veitch, May 21, 1862—B.
Bougainvillea glabra—Daniels, Oct. 8, 1861—F. C.
Browallia Jamesoni multiflora—Veitch, May 5, 1863—S. C.
†Caladium Chantinii—Veitch, May 12, 1859—2d C.
Caladium Lowii—See Alocasia Lowii
Caladium Veitchii—See Alocasia Veitchii
Caladium Wightii—Osborn, July 12, 1860—F. C.
Calamus australis—Veitch, Oct. 8, 1861—F. C.
Calandrinia sp. Chili—Veitch, July 9, 1861—C.
Calanthe Dominii—Veitch, Sep. 10, 1862—S. C.
Calanthe Veitchii—Veitch, Dec. 8, 1859—F. C.
*Calceolaria bellidifolia—Veitch, June 5, 1861—B.
Calceolaria canariensis—G. Smith, June 28, 1860—C.; Id., May 28, 1861—F. C.
Calceolaria ericoides—Veitch, Sep 10, 1862—S. C.
Calceolaria plantaginea—Veitch, May 21, 1862—B.
Calceolaria suavis—Veitch, July 2, 1862—B.
Calc. (dwf. bed.), Cloth of Gold—Downie, June 26, 1862—S. C.
Calendula officinalis, fl. pl.—Whiting, August 23, 1860—C.
Camellia Comtesse Lavinia Maggi—Veitch, March 19, 1862—F. C.
Camellia Filippo Parlatore—Veitch, March 31, 1863—F. C.
Camellia Napoleon III.—Lee, March 18, 1863—C.
Campsidium chilense—Veitch, March 4, 1862—F. C.
*Campylobotrys pyrophylla—Linden, June 5, 1861—F. C.
Campylobotrys regalis—Linden, May 10, 1860—F. C.
Campylobotrys refulgens—Bull, April 9, 1861—F. C.
Campylobotrys smaragdina—Linden, May 10, 1860—F. C.
Carnation Sir H. Havelock—Turner, July 7, 1859—F. C.
Carnation Rose of Castile—Turner, Aug. 2, 1860—F. C.
Carnation Shakespere—Bragg, Aug. 9, 1860—F. C.
Cassiope fastigiata—Veitch, May 5, 1863—F. C.
Cattleya amethystoglossa—R. Warner, March 4, 1862—F. C.
Cattleya Dominiana—Veitch, Nov. 10, 1859—F. C.
Cattleya Dominiana alba—Veitch. Sept. 10, 1862—S. C.
Cattleya Hybrid (Nos. 1 and 4)—Veitch, Aug. 11, 1859—C.
Cattleya guatemalensis—Veitch, March 26, 1861—F. C.
Cattleya Schilleriana var.—See Lælia Schilleriana.
Cerasus sp. (semi-double blush)—Standish, April 15, 1863—C.
Chameranthemum Beyrichii—R. H. S., April 22, 1862—F. C.
Cheilanthes Borsigiana—Veitch, April 15, 1863—F. C.
Chrysanthemum Abbé Passaglia—Salter, Nov. 11, 1862—S. C.
Chrysanthemum Canary Bird—Salter, Dec. 13, 1860—C.
Chrysanthemum Caractacus—Salter, Dec. 13, 1860—C.
Chrys. carissimum—Salter, Nov. 6, 1861—C.; Id. Nov. 12, 1861—F. C.
Chrys. Duchess of Buckingham—Salter, Nov. 11, 1862—S. C.
Chrys. Duchess of Wellington—Salter, Nov. 12, 1861—F. C.
Chrysanthemum General Slade—Salter, Nov. 6, 1861—F. C.
Chrysanthemum Golden Hermine—Salter, Dec. 13, 1860—C.
Chrysanthemum grandiflorum—Standish, Dec. 9, 1862—S. C.
Chrys. laciniatum—Standish, Nov. 11, 1862—S. C.; Id., Dec. 9, 1862—F. C.
Chrysanthemum Lady Hardinge—Salter, Nov. 8, 1860—F. C.
Chrys. Lady H. St. Clair—Downie, Nov. 6, 1861—F. C.
Chrys. Little Harry—Salter, Nov. 8, 1860—C.; Id., Dec. 13, 1860—F. C.
Chrysanthemum Madame Heine—Bull, Nov. 12, 1861—C.
Chrysanthemum Princess Alexandra—Salter, Nov. 11, 1862—S. C.
Chrys. Princess Louis of Hesse—Salter, Nov. 11, 1862—S. C.
Chrysanthemum Sparkler—Salter, Nov. 12, 1861—C.
Chrysanthemum striatum—Standish, Dec. 9, 1862—S. C.
Chrys. Striped Queen—Downie & Co.—Nov. 6, 1861—C.
Chrysanthemum (pompon) Bessie—Ingram, Nov. 6, 1861—C.
Chrys. (pompon) Mrs. Hutt—Hutt, Nov. 11, 1862—F. C.
Cibotium princeps—Bull, Feb. 18, 1862—F. C.; Id., May 21, 1862—S. K.
Cineraria Amazon—F. & A. Smith, March 3, 1860—C.
Cin. carminata variegata—F. & A. Smith, April 9, 1862—C.
Cineraria Constancy—Turner, April 26, 1860—C.
Cineraria Duke of Cambridge—Turner, April 26, 1860—C.
Cineraria Handel—Turner, March 3, 1860—C.
Cineraria John Spencer—Turner, March 18, 1863—C.
Cineraria Lord Elgin—James, April 9, 1862—S. C.
Cineraria Magenta—Turner, April 12, 1860—C.
Cineraria Maid of Astolat—Turner, March 26, 1861—C.
Cineraria marginata—Wiggins, March 29, 1860—C.
Cineraria Miss Eyles—Turner, March 3, 1860—F. C.
Cineraria Prairie Bird—Turner, March 26, 1861—C.
Cineraria Queen of Beauty—Turner, March 29, 1860—C.
Cineraria rosea plena—Kendall, May 14, 1861—C.
Cineraria Snowflake—Page, April 15, 1863—S. C.
Cissus cordifolius—Veitch, May 24, 1860—C.
Clarkia pulchella fl. pleno—Carter, July 9, 1861—F. C.
Clarkia pulchella integripetala—Carter, July 28, 1859—C.
Clarkia pulchella, 'Tom Thumb'—Carter, July 26, 1860—C.
Clematis florida v. Standishii—Standish, May 5, 1863—F. C.
Clematis Fortunei—Standish, May 5, 1863—F. C.
Clematis reginæ—Anderson-Henry, April 22, 1862—S. C.
Clerodendron calamitosum—Veitch, Oct. 13, 1859—C.
Clerodendron Thomsonæ—Jackson, May 21, 1862—S. K.
†Clianthus Dampieri—Veitch, May 12, 1859—1st C.
Cobœa scandens variegata—Bull, June 25, 1861—C.
Coleus Verschaffelti—Bull, June 25, 1861—C.
Convolvulus mauritanicus—E. G. Henderson, June 5, 1861—B.; Id., Aug. 13, 1861—C.
Cordyline stricta erythrorachis—Veitch, July 26, 1860—F. C.
Crinum sp.—Davis, June 11, 1862—S. B.
*Cryptomeria sp. (1) Japan—See Retinospora lycopodioides
Cryptomeria sp. (2) Japan—Veitch, Aug. 26, 1862—F. C.
Cupania Pindaiba—Bull, June 25, 1861—C.
Cupressus Barkeri—Barker, Sep. 23, 1862—F. C.
Cyathea Cunninghamii—Standish, June 14, 1860—F. C.
Cyathea Smithii—Standish, June 14, 1860—F. C.
Cymbidium giganteum discolor—Veitch, March 8, 1860—F. C.
Cyperus alternifolius variegatus—Veitch; Bull, Oct. 8, 1861—F. C.
Cypripedium barbatum grande—Williams, April 1, 1862—S. C.
Cyp. barbatum latisepalum—Williams, March 4, 1862—C.
Cypripedium Dayanum—Day, July 12, 1860—C; Id., Feb. 25, 1863—F. C.
Cypripedium insigne Maulei—Maule, Dec. 13, 1860—F. C.
Cypripedium Stonei—Day, Sep. 23, 1862—F. C.
Cyrtomium anomophyllum—Standish, April 22, 1862—S. C.
Cyrtomium caryotideum—R. H. S., Sep. 24, 1861—F. C.
Dahlia Andrew Dodds—Keynes, Aug. 23, 1860—F. C.
Dahlia Apollo—Turner, Aug. 25, 1859—F. C.
Dahlia Beauty—Turner, Sep. 8, 1859—F. C.
Dahlia Beauty of Hilperton—Edwards, Sep. 27, 1860—F. C.
Dahlia Bellona—Harrison, Sep. 10, 1862—S. C.
Dahlia Black Prince—Keynes, Sept. 11, 1861—C.
Dahlia Bob Ridley—Turner, August 13, 1861—C.
Dahlia Caractacus—Turner, August 12, 1862—F. C.
Dahlia Charles Turner—Keynes, August 26, 1862—F. C.
Dahlia Charlotte Dorling—Turner, August 27, 1861—C.; Id., Sep. 10, 1862—S. C.
Dahlia compacta—Rawlings, Sep. 8, 1859—C.
Dahlia Countess of Portsmouth—Rawlings, Sep. 11, 1861—C.
Dahlia Countess of Shelburne—Turner, August 26, 1862—F. C.
Dahlia Cygnet—Turner, August 13, 1861—C.
Dahlia Delicata—Perry, Sep. 11, 1861—C.
Dahlia Elegance—Turner, Sep. 13, 1860—C.
Dahlia Fair Maid of Bath—Keynes, August 27, 1861—C.
Dahlia Flower of the Day—Turner, August 25, 1859—F. C.
Dahlia George Eliot—Turner, Sep. 8, 1859—C.
Dahlia George Grapes—Turner, August 25, 1859—C.
Dahlia George Parker—Turner, Sep. 27, 1860—C.
Dahlia Goldfinder—Keynes, Sep. 11, 1861—C.
Dahlia Handforth Hero—Henshaw, Sep. 11, 1861—C.
Dahlia Imperial—Keynes, Aug. 27, 1861—C.
Dahlia Joy—Rawlings, Sep. 6, 1860—C.
Dahlia Juno—Rawlings, Sep. 27, 1860—C.
Dahlia Lady Douglas Pennant—Keynes, Aug. 11, 1859—F. C.
Dahlia L'Etoile—Keynes; Aug. 13, 1861—C.
Dahlia Lord Derby—Pope, Sep. 27, 1860—C.; Id., Sep. 11, 1861—F. C.
Dahlia Lord Dundreary—Turner, Aug. 26, 1862—S. C.
Dahlia Lord Russell—Leslie, Oct. 8, 1862—S. C.
Dahlia Le Premier—Keynes, Sep. 10, 1862—S. C.
Dahlia Maria Carter—Keynes, Aug. 27, 1861—C.
Dahlia Masterpiece—Keynes, Sep. 13, 1860—C.
Dahlia Marquis of Bowmont—Dodds, Sep. 13, 1860—F. C.
Dahlia Minnie Dodds—Dodds, Aug. 13, 1861—C.
Dahlia Miss Henshaw—Henshaw, Oct. 8, 1861—C.
Dahlia Miss Sarah Boyce—Rawlings, July 28, 1859, C.; Id., Sep. 22, 1859—F. C.
Dahlia Model—Perry, Sep. 11, 1861—F.; C.
D hlia Mrs. Bailhasche—Keynes, Aug. 25, 1859—F. C.
Dhlia Mrs. Bush—Turner, Sept. 11, 1861—C.; Id., Sep. 24, 1861—F. C.
Dahlia Mrs. Col. Vyse—Turner, Aug. 11, 1859—C.
Dahlia Mrs. Dodds—Dodds, Aug. 23, 1860—F. C.
Dahlia Mrs. Wellesley Pigott—Keynes, Aug. 25, 1859—F. C.
Dahlia Neville Keynes—Keynes, Aug. 25, 1859—C.; Id., Sep. 8, 1859—F. C.
Dahlia Nora Creina—Turner, Sep. 13, 1860—C.
Dahlia Patent—Keynes, Sep. 10, 1862—F. C.
Dahlia Pluto—Turner, Aug. 25, 1859—C.
Dahlia Princess of Prussia—Turner, Sep. 27, 1860—C.
Dahlia Reliance—Rawlings, Sep. 11, 1861—C.
Dahlia Rev. Joshua Dix—Keynes, Aug. 11, 1859—C.
Dahlia Serenity—Rawlings, Sep. 10, 1862—S. C.
Dahlia Sir G. Douglass—Dodds, Aug. 11, 1859—C.
Dahlia Splendid—Green, Aug. 11, 1859—C.
Dahlia The Bride—Rawlings, Sep. 10, 1862—S. C.
Dahlia Una—Turner, Aug. 13, 1861—C.
Dahlia William Dodds—Keynes, Aug. 11, 1859—F. C.
Dammara sp. Japan—Veitch, May 21, 1862—S. B.
Delphinium alopecuroides—Wheeler, July 9, 1861—F. C.
Delphinium Fraseri (Beauty)—Fraser, July 12, 1860—C.
Delphinium bicolor grandiflorum—Downie, June 11, 1862—C.
Dendrobium Bullenianum—Low, May 21, 1862—S. B.
Dendrobium cucullatum majus—Low, March 19, 1862—F. C.
Dendrobium Falconeri—Bateman, June 11, 1862—S. K.
Dendrobium lituiflorum—Veitch, March 31, 1863—F. C.
Dendrobium Lowii—Low, Nov. 12, 1861—F. C.
Dendrobium nodatum—Low, July 2, 1862—S. B.
Dendrobium salaccense—See Dendrobium Bullenianum
*Dendrobium sp.—Pilbeam, June 5, 1861—S. B.
Dianthus sinensis Heddewigii—E. G. Henderson, July 7, 1859—C.
*Dichorizandra albo-marginata, Linden, June 5, 1861—(2d pr.)
Diplazium glaberrimum—Bull, Sept. 10, 1862—S. C.
Disa grandiflora superba—Leach, July 22, 1862—F. C.
Doryopteris nobilia—See Litobrochia nobilis.
Dracæna ferrea variegata—R. H. S., June 25, 1861—F. C.
Dracæna Ghiesbreghtii—Bull, April 22, 1862—S. C.
Dracæna indivisa—Standish, June 28, 1860—F. C.
Dracæna sp.—Veitch, July 2, 1862—S. B.
Dracophyllum sp.—Veitch, May 5, 1863—F. C.
Drynaria diversifolia (Hillii)—Veitch, Oct. 8, 1862—F. C.
Echeveria sp.—Saunders, Sep. 24, 1861—F. C.
*Echites argyræa—Linden, June 5, 1861—(1st prize)
Epacris Vesta—Veitch, April 9, 1861—C.
Epidendrum prismatocarpum—R. Warner, July 2, 1862—B.
Epigynium leucobotrys—E. G. Henderson, Aug. 23, 1860—F. C.
Eranthemum verbenaceum—R. H. S., April 22, 1862—S. C.
Erica aristata virens—Low & Co., March 29, 1860—C.
Erodium guttatum—Saunders, April 23, 1861—C.
Eugenia hybrida—Veitch, Oct. 8, 1862—S. C.
Eurya angustifolia—Standish, May 6, 1862—F. C.
Eurya sp. (broad-leaved)—Standish, June 11, 1861—F. C.
Ficus Cooperi—Veitch, May 21, 1862—S. B.
Fuchsia conspicua—G. Smith, Aug. 12, 1862—S. C.
Fuchsia Count Cavour—Banks, July 26, 1860—C.
Fuchsia Garibaldi—See Fuchsia Count Cavour
Fuchsia Hugh Mollon—Veitch, Aug. 13, 1861—C.
Fuchsia Lord Elcho—Banks, July 26, 1860—F. C.
Fuchsia Mammoth—G. Smith, June 25, 1861—F. C.
Fuchsia Minnie Banks—Banks, July 26, 1860—F. C.
Fuchsia Negro—G. Smith, July 26, 1860—C.
Fuchsia, Prince Leopold—Banks, July 26, 1860—F. C.
Fuchsia Solferino—G. Smith, July 28, 1859—C.
Fuchsia Universal—G. Smith, Sep. 24, 1861—C.
Gazania splendens—E. G. Henderson—July 7, 1859—C.
Genista Everestiana—Everest, April 22, 1862—F. C.
Gesnera refulgens—Bull, Sep. 11, 1861—C.
Gilia achilleæfolia alba—Carter, June 28, 1860—C.
Gladiolus Herr Rosenberg—Standish, Sep. 27, 1860—C.
Gladiolus Mrs. Blount—Standish, Sep. 27, 1860—C.
Gladiolus Rev. Joshua Dix—Standish, Oct. 11, 1860—F. C.
Gladiolus striata formosissima—Standish, Aug. 13, 1861—C.
Gleichenia furcata—Sim, July 12, 1860—F. C.
Gleichenia (glauca)—Veitch, Oct. 8, 1862—F. C.
Gleichenia pubescens—Veitch, Aug. 9, 1860—F. C.
Gleichenia rupestris—Sim, July 12, 1860—F. C.
Gleichenia semivestita—Sim, July 12, 1860—F. C.
Gloxinia Cygna—Lee, July 12, 1860—C.
Gloxinia Lady Willoughby—Milne, July 12, 1860—C.
Gonatanthus cupreus—See Alocasia metallica.
Goodyera Dominiana—Veitch, June 11, 1862—F. C.
Graptophyllum versicolor—Veitch, Nov. 12, 1861—C.
Greenovia aurea—Bull, April 15, 1863—F. C.
Grevillea Hillii—Veitch, April 9, 1862—F. C.
Gymnogramma peruviana laciniata—Parsons, Nov. 11, 1862—S. C.
Gymnogramma Wetenhalliana—Kelly, Sep. 13, 1860—F. C.
Hemerocallis disticha fl. pleno—Veitch, May 24, 1860—F. C.
Hemerocallis sp. Japan (striped)—Veitch, July 22, 1862—F. C.
Hibiscus (? sp.) variegatus—Veitch, Feb. 25, 1863—C.
Hollyhock Advancer—Johnston, Oct. 11, 1860—C.
Hollyhock Alfred—Chater, Aug. 11, 1859—C.
Hollyhock Brunette—A. Paul & Son, July 28, 1859—F. C.
Hollyhock Countess Dowager Jane Somers—Chater, July 28, 1859—C.
Hollyhock Countess Russell—Chater, Aug. 27, 1861—F. C.
Hollyhock Exhibitor—Chater, July 28, 1859—C.
Hollyhock Gem of Yellows—Chater, Aug. 12, 1862—F. C.
Hollyhock George Keith—Downie, Aug. 13, 1861—F. C.
Hollyhock Glory of Walden—Chater, Aug. 12, 1862—F. C.
Hollyhock Harriet—Chater, July 28, 1859—C.
Hollyhock Hesperus—Chater, Aug. 12, 1862—S. C.
Hollyhock Imperator—Chater, Aug. 12, 1862—F. C.
Hollyhock Invincible—Chater, Aug. 27, 1861—C.; Id., Sep. 11, 1861—F. C.
Hollyhock Joshua Clarke—Chater, July 28, 1859, C.; Id., Aug. 13, 1861—F. C.
Hollyhock Lady Dacres—Downie, August 27, 1861—F. C.
Hollyhock Lady H. St. Clair—Downie, Aug. 13, 1861—C.
Hollyhock Lady King—Chater, August 27, 1861—C.; Id., Sep. 11, 1861—F. C.
Hollyhock Leonora—Chater, July 28, 1859—F. C.
Hollyhock Ne plus ultra—Chater, August 27, 1861—F. C.
Hollyhock Novelty—Chater, July 28, 1859—C.
Hollyhock Perfection—A. Paul & Son, July 28, 1859—C.
Hollyhock Prince Imperial—Bircham, Sep. 11, 1861—C.
Hollyhock Stanstead Rival—Downie, August 13, 1861—F. C.
Hollyhock Warrior—Chater, July 28, 1859—C.
Hypolepis distans—Dean, July 9, 1861—C.
Illicium sp. (variegated)—Standish, June 11, 1861—C.
*Juniperus drupacea—Jackson, June 5, 1861—B.
Kerria japonica variegata—Standish, April 15, 1863—C.
Lælia albida var.—R. Warner, Dec. 8, 1859—C.
*Lælia grandis—R. Warner, June 5, 1861—S. K.
Lælia Schilleriana var. (1)—Backhouse, Sept. 8, 1859—F. C.
Lælia Schilleriana var. (2)—Veitch, May 21, 1862—S. B.
Lapageria rosea albiflora—Veitch, July 2, 1862—S. K.
Lastrea deltoidea—Sim, July 12, 1860—C.
Lastrea Filix-mas Bollandiæ—Bull, June 26, 1862—S. C.
Lastrea Standishii—Standish, May 21, 1863—S. B.
Latania Verschaffeltii—Bull, Sept. 10, 1862—F. C.
Lepanthes Calodictyon—Osborn, Oct. 8, 1861—F. C.
*Libocedrus tetragona—Veitch, June 5, 1861—S. K.
Ligustrum japonicum aurco-variegatum—Veitch, June 11, 1862—B.
Lilium auratum—Veitch, July 2, 1862—S. K.

Limatodes rosea alba—Low, Feb. 25, 1863—S. C.
Linaria bipartita splendens—Carter, July 26, 1860—C.
Lithospermum fruticosum—Lee, April 22, 1862—S. C.
Litobrochia nobilis—Veitch, June 11, 1862—S. B.; Bull, Sept. 23, 1862—F. C.
Lobelia (Erinus) speciosa kermesina—Carter, Aug. 26, 1862—C.
Lobelia Purple Standard—Kinghorn, Aug. 23, 1860—F. C.
Lomaria cycadifolia—Lee, April 23, 1861—F. C.
Lomaria elongata—Standish, Nov. 12, 1861—F. C.
Lomaria fluviatilis—Lee, April 23, 1861—F. C.
Lomaria Fraseri—Standish, May 28, 1861—F. C.
Lomaria gibba—Veitch, July 2, 1862—S. K.
Lomatia elegantissima—Bull, April 22, 1862—S. C.
Lonicera brachypoda aureo-reticulata—Standish, July 2, 1862—S. K.
Lonicera japonica hybrida—Ingram, August 9, 1860—C.
Luzula sylvatica aureo-vittata—Salter, April 1, 1862—C.
Lycaste Skinneri superba—Veitch, April 12, 1860—F. C.
Lycop dium Phlegmaria—Veitch, August 12, 1862—F. C.
Lygodium polystachyum—Veitch, July 7, 1859—F. C.
Macodes Petola—Low, Sep. 22, 1859—F. C.
Magnolia Lenné—W. Paul, April 15, 1863—F. C.
Maranta argyræa—Linden, May 10, 1860—C.
Microlepia hirsuta angusta—Veitch, May 10, 1860—C.
Microlepia scabra—Standish, May 6, 1862—S. C.
*Mimulus cupreus—Veitch, June 5, 1861—B.
Mimulus maculosus Marvel—Bull, May 5, 1863—F. C.
Musa vittata—Veitch, April 1, 1862—F. C.; Bull, Jackson, Lee, Low, Veitch, May 21, 1862—S B.
Mutisia decurrens—Veitch, Aug. 13, 1861—F. C.
Nasturtium Yellow Tom Thumb—See Trepæolum
Nemophila discoidalis elegans—Charlwood, July 9, 1861—C.
Nepenthes Doniuiana—Veitch, June 11, 1862—F. C.
Nephelaphyllum pulchrum—Veitch, Nov. 10, 1859—C.
Nephrodium molle polydactylum—Sim, July 12, 1860—C.
Niphobolus Lingua corymbiferus—Veitch, July 22, 1862—C.
Nolana lanceolata—Veitch, June 11, 1862—B.
Odontoglossum Uro-Skinneri—Veitch, August 11, 1859—C.
Œnothera grandiflora (Lamarckiana)—Carter, Sep 27, 1860—C.
Ophiopogon Jaburan fol. var.—Bull, Nov. 11, 1862—F. C.
Oreopanax dactylifolium—Bull, Feb. 18, 1862—C.; Id. June 11, 1862—B.
Osmanthus aquifolius variegatus—Standish, May 6, 1862—S. C.
Osmanthus aquifolius variegatus aureus—Standish, May 21, 1862—B.
Osmanthus aquifolius variegatus nanus—Standish, June 11, 1861—F. C.
Osmunda regalis cristata—Osborn, June 11, 1862—S. B.
Ourisia coccinea—Veitch, May 21, 1862—S. K.
Ourisia Pearcii—Veitch, May 5, 1863—F. C.
Oxalis valdiviana—Veitch, June 11, 1862—B.
Pandanus elegantissimus—Bull, Veitch, March 18, 1863—F. C.
Panicum capillare—Carter, July 28, 1859—C.
Pansy Exquisite—Turner—April 15, 1862—C
Pansy (fancy) Aurea marginata—Downie, May 21, 1862—F. C.
Pansy (fancy) Feu de Joie—Turner, April 15, 1863—C.
Pansy (fancy) Princess Alice—Dean, May 28, 1861—C.
Pelargonium Amazon—Beck, May 28, 1861—C.
Pelarg. Ardens—Beck, June 11, 1862—F. C.
Pelarg. Bellatrix—Beck, June 11, 1862—F. C.
Pelarg. Belle of the Ball—Foster, May 21, 1862—F. C.
Pelarg. Canopus—Beck, June 11, 1862—F. C.
Pelarg. Censor—Foster, June 11, 1862—S. C.
Pelarg. Colossus—Hoyle, June 11, 1862—F. C.
Pelarg. Conflagration—Foster, May 21, 1862—F. C.
Pelarg. Cynosure—Beck, June 11, 1862—S. C.
Pelarg. Esperance—Beck, June 11, 1862—S. C.
Pelarg. Eurydice—Beck, June 11, 1862—F. C.
Pelarg. Illuminator—Foster, June 11, 1862—F. C.
Pelarg. Improvement—Foster, May 21, 1862—F. C.
Pelarg. Lord Palmerston—Hoyle, June 11, 1862—F.C.
Pelarg. Merrimac—Foster, June 11, 1862—F. C.
Pelarg. Modesty (Beck)—Turner, June 28, 1860—C.
Pelarg. Nymph—Beck, June 11, 1862—S. C.
Pelarg. Oriana—Beck, June 11, 1862—F. C.
Pelarg. Perdita (Foster)—Turner, June 28, 1860—F. C.
Pelarg. Regina formosa—Beck, June 11, 1862—F. C.
Pelarg. Royal Albert—Hoyle, May 21, 1862—F. C.
Pelarg. Royalty—Foster, June 11, 1862—F. C.
Pelarg. (fancy) Arabella Goddard—Turner, June 28, 1860—F. C.
Pelarg. (fancy) Miss-in-her-Teens—Turner, June 11, 1862—S. C.
Pelarg. (spotted) Butterfly—Beck, June 11, 1862—S. C.
Pelarg. (spotted) Caliban—Beck, June 11, 1862—S. C.
Pelarg. (spotted) International—Bull, June 26, 1862—S. C.
Pelarg. (spotted) Landseer—Foster, June 11, 1862—S. C.
Pelarg. (spotted) Monitor—Foster, June 11, 1862—S C.
Pelarg (spotted) Viceroy of Egypt—Bull, June 26, 1862—S. C.
Pelarg. (decorative) Lady Churston—Veitch, June 11, 1861.—C.
Pelarg. (decorative) Mrs. Ponsonby Moore—Veitch, May 14, 1861—C.
Pelarg. (decorative) Theophraste—Bull, June 26, 1862—C.
Pelarg. (forcing) Floribundum—F. & A. Smith, Ap 9, 1861—C.
Pelarg. (forcing) Mrs. Lewis Loyd—Jackson, Mar. 31, 1863—C.
Pelarg. (forcing) Snowdrop—F. & A. Smith, April 9, 1861—C.
Pelarg. (scented-leaved) Madame Csillag—Bragg, July 26, 1860—C.
Pelarg. (scarlet) Waltham Pet—W. Paul, May 21, 1862—F. C.
Pelarg. (zonal) Aurora—Hally, Mar. 29, 1860—C.; Id. April 26, 1860—F.C.
Pelarg. (zonal) Blackheath Beauty—Hally, Aug. 11, 1859—C.
Pelarg. (zonal) Conq. of Europe—Williams, May 21, 1862—F. C.
Pelarg. (zonal) Firefly—G. Smith, July 23, 1861—C
Pelarg. (zonal) Herald of Spring.—Turner, April 23, 1861—F. C.
Pelarg. (zonal) Nesfield—Turner, May 21, 1862—S. C.
Pelarg. (zonal) Prince of Hesse—Turner, April 23, 1861—C.
Pelarg. (zonal) Princess of Prussia—Conway, July 12, 1860—C.
Pelarg. (marbled) Sheen Rival—Kinghorn, Sept. 22, 1859—C.
Pelarg. (variegated) Argus—G. Smith, Aug. 9, 1860—F. C.
Pelarg. (variegated) Clara—Turner, April 23, 1861—C.
Pelarg. (variegated) Delicata—E. G. Henderson, Aug. 27, 1861—C.
Pelarg. (variegated) Flower of Spring—Turner, April 12, 1860—F. C.
Pelarg. (variegated) Italia Unita—E. G. Henderson, Sept. 10, 1862—F. C.
Pelarg. (variegated) Lucy Grieve—E. G. Henderson, Sept. 10, 1862—F. C.
Pelarg. (variegated) Meteor—Parker & Williams, July 26, 1860—C.
Pelarg. (variegated) Mrs. Pollock—E. G. Henderson, Aug. 27, 1861—F. C.
Pelarg. (variegated) Sunset—E. G. Henderson, Aug. 27, 1861—F. C.
Pentstemon Blue Beauty—Downie, Oct. 8, 1862—C.
Pentstemon compactus—Wemyss, Oct. 8, 1862—S. C.
Pentstemon Lobbianus—Low, Aug. 27, 1861—F. C.
Pentstemon Mrs. Steans—Downie, Oct. 8, 1862—F. C.
Pentstemon Princeps—Downie, Oct. 8, 1862—C.
Petunia Butterfly—Holland, Aug. 12, 1862—S. C.
Petunia Eclipse—G. Smith, July 12, 1860—C.
Petunia Eliza Mathieu—G. Smith, May 21, 1862—F. C.
Petunia Emma—Bull, May 21, 1862—S. C.
Petunia Guido—Bull, July 2, 1862—S. C.
Petunia inimitabilis fl. pleno—Veitch, May 14, 1861—F. C.
Petunia Madame Rendatler—Veitch, May 6, 1862—S. C.
Petunia Mrs. Ferguson—Ferguson, May 6, 1862—F. C.
Petunia Ruby—Bull, May 21, 1862—S. C.
Petunia Venus—Bull, June 26, 1862—S. C.
Phalænopsis Lowii—Low, Oct. 8, 1862—F. C.
Phalænopsis Schilleriana—Warner, M'Morland, Bull, Feb. 18, 1862—F. C.
Phlox Lydia—Downie, June 25, 1861—C.
Phlox Orion—Sankey, Sep. 13, 1860—C.
Phlox Reine blanche—Downie, June 25, 1861—C.
Phyllagathis rotundifolia—Veitch, March 19, 1862—F. C.
Physurus fimbrillaria—R. H S., April 22, 1862—F. C.
*Picea sp. Vancouver's Island—Standish, June 5, 1861—B.
Picotee Elise—Turner, Aug. 9, 1860—F. C.
Picotee Favorita—Turner, Aug. 9, 1860—C.
Picotee Flower of the Day—Turner, July 23, 1861—F. C.
Picotee Queen of Picotees—Keynes, Aug 9, 1860—C.
Picotee Lady Elcho—Turner, July 22, 1862—F. C.
Picotee Mrs. Hole—Turner, July 23, 1861—C.
Picotee Princess Alice—Turner, Aug. 2, 1860—F. C.
Picotee Rev. A. Matthews—Turner, July 7, 1859.—C.
Picotee Rev. H. Matthews—Turner, Aug. 2, 1860—F. C.
Picotee Rival Purple—Turner, July 7, 1859—C.
Picotee Rosy Circle—Turner, July 23, 1861—F. C.
Picotee (fancy) Countess of Derby—Keynes, Aug. 9, 1860—C.
Picotee (yellow) Empress of India—Bragg, Aug. 9, 1860—C.
Picotee (yellow) Garibaldi—Bragg, Aug. 9, 1860—C.
Pimelea elegans—Veitch, May 14, 1861—F. C.
Pink Beautiful—Turner, July 12, 1860—F. C.
Pink Bertram—Turner, June 26, 1862—F. C.
Pink Blondin—Turner, June 26, 1862—S. C.
Pink Bridesmaid—Turner, June 26, 1862—F. C.
Pink Delicata—Turner, June 25, 1861—F. C.
Pink Device—Turner, June 26, 1862—F. C
Pink Exquisite—Turner, June 26, 1862—F. C.
Pink Lady Rokeby—Bragg, June 25, 1861—F. C.
Pink Marion—Turner, June 26, 1862—F. C.
Pink Mr F. Coaffe—Hooper, July 2, 1862—F. C.
Pink Mrs. Turner—Turner, June 28, 1860—F. C.
Planera acuminata—Veitch, May 21, 1862—B.
*Podocarpus variegatus—Veitch, June 5, 1861—B.
Pogonia discolor—Veitch, Oct. 13, 1859—F. C.
Pollia purpurea—Bull; Low, Aug. 27, 1861—C.
Polybotrya apiifolia—Veitch, July 2, 1862—B.
Polybotrya Lowii—Low, Aug. 27, 1861—F. C.
Polygonatum oppositifolium albo-vittatum—Standish, April 22, 1862—F. C.
Polystichum aculeatum corymbiferum—Thompson, July 26, 1860—F. C.
Polystichum concavum—See Lastrea Standishii
Polystichum triangulum laxum—Sim, July 12, 1860—F. C.
Polystichum vestitum venustum—Lee, April 23, 1861—F. C.
†Pothos argyræa—Veitch, May 12, 1859—1st C.
Pneumanthes arborea—Saunders, April 23, 1861—C.
Primula sinensis atro-rosea plena—Turner, March 8, 1860—F. C.
Primula sinensis filicifolia—E. G. Henderson, March 26, 1861—C.
Primula sinensis filicifolia alba—E. G. Henderson, March 31, 1863—S. C.
Primula sinensis filicifolia rubra—E. G. Henderson, March 31, 1863—S. C.
Primula sinensis nivea plena—Bull, March 26, 1861—C.
Primula sinensis rubella plena—Bull, March 26, 1861—C.
Primula sinensis delicata—F. & A. Smith, April 1, 1862—F.C.
Primula sinensis The Fairy—F. & A. Smith, April 9, 1862—C.
Primula sp. Andes—Veitch, July 9, 1861—C.
Pteris argyræa—Veitch, July 7, 1859—F. C.
Pteris cretica albo-lineata—Bull; Veitch, March 26, 1861—F. C.
Pteris nemoralis variegata—Cole, May 21, 1862—B.
Pteris tricolor—Linden, Feb. 9, 1860—F. C
Quercus sempervirens—Veitch, July 2, 1862—B.
Quercus sp. Japan—Veitch; Standish, July 2, 1862—S. B.
Retinospora leptoclada—E. G. Henderson, April 15, 1863—F.C.
*Retinospora lycopodioides—Veitch, June 5, 1861—B.
*Retinospora obtusa—Standish, June 5, 1861—S. B
*Retinospora obtusa variegata—Standish, June 5, 1861—B.
Retinospora pisifera—Veitch, Sep. 11, 1861—F. C.
Retinospora pisifera aurea—Standish, May 6, 1862—F. C.
Retinospora squarrosa—Veitch, June 11, 1862—S. B.
Retinospora sp. Japan—Veitch—June 11, 1862—S. K.
Rhaphis flabelliformis variegata—Veitch, Sep. 10, 1862—S. C.
Rhodanthe atrosanguinea—Thompson, July 2, 1862—S. B.
Rhodanthe maculata—Thompson, June 25, 1861—F. C.; Id., July 2, 1862—S. B.
Rhodanthe maculata alba—Thompson, June 25, 1861—C.
Rhododendron Brookeanum flavum. See Rhod. Lobbianum.
Rhod. Countess of Haddington—Parker, March 19, 1862—F. C.
Rhod. Denisonii—Bousie, April 9, 1862—F. C.
Rhod. jasmiuiflorum superbum—Veitch, August 26, 1862—F. C.
Rhod. Lobbianum—Veitch, March 8, 1860—F. C.
Rhod. McNabii—Bousie, April 9, 1862—C.
Rhod. Princess Alice—Veitch, March 19, 1862—F. C.
Rhod. Sesterianum—Veitch, March 19, 1862—F. C.
Rhod. (hardy) Amilcar—Standish, May 24, 1860—F. C.
Rhod. (hardy) Athenia—Standish, June 14, 1860—C.
Rhod. (hardy) Lady Bowring—Veitch, May 21, 1862—S. C.
Rhod. (hardy) Lady Lopez—Veitch, May 21, 1862—C.
Rhod. (hardy) maculosissimum—Standish, May 24, 1860—F. C.
Rhod. (hardy) ochroleucum—Veitch, May 21, 1862—S. C.
Rhod. hardy) Picotee rosea—Veitch, May 5, 1863—F. C.
Rhod. (hardy) præcox—Davis, March 12, 1861—C.
Rhod. (hardy) Romain de Smet—Lee; Veitch, March 18, 1863—C.
Rhod. (hardy) Rosabelle—Standish, May 24, 1860, C.
Rhod. (hardy) striatum formosissimum—Standish, May 21, 1862—F. C.
Rhod. (hardy) Suwaroff—Standish, May 21, 1862—S. C.
Rhus vernicifera—Veitch, Aug. 26, 1862—F. C.
Rose (H. P.) Beauty of Waltham—W. Paul, June 11, 1861—F. C.
Rose (H. P.) John Hopper—Ward, June 26, 1862—F. C.
Rose (H. P.) Lord Macaulay—W. Paul, May 5, 1863—F. C.
Rose (Tea) President—A. Paul & Son, March 29, 1860—F. C.
Saccharum violaceum—Bull, Oct. 8, 1862—C.
Salisburia adiantifolia fol. variegatis—Standish, July 2, 1862—B.
Salpigophora chilensis—See Campsidium chilensis
Saponaria calabrica roseo-alba—Carter, Aug. 23, 1860—C.
Sarmienta repens—Veitch, May 21, 1862—S. K.; Id. May 5, 1863—F. C.
*Sciadopitys verticillata—Standish, June 5, 1861—S. K.
Sedum carneum variegatum—E. G. Henderson, Sep. 11, 1861—C.
Selaginella atroviridis—Veitch, July 28, 1859—C.
Selaginella conferta—Veitch, Dec. 8, 1859—F. C.
Selaginella Lobbii—Veitch, July 28, 1859—F. C.
Selaginella Wallichii—Veitch, Dec. 8, 1859—F. C.
Selaginella sp. India—Veitch, Oct. 8, 1862—S. C.
Serissa fœtida marginata—Bull, May 21, 1862—B.
Skimmia japonica (vera)—Standish, March 18, 1863—F.C.
Solanum Capsicastrum variegatum—E. G. Henderson, Sept. 23, 1862—F. C.
Sphærogyne latifolia—Veitch, May 21, 1862—S. K.
Sphærostema marmoratum—Low, Sept. 22, 1859—F. C.
Spiræa Nobleana—Noble, Aug. 9, 1860—C.
Spraguea umbellata—Veitch, July 7, 1859—C.
Statice profusa—Parker & Williams—Nov. 8, 1860—C.
Stenogastra concinna—Veitch, June 5, 1861—S.B.; Veitch, Nov. 12, 1861—F. C.
Stenogastra multiflora—Veitch, May 21, 1862—B.
Swainsona violacea—E. G. Henderson, May 6, 1862—F. C.
Symphytum tuberosum variegatum superbum—Salter, April 9, 1861—C.
Tachiadenus carinatus—Veitch, July 26, 1860—C.
Taxus baccata erecta—Crowder, Sept. 27, 1860—F. C.
Theophrasta (?) argyræa—Linden, May 10, 1860—C.
Thibaudia macrantha—Veitch, Dec. 13, 1860—F. C.
*Thuja pygmæa—Veitch, June 5, 1861—B.
*Thujopsis dolabrata variegata—Standish, June 5, 1861—S. B.
Thujopsis lætevirens—Veitch, May 21, 1862—S. K.
Tilia europæa fol. argenteis—E. G. Henderson, May 6, 1862—S. C.
Todea superba—Veitch, May 28, 1861—F. C.
Trichomanes anceps—Bull, Feb. 25, 1863—F. C.
Trichomanes spicatum—Bull, Mar. 18, 1863—F. C.
Tricyrtis grandiflora—Standish, Nov. 11, 1862—F. C.
Tropæolum Garibaldi—Garaway, Sep. 27, 1860—C.
Tropæolum Yellow Tom Thumb—Carter, Aug. 11, 1859—C.
Tydæa Countess of Ilchester—E. G. Henderson, Dec. 8, 1859—C.
Tydæa elegans—Parker & Williams, Ap. 26, 1860—C.
Vaccinium Vitis Idæa fol. variegatis—Salter, Sep. 24, 1861—C.
Valdivia Gayana—Veitch, April 15, 1863—C.
Verbena Clara—Perry, July 28, 1859—C.
Verbena Cruor—G. Smith, July 12, 1860—C.
Verbena Dr. Sankey—Edmonds, Aug 25, 1859—F. C.
Verbena Fairest of the Fair—G. Smith, June 28, 1860—C.
Verbena Foxhunter—Miller, July 9, 1861—F. C.
Verbena Grand Eastern—Woods, July 12, 1860—C.
Verbena Lord Craven—Downie, Aug 26, 1862—F. C.
Verbena Lord Leigh—Perkins, June 11, 1862—F. C.
Verbena Lucy Tait—Cunningham, July 26, 1860—C.
Verbena Nemesis—G. Smith, Aug. 9, 1860—F. C.
Verbena Pink Perfection—G. Smith, Aug. 9, 1860—C.
Verbena Rugby Hero—Treen, Sep. 10, 1862—F. C.
Veronica Chamædrys pulcherrima—Salter, April 9, 1861—C.
Wallflower Yellow Perfection—Graham, March 31, 1863—C.
Weigela Stelzneri—Standish, May 6, 1862—C.
Woodwardia orientalis—Standish, Nov. 12, 1861—F. C.
Yucca lineata lutea—Bull, Feb. 25, 1863—F. C.
Zinnia elegans fl. pleno—Vilmorin; Carter, Sep. 27, 1860—F. C.

The value of the several awards is indicated by the following initial letters, one or other of which will be found attached to the name of each subject:—S. K., Silver Knightian Medal; S. B., Silver Banksian Medal; B., Bronze Medal—the foregoing being awards made to certain subjects at the great summer shows; F. C., First-class Certificate; S. C., Second-class Certificate; C., Commendation. It should be observed that the S. C. was not made use of before 1862, so that prior to that date, the C. is really equivalent to a second-class instead of a third-class award, as it afterwards became. For the sake of completing the record of the awards made directly to New Plants by the Society since its resuscitation, we have included a few subjects (marked *) which were shown on the day of the opening, June 5, 1861. A few of the plants produced on this occasion being set up among the miscellaneous objects, were awarded prizes, which we have entered as 1st, 2d, and 3d respectively. We have also added a few other subjects (marked †), to which awards were made by the Society at the show in St. James's Hall, May 12, 1859, a month or two before the meetings of the Floral Committee were instituted; these received certificates of the 1st, 2d, and 3d class.

ROSES.—No. VIII.

By Mr. William Paul, F.R.H.S., Paul's Nurseries, Waltham Cross.

The Tea-scented is the only first-class group that remains unnoticed, and this is quite worthy of a separate paper. It is unfortunate that the most beautiful varieties are, as a rule, the tenderest. Those who have grown them out of doors only, can form no idea of their increased beauty when cultivated under glass. Plant them out in a house with or without heat; if heat be employed they will grow stronger, bloom earlier, and suffer less from mildew. The strong-growing sorts may be trained to pillars, or up the rafters of the house in the way of Vines, and will produce flowers from every joint. The intermediate and dwarfer kinds may be grown as pyramids and bushes. Tea-scented Roses succeed admirably grown in pots under glass, especially if worked on the Manetti, and require little pot room and little pruning when in a young state. If grown out of doors the best plan is to plant them in a border in front of, but a little distance from a south wall, for if fastened to the wall they are liable to suffer from the attacks of red spider. Budded on the Dog Rose in August, and allowed to remain dormant through the winter, they form beautiful objects in the flower garden during the succeeding summer and autumn. No lover of Roses should reject the Tea-scented because they are tender, or on the assumption that they are difficult of culture; they are better worthy of a house or frame than half the greenhouse plants that are cultivated, and far easier to manage than one-fourth of the Hybrid Perpetual Roses. But then they must not be treated as ordinary Roses. If grown out of doors, a warm and light, rather than a moist and heavy soil is required, and they should not be pruned till late in spring (April). Distinct in colour, exquisite in form, rich in foliage, and surpassing all in delicacy and power of fragrance, they deservedly hold a very high position among the subjects of the "Queen of Flowers."

Abricoté is a good hardy free-growing sort, though scarcely vigorous; the flowers are fawn-colour with apricot centres, large and double, very beautiful as buds. Adam has rosy-blush flowers, very large and full, and is one of the sweetest and best. Amabilis is a good, hardy, vigorous-growing sort, with large, full, flesh-coloured flowers. Auguste Oger has large rosy flowers, with deeper coloured centres, and is of moderate growth. Auguste Vacher is distinct and good; the flowers are yellow shaded with copper-colour, of good average size and quite full; the growth is moderate. Belle de Bordeaux is of rampant growth, and the branches are well clothed with beautiful deep green leaves; the flowers are pink, large and full.

In addition to the above, Bougère, although one of our oldest Roses, cannot yet be dispensed with; the flowers are rosy bronze, very large, full, and globular; the growth is vigorous. Clara Sylvain is a good pure white Rose with creamy centre, large and full, of moderate growth. Comte de Paris is a beautiful flesh-coloured flower, shaded with rose; large, full, hardy in habit, and of great excellence. Comtesse Ouvaroff is beautiful in bud, but does not always expand symmetrically; the flowers are rose shaded, large and full. Devoniensis, which is an English seedling raised at Plymouth, is still one of the best; the flowers are pale yellow, very large, full, and beautiful. Duc de Magenta has immense salmon-coloured flowers, which if few in number are of unequalled breadth and substance. Elise Sauvage, Madame William, and L'Enfant trouvé—for I regard these as one and the same—is one of the sweetest and loveliest of the group; the flowers are yellow with a rich orange-coloured centre, and very sweet; the habit is sometimes robust, but more usually delicate. Enfant de Lyon deserves a special word of commendation on account of the freedom with which it flowers, and the exactitude of its form; although it resembles "Narcisse" a little too closely, it is of a paler yellow. Eugène Desgaches is quite first-class; its large, full, and globular clear rose-coloured flowers are very beautiful; the growth is vigorous. Gloire de Dijon stands unrivalled and alone; it is as hardy as a summer Rose, having lived through the winter of 1860-61 in places where all the Hybrid Perpetual Roses were killed. Flowers of this Rose were sent to me from Dijon before it was introduced, and exhibited at one of the Horticultural Society's shows at Chiswick. I have seen it grow 20 feet in a season trained against a house, producing leaves of a size and substance truly remarkable; the flowers are yellow, fawn, and salmon, variously shaded, large, full, and globular. Josephine Malton is a beautiful but delicate Rose with cream-coloured flowers, large and double.

Julie Mansais, I may add, is not one of the freest of Roses, but when well grown it is certainly one of the loveliest; the flowers are usually white, though sometimes tinged with lemon, large and full. La Boule d'Or is the deepest yellow of this group, and sometimes beautiful under glass; out of doors the buds are often as hard as a cricket-ball, and as little disposed to open; it is nevertheless desirable for its colour, and is hardy, vigorous, and free. Loose petals of this Rose were sent to me from Paris the year before it was introduced. I was struck with the colour, but adjudged it too hard in the bud; Rosists can make out a flower from a petal as physiologists an animal from a bone. Louis de Savoie is a fine large pale yellow Rose, good for under glass. Madame Bravy is a prettily-shaped cream-coloured flower, good out of doors as well as within. Madame Damaizin is very free both in growth and flowering, and hardy also; the flowers are salmon-colour, large, full, and sweet. Madame Falcot is quite first-class; it is much in the style of Safrano, but deeper in colour, and more double; it remains to add that it does not grow so freely as that old favourite. Madame de St. Joseph has very large salmon-pink flowers, powerfully fragrant and of great beauty; it is best under glass. Madame Halphin differs from all others; the flowers, which are large and tolerably full, vary from salmon-pink to yellowish white. Madame Pauline Labonte is a large flat salmon-coloured rose, showy, and very hardy. Madame Villermoz is one of the gems of this group; the large full wax-like flowers—white shaded with salmon—and splendid foliage unite to form an object of rare beauty; the habit is also hardy, the growth free. Marquise de Foucault produces variable flowers, white, fawn and yellow, large, very sweet, of perfect outline, but not full. Moiret is a grand old Rose, but one that is only occasionally to be caught in perfection; the flowers are pale yellow shaded with fawn and rose, very large, full, and of great substance. Narcisse deserves universal cultivation; the flowers are yellow with creamy edges, perfectly circular and full, reminding one of a transverse section of a hard boiled egg; the plant is hardy, the habit good and free. Niphetos is a match for Duc de Magenta in size, though more globular in form, and of a different colour—pale lemon to snowy white. President ranks also amongst the largest and most beautiful of this group, surpassing both the preceding in fragrance and form; the flowers are rose shaded with salmon. Safrano, in the bud state, is one of the most beautiful, but the expanded flower is thin and poor; the buds are apricot, the flowers fawn-colour; the plant grows so freely, flowers so abundantly, and is withal so uncommon in colour, that it forms a most attractive object in the garden. Sombreuil is a good hardy free-flowering white Rose, of large size and vigorous growth, well suited for out of doors. Souvenir d'Elise Vardon is an indoor Rose, varying in colour from white to creamy yellow, very large and of great substance; the flowers are usually few, but fine. Souvenir d'un Ami, or Victoria as it is sometimes called, is not surpassed by any other in the group; the flowers are salmon and rose shaded, large, full and globular; the constitution is hardy, the foliage fine. Vicomtesse de Cazes, if of loose and irregular shape, produces flowers of exquisite colour, coppery yellow, and cannot be set aside as a decorative Rose in house or garden; it is very sweet, free, and tolerably hardy.

Home Correspondence.

The R.H.S. May Show.—The first of the Great Shows of the Royal Horticultural Society has left behind it pleasant recollections of gay throngs both of visitors and flowers, mingled with vivid impressions of the vastness of the great Exhibition building in which it was held. Will you, however, allow me a small space to observe that the latter—the building that is—however comfortable for promenading, and however convenient to the Society, while minus its monster tents, has the same effect on a flower show as other large buildings that could be named, its vast height and expanse dwarfing and diminishing the plants in appearance, and its dry atmosphere having a strong tendency towards their exhaustion. On such a sunny day as the Society was fortunate enough this time to have had for its fête, a tiffany or other light awning thrown across the nave would, I fancy, have greatly improved the scene, considered simply as a flower show. And it need not have been very costly. The hint is offered for cogitation by the proper authorities before another show takes place. *Nemo.*

New Greek Conifers.—What is Picea Apollinis? Link and Antoine describe this as a distinct species. Endlicher made it a variety of P. pectinata. Carrière regards it as a species allied to, but distinct from, P. pectinata; and Mr. Gordon records it as a synonym of P. cephalonica. In our opinion it is entitled to rank as a species forming the transition between P. pectinata and P. cephalonica. Its leaf is pointed, as is that of P. cephalonica, but not so sharp. The numbers of rows of stomata on the leaf, as well as the branches and cones, are much the same in both. The scale of the cone has its lip more turned over than in P. cephalonica, and its bract is broader, and somewhat more expanded at the base. Its seed is similar to that of P. pectinata, but quite distinct from that of P. cephalonica. The expansion of the wing is present in P. Apollinis and in P. pectinata, but does not occur in P. cephalonica. It has certainly more to do with P. pectinata than with P. cephalonica.—What is Picea Panachaica? This, we believe, is one of Dr. Heldreich's new species. The form of its seed corresponds with that of P. cephalonica. The other parts seem all equally identical with it, with the exception of the leaf, which is a trifle narrower, and more elongate. The distribution and number of the rows of stomata, however, are the same, and we can see no reason for holding this to be different from P. cephalonica.—What is P. Reginæ Amaliæ? Dr. Seemann, in the *Gardeners' Chronicle* (1861, p. 755) has recorded the discovery and history of this so-called species. With all humility we confess ourselves compelled to differ from Dr. Landerer's opinions as given in the article just referred to. We have not seen the flower, and therefore we speak under reservation of what it may show; but we have seen all the other parts, and have come to a diametrically opposite conclusion. The most of the distinctions pointed out by Dr. Seemann do not occur in the specimens we have received—the leaves are not there more sparse than in P. Apollinis. The cones are no doubt only about 6 inches long; but so were the cones of P. Apollinis, sent along with them. The only differences we have been able to detect between it and that species are, that the leaves are thicker and shorter, and more pointed—as much pointed, indeed, as in P. cephalonica; but the termination is of the same character as in P. Apollinis, viz., bevelled off from behind, whilst in P. cephalonica it tapers to a point, nearly as much from before as behind. The disposition of the rows of stomata is the same as in P. Apollinis; the leaves are the same. The cones are a trifle more slender, but the scales and bracts are the same; and so are the seeds; at least, if there is any difference, it is of the most trifling description. The wing is longer and larger; but this is a character often varying according to the size of the cone, as well as the part of the cone, from which the seed comes. We do not think the habit of second growth, even although it were special, and confined to the plants found in the district whence this variety comes, can be relied on as a specific character, and we doubt whether the same habit may not be found under particular circumstances in the allied species. For instance, in this country, Picea cephalonica, when injured either by frost or otherwise, shows a similar tendency. We therefore place ourselves in the ranks of those who do not consider this a good species. We view it as a variety of P. Apollinis. *A. Murray.*

Gishurst Compound.—Judging by the attacks on my own fruit and Rose trees, blights of all sorts are in unusual strength this year. The following, which is the last account I have received of the use of Gishurst, may therefore be acceptable. The writer, Mr. Cranston, of Hereford, says:—"I am pleased to state that it has effectually cured a large house of Roses which were badly infested with mildew. About 2½ oz. to the gallon of water is also an effectual remedy for the green fly upon Roses out of doors; this I am now using upon a piece containing some 40,000 or 50,000 plants. I find, however, that it does not kill the black fly upon Cherry trees without the addition of tobacco." *George Wilson, Belmont, Vauxhall.*

Peas.—I picked Peas from a south border on May 17, 25, 29, and 31; and on June 2. Is not this unusually early? *H. S., Carshalton, Surrey.*

Law of Rating.—In your last Number you refer to the rating of nurserymen's greenhouses, and the question of tenants' rights. In the Act of Elizabeth every thing visible is liable to be rated, even a cobbler's lapstone and a tailor's needle; but as the tailor earns most money with his needle, how would you rate it? The law, finding this so difficult, has abandoned rating it. Now if you rate a nurseryman's greenhouse, you must rate a draper's shop, fixtures, and those of every other trade; also private houses, where the grates, coppers, gas-fittings, &c., are the tenant's, or you will have inequality of rating. For the sake of argument, let us say a farmer puts up machinery to grind his roots, cut his chaff, and thrash his corn at a cost of 600*l.*, and that he loses 1000*l.* per annum; his next door neighbour has a farm at the same rent, on which he keeps removable dwelling-houses for herdsmen, pens to keep his stock in, altogether worth 3000*l.*, and he realises 1000*l.* per annum. How would you rate these two farms. *John E. Lane, The Nurseries, Great Berkhampstead, Herts.*

Rhododendron Edgworthii.—This came into bloom here in the open air on the 13th ult. The plant is 2 feet 2 inches high by 7 feet 4 inches in circumference, and has 16 trusses, two of which have two flowers, 8 three flowers, 4 four flowers, and 2 five flowers. The largest flower is on one of the five-flowered trusses, and it measures 12 inches in circumference at its mouth. I am induced to call your attention to it, as I am told it is the first to have bloomed in the open air in this country. It was one of a batch of 12 varieties bought by me in 1856 from Mr. Clark, the Curator of the Botanic Gardens, Glasgow, who had received the seed from Dr. Hooker. It has never had the slightest protection, and is exposed to a north-west wind, coming over about 11 miles of sea. I have crossed it with the pollen of the scarlet magnificum, a seedling of arboreum, and with other two scarlet varieties. Mr. Clark recommended me to cross it with altaclerense, but that variety flowered with me here in the open air in February. *R. B., Anne's Lodge, Ascog, Rothesay.*

Monstera deliciosa.—Could any of your Correspondents inform me whether it is rare or not for the Monstera deliciosa to flower; I have it in bloom now. Which is the proper name, deliciosum or deliciosa, and why is it called so? Is its fruit delicious? *G. Wheeler, Gr. to H. Westcar, Esq., Hersham, Surrey.* [The name is deliciosa. The flower-spike grows into a succulent oblong fruit, the soft vinous fragrant pulp of which, lying between the axis and the hexagonal scales of the surface, is eaten. Hence the name. You will find an engraving of the fruit in our Volume for 1858, at p. 883.]

Societies.

ROYAL BOTANIC: *June* 3 (*Second Great Exhibition*).—This was in most respects a repetition of that held the other day at South Kensington, a full report of which was given at p. 509. The following remarks will therefore be chiefly confined to subjects not shown on that occasion.

Stove and Greenhouse Plants.—These were again furnished in admirable condition; Allamandas especially were in unusually fine bloom, as were likewise Dracophyllums, Everlastings, and Cape Heaths. One or two Kalosanthes also made their appearance; it is in the July displays, however, that these are seen to most advantage. Who the successful exhibitors were, under this head, will be seen from the following:—

Awards.—16: 1st, Mr. Peed; 2d, Mr. Green; 3d, Mr. Baxendine. 10: 1st, Messrs. Fraser; 2d, Mr. Rhodes; 3d, Mr. Cutbush. 10: 1st, Mr. Chilman; 2d, Mr. Wheeler; 3d, Mr. Kaile. 6: 1st, Mr. Page; 2d, Mr. Tegg

Orchids.—In a charming group from Mr. Baker, gr. to A. Bassett, Esq., was an extremely well-flowered plant of the red Trichopilia crispa; and Mr. Milford, gr. to E. M'Morland, Esq., again showed his rare Odontoglossum Phalænopsis in beautiful condition. From Mr. Beck, of Isleworth, also came a small but fine collection, in which Aerides Larpentæ and Fieldingi, Saccolabium guttatum, and Oncidium Lanceanum were conspicuous.

Awards.—20: 1st, Mr. Baker; 2d, Mr. Milford; 3d, Mr. Peed. 8: 1st, Mr. Woolley. 12: 1st, Mr. Penny; 2d, Mr. Page; 3d, Mr. Green; 4th, Mr. Chilman. 6: 1st, Mr. Beck; 2d, Mr. Smith; 3d, Mr. Wheeler.

Azaleas.—These, though evidently past their best, were still in some instances sufficiently brilliant to show what they had been; and visitors who had not had the good fortune to see them in better condition were evidently delighted with them. Now that the blooms are somewhat off them, it is clear that some of the plants are too stiffly trained, a fault which, let us hope, another year's growth may help to remedy.

Awards.—6: 1st, Mr. Turner; 2d, Messrs. Fraser. 6 (Amateurs): 1st, Mr. Penny; 2d, Mr. Green: 3d, Mr. Cross; 4th, Mr. Page.

Cape Heaths.—These were again shown in considerable numbers, and, as the summer advances, seem to improve in appearance. One of the best of the ventricosa section is undoubtedly magnifica, a fine kind, with an unusually large amount of soft rose colour in it, and Queen Victoria, in the aristata class, as we have before observed, is quite a gem. Let us hope that other additions of equal value may yet be forthcoming,

Awards.—10: 1st, Messrs. Jackson; 2d, Mr. Rhodes. 8: 1st, Mr. Peed; 2d, Mr. Page; 3d, Mr. Baxendine. 6: 1st, Mr. Chilman; 2d, Mr. Wheeler.

Variegated Plants.—Among these were noble exam-

ples of Caladium Chantinii, Alocasia macrorhiza, and Dieffenbachia from Messrs. A. Henderson & Co; and from Mr. Hutt, gr. to Miss Burdett Coutts, and Mr. Smith, gr. to the Duke of Northumberland, at Syon, also came strikingly large and fine specimens.

Awards—1st, Messrs. A. Henderson; 2d, Mr. Hutt; 3d, Mr. Smith.

Ferns.—Both tender and hardy varieties of these were contributed in considerable abundance, and being good specimens of their respective kinds, they were much admired.

Awards (Tender):—12: 1st, Messrs. A. Henderson; 2d, Mr Lavey; 3d, Mr Young. (British):—1st, Messrs. Ivery; 2d, Miss Clarkson; 3d, Mr. Lavey.

Pelargoniums.—Seldom have these been shown in better condition than they were on this occasion, more especially the 1st prize collection from Mr. Turner. These were all that could possibly be wished for as far as skilful cultivation was concerned, and they were literally bouquets of bloom. Mr. Bailey had also some fine plants. The sorts, together with the number of times each variety was shown, were as follows:—Ariel, 3; Aurelia, 1; Beadsman, 2; Bacchus, 1; Candidate, 2; Carlos, 1; Desdemona, 3; Empress Eugénie, 1; Etna, 1; Fairest of the Fair, 3; Governor General, 1; Guillaume Seve ryns, 1; Guido, 1; Lady Canning, 1; Leviathan, 3; lilacinum, 1; Lord Canning, 1; Lord Clyde, 1; Mazeppa, 1; Mr. Marnock, 2; Monarch, 1; Nestor, 1; Osiris, 2; Peacock, 1; Picnic, 1; Prince of Wales, 1; Pizarro, 1: Rose Celestial, 4; Sanspareil, 1; Sir C. Campbell, 2; Symmetry, 1; The Belle, 2; Viola, 3. *Fancies.*—Acme, 2; Arabella Goddard, 1; Carminata, 3; Celestial, 2; Clara Novello, 3; Clemanthe, 1; Cloth of Silver, 1; delicatum, 3; Electra, 1; Emily Witcher, 2; Evening Star, 2; Lady Craven, 2; Lady Hume Campbell, 1; Lady of the Lake, 1; Madame Sontag, 1; Madame Van der Weyer, 1; Mrs. Turner, 1; modestum, 1; Negro, 3; Queen of Roses, 1; Queen of the Valley, 2; Roi des Fantaisies, 1; Rosabella, 1.

Awards.—12: 1st, Mr. Turner; 2d, Messrs. Fraser. 10: 1st, Mr. Bailey; 2d, Mr. Shrimpton; 3d, Mr. Weir. (Fancies) 6: 1st, Mr. Turner; 2d, Messrs. Fraser. (Amateurs) 6: 1st, Mr. Bailey.

Roses.—Those in pots begin to show the ill effects of the last week's brilliant sunshine; but in the shape of cut blooms they were all that could be desired. Conspicuous among yellows were unusually good examples of Celine Forestier, Boule d'Or, Auguste Vacher, Triomphe de Rheims, and last but not least, Vicomtesse Decazes. There was also an interesting box of Gloire de Dijon from Mr. Terry. Among specimens in pots, the most noticeable perhaps was Lælia, the blooms on which were wonderfully large and showy. This was in the collection from Messrs. Lane.

Awards.—10 plants in pots: 1st, Mr. Wm Paul; 2d, Messrs. Lane. 6: 1st, Mr. Terry. 50 cut blooms: 1st, Messrs. Paul & Son; 2d, Mr. Mitchell; 3d, Mr. Wm. Paul. 25 ditto: 1st, Mr. Hollingsworth; 2d, Mr. Terry. 24 ditto: 1st, Mr. Turner; 2d, Messrs. Paul & Son: 3d, Mr. Hollingsworth.

Miscellaneous subjects.—These consisted of some beautiful specimens of fine-foliaged plants from Messrs. Veitch, Williams, and Bull; one or two collections of Fuchsias, which we hope to see in better condition in July; a poor group of tall Cacti; a collection of Calceolarias, extremely well grown and flowered, from Mr. James, of Isleworth; and some hanging baskets from Messrs. A. Henderson & Co., tastefully filled, but in which stove and greenhouse plants, and others which are hardy or nearly so, were grouped together indiscriminately.

New Plants.—Of these, and of seedlings, some account will be found in another column.

Fruit.—This was shown in considerable abundance, and was good for the season.

Pine Apples.—Remarkable among these were some specimens of Providence, weighing from 8 to 9 lbs. each, from Mr. Jackson and Mr. Bailey. Queens were not first-rate; but we noticed a good Enville.

Awards—Providences: 1st, Mr. Jackson; 2d, Mr. Bailey; 3d, Mr. Young. Queens: 1st, Mr. Howard; 2d, Mr. Solomons; 3d, Mr. Barnes; 4th, Mr. Bailey.

Grapes.—Black sorts were good, especially some Black Prince from Mr. Hill. Of White Frontignans there were some beautiful bunches from Mr. Drewitt, and good Chasselas Musqué came from Mr. Petch. Muscats were not ripe; those indicating the nearest approach to maturity came from Mr. Clements. Mr. Hill sent some good examples of Buckland Sweetwater, and Mr. Bailey had good bunches of his Muscadine, a compact sort, becoming very white when fully ripe.

Awards—Black Hamburgh: 1st, Mr. Clements; 2d, Mr. Turner and Mr. Petch; 3d, Messrs. Hill, Jackson, Penny, and M. Henderson. Others also exhibited in this class. Black Prince: 1st, Mr. Hill; 2d, Mr. Goldsmith; 3d, Mr. M'Pherson. Sweetwater: 1st, Mr. Hill; 2d, Mr. Hutt; 3d, Mr. Bailey, Mr. Henderson, and Mr. Tegg. Frontignans: 1st, Mr. Petch; 2d, Mr. Drewitt; 3d, Mr. M. Henderson. Others also showed in this class.

Peaches.—These were not very plentiful; but the dish of Royal George to which the first prize was given was good. Fruit of the Stirling Castle won the second prize.

Awards.—1st, Mr. A. Henderson; 2d, Mr. Carmichael; 3d, Mr. Evans and Mr. Taylor. Messrs. Turner, Petch, Beck, and Tegg also showed good Peaches.

Nectarines.—The dish of Violette Hâtive, to which the first prize was given, consisted of very perfect fruit of high colour; but not large. Other varieties were also mostly below average size.

Awards.—1st, Mr. Petch; 2d, Mr. Allen; 3d, Mr. Tegg; 4th, Mr. Henderson; 5th, Mr. Robinson; 6th, Mr. Enstone.

Cherries.—Among these were beautiful specimens of Black Circassian and Elton from Mr. A. Henderson, Trentham. Mr. Wilson, of Warwick, also showed good fruit. Among other sorts we noticed a good dish of Reine Hortense.

Awards—1st, Mr. Henderson; 2d, Mr. Wilson.

Strawberries.—Among these were fine fruit of President, a productive and excellent kind, larger than Keens' Seedling and quite as early; Oscar, British Queen, Sir C. Napier, and Alice Maude.

Awards.—1st, Mr. Turner; 2d, Mr. Pottle; 3d, Mr. Horwood; 4th, Mr. Jackson.

Melons.—Of these there was a large display. Among Green-fleshed sorts, that to which the first prize was awarded was Golden Perfection; but Mr. Meredith, Garston, near Liverpool, also had a most excellent hybrid of the Persian class, with a skin nearly as thin as that of a Pear. This when better known, cannot fail to be a favourite. In the Scarlet class the best was Gem.

Among Miscellaneous Fruit was a fine bunch of Bananas from Mr. Mart, fruiterer, Oxford Street.

Notices of Books.

The Science of Home Life. By Prof. Bernays. Allen & Co. 1862.

This is a useful compendium; a sort of "Enquire Within" on scientific subjects; but, as is generally the case with such compilations, it is not so suitable for reading as for reference—an admirable book to consult on any knotty question. The subjects treated of are mostly connected with every-day life. Heat, the atmosphere, water, soap, glass, metals, liquors such are some of the topics touched on; each is briefly described, and whatever is worth knowing about it is concisely given. Thus, to take tea as an example: we are first told what sort of water and teapot makes the best tea; a description of the cultivation of the Tea plant follows, with an account of the process of preparing the leaves for market; the constituents of tea are next described, with the best method of making it; and the advice on the latter point we will quote, as, although every woman supposes she knows how to make tea, we take leave to assert that not one in twenty knows how to make it properly.

"In order to make a good infusion of tea, Soyer recommended that the tea should be very finely divided, as tea-dust, and briefly shaken in the heated, dry teapot, before the introduction of the water, with the object of bringing out the aroma in the greatest perfection. Many housewives pride themselves on a supposed ability to make good tea economically, which they manage either by letting the tea stand (to draw, as they express it) for a long time, or by placing it before the fire, or by the use of soda. But these and all similar expedients are worse than unavailing—they simply spoil the tea. The only secret of making good tea is to use the leaves in sufficient quantity, to heat the tea-pot thoroughly, and then, after the introduction of the leaves, to fill it up at once with boiling water; to allow it 'to draw' only for about five minutes, and then to pour it off, either into the cups from which it is to be drunk at once, or into another tea-pot. All the pleasant and valuable properties of the tea are extracted in that time. What comes out of it afterwards may be a strong-tasting liquor, but is unworthy the name of tea."

We often see such books as this condemned, as tending to make learners fancy they know all that is to be taught; yet we cannot think it is the book that should be blamed, but rather the beginner who suffers himself to rest satisfied with the knowledge he has picked up from books never intended to teach science, but merely compiled as aids to the memory, or as a commencement which shall induce the reader to examine fuller sources of information. For these purposes this volume appears to be admirably fitted, and would have been still more so, had the author been more careful in the construction of his index. Several of the headings given in it are wrongly paged; while again, many subjects are dwelt on in the book, to which there is no reference whatever in the index—both errors which will materially impair the usefulness of the work.

Rudimentary Treatise on the Principles of Design in Architecture. By E. L. Garbett, Architect. Virtue & Co., 1863. Second Edition.

It is a humiliating fact, but still it is the truth, that the prevailing feature of English, and especially of London architecture, is ugliness. No doubt our streets and buildings differ, and here and there a bright exception occurs, on which the eye rests with pleasure; but the exception proves the rule, and we need not search far for evidence that we have not yet learnt how to combine beauty with fitness for modern needs.

That we are on the road to acquire this knowledge, however, may be inferred from the constant complaints which are uttered on the subject. Not a public building, nor even a private one of any pretension, is erected, but it is forthwith assailed by hosts of detractors, who mercilessly pick it to pieces, some rightly, some wrongly; and since to know our faults is the first step towards amending them, we look upon these criticisms as a hopeful sign. Still, many condemn without knowing why, and if we know not where the error lies, how can we correct it? This Mr. Garbett undertakes to teach us, and he does it by quoting Emerson's words, "the selfish and even cruel aspect which belongs to our great mechanical works;" adding, "I cannot help suspecting that these words touch the root of the evil. Have we not here a clue to the solution of the riddle? And is not an unarchitectural building ugly simply because it looks selfish? It will be observed that the productions of other arts have not this inherent defect; they are goods to their owners without being evils to any one. But a great building is, in certain respects, a necessary evil; it shuts out from us air and light, and the view of beauteous nature; it encumbers a portion of the earth's surface, and encloses a portion of the free atmosphere. It has no right to do so, without making or attempting what compensation it may for these injuries."

How to make this compensation, how to "soften down this crude, selfish rudeness by a politeness either natural or acquired, is the aim of this little book; and in spite of its somewhat dogmatic tone, and occasionally fanciful theories, it contains much by which an architect may profit, and which is well worthy of careful attention. Those who have never studied the subject of Architecture will find it too technical, and probably in part unintelligible, but even they may gain a few ideas from it to guide them in forming a correct estimate of the works of others. The following is a useful piece of advice on this subject.

"Of course, it is not meant to be implied by these remarks that ornament is not conducive to beauty, but only that it is not necessary thereto; and it may be added, that a building which is not beautiful in itself, or when stripped of all except its necessary members, cannot by any addition of ornament be made pleasing, except to vulgar tastes. Hence we have a good test by which to try the justice of our admiration of a rich building, and detect in ourselves any lurking taint of vulgarity which, perhaps, will always remain, however we may advance in the cultivation of a pure taste. Let us fancy the building (or, if necessary, draw sketches of it), despoiled of everything that is merely decorative, and then see whether, in this naked state, it still excites our admiration. If not, then we may be sure that we were only dazzled with the enrichments, behind which the unskilful architect has taken refuge; and in such a building every ornament is too much. If, on the other hand, the bare carcass remains beautiful, though stripped of all its finery, all that finery may be restored, and none of it will be added in vain, provided it be consistent with itself and with the character of the building, properly placed, and consistent everywhere with its situation. If it fulfil these conditions, every decoration added to this building, from the simple moulding to the historic sculpture of a Phidias or a Chantrey, will be a useful addition, and will add to the real beauty of the whole."

Truth and consistency must be the aim of the architect; and while seeking for beauty he must remember that this cannot be attained at the expense of fitness: a fitness of parts as of decoration. And above all, let him beware of sham—that rock on which so many split. He, in short, like all earnest workers, should lay to heart the familiar truth with which Mr. Garbett closes his volume—"Seek not to seem what you would be, but be what you would seem."

Books Received.—*Flora of Edinburgh.* By Prof. Balfour and Mr. Sadler (pp. 174, 12mo, Black), a list of names of plants, arranged according to the Natural system, with a map and good reference to localities.——*A Northern Plea for Peace. Address of the Hon. William B. Reed, of Pennsylvania, (late American Minister to China, &c., &c.), to the Democratic Central Committee at Philadelphia.* Henry F. Mackintosh. A northern protest against the "cruel and wicked war" now raging in the disunited States.——*Some Remarks on a Protomorphic Phyllotype.* By G. Sigerson, M.D., Dublin. Fowler (a pamphlet). The author regards stipules as "indications of a protomorphic leaf-type," and he concludes "that type to be the orbicular leaf."!!

Garden Memoranda.

Cliveden, near Maidenhead.—As it has now become generally known that flower gardening is carried on here with unusual success under the able management of Mr. Fleming, some account of the appearance of this fine place, at the present time, may not be unacceptable. The effect produced on the beautiful lawn which lies between the mansion and the Thames, especially when viewed from the noble terrace in front of the house, is grand in the extreme, the whole of the beds, which are of large size and peculiar pattern, being now as full of blossoms as they could possibly be in July or August.

Omitting from want of space many of the natural beauties of this terrestrial paradise, and commencing with a small flower garden in front of the conservatory, the most effective beds consist of Cheiranthus Marshallii, of the double white English Saxifraga granulata, and the double blossomed variety of Cardamine pratensis; while others are made up of double red and white Daisies, double

red Anemones, and fancy Pansies, among which latter one of the most attractive is Magpie, a deep purple white-spotted variety, very suitable for this description of out-door decoration.

Passing onwards to the lawn, which is a sunk panel some 5 acres in extent, surrounded by a charming turf-covered promenade whose slopes at certain distances apart are decorated with red and white Thorns, we find the masses planted as follows, viz.:—one with blue Forget-me-Not and white Tulip (La Candeur), another with Anemones and Tulips, a third with Silene pendula, a fourth with Limnanthes Douglasii, a fifth with red and white Silene mixed, a sixth with Anemones, a seventh with red Silene, and an eighth with Forget-me-Not. These occupy one side of the lawn, and those on the opposite side are exactly similar, the dense masses of soft rosy-coloured Silene now in perfection, setting off the blue Myosotis and straw-coloured Limnanthes to excellent advantage. The connecting link between these two admirable series of beds at the point farthest from the mansion, is an immense circle with a grassy centre, encompassed with gay flowers, now broken here and there into masses by means of Honesty pegged down, and later in the season by Perilla, the intermediate colours during spring being blue, red, white, and yellow, and in summer scarlet, white, and blue: the whole when viewed from a distance looking not unlike a gigantic brooch of rich and varied colours set in a field of green.

Below the great terrace in connection with the mansion, right and left of the central flight of steps, are two admirable ribbon borders, at present full of flowers, the different colours of which are arranged with much skill both as regards effect and contrast; and the lines being curved they present an agreeable wavy appearance. The front line next the Grass consists of a broad belt of Ivy laid closely on the ground, behind which are rows of Double White Daisy, yellow, blue, and purple Pansies, the bright rose-coloured Silene pendula, with Honesty and Stocks, the two last forming a background against the terrace wall which is gracefully overhung with Roses, Jasmine, Wistaria, and other plants of a similar description. The borders just mentioned, both of which are composed of the same materials, are each 47 yards in length; and as looked down upon from the terrace, have a very striking effect.

A little in advance of the curves of the ribbons in question are circular beds on the Grass, and corresponding beds occupy suitable positions on the other side of a gravel walk, which runs parallel with the terrace. These are filled with blue and purple Pansies, Anemones, and Tulips, and in summer they form stations for Orange trees, of which this establishment can boast of some exceedingly handsome specimens.

As soon as the beauty of the spring flowers begins to fade, the beds are immediately cleared of their occupants, and refilled with ordinary half-hardy bedding plants, such as Geraniums, &c., thousands of which are now being prepared and hardened off in shady borders for the purpose. In this way, by means of materials not at all expensive or extraordinary in character, a display is annually kept up from March until September, such as, we venture to say, is not anywhere else to be found in England.

Around the flower-garden and elsewhere in the woods, in which the voice of the cuckoo may now be heard, mingled with that of multitudes of song birds, are miles of green drives, from which charming peeps of the surrounding country or bits of choice meadow land, just now owing to drought bearing a scanty crop, can here and there be obtained; and nearer the mansion are glades of Rhododendrons tastefully broken up into masses, at particular points of which, large-leaved half-hardy plants, such as Cannas, Caladium esculentum, Seaforthia elegans, Brugmansias, &c., have been introduced. In order that the latter may succeed satisfactorily, however, stations are first prepared for them, in which is put a good bed of warm dung, which furnishes bottom heat until the warmth of summer renders such assistance unnecessary.

Between the Thames and the flower garden, which occupies a table land 200 or 300 feet above the water, is a steep bank traversed by zig-zag woodland walks overhung with Yews, many of them wonderful specimens, and Scotch and Spruce Firs, the latter in many instances overrun with Traveller's Joy. These form in summer agreeable retreats from the heat of the sun, and at certain points, delightful views of the Thames with its little islands and the neighbouring country may be had; while contiguous to the water is a banqueting room and neat fishing cottage, and all the conveniences for pursuing the latter kind of sport, as well as for boating.

We need scarcely add that the kitchen garden and fruit department are managed with equal skill to that displayed in the dressed ground, and that the result is all that could be wished. Forced Strawberries we noticed in abundance; Grapes ripe, black as sloes, and covered with a beautiful bloom; and in a well constructed "Trentham case" is a fine crop of Peaches, many of which are ready for gathering. Figs in pots are literally loaded with fruit, which number six or seven on the end of every branch; these are on a leaf bed under Vines, and in the compost in which they are potted is put a good deal of chalk, of which they appear to be fond. On walls out of doors are good crops of fruit, as also on standards, but in more exposed situations in the neighbourhood it is thought that the crop of Apples at least may be thin.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—The conservatory should now be thoroughly relieved of all superfluous stock. Nothing therefore will be required in structures of this kind but to carry out a cleanly system of cultivation and to introduce specimens in flower from other houses or pits. Keep the atmosphere as moist as circumstances will admit. Ventilate thoroughly, and shade with thin canvas during bright sunshine. Attend to plants for autumn and early winter decoration, such as Japan Lilies, Chrysanthemums, Scarlet Salvias, Tree Carnations, and things of that description. Give them plenty of pot room, good rich compost, a moist atmosphere, and proper space for the development of their branches and leaves. Selago distans is a good useful plant which must not be forgotten; it flowers freely and requires nothing better than a cold pit to grow in Epacrises, winter blooming Heaths, and Cytisus should likewise be cultivated in quantity, for few plants surpass them for winter decoration. The atmosphere of plant houses can scarcely be kept too moist at this season; therefore sprinkle every available surface frequently, and syringe growing stock lightly twice a day during bright weather.

FORCING DEPARTMENT.

PINERIES.—Where the bottom-heat is obtained from tan or other fermenting matter, it will be necessary to add a little fresh material at intervals, in order to increase the heat, but, except in particular cases, it will be safer to surface with a few inches of fresh tan in a rather dry state than to turn the whole bed, mixing fresh materials with it, an operation which often causes too strong a heat; and at this season there is more danger of erring on the side of too much than too little bottom heat. Give every attention to keeping up a succession of fruit. Perhaps the most certain method of doing this, is by securing and potting a number of suckers proportionate to the demand, at short intervals during the growing season. Therefore attend to keeping up a regular supply of young plants, even if this should necessitate throwing away a few overgrown plants which have failed to fruit at the desired time. We have frequently seen gardeners allow the number of large plants to increase, so that there was little room left for the young stock, which suffered accordingly, and disappointment came in due course. Do not let the growing stock suffer for want of pot room, or through dryness at the root, and afford it a moist atmosphere, syringing and shutting up early in the afternoon, so as to give the house a good steaming. Recently potted plants, especially if they were much pot bound before being repotted, should be kept rather close and shady, with a thoroughly moist atmosphere, and very carefully attended to with water until they appear to have taken to the fresh soil.

VINERIES.—In the case of fruit intended to be kept as long as possible, the berries should be thinned, so that they will hardly touch when fully swelled, for it is scarcely possible to keep Grapes sound except they are severely thinned. Be particularly careful of the foliage of the Vines intended to furnish a late supply, and if plants must be grown in the house, see that they are not infested with black thrips or red spider, for if either of these pests is allowed to gain a footing on the Vines the foliage will probably be greatly injured, and then there will be no chance of keeping the Grapes in good condition for any time after they are ripe. Muscats must be encouraged with a brisk temperature while setting.

PEACH HOUSE.—Use means to eradicate insects, if any, from the early house as soon as the fruit is gathered, in order that the trees may be perfectly free from them before the lights are removed. Syringe copiously to destroy red spider, dust with sulphur for mildew, and smoke with tobacco for green-fly.

MELONS.—In dung beds keep up a good heat by means of linings. Let no water fall upon the fruit after it is fully swelled, and give air more freely. Sprinkle late Melons overhead early in the afternoon before closing up the frames; a little air may be left on during warm nights if the bottom heat is brisk. Keep the Vines thin, and shade lightly.

CUCUMBERS.—Attend to watering and thinning out superfluous shoots. If in frames, and the latter are small, they may be raised by placing bricks under the corners so as to allow the shoots to run outside. Stop and train those under handlights, and supply them liberally with water.

FLOWER GARDEN AND SHRUBBERIES.

All newly bedded-out things will during this hot weather require daily waterings. The benefit of little basins round specimen plants will now be readily seen. Let the young shoots on all old Fuchsia stools be thinned out to five or six. Attend diligently to standard Roses, constant disbudding is necessary at this period; also keep down suckers. Let every attention be paid to propagating a reserve stock of ordinary half hardy plants to fill gaps, and let those already rooted, or the remains of store pots, have kindly cultivation forthwith, in order to be ready to fill blanks. They should be kept in a shady border entirely by themselves, and should receive frequent waterings.

HARDY FRUIT AND KITCHEN GARDEN.

In order to have a good and constant supply of winter Endive a full sowing should now or very soon be made. Endive is generally sown too thickly. Another good sowing should be made in the first week of July, and a second towards the middle, after which the plants will not attain full size. As soon as the plants are a few inches high, some mow the tops of the leaves off with a scythe, cutting about one-third of the leaves away. This they do to stiffen the plants and cause more heart to develope itself; it also enables them to bear transplanting better. A good breadth of dwarf and compact Cabbages may be sown for early Coleworts; also a bed of Horn Carrots. This is a good time for a liberal sowing of autumn Turnips; the Dutch or Stone are useful sorts for the kitchen garden.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending June 3, 1863, as observed at the Horticultural Garden

May and June.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 28	11	30.240	30.121	76	45	60.5	56	53	W.	.00
Friday 29	12	30.209	30.113	80	48	64.0	58	54	S.W.	.00
Satur 30	13	30.148	30.068	75	33	54.0	59½	55	S.W.	.02
Sunday 31	14	30.182	30.118	69	39	54.0	60	55½	E.	.00
Mon. 1	○	30.263	30.131	72	34	53.0	59	56	E.	.00
Tues. 2	16	30.115	29.997	75	38	56.5	59	56	S.E.	.00
Wed. 3	17	29.943	29.851	83	41	60.0	60	57½	S.W.	.00
Average.		30.143	30.057	77.1	42.5	58.8	58.8	55.3		.02

May 28—Very fine throughout.
— 29—Uniformly overcast; very fine.
— 30—Overcast; fine; hot; very fine; slight rain at night.
— 31—Overcast; fine; very fine.
June 1—Fine; very fine; cold at night.
— 2—Fine; very fine; hot and dry; very fine.
— 3—Fine; hot and sultry; cloudy; very fine.
Mean temperature of the week 2½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending June 13, 1863.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 7..	68.7	47.3	58.0	14	0.53 in.	3	9	—	4	3	11	3	4
Mon. 8..	70.1	47.1	58.6	14	0.45	4	8	1	—	3	15	4	2
Tues. 9..	70.9	47.8	59.9	19	1.18	1	7	3	2	3	15	3	3
Wed. 10..	71.2	47.5	59.4	17	0.95	1	9	2	2	4	8	7	4
Thurs. 11..	71.8	48.4	60.1	12	0.47	1	6	3	3	5	9	10	—
Friday 12..	71.0	49.3	60.2	17	0.78	—	7	3	1	7	13	3	3
Satur 13..	71.9	48.7	60.3	17	0.55	1	5	6	1	2	12	8	—

The highest temperature during the above period occurred on the 7th, 1846—therm. 90 deg.; and the lowest on the 9th, 1852—therm. 34 deg.

Notices to Correspondents.

BOOKS: *Rougham.* We have inquired of a learned Indian friend and will report next week.

EUGENIA UGNI: *E D D.* The cuttings should be taken from the half-ripened wood.

FUNGI: *Ignoramus.* The Maple leaf has the superficial cells diseased, assuming the form which has been described by botanists under the name of Erineum acerinum, though not really a Fungus; the other leaf is infested by a common *Oidium*, the young state of a fungus called Erysiphe. *M. J. B.*

GREEN-FLY: *Exeter.* There is no more convenient way of removing this pest than frequent syringing with clear soft water driven *with force* among the leaves, especially if the operation is performed at midday. To syringe gently is useless.

LAWNS: *Constant Reader*, who has lately taken possession of a lawn that is covered with Moss, Plantain, Hawkbit, Daisy, and other weeds, and who cannot destroy the turf as there is no better to be had in the neighbourhood, should in the first place spud out at least the worst of the aforesaid weeds, then cut the sward as close as possible, and sow the bare places with good selected lawn-grass seeds, covering them with an inch or so of fine soil, and keeping moist by frequent waterings when dry weather may render it necessary. If it proves not to be so bad as it seems, and the surface is not much bared by the eradication of the weeds, the turf itself may cover if well scarified to get out the Moss, and dressed all over with some good compost, whatever may come most readily to hand.

NAMES OF CONIFERS: *Bath.* It is not creditable to a nurseryman that for mere trade purposes he keeps up such a name as Picea for a group which no botanist of the present day will recognise as distinct, or even distinguishable, from Abies. Undoubtedly a dealer has the same right to an opinion as a man of science; but we think that it would be only courteous in the former, if he explained publicly on what *scientific* grounds an adverse opinion is acted on.

NAMES OF PLANTS: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. It is requested that not more than four plants may be sent us at any one time.—*P, Devon.* 1, Sanicula europæa; 2, Pedicularis sylvatica; 3, Polygala vulgaris.—*A Devonian.* Myrica californica; and Leucopogon Richei, as far as we can judge without flowers.—*H C.* All we can say is that if it is not Maxillaria punctata you have set us a task beyond our strength.—*J D.* We suppose a crushed half open specimen of Achusa officinalis.—*C A.* Polygala vulgaris.—*A Reader.* Ranunculus hederaceus.—*Ada.* Terribly bad specimens; 1, Fabiana imbricata; 2, Alchemilla vulgaris; 3, Crushed to pieces.—*P P B.* 1, Buddlea globosa; 2, Phlomis fruticosa; 3, Sisyrinchium striatum.

RED SPIDER: *Elizabeth* would be greatly obliged for advice on the following point:—What is the best and cheapest way to clear a plantation (of two acres) of Gooseberry trees from red spider? The crop for this year is probably gone, but she wishes if possible to save the trees.

SNAKE PLANT: *Diss.* This is Trichosanthes anguina. It *was* in fruit at Kew.

TABERNÆMONTANA: *J C.* The probability is that your plants of the double-flowered variety of T. coronaria, are overtaxed: *i. e.* either the crop of flowers is too much for the strength of the plant, or there is a deficiency of root-action and consequent sluggishness in the system. Have they been brought on too rapidly in the earlier stages before the roots were well established? We cannot, without knowing all the circumstances, suggest any more likely cause for your not being able to get them to open their flowers.

TACSONIA IGNEA: *E D D.* This should grow freely enough in a compost of good turfy peat and sandy loam, thoroughly drained. Perhaps yours has been planted in poor effete soil, or kept too wet. When it starts let it run freely, after which it will flower. If it is planted out we advise you to take it up and prepare the soil anew; if in a pot let the old earth be removed as much as possible without injuring the roots, and let it then be repotted in better earth, keeping it rather close till re-established.

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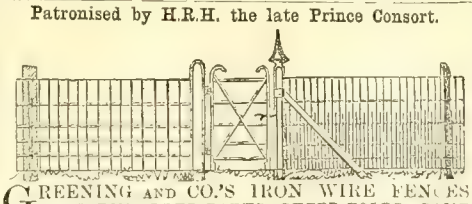
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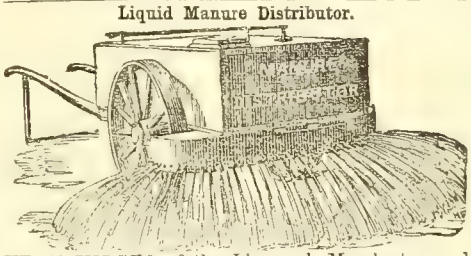
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The Agricultural Gazette.
SATURDAY, JUNE 6, 1863.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	June 9	Meeting of the Bath and West of England Agricultural Society at Exeter.
WEDNESDAY,	— 10	
THURSDAY,	— 11	

THE discussion which followed Mr. MORTON'S paper before the London Farmers' Club on STEAM CULTIVATION last Monday evening, was both vigorous and instructive. The paper itself is reported in full elsewhere. A mere *resumé* of the discussion is all that we can at present find room for here.

Mr. ALDERMAN MECHI referred to the value and importance of that deep cultivation which only steam power could accomplish—as illustrated in particular instances of an imperfect kind on his own farm, where a DEANSTON subsoil-plough had been long ago employed—and in examples of a more perfect kind on the same estate, furnished by the long lines of green in his Wheat fields now just over the drains, where of course the land had been smashed up and stirred—in fact, taken out and replaced by spade—to the full depth of the drain. He said that the ordinary cultivation of Great Britain is not 5 inches deep, and that another 2 or 3 inches would add 200 or 300 tons of feeding matter to our crops. He quoted Baron LIEBIG in proof of the assertion that there is abundance of material in our soils, which will become efficient and available for plant growth if only stirred and exposed to the air by steam-power. Mr. MECHI also rightly named his own constant exposures in former days of the evil of small fields and hedgerow timber as having had

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useful influence in preparing arable districts for the steam plough.

Mr. WILLIAMS, of Baydon, spoke of his own more direct labours in furtherance of steam cultivation, and of the way in which a morbid and excessive love of the picturesque hindered landowners from giving that aid to steam cultivation which would be given by the removal of solitary trees in ploughed fields, costing the tenant a pound for every shilling they were worth to their owner. Mr. WILLIAMS spoke too (though amid the impatience of the meeting) of the deplorable injury to agricultural progress which was being suffered by costly litigation between men to whom steam cultivation was so greatly indebted, as it was to both Mr. FOWLER and Messrs. HOWARD.

Mr. COLEMAN, of Woburn, recommended Mr. WILLIAMS, instead of merely protesting against the existence of outstanding trees, to offer an increased rent for their removal: he would find landowners amenable like other men to offers of that kind; and if the alleged increased value of land was a reality it ought to be paid for. Dr. ELLIS, of Richmond, spoke of the value of deep stirring even light soils. He was followed by Dr. VOELCKER, who referred at some length to Baron LIEBIG's argument on the exhaustion of English soils, declaring that there is an enormous surplus of fertilising matter present in clayey soils, and that steam power will there be most usefully available. On light land he believed that a pair of quick-stepping light horses would outstep and outstrip steam power, both in efficiency and economy.

To him followed Mr. DRING, of Spilsby, whose address we hope hereafter to give in full. It was a most admirable impromptu critique of the position which both Dr. VOELCKER and Mr. COLEMAN occupied in suggesting the greater economy of horse-power on light land. He concluded by praising Mr. HOWARD and Mr. FOWLER as our leaders, and by an emphatic eulogium on Mr. SMITH, of Woolston, and on the apparatus which he had bought from Mr. SMITH many years ago, and had used in steam cultivation with great advantage to himself ever since.

Mr. JAMES THOMAS, of Woburn, followed by Mr. CHARLES HOWARD, of Bedford, strongly condemned those who gave such inadequate reports of cost as Mr. MORTON had quoted. There is no one who does more to retard and damage steam cultivation than the man who publishes extravagant and obviously absurd statements of its great advantages. Both these gentlemen to a certain extent, (so we understood them,) believed in the advantage of applying steam power to tillage—and very possibly both might hereafter become purchasers of steam ploughs or cultivators—but certainly to declare what everybody knows to be absurd—viz., that ploughing and grubbing can be done at the prices which had been reported that evening by Mr. MORTON, would not induce them to hasten a favourable decision on the subject. Mr. C. HOWARD pointed out also the injustice of lumping ploughing and grubbing and harrowing together, and averaging the whole performance at so much an acre.

Mr. JOHN FOWLER declared that the efficiency of steam cultivation is so great, that to compare one "blow" of the steam plough with one "blow" of the common plough, is most unjust. One "blow" of the steam plough, which Mr. MORTON had proved could be done so cheaply, has to be compared with a whole series of operations by horse power, which indeed together are not so efficient as the single "smashing up" which steam power enables us to give the land.

In reply, Mr. MORTON justified the statements, and took the responsibility of them to a great extent upon himself. The one example to which Mr. CHARLES HOWARD had taken especial exception has been expressly left in the paper on the responsibility of the gentleman who had supplied it. As to the practice of lumping together in one average a number of operations—ploughing, grubbing, and harrowing, and estimating the cost per acre of the whole—that had been done in only one example. All the other cases had been divided in the valuation which had been made upon the facts contributed, between the two operations ploughing and grubbing, to which these facts related. Mr. MORTON concluded by alleging that the margin of the impossible and the incredible had been of late and year by year forced backwards by the energy and skill of agriculturists, and that while the whole cost of the operations named as having been done by steam power included a great deal besides the immediate outgoings which alone had that evening been referred to, yet he entirely believed in the truth of the statements which had been made on the authority of his correspondents, as to the cost of ploughing and grubbing, so far as coals, wages, oil, and immediate repairs are concerned.

After a few words of explanation from Mr. CHARLES HOWARD, and a short speech from the CHAIRMAN, the discussion terminated.

We regret our inability to give in our present Number a detailed account of our correspondents' returns. This, with a report of dynamometrical experiments at Sutton Courtney, and at Bedford, by Messrs. HARRISON, M. Inst. C.E., and J. C. MORTON, will appear next week.

FARM VALUATIONS.

IF the Rev. G. Wilkins wishes for a topic on which to enlighten his agricultural brethren, I recommend this subject to his notice. Of all the imposts which prevail, and under which the farmers as a body of men are too well content to labour, none seem to me to occupy a more prominent place than the custom of valuation. No sooner is a man about to enter upon a farm, than, with a patience and submission which seems peculiar to his calling, he consents to pay an enormous tax, for he knows not what, because, in having entrusted the matter to his friend the valuer, his interests are supposed to be duly represented and cared for. It is not however always so, indeed my experience is very far removed from that, and having been called upon to pay smartly for such ill reposed confidence, it is but natural to protest against a system so demoralising and pernicious in its character, that it serves to give countenance to fraud and deceit, at the same time ill provided to reward the persevering efforts of the honest and well disposed.

Allow me to extract an item from that singular document, the Inventory of a Farm Valuation, viz.:—Part of —— Field: Turnips five times ploughed, six ditto harrowed, ten ditto small harrowed, nine ditto rolled; labour to Couching; dressed with superphosphate of lime; the seed, and drilling the same and superphosphate of lime; one time horse-hoed; twice ditto hand-hoed, rent and taxes, 0*l.* 0*s.* 0*d.* This is dragging with a vengeance, and dragging the money out of one's pocket too—and for what? To mark out a line of programme for a valuation. Is it then a matter of surprise that after all this turning and broiling in the sun, that the soil, deprived of its moisture, has been reduced to a state unfavourable to vegetation, and the incoming tenant finds to his dismay, instead of the thriving and abundant crop of roots to which his charge of 5*l.* or 6*l.* per acre should fairly entitle him, nothing but a miserable and stinted growth, or what is still more frequently the case, only the parched and barren fallow.

To do away with the obnoxious clauses relating to valuation, and to meet the ends of common sense and justice, is a simple and easy matter. And this is, that the hay, straw, roots, and manure, shall be considered the tenant's property, over which he shall have the power of disposal in whatever way he chooses, the effect of which will be that an incoming tenant may purchase what may suit his convenience, and consequently have to pay only for value received.

Who in these days of progress will be long content to pay for a crop of Couch-grass in place of a crop of roots, for four or five times ploughing, when one single and simple operation will produce a far better crop? Besides, under the present system it seems to be to the interest and advantage of the outgoing tenant to have his fallows abundantly stocked with Couch, in order that the ploughings, the harrowings, and scratchings may be paid for and excused. I believe that all this may date its origin from some misconceived idea, that the landlord's interests are in some way bound up and protected, but upon this subject I will not now attempt to enter. I am well content to have made a case to show that if a man farms badly it shall be to his own loss and detriment, and not that of another; or to have established a plea in favour of right and justice over the present imperfect, unsatisfactory, and absurd custom of farm valuation. *W. S., Guildford.*

THE LAWS OF HUSBANDRY.

(*Continued from p. 492.*)

IN dilute solutions of sulphate of ammonia and chloride of ammonia I find phosphate of lime and magnesia are greatly more soluble than in water, even when charged with carbonic acid, and it is a striking fact, which I have observed repeatedly, that on spots where Couch-weed ashes were made, the excess of soluble alkaline mineral matters here produces the same rankness or over luxuriance which ammoniacal manures are known to produce in Wheat and other cereals. On sandy soils these same saline matters would be injurious to vegetation, for these soils do not contain, like clay soils, the mineral matters which, by rendering soluble substances comparatively insoluble, mitigate their energy.

A wise provision thus prevents the accumulation of these energetic fertilising matters in sandy soils; and beyond money needlessly expended in the purchase of such matters, no serious harm is generally done by their misapplication.

The power of soils to modify manuring matters we have seen depends in a great measure on the chemical composition of the soil, and I may add, also on the concentration of the liquid, and the quantity of soluble fertilising matter which is incorporated with that portion of the soil which is penetrated by the roots of plants; it is thus modified materially by the quantity of rain which falls during the season. Hence the effect which the same manure is capable of producing not only varies greatly on different soils, but also with a rainy or dry season.

It appears to me inconsistent with common sense, and certainly not conducive to the progress of scientific agriculture, to frame isolated facts into general laws according to which agriculture, as a profession, is to be regulated, if our prosperity, and even our existence as a nation, is to continue.

Liebig's new work, "The Laws of Husbandry," abounds in statements which are quite true in special cases, but which have no bearing upon the general practice of agriculture.

That there are laws which regulate the growth of the humblest herb and the mightiest forest tree no sensible man will gainsay, but we may well doubt whether the straw and the corn of the Wheat plant are developed in conformity to a pretty mathematical formula, which man may fancy to have discovered. Unquestionably great men, by taking too comprehensive a view, not unfrequently miss the very truth which they seek to establish.

After all much permanent good and a large amount of physical truth is brought to light by the painstaking, conscientious labours of those indefatigable students of Nature, who devote a life-time to the pursuit of one special object of inquiry, and I feel assured their labours do not deserve the cold-hearted, ungenerous, and unjust ridicule in which even great men occasionally indulge.

From the preceding account of some very remarkable properties of soils, it may be gathered that the office of the soil is not merely to supply mineral food to the crops we raise upon it, but also to manufacture, so to say, crude food into a condition fit for assimilation, to prevent injury to the living plant by too large an accumulation of soluble matters in the surface soil, to store up for future use such an excess, to diffuse it equally in that portion of the land reached by the roots of the plant, and to modify it in conformity with the requirements of our crops in a manner differing with each description of soil. In short, the soil is the great workshop in which food is prepared for plants, and we can only then hope to attain unto a more perfect knowledge of the nutrition of plants, and the best means of administering to their special wants, when we shall have studied, in all their details, the remarkable changes which we know take place in soils when fertilising substances are brought into contact with them. The subject is full of practical interest, but also surrounded by great difficulties, which it appears to me can only be overcome when the investigation is pursued in a truly scientific spirit, without reference to the direct application, which in due course, no doubt, well-established chemical principles will receive in agriculture. It is the undue anxiety to obtain at once what is popularly called a practical result, the grasping after results which at once may be translated into so many bushels of corn, which is a great hindrance to the more rapid advancement of agricultural science; and it is to be hoped, for the sake of the true interest of the agriculturist, that the voice of those capable of understanding and appreciating purely scientific results will be sufficiently powerful to keep in check the too great anxiety for immediate available results.

If we inquire into the causes of the absorbing properties of soils, we meet with a good deal of difference of opinion. Liebig regards this power as analogous if not identical with the physical power which charcoal possesses in retaining colouring matters, and consequently considers the soluble fertilising matters which are brought in contact and absorbed either wholly or partially by the surface soil as present in what he calls a physical state of combination. Professor Way, on the other hand, believes the absorption is effected by certain double silicates. The double silicate of alumina and soda, when brought into contact with lime, according to Way, parts with the soda and takes up lime. When the double silicate of alumina and lime thus formed is brought into contact with magnesia, lime passes into solution, and a double silicate of alumina and magnesia is formed; this in its turn is decomposed by salts of potash, and in the same way the double silicate of alumina and potash is changed by salts of ammonia into the double silicate of alumina and ammonia, whilst the potash passes into solution.

I have prepared, according to Professor Way's directions, a double silicate of alumina and soda, and repeating Way's experiments find that indeed such a replacement takes place; but if the double silicate of alumina and ammonia, which, according to Way, is the strongest double silicate, is mixed with a large quantity of a solution of a lime-salt, or salt of potash or magnesia, ammonia passes into solution, and one of the three mentioned bases is absorbed.

Thus if a preparation made after Mr. Way's directions,

and containing silica, alumina and ammonia, is mixed with an excess of a solution containing a salt of potash, ammonia passes into the solution and potash is absorbed by the preparation. From a similar preparation containing silica, alumina and potash, an excess of a solution of a lime salt removes potash, and lime becomes absorbed. But as in no case I have been able to notice a substitution of one base for another in equivalent proportions, and no double silicates in a definite composition can be produced by Mr. Way's plan of operation, and the existence of such definite compounds in soils has never been demonstrated, I may be allowed to suggest a different cause or causes in explanation of the undoubted absorption of ammonia, potash, &c., by the soil.

As already stated, the composition of the soil materially affects the precise manner in which soluble fertilising matters are absorbed or otherwise changed by the soil; I am inclined, therefore, to consider the absorption of such matters to depend upon the display of chemical affinity, modified by the well known action of masses, and the complicated action of the numerous chemical combinations which actually exist in the soil. The absorption of soluble phosphates, or of phosphoric acid, at once, is intelligibly explained by the affinity which carbonate of lime, oxide of iron, or aluminum, compounds which occur in every fertile soil, possess for phosphoric acid.

The absorption of ammonia, potash, and of phosphoric acid by soils, and their separation from saline compounds, accords with well-known chemical facts; and as the substances just mentioned in a practical point of view are by far the most important fertilising constituents, I think we are warranted in maintaining that the principal absorptive properties of soils are due to chemical and not to purely physical causes.

The mechanical or physical condition of soils, however, affects very materially their productive powers, and it is only in a soil in a proper physical condition that the chemical properties on which I have dwelt, and other important changes, can properly manifest themselves. The cultivation of land by deep ploughing, subsoiling, harrowing, digging, and especially the steam-cultivation of heavy land, for these reasons should engage our most serious attention. It is by such means that the porosity of stiff soils, and with it their capillary attraction, is greatly improved; that air is freely admitted into the soil, and the decomposition of the insoluble mineral compounds in the soil is promoted; that the accumulation of imperfectly decomposed organic matters in the soil, so injurious to vegetation, is prevented, and their final resolution into carbonic acid is effected, and that nitrates are formed in the soil. All the important transformations take place, but very imperfectly, in close, badly cultivated and insufficiently aërated soils, and in many cases the mere mechanical working of land, especially if effected by steam-power, wonderfully developes the inherent and almost boundless productive powers of some land.

Great stress is laid by Liebig, as it is indeed by all good farmers, on the mechanical cultivation of the land, for, dwelling upon the benefits which result from this, Liebig directs special attention to the physical state of combination as he calls it in which the mineral matters must exist in the surface soil in order that they may be of utility to the growing plant. Whatever may be the precise meaning of the term physical state of combination, or whether we assume that the mineral food must be presented to plants in solution or in some other mysterious form variously represented on Liebig's "Laws of Husbandry," certainly mineral food cannot be of any service to plants except it be present in the surface soil in an available form. The word available perhaps conveys as current a meaning as the more novel and less graphic expression "physical state of combination."

In such an available condition mineral food cannot be brought into the surface soil, unless water can freely percolate through the land and circulate in it. This is effected by various mechanical means, such as subsoiling, trench-ploughing, surface turning, &c. By all these means the porosity, and with it its capillary attraction, is improved, in consequence of the restored or increased porosity of the land during the colder and more rainy months of the year. The mineral food constituents in the subsoil, rendered slightly soluble and available by diffusion through the soil, are brought into the surface. As soon as continued dry and warmer weather sets in, and vegetation makes a fresh start, the mineral food previously prepared in the lower strata of the soil begins to move in an upward direction in a porous soil. With the evaporation of moisture from the surface fresh food is conveyed into the surface by capillary attraction, and thus its fertility is again restored. The appearances of efflorescences of nitre and other saline matters on the surface of soils during long-continued dry weather sufficiently shows the display of capillary attraction. It explains likewise the reason why the exhausted surface of land, abounding at a greater depth in practically speaking inexhaustible mineral riches, remains unproductive when it rests on an impervious, undrained subsoil; why winter fallow does not materially restore the fertility of the surface if it is not accompanied by repeated ploughing, subsoiling, and similar mechanical operations tending to increase its porosity; and why, on a well cultivated clay soil, vegetation is most luxuriant when the intervals between wet and dry weather are neither too short nor too prolonged.

When rain falls too frequently, the land is not only kept cold and wet, but the necessary amount of mineral food cannot be brought by capillary attraction within reach of the plants; on the other hand, if dry weather continues for too long a time, more soluble food is brought within reach of the plant; and as an excess or too concentrated a condition of such food is injurious to all plants, we can likewise well understand why vegetation suffers a great deal more from drought on naturally rich or highly-manured land than on naturally poor soil.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, June* 3.—Present, Viscount Eversley, President, in the Chair; the Duke of Marlborough, Lord Feversham, Lord Leigh, Lord Portman, Lord Tredegar, Lord Walsingham, Hon. W. Cavendish, M.P.; Major-Gen. Hon. A. N. Hood; Sir E. Kerrison, Bart., M.P.; Sir A. Macdonald, Bart.; Mr. Amos, Mr. Raymond Barker, Mr. Barthropp, Mr. Bramston, M.P.; Mr. Bowly, Mr. Dent, M.P.; Mr. Druce, Mr. Exall, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Holland, M.P.; Mr. Wren Hoskyns, Mr. Humberston, M.P.; Mr. Jonas, Mr. Lawes, Mr. Lawrence, Mr. Milward, Mr. Pain, Mr. Randell, Mr. Shuttleworth, Colonel Towneley, Mr. Wallace, Mr. Burch Western, Professor Wilson, Mr. Frere, and Dr. Voelcker.

The following New Members were elected:—

Abell, James, Leopard Grange, Worcester
Allen, Newland, The Vache, Chalfont, St. Giles, Bucks
Bainbridge, Robert S., Woodhorn Grange, Morpeth, Northumberland
Baker, Charles Newcombe, Half-moon Passage, London, E.C.
Baker, Samuel Camfield, Beaufort Street, King's Rd., Chelsea
Bartley, William Handy, Sansome Place, Worcester
Barber, William, Elm Hill, Grimley, Worcestershire
Beach, John Allen, the Hill, Stanton Swan, Worcestershire
Beachell, John, Rawcliffe, Selby, Yorkshire
Bealey, John Edward, Bloxwich, Walsall, Staffordshire
Berkeley, Robert, Spetchley Park, Worcestershire
Bomford, Heming James, Dunnington, Alcester, Warwicksh.
Bonner, W. Griffiths, Holme Lacy, Hereford
Bradham, William, Hilton, Wolverhampton
Caldwell, Bonham, Leominster
Chalk, Thomas, Barbourne, Worcestershire
Chesterfield, The Countess of, Bretby Park, Burton-on-Trent
Clark, William, Hepscott Hall, Morpeth, Northumberland
Clerksby, John H., High Heworth, Gate Head, Durham
Cobb, Thomas, Radnor Cliff Villa, Sandgate, Kent
Collier, W. F., Woodtown, Tavistock, Devon
Collins, Barnabas, Hunston, Ixworth, Suffolk
Coles, Edward, the College Green, Worcester
Cotterell, Sir Henry George, Garnons, Hereford
Crawshay, Edward, Othorpe House, Market Harboro'
Crossley, Francis, Somerleyton, Lowestoft, Suffolk
Cutting, Robert Coote, Ridlington, Uppingham
Dobinson, Francis, Wilderwick House, East Grimstead
Diamond, James, Beer Ferris, Tavistock
Dyson, John, 24, Dock Street, Leeds
Fair, Jacob Wilson, Lymm, Warrington
Fries, Count August, Moravia, Prantz, Brüm, Austria
Gandy, Rev. James H., Castle Eaton, Fairford, Wilts
Gardner, Richard W., Parsonage, Ombersley, Droitwich
Gilstrap, George, Winthorpe House, Newark-on-Trent
Goldingham, H. G., Newland Court, Malvern
Hardon, Edwin, Edgeley, Stockport
Hales, Clark, Manor House, Bassingbourne, Royston, Cambridgeshire
Harris, John, Sutton, Keyworth, Notts
Helps, Arthur, Vernon Hill, Bishops Waltham, Hants
Herbert, Edmund, Powick, Worcestershire
Heygate, Robert H. J., Docklow, Leominster
Heygate, Captain E. N., Buckland, Leominster
Hodgson, Richard, Crofton Mills, Blyth, Northumberland
Howard, R. G. F., Temple Bruer, Lincoln
Hurt, Albert F., Alderwasley, Belper, Derbyshire
Hunter, Samuel S., Old Court, Abergavenny
Johnson, James, East Harptree, Bristol
Johnston, Alex. R., The Grove, Yoxford, Suffolk
King, Richard H., Wooperton, Alnwick
Lea, John Wheeley, Stanfield House, Worcester
Le Grand, Emile, Woodhorn, Morpeth
Lency, Charles, Lenner, East Peckham, Kent
Lewis, Richard Ed., Weston, Monk Hapton, Bridgnorth, Salop
Lindsay, Robert L., Lockinge, Wantage, Berks
Mackinder, Herbert, Mere Hall, Lincoln
Maddock, Henry, Sealand, Chester
Mannsfild, Count, Dobrisch, Prag, Austria
Meir, Henry, Green Gates, Tunstall, Staffordshire
Miles, Charles Wm., Burton Hall, Malmesbury, Wilts
Mousley, Geo., Hoxton Hall, Chester
Mulliner, Job, Royton Farm, Wrexham, Denbigh
Nevett, Wm., Yorton Villa, Harmer Hill, Salop
Nevill, Thos., Montford, Shewsbury, Salop
Ogles, Charles, Rawcliffe Bridge, Selby
Pattison, Thomas, Newcastle-upon-Tyne
Pearce, George, Walcot, Pershore, Worcestershire
Perkins, Joseph, jun., Laughton, Sheddingworth, Rugby
Phillimore, Edward, Cheltenham
Phipps, Thomas, Bucklehampton, Pershore
Powis-Lybbe, Philip Lybbe, Hardwick, Reading
Richardson, Richard, Halewood, Prescot, Lancashire
Riddell, John, Bewick Folly, Alnwick
Rix, Nathaniel, sen., London Colney, St. Albans
Sample, Thomas, Bathal Castle, Morpeth
Scott, Wm. C., Thorpe, Chertsey, Surrey
Seaman, Joseph, Worcester
Shipway, Wm., Hanley Castle, Upton-on-Severn
Sheriff, Alex. Clunes, Worcester
Shield, John, jun., 66, Grey Street, Newcastle-on-Tyne
Smith, John, Althrey, Wrexham
Smith, Thomas, Little Mollington, Chester
Stallard, John, Worcester
Steward, Wm., Lambton, Fence House, Durham
Swan, Wm., Walker, Newcastle-on-Tyne
Talbot, Wm., jun., Lane House, Burton, Westmoreland
Taylor, John, Rajhmahal, Bengal
Thompson, Francis, Burton-on-Trent
Tomes, Alfred, Rouse Lench, Evesham
Toundrow, H. T., Redmarley, D'abitot, Newent
Travers, Robt. F., Great Carlton, Louth
Upfill, Thos. B., Sheepcote Street Works, Birmingham
Waddington, J., Langrish, Petersfield, Southampton
Webb, William, Worcester
Webb, William, Chemical Manure Works, Worcester
Williams, Edwine, Lenastone Farm, Ross
Williams, Henry Edward, Manor House, Braunston, Rugby
Wittenoom, Charles, Western Australia
Wood, Joseph, Lansdowne Villa, Worcester
Wood, Walter A., 77, Upper Thames Street, E.C.
Woodhouse, Edward, Worcester
Worcester The Bishop of, Hartlebury, Kidderminster

Finances.—The Hon. Major-General Hood presented the report, from which it appeared that the Secretary's receipts during the past month had been examined and found correct. The balance in the hands of the bankers on the 31st May was 2297*l.*

Journal.—Mr. Thompson, M.P., reported that the Committee recommended that on Wednesday the 24th inst., the subject for a lecture and discussion be as follows, viz.: "On the Application of different kinds of Manure to Grass Land," by Professor Voelcker.

On Wednesday, the 10th inst., Mr. Coleman will read a Paper "On Breeding and Feeding Sheep, with a view to increasing the Sheep Stock per acre." The committee begged leave to defer reporting further respecting the preparation of an Index for the 25 Vols. of the Journal until next month.

Chemical.—It is proposed by the committee that the lecture by Dr. Voelcker on "The Comparative Effect of different Manures upon Grass Lands," which was originally fixed for Wednesday, May 20 (Derby Day) shall be given on Wednesday, the 24th of this month. It will be remembered that Mr. Lawes has kindly promised to place the general results of his valuable experiments on this subject at the aid of the lecturer. The attention of the Committee was drawn to the case of pastures infested by weeds injurious to young stock: a correspondence having recently taken place on the part of Dr. Voelcker with Mr. Howard, of Northleach, respecting a field (situated in that locality), on which lambs never thrive, suffering injury to such extent as to cause death if they are not removed in time. It was found on examination that a plant grows on this field not met with elsewhere in the district; specimens were forwarded and identified as Wild Parsley (Petroselinum segetum). Whilst upon this subject Professor Voelcker referred to a correspondence with Mr. Meynell Ingram, on the subject of the supposed deleterious effect of water supplied to his kennels in preventing the breeding capacity of the hounds through wasting (in the nature of tabes testiculorum). Professor Voelcker had submitted the water to a careful analysis, and discovered it to contain a large proportion of organic matter (4·75 grs.). Supposing this to be the result of decomposed animal substances, the injurious effect of it appeared to the Professor to be partially accounted for. There was nothing in the inorganic constituents at all likely to cause injury. It was unanimously resolved that Professor Voelcker's attention should be directed to the determination of the practical value of salt as a fertiliser. Such very opposite opinions being in existence amongst the highest authorities on this subject, it is thought well worthy of careful and continued field experiments. The present Laboratory subjects are—1st, the solubility of phosphatic matter, and 2d, the means of rendering guano more effective, both by composition and mode of application. The next Journal will contain a paper by the Professor on Milk.

Veterinary.—

Report of the Governors of the Royal Veterinary College to the Council of the Royal Agricultural Society, for the Year 1862-3.

The Governors of the Royal Veterinary College have the satisfaction of presenting their Annual Report to the Council of the Royal Agricultural Society, and in so doing they desire, in the first place, to express their gratification at the increased interest which, during the past year, the Members of the Society have taken in the alliance existing between the two Institutions. The communications received from various parts of the country seeking advice with regard to the nature and causes of disease among cattle and sheep, with a view either to prevention or cure, have considerably exceeded those of former years; and being steadily on the increase, afford good proof that the advantages possessed by the College in disseminating sound pathological principles are duly appreciated by the owners of stock.

The Governors are fully persuaded that this improved state of things is due to no other cause; as the communications chiefly refer to ordinary, not to extraordinary and unusual cases of disease. They are, moreover, assured that disease upon the whole has not been more prevalent than in former years.

Many cases of great practical interest to the agriculturist have also been received from practising Veterinary Surgeons, and these having been first published in the pages of the "Veterinarian," and often with comments by the professors, have subsequently been reproduced in the public papers, particularly in those which circulate among the farming community. By this means valuable information has been brought directly home to the members of the Society and others who are interested in the well-being of the stock of the farm.

The malady above all others which has excited public attention during the past year has doubtless been the small pox of sheep. The sudden and unexpected outbreak of this disease in an extensive sheep breeding district in an inland county, could not fail to create the deepest anxiety, especially when it is remembered that on the former appearance of this disease in England it spread over the whole eastern division of the kingdom, and destroyed many thousands of sheep. On that occasion also its devastating effects were continued for a period of nearly three years, notwithstanding all the efforts which were made to arrest its progress, among which was the passing of a special Act of Parliament, the Sheep and Cattle Contagious Act. The introduction of this disease from the continent was at that time clearly proved; and although its outbreak on the late occasion has not been so satisfactorily traced to a continental origin, there is still no reason to believe to the contrary, or that it has had a spontaneous origin in this country.

The Professor of Cattle Pathology was early on the spot, and gave his unremitting attention for an almost unbroken period of three months to the means best calculated to exterminate

the disease. These efforts, aided by the co-operation of your Society and of the Government, and supported by the agriculturists themselves, proved eminently successful, so much so indeed, that after a few months not a single case of small pox existed, save among those sheep reserved for scientific purposes. A series of experiments early directed by the Government, are being carried out with a view of ascertaining the best means of protecting sheep against an attack of this fatal and loathsome malady. The solution of this important question has been confided to Mr. Marson, Surgeon to the Small Pox Hospital, and to Professor Simonds. The Governors of the Royal Veterinary College have freely lent all the assistance in their power to the Commission. For this purpose they have kept for several months a number of sheep at the College, which have in turn been brought under the disease by inoculation, in order to furnish the necessary supply of small pox lymph for the experiments.

The advantages possessed by the College Infirmary for such a purpose will be apparent to every one, particularly when it is remembered that these sheep have been kept perfectly isolated from all others, without the least risk being incurred of the spread of this highly contagious and fatal malady.

Besides the small pox of sheep many flock-masters in the northern and western divisions of the country in particular have sustained rather serious losses from the prevalence of rot, arising from the excessive rainfall in the early part of the summer of last year. The Governors would therefore call the attention of agriculturists to the system of preventing this destructive disease which has been advocated by the Professor of Cattle Pathology in an elaborate paper, which has been published in the Society's Journal, containing recommendations both scientific and practical. These losses, added to those which took place in 1860-61 from the same disease, have tended to diminish the supply of sheep to a very serious extent, and it is therefore a subject of thankfulness that the present lambing season has hitherto proved more than usually prolific. The weather for the last few weeks has been all that could be desired, and the losses consequently of ewes and lambs have been much less than in ordinary seasons. In some few exceptional cases, where a special cause has been in operation, as for example, the supplying the ewes throughout the winter with too great a quantity of untopped Turnips, in consequence of a superabundant supply of food of this kind, the withholding of all corn, cake, or hay, many ewes have been affected with venous congestion in some or other part of their organisms, and particularly at the time of parturition, which has quickly terminated in death. Too great care in regulating the amount of green vegetable matter, especially in the form of Turnip sprouts, given to in-lamb ewes, so as to maintain a healthy state of their systems, cannot be observed, and attention of this kind is particularly needed during an early and warm spring as in the present year. Where this precaution has been taken all has gone on satisfactorily; where neglected, serious losses have occurred. In a few instances also, but from causes not so apparent, a large proportion of lambs have been found to be affected with paralysis at the time of their birth. The Professor has under investigation a case of this kind which occurred in the county of Sussex, and in which the deaths have reached a high per centage. The flock is a very valuable one, and apparently has been well managed, circumstances which render the investigation the more difficult. It is believed, however, that sufficient light will be thrown on the causes to elucidate the adoption of means, which will effectually prevent a similar occurrence—a desideratum most important, as no curative means can possibly prove of any avail. The other chief malady from which sheep have suffered, during the year, has been an affection of the lung, produced by worms, filariæ, within the bronchial tube. This parasitic disease, in common with others of the same class, has evidently been on the increase for the last few years. The cause of this is not well understood, nor can it be, except by a patient and long-continued research into the natural history of each individual parasite. Investigations of this kind have long occupied the attention of professors of cattle pathology, some of which have already been made public, as for instance the natural history of the liverfluke, the cause of the rot in sheep. In the pulmonic disease alluded to, lambs and young sheep are the chief victims, and the general symptoms which the animals exhibit, are an almost continuous cough, which is increased by exertion, a fastidious appetite, and a falling away in condition. In most instances these symptoms are succeeded by diarrhœa, which has quickly carried off the patient. The success of treatment mainly depends on an early attention to the case; if this be neglected, the remedies, otherwise most effectual, will be of but little service. The inhalation of a medicated air, such as that produced by the mingling of diluted chlorine gas with the atmosphere of a shed into which the animals are driven, or the burning of sulphur with tar, often proves very efficacious, especially if conjoined with a few doses of turpentine and Linseed oil, in quantities of half a drachm of the former to two of the latter, given daily for three or four days in succession. Chalybeate tonics, such as the sulphate of iron, are highly beneficial, and so also is a moderate quantity of salt, when mixed with the animal's cake or corn diet—a variety of food is imperatively needed in all these cases. No new epizootic has shown itself among the cattle; but both the lung disease, pleuro-pneumonia, and the mouth and foot disease, Eczema epizootica, have been as rife as in former years. The contagious nature of these affections is being more generally admitted, and to the extent that this opinion gains ground, and care is taken to prevent diseased animals coming in contact with the healthy, will be the limitation of these diseases. The Governors have so often spoken of the means best calculated to prevent the extension of pleuro-pneumonia in particular, or its occurrence on a farm, that they deem it unnecessary to add to this report on this subject. Suffice to say that where the prophylactics, which they have in former reports recommended, have been rigorously enforced, the disease has been cut short in its progress, and the lives consequently of many animals have been saved. The same fatality which belongs to pleuro-pneumonia in England attends it in all other countries, and, as such is the case, the Governments of most of the continental states have long since made the disease the subject of special legislative enactments, an example which perhaps it would be right for us to follow.

With regard to the educational departments of the College, to which the Governors attach the greatest importance as being the means by which the country will ultimately be furnished with a number of scientific practitioners equal to the requirements of every district, they have to report that the lectures and clinical instructions have been daily continued, and that the number of pupils in attendance has been as numerous as in any former year.

Since the last report the number of pupils having passed the preliminary examination instituted by the Governors, subsequently obtained the diploma of the Royal College of Veterinary Surgeons, amounts to 40. The entrance also during the year of pupils has been a full average. The system of education has differed in no essential particular from that which has proved so effective heretofore. Four lectures a week have been delivered on the nature, causes, and treatment—preventive and curative—of the diseases of cattle, sheep, and pigs, during the sessional year of seven months, and clinical instructions have been daily given whenever bovine or other animals of the farm have been forwarded to the College Infirmary. Many morbid specimens, in addition to those sent by the members of the Society, have also been procured for the demonstration of the various forms of disease, so that the pupils have been continually instructed either theoretically or practically in this branch of their profession.

Valuable assistance has likewise been given by all the professors to the advancement of the science of Cattle Pathology, in the delivery of the lectures, practical demonstrations, dissections and clinical observations, and also by the inculcation of a knowledge of chemistry,—organic and inorganic—materia medica, and toxicology.

Before concluding this report the Governors would call attention to the completion and publication of a new register of the qualified members of the profession, by which agriculturists will be enabled at once to ascertain whether those who call themselves veterinary surgeons in their respective neighbourhoods are in reality scientifically educated practitioners. Many persons who can lay no legal claim to the title still continue thus to designate themselves. This is a subject of some importance to the agricultural community, as it appears from a statistical return, which has just been obtained by the Royal College of Veterinary Surgeons, that while there are 914 members of the College settled in practice within the United Kingdom, there are no less than 1244 individuals who assume the name of veterinary surgeon, besides 1189 farriers. Thus it is seen, that much still remains to be done by the united efforts of the Royal Agricultural Society and the Royal Veterinary College. The Governors trust that they have adduced sufficient evidence in this report of their determination to fulfil the conditions of their alliance with the Royal Society in full integrity. They consider the interests of the agricultural community to be most identified with their own; they require only the cordial co-operation of agriculturists in their efforts to improve the veterinary art in its application to cattle, sheep, and pigs. No means, which are at their disposal, have been spared to accomplish this improvement. They have especially sought to give practical effect to the provisions of the Society's charter by engrafting sound principles of medical science upon the minds of their pupils, the future members of the profession. C. N. NEWDEGATE, Chairman.

Mr. Raymond Barker having presented the report from the Royal College of Veterinary Surgeons, moved that the usual grant of 200*l.* to the College be continued for the current year. The motion having been seconded by the Hon. Major-General Hood, was agreed to.

GENERAL WORCESTER.—Lord Portman reported that the Contractor was making satisfactory progress in the works in the Show-yard at Worcester. His Lordship having moved that a sum not exceeding 30*l.* be allowed for enclosing additional space if found requisite by the Honorary Director, and that a sum not exceeding 100*l.* be placed at the disposal of Mr. Pain for advertisements and placards, the same were agreed to. The trials of Steam Cultivators will take place on the same days as the other trials, viz., July 15, 16, 17, and 18.

On July 21 and 22, these implements will be exhibited to the public in motion on land in the vicinity of the Show Yard.

The Secretary was directed to send a notice to each exhibitor of steam engines not to use any coal except smokeless, or coke.

Lord Portman, in bringing forward his motion that the quadrennial arrangement for the trials of implements being about to expire, it is expedient to consider on what system any prizes for implements shall be given in future, remarked that the subject was one requiring careful consideration, and moved that it be referred to the Implement Committee to prepare a new quadrennial scheme for prizes for implements, which was acceded to.

Sir Archibald Macdonald having moved, and Mr. Wren Hoskyns seconded, that Mr. John Hungerford Arkwright be appointed Steward Elect of Implements at Worcester, the same was agreed to.

The Council having decided that the Judges for the various classes exhibited at Worcester should be appointed by the Council without the previous recommendation of a Committee, the President ordered a Special Council to be summoned for this purpose on Wednesday the 17th inst., at half-past 12 o'clock.

Mr. Lawes, of Rothamsted, presented a handsomely bound copy of his works—"Memoirs on the Chemistry of Animal and Vegetable Growth;" "Rothamsted Memoirs"—Vol. 1. Feeding Experiments; Vol. 2. Field Experiments. And Mr. Bailey Denton presented the 2d Part of his "Farm Homesteads of England;" for which the best thanks of the Society were recorded.

The Council then adjourned.

Farmers' Clubs.

LONDON: *June 1.—The present state of Steam Cultivation.*—Mr. J. Chalmers Morton read the following paper:—

Our subject this evening has on several previous occasions occupied the attention of this Club. Eight years ago Mr. Williams, of Baydon, urged upon us the practicability of applying steam power to the tillage of the land. Four years ago Mr. Alderman Mechi made the tillage of the land by steam one of his subjects when calling our attention to the various ways in which agriculture had availed itself, or might avail itself of steam power; and 15 months ago Mr. James Howard discussed the rise and progress of steam cultivation in this country.

The first of these papers was of course a good deal of it speculative—full of estimate and prophecy—confident, as might have been expected from an able man who had well studied his subject, and wonderfully accurate its estimates have since proved to have been, considering the small foundation of actual fact and experience which then existed on which to build—it related to *the future*. The last of these papers was by the very definition of its subject historical, describing with the most praiseworthy fairness and impartiality the successive steps by which the progress of steam culture in the interval had been achieved—it related to *the past*. The subject this evening relates especially to *the present;* but while that is the literal and technical wording of it on the card, yet it is plain that as it is both the child of the past and the parent of the future, a discussion of the *present* gives us the whole field over which to range. So that although my principal object will be to lay before you the present opinions—*convictions* they may *now* be called—held regarding steam cultivation by the scores of men who have now had many year's experience of it—the testimony of experienced farmers to the *economy* of the field work done by steam during the spring of the present year, and testimony to the *quality* of the field-work done by steam, given by crops actually growing. Although my paper will for the most part be neither historical nor suggestive, but only descriptive, yet I shall be perfectly in order if I should digress to consider both how the present state of things has been produced by patronage or discouragement in the past, and how it is likely in its turn to modify the character of farm management in the future.

It is on this aspect of the *present* indeed that the greatest interest after all of course must linger. I have no doubt that the whole style and character of arable farming will be very materially altered by that general adoption of steam cultivation which is to be. And on this I claim the concurrence of all who have previously addressed this Club on the different branches of arable farming. Ask Mr. Shaw, of Northamptonshire, who many years ago spoke here of breaking up Grass land, whether if steam power had then been available for the purpose he would not have materially altered the plans he then recommended—or Mr. Mechi, who 14 years ago spoke here of deep cultivation by the plough, the spade, and the fork, whether he would not gladly have added the steam cultivator to his list if it had been obtainable—or Mr. Lawrence, of Cirencester, who in 1850 addressed us on the best method of obtaining a good root crop, whether steam cultivation would not have greatly helped him—or Mr. Baker, of Writtle, who has so often and so ably addressed this Club on the circumstances of agriculture, whether the possibility of applying steam power to cultivation, which in his time was never generally admitted, is not one of the most important of them all. Especially I would appeal to Mr. Bond, of Long Melford, Suffolk, who seven years ago read a useful paper here on the autumnal cultivation of Wheat stubbles and the subsequent preparation and growth of a root crop on stiff retentive soils—I would ask him whether steam power, if it had been at his disposal, would not have strengthened his argument, made easy and effective all his plans and ensured them more general adoption. And I might come nearer the present time and call for favourable testimony to steam cultivation from Mr. Thomas in connection with the subject of rotation of crops, from Mr. Robert Smith in connection with his subject—"Stock *versus* Corn," and from Mr. William Spearing and Mr. Scott Burn in connection with the condition of the agricultural labourer. I might indeed come down to the very last meeting of this Club, when Mr. Spearing, of Moulsford, read one of the most instructive and suggestive papers which has ever been listened to in this room, and claim his favourable vote on the ground of the influence which steam cultivation will exert on the temperature of soils.

I know a cutting in the Gloucester and Bristol Railway, between Frocester and Stonehouse, which was made through a bank of as cold a clay as was ever cultivated—lias clay, which had been undisturbed since the days when the remains of the great fish lizards of olden time were imbedded there. The stuff was wheeled along the line barrow-load by barrow-load, and tumbled down the slope to form an embankment close by—ditch and bank being of course alternate in crossing an uneven country. This cold clay, which had lain impervious to air and rain for ages, no sooner got this "smashing up" than it heated, smoked, and actually burned. Has this fact no bearing on the theory of tillage, and on its relation to the underground climate of soils? There is a sea-side cliff of bituminous shale near Weymouth, which every now and then takes fire. It steams and smokes for awhile until the air has done all it can, and then it goes out. By and by a storm tears down the old effete surface soil, as it may be called, of the cliff, and exposes the previously covered subsoil as it may be called—a new surface—to the action of the air, and the cliff takes fire again. Have these facts no bearing, do you think, on our practice as tillage farmers? There may be no iron pyrites or bitumen in our soils and subsoils, but there are substances like these whose tendency to chemical union with the oxygen of the air equally with theirs produces heat; and that tillage agency which the most effectually lets the air in on fresh material within the soil, will the most beneficially influence the underground temperature—not only by its assisting drainage to let spring showers through the land, but also by its facilitating chemical action within the land, and so producing heat.

And if I might interpose here one or two minutes talk on the theory of tillage in relation to steam cultivation, I would call attention to the fact that these cases of heat produced within a mass of earth by stirring it and introducing air, are, after all, of less importance for their bearing on the subject of underground climate than as proving the production of general chemical action and disturbance in this way. It is by this

general chemical action and disturbance produced by the introduction of air that fresh food for plants is prepared.

There is abundance of it down below the level to which horse tillage extends, and so it must of course be conceded there is plenty of it below even the level—though that is much deeper—to which steam tillage extends. The main difference between the two lies not in the greater depth to which so great a power as steam can work the land, though that is a most important consideration, but in the fact that horses trampling in the furrow along which the tool they draw has gone do harden a layer of earth above the storage which is in their case thus cut off, and thus make the access both of the air which would fertilise this mass of earth below it, and of the roots which would thus feed upon the material thus fitted for their food, less practicable and easy. In steam tillage, where the power stands off the ground, and is conveyed by a long rope to the tool—where the tool itself is carried on large wheels, this mischief, whether it be poaching the ground which is thus moved, or hardening a floor immediately below it over the earth which is not being moved, altogether disappears. And it is not too much to say that a clay soil deeply drained, and then deeply stirred and cultivated in dry weather by steam-power, is in altogether different circumstances from any which before all this it had ever experienced. There is unquestionably an immense storage of fertilising matter in it, of which little use has till then been possible, which has thus been made available for the growth of plants, and it is hardly possible to exaggerate the benefit which men of science, knowing the methods of plant growth, may confidently predict, and which indeed men of practice have already experienced, as the result of steam cultivation in such cases. Gentlemen, we hear now a-days a great deal about the exhaustion of English soil and English agriculture. Baron Liebig in his recent work praises the agriculturists of China and Japan at the expense of the Western Barbarians, who in these islands are disposed to wash their towns and houses clean. But we use the years and vigour of the longer life which we have thus won for ourselves in balancing the account of manure thus wasted by quarrying guano in Peruvian islands, and by exchanging in various way our labour for imported fertilising matter. And, however foolish in itself the waste of sewage no doubt is, yet the country as a whole has benefited, and agriculture has not on the whole been injured by the extension of the sewerage of towns. Those, moreover, who have been led by Liebig to fear the rapid exhaustion of our soils in this way, know but little of the enormous storage which exists in subsoils hardly yet opened for the benefit of agriculturists. And I do not ask the chemist to teach us this. There is hardly an observant agriculturist who has not many a fact within his own knowledge and experience to prove what an enormous reserve fund and "rest" exists, into which it is his business anyhow if possible to put his hand. And I do not say this with any special regard to the interest of the tenant at against that of the landowner. Both are interested in increasing the current fertility of the land—for good management can easily maintain *that* when once it is obtained, and out of it comes rent as well as tenant's profit.

There is a field of Wheat close by the Eynsham station at this moment, of stiff clay land, in the occupation of Mr. Joseph Druce. And at intervals of about 11 yards all across the field—across its ridges too, not coinciding therefore with any furrow or shallower soil of the present or any previous cultivation, there are strips varying from a foot to a yard in width of lighter colour and scantier growth, across the dark green of the vigorous Wheat plant which is just coming into ear. What is the cause of these lines of comparative infertility? They are where the Clover seed barrow missed two years ago—that land had not been robbed at all last year, whereas the rest of it had yielded a heavy crop of Clover hay—those lines had produced nothing last year, and as a consequence they produced less this year. On the remainder, where the Clover plant had come and prospered, the treasures of the subsoil had been brought up by the Clover root into the surface soil, and on these as well of course as on a similar deposit from the atmosphere the Wheat plant is feeding now to its evident advantage and to the evident benefit of the landlord as well as of the tenant, as proved by the poor growth of the Wheat where the plant had missed. It is both to fertilise and to open up for use that storehouse to whose riches the Clover root has access of its own that is the object of steam cultivation. The poor land which is growing poor Wheat in strips is not exhausted, as Liebig would assure us. It is full of food, as the Clover root proves to us: and deep and thorough tillage by steam power will lay it open for us.

The very finest bit of Wheat I have seen this year, and therefore no doubt one of the finest bits in the country, for I have travelled about a good deal this spring, stands in the very middle of Salisbury Plain, not two miles from "the Bustard." A large extent of perfectly uniform dark green with stalks standing as thick as possible, too thick indeed I should say, were it not that they retain their vigorous growth though on the point of coming into ear. And close by is the bare down with a scanty growth of Grass hardly yet showing any sign of spring growth, and near at hand are gorse and wilderness growing hardly anything of use. What is the cause of this extraordinary disparity of fertility? Of course it is mainly owing to the right plant being grown to use what food for plants may be available. It arises also I daresay from artificial aid afforded to the Wheat plant, of which the Grass and gorse had not the benefit; but mainly and especially it is owing to its having been old land, as they call it, ploughed up for the first time. The old land in this case contained no doubt a large store of vegetable matter whose rotting and destruction after tillage would yield a rich supply of various substances on which plants feed. I may quote this instance, nevertheless, as one of a multitude which prove how, whether in soil or subsoil, there is an enormous storage of food for plants, to which tillage implements properly applied will introduce us, for below our cultivated fields, as well as on the surface of fields in Grass, there is plenty of *old land*—land yet unmoved by the cultivator, which, when once it has been drained and broken up and subjected to the fertilising action of the weather, will yield stores of fertility as marvellous as that tract of poor land, now in promising Wheat, is now exhibiting in the middle of Salisbury plain.

Gentlemen, it may be thought that in these stories of embankments heating and of cliffs on fire, of Clover failures with their consequences, and of down land tillage, I am collecting illustrations which have but slight connection with our subject. I do not think so. Every illustration which can be quoted in proof of the stores of latent fertility present in our soils and subsoils tells in favour of what is the most perfect system of tillage yet known to agriculture—in favour of what is ultimately to be the key by which these stores are to be made accessible. I began by claiming the concurrence of all previous speakers on arable farming in this room in the influence which steam cultivation is to exert on agriculture—I shall now endeavour to bring forward such evidence of its superiority, economy, and efficiency, as will convince everybody else.

I may as well at once announce that I do not mean to marshal my facts as a philosopher would do, watching for the lesson to which they may lead, with no prepossession in his mind to affect his judgment. I have long since come to a conclusion on the subject, and knew well what the lesson must be long before in this instance I got my teachers together. And when Mr. Corbet proposed to me to undertake the introduction of this subject to this Club, and consulted with me as to the monthly meeting to which it might be best committed, I chose the last of the meetings before summer, knowing I should thereby have all the spring experience of a hundred farms or more to lay before the meeting, and that (convincing as it must be both of the efficiency and economy of steam cultivation), its publication now would be in time to enable those whom it must convince to give their order for steam ploughs and cultivators, and obtain them in time for autumn cultivation. The logical, and as it seems to me unavoidable conclusion of the evidence I have collected is that every arable farmer who can put down six or eight horses, and yet have a remainder enough for all the carriage work of his farm, may profitably adopt steam cultivation. That is the advice which I shall confidently give, and I believe its soundness is fairly borne out by the many cases whose details have already been published. It is the business of this paper to lay these details before you. I do not however say that I shall *merely* lay the evidence before you which has been collected, because it seems to me to be also the duty of the introducer of such a subject to state the impression it has made upon himself. The evidence by which the impression has been made will however accompany it, and correct it if necessary. I have during the past two years walked over at least 50 steam-cultivated farms in the southern counties, obtaining on them full details of the cost and fruits of steam culture from their tenants. During the same time, especially within the last few months, I have had returns sent to me from upwards of 100 steam-cultivated farms on the same subject, and having had frequent opportunities both of seeing steam ploughs and cultivators at work and of seeing the results of previous steam cultivation, I certainly have a right to an independent opinion on the subject, and it does not seem to me that there is any impropriety in my stating it. There are plenty of examples of success to be quoted of Smith's Cultivator, Howard's Cultivator, and Fowler's Plough and Cultivator. I believe there are no examples of entire and disheartened failure, unless it be one or two of the original ploughs and tackle sent out by Mr. Fowler. Cultivation or grubbing—such work as 4 and 6 horses would do less perfectly at the rate of about 3 acres a day, is better, cheaper, and more effectually done in lots of cases by steam power for 3*s.* to 4*s.* 6*d.* an acre. In the actual outgoings of labour, coals, oil, and immediate repairs cheaper work of this kind has been done by Fowler, and taking the last year and the present is being generally done by Fowler than by either Howard or Smith. I state this, not as an opinion, but as a matter of fact, which I have verified in many instances. On the other hand there is a larger proportion of instances where an unfortunate experience has followed the adoption of Fowler's apparatus than in the case of either Smith's or Howard's tackle.

And of course it is by a comparison of successes and misfortunes that one learns both the possibilities and the risks of the different methods in operation, much better than he can from the decision of judges at agricultural shows, who in a few hours, amidst the confusion of thronging spectators, have to make up their minds. Taking the decisions of the English Agricultural Society for example, I believe more good has been done by the opportunities given for the public working of steam implements, leaving spectators to form their own opinion, than by the awards of the Society's judges.

It is well-known that those awards have been consistently throughout in favour of one particular form of steam cultivating apparatus. I do not believe that in the upshot of it that constant verdict has misled the public. The public interest has in the long run and at length been served by the encouragement which has thus been given to that system of applying steam power to the cultivation of the soil. But I cannot doubt that in particular instances that verdict has been wrong. The great Chester award for example, for the best method of applying steam power to the cultivation of the land, has in my opinion been shown by events to have been a mistake. The prize tackle on that occasion is, I believe, nowhere now; no one uses it, no one makes it, while the tackle which competed with it is still being turned out weekly from the manufactory, and is in lots of instances (in larger numbers than of any other kind of steam cultivator in the country) profitably at work. It may illustrate both the particular wrong and the general good thus done if I mention the facts of two sets of tackle bought at Chester. The prize set was, I believe, bought by Mr. Redman, of Overtown, near Swindon, and did good work in that year, but at great expense for repairs, and great difficulty and labour in getting so cumbrous an apparatus about. It was exchanged for an improved set in 1860; and in 1862 it was still further improved by the adoption of the clip drum and slack gear apparatus. This original tool was made by Mr. Stephenson, and consisted, with travelling anchor on the opposite headland, of engine and windlass, travelling separately, but fastened together when at work. Smith's tackle, shown by Howard, at Chester, was sold to Mr. Pullen of Sutton Courtney—it, on the other hand, has been worked ever since unaltered, and requiring but little repair; it has grubbed about 600 acres a year ever since—it has displaced about 12 horses per annum, and thus saved 400*l.* a year by an expenditure of about 200*l.* a year ever since. I cannot doubt that the appeal by Messrs. Smith and Howard to experience for a reversal of the finding of the Court below has been here allowed—and that the four years' experience of the two competing sets of steam cultivating apparatus has upset the few hours' trial before the Society's judges.

But now comes another aspect of the affair. Mr. Fowler also, who latterly perhaps had no reason to complain of the Society's awards—but who had already earned his prize at Chelmsford if he earned it anywhere—has been making great improvements in his machinery. Confident, and rightly confident, as events have proved him to be, that the direct draught of the tillage implement is the best—confident that to take the rope all round the field which is being worked—drawing the tillage tool to and fro along one side of the quadrangle thus formed, and winding up the rope upon a windlass as the unfinished piece thus surrounded diminished in size, confident that all this involved the tear and wear of more rope as well as a consequent greater waste of power—confident in fact that he was essentially right in his original plans—he has so improved and simplified his machinery that while—in travelling engine and travelling anchor and immediate pull to and fro of the tool between the two—it is the same tackle as before, yet practically it is now an altogether different set—very greatly superior to its prototype at Chester—wasting less power, using less rope, employing less manual labour than its rival there. So that when it came the other day at my request and at Mr. Fowler's expense, to Sutton Courtney, for comparison, as I had hoped, with other rival systems there—for examination by itself, and on its own merits only as it proved—its performance during 8 or 10 days' work was sufficient to convince Mr. Pullen himself of its superiority to the plan to which he had been accustomed. And wherever, as on Mr. Pullen's farm, there is a large extent of open land where a three or four hundred yard furrow can be had as a general rule, I do not see how it is possible to avoid the conclusion to which Mr. Pullen himself then came. The engine of 12 or 14 horse-power travels along one headland in charge of the engineer, being attended by a boy and horse and cart bringing water and coal. The anchor, 400 yards off, in charge of a lad, travels along the other headland, and the rope passes round the clip drum below the engine, which lays hold of it, and grips it, and pulls it with itself, though having only a single half turn hold of it. It passes to the other *end* of the field, taken over five or six rope porters, which carry it unattended from one side of the field to the other—it passes round the drum below the anchor and at either end is tied to the plough frame, being coiled up there on two pulleys, or drums, which gear into one another, so that one-fifth of the power exerted in drawing the tool is also available for tightening the rope all round between the anchor and the drum, thus insuring that the rope is carried on the porters, and does not drag upon the ground, insuring, too, that the rope is held tightly in the clip drum, and does not slip; insuring that, when the furrow shortens, the rope winds up of itself, and when it lengthens, winds out of itself. Add to this the ploughman, and the tillage implement, and two boys to shift those porters which carry the rope in front and behind the plough, and you have a perfectly simple and efficient set of apparatus.

I shall make a reference before I conclude to the results of experiments which have been during the last fortnight made at Sutton Courtney on the draught of Fowler's apparatus, and of Smith's and Howard's tools—by Mr. Harrison, M. Inst. C. E., late Manager of the Gloucestershire Steam-plough Company, and myself. They are incomplete: I had hoped to have had a set of apparatus from Bedford, with which to compare the set from Leeds. If, however, Mr. Howard is able to let Harrison and myself to put one of his sets through its paces with the dynamometer to-morrow at Bedford, it will yet be possible to publish in the report of this meeting, with the results obtained from Fowler's tackle, the corresponding results obtainable from his own—though it would of course have been more satisfactory to have obtained them both upon the same land—and I hope that that may yet be done at the Exeter meeting. I shall not, however, speak of these experiments here in any detail. They, like all questions involving many figures, will be better understood by the eye than by the ear. The readers of the agricultural papers, and of the Club reports, will have an opportunity of learning the results.

I will therefore leave the subject of public trials and society awards, and come to agricultural experience. And let me say I have quite as much satisfaction in announcing the success of Messrs. Smith and Howard in the field as I have in relating that of Mr. Fowler. It is the advance of steam cultivation in which I am interested, not the success of one or other of the rival manufacturers. So true is this, that I was annoyed on

receiving returns to the last set of inquiries on the subject which I issued to find that I had omitted to ask whose tackle my correspondents employed. This, however, I have other means of verifying, and I will refer therefore to one or two of the results which have been obtained by

(A) *Mr. Smith's apparatus.*

1. Messrs. Druce, of Eynsham, farm about 900 acres of arable land and 300 of pasture. They used to work 27 horses and 22 oxen; they now work the same land with 19 horses—8 horses and 22 oxen have been put down since the purchase of Smith's tackle three years ago. They got over about 700 acres of grubbing on the two farms each year. This spring, on the lighter farm of the two, Mr. Samuel Druce has got about 70 acres worked one way, and has crossed the same 70 acres 6 and 7 inches deep in 20 days, including removals, 5 in number.

Coals, 8 to 10 cwt a day, oil, 1*s.* 6*d.*, wages, 15*s.* 2*d.*, water nothing, being provided in every case by wells close by; the whole cost of wages and fuel is 23*s.* 6*d.* a day. The 140 acres done in 20 days were at the average rate of 7 acres a day, or about 3*s.* 6*d.* an acre.

2. Mr. Toward, on the Prince Consort's farm at Osborne, has grubbed 94 acres one way, and crossed 80 of them, 8 to 9 inches deep, in 32 days; viz. :—174 acres at the rate of 5½ acres a day upon an average, at a cost of 8*l.* 15*s.* for coals, 1*l.* 15*s.* 9*d.* for oil, 25*l.* 1*s.* 4*d.* for wages, 3*l.* 8*s.* 6*d.* for repair—39*l.* in all, or 4*s.* 6*d.* an acre on the average.

Mr. F. Sowerby, of Aylesby, Great Grimsby, who has had Smith's tackle since Sept. 1, 1859, had grubbed 1300 acres with one rope, and is now using his second rope, which had done 1000 acres up to last winter, and has done 300 acres this spring. Last year he grubbed 1075 acres 6 to 8 inches deep in 116 days, having paid 178*l.* for wages, coals, and oil, and 10*l.* a year for expenses since the beginning of his experience. This 188*l.* amounts to close on 3*s.* 6*d.* an acre over the whole. This spring 300 acres, that is 150 acres grubbed one way and crossed, have been done in 33 days, at a cost of 12*l.* 17*s.* 6*d.* for coals, and 1*l.* 10*s.* for oil, 35*l.* 5*s.* for wages, and 2*l.* for repairs; 50*l.* in all, or about 3*s.* 4*d.* an acre.

Gentlemen, I have lots of other examples, and you will read a fuller statement in the papers where my statement is published—the power in all cases where the tool is regularly at work, and has been so for years, while the details of good steady management have been habitually recorded, and I say that as to the expense of steam cultivation in these cases there is no doubt whatever that it is very much less than that of horses.

Take now an example or two of Howard's tackle. It acts, as we all know, on the same principle as Smith's, and consists like it of stationary engine and windlass, with ropes conveyed round four sides of the field and drawing a cultivator to and fro along one of the sides.

(B.) *Mr. Howard's Apparatus.*—(1) Mr. Taylor, manager of Baron Rothschild's home-farm, at Mentmore, has ploughed 75 acres, grubbed 110 acres, and grubbed a second and third time as much as 160 acres, and worked 110 acres with heavy drags—in all done 455 acres of work in 78 days, at an average rate of about 6 acres a day, with eight removals generally effected without the help of a horse, at a cost of 23*l.* 12*s.* 6*d.* for coals, 2*l.* 10*s.* 6*d.* for oil, 81*l.* 14*s.* 4*d.* for wages, and under 10*l.* for repairs, about 118*l.* altogether, averaging about 5*s.* an acre for the whole operation (ploughing, grubbing, and harrowing). It is a heavy clay soil.

(2.) Mr. Pike, of Stevington, Bedford, also on a heavy soil, has grubbed 157 acres once, and 107 a second time, 264 acres altogether, 5 to 8 inches deep, in 42 days, or about 6 acres a day, spending about 25*l.* in coals, 1*l.* 15*s.* in oil, 30*l.* in wages, and very little on repairs—57*l.* in all, or very little more than 4*s.* an acre.

(3.) Mr. Bray, of Pyrgo farm, Romford, has grubbed 72 acres and crossed them—about 9 inches deep in 20 days—he has done it at a cost of 8*l.* 4*s.* 8*d.* in coal, 1*l.* in oil, 10*s.* in repairs, and 20*l.* 10*s.* in wages, including all horse labour, or 30*l.* in all—being at the rate of about 4*s.* 3*d.* an acre.

Of course these are not the worst examples—they are good examples both of the experience of customers and clients of Mr. Smith and of Mr. Howard. But you will see the whole of them in the published statement.

(C.) *Mr. Fowler's apparatus* is more costly than either Smith's or Howard's, a larger capital is invested, and it might, therefore, according to a very general rule, accomplish more and cheaper work than its rivals. So costly, they say, that it is not preferred by tenant farmers. It is nevetheless the case, that of the 46 instances of purchasers known to me, 13 are landowners, or for landowners, 3 are for letting out, and 30 are for strictly tenant farmers.

(1). Mr. S. Plummer, of Peasemore, who holds 750 acres of very stiff soil on the chalk near Newbury, bought Fowler's engine and tackle in 1860, costing 780*l.*; he has bought 800, 500, 500, 200, and 500 yards of rope in all, at and since that date. The whole cost of repairs, including all the alterations and the rope since purchase, has amounted to 320*l.* He had ploughed 675 acres, and grubbed 2078 acres up to the end of 1862. The depth of the work varied from 6 to 9 inches; the tilth of the soil could not be better, and the produce is much improved. The whole of the tackle is now in good order, and the rope will last another year. Taking last year by itself, 310 acres were ploughed, and 615 grubbed 6 to 9 inches deep, in 118 days, averaging nearly 8 acres a day; at a cost of 87*l.* in wages, 61*l.* in coal, 6*l.* in oil, and 98*l.*, including purchase of rope and repairs, 250*l.* altogether, or 5*s.* per acre, one-third of which is ploughing; and remember this includes the cost of rope, which the other return did not do.

This spring he has ploughed 70 acres, and grubbed 270 acres, and crossed with the grubber 125 acres in 65 days; being at the rate of 5 acres a day for ploughing, and about 8 acres a day grubbing—the wages paid being 48*l.* 15*s.*, the coals 34*l.*, the oil 3*l.* 4*s.*, and the repairs 1*l.* 10*s.*—about 87*l.* in all, or less than 4*s.* an acre all round, or if 6*s.* per acre be charged for the ploughing, about 3*s.* an acre for the grubbing.

(2). Mr. Frampton, of Benson, near Wallingford, has ploughed 196 acres and grubbed 119 acres in 51 days, at a cost of 42*l.* for coals, 2*l.* 11*s.* for oil, 25*l.* 6*s.* 5*d.* for wages, and hardly any repairs—70*l.* in all, 4*s.* 6*d.* all round, or if 6*s.* is charged for ploughing, about 2*s.* 6*d.* for the grubbing.

(3). Mr. Giles Edmonds, of East Leach, near Lechlade, who farms 2050 acres of arable land, both stiff soil and light brashy soil, chiefly the latter, as well as 425 acres of pasture, has had Fowler's tackle since August last year. He occupied 56 days, and spent 42*l.* in coals, 2*l.* 16*s.* in oil, 45*l.* in wages, and 20*l.* in repairs, in ploughing 270 acres, and grubbing, 240 acres, averaging in all 9 acres, and 2*l.* a day, or about 4*s.* 6*d.* an acre, more than half being ploughing. This spring he has ploughed 15 acres, grubbed one way 456 acres, and cross-grubbed 257 acres in 48 days, at a cost of 86*l.* in coal, 8*l.* 12*s.* in oil, 31*l.* for wages, besides 10*l.* for water-cart, and 15*l.* to 20*l.* in repairs—being 100*l.* in all for grubbing 713 acres once over and ploughing 15, or 2*s.* 9*d.* an acre all round. I wrote to Mr. Edmonds, saying, "Of course the 31 removals of which you speak as having taken place during this work are not included in the 48 days you put down to work?". This is his reply:—"The time lost by the 31 removals is included in the time named, namely, 48 days. You may easily suppose so when I tell you that our day's work on several of them with the scarifier, was from 20 to 25 acres a day, the removals brought back the average of the work to the 15 acres a day. Of course wet half days, of which we had two or three, I did not include. Twenty acres and move to another ground the same day, possibly from a quarter to half a mile distant, we have done more than once. *Giles Edmonds.*" Gentlemen, here you have a case where the land is all laid out in *long* fields 300 to 400 yards *wide*, where the land though in places clayey is generally a light stone brash upon rock. The work done by steam-power is in this case hitherto unparalleled, but it is on a sufficiently large scale, and altogether on a farm, and from a farmer of such unquestionable standing, that I look upon this example, striking as it is, as one of very great authority. One more example and I have done. Mr. Arnot, of Carshalton, a member of this club, has ploughed 96 acres, and grubbed 196 acres, upwards of 6 inches deep, in 35 days, about 18*l.* have been paid for coals, 1*l.* 13*s.* for oil, 23*l.* 12*s.* 6*d.* for wages, and nothing but a few dozen points and shares for repairs—in all about 44*l.* for close on 300 acres, one-third being ploughing, averaging nearly 9 acres a-day, and close on 3*s.* an acre. As I said before there are good samples of the work completed, and of the cheapness with which it is done. The character of the soil affects the result, and the best examples of Fowler's and of Smith's tackle I have quoted, are from lighter soils than those which have been quoted of Howard's.

Take—from a heavier soil 125 acres, being a "very heavy clay," and 46 acres a lighter soil, the following example of Fowler's tackle, being on the farm of Mr. E. Roberts, of Berdon Hall, Bishop Stortford; 141 acres have been ploughed, and 57 acres have been grubbed after ploughing, 6 to 9 inches deep in 41 days, at a cost of 22*l.* 10*s.* for coal, 1*l.* 17*s.* 6*d.* for oil, 21*l.* 3*s.* 8*d.* for wages, and 5*l.* for repairs, or about 50*l.* altogether. Here the cost is 5*s.* an acre all round.

Take the farm of Mr. Grosvenor Hodgkinson, M.P., near Newark, of "moderately stiff clay," where 127 acres have been ploughed, 178 have been grubbed, and 39 acres cross grubbed in 48 days, at a cost of 27*l.* 10*s.* for coal, 2*l.* 15*s.* for oil, 34*l.* 12*s.* for wages including water, and 24*l.* 8*s.* for repairs—about 95*l.* altogether, or 5*s.* 6*d.* an acre all round.

Take the case of Mr. Richardson of Hibaldstow, who uses Fowler's smaller engine and tackle. He has on various soils, chiefly for hire, grubbed 650 acres one way, and 260 across it—900 acres in all in 82 days this spring, costing, so he tells us, 6*d.* per acre for coals, 2*d.* per acre for oil, 1*s.* 6*d.* an acre for wages, or about 2*s.* 2*d.* in all.

And I know of many good examples of unquestionable success which are not reported on my lists. There cannot be a doubt that steam cultivation may now be declared by the Central Farmers' Club to be an unquestionable success, so far as mere economy of work is concerned.

Of course the immediate outgoings—coals, oil, wages, and repairs, are not all the expense. The rope wears out; it costs on an average 1*s.* an acre, in addition to which I have said the engine and tackle wear out. If we charge 10 per cent. upon them to keep them good, that will amount to from 50*l.* to 80*l.* a year, equal to 1*s.* 6*d.* or less per acre upon an ordinary annual performance. The capital invested in its purchase cannot be procured under, say 5 per cent., equal to another 9*d.* or less. Altogether the charges come to from 5*s.* to 6*s.* for grubbing, and from 8*s.* to 9*s.* for ploughing per acre. These include the utmost amounts for tear and wear and capital, and certainly they are below the cost of horse work. Farmers will pay from 8*s.* to 12*s.*, and even 20*s.* per acre, and supply coal and water to those who will let the steam tackle out for ploughing and grubbing land, and thus show their estimate of the worth and quality of the work.

Of course as to the quality of work I have less definite testimony. It is plain on the face of it that no definite valuation on this subject is possible, and yet it is here that the great superiority of steam cultivation exists. I can quote Mr. Plummer, of Peasemore, Mr. Newton, of Campfield, near Woodstock, Mr. Redman, of Overton, the Rev. Mr. Huxtable, of Blandford, Mr. Pocock, of Bourton, Mr. Ruck, of Cricklade, Mr. Taylor, of Mentmore, and many other authorities on the subject. It is the superior quality of the work that makes all the difference on heavy soils. The difference between ploughing in good condition and when wet is not to be measured by money on clay lands. It is all the difference between failure and success. So that while it is on light soils, and where great speed can be obtained, that the greatest and most wonderful results as to superior economy are attained, yet it is not there; it is on the stiffest soils that the greatest advantages are realised. The power of dealing rapidly and wholesale with your tillage work in autumn on the clays is the great advantage which the steam ploughman possesses. And I do not in these remarks claim more for one system than another. The ability to stir up the land to a greater depth than can be done by horses with hardly any pressure on the soil or subsoil is common to them all.

I fear my story is getting too long and wearisome to retain your attention much longer, and I have not much more to say. It is impossible to state intelligibly in a quarter of an hour the results of the experiments on draught made at Sutton Courtney by Mr. Harrison and myself—I will only, say what must indeed be plain to any one beforehand, that there is very little waste of power indeed in the direct system of traction. It took only three-quarters of a cwt. to pull the rope round with the anchor and engine 350 yards apart when tightened up with a 6 cwt. strain upon it so as to be wholly carried. Another cwt. was required to make the anchor go. It took from 3 cwt. to 3¼ cwt. when badly carried, and it took 5 cwt. when wholly dragged. These figures show the advantage of the slack gear, which always keeps the rope up with a strain of 1-5th the draught, viz. from 5 to 6 cwt., according to the work being done. As to the draught when at plough, it was as nearly as possible four times the corresponding work of Howard's horse plough worked by a team at various depths besides it.

In the case of Smith's tackle, worked as Mr. Pullen usually works it, we found that when going 5½ to 6 inches deep it took a draught beginning at 11 cwt. and ending at 10, as it got near the end of the furrow, nearer therefore to the engine. And the dynamometer placed in the rope on the side of the quadrangle next the engine, between it and the grubber, began at 15 cwt. and as it got close to the windlass ended at 14 cwt. There were thus 4 cwt. of work more done by the engine than were taken by the plough, and that 4 cwt. were lost in the dragging of the rope and turning round the snatch block. I mention this to show how much loss of power takes place when the rope is badly carried.

When not carried at all, Fowler's rope takes 5 cwt. to drag it, when not dragged at all it takes only ¾ of a cwt. in a furrow 350 yards in length. Here in working Smith's grubber 4 cwt. were lost in a length of rope between the grubber and the engine, of about 500 yards, laid round three sides of a quadrangle. In drawing out the rope, to lay it round at starting, it took from 0 to 1¼ cwt. in drawing it 110 yards to the first snatchblock; it took 1 to 2¼ cwt. from the first to the second snatch, about another 180 yards; and it took 2 to 3 cwt. in going from the second to the third snatch-blocks. At the time it was taking 2 cwt. of draught with the brake as usual, it took 4 cwt. with the brake held so hard as to keep the rope well off the ground between the porters; and it took 2¾ cwt. with no brake at all in use.

It is, I think you will agree with me, impossible to state these figures at any length, so as to enable you to realise the state of the case from mere hearsay. I must leave a full comparison of them until the figures are in type, when you will understand their bearing on the affair. It is right to mention, however, that I understand that in Howard's new tackle the brake and draught windlass are made to gear into one another, so that the drag upon the rope as it leaves the drum is not dead weight wholly lost.

The full account of these comparative trials will however appear, and be I hope intelligible, in the published report. Meanwhile it is worth remembering that after all the agricultural value of the tool is determined in the ordinary farm use of it from week to week in the field, and there these tools stand on more even terms than dynamometrical experiments would indicate. If, as I believe, Fowler's plough and cultivator does more work per unit of power and per unit of cost than any other—yet for their adoption satisfactorily much larger alterations are needed in the condition of our fields as they ordinarily exist. It was on this account I have no doubt that Mr. Savidge of Sarsden said, as I heard him last Wednesday—"Some think steam ploughing will one day be general. In my opinion it will never be general." This was the utterance of a man educated by his experience of Fowler's tackle, but moreover forgetful of the immense improvements and alterations which are every day making in the arrangement of our fields.

Gentlemen, I fear I have wearied you with my long story, yet the half remains untold yet. In order to state the present position of steam culture, I ought to have described the double engine system as adopted by Fowler, and with very ingenious arrangements for coiling and uncoiling the rope, which must reduce the tear and wear of rope to a minimum, as also adopted by Mr. Savory, of Gloucester. Mr. Coleman's plans with two grubbing tools, one engine, and light single anchor, bearing the strain only of dragging back the empty tool, ought to have been referred to. Mr. Smith's (of Woolston) combined drilling machine and grubber ought also to have been described. I consider it a most valuable implement, which it has indeed been proved to be by the crops now growing sown by it. The question of grubbing *versus* ploughing ought to have been discussed, and the differences of opinion on the subject referred back to their origin in difference in quality and condition of the soil.

All this must be left unsaid—and much too that might have been added, on the influence of steam cultivation in the condition of the labourer. One word may be added, however, on their part. Country lads and young men ought to be educated up to an ability to manage all farm tools; and stea mcultivators, which *will* one day be general, should be as familiar as any of them. And as the latest novelty in the present condition of the steam plough question with which to conclude, I will refer to the argument which I heard last Wednesday powerfully urged by Mr. Savidge, of Sarsden, before the Oxford Farmers' Club—that in all large national and parish schools a small steam engine ought to hold a permanent place among the educational apparatus, and all boys ought to be taught, before they leave the school, so much of its construction and management as to enable them with the less difficulty to take the place of engineer, which will soon be open on many a farm where at present no agricultural labourer exists able to undertake it.

The tabulated reports from Mr. Morton's correspondents cannot appear until next week. The report of the dynamometrical experiments, referred to in the above paper, will also then be given.

Calendar of Operations.

JUNE.

BERWICKSHIRE MERSE FARM, *June* 1, 1863.—A month ago we wrote of the arrival of "May weather," but our joy did not last many days. Under long-continued bleak north winds Grass declined rapidly, fat hogs had to be sent to market to avoid starvation, and the consequence was a temporary fall in the price of mutton. The effect on beef was just the reverse; the cold retarding the decay of any Swedes in store for the few cattle then remaining. Since the 26th (our Whitsunday term), we have enjoyed some fine warm days; Saturday's mild rain has produced a wonderful greenness; and though dull, it continues growing. The rainfall of the month is small (1·6 inch), and has had little effect, owing to the low temperature. A sudden rise of 7° or 8° tells immediately. The business of the season is unusually forward, if drilling and Turnip sowing be the end of the matter; but, strange in so favourable a time, there is quite the usual breadth of hastily cleaned land; and there may be a tale to tell, "The more haste the worse speed." Strong land turned up raw from want of frost; but light land was everything that could be desired; and the luxury of profitable labour was enhanced by the sight of the yellow weeds among Wheat, which won't let last year soon out of mind. The seed is brairding beautifully, and the weather is not in favour of the flea, though it may appear at any moment. Potatoes are just nicely through the ground, and must be horse-hoed at once. There are fewer planted than for some years past, and Beans are regaining favour, and are likely to merit it from their appearance just now. Wheat in general is making great advances, yet the sight is marred by an occasional field irregularly planted; for much of last year's growth was deficient in vitality, and some never grew at all. There are many instances where this result cannot be attributed to mismanagement at harvest time. As usual in backward weather grub and wireworm have been very destructive, chiefly among Potato Oats; yet nowhere have we seen the crop quite destroyed. Much of the early sown Barley has got quite patchy, and a piece which was quite blue is now varying it with yellow. It is the least promising of our crops. For these ills the only remedy is such weather as we are now blessed with. Harvest cannot be earlier than an average, which, with us, is about the end of August. Our fat hoggs came out full of condition, leaving good but not heavy fleeces. Ewes have been much reduced latterly, and their lambs somewhat cramped for want of milk; but we trust things will go better now. Corn has realised but little this year, and the farmer must live (if he can) on hope. *J. T.*

Miscellaneous.

Baron Liebig.—It must be obvious to every reader of the *Agricultural Gazette* for the last 20 years, that the theories and teaching of this great man have found no favour with its Editor. Fair play is a jewel. The counteracting influences of Sprengel, Lawes, &c., have been largely quoted, but I never remember to have seen the theories themselves or the bases on which they were founded introduced into your columns—we have had the bane, but not the antidote. The culprit has been tried without being allowed to produce evidence in his defence. Why not give us quotations from his last work, as if he had delivered or read his paper before some of our Farmers' Clubs? I am proud to acknowledge myself a firm believer in his great principles, and as an ardent admirer of his wonderful powers. I look upon him as the Sir Isaac Newton of agricultural progress and discovery. Every page of his book teems with enumerations of some great theory or truth, or an elucidation of some hitherto hidden working of nature. His powers of reasoning, his observance of facts, and his logical deductions, elucidate truth and expose error; the nitrogen theory fades away under the lucidity of his crucial examination. It is a pity that we cannot dissociate names in such a case, and merely consider theories. It is not a personal question. We owe to Mr. Lawes very many obligations for his varied and costly experiments, especially as regards the nutrition of animals. I, for one, express this sentiment, although I consider his nitrogen theory a failure. I know many who want to see more of the Baron in your columns. Hour after hour, and day by day, as opportunity offers, I ponder over his pages, and try to understand and appreciate fully his profound discoveries and truths. How well I can now understand the wisdom of the Rev. S. Smith's practice at Lois Weedon. Liebig shows that we cannot, in most soils, manure the subsoil through the top cultivated soil, which decomposes, arrests, and fixes the valuable elements of manure. Look at the miserable pale subsoil in a section immediately below the 6 or 7 inches of cultivated soil, and you will see that it has never benefited to any material extent by surface applications. The Rev. S. Smith throws back his surface soil, and forks his manure into the subsoil; there the roots of bulbous and deep rooted plants find their food, which, on the surface soil, would be comparatively useless to them. Well may the leaves of his crops meet at 5 feet in the rows. How beautifully Liebig exposes the absurdity of "Clover sickness," and shows that it is only want of manure in the "right place," the subsoil, that causes the plant to die in the spring. Look again how he explains the causes of the benefits arising from tillage, how water cannot remove manure from one part of the soil to another, &c. Do give us some extracts from his work; it will set many thinking and acting. I allude more particularly to his last work "On the Natural Laws of Husbandry." *J. J. Mechi, Tiptree Hall, May* 23.

Notices to Correspondents.

DRAINAGE: *Job.* The paper by the late Mr. Girdwood on Drainage in the Cyclopædia of Agriculture, and the pamphlet by Mr. J. B. Denton, of 52, Parliament Street, Westminster, contain all the information you require.

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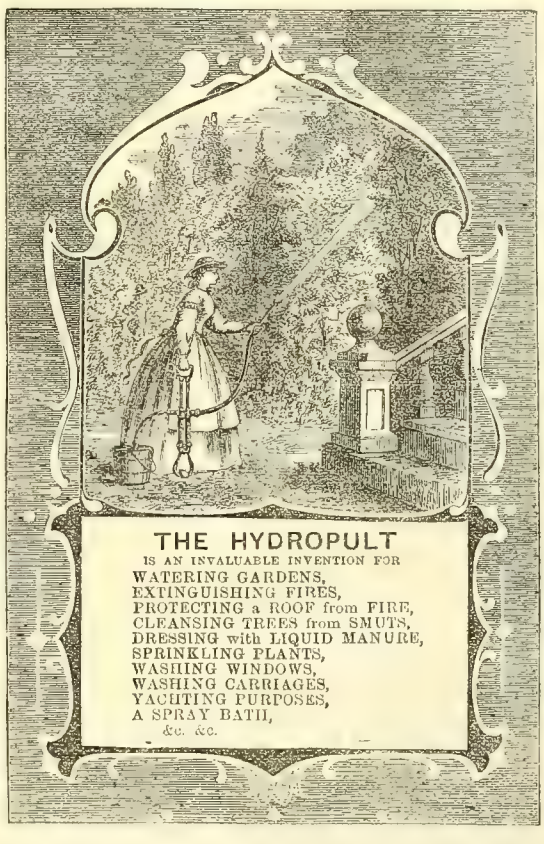
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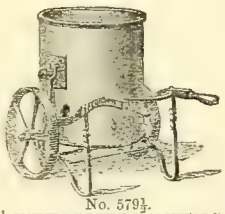


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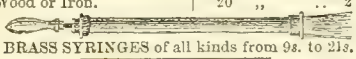
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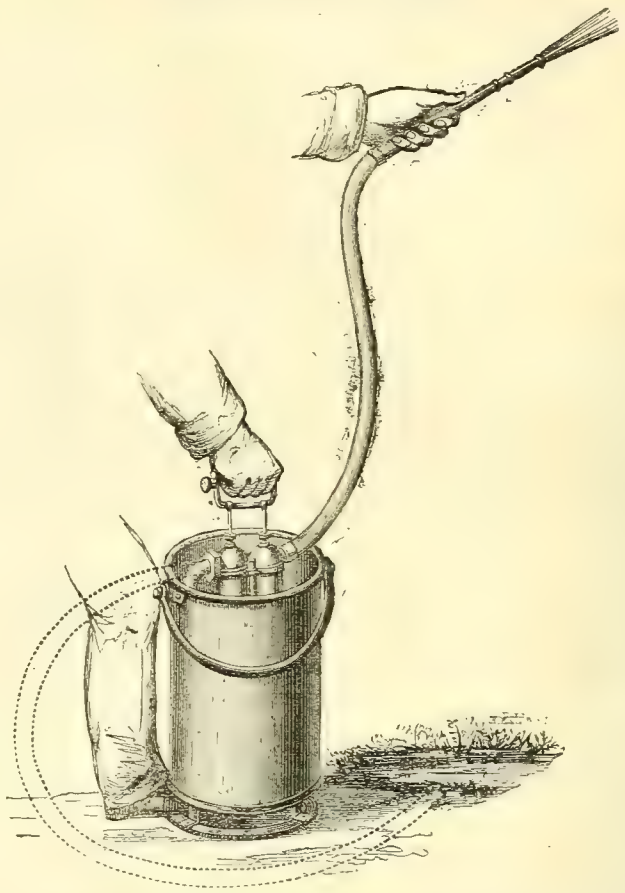
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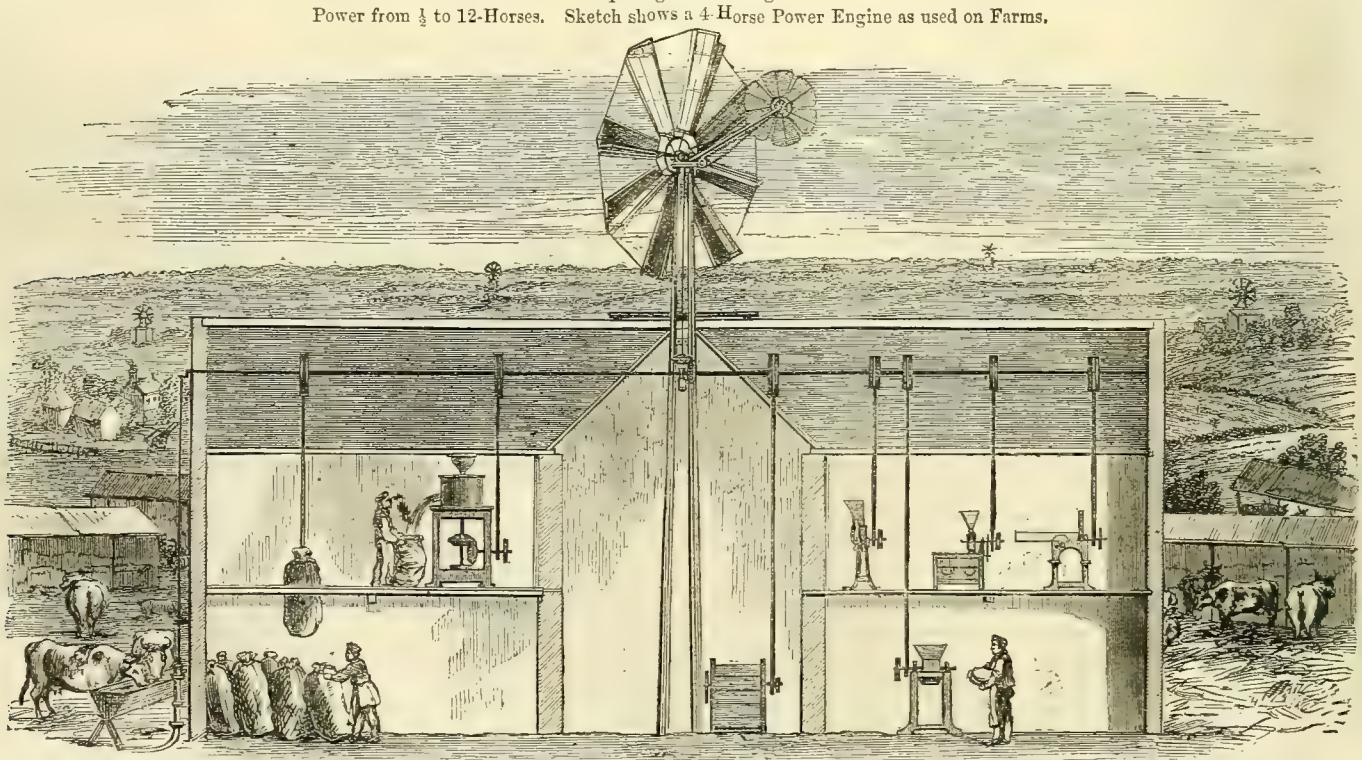
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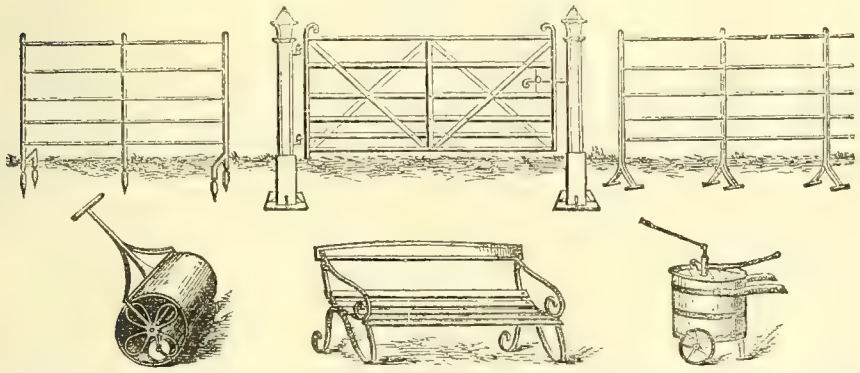
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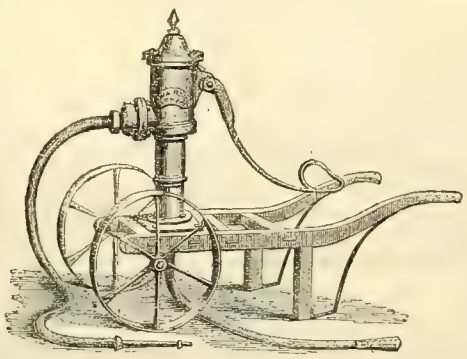
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COTTAM & CO., ENGINEERS and IRON FOUNDERS,
2, WINSLEY STREET (OPPOSITE the PANTHEON), OXFORD STREET, LONDON, W.

JOHN WARNER & SONS,
BELL AND BRASS FOUNDERS TO HER MAJESTY,

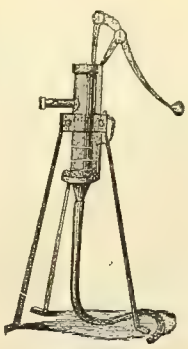
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35.



No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP.



No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

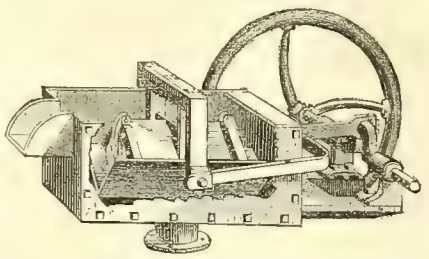
When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

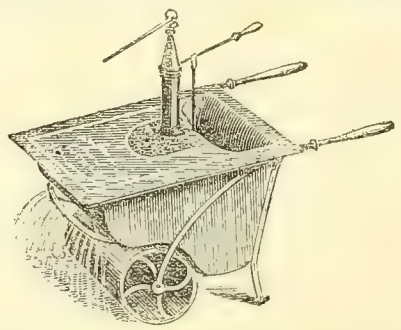
Norton's Patent V Shaped Pumps,
REQUIRING NO PACKING.
CAN BE WORKED BY HORSE, STEAM, OR OTHER POWER.



THE ATTENTION of ENGINEERS, AGRICULTURISTS, and others is invited to a 6-HORSE DIRECT ACTION STEAM V SHAPED PUMP, by Messrs. GEO. FORRESTER & Co., Liverpool, which will throw upwards of 60,000 Gallons per hour. Now on view at the Warehouse, Red Bull Wharf, 93, Upper Thames Street.

G. C. WARDEN & Co., Sole Licensees, 12, London Street, London, E.C.

THE IMPROVED PATENT GARDEN WATER and ROLLING ENGINE may be had at J. DORE's, the Sole Manufacturer, 17, Exmouth Street, Clerkenwell, London.



The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet, and is so portable that any ordinary domestic may use it. It contains about 20 gallons. Price 5*l.* 10*s.*; 25 gallons, 6*l.* 10*s.*

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.

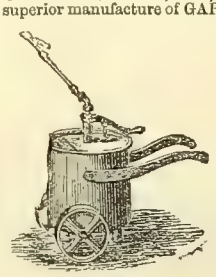


Fig. 570.

J. TYLOR & SONS' GALVANIZED IRON TUB GARDEN ENGINES, with Registered Spreader.

8 gal. £2 13 6 | 12 gal. £3 5 0 | 16 gal. £3 15 0
24 gal. £5 0 0 | 30 gal. £5 18 0



Fig. 571.

J. TYLOR & SONS' OAK TUB GARDEN ENGINES, with Registered Spreader.

15 gal. £5 12 6 | 28 gal. £7 2 0

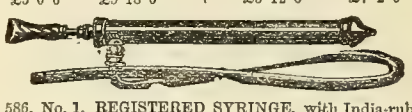


Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 8 0 each.
No. 2. Ditto ditto .. 1 2 6 „
Telescope Branch Pipe for ditto .. 0 10 0 „



Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 11*s.* 6*d.* each
„ 589. Middle Ditto ditto .. 10 3 „
„ 588. Small Ditto ditto .. 9 0 „
„ 587. LADIES' GARDEN SYRINGE, with do. 7 6 „

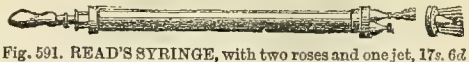


Fig. 591. READ'S SYRINGE, with two roses and one jet, 17*s.* 6*d.*
READ'S SYRINGE, with one rose and jet, 15 0
„ 592. Improved ditto ditto large 14 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

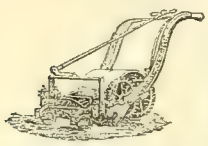
J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

HENRY J. MORTON AND CO.,
2, Basinghall Buildings, Leeds.

Galvanised Iron Water Cistern
for Cottage Houses, &c., to contain 50 gallons, 26*s.*; 80 gallons, 31*s.* each; and 140 gallons, 37*s.*, and fitted with tap, keeping the water perfectly sweet and clean; will not rust or corrode. Cisterns of all sizes.

Galvanised Iron Pumps
for Liquid Manure or Domestic Use, 3 inches diameter, 30*s.* and 32*s.* 6*d.* each; Tail Pipe for same at from 10*d.* per foot.

Galvanised Iron Swing Water Barrows
or Garden or Farm use, containing about 20 gallons, entirely formed of iron, 35*s.* 0*d.* each.



Lawn Mowers.

BURGESS AND KEY beg to direct attention to their NEW PATENT LAWN MOWING MACHINE. It is simple, efficient, easily worked, and not liable to derangement. GARDENING and HORTICULTURAL TOOLS of every description. Illustrated Price List free. Catalogues by post on receipt of six postage stamps.

BURGESS & KEY, 95, Newgate Street, London, E.C.

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*** Agents wanted in every Town. Apply as above.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.

Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.

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CLARKE'S PATENT ADJUSTIBLE SCYTHE is the strongest, lighest, most durable, and best cutting Scythe yet introduced. It is used in the Gardens of the Royal Horticultural Society at South Kensington, and has given great satisfaction to all who have tried it.

The following is from G. EYLES, Esq.

"Royal Horticultural Gardens, South Kensington, May 20, 1863.

"Sir,—I like your scythes very much.—Yours very truly,

"GEO. EYLES."

CLARKE & SON, Patentees and Manufacturers, Brackley, Northamptonshire.

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For Watering Gardens, Lawns, and Washing Windows Carriages, &c. India-Rubber Hose-Pipes and Tubing.

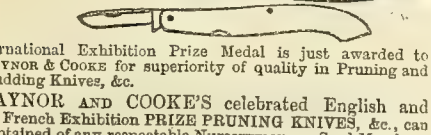
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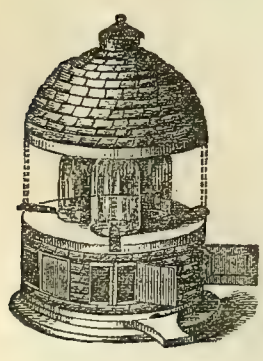
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Price of a Complete Set with 10-Horse Engine £515 0 0
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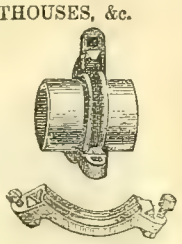
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TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet... ...	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet... ...	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet... ...	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

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THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

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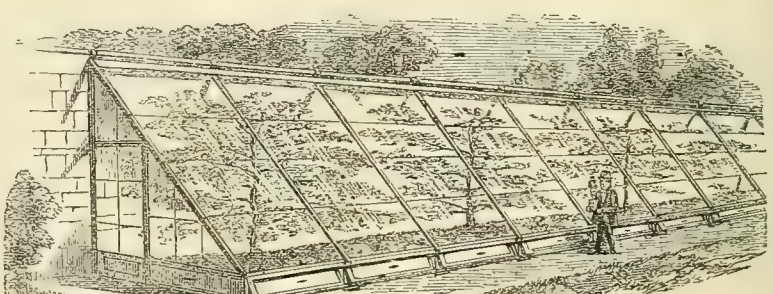
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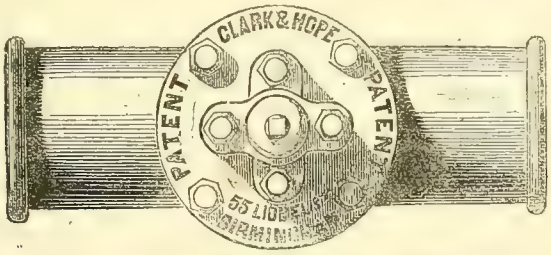
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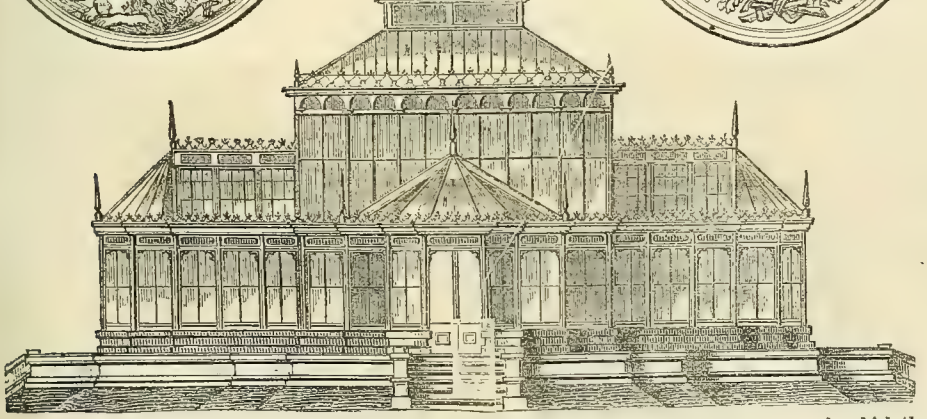
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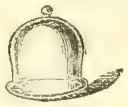
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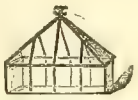
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4 " " ..	0	5½	14 " " ..	2	6
5 " " ..	0	6½	15 " " ..	2	0
6 " " ..	0	8	16 " " ..	3	6
7 " " ..	0	10	17 " " ..	4	0
8 " " ..	1	0	18 " " ..	5	0
9 " " ..	1	2	19 " " ..	6	0
10 " " ..	1	4	20 " " ..	7	0
11 " " ..	1	6			

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12 inches	6	0	18 inches	9	0
14 "	7	0	20 "	10	0
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Painted and Glazed with 16 oz. Sheet Glass.
If Open at Top, 1s. extra.

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20 " " ..	1	8	12 " " ..	1	0
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E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.

PROTECTION from the COLD WINDS & MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. .. 1s. 6d. per yard run.
Four yards wide .. .. .. 3s. per yard.
An improved make, 2 yards wide, 1s. 8d. per yard.
An improved make, 3 yards wide, 2s. 6d. per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1s. 4d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon St., City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

WANTED, COUNTRY LODGINGS at a Farm House, within 20 miles of London. Must have a large garden, a sitting and two bed-rooms, and be quietly situated.

State particulars and terms by letter, to A. B., Forrest House, Craven Place, Kensington, W.

To Nurserymen and Market Gardeners.

TO BE SOLD, the LEASE of an established MARKET GARDEN, with good Homestead and Buildings, &c., within easy distance westward of the London Markets, containing about 30 Acres, all first-rate Land and well stocked. Immediate Possession can be had for 1200*l*. For further particulars apply to

Messrs. TAYLOR SON & FERRALL, Auctioneers, &c, Whitton Road, Hounslow, W.

Sales by Auction.

Winding up Sale for this Season.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, on FRIDAY, June 12, at 12 o'Clock, Show, Fancy, and French PELARGONIUMS, CALCEOLARIAS, and a variety of other PLANTS in bloom, with an assortment of Ornamental Plants for Bedding out.

On view the Morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers and Valuers, Leytonstone, Essex.

Babraham, near Cambridge.

EXTENSIVE AND MOST IMPORTANT SALE OF THE ENTIRE HERD OF FIRST-CLASS SHORT-HORNED CATTLE.

MESSRS. H. STRAFFORD AND J. CARTER JONAS, who are jointly concerned on this occasion, are honoured with instructions from the Executors of the late Mr. JONAS WEBB, to offer for SALE by AUCTION, without any reserve, on WEDNESDAY, the 24th of JUNE NEXT, the entire remainder of the far-famed BABRAHAM HERD of First-class SHORTHORNS, consisting of between 60 and 70 head of Bulls, Cows, and Heifers, that are descended from the following celebrated Cows:—"Celia," "Dodona," "Belinda," "The Beauty," and "Daffy Gwynne," which on reference to the Herd Book will show a fine combination of good blood. The stock are in a healthy breeding state, and will be sold in the same *bonâ fide* manner that distinguished the Sale of the first portion of the Herd, the success of which is sufficient evidence of the valuable character of the animals, and the high estimation in which they are held, and their final dispersion affords an excellent opportunity to purchasers of first-class Shorthorns.

The Auctioneers beg to call attention to the high honour gained by this Herd in winning the Gold Medal, with "First Fruits," for the best Shorthorned Bull exhibited at the Royal Agricultural Society's Meeting at Battersea, which famous animal is included in this Sale.

Catalogues, with Pedigrees and other particulars, may be had on application to Mr. J. CARTER JONAS, Land Agent, Cambridge; or of Mr. STRAFFORD, 18, Euston Square, London.

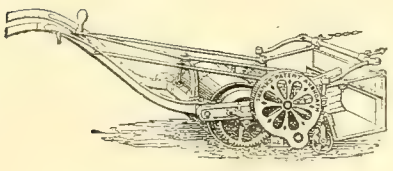
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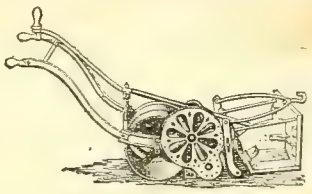
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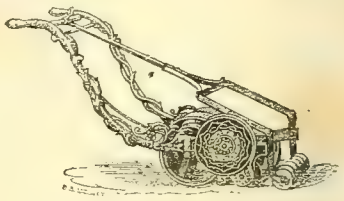
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will Mow equally well on Uneven as on Level Lawns, and whether the Grass be wet or dry. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	40*s.* „
No. 3.—36-inch Machine ...	22 0 0	30*s.* „
No. 4.—30-inch Machine ...	19 0 0	30*s.* „

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine ...	£15 15 0	30*s.* extra.
No. 6.—28-inch Machine ...	14 10 0	30*s.* „
No. 7.—25-inch Machine ...	12 10 0	25*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £5 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

ALEXANDER SHANKS and SON have for upwards of 20 years devoted their attention to the IMPROVEMENT and MANUFACTURE of LAWN MOWERS. They have carefully avoided the useless inventions (of late years introduced into Lawn Mowers) which have simply *novelty, not improvement*, as their recommendation, and which are far better suited for the "*Trial Ground*" than for the *Practical Gardener*. They have at the same time manufactured their MACHINES with that regard to durability and efficiency as to secure their giving every satisfaction, not simply for *one or perhaps two*, but for *many seasons*, and from the hundreds of unsolicited Testimonials they have received, and the large and increasing demand, A. S. & Son are glad to find that their MACHINES have not yet been *equalled for the qualities* that constitute a *really good Lawn Mower* fit for general use, and to afford *lasting satisfaction*, by any MACHINE yet before the public.

A. S. & Son subjoin a few Testimonials which fully bear out what has been said in favour of their MACHINES.

TESTIMONIALS:—

From Mr. George Eyles, *Superintendent, Royal Horticultural Society's Gardens.*

"Royal Horticultural Society's Gardens, South Kensington, 15th May, 1863.

"Gentlemen,—Your Hand Machines, which are in continual use here, answer well. The 30-inch Horse Machine also in use here continues to give me great satisfaction.—I am, yours very truly, George Eyles.

"Messrs. Shanks & Son."

From Mr. J. Smith, *Royal Gardens, Kew.*

"I herewith send you a cheque in payment for the Shanks' Mowing Machine (a 42-inch Horse Machine), lately supplied to this Garden. The Machine gives perfect satisfaction, and is in daily use nine hours a-day. . . . . Our old Shanks' Machine (a 42-inch Horse Machine, supplied 14 years ago to Kew Gardens), has all along worked well, and it does not mind wet and long Grass. It is astonishing the amount of work it has done, and has given us complete satisfaction."

From Sir John Burgoyne, Bart., *Sutton Park, St. Neot's.*

"The Lawn Mower (a No. 9, 22-inch Hand Machine with Patent Delivering Apparatus) has arrived quite safe, and answers admirably, and mows better and in less time than it is possible for two men to do."

From Mr. Shearer, *Gardener to the* Marquis of Tweeddale, *Yester Garden.*

"Gentlemen,—Allow me to congratulate you on the success of your improved Grass-Cutting Machine, which we got the other day from you, especially the delivering part. It is a mechanical triumph. You know that I expressed my doubts to you about it before I got the Machine, but having cut all our Grass with it, I must say that it acts far beyond my expectation, and it performs all you say in your prospectus. We can now go on the whole day without stopping, except to oil the parts that require it. *The men are quite in love with it*—a good proof of its utility.—I am, Gentlemen, yours respectfully, Alexander Shearer."

Extract from a Memorandum received 10th April, 1863, from Mr. Rose, *Superintendent, Crystal Palace Company.*

"Your Machines in the grounds are working beautifully."

From Mr. Thomas Ingram, *Royal Gardens, Frogmore, Windsor.*

"Sirs,—The Mowing Machine you sent here has given the greatest satisfaction, and is a great saving of labour.—Yours very truly, Thos. Ingram."

"Messrs. A. Shanks & Son."

"County Asylum, Rainhill, near Prescot, 25th May. 1863.

"Gentlemen,—Now that the merits of various Mowing Machines are so much vaunted by their respective makers, I think it right to bear my unsolicited testimony to the *durability and efficiency* of the Machines which are manufactured by you. In 1852 we obtained from you two of your 16-inch Hand Machines, which have been in constant use ever since and are still in good condition, and do their work as well as when we first had them. They have cost very little in repairs, notwithstanding that occasionally they have been rather roughly handled. I may further add that your Machines are the most satisfactory of any we have used.—I am, Gentlemen, your obedient servant, R. C. Lewis."

"Messrs. A. Shanks & Son."

From J. Spencer, Esq., *Factor to the* Most Hon. the Marquis of Lansdowne, *Bowood, Wilts.*

"The Horse Machine you sent me is now doing its work quite as well as it did in 1847 (14 years ago), and this is saying very much of its great value and durability, for within the time named it has cut annually from 40 to 50 acres of Grass five times over; and frequently the Grass has been long and difficult to get over. I have no doubt that good as your earlier Machines were, those you now turn out are superior in many respects, and next spring I shall take a 42-inch one for myself, and shall feel great pleasure in recommending your really valuable Machine whenever I have the opportunity."

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS and SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE and SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 24.—1863.] SATURDAY, JUNE 13. {Price Fivepence. Stamped Edition, 6d.

INDEX.

Agricultural Show at Calcutta	561 c	Manures, phosphatic	563 a
Auricula Show, National	555 c	Memorial of Exhibition of 1851	555 a
Babrahan sale	561 c	Millets	560 a
Bath and West of England	566 a	Orchids, fertilisation of	558 a
Bog Firs	557 b	Peas, early	557 c
Books, various	559 b	Plants, spring-flower ing	558 b
Botanic Garden, Edinburgh	555 a	Ploughing v. grubbing	564 b
Botany, Indian	560 c	Root crops, manure for	463 a
Bulb farms at Haarlem	556 b	Rose blights	557 c
Calcutta Show	561 c	Rose Rubens	557 c
Carp and Tench ponds	555 c	Sicily, spring in	557 c
Cultivation by steam at Milton	564 b	Smith's steam apparatus	563 a
Dynamometer trials	561 c	Society, Royal Agricultural	563 a
Edinburgh Botanic Garden	555 a	— Bot. of Edinburgh	558 a
Ferns and Ferneries	556 c	Steam culture, Coleman's	464 a
Firs, bog	557 b	Thompson on the Grape Vine	558 c
Fish and fishing	555 c	Tillage implements, draught of	561 c
Fowler's apparatus	562 a	The weather	561 b
Fungi, spore ejecting	555 b	Tulip show, national	555 c
Grove, Roehampton	559 c	Vine bordees, renovating	557 b
Howard's apparatus	563 a	Vine, Thomson on the	558 c
Hyacinth propagation	555 b		
Ice houses	557 c		

ERRATUM: AWARD omitted last week in the Royal Botanic Society's Advertisement.—Silver Medal to Mr. C. Allen, Gr. to J. B. Glegg, Esq., Withington Hall, Cheshire, for a dish of Nectarines.

ROYAL HORTICULTURAL SOCIETY'S GREAT SHOW, WEDNESDAY, June 17. Open at 1 o'clock. Royal Engineers and Royal Marines Bands, at 3.

Admission 7s. 6d., or by Tickets purchased before the day, 5s.

The Show will be in the Exhibition Building. Visitors enter from the Garden.

Plants, &c, must be taken to the Cromwell Road Entrance.

ROYAL HORTICULTURAL SOCIETY.—A SUB-COMMITTEE of the FRUIT COMMITTEE will meet on the Morning of the Great Exhibition, WEDNESDAY, June 17, to examine any NEW FRUITS and VEGETABLES only, which may then be exhibited The ORDINARY BUSINESS of the COMMITTEE is SUSPENDED for that day, and the other days on which the Great Exhibitions are held.

ROBERT HOGG, LL.D., Secretary to the Committee.

HORTICULTURAL GREAT SHOW, at SOUTH KENSINGTON, on WEDNESDAY NEXT, June 17. The Garden will not be open till 1 o'Clock.

SECOND GREAT SHOW at SOUTH KENSINGTON, on WEDNESDAY NEXT, June 17.

Tickets until Tuesday, 5s. each. To be had at the Garden, and of the principal Librarians and Musicsellers.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.

The LAST EXHIBITION of PLANTS, FLOWERS, and FRUIT this Season will take place on WEDNESDAY, June 24.

Tickets to be obtained at the Gardens by Orders from Fellows of the Society, price 5s., or on the day of Exhibition 7s. 6d. each. The Gates open at 2 o'clock. Three Military Bands will attend.

CRYSTAL PALACE.—The GREAT ROSE SHOW, SATURDAY, June 27, 1863.

Schedules are now ready, and can be had on application to Mr. W. HOUGHTON, Secretary to the Show.

The ENTRIES CLOSE on Saturday, June 20.

Admission to the Crystal Palace on the day, 2s. 6d.; children, 1s.

BIRMINGHAM ROSE SHOW, 1863.—The NEXT SHOW will be held in the Town Hall, Birmingham, on THURSDAY and FRIDAY, July 16 and 17.

Prize Lists may be obtained from the Secretary, Mr. A. FORREST, Queen Chambers, Cherry Street, Birmingham.

SLEAFORD HORTICULTURAL SOCIETY.—The ANNUAL EXHIBITION of this Society will be held on THURSDAY, July 16, 1863. Prizes open to all England are offered by the Town and Trade of Sleaford.

Schedules of Prizes, with Rules, may be had on application to the Secretary,

Mr. FRANK WARWICK, North Road Nursery, Sleaford.

Grand Exhibition of Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER has the pleasure to announce that his matchless COLLECTION of the above plants is NOW on VIEW at the Royal Botanic Gardens, Regent's Park.

Orders of admission are granted by Fellows of the Society. Admission can also be obtained on application to Mr. WATERER, at the Gardens, any days excepting Wednesdays or Saturdays.

The American Nursery, Bagshot, Surrey.

TWENTY POUNDS REWARD.—A handsome Specimen Plant of DRACÆNA AUSTRALIS, 9 feet high, was exhibited at the last Flower Show at the Royal Horticultural Gardens, and between the time of being there on Tuesday evening and its return on Thursday morning, the top of the Plant was completely cut out and taken away.

Whoever will furnish such information to Mr. WILLIAM BULL as may lead to the conviction of the offender, shall receive the above reward.

Establishment for New and Rare Plants, King's Road, Chelsea.

VERBENA LORD LEIGH.—Strong Plants at 4s. per dozen.

JOHN PERKINS, 52, Market Square, Northampton.

FOR SALE, CYANOPHYLLUM MAGNIFICUM, fine Specimen Plant, height about 4 feet. Price Two Guineas.

W. FISHER, South Street, and Green Lane, Greenwich, Kent.

GERMAN STOCKS, ASTERS, &c. — Finest GERMAN STOCKS and LARKSPURS, German and French ASTERS and MARIGOLDS, now fit for planting out, carriage paid to any Station on the Great Northern or Great Eastern Railways, for 2s. 6d. per 100. All raised from seed imported from the best German and French Growers. Postage stamps received as payment.

WOOD & INGRAM, Huntingdon.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Good Turnip Seeds, Carriage Free.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

Agricultural Seeds.

GEORGE GIBBS AND CO., SEEDSMEN, 26, Down Street, Piccadilly, London, W.

Best Seeds, Carriage Free.

BUTLER AND MCCULLOCH, SEED MERCHANTS, Covent Garden Market, London, W.C.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.

ROSY CRIMSON ZONAL GERANIUMS.—Fine Summer-struck plants of BRITISH FLAG, COUNTESS, HON. MRS. FELLOWES, LADY DOWNES, LADY MIDDLETON, FLORIAN, &c., 2s. 6d. per dozen; 20s. per 100.

WOOD & INGRAM, Huntingdon.

VARIEGATED-LEAVED GERANIUMS. — Fine Summer-struck Plants of BIJOU, BRILLIANT, IVY-LEAVED, JANE, LADY PLYMOUTH, MANGLES' PINK and RED, PERFECTION, QUEEN VICTORIA, SHOTTISHAM PET, &c., 2s. 6d. per doz., or 20s. per 100.

WOOD & INGRAM, Huntingdon.

Calceolarias.

CRAWFORD'S EMPEREUR DE MAROC is without exception the finest Dark ever offered for Sale, both for Bedding and Pot Culture, 3s. 6d. each. The Trade well used.

Cineraria and Calceolaria.

F. AND A. SMITH are now sending out Seed of their very superior strain of the above, carefully selected from first-class varieties, in packets at 1s., 1s. 6d., and 2s. 6d. each.

The Nurseries, Dulwich, London, S.

Herbaceous Calceolaria.

GUARANTEED FINEST QUALITY AND NEW SEED.

WM. CUTBUSH AND SON beg to offer the above, saved with the greatest care from the Stock, which invariably obtains the FIRST PRIZES wherever exhibited. Per packet, 2s. 6d., 3s. 6d., and 5s., Post-free. Liberal allowance to the Trade.

Highgate Nurseries, London, N.

New Verbenas of 1863.

B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, has now ready to send out the NEW VERBENAS of 1863, at 4s. per dozen.

CATALOGUES of VERBENAS and other Novelties sent on application.

SPLENDID NEW SCARLET VERBENA, LORD LEIGH.—Strong Plants now ready, 5s. each, 42s. per dozen.

CATALOGUES also ready, and will be forwarded Post-free on application to

S PERKINS & SONS, Park Nursery, Coventry.

Primula, &c., very choice.

WM. CUTBUSH AND SON possess an unrivalled strain of

	Per packet.—s. d.
PRIMULA SINENSIS FIMBRIATA	2s. 6d. and 3 6
CINERARIA, from best named flowers	2 6

Free per Post.

Highgate Nurseries, London, N.

E. G. HENDERSON AND SON offer first-class quality of CINERARIA, PRIMULA SINENSIS FIMBRIATA, and PANSY. Also, CINERARIA WEBBI, new shrubby species.

All the above, 1s. and 2s 6d. per packet.

☞ EXPERIENCED GARDENERS recommended to Gentlemen.

Wellington Nursery, St. John's Wood, London, N.W.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of all their synonymes. Free by post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

NOVELTIES of 1863 at greatly reduced prices.—A CATALOGUE of 30 pages, containing full descriptions of nearly 500 New Choice Plants of the season, including the New Fuchsias and Verbenas, &c. Post free for one stamp.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Bedding Tropæolum.—Ball of Fire.

ARTHUR HENDERSON AND SON are now sending out the above brilliant BEDDING TROPÆOLUM.

For description and full details see figure and remarks in the *Floral Magazine* for January, 1863, Plate 129, colour of Tom Thumb Geranium. This will prove one of the best and most beautiful Bedding Plants of the season.

Per 100 Plants	£3 10 0	Per 25 Plants	£1 10 0
„ 50 „	2 2 0	„ 12 „	0 18 0
1 Plant		2s. 6d.	

Pine Apple Place, Edgeware Road, London, W.

New Roses for 1863.

BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.

St. John's Street Nursery, Colchester.

New Roses of 1863.

E. G. HENDERSON AND SON offer strong healthy plants of the most select kinds at 42s. per dozen. The Trade supplied in any quantity.

Wellington Nursery, St. John's Wood, London, N.W.

ROSES, ROSES, ROSES.—Fine Roses in Pots now ready for planting out. Strong Plants at 9s., 12s., to 18s. per dozen; 100 splendid Plants for 5l., including John Hopper, Reynolds Hole, Madame C. Wood, &c. 50 for 3l.

HENRY WALTON, Edge End, Marsden, Lancashire.

Paul's Nurseries, Waltham Cross.

WM. PAUL (Son and Successor to the late A. PAUL), has a large Stock of all the NEW ROSES, now ready for delivery.

Splendid plants at lowest advertised prices.

PRICED CATALOGUE free by post.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON).—Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7s. 6d. each, are now ready.

Old Cheshunt Nurseries, Herts.

"Old" Cheshunt Nurseries, Cheshunt, Herts.

PAUL AND SON have the pleasure to announce that their ROSES will be finely in bloom the last week in June and throughout July.

Their collection includes the new Roses as well as immense quantities of all the older kinds, and will (in its extent and choice they believe the largest in the kingdom) amply repay a visit.

The OLD Nurseries may be reached by trains from Bishopsgate to Cheshunt Station (within one mile of the nurseries) every one or two hours.

CATALOGUES on application.

Trichomanes spicatum.

JAS. BACKHOUSE AND SON have pleasure in offering nice plants, imported last summer, of this beautiful West Indian Fern, at 60s. and 84s. per dozen. Larger specimens at 10s.6d., 15s., and 21s. each.

York Nurseries, June 16.

Grape Vines.

JAMES CRAWFORD, High Beech, Essex, begs to offer fine strong healthy Plants, fit for immediate planting, at low prices; he will guarantee their travelling safe to any part of Great Britain.

NEW PRIZE MELONS, at 1s. 6d. per packet.

Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria.

For descriptions see GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.

Dorking Nursery.

Ferns.

EDWIN COOLING will have pleasure in forwarding his NEW PRICED CATALOGUE on application. Also his GENERAL LIST of CHOICE PLANTS suitable for the Conservatory and Flower Garden.

Mile Ash Nurseries, Derby.

To Exhibitors of Ferns.

J. WATSON, New Zealand Nursery, St. Alban's, has much pleasure in offering fine specimens of that beautiful TREE FERN, CYATHEA SMITHII, undoubtedly the finest in Europe, being from 1 to 6 feet in the stem; also fine plants of CYATHEA DEALBATA, LOMARIA DISCOLOR. Magnificent plants of TODEA PELLUCIDA. Several fine species of the HYMENOPHYLLUMS of New Zealand, with many other kinds too numerous for insertion.

Prices on application by Post.

J. WATSON, New Zealand Nursery, St. Alban's, Herts.

NEW CUCUMBERS, at 1s. per packet.

Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Cabbage Plants.

W. VIRGO AND SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 3s. per 1000:—

EARLY YORK CABBAGE	EARLY NONPAREIL
„ BATTERSEA	DRUMHEAD
„ BARNES	

RED CABBAGE, 4s. p 1000. All strong, healthy, and well rooted.

Wonersh Nursery, near Guildford, Surrey.

Novelties of 1863 at Low Prices.

HENRY WALTON is now sending out Strong healthy Plants of all the leading Novelties of the season, comprising FUCHSIAS, PETUNIAS, VERBENAS, PENTSTEMONS, ANTIRRHINUMS, TROPÆOLUMS, GERANIUMS.

DESCRIPTIVE CATALOGUE on application enclosing stamp. Not to be equalled in the Trade for price and quality.

Edge End, Marsden, Lancashire.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

WILLIAM ROLLISSON AND SONS beg to announce that they have a large Stock of the leading sorts of GRAPE VINES in Pots, consisting of Fruiting and other sized Plants, in fine health and vigorous growth. The prices are moderate, and may be obtained on application, post free.

W. R. & SONS beg also to state that their CATALOGUE of New, Beautiful, and Rare Plants for 1863, will be forwarded, on application, post free.

The Nurseries, Tooting, near London, S.

FARM AND GARDEN SEEDS

CARRIAGE FREE.

BANGHOLM SWEDE,
EAST LOTHIAN SWEDE,
WARD'S BEAUTY SWEDE,
DROPMORE SWEDE,
MARSHALL'S CHAMPION SWEDE,
GREEN-TOP SWEDE,
WHITE SWEDE,
IMPROVED SKIRVING'S SWEDE.
WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
DOBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
IMPROVED YELLOW GLOBE DITTO,
IMPROVED ORANGE GLOBE DITTO,



IMPROVED LONG RED MANGEL,
IMPROVED LONG YELLOW MANGEL,
IMPROVED RED GLOBE MANGEL,
IMPROVED WHITE FIELD BEET,
RED CLOVER, | COWGRASS,
WHITE, YELLOW, and ALSIKE CLOVERS.
PACEY'S PERENNIAL RYE-GRASS, and other sorts.
ITALIAN RYE-GRASS, FOREIGN and ENGLISH SEED.
NATURAL GRASS SEEDS, in mixture or separate, suitable for various soils and localities.
LIGHT RYE-GRASS and other CHEAP GRASSES, for Sowing on Railway Banks and Waste Places.

Orders for Exportation promptly attended to.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN,
28, KING STREET, CHEAPSIDE, NEAR the GUILDHALL; and
15, LAWRENCE LANE, LONDON, E.C.

NEW SEED, GROWTH OF 1863.

DOBSON & SONS'

UNEQUALLED HYBRIDISED CALCEOLARIAS.

Having been successful cultivators of the Calceolaria for many years, we beg to offer our Seed this yea with very great confidence. The Seed has obtained a world-wide celebrity, grown as it is in all parts of th world where it can be cultivated. Having attained so high a position, we shall continue to select and save Seed from the greatest Novelties produced each season, letting our Patrons have the benefit of our experience. Our Collection of Plants, unequalled as it is, are all Hybridised under our own personal inspection, our attention during May and part of June being devoted entirely to Hybridising. The Seed when saved is all mixed together, so that we have only one quality of Seed. The small packets are of exactly the same quality as the large ones. We daily receive highly flattering testimonials of their superior excellence (we subjoin only a few of them), which renders it unnecessary for us to say much. Those who purchase Seed of us once do so again, and are continually recommending their friends to us (for which we are much obliged), as they know the Seed is to be depended upon. Most of the leading Nurserymen and Seedsmen obtain a supply of Seed from us, and the principal Gardeners in the United Kingdom grow them. The First Prizes are invariably awarded to our Plants, and also to Plants raised from our Seed, whenever they are exhibited, and we can guarantee that a 1*s.* 6*d.* packet will produce 50 Flowers that cannot be equalled or approached by any other strain existant. The colours, varying from brilliant scarlet to white, are varied in spots, bands, blotches, and markings most regularly placed. In Sealed Packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each.

Dobson's Superb Prize Cineraria Seed.

Our Cinerarias are not surpassed by any, and we shall continue to select Seed with our usual care from only the very best varieties. Our Seed this season will be superior to any previously sent out by us, and will contain among others Seed from our choice new varieties. We have paid particular attention to this class of Plants, and have, as is well known, introduced some very fine varieties. Our Collection obtained Ten First Prizes in 1862. In Sealed Packets, 1*s.*, 2*s.* 6*d.*, and 5*s.* each.

Dobson's Superb Primula sinensis fimbriata.

From a very choice strain, which has given great satisfaction. Sealed packets, 1*s.*, 2*s.* 6*d.*, and 5*s.* each.

TESTIMONIALS (UNSOLICITED).

From Mr. BENNETT, *Gr., Osberton Hall, Worksop.*
"The varieties raised from your Cineraria seed last season are superb in colour, size, and shape."

From S. SMITH, Esq., *Charmar Dean, Worthing.*
"Your Cinerarias have turned out beautiful."

From Mr. J. JONES, *The Gardens, Ribstone Hall, Wetherby.*
"Your Primulas, Calceolarias, and Cinerarias proved of the best sorts last year."

From Mr. J. RUSH, *Gr., Broom House, Fulham.*
"The Cinerarias and Primulas you last sent turned out first rate."

From Mr. G. DIXON, *Gr. to* Mrs. LOVETT, *Rugeley.*
"The Calceolaria seed that you sent me last season are the finest and handsomest Calceolarias I ever saw."

From Mr. ALFRED DACOMB, *Manchester.*
"I have had your Calceolaria seed the last three years, and never saw finer or more perfect flowers."

From Mr. P. WHITTON, *Methven Castle, Perth, N.B.*
"The Calceolarias I had from you are in fine bloom and very superior this season."

From Messrs. EDWARDS & SON, *Wells Nurseries.*
"The Calceolarias and Cinerarias of last year were very good."

From Mr. W. MOFFATT, *Bramham Park, Tadcaster.*
"Will you be kind enough to send me a packet of your Cineraria, Calceolaria, and Primula seed. What I had last year was so very satisfactory."

From Mr W. KNIGHT, *Florist, Hurst Green, Sussex.*
"The Calceolaria and Cineraria seed you sent me last season have given me the greatest satisfaction."

From Mr. G. WHEELER, *Gr., Burwood Cottage, Horsham, near Esher.*
"I had seeds from you last year, and the Calceolarias have turned out first class; some of them are most beautiful, and the admiration of everybody who has seen them."

From Mr. J. HOSSACK, *Gr., Cluny Castle.*
"Be so kind as to send me a packet of your truly fine hybridised Calceolaria seed. I have had a packet two years past, from which I had several very fine sorts, and are in splendid flower at present."

From Mr. JOHN JENKINS, *Gr., Lawrency Park, near Pembroke.*
"I have seen flowers from your Cineraria seed this season, which has proved very good."

Hundreds of additional Testimonials could be given.

A LIST of AGENTS will be published the first Saturday in July.

The above Seeds are post free. Payment may be made in penny postage stamps or Post-office order on Isleworth.

JOHN DOBSON AND SONS, SEEDSMEN AND FLORISTS,
WOODLANDS NURSERY, ISLEWORTH, W.

TRADE MARK.

HALLETT'S PEDIGREE. NURSERY WHEAT.

This Wheat will be exhibited at the forthcoming International Agricultural Meetings at Odense, Denmark; Lille; Hamburg; and at the Worcester Meeting of the Royal Agricultural Society, upon the STAND of Messrs. THOS. GIBBS & Co., their Seedsmen.

"HOW OUR WHEAT CROPS MAY BE DOUBLED," and other Papers, forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

J. C. PADMAN, Boston Spa, near Tadcaster, offers CALADIUMS, good Plants.

Caladium argyrites ..	1*s.* 6*d.*	Caladium Houlletii ..	2*s.* 0*d.*
,, bicolor	1 0	,, marmoratum ..	1 6
,, ,, splendens .	1 0	,, Mafaffa	2 0
,, ,, picturatum	1 6	,, pictum	2 0
,, Chantinii ..	1 6	,, Wightii	2 6
,, esculentum ..	1 0		

One Set for 15*s.*; hamper and package included. Half Specimen Plants, 2*s.* 6*d.* and 3*s.* 6*d.*

SPECIAL CHRYSANTHEMUM LIST on application.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; second quality, 6*s.* per ton; best quality, packed in strong canvas bags, 16*s.* per ton; ditto 2*s.* 6*d.*, 2 cwt. bags, stamps, put on the rail at Reigate and forwarded to all parts of the United Kingdom.

PEAT SOILS, LOAM, &c.

W. SHORT, Salesman, Agent, &c., Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

The only Certain Remedy for Mildew.

JOHN BELL'S COMPOSITION for DESTROYING MILDEW on Vines, Peaches, Nectarines, Roses, and every other Plant subject to that pest, is proved to be the most efficacious that has ever been offered. Sold in Bottles at 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* each. A 1*s.* 6*d.* Bottle will make 12 gallons fit for use.

Seed Warehouse, 10 & 11, Exchange Street, Norwich.

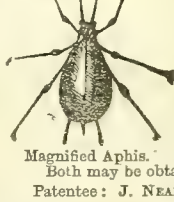
PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.

Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.

Can be obtained through the principal Nurserymen and Seedsmen in England.

A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.

PAGE & TOOGOOD, Seed Merchants, Southampton.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE CO. Limited.

PATENT ELECTRICAL PLANT PROTECTOR for the preservation of Plants, Flowers, and Shrubs from Snails, Worms, Slugs, &c.

This Protector being composed of zinc and copper, or of any two metals combined in such a manner as to form an electrical couple, constantly gives off a certain amount of electricity, rendering plants entirely secure from the attacks of Slugs, &c., as it has been discovered to be perfectly impossible for any insect or worm to crawl over a combination of these two metals.

Being formed in plain and ornamental designs for borders, beds, &c., it is applicable to all gardens, terraces, &c.; it is also made in the form of Plant Guards to encircle the stems.

Illustrated Lists of Prices post free on application to ROBERT B. LEE & Co., Sole Manufacturers of the Patent Plant Protector, 22, Market Place, Manchester.

CLARKE'S PATENT ADJUSTIBLE SCYTHE is the strongest, lighest, most durable, and best cutting Scythe yet introduced. It is used in the Gardens of the Royal Horticultural Society at South Kensington, and has given great satisfaction to all who have tried it.

The following is from G. EYLES, Esq.

"Royal Horticultural Gardens, South Kensington,
May 20, 1863.

"Sir,—I like your scythes very much.—Yours very truly,
"GEO. EYLES."

CLARKE & SON, Patentees and Manufacturers, Brackley, Northamptonshire.

Garden Decorations in Terra Cotta.

PRIZE MEDALS OF 1851 AND 1862 WERE AWARDED TO

JAMES PULHAM, Broxbourne, Herts. Also Notice of ARTISTIC MERIT, and of SOUND and DURABLE MATERIAL. There were

PULHAM'S FOUNTAINS.—The best shown in Terra Cotta.

PULHAM'S NOVEL FERNDELABRUM.—To grow SIXTY FERNS (or Flowers) on a space of 4 ft. 8 in. over, 8 ft. 6 in. high. Price 9*l.*

PULHAM'S NOVEL CONSERVATORY TUBS.—The best at the Horticultural Garden Show in Terra Cotta. A 2 ft. one in one piece with rising bottom, 25*s.*

PULHAM'S GARDEN STEPS, inlaid with black and red tiles, 1*s.* 6*d.* per foot.

Also Vases, Flower Baskets, Figures, Art Flower Pots, &c.

Illustrations in *Art Journal*, *The Masterpieces*, and among the Stereoscopic Gems of the Exhibition.

A Set of Stereographs sent to inspect for 12 stamps.

Waterfalls, Ferneries, Caves, and other Rockwork, executed in perfect imitation of nature.

Terra Cotta.

MARK H. BLANCHARD AND CO., Successors to COADES, Established 1769, TERRA COTTA MANUFACTURERS to her Majesty, the Commissioners of 1851, the Board of Works, the Admiralty, the Trinity House, the Royal Horticultural Society and the Department of Science and Art, South Kensington, Recipients of the Prize Medal for Terra Cotta at the '51 Exhibition, and the only Recipients of the Two Prize Medals at the '62 Exhibition, for Terra Cotta and Pottery—beg to inform the Nobility, Gentry, and others, that the whole of the beautiful Columns to the Arcades, Vases, Tazzas, and other Terra Cottas at the Royal Horticultural Gardens were executed by them, and they are prepared to supply Vases, Tazzas, Pedestals, Statues, Terminals, Balustrading, and every other decoration in this invaluable and imperishable material, suitable for the adornment of the Conservatory, Flower Garden, and Grounds, at prices which defy competition, as the works of this Establishment have stood the test of time.

Works and Show Rooms, Blackfriars Road, London, S.

Estimates furnished and Illustrated Catalogues forwarded on the receipt of 6 Postage Stamps.

To Noblemen, Gardeners, Farmers, and Others.

AMIES AND BARFORD beg to call particular attention to their NEW PATENT WATER BALLASTING FIELD and GARDEN ROLLERS, which have the following advantages over all others. They are made entirely of Wrought Iron, are made water-tight, and are loaded with water to obtain increased weight at pleasure, which is moreover employed with the greatest possible per centage of crushing power directly upon the surface of the soil. The weight of a Garden Roller can thus be doubled in a few minutes, and a one, two, or three Horse Land Roller is secured, as desired, in one implement.

Great numbers have already been sold, and are giving the greatest satisfaction, and whether for Gardens, Lawns, Cricket Grounds, Road-making, or for farmers' use, they will be found superior to all others.

For Illustrated Price Lists apply to Messrs. AMIES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

Exhibition Prize Medal 1862.

MUSGRAVE'S PATENT STABLE FITTINGS and HARMLESS LOOSE BOXES, PATENT IRON COW HOUSE FITTINGS, and IRON PIGGERIES.



These inventions are recommended as possessing numerous advantages not to be found in anything hitherto made. At the late Meeting of the Royal Agricultural Society at Leeds, MUSGRAVE BROTHERS received a Silver Medal, and two Awards of "Highly Commended," being the only Prizes conferred on any competitor in this class.

Particulars sent on application to the Inventors and Makers, MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.

PROTECTION from the COLD WINDS & MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. .. 1*s.* 6*d.* per yard run.
Four yards wide .. .. .. 3*s.* per yard.
An improved make, 2 yards wide, 1*s.* 8*d.* per yard.
An improved make, 3 yards wide, 2*s.* 6*d.* per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 4*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon St., City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

THOMAS MILLINGTON,

GLASS MERCHANT.

ESTABLISHED 1750.

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

The Agricultural Hall, Islington, containing an Acre of Glass, was supplied by T. MILLINGTON.

Mr. Rivers, and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home Use and for Exportation.

☞ *For prices see last week's Advertisement.*

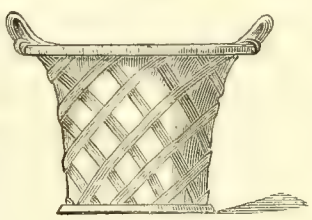
JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

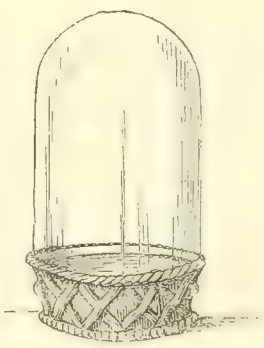
In submitting Drawings and Prices of the following Articles, we beg to say they are made of Fine Clay, well finished, and suited for the Sitting-room as well as the Garden.

No. 1.



FLOWER BASKETS.

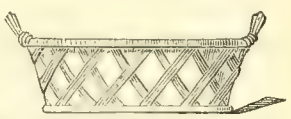
8 inch	.. .. ..	2*s.* 0*d.* each.
9 ,,	.. .. ..	2 3 ,,
10 ,,	.. .. ..	2 6 ,,
11 ,,	.. .. ..	2 9 ,,
12 ,,	.. .. ..	3 0 ,,
13 ,,	.. .. ..	3 3 ,,
14 ,,	.. .. ..	3 9 ,,
15 ,,	.. .. ..	4 6 ,,
16 ,,	.. .. ..	5 0 ,,
17 ,,	.. .. ..	5 6 ,,
18 ,,	.. .. ..	6 6 ,,
19 ,,	.. .. ..	7 6 ,,
20 ,,	.. .. ..	8 6 ,,
21 ,,	.. .. ..	10 0 ,,



GLASS FERN SHADES AND STANDS.

	Glass Fern Shades.	Clay Stands.	Glass Stands.
6 inches ..	1*s.* 4*d.* ..	1*s.* 6*d.* ..	1*s.* 0*d.*
7 ,, ..	1 8 ..	1 6 ..	1 3
8 ,, ..	2 0 ..	1 9 ..	1 6
9 ,, ..	2 6 ..	2 0 ..	1 9
10 ,, ..	3 3 ..	2 3 ..	2 0
11 ,, ..	4 0 ..	2 6 ..	2 6
12 ,, ..	5 6 ..	2 9 ..	3 0
13 ,, ..	7 6 ..	3 0 ..	3 6
14 ,, ..	10 0 ..	3 3 ..	4 0
15 ,, ..	14 0 ..	3 6 ..	4 6
16 ,, ..	18 6 ..	3 9 ..	5 0

No. 2.

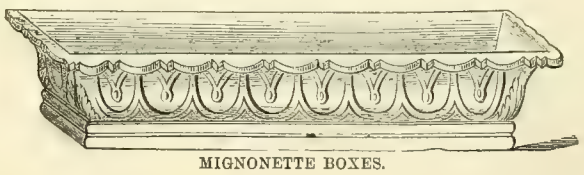


FLOWER BASKETS.

7 inch	1*s.* 6*d.* each.
8 ,, ...	1 9 ,,
9 ,, ...	2 0 ,,
10 ,, ...	2 3 ,,
11 ,, ...	2 6 ,,
12 ,, ...	2 9 ,,
13 ,, ...	3 0 ,,
14 ,, ...	3 3 ,,
15 ,, ...	3 6 ,,
16 ,, ...	3 9 ,,
17 ,, ...	4 0 ,,
18 ,, ...	4 6 ,,
19 ,, ...	5 0 ,,
20 ,, ...	5 6 ,,

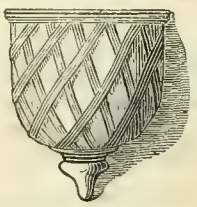
PLAIN SEED PANS.

6 inches diameter	0*s.* 6*d.*
7 ,, ,, ...	0 7
8 ,, ,, ...	0 8
10 ,, ,, ...	1 0
12 ,, ,, ...	1 4
14 ,, ,, ...	2 0



MIGNONETTE BOXES.

20 inches long	4*s.* 0*d.* each.
30 ,, ,, ...	6 0 ,,
37 ,, ,, ...	8 0 ,,



HANGING POTS, 3*s.* each.

GLASS SHADES for ORNAMENTS, PROPAGATING GLASSES, MILK PANS, CUCUMBER TUBES, GLASS for HORTICULTURAL PURPOSES, PAINTS of all SHADES, and various MISCELLANEOUS ARTICLES. See SEPARATE LISTS.

ST. PANCRAS IRON WORKS,

OLD ST. PANCRAS ROAD, N.W.

IRON HURDLES, FENCING, and GATES.

The PROPRIETORS of the ST. PANCRAS IRON WORKS, OLD ST. PANCRAS ROAD, LONDON, WERE AWARDED THE

SILVER MEDAL of the ROYAL AGRICULTURAL SOCIETY for their IRON HURDLES and GATES, which, by their peculiar construction, are more than twice as strong and durable as those in ordinary use.

Lists per post on application. Gates from 30*s.* to 500*l.*

The Hurdles can be seen in process of Manufacture at the Works.

GAME WIRE NETTING.

PROFESSOR VARNELL'S ENAMELLED and WROUGHT-IRON STABLE FITTINGS.

These Patent Mangers and Stable Fittings obtained the Commendation and the Silver Medal of the Royal Agricultural Society of England and the Royal Agricultural Society of Ireland, are adopted by the Royal Veterinary College, and Professor Spooner of that Institution states that they should be used by all who value the health and comfort of their Horses. They can be had Plain, Galvanised, or Enamelled.

A Show Room is devoted entirely to every description of Stable Furniture, and full-sized Stalls and Loose Boxes are erected for inspection at St. Pancras Iron Works.

ADDRESS—THE MANAGERS, ST. PANCRAS IRON WORKS,

OLD ST. PANCRAS ROAD, LONDON, N.W., OPPOSITE OLD ST. PANCRAS CHURCH.

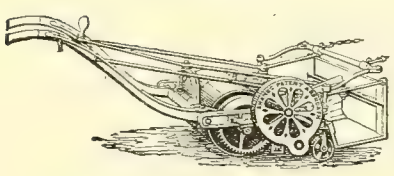
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

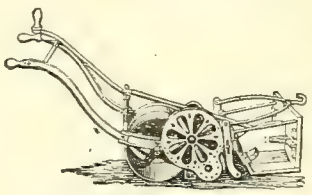
WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

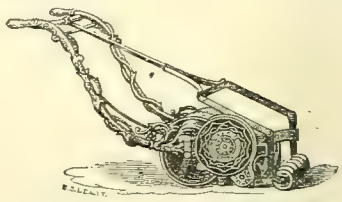
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	40*s.* „
No. 3.—36-inch Machine ...	22 0 0	30*s.* „
No. 4.—30-inch Machine ...	19 0 0	30*s.* „

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine ...	£15 15 0	30*s.* extra.
No. 6.—28-inch Machine ...	14 10 0	30*s.* „
No. 7.—25-inch Machine ...	12 10 0	25*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £5 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

ALEXANDER SHANKS AND SON have for upwards of 20 years devoted their attention to the IMPROVEMENT and MANUFACTURE of LAWN MOWERS. They have carefully avoided the useless inventions (of late years introduced into Lawn Mowers) which have simply *novelty, not improvement*, as their recommendation, and which are far better suited for the "*Trial Ground*" than for the *Practical Gardener*. They have at the same time manufactured heir MACHINES with that regard to durability and efficiency as to secure their giving every satisfaction, not simply for *one or perhaps two*, but for *many asons*, and from the hundreds of unsolicited Testimonials they have received, and the large and increasing demand, A. S. & SON are glad to find that the MACHINES have not yet been *equalled for the qualities* that constitute a *really good Lawn Mower* fit for general use, and to afford *lasting satisfaction*, by an MACHINE yet before the public.

A. S. & SON subjoin a few Testimonials which fully bear out what has been said in favour of their CHINES.

TESTIMONIALS:—

From Mr. GEORGE EYLES, *Superintendent, Royal Horticultural Society's Gardens.*

"Royal Horticultural Society's Gardens, South Kensington, 15th May, 1863.

"Gentlemen,—Your Hand Machines, which are in continual use here, answer well. The 30-inch Horse Machine also in use here continues to give me great satisfaction.—I am, yours very truly, GEORGE EYLES.

"Messrs. Shanks & Son."

From Mr. J. SMITH, *Royal Gardens, Kew.*

"I herewith send you a cheque in payment for the Shanks' Mowing Machine (a 42-inch Horse Machine), lately supplied to this Garden. The Machine gives perfect satisfaction, and is in daily use nine hours a day. . . . . Our old Shanks' Machine (a 42-inch Horse Machine, supplied 14 years ago to Kew Gardens), has all along worked well, and it does not mind wet and long Grass. It is astonishing the amount of work it has done, and has given us complete satisfaction."

From Sir JOHN BURGOYNE, Bart., *Sutton Park, St. Neot's.*

"The Lawn Mower (a No. 9, 22 inch Hand Machine with Patent Delivering Apparatus) has arrived quite safe, and answers admirably, and mows better and in less time than it is possible for two men to do."

From Mr. SHEARER, *Gardener to the* MARQUIS OF TWEEDDALE, *Yester Garden.*

"Gentlemen,—Allow me to congratulate you on the success of your improved Grass-Cutting Machine, which we got the other day from you, especially the delivering part. It is a mechanical triumph. You know that I expressed my doubts to you about it before I got the Machine, but having cut all our Grass with it, I must say that it acts far beyond my expectation, and it performs all you say in your prospectus. We can now go on the whole day without stopping, except to oil the parts that require it. *The men are quite in love with it*—a good proof of its utility.—I am, Gentlemen, yours respectfully, ALEXANDER SHEARER."

Extract from a Memorandum received 10th April, 1863, from Mr. ROSE, *Superintendent, Crystal Palace Company.*

"Your Machines in the grounds are working beautifully."

From Mr. THOMAS INGRAM, *Royal Gardens, Frogmore, Windsor.*

"Sirs,—The Mowing Machine you sent here has given the greatest satisfaction, and is a great saving of labour.—Yours very truly, THOS. INGRAM."

"Messrs. A. Shanks & Son."

"County Asylum, Rainhill, near Prescot, 25th May. 1863.

"Gentlemen,—Now that the merits of various Mowing Machines are so much vaunted by their respective makers, I think it right to bear my unsolicited testimony to the *durability and efficiency* of the Machines which are manufactured by you. In 1852 we obtained from you two of your 16-inch Hand Machines, which have been in constant use ever since and are still in good condition, and do their work as well as when we first had them. They have cost very little in repairs, notwithstanding that occasionally they have been rather roughly handled. I may further add that your Machines are the most satisfactory of any we have used.—I am, Gentlemen, your obedient servant, R. C. LEWIS."

"Messrs. A. Shanks & Son."

From J. SPENCER, Esq., *Factor to the* Most Hon. the MARQUIS OF LANSDOWNE, *Bowood, Wilts.*

"The Horse Machine you sent me is now doing its work quite as well as it did in 1847 (14 years ago), and this is saying very much of its great value and durability, for within the time named it has cut annually from 40 to 50 acres of Grass five times over; and frequently the Grass has been long and difficult to get over. I have no doubt that good as your earlier Machines were, those you now turn out are superior in many respects, and next spring I shall take a 42-inch one for myself, and shall feel great pleasure in recommending your really valuable Machine whenever I have the opportunity."

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

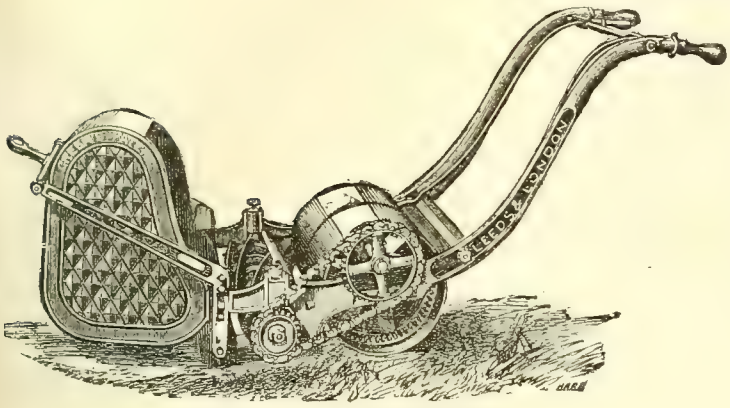
LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

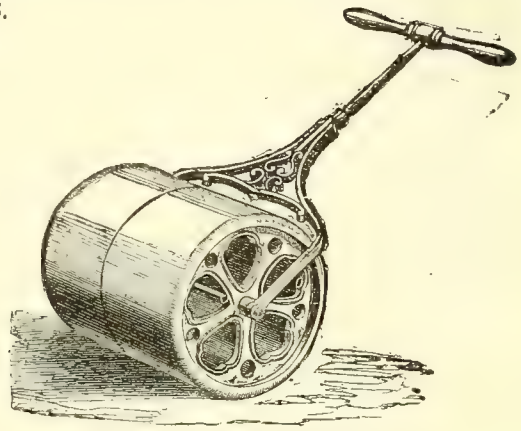
GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS,

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS

DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

The Patentees after the long experience they have had in the MANUFACTURE of LAWN MOWERS, have come to the conclusion that three things are essential to constitute a real and efficient Implement, namely, Simplicity of Construction, Durability, and General Practicability, and they are glad to be able to state that they have combined the three, and that their Machines are unequalled not merely by giving satisfaction for one or two seasons, but by their long durability.

Upwards of 14,000 of the above Machines have been sold since the year 1856, and thousands of letters have been received by the Patentees testifying to their efficiency. They do not deem it necessary to publish more than the two following :—

TESTIMONIALS.

"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"Dear Sir,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, Geo. Eyles."

"Royal Gardens, Windsor, March 27, 1863.

"Dear Sir,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

"To Mr. Green." "Yours very truly, Thomas Ingram."

PRICES.

						If with Patent Delivery Box.
To Cut 10 inches	£3	10	0	Suitable for a Lady.		
„ 12 „	5	0	0	Suitable for One Person. If with internal gear, 10*s.* extra.		
„ 14 „	5	10	0	Do. Do. Do. Do.	10*s.* extra.	
„ 16 „	6	10	0	Suitable for One Man or Two Boys.		
To Cut 18 inches	...	£7	10	0	Suitable for One Man and Boy	£8 15 0
„ 20 „	...	8	0	0	Do. Do.	... 9 5 0
„ 22 „	...	8	10	0	Suitable for Two Men	... 9 17 6
„ 24 „	...	9	0	0	Do. Do.	... 10 7 6

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	... £12 10 0
„ 26 „	12 10 0	... 13 12 0
„ 30 „	16 14 0	... 18 0 0

Leather Boots for Donkey, 16*s.*; for Pony, 20*s.*

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	... £21 10 0
„ 36 „	23 0 0	... 24 16 0
„ 42 „	26 0 0	... 28 2 0
„ 48 „	29 0 0	... 31 8 0

Leather Boots for Horse, per set, 1*l.* 4*s.*

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5*s.* | Diameter 16 inches, length 17 inches, price £2 10*s.* | Diameter 24 inches, length 26 inches, price £4 5*s.*
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

PORTABLE and FIXED STEAM ENGINES; COMBINED THRESHING, SHAKING, and WINNOWING MACHINES;
REAPING and MOWING MACHINES; BONE CRUSHING MILLS; CORN CRUSHING and BEAN SPLITTING MILLS; CHAFF CUTTERS;
TURNIP SHEARS and PULPERS; IMPROVED HAY-MAKING MACHINES, and HORSE RAKES;
CLOD CRUSHERS, and WROUGHT IRON FIELD ROLLERS; PLOUGHS, HARROWS, and CULTIVATORS; VERANDAHS;
PATENT HYDROPULT, and all kinds of GARDEN ENGINES and SYRINGES; GARDEN CHAIRS and TABLES;
ORNAMENTAL FOUNTAINS and VASES; GARDEN TOOLS; PREMIUM CONTINUOUS IRON FENCING and HURDLES;
STRAINED WIRE FENCES, of all kinds; ESPALIER FENCES; GAME-PROOF WIRE NETTING and TRELLIS WORK;
ORNAMENTAL and PLAIN ENTRANCE, WICKET, and FOOTPATH GATES; WROUGHT IRON FIELD GATES; TREE GUARDS;
CATTLE and PIG TROUGHS; SHEEP RACKS; WASHING and WRINGING MACHINES; FIRE-PROOF IRON SAFES; IRON WHEELBARROWS
IMPROVED IRON STABLE FITTINGS;
and every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;
and MANUFACTURERS of all kinds of IRONWORK for the IMPROVEMENT or EMBELLISHMENT of LANDED PROPERTY.

Illustrated Catalogues on application.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.



Skirving's Swede—Sutton's Selected Stock.

SUTTON AND SONS have a choice Stock of SKIRVING'S SWEDE SEED, growth of 1862, which they can strongly recommend. 9*d.* per lb., or *cheaper in large quantities.*

Also SUTTON'S CHAMPION, Hardy PURPLE-TOP, and Hardy WHITE SWEDE; but the Stock of "Champion" Swede, though saved from upwards of 50 Acres of Land, being small compared with the demand, this sort cannot be supplied under 1*s.* per lb., or 45*s.* per bush.

Royal Berkshire Seed Establishment, Reading.

Prize Vegetables.—Plants of

JOHN CATTELL'S CABBAGES, KAILS, BROCCOLIES, &c., may be had at the following prices:—

	per 1000
CABBAGE, Reliance and other kinds	*s. d.*
KAILS, of all the true kinds, as exhibited at the Great International Fruit, Gourd, and Vegetable Show of the Royal Horticultural Society, held at their Kensington Gardens in October, 1862, and to which the First Prize was awarded	4 0
BROCCOLIES, of all the leading kinds	5 0
CELERY, do. do. bedded plants	
RED CABBAGE	
VARIEGATED GARNISHING KAIL, 1*s.* per 100.	
DRUMHEAD CABBAGE, and the large kinds of SAVOYS	3 0

JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

New Bedding Scarlet Horse Shoe Geranium Adonis.

JOHN HALLY, NURSERYMAN, SEEDSMAN, and FLORIST, Blackheath, S.E., intends sending out the above on June 24. It is a distinct and good thing, and a great improvement on all existing Scarlets. Flowers of a bright, light, pure scarlet, with clear white eye, and of perfect shape. It was tried at Chiswick last year as a bedding plant, and is thus described by Mr. Moore in the Proceedings of the Royal Horticultural Society for March last. "ADONIS * * * (the highest mark of merit), HALLY. Moderately vigorous habit, leaves darkly zoned. Flowers scarlet, of excellent form, with white eye—considered to be a superior novelty." It received a Certificate of Merit at the Royal Botanic Society's Show in Regent's Park, on June 3. Plants, 5*s.* each, with the usual discount to the Trade. The following Nurserymen have already ordered it in quantities, and will be able to supply it:—

Messrs. Backhouse & Sons, York
" Bunyard & Son, Maidstone and Ashford
" Downie & Co., Sydenham
" Francis & Sons, Hertford
" A. Henderson & Co., Edgeware Road
Messrs. E. G. Henderson & Son, St. John's Wood
" Lee, Hammersmith
" Osborn & Sons, Fulham
" Low & Co., Clapton
Mr. Ivery, Peckham
" Turner, Slough
" Williams, Holloway

Cheap Bedding Plants.

WM. DILLISTONE will forward (Carriage free to London), upon receipt of Post Office Order for 18*s.* on Castle Hedingham, 100 Strong Plants in Pots; consisting of GERANIUMS, FUCHSIAS, DAHLIAS, VERBENAS, CALCEOLARIAS, &c.

N.B. The above are warranted to give satisfaction. CATALOGUES upon application.

Munro Nursery, Sible Hedingham, Essex.

JOHN KEARSLEY AND SONS, Leeds, offer as below fine Plants:—

	Per 100.—£	*s.*	*d.*
LOBELIA KERMESINA	1	0	0
" SCARLET, in 4 varieties	1	5	0
GERANIUM GOLDEN CHAIN	1	5	0
" BIJOU, PERFECTION, &c.	1	5	0
DOUBLE NASTURTIUM	1	1	0
DAHLIAS, Choice	0	18	0
PRIMULA SINENSIS, Double White, fine	3	0	0
HOYA VARIEGATA per doz.	0	12	0
POTHOS ARGYRÆA "	0	10	0
TRITOMA UVARIA "	0	6	0
AZALEA INDICA, by name "	0	9	0

CALCEOLARIA, CINERARIA, PRIMULA, &c.

CALCEOLARIA, saved from carefully hybridised flowers, possessing all the recognised floral qualifications, viz., size, form, colours, and marking. Price, 1*s.* and 2*s.* 6*d.* per packet.

CINERARIA, extra choice, 1*s.* per packet.

PRIMULA SINENSIS FIMBRIATA, extra choice, 1*s.* and 2*s.* 6*d.* per packet.

DRACÆNA (CORDYLINE) INDIVISA, from Mount Egmont, New Zealand.—Beautiful fine foliaged plant, 1*s.* and 2*s.* 6*d.* per packet.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Select Stove and Greenhouse Plants, &c.

ROBERT PARKER begs to invite attention to his Collections of AMARYLLIS, AZALEA INDICA, EXOTIC ORCHIDS, FERNS, and LYCOPODS; ORNAMENTAL and VARIEGATED FOLIAGED PLANTS; MISCELLANEOUS, STOVE, GREENHOUSE, and HARDY PLANTS; all of which are healthy and clean. Purchasers of large or small quantities will be treated on the most liberal terms.

PRICED and DESCRIPTIVE CATALOGUES are published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

PARADISE AND VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

B. S. WILLIAMS

Invites inspection of his large and well assorted Collections of

EXOTIC ORCHIDS, FERNS AND LYCOPODS,

MISCELLANEOUS, STOVE AND GREENHOUSE PLANTS, VARIEGATED AND ORNAMENTAL FOLIAGED PLANTS.

AMONGST WHICH ARE SOME VERY FINE SPECIMENS.

Now ready, post free to all applicants,

A NEW GENERAL PLANT CATALOGUE,

Containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Herbaceous and Alpine Plants, Roses, Hardy Trees and Shrubs, Fruit Trees, &c.,

WITH A DESCRIPTIVE LIST OF NEW, BEAUTIFUL, AND RARE PLANTS.

ROYAL HORTICULTURAL SOCIETY.

REMAINING ARRANGEMENTS for the EXHIBITIONS and MEETINGS in 1863,

TO BE HELD AT

THE GARDEN, SOUTH KENSINGTON, W.

SATURDAY, JUNE 13	Promenade. Band at 4.
WEDNESDAY, JUNE 17	SECOND GREAT EXHIBITION, at 1. Bands at 2. Floral Sub-Committee, at 10. Fruit Sub-Committee, at 10.
SATURDAY, JUNE 20	Promenade. Band at 4.
WEDNESDAY, JUNE 24	Promenade. Band at 4.
FRIDAY, JUNE 26	Council, at 11. Meeting for Election of Fellows, at 2.
SATURDAY, JUNE 27	Promenade. Band at 4.
WEDNESDAY, JULY 1	THIRD GREAT EXHIBITION—ROSES, NEW PLANTS, &c., at 1. Bands at 2. Floral Sub-Committee, at 10. Fruit Sub-Committee, at 10.
SATURDAY, JULY 4	Promenade. Band at 4.
TUESDAY, JULY 7	Floral Committee, at 12. Fruit Committee, at 12.
WEDNESDAY, JULY 8	Promenade. Band at 4.
SATURDAY, JULY 11	Promenade. Band at 4.
WEDNESDAY, JULY 15	Promenade. Band at 4.
SATURDAY, JULY 18	Promenade. Band at 4.
TUESDAY, JULY 21	Floral Committee, at 12 Fruit Committee, at 12.
WEDNESDAY, JULY 22	Promenade. Band at 4.
FRIDAY, JULY 24	Council, at 11. Meeting for Election of Fellows, at 2.
SATURDAY, JULY 25	Promenade. Band at 4.
WEDNESDAY, JULY 29	Promenade. Band at 4.
TUESDAY, AUGUST 4	Floral Committee, at 12. Fruit Committee, at 12.
TUESDAY, AUGUST 25	Floral Committee, at 12. Fruit Committee, at 12.
WEDNESDAY, SEPT. 9	AUTUMN FLOWER SHOW, at 1. Band at 2. Floral Committee, at 10. Fruit Committee, at 10.
TUESDAY, SEPT. 22	Floral Committee, at 12. Fruit Committee, at 12.
FRIDAY, OCT. 2	Council, at 11. Meeting for Election of Fellows, at 2.
TUESDAY, OCT. 6	Floral Committee, at 12. Fruit Committee, at 12.
FRIDAY, NOV. 6	Council, at 11.
TUESDAY, NOV. 10	Floral Committee, at 12. Fruit Committee, at 12.
FRIDAY, DEC. 4	Council, at 11.
TUESDAY, DEC. 8	Floral Committee, at 12. Fruit Committee, at 12.
FRIDAY, DEC. 18	Council, at 11.

ELECTION OF FELLOWS.

Gentlemen and Ladies wishing to become Fellows have to be proposed by some one already a Fellow, to whom they are personally known. The subscription is Two Guineas Entrance Fee, and Two Guineas or Four Guineas a year according to the privileges wished.

ADMISSION OF THE PUBLIC.

Previous to April 30, packets of 25 tickets may be bought by Fellows for 5*l.* per packet. These tickets are available for any Show or Promenade during the year—admitting numbers corresponding to the prices of the day: *i.e.*, one on a 5*s.* day; two on a 2*s.* 6*d.* day; and five on a 1*s.* day.

1. HORTICULTURAL EXHIBITIONS AND PROMENADES.

Sept. 9. AUTUMN FLOWER SHOW .. .. .. 2*s.* 6*d.* — Free to Fellows and the Transferable Cards, and also admission by payment at the door or by Tickets previously purchased.

2. GREAT EXHIBITIONS.

June 17. SECOND GREAT EXHIBITION ..
July 1. THIRD EXHIBITION AND GREAT ROSE SHOW .. .. .. — Free to Fellows and the Transferable Cards, and also admission by Tickets, price 5*s.* each, purchased previously to the day of the Show. If payment is made at the door, 7*s.* 6*d.* will be charged for each admission.

3. PROMENADES.

WEDNESDAY, June 24; July 8, 15, 22, 29 | SATURDAYS, May 16, 23, 30; June 6, 13, 20, 27; July 4, 11, 18, 25.

Free to Fellows and the Transferable Cards, and also admission by payment at the door of 2*s.* 6*d.*

Extra Choice Cineraria Seed.

LUCOMBE, PINCE, AND CO. are now sending out their very superb CINERARIA SEED, which has been carefully saved from the choicest selected Flowers, and the high character of this year's strain enables them with great confidence to recommend the seed as being vastly superior to any previously offered. Sealed packets, free by post, 2*s.* 6*d.* each

Exeter Nursery, Exeter.

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.

The next MEETING of this Committee for the Exhibition of NEW PLANTS and SEEDLINGS will be held in conjunction with the First Great Show of the season, which will take place in the Gardens of the Society on June 17. The above subjects will form Classes 24, 25, 26, 27, and 29 of the Schedule for that day; and Sub-committees will be appointed to adjudicate upon them.

Class 24 is for New or Rare Tender Plants in flower.
Class 25 is for New or Rare Tender Plants not in flower.
Class 26 is for New Orchids in flower.
Class 27 is for New or Rare Hardy Ornamental Plants.
Class 29 is for Seedling Florists' Flowers, and Garden Hybrids of all kinds.

The subjects exhibited must be in the Gardens by half-past 8 o'clock in the morning, in accordance with the regulations; but they may be entered without previous notice. It is however required that a written statement of the subjects for exhibition in the respective classes should be handed in by 9 o'clock, to allow time for the entries to be made before 10.

All persons are at liberty to exhibit.

THOMAS MOORE, Secretary to the Floral Committee.

SPECIAL PRIZES for the BEST THREE GROUPS of FRUITS and FLOWERS for the DECORATION of the DINNER-TABLE are offered by Sir C. WENTWORTH DILKE, Bart., Vice-President of the Royal Horticultural Society, to be awarded at the Second Great Exhibition, WEDNESDAY, June 17. First Prize, Gold Knightian Medal, or 10*l.*; Second Prize, Gold Banksian Medal, or 7*l.*; Third Prize, Society's Large Silver Medal, or 3*l.*

Novelty of design and beautiful arrangement will be the test of merit; valuable Flowers or Fruits are therefore not demanded.

Each set must consist of three groups, and may be either one of Flowers and two of Fruit, or two of Flowers and one of Fruit, or Fruit and Flowers mixed in all three.

They may be shown either in épergnes, glass or china dishes, wicker or wire work, or in any other way, most to the taste of the exhibitor.

The Exhibition will be in the Southern Arcades.

Plants, &c., to be taken to the Society's Council Room entrance.

Ladies are invited to join in the competition.

The Prizes will be awarded by a Jury of Ladies.

The groups will be received as late as 9·30 o'clock on the morning of the Show, PROVIDED SPACE SHALL HAVE BEEN SECURED FOR THEM TWO DAYS BEFORE. Letters to be addressed to MR. G. EYLES, Royal Horticultural Society's Garden, South Kensington, W.

The Gardeners' Chronicle.

SATURDAY, JUNE 13, 1863.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY,	June 17	Royal Horticultural (Fruit & Floral Sub-Committees) at S. Kensington 10 A.M. SECOND GREAT EXHIBITION, at South Kensington .. .. 1 P.M.	
THURSDAY,	—	18—Linnean	8 P.M.

THE HORTICULTURAL WORLD is all astir this season. The other day H.R.H. Prince ALFRED having looked in upon the Botanical Garden, Edinburgh, took the opportunity of planting a memorial tree there in the vicinity of one planted by the PRINCE OF WALES in 1859, and of another by Lord PALMERSTON on the occasion of his recent visit to Edinburgh. The kind selected was a Californian Conifer, called by Mr. MURRAY *Abies Albertiana*, which has of late years been introduced. It is the Hemlock Spruce of Oregon, very nearly related to *A. Mertensiana*.

On Tuesday the QUEEN honoured the Royal Horticultural Society with a strictly private inspection of the Garden at South Kensington, and of Mr. DURHAM'S very skilfully executed monument there to the memory of the most illustrious and deeply lamented PRINCE, who until his death was the Royal President of the Society. The Council of the latter and the Members of the "Memorial Committee" were by command the only persons present on the occasion, except the Princesses HELENA and BEATRICE, Prince ALFRED, and some members of HER MAJESTY'S household.

The very next day a prodigious crowd assembled in the same Garden to witness the UNVEILING OF THE MAGNIFICENT STATUE OF THE LATE PRINCE. We understand that 20,000 persons were present, to do what honour they could to the memory of the beloved Consort of the QUEEN. In spite of a squall or two everything passed off most satisfactorily, owing to the very skilful arrangements made, on behalf of the Council, by Sir WENTWORTH DILKE, upon whom an enormous amount of supervision must have fallen. A full description of the scene will be found in another column.

IN the House of Commons a motion has been made to open the EDINBURGH BOTANIC GARDEN to the public on Sundays. Lord PALMERSTON opposed it with his characteristic good sense. The noble Viscount observed that if he were to vote according to his own opinion he should give his support to the motion. In the abstract he could see no harm, but rather good, in doing that in Edinburgh which has been already done in other capitals—that is to say, opening a place ever so small or large for purposes of recreation. But in the present case there was another consideration, namely, that a real, sincere, and honest feeling on the part of the people of Scotland exists with regard to this question. He held that, without some very grave and important reason, you ought not to do violence to public feeling; and that public feeling in Edinburgh and Scotland was against opening these gardens on Sunday evenings, was, he thought, an indisputable fact. The great desire expressed to enter these gardens must proceed from the same feeling which forbidden fruit excites in the minds of men. The hon. mover said the feeling of Scotland is changing, and that in the course of no distant time the opinion of the majority will be in favour of opening these gardens. Well, said Lord PALMERSTON, let us wait till that change takes place. He was of opinion that this strong religious feeling was honourable, and ought to be respected. Let us wait, he added, and act in accordance with public opinion and in a spirit of deference to it, and not, by hasty adoption of a principle to which Parliament in the abstract might be disposed to lend its sanction, offer violence to ancient and honourable feelings conscientiously entertained.

Bravo! Lord PALMERSTON. Of course the motion was lost.

A FEW years since some consternation was excited amongst the servants of one of the greatest establishments in Scotland, in consequence of plants of various kinds, without any distinction of order or genus, being spotted with little brown pellets which adhered very closely to the surface. This, however, was not all: not only the plants but the walls themselves, the garden pots, and even the windows were studded with the same bodies.

On a microscopical examination, it was quite clear that they belonged to the tribe of Fungi, and it struck us that almost the only Fungus which would answer the conditions was the curious *Sphærobolus*, which, like a miniature mortar, ejects its fruit to a considerable distance. We inquired therefore whether the bog Moss *Sphagnum* was used in the growth of the Orchids, and the suggestion soon detected enormous quantities of the Fungus, so that the spirit was laid, and the minds of the garden labourers were set at rest.

A very similar case has just occurred to us. Mr. MARSHALL, of Ely, whose eye is always attracted by anything of botanical or horticultural interest, found that the leaves of his Vines, and a variety of herbaceous plants which it is needless to enumerate, were dotted with little black specks, the origin of which he could not account for. At first it appeared that those leaves only were affected which were near the ground, but afterwards it was found that wood, and walls, and window panes, as in the former case, were equally defaced.

Specimens were kindly submitted to us, and as before it was quite clear that the spots were derived from a Fungus. It was at first suggested that they might be due to some insect. This, however, was not likely to be the case, as the spores were all perfect, whereas in those cases where insects feed on the spores of Fungi, and their dung seems to consist of scarcely anything more than a mass of spores, they are always more or less altered in passing through the body of the insect.

Now, it appeared that fresh horse-droppings had been placed among the plants, and it was probable therefore that, as in the former case the *Sphagnum* supplied the dark bodies, so the horse-droppings did in this case. The spores were surrounded by a distinct, rather thick, dull purple membrane, which adhered firmly to the surrounding bodies, but though the specks resembled greatly the vesicles of some mould, there was a difficulty in understanding how they could become detached from their threads.

Mr. MARSHALL has, however, now been able to solve the difficulty by personal observation, and has found that the specks are the fruit of the little mould *Pilobolus crystallinus*, which, like the *Sphærobolus*, has the power of ejecting its fruit to a considerable distance, in the present instance sometimes as far as a couple of feet.

In the case of the *Sphærobolus* the ejection takes place by the sudden eversion of the living membrane of the globose thick-walled lobed sac which contains the mass of spores. In *Pilobolus* the effect is produced by the growth of the partition which separates the mass of spores from the thread which supports it. This partition gradually bulges out upwards, till at a certain stage of growth the investing membrane bursts, and the spore-mass, with or without the membrane, is forcibly ejected.

Mr. MARSHALL informs us that he should never have discovered the cause had he not visited the greenhouse very early in the morning, at which time the little masses are discharged. No period is in fact so fruitful to the naturalist, to whom, as to every intelligent cultivator, a habit of early rising is of immense importance. Many a valuable or interesting plant moreover is saved, by early visits, from depredators which are cunning enough to place themselves out of sight of later inquisitors.

Before closing our remarks it may be interesting to many of our readers to notice another point in connection with *Pilobolus*, which shows the need of caution in all matters relating to natural history. MÜLLER had observed in many of the swollen transparent vesicles, as he believed, immediately below the spore-mass, "a white delicate worm, which crawled round and round and appeared to swim as it were in an ocean of its own." He accordingly believed his plant to be a zoophyte. PERSOON, however, conjectured that the worm was of extraneous origin; and Mr. CURREY, whose memoir on *Pilobolus* will be found in the first volume of the Journal of the Proceedings of the Linnean Society, confirmed PERSOON'S notions. He found that the little parasite was merely the common *Anguillula fluviatilis*, which abounded on the surface of the dung on which the *Pilobolus* grew, and from thence ascended the stem, and moved with great activity in the dew drops with which it is generally studded. The sight of these animals, he says, revolving rapidly in their crystal cases, is most curious and interesting. It is not certain that they ever get into the vesicle itself; but the tip of the threads, before the real vesicle is formed, is often crowned with a dew drop, which might very readily be confounded with it, and the little worm supposed to be situated in the interior of the plant.

The little fungus is extremely common both on horse and cow-dung in pastures in autumn, and will amply repay a close investigation. *M. J. B.*

—— THE recent NATIONAL AURICULA SHOW yielded a fair display of plants, almost entirely furnished however by northern growers, so that it was "national" in name only. The leading prizes were carried off by the Halifax growers, Mr. POHLMAN and Mr. WILSON, in every case except two, one of these latter going to Mr. HEADLY of Stapleford, the other to Mr. WOOD of York. The sorts shown were:—Lancashire Hero, premier; George Lightbody, Ashworth's Regular and Colonel Taylor, each five times repeated; Heap's Smiling Beauty, Sykes' Complete, and Blackbird, each four times; Lancashire Hero and Meteor Flag, each thrice; Lee's Bright Venus, Lightbody's Sir C. Napier, Lovely Ann, Mrs. Smith, Page's Champion, and Imperator, each twice; and the following each once, namely, Prince of Wales, Hepworth's True Briton, Richard Headly, Ne plus ultra, Booth's Freedom, Glory, Fletcher's Mary Ann, Hudson's Apollo, Othello, Campbell's Admiral Napier, Royal Purple, True Blue, Mrs. Sturrock, Favourite, Queen Victoria, Blue Bonnet, General Bolivar, and Gairn's Model. Cheltenham has been selected for the show of 1864, or failing that, either Slough or Cambridge. We hope, in addition, the London Societies will not fail to do their part again, in the encouragement of these quaint and really interesting spring flowers, of which the past season has witnessed something like a revival in the metropolitan districts.

—— The NATIONAL TULIP SHOW which was to have been held in Nottingham this year, but did not take place, was it appears abandoned partly from want of support, and partly from the influence of the season, which had brought on the flowers too rapidly, so that in the case of a majority of the intending exhibitors, they were over or past their best at the date fixed on. Such a miscalculation as to the right time for holding the show of a particular flower may be beyond control; but our contemporary, *Gossip*, suggests that the miscalculation in respect to the amount of support is to be accounted for in this way: that "the schedule offered no inducement to the small growers at a distance to come in, and seemed to have been made for the large growers alone." The framers of prize schedules generally may make a note of this, with advantage.

FISH AND FISHING.—No. X.

PONDS: TENCH AND CARP.

PERMIT me to address a few words to my brother gardeners, whether they be amateurs or professionals, upon the subject of Tench and Carp fish-ponds. Out of these in my younger days I have culled many and many an hour of innocent recreation, when, in mind and body, I was inclined for nothing more active or invigorating. I am one of those who have graduated through every branch of angling and fishing; I have even

studied the art of netting. I have fished for minnows, and know how to make them "a delicate dish." Gudgeon, roach, bleak, dace and perch, bream, tench, carp, chub, &c., &c., have been my victims in great store, and of many and many a fell tyrant of a pike have I been the executioner, revenging his inexorable murders of his weaker brethren. And now I profess myself essentially a fly-fisher, and *par excellence* a salmon fisher.

Most anglers when they arrive at this round of the ladder, from the super-excellent superiority of the latter —the highest art, salmon fishing,—despise all the lower grades, aye, even trout fishing. But, somehow or other, I do not. Perhaps this arises from the fact that I am growing old and less active, and yet I feel full well that when I reach a salmon or a trout river, I am like Gay's "feeble" fox—

> "But hark! I hear a hen that clucks:
> Go, but be moderate in your food—
> A chicken, too, might do me good."

And I fish hard and catch as many as do me the honour of accepting my invitation to them, offered in the shape of feathers and insidiously-pointed steel.

Still, so innately am I a fisherman, that I despise none of those lower arts when better is not at hand; and I have been of late reflecting on the happy hours I have basked away by the side of carp and tench ponds. And now I ask myself why should not others similarly enjoy themselves? and why should not I show the way, and endeavour to instruct in the art of making tench and carp ponds for other's benefit?

The tench, especially, and also the carp (dependent on the mode of cooking), I esteem good eating fish, and certainly, in country districts, where sea-fish but rarely visit, an occasional change of diet of this kind is not only wholesome, but a "treat."

The amateur gardener and angler will of course have tench and carp ponds in his grounds. The amateur gardener and no angler may have friends to amuse, and to him I would recommend the creation of fish ponds, and the gardener professional will always find a pond useful for his business—pond-water being almost as good as rain, and he may make it "pay" by charging his neighbours for the right of fishing, so much per head for fish caught. I, in my neighbourhood, would be too glad to have such a neighbour, and on such terms.

But for the angler-gardener, in the heat of summer, too hot for exercise, I know no greater luxury of *otium* — sans *dignitate*, if you please — than sitting or lying under the shade of an over-spreading tree watching the motions of the float. I speak from experience. At one period of my life I fished much in this style, visiting my uncle's estates in Sussex. Small ponds, some full of tench from ½ lb. to 1½lb. and more; some of carp from that to 3 or 4 lbs., were very numerous, and I had great success, and the boiled beans and bacon and cabbages which my uncle's tenants would kindly bring me to where I sat, seem to my mind the sweetest bonne bouches in the form of luncheons I ever ate. It was in every sense true luxury. I was idle from the heat of summer, but not idle, for I caught fish—

> "Hours of idleness were not idly spent."

Ay, many the happy hours I have thus passed with younger, merry, laughter-loving cousins—*sub tegmine Fagi*, whether that "Fagi" were a Beech, an Oak, an Elm, an Alder, or a faggot stack! which "not to put too fine a point upon it," must have originally been derived from the "Fagus" of Virgil! Those ponds were natural ponds, and in that part of Sussex the soil was all pure Sussex clay.

Walton says, "It is observed that in some ponds carp will not breed, especially in cold ponds; but where they will breed, they breed innumerably." "The carp, if he have water room and good feed, will grow to a very great bigness and length." And certainly, had I space of ground adapted to the purpose, and enough clay in the neighbourhood, I would try the experiment of an artificial pond or two, with perfect confidence of success.

Adaptability and the neighbourhood of clay are of course *sine quâ nons*. By the former I mean I would select a spot in a hollow, into which rain would naturally flow, or drain from the "lay of the land;" or it might be on a slope, the soil to be dug out being thrown on the lower side, so as to form the partial embankment, or raising of bank up to the future water level.

The smallest superficial water area that I should design for a tench pond would be a space equivalent to a square of 50 feet. I say "equivalent" to 50 feet: not a circular or a square, or oblong pond, which looks so formal, but of that area—50 feet square,—as much irregular in shape as a natural pond in the rough parts of Sussex can be. A carp pond I would make as a separate thing—tench do not "muddy" the water as carp do,—more extensive, at least equivalent to 60 feet square; they require, like pigs, more grubbing ground.

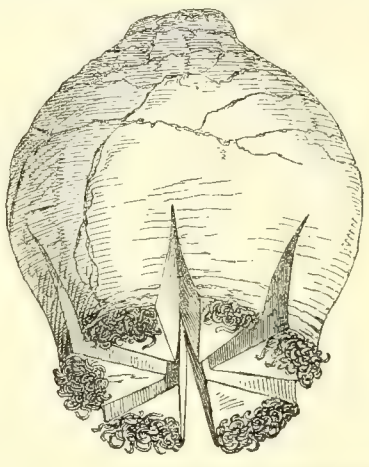
As to the depth of water in the pond when completely finished, I would in one part of it contrive a large space where there should be 5 feet of water, not less, to which fish might resort in a very severe winter. The rest of the pond might vary in depth from 4 feet to not less than 2½ feet, in which part I should cast my hook, and expect to catch my fish. Dependent on the soil, the bank or margin should be cut precipitously down, just as nature forms those wild Sussex ponds, which are in my mind's eye while I am writing; perhaps with one shallow entrance (as though for "horse-watering"), which would naturally be formed in that part where any rains flow or drain into the pond. I would have the wildest hawthorn and bramble grow here and there on the pond bank, and, in fact, make it as rough and inartificial as possible to the eye.

Here, however, I must break off for the present. *E. C.*

A VISIT TO THE BULB FARMS OF HAARLEM.

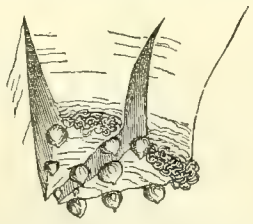
No. IV.

Propagation by Offsets.—The Hyacinth propagates itself naturally by offsets and by seeds. But both these operations are too slow to supply the great demand which exists for this flower at Haarlem, and hence art has been brought to Nature's aid. To induce the bulbs to throw out offsets, two methods are adopted, and both of these are curious and most interesting. One mode is by making three, or sometimes four deep cuts across the bottom of the bulb, in the manner shown by the accompanying sketch.



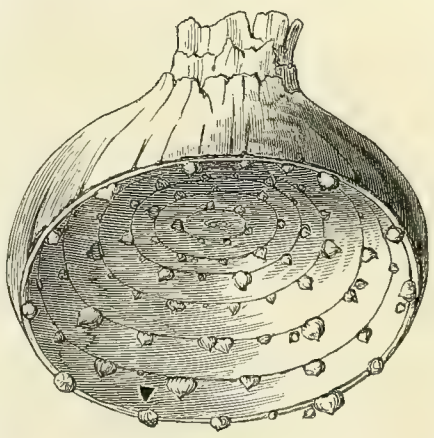
Hyacinth Bulb cut across at the base to induce the formation of offsets.

When the knife has gone deep enough, the bulb, which is plump and full of juice, emits a peculiar crackling sound, and this is a guide to the operator. The wounds inflicted in this manner destroy the germ



Part of the base of the bulb after cutting, showing how the young bulbs are produced.

of the flower stem already formed for the following year, and divide the lower portion of the bulb into six parts, or, in the case of larger bulbs, into eight parts. After this operation is performed, the bulbs are laid on the beds and covered with dry sand. They remain in this position for 10 or 12 days, and are then taken into the drying room and spread out on its shelves. Here they are kept until the autumn, when



Hyacinth Bulb scooped out, showing the mode in which offsets are then produced.

they are planted like other Hyacinths in the open ground. During the following winter and spring young bulbs are formed in considerable numbers at the edges of the cuts in the way represented in the second sketch. These young ones are taken up at the proper season, removed from the parent and planted in nursery beds, where they are treated in all respects like the older Hyacinths.

The second method practised in propagation differs from the first, both in the manner of operating on the bulb and in its results. A slice of the under part of the bulb in this case is cut or scooped out, and the circular layers of which it is formed, are exposed to the view as shown in the third sketch.

The bulbs prepared in this manner require much more careful treatment afterwards than those which are cut in the other way. They are dried in the open air before they are taken into the drying room, and they must be looked at frequently afterwards, as they are very apt to become mouldy or to rot. It is sometimes necessary to mix a little dry sand amongst them in order to preserve them. Extremes of dryness or of moisture must be carefully avoided. In August or September they are planted in the open beds, and remain there until the following summer, during which period a crop of young bulbs has been formed on the under side of the old ones in the manner shown in the sketch. These are taken off in autumn and planted out singly, in nurseries, like the others.

There are two or three curious circumstances connected with these methods of producing young Hyacinths which are worthy of notice. The bulbs treated in the way first mentioned produce young ones larger in size, but fewer in number than those which are treated in the second way. In the first instance the bulbs are formed at the edges of the cuts, while in the second they come out all over the under surface. Again, the bulbs formed by the first method send up leaves during the first spring, while those produced upon the second plan do not show any sign above ground of their existence below. Some varieties of the Hyacinth succeed best when treated in the first way, and others appear to prefer the second. For example, the well-known kind named "Waterloo" does best when propagated in the second way, and I believe it is generally multiplied in this manner by the growers at Haarlem.

The time required for these young bulbs to come to maturity, that is to be fit for the market, varies with the different varieties. Four or five years is about the average time required by those produced by the plan shown in the first woodcut, and five or six years for the smaller ones shown in the third. Every year during this period they are taken up in the summer and replanted in the autumn.

By Seeds.—As the time required to bring Hyacinths to maturity from seed is so long—seven or eight years, according to the variety—the propagation about Haarlem is managed by offsets as I have already described. Indeed, were the time shorter, the propagation of the existing kinds would have to be done by offsets, as seedlings would not reproduce kinds identical with their parents. Every grower, however, is anxious to obtain new and superior varieties, and these can be had only from seed. Hyacinth seeds ripen in the end of May or beginning of June, and are usually sown in October. Large pots or pans are used for the purpose, and the seedlings which spring up are allowed to remain without being moved for three or four years. At the end of that time they are taken out of the seed pans and treated like the other bulbs. Some sorts show a weak bloom about the third or fourth year, but four or five years more are required to bring the bulb to maturity. And then, after all this time, if the grower gets one out of a hundred, distinct and worth propagating, he is considered peculiarly fortunate.

Hybridising in that certain way with regard to results which is understood and practised by our florists with Pelargoniums, Petunias, &c., does not appear to be much practised with the Hyacinth at Haarlem. Indeed the long time required before the results can be even guessed at, is not encouraging, and a longer time after that is necessary to produce a stock for the market. We have seen that three or four years must elapse before a weak bloom is produced to give an indication of the nature of the seedling, and as many more must pass by before the plant arrives at maturity. Then, if it be really good, and worthy of propagation, the fortunate raiser possesses only one bulb! Years after that must pass by before he can have a sufficient quantity to offer it for sale.* It may therefore take the time of an ordinary life to raise a Hyacinth from seed, and have a stock sufficient to place it on the market. *Robert Fortune.*

FERNS AND FERNERIES.—No. III.

(*Concluded from p.* 316.)

I RECOMMEND that in the construction of your Fernery you should adopt dimensions at least as large as those I have suggested, and arrangements of its earth contents of the character proposed—because I believe it is only thus that you can hope to provide situations of sufficient variety to satisfy the diverse habits of the tribe of plants you desire to cultivate. Still, much may be done in a glass case within your drawing-room, that will interest yourself in its care, and gratify your friends in its display. In this, as in a house of larger size, you must study to

* Some kinds are much more difficult to increase than others. It is not unusual for a variety to remain stationary for a time from some unknown cause, and then, all at once, make a fresh start. It does not follow, therefore, that two new kinds offered for sale in the same year have been raised about the same time.

supply the natural conditions to which your Ferns are subject; your field of operations being restricted your materials will be less cumbrous and their arrangement less laborious. The earth you should use in such a case must be a mixture of peat-mould and silver sand finely sifted, the latter in the proportion of one-third. A layer at the bottom of the Cocoa-nut fibre (not the refuse before mentioned) promotes drainage beneficially, and some broken up limestone about the fibres of the Ferns near the surface keeps the ground open. But you will find that you must only attempt those that are especially fond of a moist atmosphere, and in their luxuriance do not arrive at too large dimensions. Fortunately among such are many of the most delicately beautiful—the Killarney Fern, with its finely divided semi-transparent fronds, conspicuously so. Capillus-veneris and her sisters of the Adiantum family—pubescens, its pinnule protected by a hairy fringe, pedatum and cuneatum, will all flourish in such a case as we are now considering. Several foreigners, too, of small growth may be introduced with success. Those popularly known as the Gold and Silver Ferns, although delighting in a higher temperature, will yet consent without artificial heat to exhibit themselves in the lustrous coat that, resembling the colour of the two most precious metals, has suggested their respective names. Lycopodium cæsium and several others of its kind will grow freely here, quickly creeping along the surface of the ground, and upwards over the glass.

A vessel of some kind with water is most useful in a Fernery, from which you can supply a syringe, with whose occasional sprinklings our friends are much refreshed; and as a means of keeping this full and the water fresh, a fountain is a convenient, and may be made an elegant addition. In this, too, gold fish may be kept, whose playful motions, with the noise of trickling water, are pleasant to eye and ear. But who shall give counsel in a matter such as this? As Bailey's Eve, though of purest marble, may not be placed in a suburban garden, so must you exclude from your Fernery each vase-bearing nymph or belching dolphin. Criticism is severe in judging things such as this, and sometimes may be unjust. Negatively, I may advise: shun plaster,' and be jealous of terra cotta. I need hardly say, banish the shadow of a shell, accept no tradesman's help, and may your own good taste protect you. The potter's art supplies baskets of many patterns which, suspended from the roof, may in a large building usefully serve for Ferns of a drooping habit, and for the hanging of these copper wire line is to be preferred, being thinner in proportion to its strength, and much more durable than that made of hemp.

In this paper it has not been necessary to make use of those technical terms adopted by Botanists in the description of the plants whose culture has formed our subject; these however you find it pleasant to learn as you become more familiar with the various species in your collection, and to use them correctly, especially in conversation with those of your friends, who have studied these things as a science. For a rhizome is not a root, nor is a rachis a stem, nor are thecæ and spores quite the equivalents of pods and seeds, and such distinctions it is proper to know and to appreciate.

The fructification (by the varying form and distribution of which Ferns have been classified) supplies interesting objects for examination, and if you have the good fortune to possess a microscope, will furnish a source of enjoyment of which strangers to such investigations can have little conception. To view these objects to the best advantage, a fruit-bearing portion of a frond should be placed on the stage immediately after gathering, using a 1½ inch or 1 inch, with artificial light; the sudden change from a moist and comparatively cold air, to a situation illumined and heated by the rays from a lamp concentrated to a focus by the bull's-eye lens, will cause the delicate coverings to shrivel up, exposing brilliant yellow-brown masses. The elegant bands which confine the spores within their elastic embrace will rapidly one after another expand, scattering the contents in all directions over the bright green field, making a picture wonderfully beautiful. The fructification of several species may be preserved as interesting objects for examination, if mounted dry and covered with glass to protect from dust. If to be treated in this way, the specimens should be kept for a few days before mounting, slightly pressed between slips of writing paper. Among many others, Aspl. viride may be mentioned as especially to be admired in its delicate lace-like underside, and the tri-radiate arrangement of the masses of fructification; Ceterach in the complex network of scales by which they are half concealed; Capillus-veneris in their being placed at the outer edge of each pinnule, which folds back with and covers them; and Trichomanes speciosum in their being situated not at the back of the frond, as usual, but arranged around a small column, as it were, formed by the mid-vein of each pinnule. The fructification of the Davallias is also both curious in arrangement, and brilliant in colour.

The medicinal properties of Ferns have been known for many ages, and have been much extolled by ancient and mediæval writers—exaggerated sometimes no doubt by the grateful simplicity of a friend untutored in the rigorous analysis of our times. Yet even now the most common species of our woods is found to supply a very effectual remedy for one of the most distressing maladies to which mankind is subject. The use of "Fern seed" to secure the privilege of invisibility, and the presumed virtue of the examination by despairing maidens of a section of the rachis of the Brake, for the discovery of the initials of the hoped-for sweetheart, have not been justified in their reputation by modern experience.

There is one other consideration to which I cannot forbear to call your attention, although foreign to the immediate intention of this paper. Forests almost wholly composed of Ferns have in their decay provided that fire whose genial warmth has made tolerable the reading of my former papers—if, indeed, even this has been sufficient to keep your attention, attracted on either side by more lively neighbours. History assures us that about 6000 years have passed since our race first inhabited this earth, and geology has established that the centuries that must have elapsed since these "Fern forests" were buried in the waters—as the first step towards their conversion into coal—bear to the former period a proportion that no figures can adequately represent; yet at an epoch so inconceivably remote, the preparation for man's creation had begun, for we see in the actual world around us how absolutely necessary is coal to the very existence of the human family. Perhaps the thoughts thus suggested by the fossilized remains of an extensive tribe of plants, of which we are now endeavouring to cultivate a few modern representatives, are as magnificent and as solemn as any of which the mind is capable. *Z.*

Home Correspondence.

Renovating Old Vine Borders.—The first I shall describe is that of a house 65 feet long, at Stoke Park, Surrey. When I undertook the management of the garden there, in May 1852, I found a range of Vineries 100 feet in length, in as bad a state as they could well be. Two of the houses I was compelled to plant with young Vines, but to those in the particular house now under notice, I was determined to give a trial. They had been planted 25 or 30 years; the leaves were much diseased, and as small as Currant leaves. Of Grapes there were only 3 bunches, shanked and mildewed. During the summer I had a quantity of soil prepared as follows:—to every 8 loads of loam I put 2 loads of dung; late in the autumn the old flues were taken out and hot-water pipes substituted; old mortar, broken bricks, and soot were mixed with the new soil. The first week in January being very mild, I took the opportunity to remove the old soil to the depth of two feet to within two feet of the front of the house. The roots were carefully pegged back and pruned. With the tiles and whole bricks obtained from the old flue I paved the bottom of the border. On this flooring the soil was laid, and the roots brought as near to the surface as they could be. When the border was completed, I covered it with a good thickness of long stable litter. The Vines were pruned to correspond in some measure with the mutilated roots. The rods were encouraged to break by the end of March, which they did pretty well. The leaves at first flagged during sunshine. The border was watered three times during the growing season, and the litter was left on to prevent the water from washing away the soil from the roots, and to retain moisture. The tops were pruned early the following year, and allowed to break with the season, and they ripened 210 bunches of Grapes. During the seven years I had the management of them, I cut 2700 bunches of fruit, good both as regards colour and appearance of berry. In 1861, my present foreman having business in that part of Surrey, inspected the house in question, and he stated that a nicer house of Grapes he never saw; there must have been he thought upwards of 400 bunches in it at that time, which was in September. In May 1861, I had occasion to do away with a house of old Vines and to plant it with young ones, but at the end of the house there was an old Vine which I was anxious to save, and in moving the border I cut close up to it. The new soil was applied and the old Vine watered. The growth that summer was wonderful. In the autumn of 1862 I cut upwards of 20 lbs. of Grapes from it. The last case I shall refer to is that of a house 36 feet long, the Vines in which have been planted about 14 years. I found 12 bunches on these Vines in the spring of 1859. Since I have had the management of these I have cut 660 bunches, some of which weighed 2½ lbs. each. As they did not colour to my satisfaction I had the border opened in October, 1862, the old soil was taken out half-way the whole length of the border, a drain was put in at the foot, and 12 inches of drainage material laid at the bottom, which was turfed over; new soil was laid on, the roots carefully spread out, and the border well mulched, and the Vines are this season everything one could wish. *C. Squires, Heywood, Westbury, Wilts.*

Bog Firs.—In reference to a communication from Mr. Billington, which appeared in your issue of May 25th last, I beg to enclose a specimen taken from a young tree growing at present in the grounds of Isaac Crawford, Esq., Troy Villa, Londonderry, which may be of service in clearing up this matter. Mr. Crawford had the plants from the late Sir R. A. Ferguson, M.P. for Derry, who raised it (with several others now growing at The Farm, Derry,) from a cone found in a bog at Castlederg, Co. Donegal, Mr. Crawford's plant is 6 feet high, and bore three cones last year, which are not yet ripened. Mr. C. cannot give any precise information as to the depth at which the cone was found; but possibly this may be obtained by some Correspondent in the vicinity of Derry, under whose notice this communication may come. *W. Anderson, Downpatrick, June* 8. [The species is Pinus Pinaster.]

Rose Rubens.—In reading Mr. William Paul's paper in your last Number I find that he makes no mention of a Rose which I believe deserves general notice and favour. It is one belonging to the lovely class on which he has written, viz., Tea-scented, and named Rubens; it is nearly the same colour as that of Devoniensis, and is (as far as my experience goes) a decided improvement on that variety, being hardier, and furnishing flowers much more handsome. We received it in a set of 1860 Roses, and it has answered every expectation. It has stood out well in our atmosphere (I need not say that Brixton is not blest with the balmy air of Hertfordshire), and has given entire satisfaction. *James Ponsford, Loughborough Park, Brixton.*

Roses.—Permit me to offer my best thanks to Mr. Radclyffe for his obliging reply to my last letter. I have for some time doubted equally with himself, from observations without the aid of glasses, whether the black spot were a mildew or Fungus. I can see nothing on either the upper or under surface of the leaf, though all between is brown, and will soon become dry and friable. The cause it seems is doubtful, and therefore the remedy must be equally so. I forget whether Baronne Hallez suffered with me; I lost the sort two years ago. But another favourite—Baronne Larrey—is now attacked, and is altogether looking, to my great surprise, very sickly, as it was carefully transplanted, root-pruned, and manured last winter. The case of black blotch, which particularly struck me last year, occurred in the bed in which Baronne Larrey now stands. A sucker sprung the year before from a Briar root, and I budded it with Queen of the Bourbons where it stood. In due time I separated it from the parent, and last year the bud pushed, and I believe its side buds also, and was making a nice little head and showing flower. On a sudden black blotch attacked it, and in a very few days all or most of its leaves had fallen off, and like them my hopes were blighted. I have no recollection now as to whether the flower buds expanded or not, but if they did they were not very attractive. Now here (in Cornwall) I am not on impermeable clay, for it is hard to find enough for grafting clay, but on a slaty formation, well called locally "shelf," the layers of which shoot off all drainage most readily in the direction in which they dip—to the eastward. More than this; under the bed in which stand the Roses just mentioned there runs, at about 18 inches from the surface, a stone drain, through which water flows at every shower. I may add that although we have sometimes very sudden changes of weather, yet on the whole we enjoy a more equable temperature than any other county in England, as appears from an interesting article on the "Market Gardening of Cornwall," in the last volume of the Bath and West of England Society's Journal. Permit me one word more. White mildew, we sometimes think, is partly due to moisture of the atmosphere so near the sea. Orange mildew has sometimes attacked my Briar standards, not in the leaf but in the stalk; excision has been useless, for, too often like cancer in the human subject, it has broken out again and been the death of my Rose. *C. R. S.*

Ice Houses.—Will any of your readers oblige by stating the best principle upon which to construct ice houses, or name any third person thoroughly competent to undertake the construction (under guarantee) of such a building. *F. Lovell, Kinchester, Lymington, Hants.* [See our Volume for 1860, p. 833.]

Peas.—I picked Peas from a south border on the mornings of May 12, 19, 26, 28, and 29. The variety was Sangster's No. 1. I have now a plentiful supply of Early Charlton. *T. C., Gardener, Garnons, Hereford.*

Foreign Correspondence.

The Spring in Sicily: *Messina, April* 27 (*Continued from p.* 439).—Within the last few miles of Catania, where the separation of the clinkers, cinders, and soil has not been made, rivers of lava are crossed, lying in masses, in mounds, in sheets, in plains, and producing little else but Crassulaceæ. The fertility of the lava is evidently the result of human labour combined with artificial irrigation. Indeed, the more I see of the south of Europe the more do I become convinced that its vaunted fertility is a mere myth, unless labour and capital can be brought to bear. Southern rivers left to themselves carry devastation with them, denude the mountain regions, overflow the plains, and render them pestilential marshes. It requires immense labour and great capital to keep them within bounds, to make them fertilize the regions which they would otherwise destroy or render uninhabitable. Withdraw the labour and leave them to themselves, and you very soon get marshes like the Pontine, the Tuscan, the Corsican, now all but uninhabitable from malaria, but which formerly nourished hundreds of thousands. On the other hand the mountain sides, the dry plains in the south, left alone unwatered, are parched, burnt up by the sun. They, too, require labour and capital for their inherent fertility to be developed.

Catania is at the very foot of Mount Etna. It is surrounded on all sides by a regular river or torrent of

lava. In the great eruption of 1669 the lava reached the walls of the town, collected against them, although they were pertinaciously heightened and strengthened, and at last poured over them in several places, submerging part of the city, and reaching the sea, both to the north and to the south. The aspect of the shores on both sides of Catania is very singular. It is formed entirely by these torrents of lava pouring into the sea, and suddenly cooled by it, and looks as if made by the accumulation of thousands of tons of coal.

I found two gardens at Catania worthy of notice; one on the port, sheltered and protected by the town, with a rivulet running through, which gives an abundant supply of water; the other at the convent of Benedictines. These monks have a very handsome church and monastery on the north-western limit of the city, immediately facing the Etna. The great lava current submerged the old garden and stopped within 10 feet of the church, a miracle, the monks thought, due to their prayers. The present garden is built on the lava which covers the former one, on a level with the first story of the convent. There is no protection whatever between it and the mountain, and at night a cold down draught must set in from the snow regions. As a result this garden, notwithstanding its sunny exposure and low latitude, might almost be in a sheltered spot in England. The flowers were only the earliest spring flowers, Anemones, &c., and the Geraniums were all in pots. The difference between this garden and the protected one on the port was very striking; the latter was one mass of flowers all planted out—Geraniums, Verbenas, Heliotrope, Petunia, Antirrhinum, Nasturtium, red Linum (called Inglese by the gardener), &c. Everything was growing with the wildest luxuriance and beauty. The garden was a regular carpet of flowers.

I subsequently reached Syracuse, 40 miles further south. Syracuse is a most fascinating town to visit, owing to its numerous Grecian antiquities, which revive the recollection of early studies and sympathies. Nicias, Demosthenes, the Athenian captives, Dionysius the Tyrant, reappear on the scene. At Syracuse the cooling influence of Mount Etna is diminishing. The Lemon and Orange trees are creeping out of valleys and shelter. Still the value of protection is even here fully illustrated. The two largest Orange and Lemon trees I saw in Sicily were growing in one of the Latomiæ. The Latomiæ are gigantic excavations in the solid rock, made in the days of Syracuse's prosperity by the Athenians and other captives. They rank among the wonders of the world. Under the influence of time and earthquakes the roofs have mostly fallen in, and they are now like deserted quarries, converted into gardens some 50 or 60 feet deep. It was at the bottom of one of these that I found the Lemon and Orange trees in question—regular forest trees. They there got sunshine and warmth, and escaped the wind. Thus the prison excavated in former days by Nicias, Demosthenes and the 7000 Athenian captives, has now become a kind of Sicilian conservatory.

The view from Syracuse, now a little provincial town, with one of the best natural ports in Sicily, looks over a marshy, unhealthy, ill-cultivated plain, which formerly contributed by its luxuriant fertility to maintain the 800,000 inhabitants the city then contained. The soil and sun are there, still the same, but the labour of former days, the energetic action of man, is wanting.

I intended to have examined the central and south-western parts of the island, but to my great regret was unable to do so with safety, owing to the disturbed state of the country. Still, my exploration of Sicily was sufficiently extensive to prove the fact already asserted, viz., that it requires six or seven degrees of latitude to compensate for such complete protection from the north winds as is found in the more favoured parts of the Riviera, between Genoa and Nice. That such is the case is evident from the circumstance that not only are the vegetable productions of Sicily and of that region identical, but that the progress of spring is all but the same in the two regions. We must allow an advantage, however, to Sicily, even on the north and east coast, wherever there is shelter and protection from the north, or from cold mountain blasts. No doubt on the south-western coast this advantage would be much greater. Evidently, away from mountain influences, in Sicily there can be no frosts of any importance, as the Lemon-tree everywhere appears, and flourishes under such circumstances; and two or three degrees of frost destroy the Lemon-tree, and one or two destroy its fruit. The nights, too, must be cold until May, as evidenced by the tree vegetation. This is the case also on the two Rivieras of the Gulf of Genoa, the east and the west. *J. Henry Bennet, M.D., The Ferns, Weybridge.*

Societies.

BOTANICAL OF EDINBURGH: *May* 14.—Professor Maclagan in the chair. The following communications were read:—I. *New Genera and Species of Diatoms, from the S. Pacific.* By R. K. Greville, LL.D.——II. *On the Fertilisation of Orchids, in the R. Botanic Garden, Edinburgh.* By J. Scott. The author stated a few experiments on the subject. The first was performed upon Oncidium sphacelatum. On one plant of this species he impregnated with its own pollen between 100 and 200 flowers, yet in no instance did a single capsule swell. The only external indications of pollinic influence were the slightly earlier withering of the flowers and the closing of the stigmatic orifice; the latter usually taking place 24 hours after the application of the pollen. This stigmatic movement, he stated, was effected in two modes by the different species of Oncidium—viz., laterally by the closing of the sides and wings of the stigmatic orifice, and transversely by a gradual depression of the clinandrium, O. sphacelatum exhibiting the former, O. divaricatum the latter mode. He had dissected the column of a number of the flowers operated upon as they dropped off, and invariably found abundance of pollen tubes. The second experiment was with pollen of O. altissimum, applied to O. sphacelatum; in this he also failed in fertilising a single capsule. Thirdly, he applied pollen of O. sphacelatum to O. graminifolium, and succeeded in fertilising a capsule on the latter, which contained about one-fourth of embryonated seed. He did not succeed *vice versâ*. Fourthly, four flowers of O. ornithorhynchum were impregnated with pollen of O. sphacelatum, one of which produced a fine looking capsule. On dissection, however, it was found to contain few seeds, and of these the majority presented only a loose transparent testa. The attempts to fertilise the latter with the former were again unsuccessful. The author here referred to the Verbascum cases mentioned by Mr. Darwin in his "Origin of Species," in which differently coloured flowers are found to produce less seed when crossed than when fertilised with own-pollen, and contrasted them with his experiments on the species of Oncidium. Thus referring to the great predominance of yellow in the flowers of this genus, he remarked that the O. sphacelatum, with yellow-coloured flowers, fertilised O. ornithorhynchum with rose-coloured flowers, while other similarly-coloured species were not thus effective—a significant indication, he holds, that the normal conjunction of the sexual elements of varieties, and of a species on an individual of different species of a genus, is dependent on some deeper relational bond than either colour-differences, or any yet recognised affinities; and that we cannot, with the least degree of certainty, predicate from such affinities the results of the above conjunctions. Fifthly, six flowers of Oncidium sphacelatum were impregnated with pollen of O. divaricatum, var. cupreum. Of these, four have produced fine capsules, now nearly mature. These two species, however, as in the former cases, were not reciprocally active. "Thus," he remarked, "though I have failed in crossing reciprocally any two species, I have, nevertheless, I think, satisfactorily shown an individual self-impotence of organs capable of elimination by the action of other species; and this in apparent disregard of recognised systematic affinities." Sixthly, Maxillaria atrorubens he found perfectly insusceptible of fertilisation with its own pollen, and yet highly susceptible to that of the widely separated M. squalens, the latter being also capable of fertilisation with pollen from the former, which affords an illustration of the reciprocal action of species. He here stated that M. squalens, so far as his experience went, was perfectly productive when fertilised with its own pollen; and remarked on the singularity of the fact, that while the female element of an individual was not susceptible to its own pollinic influence, and susceptible to that from another individual of a distinct species, the latter should be alike susceptible to its own pollinic influence, and to that of the former.——III. *On New British Lichens.* By the Rev. T. Salwey, B.D. The author gave descriptions of new species, (some of which had been examined by Nylander).——IV. *Synopsis of the Canadian Species of Equisetum.* By G. Lawson, LL.D.——V. *Register of Plants in Flower in the open air at the Royal Botanic Garden (4th list).* By J. Macnab, curator. The following were in flower on the 20th day of April 1863, and not enumerated in any of the previous lists laid before the Society at the above date:—Pyrus Malus, Prunus Padus, Syringa vulgaris and persica, Cratægus præcox, Sambucus racemosa, Forsythia viridissima, Medicago arborea, Kalmia glauca, Fagus sylvatica, Alnus glutinosa and cordifolia, Viscum album mas, Lonicera Xylosteum, Cydonia japonica, Buxus sempervirens, Ilex Aquifolium, Euonymus europæus, Acer pseudo-platanus, rubrum and platanoides, Azalea pontica, Daphne pontica, Ribes aureum and speciosum, Berberis Jamesoni, Viburnum vestitum, Weigela rosea, Pittosporum Tobira, Genista elongata, Wistaria sinensis; Caragana frutescens, Ulmus montana, Fraxinus excelsior, and the Double flowered Cherry. On the table were specimens of Horse Chestnut from the open air in full flower.—Professor Balfour *read extracts from a letter from W. Jameson, Esq.*, F.R.S.E., Botanical Gardens, Saharunpore, dated April 4, 1863:—"I have just returned from a tour through the Punjab, in order to examine and report as to the capability of certain districts for Tea cultivation. I have received from the Nielgherries four cases containing Cinchona succirubra, red bark; C. Condaminea, rusty brown bark; C. micrantha, grey bark; C. nitida, greenish grey bark; and C. peruviana, finest grey bark. For these I have already selected sites on the Himalaya, in Western Gurhwal. Tea cultivation in the Kohistan of the north-western provinces and Punjab is now an established fact, and can no longer be considered an experiment, seeing that the out-turn this year will be equal to 500,000 lbs.—and in a few years it will be as many millions of pounds. Already some 20 companies have been formed."——*The following extract from a letter from Mr. W. Bell*, dated Saharunpore, March 29, 1863, was also read:—"I remarked to you some time since that there was a plant of Hibiscus tricuspis here, one or two branches of which bore leaves and flowers widely different from the normal forms. In so far as I can learn, it came from Calcutta about 20 years ago, and it was some years old when the first of these abnormal branches made its appearance. I have been assured by one of the native gardeners here, that these branches were neither grafted on it nor budded. Whether it has inherited these peculiarities from any of its progenitors or not I do not know. It is not probable, as it was raised from seed and not from a cutting. I have some of the seeds taken from our abnormal plant; and, should they grow, it will be interesting to notice if the plants revert to the original normal form. I saw many plants of the same species in Calcutta, but in no case did I see anything at all analogous to that dimorphism which is so plainly observed in the Saharunpore plant. The peculiar branches have borne seeds several times, but as yet no plants have been raised from them. It is possible that the seeds may always have been abortive; but so far as I could judge from outward appearances, they seemed to be good. During the period of flowering the anthers shed abundance of pollen, and the stigmas appeared to be in a perfect condition at the same time. The abnormal leaf is much less divided than the normal one, and not acuminated; it is also downy on its under surface. The petals are considerably larger and quite entire. There is also very conspicuous, in a fresh state, a large oblong gland, full of a viscid secretion, on the back of each of the calycine segments."

Notices of Books.

A Practical Treatise on the Cultivation of the Grape Vine. By William Thomson, Gardener to His Grace the Duke of Buccleuch, K.G., &c., Dalkeith Park, Scotland. (Third Edition). Blackwood and Sons. London, 1863. 8vo, pp. 74.

We recommended this little work to the attention of our readers some time ago, and are glad to find, by the appearance of a third edition, that the favourable opinion we gave of it has been confirmed by that of the public. The author has been long well known as an excellent practical gardener, and is justly considered to be one of the most successful cultivators of the Grape Vine at the present day. In proof of this we need only adduce the beautiful sample of new Grapes he exhibited to the Fruit Committee of the Royal Horticultural Society at South Kensington in January last, for the purpose of determining the relative merits of new, as compared with old Grapes at that season of the year; and of which an interesting report will be found in the present volume of the *Gardeners' Chronicle*, page 75. What our forefathers would have regarded as an impossibility, has been demonstrated by Mr. Thomson to be capable of accomplishment, and it is no longer doubtful that with the appliances which gardeners now possess, new Grapes may be had at Christmas or any other period throughout the year, provided the requisite means are employed to produce them. As only a limited number of young gardeners can hope to acquire a knowledge of their profession in the princely gardens of Dalkeith, and profit by personal instruction from Mr. Thomson, we think his brethren, and such amateurs as take an interest in the culture of the Grape-vine, are much indebted to him for the information and details of his practice that he has given them in his treatise. It is precisely what it professes to be; and, although brief, it is explicit. While all discussion of points that have been made the subject of controversy is wisely avoided, it has the still greater merit of not recommending anything to be done that has not been proved by the author's experience to be correct.

It is remarked by Mr. Thomson that "the cultivation of Grapes has at the present day assumed an importance in this country, which 50 years ago no one could have contemplated; partly owing to the increase of wealth, but chiefly in consequence of the duty being taken off glass, so that a Vinery has now become a necessary adjunct to every villa residence."

With regard to the size and form of Vineries they are as various as the taste and means of the proprietors; but where the object is the production of early Grapes, Mr. Thomson thinks there is no form so suitable as the one known as a "lean-to," with a due southern aspect. On the other hand, where the wish is to have late Grapes, that is to say Grapes ripe in the end of August to hang till January or February, he considers the span-roofed form the best and most economical. Sections of each of these kinds of Vineries are given, as well as of the border in front of the house intended for early forcing, in order to exhibit the mode of heating it beneath by hotwater pipes. This, it will be seen, is similar in principle to the plan which was so successfully carried out some years ago, at Castle Malgwyn, Llechryd, Carmarthen, the residence of A. L. Gower Esq., and of which an account will be found at page 651 of the *Gardeners' Chronicle* for 1847.

The heating of Vineries is best effected by means of the circulation of hot water in pipes, which ought not to be less than 4 inches in diameter. On this subject it is observed, "Mistaken economy is often practised of fixing too limited an extent of radiating surface to

throw off a given amount of heat. My own experience goes to prove that in a Vinery where Grapes are expected to be ripe in March or April there should not be less than one superficial foot of radiating surface, for every 16 cubic feet of air the house contains."

Ventilation is a matter of the utmost importance, especially in very early forcing, and the means by which it may be effected with safety in severe weather are fully explained.

On the drainage and covering of borders judicious advice is given. With reference to the latter we are told, "In the case of early forced Vines, where the border is heated by hot water pipes from beneath, all that is necessary is to lay some dry leaves, dry Fern, or other litter, on the surface of the border to prevent radiation, and to cover it over with such as tarpaulins or straw thatch—any material that will throw off the greater portion of the winter rains. Where Vines are not started till March, any advantage they might derive from a permanent covering would be more than counterbalanced by the loss of the sun's rays on the border during the day. In such a case, a covering of coarse cloth of some sort thrown over the border in the evening and removed in the morning would be beneficial till the warm nights of June set in. Grapes that ripen in autumn and have to be kept till spring are supposed to keep better by having the border the roots of the Vines are in kept dry during the winter. I have, however, this year kept Lady Downe's Grape hanging on the Vine till May without a covering of any sort on the border."

Almost every one who has written upon the cultivation of the Vine, appears to have a different notion respecting the kind of soil in which it attains the greatest perfection. Some have recommended a light soil about 2 feet deep resting upon a bottom of chalk or gravel—others again think that scarcely any soil or situation can be too dry for the Vine, and advise having a layer of lime rubbish and brick bats, a foot deep, underneath the soil of the border. Not a few regard the Vine as a gross feeder, and under this impression consider that the soil cannot be made too rich; but we believe the majority of our fine Grape growers will agree with Mr. Thomson in thinking there is no necessity for making the borders so deep or so rich as some advocate, especially when it is so easy to feed the roots of the Vine with liquid manure at the seasons when it is most required. According to Mr. Thomson the compost in which the Vine thrives best is a fibry calcareous loam, mixed with lime rubbish, or old plaster containing hair, wood ashes, and pieces of thoroughly charred wood, fresh horse droppings, bones broken to about an inch square, and some horn shavings if they can be obtained. The proportions of each of these, and the manner of treating them, are fully described, as well as the method of forming the Vine border, and planting the Vines. For performing the latter operation, the beginning of May is considered to be the most suitable time. Various modes of proceeding are detailed, and among them one of which the following account may prove interesting to some of our readers.

"In the case of planting young Vines struck from eyes the same year, the roots can sometimes be disentangled and laid out sufficiently without reducing the ball entirely; and where this can be done, it is best to let it be so, as by that means less of a check is given to the plant. In 1858 I planted a Vinery on the 15th of May. This house is 110 feet long. I prepared 75 Vines for it in the following manner: I had as many pieces of thin turf cut as there were Vines; the turf was in pieces 2 feet long and 18 inches broad. I laid 5 or 6 pieces of Hazel rods longitudinally under the turf, and across their ends I tied another piece with bits of wire, thus forming a sort of turf trays. On these I laid 2 inches of soil, and after shaking out the Vines and pruning, and in some instances washing their roots, I laid them out on the surface of the soil from one end of the turf, like the extended fingers of the hand, covering up with a layer of 3 inches of sharp soil. I placed them all as close as the trays would admit in the pit of an intermediate house, where they had a night temperature of 55°, and 65° to 70° during the day from sun-heat; tied each to a stake, gave the whole a good watering, and covered all the surface with Moss. This was done in March, and, when they were planted in May, the whole soil was a mass of fine healthy roots. We removed one at a time, and planted them with care. They gave no indications of having received the slightest check. Twenty-four of these were Lady Downe's and West's St. Peters. They were put one to each rafter, to form the permanent Vines for the house. The other 51 were chiefly Hamburghs, to be considered temporary, in as far as they were to bear a crop the next year and then to be removed. One set of the latter was planted, one in the centre of each light, close to the front; the other set along the centre of the house. Their progress was all that could be desired; and the following year, 1859, the house produced over 400 bunches of Grapes without taking one from the permanent Vines. The supernumeraries in the centre row were removed after the first crop, but some of these in the front row still remain. I may remark that out of this house we began cutting Black Hamburgh Grapes in August last; and at this date, April 22, we are still cutting Lady Downe's seedling Grapes perfectly plump and good."

The treatment which Vines ought to receive during the first and second year after planting, as well as in the fruiting year, is clearly pointed out, and the directions that are given on the subject will be found well deserving attention. Concerning thinning the berries, we are told, it is difficult to give precise instructions; "it must, however, be done as early as possible, after the Grapes are set, in the case of the free setters; but in the case of Muscats it is best to wait till it becomes obvious which of the berries are properly set, and taking the lead. Care must be taken not to injure the berries that are left in any way, either by touching them with the hand or scissors." The extent to which thinning should be carried can only be learnt by practice, and a knowledge of the size that the berries of the different sorts of Grapes usually attain.

We were somewhat surprised to find that Mr. Thomson prefers a pair of pruning-scissors to a knife, for the operation of pruning. "Those I use," he says, "have a sort of back action, and cut as clean as a knife. My objection to the knife is, that unless it is used with care the half inch of wood left beyond the bud is often split by its action, and the bud suffers in consequence!" Our own opinion upon this point, however, is that the person who cannot handle his knife more skilfully than is here implied, is undeserving the name of a gardener, and ought to serve another apprenticeship.

Interesting notices are given respecting the grafting and inarching of Vines, the fruiting of them in pots, and the diseases to which they are subject. Concerning the latter, much useful information will be found respecting the cause and prevention of those which are the most destructive, such as "shanking," mildew, rust, and red spider, &c. We have also practical directions for packing Grapes when they have to be sent to a distance, and for keeping Grapes after they are ripe. To show how this may be done successfully, we subjoin the following extract:—"Towards the close of February I cut about 50 bunches of the Lady Downe's, detaching the branch on which the bunch grew as when pruning the Vine. I then sharpened the ends of the branches, and run some four or five of them with a bunch on each into the side of a Mangel Wurzel laid in the shelf of the fruit room, allowing the bunches to hang over the side of the shelf. In this way the Grapes kept perfectly fresh till April."

Various experiments are described, and among them some interesting details are given relative to the mode of proceeding, and the success which followed the raising the roots of Vines; but for these we must refer our readers to the book itself, which is well deserving the study of those who are desirous of acquiring a knowledge of all that is most important to be observed in the forcing and management of the Vine.

We must not close our remarks without noticing the valuable discovery, which Mr. Thomson thinks he has made, of a composition that will effectually prevent the bleeding of Vines on the commencement of forcing, or when pruned late in the season. He says "It is so perfectly successful, that I can undertake, by its use, to prune a house of Vines in March, dress the wounds with it, and begin forcing the next day without the loss of a drop of sap. I hope soon to make such arrangements as will place this composition within the reach of all who may wish to use it." Should this statement be confirmed, Mr. Thomson will become as celebrated for his discovery, as the great Mr. Forsyth was in his day for a composition to heal the canker and wounds on fruit trees; but we have great doubt whether he will obtain such a reward as was granted to that fortunate individual.

The fourth part of *Watt's Dictionary of Chemistry* (Longmans) contains elaborate articles on Bile, Blood, Bleaching, Bread, Caoutchouc, &c.

In *The Annals of Natural History* for this month is a paper upon what vegetable anatomists call laticiferous vessels, or *vasa propria*, by M. Lestiboudois, who is far from endorsing the well-known statements of Schultz.

The Directors of the *Crystal Palace* have re-issued their *Penny Guide*.

The new number of Simmonds's *Technologist* contains a short but very good abstract of a report to the Customs on *the Wines shown at the International Exhibition of* 1862, by Mr. J. B. Keene. This gentleman, although not so successful as he had wished in obtaining samples, nevertheless was able to examine 569 specimens, of which 18 were Australian. Among other things he ascertained that while some Roman wine contained as much as 52·7 per cent. of spirit, a Hungarian growth called Menes Essenz yielded only 7·2, and some poor sparkling red wine of Piedmont only 7·7 per cent. Bavaria sent "Wine of water, produced at twopence a bottle," a light agreeable drink, with 19·6 per cent. of spirit. The report on Australian wines is we think scarcely so cheerful as it would have been had Sir Daniel Cooper or Sir Wm. Macarthur furnished the samples.

Of *Lankester's Half-hours with the Microscope* (Hardwicke), a new edition, very nicely got up, has just appeared.

A second number of the *Alpine Journal* (Longmans) contains nine very interesting papers, among which are a stirring account by Mr. Moore of an unsuccessful *attempt to ascend the Lyskamm* after actually reaching the height of 14,000 feet, about 800 feet below the summit; and a very skilful abstract of Sir Chas. Lyell's last opinion respecting the ancient glaciers of Europe. A third number of this capital periodical will appear in September.

Books Received, to be reported on hereafter.—*Viti; an Account of a Government Mission to the Vitian or Fijian Islands in the years* 1860-61. By B. Seemann, 8vo, Macmillan. —— *Flora Australiensis: a Description of the Plants of the Australian Territory.* By G. Bentham, F.R.S. Vol. 1, 8vo, Reeve.——*The Naturalist on the River Amazons, &c.* By A. W. Bates. 2 Vols. 8vo. Murray.

Garden Memoranda.

The Grove, Roehampton, one of the Seats of Mrs. Lyne Stephens. — Few suburban residences, as would appear from a former notice (see our Vol. for 1856, p. 283), possess more charming pleasure grounds than this, or more productive fruit and kitchen gardens, while the noble park in which they are situated, decorated as it is here and there with stately Oak and other trees, is the admiration of all who see it. Connected with the mansion is a neat conservatory, now a blaze of floral beauty, consisting of Calceolarias, Roses, Pelargoniums (among which are Lady Plymouth, Prince of Orange, and other scented-leaved kinds), Hydrangeas, Cinerarias, and plants of that description, intermixed with others remarkable for the beauty of their leaves; while, associated with climbers on the back wall, the common Peruvian Heliotrope is at present loaded with flowers from bottom to top. Opposite the principal entrance to the mansion is a well kept and beautiful lawn, on which are dotted here and there young specimen Conifers, sheltered in the background by lofty forest trees, through one of the fine vistas in which the Pagoda in Kew Gardens can be distinctly seen. Divided from the frontage just alluded to, by a dwarf Yew hedge, are the flower garden and lawn properly so called; the former a sunken panel, the centre of which consists of white gravel and Box embroidery by Nesfield, surrounded by a frame-work of flowers. On the grassy banks overlooking this charming piece of garden decoration, are standard Roses now beautifully in bloom, Thuja aurea, closely clipped Cypresses, and Irish Yews, the last kept compactly tied in with copper wire. Vases of Scarlet and other Geraniums, and a fountain and basin also ornament this portion of the grounds, which is separated from the lawn by a dwarf wall or rather massive kerb of Caen stone.

From the terrace close to the house a well varied and extensive view is obtained; on the right is a small Rosery; on the left banks of Rhododendrons now in full blossom, while in front is an open lawn, at the farther extremity of which is a lake and island, at present also gay with Rhododendrons.

The Grass on the lawn is kept short by means of horse and hand mowing machines, which work most satisfactorily. The different vases are filled with Punch Geranium edged with Mangles' variegated and Ivy-leaf, and at the windows near the garden entrance to the house are fine boxfulls of plants, consisting of Tom Thumb Geranium, intermixed with Lady Plymouth and Prince of Orange, and edged with blue Lobelia, Miss Nightingale Heliotrope, and the grey-leaved Cerastium tomentosum. The boxes themselves consist of handsomely coloured china panels, set in a strong framework of iron.

In some of the larger beds on the lawn, Gladiolus gandavensis and blue Ageratum are planted in the centre, the sides being made up with Geraniums edged with Cerastium tomentosum; others consist of Verbenas Purple King, Macrantha, Defiance, and a seedling called Mrs. Stephens, Calceolaria aurea floribunda, and blue Lobelia; while in some of the little triangular corners we noticed Geranium Golden Chain. Calceolarias, we may mention, are in some places this year suffering greatly from wireworms, which eat them off close to the ground. These destructive pests, therefore, require to be carefully trapped, or they soon spoil the beauty of even the finest beds, and that just as they are coming into bloom. Petunia Inimitable, pegged down, makes a charming small bed, which when covered with large white-blotched purple blossoms, as double as those of an Oleander, and much larger, has a fine effect.

Half way down a long walk which connects the fruit and kitchen gardens with the ornamental ground is a rustic summer house overrun with Virginian Creeper, and associated with natural beauties of a wild character on a small scale, forming a striking yet agreeable contrast with the high dressed ground just described. Here native Ferns, St. John's Wort, and Periwinkle, struggle for mastery, and from many a rocky crevice and shady nook start the long purple and white spikes of the Foxglove. Berberis Aquifolium also forms suitable underwood for this delightful shady retreat.

In the glass houses in the kitchen garden are very fine crops of Grapes, Peaches, and Nectarines, just ripe. Other Grapes in a less forward state are also all that could possibly be desired; and of Strawberries it is impossible to speak in too high terms; they hang ripe and ripening in the greatest profusion. These, after fruiting, are planted in the open ground, where they again furnish a crop in autumn. Tomatos under glass are just beginning to colour.

On open walls fruit in general is unusually plentiful, especially Plums, which are much too thick. Pears on pyramids also promise well, and on some old espaliers recently root-pruned there is an abundant crop.

Vegetables, especially Cauliflowers, are plentiful and good. Walks are all well drained and freshly gravelled, and in short the whole place is in first-rate condition, indicating on the part of the gardener, Mr. Prior, both tasteful and careful management.

Miscellaneous.

The Millets.—Dr. Forbes Watson, in his treatise "On the Composition and Relative Value of the Food Grains of India," states that the Millets in India occupy a position second to none in the country, and form the staple food of a larger number of the population than perhaps all the other cereals put together. At the head of the list of these stands the Millet called bajra (Penicillaria spicata), and which itself, with the usual adjuncts of a little milk, &c., forms the chief article of diet of a very large number. Compared with Rice, it is considerably more nutritious, containing about 10½ per cent. of gluten, and giving a proportion between the carbonaceous and nitrogenous compounds of from 7 to 7½ per cent. of the former to one of the latter, whereas the kind of Rice most rich in gluten contains only about 8½ per cent. of that substance, and gives the proportion of a little more than 9 of the non-nitrogenous to the nitrogenous—thus involving the addition of a large quantity of some pulse or extra nitrogenous substance to increase the proportion between the flesh-forming and heat-and-fat-yielding constituents. The great Millet, jowarree (Sorghum vulgare) stands next in order of importance, both on account of its intrinsic value as well as the numbers it chiefly supplies with food. Natchenee or ragee (Eleusine Coracana) stands at the bottom of the list of grain plants, as far as nutritive power is concerned, and hence the necessity also for adding pulse, &c., in order to bring its important ingredients into due proportion. This grain in some districts is looked upon entirely as a famine food, and only had recourse to in seasons of drought, when other crops are very defective. In some places during ordinary seasons as much as from 130 to 140 lbs. are procurable for a couple of shillings. A third part of the inhabitants of the globe feed upon the various Millets, especially those of Africa, the greater part of Turkey, Persia, and India. Millet forms the principal sustenance of the people of Bokhara. The grain there yields so abundant a harvest that there is a large quantity for export. The seeds of Millet are excellent as food both for domestic animals and man. The grain mixed with that of Wheat gives an excellent bread, though a little heavy; but generally it is boiled with milk, like Maize flour; it swells considerably in water. Millet fattens poultry in a very short time. The stalks serve for heating ovens or for cooking food in countries where fuel is scarce. The panicles, after the separation of the grain, form excellent brooms. The sale of these brooms in Italy, in Spain, France, and North America, is so remunerative that they enter largely into the value of the profits of culture. The different kinds of Sorghum are usually called joar in India, where they form principal objects of culture, and are of much more importance than would appear in Europe, as many of the inhabitants live as much upon these small or dry grains as upon Rice. The joar is the durra of some Arab tribes, and the zurrut of others. It is extensively cultivated throughout Asia, and appears to be the "tall corn" of the Chinese. It has been introduced into the south of Europe, where it is chiefly employed in feeding cattle and poultry; but is also made into cakes. The flour is white, and a good deal resembles that of the Indian Corn in nature. The species commonly sown in India are S. vulgare and S. bicolor. Kalajoar (S. cernuum) is a distinct species, which forms the principal food of the mountaineers of the Munnipore district. S. saccharatum is also cultivated in many parts during the rainy and cold seasons, on land which is too high for Rice. The stalks and straw of all are much valued as fodder for cattle, being cut into small pieces commonly called kurbee. Of the Panicums or Loose-headed Millets the common or small Millet (P. miliaceum), is in America often known to yield 20 bushels per acre, after one quarter of a bushel sown; and the hay is so relished by cattle and horses in particular, notwithstanding its seeming coarseness, that they prefer it to that of common Timothy Grass. In Germany and other southern countries of Europe, also in America, some parts of Asia, and in most countries lying under the warmer latitudes of the temperate zone, the Millets form a very essential article in the domestic economy of the inhabitants; and when deprived of the husk, are used whole, as rice, or ground into meal, or flour, and made into bread, &c. In England, Millet is chiefly used for feeding small birds. The Setarias or close-seeded Millets yield Italian Millet (S. italica). This Millet, called raggy in Madras, is considered by the natives of India one of the most delicious of cultivated grains. The Brahmins, indeed all classes of natives, particularly esteem it, and use the seeds for cakes, and porridge, &c. It is good for pastry, scarcely inferior, says Ainslie, to Wheat, and when boiled with milk, makes a pleasant light diet for invalids. It is cultivated in many parts of India, requiring a dry light soil. The seed time for the first crop is in June and July; for the second, between September and February. German Millet (S. germanica), is the moha of the Germans, it is cultivated chiefly in Moravia, South Hungary, and Lombardy. The seed is made into bread, eaten instead of Rice, boiled in soup and milk, and used for feeding all domestic animals. *Abridged from the Technologist.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Now is the time to encourage rapid and sturdy growth in young Correas, Epacrises, Pimeleas, Chorozemas, Leschenaultias, Polygalas, Heaths, &c. A constant stopping of gross shoots will be necessary, in order to equalise the distribution of sap and encourage the lower parts of the plant to develope themselves. Let shifting, if necessary, be done early, in order that the pots may be well filled with roots before the approach of winter. A compost, consisting of three parts fibrous peat, in a lumpy state, one part free turfy loam, and a little silver sand, will suit most kinds of half-hardy plants with the exception of Heaths, which succeed best in peat without any admixture except that of a little silver sand. In potting take care to secure thorough drainage. The crocks should be carefully placed to provide various outlets for the water; these, again, should be protected by a smaller size of pounded crocks and charcoal; and finally, the rough of the compost should be selected to place the ball on. This mode of arranging the parts of the compost, as also the drainage, will be found advantageous, if not absolutely necessary, where liquid manure is constantly used. In the case of stove plants and Orchids let every endeavour be made to secure thorough freedom from insects, which about this season are unusually active, and require constant looking after. In mixed greenhouses Azaleas should be induced to make wood without delay. Cinerarias past blooming may be cut down, dipped in tobacco-water to clear off aphides, and turned out into the reserve ground; they will produce abundance of suckers by the end of August, and may then be increased.

FORCING DEPARTMENT.

PINERIES.—In shifting let great attention be paid to having complete drainage; no after-management will compensate for the omission of this. Take care to thin growing stock in due time, giving abundance of room to plants approaching the fruiting period. Pines swelling fruit will now enjoy liberal waterings of clear liquid manure once a week, with fine syringings occasionally, more especially between their stems.

VINERIES.—Follow up former directions. Grapes just colouring should be assisted by a high temperature in fine weather, accompanied, however, with abundance of air; a moderate amount of fire heat should be provided should the weather become wet or cold.

PEACHES.—Give frequent waterings to these in their last swelling; continue to pinch luxuriant shoots, and to use the syringe liberally.

FIGS.—Give abundance of water or liquid manure, if in pots or tubs.

MELONS.—Set shy sorts, and sprinkle frequently to keep off red spider.

MUSHROOM HOUSE.—Let old beds be examined as soon as they begin to go out of bearing. If, upon removing the soil, the dung appears decayed or exhausted, the bed should be immediately renovated; but if, as often happens, the beds are found in good order, solid and full of spawn, they should be watered moderately with tepid water, if they are found to require it, and in a day or two afterwards the surface should be covered with 2 or 3 inches of loamy soil. In hot weather the house should be kept as cool as possible, without throwing it open; in order to assist in effecting this, the paths and walls should be sprinkled frequently with cold water, and the evaporation allowed to escape at the top. Continue to collect horse droppings, and let them be stored up to make new beds, or to renovate old ones.

FLOWER GARDEN AND SHRUBBERIES.

Early bulbs now ripening, if turning yellow, should be taken up, or the greater portion of their leaves trimmed away. Verbenas, Petunias, and such things should be frequently pegged down where it is requisite to cover the surface of the beds speedily. Fine specimens of Fuchsias may be planted out on lawns; large scarlet Pelargoniums should be well staked. Ten-week Stocks may yet be sown for a display in September and October, and a little late Mignonette; also a few of the best annuals for autumn work, but for early spring display no time is so suitable for sowing annuals as September. Ranunculuses are blooming remarkably fine this year. They must, however, be shaded during bright weather, to prolong their season. Should any of the foliage wither, the roots should immediately be taken up, for it is seldom that the collection is ready for removal at one time; and should rain set in, they would certainly start into growth again, to their serious detriment.

HARDY FRUIT AND KITCHEN GARDEN.

Give the wood of Peaches a thorough thinning; don't reserve a shoot more than is wanted for next year. This, and keeping down insects, is the way to obtain success. Disbud Figs, retaining no more wood than is required for next season. Be sure to select for bearing, the shortest-jointed shoots. Ridge Cucumbers, Gourds, and Vegetable Marrows should now be planted out; the former two in the usual way on prepared beds of rich soil, with the temporary protection of handlights; the latter in vacant places where proper stations for vigorous growth can be secured. In preparing the beds for Ridge Cucumbers, some pieces of Mushroom spawn may be laid on a layer of half rotted dung a few inches from the surface; by the time the leaves of the Cucumbers have extended themselves over the bed, the Mushrooms will appear beneath them, and thus be screened from the heat of the summer's sun. Advantage should be taken of the present showery weather to prick out young Celery and seedlings of the Cabbage tribe in nursery beds, and to transplant the strongest plants of early sowings into their proper places.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending June 10, 1863, as observed at the Horticultural Garden

June.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 4	19	29.936	29.927	77	38	57.5	61	59	W.	.00
Friday 5	20	30.011	29.682	74	51	66 5	60	57	S.W.	.90
Satur 6	21	29.427	29.376	68	44	56.0	59	57	S.W.	.22
Sunday 7	22	29.480	29.4 9	65	45	55.0	59	57	S.W.	.16
Mon. 8	23	29.526	29.479	66	42	54.0	59½	57	S.W.	.09
Tues. 9	24	29.747	29.704	66	45	55.5	59½	57	S.	.66
Wed. 10	25	29.549	29.3o9	71	47	59.0	60	58	E.	.04
Average.		29.668	29.555	69.5	44 5	57.0	59.7	57.3		1.47

June 4—Very fine; hot and dry; cold at night.
— 5—Very fine, rain; boisterous with heavy rain at night.
— 6—Rain, fine, soft breeze, fine at night.
— 7—Cloudy and fine; cloudy, showery and rather boisterous.
— 8—Fine, masses of low white clouds, boisterous and showery; fine.
— 9—Very fine, low ducky white clouds and clear intervals; rain.
— 10—Hazy, fine, some showers, drizzling rain at night.
Mean temperature of the week 1½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending June 20, 1863.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 14..	72.3	48 5	60.4	18	0.48 in.	1	3	6	1	6	11	8	1
Mon. 15..	72.9	49.0	60.9	18	0.38	1	5	7	2	4	9	6	6
Tues. 16..	72.7	48.9	60 8	16	0.46	3	3	8	1	7	7	3	3
Wed. 17..	72.8	48 2	60 5	21	0.40	2	4	4	—	7	9	6	5
Thurs. 18..	72.6	49.9	61 2	18	0.30	4	2	4	2	6	6	10	1
Friday 19..	72.9	49.1	60 0	20	0.62	2	3	6	2	3	15	6	3
Satur. 20..	72.0	49.3	60 7	18	0.46	2	4	2	2	6	11	9	1

The highest temperature during the above period occurred on the 19th, 1846—therm. 93 deg.; and the lowest on the 15th, 1850—therm. 30 deg.

Notices to Correspondents.

AZALEAS: *J B E.* The plants are evidently starved, either at the root, through want of proper soil or moisture, or in the head, through a parched ungenial atmosphere.

CONIFERS: *Mordenhead.* We do not concur in the recognition of the groups called Tsuga and Picea, which we do not think distinct as genera from Abies. If they are, in what consists their distinction?

GARDEN STRUCTURES: *Cumbriensis.* You will find a very good

HOLLIES: *C R J.* The Camellia leaved is only one of the numerous beautiful varieties of the Common Holly.
account of the principles of constructing greenhouses and forcing houses in either Thompson's Gardener's Assistant, or the first volume of M'Intosh's Book of the Garden.

INDIAN BOTANY: *An Old Subscriber* asks for information as to the best elementary Book of Botany to afford a master key to a botanical student in the wilds of India, who possesses "Dalzell's Flora of Bombay," "Lindley's School Botany" and "Vegetable Kingdom," but wants a book which explains the characteristic difference between the species and genera of an order. There is, we regret to say, no work affording a master key to a student of Botany residing in any part of India. Wight and Arnott's Prodromus, of which the first volume only is published, contains some of the Peninsular species, and Roxburgh's Flora Indica describes a few hundreds of the commoner plants of Bengal. The Flora Indica of Drs. Hooker and Thomson was intended to contain descriptions of all the plants of British India, but perished for lack of funds with the completion of the first volume. All these works are we believe out of print, and nothing short of Government aid could effect such a Flora of India as our correspondent requires, within a reasonable time, bulk, and price.

INSECTS: *A B.* The beetle was so much crushed that it was impossible to identify it.

LABOUR: *Cumbriensis.* Much depends on circumstances. The size of the "small garden" and pool "kitchen garden" is not stated, nor is there any intimation of the style of keeping required. It is therefore impossible to form a definite opinion on the question put to us.

NAMES OF PLANTS: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. It is requested that not more than four plants may be sent us at any one time.—*Fa. a.* Gromwell, or Lithospermum officinale.—*J M R.* Salvia Horminum.—*A. C.* The specimens are sadly smashed, and have not been numbered. Dendrobium chrysanthum, nobile, and apparently transparens, with Vanda insignis.—*J D.* The variegated variety of Arundo Donax.

ORCHIDS: *Mr. Bullen* complains of our having (p. 462) called his painted Orchid tubs "large, red, and ugly." He says that two newspapers praised his specimen plants, which is just what we did, and they well deserved it. But when he says that is the same thing as praising his tubs we are obliged to differ. No person with any pretensions to taste can consider scarlet tubs in a flower show any thing less than frightful. They may be useful; but nothing more can be said in their praise. Does Mr. Bullen think they would be less useful if painted brown instead of red?—*W G.* Your Orchids are not attacked by a fungus, but by a formidable disease by which many fine collections have been nearly ruined. The cause is not quite clear, but it is probable that the disease arises from the plants not having sufficient rest, and when growing being too much forced without due ventilation. *M. J. B.*

OSIERS: *W J H.* Next week.

ROSES: *W. P.* The disease on your Rose Trees is quite new to us. It is possible that in time a fungus may be developed in the black patchy spots. Your Ixias are affected by Chlorosis, the only remedy for which, as far as we know, is watering with a *weak* solution of sulphate of iron. If however the roots are decayed, which is probably the case, the remedy is not likely to be of service. *M. J. B.*

SALMON LADDERS; *Ringwood.* Next week.

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MR. HENRY OVERMAN has a VACANCY for an AGRICULTURAL PUPIL.
Weasenham, Roughan, Norfolk.

ROYAL AGRICULTURAL COLLEGE CLUB.—The ANNUAL DINNER will take place at the Crown Hotel, Worcester, on TUESDAY, July 21, at 6 o'clock.
Tickets can be had by applying to JOHN COLEMAN, R.A.C., Cirencester. Members can introduce a friend.

The Agricultural Gazette.

SATURDAY, JUNE 13, 1863.

THAT inexorable "equinoctial week" has at length relaxed somewhat of the severity of its sway! The welcome rains of the past 10 days, with which, in spite of it, we have at length been blessed, though too late to save the hay crop of the country, are generally, we hope, in time to save the late-sown Barley and Oats which have latterly been suffering; they are in time for the brairding of the Turnip seed, and for the growth of the young Mangel plant; and they are in time greatly to benefit the Wheat plant and early-sown Barley, which, good as they have generally been looking, yet have latterly shown signs of suffering from the drought. It is in a period like that through which we have passed that the great advantage of deep and thorough tillage is apparent. Many examples can this spring be quoted of the superiority of steam cultivation on the score of its depth and thoroughness, as seen in the power of the Wheat plant to withstand a drought. Every summer has indeed illustrated the truth of which steam culture has hitherto afforded but an occasional example. We have seen, for example, on light and chalky soils, fields of Mangel, the one vigorous and full of growth in June, owing to an abundant store of fertilising matter under the ridges where the young plants grew; the other comparatively scanty and less promising, owing to being planted on the flat over manure spread broadcast; whose produce in the autumn exhibited a contrast quite the other way, owing to the tillage subsequently given to the poorer crop. The strong and healthy plant was thinned, and merely hand-hoed; the poorer plant was also singled out, but kept continually and deeply stirred all through the summer months with horses. "Are those your Mangels?" we asked one day last spring of Mr. ARNOT, of Carshalton, on passing a road-side heap which had been opened for sale, and showed a lot of third-rate roots all fang and fibre, showing what a struggle for food and moisture they had maintained during the season of their growth. "No," was the reply—"but they looked much more promising than mine during the first two months of their growth." And then we heard the history of the rival crops just given, which proves as perfectly as possible how much depends upon deep and thorough tilth, especially in dry weather, in order to the attainment of anything more than the natural produce of a plant.

The power of plants to feed during drought upon the stores of moisture down below—a power increased by that deep and thorough tillage of the surface soil which is at the same time the best safeguard of those stores against the effect of drying sun and wind—is the great lesson which between steam culture and "a dry equinoctial week" this spring has taught us.

WE recall to the recollection of our readers that on Wednesday, the 24th of June, Messrs. STRAFFORD and CARTER JONAS are to dispose by auction of the last of the Babraham herd. This will be the last opportunity of sharing directly in the fruits of that wonderful natural as well as educated power as a breeder which has made the name of the late JONAS WEBB known wherever good agriculture exists.

The Catalogue just issued and to be had of the auctioneers, at 13, Euston Square, resembles its predecessor in its careful enumeration of animals of the six families descended from *Dodona*, *Celia*, *Belinda*, *Daffy Gwynne*, and *The Beauty*, whose history we gave some weeks ago. We learn from it that there are 14 cows and heifers and 2 bulls from *Dodona*, to be offered for sale on Wednesday week; 26 cows and heifers, and 4 bulls from *Celia*; 5 cows and heifers and 2 bull calves from *Belinda*, which was descended from *Sylph*, by SIR WALTER; one heifer and two bulls from *The Beauty*, which, it will be remembered, was the daughter of *Cambridge Rose 6th*, bred at Kirkleavington; and there is one young bull of the *Gwynne* family.

Besides these there are FIRST FRUITS, the gold medal bull of the Battersea Show, and there are also *Erminstade*, a 10 year old cow, bought at the Fawsley sale in 1856, the dam of the celebrated bull SIR CHARLES (16,948), which was winner of the first prize at the meeting of the Essex Agricultural Society in 1861, and SIR CHARLES 2D, her son by the YOUNG DUKE OF CAMBRIDGE (17,709). These are the only animals not of the families to which JONAS WEBB almost confined his attention—and *Erminstade* is the only animal offered for sale not bred on the farm.

—— WE have received the prize list of the Bengal Agricultural Show to be held at Alipore, Calcutta, commencing January 18, 1864. Prizes, varying from 5 to 100 rupees, are offered to the exhibitor of bulls and cows bred in the various provinces of India, and varying from 150 to 50 rupees for bulls and cows of imported breeds. Prizes from 50 to 500 rupees are offered for various classes of horses, and from 10 to 150 rupees for sheep, both native and imported. There are also prizes for wool, for goats, and for poultry. A long list of prizes is also offered for agricultural implements, including "Prime movers," tillage implements, farm-yard implements, farm carriages, dairy implements, irrigating machinery, &c.

Mr. J. H. CRAWFORD, of 15, Theatre Road, Calcutta, acts as Hon. Secretary to the Committee of Management. The exhibition will be held in the grounds adjoining to the Lieutenant-Governor's house at Belvidere, 35 acres in extent. It will commence on the 18th, and end on Saturday, the 23d of January, 1864.

THE DRAUGHT OF TILLAGE IMPLEMENTS,

ASCERTAINED AT SUTTON COURTNEY, NEAR DIDCOT.

By J. THORNHILL HARRISON, M. Inst. C.E., and J. CHALMERS MORTON, May 18—26, 1863.

Mr. PULLEN, of Sutton Courtney, placed 30 or 40 acres at our disposal, chiefly of rather light soil, but very hard over gravel, which had been Wheat in 1862, and had borne a crop of Trefoil, since folded off by sheep. Mr. Fowler sent his recording dynamometers capable of reading up to 10 cwt., and 38 or 40 cwt. respectively; and with them the "tackle,"—12-horse power engine, 4-furrow balance plough, 7-tined balance

cultivator, &c., which he was to show at Exeter. Mr. Smith's windlass and grubber bought in 1858, and worked by an 8-horse power double cylinder engine by Roby, of Lincoln, had been long in use on the farm; and Mr. Howard sent his 3 or 5-tined cultivator from Bedford. The dynamometers were tested and verified immediately previous to their employment. The land was throughout in perfectly good order for work—though very hard below owing to the drought, which had penetrated further than the rains which fell on the 16th, 17th, and 19th May. The following are the readings of the dynamometers:—

I. HORSE DRAWN PLOUGH.

Common Horse Plough.	Speed.	Draught.
	Miles p hour	Cwt.
Empty and drawn across the stubble..	3	½
Ploughing 4 inches deep (10 inches wide)	2½	2½
,, 5 ,, ,,	7½	4½
,, 5½ ,, ,,	1⅝	3½
,, 7 ,, ,,	1½	4½
,, 7 ,, ,,	1½	4⅝
,, 9 ,, 10 ,,	1½	7½

This last was the utmost strain of three very powerful horses.

Draught of Plough deprived of Mould-board.

	Miles per hour	Draught. cwt.
Ploughed 5 + inches deep	3— ..	2½
,, 9 + ,, ,, ...	1½ ..	7½

The depth was aimed at being consecutive inches, 4, 5, 6, 7, &c.; the depths actually ploughed were ascertained by measurement. The effect of speed on the draught is noteworthy—also the large proportion of draught due to the mere cutting parts of the plough.

II. STEAM PLOUGH AND GRUBBER drawn empty across fold and fallow, the fallow being a dry, friable, light soil, grubbed 6 inches deep.

(Over the unmoved dry sheep-fold).

Howard's 3 or 5-tined cultivator ..	1+cwt. draught
Smith's 3 tined ,, ...	½ to ¾ cwt, ,,
Fowler's 7-tined ,, ...	2 cwt. ,,
Fowler's 4-furrow plough	2½ cwt. ,,
(Over the fallow).	
Howard's cultivator	2⅛ cwt. draught
Smith's ,, ...	1 to 1½ cwt. ,,
Fowler's ,, ...	2⅞ cwt. ,,
Fowler's plough	3½ cwt. ,,

III. STEAM CULTIVATORS AT WORK.

	Depth.	Weight of earth moved per Yard.	Draught.
A. *Howard's 3-tined Cultivator*	Inches.	lbs.	cwt.
.. .. ..	4	386	12
.. .. ..	5½	472	18
.. .. ..	6½	478	21

In these cases the drag of the back rope varied from ½ cwt. at starting, to 1½ cwt. at the end of the furrow of 176 yards, and from 1½ cwt. on starting on the return journey to 2 cwt. on reaching the windlass, only about 380 yards of rope being out, for the piece was close on being finished, about 6 or 8 yards in width remaining—close to the side where Fowler's tackle also was at work, finishing its side of the field, the draught being taken as near to one another in the field as possible. The weight of earth moved is given as actually ascertained, the incompatibility between measured depth of work and earth moved is unexplained. Howard's cultivator was the 3-tined tool, moving a yard width at a time, with 6-inch points.

	Depth.	Weight of earth moved per yard.	Draught.
		lbs.	cwt.
B. *Smiths 3-tined Grubber* ..	5	474	12
.. .. ..	6	469	14½
.. .. ..	6½	516	19

Smith's grubber works 30 inches wide at a time—it had 4½ inch points on. The bottom of the work was in furrows, unevenly cut, so that it was difficult to estimate the depth. The weights were ascertained in places indifferently chosen, and their incompatibility with the measured depths is unexplained. The back draught was the same in this case as in Howard's. The speed was an ordinary rate in all three cases, about 2½ or 3 miles an hour.

C. *Fowler's 7-tined Cultivator*, with 6-inch tines, moving 6 feet in width:—

Depth.	Speed.	Back Rope.	Draught Rope.	Weight moved per yard.
Inches.	Miles an hour.	cwt.	cwt.	lbs.
5½	1½	4	31	487
5½	2¾	0	27	422

In the latter case horses drew the drag rope, which was detached from the plough. It took ½ cwt. at first up to 1 cwt. towards the end of the furrow. A third weighing when the speed was slowest, yielded 514 lbs. per yard. The bottom was very uneven when the speed was great, and the earth moved was proportionately less.

Depth.	Speed.	Back Rope.	Draught Rope.	Weight moved per Yard.
Inches.	Miles per Hour.	cwt.	cwt.	lbs.
6	3	5+	36	..
6½	1½	4¾	31	552

On a subsequent day the tool going the same depth, when going very slowly and doing very level work was found to have moved 720 lbs. in a square yard.

D. *Fowler's 4-furrow Plough*, with digging breasts, moving 40 inches in width.

Depth.	Speed.	Back Rope.	Draught Rope.	Weight moved per Yard.
Inches.	Miles per Hour.	cwt.	cwt.	lbs.
5½ to 6	1½	4¾	25	432
7 to 8	1½	6+	32	..
8	3	7½	36	560

Another reading on the return journey when near the engine was as follows:—

?	3¾	4¾	30	..

And with anchor being moved in addition:—

?	3¾	6	31	..
8½	1½	0	24	..

In the above case the rope was detached from the plough.

9	2+	?	32	672
9 to 10	1½—	?	36	..

E. *Fowler's Plough*, with four mould-boards turning 40 inches in width:—

Depth.	Speed.	Back Rope.	Draught Rope.	Weight moved per Yard.
Inches.	Miles per Hour.	cwt.	cwt.	lbs.
6½	2—	?	28	419
7½	2—	?	31½	493

IV. DRAUGHT OF ROPE.—Smith's rope drawn out around a 7 or 8 acre piece—by horse-draught from 0 to 1¼ cwt. to 1st snatchblock 110 yards off; 1 to 2¼ cwt. to 2d snatchblock 180 yards further; 2 to 3 cwt. to 3d snatchblock, 150 yards further.

At end of 88 yards from 2d snatchblock, *i. e.* between 2d and 3d snatchblocks, the draught was 2 cwt. with "break" as usual; 4 cwt. with "break" so hard as to keep the rope off the ground; 2¾ cwt. with no "break" at all. The porters stood at intervals of from 20 to 40 yards.

Again: Smith's cultivator going about 5 inches deep from the 1st to the 2d snatchblock along a furrow about 200 yards long, the rope dragged beginning with 75 yards up to 275 yards from windlass; and the rope pulling it beginning with 470 and down to 270 yards long—

The dynamometer immediately before the grubber stood at 10 cwt., rising to 11 cwt. at end of furrow

The dynamometer placed 200 yards from windlass—*i. e.* 270 yards in advance of grubber, taking in the drag of 270 yards of rope round 2 snatchblocks, began at 14 and ended at 15 cwt. indicating a waste of 4 cwt. between engine and plough.

This was working the apparatus, as Mr. Pullen had been accustomed to work it, with comparatively few rope porters.

Fowler's Drag Rope is about one-fifth or one-sixth of the pull in all cases, as may, indeed, be read in many instances above; but this is not all additional work for the engine to overcome. It represents a tautness all round. The following readings were taken:—The rope was taken around the engine clip drum and anchor, 350 yards apart, and the heavy dynamometer was made a link in this rope. The engine then walked aside and tightened up the rope till it was tightly carried from porter to porter. The lighter dynamometer was then attached to the heavy one, and horses drew the whole affair round by means of it. The heavy dynamometer read 6 cwt, which was the tightness of the rope; the light dynamometer read 1¼ cwt. which was the work the horses did. From this deduct ¼ cwt., the ascertained draught of the heavy dynamometer, and ¾ of cwt. was the work of drawing the rope round when of that tightness—when the tightness is 25 or 30 cwt. as when drawing a heavy cultivator at work—the waste by the rope must be greater than this, but has not yet been ascertained. When the anchor was at work the draught by horses was 2¼ + cwt. representing 1 cwt. as the draught of the anchor.

On a subsequent occasion—when the heavy dynamometer was not in—and the strain all round was not ascertained, the draught without the anchor was ¾ cwt., and with the anchor 1⅜ cwt., exactly corresponding with the above.

When the rope was imperfectly carried the dynamometer read 3 cwt., and with the anchor 3½ + cwt.—when wholly dragged the draught was 5 cwt.; ½ cwt. must be deducted in all these cases for the drag of the heavy dynamometer.

Near Bedford, June 2, an attempt was made with Mr. Howard's 3-tined cultivator, worked with Clayton & Shuttleworth's 10 horse-power double cylinder engine, to read the dynamometer when at various kinds of work. The land was a hard dry clay unmoved since last autumn. The dynamometer was an ordinary elliptic spring, the indication of whose oscillating index was read with difficulty. It was found quite impossible to read the instrument when the tool was working, often with only one tine at work, but throwing out masses of hard clay 8 or 10 inches thick, and weighing from 70 to 100 lbs. apiece—the index varied from 15 to 30 cwt.

Taking it afterwards along the fourth side of the square surrounded by the rope, *i. e.*, next the windlass, where the land had been previously ploughed, the draught approaching the engine increased from 13 to 14 cwt., and going from the engine increased from 10 to 11 cwt.; in the one case the pull rope was 150 yards at starting, and the drag rope 610 yards—in the other case the pull rope was 760 yards at starting, and the drag 0.

The dynamometer behind the tool when approaching the engine read 2½ cwt. at starting when the drag rope was 610 yards—dropped to 2+ cwt. in the middle of the furrow, and rose to 3 or 3+ cwt. towards end of furrow, when the drag rope was its full length, 760 yards. This was when both break and the double snatch-block slack gear apparatus were worked as usual, the result being that the rope was well carried on the porters. The draught of the drag rope when the cultivator was being drawn from the engine commencing with 0 and ending 150 yards long, was barely 1 cwt. without break, and about 3 cwt. when the break was hard on.

Again, from the first snatch-block to windlass, with drag commencing with 610 yards and ending with 760, the drag was 4¾+ cwt. without the slack gear, but with break hard on—it was 2¾ only with the slack gear as usual; but the rope was hardly so well carried

Along the same furrow—another trial (rope perfectly carried by break alone), draught ..	5 cwt.
With slack gear and enough of break as usually managed	3 to 3½ ,,
Without slack gear and without break, the rope dragging the whole way (though carried on porters)	2½ ,,
Again—along the same furrow—another reading with break hard on	4½ ,,
With break and slack gear as usual	3— ,,
With slack gear or break (rope not carried) ..	2 ,,
With slack gear without break (rope carried better but not well)	2½+,,

It is hoped that the circumstances of these trials are sufficiently well described to be understood. The lessons which they teach must be gathered by the reader.

FOWLER'S APPARATUS.

[THE FOLLOWING ARE THE RETURNS OF WORK DONE THIS SPRING UP TO MAY 18—REFERRED TO IN MR. MORTON'S PAPER BEFORE THE LONDON FARMERS' CLUB.]

No.	Soil.	Acres. Ploughed.	Acres. Grubbed. 1st time.	Acres. Grubbed. 2d time.	Depth.	Days at work.	Removals No.	Coals per ton.	Cost of Coals.	Cost of Oil.	Cost of Wages.	Cost of Repairs.	Address.
					Inches.			s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
1	Heavy	..	130	100	8 to 10	38	18	20 0	16 3 0	2 10 8	25 6 8	..	J. Brebner, Prince Consort's Norfolk Farm
2	Strong	70	270	125	5 to 9	65	15	14 8	34 0 0	3 4 0	48 15 0	1 10 0	S. M. Plummer, Newbury
3	Very stiff	43	97¼	131	6 to 12	51	17	18 0	21 12 0	2 15 3	37 8 0	5 4 6	Lord Berners, Keythorpe
4	Moderately stiff ..	127	178	39	5 to 10	48	18	12 6	27 10 0	2 15 0	39 12 0	24 8 0	Grosvenor Hodgkinson, M.P., Newark
5	Clay and gravel ..	196	119	..	7 to 19	51	16	21 0	42 0 0	2 11 0	25 6 5	trifling	J. Frampton, Wallingford
6	Stone brash and various	15	456	257	5 to 9	48	31	20 0	36 0 0	3 12 0	41 0 0	17 10 0	G. Edmonds, East Leach
7	Various	22	161	118	5 to 8	46½	22	15 9	32 10 0	3 5 0	30 0 0	38 0 0	F. Dodd, Henley
8	Heavy and light ..	141	..	57	6 to 9	41	11	18 0	22 10 0	1 17 6	21 3 8	5 0 0	E. Roberts, Jun., Bishop Stortford
9	——	80	80	14	6 to 8	29	8	17 6	17 8 0	1 9 0	18 2 6	1 0 0	T. H. Redman, Swindon
10	Clay	..	106	106	7 to 11	34	14	18 0	20 10 0	1 13 0	25 13 0	4 15 0	W. S. Allen, Rochford
11	Light	96	196	..	6 to 11	35	10	17 0	18 0 0	1 13 0	23 12 6	little	J. Arnot, Carshalton
12	Various	..	650	260	5 to 9	82	30	10 6	0 0 6*	0 0 2*	0 1 6*	15 15 0	T. M. Richardson, Hibaldstone * per acre
13	Various	50	80	10	14 to 18	?	6	10 6	0 7 6	?	0 13 6*	?	W. Sadler, Ferrygate * per acre
14	Various	49	273	206*	5 to 9	59	22	20 0	37 17 0	1 17 6	34 8 6†	?	J. M. Read, Elkston * Dragged. † Removes not reckoned
15	Strong	41	53	23	6 to 12	17	8	25 0	12 0 0	1 17 0	12 17 0	3 15 0	J. Wallace, Tetsworth
16	Various	..	76	115	8	20½	9	18 0	8 2 0	1 0 6	13 5 11	4 16 9	E. Marjoribanks, Henley
17	Stiff marl	..	315	220*	5 to 9	70	17	16 0	35 0 0	3 8 0	36 15 0	15 10 0	J. Coleman, Cirencester * Dragged two times
18	Medium . ..	21	78½	58½	6 to 12	35½	17	7 6	5 15 6	2 7 10½	25 14 7½*	2 13 9	W. Lawson, Brayton * Exclusive of water
19	Chalk	20	132	..	5 to 6	25	7	14 0	7 10 0	1 5 0	16 15 0*	..	H. & W. Hole, Heytesbury * Including Water.
20	Clay, &c.	..	30	70	6 to 8	13	4	25 0	6 15 0	0 15 0	7 16 0	1 10 0	Rev. A. Huxtable, Blandford
21	——	50	154	52	6 to 7	40	14	12 6	20 0 0	1 13 4	30 0 0	5 0 0	C. Lyall, Old Montrose, N.B.
22	Stiff clay	50	40	86	7 to 16	38	12	1 6	16 2 0	2 15 0	20 7 8	?	J. W. Watts, Orlingbury
23	Light	24	..	..	6 to 8	5	1	16 0	2 0 0	0 2 6	1 16 8	0 0 6	J. Elliot, Tarbert Mains

SMITH'S APPARATUS.

[THE FOLLOWING ARE THE RETURNS OF WORK DONE THIS SPRING UP TO MAY 18—REFERRED TO IN MR. MORTON'S PAPER BEFORE THE LONDON FARMERS' CLUB.]

No.	Soils.	Acres grubbed. 1st time.	Acres grubbed. 2d time.	Depth of work.	Days at work.	No. of Removals.	Price of Coals per ton	Cost of Coals.	Cost of Oil.	Cost of Wages.	Cost of Repairs.	Address.
				Inches.			£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
1	Various	94	80	8 to 9	32	11	1 0 0	8 15 0	1 15 9	25 1 4	3 8 6	A. Toward, Osborne, Isle of Wight
2	Mixed clay	83½*	..	4	13	7	0 17 6	4 16 3	0 8 6	13 6 6	0 16 7	W. Smith, Woolston * Grubbed and drilled
3	Loam and clay ..	150	180	8	33	7	0 15 0	12 17 6	1 10 0	35 5 3	2 0 0	F. Sowerby, Aylesby
4	Various	70	70	7 to 11	20	5	0 14 0	6 10 0	1 12 6	15 3 4	..	S. Druce, Eynsham
5	Light	160	160	9	64	..	0 5 0	6 8 0	1 12 0	51 4 0	1 10 0	C. Wotton, Teddesley Park
6	Strong on chalk ..	17	34	4 to 7	6½	0	0 16 0	1 16 0	0 4 0	4 0 9	0 1 6	J. B. Dring, Spilsby
7	Clay	59	59	9	32	8	1 0 0	16 0 0	0 10 0	19 4 0	1 4 0	J. S. Crawley, Luton
8	Heavy	114	66	5 to 8	36	7	0 18 0	16 4 0	2 0 0	27 18 0	3 18 0	T. Inskipp, St. Ives
9	Various	145	90*	8 to 9	40	13	1 0 0	20 0 0	2 10 0	29 10 0	1 10 0	A. Futcher, Salisbury
		* Also 91 acres of ploughing 5 inches deep with Fowler's plough.										
10	Rather strong ..	55	55	5	13½	4	1 7 0	6 0 0	0 15 0	12 2 6*	Little	——, Chichester * Including horse labour
11	Clay	64	64	6 to 9	17	8	0 17 0	10 0 0	?	1s. 6d. * per acre	0 10 0	E. Goodman, Marlborough * Besides driver and water
12	Clay and brash	50 acres	15 ploughed	6 to 10	40	8	0 15 0	10 10 0	1 1 3	30 10 0	3 0 0	W. Taylor, Bridgwater
13	Light	130	130	8	31	4	0 5 10	4 10 0	1 14 3	18 12 0	?	J. Cattle, Chester
14	Very strong	60	40	7	20	5	0 15 0	6 0 0	1 0 0	15 0 0	Heavy	G. Hawkes, Baldock
15	Easy	62	62	4 to 5	21	6	1 0 0	6 6 0	1 19 6	14 3 3 6 2 0*	5 0 0	——, Salisbury * Water cart
16	Generally light ..	47	47	8 to 9	21½	4	0 15 0	5 1 0	0 12 9	14 0 6	0 9 0	J. Bennett, Daventry
17	Various	121	72	5 to 8	20	10	0 5 0	2 10 6	0 18 0	11 8 0	1 7 0	J. Toone, Lutterworth
18	Chalky clay	20	20	8	6	1	1 2 6	2 14 0	0 6 0	5 0 0	?	J. Wallis, Kimbolton
19	Heavy	62	71	8 to 10	22	5	1 0 0	11 0 0	1 2 0	26 8 0	trifling	R. Moore, Bucks
20	Deep wold	78	10	15	9	3	0 17 0	2 14 0	0 3 0	7 4 0	0	J. W. Day, Alcester
21	Light	171	28	..	20	9	1 3 6	18 0 0	3 10 0	1s. 6d. * per acre.	trifling	T. T. Ruddle, Whitsbury * not including water.
22	Loam	100	..	6 to 8	12	3	1 1 0	?	?	10 4 0	0	S. Ruddle, Wimborne
23	Clay	101	77	6	21	6	0 16 0	8 0 0	1 0 0	13 6 6	0	J. Topham, Gt. Staughton
24	Strong	..	42	5 to 6	6½	2	0 14 6	2 1 0	0 7 0	4 10 0	0	G. Martin, Boston
25	—	24	24	5	8	3	0 15 0	3 0 0	0 4 0	4 5 4	..	J. W. Tubb, Banbury
26	Loam	65	65	6 to 7	15	6	0 16 0	"50s. a-day covers everything."				M. Hanley, Boston
27	Various	72	60	6 to 10	18	5	0 14 0	5 12 0	1 16 0	11 14 0	2 15 0	J. Long, Henlow
28	Various	48	48	6 to 9	13	5	0 15 0	4 17 6	0 7 7	13* 2 2	0 8 0	J. Whiting, Stoke Goldington * Including water
29	Heavy	12	12	6	4	0	0 18 0	1 4 0	0 6 0	3 8 0	..	T. W. Dring, Long Sutton
30	Various .. .	90	..	6 to 9	25	7	1 0 0	12 10 0	1 5 0	21 17 6	3 15 9	W. Simmonds, Guildford
31	Light	36	36	6	14	3	0 15 0	3 3 0	0 5 0	11 5 0	..	G. Pollington, Dytchley
32	Heavy	65	..	9 to 10	15½	6	0 11 0	3 3 0	0 15 0	10 0 0	1 0 0	P. Stevenson, Thirsk
33	Medium	62	50	4	21¼	5	0 17 6	8 15 0	1 2 0	18 14 0	Light	———, Burford

HOWARD'S APPARATUS.

[THE FOLLOWING ARE THE RETURNS OF WORK DONE THIS SPRING UP TO MAY 18—REFERRED TO IN MR. MORTON'S PAPER BEFORE THE LONDON FARMERS' CLUB.]

No.	Soils.	Acres grubbed 1st time.	Acres grubbed 2d time.	Depth of work.	Days at work.	No of Removals	Price of Coals per ton.	Cost of Coals.	Cost of Oil.	Cost of Wages.	Cost of Repairs.	Address.
				Inches.			£ s. d	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
1	Stiff clay, stoneless	110	160	7 to 12	78	8	0 15 0	23 12 6	2 10 6	81 14 4	10 0 0	G. Taylor, Mentmore
		70 acres ploughed and 110 acres dragged										
2	Loam	72	72	9 to 12	20	4	1 1 8	8 4 8	1 0 0	20 10 0*	0 10 0	J. Bray, Havering * Including horse labour
3	Clay	157	107	5 to 12	42	6	1 0 0	25 0 0	1 15 0	30 0 0	little	W. Pike, Stevington
4	Light	66	23	6 to 9	20	6	1 0 0	10 0 0*	1 0 0	16 0 0	?	Blyth & Squier, Mucking * Estimated
5	Loam	51	16	4 to 8	7½*	3	1 0 0	?	?	9 18 1	?	J. Henderson, Sandwich * Long days
6	Various .. .	..	106	8	15*	9*	0 18 0	7 0 0*	1 0 0*	14 10 0	little	W. Bulstrode, Maidenhead * Estimated
7	Clay and loam .	..	76	10 to 14	9½	2*	1 5 0	3 15 0	0 9 0	6 10 0	?	W. C. Morland, Lamberhurst * Occupying one day additional
8	Gravel	..	60	8 to 10	9	3	0 17 0	3 6 6	0 9 0	5 3 6*	..	C. Street, Cople * 1½d. per acre extra
9	Stiff clay . ..	50	50	6	13	3	0 16 0	5 4 0	0 15 4	12 10 0*	?	R. Barton, St. Ives * 2s. 6d. per acre piece-work
10	Stiff clay	30	54	7 to 8	?	3	0 16 0	?	?	10 10 0	1 15 0	E. Turney, Souldrop
11	Strong clay	43	23	5 to 7	14	5	1 0 0	6 0 0	0 14 0	16 4 0*	0 9 0	W. W. Gascoigne, Sittingbourne * Hired engine and engineer
12	Stiff	16*	350*	6*	60*	16	0 11 0	17 0 0*	2 0 0*	37 15 0*	20 0 0*	C. Sargeant, Northampton * About
13	Strong loam ..	60	120	6 to 12	30	6	0 8 4	7 10 0	5 0 0	24 0 0	5 0 0	T. Nock, Shiffnal
14	Various	12	77	5 to 8	?	4	?	?	?	15s. 6d. a da.	?	W. Cousens, Nore
15	Loam and clay ..	58	40	6 to 8	19	5	0 10 0	4 15 0	0 19 0	18 1 0	10 0 0	R Pulle , Wolverhampton
16	Marl and clay ..	21	21	7 to 11	8½	2	1 0 0	4 0 0	0 13 0	6 1 10	0 7 6	J. Ford, Warwick
17	Strong clay	35	..	6½	6	1	0 15 6	2 6 6	0 5 0	4 2 6	2 0 0	J. T. Coleman, Denton Lodge, Bedfordshire
		36	..	6½	6½	1	..	2 10 0	0 5 0	4 7 9		
		..	35	8	6	1	..	2 4 0	0 5 6	4 2 6		
		..	36	8	7	1	..	2 8 0	0 5 6	4 15 0		

Mr. A. S. Rutton, of Chatteris, has deep ploughed 113 acres this winter, from 15 to 18 inches deep, with heavy travelling plough supplied to Mr. Howard; and grubbed 69 acres from 6 to 8 inches deep. Wages 13s. a-day; no repairs. The work is successful quite beyond expectation.

Mr. Impey, of Broomfield, near Chelmsford, reports that he has done 18 acres twice in about 3½ days, 8 to 10 inches deep He has also used Howard's steam harrows over 40 acres with excellent effect.

PHOSPHATIC MANURES FOR ROOT CROPS.

[The following is the summary at the close of Dr. Voelcker's important article on the subject in the late number of the Journal of the Royal Agricultural Society.]

1. A CROP of Turnips, weighing per acre 20 tons of roots and 6 tons of tops, removes from the soil 177½ lbs. of potash, 104½ lbs. of lime, and 40 lbs. of phosphoric acid.

2. Phosphatic manures appear to hasten on early maturity; ammoniacal salts to retard it.

3. Phosphatic manures, especially in cold or wet seasons, produce more nutritious roots than ammoniacal manures, and a finer sample of Wheat or Barley than the latter.

4. Late-sown Barley, or Barley grown on land out of condition, is much improved by superphosphate, or, better still, by a mixture of equal parts of superphosphate and guano, applied at the rate of 3 to 4 cwt. per acre.

5. In a warm climate or a good season, ammoniacal salts may be used with greater advantage than in a colder country or in an ungenial season.

6. The ash analyses of plants do not afford a sufficiently trustworthy guide to the practical farmer in selecting the kind of manure which is best applied to each crop.

7. The ash analyses of plants, however, teach the important practical lesson that certain mineral matters in certain proportions are essential to the luxuriant growth of all cultivated plants, and that our crops must remain scanty or become diseased if the soil on which they are grown is deficient in one or more of the essential ash constituents of plants.

8. Superphosphate of lime, applied to root crops, has a different practical effect on different soils.

9. Few soils contain an amount of phosphoric acid which renders the direct application of phosphatic manures superfluous.

10. On good calcareous clay soils and land that is moderately stiff and in good heart, heavy crops of Swedes and Turnips may be grown with no other manure than superphosphate rich in soluble phosphate.

11. 3 to 4 cwt. of mineral superphosphate is a sufficient dressing per acre on such land.

12. The addition of ammoniacal salts to phosphates in many instances produces no beneficial effect on Turnips grown on calcareous clay soils.

13. Phosphatic manures are inefficacious on some soils, which, like those in the greensand formation, contain a much larger proportion of phosphoric acid than is common.

14. Soluble phosphate of lime is the most valuable constituent of commercial superphosphates.

15. All arable soils have the power of absorbing or rendering soluble phosphate insoluble.

16. Chalky and marly soils possess this property in a higher degree than clay or sandy soils.

17. The absorption of soluble phosphate by soils is never instantaneous, but requires some time.

18. In practice, the large extent of absorbing surface and heavy weight of the soil through which a solution of soluble phosphate has to pass before it can escape secure its perfect absorption.

19. Plants do not take up the acid biphosphate or soluble phosphate as such.

20. Since the soluble phosphate in superphosphate of lime is rendered insoluble in all soils, and the first as well as the aftergrowth of Turnips is alike promoted by insoluble phosphate, it is erroneous to consider that soluble phosphate feeds the Turnip crop in its first stages of existence, and insoluble phosphate sustains its after growth.

21. The doctrine that, of the phosphates in a Turnip manure, one-half should be soluble and the other insoluble, is based on erroneous speculations.

22. Of two Turnip manures containing an equal amount of phosphates, that which contains the largest amount of soluble phosphate is more valuable than the other containing the largest amount of insoluble phosphates, both manures being alike in other respects.

23. In preparing superphosphate from mineral phosphates, the latter should be rendered soluble as completely as possible.

24. Superphosphate is not deteriorated by keeping for any length of time.

25. When incorporated with the soil, the fertilising properties of superphosphate are retained for any reasonable length of time, and its effects frequently seen in the Barley crop on land on which Turnips were grown in the preceding year with superphosphate.

26. The secret of the energetic action of superphosphate depends on the production of most minutely subdivided or precipitated insoluble phosphates within the soil itself, and not on the supposed, but erroneous, direct assimilation of soluble phosphate by plants.

27. Precipitated insoluble phosphate of lime is vastly more bulky and more soluble in pure water than the finest powder obtained by mechanical means.

28. The more rapidly and completely the soluble phosphate in commercial superphosphates and Turnip manures is precipitated and rendered insoluble in the soil, the more energetic will be its effect upon the Turnip crop. This advantage is best secured by applying the manure with the liquid drill.

29. The application of superphosphate by the liquid manure drill is the most economical, efficient, and rational mode of incorporating Turnip manure with the land.

30. Purely mineral superphosphats fail to produce good Turnip crops on light sandy soils.

31. Superphosphate cannot be considered as the cause of the diseases to which roots are liable.

32. Roots grown on poor sandy soils exclusively with superphosphate nevertheless are liable to become diseased or to fail altogether.

33. The deficiency of lime, organic matters, and especially potash in sandy soils, accounts for the difficulty of growing good roots on such land with purely phosphatic manures.

34. On light soils Turnips should always be grown with at least some farm-yard manure.

35. Bone-dust, partially dissolved by acid, is a better manure for Turnips on light land than a purely mineral superphosphate.

36. On light land a mixture of equal parts of guano and superphosphate is better Tuurnip manure than either manure applied alone.

37. Liquid manure is very beneficially applied to root crops on light land.

38. An excellent plan of applying bone-dust to the Turnip crop on light land is to ferment it with dung.

39. This is best done by putting alternate layers of dung and bone-dust in a heap three or four months before Turnip sowing begins, and to turn the heap about a month before it is distributed on the field.

Home Correspondence.

Steam Culture: Coleman's Apparatus.—I have great pleasure in giving you an account of work performed by steam power on my farm this spring, more especially as I am using a 10-horse power set of tackle recently brought out by Messrs. Coleman & Sons, Chelmsford, Essex, with which I have executed some of the best and cheapest work I have ever seen done. The mode of working is so extremely simple, the rapidity with which it can be got to work, as well as the amount of tackle required so small, that it cannot fail on this score to give satisfaction. I will undertake to say, with steam up at the time I give orders for my men to go ploughing by horses half a mile distant, and at the same time request my steam-cultivating men to take the engine and tackle into the same field, with the assistance of a trace horse for a short time, that they will be at work as soon as the horses and ploughs; this is a point not to be overrated, as I consider one great drawback to steam culture is the time and expense of removal and getting to work, requiring the assistance of several horses. The cultivator smashes up the ground 4 feet wide at one operation, and fairly and honestly moves the whole of the ground to the depth it is set. I find the harder the ground the better it holds to it. I can do from 7 to 8 acres per day, 9 to 10 inches in strong clay land, with 70 lbs. of steam, using 9 cwt. of coal, and 1*s.* 1*d.* for oil. The wages and expenses per day are as follows:—

	s.	*d.*
Coals, 9 cwt., at 16*s.* 8*d.* per ton	7	6
Oil, 5*s.* 6*d.* per gallon	1	1
Engine driver	3	0
Windlass man	2	3
Strong lad at anchor	1	8
Two porter boys at 8*d.* each	1	4
Two men on cultivators at 2*s.* 3*d.* each	4	6
Small pony, lad, and water cart	3	0
	£1	4

3*s.* 5¾*d.* per acre, assuming 7 acres done in a day. I also clod crush by steam on Coleman's principle, where the land is cloddy, and generally go twice in a place, and can easily do 24 acres per day once over with 6 cwt. of coal and 40 lbs. of steam, with the same amount for labour. I will now give you the actual amount of work performed this spring:—10 acres Turnip ground cultivated 8 inches deep for Barley, and twice clod crushed; 20 acres Bean field for fallow, 1st time over 5 inches deep; 2d time 9 inches, twice clod crushed, made a beautiful job; 20 acres of Clover lea, very foul, cultivated 9 to 10 inches deep at one operation, took five days. I must now give you some particulars of the difficulties I had to contend with in doing this Clover lea, and how easily they were surmounted. The field was covered with rag stones cropping out to within 4 or 5 inches of the surface, and many when broken in pieces required the assistance of two men to lift in a cart. Off this field I carted 42 loads of rag stone, either pulled up or grated over by the cultivator. We had 72 breakages of coulters which cost 4*d.* each repairing, also 11 shares broken. Knowing what I had to expect in this field, I took the precaution to have six spare coulters, so that we should not be long delayed in case of breakage. We cultivated every portion of this field 9 to 10 inches deep at one operation, which I dare say had not been moved an average of 4 to 5 inches deep this last 100 years, and I expect that such obstacles will rarely be met with to this extent in steam cultivation. I think you will agree with me that I have given Coleman & Son's tackle and engine a most severe trial, and proved it thoroughly up to its work in every respect. We ran a little more than half speed, on account of the difficulties we had to face. The consumption of coal did not amount to 8 cwt. per day, owing to constant stoppages. I will now give you the total cost of cultivating this lea, which I consider will give me no further trouble, having gone so deep and got out all the rag stone.

	£	*s.*	*d.*
Wages for men, 5 days	3	17	11
Oil	0	4	3
Coals, 2 tons (rather less)	1	13	4
72 broken or bent coulters repaired at 4*d.* each	1	4	0
	£6	19	6

which is a trifle under 7*s.* per acre, without calculating wear of rope and engine. Now I feel very confident that horse-power could not have performed the same quality of work the same depth for five times the cost. The price of eleven broken shares is not included, as I do not know the cost, having ordered them since I bought the engine and tackle of Coleman & Son; the expense must be trifling. I am not able to speak as to the wear and tear of engine, but think it only fair to charge it at the same price as other manufacturers of steam tackle do. This system requires less rope than any other I am acquainted with, and owing to this cause, the expense of renewal will not be so great, although undoubtedly the direct action causes a great strain and abrasion of the rope. I do not think the expense of renewal will exceed 7*d.* to 8*d.* per acre. I have now given you a full and faithful account of what I have performed this season with Coleman & Son's steam tackle, and you are at full liberty to make what use of this letter you may please; and I feel confident those farmers who appreciate their horse scarifier, will know how to appreciate their truly valuable steam cultivator. *F. Champney, Gatwick, Crawley.*

Ploughing versus Grubbing.—Doctors sometimes differ, and doctors after differing sometimes agree. So it is upon the question of steam cultivation. In the discussion on Mr. Ruck's paper, Mr. Bradshaw, after speaking in the highest terms of the Woolston smashing system, says—

"As far as regarded smashing up he would not advise any man to smash up his land with steam tines in the autumn, unless he did it early enough to perfectly eradicate and destroy the weeds." Mr. Ruck "would never recommend smashing up in any case unless they planted in the autumn."

Now let us see what the oldest steam-power farmer in the world has got to say. My practice has been to smash up every bit of land I can in the autumn. Last autumn I smashed all my Wheat and Barley stubbles for Beans and roots. In March last you saw in one field that had been thus treated the Beans already planted and you saw the planting going on in another. Here is what you say about them in your Paper of March 14:—

"The land, a Wheat stubble of 1862, had been manured and grubbed by steam power in the autumn, and now the combined cultivator and drill crossed the work of the previous season. It is impossible for land to be in better condition for planting, or to have been planted in better form. On the stiffer land, where the implement was employed in planting Beans, the tool was crossing the autumn cultivation of last year's Barley stubble." Now let us see what Mr. Lawrence says about this last piece of work:—"I was very much surprised and pleased at seeing Beans so satisfactorily sown on land roughly turned up in the autumn without any intermediate preparation. . . . Your land was in perfect condition."

My land for roots smashed up last autumn, and afterwards ridged with horses, has been rolled once with a one-horse roll and harrowed twice with a one-horse harrow, and drilled with Swedes. The total cost for the seed bed and drilling is 13*s.* 3*d.* per acre. The Swedes are up ready for horse hoeing, dry as the weather has been; the land is moist and dry; as it may continue the land will remain moist until after the Swedes have grown the horse hoe out of them. Be pleased to place this evidence before your readers, leaving them to choose their doctor as they please. In the steam-plough field at Warwick, my Lord Berners asked me to adopt Mr. Fowler's mode of traction. I at once gave him my opinion that it was good for nothing, and that I could not; now see what his lordship says: "When they first came in I felt that Fowler's system was the best, and that it ought to be engrafted upon Smith's, as it was then, and which is now improved by Howard's, than which nothing can be better." I thank his lordship for his frank admission. The Howards are welcome to their improvements. *William Smith, Woolston, Bletchley Station, Bucks, May 26.*

Howard's Tackle: Steam Cultivation at Milton, near Sittingbourne.—The size of the farm, arable, 270 acres; and pasture, 370 acres. The character of soil from loam with "brickearth" subsoil to clay with "London clay" subsoil, all pipe drained 3 feet deep. The rotation of cropping adopted, 7-course. The number of horses formerly employed, 17: employed now, 12 the winter half year, 10 the summer half. Apparatus bought August 1861, costing 200*l.* The length of rope originally bought, 1400 yards; none bought since; no alterations since purchase; cost of repairs since purchase not exceeding 20*s.* This 20*s.* does not include new points for cultivator, which would be considerable on stony land, but not much on clay. A 10-horse engine is hired at 20*s.* per diem. Wages: 4 men, 3 boys—1st man, 2*s.* 9*d.*; 2d, 2*s.* 8*d.*; 3d and 4th, 2*s.* 6*d.* each. Cost of water-cart a day 4*s.*, water being very conveniently situated. Daily consumption of coal from 8 cwt. to 10 cwt., depending on depth and nature of the soil. Cost of coal per ton on the ground, 20*s.* Acres grubbed each year since first purchase: in 1861, 102; in 1862, 191; in 1863, 69; in all, 362 acres. Acres done in 1862: grubbing in spring, 87; in autumn, 104; costing in wages, 12*s.* 6*d.* a day; in fuel, 8 cwt. a day; oil, 1*s.* a day; repairs, 5*s*; number of days worked, 38¾. 50 acres of Bean ground grubbed 6 inches deep in September, 1861, produced an excellent crop of Wheat, both corn and straw, and very clean. 50 acres of Wheat grubbed in after Beans and Peas, Oct. 1862, now look very well, in spite of the wet autumn and no furrows, where before draining there was one every 8 feet, and a crop only in dry seasons. With 30 per cent. reduced horses and the steam cultivator, I believe my clay farm will be far better cultivated than formerly. I cannot see the necessity for ploughing the fallows; then after harvest it matters little how clay land is moved, so that the operation be deep and done during hot weather, and my experience of 100 acres of Wheat during two unfavourable seasons grubbed in after Beans and Peas, will lead me to continue the system; the horses will easily get through all the other work during the year. The 200*l.* apparatus has not cost me more than 20*s.* for repairs as yet. I take all the care I can of the rope, which doubtless is wearing, but if I can get 900 acres worked by it I shall be satisfied. The other parts of the apparatus are not much the worse for the work done. *William Whitehead Gascoyne, May 16.*

Value of Steam Cultivation in Autumn.—I only cultivated one field this spring, as my land is all under crop, so that in fact I have no account to send, further than that one great advantage from steam cultivation is that with the aid thereof I am enabled to get my land sufficiently cultivated in the autumn to enable me to keep it all under crop in an ordinary season. I have found great advantage this spring from the use of Howard's steam harrow. *W. Bott, Broomfield, Chelmsford.*——You will note I have done but little this spring. I get a good blow after harvest, which sets me at liberty for the whole year. I keep about the same number of horses. With steam I am master of any difficulty which may arise. *J. B. Dring, Claxby, Spilsby.*——Most of my land was cultivated in autumn, and sown with corn or Tares, or balked up ready for Wurzel. The Turnip land I ploughed this spring with horses, so that we have not required the cultivator this spring. In addition to the statement in the schedule we harrowed with Howard's steam harrow this spring about 40 acres for Barley and Peas, when the land had capped down very hard, and they made excellent work. *W. Impey, Broomfield Hall, near Chelmsford.*

Further Report of Steam Culture (see No. 13, Howard's Table).—As I think my answers require some explanation, I must first tell you I took to a farm last Lady Day of 270 acres (as a bytake) nearly all arable, a strong heavy loam, very poor in condition, and very foul, with all kind of filth, with 75 acres of fallow upon it, ploughed 4 or 5 inches deep. I commence by smashing it up with Howard's 5 tined cultivator 6 inches deep; it is then crossed with the cultivator a little deeper without moving the engine; it is then worked with horses, and made as clean as we can make it. I have done 60 acres, so I am now going over the same fields with only 3 times twice over (that is 4 times) 12 or 14 inches deep the last time, when the strain is so great we are compelled to use two anchors fastened together with a chain at each end of the field to prevent their drawing. *Thos. Nock, Sutton Maddock, Shiffnal.*——My farm is hilly, and rather long, so that removals are perhaps attended with more trouble and labour than a level one. Two fields adjoined each other and could have been worked without a removal, except from the position of the land. This I call one set down, and one removal. This worked off 26 acres twice over or crossed. The second set down (a field entirely distinct) worked off 7 acres which were crossed and were sown with Oats. The third set down worked off 22 acres, which were crossed, in two fields. I always charge 10*s.* a day for coal and oil, which is about an average cost of the quantities used. I am often asked "How many horses have you taken off your farm?"—my answer has been that at present I have not reduced a horse, partly because I have been unusually unfortunate in having sickness in my stables, and secondly because I consider on a farm like mine that the steam apparatus is of most use as an adjunct—to be used at busy seasons, or in difficult times, when each farmer would readily hire two or three teams of horses to get his fallows in order during fine weather. This spring I have made better fallows with the steam cultivator

than any horses could possibly have done, and as I believe at half cost. I hope I have given you a correct statement of expenses, except that I charge 7*s.* per day for the wear and tear or use of the implements. This adds about 1*s.* per acre; for though I have done 8 acres a day now, I cannot consider but that 7 acres is a fair average day's work, as I have it done. The following is my expenses:—

	£	s.	d.
13½ days' work, at a cost for coal and oil ..	£6	15*s.*	0*d.*
Labour	10	2	6
Horse for water	2	0	0
	£18	17	6
Wear and tear, 7*s.* per day	4	14	6
Removals	1	0	0
	£24	12	0

Fifty-five acres completely fallowed or worked at 9*s.* per acre. *W. Leyland Woods.*——(See No. 7, Mr. Howard's table). In addition to the work reported in schedule, 18 acres have been harrowed four times with the heavy drag-harrow hung on behind the cultivator, which was then used with the tines barely touching the ground, and then drilled with Hensman's drill, occupying about 6 days at an average cost of from 26*s.* to 27*s.* per day. The implements were unhooked at the end of each bout, turned by hand and then hooked on again to the return rope. The delay of this was trifling. *W. C. Morland.*——(See No. 30 in the table of Mr. Smith's apparatus). I should state that this work has been rough and hard, being in the heaviest fields. This will account for the small quantity of acres per day; consequently above average expenses. The wear of rope does not appear extensive. I have however ordered and obtained 20 additional rope porters to carry the rope off the soil, which abounds with flints. N.B. I consider this better than any system of tight rope apparatus, thus easing the strain on the slack rope and adding to the power of the engine, which never exceeds 50 lbs. of steam, and more frequently 45 lbs. pressure. *W. Simmonds, Wanborough, near Guildford, Surrey.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

At the Weekly Meeting of the Council and members held on Wednesday, the 10th inst., Lord Berners in the chair, Professor Coleman read a lecture "On the Breeding and Feeding of Sheep, with a view to increasing the Sheep Stock per acre." Having pointed out the importance of the subject as only second to that which had recently occupied the attention of the Society, viz., Steam Cultivation, and shown that the native production of sheep had not kept pace with the increase of population, whilst according to the Board of Trade returns the foreign importations had steadily fallen off during the past three years, he observed that the British Isles were naturally adapted to the growth of meat; and the question was, how we could best make use of our advantages and adapt our system to the conditions by which we were surrounded. The point he would suggest for consideration was a more economical system of feeding sheep, especially breeding sheep, so as to increase the return, and at the same time leave the land in better condition for corn; and this, he believed, would be effected by reducing the quantity of roots and using more dry food in the form of straw, combining with this a small quantity of artificial food, which would act as a stimulus to digestion. By adopting that system the land would be left in a richer state for corn, because the sheep would take a much longer time to consume a certain weight of roots, and be healthier than when eating as many Turnips as they could consume with little or no dry food. Turnips during winter were very little above the freezing point, and it followed that much heat would be absorbed and consequently food wasted in raising the large volume of water they contained, 90 per cent., to the temperature of the animal's body. Water within, and often water without, the temperature of the body must be greatly reduced, and it was not to be wondered at, if with such an unscientific mode of feeding, the animal could not maintain its condition, and was unable to minister to the wants of the fœtus. The latter was often chilled, and dead lambs were the result, especially with young ewes in a wet season. If, then, they could by any means reduce the quantity of roots one-half and substitute an equivalent in the form of straw and condimental food, at the same time attending to the external comfort of the animals, they would have achieved a great success, the land would be doubly manured, straw would be made more of than when trodden solely into manure, and a greatly increased number of sheep could be kept upon a given weight of roots.

With regard to the feeding value of straw, there was abundant evidence to show that when cut green and carefully managed many kinds of straw were exceedingly nutritious; and from personal experience he was convinced that good straw might be economically substituted for hay in the winter feeding of breeding sheep, even without any artificial food. The reduction of one-half the usual supply of roots, and the substitution of straw, &c., would be compensated for by the healthier condition of the sheep in eating so large a proportion of dry food; less fuel would be required to maintain the heat of the body, because less water would have to be heated. Scouring, which in bad weather was common to ewes eating only Turnips, was rarely seen when straw was consumed, and with such feeding the sheep might be kept up to or near lambing time in a healthy thriving state. The addition of a very small quantity of artificial food would prove a good investment both as regarded the land and the animal, enriching the land to some extent, but acting principally as a stimulus to the digestive powers of the animal. The cost per head would be very small. Thus 100 sheep eating off 15 tons of Turnips would take 33 days, and if supplied with ¼ lb. per day each of artificial food would eat 825 lbs. The food would cost probably about 8*l.* a ton, and might be composed of equal parts of Rape cake or nutmeal, Beans, Peas, or Lentils, and Indian corn; to which might be added 9 lbs. of Fenugreek and 6 lbs. of Aniseed. The cost per head for six months would be about 3*s.* 3*d.*; of which one-third would be returned in increased wool, one-third left as manure, and one-third paid for in the improved condition of ewe lambs. As to the method of using straw, supplying it long, in racks, was preferable to giving it in the shape of chaff. Indeed, nothing could answer better, unless it could be shown that a system of pulping roots and cutting chaff could be economically carried out. The order of using straw should be as follows:—Good sweet Barley straw first. This might be commenced when the ewes were eating Mangel tops, &c., and would do till November. Then Oat or Bean straw, the latter most valuable in cold weather, and lastly Pea straw, which when well made was equal to much of the seed hay made on light land; and this might be given with a portion of hay when ewes were lambing. The practice at the College Farm was to build a good stack of freshly-thrashed Pea straw in the ewe pen, often forming a wall of division, and fodder once a week with this, and once with hay. Sheep thus fed would be most conveniently managed with nets instead of hurdles, as there was less work in setting a fold, and the Turnips should be first picked up at a cost of 1*s.* 6*d.* an acre. He was satisfied that pulping the roots and mixing with straw chaff might be economically carried out; and there was no doubt whatever that breeding sheep would readily eat food so prepared, and thrive much better upon such a mixture than upon roots alone.

For their consideration he sketched out the following plan:—The corn stacked in a convenient position, threshed, and straw carefully stacked and thatched. Roots cleaned in large heaps, and at such distances apart as would allow of the sheep lying two days on the same ground; using a combined pulper and chaff cutter on wheels and worked by 1-horse gear. A light roomy house on wheels, with canvas sides, to store mixture for use on the second day. Four days a week one horse and lad employed extra. A load of straw first carted from stack to heap of roots, then the two cut up; produce of the morning's work used for the day's food; that cut later in the day stored away in the house for the following day. This scheme however would do best on dry healthy land. Before the ewes went to the lambing pen they should be dressed with a solution to destroy lice and ticks. This prevented all the rubbing which was also so common. The best plan was to have a double line of hurdles set up 4 feet apart, suppose about 8 to 10 hurdles long; at each end more hurdles at right angles so as to form entrance and exit places. The ewes drew in and stood together so closely that they were easily handled by the attendants, three in number. One held the sheep, another attended to the liquid, and delivered it to the third, who with an old tea-pot or similar vessel with a spout poured the solution along the back from head to rump three times backwards and forwards, 1 pint of liquid to each sheep. The quieter ewes could be kept during all stages of pregnancy the better.

In breeding it was always desirable to use first-class sheep. The males should be a higher quality than the females; but more especially was it necessary to select the very best animals to put on young ewes; for the character given to the first produce would often come out again. Young vigorous rams would get the larger part of their stock males. Doubles depended very much upon the condition of the ewes. If ewes were poor and doing badly, doubles would be scarce; if in good hard condition, and rather improving, more doubles might be expected. The nature of the farm as affecting the quality of the food had also a good deal to do with this. The plan of marking the breast of the ram with ruddle was convenient, enabling them, by alteration of the mark after three weeks, to draw out the forwardest ewes from the pen; and where a convenient washpool existed on the farm, it would be found desirable to swim the ewes occasionally, though of course, unless great care was exercised, this might be attended with risk when they were in yean. In the case of fevers, especially when they resulted from hard keeping, swimming would prove most advantageous. From eight to ten days should always elapse between washing and shearing, in order that the yoke might rise. The ewes after lambing continued on Turnips or Swedes. Good crops of the former might be obtained on early Vetches. At this time the proportion of dry food must be lessened, and a few Mangels introduced. Lambs soon learn to run through lamb hurdles, and might have a fold ahead, being supplied with a small quantity of artificial food, consisting of pounded Linseed cake, bruised Oats, pot bran, and malt coombs in equal proportions. The quantity consumed would be very small, and the great object was to teach them to eat, so that when there was a change of food and better treatment was required, no time should be lost. The management of the young lamb for the first 5 or 6 months was the most difficult. They were very susceptible to unfavourable circumstances, and bad food for two or three days only would often permanently check their progress. Lambs must never "lie back," as the young shoot of Clover or Rye-grass was sure to produce scour from its unripe state.

If by the use of straw, either pulped or long, they could increase their winter keep, as he believed they could to a large extent, they would want both seeds and Vetches to carry them along through spring and summer. Early weaning would be found generally desirable, towards the middle or the third week of May. Lambs dropped in February would do best without their mothers. As soon as possible after weaning they should be carefully dipped. Brigg's dipping trough and composition were both excellent. They should dip twice or thrice during the season; and the outlay would be well repaid in improved health, freedom from irritation, &c. Change of food was desirable for lambs. Hence Vetches and Clover could be alternately fed. Rape and Vetches mixed, and then Rape, which might be got for August, Early Turnips and Rape in September, and Sainfoin was very valuable also as a change. On regular breeding farms, especially when the climate was against winter feeding, lambs should be sown in the autumn. They would often make a comparatively higher price then than if kept through winter and fattened. There would always be plenty of buyers, because so many farms were unsuitable for breeding. It was probable, also, that fatting sheep in yards would be more common when the profitable character of the system as compared with feeding cattle had been more fully demonstrated. Hence they might look for an increased demand for good stock tegs.

Lambs when first put on to roots were sometimes affected with scour of a peculiar character, and died off very suddenly. In these cases the roots were generally very fleshy and growing. The sheep had abundance, and were probably poor when put on, and appeared to be doing remarkably well. The cause of death was apoplexy, or making blood too fast. The blood became thick and unhealthy and the animal died. Corn given injudiciously would produce the same result. If the sheep were supplied with corn undiluted with chaff early in the morning, when the belly was empty, they would eat ravenously, and suffered accordingly. Chaff as a diluter of corn was so valuable that some old shepherds considered a pint of corn to a pint of chaff equal to one quart of corn alone. Chaff with roots, if the application could be economically carried out, would undoubtedly be far better food, especially during the depth of winter, than so very large a quantity of roots.

Lord Berners, in proposing a vote of thanks to the lecturer, observed that he had long followed the recommendation of the Professor with respect to giving dry food to both cattle and sheep. He had greatly reduced the quantity of Turnips, and substituted a certain proportion of cut straw with the best results. The cutting of hay and straw he performed entirely by steam, and he pulped the roots at the same time. Pea-straw was very valuable in preserving the health of the animals, and he himself had found it so beneficial that he invariably kept a small stock upon his farm to give the ewes when lambing. With regard to Bean-straw he had it cut and steamed, and he never found his horses, cows, and other stock do so well upon any mixture of straw and hay as upon Bean-straw so steamed.

Mr. Holland, M.P., cordially joined in thanking Mr. Coleman for his admirable lecture. From his own experience he could state that he had found all the economy and advantage mentioned by Mr. Coleman from using the mixture of chaff or cut hay with roots; but he could not agree with that gentleman in the opinion that the more corn they gave sheep the better it would be. He would rather have the mixture of chaff and corn together; for he believed it was as necessary for the digestion of sheep as for that of cows that the animal should be filled, though not with nutritious food; because when the stomach was full then came the mechanical process of digestion; and if they gave more food of a nutritious character than was necessary for the nutriment of the animal, they wasted precious food, and that which cost money. On the other hand, if they gave it sufficient food for nutriment, and added the bulk which was requisite for the mechanical proces of digestion, they would act in a more economical manner and do the animal a great deal more good.

The discussion was continued by Sir W. Miles, M.P. Mr. Dent, M.P.; Mr. Freeb, and Mr. Fisher Hobbs, and a general concurrence was expressed in the view, propounded by Mr. Coleman.

Mr. Holland remarked that in the course of his lecture Mr. Coleman had alluded to the dressing of sheep. Now, he understood that in Lincolnshire there had been a great mortality amongst sheep, owing to the attempts which had been made to cure the scab, in particular, by means of mercurial preparations, which were ordinarily used in the form of an ointment. That ointment had the effect of shutting up the pores of the skin, but not until its mercurial properties had had an

injurious influence upon the animal's health. Scores of sheep had died from this cause, and after death it had been discovered that, where the mercury had entered into the system, the meat was bad for human food. It stood to reason if the pores of the skin were stopped over the whole surface of the animal, that that which ought to escape from the body, such as carbonic acid gas and so forth, would become mixed with the blood, and the whole system be deranged. Now this ought to be guarded against by farmers, and he was glad to hear from the Professor that the proper dressing ought to be given in a liquid form, and not as ointment. Analogous to filling up the pores of the skin of the grown up animal with ointment, was the system of covering the lamb which had lost its dam with the skin of another lamb. A diseased and unhealthy animal, if not its loss by death, was almost sure to be the result.

After a few words from Mr. BARKER, Professor Coleman briefly acknowledged the compliment conveyed to him in a vote of thanks, and the meeting separated.

BATH AND WEST OF ENGLAND AGRICULTURAL.

EXETER: *June* 10.—The weather is again unpropitious. It has rarely favoured the meetings of this Society, and Exeter is no exception to the general rule. Nevertheless, the old city and the old Society bear themselves bravely under difficulties. We remember the former 13 years ago, when it put on its gala dress in honour of the Royal Agricultural Society of England—and High Street and South Street look as gay amid the showers now as they did in sunshine then. The meeting of the Society is in 1863 as worthy of the welcome it is receiving as that of the national Society was in 1850. It includes much that has never formed part of the attractions offered by the Agricultural Society of England—and in those departments in which the two resemble one another, the Show of the West of England Society of this year excels that to which the larger Society attained 13 years ago. It is more especially as regards the implement show, which is here attracted without offer of prizes, to which we refer. Even setting apart the fact that all the great advance which 13 years have seen is well represented here—the show itself is a larger and completer illustration of the existing state of the manufacture.

It is no merely provincial collection. With one or two exceptions all our leading manufacturers are present in full force. Reaping machines and steam cultivators, and every class of implements in which the greatest interest is now felt, are thoroughly well illustrated, and there are trials of them open to the public, giving the fullest possible opportunity of forming an opinion of the merits of rival tools.

But in addition to the cattle yard and the implement show we have here a magnificent flower show, and a very excellent collection of paintings, and of objects illustrative both of the Fine Arts and of Art manufactures.

The Bath and West of England Society have wisely thought themselves strictly within the scope of their operations as a Society in taking any opportunity of benefiting the class to whom they address themselves, not only by the direct professional or technical teaching which their show-yards offer, but by every other wholesome and refining influence that they can bring to bear upon their visitors and members; and certainly in the departments to which we have adverted, as well as in the more usual features of an agricultural show, they do good work.

In the strictly agricultural departments of the Show, as well as in those which are accessory, the Exeter meeting is, we understand, the best which has been held by the Society since it exchanged its local for its provincial character. In point of numbers, as well as of quality, it excels. Comparing it with the Show at Wells last year, the following Table is significant:—

	Wells.	Exeter.	Increase.
Cattle	96	115	19
Sheep	125	148	23
Horses	57	55	—2
Pigs	46	62	12
Extra	9	37	28
	333	417	82

And of exhibitors there is a larger number by 23 this year than last.

We must be this week satisfied with a short account of the Cattle classes. The *Devons* occupy the first class. They are at home with this Society, and ought to be better represented than they are. Only 41 as against 63 in the Shorthorn classes are shown, and these chiefly in the younger classes, where their beautiful form does not make amends for the excessive disparity of size in favour of their rivals. Among the old Bulls, Mr. Treffry, of Grampound, takes the 1st prize, with an animal of better quality, more even, but otherwise hardly so good, especially in the forequarters, as that shown by Mr. Farthing, of Stowey Court. In the class of younger bulls, also including only four entries, there is less doubt possible of the award, Mr. Newbery's prize bull being much deeper and better furnished than the beautiful but light and little Devon bull shown by Mr. Buller, M.P. It is a comparison such as this animal forces one to which teaches more than any other thing can do the difference in the breeds. There is a good class of yearling bulls, and a large and useful class of cows. The three 3-year old heifers shown take respectively 1st, 2d, and 3d prizes in their class. The yearling heifer class is well filled.

Shorthorns are a good show, every class being fairly filled, the yearling bulls and heifers being the best classes. Among old bulls, Sir Lawrence Palk, M.P., takes the 1st prize with a large and massive somewhat flat-sided white bull; the second going to Mr. R. Stratton for a roan, which to our mind better represents the qualities of the breed. The classes of yearling bulls and of yearling heifers are much the finest portion of the show. Many first-rate herds contribute to them. Mr. Langston, M.P., takes the 2d prize with a red and white bull, uniting the best blood in the breed—and himself a first-rate animal. The 1st prize goes to a ram bred and shown by Mr. John Lane, of Cirencester. Lady Pigott, Mr. Holland, M.P., Mr. Stratton, Mr. W. Hewer, and many other well known breeders, contribute to the class.

The class of Short-horn cows is adorned by Lady Pigott's wonderfully fine "*Pride of Southwicke*," which takes the 1st prize easily. Her Ladyship is also first with *Princess of Edward*, in the heifer class; where Mr. Bowley, and Mr. Lane, of Cirencester, are 2d and 3d. The yearling heifer class is a wonderfully fine show; Mr. Bowley taking the first prize with a beautiful strawberry roan heifer, *Chorus*; and Lady Pigott and Mr. Stratton being 2d and 3d respectively. A very short show of Herefords, and a very fine one of Guernsey cows and yearlings, make up the Cattle classes. The prize lists are given below.

There is a capital show of sheep and pigs—the Leicesters and Cotswolds both being in great force. 63 pens of the former, and about 30 of the latter, making more than a merely provincial show. A fair show of South Downs, a short one of other Downs, which ought to have been represented by larger numbers, though they could hardly have been of better quality—and interesting classes of Somerset and Dorset horned and mountain sheep, make up the sheep show. A remarkable pen of five 2-tooth ewes represent the Wiltshire Downs, shown by Mr. W. R. Shittler of Bishopstow.

A very large and excellent show of pigs and a good show of horses—agricultural, hunters, and ponies, make up the live stock classes. The prize list is given below. We refer to it for any further particulars than can be given this week.

The following is the Prize List:—

JUDGES OF STOCK.

DEVONS AND HEREFORDS.—Mr. John Buckley, Mr. James Quartley.

SHORT HORNS.—Mr. Wm. Bartholomew, Mr. J. Gray.

LONG WOOLLED SHEEP.—Mr. J. J. Buckley, Mr. W. Wippell, Mr. Henry Trethewy

SHORT WOOLLED SHEEP AND PIGS.—Mr. J. Humphrey, Mr. J. Whitaker.

HORSES, HACKS, AND PONIES.—Mr. R. S. Waters, Mr. H. Tyrell.

HORSES, AGRICULTURAL.—Mr. H. Hitchcock, Mr. John Wippell.

CATTLE.

DEVONS.

Class 1. Bull, above 3 years old.—12*l*., W. Treffry, Grampound; 5*l*., W. Farthing, Stowey Court.

Class 2. Bull, under 3 years old.—15*l*., S. P. Newbery, Honiton; 8*l*., J. W. Buller, Esq., M.P.

Class 3. Bull, under 2 years old.—15*l*., J. Bodley, Stockley Pomeroy; 8*l*., C. F. Perkins, Taunton; 5*l*., J. A. Smith, Bradford Peverell.

Class 4. Cow in-Calf, or in Milk.—12*l*., J. A. Smith, Bradford Peverell; 6*l*., W. Farthing; 3*l*., J. A. Smith.

Class 5. Heifer in-Calf, or in Milk.—12*l*., C. Hambro, Blandford; 6*l*., George Turner, Exeter; 3*l*., C. F. Perkins, Taunton.

Class 6. Heifer, under 2 years old.—6*l*., J. W. Buller, Esq., M.P.; 4*l*., G. Turner; 2*l*., J. Bodley.

SHORTHORNS.

Class 7. Bull, above 3 years old.—12*l*., Sir Lawrence Palk, Bart, M.P.; 5*l*., R. Stratton, Walls Court.

Class 8. Bull, under 3 years old.—15*l*., Messrs. J. Edgcumbe, and J. Stannes, Taviton, Tavistock; 8*l*. R. Stratton.

Class 9. Bull, under 2 years old.—15*l*., J. Lane, Barton Mills, Cirencester; 8*l*., J. H. Langston, Esq., M.P.; 5*l*., S. Widdicombe, Hay, Ivybridge.

Class 10. Cow in-Calf, or in-Milk.—12*l*., Lady E. Pigot, Branches Park; 6*l*., J. Lane; 3*l*., R. Stratton.

Class 11. Heifer in-Calf, or in-Milk.—12*l*., Lady E. Pigot; 5*l*, E. Bowley, Cirencester; 3*l*., J. Lane, Cirencester.

Class 12. Heifer, under 2 years old.—6*l*., E. Bowley, Cirencester; 4*l*., Lady E. Pigot, Branches Park; 2*l*. R. Stratton.

HEREFORDS.

Class 14. Bull, under 3 years old.—15*l*., W. Taylor, Ledbury,

Class 15. Bull, under 2 years old.—15*l*., J. Baldwin, Luddington, Stratford-on-Avon; 5*l*., W. Taylor, Ledbury. Second prize not awarded.

Class 16. Cow in-Calf, or in-Milk.—12*l*., Henry Coate, Sherborne.

Class 17. Heifer, in-Calf or in-Milk.—6*l*., second, Messrs. J. W. and C. J. Mappowder, Blandford

Class 18. Heifer, under 2 years old.—6*l*., Messrs. J. W. and C. J. Mappowder; 4*l*., J. Baldwin, Stratford-on-Avon; 2*l*., Messrs. J. W. and C. J. Mappowder.

SHEEP.

LEICESTERS.

Class 19. Yearling Ram.—8*l*., James Tremain, Grampound; 4*l*., James B. Corner, Longforth, Wellington.

Class 20. Ram, of any other age.—5*l*., Geo. Turner; 3*l*., do., do.

Class 21. Pen of five two-teeth Ewes.—5*l*., J. B. Corner, Wellington; 3*l*., G. Turner.

OTHER LONG WOOLLED SHEEP.

Class 22. Yearling Ram.—8*l*., J. Gillett, Charlbury; 4*l*., E. Handy, Sierford.

Class 23. Ram of any other age.—5*l*., E. Handy: 3*l*., T. B. Browne, Salperton Park.

Class 24. Pen of five two-teeth Ewes.—5*l*., J. K. Tombs; 3*l* T. B. Browne, Salperton Park.

SOUTHDOWNS.

Class 25. Yearling Ram.—8*l*., J. J. Farquharson, Blandford 4*l*., R. N. Grenville, Butleigh Court, Glastonbury.

Class 26. Ram, of any other age.—5*l*., G. J. Wood, Dorchester; 3*l*., J. Harding, Puddletown.

Class 27. Pen of five two-teeth Ewes.—5*l*., J. J. Farquharson; 3*l*., R. N. Grenville.

OTHER DOWN SHEEP.

Class 28. Yearling Ram.—8*l*., J. Moore, Littlecott Farm, Pewsey, Wilts; 4*l*., do. do.

Class. 30. Five two-teeth Ewes.—5*l*., W. R. Shittler, Bishopstow, Salisbury.

SOMERSET AND DORSET HORNS.

Class 31. Yearling Ram.—8*l*., T. Danger, Huntstile, Bridgwater; 4*l*., do do.

Class 32. Ram, of any other age.—5*l*., T. Danger; 3*l*., W. Paull, Piddletown.

Class 33. Five two-teeth Ewes.—5*l*., T. Danger: 3*l*., F. Bond, Ilminster.

MOUNTAIN SHEEP.

Class 34. Ram, of any age.—4*l*., Sir T. D. Acland, Bart.; 2*l*., do. do.

Class 35. Pen of five Ewes, of any age.—4*l*., Sir T. D. Acland, Bart.

DARTMOOR SHEEP.

Class 36. Ram of any age.—4*l*., E. Cuming, Linscott, Morcetonhampstead; 2*l*., J. Perryman, jun., Chagford.

Class 37. Five Ewes of any age.—4*l*., E. Cuming.

HORSES.

FOR AGRICULTURAL PURPOSES.

Class 38. Stallion (not exceeding 6 years old).—30*l*., W. King, Withleigh Inn, Tiverton, "Model;" 10*l*., J. Horswell, North Milton, Exeter, a dark brown Clydesdale draught horse, "Stapleton."

Class 39. Mare and Foil, or in Foal.—10*l*., H. Hitchcock, Chilterne, Allsaints, Heytesbury, Wilts, "Smart;" 5*l*., James B. Corner, Longforth, Wellington, "Diamond."

Class 40. Colt Foiled in 1862.—8*l*., G. Elliott, Swilley Farm, Plymouth, "Prince of Wales;" 4*l*., G. Elliott, "Gray Prince."

Class 41. Filly foaled in 1862.—8*l*., W. Burrington, Hooper's Farm, Exminster.

HACKS AND HUNTERS.

Class 42. Thorough-bred Stallion.—50*l*., W. Barrett, Puddaven, Totnes, "Ratan."—15*l*., R. G. Luton, Bruseford, Wembworthy, "The Baldfaced Stag."

Class 43. Mare and Foal, or in Foal.—10*l*., G. Hutchings, Cornworthy, Totnes.—5*l*., W. Gapper, Duddleston, Taunton.

Class 44. Colt Foaled in 1862.—8*l*., W. Boyle, Boutport Street, Barnstaple; 4*l*., J. Howard, Alphington, Exeter.

Class 45. Filly Foaled in 1862.—8*l*., G. Turpin, Berry Pomeroy, Totnes; 4*l*., F. Hodson, North Petherton, Bridgwater.

Class 46. Mare, or Gelding, 4 to 6 years old.—10*l*., R. Passmore, East Down, Barnstaple.

Class 47. Cob or Galloway Mare or Gelding, not exceeding 14½ hands high,—5*l*.—(Not sufficient merit).

PONIES.

Class 48. Stallion Pony, of any breed, not exceeding 13½ hands high.—5*l*., E. Maunder, Heaselly Mills, Northmolton, a Bay Cob Pony. "Young Bobby;" 3*l*., S. Widdicombe, Ivybridge, Brown Bay Exmoor Pony, "Favourite."

Class 49. Mare Pony, of any breed, not exceeding 13 hands high.—5*l*., P. H. Turner, Whitlocksworthy, Kingsbridge, "Chloe"; 3*l*., T. D. Acland, Sprydoncote, Exeter, a grey Exmoor Pony.

PIGS.

LARGE BREED.

Class 50. Boar, 1 to 2 years old.—6*l*., W. Bradley, Wainman, Carhead.

Class 51. Boar, under 1 year old.—4*l*., W. Hewer, Sevenhampton, (Berkshire); 2*l*., W. Yells, jun., Highworth, Wilts, (Berkshire).

Class 52. Breeding Sow in Farrow.—4*l*., W. Yells, Jun., (Berkshire); 2*l*., W. Bradley, Wainman.

Class 53. Pen of 2 Breeding Sows, under 9 months of age.—4*l*., W. Hewer (Berkshire); 2*l*., S. Widdicombe (Berkshire).

SMALL BREED.

Class 54. Boar, 1 to 2-years old.—5*l*., G. F. Hodson, North Petherton, Bridgwater (Leicester); 3*l*., W. O'Dogherty, Wotton, Landrake (Essex).

Class 55. Boar, under 1 year old.—4*l*., J. Cardell, St. Columb; 2*l*., R. Prout, Milton Abbot, Tavistock.

Class 56. Sow in Farrow.—4*l*., Sir M. Lopes, Bart., M.P., (Essex); 2*l*., R. Prout, Milton Abbot.

Class 57. Two Breeding Sows.—K. Radmore, Thorverton; W. B. Wainman, York.

EXTRA STOCK.

CATTLE.

Mrs. Charlotte Isaacson, Moreton Hampstead, a yellow and white Guernsey Cow, "Blossom," and 3 Heifer Calves, bred by herself, 1*l*.; R. Rendle, Guernsey, a fawn and white Jersey Heifer, "Lady Jane."

Of the IMPLEMENT SHOW we can only say that in number and quality—in the attendance of our leading manufacturers, it is equal to the annual shows of the English Agricultural Society. Smith's, Howard's, and Fowler's tackle are all shown at work. The only novelty on the ground is Howard's plough, in which the two frames for to-and-fro work respectively are lifted by the aid of springs out of work, and kept in work by their own excess of weight as well as that of the ploughman, beyond the power of the springs, these being so arranged that their sustaining power is at its maximum when the plough they lift is *lifted*, and at a minimum when the plough they lift is in the ground. Howard's new plough did very excellent work in the trial ground. Common ploughs were also shown at work, and reapers and mowers were shown at work on green Rye, &c. Samuelson's self-rolling reaper which, lays the swathe in bunches ready for tying, did some exceedingly good work in green Rye, where its difficulties would of course be great. So did Cuthbert's & Picksley's one-horse reapers.

We have to add to the general reference to the Implement Yard, that the Seed trade is thoroughly well represented by Messrs. Sutton, of Reading, who brought down their collection which they had prepared for the Great Exhibition—along with a very large show of seeds in bags and of Grasses in sheaf.

We have not mentioned that on Wednesday afternoon the annual competition in horse-shoeing took

place in the yard. No fewer than 26 competitors appeared. The three prizes—one, two, and three guineas respectively—were awarded by Mr. Miles of Exeter, and Mr. Tyrrel of Tavistock, as follows:—1st, G. Moore, Gresham; 2d, R. Channing, Exeter; 3d, J. Westcot, Exeter.

Miscellaneous.

The General Meeting of the Agricultural Society of England.—I was sorry I had my house so full of friends that I was unable to attend the annual meeting of the Royal Agricultural Society. I wished to bring forward several propositions which I did not then expect to carry, but which I wished to ventilate and which I am sure will eventually be carried, and I cannot do better than bring them before the subscribers and agricultural public. First, I think it a monstrous thing to bring up the subscribers hundreds of miles to record their votes, and therefore, like most benevolent and social societies, I propose they shall all vote by proxy. Secondly, to ensure new blood every year, that the retiring members of council are not to be eligible for re-election for three years. Thirdly, for the satisfaction of exhibitors and of the public, to prevent the possibility of the judges knowing the owners of stock, instead of to say the least of it, the indelicacy of the owners of stock standing by and speaking to the judges while awarding the prizes. And fourthly, to have the sheep shorn down as the Bath and West of England Show demands, and thus abolish the crying scandal of the Council of a great society sanctioning a fraud at Battersea—the worst grown animal, but the best sculptured, took the prize. I more regret I could not be present at Mr. Ruck's interesting lecture on steam ploughing, he gave great encouragement to landlords and tenants; surely the steam plough is doing wonders if it enables him in two years to pay the fee simple of the farm he purchased. I like to see tenants buying land. I wanted to buy a farm as an investment, but an adjoining farmer gave thousands more than I was prepared to give, and he must let it at 50 per cent. more than he is paying to get 4 per cent. I am satisfied with what I have done farming, but Mr. Ruck beats me. I took a farm in hand 12 years ago, and have now let it in good condition at over 300 per cent. what I was then offered. I have let Hampen farm very cheap for 50 per cent. increase of rent, but that includes some good profitable machinery. I have now taken two farms of friends, besides 500 acres of my own, these farms were sadly outrun and went begging. I have given an increase of rent, and invite inspection. *T. Beale Browne, Salperton Park.*

Calendar of Operations.

JUNE.

WESTER ROSS: *June* 2.—After a protracted season in which cold easterly winds prevailed, with frost at night, and in which vegetation made little progress, we have now as fine weather as the heart of a farmer could desire, and the crops are rapidly advancing. On dry soils autumn-sown Wheat is close, promising, and well advanced; on ill drained fields the plants have been thinned out by the long continued wet, and never can be a full crop. Spring sown Wheat is progressing rapidly, and much of it looks uncommonly well. Oats are very promising nearly everywhere, and Barley on dry friable soil is particularly good, whilst on stiff clay land it advanced slowly, and is in danger of being choked with annual weeds which are unusually abundant. The earlier planted Potatoes are above ground, and are being hoed. The fine weather has forced the Swedes uncommonly fast, and should it continue they will come early to the hoe. Grass is now becoming abundant, and for some time our stock will have as much as they can consume. There is a great lack of Clover plants in the hay crop, which will prevent much of it from being heavy, but there has been no lack of moisture, and now there is sufficient warmth to bring the plants that are to full maturity. There is now no great inducement however, to have more hay than is necessary to meet the requirements of the farm, as the railway has monopolised the conveyancing, and driven a multitude of horses from the road. The demand for stock has continued brisk as ever, and the present rapid growth of Grass bids fair for some time to increase it. We are now busy preparing the ground for common Turnips, and will be engaged throughout the month in having them sown. The market continues so well stocked with artificial manures that we have not the slightest fear of ever seeing an end of them. There has been a far greater number of sales of farm stock throughout the north than we care to see. Not a few, unable to hold on, gave up their farms, but others are seldom awanting who take their places at advanced rents. There must be good times coming, else farmers' troubles will greatly abound.

Notices to Correspondents.

AMERICAN MILKING MACHINE: *W G* We have not had an opportunity of testing it this spring. Will any our correspondents who have them give us a report?

CLOVER: *Nemo.* Your Clover dying in patches is being killed by the Clover Dodder. The Clover close by had none of this pest among its seed.

WAGES: *J P W.* says:—I own a farm upon a stiff clay soil, and am desirous of paying my men in the harvest time a specific sum of money per day instead of furnishing them with beer at my cost. Can any of your contributors tell me what is a fair allowance to make per day to each man and woman engaged in such labour in lieu of beer? They can of course find their own with the money I shall pay them, or procure any other refreshment they may think proper. Perhaps some of your readers can inform me whether cotton cake has the effect of making the beef and mutton hard and tough from animals who eat it, or whether any difference is apparent between meat from cotton cake and linseed cake.

WEATHER IN BERKSHIRE.—Unfortunately for our readers and ourselves, Mr. J. B. Spearing, of Moulsford, who has been good enough for the last two years to furnish us with a weekly meteorological report, is leaving his present residence at Moulsford, and will be unable to continue his meteorological observations in our columns. We hope however shortly to supply its place with reports from the tables of another observer in the neighbourhood, continuing the series as nearly as possible in unbroken order from the figures last published.

THE HYDROPULT,

EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "The machine is certainly the most compact and efficacious force pump of its size that we have ever seen."—*Daily Telegraph.*

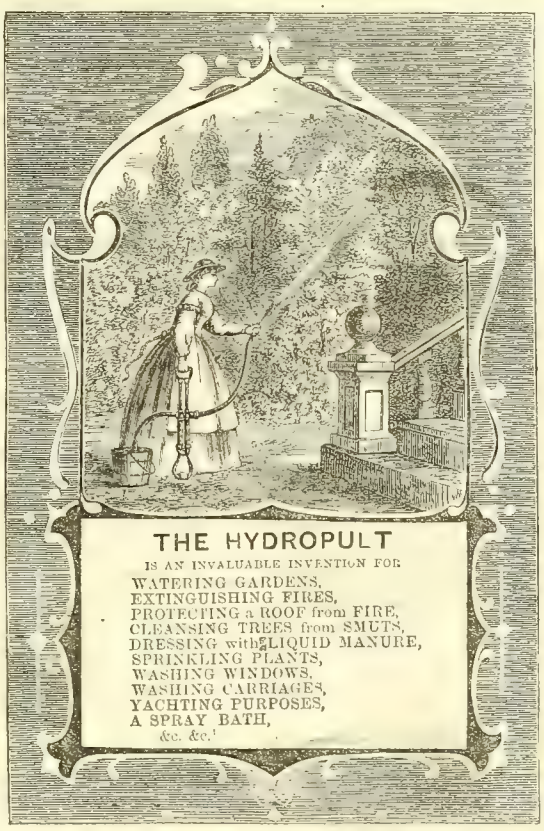
THE HYDROPULT. — "All Londoners and other town residents who care for their gardens and greenhouses should avail themselves of such engines." — *Gardeners' Chronicle and Agricultural Gazette.*

THE HYDROPULT. — "We strongly recommend it to our readers."—*Journal of Horticulture and Cottage Gardener.*

THE HYDROPULT. — "It will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water." — *Gardeners' Weekly Magazine.*

THE HYDROPULT. — "Country readers who order it on our recommendation, will not only not repent, but thank us for calling attention to a machine which, having once used, they will never care to be without."—*Floral World and Garden Guide.*

THE HYDROPULT. — "We can only say that no public establishment or private house should be without one of these useful machines."—*Commercial Daily List.*



EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "We are satisfied that all housekeepers ought to have one, and we are equally satisfied that if they once see it they will order it." — *Liverpool Daily Post.*

THE HYDROPULT. — "We commend it to the notice of the proprietors of warehouses and other buildings, public and private, in the metropolis and provinces.'—*Mechanics' Magazine.*

THE HYDROPULT. — "It is admirably adapted for sprinkling gardens, trees, graperies, washing windows, carriages, and for household purposes, its simplicity and portability being its strong recommendation." — *Illustrated News of the World.*

THE HYDROPULT. — "Nothing has yet been introduced for watering gardens equal to the Hydropult, as any one standing close to his house can water, in a few minutes, any ordinary suburban garden, thus saving much time, and performing the task in an easy, satisfactory manner."—*Builders' Reporter.*

THE HYDROPULT. — "Many of the most scientific men of the age are daily inspecting and testing its uses."—*Age We Live In.*

AN INVENTION FOR THROWING WATER BY HAND POWER

(SECURED by ROYAL LETTERS PATENT),

Price **TWO GUINEAS**

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Small Jet. Weighs but 8 lbs.

Recommended as an efficient and useful Fire Engine by the principal Fire Insurance Companies of Great Britain.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

THOMAS RIVERS, Esq., the eminent Florist, SHIRLEY HIBBARD, Esq., and other well-known gentlemen, recommend it as an invaluable Garden Implement.

EXTRACTS FROM TESTIMONIALS.

"Royal Insurance Office, Liverpool.

"My dear Sir,—I have much pleasure in expressing the high satisfaction, and indeed surprise, with which I witnessed the working of your Hydropult. There can be no doubt that it can be available in the earlier stages of fire in warehouses, manufactories, or private houses, in preventing large conflagrations, while its applicability to gardening and other purposes will be manifest to any one observing its operation.—I am, my dear Sir, yours truly, "PERCY M. DOVE, Manager."

"Chas. P. Button, Esq."

"The invention will prove extremely valuable for all the purposes to which such machines are applied.—SWINTON BOULT, Secretary, Liverpool and London Insurance Company."

"Its portability and facility of operation recommend it to the general notice of the public.—HENRY LOWE, Secretary, District Fire Company."

"In a blowing or mixing room it would be of especial service. — F. J. HALLOWS, Secretary, Caledonian Insurance Company."

CAUTION: Important to the Public.—The extensive sale of the HYDROPULT has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting, as they are often placed under or near the Hydropult show card. The Proprietor therefore issues this caution, and respectfully intimates that parties wishing to purchase the Hydropult, should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, a Portable Fire Annihilator and Garden Engine; GRIFFITHS & BROWETT, Manufacturers, Birmingham; CHARLES P. BUTTON, General Agent (Vose's Patent)." Unless this label be attached, the machine is not the Hydropult.

THE HYDROPULT is MADE of BRASS and COPPER, weighs but 8 lbs., and WILL THROW EIGHT GALLONS of WATER PER MINUTE FIFTY FEET, WHEN WORKED by the POWER of ONE MAN.

Public and private buildings have been saved from destruction by its agency. T. SPENCER, Esq., Inspector of the Royal Society for Protection of Life from Fire, certifies to its efficiency in saving valuable property at Bayswater from destruction.

FIRE! FIRE! FIRE! THE HYDROPULT IS THE MOST EFFICIENT FIRE-ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.

It can be used for all purposes for which a hydrant or force pump is applicable, and in situations where other contrivances are useless.

CHARLES P. BUTTON, PROPRIETOR,

HYDROPULT WAREHOUSE, 27, LEADENHALL STREET, LONDON, E.C.

WEST END DEPOT, 309, REGENT STREET, W.

WHY NOT PRESERVE YOUR HAY?—BENJAMIN EDGINGTON, Rick-cloth, Marquee, and Tent Manufacturer, 2, Duke Street, London Bridge, S.E. PAVILIONS and TEMPORARY ROOMS for Royal and Noble Parties.

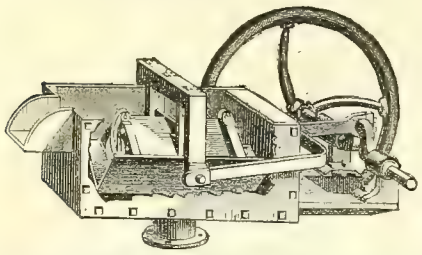
A quantity of SECOND-HAND MARQUEES, TENTS, and RICK-CLOTHS, at greatly reduced prices. An Illustrated Catalogue sent free per post.

Address, BENJAMIN EDGINGTON, 2, Duke Street, Southwark, S.E. No other Establishment.

Norton's Patent V Shaped Pumps,

REQUIRING NO PACKING.

CAN BE WORKED BY HORSE, STEAM, OR OTHER POWER.



THE ATTENTION of ENGINEERS, AGRICULTURISTS, and others is invited to a 6-HORSE DIRECT ACTION STEAM V SHAPED PUMP, by Messrs. GEO. FORRESTER & Co., Liverpool, which will throw upwards of 60,000 Gallons per hour. Now on view at the Warehouse, Red Bull Wharf, 93, Upper Thames Street.

G. C. WARDEN & Co., Sole Licensees, 12, London Street, London, E.C.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. TYLOR & SONS' GALVANIZED IRON TUB GARDEN ENGINES, with Registered Spreader.

8 gal. £2 13 6 — 12 gal. £3 5 0 — 16 gal. £3 15 0

24 gal. £5 0 0 — 30 gal. £5 18 0



Fig. 571.

J. TYLOR & SONS' OAK TUB GARDEN ENGINES, with Registered Spreader.

15 gal. £5 12 6 — 28 gal. £7 2 0



Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 8 0 each.
No. 2. Ditto ditto .. 1 2 6 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,

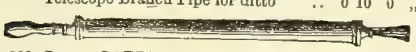


Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 11s. 6d. each
,, 589. Middle Ditto ditto .. 10 3 ,,
,, 588. Small Ditto ditto .. 9 0 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 7 6 ,,

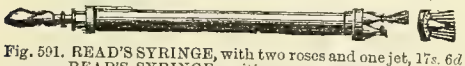


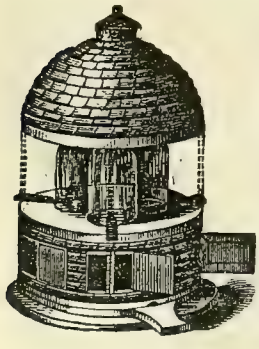
Fig. 591. READ'S SYRINGE, with two roses and one jet, 17s. 6d
,, 592. READ'S SYRINGE, with one rose and jet, 15 0
,, Improved ditto ditto large 14 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

Bee-Hives.

PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO G. N. & SONS, for BEE-HIVES & HONEY at the VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three glasses, and thermometer, price 35s., securely packed for the country.

Several important novelties are introduced this season, including the WOODBURY STRAW BAR-AND-FRAME HIVE, price 18s. 6d., &c. Also, the ENGRAVED PRESSING ROLLER for the guidance of Bees in the construction of Honeycomb on the Bars, and impressed WAX SHEETS, to assist in the formation of cells.

Address GEORGE NEIGHBOUR & SONS, 127, High Holborn, W.C., or 149, Regent Street, London, W.

Their newly-arranged Catalogue of other Improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool .. JAMES CUTHBERT, 12, Clayton Square,
,, Manchester . J. WILSON, 50, King Street.
,, Birmingham J. H. COTTRELL, 15, Bull Ring.
,, Dublin .. J. EDMONDSON, BROTHERS, 10, Dame Street.
,, Glasgow .. AUSTIN & M'ASLAN, 186, Trongate.

FOWLER'S

STEAM PLOUGHING AND CULTIVATING PATENTS.

RANSOMES & SIMS, ORWELL WORKS, IPSWICH,

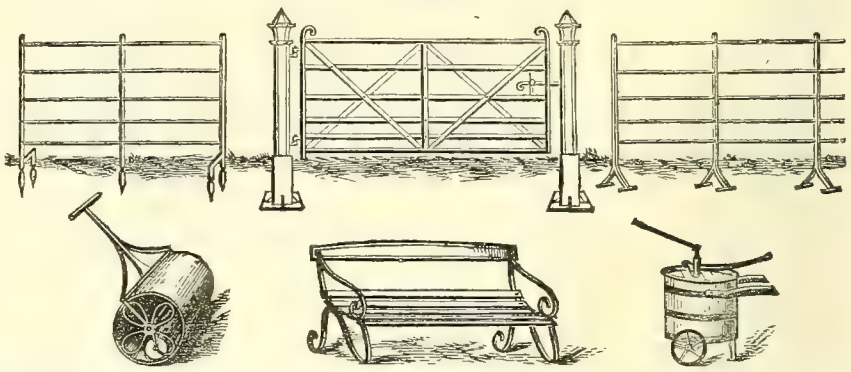
Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

COTTAM'S

CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED IN VARIOUS STYLES.



IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes. VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c. The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

Illustrated CATALOGUES and DRAWINGS free on application to

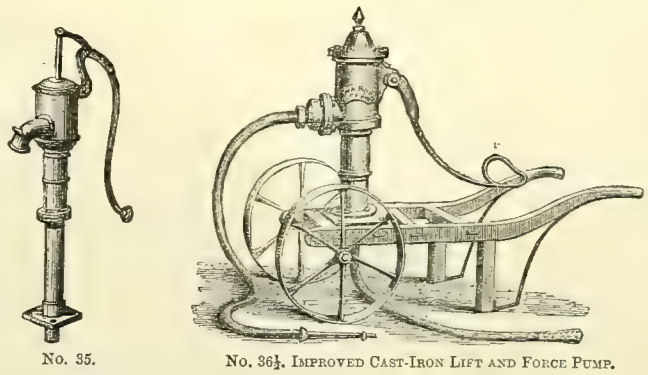
COTTAM & CO., ENGINEERS and IRON FOUNDERS,

2, WINSLEY STREET (OPPOSITE the PANTHEON), OXFORD STREET, LONDON, W.

JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. — No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP. — No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3l. 3s.) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3l. 15s.) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

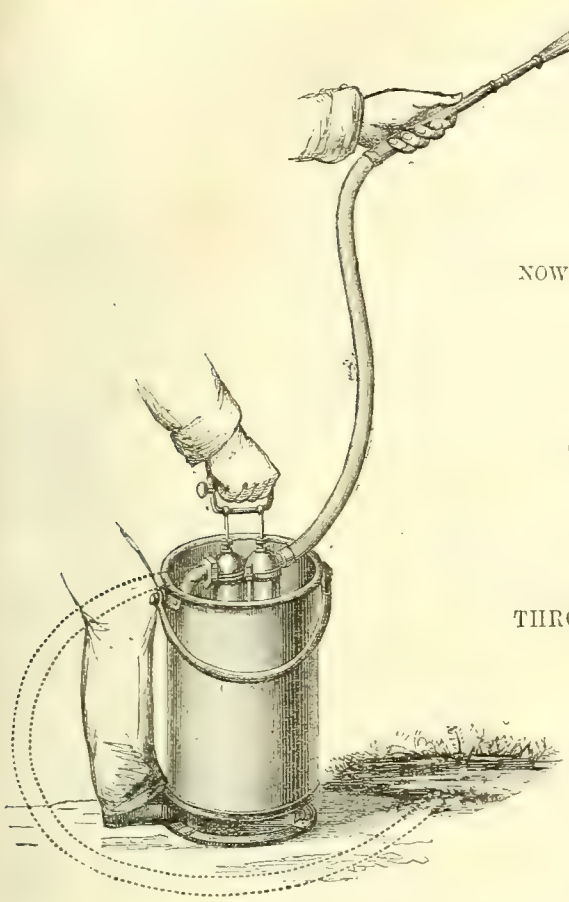
4½-inch LIQUID MANURE PUMP, with legs, 2l. 15s.; 2-inch Flexible Rubber and Canvas Suction Pipe, 2s. 5d. per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

PATENTEES and MANUFACTURERS,

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

WARNERS' IMPROVED PATENT,



NOW FITTED WITH AN AIR VESSEL,

IS THE

ONLY ENGINE at £2 2s.

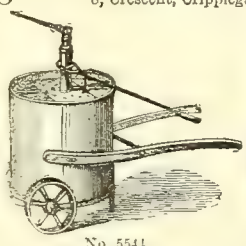
THAT

THROWS A CONSTANT STREAM.

May be obtained of any Ironmonger or Seedsman at the above price, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.

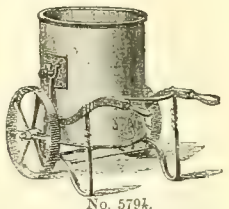


No. 554½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons	..	..	£2 15 0
16 „	..	..	3 15 0
24 „	..	..	5 0 0

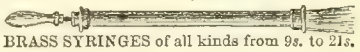
Larger sizes may be had in ither Wood or Iron.



No. 579½.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	..	..	£2 10 0
20 „	..	..	2 0 0



BRASS SYRINGES of all kinds from 9s. to 21s.



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 6 feet Flexible Suction Pipe,

21s.

Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

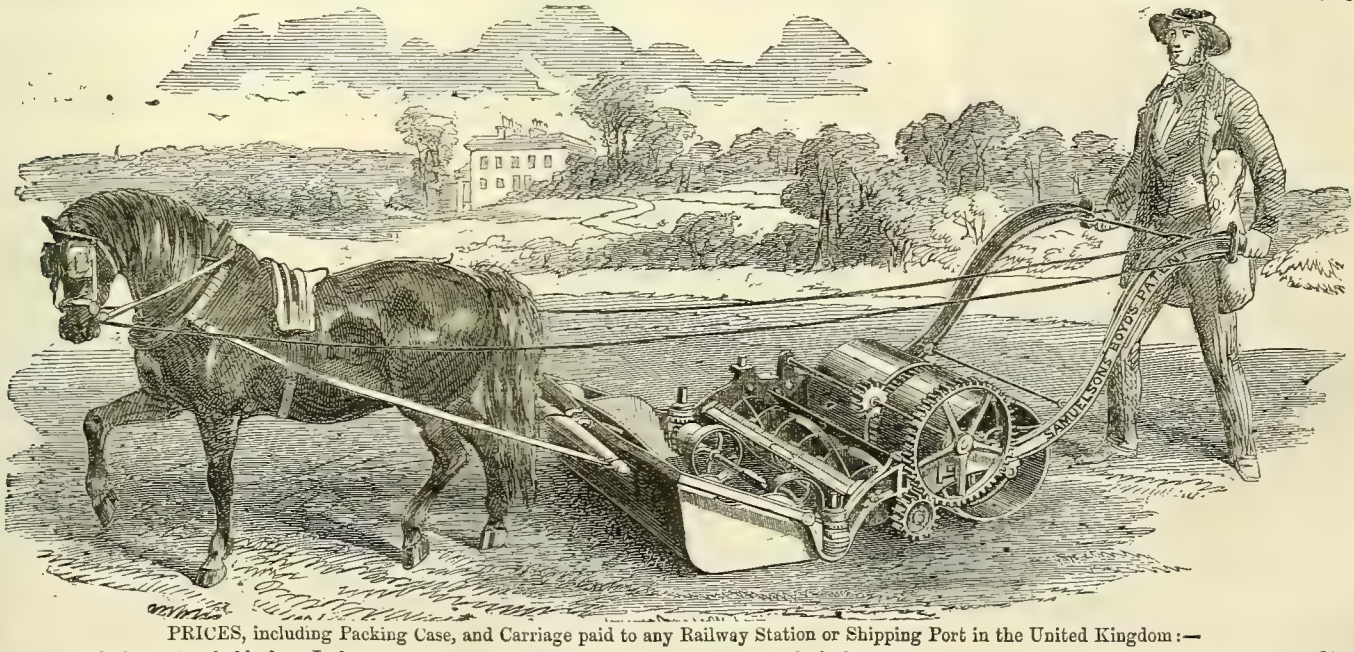
It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

THERE ARE NO SUCTION OR DELIVERY VALVES, hence MUCH FRICTION AND LIABILITY TO CHOKE with leaves and dirt IS AVOIDED.

JOHN WARNER & SONS, 8, Crescent, Cripplegate, London, E.C.

THE GEARING OF SAMUELSON AND CO.'S LAWN MOWING MACHINES IS NOT LIABLE TO DERANGEMENT.

SAMUELSON AND CO.'S PATENT SELF-CLEANING LAWN MOWERS.



PRICES, including Packing Case, and Carriage paid to any Railway Station or Shipping Port in the United Kingdom:—

MANUAL POWER	12 inches cut,	suitable for a Lady	... ...	£4 12 0	PONY POWER	22 inches cut	... ... £8 15 0
	16 „	suitable for One Person	... ...	6 10 0		25 „	... ... 11 10 0
	19 „	suitable for One Man and Boy	... ...	7 0 0		30 „	... ... 14 14 0
	22 „	suitable for Two Men	... ...	8 0 0			

If with BOYD'S PATENT BRUSH, 15s. extra.

MESSRS. SAMUELSON AND CO. are now supplying their 12-inch and 16-inch NEW PATTERN LAWN MOWERS, which they tested thoroughly last season. These Machines are handsome in appearance, lighter in draught, simpler and more durable than any Machine in the trade, and are sure to recommend themselves to the public. *Prices as above.*

All Orders direct or through Dealers will be executed according to priority of receipt. May be obtained at the WORKS, Banbury; or at SAMUELSON & Co.'s various Depôts; also of all Ironmongers and Seedsmen, and at

SAMUELSON AND CO.'S WAREHOUSE, 76, CANNON STREET WEST, LONDON, E.C.

FLORAL DECORATIONS for the TABLE.—The PARAGON FLOWER TRAY, combining Growing Plants with Cut Flowers. No drawing-room should be without one.

Prospectuses Post-free on application to GEORGE WEEKS, Patentee, Bromley, Kent.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

Glass and Mixed Paints (Ready for Use.)

FOR FACTORIES, HOT-HOUSES, CONSERVATORIES, GARDEN FRAMES, PITS, AND DWELLING-HOUSES, &c.

THE LONDON CO-OPERATIVE OIL and COLOUR COMPANY (Limited), from their connection with some of the largest British and Foreign Glass and Lead Manufacturers, are prepared to supply White Lead, Zinc Paint, Mixed Paints in all Colours; and strong Sheet, Rough Plate, and every other description of Glass in Crates, Cases, or Cut to Size for Home Use or Export at the very lowest wholesale prices. Gardeners, Nurserymen, and others advised as to the best mode of Erecting, Heating, Ventilating, and Glazing Pineries and other Forcing Houses. Farmers, Stewards, Market Gardeners, &c., supplied with Stucco, Anticorrosion, Metallic Oxide, and Mixed Paints ready for use for Dwelling Houses, Farm Buildings, Park Fences, Ships' Bottoms, &c.

Apply for ILLUSTRATED LISTS to Mr. THOMPSON, Manager, 65, 66, & 67, St. George's Street, London Docks, E.

BEFORE ORDERING LAWN MOWERS, see the "Sun and Planet Motion," with Patent Compound Wheel, in MORTON'S NEW PATENT LAWN MOWING MACHINE for 1863, allowed to be the best of the season.

Prices and particulars of Horse, Pony, or Donkey, and Hand Machines, to be had from GRIMMOND, LAIRD, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath.

*** Agents wanted in every Town. Apply as above.



Lawn Mowers.

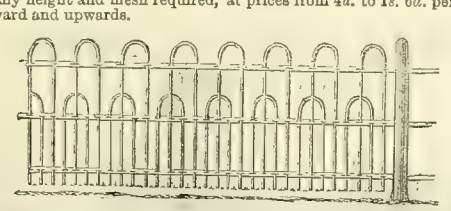
BURGESS AND KEY beg to direct attention to their NEW PATENT LAWN MOWING MACHINE. It is simple, efficient, easily worked, and not liable to derangement. GARDENING and HORTICULTURAL TOOLS of every description. Illustrated Price List free. Catalogues by post on receipt of six postage stamps.

BURGESS & KEY, 95, Newgate Street, London, E.C.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.

Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.



For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

Prices Reduced.

H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING

for Farm Buildings and other Roofs; the cheapest, most durable, and neatest Roofing in use; also Spouting at 10½*d.* per yard.

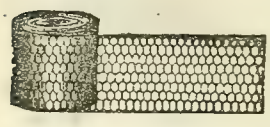
WIRE STRAND CABLE FENCING



formed of Twisted Wires like a rope or cable), the strongest, cheapest, and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Price, with five lines of the Galvanised Strand, iron main posts, and pronged Standards, from 1*s.* per yard.

This fence is far cheaper than posts and rails, or any kind of iron fencing; and possesses four times the strength of solid bars. Will not rust nor corrode. Upwards of 1200 miles of this Fencing supplied.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 4*d.*, 4½*d.*, and 6¾*d.* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 2¾*d.*, 3¾*d.*, and 5½*d.* per yard. The Netting made any width, and with openings of any size.

GALVANISED IRON CHAIN CAMP STOOLS & CHAIRS, POULTRY FOUNTAINS & FEEDERS, PRONGED DAHLIA RODS and ROSE STAKES, &c.

Strong CATTLE HURDLES from 2*s.* per yard.

PATENT IMPROVED GAS WORKS

of all sizes, for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c. Works from 10 to 500 lights estimated for. The works can be entrusted to an ordinary labourer.—Apply to

HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

TANNED NETTING for the protection of Fruit Trees at 1*d.* per square yard: 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; SCRIM CANVAS for Wall Fruits; SUN BLINDS, AWNINGS, TULIP COVERS, &c.

Be particular. JOHN EDGINGTON & Co., 17, Smithfield Bars, E.C.; 108, Old Kent Road, S.E.; and 18, Piccadilly, W.

TANNED NETTING, at reduced prices, 1*d.* per square yard; 200 yards, 14*s.*; 500, 30*s.*; 1000 yards, 50*s.* SCRIM CANVAS, for Wall Fruit; GARDEN MATS; GREENHOUSE SHADES.

Be particular, FREDERICK EDGINGTON & Co., Rick Cloth Manufacturers, Thomas Street, Old Kent Road, London, S.E

Netting for Fruit Trees, Seed Beds, Ripe Strawberries, &c.

TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard, or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard.

Can be had in any quantity of EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

SHAW'S TIFFANY.

For samples and prices apply to

J. SHAW & Co., 29, Oxford Street, Manchester.

Do as Others Do!

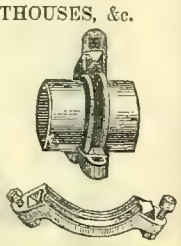
BUY YOUR SEED BAGS from JAMES T. ANDERSON, SACK and BAG MAKER, and RUSSIA MAT MERCHANT, 15, SHERBORNE LANE, King William Street, London, E.C., who will supply you with a first-rate article at a low price. ARCHANGEL MATS, the pick of the season. Russian and Prussian Dunnage Mats.

Prices sent free on application.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.





T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement.

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

DEANE & COMPANY'S

HORTICULTURAL TOOLS.



DEANE'S MOWING MACHINES, with Patented Improvements, 4*l.* 12*s.*, 6*l.* 10*s.*, 7*l.*, 8*l.*

GARDEN ENGINES, Galvanised Iron. Prices 55*s.*, 65*s.*, 78*s.*, 90*s.*, 100*s.*, 110*s.*

GARDEN ENGINES, Wood, 90*s.*, 110*s.*, 138*s.*

FLOWER STANDS, 4*s.* 6*d.* each.

CAST-IRON ORNAMENTAL FLOWER STANDS to hold Seven Vases, 27*s.*

GREEN'S PATENT MOWING MACHINES.

GREENHOUSE SYRINGES, 8*s.*, 10*s.*, 18*s.* 6*d.*

GARDEN ROLLERS, 1*l.* 14*s.* 6*d.*, 2*l.*, 2*l.* 12*s.*, 3*l.* 3*s.*, 3*l.* 18*s.*, 4*l.* 13*s.*, 5*l.* 12*s.*, 7*l.* 10*s.*

GARDEN STOOLS, 4*s.* 6*d.*

GARDEN SEATS, from 25*s.*

BOYD'S SELF-ADJUSTING SCYTHE, 10*s.* 6*d.*

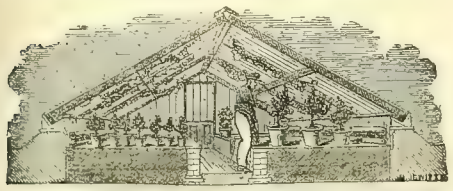
WIRE WORK, 18 in., 4*d.* per yard run.

Every Implement for Garden use on the lowest terms.

DEANE'S NEW ILLUSTRATED HORTICULTURAL LIST POST FREE ON APPLICATION.

DEANE'S, OPENING TO THE MONUMENT, LONDON BRIDGE, E.C.

Hothouses for the Million.—AWARDED A PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner, all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to SAMUEL HEREMAN, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1*s.*; post free, 1*s.* 1*d.*

T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.

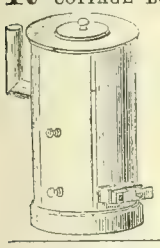


T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

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RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



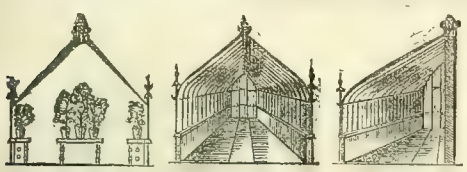
Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon



an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Under the Patronage of Her Majesty.

CLARK AND HOPE (late CLARK), HORTICULTURAL BUILDERS, COPPER, SASH, and HOT-WATER APPARATUS MANUFACTURERS, 55, Lionel Street, Birmingham.
Established A.D. 1818.

GREENHOUSES and CONSERVATORIES HEATED without special fire by the KITCHEN RANGE. See best methods, "Catalogue of Modern Inventions," post free.
London: BROWN BROTHERS, 43, Cranbourn Street, W.C.

Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c

Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

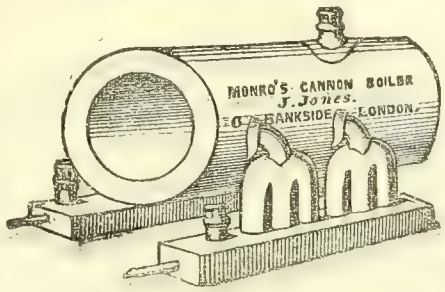
HOT-WATER PIPES, at Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 50*s.* each. Valves from 11*s.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

HEATING BY HOT WATER.



MONRO'S CANNON BOILER.

J. JONES,

HORTICULTURAL ENGINEER AND IRON MERCHANT,

SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

HEATING GREENHOUSES,

CONSERVATORIES,

FORCING PITS,

CHURCHES, CHAPELS, SCHOOLS,

HALLS,

BILLIARD ROOMS,

COACH HOUSES, HARNESS ROOMS, &c.,

OF THE BEST QUALITY, AND AT MODERATE CHARGES.

PLANS, ESTIMATES, and DESCRIPTIVE CATALOGUES

SENT POST FREE ON APPLICATION TO

J. JONES,

6, BANKSIDE, LONDON, S.E.

Greenhouses, Orchard-houses, and Conservatories.

H. FREEMAN'S HORTICULTURAL WORKS, Triangle, Hackney, N.E. Established 20 years.

Good substantially made GREENHOUSES, glazed, ready for fixing, 42 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 28*l.*; 12½ feet by 10 feet, 15*l.* ORCHARD-HOUSES 10 per cent. cheaper.

A handsome CONSERVATORY, 46 feet by 19 feet, for Sale.

Estimates given

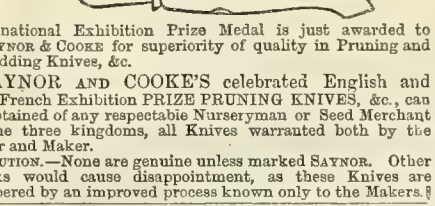
Horticultural Buildings and Heating by Hot Water.

BURY AND POLLARD, Park Iron Works, New Park Street, Southwark, S.E., Manufacturers of every description of Buildings for Horticultural purposes, with their improved CONICAL BOILER for heating the same, undertake works of any magnitude, and refer, among others, to the works at Frogual the seat of Viscount Sydney, the Lord Chamberlain, just completed by them.

BURY & POLLARD also call attention to
THE IRON FURNACE STAND
invented by them. A most economical, durable, and efficient arrangement for warming Conservatories, &c.

Prices of Boilers and every particular on application.

Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal is just awarded to SAYNOR & COOKE for superiority of quality in Pruning and Budding Knives, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

BURGESS AND KEY'S REAPING and MOWING MACHINES.

No. 1. MCCORMICK'S NEW PATENT REAPING MACHINE delivers the Corn in Sheaves by self-acting Rake; price 34*l.*

No. 2. BURGESS AND KEY'S SCREW DELIVERY REAPER delivers the Corn in Swathe; price 36*l.*

No. 3. BURGESS AND KEY'S COMBINED REAPER and MOWER. The Corn is raked off this Machine by a man; price 30*l.*

No. 4. BURGESS AND KEY'S MOWER for Natural and Artificia Grasses; price 25*l.*

All the above are STANDARD IMPLEMENTS, and as to their efficiency BURGESS & KEY refer intending purchasers to the list of Prizes received from various Agricultural Societies, and, with still more confidence, to the large number of Agriculturists who have them in use in all parts of the world.

Immediate Orders are requested to ensure timely delivery.

Full particulars and drawings forwarded on application to
95, Newgate Street, London, or Brentwood, Essex.

TO BE SOLD, the LEASE, STOCK, and GLASS of a NURSERY. Established 20 years. Nearly 40 years of Lease unexpired. It contains 5 Greenhouses and Pits, and a Cottage thereon. One acre of ground.

Apply to Mr. CHILDS, on the Premises, Blenheim Nursery Rye Lane, Peckham, S.

TO BE DISPOSED OF, an Old Established FLORIST'S and FRUITERER'S, for 150*l.*, with immediate possession, containing two Dwelling Houses, Shop, two Greenhouses, with good stock of Plants, Stable and Garden, with Agreement. Rent, 45*l.* a year. Let off, 15*s.* a week.

Enquire on the Premises, BURLEY, 4, West Croft Place, Hammersmith, W.

TO BE LET, upon Lease, at Michaelmas, 1863, a CORN FARM (in consequence of the decease of the late Tenant), comprising a good Residence, very pleasantly situate, a complete set of Agricultural Buildings recently erected, and in the centre of the occupation; seven Labourers' Cottages and 402 acres of Arable and Pasture Land, the whole thoroughly pipe-drained and divided into enclosures, well adapted for Steam Cultivation. It is distant about 7 miles from Chelmsford and 6 from Maldon.

For particulars apply to Messrs. BEADEL, 25, Gresham Street London, E.C.

TO BE LET, HOTHOUSES, GARDENS, &c. with immediate possession, on advantageous terms, as the Proprietor has not time to attend to them. The Houses are above 250 feet long by 16 wide, and heated with a Tubular Boiler, and in good working order. They are well stocked with Pines, Vines, &c., which can be taken, or left with a substantial guarantee that the value of the Stock be not diminished. They are within 80 miles north of London, and near a Railway Station. None but Churchmen need apply.

Address, the Rev. M. A., Messrs. Sawyer's, 1 Castle Court, Birchin Lane, London, E.C.

Sussex.

TO BE LET, on the 11th October next, the NEWHOUSE FARM, in the parishes of Ewhurst and Northiam, consisting of 430 acres 3 roods 37 perches of Arable, Hop, Grass, and Wood Land.

The Farm has been in the hands of the Proprietor for several years, is mostly thoroughly drained, and the House and Buildings are of a superior description.

There are 12 Labourers' Dwellings on the Farm, Blacksmith's and Wheelwright's Shops, and an excellent Brickyard.

The farm is delightfully situated in the most picturesque part of Sussex, 11 miles from Hastings and St. Leonard's, 10 from Rye, 8 from Battle and Robertsbridge—all first-class stations. It is intersected by good roads.

The Shooting over the Land, together with that of 120 acres of Wood Land adjoining, will be let with the Farm Fox hounds and Harriers are within easy reach.

Altogether it is a most desirable occupation. Further particulars may be had on application to FREDERICK WEBSTER, Esq., Battle.

Sales by Auction.

Periodical Sale of Poultry, Pigeons, Rabbits, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, June 16, at 12 o'Clock precisely, a choice assortment of POULTRY, consisting of a capital lot of Light Silver Brahmas, well feathered in the leg; Cochins, Dorkings, Polands, Spanish, Hamburghs, Andalusians, &c., from the yards of the Rev. G. Gilbert and other well-known Breeders. Some first-rate PIGEONS from Messrs. Edmonds, Fulton, Heath, and others.

Also some SPANIEL DOGS, and a few RABBITS.

On view the Morning of Sale, and Catalogues had.

6000 Bedding Plants.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. J. Pyle to SELL by AUCTION, on the Premises, St. John's Nursery, bottom of John Street, Upper Holloway, on MONDAY, June 15, at 12 for 1 o'Clock precisely, about 6000 BEDDING PLANTS, including the usual Miscellaneous Assortment.

May be viewed prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, American Nurseries, Leytonstone, Essex, N.E.

Shethin, near Tarves, Aberdeenshire.

EXTENSIVE AND IMPORTANT SALE OF SHORTHORNS.

MR. STRAFFORD begs to announce that he is favoured with instructions from Mr. Shepherd, of Shethin, to SELL by AUCTION, without Reserve, on WEDNESDAY, the 29th of JULY NEXT, his Extensive and Valuable HERD of PURE-BRED SHORTHORNS, consisting of upwards of 100 head of Bulls, Cows, and Heifers, which were originally selected by the late Mr. Hay, with great care and skill, from the famed Herds of Capt. Barclay, of Ury; Mr. Bates, of Kirkleavington, and other celebrated Breeders, since which have been used the renowned Bulls Grand Duke (10,284), bred by Mr. Bates; Red Knight (11,976), bred by Mr. John Booth; Bosquet (14,183), bred by Sir C. Knightley; and Cherry Duke 2d (14,265), bred by Mr. Bolden. The Stock have been long and favourably known, and have maintained a distinguished position at the National and Local Shows.

Catalogues, with Pedigrees, will shortly be issued, and further particulars given in future Advertisements.

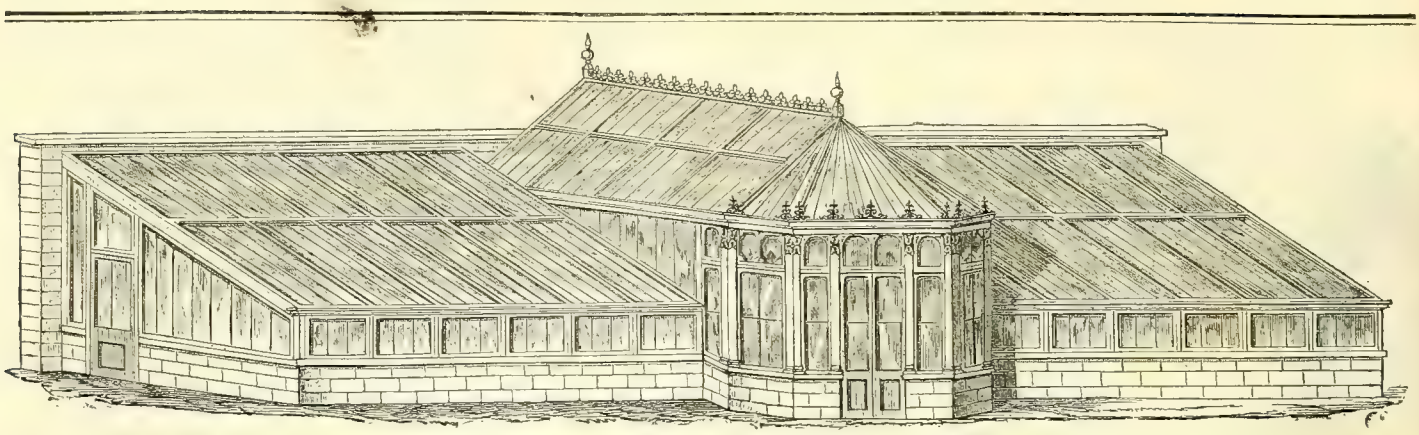
London, 13, Euston Square, N.W., June 13.

The Herd of 43 Prime Imported Alderney Cows,

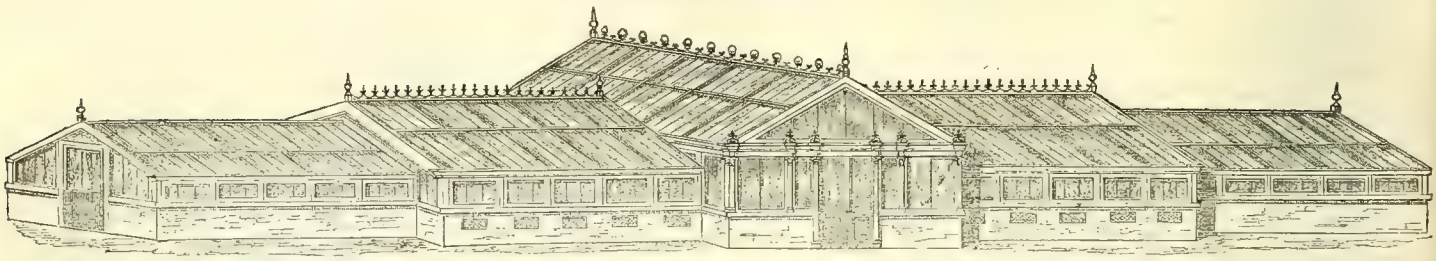
BY DIRECTION OF THE EXECUTORS OF THE LATE MR. M. FOWLER, SEN., AT LITTLE BUSHEY FARM, WATFORD, HERTS.

MR. HUMBERT will SELL by AUCTION, at Little Bushey Farm, Watford, Herts, on WEDNESDAY, June 17, 1863, at 2 o'Clock, by direction of the Executors of the late Mr. M. FOWLER, Sen., deceased, the HERD of 43 ALDERNEY and GUERNSEY COWS and HEIFERS, Calved and Down Calving, four yearling and two 18 months Heifers, two Bulls; also a Pony 12 hands high, quiet to ride and drive, a Basket Phaeton and numerous items.

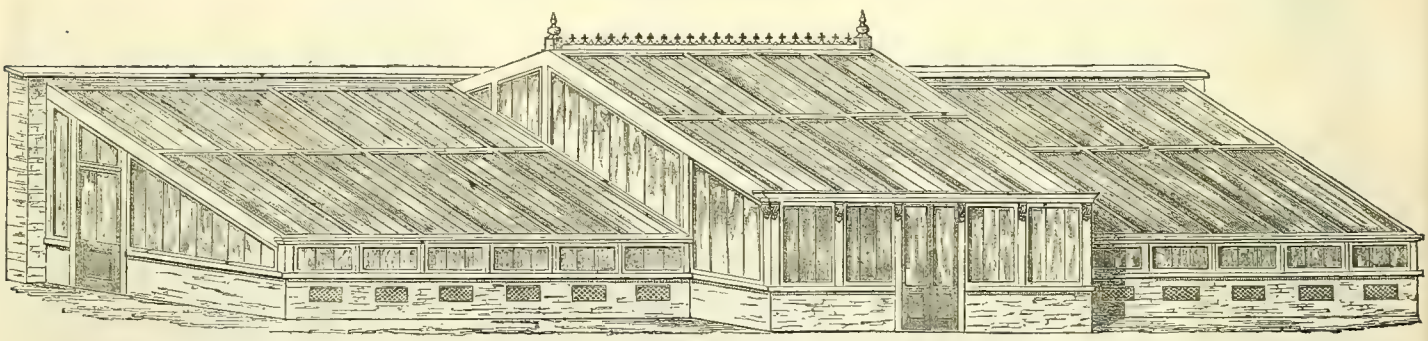
May be viewed the day preceding and Morning of Sale. Catalogues may be had at the Cross Keys, Metropolitan Cattle Market, N.; Mr. MAY, 61, Park Street, Grosvenor Square, W.; The Red Lion, Barnet; The Bell Inn, Bushey; and free by Post of Mr. HUMBERT, Land Agent and Auctioneer, Watford, Herts.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.

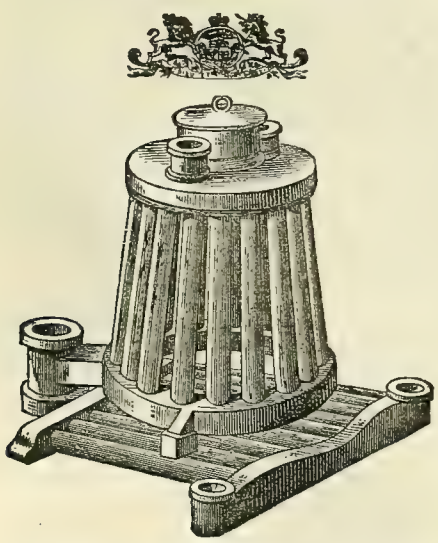


HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.

THE FOLLOWING IS THE REASON WHY

ORMSON'S ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become so universally adopted on account of their superior power, great safety, and economy.



ORMSON'S No. 1 BOILERS	are heating upwards of	250	feet of Pipe.
ORMSON'S No. 2 BOILERS	„	„	600	„
ORMSON'S No. 3 BOILERS	„	„	1300	„
ORMSON'S No. 4 BOILERS	„	„	3500	„
ORMSON'S No. 5 BOILERS	„	„	7000	„

Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

H. ORMSON having a most complete Set of Steam-power Machinery, is in a position to execute Orders with the greatest despatch, and at considerably reduced prices.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,
AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF
HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 25.—1863.] SATURDAY, JUNE 20. {Price Fivepence. STAMPED EDITION, 6d.

INDEX.

Agricultural notes	586 c	Lawson's Pinetum Britanni-	
Alocasia Lowii	580 b	cum	579 a
Apricot leaf Fungus	585 c	Man, origin of	585 b
Babraham sale	586 b	Peas, early	582 b
British Columbia	581 a	Pigs and flies	586 c
Bulb farms, Haarlem	580 c	Pinetum Britanicum, Law	
Chiswick Gardens	584 a	son's	579 a
Climate, rev.	590 a	Plants, new	579 c
Cow milking machine	588 c	Rain gauges	586 b
Cultivation by steam	587 b	Ram water	581 c
Drilling and dibbling	587 a	Rope, wear of	589 c
Drummond's (Mr., of Swan		Rose, Cherokee	582 a
River) death	582 b	Roses	581 a
Exhibition plants	579 b	Ruston on steam culture	588 c
Farmers' Club, London	589 c	Salmon ladders	582 b
— privies	587 a	Savory's double engine	589 c
Fir trees	581 c	Smith's tackle	589 a
Fowler's tackle	589 b	Society, Royal Horticul-	
Fungi, death to	581 c	tural	579 c—581 c
Grapes, rust in	585 c	Steam cultivation	585 c
Haarlem bulb farms	581 c	Table decoration	579 c, 581 c—583 b
Haymaking	588 a	Thick and thin seeding	586 c
Holdings and agreable capital	587 b	Vine leaf excrescence	584 c
Howard's cultivator	589 a	Working of Smith's grubber	580 b
Iron as a tonic	586 b	Zurich Botanic Garden	583 c

ROYAL BOTANIC SOCIETY, REGENT'S PARK.

The LAST EXHIBITION of PLANTS, FLOWERS, and FRUIT this Season will take place on WEDNESDAY NEXT, June 24.

Tickets to be obtained at the Gardens by Orders from Fellows of the Society, price 5s., or on the day of Exhibition 7s 6d each. The Gates open at 2 o'clock. Three Military Bands will attend.

The next MEETING for the Election of New Subscribers, Saturday, June 27.

CRYSTAL PALACE.—The GREAT ROSE SHOW, SATURDAY, June 27, 1863.

Schedules are now ready, and can be had on application to Mr. W. HOUGHTON, Secretary to the Show.

The ENTRIES CLOSE on Saturday, June 20.

Admission to the Crystal Palace on the day, 2s. 6d.; children, 1s.

STAMFORD HORTICULTURAL SOCIETY. OPEN TO ALL ENGLAND.

The GRAND FÊTE and ROSE SHOW will take place on WEDNESDAY, July 8. Entries should be sent in on or before the 1st of July.

Schedules with forms for entry may be had on application to Messrs. LAXTON & HEWITT, Hon. Sec., Stamford.

BIRMINGHAM ROSE SHOW.—The PRIZE LIST of this important exhibition of Cut Roses, Garden Ornaments, and Horticultural Implements is now ready, and, as will be seen on reference to the Advertisement which appears in another column, may be had on application to the Secretary, Mr. ALEX. FORREST, Queen Chambers, Birmingham, from whom also Forms of Entry may be had.

The last day on which Entries of Implements and Garden Ornaments can be made is July 2, and of Roses July 9. There is every reason to expect an unusually fine display of the "Queen of Flowers" at this interesting and important exhibition.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The ANNIVERSARY FESTIVAL in Aid of the Funds of this Society will take place at the London Tavern, Bishopsgate Street, on FRIDAY, July 3 NEXT.

The Right Hon. the Earl of DUCIE, Vice-President of the Royal Horticultural Society, in the Chair.

Tickets, 21s. each, may be procured of the Secretary and at the Tavern. EDWARD R. CUTLER, Secretary.

14, Tavistock Row, Covent Garden, W.C.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The HALF-YEARLY MEETING of the Members of this Society will be held on WEDNESDAY, July 8, at the Bedford Hotel, Covent Garden, for the purpose of ELECTING TWO PENSIONERS on the Funds of the Society.

The Chair to be taken at 6 o'Clock in the Evening precisely.

The Ballot will close at 8 o'Clock precisely.

Subscriptions are due on January 1.

The Voting Papers have all been delivered. Any Subscriber not having received one is respectfully requested to make immediate application to E. R. CUTLER, Secretary.

14, Tavistock Row, Covent Garden, W.C.

Grand Exhibition of Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER has the pleasure to announce that his matchless COLLECTION of the above plants is NOW on VIEW at the Royal Botanic Gardens, Regent's Park.

Orders of admission are granted by Fellows of the Society. Admission can also be obtained on application to Mr. WATERER, at the Gardens, any days excepting Wednesdays or Saturdays.

The American Nursery, Bagshot, Surrey.

Notice.—American Plants.

WATERER AND GODFREY'S CATALOGUE is now ready, and will be sent on application; it gives a fair price and description of all the Rhododendrons and other American Plants worth growing, as well as a general summary of the most extensive Nursery Stock in Europe.

The Exhibition of American Plants in the Royal Horticultural Society's Garden, South Kensington, were supplied by WATERER & GODFREY, Knap Hill, near Woking.

NEW PRIZE MELONS, at 1s. 6d. per packet.

Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria.

For descriptions see GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

TO BE SOLD, in the Country, 10 FRUITING PINES, 50 SUCCESSION PLANTS, and 36 SMALLER PLANTS, the Property of a Gentleman.

For further particulars, apply by letter, L. H. T., 61, King William Street, London, E.C.

Good Turnip Seeds, Carriage Free.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

Agricultural Seeds.

GEORGE GIBBS AND CO., SEEDSMEN, 26, Down Street, Piccadilly, London, W.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH, SEED MERCHANTS, Covent Garden Market, London, W.C.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

CARTER'S FIRST-CLASS SEEDS of

CALCEOLARIA	2s. 6d. p. packet	
,, new blotched	2 6	,,
CINERARIA	2 6	,,
PRIMULA	2 6	,,

JAS. CARTER & Co., 237 and 238, High Holborn, W.C.

VERBENA PURPLE KING.—The Advertiser has a large stock of healthy Plants, which he can offer at 12s. 6d per 100 out of pots, carefully packed in Moss.

W. WHITEHOUSE, Nurseryman, Harborne, Birmingham.

NOVELTIES of 1863 at greatly reduced prices.—A CATALOGUE of 30 pages, containing full descriptions of nearly 500 New Choice Plants of the season, including the New Fuchsias and Verbenas, &c. Post free for one stamp.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Trichomanes spicatum.

JAS. BACKHOUSE AND SON have pleasure in offering nice plants, imported last summer, of this beautiful West Indian Fern, at 6Os. and 84s. per dozen. Larger specimens at 10s.6d., 15s., and 21s. each.

York Nurseries, June 20.

DOBSON'S SPLENDID SEEDS.—See Advertisement in last week's *Gardeners' Chronicle*, page 550.

J. DOBSON & SONS, Seedsmen, Isleworth.

New Verbenas of 1863.

B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, has now ready to send out the NEW VERBENAS of 1863, at 4s. per dozen.

CATALOGUES of VERBENAS and other Novelties sent on application.

SPLENDID NEW SCARLET VERBENA, LORD LEIGH.—Strong Plants now ready, 5s. each, 42s. per dozen.

All the above, 1s. and 2s 6d. per packet.

☞ EXPERIENCED GARDENERS recommended to Gentlemen.

Wellington Nursery, St. John's Wood, London, N.W.

Cineraria and Calceolaria.

E. AND A. SMITH are now sending out Seed of their very superior strain of the above, carefully selected from first-class varieties, in packets at 1s., 1s. 6d., and 2s. 6d. each.

The Nurseries, Dulwich, London, S.

Herbaceous Calceolaria.

GUARANTEED FINEST QUALITY AND NEW SEED.

WM. CUTBUSH AND SON beg to offer the above, saved with the greatest care from the Stock, which invariably obtains the FIRST PRIZES wherever exhibited. Per packet, 2s. 6d., 3s. 6d., and 5s., Post-free. Liberal allowance to the Trade.

Highgate Nurseries, London, N.

Ferns.

EDWIN COOLING will have pleasure in forwarding his NEW PRICED CATALOGUE on application. Also his GENERAL LIST of CHOICE PLANTS suitable for the Conservatory and Flower Garden.

Mile Ash Nurseries, Derby.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.

Dorking Nursery.

CALCEOLARIA, CINERARIA, PRIMULA, &c.—CALCEOLARIA, saved from carefully hybridised flowers, possessing all the recognised floral qualifications, viz., size, form, colours, and marking. Price, 1s. and 2s. 6d. per packet. CINERARIA, extra choice, 1s. per packet. PRIMULA SINENSIS FIMBRIATA, extra choice, 1s. and 2s. 6d. per packet. DRACÆNA (CORDYLINE) INDIVISA, from Mount Egmont, New Zealand.—Beautiful fine foliaged plant, 1s. and 2s. 6d. per packet.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

New Roses for 1863.

BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.

St. John's Street Nursery, Colchester.

New Roses of 1863.

E. G. HENDERSON AND SON offer strong healthy plants of the most select kinds at 42s. per dozen. The Trade supplied in any quantity.

Wellington Nursery, St. John's Wood, London, N.W.

Paul's Nurseries, Waltham Cross.

WM. PAUL (Son and Successor to the late A. PAUL), has a large Stock of all the NEW ROSES, now ready for delivery. Splendid plants at lowest advertised prices.

PRICED CATALOGUE free by post.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON).—Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7s. 6d. each, are now ready.

Old Cheshunt Nurseries, Herts.

New Dahlias of 1862.

C. E. ALLEN can supply strong Plants for immediate planting at 7s. per dozen, Package included, for Cash, of the following varieties:—LORD DERBY, MODEL, BOB RIDLEY, DONALD BEATON, GOLDFINDER, JOHN HARRISON, CYGNET, CAPT. HARVEY, MRS. BUSH, OSCAR, UNA, LADY ELCHO, &c., to be taken by the set.

Shacklewell, near London, N.E.

Bedding Tropæolum.—Ball of Fire.

ARTHUR HENDERSON AND SON are now sending out the above brilliant BEDDING TROPÆOLUM.

For description and full details see figure and remarks in the *Floral Magazine* for January, 1863, Plate 129, colour of Tom Thumb Geranium. This will prove one of the best and most beautiful Bedding Plants of the season.

Per 100 Plants	£3 10 0	Per 25 Plants	£1 10 0
,, 50 ,,	2 2 0	,, 12 ,,	0 18 0
1 Plant	2s. 6d.		

Pine Apple Place, Edgeware Road, London, W.

WILLIAM ROLLISSON AND SONS beg to announce that they have a large Stock of the leading sorts of GRAPE VINES in Pots, consisting of Fruiting and other sized Plants, in fine health and vigorous growth. The prices are moderate, and may be obtained on application, post free.

W. R. & SONS beg also to state that their CATALOGUE of New, Beautiful, and Rare Plants for 1863, will be forwarded, on application, post free.

The Nurseries, Tooting, near London, S.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. Annual Sale exceeds 2000 packets. In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each.

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1s., 2s. 6d., and 5s.

J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE PRIMULA SINENSIS SEED. In sealed packets, 1s., 2s. 6d., and 5s.

J. DOBSON & SONS, Seedsmen, Isleworth.

J. C. PADMAN, Boston Spa, near Tadcaster, offers CALADIUMS, good Plants.

Caladium argyrites	1s. 6d.	Caladium Houlletii	2s. 0d.
,, bicolor	1 0	,, marmoratum	1 6
,, ,, splendens	1 0	,, Mafaffa	2 0
,, ,, picturatum	1 6	,, pictum	2 0
,, Chantinii	1 6	,, Wightii	2 6
,, esculentum	1 0		

One Set for 15s.; hamper and package included. Half Specimen Plants, 2s. 6d. and 3s. 6d.

SPECIAL CHRYSANTHEMUM LIST on application.

NEW CUCUMBERS, at 1s. per packet.

Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.

BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Cabbage Plants.

W. VIRGO AND SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, a 3s. per 1000:—

EARLY YORK CABBAGE	EARLY NONPAREIL
,, BATTERSEA	DRUMHEAD
,, BARNES	

RED CABBAGE, 4s. p 1000. All strong, healthy, and well rooted.

Wonersh Nursery, near Guildford, Surrey.

Cheap Bedding Plants.

WM. DILLISTONE will forward (Carriage free to London), upon receipt of Post Office Order for 18s. on Castle Hedingham, 100 Strong Plants in Pots; consisting of GERANIUMS, FUCHSIAS, DAHLIAS, VERBENAS CALCEOLARIAS, &c.

N.B. The above are warranted to give satisfaction. CATALOGUES upon application.

Munro Nursery, Sible Hedingham, Essex.

Hunt's Sweet Williams.

WM. BRAGG, with permission, will exhibit the above famed known varieties at the Royal Botanic Gardens on June 24, and the Royal Horticultural Society's Gardens on July 1, for Competition with Mr. Dean's Auricula or any others.

N.B.—W. B. trusts Mr. Dean will attend to this Advertisement, and prove who has the best.

Select Stove and Greenhouse Plants, &c.

ROBERT PARKER begs to invite attention to his Collections of AMARYLLIS, AZALEA INDICA, EXOTIC ORCHIDS, FERNS, and LYCOPODS; ORNAMENTAL and VARIEGATED FOLIAGED PLANTS; MISCELLANEOUS, STOVE, GREENHOUSE, and HARDY PLANTS; all of which are healthy and clean. Purchasers of large or small quantities will be treated on the most liberal terms.

PRICED and DESCRIPTIVE CATALOGUES are published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

New Bedding Scarlet Horse Shoe Geranium Adonis.

JOHN HALLY, NURSERYMAN, SEEDSMAN, and FLORIST, Blackheath, S.E, intends sending out the above on June 24. It is a distinct and good thing, and a great improvement on all existing Scarlets. Flowers of a bright, light, pure scarlet, with clear white eye, and of perfect shape. It was tried at Chiswick last year as a bedding plant, and is thus described by Mr. Moore in the Proceedings of the Royal Horticultural Society for March last. "ADONIS * * * (the highest mark of merit), HALLY. Moderately vigorous habit, leaves darkly zoned. Flowers scarlet, of excellent form, with white eye—considered to be a superior novelty." It received a Certificate of Merit at the Royal Botanic Society's Show in Regent's Park, on June 3; also a 1st Class Certificate at the Royal Horticultural Society's Show on the 17th. Plants, 5s. each, with the usual discount to the Trade. The following Nurserymen have already ordered it in quantities, and will be able to supply it:—

Messrs. Backhouse & Sons, York	Messrs. Lucombe, Pince, & Co., Exeter
,, Bunyard & Son, Maidstone and Ashford	,, E. G. Henderson & Son, St. John's Wood
,, Downie & Co., Sydenham	,, Lee, Hammersmith
,, Francis & Sons, Hertford	,, Osborn & Sons, Fulham
,, A. Henderson & Co., Edgeware Road	,, Low & Co., Clapton
,, Ivery & Son, Dorking	Mr. Ivery, Peckham
	,, Turner, Slough
	,, Williams, Holloway

GOLDEN VARIEGATED BALM for RIBBON GARDENS.—Why plant the Golden Chain Geranium, when an equal or finer effect can be produced by the Golden Balm? Being a Perennial and perfectly hardy it requires no replanting from year to year, and saves the trouble and expense of housing and propagating annually. The following is extracted from THE FLORAL WORLD for June, 1863, page 130.

"One of the most valuable plants ever seen or heard of for amateurs who are not made of money, is the Golden Balm. The leaves are richly and uniformly painted a deep orange yellow, with a narrow stripe of deep green up the centre, and are considerably larger than those of the Variegated Mint. Seen in a mass it is so fine that if I were to use the word 'gorgeous' I should scarcely exaggerate. If left in the ground it comes up the next year amazingly strong, and as true as from cuttings. I would match it against Golden Chain any day for effect," &c.

JAMES BACKHOUSE & SON can supply on the 1st of next month nice plants at 6s. per dozen, 42s. per 100, or at a still lower rate per 1000.

York Nurseries, June 20.

New Indian Azaleas, and Rhododendron Prince of Wales.

WILLIAM ROLLISSON AND SONS beg respectfully to announce that they have purchased the stock of Mr. TODMAN'S three NEW INDIAN AZALEAS, viz.:—

AZALEA PRINCESS of WALES
AZALEA LORD CANNING | AZALEA RIFLEMAN

three most beautiful and distinct varieties, of fine form and good substance. Healthy young plants of the above, grafted and from cuttings, will be ready for delivery next April at 21s. each.

WM. R. & SONS will send out at the same time their new SEEDLING RHODODENDRON, PRINCE of WALES, a cross between Rhododendron javanicum and Rhododendron retusum, a most beautiful variety. The flowers are a brilliant scarlet-orange, fine dark green foliage, and of good habit. A most valuable acquisition as a greenhouse or conservatory plant. Healthy young plants, next April, at 31s. 6d. each.

The usual discount allowed to the Trade.

The Nurseries, Tooting, London, S.

Prize Vegetables.—Plants of

JOHN CATTELL'S CABBAGES, KAILS, BROCCOLIES, &c., may be had at the following prices:—

	p. 1000
CABBAGE, Reliance and other kinds	s. d.
KAILS, of all the true kinds, as exhibited at the Great International Fruit, Gourd, and Vegetable Show of the Royal Horticultural Society, held at their Kensington Gardens in October, 1862, and to which the First Prize was awarded	4 0
BROCCOLIES, of all the leading kinds	
CELERY, do. do. bedded plants	5 0
RED CABBAGE	
VARIEGATED GARNISHING KAIL, 1s. per 100.	
DRUMHEAD CABBAGE, and the large kinds of SAVOYS	3 0

JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

TRADE

HALLETT'S PEDIGREE. NURSERY WHEAT.

MARK.

This Wheat will be exhibited at the forthcoming International Agricultural Meetings at Odense, Denmark; Hamburg; and at the Worcester Meeting of the Royal Agricultural Society, upon the STAND of Messrs. THOS. GIBBS & Co., their Seedsmen.

"HOW OUR WHEAT CROPS MAY BE DOUBLED," and other Papers, forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq, F.L.S., The Manor House, Brighton, Sussex.

REIGATE SILVER SAND.—Best quality, 7s. 6d. per ton; second quality, 6s per ton; best quality, in bags, 16s. per ton; ditto 2s. 6d., 2 cwt. bags, stamps, put on the South-Eastern Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

Loaded Trucks can be sent on all the principal Railways.

W. SHORT, Salesman, &c., Reigate, Surrey.



Skirving's Swede—Sutton's Selected Stock.

SUTTON AND SONS have a choice Stock of SKIRVING'S SWEDE SEED, growth of 1862, which they can strongly recommend. 9d. per lb., or *cheaper in large quantities.*

Also SUTTON'S CHAMPION, Hardy PURPLE-TOP, and Hardy WHITE SWEDE; but the Stock of "Champion" Swede, though saved from upwards of 50 Acres of Land, being small compared with the demand, this sort cannot be supplied under 1s. per lb., or 45s. per bush.

Royal Berkshire Seed Establishment, Reading.

TAN GRATIS, in the immediate neighbourhood of Covent Garden Market,

Apply at WILLIAM ESSEX & SON, 28, Stanhope Street, Clare Market, W.C.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.

Can be obtained through the principal Nurserymen and Seedsmen in England.

A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.

PAGE & TOOGOOD, Seed Merchants, Southampton.

The only Certain Remedy for Mildew.

JOHN BELL'S COMPOSITION for DESTROYING MILDEW on Vines, Peaches, Nectarines, Roses, and every other Plant subject to that pest, is proved to be the most efficacious that has ever been offered. Sold in Bottles at 1s. 6d., 2s. 6d., and 5s. each. A 1s. 6d. Bottle will make 12 gallons fit for use.

Seed Warehouse, 10 & 11, Exchange Street, Norwich.



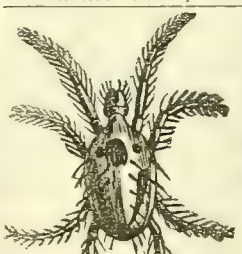
Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1s. and 2s. per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1s. per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE CO. Limited.

PATENT ELECTRICAL PLANT PROTECTOR for the preservation of Plants, Flowers, and Shrubs from Snails, Worms, Slugs, &c.

This Protector being composed of zinc and copper, or of any two metals combined in such a manner as to form an electrical couple, constantly gives off a certain amount of electricity, rendering plants entirely secure from the attacks of Slugs, &c., as it has been discovered to be perfectly impossible for any insect or worm to crawl over a combination of these two metals.

Being formed in plain and ornamental designs for borders, beds, &c., it is applicable to all gardens, terraces, &c.; it is also made in the form of Plant Guards to encircle the stems.

Illustrated Lists of Prices post free on application to ROBERT B. LEE & Co., Sole Manufacturers of the Patent Plant Protector, 22, Market Place, Manchester.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.

PROTECTION from the COLD WINDS & MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 6d. per yard run.
Four yards wide	3s. per yard.
An improved make, 2 yards wide,	1s. 8d. per yard.
An improved make, 3 yards wide,	2s. 6d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 4d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

FARM AND GARDEN SEEDS

CARRIAGE FREE.

BANGHOLM SWEDE,
EAST LOTHIAN SWEDE,
WARD'S BEAUTY SWEDE,
DROPMORE SWEDE,
MARSHALL'S CHAMPION SWEDE,
GREEN-TOP SWEDE,
WHITE SWEDE,
IMPROVED SKIRVING'S SWEDE.
WHITE and RED GLOBE, and
NORFOLK TURNIP,
SCOTCH YELLOW TURNIP.
DOBITO'S YELLOW OVAL MANGEL,
WARD'S DITTO,
IMPROVED YELLOW GLOBE DITTO,
IMPROVED ORANGE GLOBE DITTO,



IMPROVED LONG RED MANGEL,
IMPROVED LONG YELLOW MANGEL,
IMPROVED RED GLOBE MANGEL,
IMPROVED WHITE FIELD BEET,
RED CLOVER, | COWGRASS,
WHITE, YELLOW, and ALSIKE CLOVERS.
PACEY'S PERENNIAL RYE-GRASS, and other sorts.
ITALIAN RYE-GRASS, FOREIGN and ENGLISH SEED.
NATURAL GRASS SEEDS, in mixture or separate, suitable for various soils and localities.
LIGHT RYE-GRASS and other CHEAP GRASSES, for Sowing on Railway Banks and Waste Places.

Orders for Exportation promptly attended to.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN,

28, KING STREET, CHEAPSIDE, NEAR the GUILDHALL; and

15, LAWRENCE LANE, LONDON, E.C.

PARADISE AND VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

B. S. WILLIAMS

Invites inspection of his large and well assorted Collections of

EXOTIC ORCHIDS, FERNS AND LYCOPODS,

MISCELLANEOUS, STOVE AND GREENHOUSE PLANTS, VARIEGATED AND ORNAMENTAL FOLIAGED PLANTS.

AMONGST WHICH ARE SOME VERY FINE SPECIMENS.

Now ready, post free to all applicants,

A NEW GENERAL PLANT CATALOGUE,

Containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Herbaceous and Alpine Plants, Roses, Hardy Trees and Shrubs, Fruit Trees, &c.,

WITH A DESCRIPTIVE LIST OF NEW, BEAUTIFUL, AND RARE PLANTS.

AQUARIUMS, FERN CASES, &c.

JAMES PHILLIPS & CO.

BEG TO SUBMIT THE FOLLOWING PRICES :—

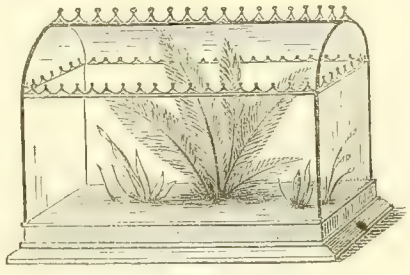
IRON TANK AQUARIUM, with Slate Bottom, and Glazed with Plate Glass, &c.

30 ins. long, 17 ins. wide, 15 ins. deep, 3*l.* 10*s.*; 26 ins. long, 16 ins. wide, 15 ins. deep, 3*l.*; 20 ins. long, 13 ins. wide, 9½ ins. deep, 1*l.* 18*s.*



ZINC AQUARIUMS, as per sketch, glazed with stout sheet glass, and slate bottoms.

12 inches long ..	£0	18	0	18 inches long ..	£1	7	0
14 inches long ..	1	1	0	20 inches long ..	1	10	0
16 inches long ..	1	4	0	24 inches long ..	1	16	0



FERN CASES,

as per sketch, or with span roofs, same price as Zinc Aquarium.

BEST ROUND GLASS AQUARIUM, with Black Stand.

12 inches diameter	5*s.*	16 inches diameter	10*s.*	19 inches diameter	14*s.*
14 inches diameter	8*s.*	18 inches diameter	13*s.*	20 inches diameter	15*s.*

JAMES PHILLIPS AND CO., 180, BISHOPSGATE STREET WITHOUT, E.C.

Glass and Mixed Paints (Ready for Use.)

FOR FACTORIES, HOT-HOUSES, CONSERVATORIES, GARDEN FRAMES, PITS, AND DWELLING-HOUSES, &c.

THE LONDON CO-OPERATIVE OIL and COLOUR COMPANY (Limited), from their connection with some of the largest British and Foreign Glass and Lead Manufacturers, are prepared to supply White Lead, Zinc Paint, Mixed Paints in all Colours; and strong Sheet, Rough Plate, and every other description of Glass in Crates, Cases, or Cut to Size for Home Use or Export at the very lowest wholesale prices. Gardeners, Nurserymen, and others advised as to the best mode of Erecting, Heating, Ventilating, and Glazing Pineries and other Forcing Houses. Farmers, Stewards, Market Gardeners, &c., supplied with Stucco, Anticorrosion, Metallic Oxide, and Mixed Paints ready for use for Dwelling Houses, Farm Buildings, Park Fences, Ships' Bottoms, &c.

Apply for ILLUSTRATED LISTS to Mr. THOMPSON, Manager, 65, 66, & 67, St. George's Street, London Docks, E.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained

BLACKERTON MINERAL, an economical Paint, of good body and superior quality, for external or internal purposes of every description. Dries quickly and is very durable. Mixed with Whitelead it makes a capital lead colour, and with yellow ochre a good bronze or invisible green. Price 5*s.* per cwt.

Apply to Mr. W. SANSOME, General Merchant, near the Railway Station, Taunton, Somerset

FLORAL DECORATIONS for the TABLE.—The PARAGON FLOWER TRAY, combining Growing Plants with Cut Flowers. No Drawing-room should be without one. Prospectuses Post free on application to GEORGE WEEKS, Patentee, Bromley, Kent.

THOMAS MILLINGTON,

GLASS MERCHANT. (Established 1750.)

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

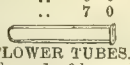
THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY T. MILLINGTON.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home use and for Exportation.



PROPAGATING GLASSES.

2 inches diam.			0*s.* 3½*d.* each.
3	,,	..	0 4½ ,,
4	,,	..	0 5½ ,,
5	,,	..	0 6½ ,,
6	,,	..	0 8 ,,
7	,,	..	0 10 ,,
8	,,	..	1 0 ,,
9	,,	..	1 2 ,,
10	,,	..	1 4 ,,
11	,,	..	1 6 ,,
12	,,	..	1 9 ,,
13	,,	..	2 0 ,,
14	,,	..	2 6 ,,
15	,,	..	3 0 ,,
16	,,	..	3 6 ,,
17	,,	..	4 0 ,,
18	,,	..	5 0 ,,
19	,,	..	6 6 ,,
20	,,	..	7 0 ,,



FLOWER TUBES.
2*d.* each, or 1*s.* 6*d.* per dozen.



ZINC HAND GLASSES.
Painted and Glazed with 16-oz. Sheet Glass.

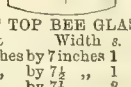
12 inches	..	5*s.* 6*d.* each
14 ,,	..	6 6 ,,
16 ,,	..	7 6 ,,
18 ,,	..	8 6 ,,
20 ,,	..	9 6 ,,
24 ,,	..	11 6 ,,

If open top, 1*s.* extra.



BEE GLASSES.

4 inches diameter			0*s.* 6*d.* each
5	,,	..	0 8 ,,
6	,,	..	0 10 ,,
7	,,	..	1 1 ,,
8	,,	..	1 4 ,,
9	,,	..	1 8 ,,
10	,,	..	2 0 ,,
11	,,	..	2 6 ,,
12	,,	..	3 0 ,,



FLAT TOP BEE GLASSES.

Height		Width	*s.*	*d.*
4 inches	by	7 inches	1	6 each
4½ ,,	by	7½ ,,	1	9 ,,
5½ ,,	by	7½ ,,	2	0 ,,
6½ ,,	by	8 ,,	2	3 ,,
7½ ,,	by	8½ ,,	2	10 ,,

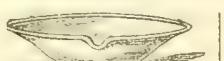
FERN SHADES & STANDS.

Ins. dia.	Shades.		Stands.	
6 ..	1*s.* 4*d.* each.		1*s.*	0*d.* each
7 ..	1 8	,,	1 3	,,
8 ..	2 0	,,	1 6	,,
9 ..	2 6	,,	1 9	,,
10 ..	3 3	,,	2 0	,,
11 ..	4 0	,,	2 6	,,
12 ..	5 6	,,	3 0	,,
13 ..	7 6	,,	3 6	,,
14 ..	10 0	,,	4 0	,,
15 ..	14 0	,,	4 6	,,
16 ..	18 6	,,	5 0	,,



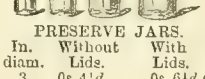
WASP TRAP, 2*s.* 6*d.* per doz.

Crystal Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimneys and Globes, &c.



MILK PANS.

6 inches diameter			0*s.* 6*d.* each
8	,,		0 9 ,,
10	,,		1 0 ,,
12	,,		1 3 ,,
14	,,		1 9 ,,
16	,,		2 3 ,,
18	,,		2 9 ,,
20	,,		3 3 ,,
22	,,		3 9 ,,
24	,,		4 6 ,,



PRESERVE JARS.

In. diam.	Without Lids.		With Lids.	
3 ..	0*s.* 4½*d.*	..	0*s.* 6½*d.*	ea.
4 ..	0 6	..	0 9	,,
5 ..	0 8	..	0 11	,,
6 ..	0 10	..	1 2	,,
7 ..	1 0	..	1 4	,,
8 ..	1 4	..	1 8	,,
9 ..	1 8	..	2 2	,,
10 ..	2 0	..	2 8	,,

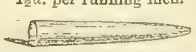


FISH GLOBES.

	Without feet.	With feet.
8 inches diam.		
9 ,,		
10 ,,		
11 ,,	Per lb.	
12 ,,	7*d.*	9*d.*
13 ,,		
14 ,,		
15 ,,		
16 ,,		



ROLLING PINS.
From 12 inches long, 1½*d.* per running inch.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1*d.* per running inch.

SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

	300 feet		200 feet.		
	15 oz.	21 oz.	26 oz.	32 oz
Fourths quality	33*s.* 6*d.*	33*s.* 6*d.*	39*s.* 6*d.*	45*s.* 0*d*
Thirds do.	42 0	42 0	49 0	56 0
Seconds do.	62 0	64 0	74 6	85 0
Best do.	88 6	88 6	103 6	118 0

CRYSTAL SHEET GLASS.

For Pictures and best Glazing purposes.

Averaging 16 oz. to the foot.

Best quality, in cases of 200 feet	100*s.*
Second quality, in cases of 100 feet	82*s.*

Averaging 30 oz. to the foot.

Best quality, in cases of 100 feet	100*s.*
Second quality, in cases of 100 feet	82*s.*

SQUARES, in 100 and 200 Feet Boxes.

Small Squares not exceeding 9½ inches by 7½ inches.

Ins. Ins.	Ins. Ins.	Ins. Ins.	Ins. Ins.
6 by 4	7 by 5	8 by 6	9 by 7
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½

Per 100 feet.

4ths.	3rds.	2nds.	Best.
9*s.* 9*d.*	11*s.* 3*d.*	13*s.* 9*d.*	16*s.* 9*d.*

Squares not exceeding 14 inches by 11 inches.

10 by 8	12 by 9	12½ by 10½	14½ by 10½
10½ by 6½	12½ by 9½	13 by 10	15 by 10
11 by 9	13 by 9	13¼ by 10½	13 by 11
11½ by 9½	12 by 10	14 by 10	14 by 11

Per 100 feet.

4ths.	3rds.	2nds.	Best.
10*s.* 9*d.*	12*s.* 3*d.*	15*s.*	18*s.*

Squares not exceeding 20 inches by 18 inches.

15½ by 10½	14 by 12	17 by 13	24 by 16
16 by 10	14½ by 12½	18 by 13	20 by 17
14½ by 11½	15 by 12	18 by 14	22 by 17
15 by 11	15¼ by 12½	22 by 14	24 by 17
15½ by 11½	16 by 12	24 by 14	20 by 18
16 by 11	16½ by 12½	22 by 15	22 by 18
13 by 12	17 by 12	24 by 15	24 by 18
13½ by 12½	18 by 12	22 by 16	

Per 100 feet.

4ths.	3rds.	2nds.	Best.
11*s.* 6*d.*	13*s.* 6*d.*	16*s.* 6*d.*	20*s.*

Orchard House Sizes, as recommended by Mr. Rivers.

Ins. Ins.		15 oz.		21 oz.		
20 by 12	4ths	..	11*s.* 6*d.*	4ths	15*s.* 0*d.*	Per 100 feet.
20 by 13	3rds	..	13 6	3rds	19 0	
20 by 14	2nds	..	16 6	2nds	25 0	
20 by 15	Best	..	20 0	Best	30 0	
20 by 16						

Squares Cut to Sizes not on List.

	15 oz.				21 oz.			
Under	4ths.	3rds.	2nds.	1st.	4ths.	3rds.	2nds.	1st.
1 ft. super.	1¼*d.*	1¾*d.*	2*d.*	2½*d.*	2½*d.*	2¾*d.*	3¼*d.*	4¼*d.*
2 ft. super.	1¾	2	2½	3	2¾	3	4	5¼
3 ft. super.	2	2½	2¾	3¾	3	3¼	4¼	6
4 ft. super.	2¼	2½	3	4	3¼	3¾	4½	6½

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

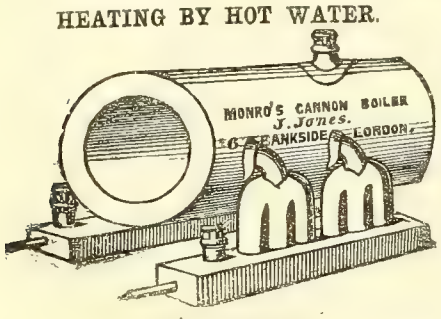
	Per cwt.—*s.* *d.*		Per gallon.—*s.* *d.*		Per gallon.—*s.* *d.*
GENUINE WHITE LEAD	.. .. 30 0	FINE OAK VARNISH	10*s.* to 12 0	LINSEED OIL	3 9
ANTI-CORROSION PAINT	..28*s.* to 34 0	,, CARRIAGE	.. 12*s.* to 14 0	BOILED OIL	4 2
LINSEED OIL PUTTY	.. .. 8 0	PATENT DRYERS	per cwt. 28*s.* to 42 0	TURPENTINE	8 6

MILLED LEAD in Sheet and Pipe of all sizes. Old LEAD bought or taken in exchange.

LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of all kinds.

NETT CASH.

HEATING BY HOT WATER.



MONRO'S CANNON BOILER.

J. JONES,

HORTICULTURAL ENGINEER AND IRON MERCHANT,

SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

HEATING GREENHOUSES,

CONSERVATORIES,

FORCING PITS,

CHURCHES, CHAPELS, SCHOOLS,

HALLS,

BILLIARD ROOMS,

COACH HOUSES, HARNESS ROOMS, &c.,

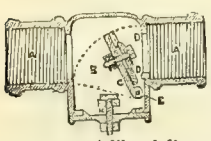
OF THE BEST QUALITY, AND AT MODERATE CHARGES.

PLANS, ESTIMATES, and DESCRIPTIVE CATALOGUES

SENT POST FREE ON APPLICATION TO

J. JONES,

6, BANKSIDE, LONDON, S.E.



T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough, has recently patented a VALVE which is unequalled for its efficiency, simplicity, durability, and cheapness. Prices as under. Two-inch, 17*s.* 6*d.*; 3-inch, 23*s.*; 4-inch, 28*s.* A liberal discount to the Trade.

These Valves can be obtained in London of Mr. J. JONES, 6, Bankside, S.E.

West of England, Ireland, and Wales.

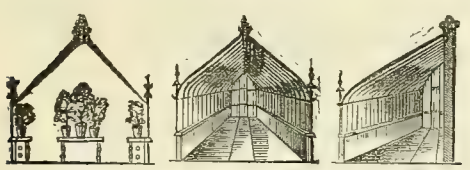




VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER. HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.

VINCENT SKINNER, Bridewell Street, Bristol.

DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon



an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.—This Stove is the nearest approach to Warming by Hot Water, and an efficient aid in Ventilation.



It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for Small Conservatories, with a vapour chamber, which maintains a moist atmosphere for 12 hours with once filling.

Particulars and prices post free on application to MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.



HOTHOUSES FOR THE MILLION.



AWARDED A PRIZE MEDAL, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY

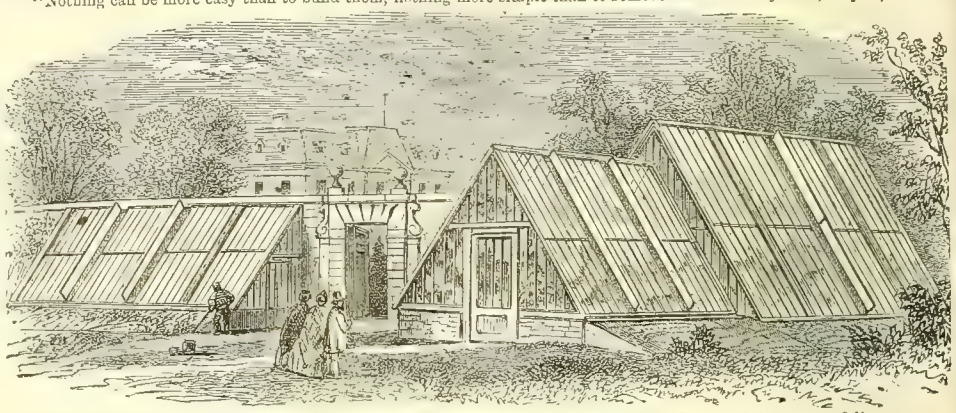
SIR JOSEPH PAXTON, M.P.

COMBINING SIMPLICITY, CHEAPNESS, AND DURABILITY,

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.

"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit can be obtained as the 'Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.



The Cash Prices of LEAN-TO HOUSES, with Water-troughs, Doors and Ends complete, are as follows:—

Ft.	In.	8 ft. Lights	10 ft. Lights	Ft.	In.	12 ft. Lights	14 ft. Lights	16 ft. Lights
20	7 in length	£12 0 0	£16 0 0	20	11 in length	£21 18 0	£28 10 0	£34 5 0
31	3 in length	16 10 0	21 2 6	31	9 in length	29 6 0	37 12 0	45 16 0
41	11 in length	20 18 0	26 18 6	42	7 in length	36 16 0	46 14 0	57 7 0
63	3 in length	30 6 0	38 10 0	64	3 in length	51 14 0	64 18 0	80 10 0
184	7 in length	39 6 0	49 11 6	85	11 in length	66 12 0	83 2 0	103 11 0
05	11 in length	48 17 6	60 12 6	107	7 in length	81 10 0	101 10 0	126 13 0

SPAN-ROOF HOUSES at double the above prices for each length of house.

Circulars with Lists of Prices and Cards to view houses in operation in the neighbourhood of London, also Estimates for Heating and Erection complete, can be had on application to

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Manufactured in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen, and Paisley.

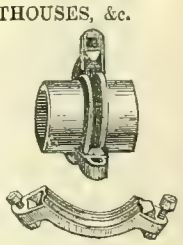
A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN, price 1*s.*; post free, 1*s.* 1*d.*

"We cannot do better than advise every reader who has a spark of gardening spirit and taste in him to write at once for a Copy."—*Bell's Weekly Messenger*, March 17, 1862.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.





T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

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THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c. the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

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Under the Patronage of Her Majesty.

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Established A.D. 1818.

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HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

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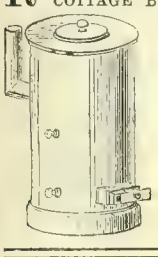
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BURY & POLLARD also call attention to
THE IRON FURNACE STAND
invented by them. A most economical, durable, and efficient arrangement for warming Conservatories, &c.
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RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the
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Price complete from 3*l.* 10*s.*
Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

Card.

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Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Greenhouses, Orchard-houses, and Conservatories.

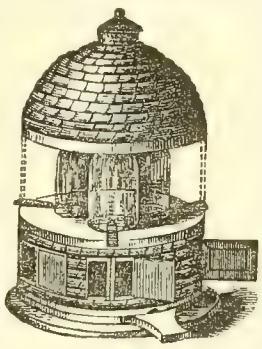
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Good substantially made GREENHOUSES, glazed, ready for fixing, 42 feet by 13 feet, 50*l*; 21 feet by 13 feet, 28*l.*; 12½ feet by 10 feet, 15*l.* ORCHARD-HOUSES 10 per cent. cheaper.
A handsome CONSERVATORY, 46 feet by 19 feet, for Sale.
Estimates given

For Watering Gardens, Lawns, and Washing Windows, Carriages, &c. India-Rubber Hose-Pipes and Tubing.

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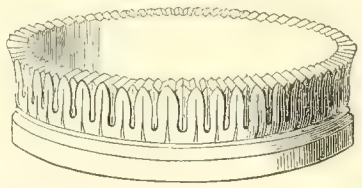
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PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO G. N. & SONS, for BEE-HIVES & HONEY at the VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three glasses, and thermometer, price 35*s.*, securely packed for the country.
Several important novelties are introduced this season, including the WOODBURY STRAW BAR-AND-FRAME HIVE, price 18*s.* 6*d.*, &c. Also, the ENGRAVED PRESSING ROLLER for the guidance of Bees in the construction of Honeycomb on the Bars, and impressed WAX SHEETS, to assist in the formation of cells.
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.....6 feet 9 inches.....



AUSTIN, SEELEY, AND CO. beg to inform the Nobility and Gentry that they are prepared to supply, at three months' notice, TAZZE for Flowers or Fountains, as wide as 13 feet. They take this opportunity of referring to some large Flower Basins and Plain Kerbings made by them for the Royal Horticultural Society's Gardens; and also to those lately supplied to the Public Garden in the Regent's Park. They will be happy to forward a List of their Fountains to any gentleman requiring one.
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GARDEN BORDER-EDGING TILES. — These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.
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Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.
To be obtained of F. & G. ROSHER at their Premises as above.

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Galvanised Iron Water Cistern

for Cottage Houses, &c., to contain 50 gallons, 26*s.*; 80 gallons, 31*s.* each; and 140 gallons, 37*s.*, and fitted with tap, keeping the water perfectly sweet and clean; will not rust or corrode. Cisterns of all sizes.

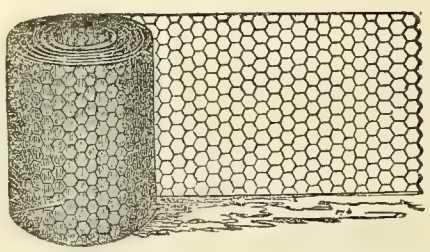
Galvanised Iron Pumps

for Liquid Manure or Domestic Use, 3 inches diameter, 30*s.* and 32*s.* 6*d.* each; Tail Pipe for same at from 10*d.* per foot.

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for Garden or Farm use, containing about 20 gallons, entirely formed of iron, 35*s.* 0*d.* each.

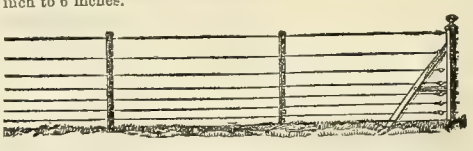
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FURTHER REDUCTION in the PRICE of WIRE NETTING.



BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard.
2-inch mesh, 24 inches wide ..	No. 19	.. 4¼*d.*	.. 3½*d.*
2-inch ,, ,, ,, . ,,	18	.. 5	.. 4
2-inch ,, ,, ,, .. ,,	17	.. 6½	.. 5
2-inch ,, ,, ,, .. ,,	16	.. 8	.. 6½
1⅝-inch ,, ,, ,. .. ,,	19	.. 4⅝	.. 4
1⅝-inch ,, ,, ,, .. ,,	18	.. 6	.. 4⅝
1⅜-inch ,, ,, ,, .. ,,	17	.. 7	.. 5½
1⅜-inch ,, ,, ,, .. ,,	16	.. 9	.. 7

All the above kinds can be made any width (under 6 feet), at proportionate prices.
Strong Galvanised Poultry Netting, 7½*d.* per yard, 3 feet wide, Galvanised Sparrow-proof Netting for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10*d.* per yard.
The same with Galvanised Wire Rope, 1*s.* per yard.
Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.
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STEAM PLOUGHING and CULTIVATING APPARATUS

WILL BE AT WORK NEAR BEDFORD THROUGHOUT THE SEASON.

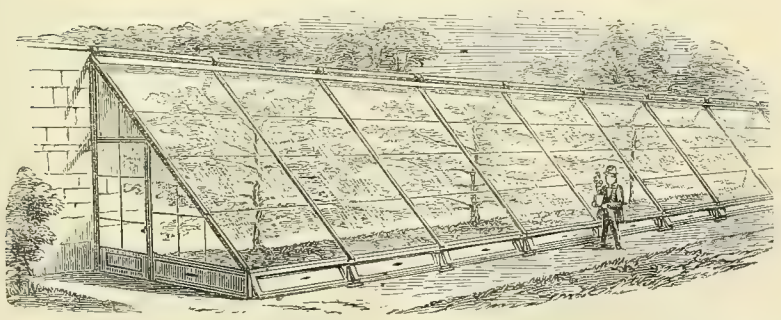
Price of a Complete Set with 10-Horse Engine £515 0 0
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Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
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Every description of IRONWORK. *Lists Free.*

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ROYAL HORTICULTURAL SOCIETY.

THE SECOND GREAT SHOW,

WEDNESDAY, JUNE 17, 1863.

AWARDS OF THE JUDGES.

CLASS 1.—15 STOVE and GREENHOUSE PLANTS (Open).
1st, Mr. Whitebread, Gr. to H. Colyer, Esq., Dartford, Kent, 20*l.*
2d, Mr. B. Peed, Gr. to Mrs. Tredwell, Lower Norwood, 15*l.*
3d, Mr. J. Green, Gr. to Sir E. Antrobus, Bart., Lower Cheam, 10*l.*
4th, Mr. R. Baxendine, Gr. to W. H. Smallpiece, Esq., Guildford, 5*l.*
Extra, Mr. O. Rhodes, Nurseryman, Sydenham Park, S.E., 3*l.*

CLASS 2.—12 STOVE and GREENHOUSE PLANTS (Nurserymen).
1st, Mr. W. Cole, Worthington, near Manchester, 10*l.*
2d, Messrs. J. & J. Fraser, Lea Bridge Road, Leyton, 7*l.*
3d, Messrs. J. & C. Lee, Hammersmith, W., 5*l.*
4th, Mr. W. Cutbush, Barnet, Herts, 3*l.*

CLASS 3.—9 STOVE and GREENHOUSE PLANTS (Amateurs)
1st, Mr. H. Chilman, Gr. to Mrs. Smith, Epsom, 9*l.*
2d, Mr. T. Page, Gr. to W. Leaf, Esq., Streatham, 7*l.*
3d, Mr. J. Wheeler, Gr. to J. Phillips, Esq., Stamford Hill, 5*l.*
4th, Mr. W. Kaile, Gr. to Earl of Lovelace, Ripley, Surrey, 3*l.*

CLASS 4.—6 STOVE and GREENHOUSE PLANTS (Amateurs).
1st, Withheld; 2d, Mr. J. Tegg, Gr. to Baron Hambro, Roehampton, 4*l.*

CLASS 5.—10 FINE FOLIAGED and VARIEGATED PLANTS (Open.)
1st, Mr. J. May, Gr. to T. P. Walter Butt, Esq., Cheltenham, 7*l.*
2d, Mr. J. Smith, Gr. to the Duke of Northumberland, Isleworth, 5*l.*
3d, Messrs. A. Henderson & Co., Pine Apple Nursery, Edgware Road, 4*l.*
Equal 3d, Messrs. J. & C. Lee, Vineyard Nursery, Hammersmith, 4*l.*
4th, Mr. C. Hutt, Gr. to Miss Burdett Coutts, Highgate, 3*l.*

CLASS 6.—20 ORCHIDS, EXOTIC SPECIES (Amateurs).
1st, Mr. Wm. Milford, Gr. to E. McMorland, Esq., Haverstock Hill, 20*l.*
2d, Mr. G. Baker, Gr. to A. Basset, Esq., Stamford Hill, 15*l.*
3d, Mr. T. Page, Gr. to W. Leaf, Esq., Streatham, 10*l.*

CLASS 7.—12 ORCHIDS, EXOTIC SPECIES (Nurserymen).
1st, Withheld; 2d, Mr. Samuel Woolley, Cheshunt, Herts, 7*l.*

CLASS 8.—10 ORCHIDS, EXOTIC SPECIES (Amateurs).
1st, Mr. C. Penny, Gr. to W. H. Gibbs, Esq., Regent's Park, N.W., 10*l.*
2d, Mr. J. Green, Gr. to Sir E. Antrobus, Bart., Lower Cheam, 7*l.*
3d, Mr. B. Peed, Gr. to Mrs. Tredwell, Lower Norwood, 5*l.*

CLASS 9.—6 ORCHIDS, EXOTIC SPECIES (Amateurs).
1st, Mr. F. Lovell, Gr. to H. E. Gurney, Esq., Nutfield, Surrey, 6*l.*
2d, Mr. J. Wiggins, Gr. to W. Beck, Esq., Isleworth, 4*l.*
3d, Mr. T. Whitebread, Gr. to H. Colyer, Esq., Dartford, Kent, 3*l.*
Extra, Mr. J. Smith, Gr. to the Duke of Northumberland, Isleworth, 2*l.*

CLASS 10.—9 GREENHOUSE AZALEAS, distinct kinds (Amateurs)
1st, Mr. T. Page, Gr. to W. Leaf, Esq., Streatham, 9*l.*
2d, Withheld.
3d, Mr. T. Whitebread, Gr. to H. Colyer, Esq., Dartford, Kent, 5*l.*

CLASS 11.—9 GREENHOUSE AZALEAS, distinct kinds (Nurserymen)
No competition.

CLASS 12.—6 AZALEAS, new kinds sent out since 1858 (Open).
1st, Messrs. J. Ivery & Son, Dorking, 4*l.*

CLASS 13.—6 ROSES in POTS, distinct kinds (Amateurs)
1st, Mr. Thos. Terry, Gr. to C. W. G. Puller, Esq., M.P., Youngsbury, Herts, 6*l.*

CLASS 14.—12 ROSES in POTS, distinct kinds (Nurserymen)
1st, Mr. W. Paul, Waltham Cross, 10*l.*
2d, Mr. E. P. Francis, Hertford, 7*l.*

CLASS 15.—6 DRACÆNAS and CORDYLINES (Open).
1st, Messrs. T. Jackson & Son, Nurserymen, Kingston, S.W., 3*l.*
2d, Mr. Wm. Bull, King's Road, Chelsea, S.W., 2*l.*

CLASS 16.—6 CAPE HEATHS, distinct kinds (Open).
1st, Mr. B. Peed, Gr. to Mrs. Tredwell, Lower Norwood, 5*l.*
2d, Messrs. T. Jackson & Son, Nurserymen, Kingston, 3*l.*
3d, Mr. H. Chilman, Gr. to Mrs. Smith, Ashtead, Epsom, 2*l.*
Extra, Mr. T. Page, Gr. to W. Leaf, Esq., Streatham, 1*l.* 10*s.*

CLASS 17.— 9 PELARGONIUMS, distinct kinds (Amateurs).
1st, Mr. W. Nye, Gr. to E. B. Foster, Esq., Clewer Manor, Windsor, 8*l.*
2d, Mr. J. Shrimpton, Gr. to A. J. Doxat, Esq., Putney Heath, 6*l.*
3d, Mr. H. Page, Gr. to J. W. Strachan, Esq., Teddington Grove, S.W., 4*l.*
Extra, Mr. C. Hutt, Gr. to Miss Burdett Coutts, Highgate, 1*l.*

CLASS 18.—12 PELARGONIUMS, distinct kinds (Nurserymen).
1st, Mr. C. Turner, Slough, 8*l.*
2d, Messrs. J. & J. Fraser, Lea Bridge Road, Leyton, 6*l.*

CLASS 19.—6 PELARGONIUMS, Fancies, distinct kinds (Open).
1st, Messrs. J. & J. Fraser, Nurserymen, Lea Bridge Road. 5*l.*
2d, Mr. C. Turner, Royal Nurseries, Slough, 4*l.*

CLASS 20.—6 PELARGONIUMS, Spotted or French, distinct (Open).
1st, Mr. C. Turner, Royal Nurseries, Slough, 4*l.*
Equal 1st, Messrs. J. & J. Fraser, Nurserymen, Lea Bridge Road, 4*l.*

CLASS 21.—12 EXOTIC FERNS, distinct kinds (Open).
1st, Mr. W. Bull, Nurseryman, King's Road, Chelsea, 4*l.*
2d, Messrs. A. Henderson & Co., Pine Apple Nursery, Edgeware Road, 3*l.*
3d, Mr. H. Lavey, Gr. to E. A. De Grave, Esq., Fetcham, Surrey, 2*l.*
4th, Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, 1*l.*

CLASS 22.—6 ANECTOCHILUS, or other VARIEGATED ORCHIDS (Open).
1st, Mr. W. Bull, King's Road, Chelsea, 3*l.*

CLASS 23.—3 TROPÆOLUMS, trained on trellises, distinct (Open). No competition.

CLASS 24.—NEW or RARE TENDER PLANTS in FLOWER (Open).
Messrs. Veitch & Son, Exeter and Chelsea, Pancratium sp. (1), S.K.
Messrs. Veitch & Son, Exeter and Chelsea, Bromelia sceptrum, S.B.
Mr. Wm. Bull, Chelsea, Centaurea argentea, B.

CLASS 25.—NEW or RARE TENDER PLANTS NOT in FLOWER (Open).
Messrs. Jackson & Son, for Ouviraudra Berneriana, S.K.
Messrs. Veitch & Son, for Marattia Cooperi, S.K.
Messrs. Veitch & Son, for Selliguea pothifolia, S.B.
Messrs. Veitch & Son, for Alsophila Tæuitis v. denticulata, S.B.
Messrs. Low & Co., for Trichomanes crispum v. rufum, S.B.
Messrs. A. Henderson & Co., for Rhynchospermum jasminoides variegatum, B.
Messrs. Veitch & Son, for Pinanga sp., B.
Messrs. Veitch & Son, for Lomaria sp., B.

CLASS 26.—NEW ORCHIDS in FLOWER (Open).
Messrs. B. S. Williams, for Cypripedium Stonei, S.K.

CLASS 27.—NEW or RARE HARDY ORNAMENTAL PLANTS (Open).
Messrs. Fisher, Holmes, & Co., for Taxus fastigiata, S.K.
Mr. J. Standish, for Deutzia crenata fl.-pleno, S.K.
Mr. J. Standish, for Lychnis Senno, S.B.
Messrs. Veitch & Son, for Woodwardia japonica, S.B.
Messrs. Veitch & Son, for Lastrea erythrosora S.B.
Messrs. Veitch & Son, for Andromeda sp. California, B.
Messrs. Veitch & Son, for Homoianthus viscosus, B.
Messrs. Fisher, Holmes, & Co., for Abies sp., B.
Messrs J. Ivery & Son, for Athyrium Felix-fœmina glomeratum, B.

CLASS 28.—NEWLY INTRODUCED PLANTS (Open).
Messrs. Low & Co., for Alocasia Lowii, 1st Certificate
Messrs. Ivery & Son, for Athyrium Filix-fœmina mucronatum, 2d Certificate
Messrs Ivery & Son, for Athyrium Filix-fœmina Iveryanum, 3d Certificate
Mr. Wm. Bull, for Cheilanthes Borsigiana, 4th Certificate

CLASS 29.—SEEDLING FLORISTS' FLOWERS and GARDEN HYBRIDS (Open).
Mr. B. S. Williams, for Amaryllis perfecta marginata, 1st Class Certificate
Mr. J. Hally, for Zonal Pelargonium Adonis, 1st Class Certificate
G. W. Hoyle, Esq., for Pelargonium Achilles, 1st Class Certificate
G. W. Hoyle, Esq., Reading, for Pelargonium Aristides, 2d Class Certificate
Mr. Watson, St. Alban's, for Calceolaria Bijou, 2d Class Certificate
W. Beck, Esq., Isleworth, for Pelargonium The Maid of Honour, Commendation
Messrs. F. & A. Smith, Bulwich, for Fuchsia Pillar of Gold, Commendation
Mr. J. Turner, for Petunia Mrs. Sherbrook, Commendation
Mr. J. Wills, Oulton Park, for Verbena Othello, Commendation
Mr. Bragg, Slough, for Fancy Pansy Bob Ridley, Commendation
Mr. Bragg, Slough, for Fancy Pansy Harlequin, Commendation
Mr. Bragg, Slough, for Fancy Pansy Dazzle, Commendation
E. J. Low, Esq., Beeston, for Fancy Pansy Pallas, Commendation
Messrs. E. G. Henderson & Son, for Mimulus Group, Commendation

CLASS 30.—WARDIAN CASE, arranged for Drawing Room (Open).
1st, Messrs. A. Henderson & Co., Pine-Apple Nursery, Edgeware Road, 4*l.*
2d, Messrs. Barr & Sugden, 12, King Street, Covent Garden, 3*l.*

CLASS 31.—COLLECTION of CUT RHODODENDRONS (Open).
No competition.

CLASS 32.—COLLECTION of CUT ROSES (Open).
1st, Mr. Charles Turner, Royal Nurseries, Slough, 2*l.*
2d, Mr. J. Mitchell, Nurseryman, Maresfield, Sussex, 1*l.*
Equal 2d, Messrs. Paul & Son, Nurseries, Cheshunt, 1*l.*
3d, Mr. E. Hollamby, The Nurseries, Tunbridge Wells, 10*s.*
Extra, Mr. T. Terry, Gr. to C. W. Giles Puller, Esq., M.P., Youngsbury, 7*s.* 6*d.*

CLASS 33.—MISCELLANEOUS (Open).
1st, Messrs. J. Ivery & Son, for Collection of Hardy Ferns, 2*l.*
Equal 1st, Mr. Wm. Bull, for Collection of Plants, 2*l.*
2d, Mr. H. Lavey, for Collection of 42 British Ferns, 1*l.* 10*s.*
3d, Messrs. Barr & Sugden, for Plants under Glass Shades, 1*l.*
Extra, Messrs. J. & J. Fraser, for Collection of Cut Pæonies, 15*s.*
Ditto, Mr. H. Lavey, for Lycopodiums, 10*s.*
Ditto, Mr. C. Turner, for Bougainvillæa glabra, 10*s.*
Ditto, Mr. C. Turner, for Collection of Verbenas, 10*s.*
Ditto, Mr. C. Turner, for Collection of Pinks, 10*s.*
Ditto, Mr. T. Whitebread, for Collection of 4 Ixoras, 10*s.*
Ditto, Messrs. Downie, Laird, and Laing, for Collection of 36 Pansies, 10*s.*
Ditto, Messrs. Downie, Laird, and Laing, for Collection of 36 Fancy Pansies, 10*s.*
Ditto, Mr. Wm. Bull, for Ouvirandra fenestralis, 10*s.*
Ditto, Mr. H. Hooper, for 36 British Pansies, 7*s.* 6*d.*
Ditto, Mr. H. Hooper, for 36 Belgian Pansies, 7*s.* 6*d.*
Ditto, Messrs. Paul & Son, for Collection of Cut Pæonies, 7*s.* 6*d.*
Ditto, Mr. J. Salter, for Collection of Cut Pæonies, 7*s.* 6*d.*

Prizes offered by Sir C. Wentworth Dilke.

The three best Groups of FRUITS and FLOWERS for Dinner Table.
1st, Lady Rokeby, Montague House, Portman Square, 10*l.*
2d, Mrs. J. W. Bliss, Langton, Tunbridge Wells, Kent, 7*l.*
3d, Mrs. Walter Fawcett, 11, Westbourne Street, Hyde Park, 3*l.*
Mr. Alfred Salter, William Street, Hammersmith, Highly Commended.
Lady C. Kerrison, 140, Piccadilly, Commended.
Lady Holmesdale, 22, Berkeley Square, Commended.

FRUIT.

CLASS A.—COLLECTION of FRUIT, 6 dishes, distinct kinds.
1st, Mr. J. Masters, Gr. to the Earl of Macclesfield, Shirburn Castle, Oxon, 6*l.*
2d, Mr. A. Henderson, Gr. to the Duke of Sutherland, Trentham, 4*l.*
3d, Mr. R. Turnbull, Gr. to the Duke of Marlborough, Blenheim Palace, Woodstock, 3*l.*

CLASS B.—PINE APPLE, the best Cayenne.
1st, Mr. Jas. Taylor, Temple Newsham, Leeds, 3*l.*

CLASS C.—PINE APPLE, any variety except Cayenne.
1st, Mr. W. Hutchison, Castle Malgwyn, Llechryd, Carmarthen, 3*l.*
2d, Mr. J. Hall, Gr. to the Earl of Scarborough, Sandbeck Park, Rotherham, 2*l.*
2d, Mr. Thos. Young, Gr. to Crawshay Bailey, Esq., Aberdare, 2*l.*
3d, Mr. T. Speed, Gr. to Sir E. S. Walker, Bury Hill, Mansfield, 1*l.*

CLASS D.—GRAPES, BLACK, 3 bunches.
1st, Mr. H. Sawkins, Gr. to H. Brassey, Esq., Bramfield, Hertford, 3*l.*
2d, Mr. C. Turner, Royal Nurseries, Slough, 2*l.*
3d, Mr. G. Jackson, Gr. to J. Tyrer, Esq., Tixall Hall, Stafford, 1*l.*

CLASS E.—GRAPES, WHITE MUSCAT. 3 bunches.
1st, Mr. J. Embery, Gr. to — Moss, Esq., Chadwell Heath, 3*l.*
2d, Mr. R. Turnbull, Gr. to the Duke of Northumberland, Blenheim Place, Woodstock, 2*l.*
3d, Mr. C. Turner, Royal Nurseries, Slough, 1*l.*

CLASS F.—GRAPES, WHITE, any kind except Muscat, 3 bunches.
1st, Mr. T. Wills, Oulton Park, Tarporley, Cheshire, 3*l.*
2d, Mr. J. F. Mould, Gr. to J. Sladen, Esq., Bushey Heath, Watford, 2*l.*
3d, Mr. J. Cross, Gr. to Lord Ashburton, The Grange, Alresford, Hants, 1*l.*

CLASS G.—PEACHES, 6 fruits.
1st, Mr. F. Rutland, Gr. to Capt. Peploe, Garnstone Castle, Hereford, 3*l.*
2d, Mr. S. Snow, Gr. to Countess Cowper, Wrest Park, Beds, 2*l.*
3d, Mr. J. Brown, Gr. to Sir C. Knightley, Bart., Fawsley Park, Daventry, 1*l.*
3d, Mr. W. Allen, Gr. to E. J. G. Hopwood, Esq., Hopwood Hall, Lancashire, 1*l.*

CLASS H.—NECTARINES, 6 fruits.
1st, Mr. F. Rutland, Gr. to Capt. Peploe, Garnstone Castle, Hereford, 3*l.*
2d, Mr. J. Brown, Gr. to Sir C. Knightley, Bt., Fawsley Park, Daventry, 2*l.*
3d, Mr. J. Harwood, Gr. to G. H. Turnbull, Esq., Downe, near Bromley, 1*l.*
3d, Mr. C. Turner, Royal Nurseries, Slough, 1*l.*

CLASS I.—CHERRIES, 50 fruits.
1st, Mr. A. Henderson, Gr. to the Duke of Sutherland, Trentham, 1*l.*
2d, Mr. S. Snow, Gr. to the Countess Cowper, Wrest Park, Beds, 15*s.*
3d, Mr. J. Eustone, Gr. to Sir J. Duckworth, Bt., Wear House, Exeter, 10*s.*

CLASS J.—STRAWBERRIES, single dish.
1st, Mr. R. Smith, Richmond Road, Twickenham, 1*l.*
2d, Mr. J. Widdowson, Gr. to C. A. Barnes, Esq., Rickmansworth, 15*s.*
3d, Mr. C. Turner, Royal Nurseries, Slough, 10*s.*

CLASS K.—STRAWBERRIES, 3 dishes.
1st, Mr. R. Smith, Richmond Road, Twickenham, 2*l.*
2d, Mr. J. Widdowson, Gr. to C. A. Barnes, Esq., Rickmansworth, 1*l.* 10*s.*
3d, Mr. J. C. Dwerrihouse, Gr. to Viscount Eversley, Heckfield Place, Hants, 1*l.*

CLASS L.—MELONS, GREEN-FLESHED.
1st, Mr. J. Meredith, Vine Cottage, Garston, near Liverpool, 1*l.* 10*s.*
2d, Mr. H. Chilman, Gr. to Mrs. Smith, Ashtead House, Epsom, 1*l.*
Extra, Mr. J. Pottle, Gr. to B. D. Colvin, Esq., The Grove, Woodbridge, 15*s.*

CLASS M.—MELONS, SCARLET-FLESHED.
1st, Mr. G. Terry, Gr. to L. Ames, Esq., The Hyde, St. Albans, 1*l.* 10*s.*
2d, Mr. W. Kaile, Gr. to the Earl of Lovelace, Ripley, Surrey, 1*l.*

CLASS N.—VINES in POTS, Bearing Fruit, 4 Plants.
No competition.

CLASS O.—MISCELLANEOUS.
1st, Messrs. H. Lane & Son, Great Berkhampstead, for Collection of Fruit Trees in pots, 2*l.*
2d, Mr. W. Kaile, Gr. to the Earl of Lovelace, Ripley, Surrey, for Collection of Fruit Trees in pots, 1*l.* 10*s.*
3d, Mr. J. Smith, Gr. to the Duke of Northumberland, for dish of Figs, 1*l.*
4th, Mr. J. Cross, Gr. to Lord Ashburton, for dish of Figs, 15*s.*

"Old" Cheshunt Nurseries, Cheshunt, Herts.

PAUL AND SON have the pleasure to announce that their ROSES will be finely in bloom the last week in June and throughout July.

Their collection includes the new Roses as well as immense quantities of all the older kinds, and will (in its extent and choice they believe the largest in the kingdom) amply repay a visit.

The OLD Nurseries may be reached by trains from Bishopsgate to Cheshunt Station (within one mile of the nurseries), every one or two hours.

CATALOGUES on application.

H. LANE AND SON, The Nurseries, Great Berkhampstead, have great pleasure in announcing that their extensive and well assorted COLLECTION of ROSES is NOW in BLOOM.

The Home Nurseries are within five minutes' walk of the Station of the London and North Western Railway, where a great variety of Roses may be seen; also a large assortment of Conifers, American Plants, Indian Azaleas &c. Their immense stock of Roses (Standards and Dwarfs) is principally at their Nurseries, about 2 miles distant, affording the opportunity of a delightful drive across a common, where they have American Plants in great variety. The finest lot of Araucarias in England, and Roses in vast quantities.

The Grounds are well worthy of personal inspection, which is earnestly requested.

New South Wales—Collections of Ferns.

M. GUILFOYLE begs to announce that he has made arrangements to execute Orders for Europe of COLLECTIONS of FERNS, selected from all the Australian Colonies and New Zealand by his Correspondents there, and also from the South Sea Islands, supplied by competent Collectors in New Caledonia, the New Hebrides, &c. Due care will be taken that none but well established plants in pots are sent out from his Nursery, and for such he has fixed the price of each case, containing at least 25 species of Australasian Ferns in duplicate, at 16l., (freight and case included), shipped by him for London to order. The Island Ferns, among which a constant succession of novelties may be expected for years to come, will be separately charged for, at prices extremely moderate.

M. GUILFOYLE will also be happy to execute Orders for Seeds, Bulbs, and Living Plants of all kinds from the Islands of the S. W. Pacific, especially including Orchids, Pines, &c.

Orders with remittances to be addressed to M. GUILFOYLE, Exotic Nursery, Double Bay, Sydney, N. S. Wales.

The Gardeners' Chronicle.

SATURDAY, JUNE 20, 1863.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY,	June 21—	Royal Botanic	2 P.M.
FRIDAY,	— 26	Royal Horticultural (Election of Fellows) at South Kensington	2 P.M.
SATURDAY,	— 27—	Crystal Palace (Rose Show)	Noon

WHO can wonder at CONIFERS having taken complete possession of the Horticultural mind? Are they not the monarchs of the temperate forest, as are Palms of the tropical plain? Have we North Europeans anything comparable to the majestic trees, colossal, graceful, and clothed with perpetual verdure, which are known under the name of Cone-bearers, although so many bear no cones? No class of society includes such ardent lovers of beauty as the Horticultural; and no class of plants includes such singularly beautiful forms as Conifers. Besides which the larger part find themselves as much at home among us as in their own wild regions. Flower-pots they abhor. It is the free air, in which they can display their ever-youthful limbs, that alone is welcomed by this regal race. In short they represent the manhood of the Vegetable world, as Orchids represent the womanhood.

Hence it has doubtless arisen that wherever we turn we find them assiduously cultivated, and that all estates are proud of their "specimens," from the rich plantations of Holkham to the unique assemblage at Dropmore, and the mountain forests of Dunkeld. The consequence of this fashion has been the introduction of all manner of new species, from all manner of new places, which have received from the scientific and unscientific all manner of new names, to the disgust of many and the annoyance of all. No wonder then that the great house of LAWSONS, of Edinburgh, commercially concerned very deeply in the matter, should have come to the rescue, and resolved, at their own proper charge, to put the Coniferous house in order. For this purpose they have commenced the publication of a sumptuous work in elephant folio, by the side of which the book of LAMBERT sinks into insignificance; under the name of *Pinetum Britannicum, a descriptive account of all hardy trees of the Pine tribe cultivated in Great Britain; with fac-similes of the original drawings made for the work.*

One number of this publication has appeared, which is entirely occupied by an account of "Picea nobilis;" the next is to contain an account of Cupressus Lawsoniana. Eight pages of superb letter-press, two coloured plates, and 22 small wood engravings worked in with the letter-press, illustrate the first of these species. The wood engravings are excellent, and the letter-press copious and interesting. The coloured plates are however scarcely worthy the rest of the publication; one of them indeed, a portrait of "Picea" nobilis, exhibits a want of knowledge of the commonest principles of drawing, which would have astounded STRUTT. Is there no STRUTT now in existence?

While we willingly bear testimony to the general excellence of Messrs. LAWSON'S publication, we are reluctantly obliged to withhold our approbation of some of its details. Dr. LINDLEY requests us to state on his part that he is not the author of the name Picea nobilis, as is announced in the first page. Whenever he has mentioned the plant he has given its proper designation, Abies nobilis. Like other scientific writers he has refused to acknowledge the so called genus Picea, which is a mere shop name whose place is in the limbo of trade lists. We must also express surprise at no man of science having been announced as the author of the letter-press of this grand book, which certainly ought to have some responsible paternity. In the absence of this, the narrative wants the authenticity which the name of a recognised botanist can alone confer upon it. Let us hope that so superb a work will not longer continue open to such remarks.

IS quantity or quality to carry the day among our EXHIBITION PLANTS? No great effort of memory is needed to take us back to the time when we had Epacrises and other hard-wooded plants almost as big as faggot-stacks, and nearly as uninteresting, except just on the one face where the puny twigs were fixed. There was quantity indeed, almost double or treble that of many of the most effective of the "stove and greenhouse plants" shown in these more recent times; but no one could for a moment hesitate to prefer the smaller, more compact, more vigorous, yet withal more shapeable and floriferous plants now generally seen, and to reject as unworthy a place on modern exhibition stages, the bare-bones cumbrous things to which we have alluded.

Memory need not travel back beyond a short year or two to recall the same state of things as regards Fuchsias. We were fast getting into exhibitions of wretched faced-up scraggy "Methuseloid" bushes, which when they had been braced up by dint of thread and tape so as to put on a fair face, gave nothing but starveling blossoms, as the effete Epacrises and such like plants, had in their day done. It needed but the firmness which the judges very properly displayed on one or two occasions to rid our shows of these monstrosities, and to replace them by much smaller but really well-grown well-formed handsome plants, young enough to have vigour in their blood, and consequent boldness and brilliancy in their blossoms. We have not indeed gone far enough as yet with these, by insisting on having none but youthful plants, and so the handsome juvenescent specimens of last year, which attracted universal admiration, are, we are sorry to see, appearing as old beaus in the present, well dressed indeed and tasty in their getting up, but "not what they were." We hope it may be that they were only pressed into service at the early shows, while the dressing up of the younger ones was being finished off, but they have at least confirmed us in the conclusion to which the opinions we have several times expressed have tended, namely, that exhibition Fuchsias once in their prime at two years old, ought not as a rule to be seen again in public, for after that, their blossoms become minikin and meagre for want of that youthful vigour on which we lay so much stress. They might indeed, as we some time since remarked, be had in very effective condition—at the best in fact as regards quality of flower, even within a year of their birth.

The recollection of these things should act as a "warning" to the growers of Roses in pots, among which we sadly want some reformation. Even as huge hard-wooded Heaths and Epacrises, and soft-wooded Fuchsias have in their turn been "cut down" when they came to cumber the exhibition stages, and have been replaced for the most part by better sorts grown on a better model, so assuredly must Roses submit to the same fate if they continue to appear in the form of scraggy flat-faced shapeless trees, and that notwithstanding any amount of bloom that such huge unwieldy specimens can possibly produce. In all the subjects which we have named, there is far too great a tendency amongst growers to "face" the plants, that is to say, to bring all the young vigorous wood, and consequently all the best—if not indeed all—the blossoms to the front, but in Roses the practice is just now most conspicuous and offensive. Even those who grow their plants tolerably near the model, that is the pyramidal form, are not wholly free from this fault, but fashion their bushes into "three-quarter" instead of complete specimens. It ought to be borne in mind that a "three-quarter" plant is only some few degrees better than a "one-sided or half" plant, and that the latter is anything but a credit to those who produce it. And it ought to be remembered, also, that mere bulk, apart from fitness and finish both as regards cultivation and training, can never now-a-days be suffered to carry off the honours of a floral exhibition.

As to what is to be regarded as constituting fitness, we maintain that in the case of exhibition plants generally (not universally, for Orchids must be named as affording exceptions) a pyramidal outline, shorter broader and blunter, or narrower and more elongated, as may best suit the particular kind of plant, should be regarded as a *sine quâ non*. The side view of even a three-quarter plant which one often gets when the stages are at all curved, does not form a pleasing picture. "All round alike" should be the exhibitor's motto. Then as to finish, there should be perfect health, the vigour and bloom of youth, fresh-looking foliage, and bright-coloured blossoms of the full size proper to the individual, the whole so trained and disposed as to show a good front everywhere, yet without anywhere obtruding the means by which this disposition is effected.

One of the objections fairly chargeable against the old scraggy plants of which we complain, to whatever class they may belong, is that they very frequently obtrude upon us old and comparatively worthless varieties to the exclusion of the newer and better sorts which have appeared since they first came before the public. This just now applies especially to Roses, among which, though we have had many grand acquisitions of late years, we scarcely see some of the best sorts shown at all: doubtless because there has not been time to get up monster plants of them, and it is felt that monster plants (if not indeed too monstrous) have a very great chance of winning the honours, especially if the decision is referred to easy-going judges. On this ground, therefore, as well as on those of fitness and appearance, we protest against the exhibition of any more Roses which are not model plants; and we strongly hope that the Exhibiting Societies will feel it to be their *duty*, as it assuredly is, to urge upon censors the necessity of giving effect to this protest by their decisions. Then we shall see better sorts of Roses and better plants the rule and not the exception, as we may hope will continue to be the case with Fuchsias and other plants, if the rule we have referred to is but acted upon without flinching.

—— THE present week has witnessed another of those grand horticultural displays which no country but our own could furnish, and which could be drawn together nowhere but in this metropolis: the time Wednesday last, the place South Kensington. So, while providing pleasant pastime for its Fellows and their friends, and for such of the outer public as circumstances may induce to share it with them, the now Royal Horticultural Society perseveres in its proper mission of encouraging both the art of cultivation and those who practise it. Far distant be the day when it shall be found relaxing in its efforts to work out with hearty good-will this important trust.

If we may say, as we truthfully may, that the display of Wednesday furnished some examples of marvellous cultivation, as witness the noble Pelargoniums from Clewer Manor, we are compelled to add that in one feature at least there was no advance evident, but rather retrogression. We allude to the groups of flowers and fruits for the decoration of the dinner table, for which Sir WENTWORTH DILKE'S prizes were on this occasion offered. There was no new idea of any merit evident in the groups exhibited. There were, indeed, dead humming birds! living fishes! and unwieldy cornucopiæ, but nothing approaching in elegant simplicity to Mr. MARCH'S designs of former years.

Our special object, however, is to glance over the New Plants shown, noting down a few remarks about the more important of them. Few novelties among tender plants in flower made their appearance. The most striking perhaps was the large Pine-apple-like Bromelia Sceptrum, with its long spreading strongly-toothed leaves, its scarlet bracts, and its close pyramidal panicle of white mealy purple-tipped blossoms; but this will not be a plant for everybody. More useful, and somewhat recalling to mind the lovely species of Eucharis, was a Philippine Island Pancratium from Mr. VEITCH, which had broad cordate ribbed leaves, and an umbel of numerous erect white flowers on a scape a couple of feet high, the flowers contrasting remarkably in the small size of their staminal cup with another species from the same quarter, of dwarfer

habit, which had single-flowered scapes. The very pretty Centaurea argentea, with finely divided white cottony leaves, was shown in blossom by Mr. BULL, as also was Caladium Wightii, both being remarkable rather for beauty of foliage than of flower.

The most noteworthy tender plants not in flower were the Marattia Cooperi, noticed at p. 531; and the long-leaved Lattice plant, Ouvirandra Berneriana, which was shown in a thriving condition by Messrs. JACKSON, of Kingston. From Messrs. VEITCH was a vigorous young example of a fine Tree Fern, Alsophila Tænitis denticulata, noticeable chiefly for its large bipinnate fronds, with smooth shining oblong acuminate doubly-serrated pinnules, and its dark stipes prickly at the base; also Selliguea pothifolia, an Eastern Fern new to our gardens, in this case bearing from a creeping rhizome erect fronds of ovate outline a couple of feet high, and made up of long linear lanceolate acuminate pinnæ, decurrent at the base, and producing naked lines of spore cases. A Lomaria-like plant of rather coarse habit, introduced from the Philippines—probably Blechnum nitidum—had bold pinnate fronds with crowded linear oblong pinnæ, broad and sharply serrulate when sterile, and sometimes much sometimes little contracted when fertile. The pretty rusty-haired Trichomanes crispum rufum came from Messrs. Low & Co.; Messrs. A. HENDERSON & Co. showed the Rhynchospermum jasminoides variegatum noticed at p. 531; and Messrs. VEITCH & SON a pinnate Pinanga, with broad mottled green pinnæ. Both Mr. WILLIAMS and Mr. MAY had the variegated form of Aralia Sieboldi, which is too indistinctly marked to be effective; and Mr. BULL had some of the new Caladiums—mirabile, Cannartii, and Thelemanni, all promising enough, but not in sufficient vigour to exhibit their real character; they are all white-blotched on a green ground, mirabile having a stain of pale green, and the others of red along the course of the principal ribs.

New Orchids were represented by Cypripedium Stonei, a beautiful Bornean species, remarkable for the exact slipper-like form of the lip when seen in profile.

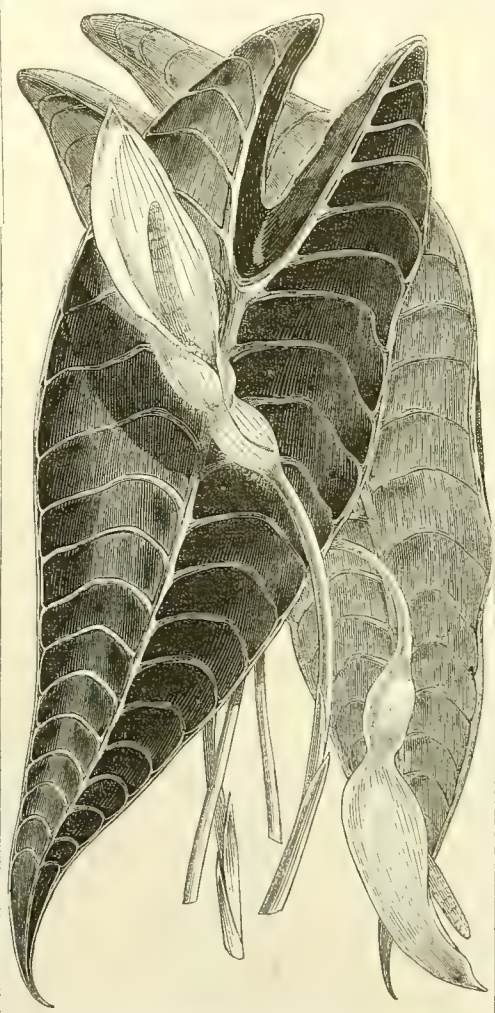
There were a few very interesting new hardy plants shown. First a Deutzia crenata flore-pleno, one of FORTUNE'S novelties, flowered by Mr. STANDISH. This looked like a fine addition to hardy shrubs; it has opposite shortly stalked ovate acuminate finely serrated leaves, and copious terminal racemes of deflexed double white flowers deeply tinged externally with rose. Another fine hardy shrub, an evergreen, was produced by Messrs. FISHER, HOLMES & Co., in the form of a golden Irish Yew, which they call Taxus hibernica fastigiata; this was quite fastigiate, and the young leaves were of a golden yellow with a green rib, the colour being a well marked characteristic of the plant; it is quite hardy, and was raised from seeds of the Irish Yew. The same exhibitors had an elegant North American Fir, very near the Hemlock Spruce, remarkable chiefly for its dumpy plump blunt-ended leaves. A Californian Andromeda of Mr. VEITCH'S was a dwarf evergreen with ovate or elliptic oblong leaves, and bearing numerous narrow spikes of white pitcher-shaped drooping flowers in the axils of the upper leaves. Mr. VEITCH had also a flowering plant of the rare and seldom seen Fremontia californica. A beautiful Japanese perennial, Lychnis Senno, came from Mr. STANDISH; also a variety with variegated leaves and striped flowers. In Senno itself the stems were 2½ ft. high, the leaves beneath and the calyces stained with chocolate purple, and the flowers fully a couple of inches across, and of a deep crimson. With it was a well-marked Dianthus laciniatus. Mr. VEITCH contributed a hardy perennial from Valdivia called Homoianthus viscosus, a herb with oblong-cuneate sinuately-toothed root-leaves, and numerous flower-stems a foot and a-half high, each bearing about three or four heads corymbosely arranged, about as large as those of Chicory, and of a purplish violet paler at the centre. Besides these there were several Ferns: Woodwardia japonica, and Lastrea erythrosora, already referred to at p. 531; Lastrea opaca, another fine glossy-leaved hardy bipinnate Japanese species; Athyrium Filix-fœmina coronatum; and from Messrs. IVERY & SON of Dorking, A. F.-f. glomeratum, a beautiful sport from corymbiferum intermediate in character between coronatum and multiceps, having the fronds narrow below with flat crests, and forming a massive densely crispy ball-like bunch at the apex.

Of Seedling Flowers a goodly number was staged, but few were marked by the special approbation of the judicial sub-committee. HOYLE'S Pelargonium Achilles, a bright-looking flower with crimson ground shaded with maroon, and very pure centre, was one of great beauty, and secured a First-class award; another called Aristides was not equal to it in merit; and BECK'S Maid of Honour, a lilac-tinted-flower, was Commended as a beat upon Viola. A fine zone-leaved Perlargonium called Adonis, from Mr. HALLY, approved at Chiswick last year as one of the best outdoor horse-shoe scarlets, was now thought worth a First-class Certificate shown as a pot plant; while a deep maroon crimson Calceolaria called Bijou from Mr. WATSON, was approved as a bedder; and so was Verbena Othello, a dark claret, of dwarf bushy habit, from Mr. WILLS. A group of the new set of hybrid spotted Mimulusés from Messrs. E. G. HENDERSON was Commended in the lump, there being too much sameness in these novelties to admit of separate awards being given to them. Amaryllis perfecta marginata, from Mr. WILLIAMS, gained a First-class, its colour being red with paler margin, and its shape better than usual in this pale-edged set of Hippeasters. A variegated Fuchsia, Pillar of Gold, from Messrs. F. & A. SMITH, was Commended for the golden glow of its foliage. A striped Petunia from Mr. TURNER, Mrs. Sherbrook by name, was Commended, though we confess it belongs to a group of reflexed angular-flowered varieties which we do not admire, showy though they be; and finally, awards were made to some Fancy Pansies: Bob Ridley, Harlequin, and Dazzle from Mr. BRAGG, and Pallas from Mr. E. J. LOWE.

New Plants.

257. ALOCASIA LOWII, *Hooker, Bot. Mag.*, t. 5376.

The visitors to the autumnal flower shows of last season, as well as to subsequent meetings and exhibitions, will doubtless have observed a very handsome Aroideous plant bearing the name of Caladium Lowii. It had then been just imported from Borneo, by Messrs. Low & Co. of Clapton, as Caladium Veitchii, to which it bears a certain general resemblance, but under cultivation it proves to be quite a different thing, and it has moreover the advantage of being a free grower, which the other is not. We need not attempt to decide the knotty point, which is the handsomer of the two; they both come in the front rank of ornamental-leaved stove plants, and while one has the advantage in respect to facility of cultivation and increase, the other is undoubtedly the rarer species. The plant in question is correctly referred to



Alocasia, as no doubt C. Veitchii might also be; both are indeed worthy to be associated with the noble Alocasia metallica.

Alocasia Lowii is a stout-growing stove perennial of the evergreen habit of other Alocasias, and having a short fleshy erect rhizomatous stem, to which the sheathing bases of the upright leaf stalks are attached. These leaf stalks are upwards of a foot in length, terete, tapered upwards, and inserted at their upper end into the back of the leaf-blade some distance from the base of the sinus. The blade itself is cordato-sagittate, with less acute and less divergent basal lobes than those of A. Veitchii; they are from 14 to 16 inches long, and about 5 inches in breadth at the widest part, the apex being extended into a long acuminate point, and the base divided by a deep sinus into a pair of large oblong obtuse lobes. From the point of insertion of the stalk there proceeds to the apex a stout ivory-white midrib, which diverges and is extended backwards, so that one branch passes near the inner margin of the two basal lobes; from these are given off at regular intervals towards either margin a series of vertebra-like curving secondary ribs, also white, their points coalescing with the white thickened margin. The upper surface of the leaf between these ribs is of a deep green, and the under surface is purple. The spathes, which are more than 4 inches long, on scapes as long as the leaves, are white. The sterile apex of the spadix is covered with abortive flowers.

It may be useful to point out, now that Caladiums and Alocasias are so generally cultivated, and often in gardens with interchanging names, how the two genera may be practically distinguished. When in flower, the Caladiums may be known by their spadices being covered by flowers throughout their length, the females occupying the basal part, and the males the apical, a greater or less number of neutral or abortive flowers intervening between them. In Alocasia the female flowers also occupy the basal part of the spadix, but the males are placed immediately above them, and the upper part is sterile either from the absence or abortion of flowers. When they are not in bloom the two genera may be known, Caladium by its tubercular rhizomes and radical annual leaves, and Alocasia by its distinct more or less elevated stems, and more enduring foliage. *M.*

A VISIT TO THE BULB FARMS OF HAARLEM.

No. V.

HAVING endeavoured to give a full description of the way in which Hyacinths are cultivated at Haarlem, I may now pass in review some of the more important points which appear to be necessary, and which account for the success which attends it. Some of the growers at Haarlem attribute their successful cultivation partly to the situation of the district. They think that there is a peculiar moisture in the air, owing to the place being bounded as it were by the river Spaarne, the lake of Haarlem,* and the North Sea.

It is not unlikely that a moist atmosphere thus provided may be one of the causes of the success in question. But whatever the effects may be which are produced by the air of the district, there can be no doubt as to the favourable nature of the land. The sandy soil, enriched as it is by manure, is doubtless just what these bulbs delight to grow in. This manure, it will be observed, is placed a few inches below the surface in a position where it is easily procurable by the roots. And, lastly, water is always found at a short distance below the surface of the ground, ready to supply nourishment as well as to keep the soil in a cool and moist condition. This circumstance, when taken into connection with the sandy soil, is probably the foundation on which the success of bulb cultivation at Haarlem mainly rests.

The treatment practised by the cultivators presents also several features worthy of notice. I do not now allude to the curious methods employed in propagation described in my last letter (p. 556), but to the management of the bulbs in cultivation. We have seen how carefully a system of rotation of crops is followed, and how the land is trenched and thus renewed, whenever the slightest sign of disease begins to show itself. During the growing season the leaves are carefully preserved from injury, and the flower stems are removed at a particular stage in the growth, not so much with a view to strengthen the plants as to be kept from lying upon and doing injury to the foliage. Any disease in the leaves is rapidly communicated to the bulb, and hence these precautions are necessary.

This careful mode of cultivation, viewed in connection with natural advantages of climate and soil, is, no doubt, the secret of the success which attends the Hyacinth and other bulbous plants at Haarlem. And I am inclined to think that, however, easy it might be for us to imitate our Dutch friends in the mode of cultivation, yet Nature is on their side with climate and soil, and on this account they must always have the bulb market to themselves, unless some other district can be found possessing the same advantages.

The lovers of the Hyacinth in this country, and they are many, oftentimes ask a question like the following: "Can we by any means keep our bulbs in a state of health and vigour, and induce them to bloom in future years." This may receive the following reply. Hyacinths, like all other living beings, animals as well as plants, have an appointed period of youth and age, attain maturity gradually, and go gradually to decay. The old age of the Hyacinth is indicated by the bulb becoming somewhat smaller in size and less vigorous, and by a tendency to break up into offsets—a last effort to perpetuate its kind. Now this being the case it follows, as a matter of course, that when the bulbs are fully grown, or if they are descending the hill of life, no effort, made even under the most favourable conditions, will preserve them long in health and vigour. But if young and healthy there is no reason why they may not be made to bloom well for a number of years in succession if their cultivation is understood, and if they are treated in the manner I have described as practised at Haarlem.

In concluding these papers, I may remark that the days of Tulipomania in Holland have long since passed away. There are now no such wonderful roots as the old "Admiral Leifken" and "Semper Augustus," which used to be bought and sold on 'Change at mar-

* This is no longer a lake; it has been drained, and is now one of the most fertile spots in Holland.

vellous prices; no one now thinks of giving "4600 guilders for a new Tulip, and throwing a new carriage, two grey horses, and a complete set of harness" into the bargain. *Robert Fortune.*

ROSES.—No. IX.

By Mr. William Paul, F.R.H.S., Paul's Nurseries, Waltham Cross.

Perhaps I cannot do better than end this series of papers on Roses by a few brief rules, which may assist those who delight in managing their own plants, but have not the leasure or inclination to study their habits and requirements.

1. The best soil for Roses is a strong loam well enriched with decayed stable manure; if the soil is not of this nature, it should be improved by the addition of such as far as possible.

2. For light soils use cow-dung and poudrette instead of stable manure, merely mulching with the latter early in May.

3. Prune at two seasons; thin out the supernumerary shoots in November, and shorten those that are left in March.

4. Remember that the summer Roses should be thinned more freely, and shortened less than the autumnals.

5. Always cut back to a bud which has a tendency to grow outwards, rubbing out those buds which are directed inwards.

6. Destroy Aphides so soon as seen: by brushing them off or washing the shoots with tobacco-water, out of doors; and by fumigating with tobacco under glass.

7. Check mildew by dusting sulphur on the leaves while moist with rain or dew.

8. Water freely during the growing season if very dry.

9. Never buy old Roses on the Manetti stock until you have proved that they will not flourish in your soil either on the Dog Rose, or on their own roots The New Roses you *must* buy on the Manetti, or wait till they are raised by the slower process of budding or by cuttings.

10. Avoid plants that have been "coddled," by raising and growing in heat during their early stages of existence. Thousands of Roses are annually sold which have the seeds of disease and early death previously sown by the forcing process. Such if they live, do not grow vigorously, and often remain stationary or feeble for a length of time.

11. At whatever season Roses on their own roots are purchased, they should be planted in the open ground in spring and summer only (May June or July); once established they may remain permanently there.

12. Roses in pots should be re-potted, removing a portion of the old soil early every autumn; they require closer pruning than the same sorts growing in the ground; they should be watered with weak liquid manure so soon as the young leaves expand, and until the flowering is over.

13. Roses intended for forcing should be brought into a state of rest in August or September, and be pruned shortly afterwards.

14. Roses under glass should be shaded when coming into bloom, but with a light shading only, such as Tiffany No. 1 or Scrim.

15. Most of the Tea-scented Roses thrive best under glass, and are worthy of this especial care. They may be grown in pots, in a cold pit or house, or be planted out in a house, standards or dwarfs, with or without heat.

16. Buy only such new Roses as are recommended from trustworthy sources. A new Rose that is not at the least equal to or different from all its predecessors is not worth growing; and to grow such is almost as disappointing as to read a new book that is not worth reading.

17. When growing for exhibition look to form and colour as well as to size; the day has gone by for mere bulk to triumph over symmetry of form, and variety and brilliancy of colour, whether in pot Roses or others.

These rules might be extended almost indefinitely; I have aimed at bringing out the cardinal points only. I believe that I have read and interpreted differently to some, certain pages in Nature's book of Roses, during the quarter of a century that I have been actively engaged in the cultivation of this popular flower. But I certainly shall not quarrel with those earnest, industrious, and true fellow-workers by whom I am surrounded, because they differ from me. On the contrary, I am not without hope that these papers, often hastily written in the limited leisure of active business life, may induce such to state their experience. He is no true student of Nature who prefers his own views to the advancement of the art or science to which he has devoted himself. Light from any and every source should not only be freely admitted, but frankly acknowledged, and honourably prized. *Vive l'Horticulture! Vive la Rose!*

BRITISH COLUMBIA.—No. II.

(*See p.* 509.)

In what diplomatists would call, if they knew how quickly it was written, my last "dispatch," I took occasion to glance at the noble system of roads planned out by Governor Douglas, with the able assistance of our Chief Commissioner Colonel Moody, R.E.; and the causes which had hindered its perfect success, viz. cutting down the published loan of 100,000*l.*, on which the success of the scheme depended, to just half that sum, 50,000*l.*

I then touched on the "people's" petition, here christened the "six wise people's petition," and the absurd nonsense it contains about the rate of taxation current in British Columbia; said to be backed (though I for one, Mr. Editor, can't believe it) by our sick-leaved but active Treasurer, Captain Gosset, R.E., and his gallant brother-in-arms Colonel Hawkins, R.E., late of the Boundary Commission, who is said to have made application for the Governorship of the Colony *vice* Douglas, not yet resigned. And by easy steps, my yearly review of the Colony was gliding insensibly into that chatty pleasant kind of "pow-wow" upon politics that one is apt to fall into with such a genial-hearted "Paper" as yourself; when "presto,"—the intimation "the post is going off," clapped a stopper over all my reflections, and hurried off my lucubrations into your awful presence, uncorrected, and unsealed.

Well, Mr. Editor, what is that sprightly young two-year-old British Columbia to get in the shape of a Government?—a Council? and with or without a Legislative Assembly? If you give us a Legislative Assembly, please send out the members too, for we cannot even make a British jury to try assize criminal cases in any town in British Columbia except New Westminster, and allow the common challenges. A pretty legislative burlesque that would be! Shall the Council be elective, or nominative, or partly one and partly the other? These are the sort of questions we ask each other, or rather the Canadians of New Westminster ask of us, the old English pioneers of the country, who have the misfortune not to be Canadians, and therefore of course not to know anything worth knowing, that is about politics—the great Juggernaut. If you give us a Council, and if it should be nominative, it will of course be a failure, like the Parisian Senate—merely a large Registration Court. If half nominative and half elective, or partially so, there will be the d—l to pay and no pitch hot with which to carry out the interesting process of political regeneration. It would be secret, yet not secret. For all its proceedings would of course be communicated, "as a matter of the strictest confidence, you know," from one to another, and truth get distorted into absolute falsehood in the process. If partially elective the tendency will be to become ere long entirely so, and when *that* happens, good bye to the old English Constitutional check of the Independent House, the Lords, upon the semi-republican House of Commons whenever we get one, and, *par consequence*, good bye to the country as a British Colony.

Whatever the shape of the free institutions which are to make British Columbia "a great, free, and independent people sir," one thing is certain—the Canadians in New Westminster will be sure to want to control and monopolise its operation. They give out openly that they mean to have the country to themselves, and that nothing but Canadian laws—the product of 200 years experience under a totally different system of facts shall be adopted here. They are nearly all of the Wesleyan Church, and, strange to say, mix up religion and politics in a most wonderful manner. They have possession of the only newspaper published in British Columbia, and use it unscrupulously, as only Canadian politicians can use the "fourth estate," without even pretending to be other than one-sided. The result of this will be that we Presbyterians and all the Episcopalians, Roman Catholics and Americans, will be obliged to pull together to keep these ignorant would-be "politicians" in something like order. The Canadians here are the least energetic and improving race that come to us. You will open your eyes at this, knowing how well I think of Canada and Canadians generally; but the fact is undoubted. Their own chief men openly tax them with it, and they do not deny it. They hang about the towns, and "go in for" politics, as they call it, as a trade.

Well, Mr. Editor, I was all my life at home an out-and-out Liberal—something more than Radical. But 5 years' intimate experience with British Columbia and this coast has, I assure you, made me no end of Conservative—"Fossilised me, considerable some, you bet." I came with a heap of children to live and die here—and for them to do the same after me—but if this country be once handed over to the Canadian clique (as it at present is constituted, always be it said), it will be no place for an Englishman to take root in; and I shall have once more to shoulder my axe and make tracks out of the land with all my impedimenta.

People generally fancy that they can be very liberal in giving what they themselves do not value. It matters not what *party* the M.P.'s at home are of—Whigs, Tories, Conservatives, Radicals—all fall into the same error in that respect, go to extremes; and now-a-days, instead of imposing a Stamp Act and armed rebellion as formerly, say—"Let's deal with this Colony in the most liberal spirit," and so forth: and under the cloak of the shadow of monarchy they put the real substance and soul of extreme republicanism as the guide for us to follow. Believe me, there is no nation which dislikes a Republican form of Government more than that which is unfortunate enough to suffer from its immediate proximity. The American troubles ought to open your eyes to this. We see the evils looming large in Australia, where there *is* the restraint of an English population, and dread a similar result ensuing here, where the bulk at present is foreign. *Sat verbum sapientibus*, and I hope our M.P.'s at home will take the hint. However, we'll shut up politics awhile, with the remark that any attempt to unite the two colonies would be fatal to each, and create as much ill blood as exists between the North and South, and work just as harmoniously. There is a very strong and influential under-current (Victorian), calling itself British Columbia, at work, to procure in some shape or other a union of the two colonies, making one town the capital, but keeping the free port of Victoria. They hope to succeed in this by representing that British Columbia is dependent upon Vancouver's Island for supplies and capital for trade, and also as the storehouse for British Columbia, less the warehousing charges, or rather the interest on the import duties of British Columbia; that British Columbia must be for ever dependent on Vancouver's Island because of its free port, and that the home Government will be very chary in killing the free port, or in other words injuring the vast and increasing mart which British Columbia through Vancouver's Island affords to the trade and manufactures of the mother country. Rather than do that they argue they will make a holocaust of British Columbia, and unite the colonies, with Victoria, or even, may be, New Westminster (a sop to Cerberus) as the common metropolis; keep up the customs duties in British Columbia, give British Columbia and Vancouver's Island common representative institutions, but with a smaller number of votes for British Columbia in the Commons House (to prevent Vancouver's Island from being outvoted), and then trust to the chances of the continent relieving itself ultimately from its insular incubus Those who advocate this line of policy (if it may be so designated) calculate that any organic act which should create such an ill-assorted union, will, by the exercise of the same political influence at home (not forgetting the members of the House who are H. B. C. men, and clever tacticians too) procure the insertion of a clause making this strait jacket last for as long a fixed number of years as they can. They openly say that by this course the supremacy of Vancouver's Island will be so assured—trade with its millions of ramifications will have been so stereotyped into one channel, and that channel Victoria—that no power on earth will be able to place British Columbia in the position which it would, if allowed fair play, naturally now assume.

New Westminster has a splendid tidal river and harbour at all tides, open to the deepest laden ocean-going ships, room for docks 10 miles in length to accommodate them, wharves and everything necessary for the most extensive trade.

The imposition of an import duty on gold, which in Victoria, New South Wales, gives over 50,000*l.* a year, I see by the last Emigration Circular, would, if imposed here, most materially ease our import duties, and a liberal bonded system would do the rest and induce trade to come hither direct, and to save the heavy cost of trans-shipment and charges between Vancouver's Island and British Columbia, which at present eat up British Columbia but build up Victoria.

Hinc illæ lachrymæ By this means a permanent population would gradually be established in the country, and the Customs duties could be gradually entirely abolished and superseded by internal taxes adequate for all internal purposes of Government. We too could then at an early date have that free trade we all so ardently long for, but if Victoria (which can now with its noble harbour of Esquimault and its Pacific coast trade run alone) is to sit as an incubus—a sort of Old Man of the Mountain—on our trade—is to be fixed on us for years by Act of Parliament, how can dear old mother England expect us to sit quiet under the burden. Nothing, I really think, can shake its loyalty, but that's an additional reason why our interests should not be sacrificed—a continent to an island. The idea started is, "Oh, you British Columbians have no political connections in England. We in Vancouver's Island have, and we mean to use them."

Forgive me, Mr. Editor, for allowing myself to be so far trotted out, but it is well known that your articles meet the eye of nearly every country gentleman in England at least once a week. I cannot resist the temptation of launching this little disquisition from this my solitude to meet their eye, and it, as I believe, its vein be good, the world (our world) will find it after many days.

I remember well poor Charles Buller aiding to grant the Charter to Vancouver (now defunct). His notion was that Vancouver was a little England—the eye, as he rightly called it, too, of England in the Pacific. British Columbia (New Caledonia then) he thought was too poor in resources (!!) to be much thought of for many a long year. Only half his prophecy was true. England has its eye over this vast and important ocean. But Columbia, instead of being poor, is, without fear of denial I say it, proved to be the richest new country in the globe Give us Governor Douglas to ourselves. Every man of us, friend or foe, knows that he is the man for Galway; knows every inch of the country, and yet has sufficient interest in Vancouver's Island, and is by no means mercenary Give him a handle to his name if you like, but give us the Man.

Home Correspondence.

Table Decoration.—Those who remember the first exhibition of Table decorations, and were present at the one just over, must, I think, be struck with the visible improvement of taste. A few years ago, and the refined and elegant design was the exception; so rare and welcome was it when met with, as to excite universal admiration. Now, on the contrary, the ungraceful and inelegant are the exception, and so fastidious are we become, as to criticize, or even pass by without comment, what before would have filled us with delight. Groups are now displayed to advantage, singly by themselves, instead of being all huddled together; and I think if anything could be devised to separate still more the different groups, that again would be a great improvement, for it must be allowed they rather kill each other. Passing along the table covered with vases, glasses, and baskets of various forms and sizes, teeming with fruit and flowers, arranged with all the taste and skill of those who have an eye for the beautiful, who can fail to be pleased with the result? Mr. March's design has once more walked off with a prize, and well did it deserve it, for the decorator had arranged his flowers and fruit with wonderful skill, so as to produce a most striking effect, conspicuously different from those around it. The stands were raised just 2 or 3 inches off the table, which was decidedly a great improvement, for the manufacturers are destroying the original beauty of the design, by making the foot of the pedestal as flat as a board. There was a group consisting of tall white ground glass vases with flowers at their bases, delightfully cool and refreshing-looking for a hot summer's day; this arrangement was effective, and the whole a very pleasing variation from the transparent glass stems; I was glad to see it had gained a prize, though I wished it had stood higher on the list. The first prize no doubt deserved its exalted position, otherwise it would not have had it granted to it; certainly the introduction of humming birds perched about and on the Fern leaves was a new idea, but beyond that it was difficult to discover great merit. Some people complain of the small glass stem in Mr. March's stand as being too slight to support the apparent weight of the bouquet on the top. To obviate this, some one had artfully contrived a charming plan of supporting the upper bouquet on a few thin gilt wires, almost entirely concealed by the mid-ribs of Fern leaves which were placed against them, so as to give the appearance of being held in its place by the leaves themselves, and nothing else. This group was very pretty, and highly commended; it had the great advantage over glass of not being liable to break. Many other cases might be singled out as worthy of notice, but I am tired; and since bad decorations were few, while the generality, if not effective, were inoffensive, I will add no more. *Florella.*

Rain Water.—What is the best method of continuing the purity of rain-water—an underground tank, exposure to the atmosphere, or occasional agitation? *N.*

Fir Trees.—Is there any attractive agency in Fir trees, not touching each other, so as to induce their nearer neighbours to extend their lateral branches, as there is evidently an extreme sensitiveness in the case of any obstruction even of an open fence, as I have observed among my Cedars of Lebanon especially. *N.*

Death to Fungi.—It is so long since I had occasion to communicate with you that I fear you will almost have forgotten me. I have made, however, a little discovery

which I think may be of some use to horticulturists, and it is this which induces me to trouble you again. Some three years ago I was consulted by a large brewing firm about the mould which in warm weather attacks the inside surfaces of their beer-barrels. When the empty barrels are returned they are washed, steamed, and dried by hot air. If kept for two or three days before they are again filled with beer, they become partially coated on the inside with a minute Fungus, and it was found that the beer put into such barrels speedily became sour. The idea occurred to me that this Fungus was the cause of the mischief, and that it acted on the saccharine matter of the beer much in the same manner as the "vinegar plant" acts on a solution of sugar—that is, it converts the sugar into acetic acid. I proved this to be the case by a carefully conducted series of experiments. The question then arose—how can the growth of this Fungus be prevented? I tried many chemicals, and several answered perfectly, but unfortunately those which succeeded best were poisonous and could not be used practically. At last, remembering that sulphur had been found to be the most useful remedy for the oïdium, and knowing that its action must be due to very slow oxidation, and consequent evolution of traces of sulphurous acid, the thought occurred to me to try the effect of a solution of bisulphite of lime; I tried this on a number of beer casks after they had been washed, and no trace of Fungus appeared. Beer put into these casks kept sound from six to 10 times as long as that which was put into casks which were coated with fungus. The firm alluded to now use it in all their casks, and the beer is found to keep sound very much longer. Starch makers are much pestered in summer with Fungi. I recommended the use of the bisulphite to the largest starch manufacturer in London, and he has found it a most effectual remedy. Last summer I advised several of my country friends to give it a trial as a remedy for Vine disease, and they have found it to be most efficacious. One friend living in Essex, and having several greenhouses, tried it on four Vines, which for several years had been much infested with oïdium, and never produced any eatable fruit. Last autumn he washed the stems with the bisulphite, and again this spring. He likewise washed the walls with it, and now keeps two or three saucers full constantly exposed in the greenhouse. It gives off a small quantity of sulphurous acid, and effectually keeps down the green vegetation which is so often seen on the walls of greenhouses. He tells me the Vines thus treated are the most healthy he has, and have a splendid show of blossom. His report, indeed, is so favourable, that I am induced to hope that a remedy for Vine disease has at last been discovered, and that you will be pleased to give it a trial. I shall be very happy to send you a few gallons should you, from the above statements, think it likely to be of value. I am having trials made on Potatoes. *Hy. Medlock, Chemical Laboratory, 20, Great Marlborough Street, W.*

Cherokee Rose.—What is it? In Mrs. Fanny Kemble's "Residence in Georgia," occurs the following passage:—A trellis tapestried with the most beautiful Roses I ever beheld—another of those exquisite southern flowers—the Cherokee Rose. The blossom is very large, composed of four or five white petals, as white and as large as those of the finest Camellia, with a bright golden eye for a focus; the buds and leaves are long and elegantly slender, like those of some Tea Roses, and the green of the foliage is dark, and at the same time vivid and lustrous; it grew in masses, so as to form almost a hedge, all starred with these wonderful white blossoms, which unfortunately have no perfume. *D.* [This is the Rosa lævigata, formerly known in gardens under the names of R. nivea, ternata, sinica, setifera, and scandens. It is many years since we saw it. Rose lovers in Europe don't care about it, nor indeed will it ever, in this dull damp climate, acquire the beauty it possesses in the Southern States of N. America.]

Early Peas.—I picked Peas on May 6, and I have gathered a good dish every day since. The sort was Sangster's No. 1. My second crop consists of Prince Albert and Early Frame, from which I am picking at the present time. I began digging good Ash-leaf Potatoes in the open border on May 15. They were planted December 12, 1862. *G. Harnett, Gardener, Cadland Gardens, near Southampton.*

Mr. Drummond of Swan River.—I don't know whether the sad intelligence will reach you in any other way, but think I shall anticipate your usual sources, when I give you the information that by letter this morning from Perth, W. A., I learn that kind old Mr. Drummond has departed this life. He died on the 27th March, after a very short illness, and was laid to rest under one of the Hibiscus trees in his own garden. My intercourse with him has been confined to the last three years, but in that short time he has crowded favours, which are likely to be productive of signal benefit to me, and I were an ingrate indeed not to feel deep regret at the termination of our correspondence. I think he was about 79 years of age. *W. T.* [We received this news with great regret. Poor Drummond was one of those stout pioneers to whom home Botanists and all horticultural people are under the deepest obligations.]

Salmon Ladders.—I feel sure you will permit me in common fairness as short a reply as possible to your correspondent, who has attacked me in your impression of the 30th of May, and shouted so loudly for "facts! facts!" "E. C." shall have quite as many as he desires. Their name was "legion" who at first "condemned" my opinion, but that portion of the "legion" upon the Avon, who once deemed my sentence erroneous, have come to a far different conclusion now! I will not waste your valuable space by a wordy war. The "facts" so loudly shouted for by "E. C." are thus at once before the public. The ladder on the Avon at "Knapp Mill," which is the lowest royalty between the river and the sea, or between me and the sea, was a speculation. That is fact No. 1. I waited to see if it was a benefit to me, because if it was so to me, if I adopted a ladder at my weirs, it would have been a similar benefit to all those higher up the river. It it was no benefit to me, and if I simply for a selfish purpose accepted its use, then in that case "Knapp Mill" would have been the first speculative failure, and my weirs would have been the second still more dishonest failure; for I, with my eyes open to the effect of the first ladder, should have pillaged the public by a second obstruction, and my lower neighbour and myself would have been the only two persons benefited, which was most decidedly not the meaning of the new act of parliament. The above gives you fact No 2. We go on to fact No. 3. It so happens that a public path gives to me and to my men a right to inspect "Knapp Mill ladder" at all hours. I took care that the ladder, the management of the gates, and the fishing of my lower neighbours should be watched. In one week from 80 to 90 salmon were taken below the ladder, and in three weeks a similar average quantity. In those three weeks I got two salmon, and my two neighbours above me about six or seven each, or it may be a few more. The salmon which we in the upper fisheries obtained, came up during the time of the "free run," forced to be given by Act of Parliament between noon on Saturday and 6 o'clock on Monday morning, and not a salmon at any other time. I observed that this ladder was stuck on one side the weirs adjoining a building, and not in a place to which the natural instincts of the salmon would direct them, and that by a dextrous management of the gates, the ladder could be made to lose even its legal use of water, while the whole course of the river could be made to run through racks put down to prevent the fish going up, in which the old free gap, which was of use, had been stopped and superseded by the ladder. Every naturalist and real fisherman knows that our salmon is lured by the chief fall of water, and it is not the nature of the fish to look for a little hole to creep through, nor can the fish be made to comprehend the ridiculous steps by which he is invited to ascend. When a salmon ascends he does so by the most even glide or shoot imaginable, and he will smoothly and apparently without any effort, go swiftly up an inclined plane of water that rushes with the force that the largest sluice with 10 feet of water on its face, can give it. To put "bars" in the salmon's way is to scare him from his natural attempt to ascend, and to pen him back, is to send him away to lie at the foot of the racked falls, in a natural expectancy that a "fresh" will come, and open up a way. The salmon, therefore, at Knapp Mill, do not attempt "the ladder," and during the time that they lie waiting for what to them is a natural probability, they are exclusively taken by the fishermen of Mr. Walker and his tenant, Mr. Cockerell, the latter of whom must have realised a harvest up to this present time of from 300 to 400 salmon, if not more; while myself and the two upper proprietors next me, Col. Fane and Mr. Mills, may have had together about 50 fish, those fish always making their first appearance on the Monday after all gates have afforded a free run. The concluding fact is this. I told Mr. Walker and his tenant, Mr. Cockerell, that their ladder was a deception on the public, and a subterfuge as regarded the intention of the Act, and that it gave them, save when the gates were open, a monopoly of the salmon, and on that account I would not have such an incubus at my weirs, but if they were really desirous of affording a free run, I commissioned Mr. F. Fane to make them this offer:—If they would let me select a gate to be always kept open at their weirs at Knapp Mill, I would let them select one at my chief weirs for the same purpose. And if they would let me select two gates at their weirs, I would give them gate for gate at mine. To this offer they returned an answer through Mr. F. Fane, "that if I would put up a ladder similar to theirs at Knapp Mill, they would then perhaps treat further." To this I replied, "that though I knew the ladder to be a subterfuge, amounting to an excuse to take salmon illegally, if Mr. Walker would covenant to open gate for gate with me, and thus confer a public benefit, I would put up a ladder, but not unless. To this offer, Mr. F. Fane up to the present time has failed to obtain any answer. Here are "facts" enough for "E. C." were he the greatest glutton for the truth ever known, and I hope that in future he will study his subject better. *Grantley F. Berkeley Winkton House, Ringwood.* [*Peccavimus.* We were wrong in allowing this matter to be meddled with, and we shall not do so again.]

Societies.

ROYAL HORTICULTURAL: *June 17* (*Second Great Flower and Fruit Show*).—Of the grandeur of this admirable display it is impossible to speak in too high terms. Stove and Greenhouse plants, and those remarkable for the beauty of their leaves, were present in great abundance; Orchids and Pelargoniums never looked fresher or more charming; the want of brilliancy in Roses in pots, driven out by a midsummer's sun, was made up by that of cut blooms, of which a profusion of lovely trusses was exhibited; a crowd of new plants, of which notice is taken in another column, excited universal interest, as did also the long table filled with devices for the decoration of the dinner table; and last, but not least, there was a grand exhibition of fruit.

Stove and Greenhouse Plants.—If there was one plant among these that received more admiration than another it was Pleroma elegans, of which one of the finest specimens we have ever seen came from Mr. Whitbread, gr. to H. Collyer, Esq., of Dartford. It was predicted of this fine Melastomad when first introduced that it would prove one of the most beautiful greenhouse plants hitherto known to cultivators, and certainly the matchless soft rich violet purple colour of its blossoms, each as round and as large as a crown piece, produced in succession for many weeks together, fully justifies the prediction. The plant is also on the whole so easily managed that cuttings struck of it even thus late in the season might under skilful treatment be induced to make good sized plants before winter. The same excellent cultivator also had some pretty examples of Dipladenia covered with showy round rosy flowers; various Ixoras, which when in good bloom as these were are striking plants; and large bushes of the old fashioned white stove Vinca. In other collections we noticed finely flowered plants of Kalosanthes, Allamandas, Stephanotis, the Phlox-like Leptodactylon californicum, Hoya bella, and Mitraria coccinea, the last not well in bloom.

Awards.—15: 1st, Mr. Whitbread; 2d, Mr. Peed; 3d, Mr. Green; 4th, Mr. Baxendine; extra, Mr. Rhodes. 12: 1st, Mr. Cole; 2d, Messrs. Fraser; 3d, Messrs. Lee; 4th, Mr. Cutbush. 9: 1st, Mr. Chilman; 2d, Mr. Page; 3d, Mr. Wheeler; 4th, Mr Kaile. 6: (1st prize withheld); 2d, Mr. Tegg.

Fine Foliaged and Variegated Plants.—These being generally large in size, and furnished in unusual abundance, formed by no means an unattractive feature on this occasion. Among them were many fine specimens of Caladium Chantini, one of the finest of its class; Dicksonia antarctica; the singularly cut leaved Philodendron pertusum; Cordylines, Dieffenbachias, Palms, and Dracænas. Of the last a fine collection came from Mr. Bull. Messrs. Henderson contributed a well-grown plant of Cissus porphyrophyllus.

Awards.—10: 1st, Mr. May; 2d, Mr. Smith; 3d, Messrs. Lee and A. Henderson & Co.; 4th, Mr. Hutt. 6: 1st, Messrs. Jackson; 2d, Mr. Boll.

Orchids.—Of these there was an extensive display, consisting chiefly of plants which have been exhibited before, but still in excellent condition. Large masses of Aerides, Cattleyas, Oncids, and Dendrobes, in the finest possible health, and covered with bloom; Lælia purpurata, strikingly beautiful; potfulls of the charming terrestrial Orchis foliosa, first brought prominently into notice by Mr. Williams of Holloway; Saccolabiums, Brassias, and Epidendrums continued to attract crowds of admirers during the whole afternoon. Of species not so often seen we noticed Vanda Batemanni, with only 4 flowers open, but these sufficient to show how magnificent must be the spike when all on it were expanded, for it was covered with buds; the rare Mexican Barkeria melanocaulon; Odontoglossum Phalænopsis, which has been shown before this season, still in fine flower; and Brassavola Dighyana, with a large trumpet-shaped curiously fringed lip. This last was in a fine collection from Mr. Milford, gr. to E. McMorland, Esq.

Awards.—20: 1st, Mr. Milford; 2d, Mr. Baker; 3d, Mr. Page. 12: (1st prize withheld); 2d, Mr. Woolley. 10: 1st, Mr. Penny; 2d, Mr. Green; 3d, Mr. Peed. 6: 1st, Mr. Lovell, 2d, Mr. Wiggins; 3d, Mr. Whitbread. Extra, Mr. Smith. Mr. Chilman and Mr. Wheeler also showed in this class.

Azaleas.—A few good plants of these were shown, but they were nearly out of bloom. Mr. Ivery however had two semi-double varieties still in good condition.

Awards.—9: 1st, Mr. Page; 2d (withheld); 3d, Mr. Whitbread. 6: 1st, Mr. Ivery.

Roses.—Those in pots, though somewhat deficient in brightness of colour, were nevertheless good for the season. Cut blooms were plentiful, and, as is always the case, were greatly admired, especially the collection from Mr. Turner, of Slough, which was remarkable for its freshness and beauty. Conspicuous among the different sets were Madame Charles Wood, Imperatrice Eugénie, Jean Bart, Notre Dame de Fouvières, President Lincoln, Duchesse d'Orléans, Triomphe d'Angers Sombreuil, Eugène Appert, La Reine, Baronne Larray, Peter Lawson, Madame Furtado, Jean Goujon, Bougère, Prince Leon, Evêque de Nismes, Gustave Rousseau, Madame Joseph Halphen, Chénédole, Le Baron de Rothschild, Miss Gray, Souvenir de Lady Eardley, Souvenir d'un Ami, Empereur de Maroc, La Boule d'Or, Alexandre Fontaine, Louise Darzens, Maurice Bernardin, and Julie Mansais.

Awards.—Cut Blooms: 1st, Mr. Turner; 2d, Mr. Mitchell and Messrs. Paul; 3d, Mr. Hollamby; Extra, Mr. Terry. Pot Plants: 12 1st, Mr. Wm. Paul; 2d, Mr. Francis. 6: 1st, Mr. Terry.

Cape Heaths.—Among these were good examples of the different varieties of tricolor, eximia, depressa, Massoni, ventricosas of various kinds, mutabilis, Bergiana, obbata, Aitoniana, and nobilis, the last a buff-coloured kind.

Awards.—6: 1st, Mr. Peed; 2d, Messrs. Jackson; 3d, Mr. Chilman; extra, Mr. Page.

Pelargoniums were even better than at the Society's last show, fine as they were on that occasion. In short the collection from Mr. Nye, gr. at Clewer Manor, was a marvel of its kind. Of others, the spotted kinds especially were unusually striking and brilliant, and foremost in this respect was Wm. Bull, a glowing crimson with violet-flushed white eye, and distinct black spots on all the petals. Gem, a soft Rose, is really what its name implies; Mr. Marnock is similar in appearance, but has a darker top; and Osiris, Madame Furtado, and Excelsior, are all acquisitions in their class to which they belong. Among light-coloured Fancy kinds Delicatum is a most profuse flowerer. Of Roi des Fantaisies one half of each blossom is bright rose, the other nearly white, the two colours contrasting admirably one with the other; and Evening Star and Claudianum are two good dark sorts. Among ordinary kinds one of the best light varieties shown was Ariel, white with crimson top. Among rose-coloured kinds with white eye Rose Celestial stood preeminent; among orange scarlets Lord Clyde, and among brilliant rosy scarlets Sunset. Viola is also a good old distinct-looking kind, with dark mulberry top and delicate lilac-coloured under petals. The sorts, together with the number of times each variety was shown, were as follows:—Ariel, 3; Bacchus, 2; Beatrice, 1; Beauty of Reading, 1;

Brilliant, 1; Criterion, 1; Desdemona, 2; Etna, 2; Excelsior, 1; Fairest of the Fair, 1; Festus, 1; Flora, 1; Glowworm, 1; Guillaume Severyns, 2; Lady Canning, 1; Leviathan, 1; Lightning, 1; Lillie, 1; Lord Clyde, 3; Magnificent, 1; Matilda, 1; Modesty, 1; Monarch, 2; Nestor, 1; Osiris, 1; Peacock, 2; Perdita, 1; Pizarro, 1; Prince of Prussia, 3; Rose Celestial, 3; Rowena, 1; Sanspareil, 3; Sir C. Campbell, 1; Stella, 1; Sunset, 1; Symmetry, 1; The Belle, 1; The Bride, 2. FANCIES.—Bridesmaid, 1; Clara Novello, 1; Claudianum, 2; Clemanthe, 1; Cloth of Silver, 1; Delicatum, 2; Evening Star, 1; Lady Craven, 1; Roi des Fantaisies, 2. SPOTTED.—Bracelet, 1; Excelsior, 1; Guillaume Severyns, 1; Madame Furtado, 1; Mazeppa, 1; Mr. Marnock, 2; Osiris, 1; Rembrandt, 1; Sanspareil, 1; Spotted Gem, 1; Wm. Bull, 1.

Awards.—12: 1, Mr. Turner; 2, Messrs. Fraser. 9: 1, Mr. Nye; 2, Mr. Shrimpton; 3, Mr. Page; extra, Mr. Hutt. Fancies, 6: 1, Messrs Fraser; 2, Mr. Turner. Spotted, 6; 1, Mr. Turner and Messrs. Fraser.

Ferns.—One or two strikingly fine collections of tender kinds were shown, the bright green leaves of which gave relief to the eye overtaxed with looking at gaudy colours; and of hardy varieties, Mr. Ivery, of Dorking, again contributed his handsome group, to which favourable allusion was made when last exhibited

Awards.—12: 1st, Mr Bull; 2d, Messrs. A. Henderson; 3d, Mr. Lavey; 4th, Mr. Young.

Wardian Cases.—A handsome comparatively large sized one was furnished by Messrs. A. Henderson & Co., and a much smaller one by Messrs. Barr & Sugden. The last was rectangular, made of wood and glass, with movable side-panels, and had a raised glass lantern at top, removable when wanted.

Awards.—1st, Messrs. Henderson; 2d, Messrs. Barr & Sugden.

Miscellaneous Subjects.—Among these were collections of Cut Blooms of Pinks and Pansies, from Mr Turner, Mr. Bragg, and others; a fine display of Pæonies from Messrs. Fraser and others; Ixias, Sparaxis, and Spanish Iris, from Messrs. Butler & M'Culloch, Barr & Sugden, and Hooper; Larkspurs and Calceolarias from Messrs. Downie, Laird & Laing, and a cut specimen of the Chusan Palm now in flower in the open air near Kingsbridge, Devon, from J. Luscombe, Esq. Of comparatively new plants, besides those already referred to, was a noble specimen of the Alocasia Lowii described at p. 580, from the introducers Messrs. Low & Co.

Table Decorations.—The remarks of a correspondent published in another column, for the correctness of which we can vouch, leave little for us to add on this subject. The display was extensive, and for the prizes offered there was keen competition. In many of the designs good taste was evident, but one or two were hideous productions. We allude more particularly to one from a nobleman's gardener, in which was inserted a quantity of wax candles, and to another decorated with Capsicums, bits of Cauliflowers, Potatoes, Asparagus, &c, mixed up with fruit and flowers. This last was, however, singularly enough commended by the lady adjudicators. The set to which the first prize was awarded was light and elegant in appearance; but whether the introduction of humming birds into the design was good taste or not was a matter of general question among the visitors, the majority of whom seemed to think it would have been better without than with them. The second prize set consisted of Mr. March's design in glass, very tastefully ornamented with flowers, among which the white Calla æthiopica and Cactus blooms were conspicuous. The group which gained the third prize consisted of long ground glass vases, each of which held a beautiful bouquet, supported on a circular base decorated with glass shells, in which were placed white Iris flowers, an arrangement that seemed to receive general admiration. Another, consisting of glass tubes, bent so as to form ovals in the centre tastefully ornamented with flowers, was commended; and Miss Maling and Mr. Salter had each of them pretty exhibitions, that from the latter consisting of three slender wires concealed behind Fern leaves, supporting a tray full of flowers at top. A flower tray from Mr. Weeks of Bromley appeared to be a favourite. It consisted of a pot or holder large enough to admit of an ordinary flower pot being placed in it, thus making it easy to change a plant, in blossom or otherwise, when wanted. Around this was a circle with a perforated bottom in which Lycopods or Mosses may be grown luxuriantly. Another outer circle was for wet sand, in which cut flowers may be placed. When neatly arranged the whole forms quite a garden in miniature, which may be watered with a fine-rosed water-pot; and thus treated, both plants and flowers will, as a matter of course, retain their beauty and freshness much longer than by the usual mode of display. Finally, Mr. Earley, of Digswell, had some extremely pretty things for table ornament in the form of four flower saucers, held together by means of bent wire handles crossed at top, to be overrun if desirable with sprigs of green. These were accompanied by a centre piece, which also displayed considerable ingenuity.

Awards.—1st, Lady Rokeby; 2d, Mrs. J. W. Bliss; 3d, Mrs. W. Fawcett. Commended: Lady C. Kerrison, Lady Holmesdale, and Mr. Alfred Salter.

Collections of Fruit.—Three of these were exhibited, in which we noticed some good Black Hamburgh, Trentham Black and Muscat Grapes; Queen and Black Jamaica Pine Apples; a dish or two of Peaches and Nectarines, Melons, and Strawberries.

Awards.—1st, Mr. Masters; 2d, Mr. Henderson; 3d, Mr. Turnbull.

Grapes.—Of Black Hamburgh some fine bunches were exhibited, more especially dishes from Mr. Sawkins, gr. to J. Brassy, Esq., and from Mr. Turner, of Slough. White Grapes were not so good, and only in one or two instances were they quite ripe. Of Chasselas Musqué good bunches were however shown, without crack or other disfigurement in them. Golden Hamburgh was poorly represented, though the bunches shown of it received a first prize.

Awards.—Black: 1st, Mr. Sawkins; 2d, Mr. Turner; 3d Mr. Jackson. Muscats: 1st, Mr. Embry; 2d, Mr. Turnbull; 3d, Mr. Turner. Other White Grapes: 1st, Mr. Wills; 2d, Mr, Mould; 3d, Mr. Cross.

Peaches and Nectarines.—Of these there was a good display, consisting of excellent specimens of Noblesse, Royal George, and Bellegarde Peaches, and Violette Hâtive and Elruge Nectarines.

Awards.—Peaches: 1st, Mr. Rutland; 2d, Mr. Snow; 3d, Mr. Allen and Mr. Brown. Nectarines: 1st, Mr. Rutland; 2d, Mr. Brown; 3d, Mr. Horwood and Mr. Turner.

Cherries.—These consisted of Elton, Knight's Early Black, Mayduke, and Reine Hortense.

Awards.—1st, Mr. A. Henderson; 2d, Mr. Snow; 3d, Mr Enstone.

Strawberries.—Mr. Smith, of Twickenham, again showed magnificent fruit of British Queen, Sir C. Napier, and Empress Eugénie. Than these nothing in their way could possibly be finer. Among other sorts were President, in beautiful condition; Oscar, Sir Harry, Eleanor, Crimson Queen, and Keens' Seedling.

Awards.—Single dish: 1st, Mr. Smith; 2d, Mr. Widdowson; 3d, Mr. Turner. Three dishes: 1st, Mr. Smith; 2d, Mr. Widdowson; 3d, Mr. Dwerrihouse.

Figs.—With the exception of one dish of White Marseilles from Mr. Pottle, these were confined to Brown Turkey.

Awards.—1st, Mr. Smith; 2d, Mr Henderson; 3d, Mr. Snow.

Melons.—These were numerous and generally good. The best, a green-fleshed sort belonging to the Persian breed, came from Mr. Meredith of Garston, near Liverpool; of this we have had occasion to speak in favourable terms in former reports. Of scarlet-fleshed varieties the best came from Mr. Terry, gr. to Lady Puller; it was a medium-sized, unnamed, prominently-ribbed kind. Mr. Dwerrihouse furnished good fruit of the Heckfield Green-fleshed.

Awards.—Green-fleshed: 1st, Mr Meredith; 2d, Mr. Chilman Extra, Mr. Pottle. Scarlet-fleshed: 1st, Mr. Terry; 2d, Mr. Kaile.

Pine Apples.—These were not numerous, but some of them were fine specimens of good cultivation. Among them were one or two Queens which weighed over 5 lbs., and a Providence from Mr. Young, gr. to C. Bailey, Esq., Aberdare, weighed 12 lb. 8 oz. A Smooth-leaved Cayenne weighing 4 lb. 14 oz. came from Mr. Taylor, Leeds.

Awards.—Cayenne: 1st, Mr. Taylor. Other varieties: 1st, Mr. Hutchison; 2d. Mr. Hall and Mr. Young; 3d, Mr. Speed.

Miscellaneous fruit consisted of some Apples of last year's growth, still in a good state of preservation; a dish of fine fruit of Passiflora quadrangularis; one or two dishes of very fine Tomatos; and groups of extremely well managed fruit trees in pots, covered with fruit, from Messrs. Lee and Lane.

Notices of Books.

History of the Botanic Garden at Zürich. By Prof. O. Heer.

In the monastery gardens of the middle ages, there was generally a small portion set apart, in which medicinal plants were cultivated. Thus the plan of the monastery of St. Gall, in the year 820, shows us near the hospital and the surgeon's dwelling, such a garden (Herbularius), containing 16 beds, in which were cultivated Lilies, Sage, Mint, Cumin, Rue, Rosemary, Fœnum græcum, Iris, Heartwort, Fennel, Savory, and Roses.

From this arose the botanic garden proper, which could only originate when plants first began to be scientifically examined. In the classical ages we already find the first germs of the science of Natural History, which throughout the middle ages lay buried in a few manuscripts. At the time of the Reformation the study was revived, and in Switzerland, as elsewhere, was eagerly followed by a few. Amongst those whom natural philosophy attracted, Conrad Gesner (born in 1516) must especially be named; since he undoubtedly takes the first place among the reformers of natural history. Possessed of an astonishing knowledge of Greek and Roman literature, he combined what the ancients had learnt of plants and animals, with the discoveries of his contemporaries, and devoted himself with untiring industry to the study of Nature. As a boy he tended the garden of his great uncle, and made himself acquainted with the plants contained in it; as a youth, from Lausanne (where he was nominated Greek professor in his 21st year) he travelled over the Waatland and the Valais, and collected the botanical treasures of these regions; while later, accompanied by Rauwolf, from Montpellier, where he was studying medicine, he collected those of the south of France. After his return to Zürich, he made several expeditions to the North of Italy and in the Alps, and laid out a garden in which he placed the plants which he had brought home; he further employed foreign draughtsmen and engravers, and had more than 100 drawings prepared to illustrate his intended great botanical work.

In his book on German gardens, in which he described a heterogeneous assemblage, from kitchen gardens to the parks of princes, the botanic garden was, for the first time, placed in its true light, distinguished from other gardens, and described as one in which not merely medicinal plants, but also others, and especially rare plants, are cultivated for the examination and admiration of their peculiarities. What importance Gesner attached to such a garden may be seen by his letters to the magistrates, in which he earnestly entreats to be allowed to lay out such an one. His wish, however, was not granted, and he was obliged to be satisfied with his own garden, and those of two friends. Gesner tended with especial affection the plants of those Alps which it was his highest delight to explore. He complains indeed that they are very difficult to rear, yet we find 50 species named as growing in his garden, with many remarks on their cultivation, which are the more interesting, as no one had previously attempted to rear them. As his was the first botanic garden in Switzerland, so was his Alpine garden the first in Europe.

The rich botanical treasures which Gesner had gathered together in Zürich were dispersed after his early death (1565); with the exception of his valuable collection of drawings and writings, which was preserved by the town.

Gesner was a shining star in the horizon of Zürich; and when he died, darkness returned for a long time. It is true that in the following century we find the names of three naturalists worthy of note:—Muralt, and the brothers Scheuchzer. But no attempt was made to establish such a garden as Gesner's; this was reserved for Scheuchzer's successor, J. Gesner, who founded a Natural History Society, of which the first proposal was to establish a botanic garden. By means of a lottery, and subscriptions, a sufficient sum was raised in 1748 to enable the Society to rent a piece of ground containing 24,000 square feet, which under the superintendence of the founder of the Society was converted into a botanic garden. Herbaceous plants were arranged in it according to the system of Linnæus, and trees and shrubs were planted in groups. The first seeds sown were some which the eminent naturalist, J. G. Gmelin, had brought home from his travels in Siberia; while Gleditsch, the director of the Berlin garden, enriched the young establishment with many rare plants, so that it was shortly in a flourishing condition.

(To be continued.)

Garden Memoranda.

ROYAL HORTICULTURAL SOCIETY'S GARDEN AT CHISWICK.—Although now forming as it were the workshop in which are manufactured most of the fine materials in the way of floral decoration that attract so much attention in the new conservatory and elsewhere in the Society's gardens at South Kensington, and although, consequently, high keeping out of doors is not attempted here, yet Chiswick at the present time is, on its own account, well worth inspection.

Under the skilful management of Mr. Eyles, seconded, be it remembered, by his able foremen, Mr. Barron and Mr. Beaumont, the cultivation at Chiswick has never before been equally good. Trimness and ornament, have, it is true, been in a great measure discontinued, but in what concerns the health of plants and their successful treatment there is nothing further to desire. Flower beds are rich with Pelargoniums, dwarf Dahlias, Calceolarias, Verbenas, and other florists' flowers, grown for the purpose of testing their true value. Fruit trees on walls, and in the shape of pyramids and espaliers, are pictures of perfect training, and everywhere, with few exceptions, loaded with fruit; and in the kitchen garden are large collections of Potatos and other esculents grown for trial, or for market.

The glory of the place is, however, its huge iron Vinery. This building, once, it will be remembered, a grand conservatory, is now converted into an experimental house for proving the qualities of Grapes. It is 180 feet in length, 30 feet in breadth, and 26 feet in height, and now contains more than 100 sorts of Vines in vigorous health and in full bearing. These form a vast leafy canopy, nearly covering the roof, and when loaded with ripe fruit present a sight unrivalled in the way of Grape growing. The bunches are now being thinned, and to show that the crop this year will not be behind its predecessors in excellence, we may mention that one of the clusters of Barbarossa pruned off, and that of course not the finest, measured 15 inches in length and as much across the shoulders. Some of the leaves too on young shoots of the Frankenthal, the most useful perhaps of the many varieties of Black Hamburgh, measured 16 inches one way, and as much the other. One or two kinds proved to be inferior, have been cut down and grafted with sorts known to be good, an operation which is performed just as the stock is getting into full leaf. In another Vinery, a lean-to one, the crop is nearly ripe, not large either in bunch or berry, but good; and in a low pit, in which numbers of new varieties are grown for trial, the berries of some are just changing colour. Another Vinery is filled wholly with Muscats, among

which the Tynningham and Passe Muscats have proved to be the best setters, being as free in this respect as Black Hamburghs.

The little Orchard-house itself is well worth a visit; it is quite a picture of first-class gardening. The trees, consisting of Peaches, Plums, Pears, Apricots, and Cherries, chiefly in pots, are loaded with fruit, and nothing could be more healthy or clean than the foliage, which is more vigorous, and of a better colour even, than that out of doors. These trees are managed on the close pinching system, and are fed two or three times a week with liquid manure.

A long pit is filled with Cucumbers, one half in pots and the other half planted out, all being trained on trellises. Of these the plants in the half planted out are the most vigorous and fruitful. Among them we noticed fine examples of Carter's Champion, an excellent early variety, and a good kind from Mr. Cuthill, evidently related to the Syon House breed.

A large lean-to house, formerly a plant stove, is now chiefly filled with Figs of different sorts, of which a good collection has been got together. They are little dwarf standards in pots, and when the fruit on them is ripe an inspection of it will, doubtless, form a treat to lovers of Figs.

Ewing's glass wall, which at one time occupied so much attention, but which in its original form proved an utter failure, has at length been turned to good account. It has been converted into a long span-rooted house, in which Peaches are trained along the front cordon oblique fashion, and Vines along the back, this being intended as a testing house for these fruits. Shelves placed along the back and front furnish excellent accommodation for early Strawberries, of which good crops of British Queen, Sir C. Napier, and Keens' Seedling, have been produced this spring, these being the kinds most esteemed here for forcing. Being 196 feet in length it will doubtless be found very useful in many ways.

In plant houses little alteration of any importance has taken place since our last visit. They are, we may however state, kept as dressy and neat as ever we remember to have seen them. Of new plants, they contain a considerable number from the Society's collectors, Mr. Weir and Mr. Cooper; but as yet most of them are not in a sufficiently advanced state to require special notice. Among Miscellaneous things from other quarters, are young examples of the Grecian Conifers alluded to the other day at p. 534; Streptocarpus Saundersii, a white flowered species with a bright blue eye and very handsome; and various new Begonias. In the old Orchid house are two fine plants of Alsophila Cooperi, a New Zealand Tree Fern of great beauty presented to the Society by Sir Daniel Cooper; and last, but not least, we may mention that Mr. Beaumont, who has the care of the Plant Department, has succeeded in raising from seed ripened in this country a young plant of the charming terrestrial Cape Orchid, Disa grandiflora, panfuls of which are growing in a cool pit under his charge in the greatest possible luxuriance.

Of out-door fruit all kinds appear to be plentiful except Apples, which are a thin and partial crop. They are found to be better on dwarfs than on trees of greater height. Peaches and Nectarines on walls are all that could be desired, and Pears are everywhere good. Strawberries are also bearing abundantly. Vicomtesse Hericart de Thury is considered a useful early sort; its fruit is bright red and conical, and the variety is very hardy and a great bearer. Eclipse is said to be an excellent mid-season kind; and for general utility few beat Cuthill's Prince of Wales, which is not only a late but a plentiful cropper. La Constante, a dwarf compact sort, producing few runners, would make a good edging plant; it is a mid-season variety and a good bearer.

Miscellaneous.

Iron as a Tonic in the Vegetable Creation.—A curious discovery is alleged to have just been made regarding the influence of iron on vegetation. Preparations of iron are used in the animal world as a medicine where the blood is poor in red particles. The pale cheeks of the invalid often regain their bloom under the influence of such tonics. It is much the same, it appears, with plants. On the chalky soils of France and England, where there is an absence of iron, vegetation has a sere and blanched appearance. This is entirely removed, it is said, by the application of a solution of sulphate of iron. Haricot Beans watered with this substance acquired an additional weight of 60 per cent.! [How would a few doses of cod-liver oil agree with them?] Mulberries, Peaches, Pears, Vines, and Wheat derive advantages from the same treatment. It is expected that the salts of iron will be found as beneficial in farming as in horticulture, but the experiments are as yet very incomplete. In the cultivation of Clover, however, wonderful advantages are declared to have been gained. The material is cheap, and the quantity applied is small. *The Builder.*

The Origin of Man.—The Committee of French and English scientific men appointed to examine on the spot the evidence of man's antiquity as indicated by the discovery of a fossil human jaw and worked flint hatchets discovered near Abbeville, have come to the following conclusion. The jaw bone is certainly of the same age as the diluvian formation in which it was found. But what is the age of the formation? Nothing is settled as to that. As to the flint hatchets, they are pronounced to be undoubtedly contemporanean. The *Athenæum* further states that M. Elie de Beaumont expressed his opinion that the gravel deposit of Moulin-Quignon did not belong to the Quaternary or diluvian age at all, but that it was a member of the *terrains meubles* of the actual or modern period, in which he would not be in the least surprised if human bones were found; adding, moreover, that he did not believe in the asserted existence of man as a contemporary of the extinct elephants, rhinoceroses, &c., of the Quaternary period! The opinion of this very eminent and veteran geologist imports a new element of doubt into the question.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Now that the conservatory is relieved of all superfluous stock, nothing remains but to carry out a cleanly system of cultivation, and to introduce fine specimens from other houses or pits. All available surfaces should be moistened morning and evening, thorough ventilation obtained, and a thin canvas screen kept on during bright sunshine. As regards Stove plants, a very free use of the syringe, with abundance of air night and day, should be persisted in, the main business being to produce sturdy plants with short-jointed wood. Liquid manure, composed of cowhouse drainage, guano, and soot-water, should be constantly in use, taking care to employ it in no other way than clear and weak. Give air liberally to Orchids, syringing them freely early in the morning, and shutting up betimes in the afternoon. With respect to mixed greenhouse plants pursue the directions given for the conservatory. Use abundance of water morning and evening, with a particularly free circulation of air. Continue to make cuttings of gay things for a late autumn display. Camellia stocks may now be grafted, choosing the young wood which has the leaves perfectly developed, and which is of a ripening brown colour at the base. A slight hotbed, with a bottom-heat from fresh fermenting material of 80°, will be found suitable for them, placing a foot deep of cinder ashes over it, to keep down worms. Amaranthus melancholicus ruber makes a first-rate edging plant under glass, and a good supply of it should be secured for that purpose.

FORCING DEPARTMENT.

PINERY.—Use the syringe in earnest to all the stock, shutting up as much solar heat as possible, and giving abundance of air to young and growing plants. Be careful to shade slightly the fruiters, in order to insure a greater amount of atmospheric moisture, which of course is dissipated by much ventilation.

VINERIES.—Early houses will now be cut, or in cutting, in many places. Do not hurry the plants into a resting state; nothing will be gained in point of earliness next year by such a course; rather endeavour to keep the leaves well fed, as long as the vital forces are at work, and to this end allow laterals to ramble awhile if so inclined. Ventilate late houses freely by 6 or 7 o'clock in the morning, and keep a little air on all night, if the thermometer can be maintained at 65° without the aid of fire heat. Keep floors and all surfaces wet, in preference to much syringing, if a fine bloom is desired.

PEACH-HOUSE.—Give plenty of air day and night, and syringe heavily morning and evening, except where fruit is ripening. Persist in constant stopping.

CUCUMBERS.—If early Cucumbers are exhausted with much bearing, and infested with thrips or spider, prune them freely, and shut up and shade every morning by 10 o'clock, after a free circulation of air. Let them be syringed before shutting up. The thermometer, with careful shading, may be allowed to rise to 95°; this course persisted in for a little while will kill or drive away the enemy, and throw the plants into new growth.

FLOWER GARDEN AND SHRUBBERIES.

All newly bedded out plants will, during hot weather, require daily waterings. Let young shoots on all old Fuchsia stools be thinned out to five or six. Attend diligently to Standard Roses; constant disbudding is necessary at this period; also keeping down suckers Let every attention be paid to propagating a reserve stock to fill gaps, and let plants already rooted, or the remains of store pots, have kindly cultivation forthwith, in order to be ready for that purpose. They should be kept in a shady border entirely by themselves, and should receive free waterings. Great attention must be paid to Ranunculuses, for should they remain in the ground too long, they make fresh roots; therefore they must be taken up as they arrive at maturity, which is evidenced by the foliage becoming yellow. Semi-double seedlings of good properties as to form and smoothness of petal should be carefully preserved for the purpose of fertilisation. Pansies require regularly watering and shading, or they are liable to be attacked with mildew. The buds on Carnations and Picotees may be reduced, according to the strength of the plants, but to ensure large flowers not more than three ought to be retained on each; remove all laterals as they appear, and attend to the destruction of green fly, which is more than usually troublesome.

HARDY FRUIT AND KITCHEN GARDEN.

Those who understand fully the importance of a thorough ripening of the wood in all wall-trees, or tender espaliers, will of course pay attention to thorough thinning and early training. Who can expect Peaches to perfect this process when the young wood is dangling from the wall until August? Pears at this period should also have as much attention as Peaches. The breast wood must be kept short, and in doing this remove it from the upper half of the tree first. Those who desire a good and constant supply of autumn and winter Endive must make a full sowing forthwith; Endive is generally sown too thickly. A good sowing should also be made in the first week of July, and a second towards the middle; after which the plant will not attain full size. As soon as the plants are a few inches high, mow the tops of the leaves off with a scythe, cutting about one-third of them away.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending June 17, 1863, as observed at the Horticultural Garden

June.	Moon's Age	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 11	25	29.543	29.426	67	46	56.5	60	57½	S.	.32
Friday 12	26	29.474	29.432	65	42	53.5	59½	57½	S.E.	.33
Satur 13	27	29.914	29.649	67	39	53.0	60	57½	W.	.04
Sunday 14	28	29.963	29.946	73	54	63.5	61	57½	W.	.07
Mon. 15	29	29.949	29.930	71	41	56.0	61	57½	S.W.	.00
Tues. 16	●	29.945	29.869	65	53	59.0	61	58	S.	.25
Wed. 17	1	29.830	29.773	76	40	58.0	61	58½	S.W.	.00
Average.		29.802	29.721	69.1	45.0	57.0	60.5	47.7		1.01

June 11—Fine, but windy, cloudy and showery; rain at night.
— 12—Cloudy, showery; heavy rain at night
— 13—Fine, very fine, showery; cold at night.
— 14—Very fine throughout
— 15—Very fine; cloudy, fine at night.
— 16—Hazy, rain, heavy rain at night.
— 17—Cloudy; overcast, cloudy and fine; very fine.
Mean temperature of the week 3½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending June 27, 1863.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 21	73.8	50.9	62.3	16	0.68 in	1	5	4	3	1	18	4	1
Mon. 22	74.4	49.4	61.4	16	0.59	—	3	2	1	2	15	9	5
Tues. 23	72.1	47.2	59.6	15	0.44	1	2	4	1	3	10	5	5
Wed. 24	73.7	49.2	61.4	14	0.49	—	3	4	1	2	15	9	3
Thurs. 25	72.5	49.8	61.2	19	0.72	—	2	6	2	3	13	6	3
Friday 26	73.5	51.2	61.9	18	0.69	1	2	4	2	2	13	10	3
Satur 27	71.9	47.9	59.9	22	0.80	4	2	4	2	3	16	8	—

The highest temperature during the above period occurred on the 22d, 1846—therm. 93 deg.; and the lowest on the 23d, 1851—therm. 35 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

APRICOTS: *T B.* Your Apricot leaves are affected with a minute *Uredo*, which is new to us. No remedy for this genus of Fungi is known. The spawn is too deep seated to be reached by any chemical. The only counsel we can give you is to burn the affected leaves if not too numerous. *M J B.*

BERBERIS AQUIFOLIUM: *Diss.* Cut away the scraggy branches now, and transplant in autumn or early in spring. The same for B. Darwinii.

BOOKS: *W T T.* Messrs. Bradbury & Evans are the publishers of Dr. Lindley's "Orchidaceæ Lindenianæ," which is still to be obtained.—*G A.* Williams on Orchids, and Cuthill on the Cucumber may possibly answer your purpose.

BULBS: *Diss.* Bulbs of Narcissus, Snowdrop, Leucojum, Tulipa sylvestris, Fritillary, Crocus, &c., which have been taken up with a view of separating them, may be planted in the turf of the churchyard, now or at any time during the next two or three months, except in the case of Fritillary, which would be better in the ground at once.

CUCUMBERS: *T B.* Your Cucumbers are infested with the common *Fuligo vaporaria*, the pest of hothouses, especially where tan is used. You may try quicklime, but we are not certain that it will destroy it; if not, use common salt. *M J B.*

GOLDEN CHAIN PELARGONIUM: *Burtonensis.* We should hardly say that Golden Chain is superseded by Cloth of Gold, as they are not quite the same in character, but the latter has the advantage of being a more free growing variety, and is besides a very well marked and ornamental plant.

INSECTS: *T S P., R N.*, and other correspondents will receive replies to their inquiries next week. *J O W.*

NAMES OF PLANTS: *E T.* Pyrus torminalis.—*S W R.* The two unnumbered leaves belong to Helleborus argutifolius and olympicus, two capital, but rare, hardy perennials with evergreen leaves, invaluable for the decoration of the outskirts of covert in woods and plantations.—*Acer.* It looks like Cupressus Lawsoniana, but the specimen is too small for certain identification. Acer Douglasii is an Oregon plant whose leaves resemble those of rubrum, while its flowers are like circinatum. Of A. Murrayanum and colchicum rubrum we know nothing.—*Calceolus.* We do not see how your plant differs from Cypripedium Calceolus, which, like other plants, varies within certain limits. If from N. America your plant is probably what is there called C. pubescens. —*Croxcood.* 1, Scilla peruviana; 2, Hemerocallis flava; 3, Sisyrinchium bermudiana.—*Jim Crow.* Cytisus sessilifolius.—*R O.* 1, Spiræa cuneifolia; 2, Specularia pentagonia; 3, Escallonia macrantha.

RUST IN GRAPES: *H M Wt.* There is no reason to believe that your rust is different in its origin from that which so constantly occurs, and which arises sometimes from slight contact with foreign bodies in thinning, but more frequently from sudden draughts. *M J B.*

THE EDINBURGH BOTANIC GARDEN: *A B.* We decline all discussion of this matter. Lord Palmerston's remarks were in our opinion such as all men of sense will endorse.

VINE LEAF EXCRESCENCES: *C D H.* Many thanks for the fresh specimens of Vine leaves which have been received. It is now quite clear that the curious excrescences are the work of an insect. They are filled with mites and eggs, and sometimes there is a coccus with them. We fear that your Vines must suffer seriously. All you can do is to treat them as if affected with red spider, but whether that will be effectual or not is very doubtful.—*W T.* We have seen many instances this year of vigorous Vines producing leaves just like what you have sent. We do not believe that they will suffer. Tobacco water and sulphur are useless. *M J B.*

REDUCTION IN PRICE.

PHOSPHO GUANO.

The Prices for the Season 1863 are as follows, delivered Free on Board, or on the Rails at Liverpool.

For 30 Tons and upwards	£10 5 0	per Ton, net cash.
For 10 Tons up to 30 Tons	10 10 0	,, ,,
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The Price will not exceed 12*s.* per Ton additional if delivered at any other Port in Great Britain.

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These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

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Address, BENJAMIN EDGINGTON, 2, Duke Street, Southwark, S.E. No other Establishment.

Advertisement.

Woolston, Bletchley Station, June 12, 1863.

MR. SMITH BEGS TO CALL THE ATTENTION OF THE FARMERS OF ENGLAND TO THE FOLLOWING LETTERS:—

Buckden, June 2, 1863.

DEAR SIR,—In the autumn of last year I cultivated and drilled with Wheat at one operation with your Combined Machine, 75 acres of heavy clay land Bean stubble, in 90 working hours, and 9 acres of Vetches. Some time back the Wheat looked as though I should have had too much, but the dry weather has put all straight, and it now promises to be a thorough good crop. The Vetches were very good, and have been eaten off. In the spring of this year I used the Machine again, cultivating and drilling with Barley, 12 acres of clay land after Turnips, fed off with sheep in the winter, and it did well. I shall be pleased and hope to see you before harvest.

I remain, yours truly, WILLIAM CRANFIELD.

To Mr. SMITH.

Hemingford, St. Ives, Hunts, June 10, 1863.

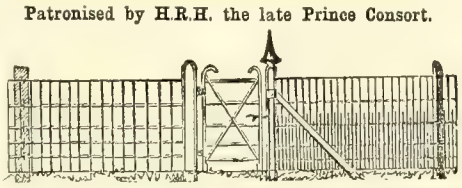
DEAR SIR,—Your kindness in allowing the Combined Drill and Cultivator to remain in this neighbourhood for the use of those who work your cultivating apparatus, induced me to take advantage of it, and with the machine I have effected that which I am satisfied could not have been done by any other means.

The field we worked is 24 acres, Swedes fed off half of it in January, which was afterwards drained, and the remaining part of the Swedes were fed late in the spring, not finished until 1st week in April.

Your implement completed the 24 acres in 2¾ days work, from 6 A.M. to 6 P.M., although the land was as hard as it possibly could be. The Oats were visible above ground in 18 days, and from present appearance I have a right to anticipate a good crop. Had the same field been cultivated with horses, I consider it would have taken 100 or more, and then I am sure the Oats would only partly have appeared above ground, the weather was and has remained so very dry.

W. SMITH, Esq. Yours very faithfully, F. BATTCOCK.

Patronised by H.R.H. the late Prince Consort.



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Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

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Repayment may be made by the Landowner as successive portions of the works are completed; or the actual expenditure, with a commission thereon, may be charged on the property improved, by way of rent charge on the estate created for various terms of years, so as to adapt the rate per cent. of annual charge to the circumstances of the tenants.

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4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

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ROYAL AGRICULTURAL SOCIETY of ENGLAND.

A LECTURE by DR. VOELCKER, on the COMPARATIVE EFFECT of DIFFERENT MANURES upon GRASS LANDS, will be delivered to the Members, at the Society's House, 12, Hanover Square, London, W., at 12 o'Clock on WEDNESDAY NEXT, the 24th June. By order of the Council,

H. HALL DARE Secretary.

ROYAL AGRICULTURAL COLLEGE CLUB.—The ANNUAL DINNER will take place at the Crown Hotel, Worcester, on TUESDAY, July 21, at 6 o'clock.

Tickets can be had by applying to JOHN COLEMAN, R.A.C., Cirencester. Members can introduce a friend.

The Agricultural Gazette.

SATURDAY, JUNE 20, 1863.

A VERY large quantity of information on STEAM CULTIVATION has during the past few weeks been laid before agriculturists in the columns of agricultural papers. And yet we do not wonder at those who still fear to follow the examples of it which have now been set upon so many farms in this country. Their difficulty would vanish if it were merely the current expenditure on steam as compared with that on horses, on which an opinion had to be formed. That was the comparison instituted as regarded this year's work, in the tables which we last week published. But it is plain that in addition to expenditure of this kind there is the general cost of tear and wear, and depreciation of value in the machinery employed, which has to be borne, and is very difficult to estimate aright in the case of an agency which is but a few years old. It was this—unestimated in Mr. MORTON'S paper—that made Mr. THOMAS of Bletsoe, and Mr. CHARLES HOWARD of Biddenham, question the results to which the figures of his correspondents led. Mr. EDMONDS, of East Leach, had done 713 acres of grubbing and 15 acres of ploughing from 5 to 9 inches deep for less than 100*l.* in coals, oil, wages, and repairs—for less therefore than 3*s.* an acre. Mr. SOWERBY, of Aylesby, had grubbed 330 acres of various soil, 8 inches deep, for less than 52*l.* in the same items, or not much more than 3*s.* an acre; but these facts do not relate the whole truth on the subject. How much has to be added on to this for wear of rope and general depreciation of value in the apparatus employed? The answer to this question is as yet imperfect. The cost of rope is indeed pretty well made out. It need not be more than 1*s.* an acre, and it is very often less. In some parts of the country it is very much less—elsewhere it is more. The differences of experience which are related are owing to the various care bestowed in carrying it, and the variety of soil over which it is carried.

On the stoneless soils of the Wealden formation the wear of rope is a minimum. On the flinty soils of the Upper Chalk—especially where the surface is clayey enough to hold the flints firm over which the rope is drawn—the wear is a maximum. In all cases, however, it will vary according to the greater or less care used in carrying it. One of the very best cases of steam cultivation we know of is on a flinty Sussex farm, where the tenant has put down 40 oxen which he used to employ—by means of a 10-horse-power engine and HOWARD'S and SMITH'S apparatus. Here, as we saw the operation of grubbing proceeding, porters and blocks of wood and every other available means of carrying the rope were employed—and it is an advantage of the "round about" as compared with the direct method of applying the rope that you can thus put porters or

anything to serve their purpose as thickly as you like under three-fourths of the rope in use without its entailing extra work on the labourers. On the other hand it is the advantage of the direct system, now that the slack gear apparatus is adopted on FOWLER's ploughs and grubbers, that the very pull of the implement is made to tighten the rope behind it, and thus of itself and without assistance preserve that tautness on which its due carriage off the ground depends.

But supposing the rope-cost is definitely made out, there is still the indefinite expense of general tear and wear to be met and estimated; and for this we have not years enough of experience as a guide. If you value the apparatus year by year as for sale, then the loss consequent upon its having become second-hand will fall upon the first year's experience—and that, if taken to be real, would so magnify the cost of the first year's steam cultivation as to hinder any one from following the example. It is, however, the intrinsic not the market value of the apparatus which it is worth to the man who does not mean to part with it; and there seems every reason to believe that 7½ to 10 per cent. upon cost price is amply sufficient to provide a fund which shall replace the capital invested before the tackle is altogether worn out. This, with ordinary commercial interest on the capital, and with payment of rope, repairs, wages, oil, and fuel, will represent the total cost of steam cultivation to any one who shall adopt it; and our observations lead us to the confident conclusion that the total falls considerably below the ordinary experience of horse cultivation as to the corresponding items of tear and wear and interest of capital, wages, food, and tradesmen's bills.

If, however, there is still an indefiniteness about some of the items in the cost of steam culture which deters from the adoption of it, let us not forget that there is a corresponding indefiniteness, all in its favour, as to the advantages of it. These are much greater than we can definitely estimate or describe. We have not had experience enough, and it is difficult, however long the experience may be, to attribute fairly and precisely the results we see in our crops to the several agencies which have produced them. But the testimony universally is, that the increase of fertility due to deep and thorough tillage by steam power, is all that might have been anticipated.

Mr. FOWLER was quite right, even on the score of mere expense, to point out the other day that it is an entire mistake to compare one "stroke" with the steam plough as to cost, with one stroke of the horse-drawn plough. The plough or grubber drawn by steam, produces a very much greater effect than the corresponding operation by horse power. A thorough "blow," as steam ploughmen call it, once in a dry autumn, does instead of a whole series of ordinary fallow operations, and it is not with the cost of one but of many operations that its expense should be compared. On the whole then, we can have no doubt whatever of the economy and profitableness of steam cultivation.

For those who, like ourselves, have come to this conclusion, there still remains the question:—Whose apparatus to adopt? To this the answer, we have no doubt, depends on the circumstances of the case. We believe in the superiority of the direct method as at length exhibited in operation by Mr. FOWLER. It involves less waste of power and less expenditure in wages than the other. But if any one should ask our advice in his own case, it by no means follows that we should recommend the direct traction apparatus as the best for his circumstances. It requires, and thus has the useful quality of being a premium upon, the improvement of ordinary circumstances. Where you have large open fields—the land laid out as Mr. EDMONDS' farm at East Leach is laid out, in tracts 350 yards wide, and several hundred yards long—there cannot, we think, be a doubt of the superiority of FOWLER's apparatus. But comparatively few arable farms are thus prepared for steam culture, and comparatively few landlords are willing to lend the help needed to fit them for it in this way, and there is so large an extent of land under less satisfactory management where the stationary engine is the best fitted to the circumstances of the case, that we are quite sure Messrs. FOWLER, HOWARD, and SMITH have to fight rather with the public *vis inertiæ* on this subject, than with one another for the shares they will all receive in the custom of the agricultural body when once it is fairly convinced and moved.

We had intended to comment before concluding on the dynamometrical trials at Sutton Courtney to which Mr. SMITH adverts in another column—on the liability of reporters of steam cultivation, and especially of those who direct the work of the grubber, to over estimate the depth of their work—on the difficulties which legislation puts in the way of steam cultivation—on the methods of applying steam power to tillage adopted by Mr. COLEMAN and Mr. SAVORY, and on our indebtedness to our practical leaders on this subject—but all this must be postponed for a week.

—— LET us repeat our last week's memorandum of the last Babraham sale on Wednesday next. We understand that four calves have been added to the herd since the publication of the Catalogue.

MANY years ago, when Mr. PARKES called attention to the philosophy of land drainage, a good deal of interest was excited by a publication of the readings of two adjacent rain gauges, one of which collected rain within an empty receiver, and the other received it on the surface of a similar vessel filled with earth, so as to represent a portion of an ordinary field. The difference in the quantities of water collected by the two instruments indicated the loss of water by evaporation from the surface of the latter. The empty gauge, collecting all the rain, indicated how much fell upon a given surface, the instrument which had been filled with earth indicated how much percolated through the earth or ran over the surface of it; and the difference between the two fed the Grass growing on that surface, and was lost by evaporation.

Now the area which is drained by any river may be considered as a great rain-gauge of the latter kind. The outflow of that river is the difference between the quantity of rain which falls upon that area, and the quantity which is evaporated from it. The water of percolation and the surface overflow is that which feeds the river. And the Thames for example, if we had an accurate measure of the area within the watershed which surrounds it—the area whose waters thus tend towards that river above successive points in its course, together with the quantity of outfall at those points from day to day throughout the year—would be a rain-gauge whose indications would have a vastly greater agricultural interest than any other read by the meteorologist every morning to the hundredth of an inch.

We owe to the Rev. J. C. CLUTTERBUCK, of Long Wittenham, near Abingdon, who has often laid our readers under obligations by communications on subjects of this kind, an attempt thus to give a special agricultural interest to the floods and ordinary flow of the Thames at different points in its course. A very interesting paper was read by him during the past spring before the Institution of Civil Engineers on the Perennial and Flood Waters of the Upper Thames—and to the report of this paper and of the discussion ensuing on it, which will appear in the Transactions of that body, we may direct the attention of our readers as a capital illustration of the way in which the interests of the agriculturist and those of the general public are connected.

We hope that many of the topics suggested by this paper may hereafter become the subject matter of discussion in our columns: meanwhile we make one extract from the imperfect report which is all we have seen, of the discussion which they received at the hands of the Institution.

"The plan formerly adopted, for securing the largest supply of water for navigation purposes, was to place a lock, or weir, immediately below a great outlet of land drainage, by which, when the locks or weirs were closed, there was no supply for navigation, and thousands of acres of rich land were submerged. It was asserted that, at the present time, not one boat passed down the river annually from Lechlade to Oxford, and yet the water was still impounded, in order that the unnecessary semi-weekly 'flashes' might still be sent down. If the river were made a perfect canal, and the land drainage allowed to fall into the main stream immediately below a lock, mill, or weir, instead of above it, this state of things would be remedied. Any increase in the tail water, tending to diminish the motive power, would be compensated by the head water being raised in a corresponding degree, by the admission of the land drainage into the mill dam at a higher level. The observations in the paper went to show, that the great evil in the level of the Upper Thames was occasioned by the narrow gorge at Sandford, where the coralline, or coral rag, overlapped the Oxford clay. One of the consequences above Oxford of this natural obstruction was, that the levels of the cills at Wolvercot mill, King's weir, and Wytham mill streams had been raised, by which many acres of land had been flooded nearly a foot deep. The damming up of the Shire Lake Ditch at the top of Godstow, and of Swift's Ditch at the bottom of Godstow Liberty, had also ruined Port Meadow, and swamped Oxford. All that was required for the improvement, either in an agricultural or a sanitary point of view, of navigable and water logged valleys, was a combined system of drainage; and it was believed this could only be effected by the application of Paliamentary powers, enabling each valley to be constituted into an elective drainage district, or districts."

AGRICULTURAL NOTES.

BY MR. ALDERMAN MECHI.

Town Sewage.—The rapidly increasing interest taken by ratepayers and agriculturists in the utilization of town sewage induces me to trouble you with the following remarks. The real questions at issue are:—1. Whether a ton of guano (or its elements in sewage) is more or less valuable by being mixed with 1300 tons of water? 2. Whether the cost of conveying to the land these 1,300 tons of water or sewage is greater than it is worth? 3. How much does that cost of conveyance diminish the value of the guano or sewage? Now, the precise time when sewage is most valuable, especially for Grasses and other moisture-loving plants, is during the six dry and warm months, when long days and abundant sunshine cause the rapidly growing plants to require, and evaporate through their leaves, an immense quantity of water. It is also exactly during those months that town sewage has its least dilution much of the rainfall being absorbed and evaporated by the heated materials of our houses and pavements. But what says Mother Earth at this time to those questions? Have not millions of acres been supplicating for their dried up crops a supply of that highly diluted and much abused sewage which in vast streams is polluting our rivers? One can hardly have patience to argue a question so palpably obvious to the meanest capacity. Half this kingdom is in Grass, and those 28 000,000 acres would this dry season amply repay the cost of putting on a rainfall of 1 inch, or 100 tons of water alone per acre—if, as I believe, that water could be conveyed to the land for less than a penny per ton—and would cost no more to put on town sewage. Many a ton of guano,—ay, many hundreds or thousands of tons, have been inoperative as surface dressings for want of rainfall or dilution. How is it that I have had for some time, and have now, ample supplies of Italian Rye-grass two feet high, while the green crops of my neighbours are shrivelled or stinted by the dry weather?—Because I apply house and farm sewage most abundantly diluted, in fact, in the exact condition of the much abused town sewage Were this generally done, our milk, butter, cheese, and meat would be increased by millions annually, over that vast area of moisture-loving pasture that forms one-half of this kingdom. Every hydraulic engineer knows that water or sewage pumped over a stand pipe will flow over extensive districts at a small cost, probably as little as one farthing to three farthings per ton, according to circumstances. P.S.—Mr. Buckman, in his prize essay on the "Natural History of British Grasses" (Royal Agricultural Society's Journal, vol. xv., page 469), gives a table representing the changes from bad to good Grasses caused by irrigation, and says this field has trebled in value in four years. (How much more would it have gained with sewage irrigation?) Professor Way, in his paper "On the Nutritive Matter of Grasses," says (vol. xiv., p. 182)—"Both in the quantity of nitrogen and fatty matters the water meadow Grass nearly doubles the other Grasses in the table. Are we to attribute the high proportions of fat and flesh forming principles to the action of the water in irrigation? If so, we have indeed in it a most important and powerful agent."

Pigs and Flies.—I have always been in the habit of fattening many pigs in summer on boarded floors, as I find them pay best in hot weather—and as my residence is not a great way from the yard, I have been plagued with an immense number of flies—real biting flies. Having a strong impression that the flies dined on the pigs (especially where thin skinned and well bred), and then slept in the house, or used it as a shady retreat, I determined this summer to discontinue the pigs, and concurrently the flies (having now no dinner) have also disappeared, much to the comfort of ourselves and furniture. Observers must have noticed with what zest a black cluster of carrion flies (we anglers know the difference between liver gentles and carrion gentles) will establish "a raw" on the back of a comfortable fat hog, much to his disquietude. These are the gentlemen which pierce your white stockings and your skin, a sort of mosquito, illustrative of the miseries endured in a tropical climate. In order not to rob the land of its manure, I keep more bullocks and sheep.

Thick or Thin Seeding.—Twenty years have elapsed since I first closely considered this question; practice

and observation have subsequently convinced me that the quantity of seed must be regulated by climate, soil, and the state of cultivation—either separately or combined. Farmers who sow thick to smother the weeds (and they are a numerous class) seldom grow much corn, for if the land is rich, down goes the straw, and you get lean kernels and a miserably low price. Custom has too often fixed the quantity of seed per acre until accident has caused a great change. I will give an instance of this:—My old esteemed friend Mr. Richard Garrett, of Leiston, Suffolk, engaged as bailiff one who had served the late Sir John Conroy, at Arborfield Hall, Reading. Mr. Garrett said to him, "We cannot grow malting Barley on our land; we get plenty of straw, but the Barley is always thin and inferior." The new bailiff thought the land ought to grow the best malting Barley, and was going to drill his usual quantity of 6 pecks. Friend Garrett was alarmed at this rash proposal: "We always sow three bushels per acre about here." However, after much hesitation and cogitation, he, like a reasonable man, permitted the new bailiff to have his own way on a small scale. The 6 pecks were jealously watched by the adjoining farmers, who predicted a failure. Time has rolled on, and the soil which would not grow malting Barley now produced it abundantly, much to the profit of my friend Garrett, who also saves 6*s.* to 8*s.* per acre in seed; being a large per centage of the 1*l.* profit per acre which the farmer is supposed to get as an average. It would astonish thick sowers to see a crop of my White Wheat, 7 acres, as thick as it can grow, in full ear, and estimated, at least, at 6 quarters per acre. This crop is taken after Beans, no manure applied, the quantity drilled 4½ pecks per acre. I have been obliged to "flag" some parts of it to prevent its going down. In my climate and soil, and with my farming, it would be wrong to put in more, but in a district where harvest is later, and climate more severe, more seed might be advantageously used; for it is evident that thick sowing tends to early ripening, so does early sowing with thin sowing. On a deeply cultivated garden we dare not put in so much seed as on an ordinary shallow tilled clay, uncleanly and short of manure. Let every farmer try a small plot in every field with varied quantities, and thus arrive at his own conclusions, but don't let him rest satisfied that he is putting on the right quantities without comparative trials and inquiries. On certain loose light soils, much exposed to frost, early and thick sowing is very properly practised to cover the ground with blade, and so prevent freezing of the roots; for therein is the danger of loss of plant. Salt and consolidation would perhaps be a better preventative. Such soils seldom force much straw by branching—and will bear thicker sowing. My quantities of seed are: Wheat, 4 to 5 pecks; Barley, 6 pecks; Oats, 8 pecks; the latter look as thick and thriving as I can desire. In fact my farm is overflowing with plenty, and promises a grateful return for drainage, deep tillage, plenty of manure, and irrigation.

Drilling versus Dibbling.—It is a pity that poor Jethro Tull is not alive to see the triumph of his invention, and to reap the fruits of it. Poor fellow, with all his talent, he died in the Fleet, a prisoner for debt. He had, like many others, to struggle hard against the old enemy Prejudice, or affection for old customs. And yet, I was going to say, there is an advantage in prejudice: I ought rather to say an attachment to old practices until the new ones are subjected to trial and comparison. But will prejudice allow of such trial? I fear, as a general rule, it will not. I speak practically on this matter, after a 20 years' acquaintance with practical farmers. How many times have I in speaking of thin sowing, deeper cultivation, and other innovations, put the question to the objector: "Well, but have you tried it?"—"No, I know it won't do on our soil." This unfortunate disbelief is most unprofitable, and has lost to agriculture tens of millions. But we are living in more intelligent times; still that old gentlemen Mr. Prejudice wants a good deal of hard kicking before you can make an impression upon him. Dibbling is one of the old prejudices, and it caused me some annoyance and loss this year. Mr. Hallett and other friends sent me each a bushel of Wheat. Now, as I wanted it diffused over an acre, I could not work the drill to clear out a single bushel, and therefore foolishly dibbled it. With all my care as to the droppers, I found it very irregularly deposited, and a heavy rain falling immediately after, the dibble holes became little cisterns of water, although the land was drained; so I shall probably get a quarter less corn than on the adjoining drilled land. I presume from what I hear, that the broadcasters are not yet an extinct race, especially in the north, but Wheat at 45*s.* per quarter will certainly compel them to adopt a more economical process by drill.—P.S. Although the three different acres were all dibbled with Hallett's Wheat sent to me from three different places, I can from my window distinguish each acre, as on a parti-coloured map. I presume this must partly arise from the variety of soil on which the seed was grown. I shall have some very large ears; and I hope a fair yield.

Farmers' Privies.—I need not, in this age of progress and common sense, apologize for discussing a question affecting our health and nutrition. England is noted for the neatness and cleanly picturesqueness of its farm houses. The blooming flowers and the well-trimmed Box edge the serpentine walk which conveys us to a retired arbour; there the Jasmined lattice-work and the well scrubbed floor contrast strangely with putrescent and noxious odours. Is it not singular that the man who perceives that the reeking fume of his corrupt dung heap is immediately sweetened or destroyed by admixture with earth, does not apply that experience in another quarter? Let every farmer read the Rev. Mr. Moule's admirable paper in the Society's Journal, and he will wonder that he has never yet appreciated the value and properties of a barrowful of well dried and well pulverised earth, which under the circumstances would combine purity with profit.

Diminish your Holdings and so increase your Acreable Capital.—But where is the money to come from, Mr. Mechi? is the question put to me when I suggest higher farming. This is asked of me as often by landlords as by tenants. I will answer it by an anecdote related to me by a friend in Essex. I know not whether it is either new or true, but it conveys a moral. A certain gentleman farmed his own estate (1000 acres), and like many gentlemen farmers had a hard struggle to make it pay and to hold his position. He had three daughters, one of whom, like most young ladies, was about to be married. But where was her marriage portion? Perplexed in mind, her papa consulted a friend in these terms: "I have no money to spare, I have scarcely enough capital to work my farm. What is to be done?" His friend (evidently a sagacious man) replied, "Give her as a marriage portion 250 acres of your land." This was a most unacceptable proposition. He could hardly manage now, and certainly could not with a diminished area. His pride also rebelled against acreable diminution. But "needs must, &c." So the lady was made happy, and the 250 acres duly transferred to trustees. Time rolled on and another daughter showed an evident desire to follow her sister's example. Again the difficulty arose, and again recourse was had to the sagacious friend, who again recommended another 250 acres as a dowry. That was clearly impossible and contrary to all reason—to be reduced to 500 acres would never do. "Well," said his friend, "are you, or are you not, now in a better pecuniary condition than when you held the 1000 acres?" This was admitted, and another 250 acres followed the fate of the first, and another daughter was duly provided for. My readers will guess the sequel. The third and last daughter became marriageable, and the impossible question of parting with another 250 acres had to be settled. It was settled—for this time papa had become convinced by the state of his accounts, that we don't as a rule half farm our land, and that the inefficient and insufficient capital on a thousand acres became amply sufficient and highly remunerative when concentrated upon 250 acres. I will not pursue this question, but will repeat with the confidence of 20 years' experience that if our cultivation were doubled in depth, our stock doubled in number, and our acreable capital tripled, it would be better for the tenant, the landlord, and the country at large.

STEAM CULTIVATION.

I thank you for laying Mr. Morton's paper on steam cultivation, read before the Central Farmers' Club, before us. Since I have had some few years' practice upon the question, and have considerably studied the subject, as well as being somewhat interested in the matter, I will, with your permission, after examining, explain a little of the merits of the paper to the public.

After reading at some length I read—

"Its (Fowler's tackle) performance during eight or 10 days' work was sufficient to convince Mr. Pullen himself of its superiority to the plan to which he had been accustomed. And wherever, as on Mr. Pullen's farm, there is a large extent of open land where a three or four hundred yards furrow could be had as a general rule, I do not see how it is possible to avoid the conclusion to which Mr. Pullen himself then came."

Well, thought I, is my friend Mr. Pullen, who has worked my tackle so practically and so well for five years, so thoroughly convinced of this? If so, and he and Mr. Morton are right in their conclusions, I have been wrong all along; for you know that I have invariably written and talked against the endless rope mode of traction and for the windlass mode of traction. Is Mr. Pullen right? I ask myself again and again. Methinks not, but I will go to work at once and test the best evidence I can get to know who's right and who's wrong. The pleasing appearance of the endless tackle when set out on a 350 yard furrow, with the engine on one headland and the anchor on the other, is against me. I do not see much in a boy's working the engine, for we can all set boys to work engines, if we like to be reckless enough to do so; the number of hands when at work may be a trifle on its side, but it is clear to me that it must be well manned if it is to be well tended and the work got on with by quick shifts, &c.—therefore I do not see much gain here. Engineers and some other writers have frequently been against me; there is one who signs himself "An Engineer" in a very recent number of the *Mark Lane Express*, who goes with Mr. Morton and Mr. Pullen for it and against the windlass, but they have not brought facts—it is mere opinion by which they have been guided.

After reading through some substantial practica tackle I came upon the dynamometer experiments where I find that it took a draught of 4 cwt. to drag my rope 500 yards, and Fowler's 5 cwt. to drag it out for a 350 yard furrow. The draught to Fowler's when supported was reduced to ¾ cwt., and so might mine, if it had been well rollered, 30 of which I send out with every set of tackle. They are not so showy as the tumble-down-wheeled ones of Fowler's, but they are quite as efficient and more numerous. The dynamometer trials by Mr. Morton I do not consider worth much, for they are put completely in the shade when they are tested by the substantial evidence that Mr. Morton and others through you and others of the press have laid before us. There are procured by Mr. Morton and published in your Papers of May the 9th and 16th, 21 returns from users of Mr. Fowler's tackle, and 34 returns from users of mine, and there are the returns from some of both mine and Mr. Fowler's customers embodied in Mr. Morton's paper, and published in your this week's paper. I have looked through them all, and have made choice of one as a witness on my side and of one for Mr. Fowler that will fairly represent the lot. I take Mr. Sowerby, of Aylesby, on my side, and match against Mr. Plummer, who stands in the front rank for Mr. Fowler. Mr. Sowerby is a gentleman whom I never saw, neither have I ever received from him a word in writing; therefore he is clearly a disinterested witness. All I know of him is that he had a set of my tackle in September 1859 and (through Mr. Morton's reports in the press), that he has worked it well ever since. Mr. Plummer, the reports show, is a large farmer, who provided himself with a set of Mr. Fowler's tackle in March 1860, and has worked it well down to now. We will put Mr. Sowerby in the "witness box" first. According to Mr. Morton's reports he is shown to have bought a set of my tackle, including 1400 yards of rope in Sept. 1859, bought since 1400 yards of rope May 1862. The first rope did upwards of 1300 acres, the second has done 1000, and appears as if it would do twice as much more; this brings us down to the return published May 9, and according to a more recent return embodied in Mr. Morton's paper, he appears to have done 300 acres this spring, making in all 2,600 acres. Now a set of my ropes cost 61*l.*, then if a set and a-half is charged to this work it will be quite enough, both according to the returns and other evidence; for instance, Baron Rothschild did more than 2000 acres with a set of ropes on his tough clay land at Mentmore, and Mr. Hubbard, near Horsham, did nearly if not quite 3000 acres with a set, and there are others of my customers whose practice might be cited in support. The cost of this set and a half of ropes is 91*l.* 10*s.*; divide that sum by 2600, the number of acres done, it places the wear of rope at 8½*d.* and a fraction per acre. Now let us hear Mr. Plummer. He bought his tackle, including 800 yards of rope, on the 17th March, 1860; number of yards bought since: Sept. 4, 1860, 500 yards; June 10, 1861, 500 yards; July 6, 1861, 200 yards; May 2, 1862, 500 yards—in all, 2500 yards. The work done was in 1860 788 acres; in 1861, 1040 acres; in 1862, 925 acres; in 1863, 465 acres; in all, 3218 acres. Now the first 2000 yards of rope may be said to have done about 2000 acres, for the quantity done down to the end of the year 1861 was 1828 acres; therefore since there has not been any rope bought since May, 1862, the 500 yards then bought, with all the old rope, may fairly be set down as worn out; even that must have been tougher than the rest to have done with the old rope 1200 acres. Now Mr. Fowler's Catalogue shows that his rope cost quite 10*l.* per 100 yards; at that price, the 2500 yards cost 250*l.*; now divide that sum by the work done, 3218 acres, it places the wear of rope at 1*s.* 6*d.* and a fraction per acre—more than double mine. Now, my friend Mr. Pullen, what think you—are you disposed to please your eye by more than doubling the cost of the wear of your rope? This evidence is dead against the dynamometer, for it proves that mine is the light-draught apparatus, and that Fowler's is the heavy one. This is supported by the engines generally used. Mr. Fowler's customers cry out for a want of power if they have anything less than 14-horse power, whereas mine are content with 8's or 10's, and according to the returns, which I will go more fully into, the average work done is the greatest on my side. Again: if Fowler's engines are of greater power, his consumption of coal must be greater, and we know that the cost of his tackle is the greater; therefore his wear and tear (other than the rope) must be greater. All this may be supported by Mr. Stratton, of Broad Hinton, whose wear of rope, according to reports, appears to have been quite as great as Mr. Plummer's, and in addition to which and the ordinary repairs, he has had an alteration that cost him 240*l.*; altogether, not less than 600*l.* must have been spent in repairs and alterations since he started. With such facts as these before us, and with the practice Mr. Savidge has had with Mr. Fowler's tackle, we need not wonder at his saying, "Some think steam ploughing will one day be general. In my opinion it will never be general," and now, my friend Mr. Pullen (and I use the word friend advisedly, for you are not only a friend of mine, but you are with other practical men like yourself a friend to the public by supplying them with data to guide them in this knotty question, steam cultivation)—I think I hear you say that you have had enough of the thing that pleases the eye, and I would advise Mr. Morton

engineers, and every man interested in the question, to reflect well over this fact. But let us try the question another way by taking Mr. Morton's 350 yard furrow, and test the endless rope against the windlass, to see which uses the least rope to work such a plot. For the endless rope plan to run a 350 yard furrow, the plot must be 380 yards from one side of it to the other—for there are two headlands wanted 15 yards wide each, for the tackle to be placed and the implement to shift for going back upon; then it will be quite fair to take a field 380 yards square to test the point upon. To work it the endless rope plan will require 760 yards of rope. At starting the implement must either start to or from the drum under the engine; therefore there must be a narrow slice left unworked between the implement and the hedge, and a similar slice at finishing, say the two together 6 yards in width; this, with the two 15 yard headlands, contain 13,500 yards of land, or 2 acres, 3 roods, 190 yards. The whole field contains 29 acres, 3 roods, 410 yards. Therefore the endless plan can do only 27 acres of it, unless the tackle is shifted twice to do the headlands. Now, divide the field into four equal parts and place the windlass tackle in the centre, the proper place for such a field. The sides of each of the four plots will be equal, 190 yards long each; the length of rope required to set down to such a plot is 190 yards straight out from the windlass to the hedge, 190 along the hedge to the right-hand corner of the field, 40 yards to an anchor along the hedge back towards the tackle, and 240 from the anchor to the windlass; cutting the plot into nearly a triangle, the total length required at starting will be 760 yards, the exact quantity as that required by the endless rope plan. The length required at finishing is twice 190 yards the length of furrow—total, 380 yards. Now add to this the 760 yards at starting, and divide the total 1140 yards by 2, it will give 570 yards as the average quantity required to such a plot of about 7½ acres. The ropes may then be placed to do each of the several other plots without any shift of the tackle. The quantity left unfinished at last will be two 6 yard headlands, and a bit on which the engine and windlass stood, of say 4 yards by 20 yards, in all not quite an acre; indeed if it is desired, the two headlands may be done without shifting, by doing the portion on each plot first before the regular working of the plot. This shews that in doing such a field the windlass plan uses 190 yards less rope than the endless rope plan does; this is of great importance, for it is a fourth, and it may to some extent account for the windlass plan being the lighter in cost of rope. Now, let us see how the two plans get on with the work.

Take the *Gazette* of May 9, there Mr. Morton gives us three tables, one for Fowler, another for Smith, and another for Howard's. Fowler's has 12 customers, who give us the number of their days work and the quantity of work done, which shows their average day's work to be 5¾ acres. Smith has 16 customers, who follow the example of Fowler's; their average day's work is 6¾ acres, and Howard has five customers who do likewise, and show that their average day's work is 6 acres. Then the windlass, when in the hands of either my customers or Howard's, beats the endless rope in the quantity of work done. The windlass rope requires 12 and 14-horse-power engines to work it, whereas the windlass can do very well with 8's and 10's—therefore the consumption of coal is against the endless rope plan. Then upon all points the windlass plan is the best, and I do think that Mr. Morton must by this be doubtful of his past judgment. In conclusion, I beg to thank him for his paper, which has enabled me to do something towards proving the fallacy of the endless rope plan. *William Smith, Woolston, Bletchley Station, Bucks, June 9.*

HAYMAKING.

[Mr. Robert Smith, of Emmett's Grange, has published his Essay on Haymaking, which was commended by the Agricultural Society, in the columns of the *Mark Lane Express*. The following are extracts from it.]

TO BE profitable, hay must be well grown, saved, and sold—three important branches, viz., hay-growing, haymaking, and hay-selling.

Hay-growing.—This pursuit is by no means a popular one, especially when separated from the certainty of good and ready-money markets. As a commodity to be grown for the use of the farm—to be turned to account by the consumption of cattle, horses, or sheep—it is found to be a less paying crop than most others. It is nevertheless a useful branch under difficult circumstances. The consuming price of hay upon a farm is not more than half that usually obtained at market. In the best farming districts but little attention is paid to its growth. Oat sheaves are cut into chaff for the horses, and straw substituted amongst the cattle, with roots or artificials. Hay is still a favourite article of food in the southern and hilly sheep districts, for "haying" the sheep at Turnips—an expensive process.

It is a known fact that when Beans are worth 1½*d.* per lb. and Oats 1*d.* per lb., hay may be purchased at ½*d.* per lb. But the former are more concentrated and valuable for the purposes of making fat, muscle, and bone, while the tendency of hay is to fill the animal to stay the watery Turnip. If the art of irrigation were more encouraged, and the marshy wastes drained, haymaking would be far more profitable than at present. Water meadows are favourable to the scythe, and quickly recover their lost crop. Not so with the dry land meadows: they ever and anon are calling out for equivalents, by subsequent manurings, viz.: bought manures from a distance!

However, it is not our present business to make calculations as to "profit and loss," or to frame a "balance sheet" of our hay crops; but this we may supply: First, learn the cost of growing your crop, the cost of saving it, and lastly the safe mode of selling it, before you venture upon the wholesale scheme of selling hay and buying manure! Clean husbandry, early manuring, well rolling, and early laying up of a meadow, have much to do with the profit, as by this means an earlier harvest may be expected, a better quality of herbage secured, and a better chance of saving the hay calculated upon. With due attention to the above, profit may ensue; but if the elements should prove unfavourable at the time of harvesting, "loss" may be expected. Hence the uncertainties of hay-making! While this nervous state of things is going on, the grazier with his sheep or cattle will be steadily plodding along to his one desired end—certain return; for with him no carts are in requisition, no labourers have to be paid, no horses fed, or manure bought, no stacks take harm, and no establishment charges arise. His selected animal walks to market with his collected produce upon his frame, and the margin beyond "cost price" is the farmer's gain, and the cycle of his season is complete.

The "text words" of our subject forbid explanatory notices of the different methods of manuring, and it is to be assumed that the draining (at least of all meadow lands) is now complete. If not, this passing remark may be made, they should be! as no operation in husbandry will pay better than this. As regards manures, we may note that a hay-maker's dependence need not rest solely upon the use of bought dung, however accessible it may be for back-carriage on delivery of the hay crop. If we want to sweeten the herbage and to make a lasting improvement upon meadow lands, we may use lime and bones; if to increase our quantity of Grass for present return, and to stimulate the meadows, guano, nitrate of soda, soot, or other ammoniacal manure. In the latter case a mixture of equal weights of best Peruvian guano, nitrate of soda, and common salt, to be used in early spring at the rate of 3 or 4 cwt. per acre, according to the condition of the land, will be found an effective dressing.

The Grasses.—No permanent Grass has been found equal to the Rye-grass for the purposes of convertible husbandry, but others have been selected which are considered superior for hay meadows. The principal of these are the Fescue, Foxtail, and Meadow Grasses.

Of the Fescue Grass there are three species in the highest estimation for meadow hay, viz., the meadow, tall, and spiked Fescue; these are universally found in the best meadows.

The meadow Foxtail Grass does best on water meadows. Of the meadow Grasses there are two species in esteem as hay plants—the smooth stalked and roughish. These plants compose the great part of the celebrated meadows near Salisbury, as also those near Edinburgh. As hay Grasses adapted for particular soils and situations, the Cat's-tail or Timothy, Floating Fescue, and Fiorin Grasses have been recommended. I have found Timothy to answer well on moist peaty soils. There is a number of other species of tall Grasses well adapted for meadows and hay-making—too many to enumerate to advantage. Under the term "meadow" we include all such lands as are kept under Grass chiefly for the sake of a hay crop. Where hay is in great demand, as near large towns, the most valuable meadows are such as are cool-lying or irrigated. There are three descriptions of these meadows: those on the banks of streams or rivers, on the uplands, and the low-lying meadows. Each of these may be stocked with Grasses, either naturally or artificially. River meadows are by far the most valuable. Upland meadows come next in merit.

In the cutting of Grass crops for the purpose of being converted into hay, it is necessary that they be in the utmost suitable state of growth and maturity for affording the best and most nutritious fodder. With this view they should neither be cut too early or too late, as in the one case there will be considerable loss in the drying, and in the other a large percentage of the nourishing properties will have been expended. Grass, before it becomes in full flower, while the rich saccharine juice is in part retained at the joints of the flower stems, is in the most proper condition for being cut down. Where Grass is very tall, as is often the case in moist meadows, it is liable to lodge, and therefore should be cut earlier.

The making of natural or meadow hay has been carried to greater perfection in the neighbourhood of London than elsewhere. The Grasses, after the usual examination, being pronounced fit for mowing, the practice hitherto adopted is to inform the "old hands" that their services are required, and their numbers proportioned to the acreage and necessary strength of power adopted. It has long been the practice to cut Grass by the acre, the cost of which varies materially, supply and demand regulating prices. From 3*s.* to 4*s.* 6*d.* has been given. The practice of allowing a certain quantity of beer per acre is fast wearing out. The best mowers cut from 1½ acre to 2 acres per day, but to do this they are obliged to rise at four o'clock in the morning, work on until the heat of the day, then take a rest, and resume work as the day declines. When the hay season is near at hand, a calculation is made as to the required strength to carry on every department effectually. Each person come provided with his own implements: about five boys, women and men, are considered sufficient to each mower. These are adjusted, according to their strength or merit, to suit the various occupations, and all are expected to retain their respective stations during the season. The old practices, so often recorded, viz, tedding out, hacking in, Grass cocks, hay cocks, winnowing, &c., then follow in due succession, until the "stack" is made, thatched, and marketable.

We subjoin a brief sketch of the daily routine which is usually adopted around London.

First day.—All Grass mown before 9 o'clock to be thrown out, "tedded," turned once, "hacked" into small rows, and left in "Grasscocks."

Second day.—"Tedding" as before, shaking out the "Grasscocks" into small rows, moved once or twice, the early process on the first day being carried on in succession, the forward hay gathered into winrows; then the other "hacking;" then comes the forward hay into moderate cocks, returning to the "hacks," and leaving them as before in small "Grasscocks."

Third day.—The above routine is again observed. The forward hay, now requiring nice attention, is managed according to the weather; if fine and warm, it may be brought forward for carrying, a period of much anxiety; should the weather prove cloudy it will be delayed, the principal attention being required at the other processes.

Fourth day.—Nothing fresh occurs; the weather rules the work; the hay is kept well under hand in cock; the land well raked, &c. At this stage attention is paid to the acreage under hand, no more hay being mown than can well be managed. If fine, the mowers give a hand; if wet or even doubtful, they are stopped or checked: they are good haymaking days when the final boast is made, "We never stopped the mowers!" As a general rule the Grass is protected as much as possible, both day and night, against rain and dew by cock. There is no more hay in hand than can be managed properly. The partial introduction of the haymaker, where used, supersedes manual labour to a corresponding extent, and sets free a number of hands for other operations, thus strengthening "the team" of haymakers most materially; nevertheless great care has to be taken when using the haymaker in wet or damp seasons, the hay being found to injure more rapidly after this remarkable, yet efficient implement, has been used. The cost per acre (in fine weather) would stand thus: Cost of mowing, day wages of 6 men, 12 women, 2 boys, beer for haymakers, and finishing the hay ricks, in round figures, 10*s.* per acre. This calculation is founded on the assumption that the hay is carried in four days.

(*To be continued.*)

Home Correspondence.

The Cow Milking Machine.—A respectable man of business in Dublin, who was solicited to become agent for the sale of this machine, having sent one of them for trial to the Albert Institution, Glasnevin, I was requested by Mr. Kirkpatrick to test it, and am, therefore, in a position to respond to the appeal which you have made to your Correspondents. I have made several trials with the machine, and worked it with my own hands on each occasion. At first I experienced some difficulty in using it. It is not as easy as might be supposed to fit the finger-pieces on the teats air-tight: and when they are so fitted on, a restive animal is likely to throw the whole out of gear. I attempted the milking of three cows on the first trial. From one which was milking 5 to 5½ quarts at a meal, I obtained 4½ quarts; another, which has very uneven teats, I could not milk at all; and from the third, which was only milking 2½ quarts at a meal, I was only able to obtain a little more than a quart. All my subsequent trials have been attended with similar results. The conclusions at which I have arrived in reference to this machine are the following:—1st. It will not extract all the milk from cattle. If it should be found to answer in every other respect, this is no fatal objection to its use, as the strippings could be milked by hand. 2d. Cows that have good teats, well set in the udder, can be milked to within from half a quart to a quart of their full milk. 3d. Cows whose teats are uneven can with difficulty be milked. 4th. I doubt very much if any amount of experience and perseverance will overcome the difficulty of milking kicking or restive cows. 5th. In its present state the machine appears to me very loosely put together. I had not worked it two minutes when one of the handles gave way. I cannot conclude this brief note without expressing the hope that the machine may ultimately prove successful. Every extensive dairy farmer must anxiously desire that this invention would prove efficient and useful—first, because it would save the wages and keep of one or more "hands" according to the number of cows kept; and, secondly, it would go far to prevent the loss of milk that arises from garget and sore teats, caused by negligence or laziness on the part of cow-milkers. *Thomas Baldwin, Albert Institution, Glasnevin.*

Mr. Ruston's Report of Steam Culture.—My soil is

1, clay high land; 2, gravelly high land; 3, skirt land; 4, gravelly fen land. No. of acres ploughed: I have deep ploughed 113 acres during winter, from 15 to 18 inches deep; and grubbed a first time—(1) 28, (2) 6, (3) 6, (4) 29, in all 69; and grubbed second time the same pieces as the first, 6 to 8 or 10 inches deep. The number of days at work was about 19 or 20, parts of fields being done some three and others four times over, for special purposes that cannot be here explained. The Number of removals was five. The cost of coals is 14*s.* 3*d.* per ton without cartage, about ½ ton per day consumed. Cost of oil not known. Cost of wages: 2 men at 1*s.* 10*d.* per day each, 2 at 2*s.* 4*d.*, 1 at 2*s.* 7*d.*, 1 boy at 11*d.*, 2 at 8*d.* No repairs have been required this spring. The rope wears well, only one breakage, and that through accident. I only had my steam apparatus last November, and was deep ploughing all winter, and only cultivated a few fields this spring; thus the particulars I can give are therefore limited. I shall do much in autumn; it succeeds quite beyond expectation. *Alfred S. Ruston, Aylesby House, Chatteris, Cambridge.*

Smith's Tackle.—I have filled up the paper, and beg to remark that the steam cultivation this season has been most satisfactory, the land being in excellent condition for working, neither too wet nor too dry. I find by experience it does not answer on this soil to use the cultivator unless the land is moderately dry; the spring cultivation answers here much better than autumn, as in the generality of seasons the ground is so dry and hard that no implement will penetrate it until soaked with rain, and then the season is too far gone for the weeds to die. The average quantity done per day is about 5½ acres, but much depends on the size and shape of the field; the second time going over, we have done 8 acres in 10 hours; the average cost of what we have done this spring is about 4*s.* 6*d.* per acre, it is thoroughly well done. *Andrew Toward, Osborne, Isle of Wight.*——I am sorry I cannot give you all the information you require, for the simple reason that as steam cultivation is now with us one of the ordinary operations of the farm, we keep no particular account of it more than of any of the other ordinary work. It is no mere matter of experiment with us: we have fully tried it long ago, and found it answer. Although I am unable to give you a detailed account of our work, I may state that we have found after rather a lengthened experience that we can grub or cultivate once over with Smith's or Howard's implements from 5 to 9 acres a day (our ordinary working day is nine hours) at a cost of from 4*s.* to 7*s.* per acre, according to the depth of the work, the tenacity of the soil, and the sizes of the fields. In fact, we hardly find the cost on two fields alike. Our soil is very variable, as you are aware. The price of coal is 22*s.* per ton on the farm. One part of our experience is that a sixpence per day saved on a porter boy is sixpence lost on the rope, and to keep the rope running comparatively clear of the ground on our hilly land is one of our greatest difficulties. *John Kay, Lower Beeding, Horsham.*——My steam-cultivating proceedings this spring are not worth your notice—all my fallow land (except that for Mangels and which had its steaming in the autumn) being under crop, I had nothing which I could do until the Rye-grass was fed off; of this I "grubbed" the piece where you saw the ewes and lambs (25 acres), worked it to a fine tilth, and with the Ryegrass roots to the surface (and killed by the sun), by horse-power, and have since ploughed these roots in by horses. It is ready for Swedes, and likely to grow some. *C. Randell, Chadbury, Evesham.*——(See No. 3 Smith's table).—You will think my men have earned a great deal of money in a short time, but you will see they are at piece-work and worked very long days; they are good fellows, and moreover, I am no advocate for low wages. The engine-man and windlass-man I give 6*d.* per day extra, but it is also included as well as the water leading. I have not been at 1*d.* expense with my windlass, and it has done 2700 acres, and will do a great deal more before it needs repairs, as you will see. I calculate 6*d.* per acre will do for the rope, at least the one I got of Howard. *Fra. Sowerby, Aylesby.*——As the only steam work I have done since the autumn has been the breaking up of my Turnip fed land with Mr. Smith's combined machine, I have no answers to your questions. The breaking up of all my stubbles after harvest, and ridging my Turnip land during the winter, leaves me really little to do during the summer. Now that I have pretty well cleared the farm of Twitch, to get ready for and put in the Turnips is only light labour for the horses, and all they will have to do during the summer months will be to break up with a small cultivator the Vetches and Clover after being fed off with sheep. You will thus see that I have at present no room for the use of the cultivator. The great blow after harvest is all that I expect hereafter to require except in a very extraordinary season. Four horses and a couple of colts is all that I shall require to use on my 222 acres arable during the summer. The custom on this farm before I had it used to be to send a horse to the kennels after seeding time. I shall this year make something like 70*l.* of horseflesh, and there is a fair prospect, with good luck, of doing so annually. Write up the steam cultivator, my dear sir. If Wheat were 3*l.* per quarter we should soon see more smoke about our fields. *F. W. Bignall, Loughton, S. Stratford.*

Howard's Cultivator.—I have not had sufficient experience with my steam-cultivating tackle, to speak of its effect on the productiveness of the soil, having only used it last autumn for the first season, but the crops at present growing where it worked look quite as well as after the common plough, and stand the long dry season better. My working has been chiefly upon fallows after last year's crops. I believe the true economy of working to consist in a full length of rope, say 1000 yards on each roller (Smith's plan), by which I am enabled to work 40 acres from one position of the engine without moving it; the use of a small, *i.e.* narrow grubber first time over, viz., 22 inches wide, worked from 7 to 10 inches deep, with which we do from 5 to 6 acres a day; this is followed by a pair of horses and a double plough of Howard's make, which lays the land up for the winter in very fine condition. In the spring it is harrowed down and worked across—either by steam as in my case, or by horse power—if the land has much filth in it. Of course the work will require scarifying, and it takes longer to clean—but this is much more easily performed after the grubber than after a plough, as experience will prove to any one. My farm has about 400 acres arable land, and I regard my 10-horse engine and steam cultivating apparatus as 12 extra horses always at my command in fine weather, wanting no Oats and Beans when wet. I give you particulars of cost as near as I can come to them. *J. Long, Henlow, Biggleswade.*

Fowler's Tackle.—My experience of steam in the field has been so short, only since August last, and as all that time we have been working pioneer work among rocks and boulders, I think it hardly fair to quote myself as an authority; but I am quite convinced from what I have seen of Fowler's system that sooner or later the whole country, where reasonably flat and free from rock, will be under steam. I have grubbed my land this spring in a way that no horses could do, and in the Potato ground you can push a walking stick down at least a foot among the plants, which are coming up vigorously. Of course "the proof of the," &c.—and we shall anxiously await the autumn to see the crops. On my corn land I expect much trouble from wild Oats brought up with the deep culture. Our Swede ground is also beautifully prepared, and I quite grudge taking manure carts up the open drills, so I intend in future to get on as much manure in autumn as possible. Although our fields here are tolerably large, say 30 to 50 acres, yet many are badly shaped, and much will require to be done ere we get to perfection. I am quite sure that Mr. Fowler would get a great many customers if times were better, but with Wheat at 40*s.* a quarter, there is not much to spare for steel rope. One of my neighbours, Mr. Begbie, began steam at the same time as myself, and has been doing splendidly, with scarcely so many stones. Our farmers have been watching the operations, and now believe in it. At first, when we began, bets were made that it would not work for six months, but we carried through snow and wet all the winter. There is a mass of ingenuity concerning Mr. Fowler's whole system, and the more one knows it the more he admires it. The cost of getting out the stones in Scotland will be a considerable item added to the cost of the apparatus. The landlords are not inclined to be at any part of this expense. I think it hard that they should object to do so, as it is such a very permanent improvement. *W. Sadler, Ferrygate.*——(See No. 23, Fowler's table). As there is not a column for horse work I will note it as under:—Six horses, half a day, taking out and bringing in the engine, windlass, plough, and pulleys, at 2*s.* 6*d.* each horse, 15*s.*; five half days of one horse for coals and water, 2*s.* 6*d.*, 12*s.* 6*d.* The removal we do with a crab winch and men, which is much cheaper than horses, when the distance is not great. I may mention that the crop just now is looking much better from the steam ploughing than what was made with horses. *John Elliot, Tarbert Mains.*

Cost of Working Smith's Grubber on Land Twice Over, not Steam Cultivated before:—

	£	s.	d.
Engine driver and blacksmith, one day	0	3	6
Windlass man	0	2	6
Two anchormen	0	5	0
Three porter lads	0	3	9
Watercart and horse	0	2	6
Man with it	0	2	0
Coals, ½ a ton	0	6	6
Oil	0	0	6
	£1	6	3
5 acres per day. 5*s.* 6*d.*	1	7	6
6½ and 7 acres daily second time, 4*s.*	£1	6	0
Twice working	0	9	6
Wear of rope, 3*s.* per acre	0	3	0
Repair of windlass	0	0	6
Depreciation wear of engine	0	0	6
Horses and men to move	0	0	6
Interest on money for outlay	0	1	0
	0	15	0

My soil is strong loam on clay subsoil. I have grubbed a first time 250 acres, and a second time 500 acres, 7 and 8 inches. No account has been kept of the number of days at work, but the rate has been about 5 acres first time on, and 6½ to 7 the second time daily. The engine and windlass has cost in repairs 10*l.*, and the rope 48*l.* Coals cost per ton 13*s.* to 15*s.*; 1400 yards of rope has done over the 500 acres, and it is worn out, making the cost on the rope near 4*s.* per acre on the 250 acres. I call it 3*s.* 3*s.* with the rope, makes it 15*s.* on the 500 acres done by me, including interest of money and all cost. *Robert Norfolk, Louth Park Farm, Lincoln.*

Savory's double Engine, working Howard's Cultivator.—The soil is various—clay, marl, and gravel. I have grubbed a first time this spring 90 acres, a second and third time 130 acres, from 7 to 10 inches deep, in 25 days, with about 10 removals. If at work at home the cost would be as follows:—2 men with engines, 5*s.*; ploughman, 2*s.* 2*d.*; water-cart man, 1*s.* 10*d.*; horse, 3*s.* 6*d.*; 2 porter boys, 1*s.* 8*d.*; coals, delivered, 14*s.* 6*d.*; oil, 1*s.* 4*d.*; 1*l.* 10*s.* a day. The wear of rope is scarcely any. *B. Bomfred, Pitchill, Evesham, Worcester.*

Remarks on Wear of Rope.—The long rope, 500 yards, has been in wear nearly two years, and is still good, only a few single wires are broken; 200 yards bought last year, nearly as good as new; 150 yards quite new, and 260 yards left of the original 800 yards which came with the tackle in 1860; this is nearly worn out. We have ploughed altogether about 1200 acres. *Edward Roberts, jun., Berdon Hall, Bishop Stortford, Essex (Fowler's).*

Farmers' Clubs.

[The following, taken from the Journal of the London Farmers' Club, is a report of remarks by Dr. Voelcker, Mr. Dring and Mr. Fowler during the recent discussion of this subject.]

LONDON: *Steam Cultivation.*—Professor VOELCKER (Cirencester) said this was one of those practical subjects upon which all must consult their individual experience. There were, however, some points on which he wished to offer a few remarks. It appeared to him that a sufficient distinction had not been made between the very worst description of land, upon which they must put everything in order to get crops, and land from which they might take almost everything out, if that were possible, and where, according to Baron Liebig, they pursued a robbing system. Now, he maintained that the best kind of land contained the treasures, not merely of one hundred years, as Alderman Mechi said it did, but of thousands of years. The difficulty, however, was to get at those treasures; and the question was not, as Baron Liebig justly observed, what was the amount of nutriment in the soil? but, what was the amount of nutriment in that portion of the soil which was reached by the plant? They must, therefore, work the land in order to get the treasures out, and the more they worked good land like that to which he alluded the better it became. They need not be very careful, he thought, about restoring to such land everything that was taken from it. On that point he differed from Alderman Mechi. He believed that if it were possible to incorporate 8 cwt. of guano per acre uniformly with the whole soil they would see but little result, because the quantity of fertilizing matter thus added to the land was very insignificant in comparison with what existed in 6 or 8 inches of soil. But the case was very different with respect to very light lands. In that case they must put almost everything on the land. And even there deep cultivation was of great utility, for on such lands the manuring constituents were washed out. Notwithstanding Baron Liebig's opinion that the soluble manuring matters were rendered insoluble as soon as they came in contact with the soil, it was plain that they were washed out. Where did the manures go? Why did they want manures for light lands? Why did they not see any effect when they manured them in autumn? Nobody could be a stronger advocate for the manuring of light sands than he was, but it was useless to manure them in autumn. At the same time he could quite conceive that there was great benefit arising from deep cultivation, even on sandy soils. They frequently broke—this was the case in Bedfordshire—a hard caky clay covered with a crust of sand. Unless they broke through the crust it was impossible to get a proper vehicle to hold the prepared manure, and the deeper this vehicle was manured the better for the plants. He believed, in fact, that deep cultivation on sandy soils was of great utility, because it increased the pabulum for holding the prepared manure. Whether that was most effectually done by horse or by steam power was another question. On that subject he hardly liked to offer an opinion, it was one which was so much better dealt with by men who had had practical experience in the matter; but speaking from what he had seen, if they would not be too hard upon him—he was here rather expressing his feeling than an opinion—he would remark that he was inclined to believe that on light lands, where they could plough with two light horses, the work would be done as well as it would be by steam. If he could do the work with two nice little quick-stepping horses, he did not think he should use a steam engine, of the present form at least, of 10 horse-power or even of 8 horse-power.

Mr. T. B. DRING (Claxby, Spilsby) said a gentleman had asked what was the value of steam cultivation on light land? He (Mr. Dring) apprehended that such land was more liable to run to twitch than any other land, and that if a blow be made by steam power on the land, and that if a blow be made by steam power on the Wheat stubbles that came in turn for Turnips just after harvest it would be in a ready and safe state, but if this be omitted, if a wet spring happened to follow, the twitch could not be got out. The result of the twitch might be that the farmer would get a quarter of Barley per acre less, and also a quarter of Wheat after

the seed crop; and the price of these would pay for a little extra power in the form of steam. Steam power, after all, was not very expensive in the long run. He had now in constant use one engine, which he bought of Messrs. Clayton and Shuttleworth in 1855, and the expense of keeping it in repair had been quite a two-penny-halfpenny affair. He always brought that engine out after harvest, and the result of employing it was that he had but little to do all the rest of the year: he had plenty of time to go to the Central Farmers' Club or anywhere else. He certainly did think, therefore, from experience, that it was an advantage to be able to apply steam-power on light lands; and it was clear from what had been stated that evening, on good authority, that the use of steam-power was a very great advantage on heavy lands. It was remarked by Alderman Mechi, that where lands had been underdrained to a depth of three feet, you could trace the effects on the surface over the drains, even in a dry season. He could corroborate that remark from his own experience. A short time ago he was looking at a field of his, which was underdrained 12 or 14 years ago; and the consequence of underdraining was, that there was double the quantity of grain, even in this dry season. Did not that tend to show that the use of steam-power by preventing the lands from being trodden down rendered it more productive? Wherever he had broken up his stiff land the crops had been better afterwards. This year, for example, his best Wheat was on land that was steam-cultivated; finer Wheat he could never wish to grow. The cost of a new engine and tackle was no doubt considerable; but it was no greater than that of good horses, coupled with their keep, shoeing, farriering, and deterioration, which formed altogether a considerable item. Nothing connected with his engine, which, as before stated, he had had for several years, had been very expensive, unless it were the rope. The rope was, in fact, the greatest drawback. On a flinty soil the wear and tear of the rope was considerable; but on a loose loamy soil it was not much. He was quite convinced that the rope should be kept above the surface of the land at any cost, even by using a double number of rollers. He might remark, that on his own land the tar was not worn off after very long use, where the rope did not touch the ground. After listening to the reports which had been read that evening, they ought as farmers to feel very much indebted to those gentlemen who had spent their time and their money in endeavouring to bring agricultural implements as near as possible to perfection. Messrs. Howard had taken great pains, spent a great deal of money, and done a great deal of good; Mr. Fowler, a man of ten thousand, had fagged in the most unwearied manner; and great credit was also due to Mr. Williams and others, for the energy which they had brought to bear on the improvement of steam cultivation. But all the honours were not due to those men; great honour was also due to the man who started the hare. The development of steam power as applied to the land had been a very nice little game throughout; there had been a great deal of amusement as well as benefit, and some credit should certainly be given to the man who started the hare in Mr. Smith of Woolston, as well as to those who had made the running. He (Mr. Dring) was, he believed, the first tenant farmer in England who bought, in a humble way, a set of steam tackle. That tackle was provided for him by Mr. Smith, and though he had had it for some years, he was prepared to run it against the apparatus of any modern manufacturer.

Mr. J. FOWLER (28, Cornhill) said there was one subject which he thought worthy of more consideration than it had yet received. Mr. Mechi remarked that he had cultivated his land deeply by horses. Now that was a view which he had often heard expressed. He had often heard persons say, "I have done the same thing by horses that you have done by steam; I have cultivated land one foot deep by horses." Now, in that lay the error—a want of perception of the true bearing and merit of steam cultivation. He believed that the worst sort of tackle ever sent out was better than horses, and for this simple reason—he had sent out some bad ones himself, and therefore he could speak authoritatively on the subject—that if they turned back a furrow that had been ploughed by horses, especially if they had the number of horses required to plough heavy land, they would find that the footmarks of the horses made the soil impervious to moisture. The consequence was that if they broke up that land in the autumn, they would have to do it over again in the spring. The wet being unable to percolate through the subsoil made the surface what they had no doubt all seen on heavy land—a very nice tilth on the top with something below like liver. That liver had to be clod-crushed and harrowed in the spring, and it never became a fine tilth. But let them put the steam plough on that land in the autumn, or let there be spade labour, which was the same thing—though he really believed that steam cultivation was very often better than spade labour—and the land would be broken up in large pieces, and the larger the better. Let it then be dry during the winter season, and the atmosphere would act on the surface, and the frost bring it down. They would then have as beautiful a tilth in the spring, newly harrowed, as they could possibly desire. He could not help remarking that when persons talked merely of the cost of the first operation in steam-cultivation, they did not hit the point; what they had to do was to consider the cost of the first operation in connection with the cost of subsequent operations. Mr. Dring was he believed quite correct in what he said with regard to the cleaning of light lands in stubble. The difficulty of cultivating land by horse-power was this, that when the horses walked a second time over the land, they put as much twitch in it as they ploughed out, so that it was impossible to clean land as thoroughly by horse as by steam-power. He believed that the more steam-cultivation was viewed in connection with subsequent operations, the higher would it stand in general estimation.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.*

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Reading of Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	May	Inches.	°	°				°	°	°	°	Inches.
Thursday	28	..	..	..	S.W.	..	..					
Friday	29	30.22	..	..	S.W.	..	..	73	42	86	33	..
Saturday	30	30.26	69	63	S.W.	1	10					
Sunday	31	30.26	60	57	N.E.	2	10	70	57	83	55	0.01
	June											
Monday	1	30.37	57	51	E.	1	9	60	46	67	42	..
Tuesday	2	30.22	60	54	S.E.	1	1	65	41	81	36	..
Wednesday ..	3	30.07	71	62	S.W.	0	8	71	43	81	39	..
Thursday	4	30.08	62	56	S.W.	0	5	71	50	92	45	..
Friday	5	30.07	58	56	S.W.	0	10	68	50	82	44	..
Saturday	6	29.52	60	55	W.	3	9	58	52	67	50	..
Sunday	7	29.54	60	55	S.W.	2	7	64	49	76	45	0.84
Monday	8	29.56	60	55	W.	2	5	62	48	80	44	0.20
Tuesday	9	29.82	57	56	S.W.	0	8	62	46	71	42	0.00
Wednesday ..	10	29.62	59	58	S.E.	1	10	62	50	73	46	0.06
Thursday	11	29.62	57	52	S.W.	3	9	64	48	75	46	0.28
Friday	12	29.52	58	54	S.E.	2	6	64	47	68	46	0.36
Saturday	13	29.88	..	..	N.W.	3	10	61	46	78	42	0.64
Sunday	14	30.03	64	57	N.W.	0	9	65	42	76	39	0.09
Monday	15	30.08	65	59	W.	2	8	67	54	81	48	0.06
Tuesday	16	0.03	63	59	S.	1	10	67	49	82	44	0.00
Wednesday ..	17	29.99	64	58	W.	0	9	63	53	78	51	0.40
Thursday	18	29.97	65	60	S.E.	0	8	67	46	84	43	0.00

* Streatley is about 2 miles lower down the river than Moulsford, from which observations up to May 28 were given on May 30.

Reviews.

Climate: an Inquiry into the Causes of its Differences, and into its Influence on Vegetable Life. Pp. 144. By C. Daubeny, M.D., F.R.S., Professor of Botany and Rural Economy in the University of Oxford. J. H. and J. Parker, Oxford and London.

This volume contains the substance of four lectures delivered before the Natural History Society, at the Museum, Torquay, in February of this year. It discusses such subjects as the laws affecting temperature, moisture, and air pressure, our means of measuring them, and the results which have thus been obtained; the influence of climate on vegetation, and our power to modify climate as well as to modify its relations to cultivated plants.

This is the work which the agriculturist should read and study. The foolish publications of so-called weather prophets will but delude and mislead him. Here he will find all that concerns him in the observations and conclusions of meteorological observers stated by one whose life-long studies and ripe knowledge of the subject makes him a thoroughly safe guide.

We quote one or two passages:—

1. *On the Cultivation of Wheat.*—The power which this plant possesses of resisting cold in northern regions, and of enduring a high temperature in tropical ones, may perhaps be connected with the great depth to which its roots, comparatively to the size of the plant, are able to penetrate into the ground, sometimes, it is said, in light and yielding soils extending as far as 6 feet from the surface.

This circumstance enables it to draw its sap from a depth at which the earth is, comparatively speaking, little under the influence of the vicissitudes of diurnal temperature.

It is cultivated indeed, according to Humboldt, near Caraccas, at a height of 1600 feet above the sea; in Cuba at even a lower level than this; and in the Mauritius almost to the water's edge.

It is also grown in the Island of Luçon, and in many parts of India, as well as near Canton, by sowing it at that period of the year when the temperature is lowest. Thus in Bengal, Wheat, Barley, Oats, Beans, &c., are sown in October, and reaped in March or April.

"It would seem that the extreme point which admits of the cultivation of Wheat is about 71° Fah.: now the winter climate of Havanna does not exceed that point, and that of Canton and Mexico rises only to 65°.

"In Egypt, where Wheat is grown abundantly, the mean temperature of the three coldest months is as low as 58°, so that the seed is sown in December and the crop is reaped in February.

"Such are the extreme boundaries of the cultivation of Wheat in a southern direction.

"On the other hand, a summer temperature of 58° is generally set down as requisite for the ripening of this vegetable, so that it is limited in its extension northwards by this circumstance.

"Accordingly in this country, its cultivation does not succeed at a height of more than 600 feet above the level of the sea, and is limited in point of latitude to the neighbourhood of Aberdeen, situated in the 57th parallel.

"It is not long ago, indeed, namely in 1727, that a crop of Wheat in Edinburgh was noted as a curiosity; nor was its cultivation at all extensive throughout Scotland even so late as 1770.

"At present, however, abundant crops are to be seen in the Lowlands, and its culture is pushed as far as the Moray Firth. Now as the mean temperature in summer of those parts of Scotland does not exceed 57°, or even 56°, we must account for the growth of Wheat by the length of the day, which seems in some measure to compensate for the defect of solar radiation—agreeably to the statement of Boussingault, that Wheat requires 8248° of Fahr. to bring its grain to maturity, so that a longer duration of solar heat will produce the same effect as a shorter period of greater intensity.

"It appears from an interesting report on the climate of Scotland, published in 1862 by the Meteorological Society of that country, that the mean temperature of the whole island varies very little, being 47° 1′ for the east coast, 47° 2′ for the inland portions, and 47° 8′ for the west; the only places which fall below this standard being the Orkney and Shetland Islands, and the remoter Hebrides, where the mean temperature is only 45° 8′.

But though the temperature of the year may be the same throughout Scotland, its distribution throughout the different seasons differs; and hence it happens, that owing to their lower summer heat the western parts of the island scarcely admit of the successful cultivation of Wheat, and that elsewhere it is limited to a height of 500 feet above the sea in the south, and 100 in the extreme north.

"It is curious, as corroborating the views of M. Boussingault, that the ripening of Wheat in the northern part of Scotland took place at a somewhat lower temperature than in the south of that island, owing to the greater length of the days in the former.

"The following table represents the temperature required to mature crops of Wheat and Barley in Scotland:—

		Degs.	Days.
Colloden, N.	Wheat	8188	156
	Barley	6560	119
	Oats	6767	123
East Linton, S.	Wheat	8362	159
	Barley	6900	129
	Oats	7125	133

"In Norway Wheat is cultivated as high as Drontheim, in lat. 59°; in Sweden up to the 63rd parallel; and in Russia it is met with extending to St. Petersburg, in lat. 59° 5′, where the summer heat indeed is said to average 60°.

"Now this represents very nearly the mean temperature of that season in the midland counties of England, nor does Penzance even, mild as it is in winter, exceed that point in summer. On the Hampshire coast alone the thermometer is quoted nearly as high as 63°. As the summers of this country in general so little exceed the point necessary for the successful cultivation of Wheat, we can understand why the western

ide of the island, which is cooler in summer than the eastern, should be better adapted for the growth of Grass than of corn. And hence we perceive why Wheat is carried from the eastern to the western counties, whilst cattle are driven from the eastern to the western.

"On turning to a map of England it will be found, that all our principal corn districts are situated on the eastern side of the island, from the Lothians to Kent.

"In the western part of Scotland, indeed, the summer sun is so insufficient for the ripening of Wheat, that other kinds of produce take its place altogether."

2. *On our Influence over Climate.* — "It would appear, then, that man is really capable of exercising a certain control over the humidity of the climate, by thinning the forests, or by renewing them in the manner represented; nor can it be doubted, that the same effect will be brought about by drainage, which carries off the redundant waters into their appropriate channels, instead of allowing them to stagnate upon the surface.

"And in thus altering the character of a country with respect to its humidity, he may hope to bring about a corresponding change also in its temperature, for the tendency of swamps and stagnant waters is to cool down by their evaporation the surface of the earth, as well as to intercept the rays of the sun by the mists and fogs they engender.

"Nor must we forget the genial influence, upon a soil properly drained, of summer showers, possessing as they often do a temperature from 10° to 20° higher than the ground. This is lost in an undrained soil, because the water which descends from the heavens is mixed with the moisture of the ground, and thus adds very little to its warmth.

"It has been calculated by Mr. Raikes, from experiments made at Chat-Moss, that the temperature of the soil when drained averages 10° more than it does when undrained; and this is not surprising, when we find that 1 lb. of water evaporated from 1000 lb. of soil will depress the whole by 10°, owing to the latent heat which it absorbs in its conversion into steam.

"A similar influence in depressing temperature will be exerted upon a newly-peopled country by the forests which extend so generally over its surface, at least by intercepting the sun's rays, if not, as we have endeavoured to show, by increasing the rain-fall. Would not this circumstance lend probability to the idea, that countries like our own were formerly colder than they are at present; not that any secular variation of climate can be supposed to have taken place within the limits of human experience, but that the general character of the country, whilst yet unreclaimed and overspread with forests, would be naturally more humid, and consequently colder.

"It has been already remarked that Wheat was but little cultivated in Great Britain some centuries back; might not this have been owing to the climate being formerly of too low temperature to admit of its general introduction?"

We strongly recommend Dr. Daubeny's book to agricultural readers.

Outlines of Modern Farming. By Robert Scott Burn Vol. II. *Notes Historical and Practical on Farming and Farming Economy.* Virtue Brothers & Co.

The work is fairly described by its title. We have in it 340 well packed pages, full of "notes historical and practical." The book gives the present condition of knowledge on its several topics, as well as the history of the steps by which it has been attained; while, however, there is thus a certain indefiniteness in the plan which has guided the Editor, yet the whole volume is the fuller of interesting and useful information; and the index with which it is provided enables the reader to obtain whatever information he may be seeking.

Notices to Correspondents.

CARROTS: *Chartwell.* The roots are easily affected when the land is fine—it is generally in light sandy soils that they become cankered and eaten by insects. Marling the land would probably be as effectual a preventive as anything you could adopt. Your question has, however, been forwarded for an entomological report.

GRASS: *Agricola, Ruadeen.* The Grass is the Avena flavescens or Yellow Oat Grass. Your notes on the change in the meadow resulting from cultivation are very interesting. The little book on Meadow and Pasture Grasses by Professor Buckman of Cirencester will perhaps be the best for your purpose. Sowerby has published Engravings of Grasses, which are well done and therefore somewhat costly.

OIL OF VITRIOL: *A Subscriber.* If by "Spirits of Vitriol" you mean sulphuric acid, then the only instance in which we have understood it has been applied directly to the soil, was at the suggestion, if we remember aright, of Dr. Daubeny, on the chalk soil of a farm belonging to the late Mr. Davies Gilbert, with what result we do not know. The idea was that it would be efficient as a manure by the formation of gypsum.

PASTURE: *Cor.* The seeds sent belong to the genus Alopecurus; but whether it be a rough variety of A. pratensis (Meadow Foxtail), or a distinct species, it is difficult to say from the seed alone.—*A.* The usual practice with regard to the droppings on the pastures is to knock them abroad when they have arrived at a certain degree of consistency. We believe that an old man and donkey cart might be usefully employed constantly during summer in collecting them and forming a heap, wherever there is extent and herd enough to give him work.

THE HYDROPULT,

EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "The machine is certainly the most compact and efficacious force pump of its size that we have ever seen."—*Daily Telegraph.*

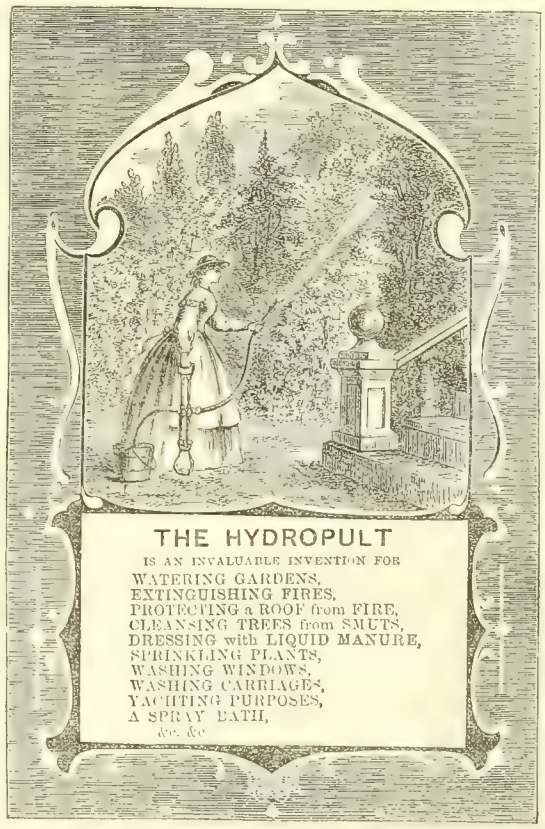
THE HYDROPULT. — "All Londoners and other town residents who care for their gardens and greenhouses should avail themselves of such engines." — *Gardeners' Chronicle and Agricultural Gazette.*

THE HYDROPULT. — "We strongly recommend it to our readers." —*Journal of Horticulture and Cottage Gardener.*

THE HYDROPULT. — "It will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water." — *Gardeners' Weekly Magazine.*

THE HYDROPULT. — "Country readers who order it on our recommendation, will not only not repent, but thank us for calling attention to a machine which, having once used, they will never care to be without."—*Floral World and Garden Guide.*

THE HYDROPULT. — "We can only say that no public establishment or private house should be without one of these useful machines."—*Commercial Daily List.*



EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "We are satisfied that all housekeepers ought to have one, and we are equally satisfied that if they once see it they will order it." — *Liverpool Daily Post.*

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THE HYDROPULT. — "Nothing has yet been introduced for watering gardens equal to the Hydropult, as any one standing close to the house can water, in a few minutes, any ordinary suburban garden, thus saving much time, and performing the task in an easy, satisfactory manner." — *Builders' Reporter.*

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"My dear Sir,—I have much pleasure in expressing the high satisfaction, and indeed surprise, with which I witnessed the working of your Hydropult. There can be no doubt that it can be available in the earlier stages of fire in warehouses, manufactories, or private houses, in preventing large conflagrations, while its applicability to gardening and other purposes will be manifest to any one observing its operation.—I am, my dear Sir, yours truly, "PERCY M. DOVE, Manager."

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"The invention will prove extremely valuable for all the purposes to which such machines are applied.—SWINTON BOULT, Secretary, Liverpool and London Insurance Company."

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CAUTION: Important to the Public.—The extensive sale of the HYDROPULT has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting, as they are often placed under or near the Hydropult show card. The Proprietor therefore issues this caution, and respectfully intimates that parties wishing to purchase the Hydropult, should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, a Portable Fire Annihilator and Garden Engine; GRIFFITHS & BROWETT, Manufacturers, Birmingham; CHARLES P. BUTTON, General Agent (Vose's Patent)." Unless this label be attached, the machine is not the Hydropult.

THE HYDROPULT is MADE of BRASS and COPPER, weighs but 8 lbs., and WILL THROW EIGHT GALLONS of WATER PER MINUTE FIFTY FEET, WHEN WORKED by the POWER of ONE MAN.

Public and private buildings have been saved from destruction by its agency. T. SPENCER, Esq., Inspector of the Royal Society for Protection of Life from Fire, certifies to its efficiency in saving valuable property at Bayswater from destruction.

FIRE! FIRE! FIRE! THE HYDROPULT IS THE MOST EFFICIENT FIRE-ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.

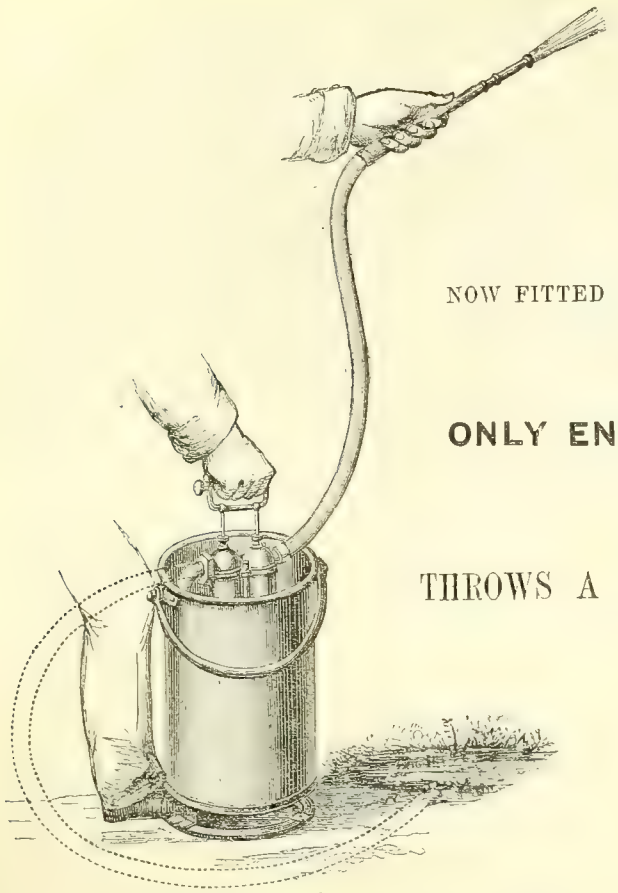
It can be used for all purposes for which a hydrant or force pump is applicable, and in situations where other contrivances are useless.

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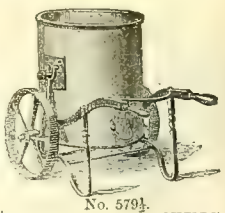


No. 554½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons ..	.. £2 15 0
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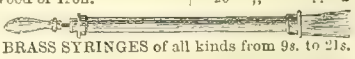
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WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	.. £2 10 0
20 ,,	.. 2 0 0



BRASS SYRINGES of all kinds from 9s. to 21s.



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WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 5 feet Flexible Suction Pipe,

21s.

Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

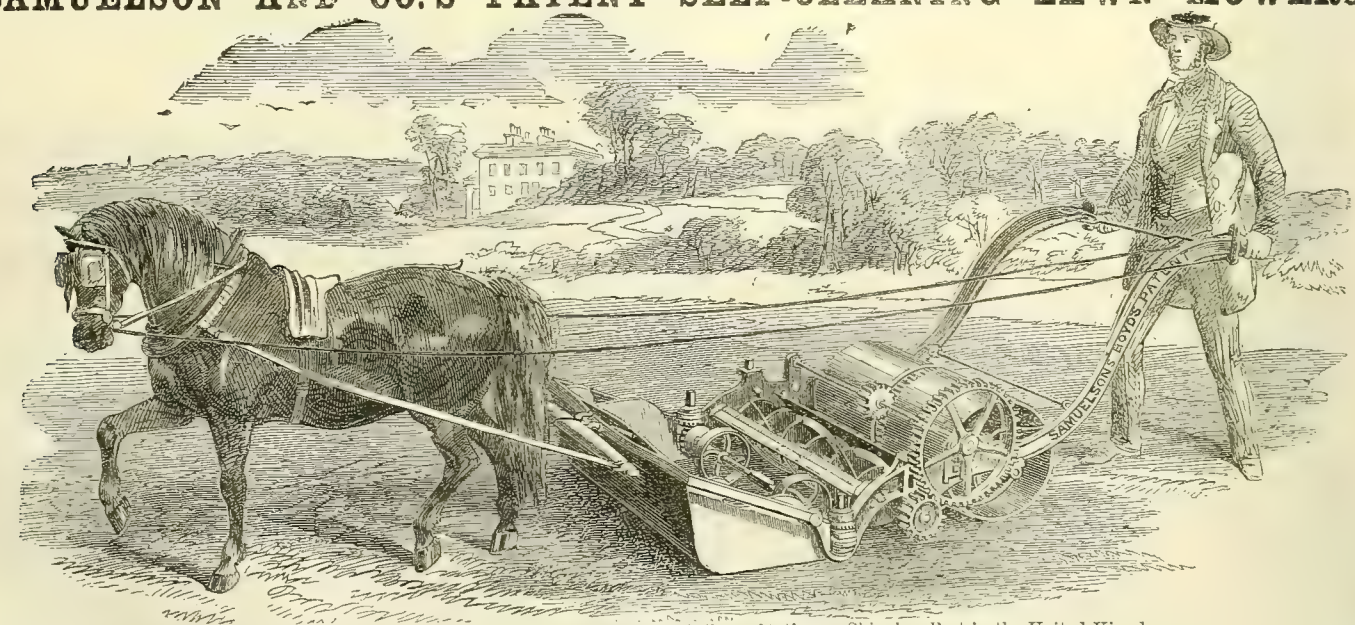
It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

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PRICES, including Packing Case, and Carriage paid to any Railway Station or Shipping Port in the United Kingdom:—

MANUAL POWER	12 inches cut,	suitable for a Lady	... ...	£4	12	0	PONY POWER	22 inches cut	... ...	£8	15	0
	16 ,,	suitable for One Person	... .	6	10	0		25 ,,	... ...	11	10	0
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If with BOYD'S PATENT BRUSH, 15s. extra.

MESSRS. SAMUELSON AND CO. are now supplying their 12-inch and 16-inch NEW PATTERN LAWN MOWERS, which they tested thoroughly last season. These Machines are handsome in appearance, lighter in draught, simpler and more durable than any Machine in the trade, and are sure to recommend themselves to the public.

Prices as above.

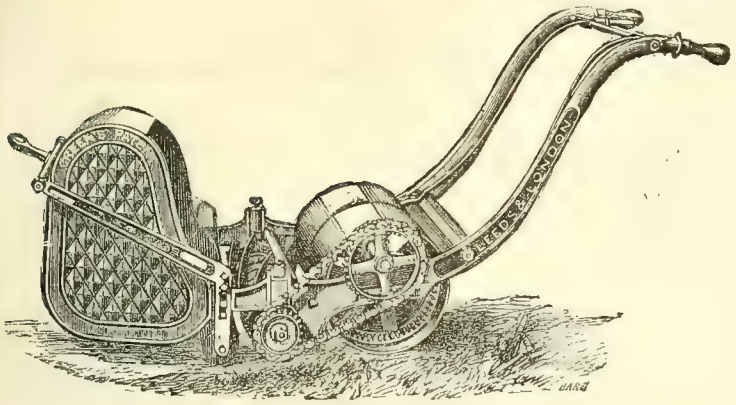
All Orders direct or through Dealers will be executed according to priority of receipt. May be obtained at the WORKS, Banbury; or at SAMUELSON & Co.'s various Depôts; also of all Ironmongers and Seedsmen, and at

SAMUELSON AND CO.'S WAREHOUSE, 76, CANNON STREET WEST, LONDON, E.C.

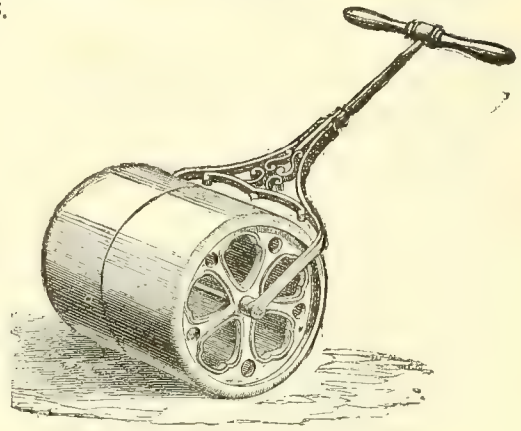
GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS,

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS

DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

The Patentees, after the long experience they have had in the MANUFACTURE of LAWN MOWERS, have come to the conclusion that three things are essential to constitute a real and efficient Implement, namely, Simplicity of Construction, Durability, and General Practicability, and they are glad to be able to state that they have combined the three, and that their Machines are unequalled not merely by giving satisfaction for one or two seasons, but by their long durability.

Upwards of 14,000 of the above Machines have been sold since the year 1856, and thousands of letters have been received by the Patentees testifying to their efficiency. They do not deem it necessary to publish more than the two following :—

TESTIMONIALS.

"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"DEAR SIR,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, GEO. EYLES."

"Royal Gardens, Windsor, March 27, 1863.

"DEAR SIR,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

"To Mr. Green." "Yours very truly, THOMAS INGRAM."

PRICES.

						If with Patent Delivery Box.
To Cut 10 inches	£3	10	0	Suitable for a Lady.		
„ 12 „	5	0	0	Suitable for One Person.	If with internal gear, 10s. extra.	
„ 14 „	5	10	0	Do. Do. Do. Do.	10s. extra.	
„ 16 „	6	10	0	Suitable for One Man or Two Boys.		

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

						If with Patent Delivery Box.
To Cut 18 inches ...	£7	10	0	Suitable for One Man and Boy	£8	15 0
„ 20 „ ...	8	0	0	Do. Do. ...	9	5 0
„ 22 „ ...	8	10	0	Suitable for Two Men ...	9	17 6
„ 24 „ ...	9	0	0	Do. Do. ...	10	7 6

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	... ... £12 10 0
„ 26 „	12 10 0	... ... 13 12 0
„ 30 „	16 14 0	... ... 18 0 0

Leather Boots for Donkey, 16s.; for Pony, 20s.

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	... ... £21 10 0
„ 36 „	23 0 0	... ... 24 16 0
„ 42 „	26 0 0	... ... 28 2 0
„ 48 „	29 0 0	... ... 31 8 0

Leather Boots for Horse, per set, 1l. 4s.

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

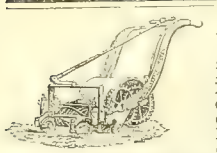
Diameter 20 inches, length 22 inches, price £3 5s. | Diameter 16 inches, length 17 inches, price £2 10s. | Diameter 24 inches, length 26 inches, price £4 5s.
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

PORTABLE and FIXED STEAM ENGINES; COMBINED THRESHING, SHAKING, and WINNOWING MACHINES;
REAPING and MOWING MACHINES; BONE CRUSHING MILLS; CORN CRUSHING and BEAN SPLITTING MILLS; CHAFF CUTTERS;
TURNIP SHEARS and PULPERS; IMPROVED HAY-MAKING MACHINES, and HORSE RAKES;
CLOD CRUSHERS, and WROUGHT IRON FIELD ROLLERS; PLOUGHS, HARROWS, and CULTIVATORS; VERANDAHS;
PATENT HYDROPULT, and all kinds of GARDEN ENGINES and SYRINGES; GARDEN CHAIRS and TABLES;
ORNAMENTAL FOUNTAINS and VASES; GARDEN TOOLS; PREMIUM CONTINUOUS IRON FENCING and HURDLES;
STRAINED WIRE FENCES, of all kinds; ESPALIER FENCES; GAME-PROOF WIRE NETTING and TRELLIS WORK;
ORNAMENTAL and PLAIN ENTRANCE, WICKET, and FOOTPATH GATES; WROUGHT IRON FIELD GATES; TREE GUARDS;
CATTLE and PIG TROUGHS; SHEEP RACKS; WASHING and WRINGING MACHINES; FIRE-PROOF IRON SAFES; IRON WHEELBARROWS
IMPROVED IRON STABLE FITTINGS;
and every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;
and MANUFACTURERS of all kinds of IRONWORK for the IMPROVEMENT or EMBELLISHMENT of LANDED PROPERTY.

Illustrated Catalogues on application.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.



Lawn Mowers.

BURGESS AND KEY beg to direct attention to their NEW PATENT LAWN MOWING MACHINE. It is simple, efficient, easily worked, and not liable to derangement. GARDENING and HORTICULTURAL TOOLS of every description. Illustrated Price List free. Catalogues by post on receipt of six postage stamps.

BURGESS & KEY, 95, Newgate Street, London, E.C.

MORTON'S NEW IMPROVED PATENT LAWN MOWER, with Sun and Planet Motion, having all the most recent Improvements, is allowed to be the best Machine for preventing Ribbing and Clogging.

To be had, with prices and particulars, of GRIMMOND, LAIRD, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath; and all the principal dealers throughout the country.

SHAW'S TIFFANY.

For samples and prices apply to

J. SHAW & Co., 29, Oxford Street, Manchester.

CLARKE'S PATENT ADJUSTIBLE SCYTHE is the strongest, lighest, most durable, and best cutting Scythe yet introduced. It is used in the Gardens of the Royal Horticultural Society at South Kensington, and has given great satisfaction to all who have tried it.

The following is from G. EYLES, Esq.

"Royal Horticultural Gardens, South Kensington,
May 20, 1863.

"Sir,—I like your scythes very much.—Yours very truly,
"GEO. EYLES."

CLARKE & SON, Patentees and Manufacturers, Brackley, Northamptonshire.

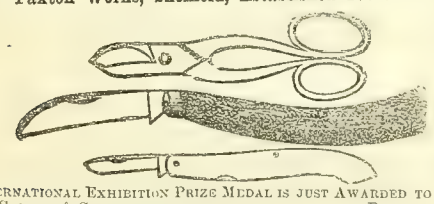
W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.

Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.

For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster. S.W.

Paxton Works, Sheffield, Established 1738.



INTERNATIONAL EXHIBITION PRIZE MEDAL IS JUST AWARDED TO SAYNOR & COOKE FOR SUPERIORITY OF QUALITY IN PRUNING AND BUDDING KNIVES, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. TYLOR & SONS' GALVANIZED IRON TUB GARDEN ENGINES, with Registered Spreader.

8 gal.	12 gal.	16 gal.
2 13 6	£3 5 0	£3 15 0

24 gal.	30 gal.
£5 0 0	£5 18 0



Fig. 571.

J. TYLOR & SONS' OAK TUB GARDEN ENGINES, with Registered Spreader.

15 gal.	28 gal.
£5 12 6	£7 2 0

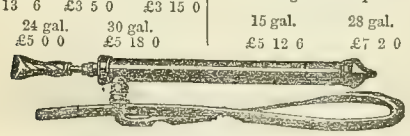


Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 8 0 each.
No. 2. Ditto ditto .. 1 2 6 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,



Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 11*s.* 6*d.* each
,, 589. Middle Ditto ditto .. 10 3 ,,
,, 588. Small Ditto ditto .. 9 0 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 7 6 ,,



Fig. 591. READ'S SYRINGE, with two roses and one jet, 17*s.* 6*d.*
READ'S SYRINGE, with one rose and jet, 15 0
,, 592. Improved ditto ditto large 14 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

FOWLER'S

STEAM PLOUGHING AND CULTIVATING PATENTS.

RANSOMES & SIMS, ORWELL WORKS, IPSWICH,

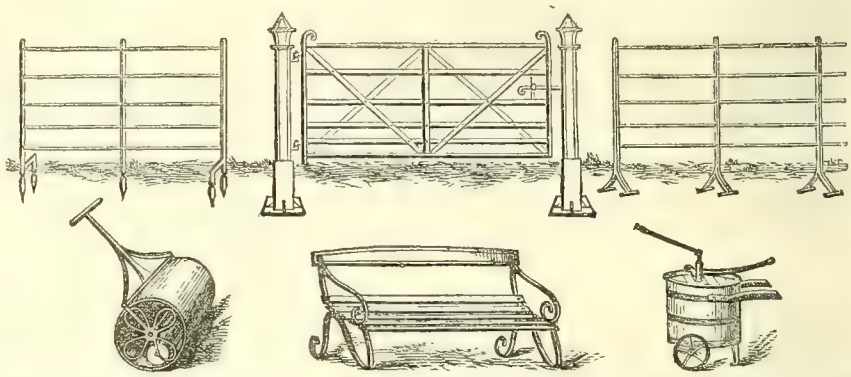
Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

COTTAM'S

CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED IN VARIOUS STYLES.



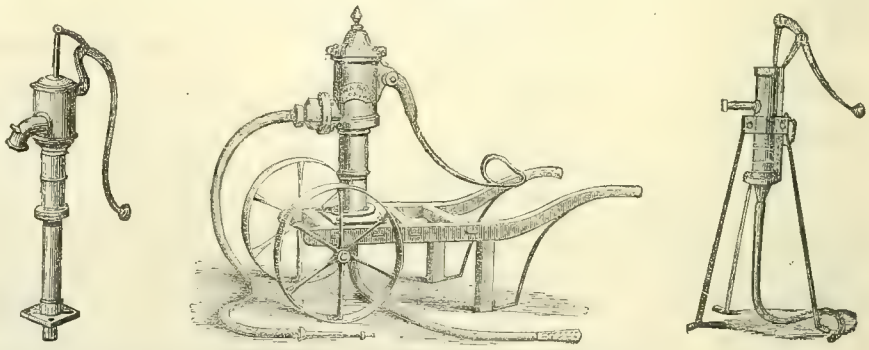
IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.
VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.
The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

Illustrated CATALOGUES and DRAWINGS free on application to
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JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

PATENTEES and MANUFACTURERS,
JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

TANNED NETTING, at reduced prices, 1*d.* per square yard; 200 yards, 14*s.*; 500, 30*s.*; 1000 yards, 50*s.* SCRIM CANVAS, for Wall Fruit; GARDEN MATS; GREENHOUSE SHADES.

Be particular, FREDERICK EDGINGTON & Co., Rick Cloth Manufacturers, Thomas Street, Old Kent Road, London, S.E

Netting for Fruit Trees, Seed Beds, Ripe Strawberries, &c.

TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard, or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard.

Can be had in any quantity of EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

Do as Others Do!

BUY YOUR SEED BAGS from JAMES T. ANDERSON, SACK and BAG MAKER, and RUSSIA MAT MERCHANT, 15, SHERBORNE LANE, King William Street, London, E.C., who will supply you with a first-rate article at a low price. ARCHANGEL MATS, the pick of the season. Russian and Prussian Dunnage Mats.

Prices sent free on application.

To Noblemen, Gardeners, Farmers, and Others.

AMIES AND BARFORD beg to call particular attention to their NEW PATENT WATER BALLASTING FIELD and GARDEN ROLLERS, which have the following advantages over all others. They are made entirely of Wrought Iron, are made water-tight, and are loaded with water to obtain increased weight at pleasure, which is moreover employed with the greatest possible per centage of crushing power directly upon the surface of the soil. The weight of a Garden Roller can thus be doubled in a few minutes, and a one, two, or three Horse Land Roller is secured, as desired, in one implement.

Great numbers have already been sold, and are giving the greatest satisfaction, and whether for Gardens, Lawns, Cricket Grounds, Road-making, or for farmers' use, they will be found superior to all others.

For Illustrated Price Lists apply to Messrs. AMIES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

Odours of Plants.

PIESSE AND LUBIN extract the PERFUME from every fragrant Flower by the process of "Enfleurage," which being conducted while the plant is yet alive, the odours obtained are retained in their true and natural fragrance. Jasmin, Violet, Acacia (Farnesiana), Tuberose, Jonquil, Orange, Mignonette, and several others. Sold in Bottles, 2*s.* 6*d.* each.

Laboratory of Flowers, 2, New Bond Street.

Sauce.—Lea and Perrins'

WORCESTERSHIRE SAUCE,

Pronounced by Connoisseurs

"THE ONLY GOOD SAUCE."

See Name on Wrapper, Label, Bottle, and Stopper, and to avoid Counterfeits

ASK FOR LEA AND PERRINS' SAUCE

*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c.; and by Grocers and Oilmen universally.

METCALFE, BINGLEY, AND CO'S NEW PATTERN TOOTH BRUSHES, Penetrating Unbleached Hair Brushes, Improved Flesh Brushes, genuine Smyrna Sponges, and every description of Brush and Comb and Perfumery for the Toilet. METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box. The FAIRY BOUQUET; the OXFORD and CAMBRIDGE BOUQUET. In bottles, 2*s.*, 3*s.* 6*d.*, and 5*s.* each. 130 B, and 131, Oxford Street, W.

WHITE and SOUND TEETH are indispensable to personal attraction, and to health and longevity, by the proper mastication of food. ROWLANDS' ODONTO, or Pearl Dentifrice, preserves and imparts a pearl-like whiteness to the Teeth, eradicates Tartar and spots of incipient decay, strengthens the Gums, and gives a pleasing fragrance to the Breath. Price 2*s.* 9*d.* per box.

Sold by Chemists and Perfumers. Ask for "ROWLANDS' Odonto."

OLDRIDGE'S BALM of COLUMBIA, established upwards of 30 years, is the best and only certain remedy ever discovered for preserving, strengthening, beautifying, or restoring the Hair, Whiskers, or Moustache, and preventing them turning grey.

Sold in bottles, 3*s.* 6*d.*, 6*s.* and 11*s.*, by C. & A. OLDRIDGE, 22, Wellington Street, London, W.C., and by all Chemists and Perfumers. For Children and Ladies' Hair it is most efficacious and unrivalled.

F. C. CALVERT'S PHENYLINE (the active principle of coal-tar) is an unfailing remedy for Foot-rot, Distemper, Grease, Glanders, Scab, Mange, &c., and may be obtained of any of the following Agents:—

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DINNEFORD'S PURE FLUID MAGNESIA has been during 25 years emphatically sanctioned by the Medical Profession, and universally accepted by the public, as the best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion, and as a mild Aperient for delicate constitutions, more especially for ladies and children. It is prepared in a state of perfect purity and of uniform strength by DINNEFORD & Co, 172, New Bond Street, London, and sold by all respectable Chemists throughout the world.

THE OCCASIONAL USE of PARR'S LIFE PILLS will keep people in good health, and make them cheerful and hearty. They are unrivalled for the cure of sick headache, indigestion, loss of appetite, impurities of the blood, disorders of the stomach, liver, or general derangement of the system.

May be obtained of any Medicine Vendor, in boxes 1*s.*, 1½*d.*, 2*s.* 9*d.*, and in family packets, 11*s.* each.

CHANDELIERS in Bronze and Ormolu for DINING ROOM and LIBRARY, Candelabra, Moderator Lamps, in Bronze, Ormolu, China, and Glass. Statuettes in Parian, Vases and other Ornaments.

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OSLER'S GLASS CHANDELIERS.

Wall Lights and Lustres for Gas and Candles, Table Glass, &c.

Glass Dinner Services for 12 persons, from 7*l.* 15*s.*

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All articles marked in plain figures.

Ornamental Glass, English and Foreign, suitable for Presents.

Mess, Export, and Furnishing Orders promptly executed.

London—Show Rooms, 45, Oxford Street, W.

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Established 1807.

HANDSOME BRASS and IRON BEDSTEADS.—HEAL & SON'S Show Rooms contain a large assortment of Brass Bedsteads, suitable both for home use and for tropical climates; handsome Iron Bedsteads with Brass Mountings and elegantly Japanned; Plain Iron Bedsteads for Servants; every description of Wood Bedstead that is manufactured, in Mahogany, Birch, Walnut-tree Woods, Polished Deal and Japanned, all fitted with Bedding and Furniture complete, as well as every description of Bedroom Furniture.

HEAL AND SON'S ILLUSTRATED CATALOGUE, containing Designs and Prices of 100 Bedsteads, as well as of 150 different articles of Bedroom Furniture, sent free by Post.

HEAL & SON, Bedstead, Bedding, and Bedroom Furniture Manufacturers, 196, Tottenham Court Road, W.

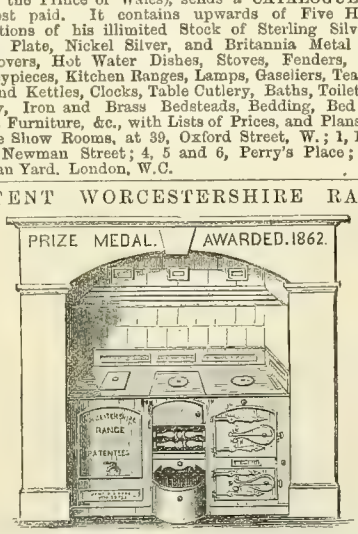
THE PERFECT SUBSTITUTE for SILVER.—The REAL NICKEL SILVER, introduced more than 30 years ago by WILLIAM S. BURTON, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver. A small useful set, guaranteed of first quality for finish and durability, as follows:—

	Fiddle or Old Silver Pattern.	Bead Pattern.	Thread or Brunswick Pattern.	King's or Lily, &c.
	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
12 Table Forks	1 13 0	2 0 0	2 4 0	2 10 0
12 Table Spoons	1 13 0	2 0 0	2 4 0	2 10 0
12 Dessert Forks	1 4 0	1 10 0	1 12 0	1 15 0
12 Dessert Spoons ..	1 4 0	1 10 0	1 12 0	1 15 0
12 Tea Spoons	0 16 0	1 0 0	1 2 0	1 5 0
6 Egg Spoons, gilt bowls..	0 10 0	0 12 0	0 12 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 9 0
1 Gravy Spoon	0 6 6	0 9 0	0 10 0	0 11 0
2 Salt Spoons, gilt bowls..	0 3 4	0 4 0	0 4 0	0 4 6
1 Mustard Spoon, gilt bowl	0 1 8	0 2 0	0 2 0	0 2 3
1 Pair of Sugar Tongs ..	0 2 6	0 3 6	0 3 6	0 4 0
1 Pair of Fish Carvers ..	1 4 0	1 10 0	1 10 0	1 10 0
1 Butter Knife	0 2 6	0 4 0	0 5 6	0 6 0
1 Soup Ladle	0 10 0	0 12 0	0 16 0	0 17 0
1 Sugar Sifter	0 3 3	0 4 6	0 4 6	0 5 0
Total	9 19 9	12 9 0	13 9 6	14 17 3

Any article to be had singly at the same prices. An Oak Chest to contain the above, and a relative number of Knives, &c., 2*l.* 15*s.* Tea and Coffee Sets, Dish Covers and Corner Dishes, Cruet and Liqueur Frames, &c., at proportionate prices. All kinds of re-plating done by the patent process.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER (by Appointment to H.R.H. the Prince of Wales), sends a CATALOGUE gratis and post paid. It contains upwards of Five Hundred Illustrations of his illimited Stock of Sterling Silver and Electro Plate, Nickel Silver, and Britannia Metal Goods, Dish Covers, Hot Water Dishes, Stoves, Fenders, Marble Chimneypieces, Kitchen Ranges, Lamps, Gaseliers, Tea Trays, Urns, and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1A, 2, 3, and 4, Newman Street; 4, 5 and 6, Perry's Place; and 1, Newman Yard, London, W.C.

PATENT WORCESTERSHIRE RANGE.



PRIZE MEDAL, 1862, AWARDED for EXCELLENCE.

The above RANGE is most complete, and strongly recommended for its unrivalled ECONOMY, CLEANLINESS, CONVENIENCE, DURABILITY, and is a certain CURE for SMOKY CHIMNEYS.

It is an entirely new invention, and consists of large MEAT ROASTER, PASTRY OVEN, and WROUGHT-IRON BOILER. The top forms a HOT PLATE for BOILING, STEWING, &c. The whole heated by ONE SMALL FIRE. One 5 feet wide is equal to an ordinary Range 8 feet wide.

Extracted from the *London Daily Telegraph*, May 19, 1862.

"INTERNATIONAL EXHIBITION, CLASS 31.

"Of the most recent inventions it should be said that Messrs. JONES & ROWE'S Patent Worcestershire Range has attracted very special attention, and has been commended by the best authorities. A valuable peculiarity of their Ranges is the placing of the OVEN and ROASTER one above the other instead of *side* by *side*; and the ROASTER is constantly replenished with fresh air."

Inventors and Manufacturers, JONES & ROWE, Worcester. Agents for London: BARRON, SON, & WILSON, 436, Strand, W.C.

Illustrated Catalogues, with Testimonials and Prices, forwarded on application.

TO BE LET, with early possession, NURSERY GROUNDS.—The property situated in Brighton, comprising extensive ranges of Vineries and Peach-houses, in good bearing condition; also large and well-constructed span-roofed and lean-to Houses, and Pits for plants, the whole well heated and ventilated; also a capital Residence for the occupier, and Cottages for the men employed on the premises, with extensive Stabling and Coach-houses, which can be readily let at a good rent.

The Stock, which is large, can be taken at a valuation or a fixed sum as agreed upon. A ready market for all the produce is at hand, and every facility for carrying on a large trade in Fruit, Flowers, and Seeds; or a first-rate PARTNER, with Capital, would be accepted, as the occupier is extensively engaged in Landscape Gardening.

Apply by letter to Q. C. L., *Gardeners' Chronicle* Office, W.C.

Sussex.

TO BE LET, on the 11th October next, the NEWHOUSE FARM, in the parishes of Ewhurst and Northiam, consisting of 430 acres 3 roods 37 perches of Arable, Hop, Grass, and Wood Land.

The Farm has been in the hands of the Proprietor for several years, is mostly thoroughly drained, and the House and Buildings are of a superior description.

There are 12 Labourers' Dwellings on the Farm, Blacksmith's and Wheelwright's Shops, and an excellent Brickyard.

The farm is delightfully situated in the most picturesque part of Sussex, 11 miles from Hastings and St. Leonard's, 10 from Rye, 8 from Battle and Robertsbridge—all first-class stations. It is intersected by good roads.

The Shooting over the Land, together with that of 120 acres of Wood Land adjoining, will be let with the Farm. Fox hounds and Harriers are within easy reach.

Altogether it is a most desirable occupation. Further particulars may be had on application to FREDERICK WEBSTER, Esq., Battle.

MESSRS. BEADEL have the following FARMS to LET at Michaelmas next:—

Essex.

A CORN FARM to be LET UPON LEASE (in consequence of the decease of the late Tenant), comprising a good Residence, very pleasantly situate; a complete Set of Agricultural Buildings recently erected, and in the centre of the Occupation; Seven Labourers' Cottages, and 402 Acres of Arable and Pasture Land, the whole thoroughly Pipe-drained and divided into Enclosures, well adapted for Steam Cultivation. It is distant about 7 miles from Chelmsford and 6 from Maldon.

Hertfordshire.

A very useful FARM, comprising 361a. 2r. 31p. of Land, lying in a Ring Fence, with convenient Farm Residence, very pleasantly situate, and newly-erected Homestead, placed in the centre of the Occupation. It is distant only 4 miles from the Town of Ware, 6 from Hertford, and only about an hour's ride from London by the Great Eastern Railway.

Near Dorking, Surrey.

A very desirable OCCUPATION of about 300 Acres, of which 220 are Arable and 80 Pasture, the whole admirably adapted for the Rearing and Feeding of Stock, the Grass Land being of first-rate quality, and the Arable suitable for Cereal and Root Crops. There is a very comfortable Residence, Eight Labourers' Cottages, and several Sets of Buildings conveniently dispersed about the Land.

For further particulars and Cards to view apply to Messrs BEADEL, 25, Gresham Street, E.C.

Sales by Auction.

Final Sale.

To GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS have received instructions from the Executrix of the late Thomas Gaines (deceased) to submit to an unreserved SALE by AUCTION, on the Premises, Surrey Lane, Battersea within five minutes' walk of Battersea Park, on MONDAY July 6, at 11 o'Clock, a newly erected SHOW HOUSE, 41 feet 10 inches long by 32 feet over; 12 capital GREENHOUSES; a quantity of 2, 3, and 4-inch Hotwater Pipe, Saddle and other Boilers, Slate Shelving, York Paving; a capital Box, Spring Van with patent Axles, Tumbril Cart, and other effects.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Babraham, near Cambridge.

EXTENSIVE AND MOST IMPORTANT SALE OF THE ENTIRE HERD OF FIRST-CLASS SHORT-HORNED CATTLE.

MESSRS. H. STRAFFORD AND J. CARTER JONAS, who are jointly concerned on this occasion, are honoured with instructions from the Executors of the late Mr. JONAS WEBB, to offer for SALE by AUCTION, without any reserve, on WEDNESDAY, the 24th of JUNE NEXT, the entire remainder of the far-famed BABRAHAM HERD of First-class SHORTHORNS, consisting of between 60 and 70 head of Bulls, Cows, and Heifers, that are descended from the following celebrated Cows:—"Celia," "Dodona," "Belinda," "The Beauty," and "Daffy Gwynne," which on reference to the Herd Book will show a fine combination of good blood. The stock are in a healthy breeding state, and will be sold in the same *bonâ fide* manner that distinguished the Sale of the first portion of the Herd, the success of which is sufficient evidence of the valuable character of the animals, and the high estimation in which they are held, and their final dispersion affords an excellent opportunity to purchasers of first-class Shorthorns.

The Auctioneers beg to call attention to the high honour gained by this Herd in winning the Gold Medal, with "First Fruits," for the best Shorthorned Bull exhibited at the Royal Agricultural Society's Meeting at Battersea, which famous animal is included in this Sale.

Catalogues, with Pedigrees and other particulars, may be had on application to Mr. J. CARTER JONAS, Land Agent, Cambridge; or of Mr. STRAFFORD, 13, Euston Square, London.

Important Sale of Plants from Sydney.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, June 26, at half-past 12 o'Clock precisely, an Importation of Rare and Valuable PLANTS, just arrived ex Sarah Newman, from Sydney, in capital condition, comprising many hundred Plants, viz., Araucaria Rulei, Taxodium sp. New Caledonia, Dammara Moorei, Dwarf Araucarias, Macrozamia Denisonii, Tree 40 feet, Macrozamia Mackenzii, Areca sapida, Eupomatia Bennettii, Ficus sp. North Australia, Cycas sp. New Caledonia.

On view the Morning of Sale, and Catalogues had.

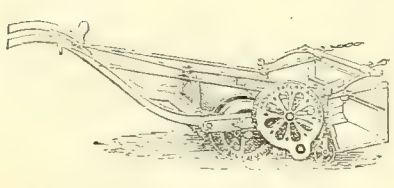
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

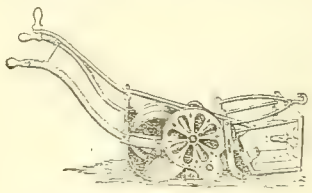
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FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

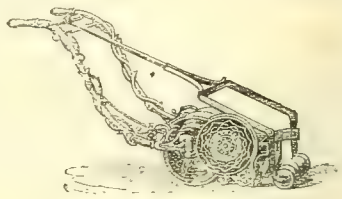
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	40*s.* ,,
No. 3.—36-inch Machine ...	22 0 0	30*s.* ,,
No. 4.—30-inch Machine ...	19 0 0	30*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 21*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine ...	£15 15 0	30*s.* extra.
No. 6.—28-inch Machine ...	14 10 0	30*s.* ,,
No. 7.—25-inch Machine ...	12 10 0	25*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £5 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

ALEXANDER SHANKS AND SON have for upwards of 20 years devoted their attention to the IMPROVEMENT and MANUFACTURE of LAWN MOWERS. They have carefully avoided the useless inventions (of late years introduced into Lawn Mowers) which have simply *novelty, not improvement*, as their recommendation, and which are far better suited for the "*Trial Ground*" than for the *Practical Gardener*. They have at the same time manufactured heir MACHINES with that regard to durability and efficiency as to secure their giving every satisfaction, not simply for *one or perhaps two*, but for *many seasons*, and from the hundreds of unsolicited Testimonials they have received, and the large and increasing demand, A. S. & SON are glad to find that th MACHINES have not yet been *equalled for the qualities* that constitute a *really good Lawn Mower* fit for general use, and to afford *lasting satisfaction*, by any MACHINE yet before the public.

A. S. & SON subjoin a few Testimonials which fully bear out what has been said in favour of their MACHINES.

TESTIMONIALS:—

From Mr. GEORGE EYLES, *Superintendent, Royal Horticultural Society's Gardens.*

"Royal Horticultural Society's Gardens, South Kensington, 15th May, 1863.

"Gentlemen,—Your Hand Machines, which are in continual use here, answer well. The 30-inch Horse Machine also in use here continues to give me great satisfaction.—I am, yours very truly, GEORGE EYLES.

"Messrs. Shanks & Son."

From Mr. J. SMITH, *Royal Gardens, Kew.*

"I herewith send you a cheque in payment for the Shanks' Mowing Machine (a 42 inch Horse Machine), lately supplied to this Garden. The Machine gives perfect satisfaction, and is in daily use nine hours a day. . . . . Our old Shanks' Machine (a 42-inch Horse Machine, supplied 14 years ago to Kew Gardens), has all along worked well, and it does not mind wet and long Grass. It is astonishing the amount of work it has done, and has given us complete satisfaction."

From Sir JOHN BURGOYNE, Bart., *Sutton Park, St. Neot's.*

"The Lawn Mower (a No. 9, 22-inch Hand Machine with Patent Delivering Apparatus) has arrived quite safe, and answers admirably, and mows better and in less time than it is possible for two men to do."

From Mr. SHEARER, *Gardener to the* MARQUIS OF TWEEDDALE, *Yester Garden.*

"Gentlemen,—Allow me to congratulate you on the success of your improved Grass-Cutting Machine, which we got the other day from you, especially the delivering part. It is a mechanical triumph. You know that I expressed my doubts to you about it before I got the Machine, but having cut all our Grass with it, I must say that it acts far beyond my expectation, and it performs all you say in your prospectus. We can now go on the whole day without stopping, except to oil the parts that require it. *The men are quite in love with it*—a good proof of its utility.—I am, Gentlemen, yours respectfully, ALEXANDER SHEARER."

Extract from a Memorandum received 16th April, 1863, from Mr. ROSE, *Superintendent, Crystal Palace Company.*

"Your Machines in the grounds are working beautifully."

From Mr. THOMAS INGRAM, *Royal Gardens, Frogmore, Windsor.*

"Sirs,—The Mowing Machine you sent here has given the greatest satisfaction, and is a great saving of labour.—Yours very truly, THOS. INGRAM."

"Messrs. A. Shanks & Son."

"County Asylum, Rainhill, near Prescot, 25th May, 1863.

"Gentlemen,—Now that the merits of various Mowing Machines are so much vaunted by their respective makers, I think it right to bear my unsolicited testimony to the *durability and efficiency* of the Machines which are manufactured by you. In 1852 we obtained from you two of your 16-inch Hand Machines, which have been in constant use ever since and are still in good condition, and do their work as well as when we first had them. They have cost very little in repairs, notwithstanding that occasionally they have been rather roughly handled. I may further add that your Machines are the most satisfactory of any we have used.—I am, Gentlemen, your obedient servant, R. C. LEWIS."

"Messrs. A. Shanks & Son."

From J. SPENCER, Esq., *Factor to the* Most Hon. the MARQUIS OF LANSDOWNE, *Bowood, Wilts.*

"The Horse Machine you sent me is now doing its work quite as well as it did in 1847 (14 years ago), and this is saying very much of its great value and durability, for within the time named it has cut annually from 40 to 50 acres of Grass five times over; and frequently the Grass has been long and difficult to get over. I have no doubt that good as your earlier Machines were, those you now turn out are superior in many respects, and next spring I shall take a 42-inch one for myself, and shall feel great pleasure in recommending your really valuable Machine whenever I have the opportunity."

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No 11, Bouverie St., in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington St., Parish of St Paul's, Covent Garden, in the said Co.—SATURDAY, June 20, 1863.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 26.—1863.] SATURDAY, JUNE 27. {Price Fivepence. Stamped Edition, 6d.

INDEX.

Abies and Picea	604 c	Holland testimonial	614 b
Alocasias	605 a	Lily of the Valley	604 c
Books, various	607 c	Luxembourg garden	608 a
Broccoli, Cornish	608 a	Manure for Grass	612 b
Caladiums	605 a	Phosphorescence	605 c
College, Royal Agri.	612 a	Picea and Abies	604 c
Douglas Fir	602 a	Ploughing, steam	612 b
Drainage	612 b	Ranunculus show	606 a
Farmers, clerical	614 b	Roses	604 b
Fern Flora	602 c	Sheep food	610 c
Fibres, Queensland	604 b	Society, Royal Botanic, 602 b—605 a	
Fir, felling Scotch	604 b	— Linnean	605 c
Flowers, stray notes about	603 c	— Entomological	606 a
Fly, black	603 b	— Royal Agri.	612 b
Food, straw as	610 c	— Norfolk Agri.	613 b
Fruit lore, ancient	603 a	Steam ploughing	612 b
Gardeners' Benevolent Institution	601 c—604 a	Trichomanes radicans	602 c
Gardens, opening to the public	604 a	Vine pruners	604 b
Grass, manure for	612 b	Viti, Seemann's Mission to	606 b
Haymaking	611 c	Ward's cases	606 a
		Zurich Botanic Gardens	607 a

ROYAL HORTICULTURAL SOCIETY'S GREAT SHOW, WEDNESDAY NEXT, July 1. Open at 1 o'clock. Grenadier and Scots Fusilier Guards' Bands at 3 o'clock. Admission, 7s. 6d.; or by Tickets purchased before the day, 5s.

LAST GREAT SHOW at SOUTH KENSINGTON, on WEDNESDAY NEXT. Tickets until Tuesday, 5s. each. To be had at the Garden, and of the principal Librarians and Musicsellers.

Notice.

THE AMALGAMATED METROPOLITAN CHRYSANTHEMUM SOCIETY.—As the affairs of the above are not carried on to our satisfaction, we have considered it our duty to withdraw our names as Treasurer, and Members of the Committee. Also the whole of our support of the Society in general.

J. H. Bird, Stoke Newington.
S. Broome, Temple Gardens.

The largest Growers of the Chrysanthemum in the Kingdom.

STAMFORD HORTICULTURAL SOCIETY. OPEN TO ALL ENGLAND.

The GRAND FÊTE and ROSE SHOW will take place on WEDNESDAY, July 8. Entries should be sent in on or before the 1st of July.

Schedules, with forms for entry, may be had on application to Messrs. Laxton & Hewitt, Hon. Secs., Stamford.

BIRMINGHAM ROSE SHOW.—The PRIZE LIST of this important Exhibition of Cut Roses, Garden Ornaments, and Horticultural Implements is now ready, and may be had on application to the Secretary, Mr. Alex. Forrest, Queen Chambers, Birmingham, from whom also Forms of Entry may be had.

The last day on which Entries of Implements and Garden Ornaments can be made is July 2, and of Roses July 9. There is every reason to expect an unusually fine display of the "Queen of Flowers" at this interesting and important exhibition.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The ANNIVERSARY FESTIVAL in Aid of the Funds of this Society will take place at the London Tavern, Bishopsgate Street, on FRIDAY, July 3 NEXT.

The Right Hon. the Earl of Ducie, Vice-President of the Royal Horticultural Society, in the Chair.

Tickets, 21s. each, may be procured of the Secretary and at the Tavern. Edward R. Cutler, Secretary.

14, Tavistock Row, Covent Garden, W.C.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The Half-Yearly Meeting of the Members of this Society will be held on WEDNESDAY, July 8, at the Bedford Hotel, Covent Garden, for the purpose of ELECTING TWO PENSIONERS on the Funds of the Society.

The Chair to be taken at 6 o'Clock in the Evening precisely.

The Ballot will close at 8 o'Clock precisely.

Subscriptions are due on January 1.

The Voting Papers have all been delivered. Any Subscriber not having received one is respectfully requested to make immediate application to E. R. Cutler, Secretary.

14, Tavistock Row, Covent Garden, W.C.

Grand Exhibition of Hardy Scarlet and other Choice Rhododendrons.

JOHN WATERER has the pleasure to announce that his matchless COLLECTION of the above plants is NOW on VIEW at the Royal Botanic Gardens, Regent's Park.

Orders of admission are granted by Fellows of the Society. Admission can also be obtained on application to Mr. Waterer, at the Gardens, any days excepting Wednesdays or Saturdays.

The American Nursery, Bagshot, Surrey.

NEW PRIZE MELONS, at 1s. 6d. per packet.

Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria.

For descriptions see GUIDE to the KITCHEN GARDEN.

Barr & Sugden, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Trichomanes spicatum.

JAS. BACKHOUSE and SON have pleasure in offering nice plants, imported last summer, of this beautiful West Indian Fern, at 60s. and 84s. per dozen. Larger specimens at 10s. 6d., 15s., and 21s. each.

York Nurseries.—June 27.

NOVELTIES of 1863 at greatly reduced prices.—A CATALOGUE of 30 pages, containing full descriptions of nearly 500 New Choice Plants of the season, including the New Fuchsias and Verbenas, &c. Post free for one stamp.

Wm. Dillistone, Munro Nursery, Sible Hedingham, Essex.

Agricultural Seeds.

GEORGE GIBBS and CO., Seedsmen, 26, Down Street, Piccadilly, London, W.

Best Seeds, Carriage Free.

BUTLER and McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

BARR and SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD and SON, Nurserymen and Seed Merchants, Maresfield, near Uckfield, Sussex.

Good Turnip Seeds, Carriage Free.

SUTTON and SONS, Seed Growers and Merchants, Royal Berkshire Seed Establishment, Reading.

Ferns.

EDWIN COOLING will have pleasure in forwarding his NEW PRICED CATALOGUE on application. Also his GENERAL LIST of CHOICE PLANTS suitable for the Conservatory and Flower Garden.

Mile Ash Nurseries, Derby.

J. IVERY and SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.

Dorking Nursery.

E. G. HENDERSON and SON offer first-class quality of CINERARIA, PRIMULA SINENSIS FIMBRIATA, and PANSY. Also, CINERARIA WEBBI, new shrubby species.

All the above, 1s. and 2s. 6d. per packet.

☞ EXPERIENCED GARDENERS recommended to Gentlemen.

Wellington Nursery, St. John's Wood, London, N.W.

Calceolaria, Cineraria, and Primula.

F. and A. SMITH are now sending out their very superior strain of the above, carefully selected from first-class varieties, in Packets at 1s., 1s. 6d., and 2s. 6d. each.

The Nurseries, Dulwich, London, S.

Herbaceous Calceolaria.

Guaranteed Finest Quality and New Seed.

WM. CUTBUSH and SON beg to offer the above, saved with the greatest care from the Stock, which invariably obtains the FIRST PRIZES wherever exhibited. Per packet, 2s. 6d., 3s. 6d., and 5s., Post-free. Liberal allowance to the Trade.

Highgate Nurseries, London, N.

New Verbenas of 1863.

B. W. KNIGHT, Florist, &c., 67, High Street, Battle, Sussex, has now ready to send out the NEW VERBENAS of 1863, at 4s. per dozen.

CATALOGUES of VERBENAS and other Novelties sent on application.

SPLENDID NEW SCARLET VERBENA, LORD LEIGH.—Strong Plants now ready, 5s. each, 42s. per dozen.

CATALOGUES also ready, and will be forwarded Post-free on application to

S. Perkins & Sons, Park Nursery, Coventry.

Choice Seeds.

B. S. WILLIAMS begs to offer First-class quality of the undermentioned SEEDS:—

	Per packet.		
PRIMULA SINENSIS FIMBRIATA, Red, White, or Mixed	2s. 0d.	3s. 6d.	
CALCEOLARIA, herbaceous	1 6	2 6	
CINERARIA, from choice named flowers	1 6	2 6	
PANSY, very choice	0 6	1 0	

Paradise and Victoria Nurseries, Holloway, London, N.

Novelties of 1863 at Low Prices.

HENRY WALTON is now sending out strong healthy Plants of all the leading Novelties of the season, comprising FUCHSIAS, PETUNIAS, VERBENAS, PENTSTEMONS, ANTIRRHINUMS, TROPÆOLUMS, GERANIUMS, DESCRIPTIVE CATALOGUE on application enclosing stamp. Not to be equalled in the Trade for price and quality.

Edge End, Marsden, Lancashire.

Cheap Bedding Plants.

WM. DILLISTONE will forward (Carriage free to London), upon receipt of Post Office Order for 18s. on Castle Hedingham, 100 Strong Plants in Pots; consisting of GERANIUMS, FUCHSIAS, DAHLIAS, VERBENAS, CALCEOLARIAS, &c.

N.B. The above are warranted to give satisfaction. CATALOGUES upon application.

Munro Nursery, Sible Hedingham, Essex.

WANTED, good CALCEOLARIA, PRIMULA, and CINERARIA SEEDS.

Address, A. B., 30, Eastbourne Terrace, W.

TO BE SOLD, a number of large Specimen Plants, duplicates in a fine collection, consisting of AZALEAS, IXORAS, FRANCISCEAS, ALLAMANDAS, and EPACRISES, 5 to 6 feet high, and 4 to 5 feet through. Well furnished, clean and healthy. Also a number of fine CAMELLIAS, 10 to 12 feet high.

Jones & Kellett, Nurserymen, Heaton Norris, near Manchester.

Paul's Nurseries, Waltham Cross.

WM. PAUL'S ROSES are NOW in FULL BLOOM. See Advertisement on p. 601.

New Roses of 1863.

E. G. HENDERSON and SON offer strong healthy plants of the most select kinds at 42s. per dozen. The Trade supplied in any quantity.

Wellington Nursery, St. John's Wood, London, N.W.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (Paul & Son).—Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7s. 6d. each, are now ready.

Old Cheshunt Nurseries, Herts.

New Roses for 1863.

BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.

St. John's Street Nursery, Colchester.

ROSES, ROSES, ROSES.—Fine Roses in Pots now ready for planting out. Strong Plants at 9s., 12s., to 18s. per dozen; 100 splendid Plants for 5l., including John Hopper, Reynolds Hole, Madame C. Wood, &c. 50 for 3l.

Henry Walton, Edge End, Marsden, Lancashire.

Roses.

J. and J. FRASER, Lea Bridge Road Nurseries, N.E., beg to announce that their ROSES are NOW in BLOOM, and will continue for three or four weeks. The Collection contains many new and fine varieties, and is well worth a visit.

The Nurseries are about five miles from London, and are easily reached by the Great Eastern Railway to Lea Bridge Station.

Roses and Rhododendrons.

JOHN PALMER and SON beg to intimate that their NEW DESCRIPTIVE CATALOGUE of ROSES and RHODODENDRONS is now ready, and may be had free on application.

J. P. & Son may observe that their Stock is very extensive, and includes all the newest in cultivation.

Annan, N.B.—June 27.

CALCEOLARIA, CINERARIA, PRIMULA, &c.—CALCEOLARIA, saved from carefully hybridised flowers, possessing all the recognised floral qualifications, viz., size, form, colours, and marking. Price, 1s. and 2s. 6d. per packet. CINERARIA, extra choice, 1s. per packet. PRIMULA SINENSIS FIMBRIATA, extra choice, 1s. and 2s. 6d. per packet. DRACÆNA (CORDYLINE) INDIVISA, from Mount Egmont, New Zealand; beautiful fine foliaged plant, 1s. and 2s. 6d. per packet.

Butler & McCulloch, Seed Merchants, Covent Garden Market, London, W.C.

SWEET WILLIAMS (Hunt's superb Varieties).—The Advertisers having saved a quantity of the above splendid strain, can supply it in 6d. and 1s. packets, or 2s. 6d. per oz., post free.

The Trade supplied.

E. P. Dixon & Sons, Seedsmen, Hull.

Anemone Seed.

JOHN HOADE and SON beg to offer NEW SEED of their splendid ANEMONES, with printed directions for sowing and after culture. Also their splendid strain of (Hunt's) SWEET WILLIAM. In packets, free by Post for 13 stamps each.

Finest Hybridised Calceolaria and Cineraria.

EDWARD TAYLOR offers the above, of quality which he guarantees to be unsurpassed, at 1s., 1s. 6d., and 2s. 6d. per packet. Free through the post.

The Nurseries, Malton, Yorkshire.—June 27.

DOBSON'S SPLENDID SEEDS.—See Advertisement in *Gardeners' Chronicle* of June 13, page 550.

J. Dobson & Sons, Seedsmen, Isleworth.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. Annual Sale exceeds 2000 packets. In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each.

J. Dobson & Sons, Seedsmen, Isleworth.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1s., 2s. 6d., and 5s.

J. Dobson & Sons, Seedsmen, Isleworth.

DOBSON'S PRIZE PRIMULA SINENSIS SEED. In sealed packets, 1s., 2s. 6d., and 5s.

J. Dobson & Sons, Seedsmen, Isleworth.

NEW CUCUMBERS, at 1s. per packet.

Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.

Barr & Sugden, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

Cabbage Plants.

W. VIRGO and SON beg to say they have a very large quantity of DRUMHEAD, RED and EARLY CABBAGE PLANTS to offer for Sale of the following sorts, at 3s. per 1000:—

EARLY YORK CABBAGE	EARLY NONPAREIL
,, BATTERSEA	DRUMHEAD
,, BARNES	

RED CABBAGE, 4s. p. 1000. All strong, healthy, and well rooted.

Wonersh Nursery, near Guildford, Surrey.

ROYAL HORTICULTURAL SOCIETY.

REMAINING ARRANGEMENTS for the EXHIBITIONS and MEETINGS in 1863,

TO BE HELD AT

THE GARDEN, SOUTH KENSINGTON, W.

WEDNESDAY, JULY 1	THIRD GREAT EXHIBITION—ROSES, NEW PLANTS, &c., at 1. Bands at 2. Floral Sub-Committee, at 10. Fruit Sub-Committee, at 10.
SATURDAY, JULY 4	Promenade. Band at 4.
TUESDAY, JULY 7	Floral Committee, at 12. Fruit Committee, at 12.
WEDNESDAY, JULY 8	Promenade. Band at 4.
SATURDAY, JULY 11	Promenade. Band at 4.
WEDNESDAY, JULY 15	Promenade. Band at 4.
SATURDAY, JULY 18	Promenade. Band at 4.
TUESDAY, JULY 21	Floral Committee, at 12 Fruit Committee, at 12.
WEDNESDAY, JULY 22	Promenade. Band at 4.
FRIDAY, JULY 24	Council, at 11. Meeting for Election of Fellows, at 2.
SATURDAY, JULY 25	Promenade. Band at 4.
WEDNESDAY, JULY 29	Promenade. Band at 4.
TUESDAY, AUGUST 4	Floral Committee, at 12. Fruit Committee, at 12.
TUESDAY, AUGUST 25	Floral Committee, at 12. Fruit Committee, at 12.
WEDNESDAY, SEPT. 9	AUTUMN FLOWER SHOW, at 1. Band at 2. Floral Committee, at 10. Fruit Committee, at 10.
TUESDAY, SEPT. 22	Floral Committee, at 12. Fruit Committee, at 12.
FRIDAY, OCT. 2	Council, at 11. Meeting for Election of Fellows, at 2.
TUESDAY, OCT. 6	Floral Committee, at 12. Fruit Committee, at 12.
FRIDAY, NOV. 6	Council, at 11.
TUESDAY, NOV. 10	Floral Committee, at 12. Fruit Committee, at 12.
FRIDAY, DEC. 4	Council, at 11.
TUESDAY, DEC. 8	Floral Committee, at 12. Fruit Committee, at 12.
FRIDAY, DEC. 18	Council, at 11.

ELECTION OF FELLOWS.

Gentlemen and Ladies wishing to become Fellows have to be proposed by some one already a Fellow, to whom they are personally known. The subscription is Two Guineas Entrance Fee, and Two Guineas or Four Guineas a year according to the privileges wished.

1. HORTICULTURAL EXHIBITIONS AND PROMENADES.

Sept. 9. AUTUMN FLOWER SHOW .. .. .. 2s. 6d. — Free to Fellows and the Transferable Cards, and also admission by payment at the door or by Tickets previously purchased.

2. GREAT EXHIBITIONS.

July 1. THIRD EXHIBITION AND GREAT ROSE SHOW .. .. .. — Free to Fellows and the Transferable Cards, and also admission by Tickets, price 5s. each, purchased previously to the day of the Show. If payment is made at the door, 7s. 6d. will be charged for each admission.

3. PROMENADES.

WEDNESDAY, July 8, 15, 22, 29 | SATURDAYS, June 27; July 4, 11, 18, 25.

Free to Fellows and the Transferable Cards, and also admission by payment at the door of 2s. 6d.

THIRD GREAT EXHIBITION—ROSES, NEW PLANTS, &c., WEDNESDAY, JULY 1.

WITH WHICH IS INCORPORATED

THE NATIONAL ROSE SHOW, REV. S. REYNOLDS HOLE, SECRETARY.

LIST OF PRIZES.

CUT ROSES.

CLASS.	1st Prize.	2nd Prize.	3rd Prize.	4th Prize.
	£ s.	£ s.	£ s.	£ s.
1. 96 Kinds. 1 truss of each .. .. (*Nurserymen*)	7 0	5 0	3 0	2 0
2. 48 Kinds. 3 trusses of each .. .. (*Nurserymen*)	4 0	3 0	2 0	1 0
3. 24 Kinds. 3 trusses of each .. .. (*Nurserymen*)	2 10	2 0	1 10	1 0
4. 24 Kinds. 1 truss of each .. .. (*Nurserymen*)	2 0	1 0	0 10	—
5. 48 Kinds. 1 truss of each .. .. (*Amateurs*)	6 0	4 0	3 0	2 0
6. 24 Kinds. 1 truss of each .. .. (*Amateurs*)	4 0	2 0	1 0	0 10
7. 18 Kinds. 1 truss of each .. .. (*Amateurs*)	3 0	1 10	1 0	—
8. 12 Kinds. 1 truss of each .. .. (*Amateurs*)	1 10	1 0	0 10	—
9. 18 New Roses of 1862 and 1863, single trusses, distinct kinds .. .. (*Open*)	2 0	1 10	1 0	0 15
10. 12 Trusses of any new kind of 1862 .. .. (*Open*)	1 10	1 0	0 10	—
11. 12 Trusses of any other kind .. .. .. (*Open*)	1 10	1 0	0 10	—
12. 12 Tea scented and Noisette Roses, single trusses (*Open*)	2 0	1 10	1 0	—
13. Decorated basket or vase of Roses .. .. (*Open*)	3 0	2 0	1 0	—
14. 6 Bouquets of Roses. 6 distinct kinds, 5 trusses to each bouquet. Each bouquet to be shown separately, in a Hyacinth glass, or somewhat similar stand .. .. (*Open*)	3 0	2 0	1 0	—
15. Collection of Moss Roses .. .. (*Open*)	2 0	1 0	0 10	—
16. Single truss of a Hybrid Perpetual Rose, with stem and leaves, to be shown in a Hyacinth glass, or somewhat similar stand .. .. .. (*Open*)	2 0	1 0	—	—
(PRIZES OFFERED BY MR. WILSON SAUNDERS, TREASURER.)				
7. 24 Roses, not less than 10 distinct kinds, in Pots not exceeding 8 inches in diameter .. .. (*Open*)	6 0	4 0	3 0	—
18. 20 New Roses, not less than 10 distinct kinds, in Pots not exceeding 8 inches in diameter .. (*Open*)	6 0	4 0	2 0	—
NOTE.—No variety which has been publicly sold for more than three years to be accounted new.				
N.B.—THE SAME REGULATIONS APPLY TO THE PLANTS AS IN MAY AND JUNE.				

PLANTS.

19. 12 Fine Foliaged and Variegated Plants (*Nurserymen*)	7 0	5 0	3 0	2 0
20. 10 Fine Foliaged and Variegated Plants (*Amateurs*)	7 0	5 0	3 0	2 0
21. 6 Fuchsias. Distinct kinds .. .. (*Nurserymen*)	4 0	3 0	2 0	—

CLASS.	1st Prize.	2d Prize.	3d Prize.	4th Prize.
	£ s.	£ s.	£ s.	£ s.
22. 6 Fuchsias. Distinct kinds .. .. (*Amateurs*)	5 0	4 0	3 0	—
Plants in Classes 21 and 22 to be grown in pots not exceeding 12 inches in diameter.				
23. 3 Standard Fuchsias. Distinct kinds .. .. (*Open*)	3 0	2 0	1 0	—
24. 12 Variegated Begonias. Distinct kinds .. (*Open*)	3 0	2 0	1 0	—
25. 9 Caladiums. Distinct kinds .. .. .. (*Open*)	5 0	4 0	3 0	—
26. 6 Tree Ferns. Duplicates admitted .. .. (*Open*)	5 0	4 0	3 0	—
27. 10 Exotic Ferns. Distinct kinds .. .. .. (*Open*)	4 0	3 0	2 0	—
28. 12 British or other hardy Ferns, rare and distinct kinds .. .. (*Open*	3 0	2 0	1 0	—
NOTE.—Ferns to be shown in pots not exceeding 15 inches in diameter.				
29. New or rare tender Plants in flower .. .. (*Open*)	S.K.	S.B.	B.	
30. New or rare tender Plants not in flower .. .. (*Open*)	S.K.	S.B.	B.	
31. New Orchids in flower .. .. (*Open*)	S.K.	S.B.	B.	
32. New or rare hardy Ornamental Plants .. .. (*Open*)	S.K.	S.B.	B.	
N.B.—Exhibitors may compete for all the Prizes in Classes 29, 30, 31, and 32. Plants exhibited at any Metropolitan Show in a previous season will not be eligible.				
33. Newly introduced Plants that have received special Recognition from the Floral Committee during 1860, 1861, and 1862 .. .. (*Open*)	*Six Certificates in Order of Merit.*			
34. Fern Case, filled with Ferns and Mosses only, for the Drawing-rooom .. .. (*Open*)	3 0	2 0	1 0	—
35. Wardian Cases arranged with Miscellaneous Plants for the Drawing-room .. .. (*Open*)	3 0	2 0	1 0	—
36. Window-boxes filled with Plants .. .. .. (*Open*)	2 0	1 0	0 10	—
37. Seedling Florists' Flowers and Garden Hybrids (*Open*)	*Certificates.*			
38. Plants in Pots arranged in stands for Drawing-room decoration .. .. (*Open*)	2 0	1 0	0 10	—
39. Three Hanging Baskets of Pendent Plants	5 0	2 0	—	—
(Prizes offered by Mr. Wilson Saunders, Treasurer.) **** The baskets will be suspended.				
40. 24 Cut Verbenas, 4 trusses of each .. .. (*Open*)	1 10	1 0	0 10	—
41. Miscellaneous .. .. (*Open*)	2 0	1 10	1 0	0 10
N.B.—Nothing can be admitted here which is provided for by any other Class.				

FRUIT.

NOTE.—A Dish of Grapes to consist of three Bunches; Peaches, Nectarines, and such like, 6 fruits of each; Plums, 9 Fruits.

CLASS	1st Prize.	2d Prize.	3d Prize.
	£ s.	£ s.	£ s.
A. Collection of Fruit. Fruiterers only .. .. .. (*Open*)	5 0	3 0	—
NOTE.—Fruiterers can only exhibit in Class A.			
B. Collection of Fruit. 8 dishes. Distinct	7 0	5 0	3 0
C. Pine Apple. Providence	2 0	1 10	1 0
D. Pine Apple. Queen	2 0	1 10	1 0
E. Pine Apple. Any other variety	2 0	1 10	1 0
F. Grapes. Collection of. Distinct kinds	5 0	3 0	2 0
G. Grapes. Black Hambro'. Single dish	3 0	2 0	1 0
H. Grapes. Dutch Hambro'. Single dish	3 0	2 0	1 0
I. Grapes. Frankenthal. Single dish	3 0	2 0	1 0
J. Grapes. Black. Any other variety. Single dish	3 0	2 0	1 0
K. Grapes. White Muscat of Alexandria. Single dish	3 0	2 0	1 0
L. Grapes. Muscat. Any other variety. Single dish	3 0	2 0	1 0
M. Grapes. White. Any other variety. Single dish	3 0	2 0	1 0
N. Peaches. 2 dishes. Distinct kinds	3 0	2 0	1 0
O. Peaches. Single dish	1 10	1 0	0 10
P. Nectarines. 2 dishes. Distinct kinds	3 0	2 0	1 0

CLASS	1st Prize.	2d Prize.	3d Prize.
	£ s.	£ s.	£ s.
Q. Nectarines. Single dish	1 10	1 0	0 10
R. Figs. Single dish. 12 fruits	1 0	0 15	0 10
S. Cherries. Single dish. 50 fruits	1 0	0 15	0 10
T. Plums. Single dish	1 0	0 15	0 10
U. Strawberries. 4 dishes. Distinct kinds	1 5	1 0	0 15
V. Collection of Strawberries, not less than 6 kinds	2 0	1 10	1 0
W. Melons. Green-fleshed	1 10	1 0	—
X. Melons. Scarlet-fleshed	1 10	1 0	—
NOTE.—Fruit shown in Classes W. and X. must be cut by the Judges.			
Y. Vines in Pots, bearing fruit. 4 plants	4 0	3 0	2 0
Z. ORCHARD-HOUSE FRUIT-TREES IN POTS, BEARING FRUIT. 6 Plants	4 0	3 0	2 0
N.B.—The Fruit on the trees in Class Z is not required to be ripe.			
MISCELLANEOUS. For Fruits not specially mentioned	2 0	1 10	1 0

ROYAL BOTANIC SOCIETY,

REGENT'S PARK.

LAST EXHIBITION OF PLANTS, FLOWERS, AND FRUIT,

WEDNESDAY, JUNE 24.

AWARDS OF THE JUDGES.

EXTRA GOLD MEDAL.

To Mr. F. Whitebread, Gr. to H. Colyer, Esq., Dartford, Kent, for 16 Stove and Greenhouse Plants
To Mr. G. Baker, Gr. to A. Bassett, Esq., Stamford Hill, for 20 Exotic Orchids

LARGE GOLD MEDAL.

To Mr. B. Peed, Gr. to Mrs. Tredwell, St. John's Lodge, Norwood, for 16 Stove and Greenhouse Plants
To Mr. W. Milford, Gr. to E. McMorland, Esq., Haverstock Hill, for 20 Exotic Orchids

MEDIUM GOLD MEDAL.

To Mr. J. Green, Gr. to Sir E. Antrobus, Bt., Cheam, Surrey, for 16 Stove and Greenhouse Plants
To Mr. T. Page, Gr. to W. Leaf, Esq., Park Hill, Streatham, for 20 Exotic Orchids
To Messrs. J. & J. Fraser, Nurserymen, Leyton, Essex, for 10 Stove and Greenhouse Plants
To Mr. H. Chilman, Gr. to Mrs. Smith, Ashtead House, Epsom, for 10 Stove and Greenhouse Plants
To Mr. C. Penny, Gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, for 12 Exotic Orchids

GOLD MEDAL.

To Mr. W. Cutbush, Nurseryman, Highgate, for 10 Stove and Greenhouse Plants
To Mr. A. Ingram, Gr. to J. J. Blandy, Esq., High Grove, Reading, Berks, for 10 Stove and Greenhouse Plants
To Messrs. T. Jackson & Son, Nurserymen, for 10 Cape Heaths
To Mr. B. Peed, Gr., for 8 Cape Heaths
To Messrs. A. Henderson & Co., Nurserymen, Edgeware Road, for 10 Foliage Plants
To Mr. J. May, Gr. to T. P. W. Butt, Esq., Arle Court, Cheltenham, for 10 Foliage Plants
To Mr. J. Woolley, Nurseryman, Cheshunt, Herts, for 8 Exotic Orchids
To Mr. B. Peed, Gr., for 12 Exotic Orchids
To Mr. C. Turner, Nurseryman, Slough, for 12 Pelargoniums
To Mr. W. Nye, Gr. to E. B. Foster, Esq., Clewer Manor, Windsor, Berks, for 10 Pelargoniums
To Mr. R. Ruffett, Gr. to Lord Palmerston, Brocket Hall, Herts, for Collection of Fruit

LARGE SILVER GILT MEDAL.

To Mr. R. Baxendine, Gr. to H. Smallpiece, Esq., Millmeads House, Guildford, Surrey, for 16 Stove and Greenhouse Plants
To Mr. O. Rhodes, Nurseryman, Sydenham Park, Kent, for 10 Stove and Greenhouse Plants
To Mr. J. Wheeler, Gr. to J. Phillpott, Esq., Stamford Hill, for 10 Stove and Greenhouse Plants
To Mr. T. Page, for 6 Stove and Greenhouse Plants
To Mr. O. Rhodes, for 10 Cape Heaths
To Mr. T. Page, Gr., for 8 Cape Heaths
To Mr. W. Bull, Nurseryman, Chelsea, for 10 Foliage Plants
To Mr. Taylor, Gr. to J. Yates, Esq., Lauderdale House, Highgate, for 10 Foliage Plants
To Mr. H. Chilman, Gr., for 12 Exotic Orchids
To Mr. E. Gardiner, Gr. to J. Statter, Esq., Oak Lodge, Clapham, for 6 Fuchsias
To Messrs. J. & J. Fraser, for 12 Pelargoniums
To Mr. J. Wiggins, Gr. to W. Bock, Esq., Worton Cottage, Isleworth, for 10 Pelargoniums
To Mr. W. Nye, Gr., for 6 Pelargoniums, large size
To Mr. D. Windsor, Gr. to Miss Crawley, Fitzroy Park, Highgate, for 6 Scarlet Pelargoniums
To Mr. A. Henderson, Gr. to Duke of Sutherland, Trentham, for Collection of Fruit
To Mr. G. Young, Gr. to W. H. Stone, Esq., Leigh Park, Havant, Herts, for Collection of Fruit
To Mr. W. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, for 3 dishes of Grapes

LARGE SILVER MEDAL.

To Mr. W. Kaile, Gr. to Earl Lovelace, East Horsley Towers, Ripley, Surrey, for 6 Stove and Greenhouse Plants
To Mr. H. Chilman, Gr., for 6 Cape Heaths
To Mr. J. Green, Gr., for 6 Exotic Orchids
To Messrs. J. & J. Fraser, for 6 Fancy Pelargoniums
To Mr. C. Turner, for 6 Fancy Pelargoniums
To Mr. T. Bailey, Gr. to T. T. Drake, Esq., Shardeloes, Amersham, Bucks, for 6 Fancy Pelargoniums
To Mr. C. Turner, for 6 Pelargoniums of 1861 or 1862
To Mr. Master, Gr. to Earl Macclesfield, Sherburn Castle, Oxon, for Collection of Fruit
To Mr. T. Young, Gr. to C. Bailey, Esq., M.P., Aberdare, Glamorgan, for Collection of Pine Apples
To Mr. Stone, Gr. to Mrs. Foster, Regent's Park, for White Vines in pots
To Mr. Stone, Gr., for Black Vines in pots

SILVER GILT MEDAL.

To Mr. J. Tegg, Gr. to Baron Hambro, Roehampton, Surrey, for 6 Stove and Greenhouse Plants
To Mr. J. Wheeler, Gr., for 8 Cape Heaths
To Mr. A. Ingram, Gr., for 6 Cape Heaths
To Mr. C. Hutt, Gr. to Miss B. Coutts, Holly Lodge, Highgate, for 10 Foliage Plants
To Mr. J. Smith, Gr. to the Duke of Northumberland, Syon House, Isleworth, for 10 Foliage Plants
To Mr. W. Bull, for 12 Exotic Ferns
To Mr. J. Wheeler, Gr., for 6 Exotic Orchids
To Mr. C. Turner, for 50 Cut Roses
To Mr. Cannell, Gr. to J. Jennings, Esq., Nightingale Lane, Clapham, for 6 Fuchsias
To Mr. J. Shrimpton, Gr. to A. T. Doxat, Esq., Putney Heath, for 6 Fancy Pelargoniums
To Mr. J. Morris, Gr. to Miss Crawshay, Claversham Park, Reading, for 25 Cut Roses
To Mr. Duke, Gr. to T. Duckworth, Esq., Finchley, for 6 Pelargoniums, scarlet
To Messrs. J. & J. Fraser, for 6 Pelargoniums of 1861 and 1862
To Mr. T. Bailey, Gr., for 4 Pine Apples
To Mr. A. Henderson, Gr., for 3 dishes Grapes
To Mr. Meredith, Vine Cottage, Liverpool, for 12 lb. Grapes
To Mr. Meredith, for Black Hamburgh Grapes
To Mr. W. Hill, Gr., for Black Prince Grapes
To Mr. C. Turner, for Muscat Grapes
To Mr. W. Hill, Gr., for dish of Grapes
To Mr. J. Dawson, Gr. to Earl Cowper, Panshanger, Herts, for 4 dishes Peaches and Nectarines

SILVER MEDAL.

To Mr. R. Baxendine, Gr., for 8 Cape Heaths
To Messrs. A. Henderson, for 12 Exotic Ferns
To Messrs. Paul & Son, Nurserymen, Cheshunt, Herts
To Mr. H. Treen, Nurseryman, Rugby, for 6 Fuchsias
To Mr. Mitchell, Piltdown Nurseries, Maresfield, Sussex, for 50 Cut Roses
To Messrs. Paul & Son, Old Nurseries, Cheshunt, for 50 Cut Roses
To Mr. T. Terry, Gr. to C. W. Giles Pulley, Youngsbury, Ware, Herts, for 25 Cut Roses
To Mr. J. Wiggins, Gr., for 6 Pelargoniums of 1861 and 1862
To Mr. Turnbull, Gr. to Duke of Marlboro, Blenheim, Woodstock, Oxon, for Collection of Fruit
To Mr. Francis, for 80 Roses in Pots
To Mr. Young, Gr. to W. H. Stone, Esq., for 4 Pine Apples
To J. H. Cawkell, Gr. to G. Riddell, Esq., Hermiston Grange, Rotherham, for Providence Pine Apple
To Mr. C. Smith, Gr. to A. Anderson, Esq., Norwood Grove, for 1 Queen Pine
To Mr. Chalmers, Gr. to Sir R. Peel, Drayton Manor, Tamworth, for 1 Queen Pine
To Mr. Young, Gr. to C. Bailey, Esq., for a Pine Apple
To Mr. W. Young, Gr., for Black Vines in Pots
To Mr. J. Humby, Gr. to W. Jupp, Esq., for Black Vines in Pots
To Mr. J. Hall, Gr., for 6 Queen Pine Apples
To Mr. G. Peachey, Gr. to R. Hole, Esq., Quarn Lodge, Loughboro, for 3 dishes Grapes
To Mr. H. Sawkins, Gr. to G. Brassey, Esq., Bramfield, for Black Hamburgh Grapes
To Mr. Turnbull, Gr., for dish of Muscats
To Mr. M. Henderson, for 1 dish Grapes
To Mr. G. Pechey, Gr., for dish of Grapes
To Mr. C. Turner, for 4 dishes Peaches and Nectarines
To Mr. Wills, Gr. to Sir P. Edgerton, Bt., Oulton Park, Cheshire, for 2 dishes Peaches

SMALL SILVER MEDAL.

To Mr. H. Lavey, Gr. to E. A. De Graves, Esq., Fetcham, Surrey, for 12 Exotic Ferns
To Mr. H. Lavey, Gr., for 12 British Ferns
To Messrs. A. Henderson, for 3 Ornamental Baskets
To Mr. J. Weston, Gr. to L. Martineau, Esq., Clapham Park, for 6 Fuchsias
To Mr. Perrin, Gr. to E. Humphreys, Esq., New Cross, Kent, for 6 Fuchsias
To Mr. Eason, Gr. to B. Drew, Esq., Streatham, for 6 Fancy Pelargoniums
To Mr. Hollumby, Nurseryman, Strawberry Hill, Tunbridge Wells, for 50 Cut Roses
To J. Hollingsworth, Esq., Turkey Mills, Maidstone, for 25 Cut Roses
To Mr. C. Turner, Slough, for 24 Cut Roses
To Mr. C. Turner, Slough, for 24 Pinks
To Messrs. Downie, Laird, & Laing, Forest Hill, for 36 Pansies
To Mr. W. Hale, Stoke Pogis, Bucks, for 12 Pinks
To Mr. B. S. Williams, Holloway, for Collection of Rare Plants
To Messrs. J. & J. Fraser, for Collection of Fruit Trees in pots
To Messrs. E. G. Henderson, Wellington Road, for 42 Variegated Ivies
To Mr. M. Henderson, Gr. to Sir G. Beaumont, Coleorton Hall, Ashby-de-la-Zouch, for Providence Pine Apple
To Mr. T. Young, Gr. to C. Bailey, Esq., for 1 Queen Pine
To Mr. R. Smith, Gr. to J. N. Walker, Esq., Caldeshon, Liverpool, for 1 Queen Pine
To Mr. G. Moore, Gr. to J. C. Wall, Esq., Redlund Lodge, Bristol, for 1 Queen Pine
To Mr. Speed, Gr. to Sir E. Walker, Berry Hill, near Mansfield, for 1 Queen Pine
To Mr. Tayler, Gr. to Mrs. M. Ingram, Temple Newsum, Leeds, for a Pine Apple
To Mr. J. Meredith, for a Green-fleshed Melon
To Mr. Chilman, Gr., for Scarlet-fleshed Melon
To Mr. M. Henderson, for a box of Nectarines
To Messrs. Lane & Son, Great Berkhamstead, for a Collection of Fruit Trees in pots
To Mr. J. R. Petch, Gr. to R. Burrow, Esq., for 3 dishes Grapes
To Mr. T. Bailey, Gr., for 12 lb. Grapes
To Mr. W. Hill, Gr., for 12 lb. Grapes
To Mr. M. Henderson, Gr., for Black Hamburgh Grapes
To Mr. M. Henderson, for Black Prince Grapes
To Mr. J. Embry, Gr. to — Moss, Esq., Chadwell Heath, for Muscat Grapes
To Mr. J. Drewett, Gr. to Mrs. Cubitt, Denby, Dorking, for dish of Grapes
To Mr. Knights, Gr. to C. W. Sampson, Esq., Worth, Sussex, for 4 dishes Peaches and Nectarines
To Mr. J. Ford, Gr. to Rev. T. D. Hudson, Frogmore Hall, for 2 dishes Peaches and Nectarines | tarines
To Mr. H. Constantine, Gr., for 2 dishes Peaches and Nec-
To Mr. J. Widdowson, Gr. to C. Barnes, Esq., Charleywood House, Rickmansworth, for 4 dishes Strawberries

BRONZE MEDAL.

To Mr. W. Young, Gr., for 12 Exotic Ferns
To Messrs. J. Ivery & Son, Nurserymen, for 12 British Ferns
To Messrs. Barr & Sugden, for 3 Ornamental Baskets
To Mr. Marcham, Gr. to E. Oates, Esq., Hanwell, for 25 cut Roses
To Messrs. Paul & Son, Old Nurseries, for 24 Cut Roses
To Mr. Hy. Hooper, Wickholm Hill, Bath, for 24 Pinks
To Mr. J. Fraser, Gr., Belmont, near Edinbro', for 36 Pansies
To Danl. Weymouth, Burlington, near Bristol, for 12 Pinks
To Mr. W. Parker, Cambridge Road, Walthamstow, for 12 Pinks
To Mr. C. Turner, for Bougainvillea glabra
To Mr. C. J. Perry, Castle Bromwich, for 24 varieties of Verbenas
To Mr. Lavey, Gr., for Collection of British Ferns
To Miss Clarkson, Avenue Road, St. John's Wood, for Collection of Hardy Ferns
To Mr. Muggleton, Gr. to W. Cubitt, Esq., Penton Lodge, Andover, for Providence Pine Apple
To Mr. J. Hall, Gr. to Earl Scarborough, Sandbeach Park, Yorkshire, for 1 Queen Pine
To Mr. G. Brown, Gr. to — Mackenzie, Esq., Henley-on-Thames, for 1 Queen Pine
To Mr. T. Bailey, Gr., for a Pine Apple
To Mr. J. Tegg, Gr., for Green-fleshed Melon
To Mr. Mounsden, Gr. to G. H. Ackers, Esq., Moreton House, Congleton, for Scarlet-fleshed Melon

BRONZE MEDAL.

To Mr. Chalmers, Gr., for a dish of Peaches
To Mr. C. Allen, Gr.
To Messrs. Jackson & Son, for 12 lb. Grapes
To Mr. J. Wallace, Gr. to G. Dyson, Esq., for 12 lb. Grapes
To Mr. G. Wallace, Gr. to J. Dickson, Esq., for Black Hamburgh Grapes
To Mr. C. Smith, Gr., for 1 dish Grapes
To Mr. H. Constantine, for 1 dish Grapes
To Mr. J. R. Petch, Gr., for 4 dishes Peaches and Nectarines
To Mr. S. Snow, Gr. to Countess Cowper, for 2 dishes Peaches and Nectarines
To Mr. J. Smith, Gr., for dish of Figs
To Mr. C. Turner, for dish of Cherries, Black
To Mr. S. Snow, Gr., for dish of Cherries, Black
To Mr. S. Snow, Gr., for dish of Cherries, White
To Mr. C. Turner, for 4 dishes Strawberries

CERTIFICATE.

To Miss Clarkson, 40, Avenue Road, for 12 British Ferns
To Mr. A. Carr, Gr. to B. Nokes, Esq., North Hill, Highgate for 24 Cut Roses
To Mr. Bragg, Nurseryman, Slough, for 24 Pinks
To Hy. Hooper, Bath, for 36 Pansies
To Mr. Bragg, for cut Sweet Williams
To Mr. Watson, Dunse, N. B., for 24 Pansies
To Barr & Sugden, Covent Garden, for a Wardian Case
To Barr & Sugden, for English Iris
To Barr & Sugden, for a Collection of Ixias
To Perkins & Son, for Cut Verbenas
To Mr. C. Turner, for Cut Verbenas
To Messrs. Ivery & Son, Dorking, for Collection of Hardy Ferns
To Mr. Lavey, for 6 Lycopodiums
To Messrs. Downie, Laird, & Laing, for 36 Fancy Pansies
To Mr. W. Davies, Gr. to W. Booker, Esq., Valindra House, Cardiff, for 1 Queen Pine
To Mr. W. Chapman, Gr. to J. Vickers, Esq., Hill House, Streatham, for 1 Queen Pine
To Mr. Hull, Gr., for 1 Queen Pine
To Mr. R. Smith, Gr. to J. N. Walker, Esq., for a Pine Apple
To Mr. J. Beck, Gr. to Ld. Broughton, for Green-fleshed Melon
To Mr. J. Pottle, Gr., for a Green-fleshed Melon
To Mr. G. Tivey, Gr. to L. Ames, Esq., The Hyde, St. Albans, for Scarlet-fleshed Melon
To Mr. T. Bailey, Gr., for 3 Dishes Grapes
To Mr. M. Henderson, Gr. for 12 lbs. Grapes
To Mr. J. R. Petch, Gr., for 12 lbs. Grapes
To Mr. C. Penny, Gr., for Black Hamburgh Grapes
To Mr. J. R. Petch, Gr. for Black Hamburgh Grapes
To Mr. T. Evans, Gr. to A. Jones, Esq., Conway, for Black Hamburgh Grapes
To Mr. M. Henderson, for dish of Grapes
To Mr. M. Henderson, Gr., for 2 dishes Peaches and Nectarines
To Mr. Penny, Gr. for 2 dishes Peaches and Nectarines
To Mr. C. Turner, for 2 dishes Peaches and Nectarines
To Mr. C. Allen, Gr., for 2 dishes Peaches and Nectarines
To Mr. Brown, Gr., for 2 dishes Peaches and Nectarines
To Mr. J. Pottle, Gr., for dish of Figs
To Mr. E. Robinson, Gr., for dish of Figs
To Mr. S. Snow, Gr., for dish of Figs
To Mr. Beck, Gr., for dish of Cherries (Black)
To Mr. Enstone, Gr., for dish of Cherries (White)
To Mr. Kaile, Gr., for 4 dishes Strawberries

FIRST-CLASS CERTIFICATES.

To Mr. T. Jackson, Kingston, for Ouvirandra Berneriana
To Messrs. H. Low & Co., Clapton Nurseries, for Trichomanes crispum var. rufum
To Messrs. H. Low & Co., for Dendrobium Parishii
To Messrs. H. Low & Co., for Dendrobium nodatum
To Messrs. Veitch & Co., for Retinospora pisifera
To Messrs. Veitch & Co., for Alsophila Tænitis denticulata
To Messrs. Veitch & Co., for Ligularia Kæmpferi argentea
To Messrs. Veitch & Co., for Pancratium amboinense
To Messrs. Veitch & Co., for Abies firma
To Messrs. Veitch & Co., for Cryptomeria sp.
To Messrs. Veitch & Co., for Acrophorus affinis
To Messrs. Veitch & Co., for Pteris serrulata
To Messrs. Veitch & Co., for Selliguea pothifolia
To Messrs. Veitch & Co., for Escallonia species
To Messrs. Veitch & Co., Cattleya hybrida.
To Mr. Nye, Gr. to E. B. Foster, Esq., Clewer Manor, for Seedling Scarlet Pelargonium Firefly
To Mr. Nye, Gr., for Seedling Pelargonium Clara
To. Mr. G. W. Hoyle, Gr., Reading, for Seedling Pelargonium Achilles
To Mr. C. Turner, for Seedling Pelargonium Mrs. Dorling
To Mr. C. Turner, for Seedling Pink Rev. G. Jeans
To Mr. C. Turner, for Seedling Pink Marion
To Mr. C. Turner, for Seedling Pink Lord Herbert
To Mr. C. J. Perry, Castle Bromwich, Birmingham, for Seedling Verbena Startler
To Mr. C. Howse, Chalvey, Bucks, for Seedling Pansy Black Model
To Mr. B. S. Williams, Holloway, for Cypripedium Stonei
To Mr. W. Bull, Nurseryman, King's Road, for Euterpe edulis
To Mr. W. Bull, for Latania Verschaffelti
To Mr. Standish, Ascot, for Deutzia crenata fl. pleno rubra
To Messrs. Ivery & Son, Dorking, for Athyrium Filix-fœmina glomeratum

SECOND-CLASS CERTIFICATES.

To Mr. Nye, Gr., for Seedling Pelargonium Rienzi
To Mr. Nye, for Seedling Pelargonium Victory
To Mr. C. Turner, Slough, for Seedling Pink Bertram
To Mr. C. Turner, for Seedling Pink Diadem
To Mr. C. Turner, for Seedling Pink Bridesmaid
To Mr. C. J. Perry, Castle Bromwich, Birmingham, for Seedling Verbena Purity
To Mr. C. J. Perry, for Seedling Verbena Rubens
To Messrs F. & A. Smith, Dulwich, for Petunia Mrs. Smith
To Mr. Standish, Ascot, for Lychnis Senno
Messrs. A. Henderson & Co., Pine Apple Place, for Gardenia florida japonica variegata

COMMENDATION.

To Mr. W. Bull, King's Road, Chelsea, for Broussonetia fol. argenteo-variegatis

FOWLER'S
STEAM PLOUGHING AND CULTIVATING PATENTS.

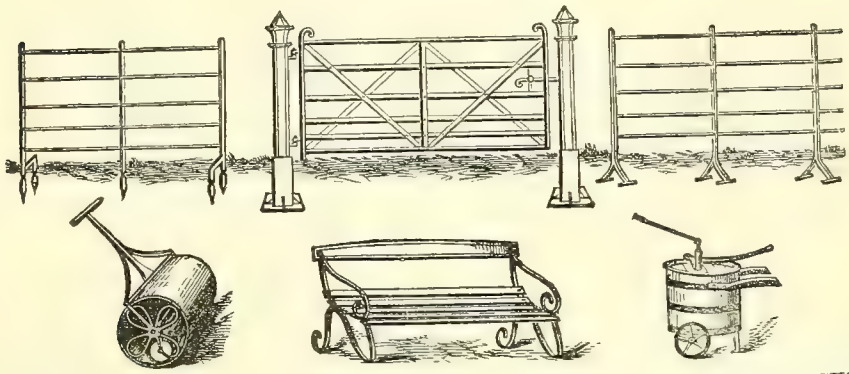
RANSOMES & SIMS, ORWELL WORKS, IPSWICH,

Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

COTTAM'S
CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED IN VARIOUS STYLES.



IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes. VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c. The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

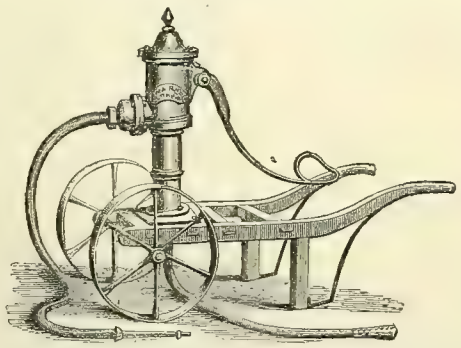
Illustrated CATALOGUES and DRAWINGS free on application to
COTTAM & CO., ENGINEERS and IRON FOUNDERS,
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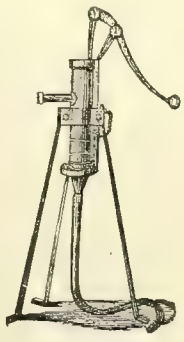
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35.



No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP.



No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2¼ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Sprender, and Suction Rose £5 15 0
1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4
2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0
3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET. When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

FLORAL DECORATIONS for the TABLE.—The PARAGON FLOWER TRAY, combining Growing Plants with Cut Flowers. No Drawing-room should be without one.

Prospectuses post free on application to GEORGE WEEKS, Patentee, Bromley, Kent.

PULHAM'S ROCKWORK FERNERIES, WATERFALLS, CAVES, BANKS of STREAMS and PONDS, executed in the only way it should be, *i.e.*, to imitate Natural ROCKS. Worked with pockets, for plenty of plants to grow about it.

References to works executed in 10 counties, some by the recommendation of W. B. THOMAS, Esq., and R. MARNOCK, Esq.

PATENT ELECTRICAL PLANT PROTECTOR, for the preservation of Plants, Flowers, and Shrubs from Snails, Worms, Slugs, &c.

This Protector being composed of zinc and copper, or of any two metals combined in such a manner as to form an electrical couple, constantly gives off a certain amount of electricity, rendering plants entirely secure from the attacks of Slugs, &c., as it has been discovered to be perfectly impossible for any insect or worm to crawl over a combination of these two metals.

Being formed in plain and ornamental designs for borders, beds, &c., it is applicable to all gardens, terraces, &c.; it is also made in the form of Plant Guards to encircle the stems.

Illustrated Lists of Prices post free on application to ROBERT B. LEE & CO., Sole Manufacturers of the Patent Plant Protector, 22, Market Place, Manchester.

The only Certain Remedy for Mildew.

JOHN BELL'S COMPOSITION for DESTROYING MILDEW on Vines, Peaches, Nectarines, Roses, and every other Plant subject to that pest, is proved to be the most efficacious that has ever been offered. Sold in Bottles at 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* each. A 1*s.* 6*d.* Bottle will make 12 gallons fit for use.

Seed Warehouse, 10 & 11, Exchange Street, Norwich.

PAGE'S BLIGHT COMPOSITION is unquestionably the most effective preparation extant.

Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use); 10 gallons and upwards carriage paid to London.

Can be obtained through the principal Nurserymen and Seedsmen in England.

A concise CATALOGUE of SEEDS will be forwarded upon application, and a Comparison of Prices with the most elaborate publications is solicited.

PAGE & TOOGOOD, Seed Merchants, Southampton.



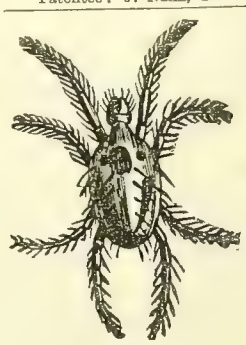
Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use.

This gets rid of smell, and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by
PRICE'S PATENT CANDLE CO. Limited.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; second quality, 6*s.* per ton; best quality, in bags, 16*s.* per ton; ditto 2*s.* 6*d.*, 2 cwt. bags, stamps, put on the South-Eastern Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.
Loaded Trucks can be sent on all the principal Railways.
W. SHORT, Salesman, &c., Reigate, Surrey.

TAN GRATIS, in the immediate neighbourhood of Covent Garden Market,

Apply at WILLIAM ESSEX & SON, 28, Stanhope Street, Clare Market, W.C.

TRADE

HALLETT'S PEDIGREE NURSERY WHEAT.

MARK.

This Wheat will be exhibited at the forthcoming International Agricultural Meetings at Odense, Denmark; Hamburg; and at the Worcester Meeting of the Royal Agricultural Society, upon the STAND of Messrs. THOS. GIBBS & Co., their Seedsmen.

"HOW OUR WHEAT CROPS MAY BE DOUBLED," and other Papers, forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq., F.L.S he Manor House, Brighton, Sussex.

Extra Strong Vines.

LUCOMBE, PINCE, AND CO., having devoted great attention to their GRAPE VINES, can this season offer a fine healthy Stock of strong Canes 6 to 10 feet long, of all the choicest sorts, fit for immediate planting, propagated from Eyes taken from their own experimental Vinery, which enables them to warrant each kind true to name.

Their experimental Vinery is now very finely in fruit, and they invite an inspection of it, and their stock of Vines.

LISTS of Sorts and Prices may be had on application.

Exeter Nursery, Exeter.

Superb New Fuchsias.

LUCOMBE, PINCE, AND CO. have much pleasure in announcing that their two *noble* Seedling FUCHSIAS,

THE EARL OF DEVON (PINCE'S), and
EXHIBITOR (PINCE'S)

are now beautifully in flower, and are admitted by all who see them to be the finest Fuchsias ever sent out. Extra Strong Plants, 10*s*. 6*d*. each.

For descriptions see GENERAL CATALOGUE, which may be had gratis on application.

Exeter Nursery, Exeter.

New Hybrid Mimulus.

E. G. HENDERSON AND SON having raised a collection of Seedling Varieties between M. CUPREUS and M. LUTEUS in its recent forms, respectfully offer a selection for Pot Culture and Flower Garden decoration. They unite the dwarf, compact, and profuse blooming habit of M. cupreus, with the large blossoms of M. luteus and rivularis, and are thus finely adopted for early spring bloom in the Greenhouse and Conservatory from February to May. The ground colours vary from bright sulphur-yellow to a rich golden lustre with coppery tints, elegantly marmorated with crimson bands, spots, and belts; some of the forms from Seed are also beautifully tipped or blotched with buff-like marks on the inner or outer margins.

2*s*. 6*d*. each; or a selection of 6 kinds, 12*s*. Seed for early sowing, to bloom in spring, 1*s*. and 2*s*. 6*d*. per packet.

Wellington Nursery, St. John's Wood, London, N.W.

GOLDEN VARIEGATED BALM for RIBBON GARDENS.—Why plant the Golden Chain Geranium, when an equal or finer effect can be produced by the Golden Balm? Being a Perennial and perfectly hardy it requires no replanting from year to year, and saves the trouble and expense of housing and propagating annually. The following is extracted from THE FLORAL WORLD for June, 1863, page 130.

"One of the most valuable plants ever seen or heard of for amateurs who are not made of money, is the Golden Balm. The leaves are richly and uniformly painted a deep orange yellow, with a narrow stripe of deep green up the centre, and are considerably larger than those of the Variegated Mint. Seen in a mass it is so fine that if I were to use the word 'gorgeous' I should scarcely exaggerate. If left in the ground it comes up the next year amazingly strong, and as true as from cuttings. I would match it against Golden Chain any day for effect," &c.

JAMES BACKHOUSE & SON can supply on the 1st of next month nice plants at 6*s*. per dozen, 42*s*. per 100, or at a still lower rate per 1000.

York Nurseries.—June 27.

WILLIAM ROLLISSON AND SONS beg to announce that they have a large Stock of the leading sorts of GRAPE VINES in Pots, consisting of Fruiting and other sized Plants, in fine health and vigorous growth. The prices are moderate, and may be obtained on application, post free.

W. R. & SONS beg also to state that their CATALOGUE of New, Beautiful, and Rare Plants for 1863, will be forwarded, on application, post free.

The Nurseries, Tooting, near London, S.

New Indian Azaleas, and Rhododendron Prince of Wales.

WILLIAM ROLLISSON AND SONS beg respectfully to announce that they have purchased the stock of Mr. TODMAN'S three NEW INDIAN AZALEAS, viz.:—

AZALEA PRINCESS of WALES
AZALEA LORD CANNING | AZALEA RIFLEMAN

three most beautiful and distinct varieties, of fine form and good substance. Healthy young plants of the above, grafted and from cuttings, will be ready for delivery next April at 21*s*. each.

WM. R. & SONS will send out at the same time their new SEEDLING RHODODENDRON, PRINCE of WALES, a cross between Rhododendron javanicum and Rhododendron retusum, a most beautiful variety. The flowers are a brilliant scarlet orange, fine dark green foliage, and of good habit. A most valuable acquisition as a greenhouse or conservatory plant. Healthy young plants, next April, at 31*s*. 6*d*. each.

The usual discount allowed to the Trade.

The Nurseries, Tooting, London, S.

Azalea indica, &c.

ROBERT PARKER begs to offer strong healthy GRAFTED PLANTS of all the leading varieties in cultivation, in selections, from 18*s*. per dozen.

ALOCASIA METALLICA, from 10*s*. 6*d*. to 105*s*. each.
CALADIUM, of sorts, from 18*s*. per dozen.
CENTAUREA ARGENTEA, 5*s*. each.
" RAGUSINA, 24*s* per dozen.

Priced and Descriptive CATALOGUES of PLANTS, &c., forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

New Bedding Scarlet Horse Shoe Geranium Adonis.

JOHN HALLY, NURSERYMAN, SEEDSMAN, and FLORIST, Blackheath, S.E., is now sending out the above. It is a distinct and good thing, and a great improvement on all existing Scarlets. Flowers of a bright, light, pure scarlet, with clear white eye, and of perfect shape. It was tried at Chiswick last year as a bedding plant, and is thus described by Mr. Moore in the Proceedings of the Royal Horticultural Society for March last. "ADONIS * * * (the highest mark of merit), HALLY. Moderately vigorous habit, leaves darkly zoned. Flowers scarlet, of excellent form, with white eye—considered to be a superior novelty." It received a Certificate of Merit at the Royal Botanic Society's Show in Regent's Park, on June 3; also a 1st Class Certificate at the Royal Horticultural Society's Show on the 17th. Plants, 5*s*. each, with the usual discount to the Trade.

The above is now flowering beautifully, bedded out in J. H.'s Nursery at Lee, notwithstanding the late storms, and fully establishes its character as a first-rate bedder; the bright Scarlet flowers contrasting well with the wide metallic-looking bronze zones of the leaves.



TURNIP and GRASS SEEDS for PRESENT SOWING.

As some kinds of Turnips are more suitable for late sowing than others, Messrs. SUTTON beg to recommend the undermentioned as the most desirable for that purpose.

Prices for the months of July and August, 1863:—

SUTTON'S EARLY SIX WEEKS TURNIP, the earliest Turnip known, 8*d*. per lb., or cheaper by the bushel.

SUTTON'S IMPERIAL GREEN GLOBE, very fine, best for the main crop, to be sown in July and August, for autumn and winter use, 8*d*. per lb., or cheaper by the bushel.

HARDY GREEN ROUND (Old Sort), to be sown in July and August for spring feeding, 8*d*. per lb. or cheaper by the bushel.

SUTTON'S GREEN-TOP YELLOW HYBRID.—A quick-growing and nutritious Turnip, an excellent substitute for Swedes, 10*d*. per lb., or cheaper by the bushel.

PERMANENT PASTURE GRASS SEEDS may be sown with safety until the end of August or first week of September, price 30*s*. per acre. Also

SUTTON'S RENOVATING MIXTURE of fine GRASS and CLOVER SEEDS for Improving Old Pastures. Price 9*d*. per lb., or 80*s*. per cwt. Sow 8 to 12 lb. per acre to Improve Old Pastures.

CATTLE CABBAGE (the heaviest of all Agricultural Crops), should be sown in July and August, for transplanting in October and in the Spring.

GARDEN and FLOWER SEEDS for AUTUMN SOWING.

Messrs. SUTTON and SONS have a good stock of fresh Seeds of the undermentioned kinds, which should be sown during the months of July, August, and September.

Cabbage, choice sorts	Radish, of sorts
Lettuce, do.	Spinach, do.
Onion, do.	Turnip, do.
Carrot, Early Horn	Cineraria, choice sorts
Cauliflower, choice sorts	Calceolaria, very fine
Endive, of sorts	Primula sinensis

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Prize Vegetables.—Plants of

JOHN CATTELL'S CABBAGES, KAILS, BROCCOLIES, &c., may be had at the following prices:—

	p. 1000
CABBAGE, Reliance and other kinds	*s*. *d*.
KAILS, of all the true kinds, as exhibited at the Great International Fruit, Gourd, and Vegetable Show of the Royal Horticultural Society, held at their Kensington Gardens in October, 1862, and to which the First Prize was awarded	4 0
BROCCOLIES, of all the leading kinds	5 0
CELERY, do. do. bedded plants ..	
RED CABBAGE	
VARIEGATED GARNISHING KAIL, 1*s*. per 100.	
DRUMHEAD CABBAGE, and the large kinds of SAVOYS	3 0

JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

Roses.

The ROSES at the WALTHAM CROSS NURSERIES are NOW in FULL BLOOM.

MR. WM. PAUL respectfully invites all lovers of this popular flower to visit and inspect them. THIRTEEN FIRST PRIZES and FIVE SECOND have been awarded to him for ROSES during the present year, and above 100,000 Plants are now growing in these Nurseries. Waltham Cross is 11 miles from London, and a first-class station on the Great Eastern Railway. It is also a delightful drive from the West-end of London, through Tottenham, or the Green Lanes and Enfield.

Entrance to the Nurseries from the platform, Waltham Station (for railway passengers only), and from the High Road, Waltham Cross, N.

"Old" Cheshunt Nurseries, Cheshunt, Herts.

PAUL AND SON have the pleasure to announce that their ROSES are NOW finely in BLOOM, and will continue so throughout July.

Their collection includes the new Roses as well as immense quantities of all the older kinds, and will (in its extent and choice they believe the largest in the kingdom) amply repay a visit.

The OLD Nurseries may be reached by trains from Bishopsgate to Cheshunt Station (within one mile of the nurseries), every one or two hours.

CATALOGUES on application.

H. LANE AND SON, The Nurseries, Great Berkhampstead, have great pleasure in announcing that their extensive and well assorted COLLECTION of ROSES is NOW in BLOOM.

The Home Nurseries are within five minutes' walk of the Station of the London and North Western Railway, where a great variety of Roses may be seen; also a large assortment of Coniferæ, American Plants, Indian Azaleas, &c. Their immense stock of Roses (Standards and Dwarfs) is principally at their Nurseries, about 2 miles distant, affording the opportunity of a delightful drive across a common, where they have American Plants in great variety. The finest lot of Araucarias in England, and Roses in vast quantities.

The Grounds are well worthy of personal inspection, which is earnestly requested.

Adiantum Feei.



MR. WILLIAM BULL begs to announce that he is now sending out for the first time this beautiful New Species from Guatemala.

This remarkably handsome Fern differs very materially from any other of its family, being of semi-scandent habit and Gleichenia-like growth. 63*s*. each.

W. B. can now supply the lovely PHALÆNOPSIS SCHILLERIANA, at 105*s*. each.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

The Gardeners' Chronicle.

SATURDAY, JUNE 27, 1863.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, July 1 { Royal Horticultural (Fruit & Floral Sub-Committees) at S. Kensington 10 A.M. / Third Great Exhibition—Roses, New Plants, &c., at S. Kensington, 1 P.M.

IN a very few days the GARDENERS' BENEVOLENT INSTITUTION enters upon its 25th year. Let us hope that its age is a sign of increasing vigour; for its career has been a worthy one, and far more really useful, we suspect, than some with greater fame. The anniversary meeting on the 3d of July of course will tell of its progress for the 12 past months. It should also record a great augmentation in its funds; for money is as much the sinews of charity as of war. We, therefore, most earnestly appeal to the good feeling of all true lovers of gardens to come forward on this occasion with such donations as they can afford, or at least with placing their names on the list of annual subscribers. It is but a guinea, a sum too small to be felt by the greater part of those who ought to be the most earnest supporters of the Charity. The Committee for 1861 said with too much truth that there were a great many men whose names ought to be on the list of subscribers, but who were not at that time to be found there. We cannot but express our extreme surprise that the same observation should still be justified. We could ourselves make out, on the instant, a long roll of gardeners and garden connections who stand aloof for no conceivable reason. For they are well to do, and can most certainly allege nothing against the management, which appears to us to be worthy of all praise. In 1861, out of the small income of 1000*l*., something like 830*l*. was devoted to absolute charity, the difference alone being consumed in inevitable expenses, which would not have been much more had the income been ten times as great.

It is most earnestly to be desired that the gardening world should, on the approaching anniversary, join together with all its heart and all its strength, to augment the resources of the Charity,

PARADISE AND VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

B. S. WILLIAMS

Invites inspection of his large and well assorted Collections of

EXOTIC ORCHIDS, FERNS AND LYCOPODS,

MISCELLANEOUS, STOVE AND GREENHOUSE PLANTS, VARIEGATED AND ORNAMENTAL FOLIAGED PLANTS.

AMONGST WHICH ARE SOME VERY FINE SPECIMENS.

Now ready, post free to all applicants,

A NEW GENERAL PLANT CATALOGUE,

Containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Herbaceous and Alpine Plants, Roses, Hardy Trees and Shrubs, Fruit Trees, &c.,

WITH A DESCRIPTIVE LIST OF NEW, BEAUTIFUL, AND RARE PLANTS.

and by "a long pull, a strong pull, and a pull all together," at once place it in such a position as will enable the Committee widely to extend the area of its benevolent exertions. A suggestion on this subject will be found in another column.

THE following interesting letter, the author of which is well known to many of our readers, as having presented the large flag-staff to the Botanic Gardens at Kew, has been forwarded to us by Messrs. STUART & MEIN, of Kelso, who have made arrangements for a large supply of seed of the Douglas Fir, since it appears that it is likely to replace profitably the Larch, which in so many districts is subject to rot. The letter, it should be observed, has already appeared in the Kelso Chronicle.

While on the subject of Conifers, we may notice, with reference to what appeared in this Journal, May 30, 1863, that two Wellingtonias, only three years from seed, produced female cones at the Marquis of HUNTLEY'S, near Peterborough, but as there were no male catkins there was no possibility of their being fertilised. No cones have appeared on the older plants.

It will also be interesting to our readers, in connection with the subject of Pine planting, to learn that in the Aberdeenshire Pine Forests, experience shows that new plantations of Scotch Fir will not succeed till the ground has become covered with Heath. Whether this is owing to the complete decay of the old roots, or to the disappearance after a time of noxious insects, is not certain. An extensive plantation at Aboyne which contained some thousand pounds' worth of valuable timber, which was completely destroyed some years ago by a violent gale, and of which many of the old uprooted stumps are still rotting on the surface, has gradually acquired a facing of Heath, and is now considered almost in a safe condition for fresh planting. It does not appear that any particular period is suffered to pass before a new plantation is made, the proper indication being the complete establishment of the Heath. For this information we are indebted to the noble proprietor, who has paid great attention to the growth of Conifers. *M. J. B.*

"The winter of 1861-62 was an unusually severe one. In the autumn of last year I endeavoured to procure seeds, principally of the Douglas Fir; but found them apparently in such an unhealthy state (the result, I supposed, of the severe winter), I gave the matter up, and cannot now obtain them before September or October. I could get you a large supply of seed of the Douglas Fir, which is for all practical purposes the timber of the country; it attains a great size, has the lightness of Pine, with the strength and durability of the Oak; it is the most plentiful of all the trees of this country, grows on any soil, and where there is little or no soil at all, but I have found the largest timber in the valleys, where the soil is generally good.

"Douglas Fir, better known in this part of the world as Oregon Yellow Pine, is generally from 200 to 300 feet high, frequently 150 to the first branch; has a corrugated bark on a full-grown tree 6 or 7 inches thick; sap, 2 to 3 inches thick; roots spreading over a large extent of ground, but has no tap root, or root growing from the centre downwards. The largest tree that I have had cut was one measuring 9 feet at the butt, including the bark, and 306 feet from the butt to the top; it squared, clear of sap, at 45 feet from butt, 40 inches; it was cut at 130 feet, this being the proportion of length to diameter of a mast, for which purpose I sent it to England in 1858. One great advantage the Douglas Pine (so generally called in England) has over all other trees is the very little taper. I have seen trees that at first sight you could not tell the top from the butt—I mean trees cut for masts of 100 to 130 feet long. For all purposes this is an advantage, inasmuch as the tree contains more timber, but for ship masts this is an invaluable quality. I have recently built a vessel of 200 tons, and no other timber but Douglas Pine was used in her construction.

"Spruce is plentiful, but less abundant than Douglas Pine; it is closer grained, and I think better timber than the same wood of Canada; grows to about 200 feet high, and fully as great diameter as the Douglas Pine; the roots furnish knees for ship-building [purposes I consider equal to Oak.

"Hemlock is not held in much repute here. I have only seen it used for wharf piles. It is plentiful and grows to a great height—150 to 200 feet.

"White Pine is very scarce here, consequently very valuable, as it is almost the only wood we have fit for joiners' fine purposes. It is about 200 feet high; 40 inches is a large tree.

"Red Cedar has generally a short trunk, with large spreading branches. When it can be found clear of knots, it is as valuable as White Pine. The Indians make their canoes from this tree—they hollow it out; many of them convey 50 to 60 men, and the most perfect models of the clipper I have seen. I consider the Cedar the most ornamental tree I have met with. It is generally found near the water, or, I should rather say, grows larger near the water, and on swampy ground; but I have found it in the interior of this island, near the lakes on the side of the rising ground. Here it grows tall like the White Pine, and seldom exceeds 30 inches in diameter; 60 to 80 feet clear of knots, and not hollow, as generally is the larger short-trunked tree of the same name.

"White Cedar, or Cypress.—It is difficult to distinguish this tree from the common Cedar by the leaf. It is not plentiful, and is, I think, the most beautiful close-grained wood I have seen.

"Maple is a very useful and ornamental wood, but not very abundant."

THE metropolitan summer shows follow in such quick succession that it is no wonder we find many of the subjects which have been already shown at one place repeated in another. This remark applies as much to novelties as to other classes of subjects, and was fully borne out by the experience of last Wednesday at the Regent's Park Show, where, amongst the prominent plants which were "new" there, we found the following which we have already alluded to as having been shown elsewhere:—Cypripedium Stonei, Lychnis Senno, and its variety striata; Deutzia crenata flore-pleno; Dendrobium Parishii and nodatum; Pancratium amboinense, the broad-leaved sort mentioned at p. 507; Abies firma, Selliguea pothifolia, Alsophila Tænitis denticulata, Lomaria gibba, Trichomanes crispum pilosum, Athyrium Filix-fœmina glomeratum, Ouvirandra Berneriana, Rhynchospermum jasminoides variegatum, Miconia pulverulenta, which had previously borne the provisional name of argyroneura. Besides these, the most remarkable new plant in flower was one of especial interest, a further instalment of Messrs. VEITCH'S batch of hybrid Orchids, shown as Cattleya hybrida, but to which, as the name is not sufficiently distinctive from other hybrid Cattleyas raised and shown by them, we venture to apply the joint titles of its parents, thus: C. Aclandi-Loddigesii. It was a very beautiful plant, of dwarf habit, with short stems, supporting a pair of oblong fleshy leaves, and two-flowered racemes of large finely coloured flowers. The rosy-tinted sepals and petals were spotted over with crimson; the broad column buried between the erect side lobes of the lip was of a deep rose, these lateral lobes themselves being more widely separated at the front than at the back, rosy outwardly and creamy yellow at the tip; while the middle lobe was roundish heart-shaped with a sort of claw, and so much recurved at the edge as to give it a cuneately-flabellate appearance, the colour being creamy yellow at the hinder part and rosy marked with deeper rose veins in front. Another plant in flower, likely to be of much interest and utility as a hardy evergreen shrub, was a species of Escallonia from Chili, shown by Messrs. VEITCH. It was peculiar in habit, having an erect stem of some 3 feet high, from which were several branches directed perpendicularly downwards, these being thickly furnished with short pendent twigs which were loaded with flowers and flower-buds, set off by the numerous small neat elliptic serrated glossy dark green leaves. The flowers themselves were of a deep red, comparable in size with those of E. rubra, but like the foliage, having a thicker and bulkier aspect than in that species. The habit was very singular, and will make this a telling plant for rock shrubberies.

Of additional novelties not in flower some of the most interesting were also shown by Messrs. VEITCH, among whose fine exhibition of rarities we may especially mention a Pteris, an Acrophorus, a Ligularia, and a Japanese Cryptomeria. The first was Pteris serrulata cristata, which had the narrow ribbon-like divisions which make up the fronds of this common but most elegant and useful of Ferns, changed by being each tipped with a distinct and well-marked cristate tuft; this will be a gem for Fern cases. The second, Acrophorus affinis, was a large-growing and very handsome shining triangular-ovate decompound-fronded light-green Fern of paradoxical character, being light and dense at the same time—light from the multiplied division of its parts, and dense from their overlying each other. It forms a thick creeping rhizome, which habit makes it an admirable basket Fern, among those of ample size. The Ligularia Kæmpferi argentea was a variegated herbaceous perennial from Japan; it had now acquired large roundish leaves marbled with gray in the green parts, edged boldly and irregularly with cream colour, sometimes to the depth of 1 or 2 inches. The Cryptomeria was a free-growing tree of distinct aspect, evergreen, thickly clothed with spray, which plentifully bore the long needle-shaped spreading leaves. A small plant of a Japanese Gardenia florida variegata from Messrs. ARTHUR HENDERSON & Co. gave promise of being a very handsome variegated shrub, its leaves being sinuately variegated in bold patches with cream-colour. Then Mr. BULL had a couple of good-looking Palms: Latania Verschaffeltii, apparently a small grower, with smooth orange-tinted stipites distinctly edged with deeper orange, and cuneately flabellate laminæ cut into slender narrow segments; and Euterpe edulis, a freer-growing pinnated species with linear attenuate leaflets; together with Broussonetia papyrifera fol. argenteo-variegatis, a hardy deciduous tree with well-marked variegated leaves.

There were a few noteworthy seedling flowers, especially among Pelargoniums, but not in quality generally equal to the batch of last season. Firefly from the Clewer stock, which had a first-class award, was a remarkably clear orange-scarlet with small dark spots, and a bluish tint in the centre; Clara, also from Clewer, and a first-class flower, was carmine slightly blotched and veined with crimson, with white centre and dark clouded top petals. HOYLE'S Achilles was very bright looking, its top petals maroon with a narrow edge of crimson, its lower crimson clouded and thickly veined with maroon, its centre remarkably clear white. A Fancy called Mrs. Dorling, from Slough, was distinct in character, a clear pale magenta rose with the extreme edge light, the lower petals veined with the same colour and slightly spotted, the centre being white. Among bright crimson quinquevulnerous varieties Mr. BULL'S Princeps, and Mr. BURLEY'S Fireball were of very showy character, but not up to the florist's standard in technical properties. They will, however, be admirable decorative plants. Finally Mimulus "Rosa," from Messrs. E. G. HENDERSON, one of the new hybrid batch, deserves mention as one of the most distinct of the set, having the two upper and two lateral lobes almost wholly of the coppery red which prevails in these flowers, but with a horse-shoe mark of yellow about the centre of the margin, cutting off a small roundish spot of the dark colour, the lowermost segment being yellow with a central and two lateral bars of the coppery-red hue.

—— THERE are indications that our BRITISH TRICHOMANES RADICANS, once, as it appears on sufficiently good authority, found in the north of England, but in later times only holding a place in the Flora of the United Kingdom, in virtue of its occurrence in the sister isle, may again establish its claim to rank amongst genuine English plants. Some time ago we received a specimen from Mr. WALTER CROUCH, a gardener who had resided in the neighbourhood, and who had gathered it in one of the fells in the Rydal district of Westmoreland. The habitat was described as being on wet rocks, and the plant was stated to occupy a space of about a square yard, not all in one mass but scattered. Of the identity of the plant, and the fact of its discovery, there is no doubt; but we have been informed by some of our Westmoreland pteridological friends, that there exists a suspicion of its having been planted by some other hand some 10 years before. Even if this be so, it is an interesting fact that it should have survived and so far established itself as to have passed unscathed through some of our more severe winters. This fact alone is a confirmation, if any were needed, of the probability of its former occurrence in Yorkshire.

We learn further, from Mr. J. F. ROWBOTHAM, of Manchester, that he has more recently found the Trichomanes in North Wales, in a part of the Snowdon range. This is a most interesting new habitat. The precise locality it would be imprudent to indicate more exactly, lest the information should lead to the eradication of the plant. The fronds were, as we learn, abundant and remarkably fine; one of them, with which Mr. ROWBOTHAM has kindly favoured us, is quite equal to the bulk of the Irish specimens in luxuriance of development, the frond having the broad or triangular-ovate outline of the more perfect examples of this Fern, and measuring about 7 inches across the widest part, and nearly 10 inches in length, in addition to a stipes of 8 inches long. This specimen is not fertile. Another frond in Mr. ROWBOTHAM'S possession is rather larger, having a total length of about 22 inches. Mr. ROWBOTHAM describes the habitat as agreeing in all its circumstances with those referred to in Mr. MOORE'S Fern books, and the plant as only varying from the figure in the *Octavo Nature-Printed British Ferns* of that author, in being of larger growth. "I found it," he writes, "in a large hole formed by fallen rocks alongside a cascade of water; and admission to this hole, which is about 5 feet high by 4 feet wide, is obstructed after a depth of about 3 feet by this Fern falling from the rocks at the top, and growing out of the sides in the form of a beautiful curtain down which the water is constantly trickling; the whole having much the appearance of a crystal screen." What a treat to a Fern-seeker, to come on such a sight as this! So unwilling was the finder in this case to disturb the singular and beautiful effect, that he was careful to take with him only an offshoot or two from the principal network of rhizomes, "out of which the innumerable fronds were projected." To so much, as the discoverer, he was fairly entitled, but that will be a sacrilegious hand that does aught beyond this, to destroy so unexpected an habitat for so rare a plant.

—— Our Fern Flora is extending itself not only in the shape of almost endless varieties, which Fern-hunters continue to seek out and multiply, but occasionally in a more distinct form. The latest acquisition of this kind is recorded in the *Journal of Botany*, where Mr. Moore tells us that the *Asplenium Serpentini* of Tausch, a plant which is identified with the *A. obtusum* of Willdenow, and the *A. Adiantum-nigrum* var. *obtusum* of authors, has been gathered in the North of Scotland, on serpentine rocks at Cabrach,

on the borders of Banffshire and Aberdeenshire, by Mr. A. Christie. The plant appears to be plentiful in some parts of the European continent, and its addition to our island Flora is a fact of considerable interest. The north of Scotland should, one would think, if thoroughly ransacked, yield other European forms not yet known as British.

ANCIENT FRUIT LORE.—No. III.

(*Continued from p. 485*)

¶ *The order of gathering all other stone-fruite.*

Concerning Apricocks, Peaches, Peare-plums, Damsons, bullase, &c. for the knowledge of gathering of them, they are al much of a nature or qualitie. For although, in each kinde of them, some ripen sooner then other some, euen vpon one and the same tree, yet as soone as they are ready to bee gathered, some wil drop off, and the rest remaine hard: yet then are those hard ones also in their full time to be gathered. Then must you place your ladder as before is mentioned hauing a speciall care that you hurt not the tree: also obseruing that it be dry weather, and the morning deaw past. For, being gathered wet, they wil both loose their perfect colour, and become mildewed. Then take your kibsey (such as hath been shewed how to gather cherries withall) and taking also a hooke in your hand to pull those boughes that you cannot reach, haue ready by you a siue, basket or some such thing, that when your kibsey is full, you may poure them thereinto. In the bottom whereof, lay nettles newly gathered, and with the like couer them on the top: which will hasten the ripening of them, make them keepe their colour, and cause them to eate as kindly as if they had been fully ripened vpon the tree.

But if you let them hang vpon the tree vntil they be full ripe, they will drop off, for the most part: and the rest that hang, will quickly rot after that they be gathered, and doe little seruice, except they bee presently vsed.

Three things to be considered, in gathering of Peares.

There are diuers wayes to bee vsed in gathering of Peares: as followeth. First, it is to be noted whether they grow in a yard, garden, or backe side, being no more then will serue for a mans owne spending. Secondlie, whether there bee any such that will be solde, and so to be conueighed any farre way, eyther by land or water. Thirdly, whether they be Peares that will serue for the Apothecary to preserue, and so to be gathered accordingly.

How to know whether Peares be ready to be gathered.

Now, for the gathering of such as be for a mans own vse, no doubt but euery man hauing seene the naturall ripening of his owne fruite, by long experience knoweth their time of gathering: but for the better instruction of those that newly come vnto a place, being not acquainted with the naturall ripening of the Peares therein growing, I wil hereafter expresse how you shall know when their due time of gathering is.

Some, or rather most men, vse not to gather their Peares vntill they all be ready to drop off: and, hanging so long vpon the tree, assoone as they be gathered, and layed one vpon another, they will be in a great heate, and presently rot. But if you haue Peares that you make any account of, that are summer Peares, and for your owne vse, assoone as you see them turne their colour, or any part of them ripe (which wil not be al at one time, although growing vpon one tree, & of one sort) still gather the ripest, & so by degrees at your pleasure.

But, being gathered when they be almost ripe (that is, when onely some of them begin to fall) they will naturally ripen of themselues. And whereas the Peares that are gathered, beeing through ripe, doe soone rot one another, through their ouer great heat: on the other side, the temperate heate of those that bee gathered before they bee all full ripe, doth cause them to ripen one another.

But for Peares that are to be carryed any farre way, they must be gathered by another obseruation: that is, pull one off the tree, and cut it in the middle, and if you finde that it be hollow about the coare, & the kernell to haue roome, as it were loosening within the coare, although none of the Peares on that tree be so ripe as to drop off, then it hath his full growth, and (although not then ful ripe, and ready to be eaten) may be gathered. And hauing layde then vpon an heape, or one vpon an other, as they must be in the carriage, they will in a very short time ripen, & eate as kindly as if they had been gathered ripe off the tree; but being gathered before this time, that is, before the time that they begin to be hollow about the coare, they will wither, shrinke, & eate tough, more like in taste to a peece of the tree than, a Peare.

¶ *Diuers wayes vsed in gathering of Peares.*

Know also that all kinde of Peares & Apples are by diuers men, diuers waies vsed to bee handled, euen in the very manner of gathering them. As, some vse to clime vp without a ladder, hauing a basket to gather in, with a lyne tyed to it, that thereby it may be let downe when it is full, and another vpon the grownd to receiue it, he in the tree still holding the one end of the cord or lyne, that when the basket is emptied, he may draw it vp againe: which way is not to be commended.

Other some with a ladder doe get vp, hauing a basket in their hands, and euery time that it is full they bring it downe, powring the fruite into some other bigger basket, not regarding either how they handle the fruit in the powring, nor how rudely & boysterously they place their ladder, to the hurt of the tree. Other some beate them downe with poles, breaking both the tree and fruite.

These two last sort of gatherers haue little respect what fruite may grow upon the trees for the time ensuing, in regard of their rough handling of the tree, in breaking the boughes, sprigs and bruts whereupon fruite might growe. Onely for the time present is all their care: some being but tenants at will, or other carelesse and ignorant persons being put in trust to gather.

But for the setting of your ladder to the tree, the best way is, to place it easily: For, laying of it hard on, will spoile & fell a great many of the fruite, as far as the ladder toucheth. Also being firmely placed, it is both good for the gatherers owne safegard, and for the safegard of the tree. But, being carelesse and rash in placing thereof vpon the weake boughes & branches, the weight of the gatherer to the treeward, will breake the weake branches & endanger the gatherer.

ON THE EXTERMINATION OF THE BLACK FLY,

THRIPS HÆMORRHOIDALIS AND THRIPS DRACÆNÆ, BY FUMIGATION WITH PERSIAN INSECT POWDER.

By C. Bouché, Inspector of the Royal Botanic Garden, Berlin.

It is well known to gardeners how troublesome these insects are, and what injury they cause to plants, as a few of them will, in a very few days, destroy a leaf; and unhappily but few gardening establishments are free from them, as they are constantly introduced with new plants from other gardens. Although these insects are not indigenous with us, and their native country is not known, yet they occur under the greatest variety of circumstances in greenhouses, hotbeds, and dwelling-houses, and even in the open air; for we find them propagating equally rapidly in the warmest and coldest, dryest and dampest places. In the warm summer of 1858-59 the one species, T. hæmorrhoidalis, which seems to be the more hardy, had spread itself in incredible numbers, even over the Horse Chesnut trees. How is it possible, therefore, under such circumstances, to protect the greenhouse plants which may be standing in the open air? The increase of the black fly is especially favoured by a dry atmosphere. If the air is constantly moist it is not so reproductive, and it is probably attributable chiefly to this cause that there is scarcely ever a trace of this blight in the new Palm-house of our Botanic Garden. At first, when the large plants were transferred from the old dark dry house, and it was impossible to destroy all the eggs and broods by washing, the fly increased enormously in number, as all the eggs were quickly hatched by the warm damp air, but the new generations appeared to be weakened by it, and after some months there was a striking diminution, assisted no doubt by active destruction, so that the plants are now nearly freed from them. No fumigation has yet been attempted in the Palm-house.

The so-called "black fly" consists of two entirely different species. Without going into an accurate description of them, I may remark that they are easily distinguished. Thrips hæmorrhoidalis is deep black, has a reddish-brown body, and the wings pointed with white; Thrips Dracænæ on the other hand is of a dull black colour, and has white striped wings. The first lives on a great variety of plants, while the latter confines itself itself chiefly to monocotyledonous plants, such as Cordyline and some Palms. The extermination of these troublesome insects is much more difficult than that of shield and other lice, as they can easily hop or fly away when the plant is touched, so that washing can only get rid of the eggs and the quite young brood. A long known method is that of fumigating with tobacco, but if this is really to be of any use it must be many times repeated, which every gardener dreads, as, if it is strong enough to kill the insects, many plants will be injured by it, as the young leaves are often singed or checked in their growth, especially the Ferns, and the older leaves or fronds are apt to drop off. For some time fumigation with Persian powder has been recommended, but I did not expect much good to result from its use, and could not, after some unsuccessful experiments, convince myself of its efficacy.

In the beginning of 1861 the increase of the black fly, especially in the Fern-house, appeared very threatening, and I found that fumigation was necessary. As there were many Ferns with immature fronds, which would certainly suffer from repeated applications of tobacco-smoke, I made another trial with the insect powder. About 4 oz. of the powder were strewed gradually on a hot tinned iron plate, and constantly stirred up that it might be thoroughly burnt. The smoke produced by it was not very perceptible, the atmosphere only appeared a little hazy. To give a notion of the quantity likely to be required, I may mention that the Fern-house contained a space of about 8100 cubic feet. In order to convince myself of the efficacy of the remedy, I had placed several of the smaller Ferns, as Pteris collina, P. geraniifolia, P. pedata, and Gymnogramma pedata, which were much loaded with the fly, on a sheet of paper, on which, after a lapse of 20 minutes, almost all the insects had fallen down. As there were still signs of life, and I wished to ascertain whether they were only stupified, and might not later recover and resume their former position, I collected them and shut them up in a large glass in which some fronds were standing in water, but not one of them was able to climb up to them. In 6 or 8 hours I examined the insects, and found them all dead. The fumigation was repeated at intervals of two days, in order to destroy any further brood which might be hatched, and I had the happiness during three or four months to see my plants entirely freed from this blight. The plants had not suffered in the least, and even the most delicate fronds of Adiantum expanded themselves without any check.

An advantage of this method of fumigation is that one is not troubled with the bad smell which tobacco leaves behind it, that the fumigation may be undertaken at any time of day, and that the house need not continue closed so long. The apparatus used by me consists of a coal pan of 1 cubic foot with a grating at the bottom, 1 foot 3 inches high, in order that the air may get to it underneath and keep the coals alight; on the grating 2 or 3 inches of wood ashes, and over these a piece of tinned iron 10 inches square, on which to strew the powder. In order that the smoke might be well distributed over the house, I caused the pan to be carried about during the burning of the powder. Although the powder is dearer than Tobacco, yet the cost of fumigation is not much greater, but the chief advantage is that the plants do not suffer. *From the Proceedings of the Royal Berlin Horticultural Society.*

[The plant producing the Persian powder, Pyrethrum carneum, has recently been cultivated both here and on the continent as a show plant, and it bids fair to rival the China Aster, as there are now upwards of 40 varieties, varying from the purest white to the deepest crimson; and the plant flowers freely all the summer.]

STRAY NOTES ABOUT FLOWERS.—No. I.

It is hard work to write every week about a window garden. The window space has limits, and repetition is bad; and then people grow high-minded, and want to get out of doors! So I have begged leave to write only stray notes about flower plans, such as will leave me free to pick up any pretty things that seem to be at all likely to interest other people.

Beginning at this time of year, when fires have just about vanished, what can one describe better than ways of converting suddenly bare grates into knots of flowers?

Everybody of course knows the white, and gold, and brown wicker-work, which makes such pretty ornaments for dinner-tables and drawing-rooms, and which are sold in variety at Hammond's, in Baker Street. Well, there is now a screen made of this same wicker-work, over and around which creepers entwine themselves well, and on the foot of which is a flower knot.

The chimney-piece is fitted with a board that curves out prettily, and that fits upon the marble slab by means of a slide beneath it, preventing the necessity of using nails or screws. This board is edged with basket-work, about 3 inches high, in a pretty light kind of pattern, and a tin-lining case inside prevents any damp escaping. The wide low box thus formed is charming for growing plants. The shallow depth I think is in itself a good thing, for it constrains us to use shallow pots, and a group of Begonias with red blossoms, and Ivy, and many climbers, and even Lilies and Cape bulbs, and such like, do beautifully thus. For the edges we may have too the Ferns, which are lovely everywhere, and creeping pink Geraniums drooping down from the box they grow in, and the green Lycopodium and the blue Lobelia, and the Isolepis to cover the surface, which, hanging from the edge, makes really a charming chimney-piece.

Beneath this we have a screen—a sort of folding frame, bending in the middle, so as to project more or less at will, and fitted at the foot with baskets and tins for plants. These baskets, like the upper one, will hold at least two rows placed zig-zag, the back one of course containing the climbers, which will train up the wires or wicker supports provided for them, just as the "German Ivy" does in the German rooms.

In summer plants do very well, even placed thus round the fire-place, which is naturally itself further from the window than under common circumstances we should like to place our plants. Still there are a great many that thrive well now without sunshine, and which even grow much better when shaded from its strong glare. Perhaps nearly all green things do so, and what plan could be prettier than that of a ferny fringe all along the chimney piece, reflected perhaps in the mirror, and relieved by three tall white flowers—a white Petunia here, a white Tea Rose there—even far commoner things, Stocks, Candytufts, &c. For splendour, some white Gloxinias, whose exquisite purple tubes and the tinge of pink on whose lips are reflected beautifully amidst the bright green foliage; and then once more, say three tall Arums, which will come in unavoidably into every group proposed by me, and

which are sure in themselves to make any arrangement elegant.

Now, plants such as those I have named here, are what may grow in any cottage; the Gloxinias only require to have some heat, and no amateur who has once tried them will fail to try them again; they grow so quickly, they look so fresh and velvety, if not forced on too fast, and their lovely bell-shaped flowers are so perfect in form and colour. Except magnificent Orchids, I know not any flowers that vie with the Gloxinias, and to raise such seedlings, for those who can wait a year or two, would really be a delightful and most satisfactory sort of amusement.

The plants require root-heat, but this may be very mild; they are the more beautiful in the leaf the more air they get, but of course when thus cool and airy they do not flower so quickly; they like a good deal of water at the roots, but not poured over the leaves; and lastly, they grow rampantly in a mixture of sand and cocoa-fibre refuse, the pots being drained with charcoal.

The heated plant-cases seem to me to be the very best place for them; they start at the warm end, and grow on in the cooler part. And I believe they never do anywhere as they do in a north aspect—I mean in a plant case, but where the window is all day open, or where the case itself stands outside.

Larger plants such as Roses, Carnations, Fuchsias, Geraniums, Myrtles, Heliotropes, India-rubber plant, Cissus, and Japan Lilies are in their several seasons well fitted to form the flower clump, grounded with English Mosses and interspersed with pots of Mignonette or Lobelias, Lilies of the Valley, and other low-growing things.

Before the Chrysanthemums come in, our fender screens are all gone, and during the gay bulb season even the chimney-piece basket does best as a window ledge.

The baskets and screens are made in any style, some being white and gold, others brown and gold, others again all brown, which I think looks so well with flowers, and others again there are that resemble the black bog oak, so popular now in Paris. *E. A. M.*

Home Correspondence.

The Gardeners' Benevolent Institution.—On behalf of this Charity, which you have already so gallantly upheld, will you add one other little kindness. At the anniversary dinner we are always short of fruit; we have in presents sufficient for the high table and part of the middle one, but to make the dessert complete, we are obliged to subscribe for extra fruit out of our own pockets. This, under the circumstances, I contend ought not to be. Our dinner is distinguished above others for the beauty of its floral decorations, which are all gifts and loans; and for its dessert, which the guests suppose to be all gifts too, as, considering whom the Charity is to benefit, it ought to be. I think if it were known throughout England, that on these occasions we are in want, the rich would not grudge us a dish of Grapes, or a Pine, or a dish of Peaches. *Experto Crede Roberto.*

The Lily of the Valley.—No plant exhibited at our spring meetings has attracted a greater share of admiration of late years than the Lily of the Valley. Its flowers have been produced in greater profusion, and the spikes have been much larger in size than we have been accustomed to see them in former years. On all sides we have heard questions asked like the following:—"How are such results obtained?—is it by superior cultivation, or are the larger and stronger flowering roots selected and put together just before the flowering season? or is it a different variety from our English favourite?" There is one question more which, had it been answered, would, I think, have explained the matter, and it is this: "Are the roots grown in England or are they imported ones?" When over in Holland in April last I observed the plant extensively cultivated in the gardens about Haarlem, and in appearance it resembled very closely those exhibited at our spring exhibitions. The light sandy soil about Haarlem, which suits so many kinds of bulbs and tubers so well, appears to be highly favourable to the growth of the Lily of the Valley. If those plants seen at our exhibitions were grown from imported roots, and of this I have no doubt, the circumstance will readily account for their high quality as well as for their late flowering property, which so puzzled, for a time, the talented writer of the article on Indoor Gardening, published in these columns a few weeks ago. *R. F.*

Opening of Gardens in Ireland to the Public on Sunday.—Allow me to offer you my grateful thanks for the sterling way in which you have treated the opening of the Edinburgh Botanic Gardens on Sundays. Sensible people are now pretty well able to judge what value to put upon the cheap way parliamentary demagogues try to benefit the so-called working classes. If Dr. Moore would favour us with his own views as to what good the opening of the Gardens at Glasnevin has done for the working classes, they would, I apprehend, moderate the demands of those who would destroy the greatest blessing that the working man can claim. A few years ago Colonel Tighe was induced to open his beautiful gardens on Sunday, but instead of that sweet recreation which they were to afford, they have become a centre of vice. Parties arrived reeling drunk when the houses used to be open, and the plants were knocked about the passages in a manner which no one would believe without having seen it; plants were pulled out of the beds (and would be now except for rigid watching), and I was abused to the extreme for not allowing dancing to take place on the lawn. On Mondays the seats have to be cleaned of porter; in short everything wears a worse aspect than that of any tea garden I ever saw. This is my unvarnished experience in a country private residence; and apart from a higher principle, which Lord Palmerston so well advanced, it is enough to show how much the opening of such gardens contributes to the elevation of the working classes. *Chas. M'Donald, Woodstock Park.*

Fibres.—I enclose for your inspection a specimen of the fibre and seeds of a plant which I have just received from a correspondent at Brisbane, and which it is thought there may be made use of as a substitute for cotton, for which London houses are advertising in the Brisbane papers. My friend has unfortunately neglected to send me a piece of the plant, but in appearance he compares it to a Privet. It grows there on the poorest soils, and can be cut 9 months out of the 12. It produces a small yellow flower, and if hardy enough to stand our climate would, he says, make capital game cover. After it is cut it is tied in bundles and soaked in water for about a fortnight. The fibre then easily separates from the wood; this fibre can be obtained as much as five feet long. Of the present specimen my correspondent says:—"The sample I now enclose is a very bad one, for several reasons. It is not a good colour, in consequence of my being obliged to take it out of the water six or seven days too soon to catch this mail, and there are several uneven places in it for the same reason; I can send samples 4 or 5 feet long if necessary." Would you kindly favour me with your opinion on this material, and also can you give me any idea as to the kind of plant it is produced by? *A. E. McM., Hertford.* [It is probably some Malvaceous plant.]

Vine Pruning.—As you seem to throw some doubt upon the ability of Mr. Thomson, in your late review of his work on the Vine, to use a pair of French nippers with greater ease and advantage in pruning than the common knife, and having myself failed to find a place where I could purchase a good and useful pair, more particularly for Roses and Gooseberries, perhaps Mr. Thomson would, if you requested it, state what sort his are, and where they may be obtained, so that the public may put them to the test. *Vine.*

Felling Scotch Fir.—Would any of your Arboricultural Correspondents who have practical experience in the matter have the kindness to inform me whether the timber of the Scotch Fir (an Evergreen) is deteriorated by being felled in the summer, as Elm, Ash, or any other deciduous tree. I have heard that the turpentine, which is more plentiful in the summer, tends to preserve the wood. I have several Scotch Firs which it would be more convenient for me to fell at present, but I do not wish to sacrifice their timber. *N.*

Roses.—Neither the old nor new Roses have as yet turned out well here this season. Many usually good have green eyes. This is owing to high culture counteracted by the checks of cold nights, cutting winds, and a long succession of hoar frosts. No doubt, as the season advances, they will do better. A tremendous hailstorm has cut the leaves of almost everything into little strips. I am ruined for a while. The lightning split a house near here in twain, and the current of air knocked the cottager off his chair, without further injury. The wind was S.W., but the upper current was N.E., so that the hail shot over my S.W. wall, and missed my noble crop of Peaches and their beautiful foliage. These are the only things intact here. My fine crops of Strawberries are much violated; the Rose plants are stripped, and little bits are cut out of the Apples by the angular stones, some of which were an inch long. Let me turn from this havoc, and "beguile me of my labours," by giving an account:—1stly, of *John Hopper.*—Mr. Ward, the raiser, kindly sent me three plants of this seedling on a briar or Manetti, and on its own roots. They were three famous specimens. I planted the two former under a north wall, and the latter under a south wall. They are equally good in appearance. The south wall one has produced two fine Roses. The finest bloom measured a trifle under 4 inches. The outline was a circle; the volume thick; the petals substantial and well disposed; the form expanded without showing an eye; the colour roseate crimson with silvery lilacy undersides to the petals; the habit is erect, the neck stem being very stiff and thick; the foliage first-rate, and set on in the right place. Every shoot on all three plants has a Rose bud. It is altogether a first-class show Rose, and will be a good traveller. The blooms under the west wall will be far finer. We have now these three first-class English seedlings, viz., Devoniensis, John Hopper, and Beauty of Waltham: the last a Rose not yet sufficiently known. 2dly, *François Lacharme.*—This has not yet bloomed here; I saw it at Mr. Gill's nurseries at Blandford. It was very beautiful and first-class, of fine form, and in colour brilliant scarlety crimson. It stood between Senateur Vaisse (the premier Rose here), and La Brillante, a true and brilliant scarlet, but not full. Close to these was the most beautiful bloom of John Hopper (tin-shaded) that I have yet seen—a most perfect show flower, quite a circle, thick in volume, and about 4½ ins. over. This bloom was in all respects better than mine. I cannot of course say what these Roses are as to continuity and full blooming; I can only endorse them as far as I have said. They are worthy, as blooms, to go with S. Vaisse and Duc de Rohan, which is globular, and the clearest and finest colour of high coloured Roses. The growth of the plants and form of the buds of the following portend good things, viz.: Professor Koch and M. Julie Daran. If their buds open well they must be good. They are strong growers, budded from their base to their tops. In due time I shall describe them. I omitted in my last to recommend Monsieur de Montigny, the Duchess of Norfolk, and Madame Boutin, the last a Rose that will be heard more of. The growth and foliage is first-rate; the colour is clear brilliant crimson; the form is compact and full to the centre. 3rdly. *Maurice Bernardin.*—This Rose is now in blossom. It is globular, most beautiful and perfect in form, disposition and colour, deep clear vermilion. Mr. W. Paul, Mr. Laing of Stanstead, and Mr. J. Keynes, are quite right about it. It is difficult to say which is the superior, this or Duc de Rohan. I have 11 plants, side by side, of Prince Camille de Rohan in bloom; it is also a most beautiful Rose, velvety scarletized maroon. The colours of these three are wonderful and distinct. 4thly. *M. Ernest Dreol.*—This is out to-day. It is a well-formed Rose, like, but very superior to Alexandrine Bachmeteff. It will, I think, show a golden eye. It is of far greater substance and volume and of better form than the sort just named. It is a strong grower, hardy, and an abundant bearer. 5thly. *Rubens.*—Is excellent in all respects. The outer petals are creamy white, the centre is "aurore." It is a strong growing hardy Rose, and continuous bloomer. Its form is globular; the petals are deep, well serrated, and smooth edged. I fancy it is in the "way" of Comte de Paris. 6. *Achievements.*—I sent 70 Roses to Kensington for the memorial opening day. Mr. Eyles placed them in two handsome vases on a dais on either side of the Prince and Princess, where they received the addresses. Having received an Oxford invite to repeat this achievement, I have sent 84 Roses to the Master of Trinity for a similar purpose. The foliage is sadly smashed by hail. The Roses are Solfaterre, La Boule d'Or, Triomphe de Rennes, Mdlle. Aristide, and Gloire de Dijon. These are yellow. The others are coloured. Senateur Vaisse, Princess Mathilde, Duc de Cazes, Duchess of Norfolk, Baronne Prevost, Anna Alexieff, Paxton, M. Laffay, Louise Carique, La Ville de Bruxelles, Prince Camille de Rohan, M. Zoutman, Frederick the Second, Evêque de Nismes, L'Elégante, Proserpine, General Jacqueminot, and two large first-class blooms of M. Masson. I sent some Roses to S. Kensington, when the lamented Prince opened the Exhibition.

"All Britons on his honoured name will dwell,
Who lived so briefly—lived and died so well."

W. F. Radclyffe, Rushton, June 15.

Picea and Abies.—In "Notices to Correspondents" of your Number of the 13th inst., the question is asked, in what consists the distinction between Picea and Abies? The difference may be briefly stated thus: Picea: Scales of the cones deciduous; nuts coriaceous, the wings adhering. Abies: Scales of the cones persistent; nuts with a thin, hard shell; wings deciduous. The cones of Picea are upright and lateral; those of Abies pendent and terminal. The seeds of Picea and Abies are distinguishable at sight; those of Picea being wedge-shaped, and those of Abies oval, *giving a little latitude* to these terms of form. I have not examined any cones of Tsuga, and therefore cannot say anything about them. *Jas. Backhouse, York.* [We asked for a distinction, and you send a difference.]

Conifers: Picea.—A remark in your answers to correspondents (p. 536) induces me to inquire how long the group Picea has been so unanimously condemned by scientific botanists? I know nothing of the nurseryman to whose work you allude, nor of the particulars of his transgression; but, if he has simply adopted Picea as a group, it appears to me that you have been somewhat too hasty in your remarks. For my part, I must confess that I have always been impressed with the idea that modern botanists were tolerably unanimous in recognising Picea as a group distinguishable from Abies, and that by characters, structurally, of as great if not greater importance than those which serve for the separation of the latter group from Pinus; and reference to the works of those who have written upon Coniferæ will show that this impression is correct. It is very true that some term the group a genus, while others regard both it and Abies as nothing more than sections of Pinus; but that is merely a trifling quibble about words, not things, and is of no importance, for in either case it, as well as the allied groups, can be looked upon only as an artificial group of man's contrivance. Endlicher, in his "Synopsis Coniferarum," makes it a section of Pinus, but adopts for it the name Abies, instead of Picea, which he applies to what others call Abies, following Link in this respect, andrestoring to the original trees the names given them by Pliny and other ancient writers. His characters, however, are quite sufficient for the separation of the group, either as a section or as a genus, and, as he makes it of equal importance with Abies, which you yourself recognise as a genus, I think it is rather hard to find fault with a nurseryman for going just a step beyond you and adopting both groups. With respect to the value of the characters I will only remark that, in all the numerous specimens that have come under my notice, I have never found any difficulty in referring them to one or other of the groups Pinus, Abies, and Picea, by the cones alone. I shall likewise be glad if you can inform me why so many authors persist in stating the cones of Cedars to be persistent. Only a few months ago (see Proc. R. Hort. Soc. ii. 651) Mr. A. Murray, relying upon Endlicher and other systematists, took upon himself to correct (?) Mr. Fortune, who in writing about the fine tree to which Gordon has given the dreadful name, Pseudo-larix, said "it has deciduous scales like the Cedar." Had Mr. M., before penning his correction

taken a walk under any old Cedar tree bearing ripe cones, he would have at once seen that Mr. Fortune was quite correct. My own observations tell me that the cones of C. Libani, grown in this country, when quite ripe fall to pieces as readily as those of any Picea, and at certain seasons the ground beneath the trees is strewn with loose scales. The same is also the case with C. Deodara and C. atlantica; and ripe cones of those species cannot well be brought to this country without being first firmly secured with string or wire. *Kidger.* [No doubt the Cedar has deciduous scales. As to Pseudo-larix, the illiterate authors of such names are beneath criticism.]

Alocasia (Caladium) Veitchii and Lowii.—In the May number of the "Botanical Magazine" Sir W. Hooker pronounces these two plants to be Alocasias; let us therefore hope that his decision will disqualify them from being exhibited as Caladiums at the ensuing show of the Royal Horticultural Society. In the coming contest for Caladiums on the 1st inst. I hope to see these noble plants entered as Alocasias, and only fair types of the genus Caladium admitted to competition. *A Working Exhibitor.* [We entirely differ from you. Alocasia, Colocasia, Caladium, Remusatia, Gonatanthus, Peltandra, and some others, are all Caladiums in *Horticultural* exhibitions, although Botanists distinguish them. Why, there are but four Caladiums altogether. How is an exhibition to be made with such materials only? Unscientific persons should not meddle with scientific questions.]

Societies.

Royal Botanic: *June 24 (Third Great Exhibition).*—This was in all respects equal to its predecessors. Stove and Greenhouse plants were contributed in large quantities; Orchids and Pelargoniums were in excellent condition; New Plants, of which separate notice is taken elsewhere, were plentiful; of Ferns there were some fine collections; and finally, there was, as generally happens at the last show of the season here, a great quantity of Fruit, among which some of the Grapes were magnificent.

Stove and Greenhouse Plants.—Conspicuous among these was a brilliant Kalosanthes from Messrs. Fraser named puniceus, a kind admired by everybody for the gaiety of its compact heads of numerous crimson-scarlet flowers. The same collection also contained a handsome red and white flowered Kalosanthes, named Angelina; and a well bloomed plant of Phœnocoma proliferum. Mr. Ingram, gr. to J. J. Blandy, Esq., of Reading, furnished a beautiful example of the old fashioned, but when well flowered, as this was, brilliant Cape Bulb, Hæmanthus puniceus, with thirteen heads of rich scarlet blossoms on it. From Mr. Baxendine came Bignonia grandiflora, in the shape of a pyramidal bush; and, judging from the size and beauty of its round orange-scarlet blooms, it appears to be a plant which under skilful management would be by no means unsuitable for purposes of exhibition. Among other plants to which it may be useful to direct attention were Relhania squarrosa, a seldom seen bright yellow-flowered hardy greenhouse plant, from Mr. Cutbush; fine specimens of Ixoras, from Mr. Whitbread and Mr. Peed; and Pleroma elegans, beautifully in blossom, from various growers.

Awards.—16: 1st, Mr. Whitbread; 2d, Mr. Peed; 3d, Mr. Green; 4th, Mr Baxendine. 10: 1st, Messrs. Fraser; 2d, Mr. Cutbush; 3d, Mr. Rhodes. 10 (Amateurs): 1st, Mr. Chilman; 2d, Mr. Ingram; 3d, Mr. Wheeler. 6: 1st, Mr. Page; 2d, Mr. Kaile; 3d, Mr. Tegg.

Fine-foliaged Plants.—Among these were some magnificent specimens, most of which have, however, been shown before, and have already been described in our columns. Though not exactly shown under this head, Mr. Williams had a handsome group of ornamental leaved plants; and from Messrs. Veitch came charming examples of Alocasia zebrina, the Variegated Coltsfoot, Ligularia Kæmpferi argentea, and other new Japanese plants; Sphærogyne latifolia, Miconia pulverulenta and various Ferns, intermixed with flowering plants, among which must not be forgotten Mimulus cupreus, a profuse-blooming kind of very considerable beauty, and Mr. Young, R. Smith, Moore, and Speed, one of the parents of the new spotted hybrids which have appeared this season.

Awards.—10: 1st, Mr. May; 2d, Mr. Taylor; 3d, Mr. Smith and Mr. Hutt. (Nurserymen): 1st, Messrs. A. Henderson & Co.; 2d, Mr. Bull.

Ferns.—For some of the more shady nooks these formed suitable decorations, their bright green fronds serving to refresh and invigorate the eye fatigued by looking at more gaudy subjects. Some very good Lycopods were also exhibited.

Awards.—12: 1st, Mr. Bull; 2d, Messrs. A. Henderson; 3d, Mr. Lavey; 4th, Mr. Young. (British): 1st, Mr. Lavey; 2d, Messrs. Ivery; 3d, Miss Clarkson.

Hanging Baskets.—From Messrs. A. Henderson came a charming set of three of these, filled with Cyperus alternifolius, variegated-leaved Begonias, Caladiums, prominent among which was the little white marbled-leaved argyrites, intermixed with the red Amaranthus melancholicus ruber, and edged with Isolepis gracilis. Than these nothing in their way could be handsomer, and they received, as they deserved, universal admiration. From Messrs. Barr & Sugden also came one or two good baskets of this description, a Fern case, and some ornamental garden pottery.

Orchids.—These did not differ materially from what were shown the other day before the Royal Horticultural Society at South Kensington. In the collections from Mr. Baker and Mr. Penny were many extremely well grown plants, among which the pretty terrestrial Orchis foliosa continues to make its appearance, as do also some magnificent specimens of the better kinds of Bearded Lady's Slippers, the bright yellow Oncidium sessile, and the rare Aerides Schröderi and Lindleyanum. Of Cattleya Mossiæ, and Lælia purpurata, too, there were numerous noble examples.

Awards.—20: 1st, Mr. Baker; 2d, Mr. Milford; 3d, Mr. Page. 12: 1st, Mr. Penny; 2d, Mr. Peed; 3d, Mr. Chilman. 8: 1st, Mr. Woolley. 6: 1st, Mr. Green; 2d, Mr. Wheeler.

Heaths.—Of these, some good plants were shown, especially of obbata, and the different varieties of tricolor and ventricosa.

Awards.—10: 1st, Messrs. Jackson; 2d, Mr. Rhodes. (Amateurs) 8: 1st, Mr. Peed; 2d, Mr. Page; 3d, Mr. Wheeler; 4th, Mr. Baxendine. 6: 1st, Mr. Chilman; 2d, Mr. Ingram.

Pelargoniums.—Magnificent plants of the ordinary varieties of these were again shown by Mr. Nye, whose plant of Desdemona could not measure less than 4 feet through; and in the Fancy class Mr. Bailey, of Shardeloes, furnished equally admirable specimens. Among nurserymen Mr. Turner deservedly stood first. Of Scarlet varieties, some two collections of which were shown, we noticed Brilliant, Perfection, British Flag, Tom Thumb, Pre-eminent, Commander-in-Chief, Flower of the Day, and Christine. These being dwarf, well-grown and flowered, made a brilliant display. Other sorts differed little from those named the other day at p. 579.

Awards.—10: 1st, Mr. Nye; 2d, Mr. Wiggins. 12: 1st, Mr. Turner; 2d, Messrs. Fraser. 6: 1st, Mr. Nye. Fancies.—6: 1st, Mr. Bailey, Mr. Turner, and Messrs. Fraser; 2d, Mr. Shrimpton; 3d, Mr. Eason. Scarlet.—6: 1st, Mr. Windsor; 2d, Mr. Drake. 6: New.—1st, Mr. Turner; 2d, Messrs. Fraser; 3d, Mr. Wiggins.

Fuchsias.—Of these one or two collections were shown, which we hope to see again in better condition. They consisted wholly of old plants, on which the blooms, though plentiful, are never so large or fine as on young specimens. Those, however, to which the 1st and 2d prizes were given, were in every way good examples of skilful cultivation.

Awards.—6: 1st, Mr. Gardener; 2d, Mr. Cannell; 3d, Mr. Treen; 4th, Mr. Weston.

Roses.—With the exception of a very fine group of dwarf well-bloomed plants in pots from Mr. Francis, these were all shown in a cut state. Among the latter Mr. Turner had 50 admirable trusses, conspicuous among which were Vicomte, Vizier, Mrs. Charles Wood, Louis the Fourteenth, Baron Gonella, and Senateur Vaisse. From Mr. Mitchell came the largest and best blooms of Madame Rivers that have been seen for many a day, and scarcely less beautiful were his General Jacqueminot, Jules Margottin, and M. Hector Jacquin. In the collection from Messrs. Paul & Son were very fine examples of the golden yellow Madame Falcot; also beautiful blooms of Gloire de Dijon, Alphonse Damazin, and François Lacharme. From Mr. Hollamby were Comtesse Cecile de Chabrillant in good condition, and Louis the Fourteenth.

Awards.—50: 1st, Mr. Turner; 2d, Mr. Mitchell and Messrs. Paul & Son; 3d, Mr. Hollamby. 25: 1st, Mr. Morris; 2d, Mr. Terry; 3d, Mr. Hollingsworth. 24: 1st, Mr. Turner; 2d, Messrs. Paul & Son; 3d, Mr. Marcham.

Miscellaneous Subjects.—Among these were some nice stands of cut Verbenas from Mr. Perry and Mr. Perkins, especially those from Mr. Perry, among which Startler, crimson with circular bold white eye; Alexandra, marbled crimson and white; Mauve Queen and Purity were conspicuous. Various Fancy Pansies were furnished by Messrs. Downie Laird & Laing, who also showed their beautiful new Larkspur, with prominent white eye; and their dwarf Calceolaria named Cloth of Gold. Some beautiful Sweet Williams came from Mr. Bragg, of Slough. Pinks, large and finely laced, from Mr. Turner. Messrs. E. G. Henderson had an interesting collection of Ivies of different kinds.

Collections of Fruit.—These consisted of some good Pine Apples, Grapes, Peaches, and Nectarines, Cherries, Melons, and Strawberries. Among the last was a seedling from Mr. Ruffett, gr. to Lord Palmerston, which deserves notice. It is large and handsome, and seems worthy of further trial.

Awards.—1st, Mr. Ruffett; 2d, Mr. Henderson and Mr. Young; 3d, Mr. Masters; 4th, Mr. Turnbull.

Pine Apples.—Among these were some good Queens, some of which weighed nearly 5 lb., Cayennes and Providences; of the last, one, which was over ripe, weighed 11 lb. 6 oz.

Awards.—Collection: 1st, Mr. Young. 4: 1st, Mr. Bailey; 2d, Mr. Young. Providence: 1st, Mr. Cawkell: 2d, Mr. M. Henderson; 3d, Mr. Mugleton. Queens: 1st, Mr. Smith and Mr. Chalmers; 2d, Mr. Brown and Mr. Hall. Other Sorts: 1st, Mr. Young; 2d, Mr. Taylor; 3d, Mr. Bailey; 4th, Mr. Smith.

Grapes.—In the class of 12 lbs., Mr. Meredith, of The Vineyard, Garston, near Liverpool, sent a basket of magnificent Black Hamburghs, large both in bunch and berry, well coloured, and finely covered with bloom. The same excellent Grape grower had also three bunches unsurpassed for size and beauty. The lion of the day, however, as far as Grape growing was concerned, was a dish of Black Prince, consisting of three bunches, from Mr. Hill, gr. to R. Sneyd, Esq., Keele Hall, Staffordshire. Of these the centre cluster measured 18 inches in length, and weighed nearly 4 lbs. In comparison with this bunch all others of the same class were literally dwarfs. Nor were the Black Hamburghs from Mr. Hill easily matched; and of Buckland Sweetwater, a Grape which is every day gaining ground in public favour, he showed marvellously fine bunches. Mr. Henderson, of Trentham, had some good Black Hamburghs. Among white Grapes, Muscats, with the exception of a dish from Mr. Turner, were not ripe. Mr. Bailey had a very fine basket of his Muscadine; Mr. Drewitt, of The Denbies, beautiful examples of Chasselas Musqué, well set and without crack or other blemish; and of the promising new Grape called Chavoush, examples, apparently not quite ripe, were shown by Mr. Constantine. Good bunches of Grizzly Frontignan came from Mr. M. Henderson. There were also some good Vines in pots

Awards.—12 lb.: 1st, Mr. Meredith; 2d, Mr. Hill and Mr. Bailey; 3d, Messrs. Jackson; 4th, Mr. Henderson and Mr. Petch. 3 dishes: 1st, Mr. Hill; 2d, Mr. Henderson: 3d, Mr. Peachy; 4th, Mr. Petch. Black Hamburgh: 1st, Mr. Meredith; 2d, Mr. Sawkins; 3d, Mr. Henderson. Black Prince: 1st, Mr. Hill; 2d (withheld); 3d, Mr. Henderson. Muscat: 1st, Mr. Turner; 2d, Mr. Turnbull; 3d, Mr. Embrey. Other sorts: 1st, Mr. Hill; 2d, Mr. Henderson; 3d, Mr. Drewitt.

Peaches and Nectarines.—These were plentiful and generally good. In the first prize lot were beautiful examples of Violette Hâtive and Galande Peaches, and Downton and Hunt's Tawny Nectarine.

Awards.—4 dishes: 1st, Mr. Dawson; 2d, Mr. Turner; 3d, Mr. Knight; 4th, Mr. Petch. 2 dishes: 1st, Mr. Wills; 2d; Mr. Constantine and Mr. Ford; 3d, Mr. Allen and Mr. Snow.

Figs.—These were chiefly Brown Turkey.

Awards.—1st, Mr. Smith; 2d, Mr. Snow; 3d, Mr. Robinson; 4th, Mr. Pottle.

Strawberries.—These were for the most part large and fine, especially those to which the first prize was given. President and Oscar were shown in good condition.

Awards.—4 dishes: 1st, Mr. Widdowson; 2d, Mr. Turner; 3d, Wr. Kaile.

Cherries.—These consisted of Elton, Black Circassian, and May Duke.

Awards.—Black: 1st, Mr. Snow and Mr. Turner: 2d, Mr. Beck. White: 1st, Mr. Snow; 2d, Mr. Enstone.

Melons.—Among these the best was Mr. Meredith's Hybrid Persian, a pale-fleshed kind of great excellence. The best scarlet-fleshed sort came from Mr. Chilman.

Among Miscellaneous Fruit was one dish of small Apricots of the Shipley variety, and another of Magnum Bonum Plums.

Linnean: *May 25 (Anniversary.)*—G. Bentham, Esq., President, in the chair. The special thanks of the Society were given to Lady Smith, for an annotated copy of Milton's prose works formerly in the possession of Linnæus. It was reported that since the last anniversary 11 Fellows and 2 Foreign Members had died; that 5 Fellows had withdrawn; and that 22 Fellows, 1 Foreign Member, and 1 Associate had been elected. The financial report showed a decrease of debt to the extent of 34*l.* 3*s.* 3*d.*, and an increase in the cash and invested balances of 82*l.* 19*s.* 1*d.*, making together a balance in favour of the Society on the year's account of 117*l.* 2*s.* 4*d.* A ballot was then taken for Council and Officers, when it appeared that H. Christy, Esq.; M. P. Edgeworth, Esq.; J. Lubbock, Esq.; D. Oliver, Esq., and Lovell Reeve, Esq., had been removed from the Council; and J. Bateman, Esq.; M. T. Masters, M.D., H. T. Stainton, Esq.; T. Thomson, M.D.; and G. C. Wallich, M.D., were elected in their room. G. Bentham, Esq., was re-elected President; W. Wilson Saunders, Esq., Treasurer; and G. Busk, Esq., with F. Currey, Esq., Secretaries. The usual resolutions requesting that the President's Address and the Secretary's Obituary Notices might be printed, were adopted.

June 4.—G. Bentham, Esq., President, in the chair. T. Bell, Esq.; J. J. Bennett, Esq.; J. D. Hooker, M.D.; and W. Wilson Saunders, Esq., were nominated Vice-Presidents for the ensuing year. The following papers were read:—1. "On a sexual Monstrosity consisting in the development of Polliniferous Ovules in two Species of Passiflora;" by S. J. A. Salter, M.B. The monstrosities consisted in a partial and persistent separation of the carpels, thus opening the cavity of the ovary; in the development of anther-like bodies along the free edges of the separated carpels; and in the conversion of certain of the ovules themselves into sacs of pollen, these ovules being for the most part malformed, but in a few cases perfect, excepting the presence of the pollen. It was remarked that monstrosities of a somewhat similar kind had been found in a few instances in other plants, but that there was no recorded example in which the ovules had become polliniferous. The monstrosities already recorded were these: the pistil had been observed converted into anthers or stamens in Euphorbia palustris, Gentiana campestris, and Salix babylonica; a supernumerary stamen had been found occupying the place of a wanting carpel in Impatiens; the placentas had been seen metamorphosed into stamens in Hyacinthus orientalis, one half of the fruit enclosing seeds, the other half anthers; anther-cells had been found on the inner walls of the ovary in Primula acaulis; the pistils had been seen surmounted by organs resembling anthers in Campanula persicifolia and rapunculoides; half the ovary had been known to be converted into a staminal mass in Cheiranthus Cheiri; part of the styles had been changed into antheriferous filaments in Colchicum autumnale; pistils had been converted, some wholly, some partially, into antheral organs in Zea Mays; and an antheral mass full of pollen and divided by a septum had been found in otherwise normal carpels of Chamærops humilis. The authorities for these statements were respectively Rœper, Agardh, Schimper, Gay, Moquin-Tandon, and Mohl. The author also quoted a curious observation

of Prof. Braun relating to the Weeping Willow, to this effect:—All Weeping Willows appear to have been derived from one individual plant, and to have been propagated by cuttings; that plant was a female, and yet many of the trees thus produced have borne polliniferous catkins. The Weeping Willow by the tomb of Napoleon at St. Helena was, in its original state, a female plant, yet many cuttings have been brought to England which have produced plants more or less male. A similar instance has also occurred in Germany. In the garden of the Grand-Ducal Palace at Schwetzingen is a Weeping Willow, which although from the very same origin as all the rest, has in a great degree changed its sex, so that it not only shows the most manifold transitional grades of female into male flowers, but also bears on many twigs purely male catkins. In the Passion-flower referred to in this paper, the form of the polliniferous bodies was very diverse: principally however that of a bilobed anther; or of pedicellate globular and oval bodies attached to the placenta within the ovarian cavity, sometimes below the free split edges of the carpels; or of ovules modified only by the presence of a very few pollen grains in their substance.——2. "On the fertilisation of Disa grandiflora, by R. Trimen, Esq., of the Colonial Office, Cape Town," drawn up from notes and drawings sent to C. Darwin, Esq. The author explained the peculiar conformation by means of which the fertilisation of the flower can be readily effected by insects, though, as he stated, without their aid the pollen masses seldom succeed in reaching the stigma. His words were: "When I examined the plants most of the flowers were partially withered, but in the greater number, even in those quite withered, both pollinia were still in their cases."——The further discussion of the propositions of the Council to dispose of certain collections belonging to the Society (see p. 391) was then taken up. The proposals were severally agreed to, with the exception that Acharius' Lichens were to be retained; and the unique and typal specimens in Caley's collection of birds and mammals were to be presented to the British Museum. The proposal to dispose of various unarranged collections of dried plants, chiefly American, including those of Cuming, Hartweg, Drummond, Schomburgk, Gardner, &c., and a fine collection of United States plants, presented by Dr. Boott, was strongly opposed, but eventually carried.

ENTOMOLOGICAL: *May* 4.—The President in the chair. Mr. S. Stevens exhibited numerous interesting collections of insects recently arrived in this country, including a series from South Africa, collected by Mr. Trimen; from Madagascar, collected by Mr. Plant; a fine and curious series from the Feejee Islands; some spiders of gigantic size from Bogota; and a remarkably small Lucanideous insect from New Holland. Mr. MacLachlan exhibited the case made by the larva of a species of caddice fly, formed of between 200 and 300 specimens of a small shell (Planorbis), arranged with the greatest regularity. Mr. Edwin Shepherd exhibited some interesting specimens of the white and negro varieties of Biston betularius, which had been reared from eggs deposited by a dark female which had paired with a light male; and made some observations on the geographical distribution of these two varieties. Mr. Waterhouse exhibited two species of Oxypoda, and one of Trechus, supposed to be new to this country. Mr. Waring exhibited some dead pupæ of male honey bees, which had been dragged out of the comb and cast out of one of his hives; he was not able to account for such a proceeding, which was probably owing to some peculiarity in the hive. Mr. T. W. Wood made some observations on the coloration of the wings of the common orange tip butterfly, which he considered was of service in the preservation of the insect when at rest, owing to its similarity to flowers, especially those of Anthriscus sylvestris, on which it delights to settle in dull weather. A letter was read from Dr. Hagen, of Konigsberg, requesting the co-operation of the members of the Society for the completion of his great work on Entomological Bibliography.

June 1.—F. Smith, Esq., in the chair. This was a special meeting of the Society, called with the view of discussing the proposition made by the Library and Cabinet Committee for the disposal of the Society's collection of insects. Some time ago the Society had disposed of the major portion of the exotic insects in their collection, and it was now suggested that the British collection and the remainder of the exotic insects, including the type specimens of Kirby's bees, and of other insects described by different entomologists, should be disposed of, on the ground of the impracticability of the Society ever forming a perfect standard collection (as proved by the experience of the Society itself during the period of its existence) or of providing the means for preserving and exhibiting it satisfactorily, even if it were formed. It was suggested that the type specimens should be offered to the British Museum, and that the general collection should be sold, so that the resources of the Society should be concentrated on its library and publications. These suggestions were adopted by the Society at large. Mr. Stainton exhibited some small lepidopterous larvæ mining in the leaves of the Hazel, the same species having also been found on Ribes sanguineum and the common Birch; Mr. Waterhouse, specimens of an apparently new British species of Homalota; Mr. Bond, hermaphrodite specimens of the orange tip and swallow-tail butterflies; and Mr. Smith, drawings of two hermaphrodite specimens of the honey bee; also of Braula cæca, a small wingless insect, parasitic in bees' hives, which has been imported with the Ligurian bee into this country. Mr. M'Lachlan read descriptions of three new British species of Trichoptera. Mr. Stainton read notes on a small moth of New South Wales which is viviparous (Tinea vivipara, Scott); notes on the Proceedings of the Entomological Society of Philadelphia, by Mr. Stainton; and notes on the Entomological Captures made by Mr. F. G. Waterhouse, the naturalist attached to the South Australian exploring party under Stuart, which had succeeded in crossing the Australian continent from Adelaide to the north-west coast and back again.

RANUNCULUS SHOW AT WALLINGFORD.—The amateur cultivators of Berkshire and Oxfordshire met the other day at the Town Hall, Wallingford, for the purpose of exhibiting their pet Ranunculuses. About 150 blooms were staged. Mr. Tyso, who was selected to be umpire, made the following awards, viz.:—1st prize to Mr. W. Littleboy, Benson, Oxon, whose stand of 12 blooms consisted of Terpander, Suzanne, Linden, Naxara, Decorator, Sophia, Napier, Rose Rival, Kilgour's Queen, Eva, Sir W. Hoste, and Wilsonia. 2d, to Mr. Hawes, Dorchester, for Bouquet, Naxara, Wilsonia, Linden, Herald, Berinus, Kilgour's Queen, Kilgour's Princess Eliza, Delectus, and a Seedling. 3d, to Mr. Woodbridge, Benson, for Pertinax, Suzanne, St. Jerome, Eva, Clarissa, Naxara, Apollo, Sir W. Hoste, Kilgour's Queen, Napier, and Melancthon. 4th, to Mr. Stevens, Oxford, for Kilgour's Queen, Bouquet, L'Elégante, Satrap, Miss Horner, Apollo, and several Seedlings. 5th, to Mr. Green, Shillingford, for Eliza, Gomer, Naxara, Delectus, Sir W. Hoste, Kilgour's Queen, Apollo, Bouquet, and others. Mr. Tyso contributed two stands, in which were many beautiful varieties. These were, however, not for competition.

Notices of Books.

Viti; an Account of a Government Mission to the Vitian or Fijian Islands in the Years 1860-61. By Berthold Seemann, Ph.D. MacMillan & Co., Cambridge. Pp. 447.

Dr. Seemann has given us a very curious account of a remarkably interesting people, known to the world principally in connection with missionary labour, and of a charming group of islands said to be capable of becoming a valuable source of cotton supply to our manufacturers, commercially important in a variety of ways, and which might have become a dependency of the British Crown, had not the recent New Zealand troubles deterred our rulers from again incurring a like responsibility.

The Vitian or Fijian group consists of above 230 islands, mostly of small size, of volcanic origin, surrounded by coral reefs, and all of them very fertile. The larger islands are Viti Leon, some 75 miles by 60; Vanua Leon, with about half that area; Taviuni and Kadavui, each near 20 miles long but narrow; the last mentioned and smallest of these four is however supposed to contain 10,000 inhabitants. Ovalau and Bau are also of importance as the residence of white men, and the latter as being the head-quarters of Thakombau, the acknowledged sovereign of the whole group, and hereditary Chief of Bau. This gentleman is a Christian, and a noble specimen of humanity; his Queen a pleasant-looking woman, though Dr. Seemann only once had the pleasure of seeing her dressed! This was at his first official interview about the cession of the islands. On that occasion she wore a neat bonnet of the latest Parisian fashion, a coloured silk dress, and a black mantilla trimmed with lace; nor let it be supposed that the use of crinoline was unknown in this remote quarter of the globe. Glad enough she must have been to get her clothes off again.

The windward side of each island enjoys an abundant supply of rain, and a glorious tropical vegetation is the result: huge trees with innumerable creepers and epiphytical plants; while the leeward side, in general, consists of splendid undulating pasture land, here and there dotted with Screw Pines, requiring no clearing, and admirably adapted for Cotton cultivation, a fact which Dr. Seemann says he put to the proof during his visit.

The Fijians are roughly estimated at 200,000; they are a fine noble race, by no means deficient in intellectual power, but it is their misfortune to have for their nearest neighbours the Tonguese, who are the very princes of the Polynesian Islands, though they scarcely deserve the flattering name which Capt. Cook bestowed upon their group, "the Friendly Islands," inasmuch as they twice plotted against his life, and only failed in their murderous purpose through some petty jealousy among themselves.

The Tongua islands are deficient in wood fit for building canoes, and when attracted to the Vitian group for the purpose of canoe building, the Tonguese establish themselves wherever they can, keep up a communication with each other, foment Vitian quarrels, espouse the weaker side, and then, after having conquered and plundered the strongest party, they make exorbitant demands from their friends of the weaker side, on the plea of getting remuneration for their services. It was to escape these and similar extortions from civilised nations, that the Fijians desired to place themselves under the protection of Great Britain.

Dr. Berthold Seemann was not a bad man to send upon such an expedition. Besides being a fair botanist, and a man of sense, he is a fine, tall, handsome fellow, fully 6 feet 2 inches, with a kind heart and a frank, winning manner. He naturally enough became a prodigious favourite among these islanders, who admire above all things tall men. The clothing of the natives is usually confined to a couple of yards of cotton cloth, tied round the waist; and before the introduction of this material bark-cloth was made simply by peeling the bark of the Mulberry tree, when the tree is scarcely thicker than the little finger, and then soaking and beating the different pieces in such a way that they expand, and all join together in one large mass. It is a curious fact that not only did the Fijians, as indeed most Polynesians, know how to make such cloth, but also printed it in many different colours and patterns, probably long before the art of printing was ever dreamt of in Europe.

When visiting Somosomo, the chief was absent on a fighting expedition, but his wife Eleanor was at home and paid the strangers a visit, accompanied by young women, also wives of Golea. Eleanor, who is the niece of Thakombau, King of Fiji and Chief of Bau, is much higher in rank than her husband, and her sons as "vasus" will enjoy peculiar privileges, transmitted through her. She was a tall, fine looking woman, of much lighter colour than the generality of her country-women, of a cheerful countenance, and possessed of dignity and self possession, and, considering the scantiness of her dress, this is saying very much in her praise. The stately Queen of Somosomo, in a graceful head-dress of Fern-leaves, joined a botanizing expedition with her whole Court. On this occasion the maids of honour dispensed with calico altogether, and were simply attired in portions of fresh Banana and Cocoa-nut leaves. "The dark beauties, the really artistic effect of their ornamental leaves and flowers the easy grace of their movements, made them look like so many nymphs that one reads of in classic story, but never seem to meet with now-a-days."

The men, both married and single, sleep in lofty public buildings, called "bures." "All along the sides are sleeping places, covered with fine mats, and large enough for two men to sleep; between each there is a fire-place, and stages to put the legs on. The centre of the building is covered with loose Grass, and there are no windows, only low doors, which may be, and are always, closed towards evening, by means of thick mats, in order to keep mosquitoes out. When evening is coming on the bure begins to fill, most of the fires between the sleeping places are lit, and the natives are leisurely stretched on the mats, their legs cocked up on the stages, like Yankees in a tavern, all smoking their cigarettes, made of self-grown tobacco and dry Banana leaves. Now came the kava-chewers, comely looking youngsters carrying the large wooden bowl, a cocoa-nut shell for drinking the beverage, the bamboo water-vessel, a handful of fibre for straining the kava, and the root of the South Sea Pepper, from which it is prepared. No sooner have they taken their seats and commenced chewing, taking care to throw the rope affixed to the kava-bowl towards the person highest in rank, than a leading man, perhaps a heathen priest, begins chanting a song, in which the whole assembly joins, and the lads having chewed a sufficient quantity of the root, place the masticated mass in the bowl. Now water is poured on, the whole yellowish-looking fluid is strained through fibres, and a cup filled. Whilst the cupbearer is holding it to hand to the chief or highest person present, an old man gives the toast of the evening. It is pathetic or humorous as occasion demands, &c. At length the song becomes less and less hearty, the conversation slackens, and one by one the men drop off to sleep. Their pillows are made of a thick stick with 4 legs, and are put just under the neck, so that the hair of the sleepers may not be disarranged. They have had it only recently newly done up, washed with lime to make it frizz, dyed in various colours, and arranged in many different ways. Several days must have been spent to get some of these extraordinary heads dressed. And for this reason and no other they are ready to sleep all their lives on a pillow of wood, so constructed that an European could not rest his neck for five minutes upon it without suffering dreadful pain. Talk of the ease of living in a state of nature! the inconveniences to which savages put themselves in order to gratify their vanity are quite as great, if not greater, than those forced upon us by the fashions and dictates of our own society. Think, too, of the agonies of tatooing! which fashion imperatively demands of the ladies of Viti."

With regard to cannibalism, Dr. S. has arrived at conclusions which appear somewhat novel to us. Though so late as 1856 cannibalism was a recognised institution of the state, he maintains that human flesh is extremely difficult to digest, and that the strongest and healthiest men are greatly inconvenienced from the effects of such a feast; indeed, nobody thinks of eating "bokola" without condiments

consisting of certain leaves, or a vegetable called "Taro," not unlike Tomato. Many of the heathens, he tells us, have long made a bold stand against the practice of eating human flesh, declaring it "tabu," or forbidden by the gods. The common people, as well as women of all classes, are by custom forbidden to eat it, and the great chiefs and gentry look upon it quite as a duty which they owe to society, a duty appertaining to their exalted station, to eat human flesh. When, for instance, the national honour has to be vindicated, or justice has to be executed, it is done by eating the perpetrators of the wrong. The custom has also a religious as well as a political aspect. There is a certain degree of religious awe associated with the act which puts it something on a level with a sacrifice to a superior being. All other food is eaten with the fingers, but for bokola certain sacred forks are used, made of hard wood, and handed down as heirlooms. The very sight of these forks makes a native look serious, and to see a person handling them would give a Fijian about as much pain as a Christian would feel were the sacred vessels of his religion used for drinking water.

One little fact must be mentioned connected with this subject, and also illustrating the importance of being acquainted with the native customs. An Englishman, named Pickering, once fell into the hands of a hostile tribe, long on the look out for his body. He soon became aware that they were making preparations for a cannibal feast, of which he was to be the principal dish; though these preparations would not have been noticed by any one less versed in their peculiar customs. He knew that before they proceeded to kill him a bowl of kava would have to be made, that a prayer would have to be said over the beverage when ready, and that the person saying the prayer could not be eaten. Pretending utter unconsciousness of what was going on, he eagerly watched the moment when the preparation of the kava was advanced to the stage at which the prayer had to be said, and suddenly, to the utter dismay of his enemies, he pronounced the well-known formula. No one would now have dared to take his life, and he had the keen satisfaction of partaking of the refreshments which had been provided for his own funeral.

To be continued.)

History of the Botanic Garden at Zürich. By Prof. O. Heer.

(*Concluded from p.* 583.)

It remained in this state for 12 years, but in 1760 the Society was obliged to give up the ground; and it was not until 1766 that H. K. Hirzel persuaded the magistrates to purchase an estate at Wiedikou, the house on which was converted into a hospital and the ground into a botanic garden; the lower part of the house, such as cellars and washhouses, being appropriated to the keeping of the seeds and the preserving of tender plants through the winter. Under the charge of Drs. Scheuchzer and Locher, the garden made rapid progress, and in 1782 it was further improved by the erection of a hothouse, after which an interval of inactivity followed, until in 1794, under the direction of Dr. Usteri, it again made a start, and in the following year was laid the foundation of a collection of Alpine plants. Political troubles now intervened; and in 1799, the Cossacks, who were encamped in Wiedikou, entirely destroyed the botanic garden. By the energy of Dr. Römer, it was again raised to its former flourishing condition, so that in 1805 it could boast of containing 4000 plants. In 1819 Römer was succeeded by L. Schulthess, under whose directions many further improvements were made, and many new and curious plants added. The poor sandy soil, and want of water, proved serious drawbacks, and in 1834 the removal of the garden was decided on. It was then formally given over to the town, and Prof. Heer nominated as director. The first step was to select a suitable locality for a new garden, but it was not until 1836 that, partly by a grant from the town, partly by contributions from private individuals, the new garden could be fairly commenced; and so much had to be done in clearing away a portion of the city wall, and in preparing the ground, that it was not ready for planting until the autumn of 1837. A portion of the ground was devoted to the botanic garden proper, and the remainder was planted with trees, bushes, and flowers, as a pleasure garden. The broad path leading through the garden had flower-beds laid out on each side of it, for the purpose of marking the strictly botanical portion, but eventually this plan was found unsuitable, and was consequently abandoned. The western and northern sides of the lower terrace are now given up to botanical purposes, the flower-beds are all placed at a distance, and a line of demarcation between the two portions is drawn by a hedge. Passing from the hothouse into this detached part, we have on our left, first a row of beds in which annuals are cultivated, and next to them perennial shrubs arranged according to the system in Endlicher's "Genera Plantarum." The entire front of the garden and the two terraces have been laid down with Grass, on which groups of trees and shrubs are planted; and this part has now become extremely beautiful, forming an attractive place of resort for visitors.

On the north the two terraces have been laid out as a rock garden for Alpine plants, and there are now cultivated here about 750 species, of which 330 are natives of the Swiss Alps, and the remainder are from the Austrian, Greek, and Asiatic mountains, or from high northern latitudes. They form altogether a collection which is unequalled in any other botanical garden.

The garden possesses about 800 species of trees and shrubs, planted in various parts, and especially clothing the centre eminence, the summit of which is surrounded by a solidly built low wall, within which are placed benches, from which the beautiful view on all sides can be seen and enjoyed. An arrangement was made with the proprietors of the water towers to supply the garden with water by a conduit communicating with two reservoirs, the one in the grass opposite the hothouse, the other near the Alpine garden. But the construction of the ponds proved to be faulty, besides which the tower, even during the summer, and frequently for a considerable time, provided no water, by which the garden suffered both in health and appearance. Recently, however, the basin on the lower terrace has been strengthened with a wall, and fully prepared with an asphalte bottom, for the reception of rare plants, and thus this eyesore at least has been remedied.

Both the garden and greenhouses have steadily continued to improve and increase. The largest house was begun in 1837, and is 78 feet long, 20 wide, and 22 high: it is divided into two portions, one for tropical, the other for more temperate plants; both divisions being heated by warm water. On each side are wings, devoted to the gardeners' dwellings, seed-houses, lecture-room, &c. Two smaller houses for raising plants were also completed in 1840, and in 1844 a very commodious one was built on the second terrace, on the south side of the hill, to which in 1850 a cool house was annexed. The garden thus possessed four houses, with seven compartments, for the cultivation of plants from different climates; yet one was still required, in which the most remarkable tropical plants, such as tree Ferns, small Palms, Bamboos, water plants, &c., might be grown and exhibited to the public. This want has now been supplied by the erection of a new house, on the south-west side of the second terrace, 44 feet long, and 20 feet high in the centre. It is true that this is not lofty enough for tall tropical trees, but we must not forget that the garden has but moderate means at its disposal.

We thus see that the new garden has steadily advanced ever since its commencement, until it has attained the first place among Swiss botanic gardens; and this is even more the case if we consider the riches of its collections. In 1842, the head gardener, Herr Regel, enumerated 7500 species as cultivated in the garden and greenhouses, besides 2600 varieties, amongst which are many rare and interesting plants.

The garden is further adorned with two busts, the one of De Candolle, the great botanist of Switzerland, the other of Gesner, the founder of the garden. That which he three centuries ago so earnestly strove for, has now been fulfilled to an extent his imagination could never have dreamt of, and as he foresaw, the garden is fulfilling its vocation. Not only does it awaken a taste for the highest and noblest pleasures of Nature, by offering the riches of the vegetable kingdom for our examination, but its influence stretches far beyond its own domain. Whoever has noticed the progress of garden cultivation in Switzerland during the last 10 years cannot fail to have perceived the immense improvement in it. Not only have a number of new gardens arisen, and new greenhouses been built, but the taste for plants has so much increased that six large nursery gardens exist in Zürich, while 15 years ago there was not one which could deserve the name. The botanic garden has undoubtedly had a great share in this, and by means of its correspondence and exchanges, both at home and abroad, has been enabled to obtain many remarkable plants which are now dispersed through the land.

Phosphorescence. By Dr. Phipson. Lovell Reeve & Co. 1862.

The phenomena of Phosphorescence are among the most singular, and at the same time mysterious of the hitherto unexplained appearances in Nature; and in all ages they have excited the curiosity of philosophers, and the alarm of the ignorant. From the days of Aristotle to the present time, the light emitted by some decaying substances has been observed, while that of the glowworm is familiar to every one; yet the true origin of this harmless light remains unknown. Now, when so many of the secrets of Nature are being successfully rifled, we may hope that this too may not long remain unsolved; but we are bound to state that the present work will afford very little aid towards its solution. In fact, it leaves the question in rather more darkness than veiled it before. All that the author has done is to note every instance he has been able to find, touching the production of light without heat; the result of which is that he has brought together a most heterogeneous collection, from the phosphorescence of putrescent bodies to inflammable gases: moreover the authorities given are often too vague to be trustworthy. "We are told," "it has been asserted," "some authors state:" such sentences occur over and over again; but we need some better authority when asked to believe facts which lie beyond every-day experience, and are not therefore easily verified. Dr. Phipson gives several instances of what he considers as cases of phosphorescence in flowers; and our readers can, if they please, examine for themselves how far the recorded observations are correct. On the authority of Mrs. Loudon, the following anecdote of one of the daughters of Linnæus is given.

"Seated one sultry summer evening in a garden, the daughter of the illustrious naturalist observed with surprise certain luminous radiations emitted by the flowers of a group of Nasturtiums. This curious observation was made more than once during twilight in the months of June and July, 1762. The girl lived long to tell her wonderful tale. The same phenomenon has been witnessed by other naturalists, but almost exclusively on yellow or orange-coloured flowers. Thus, it has been seen, we are told, in the corolla of the Sunflower (Helianthus annuus), in the garden Marigolds (Calendula), in the two species of Tagetes (which the French botanists call the Rose d'Inde and the Œillet d'Inde). Phosphoric light has also been seen to be emitted from the flowers of the Tuberose, different varieties of Nasturtium, the Yellow Lily, and some other plants.

"The latest, and at the same time most authentic observation of luminous flowers that has been made is the following:—On the 18th of June, 1857, about 10 o'clock in the evening, M. Th. Fries, the well-known Swedish botanist, whilst walking alone in the Botanic garden of Upsal, remarked a group of Poppies (Papaver orientale) in which three or four flowers emitted little flashes of light. Forewarned as he was by a knowledge that such things had been observed by others, he could not help believing he was suffering from an optical illusion. However, the flashes continued showing themselves from time to time during three quarters of an hour. M. Fries was thus forced to believe that what he saw was real. The next day, observing the same phenomenon to re-occur at about the same hour, he conducted to the place a person entirely ignorant that such a manifestation of light had ever been witnessed in the vegetable world, and without relating anything concerning it, he brought his companion before the group of Poppies. The latter observer was soon in raptures of astonishment and admiration. Many other persons were then led to the same spot, some of whom immediately remarked that the flowers were throwing out flames."

While acknowledging that he does "not pretend to have snatched from Nature the entire secret of phosphorescence," Dr. Phipson nevertheless concludes his book with a chapter headed "Theory;" but it is not possible for us to transfer this to our columns, nor do we think it would repay perusal; in fact, we find it very difficult to understand our author's explanations, they are so vague and desultory. When we fancy we seize his meaning, in the next sentence we find that it has eluded our grasp. In short, the only impression left upon our mind is that Dr. Phipson knows less, if possible, than his readers, upon the subject he has presumed to meddle with.

The *Botanical Magazine* for June gives figures of the following plants: *Zosterostylis arachnites*, a curious but not showy terrestrial Orchid from Java and Ceylon. *Coccoloba platyclada*, a singular flat branched Polygonaceous shrub, from the Solomon Isles; the branches are marked by rings at the nodes and are sometimes leafless, sometimes furnished with oblong or hastate lanceolate leaves; the flowers are small, white, succeeded by red berries, which finally become dark purple. Being throughout the year covered with innumerable blossoms, and these generally interspersed with berries, Dr. Mueller speaks of the plant as a most interesting acquisition for our gardens; but it is certainly rather of the curious than of the attractive class. *Higginsia Ghiesbreghtii*, which is the Campylobotrys Ghiesbreghtii of gardens, and is remarkable for its sharply quadrangular stems with winged angles. *Anguloa Ruckeri sanguinea*, noticed in our vol. for 1854, p. 271. *Pleurothallis Reymondi*, an inconspicuous epiphytal Orchid from Caraccas. *Aspidistra punctata albo-maculata*, a Chinese perennial rhizomatous herb, with large ribbed oblong lanceolate leaves, copiously marked between the ribs with small oblong white spots.

The *Florist and Pomologist* gives figures of three varieties of the new spotted hybrid *Mimulus maculosus;* and a portrait of the *British Queen Pear*, a variety raised at Frogmore by Mr. Ingram, and described as a very excellent dessert Pear, ripe in October. The fruit is large, pyramidal, somewhat undulating in outline; the skin smooth, shining, of a golden yellow freckled with thin cinnamon-russet, and with a flush of crimson where most exposed; the eye is small, with short narrow segments, set in a considerable hollow; the flesh is yellowish-white, very fine grained and buttery, with an abundance of rich sugary piquant juice, and a fine aroma. There are some good papers in the present number of this serial.

The *West of Scotland Horticultural Magazine* (Glasgow: Love; London: Harrison) is a new low-priced candidate for public favour. The first part now before us promises well, and the work will doubtless be useful to Scottish cultivators, for whose use of course it is especially intended. There are good practical papers

on Daphne indica and the double-flowered Rocket, and some useful notes on Dahlias, besides a variety of other interesting topics.

BOOKS RECEIVED.—*Species Genera et Ordines Florum*; Agardh. Vol. II., Part III.: 2. 8vo, pp. 787—1291. Entirely occupied by RHODOMELEÆ.

Miscellaneous.

Ward's Plant Cases.—To go from England to Japan was easy enough; to wander among those romantic valleys and undulating hills was pleasure unalloyed; to ransack the capital itself, although attended by an armed guard, was far from disagreeable; and to get together such a noble collection as I have just been describing was the most agreeable of all. The difficulty—the great difficulty—was to transport living plants from Yedo to the Thames, over stormy seas, for a distance of some 16,000 miles. But, thanks to my old friend Mr. Ward, even this difficulty can now be overcome by means of the well-known glass cases which bear his name. Ward's cases have been the means of enriching our parks and gardens with many beautiful exotics, which, but for this admirable invention, would never have been seen beyond those countries to which they are indigenous. In a foreign country, however, even Ward's cases cannot be made without some difficulty. The carpenter who contracted to make the framework of the cases would have nothing to do with the glazing, because he did not understand it. A Dutch carpenter, residing in Yokuhama, undertook to do the glazing, but unfortunately broke his diamond and could not procure another to cut the glass! Luckily, however, these difficulties were got over at last, and a sufficient number of cases were got ready to enable me to carry the collection on to China. The steam-ship "England," Captain Dundas, being about to return to Shanghae, I availed myself of the opportunity to go over to that port with my collections, in order to ship them for England, there being as yet no means of sending them direct from Japan. Mr. Veitch had also put his plants on board the same vessel, so that the whole of the poop was lined with glass cases crammed full of the natural productions of Japan. Never before had such an interesting and valuable collection of plants occupied the deck of any vessel, and most devoutly did we hope that our beloved plants might be favoured with fair winds and smooth seas, and with as little salt water as possible—a mixture to which they are not at all partial, and which sadly disagrees with their constitutions. *Fortune's "Yedo and Peking."*

Cornish Broccoli.—A vague notion that Cornwall supplied Covent Garden with its earliest Broccoli and Potatoes has, no doubt, been entertained; but it has been much in the same way as the belief that Tea came from China or Rice from Carolina. How it was sent, and where it had been grown, few took the trouble to inquire; and, indeed, so long as the mode of transport was limited to coasting steamers, it was hardly worth the inquiry. Through the kindness of a friend, I have been enabled to trace the despatch of the first lot of Cornish vegetables to an inland market, which will be interesting when compared with the extent of the present traffic. It was no longer ago than 1836 that the export of Broccoli began. In that year Mr. Dupin, the steward of the Herald steamer, trading between Hayle and Bristol, took up, as a speculation, four dozen Broccoli. Having sold these freely, he ventured on his next voyage to take as many as 14 dozen, when, finding the trade likely to answer, he arranged with Mr. John Thomas, still the great grower of Gulval, for the supply of his entire crop at 6*d.* per dozen, delivered at Hayle. In the following year a small piece of land was specially devoted to the growth of Broccoli, still as a speculation; and from that time to the present the trade has continued to increase so rapidly that no less than 18,696 baskets, each containing from 15 to 20 dozen, and weighing together upwards of 2260 tons, were transferred from the West Cornwall Railway alone for delivery to the more distant markets during the last season. Since the original "speculation" of four dozen Broccoli, the trade has so much increased, that, in addition to the above, no fewer than 7900 baskets were shipped from Hayle in the year 1861, against 70 in 1842. *Rev. T. Phillpotts in Journal of Bath, &c. Society.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—By means of a tasteful arrangement and the introduction of neatly filled hanging baskets, even small conservatories should now present a gay and interesting appearance. This is however not all; attention must be paid to plants for autumn and winter display; these while in active growth, as they should be just now, require a good deal of water, and insects are more troublesome than in the case of plants at rest. Give Luculias especially plenty of water at the root, and an occasional supply of clear weak liquid manure to old plants until they have made sufficient wood to ensure a good amount of flower. Manure water must not however be given to young specimens in vigorous health, as that would only induce too gross a growth, a condition in which they seldom flower satisfactorily. In order to secure fine heads of bloom from this plant it should be allowed a few weeks of comparative rest, after, say about the middle of next month, keeping the roots rather dry, and exposing the plants as freely to air as can be done without injury to the foliage or the health of their neighbours. Brugmansia sanguinea is also a useful plant for winter and early spring flowering when managed so as to have it pruned and rested about this time. See that large specimens of Camellias are not allowed to get too dry at the root after they have set their buds, for shedding of the latter is often due to this cause. Young and vigorous plants however frequently require to be watered rather sparingly to prevent their making a second growth.

FORCING DEPARTMENT.

PINERIES.—Air should now be given liberally to young stock in dung pits, in order to secure good growth. The plants should not, however, be exposed to draughts, for these would not serve the end in view. A moderate circulation should by all means be secured at night, giving no more during the day than may be necessary to prevent the temperature getting too high. This, with careful attention to the state of the roots, keeping the bottom heat regular, the soil in a nice healthy state as to moisture, and giving a liberal supply of manure water to such as are well rooted, will be found much more conducive to growth than exposing the plants too freely, which would probably check and throw them into fruit prematurely. Use every means to afford plants swelling their fruit a thoroughly moist atmosphere, sprinkling passages, &c., frequently and shutting up early, giving a gentle dewing with the syringe, and saturating the atmosphere by sprinkling every available surface; also give plenty of clear strong manure water at the root until the fruit begins to change colour, when the soil should be kept rather dry, which will improve the flavour.

VINERIES.—Attend to former directions as to thinning the fruit in houses intended to furnish a late supply, and see that the bunches are severely thinned, and also that the crop left is not too heavy in proportion to the strength of the Vines. Where fruit is swelling, be careful to maintain a moist atmosphere, and give every possible attention to the roots, keeping the border in a healthy state as to moisture, and if watering is found necessary, use manure water. Give abundance of air where the fruit is colouring, and do not allow plants in pots to remain in the house to cause damp, which notwithstanding every care that may be used in ventilating is apt to settle on the berries and spoil the bloom. Where fruit is ripe and expected to hang for some time, the atmosphere of the house should be kept as cool as possible; but a little fire-heat will probably be necessary occasionally in order to keep the atmosphere dry during very damp weather.

PEACHES AND NECTARINES.—Expose the ripening crop as much as possible to the sun, and admit plenty of air, to give colour and flavour. Late houses, where the fruit is swelling, should have an increased day temperature, with plenty of moisture. Thin and tie in the shoots in the latest house.

CHERRIES.—As soon as the crop is gathered, remove the trees to a shady situation and keep them syringed and watered; the pots should be plunged, or the plants taken out and planted in a northern aspect. Those in pots intended for forcing next season should not be allowed to suffer from drought, or from the effect of Cherry fly.

FIGS.—The second crop on the earliest trees will be fast advancing; as soon as the fruit begins to ripen the atmosphere should be kept dry and cool, giving air freely every fine day, and using a little fire in wet cloudy weather, to prevent damp, and allow of a gentle circulation of air. Use every care to keep the foliage clean and clear of insects, and do not crowd the young shoots.

MELONS.—Plants on which the fruit is ripening should be kept dry at the root, and freely exposed to air on fine days.

FLOWER GARDEN AND SHRUBBERIES.

It cannot be too often repeated that to be able to winter bedding stock safely with ordinary care, the cuttings should be put in sufficiently early in the autumn to allow of having them well established and fit to be exposed to the open air by the middle of September. Begin therefore in good time, and with such as are found to be the most tedious to propagate. Hollyhocks should be examined often in search of any cuttings which they may afford, as those rooted early will make strong plants for next season. Attend to the tying up of these and Dahlias, and go over the masses of Verbenas, &c., frequently for the purpose of regulating the growth, so as to keep it orderly and neat.

HARDY FRUIT AND KITCHEN GARDEN.

During the present month every attention should be given to trained fruit trees. All wall trees especially should be gone over in time, and the shoots thinned and stopped to admit air and light among the fruit and young shoots, which will greatly assist the formation of fruit buds for the following season. Old Pear trees in particular that are unfruitful, should be subjected to this treatment. Keep Peach trees free from green fly by means previously advised, and dust sulphur on shoots affected with mildew. Use the garden engine occasionally in warm weather, to clean the trees and prevent red spider. Tomatoes must be regularly attended to, keeping the shoots thin and stopping them above a cluster of fruit. Herbs as they come into flower should be cut and dried for winter use. They can either be hung up in bags to keep them clean, or rubbed out and bottled.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending June 24, 1863, as observed at the Horticultural Garden

June.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 18	2	29.852	29.618	76	50	63.0	62	58½	S.E.	.84
Friday 19	3	29.542	29. 16	72	50	61.0	62	58½	S.	.36
Satur 20	4	29.523	29.699	75	41	58.0	61¼	59	N.W.	.00
Sunday 21	5	29.994	29.932	76	54	65.0	61½	59	S.W.	.00
Mon. 22	6	30.019	29.951	74	55	64.5	62½	59½	S.W.	.00
Tues. 23	7	30.115	30.046	82	51	66.5	63¼	60	S.W.	.00
Wed. 24	D	30.040	29.965	78	55	66.5	64	60	N.	.74
Average.		29.912	29.818	76.1	50 9	63.5	24.3	69.2		1.94

June 18—Very fine; cloudy; overcast; very heavy rain at night.
— 19—Heavy rain; fine, overcast.
— 20—Very fine; cloudy; fine; cool at night.
— 21—Very fine throughout.
— 22—Overcast, fine, overcast; fine; very mild.
— 23—Very fine throughout.
— 24—Overcast, shower; very fine, gloomy; heavy thunder storm with much forked and sheet lightning and rain.
Mean temperature of the week 2½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending July 4, 1863.

June and July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 28 .	73 3	49 6	61.5	15	0.65 in.	3	2	6	1	3	11	5	6
Mon. 29..	72.8	48.8	60 3	10	0.22	3	4	3	1	0	15	6	5
Tues. 30..	72.7	48.7	60 2	12	0.80	1	6	4	1	4	11	5	6
Wed. 1..	72 1	51 9	62 0	18	1.18	3	5	5	4	4	10	6	5
Thurs. 2..	73.2	51.7	62.5	13	0.22	2	5	3	—	5	9	9	4
Friday 3..	74.1	51.0	62.5	16	0.78	—	6	2	1	3	12	9	4
Satur. 4..	75.8	50.7	63 2	13	0.33	1	2	4	1	8	12	8	2

The highest temperature during the above period occurred on the 30th, 1862—therm. 91 deg.; and the lowest on the 28th, 1862—therm. 34 deg.

Notices to Correspondents.

ANTS: *F L.* The best remedy for these pests, without injuring the plants, in a bed filled with Calceolaria aurea floribunda, Verbenas, and Amaranthus melancholicus, is to strew guano thinly on their runs. This will drive them away, and if your soil is poor benefit the plants.

COCOA WASTE: *R W.* After the most diligent search not a fragment could be found of the Fungus on Cocoa waste. *M. J. B.*

EXHIBITING ROSES: *An Old Subscriber*, who exhibits 36 distinct varieties, three blooms of each, singly in tubes of water on show trays, does not comply with the requirements of the schedule, which demands 36 varieties, three trusses of each, and therefore the judges rightly disqualify him, not because the "three blooms" of each variety are not tied or shown together in one cup as he puts it, but because as we understand his statement, he has himself mistaken "blooms" for "trusses."

GLOXINIAS, &c.: *B B B.* There is no fungus on your Gloxinias and Achimenes, but the cellular tissue is decomposed. It is clear that they have some soil which does not agree with them, and perhaps they are kept too moist. As the disease is confined to these plants, you had better make a thorough examination of the condition of the soil and roots. *M. J. B.*

GRAPES: *Vitis.* Your Grapes were so crushed in travelling that little could be made out of them; it seems, however, to be a case of common spot, which indicates something wrong at the root. Every affection of the kind must be more or less local, except every bunch and every berry is attacked. Perhaps a close examination of your house, and the particular position the affected Vine occupies in it, may lead you to the true cause. *M. J. B.*

HYPERTROPHY IN VINES: *J H.* The condition of your Vine leaf seems to indicate that you have a slight attack of a complaint which has been very prevalent this year, in which the cells of the under side of the leaf are in a state of hypertrophy. We do not believe that in so slight a form it can lead to any mischievous results. *M J B.*

INSECTS: *A B.* The crushed beetle proves to be the common destructive weevil, Otiorhynchus sulcatus. It should be hunted for after dark with a candle; it falls to the ground on the least alarm, and should be caught on a cloth or sheet of paper placed under the plant attacked.—*R N.* The wasps are attracted to Plum trees infested by Aphides in order to lick from the leaves the saccharine matter deposited by the plant lice.—*T S P.* The caterpillar is easily recognisable by the excellent drawing sent, as that of Zygæna filipendulæ.—*Sir W J H.* The Willow stocks are infested near their pollard ends by the orange larvæ of a small midge (Cecidomyia salicina) or a closely allied species. It would probably be advantageous to top the trees for about 8 or 10 inches, as the lower part of the stocks does not seem to be attacked.—*E R B.* Your caterpillar had eaten its way out of the wooden box in which it was confined, but we have no doubt that it was that of the wood leopard moth, the best remedy against which is to look for the very conspicuous perfect insect on the trunks of the fruit trees and destroy it. It is of considerable size, with milk-white wings dotted all over with steel-blue spots.—*C D H* (Hammersmith). The excrescences on your Vine leaf are caused by a gall aphis of which the eggs and young larvæ are now to be found in these little galls. If you can send another leaf or two direct to Prof. Westwood, Oxford, we shall be obliged. *W.*

NAMES OF PLANTS: *C E.* Borago officinalis; some Rumex, possibly Acetosa; Anthyllis Vulneraria. Terribly bad fragments, without numbers.—*R. Constans.* Tremandra ericoides and Tropæolum brachyceras.—*Bury.* Crataegus odoratissima and C. orientalis.—*T H.* "Blea Cambroides" should be Pilea herniarioides.—*Rusticus.* Two forms of Lady Fern, Athyrium Filix-fœmina: 1, of the molle; 2, of the incisum type.—*J G.* Orobanche minor.—*M. R. Peel.* One of the small unnamed sports of the Lady Fern.—*R Y.* 1, Selaginella cæsia; 2, Pteris hastata macrophylla; 3, Polystichum capense; 4, Phlebodium areolatum; 5, Nephrodium molle; 6, Niphobolus Lingua.

PELARGONIUMS: *E S.* Your plants are in a deplorable condition. First you have had aphis, and then the black mould Cladosporium has grown where the Aphis has been. But this is not all; your Pelargoniums have got the spot. To avoid such evils in future, you must fumigate with Tobacco, your plants must not be too crowded, and your pots well drained. Some of the black specks are merely the dung of insects. *M J B.*

STRAWBERRY: *From Battle.* Large, roundish ovate, juice pressed out in carriage; was not in condition for an opinion to be formed of it.‖

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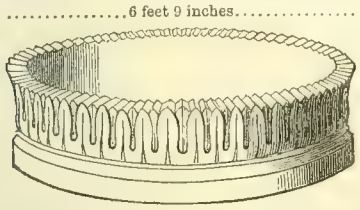
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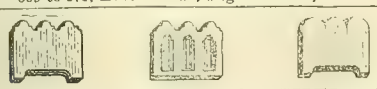
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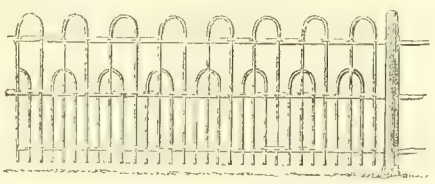
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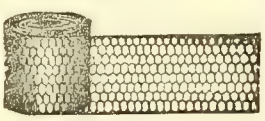
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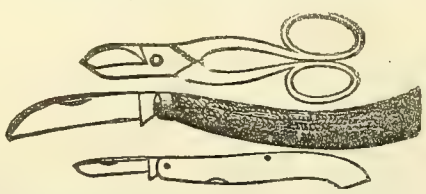
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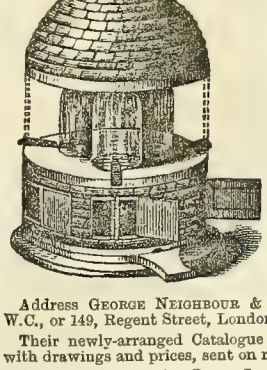
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The Agricultural Gazette.

SATURDAY, JUNE 27, 1863.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, July 1—Agri. Society of England .. Noon
FRIDAY, — 3—Suffolk Agri. Society at Ipswich.

THE Agricultural Society of Essex held their annual meeting on Thursday at the pleasant little town of Witham. A bright and sunny day, and a good show attracted unusual numbers, and the meeting was in every sense a success. Besides the native breeds—the Suffolk horse and Norfolk cattle as much at home in Essex as in either of the other counties—there was a capital show of Short-horn cattle, which have their home in every county; and a fair show of sheep, including several capital specimens of the Cotswold breed, which now travel as far from home as any breed that can be named. There was also a capital exhibition of implements; and steam ploughs, which are being naturalised everywhere, were exhibited at work by Mr. CHRISTIE, who uses FOWLER'S tackle, on his farm near Chelmsford; by Mr. COLEMAN, who exhibited his plan of working two cultivators in the manner described the other day in our columns by Mr. CHAMPNEY, of Crawley; and by Messrs. HOWARD, who exhibited their cultivator and their new plough. The field was a very light sandy soil—the neatest work was done by HOWARD'S plough—the roughest by FOWLER'S cultivator. COLEMAN'S grubber did very excellent cultivation, and all three showed that steam-power is now applied with perfect success to tillage work.

Returning to the Show-yard, where Mr. SWORDER'S Short-horn bull, bred by Mr. COLVIN,

received the champion prize of 15*l.*, and where Lord BRAYBROOKE, Mr. DEXTER, Mr. CLAYDON, and others, received 3*l.* and 5*l.* prizes for sheep—one is tempted to contrast the influence of awards of this kind with that of the vastly greater prize of commercial success.

See how the latter confers reward: on the previous day the last of Mr. JONAS WEBB'S herd of Short-horn cattle was disposed of. Sixty-three head of all ages realised 54*l.* 17*s.* each—as nearly as possible the average of the former sale. In all, the herd of cattle, 145 head, has realised 8027*l.* 5*s.*, or 55*l.* 7*s.* 2*d.* each. Add to this the flock of 1404 sheep sold in the previous years for 16,646*l.* 14*s.* 6*d.*, or 11*l.* 17*s.* 3*d.* each—and we have a total of nearly 25,000*l.* worth of stock on a farm of about 800 acres!

The great feature of the day was the sale of a young bull, the LORD CHANCELLOR, descended from *The Beauty*. He was bought by Mr. SHARP, of East Grinstead, Sussex, for 420*l.* The following are the prices realised by the herd, dividing it into the families of which it was composed:—

FIRST SALE, APRIL 15.

Descended from	No.	Average Price.	Total.
		£ s. d.	£ s. d.
Celia	39	51 15 6	2019 3 0
Dodona	15	50 5 2	753 18 0
Sylph	11	55 7 3	609 0 0
Beauty	7	102 18 0	720 6 0
Bodice	7	44 5 0	309 15 0
Gwynne	3	53 4 0	159 12 0
Total	82	55 15 0	4571 14 0

SECOND SALE, JUNE 24.

Descended from	No.	Average Price.	Total.
		£ s. d.	£ s. d.
Celia	32	44 11 2	1425 18 0
Dodona	16	43 4 1	699 6 0
Sylph	7	44 8 0	310 16 0
Beauty	3	198 9 0	595 7 0
Gwynne	1	....	98 14 0
Erminstade	3	52 10 0	157 10 0
FIRST FRUITS	1	....	168 0 0
	63	54 17 0	3455 11 0

FIRST FRUITS, the gold-medal bull of Battersea, has become the property of Mr. ODAMS, of Bishop Stortford.

WE presume that even those who at the time curtly denied our statements made six months ago about THE ROYAL AGRICULTURAL COLLEGE at Cirencester, will admit their accuracy now. Notwithstanding the immediate and authoritative denial which those statements then received, the "Establishment" at the College *was*, as we declared it to be, then on "the eve of breaking up." One of its members had been dismissed, and the others had either resigned or were on the point of doing so; and accordingly, last week, the whole staff of former Professors left. The public, who have yet to learn the causes which have led to this "disorganisation," entirely agree with our correspondent, a Shareholder, who protests against the silence with which all these changes are taking place. They are "not unmindful of the great and valuable services rendered by these old Professors;" and it is not fit or proper that men whose services for 15 years both to agriculture generally and through the College to agricultural education, have been of the very greatest value, should be suffered quietly to disappear.

Dr. VOELCKER, the highest name we have in agricultural chemistry, who has won it by distinguished services for many years, ought not to be permitted to retire without some official or public acknowledgment of what we owe to him. Professor BUCKMAN, who has we believe been longer at the College than any other officer—who could tell his class on taking leave the other day that he had given more than 2000 lectures besides field instructions during his 16 or 17 years of labour there—and to whom we owe industrious and fruitful labours upon the many points of contact between agriculture and botany, certainly ought not to be allowed to leave the office he has so long held without some acknowledgment of his long and honourable career; and Professors BROWN and COLEMAN, too, ought to learn both from the Council and from the agricultural public generally that their services have been appreciated.

It is a thousand pities that the new energy which during the past few years has been at work should not have conciliated, directed, and inspired the useful agencies with which, on the contrary, it has unfortunately proved incompatible; and that in place of unworthy charges of "cabal" on one side, and recklessness upon the other, we have not had to report a continuance of that cordiality amongst a united staff which existed in former days; knit and strengthened, it may be, by a share in the greater earnestness and energy with which every department, whether of discipline or instruction, was being worked. Unfortunately the upshot of the differences which have proved irreconcilable is the departure of the Professors on the one side from the Principal and Council on the other. We can hardly suppose that this will be consummated in silence; either the latter will spontaneously offer, or the former will strenuously claim the public explanation which is required.

Meanwhile, let us repeat our former words, "giving expression to what we are persuaded is in the mind of professors, students, and the public. A great Institution like the Royal Agricultural College cannot be destroyed; however, therefore, its power for good may for a while be weakened by temporary intestine differences and commotion, the mischief is not aggravated by a frank confession of its existence." And if injustice has been done, we hope in the interest of the College, no less than in that of the officers who are leaving it, that it will yet be publicly and impartially examined and corrected.

We are anxious, nevertheless, that the two subjects should be separately entertained and treated. The fortunes of the College and the treatment of its officers are necessarily very closely united, and our references to the latter of these topics have been dictated not more by a sense of what is due to them than of what is due to the Institution they have served. They have, however, left it; and those who all these years, at great personal risk and labour, through good report and evil report, have been its maintenance and shelter, must not be left unhelped. Whether or not the conclusion be that the parting with an old and well trained staff is an error and injustice, we cannot doubt the good faith and loyalty to public interest of those who have mistakenly or otherwise permitted it. And even beyond this—an Institution more thoroughly equipped than any other in this country for the communication of a sound agricultural education, may well claim at the hands of agriculturists all the support which disinterested testimony and labour can give it. Accordingly we are glad to know that this, during the coming session, it will receive. And besides the accustomed staff of professors of science, a number of well known men, some of them in all probability anxious to prove by deeds as well as words that their criticisms have been dictated only by a sense of public interest, will lend gratuitous help to the professional agricultural lecturers who have been engaged.

We cannot doubt the policy which has accepted services of this kind. Lectures after all are rather condiment and stimulant than food. Students must gather *food* by their own independent labours. In these they are directed, and to these they should be stimulated by the teacher—and the latter portion of the office of the teacher is as important as the former. His influence of this kind is, however, reduced to a minimum when year after year the same voice repeats nearly the same set of lessons to the class. And nothing will more tend to quicken the interest of the audience than being informed, as each particular subject comes before them for discussion, that one and another well known man from the outside world of actual and successful practice, who has made that subject his own, will address them on those methods and results of field experience which he has personally realised. We are glad, therefore, to find that besides courses of lectures by Mr. SCOTT BURN on farm implements, and by Mr. BALDWIN of Glasnevin on crop cultivation, which form part of the autumnal series—these are to be supplemented by gratuitous lectures from Mr. BAILEY DENTON, M. Inst. C.E., on land drainage, Mr. J. C. MORTON on tillage, Mr. R. RUSSELL on manures, Mr. HEWITT DAVIS on the proper seeding of corn crops; and that among the preliminary lectures on the history of our breeds of live stock, Captain TANNER DAVY, the Editor of the Devon Herd Book, Mr. DUCKHAM, the Editor of the Hereford Herd Book, and others, will lend gratuitous help. It is certain that the various thought and even the conflicting opinion which may thus be uttered in the hearing of agricultural students, will be a truer picture of the various agricultural experience they will hereafter, each for himself, realise, than could be obtained from any single tale, however complete and logically consistent it might be. A certain degree of security from extreme divergence of sentiment, and a certain preservation of the essential consistency of the instructions given, will nevertheless be secured by placing in one hand the work of examinations, by which a review of the work done is periodically ensured.

Practical agriculture, which properly heads the list of subjects taught, will be well illustrated, as indeed it has hitherto been, upon the College farms; Mr. COLEMAN'S place being occupied by Mr. J. L. FLETCHER, whose past career as an agriculturist insures the prompt and intelligent discharge of the duties attaching to his office. We cordially hope that, notwithstanding the check which recent troublous times at Cirencester have interposed, the College as a thoroughly complete establishment for agricultural education may go on and prosper. The friendly, public-spirited, and gratuitous co-operation of professional men in the work of agricultural instruction is not only an aid and furtherance—it is a capital testimony to the value of the Institution, and as such it ought to restore the confidence in the Institution which recent events may have diminished.

STRAW AS FOOD FOR SHEEP.

[The following is a fuller report than we could give the other week of that portion of Professor Coleman's excellent lecture before the Agricultural Society relating to straw as food for sheep.]

THE point, then, that I would suggest for your consideration, is a more economical system of feeding sheep, especially breeding sheep, so as to increase the return, and at the same time leave the land in better condition for corn. This would, I believe, be effected by reducing the quantity of roots, and using more dry food in the form of straw, combining with this a small quantity of artificial food, which will act as a stimulus to digestion. By adopting a system of this sort we shall have the land in a much richer condition for corn, because the sheep will take a much longer time to consume a certain weight of roots, and the animals will be in a healthier condition than when eating as many Turnips as they can consume with little or no dry food. It is calculated by Morton and others that a breeding ewe will consume one-fourth of its live weight of Turnips; this gives a quantity of from 20 to 30 lb. a-day. The per centage of water in common Turnips is over 90 per cent.; and hence it follows that a sheep eating 20 lb. of roots daily takes into its system 18 lb. and upwards of water. This food is often, during winter, very little above the freezing point, and it follows that much heat will be absorbed, and consequently much food wasted, in raising this volume of water to the temperature of the animal's body. Water within, and often water without, the temperature of the body must be greatly reduced; and we are not surprised that, with such an unscientific mode of feeding, the animal cannot maintain its condition, and is unable to minister to the wants of the fœtus. The latter is often chilled, and dead lambs are the result, especially with young ewes in a wet season. Now, if we can reduce the quantity of the roots one-half, and substitute an equivalent in the form of straw and condimental food, at the same time attending to the external comfort of the animal, we shall achieve a great success. The land will be doubly manured, straw will be made more of than when trodden solely into manure, and a greatly increased number of sheep can be kept upon a given weight of roots.

It is only of late years that the feeding value of straw has been ascertained or believed in; and even now there are many who profess to consider it only fit to be trodden into manure. That straw varies much according to the nature and condition of the soil, and more according to the mode of harvesting, no one will dispute; but there is abundance of evidence to show that when cut green and carefully managed, many kinds of straw are very nutritious. The tables that I have prepared sufficiently illustrate this; and from personal experience I am convinced that good straw may be economically substituted for hay in the winter feeding of breeding sheep, even without any artificial food, though the cost of the latter, as I trust to be able to show, is so slight that it can be economically employed.

The following calculations will show the effect of carrying out this system on the land and the animal:—

An acre of Turnips, equal to 15 tons; amount of nitrogen left as manure, 74 lb.; of mineral matter, 300 lb.

The analysis of the mineral matter gives per acre:—

110.94	Potash	36.98
20.28	Soda	6.76
1.77	Chloride potassa	.59
23.55	Common salt	7.85
10.83	Magnesia	3.61
33.42	Lime	11.14
29.22	Phosphoric acid	9.74
37.29	Sulphuric acid..	12.43
10.29	Silica	3.43
3.27	Iron	1.09
19.14	Carbonic acid	6.38
lb. 300 00		100.00

Such would be the manuring value of an acre of Turnips consumed by sheep eating 20 lb. of roots daily and no dry food. If we give each ewe 10 lb., and substitute 1½ lb. of straw, it follows that with every

acre of Turnips 2 tons 4 cwt. of straw will be eaten. Straw on an average yields ½ per cent. of nitrogen. The same quantity of straw will yield 221 lb. of mineral matter as manure. Of this about 48 per cent. is silica, but the remainder contains very valuable minerals which are most necessary as plant food. The addition to the soil of this large amount of silica, in round numbers about 107 lb., in a condition available for plant food, would act beneficially on the following Barley crop, which requires more silica in grain straw than any of the other cereals:—

Analysis of Ash of Oat Straw.		Quantity returned per Acre as Manure.
Potash	19 14	.. .. 42 29
Soda..	9.69	.. .. 21.41
Magnesia	3 78	.. .. 8.35
Lime	8 07	.. .. 17.83
Phosphoric acid ..	2.56	.. .. 5.65
Sulphuric acid ..	3.26	.. .. 7.20
Silica	48 42	.. .. 107 00
Peroxide of iron ..	1.83	.. .. 4.04
Common salt ..	3.25	.. .. 7.18
	100 00	220.95 lb.

We may fairly calculate that giving ewes 1½ lb. of straw per day will increase the value of the manure more than one-half. Many of the root crops grown for breeding sheep do not reach to 15 tons per acre; and, according to the common plan of feeding off, the sheep run over the ground so rapidly that a good dressing of manure cannot be left behind; and hence we comparatively fail in one of the most important objects for which we keep sheep; but by diminishing the quantity of roots one-half, and substituting dry food to the extent I have named, we keep the stock twice the time on the same land and greatly increase the dressing.

Let us next consider how far the Straw compensates the animal for the loss of half the Turnips:—

15 ton of Turnips will yield in round numbers 30.24lb. of dry matter.
2 ton 4 cwt. of straw „ „ 42.33lb. of do.

The proportion of the latter that would be digested is a point on which unfortunately we have no very precise data; a series of carefully conducted experiments would be very valuable. Much depends on the condition of the straw. You will observe by reference to the analysis of the Oat-straw that the proportion of soluble and insoluble woody fibre differs immensely, according to the condition of ripeness The chemist concludes that what he calls digestible woody fibre (as being soluble in dilute acids and alkalies, similar reagents, as far as he can judge, to the gastric juice and biliary secretions) would be converted by the digestive process into food, and that all that resists such tests will pass through the system, being insoluble. It is highly probable that this is so; and that the digestive system of the animal is even more powerful than the re agents he can command, From my own experience as to the effects of using good straw, I should consider that from one half to two-thirds of the dry matter would be available as food.

Supposing, however, for the sake of argument, that only one-half the dry matter of the straw is available, whilst the whole of the dry matter in the Turnips can be made use of—which is never absolutely correct, there being in full-grown Turnips about 3 per cent. of woody fibre, and in certain conditions of growth, when the plant is over-ripe, and especially towards spring when the flower stem is shortening, there is a very considerable proportion of insoluble matter—we have the straw yielding 21.16 lb. of available food against 30·24 lb. in the Turnip; and it follows that sheep eating Turnips and straw, and thereby economising the consumption of the root crop one-half, consume per acre 51·40 lb. of dry matter against 60·48 lb. when feeding solely on Turnips. Surely this difference will be partly compensated for in the healthier condition of the sheep eating so large a proportion of dry food; less fuel will be required to maintain the heat of the body, because less water will have to be heated. Scouring, which in bad weather is common to ewes eating only Turnips, is rarely seen when straw is consumed.

I have experienced the most satisfactory results from using straw for breeding sheep on the Cotswold hills, and I am satisfied that with such feeding the sheep may be kept up to, or near, lambing time in a healthy thriving state.

The addition of a very small quantity of artificial food would doubtless prove a good investment both as regards the land and the animal, enriching the manure to some extent, but acting principally as a stimulus to the digestive powers of the animal. The cost per head would be very small. Thus, 100 sheep eating off 15 tons of Turnips as proposed would take 33 days, and if supplied with a quarter of a pound a day of artificial food would eat 825 lb. The food would cost probably about 8*l.* a ton, and might be composed of equal parts of Rape-cake or Nutmeal, Beans, Peas, or Lentils, and Indian Corn. To this we may add 9 lb. of Fenugreek and 6 lb. of Aniseed. Nutmeal is a comparatively new feeding article, and is valuable chiefly on account of the large per centage of oil it contains, varying from 16 to 25 per cent. It is the meal produced in the Palm nut kernel oil manufactory, and is principally sold by A. Smith & Co., Liverpool; present price 6*l.* a ton. Beans, Peas, or Lentils, all closely analogous in composition, contain 24 to 26 nitrogenous compounds, and hence are very suitable for growing stock; and, lastly, Indian Corn contains much feeding matter, and a meal composed of these ingredients is both cheap and nourishing. The addition of the comparatively small proportion of Fenugreek and Aniseed gives a flavour to the whole, and acts as a tonic to the digestive system. The cost per acre of the artificial food is 2*l.* 19*s*, a considerable portion of which is left as manure. The total quantity consumed by 100 sheep during six months amounts to 2 tons 2 quarters 14 lb., or 3*s.* 3*d.* per head. Of this one-third will be returned in increased wool, especially in longwoolled sheep, one third left as manure, and one-third will be paid for in the improved condition of ewe lambs. Two years since, wishing to economise the roots, our young ewes were supplied with ¼ lb. a day of nutmeal with chaff, and a very small quantity of roots, and throve wonderfully.

Having endeavoured to show that straw may be economically used with roots for sheep, the next point will be to ascertain how it can be best supplied. The present system of using straw is either long in racks, or as chaff. The latter plan does not answer, as bad and good are so mixed that the animal refuses all, and the expense of cutting is not paid for. The former plan is by far the best, when the straw can be threshed and stacked in the same field where the roots are being consumed. Nothing can answer better, unless it can be shown that a system of pulping roots and cutting chaff can be economically carried out. I have the experience of a very good flockmaster in support of this plan: 300 ewe tegs first eating hay, 600 ewes follow eating up the huds, and lying back at night on a foldyard of straw kept well littered by the refuse removed from the racks. It is surprising what a large quantity of straw may thus be consumed, and with what a very small quantity of Turnips the ewes will thrive, and what a rare manure heap results, this manure coming in for the young seeds the following autumn, with the minimum amount of labour. A system of this sort is well suited to large breeding farms, where buildings often are remote from the land, at a much lower elevation, and when consuming straw at the yards would greatly increase the labour. I may mention that the order of using straw should be as follows:—Good sweet Barley straw first; this may be commenced when ewes are eating Mangel tops, &c.; this will do till November. Then Oat or Bean straw, the latter most valuable in cold weather; and lastly, Pea straw, which, when well made, is equal to much of the seed hay made on light land. This may be given with a portion of hay when ewes are lambing. Our practice is to build a good stack of freshly-threshed Pea straw in the ewe pen, often forming a wall of division, and fodder once a day with this and once with hay. Sheep thus fed will be most conveniently managed with nets instead of hurdles, as less work is required in setting a fold, and the Turnips should be first picked up at a cost of 1*s.* 6*d.* per acre. Where ewes are allowed a full quantity of Turnips, and the crop is a fair average one, say 13 to 14 tons per acre, the common rule is to allow one hurdle to each sheep; thus 100 sheep require daily 10 hurdles square; this applies to large framed sheep.

We have now to consider whether any system can be economically arranged for pulping the roots and mixing with straw chaff. We all know what a great improvement has taken place in the feeding of horned stock by the use of the pulper; how animals that formerly consumed from 1½ to 2 cwt. of roots daily when sliced are now better fed on 70 to 80lb. with 15 to 20lb. of straw. Short-horn cows drawn off previously to calving, being in an identical condition with the breeding ewe, can be kept in a good store state upon 25 to 30lb. of roots and straw. The digestive apparatus of the sheep is very similar, and yet, though only about one-tenth the weight of the cow, we find ewes eating 20 to 30lb. of Turnips almost without dry food. Surely we have here evidence of the extravagant system. The difficulty lies in carrying out the plan economically. Many will say that the labour is too great, and that breeding sheep so treated will not pay for attendance. In reply, I would ask what proportion does the cost of consuming bear to the cost of growing? An acre of Swedes can seldom be produced under 5*l.* To clean and cut up the same according to our present system would not exceed 1*l.*; double the expense, and carry twice the sheep, and the cost, according to the result obtained, will be as 3*l.* 10*s.* to 6*l.* That breeding sheep will readily eat food so prepared I have proved by experience, and that they must thrive much better on such a mixture than on roots alone is also certain. I would sketch out for your consideration the following plan:—

The corn stacked in a convenient position, threshed, and the straw, &c., carefully stacked and thatched; roots cleaned, in large heaps, and at such distances apart as would allow of sheep lying two days on the same ground; using a combined pulper and chaff-cutter on wheels and worked by one-horse gear; a light roomy house on wheels with canvas sides to store mixture for use on second day; four days a week one horse and a lad employed extra; a load of straw first carted from stack to heap of roots, then the two cut up; produce of morning's work used for day's food; that cut later in the day stored away in house for the following day. Messrs. Samuelson & Co., of Banbury, inform me that they make machines of this sort, which, worked by two men, will turn out 100 bushels of the mixture per hour. I merely advance this idea in the hope that it may lead to some opinions from those who are so competent to judge. I think it would do best on dry heathy land; but where, as is often the case, a considerable per centage of clay exists, the land is at times so sticky and wet that a good lodging at night is of the utmost importance, and the sheep thrive when lying back on a well littered fold and supplied with straw in racks. Whatever system may be found most paying, whether pulping or gnawing, the health of the animals will be maintained, and food be economised, by providing them with dry lodgings.

HAYMAKING.

(*Concluded from page 588.*)

Recent Improvements.—We have shown that haymaking, like other branches of agriculture, has been susceptible of great improvement, but some districts are yet entirely dependent upon manual labour. The hay machine and rake have been partially used, but not as a general practice; however, the cost of production is a matter of consideration, and machinery is being introduced to stay the expense, and to simplify the uncertainties of harvesting. Hay, to be really good, should be well and quickly saved. Systematic machinery over the varied operations will bring the practice of haymaking nearer to perfection, by placing the different stages under more rapid process when the weather is inviting, or closing up the hay more rapidly when the weather is doubtful. Haymaking by manual labour alone is a tedious pursuit, over which the farmer has but little control, for hand-labour can do so much and no more; but with machinery the work may be pushed to the fullest extent, and, when hindered, no daily charge is made or hands thrown out of work.

The recent introduction of the "Grass mower" has placed haymaking upon a better footing, and it may now be entered upon more cheerfully, each implement taking its allotted place. The mower, the haymaker, American rake, and hay rake have each been spoken of as field implements. The long harvest-cart conducts the hay, the hay-stage receives it when the rick is midway up, and, if an awning is used, the hay will be so far secure, but still more so if the rick be made in a hay-safe, the whole process being then complete. With a view to supersede the hay-stage, we have a novel invention of Mr. Moody's for elevating waggons or carts to the tops of ricks, in order to diminish the labour involved in pitching hay or corn from the ground by the ordinary method. Mechanical appliances are usually good when accompanied with reasonable outlays; but a man who would invest 42*l.* in one of these machines would seem to be a bold and speculative agriculturist.

Comparative Cost of Horse Power and Manual Labour.

Manual Labour.—The process of hay-making by hand labour has been shown to extend over about four days. The Grass is mown by the piece, and the price paid for average crops, without beer, about 3*s.* 6*d.* per acre near towns, and 3*s.* in the country. Each man mows from 1½ to 1¾ acre per day—in favourable seasons as much as 2 acres will be mown—and this for a succession of days. A proportionate number of haymakers is provided, five men, women, and boys, including loaders, pitchers, stackers, and others, are found equal to each mower, so that to keep pace with six mowers 30 hands are usually provided. The men and boys attend from six to six, the women from eight to six. For an extra hour or two in the evening, when the business requires despatch, they are paid for overtime. Their proportions are about 20 women to seven men and three boys. In windy weather more help is frequently required, the mowers are taken half a day to assist the former, so as to keep the balance of power about equal. The practice of cheap haymaking, by allowing the Grass to lay in swathe until half dried through, then once turned to bleach the other side, has disappeared. In this manner hay was put into the stack at a small expense, and of a moderately good colour, but it usually came out matted, and only fit for the common uses of the farm. Such is the difference in haymaking, that a man of energy and skill, such as some of the hay farmers round London, will engage from 200 to 300 hands, and thus make hay while the sun shines; while one of an opposite habit suffers his hay to be caught in the rain, and even in dry hot weather to be dried up by the sun. The familiar routine of haymaking by manual labour has already been treated upon.

Cost per acre.—The average rate of 10 acres per day

	£	*s.*	*d.*
Six mowers, cutting 10 acres, at 3*s.* 6*d.*	1	16	9
Seven men, 3 in the field and 4 at the rick, including beer, at 3*s.*	1	1	0
Twenty women, do., at 1*s.* 3*d.*	1	5	0
Three boys, do., at 1*s.* 6*d.*	0	4	6
Extra man at the rick, say half his time and occasional help at difficult periods, at say 6*d.* per acre	0	5	0
	£4	12	3

Average cost 9*s.* 3*d.* per acre. This is exclusive of horse-labour, wear and tear of carts, &c.

Horse Power.—The price of the different implements for hay-making by horse power will stand thus:—

	£	*s.*	*d.*
Grass mower in London	25	0	0
Hay-maker, extra strong	16	0	0
Ditto of smaller size	10	10	0
American rake, full size	2	2	0
English hay rake	8	8	0
	£62	0	0

In round numbers 60*l.*

The above prices represent the best implements of their class, but they may be had on a smaller scale, and at a consequent reduction of price, to suit the requirements of different farms.

The Grass Mower.—To form an accurate opinion of its power it should be seen at work. It is so adjusted that neither wheels nor horses run on the cut Grass. The beam being on a hinge, accommodates itself to any inequalities of the surface. Both wheels assist in driving the knife, which is important, as it supplies increased power, and may be depended on to cut crops of any bulk and weight. This machine, in average situations, will cut one acre per hour, or say 10 acres per day. In active seasons, or upon large occupations, the hours of working may be increased to represent 15 acres per day. For a day of 10 hours one man and a pair of horses are required.

The Haymaker or Tedding Machine.—This is more familiarly known. A strong lad with an active horse will go over 20 acres per day. If two machines are used, and properly adjusted to their several stages of labour, set to work at throwing out the Grass early in the morning, and a relay of horses supplied during the day, they perform a prodigious quantity of work, and of the best possible quality; in fact, the Grass will "hay" in nearly half the time occupied by manual labour. These implements are now so perfect that no hay farmer should be without them, as there will be two days' cutting always on hand.

The American Rake.—This ingenious implement is worked by a boy and one horse, gathering the hay into rows from its lightened state, after being tedded and turned by the haymaker. This rake is not generally required until the actual moment of carrying: there is also much for it to do towards evening, so that a second rake will be found useful. A rake, if properly worked, will gather two acres per hour.

The English Hay Rake.—Its duties are uncertain, as no raking can well be done until the American rake has been set to work, and obtained a suitable start; as the rake, with a strong lad and active horse, is equal to 2 acres per hour, and only required to be used once over, it is found equal to the part allotted it. The speed and use of the above implements are so nicely balanced, and their powers of working under such perfect control, that systematic arrangements may be entered upon for their future employment. It is not possible for men to cut so low and level as the mower, to get over the work at any pace; nor can hand-power with the utmost pains spread and separate the hay so well as a machine. The horse-rake clears the land, that it would be a work of time to equal by manual labour.

Men and Horses employed.—With grass mower, 1 man and 2 horses; with two haymakers, 2 strong lads and 3 horses (these are periodically changed); with two rakes, 2 strong lads and 2 horses (equal to three rakes) for the shorter periods.

Cost.	£	s.	d.
One man and 4 strong lads, including beer at 2*s.* 3*d.* ..	0	11	3
Seven horses at 2*s.* 6*d.* each	0	17	6
Share of interest, wear and tear, &c., at 10 per cent. on 60*l.* outlay spread over 100 acres, at 1*s.* 9*d.* per acre for 10 acres	0	17	6
Seven men carting, stacking, &c., as above, at 3*s.* ..	1	1	0
One boy driving at 1*s.* 6*d.*	0	1	6
Extra occasional help, as per other statement, at 6*d.* per acre	0	5	0
Average cost 7*s.* 4*d.* per acre	£3	13	9

This is exclusive of horse labour, for carting, wear and tear of carts, &c.

The two irregularities of morning and evening work remain as in the case of manual labour. These may be met by the surplus time at early morning being employed at the rick, or some work in the hay-field, that cannot be performed by machinery; and the usual push for help in an evening, when the Grass-cocks have to be attended to, may be met by a few helpers, or by lightening the other operations.

These calculations are based upon a bold and comprehensive system of haymaking, in the best districts, where the supply and demand of manual labour is materially acted upon by an season. The balance in favour of the "recent improvements in haymaking," viz., horse-power and machinery, is shown to be 2*s.* per acre. The saving of money is considerable; but the increased quantity of work done, the improved quality of the hay, and the saving of time employed, are subjects of far more importance to the hay-farmer, who has his 100 acres of hay to save, in a changeable climate, in a given space of time.

Effects of Tillage and Exposure to the Sun.—Dr. Stockhardt has lately made some interesting experiments to ascertain the time necessary for making insoluble ingredients of the soil soluble. He took a sample of rich soil which contained per acre 870 lbs. of alkalies, 90 lbs. of phosphoric acid, 360 lbs. of silica—altogether 2550 lbs. of mineral substances in a soluble state. All these soluble substances were completely washed out by water, and the sample of soil then exposed to the alternate action of air and water. After five months, 405 lbs. of alkalies, 45 lbs. of phosphoric acid, 300 lbs. of silica—altogether 2640 lbs. of mineral substances (per acre, and 12 inches deep) had again become soluble.

Home Correspondence.

Steam Ploughing.—Mr. Leyland Wood, Mr. Coleman, No. 17 in the Messrs. Howards' Table, and Mr. J. Elliot, using Stevenson's plough, No. 23 in Mr. Fowler's Table in Mr. Morton's paper, are my customers. Mr. Morton's dynamometer experiments, published last week, are of considerable importance, and I may hereafter have occasion to refer to them. *William Smith, Woolston, Bletchley Station, Bucks.* [We have received another letter from Mr. Smith; also from Mr. Long, of Henlow, a customer of Mr. Smith's, on this subject. We shall refer to them next week.]

Drainage Legislation for Ireland.—On the 8th of the present month an Act of Parliament was passed called "the Land Drainage Act (Ireland) 1863"! On examining it, it proves to be nearly a verbatim copy of a portion of "the Land Drainage Act 1861," *i.e.* Part III.; better known among those interested in Agricultural Drainage in England, as an abortive attempt to enable private owners to procure outfalls through a neighbour's land, and intended to remedy one of the most glaring inconsistencies of the present century, in which every encouragement has been given to underdrainage without providing for the first desideratum—a proper discharge of the water of drainage. The Irish Act just passed being no better nor worse than its English counterpart, it may be asked why an Englishman should put himself forward to point out to Irish members and Irish landowners its worthlessness. But the fact is, the passing of this Act will operate (for a time at least), as a wrong upon us in this country, inasmuch as the adoption of a portion of an English Act as a pattern implies that it is in itself perfect, whereas it is notorious that this said Part III. is and must remain a dead letter as long as common sense rules it to be inexpedient to spend 2*l.* to gain 1*l.* I should not presume to speak thus emphatically were I not in a position to know precisely our present deficiencies. We have now had nearly two years' experience of the Act of 1861, and nothing has been done under Part III., although there is hardly an extensive property in England the drainage of which is not partially dependent on the will of the neighbouring proprietor. Hundreds of thousands of pounds are spent annually in underdrainage, the efficiency of which is thus in jeopardy, but so inappropriate is the measure by which relief was to be given, that we still proceed as before. Am I not right, therefore, in fearing that the curious piece of legislation to which I have ventured to call attention will have its influence in deferring a practical remedy? *J. Bailey Denton, 52, Parliament Street, S. W.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEDNESDAY, *June* 24.—The Earl of Powis in the Chair. At the Weekly Meeting of the Council and Members held this day, Professor Voelcker delivered a Lecture "On the Comparative Effects of Different Manures on Grass Lands."

The learned Professor said:—

There were few people who would deny that Grass land was as capable of improvement as arable; that some pastures were more difficult of improvement than others; and that, taking a wide view of English pastures, there was much Grass land in a very bad condition but susceptible of extensive improvement. The question then arose—how was Grass land to be improved? Now pasture was bad on account of three reasons: first, the soil might be good enough, but in too small a quantity; secondly, its physical texture might be bad—there might be plenty of materials, but the Grass might rest upon a stiff impervious clay soil of many feet deep, a subsoil not readily drained, on which the herbage would never be very abundant and often come imperfectly to maturity; and thirdly, there might be something that was necessary for the existence of the plant, its luxuriant growth and full development, wanting in the soil. If pasture was bad or indifferent on account of any mechanical or physical deficiency, it was in vain to apply manuring constituents, which, however useful on porous and well-drained, though naturally poor soils, had comparatively little or no effect on undrained wet cold clays. Whether the poverty of the land was attributable to physical or mechanical causes, this must be taken into consideration before means could be properly devised of improving Grass land. Manuring was, perhaps, the most important means of improving pastures that had been drained and otherwise deprived of superabundant moisture; but they could not hope to make the best of either artificial or natural manures if they disregarded the special effects which certain manuring constituents were capable of producing on Grass lands. And he did not know any series of experiments more calculated to bring forcibly before the observer's view the remarkable results which certain constituents produced on certain Grasses, and on the sum total of the herbage, than those most carefully conducted experiments of Messrs. Lawes and Gilbert at Rothamstead.

The most valuable manuring matters were the following: nitrogen in the shape of ammonia, nitrogen in the shape of nitrates or nitric acid, and organic matters capable of producing on decomposition either nitrate or ammonia; secondly, phosphates; and thirdly, the alkalis. These were the most important. Then they had also to consider the effects of lime and silica.

What then, in the first place, were the effects of ammonia on the land? Those effects varied according to the presence or absence of available minerals in the soil. If there was an abundance of mineral matters of the better descriptions in such combination with the soil that they could be reached by the roots of the plant, then ammoniacal manures were very valuable indeed, for they promoted a luxuriant development of herbage; but if the mineral constituents—the phosphates, the salts of lime, the alkalis, and the soluble silica—were deficient, they must not expect to produce any marked effect on the herbage, as regarded either quality or quantity, by the sole application of ammoniacal manures. Indeed, if ammoniacal manures alone were applied, the quality of the herbage would be deteriorated, and in a few seasons there would be no very large impression on the quantity. But when there was an abundance of mineral matter present, the application of salts of ammonia was attended with the most beneficial effects. The addition of ammonia even to farmyard dung had a striking effect. Farmyard manure contained comparatively little ammonia, but a large proportion of mineral matter, and of carbonaceous matter; and in order to dispose at once of the effect of carbonaceous substances—organic matters free from nitrogen, and containing chiefly carbon and hydrogen with some proportion of oxygen—he might state that in all Mr. Lawes's experiments he had found scarcely any effect on the quality or quantity of the produce. It was not so much the carbonaceous as the nitrogenous portion of the farmyard manure that tended to increase the produce; an extra quantity of ammonia increased the produce to a very remarkable extent, at the same time that it reduced the number of species of plants. It pushed forward certain Grasses to the exclusion of nearly all others.

Where large quantities of ammonia were applied the leguminous tribes disappeared, even though mineral matters might be present which were proper for the growth of such plants. For example, upon the whole acre plot at Rothamstead, which he had visited the previous day, he believed it would be difficult to get any Clover. It was also amusing to see how certain Grasses took the place of other Grasses, when an excess of ammoniacal salts had been applied to the land. Thus, when a large dose of ammoniacal matter was used in conjunction with minerals, the Cocksfoot and the Tufted-hair Grass, especially the former, would take the place of many others. So much, then, with respect to the results of nitrogenous, and particularly ammoniacal manures.

Nitrates had a somewhat different effect. Nitrate of soda did not affect so materially leguminous tribes of plants. It did not seem to injure Clover in the same manner as ammoniacal salts. These mineral matters—phosphatic and alkaline substances, might be fairly taken together; for those herbs which were promoted in their growth by phosphatic manures were also benefited by alkaline manures, and notably so by salts and potash. The action of mixed mineral manures, composed of phosphate of lime in a soluble condition and salts of potash, on the Clover tribe of plants was very remarkable in promoting a good quality of herbage, but they had not so great an effect upon the amount of the produce. Having thus alluded to the action of these different manuring constituents on the produce, and pointed out that mineral manures, more especially the alkalines, composed of potash, salts, and phosphatic materials produced a better herbage, and that ammoniacal manures in conjunction with minerals produced an abundance, greater uniformity, a more simple and a rather coarser description of herbage, he would next refer to some matters of detail with regard to the improvement of pastures.

He would suppose that the land had been well drained, was moderately porous, and had a fair depth of soil; but the produce was scanty, and the herbage not over good. The question then arose, how was this state of things to be remedied: how could they both improve the herbage and obtain a larger yield of hay. If they looked too much to the quality, perhaps the means of effecting the improvement might be considered by practical men as too expensive. On the other hand, if they looked entirely to quantity, perhaps the quality of the herbage would be so much deteriorated, that the improvement of the land with that sole object in view, might be remunerative to men who sold hay in the neighbourhood of large towns, but not to the occupier or the owner of the land. He thought however, that the two things might be combined,—judicious management with an increased produce and an improved quality of Grass. In the first place they should ascertain whether the pasture required liming or not. There was a great deal of Grass land which required liming, and as lime was a cheap mineral manure, before they went to any greater expense that point should be ascertained. Lime had done marvels on some descriptions of Grass lands; but on others it had little or no effect. The difference no doubt arose from the fact that some pastures already contained an abundance of lime, whilst others contained none at all. The geological character of the district was not always a good guide in deciding the question whether the land required liming or not; for he had met with many cases in which lime had accomplished a great deal of good, although the land was situated on the oolite formation, and abounded in limestone rock. The reason was that, in limestone regions they had often clay soils which were laid down in permanent pasture, and that these clays were deficient of lime, although deposited on limestone rocks. Hence, notwithstanding limestones came to the surface, such soils might be materially benefited by liming.

This fortunately was a question that might be readily settled. A little of the soil taken up in a cup or saucer and mixed with some spirits of salts would, if it effervesced, plainly indicate the presence of an abundance of lime, and in that case the land would of course require no liming. The absence of effervescence, however, was not always indicative of the soil being deficient in lime; for the lime might be present in a condition not easily attacked by common spirits of salts. In that case no effervescence would take place, and yet lime was present in the soil in sufficient quantity to meet all the requirements of the crop. By a simple analysis that point could be settled in a very short time.

If the land was of a light description another question arose—in what form should the lime be applied? He would recommend it to be used in the shape of marl, and especially clay marl; for then they applied not only lime, but added to the land a material which generally abounded in alkalies, potash and soda; and moreover acted as an absorbent of manuring matters from the atmosphere, and as a retainer of valuable fertilising matters which were applied to the land.

In the next place they should endeavour to encourage the growth of good herbage, and improve and increase the quantity of the produce. But this must be done by manuring—a liberal manuring on well drained land. Land that was porous, so that an excess of moisture or water in wet seasons could not remain on it for any length of time, and which by capillary attraction in dry weather could bring up the moisture from below, paid extremely well for a judicious outlay of manure. Grass land, no matter what its character, ought to receive an occasional application of farmyard manure. For this reason: that in farmyard manure alone they could supply the alkalis, more especially potash, in an economical manner. There was no difficulty in supplying the phosphates or soluble silica, should they be needed, economically in the shape of artificial manures; but they could not apply economically salts of potash with a view of increasing the produce.

If they looked at the composition of the ashes of their Grasses, taking the mixed Grasses and leguminous plants together, they would find those ashes to abound in potash. And if they constantly mowed down their Grass fields they removed a very large proportion of alkalies, the herbage became poor, and the produce failed, too, in course of time. Some of the most important mineral matters were removed; and the only way in which to restore the potash to the Grass fields was to incorporate it with them in the shape of farmyard manure. Therefore some farm-yard manure ought always to be reserved for manuring Grass land. But in addition to farm-yard manure there were other fertilisers that might be used with good effect. Guano, judiciously used—that was to say used on land like many clay soils, which constituted perhaps most of our pastures, also had a very excellent effect, and increased the produce considerably. Better than guano, however, were bones, alone or a mixture of the two. Indeed he

should like for an average description of land the following mixture:—partially dissolved bones, by which he meant bone-dust dissolved in a sufficient quantity of sulphuric acid to render all the phosphates in it in a soluble condition, the sulphuric acid being in the proportion of one-third of the weight of the bone-dust, 4 cwt.; Peruvian guano 2 cwt., and salt 1 cwt. This would constitute a manure for pasture which would greatly increase the produce without deteriorating the quality of the Grass to such an extent as to become doubtful whether they should not be more sparing of the application of ammoniacal manures. In this mixture of partially dissolved bones and guano, they had the mineral constituents required by their Grasses and their leguminous crops, with a fair amount of ammoniacal matter to give a good yield. He recommended the addition of salt for the purpose of keeping the land in a moist condition. Where the land of a lightish character, he believed the addition of a moderate quantity of salt might be very usefully made; an excess of salt, however, ought to be carefully avoided. There were some pastures that were materially improved by the application of bone dust, whilst there were others that were not. The porous land of Cheshire, and similar soils on the red sandstone formation, were amongst the former, the herbage being completely changed by the application of bones; not only did the bones bring out the white and red Clover, but the quantity of the herbage was also increased.

Whilst, however, this was quite true, he had been on pastures in the West of England, wet and cold soils resting upon an undrained subsoil, upon which bones had no visible effect whatever. Before spending much money, therefore, in the purchase of bone dust or bone manures, he would recommend a trial upon a small scale of what bones would do on the land in the first place. In those parts of the country where bones were used with advantage, care ought to be taken by the purchasers of bone-dust to get a good article; for bone-dust, especially the smaller sort, was frequently mixed with a cheaper material. This was especially the case with the fine bone-dust which was sold as bone filings, the refuse of button manufacturers and bone turners. Of late years bone-dust had become very much deteriorated in quality by the admixture of vegetable ivory, which was now used largely in the turning of buttons, and combined so intimately, that it was difficult to distinguish the bone filings from the vegetable ivory dust. Boiled bones, the refuse of glue makers, when they could be obtained in a dry condition, were extremely valuable on Grass land in dairy districts like those of Cheshire.

In the next place, he would consider briefly the case of land which was cold and wet, and upon which farm-yard and artificial manures made no very great impression.

The question was—what ought to be done with such land? He thought it could not be doubted that they were pastures which it was extremely difficult to improve. Dairy Grass land farmers were sometimes a little wrongly blamed for not improving their pastures; but many of them would tell you that they had tried very largely farm yard and various artificial manures, but they could not succeed in getting a remunerative produce for the outlay of their money. He believed there was Grass land of that description, land which could not be very readily improved, which rested on a wet undrained subsoil, and upon which the manure passed away without producing much effect. And the question was—what should be done with these poor wet clays? In the first place, he imagined they ought to ascertain whether the land could be materially improved by means of drainage. That was an engineering and altogether practical question; but before the land was improved by draining and made in a drier condition they could not hope to increase the surface soil, and the application of either farmyard or artificial manures would lead to waste, and profit would in that case be very questionable. But he would suppose the worst case. He would suppose that experience had pointed out that the land was not grateful for drainage, and that therefore they must not hope, by using a large quantity of manure, to improve the Grass land. Ought they, then, to break up such land, or ought they to try by some means or other to improve the quality of the herbage? The question as to the merits of breaking up such Grass land or not was one far too wide to be discussed there. He would not, therefore, touch upon it. There might be good reasons for one or the other practice. But he would suppose the worst of all cases—that they had to deal with Grass land which could not be broken up, on which the manure had little or no effect, and which could not be drained with advantage. What, then, were they to do with such land? If he might be allowed to give an opinion founded upon his own experience, he would say—endeavour as much as possible to increase the surface by bulky manures. He would scrape together whatever he could find upon the farm in the shape of what was commonly considered as valueless materials. He would collect the sweepings of the yard. He would scrape the roads well, and collect the scrapings. He would have a man constantly employed with a donkey cart to gather up the droppings of the grazing stock and mix them with the road and other scrapings, adding a little lime if the land were deficient in lime, and by mixing these together prepare a bulky manure in the shape of a compost. It was astonishing what a quantity of manure might be collected in this way; and by applying such an earth compost just at the growing season of the year, when the Grass made a start, they would often improve materially the poorest pastures. Whilst speaking of making compost for Grass land, he would observe that the compost manure ought to be kept for at least six months, and turned over once or twice before it was put on the land. When this was done the air found free access through the organic refuse matters, and converted the nitrogenous portion of them into nitric acid, which therefore became fixed by the earthy matters. In the compost heap that had been kept for six or eight months they obtained a considerable proportion of nitre, and that had an excellent effect upon the herbage, and particularly upon the Cereal tribe of plants. By this means they might make the most of the worst description of pasture.

Very briefly recapitulating the main points which he had endeavoured to bring out in this lecture, he would remind them—first, that ammoniacal manures had a special effect in producing a luxuriant development of the gramineous tribe of plants; that they had an effect on the quantity likewise, especially if the necessary amount of mineral matters was present. They had seen also that mixed mineral manures, composed of phosphatic and alkaline salts, increased the leguminous produce. Further, that the sole application of ammoniacal salts ought to be avoided, and that it was best to have a fair mixture of both mineral and ammoniacal matters. Then, too, there were soils which were very grateful for a liberal expenditure of money, and a great deal of the grass land of England was in this condition at the present time. The fact that there were here and there some soils which were not improved had led the indolent farmer to suppose that there were no pastures which could be materially improved; and few had any idea of the extent to which they could be improved, and of the economical advantage which a judicious outlay in manuring matters was calculated to achieve. And in conclusion they had seen that upon the poorest descriptions of Grass land, waste materials, the droppings of the cattle, earthy substances, and such like, might be conveniently made into a compost manure which on such land had very excellent effects.

In the course of the discussion which followed, Mr. THOMPSON described the results of his observations on a visit to Rothamstead in the company of Professor Voelcker on the previous day.

Sir G. JENKINSON inquired under what class of manure the learned Professor would place the contents of a cesspool tank into which flowed the sewage of his house, surplus rain-water, and so forth.

Prof. VOELCKER: It would be chiefly ammoniacal; but inasmuch as it combined mineral matters, it would be a mixed mineral and ammoniacal manure.

Mr. DENT, M.P., asked in what condition lime ought to be applied—whether by itself on the Grass, or by being made into a compost with a collection of rubbish and soil; and at what time of the year? Also when was the best period for the application of artificial manures to Grass land. He could not help thinking that the dressing proposed by the Professor was rather a more expensive one than a good many tenant farmers would like to apply; for his calculation was that 4 cwt. of dissolved bones at from 7*s.* to 8*s.* a cwt., 2 cwt. of guano, at 13*l.* a ton, and 1 cwt. of salt, would come to 55*s.* 6*d.* an acre; and he did not fancy that tenant farmers generally would like to expend on their Grass land much more than 2*l.* an acre. He ventured to suggest therefore that 3 cwt. of superphosphate, ½ cwt. of sulphate of ammonia, and ½ cwt. of guano, which would come to about 35*s.* an acre, might be a very good manure for Grass lands.

Mr. LEE wished to know if the Professor recommended so large a quantity as 7 cwt. of artificial manure per acre to Grass land?

Professor VOELCKER had no doubt that there were Grass lands upon which that quantity might be given with advantage.

Mr. LEE should have thought that, generally speaking, 2 or 3 cwt. would be sufficient. Did the Professor's experiments go up to 7 cwt. an acre?

Mr. THOMPSON: Mr. Lawes's did.

Sir J. JOHNSTONE, M.P.: Mr. Lawes's went up to 8 cwt., but where that quantity had been put on the greater feeders, such as the enormous Cocksfoot, were driving out almost every other description of Grass; even the Holcus lanatus, which itself was a very coarse feeder. That showed what was the effect of an excess of ammoniacal manure.

Professor VOELCKER, in answer to the inquiries addressed to him, said that autumn was the proper time for putting on lime; and that of all the methods of doing it he liked the Devonshire best, which was to place it on the land in small heaps, covered up with earth, or scrapings from the road sides and ditches, and leave it to get spontaneously slaked. Then in early spring, these heaps were spread over the land, and the lime was washed in by degrees. For this purpose it was not necessary to make a regular compost heap. Farm-yard manure should be used about Christmas; and artificials, guano, superphosphate, and similar manures, perhaps at the end of January or the beginning of February. As to the quantity of artificials which might be used, that was an open question. With the view of pushing tenant farmers a little further than they were inclined to go, he had mentioned a larger dose than he might be disposed to use himself. But they had only to divide it by 2, and instead of 4 cwt. of dissolved bones, 2 of guano and 1 of salt, use one half the quantity, and they would still get a very good manure. If this was found too expensive they might even divide the dose by 3. He would here remind them that there was one other manure of which advantage might be taken in the neighbourhood of towns; he referred to soot, which, purchased pure, at a moderate price, say 6*d.* or 8*d.* a bushel, produced very good results.

Lord WALSINGHAM: But it was always greatly adulterated.

The meeting was subsequently addressed by Professor Buckman, Mr. Wren Hoskyns, and Mr. Frere; and the proceedings terminated with the usual complimentary vote to Professor Voelcker for his able and interesting lecture.

NORFOLK AGRICULTURAL: *Yarmouth.* — At the annual meeting of this Society here last week, Sir W. JONES, Bart., the President of the Society, in giving the health of the Lord-Lieutenant of the county, said:—Lord Leicester in the most spirited manner undertook the greatest and perhaps the best experiment in steam cultivation that has ever been carried out—certainly in the county of Norfolk. I am sure it has been a subject of very deep regret (and I say it without the slightest hesitation) to all of us that the wind and tide should have exposed the Holkam Marsh Farm to an inundation such as has taken place this winter. That farm was a most remarkable instance of steam culture. There were 500 acres worked entirely by steam ploughs, steam cultivators, and other methods of applying steam power. It served as a specimen instance of a steam farm, for which we might seek in vain elsewhere, having been started and got up at very great expense. It is a great loss to an agricultural county that that farm should have been submerged.

After the usual loyal toast, the CHAIRMAN, in the course of some remarks upon the show, said—I am speaking in the presence of the great chief of Southdown breeders, but I must remind him that on my left is one who is running a neck and neck race with him. It a proud thing that Norfolk, so far from the county whence those sheep were taken, should achieve a pre-eminence so very considerable. Those of you who looked at the Short-horns, which we were told were not a Norfolk breed of stock, and could not be got to perfection in Norfolk—(I remember hearing that from a judge at one of the meetings)—I would ask those who have looked at and touched a certain white bull with a square back, a neatly put on head, and a vast number of very good points, to tell me whether a first-rate bull cannot be turned out of Norfolk? It is very true that that bull came from the same homestead whence came our Southdown sheep; all I can say is, that Norfolk is proud of the farm whence they came, and has a right to be proud of things that come from that farm. Gentlemen, it is also satisfactory to me to have noticed a very great improvement in our indigenous stock. It has been rather the habit to look down upon our Norfolk polled beasts, though there were certain men who, through good report and through evil report, stood by the breed; and we are greatly indebted to the noble lord on my right (Lord Sondes), and I may add Mr. Oliver, and some others, for having kept their faith in the stock, which I believe is eminently suited to the county—stock that prosper on very light herbage, and which yield abundance of milk. Gentlemen, I have a very high opinion of that stock, and I believe it can be developed to something equal to, if not beyond, a Shorthorn, and very nearly equal, if not quite, to a Devon. It will always have a superiority over the Devon in one respect, that the Devon is a helpless being for the pail, while our Norfolk polls will give a good pailful of milk. There are also other advantages connected with those animals; their perfect tractability and quietness, their freedom from horns, and the manner in which they leave your trees and fences uninjured, are, I think, very good points in their favour. I therefore took what I thought was a desirable step to encourage this breed of stock by offering a cup for the best bull. In offering that cup I limited the animals to be animals without either slugs or horns, my object being to prevent our milk from being bred away by crossing with a Devon, or endeavouring to get a Devon back. My belief is that we may get a Devon back without impairing the purity of our breed; therefore I set myself against anything which shows cross breeding in the stock. I shall be very glad another year—for I mean to continue the cup—to put a further limitation as to any spots of white upon the animals; therefore, though the prize was given to a spot of white this year, I cannot say what may happen another year. I am firmly persuaded that where you see a spot of white in our red Norfolk polled beasts there is bad breeding somewhere, and a spot of white tells of stray Shorthorn blood put in many years ago, either to square the back, or for something else. I do not wish to see the breed impaired; I wish to see kept up the very great qualifications which our breed possesses as dairy stock, and I set myself against anything which showed the smallest impurity in the pedigree of the animal that wins the cup. The Chairman then alluded to drainage, fences, and cottages. He said:—"It seems to me that one very remarkable point which is neglected in Norfolk is our arterial drainage. The old fashioned idea was that the land was to grow corn, and the water and the wind were to grind it. We have found out since a power of steam that will grind all the corn that we can grow; therefore I think we ought not to dam up our sluggish streams to have scarcely a ripple on them until they are really like a flight of steps. I may say that thousands of acres in this county lie at the bottom of our Wensum valley, our Nar valley, and other valleys. And let me point out this to you, that where nature has given water a flow, that flow is the cause of the bottom or bed of the river in which it takes place being kept pretty nearly at a constant level. The impurities which come in our drains every year and decaying vegetation are carried down by the stream. But when the stream is dammed up, that is not the case. The result of centuries of damming up in many reaches of our Wensum river is, that the bed of the river is above the land on either side; the river runs on a raised course. But this question may seem out of place here now; but I am sure you will find it out somehow or other, for when our increased consumption of animal food has sent it up to prices a little higher than they are now, you will find it will never be tolerated, that the water which ought to drain the river beds, which ought to drain the land, should be made the means of grinding corn. In these days of steam power the thing is an absurdity, and must be remedied. It is as absurd as to compel a man who buys 50 acres of land to buy with it a chest full of title deeds, and to compel him to spend 300*l.* or 400*l.* to have them examined to see whether the land is the property of the man who sold it to him. Both these questions—the flooded valleys and the choked-up drains in the slightly undulating ground which goes down into the valleys, and the difficulty there is of disposing or buying a small parcel of land—will have to be remedied sooner or later, and I am certain that the best cure for them is the high price of mutton. There is only one other point for me to allude to, in which I think that Norfolk agriculture might improve itself—that is, in the management of our fences. Gentlemen, our fields are beautifully tilled, and it is impossible for any one to return from touring in a distant part of England not to be struck with the cultivation of this county. I believe it is not altogether owing to any remarkable

aptitude in ourselves. I believe we are blessed with a remarkably handy, useful, active set of labourers. I believe, besides, that our friable soil allows the implements to work much better than in a soil which is at one time mortar and at another bricks. I believe the implement has a fair chance in Norfolk when it has not elsewhere. To these two things put together, and to the fact that our horses can get upon the land at all times, I believe the admirable cultivation of our fields is due. But it is impossible not to travel about England and not be struck, on coming back to Norfolk, with the superior cultivation of Norfolk fields. Those fields are beautiful pictures, and I should like to see them encased in a frame worthy of them, instead of a frame composed of a mixture of a bit of live fence and a bit of dead stuff, about four feet high, not quite perpendicular, and with a bottom taken out of the muck heap, and over-shadowed by some Ash trees worth about 5*s.* each. I confess that, to my mind, the Norfolk fences are not worthy to surround the Norfolk fields. I leave it to you, who understand these things far better than I do, to say how a better hedge is to be put round the fields. I think it a consummation greatly to be desired, if that can be applied, and if our fields can be enclosed in a frame that is worthy of them. Gentlemen, I must add the one word which I always do —'Build more labourers' cottages.' That is the last word I always utter. I believe that one half of the crime and misery in the county arises from the overcrowding of what is called the home parish—that is, the parish which contains the labour of a number of fields, and a number of farms most fertile and most admirably cultivated. It is that parish which contains the labour which supplies our sessions and assizes. Gentlemen, build cottages near your farmhouses; or I would say, let cottages spring up near your farmhouses, and I believe we shall see a very great improvement in all these things.

Lord WALSINGHAM, in returning thanks, said—Gentlemen, I find myself in a very novel position. Having won the 1st prize in Class 1, and this beautiful cup which has been presented by the borough members to the owner of the best Shorthorn bull, I feel that I cannot avoid returning thanks for the class. But while I thank you for the honour that has been done to my own animal, I must not forget the very beautiful animals there were in the various cattle classes. The toast which has been given being that of the successful candidates in the cattle classes, I am obliged to return thanks for myself and for all the winners of prizes in all the various cattle classes. Now, I am sorry to say, that I cannot altogether follow our worthy President in his unlimited admiration of the polled animals, that is, I mean the polled animals which were exhibited here to-day; but I do admit they are wonderfully improved. There was one animal, a steer, which won a prize, which I thought as fine an animal as I ever saw in all my life. I sincerely hope to see that animal in improved condition at the Smithfield Club Show, and, as President for the year, I beg to offer my invitation to Mr. Oliver to exhibit it at the next show of the Smithfield Club. With respect to an observation which was made by Mr. Badham, I think it might be very well, if the Society so thought fit, to limit their prizes for polled animals to Norfolk and Suffolk polled animals. But as it stands here, a polled Scot has as perfect a right to show as a polled animal, and you could not refuse to give it the prize if it happened to be the best, as you offer a prize to "polled animals." You say nothing of Norfolk and Suffolk. It may be true that the Norfolk and Suffolk are the best, and those which the Society intended should be represented; but if I had a polled Scot, and it was better than a polled Norfolk or Suffolk, you could not refuse it the prize. I recollect an objection was made to our meeting at Yarmouth—that it was at the very extremity of the county. It has turned out to be a very great advantage, and has added immensely to the importance of our show. We have had some of those beautiful cart horses from Suffolk come here. And while I am upon this point, I may say that I remember to have heard it said very often when I have been in Suffolk, "Your agricultural society is nothing to ours; our stock show is very much better." I should be very much pleased if Mr. Badham or any other gentleman can tell us in what respect they assume to consider their stock show as better than that of the Norfolk Society. In one respect I certainly think it is, viz., in the class for agricultural, and perhaps for other horses. I have a great regard for the county of Norfolk, and I really wish we had the best of everything, and we could produce better agricultural horses than we do. There is a very nice class of horses in Norfolk, which may be called Norfolk cart horses, but no particular pains are taken with them to improve the breed. I very seldom see them at any of our shows, though I often see them working on the farms very creditably. They are short-legged bay horses, but they require much improvement. They have all the beauties and merits of the Suffolk horses, and yet are free from some little faults that have been observed even by Suffolk people. I admire the Suffolk breed, but I need not point out to you where the Suffolk breeders have looked to improve their breed.

On the health of Mr. RIGDEN being drank, he said—With respect to the Southdown sheep to-day, although there was a good deal of competition, the sheep all belonged to one person. I think the noble lord's shearling was nearly the best sheep I ever saw him show. He will, however, excuse me if I say it has a fault which will stand very much in his way if he goes into company; but taking it altogether, that sheep has some extraordinary points. I fully admit, with reference to the cross-bred sheep, that some of the lambs were the best I have ever seen in Norfolk. But when gentlemen talk about getting these long-woolled sheep, they seem to me to forget how much they eat. I happened to hear a shepherd to-day say that 26 lambs had 1 cwt. of oilcake per day. I should like to ask gentlemen how much they cost. My sheep never see a bit of cake from one year's end to another. They live upon the South Downs, have the south-west winds, and have no shelter whatever. I am not going to say they are the best for Norfolk, but I can get more money for nine stone of Southdown mutton than you can get for 10 stone of any other sort. I have no wish to praise my own breed, but I am quite sure that in the county of Sussex the Southdowns will maintain their reputation.

Lord WALSINGHAM said he was fully aware of the fault in the particular sheep that had been mentioned by Mr. Rigden. He did not wish to send it, but he had been overruled. Mr. Rigden would not see it elsewhere. He was not the only winner in that class, for Sir W. Jones had a prize with an animal that did him a great deal of credit, and he felt quite sure that if the Chairman paid attention to the matter for a number of years, he would eventually get a flock that would be of great credit to him. He (Lord Walsingham) liked competition, and wanted it; he knew that his sheep were not easily beaten in Norfolk, but they were in other places, and might be in that county. There was not the competition there ought to have been, but the competition was not always limited to the yard. There was a good deal of competition in the county, and if people who owned animals knew that other and better animals were going to be shown, they would not send their own. The competition, therefore, took place elsewhere than in the showyard. He had slowly risen to the eminent position he now held amongst them, and he was quite sure there were others who could jump over his head.

Miscellaneous.

Testimonial to Edward Holland, Esq., M.P.—Arrangements are rapidly progressing for the purpose of initiating a public subscription, chiefly in the counties of Worcester and Gloucester, for the purchase of a testimonial to be given to Mr. Holland, M.P., of Dumbleton, in recognition of his unwearied services in connection with agriculture and of his private worth. Nearly the whole of the nobility and members of Parliament in the two counties have signified their hearty approbation of the proposal and willingness to co-operate, and the general committee comprises a most influential list of names, including the Secretary of the Royal Agricultural Society, Mr. Hall Dare, and a number of eminent tenant farmers. The amount of individual subscriptions is to be limited, we believe, to a guinea. Mr. Holland has laid the agricultural community under great obligations by the spirit and enterprise he has thrown into the cultivation of the soil, the earnest and constant desire that he has shown to improve the practice and advance the interests of agriculture, and his disinterested exertions for the benefit of tenant farmers in general. Mr. Holland may claim to be the great pioneer of agricultural improvement in this county. For thirty years he has devoted his energy and abilities to the promotion of agricultural science, and in practically demonstrating, by the employment of machinery, by perseveringly bringing to bear on cultivation the resources of capital, skill, and ingenuity, that a prodigious development might be imparted to the productiveness of the soil. It is rare to find a representative of the landlord class manifesting so much earnest concern for the welfare of the tenant farmers as Mr. Holland has uniformly evinced. He has been the able and stedfast advocate of leases, in order to secure that fixity of tenure which is essential to agricultural improvements of a permanent character; and mainly through his instrumentality the Evesham Agricultural Society went to work in earnest on the subject, and devised that concise and efficient form of lease, which was not long ago published in these columns, a lease which found unanimous acceptance with the farmers, and which will, we hope, gradually commend itself, by the justness and reasonableness of its provisions, for adoption by the landlords. Mr. Holland has also distinguished himself as the advocate of a corn rental, or rents calculated according to the average value of corn, a plan which could only redound to the comfort and easement of the tenant farmer. Mr. Holland was among the chief originators of the Agricultural College at Cirencester, an establishment which, by the diffusion of scientific knowledge and the practical demonstration of the best modes and courses of cultivation, has done much for the interests of agriculture. Mr. Holland has also been for many years an active member of the Council of the Royal Agricultural Society, at whose board his habits of business, clear head, and practical conversance with everything pertaining to agriculture have enabled him to render efficient service. *Worcestershire Chronicle.*

The Rev. J. G. Davis and the Bishop of Rochester.—We scarcely dare trust ourselves to speak on the fallen state of a clergymen who has been convicted of taking to agriculture for the benefit of a broken constitution, and who not only associates with farmers, but who absolutely boasts of having the friendship of many leading agriculturists! We may still allow this miserable sinner to say a word or two for himself, as he pleads to his old friend and good bishop in this wise:—"As your lordship has debarred your clergy from field sports and out-door amusements, there is only agriculture in which a man may seek for recreation. I have read as much as most men, but I never yet met with a passage in any writer, sacred or profane, in which agriculture is supposed to be a hindrance to the development of man's higher nature and nobler feelings. The Church, by assigning glebe, of great extent in some instances, recognizes even in her employed members the fact that farming is not unclerical. Mr. Huxtable's appointment last year to the Archdeaconry of Dorset was well received by the Church, and Mr. Huxtable is one of the giants of agriculture. Many clergy farm more thousands than I do hundreds of acres. The glebe at Danbury, which the late Bishop was fond of showing to his clergy, and which I believe your lordship keeps in your own hands, is to the extent of 300 acres. I have never associated with farmers in any other way than every Christian gentleman ought to associate with them. Your lordship will therefore excuse my protesting against my course having been unclerical. Having put the letters into a pamphlet for my own justification, I hope never to hear the subject mentioned again." The good bishop then positively holds a farm of 300 acres in his own hands! But we do hope that he has not the friendship of any leading agriculturists, and that his lordship, at least, does not associate with farmers. And we shall certainly be curious to see how this pariah race will receive the toast of "The Bishop of the Diocese," at their orgies in Witham on Thursday, and whether any clergymen in the county will dare to dine with those outcasts, the farmers of Essex! *Mark Lane Express.*

Calendar of Operations.

JUNE.

NORTHUMBERLAND FARM.—The month of May was dry and scarcely of a seasonably warm character, the wind having veered round from west to north about the middle of the month, in which quarter it remained for several days, having the unfortunate effect of stopping that rapid vegetation usually expected in this month. As a consequence of this, our feeding pastures assumed a withered appearance,—Clovers dwindled away, and Oats began to look very shy in many spots. During the last week however we had a westerly wind again, and with it came warmth, causing crops to look more healthy, though all require rain to give them an impetus to further growth. Showers having at length come, we no longer expect the natural consequence of the dry spring, stunted crops of Oats and Barley. Beans will have very short straw, inasmuch as they are already beginning to show indications of bloom. Winter Wheat alone looks thriving; in fact we seldom remember seeing it so universally promising, whilst here and there a stray ear may be recognised, in itself a sufficient guarantee of an early, and it is to be hoped, a prosperous harvest, so as in some measure to compensate for the past unprecedentedly disastrous year. And whilst touching on the subject of Wheat, it may not be uninteresting to our readers to know that of the many varieties grown in this district, the writer has seen none to equal in appearance the Giant St. Quintin up to the present period of this season. It was introduced onto this farm two years ago from Lincolnshire, and has in every way answered the expectations of the writer; it is of fine quality and strong straw, and during the memorable heavy gales of last harvest it was less injured than any other kind. At this moment its height is about 30 inches, with no indications of getting down, whilst other varieties have already shown symptoms of giving way. *Horse Labour.*—The usual preparation of fallow land for root crops, such as broad-shearing, grubbing, ploughing, harrowing, rolling, drilling, carting off Couch, and carting on manure, horse-hoeing Beans and Oats, &c., has furnished employment sufficient for this branch of labour. We commenced drilling Mangel on the 4th May, and it has since made a very satisfactory braird. Swede-sowing commenced on the 14th, since which period we have continued ever since with unabated vigour, sowing Swedes and subsequently Yellows, as the land became fit. Our manuring consisted of 20 loads of well-rotted dung spread in the drills, upon which was distributed from 2½ to 3 cwt. of mixed guano (Peruvian, Bolivian, and Kooria Mooria). The varieties of Swede sown comprise Skirving's East Lothian, and Marshall's, all of which are now abraird; whilst under the head of Yellow Turnips we include the Border Imperial (Hybrid), and the Green-top Yellow Bullock, the former of which we find to produce the heaviest crop on strong land, and at the same time to possess rare keeping qualities. During the latter part of the month our strong loams were very difficult to reduce to that state of tilth so essential for the regular braird of Turnips, owing to the land having been wrought into so dry a state, that scarcely a moist particle was visible, and even now that it is sown, it will require a liberal soaking with rain before there can be any hope of vegetation. *Hand Labour.*—Our hands have chiefly been employed in gathering Couch, filling and spreading manure, hoeing Oats and Beans, and weeding Corn generally, with the ordinary labour dependent on Turnip culture, and a day now and then in the barn. *Stock.*—Our grazing cattle are now fairly turned out, and though there has been no superabundance of Grass, still they have made very satisfactory progress. We invariably make a rule of housing them at night for the first fortnight, which prevents any slipping of condition, which is so frequently seen in cattle turned out fresh. Sheep stock is also doing well, all having been washed and the Hoggets shorn, whilst some of the latter and also a portion of fat lambs have been sold to the butcher. Much anxiety is now afloat as to the price of wool, and as dealers seem very chary of starting the trade at the present high prices, not much is known about the rates, though *vox agricolæ* says that it must (?) be 2*s.* per lb., and in fact we have heard of one large clip of Hoggets being disposed of at that price. Since our last report, this county has been honoured in being selected by the Royal Agricultural Society for its country meeting in 1864; and although this decision was arrived at amidst the strongest opposition on the part of Darlington and Durham, we feel confident that Newcastle will furnish such facilities for the show on its splendid Town Moor, and ample accommodation to the large influx of visitors which invariably attend on such occasions—and such an opportunity for the test and exhibition of steam cultivators as has never

before been witnessed, viz., on 100 acres of old sward, within 60 yards of the show ground, so that the Council of that great Society will be able to admit that it has been well received, and at the same time feel that it has conferred an immense agricultural boon on the northern counties of England. *J. W.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.*

At 9 A.M., Railway Time.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Thursday ..	June 18	29.92	66	59	W.	0	1	68	54	87	52	0.07
Friday ..	19	29.62	56	55	S.W.	0	10	71	51	92	47	0.09
Saturday ..	20	29.84	61	57	N.W.	1	6	62	51	74	46	1.65
Sunday ..	21	30.11	65	60	S.	0	8	67	49	82	45	..
Monday ..	22	.14	64	60	S.W.	2	9	69	55	82	53	..
Tuesday ..	23	.20	65	58	W.	1	2	66	52	74	47	..
Wednesday ..	24	.18	59	56	S.W.	0	10	71	51	92	47	0.09
Thursday ..	25	.22	66	59	W.	0	1	68	54	87	52	0.07

* Streatley is about 2 miles lower down the river than Moulsford, from which observations up to May 28 were given on May 30.

Notices to Correspondents.

CARROTS: *Usk.* We cannot help you; the Carrot is more liable to this disease in old Carrot ground and on sandy soil. Probably a marling would benefit the land for the future.

GRASS: *Subscriber* has sent us a specimen of a Grass, with a request couched in the following words:—"Oblige us through the medium of an early number with the name of the enclosed Grass, which grows on merse land and frequently under salt water; the merse land is purely "sleachy sand," still this plant grows well, and cattle and sheep are very fond of it." Now we gather from the nature of the inquiry that the land in question is Mere's land, that is land derived from a mere (see "Halliwell's Dictionary of Archaic Words") "or water wherunto an arme of the sea floweth" and that it is a sleech mud or sea-sand, mud with sand usually found in marine estuaries. We have been thus particular in endeavouring to make out our correspondent's meaning, because the Grass in question offers some interesting evidence connected with the species to which it belongs. We should refer the genus to the following species:—Festuca ovina var. duriuscula, and even again a variety of the latter name in F. dumetorum, Linn. The F. ovina is undoubtedly a valuable Grass, and if we view the duriuscula, dumetorum, and rubra, as varieties, we have evidence of the adaptation of a species in its varieties for different positions, and perhaps, indeed, of the varieties themselves being induced by position, as thus—1, F. ovina, dwarf, on uplands, affording a sweet and nutritious herbage because the soil may be good; 2, F. duriuscula, in lowland pastures, much taller and larger than 1., and still yielding good herbage; 3, F. dumetorum, "a variety having the corolla clothed with soft pubescence," (English Botany) adapted for poorer conditions of soil and different circumstances from the rest. It is an inferior Grass to 2, as indeed its pubescence would indicate, but even its tendency to hairiness indicates an adaptability to a poorer soil. F. rubra is still but a form of ovina, also from the sea coast, which is distinguished by a creeping habit, which, indeed, is not infrequent in F. duriuscula. This habit is again increased by the medium in which the Grass lives, for if the F. duriuscula grows on the top of a wall, or in dry sand, it will sometimes creep very much. Now Sinclair says that "the varieties of the creeping rooted Grasses are all to be rejected as unfit for cultivation," and the reason held is that they impoverish the soil. But we conclude that as these varieties have creeping roots, the specimen sent included, it is rather an evidence that they have lived and been induced by poor soil. The argument, then, that we derive from these remarks is that the species in question offers no advantage for cultivation because it grows in the poor sleechy sea sand, for if we are correct we have already in cultivation the best of the forms in F. ovina and duriuscula, which can adapt themselves to any position, but they will give but a poor yield and of poor matter in poor soils, while the form found by our correspondent in the poor soils he mentions will not do any better. *J. B.*

LIQUID DRILL: *An old Subscriber.* About 600 gallons per acre is the minimum quantity, and 3 cwt. of superphosphate may be applied on it per acre. This is at the rate of one gallon holding a half-pound in solution or suspension to every 12 yards of the row if they are 2 feet apart.

THE HYDROPULT,

EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "The machine is certainly the most compact and efficacious force pump of its size that we have ever seen."—*Daily Telegraph.*

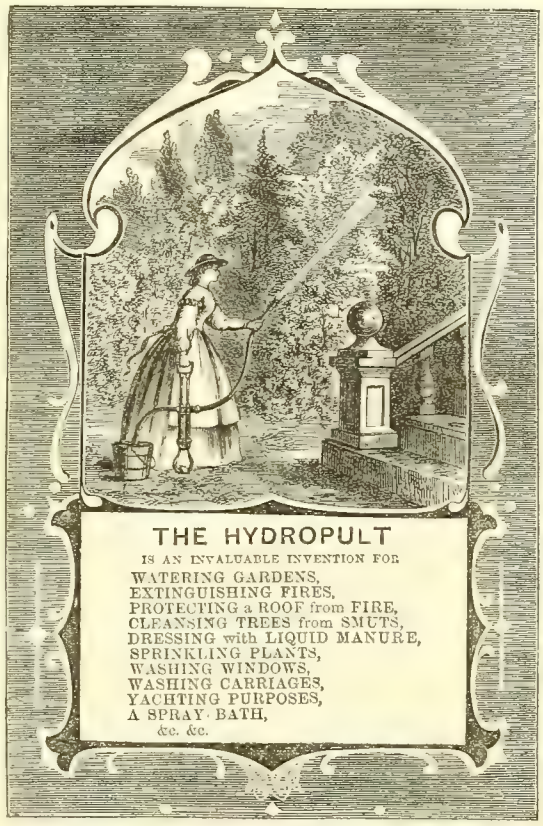
THE HYDROPULT. — "All Londoners and other town residents who care for their gardens and greenhouses should avail themselves of such engines." — *Gardeners' Chronicle and Agricultural Gazette.*

THE HYDROPULT. — "We strongly recommend it to our readers." —*Journal of Horticulture and Cottage Gardener.*

THE HYDROPULT. — "It will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water." — *Gardeners' Weekly Magazine.*

THE HYDROPULT. — "Country readers who order it on our recommendation, will not only not repent, but thank us for calling attention to a machine which, having once used, they will never care to be without."—*Floral World and Garden Guide.*

THE HYDROPULT. — "We can only say that no public establishment or private house should be without one of these useful machines."—*Commercial Daily List.*



EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "We are satisfied that all housekeepers ought to have one, and we are equally satisfied that if they once see it they will order it." — *Liverpool Daily Post.*

THE HYDROPULT. — "We commend it to the notice of the proprietors of warehouses and other buildings, public and private, in the metropolis and provinces.' — *Mechanics' Magazine.*

THE HYDROPULT. — "It is admirably adapted for sprinkling gardens, trees, graperies, washing windows, carriages, and for household purposes, its simplicity and portability being its strong recommendation." — *Illustrated News of the World.*

THE HYDROPULT. — "Nothing has yet been introduced for watering gardens equal to the Hydropult, as any one standing close to his house can water, in a few minutes, any ordinary suburban garden, thus saving much time, and performing the task in an easy, satisfactory manner." — *Builders' Reporter.*

THE HYDROPULT. — "Many of the most scientific men of the age are daily inspecting and testing its uses."— *Age We Live In.*

AN INVENTION FOR THROWING WATER BY HAND POWER

(SECURED by ROYAL LETTERS PATENT),

Price **TWO GUINEAS**

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Small Jet. Weighs but 8 lbs.

Recommended as an efficient and useful Fire Engine by the principal Fire Insurance Companies of Great Britain

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

THOMAS RIVERS, Esq., the eminent Florist, SHIRLEY HIBBARD, Esq., and other well-known gentlemen, recommend it as an invaluable Garden Implement.

EXTRACTS FROM TESTIMONIALS.

"Royal Insurance Office, Liverpool.

"My dear Sir,—I have much pleasure in expressing the high satisfaction, and indeed surprise, with which I witnessed the working of your Hydropult. There can be no doubt that it can be available in the earlier stages of fire in warehouses, manufactories, or private houses, in preventing large conflagrations, while its applicability to gardening and other purposes will be manifest to any one observing its operation.—I am, my dear Sir, yours truly, "PERCY M. DOVE, Manager."

"Chas. P. Button, Esq."

"The invention will prove extremely valuable for all the purposes to which such machines are applied.—SWINTON BOULT, Secretary, Liverpool and London Insurance Company."

"Its portability and facility of operation recommend it to the general notice of the public.—HENRY LOWE, Secretary, District Fire Company."

"In a blowing or mixing room it would be of especial service. — F. J. HALLOWS, Secretary, Caledonian Insurance Company."

CAUTION: Important to the Public.—The extensive sale of the HYDROPULT has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting, as they are often placed under or near the Hydropult show card. The Proprietor therefore issues this caution, and respectfully intimates that parties wishing to purchase the Hydropult, should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, a Portable Fire Annihilator and Garden Engine; GRIFFITHS & BROWETT, Manufacturers, Birmingham; CHARLES P. BUTTON, General Agent (Vose's Patent)." Unless this label be attached, the machine is not the Hydropult.

THE HYDROPULT is MADE of BRASS and COPPER, weighs but 8 lbs., and WILL THROW EIGHT GALLONS of WATER PER MINUTE FIFTY FEET, WHEN WORKED by the POWER of ONE MAN.

Public and private buildings have been saved from destruction by its agency. T. SPENCER, Esq., Inspector of the Royal Society for Protection of Life from Fire, certifies to its efficiency in saving valuable property at Bayswater from destruction.

FIRE! FIRE! FIRE! THE HYDROPULT IS THE MOST EFFICIENT FIRE-ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.

It can be used for all purposes for which a hydrant or force pump is applicable, and in situations where other contrivances are useless.

CHARLES P. BUTTON, PROPRIETOR,

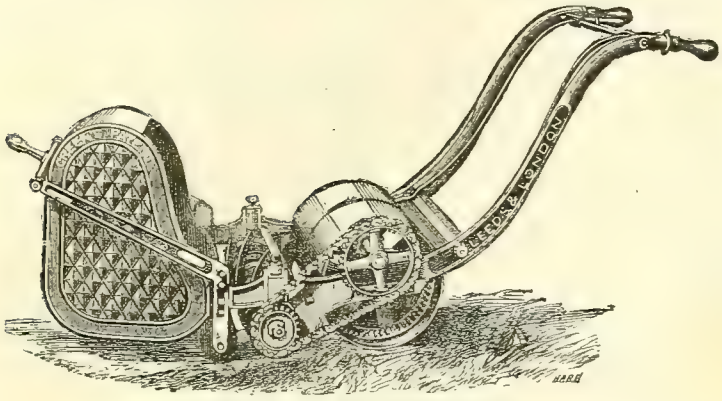
HYDROPULT WAREHOUSE, 27, LEADENHALL STREET, LONDON, E.C.

WEST-END DEPOT, 309, REGENT STREET, W.

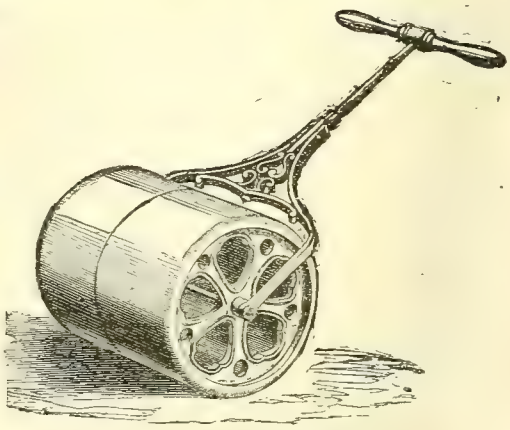
GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS,
PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS
DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

The Patentees, after the long experience they have had in the MANUFACTURE of LAWN MOWERS, have come to the conclusion that three things are essential to constitute a real and efficient Implement, namely, Simplicity of Construction, Durability, and General Practicability, and they are glad to be able to state that they have combined the three, and that their Machines are unequalled not merely by giving satisfaction for one or two seasons, but by their long durability.

Upwards of 14,000 of the above Machines have been sold since the year 1856, and thousands of letters have been received by the Patentees testifying to their efficiency. They do not deem it necessary to publish more than the two following :—

TESTIMONIALS.

"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"DEAR SIR,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, GEO. EYLES."

"Royal Gardens, Windsor, March 27, 1863.

"DEAR SIR,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

"To Mr. Green." "Yours very truly, THOMAS INGRAM."

PRICES.

						If with Patent Delivery Box.
To Cut 10 inches	£3	10	0	Suitable for a Lady.		
„ 12 „	5	0	0	Suitable for One Person.	If with internal gear,	10s. extra.
„ 14 „	5	10	0	Do. Do. Do. Do.		10s. extra.
„ 16 „	6	10	0	Suitable for One Man or Two Boys.		
To Cut 18 inches	£7	10	0	Suitable for One Man and Boy	£8	15 0
„ 20 „	8	0	0	Do. Do.	9	5 0
„ 22 „	8	10	0	Suitable for Two Men	9	17 6
„ 24 „	9	0	0	Do. Do.	10	7 6

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	£12 10 0
„ 26 „	12 10 0	13 12 0
„ 30 „	16 14 0	18 0 0

Leather Boots for Donkey, 16s.; for Pony, 20s.

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	£21 10 0
„ 36 „	23 0 0	24 16 0
„ 42 „	26 0 0	28 2 0
„ 48 „	29 0 0	31 8 0

Leather Boots for Horse, per set, 1l. 4s.

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5s. | Diameter 16 inches, length 17 inches, price £2 10s. | Diameter 24 inches, length 26 inches, price £4 5s.
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

PORTABLE and FIXED STEAM ENGINES; COMBINED THRESHING, SHAKING, and WINNOWING MACHINES;
REAPING and MOWING MACHINES; BONE CRUSHING MILLS; CORN CRUSHING and BEAN SPLITTING MILLS; CHAFF CUTTERS;
TURNIP SHEARS and PULPERS; IMPROVED HAY-MAKING MACHINES, and HORSE RAKES;
CLOD CRUSHERS, and WROUGHT IRON FIELD ROLLERS; PLOUGHS, HARROWS, and CULTIVATORS; VERANDAHS;
PATENT HYDROPULT, and all kinds of GARDEN ENGINES and SYRINGES; GARDEN CHAIRS and TABLES;
ORNAMENTAL FOUNTAINS and VASES; GARDEN TOOLS; PREMIUM CONTINUOUS IRON FENCING and HURDLES;
STRAINED WIRE FENCES, of all kinds; ESPALIER FENCES; GAME-PROOF WIRE NETTING and TRELLIS WORK;
ORNAMENTAL and PLAIN ENTRANCE, WICKET, and FOOTPATH GATES; WROUGHT IRON FIELD GATES; TREE GUARDS;
CATTLE and PIG TROUGHS; SHEEP RACKS; WASHING and WRINGING MACHINES; FIRE-PROOF IRON SAFES; IRON WHEELBARROWS;
IMPROVED IRON STABLE FITTINGS;
and every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;
and MANUFACTURERS of all kinds of IRONWORK for the IMPROVEMENT or EMBELLISHMENT of LANDED PROPERTY.

Illustrated Catalogues on application.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

CARSON'S

ORIGINAL ANTI-CORROSION PAINT.

White ... ... Light Stone ...	Per cwt. 30s.	Bright Red ... ... Dark Do. (or Brick Color) Chocolate Color ... ... Black	Per cwt. 26s.
Bath Do. ... ... Cream Color ... ... Light Portland Stone ... Drab or Portland Do. ... Light and Dark Oak ... Lead Color	26s.	Bright Green ... ... Deep Green ... ... Blue	44s.

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THE BRITISH GOVERNMENT | THE LAMENTED PRINCE CONSORT | RAILWAY AND CANAL COMPANIES
THE RUSSIAN GOVERNMENT | MOST OF THE NOBILITY & GENTRY | COLLIERIES, IRON MASTERS, &c.

It is extensively used at home and abroad for all kinds of

OUT-DOOR WORK,

and has been proved, after a practical test of 70 years, to surpass any other Paint. It is applicable to Wooden Houses, Farm and other Out-Buildings, Park Fencing, Gates, &c.; also Iron Roofing, Bridges, Hurdling, and every description of Iron Work, while for

PUBLIC EDIFICES, MANSIONS, VILLA RESIDENCES,

and every kind of Brick, Stone, Compo, &c., it is unrivalled, presenting the appearance of fine cut stone.

It is undoubtedly the only Paint that will stand on

CONSERVATORIES, GREENHOUSES, FRAMES, &c.

and is in consequence largely used by the Nobility and Gentry, also many eminent Horticulturists, for such purposes. The Anti-Corrosion is Lower in Price, and lasts twice as long as the Best White Lead; at the same time is economical in application, as

ANY PERSON CAN LAY IT ON.

The Anti-Corrosion is a Powder, and will keep any length of time.

Carriage paid upon quantities of not less than 5 cwt. to any station in England and Wales, or by Water to any Port in the United Kingdom, where there is a direct communication from London, as Leith, Dublin, Belfast, Glasgow, Aberdeen, &c.

OIL, TURPENTINE, AND BRUSHES.

Patterns, Cards, and Testimonials sent upon application to

WALTER CARSON & SONS (Successors to the Inventors),

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No Agents throughout the United Kingdom.

For Watering Gardens, Lawns, and Washing Windows, Carriages, &c. India-Rubber Hose-Pipes and Tubing.

James Lyne Hancock, Manufacturer, has a large Stock of all sizes. Also BRASS HAND-BRANCHES, with SPREADERS, STOP-COCKS, JETS, and UNION JOINTS to connect the HOSE to CISTERNS.

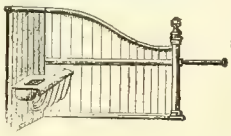
INDIA-RUBBER FIRE-ENGINE HOSE for Private Houses, Mansions, and Breweries, and also the necessary FIRE-BRANCHES and UNION SCREWS.

Illustrated Price Lists on application.

James Lyne Hancock, Vulcanized India-Rubber Works, 266, Goswell Road, London, E.C.

Exhibition Prize Medal 1862.

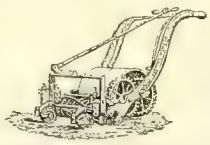
Musgrave's Patent Stable Fittings and Harmless Loose Boxes, Patent Iron Cow House Fittings, and Iron Piggeries.



These inventions are recommended as possessing numerous advantages not to be found in anything hitherto made. At the late Meeting of the Royal Agricultural Society at Leeds, Musgrave Brothers received a Silver Medal, and two Awards of "Highly Commended," being the only Prizes conferred on any competitor in this class.

Particulars sent on application to the Inventors and Makers, Musgrave Brothers, Ann Street Iron Works, Belfast.

Lawn Mowers.



Burgess and Key beg to direct attention to their NEW PATENT LAWN MOWING MACHINE. It is simple, efficient, easily worked, and not liable to derangement. GARDENING and HORTICULTURAL TOOLS of every description. Illustrated Price List free. Catalogues by post on receipt of six postage stamps.

Burgess & Key, 95, Newgate Street, London, E.C.

Morton's New Improved Patent Lawn Mower, with Sun and Planet Motion, having all the most recent Improvements, is allowed to be the best Machine for preventing Ribbing and Clogging.

To be had, with prices and particulars, of Grimmond, Laird, & Co, 15, Cannon Street West, London, E C; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath; and all the principal dealers throughout the country.

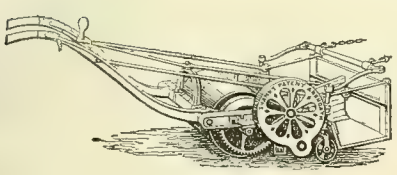
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

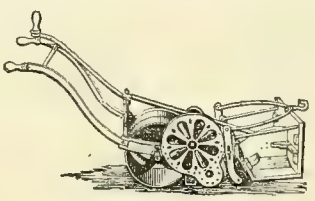
WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

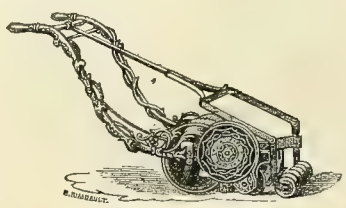
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will Mow equally well on Uneven as on Level Lawns, and whether the Grass be wet or dry. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40s. extra.
No. 2.—42-inch Machine ...	26 0 0	40s. „
No. 3.—36-inch Machine ...	22 0 0	30s. „
No. 4.—30-inch Machine ...	19 0 0	30s. „

Silent Movement, 20s. extra; Boots for Horse's Feet, 24s. per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine ...	£15 15 0	30s. extra.
No. 6.—28-inch Machine ...	14 10 0	30s. „
No. 7.—25-inch Machine ...	12 10 0	25s. „

Silent Movement, 12s. 6d. extra; Boots for Pony, 21s. per set; ditto for Donkey, 16s. per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine ...	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine ...	8 7 6	
No. 10.—19-inch Machine ...	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine ...	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine ...	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25s. extra; Silent Movement, 7s. 6d. extra.

No. 16.—12-inch Machine, for pushing only, £5 5s. Easily worked by a Lady or a Boy; Silent Movement, 4s. extra.

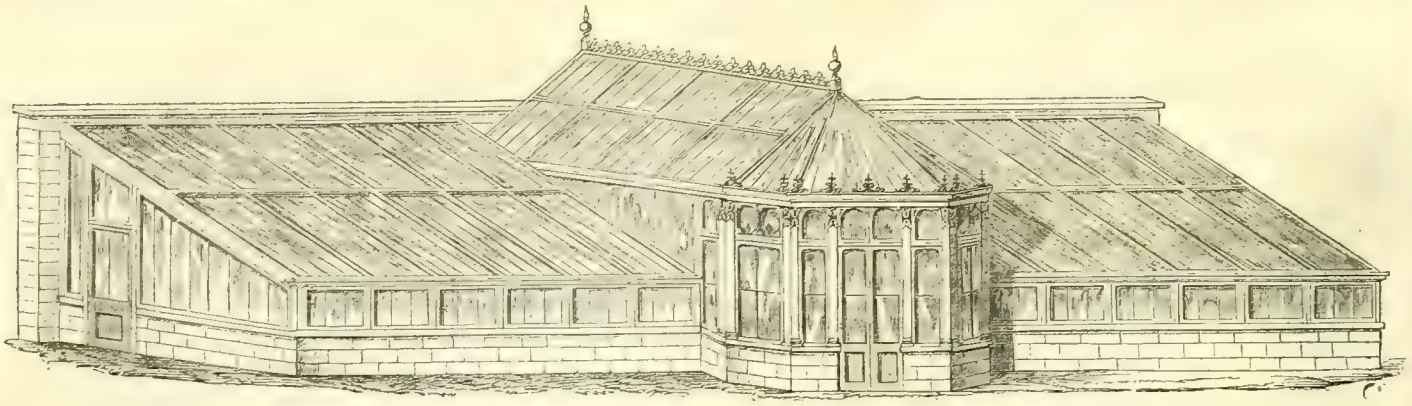
*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

PATENTEES AND SOLE MANUFACTURERS:

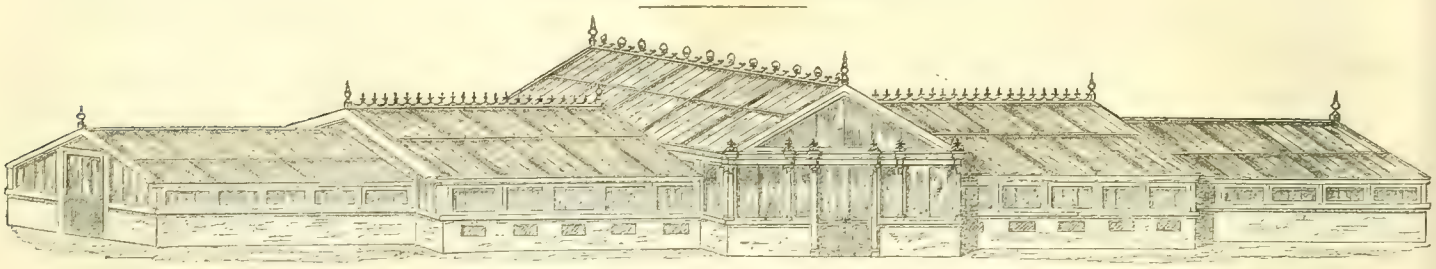
ALEXANDER SHANKS and SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE and SHOW ROOMS: 27, LEADENHALL STREET, E.C.

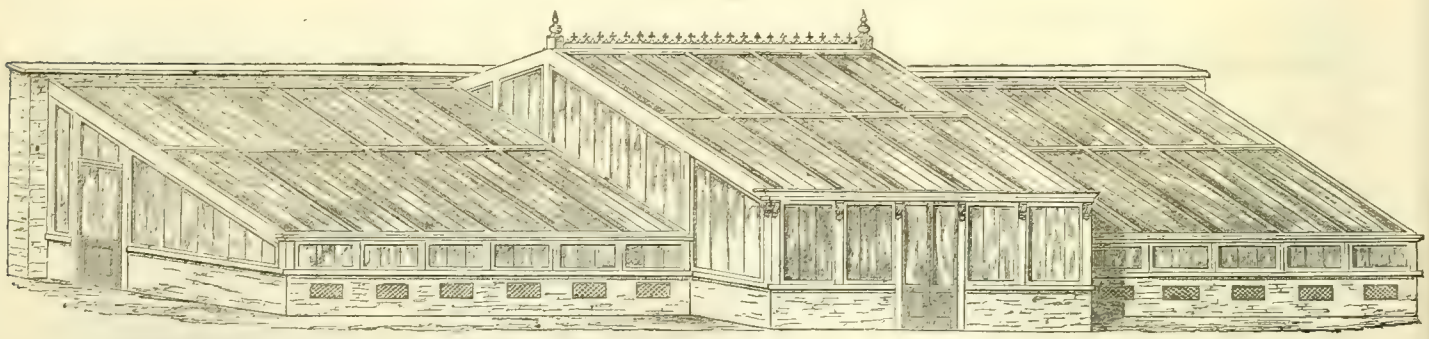
A Stock of Machines kept at the London Depot, from which Orders can be at once executed.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.

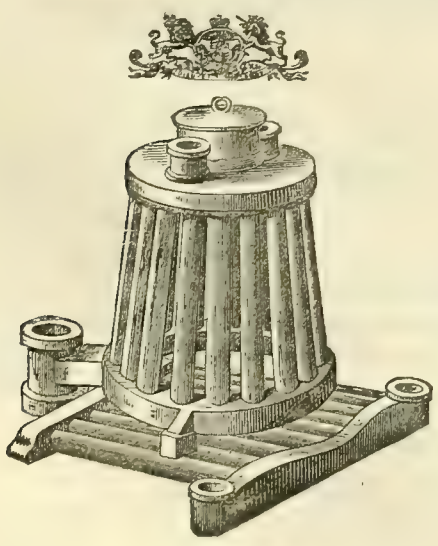


HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.

THE FOLLOWING IS THE REASON WHY

ORMSON'S ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become so universally adopted on account of their superior power, great safety, and economy.



ORMSON'S No. 1 BOILERS	are heating upwards of	250	feet of	Pipe.
ORMSON'S No. 2 BOILERS	„	„	600	„
ORMSON'S No. 3 BOILERS	„	„	1300	„
ORMSON'S No. 4 BOILERS	„	„	3500	„
ORMSON'S No. 5 BOILERS	„	„	7000	„

Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

H. ORMSON having a most complete Set of Steam-power Machinery, is in a position to execute Orders with the greatest despatch, and at considerably reduced prices.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

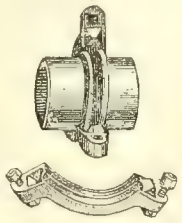
HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,
AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF
HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices :—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. Gray begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

UNDER THE PATRONAGE OF HER MAJESTY.

CLARK & HOPE

(LATE CLARK),

55, LIONEL STREET, BIRMINGHAM.

Established A.D. 1818.

HORTICULTURAL BUILDERS, AND MANUFACTURERS OF HOT-WATER APPARATUS,

COPPER SASHES, HAND-GLASSES, VERANDAHS, SKYLIGHTS, WROUGHT IRON WINDOWS, CASEMENTS, ETC.

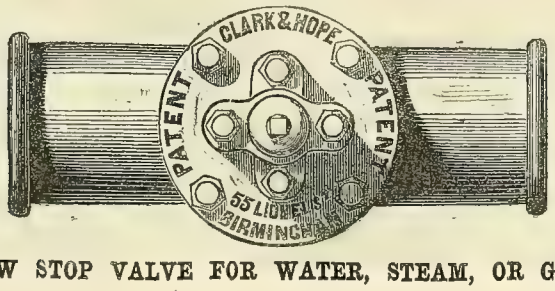
C. & H. beg to refer the Nobility and Gentry, for samples of METALLIC WORK executed at this Establishment, to the extensive ranges of Horticultural Buildings erected in the Royal Gardens, Windsor and Osborne; at Arundel Castle, Penrhyn Castle, Drayton Manor, Walcot (seat of Earl Powis), Roehampton (for the late H. S. L. Stephens, Esq.), &c., and to state that, being in possession of all the patterns used respectively in the construction of these edifices, they are enabled, by means of recent alterations and improvements in their Shopping and Steam-power Machinery, to offer similar structures at 25 per cent. less than the original cost, and to guarantee the utmost promptness and accuracy.

In the HOT-WATER APPARATUS Department, C. & H. would refer to the following extensive works, viz., in the Forcing Houses and Mansion of Lady Windsor, at Hewell; the Mansion and Conservatory at Walcot, the Mansion and Conservatory of H. E. Gurney, Esq., in Surrey; and the Forcing Houses at Arundel Castle, Sussex; Singleton Abbey, Swansea; Monks Orchard, Kent; Grendon Hall, Staffordshire; and Langleybury, Herts.

And, for Structures of Wood, to those erected for Lewis Loyd, Esq., Monks Orchard, Kent; the Earl of Aylesford, Packington; H. H. Vivian, Esq., Swansea; J. H. Foley, Esq., Prestwood Hall, Worcestershire; and W. Jones Loyd, Esq., Langleybury, Herts.

Lithographed Designs forwarded upon application.

BY HER MAJESTY'S ROYAL LETTERS PATENT.



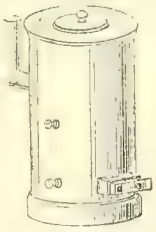
NEW STOP VALVE FOR WATER, STEAM, OR GAS.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. Lynch White's Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S.

Price List on application.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3d. per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

Sussex.

TO BE LET, on the 11th October next, the NEWHOUSE FARM, in the parishes of Ewhurst and Northiam, consisting of 430 acres 3 roods 37 perches of Arable, Hop, Grass, and Wood Land.

The Farm has been in the hands of the Proprietor for several years, is mostly thoroughly drained, and the House and Buildings are of a superior description.

There are 12 Labourers' Dwellings on the Farm, Blacksmith's and Wheelwright's Shops, and an excellent Brickyard.

The farm is delightfully situated in the most picturesque part of Sussex, 11 miles from Hastings and St. Leonard's, 10 from Rye, 8 from Battle and Robertsbridge—all first-class stations. It is intersected by good roads.

The Shooting over the Land, together with that of 120 acres of Wood Land adjoining, will be let with the Farm. Fox hounds and Harriers are within easy reach.

Altogether it is a most desirable occupation. Further particulars may be had on application to Frederick Webster, Esq., Battle.

MESSRS. BEADEL have the following FARMS to LET at Michaelmas next :—

Essex.

A CORN FARM to be LET UPON LEASE (in consequence of the decease of the late Tenant), comprising a good Residence, very pleasantly situate; a complete Set of Agricultural Buildings recently erected, and in the centre of the Occupation; Seven Labourers' Cottages, and 402 Acres of Arable and Pasture Land, the whole thoroughly Pipe-drained and divided into Enclosures, well adapted for Steam Cultivation. It is distant about 7 miles from Chelmsford and 6 from Maldon.

Hertfordshire.

A very useful FARM, comprising 361a. 2r. 31p. of Land, lying in a Ring Fence, with convenient Farm Residence, very pleasantly situate, and newly-erected Homestead, placed in the centre of the Occupation. It is distant only 4 miles from the Town of Ware, 6 from Hertford, and only about an hour's ride from London by the Great Eastern Railway.

Near Dorking, Surrey.

A very desirable OCCUPATION of about 300 Acres, of which 220 are Arable and 80 Pasture, the whole admirably adapted for the Rearing and Feeding of Stock, the Grass Land being of first-rate quality, and the Arable suitable for Cereal and Root Crops. There is a very comfortable Residence, Eight Labourers' Cottages, and several Sets of Buildings conveniently dispersed about the Land.

For further particulars and Cards to view apply to Messrs. Beadel, 25, Gresham Street, E.C.

Sales by Auction.

Importation of Tree Ferns from Melbourne.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, July 4, without the least reservation, an importation just received ex "Swiftsure" from Melbourne, comprising 42 LARGE TREE FERNS varying in size from 4 to 7 feet; they are the finest that the collector could obtain.

On view the Morning of Sale, and Catalogues had.

For Absolute Sale, without the least Reservation.

To the Trade. ORCHIDS.

Importation of Cattleya superba, 400 Plants.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION, without the least reservation, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, July 4, at half-past 12 o'Clock precisely, the MOST EXTENSIVE IMPORTATION of CATTLEYA SUPERBA ever offered for public competition, just arrived in several cases per "Mail Steamer," in capital condition. Having been transmitted direct they will be sold without delay in lots to suit public and private growers. The collector is certain that years must elapse before a similar quantity of this "the most superb variety of this beautiful race," can be again offered, having brought away all the largest plants from the country. There are no less than 400 fine plants of this splendid species, affording an opportunity to Orchid growers of adding fine masses of this (long wished for and difficult to obtain) Orchid to their collections.

On view the Day prior and Morning of Sale, and Catalogues had of Mr. J. C. Stevens, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, W.C. If for the country by enclosing two stamps.

Final Sale.

To Gentlemen, Nurserymen, Builders, and Others.

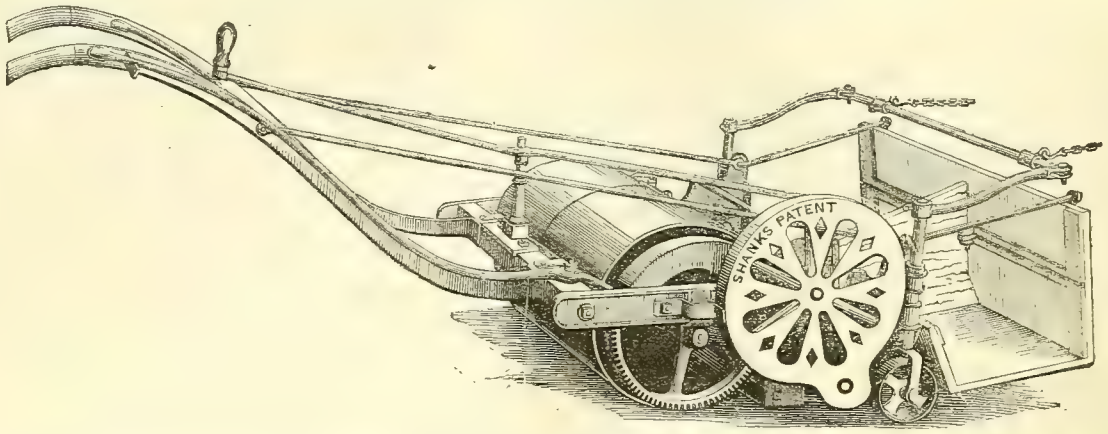
MESSRS. PROTHEROE AND MORRIS have received instructions from the Executrix of the late Thomas Gaines (deceased) to submit to an unreserved SALE by AUCTION, on the Premises, Surrey Lane, Battersea, within five minutes' walk of Battersea Park, on MONDAY, July 13, at 11 o'Clock, a newly erected SHOW HOUSE, 41 feet 10 inches long by 32 feet over; 12 capital GREENHOUSES; a quantity of 2, 3, and 4-inch Hotwater Pipe, Saddle and other Boilers, Slate Shelving, York Paving; a capital Box, Spring Van with patent Axles, Tumbril Cart, and other effects.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

SHANKS' NEW

PATENT LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE.

WITH SILENT MOTION IF SPECIALLY DESIRED.



HORSE-POWER MACHINE.

SHANKS' MOWING and ROLLING MACHINE is in successful operation in HER MAJESTY'S GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the EMPEROR of the FRENCH; in the GROUNDS of HIS ROYAL HIGHNESS the PRINCE of PRUSSIA; and in many other places throughout the Continent, as well as in the United States, British America, India, Australia, and other parts abroad. It is also used in most of the Gardens of the principal Nobility and chief Landed Proprietors in the kingdom, and everywhere its merits have been fully proved and its success established.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for Use.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.

No. 1.—48-inch Machine	... £28 0 0	*Drawn by a Horse.*
No. 2.—42-inch Machine	... 26 0 0	
No. 3.—36-inch Machine	... 22 0 0	
No. 4.—30-inch Machine	... 19 0 0	*Drawn by a Horse or strong Pony.*

Patent Delivering Apparatus for Nos. 1 and 2 Machines, 40*s.*; for Nos. 3 and 4 Machines, 30*s.*; Silent Movement, 20*s.*

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.

No. 5.—30-inch Machine	... ... £15 15 0	*Drawn by a Pony.*
No. 6.—28-inch Machine	... ... 14 10 0	
No. 7.—25-inch Machine	... ... 12 10 0	*Drawn by a Donkey.*

Patent Delivering Apparatus for Nos. 5 and 6 Machines, 30*s.*; for No. 7 Machine, 25*s.*; Silent Movement, 12*s.* 6*d.*

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for use.

Width of Cutter.

No. 8.—24-inch Machine	... ... £8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	... ... 8 7 6	
No. 10.—19-inch Machine	... ... 7 12 6	*Do. by a Man and a Boy.*

Width of Cutter.

No. 11.—16-inch Machine	... ... £6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	... ... 6 2 6	*Do. by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, and which is only recommended for the two larger sizes, 25*s.*; Silent Movement, 7*s.* 6*d.*

No. 16.—12-inch Machine for Pushing only, £5 5*s.*; easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

Machines are kept in Stock, from which Orders can be at once executed.

*** *The Machines are warranted to give ample satisfaction, and if not approved of may be at once returned.*

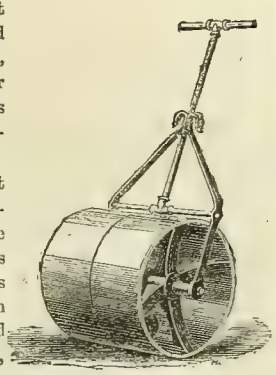
AGENTS:

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

NEW PATENT DOUBLE-CYLINDER GARDEN ROLLER.

This Roller will turn round the sharpest curves or angles, and even in its own length, without damaging or disfiguring either Grass or Gravel in the dampest weather.

Although the Patent Garden Roller is somewhat heavier than the ordinary Roller, it is used with much less labour, especially in winding walks and borders, and the work, especially on Grass, is much better done.

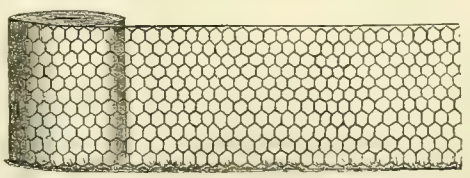


PRICES.

20 Inches	... £3 5 0	26 Inches	... £4 15 0
22 „	... 3 15 0	28 „	... 5 15 0
24 „	... 4 5 0	30 „	... 7 0 0

IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT, WITH REDUCED PRICE.



PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light.		Medium.		Strong		Extra Strong.	
		Jap	Gal.	Jap	Gal.	Jap	Gal	Jap	Gal.
		s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d*	*s. d*	*s. d.*
2 in.	Poultry	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits ..	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c.	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c. ..	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.

GARDEN ENGINE.



Of improved make, painted Tub, with Registered Spreader complete—to hold 12 Gallons, £3 5*s.*; 16 Gallons, £3 15*s.*; 20 Gallons, £4 10*s.*; 30 Gallons, £5 5*s.*

PRICE LISTS ON APPLICATION.

GARDEN SEATS and CHAIRS, IRON and WIRE ARCHWAYS, CAST-IRON VASES, and every description of Horticultural Machines, Tools, and appliances.

Every article guaranteed to be satisfactory.

☞ CATALOGUES of AGRICULTURAL IMPLEMENTS, &c., in Parts as under, Free on application:—

Part I. Implements of Tillage, &c. | Part II. Harvesting and other Machines. | Part III. Barn Machinery and Miscellaneous.

J. B. BROWN AND CO., 18, CANNON STREET, CITY, LONDON, E.C.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 27.—1863.] SATURDAY, JULY 4. {Price Fivepence. Stamped Edition, 6*d*.

INDEX.

An agricultural sketch	636 *b*	Pansies, fancy	628 *a*
Abies and Picea	629 *c*	Paper on Leases, rev.	638 *b*
Araucaria, bleeding	629 *c*	Peach mildew	632 *c*
Bee cells	636 *a*	Peonies, Moutan	632 *a*
Beer	636 *a*	Pigs and flies	636 *a*
Bees, humble	629 *b*	Plants, new	627 *c*
Books, various	632 *a*	Rose shows	629 *c*
Breaking up Grass land	633 *c*	Sewage of towns	634 *c*
Cells, bee and wasp	628 *c*	Society, Royal Agricultural	637 *b*
Cirencester Agri. College	635 *c*	— Highland and Agri.	637 *a*
Clematis caterpillars	632 *c*	— Royal Horticultural	627 *b*
Crystal Palace show	629 *c*	Steam cultivation	635 *a*—636 *a*
Cultivation by steam	635 *c*	Strawberry La Constante	629 *c*
Disa grandiflora	628 *a*	Strawberries, sexuality of	627 *b*
Ferns, Film	627 *c*	Sweet Williams	629 *b*
Foreign Correspondence	636 *b*	The German Reuter	636 *b*
Grub in Mangel Wurzel	634 *b*	Town sewage	635 *a*
Horse and steam power, comparative cost of	636 *a*	Verbenas, Italian	632 *c*
Hypericum Hookerianum	629 *b*	Vine scissors	629 *c*
Lilium giganteum	629 *c*	Viti. Seemann's Mission to	631 *c*
Lindsæas	627 *c*	Wasp cells	628 *a*
Mangel Wurzel grub	634 *b*	Working men's clubs	635 *b*
		Yearly tenancy	638 *b*

ERRATUM in last week's Royal Botanic Society's Advertisement—Gold Medal to Mr. W Cutbush, Nurseryman, Barnet, Herts, for 10 Stove and Greenhouse Plants, instead of Mr. W. Cutbush, Nurseryman, Highgate.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.

The NEXT MEETING of this Committee will take place on TUESDAY, July 7, at 12 o'Clock.

The Subjects for Examination must be at South Kensington for entry by 11 A.M.

THOS. MOORE, Secretary to the Committee.

STAMFORD HORTICULTURAL SOCIETY.
OPEN TO ALL ENGLAND.

The GRAND FÊTE and ROSE SHOW will take place on WEDNESDAY, July 8.

Schedules, with forms for entry, may be had on application to Messrs. LAXTON & HEWITT, Hon. Secs., Stamford.

BIRMINGHAM ROSE SHOW, 1863.—The SECOND GREAT ANNUAL EXHIBITION of ROSES (Open to the United Kingdom), will be held in the Town Hall, Birmingham, on THURSDAY and FRIDAY, July 16 and 17. Entries Close on Thursday next, July 9.

Prize Lists and Forms of Entry may be obtained from the Secretary, Mr. A. FORREST, Queen Chambers, Cherry Street, Birmingham.

GRAND HORTICULTURAL FÊTE at the ALEXANDRA PARK, Wood Green, Hornsey; to be held on THURSDAY and FRIDAY, July 23 and 24.

Total amount of Prizes about 700*l*., which may be had in Medals, Vases, or Cash.

Prizes are offered for Three Groups of Fruit and Flowers for the Decoration of the Dinner Table; three Vases arranged with plants for Conservatory Decoration; and Three Hanging Baskets of Plants effectively arranged.

The prizes of above to be awarded by a jury of Ladies.

Schedules of Prizes, and every information of the Flower Show, may be had on application to ALEX. MCKENZIE.
Alexandra Park, Tottenham Wood, Hornsey.

Open to all England.

GRAND HORTICULTURAL SHOW to be held at KETTERING on THURSDAY, July 30, in connection with the Northamptonshire Agricultural Society's Show, when Prizes to the amount of 200*l*. will be distributed, including FIVE SILVER CUPS.

The Show Ground adjoins the Midland Railway Station at Kettering. Special Trains will run, of which due notice will be given by the Midland and North-Western Railway Companies.

Schedules, price 3*d*. each, may be obtained of Mr. WADDINGTON, Printer, Kettering.

Calceolaria, Cineraria, and Primula.

F. AND A. SMITH are now sending out their very superior strain of the above, carefully selected from first-class varieties, in Packets at 1*s*., 1*s*. 6*d*., and 2*s*. 6*d*. each.
The Nurseries, Dulwich, London, S.

SWEET WILLIAMS (HUNT'S SUPERB VARIETIES).—The Advertisers having saved a quantity of the above splendid strain, can supply it in 6*d*. and 1*s*. packets, or 2*s*. 6*d*. per oz., post free. The Trade supplied.
E. P. DIXON & SONS, Seedsmen, Hull.

E. G. HENDERSON AND SON offer first-class quality of CINERARIA, PRIMULA SINENSIS FIMBRIATA, and PANSY. Also, CINERARIA WEBBI, new shrubby species.

All the above, 1*s*. and 2*s*. 6*d*. per packet.

☞ EXPERIENCED GARDENERS recommended to Gentlemen.
Wellington Nursery, St. John's Wood, London, N.W.

Imported Orchids.

B. S. WILLIAMS has just received a fine importation of the following ORCHIDS:—
LYCASTE SKINNERI | CATTLEYA MOSSIÆ
GALEANDRA DEVONIANA, a choice and rare plant, finest of the genus.

Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

CALCEOLARIA, CINERARIA, PRIMULA, &c.—CALCEOLARIA, saved from carefully hybridised flowers, possessing all the recognised floral qualifications, viz., size, form, colours, and marking. Price, 1*s*. and 2*s*. 6*d*. per packet.
CINERARIA, extra choice, 1*s*. per packet. PRIMULA SINENSIS FIMBRIATA, extra choice, 1*s*. and 2*s*. 6*d*. per packet.
DRACÆNA (CORDYLINE) INDIVISA, from Mount Egmont, New Zealand; beautiful fine foliaged plant, 1*s*. and 2*s*. 6*d*. per packet.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Best Seeds, Carriage Free.

BUTLER AND MCCULLOCH,
SEED MERCHANTS,
Covent Garden Market, London, W.C.

BARR AND SUGDEN,
SEED MERCHANTS,
12, King Street, Covent Garden, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON,
NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Agricultural Seeds.

GEORGE GIBBS AND CO.,
SEEDSMEN,
26, Down Street, Piccadilly, London, W.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS and NURSERYMEN.
237 and 238, High Holborn, London, W.C.

CARTER'S FIRST-CLASS SEEDS of
CALCEOLARIA .. .. .. 2*s*. 6*d*. p. packet
" new blotched .. 2 6 "
CINERARIA .. .. 2 6 "
PRIMULA .. .. 2 6 "
JAS. CARTER & Co., 237 and 238, High Holborn, W.C.

DOBSON'S SPLENDID SEEDS.—See Advertisement in *Gardeners' Chronicle* of June 13, page 550.
J. DOBSON & SONS, Seedsmen, Isleworth.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.
Dorking Nursery.

British Fern Catalogue.

ROBERT SIM can now send, Post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

ALOCASIA MACRORHIZA VARIEGATA.—Good plants, 10*s*. 6*d*. each.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

To Orchid Growers.

LUCOMBE, PINCE, AND CO. beg to state that they have to dispose of, at extremely moderate prices, a fine stock of specimen and half specimen AERIDES ODORATA, now in full bloom. The plants are exceedingly healthy, vigorous, clean, and well grown.
Sizes and prices may be had on application.
Exeter Nursery, Exeter.

To Plant Collectors and Others.

B. S. WILLIAMS will be happy to make arrangements with Botanists and others going abroad for the TRANSMISSION of ORCHIDS and other RARE PLANTS in any quantity.
Paradise and Victoria Nurseries, Holloway, London, W.

Herbaceous Calceolaria.

GUARANTEED FINEST QUALITY AND NEW SEED.

WM. CUTBUSH AND SON beg to offer the above, saved with the greatest care from the Stock, which invariably obtains the FIRST PRIZES wherever exhibited. Per packet, 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*., Post-free. Liberal allowance to the Trade.
Highgate Nurseries, London, N.

New Verbenas of 1863.

B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, has now ready to send out the NEW VERBENAS of 1863, at 4*s*. per dozen.

CATALOGUES of VERBENAS and other Novelties sent on application.

NEW VERBENAS of 1863.—22 Splendid Varieties, well established in pots, for 10*s*. Also 100 CHRYSANTHEMUMS for 21*s*., including most of the best varieties in cultivation, both Large and Pompones, well established in pots; without pots, 15*s*. per 100.
S. EVANS, Florist, &c., Chichester, Sussex.

NOVELTIES of 1863 at greatly reduced prices.—A CATALOGUE of 30 pages, containing full descriptions of nearly 500 New Choice Plants of the season, including the New Fuchsias and Verbenas, &c. Post free for one stamp.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Choice Seeds.

B. S. WILLIAMS begs to offer First-class quality of the undermentioned SEEDS:—

PRIMULA SINENSIS FIMBRIATA, Red,	Per packet.	
White, or Mixed	2*s*. 0*d*.	3*s*. 6*d*.
CALCEOLARIA, herbaceous	1 6	2 6
CINERARIA, from choice named flowers..	1 6	2 6
PANSY, very choice	0 6	1 0

Paradise and Victoria Nurseries, Holloway, London, N.

Anemone Seed.

JOHN HOADE AND SON beg to offer NEW SEED of their splendid ANEMONES, with printed directions for sowing and after culture. Also their splendid strain of (HUNT'S) SWEET WILLIAM. In packets, free by Post for 13 stamps each.
Addlestone Nursery, Surrey.

Good Turnip Seeds, Carriage Free.

SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

Paul's Nurseries, Waltham Cross.

WM. PAUL'S ROSES are NOW in FULL BLOOM.
See Advertisement on p. 622.

American Nurseries, Leytonstone, N.E.

PROTHEROE AND MORRIS beg to announce that their ROSES (which include all the newest and most approved varieties) are NOW in FULL BLOOM, and are well worthy an inspection. The Nurseries are accessible by Railway from Fenchurch and Bishopsgate Street Stations, whence Trains leave 12 times daily to Leytonstone Station, which adjoins the Nurseries.

Roses.

MESSRS. RIVERS AND SON beg to announce that their large COLLECTION of ROSES is NOW in FULL BLOOM. A day may be spent among Roses. Their ORCHARD HOUSE TREES are also well worthy of inspection.

The Harlow Station, (Great Eastern Railway), where Flys attend, is the most convenient.
Nurseries, Sawbridgeworth, Herts.

New Roses for 1863.

WM. WOOD AND SON are now supplying all the NEW ROSES in splendid Plants at reasonable prices. The leading kinds of PERPETUAL and other ROSES in pots are also offered by the dozen, hundred, or thousand.
Address, Woodlands Nursery, Maresfield, Uckfield, Sussex.

New Roses for 1863.

BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.
St. John's Street Nursery, Colchester.

New Roses of 1863.

E. G. HENDERSON AND SON offer strong healthy plants of the most select kinds at 42*s*. per dozen. The Trade supplied in any quantity.
Wellington Nursery, St. John's Wood, London, N.W.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON).—Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7*s*. 6*d*. each, are now ready.
Old Cheshunt Nurseries, Herts.

ROSES, ROSES, ROSES.—Fine Roses in Pots now ready for planting out. Strong Plants at 9*s*., 12*s*., to 18*s*. per dozen; 100 splendid Plants for 5*l*., including John Hopper, Reynolds Hole, Madame C. Wood, &c. 50 for 3*l*.
HENRY WALTON, Edge End, Marsden, Lancashire.

Roses and Rhododendrons.

JOHN PALMER AND SON beg to intimate that their NEW DESCRIPTIVE CATALOGUE of ROSES and RHODODENDRONS is now ready, and may be had free on application.

J. P. & SON may observe that their Stock is very extensive, and includes all the newest in cultivation.
Annan, N.B.—July 4.

DOBSON'S PRIZE CALCEOLARIA SEED is unequalled in the kingdom. Annual Sale exceeds 3000 packets. In sealed packets, 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*. each.
J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE CINERARIA SEED.—Ten First Prizes awarded to our collection in the spring, 1862. In sealed packets, 1*s*., 2*s*. 6*d*., and 5*s*.
J. DOBSON & SONS, Seedsmen, Isleworth.

DOBSON'S PRIZE PRIMULA SINENSIS SEED.
In sealed packets, 1*s*., 2*s*. 6*d*., and 5*s*.
J. DOBSON & SONS, Seedsmen, Isleworth.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, now ready for Planting. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Extra Strong Vines.

LUCOMBE, PINCE, AND CO., having devoted great attention to their GRAPE VINES, can this season offer a fine healthy Stock of strong Canes 6 to 10 feet long, of all the choicest sorts, fit for immediate planting, propagated from Eyes taken from their own experimental Vinery, which enables them to warrant each kind true to name.

Their experimental Vinery is now very finely in fruit, and they invite an inspection of it, and their stock of Vines.

LISTS of Sorts and Prices may be had on application.
Exeter Nursery, Exeter.

NEW PRIZE MELONS, at 1*s*. 6*d*. per packet.
Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra, and Queen Victoria.
For descriptions see GUIDE to the KITCHEN GARDEN.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

NEW CUCUMBERS, at 1*s*. per packet.
Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

NEW TURNIP SEED.—Now ready for Sale, a quantity of true POMERANIAN TURNIP SEED.
Apply to DENNETT AYLING, Sandhill Rogate, Petersfield.

"Old" Cheshunt Nurseries, Cheshunt, Herts.

PAUL AND SON have the pleasure to announce that their ROSES are NOW finely in BLOOM, and will continue so throughout July.

Their collection includes the new Roses as well as immense quantities of all the older kinds, and will (in its extent and choice they believe the largest in the kingdom) amply repay a visit.

The OLD Nurseries may be reached by trains from Bishopsgate to Cheshunt Station (within one mile of the nurseries), every one or two hours.

CATALOGUES on application.

Roses.

The ROSES at the WALTHAM CROSS NURSERIES are NOW in FULL BLOOM.

MR. WM. PAUL respectfully invites all lovers of this popular flower to visit and inspect them. TWENTY FIRST PRIZES and NINE SECOND have been awarded to him for ROSES during the present year, and above 100,000 Plants are now growing in these Nurseries Waltham Cross is 11 miles from London, and a first-class station on the Great Eastern Railway. It is also a delightful drive from the West-end of London, through Tottenham, or the Green Lanes and Enfield.

Entrance to the Nurseries from the platform, Waltham Station (for railway passengers only), and from the High Road, Waltham Cross, N.

Novelties of 1863 at Low Prices.

HENRY WALTON is now sending out strong healthy Plants of all the leading Novelties of the season, comprising FUCHSIAS, PETUNIAS, VERBENAS, PENTSTEMONS, ANTIRRHINUMS, TROPÆOLUMS, GERANIUMS, DESCRIPTIVE CATALOGUE on application enclosing stamp. Not to be equalled in the Trade for price and quality.

Edge End, Marsden, Lancashire.

FUCHSIA TREES.—A large quantity of choice varieties, 3 to 5 feet high, 2*s.* 6*d.* and 3*s.* 6*d.* each. BRITISH and FOREIGN FERNS, an immense variety. Greenhouse and Stove Plants, Evergreens, &c., Fern Cases and Aquariums. Aviaries and Foreign Birds of every description.

R. GREEN, 154, Kingsland Road, N., and the Bedford Conservatories, Covent Garden Market, W.C.

W. VIRGO AND SON have a great quantity of the undermentioned Plants to offer for Sale, at the following prices:—

DRUMHEAD CABBAGE	3*s.* 0*d.*	per 1000
DRUMHEAD SAVOY	3 0	,,
Red and White Transplanted and strong CELERY	6 8	,,

Wonersh, near Guildford.

TRADE

HALLETT'S PEDIGREE NURSERY WHEAT.

MARK.

This Wheat will be exhibited at the forthcoming International Agricultural Meetings at Hamburg; and at the Worcester Meeting of the Royal Agricultural Society, upon the STAND of Messrs. THOS GIBBS & Co., their Seedsmen.

"HOW OUR WHEAT CROPS MAY BE DOUBLED," and other Papers, forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

New and Rare Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, amongst which are some very fine specimens.

Now ready, post-free to all applicants.

A NEW GENERAL PLANT CATALOGUE, containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Herbaceous and Alpine Plants, Roses, Hardy Trees and Shrubs, Fruit Trees, &c.

With a DESCRIPTIVE LIST of New, Beautiful, and Rare Plants.

Paradise and Victoria Nurseries, Holloway, London, N.

Azalea indica, &c.

ROBERT PARKER begs to offer strong healthy GRAFTED PLANTS of all the leading varieties in cultivation, in selections, from 18*s.* per dozen.

ALOCASIA METALLICA, from 10*s.* 6*d.* to 105*s.* each.
CALADIUM, of sorts, from 18*s.* per dozen.
CENTAUREA ARGENTEA, 5*s.* each.
,, RAGUSINA, 24*s.* per dozen.

Priced and Descriptive CATALOGUES of PLANTS, &c., forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

New Indian Azaleas, and Rhododendron Prince of Wales.

WILLIAM ROLLISSON AND SONS beg respectfully to announce that they have purchased the stock of Mr. TODMAN'S three NEW INDIAN AZALEAS, viz.:—

AZALEA PRINCESS of WALES
AZALEA LORD CANNING | AZALEA RIFLEMAN

three most beautiful and distinct varieties, of fine form and good substance. Healthy young plants of the above, grafted and from cuttings, will be ready for delivery next April at 21*s.* each.

WM. R. & SONS will send out at the same time their new SEEDLING RHODODENDRON, PRINCE of WALES, a cross between Rhododendron javanicum and Rhododendron retusum, a most beautiful variety. The flowers are a brilliant scarlet orange, fine dark green foliage, and of good habit. A most valuable acquisition as a greenhouse or conservatory plant. Healthy young plants, next April, at 31*s.* 6*d.* each.

The usual discount allowed to the Trade.

The Nurseries, Tooting, London, S.

New Hybrid Mimulus.

E. G. HENDERSON AND SON having raised a collection of Seedling Varieties between M. CUPREUS and M. LUTEUS in its recent forms, respectfully offer a selection for Pot Culture and Flower Garden decoration. They unite the dwarf, compact, and profuse blooming habit of M. cupreus, with the large blossoms of M. luteus and rivularis, and are thus finely adapted for early spring bloom in the Greenhouse and Conservatory from February to May. The ground colours vary from bright sulphur-yellow to a rich golden lustre with coppery tints, elegantly marmorated with crimson bands, spots, and belts; some of the forms from Seed are also beautifully tipped or blotched with buff-like marks on the inner or outer margins.

2*s.* 6*d.* each; or a selection of 6 kinds, 12*s.* Seed for early sowing, to bloom in spring, 1*s.* and 2*s.* 6*d.* per packet.

Wellington Nursery, St. John's Wood, London, N.W.

SEEDSMEN BY APPOINTMENT Sutton AND Sons

TURNIP and GRASS SEEDS for PRESENT SOWING.

As some kinds of Turnips are more suitable for late sowing than others, Messrs. SUTTON beg to recommend the undermentioned as the most desirable for that purpose.

Prices for the months of July and August, 1863:—

SUTTON'S EARLY SIX WEEKS TURNIP, the earliest Turnip known, 8*d.* per lb., or cheaper by the bushel.

SUTTON'S IMPERIAL GREEN GLOBE, very fine, best for the main crop, to be sown in July and August, for autumn and winter use, 8*d.* per lb., or cheaper by the bushel.

HARDY GREEN ROUND (Old Sort), to be sown in July and August for spring feeding, 8*d.* per lb. or cheaper by the bushel.

SUTTON'S GREEN-TOP YELLOW HYBRID.—A quick-growing and nutritious Turnip, an excellent substitute for Swedes, 10*d.* per lb., or cheaper by the bushel.

PERMANENT PASTURE GRASS SEEDS may be sown with safety until the end of August or first week of September, price 30*s.* per acre. Also

SUTTON'S RENOVATING MIXTURE of fine GRASS and CLOVER SEEDS for Improving Old Pastures. Price 9*d.* per lb., or 80*s.* per cwt. Sow 8 to 12 lb. per acre to Improve Old Pastures.

CATTLE CABBAGE (the heaviest of all Agricultural Crops), should be sown in July and August, for transplanting in October and in the Spring.

GARDEN and FLOWER SEEDS for AUTUMN SOWING.

Messrs. SUTTON and SONS have a good stock of fresh Seeds of the undermentioned kinds, which should be sown during the months of July, August, and September.

Cabbage, choice sorts	Radish, of sorts
Lettuce, do.	Spinach, do.
Onion, do.	Turnip, do.
Carrot, Early Horn	Cineraria, choice sorts
Cauliflower, choice sorts	Calceolaria, very fine
Endive, of sorts	Primula sinensis

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

OUVIRANDRA BERNERIANA.—Having succeeded in raising a few Seedlings of this extremely curious and beautiful plant, we beg to offer healthy young plants of six or seven leaves at 31*s.* 6*d.* each.

O. Berneriana was exhibited at the Great Show of the Royal Horticultural Society, June 17th, and awarded the First Prize; and at the Great Show of the Royal Botanic Society, June 24th, and then also awarded the First Prize.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

NOTICE is HEREBY GIVEN, that the COPARTNERSHIP hitherto subsisting between the Undersigned, WILLIAM BRIDGEWATER PAGE & WILLIAM TOOGOOD, as SEED MERCHANTS, at and in the Town and County of the Town of Southampton, under the Firm of "PAGE & TOOGOOD," was this day DISSOLVED by mutual consent. All Debts due and owing to or by the said Copartnership will be received and paid by the said WILLIAM TOOGOOD.

Dated this 30th day of June, 1863.

WILLIAM BRIDGEWATER PAGE.
WILLIAM TOOGOOD.

TAN GRATIS, in the immediate neighbourhood of Covent Garden Market,

Apply at WILLIAM ESSEX & SON, 28, Stanhope Street, Clare Market, W.C.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; second quality, 6*s.* per ton; best quality, in bags, 16*s.* per ton; ditto 2*s.* 6*d.*, 2 cwt. bags, stamps, put on the South-Eastern Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

Loaded Trucks can be sent on all the principal Railways.

W. SHORT, Salesman, &c., Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

The only Certain Remedy for Mildew.

JOHN BELL'S COMPOSITION for DESTROYING MILDEW on Vines, Peaches, Nectarines, Roses, and every other Plant subject to that pest, is proved to be the most efficacious that has ever been offered. Sold in Bottles at 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* each. A 1*s.* 6*d.* Bottle will make 12 gallons fit for use.

Seed Warehouse, 10 & 11, Exchange Street, Norwich.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.

For Watering Gardens, Lawns, and Washing Windows, Carriages, &c. India-Rubber Hose-Pipes and Tubing.

JAMES LYNE HANCOCK, MANUFACTURER, has a large Stock of all sizes. Also BRASS HAND-BRANCHES, with SPREADERS, STOP-COCKS, JETS, and UNION JOINTS to connect the HOSE to CISTERNS.

INDIA-RUBBER FIRE-ENGINE HOSE for Private Houses, Mansions, and Breweries, and also the necessary FIRE-BRANCHES and UNION SCREWS.

Illustrated Price Lists on application.

JAMES LYNE HANCOCK, Vulcanized India-Rubber Works, 266, Goswell Road, London, E.C.

WILLIAM BARRATT,
LANDSCAPE and ORNAMENTAL GARDENER.
St. John's and Newton Moor Nurseries, Wakefield.

FLORAL DECORATIONS for the TABLE.—The PARAGON FLOWER TRAY, combining Growing Plants with Cut Flowers. No Drawing-room should be without one.

Prospectuses post free on application to GEORGE WEEKS, Patentee, Bromley, Kent.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

TANNED NETTING, at reduced prices, 1*d.* per square yard; 200 yards, 14*s.*; 500, 30*s.*; 1000 yards, 50*s.* SCRIM CANVAS, for Wall Fruit; GARDEN MATS; GREENHOUSE SHADES.

Be particular, FREDERICK EDGINGTON & Co., Rick Cloth Manufacturers, Thomas Street, Old Kent Road, London, S.E

Ripe Fruit, Strawberries and Seed Beds.

NEW TWINE NETTING, 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. TANNED NETTINGS, 2 yards wide, 1½*d.* per yard; 5*s.* per 100 yards, 1 yard wide; 10*s.* per 100 yards, 2 yards wide. COCOA-NUT FIBRE SHEEP FOLDING NETTING, stout and strong, 3*d.* per yard.

W. CULLINGFORD, Wellington Road, Forest Road, Stratford; and Stand 65, Royal Agricultural Show, Worcester, July 17.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

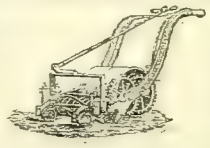
Netting for Fruit Trees, Seed Beds, Ripe Strawberries, &c.

TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard, or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 4*d.* per yard.

Can be had in any quantity of EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

MORTON'S NEW IMPROVED PATENT LAWN MOWER, with Sun and Planet Motion, having all the most recent Improvements, is allowed to be the best Machine for preventing Ribbing and Clogging.

To be had, with prices and particulars, of GRIMMOND, LAIRD, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath; and all the principal dealers throughout the country.



Lawn Mowers.

BURGESS AND KEY beg to direct attention to their NEW PATENT LAWN MOWING MACHINE. It is simple, efficient, easily worked, and not liable to derangement. GARDENING and HORTICULTURAL TOOLS of every description. Illustrated Price List free. Catalogues by post on receipt of six postage stamps.

BURGESS & KEY, 95, Newgate Street, London, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths,

Two yards wide	1*s.* 6*d.* per yard run.
Four yards wide	3*s.* per yard.
An improved make, 2 yards wide,	1*s.* 8*d.* per yard.
An improved make, 3 yards wide,	2*s.* 6*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 4*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."

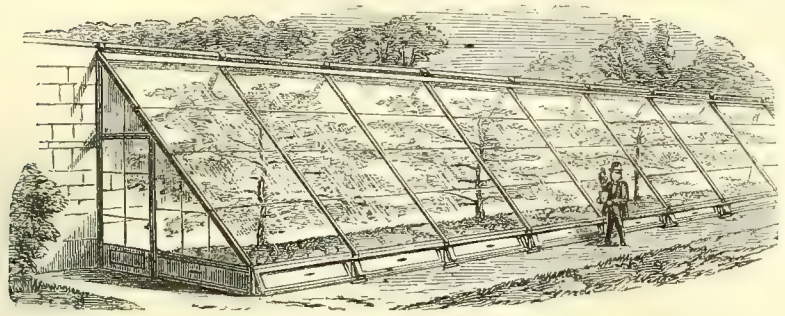
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

ST. PANCRAS IRON WORKS COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS,

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

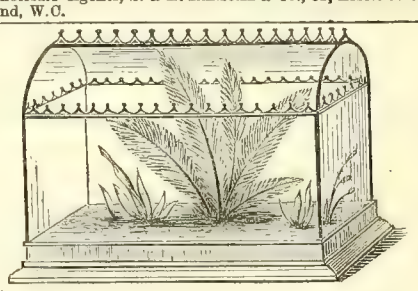
CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS.

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. *Lists Free.*

ST. PANCRAS IRON WORKS COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

HAVE YOU a LAWN?—Use BELCHER'S PATENT PLANTAIN EXTRACTOR; which neatly removes Plantain and Daisies, and replaces them with fine Turf. Price 6*s.*: to be had of all Ironmongers.
Wholesale Agents, S. & E. RANSOME & Co., 31, Essex Street, Strand, W.C.



FERN CASES.

12 inches long	.. £0 18 0		14 inches long	.. £1 1 0	
16 ,,	.. 1 4 0		18 ,,	.. 1 7 0	
20 ,,	.. 1 10 0		24 ,,	.. 1 16 0	

Made to any dimensions or design.

GLASS PRESERVE JARS.

	Without Lids.	With Lids.
	s. d.	*s. d.*
3 inches diameter	0 4½ each.	0 6½ each.
4 ,, ,, ...	0 6 ,,	0 9 ,,
5 ,, ,, ...	0 8 ,,	0 11 ,,
6 ,, ,, ...	0 10 ,,	1 2 ,,
7 ,, ,, ...	1 0 ,,	1 4 ,,
8 ,, ,, ...	1 4 ,,	1 8 ,,
9 ,, ,, ...	1 8 ,,	2 2 ,,
10 ,, ,, ...	2 0 ,,	2 8 ,,

Intermediate Sizes in proportion.

LACTOMETERS, for Testing the Quality of Milk.
Four Tubes .. .. 4*s.* 6*d.* | Six Tubes .. .. 6*s.* 6*d.*
With Stands complete.

WASP TRAPS, 3*s.* 6*d.* per dozen.

JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

THOMAS MILLINGTON,

GLASS MERCHANT. (Established 1750.)

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

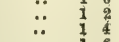
THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY T. MILLINGTON.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home use and for Exportation.



PROPAGATING GLASSES.

2 inches diam.	0*s.* 3½*d.* each.		
3 ,, ..	0 4½ ,,	13 ,, ..	1 6 ,,
4 ,, ..	0 5½ ,,	14 ,, ..	1 9 ,,
5 ,, ..	0 6½ ,,	15 ,, ..	2 0 ,,
6 ,, ..	0 8 ,,	16 ,, ..	2 6 ,,
7 ,, ..	0 10 ,,	17 ,, ..	3 0 ,,
8 ,, ..	1 0 ,,	18 ,, ..	3 6 ,,
9 ,, ..	1 2 ,,	19 ,, ..	4 0 ,,
10 ,, ..	1 4 ,,	20 ,, ..	4 6 ,,
11 ,, ..	1 6 ,,		
12 ,, ..	1 9 ,,		



FLOWER TUBES.
2*d.* each, or 1*s.* 6*d.* per dozen.



ZINC HAND GLASSES.
Painted and Glazed with 16-oz. Sheet Glass.

12 inches ..	5*s.* 6*d.* each	18 ,, ..	8 6 ,,
14 ,, ..	6 6 ,,	20 ,, ..	9 6 ,,
16 ,, ..	7 6 ,,	24 ,, ..	11 6 ,,

If open top, 1*s.* extra.



BEE GLASSES.

4 inches diameter	0*s.* 6*d.* each		
5 ,,	0 8 ,,	9 ,,	1 4 ,,
6 ,,	0 10 ,,	10 ,,	2 0 ,,
7 ,,	1 1 ,,	11 ,,	2 6 ,,
8 ,,	1 4 ,,	12 ,,	3 0 ,,



FLAT TOP BEE GLASSES.

Height	Width	*s. d.*
4 inches	by 7 inches	1 6 each
4½ ,,	by 7½ ,,	1 9 ,,
5½ ,,	by 7½ ,,	2 0 ,,
6½ ,,	by 8 ,,	2 3 ,,
7½ ,,	by 8½ ,,	2 10 ,,

FERN SHADES & STANDS.

Ins. dia.	Shades.	Stands.
6 ..	1*s.* 4*d.* each.	1*s.* 0*d.* each
7 ..	1 8 ,,	1 3 ,,
8 ..	2 0 ,,	1 6 ,,
9 ..	2 6 ,,	1 9 ,,
10 ..	3 3 ,,	2 0 ,,
11 ..	4 0 ,,	2 6 ,,
12 ..	5 6 ,,	3 0 ,,
13 ..	7 6 ,,	3 6 ,,
14 ..	10 0 ,,	4 0 ,,
15 ..	14 0 ,,	4 6 ,,
16 ..	18 6 ,,	5 0 ,,



WASP TRAP, 2*s.* 6*d.* per doz.

Crystal Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimneys and Globes, &c.



MILK PANS.

6 inches diameter	0*s.* 6*d.* each		
8 ,,	0 9 ,,	16 ,,	2 3 ,,
10 ,,	1 0 ,,	18 ,,	2 9 ,,
12 ,,	1 3 ,,	20 ,,	3 3 ,,
14 ,,	1 9 ,,	22 ,,	3 9 ,,
		24 ,,	4 6 ,,



PRESERVE JARS.

In. diam.	Without Lids.	With Lids.
3 ..	0*s.* 4½*d.*	0*s.* 6½*d.* ea.
4 ..	0 6	0 9 ,,
5 ..	0 8	0 11 ,,
6 ..	0 10	1 2 ,,
7 ..	1 0	1 4 ,,
8 ..	1 4	1 8 ,,
9 ..	1 8	2 2 ,,
10 ..	2 0	2 8 ,,



FISH GLOBES.

	Without feet.	With feet.
8 inches diam.	Per lb. 7*d.*	9*d.*
9 ,,		
10 ,,		
11 ,,		
12 ,,		
13 ,,		
14 ,,		
15 ,,		
16 ,,		



ROLLING PINS.
From 12 inches long, 1½*d.* per running inch.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1*d.* per running inch.

SHEET GLASS.
In Cases for cutting up, in Sizes as Manufactured.

	300 feet	200 feet.		
	15 oz.	21 oz.	26 oz.	32 oz.
Fourths quality	33*s.* 6*d.*	33*s.* 6*d.*	39*s.* 6*d.*	45*s.* 0*d.*
Thirds do.	42 0	42 0	49 0	56 0
Seconds do.	62 6	64 0	74 6	85 0
Best do.	88 6	88 6	103 6	118 0.

CRYSTAL SHEET GLASS.
For Pictures and best Glazing purposes.
Averaging 16 oz. to the foot.

Best quality, in cases of 200 feet .. .. .. 100*s.*
Second quality, in cases of 100 feet .. .. 82*s.*

Averaging 30 oz. to the foot.

Best quality, in cases of 100 feet .. .. .. 100*s.*
Second quality, in cases of 100 feet .. .. 82*s.*

SQUARES, in 100 and 200 Feet Boxes

Small Squares not exceeding 9½ inches by 7½ inches.

Ins. Ins.	Ins. Ins.	Ins. Ins.	Ins. Ins.
6 by 4	7 by 5	8 by 6	9 by 7
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½

Per 100 feet.

4ths.	3rds.	2nds.	Best.
9*s.* 9*d.*	11*s.* 3*d.*	13*s.* 9*d.*	16*s.* 9*d.*

Squares not exceeding 14 inches by 11 inches.

10 by 8	12 by 9	12½ by 10½	14½ by 10½
10½ by 6½	12½ by 9½	13 by 10	15 by 10
11 by 9	13 by 9	13½ by 10½	13 by 11
11½ by 9½	12 by 10	14 by 10	14 by 11

Per 100 feet.

4ths.	3rds.	2nds.	Best.
10*s.* 9*d.*	12*s.* 3*d.*	15*s.*	18*s.*

Squares not exceeding 20 inches by 18 inches.

15½ by 10½	14 by 12	17 by 13	24 by 16
16 by 10	14½ by 12½	18 by 13	20 by 17
14½ by 11½	15 by 12	18 by 14	22 by 17
15 by 11	15½ by 12½	22 by 14	24 by 17
15½ by 11½	16 by 12	24 by 14	20 by 18
16 by 11	16½ by 12½	22 by 15	22 by 18
13 by 12	17 by 12	24 by 15	24 by 18
13½ by 12½	18 by 12	22 by 16	

Per 100 feet.

4ths.	3rds.	2nds.	Best.
11*s.* 6*d.*	13*s.* 6*d.*	16*s.* 6*d.*	20*s.*

Orchard House Sizes, as recommended by Mr. Rivers.

ns. Ins.	15 oz.		21 oz.	
20 by 12	4ths ..	11*s.* 6*d.*	4ths	15*s.* 0*d.*
20 by 13	3rds ..	13 6	3rds	19 0
20 by 14	2nds ..	16 6	2nds	25 0
20 by 15	Best ..	20 0	Best	30 0
20 by 16				

Per 100 feet.

Squares Cut to Sizes not on List.

	15 oz.				21 oz.			
Under	4ths.	3rds.	2nds.	1st	4ths.	3rds.	2nds.	1st.
1 ft. super.	1¼*d.*	1⅜*d.*	2*d.*	2½*d.*	2¼*d.*	2⅔*d.*	3½*d.*	4½*d.*
2 ft. super.	1½	2	2½	3	2⅔	3	4	5½
3 ft. super.	2	2½	2⅔	3½	3	3½	4½	6
4 ft. super.	2½	2½	3	4	3½	3⅔	4½	6½

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

	Per cwt.—*s. d.*		Per gallon.—*s. d.*		Per gallon.—*s. d.*
GENUINE WHITE LEAD	.. .. 30 0	FINE OAK VARNISH	.. 10*s.* to 12 0	LINSEED OIL	.. .. 3 9
ANTI-CORROSION PAINT	..28*s.* to 34 0	,, CARRIAGE	.. 12*s.* to 14 0	BOILED OIL	.. .. 4 2
LINSEED OIL PUTTY	.. .. 8 0	PATENT DRYERS	per cwt. 28*s.* to 42 0	TURPENTINE	.. .. 8 6

MILLED LEAD in Sheet and Pipe of all sizes. Old LEAD bought or taken in exchange.

LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of all kinds.

NETT CASH.

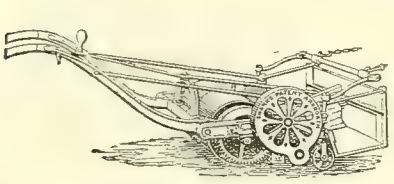
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

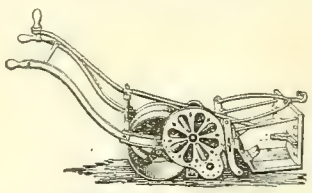
WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

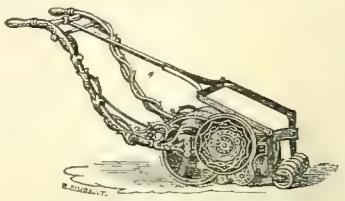
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	40*s.* „
No. 3.—36-inch Machine ...	22 0 0	30*s.* „
No. 4.—30-inch Machine ...	19 0 0	30*s.* „

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine ...	£15 15 0	30*s.* extra.
No. 6.—28-inch Machine ...	14 10 0	30*s.* „
No. 7.—25-inch Machine ...	12 10 0	25*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine ...	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine ...	8 7 6	
No. 10.—19-inch Machine ...	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine ...	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine ...	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £5 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

PATENTEES AND SOLE MANUFACTURERS:

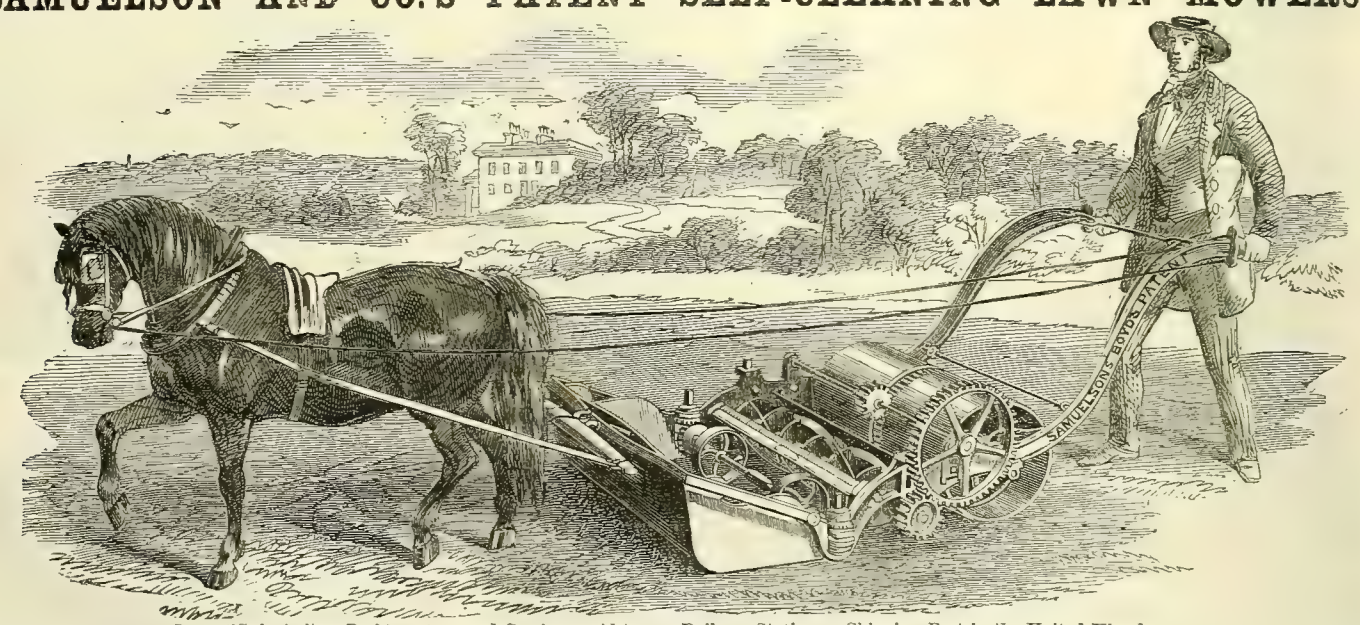
ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

THE GEARING OF SAMUELSON AND CO.'S LAWN MOWING MACHINES IS NOT LIABLE TO DERANGEMENT.

SAMUELSON AND CO.'S PATENT SELF-CLEANING LAWN MOWERS.



PRICES, including Packing Case, and Carriage paid to any Railway Station or Shipping Port in the United Kingdom:—

MANUAL POWER	12 inches cut, suitable for a Lady	£4 12 0	PONY POWER	22 inches cut	£8 15 0
	16 „ suitable for One Person	6 10 0		25 „	11 10 0
	19 „ suitable for One Man and Boy	7 0 0		30 „	14 14 0
	22 „ suitable for Two Men	8 0 0			

If with BOYD'S PATENT BRUSH, 15*s.* extra.

MESSRS. SAMUELSON AND CO. are now supplying their 12-inch and 16-inch NEW PATTERN LAWN MOWERS, which they tested thoroughly last season. These Machines are handsome in appearance, lighter in draught, simpler and more durable than any Machine in the trade, and are sure to recommend themselves to the public.

Prices as above.

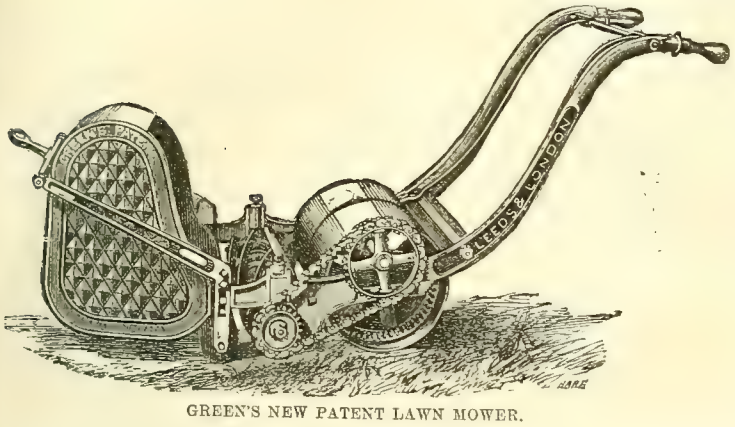
All Orders direct or through Dealers will be executed according to priority of receipt. May be obtained at the WORKS, Banbury; or at SAMUELSON & Co.'s various Depôts; also of all Ironmongers and Seedsmen, and at

SAMUELSON AND CO.'S WAREHOUSE, 76, CANNON STREET WEST, LONDON, E.C.

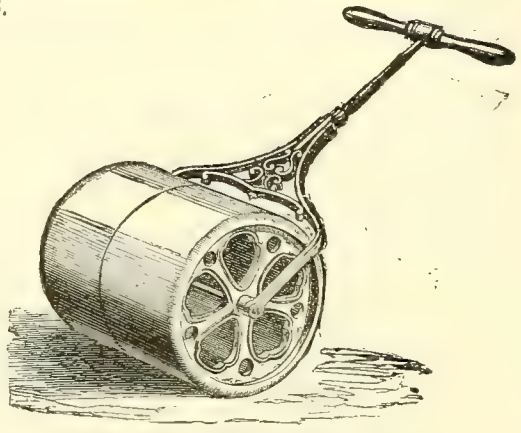
GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS,
PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS
DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

The Patentees, after the long experience they have had in the MANUFACTURE of LAWN MOWERS, have come to the conclusion that three things are essential to constitute a real and efficient Implement, namely, Simplicity of Construction, Durability, and General Practicability, and they are glad to be able to state that they have combined the three, and that their Machines are unequalled not merely by giving satisfaction for one or two seasons, but by their long durability.

Upwards of 14,000 of the above Machines have been sold since the year 1856, and thousands of letters have been received by the Patentees testifying to their efficiency. They do not deem it necessary to publish more than the two following :—

TESTIMONIALS.

"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"Dear Sir,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, Geo. Eyles."

"Royal Gardens, Windsor, March 27, 1863.

"Dear Sir,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

"To Mr. Green." "Yours very truly, Thomas Ingram."

PRICES.

						If with Patent Delivery Box.
To Cut 10 inches	£3	10	0	Suitable for a Lady.		
„ 12 „	5	0	0	Suitable for One Person. If with internal gear, 10s. extra.		
„ 14 „	5	10	0	Do. Do. Do. Do.	10s. extra.	
„ 16 „	6	10	0	Suitable for One Man or Two Boys.		
To Cut 18 inches ...	£7	10	0	Suitable for One Man and Boy	£8	15 0
„ 20 „ ...	8	0	0	Do. Do. ...	9	5 0
„ 22 „ ...	8	10	0	Suitable for Two Men ...	9	17 6
„ 24 „ ...	9	0	0	Do. Do. ...	10	7 6

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	£12 10 0
„ 26 „	12 10 0	13 12 0
„ 30 „	16 14 0	18 0 0

Leather Boots for Donkey, 16s.; for Pony, 20s.

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	£21 10 0
„ 36 „	23 0 0	24 16 0
„ 42 „	26 0 0	28 2 0
„ 48 „	29 0 0	31 8 0

Leather Boots for Horse, per set, 1l. 4s.

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal atisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5s. | Diameter 16 inches, length 17 inches, price £2 10s. | Diameter 24 inches, length 26 inches, price £4 5s.
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

PORTABLE and FIXED STEAM ENGINES; COMBINED THRESHING, SHAKING, and WINNOWING MACHINES;
REAPING and MOWING MACHINES; BONE CRUSHING MILLS; CORN CRUSHING and BEAN SPLITTING MILLS; CHAFF CUTTERS;
TURNIP SHEARS and PULPERS; IMPROVED HAY-MAKING MACHINES, and HORSE RAKES;
CLOD CRUSHERS, and WROUGHT IRON FIELD ROLLERS; PLOUGHS, HARROWS, and CULTIVATORS; VERANDAHS;
PATENT HYDROPULT, and all kinds of GARDEN ENGINES and SYRINGES; GARDEN CHAIRS and TABLES;
ORNAMENTAL FOUNTAINS and VASES; GARDEN TOOLS; PREMIUM CONTINUOUS IRON FENCING and HURDLES;
STRAINED WIRE FENCES, of all kinds; ESPALIER FENCES; GAME-PROOF WIRE NETTING and TRELLIS WORK;
ORNAMENTAL and PLAIN ENTRANCE, WICKET, and FOOTPATH GATES; WROUGHT IRON FIELD GATES; TREE GUARDS;
CATTLE and PIG TROUGHS; SHEEP RACKS; WASHING and WRINGING MACHINES; FIRE-PROOF IRON SAFES; IRON WHEELBARROWS;
IMPROVED IRON STABLE FITTINGS;
and every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;
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ROYAL HORTICULTURAL SOCIETY.

THE THIRD GREAT SHOW,

WEDNESDAY, JULY 1, 1863.

AWARDS OF THE JUDGES.

CLASS 1.—96 Kinds of CUT ROSES, 1 truss of each (Nurserymen).
1st, Mr. B. R. Cant, St. John's Street Nursery, Colchester, 7*l.*
2d, Messrs. Paul & Son, Old Cheshunt Nurseries, Cheshunt, 5*l.*
3d, Mr. Jas. Mitchell, Piltdown, Maresfield, Sussex, 3*l.*
4th, Mr. J. Keynes, Salisbury, 2*l.*

CLASS 2.—48 Kinds of CUT ROSES, 3 trusses of each (Nurserymen).
1st, Mr. C. Turner, Royal Nurseries, Slough, 4*l.*
2d, Messrs. Paul & Son, Old Cheshunt Nurseries, Cheshunt, 3*l.*
3d, Messrs. J. & J. Fraser, Lea Bridge Road Nurseries, Leyton, N.E., 2*l.*
4th, Mr. B. R. Cant, Nurseryman, Colchester, 1*l.*

CLASS 3.—24 Kinds of CUT ROSES, 3 trusses of each (Nurserymen).
1st, Mr. J. Keynes, Salisbury, 2*l.* 10*s.*
2d, Mr. E. P. Francis, Hertford, 2*l.*
3d, Mr. R. Laing, Twickenham, 1*l.* 10*s.*
4th, Messrs. Paul & Son, Cheshunt, 1*l.*

CLASS 4.—24 Kinds of CUT ROSES, 1 truss of each (Nurserymen).
1st, Mr. C. Turner, Royal Nurseries, Slough, 2*l.*
2d, Mr. J. Keynes, Salisbury, 1*l.*
3d, Mr. W. H. Treen, Rugby, 10*s.*
Extra, Mr. J. Cranston, Hereford, 7*s.* 6*d.*

CLASS 5.—48 Kinds of CUT ROSES, 1 truss of each (Amateurs).
1st, Mr. J. T. Hedge, Reed Hall, Colchester, 6*l.*
2d, Miss Crawshay, Caversham Park, Reading, 4*l.*
3d, Mr. C. M. Worthington, Caversham Priory, Reading, 3*l.*
4th, Mr. W. Ingle, Gr. to C. G. Round, Esq., Birch Hall, Colchester, 2*l.*
Extra, T. Laxton, Esq., F.R.H.S., Stamford, 1*l.*

CLASS 6.—24 Kinds of CUT ROSES, 1 truss of each (Amateurs).
1st, Mr. S. Dobree, The Priory, Wellington, Somerset, 4*l.*
2d, Mr. J. T. Hedge, Reed Hall, Colchester, 2*l.*
3d, Mr. W. Ingle, Gr. to C. G. Round, Esq., F.R.H.S., Birch Hall, Colchester, 1*l.*
4th, Rev. S. R. Hole, Caunton Manor, Newark, Notts, 10*s.*
Extra, Mr. H. Sawkins, Gr. to G. Brassey, Esq., Bramfield, Hertford, 7*s.* 6*d.*

CLASS 7.—18 Kinds of CUT ROSES, 1 truss of each (Amateurs).
1st, Mr. J. T. Hedge, Reed Hall, Colchester, 3*l.*
2d, Mr. W. Ingle, Gr. to C. G. Round, Esq., F.R.H.S., Birch Hall, Colchester, 1*l.* 10*s.*
3d, Mr. J. Stratton, Manningford Bruce, Marlborough, 1*l.*
Extra, C. M. Worthington, Esq., Caversham Priory, near Reading, 10*s.*
Extra, Mr. A. Moffatt, Gr. to Viscount Maynard, Easton Lodge, Dunmow, 10*s.*

CLASS 8.—12 Kinds of CUT ROSES, 1 truss of each (Amateurs).
1st, Mr. J. T. Hedge, Reed Hall, Colchester, 1*l.* 10*s.*
2d, Mr. H. Helyar, Pendomer, near Yeovil, 1*l.*
3d, Mr. J. Stratton, Manningford Bruce, Marlborough, 10*s.*
Extra, Mr. S. Dobree, The Priory, Wellington, Somerset, 7*s.* 6*d.*

CLASS 9.—18 NEW ROSES of 1862-63, single trusses, distinct (Open).
1st, Mr. W. Paul, Nurseryman, Waltham Cross, 2*l.*
2d, Mr. B. R. Cant, Nurseryman, Colchester, 1*l.* 10*s.*
3d, Messrs. Paul & Son, Old Cheshunt Nurseries, Cheshunt, 1*l.*
4th, Mr. J. Keynes, Salisbury, 15*s.*

CLASS 10.—12 TRUSSES of any new kinds of ROSES of 1862 (Open).
1st, Mr. W. Paul, Nurseryman, Waltham Cross, 1*l.* 10*s.*
2d, Mr. B. R. Cant, Nurseryman, Colchester, 1*l.*
3d, Mr. J. Keynes, Nurseryman, Salisbury, 10*s.*

CLASS 11.—12 TRUSSES of ROSES (Open).
1st, Mr. J. Keynes, Nurseryman, Salisbury, 1*l.* 10*s.*
2d, Mr. W. Paul, Nurseryman, Waltham Cross, 1*l.*
3d, Mr. J. Mitchell, Nurseryman, Maresfield, Sussex, 10*s.*

CLASS 12.—12 TEA-SCENTED and NOISETTE ROSES (Open).
1st, Mr. J. T. Hedge, Reed Hall, Colchester, 2*l.*
2d, Mr. W. Paul, Nurseryman, Waltham Cross, 1*l.* 10*s.*
3d, Mr. H. Exell, Gr. to J. Hollingworth, Esq., Maidstone, 1*l.*

CLASS 13.—DECORATED BASKET or VASE of ROSES (Open).
1st, Miss Wint, 22, Cadogan Terrace, S.W., 3*l.*
2d, Miss Robinson, 2, Connaught Square, Hyde Park, 2*l.*
3d, Mr. C. Turner, Royal Nurseries, Slough, 1*l.*

CLASS 14.—6 BOUQUETS of ROSES (Open)
1st, Mr. W. Paul, Nurseryman, Waltham Cross, 3*l.*
2d, Mr. J. Keynes, Nurseryman, Salisbury, 2*l.*
3d, Mr. E. P. Francis, Nurseryman, Hertford, 1*l.*
Equal 3d, Mr. C. Turner, Royal Nurseries, Slough, 1*l.*

CLASS 15.—COLLECTION of MOSS ROSES (Open).
1st, Mr. W. Paul, Nurseryman, Waltham Cross, N., 2*l.*
2d, Messrs. Paul & Son, Old Cheshunt Nurseries, Cheshunt, 1*l.*

Prizes offered by W. Wilson Saunders, Esq., Treasurer.

CLASS 16.—SINGLE TRUSS of a HYBRID PERPETUAL ROSE (Open).
1st, The Rev. H. Helyar (for Comtesse Cecile de Chabrillant), 2*l.*
2d, Mr. C. Turner, Royal Nurseries, Slough, 1*l.*

CLASS 17.—24 ROSES, not less than 10 distinct kinds (Open).
1st, Mr. W. Paul, Nurseryman, Waltham Cross, 6*l.*
2d, Mr. E. P. Francis, Nurseryman, Hertford, 4*l.*
3d, Messrs. Paul & Son, Old Cheshunt Nurseries, Cheshunt, 3*l.*

CLASS 18.—20 NEW ROSES, not less than 10 distinct kinds (Open).
1st, Messrs. Paul & Son, Old Cheshunt Nurseries, Cheshunt, 6*l.*
2d, Mr. W. Paul, Nurseryman, Waltham Cross, 4*l.*

PLANTS.

CLASS 19.—12 FINE FOLIAGED and VARIEGATED PLANTS (Nurserymen).
1st, Messrs. J. & C. Lee, Hammersmith, 7*l.*
2d, Messrs. A. Henderson & Co., Pine-Apple Place, Edgeware Road, 5*l.*
3d, Mr. W. Bull, King's Road, Chelsea, 3*l.*
4th, Messrs. T. Jackson & Son, Kingston, 2*l.*

CLASS 20.—10 FINE FOLIAGED and VARIEGATED PLANTS (Amateurs).
1st, Mr. J. Taylor, Gr. to J. Yates, Esq., Lauderdale House, Highgate, 7*l.*
2d, Mr. J. Smith, Gr. to the Duke of Northumberland, Syon House, 5*l.*
3d, Mr. Charles Ross, Gr. to C. Eyre, Esq., Welford Park, Newbury, 3*l.*

CLASS 21.—6 FUCHSIAS, distinct kinds (Nurserymen).
1st and 2d (Withheld).
3d, Mr. W. H. Treen, Rugby, 2*l.*

CLASS 22.—6 FUCHSIAS, distinct kinds (Amateurs).
1st, Mr. E. Gardiner, Gr. to J. Stutter, Esq., Oak Lodge, Clapton Park, 5*l.*
2d, Mr. H. Cannell, Gr. to G. Jennings, Esq., Oak Lodge, Clapham, 4*l.*

CLASS 23.—3 STANDARD FUCHSIAS, distinct kinds (Open).
1st, Mr. M. Higgs, Gr. to Mrs. Barchard, Putney Heath, 3*l.*

CLASS 24.—12 VARIEGATED BEGONIAS, distinct kinds (Open).
1st (Withheld)
2d, Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, 2*l.*

CLASS 25.—9 CALADIUMS, distinct kinds (Open).
1st, Messrs. A. Henderson & Co., Pine-Apple Place, Edgeware Road, 5*l.*
2d, Mr. A. Ingram, Gr. to J. J. Blandy, Esq., High Grove, Reading, 4*l.*
3d, Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, 3*l.*

CLASS 26.—6 TREE FERNS, duplicates admitted (Open). (No competition).

CLASS 27.—10 EXOTIC FERNS, distinct kinds (Open).
Extra, Mr. W. Bull, Nurseryman, King's Road, Chelsea, 2*l.*
Extra, Messrs. A. Henderson & Co., Nurserymen, Edgeware Road, N., 1*l.* 10*s.*
Extra, Mr. H. Lavey, Gr. to E. A. De Grave, Esq., Fetcham, Surrey, 1*l.* 5*s.*

(NOTE.—Ferns to be shown in pots not exceeding 15 inches in diameter). This Rule was not complied with. The Judges disqualified them, and awarded Extra Prizes.

CLASS 28.—12 BRITISH or other HARDY FERNS, distinct kinds (Open).
1st, Messrs. Ivery & Son, Nurserymen, Dorking and Reigate, 3*l.*
2d, Mr. H. Lavey, Gr. to E. A. De Grave, Fetcham, 2*l.*
Equal 2d, Mr. J. Salter, Nurseryman, Hammersmith, 2*l.*
3d, Messrs. Ivery & Son, Dorking and Reigate, 1*l.*

CLASS 29.—NEW or RARE TENDER PLANTS in FLOWER (Open).
Messrs. Veitch & Son, Exeter and Chelsea, for Bomaera multiflora, S.K.
Mr. Frost, Dropmore, for Statice Frostii, S.B.
Mr. Wm. Bull, Chelsea, for Ouvirandra fenestralis, B.

CLASS 30.—NEW or RARE TENDER PLANTS NOT in FLOWER (Open).
Messrs. Veitch & Son, Exeter and Chelsea, for Pteris serrulata cristata, S.K.
Messrs. Backhouse & Son, for Hymenophyllum valvatum, S.K.
Messrs. Backhouse & Son, for Trichomanes scandens, S.K.
Messrs. Veitch & Son, for Acrophorus affinis, S.B.
Messrs. Backhouse & Son, for Lindsæa stricta, S.B.
Messrs. Backhouse & Son, for Trichomanes Kaulfussii, S.B.
Mr. W. Bull, for Araucaria Rulei, S.B.
Messrs. E. & G. Henderson & Son, for Primula sinensis fol. var., B.
Messrs. Backhouse & Son, for Trichomanes floribundum, B.
Messrs. Backhouse & Son, for Trichomanes alatum, B.
Messrs. Backhouse & Son, for Lindsæa crenata, B.
Messrs. Backhouse & Son, for Adiantum Ghiesbreghtii, B.
Messrs. A. Henderson & Co., for Gardenia florida variegata, B.
Rev. J. G. C. Fussell, for Gymnogramma chrysophylla, var., B.
Rev. J. G. C. Fussell, for Ceratodactylis osmundioides, Special Certificate.
Messrs. Backhouse & Son, for Group of rare Ferns, Special Certificate.

CLASS 31.—NEW ORCHIDS in FLOWER (Open).
Messrs. Veitch & Son, for Cattleya Aclandi-Loddigesii, S.K.
Mr. Watson, Gr. to C. Leach, Esq., Clapham Park, for Disa grandiflora superba, S.B.

CLASS 32.—NEW or RARE HARDY ORNAMENTAL PLANTS (Open).
Messrs. Veitch & Son, for Gymnogramma japonica, S.K.
Mr. Standish, Ascot, for Asplenium elegantulum, S.K.
Mr. Standish, Ascot, for Quercus sp. Japan, S.B.
Mr. Standish, Ascot, for Funkia sp. Japan, S.B.
Mr. Standish, Ascot, for Woodsia polystichoides Veitchii, S.B.
Mr. Standish, Ascot, for Lycopodium sp. Japan, S.B.
Messrs. Veitch & Son, for Ligustrum sp. fol. var., B.
Mr. Standish, for Quercus sp. Japan, B.
Messrs. Veitch & Son, for Asplenium consimile, B.

CLASS 33.—NEWLY INTRODUCED PLANTS (Open).
1st Certificate, Messrs. Veitch & Son, for Alocasia macrorhiza variegata
2d, Messrs. Veitch & Son, for Alocasia zebrina
3d, Messrs. Veitch & Son, for Cryptomeria species nova, Japan
4th, Messrs. Veitch & Son, for Musa vittata
5th, Mr. W. Bull, for Areca dealbata
6th, Messrs. Veitch & Son, Alsophila Smithii

CLASS 34.—FERN CASE, for the Drawing Room (Open).
1st (Withheld).
2d, Messrs. Hooper & Co., Covent Garden, 2*l.*

CLASS 35.—WARDIAN CASES, arranged for the Drawing Room (Open).
1st, Messrs. A. Henderson & Co., Pine-Apple Place, Edgeware Road, 3*l.*
2d (Withheld).
3d, Messrs. Barr & Sugden, 12, King Street, Covent Garden, 1*l.*

CLASS 36.—WINDOW BOXES FILLED with PLANTS (Open).
1st, Mr. G. Macintosh, Hammersmith, 2*l.*
2d, Mr. C. Ross, Gr. to C. Eyre, Esq., Welford Park, Newbury, 1*l.*
3d, Messrs. Barr & Sugden, 12, King St., Covent Garden, 10*s.*

CLASS 37.—SEEDLING FLORISTS' FLOWERS and GARDEN HYBRIDS (Open).
1st Class Certificates, Messrs. E. G. Henderson & Co., for Var. Pelargonium Lucy Grieve
Ditto, Messrs. E. G. Henderson & Co., for Var. Pelargonium Italia Unita
Ditto, Mr. C. Turner, Slough, for Pink Rev. Geo. Jeans
Commendation, Mr. E. P. Francis, Hertford, for Scarlet Pelargonium Lady Cowper

CLASS 38.—PLANTS in POTS, arranged for Drawing Room (Open).
1st, Messrs. Barr & Sugden, 12, King Street, Covent Garden, 2*l.*
2d, Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, 1*l.*

Prizes offered by W. Wilson Saunders, Esq., Treasurer.

CLASS 39.—THREE HANGING BASKETS of PENDENT PLANTS.
1st, Messrs. A. Henderson & Co., Pine-Apple Place, Edgeware Road, 5*l.*
2d, Messrs. Barr & Sugden, 12, King Street, Covent Garden, 2*l.*

CLASS 40.—24 CUT VERBENAS, 4 trusses of each (Open).
1st, Mr. C. Turner, Royal Nurseries, Slough, 1*l.* 10*s.*
2d, Mr. W. H. Treen, Nurseryman, Rugby, 1*l.*
3d, Mr. G. Grimbly, Nurseryman, Stoke Newington, 10*s.*

CLASS 41.—MISCELLANEOUS.
1st, Lady Dorothy Neville, Petersfield, for Trees with Ailanthus Worms, 2*l.*
2d, Messrs. Backhouse & Son, Nurseryman, York, for Collection of Plants, 1*l.* 10*s.*
Equal 3d, Mr. M. Higgs, Gr. to Mrs. Barchard, Putney Heath, for Lycopodiums, 1*l.*
Equal 3d, Messrs. E. G. Henderson & Son, St. John's Wood, for 43 varieties of Ivy, 1*l.*
Equal 4th, Mr. G. Batley, Nurseryman, Rugby, for Cut Verbenas, 10*s.*
Equal 4th, Mr. C. Turner, Royal Nurseries, Slough, for Cut Pinks, 10*s.*
Bronze Medal, Mr. H. Lavey, Gr. to E. A. De Grave, Esq., Fetcham, Surrey

FRUIT.

CLASS A.—COLLECTION of FRUIT (Fruiterers only). (No competition).

CLASS B.—COLLECTION of FRUIT, 8 dishes, distinct.
1st, Mr. C. Turner, Royal Nurseries, Slough, 7*l.*
2d, Mr. C. Penny, Gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, 5*l.*
3d, Mr. A. Henderson, Gr. to the Duke of Sutherland, Trentham, 3*l.*
Extra, Mr. R. Turnbull, Gr. to the Duke of Marlborough, Blenheim, 1*l.* 10*s.*

CLASS C.—PINE APPLE, PROVIDENCE.
1st, Mr. T. Young, Gr. to C. Bailey, Esq., M.P., Aberdare, 2*l.*
2d, Mr. J. Wallis, Gr. to J. Dixon, Esq., Congleton, 1*l.* 10*s.*

CLASS D.—PINE APPLE, QUEEN.
1st, Mr. A. Grant, Gr. to J. Pluckneett, Esq., East End, Finchley, 2*l.*
2d, Mr. R. Smith, Gr. to J. W. Walker, Esq., Calderstone, Liverpool, 1*l.* 10*s.*
3d, Mr. W. J. Ward, Headington Hall, Oxford, 1*l.*
Extra, Mr. C. Smith, Gr. to A. Anderson, Esq., Norwood, 10*s.*
Extra, Mr. J. Carr, Gr. to P. L. Hinds, Esq., Byfleet Lodge, Surrey, 10*s.*

CLASS E.—PINE APPLE, any variety except QUEEN.
1st, Mr. J. Hall, Gr. to the Earl of Scarborough, Sandback Park, Rotherham, 2*l.*
2d, Mr. J. C. Dwerrihouse, Gr. to Viscount Eversley, Heckfield Place, Hants, 1*l.* 10*s.*

CLASS F.—GRAPES, COLLECTION of, distinct kinds.
1st, Mr. W. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, 5*l.*
2d, Mr. A. Henderson, Gr. to the Duke of Sutherland, Trentham, 3*l.*
3d, Mr. J. Cross, Gr. to Lord Ashburton, The Grange, Alresford, Hants, 2*l.*

CLASS G.—GRAPES, BLACK HAMBURGH, single dish.
1st, Mr. J. Meredith, Vine Cottage, Garston, near Liverpool, 3*l.*
2d, Mr. J. Wallis, Gr. to J. Dixon, Esq., Congleton, 2*l.*
3d, Mr. C. Allen, Gr. to J. B. Glegg, Esq, Withington Hall, Cheshire, 1*l.*

CLASS H.—GRAPES, DUTCH HAMBURGH, single dish.
1st, Mr. J. Meredith, Vineyard, Garston, near Liverpool, 3*l.*
2d, Mr. J. Widdowson, Gr. to C. A. Barnes, Esq., Rickmansworth, 2*l.*
3d, Mr. C. Turner, Royal Nurseries, Slough, 1*l.*

CLASS I.—GRAPES, FRANKENTHAL, single dish.
1st, Mr. J. Meredith, Vineyard, Garston, near Liverpool, 3*l.*
2d, Mr. W. Jones, Gr. to J. C. Philips, Esq., Heath House, Cheadle, 2*l.*
3d, Mr. A. Henderson, Gr. to the Duke of Sutherland, Trentham, 1*l.*

CLASS J.—GRAPES, BLACK, any variety except FRANKENTHAL.
1st, Mr. W. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, 3*l.*
2d, Mr. J. Cross, Gr. to Lord Ashburton, Alresford, Hants, 2*l.*

CLASS K.—GRAPES, WHITE MUSCAT of ALEXANDRIA, single dish.
1st, Mr. J. Embery, Gr. to — Moss, Esq., Chadwell Heath, 3*l.*
2d, Mr. C. Turner, Royal Nurseries, Slough, 2*l.*
3d, Mr. R. Turnbull, Gr. to the Duke of Marlborough, Blenheim, 1*l.*

CLASS L.—GRAPES, MUSCAT, any other variety.
1st, Mr. J. McPherson, Gr. to E. S. Chandos Pole, Esq., Radbourne Hall, Derby, 3*l.*
2d, Mr. J. Embery, Gr. to — Moss, Esq., Chadwell Heath, 2*l.*
3d, Mr. R. Turnbull, Gr. to the Duke of Marlborough, Blenheim, 1*l.*

CLASS M.—GRAPES, WHITE, any variety except MUSCAT, 1 dish.
1st, Mr. J. F. Mould, Gr. to J. Sladen, Esq., Hartsbourne Manor, near Watford, 3*l.*
2d, Mr. W. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, 2*l.*
3d, Mr. A. Henderson, Gr. to the Duke of Sutherland, Trentham, 1*l.*

CLASS N.—PEACHES, 2 dishes, distinct kinds.
1st, Mr. T. Dawson, Gr. to Earl Cowper, Panshanger, Herts, 3*l.*
2d, Mr. G. Young, Gr. to W. H. Stone, Esq., Leigh Park, Havant, 2*l.*
3d, Mr. W. Tegg, Gr. to Baron Hambro, Roehampton, 1*l.*

CLASS O.—PEACHES, Single Dish.
1st, Mr. H. Sawkins, Gr. to G. Brassey, Esq., Bramfield, Hertford, 1*l.* 10*s.*
Equal 1st, Mr. J. Wills, Gr. to Sir P. Grey Egerton, Bart., M.P., Tarporley, Cheshire. 1*l.* 10*s.*
2d, Mr. T. Edwards, Kington, Herefordshire, 1*l.*
3d, Mr. G. Bannerman, Gr. to Lord Bagot, Blithfield Hall, Staffordshire, 10*s.*

ROYAL HORTICULTURAL SOCIETY'S LIST OF AWARDS—*Continued.*

CLASS P.—NECTARINES, 2 Dishes, Distinct Kinds.
1st, Mr. J. Cross, Gr. to Lord Ashburton, The Grange, Alresford, Hants, 2*l.*
2d, Mr. W. Tegg, Gr. to W. H. Goschen, Esq., Roehampton, 2*l.*
3d, Mr. G. Young, Gr. to W. H. Stone, Esq., Leigh Park, Havant, 1*l.*

CLASS Q.—NECTARINES, Single Dish.
1st, Mr. J. Wills, Gr. to Sir P. Grey Egerton, Bart., M.P., Tarporley, Cheshire, 1*l.* 10*s.*
2d, Mr. T. Bannerman, Gr. to Lord Bagot, Blithfield Hall, Cheshire, 1*l.*
3d, Mr. W. Tillery, Welbeck, Worksop, Notts, 10*s.*

CLASS R.—FIGS, single dish, 12 fruits.
1st, Mr. J. Smith, Gr. to the Duke of Northumberland, Syon House, 1*l.*
2d, Mr. J. Pottle, Gr. to B. D. Colvin, Esq., Bealings, Suffolk, 15*s.*
3d, Mr. E. Robinson, Gr. to E. Benyon, Esq., M.P., Englefield, Reading, 10*s.*

CLASS S.—CHERRIES, single dish, 50 fruits.
1st, Mr. C. Turner, Royal Nurseries, Slough, 1*l.*
2d, Mr. J. Widdowson, Gr. to C. A. Barnes, Esq., Rickmansworth, 15*s.*
3d, Mr. J. Beck, Tedworth Gardens, Marlborough, 10*s.*

CLASS T.—PLUMS, single dish.
1st, Mr. A. Ingram, Gr. to J. J. Blandy, Esq., Reading, 1*l.*

CLASS U.—STRAWBERRIES, 4 dishes, distinct kinds.
1st, Mr. P. Lydiard, Bath Easton, Bath, 1*l.* 5*s.*
2d, Mr. C. Turner, Nurseryman, Slough, 1*l.*
3d, Mr. W. Kaile, Gr. to Earl of Lovelace, Ripley, Surrey, 15*s.*

CLASS V.—COLLECTION of STRAWBERRIES, not less than 6 kinds.
1st, Mr. J. Widdowson, Gr. to C. A. Barnes, Esq., Rickmansworth, 2*l.*
2d, Mr. C. Turner, Nurseryman, Slough, 1*l.* 10*s.*

CLASS W.—MELONS, Green-fleshed.
1st, Mr. J. Pottle, Gr. to B. D. Colvin, Esq., Bealings, Suffolk, 1*l.* 10*s.*
2d, Mr. P. Lydiard, Batheaston, Bath, 1*l.*
Extra, Mr. W. Tegg, Gr. to W. H. Goschen, Esq., Roehampton, 10*s.*

CLASS X.—MELONS, Scarlet-fleshed.
1st, Mr. J. Tegg, Gr. to Baron Hambro, Roehampton, 1*l.* 10*s.*
2d, Mr. W. Tillery, Welbeck, Worksop, Notts, 1*l.*
Extra, Mr. W. Tegg, Gr. to W. H. Goschen Esq., Roehampton, 10*s.*

CLASS Y.—VINES in POTS, bearing fruit, 4 Plants. (No competition).

CLASS Z.—ORCHARD-HOUSE FRUIT TREES, in Pots, Bearing Fruit.
1st, Mr. J. Vickers, Woodlands, Tooting Common, S., 4*l.*
2d, Messrs. Lane & Son, Nurserymen, Berkhampstead, Herts, 3*l.*
3d, Mr. W. Kaile, Gr. to the Earl of Lovelace, Ripley, Surrey, 2*l.*

MISCELLANEOUS.—For Fruits not specially mentioned.
1st, Messrs. Lane & Son, Berkhampstead, for Collection of Fruit Trees in Pots, 2*l.*
2d, Mr. G. Terry, Gr. to L. Ames, Esq, St. Albans, for dish of Tomatoes, 1*l.* 10*s.*

The Gardeners' Chronicle.

SATURDAY, JULY 4, 1863.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, July 7 { Royal Horticultural (Floral and Fruit Committees) at S. Kensington .. Noon

THE beautiful blossoms of MOUTAN PEONIES exhibited by Mr. BATEMAN from the gardens at Knypersley Hall, and the very sensible suggestions which he makes with regard to their treatment in a recent number of the *Proceedings of the Royal Horticultural Society*, will, we should hope, serve as stimuli to revive the position of these really noble flowers in the estimation of the gardening public. Such an application of "orchard houses" is suggestive that there are many other subjects amongst flowering plants, to the cultivation of which structures of this kind might be very well adapted. We quote Mr. BATEMAN's remarks:—

"So many difficulties attend the cultivation of the different kinds of the Chinese Moutan or Tree Peony in England, that few persons have any idea of the magnificent effect they are capable of producing. The late Lord MOUNTNORRIS did more than any other man to render the Moutan popular, but he possessed only a few—and these not the best—varieties, as contrasted with those that have been more recently introduced; and yet, these drawbacks notwithstanding, the appearance of his bed of Tree Peonies in flower, was a sight that will never be forgotten by those who were fortunate enough to witness it.

"After Lord MOUNTNORRIS's death, little notice was taken of the Moutan, until the splendid discoveries of Mr. FORTUNE, when on a mission to China in the service of the Horticultural Society, again directed attention to its surpassing merits. Having myself received one or two varieties through the liberality of the Society, and having obtained others from the Bagshot Nursery, I prepared for their accommodation the warmest and most sheltered spot that I could find in my garden at Biddulph Grange; but although in this situation they grew freely, I was unable—after ten years' cultivation—to point to more than one season in which they flowered at all satisfactorily. For if the summer was cold and wet, their wood was imperfectly ripened; if the winter was peculiarly severe their constitution suffered; or if it was mild, the early growth that it induced was certain to lead to mischief from late spring frosts or cutting winds. Then again, unless, in addition to a suitable preceding summer and winter, the weather was fair and calm, and cloudy at the time of their flowering, they either would not display their charms, or if they did they were speedily destroyed, for rain and sun and wind are all alike injurious. Neither can they find a refuge, like other plants, in pot-culture under glass, for the space required for their roots is so great as to put this mode of growing them out of the question.

"Under all these untoward circumstances we need not wonder that these beautiful plants found little favour in the eyes of the horticultural public, or that nurserymen should have so entirely abandoned their cultivation that many of Mr. FORTUNE's finest discoveries cannot now be obtained in England.

"In my own case, while convinced of the hopelessness of attempting to grow these plants out of doors—in North Staffordshire at all events—and yet not caring to throw my plants away, I placed about a dozen of them in the central border of the orchard-house at Knypersley, where they have flourished marvellously, as a glance at the specimens now contributed will sufficiently prove. I ought to add that many of the varieties that are already over, or that are not yet in bloom, are equally beautiful."

A RECENT article on the STRAWBERRY in the *Technologist*, in which the writer, Mr. W. R. PRINCE, asserts that "very erroneous views" on the subject have existed in both America and England, seems to deserve a passing notice. The author returns to the old statement that in such sorts as the Pine, the Scarlet, the Chili and some others, the same partial sterility naturally occurs as is characteristic of the Hautbois. So, at least, we understand the somewhat confused statement in the work alluded to. But we are told that here, in Europe, the males (or "staminate" plants) have been exterminated, and only hermaphrodites left, while what are called the "productive American female varieties" have been almost totally excluded. "Europe, at the present time, possesses no female varieties except the pistillate Hautbois, which she exterminates, and the few pistillate varieties of Virginiana, mostly obtained from America 200 years ago, and two only of our estimable pistillate varieties, which have been recently introduced there; this deficiency having resulted from her *fatuity* in ignoring the rapid progress made in the Strawberry culture in America during the last 50 years."

Fatuity is a hard word; but we let it pass, considering whence it comes. Mr. PRINCE goes on to say, that "it is plainly apparent that in Europe this subject of sexuality has been almost entirely overlooked by the mass, and that investigation has been neglected by the professedly scientific, and discouraged by the prolonged assumptions of Dr. LINDLEY and others, that the 'science' of the otherwise 'cute' Americans was mere 'theory and assertion,' which simply required a little English 'practice and common sense' to regulate it. Thus they have, during the whole period of 44 years since the establishment of the London Horticultural Society's Garden, remained in the ignorance of 'intellectual exclusiveness.'"

He is further of opinion that the European method of culture will henceforth be based on those scientific principles long practised in his country, and which were announced by his father and him in various horticultural periodicals, and published in their "Treatise on Horticulture" in 1828.

So indispensable, he says, "is the sexual combination to the production of abundant crops in all the American varieties, and in the Pine and Hautbois varieties cultivated in Europe, that it may well be doubted whether any person in England *has yet realised what constitutes a full crop of Strawberries*. Attention to sexual distinctions being indispensable in a scientific view, it is equally demanded in every country and climate where Strawberries are grown that possess these characteristic distinctions."

Although, writes Mr. PRINCE, "it is a truism that the differences between the humid and cool climate of England and our dry and hot atmosphere cause the best educated English gardeners who migrate here to commit great absurdities, yet these climatic variations have no more connexion with the sexuality of Strawberries, nor with the results of that sexuality in the productiveness of the crop, than they would have on two crops grown side by side—the one on dry soil, and the other subjected to irrigation. Sexuality is Nature's own fact; the success and extent of the crop are the result of art and culture. The incontrovertible truth thus stands forth that the exercise of science in regard to the existing sexuality is not necessarily variable by climate, but is quite as important in one country as in another." We cannot say that we quite understand this. One thing however is clear—that our North American friend thinks far more highly of himself than of us Englishers. Before however we can join in adopting his views or applauding his manner of stating them, we should like to have some evidence of their accuracy; a point which such a paragraph as the following obliges us to doubt. It is admitted, he says, "on all hands that the principal Strawberries in England are *treated as tender exotics*, and Mr. WRAY asks, 'Why is it so pampered, swathed, and swaddled, and its hardy character so completely ignored?' In England the fine varieties of Strawberries *are so expensively grown* that they only reach the tables *of the wealthy classes*, whereas in America they are chiefly grown for the million. (!!!)"

What do our market gardeners say to this?

Our reason for noticing all this is not for the sake of Mr. W. R. PRINCE, or his "scientific Treatise on Horticulture, published in 1828," but to elicit truth. Is it true that some plants of the American Strawberries are absolutely female? is it true that those females are far more productive than our hermaphrodites? If so the fact is worth knowing, and we venture to ask the following question:—Can any of our readers on this side the Atlantic confirm these statements? If they can we shall be only too happy to publish their replies. We request however that their communications may be authenticated by their names.

—— If, as we have already had occasion to remark, in reference to the exhibitions of New Plants at some of the previous metropolitan exhibitions of the present year, Ferns have carried the day over all other classes of novelties, the remark is more than ever applicable to the show of Wednesday last at South Kensington; for such a public display of living Film-Ferns and Lindsæas as that made by the Messrs. BACKHOUSE, of York, was never before witnessed. Great must have been the mortification of the judges (if not also of the exhibitors) to find that the plan in which the Society has persisted, notwithstanding the arguments we last year urged against it, of offering medals instead of certificates for the classes in which these plants are shown, prevented them from fully recognising by their awards the merits of many of the plants thus placed before them. This plan, we repeat, by very much limiting the number of awards, does the great injustice, in cases where there is a glut of really fine novelties, as there was on this occasion, of forcing third-class medals on first-class plants; and it cannot therefore be too speedily abolished.

Of tender plants in flower comparatively few were shown. The best was the Peruvian Bomarea multiflora from Messrs. VEITCH, one of the group of climbing Alströmerias, whose stems, clothed with lance-shaped leaves, were terminated by umbels of handsome drooping orange red flowers, whose more prominent yellow petaloid segments were dotted inside with crimson. Another useful plant adapted for greenhouse cultivation was the Statice Frostii produced by Lady GRENVILLE's gardener at Dropmore, a stout growing hybrid between imbricata and Holfordii, with lyrately pinnatifid downy leaves, winged stems, and rich blue purple flowers. In this class Mr. BULL showed the curious Onvirandra fenestralis in a flowering state; and under the name of Swainsona splendens, Messrs. CARTER & Co. set up some cut specimens of what appeared to be a fine variety of S. Greyana, with greyish pinnate leaves, and remarkable for the large clear white spot on the standard of the pale magenta rose flowers.

Among the tender plants not in flower, the Ferns, as we have already intimated, bore away the palm. Our space will not permit us to dwell, as we are tempted to do, over the two dozen or thereabouts of Film Ferns, or the dozen species of Lindsæa, shown by Messrs. BACKHOUSE. We must be content to observe that they were all growing in rude health, many of them charming specimens, and all full of interest, though the majority, for the reason we have stated, found no place in the prize list. One of the most elegant among them was Trichomanes scandens with its large drooping attenuated finely cut tripinnatifid fronds of exquisite beauty. Another very handsome species was Hymenophyllum valvatum, smaller than the former, but like it of pendent habit, the fronds linear oblong, some 5 or 6 inches in length, looking as if the plane linear obtuse lobes were held together to form a bipinnatifid frond by means of the winged rachides. Scarcely less beautiful, and equally unfamiliar to all but the leading Fern growers, was Trichomanes Kaulfussii, which had erect pinnatifid fronds, the rachis of which was distinctly

winged, and the oblong lobes undulated and toothed; or Trichomanes floribundum, a somewhat bolder style of plant, with the ribbon-like pinnæ comparable with Pteris cretica as to size, but when in fructification, which this plant was not, fringed along the margin with sunken elongated cysts, and long projecting thread-like receptacles; or Trichomanes alatum, with pinnate fronds, having winged rachides and pinnatifid toothed pinnæ, emulating in beauty the T. scandens with which we set out. Specially interesting too were Trichomanes trichoideum, whose fronds were cut up into almost hair-like divisions, so fine are the multiplied segments; T. membranaceum and muscoides, both with undivided fronds; T. nanum, one of the spike-fruited set, and a very rare one too, to which the name Féea is given; T. Zollingeri, one of the javanicum set with remarkable asplenioid fronds; T. coriaceum, with short stiff ovate bipinnatifid winged fronds; and several Hymenophyllums, among which pulcherrimum and Plumieri must be named.

The Lindsæas from the same growers—plants which seem to have generally baffled the skill of cultivators, as they have hitherto appeared, here one and there one, only to disappear speedily, and on whose management we should be glad to be enlightened—formed a group only second in interest to the Film-Ferns already noticed. The handsomest, in their present state at least, were in our opinion: stricta, crenata, and trapeziformis; the others being guianensis, falcata, Leprieurii, recurvata, obtusa, dubia, reniformis, and sagittata.

Still in this class there were from Messrs. VEITCH Pteris serrulata cristata and Acrophorus affinis, noticed at p. 602; from Mr. BULL, young plants of Araucaria Rulei, one of the fine Conifers of New Caledonia; from Messrs. E. G. HENDERSON & SON, Primula sinensis fol. variegatis, a very handsomely marked variegated-leaved Chinese Primrose; from Messrs. A. HENDERSON & Co., Gardenia florida variegata, mentioned at p. 602; from Messrs. BACKHOUSE & SON, Adiantum Ghiesbreghtii, a fine deep green broad-pinnuled Maidenhair; and finally from the Rev. J. G. C. FUSSELL, of the Chantry, Frome, a magnificent specimen some 4 or 5 feet across of some large-fronded form of Gymnogramma chrysophylla, the management of which was deserving of all praise; and from the same exhibitor a particularly well managed specimen of the rarely seen Llavea cordifolia under its more usual but less correct name of Ceratodactylis osmundioides.

New Orchids were represented by the Cattleya Aclandi-Loddigesii of Messrs. VEITCH, to which we have already referred at p. 602: and by the less anovel but perhaps still more beautiful Disa grandiflor superba from Mr. WATSON, gr. to C. LEACH, Esq., ofpClapham Park. This fine variety of Disa was accom anied by three or four pans filled with differently coloured forms of this beautiful terrestrial Cape Orchid.

Of new hardy plants the chief were Gymnogramma or Dictyogramma japonica, a bright green bipinnate Fern with large lanceolate pinnæ; a variegated leaved Japanese Privet; and a coriaceous pinnate Fern called Asplenium consimile from Chili: all shown by Messrs. VEITCH. Also, a charming little Japanese Fern called Asplenium elegantulum, which looks like an enlarged fontanum; Woodsia polystichoides Veitchii, a very distinct pinnate Woodsia; a Japanese Funkia with glaucous leaves and French-white flowers; a Japanese Lycopod, probably Selaginella involvens; and two Japanese species of Quercus, one with broad obovate sinuately toothed leaves, the other with depauperately or attenuately pinnatifid leaves: all from Mr. STANDISH. Scarcely so novel as the foregoing, but not less interesting, were two plants from Messrs. BACKHOUSE and SON, which, as we learned, had stood out-doors with them unprotected and uninjured during the two last winters, namely Gleichenia alpina from Tasmania, and Richardia albo-maculata from Natal: both of them now in perfect health.

Seedling flowers had much diminished in numbers since the former exhibition, but there were some few of interest notwithstanding. We refer to a Pink called Rev. George Jeans shown by Mr. TURNER, a large clear white full flower, with heavy lacing of rosy crimson; to Lucy Grieve, the best of the red-zoned golden edged Pelargoniums, being more highly coloured than Mrs. Pollock, and to Italia Unita the best of the red-zoned silver edged sorts, both shown by Messrs. E. G. HENDERSON and SON; and to Lady Cowper, a scarlet Pelargonium from Mr. FRANCIS, a dwarf variety which from its small bright green foliage, scarlet flowers, and compact habit, promises to be a useful variety for decorative purposes.

—— At page 739 of our Volume for last year, we referred to the great strides which have latterly been made in the improvement of the FANCY PANSY. The increased interest thus given to an old favourites of our gardens, one of those pretty spring flowers which before hot weather sets in is welcomed as one of the gayest of our border decorators, has not at all abated. Indeed, the element of variety, of which till recently, the Pansy stood very much in need, has been so largely secured by the agency of this race which bears the name of Fancy Pansies, that we may expect the flower to obtain a renewed lease of public approbation.

Mr. DEAN, of Shipley, some of whose seedlings were noticed on the occasion to which we have referred, has again sent us a box of blooms of his novelties, which we have overhauled with much interest. The prevalent group amongst these Shipley Fancies is characterised by having a white ground-colour and very strongly developed deep mulberry purple blotches around the eye, the outside of the petals being more or less marked with purple or lavender stains and blotches of more or less intensity—these passing into grey blue on the one hand and deep violet on the other. Of this white-ground series, the best flower that has come under our notice, is one among those just received, called Her Majesty. This has the two larger or back petals splashed with violet on a paler grayish ground; the side petals with roundish blotches of black purple near the centre, these passing into short rays on the outer side, and being edged with a zone of lilac purple, and again by a broad margin of lighter or grayish blue; while the lower petals are three-parts covered with a dense dark purple blotch in immediate contact with a clear orange radiated eye, the blotch being even at the outer edge, and bordered with a narrow regular margin of cream colour. The shape of this flower is fine, and it is altogether a rich-looking variety, well deserving to bear so illustrious a name. Paler than this is Princess of Wales, in which the flowers have a creamy white ground with a yellow feathery eye, and deep mulberry blotches towards the base of the three lower petals, those of the two lateral ones especially passing out into pencilled lines, while the upper petals are delicately tinged with peachy lilac. Somewhat deeper-coloured, with a good deal of bluish lilac, here and there deepening into bluish violet, with the eye variously feathered, and the spots various both in form and in feathering, but of some shade of deep purple, and forming intense and prominently-marked blotches, come Imperatrice Eugénie, Brigand, Annie Brooksbank, Le Géant, and Columbine. Lottie differs somewhat in having the centre of the upper petals of a bright pucy purple, and the margin pale. Prince Napoleon is larger, with a broad lilac border, and purple spots veined with black purple. Prince Imperial is very bizarre in colour, the general tint of the lower petals being creamy white with here and there a streak or flush of yellow, and the spots dense purple and feathered, but differing in their tone of colour, some parts, apparently where the yellow of the eye has run out through the purple, having more of a maroon tinge, and the pale parts being streaked with pale purple; the upper petals are entirely of a streaked blotchy puce purple. Still darker than all these, come Bluebeard and King of Italy, both fine showy flowers, the first excellent in form, with the three lower petals bluish lilac margined with plum colour, a very large dark spot scarcely feathered on the lower petals, a golden eye, and feathered dark spots on the side petals, while the two upper are of a reddish plum. King of Italy is more generally suffused with a deep violet on the four upper petals, with dark spots right and left of the eye, the lower petal with a yellow eye, a dark almost black spot feathering out through a zone of reddish plum, succeeded by another of violet, the extreme eye being pale. Princess Louisa, formerly noticed, is one of the violet purple set, with a broad creamy white edge to the lower petal, and a similar hue a good deal breaking up the deeper colour on the side petals.

Thomas Moore is a large constant and very showy flower, somewhat varied in its marking: some of the darker flowers have the upper petals of a violet purple with a broadish edge of white, the side ones with a dense black spot feathering outwardly, bordered by a zone of creamy white, and these again by a broad margin of violet, while the lower is straw yellow on the upper edge, purple on the lower edge, with a golden eye, and a broad maroon spot, just bordered by a belting of a bronzy hue. In some flowers less of the purple appears.

Little Pet has upper petals similar to the last, but the lower are cream-colour with three distinct moderate-sized dense violet spots crossed by dark pencillings, and each with a paler spot in the centre of the edge. Hibernia, a very striking flower, is of a creamy white, with similar spots towards the centre, and a belt of bluish violet just within the edge on the three lower petals.

The yellow-ground series is perhaps on the whole hardly so varied and striking in appearance, but it contains nevertheless some remarkably handsome flowers. One of the richest-looking is Prince of Wales, which has the upper petals pale dashed with pucy plum; the side one, yellow with a broken plum-coloured margin, and a dark spot edged with bronzy red; and the lower one with a yellow margin deepest towards the eye, and a black spot surrounded by a belt of bronzy red; this is altogether very rich and bright. Talisman in the way of Noemi Demay has purplish upper petals, paler at the edge, and the lower edge of the lower petals flushed with bronze. Mrs. Dean has deep plum upper petals, creamy purple-spotted side petals, with a plum-coloured edge, and a yellower lower petal with maroon-crimson spot, plum-coloured edge, and a broken zone of yellow separating the two; very pleasing. Clara Dean is somewhat similar, with a paler plum-coloured zone and pale edge, the spot a much deeper maroon, and the upper petals bordered with cream colour. Admiration is lighter, having its upper divisions pucy violet edged with straw-colour, and its lower yellow with three intense spots. Harlequin is also light, but well marked, the upper petals pucy violet with a broad edge of straw yellow, the side ones yellower with a belt of purple within the yellow edge and a purple pencilled spot, and the lower with a broad maroon spot running out at the edge, and having a broken purplish margin. Prince Arthur, William Paul, and Clown are others of this set. Beauty of the Parterre is more like the show flowers: yellow centre, maroon spots, and belt of bluish purple. Moonshine has a yellow centre, clear intense spots, and a broken bluish-purple irregular edge. Firefly has a bright yellow centre with maroon spotting, and a somewhat irregular bronzy-red edging, the upper petals a good deal covered with this bronzy colour. Gold Cup is deep yellow with small radiate spots, the top petals mulberry with a yellow belt. Singularity repeats with a yellow ground many of the features of Princess Alice amongst the whites, having three intense maroon radiately feathered blotches on the lower petals, while the upper ones are tinged near the edge with faint purple.

We imagine that these flowers want no more intercrossing with the show varieties, which will bring sameness of character even though it should more rapidly realise improved form. What they rather want seems to be repeated and careful selection, by which means improvement in form and substance, the two chief desiderata, must be gradually brought out. These Fancy Pansies seem by the bye to have certain fancies of their own; for we learn from Mr. DEAN, that hot weather suits exactly the blotched sorts such as Harlequin, Hibernia, Thomas Moore, &c., which come as selfs until hot weather sets in; while in the case of others, such as Mrs. Turner, the latter a beautiful shaded lilac and creamy white flower, Princess of Wales, and similarly delicately coloured sorts, warm weather destroys the beautiful markings.

FORM OF THE CELLS MADE BY WASPS AND THE HONEY BEE.

THE geometrical form affected by the cells of various kinds of wasps and bees has attracted the attention, and called forth the speculations, of naturalists and geometers from the earliest periods. By one class of writers the geometrical properties of these cells have been used as proofs, not so much of the skill and instinct of the insects as of the wisdom and intelligence of their Creator; while, by the opposite class of writers, these same geometrical properties of the cells are alleged as a sufficient cause for the production of the insects that make them, from the advantages which these forms of cells are supposed to possess over other forms—advantages said to be so important as to decide the battle of life in favour of the insects that adopt the geometrical plan of making their cells.

I have for a long time felt convinced that both parties in this controversy are in error, as men generally are when they attempt to speculate on the reasons for the existence of things; and that the properties of the cells are only the necessary consequence of their geometrical form, which form itself is the necessary consequence of mechanical conditions, totally unconnected with design, and incapable of rendering an account of the origin of the insects that make the cells.

The geometrical cells of the wasps and bees that I have had an opportunity of examining may be divided into three classes. 1st. Hexagonal cells, formed of adjoining pyramidal figures, with slightly curved axes, not terminating in a point, but in a rounded extremity. The British tree-wasp forms its pupa cells in this manner, and, in consequence of the pyramidal form of the hexagonal cells, the comb opens out on the lower side, so as to present a larger surface than on the upper side.

2d. Hexagonal cells, formed of adjoining prismatic figures, with rectilinear axes, terminated by a truncated plane, at right angles to the axes of the prisms. These cells are found in wasps' nests from St. Lucia in the West Indies, and at Graham's Town in South Africa, which were placed at my disposal for this investigation by Mr. Robert J. Montgomery.

3d. Hexagonal cells, formed of adjoining prismatic figures, with rectilinear axes, terminated by three faces of a rhombic dodecahedron, which three faces also form, each, one third of the termination of a similar set of adjoining hexagonal prismatic cells, placed end to end behind the first set of prisms. This double comb is produced by the well-known form of the cells of the honey-bee.

All these varieties of cells may be accounted for, simply by the mechanical pressure of the insects against each other during the formation of the cell. In consequence of the instinct that compels them to work with reference to a plane, and of the cylindrical form of the insects' bodies, the cells must be hexagons; and in consequence of the instinct that induces the bees to form double combs, the mutual pressure of their heads against each other compels the bottom of the cell to assume the form of the rhombic dodecahedron. If we could imagine spherical insects endowed with the instinct of working from a point and not a plane, their cells would cease to affect the forms of the hexagon and rhombic dodecahedron, and would imitate the totally different form of the pentagonal dodecahedron—instances of which may be seen in the bubbles produced in the froth of an organic solution, and in the shapes of the elementary cells of vegetables, equally restricted in their growth in every direction; and also in the pentagonal faces assumed by leaden bullets made to fill completely the inside of a hollow shell, and then discharged against a bank of earth or a wall, from a mortar.

On this subject, I cannot do better than quote the

words of Buffon, who was the first person that put forward a rational theory of the shape of the cells of bees. The passage which I quote may be found in his *Histoire Naturelle*, tom. iv. p. 99:—"Dirai-je encore un mot; ces cellules des abeilles, ces hexagones, tant vantés, tant admirés, me fournissent une preuve de plus contre l'enthousiasme et l'admiration: cette figure, toute géométrique et toute régulière qu'elle nous paroît, et qu'elle est en effet dans la speculation, n'est ici qu'un résultat mécanique et assez imparfait qui se trouve souvent dans la Nature, et que l'on remarque même dans ses productions les plus brutes; les cristaux et plusieurs autres pierres, quelques sels, &c., prennent constamment cette figure dans leur formation. Qu'on observe les petites écailles de la peau d'une roussette, on verra qu'elles sont hexagones, parce que chaque écaille croissant en même temps se fait obstacle, et tend à occuper le plus d'espace qu'il est possible dans un espace donné: on voit ces mêmes hexagones dans le second estomac des animaux ruminans, on les trouve dans les graines, dans leurs capsules, dans certaines fleurs, &c. Qu'on remplisse un vaisseau de pois, ou plutôt de quelque autre graine cylindrique, et qu'on le ferme exactement après y avoir versé autant d'eau que les intervalles qui restent entre ces graines peuvent en recevoir; qu'on fasse bouillir cette eau; tous ces cylindres deviendront de colonnes à six pans. On en voit clairement la raison, qui est purement mécanique; chaque graine, dont la figure est cylindrique, tend par son renflement à occuper le plus d'espace possible dans un espace donné, elles deviennent donc toutes nécessairement hexagones par la compression reciproque. Chaque abeille cherche à occuper de même le plus d'espace possible dans une space donné; il est donc nécessaire aussi, puisque le corps des abeilles est cylindrique, que leurs cellules soient hexagones—par la même raison des obstacles reciproques. On donne plus d'esprit aux mouches dont les ouvrages sont les plus; reguliers les abeilles sont, dit-on, plus ingénieuses que les guêpes, que les frélons, &c., qui savent aussi l'architecture, mais dont les constructions sont plus grossières et plus irrégulières que celles des abeilles: on ne veut pas voir, ou l'on ne se doute pas que cette régularité, plus ou moins grande, dépend uniquement du nombre et de la figure, et nullement de l'intelligence de ces petites bêtes; plus elles sont nombreuses, plus il y a des forces qu'agissent également et qui s'oppose de même, plus il y a par conséquent de constrainte mécanique, de regularité forcé, et de perfection apparente dans leurs productions." *Buffon.*

The opinions of the older writers, especially of mathematicians, on this subject, differ widely from those advanced by Buffon. I shall here translate some of the most important of the passages bearing on this point. The famous Pappus, of Alexandria, in the Introduction to the Fifth Book of his Mathematical Collection, says:—

"God has imparted to men, indeed, the best and most perfect knowledge of wisdom and discipline; and has assigned to some animals, devoid of reason, a certain portion. To men, therefore, as making use of reason, he has permitted that they should do all things by reason and demonstration, but to other animals without reason, he has given the possession of what is useful and conducive to life, by a certain natural providence. Any one may understand this to be so, as well in many other kinds of animals, and more especially in bees. For order, and a certain admirable deference to those who rule in their republic, ambition, moreover, and cleanliness, heap together an abundance of honey; but their foresight and economy concerning its conservation are much more admirable—for holding it for certain, as is just, that they carry back some portion of ambrosia from the gods to choice men, they pour out this, not rashly on the ground, or into wood, or any other unformed and misshapen matter; but collecting from the sweetest flowers that grow in the earth, they form from them most excellent vases as a receptacle for the honey (which the Greeks call κηρία, and the Latins *favi*), all indeed equal, similar, and cohering among themselves, of the hexagon species. Now it is thus evident that they construct these by a certain geometrical foresight; for they consider it fit that all the figures should cohere together and have common sides, lest anything, falling into the intervening spaces, should spoil and corrupt their work. Hence, three rectilinear and ordinate figures can effect what is proposed—I mean ordinate figures which are equilateral and equiangular, for ordinate and dissimilar figures did not please the bees themselves. Now equilateral triangles, and squares, and hexagons (neglecting other dissimilar figures filling space), may be placed next each other, so as to have common sides—other ordinate figures cannot; for the space about the same point is filled, either by six equilateral triangles, or by four squares, or by three hexagons—but three pentagons are less than sufficient, and four are more than sufficient to fill the space round a point—neither can three heptagons be established, so as to fill the space round a point. The same reasoning will apply much more to figures having a greater number of sides. There being then, three figures, which of themselves can fill up a space round a point, viz., the triangle, the square, and the hexagon; the bees have wisely selected for their structure that which contains most angles, suspecting, indeed, that it could hold more honey than either of the others. The bees, forsooth, know only what is useful to themselves, viz., that the hexagon is greater than the square or triangle, and can hold more honey, an equal quantity of material being employed in the construction of each; but we, who profess to have more wisdom than the bees, will investigate something even more remarkable, viz., that of plane figures which are equilateral and equiangular and have equal perimeters, that is always the greatest which consists of most angles, and the circle is the greatest of all, provided it be included in a perimeter equal to theirs.

In 1712 Maraldi published in the "Mémoires de l'Academie des Sciences, Paris, 1712," page 299, a remarkable paper, in which is investigated for the first time the terminal planes of the bees' cell, which are now well known to be formed of the faces of the rhombic dodecahedron. He appears to have believed that the object of having lozenges of the same form as terminating planes was to enable the bees to carry in their mind the idea of one geometrical form only, in addition to their original idea of the hexagon. The angles of the lozenge are found by him to be 110° and 70°, by observation; and 109° 28′ and 70° 32′ by calculation. He gives also the following mean measurements of the cells:—In a foot long of comb there are from 60 to 66 cells, about two lines for each cell, and the depth of the cell is five lines.

Reaumur appears to have been the first who introduced the fantastic idea of economy of wax, as the motive cause of the peculiar shape of the terminating planes, and, not being a geometer, he obtained the assistance of König to calculate the angle of the lozenge which should give the least surface with a given volume. König determined this angle at 109° 26′, agreeing with Miraldi within two minutes.

MacLaurin published in the "Philosophical Transactions," 1743, p. 565, an elaborate geometrical paper on the subject, in which he proves that the tangent of the angle in question is the square root of 2, and that it is therefore equal to 109° 28′ 16″; and he computes the saving of wax as "almost one-fourth part of the pains and expense of wax they bestow, above what was necessary for completing the parallelogram side of the cells."

Lhuilier, in 1781, published in the "Berlin Memoirs," p. 277, an elaborate discussion of the entire problem, in which he arrived at the following results, already found by Mac Laurin's geometrical method:—*a.* That the economy of wax is less than one-fifth of what would make a flat base. *b.* That the economy of wax, referred to the total expenditure, is $\frac{1}{51}$th, so that the bees can make 51 cells, instead of 50, by the adoption of the rhombic dodecahedron. He does not share however in the enthusiasm of the naturalists, but maintains, and proves, that mathematicians could make cells of the same form as those of the bees, which, instead of using only a *minimum* of wax, would use the *minimum minimorum*, so that five cells could be made of less wax than that which now makes only four, instead of 51 out of 50.

Notwithstanding this conclusive decision in favour of the mathematicians, the advocates of final cause, and those who maintain that economy of wax can create a new species, have both persisted in using the bees' cell in illustration of their respective theories, with a pertinacity that proves the persistent vitality of an exploded theory. *Rev. Dr. Haughton, F.R.S.*

Home Correspondence.

Humble Bees in a Greenfinch's Nest.—A few years ago a humble bee established a colony in the empty nest of a greenfinch, built about 4 feet from the ground, in the Hawthorn hedge of a garden near Chepstow. Wishing to preserve it I cut the nest carefully from the hedge, the bees flying round it without attempting to sting, till just as the few last twigs that supported it were being cut the queen came out, and after hovering in the air for about a minute, making a very peculiar noise, she flew away with the family, leaving the nest deserted. If any of your correspondents would be kind enough to mention whether they have seen humble bees building in similar localities I should feel obliged to them, or if they could inform me what species this probably was? As far as I can remember the bee greatly resembled the Bombus hortorum, but the dried specimens found in the nest when opened were so pale that it was almost impossible to ascertain the species with certainty; the colours were black on the back, the tail striped black and sulphur yellow, and the apical segments grey or white. The part of the nest added by the bees was entirely of moss. *E. O.*

Hypericum Hookerianum.—In Markham's Travels in Peru and India, I find, among other notices of plants growing on the Nielgherry Hills, an orange-coloured St. John's Wort mentioned, which must surely be a beautiful species:—is it introduced, and where can it be procured? Is the blue Justicia, which he speaks of as growing so abundantly as to give a colour to the hills, also introduced, and under what name? If not in England, they could surely be sent from Ootacamund by Mr. M'Ivor. *A Devonian.* [We are unable to interpret Mr. Markham's Botany. H. Hookerianum, which is very well figured in Wight's Spicilegium, has yellow, not orange flowers. We do not think it handsomer than H. calycinum.]

Auricula-eyed Sweet Williams.—Have any of your readers grown the Auricula-eyed Sweet Williams? If not, they should do so. These are the finest Sweet Williams I have ever seen, and I have been engaged in improving this flower for the last ten years. I received the seed from Mr. W. Dean, of Shipley, and I am bound to say that they have given complete satisfaction. I admit the beauty of those known as "Hunt's Strain," of which Mr. Bragg, of Slough, had a collection at the Horticultural Society's Show on June 17; but what I have now in flower of the Auricula-eyed please me better. They have large white centres, clearly defined and rounded, to flowers of large size and good form. Even in the light varieties the white centre is distinct, because bordered by some deep colour which forms a ring round it; and to many of the rich dark flowers there is a distinct edging of white. For exhibition purposes, especially, they are unequalled. I send some for your inspection. *Henry Braithwaite, Milbrook Road, Brixton.* [They are very handsome, certainly, the dark sorts chiefly shades of crimson or purple with large white eye and white fringed margin; the light ones with crimson or purple zones of varied width. As border flowers nothing can be more effective].

Lilium giganteum.—If any proof is wanted as to the hardiness of this Lily, we beg to say that we have in flower at the present time, five specimens of it from 8 to 10 feet in height, each carrying from 10 to 16 flowers; these have been in the open ground during the last three years. *Youell & Co., Great Yarmouth.*

Conifers.—If the points of dissimilitude between Abies and Picea, mentioned by Mr. Backhouse, do not amount to a "distinction," are those between Abies and Pinus of more importance? If so, in what manner? I cannot see why Picea should be put lower in the scale than Abies, and think that if the characters of the former group are only of sectional importance, those of the latter are no better, and that both must in that case be reduced to sections of Pinus. Is there not a difference or distinction of some importance in the modes of dehiscence of the anthers of Abies and Picea? Κέδρος. [Picea is not put lower in the scale than Abies; the two are *pares*. We think the junction of Abies and Pinus defensible, though objectionable; the separation of Picea from Abies is indefensible. Pinus differs from Abies by plain, positive, unvarying characters. Surely no one can say that of Abies and Picea. Even Richard, the most acute of the writers on Systematical Penkology (forgive the word), could not distinguish them. We hold to our opinion.]

Araucaria Bleeding.—I have a fine specimen of Araucaria standing on a lawn, which has hitherto grown luxuriantly. The growth this year is very trifling, and at about 9 inches from the ground the bark has burst, and a gummy substance oozes out. Should anything be done to stop this, and cause the bark to heal? I shall be thankful for any suggestions any of your readers may be able to offer. *An Original Subscriber.*

Pruning Vines.—In reply to the inquiry of your Correspondent "Vine" (see p. 604), let me say that the scissors or nippers which I have used for 10 years for pruning Vines were purchased by a lady some 30 years ago for pruning Roses, and have no maker's name on them. Saynor, of Sheffield, however, is in the habit of making nippers on the principle of those I have, though not so powerful; and "Vine" can procure them through any seedsman. With those I use, I can prune a Vinery in a third of the time, and to better purpose, than any man can with a knife, and they are a much safer weapon than a knife, especially in the hands of beginners. When the lateral has to be cut, as in the case of close spur pruning, within half an inch of the parent stem, and the wood is pithy, it often happens, where great care is not exercised, that the knife tears the bit of wood left and injures the fruit bud. I have often seen Vines much injured in this way. In using the nippers the cutting blade should always be next the parent stem, which prevents the bruising of the wood left. *W. Thomson.*

Strawberry La Constante.—Too much can hardly be said in favour of this comparatively new Strawberry. I have four rows of it across one of the quarters of the garden, and the crop on them is something incredible. The colour is bright vermilion, the fruit is large and regularly formed, and the flavour is excellent. This variety, I find, bears carriage better than any other sort with which I am acquainted, and instead of the runners creeping along the ground, like those of other kinds, they grow straight up among the leaves, forming supports almost sufficiently strong to carry the net with which they are covered. *J. Rust, Broom House, Fulham.*

Societies.

Rose Show at the Crystal Palace: *June* 27.—An excellent exhibition of cut Roses was held here on this occasion. Not only were the stands unusually numerous, but the blooms, especially in the larger collections, were in first-rate condition.

Ninety-six varieties, one truss of each.—In this class Mr. Mitchell, of Piltdown, Maresfield, Sussex, occupied the first rank, and deservedly so, for seldom have we seen finer blooms staged than were contributed by him on this occasion. In the different sections represented the best were:—

Hybrid Perpetuals:—
Crimson—Senateur Vaisse
Rose—Madame C. Crapelet
Blush—Madame Rivers
White—Louise Magnan

Bourbons:—
Rose—Catherine Guillot
Blush—Souvenir de Malmaison

Teas:—
Rose—Silene
Blush—Souvenir d'Elise
White—Sombreuil
Yellow—Gloire de Dijon

Noisettes:—
Yellow—Triomphe de Rennes

Hybrid Chinas:—
Crimson—Chénédole
Rose—Blairii

From Mr. Turner, of Slough, came another excellent exhibition of 96 sorts, among which the best were—

HYBRID PERPETUALS:—
Crimson—Lord Raglan
Rose—Madame C. Crapelet
Blush—Madame Rivers
White—Imperatrice Eugénie
TEAS:—
White—Madame Bravy
Yellow—Gloire de Dijon

Among Messrs. Paul & Son's Roses, who also showed in this class, the best were—

HYBRID PERPETUALS:—
Crimson—Lord Clyde
Rose—Madame Furtado
Blush—Caroline de Sansal
White—Louise Darzins
BOURBONS:—
Rose—Baronne de Noirmont
Blush—Souvenir de Malmaison
White—Acidalie
TEAS:—
Rosy salmon—Duc de Magenta
Blush—President
White—Madame Bravy
Yellow—Madame Falcot
NOISETTES:—
White—Lamarque
Yellow—Triomphe de Rennes
HYBRID CHINAS:—
White—Paul Ricaut
Rose—Charles Lawson
Blush—Blanchefleur
White—Madame Plantier

From Messrs. Cant and Cranston also came fair blooms of most of the leading kinds, the best of which did not differ from those just named.

Awards.—96: 1st, Mr. Mitchell; 2d, Mr. Turner; 3d, Messrs. Paul & Son; 4th, Mr. Cant; 5th, Mr. Cranston.

Forty-eight varieties, three trusses of each.—These were numerous, and being well selected as to colour made a fine display. The best in the different groups were:—

HYBRID PERPETUALS:—
Crimson—François Lacharme, Senateur Vaisse, Lord Raglan, General Jacqueminot
Rose—Anna Alexieff, Madame C. Crapelet
Blush—Madame Rivers
White—Mdlle. Bonnaire
BOURBONS:—
Crimson—Victor Emmanuel
Rose—Catherine Guillot
Blush—Comtesse de Barbantanne
TEAS:—
Rose—Souvenir d'un Ami
Blush—Adam
White—Madame Villermoz, Madame Bravy
Yellow—Vicomtesse de Cazes, Narcisse, Gloire de Dijon
NOISETTES:—
Yellow—Celine Forestier
HYBRID CHINAS:—
Crimson—Brennus
Rose—Coupe d'Hébé
Blush—Comtesse Lacipede
White—Botzaris

Awards.—48: 1st, Mr. Cant; 2d, Mr. Turner; 3d, Messrs. Paul & Son; 4th, Mr. Spriggins; 5th, Mr. E. Hollamby.

Twenty four varieties, three trusses of each.—The best in the different stands were:—

HYBRID PERPETUALS:—
Crimson—Senateur Vaisse, Louis XIV., Eugène Appert
Rose—Colonel Rougemont, William Griffiths
Blush—Madame Rivers, Madame Vidot
White—Mdlle. Bonnaire
BOURBONS:—
Rose—Catherine Guillot
Blush—Souvenir de Malmaison
TEAS:—
Yellow—Gloire de Dijon
HYBRID CHINAS:—
Crimson—Paul Ricaut
Rose—Paul Perras, Charles Lawson

Awards.—24: 1st, Mr. Francis; 2d, Messrs. Paul & Sons; 3d, Mr. Laing; 4th, Mr. Spriggins; 5th, Mr. Clarke.

Twenty-four varieties, one truss of each.—Among these were very fine examples of the following:—

HYBRID PERPETUALS:—
Crimson—Senateur Vaisse
Rose—Baronne Prevost, Comtesse Cecile de Chabrillant
Blush—Caroline de Sansal, Madame Rivers
White—Louise Darzins
BOURBONS:—
Blush—Souvenir de Malmaison
TEAS:—
White—Gloire de Bordeaux
Yellow—Gloire de Dijon
NOISETTES:—
White—Miss Glegg
HYBRID CHINAS:—
Crimson—Paul Ricaut
Rose—Coupe d'Hébé, Chas. Lawson

Awards.—24: 1st, Mr. Treen; 2d, Mr. Stacey; 3d, Mr. Davis; 4th, Mr. Knight; 5th, Mr. Laing.

Twelve varieties, one truss of each.—In this class which was well supported, there were some fine flowers among which the following were the best:—

HYBRID PERPETUALS:—
Crimson—Lord Raglan, Gen. Jacqueminot
Rose—Victor Verdier, Jules Margottin
Blush—Madame Vidot
TEAS:—
White—Comte de Paris
Yellow—Gloire de Dijon
HYBRID CHINAS:—
Crimson—Paul Ricaut

Awards.—12: 1st, Mr. Turner; 2d, Mr. Francis; 3d, Mr. Gosling; 4th, Mr. Stacey; 5th, Mr. Davis.

Thirty-six varieties (Amateurs), one truss of each.—Seldom have finer Roses been exhibited than those shown on this occasion by Mr. Hedge of Colchester, to whom first prizes were awarded in nearly all the classes in which his flowers appeared. They were large in size and beautiful in colour, and they were set up with much taste, a point of the utmost importance in exhitions of this kind. From Mr. Ingle, Mr. Corp, and Mr. Worthington also came well-grown collections, in which as well as in others the finest blooms were.

HYBRID PERPETUALS:—
Crimson—Senateur Vaisse, Duc de Cazes, Erêque de Nismes, Gloire de Santenay
Roses—Jules Margottin, Madame Furtado, Prince Leon, Madame C. Crapelet
Blush—Madame Vidot
TEAS:—
Yellow—Gloire de Dijon, Madame Falcot
NOISETTES:—
Yellow—Celine Forestier

Awards.—36: 1st, Mr. Hedge; 2d, Mr. Ingle; 3d, Mr. Corp; 4th, Mr. Worthington; 5th, Mr. Moffat. Extra, Miss Crawshay.

Twenty-four varieties (Amateurs), one truss of each.—In this class Mr. Hedge was again victorious. In his stand, as well as in others, the best blooms were:—

HYBRID PERPETUALS:—
Crimson—Senateur Vaisse, Gen. Jacqueminot, Gloire de Santenay
Rose—Jules Margottin, Prince Leon, Madame C. Crapelet, Mad. Furtado
Blush—Madame Vidot, Madame Rivers
White—Madame Sertot
TEAS:—
Yellow—Gloire de Dijon, Madame Falcot
NOISETTES:—
Yellow—Celine Forestier

Awards.—24: 1, Mr. Hedge; 2, Mr. Marlow; 3, Mr. Moffat; 4, Mr. Dennis; 5, Mr. Ingle. Extra, Mr. Dobree and Mr. Smith.

Eighteen varieties (Amateurs), one truss of each.—Among these were many beautiful blooms, of which the best were:—

HYBRID PERPETUALS:—
Crimson—General Jacqueminot, Lord Raglan
Rose—Prince Leon, Jules Margottin
Blush—Madame Vidot
TEAS:—
White—Devoniensis
Yellow—Gloire de Dijon
NOISETTES:—
Yellow—Celine Forestier
HYBRID CHINAS:—
Rose—Charles Lawson

Awards.—18: 1st, Mr. Hedge; 2d, Mr. Ingle; 3d, Mr. Brown; 4th, Mr. Plester; 5th, Miss Crawshay.

Twelve varieties (Amateurs), one truss of each.—Of these the best were:—

HYBRID PERPETUAL:—
Crimson—Senateur Vaisse
Rose—Jules Margottin
Blush—Madame Rivers
BOURBONS:—
Blush—Souvenir de Malmaison
TEAS:—
Yellow—Gloire de Dijon
NOISETTES:—
Yellow—Triomphe de Rennes
HYBRID CHINAS:—
Crimson—Paul Ricaut

Awards.—12: 1st, Rev. V. K. Child; 2d, Mr. Pullinger; 3d, Mr. Hedge: 4th, Miss Crawshay; 5th, Mr. Plester.

New Roses.—These were numerous, but many of them were not in first-rate condition. Crimsons, of which the most prominent was Lord Clyde, seemed to prevail; whilst to whites a valuable addition was made in Louise Darzins, which was very pure in colour, but as shown perhaps not sufficiently double. The best were:—

HYBRID PERPETUALS:—
Crimson—Lord Clyde
Rose—Madame Caillet
Blush—Notre Dame de Fourvieres
White—Louise Darzins
BOURBONS:—
Rose, light—Louise Margottin
Blush—Emotion
White—Mdlle. Emain
TEAS:—
Rose—Gloire de Bordeaux
Blush—Comtesse Ouvaroff
White—Alba rosea
Yellow—l'Enfant Trouvé

Awards.—1st, Messrs. Paul & Son; 2d, Mr. Wm. Paul; 3d, Mr. Standish.

Of vases filled with Roses the best came from Mr. Turner; but Messrs. Hedge, Cranwell, and Francis had also tasteful exhibitions of this kind.

Roses in pots came from Mr. Wm. Paul, and collections of plants in smaller pots from Messrs. Paul & Son, Mr. Turner, and Mr. Francis.

Miscellaneous Subjects.—Among these was a beautiful group of Irises and other cut flowers from Messrs. Butler & M'Culloch; and a smaller collection from Messrs. Barr & Sugden.

ROYAL HORTICULTURAL: *July* 1 (*Third Great Exhibition and Rose Show*).—Seldom has a finer display of fruit been staged than that which was furnished on this occasion. Roses too were all that could be desired, and new plants and others remarkable for the beauty of their leaves were numerous and striking.

Collections of Fruit.—In one of these was a good dish of Snow's Muscat Hamburgh, an excellent Grape when well grown as this was, from Mr. Penny; and from others came one or two handsome Queen Pine Apples, beautiful examples of Peaches and Nectarines, Grapes, Cherries, Melons, and Strawberries. Among the last we noticed fine fruit of Frogmore Late Pine, a valuable comparatively new variety, deserving of more extensive cultivation than it has as yet received.

Awards.—1st, Mr. Turner; 2d, Mr. Penny: 3d, Mr Henderson; 4th, Mr. Turnbull.

Pine Apples.—Providences were not remarkable either for beauty of shape or weight, but there were some well-ripened Queens, especially those from Messrs. Grant, Smith, and Ward, each of whose fruit weighed nearly 5 lb. A Queen from Mr. Hall, gr. to Lord Scarborough, weighed 5 lb. 1 oz. An Enville, unripe at top, weighed 8 lb. 8 oz., and there were one or two small specimens of other varieties.

Awards.—Providence: 1st, Mr. Young; 2d, Mr. Wallis. Queens: 1st, Mr. Grant; 2d, Mr. Smith (Liverpool); 3d, Mr. Ward. Extras: Mr. Smith (Norwood); Mr. Carr. Other sorts: 1st, Mr. Hall; 2d, Mr. Dwerrihouse.

Peaches.—These were plentiful and for the most part large and fine, especially the examples of Royal Charlotte and others furnished by Mr. Dawson and Mr. Sawkins.

Awards.—1 dish: 1st, Mr. Sawkins and Mr. Wills; 2d, Mr. Edwards; 3d, Mr. Bannerman. 2 dishes: 1st, Mr. Dawson; 2d, Mr. Young; 3d, Mr. Tegg.

Nectarines.—These were also numerous, large, and generally well coloured.

Awards.—2 dishes: 1st, Mr. Cross; 2d, Mr. Tegg; 3d, Mr. Young. 1 dish: 1st, Mr. Wills; 2d, Mr. Bannerman; 3d, Mr. Tillery.

Grapes.—Mr. Meredith, of the Vineyard, Garston, near Liverpool, sent magnificent bunches of Frankenthal, Dutch, and other varieties of Black Hamburgh, whose fine colour and wonderful size astonished even the judges themselves. Scarcely less remarkable were the same eminent grower's white Grapes, among which was a very fine bunch of Golden Hamburgh, whose size gave all who were fortunate enough to see it some idea of the perfection at which this fine kind may be made to arrive under skilful culture. From Mr. McPherson came vigorous bunches of Canon Hall Muscat; and of Chasselas Musqué we noticed some good examples from Mr. Mould. Mr. Hill reproduced his surprisingly fine specimens of Black Prince which were so much admired the other day at Regent's Park, three bunches of which weighed 9 lbs. 5 oz.; and from the same cultivator, as well as from Mr. Henderson, Trentham, came good collections of different varieties, among which were the Early Summer Frontignan, Buckland and Common Sweetwater, Black Prince, Royal Muscadine, Frankenthal, Lady Downe's Seedling, West's St. Peter's, Golden Hamburgh, Victoria, Pope Mill Hill and Muscat Hamburgh, Gromier du Cantal, and Muscat Escholata. From Mr. Crawshay came very fine bunches of Black Hamburgh, not large in the berry, but well coloured.

Awards.—Black Hamburgh: 1st, Mr. Meredith; 2d, Mr. Wallis; 3d, Mr. Allen. Dutch Hamburgh: 1st, Mr. Meredith; 2d, Mr. Widdowson; 3d, Mr. Turner. Frankenthal: 1st, Mr. Meredith; 2d, Mr. Jones; 3d, Mr. Henderson. Other Black kinds: 1st, Mr. Hill; 2d, Mr. Cross. Muscats: 1st, Mr. Embry; 2d, Mr. Turner; 3d, Mr. Turnbull. Canon Hall: 1st, Mr McPherson; 2d, Mr. Embry; 3d, Mr. Turner. Other White Grapes: 1st, Mr. Mould; 2d, Mr. Hill; 3d, Mr. Henderson. Collection: 1st, Mr. Hill; 2d, Mr. Henderson; 3d, Mr. Cross.

Figs.—These consisted wholly of Brown Turkey, of which the few dishes produced were excellent examples.

Awards.—1st, Mr Smith; 2d, Mr. Pottle; 3d, Mr. Robinson.

Cherries.—Of these the best came from Mr. Turner. Among the sorts shown were May Duke, Elton, Black Tartarian, Late Duke, Black Eagle, and Circassian.

Awards.—1st, Mr. Turner; 2d, Mr. Widdowson; 3d, Mr. Beck.

Plums.—Of these the only specimens exhibited was a dish of Jefferson from Mr. Ingram, gr. to J. J. Blandy, Esq., of Reading.

Strawberries.—Of these there was a fine display. Mr. Widdowson and Mr. Turner had both excellent collections of them. From the former came Crimson Queen, Sir C. Campbell, British Queen, Oscar, Sir C. Napier, Prince of Wales, Admiral Dundas, Myatt's Surprise, Empress Eugenie, and others. Mr. Turner contributed Frogmore Late Pine, President, Newington Seedling, Marguerite, Sir C. Napier, La Constante, Rifleman, Admiral Dundas, Empress Eugénie, Prolific, Oscar, Comte de Paris, Filbert Pine, Fairy Queen, Eclipse, Blackbird, Victoria, Carolina Superba, Bicton Pine (a white sort), Sir Harry, Surprise, John Powell, Prince Arthur, Adair, Wonderful, Myatt's Eliza, Prince of Wales, and Highland Mary. From Mr. Terry, St. Alban's, came a good boxful of Keens' Seedling. Mr. Lydiard, Bathseaston, had Victory of Bath, in beautiful condition, and a promising seedling named Gem of the West.

Awards.—Collection: 1st, Mr. Widdowson; 2d, Mr. Turner. 4 Dishes: 1st, Mr. Lydiard; 2d, Mr. Turner; 3d, Mr. Kaile.

Melons.—These were plentiful. The best in the green-fleshed class was Pottle's Hybrid, and in the scarlet section Gem still maintains a forward position.

Awards.—Green-fleshed: 1st, Mr. Pottle; 2d, Mr. Lydiard; 3d, Mr. W. Tegg. Scarlet: 1st, Mr. J. Tegg; 2d, Mr. Tillery.

Roses.—These were shown in large quantities, and in beautiful condition:

Ninety-six varieties, one truss of each.—From Mr. Cant of Colchester, came a beautiful collection, in which as well as in those of others shown in this class, the best were:—

HYBRID PERPETUALS:—
Crimson—Turenne, Charles Lefebvre, Madame Boll
Rose—Prince Leon, Olivier Delhomme
Blush—Madame Vidot, Madame Rivers
White—Louise Magnan
BOURBONS:—
Blush—Souvenir de Malmaison
TEAS:—
White—Comte de Paris, Rubens, Mad. Bravy
Yellow—Gloire de Dijon
NOISETTES:—
White—Lamarque
Yellow—Cloth of Gold

Awards.—96: 1st, Mr. Cant; 2d, Messrs. Paul & Son; 3d, Mr. Mitchell; 4th, Mr. Keynes.

Forty-eight kinds, three trusses of each.—Among these the best were—

HYBRID PERPETUALS:—
Crimson—Senateur Vaisse, Gen. Jacqueminot, Lord Clyde, Chas. Lefebvre
Rose—Madame Furtado, Mad. C. Crapelet
Blush—Mad. Vidot, Comtesse Cecile de Chabrillant
BOURBONS:—
Crimson—Victor Emmanuel
Rose—Modèle de Perfection
Blush—Souvenir de Malmaison
TEAS:—
Blush—Souvenir d'un Ami, President
White—Madame Willermoz
Yellow—Gloire de Dijon
NOISETTES:—
Yellow—Celine Forestier
HYBRID CHINAS:—
Crimson—Paul Ricaut
Rose—Chas. Lawson

Awards.—48: 1st, Mr. Turner; 2d, Messrs. Paul & Son; 3d, Messrs. Fraser; 4th, Mr. Cant.

Twenty-four varieties, three trusses of each.—These were well selected and beautifully contrasted as to colour, especially Mr. Keynes's blooms, which were large and fine. The best in the different stands were:—

HYBRID PERPETUALS:—
Crimson—Olivier Delhomme, Senateur Vaisse, Lord Clyde
Rose—Jules Margottin, Victor Verdier
Blush—Mad. Vidot, Mathurin Regnier
BOURBONS:—
Rose—Baronne de Noirmont
Blush—Souvenir de Malmaison
TEAS:—
Yellow—Gloire de Dijon
HYBRID CHINAS:—
Rose—Chas. Lawson

Awards.—24: 1st, Mr. Keynes; 2d, Mr. Francis; 3d, Mr. Laing; 4th, Messrs. Paul & Son.

Twenty-four kinds, one truss of each.—Among these the best were:—

HYBRID PERPETUALS:—
Crimson—Gen. Jacqueminot, Duc de Cazes
Rose—Souvenir de Leveson Gower
Blush—Madame Vidot
BOURBONS:—
Blush—Souvenir de Malmaison
White—Acidalie
TEAS:—
Blush—President
Yellow—Gloire de Dijon
NOISETTES:—
White—Lamarque
DAMASK:—
White—Madame Zoutman

Awards.—24: 1st, Mr. Turner; 2d, Mr. Keynes; 3d, Mr Treen; extra, Mr. Cranston.

Forty-eight varieties (Amateurs), one truss of each.—The best among these were:—

HYBRID PERPETUALS:—
Crimson—Gen. Jacqueminot
Rose—Jules Margottin
Blush—Madame Vidot, Mrs. Rivers
White—Louise Magnan
BOURBONS:—
Blush—Souvenir de Malmaison
Rose—Catherine Guillot
TEAS:—
Yellow—Gloire de Dijon
NOISETTES:—
Yellow—Triomphe de Rennes
HYBRID CHINAS:—
Crimson—Chénédole

Awards.—48: 1st, Mr. Hedge; 2d, Miss Crawshay; 3d, Mr. Worthington; 4th, Mr. Ingle. Extra, Mr. Laxton.

Twenty-four kinds (Amateurs), one truss of each.—

Hybrid Perpetuals:—	Teas:—
Crimson—Senateur Vaisse, General Jacqueminot	Yellow—Gloire de Dijon
Rose—Jules Margottin, Madame C. Crapelet	Noisettes:—
Blush—Ma lame Vidot	Yellow—Celine Forestier
Bourbons:—	Hybrid Chinas:
Blush—Souvenir de Malmaison	Crimson—Paul Ricaut
	Rose—Charles Lawson

Awards.—24: 1st, Mr. Dobree; 2d, Mr. Hedge; 3d, Mr. Ingle; 4th, Rev. S. R. Hole. Extra, Mr. Sawkins.

Eighteen Varieties (Amateurs), one truss of each.—Among these the best were:—

Hybrid Perpetuals:—	Teas:—
Crimson—Charles Lefebvre, General Jacqueminot, Senateur Vaisse	White—Devoniensis
	Yellow—Gloire de Dijon
Rose—Jules Margottin	Noisettes:
Blush—Madame Rivers	Yellow — Triomphe de Rennes

Awards.—18: 1st, Mr. J. T. Hedge; 2d, Mr. W. Ingle; 3d, Mr. J. Stratton. Extra, Mr. Moffatt and Mr. Worthington.

Twelve Varieties (Amateurs) one Truss of each.—Among these the best were:—

Hybrid Perpetuals:—	Noisettes:—
Crimson—Senateur Vaisse	Yellow—Celine Forestier
Rose—Jules Margottin, Madame C. Crapelet	Hybrid Chinas:—
Blush—Madame Vidot	Crimson—Paul Ricaut
Teas:—	Rose—Chas. Lawson, Coupe d'Hébé
Yellow—Gloire de Dijon	

Awards.—12: 1st, Mr. Hedge; 2d, Mr. Helyar; 3d, Mr. Stratton. Extra, Mr. Dobree.

New Roses.—Among these the best were Olivier Delhomme, Beauty of Waltham, Lord Canning, and François Lacharme, all of which are highly beautiful varieties, especially Beauty of Waltham, which is quite a gem in the class to which it belongs.

Awards.—18: 1st, Mr. Wm. Paul; 2d, Mr. Cant; 3d, Messrs. Paul & Son; 4th, Mr. Keynes. 12: 1st, Mr. Wm. Paul; 2d, Mr. Cant; 3d, Mr. Keynes.

Teas and Noisettes.—The first of these were scarce, a circumstance probably owing to the stock of them in many places not having sufficiently recovered the ill effects of the severe winter 1860-61, and also to their not being yet in some localities fully in bloom.

Moss Roses.—These seem to make slow progress compared with that of other classes. In looking over the different stands shown on Wednesday last, we saw nothing in them yet to beat the Bath White and the Crested and Common Moss.

Vases of Roses.—The best, in the opinion of many, came from Mr. Turner; but the judges thought otherwise, and gave the first prize to one of March's glass designs filled with Roses and surmounted with an unsightly piece of coral. Bouquets of Roses in Hyacinth glasses were numerous and pretty, and for Mr. Wilson Saunders' prizes for groups of Roses in small pots, there was considerable competition. It is, however, now too late in the year for Roses in pots to be very effective, and consequently those produced on this occasion did not seem to receive that amount of admiration which was deservedly bestowed on cut blooms.

Fine Foliaged and Variegated Plants.—Of these some very fine groups were contributed, and the size and striking beauty of most of the specimens rendered this part of the exhibition quite a success. With the exception of some new sorts from Messrs. Veitch, of which notice is taken in another page, we however saw little in the different groups that has not already this year received attention in our columns.

Awards.—12: 1st, Messrs. Lee; 2d, Messrs. A. Henderson and Co.; 3d, Mr. Bull; 4th, Mr. Jackson. 10: 1st, Mr. Taylor; 2d, Mr. Smith; 3d, Mr. Ross.

Caladiums.—Magnificent groups of these came from Messrs. Henderson and Mr. Ingram, gr. to J. J. Blandy, Esq., of Reading. The best in the different collections were argyrites, Belleymei, bicolor magnificum, Chantinii, and Troubetskoi.

Awards.—9: 1st, Messrs. A. Henderson & Co.; 2d, Mr. Ingram; 3d, Mr. Young.

Variegated Begonias.—These were too much alike, most of the varieties differing but little in appearance from B. Rex.

Fuchsias.—Standards, at least 9 feet in height, with good heads of bloom on them, came from Mr. Higgs, gr. to Mrs. Barchard at Putney, and of pyramidal plants there was a fair display, though not so fine as has been seen in former years. While growers persist in bringing old plants instead of young ones, the blooms may be expected to be comparatively small and poor.

Awards.—6: 1st, Mr. Gardiner; 2d, Mr. Cannell; 3d, Mr. Treen.

Ferns.—Charming collections of these were exhibited, but owing to their being in pots not according with the published regulations, they were all disqualified. On account of their general excellence, however, four extra prizes were given to them. Conspicuous in a group from Messrs. Backhouse was Thamnopteris australasica, of which they had a fine specimen; and of British Ferns a capital collection came from Messrs. Ivery of Dorking.

Wardian Cases.—A large and fine one with curvilinear glass roof was shown by Messrs. Henderson; and Messrs. Barr & Sugden reproduced the one which was shown before.

Window Boxes.—Three extremely handsome ones were contributed by Mr. Macintosh, nurseryman, King Street, Hammersmith. Nothing in their way could possibly be more tastefully arranged than these were; they therefore received as they deserved universal admiration. The materials with which they were filled consisted of yellow and other Calceolarias, Verbenas, Scarlet and other sorts of Pelargoniums, Stocks, &c., the whole being finished off in front with Mignonette and blue and white Campanula garganica, the two latter alternating with the Mignonette, and hanging over the sides of the boxes. Another set of boxes from Mr. Ross contained Ferns intermixed with red-leaved Draccenas.

Awards.—1st, Mr. Macintosh; 2d, Mr. Ross; 3d, Messrs. Barr & Sugden.

Hanging Baskets.—Mr. Wilson Saunders's 1st prize for these was awarded to Messrs. A. Henderson & Co. for three beautiful baskets tastefully filled. These, however, as well as others with which they were placed in competition, were shown the other day at the Regent's Park.

Miscellaneous Subjects.—These consisted of cut specimens of Verbenas, Iris, Pinks, and Bragg's beautiful sorts of Sweet William.

[We append, by way of conclusion to this report, the following remarks by an amateur on some of the features of the display whose details we have just recorded.

On Wednesday last I had the gratification of seeing the famous Flower Show at the Royal Horticultural Gardens. The scene was a gay one indeed. Throngs of well-dressed ladies and gentlemen, the former at least three times as numerous as the latter, crowded every part. My fair guide, warned by former experience, conducted me immediately to the Fruit department, which we saw in tolerable comfort; and here indeed I was amazed with the Pomological wonders which met my astonished eyes, and regaled my olfactories, but, alas! it was a case of "touch not, taste not, handle not." Down the centre of the table was a gorgeous array of Pines, emitting celestial odours, and looking beautifully ripe, but, to my surprise, a monster, with a cockscomb head, bore off, I think, one of the first prizes. The Melons were chiefly of the best, small, green-fleshed kinds. Grapes, I expected to find well represented, and so indeed they were, Black Hamburgh being of course the most conspicuous for size and colour. I was told that the heaviest bunch, and certainly the longest, was called Black Prince.

The Green Figs looked most tempting, the Peaches were the largest I ever saw, and the Nectarines the best coloured. The Strawberries were magnificent of course, but I smiled to see a couple of bunches of my old friend the Hautbois (rather mouldy) exhibited on a humble white plate. How is it one so seldom sees this high-flavoured fruit? I have no recollection of table decorations with one single exception, where a Marshian stand, indifferently filled, was surmounted by a piece of white coral, not ugly, but in my judgment out of place, as much as the dead humming birds your correspondent mentioned the other day. Now the combat began to thicken, and we went into the nave of the Exhibition building, noticing as we went the still remaining placard of the former whereabouts of the Ionian Islands, Channel Islands, &c.

The Exhibition Building felt hot and stuffy; and if it is not treason to say so, I thought the nave not a good place for the exhibition of flowers, but why I could not tell. Is it that the immense space seems to swallow up and dwarf everything? Is it that the plants are placed too high, or that one wants to see both sides of them, or that they want a backing of canvas—or what is it? As it is, the light comes in from the top of the building, instead of slant-wise. Would the effect be better if the plants were arranged down the centre, the outermost being placed on the floor? If it must be confessed, I felt disappointed with this, the grandest display that England or the world can produce. I didn't think it so vastly better than similar exhibitions which I have seen at Cambridge. Of course I was delighted with some of your wondrous varieties, and got a good view of the singular Ouvirandra fenestralis, seen by me for the first time in flower. First-rate Roses must attract universal admiration, and Wednesday's display was no exception. General Jacqueminot was as usual the most conspicuous; but in general the cut flowers seemed to be suffering from the heat. One thing more: I must notice, among the plants sent by the Horticultural Society, wonderful specimens of Orchard-house skill—little Cherry trees not 2 feet high, in vigorous health, and covered with plump, ripe, shining Cherries; green Figs equally healthy, growing on trees not a foot and a-half high; Plum trees loaded with fruit; and Peaches in abundance growing on trees little more than 3 feet high.

Now we were glad to get our feet clear of ladies' dresses, and emerge into the purer atmosphere of the gardens, which have greatly improved since I last saw them. There was a pleasant breeze, but the sun was pouring down with considerable power, and it was rather amusing to see how people sought even the shelter of trees with half-a-dozen leaves upon them, so greatly in request was the least particle of shade; each year, however, will see this deficiency of shade gradually amending. After looking at the Prince Consort's Memorial, too high for me to give a very decided opinion of the artist's skill; examining the flower-beds, which I thought tolerably effective; and the fountains, which were in full force, and made a cool refreshing sound, we alternately listened to the harmonious strains of a military band, or gazed at the goodly company, and then departed, well pleased with the afternoon's amusement. *Cantab.*]

Notices of Books.

Viti: an Account of a Mission to the Vitian or Fijian Islands. By Dr. Seemann. MacMillan & Co.

(*Concluded from page* 607.)

Dr. Seemann thinks that "the real significance of eating man is very imperfectly understood." We trust the horrid "custom" will soon be numbered among things of the past. With regard to the unwholesomeness of this description of food, it was probably that which suggested itself to the mind of Sidney Smith, when he bade adieu to his friend the missionary bishop, and added with much emotion, "I hope you'll disagree with them!"

The great object of Dr. Seemann's mission was to obtain information for the British Government. That it was the real desire of the chiefs to cede the sovereignty of their islands to the Queen of England there can be no doubt. Of the commercial value of the islands, Dr. Seemann affords us abundant evidence, giving a systematic account of their colonial produce, properly so called, such as sugar, coffee, tamarinds, tobacco, oils and vegetable-fat producing plants, of which the most valuable seems to be, an oil extracted from the seeds of the Dilo (Calophyllum Inophyllum, Linn.), the bitter oil or woondal of Indian commerce, worth 90*l.* a tun in England. Of starch-producing plants, four are indigenous, namely a Cycas, two species of Tacca, and a Sago, to which has been added of late years the Cassava. Next come Turmeric, and other spices, Ginger, Nutmeg, Pepper, and the Boro (Solanum anthropophagorum). The Yam, Taro, Banana, Plantain, Bread-fruit and Cocoa-nut form the staple food of the natives; but here we must refer to the book itself, which gives a full account of the poisons, medicinal plants, scents and perfumes, materials for clothing, timber, Palms, ornamental plants, &c. We also find a short description of the Vitian fauna, among which the bêche-de-mer, or sea-slug, was formerly a great article of trade with China, where it is considered a luxury; and a very curious annelidan, named Balolo, a thin worm-like creature, about 3½ inches long, which is regarded quite as the whitebait of the Fijis. The most singular circumstance is the regularity of its periodical appearance, which may be predicted to a day. These creatures are of various colours—green, red, brown, and sometimes white. As the sun gains power they dissolve, and about 8 or 9 o'clock you scarcely find one; this is the description given by an English lady, who was present at the fishery, if such it may be called, and subsequently feasted on the Balolo in 1861.

The most important part of Dr. Seemann's mission was that connected with the cultivation of the Cotton plant. He thinks that in suitability of soil, in climate, in the sea air and gentle breezes ever blowing, in the excellent water carriage afforded by above 200 islands, each protected from the winds and waves by the natural breakwater of coral reefs, nothing better could be imagined or desired. He took out a supply of Sea Island and New Orleans Cotton seeds; the former had lost their germinating power, the latter grew readily. Sown on the 9th of June, the plants began to yield ripe pods within three months, and thus he was enabled to carry home a crop from the very seeds he had brought out, though his absence from England only amounted to 13 months altogether. On the 18th of October, Dr. S. found his plants from 4 to 7 feet high, full of ripe pods and flowers; and the chief, who had promised to look after the plantation, said the field had only required one weeding; after which, the Cotton-plants had grown so rapidly, that they had kept down the weeds. The rapidity of this profitable return is a very important feature. Of six kinds of naturalized cotton, Dr. S. found that four were, for practical purposes, identical, though botanically distinct. In July, he found that each plant on an average yielded 700 pods, and 20 pods of cleaned cotton weighed 1 ounce; thus each plant yielded 2 lb. 3 oz. Now there were 222 plants to an acre, so that 1 acre would produce 485 lb. 10 oz., and this at 6*d.* per lb. gives upwards of 12*l.* When it is borne in mind that Fijian Cotton brings forth ripe fruit without intermission throughout the year, but that this calculation is based solely upon the number of pods found at one time, and that the pods were gathered from plants upon which no attention whatever had been bestowed, the result will be still more striking. Double or treble may be calculated upon as the annual crop. It must further be remembered, that in the Fijian islands the plants will continue to yield for several years, if merely kept free from weeds, creepers, and periodically pruned. The value of the cotton was decided by the Executive Committee of the Manchester Cotton Supply Association in 1859, who resolved, "That these samples are of qualities most desirable for British manufacture, that such a range of excellent cotton is scarcely now received from any cotton-growing country; and that the supply obtained from the United States does not realize nearly so high an average value as this Fijian cotton."

The only difference of opinion seems to be as to the supply of labour: Dr. S. maintains, that the Christianized natives have already begun to go round the districts longest frequented by whites, asking for employment (of the whole population 67,000 are nominally Christian). Another authority, Col. Smythe, doubts whether the people will become more industrious

seeing that their wants are so few, and so easily supplied. Difficulties might in time occur, when land has become scarce, but the nature of the land-tenure is not, like that of New Zealand, hampered by ill-defined tribal claims. On the contrary, all the land is private property, the ownership resting either in families or individuals. A small portion of it only is under cultivation at one time, sufficient to supply the wants of a Fijian household, and the custom is, to break up new ground frequently, and abandon the old. In the sale of land, an agreement made with the owners, if approved by the chief, is understood to hold good. It must also be recollected, that 200,000 acres of land were offered by the terms of the cession to be given to the Queen of England, for the consideration of 45,000 dollars, the amount of a debt claimed by the American Government, from which the Fijians wished to be relieved.

In the Appendix we have a "systematic list of all the Fijian plants at present known," made up from all available sources; and we are informed that a 4to illustrated work on the same subject is in preparation. The author expresses his obligations to several men of science for the assistance they have rendered him, and on which he can further rely; but we observe that he has somehow forgotten to mention the services rendered him at Kew, which we have always understood were of the greatest importance. Indeed we do not see how, without the aid of Sir William Hooker, and the gentlemen forming the scientific staff of the vast Kew Herbarium, either the expedition itself could have been organised, or the names of the flowering plants satisfactorily determined. It is desirable that Dr. Seemann should remedy this omission.

The student of Australasian plants is under deep obligation to DR. MUELLER, who with untiring activity continues his very valuable contributions to the knowledge of them. We have now before us a third volume of his *Fragmenta Phytographiæ Australiæ*, containing 177 pages of botanical descriptions of new or little known plants, with 8 plates so capitally drawn that Ferdinand Bauer himself might be proud of them.

The sixth Number of *Seemann's Journal of Botany* contains a plate of the Nardoo plant, of which an excellent account is given by Mr. Currey; also an interesting paper on the Classification of Willows, by Professor Babington; and a brief notice by Mr. Moore of the addition of Asplenium Serpentini to the list of British Ferns.

In June *Gossip of the Garden* we have information on matters relating to florists' flowers and their exhibition; and among other things the following excellent piece of advice to the raisers of seedlings:—"Now, Mr. Raiser, you have had much trouble with your seedlings, and have been buoyant with hope; but if you will be patient and judicious you will ultimately reap the benefit of these qualities in addition to that of all your painstaking. Don't expect too much: you can't hope to have many worth keeping from your seedling beds; one by one the blooms appear: the bad ones disappear; but there are some doubtful ones, and these cause the mischief. Now, don't be sparing, give them away, sell them for 2*s*. 6*d*. a dozen (that will pay you), and only keep the cream. Bring none of these out until you have well proved them during one season; show them to three or four competent judges who know what a flower ought to be, and who are acquainted with existing varieties: invite criticism, and again get rid of the buttermilk, and do your best with the butter itself. Then will be your reward." * * * "And, Mr. Dealer, do you scout the rubbishy novelties from your gardens; buy what you know is good, and keep nothing else; help your customers in their selection, and get and keep a trade by winning confidence."

The *Floral Magazine* for June figures the Fern-leaved Chinese Primrose; San Francisco Hyacinth, a good new yellow; Azalea Surprise, determined lately at South Kensington to be identical with Madame Ambroise Verschaffelt, and although a somewhat flimsy flower, showy and attractive from its colouring; and Princess of Wales Auricula, a blue self of brilliant colour.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—This house should now be gay with Achimenes, Clerodendrons, Allamandas, Gardenias, Stephanotis, and other showy plants from the stove; for without the assistance of these it is hardly possible to produce a first-rate display at this season. If the house can be kept rather close, many of our most attractive stove plants will be more at home here while in bloom than they would be in the stove itself; and the length of time which they retain their beauty under these circumstances renders it very desirable to grow them largely for this purpose. To do these justice, however, the house should be cleared of Cape Heaths, and plants that are soon injured by a confined atmosphere, for few stove plants will succeed in a temperature that is regulated for Ericas and such like plants. If the permanent occupants of the beds and the twiners however are such as require a free circulation of air, the house must not be kept so close as to injure them; but where Passifloras, Ipomœas, Mandevilla suaveolens, Tecomas, Bignonias, &c., are grown for covering the roof—and Orange trees, and other things that enjoy a fair amount of warmth and moisture while making their wood, occupy the beds—the hardier stove plants will form the most suitable decoration for the next three months. Go over twiners frequently, and regulate the growth before the shoots get entangled; but avoid keeping them tied too closely, for they are never seen to advantage unless they are allowed to hang in a natural and graceful manner. Sickly specimens must be frequently examined for insects, and means used to get rid of them as soon as they are perceived, otherwise they will spread to adjoining plants, and be more difficult to eradicate than if taken in time. The stock in the stoves will now be growing very rapidly, and must be afforded sufficient space to allow perfect development of the foliage and the formation of compact handsome specimens. The atmosphere of this house can hardly be kept too moist, and the plants should be sprinkled over-head morning and evening, and every available surface kept constantly damp. A slight shade will be indispensable for tender plants in active growth for a few hours on the forenoons of bright days, but this should be used as sparingly as is consistent with the perfect safety of the foliage. Plants that are known to suffer from the direct action of the sun's rays should be placed in a shady part of the house, or kept together at one end, where they can be shaded without interfering with plants that require plenty of light. Mealy bug and black thrips will require to be looked after here for some time to come, and the utmost diligence must be used to keep these pests in check. As regards Orchids, if previous directions have been properly attended to there will be little to do to them, besides attending to the ordinary routine of affording the plants a thoroughly moist atmosphere, repotting any specimen that may require it, and sponging the foliage as often as may be necessary to keep it perfectly clean.

FORCING DEPARTMENT.

PINERIES.—If not already done, plants expected to show fruit next January should have their final shift at once, in order to get the pots well filled with roots, and the growth completed before winter; for if they are kept growing it will be uncertain if they will show fruit early in spring. Indeed there is no sure means of inducing Pines to show fruit at that season, but getting the growth well matured in autumn, and allowing them a short rest, giving no more water to the soil than is just sufficient to keep the roots in health, and then subjecting them to a brisk heat. Treated in this way a supply of fruit at the expected season may be calculated upon with the greatest safety, but owing to the want of convenience and necessary means, or other causes, the plants are often kept growing when they should be at rest, and the result generally is that the plants start into growth in spring instead of showing fruit. Give plenty of clear manure-water to all the stock, except such as is being kept dry with a view to getting it to show fruit soon, and endeavour to secure rapid growth, now that it can be done without etiolation. Keep the atmosphere thoroughly moist, but avoid heavy syringings. Plants growing in the open bed must be well supplied with water at the root, giving a thorough soaking of manure-water as often as may be necessary.

VINERIES.—Attend to previous directions, keeping cool and moist where the fruit has been cut, in order to preserve the foliage in a healthy state as long as possible, and get the Vines well charged with organised matter, which will be of the utmost importance to next season's crop. Give plants fruiting in pots a liberal supply of manure water, as also those being prepared for the same purpose next season. Keep a sharp look-out for insects everywhere, and lose no time in destroying them.

MELONS.—Young plants must have careful attention to keeping the shoots thin and regular over the bed, for there is no time to be lost after this season, if a crop is to be secured. Earth up as the roots reach the outsides of the hills, using strong loam, and making it quite firm, so as to avoid rank growth. Plants swelling their fruit should be kept moist, but avoid frequent waterings of the soil by giving good soakings; examine the stems frequently for canker, and apply quick-lime to the affected portion immediately it is perceived, first scraping off the decayed part; avoid also, as much as possible, cutting or mutilating the plants, and causing bleeding, which is the ordinary cause of this disease. Plants that have ripened their fruit and are in good health, if cut back, and the soil well soaked with tepid water, will soon start into growth, and set a second crop. They should not be allowed, however, to carry many fruit.

FLOWER GARDEN AND SHRUBBERIES.

Late sown annuals should be thinned as soon as they are well above ground, for if left to grow too thickly they spoil one another, and never make half the display that plants do which are allowed plenty of space, and which are grown strongly from the first. Attend to staking such of the herbaceous plants as require it before they get blown about and injured, and do not huddle the stems together, as is too frequently done. Early flowering bulbs, as Tulips, Hyacinths, Turban Ranunculuses, &c., will now or very soon be ready for taking up, and should not be left in the ground after the decay of the foliage, as, if wet weather occurs, they will be making fresh roots, which weaken them for next season. On light dry soils American plants will be greatly benefited by a good soaking of water after flowering, and the finer specimens should be mulched, to assist in keeping the roots moist during the growing season. Attend to the propagation of the better varieties of Pentstemons, which are exceedingly useful plants; also see to having a good stock of border Picotees and Carnations, which are invaluable for cutting, and although now discarded from the parterre, should not be overlooked. Cuttings of these, if put in before the wood gets too hard, root as freely as pinks. Water Dahlias during dry weather; it will also be serviceable to mulch the surface of the soil with rotten manure. Trap earwigs and other destructive insects.

HARDY FRUIT AND KITCHEN GARDEN.

Proceed with fastening in the young wood of wall trees, and see that they are perfectly clear of insects; also stop any gross shoots and endeavour to secure a fair supply of bearing wood all over the tree. Gross shoots that were stopped early in the season should be divested of all laterals except one, or, if they can be spared, removed altogether. Keep the breast-wood on Pear and other wall or espalier trees closely stopped in, and attend to thinning the fruit where the crop is too heavy for the strength of the tree. Look to preparing Strawberry runners for forcing next spring. If not already done, a good breadth of Brussels Sprouts should be planted on rich deep soil; for if not got in at once, the crop will be but poor, and it is very desirable to secure a good supply of this most useful winter green.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending July 1, 1863, as observed at the Horticultural Garden

June and July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 25	9	30.082	30.040	79	40	59.5	64½	41	N.W.	.00
Friday 26	10	30.162	30.042	77	48	62.5	64½	61½	S.W.	.02
Satur 27	11	29.931	29.890	74	36	55.0	64	61	S.W.	.02
Sunday 28	12	29.916	29.903	72	37	54.5	63	61	S.W.	.00
Mon. 29	13	29.936	29.929	74	39	56.5	63	60	S.W.	.00
Tues. 30	14	30.192	30.126	73	34	53.5	62½	60	W.	.00
Wed. 1	○	30.274	30.081	81	46	63.5	61½	60	S.W.	.00
Average.		30.070	30.014	75.7	40.0	57.8	63.3	60.9		.04

June 25—Very fine throughout; cool at night.
— 26—Very fine, showery at night.
— 27—Rain, fine, heavy clouds, fine, but cold at night.
— 28—Very fine; fine, cool at night.
— 29—Very fine throughout.
— 30—Very fine; partially overcast; nearly freezing at night.
July 1—Very fine, exceedingly fine throughout.
Mean temperature of the week 4½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending July 11, 1863.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 5	77 3	51 0	64.2	16	0.59 in.	1	4	—	5	6	11	9	2
Mon. 6	76.1	51.2	63.6	16	0.45	1	1	3	2	5	15	7	3
Tues. 7	73.5	51.7	62.6	20	0.34	2	2	4	4	5	13	6	1
Wed. 8	74.1	50 2	62 1	19	0.48	—	2	5	3	2	12	8	6
Thurs. 9	73.7	50.1	61.9	17	0.82	4	—	2	1	3	8	11	7
Friday 10	74.4	50.7	62.5	15	0.48	2	2	2	1	4	12	6	8
Satur. 11	74.6	51.1	62.9	10	1.07	4	—	4	1	5	9	8	6

The highest temperature during the above period occurred on the 5th, 1852—therm. 97 deg.; and the lowest on the 7th, 1860—therm. 36 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

BOOKS: *Tribune*. The number of the Technologist to which our correspondent refers was April 1863. There are very many papers on the resources and commercial products of India, scattered through the three volumes of the Technologist; the papers by Dr. Forbes Watson on the cottons of India will be found in the Journal of the Society of Arts, vol. 7, p. 278; on the chief fibre-yielding plants of India, vol. 8, p. 448; and on the food grains of India, vol. 6, p. 14.

CATERPILLARS ON CLEMATIS: *P D*. If the space covered is too large to admit of hand-picking, try dusting with white Hellebore powder; or washing with a solution of Gishurst compound applied with an engine, and followed by a good rinsing with clean water; or washing with strong tobacco water, or with diluted ammoniacal liquor, in the latter case trying its strength first on some worthless plants.

CHERRIES: *M H W*. Your young Cherry trees which blossom most splendidly, but fail to set or fall off on stoning, are probably unable in your heavy soil to take up sufficient nourishment to supply the young growing crop. Such soils, especially if damp, are not suitable for Cherries. Fork out the roots carefully in autumn, and work in a good quantity of grit or sandy loam before replanting them.

EXAMINATIONS: *Y G*. We are not aware that there are any established examinations for young gardeners. Possibly they may be included in the country examinations of the Society of Arts.

ITALIAN VERBENAS: *One Light*. According to Mr. Van Houtte these pretty striped novelties are of Italian origin, having been raised by Cavagnini Brothers, of Brescia. According to the published figures the handsomest is "Carolina Cavagnini"—a beautiful thing.

NAMES OF PLANTS: *J D*. Prunella grandiflora, certainly.—*R P*. 1, Leptosiphon luteus; 2, Nepeta incana.—*A M. Wonersh*. The weed that is choking up the Arundel Canal is the Anacharis Alsinastrum, a very formidable enemy, only to be removed by continual raking up,—if then.—*W T F*. 1, Holcus mollis; 2, Lolium perenne; 3, Phleum pratense; 4, Cynosurus cristatus.—*W D B*. Thalictrum majus, as far as we can judge without leaves.—*Constant Reader*. 1. We suppose a very bad bit of Alyssum alpinum; 2. Chrysanthemum segetum; 3. Lotus corniculatus; 4. A variety of Helianthemum vulgare.

PEACH MOULD: *R. H*. It is the common Peach mildew. The old remedy of sulphur applied as soon as the mould appears is we believe still the most approved. *M. J. B*.

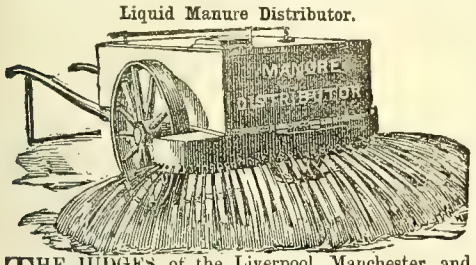
STRAWBERRY: *B W Knight*. Your seedling Strawberry, Princess of Wales, large, ovate, or flattened ovate, with flesh pale red and solid at the core, is probably a good variety; but it was packed too loosely; the fruits had room to move, and the consequence was that the cotton was partly saturated with their juice. The variety deserves notice on account of its size, appearance, and not being hollow at the core.‖

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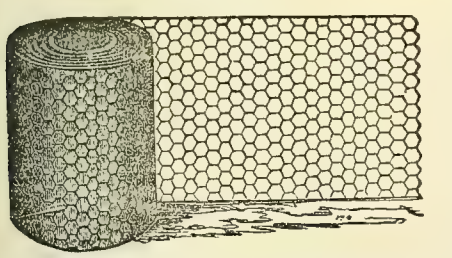
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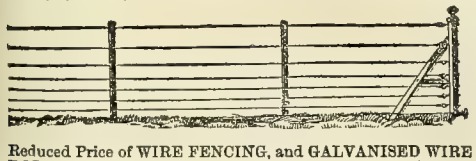
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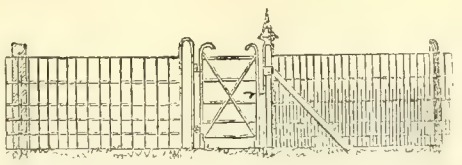
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1⅝-inch " " " .. "	19	.. 4¾	.. 4
1⅝-inch " " " .. "	18	.. 6	.. 4¾
1⅝-inch " " " .. "	17	.. 7	.. 5½
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W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.
DRAWING.—JAMES MILLER.
* These Gentlemen will be in temporary residence.
Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—
AGRICULTURE.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
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ROBERT RUSSELL, Editor of the Transactions of the Highland and Agricultural Society—A Course of Lectures on Manures.
AGRICULTURAL CHEMISTRY.
THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.
The College will RE-OPEN AUGUST 10th. For further particulars apply to the Principal.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
WORCESTER, 1863.
AGRICULTURAL SHOW of the ROYAL AGRICULTURAL SOCIETY of ENGLAND.
PROGRAMME.

WEDNESDAY, July 15		The Yard for the Trial of Steam Engines (fixed and portable), Corn Dressing Machines, Corn and Seed Separators, Corn Screens, Fixed and Portable Steam Threshing and Finishing Machines, Barley Hummellers, and Miscellaneous Agricultural Articles, open from Noon till 6 P.M. Admission 5s.
THURSDAY .. July	16	The Trial Yard open from 9 A.M. till 6 P.M. Admission each day 5s.
FRIDAY .. "	17	
SATURDAY .. "	18	
MONDAY .. "	20	Cattle and Implement Yards open from 8 A.M., at which hour the Judges will commence inspecting the Live Stock, and making their Awards. Admission 10s.
*TUESDAY .. "	21	The GENERAL SHOW of Cattle, Horses, Sheep, Pigs, and Implements, open from 6 A.M. till 6 P.M. Admission 2s. 6d.
*WEDNESDAY "	22	

* Public Working of Steam Cultivators on Land in the neighbourhood of the Show Yard.

THURSDAY .. July	23	The GENERAL SHOW of Cattle, Horses, Sheep, Pigs, and Implements, open from 6 A.M. till 6 P.M. Admission 1s.
FRIDAY .. "	24	

By the Regulations of the Society, all persons admitted into the Show-yard, or other places in the temporary occupation of the Society during the Meeting, shall be subject to the Rules, Orders, and Regulations of the Council.
By Order of the Council: H. HALL DARE, Sec.
12, Hanover Square, London, W.

YORKSHIRE AGRICULTURAL SOCIETY.—GREAT SHOW at SOUTH STOCKTON-ON-TEES, on AUGUST 5, 6, and 7.
The ENTRY CLOSES on July 18. For Forms of Entry, apply to JOHN HANNAM, Secretary.
Kirk Deighton, Wetherby.

Agricultural Hall.
A POULTRY, PIGEON, RABBIT, FLOWER, FRUIT, and VEGETABLE SHOW will be held at the AGRICULTURAL HALL, ISLINGTON, the LAST WEEK in AUGUST.
PRIZE LISTS and further particulars will shortly be issued.
By Order, S. SIDNEY, Secretary.

The Agricultural Gazette.
SATURDAY, JULY 4, 1863.

MEETINGS FOR THE NEXT TWO WEEKS.

TUESDAY, July 14 to SATURDAY, — 18		Great International Show at Hamburgh. And Examination of Implements at Worcester by the Judges of the Agricultural Society of England.

A CORRESPONDENT—"W. U."—has asked us for a reference to any published account of the best methods of breaking up Grass land and of converting it into tillage with the view of afterwards relaying it in pasture. If the object of the process be in any degree to make profitable use of the land during the interval, then the plan thus suggested of improving Grass lands may very well be adopted. But if the object simply be the im-

provement of Grass, then the arable culture of it for a year or two is unnecessary. Dr. VOELCKER's lecture, given the other day before the English Agricultural Society, sufficiently illustrated the methods at our command for the improvement of pasture land. Drainage, liming, either in artificial composts with other matters, or in that natural compost we call marl — occasional dressings with farm-yard dung—the application of bone dust, folding with sheep, rolling and weeding—these are the methods which have been found effectual for Grass land improvement over whole districts, and the converse of which have tended to Grass-land deterioration over tracts of land as large. And of local and exact experiment on this subject we have no better instances than those which Dr. VOELCKER also quoted, to be seen with all the curious and definite results accompanying it at Rothamsted, where dressings of ammoniacal manures have been followed by an increased growth of Grasses, and dressings of bone-dust and mineral manures have tended to the growth of Clovers; and special dressings of various kinds have resulted in an extraordinary distinctness and difference of results; showing that whatever a man wants to grow in his Grass field he may get by the mode in which he treats the land with dressings of manure—that in fact pastures are as amenable to treatment as ploughlands.

If a man mows his poor wet pasture every year, and hardly dresses it at all—and unfortunately in this we are not supposing an unusual case—he will very soon find it full of Yellow Rattle, Sedge, Hawkweeds, Purging Flax, Devil's Bit, and other weeds—Fescues, Poas, and Clovers, will dwindle and almost disappear. If he drains it and gives up mowing it, dresses it with farm-yard dung and bone-dust, if he pulls up Thistles and Docks, and the larger weeds, feeds sheep on it, folding them upon the land if necessary, and foddering them with hay in winter, giving also roots and cake, he will soon have good grazing grounds and meadows full of Clovers and Grasses. Rush and Sedge and weeds will have disappeared. Of course there is the more immediate plan of dealing with Grass land which our correspondent suggests, though it may be doubted whether the process is any shorter than the other if the time be reckoned till the pasture is perfectly natural and sound. You may drain the land and break it up, cultivate it for several years and lay it down again, and nurse the young Grass until it has regained its original establishment and maturity of produce and of growth, yielding now those plants only which you wish that it should contain.

We have had considerable experience in the conversion of Grass land into arable, and even on sandy soils have seen such prolonged superiority of produce and fertility resulting from paring and burning the sward that we can confidently recommend that way of doing it. The thing wants to be done as slowly and imperfectly as possible in order to the most permanent effect; the heaps should be small and covered with earth so as to retain the products of combustion or at least check the access of air, and thus char rather than burn the contents of the heaps; and the "ashes" will be black, and the heaps themselves, while the fibrous texture of their contents will be perfectly broken and reduced so as to enable the commixture of the whole with the soil, will at the same time exhibit no vitrification of the soil, nor even an entire dissipation of the organic matters within it.

On the Whitfield Farm near Tortworth, Gloucestershire, which is for the most part a light or loamy soil, one half of the land was pared and burned at an average cost of 28*s.* an acre, the work being done with the breast plough, and the other half was ploughed under with the common horse plough. On the former half green crops were grown the first season, on the latter Oats were grown. Very heavy crops of both were obtained, and straw and green food being thus obtained at once in fair and usual proportion to each other, the work of sheep and cattle feeding on which we had to depend for the maintenance of the fertility thus produced at once proceeded. Lands which had let for 10*s.* an acre as poor Grass land, at once with no help of guano or superphosphate, for neither of these were known a quarter of a century ago, yielded 10 to 12 quarters of Oats, 5 quarters of Wheat, 30 tons of Swedes, and 40 tons of Mangel Wurzel per acre. A year or two of such cultivation, by which the soil would have been completely fallowed, might have been followed by resowing the land with Grasses—with 40 lbs. or thereabouts per acre of such mixed seeds as are known to be adapted to the character of the soil. The produce should be eaten off imperfectly for a year or two, and the land should receive a dressing of farm-yard dung in earthy composts every other year, until it is thoroughly established. The arable land should, before being relayed, receive a good dressing of lime. And after being sown with Grasses it should be well rolled once or twice a year. In this way the usual abundance of Grass produce of the first two or three years after sowing will be followed by the permanent style and character of the permanent meadow with shorter interval of dwindling scanty years between the two than is usually witnessed.

Our correspondent should drain and if necessary marl his land, and then either depend on farm-yard dung and bonedust, and close grazing, or pare and burn and break it up, taking Turnips, Beans, Wurzels, and Oats in successive crops, and then relay the land with suitable Grass seeds, following with the management which Mr. H. S. THOMPSON described some years ago in the Journal of the English Agricultural Society as the result of his experience.

THE MANGEL WURZEL GRUB.

[We receive reports from correspondents that the grub of the grey fly (Anthomyia Betæ), is already in various parts of the country attacking the leaf of the young Mangel Wurzel plant; burrowing under the skin and eating out the green substance. The following is Mr. Curtis's account of them in the English Agricultural Society's Journal.]

IT is generally supposed that animals closely related to each other, and forming a natural group, would not be very unlike in their habits of life, but such is not always the case amongst insects, in their larva state especially, and the genus of flies called Anthomyia is a remarkable example of such a diversity. There are several species that annoy the farmer and gardener, which bear so striking a resemblance to each other in their fly state, that, except to the scientific observer, they would be considered as the same species, yet nothing can be more different than the economy of the larvæ. Some of these maggots live upon the seeds of the Lettuce whilst growing upon the plants; others revel in the decaying stems of Cabbages, the bulbs of Turnips and of Onions; whilst others reside between the two skins of the leaves, feeding upon the pulp—and these have received amongst naturalists the name of miners. A gentleman at Cranford, who is well known for his scientific researches, has made me acquainted with a fly whose larva mines in the leaves of the Mangel Wurzel, and I am indebted to him for the following sketch of its economy:—The maggots were brought to me from Surrey on June 26, found feeding between the plates of the leaves, the integuments of which they cut rapidly, giving the parts attacked a blistered appearance. They were of a greenish colour, a quarter of an inch long, pointed at the head, and rather abruptly cut off at the tail; they turned to pupæ *in situ*, as you may see by the fragments of the leaves, and hatched July 17 and 20: Mr. Frogley told me they had destroyed the plant where he got them from. I found my Sugar Beet attacked in the same manner, but immediately employed some boys to pinch the blisters between the finger and thumb, and by attacking them in that helpless situation their operations were effectually stopped."

I may remark, that the maggots are very similar to those of the Turnip; like them they change to an oval brown pupa, and from them issues a fly which exceedingly resembles Anthomyia Ceparum, which is bred from putrescent Onions, but, as I cannot imagine they are the same species, I must distinguish them by naming the former, and shall call it after the Beet or Mangel Wurzel.

A. Betæ. The males only are known at present: they are much smaller than the Onion-fly, being only $2\frac{2}{3}$ lines long, and expanding about 5 lines: they are of an ashy-grey colour, clothed with black bristly hairs; head semi-orbicular; eyes large, brown, nearly contiguous above, with 3 minute ocelli on the crown; face satiny-white, with a bright chesnut-coloured line down the middle, in the centre of which are placed the little black drooping horns, the 3d joint being the largest, elliptical, and producing a naked bristle on the back; the protruded lip and palpi are also black: on the trunk are 3 or 5 indistinct longitudinal stripes; the 6-jointed abdomen is linear, with a dorsal black triangular spot at the base of 4 of the segments; the 2 wings are ample and transparent, a little tinted with tawny at the base; the nervures are pitchy; poisers ochreous, 6 legs, longish, bristly, and pitchy, the shanks with a tawny tinge.

These insects will seldom cause any loss to the Mangel Wurzel crops, should they ever abound to any extent; but whether they would prove injurious to cattle when the leaves are given as food I am not prepared to say, but I should think not, as the skins are very tender. I have seen the leaves of Docks and Burdocks as well as the Celery, blistered from the mining of the maggots of different species of flies to a large amount, and the only remedy is to nip them in the leaf, for they are so delicate that a very slight pinch will maim them. Parasites no doubt keep them under, and we may trust to them for assistance.

[Mr. Curtis took a very much too lenient a view of the ravages of this fly.]

SEWAGE OF TOWNS.

I SEE that Dr. Thudichum, in his paper read before the Society of Arts, making allowance for daily and casual visitors, and for the rapid increase of the population of the metropolis, reckoned the human excretal matters as equal to those of about two million adult males, and takes the urine alone of these two millions as worth about 10*s.* per head per annum. Reckoning that the supposed two million adults represent, in round numbers, three million individuals of both sexes and all ages, this brings the value of the urine per head of the actual population, according to Dr. Thudichum's data, to two-thirds of 10*s.*, or 6*s.* 8*d.*, which is exactly the value put upon the constituents of the mixed excreta (including fœces) of each individual of a mixed population, of both sexes and all ages, by Mr. Lawes and myself. Taking this valuation, from which Dr. Thudichum would obviously not widely differ, and reckoning that there are 80 tons of sewage per annum for each head of the population (some take it at more and some at less), this would give 1*d.* per ton for the average sewage of London, if valued according to the constituents of the human excretal matters it contains, taking these at the price they would command in the market if in the condition of a concentrated, dry, and portable manure, such as guano. Other matters of course add more or less to the value of the sewage, but their value bears but a small proportion to that of the human excretal matters.

But, in the discussion, Mr. Alderman Mechi claimed Dr. Thudichum's data as bearing out his own estimate of 16*s.* per head per annum, as given by him in his evidence before the Parliamentary Committee last year. This estimate, is, however, it will be observed, in point of fact, from twice to twice and a half that of either Dr. Thudichum or Mr. Lawes and myself. But Mr. Mechi went on to complain that his estimate of 16*s.* "was confronted by other evidence putting the value at only 2*s.* per head;" and as, in his recent lecture at the Farmers' Club, he complained that "Mr. Lawes puts it at 2*s.* per head," I suppose he again refers to the evidence of that gentleman. Now, I find by reference to the report of the Parliamentary Committee, that what Mr. Lawes said about 2*s.* per head was, that, in the experiments of the Royal Commission at Rugby, the result actually yielded, reckoned according to the milk obtained, was "about 2*s.* or 3*s.* per head." But when giving the value according to the constituents, he said, "The theoretical value, as far as we have got it, of each individual, is about 6*s.*, putting that as the value of the ingredients bought as guano." Mr. Mechi must perfectly well know that it is this estimate of "about 6*s.*" (and not the actual result of 2*s.* or 3*s.* in a particular case, when the 6*s.* or 7*s.* worth of constituents had been mixed with some 50 to 70 tons of water) that is alone fairly comparable with his own theoretical estimate of 16*s.* And, as the data of Dr. Thudichum, and those of Mr. Lawes and myself, given by Mr. Lawes in his paper before the Society, on March 7, 1855, are the most comprehensive brought to bear on this subject, and the estimates founded upon them are, so far as I remember, the only ones in which the questions of the sex and age of a mixed population have been duly considered in reckoning the theoretical value of the excretal matters, I am inclined to believe, and I think if Mr. Mechi carefully looks at the evidence he will agree with me in believing, that that value is much nearer 6*s.* 8*d.* than 16*s.* per head per annum.

But the theoretical value of the constituents contributed by the population to the sewage is one thing, and their actual value when distributed through an enormous bulk of water, as in dilute town sewage, is quite another; and Mr. Mechi has himself very recently spoken of a case (that of Croydon) in which the increased rental from the application of sewage represented only 1*s.* 1*d.* for each individual of the population, "as a very recent accessible and successful instance and evidence of the value of town sewage." In the early part of my remarks I have shown that, according to the data of Dr. Thudichum, and of Mr. Lawes and myself, the theoretical value of a ton of the average sewage of London is about 1*d.*, so far as its contents in human excretal matters are concerned. Now, at Rugby, where, so far as can be judged from the evidence at present at command, the average of the total sewage does not differ very widely in composition from that of London, though as used, excluding much of the rain-fall, it is probably much stronger, the tenants who have it brought to hydrants in their fields, ready for application to either Grass or arable land at pleasure, any day of the year, consider themselves very fortunate to get rid of it to others at 1*d.* per ton the year round. Yet it is maintained by some that farmers will be glad to pay at least 2*d.* per ton for sewage delivered to the boundary of their farms, with all the additional expense (by outlay of capital, or increased rental as the case may be) incident to laying down pipes over the farm, and the cost of actual distribution besides.

It certainly does seem a very great pity that any who are really anxious for the beneficial utilisation of

the excretal matters of our populations, should indulge in exaggeration in their representations to the public in this matter, as nothing, surely, can tend more to postpone or prevent a satisfactory settlement of the question, than the circulation of vague and illusory statements respecting it. Indeed, so long as the value of the excretal matters of the average individual of a mixed population of both sexes and all ages is assumed to be the same as that deduced from the results of some high authority for an adult male; so long as the value of the constituents in a ton of average sewage is estimated according to the analysis of samples making no pretensions to be average samples; so long as it is maintained that the annual excretal matter of an individual of the population is equally applicable to Grass land and to land under tillage, to succulent and to all other crops, and that it is to be valued by the same tariff, whether it be in the form of about half a cwt. of dry and portable powder, or distributed through from 50 to 100 tons of water, as the case may be; so long as the circumstances of a daily supply of enormously diluted sewage are spoken of as comparable with those of the liquid manure of a farm, which can be had and used in almost any state of concentration, and be applied at any time at pleasure; so long as the results obtained by irrigation in hotter and drier atmospheres are adduced as evidence of what may be expected under the influence of our own comparatively sunless summers, so long must it be concluded that it is thought not quite prudent to deal candidly with the public in this matter, and so long must this vexed quest on remain a source of contention, instead of what it should be, a subject treated exclusively according to the actual facts and merits of the case. *J. H. Gilbert, Harpenden, near St. Alban's, May* 20, 1863, *in Journal of Society of Arts.*

Home Correspondence.

Town Sewage.—In a letter quoted in your impression of June 20, on the subject of town sewage, Mr. Alderman Mechi says:—"The real questions at issue are,—1. Whether a ton of guano (or its elements in sewage) is more or less valuable by being mixed with 1300 tons of water? 2. Whether the cost of conveying to the land these 1300 tons of water or sewage is greater than it is worth? 3. How much does that cost of conveyance diminish the value of the guano or sewage?" Now the mixed excretal matters of an average individual of a mixed population of both sexes and all ages, for a year, contain somewhat less dry substance than ½ cwt. of Peruvian guano, but are of almost exactly the same money value for manurial purposes. If this material, reckoned as ½ cwt, of guano, be mixed with only 1300 times that weight of water, this will be equal to only 32½ tons of sewage per head per annum, or scarcely 20 gallons per head per day. But the sewage of the metropolis is variously estimated at from 5 to 7 cubic feet per head per day, exclusive of rain-fall, equal to 31—43½ gallons per head per day, or 50⅝—71 tons per head per annum. If we take the amount to be 60 tons per head per annum, which agrees very nearly with the more recent estimates, exclusive of rain-fall, the constituents of the voidings of each individual, reckoned as ½ cwt. of guano, would be distributed in 2400 times the weight of water, or nearly twice as much as assumed by Mr. Mechi. But the average sewage will contain a large proportion of rainfall and subsoil water. It is even said that when the low-level sewer now in progress is completed, the amount of sewage will be doubled from these sources. But let us as a very moderate computation reckon the total amount of fluid to be 80 tons per head per annum, and on the other hand, as a compensation, exclude from the calculation the comparatively small proportion of other matters valuable as manure which find their way into the sewers, and we have 3200 parts water to 1 of valuable manurial constituents reckoned as guano, or about 2½ times the dilution assumed by Mr. Mechi. I confine myself to thus indicating the obviously necessary correction of Mr. Mechi's first question, and leave it to your readers to modify the others, and the answers to all accordingly. *J. B. Lawes, Rothamsted, Harpenden, near St. Alban's, June* 23.

Steam Cultivation.—You have kindly laid before us another batch of tabulated returns on steam cultivation procured by Mr. Morton, as well as some data as to the draught of tillage implements procured by that same industrious and trustworthy man. Here is the summary of tabulated statement as to work done, days doing it, and average day's work:—

	Acres ploughed.	Acres Grubbed. 1st time	Acres Grubbed. 2d time	Total acres	No. of days.	Average per day.
Fowler ...	1030	3594	2127	6751	886	=7⅝
Smith ...	190	2487	1767	4453	804	=5½
Howard ..	70	698	1224	1992	345	=5¾

A glance at these figures shows that the roll-over plough now takes but a tenth-rate place with steam cultivators, and the thing that the Messrs. Fowler and Howard are employing numerous lawyers to cavil about is fast dwindling into nothing. This reminds me of turnpike commissioners cutting down hills, and coach proprietors whirling us through the country at the rate of 10 or 12 miles per hour (a pace beyond which steam nor anything else could surpass) in opposition to the rail. Stop; I am wrong. These gentlemen are not opposed to steam culture, but they will drive the old coach through it, right or wrong. The tables show that Mr. Fowler's customers have done very much less of the old coach driving than before, and the consequence is that they have shoved his average day's work up from 5¾ to 7½ acres; and if it had not been for the dynamometer this might have given some hopes to the endless rope plan, but that weighing machine tells us that a 31 cwt. draught is required to pull Fowler's best grubber through the soil to lift 487 lb. of earth per square yard. This looks frightful—a 31 cwt. pull upon the rope and tackle. Who is it that can afford to buy ropes and throw them away when they are worked down to only such a pull? And who is it that can buy steam-engines and machinery and keep them in order to be worked at double their nominal power? A Mr. Langston may, and a Mr. Ruck may, and so may many others, but a tenant farmer can't do it and pay his rent as well. Then what is the good of over-working ropes and tackle when that same weighing machine, used by the same man (Mr. Morton), shows that Smith's No. 3 can lift 474 lbs. per yard at a draught of 12 cwt., the nominal power of an 8-horse engine. Here we have got a ton draught in the wear of rope before we throw it away. This is the grand reason why Mr. Plummer's rope cost him 1*s.* 6*d.*, and Mr. Sowerby's rope only 8*d.* per acre, and why the wear and tear of Fowler's tackle is so heavy and mine so light. Mr. Savidge might well tremble for steam cultivation after seeing ropes thrown by for scrap with more than 1½ ton pull in them. Even his master Mr. Langston, with a well-filled purse, must quake at such a sight, especially were he to reflect that his doings ought to be a pattern to a tenant farmer if he would wish steam cultivation to become general. One word more, and I have done, leaving you to reflect over your past qualified opinion—"We believe in the superiority of the direct method as at length exhibited in operation by Mr. Fowler," not doubting for one moment my ability of convincing you of the fallacy of such a plan. How is it that Mr. Howard's 3-tined implement can only lift 386 lb. of earth per yard with a 12 cwt. pull? Why, because, as I have all along told you, it is a badly constructed implement. *William Smith, Woolston, Bletchley Station, Bucks, June* 23. [In answer to Mr. Smith's question we must point out to him that the draught of Fowler's cultivator is that of a tool which is moving 6 ft. width at a time, while Mr. Smith's is only moving 30 inches to 3 feet.]

Working Men's Clubs.—With all that is being done to aid and promote the interests of agriculture, there is nothing connected with this important subject of greater importance than elevating the minds and improving the condition of the agricultural labourers, and I see no better channel than their clubs by which this important object can be brought about. The agricultural labourers, like every other class of men who enter into engagements, should do so with the determination to make them pay. All labour, like every other undertaking, to be carried on satisfactorily must be self supporting; there is no doubt but what the agricultural labourers will in the course of time arrive at this satisfactory position, but it will be a work of time; therefore the more they are aided and assisted in obtaining this desirable object the better. In the first place they should all of them become members of clubs. The strong should support the weak. When the parents get old and infirm, having done well for their children, a reaction should take place and the children should in return do all that they can for their parents; so that with the assistance of their children and the proceeds of their clubs, they would end their days in comfort and independence. It should be from their clubs and not from the parish that they should receive all that they require. Whether from illness, accident, or infirmity, the best assistance that can be rendered to the working classes, is to assist them in assisting themselves. Every thing that is given to them should be as much as possible through their clubs, adding to the funds in addition to their savings, that they may no longer look to the parish, but to their own independent source of wealth, and then the labouring men will consider well the best way to spend their time and money. It is not satisfactory, nor is it a sign of prosperity or right principles, to see the villages swarming with children, and to a great extent supported by the parish, nor can it be satisfactory to the agriculturists to continue to contribute so largely in rearing up children to supply every branch of industry with labourers, not only at home but also abroad, enabling the foreigner to increase the production of corn for the English market. Would it not be far better to train and encourage our labourers to provide for the maintenance of their families themselves, independent of assistance from others, by employing them at good wages, with a view to their own benefit and also to increase the production of our own soil? What may and should be done for the labourers is to assist them in procuring a good club room in every village, where they can meet if they choose every evening; where they may find both amusement and instruction. It is from the want of this that many improvident and early marriages may be traced, but it is not so much what may be done for the labourers as what they can do for themselves that will raise them to a state of comfort and independence; it is useless to expect much improvement so long as the labour market is over supplied with poor dependent labourers. *B. Ransley, Perrysfield Farm, Oxted, Surrey, June* 25.

Steam Cultivation.—The *Agricultural Gazette* has so repeatedly shown the decided advantage of steam power over horse labour in the cultivation of all soils, but more particularly on heavy soils or clays, that one feels somewhat perplexed to ascertain the cause why it has not become more generally adopted by the agriculturists of the country. It is true that steam cultivation has rapidly increased in public favour, and a goodly number of our more spirited and wealthy farmers have within the past two or three years supplied themselves with steam engines and apparatus for cultivation, and manifestly with great benefit, as is reported universally; but still it is far from being in general use. We naturally inquire why it is not so, if on all hands it proved to possess such great advantages? It may fairly be inferred that it is not from ignorance of its worth. The great reason undoubtedly is the large outlay required to commence the system, and the fundamental changes in rotation of crops and management it would necessitate. It must be borne in mind that one of the highest and best advantages to be derived from such effective culture, is the unlimited extension of cropping it would confer or enable the farmer to take. This would cause a possible collision with the landlord, and lead to much apprehension and uncertainty whic most tenant farmers are reluctant to incur. These minor matters would, however, soon rectify themselves. Landlords would soon perceive that both their own and their tenants interests were identical—that a more effective and higher order of culture would require an abandonment of restrictive cropping, for which privilege the landlord is entitled to an increased rental. This is fair and honourable on both sides, and must be conceded to a higher order of agriculture as comprised in steam culture. The paper lately read at the Farmers' Club by Mr. J. C. Morton fully settles the question as to the advantages, economy, and usefulness of steam cultivation. It is to all intents and purposes a settled question. That it is a great boon to agriculture no intelligent man can for a moment entertain a doubt. The various phases of its application to culture also give to it an additional commendation. It has by one system or another become adapted to every kind of soil, and every order of culture, from the ponderous steam plough to the light-land cultivator, each in its place far beyond the power of horses and horse implements to compete successfully. The great question now must be, and in fact is, this: By what means can this system be advanced or made general throughout the kingdom? Farmers as a body are too slow to adopt improvements—they dislike innovations—they arrive slowly at their convictions—they deem great changes in management very speculative. Overcoming all this, and entertaining the desire to adopt steam cultivation, then arises the queries as to what is to be done with the farm implements, horses, &c.? How the new order of culture is to be carried out? Where is the best steam plough or cultivator to be obtained? How is it to be paid for? Who is to work it when it arrives? and various other doubts and demurs have to be weighed over, and settled. These are matters for every farmer's judgment. It is no disparagement to the class of farmers as a whole that I say the majority of them would greatly hesitate before expending so large a sum of money as the purchase of a steam-cultivating apparatus would cost; and further, that to great numbers it would be highly inconvenient, if not impossible, to spare so large a sum out of their business; and I may further say that nearly all would prefer to purchase such expensive machinery and implements upon the easiest terms. How then can this be done? Manufacturers cannot afford very long or very extensive credit. The conduct of their establishments generally gives them plenty to do with their capital, rather than lend it to promote steam cultivation. Landlords might aid a little on their respective estates; farmers occupying contiguous farms might combine and purchase for their especial use; joint stock companies in various localities might purchase for letting out to hire. Still there is a void to fill up, there is a want to be supplied. How is this most commonly done? The reply is by joint stock companies, all gigantic works are carried out by joint stock companies. Steam cultivation is a gigantic work, it is a national work, a national work of the highest order, a work that will enhance the products of our cultivated soils full 20 per cent. Well then, farmers require their joint stock company, a national company, large enough to embrace our British agriculture, large enough and having capital enough to supply the reasonable and just requirements of every British farmer; the object being of course to assist the farmer to purchase on loan upon equitable terms these costly implements and machinery. The term of payment should extend over a period long enough to enable "the plant" to clear itself in the work performed before payment is fully enforced. I earnestly commend this idea to my brother farmers. *O. F.*

Cirencester Agricultural College.—In your Report of the Royal Agricultural College Club dinner which took place at Battersea in August last year, Mr. Holland, as chairman of the Council, in alluding to the discord existing between the Principal and professors, observed that he was at the helm of a vessel somewhat out of

order, and promised that a full and impartial inquiry should be instituted, and that in so doing he would neither look to the right or left, but would do so honestly and straightforward, and that for the advantage of the College the result should be made public without any reservation whatever. We now hear that the whole staff of the old professors are leaving the College, and must express our anxious wish to know the circumstances which have caused such old and faithful servants to leave the institution. The old shareholders are not unmindful of the great and valuable services rendered by these old professors. They have not forgotten the time when the institution was but little known and appreciated, and comparatively speaking a mere wreck; and how in those days of trial they nobly remained at their posts for such poor remuneration. They have for very many years worked in harmony and good will amongst themselves, the Principal and Council; and from their readiness at all times to render any kind office to the students, they have won the love and esteem of all who have studied under them. It cannot be denied that their long services and recognised talents have conduced to the present prosperous condition of the institution; and now that such a result has been achieved, the whole staff are to be sacrificed, because a Principal has been appointed with whom they find it impossible to act. But let it be understood that the ingratitude thus meted out by the Council to these old and faithful servants is not in accordance with the wishes of the shareholders, who protest and disclaim against such an act of injustice. *A Shareholder.*

Beer.—In your paper of the 15th inst, J. P. W. asks what sum he ought to pay in harvest instead of giving beer. In haymaking I give 2*s.* per week extra to the men, and the women and boys less than that. I have little Grass land. If the pressure of work is great, I give rather more. In harvest those who work by the piece are paid by a bargain at per acre. I have given for the five weeks to the hired servants 1*l.*; to the lads, from 15*s.* to 10*s.* I would rather double the sum than return to beer. The first difficulty overcome, all parties like it better—we now have peace instead of perpetual quarrels. *J. C. C., June* 22.

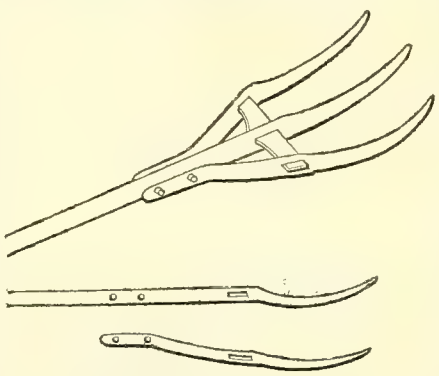
Steam Cultivation.—I am sorry that it falls to my lot to have to complain of the manner in which the returns supplied to Mr. Morton have been placed before the public. Last week I wrote informing you that No. 23 in Fowler's tackle, J. Elliot, Tarbert Mains (the Duke of Sutherland's steward), was my customer. No. 17 in Howard's tackle was also mine, as well as Mr. Leyland Wood's, that appeared published with some other reports with nothing to show whose customer he is. The injustice I now complain of is that you have not only neglected to correct, but that you have again placed J. Elliot, Tarbert Mains, as a customer of Fowler's. There is also J. Long, Henlow, Biggleswade, placed as a customer of Howard's in this week's Paper, who is not, but is a customer of mine. *W. Smith, Woolston, Bletchley Station, Bucks, June* 22.

[Mr. Smith's note of last week was received too late to be of any use for the correction of the inaccuracies to which he alludes. Mr. Morton expressly said that the returns came to him unendorsed with the name of the manufacturer, and that he was left to infer that from other circumstances. Mr. Elliot stated that he employed three men and a boy in working his apparatus, and the inference naturally was that he used Fowler's apparatus. We can only hope that readers of the tables will now note Mr. Smith's correction.]

Pigs and Flies.—Mix train oil and brimstone, and rub it round horns, nose, down the back, tail, &c., and the flies will go to your neighbours "flocks," whether pigs, sheep, or cows or horses. The farmer should always have by him elder ointment for sores, &c., at this time of the year. If you are troubled with rats, use in their haunts gas-tar and grease, and ground glass in your mortar. They will disappear altogether. Some time since I caught a large rat, after much trouble I tarred him, then let him go—he told his brethren, and they were soon far away. *N. N.*

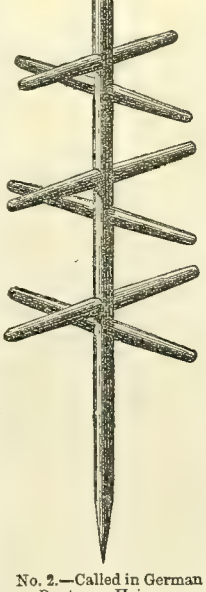
Comparative Cost of Cultivation by Horse and Steam Power.—This question cannot be determined, unless Mr. John C. Morton and others of his class, view the subject as every practical farmer ought to do. Since Mr. Morton was brought up on a farm, he will be able to point out any mistaken idea of mine on the subject. I fancy this is the root of the difficulty. Mr. Morton tries to estimate the cost to farmers of horses' keep by charging market price for their food. I fancy this is a mistake. The horses' food and the seed corn are dead stock, and cannot be converted into cash. Instead of purchasing stock and implements, and appointing a hired manager for each farm, landowners let their farms for a given rental per annum. A tenant farmer has no right to expatiate about the expenses connected with keeping horses and manual labour. A tenant farmer is merely a contractor and manufacturer of animal and farinaceous food. Reckoning 3 bushels of Oats a fair allowance for a horse in a week, very few farmers will give each pair of draught horses more than 300 bushels in a twelvemonth. Presuming Mr. John C. Morton is a tenant farmer at a rental of 2*l.* per acre per annum, 5 acres of land will support one pair of Mr. Morton's horses. The horses' manure will pay for the cost of producing the hay the horses eat, say from the latter end of February till they are turned out to Grass. In short, 10*l.* per annum will produce the food of a pair of horses. The ploughman's wages, say 12*s.* per week, the 10*l.* for the rental of the land and the seed for sowing the Oats, and interest for the wear and tear of horses, harness, and implement are the cost of horses' keep. Until that view is taken of the subject no one will clear up such subjects as Thorley's food and the "Cost of Horse-power." Will Mr. Morton be so candid as tell me the cost of producing a bushel of Oats. See Mr. Morton's paper on "the Forces used in Agriculture," where he stated that the labour bill on a crack farm in East Lothian did not amount to 2*l.* per acre per annum; and to 32*s.* on a farm near Hexham. The foregoing is a practical view of the subject. I am bearing in mind that jobbing carters charge 14*s.* for a pair of horses and a man a day in some districts. Lime drivers on Tweedside could not earn above 8*s.* a day before the Kelso branches of the North-Eastern and North-British railways were opened. They had only 6*s.* and 8*s.* for the cartage of a load of lime, which was all they had for paying tolls, the tear and wear of horses and carts, and for their own wages. I could clear up this a little. *W.*

The German Reuter, or Heinze.—How far you will think a short description of this simple but very effective aid in hay-making, worthy a brief space in your columns, I must leave you to decide. After much more expensive and complicated machinery it may appear beneath the notice of the British farmer, but I



No. 1.—Middle Prong 5 feet 6 inches with handle. Side Prongs, 3 feet 3 inches.

have yet to learn the soundness of the doctrine which would undervalue a thing solely because of its cheapness or simplicity. My correspondent (an owner and occupier of land in Würtemberg) writes as follows:—"I must now describe to you those famous Reuters I mentioned long ago, and which we think such a blessing to haymakers. I enclose a sketch which A—— made of one of them for you. "They are composed of a stake, about 6 feet long, with cross pieces as represented in No. 2. These stakes are spiked or pointed at the end, and driven with a mallet into the ground, at about the usual distance between haycocks. When it threatens to rain the hay is piled up on the cross bars, the form becomes conical, the wet drips off, and the air, circulating between the cross pieces, prevents the hay from damping to any very injurious extent. Some of our hay was out in heavy rains three weeks last summer on these Reutern, and but little of it (merely the outside layer) was injured; none rendered useless. When the hay is carted, the Reutern are taken up, and stored during the winter, often hung up under the shelving roofs of the farmhouses; with us, stored away in our enormous vaults. No. 1. represents the fork used for turning the hay, and in practice it is found to be excellent. It is made entirely of wood, is light to handle, and turns over a mass of hay at one stroke." Before I conclude, allow me to join in thanking you for your late excellent exposition of Steam Culture. It is to my mind one of the most interesting and important agricultural questions of the day, and is destined ere long to effect a complete revolution in the management of land in general, but of clay-land in particular. *Samuel Taylor, Gloucester, June* 3, 1863.



No. 2.—Called in German Reuter or Heinze.

Foreign Correspondence.

An Agricultural Sketch: *Stuttgart.*—On a tour through Northern Germany, which I undertook last autumn, I had the opportunity of visiting several very large and well managed farms, and as I have described to you lately the farming of Southern Germany, it will afford me much pleasure to give you now the following sketch of some farms in the North of Germany, begging at the same time your indulgence for my many deficiencies of style and composition. The farm or property I am going to describe is called "Salzmünde," and lies about 9 English miles below the old University town of Halle, close to the river Saale, and at the mouth of the Salza, a brook which unites the large ponds of Mansfeld, distant about 12 miles from there. Salzmünde, this remarkable place, with its endless buildings and ever-smoking chimneys, which give to the former more the look of a small manufacturing town than that of a farming establishment, was scarcely existing some 30 years ago, being only formed then by the cottages of a little village. There was at that time at the mouth of the Salza a decaying corn-mill with two stones, besides an old dwelling-house, surrounded by some rods of land. After the heir of this property, Mr. John Theophile Boltze, by means of the energy and activity of many years had succeeded in making it a staple-place for the corn produced in the rich district of Mansfeld, and after a successful exploration of the now far-famed clay pits round Salzmünde, and the prosperous sale of their products, such as porcelain clay, chamotte-stones, tile and bricks, &c., he then turned to agriculture in the year 1847. Besides the purchase and leasing of several surrounding peasant farms, and the erection of a Beet-root-sugar manufactory, contracts were made with many neighbouring farmers for the necessary supply of Sugar-beet-roots. Although the sugar manufactory, which like all similar establishments at that time was in a rather imperfect state, had to struggle with many adversities, Mr. Boltze, notwithstanding, over-matched them all, and by means of perseverance brought it soon to a flourishing state, making it thus a source of his many acquisitions. At the present time we find at Salzmünde, besides an extensive and well managed agriculture, a large distillery, tilery mill, dwelling and farm houses, &c., and all these have succeeded each other so uninterruptedly that people who now visit Salzmünde will not know it again in comparison to its former state. What a lively intercourse is now to be found there is best proved by the newly-established post-office and the regular mail-coach, which goes daily to and from Halle. Is there any other single farm or isolated property where the post has found direct conjunction a profitable enterprise? In the year 1857 the late King Frederick William IV. honoured Salzmünde with a visit of several days, and inspected from the pleasant villa of the Castle Hill, which Mr. Boltze had erected quickly for this purpose, the extensive manœuvres of his troops, and their passage over the river Saale.

The above may serve as an introduction, but now let us proceed to the description of Salzmünde in its present state, and begin with its agriculture.

The farming area of Salzmünde consists of 9050 Prussian "Morgen," or about 5709 English acres, (1.584 Prussian acres being equal to 1 English acre), viz., 7750 Prussian acres of arable land, 300 Prussian acres of meadow land, or permanent pastures, 1000 Prussian acres of yearly holdings for the exclusive culture of the Beet roots for the sugar manufactory. Amongst the total area, 6000 Prussian acres figure as the property of Mr. Boltze, whilst the rest is taken on lease. The quality of the soil is mostly very good, the fields being situated in the richest part of (Prussian) Saxony. It belongs mostly to the hill formations of Mansfield (a deep and fertile loam), and excepting the meadow land, which is lying at the bottom by some brooks, only about 100 acres of arable land were found in want of draining, and were drained consequently. The climate of this district is rather rough, at least not so warm and friendly as that on the middle Rhine, where the spring calls vegetation two or three weeks sooner to life. In hearing talk of an estate of about 9000 acres, we hardly suppose the half of it to be arable land, and as is the case in the provinces of the Mark, Posen, Silesia, &c., we think that there are at least some thousands of acres consisting of peat heath, sandy plains, sheep pastures, or otherwise uncultivated land. In applying this latter supposition to this property we are wrong, for excepting the 300 acres of meadow land, there is not one acre to be found which is not under the plough, and which does not enjoy very careful attention. Mr. Boltze, who bought the most of his land during the last 10 years, paid for the Prussian "morgen" on the average 140 thalers (at 3*s.*) or about 31*l.* 10*s.* per English acre; now-a-days the price of land has risen considerably in this district, and almost everywhere in Germany, so that no large estate can be bought there under 40*l.* per English acre. The prices to rent have risen accordingly, and 8 to 10 thalers per Prussian "morgen," or about 2*l.* per English acre, are not uncommonly paid. The yearly rent of some corn-stubbles for the Sugar-beet culture amounts even sometimes to from 4*l.* to 5*l.* per English acre.

The extent of the land of Salzmünde is uncommonly large, as it does not present a whole area, but is formed by the acquisition of about 25 peasant farms, and by the leases of several other farms and large pieces of ground, which divide themselves altogether over more than 10 villages. The distance of the fields and of the different farm steadings from Salzmünde amounts on the average to about 5 (English) miles, with the exception of a farm of 1100 Prussian acres, which is distant at about 12 miles from S. Although the fields are spread thus over a very large extent,

their different distances from the central point have no influence on the equal and uniform management of the whole estate; and each farm, though may it be at a distance of 3 or 12 miles has to cart its Beet-roots and Potatoes there, and to take back the different foods for men and cattle, its supply of guano, bone-dust, oilcake, draff, &c. Such a remarkable centralisation would not be practicable, of course, if the whole was not divided into several farms, each of which has its own cottages for the labourers, stables, yards, barns, &c., This close connection with the central point was only made possible by the consolidation of the land which was effected during the last ten years. Before this time the land was divided into about 800 parcels, mostly separated from each other. Now, after the consolidation, it consists only of 40 parcels, and the smallest pieces of ground are not under 20 acres in size. The principal roads between S. and its different farm steadings are in a good state, and Mr. Boltze has spent in the past decennium 9000*l.* for the construction of a new main road. Fields and roads are all bordered by young fruit-trees, which, besides their utility, give to the country there a pleasant aspect. The formerly so much despised estate has been concentrated in seven to eight farms, separated each from the other. Each of these farms has its special "inspector" or steward, and several foremen, who are, however, only the *factota* of the general director of the agricultural department, viz. Mr. Julius Zimmermann, the son-in-law of Mr. Boltze, who has his seat in Salzmünde, and has occupied this rather important position for 14 years. The stewards meet once every week at Salzmünde, where they make their "rapports" and receive new orders for the coming week. Mr. Zimmermann inspects the different farms at least once a week, and should he be prevented doing so he is substituted by his "head inspector." Besides the latter, the following persons are engaged in the agricultural department of Salzmünde:—

7 inspectors or stewards.
14 bailiffs or intendants.
22 foremen or overseers.
9 clerks in the office,

which latter have to take care also of the industrial and mercantile part of the establishment.

To these officers, who besides their free station and board, have a very good pay, we may yet add the following:—

1. The technical director or manager of the sugar manufactory.
2. Ditto ditto ditto distillery.
3. Ditto ditto ditto mill-works.
4. Ditto ditto ditto tilery.
5. Ditto ditto ditto navigation.
6. Ditto ditto ditto coal and clay-pits.
7. The veterinary doctor, first-class, exclusively engaged for Salzmünde.
8. The physician.
9. The schoolmaster for the education of the children of the labourers at S.

Commerzien-Rath (Counsellor of Commerce) Boltze, who has taken almost entirely the industrial and mercantile part of the business under his direction and command, is one of those rare men who, notwithstanding his many vocations, his frequent journeys, and his numerous visitors and introductions, is besides much engaged in political, administrative, and local affairs. So many things can of course only be cared for in a well-ordered establishment with the aid of officers or assistants who have grown up in the business and who seek their honour in its success. But now let us return again to the fields, which though I could not visit all, I shall describe to you according to their succession of crops, which is the following:—1, Clover; 2, Rape and Awehl, (another kind of oil-seed); 3, Rye and Wheat; 4, Potatoes; 5, Sugar Beets; 6, Barley, Oats, and Spring Wheat. 1, Clover is sown only under spring corn, and the following mixture is sown per Prussian acre:—35 acres of Sainfoin, 4 acres of Lucerne, 4 acres of Red Clover.

About 250 acres of seeds are sown yearly, and in their third year they are broken up after being once mown, and then fed off by sheep. The lea is ploughed down 14 inches deep and manured with good compound, just in time for the Rape, which is drilled in July.

2. Awehl 250 acres (an oil-seed similar to the Rape) is sown in the Barley stubble, which is ploughed deep immediately after harvest time, and dunged likewise with the compound refuse of the sugar manufactory.

3. Rye and Wheat (1000 acres) follow partly after the 500 acres of oil-seeds, partly after the stubble of spring-sown cereals. The latter get a large dressing of farm-dung and some guano.

Much attention is paid to the stable-dung, which is of excellent quality, being got not only by a very well-fed stock, but improved also highly by manure heaps, which are mixed regularly with earth and fresh urine. The latter being exclusively consumed for this purpose, the stable-dung is brought to a capital state of fermentation and conservation.

4. Potatoes (1000 acres) succeed mostly an Oat-crop, but always spring-sown cereals, the stubbles of which are ploughed down 14 inches deep, after a preceding dressing of about 12 tons of stable dung per English acre.

5. Sugar-beets (2000 acres), the one half after Potatoes and the other half after Wheat or Rye, get usually no direct dressing of either animal or artificial manures. With the exception of a few farms I visited in Great Britain, this is the only farm I saw where two different root crops succeed each other, and with the best effect, too, as I was told.

(To be continued.)

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, July* 1.—Present, Viscount Eversley, President, in the Chair; Lord Walsingham, the Hon. W. Cavendish, M.P., the Hon. Major-Gen. Hood, Sir E. Kerrison, Bart., M.P., Sir A. K. Macdonald, Sir Watkin W. Wynne, Bart., M.P., Mr. Raymond Barker, Mr. Barnett, Mr. Bowly, Mr. Bramston, M.P., Mr. Cantrell, Mr. Dent, M.P., Mr. Druce, Mr. Exall, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Holland, M.P., Mr. Hudson, Mr. Jonas, Mr. Lawrence, Mr. Pain, Mr. Pope, Mr. Randell, Mr. R'gden, Mr. Sanday, Mr. Shuttleworth, Mr. Thompson, M.P., Mr. Torr, Mr. Burch Western, Professor Wilson, Mr. Frere, and Professor Simonds.

The following New Members were elected:—

Alder, Frederick Jno., Hagworthingham, Spilsby, Lincolnshire
Airey, Geo., Sherbrooke, Linden, Malvern, Herefordshire
Akers, Henry, Black Bourton, Faringdon, Berks
Allen, J. Roscor, Oak House, Preston, Lancashire
Blinkhorn, Thomas, Spalding, Lincoln
Buckle, John, Uckington, Cheltenham, Gloucestershire
Bidwell, Chas, Muriel, Ely, Cambridgeshire
Bowen, John, Jun., Dunvall House, Bridgenorth, Salop
Brown, Robert, Wigginton House, Tamworth, Staffordshire
Blick, John, Hill Court, Droitwich, Worcestershire
Barford, William, Peterborough, Northamptonshire
Bailey, Henry, The Gerwyn, Wrexham, Denbighshire
Carrington, T. S. Townsend, Eaton Dovedale, Doveridge, Derby
Carrington, William T., Hollington, Uttoxeter, Staffordshire
Campbell, Charles Lee, Thurstaston Hall, Neston, Chester
Clarke, Charles, Ashby-de-la-Lound, Sleaford, Lincolnshire
Cartwright, Wm. George, Newport, Monmouthshire
Charley, Richard, Cleobury North, Bridgnorth, Salop
Drew, Edward, Calcot, Kingscote, Wotton-under-Edge, Gloucestershire
Driver, Robert Collin, 4, Whitehall Place, London
Davison, Richard, Driffield, Yorkshire
David, Evan William, Radzer Court, Cardiff, Glamorganshire
Dent, John Coucher, Sudely Castle, Winchcombe, Gloucestershire
Daniel, Charles R., Clayworth, Bawtry, Notts
Fletcher, Joseph, Whitehaven, Cumberland
Fisher, Charles, Prospect House, Whitehaven, Cumberland
Fuggle, T. G., Worcester
Goodwin, George, Pershore Mills, Pershore, Worcestershire
Gell, Robert, Grimston Lodge, York
Greene, John, Millbrook, Magany, Kildare, Ireland
Gardner, W. A., Hough Green, Chester
Gaunt, Thomas, Smite, Worcester
Hill, Henry, Spalding, Lincoln
Hone, Henry, Stoke Orchard, Cheltenham, Gloucestershire.
Harris, Thomas, Stonylane, Bromsgrove, Worcestershire
Hill, John, Elderslie House, London Road, Worcester
Hanson, Thos. Anderson, 162, Upper Brook Street, Manchester
Hill, Rev. Reginald Pyndar, Bromesberrow Rectory, Ledbury, Worcestershire
Heath, John, Bickley, Tenbury, Worcestershire
Hughes, John, Britannia Square, Worcester
Hughes, John, Jun., Severn Terrace, Worcester
Isaac, John Whitmore, Boughton, Worcester
Jacobsen, Christian C., Cranham Farm, Cirencester, Gloucestershire
Le Fenore, Henry John, Les Nièmes, St. Peter's, Jersey
Lloyd, Francis, Worcester
Melville, Alex. S. Leslie, Branston Rectory, Lincoln
Marris, Wm. Jno., Heppington House, Canterbury, Kent
Mayos, Thos. Lee, Hampton Bishop, Hereford
Muckle, Robert, Cresswell, Morpeth, Northumberland
Marriott, Ed. Jno. Beckett, Avon Bank, Pershore, Worcestersh.
Newton, Charles Edmund, Mickleover, Derby
Needham, Frank Haywood, Fearnall Heath House, Worcester
Parsons, Chas. William, Anstrey, Atherstone, Warwick
Porter, J. T. B., Lincoln
Prichard, Chas. Henry, Westown House, Brislington, Bristol, Somersetshire
Pike, Aaron, Milton, Tewkesbury, Gloucestershire
Parrington, John, Brancepeth, Durham
Robinson, George, Slimbridge, Stonehouse, Gloucestershire
Sadler, Robert Stebbing, The Valley House, Langham, Colchester
Savage, Saul Powell, Leys Farm, Wootton-under-Edge, Gloucestershire
St. Leger, John, Park Hill, Rotherham, Yorkshire
Smith, William J., Monkland, Leominster, Herefordshire
Swaine, John C., 3, Chester Terrace, Cirencester, Gloucestersh.
Thompson, Andrew, Berwick-on-Tweed
Turner, Frederick John, The Dean, Kilmarnock, Ayr
Taylor, Wm. Henry, High Hatton, Shawbury, Salop
Voile, John, Jun., Churchover, Rugby, Warwickshire
Waites, John Merrick, Gloucester
Weaver, Wm. Henry, Moor Farm, Bridgnorth, Salop
Wood, James, Pinwal Hall, Atherstone, Warwick.
Willetts, William, Bishampton, Pershore, Worcestershire

Finances.—The Hon. Major-General Hood presented the report, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee and by Messrs. Quilter, Ball & Co., the Society's accountants, and found correct. The cash balance at the bankers was 2585*l.* 1*s.* 11*d.* The quarterly cash accounts to June 30, and the quarterly statement of subscriptions and arrears, were laid on the table, the amount of arrears, including those for the current year, being 862*l.*

Journal.—Mr. Thompson, M.P., Chairman, reported that the prize of 25*l.* for the best Essay in Class II., on the Breeding of Hunters and Roadsters, had been awarded to Joseph Gamgee, Esq., Senior, New Veterinary College, Edinburgh. In Class IV., the prize of 25*l.* for the best Essay on Reclaiming Waste Lands, had been awarded to Mr. Charles Belcher, Little Coxwell, Faringdon, tenant of Potter's Hill Farm, Wichwood, Oxon. In Class V., "On Movable Fencing for Sheep," none of the competing essays are considered worthy of the prize.

The committee recommended that the sum of 60*l.* be placed at their disposal for the preparation of an index for the 25 vols. constituting the first series of the Journal, which was negatived, the Council resolving that the index should be prepared by the editor.

Members of Council were requested to forward to the Secretary suggestions for Prize Essays in 1864.

Worcester Show.—Mr. Fisher Hobbs reported that the Show-yard was complete, the sheds in process of being covered, and that the whole would be ready by the 10th inst. A sufficient supply of green Vetches had been secured in the neighbourhood.

On the motion of Mr. Dent, M.P, it was resolved that the Stewards of Stock shall be empowered to expend a sum not exceeding 30*l.* in payment of a Report on the Stock exhibited at Worcester.

The Common Seal of the Society was affixed to the Agreement with the Mayor and Town Clerk of Newcastle-upon-Tyne that the Country Meeting for 1864 should be held in that city.

Mr. Manning, of 251, High Holborn, contractor for the Show-yard works at Worcester, having attended the Council, was informed that the Council will give him the preference for the Newcastle contract, provided that his terms be acceptable to the Newcastle Committee.

The General Newcastle Committee consists of Viscount Eversley, chairman,

Powis, Earl of.
Portman, Lord.
Tredegar, Lord.
Cavendish, Hon. W., M.P.
Hood, Hon. Maj.-Gen. A. Nelson
Liddell, Hon. H. G., M.P.
Headlam, Right Hon. T. E., M.P.
Macdonald, Sir A. K.
Ridley, Sir Matthew White, Bt., M.P.
Wynn, Sir Watkin W., Bart., M.P.
Arkwright, J. Hungerford.
Barnett, Charles.
Beaumont, S. A., M.P.
Bramston, T. W., M.P.
Cantrell, Charles S.
Challoner, Colonel.
Dent, J. D., M.P.
Gibbs, B. T. Brandreth.
Hobbs, Wm. Fisher.
Holland, E., M.P.
Hoskyns, C. Wren.
Kingscote, Colonel, M.P.
Milward, Richard.
Newcastle, Mayor of.
Pain, Thomas.
Pope, Edward.
Ramsey, G. H.
Randell, Charles.
Shuttleworth, Joseph.
Thompson, H. S., M.P.
Torr, William.
Wilson, Jacob.

Colonel Kingscote, M.P., of Kingscote, Gloucestershire, was unanimously elected a member of Council in the place of Mr. Banks Stanhope, M.P., resigned, on the nomination of the Hon. W. Cavendish, M.P., seconded by the Hon. Major-Gen. Hood.

The Council then adjourned till 12 o'clock on Wednesday the 8th inst. for the election of members.

Highland and Agricultural.—At the half-yearly general meeting of this Society 106 new members were elected.

Kelso Show.—Mr. Hall Maxwell reported that the arrangements for the Kelso meeting were complete. The entries had, in some places, been more numerous as regards stock; and a comparison between the approaching meeting and the last show in the same district—that at Berwick in 1854—gave the following results:—

	Berwick.	Kelso.
Cattle	179	250
Horses	141	130
Sheep	771	609
Swine	86	71
	1177	1050
Implements	357	1100
Poultry	..	300
	1534	2450

He was instructed by the directors to state that though Monday, 3d August, is the day for receiving stock, the yard will be prepared so as to admit all that may be forwarded on Saturday. As on such an occasion there was naturally an apprehension of disease, he might remind the meeting that, as a precautionary measure the Society had secured the whole enclosure of 45 acres within which the yard is to be erected, and that the stock placed in it has been subject to the careful inspection of a veterinary surgeon specially employed for the purpose.

Chemical Department.—Dr. Anderson stated that the work of the laboratory had been carried on without interruption during the last six months, and much work had been accomplished. The investigation of the Potato had made great progress, and the first part would appear in the Transactions for July. Other investigations had advanced so much that at the last meeting of the Chemical Committee two new subjects had been selected, viz., the examination of the cheese produced in the different districts of Scotland, and the composition of the Grasses; and he might take this opportunity of stating that he should be glad to receive any suggestion from members as to the best mode of following out these investigations. The general work of the laboratory has embraced the usual analyses made for members, and several cases of adulteration had been detected.

Veterinary College.—Mr. M'Lagan, of Pumpherston, begged to call the attention of the meeting to a statement which had appeared in the last report of the Royal Veterinary College in England. It was to this effect:—

"Before concluding this report, the governors would call attention to the completion and publication of a new register of the qualified members of the profession, by which agriculturists will be enabled at once to ascertain whether those who call themselves veterinary surgeons in their respective neighbourhoods are in reality scientifically educated practitioners. Many persons who can lay no claim to the title still continue thus to designate themselves. This is a subject of some

importance to the agricultural community, as it appears from a statistical return which has just been obtained by the Royal College of Veterinary Surgeons that while there are 914 members of the College settled in practice in the United Kingdom there are no less than 1244 individuals who assume the name of veterinary surgeon, besides 1189 farriers." The statement here made had, he said, a very important bearing on the diplomas of the Edinburgh Veterinary College. They were well aware that it was not necessary for the gentlemen who received the veterinary diploma of this Society to become members of the Royal College of Veterinary Surgeons of London; and the inference to be drawn from the statement he had read was that those gentlemen who were not members of that College were not duly qualified or scientifically educated practitioners, but that they were rather to be considered as quacks. Now, as nearly one-half the gentlemen who receive the diploma of the Highland and Agricultural Society of Scotland were practitioners residing in England, he thought that every possible means should be adopted to remove the impression as to their being quacks, which had been made on the English farmers. The Society was quite aware of and could properly value the qualifications of the gentlemen who had studied in the Veterinary College of Edinburgh. He (Mr. M'LAGAN) had himself experienced the benefits of that institution; and its value, not only in Scotland, but in England, would be appreciated by everyone when he mentioned that not fewer than 1700 gentlemen had been there educated, while 740 had received its diploma; and the value of that diploma was enhanced by the fact that it is received at the Horse Guards at London. The gentleman who holds the first position as a veterinary surgeon in the Indian Army was a member of the Edinburgh College, and not of the Royal Veterinary College of England. He was quite sure that when the meeting and the members of this society heard what he had stated they would take some steps in the matter in justice to those who held the diploma of the society in order to have their names published abroad and to let the public know generally how this diploma is valued by the Horse Guards and by other public bodies or heads of departments. He would not say more in presence of the Principal of the Veterinary College, but would beg to throw out the recommendation that, as the English society have made a register of the gentlemen who have received their diplomas, the Highland Society should have prepared a register of the names of those gentlemen who have received the diploma of the Edinburgh College. He would further move that these should be published in the Transactions of the Society, and that every step should be taken to circulate them as widely as possible. This, he thought, was a subject which deserved the serious consideration of the society.

Sir JOHN M'NEILL concurred in the suggestion of Mr. M'Lagan, and thought it was very desirable that they should form such a register as that proposed. He would venture to go a step farther, and suggest that the directors of the society should put themselves in communication with the society in England, with a view to obtaining a mutual recognition of the diplomas by both societies.

Premiums for Reports.—Mr. FORBES IRVINE then gave in as follows the report on "Premiums for Reports:"—

1. The Gold Medal, or 10*l.*, to Charles Sangster, Balnabreck, Forfarshire, for Report on Reclamation of Waste Land.
2. The Gold Medal, or 10*l.*, to Jacob Wilson, Manor House, Morpeth, for Report on Reaping Machines.
3. The Gold Medal, or 10*l.* for Report on the Effects of Manure made with and without Cover, to Robert Scot Skirving, Camptown, Drem.
4. 20*l.*, to Archibald Sturrock, Struthers Cottage, Kilmarnock, for a Paper on Grasses.
5. The Medium Gold Medal, or 5*l.*, to Robert J. Thomson, Grange, Kilmarnock, for a Report on Mangel Wurzel.

The Chair of Agriculture—Sir J. S. Forbes' Motion.—Sir J. S. FORBES then rose and said, that in pursuance of the notice he had given, he had to request, on the part of Professor Wilson, an explanation from Sir W. Gibson-Craig of the observations he made at last summer meeting in the proceedings on the motion which he (Sir John) brought forward with regard to the endowment of the Agricultural Chair.

These observations were to the effect that he thought the friends of Professor Wilson were injudicious in bringing up the subject of the Agricultural Chair, when the directors had made up their minds on the subject, and that if the friends of Professor Wilson insisted on having a full discussion, it would turn very disagreeable to the Professor himself. He (Sir John) had, with very great care, guarded himself in all the observations he made at that time against introducing the smallest personal matter. He took it upon the broad ground of its being a great public question, and Mr. M'Lagan was equally guarded in his remarks. It was Sir Wm. Gibson-Craig who first introduced Professor Wilson's name. Unfortunately, whether erroneous or not, Professor Wilson felt that these observations, considering that they were of so covert a nature, did give the matter a personal character; and he trusted that Sir Wm. Gibson-Craig would have no difficulty in assuring Professor Wilson and his friends that he intended nothing derogatory to his character in making these observations. He certainly felt that, in the circumstances in which they were made, they were susceptible of many interpretations, from not being distinctly enumerated; and if Sir W. Gibson-Craig thought it better, he would at once accept the alternative of having, on the part of Professor Wilson, the most searching inquiry in regard to those observations, believing as Professor Wilson did, that the more deliberately they were inquired into the more it would be for his interest. Without further remark he would now propose the motion of which he had given notice in the following terms:—

"That a committee be appointed to inquire into the present position of the Agricultural Chair, as affected by the Society's offer to obtain the co-operation of the University Commissioners for an increase of the endowment, with the view of supplementing its resources from the funds of the Society, and to reduce the curriculum appointed for it by the Society's Council of Education; and that the committee be instructed to inquire into the system of working the agricultural diplomas, with a view to make the advantages they hold out to students better appreciated."

I feel that I am entitled to state the grounds on which I have made this suggestion to the directors. The first ground is that the Society has very materially taken an interest in that Chair, and has gone a long way already to take part in its management. The other point which shows that the Society takes an interest in the Chair, or in some degree considers that it has a right to arrange matters, is that the Council of Education of this Society went so far as to establish a curriculum, and to require, as a result of the offers of its diplomas to encourage the Chair, that a certain course of teaching should be followed, and be carried over two years instead of one. But independent of these circumstances, my own private opinion is, that there is nothing to prevent this society proposing an arrangement to endow the Agricultural Chair, as is done by the Writers to the Signet in regard to the Chair of Conveyancing, to which they gave a large allowance, and which they oblige aspirants for admission into their honourable body to attend, before they are passed. I therefore hope that, even if the directors have some feeling on the subject, they will reconsider the matter.

Sir WM. GIBSON-CRAIG, who was almost inaudible, was understood to say that his remarks at the last summer meeting reflected in no degree on the character of Professor Wilson.

Sir JOHN FORBES said he regretted that he was obliged to state he thought Sir W. Gibson-Craig had misunderstood him. He had never pressed Professor Wilson's claims at any time. It was only because Professor Wilson's name had been introduced into a discussion of a public character that he had to-day requested Sir William Gibson-Craig to explain allusions which he had made to Professor Wilson's character, as he (Sir John) understood in that discussion. If Sir William Gibson-Craig insisted upon an investigation, which should bring forward the grounds upon which his allusion was made, then he (Sir John) accepted it on the part of Professor Wilson.

Sir WILLIAM GIBSON-CRAIG said he did not insist upon any discussion, on the contrary he deprecated all discussion. The matter had been settled, and now they should let it rest. The whole question was whether it would be expedient for the society to grant an endowment to the Chair of Agriculture.

Sir JOHN M'NEILL would suggest whether he ought not—acting as the guardian or friend of Professor Wilson on this occasion—to be satisfied with the statement Sir Wm. Gibson-Craig had now made—that any observations which might have excited doubt in the mind of any one—had no reference whatever to the character of Professor Wilson. This was what was stated by Sir William Gibson Craig, and it therefore ceased to be on that statement a personal matter as affecting Professor Wilson, and it became a question solely and exclusively of expediency and propriety and legality as regarded the society.

Sir JOHN FORBES expressed his satisfaction at the explanation given of Sir William Gibson-Craig's statements by Sir John M'Neill. That was precisely what he had asked at the beginning, because the allusions to which reference had been made were certainly in such terms as to lead to the inference that they had the meaning which he had put on them. As to the other question, he hoped that the meeting would still be kind enough to allow the motion to come forward, and to consider on public grounds whether it was not in the power of the society and the will of the directors to recommend to them to follow out their efforts to improve the Chair of Agriculture by some other means of increasing its emoluments.

Finally, it was resolved "That it be remitted to the directors to appoint a committee to inquire into the means of agricultural education in Scotland and into the results of the working of the Society's educational charter."

Reviews.

Paper on Leases versus *Yearly Tenancy.* By J. Sanderson, Land Agent, 15, Manchester Buildings, Cannon Row, Westminster; read before the Oxford Farmers' Club. J. Plowman, *Oxford Times* Office.

We have before alluded to this paper as an exceedingly well written argument for the term of 21 years in all land letting, in contrast to the system of lease from year to year. Mr. Sanderson first considers how the different systems of letting land affect the interests of the landlord.

"Unquestionably, the interest of landowner supersedes that of all others, as it is not only the only real source of a country's wealth, but is the source of that upon which human existence depends—food and clothing. Judging from the insular position of the United Kingdom, its large population, the quantity of foreign produce it consumes, and its much lauded agriculture, it might reasonably be supposed that not only have all barriers to agricultural progress been removed, but that all available means have been brought to bear on the soil, and that the utmost limits of its productiveness have been reached. Were a foreign agriculturist under such impressions to survey English agriculture, he would naturally ask, Why it is that the English pay millions annually for foreign produce, yet do not take advantage of the capabilities of their own land? He would see abundance of unemployed capital, land unreclaimed, labourers wanting employment — everything indeed which if brought into action would make our country independent of foreign aid. In many of the naturally richest districts of England he would see extensive tracts of land almost valueless from the want of drainage. Large estates, whose chief produce is half-starved stock, and which are peopled by unskilled tenants, and half-employed labourers, and the usual associates of these dilapidated homesteads, unshapely fields, irregular and worthless fences, open and unscoured ditches, and isolated trees, which serve only to extract nourishment from the surrounding soil. He could arrive at no other conclusion but that such a state of matters must result from a defective system of land tenure, and not altogether from inferior farmers. Land in the condition described yields the owner little pleasure, and not half its value. A landlord, indeed, who adopts annual tenure, the usual cause of unimproved estates, virtually locks up his wealth, and sacrifices his legitimate income. Self-interest generally prompts a man to action, but in the case of many landlords it appears to be dormant. The truth is, a landlord has not the same inducement to improve his property when let as annual holdings as when let on lease. Apart from getting less rental he gets less assistance from his tenants in effecting permanent improvements. Indeed the condition of land held on annual tenure must remain stationary, if not retrogressive, if the landlord do not execute improvements at his own expense. Not so with a lease: improvements are either jointly undertaken by owner and occupier, or solely by the occupier. In the latter case, landlords, merely by granting a lease, get their estates improved without one shilling of outlay. Among many cases of tenants improving estates at their own expense, which have come under my own observation, I may mention the following: A farm of 700 acres was leased for 21 years to an improving tenant, who, by enclosing, draining, and liming, out of his own pocket, increased the farm during his term of lease from 6000*l.* to 20,000*l.* I may be told that the rent would be accommodated to the outlay. No such thing. The farm was let by public tender, and let to the highest bidder. The difference indeed respecting outlay between the two systems is that under yearly tenure, landlords seldom, and tenants very rarely, effect permanent improvements, while under a lease, landlord and tenant readily co-operate in undertaking whatever tends to their mutual benefit. Landlords, therefore, who adopt annual tenure pursue a course detrimental to their own interests."

He next discusses how the different systems affect tenants.

"It is all very well to sound the praises of tenants who have confidence in their landlords, but it is an illegitimate confidence which risks all and seeks no security in return. Apart from the power already referred to which a landlord may at any time exercise at the expense if not ruin of a yearly tenant, the latter is exposed to contingencies, such as the death of the owner or sale of the estate, which renders compensation for outlay uncertain. Hence it is that the annual tenant is denuded of independent action, his energies are crippled, and having no prospect of improving his position, he becomes the slave of a ruinous system. It is far otherwise with a tenant who farms under a lease; urged by every legitimate motive, the prospect of long occupation, security for the capital he expends, and the increasing yield of his farm, he can and does undertake permanent improvements. He can indeed with a lease of 21 years execute drainage and be amply rewarded; he can twice lime his farm, grub up hedge rows, straighten fences, fill in boundary ditches, &c., and be amply paid; and a tenant who makes such permanent improvements is not likely to neglect those of a temporary character. Farming, to be successful, involves a large outlay, and, as a general rule, the greater a tenant's outlay on land, the greater is his success. Such being the case, the success of the annual tenant must fall far short of that of the tenant under lease, inasmuch as the expenditure of the one falls greatly short of that of the other. It would be instructive to know the respective areas of land which have been reclaimed by tenants alone under the different systems. I am well acquainted with a district where upwards of 6000 acres of land has been recently reclaimed at the sole expense of the tenants, costing about 13*l.* per acre, and I am convinced that, but for the security the lease gave these tenants, every acre of that land would have been still in a state of nature. A lease to a tenant, indeed, means security, independence, and encouragement. It means good farming, ample employment, large returns, and a rapidly increasing yield of produce."

Mr. Sanderson then discusses the question of tenant-right, and he considers it objectionable:—

"First, because it unnecessarily absorbs a large portion of an incoming tenant's capital, and thus cripples him from carrying out permanent improvements. Secondly, because it seeks compensation for compensated outlay, and frequently for ordinary acts of husbandry, which ought to be carried out by the outgoing tenant, and the real value of which to the incoming tenant cannot be ascertained. Thirdly, because it affords scope for fraud, inasmuch as an outgoing tenant may use enormous quantities of cake the last two years of his occupancy, may imperfectly carry out drainage, or drain land which is naturally dry, and may apply lime in bad condition to land surcharged with water. Fourthly, because it virtually ignores progressive agriculture. Fifthly, because it makes the incoming tenant pay for the management, right or wrong, of his predecessor; and, sixthly, because it injuriously affects the sale of an estate or the letting of farms."

The objection to the lease as affecting the sale of property—as hindering owners from being benefited by the rise in land-value, as tending to the deterioration of land at the close of the lease, are then discussed.

The faults of the annual system are related. It is "opposed to the system of farming adapted to this country." It does not "meet the requirements of modern agriculture." His views on this subject appear to have been formed chiefly on that practice of valuations between successive tenants as it prevails in Sussex, which was denounced by our correspondent "W. S., near Guildford," the other day. Thus, Mr. Sanderson says:—

"In some of the southern counties of England what is usually termed 'tenant's outgoings' assume the form of 'tenant right;' and are even more objectionable than any of the tenant-right claims I have noticed. In Surrey and Sussex these outgoing valuations are often more than one half of the real value of the land. I know a case where the valuation of fallow last season was over 8*l.*, and the Turnip crop which followed not worth 30*s.* The outgoing tenant can plough his fallows as often as he chooses—the oftener for him the better—as he makes profit by it (having no other work for his horses), although every additional ploughing, by the dissipating of moisture essential to the successful

culture of root crops—especially in an arid climate, is additional loss to the incoming tenant. Yet the latter is made to pay for it. I have carried out farm valuations in various counties, but I would rather not be engaged in another valuation than be a consenting party to an incoming tenant paying for labour which is injurious to him. Sometimes tenant right enjoins the incoming tenant to pay for clean fallows 50*s.* and 3*l.* per acre; but it would be difficult to ascertain upon what equitable principle this claim is founded. Ought not high conditioned and clean fallows to be considered essential to ordinary farm practice? The highest agricultural authority, Mr. Caird, has said truly, that "tenant right and many of the customs of tenant's outgoings benefited no one but the arbitrators." They, indeed, tell seriously against the landlord by preventing him from obtaining full value for his farm; they tell seriously against the tenant by involving a large amount of sunk capital, and, consequently, by restricting the necessary outlay on permanent improvements, and to the maintenance of a full supply of stock essential to successful farming; and they tell against the community by diminishing the produce of the country, for, as a general rule, where these valuations are highest, there the farming is worst. Tenant right is, therefore, injurious to agricultural improvements, and they who seek to extend it, are, unintentionally, placing barriers in the way of progress. It is, at best, only an apology for a ruinous system, and I trust that the landlords will oppose its extension."

Miscellaneous.

Mangel Wurzel Disease.—I need not describe to you the particulars of the above pest, but we have visible in the field the small white dots or eggs on the leaves, the maggot in the interior of the leaf eating and destroying it, and myriads of small blackish active flies about the plants, on the ground, and in any straw or light manure that is on the surface. I cannot help thinking that a short account of the natural history of the insect would be very interesting to your numerous readers, as well as to myself, such as the name, and the different stages that it passes through. *M. H. S.* [See another column.]

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Thursday ..	June 25	30.08	65	60	S.W.	3	10	69	54	79	48	..
Wednesday ..	30 July 1	30.38	64	57	S.E.	3	8	66	41	81	37	..
Tuesday ..	29	30.16	63	57	W.	1	9	67	46	81	42	..
Monday ..	28	30.07	62	55	N.W.	0	9	64	49	84	43	..
Sunday ..	27	30.05	62	56	S.W.	2	10	66	47	87	42	..
Saturday ..	27	30.04	63	59	S.W.	2	10	69	52	87	50	0.05
Friday ..	26	30.26	66	58	S.W.	0	0	71	47	87	44	..

Notices to Correspondents.

PARLIAMENTARY; *X.* Two events of agricultural interest occurred in the House of Commons on Wednesday evening. A Bill whose effect, if it shall pass, will be to enforce the adoption of the decimal system of weights and measures in all commercial transactions, received its second reading. And Mr. Holland's Bill for extending the powers of the Act for dealing with small-pox and other infectious disorders in cattle and sheep was withdrawn. The former, notwithstanding its second reading, is not likely to become law; the latter, notwithstanding its temporary withdrawal, will most likely ultimately pass. In the meantime the Government will introduce a Bill continuing the powers of the Act which is about to expire.

THE HYDROPULT,

EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "The machine is certainly the most compact and efficacious force pump of its size that we have ever seen."—*Daily Telegraph.*

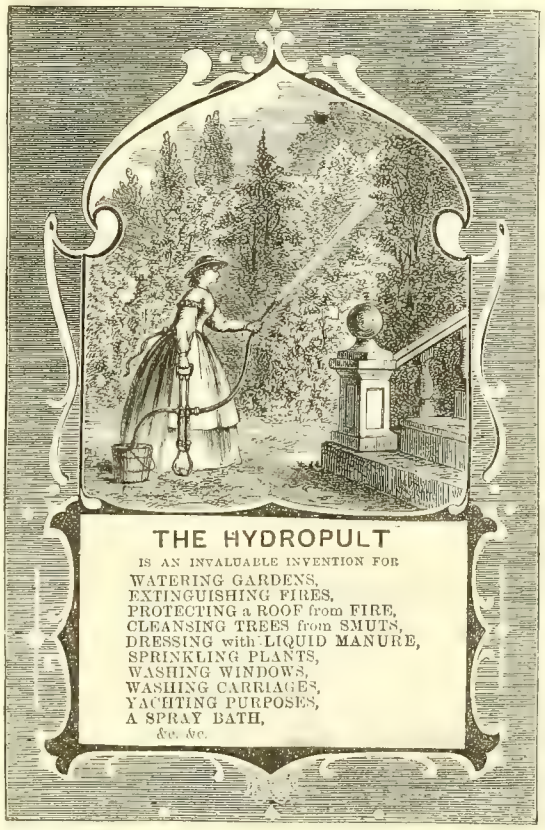
THE HYDROPULT. — "All Londoners and other town residents who care for their gardens and greenhouses should avail themselves of such engines." — *Gardeners' Chronicle and Agricultural Gazette.*

THE HYDROPULT. — "We strongly recommend it to our readers."—*Journal of Horticulture and Cottage Gardener.*

THE HYDROPULT. — "It will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water." — *Gardeners' Weekly Magazine.*

THE HYDROPULT. — "Country readers who order it on our recommendation, will not only not repent, but thank us for calling attention to a machine which, having once used, they will never care to be without."—*Floral World and Garden Guide.*

THE HYDROPULT. — "We can only say that no public establishment or private house should be without one of these useful machines."—*Commercial Daily List.*



EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "We are satisfied that all housekeepers ought to have one, and we are equally satisfied that if they once see it they will order it." — *Liverpool Daily Post.*

THE HYDROPULT. — "We commend it to the notice of the proprietors of warehouses and other buildings, public and private, in the metropolis and provinces.'— *Mechanics' Magazine.*

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EXTRACTS FROM TESTIMONIALS.

"Royal Insurance Office, Liverpool.

"My dear Sir,—I have much pleasure in expressing the high satisfaction, and indeed surprise, with which I witnessed the working of your Hydropult. There can be no doubt that it can be available in the earlier stages of fire in warehouses, manufactories, or private houses, in preventing large conflagrations, while its applicability to gardening and other purposes will be manifest to any one observing its operation.—I am, my dear Sir, yours truly, "PERCY M. DOVE, Manager.

"Chas. P. Button, Esq."

"The invention will prove extremely valuable for all the purposes to which such machines are applied.—SWINTON BOULT, Secretary, Liverpool and London Insurance Company."

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CAUTION: Important to the Public.—The extensive sale of the HYDROPULT has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting, as they are often placed under or near the Hydropult show card. The Proprietor therefore issues this caution, and respectfully intimates that parties wishing to purchase the Hydropult, should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, a Portable Fire Annihilator and Garden Engine; GRIFFITHS & BROWETT, Manufacturers, Birmingham; CHARLES P. BUTTON, General Agent (Vose's Patent)." Unless this label be attached, the machine is not the Hydropult.

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FIRE! FIRE! FIRE! THE HYDROPULT IS THE MOST EFFICIENT FIRE-ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.

It can be used for all purposes for which a hydrant or force pump is applicable, and in situations where other contrivances are useless.

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J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.



Fig. 571.

J. TYLOR & SONS' GALVANIZED IRON TUB GARDEN ENGINES, with Registered Spreader.

8 gal.	12 gal.	16 gal.
2 13 6	£3 5 0	£3 15 0
24 gal.	30 gal.	
£5 0 0	£5 18 0	

J. TYLOR & SONS' OAK TUB GARDEN ENGINES, with Registered Spreader.

15 gal.	28 gal.
£5 12 6	£7 2 0



Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 8 0 each.
No. 2. Ditto ditto .. 1 2 6 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,



g. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 11s. 6d. each.
,, 589. Middle Ditto ditto .. 10 3 ,,
,, 588. Small Ditto ditto .. 9 0 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 7 6 ,,



Fig. 591. READ'S SYRINGE, with two roses and one jet, 17s. 6d
READ'S SYRINGE, with one rose and jet, 15 0
,, 592. Improved ditto ditto large 14 0

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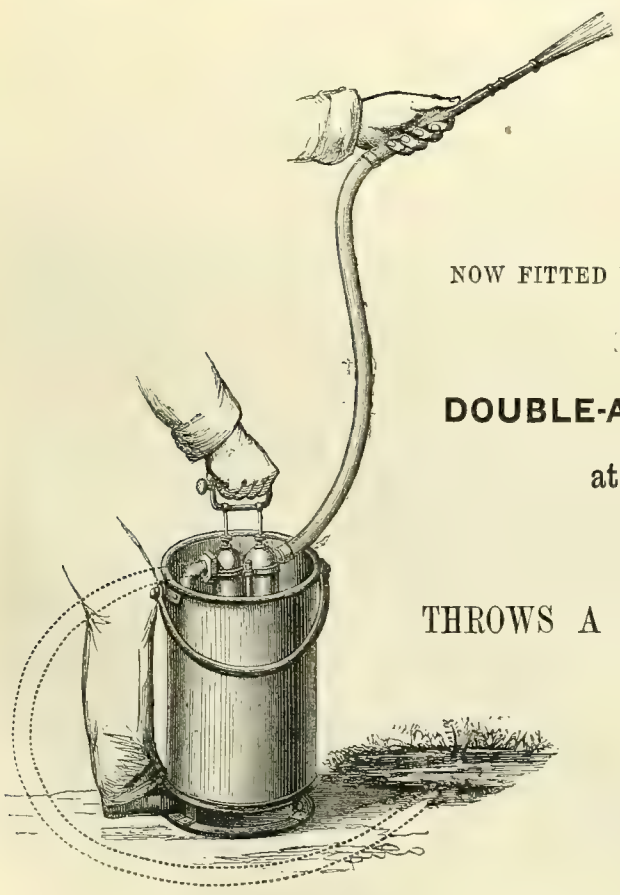
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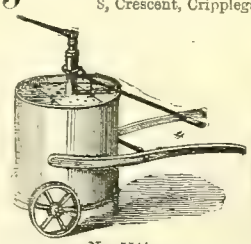
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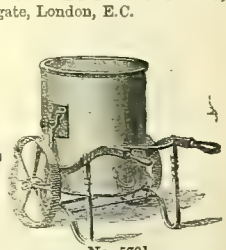


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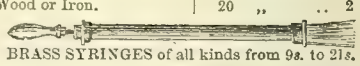
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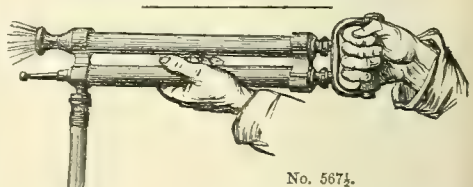
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35 gallons	.. £2 10 0
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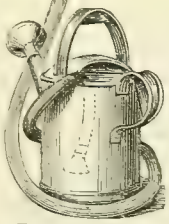
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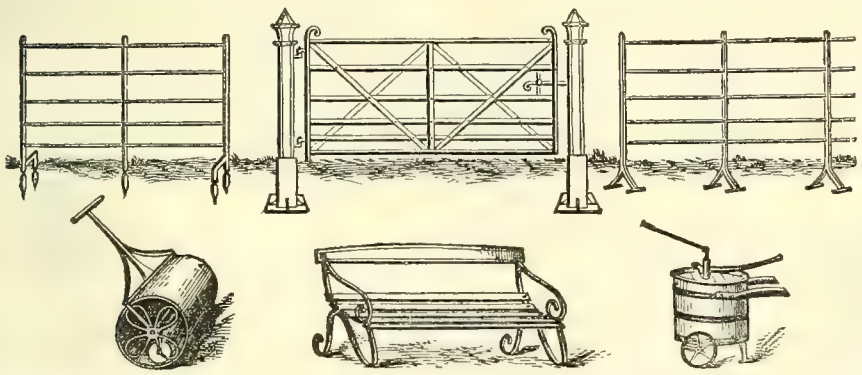
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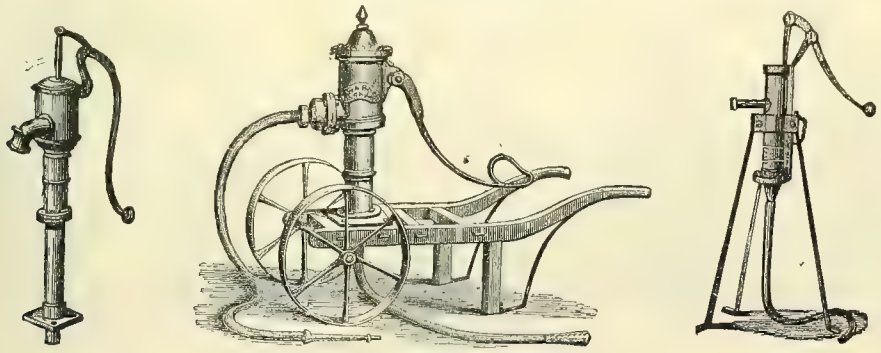


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Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump one man will force the water in a continuous stream to a height of 50 feet.

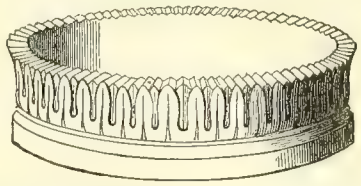
When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER and SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

.....6 feet 9 inches.....



AUSTIN, SEELEY, and CO. beg to inform the Nobility and Gentry that they are prepared to supply, at three months' notice, TAZZE for Flowers or Fountains, as wide as 13 feet. They take this opportunity of referring to some large Flower Basins and Plain Kerbings made by them for the Royal Horticultural Society's Gardens; and also to those lately supplied to the Public Garden in the Regent's Park. They will be happy to forward a List of their Fountains to any gentleman requiring one.

369 to 375, Euston Road, Regent's Park, N.W.



GARDEN BORDER-EDGING TILES. — These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

To be obtained at F. & G. Rosher's Wharves, Lond on; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.

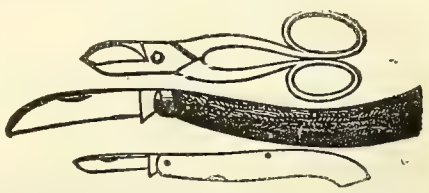
Illustrated Price Lists free on application. The Trade supplied

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability. Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. Rosher at their Premises as above.

Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal is just Awarded to Saynor & Cooke for superiority of quality in Pruning and Budding Knives, &c.

SAYNOR and COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

Caution.—None are genuine unless marked Saynor. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

PATENT ELECTRICAL PLANT PROTECTOR, for the preservation of Plants, Flowers, and Shrubs from Snails, Worms, Slugs, &c.

This Protector being composed of zinc and copper, or of any two metals combined in such a manner as to form an electrical couple, constantly gives off a certain amount of electricity, rendering plants entirely secure from the attacks of Slugs, &c., as it has been discovered to be perfectly impossible for any insect or worm to crawl over a combination of these two metals.

Being formed in plain and ornamental designs for borders, beds, &c., it is applicable to all gardens, terraces, &c.; it is also made in the form of Plant Guards to encircle the stems.

Illustrated Lists of Prices post free on application to Robert B. Lee & Co., Sole Manufacturers of the Patent Plant Protector, 22, Market Place, Manchester.

Oil Paint no longer Necessary.

HILL and SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to Hill & Smith, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

Glass and Mixed Paints (Ready for Use.)

For Factories, Hot-houses, Conservatories, Garden Frames, Pits, and Dwelling-Houses, &c.

THE LONDON CO-OPERATIVE OIL and COLOUR COMPANY (Limited), from their connection with some of the largest British and Foreign Glass and Lead Manufacturers, are prepared to supply White Lead, Zinc Paint, Mixed Paints in all Colours; and strong Sheet, Rough Plate, and every other description of Glass in Crates, Cases, or Cut to Size for Home Use or Export at the very lowest wholesale prices. Gardeners, Nurserymen, and others advised as to the best mode of Erecting, Heating, Ventilating, and Glazing Pineries and other Forcing Houses. Farmers, Stewards, Market Gardeners, &c., supplied with Stucco, Anticorrosion, Metallic Oxide, and Mixed Paints ready for use for Dwelling Houses, Farm Buildings, Park Fences, Ships' Bottoms, &c.

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CLARKE'S PATENT ADJUSTIBLE SCYTHE is the strongest, lightest, most durable, and best cutting Scythe yet introduced. It is used in the Gardens of the Royal Horticultural Society at South Kensington, and has given great satisfaction to all who have tried it.

The following is from G. EYLES, Esq.

"Royal Horticultural Gardens, South Kensington, May 20, 1863.

"Sir,—I like your scythes very much.—Yours very truly, "GEO. EYLES."

CLARKE & SON, Patentees and Manufacturers, Brackley, Northamptonshire.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.

For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

To Noblemen, Gardeners, Farmers, and Others.

AMIES AND BARFORD beg to call particular attention to their NEW PATENT WATER BALLASTING FIELD and GARDEN ROLLERS, which have the following advantages over all others. They are made entirely of Wrought Iron, are made water-tight, and are loaded with water to obtain increased weight at pleasure, which is moreover employed with the greatest possible per centage of crushing power directly upon the surface of the soil. The weight of a Garden Roller can thus be doubled in a few minutes, and a one, two, or three Horse Land Roller is secured, as desired, in one implement.

Great numbers have already been sold, and are giving the greatest satisfaction, and whether for Gardens, Lawns, Cricket Grounds, Road-making, or for farmers' use, they will be found superior to all others.

For Illustrated Price Lists apply to Messrs. AMIES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

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HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

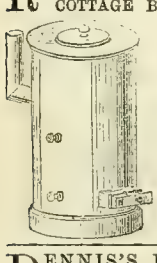
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HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

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Price List on application.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

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DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon



an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.

Horticultural Buildings and Heating by Hot Water.

BURY AND POLLARD, Park Iron Works, New Park Street, Southwark, S.E., Manufacturers of every description of Buildings for Horticultural purposes, with their improved CONICAL BOILER for heating the same, undertake works of any magnitude, and refer, among others, to the works at Frognal the seat of Viscount Sydney, the Lord Chamberlain, just completed by them.

BURY & POLLARD also call attention to

THE IRON FURNACE STAND

nvented by them. A most economical, durable, and efficient arrangement for warming Conservatories, &c.

Prices of Boilers and every particular on application.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

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The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c. the Plant Cases will be found an inestimable boon.

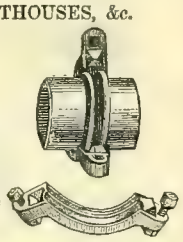
The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.





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Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
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Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

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JOHN TAYLOR & SONS,

HORTICULTURAL BUILDERS AND ENGINEERS,

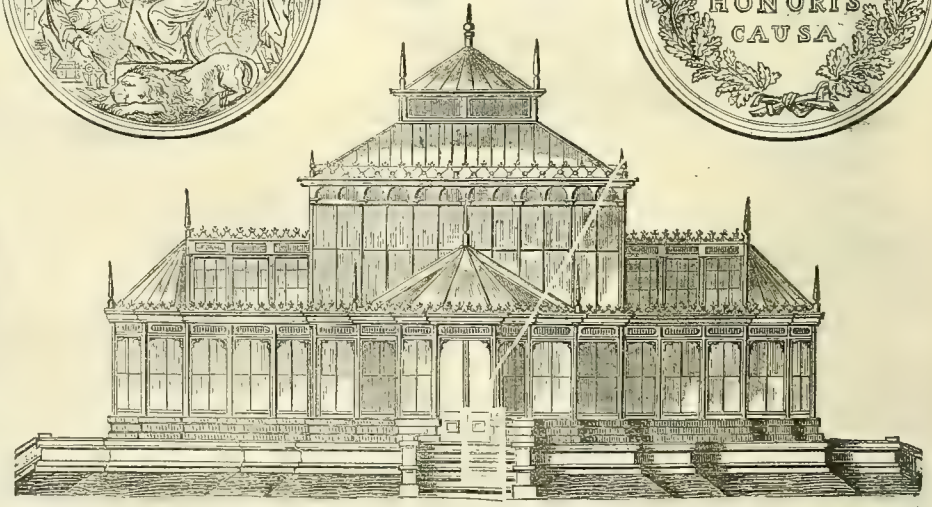
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INTERNATIONAL EXHIBITION, CLASS IX., 2191.

PRIZE MEDAL For CONSERVATORY, DOUBLE CHAMBER CORRUGATED and HORIZONTAL TUBULAR BOILERS.





J. TAYLOR AND SONS call the attention of the Nobility and Gentry to the very superior manner in which they erect CONSERVATORIES, VINERIES, FORCING, FRUIT, and PLANT HOUSES of every description combining the most modern improvements with elegance of design and durability of materials and workmanship.

Our VENTILATING APPARATUS for the Roofs and Fronts of Horticultural Buildings, &c., supersedes any now in use, as being the most simple and effective in its action.

Our system of HEATING APPARATUS for Churches, Public Buildings, Mansions, Schools, Offices, Baths, Horticultural Buildings, &c., is particularly worthy of notice, we having for many years devoted especial attention to this branch. The great variety of work which has passed through our hands has gained us such experience in the mechanical details as to insure success and entire satisfaction in any undertaking entrusted to our care.

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Card.

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GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

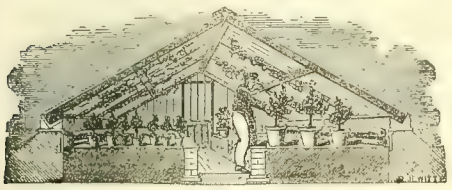
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H. FREEMAN'S HORTICULTURAL WORKS, Triangle, Hackney, N.E. Established 20 years.

Good substantially made GREENHOUSES, glazed, ready for fixing, 42 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 28*l.*; 12½ feet by 10 feet, 15*l.* ORCHARD-HOUSES 10 per cent. cheaper.

A handsome CONSERVATORY, 46 feet by 19 feet, for Sale. Estimates given.

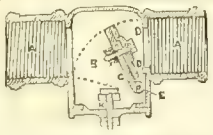
Hothouses for the Million.—AWARDED A PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner, all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to SAMUEL HEREMAN, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1*s.*; post free, 1*s.* 1*d.*



T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough, has recently patented a VALVE which is unequalled for its efficiency, simplicity, durability, and cheapness. Prices as under. Two-inch, 17*s.* 6*d.*; 3-inch, 23*s.*; 4-inch, 28*s.* A liberal discount to the Trade.

These Valves can be obtained in London of Mr. J. JONES, 6, Bankside, S.E.

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VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER. HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application VINCENT SKINNER, Bridewell Street, Bristol.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.—This Stove is the nearest approach to Warming by Hot Water, and an efficient aid in Ventilation.

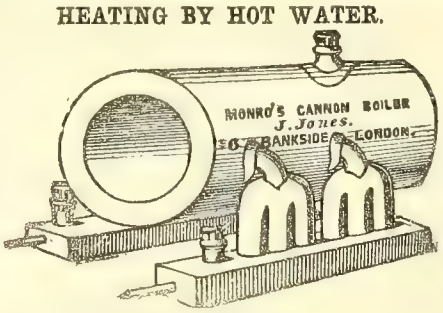


It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for Small Conservatories, with a vapour chamber, which maintains a moist atmosphere for 12 hours with once filling.

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HEATING BY HOT WATER.



MONRO'S CANNON BOILER.

J. JONES,

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SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

HEATING GREENHOUSES,

CONSERVATORIES,

FORCING PITS,

CHURCHES, CHAPELS, SCHOOLS,

HALLS,

BILLIARD ROOMS,

COACH HOUSES, HARNESS ROOMS, &c.,

OF THE BEST QUALITY, AND AT MODERATE CHARGES.

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The novel FERNDELABUM.—To grow SIXTY FERNS (or Flowers) on a space 4 ft. 8 in. over, 8 ft. high, &c.

Guaranteed to stand frost an unlimited time.

Stereographs sent to inspect for 12 stamps.

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WILL BE AT WORK NEAR BEDFORD THROUGHOUT THE SEASON.

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CLARK & HOPE

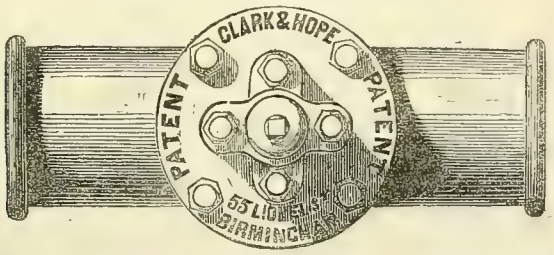
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55, LIONEL STREET, BIRMINGHAM.

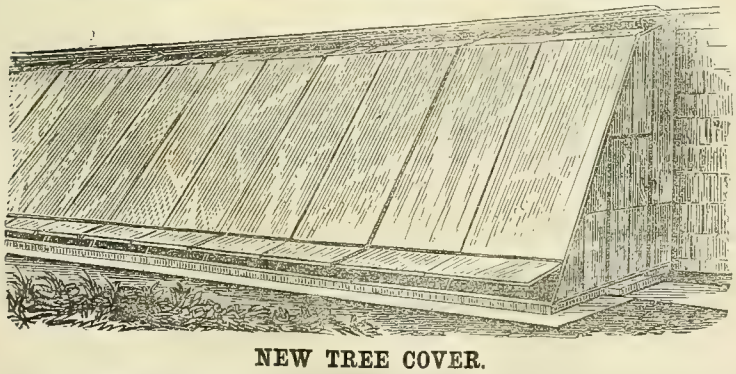
ESTABLISHED A.D. 1818.

HORTICULTURAL BUILDERS AND HOT-WATER APPARATUS MANUFACTURERS.

BY ROYAL LETTERS PATENT.



NEW STOP VALVE FOR WATER, STEAM, OR GAS.



NEW TREE COVER.

CLARK AND HOPE'S TREE COVERS are constructed on an entirely new principle, and being fixed by means of Bolts and Screws are Tenants' Fixtures.

The Wall Plate and Gutter (in one) are of cast-iron, the Rafters, Bars, and Doors, of rolled iron.

They are made 6 feet, 7 feet, and 8 feet wide at bottom, 2 feet wide at top, and up to 14 feet high, as may be desired, and can be glazed with or without putty. The Flap at the top and the Sashes at the bottom are made to open, by means of simple and durable machinery, of any length within 50 feet at one operation.

Lithographed Designs of Horticultural Buildings upon application.

Sales by Auction.

Final Sale.

To GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS have received instructions from the Executrix of the late Thomas Gaines (deceased) to submit to an unreserved SALE by AUCTION, on the Premises, Surrey Lane, Battersea, within five minutes' walk of Battersea Park, on MONDAY, July 13, at 11 o'Clock, a newly erected SHOW HOUSE, 41 feet 10 inches long by 32 feet over; 12 capital GREENHOUSES; a quantity of 2, 3, and 4-inch Hotwater Pipe, Saddle and other Boilers, Slate Shelving, York Paving; a capital Box, Spring Van with patent Axles, Tumbril Cart, and other effects.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Shethin, near Tarves, Aberdeenshire.

EXTENSIVE AND IMPORTANT SALE OF SHORTHORNS.

MR. STRAFFORD begs to announce that he is favoured with instructions from Mr. Shepherd, of Shethin, to SELL by AUCTION, without Reserve, on WEDNESDAY, the 29th of JULY NEXT, his Extensive and Valuable HERD of PURE-BRED SHORTHORNS, consisting of upwards of 100 head of Bulls, Cows, and Heifers, which were originally selected by the late Mr. Hay, with great care and skill, from the famed Herds of Capt. Barclay, of Ury; Mr. Bates, of Kirkleavington, and other celebrated Breeders, since which have been used the renowned Bulls Grand Duke (10,284), bred by Mr. Bates; Red Knight (11,976), bred by Mr. John Booth; Bosquet (14,183), bred by Sir C. Knightley; and Cherry Duke 2d (14,265), bred by Mr. Bolden. The Stock have been long and favourably known, and have maintained a distinguished position at the National and Local Shows. They are in a healthy breeding state, and have not been forced for Sale.

Catalogues, with Pedigrees, may be had on application to Mr. SHEPHERD, Shethin; or of Mr. STRAFFORD, 13, Euston Square, London, N.W.

SALE of ENGLISH WOOL by PUBLIC AUCTION in LONDON.—Our first PERIODICAL SALE of ENGLISH WOOL will take place on the 15th instant, when we shall offer about 1000 Sheets from various Counties. All Wool intended for this Sale should be sent to our Order at the West India Docks one week previously.

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HUNGARIAN WINES.

"*No life without phosphor.*"—Vide Dr. KLETZINSKY, pages 15 and 16, WINE REPORT for 1863.

WHITE WINES.

Admirably adapted for Dinner, being light, pure, dry, and free from acidity, combined with the full, high aroma of the Rhine Wines.

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VILLANY MUSCAT	20s.
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SOMLAUER AUSLESE	28s.
DIOSZEGHER BAKATOR	30s.
Ditto Ditto AUSLESE	32s.
HUNGARIAN HOCK	30s.
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SZAMORODNY (dry Tokay)	42s.

RED WINES.

Possessing all the characteristics of the finer sorts of French Claret, and containing great body without acidity.

	(Bottles included) per doz.
VISONTAERE	20s.
ADLERBERGER OFNER, recommended	24s.
MENESE, exceedingly stout and full-bodied	28s.
ERLAURE, high flavoured ditto	28s.

Any of the above in Pints 4*s.* per two doz. extra.

SWEET WINES.

MENESER AUSBRUCH		per doz.	42s.
TOKAY	ditto	„	72s.
Ditto	ditto (die Krone)	„	96s.

Tokay bottles containing 5 gills.

"Munich, 18 April, 1861.

"Not long ago I read Dr. Klezinsky's analytical article, and my belief is that the Hungarian Wines, whose generous qualities I fully appreciate, have over Wines a particular restorative virtue, to be attributed to the phosphoric acid which they contain. In a dietetical point of view, it must be taken into consideration that the Hungarian Wines are generally richer in alcohol than the Bordeaux Wines. (Signed) "J. LIEBIG, M. PR."

GREEK WINES.

SANTORIN.

	(Bottles included) per doz.
* SANTORIN, a dry red Wine, with Port Wine flavour	20s.
THERA, a white Wine, full of body, and Sercial Madeira character	20s.
CORINTHE, a very stout full-bodied Wine, possessing a Champagne flavour	24s.
SPARKLING ditto	30s.
CALLISTE, a very superior stout Wine, equal to and resembling Bucellas	24s.
ST. ELIE (or, "Wine of Night"), a delicious light dry Wine, with Sauterne flavour and character; *incomparable at the price*	24s.
AMBROSIA (or, "Wine of Bacchus"), a most luscious white Wine of high character and flavour	30s.
LACRYMA CHRISTI, a luscious yet dry red Wine, far superior to Tent	42s.
VISANTO, an exceedingly sweet and fine white Wine; delicious for dessert	48s.

ATHENS.

	(Bottles included) per doz.
MONT HYMET, Red, a full-bodied dry Wine, resembling Claret, with the boquet of Burgundy	16s.
MONT HYMET, White, a light pure dinner Wine, approaching Chablis in character, without acidity	16s

CYPRUS.

From the Commandery 60s.

SYRA.

COMO, a Red Wine, resembling young full-bodied and rich Port, an excellent Wine 28s.

SMYRNA.

BOUTZA, a full-bodied dry red Wine 24s.

SEVDIKOI, ditto, but slightly bitter (from myrrh leaves being pressed with the grapes), and highly valued for its tonic properties 24s.

Any of the above in pints 4*s.* per two dozen extra.

* Santorin is the only place and island in Greece which prepares Wine saleable in foreign countries; but this cannot be ascribed so much to the superior quality of the grape, as to the manner in which the Wine is prepared by the French Company who manage it. The Wines of Santorin will keep good year after year. They are sent to Turkey and Russia. Odessa, on the Black Sea, is one of their best markets. I have visited a great Wine cellar, excavated within the mountain, and have there tasted 16 or 18 different sorts of Wine, all prepared from the grapes of Santorin. I was most pleased with the "Wine of Bacchus," very like that of Naxos, with the taste of nectar and colour of liquid gold. So also the "Wine of Night" [the St. Elie], which is colourless, and has obtained that name from the fact of the vintage taking place during the night, and from the grapes being hidden under the leaves of the vine, and not exposed to the influence of the sun, by which means the Wine is not coloured by it. It has an acid and agreeable flavour, like Rhine Wine, only milder.—*Greece and the Greeks*, by Miss BREMER, vol. ii., p. i. Translated by MARY HOWITT, 1863.

Cross Cheques, "Bank of London." Post Office Orders payable at General Post Office.

JAMES L. DENMAN, WINE MERCHANT,

AND SOLE CONSIGNEE TO THE SOCIÉTÉ VINICOLE DE L'ARCHIPEL, GREC,

65, FENCHURCH STREET, LONDON, E.C.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 28.—1863.] SATURDAY, JULY 11. {Price Fivepence. {Stamped Edition, 6*d*.

INDEX.

Arcades at South Kensington	651 *a*	Lilium giganteum	653 *c*
Battersea Park	655 *b*	Notes on Weeds	659 *c*
Bishop of Rochester v. Rev. J. Davis	661 *a*	Orchidaceous plants, Warners'	655 *b*
Books, various	655 *b*	Orchids, sales of	651 *b*
Cattle disease	657 *b*	Phin on the Grape Vine	654 *c*
Caoutchouc	655 *c*	Plant lice	652 *b*
Climate at Streatley	658 *b*	Poisoned Wheat	658 *b*
Clover disease	661 *a*	Progressive Decline of Irish Prosperity, rev.	661 *c*
Cornish gardening	656 *a*	Roses, new	653 *c*
Crops, appearance of	658 *c*	Society, Royal Horticultural	653 *c*
Cultivation by steam	658 *a*	— Linnean	654 *a*
Exhibitions, floral	651 *b*	— York Floral	654 *b*
Foreign Correspondence	661 *b*	— Bath and West of England	661 *b*
Galls, British ink	653 *b*	Steam cultivation	658 *a*
Gardeners' Royal Benevolent Institution	652 *c*	Stephanotis, fruit of	653 *c*
Gardening, Cornish	656 *a*	Strawberries, new	653 *c*
Grape, open air culture of	654 *c*	Strawberry, Japanese	655 *c*
Greek Natural History	653 *c*	Timber, greenheart	653 *b*
Labourers' cottages	660 *b*	Trichomanes radicans	653 *b*
Law of public-houses	661 *a*	Vine leaf excrescences	656 *c*
Leases	662 *c*	Xanthoxylon fraxineum	656 *a*
Liebig's new work	659 *b*		

☞ NOTICE TO ADVERTISERS. — *Advertisements should reach the Office by the* THURSDAY *in each week; and they should be written on one side of the paper only.*

BIRMINGHAM ROSE SHOW.—The SECOND GREAT ANNUAL EXHIBITION of ROSES, HORTICULTURAL IMPLEMENTS, GARDEN ORNAMENTS, &c., will be held in the Town Hall, Birmingham, on THURSDAY and FRIDAY, July 16 and 17. Subscribers' Tickets admit on either day. Admission for non-subscribers:—The PRIVATE VIEW on Thursday, from 1 o'clock until 5, 2*s*. 6*d*.; afterwards, until 9 o'clock, 1*s*. On Friday, from 9 o'clock in the morning until half-past 6 in the evening, 1*s*.—Tickets may be obtained of the Secretary, Mr. A. FORREST, Queen Chambers, Cherry Street.

GRAND HORTICULTURAL FETE at the ALEXANDRA PARK, Wood Green, Hornsey; to be held on THURSDAY and FRIDAY, July 23 and 24.

Total amount of Prizes about 700*l*., which may be had in Medals, Vases, or Cash.

Prizes are offered for Three Groups of Fruit and Flowers for the Decoration of the Dinner Table; three Vases arranged with plants for Conservatory Decoration; and Three Hanging Baskets of Plants effectively arranged.

The prizes of above to be awarded by a jury of Ladies.

SPECIAL NOTICE.—Prizes of 6*l*., 5*l*., and 4*l*. will be offered for Class 1*a*, 6 Stove and Greenhouse Plants (Amateurs only).

Prizes of 6*l*., 5*l*., and 4*l*., will be offered for Class 10*a*, 8 Exotic Orchids (Amateurs only).

Schedules of Prizes, and every information of the Flower Show, may be had on application to ALEX. MCKENZIE.
Alexandra Park, Tottenham Wood, Hornsey.

Open to all England.

GRAND HORTICULTURAL SHOW to be held at KETTERING on THURSDAY, July 30, in connection with the Northamptonshire Agricultural Society's Show, when Prizes to the amount of 200*l*. will be distributed, including FIVE SILVER CUPS.

The Show Ground adjoins the Midland Railway Station at Kettering. Special Trains will run, of which due notice will be given by the Midland and North-Western Railway Companies.

Schedules, price 3*d*. each, may be obtained of Mr. WADDINGTON, Printer, Kettering.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

At a GENERAL MEETING of the Members of this Institution, held on Wednesday, July 8, at the Bedford Hotel, Covent Garden, for the purpose of ELECTING TWO PENSIONERS, the following was the result of the Ballot, as announced by the Scrutineers:—

CANDIDATES.

No.	NAME.	AGE.	VOTE.
1	ROBERT DOWDELL	74	297
2	JOHN LUCAS	64	538
3	JOHN SANGSTER	68	839
4	JANE ATLEE	73	294
5	BENJAMIN COLLINS	65	14
6	CUTHBERT EMBLETON	61	71

The Meeting then declared JOHN SANGSTER and JOHN LUCAS, as having the greatest number of Votes, duly Elected Pensioners of this Society. EDW. R. CUTLER, Sec.
14, Tavistock Row, July 9.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, now ready for Planting. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

NEW PRIZE MELONS, at 1*s*. 6*d*. per acket.
Empress Eugénie, Prince Imperial, Prince Louis of Hesse, Princess Alice, Princess Alexandra and Queen Victoria.
For descriptions see GUIDE to the KITCHEN GARDEN.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

ALOCASIA MACRORHIZA VARIEGATA.—Good plants, 10*s*. 6*d*. each.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

FIELD and GARDEN PLANTS.—Broccolis and Celeries, 4*s*. per 1000; Savoys, Kails, Early Cabbages, and Drumheads, 3*s*. 4*d*. per 1000; also the Large Early Field Imperial, for Cattle.
THOMAS WELLAND, Surrey Gardens, near Godalming, Surrey.

BARR AND SUGDEN,
SEED MERCHANTS,
12, King Street, Covent Garden, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON,
NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Agricultural Seeds.

GEORGE GIBBS AND CO.,
SEEDSMEN,
26, Down Street, Piccadilly, London, W.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS and NURSERYMEN.
237 and 238, High Holborn, London, W.C.

Good Turnip Seeds, Carriage Free.

SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

Best Seeds, Carriage Free.

BUTLER AND MCCULLOCH,
SEED MERCHANTS,
Covent Garden Market, London, W.C.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.
Dorking Nursery.

New Hybrid Mimulus.

E. G. HENDERSON AND SON offer Seed of the beautiful new Section, between M. CUPREUS and M. LUTEUS, as now to be seen in the Wellington Nursery, forming an elegant dwarf bedding-plant, and adapted for pot-culture in Conservatories. 1*s*. and 2*s*. 6*d*. per packet.
Wellington Nursery, St. John's Wood, London, N.W.

The Trade

MAY NOW HAVE QUOTATIONS OF FIRST-CLASS SEED OF
CINERARIA, CALCEOLARIA, and PRIMULA, by weight, or otherwise; also of the NEW MIMULUS, hybrids of M. CUPREUS.
E. G. HENDERSON & SON, Wellington Road, London, N.W.

ORCHARD HOUSES.—We invite an inspection of our Pot-Culture of FRUIT TREES, PEACHES, NECTARINES, APRICOTS, and PLUMS; also our fine stock of YOUNG VINES.
J. R. & A. PEARSON, Chilwell, near Nottingham.

Imported Orchids.

B. S. WILLIAMS has just received a fine importation of the following ORCHIDS:—
LYCASTE SKINNERI | CATTLEYA MOSSIÆ
CATTLEYA SUPERBA
GALEANDRA DEVONIANA, a choice and rare plant, finest of the genus.
Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

To Plant Collectors and Others.

B. S. WILLIAMS will be happy to make arrangements with Botanists and others going abroad for the TRANSMISSION of ORCHIDS and other RARE PLANTS in any quantity.
Paradise and Victoria Nurseries, Holloway, London, W.

Cineraria, Calceolaria, and Primula.

E. G. HENDERSON AND SON offer first-class seed of the above. Also, CINERARIA WEBBI, a new shrubby species, and best English and French Spotted PANSY. Each 1*s*. and 2*s*. 6*d*. per packet.
☞ EXPERIENCED GARDENERS recommended.
Wellington Nursery, St. John's Wood, London, N.W.

Herbaceous Calceolaria.

GUARANTEED FINEST QUALITY AND NEW SEED.

WM. CUTBUSH AND SON beg to offer the above, saved with the greatest care from the Stock, which invariably obtains the FIRST PRIZES wherever exhibited. Per packet, 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*., Post-free. Liberal allowance to the Trade.
Highgate Nurseries, London, N.

New Verbenas of 1863.

B. W. KNIGHT, FLORIST, &C., 67, High Street, Battle, Sussex, has now ready to send out the NEW VERBENAS of 1863, at 4*s*. per dozen.
CATALOGUES of VERBENAS and other Novelties sent on application.

NOVELTIES of 1863 at greatly reduced prices.—A CATALOGUE of 30 pages, containing full descriptions of nearly 500 New Choice Plants of the season, including the New Fuchsias and Verbenas, &c. Post free for one stamp.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

SWEET WILLIAMS (HUNT'S SUPERB VARIETIES).—The Advertisers having saved a quantity of the above splendid strain, can supply it in 6*d*. and 1*s*. packets, or 2*s*. 6*d*. per oz., post free. The Trade supplied.
E. P. DIXON & SONS, Seedsmen, Hull.

FUCHSIA TREES.—A large quantity of choice Varieties, 3 to 5ft. high, 2*s*. 6*d*. to 3*s*. 6*d*. each. BRITISH and FOREIGN FERNS immense variety, GREENHOUSE and STOVE PLANTS, EVERGREENS, &c., FERN CASES and AQUARIUMS, AVIARIES and FOREIGN BIRDS of every description.
R. GREEN, 154, Kingsland Road, and the Bedford Conservatories, Covent Garden Market, W. C.

Paul's Nurseries, Waltham Cross.

WM. PAUL'S ROSES are NOW in FULL BLOOM.
See Advertisement on p. 650.

Roses.

MESSRS. RIVERS AND SON beg to announce that their large COLLECTION of ROSES is NOW in FULL BLOOM. A day may be spent among Roses. Their ORCHARD HOUSE TREES are also well worthy of inspection.
The Harlow Station, (Great Eastern Railway), where Flys attend, is the most convenient.
Nurseries, Sawbridgeworth, Herts.

Roses.

J. AND J. FRASER, Lea Bridge Road Nurseries, N.E., beg to announce that their ROSES are NOW in BLOOM, and will continue for three or four weeks. The Collection contains many new and fine varieties, and is well worth a visit.
The Nurseries are about five miles from London, and are easily reached by the Great Eastern Railway to Lea Bridge Station.

"Old" Cheshunt Nurseries, Cheshunt, Herts.

PAUL AND SON have the pleasure to announce that their ROSES are NOW finely in BLOOM, and will continue so throughout July.
Their collection includes the new Roses as well as immense quantities of all the older kinds, and will (in its extent and choice they believe the largest in the kingdom) amply repay a visit.
The OLD Nurseries may be reached by trains from Bishopsgate to Cheshunt Station (within one mile of the nurseries), every one or two hours.
CATALOGUES on application.

Roses.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.
THE COLLECTION of ROSES at Woodlands, occupying an area of several Acres, is NOW COMING into BLOOM, and will be worthy of inspection during the months of JULY and AUGUST.
Maresfield is distant three miles from the Uckfield Station of the Brighton and South-Coast Railway, where conveyances await every Train.

New Roses for 1863.

WM. WOOD AND SON are now supplying all the NEW ROSES in splendid Plants at reasonable prices. The leading kinds of PERPETUAL and other ROSES in pots are also offered by the dozen, hundred, or thousand.
Address, Woodlands Nursery, Maresfield, Uckfield, Sussex.

New Roses for 1863.

BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.
St. John's Street Nursery, Colchester.

New Roses of 1863.

E. G. HENDERSON AND SON offer strong healthy plants of the most select kinds at 42*s*. per dozen. The Trade supplied in any quantity.
Wellington Nursery, St. John's Wood, London, N.W.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON).—Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7*s*. 6*d*. each, are now ready.
Old Cheshunt Nurseries, Herts.

Roses and Rhododendrons.

JOHN PALMER AND SON beg to intimate that their NEW DESCRIPTIVE CATALOGUE of ROSES and RHODODENDRONS is now ready, and may be had free on application.
J. P. & SON may observe that their Stock is very extensive, and includes all the newest in cultivation.
Annan, N.B.—July 11.

Calceolaria, Cineraria, and Primula.

F. AND A. SMITH are now sending out their very superior strain of the above, carefully selected from first-class varieties, in Packets at 1*s*., 1*s*. 6*d*., and 2*s*. 6*d*. each.
The Nurseries, Dulwich, London, S.

W. VIRGO AND SON have a great quantity of the undermentioned Plants to offer for Sale, at the following prices:—

DRUMHEAD CABBAGE	3*s*. 0*d*. per 1000
DRUMHEAD SAVOY	3 0 „
Red and White Transplanted and strong CELERY	6 8 „

Wonersh, near Guildford.

NEW TURNIP SEED.—Now ready for Sale, a quantity of true POMERANIAN TURNIP SEED.
Apply to DENNETT AYLING, Sandhill Rogate, Petersfield.

NEW CUCUMBERS, at 1*s*. per packet.
Recommended by the Fruit Committee of the Royal Horticultural Society. See GUIDE to the KITCHEN GARDEN.
BARR & SUGDEN, Seed Merchants and Florists, 12, King Street, Covent Garden, W.C.

FOR SALE, a large quantity of good strong pricked out RED CELERY PLANTS. The Prices upon application.
WILLIAM BAGLEY, Munster Farm, Fulham.

TO BE SOLD, a number of large Specimen Plants, duplicates in a fine Collection, consisting of AZALEAS, IXORAS, FRANCISCEAS, EPACRISES, &c., 4 to 5 feet high, and 3 to 4 feet through. Also a number of fine CAMELLIAS, 10 to 12 feet high.
Full particulars on application to JONES & KELLETT, Nurserymen and Seedsmen, Heaton Norris, near Manchester.

CALCEOLARIA, CINERARIA, PRIMULA, &c.—CALCEOLARIA, saved from carefully hybridised flowers, possessing all the recognised floral qualifications, viz., size, form, colours, and marking. Price, 1*s.* and 2*s.* 6*d.* per packet. CINERARIA, extra choice, 1*s.* per packet. PRIMULA SINENSIS FIMBRIATA, extra choice, 1*s.* and 2*s.* 6*d.* per packet. DRACÆNA (CORDYLINE) INDIVISA, from Mount Egmont, New Zealand; beautiful fine foliaged plant, 1*s.* and 2*s.* 6*d.* per packet.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

British Fern Catalogue.

ROBERT SIM can now send, Post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Choice Seeds.

B. S. WILLIAMS begs to offer First-class quality of the undermentioned SEEDS:—

	Per packet.	
PRIMULA SINENSIS FIMBRIATA, Red, White, or Mixed	2*s.* 0*d.*	3*s.* 6*d.*
CALCEOLARIA, herbaceous	1 6	2 6
CINERARIA, from choice named flowers..	1 6	2 6
PANSY, very choice	0 6	1 0

Paradise and Victoria Nurseries, Holloway, London, N.

Dutch Bulbs.

E. H. KRELAGE AND SON, FLORISTS and SEEDSMEN, of Haarlem, Holland, beg to announce to the Trade only, that their NEW WHOLESALE CATALOGUE of BULBS has been sent to their Correspondents, and will be addressed to Seedsmen and Florists on prepaid application. This Catalogue forms their Trade Circular for June, and contains principally Hyacinths, Tulips, Crocuses, Narcissus, Anemones, Ranunculus, Fritillaria, Lilium, Iris, &c., with prices per dozen, 100, 1000, or upwards.

Azalea indica, &c.

ROBERT PARKER begs to offer strong healthy GRAFTED PLANTS of all the leading varieties in cultivation, in selections, from 18*s.* per dozen.

ALOCASIA METALLICA, from 10*s.* 6*d.* to 105*s.* each.
CALADIUM, of sorts, from 18*s.* per dozen.
CENTAUREA ARGENTEA, 5*s.* each.
" RAGUSINA, 24*s.* per dozen.

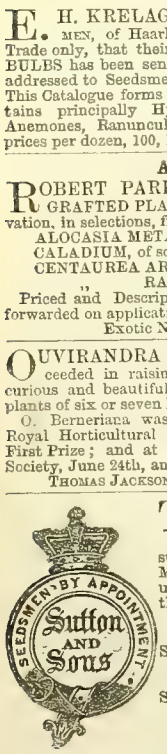
Priced and Descriptive CATALOGUES of PLANTS, &c., forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

OUVIRANDRA BERNERIANA.—Having succeeded in raising a few Seedlings of this extremely curious and beautiful plant, we beg to offer healthy young plants of six or seven leaves at 31*s.* 6*d.* each.

O. Berneriana was exhibited at the Great Show of the Royal Horticultural Society, June 17th, and awarded the First Prize; and at the Great Show of the Royal Botanic Society, June 24th, and then also awarded the First Prize.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.



TURNIP SEEDS for PRESENT SOWING.

As some kinds of Turnips are more suitable for late sowing than others, Messrs. SUTTON beg to recommend the undermentioned as the most desirable for that purpose.

Prices for the months of July and August, 1863:—

SUTTON'S EARLY SIX-WEEKS TURNIP, the earliest Turnip known, 8*d.* per lb., or cheaper by the bushel.

SUTTON'S IMPERIAL GREEN GLOBE, very fine, best for the main crop, to be sown in July and August, for autumn and winter use, 8*d.* per lb., or cheaper by the bushel.

CATTLE CABBAGE (the heaviest of all Agricultural Crops), should be sown in July and August, for transplanting in October and in the Spring.

GARDEN and FLOWER SEEDS for AUTUMN SOWING.

Messrs. SUTTON and SONS have a good stock of fresh Seeds of the undermentioned kinds, which should be sown during the months of July, August, and September.

Cabbage, choice sorts	Radish, of sorts
Lettuce, do.	Spinach, do.
Onion, do.	Turnip, do.
Carrot, Early Horn	Cineraria, choice sorts
Cauliflower, choice sorts	Calceolaria, very fine
Endive, of sorts	Primula sinensis

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

TRADE MARK.

HALLETT'S PEDIGREE NURSERY WHEAT.

This Wheat will be exhibited at the forthcoming International Agricultural Meeting at Hamburg; and at the Worcester Meeting of the Royal Agricultural Society, upon the STAND of Messrs. THOS. GIBBS & CO., their Seedsmen.

"HOW OUR WHEAT CROPS MAY BE DOUBLED," and other Papers, forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; second quality, 6*s.* per ton; best quality, in bags, 16*s.* per ton; ditto 2*s.* 6*d.*, 2 cwt. bags, stamps, put on the South-Eastern Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

Loaded Trucks can be sent on all the principal Railways.

W. SHORT, Salesman, &c., Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2¾ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & CO.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

TENANT FARMERS' MANURE COMPANY.
ODAMS'S BLOOD MANURE for CORN.
ODAMS'S BLOOD MANURE for ROOTS.
ODAMS'S SUPERPHOSPHATE of LIME,

MANUFACTURED BY THE PATENT

NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),

Consisting of TENANT FARMERS, occupying upwards of 30,000 Acres of Land.

Chairman.—JOHN CLAYDON, Esq., Littlebury, Essex.

Particulars of these Standard Manures may be obtained at the Offices. C. T. MACADAM, Secretary.

Or of the Local Agents.

Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex, N.E.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1863, are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from Messrs. Gibbs: Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

TAN GRATIS, in the immediate neighbourhood of Covent Garden Market,

Apply at WILLIAM ESSEX & SON, 28, Stanhope Street, Clare Market, W.C.

The Old Established Royal South Hants Seed Establishment.

PAGE'S BLIGHT COMPOSITION.—None genuine except that sent from this Establishment, or sold by the accredited Agents of

BRIDGEWATER PAGE, Seed Grower and Merchant, 37 and 38, Oxford Street, Southampton.

The only Certain Remedy for Mildew.

JOHN BELL'S COMPOSITION for DESTROYING MILDEW on Vines, Peaches, Nectarines, Roses, and every other Plant subject to that pest, is proved to be the most efficacious that has ever been offered. Sold in Bottles at 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* each. A 1*s.* 6*d.* Bottle will make 12 gallons fit for use.

Seed Warehouse, 10 & 11, Exchange Street, Norwich.

The Gardener's Friend v. the Gardener's Enemy.

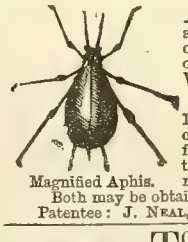
This celebrated Trial has been decided unanimously in favour of

FORDHAM'S INVINCIBLE "OLD VIRGINIA SHORTS."—The Greenfly and other Greenhouse and Garden Pests speedily annihilated at one-sixth of the cost of ordinary Tobacco Paper.

Samples of 7 lb. and upwards sent free to any Railway Station at 3*s.* per lb. on receipt of Post-office Order, payable to JOHN FORDHAM, at the W. C. Office.

Factory, 38, Little Queen Street, High Holborn, W.C.

N.B. ½ lb. of Shorts equal to 6 lb. of the Paper.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP,

1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850 has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, writing a few days since, say:—"Please send us 10 gallons of Blight Composition, as quickly as possible. We tried 'Gishurst' last year, but it would not do like the Composition."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says:*—"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst' will be used by practical men."

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, 38, Above Bar, Southampton.

NOTICE is HEREBY GIVEN, that the COPARTNERSHIP hitherto subsisting between the Undersigned, WILLIAM BRIDGEWATER PAGE & WILLIAM TOOGOOD, as SEED MERCHANTS, at and in the Town and County of the Town of Southampton, under the Firm of "PAGE & TOOGOOD," was this day DISSOLVED by mutual consent. All Debts due and owing to or by the said Copartnership will be received and paid by the said WILLIAM TOOGOOD.

Dated this 30th day of June, 1863.

WILLIAM BRIDGEWATER PAGE.
WILLIAM TOOGOOD.

MORTON'S NEW IMPROVED PATENT LAWN MOWER, with Sun and Planet Motion, having all the most recent Improvements, is allowed to be the best Machine for preventing Ribbing and Clogging.

To be had, with prices and particulars, of GRIMMOND, LAIRD, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath; and all the principal dealers throughout the country.

To Noblemen, Gardeners, Farmers, and Others.

AMIES AND BARFORD beg to call particular attention to their NEW PATENT WATER BALLASTING FIELD and GARDEN ROLLERS, which have the following advantages over all others. They are made entirely of Wrought Iron, are made water-tight, and are loaded with water to obtain increased weight at pleasure, which is moreover employed with the greatest possible per centage of crushing power directly upon the surface of the soil. The weight of a Garden Roller can thus be doubled in a few minutes, and a one, two, or three Horse Land Roller is secured, as desired, in one implement.

Great numbers have already been sold, and are giving the greatest satisfaction, and whether for Gardens, Lawns, Cricket Grounds, Road-making, or for farmers' use, they will be found superior to all others.

For Illustrated Price Lists apply to Messrs. AMIES & BARFORD, Queen Street Iron Works, Peterborough, Patentees and Sole Manufacturers.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. .. 1*s.* 6*d.* per yard run.
Four yards wide .. .. .. 3*s.* per yard.
An improved make, 2 yards wide, 1*s.* 3*d.* per yard.
An improved make, 3 yards wide, 2*s.* 6*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 4*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

Woolston, Bletchley Station, Bucks, and STAND 39, WORCESTER.

SMITH'S PATENT STEAM CULTIVATORS and APPARATUS are so well known for their efficiency and durability that it is needless to say much about them here; but it may be well to compare their draught with that of other makers. See the *Agricultural Gazette* of June 13, 1863; there it is shown that Mr. J. C. Morton found, by Dynamometer test, at Sutton Courtney, that—

SMITH'S No. 3 lifted 474 lb. of earth per yard at a draught of 12 cwt., the nominal power of an Eight-horse Engine.

HOWARD'S three-tined Implement lifted 386 lb. of earth per yard at a draught of 12 cwt.

FOWLER'S seven-tined Cultivator lifted 437 lb. of earth per yard at a draught of 31 cwt.

The cost of Apparatus and Implements is as follows:—

Windlass, with Anchors, &c., complete	£110	0	0
1400 Yards of Steel Wire Rope	61	0	0
No. 3 Cultivator	15	0	0
No. 4 Cultivator	17	0	0
Licence	21	0	0
Eight-horse Engine	230	0	0
Ten-horse ditto	290	0	0

There are more than 200 Sets of this Apparatus in practical working in all parts of the United Kingdom.

Catalogues, with full particulars, forwarded on application to the Inventor and Patentee.

Woolston, Bletchley Station, Bucks, and STAND 39, WORCESTER.

SMITH'S NEW PATENT COMBINED CULTIVATOR and DRILL.—It is constructed upon a new principle especially applicable to steam power; is half a ton lighter than the one shown last year at Battersea, yet quite as strong; is 15*l.* cheaper, and more efficient. The Seed Box can be taken from the framing, and the Seed Coulters from the Cultivator, in a few minutes, leaving it a bare Cultivator of the simplest and best construction, for a Wide Steam Cultivator for light land or crossing heavy land.

Price £55. If to be worked by apparatus not supplied by the Patentee or his Agents, £25 extra.

The practical working of the above Machine has been the most successful on the Inventor's Farm, who has been rewarded by good crops last year and again this year; and here is some evidence as to its usefulness, when worked by practical Tenant Farmers:—

"Buckden, June 2, 1863.

"Dear Sir,—In the autumn of last year I cultivated and drilled with Wheat, at one operation, with your Combined Machine, 75 acres of heavy clay land Bean stubble in 90 working hours, and 9 acres of Vetches. Some time back the Wheat looked as though I should have had too much, but the dry weather has put all straight, and it now promises to be a thorough good crop. The Vetches were very good, and have been eaten off. In the spring of this year I used the Machine again, cultivating and drilling with Barley 12 acres of clay land after Turnips, fed off with sheep in the winter, and it did well. I shall be pleased and hope to see you before harvest.—I remain, yours truly, "WILLIAM CRANFIELD.

"To Mr. Smith."

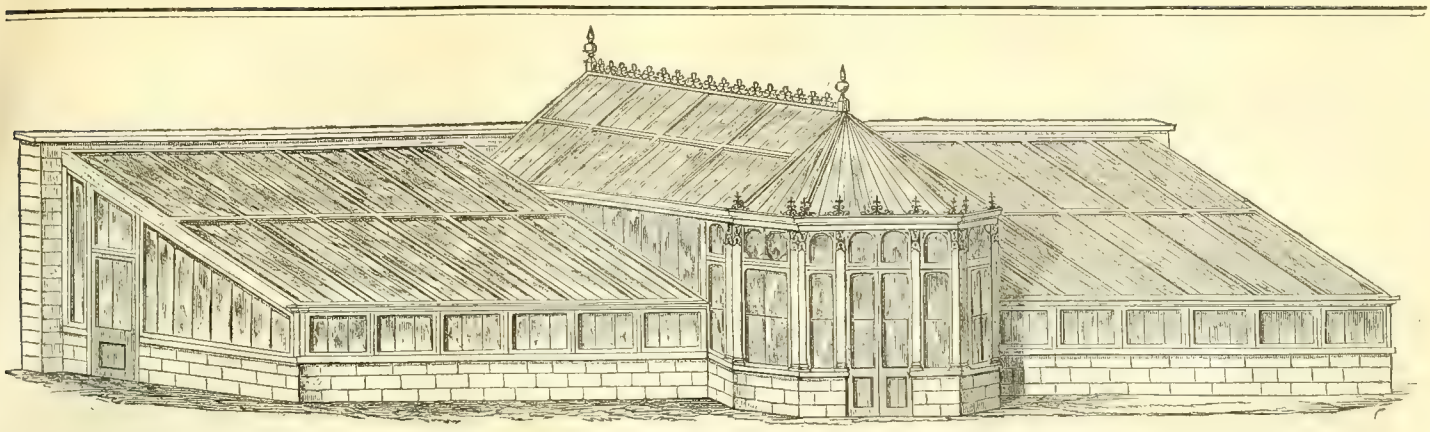
"Hemingford, St. Ives, Hunts, June 10, 1863.

"Dear Sir,—Your kindness in allowing the Combined Drill and Cultivator to remain in this neighbourhood for the use of those who work your Cultivating Apparatus, induced me to take advantage of it, and with the Machine I have effected that which I am satisfied could not have been done by any other means.

"The field we worked is 24 acres Swedes, fed off half of it in January, which was afterwards drained, and the remaining part of the Swedes was fed late in the spring; not finished till first week in April.

"Your Implement completed the 24 acres in 2¾ days' work, from 6 A.M. to 6 P.M., although the land was as hard as it possibly could be. The Oats were visible above ground in 18 days, and from present appearances I have a right to anticipate a good crop. Had the same field been cultivated with horses, I consider it would have taken a hundred or more; and then I am sure the Oats would only partly have appeared above ground, the weather was and has remained so very dry.—Yours very faithfully, "F. BATTCOCK.

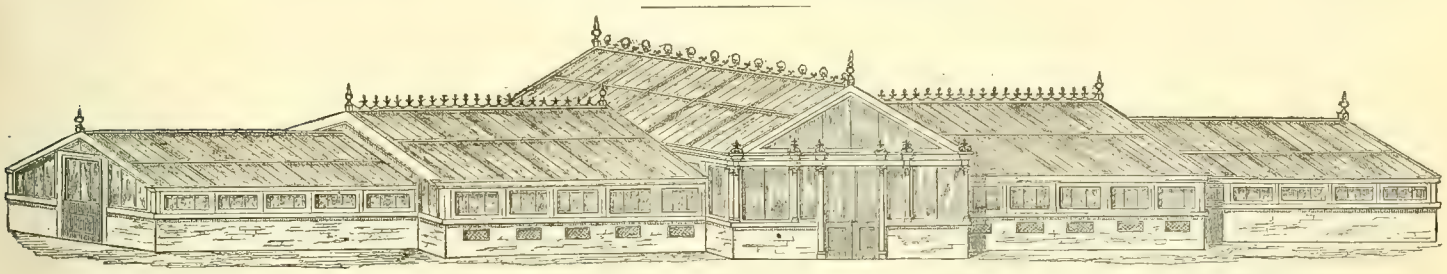
"W. Smith, Esq."



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

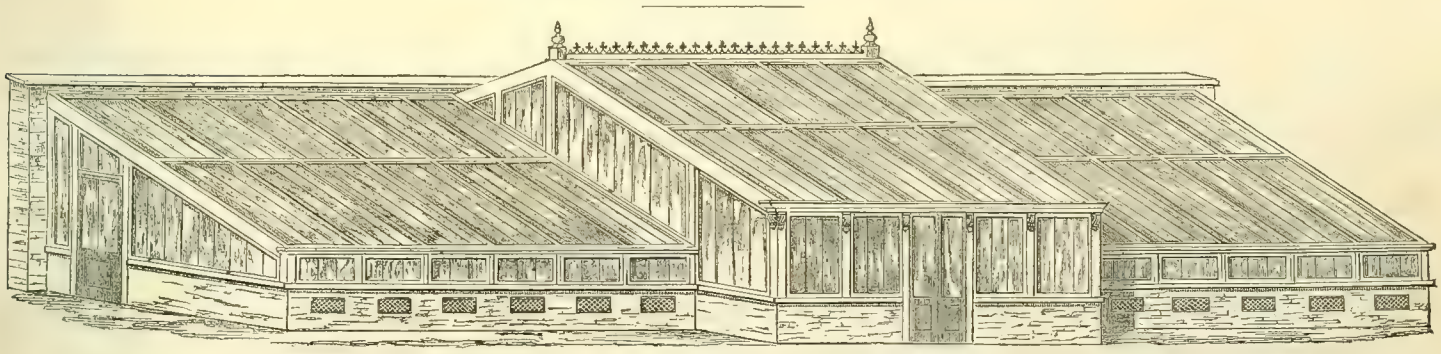
LOWEST PRICES AND BEST MATERIALS.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

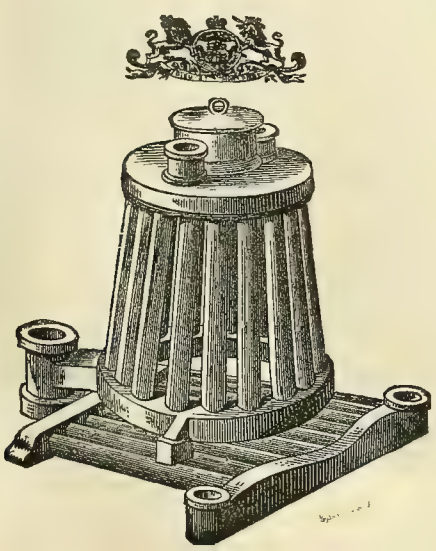
MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

THE FOLLOWING IS THE REASON WHY

ORMSON'S ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become so universally adopted on account of their superior power, great safety, and economy.



ORMSON'S No. 1 BOILERS	are heating upwards of	250	feet of Pipe.	
ORMSON'S No. 2 BOILERS	„	„	600	„
ORMSON'S No. 3 BOILERS	„	„	1300	„
ORMSON'S No. 4 BOILERS	„	„	3500	„
ORMSON'S No. 5 BOILERS	„	„	7000	„

Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

HENRY ORMSON begs most respectfully to announce that very little inconvenience has resulted to him from the recent Fire on his Premises, and that Business will continue to be conducted in the usual manner.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,

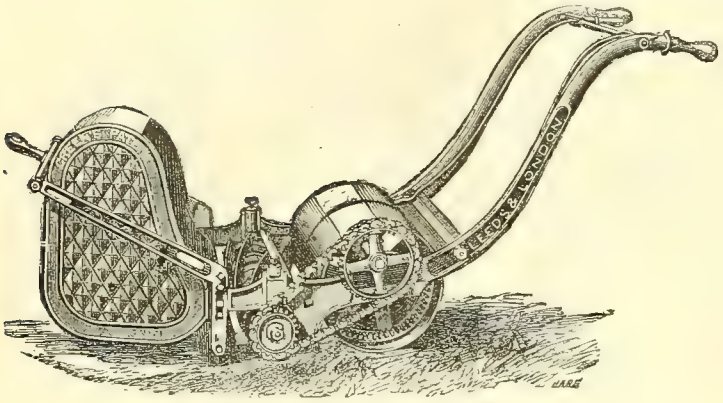
AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

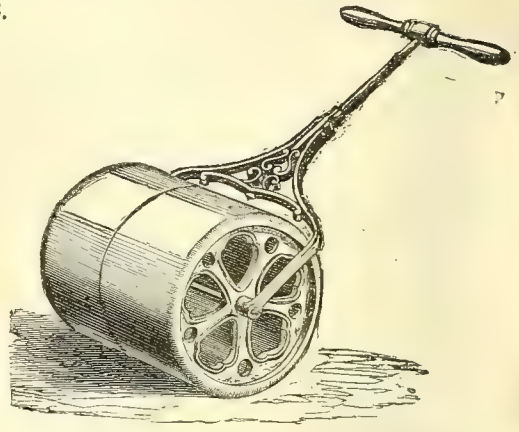
GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS,

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS

DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

The Patentees, after the long experience they have had in the MANUFACTURE of LAWN MOWERS, have come to the conclusion that three things are essential to constitute a real and efficient Implement, namely, Simplicity of Construction, Durability, and General Practicability, and they are glad to be able to state that they have combined the three, and that their Machines are unequalled not merely by giving satisfaction for one or two seasons, but by their long durability.

Upwards of 14,000 of the above Machines have been sold since the year 1856, and thousands of letters have been received by the Patentees testifying to their efficiency. They do not deem it necessary to publish more than the two following :—

TESTIMONIALS.

"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"Dear Sir,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, Geo. Eyles."

"Royal Gardens, Windsor, March 27, 1863.

"Dear Sir,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

"To Mr. Green." "Yours very truly, Thomas Ingram."

PRICES.

						If with Patent Delivery Box.
To Cut 10 inches	£3	10	0	Suitable for a Lady.		
„ 12 „	5	0	0	Suitable for One Person. If with internal gear, 10s. extra.		
„ 14 „	5	10	0	Do. Do. Do. Do. 10s. extra.		
„ 16 „	6	10	0	Suitable for One Man or Two Boys.		
To Cut 18 inches	£7	10	0	Suitable for One Man and Boy	£8	15 0
„ 20 „	8	0	0	Do. Do.	9	5 0
„ 22 „	8	10	0	Suitable for Two Men	9	17 6
„ 24 „	9	0	0	Do. Do.	10	7 6

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	£12 10 0
„ 26 „	12 10 0	13 12 0
„ 30 „	16 14 0	18 0 0

Leather Boots for Donkey, 16s.; for Pony, 20s.

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	£21 10 0
„ 36 „	23 0 0	24 16 0
„ 42 „	26 0 0	28 2 0
„ 48 „	29 0 0	31 8 0

Leather Boots for Horse, per set, 1l. 4s.

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5s. | Diameter 16 inches, length 17 inches, price £2 10s. | Diameter 24 inches, length 26 inches, price £4 5s.
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

PORTABLE and FIXED STEAM ENGINES; COMBINED THRESHING, SHAKING, and WINNOWING MACHINES; REAPING and MOWING MACHINES; BONE CRUSHING MILLS; CORN CRUSHING and BEAN SPLITTING MILLS; CHAFF CUTTERS; TURNIP SHEARS and PULPERS; IMPROVED HAY-MAKING MACHINES, and HORSE RAKES; CLOD CRUSHERS, and WROUGHT IRON FIELD ROLLERS; PLOUGHS, HARROWS, and CULTIVATORS; VERANDAHS; PATENT HYDROPULT, and all kinds of GARDEN ENGINES and SYRINGES; GARDEN CHAIRS and TABLES; ORNAMENTAL FOUNTAINS and VASES; GARDEN TOOLS; PREMIUM CONTINUOUS IRON FENCING and HURDLES; STRAINED WIRE FENCES, of all kinds; ESPALIER FENCES; GAME-PROOF WIRE NETTING and TRELLIS WORK; ORNAMENTAL and PLAIN ENTRANCE, WICKET, and FOOTPATH GATES; WROUGHT IRON FIELD GATES; TREE GUARDS; CATTLE and PIG TROUGHS; SHEEP RACKS; WASHING and WRINGING MACHINES; FIRE-PROOF IRON SAFES; IRON WHEELBARROWS; IMPROVED IRON STABLE FITTINGS;

and every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;

and MANUFACTURERS of all kinds of IRONWORK for the IMPROVEMENT or EMBELLISHMENT of LANDED PROPERTY.

Illustrated Catalogues on application.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

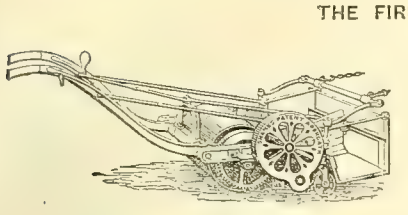
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

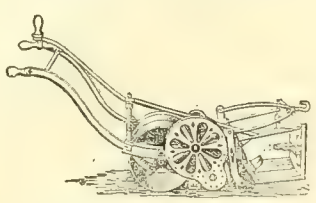
WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

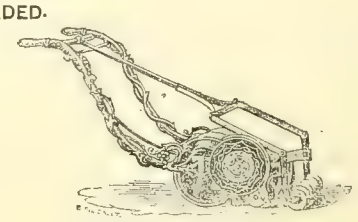
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	40*s.* „
No. 3.—36-inch Machine ...	22 0 0	30*s.* „
No. 4.—30-inch Machine ...	19 0 0	30*s.* „

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine ...	£15 15 0	30*s.* extra.
No. 6.—28-inch Machine ...	14 10 0	30*s.* „
No. 7.—25-inch Machine ...	12 10 0	25*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine ...	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine ...	8 7 6	
No. 10.—19-inch Machine ...	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine ...	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine ...	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £5 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

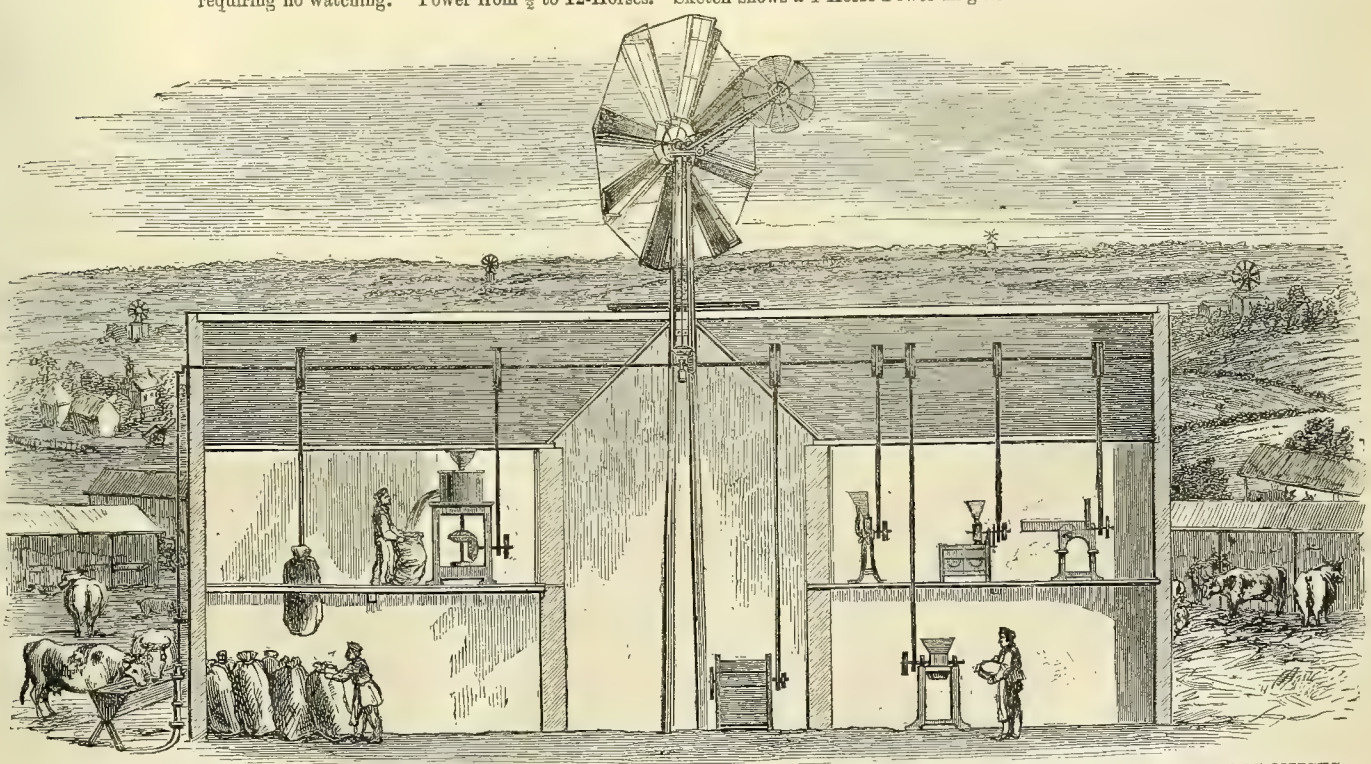
A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

ROYAL AGRICULTURAL SHOW, WORCESTER.—STAND 310.—MACHINERY IN MOTION YARD.

WIND ENGINE,—Patent Self-Regulating, for

PUMPING, OAT-CRUSHING, THRESHING, GRINDING, CHAFF-CUTTING, SAWING, OR DRIVING OTHER MACHINES

For FARM PURPOSES most economical.—Costing nothing to work.—Erection simple and cheap. For PUMPING PURPOSES invaluable, working day and night, requiring no watching. Power from ½ to 12-Horses. Sketch shows a 4-Horse Power Engine as used on Farms.



The LORDS of the ADMIRALTY, the VICEROY of EGYPT, NOBLEMEN, PRACTICAL FARMERS, PUBLIC INSTITUTIONS, and COLONISTS, now use these ENGINES for all purposes.

BURY AND POLLARD, SOLE MANUFACTURERS,

PARK IRON WORKS, NEW PARK STREET, SOUTHWARK, LONDON.

Roses.

The ROSES at the WALTHAM CROSS NURSERIES are NOW in FULL BLOOM.

MR. WM. PAUL respectfully invites all lovers of this popular flower to visit and inspect them. TWENTY FIRST PRIZES and NINE SECOND have been awarded to him for ROSES during the present year, and above 100,000 Plants are now growing in these Nurseries. Waltham Cross is 11 miles from London, and a first-class station on the Great Eastern Railway. It is also a delightful drive from the West-end of London, through Tottenham, or the Green Lanes and Enfield.

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A NEW GENERAL PLANT CATALOGUE, containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Herbaceous and Alpine Plants, Roses, Hardy Trees and Shrubs, Fruit Trees, &c.

With a DESCRIPTIVE LIST of New, Beautiful, and Rare Plants.

Paradise and Victoria Nurseries, Holloway, London, N.

New Seed, 1863.

DOBSON'S UNEQUALLED SEEDS of CALCEOLARIA, CINERARIA, and PRIMULA, for present sowing. Unequalled in the United Kingdom. A Group of Calceolarias is figured in the July Number of the *Floral Magazine*.

TESTIMONIAL (unsolicited).

Dalny, near Forres, N.B., June 17, 1863.

"Gentlemen.—I request of you to send me a 5*s*. packet of your magnificent Calceolaria Seed. My plants are now in all their glory, and the admiration of all who have seen them. The front shelf of my conservatory, 90 feet long, is in one blaze.—Yours respectfully, NORMAN MACLEOD."

"To DOBSON & SONS."

We have had the pleasure of executing orders for the following Florists and Seed Growers, among many others, within the last 12 months.

Those marked thus * are Agents for our Calceolaria Seed.

Messrs.	Messrs.
Anderson, Durham	Harris, Bristol
Abrahams, Limerick	Henderson & Sons, Brechin
Allman, Horsham	Hunter & Co., Bristol
Barnes, Camberwell	Hogg, Newcastle-on-Tyne
Brown, Brighton	Hinxman, Salisbury
Bunn, Cockermouth	Hewison, York
Bridges, Cheltenham	Hobson, Easingwold
Brownlees, H. Hempstead	Keynes, Salisbury
Bunyard, Maidstone	Knight, Hailsham
Bennett, Dulwich	Kitley, Bath
Barker, Godalming	Kinghorn, East Sheen
Brewer, Birmingham	Laing, Twickenham
Battley, Rugby	Laing, Beverley
Christie, Leatherhead	Langston, Maidenhead
Carter & Co., Holborn	Legge, Gosport
Cutbush, Highgate	Lawson & Son, Cheapside
Catleugh, Chelsea	Lee, Hammersmith
Clingo, St. John's Wood	Morse, Dursley
Courcha, Victoria Park	Milne, Bradford
Carpenter, Bath	Monro, Barnet
Caldwell, Knutsford	Marsh & Co., Northampton
Chater, Cambridge	Martin & Son, Hull
Clark, Lewisham	Meikle, Folkestone
Chater, Braintree	North, Lee
Cumming, Eccles	Osborne, Bridlington
Cox, Ludlow	Oswald, Birmingham
Caparn & Son, Newark	Protheroe & Co., Leytonstone
Crossland, Sheffield	*Paul & Son, The Old Nurseries, Cheshunt
Cant, Colchester	Plymouth Seed Company
Cattell, Westerham	Perkins & Son, Coventry
Callingford, Islington	Perkins, Northampton
Carstairs, Edinburgh	Poynter, Taunton
Dancer, Fulham	Pettit, Bury St. Edmund's
E. P. Dixon & Son, Hull	Page & Toogood, Southampton
F. & A. Dickson, Chester	Proffitt, Birmingham
Drummond, Dublin	Pettigrew, Manchester
Dolton, Newbury	Paul, Walthamstow
Dickson & Co., Perth	Padman, Boston Spa
Dickson & Brown, Manchester	Power, Waterford
Darby, Cirencester	Parsons, Brighton
Debron, Ely	Piper, Haverstock Hill
Dillistone, Sible Hedingham	*Rollisson & Sons, Tooting
Daly & Son, Coleraine	Rivers, Sawbridgeworth
Dean, Shipley	Sutton & Sons, Reading
*Dickson, Hogg, & Co., Dublin	Sandy, Stafford
Epps, Maidstone	Simons, Gt. Malvern
Edwards & Son, Wells	Steel, Richmond, Surrey
Fennessy & Co., Dublin	Stewart, Norwich
*J. & J. Fraser, Lea Bridge	Scott, Yeovil
Fryer, Camberwell	Sang & Sons, Kirkcaldy
Fells, Hitchin	Scott, Chichester
*Fraser, Richardson, & Goad, 82, Bishopsgate Street Within	Stuart & Mein, Kelso
Fowler & Son, Glasgow	Sharpe & Co., Sleaford
Fuller, Newton Abbot	Surman, Wandsworth
Finney & Co., Gateshead	Southby, Clapham
*Garaway & Co., Bristol	Sealey & Co., Bristol
Grimbley, Stoke Newington	Toole & Co., Dublin
Gibbons, Folkestone	Tyso, Wallingford
Godwin, Sheffield	Thomson, Northampton
Glendinning, Chiswick	Tiley, Bath
*Glenny, Fulham	Veitch, Chelsea
Harrison, Darlington	*Vilmorin & Co., Paris
Holmes, Hackney	Wheeler, Warminster
*Hurst & Son, 6, Leadenhall Street, City	Walker, Thame
Hannaford, Teignmouth	Whomes, Windsor
Halford, Syston	Wood, Maidstone
Hodge, Ulverstone	Wood & Son, Maresfield
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	Whitham, Mottram
	Willmer, Sunbury

In ordering be particular in asking for DOBSON'S SPLENDID HYBRIDIZED SEEDS, which are in sealed packets, and without which none are genuine.

CALCEOLARIA, 1*s*. 6*d*., 2*s*. 6*d*., 5*s*. 6*d*., and 5*s*. each.
CINERARIA, 1*s*., 2*s*. 6*d*., and 5*s*. each.
PRIMULA, 1*s*., 2*s*. 6*d*., and 5*s*. each.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

LILIUM AURATUM.

MR. JAMES VEITCH

Has the pleasure to announce that he has several specimens of this magnificent NEW LILY NOW in BLOOM, and will be happy to show them to any one who may favour him with a VISIT.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

THE OLD ESTABLISHED

ROYAL SOUTH HANTS SEED ESTABLISHMENT,

37 & 38, OXFORD STREET, SOUTHAMPTON.

The Five Years PARTNERSHIP between PAGE AND TOOGOOD having elapsed,

BRIDGEWATER PAGE,

SEED GROWER AND MERCHANT,

Has great satisfaction in explaining that, although it was specified in the Deed of Arrangement, that as the Senior Partner he should have a right to make the first selection from the OLD STOCK, he has not done so, but received an entirely new Stock from the original sources, which will enable him to guarantee a genuine article.

True Burbage Green Round Turnip, New Seed, 6d. per lb.

New Dwarf Essex Rape.

Mustard.

Trifolium incarnatum.

Trifolium incarnatum, New Late White.

Trifolium incarnatum, New Late Red.

BRIDGEWATER PAGE having had the pleasure to supply JOSEPH BLUNDELL, Esq., of Bursledon, and other leading Agriculturists with the two late varieties of TRIFOLIUM, can confidently recommend them.

Finest Permanent Pasture and Lawn Grasses.

As sown at the Royal Farms, the Southampton Parks, &c.

In this department BRIDGEWATER PAGE has always been most particular in giving his INDIVIDUAL attention to the selection which has for so many years given such satisfaction to all who have favoured him with their commands.

Carriage free to all parts of England. Special Contracts for large quantities.

The name of PAGE having been established by the sale of GENUINE SEEDS for more than HALF A CENTURY among the leading Agriculturists of the United Kingdom, will be a SUFFICIENT GUARANTEE that the best article will always be supplied.

It is particularly requested that all letters be addressed
BRIDGEWATER PAGE, OXFORD STREET SEED STORES,
(FACING THE RAILWAY STATION, SOUTHAMPTON).

W. TOOGOOD,

(LATE PAGE AND TOOGOOD),

SEED GROWER AND MERCHANT,

58, ABOVE BAR, SOUTHAMPTON,

Has the pleasure to announce that the Partnership, heretofore existing between himself and Mr. W. B. PAGE, Jun., has been dissolved by mutual consent as per advertisement, and all the stock, debts, and effects of the late Firm, except the fixtures in the shop in Oxford Street, having by arrangement been assigned to him, he has removed the same to the old place of business, Above Bar, where he, in future, will conduct his trade in all the branches of the late Firm.

The GARDEN, AGRICULTURAL and FLOWER SEED DEPARTMENTS will still receive his "personal" attention. He will continue to attend his own Markets (he will be represented by his Agent Mr. J. W. GREEN at those usually otherwise attended by the late Firm), and from his having had the entire management of the Executive Department since 1850, the same promptitude and attention as during that period may be relied upon.

For PRESENT SOWING he begs to offer, carriage free by rail, the selected STOCKS of TURNIPS, as per List, to which so many Prizes have been awarded the Customers of the late Firm. He has also ready for immediate delivery—

New Seed of Fielder's Hardy Green Round, 6d. per lb., 24s. per bushel.

New Rape, 3d. per lb., 12s. per bushel.
Mustard, 3d. lb. Cattle Cabbage, 2s. 6d. lb.

If the harvest is favourable he has arranged for a large supply of

Trifolium tardif à fleur blanche, | **Trifolium tardif à fleur rouge,**

the two New Late Flowering TRIFOLIUMS recently introduced from France, the successional value of which has been fully proved by the practical tests of Mr. J. BLUNDELL, M. DUPLESSES, C. PENRUDDOCK, Esq., and others.

For COMMON TRIFOLIUM, RYE, WINTER OATS, WINTER BARLEY, WINTER VETCHES, and WINTER BEANS, early orders will ensure delivery in good time, and the lowest price consistent with best quality will invariably be charged.

PERMANENT PASTURE and LAWN GRASSES, as sown at the Royal Farms, Osborne, for the past 10 years, the Southampton Parks, &c., all of which were selected and mixed by the Advertiser personally.

The Rev. T. BACON, *Kingsworthy, December* 10, 1860, *says*:—

"I have great pleasure in stating that the pasture which you laid down for me in the Spring has been a great success, so much so, indeed, as to attract the constant inquiries of passers by. Within four months of sowing, it bore an excellent and abundant crop of Hay, and it has been continually fed off by cows and sheep ever since, with the exception of the three weeks immediately after mowing. For variety of herbage, equality of plant, and strength of growth, it is acknowledged by some of the best judges in this neighbourhood to be *most excellent*; it already wears the aspect of a rich and well established pasture."

To prevent mistakes it is desirable that all letters referring to the business of the late Firm, or orders for any of the foregoing, should be directed

W. TOOGOOD, ROYAL SOUTH HANTS SEED ESTABLISHMENT,
ABOVE BAR, SOUTHAMPTON.

Extra Strong Vines.

LUCOMBE, PINCE, AND CO., having devoted great attention to their GRAPE VINES, can this season offer a fine healthy Stock of strong Canes 6 to 10 feet long, of all the choicest sorts, fit for immediate planting, propagated from Eyes taken from their own experimental Vinery, which enables them to warrant each kind true to name.

Their experimental Vinery is now very finely in fruit, and they invite an inspection of it, and their stock of Vines.

LISTS of Sorts and Prices may be had on application.

Exeter Nursery, Exeter.

OPENING of the ALEXANDRA PARK, Muswell Hill.—Alexandra Park Company (Limited).—The ALEXANDRA PARK and GROUNDS, comprising 480 acres, situate about one mile from Hornsey, and adjoining the Wood Green Station of the Great Northern Railway, will be OPENED to the public on THURSDAY, the 23d inst., on which occasion, and on FRIDAY, the 24th, there will be a Grand Horticultural Fête, when prizes for Fruit and Flowers to the amount of 700*l.* will be awarded.

There will also be a Grand Archery Meeting on those days, when Prizes amounting to 200*l.* will be offered, further particulars of which will be speedily announced.

Four Military Bands will be in attendance.

The Flower Show will be held in an enclosure on the lawn of Tottenham Wood House. There will also be an ample supply of refreshments, for which Mr. Hart, of Radley's Hotel, is the purveyor.

The beautiful grounds of the Grove Estate, communicating with the Alexandra Park, will also be opened. The Grove entrance to the park is on Muswell Hill, and the entrance to Tottenham Wood is in close proximity. They are about half-an-hour's drive from the Regent's Park, and the time of transit from the Great Northern Railway Station, at King's-cross, to the Wood Green Station, is about 15 minutes.

Tickets of admission to the flower show, on Thursday, the 23d, will half-a-crown; and on the 24th, 1*s.*

All information in reference to the Flower Show may be obtained of Mr. Alexander Mackenzie, Tottenham Wood House, Muswell Hill, Hornsey. Mr. Buchanan, archery manufacturer, 215, Piccadilly, W., will give the necessary information in reference to the Archery Fête, on and after the 6th inst.; and all further information and particulars may be obtained on application at the Company's Offices, 12, Tokenhouse Yard, London, E.C.

Accommodation for horses and carriages will be provided at Tottenham Wood House. By order, E. K. PARKINSON, Sec.

ALEXANDRA PARK COMPANY (Limited).—OPENING of the PARK.

GRAND HORTICULTURAL and ARCHERY FETES, THURSDAY, 23d, and FRIDAY, 24th July, 1863.

The BANDS of
The 1st LIFE GUARDS,
The 2d LIFE GUARDS,
The GRENADIER GUARDS,
The COLDSTREAM GUARDS,
Will Perform.

ALEXANDRA PARK COMPANY (Limited).—OPENING of the PARK.

RAILWAY ARRANGEMENTS:—

Frequent SPECIAL TRAINS will run on THURSDAY, the 23rd, and FRIDAY, the 24th July, from the King's Cross Station to Wood Green and Back.

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.

LIST OF AWARDS, July 7, 1863.

FIRST-CLASS CERTIFICATES.

SELAGINELLA INVOLVENS, from Messrs. Veitch & Son, Exeter and Chelsea.

SELAGINELLA INVOLVENS VARIEGATA, from Messrs. Veitch & Son.

COMMENDATIONS.

NEMOPHILA AURICULÆFLORA, from Mr. Melville, Dalmeny Park.

VERBENA MAUVE QUEEN, from Mr. C. J. Perry, Castle Bromwich.

SPECIAL CERTIFICATES.

To Mr. Keynes, for a collection of 27 NEW ROSES.

To Mr. C. J. Perry, for a collection of 24 VERBENAS.

It was afterwards resolved:—

"That Mr. Treen having been invited to send blooms of his Verbena 'Rugby Hero,' the same have been examined in comparison with blooms of L'Avenir de Ballent sent by several members, and in the opinion of the undersigned they are identical. The First-class Certificate awarded in September last to 'Rugby Hero' is therefore hereby rescinded."

(Signed) JOSHUA DIX, Chairman.

JOHN KEYNES, CHARLES LIDGARD, GEO. SMITH, CHARLES TURNER, JOHN G. VEITCH, JOHN LAING, CHAS. JAS. PERRY, SAM. AINSWORTH, WILLIAM BARNES, ANDR. HENDERSON, F. R. KINGHORN, ARTHUR HENDERSON, JOHN SALTER, GEO. EYLES

THOMAS MOORE, Secretary.

The Gardeners' Chronicle.

SATURDAY, JULY 11, 1863.

Now that the Exhibition Building of 1862 is in course of removal, the time would seem to have arrived for the Fellows of the ROYAL HORTICULTURAL SOCIETY to consider how to finish their Garden. No one can suppose that however beautiful NESFIELD'S floral patterns may be, it could have been in the minds of its founders to leave the place as it is. It wants shady promenades, it wants shelter for tender plants, and most especially it wants to get rid in some degree of its ugly useless tumbledown frame, now dignified by the name of Arcades: the wretched botch, we believe, of a certain Works Committee to whose incompetency their design was somehow left. If we are rightly informed the subject has already been under discussion, and report says that some such scheme as the following has been suggested by no mean authority.

It will be remembered that the Garden represents a long horse-shoe, the toe of which is to the north, adjoining the Kensington Road, the east and west sides are next Exhibition Road and Prince Albert's Road respectively, while the heel end to the south is bounded by the ground on which the International Exhibition Building is still standing. North east and west there are considerable pieces of waste land available for any public purpose, and the manner in which they are to be utilised is a very important public question. Report says that the suggestion we have referred to is of the following nature.

1. Pull down the miserable back wall of the East and West Arcades, and replace the lath and plaster which the geniuses at the Boilers have provided there by a long conservatory front, in which may flourish groves of Camellias, Tree Rhododendrons, tender Roses, and all manner of beautiful Exotics which demand little more than shelter in winter. If the arcades are closed with glass on the side next the interior of the Garden, the finest conservatory in the world would be readily formed at a moderate cost; summer exhibitions could be held in it, and there would at all seasons be a most enjoyable covered garden, to which invalids might resort without danger.

2. In the next place, between this conservatory front and the Prince Albert and Exhibition roads plant fast-growing umbrageous trees, so managed as to look as if an extension of Kensington Gardens or Hyde Park; no riders, no carriages, to be admitted within its boundary, the whole being strictly kept as a Promenade.

3. As to the North side next the Kensington Road, that might be laid out in a similar way by extending the proposed east and west sides right and left, till they met at the back of the Society's beautiful Conservatory.

Then indeed the West of London would have something more magnificent and useful than now exists to be proud of, especially if the South side where the Exhibition Building stands were made to harmonise with the other part of the plan proposed, as it easily would do if the north side of the Cromwell Road were planted with fine trees, as it ought to be.

Such is the vision seen by the gentleman to whom we have alluded, and it is much to be desired that he should give his views a substantial form. Let us hope too that the ventilation they are now likely to receive will encourage him to persevere, and that before the end of the present session something will have been determined on by men who are independent enough to brave the displeasure of the department of "Art and Science," or as some irreverently call it, "Artful Science." This at least is certain, that there is no time to lose.

THE LOVE OF ORCHIDACEOUS EPIPHYTES bids fair to rival that of Roses. Every one who can contrive a place fit for their growth is looking out for specimens, and we should not be surprised to find them sold as cheaply. Such at least may apparently be inferred from an auction of that most noble species, *Cattleya superba*, which took place last Saturday in STEVENS' Rooms. Some collector in tropical America lately sent home no fewer than 400 plants, which were divided into 75 lots, and knocked down in some cases as low as 2*s.* 6*d.* and 3*s.* each plant, while the larger number averaged only 5*s.* or 6*s.* each. A whole box full of imported *Phalænopsis*, *Saccolabium*, *Vanda*, and *Aerides suavissimum* fetched only 7*l.* 5*s.* on the same occasion; and a second, enriched with *Cypripediums* and *Cœlogynes*, went no higher than 15*l.*, or about 10*s.* each plant.

Good news this for beginners, whose apprenticeship will no longer be too costly to be pleasant.

There are however still great buyers in the field, as was shown by an *Odontoglossum nævium* having been knocked down for 14*l.* 8*s.*

NOW that the great summer EXHIBITIONS OF PLANTS AND FLOWERS have come to an end for the present season, it may be useful to look back and see if there be anything in them to imitate or avoid in the conduct of those of another year.

The first observation we would make in reference to them is this, that the art of cultivation, for which our British gardeners have so long been famous, has not retrograded in the hands of those who now practise it. Never have better examples of cultivation been seen than those which have thronged our flower halls and flower tents during the year of grace 1863; and never in any previous year have these arenas of horticultural conflict, whether hall or tent, been more copiously or more worthily filled. We leave out of view the question whether industrial palaces or monster tents are the fitter places for flower shows, or whether something better than either might not be found. Doubtless each of them has its advantages, as they both certainly have their disadvantages; but on the whole the experience of 1863 will not, we think, raise any regret, in the minds of exhibitors at least, that no more shows can be held in the great "domed" caravansary, where huge specimens were dwarfed into apparent pigmies, and cut flowers were too soon exhausted of their juices and their freshness.

Then we remark that these monster flower-shows, which come so closely on each other's heels, have become wearisomely numerous, at once a toil to those whose unremitting watchfulness is necessary to bring forward the precious materials which compose them, as well as to those who are entrusted with their organisation, and to those who have the much easier task of looking on—if we may judge of the latter class of persons by the manner in which they saunter carelessly past objects on which sometimes years of toil and care have been expended, and to which at least no ordinary skill and some months of unremitting attention must have been devoted to make them what they are. Yet for all this, we hardly dare counsel the reduction of their number, for the double reason that as a whole they are attractive still, and under favourable circumstances at least, they are financially successful. Rumour, indeed, with her many tongues, has whispered of contemplated reduction—not of exhibitions but of prizes; but we can hardly think so fatal a course can have been seriously thought of. Certainly if it were desired to adopt the readiest means by which to ruin flower shows, that is one of the first of which trial should be made. Exhibitors are assuredly not overpaid by the prizes they gain, and they deserve at least equitable treatment. Without them, it should be remembered, there could be no shows.

Then, as a third point, we venture to think the Kensington authorities were in error in blending their Rose Show with their third great summer exhibition; as they assuredly were in excluding all gay flowering plants, such as Orchids, Ixoras, Dipladenias, Pelargoniums, &c., from this same third show; the consequence being that though interesting enough in detail from the presence of the Roses, it was not effective but dull, taking a general view of its aspect. In a word, it was not a good finish to the summer campaign. The Rose as the regal flower is, we maintain, quite worthy of a show to itself, and Rose levees, moreover, are always so well attended as to be decided successes; so that taking this lowest view of gain, we must urge that no good reason has been found why Roses should be swamped in a general exhibition. What we would suggest in preference is this:—that a Rose Show should be held about the end of June or beginning of July, as may best suit the prospects of the season, and then, that the "third" great show should be pushed on as far into July as possible—for this, amongst other reasons, that a new set of plants would thereby be rendered necessary. In this way something of freshness in the plants themselves might be hoped for, and probably along with it diversity of kinds to some small degree at least, by the acquisition of later blooming subjects; and though Pelargoniums of the show classes might be past, this arrangement would just hit the season for those charming horseshoe varieties which are not scarlets—the roses, cerises, salmons, and whites, all lovely plants for pot culture, and just the thing for exhibitions, but never yet brought out because never properly invited. A late July show such as we contemplate, would be quite the season too for a grand display of Orchids, being a time of year at which the possessors of these treasures would not grudge to bring them out in public, so much as they do in the earlier and often chilly season of May. And then, this would also be the season for the beautiful and fragrant Carnations and Picotees, a thorough-going exhibition of which would we suspect be as popular as one of Roses, and certainly much less familiar to sight seers. Indeed, the institution of a late July show, to give the plant-growers breathing time, and to afford opportunities for bringing out the various-coloured zonal Pelargoniums already alluded to, together with Picotees and Carnations, and late summer Orchids and stove plants, appears to us to be one of the most desirable arrangements that could be brought about to ensure something like freshness of character; it being understood that a separate and distinct Rose show should be held previously.

So much for generalities. There are some matters of detail on which we have a word or two of comment. Hyacinths have been grand at all the spring shows; and their lively colours and cheerful green undoubtedly give them the precedence

at that season. Very fine indeed were the displays made both at Kensington and the Regent's Park. We do not advise their appearance so early as February however; indeed it is questionable whether exhibitions of any kind so early as the month of February are desirable: we incline to think not. Camellias have as yet been little better than failures, so far as forming the elements of a display, and this applies both to plants and cut flowers, in both which forms they are undoubtedly capable of being turned to good account. Indeed good stands of cut Camellias might be, in spring, as attractive as are Roses in summer. We trust, notwithstanding this partial failure, that they will not be withdrawn from the schedules, but in order to induce growers to take the necessary trouble with them it may be necessary to offer better prizes, protected perhaps by a clause withholding them from examples of inferior growth. Exhibition Camellias are not to be grown up hastily. Cinerarias, another of our gay spring flowers, have not been so good as they were sometimes formerly seen, and it appears to us that after the earliest spring show, at which they should have full and fair encouragement, they should be omitted altogether, and the prize-money offered for subjects better suited to the season. If we were schedule makers we would most assuredly invite with a liberal hand new Roses, either of the current, or of the preceding year, or both; for those who have the sorts to exhibit, always have them in active growth at this late spring season, and the offering of prizes in this way would lay the foundation for the production of newer varieties at the summer meetings, by inducing the training up of specimen plants.

Passing on to the subjects of the great shows as they are called, our first remark is that Orchids are looking up; they have been gradually recovering from the low position into which they had fallen a few years back; and we now again see some respectable collections and some magnificent specimens from time to time brought out. New exhibitors also appear in the field, which looks well. A new kind of Orchid tub has been seen on one or two occasions this year, but we cannot say that it was a success beyond the element of convenience, which it had no doubt. With this estimate of its merit our readers will probably agree, when we state that it was after the model of a butter-tub with longitudinal slits in the staves, and with jointed iron handles at the sides, and that it was painted Venetian red. Azaleas have appeared in a state of magnificence probably unprecedented both as regards size and brilliancy; and among these, in one case at least, the application of our test, "all round alike" (see p. 579), was necessary to determine which were the best. They are getting too large: too unwieldy for travelling, but we fear the monster plants could not now be done without. We should miss them assuredly. Pelargoniums have been shown this year surpassing, we believe, all that have ever gone before them—perfect marvels of growth and blossom. Of Fuchsias we can only say that they have not been so good as last year, though some collections have appeared of tolerable general merit. The growers must go back to young plants. Here, if we had a class of yearlings for new sorts, to be grown as good as they could be the first year, and then carried on the following season for large specimens, we should gain more variety and more interest; and notwithstanding the protest of the growers, we believe we should have better specimen plants. At any rate the older samples have not this year made the impression that Fuchsias were expected to make. Of pot Roses, what more shall we say? Some were good, almost perfect; some, as we have already stated (p. 579), were worn out. Here, too, we must have spring classes for the new Roses, so as to train up a set of show plants of the more novel and choicer sorts, in order that it may soon be possible to discard some of the older and inferior kinds altogether. Indeed certain of those which have appeared this year must never appear again, if they are expected to win.

One remark as to fruit. The Black Grapes have been on several occasions superlatively fine; but the White ones, we allude to Muscats chiefly of course, have been so generally and so completely unripe, that it has been held to be a crime to cut fruit in such a state, and serious proposals have been made, by the lookers-on at least, if not by the officials, to censure publicly in future those who have the bad taste to send fruit in such a condition.

In conclusion we may ask what element of variety can be imported into our future shows? If in reply we whisper, try Florists' flowers, we trust the gentle breathing may not seriously perturbate our great plant-growers. In a quiet little nook of one of the last series of spring shows at the Regent's Park and also at Kensington, we saw a respectable muster of quaint-looking Auriculas, more indeed than has of late years appeared at these general shows. Now these quaint flowers attracted a goodly proportion of admirers from among the assembled throng. Let them be tried again, and let the inducement to bring them be rather extended than curtailed. As a pleasure-giving element of the day's programme, even outside the circuit of the fancy, we venture to say they will be worth their cost.

Then why not drop in somewhere in May with a hearty good show of Pansies, pot plants, and cut blooms? These flowers have of late only been admitted on sufferance, but they are showy things, generally attractive, and, now that we have so many "fancies" amongst them, they are sufficiently removed from monotony. We advise their introduction. In June come the Pinks: let us have a good display of Pinks, and see how they take; let us have them as the "fancy" wishes, and let us have them in pots, too, not for the impossible object of trying to please everybody, but for variety's sake, and to try to please some. One does not see why a decent Pink should not be grown in a pot, judging from the samples we see produced amongst forced flowers; but of course we would stipulate here for some quality as well as some display. In July, as already intimated, we would have the zonal Pelargoniums which are not scarlet, these being especially mentioned from their being so thoroughly adapted for pot-culture and for exhibition, and much less so for bedding. Besides these we venture to affirm that a really good display of Carnations and Picotees, brought together by suitable encouragement, would create quite a sensation amongst the visitants of our floral fêtes. Here then is a fair amount of freshness and variety for one season.

We shall be ready to afford space in our columns for the discussion of these and similar matters now, before the time comes for arranging the prize schedules of another year.

PLANT LICE.

AMONGST the pests of horticulture it is impossible to pass over a multitude of small insects commonly known by the name of Aphides, or plant lice, all equally mischievous, but varying in colour, being sometimes yellow, green, black, or white, either lively and moving about, or motionless and adhering to the leaves and covering the stem. What has not been tried—what has not been invented for the destruction of these abominable plagues?

Even lately we read in the new "Journal des Connaissances utiles" (1853-54) that at the Museum of Natural History, the Apple trees had been so violently attacked by the Aphis lanigera, that the authorities had thought it necessary to cut the trees nearly all down, but M. Pilloy had at last discovered a liquid which had the property of freeing the trees from their dangerous parasites. This is indeed a fine discovery, and it only remains to know of what this valuable liquid is composed; but unfortunately the "Journal des Connaissances utiles" seems to have thought it quite unnecessary to tell us. In revenge, we find in vol. vii. (1859-60), the following receipts for getting rid of this insect:—

FIRST RECEIPT.—Put 10 centimes of smoking tobacco, 10 centimes of white soap, and 10 centimes of sulphur, into six glasses of water and boil them. Wash the branches which are attacked, with a brush steeped in the composition. It can be employed against all kinds of insects.

SECOND RECEIPT.—Put equal quantities of fresh urine and stale soap suds into a well closed vessel, leave it 48 hours, taking care to shake it up occasionally. Wash the branches as before.

In another volume of the same, we find a record of the following processes. Tobacco fumigations for aphides. Washings with vinegar, followed by a white-washing of the stems with lime and potash. Liming to destroy Kermes. Later in the 9th volume, we are recommended a solution of chloride of lime, as a still more efficient receipt for the destruction of aphides.

The "Journal de la Société Impériale et Centrale" also gives us in 1862 a succession of remedies, more or less efficient no doubt, as in former years, but which we hesitate to transmit to our acquaintances, as experience ought to be the only guide in such matters. In the first place the leaves of Stramonium are mentioned as a substitute for fumigating with tobacco. Certainly the poisonous odour given off by this kind of Datura when the leaves are rubbed between the fingers, makes it appear at first sight as if it might be efficacious. Only we have ourselves already tried so many methods of fumigation, so many decoctions, &c., &c., that we have at last come to doubting the virtue of everything at first. Granting, however, that Stramonium is a good substitute for tobacco, we think it necessary to caution those who read this, that care is required in the use of the plant, for the poison contained in it is of an excessively dangerous kind.

There would be much less inconvenience attending the use of Tomato haulms, as M. Behlke tells us in the "Monatschrift für Pomologie." In fact, it was not until M. Behlke had consulted the "Magasin de Neubert" (1860), and M. Lucus' work upon Kitchen-gardens, that he thought of boiling Tomato haulms, with which decoction to wash the leaves and branches of his fruit trees that were infected with Aphides, and even of plunging them in in some cases. The German author having met with perfect success, asks what more simple means can be desired. True, the preparation of this liquid is very simple, which is the case in common with many of the others; but the great thing now is to find out if it is not less practicable than many of the others; and that is what we fear, for when it is necessary to wash the leaves and the branches of the trees, it requires a considerable time to do it in, and that it is not always possible to spare, when a large number of trees has to be operated upon. And, the efficacy of syringing with any of the liquids which have been recommended up to the present time is very doubtful.

At p. 571 M. Belhomme informs us of a new and almost infallible remedy: the water from the washing of benzine, which, according to him, can be easily procured at the chemists either in Paris or in the provinces. Mixed with an equal quantity of water, it kills mole-crickets; but since the use of it at the foot of delicate plants may hurt them, it is advisable in this case to use only the water, which may be poured off after it has stood for some days. This water, charged with the smell and soluble properties, but free from the oily and butyrose qualities of the benzine, has no corrosive effect upon the roots, though it still kills the mole-crickets. Add 5 grammes of chloride of lime par litre, and it destroys aphides upon Peaches, Apple trees, Roses and Elder, &c., and can be applied either by syringe, sponge, or a brush. All similar pests may be destroyed in the same way upon Pear trees, the Oleander, Orange trees, Bananas, and the Acacias of New Holland. The use of this wash pure will even kill ants.

For slugs and snails, the ground should be covered all round the foot of the plant with very fine sawdust which has been steeped for five or six hours in the liquid, according to the first preparation. Earwigs and woodlice cannot resist water simply impregnated with the smell. To get rid of the boring Cossus, it is necessary after having cleared its hole with a piece of iron wire, to insert into it some tow previously steeped for five hours in the liquid mixed with chloride of lime. The Scolytes which attack the Elm and Ash, perish if, after raising the pieces of bark behind which they are lodged, some washes of the same liquid are introduced. Finally M. Belhomme proposes, that since the substance is so cheap, it should be employed for syringing fruit trees infested with caterpillars. *Annales de la Société d'Horticulture de l'Hérault.*

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE Twentieth Anniversary Festival in connection with this Institution was held on Friday, the 3d inst., at the London Tavern, and was numerously attended.

The Chair was filled by the Right Hon. the Earl Ducie; and amongst the gentlemen present were H. Paull, Esq., M.P.; J. Clutton, Esq.; J. J. Blandy, Esq.; J. E. C. Koch, Esq.; Robert Wrench, Esq., Treasurer; Dr. Sewell, and others.

A superb array of flowers at the rear of the Chairman was generously supplied by Mr. Charles Turner, of Slough, and commanded great admiration. It consisted chiefly of magnificent Pelargoniums, and these were tastefully arranged with Caladiums, Petunias, specimens of the Delphinium formosum, Ferns, &c. Vases of beautiful flowers chiefly, we believe, from the grounds of Messrs. Lee of Hammersmith, adorned the tables. The dessert, for which the Society was indebted to the Duke of Buccleuch, Lords Stamford, Ducie, &c., was profuse in quantity and high in quality.

Mr. HARKER officiated as toast master. The Rev. J. M. BELLEW asked the usual blessing, and the cloth having been drawn, and the grace from the ancient *Laudi Spirituali* sung,

The CHAIRMAN briefly proposed "The Queen," drawing a happy comparison betwixt our form of Government and that of less favoured nations, and paying a warm tribute to the personal virtues of the Sovereign of these realms.

His LORDSHIP next gave "Their Royal Highnesses the Prince and Princess of Wales," in a few words remarking that, if genial manners and popular sympathies could secure the regard of all with whom they came in contact, they would assuredly have it. The noble Chairman concluded his brief remarks by a graceful allusion to the evidently careful manner in which they had been brought up, and which, throughout their lives, was likely to beneficially influence their services to the state.

His Lordship then, in a few appropriate words, gave "The Army, the Navy, and the Volunteers," especially remarking on the efficiency of the three services, adding that it might be dangerous for any enemy to attempt to interfere with old England; if they did, they might depend on it they would suffer for it.

Major ROBINSON having returned thanks in suitable terms,

The noble CHAIRMAN rose to propose the toast of the evening. We understood him to say that he would endeavour to embody the sentiments he desired to utter in very few words. He sincerely wished all prosperity, as he was sure every one present did, to the "Gardeners' Royal Benevolent Society." It was said, however, that it was not sufficiently supported. He was afraid that there was a great deal of truth in the assertion. The reason seemed to him to be that the gardeners, who should be its supporters, were so much scattered over the country; they had, in consequence, but little means of intercommunication. There might be a certain amount of such intercommunication; but still there remained comparatively little opportunity of interchanging their sentiments as to the operations of the Society, or of making known the advantages and benefits to be derived from it. If every gardener were to

urge on his employer the propriety of subscribing to its funds, large sums, and a consequently large addition to its coffers, would soon be secured. All he could say for himself personally, was, that he became a supporter of the Society through the solicitation of his own gardener. All gardeners, however, ought to make provision for the future by becoming, without delay, members of the Institution. In too many instances, men who had held positions as gardeners, and in trades connected with gardening, were unfortunately compelled to become recipients of the bounties of this charity. Delicacy, however, prevented him from mentioning their names. Men who might fairly have looked forward to securing—not merely the comforts, but even the luxuries of life, at an advanced age, had been unsuccessful, and yet, luckily for them, they had taken the precaution to become subscribers to this Society, and so had secured to themselves something of comfort in their declining days. He wished, therefore, that the donations could be increased, so that the pensions granted might be increased also. It must be remembered at the same time that though these desirable increases might take place, there would be none in the expenses of the Society. His Lordship then proceeded to give the following succinct outline of the institution :—It had been established in 1838, for the relief of aged and indigent gardeners and their widows, but for some four years it had made little or no progress. In 1842 an alteration was made in the management, since which time it had steadily and gradually risen and progressed in public estimation. It now afforded relief, by means of pensions for life to 56 poor persons, all of whom had held first-class situations as gardeners, or had been nurserymen or seedsmen, or were widows of such. The amount of pension granted to males was 16*l.* each per annum; that to females, 12*l.* per annum. The expenditure in pensions was about 800*l.* per annum, and was defrayed from the annual subscriptions, from the donations at the annual dinners, and from the interest of the funded stock. Donations of upwards of 5*l.* 5*s.* were invested in the Three per Cent. Consols or other Government securities, in the names of the Trustees. The main object of the Institution was to inculcate habits of prudence, by inducing gardeners to subscribe to the funds of the Society, and thus lay by for themselves a small annuity, in the event of want or distress overtaking them in their old age. No person could be eligible for the pension who had not been a subscriber for fifteen years and upwards After a few general remarks on the mode in which the affairs of the Society were managed, his lordship concluded by directing attention to the cause of the epidemics which had decimated nations on account of the want of vegetables—to the fearful results of such want in the North of Europe in the middle ages—and to the absolute necessity which existed for the supply of such anti-scorbutics. The noble Earl, as a last word, begged their hearty co-operation in endeavouring to increase the funds, and thereby the usefulness of so excellent an institution.

The Rev. J. M. BELLEW then rose to propose the health of "The Chairman." There were (he said) several popular subjects that were waiting, as it were, for an answer by way of definition. One of these subject-matters in the form of a question, was, "What is an English gentleman?" One had said his idea was that an English gentleman was he who had a fine country seat and a clear rental of 10,000*l.* a year. No doubt he was right. Another, however (one domiciled in Newgate), when asked what his definition of an English gentleman was—answered, "a gemman wot drives a shay." Between these degrees, however, there were many gradations, and there seemed to be actually no clear idea as to what an English gentleman really was. He thought he could not be defined as one who, as the Duke of Newcastle had said, "did what he liked with his own;" but rather one who fulfilled the duties of his position as a good steward in his day—not only in reference to his own pleasures, but to the pleasures and comforts of those around him. He would, therefore, propose to them the health of an English gentleman of whom it might be said, without using the slightest degree of flattery, or undue eulogy or sycophancy—which that gentleman would despise as much as he himself should—that he was one of those who, in his day and generation, was ever ready to promote the welfare and happiness of those around him. He alluded to their Right Hon. Chairman. He was sure that his lordship felt great interest in what he was doing that very day—in presiding over that meeting. And in reference to trees, flowers, and shrubs, his lordship was doing all he could to promote the interests of Horticulture in this country. As such a patron, then, they ought to honour him by drinking his health.

His LORDSHIP very briefly returned thanks, remarking that if he thought he would have been the means of being of any service to the Institution over whose Anniversary he had the honour of presiding, he should indeed be amply recompensed for any trouble at which he had been in coming there. He was happy in having the opportunity of proposing the health of the Treasurer, whose services had proved so valuable to the Institution, but which, in reference to the office he held, he must say he wished were vastly increased by extra funds being placed in his hands. Still, as it appeared that he had frequently to pay money out of his own pocket as well as out of theirs, he hoped his duties in future would in that respect be less arduous. His services to the Institution had been indeed valuable, and therefore it was that he (his Lordship) thought he was entitled to its thanks, and to their notice of him on the present occasion.

Mr. WRENCH, in returning thanks, said that he had heard a Reverend Bishop say that a noble ex-Chancellor had once told him that the great dread he had of a public dinner was on account of the speech he was expected to make after it. That was about his own position as their Treasurer. Still, it should not prevent him from acknowledging the compliment. He thought agriculture might take a good lesson from horticulture; for it struck him that the nearer agriculturists assimilated their fields to gardens, the better it would be for them. In his lordship, who had done them the honour to preside over them, they had the two positions of an agriculturist and a horticulturist combined; for they all knew what his lordship had done in his high connection with the Royal Horticultural Society, as well as that which he had done both in reference to the breeding of stock and to his deep interest in Agriculture generally. In these capacities he was truly entitled to their high consideration. Mr. W. then proceeded to say that he could not help alluding to the able, earnest, and eloquent manner in which one of their warmest friends, whom he had known from a child, almost, had advocated the claims of the Society to general support; and who, at the close of his career in reference to horticulture, had subscribed 20 guineas to its funds—he alluded to Professor Lindley. He took that opportunity of paying to that gentleman the humble tribute he had done, because he thought it was eminently due to him. He (Mr. W.) regretted, as Professor Lindley had said, that out of some 10,000 parishes in England, there were, amongst the gardeners, under 300 subscribers to the funds of this Society. He believed that that could only be because it and its principles were not generally known. It was only by calling attention to it through the medium of the Press, and by other means, that they could expect it to gain more support. He would conclude by thanking them for the generous manner in which they had received the mention of his name; and begging the assistance of his lordship, of those whom he had the honour of addressing, and of the ladies in the gallery especially, in disseminating the knowledge of this Society, that so it might earn greater support.

The lists of donations, &c., were then read, from which it appeared that they amounted to some 400 guineas.

The Earl DUCIE congratulated the company on this increased amount, which, in round numbers, amounted to a pension or two added to the Society. His lordship having stated that he was sorry to be compelled to leave them, resigned the chair, which was taken by the

Rev. J. M. BELLEW, who, in proposing the next toast, said he was sure it would be acceptable, for it was almost like proposing "our own noble selves." He meant, "The Royal Horticultural and Botanic Societies of London." He presumed there was no one present but who intimately knew what that toast was, and what the meaning of it was. He need, therefore, make no laboured speech in reference to it. One thing, however, he could say—that the institutions lacked support from the gardeners and horticulturists of the provinces. He was for organisation; and therefore it was that he urged, as had been urged in the political world, "Register, register, register." That is, register the wants of the Society, so that they might be better attended to than heretofore.

Mr. BLANDY responded to the toast in a few words, remarking that there was not a more industrious class of men in England than the gardeners were generally. They were industrious in their habits, and excellent in their general conduct; and he had endeavoured to impress, not only on his own gardeners, but on the class generally, the propriety of their tendering to such Institution their pecuniary support.

Mr. KOCH having in complimentary terms proposed the healths of Mr. G. Child as a seedsman, and of Mr. Charles Turner as a nurseryman.

Mr. CHILD returned thanks, remarking that there was no question but that seedsmen were in a very great degree connected with gardeners, and therefore very naturally took great interest in their welfare. If he might venture on the comparison, they stood in the relative positions of physician and chemist. They, as seedsmen, depended much on the gardeners for the proper and successful cultivation of the seeds they sent them. They naturally, therefore, had a close alliance with them; and therefore it was that they were as anxious to promote the interests of this Society as themselves.

Mr. CHARLES TURNER curtly remarked that if every one in his individual capacity would do all he could in furtherance of the interests of the Society, it would be much more flourishing and extensive.

The Rev. J. M. BELLEW then gave "The Ladies," in graceful terms, especially alluding to those present in the gallery, and concluding by saying that, no matter what the position or business in life might be, there was not one that woman did not honour by her presence.

Mr. PAULL, M.P., then proposed "The Board of Stewards," thanking them for their services, and remarking how much they were indebted to gardeners for their help even on such a festival as this; for after the smoking viands of an Englishman's dinner had passed away, there came those attractive specimens of decorative art in the shape of flowers and fruit, which formed so gratifying a feature, more especially from the graceful manner in which they were intertwined together.

Mr. KOCH having briefly responded to the toast,

The Rev. CHAIRMAN gave "The Committee of Management," which was acknowledged by

Mr. CHILD, who, in conclusion, in a few complimentary terms, proposed the health of the present Chairman, the Rev. J. M. BELLEW.

The REV. GENTLEMAN, in responding, thanked them very cordially, and said he begged their attention whilst he adverted to a matter not exactly connected, perhaps, directly with the programme of the evening's proceedings, but which, he felt sure, they would not find fault with him for introducing. Two years ago they did him the honour not only to receive him among their literary and artistic friends, but also to make him their Chairman, and to listen kindly to him in that capacity whilst he made some few observations on Art—especially Dramatic Art. He was certain, therefore, that they would lend him their ear in reference to a forthcoming event of the highest national importance. He would ask them to remember that the 23d of April, 1864, would be the 300th Anniversary of the birth of Shakspere. He could not but feel that their Society had a great alliance with Art, and that it would deem it an especial honour to be associated with the greatest Art in the world. He felt that it would be their pride, as it would be the pride of every Englishman, to glorify the memory of the greatest Englishman that ever lived. In such a case they should all be a "band of brothers." They should feel that what their brother man was interested in, they themselves should all feel interested in; and that they should all join heartily, as one family, in doing the highest honour in their power to the illustrious event to which he had felt it a duty to direct their attention.

With this toast closed the proceedings of the Anniversary of 1863.

We understand that His Grace the Duke of Buccleuch has, at the solicitation of the Earl Ducie, kindly consented to become the Patron of this Institution in the room of H. R. H. the late Prince Consort.

Home Correspondence.

Trichomanes radicans.—It is stated at p. 602, that Trichomanes radicans has been found in North Wales. I resided for some time last autumn in Snowdonia, and heard that that Fern was to be met with in the district, but it was supposed to have been recently introduced by the poor guide Williams, who lost his life while Fern gathering some two or three years since. He is said to have brought plants of this and other Ferns from Ireland and elsewhere, and to have made plantations of them in places known only to himself. I do not vouch for the truth of this statement, but it is interesting as bearing on the question whether Trichomanes radicans be indigenous to Wales or not. *John Field, Tonbridge Wells.*

British Ink Galls.—The reappearance of the Galls caused by Cynips Kollari on the Oaks this year reminds me that I should make another inquiry whilst the Galls are yet in their immature state, as to the best time of gathering them, and the mode of drying which is practised in Syria, whereby the insect is killed before it can escape from the Gall, and the Gall is harvested in better condition for use. I sought this information in your columns last year (p. 982), but my inquiry did not meet with a reply. *Diss.*

Greenheart Timber.—At a meeting of the trustees of the River Weaver Navigation, held at Northwich last week, the relative value of timber for underwater purposes was discussed, and especially that of a kind lately introduced, and so much approved at Liverpool for dock-gates, &c., where it is exposed to the salt-water, that no other kind is used. It is imported I think from Demerara, under the name of Greenheart. It is a very close-grained hard wood, heavy, and difficult to work, more so than Teak; it has an oleaginous appearance, and it is from this cause, as many people think, that the sea-worms never come near it. The question was asked, What is the botanical name of the timber? which no one could answer. It is now used by our navigation engineers, for the purposes of lock gates and all underwater work, to the exclusion of Oak and every other kind of timber. If you are acquainted with this Greenheart, could you, at your leisure, give me its botanical name? *J.* [It is a Demerara tree called Nectandra Rodiæi—a kind of Laurel.]

Lilium giganteum.—A plant of this, 7 feet high, and bearing a head consisting of 14 fine blooms, white, with chocolate stripes, has stood out of doors with me during these last three years, as have also the different varieties of Lilium lancifolium, which are showing flower. These latter are grown in open borders at St. John's Nurseries, Wakefield. *Wm. Barratt.*

Stephanotis floribunda.—Is this usually found to bear fruit in England? A plant at Fakenham Rectory has a very large and handsome dark green fruit, at present about 3 inches long, resembling in shape a long Plum. The fruit was formed after the plant had rested, and hangs down inside the circular trellis by a short stalk—the trellis being covered outside with a profusion of blossom. The gardener, Mr. Levett, describes the plant as having been kept at a rather low temperature, about 65°, and it seems to me to be rather underpotted. A top-dressing however was given not very long ago. I think it must be a rather unusual occurrence—for the fruit is so extremely handsome as to add greatly to the beauty of the plant. *E. A. M.* [It fruits occasionally. Great care should be taken not to let it be tasted, as it is an acrid poison.]

New Strawberries.—I mentioned the following two Strawberries last year favourably, but not as fully proven. I can now give them an excellent character. They are both early and successional to the May Queen. 1. Marguerite (Le Breton): The plant is very hardy, runs early, and quickly establishes itself. The leaves are glazed. It is a great cropper, having almost all large berries. I have measured the biggest berry that I can find. It is in girth 7 inches and a sixteenth. The form of the berry is long-coned or wedge-coned. The flesh is firm and very juicy. This and Eugenie are the two best of all very large Strawberries. Its colour is lively red. The weather has been wet, and probably this is the cause of the only fault (if fault it be), viz., a little deficiency of colouring in the tips. 2. Eclipse (Reeve): This is a very early, firm, rich, and valuable Strawberry. It is not so large as the former, but it is quite large enough. The berries are level and handsome. It is a good cropper. The plant is hardy and of quick establishment. It runs early and plentifully, two matters of the greatest importance in our climate. Comparing these two together, Marguerite is the largest and most juicy, Eclipse is the firmest and most aromatic. I beg to thank Mr. Gloede and Mr. Veitch for sending me two such admirable Strawberries. *W. F. Radclyffe, Rushton.*

Greek Natural History.—Having been for some time at Athens last spring, I saw a good deal of Mr. von Heldreich, the curator of the museum and superintendent of the Botanic Garden there, who must be well known to you as the associate of Boissier, and, next to him, probably the highest authority on the plants of the Levant—certainly on those of Greece. You are probably also aware that Mr. von Heldreich supplies specimens of Greek plants, at the rate of 25 francs per 100 species. The revolution in Greece has affected his position unfavourably, one of his offices, that of superintendent of the nursery attached to the Botanic Garden, having been transferred to another person. This has made it a matter of necessity to him to look out for some other scientific position, suited to his acquirements and circumstances; and in the meantime he is anxious to dispose of as many as possible of his dried plants, very few of which, I believe, have reached England. He has also a fine collection of Greek Coleoptera, and many specimens of terrestrial and freshwater shells, all of which he would dispose of on similar terms. If you would kindly interest yourself in making these facts known in any quarter in which you think that either of Mr. von Heldreich's objects might be promoted, you would essentially serve a very meritorious brother botanist. *Viator.*

Societies.

ROYAL HORTICULTURAL: *July 7* (*Floral Committee*).—Mr. Keynes, of Salisbury, furnished on this occasion most beautiful boxfuls of new Roses, chiefly brilliant crimson kinds. Conspicuous among them were Madame Chas. Wood, Turenne, Alphonse Damazin, La Brillant, Maréchal Vaillant, Prof. Koch, Comte Cavour, Madame Julia Darzins, Madame Claudine d'Offery, François Lacharme, Beauty of Waltham, Olivier Delhomme, Madame Boutin, and Chas. Lefebvre, all high coloured varieties. Associated with these were John Standish, a violet shaded crimson, and Madame Clemence Joigneaux, a kind in the way of John Hopper; but as shown, superior to that favourite variety. From Messrs. Veitch came three plants of Lilium auratum, beautifully in flower, the new Japanese Selaginella involvens, and a variety of it variegated with white. Mr. Salter furnished two or three promising varieties of Pentstemon. From Mr. Perry, of Birmingham, came a charming exhibition of cut Verbenas, among which the most prominent were Foxhunter, brilliant scarlet with

yellow eye; Fairest of the Fair, pure white, with purple eye; Black Prince, deep violet purple, with bold round white eye; Rubens, scarlet with white eye; L'Avenir de Ballent, pink with a rosy eye, (with which Rugby Hero was declared by all present to be identical); and Mauve Queen, all first-class show flowers. Mr. Melville, Dalmeny Park, near Edinburgh, contributed Nemophila auriculæflora, a handsome variety with a well defined pure white margin. The same exhibitor showed with it another pretty dark kind called elegans, of the discoidalis class, to which both sorts belong.

Linnean: *June* 18.—G. Bentham, Esq., President, in the chair. J. E. Howard, Esq., exhibited specimens of the first Cinchona bark sent over to this country from India, and described its chemical and microscopical characteristics; he stated that he had found the percentage of alkaloids quite equal to that which he had obtained from the bark of the same species grown in South America. J. Harley, Esq., M.D., and E. Head, Esq., M.B., were elected Fellows. The following papers were read:—1. "Note on Cassia moschata, H.B.K.", by D. Hanbury, Esq. This was one of the Cathartocarpus group, a medicinal plant, native of Central America. ——2. "Notes on British Fungi," by F. Currey, Esq. The object of this paper was to give a description of some new Fungi, and to note the occurrence in this country of certain species not hitherto recorded as British. One of the species referred to was the Xylaria tuberosa noticed at p. 364. This plant, which had been found in a Mushroom bed in Cornwall, had been sent to Mr. Currey in a sclerotioid condition by Mr. Berkeley, along with a request that he would endeavour to cultivate it. In December 1862 he accordingly planted it in damp sand, covering it with a bell-glass, and keeping it moist in a warm room in a window facing the south. The fertile branches or receptacles soon made their appearance above the surface of the sand, and by the end of March ripe fruit was produced.——3. "Account of the Botanical Collection made by David Lyall, M.D., surgeon and naturalist to the North American Boundary Commission," by Dr. Lyall. The author gave an account of the general features of the regions traversed and of their botanical aspects, and concluded by some notes on the distribution of the principal trees met with near the 49th degree of latitude, and the elevation to which they reached between the Gulf of Georgia and the Rocky Mountains. Pinus monticola was found to be a common tree in the wooded valleys lying between Colville and the Rocky Mountains. P. contorta was very common in various situations in Vancouver's Island and on the mainland; on the east side of the Cascade Mountains it formed the great bulk of the forest between the altitudes of 4500 and 6500 feet, the size of large trees being about 1½ foot in diameter, and 60 to 70 feet high; on the Rocky Mountains it was observed at 7000 feet elevation. P. flexilis was observed near the eastern summit of the Cascade Mountains, at 7000 feet elevation, where it formed the highest tree of the forest belt, and was exposed to the full force of the storms, so that it became quite stunted in habit, the trunk of the largest being about 15 feet high, bulging out a little at the base, and then tapering rapidly and spreading at top into a number of thickish branches; the seeds of this tree, which are about as large as a Pea, and are sweet and palatable, were said to be eaten by the Indians. P. ponderosa, which extends from the eastern slope of the Cascades to the base of the Rocky Mountains, was found about Colville to rival in usefulness the Douglas Fir of the coast, and to be applied to most of the same purposes. Abies Mertensiana, the Hemlock Spruce of the axe-men, was one of the most common trees on the west side of the Cascades, and was also met with but not so commonly on the eastern side. A. Menziesii was plentiful all along the line from the Pacific to the Rocky Mountains, on the Cascade Mountains as high as 5500 feet, and on the Galton and Rocky ranges up to 6000 feet. The noble A. Douglasii was usually found with it; this last, a very giant in the Lower Fraser River district, became dwarfish on exposed promontories and at great elevations, and ceased to be common at about 5,000 feet of altitude. A. amabilis was not uncommon on the Cascade Mountains up to 6000 feet, and on the Rocky and Galton ranges was found as high as 7000 feet. A. nobilis (or perhaps balsamea) was a large tree on the Cascade Mountains, the wood soft and easily cut by the axe, the bark covered with blisters containing a turpentine or balsam-like fluid. A new Larix, L. Lyallii, occurred on the Cascade Mountains at from 6500 to 7000 feet, at about 6000 feet on the Galton range and at 7000 on the Rocky Mountains. L. occidentalis, which was met with frequently between the Cascade and Rocky Mountains, was from its splitting easily applied to many of the uses fulfilled on the other side of the Cascades by the Thuja gigantea (or "Cedar"), such as making shingles, rails for fences, &c., the Thuja, which grows to a large size and is common near the coast, becoming scarce and diminished in the interior. Juniperus virginiana was found occasionally in Vancouver's Island and along the boundary up to the Rocky Mountains; at Esquimalt one was observed 46 feet high and 5 feet 4 inches in circumference at 6 feet from the ground. Quercus Garryana, the only Oak seen, was plentiful at the S. E. end of Vancouver's Island, but was not found on the mainland anywhere along the 49th parallel. In the district of the Lower Fraser River, the trees most commonly met with were: Abies Douglasii, several specimens of which in the neighbourhood of Sumas were nearly 30 feet in circumference at 5 feet from the ground; A. Menziesii, 25 to 30 feet in circumference, and at least 200 feet high; A. Mertensiana common, and growing to a height of from 150 to 200 ft.; and Thuja gigantea, of which one measured 26¾ ft. in circumference at 6 feet from the ground, and was estimated at 250 feet high. This, and the Douglas Fir, were described as the most useful trees in the coast districts. Various parts of the "Cedar" or Thuja were said to be used by the Indians; the trunk to form their canoes, and when split into slabs, which is easily done, to build their permanent huts or lodges, while the stringy bark and integuments of the root are plaited into useful and ornamental articles of clothing and household utensils.——4. "On Anisostichium, a proposed new genus of Musci;" and 5. "On the Musci and Hepaticæ from the Cameroon Mountains and from the River Niger; both by W. Mitten, Esq.——6. "On the Ink Plant of New Grenada, Coriaria thymifolia," by Dr. Jameson of Quito, in a letter to I. A. Henry, Esq.; communicated by Dr. Hooker. The ink is simply the juice expressed from the berries of the plant. When newly written the colour was said to be reddish, becoming black after a few hours. The characters in Dr. Jameson's letter, which was written with it, were clear and of a purplish black. The writer stated that he generally used it in preference to the commercial article, and found that it was not so apt to corrode the steel pen. This juice is called chanchi. It withstands salt water better than common ink, some documents of the Spanish Government which had been wetted during a tempestuous voyage, having, according to tradition, remained unaltered, while those written with common ink became nearly illegible.——7. "On the relations of Tanalia Philopotamis and Paludomus with a review of the Cingalese species of the latter genera," by H. F. Blandford, Esq.; communicated by Dr. Hooker.——8. "Notes on some new and lately known species of fresh-water Entomostraca," by John Lubbock, Esq.

York Floral.—The Great Exhibitions at York connected with the annual gala held there have now developed themselves into a recognised institution of the city, and one in which the tradesmen of the town take a lively interest, so much so that 100 of them contributed 5*l.* each for the purpose of forming a guarantee fund towards the expenses of the Exhibition and gala, amounting in all to more than £1000. Unfortunately the weather was not favourable, and many persons were consequently kept away, still in spite of the rain nearly 900*l.* was taken at the gates. We never saw so many gardeners at a flower show as on the second day, and roughly estimate the number at a thousand, from all parts of the Midland and Northern districts, brought in by the numerous excursion trains from Manchester, Leeds, and various other distant towns. In fact, by the gardening fraternity northwards, this exhibition is looked forward to with the greatest interest as the only opportunity many of them have for seeing new things. The exhibition was the best we ever saw out of London, and not inferior to some we have seen there. This opinion was also shared by others who have had considerable experience of flower shows. The Geraniums from Mr. May, and the stove and greenhouse plants from Mr. Cole, Mr. Baines, and others were fully equal to those seen at the great London shows. The prizes throughout the entire schedule were extremely liberal, so much so that Manchester and its neighbourhood contributed four or five exhibitors, and others from a distance also lent their aid towards making a remarkably fine Exhibition. In the Class for 12 Stove and Greenhouse plants, for which four prizes of 15*l.*, 10*l.*, 7*l.*, and 5*l.* were offered, Mr. W. Cole, Nurseryman, Manchester, who was formerly gr. to H. Collyer, Esq., Dartford, and the late Mrs. Lawrence's old antagonist at the London shows, took the first prize, his collection containing an unusually well coloured example of Barnes's variety of Phenocoma prolifera, a noble Pimelea mirabilis, a very fine Aphelexis macrantha purpurea fully 6 feet through and well bloomed and coloured, some fine Azaleas, Allamandas, and Polygalas. Mr. Baines, gr. to H. Micholls, Esq., Manchester, was second, with a lot of very fine plants, amongst which were remarkably good examples of Acrophyllum venosum, and Ixora Bandhuca; 3d, Mr. W. Stewart, gr. to Miss Broadley, Brough, in whose lot were a fine Pimelea Neippergiana, and a monster Dracophyllum gracile, well bloomed; 4th, Mr. Foster, gr. to the Hon. P. Dawnay. In the class for 8 Stove and Greenhouse Plants, the 1st prize, 8*l.*, was gained by Mr. George Haughton, gr. to T. Kendall, Esq., Manchester, who had a superb Franciscea confertiflora, and a beautiful example of Ixora amboinensis; 2d, Mr. Richards, gr. to Lord Londesborough, Grimston Park, Tadcaster; 3d, Mr. Thompson, gr. to J. Hope Shaw, Esq., Leeds; 4th, Mr. Davidson, gr. to J. Yarborough, Esq. Four Stove and Greenhouse Plants: 1st, Mr. Richards; 2d, Mr. Baines; 3d, Mr. Haughton.

The Pelargoniums were both numerous and fine, and they were admirably arranged. Mr. Charles Turner has generally been an exhibitor here, but could not attend this time. Had he done so, he would have found a most formidable rival in Mr. Henry May, nurseryman, Bedale, who exhibited in three classes, and took the first prize in each with plants as fine as we usually see in London. The other exhibitors in these classes were Mr. George Edward, York; J. Richardson, Esq., York; Henry Steward, Esq., York; Hon. P. Dawnay; and B. Hemsworth, Esq.

Some very fine Fuchsias were exhibited, especially six by C. Faber, Esq., York, and three by C. Fletcher, Esq., York, each taking the first prize. The York show hitherto has not been remarkable for pot Roses, although most liberal prizes have been offered. On this occasion, however, six really good well-grown plants, exhibited by Mr. J. Douglas, York, well deserved the first prize. A finer lot of Orchids than we have ever seen at York before was staged on this occasion. In the class for 6, Mr. Remmery, gr. to T. Jones, Esq., Manchester, was first with Phalænopsis grandiflora, a very fine example of Backhouse's variety of Lælia purpurata, Saccolabium ampullaceum, Cattleya Mossiæ magnifica, and Cypripedium barbatum giganteum; 2nd, Mr. Baines, gr. to H. Micholls, Esq.; 3rd, Mr. Baines, Museum, York. Some very fine Azaleas were exhibited the 1st and 2nd prizes being taken by Mr. W. Cole and Mr. Baines, both from Manchester. Some exceedingly fine ornamental plants, which took 1st and 2d prizes respectively, came from Mr. Cole and Mr. Baines, and there was also a liberal display of fine Ferns. Some good fruit was exhibited, and amongst Grapes, Josling's St. Albans, in very fine character, exhibited by Mr. Gray, gr. to the Earl of Zetland, took the 1st prize. These were entirely free from cracks, and both bunch and berry were fine. Mr. Gray also contributed the Golden Hamburgh, which took the 1st prize in the class for new Grapes. As the merits of this Grape are so much disputed, perhaps Mr. Gray will favour the readers of the *Gardeners' Chronicle* with his experience of it. In Pines the Smooth-leaved Cayenne took the first prize; and Mr. Richards, gr. to Lord Londesborough, took the first prize for a collection of fruit; Mr. Gray, 2d, and Mr. Davidson, gr. to G. J. Narburgn, Esq., 3d.

The exertions of the Committee in their arduous struggle to establish a first-class summer show in the north of England should have the pecuniary support of the nobility and gentry, for it is impossible for their gardeners to go to these exhibitions without leaving them wiser men. This exhibition was one of remarkable excellence, all the arrangements reflecting great credit on Mr. John Wilson, the Secretary, and the executive committee. The seven spacious tents used were lofty, admitting plenty of light, and allowing plenty of room to move about. The circular tent in which the stove and greenhouse plants were grouped, and the large Geranium tent, were by far the most elegant we have ever seen at a flower show. Let us hope York will continue these floral treats, to which we wish every success.

Notices of Books.

Open Air Grape Culture: a Practical Treatise on the Garden and Vineyard Culture of the Vine, and the Manufacture of Domestic Wine. Designed for the Use of Amateurs and Others in the Northern and Middle States, &c. By John Phin. New York. C. M. Saxton, 1862. Small 8vo.

The art of War, we regret to say, has been more cultivated lately in America than any of the arts of Peace, and we should have been glad indeed if we could have hailed this work as the harbinger of a new order of things, and a proof that our brethren had learned wisdom in the camp, and were now about "to beat their swords into ploughshares, and their spears into pruning hooks." Although this, unfortunately, is not the case, we are still happy to find there are some of our transatlantic friends who take an interest in the quiet pursuits of horticulture, and are desirous of imparting to others the knowledge they have themselves acquired, not of—

> "Works indeed,
> That ask robust, tough sinews, bred to toil,
> Servile employ; but such as may amuse,
> Not tire, demanding rather skill than force."

This we consider to be the object of the present work, which is stated to have been undertaken, not so much in the hope of adding anything new to what is already known of the culture of the Vine, as with the view of collecting the scattered information which exists on the subject in periodicals and other works, and of throwing it into such a shape as may prove useful to the amateur and the Vine dresser.

As an excuse for making an attempt of this nature by one who is neither a native of the country, nor a professional gardener, the author informs us that, with a few honourable exceptions, gardening as a profession is not followed in America by the same able and intelligent class of the community which in Great Britain makes it the study of its life; he therefore trusts to be pardoned as an amateur, if in the intervals of more pressing engagements, he ventures to give the result of his experience to his fellows. While we duly appreciate the motives which appear to have animated the author in the performance of his task, and give him credit for the pains he has taken to point out and

explain all that he considered of importance to be known respecting the culture and management of the Vine, we must at the same time remark, that like every compilation made by a person who happens to have derived his knowledge from books instead of from practice, the work will be found to contain a great deal of matter, much of which is indifferent and uninteresting. "On the general subject," we are told, "Lindley's 'Theory of Horticulture' has been the guide and standard, while for chemical facts and principles, the work of Gmelin, published by the Cavendish Society of London, has been relied upon." The following are a few extracts—they may amuse if they do not instruct.

After noticing the age to which the Vine has been known to attain, and the great size in England of the Northallerton Vine, as described by Speechly; and of the one at Hampton Court, from which, our author says, "George III. once directed 100 dozen bunches of Grapes to be cut and given to the players of Drury Lane Theatre who had greatly pleased him," we are informed that—"in America very large Vines are to be found. At Monticito, four miles from Santa Barbara, there is one that is probably the largest in the world. Its dimensions and yield would be incredible were it not that my informant is a man of veracity, and he spoke from personal observation. It is a single Vine, the main stock being 10 feet in circumference. It is trained upon a trellis 60 feet in diameter. My informant with another person counted 7,000 bunches, and the estimated yield was 18,000 lb. of fruit. Can this be beaten?"!!

Various attempts have been made to establish Vineyards in America, but after several years trial it was found that the climate or soil was unfavourable to the growth of European varieties, and they have gradually ceased to be cultivated. "The earliest attempt to establish a Vineyard in the British North American colonies was made by the 'London Company' in Virginia prior to 1620. By the year 1630 the prospects were sufficiently favourable to warrant the importation of several French vignerons, who, it was alleged, ruined them by bad management."

"The great turning point of Vine culture in America was when the Catawba Grape was introduced by Major Adlum, of Georgetown, D.C., who considered that in so doing he conferred a greater benefit upon the American nation, than he would have done by paying off the national debt."

With regard to what is stated respecting the choice of soil, and its preparation for Vines, as well as with reference to the time and method of planting them, we do not find anything deserving of notice, especially as the larger portion of the directions that are given on those points and their general management have been extracted from various horticultural publications, with which every one in England worthy of the name of a gardener is expected to be familiar.

As the European varieties of the Vine would appear to be too tender to endure the rigour of an American winter without protection, the native Grapes are brought into cultivation and used for dessert, as well as for the purpose of wine making. Of these a tabular descriptive catalogue is given of nearly 300 varieties, which have originated from Vitis Labrusca, and V. vulpina or Fox Grape; and very bad they are. Those most esteemed at present are the Catawba, Concord, Delaware, Diana, and Isabella.

"*The Catawba* is the great wine Grape of the south. The berries are roundish-oval, pale red, covered with a lilac bloom—juicy, sweet, and musky.

"The *Concord* is valuable from its quality of ripening ten days or so before the Isabella. Berries globular, almost black. Flesh moderately juicy, very sweet, with considerable toughness and acidity in its pulp, becoming foxy when long kept.

"The *Delaware* has been supposed by some German Vine dressers to be the Traminer or the Riesling; but the American pomologists consider it to be a native variety. The berries are small and round, of a beautiful flesh colour, very translucent. The pulp is exceedingly sweet, but sprightly, vinous, and aromatic. This has been characterised as the highest flavoured and most delicious hardy Grape.

"The *Diana* is a seedling from the Catawba, which it resembles; but has its fruit a shade darker when ripe.

"The *Isabella* is the most reliable Grape for general cultivation, and is therefore more widely cultivated in the North than any other variety. The berries are oval, pretty large, dark purple, nearly black. Flesh tender, juicy, sweet and rich, with slight musky aroma."

As it is from these, and other varieties of native Grapes, that the wines of America are made, we cannot be surprised that they should have a very different flavour from the wines of Europe. Indeed we should think it almost impossible that a really good wine could be manufactured from fruit possessing the peculiar foxy taste for which American Grapes are so remarkable. Our author, however, is of a different opinion, and presents us with extracts from letters of President Jefferson to Mr. Adlum on the subject, in proof of the fact that wine of more than ordinary uality was made in America upwards of 50 years ago. his was a dark red wine resembling Burgundy. oS till more recently," we are told, "Mr. Longworth s succeeded in the manufacture of fine Champagne wines which are valued as high as any except the very finest brands of foreign wines."

With regard to the method of making wines, a long extract is given from Barry's History of Wines, published in London in 1775, and various recipes are added, containing such directions for the making of Currant, Elderberry, Orange, and other sorts of wine, as we usually meet with in our cookery books.

In Appendix No. 1, the Ohio system of Vine culture is explained, although it is said to be generally giving place to the trellis system, which seems better adapted to the habit of the native Vines. We must confess it is quite an original mode of training—which few would be inclined to imitate. As examples of American Vineyard practice we have the accounts which have appeared in newspapers of Dr. Underhill's Vineyard at Croton Point, Judge Conklin's on Long Island, and one or two others—all apparently very much inflated.

Appendix No. 2 contains a translation from Du Breuil's Cours d'Arboriculture, of the Thomery system of Grape Culture, which although apparently new to our author, was figured and fully described in Loudon's Gardener's Magazine in 1829.

In conclusion we will merely observe that as a specimen of American printing the work is highly creditable; but we cannot say as much for the figures with which it is said to be illustrated "from carefully executed designs, verified by direct practice." They are among the worst specimens of wood engraving we have seen for many a day.

Warner's Select Orchidaceous Plants. We find that our notice of this superb work has unintentionally fallen into arrear. As usual, Fitch's admirable drawings are its glory, especially since his artistic skill is here limited to most gorgeous specimens of this unrivalled family. In the 3d number we have the well-known *Epidendrum prismatocarpum* and *Lycaste Skinneri*, with which are associated what are called *Aerides nobile*, merely a form of *A. suavissimum*, and *Lælia Turneri*, a wonderful thing even among Lælias, with huge intensely purple flowers; in some collections this is called *L. Farmeri*. The 4th number commences with such a specimen as we never saw of *Epidendrum nemorale*, with a raceme 15 inches long. To this succeeds an equally grand *Saccolabium violaceum*. Then comes such an example of *Cypripedium hirsutissimum*, an Indian species, as no one could have produced twenty years ago; and the number closes in a blaze of colour proceeding from a *Cattleya* called *Dawsoni*, which is probably (like a good many more?) a wild hybrid, and possibly between *C. labiata* and *Mossiæ*, as Mr. Warner suggests. The petals measure 7 inches from tip to tip, and, as well as the sepals, are a delicate violet tinged with rose, while the broad double-lobed lip has a face of the deepest crimson—certainly the finest species among its noble relations.

Books Received: *The Mines of South Australia*, by J. B. Austin, 8vo, pp. 109; a very full account of the mineral resources of the colony, with a map.——*A Northern Plea for Peace*, Mackintosh (a pamphlet). This is an address to the Democratic Central Committee sitting at Philadelphia, by the Hon. W. B. Reed, of Pennsylvania, "a greater lover of truth, justice, and the Constitution than of the departed 'Union.'"——*Walpers' Annales Botanices Systematicæ*, vol. 6, part 4, entirely occupied by Orchids.——*Linnæa*, vol. 36, part 1, containing Euphorbiaceæ, from the pen of Dr. J. Mueller.——*New Materials for the History of Man*, by R. G. Haliburton, Halifax, N. S. (a pamphlet). A very curious brochure of 14 pages.—— *Watts' Dictionary of Chemistry*, Part V. (Longmans). "We have here the first five parts of a work which, if completed upon the same scale and in the same style of excellence as it has been begun, will be one of the most important, in respect both of comprehensiveness and of real scientific value, that the chemical literature of our language possesses." Such is the opinion of a very judicious contemporary, with which we wholly agree.——*Popular Science Review*, No. 8 (Hardwicke), contains among other things a brief but good paper on the antiquity of man, by Mr. Leifchild. Mr. Samuelson announces his resignation of the Editorship.

Garden Memoranda.

Battersea Park.—Few of our more recently formed public parks present a better appearance at the present time than this. With the exception of a piece of rockwork on the east side most of its more prominent features may now be said to be finished. The enclosed portion contains it is said rather more than 70 acres, of which about 20 are occupied by water in the shape of a lake, interspersed with islands of considerable size. Round the water is a well made gravel walk nearly 20 feet in width, flanked here and there with masses of Rhododendrons and other American plants, intermixed with Dahlias, which when in flower must have a very fine effect. On the north side of the lake the walk just mentioned suddenly assumes the form of an avenue, which runs in a straight line from this point towards Battersea, and is lined on each side by Elms 21 feet apart and 9 feet from the side of the walk. These are pretty well matched as to height, and when large enough will render this part of the park a cool and agreeable promenade in summer—a thing much wanted, for at present there is shelter neither from sun nor rain.

A broad drive encircles the whole park, or nearly so, immediately within the boundary fence, and in a serpentine form connects the lake with the river pier. At the latter point this drive runs nearly parallel with the avenue just named, in a straight line along the bank of the Thames, in the direction of Battersea. Sloping banks, planted with Evergreens, occupy the park side of the drive; while the centre and south-west side is devoted to sheep pasturage and to cricket grounds. Margins of walks and edges of shrubberies are everywhere beautifully ornamented with flowering plants, such as Larkspurs, Pinks, Scarlet Geraniums, double white Feverfew, and yellow Calceolarias; and here and there these and other plants of a similar character are planted so as to form beds. Of the latter, a charming series exists close to the refreshment tent, and again on the west side towards Battersea, where we noticed a large circular mass of the chocolate-coloured Coleus Verschaffelti, apparently in good health, and presenting a rich and beautiful appearance. An edging of the bright red Amaranthus melancholicus ruber is also equally handsome. Round these and elsewhere the Grass is neatly cut and otherwise kept in good order. Opposite an entrance on the east side a large bed of Moss Roses, beautifully in bloom, is just now an object of general admiration; and further on is a well kept and very dressy enclosed flower garden, the private retreat, we suppose, of one of the gatekeepers.

The treatment of the water and its islands does credit to the artist who designed them. All they now want is plenty of waterfowl to give them interest and life. The walks too are well made, but very rough, an evil, however, which the passage of a roller over them in wet weather would soon remedy.

In a crescent-shaped border blue Lobelia and a variegated Geranium are planted alternately, in short lines running across the border diagonally, an arrangement which when viewed sideways is very effective, but scarcely so much so when looked at in front or in the direction in which the lines run. This border, which forms a background to a series of flower beds, is not more than 4 feet in width, and well backed up by lines of yellow Calceolarias, pink Geraniums, and a showy single yellow Chrysanthemum. These and other floral decorations with which this park is pretty liberally supplied, are now in great beauty; and altogether the place is one sufficiently attractive to form a daily resort for hundreds of visitors.

Miscellaneous.

A Strawberry in Japan.—A nursery gardener who brought me a collection of plants to-day for sale, had amongst them a genuine English Strawberry covered with ripe fruit. I have already had occasion to notice, in an earlier chapter, several foreign plants which had been introduced from Western countries to Japan, as a proof of the enterprise of the people, but I was not aware until now that the real English Strawberry was also here. A species of Fragaria is common, in a wild state, on the banks and hill-sides, both in Japan and China; but it has nothing to do with the species we cultivate in Europe, and is perfectly tasteless. Here, however, was the real "Simon Pure;" and as many of the foreign residents had gardens round their houses, this discovery would enable them to have their Strawberry-beds, and to enjoy the old home luxury of Strawberries and cream. I gladly purchased the plant in question, and carried it in triumph to the house of my friend Mr. Ross, with whom I was to dine. How we placed it in the centre of the table, how we admired it, and what old scenes and old memories it brought before us, may be imagined by those who have been long resident in such far off lands as Cathay or Zipanga. *Fortune's "Yedo and Peking."*

Caoutchouc.—When we consider the vegetation in the tropical zone, it is not to be wondered at that so many plants of those climes abound with juices of a variety and richness unknown to those of the temperate latitudes. The resins and gums which our indigenous trees produce, either in smaller quantities or fit only for common use, are there endowed with higher virtues, and ennobled, as it were, by the rays of a more powerful sun. Sometimes they exude spontaneously through the rind and harden in the atmosphere; more frequently a slight incision is required to make the sap gush forth in which they are dissolved, but in every case they require but trifling labour for their collection. Many of them have medicinal qualities, others are esteemed for their aromatic odour, but none ranks higher in a commercial and technical point of view than Caoutchouc or Indian rubber, which was first brought from South America to Europe as a great curiosity at the beginning of the last century, and is now absolutely indispensable for a thousand different uses. Nothing was known even of its origin until the year 1736, when the French naturalist La Condamine, while exploring the banks of the Amazon, discovered that it was produced by a tree which the Indians called Neve, and which the learned have since introduced into the family of the Euphorbias under the name of Siphonia elastica. It grows to the height of about 60 feet, acquires a diameter of about 24 inches, and is found everywhere scattered through the primitive forests along the borders of the rivers in Guiana and North Brazil. The resin is collected by the Indians in the following

simple manner. With a small hatchet they make deep and long incisions in the rind, from which a milky sap abundantly exudes. A small wooden peg is then fixed into each aperture to prevent its closing, and a cup of moist clay fastened underneath, which in about four or five hours is filled with as many table-spoonfuls of the juice. The produce of a number of incisions having been gathered in a large earthen vessel, is then carried to the hut, where it is spread in thin coatings upon moulds made of clay, and dried, layer after layer, over a fire until the whole has acquired a certain thickness. When perfectly dry the clay form within is broken into small fragments, and the pieces are extracted through an aperture, which is always left for the purpose. In the caoutchouc the original pure white colour of the resin naturally changes into black, from the smoke to which it is exposed while drying. It is generally imported in the form of bottles, or in large flat pieces; frequently also in a liquid state, in hermetically closed vessels. The Indian caoutchouc-gatherers or seringueros could easily collect 16 pounds daily, but as they are extremely indolent, the average produce hardly amounts to one-fourth of that quantity. *Hartwig's Tropical World.*

Xanthoxylon fraxineum.—Prickly Ash, or Tooth-ache Shrub.—The bark of this shrub has been employed in domestic practice in the States of North America as long as we have any authentic records. The author of 'Positive Medical Agents' says: "As a domestic medicine it is much used throughout the country, especially by the negroes, who make a kind of bitters with it, which they drink at the spring of the year. In domestic practice, it is used, either in tincture or decoction, as a purifier of the blood. We had our attention first called to its virtues by seeing it used in domestic practice. It was introduced to the profession as early as 1788, but was not used to any extent, we believe, until about 1820; since when it has gradually gained favour, and is now regarded as a reliable agent by all classes of practitioners." It has long been officinal in the United States Pharmacopœia, where it is included in the Secondary List of the Materia Medica. It is chiefly valued in North America as a remedy in chronic rheumatism, in which disease it is reputed to be highly serviceable. In its general action it is commonly regarded as resembling mezereon and guaiacum. The bark of the Prickly Ash, and the resinoid obtained from it, termed Xanthoxylin, which is employed by the eclectic practitioners, have been recently imported into this country, and introduced to the notice of the regular medical practitioners; and as we have but very few articles of the Materia Medica which possess altogether their reputed remedial virtues, they are well worthy of, and it is very desirable that they should undergo an extended trial, with a view of testing those properties that have been ascribed to them, both by the qualified medical practitioners and by the eclectics in North America. *Pharmaceutical Journal.*

Climate and Gardening of Cornwall.— In the Penzance district it would appear that a routine of Broccoli (or Cabbage) and Potatoes can be grown on the same land for an indefinite time. With the rare exception of Russian Wheat, or an occasional crop of Mangel Wurzel, taken after Broccoli, the succession is continued year after year without any apparent injury to land or crop. It is not, however, to be expected that two such scourging crops can be continuously taken without heavy and frequent manuring. Accordingly we find that an acre of Cabbages occasionally receives not less than ten tons of rags, at a cost of 3*l.* 10*s.* a ton, and half a ton of guano, say 6*l.* 10*s.*, or upwards of 40*l.* per acre, while the same quantity of guano and three tons of rags are given to the Potato crop. It will naturally be supposed that there must be something peculiar in the climate of Penzance and its neighbourhood to account for the success of this particular branch of husbandry. The common notion that Cornwall is a warm county will be found to be very erroneous, for the greatest heat at Penzance is far below that of London, though the amount of frost is much less. The equality of temperature and the small difference between that of night and day, coupled with the soft breath of the prevailing westerly winds, saturated with the moisture which they have gathered in their passage over the warmer waters of the Atlantic, cannot fail of being highly favourable to the rapid growth of vegetables such as Broccoli and early Potatoes, neither of which, be it observed, are brought to market in a fully ripe state; so that the climate which is actually unfavourable to the growth of first-rate Wheat, the seed of which requires the full blaze of a bright sun to bring it to perfection, contains all the elements of success for the profitable cultivation of early vegetables. *Rev. T. Phillpotts in Journal of Bath, &c. Society.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Shading should be used sparingly except on bright days, for during dull unsettled weather plants require all the light that conservatories whose roofs are partially shaded by twiners afford. The beauty of most soft-wooded plants will be considerably prolonged by the use of weak manure water, which should be given frequently wherever it can be done. Indeed, such things as Achimenes, Clerodendrons, &c., may be had in full beauty from June to October, through being liberally supplied with liquid manure, but this must not be given too strong. Keep the atmosphere as moist as can be done; but avoid damp by giving sufficient air to cause a gentle circulation, and spare no attention to keep the plants clear of insects. Stock for autumn and winter flowering will require careful attention, to get it sufficiently forward. Chinese Primulas, especially the double varieties, if at all backward, should be placed in a close frame, and shaded from the sun, where they will make rapid progress, particularly if the pots stand on a slight bottom-heat. Cinerarias for early flowering should also be potted and started at once, choosing the strongest suckers and placing them in a close shady frame till rooted. These are sometimes very subject to the attacks of thrips at this season; but if they are kept cool and moist, and fumigated occasionally, there need be no fear of their not being clean and growing vigorously. Stock in cold pits will now be growing freely, and should be frequently examined, to see that all is going right; for plants, in rapid growth, very speedily suffer through any neglect in watering, or from the attacks of insects. Examine young specimens that were potted early in the season, and shift at once such as require more pot room, so as to get the pots moderately well filled with roots before winter, in which state they are much more easily managed than when either over or under potted. Leschenaultias should be carefully examined for green-fly, and fumigated at once if at all infested, and the flowers should be regularly picked off young plants of these as they appear. Chorozemas, Bossiæas, &c., must also be frequently examined for red spider, and should be laid upon their sides on a clean mat and thoroughly washed with the syringe, repeating this as often as may be necessary to thoroughly eradicate the pest. Young specimens of valuable hard-wooded plants should be carefully trained, keeping the shoots nicely tied out or pegged down in order to secure close compact foundations, upon which future success very largely depends. Isolepis gracilis, the red-leaved Amaranthus melancholicus ruber, and variegated Pelargoniums make capital edging plants for conservatory clumps, and should be largely employed for that purpose.

FORCING DEPARTMENT.

PINERY.—So far this has been a most favourable season for securing well-ripened high-flavoured fruit; such varieties, however, as are apt to spoil at the bottom before the upper pips are coloured should be kept as dry as possible immediately that they show the slightest signs of colouring, keeping the atmosphere also as dry as can be done without injury to the rest of the stock; slight fires may be used on cloudy days, giving a little air to dispel damp and to keep the atmosphere in motion. Look well to securing a supply of fruit for late autumn and early winter use, which is sometimes a difficult matter. Prepare the plants for showing fruit by keeping them dry at the root for a fortnight or so, after they appear to have completed their growth, and expose them fully to the sun, in order to give them a rather severe check. Those expected to show fruit in October and November should be encouraged to make free growth for the present. Be very careful in supplying young stock with water, as any neglect in this respect will probably result in its showing fruit prematurely; and attend to potting suckers in succession as regularly as they can be obtained.

VINERIES.—Grapes intended to hang through the winter should be thinned very freely, and, if necessary, they should be gone over a second time, leaving them so that the berries, when fully swelled, will scarcely touch each other. Only a moderate crop should be left on the Vines; for, to ensure success in keeping Grapes fresh and in good condition till next March, the Vines must be in first-rate health. Keep the atmosphere of houses where the fruit is colouring in active circulation, leaving a little air on at night, to prevent damp. If red spider appears inclined to be troublesome, wash the pipes, &c., with a mixture of soot and lime, and if the colour is objectionable, add a little soot.

FIGS.—Trees that have been kept dry while ripening the first crop, and are now cleared, should be well watered at the root, and if there is any appearance of red spider, the leaves should be thoroughly washed with the engine. Give manure-water to trees showing a heavy second crop, and keep the atmosphere moist by frequently sprinkling the passages and borders, &c. Keep the shoots thin and regularly tied in, so as to avoid confusion, and expose all parts of the tree equally to light. Where the fruit is ripening attend to previous directions, and keep the atmosphere and borders as dry as can conveniently be done. Assist trees in pots by giving them a liberal supply of manure water.

FLOWER GARDEN AND SHRUBBERIES.

Go over the beds frequently, and keep the young shoots of Verbenas, &c., nicely regulated and pegged down until the ground is fairly covered, after which the shoots may be allowed to grow more at liberty. On poor dry soils two or three applications of weak manure water, given at intervals of a few days, and when the ground is moist, will greatly assist in getting the beds covered without loss of time. See that Dahlias and Hollyhocks, &c., are securely staked and kept properly tied as they advance in growth. Manure water will also be useful to these, unless the soil was properly prepared for them. Remove dead flowers from Roses, and give autumn-flowering varieties plenty of manure water, in order to keep them in vigorous health, and secure plenty of wood for blooming in autumn. Those budded on the Dog Rose and Manetti must be kept clear of suckers, which, when allowed to grow, weaken the head, and have an unsightly appearance. Give plants, infested with green-fly, a liberal washing with the engine, or syringe them with tobacco water. Mildew is sometimes very troublesome after this season, and no time should be lost in dusting infested plants, if any, with sulphur, for the enemy will soon spread and destroy the foliage, and ruin the trees for blooming in autumn. Proceed with the propagation of herbaceous plants as expeditiously as possible, in order to get this work out of hand, and the glasses, &c., at liberty. Take advantage of showery weather to give the walks and lawns a good rolling, and endeavour to keep the Grass short and neatly mown, for nothing looks worse than badly kept Grass.

HARDY FRUIT AND KITCHEN GARDEN.

The present bright weather must be very unfavourable to the growth of Strawberry runners, nevertheless a sufficient stock for forcing next season should be potted, and placed in a close shady frame, until the plants get established, which will soon be the case. Prepare ground for fresh plantations by heavily manuring and trenching; or if ground cannot be obtained at once, select the strongest runners, and plant them on a shady border in rich soil, to be transplanted with balls early next month. Asparagus beds can hardly have too much manure water from the stable or farm-yard tank during the present month. On dry friable soils salt may be applied with advantage, but this should not be used on strong adhesive soils, as it keeps the ground wet in winter and rots the roots.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending July 8, 1863, as observed at the Horticultural Garden

July.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs.	2 16	29.999	29.949	76	45	60.5	62	60	S.W.	.01
Friday	3 17	30.149	30.098	79	41	60.0	62½	60	W.	.00
Satur	4 18	30.223	30.211	80	45	62.5	63	60	W.	.00
Sunday	5 19	30.262	30.220	81	50	65.5	63	60	N.E.	.00
Mon.	6 20	30.152	30.038	81	45	63.0	64	61	E.	.00
Tues.	7 0	30.020	29.978	82	42	62.0	64	61½	S.W.	.00
Wed.	8 22	30.135	30.105	76	43	59.5	64½	61½	S.W.	.00
Average.		30.134	30.081	79.3	44.4	61.8	63.3	60.5		.01

July 2—Slight rain, fine; cloudy and windy; fine.
— 3—Very fine throughout.
— 4—Very fine; hot and dry; very fine.
— 5—Very fine, exceedingly fine.
— 6—Very fine throughout.
— 7—Very fine; hot and dry; exceedingly fine.
— 8—Overcast; very fine.
Mean temperature of the week ½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending July 18, 1863.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 12 .	75 4	50 7	63.0	12	1.10 in.	1	2	5	—	5	10	8	6
Mon. 13..	75.8	51.8	63.8	13	0.92	—	3	5	1	2	22	4	1
Tues. 14..	76.1	51.5	63.8	14	0.64	—	3	3	1	6	13	10	1
Wed. 15..	75.8	50.3	63.1	20	1.46	1	4	3	—	4	18	6	1
Thurs. 16..	75.8	50.1	63.0	15	1.80	2	3	4	—	2	18	7	1
Friday 17..	75.8	52.0	63.9	13	0.66	2	—	2	2	4	17	7	3
Satur. 18..	74.7	51.0	62.9	18	1.22	—	1	1	1	5	19	8	4

The highest temperature during the above period occurred on the 14th, 1847—therm. 93½ deg.; and the lowest on the 13th, 1840—therm. 41 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

FUNGI: *R W.* Your Fungus is *Spharobolus stellatus.* Consult our leading article, June 13, 1863. *M J B.*

INSECTS: *St. Omer.* The beetles found on your Standard Apricot are the common Midsummer beetle, Melolontha solstitialis.

NAMES OF FRUITS: *G. C. B.* Your Strawberry was out of condition from carriage; but we believe it is the Admiral Dundas, under which name you received the variety, it appears, correctly. ||

NAMES OF PLANTS: *F H.* The Blue variety of Anagallis arvensis.—*G. Wilson.* To name things in that way is worse than ignorance, it is stupidity. But it is contrary to etiquette for us to criticize such works.—*Liverpool.* A quite new and very pretty Lælia. Whence comes it?—*G.* Planera Richardi has not cordate leaves. This has. Therefore it cannot be Planera Richardi. It looks more like some Cratægus.—*Photos.* Calyptranthes Chytraculia.—*A Constant S.* Echium vulgare and some double Campanula—probably persicifolia—without leaves.—*Juliet.* Rosa sepium.—*Agalmyla.* Erodium maritimum, and Tilæa muscosa.—*G.* It is a cone of Abies Douglasii.—*J. D.* No one ought to be expected to name the mere leaves of Endogens. The thing is impracticable.—*W C B.* Next week.

PLANTING: *Enquirer.* In heavy wet land they will rot in winter; on light well drained land they will not. Better adhere to the usual practice. Pollard any time in winter. If the land is properly trenched you need not fear the few bits of roots that may remain. Will not Loudon's Encyclopædia of Gardening meet your wants? or his Illustrations of Landscape Gardening. Nothing is gained by such works being coloured—except expense.

TREE FERNS: *J B B.* The highest price fetched last Saturday by the Tree Ferns from Melbourne was 8*l.* 5*s.*; the lowest was 17*s.*

VINE LEAVES: *H H H.* The excrescences on your Vine leaves are not the work of insects. They are very common, especially on Vines in pots, whose roots have occasionally been allowed to get quite dry. They are not we believe injurious, though they always make one suspicious that there is some defect either in the roots, or the condition of the air, which may ultimately be hurtful in another direction. *M J B.—H H H.* Your Vine leaves are affected by a *vegetable* disease, the pustules not being produced by the attacks of insects. *W.*

MESSRS. J. CHALMERS MORTON, Streatley, near Reading, and J. THORNHILL HARRISON, M. Inst. C.E., Frocester Court, Stonehouse, Gloucestershire, AGRICULTURAL ENGINEERS, undertake reports on the Condition of Landed Property, together with the Direction of Land Drainage, Roads, Embankments, Farm Buildings, and other works necessary for its permanent improvement.

Land Drainage, and other Agricultural Improvements.

MR. BAILEY DENTON, C.E., maintains a large staff for the execution of Land Improvements by a commission of 5s. per acre for Under Drainage, and a fixed charge for Outfall and other works.

For particulars apply to him, at 52, Parliament Street, Westminster, S.W.

A BAZAAR at TIPTREE HALL, under distinguished Patronage, will be held on THURSDAY and FRIDAY, July 30 and 31, in aid of the Funds for a SCHOOL, now erecting in connection with the Church and Parsonage of St. Luke's, Tiptree Heath, both of which have been recently built and endowed, much to the comfort of a once neglected neighbourhood.

The Admission to the Bazaar will be 1s. on the First Day, and 6d. on the Second.

The Admission Ticket will permit the bearer to inspect the Farm, Irrigation, Machinery, &c.

There will be a Military Band, also Refreshments at moderate prices.

Parties intending to come from the Metropolis, or by Rail, are requested to signify their intention to Mr. ALDERMAN MECHI, Tiptree Hall, Kelvedon, Essex, in order that sufficient Public Conveyances may be provided at Kelvedon Village (4½ miles) to bring Visitors over.

Ladies desirous of patronising or contributing to the Bazaar will be kind enough to communicate with MRS. MECHI, who will thankfully acknowledge any assistance given.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

AUTUMN SESSION, 1863.

President—THE RIGHT HON. THE EARL BATHURST.

Council.

The Right Hon. THE EARL BATHURST.
The Right Hon. THE EARL DUCIE.
The Right Hon. T. H. SOTHERON ESTCOURT, M.P.
J. H. LANGSTON, Esq., M.P.
EDWARD HOLLAND, Esq., M.P.

Principal—The Rev. JOHN CONSTABLE, M.A., Trin. Coll. Camb.

Resident Professors.

PRACTICAL AGRICULTURE.

J. L. FLETCHER, Farm Manager.
*T. BALDWIN, of Glasnevin—A Course of 20 Lectures on Crops.
*R. SCOTT BURN, Co-editor of the Book of Farm Buildings—A Course of 12 Lectures on Agricultural Machines.

CHEMISTRY.

ARTHUR H. CHURCH, B.A., F.C.S., Smith's Exhibitioner, Lincoln College, Oxon.

ASSISTANT TO CHEMICAL PROFESSOR.

R. WARINGTON, Jun., F.C.S.

BOTANY.—JOHN BAYLDON, M.B. Lond. B. Soc.

VETERINARY SURGERY.—A. J. MURRAY, M.R.C.V.S.

MATHEMATICS AND SURVEYING.

W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.

DRAWING.—JAMES MILLER.

* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

AGRICULTURE.

HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
ROBERT RUSSELL, Editor of the Transactions of the Highland and Agricultural Society—A Course of Lectures on Manures.

AGRICULTURAL CHEMISTRY.

THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.

The College will RE-OPEN AUGUST 10th. For further particulars apply to the Principal.

ROYAL AGRICULTURAL COLLEGE.—A DINNER, as a mark of public respect to the late Professors at the Agricultural College, will take place in the CORN HALL, CIRENCESTER, on TUESDAY NEXT, the 14th July, at 6 o'clock. The Shareholders of the Institution, the late and present Students, and the Inhabitants generally of Cirencester and its neighbourhood, are hereby invited to attend.

Tickets, 4s. each, to be obtained of Mr. BINGHAM, at his Restaurant, Cirencester. Provision has been made for a large party, but in order to facilitate the arrangements and prevent disappointment, it is particularly requested that the Tickets be taken on or before Monday evening.

The following Requisition having been presented to THOMAS CROWTHER BROWN, Esq., that gentleman has consented to preside on the occasion:—

"Sir,—We, the undersigned, Shareholders in the Royal Agricultural College, and inhabitants of Cirencester, desiring to show some public mark of respect to Dr. VOELCKER, Professors BUCKMAN, COLEMAN, and BROWN, on their retirement from their long and honourable connection with the College, respectfully request you to oblige us by taking the Chair at a Public Dinner in the Corn Hall, Cirencester, to be given in honour of those gentlemen.

"To T. C. BROWN, Esq."

THOMAS WARNER
GEO. FRED. NEWMARCH
JOSEPH SEWELL
THOMAS BOWLY
THOS. C. BROWN
R. K. HABGOOD
WILLIAM WHITE
R. ELLETT
THO. COMMELINE
JAS. CREESE
CHARLES HOARE
THOMAS SKINNER
T. MAURICE
HENRY HOWELL
JOHN TAYLOR
WILLM. SLATTER
JOHN HEDGES
JOHN LANE
DAVID RUCK
JOHN RICHD. SMITH
ROBERT F. DARBY
J. S. TANNER
E. H. EDGELL
RICHARD BUDD, Sen.
WM. HODGES
E. HAMPTON
JOHN MULLINGS
ERNEST BOWLY
WILFRED BOWLY
W. L. COORE
THOMAS STRONGE
CHARLES BLACKWELL
ROBERT NEWCOMBE
JOHN PARRY
J. W. MASON
H. G. KEYWORTH

Agricultural Hall.

A POULTRY, PIGEON, RABBIT, FLOWER, FRUIT, and VEGETABLE SHOW will be held at the AGRICULTURAL HALL, ISLINGTON, the LAST WEEK in AUGUST.

PRIZE LISTS and further particulars will shortly be issued.

By Order, S. SIDNEY, Secretary.

YORKSHIRE AGRICULTURAL SOCIETY.—GREAT SHOW at SOUTH STOCKTON-ON-TEES, on AUGUST 5, 6, and 7.

The ENTRY CLOSES on July 18. For Forms of Entry, apply to JOHN HANNAM, Secretary.
Kirk Deighton, Wetherby.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.

GRAND SHOW at BIRKENHEAD (in the Park) on SEPTEMBER 8, 9, 10.

Prizes amounting to £1400.

ENTRIES CLOSE on August 10.

For Prize Lists, Regulations, &c., apply to Mr. WM. HENDERSON, Local Secretary, Birkenhead, or to T. B. RYDER, Secretary, 57A, Church Street, Liverpool.

Grand Agricultural and Horticultural Show.

THE MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY'S MEETING will be held in the Park, Birkenhead, on SEPTEMBER 8, 9, and 10. An Exhibition of HORSES, HORNED CATTLE, SHEEP, PIGS, POULTRY, BUTTER, CHEESE, IMPLEMENTS, MACHINERY, HORTICULTURAL and AGRICULTURAL PRODUCE, for which Prizes amounting to upwards of 1400*l.* are offered. The Local Committee also offer 50*l.* for a MUSICAL BAND CONTEST. Entries to Close on August 10.

Prize Lists to be had on application to Mr. T. B. RYDER, Treasurer and Secretary to the Society, 57A, Church Street, Liverpool; or to Mr. W. HENDERSON, Honorary Local Secretary, 2, Market Cross, Birkenhead.

N.B.—Subscribers of not less than 20s. to the Local Fund, or parties becoming Members of the Society, and Subscribing not less than that amount, may enter their Stock free of charge.

2, Market Cross, July 11.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

WORCESTER, 1863.

AGRICULTURAL SHOW of the ROYAL AGRICULTURAL SOCIETY of ENGLAND.

PROGRAMME.

WEDNESDAY, July 15 — The Yard for the Trial of Steam Engines (fixed and portable), Corn Dressing Machines, Corn and Seed Separators, Corn Screens, Fixed and Portable Steam Threshing and Finishing Machines, Barley Hummellers, and Miscellaneous Agricultural Articles, open from Noon till 6 P.M. Admission 5s.

THURSDAY .. July 16 }
FRIDAY .. „ 17 } The Trial Yard open from 9 A.M. till
SATURDAY .. „ 18 } 6 P.M. Admission each day 5s.

MONDAY .. „ 20 — Cattle and Implement Yards open from 8 A.M., at which hour the Judges will commence inspecting the Live Stock, and making their Awards. Admission 10s.

*TUESDAY .. „ 21 }
*WEDNESDAY „ 22 } The GENERAL SHOW of Cattle, Horses, Sheep, Pigs, and Implements, open from 6 A.M. till 6 P.M. Admission 2s. 6d.

* Public Working of Steam Cultivators on Land in the neighbourhood of the Show Yard.

THURSDAY .. July 23 }
FRIDAY .. „ 24 } The GENERAL SHOW of Cattle, Horses, Sheep, Pigs, and Implements, open from 6 A.M. till 6 P.M. Admission 1s.

By the Regulations of the Society, all persons admitted into the Show-yard, or other places in the temporary occupation of the Society during the Meeting, shall be subject to the Rules, Orders, and Regulations of the Council.

By Order of the Council: H. HALL DARE, Sec.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, JULY 11, 1863.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

TUESDAY, July 14 to SATURDAY, — 18 — Great International Show at Hamburgh; and Examination of Implements at Worcester by the Judges of the Agricultural Society of England.

MONDAY, — 20 to FRIDAY, — 24 — Great Agricultural Meeting at Worcester.

THERE is an interesting report in the current Number of the *Edinburgh Veterinary Review* by Professor GAMGEE, of the New Veterinary College, on the Health of Stock in the United Kingdom during the past year. It tabulates facts supplied by 250 veterinarians distributed over the British Isles; and relates a number of interesting particulars about pleuro-pneumonia and the foot and mouth disease—about small-pox in sheep, scab, sheep-rot, &c.

About this time last year Mr. PARRY's flock, at Allington, near Devizes, had become affected with sheep-pox, and very soon all the Southdown flockmasters were in a state of excitement and alarm upon the subject. Originating no doubt by infection from imported stock, though no particular history of the first beginnings of it has been obtained, it spread to farms adjoining Allington, and would, no doubt, have extended further but for the preventive powers of the Act which had been passed 14 or 15 years before, on the first occurrence of the disease in this country, which were immediately put in operation, owing chiefly to the energetic remonstrances of Mr. FISHER HOBBS. As it was, however, nine flocks became infected, two of them suffering a loss of about 30 per cent. of their number by death. In the others the losses were much less—about 5 per cent. in flocks which had been inoculated, and about 2 per cent. in flocks which had not been inoculated, but where the diseased sheep were immediately placed in quarantine. The two flocks where the disease proved so very fatal were inoculated—1700 sheep having lost 200 by the disease before inoculation—and 300 after inoculation—and 400 sheep having lost three before inoculation, and 140 altogether. The cases are hardly numerous enough to make it certain that their history will furnish the general law of experience on the subject. But it seems plain that the plan of separation and non-intercourse, which is what the law enacts as regards infected districts, is the best in the public interest as regards particular flocks. There can be no doubt that a general system of inoculation would extend the disease, which on the other hand if confined to the locality of its outbreak must naturally die out. The following is Professor GAMGEE's history of the last year's attack so far as its results are concerned:—

"The Allington flock communicated disease to the sheep on Mr. HARDING's farm at Etchilhampton. Then Mr. STEPHEN NEATE, whose lands adjoin Mr. PARRY's, discovered the malady, but only after having been to a fair at Marlborough with a lot of lambs. Fortunately Mr. NEATE was so quick in getting back the lambs he had sold that they led to no further outbreaks. I ascertained the existence of the disease at Stanton, Horton, Hillwood, Avebury, and Langley farm. There was no mystery as to the communication of the disease in any case, with the exception of Mr. CHURCH's flock at Hillwood, which, however, was folded by the roadside, where thousands of sheep are constantly passing. The extent of the loss sustained in Wiltshire is shown in the subjoined table:—

TABULAR STATEMENT AS TO SMALL-POX IN SHEEP IN WILTSHIRE.

Name of Farmer.	Name of Farm.	Total Amount of Stock.	Losses before Inoculation.	Number of Sheep Inoculated.	Total Losses.	Date of Outbreak and Inoculations.
Joseph Parry — Harding ..	Allington .. Etchilhampton ..	1711 400	200 18	800 380	500 19	July 1, 1862. Inoculated Aug. 2 and 7.
Stephen Neate ..	Allcannings ..	1000	14 cases but no deaths.	976	80	August 22. Inoculated 3d week in August.
John Simpkins .. Thomas Giddings .. Thomas Church .. William Hulbert ..	Stanton .. Horton .. Hillwood .. Langley Farm ..	100 450 360 400	 3	None. None. None.	2 2 15 140	August 23. Inoculated Aug. 26 & 27. End of August.
Isaac Dark .. Simon Hitchcock ..	Avebury .. Allcannings ..	400 300	None.	None. 300	2 19	August 27. August 27. August 30. Inoculated Sept. 15 & 16. September 12. Inoculated beginning of September.

"Had all the flocks seized been inoculated, I am quite sure that the outbreak of small-pox would not have been brought to so quiet a termination. Had I inoculated Mr. GIDDING's, Mr. DARE's, and Mr. CHURCH's flocks, I have no doubt whatever that many more farms would have been infected by this time; and it is satisfactory to notice how very insignificant the losses were amongst the non-inoculated as contrasted with the inoculated flocks.

"The losses on 3811 sheep were 221 before inoculation had been practised, and the loss since has amounted to 537, or a total of 758 on 3811, viz., very nearly 10 (19.89) per cent., whereas on 1310 sheep not inoculated the loss amounted only to 21 sheep, or 1.6 per cent.

"On all the farms where the separation system was carried out, the cases were very severe, but removed as a rule before they could contaminate other animals. The exception to this was Mr. CHURCH's flock, in which one or two mild cases were observed late. The mortality on the cases at Hillwood was as high as 70 per cent., so that it could not be said that the disease was not virulent in character. Again, at Horton the cases were very severe: one animal recovered with difficulty,

and the second died from a confluent variety of the disease. They were both confluent cases that I examined at Aveburg, and one of the sheep at Stanton was very severely affected."

The history of this outbreak sufficiently illustrates the value of those powers of confining such infectious diseases within the localities of their occurrence which the law has given. And the pages from which we have been quoting, as well as the more elaborate report from the same pen, about to be presented to Parliament, shows how valuable to agriculturists periodical reports of this kind would be.

Unfortunately it was announced last week that Mr. Holland's Bill for renewing and extending the powers of the Act which expires this summer for the more effectual prevention of contagious diseases among cattle, sheep, and horses, is for the present withdrawn. The existing law will be renewed for a year by a Bill to be introduced by Government; but the proposed clauses, which, on the one hand, placed the disposal of all diseased stock brought into any public market absolutely in the power of the Mayor or any magistrate having jurisdiction in the place—and, on the other, appointed a veterinary officer to report from time to time on the existence of cattle diseases in the country, are withdrawn.

Our contemporary the *North British Agriculturist*, in a recent article complimentary to the general style of communications to these columns, lately took exception to the remarks made at page 466 on the policy of publishing statistics of agricultural disaster. But it altogether misread our reference to the prejudice against general agricultural statistics, as if any sympathy existed with it here. And anxious to discredit our advocacy of the Bill as being at any rate an instalment of the general measure on agricultural statistics which we require, it forgot that more has been done to urge the policy of such a measure in these columns than in its own, or indeed in those of all the other weekly agricultural periodicals put together. Let us hope that when the proposed measure again comes before Parliament, it will receive from our contemporary a consideration of its merits, based not on personal or class interests, but on those of the whole body of owners of stock, which are at stake.

The opposition to it hitherto appears to have been directed by cattle salesmen and dealers on the one side, and certain members of the veterinary profession on the other. We imagine, however, that there are others who have a better claim to be heard upon the subject; and we entirely agree with Mr. Cowie, a well known Scottish agriculturist, who has every right to be their spokesman in the following remarks which we condense from a published letter:—

"The danger from contagion being admitted, as also the imputed wilfulness and recklessness of the offender, how is the case to be met? Is it to be exceptional to other cases where public rights and interest are violated, and the transgressor allowed to go free? Such is not the spirit of our constitution. Is it to be endured that this dreadful scourge of pleuro is not to be taken cognisance of by the Legislature, and a remedy sought, because, forsooth, individual hardships may occur?

"Instead of this Bill being severe and oppressive in its tendency, I believe that it is, in some respects, not sufficiently restrictive for protection against contagion. Why, for instance, should the owner of cattle in pleuro be allowed to put them out to graze in a field adjoining his neighbours', without, it may be, their knowledge, and without making any provision by proper fencing to prevent the diseased cattle from coming in contact with the sound? Let, however, the Bill once pass, and be fairly put in operation, and a few examples made of the heartless transgressors of its provisions, and we should find that in a little time the office of Inspector-General and his "subordinates"—even had these been mortal men, as they are but myths—would soon become very much a sinecure."

One of the most noteworthy results of recent lectures on Steam Cultivation, and of recent reports of experience and experiment on that subject, is the succession of criticisms and communications which they have elicited from Mr. Smith, of Woolston.

Sundry corrections of Mr. Morton's tables have been made at his desire, but we understand that in one instance at any rate the corrections themselves need to be corrected—and that, for example, the apparatus used by Mr. Elliot for the Duke of Sutherland, at Tarbert Mains, is a Chandler & Olliver's plough, not a Smith's cultivator, as we learned from Woolston that it was. Be this, however, and a dozen other matters of detail, as they may, we believe that the information given does in the main do justice to the rival manufacturers and patentees; and they are right to leave the facts related to work what impression they may, without any of that personal and importunate urgency in which Mr. Smith seems resolved to persist. That gentleman has superiority and vantage ground enough in his rivalry with other patentees in the fact that his apparatus can be seen at work in its unaltered condition for the fifth and sixth years on many farms whose tenants are perfectly satisfied with its performance. He ought to be satisfied with this, and with the facts, shared with Messrs. Howard, that an ordinary threshing engine is available for the working of his machinery—that a stationed engine is less liable to accident and wear than one that travels—and that the whole is cheap.

What if the lecturer came to the conclusion, notwithstanding these advantages, that Fowler's apparatus has latterly exhibited a performance more efficient and more economical in many cases known to him—the positive success of the Woolston "tackle" for so many years in so many instances is sufficiently conclusive of great merit, and will secure an ample share of custom, without the aid of that continual criticism of the rival plans in which an interested writer ought to be careful how he indulges.

These criticisms, though hitherto unanswered, require that we should point out in the interest of truth a number of particulars as to the dynamometer trials at Sutton Courtney, leaving it to others to apply them to Mr. Smith's critique. (1) The weight of earth stated as moved per square yard must be taken as true only of certain plots, each 4 feet by 4 feet 6 inches, which were here and there lifted and weighed. There is enough of inconsistency in the results to make it very doubtful whether these weights can be held as true over any great extent; and they are given therefore only as true of the actual places weighed, which were indifferently chosen on the different workings. (2) These weights can in no case be fairly quoted in relation to the draught of the implements which moved them, without remembering, at the same time, that one implement moves more than two square yards, while another moves only one when travelling at the same rate of motion. Fowler's cultivator moves six feet in width at a time, Howard's moves three feet, Smith's 30 inches.

3. The draught of the several tools varies considerably with the rates of motion as well as with the depth of work. And a correction for this must be applied before the labour of working any of these tools can be ascertained for comparison with that of working the others.

4. As to the waste of power under the different methods of applying it, that deserves a more lengthened examination than we can give it now, or than we imagine our readers after so much discussion of this subject as they have of late experienced, care to receive.

— It will be seen in the columns of our newspaper that Mr. Paull's Bill for prohibiting the sale of poisoned grain was read a second time before the House of Commons on Wednesday last. The amendments to be proposed in committee will reduce it to an enactment for preventing the spreading of poisoned grain on the surface of the ground for the purpose of destroying birds.

In order to connect the meteorological observations which we are now, thanks to the Rev. J. Slatter, of Streatley, near Reading, publishing from week to week—with those which Mr. J. B. Spearing, of Moulsford, had previously been good enough to send us, we give the following particulars of the position of the two places—together with the quarterly meteorological report which Mr. Slatter has drawn up of the weather at Streatley. Moulsford lies two miles further up the Thames, and Mr. Spearing's instruments were placed a hundred yards further from the river-side than those of Mr. Slatter. Moulsford is not so immediately at the foot of the chalk hills to its west.

Streatley is situated on the banks of the Thames, just at the point where the river begins to make its way through the chalk, separating the Chiltern hills from their natural continuation in the Berkshire Downs. Its height above the sea level is estimated at not more than 100 feet, but the Downs which almost overhang the village rise 400 or 500 feet above it. Any superior amount of heat that might be due to its extremely sheltered position is probably more than compensated for by its proximity to the river and its eastern exposure.

The summary of the weather during the preceding quarter is as follows:—

	Barometer, mean height, reduced to freezing point at sea level.	Mean Temperature.		Mean Humidity. Saturation being represented by 100.	Rainfall in inches.
		Of air.	Of rain.		
April ..	30.043	49.3	53.0	78	1.18
May ..	30.084	51.2	56.2	74	1.92
June ..	29.956	57.5	63.7	77	6.48

The temperature of April was about 3° and that of May 1½° in excess of the ordinary temperature; that of June 1½° in defect. Nevertheless the absence of rain in April, followed by a rather dry May, and cold nights even when there was no actual frost, greatly retarded vegetation. Just sufficient moisture had fallen on the 28th and 29th of April to make the severe frost on the night of the 30th particularly disastrous to the gardens. There were frosts on 9 nights in April and 11 in May.

The rain in April principally fell between the 4th and the 11th, commencing from the W., continuing further S.E., and clearing from N.W. In May the rainfall was between the 11th and 17th from the S.W., followed from the 19th to the 21st by a severe gale from the N.E., very injurious to foliage. In June the rain fell chiefly from the 5th to the 19th; on the 5th, 7th, and 12th the fall averaged above ¾ of an inch on each day, whilst on the 19th occurred the extraordinary fall of nearly 2½ inches in 10 hours. Rain has fallen on 39 days in the quarter; 11 in April, 12 in May, and 16 in June.

The proportion of easterly to westerly winds during the quarter has been about 4 to 5, and of northerly to southerly, 5 to 4.

With the exception of the last 10 days of April, and the N.E. gale above mentioned in May, there have been no very boisterous winds during the quarter.

THE APPEARANCE OF THE CROPS.

Berks: *Coleshill, Highworth, July 7.*—I believe the grain crops generally in this district are looking well, the exception being the late sown Barley and Oats; there is every prospect of abundance of food, should we escape heavy thunder storms. *E. W. Moore.*——*Thatcham, Newbury, July 8.*—The appearance of the Wheat, Barley, and Oat crops in this neighbourhood is more promising than for some years past. Beans do not pod well. Peas generally good. Swedes, Turnips and Mangels are coming on satisfactorily. But little appearance of disease on the Potatoes. Much hay was spoiled at the beginning of the hay harvest, but latterly it was well got up. *John Adnams.*—*Clayton, Hungerford, July 8.* I consider the Wheat crop up to this time very promising. Barley is more variable, some very good, and some very indifferent. The Oats are not so good as last year, but bid fair for an average; Beans and Peas, though few are planted in this neighbourhood, look very promising. Reaping will commence I expect generally the first week in August. *Thos. Owen.*

Bucks: *Boveney Court Windsor July 8.*—The grain crops, and more particularly the Wheat, in this neighbourhood are looking remarkably well. *Edward Evans.*

Devon: *Tavistock, July 8.*—The present appearance of the Wheat crop in this neighbourhood is decidedly promising to be above an average, and on the whole I think the spring corn may be so likewise, though should the present hot weather continue, it will be short in the straw in some places. *John Benson.*

Essex: *Prince's Gate, Romford, July 7.*—Wheat, Oats, and Barley are very good. Clover and Grass very short. Mangel and Turnips backward, but good plants. *Collinson Hall.*

Gloucestershire: *Whitfield, Berkeley.*—I am happy to inform you that the Wheat crops in this neighbourhood are very promising, and with fine weather cannot fail to be a large crop. Peas and Beans are excellent, and Barley and Oats, with the exception of late sown fields, are looking first-rate. The crops of Potatoes, with the exception of early planted ones, which were cut down with the frost in May, promise to yield abundantly. We are now busy haymaking, and have secured a considerable quantity in fine condition, and the, crop is quite an average one. *John Cobbin.*——*Longford Minchinhampton, July 8.*—Autumn-sown Wheat is looking very well, and promises rather over an average crop. Spring sown and April Wheats nearly a failure. Barley very patchy. I have only seen a very few good pieces, and those on the lightest land were got in pretty early. Oats not much grown, but those that are grown looking well. The same remark applies to Peas and Beans, though there is some complaint of "bad setting" for want of rain. "Plenty of stalk but no pod" is the common remark. Root crops look remarkably promising. Seed hay crops light and damaged. Meadow crops light and made well. *Henry Cox.*

Hampshire: *Basingstoke and Andover, July 8.*—I am glad to report favourably of the present appearance of the grain crops in this district; with a continuation of this fine forcing weather an abundant and moderately early harvest may be anticipated. The early hay crop on the hills is very deficient in bulk, and from the showery weather at the time of cutting is much damaged. The late crops in the woodlands and upon the water meadows are fairly good, and are now being got together in good condition. Root crops are very promising. *H. Reynolds.*

Kent: *Wingham, July 7.*—Taking all the crops of corn, Wheat, Barley, Oats, Peas, and Beans, on heavy lands, light lands, gentle loams, chalks, gravels, &c., I have never known them better; a more general crop has not been known for many years, up to the present day. A thunder storm or heavy rain would lodge much of our Wheats and Barleys. I have never known a better plant of Mangels and Swedes—I have not heard of a second sowing. Wheat harvest I expect will be general at the latter end of this month, and a vast deal of Barley, Oats, and Peas cut. The breadth of Potatoes around here is enormous, without the least appearance of disease at present. *Robert Matson.*

LINCOLN: *Long Sutton, July 8.*—I have great pleasure in saying that we have seldom had a more promising prospect for the ensuing harvest than this season presents throughout the whole of this district, comprising the marsh and fen lands of South Lincolnshire and North Cambridgeshire. There are a few fields of late sown Oats, and other plots sown on lands where the Wheat was destroyed by the late frosts of May which form some exception, but otherwise everything looks favourable. We have one of the best hay-making seasons ever known. The crops a fair average. The Wheat crop is not a very full one, but the ears are fine and good; the promise of a good average. Oats a splendid crop. Barley very good and early. Beans and Peas rather irregular; some crops have flowered exceedingly well, others have lost flower, and of course parts of the stems are bare of pods. The whole of our crops are progressing as well as we can desire them to do. Potatoes are going on most satisfactorily at present; we lost a few sets from drought, but the general crop is exceedingly good—no appearance of disease. Mangels are not a good plant, and they are backward. Swedes and common Turnips a capital plant, and now growing fast. Grass rather short, and water getting low. *John Clarke.*

NORFOLK: *Weasenham, Rougham, July 7.*—The Wheat crop is better than we have seen it for years, at present all standing. The Barley on the good lands very long; promise well on the light lands; they suffered from the want of rain. The Oats are very good generally. *Henry Overman.*——*Barton Abbey, North Walsham.*—The appearance of the crops in this district is all that can be desired. Wheats are unusually good, and with another fortnight of this brilliant weather both quantity and quality must be unsurpassed. The early Barley is good; there is some in this neighbourhood (of the winter variety) sown in December, looking remarkably well; the later sown will be a good average crop. Oats are also looking well. Peas and Beans lengthy in the haulm, but not podding well. The hay upon good land is bulky, and the greater portion now being secured in fine order. The root crop at this moment is most promising. Harvest will be general here about the first week in August. Some fields of Barley and Oats may be cut by the end of the present month. *W. Cubitt.*

OXFORD: *The Mount Farm, Chipping Norton, July 8.*—The Wheats are looking exceedingly well throughout this district; although the long dry weather at one time proved too much for the thin stone brash soils, it at the same time suited the strong land, and nearly every piece of Wheat is standing better than I ever remember; it has bloomed well, the straw is bright, and up to this date the prospect is all that can be desired for a crop of Wheat. The early sown Barleys are good; but much was planted too late for a crop, and many pieces are patchy. On our own farms the steam cultivated are far superior to the bits worked in the usual way. In one field (very strong soil) about 5 acres were ploughed 5 inches deep with three horses in the furrow, costing 12*s.* per acre, the remaining part of the ground, about 14 acres, had the steam grubber once over in September and again in October at 14 inches deep, costing 7*s.* 6*d.* per acre for the two operations; the difference in the crop is very greatly in favour of the grubber. The Oats, Beans, and Peas, as well as the Vetches, are a full crop. The meadows have cut up rather light; but secured in fine order the last ten days. *Matthew Savidge.*

SURREY: *Woodcote, Carshalton, July 7.*—The appearance of the crops in this quarter, so far as I can judge, is as follows:—Wheat, very good generally, certainly the best appearance we have had for four or five years; Barley, early sown to be heavy, late sown various; Oats, to be a light crop generally, owing to the dry spring. *James Arnot.*

SUSSEX: *Brighton, July 7.*—In reply to yours of the 5th, the following is the result of my observations of the cereal crops of this neighbourhood. Wheat: Early sown, long straw; a fair average crop; will be ready to cut by the 26th July. Late sown—short in the straw; an average crop; will be ready to cut by the 2d or 3d of August. Oats: Under the average; where late sown very short in the straw. Barley: An average crop; but short in the straw. *Fred. F. Hallett.*——*Mid Lavant, July 7.*—I am very pleased to be able to give a very favourable report of the corn crops in this neighbourhood. I never saw the Wheat, Barley, and Oats looking better—thick on the ground, stiff strawed, and free from disease. We shall, in all probability, begin harvest before this month is out. The Pea crop is a very good one; of Beans I know nothing, they are not grown in this neighbourhood. The Mangel plant is patchy in places; Swedes and Turnips coming on well. *H. E. Sadler.*

WARWICKSHIRE: *Milcote, Stratford-on-Avon, July 7.*—Our Wheat crops are very good, and as it has been a satisfactory blossoming time for them, they promise to yield above the average produce of the last several years. The early Barley is a full crop, but the later sown is a deficient one, as the rain came too late to secure its regular growth: it is consequently short and uneven. Peas are a good crop. Beans, although luxuriant in appearance, will, I think, be generally found to have little corn upon them, as, either from the severe frost in April, or from some other cause, very few of their early blossoms have produced pods. Mangels are not a full plant and have hitherto grown slowly, but under the influence of the warmer weather of the last week are rapidly improving. Swedes are promising. The hay crop is deficient to the extent of one-third of an average. Pastures are fresh and green. *J. C. Adkins.*——*Kenilworth, July 7.* Wheat: promising for over average; straw not abundant. Barley: early sown, good; late sown, much under. Oats: over average—especially Canadians. Beans: over average; little blight hitherto. Peas: light lands inferior; colder land better. Grass: nearly average, and most of it well saved. Potatoes: not promising in fields. Carrots: backward. Mangels: missed plant, destroyed by maggot or late. Swedes: coming nicely. *F. Bowick.*

WILTS: *Overtown, Swindon, July 7.*—Crops in this district are progressing very favourably, and promise to be good with the exception of Beans, which I fear are not doing well, the blossom dropping prematurely. Wheat has been in blossom for 10 days. The weather has been all that could be desired, both for the Wheat and the ingathering of the hay crop. The securing of the latter has been most propitious. The young Turnips and Swedes are very healthy and good. *T. H. Redman.*——*North Wilts.*—The Wheat in this neighbourhood is very promising, being a full plant generally, and with the present fine weather, the ear is fast filling with less appearance of red gum than usual; should the present heat continue, reaping will commence by the first week in August. The early and middle planted Barley is also promising for a good crop, but some of the late planted will be middling unless we have rain soon. Oats are good. The Pulse crops are growing plenty of straw, but are scarcely forward enough to give an opinion as to their corning. *T. A., July 8.*

YORK: *Rainton, near Thirsk, July 8.*—I am happy to say the Wheat crop is looking very promising, though not a very heavy crop of Straw. Barley is fair, though generally rather light. Oats are mostly very light. Beans are looking well, but it is too soon to speak of Corn; the upper part of the stems are still in flower, and with these droughty days there is great hazard whether the pods will set. The Hay and Clover crops are exceedingly light. Swedes and Turnips are growing very fast on free Turnip soils, and the stronger soils are kept back by want of rain. *Peter Stevenson.*

LIEBIG'S NEW WORK.

[The following is Dr. Blyth's account of Liebig's recent work on the Laws of Husbandry, given in a preface to that work.]

"IN his recent work Baron Liebig has given to the public his mature views on agriculture, after 16 years of experiments and reflection. The fundamental basis of the work is still the so-called mineral theory, which holds that the food of plants is of inorganic nature, and that every one of the elements of food must be present in a soil for the proper growth of a plant. The discovery of the remarkable power of absorption possessed by arable soils has necessarily led to a modification of the views regarding the mode in which plants take up their food from the soil. As the food of plants cannot exist for any length of time in solution in soils, it is clear that there cannot be a circulation of such solution towards the roots, but the latter must go in search of food. Hence the great importance of studying the ramification of the roots of plants, and the mode of growth of the different classes of plants cultivated by man. The first chapter is devoted to the consideration of the growth of plants, of the formation of their roots, and of their power of selecting food, and the part played by the mineral matters which are absorbed.

"If the food of plants is not in solution in the ground, we can conceive that those portions of the soil traversed by the numerous root ramifications will be more or less exhausted of food elements, whilst the immediate neighbouring portions are still rich in them. If, therefore, a succeeding crop is to grow equally well on all parts of a field, there must be a thorough mixing of the exhausted and of the unexhausted portions of soil. This is effected by mechanical means, by manures, or by certain chemical compounds. Hence the necessity of becoming acquainted with the nature and properties of the soil and subsoil. The second chapter is devoted to this subject.

"The soil consists of arable surface soil and subsoil. In the former is accumulated the nutriment of plants chiefly cultivated for the food of man. This accumulation is effected by the absorptive power of the arable soil for mineral matters, by which soluble salts are removed from solution, and even chemical decomposition of the most stable compounds is brought about, and the bases or acids are retained by the soil in a firm state of combination. It is the presence of food in the soil in this state of physical combination which is alone available for the nutrition of plants. On the abundant or scanty supply of food in this state depends the fertility or sterility of a soil. In fertile soils food is present also in another form, in which it is not immediately available for the nutrition of plants. It exists as chemical compounds which are not soluble in water, or acids until rendered so by the action of powerful chemical agents, or to a much smaller extent by the slower process of the decomposing action of the weather. When the food is eliminated by disintegration (by fallow and mechanical operations) from this inert state of chemical combination, it passes into that of physical combination with the earthy particles before it is absorbed by the plant. Each kind of soil has its own absorptive power for causing the food to pass into a state of physical combination. When manure is applied, its greater or less dispersion throughout the soil will depend on this power. In general it is absorbed and fixed by the upper few inches of the soil, a smaller quantity penetrates to the lower layers, and scarcely any at all to the deep layers and subsoil. Hence when a subsoil is exhausted, manure cannot restore its fertility. From this peculiar property of soils of arresting the circulation of solutions of the food of plants, arises the necessity of employing means for the distribution of food, and for the uniform mixture of the different layers of the soil. The manner in which this is effected by mechanical operations, by organic matter, by manures, by certain chemical salts, &c., is pointed out in chapters second, third, and twelfth.

"The quantity of food in a state of physical combination in any fertile soil is only limited. Continuous cultivation without replacement of all the mineral matters removed in the crops destroys fertility, either by causing the absolute loss of the assimilable food, or by altering the proper relative proportions between the different elements of food, to such an extent that the due growth of all parts of the plant is altered. For the successful growth of a plant in all its parts, every element of food is required. Not one substance has any superior fertilising power over another. The average crop of an unmanured field is always regulated by that element of food which is present in *minimum* quantity. The effect of a manure when beneficial is merely to increase the relative proportion of this *minimum* element. If the *minimum* matter was known in each case, its direct application would be sufficient to increase the fertility of the soil. But as in general this point is not ascertained, the application of farm-yard manure is certain in producing a fertilising effect, simply because it is a complex mixture containing all the food elements of plants, and consequently whilst supplying other matters which are not immediately wanted, it also furnishes the *minimum* substance. In chapter fourth, is discussed the question of this altered composition of the ground by cultivation.

"In chapter eleventh, the fact that not one of the elements of food by itself possesses any superior nutritive value over the others is further discussed. Nitrogenous food, like all the rest, must be present if a plant is to grow properly, but no excess of this element of food will of itself produce more abundant crops. The analyses of soil show that they abound in nitrogen. Were all other sources of this element wanting, there would still be a continued supply provided for in rain and dew, and in the many processes of oxidation going on at the surface of the earth. Probably, wherever we have a generation and circulation of carbonic acid, there is also a provision for the formation of nitrogenous compounds. When Nature thus provides for a supply of nitrogen without the aid of man, it is likely that exhaustion of all other elements of food in the soil will take place by cultivation before this occurs with nitrogen. The inefficacy of the mass of nitrogen in the soil cannot be attributed to its existing in two forms, in one only of which it is assimilable. This is proved by experiments with soils and with farm-yard manure. When the nitrogen of the soil is not available, some other cause must be sought for than its existence in a state in which it is sparingly assimilable. This cause will be found to be the absence of some other elements of food, which, upon being supplied, will at once render the seemingly inoperative nitrogen at once energetic.

"The diminution of the amount of available food elements in the arable surface soil, by the cultivation and sale of corn, necessitates the restoration of the removed mineral matters. This is effected to a limited extent by foreign manuring agents, but chiefly by the formation of manure by means of fodder plants. By the system of rotation, green crops which draw their nutriment from the subsoil are introduced between the cereals. By the deep penetrating roots of the former, the mineral matters of the subsoil are absorbed, and in the form of manure are transferred to the arable surface soil. But if this process continues, and the corn and cattle are still sold, and no replacement from without is made of the lost mineral matters, the time will arrive, sooner or later, when the subsoil becomes exhausted, and the surface soil having no longer a reservoir from which to draw supplies by means of fodder plants, is also unable to bear remunerative crops. This natural progress of the system of farm-yard manuring is fully discussed in chapter fifth. The reader must not suppose that the condemnation passed on the system of farm-yard manuring is meant to apply to farm-yard manure itself. The latter is the type of a valuable manure which cannot be replaced in every respect by any artificial mixtures in use. The remarks of the author only apply to the fallacious hopes entertained of keeping up permanently the fertility of the soil by manure obtained by the system of rotation, whilst we continue still to sell the corn raised by such manure without bringing back to the soil any portion of the mineral matter sold with the corn and cattle.

"The excrements of man contain all the minera matter not only of the corn, but also of the cattle sold from the land. Could we restore these excrements to the soil, a perfect circulation of the conditions of life for plants and animals would be established, and our fields would be retained in a permanent state of fertility. This problem has been solved by the Chinese and Japanese. Chinese rural life, as it is described by travellers, as well as the report of the Japanese system of husbandry given in Appendix G. by Dr. Maron, would scarcely lead us to wish for the improvement of agriculture upon the plan of these Orientals! The requirements of modern civilisation would not permit the purchase of manuring matter, however valuable, at the cost of all domestic comfort. The sewers must, we fear, still receive what would be offensive to our English senses. But can the contents of these sewers not be made available? The great mass of water which necessarily accompanies at present the fertilising matters, renders them of comparatively little value when compared with the expense of transport. But how to separate and concentrate these matters from the water is a problem which is at present occupying the earnest attention of scientific and practical men. The solutions hitherto proposed are far from satisfactory. The future of agriculture is, however, intimately connected with the right solution of this great sewage question."

NOTES ON WEEDS.

BY J. BUCKMAN, PROF. OF GEOLOGY AND BOTANY.

IN following out the Weed history of some of our common plants, we would now direct attention to a few species belonging to the natural orders, Onagrariæ, Haloragеæ, Curcubitaceæ and Dioscoreæ. These include a series of plants intermediate between the Rosaceæ, described in our last, and the Umbelliferæ (with the exception of the Tamus communis) which has been introduced in the following arrangement on account of its affinity in mischief to the Bryony. The following is

a tabular list of the genera and species to be now described:—

ONOGRARIÆ:	1. Circæa lutetiana, Enchanter's Nightshade.
	2. Epilobium montanum, Broad Smooth-leaved Willow Herb.
	3. Epilobium angustifolium, Rose Bay Willow Herb.
	4. Epilobium hirsutum, Great Hairy Do.
	5. Epilobium parviflorum, Small-flowered Hairy Do.
LYTHRACEÆ:	6. Lythrum Salicaria, Purple Loosestrife.
HALORAGEÆ:	7. Hippuris vulgaris, Common Marestail.
	8. Myriophyllum spicatum, Spiked Water Milfoil.
	9. Callitriche verna, Water Starwort.
CUCURBITACEÆ:	10. Bryonia dioica, White Bryony.
DIOSCOREÆ:	11. Tamus communis, Black Bryony.

1. The Enchanter's Nightshade is doubtless considered by the young botanist so pretty a plant, that he may be surprised at seeing it here in a company of weeds; but let the gardener once get it in his Strawberry beds, or nestling beneath his fruit trees, and he will be fully satisfied that even were this a sweet as well as pretty flower, that it is indeed a weed like even the loveliest of flowers when out of place, or whenever it grows to the prejudice of our wished for crop. Our own garden has been greatly infested with this plant, which from the breaking off of its brittle rhizomata or creeping underground stems whenever we have attempted to pull, has left behind enough to cause the pest to continue—indeed the first year's pulling only resulted in the production of many more plants than before; still by keeping on hand-weeding whenever we saw it above ground, we have succeeded in next to eradicating it in three years. We have seen this plant in plantations become very troublesome, but the farm is but little infested by it in a general way, though arable where intermingled with wood and copse is not altogether free from it, in which case hand-picking after ploughing with a timely use of the hoe, for that which appears above ground, will in time eradicate it.

2. The Broad Smooth-leaved Willow Herb is in habit so much like the preceding (if we place stolons for rhizomata), that we can only recommend the same mode of treatment. It is however much more general; scarcely a wood or garden, especially if the latter be much overshadowed with trees, but will be infested with this common species; woods, and even corn fields will sometimes be so thick with this weed as almost to cover the ground. If we inquire into the reason for so general a spread of this Willow Herb, we shall find it in the fact that so prolific is it, that a single plant may yield from 5000 to 8000 seeds (both of these numbers having been estimated by us on some specimens from near Cirencester) and as all of these seeds are winged and belong to a plant purely Catholic in its tastes, we need not wonder that this species should be found on the highest rocks, in the deepest woods, on the borders of our meadows, and in the midst of our corn fields and gardens—in fact everywhere but in water.

3. The really handsome Rose Bay Willow Herb is so frequent an ornament in our gardens and shrubberies, as to be almost out of place here. In the wild state it seems almost confined to the wood, and those who have watched it spread, as we have done for the last 15 years, will not be surprised that a plant scarcely a native, and which only a few years ago was considered "rare in England, less so in Scotland," (Hooker), should rapidly have become in 1858 "widely spread over Britain, but not common" (Bentham); and while we write, five years later, we absolutely know of whole acres of this plant, and so tall does it grow, and in such thick masses, that we have seen an extension of old plantations, in the shape of new sets of Larch and Firs, if not quite ruined, at least very much injured by its presence. Here too we trace an extraordinary fecundity in its seed development, even doubling and trebling that of the previously described species, but fortunately it only vegetates in woods and thickets, as, if it progressed everywhere to the extent and rapidity that we have observed in some of the Cotteswold woods and plantations, it would, however handsome, be one of the direst weed pests in the world. The history of this plant points to a ready remedy when it is troublesome, (a time fast approaching everywhere), in the facility with which it can be cut down, and so be prevented seeding; for although it increases at the base, yet without seed it would be confined in its action; for we do not exaggerate when we say that we have observed this plant increasing its stations over some 20 miles of country at the rate of 90 per cent. within a few years, whilst acres of ground are now occupied with what 20 years ago it was difficult to find in the same district; so much for what weed seeding may do!

4 & 5. The Great Hairy, and the Small Hairy Willow Herb (which latter may perhaps be a variety of the former) are mostly confined to ditches and watercourses, where, under the country name of "Codlings and Cream," they are well known; of course in such positions they are weeds, by reason of their choking up the ditches, and thus preventing the quick action of the arterial drains. These and allied species on the sides of canals, brooks, and sluggish streams, thus only render these more sluggish, and so, unless kept under, would sometimes vitiate the action of a wide drainage area. From these positions they should be removed by the scythe or a strong Bean hook while yet growing, instead of being left to rot in the ditch, and so not be removed until winter. On this point we hazard the assertion that one summer clearing of the ditch is worth seven winter ones, for which indeed this would frequently obviate the necessity. Weeds collected from hedges, ditches, and water-courses, as we would advise, form excellent subjects for smother burning, a process which we have found of the greatest service towards the end of May around the Apple orchard, and which may even be carried on later about Hops and other crops, as perhaps the greatest plague and interruption that we can offer to numerous insects which it would now take too long to describe.

6. The Purple Loosestrife has so much the character of the preceding as not to need further description.

7, 8 & 9. Are decidedly water plants, which grow at the bottom of ponds and streams, gradually making their way upwards, and floating more or less on the surface. Like the former they are impediments to good drainage, but more especially in the trunk drains, and when in sluggish streams they render them more so. They are removed by raking, mowing, &c., and in fact in a great part of the Thames and Severn canal navigation would be impracticable during a great part of the summer, without attention to the removal of weeds of the kind we have tabulated, to which may be added the pond weeds (Potamogeton species) and the newly introduced water-weed (Udora canadense or Anacharis alsinastrum, which, though a new interloper, has taken such possession of some of our canals, as to have in a great measure driven out the aboriginal water-weeds.

10 & 11. Everybody has observed our two last specimens as they climb up the hedges; of these, the Black Bryony, with its dark glossy leaves and scarlet or yellow berries, is the most common. It is remarkable for its thick root-stock, which is sold by the country druggist as a remedy for black eyes under the name of briar-root. The White Bryony has also a root-stock, but it is less seldom employed than that of the Black. They are by no means of allied families, the White Bryony being our only native representative of the Cucumber family, whilst the Black Bryony represents a family which in warmer climates is of great importance to the human race, namely, that to which belong the Yams. They are both of them striking plants, both in the thicket and in the hedgerow, but at the same time their many flexile arms and large leaves so completely smother the hedges that they are both unmitigated pests to those who would possess a perfect fence. We should then be very particular in removing the first specimens from among the young "Quicks," or it will gain such a size and strength of root-stock that even a portion left behind will soon again send up new shoots. Still if we persist in keeping even the shoots down so that they never perfect themselves, we shall at length master some plants, which, however interesting from their relationship, and handsome to the eye of the lover of plants, are after all amongst the most choking weeds to the hedge.

Home Correspondence.

Labourers' Cottages.—Your Correspondent "Falcon" and others have lately advocated with praiseworthy zeal an improved system of cottage architecture, and as far as internal arrangement and convenience are concerned, some of the plans they would wish us to adopt, if carefully carried out, would certainly secure for the poor cottager and his family an amount of comfort to which they have too long been strangers. There is, however, one item in the matter, and that a most important one, which nearly all writers on cottage improvement seem either wholly to have overlooked or dealt with too cursorily, and that is a proper system of ventilation in connection with the fire place. This matter was brought forcibly under my notice the other night by Mr. Newton, of 30, Eastbourne Terrace, Hyde Park, who has paid more attention to the subject than most men. Some years ago, when a sharp controversy existed relative to the merits and demerits of the now nearly obsolete Polmaise system of heating with warm air, a thought struck Mr. Newton that that plan of warming and ventilating might be applied with advantage to dwelling houses as well as to Vineries or plant structures. He accordingly set apart a room in his house in Eastbourne Terrace for testing the value of the system in these respects, and as the result proved with admirable success. First of all he had the flooring removed and the soil dug out under it to the depth of some 18 inches or so; the boards were then laid down again; apertures were made in the wall of the house through which fresh air from the outside might enter this new chamber. The grate was taken out and a hollow space formed sufficiently extensive to admit a large amount of air being accommodated behind it after it had been reset. This second chamber was fed from that under the floor, and the air thus brought in when warmed, (which it was by coming in contact with the metal of the stove), was admitted into the room through holes in the wall by the side of the mantelpiece, and also close up to the ceiling, along which a pipe conducted it in this instance to the end of the apartment farthest from the fire, and there discharges it into the room, or upon shutting up the end of that pipe it is induced to pass up another into the hall, in which the temperature by that means was raised considerably. When I witnessed the action of the apparatus a small fire was put on, a "blower" applied, and in 10 minutes the whole air in the room was in active motion, producing an accelerating and most agreeable sensation. The smoke from the fire was led up a pipe in the chimney, allowing the latter to be devoted to the purpose of a hot-air chamber. It will therefore be seen that all this was effected merely by means of a slight alteration in the setting of an ordinary room grate; but Mr. Newton has a registered stove in every way well adapted for this kind of warming and ventilating; and it is the introduction of that into new cottagers' houses that I advocate. By the means just described, and at very little extra expense, one fire might be made to heat the sleeping apartments over head, and that with ever-changing fresh agreeable warm air most conducive to health, more especially should the apartment be, as unfortunately it generally is, over-crowded. Even houses of large dimensions might be most effectively warmed and ventilated in the way just pointed out, and in order that no misconception may exist, working models have been carefully prepared, which amply illustrate the system, and which Mr. Newton, I am sure, will have much pleasure in explaining, as he did to me, to any person who takes an interest in such matters. *Beta.*

Steam Cultivation adapted to Ireland.—Some who do not know the value of this improvement fancy that the pages of the *Agricultural Gazette* have been too much and too constantly occupied by steam culture. I believe this is the feeling experienced by some, though never publicly expressed by any one in Ireland, and perhaps not without some fair show of reason when the respective conditions of England and Ireland are relatively considered. In England the great expense of land culture with horse labour has been so great, so imperfectly performed, that a very great reformation was loudly called for to enable land holders to compete with foreigners in their own market. The land culture by manual labour, once and for a long time so strongly advocated by philanthropists, and in some cases so successfully carried out on a small scale by those who understood it, was by no means adapted to farms where tillage was extensively practised. Each of those difficulties, it appears, are now quite completely overcome by the use of the "iron horse," whilst the productive powers of the soil are increased by the development of those fertile resources which, in the absence of deep tillage and due aëration, if I may use the term, are left dormant in the subsoil; and England can now boast of having done more than any other country on the globe to make the most of her resources, so vast in so small a space as England after all is, when compared with other countries of so much greater extent of surface. When considering how far steam power is likely to be beneficial to Ireland compared with its advantages to England, it may be necessary, even though cursorily, to consider the relative condition of the two countries. We certainly want farm capital in Ireland; that we want skill and enterprise is equally certain. But we have in addition to those another want, which if supplied would bring in, as sure as cause produces effect, the free use of capital, and the exercise of skill and enterprise. The want I mean is security; yes, security to all, beginning with the poor, where with small beginnings, as rivulets form streams and rivers, and all combined form seas and oceans, so will the security to industry, by its expansion and upward growth, bring the desired security to all other around and above it. But to do away with such rough-spun metaphor, and better still, to avoid discussions which when pushed too far rather retard than advance the security just glanced at, I will confine my remarks to the other wants which Ireland is said to stand in need of, and which should be supplied before steam cultivation can be profitably employed here. We are said to want coals, iron, large farms, large fields, &c. Well, some do. But we have turf in such abundance as will supersede the necessity of using coals, especially in the interior of the country, where coals are dearest; and will it be believed in England that it can be well proved here that fuel to work a steam plough can be had to do effective work at a cheaper rate than it can be had in many parts of England, even within a few miles of the coal pit's mouth? Such is the case. Our large farms are few, and on them our large fields fewer still than are to be found in England. But still we have large farms and large fields, and the owners will not cultivate by steam power or by any other power, because they believe, whether rightly or otherwise, which this is not the place just now to discuss, that they are more profitable to the owners, quite regardless of the public advantages to have them producing a little Grass, than to have them producing large quantities of green crops. Can we not have large farms and large fields without trenching on the scruples of the Irish grazier? I would leave the majority of the small farmers on their holdings, till by their increased industry, superinduced by industrial education, they would prove themselves fit for larger farms to be procured for them—ay and for the steam plough to be worked upon. Where will those large farms be got? Just in the very places where the fuel already alluded to most abounds—the turf bogs, of which we have in Ireland about 4,000,000 acres, and more than one half of which are quite flat levels, free from stone and everything else that could either retard the progress of the steam plough or increase the cost of its maintenance in any way. Get the steam plough into full play on the bogs of

Ireland, where without disturbing the easy life of the Irish grazier, or the miserable life of the small farmer, you will create many more producers of food and raw material to be worked upon by the English artisan, consumers of his manufactured article, consumers of exciseable produce, lessening the income taxation of England by this increased consumption, and better still be increasing the quantity and improving the quality of land here liable to income-tax, with the thousands of other corresponding or correlative advantages, which it would take the Chancellor of the Exchequer himself, were he an agricultural statistician adequate to the task, to enumerate. I fancy I see some readers smile or frown at the mere mention of employing steam-power to reclaim the bogs of Ireland—yes, to effect a reclamation such as the most energetic of our Irish improvers, even when backed by the aid of the Imperial legislature, have been for so many centuries labouring at in vain. If ever those bogs are to be reclaimed, and reclaimed they will be on Ireland becoming "what she ought to be," united in industry as well as in politics and taxation with England, the steamer's whistle must take the place of the curlew's scream. *Edward Carroll, 6, College Street, Dublin, June* 17.

The Late Attempt in the House of Commons to introduce a Law to Shut up Public Houses on Sundays is very suggestive, and bears upon a question of great importance to the welfare of the working classes. No restrictive legislation will remove an evil, the existence of which does not depend so much upon the temptation proposed to be got rid of, as upon other circumstances. It is the abuse and not the use of a thing which renders it mischievous. Undoubtedly drunkenness is the bane of society, and public houses are generally selected by the working classes to congregate in, sometimes from choice, but often from necessity, to obtain the common conveniences denied a man at home, the crowded state of his inconvenient cottage compelling his family to live together in a most abominable condition, more like animals than human beings. Would it not be wise in the powerful, wealthy, and influential magnates of the land to inquire into one of the evident causes of immorality, and to attempt to remedy it, before trying to make men and women sober by law? It is easier to lead than drive the human animal. Common sense would suggest how necessary it is, when giving good advice, to be able to point out a feasible way of escaping the temptation of evil company and bad examples. To gain the confidence of men and women, there must be earnestness of manner and truthfulness; words are thrown away, and the speaker placed in an anomalous position, if his precepts cannot be carried out. The preacher may address himself to the working classes of his congregation, inveigh against drunkenness, immorality, and profligacy, exhort parents to bring up their children carefully, to check vice and encourage virtue, and yet he well knows that very many heads of families to whom he is talking have not even an opportunity of separating the sexes at night. Clergymen appoint young women as district visitors in their parishes, who have to visit overcrowded cottages, and cannot fail to observe the extraordinary arrangements of men, women, and children sleeping in the same room, a disgusting fact, yet one which should be kept from the young and inexperienced mind; indeed it is not a fair position to place them in. Churches may be built, school houses erected, tracts distributed, but until the residences of the working classes are improved, so as to give the inmates a chance of observing common decency, all efforts to raise the character, and give a proper tone to the feelings of the lower classes, will be fruitless. The labourers do not require expensive cottages, fitted up with every luxury inside, and ornamented without, but they do want wholesome roomy dwellings in which they may live respectably and have no excuse for frequenting the public house, to their own destruction and that of their families. This question cannot be much longer laid on the shelf. In a few days some startling juvenile statistics will be sent to the *Agricultural Gazette* relating to crime. *Falcon.*

Clover Disease.—In last week's *Gazette* you gave the following answer to your correspondent "Nemo:" "Your Clover dying in patches is being killed by the Clover Dodder." Are you right? I have seen several fields of Clover this year that have died off in patches, I suppose similar to your correspondent's, and one of my own fields is gone off in the same way; but I cannot detect the Dodder as being the cause. In a 10-acre field adjoining my farm there was a full plant last autumn, but in the spring there was scarcely a plant of the broad-leaf Clover left, only the Trefoil that was sown with it. From what I hear I believe it is a general complaint, and I have been watching the *Agricultural Gazette* in the hope of gaining some information. Does the Dodder run in the winter? *Leonard Barber.* [The patches where Clover has been killed by Dodder are circular and brown as if scorched.]

The Bishop of Rochester and the Rev. G. Davis.—It is with much regret that I have only just seen in your last week's Number the extract from the *Mark Lane Express*, on "The Rev. G. Davis and the Bishop of Rochester," or I should sooner have sought your permission to insert a line or two in your next impression. I do, however, sincerely hope that you will convey to your readers the honest conviction that not a tenth of the English clergy will ever indorse his lordship's strictures on this subject, any more than they will that anxiety o his that his priests should appear well "shaven and shorn." As a body we are proud of our farmers, we rejoice in every opportunity of associating with them, and although I know instances of clergymen, who sorely grieve over the absence of their leading farmers from the temple of God, and in consequence speak harshly of the bad example they show their labourers, to say nothing of their own thoughtlessness, yet, as a clergyman myself, I protest most indignantly against the Bishop of Rochester's dictum, and most fearlessly assert that there is no body of men with whom the country clergy are proud to feel one, as with the good old-fashioned farmer who is regularly seen in his place at church with his family, most probably also looking round to see if all his dependents are there also, and is as certain to be counselling with his parson from time to time for the good of their mutual interest—"the welfare of the parish." *A Monmouthshire Parson.*

Societies.

Bath and West of England. — The monthly meeting of the Council was held at Douch's Railway Hotel, Taunton, on Saturday last; J. Silliphant, Esq., Vice President, in the chair.

Earl Fortescue, who, at the Exeter meeting, was elected President for the ensuing year, ending with the Bristol meeting, expressed, in a letter to the Council, the satisfaction with which he should perform the duties of the office so unexpectedly conferred upon him. An offer by Mr. Alexander Simpson, of Birmingham, of "a prize of ten or twenty guineas for the best calf fed on his condiment from one week old," was respectfully, but unanimously declined; several members protesting against the degradation of the prize system which the acceptance of the offer would involve. Several important resolutions having reference to the future conduct and management of the society were discussed, but their ultimate decision was deferred till the August meeting. The committees, stewards, and officers for the ensuing year were nominated; their election at the August meeting being rendered dependent on their written consent to act. On the recommendation of the stewards of poultry, it was resolved that the future exhibitions of the department be held under carefully protected shedding, with the convenience of side curtains for night service. Eleven new members were elected; after which the Council adjourned.

Foreign Correspondence.

An Agricultural Sketch: Stuttgart.

[The following is the continuation of our correspondent's report of the Farm at Salzmünde.]

Spring-sown grain crops (Barley, Oats, and spring Wheat, altogether about 2000 acres) after Beet-roots, get partly a dressing of farm-manure, partly an additional dressing of about 1 cwt. of guano. The past seasons having shown very fair results of the dressings with guano and bone-dust, it is Mr. Zimmerman's intention to double the guano used till now, with an additional outlay for some 100 tons more of bone-dust. The plough used at Salzmünde for all cultures is rather large, and known there under the name of "Beet-root plough of Magdeburg." It is exclusively drawn by oxen, four of them for each plough, and attended to by a ploughman and a driver. Although the furrows are made no less than 14 ins. deep, 2 Prussian morgen, or about 133 English acres, are ploughed easily per day; a fact which might be explained by the circumstance that the beasts have to work only half a day, and stoppages being prevented by ploughing mostly round and round. In visiting S. last autumn, we just came on a field where 10 to 12 ploughs were going behind each other, strictly overwatched by an overseer or bailiff, who has to keep order and to have an eye on regular and uninterrupted work. They were ploughing 15 inches deep, and each plough was preceded besides by a woman or boy, who had to pick up grubs, which were very numerous last autumn. Mr. Zimmerman thinks that with four oxen, more work is done this way than with four horses, who have to work all the day. The root crops being ploughed all before winter 14 to 16 inches, they only get in spring a stirring with the cultivator. Harrows and rollers are of no great importance there, as the soil is naturally so loose that it is brought to a very fine tilth, with proportionally little trouble. The harrows used there have iron teeth and are made after a Scotch model; the rollers we saw there were all a kind of ring-rollers. A thorough deep cultivation and a timely use of the cultivator, the roller and the harrow, as it is practised here, are of course of the first consequence for the extensive culture of the root-crops there. It speeds and facilitates not only the regular sowing, brairding and hoeing of the latter, but it is also most beneficial for the succeeding grain crops, which are all drilled there. In districts, as, for example, on the Rhine, where tough and clayey soils and the old-fashioned shallow ploughings are yet predominating, the drill culture has of course found no general entrance yet. At Salzmünde the drill culture has shown so many advantages by the experience of several years, that Mr. Zimmerman has drilled all his grain crops (3000 acres) at a distance of 4½ to 6 inches. The young seeds of Wheat and Rye we saw last autumn presented indeed a beautiful aspect, by their equality and the straightness of the drills, and I do not say too much when I say, that not even in England have I ever seen better sown grain crops. Six drilling machines have been procured from England, out of Messrs. Hornsby's manufactory, and though they cost about 44*l.* apiece, everybody is convinced of their suitability here. Each machine requires three men and two horses, which latter are changed every quarter of a day, and 22 to 25 Prussian morgen, or about 16 English acres, are sown this way daily. The sugar Beet crop is likewise drilled with these machines at a width of 18 inches, so that they can easily be horse-hoed with a three-rowed machine, which makes much cheaper work that that done by hand. The first hoeing costs thus only about 7*d.* per acre, whilst the former land work amounted to fully 1*s.* 8*d.* per acre. After the singling of the Beet roots they get a second horse-hoeing, which hastens their growth, so that they are soon large enough for being bulked up. The earthing up of the Beet roots is done with a four-shared bulking plough, after Smith's system, and the work is done so properly at a depth of 3 inches, that the assistance of hand work is required only in a small scale. About 17 English acres may be bulked up daily with this machine, at half the expense of the former hand-work. Not so easy and simple is the Potato culture, and knowing that Mr. Zimmerman is very well informed on British agriculture, I wonder that he has not adopted the Scotch or English system of putting the Potatoes in ridges, and splitting them after the dung and the Potato-sets have been put in.

Here the Potatoes are laid in holes, made with the spade, at a distance of 24 inches in breadth and 16 inches in length. For finding out the equal distance of the holes, drills or marks are made with a wooden machine, called "marqueur" there. Many hands are required of course for planting in so short a time over 1000 acres of Potatoes. The latter are all stored in pits made on the spot and covered with straw, and a layer of earth, 3 feet in thickness. The pits are 15 to 20 yards long, and the Potatoes keep all the winter there, better than in any cave or cellar. The Clover-hay is all dried on wooden posts or "bees," each having six sticks put across, and being of the form shown last week. I never saw similar frames in England, and would highly recommend them, as the hay is sheltered thereupon against any inclemencies of the weather. Experiments are made with the making of "brown" or fermented hay, which is said to be an excellent food.

To give you a right comparison between the fertility of Salzmünde and that of other countries or districts of northern Germany, I am going to specify to you the average crops grown, as taken out of the harvest registers of the latter 10 years.

Crops, on the average of 10 years, considered as high but not uncommon ones.

	per Engl. acre	per Engl. acre
Sugar Beets, washed, yield	9.5 tons to	14 tons
Potatoes ,, ,, ...	5.4 ,,	7.2 ,,
Clover-Hay ,, ,, ...	1.9 ,,	3 ,,
Wheat ,, ,, ...	3.6 qrs.	5.1 qrs.
Rye ,, ,, ...	3.6 ,,	5.4 ,,
Oats ,, ,, ...	5.4 ,,	8 ,,
Barley ,, ,, ...	4.1 ,,	6 ,,
Rape ,, ,, ...	3. ,,	4 8 ,,
"Awehl" (a harder kind of Rape) ..	2.4 ,,	3.6 ,,

Although the cultivation of the root crops is carried on there on a very large scale, it has not had any weakening effect on the other crops; on the contrary, the latter are increasing from year to year. If this will be the case also for the future remains a question to be solved by experience only. According to Mr. Z.'s and Dr. Growen's opinion, the theories on the exhaustion of the soils, referred to by a well-known German chemist, seem to be much exaggerated, the more so on farms as the above, where with the exception of some sugar, spirit, oil, and meat, all is consumed on the place and returned to the soil in the form of manure. On estates, however, where the exportation of grain, roots, and Clover is considerable, and where the necessary manures cannot be supplied elsewhere, an exhaustion and impoverishment of the soil is a matter of course.

In concluding this first part of my description on Salzmünde, I think it well to refer to a journal edited by Dr. Growen, the able chemist of the Experimental Station, out of which I have taken the most of the above notes, as it would not have been possible for me to gather, during my short stay at Salzmünde, so many interesting details. Should my rather long sketch on one of the most extensive and best managed farming establishments of Germany be of any further interest to you, it will give me much pleasure to give you the second part in my next. *J. R., O. Farm, near Stuttgart, June* 27.

Reviews.

Report on the supposed Progressive Decline of Irish Prosperity. By Mr. Neilson Hancock, LL.D. Dublin. Printed by A. Thom, 87 and 88, Abbey Street.

In reply to some allegations which had been made as to the progressive decline of Irish prosperity, W. Neilson Hancock, LL.D., has published a clever pamphlet, lucidly compiled from statistics furnished by official authorities, and by command of his Excellency the Lord Lieutenant of Ireland, with a view to ascer-

tain the state of the country. This gentleman has executed his work with scrupulous avoidance of party politics and personalities, as might be expected from a barrister appointed for the purpose by the high-minded nobleman whose elevated rank, office, and individual worth place him above the suspicion of any unworthy motive. The pamphlet is important and interesting, and I wish to make a few remarks on some parts of it which relate to the agricultural interests of Ireland, without obtruding observations on the financial and social subjects contained in it.

It is needless to revert to imperfect sources of information respecting statistic calculations made antecedently to 1847; no satisfactory results are deducible from such unreliable authorities.

Dr. Hancock, has, however, thought it right to enter into some particulars to show the erroneous character of the allegations of progressive decline founded on the decrease of land under crops, and he has especially assigned clear arithmetical reasons for reducing Mr. M'Culloch's estimate of 2,000,000 acres under Potatoes in one year, as an overrate of 762,559 acres.

Even with the utmost care to obtain accurate returns of agricultural statistics under official management and earnest desire to arrive at truthful information, there must be a large margin left for inaccuracies, both designed and incidental. Even many British agriculturists of the tenant class will have their private reasons for withholding truthful returns of the quantity and quality of their crops; and this disinclination to disclose the circumstances inquired after, may be supposed to have much greater force among the small farmers of Ireland, who are jealously apprehensive of inquisitorial inquiries affecting the productiveness of their land. And the large tenant farmers who constitute a great majority of the Poor Law Guardians, are supposed also to underrate the estimates of produce, as appears from the following semi-official note of the Registrar-General. "In 1855, the opinion of the Poor Law Guardians was to some extent used in checking the returns of the Constabulary; in 1856, both systems were used. The tendency of taking the opinion of the Guardians has been to lower the rates of produce." No doubt the Guardians are really competent judges of this matter, but they are not always disinterested, whereas the constabulary report what they believe to be correct as to produce; and in their returns of the acreage of crops, they are absolutely so.

One of the tables presented by Dr. Hancock shows the number of acres under crops of all kinds from 1847 to 1862 inclusive; from this it appears that the number has not reached six millions, nor been less than five millions and a quarter at any point within the series. The maximum number was 5,970,199 acres in 1860, and there has been a decrease in each of the two subsequent years, the last year showing a decrease beyond that of the previous year of 138,841 acres. "Even with this decrease there were upwards of 500,000 acres more under crops in 1862 than in 1847; 200,000 acres more than in 1849, and 50,000 acres more than on an average of seven years from 1849 to 1855 inclusive."

It is interesting to observe the relative increments and decrements of Turnips and Potatoes from 1849 to 1862. In the year 1859, when the average of Potatoes was 1,200,347 (the maximum of the whole range from 1847), the acreage of Turnips was only 322 and 137, being a decrease on the four preceding years, when the acreage of Potatoes had been progressively increasing.

In the course of the three last years the quantity of land under Potatoes has been diminishing, and in the two last, that of Turnips has been increasing. The breadth of land under Potatoes in the present year will probably exceed that of the three preceding years, and the acreage of Turnips will proportionably fall off. The decline of Wheat culture is most remarkable. It has fallen from 743,871 acres in 1847 (the maximum in the tabular series of 16 years) to 357,816 acres in 1862—the lowest, excepting in the years 1852 and 1853, which were very little higher. The produce during the last two years has been very bad—less than 2 quarters to the acre in 1862—"the worst year as to produce since the statistics were first collected in 1847."

In Oats there has been also a decline in produce, though the extent of land under this cereal has been nearly the same during the last six years. In each of the last two years the deficiency has been nearly 800,000 quarters. "There can be no doubt that 1861 and 1862 were very unfavourable years for the Oat crop, which occupies one-half the entire land under crops, other than meadow and Clover, and four-fifths of the land under cereal crops in Ireland." There have been unquestionably three successive bad harvests in Ireland, attributable to the unfavourable conditions of the climate during the three last years. Dr. Hancock has taken the trouble of obtaining tables which show the annual rainfall in each year from 1841 to 1862 (inclusive) and though some of those years were very unfavourable in respect of wetness (1852 the lowest of all), there were not three consecutive years exhibiting so many inches above average as the three last; the rainfall (according to the Register of the Ordnance Survey Office) on 221 days of 1862, being 26 above the average of last year, and 210 days in 1860. In 1861—the intervening year—the greatest quantity of rain fell in July, August, and September, in the series of years from 1855 to that year. According to the foregoing details, the deficient produce of the last three years is altogether attributable to climate. And it is a rational conclusion. The frequent over moisture and deficiency of sunshine prevalent in Ireland are certainly sufficient causes of the decline in Wheat culture, which is only prudently pursued in the calcareous soils of the midland counties, and cannot compete with the more favourable climates from which supplies are drawn at prices much below the rates which formerly induced Wheat growing in Ireland—even under probability of failure. In 1847 there were nearly 800,000 acres under Wheat, and in 1862 less than half that number, with an estimated produce of only 683,048 quarters! In 1853 there were only 326,896 acres under Wheat (the lowest in the series), with an estimated produce of 1,133,585 quarters, in round numbers about twice the produce of nearly the same extent of acreage, at nearly double the price. Wheat farming therefore has been a sad failure latterly in Ireland.

In the table of Oat crop the falling off in extent of land has not been great since 1847. In the last six years it has been almost exactly the same, but in each of the last two years there has been a deficiency of produce of nearly 800,000 quarters. "There can be no doubt that 1861 and 1862 were very unfavourable years for the Oat, which occupies one-half the entire land under crops other than meadow and Clover, and four-fifths of the land under Cereal crops in Ireland. I have already adverted to the relative increase and decrease of Potatoes and Turnips. A few special remarks are however necessary regarding those crops in their respective conditions. The extent of land under Potatoes in 1849, when hope of their restoration to healthfulness had induced a considerable degree of cultivation of them, was 718,608 acres; during the succeeding six years the progressively advancing extent was less than 1,000,000 acres. During the following septennial period the acreage has been above that extent by one or two tenths, excepting the last year, which was only 1,017,317. "The table exhibits a very great decline in produce since 1859, and something quite startling in 1861, when it was far below a third of the average produce from 1851 to 1855, and below a half of the average produce from 1856 to 1860. The land under Potatoes in 1861 and 1862 was about one-fourth of the entire land under cereal and green crops in those years. Such a serious falling off in produce must have had a most disastrous effect an impoverishing the farming classes." I have heard that the pawn offices of a provincial town with which I am well acquainted, have been doing a lamentably large amount of business with the class of petty farmers and small traders connected with them—more than 50 donkey carts of the gig form used for the conveyance of farmers, wives and daughters to market, are now in the yard of one pawnbroker. This very unusual circumstance is a sure evidence of at least temporary want among the peasantry.

It is well known that the productiveness of the Potato has never since the famine equalled its produce per acre previously to 1846. This circumstance, Dr. Hancock remarks, "though often overlooked, is one of the most important to bear in mind, as no change in the laws or interference of Government, could prevent the continuous loss of the half of so valuable a crop, rendering Ireland a less desirable place than it would otherwise have been for a poor and numerous population to live in."

The acreage of Turnips in the last year was 377,149 acres, an increase on the last septennial period.

There are some interesting tables showing the number of cattle, sheep, and pigs, from 1841 to the present time. The increase of cattle has been remarkable to 1859, but subsequently there has been a decrease. In sheep there has been a decrease since 1854. The maximum number of pigs in any year since 1841, was 1,409,883 in 1858. There has been a decrease in the last two years. Besides numerical increase in all the above instances, the improved weight and consequent value of the animals is to be estimated. Still the decline within the last three years is unquestionable. Several other important subjects are treated of, ably and perspicuously, in this bulky pamphlet, but we cannot venture to occupy more space with observations respecting them. We shall barely quote, in a very succinct form, a few sentences from the six "general conclusions" which the author, to whom we feel much indebted for valuable information, has deduced from his previous statements.

The diminished average produce of all crops in the four years, 1856, '57, '58, and '59, seems to have led to a check of prosperity in some things, and on the whole to a diminished rate of progress in agricultural wealth—that the still further diminished produce of all crops in 1860, 1861 and 1862, resulting from inclement seasons, turned the diminished progress in wealth into a positive decline; and that the accumulation of the effects of three years decline has produced a very serious diminution of national wealth and well-being. The losses of farmers in Oats, Wheat, Potatoes, and cattle in the three years amounts to upwards of 26,000,000*l.*, or two years' rental. *M. D.*

Miscellaneous.

Senseless Weights and Maddening Measures.—A gallon isn't a gallon. It's a wine gallon, or one of three different sorts of ale gallon, or a corn gallon, or a gallon of oil; and the gallon of oil means 7½ lb. for train oil, and 8 lb. for some other oils. If you buy a pipe of wine, how much do you get? 93 gallons if the wine be Marsala, 92 if Madeira, 117 if Bucellas, 103 if Port, 100 if Teneriffe. What is a stone? 14 lb. if a living man, 8 if a slaughtered bullock, 16 of cheese, 5 of glass, 32 of hemp, 16½ of Flax at Belfast, 24 of Flax at Downpatrick; it is 14 lb. of wool as sold by the growers, 15 lb. of wool as sold by the woolstaplers to each other. There are seven measures in use to define an acre. A hundredweight may contain 100 lb., 112 lb., or 120 lb. A hundredweight of pork is 8 lbs. heavier at Belfast than at Cork. A man might live by selling coal at a less price per ton than he paid for it at the pit mouth. A ton of coal at the pit mouth varies from 22 cwt. to 28 cwt. of 120 lb. each; a ton to the householder means 20 cwt. of 112 lb. each. Of cheese, 32 cloves (of 8 lb. each) make a wey in Essex, 42 in Suffolk. We walk in this United Kingdom by the measure of four sorts of miles, an English mile being 217 yards shorter than a Scotch mile, 480 yards shorter than an Irish mile, and the geographical mile being another measure differing from all three. Our very sailors do not mean the same thing when they talk of fathoms. On board a man-of-war it means 6 feet, on board a merchantman 5½ feet, on board a fishing vessel 5 feet. *All the Year Round.*

Mill Dams and Drainage on the Thames above Oxford.—Every well regulated mill dam, and every well ordered lock, with their weirs and lashers, give facilities to local drainage, which must otherwise be artificially provided. Take as an instance the Cassington and Yarnton meadows, a case in which the antiquated tenure, as lot or Lammas land, hinders united action. The occupiers have, nevertheless, shut off the water which flows by a water course from the river immediately above the Duke's cut; they have to a certain extent availed themselves of the ditch cut parallel with the railway, which carries the drainage by a double culvert under the cut, and ultimately discharges it by a circuitous course into the Woolvercott mill tail. Though the most has not been made of this outfall, it is the mill dam to which it is due. Should an attempt be made to complete the drainage of these meadows (as might be done), the obvious method is to carry the water under the mill head, either to the back water of the mill, or the tail of King's Weir. In this case, as in other cases, the water now festering in the soil, destroying both the quantity and quality of the herbage, and rendering the land unfit to carry stock during a considerable portion of the year, might be easily removed, at once increase the value of the land, and effectually improve the sanatory condition of the district. Many instances might be added; the whol or part of the meadows to the east of the river, between the Cherwell and Sandford mill tail, including Aston's eyot, the well-known habitat of the graceful Fritillaria, but otherwise a noxious flam, would be furnished with efficient drainage outfalls, above Iffley by the lock and mill tail, and below by the mill dam at Sandford, which requires improvement, by the enlargement of the water way. If it were necessary to try the experiment on a small scale, an island immediately above the latter spot might be effectually drained, and doubled in value, if a small iron culvert were passed under the river for the discharge of the drainage into the lower level. If this were done, it is obvious that the mouths of the ditches now communicating with and bringing the water from the river must be closed, whereby many gates and small bridges might be spared, to the great benefit of the towing paths, and a saving of expense to the Thames Commissioners. Looking at the future, it may be expected that, as land drainage is extended in the water-shed of the upper Thames, floods will diminish in volume, because water evaporation is promoted where land drainage is efficiently carried out. The falling rain must replace the water evaporated before it can flow from the surface or from the drains beneath the soil; even if this were not so, the removal of water which stagnates in the soil is the great point to be aimed at by those who desire to increase the value of the land, and improve the health and well-being of the inhabitants of this district. This question should be met in a spirit of mutual accommodation. The drainage of the Oxford valley has long been a vexed question; if once accomplished, the interests of all parties would be promoted, and the improvement of the sanatory condition of the city, University, and neighbourhood o Oxford would be the inevitable result. *Rev. J. C Clutterbuck, before the Ashmolean Society.*

Leases.—The following are Mr. Sanderson's conditions on which he considers a lease ought to be based.

"1. No restriction as to cropping the first 17 years of a lease.

"2. No restrictions with respect to the sale of roots, straw, or hay, the first 17 years.

"3. That for the last four years of the lease one-fourth of the entire area under cultivation shall be annually allotted for root crops.

"4. That during the last four years a root crop shall intervene two white crops.

"5. That during the last four years no straw shall

be consumed off the farm, unless an equivalent in value of dung be restored to it.

"6. That all root crops during the last four years shall be consumed on the farm.

"7. That at the expiration of the tenancy one-half of the arable land shall be under straw crops, or fit for straw crops, (as the term of entry may regulate), one-fourth for roots, and one-fourth under Clover.

"NOTE.—None of the above conditions would need to be enforced, were a renewal of lease agreed upon at the end of the seventeenth year."

Calendar of Operations.

JULY.

NORTHUMBERLAND: *June Report.*—The weather through the greater part of June has been warm and seasonable, and the crops, especially the Wheat, have progressed in growth amazingly. A considerable fall of rain occurred about the middle of the month, which for a time banished us from the ordinary working of our Turnip breaks on the stronger soils; however this, in addition to the subsequent showers, has had the effect of keeping everything in a healthy and growing condition. The rainfall of the month registers nearly 3 inches. Turnip sowing was pursued with unabated vigour during the early part and middle of the month, and was brought to a satisfactory conclusion on the 26th. The system of working and manuring the land for this crop was given in our last report, hence we conceive it superfluous to repeat it. We yet hear, however, of considerable breadths of land to be seeded with White Turnips on the light soils of this county. Turnip sowing being finished, our attention has been of late more particularly directed to the securing of our hay crops, which have cut up lighter than was generally expected during the earlier months of spring. Nearly the whole of our Clover-hay is down, having been cut in first rate style by one of Burgess and Key's combined machines, at the rate of from 12 to 16 acres per day—the men and horses of course working in relays. *Stock.*—Cattle are feeding satisfactorily and bringing remunerative prices in the fat market, but great complaints are afloat as to the tardy manner in which lambs are becoming fit for the butcher. Grass is now plentiful, and as a consequence, lean cattle and sheep are being bought in at fabulous prices. Wool is the sole topic of conversation in agricultural circles at this moment, and though a good many sales have been effected at rates varying from 1*s.* 10*d.* to 1*s.* 11½*d.* per lb., still buyers are very cautious, and of late an attempt has been made to delude the public by a report—evidently without foundation—of a downward tendency in the trade. We ourselves have not yet sold, though we have been bid 1*s.* 10½*d.* per lb. for a first-rate sample of mixed Leicester wool, and we are now sticking out for better things in the trade, which we shall very probably obtain. *J. W.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level. At 9 A.M., Railway Time.	Thermometer. Reading of Dry Bulb.	Thermometer. Reading of Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	July	Inches. 30.26	°	°				°	°	°	°	Inches. 0.02
Thursday ..	9	30.32	72	63	N.	1	0	75	51	91	46	..
Wednesday ..	8	30.21	65	60	N.W.	0	5	75	53	91	45	..
Tuesday ..	7	30.15	68	63	S.W.	3	6	74	56	82	51	..
Monday ..	6	30.36	67	61	E.	3	0	73	54	92	48	..
Sunday ..	5	30.42	65	57	N.W.	0	7	70	51	91	45	..
Saturday ..	4	30.36	64	56	N.W.	0	0	71	47	90	42	..
Friday ..	3	30.26	66	60	N.W.	2	5	67	50	79	44	..

THE HYDROPULT,

EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "The machine is certainly the most compact and efficacious force pump of its size that we have ever seen."—*Daily Telegraph.*

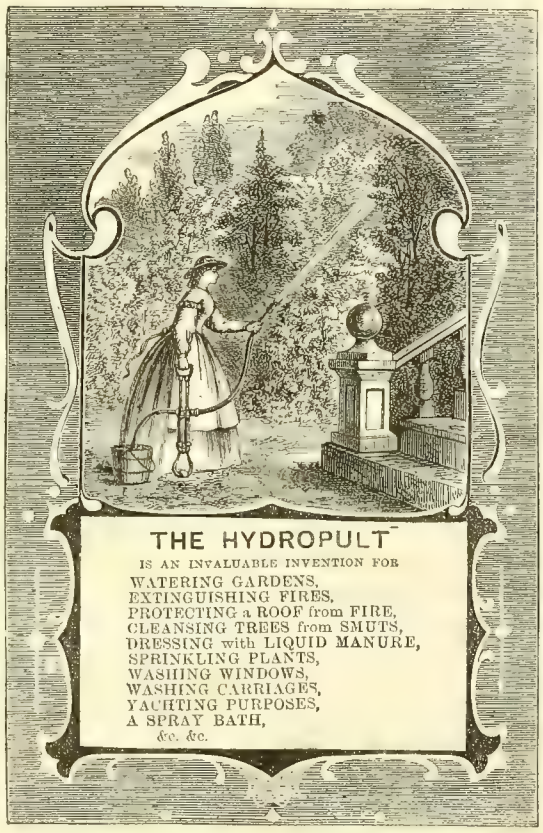
THE HYDROPULT. — "All Londoners and other town residents who care for their gardens and greenhouses should avail themselves of such engines." — *Gardeners' Chronicle and Agricultural Gazette.*

THE HYDROPULT. — "We strongly recommend it to our readers."—*Journal of Horticulture and Cottage Gardener.*

THE HYDROPULT. — "It will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water." — *Gardeners' Weekly Magazine.*

THE HYDROPULT. — "Country readers who order it on our recommendation, will not only not repent, but thank us for calling attention to a machine which, having once used, they will never care to be without."—*Floral World and Garden Guide.*

THE HYDROPULT. — "We can only say that no public establishment or private house should be without one of these useful machines."—*Commercial Daily List.*



EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "We are satisfied that all housekeepers ought to have one, and we are equally satisfied that if they once see it they will order it." — *Liverpool Daily Post.*

THE HYDROPULT. — "We commend it to the notice of the proprietors of warehouses and other buildings, public and private, in the metropolis and provinces.' — *Mechanics' Magazine.*

THE HYDROPULT. — "It is admirably adapted for sprinkling gardens, trees, graperies, washing windows, carriages, and for household purposes, its simplicity and portability being its strong recommendation." — *Illustrated News of the World.*

THE HYDROPULT. — "Nothing has yet been introduced for watering gardens equal to the Hydropult, as any one standing close to his house can water, in a few minutes, any ordinary suburban garden, thus saving much time, and performing the task in an easy, satisfactory manner." — *Builders' Reporter.*

THE HYDROPULT. — "Many of the most scientific men of the age are daily inspecting and testing its uses." — *Age We Live In.*

AN INVENTION FOR THROWING WATER BY HAND POWER

(SECURED by ROYAL LETTERS PATENT),

Price **TWO GUINEAS**

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Small Jet. Weighs but 8 lbs.

Recommended as an efficient and useful Fire Engine by the principal Fire Insurance Companies of Great Britain.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

THOMAS RIVERS, Esq., the eminent Florist, SHIRLEY HIBBARD, Esq., and other well-known gentlemen, recommend it as an invaluable Garden Implement.

EXTRACTS FROM TESTIMONIALS.

"Royal Insurance Office, Liverpool.

"My dear Sir,—I have much pleasure in expressing the high satisfaction, and indeed surprise, with which I witnessed the working of your Hydropult. There can be no doubt that it can be available in the earlier stages of fire in warehouses, manufactories, or private houses, in preventing large conflagrations, while its applicability to gardening and other purposes will be manifest to any one observing its operation.—I am, my dear Sir, yours truly, "PERCY M. DOVE, Manager."

"Chas. P. Button, Esq."

"The invention will prove extremely valuable for all the purposes to which such machines are applied.—SWINTON BOULT, Secretary, Liverpool and London Insurance Company."

"Its portability and facility of operation recommend it to the general notice of the public.—HENRY LOWE, Secretary, District Fire Company."

"In a blowing or mixing room it would be of especial service. — F. J. HALLOWS, Secretary, Caledonian Insurance Company."

CAUTION: Important to the Public.—The extensive sale of the HYDROPULT has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting, as they are often placed under or near the Hydropult show card. The Proprietor therefore issues this caution, and respectfully intimates that parties wishing to purchase the Hydropult, should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, a Portable Fire Annihilator and Garden Engine; GRIFFITHS & BROWETT, Manufacturers, Birmingham; CHARLES P. BUTTON, General Agent (Vose's Patent)." Unless this label be attached, the machine is not the Hydropult.

THE HYDROPULT is MADE of BRASS and COPPER, weighs but 8 lbs., and WILL THROW EIGHT GALLONS of WATER PER MINUTE FIFTY FEET, WHEN WORKED by the POWER of ONE MAN.

Public and private buildings have been saved from destruction by its agency. T. SPENCER, Esq., Inspector of the Royal Society for Protection of Life from Fire, certifies to its efficiency in saving valuable property at Bayswater from destruction.

FIRE FIRE! FIRE! THE HYDROPULT IS THE MOST EFFICIENT FIRE-ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.

It can be used for all purposes for which a hydrant or force pump is applicable, and in situations where other contrivances are useless.

CHARLES P. BUTTON, PROPRIETOR,

HYDROPULT WAREHOUSE, 27, LEADENHALL STREET, LONDON, E.C,

WEST-END DEPOT, 309, REGENT STREET, W.

Notices to Correspondents.

GAS LIME. *H W C.* Put two waggon loads per acre over Grass or Clover in autumn, and plough it in some weeks before seed time. We do not, however, believe it will destroy wireworm. And remember anything that will destroy *them* will be still more likely to destroy young plants. Gas lime, however, loses its causticity by a week or two of exposure.

GRASS: *A 13 years' Subscriber.*—We recommend sowing Rape and feeding off, and then putting in seeds and Barley next spring. Grass seeds are, however, as likely to succeed sown by themselves in August or September as at any other time of the year.

SALT: *P. P. Wills.* 4 cwt. per acre will not kill weeds on light land. You must get the weeds up by scarifying, harrowing, gathering, and burning. Earlier in the year you might have done a good deal to it by mere sunshine.

SEEDLING POTATOES: *W. Patterson & Son, Dundee.* The leaf sent is larger than any we can find in our garden.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.

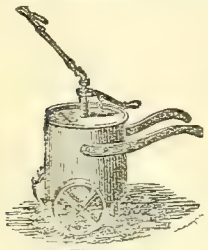


Fig. 570.

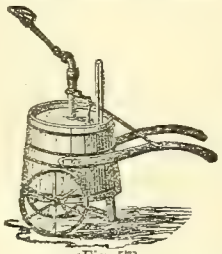


Fig. 571.

J. TYLOR & SONS' GALVANIZED IRON TUB GARDEN ENGINES, with Registered Spreader.

8 gal. 12 gal. 16 gal.
2 13 6 £3 5 0 £3 15 0
24 gal. 30 gal.
£5 0 0 £5 18 0

J. TYLOR & SONS' OAK TUB GARDEN ENGINES, with Registered Spreader.

15 gal. 28 gal.
£5 12 6 £7 2 0



Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 8 0 each.
No. 2. Ditto ditto .. 1 2 6 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,



Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 11s. 6d. each.
,, 589. Middle Ditto ditto .. 10 3 ,,
,, 588. Small Ditto ditto .. 9 0 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 7 6 ,,



Fig. 591. READ'S SYRINGE, with two roses and one jet, 17s. 6d.
READ'S SYRINGE, with one rose and jet, 15 0
,, 592. Improved ditto ditto large 14 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

THOMAS MILLINGTON,

GLASS MERCHANT.

ESTABLISHED 1750.

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

The Agricultural Hall, Islington, containing an Acre of Glass, was supplied by T. MILLINGTON.

Mr. Rivers, and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home Use and for Exportation.

☞ *For prices see Advertisement of June 6.*

ST. PANCRAS IRON WORKS,

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IRON HURDLES, FENCING, and GATES.

The PROPRIETORS of the ST. PANCRAS IRON WORKS, OLD ST. PANCRAS ROAD, LONDON, WERE AWARDED THE SILVER MEDAL of the ROYAL AGRICULTURAL SOCIETY for their IRON HURDLES and GATES which, by their peculiar construction, are more than twice as strong and durable as those in ordinary use.

Lists per post on application. Gates from 30*s.* to 500*l.*

The Hurdles can be seen in process of Manufacture at the Works.

GAME WIRE NETTING.

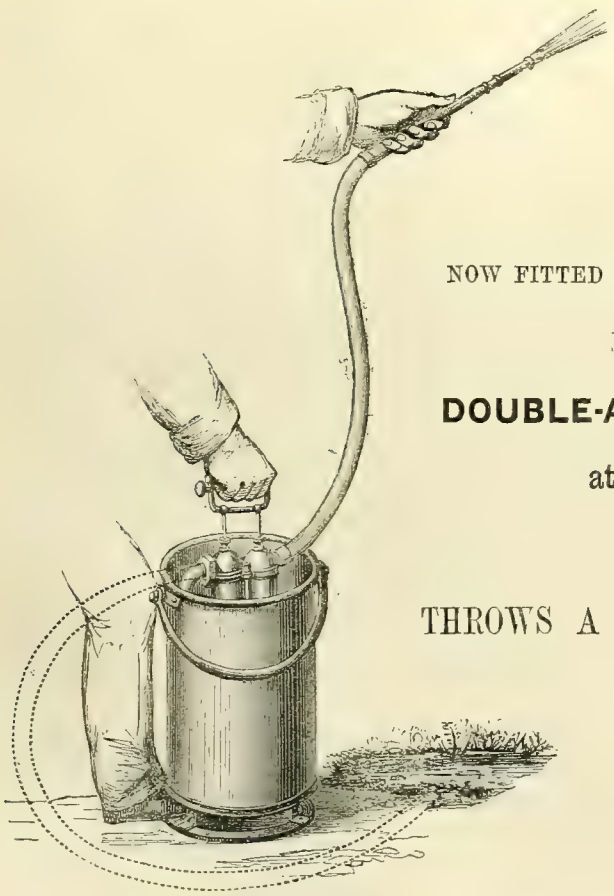
PROFESSOR VARNELL'S ENAMELLED and WROUGHT-IRON STABLE FITTINGS.

These Patent Mangers and Stable Fittings obtained the Commendation and the Silver Medal of the Royal Agricultural Society of England and the Royal Agricultural Society of Ireland, are adopted by the Royal Veterinary College, and Professor Spooner of that Institution states that they should be used by all who value the health and comfort of their Horses. They can be had Plain, Galvanised, or Enamelled.

A Show Room is devoted entirely to every description of Stable Furniture, and full-sized Stalls and Loose Boxes are erected for inspection at St. Pancras Iron Works.

ADDRESS—THE MANAGERS, ST. PANCRAS IRON WORKS,
OLD ST. PANCRAS ROAD, LONDON, N.W., OPPOSITE OLD ST. PANCRAS CHURCH.

WARNERS' IMPROVED PATENT,



NOW FITTED WITH AN AIR VESSEL,

IS THE ONLY

DOUBLE-ACTION ENGINE

at £2 2s.

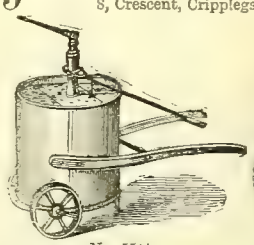
THAT

THROWS A CONSTANT STREAM.

May be obtained of any Ironmonger or Seedsman at the above price, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.

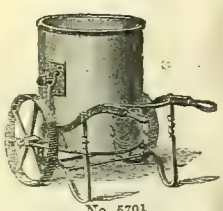


No. 554½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons £2 15 0
16 ,, ... 3 15 0
24 ,, ... 5 0 0

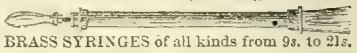
Larger sizes may be had in either Wood or Iron.



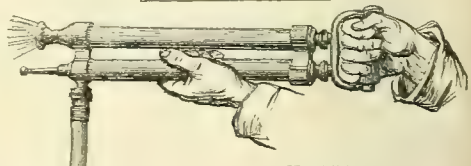
No. 579½.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons .. £2 10 0
20 ,, .. 2 0 0



BRASS SYRINGES of all kinds from 9*s.* to 21*s.*



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 5 feet Flexible Suction Pipe,

21s.

Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

THERE ARE NO SUCTION OR DELIVERY VALVES, hence MUCH FRICTION AND LIABILITY TO CHOKE with leaves and dirt IS AVOIDED.

JOHN WARNER & SONS, 8, Crescent, Cripplegate, London, E.C.

FOWLER'S
STEAM PLOUGHING AND CULTIVATING PATENTS.

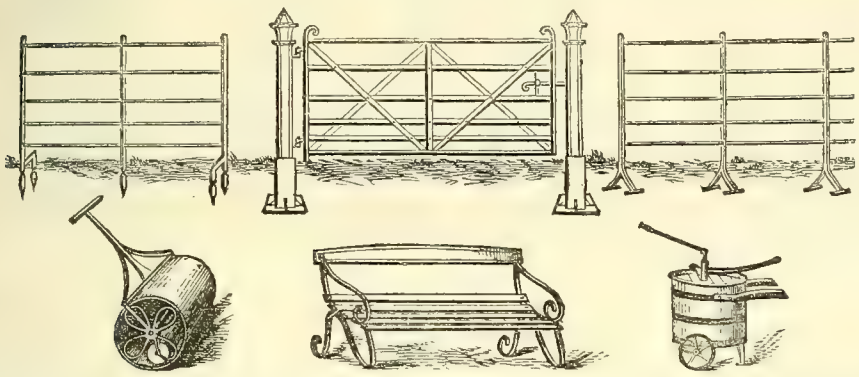
RANSOMES & SIMS, Orwell Works, Ipswich,

Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

COTTAM'S
CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED IN VARIOUS STYLES.

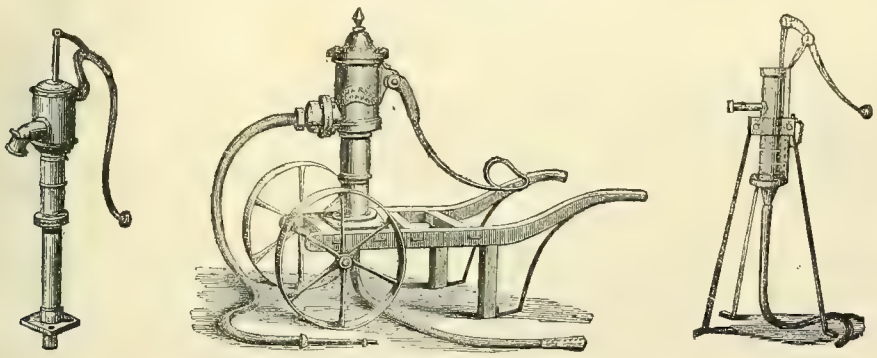


IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.
VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.
The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

Illustrated CATALOGUES and DRAWINGS free on application to
COTTAM & CO., ENGINEERS and IRON FOUNDERS,
2, WINSLEY STREET (Opposite the Pantheon), OXFORD STREET, LONDON, W.

JOHN WARNER & SONS,
BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. No. 36½. Improved Cast-Iron Lift and Force Pump. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

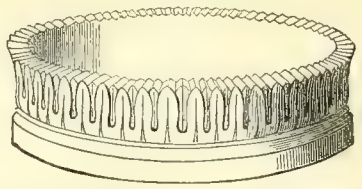
By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump one man will force the water in a continuous stream to a height of 50 feet.
When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER and SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

.....6 feet 9 inches.....



AUSTIN, SEELEY, and CO. beg to inform the Nobility and Gentry that they are prepared to supply, at three months' notice, TAZZE for Flowers or Fountains, as wide as 13 feet. They take this opportunity of referring to some large Flower Basins and Plain Kerbings made by them for the Royal Horticultural Society's Gardens; and also to those lately supplied to the Public Garden in the Regent's Park. They will be happy to forward a List of their Fountains to any gentleman requiring one.

369 to 375, Euston Road, Regent's Park, N.W.



GARDEN BORDER-EDGING TILES. — These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

To be obtained at F. & G. Rosher's Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.

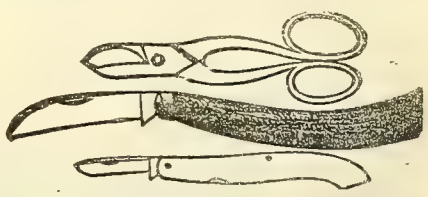
Illustrated Price Lists free on application. The Trade supplied

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. Rosher at their Premises as above.

Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal was Awarded to Saynor & Cooke for superiority of quality in Pruning and Budding Knives, &c.

SAYNOR and COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

Caution.—None are genuine unless marked Saynor. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

Exhibition Prize Medal 1862.

MUSGRAVE'S PATENT STABLE FITTINGS and HARMLESS LOOSE BOXES, PATENT IRON COW HOUSE FITTINGS, and IRON PIGGERIES.



These inventions are recommended as possessing numerous advantages not to be found in anything hitherto made. At the late Meeting of the Royal Agricultural Society at Leeds, Musgrave Brothers received a Silver Medal, and two Awards of "Highly Commended," being the only Prizes conferred on any competitor in this class.

Particulars sent on application to the Inventors and Makers, Musgrave Brothers, Ann Street Iron Works, Belfast.

PATENT ELECTRICAL PLANT PROTECTOR, for the preservation of Plants, Flowers, and Shrubs from Snails, Worms, Slugs, &c.

This Protector being composed of zinc and copper, or of any two metals combined in such a manner as to form an electrical couple, constantly gives off a certain amount of electricity, rendering plants entirely secure from the attacks of Slugs, &c., as it has been discovered to be perfectly impossible for any insect or worm to crawl over a combination of these two metals.

Being formed in plain and ornamental designs for borders, beds, &c., it is applicable to all gardens, terraces, &c.; it is also made in the form of Plant Guards to encircle the stems.

Illustrated Lists of Prices post free on application to Robert B. Lee & Co., Sole Manufacturers of the Patent Plant Protector, 22, Market Place, Manchester.

Oil Paint no longer Necessary.

HILL and SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to Hill & Smith, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

Card.

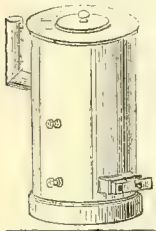
SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



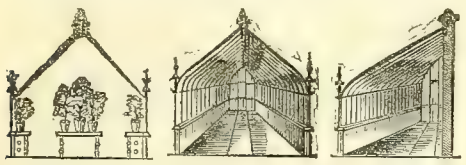
Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon



an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.

T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.



T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES o the above, Glazing without Putty Garden Engines, &c., sent upon application.

Royal Agricultural Show, Worcester.
STAND No. 2, IMPLEMENT YARD.
CONICAL BOILER AND IRON FURNACE STAND EXHIBITED.

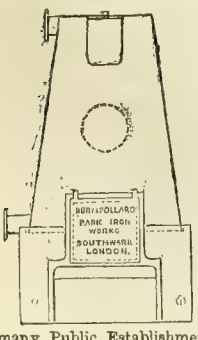
Horticultural Buildings and Heating by Hot Water.

BURY AND POLLARD, Park Iron Works, New Park Street, Southwark, S.E., Manufacturers of every description of Buildings for Horticultural purposes, with their improved CONICAL BOILER for heating the same, undertake works of any magnitude, and refer, among others, to the works at Frognal the seat of Viscount Sydney, the Lord Chamberlain, just completed by them.

BURY & POLLARD also call attention to
THE IRON FURNACE STAND
invented by them. A most economical, durable, and efficient arrangement for warming Conservatories, &c.

Prices of Boilers and every particular on application.

Royal Agricultural Show, Worcester.
STAND No. 2, IMPLEMENT YARD.
CONICAL BOILER AND IRON FURNACE STAND EXHIBITED.



LATEST IMPROVEMENTS IN
Heating by Hot Water.
THE IMPROVED
CONICAL BOILERS,
FOR HEATING PINERIES, CONSERVATORIES, GREENHOUSES, MANSIONS, HALLS, WAREHOUSES, &c.,
SOLELY MANUFACTURED BY
BURY AND POLLARD
(Successors to JOHN R. PEILL,
Late STEPHENSON & PEILL).

Annexed Sketch shows BURY & POLLARD'S improved arrangement, requiring
NO BRICKWORK SETTING.

These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United Kingdom. References where they have been 20 years in constant use.

Price Lists on application to BURY & POLLARD, Park Iron Works, New Park Street, Southwark, London, S.



HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.

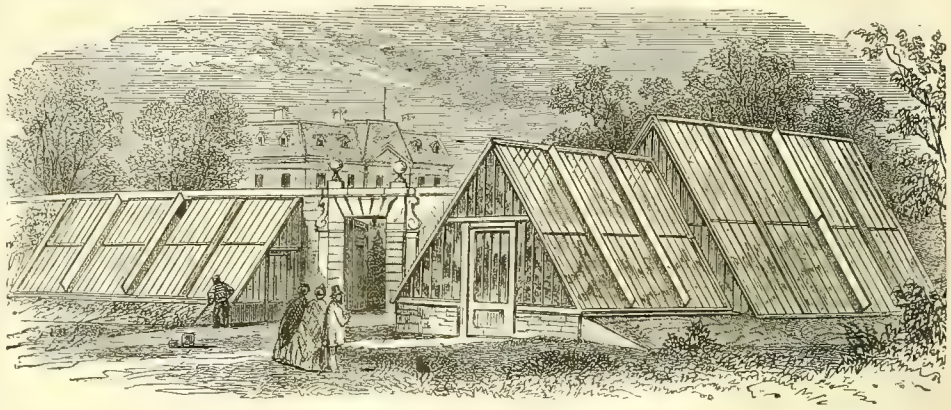
COMBINING SIMPLICITY, CHEAPNESS, AND DURABILITY,

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.



"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit can be obtained as the 'Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.



The Cash Prices of LEAN-TO HOUSES, with Water-troughs, Doors and Ends complete, are as follows:—

Ft.	In.	8 ft. Lights	10 ft. Lights	Ft.	In.	12 ft. Lights	14 ft. Lights	16 ft. Lights
20	7 in length	£12 0 0	£16 0 0	20	11 in length	£21 18 0	£28 10 0	£34 5 0
31	3 in length	16 10 0	21 2 6	31	9 in length	29 6 0	37 12 0	45 16 0
41	11 in length	20 18 0	26 18 6	42	7 in length	36 16 0	46 14 0	57 7 0
63	3 in length	30 6 0	38 10 0	64	3 in length	51 14 0	64 18 0	80 10 0
84	7 in length	39 6 0	49 11 6	85	11 in length	66 12 0	83 2 0	103 11 0
105	11 in length	48 17 6	60 12 6	107	7 in length	81 10 0	101 10 0	126 13 0

SPAN-ROOF HOUSES at double the above prices for each length of house.

Circulars with Lists of Prices and Cards to view houses in operation in the neighbourhood of London, also Estimates for Heating and Erection complete, can be had on application to

SAMUEL HEREMAN, 7, PALL MALL EAST, LONDON, S.W.

Manufactured in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen, and Paisley.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN, price 1*s.*; post free, 1*s.* 1*d.*

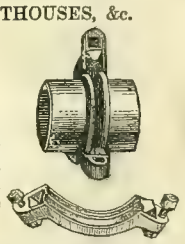
"We cannot do better than advise every reader who has a spark of gardening spirit and taste in him to write at once for a Copy."—*Bell's Weekly Messenger*, March 17, 1862.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

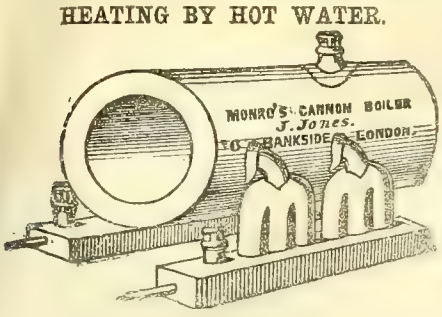
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

HEATING BY HOT WATER.



MONRO'S CANNON BOILER.

J. JONES,

HORTICULTURAL ENGINEER AND IRON MERCHANT,

SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

HEATING GREENHOUSES,

CONSERVATORIES,

FORCING PITS,

CHURCHES, CHAPELS, SCHOOLS,

HALLS,

BILLIARD ROOMS,

COACH HOUSES, HARNESS ROOMS, &c.,

OF THE BEST QUALITY, AND AT MODERATE CHARGES.

PLANS, ESTIMATES, and DESCRIPTIVE CATALOGUES

SENT POST FREE ON APPLICATION TO

J. JONES,

6, BANKSIDE, LONDON, S.E.

Under the Patronage of Her Majesty.

CLARK AND HOPE (late CLARK), HORTICULTURAL BUILDERS, COPPER, SASH, and HOT-WATER APPARATUS MANUFACTURERS, 55, Lionel Street, Birmingham.
Established A.D. 1818.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

Glass for Greenhouses.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

ENGLISH GLASS, 16 ounces to the foot, in Sheets averaging 40 by 30, packed in Cases containing about 280 feet, 2*d.*, 2½*d.* and 2¾*d.* per foot.

FOREIGN SHEET GLASS, in 300 feet cases, 33*s.* 6*d.* and 42*s.* per case.

SHEET GLASS, 16 ounces, packed in boxes of 100 feet each.

Package included.	3rds.	4ths.
12 by 9, 13 by 9, 14 by 9, 15 by 9 / 12 „ 10, 13 „ 10, 14 „ 10, 15 „ 10	14*s.* 0*d.*	12*s.* 6*d.*
13 „ 11, 14 „ 11, 15 „ 11, 16 „ 11 / 14 „ 12, 15 „ 12, 16 „ 12, 17 „ 12 / 18 „ 12, 19 „ 12, 20 „ 12, 16 „ 13 / 17 „ 13, 18 „ 13, 19 „ 13, 20 „ 13 / 16 „ 14, 17 „ 14, 18 „ 14, 20 „ 14	16*s.* 0*d.* per 100 feet.	13*s.* 6*d.*

Various other sizes.

☞ REDUCED PRICES of GLASS for ORCHARD HOUSES, As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Gentry, and Clergy of the United Kingdom.

		16 oz.	21 oz.
20 in. by 12 in. / 20 in. by 13 in.	Common	13*s.* 6*d.* ..	£0 16 6
20 in. by 14 in. / 20 in. by 15 in.	Superior do. ..	16 0 ..	0 19 6
	English Glass ..	18 0 ..	1 5 0

The above prices include the Boxes.

We recommend 3rds quality at 16*s.*, or 21-ounce at 19*s.* 6*d.* Best and Seconds are intended only for Pictures or Dwelling Houses.

N.B. Special prices for 500 feet and upwards.

SMALL SHEET SQUARES, IN 100 FEET BOXES.

6 by 4	6½ by 4½	7 by 5	7½ by 5½ / 9½ „ 7½	11*s.* 6*d.*
8 „ 6	8½ „ 6⅝	9 „ 7		
		10 „ 8	10½ „ 8½	12 6

Boxes 2*s.* each, returnable at full price.

All Small Squares from 6 by 4 to 10½ by 8½ are cut from pieces; consequently there is only one quality.

SQUARES CUT to SPECIAL SIZES.
16 oz. 4ths, 1⅜*d.*, 2*d.*, and 2¼*d.* 21 oz. 2⅜*d.*, 3*d*, and 3¼*d.*
„ 3ds, 2*d.*, 2½*d.*, and 3*d.* „ 3*d.*, 3¼*d.*, and 4*d.*

London Agents for Hartley's Improved Patent Rough Plate. Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

Milk Pans and every description of Glass for Horticultural purposes.
180, Bishopsgate Street Without, London, E.C.

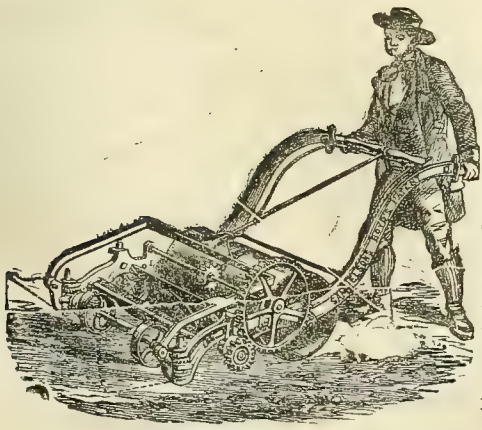
"The GEARING of SAMUELSON AND CO.'S LAWN MOWING MACHINES is not liable to Derangement."

SAMUELSON & CO.'S
PATENT LAWN MOWING MACHINES.

SAMUELSON AND CO.'S 12-INCH and 16-INCH NEW PATTERN LAWN MOWERS.
SAMUELSON AND CO.'S IMPROVED GARDEN ROLLERS AND GARDEN SEATS.

Catalogues Free, on application to BRITANNIA WORKS, BANBURY; or to
SAMUELSON AND CO.'S LONDON WAREHOUSE, 76, CANNON STREET WEST, CITY,
where Samples may be seen.

DEANE & COMPANY'S
HORTICULTURAL TOOLS.



DEANE'S MOWING MACHINES, with Patented Improvements, 4*l.* 12*s.*, 6*l.* 10*s.*, 7*l.*, 8*l.*
GARDEN ENGINES, Galvanised Iron, Prices 55*s.*, 65*s.*, 78*s.*, 90*s.*, 100*s.*, 110*s.*
GARDEN ENGINES, Wood, 90*s.*, 110*s.*, 138*s.*
FLOWER STANDS, 4*s.* 6*d.* each.
CAST-IRON ORNAMENTAL FLOWER STANDS to hold Seven Vases, 27*s.*
GREEN'S PATENT MOWING MACHINES.
GREENHOUSE SYRINGES, 8*s.*, 10*s.*, 18*s.* 6*d.*
GARDEN ROLLERS, 1*l.* 14*s.* 6*d.*, 2*l.*, 2*l.* 12*s.*, 3*l.* 3*s.*, 3*l.* 18*s.*, 4*l.* 13*s.*, 5*l.* 12*s.*, 7*l.* 10*s.*
GARDEN STOOLS, 4*s.* 6*d.*
GARDEN SEATS, from 25*s.*
BOYD'S SELF-ADJUSTING SCYTHE, 10*s.* 6*d.*
WIRE WORK, 18 in., 4*d.* per yard run.

Every Implement for Garden use on the lowest terms.

DEANE'S NEW ILLUSTRATED HORTICULTURAL LIST POST FREE ON APPLICATION.

DEANE'S, OPENING TO THE MONUMENT, LONDON BRIDGE, E.C.



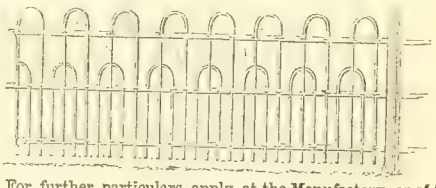
Lawn Mowers.

BURGESS AND KEY beg to direct attention to their NEW PATENT LAWN MOWING MACHINE. It is simple, efficient, easily worked, and not liable to derangement. GARDENING and HORTICULTURAL TOOLS of every description. Illustrated Price List free. Catalogues by post on receipt of six postage stamps.

BURGESS & KEY, 95, Newgate Street, London, E.C.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.



For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster. S.W.

Gutta Percha Tubing for Watering Gardens.

THE GUTTA PERCHA COMPANY have the pleasure to acknowledge the receipt of the following

Testimonial from Mr. J. FARRAH, *Gr. to* BOSWELL MIDDLETON JALLAND, *Esq., of Holderness House, near Hull.*

"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."

Manufactured by the GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C., and sold by their Wholesale Dealers in town and country.

To Nurserymen.

FOR SALE, an OLD ESTABLISHED BUSINESS in the County of Surrey, situated close to a first-class Railway Station.

For particulars apply to Messrs. HARRISON, Solicitors, 5, Walbrook, London, E.C.

To Market Gardeners and Others.

TO BE LET, an eligible PLOT of LAND (about Thirteen Acres) contiguous to a large, flourishing, and rapidly increasing Market Town. A first-class Nurseryman and Gardener could scarcely fail to succeed.

Address M. G., Mr. Lovejoy's Library, Reading.

To Market Gardeners, Florists, and Nurserymen.

TO BE LET, with possession at Michaelmas next, 12 ACRES of very superior GARDEN GROUND, in full cultivation, well stocked with Fruit Trees and Bushes, with Forcing House and requisite Buildings. House and Offices, situate at King's Lynn, in the county of Norfolk.

The above has been for years successfully occupied as a Market Garden, and offers an excellent opening for a Nurseryman and Florist, there being none in the place.

The soil is of first-rate quality, and peculiarly adapted for the growth of Roses.

Further particulars may be obtained of Messrs. CRUSO & SON, Estate Agents, King's Lynn.

To Noblemen's and Gentlemen's Gardeners, Market Gardeners and Others.

TO BE LET, upon the most advantageous terms, with Immediate Possession, or at Michaelmas first, a Large FORCING GARDEN near London, consisting of Nine Acres of the best of Land, with an excellent supply of water, eight acres of which are Planted with the Choicest Sorts of Fruit Trees, and one acre being occupied with Forcing Houses for the Growing of Pines, Grapes, Peaches, Nectarines, Plums, Cherries, Figs, Strawberries, Melons, Cucumbers, Plants, and Mushrooms. All having been planted a few years ago are in a most healthy and fruit-bearing condition.

For further particulars apply by letter to Z. A., *Gardeners' Chronicle* Office, W.C.

N.B. The Glass consists of nearly 10,000 feet, and all the Houses are thoroughly heated with hot-water pipes.

Sales by Auction.

Final Sale.

To GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS have received instructions from the Executrix of the late Thomas Gaines (deceased) to submit to an unreserved SALE by AUCTION, on the Premises, Surrey Lane, Battersea, within five minutes' walk of Battersea Park, on MONDAY, July 13, at 11 o'Clock, a newly erected SHOW HOUSE, 41 feet 10 inches long by 32 feet over; 12 capital GREENHOUSES; a quantity of 2, 3, and 4-inch Hotwater Pipe, Saddle and other Boilers, Slate Shelving, York Paving; a capital Box, Spring Van with patent Axles, Tumbril Cart, and other effects.

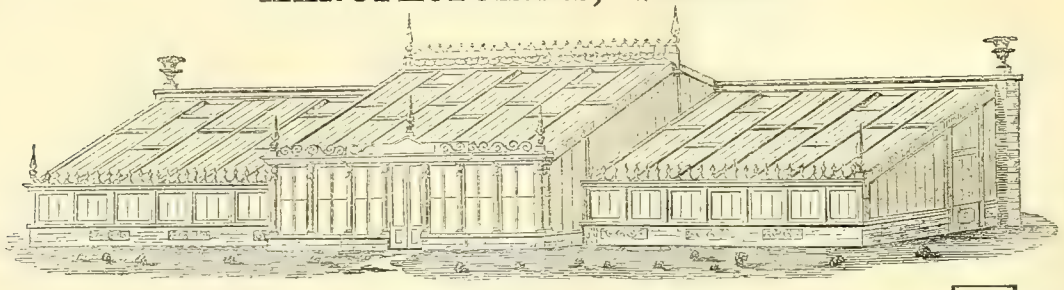
May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

ENGLISH WOOL SALES by PUBLIC AUCTION in LONDON, at the Wool Sale Rooms, 54A, Moorgate Street, London, E.C., on WEDNESDAY, July 15. About 1000 SHEETS, comprising some of the best Flocks of LONG and SHORT WOOL from Kent, Sussex, Berkshire, Leicestershire, Wiltshire, Hampshire, Oxfordshire, Norfolk, Hertfordshire, Herefordshire, &c., &c.; and which include about 200 SHEETS of very superior LONG LUSTRE WOOL, and about 100 SHEETS of very choice NORFOLK HALF-BRED, also IRISH.

Catalogues will be ready on the Morning of Sale, and further particulars may be had on application to BRADBURY & COOK, Wool Brokers, 17, Basinghall Street, London, E.C.

JOHN WEEKS & COMPANY,

HORTICULTURAL BUILDERS AND HOT WATER APPARATUS MANUFACTURERS, CHELSEA.



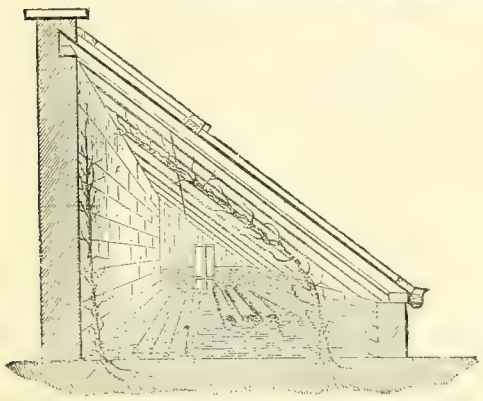


FIG. 30.

WEEKS & CO.'S

IMPROVED PEACH HOUSES

AND

CONTINUOUS GLASS COVERING

For every description of FRUIT WALL, continue in such unabated requisition as to prove beyond doubt their eminent superiority over every other similar invention purporting to be of corresponding utility. They are of very superior Material and Workmanship; Light, Portable, and Durable. Can be fixed to walls already planted against, without risk of injury to the trees, and requiring no brick foundations are convenient for removal whenever necessary.

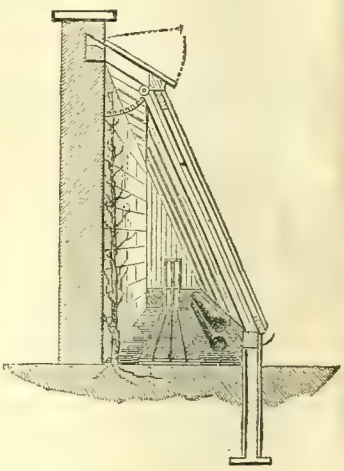


FIG. 33.

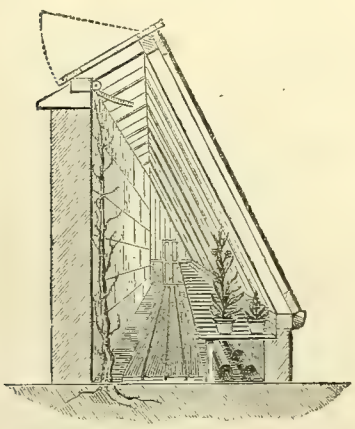


FIG. 32.

NOTICE.

JOHN WEEKS AND CO. have the honour to announce the completion of the HOT-WATER APPARATUS upon their ONE-BOILER SYSTEM, at the Royal Botanic Gardens, Cologne, Prussia.

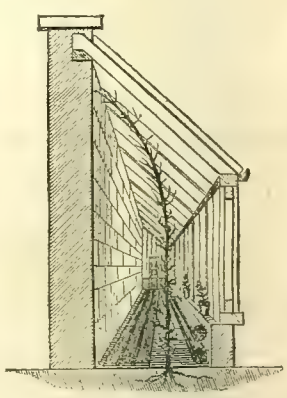
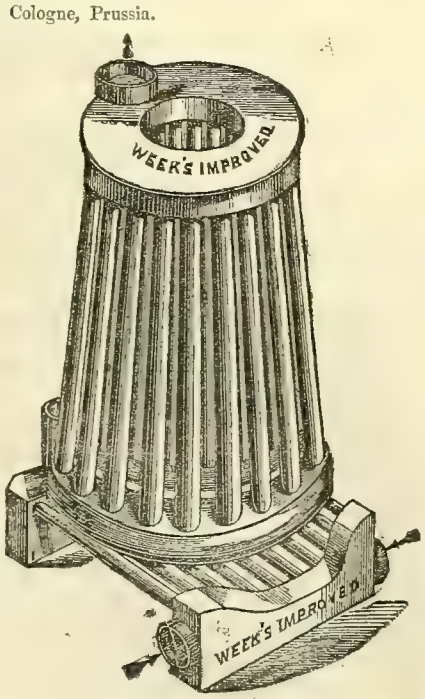


FIG. 31.



WEEKS AND CO.'S ONE BOILER SYSTEM of Heating by Hot Water has so thoroughly eclipsed every other method of Heating, as to have earned for itself the eminent reputation of being "The Certain Apparatus of the Day." It has been most successfully employed by all the leading Nurserymen of Great Britain and the Continent, who pronounce it the only system whose genuine merits are economy of fuel and labour, cleanliness, efficiency, and durability.

Testimonials of the highest compliments have been received, copies of which can be furnished. This system has also been adopted by

HER MAJESTY THE QUEEN
HIS LATE R.H. THE PRINCE CONSORT
HIS ROYAL HIGHNESS PRINCE DEMIDOFF
THE GOVERNMENT OF GREAT BRITAIN
HER MAJESTY'S COMMISSIONERS OF WORKS, IRELAND
THE TOWER OF LONDON
THE ROYAL HORTICULTURAL SOCIETY, LONDON
THE ROYAL BOTANIC SOCIETY, REGENT'S PARK, LONDON
THE ROYAL BOTANIC SOCIETY, DUBLIN
THE ROYAL BOTANIC SOCIETY, LIVERPOOL
THE ROYAL BOTANIC SOCIETY, COLOGNE
THE ROYAL ZOOLOGICAL SOCIETY, LONDON
THE CRYSTAL PALACE, SYDENHAM
And NUMEROUS PUBLIC COMPANIES.

J. WEEKS AND COMPANY, HORTICULTURAL BUILDERS and HOT WATER APPARATUS MANUFACTURERS, KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No 11, Bouverie St., in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, July 11, 1863.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 29.—1863.] SATURDAY, JULY 18. {Price Fivepence. {Stamped Edition, 6d.

INDEX.

Apricots under glass	676 b	Recreation of the labourers	687 c
Bennet (Dr.) on Mentone, &c.	678 c	Rose Show, Birmingham	677 c
Berberis Nepalensis	677 b	Science and Practice in Farm Cultivation, rev.	687 c
Book keeping	679 a	Scolopendrium, variegated	677 b
Books, various	679 b	Small Birds and Oak-galls	687 a
Cheese making	685 b	Shorthorns, sale of	688 a
Clematis Fortuni	676 a	Society, Royal Agricultural	687 b
Crops, appearance of	683 a	— Hamburgh	687 b
Cultivation by steam	682 b	— Bot. of Edinburgh	678 a
Fish offal	685 a	Steam culture	682 b
Gooseberry Caterpillar	677 a	Steam cultivation, the Speaker on	687 a
Grapes	675 c	Stephanotis, fruit of	677 b
Hinchliff's American Sketches	678 b	Strawberries, pistillate	677 a
Horse labour	686 a	— La Constante	677 b
Insect powder, Persian	677 b	Trade lists	679 a
Leaves, pollen-spotted	675 b	Veitch's (Mr.) nursery	679 c
Lilium auratum	679 c	Wine, Australian	677 b
Melons	677 a	Worcester Show	681 b
Peat	630 a	Working men's flower shows	675 a
Platycodon sinense	675 b		
Rain, yellow	675 b		

☞ NOTICE TO ADVERTISERS. — *Advertisements should reach the Office by the* THURSDAY *in each week; and they should be written on one side of the paper only.*

ROYAL HORTICULTURAL SOCIETY, FRUIT COMMITTEE.

A MEETING of the COMMITTEE will be held on TUESDAY, July 21st, for the Examination of such Fruits and Vegetables as may then be exhibited, and on which occasion the following Prizes are offered:—

	1st Prize	2d Prize
CLASS A.—The best dish of PEACHES ..	20s.	10s.
„ B.—Best dish of NECTARINES ..	20s.	10s.
„ C.—Best dish of PLUMS	20s.	10s.
„ D.—Best collection of the newest varieties of STRAWBERRIES ..	20s.	10s.
„ E.—Best collection of any varieties of CURRANTS	20s.	10s.

All fruit sent to the Meetings of the Committee is understood to be at the disposal of the Committee; and fruit sent on condition that it is "not to be tasted," is not taken into consideration.—All communications and packages must be addressed to the care of

ROBERT HOGG, LL.D., Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY. FLORAL COMMITTEE.

The next MEETING of this Committee will take place on TUESDAY, July 21, at 12 o'Clock.

The Subjects for Examination must be at South Kensington for entry by 11 A.M.

THOMAS MOORE, Secretary to the Committee.

GRAND HORTICULTURAL FETE at the ALEXANDRA PARK, Wood Green, Hornsey; to be held on THURSDAY and FRIDAY, July 23 and 24.

Total amount of Prizes about 700*l.*, which may be had in Medals, Vases, or Cash.

Prizes are offered for Three Groups of Fruit and Flowers for the Decoration of the Dinner Table; three Vases arranged with plants for Conservatory Decoration; and Three Hanging Baskets of Plants effectively arranged.

The prizes of above to be awarded by a jury of Ladies.

SPECIAL NOTICE.—Prizes of 6*l.*, 5*l.*, and 4*l.* will be offered for Class 1A, 6 Stove and Greenhouse Plants (Amateurs only).

Prizes of 6*l.*, 5*l.*, and 4*l.*, will be offered for Class 10A, 8 Exotic Orchids (Amateurs only).

The Prize Money will be paid the second day of the Show.

Schedules of Prizes, and every information of the Flower Show, may be had on application to ALEX. MCKENZIE.

Alexandra Park, Tottenham Wood, Hornsey.

Open to all England.

GRAND HORTICULTURAL SHOW to be held at KETTERING on THURSDAY, July 30, in connection with the Northamptonshire Agricultural Society's Show, when Prizes to the amount of 200*l.* will be distributed, including FIVE SILVER CUPS.

The Show Ground adjoins the Midland Railway Station at Kettering. Special Trains will run, of which due notice will be given by the Midland and North-Western Railway Companies.

Schedules, price 3*d.* each, may be obtained of Mr. WADDINGTON, Printer, Kettering.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, now ready for Planting. Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

PINE PLANTS.—Very fine QUEEN PINE PLANTS, in all sizes, warranted from a stock that never had scale.—Apply to M. ROCHFORD, Market Gardener, Page Green, Tottenham, N.

To Plant Collectors and Others.

B. S. WILLIAMS will be happy to make arrangements with Botanists and others going abroad for the TRANSMISSION of ORCHIDS and other RARE PLANTS in any quantity.

Paradise and Victoria Nurseries, Holloway, London, W.

New Hybrid Mimulus, Cupreus Varieties.

B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, can supply in good plants, Henderson's 10 NEW HYBRID MIMULUS, at 5*s.* the set of 10 varieties.

New Verbenas of 1863.

B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, has now ready to send out the NEW VERBENAS of 1863, at 4*s.* per dozen.

CATALOGUES of VERBENAS and other Novelties sent on application.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Agricultural Seeds.

GEORGE GIBBS AND CO., SEEDSMEN, 26, Down Street, Piccadilly, London, W.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS and NURSERYMEN. 237 and 238, High Holborn, London, W.C.

Good Turnip Seeds, Carriage Free.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

Best Seeds, Carriage Free.

BUTLER AND MCCULLOCH, SEED MERCHANTS, Covent Garden Market, London, W.C.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.

Dorking Nursery.

British Fern Catalogue.

ROBERT SIM can now send, Post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

CHOICE SEEDS.—CINERARIA, 1*s.* per packet; CALCEOLARIA, 1*s.* do.; PRIMULA, 1*s.* do.; COVENT GARDEN INTERMEDIATE STOCK, 1*s.* do.; MIMULUS, 1*s.* do.; HUNT'S SWEET WILLIAM, 1*s.* do.; CARNATION, 1*s.* do.; PICOTEE, 1*s.* do.; PELARGONIUM, 1*s.* do.

BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

Calceolaria, Cineraria, and Primula.

F. AND A. SMITH are now sending out their very superior strain of the above, carefully selected from first-class varieties, in Packets at 1*s.*, 1*s.* 6*d.*, and 2*s.* 6*d.* each.

The Nurseries, Dulwich, London, S.

Cineraria, Calceolaria, and Antirrhinum.

B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, offers SEED of the following, of first-class quality:—CINERARIA, CALCEOLARIA, PRIMULA SINENSIS, ANTIRRHINUM, and PENTSTEMON, at 1*s.* to 2*s.* 6*d.* per packet, post free.

Cineraria, Calceolaria, and Primula.

E. G. HENDERSON AND SON offer first-class seed of the above. Also, CINERARIA WEBBI, a new shrubby species, and best English and French Spotted PANSY. Each 1*s.* and 2*s.* 6*d.* per packet.

☞ EXPERIENCED GARDENERS recommended.

Wellington Nursery, St. John's Wood, London, N.W.

The Trade

MAY NOW HAVE QUOTATIONS OF FIRST-CLASS SEED OF CINERARIA, CALCEOLARIA, and PRIMULA, by weight, or otherwise; also of the NEW MIMULUS, hybrids of M. CUPREUS.

E. G. HENDERSON & SON, Wellington Road, London, N.W.

New Hybrid Mimulus.

E. G. HENDERSON AND SON offer Seed of the beautiful new Section, between M. CUPREUS and M. LUTEUS, as now to be seen in the Wellington Nursery, forming an elegant dwarf bedding-plant, and adapted for pot-culture in Conservatories. 1*s.* and 2*s.* 6*d.* per packet.

Wellington Nursery, St. John's Wood, London, N.W.

WHEELER'S CELEBRATED CALCEOLARIA is of the finest strain, and unsurpassed for colours and quality. Seed now ready, at 1*s.*, 1*s.* 6*d.*, and 2*s.* 6*d.* per packet.

CINERARIA, fine, 1*s.* per packet.

DELPHINIUMS, from fine perennial kinds, 6*d.*, 1*s.*, and 1*s.* 6*d.* per packet.

GEORGE WHEELER, Nurseryman, Warminster, Wilts.

Imported Orchids.

B. S. WILLIAMS has just received a fine importation of the following ORCHIDS:—

LYCASTE SKINNERI | CATTLEYA MOSSIÆ
CATTLEYA SUPERBA
GALEANDRA DEVONIANA, a choice and rare plant, finest of the genus.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Dutch Bulbs, &c.

LOUIS VAN HOUTTE'S new BULB CATALOGUE, No. 97, is to be had at Messrs. R. SILBERRAD & SON'S Office, 5, Harp Lane, Great Tower Street, London, E.C.

N.B. The LILIUM, GLADIOLUS, and other tribes now in Full Bloom are of course not ready and not included in No. 97; they will be found in No. 98, now in preparation.

Ghent, July 18.

Paul's Nurseries, Waltham Cross.

WM. PAUL'S ROSES are NOW in FULL BLOOM.

See Advertisement on p. 674.

New Roses of 1863.

E. G. HENDERSON AND SON offer strong healthy plants of the most select kinds at 42*s.* per dozen. The Trade supplied in any quantity.

Wellington Nursery, St. John's Wood, London, N.W.

New Roses for 1863.

BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.

St. John's Street Nursery, Colchester.

New Roses for 1863.

WM. WOOD AND SON are now supplying all the NEW ROSES in splendid Plants at reasonable prices. The leading kinds of PERPETUAL and other ROSES in pots are also offered by the dozen, hundred, or thousand.

Address, Woodlands Nursery, Maresfield, Uckfield, Sussex.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON).—Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7*s.* 6*d.* each, are now ready.

Old Cheshunt Nurseries, Herts.

ROSES, NEW and OLD. CATALOGUES NOW READY.

A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. Those who wish for a fine display of bloom during the present summer and autumn should now give their orders.

CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

Roses.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

THE COLLECTION of ROSES at Woodlands, occupying an area of several Acres, is NOW COMING into BLOOM, and will be worthy of inspection during the months of JULY and AUGUST.

Maresfield is distant three miles from the Uckfield Station of the Brighton and South-Coast Railway, where conveyances await every Train.

Roses.

J. AND J. FRASER, Lea Bridge Road Nurseries, N.E., beg to announce that their ROSES are NOW in BLOOM, and will continue for three or four weeks. The Collection contains many new and fine varieties, and is well worth a visit.

The Nurseries are about five miles from London, and are easily reached by the Great Eastern Railway to Lea Bridge Station.

Roses.

MESSRS. RIVERS AND SON beg to announce that their large COLLECTION of ROSES is NOW in FULL BLOOM. A day may be spent among Roses.

Their ORCHARD HOUSE TREES, particularly APRICOTS, now loaded with fine fruit nearly ripe, are also well worthy of inspection.

The Harlow Station (Great Eastern Railway), where Flys attend, is the most convenient.

Nurseries, Sawbridgeworth, Herts.

"Old" Cheshunt Nurseries, Cheshunt, Herts.

PAUL AND SON have the pleasure to announce that their ROSES are NOW finely in BLOOM, and will continue so throughout July.

Their collection includes the new Roses as well as immense quantities of all the older kinds, and will (in its extent and choice they believe the largest in the kingdom) amply repay a visit.

The OLD Nurseries may be reached by trains from Bishopsgate to Cheshunt Station (within one mile of the nurseries), every one or two hours.

CATALOGUES on application.

Roses on the Manetti Stock.

E. P. FRANCIS announces that he has 20,000 DWARF ROSES on the MANETTI STOCK, NOW in FULL BLOOM, and in the finest state of cultivation. Also a large and extensive Collection of STANDARDS in FULL BLOOM.

Evening and morning are the best times for viewing Roses. Trains direct to Hertford, per Great Eastern Railway, Bishopsgate Station, and Great Northern Railway, King's Cross.

Hertford Nurseries.

For Present Sowing

TRIFOLIUM INCARNATUM, TRIFOLIUM, NEW LATE RED.
TRIFOLIUM, NEW LATE WHITE.

New Seed of the above at lowest Market Prices, may be had of SUTTON & SONS, Seed Growers, Reading, Berks.

ALOCASIA MACRORHIZA VARIEGATA.—Good plants, 10*s.* 6*d.* each.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

NOVELTIES of 1863 at greatly reduced prices.—A CATALOGUE of 30 pages, containing full descriptions of nearly 500 New Choice Plants of the season, including the New Fuchsias and Verbenas, &c. Post free for one stamp.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

ARAUCARIA BRAZILIENSIS, CARYOPHYLLUS AROMATICUS,
Seeds of the above just received;
Also a few ORCHIDS—fine plump pseudo-bulbs—by the Undersigned. Price to the Trade upon application.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

W. TOOGOOD,

(LATE PAGE AND TOOGOOD),

SEED GROWER AND MERCHANT,

58, ABOVE BAR, SOUTHAMPTON,

Has the pleasure to announce that the Partnership, heretofore existing between himself and Mr. W. B. PAGE, Jun., has been dissolved by mutual consent as per advertisement, *and all the Stock, Debts, and Effects of the late Firm, except the fixtures in the shop in Oxford Street, having by arrangement been assigned to him,* he has removed the same to the old place of business, Above Bar, where he, in future, will conduct his trade in all the branches of the late Firm.

The GARDEN, AGRICULTURAL and FLOWER SEED DEPARTMENTS will still receive his "personal" attention. He will continue to attend his own Markets (he will be represented by his Agent Mr. J. W. GREEN at those usually otherwise attended by the late Firm), and from his having had the *entire* management of the Executive Department since 1850, the same promptitude and attention as during that period may be relied upon.

For PRESENT SOWING he begs to offer, carriage free by rail, the selected STOCKS of TURNIPS, as per List, to which so many Prizes have been awarded the Customers of the late Firm. He has also ready for immediate delivery—

New Seed of Fielder's Hardy Green Round, 6d. per lb., 24s. per bushel.

New Rape, 3d. per lb., 12s. per bushel.
Mustard, 3d. lb. Cattle Cabbage, 2s. 6d. lb.

If the harvest is favourable he has arranged for a large supply of

Trifolium tardif à fleur blanche, | **Trifolium tardif à fleur rouge,**

the two New Late Flowering TRIFOLIUMS recently introduced from France, the successional value of which has been fully proved by the practical tests of Mr. J. BLUNDELL, M. DUPLESSES, C. PENRUDDOCK, Esq., and others.

For COMMON TRIFOLIUM, RYE, WINTER OATS, WINTER BARLEY, WINTER VETCHES, and WINTER BEANS, early orders will ensure delivery in good time, and the lowest price consistent with best quality will invariably be charged.

PERMANENT PASTURE and LAWN GRASSES succeed well now, as sown at the Royal Farms, Osborne, for the past 10 years, the Southampton Parks, &c., *all of which were selected and mixed by the Advertiser personally.*

The Rev. T. BACON, *Kingsworthy, December* 10, 1860, *says:*—

"I have great pleasure in stating that the pasture which you laid down for me in the Spring has been a great success, so much so, indeed, as to attract the constant inquiries of passers by. Within four months of sowing, it bore an excellent and abundant crop of Hay, and it has been continually fed off by cows and sheep ever since, with the exception of the three weeks immediately after mowing. For variety of herbage, equality of plant, and strength of growth, it is acknowledged by some of the best judges in this neighbourhood to be *most excellent*; it already wears the aspect of a rich and well established pasture."

From Mr. BARNES, *late Superintendent (for 7 years) of the Southampton Parks.*

"Sir,—In reply to your note refering to the Permanent Grass Seeds with which I laid down the Southampton Parks, I can only say that I saw you personally measure off the different varieties and mix them in order for sowing. The judgment exercised by you in that selection is apparent in the beautiful herbage and lawn like appearance of the grounds while under my management; in fact the second year there was as fine and thorough a Turf as in a park down 50 years.

"To Mr. WM. TOOGOOD." "ARTHUR BARNES."

"We hereby certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that the Permanent Pasture and Lawn Grasses *were measured and mixed by Mr. Toogood, personally.*

"July 13, 1863." (Signed) JOHN MORLEY, HENRY SHEERMAN, GEORGE ISAACS."

To prevent mistakes it is desirable that all letters referring to the business of the late Firm, or orders for any of the foregoing, should be directed

W. TOOGOOD, ROYAL SOUTH HANTS SEED ESTABLISHMENT,
ABOVE BAR, SOUTHAMPTON.

THE OLD ESTABLISHED

ROYAL SOUTH HANTS SEED ESTABLISHMENT,

37 & 38, OXFORD STREET, SOUTHAMPTON.

The Five Years PARTNERSHIP between PAGE AND TOOGOOD having elapsed,

BRIDGEWATER PAGE,

SEED GROWER AND MERCHANT,

Has great satisfaction in explaining that, although it was specified in the Deed of Arrangement, that as the Senior Partner he should have a right to make the first selection from the OLD STOCK, he has not done so, but received an entirely new Stock from the original sources, which will enable him to guarantee a genuine article.

True Burbage Green Round Turnip, New Seed, 6d. per lb.

New Dwarf Essex Rape.

Mustard.

Trifolium incarnatum.

Trifolium incarnatum, New Late White.

Trifolium incarnatum, New Late Red.

BRIDGEWATER PAGE having had the pleasure to supply JOSEPH BLUNDELL, Esq., of Bursledon, and other leading Agriculturists with the two late varieties of TRIFOLIUM, can confidently recommend them.

Finest Permanent Pasture and Lawn Grasses.

As sown at the Royal Farms, the Southampton Parks, &c.

In this department BRIDGEWATER PAGE has always been most particular in giving his INDIVIDUAL attention to the selection which has for so many years given such satisfaction to all who have favoured him with their commands.

Carriage free to all parts of England. Special Contracts for large quantities.

The name of PAGE having been established by the sale of GENUINE SEEDS for more than HALF A CENTURY among the leading Agriculturists of the United Kingdom, will be a SUFFICIENT GUARANTEE that the best article will always be supplied.

It is particularly requested that all letters be addressed
BRIDGEWATER PAGE, OXFORD STREET SEED STORES,
(FACING THE RAILWAY STATION, SOUTHAMPTON).

TAN GRATIS, in the immediate neighbourhood of Covent Garden Market,
Apply at WILLIAM ESSEX & SON, 28, Stanhope Street, Clare Market, W.C.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; second quality, 6*s.* per ton; best quality, in bags, 16*s.* per ton; ditto 2*s.* 6*d.*, 2 cwt. bags, stamps, put on the South-Eastern Rail at Reigate.
Best and second quality PEAT SOIL, LOAM, &c.
Loaded Trucks can be sent on all the principal Railways.
W. SHORT, Salesman, &c., Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

The Old Established Royal South Hants Seed Establishment.

PAGE'S BLIGHT COMPOSITION.—None genuine except that sent from this Establishment, or sold by the accredited Agents of
BRIDGEWATER PAGE, Seed Grower and Merchant, 37 and 38, Oxford Street, Southampton.

The only Certain Remedy for Mildew.

JOHN BELL'S COMPOSITION for DESTROYING MILDEW on Vines, Peaches, Nectarines, Roses, and every other Plant subject to that pest, is proved to be the most efficacious that has ever been offered. Sold in Bottles at 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* each. A 1*s.* 6*d.* Bottle will make 12 gallons fit for use.
Seed Warehouse, 10 & 11, Exchange Street, Norwich.

The Gardener's Friend v. the Gardener's Enemy.

This celebrated Trial has been decided unanimously in favour of

FORDHAM'S INVINCIBLE "OLD VIRGINIA SHORTS."—The Greenfly and other Greenhouse and Garden Pests speedily annihilated at one-sixth of the cost of ordinary Tobacco Paper.
Samples of 7 lb. and upwards sent free to any Railway Station at 3*s.* per lb. on receipt of Post-office Order, payable to JOHN FORDHAM, at the W. C. Office.
Factory, 28, Little Queen Street, High Holborn, W.C.
N.B. ½ lb. of Shorts equal to 6 lb. of the Paper.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.
Both may be obtained of all principal Seedsmen.
Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from one to two ounces to the gallon of water is recommended for growing Plants; one from 4 to 16 ounces for Trees at rest.
Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850 has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, writing a few days since, say:—"Please send us 10 gallons of Blight Composition, as quickly as possible. We tried 'Gishurst' last year, but it would not do like the Composition."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says:*—
"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed JOHN MORLEY.
HENRY SHEERMAN.
"July 13, 1863." GEORGE ISAACS."

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, 58, Above Bar, Southampton.

Gutta Percha Tubing for Watering Gardens.

THE GUTTA PERCHA COMPANY have the pleasure to acknowledge the receipt of the following

Testimonial from Mr. J. FARRAH, *Gr. to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*

"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."

Manufactured by the GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C., and sold by their Wholesale Dealers in town and country.

CLARKE'S PATENT ADJUSTIBLE SCYTHE is the strongest, lightest, most durable, and best cutting Scythe yet introduced. It is used in the Gardens of the Royal Horticultural Society at South Kensington, and has given great satisfaction to all who have tried it.

The following is from G. EYLES, Esq.

"Royal Horticultural Gardens, South Kensington,
May 20, 1863.

"Sir,—I like your scythes very much.—Yours very truly,
"GEO. EYLES."

CLARKE & SON, Patentees and Manufacturers, Brackley, Northamptonshire.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.

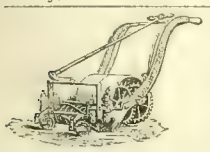
Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.

For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster. S.W.

MORTON'S NEW IMPROVED PATENT LAWN MOWER, with Sun and Planet Motion, having all the most recent Improvements, is allowed to be the best Machine for preventing Ribbing and Clogging.

To be had, with prices and particulars, of GRIMMOND, LAIRD, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath; and all the principal dealers throughout the country.



Lawn Mowers.

BURGESS AND KEY beg to direct attention to their NEW PATENT LAWN MOWING MACHINE. It is simple, efficient, easily worked, and not liable to derangement. GARDENING and HORTICULTURAL TOOLS of every description. Illustrated Price List free. Catalogues by post on receipt of six postage stamps.

BURGESS & KEY, 95, Newgate Street, London, E.C.

CARSON'S

ORIGINAL ANTI-CORROSION PAINT.

WHITE	Per cwt. 30s.	BRIGHT RED	Per cwt. 26s.
LIGHT STONE ...		DARK DO. (or BRICK COLOR)	
BATH DO.		CHOCOLATE COLOR	
CREAM COLOR		BLACK	
LIGHT PORTLAND STONE ...		BRIGHT GREEN	44s.
DRAB or PORTLAND DO. ...		DEEP GREEN	
LIGHT and DARK OAK ...	26s.	BLUE	
LEAD COLOR			

PATRONISED BY

THE BRITISH GOVERNMENT	THE LAMENTED PRINCE CONSORT	RAILWAY AND CANAL COMPANIES
THE RUSSIAN GOVERNMENT	MOST OF THE NOBILITY & GENTRY	COLLIERIES, IRON MASTERS, &c.

It is extensively used at home and abroad for all kinds of

OUT-DOOR WORK,

and has been proved, after a practical test of 70 years, to surpass any other Paint. It is applicable to WOODEN HOUSES, FARM and other OUT-BUILDINGS, PARK FENCING, GATES, &c.; also IRON ROOFING, BRIDGES, HURDLING, and every description of Iron Work, while for

PUBLIC EDIFICES, MANSIONS, VILLA RESIDENCES,

and every kind of BRICK, STONE, COMPO, &c., it is unrivalled, presenting the appearance of fine cut stone.

It is undoubtedly the only Paint that will stand on

CONSERVATORIES, GREENHOUSES, FRAMES, &c.

and is in consequence largely used by the Nobility and Gentry, also many eminent Horticulturists, for such purposes. The ANTI-CORROSION is LOWER IN PRICE, and LASTS TWICE AS LONG as the Best White Lead; at the same time is economical in application, as

ANY PERSON CAN LAY IT ON.

The Anti-Corrosion is a Powder, and will keep any length of time.

Carriage paid upon quantities of not less than 5 cwt. to any station in England and Wales, or by Water to any Port in the United Kingdom, where there is a direct communication from London, as Leith, Dublin, Belfast, Glasgow, Aberdeen, &c.

OIL, TURPENTINE, AND BRUSHES.

Patterns, Cards, and Testimonials sent upon application to

WALTER CARSON & SONS (SUCCESSORS TO THE INVENTORS),

9, GREAT WINCHESTER STREET (NEAR THE ROYAL EXCHANGE, LONDON, E.C.)

No Agents throughout the United Kingdom.

SHANKS' PATENT LAWN MOWERS will be Exhibited at the Royal Agricultural Society's Show at Worcester, STAND 75.

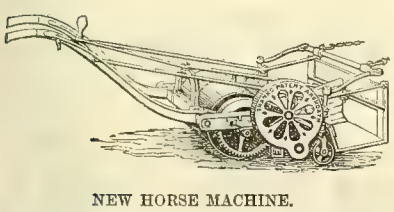
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

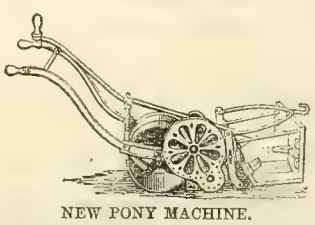
WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

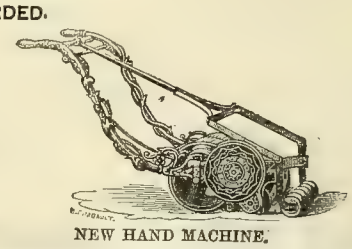
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	40*s.* ,,
No. 3.—36-inch Machine ...	22 0 0	30*s.* ,,
No. 4.—30-inch Machine ...	19 0 0	30*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine ...	£15 15 0	30*s.* extra.
No. 6.—28-inch Machine ...	14 10 0	30*s.* ,,
No. 7.—25-inch Machine ...	12 10 0	25*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £5 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

THOMAS MILLINGTON,

GLASS MERCHANT. (Established 1750.)

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

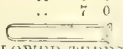
THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY T. MILLINGTON.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home use and for Exportation.



PROPAGATING GLASSES.

2 inches diam.	0s.	3½d.	each.
3 ,, ..	0	4½	,,
4 ,, ..	0	5½	,,
5 ,, ..	0	6½	,,
6 ,, ..	0	8	,,
7 ,, ..	0	10	,,
8 ,, ..	1	0	,,
9 ,, ..	1	2	,,
10 ,, ..	1	4	,,
11 ,, ..	1	6	,,
12 ,, ..	1	9	,,
13 ,, ..	2	0	,,
14 ,, ..	2	6	,,
15 ,, ..	3	0	,,
16 ,, ..	3	6	,,
17 ,, ..	4	0	,,
18 ,, ..	5	0	,,
19 ,, ..	6	6	,,
20 ,, ..	7	0	,,



FLOWER TUBES.
2d. each, or 1s. 6d. per dozen.



ZINC HAND GLASSES.
Painted and Glazed with 16-oz. Sheet Glass.

12 inches ..	5s.	6d.	each
14 ,, ..	6	6	,,
16 ,, ..	7	6	,,
18 ,, ..	8	6	,,
20 ,, ..	9	6	,,
24 ,, ..	11	6	,,

If open top, 1s. extra.



BEE GLASSES.

4 inches diameter	0s.	6d.	each
5 ,,	0	8	,,
6 ,,	0	10	,,
7 ,,	1	1	,,
8 ,,	1	4	,,
9 ,,	1	8	,,
10 ,,	2	0	,,
11 ,,	2	6	,,
12 ,,	3	0	,,



FLAT TOP BEE GLASSES.

Height	Width	s.	d.	
4 inches	by 7 inches	1	6	each
4½ ,,	by 7½ ,,	1	9	,,
5½ ,,	by 7½ ,,	2	0	,,
6½ ,,	by 8 ,,	2	3	,,
7½ ,,	by 8½ ,,	2	10	,,

FERN SHADES & STANDS.

Ins. dia.	Shades.		Stands.	
6 ..	1s. 4d.	each.	1s. 0d.	each
7 ..	1 8	,,	1 3	,,
8 ..	2 0	,,	1 6	,,
9 ..	2 6	,,	1 9	,,
10 ..	3 3	,,	2 0	,,
11 ..	4 0	,,	2 6	,,
12 ..	5 6	,,	3 0	,,
13 ..	7 6	,,	3 6	,,
14 ..	10 0	,,	4 0	,,
15 ..	14 0	,,	4 6	,,
16 ..	18 6	,,	5 0	,,



WASP TRAP, 2s. 6d. per doz.

Crystal Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimneys and Globes, &c.



MILK PANS.

6 inches diameter	0s.	6d.	each
8 ,,	0	9	,,
10 ,,	1	0	,,
12 ,,	1	3	,,
14 ,,	1	9	,,
16 ,,	2	3	,,
18 ,,	2	9	,,
20 ,,	3	3	,,
22 ,,	3	9	,,
24 ,,	4	6	,,



PRESERVE JARS.

In. diam.	Without Lids.		With Lids.	
3 ..	0s. 4½d.	..	0s. 6½d.	ea.
4 ..	0 6	..	0 9	,,
5 ..	0 8	..	0 11	,,
6 ..	0 10	..	1 2	,,
7 ..	1 0	..	1 4	,,
8 ..	1 4	..	1 8	,,
9 ..	1 8	..	2 2	,,
10 ..	2 0	..	2 8	,,

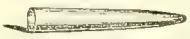


FISH GLOBES.

	Without feet.	With feet.
8 inches diam.		
9 ,,		
10 ,,		
11 ,,	Per lb.	
12 ,,	7d.	9d.
13 ,,		
14 ,,		
15 ,,		
16 ,,		



ROLLING PINS.
From 12 inches long, 1½d. per running inch.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1d. per running inch.

SHEET GLASS.
In Cases for cutting up, in Sizes as Manufactured.

	300 feet		200 feet.	
	15 oz.	21 oz.	26 oz	32 oz
Fourths quality	33s. 6d.	33s. 6d.	39s. 6d.	45s. 6d
Thirds do.	42 0	42 0	49 0	56 0
Seconds do.	62 0	64 0	74 6	85 0
Best do.	88 6	88 6	103 6	118 0

CRYSTAL SHEET GLASS.
For Pictures and best Glazing purposes.
Averaging 16 oz. to the foot.

Best quality, in cases of 200 feet	100s.
Second quality, in cases of 100 feet	82s.

Averaging 30 oz. to the foot.

Best quality, in cases of 100 feet	100s.
Second quality, in cases of 100 feet	82s.

SQUARES, in 100 and 200 Feet Boxes.

Small Squares not exceeding 9½ inches by 7½ inches.

Ins. Ins.	Ins. Ins.	Ins. Ins.	Ins. Ins.
6 by 4	7 by 5	8 by 6	9 by 7
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½

Per 100 feet.

4ths.	3rds.	2nds.	Best.
9s. 9d.	11s. 3d.	13s. 9d.	16s. 9d.

Squares not exceeding 14 inches by 11 inches.

10 by 8	12 by 9	12½ by 10½	14½ by 10½
10½ by 6½	12½ by 9½	13 by 10	15 by 10
11 by 9	13 by 9	13½ by 10½	13 by 11
11½ by 9½	12 by 10	14 by 10	14 by 11

Per 100 feet.

4ths.	3rds.	2nds.	Best.
10s. 9d.	12s. 3d.	15s.	18s.

Squares not exceeding 20 inches by 18 inches.

15½ by 10½	14 by 12	17 by 13	24 by 16
16 by 10	14½ by 12½	18 by 13	20 by 17
14½ by 11½	15 by 12	18 by 14	22 by 17
15 by 11	15½ by 12½	22 by 14	24 by 17
15½ by 11½	16 by 12	24 by 14	20 by 18
16 by 11	16½ by 12½	22 by 15	22 by 18
13 by 12	17 by 12	24 by 15	24 by 18
13½ by 12½	18 by 12	22 by 16	

Per 100 feet.

4ths.	3rds.	2nds.	Best.
11s. 6d.	13s. 6d.	16s. 6d.	20s.

Orchard House Sizes, as recommended by Mr. Rivers.

ns.	Ins.	15 oz.		21 oz.	
20 by 12	4ths ..	11s. 6d.		15s. 0d.	
20 by 13	3rds ..	13 6		19 0	Per
20 by 14	2nds ..	16 6		25 0	100 feet.
20 by 15	Best ..	20 0		30 0	
20 by 16					

Squares Cut to Sizes not on List.

	15 oz.				21 oz.			
Under	4ths.	3rds.	2nds.	1st	4ths.	3rds.	2nds.	1st.
1 ft. super.	1¼d.	1⅜d.	2d.	2¼d.	2¾d.	2⅞d.	3¼d.	4¼d.
2 ft. super.	1⅞	2	2½	3	2¾	3	4	5¼
3 ft. super.	2	2¼	2¾	3¼	3	3¼	4¼	6
4 ft. super.	2¼	2½	3	4	3¼	3½	4½	6½

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

	Per cwt.—s. d.
GENUINE WHITE LEAD	30 0
ANTI-CORROSION PAINT	28s. to 34 0
LINSEED OIL PUTTY	8 0

	Per gallon.—s. d.
FINE OAK VARNISH	10s. to 12 0
,, CARRIAGE	12s. to 14 0
PATENT DRYERS	per cwt. 28s. to 42 0

	Per gallon.—s. d.
LINSEED OIL	3 9
BOILED OIL	4 2
TURPENTINE	8 6

MILLED LEAD in Sheet and Pipe of all sizes. Old LEAD bought or taken in exchange.

LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of all kinds.

NETT CASH.

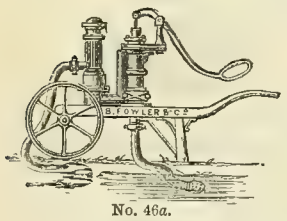
CLINTON & OWENS

(LATE BENJAMIN FOWLER & CO.),

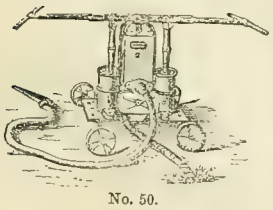
MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

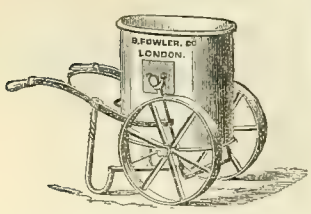
WHITEFRIARS STREET, FLEET STREET, LONDON.



No. 46a.



No. 50.

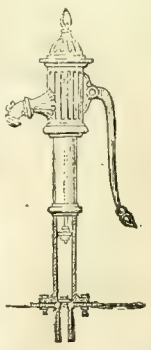


No. 49a.

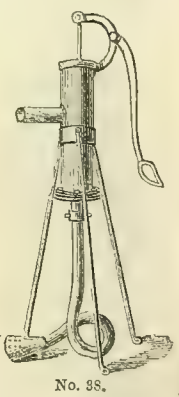


THE Landscape Sketch shows an adaptation of THE IMPROVED HYDRAULIC RAM for forcing water to considerable heights and distances to supply Mansions, Farms, &c., where a few feet fall can be obtained. Full particulars of this useful Self-acting Machine can be had on application.

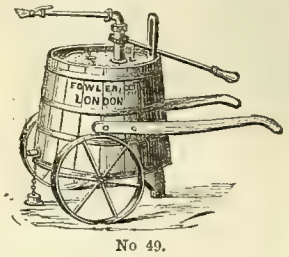
No. 4. FOWLER'S Useful YARD, GARDEN, and COTTAGE PUMPS, from 1l. 5s. each.
No. 38. FOWLER'S Portable LIQUID MANURE PUMPS, with flexible suction pipe.
No. 46a. FOWLER'S DOUBLE-ACTION PORTABLE FORCE PUMPS and FIRE ENGINES for Water or Liquid Manure.



No. 4.



No. 38.



No 49.

No. 50 FOWLER'S Improved (Holman's Patent) DOUBLE-BARREL FARM FIRE ENGINES and IRRIGATING PUMPS.
No. 49. GARDEN ENGINES of all sizes.

No. 49a. Improved SWING WATER CARRIERS, holding 24 and 35 gallons, for Garden Use.

Further Particulars, Estimates, and Illustrated Price Lists on application.

HAVE YOU a LAWN?—Use BELCHER'S PATENT PLANTAIN EXTRACTOR; which neatly removes Plantain and Daisies, and replaces them with fine Turf. Price 6s.: to be had of all Ironmongers.

Wholesale Agents, S. & E. RANSOME & Co., 31, Essex Street, Strand, W.C.

PATENT ELECTRICAL PLANT PROTECTOR, for the preservation of Plants, Flowers, and Shrubs from Snails, Worms, Slugs, &c.

This Protector being composed of zinc and copper, or of any two metals combined in such a manner as to form an electrical couple, constantly gives off a certain amount of electricity, rendering plants entirely secure from the attacks of Slugs, &c., as it has been discovered to be perfectly impossible for any insect or worm to crawl over a combination of these two metals.

Being formed in plain and ornamental designs for borders, beds, &c., it is applicable to all gardens, terraces, &c.; it is also made in the form of Plant Guards to encircle the stems.

Illustrated Lists of Prices post free on application to ROBERT B. LEE & Co., Sole Manufacturers of the Patent Plant Protector, 22, Market Place, Manchester.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

Garden and Architectural Decorations in Terra Cotta

PRIZE MEDALS OF 1851 AND 1862 AWARDED TO

JAMES PULHAM, Broxbourne, Herts. Also Notice of ARTISTIC MERIT, and of SOUND DURABLE MATERIAL in FOUNTAINS, VASES, FIGURES, FERN CASES, and BRACKETS, CONSERVATORY TUBS, with rising bottoms, &c.

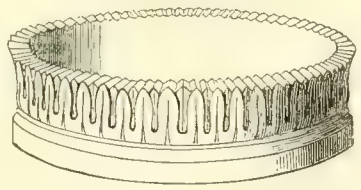
The novel FERNDELABUM.—To grow SIXTY FERNS (or Flowers) on a space 4 ft. 8 in. over, 8 ft. high, &c.

Guaranteed to stand frost an unlimited time.

Stereographs sent to inspect for 12 stamps.

Illustrations in the *Art Journal Catalogue*, the *Masterpieces*, and *Gems of the Exhibition*.

.....6 feet 9 inches.....



AUSTIN, SEELEY, AND CO. beg to inform the Nobility and Gentry that they are prepared to supply, at three months' notice, TAZZE for Flowers or Fountains, as wide as 13 feet. They take this opportunity of referring to some large Flower Basins and Plain Kerbings made by them for the Royal Horticultural Society's Gardens; and also to those lately supplied to the Public Garden in the Regent's Park. They will be happy to forward a List of their Fountains to any gentleman requiring one.

369 to 375, Euston Road, Regent's Park, N.W.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. TYLOR & SONS' GALVANIZED IRON TUB GARDEN ENGINES, with Registered Spreader.

8 gal.	12 gal.	16 gal.
2 13 6	£3 5 0	£3 15 0
24 gal.	30 gal.	
£5 0 0	£5 18 0	

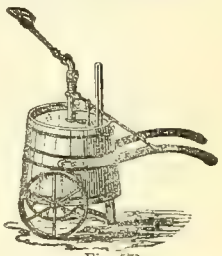


Fig. 571.

J. TYLOR & SONS' OAK TUB GARDEN ENGINES, with Registered Spreader.

15 gal.	28 gal.
£5 12 6	£7 2 0



Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 8 0 each.
No. 2. Ditto ditto .. 1 2 6 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,

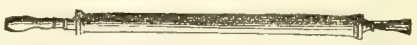


Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 11s. 6d. each.
,, 589. Middle Ditto ditto .. 10 3 ,,
,, 588. Small Ditto ditto .. 9 0 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 7 6 ,,



Fig. 591. READ'S SYRINGE, with two roses and one jet, 17s. 6d
READ'S SYRINGE, with one rose and jet, 15 0
,, 592. Improved ditto ditto large 14 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

"The GEARING of SAMUELSON AND CO.'S LAWN MOWING MACHINES is not liable to Derangement

SAMUELSON & CO.'S

PATENT LAWN MOWING MACHINES.

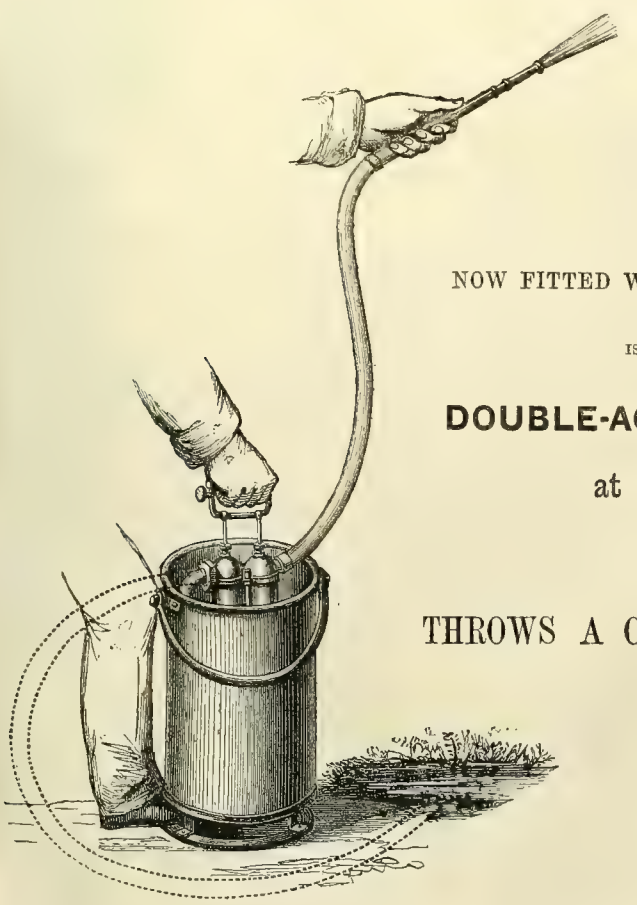
SAMUELSON AND CO.'S 12-INCH and 16-INCH NEW PATTERN LAWN MOWERS.
SAMUELSON AND CO.'S IMPROVED GARDEN ROLLERS AND GARDEN SEATS.

Catalogues Free, on application to BRITANNIA WORKS, BANBURY; or to

SAMUELSON AND CO.'S LONDON WAREHOUSE, 76, CANNON STREET WEST, CITY,

where Samples may be seen.

WARNERS' IMPROVED PATENT,



NOW FITTED WITH AN AIR VESSEL,

IS THE ONLY

DOUBLE-ACTION ENGINE

at £2 2s.

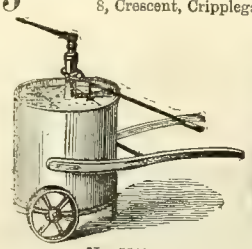
THAT

THROWS A CONSTANT STREAM.

May be obtained of any Ironmonger or Seedsman at the above price, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.

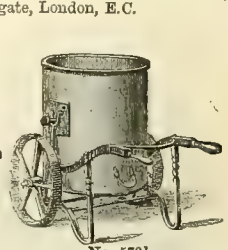


No. 554½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons ..	.. £2 15 0
16 ,, ..	.. 3 15 0
24 ,, ..	.. 5 0 0

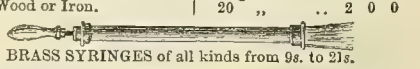
Larger sizes may be had in either Wood or Iron.



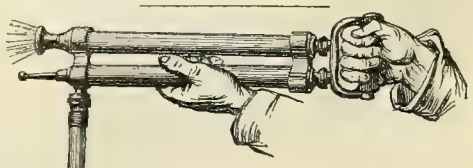
No. 579½.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	.. £2 10 0
20 ,,	.. 2 0 0



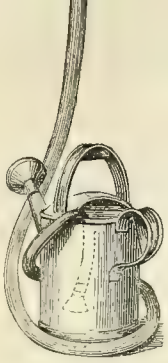
BRASS SYRINGES of all kinds from 9s. to 21s.



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 5 feet Flexible Suction Pipe,

21s.



Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

THERE ARE NO SUCTION OR DELIVERY VALVES, hence MUCH FRICTION AND LIABILITY TO CHOKE with leaves and dirt IS AVOIDED.

JOHN WARNER & SONS, 8, Crescent, Cripplegate, London, E.C.

SWEET WILLIAMS (HUNT'S SUPERB VARIETIES).—The Advertisers having saved a quantity of the above splendid strain, can supply it in 6d. and 1s. packets, or 2s. 6d. per oz., post free. The Trade supplied.
E. P. DIXON & SONS, Seedsmen, Hull.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.
FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.
CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes.
Sunningdale Nursery, S.W. Rail.

Herbaceous Calceolaria.

GUARANTEED FINEST QUALITY AND NEW SEED.

WM. CUTBUSH AND SON beg to offer the above, saved with the greatest care from the Stock, which invariably obtains the FIRST PRIZES wherever exhibited. Per packet, 2s. 6d., 3s. 6d., and 5s., Post-free. Liberal allowance to the Trade.
Highgate Nurseries, London, N.

Novelties of 1863.

SPECIAL OFFER TO THE TRADE.

HENRY WALTON has an immense stock of the following in strong healthy plants:—

Fuchsias, 6s. per dozen.	Pentstemons, 6s. per doz.
Verbenas, 3s. per dozen.	Antirrhinums, 5s. per doz.
Petunias, 5s. per dozen.	Chrysanthemums, 5s. per doz.

Private parties will be treated with on equally liberal terms.
DESCRIPTIVE LISTS on application, inclosing Stamps.
EDGEND MARSDEN, near Burnley, Lancashire.

To Orchid Growers.

LUCOMBE, PINCE, AND CO., having a surplus Stock of the undermentioned CHOICE ORCHIDS, are in a position to offer fine specimen and half specimen plants at extremely moderate prices. The Stock is exceedingly clean and healthy:—

Angræcum eburneum	Cattleya Mossiæ
,, apiculatum	,, Skinneri
Aerides odoratum	,, crispa
,, ,, majus	Dendrobium Farmeri
,, affine	,, aggregatum majus
,, ,, rosea	Lælia purpurata
,, quinquevulnerum	,, Perrinii
,, suavissimum	Saccolabium guttatum
,, Brooksii	,, præmorsum
Brassavola Digbyana	,, Blumei majus
Brassia brachiata	Vanda tricolor
,, verrucosa	,, furva
Cœlogyne cristata	

Sizes and prices may be had on application.
Exeter Nursery, Exeter.

W. VIRGO AND SON have a great quantity of the undermentioned Plants to offer for Sale, at the following prices:—

DRUMHEAD CABBAGE	3s. 0d.	per 1000
DRUMHEAD SAVOY	3 0	,,
Red and White Transplanted and strong CELERY	6 8	,,

Wonersh, near Guildford.



TURNIP SEEDS for PRESENT SOWING.
As some kinds of Turnips are more suitable for late sowing than others, Messrs. SUTTON beg to recommend the undermentioned as the most desirable for that purpose.
Prices for the months of July and August, 1863:—
SUTTON'S EARLY SIX-WEEKS TURNIP, 8d. per lb., or cheaper by the bushel.
SUTTON'S IMPERIAL GREEN GLOBE, very fine, best for the main crop, to be sown in July and August, for autumn and winter use, 8d. per lb., or cheaper by the bushel.
SUTTON'S SHORT-TOP SIX WEEKS, new sort, scarce, 1s. 6d. per lb.
CATTLE CABBAGE (the heaviest of all Agricultural Crops), should be sown in July and August, for transplanting in October and in the Spring.
GARDEN and FLOWER SEEDS for AUTUMN SOWING.
Messrs. SUTTON and SONS have a good stock of fresh Seeds of the undermentioned kinds, which should be sown during the months of July, August, and September.

Cabbage, choice sorts	Radish, of sorts
Lettuce, do.	Spinach, do.
Onion, do.	Turnip, do.
Carrot, Early Horn	Cineraria, choice sorts
Cauliflower, choice sorts	Calceolaria, very fine
Endive, of sorts	Primula sinensis

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading

New Strawberry, Princess of Wales.

B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, has much pleasure in offering this superb new early STRAWBERRY, feeling confident that it will not fail to become a general favourite, as all who have seen it growing and tasted it on the ground have pronounced it first-class. It is a remarkably early kind, having picked from it on the 22d of May, and no doubt but what it will prove a good forcing variety. The fruit is large, flesh pale red, solid at the core; flavour rich and sugary, partaking largely of the Pine flavour; a most abundant bearer.
The following notices prove its value, without further comment:—

Gardeners' Chronicle, July 4th.

"Your seedling Strawberry, Princess of Wales, large, ovate, or flattened ovate, with flesh pale red, and solid at the core. The variety deserves notice on account of its size, appearance, and not being hollow at the core."

Journal of Horticulture, June 23d.

"Seedling Strawberry (B. W. Knight). The fruit sent is very juicy, and of excellent flavour."

Florist, July.

"Your seedling Strawberry, Princess of Wales, is a fine regularly-shaped ovate fruit, of a pale red colour, and very firm flesh; it has all the appearance of being a good sort."

Plants will be ready to send out early in September, at 21s. per dozen. The names of the Nurserymen who have ordered, and will be able to supply it will be announced in a future advertisement

TRADE

HALLETT'S PEDIGREE NURSERY WHEAT.

MARK.

THE PEDIGREE WHEAT WAS AWARDED THE SILVER MEDAL BY THE JURORS OF THE CLASS "CEREALS FROM ALL COUNTRIES" AT THE MEETING IN 1863 OF THE AGRICULTURAL SOCIETY OF DENMARK AT ODENSE.

In September DRILL 4 Bushels on 10 acres.

None is genuine unless the Trade Mark is upon the Bag.

FREDERIC F. HALLETT, ESQ., F.L.S., THE MANOR HOUSE, BRIGHTON, SUSSEX.

PRICE—One Guinea a Bushel (or Seven Guineas a Quarter),

DELIVERED AT THE BRIGHTON RAILWAY STATION, IN BAGS SEWED UP AND SEALED.

"HOW OUR WHEAT CROPS MAY BE DOUBLED," and other papers, forwarded on application, enclosing six stamps.



In every plant of Wheat, Barley, or Oats there is always ONE BEST EAR, and in every ear there is always ONE BEST GRAIN, which is that one found at the following harvest to produce the best plant, *all* the grains having been planted in competition with each other.

The best of all the competing plants of any "family" of a cereal is ascertained by the most studious comparison of the good qualities they visibly possess, *at the end of the peculiarities exhibited by each during the whole course of its growth*, such as—the rapidity with which the parent seed germinates; the manner, time, and extent of the "tillering" of the plant; the growth of its straw, and any other characteristics which are essential to forming a correct decision, and which cannot be determined by even the most careful inspection of the perfect plant.

Thus best plant is called "*the selection*" of the year (say 1861) in which it is obtained, and consists of numerous ears, containing many hundreds, and even thousands, of grains which are planted separately; those of each ear being kept quite distinct, as although the best grain of any plant is nearly always found to lie in its best ear, it may be otherwise, and the successive parent ears must be preserved. At the following harvest (1862), the best plant forms "*the selection of* 1862," and its produce is continued on the experimental ground, while that of the remaining plants furnishes the annual seed for the farm in the Autumn of 1862, and the crops are in 1863 offered to the public. Thus, the selection sold is that of 1861, or in any year that of two years before; *the latest selection, that of the year immediately preceding, is not sold, being solely employed as the home seed.* The separate ears of a plant are designated by different letters, numbers, or names—as A, Z, &c., and each, with its descendants, forms a "*family*" which may develope some valuable peculiarity.

Thus, all the "Pedigree Nursery Wheat" hitherto sold has been of a family called "A," while another family of the same Wheat known as Z having been observed to exhibit marked superiority has been continued separately, and has given a greater progress during 1862 than has been before obtained in any single year.

The original ear of the large published engraving contained up one of its sides 18 "ranks" (spikelets) of grains, while the "Z family" has produced ears of 18 "ranks," and this, without any increase in the *length* of the ear, the "notches" of the axis on which the spikelets grow being placed more closely together. In a small field of this Z family, ears with 17 "ranks" were quite common, while in other fields of the family "A," *not one such ear could be found.*

This family Z will, next harvest, 1863, be *for the first time* offered to the public, and those who wish to secure some of it would do well, at once, to add their names to the Subscription List formed by special request for that purpose. As the joining this list will not involve payment until the Wheat is ready for delivery (of which the earliest possible notice will be given), the advantage of doing so is entirely on the side of the subscriber.

Roses.

The ROSES at the WALTHAM CROSS NURSERIES are NOW in FULL BLOOM.

MR. WM. PAUL respectfully invites all lovers of this popular flower to visit and inspect them. TWENTY FIRST PRIZES and NINE SECOND have been awarded to him for ROSES during the present year, and above 100,000 Plants are now growing in these Nurseries. Waltham Cross is 11 miles from London, and a first-class station on the Great Eastern Railway. It is also a delightful drive from the West-end of London, through Totteuham, or the Green Lanes and Enfield.
Entrance to the Nurseries from the platform, Waltham Station (for railway passengers only), and from the High Road, Waltham Cross, N.

New and Rare Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, amongst which are some very fine specimens.

Now ready, post-free to all applicants.

A NEW GENERAL PLANT CATALOGUE, containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Herbaceous and Alpine Plants, Roses, Hardy Trees and Shrubs, Fruit Trees, &c.
With a DESCRIPTIVE LIST of New, Beautiful, and Rare Plants.
Paradise and Victoria Nurseries, Holloway, London, N.

Azalea indica, &c.

ROBERT PARKER begs to offer strong healthy GRAFTED PLANTS of all the leading varieties in cultivation, in selections, from 18s. per dozen.
ALOCASIA METALLICA, from 10s. 6d. to 105s. each.
CALADIUM, of sorts, from 18s. per dozen.
CENTAUREA ARGENTEA, 5s. each.
,, RAGUSINA, 24s. per dozen.
Priced and Descriptive CATALOGUES of PLANTS, &c., forwarded on application.
Exotic Nursery, Tooting, Surrey, S.

CALCEOLARIA, CINERARIA, PRIMULA, &c.—CALCEOLARIA, saved from carefully hybridised flowers, possessing all the recognised floral qualifications, viz., size, form, colours, and marking. Price, 1s. and 2s. 6d. per packet. CINERARIA, extra choice, 1s. per packet. PRIMULA SINENSIS FIMBRIATA, extra choice, 1s. and 2s. 6d. per packet. DRACÆNA (CORDYLINE) INDIVISA, from Mount Egmont, New Zealand; beautiful fine foliaged plant, 1s. and 2s. 6d. per packet.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Choice Seeds.

B. S. WILLIAMS begs to offer First-class quality of the undermentioned SEEDS:—

	Per packet.	
PRIMULA SINENSIS FIMBRIATA, Red, White, or Mixed	2s. 0d.	3s. 6d.
CALCEOLARIA, herbaceous	1 6	2 6
CINERARIA, from choice named flowers..	1 6	2 6
PANSY, very choice	0 6	1 0

Paradise and Victoria Nurseries, Holloway, London, N.

Dutch Bulbs.

E. H. KRELAGE AND SON, FLORISTS and SEEDSMEN, of Haarlem, Holland, beg to announce to the Trade only, that their NEW WHOLESALE CATALOGUE of BULBS has been sent to their Correspondents, and will be addressed to Seedsmen and Florists on prepaid application. This Catalogue forms their Trade Circular for June, and contains principally Hyacinths, Tulips, Crocuses, Narcissus, Anemones, Ranunculus, Fritillaria, Lilium, Iris, &c., with prices per dozen, 100, 1000, or upwards.

QUVIRANDRA BERNERIANA.—Having succeeded in raising a few Seedlings of this extremely curious and beautiful plant, we beg to offer healthy young plants of six or seven leaves at 31s. 6d. each.
O. Berneriana was exhibited at the Great Show of the Royal Horticultural Society, June 17th, and awarded the First Prize; and at the Great Show of the Royal Botanic Society, June 24th, and then also awarded the First Prize.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

New South Wales—Collections of Ferns.

M. GUILFOYLE begs to announce that he has made arrangements to execute Orders for Europe of COLLECTIONS of FERNS, selected from all the Australian Colonies and New Zealand by his Correspondents there, and also from the South Sea Islands, supplied by competent Collectors in New Caledonia, the New Hebrides, &c. Due care will be taken that none but well established plants in pots are sent out from his Nursery, and for such he has fixed the price of each case, containing at least 25 species of Australasian Ferns in duplicate, at 16l., (freight and case included), shipped by him for London to order. The Island Ferns, among which a constant succession of novelties may be expected for years to come, will be separately charged for, at prices extremely moderate.
M. GUILFOYLE will also be happy to execute Orders for Seeds, Bulbs, and Living Plants of all kinds from the Islands of the S. W. Pacific, especially including Orchids, Pines, &c.
Orders with remittances to be addressed to M. GUILFOYLE, Exotic Nursery, Double Bay, Sydney, N. S. Wales

OPENING of the ALEXANDRA PARK,
MUSWELL HILL.
ALEXANDRA PARK COMPANY (LIMITED).
The Alexandra Park and Grounds, comprising 480 acres, situate about one mile from Hornsey, and adjoining the Wood Green Station of the Great Northern Railway, will be OPENED to the Public on THURSDAY NEXT, the 23d inst., on which occasion and on FRIDAY, the 24th, there will be a GRAND HORTICULTURAL FETE, when Prizes for Fruit and Flowers to the amount of 700*l.* will be awarded.
Tickets of admission to the Flower Show, on Thursday, the 23d, will be Half-a-Crown; and on Friday, 24th, One Shilling.
All information in reference to the Flower Show may be obtained of Mr. Alexander Mackenzie, Tottenham Wood House, Muswell Hill, Hornsey. Mr. Buchanan, archery manufacturer, 215, Piccadilly, W., will give the necessary information in reference to the Archery Fête; and all further information and particulars may be obtained on application at the Company's Offices, 12, Tokenhouse Yard, London, E.C.
Accommodation for horses and carriages will be provided at Tottenham Wood House. By order. F. K. PARKINSON, Sec.

OPENING of the ALEXANDRA PARK,
MUSWELL HILL.
GRAND HORTICULTURAL and ARCHERY FETES,
ALEXANDRA PARK COMPANY (LIMITED).
RAILWAY ARRANGEMENTS.
In addition to FOURTEEN ORDINARY TRAINS from King's Cross to the Alexandra Park (Wood Green Station), and TWELVE from the Park to King's Cross, the Great Northern Railway Company will run numerous SPECIAL TRAINS on THURSDAY and FRIDAY NEXT, July 23 and 24, in accordance with the requirements of the traffic. By order.
F. K. PARKINSON, Secretary.

ALEXANDRA PARK COMPANY (LIMITED).—
OPENING of the PARK.
GRAND HORTICULTURAL and ARCHERY FETES,
THURSDAY and FRIDAY NEXT, the 23d and 24th July.
The BANDS of
The 1st LIFE GUARDS,
The 2d LIFE GUARDS,
The GRENADIER GUARDS,
The COLDSTREAM GUARDS,
Will Perform.

GRAND ARCHERY MEETING.
ALEXANDRA PARK COMPANY (LIMITED).
On the Lawn of Tottenham Wood House, on THURSDAY and FRIDAY NEXT, July 23 and 24,
At the ALEXANDRA PARK, MUSWELL HILL.
PRIZES amounting to 200*l.* will be offered.
For particulars apply to Mr. BUCHANAN, Superintendent of the Archery Fete, 215, Piccadilly, W.

HORTICULTURAL FETE.
ALEXANDRA PARK COMPANY (Limited).
The FLOWER SHOW will be held in an Inclosure on the Lawn of Tottenham Wood House. There will also be an ample supply of Refreshments, for which Mr. HART, of Radley's Hotel, is the Purveyor.

THE BEAUTIFUL GROUNDS of the GROVE ESTATE, communicating with the Alexandra Park, will also be OPENED on THURSDAY and FRIDAY NEXT, July 23 and 24. The Grove entrance to the Park is on Muswell Hill, and the entrance to Tottenham Wood is in close proximity. They are about half an hour's drive from the Regent's Park, and the time of transit from the Great Northern Railway Station at King's Cross to the Wood Green Station is about 15 Minutes.
ALEXANDRA PARK COMPANY (Limited).

REFRESHMENTS.—Mr. HART, of Radley's Hotel, Bridge Street, will provide Refreshments of all kinds in various parts of the Park on THURSDAY and FRIDAY NEXT, July 23 and 24.
ALEXANDRA PARK COMPANY (Limited).

The Gardeners' Chronicle.
SATURDAY, JULY 18, 1863.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, July 21 { Royal Horticultural (Floral and Fruit Committees) at S. Kensington.
THURSDAY, — 23—Alexandra Park (Floral Exhibition).

ADVICES by the last mail from the Mauritius bring the intelligence that the Prussian Naturalist who had been sent to MADAGASCAR, had died there during the unhealthy season, the evils of which are now intensified by the peculiar turn of affairs in that island.

A RECENT article in our talented contemporary *The Builder*, relates the result of a FLOWER SHOW FOR THE WORKING CLASSES established in Bloomsbury. The show is said to have been an improvement on any of its predecessors, and to have included, beyond the ordinary flowers of the month, some "exhibits" with a touch of poetry in them: for example, St. John's Bread or Locust tree, from a seed; a small Cherry tree from a stone; and "Window Balm from the workhouse."

Only imagine the feelings that dictated entries like these! The exhibitors of a Locust tree *from a seed*, and of a *small* Cherry tree *from a stone*, were we doubt not as much attached to their little plants, and as proud of their success as the greatest gardener in the land. We can quite appreciate the delight with which the hard brown dead looking Locust tree seed was watched, the eager curiosity with which it was seen to chip its shell, the charm of observing how its tiny worm-like root crept into the soil, and the triumph which attended the final expansion of the young stem and leaves, "*Io! Triumphe.* Life has been extracted from death! See what a beauty it has become! Did you ever look at such wonderful green? I wonder whether it will ever bring forth such bread as St. JOHN lived on."

Such were very possibly the ejaculations (barring the Latin) of the happy exhibitor, whose tender care was rewarded with a prize. To our minds such feelings are inexpressibly touching. They show more than anything how the best feelings of our nature still remain in the breasts of those whose lives are lives of toil and suffering.

Can nothing further be effected in promoting the humanising efforts of the excellent Rector of Bloomsbury? We hope so; we believe so; we shall be only too happy to give our small aid in advancing his admirable plans.

THE following interesting letter has been forwarded to us by Mr. DARWIN. We have not been able to ascertain precisely to what plant the larger bodies belong, but we believe them to be the pollen grains of some Thistle or Centaurea. They also bear a strong resemblance to the pollen grains of some Malvaceous plant, but they are far larger than those of Malva sylvestris, the only species which could supply pollen in sufficient quantities to tinge the rain with a yellowish tint. Fir pollen is often carried by wind, and deposited by rain on leaves, and we have seen Oak pollen forming yellow spots on leaves after a shower.

A very slight shower, lasting hardly more than a minute, fell here this morning (July 2) about 10 o'clock. My wife gathering some flowers immediately afterwards noticed that the drops of water appeared yellowish, and that the white Roses were all spotted and stained. I did not hear of this circumstance till the evening; I then looked at several Roses and Syringas and found them much stained in spots. Between the petals of the double white Roses there were still drops of the dirty water: and this when put under the microscope showed numerous brown spherical bodies, $\frac{1}{1000}$ of an inch in diameter, and covered with short, conical transparent spines. There were other smaller, smooth, colourless sacs about $\frac{1}{7000}$ of an inch in diameter. I preserved a minute drop of the water beneath thin glass, cementing the edges, and next morning looked rather more carefully at it. I then observed that the water swarmed with elongated, moving atoms, only just visible with a quarter-inch object glass. Whether these inhabited the rain-drops, when they fell, I cannot of course say; but I suspect so, for the petals, now that they are nearly dry, seem stained with absolutely impalpable matter of the colour of rust of iron. This matter has chiefly collected, in the act of drying, on the edges of each spot. The Rev. M. J. Berkeley could tell us what the larger spherical bodies are which fell this day by myriads from the sky, carried up there, I presume, by some distant whirlwind.

We gathered a leaf spotted with yellow dusty patches a few days since in Mr. RUCKER'S garden at Wandsworth, but though there were grains of Fir pollen in the spots, and those of some other plant which we could not ascertain, together with a few spores of Fungi, the principal part of the matter consisted of slightly ferruginous apparently siliceous dust.

The ferruginous spots on the white petals of Philadelphus forwarded by Mr. DARWIN, consisted of coloured less distinctly siliceous particles, and multitudes of irregular bodies so minute as to present the Brownian molecular motion.

It is quite astonishing what a multitude of bodies are carried about by the wind in the form of dust. EHRENBERG some years since made us acquainted with the dust of the trade winds, but interesting matters may be found at home if we can in any way arrest the bodies which traverse our atmosphere. Flakes of snow bring down various things with them, and it is probable that few showers fall without leaving some sediment, though not so thick as in general to attract notice. An examination of such sediments or deposits with the microscope will soon materially modify our notions of spontaneous generation, and at the same time show a fertile source from which unexpected hybrid forms may arise. Indeed were not Fungi so much the creatures of peculiar atmospheric conditions, there would seem to be no limit to the diffusion of their species. *M. J. B.*

THERE still remains in our gardens one of the most beautiful half-shrubby plants in the world, named by Dr. LINDLEY Platycodon sinense. In the year 1852 it was thus described in PAXTON'S *Flower Garden*:—

"This is the finest herbaceous plant obtained for the Horticultural Society in China by Mr. Fortune; but it requires skilful management to gain the beauty of the specimen represented in the accompanying plate, which was prepared in the Chiswick garden. It is there cultivated in a pot, filled with peat, loam and sand, the first and last in excess, exposed freely during the summer under the slight shade of a low wall, and in winter kept dry in a cold frame. Thus managed it produces fine straight stiff branches from 2 to 3 feet high, bearing several large deep blue flowers in succession at the end, and ripening seed in some abundance.

"The first knowledge we had of the plant was from finding it among some dried specimens collected by the Rev. G. H. VACHELL, about the neighbourhood of Macao, and the islands adjacent, in December 1829. Mr. FORTUNE brought it from Chamoo. At first we took it for a mere variety of the large-flowered Platycode, originally figured by GMELIN, from Siberia, under the name of 'Campanula foliis lanceolatis glabris, inæqualiter dentatis, utroque extremo integris, ramis unifloris terminantibus;' and under that name it has become dispersed through our gardens. But a further acquaintance with the Chinese plant, and a comparison of it with a wild Dahurian specimen, has satisfied us that it is really quite distinct. The Russian plant is described as having a weak stem; unable to sustain itself erect ("caule surgit simplici pro ratione tenui, hinc inde flexuoso"—GMELIN), which is exactly what was found when it was formerly cultivated in our gardens; this, on the contrary, has stiff stems, with almost a woody texture. Then, the large-flowered Platycode has but one flower at the end of the stem ("in summitate flos insistit speciosissimus") or at the most two; on the contrary, our species always has a long raceme, and will even sometimes branch, as is apparent from Mr. VACHELL'S evidence. Moreover, in the first, the capsule has the form of an inverted cone, in the last it resembles a hemisphere or half egg. We are, therefore, obliged to distinguish it by a new name.

"There is a semi-double white variety, figured in the Journal of the Horticultural Society. Both produce seed, by which they may be propagated. Some years must however elapse before plants will bear such flowers as were produced in the specimen now represented."

We are asked what has become of this Platycode, and what sort of treatment is best suited to it. As great numbers have been given away at the ballots of the Royal Horticultural Society, some instructions for managing the plant in a first-rate way would be acceptable to many, and we venture to throw upon our obliging correspondents the task of satisfying the curiosity of a great lover of flowers.

—— To have GRAPES ALL THE YEAR ROUND fit for table is certainly a very satisfactory achievement in fruit culture, depending partly on a well-made selection of sorts, but still more on the cultural skill brought to bear on the management. The subject has lately been opened in the pages of the *Florist*, wherein Mr. Hill, of Keele Hall, well known as a most successful Vine grower, tells us that for the last three years he has not been without a bunch of Grapes for his employer's table any day in the year. To obtain this supply seven Vineries are kept going, in the following order; and planted with the undernamed varieties:—

1. Frankenthal: generally breaks of its own accord towards October; fit for cutting March 25. Here, however, Mr. Hill would add Muscat Hâtive de Saumur, and Buckland Sweetwater.
2. Black Hamburgh, Buckland Sweetwater, Black Prince: started December 1st, the earliest fit for cutting by the middle of May.
3. Black Hamburgh, Black Prince: started January 1st; in cutting from the middle of June to early in August. Lady Downe's grafted on Hamburgh comes in useful after the latter is over.
4. Hamburghs principally, with a selection of other sorts: started at the end of February; ripe in August and September.
5. Hamburghs: break of their own accord; ripe generally early in September; to hang well they should be ripe by middle of September; they yield a supply from November to January, and sometimes to the end of February.
6. Muscat of Alexandria, started March 1.
7. Barbarossa, West's St. Peter's, Lady Downe's, Old Tokay, Trebbiana: the latest house; has but little rest, just enough to wash, paint, and top dress; the fruit hangs till middle of March. To this house Mr. Hill would add Kempsey Alicante, and Burchardt's Prince.

The best early white Grape Mr. Hill thinks may be the Muscat above mentioned, which, started on the 1st of January, was by the middle of May almost fit for table, and has moreover the true Muscat flavour. The next best he finds to be Buckland Sweetwater. As a late sort Mr. Hill thinks very highly of the true old Tokay, when allowed plenty of time to ripen; and he highly recommends it as a white companion to Lady Downe's Seedling, which is with him the best late black sort.

The subject is continued by Mr. TILLERY in the same publication. At Welbeck they have nine houses

planted for a rotation of crops, and the sorts selected are these:—

1. Black Hamburgh, Purple Constantia, Chasselas Musqué: the Constantia very early and highly perfumed; the Chasselas, from its roots being under control, not cracking.
2. Black Hamburgh principally, with Buckland Sweetwater, and Grizzly and White Frontignan.
3. Mostly Hamburghs, Purple Constantia, and Buckland Sweetwater, with two plants of Golden Hamburgh, which Mr. Tillery finds good in early, but uncertain in late houses.
4. Muscats, Black Tripoli, Hamburghs, Frontignans: a very large house; started at the beginning of February; yields a supply through July, August, September.

5—9 in one range. Muscats in the earliest divisions; Barbarossa, Trebbiana, Lady Downe's Seedling, Calabrian Raisin, West's St. Peter's, Burchardt's Prince, and Alicante in the three latest.

New Plants.

258. Clematis Fortuni, *Moore, Gard. Chron.* 1863, 460; and in *Proc. Roy. Hort. Soc.* iii. 227.

Leaves ternate, the leaflets coriaceous cordate very obtuse, sparingly strigose beneath, the petioles with a few long weak hairs; flowers terminal, multiple (about eight rows of sepals) with an involucre of several (6—8) petiolate obtusely cordate simple leaves; sepals very numerous, costate and venose, white, the outermost greenish externally, oblong-lanceolate, apiculate, tapered into a distinct slender claw, the claw and outer surface of the lamina pubescent with soft entangled hairs; ovaries numerous, with short caudæ which are silky with fine tawny hairs.



The accompanying figure will give a better idea than any words can do of this fine and remarkably distinct species of Clematis, which has been recently introduced from Japan by Mr. Fortune, and has blossomed during the present summer with Mr. Standish, of the Royal Nursery, Ascot. The foliage a good deal resembles that of C. lanuginosa, but with this it unites flowers of a most unique character, the most remarkable feature of which is that the sepals, which are not large though very numerous, are furnished with a distinct slender claw fully half as long as the broader or laminal portion: the lamina being about 1¾ inch long, and of an oblong-lanceolate form with a small thickened point, the claw about an inch long, and both the claw and the exterior surface being clothed with fine soft loosely entangled hairs, much less developed however than in C. lanuginosa. Close beneath the flower, at the top of the pedicel, are produced several simple stalked leaves, which form a kind of involucre; these leaves are very bluntly cordate, and resemble the leaflets of the more perfect leaves; they are indeed occasionally themselves ternate, when they differ little from the true stem leaves.

The plant appears to be one of vigorous habit, and its flowers are very enduring. When fresh they emit a quite agreeable kind of neroli scent; and even on the imported plants cultivated in pots, and therefore probably somewhat restricted in development, they measure nearly 6 inches across, being made up of some seven or eight rows of the long-clawed sepals already noticed, surrounding a large central tuft of short-tailed greenish ovaries, which together with the tails are clothed with silky appressed hairs, having a light tawny colour, and becoming shorter upwards. The flowers, which in the earlier stages have the sepals closely incurved, are at first greenish white, which tint is retained at the back of the outer sepals, the inner ones becoming gradually bleached, so that by the time the flower is fully developed it is nearly white, while in age it assumes a faint tinge of magenta rose.

This Clematis must be regarded as one of the finest additions to the ranks of hardy flowering plants, which have resulted from the opening up of the Japanese empire, and deserves to be associated with the name of its enterprising and most successful introducer. *M.*

APRICOTS UNDER GLASS.

July 10.—My Apricots in pots in my orchard house are ripening rapidly I commenced gathering the Early Red Masculine and Early Sardinian (A. de Sardaigne), the latter a delicious little sweetmeat not larger than an Orleans Plum, on the 28th of June, and have now cleared the trees, which were loaded with fruit. On the 4th inst. the Oulins' Early Peach, Early Moor Park, and Royal, commenced to ripen, and are now fully ripe. The Peach Apricot, Moor Park, and some others are beginning to colour. I have never in all my fruit-growing experience seen anything more beautiful than my robust Apricot bush trees studded with their large clear golden fruit. I impute this bright colour, without spot or blemish, to the disuse of the syringe (with the exception of once a week to wash the dust from the leaves) as soon as the fruit has attained the size of an acorn.

As my success in growing this most luscious of all fruits, when well ripened, is by many lookers on thought to be remarkable, and as I observe some of my friends fail in their cultivation, I feel quite certain you will allow me to say to what I impute my almost unvarying success in its culture,—the exception being in 1862, when I damaged the blossom-buds by dressing the trees with a composition too strong, and the spring being also wet and cold, so that the crop was not so abundant as usual.

Apricot trees in pots seem to prefer a tenacious loam inclining to clay rather than sand. The loam I use is brown resting on brick earth, and like all our loams and sands in this neighbourhood *highly calcareous*. Two-thirds of this, with one-third half-decomposed manure, is the compost I have found most favourable. When used for potting it should be in a friable state, not wet, and be rammed down with great force, so as to make the earth in the pot quite solid.

Apricot trees in pots are more impatient of having their roots disturbed than any other fruit trees cultivated in the same manner, so that in top-dressing them the earth should not be removed too deeply—not more than 3 inches in depth. Top-dressing should be done by the end of October or early in November. Some years since I lost a crop by top-dressing my trees early in February; they blossomed finely, but all the flowers dropped without setting a fruit. The top-dressing should be tenacious loam and rich manure, equal parts, used when in a friable state, and well rammed in. One simple fact will illustrate my idea that Apricot trees in pots prefer very solid earth. Last autumn I observed some half standard trees in pots with small heads full of blossom buds; owing to their having been in the orchard house all the summer and regularly watered, the soil in the pots was hard as a common footpath. These trees had no water from the early part of October till the middle of February, when, observing their blossom buds commencing to swell, I had them gradually saturated with water; they blossomed most vigorously, and I do not err when I say that nearly every blossom set. As soon as the young fruit were about the size of a horse bean the loose surface soil was scraped off so as not to disturb a fibrous root, and a rich surface-dressing placed on the mould, 2 to 3 inches in depth, so as to lie above the rim of the pots, and made concave, to hold water round the stem. To this surface-dressing, *formed of kiln or malt dust* (they differ slightly) and horse droppings, equal parts, mixed and saturated with strong liquid manure and the solid

soil, I owe the fine luxuriant state of my trees and their handsome full sized fruit. In the orchard-houses of some of my friends the Apricot trees are delicate in their growth, and owing to their young shoots not being pinched they are spindly and weak, whereas my trees, on which every shoot has its top pinched off as soon as it has grown to the length of 6 inches—this is practised all through the summer—have large dark green leaves, and an Oak-like robustness of habit. Solid soil, rich summer surface-dressings in May, June, and July, and pinching in of all the young shoots, are the requisites for successful Apricot culture in pots, and no kind of fruit can give a more grateful reward to the cultivator. *T. R.*

Home Correspondence.

Strawberries.—I am sorry, though not surprised, to see that Mr. W. R. Prince persists in his erroneous assertions respecting Strawberry growing, and I was determined not to take any further notice of whatever he might publish on the subject until I perused your article at p. 627. Mr. P. is evidently one of those who "have ears, but do not hear," and "eyes, but do not see!" Having carefully grown and closely examined many of the American varieties, absolutely females (pistillate), I willingly communicate my experience. In order however not to become tedious, I will only mention a few of the vast number, and such as were likely to be the most valuable. Hovey's Seedling, which appears to be the great favourite in the United States, is here very prolific, early, handsome, and rather large, but like almost all American sorts, pasty. I have grown this ever since 1850. McAvoy's Superior, rather large, round-shaped, pale scarlet, pasty, and of indifferent flavour. Prince's Eclipse, very early, bright scarlet, conical shape, medium size, sweet but very soft, a great bearer. Prince's Imperial Scarlet, early; plant very robust and good cropper; fruit of medium size, pale scarlet, flat. Fillmore (Feast of Baltimore), plant of dwarf compact habit and remarkably hardy; fruit of very handsome globular shape and fair size, colour dark crimson, flesh solid, sweet, and of fair flavour; this is the best of all American kinds which I have grown. There is not a shadow of doubt that not one of the aforementioned absolutely female kinds exceed our beautiful European hermaphrodite Strawberries, as regards f rtility, whilst in all other qualities they are far behind the latter. As a proof of this I beg to add that not one of my numerous friends both in England and France who grow large collections, has retained the American seedlings after two years' trial, except here and there a few "Fillmore," which possesses a certain merit on account of its remarkably solid flesh. I wonder what Mr. Prince would say of the Strawberry fields round London and Paris during the fruiting season, and of the wonderful collections possessed by many skilful amateur growers in both countries, where it is no rare occurrence to count from 250 to 300 berries on a single plant! *Ferdinand Gloede, Les Sablons, Moret sur-Loing, France.*

Melons.—I have a small house of Melons, mostly Bromham Hall, heated by hot-water pipes in a hollow chamber under the bed of earth; of bottom heat there is a pretty good command; the soil is a pure soft yellowish maiden loam without a mixture of any sort. The first lot that I planted grew enormously stout and short-jointed, and made steady regular growth throughout, showing abundance of fruit, sometimes in pairs. I fertilised regularly, and the plants were in the highest state of health and vigour, with fine stiff broad leaves; but the fruit, nevertheless, did not set as it should have done, and the first that did set were small. The plants were very subject to break out in soft rotten patches on the stems. The next lot I planted are similarly situated in every respect, but they are not growing so strongly; they are now showing fruit, and going off in the same way as those just named, if not worse. I did not give them much water as they were growing so strongly; did I keep them too dry, or what is the cause of this, to me, mysterious failure? Will any of your Correspondents kindly say? *Dilemma.*

Gooseberry Caterpillar.—As the caterpillar with which your readers are too well acquainted, through its destruction of their Gooseberry bushes, has claimed a considerable amount of attention in your pages without any satisfactory means having been suggested for its eradication, I beg to trouble you with this communication, containing some account of the result of an experiment I made the other day which may perhaps tend to furnish some effectual means of destroying the pest. Having a small bush of the American Weeping Willow infested with a host of at least a kindred and possibly the same species as that which attacks the Gooseberries, I took a solution of "Gishurst Compound," 2 oz. to 1 gallon of water, and syringed the tree thoroughly with it. For some time I was doubtful of success, only the smaller fry seeming fatally injured. However the result was so far satisfactory that on the following morning I found very few on the tree, and these I concluded the solution had not reached. From this I think that were the trees syringed as I have described, when the first caterpillars appear in spring, before they have attained their full growth, successive broods would be much weakened, and if the application were persevered in I have little doubt that the pest might be almost entirely annihilated before the fruit was sufficiently advanced to be injured by the mixture. An outlay of 1*s.* 6*d.* would clear the bushes on one rood of ground. *William Cumming, Madingley Road, Cambridge.*

Strawberry La Constante.—The commendation bestowed upon this variety by your Correspondent Mr. Rust (see p. 629), is just. It is a beautiful and delicious fruit. Last year I grew it in perfection; but this year there is a sad falling off in it, which I attribute to the tenderness of the plant, and the destructive frosts we had late in spring. The same misfortune has befallen La Chalonaise another new and beautiful variety to which I had attached, and still attach, great value. Out of nearly 20 varieties which I have grown, and am still growing, none have so fully realised my expectations and wishes as Sir Harry. It is an immense bearer, hardy in its habit, has never failed me in any season since I first obtained it; the fruit is large, beautiful, and of good flavour; yet, strange to say, it is discarded by some of our best amateurs, and many of our market gardeners think nothing of it, because they confess that they can make nothing of it. *Wm. Worsley, Gainsborough.*

Stephanotis floribunda.—It would perhaps be too much to say that it is usual for this to bear fruit. Nevertheless, I have often known it to do so. I question, however, whether the supposition of "E. A. M." in regard to temperature being the cause is correct, as I have seen it fruit in a stove, the temperature of which was never below 70°, and in another house where circumstances over which there was no control compelled it to fall as low as 42° in the winter months. I have always attributed its fruiting to dryness at the roots, coupled with a dry atmosphere. I never knew it to set sooner than the end of autumn. *J. Bothwell, Woburn.*

Keating's Persian Insect Powder.—Every one who has frames or hothouses must be most desirous to become acquainted with some means of killing insects without destroying the plants. I being in that position, hastened on reading the account of the successful use of the dried flowers of Pyrethrum carneum, in the destruction of thrips in the Royal hothouses at Berlin, to experiment upon the insects which infest my own Melon frames; and having procurred a supply of Keating's Persian Insect powder, caused a frame to be well fumigated. Some shoots of Plum-trees, covered with aphides, were placed in the frame, in which was a Melon plant much infested by thrips. Great however was the disappointment of my gardener, when on opening the frame next morning he found not only the thrips but the aphides all extremely well, and apparently enjoying an early breakfast on the plants which were respectively affected, although a strong odour of the fumigation still pervaded the frame. I should therefore feel much obliged by information as to whether the success of the Prussian Horticulturist is to be ascribed to the weakly constitutions of the German thrips, or to the greater strength of the powder employed. *Sussexiensis.*

Variegated Scolopendrium.—I have lately found a variegated forked Scolopendrium. The fronds are pale green, rather regularly marked with stripes and spots of dark green, from the rachis to the edge, the markings being raised or relieved on the surface. The enclosed drawing will give you an idea of this curious plant. Have any of your readers found or seen a similar sport? *James Moly, Hawkchurch, near Axminster, Devon, June* 25. [This variety is distinct from all the striped forms previously recorded, and is a very interesting one, according to the sketch sent. It may be distinguished as Scolopendrium vulgare variegatum. *M.*]

Berberis nepalensis.—Can you favour me with any further experience relative to the hardiness and proper treatment of this plant? You write hopefully about it in 1854, p. 595 a., but your correspondent at Biddulph Grange (1862, p. 453 b.) had nearly lost his plant by attempting to grow it out of doors, and probably I should fare the same, though my garden is about 50 miles further south. Would you advise it to be planted for the coming winter out of doors, sheltered from wind and sun; or would an orchard house suit it better? The sun cannot well be shaded from it in the latter place. *Diss.* [We should be obliged by some account of the behaviour of this fine plant in different parts of the country. Fortune's admirable Japanese species are hardy near London, but cannot bear the sun. Shade is evidently indispensable.]

Foreign Correspondence.

Woodlands, North Rhine, South Australia.—Mr. J. F. Wood, formerly of Nottingham, and for several years Editor of the *Midland Florist*, is now and for some years has been located in South Australia, and through his friend, Mr. J. D. Hextall, of Ashby, keeps up a regular correspondence with his old florist acquaintances. From his last letter, dated April 24, 1863, I send you the following extracts. *William Dean, Shipley.*

"My daughter is now drying about half a cwt. of Muscat of Alexandria Grapes for raisins. The Sultana, a stoneless Grape, we want, but I believe it is not yet introduced, and I do not know its proper name so as to inquire for it. I have just finished my own vintage here, and when in a proper state to send off, and it will bear the voyage, my promise shall be redeemed. I think you know from what I had previously written about my Vineyard, that I have about 4 acres this year in full bearing, 4 more will commence cropping next year, and I have 4 acres more one-year-old. I have some very large Gum trees to clear away, one of them being 34 feet in circumference at 3 feet from the ground, and then I shall plant 4 acres more this season. From the 4 acres which are planted with Hermitage, Mataro or Espagne Noir, Black Portugal or Port Wine Grape, and Muscat of Alexandria, Fred (his son) has made 1320 gallons of wine. With my seven years' experience in wine making he has been enabled to manage it in fine style, with my supervision. From the Grape last mentioned, 4-year-old plants, he has made 360 gallons from 550 plants. This will give you some idea of their productiveness, and of course as they get older they will do more. I always vintage as late as possible, allowing the Grapes to be slightly shrivelled before pressing.

"I always try the wine by Sykes's Saccharometer, and I give you from my memoranda the following results. This is of course before fermentation.

Hermitage	47°	These quotations are very high, 30° or 35° is considered good on the Rhine and in France.
Mataro	45	
Port	43	
Muscat of Alexandria	43	

"I have made up my mind I will not reduce the strength or mix as some growers do. Mine shall be *pur et simple*—it shall be the real thing. When I have 20 acres in bearing they will bring me in from 1500*l.* to 2000*l.* a year, and I will certainly not begin to cheat in my old age. Whether I live to see it or not, I trust the Woodlands* brand will be a favourite in England yet. I think I am not wrong in thus anticipating, for if 4 acres this year realised 360*l.* as young trees, it is only fair to suppose that 20 acres will some not very distant day realise the sum I name. This consummation, however, it must be borne in mind, will not have been arrived at without much determined and unflinching labour, both of hands and head, and much each year will require to be done. Our great want is casks. If exporters in sending out dry goods would pack in good sound hogsheads instead of packing cases, it would be to their benefit, as they would get full price for them, or even more, and they would be doing us good into the bargain. Wheat is very low, and I have only grown enough to last my family till next harvest. Labour is still dear. Several of my Nottingham friends would have me write a letter to the newspaper, as many wish to emigrate, and they tell me that if I would do so, people would believe me, as I am well known there. God help them, I wish many of them were here. I have not seen an unemployed person for months. Good farm labourers and respectable female servants are much in request; the latter generally marry soon. Many that come have such notions that they are to get high wages for little work, that the position of master and mistress is anything but agreeable with them."

Societies.

Birmingham Rose Show.—The second annual Show of Roses was held on Thursday and Friday last in the Town Hall, Birmingham, a building peculiarly well adapted for such a purpose; its massive stone walls and subdued light causing the interior of the noble hall to have the temperature of a cool autumnal afternoon, instead of that of a hot midsummer day. The Roses appeared to enjoy the situation, for at the close of the Show they still presented a fresh and vigorous appearance—a pleasing circumstance contrasted with what we have been accustomed to meet with, either under canvas or in the unsuitable large glass structures which have recently become fashionable. As regards the show itself, considering the unpropitious weather we have lately had for the proper development of the blooms, it must be looked upon as a most excellent one. Some very fine specimens were present, and nearly every grower of note in the kingdom exhibited.

In Mr. Cant's collection of 96 single trusses, François Lacharme, Madame Charles Crapelet, Souvenir d'Elise, Christian Puttner, Charles Lefebvre, Cornelia Koch, President, and Madame Boutin, were admirable specimens, brilliant in colour, and perfect in form. Mr. Keynes' Duc de Rohan, Cloth of Gold, Madame Julie Daran, Souvenir de Comte Cavour, La Brillante, L'Eblouissante, Baron Gonella, Mons. Joigneaux, and Maurice Bernardin were equally fine.

In collections of 48 bunches of three each, Mr. Keynes' collection was somewhat extraordinary. Madame Furtado, Charles Lefebvre, Comtesse Cecile de Chabrillant, Prairie de Terre Noir, Olivier Delhomme, Triomphe de Rennes, Celine Forestier, Marshal Vaillant, Joan of Arc, and Beauty of Waltham, were as perfect and large as the most enthusiastic cultivator could desire. Messrs. Paul & Son's collection of 48 were little inferior to the foregoing, and comprised examples of General Washington, Lord Clyde, Senateur Vaisse, Madame Charles Wood, La Ville de St. Denis, and Louis XIV.

In collections of 24 bunches of three, Mr. Keynes again took the lead, his collection containing among others, Maréchal Vaillant, Souvenir de Comte Cavour, Comte de Nanteuil, Louis Peyronny, Triomphe de Rennes, and Duc de Rohan. Mr. Draycott's stand had

* Woodlands, North Rhine, South Australia, Mr. Wood's residence.

good blooms of Louis XIV., Madame C. Crapelet, Madame Furtado, Duc de Cazes, and Charles Lawson.

Awards.—96 varieties, single trusses (Nurserymen): 1st, Mr. B. R. Cant; 2d, Mr. Jno. Keynes; equal 3d, Messrs. Paul & Son and Mr. Wm. Paul. 48 varieties, three trusses: 1st, Mr. John Keynes; 2d, Messrs. Paul & Son; 3d, Mr. B. Cant. 24 varieties, three trusses: 1st, Mr. John Keynes; 2d, Mr. W. Draycott; 3d, Mr. G. Batley, Rugby. 24 varieties, single blooms, open only to nurserymen resident in the counties of Worcester, Warwick, or Stafford: 1st, Messrs. Perkins & Son, Coventry; 2d, Mr. Treen, Rugby; 3d, Mr. Batley, Rugby.

In the Amateurs Classes many excellent collections were staged, all of which bore favourable comparison with those of the nurserymen. Mr. Hedge, of Colchester, was the most successful. In his stand of 28, beautiful blooms were shown of Boule d'Or, Reine Victoria, Gloire de Dijon, Joan of Arc, Charles Lefebvre, Louis the Fourteenth, Madame Rivers, Solfaterre, and Adam. Mr. Evans, gr. to C. Newdegate, Esq., M.P., of Arbury, also showed good specimens in this class, of Senateur Vaisse, Madame Willermoz, Madame C. Crapelet and Jean Bart. In Classes for 24, Mr. Hedge was again first—his stand containing excellent examples of Beauty of Waltham, Louise Magnan, Comtesse Cecile de Chabrillant, and Madame Furtado.

In eighteens Mr. C. J. Perry, of Castle Bromwich, took the lead, showing excellent specimens of Senateur Vaisse, Auguste Mie, Comtesse Cecile de Chabrillant, and Madame Charles Crapelet.

In twelves Mr. Stratton, of Manningford, showed good blooms of Triomphe de Rennes and Senateur Vaisse.

Awards.—48 varieties, single blooms (Amateurs): 1st, Mr. J. T. Hedge, Colchester; 2d, Mr. S. Evans, Arbury; 3d, Rev. S. R. Hole, Caunton Manor. 24 varieties, single trusses: 1st, Mr. J. T. Hedge, Colchester; 2d, Mr. S. Evans, Arbury; 3d, Mr. E. Sage, gr. to Earl Howe, Atherstone. 18 varieties, single trusses: 1st, Mr. C. J. Perry, Castle Bromwich; 2d, Mr. Hedge, Colchester; 3d, Mr. Hunt, Leicester. 12 varieties, single trusses: 1st, Mr. J. Stratton; 2d, Mr. E. Sage; 3d, Mr. E. Hunt.

In a class introduced for Amateurs resident within 15 miles of Birmingham, the competition was considerable, and some excellent blooms were shown.

Awards.—Collection of 12 single blooms: 1st, Mr. W. Brown, gr. to Mrs. Alston, Elmdon Hall; equal 2d, Mr. C. J. Perry and the Rev. P. M. Smythe, Solihull. Collection of 6 single trusses: 1st, Mr. C. J. Perry; 2d, Mr. W. Brown; equal 3d, Mr. R. Garnett, Sutton Coldfield, and Mr. T. B. Wright, Perry Barr.

New Roses formed a most interesting feature on this occasion, and were produced in considerable numbers. Mr. Keynes' collection contained very good blooms of Alphonse Damazin, Maréchal Vaillant, Olivier Delhomme, Prince Camille de Rohan, Madame Charles Wood, and Beauty of Waltham. Messrs. Paul & Son contributed very nice specimens of their new Roses Lord Canning and Lord Clyde, also of Vicomte Vigier, and Beauty of Waltham. In the class for six new Roses of one variety, the first prize was awarded to six excellent blooms of Charles Lefebvre, the second to Beauty of Waltham, and the third to Madame Charles Wood.

Awards.—Collection of 24: 1st, Mr. Jno. Keynes; 2d, Messrs. Paul & Son; 3d, Mr. C. Turner. Six trusses of one kind: 1st Mr. Jno. Keynes; 2d, Mr. W. Paul; 3d, Messrs. Paul & Son.

In addition to Roses, very beautiful collections of Vases in glass and Parian, together with various other subjects connected with horticulture, were exhibited.

BOTANICAL OF EDINBURGH: *June* 11.—T. C. Archer Esq., Vice-President, in the chair. Professor Balfour read a notice from Sir Robert Montgomery, Lieutenant-Governor of the Punjaub, regarding a box of Rose cuttings which had been sent from Edinburgh, packed in wet sphagnum, and which had arrived in good order. Thirteen slips were shooting well, including Moss Roses. The following communications were read:—I. *Note on the Perigynium or Utriculus of Carex.* By M. Alf. Wesmael. Communicated by Professor Balfour. In this paper the author endeavours to show that the covering of the fruit in Carices is formed of one bract, and not of two cohering bracts, as has been maintained by some authors.——II. *Photoglyphic Engravings of Ferns, with remarks.* By H. Fox Talbot, Esq., LL.D. Dr. Talbot remarked—This plate, representing a Fern leaf, is done by the process which I have called photoglyphic engraving, and which was published a few years ago in the various photographical journals. It consists in covering a plate of steel or copper with a film of gelatine mixed with bichromate of potash, placing the object, in this instance a Fern leaf, upon the plate, and exposing it to sunlight for a minute, then removing the object, dusting the plate with finely powdered resin, to give a grain to the engraving, melting the resin, and when the plate is cold brushing it with a camel's-hair brush dipped in perchloride of iron, which speedily penetrates the parts upon which the light has not acted, and effects an etching, while the parts exposed to sunshine are thereby rendered impermeable to the etching liquid. Such a plate (steel) thus prepared is capable of yielding at least 5000 impressions. It will be remarked that the leaf exhibits no venation. This arises from its being a dried specimen from the herbarium; but recent specimens, especially of Adiantum, Trichomanes, Hymenophyllum, &c., yield engravings with a very beautiful venation. Grasses also succeed remarkably well, and one of the most curious objects when engraved is the feathery achenes of Leontodon Taraxacum (the common Dandelion), which are so well given as sometimes to be almost deceptive, except that the achenes themselves are apt to come out too black to be natural. If printed in pale brown ink, I think they would have a strong resemblance to nature. I wished to have shown a plate of this description to the Botanical Society, but the occurrence of cloudy weather for several days in succession has prevented my doing so on the present occasion. If this art had been invented a hundred years ago, it would have been very useful during the infancy of botany, when communications with distant countries were so difficult. It would have been easy for botanical travellers such as Thunberg, Aublet, Lonreiro, &c., to have taken with them a small printing press, and to have worked off a small edition of 50 copies of each engraving they made, and sent the copies home to Europe whenever an occasion presented itself. Some of the copies would doubtless have escaped shipwreck and come to the knowledge of European botanists. Supposing the engraving only represented a leaf and a flower of each plant described in the works, it would have greatly aided modern botanists in determining the plants intended by those authors, whose descriptions are frequently so incorrect that they are like so many enigmas, and have proved a hindrance and not an advantage to science. ——III. *Notice of Plants found in the vicinity of Perth.* By Mr. John Sim, A.B.S. Ed.——IV. *List of Plants found near the Rumbling Bridge.* By Mr. F. B. W. White. Professor Balfour exhibited a collection of dried plants sent by the Rev. W. C. Thomson, Old Calabar, and read a letter which he had received from him, dated 28th March, 1863, in which he says:—By this mail I send you some fire-dried specimens of our Flora, which I trust will be acceptable and prove interesting. For this simple and easy method of preparing them, such as they are, I am entirely indebted to my friend Mr. G. Mann, who has been spending some time on the coast collecting for Kew. He visited us lately and spent a few days with us; but unfortunately for us he leaves the coast by this mail, so that our Flora is not likely to figure so largely as it may deserve in the forthcoming volumes on the Botany of Western Africa. I trust the specimens being sent will enable Edinburgh friends to contribute towards filling up the gap. In the case are two parcels of Ndam. It is the epidermis of the leaf of the Membo Palm. All are dyed by boiling the black with the bruised leaves of Mucuna Balfouriana, the red with the bruised wood of a tree called Ukpa, and the yellow with the bruised bark of a tree called Auniau. The ball of cord is most likely made from the fibrous bark of another tree.

Notices of Books.

South American Sketches. By T. W. Hinchliff, M.A., 8vo., Longmans, pp. 414.

Travels in Brazil, the Argentine Provinces and the Paranà, by one of the members of our gallant Alpine Club, are certain to be read with interest, even irrespective of the places themselves. And when the narrative assumes the lively tone and graceful manner of which Mr. Hinchliff is a master, it cannot but be welcomed by all lovers of nature. The author shall introduce his work in his own words.

"As a school-boy I had wandered in imagination among the forests of Brazil; my fancy had been fired by Sir Francis Head's description of the Pampas; and I had latterly conceived an eager wish to compare the Andes with the Alps. I started from England with the intention of seeing these three regions in the course of a year's absence; and though I was unfortunately compelled by circumstances to abandon the third division of my plan, yet I derived so much pleasure from all the novel scenes of Brazil and the Republics of the River Plate, that I am anxious to call the attention of others to these comparatively unfrequented countries.

"My visit to Brazil was short, but it enabled me to wander among the exquisite scenery of the Organ Mountains, the beauty of which can hardly be surpassed in any country of the world; to make many delightful expeditions from the neighbourhood of Rio Janeiro; and to see some of the results of modern skill and energy, in a journey to Juiz da Fora, in the province of Minas Geraes. . . . The grandeur of the forests, the infinite variety of ferns and flowers and fruits, the beauty of the birds and insects, and the sublimity of the scenery, all exceeded my highest expectations; and I wish to point out for the benefit of other wanderers, that the limits of a Long Vacation are sufficient to admit of their spending five weeks in the cool season among the splendours of Brazil.

"I passed several months in Buenos Ayres and the neighbourhood, where the kindness of friends and relations introduced me to all that was most agreeable and interesting both in town and country life. The society of Buenos Ayres is remarkably hospitable and pleasant, the climate is generally delightful, and it would be difficult to find anything more healthy and invigorating than the free and independent life of the estancias, or country estates.

"Availing myself of a good offer, I made an expedition up the river Uruguay to the neighbourhood of Paysandù, about 300 miles from Buenos Ayres, where I had a very favourable opportunity of enjoying plenty of sport on the estancia of a friend, and of thoroughly examining that district of the Banda Oriental.

"Later in the year I ascended the river Paranà to Rosario, Santa Fé, and the town of Paranà, which was then the capital of the Argentine Confederation. After an agreeable visit for a week at the latter place, I started with a friend to cross the rarely-visited province of Entre Rios, and a journey which was both amusing and exciting brought us to Nogoyà and the neighbourhood of Gualeguay. Here we spent a fortnight at the estancia of another friend, riding to all parts of the surrounding country and familiarising ourselves with the life and pursuits of the estancieros, among whom we found many of our own countrymen."

This will show the reader what to expect, and we can assure him that he will not be disappointed. The narrative never flags, and Mr. Hinchliff's descriptions in no instance lose their freshness. As a fair example of them, we select what he says of Brazilian FERNS.

"One of my chief objects in going to Brazil was to see the tropical Ferns in their wild state, and I never can forget the intense enjoyment of realising my wish. I had taken with me a large stock of botanical paper, and made additions to my collection in every expedition round Petropolis and other districts of the Organ Mountains. Sometimes I came home laden with a bundle of them large enough to make me look something like Jack-in-the-Green, on the 1st of May. The natives could not understand such extraordinary conduct, and the honest Turk looked on with that placid bewilderment which prompted one of his countrymen to ask why on earth Englishmen took the trouble to play at cricket, instead of making somebody else do it for them. It was a constant source of amusement to me; but unfortunately I found that the greater part of my treasures were much too large for botanical paper, and I was obliged to confine myself to the smaller species, or look for very small specimens of the larger kinds. The Tree-Ferns, when not more than 10 or 12 feet high, are amongst the most lovely creations of the vegetable world; standing under one of them is like being covered by a huge umbrella, consisting of drooping fronds, about 6 or 8 feet in length, of the most exquisite green that can be conceived, and moulded into lace-like forms by the delicate hand of nature. Many of them appeared to be 30 feet high; but I thought that the great length of stem took something off from the beauty of their proportions. An infinite variety of smaller species ornamented the ground, and seemed to fill up every corner that was not already occupied by some more powerful vegetable brother. Great clusters of the beautiful Silver Fern were among the most common by the roadside, and nearer the streams were frequent masses of a Fern which in size and general appearance resembled our common Bracken, or Pteris aquilina, but whose fronds proved to be divided more like the Osmunda regalis. There were several Osmundaceæ of remarkably graceful form, and others grew into such tangled masses of branching fronds, that none but a Fern lover would have distinguished them from the more ordinary shrubs as he passed on his way.

"Vast bowers were formed by the festooning Bamboos; and winding about their feet, or drooping over a bank, were Creepers of various colours, chief among which were the long-petaled scarlet Passion-flower, and a magnificent Ipomœa. Now and then came a tall Fuchsia 20 or 30 feet high, contrasting its crimson blossoms against the bright green background of Bamboos; and again, a more than usually moist place was pink with hundreds of Begonias. High above rose the rustling Palms, and the hardwood monarchs of the forest spread their dark green boughs across the sky to shade the many-coloured Orchids which clustered about their stems or hung from their branches. Such were a few of the beauties upon which I feasted my eyes among the mountains of Petropolis.

"I was very glad to find that the profusion of flowers with which nature had blessed the country had not the too common effect of making the people neglect them. The better houses were for the most part ornamented with pretty gardens, the hedges of which were made of pink and white cluster Roses, so thick with blossom that it was difficult to see the leaves. The gardens of the Emperor's palace and the chateau of the Baron Mauà were in a blaze of beauty; and even in the outskirts of the town many of the poor German cottages were surrounded with Roses as well as Bananas. I have seen the pigs fattening themselves into a most desirable rotundity upon wreaths and clusters that would have been invaluable in a drawing-room. The Orchids and air-plants are brought by negroes from the forests, and some of the inhabitants have beautiful collections of them. The rarer kinds are, however, very expensive, and the chief gardener in the place did not scruple to ask from 5*l.* to 10*l.* sterling for a single plant."

Surely a run to the Organ Mountains, where these things are, is rather more enjoyable than a trip to dusty dirty worn-out Italy.

Mentone and the Riviera. By J. Henry Bennet, M.D. John Churchill, London. Pp. 288.

Some three years ago, a London physician, broken down in health and suffering from over work, was forced to seek rest and a genial climate abroad, and happily his steps were directed to Mentone. In this

favoured spot he derived so much benefit that he determined to write a book, setting forth the advantages which Mentone possesses for that large class of sufferers who are forbidden to pass the winter in England.

It is no small gain, where one's medical man has himself been a patient, for the experience obtained in that capacity enables him to enter more fully into the feelings of an invalid, and gives a special value to his advice even in little matters.

Dr. Bennet explains how it is that this sheltered nook, partly owing to its being protected from the N.E. winds, and partly owing to the summer-heat, which is stored up in the amphitheatre of limestone rocks which surrounds it, enjoys a mildness of winter climate, which its latitude alone would not account for. This mildness is evidenced by the groves of healthy Lemon trees, which flower all the year through, and bear four distinct fruit crops. The Lemon tree, be it observed, is far more delicate than the Orange, the fruit not being able to withstand above 2° of frost, and 3° or 4° are sufficient to destroy the tree itself.

The Olive trees attain a great size, and are of an almost fabulous age, and are very picturesque. The beautiful Oleander, or Rose Laurel, grows to the size of a small tree. The Prickly Pear (Opuntia communis) a native of the mountains of Mexico, flourishes here; and the grand Aloe, after a long life of dignified repose, shoots up its wondrous flower-stems to a height of from 20 to 30 feet. Large Euphorbia bushes, as big as our Rhododendrons, as well as Carouba or Locust-trees, testify to the exceptional winter warmth.

Dr. B. dilates with evident delight upon the beautiful scenery, the charming rambles, the unusual vegetation, the botany and geology, the meteorology, the medical and social aspects of a place which he prefers to Nice, and indeed to every other part of the South that he has tried as a winter residence. He did, it seems, make a tour in search of something better, and describes Biarritz as an enjoyable station, having many advantages, especially in the way of sea bathing and easy railroad communication; but having no mountain protection whatever to the north, he thinks it must be liable, like Pau, to spells of cold weather when the wind blows from that quarter. It has neither the screen of the Maritime Alps at its back, nor has it the night radiation of the sun-warmed Riviera mountains.

After giving some tables of temperature, with observations founded thereupon, Dr. B. closes his book with full directions for an invalid's journey to Mentone, so contrived that it may be made a pleasure instead of a toil, the latter part of it to be accomplished in a *vetturino* carriage, the most cosy and comfortable mode of travelling, when the tourist is not pressed for time. Dr. B. does not forget to recommend "La poudre insecticide," as a protection against one set of foes, and mosquito curtains as a defence against others, for all which thoughtfulness and advice, we doubt not many an invalid will bless his memory.

Examination Questions in Book-keeping by Double Entry; preceded by Copious Directions for the true stating of Debtor and Creditor, with answers, &c., adapted for General Use in Schools. By the Rev. J. Hunter, M.A. Longman & Co., 1863.

There is scarcely any branch of general education more deserving of being carefully studied and thoroughly understood than that of book-keeping, which has been defined to be the art of recording the business transactions of a merchant, in such a form as to exhibit a distinct view of his affairs; the debts due to him, and the debts he owes to others. To acquire a knowledge of the principles upon which this most useful art is based, and the manner in which mercantile and other accounts ought to be registered and kept, are matters of the highest importance, not only to those who contemplate engaging in commercial pursuits, but to young men of every grade, and particularly to such as are desirous of entering the lists for competitive examination, with the hope of obtaining employment in the Civil Service. It is chiefly for the purpose of instructing these that the present work has been prepared, and we think it is well calculated to effect its object, and be of great assistance to every student who may refer to it for information respecting the various details having reference to Book-keeping by double-entry.

We have been always under the impression that it was requisite for the student to be well acquainted with book-keeping by single entry before commencing to study the more complex system by double entry—the former being regarded as introductory to the latter. But we are here told that "a youth who expects to be engaged in any business of which the accounts are kept by single entry, should first learn the principles of the Italian method (double-entry), he will then find no difficulty whatever in applying his knowledge to the practice of the less perfect system, and will have acquired intelligence that may come to be of necessary use to him in examining the accounts of others."

It is considered a fault, that in most of the published systems of book-keeping,—however clearly they may explain the great leading principle of opposite and equal entries for every transaction,—they do not furnish examples sufficiently varied to illustrate that principle in the way in which it ought to be done. We think this remark cannot be justly applied to the present publication; in which some of the more useful papers in the 3d and 6th reports of the Civil Service Commission, and a few of those recently published by the Society of Arts, have been selected or adapted, as examples for the help of students, and answers supplied to them for consultation in case of doubt, and correction in case of error.

As the secret of good book-keeping depends on the correct stating of debtor and creditor, no less than 72 preliminary examples are given, in order to show the various modes in which mercantile transactions are converted into journal entries. The examination questions are 56 in number, and embrace every sort of account that is likely to be met with in the course of business. The answers to them are full and explicit, and occupy 160 pages. They not only describe the various books that are required to be kept in a merchant's office, but they exhibit the manner in which the different entries should be made in them, and explain all the particulars relating to book-keeping by double entry which it is essential that a merchant should know, and a book-keeper be competent to carry into practice.

In cordially recommending this work to the notice of all who feel interested in accounts, and are desirous of learning the proper system of keeping them, we would particularly direct their attention to the following instructions which candidates are required to attend to in the Civil-Service Examinations:—

"Handwriting should be free from flourishes, compact, and with every letter distinctly formed. Figures should be correctly formed, and kept properly under each other. Care should be taken to copy names, dates, and other particulars, with perfect correctness. No erasures must be made; if any correction is necessary, it should be done by drawing the pen through the part which is erroneous, and then making a fresh entry."

Lectures for a Village Night School. By Rev. R. Twopeny, B.D. Wertheim & Co. Pp. 111.

This is an unassuming but very useful little book, not costing above a shilling, but supplying a want of the present day. Every village clergyman sorrows to see the boys taken from his school as soon as they can earn anything. All we can do to remedy the evil, is to assemble boys and young men in night-schools, where we strive to teach them not only reading and writing, but if possible also the habit of thinking and reflecting. This is no easy matter, and any help such as Mr. Twopeny gives us, in a lively manner, and with a healthy and religious tone, is very acceptable. There are two lectures on thinking, starting from the question, what makes the great difference between me and other living creatures? Seven lectures on speaking, that wonderful gift of God to man; four, on honesty; two, on judgment and a future state. To clergymen and others who care for the best interests of the poor, this little work will be useful.

The Chorale Book for England. Longman & Co.

Of late years the importance of congregational psalmody in the service of the Church has been acknowledged, but there has been a difficulty in obtaining a good collection of hymns, and a far greater in getting such a selection of hymn-tunes as the congregation can learn and sing.

When we say that this congregational edition is issued in a neat cloth binding, and contains no less than 200 hymns, with the music, that the translations from the German bear the name of Catharine Winkworth, that the tunes are edited by Dr. Sterndale Bennett and Otto Goldschmidt, and that 25 copies are offered to clergymen at 1*s.* 2*d.* per copy, surely we have said a great deal in praise of the Chorale Book, and of all who are connected with it.

TRADE LISTS RECEIVED.—*A Descriptive Catalogue of Roses, cultivated for Sale by John Keynes, Nurseryman, Seedsman, and Florist, Castle Street Nursery, Salisbury.* A capital and most useful catalogue, to which are prefixed the following directions for Rose growing:—"J. K. begs to offer a few brief remarks on the best system of preparing the ground for planting Roses:—When they are to be placed out singly on lawns, a hole should be made 2 feet deep, and large enough to contain a good wheelbarrow-full of compost; two-thirds of which should be strong turfy loam from an old pasture, and one-third well decomposed animal manure. When beds are to be planted, the ground should be thoroughly trenched 18 to 24 inches deep, as the nature of the soil may admit, intermixing some of the above compost. If this be done well, the beds will last for several years with adding a dressing of manure yearly; it is difficult to give the Rose too rich a soil. If a piece of ground is set apart for the exclusive cultivation of Roses, the most open situation should be selected; if wet, it should be drained well; this done, the ground should be trenched the depth as recommended above; the beds may then be formed according to taste and circumstances. November is the best month for transplanting. It is not advisable to prune at the time of planting; if planted in November, about the first week in March for Hybrid Perpetuals, and the last week in April for Tea Roses, would be the best time to prune. In pruning, if they grow vigorous and thick some shoots should be cut out entirely, and the others left long, varying from 6 to 18 inches, in proportion to their growth; the moderate growers should be pruned back close, say from two or three buds to 6 inches." Let us add that nothing surpasses burnt clay heavily charged with well rotted dung.

Garden Memoranda.

MR. VEITCH'S NURSERY, KING'S ROAD, CHELSEA.—Many charming specimens of the magnificent new Japanese Lily (Lilium auratum) are now in full bloom here, and well worth inspection. As has been stated on a former occasion, if ever a flower merited the name of glorious, it is this, which stands far above all other Lilies, whether we regard its size, its sweetness, or its exquisite arrangement of colour. Examples of it are at present in bloom here from 1 foot to 4 feet in height, and when we mention that on the ends of slender single stems of some of the latter are no fewer than five flowers, each of which measures 9 and 10 inches in diameter, some idea of the grandeur of the effect produced by such a fine display may be conceived. The ground colour of the blooms as seen under a shaded glass-roof as it is here, is of the purest white, with which the golden band occupying the centre of each petal forms a striking contrast, the intervening spaces being thickly covered with rich crimson spots, altogether furnishing an amount of attractiveness and variety seldom found united in one flower of any other plant whatever. For this noble addition to the genus to which it belongs, Mr. Veitch is indebted to the enterprise of his son Mr. J. G. Veitch, who found it growing wild on hill sides in the midland provinces of Japan. There can be little or no doubt, he states, that it will prove hardy in this country, as he has himself known from 14° to 16° of frost to occur in the locality in which it was found. This is a point, however, which we trust will soon be set at rest by direct experiment, as Messrs. Veitch have now stock sufficient of it to enable them to spare a plant or two for that purpose during the forthcoming winter.

In Japanese plants, both tender and hardy, this nursery is particularly rich. To their culture a span-roofed house, 55 feet in length, has been specially devoted; on one side of this are arranged specimen plants, among which are beautiful examples of Sciadopitys verticillata or "Parasol Fir," with whorls of deep green leaves 4 inches in length; on the other side are smaller plants in rows, the variegated sorts being placed so as to form a striking and agreeable contrast with their green-coloured associates. Of the green-leaved berry-bearing Aucuba Mr. Veitch has an admirable stock, and also various handsomely variegated kinds of Aucuba, altogether different from that now common in our gardens. These when better known cannot fail to occupy a front rank among hardy shrubs.

In a house specially set apart for plants remarkable for the beauty of their foliage none were more conspicuous than Sphærogyne latifolia, a plant with leaves as large as those of Cyanophyllum magnificum itself, strongly ribbed, and possessing a fine purple colour on their under sides and a beautiful velvety gloss on the upper surface. Among others at present canopied over by Allamanda Schottii trained along the roof, and beautifully in bloom, were Caladium Veitchii, Alocasia metallica, A. macrorhiza variegata, and A. zebrina, the last a fine kind from the Philippines, with huge green arrow-shaped leaves supported on long stalks, beautifully marbled and mottled with dark green upon a yellowish-green ground.

In connection with the show house and museum near the principal entrance, three span roofed houses have been recently formed divided into compartments by means of canvas partitions. These are summer receptacles for fine foliaged and flowering plants, one compartment being devoted to Orchids, which, owing to the breadth of the passages and the cool agreable atmosphere in which they are kept, can be inspected without the inconvenience of having to visit them in the warm damp houses in which they are grown and brought into flower. At the end of the show house just named was a magnificent assemblage of Tree Ferns, with massive trunks and noble heads of spreading fronds, and in a cool house through which visitors pass on their way to the hardy Fernery, some fine plants of the beautiful terrestrial Cape Orchid, Disa grandiflora, were in bloom. With the hardy Fernery all lovers of tasteful arrangement must be charmed. It is roofed with glass, covered during summer with tiffany, but not artificially heated. The sides consist of irregular masses of vitrified brick held together with Roman cement, and so completely covered with luxuriant Moss and Fern leaves as to be wholly hidden from view, except here and there where the rock is allowed to crop out unfurnished with vegetation. A winding walk, surfaced with white gravel, surrounds a bold central mass of rockwork also covered with Moss and luxuriant Ferns, and at one end is a little waterfall trickling into a basin below, in which is Aponogeton distachyon, overshadowed by a noble specimen of Royal Fern. Among different sorts of Scolopendrium, Athyrium, Polystichum, Lastrea, and Asplenium, we noticed Todea australis, Onoclea sensibilis, Lomaria magellanica and Woodwardia orientalis,

the last a fine specimen of a highly interesting kind. Mr. Veitch is also here attempting the growth of Gleichenias, and as far as the experiment has gone the result must be pronounced to be satisfactory. A few other plants, such as Foxgloves and Farfugium grande, have also been introduced with good effect, associating as they do admirably with the peculiarly lively green of the Ferns, which seem to grow with astonishing vigour, rendering this one of the most delightful features of this establishment.

Of Orchids there is a large and magnificent collection, four long houses being wholly filled with them. Many fine kinds, consisting of Saccolabiums, Cattleyas, Lælias, Cypripediums, and others, are in bloom, ample reference to which will be found in reports of our great exhibitions which have taken place during the last two months.

In the ornamental ground on the south side of the King's Road, opposite the principal entrance, is a charming ribbon border, consisting of an edging of Cerastium tomentosum, supported by long lines of blue Lobelia and yellow Calceolaria, prettily backed up with a beautiful row of the red-leaved Japanese Amaranthus melancholicus ruber, a plant also invaluable for many purposes of conservatory decoration. Forming a framework, as it were, to the centre of this ground, which is now a blaze of floral beauty, are rows of Yucca recurva, a plant not half so well known as it should be for open garden ornamentation. It is very hardy and extremely graceful in habit, and when planted on Grass produces a fine effect, especially when associated as it is here with little pyramidal bushes of clipped Box. Among the bedding plants Pelargonium Princess of Prussia is an effective scarlet, and the same remark applies to Lord Leigh Verbena. Among other beds were four large circular ones filled with different sorts of Canna, which appeared to be growing satisfactorily.

Miscellaneous.

Peat.—The peat-beds play a most important part in the domestic economy of Holland. There is no coal in Holland,—none nearer than the great carboniferous basin at Liège. By way of substitute Nature has provided peat. Enormous beds of this deposit lie in the provinces of Friesland, Groningen, Drenthe, and Overyssel. The land there quivers perpetually, and the inhabitants say *Het land leeft*,—the land is alive. Peat was burnt in Holland long before coal was burnt in England. The consumption increased 50 per cent. between the years 1834 and 1852, at which latter date it was 33,943,630 tons. The peat-beds are of two kinds: high beds, *hooge veenen*, and low beds, *lage veenen*. Assen, the chief town of Drenthe, stands in the middle of an old peat-bed. The fields and gardens by their smiling aspect would never betray their origin. In the high lands peat is supposed to have been formed by the decay of vegetable life, chiefly that of heath and moss, on the surface of the ground, which forms a mould that increases year by year until it has undermined the trees, and, having caused their fall, gradually covers them over with a yearly-increasing deposit. Ages afterwards the trunks are found whole several feet below the surface of the bed. The forests protected the growth of peat, and were destroyed by it. In the low beds peat is formed by the decay of aquatic plants under water, which, dying, fall to the bottom, and form layer upon layer. These are often floating on the surface of the water. Sometimes, after a long drought, in which the peat is left stranded on the bottom of the marsh, the plants take root and prevent the bed from rising when the marsh becomes again full of water. At other times the beds are carried away by the force of the wind, and lawsuits have arisen, in which the plaintiff sought to recover possession of an estate which had floated away, with all the owner's live stock on it, and stranded itself within the boundaries of a neighbour's property. The Romans were greatly alarmed by the floating forests in the Zuyderzee, which, more formidable than Birnam Woods to Macbeth, came sailing towards them, and threatened their galleys with destruction. The modern Dutchman, less superstitious, but not the less anxious to prevent the land from playing truant, is accustomed to fasten these fugitive estates by ropes attached to stakes fixed in the more stable earth. The working of the peat-beds gives employment to a large number of hands. The first step is to drain the bed by digging trenches some 24 feet apart, and from 3 to 4 feet deep, lined with an earth wall to prevent the peat from falling in. These trenches are gradually deepened, until some eight years from the commencement of operations the peat is fit to be dug. One great danger in working these beds is that of setting them on fire. M. Esquiros, from whose most interesting description we have borrowed some of the foregoing facts, mentions a case in which the fire lasted twelve days, and the only means by which it could be stopped was to dig a trench round the burning field. The chief of the low beds is at Wateringen, near the Hague. As the working of these beds necessarily causes the formation of a lake, the Government lays great restrictions upon this occupation. When permission is given, the proprietor skims off the ground, which consists of valuable agricultural clay land, and carefully removes it to another portion of the field. The clay is usually 2 or 3 feet thick, and beneath this lies the peat. This preliminary step is usually performed in the winter. In the spring, workmen clad in long waterproofs boots descend into the water, cut the peat beneath the water, and then, guided entirely by their eye, seize the sods, and pitch them into a barge. This barge is emptied some six times a day into a wooden trough 12 feet square and 2 feet deep, where the peat is trodden down by human feet until it is kneaded into dough,—a process which by force of contrast as well as of similarity recalls the Grape pressing of Italy. The peat is afterwards taken out, arranged in blocks, covered with planks, and allowed to harden. It is then carried to the various towns in barges, the conductors of which are forbidden to smoke. The peat of the low beds is preferred to that of the high; to put against this, the working of the low peat beds leaves a lake, which the high beds do not. Latterly, a daring speculator bought these lakes at a low price, dyked them, drained them, and obtained as a reward of his enterprise some most valuable agricultural land, on which he grew most luxuriant crops. Peat is used in manufactories, breweries, and limekilns, as well as in private houses. Being bulky, it is subject to pressure before carriage, and this compressed peat is converted into charcoal. Peat forms the basis in the manufacture of paper, ink, varnish, and animal black. In marshy countries it is used as the foundation of houses. It swells under water, and centuries after, when the house is pulled down, it is as good as ever, and is then used for fuel. *Spender in Trans. of Bath and West of England Society.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—New Holland and other greenhouse plants will now be getting out of bloom, and some care will be necessary to avoid being short of showy plants with which to supply their places. Many things in stoves, such as Achimenes, Gloxinias, &c., should now be in a forward state, but these must be carefully prepared for removal to the drier atmosphere of the conservatory, otherwise there will be some risk of injury. Where circumstances will admit, plants that have been grown in a warm moist atmosphere should be removed to an intermediate house about a fortnight previous to their being taken to the conservatory, and gradually inured to a free circulation of air. By attention to this and placing the plants in the warmest corners in the conservatory, Clerodendrons and Allamandas will continue growing slowly and blooming for some three months at a time, whereas if this is neglected, their beauty may be very short-lived. Aim at maintaining an even temperature in the conservatory after removing plants thence that have been grown in the stove, and avoid allowing the atmosphere to become very warm on bright sunny days. Also see that every plant is perfectly clean before placing it in this house, and that the creepers, &c., are not infested with insects. Young stock in pits will now be completing its growth, and must be carefully attended to as to watering. Examine Heaths frequently for mildew, and apply sulphur the moment it is perceived, some of the soft-foliaged varieties being very liable to be attacked by this pest.

FORCING DEPARTMENT.

PINERY.—Where the quality of the fruit is of great importance, care must be observed to have the soil in a healthy rather dry state during the period of ripening. Suckers that are not very strong will be benefited by being left on the stools for a month after the fruit is cut, but this will seldom be necessary in the case of healthy vigorous plants. Any neglect in the way of watering and maintaining a moist atmosphere in the case of succession stock may lead to its fruiting prematurely, therefore let there be no lack of attention at present. Plants swelling their fruit should be encouraged with plenty of liquid manure and a moist high temperature, shutting up early in the afternoon after syringing.

VINERIES.—If spider makes its appearance on the foliage after fruit has commenced colouring no time should be lost in coating the hot-water pipes with sulphur. The sulphur should be mixed in water with about equal quantities of lime and soot, and applied with a brush. The lime serves to prevent the sulphur from being washed or rubbed off, and the soot helps to prevent any disagreeable appearance. The temperature of late houses where the fruit is now showing must not be allowed to fall too low at night if good-sized bunches are expected, and where Muscats are grown for a late supply there will be but little chance of securing a good crop of these unless a temperature of 70° is maintained. Attend carefully to young Vines recently planted, keeping the borders in a healthy state, maintaining a moist atmosphere, and shading until the Vines get a fair start.

MELONS.—Where fruit is swelling the soil should be kept in a properly moist state, and every means should be used to preserve the foliage in perfect health, as there is no possibility of obtaining good flavoured fruit unless the leaves are kept in health. Keep the Vines thin, and prevent their being encumbered with useless laterals, and remove any decaying leaves at once, as these when left only serve as a harbour for insects.

PEACHES AND NECTARINES.—Go over the trees in the early house as soon as the crop is gathered, and cut away all useless shoots, such as are not required for fruiting next season or for filling up vacant places; when this is done, give a good syringing with the garden engine, and if the borders are dry, and the trees are weakly, a good soaking of manure water would greatly assist them for another season.

FLOWER GARDEN AND SHRUBBERIES.

During the present continuance of bright weather examine shrubs transplanted this spring, especially on gravelly soils, frequently to see that they are not suffering from want of water. Give a liberal soaking where necessary. Bedding plants must also be duly attended to with water, and with the present favourable weather and proper attention they will speedily repay all the trouble that has been bestowed upon them. As open grounds and shrubberies are much more frequented by company at this season than at any other, pay the more attention in keeping the greatest neatness and order in every part where there are hands to admit of it; flowering shrubs as they go out of bloom should have the dead flowers, &c., removed, and be slightly cut back. For the same reasons remove the seed pods from Rhododendrons, Tree Peonies, &c.; these little attentions will be followed by an increasod growth of the plants, and with the greater certainty of their blooming every season. The propagation of Carnations, Picotees, Cloves, &c., should not be longer delayed. Hedges should be well cut in with the shears, unless when formed of large-leaved plants, as Laurel, Turkey Oak, &c., where the knife only should be employed, as the leaves look bad when clipped with the shears. Tulips may now be taken up. Store them away either in cabinets, with the drawers properly numbered, or put them in thin paper, allowing them to dry gradually in an airy shady place.

HARDY FRUIT AND KITCHEN GARDEN.

Previous directions should be looked over. Nailing and tying in of the current year's wood should be continued. Pinch out the point of the present year's wood of the Fig before nailing it in. Stop and nail in Vines, and still continue to watch the progress of green-fly. Asparagus and Seakale making rapid growth will be benefited by a good sprinkling of salt and frequent soakings of liquid manure. To have fine crowns next spring attention should be paid to these matters now. Plant out a good supply of Endive and make a further sowing. Continue the regular sowing of Lettuces and other salad plants.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending July 15, 1863, as observed at the Horticultural Garden.

July.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 9	23	30.214	30.157	84	33	58.5	64½	61½	N.E.	.00
Friday 10	24	30.305	30.278	86	41	63.5	64	61½	N.E.	.00
Satur 11	25	30.348	30.286	83	42	62 5	64½	62	N.E.	.00
Sunday 12	26	30.311	30.256	85	49	67.0	64	62	E.	.00
Mon. 13	27	30.405	30.376	84	37	60.5	65	62	N.E.	.00
Tues. 14	28	30.376	30.252	87	38	61.5	66	62	N.E.	.00
Wed. 15	●	30.203	30.059	88	50	69.0	64	62	N.W.	.00
Average.		30.309	30.235	85.3	41.1	63.2	64.5	61.8		.00

July 9—Very fine; hot and dry; fine; nearly freezing at night.
— 10—Clear and fine, hot and dry; very fine; cool.
— 11—Dry haze; fine; hot sun; cool.
— 12—Slight haze; very fine; hot sun; warm at night.
— 13—Overcast; very fine; hot; cool at night.
— 14—Very fine; very hot and dry; coldest in the night—only 4 deg. above freezing.
— 15—Very fine; as yet the hottest day of the present season; warm at night.

Mean temperature of the week 1½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending July 25, 1863.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 19 .	72 8	51 0	61.9	21	0.60 in.	2	1	1	1	7	15	8	2
Mon. 20..	72.5	51.1	61.8	22	0.72	1	1	3	—	1	19	10	2
Tues. 21..	73.1	50.6	61.9	16	0.54	2	1	3	1	4	13	10	3
Wed. 22..	73.4	51.8	62.6	21	1.37	3	3	2	1	3	13	10	2
Thurs. 23..	74.0	52.7	62.3	19	0.70	1	6	5	2	3	11	5	4
Friday 24..	72.5	52.2	62.4	13	1.16	1	7	4	2	5	12	3	3
Satur. 25..	73.9	49.7	61.3	10	0.36	2	6	3	—	2	10	12	2

The highest temperature during the above period occurred on the 25th, 1844—therm. 92 deg.; and the lowest on the 21st, 1862—therm. 36 deg.

Notices to Correspondents.

CUCUMBERS: *Young Gardener.* By all means let them root at the joints. The more healthy roots they have the better; because the branches will be all the better fed. We, therefore, advise you to let your plants alone.

INSECTS: *Henry.* We found two minute Acari very like the red spider on the small plum leaves sent from your orchard-house. They doubtless suck the fluids of the leaves, and may be destroyed by fumigating with tobacco leaves.—*I* (or *T*). Your Fern leaves are sucked by a small green field-bug (Phytocoris sp.) common on garden plants. Fumigation will kill it. *W.*

NAMES OF PLANTS: *W C B.* We very much regret to say that your specimens have been accidentally mislaid, and are now unexaminable. If you will send a fresh supply with your private address you shall have an immediate private answer.—*R.* Balsamita vulgaris.—*G S T.* Primula cortusifolia and Lepachys columnaris.—*Andrew Smaith.* Polemonium pulchellum.—*A B C.* 1, We believe Oxalis repens of the Mauritius, which is probably not distinct from O. corniculata; 2, Gymnostachyum Cumingianum; 3, Lonicera involucrata; 4, An Artemisia cannot be determined without flowers.

ROYAL HORTICULTURAL SOCIETY: *G S.* There is neither truth nor common sense in the statement to which you refer.

STRAWBERRIES: *T B.* They appear to be suffering from drought. A mulching of straw occasionally watered would, we think, have saved them. Strawberries cannot endure summers like this without assistance.—*Llanrwst.* We are sorry to say we cannot read Welch.

TAYLOR'S BAR HIVES: *Ignoramus.* We do not know where these are to be had.

Royal Agricultural Society of England.
WORCESTER MEETING—STAND No. 236.
IN ADDITION TO A MUSEUM OF UNUSUAL INTEREST,

MESSRS. SUTTON AND SONS will EXHIBIT SPECIMENS of the present year's crop of about 100 kinds of GRASSES, showing the natural habit of each sort at the time of harvest. The Silver Medal of the Royal Agricultural Society of Denmark has just been awarded to SUTTON & SONS, for their Collection now exhibiting in Odense.
Royal Berks Seed Establishment, Reading.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
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W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.
DRAWING.—JAMES MILLER.
* These Gentlemen will be in temporary residence.
Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—
AGRICULTURE.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
ROBERT RUSSELL, Editor of the Transactions of the Highland and Agricultural Society—A Course of Lectures on Manures.
AGRICULTURAL CHEMISTRY.
THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.
The College will RE-OPEN AUGUST 10th. For further particulars apply to the Principal.

YORKSHIRE AGRICULTURAL SOCIETY.—GREAT SHOW at SOUTH STOCKTON-ON-TEES, on AUGUST 5, 6, and 7.
The ENTRY CLOSES on July 18. For Forms of Entry, apply to JOHN HANNAM, Secretary.
Kirk Deighton, Wetherby.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.
GRAND SHOW at BIRKENHEAD (in the Park) on SEPTEMBER 8, 9, 10.
Prizes amounting to £1400.
ENTRIES CLOSE on August 10.
For Prize Lists, Regulations, &c., apply to Mr. WM. HENDERSON, Local Secretary, Birkenhead, or to T. B. RYDER, Secretary, 57A, Church Street, Liverpool.

Grand Agricultural and Horticultural Show.

THE MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY'S MEETING will be held in the Park, Birkenhead, on SEPTEMBER 8, 9, and 10. An Exhibition of HORSES, HORNED CATTLE, SHEEP, PIGS, POULTRY, BUTTER, CHEESE, IMPLEMENTS, MACHINERY, HORTICULTURAL and AGRICULTURAL PRODUCE, for which Prizes amounting to upwards of 1400*l.* are offered. The Local Committee also offer 50*l.* for a MUSICAL BAND CONTEST. Entries to Close on August 10.
Prize Lists to be had on application to Mr. T. B. RYDER, Treasurer and Secretary to the Society, 57A, Church Street, Liverpool; or to Mr. W. HENDERSON, Honorary Local Secretary, 2, Market Cross, Birkenhead.
N.B.—Subscribers of not less than 20*s.* to the Local Fund, or parties becoming Members of the Society, and Subscribing not less than that amount, may enter their Stock free of charge.—2, Market Cross, July 18.

WARWICKSHIRE AGRICULTURAL SOCIETY.—The next ANNUAL EXHIBITION of the above Society will be held at ROYAL LEAMINGTON, on SEPTEMBER 16 and 17, combined with an HORTICULTURAL SHOW, on a very extensive scale, the Earl of WARWICK, President, and under the patronage of many Peeresses and Ladies of rank, a distinguished list of Vice-Presidents, the Chairman of the Local Board of Health of, and the Town of, Leamington.
PRIZES to the amount of about 860*l.*, in MONEY and SILVER CUPS, are offered for LIVE STOCK, DOGS, IMPLEMENTS, PLOUGHING, HEDGING, DRAINING, LABOURERS, SERVANTS, CHEESE, FRUITS, and FLOWERS.
A PUBLIC DINNER will take place in the Jephson Gardens, on WEDNESDAY, September 16.
The principal portion of the Stock Prizes offered are Open to Great Britain, provided the Exhibitor be a Member.
The Annual Subscription is 1*l.*, which must be paid (and Certificates sent in) before August 1.
For further information as to the General Show, apply to the Secretary, Mr. JOHN MOORE, Land Agent, Warwick; and as to the Fruits and Flowers, to Mr. JOHN COOKES, Local Secretary, Warwick Street, Leamington.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1863.
The FIFTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in Bingley Hall, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 1, 2, and 3, when PRIZES (CUPS, or other Articles of Plate, and GOLD and SILVER MEDALS) to the amount of £1940, will be awarded in the following Divisions, viz.:—

FAT CATTLE	..	.. £784	5 0
FAT SHEEP	..	.. 275	15 0
FAT PIGS	..	.. 60	5 0
BREEDING PIGS		.. 76	10 0
CORN and ROOTS		.. 68	5 0
POULTRY and PIGEONS		674	4 0

Prize Lists and every information may be obtained from the Secretary. JOHN B. LYTHALL, Secretary.
Offices: 13, Temple Street, Birmingham.

ROYAL AGRICULTURAL SOCIETY of ENGLAND
SHOW of CATTLE, HORSES, SHEEP, PIGS, and AGRICULTURAL IMPLEMENTS at WORCESTER.

MONDAY	.. July 20	Cattle and Implement Yards open from 8 A.M., at which hour the Judges will commence inspecting the Live Stock, and making their Awards. Admission 10*s.*
*TUESDAY	.. „ 21	The GENERAL SHOW of Cattle, Horses, Sheep, Pigs, and Implements, open from 6 A.M. till 6 P.M. Admission 2*s.* 6*d.*
*WEDNESDAY	„ 22	
THURSDAY	.. July 23	The GENERAL SHOW of Cattle, Horses, Sheep, Pigs, and Implements, open from 6 A.M. till 6 P.M. Admission 1*s.*
FRIDAY	.. „ 24	

* Public Working of Steam Cultivators on Land in the neighbourhood of the Show Yard.
By the Regulations of the Society, all persons admitted into the Show-yard, or other places in the temporary occupation of the Society during the Meeting, shall be subject to the Rules, Orders, and Regulations of the Council.
By Order of the Council: H. HALL DARE, Sec.
12, Hanover Square, London, W.

Agricultural Hall.

A POULTRY, PIGEON, RABBIT, FLOWER, FRUIT, and VEGETABLE SHOW will be held at the AGRICULTURAL HALL, ISLINGTON, the LAST WEEK in AUGUST.
PRIZE LISTS and further particulars will shortly be issued.
By Order, S. SIDNEY, Secretary.

The Agricultural Gazette.

SATURDAY, JULY 18, 1863.

MEETING FOR THE ENSUING WEEK.

MONDAY,	July 20 to — 24	Great Meeting of the Royal Agricultural Society at Worcester.
FRIDAY,		

THE Royal Agricultural Society of England is now for the 25th time gathering together the elements of that striking picture of English Agriculture which it annually presents. What a contrast exists between its first exhibition at Oxford and that which is about to be opened to the public at Worcester! The implement show in the former case was without a catalogue—its one feature of merit lay in the few waggon loads of machinery drawn during the previous week from Ipswich—its "novelties" were represented by an absurd and impossible machine for rolling, raking, and burning field rubbish at one operation—its carts and waggons depended for their attractiveness on fantastic colouring—the whole occupied a scanty open yard without arrangement, through which a few hundred spectators wandered without guidance. The show yard now is 46 acres in its extent; the portion set apart for implements is about 600 yards long by nearly 200 yards wide; the implement catalogue alone occupies nearly 500 pages; 330 exhibitors contribute, and many an individual of them exhibits many times the value of all that was shown at Oxford. Not only is horse-carriage almost wholly dispensed with in the conveyance of these goods—for implements are loaded on steam-drawn trucks in the yard of the manufactory 200 miles away, and are delivered by steam within 100 yards of the shed where they are to be shown—but the new power thus brought into work is itself the main object of interest among the articles exhibited. Fifty manufacturers show fixed and portable steam engines, and steam power is shown at work, driving all kinds of barn machinery in the yard and all kinds of cultivating machinery in the field. Novelties are not so much cared for or desired; the object of the manufacturer is to meet what now are old-fashioned well-known wants in the most effective way; that of the spectators is to find the best tool for cultivation, carriage, sowing, hoeing, harvesting, and preparing produce for market or for food—all of them clearly marked out well-known classes of operations. And, after all, it is as a great mart that the show or "Fair," as Americans would call it, is visited; and our agricultural meeting is more and more acquiring the character which that word conveys to English ears. This is as true of the live-stock yard as it is of the implements. Exhibitors seek custom for their wares, and they seek the awards of the Society's Judges, because the flow of custom is thus to some extent directed.

This year the contest lies among machinery for threshing and preparing food, and amongst steam engines, fixed and portable, for driving it. And since Wednesday the judges have been putting machines for all these purposes through their paces, examining the quality of the work accomplished, and recording the power used in the operation. Details of these trials will be given when the results are known.

Besides these, however, and possessing even greater interest, there is competition among steam ploughs and cultivators for the Society's prizes.

On Wednesday COLEMAN, FOWLER, COLLINSON HALL, HOWARD, SAVORY, STEEVENS, SMITH, and HAYES set down their apparatus, all driven by 10-horse power engines, and intended for small occupations, to work a field of hard, red, clayey and gravelly sand, which had borne a crop of Wheat last year, and had, part of it, since borne a crop of Vetches fed off by sheep. The exhibitors were allowed to employ what tool they chose. COLEMAN used his two cultivators, and made very good work indeed; FOWLER used his balance plough with digging breasts, and made unquestionably the best work in the field—an advantage due, of course, to his tool, and in no respect to his system of working it. Before he had completed his 1½ acres the pump of his engine got out of order, and the fire plug fortunately burned out and he was stopped. COLLINSON HALL unfortunately met with *his* disaster before reaching the ground, and could not work his plot till the following day, when with an old plough and anchorage of FOWLER'S he set his engine with its polygonal pulley and linked chain fitting to it to cultivate the land. It made very slow work, the machinery for adapting the length of the rope to the varying length of the furrow being yet insufficient. HOWARD made capital work with his cultivator. SAVORY, with his two engines, and using FOWLER'S plough, got easily to work, rapidly completing his task; but the quality if it was not equal to that of FOWLER'S own performance—a defect due simply to the tool, and in no degree to the plan of working. STEEVENS' grubber, driven by one of GARRETT'S engines and HOWARD'S windlass, unfortunately broke down. SMITH, who was working by far the roughest and hardest bit of land in the field, went steadily and efficiently through his performance. HAYES, who did good work, used his well known windlass, which dispenses with the need of a man, the engineer being able to attend to it along with his engine.

Some delay took place before those competitors

who had finished could move to the next field, about 500 yards off. As soon as the plots, however, were allotted in it, the several exhibitors were desired to move. Messrs. HOWARD moving everything by horse-power, and employing 6 or 7 horses and a large number of men, shifted the whole of their tackle, and re-set it around their 2-acre plot in 1 hour and 50 minutes, of which a few minutes were due to a mistake on the part of the judges, or their officer. And this time is probably as short as such a thing can be when the engine is not self-driving, but when there is ample assistance. Messrs. SAVORY, with their two self-driving engines, each carrying its own drum and rope, hooked on their plough and marched off, the one engine to one end of their plot, the other with plough and rope to the other end, and they were ready to start in half an hour! There can be no doubt that on their system one great source of loss is reduced to a minimum. The shifting from place to place is done rapidly and easily, and no additional help is needed at those times.

The field in which the second trial took place was hard but less clayey than the former. FOWLER and HOWARD had the hardest side, SMITH and SAVORY had rather easier work. The lower part of the field was across high ridges and hard throughout, the upper was flat and easy enough.

The following is the report of the work done, coals burned, and time and labour used in doing 2 acres—each man using his own grubbing tool, and SAVORY using HOWARD'S grubber.

No. 1 is FOWLER'S 10-horse single-cylinder engine, driving and pulling itself along by his travelling clip drum, with travelling anchor at the other end of the furrow.

No. 2 is HOWARD'S 10-horse power double-cylinder engine driving his windlass with double compensating snatch block, and rope laid all round the field.

No. 3 is SAVORY'S two double-cylinder 10-horse power engines, pulling HOWARD'S tool to and fro between them.

No. 4 is SMITH'S 10-horse double-cylinder steam-engine, driving his windlass and grubber in the usual way. FOWLER'S tool was a 5-tined balance cultivator, working 4 feet 2 inches in width at once. HOWARD'S and SAVORY'S were HOWARD'S 3-tined grubber, and SMITH'S was his own 3-tined grubber.

	Labourers.		Coals.		Time.	
	Men.	Boys.	cwt.	lbs.	h.	m.
No. 1. Fowler's ..	3	3	3	30	1	57
No. 2. Howard's..	4	2	3	15	1	57½
No. 3. Savory's .. (2 engines)	3	1	5	28	1	41
No. 4. Smith's .	4	2	3	105		(?)

SMITH took a good deal longer time than the others; SAVORY lost 9 minutes through the accidental breaking of the eye off the rope; COLEMAN unfortunately broke his cultivator and could not compete. As to the quality of the work—where crossing the ridges, SMITH did much the best work; where the ground was level FOWLER did the best work. With his exception, too, there were a good many missed strips between the successive tracks of the tool, as there always will be in racing trials.

When these trials were completed, SAVORY, HOWARD, and FOWLER were set to work *ploughing* in the same field, with the following result (which we receive just as we are going to press.)

"The plots to be ploughed were 1¼ acres apiece, 7 inches deep. SAVORY, with FOWLER'S plough, did it in 1 hour 38 minutes. The ploughing was inferior to HOWARD'S and FOWLER'S, which was in great measure the fault of the plough, one coulter having bent several times. SAVORY was then ordered by the judges to shift to the gate with rope coiled, and plough and porters behind engine. The operation was performed in 3½ minutes from the stopping of the ploughing! FOWLER took 1 hour 40 minutes to accomplish his task; his work was good. HOWARD also took 1 hour 40 minutes; his work was very good. FOWLER'S and HOWARD'S ploughing was nearly equally good."

To-day certain of the competitors will work at Wadborough, in some of the stiffest and hardest land in Worcestershire, and this will we believe be the concluding test to which the judges will subject them.

We shall next week give an account of the result of this and the other awards. At present we have to report that the preliminary work of the Society's officers—director, stewards, contractors, and judges—has been or is being accomplished in the best possible manner, and that everything bids fair for a most successful meeting.

THE "impossibility" of to-day does indeed become the "truism" of to-morrow. "By what rule of arithmetic" (inquired a correspondent of an agricultural journal, in 1861), "can Mr. SMITH 'smash' an acre of land for 7*s*., cross-cultivate ditto for 5*s*., ridge it for 4*s*., and subsoil between the ridges for 4*s*., thereby moving the land to a depth of 16 or 18 inches, as described, for 20*s*.? Sir, I say the assertion is so bare-faced and absurd, that the public will take it for what it is worth. I think we have had enough of such impossible declarations." Why, a dozen employers of steam-tilling machines are ready in the present day to prove to this irate sceptic that they have done all this and more. The steam plough has far surpassed the expectations of the imaginative unprogressive practicality of two years ago.

But this said 'practicality' is distinguished for that quality of *inertia*,—which philosophers must have strangely erred in attributing to "matter" only. Establish this solid old-English order of opinion upon its favourite basis of time-honoured experience; and it will remain immoveably, undiscursive and obstinate, until some hard irresistible facts of a new order sweep it off its ancient stand-point. But "extremes meet:" for here comes in the other well-known behaviour of a body endued with this property of inertia. Once driven from its ancient platform, and actually got into progressive motion, and there is no such thing as pulling up of its own accord. To restrain its speed requires the force of powerful opposing considerations applied for no little length of time. The same 'practicality' that would not believe in the real achievements of the steam tilling-machine, when once overcome by weighty evidence has no notion of advancing reasonably and with caution, but persists in going-a-head beyond all moderation, and will be satisfied with no mechanical performance unless it be wonderful or even miraculous. Once getting a glimmer of the principle with which this article opens, the class of mind referred to refuses to admit of "impossibility" at all, and cannot see how anything can ever be "extremely unlikely."

Hence, the foolish reiteration in 1863 of the wise cry of a few years back—"Steam tilling is in its infancy." Infancy! why, what more would you have? how much do you expect is within the bounds of the possible? An infant is weak, inefficient, expensive: but a few considerations will show that the steam plough has grown beyond these helpless beginnings to the full strength and proficiency of an adult maturity. Is it true or not that some amazingly superior piece of machinery may possibly appear in the field, applying the power of the steam-engine to tillage with far greater efficiency and economy than the world has ever yet witnessed?

Obviously there are but *two* points in which improvements can be made: there may be less waste of motive power in transmission from the engine to the tilling tines, blades, shares, or cutters; and these tools themselves may be made to do more and better in proportion to the amount of moving power conveyed to them. Well, how much room is there for advancement in the first point? Take Messrs. MORTON and HARRISON'S dynamometer experiments at Sutton Courtney. Further details are needed concerning Messrs. HOWARD'S and Mr. SMITH'S machines; but the investigation of Mr. FOWLER'S was tolerably complete and clear—in spite of the numerous difficulties and sources of error attending every such trial. When ploughing four furrows at once, 8 ins. deep, at a speed of 3 miles an hour, the total strain on the rope between the engine and the implement was 36 cwt. The endless rope, 700 yards in length, was distended between the engine clip-drum and the anchor-pulley 350 yards off—the tightness or strain on that portion of the rope not engaged in hauling the implement being 7½ cwt. Deducting this strain (which is sustained equally by both sides of the clip or hauling drum), we have 28½ cwt. as the total draught occasioned by the work done. This work consists of moving the rope itself upon its porters, and round the anchor-pulley, moving the anchorage along the headland, and moving the implement to and fro between the engine and anchorage. The draught of the rope tightened up to 6 cwt. strain, was found to be ⅜ths of a cwt. When the greater strain of 36 cwt. is on, the pulling portion of the rope probably takes rather less draught; and the slack portion rather more draught,—owing to the greater or smaller amount of bending over the porters by the weight of the rope hanging between porter and porter; but the average is probably about the same. To this should be added somewhat for the increased friction of the anchor pulley on its axle, when 36 cwt. draught is on, and this is felt only at alternate journeys of the implement. To make the anchorage travel, 1 cwt. more was required; this we may take as due for about two-thirds of every other journey of the plough, or one-third the whole time worked. The account stands as follows:—

	cwt.
Total draught due to the work	28½
Draught of rope, &c. say	1
Moving the anchorage	⅓ = 1½
Applied to dragging the implement ..	27⅙
Or no less than 95 per cent. of the total draught.	

To find the proportion of power made effective in actual tillage, deduct the draught of the plough when dragged out of work—an average (over dry unmoved and again over deeply grubbed fallow), of 2⅔ cwt.; giving a result of 24½ cwt.; that is, 86 per cent. of the total draught is engaged in cutting and turning the furrow slices, while 14 per cent. is lost in friction and working the moving parts of the apparatus. The pace of the implement in the experiment was 3 miles per hour; and as 1 cwt. draught at 3⅓ miles per hour, represents 1 mechanical horse-power, the above cwts. may be read as so many horse-power. So that, out of 28½ horse-power exerted by the clip-drum of the engine, we have no less than 27⅙ horse-power applied to the implement (sometimes at 350 yards distance, and on an average 175 yards off) and 24½ horse-power finally employed in the severing and upturning of the soil.

Of course a somewhat higher power must have been given out at the engine crank-shaft, and consumed in the friction of bearings and gearing, and in the loss of force requisite for pinching the rope between the clipping-pieces of the drum. The proportion of motive-power needed to move the engine along the headland should hardly be taken into account, seeing that it is engaged only during the intervals when the plough is at rest.

If, then, you can take power and motion to an implement 350 yards off, losing only 5 per cent. in the transit, what room remains for much greater economy, whether you attempt to improve upon rope-traction or to take the engine itself over-land to the spot operated upon? Will you ever diminish by one-half the 9 per cent. wasted in moving the simple weight of an implement, strongly-enough built to apply a strain of 24½ horse-power to the uprooting and shattering of the ground?

The first point we named as one of the only two in which advance is possible, may be considered as disposed of: small savings of motive-power are alone possible to fut ire improvers.

But if you cannot hope to actuate tines, blades, shares or cutter, with less waste of motive power, may you reasonably expect such improvements in these tools themselves that more and better work will be done for each horse-power expended in driving them? Very much "*better*" tillage (unless it be something more like spade-work in very deep trenching) can scarcely be looked for, after "smashing-up," "cultivating with digger-breasts," "Woolston ridging-up," and "Cotgreave trenching." Is it likely that a tilling-machine may be invented capable of a much greater *amount* of performance than any of our steam-ploughs or cultivators now accomplish for a certain amount of power expended? If traction be adhered to as the mode of working, we answer, most probably not. After the ancestral plough and grubber have been modified, lightened, and eased through the soil by every mechanical ingenuity and every suggestion of mathematical analysis, only advances comparatively small can be reasonably expected in tillage by implements travelling upon the land. A considerable proportion of the draught of a horse-plough arises from its weight sledging upon the furrow bottom: the weight of the steam plough is borne upon wheels. The chief resistance however, is in the cutting or penetration of the share. The share with other parts of the plough body, form a double-bevilled or compound wedge, continuously thrust in between the furrow slice and the furrow bottom and side; and the pressure, friction and cohesion are equal on opposite faces and sides of this wedge, excepting as they are counteracted by the direction of the line of draught. But if the thrust downward and sideward were sustained by supporting the wedge upon wheels: that is, if the under-face and land-side face of the wedge were cut away, and only the upper face and diagonal cutting-edging left, half the pressure, friction, and cohesion would be gone. In the horse-plough, the upward direction of the

draught-line takes off a portion of the pressure from the furrow bottom, diminishing to some extent the friction and cohesion of the under-side of the share, &c. In the steam-plough, too, the same kind of relief arises from the line of draught being considerably higher than the line of resistance to the passage of the share. For both lines being horizontal, one over the other, the effect of hauling by the upper line and encountering resistance upon the lower line is to cause a downward pressure upon the forward part, and an upward lift upon the backward part of the implement—that is, there is a downward pressure upon the wheels, and a lifting pressure upon the plough-bodies. But this upward tendency is not so great as in the horse-plough, because the traction-rope is hung as closely as may be to the ground in order to avoid too much lifting and insure the ploughs entering into the soil. The practical worker of the steam plough finds a proof of the fact that the upward lift exists in the circumstance of his having to weight the tail of the implement (by sitting upon it), to hold the plough in work where the land is hard. If we take now the steam grubber, we see at once that no sledging whatever of the under side of the wedge-shaped shares is possible,—the tines being set pointing downwards like anchor-flukes "tearing into the land;" and the tendency of the implement to bury itself (as it would immediately do on starting were the wheels removed), is sustained by the travelling wheels. Thus, while minor improvements may be made in details, it does not seem possible to devise any new machine for horizontal tillage which could possess any very important advantage over the present steam-plough and grubber in relieving the cutting and turning parts from friction and cohesion of the soil.

It is true that the wheels of the implement might be made to sustain the whole of the downward thrust occasioned by the cleavage and upturning of the ground, and these wheels might travel upon smooth, fixed rails (as in Mr. HALKETT'S invention) but it has yet to be proved in practice that the necessary travelling of the engine and a ponderous bridge-platform as well, would involve a smaller waste of motive-power than (as we have seen) the wire-rope system does. Or you may mount your tilling tines and shares upon a rotating barrel hung behind a slowly-locomotive engine, in which case the downward pressure of the shares would be sustained by the brass-bearings upon the machine, and this again carried by the engine travelling wheels. But it is certain that the journeying of a heavy engine over a soft field would waste more motive-power than is lost in a merely partial rubbing of shares and plough-soles upon furrow bottoms. Mr. ROMAINE'S machine never succeeded in travelling (at its slow working pace) with less than about 15 lbs. pressure of steam, when 80 to 90 lbs. were needed for digging and travelling together: in other words, about 18 per cent. of the motive power was engaged in taking the digging cylinder about the land to its work. And, of course, the whole scheme falls to the ground, when it is once shown how a locomotive engine injures the texture of the land by pressure.

Analyse the forces and resistance at work in any species of tillage-process; separate the essential and indispensable elements from those which are merely extraneous and accessory; compare the power asserted by theory to be requisite for overcoming the force by which earth cleaves to earth, added to the power unavoidably absorbed by friction and cohesive attrition of the soil against the instrument passing through it; compare this with the power utilised or lost by the best forms of traction-implement now actuated by a steam-engine, and you will learn that no very vast and surprising discrepancy or short-coming exists between the theoretically required motive-power for a given process, and that percentage of the motive-power really made effective in practice.

Let not those individuals who could powerfully aid the extension of steam-tillage in their day and generation, linger on without sharing in its benefits, from some vague idea that incomparably superior inventions are about to eclipse all that wonderful ingenuity and patient working out of details by first-class mechanicians have ever yet achieved. *I. A. C.*

THE APPEARANCE OF THE CROPS.

BEDFORD: *Biddenham.*—I consider the Wheat in this neighbourhood promises above an average yield, the Barley an average, Oats an average, and Beans and Peas not an average. I am afraid if the present very dry and hot weather continues it will injure the quality of both Wheat and Barley upon all dry soils. *William Lavender.*——*Stevington.*—The prospect for Wheat in my neighbourhood is good, more especially after steam cultivation. It never told so well before. The same may be said of Barley and Oats, where put in early. Beans a fine plant, but very little corn. Rain much wanted for everything. The Turnips are dying away, and the pastures more like fallows. Hay, like farmers' gold, very good but little of it. *Wm. Pike.*

BERKS: *Moulsford, Wallingford, July 9.*—The Wheat in our neighbourhood is more promising than it has been for some years; owing to the amount of dry weather we had in May there is not so much straw as we often get, but I think there will be over an average yield. The early sown Barley looks well, but the backward is again beginning to show want of rain. The same remark applies to the Oat crop. *John B. Spearing.*

BUCKS: *Claydon, Winslow.*—Wheat fine, promises to be above an average. Barley, full average. Oats moderately fair. Beans very bulky, but deficient in corn; below average. Turnips: good plant, but late; in want of rain. Hay: light; about half a crop; well got. Grass: good, but much in want of rain. Potatoes: very good. *Alex. Fraser.*——*Woolston, Bletchley Station.*—The crops in this neighbourhood are—Wheat, over an average; Barley, full average; Oats, Beans, and Peas average; Mangels, plant well, but very late; Swedes, good plant; Potatoes, good; hay, half average. *W. Smith.*

CAMBRIDGE: *Strictly Hall, West Wickham.*—The appearance of the Wheat crops is good on the different varieties of soils, more especially on the heavy lands; the Barley on the heavy land is good, but on the light land it is generally a light crop, and where sown late will doubtless be bad. Some of the winter Beans are good, but spring Beans are not so promising; the early Peas are very short; there is but little Rye grown here. *Henry Webb.*

CHESHIRE: *Tarvin, July 8.*—Excepting on the poor thin soils and badly managed land the corn crops are very promising. Wheat generally is full on the ground, stiff in the straw, and the time of flowering has been very favourable; there is a little unevenness in some of the Barley crops occasioned by the dry weather about the time of sowing, but on the whole, the appearance is good; Oats too are very generally good, and an early harvest and full average crops may be expected. Beans appear to be an excellent crop, and I have not yet heard anything of the blight; Mangel Wurzel in its early stage received a check from the effects of dry weather, and a severe attack of the maggot—producing fly which has been very prevalent; it is, however, fast recovering, and may yet be an average crop. Swedes are free from fly, and so far promising. The hay crops are greatly improved since the late rains, and harvest has commenced generally. A fine field of Barley, which has lately come under my notice, presents a very singular appearance, one half of which was sown with a fine sample of "Golden Melon Barley" fresh from the county of Norfolk, the other half with the common Barley of the country, the former part having a very large per centage of black or blighted ears, whilst the latter is entirely free. *W. P.*

NORTH DEVON: *Tawstock.*—Wheat: Occasional thin fields, but crop generally good, promising over an average yield. Barley: some bad fields, but good generally; promises of a full crop on the whole. Oats: present appearance good, with a few exceptional fields. *P. Cowan.*

DORSET: *West Bucknowle, Corfe Castle.*—Wheat, Barley, and Oats a good average. Peas, some blighted. Potatoes, Mangel, and Turnips, looking well. *W. J. Voss.*——*Langton Manor, Beaminster.*—The present appearance of Wheat and all other grain crops in this neighbourhood is very good. *John Furmedge.*

ESSEX: *Dorwards Hall, Witham.*—Report of harvest prospects. Wheat: In the absence of adverse weather prior to harvest, promises to be an abundant crop. Barley and Oats full crops. Peas good. Beans inferior and injured by black aphis. Mangel late, will be small roots, and are defective in plant. Swedes and Common Turnips promise well. Potatoes showing disease in many places, which seems to be spreading, early sorts now being taken up defective in yield. Clovers and Grasses good, and well harvested. Some Wheat will be cut the latter end of this month. General harvest will probably be ready the first and second weeks in August. *Henry Dixon.*——*Tiptree Hall, near Kelvedon.* The crops generally in Essex are abundant and full average, especially on the heavy lands. This applies to Wheat, Oats, Barley, Peas, and Beans; the last most doubtful as to yield, although plenty of straw. Potatoes generally good; some few complaints of disease. Cottage gardens generally flourishing. Hay short, but unproved of late. Clover, first crop a failure on many lands. Good plant of Turnips. Mangels good on winter-prepared soils, but late on spring-ploughed heavy land. Harvest will be general about the 27th. A good many Wheat ears have been blighted the last two days. *J. J. Mechi.*——*South Essex.*—Within the last few days the well-known collier or black insects have again appeared on Beans, and are accumulating daily, committing their usual ravages from plant to plant with remarkable destructibleness, eagerness, and rapidity. The first day only one is perceptible on each plant, which the following day is multiplied to at least 10 fold, and the next day to not less than 100 and 1000, and so they go on progressively and proportionally till at last the plants are becoming so infested with the direful plague that many have withered and died, or the pods on such plants have proved abortive. The whole is but a common occurrence, which, however, may be prevented or mitigated by watchfulness and assiduity on plants not already infested, or those recently attacked may be saved from the scourge to a great degree, at least in small compartments or gardens, without much trouble, if due care is observed in performing the following expedient. As the parent mother fly (for such it is) deposits her egg in the eye or tip-bud of the plant, the embryo is there quickly hatched, and therefrom in its birthplace it is nurtured and supplied with its natural and necessary food. In like manner, and in another very short lapse of time, those embryos also become parents. Some assert that they never leave one plant to feast upon another, which however is erroneous, as the writer has proved by his experiments in previous seasons. The expedient alluded to is either to remove the buds or tip end of the plants in a basket for pig food, they being very nutritive and adapted to their good health, for they will eat them with avidity, and moreover thrive and fatten upon them, when their palates are enured to them; but that it is sometimes necessary to stint them in other diet before they will taste the leaves. The eye or bud, if removed not more than ½ or 1 inch in length, wherein the eggs or embryos are deposited, is sufficient to prevent the whole mischief, except by too long neglect the vermin are accumulated to several inches down the stalks; then topping them below the infested parts must be resorted to to prevent their utter ruin. Early Peas are yet safe; but late varieties sown late appear to be lousy. It is hoped however that the late storms of rain and hail have at least partly destroyed them; but it may be observed the idea many entertain, that lightning often kills them, sparing none, is a fiction; whereas it is more often heavy rain, and it may be hail at such times which knocks them off the rice and drowns them, and not the lightning; this only destroys them by chance or accident, as it does other objects attacked and destroyed by it. Oats and Barley are good. Potatoes are decidedly diseased again to a great extent, the most in districts where the late thunder-storm raged; supposed to be occasioned by the drenching cold rain chilling the plants at their roots at an untimely part of the year, when the earth was warmest—and not by electricity, or the lightning. Experience has hitherto proved to the writer that a humid atmosphere and a murky sky encourages the malady, and fine sunny weather in a great measure preserves them from it; the latter scorching and starving the complaint, as it were—the former tending either directly or indirectly to destroy them, and which unhappily often causes them to linger with the complaint a certain time, proving epidermical, and consequently contagious to others surrounding them, and finally ending in their destruction. Hence the idea entertained by the writer in former seasons of "cutting off," or "pulling up" as some will have it, their infected shaws, (leaves), or stalk close to the ground, with a view of starving the virulence of the disease downright, thus making room for autumnal crops of Brassicas, &c. to be planted between the rows, and are more certain to be obtained, especially as the tubers never grow larger after the foliage becomes visibly spotted, and the whole plant contaminated. If ever the Potato is renovated or resuscitated, his idea is that it must be by growing them on the poorest soils, thinly, making choice of the very earliest and dwarfest varieties extant, and that resort must be had to grow them from the best selected, earliest, and soundest stocks, which should now, before it is too late to recognise them, be labelled, indexed, or noted. Recourse should also be had to grow them from imported earliest varieties, coming from the warmest countries where it is understood they are and have been least infected. It is a great mistake, he observes, to obtain sets from a colder climate than our own, as from the north of Scotland, &c., with a view of improving them in a warmer, here in the south. They should also be grown in frames, and in poor soils without manure, starving them as it were, that they may not grow too great an exuberance of foliage. In short every means should be devised to disinherit the malady from the constitution of the tuber or plant, wherein it is now supposed to have become so chronic and deep seated.

GLOUCESTERSHIRE: *Royal Agricultural College, Cirencester.*—The Wheat looks most promising. Straw very abundant and grain filling well; in many instances slight deficiency at the lower part of the ear, but length of ear is good. Early Barley on cool soils promising; late sown Barleys never worse. Dry weather and want of tilth in the soil may account for this. Oats variable: early sown good; late sown indifferent. Peas unusually good. Beans abundant. Straw not heavily corned, and in some low districts much injured by frost. *John Coleman.*——*Tayntor, near Gloucester.*—The crops are very good; indeed all except the Peas. The hay crops are rather light, but made very well. *Job Billingham.*——*Eastleach, Lechlade.*—The Wheat crop generally I consider to be looking well, and promising for a good crop. I have however noticed red gum in some places, but not to a great extent at present. The weather is excellent for it, and for the early Barley, which also promises well; the late Barley is not looking well, and will want rain directly. I have heard many complaints of a deficiency in the Beans, but I think the late blossoms have set, and that there will be a fair crop; there is a good deal of straw to them. The early Turnips suffered much from fly, but the general crop is a good plant. They are now however wanting rain. *Giles Edmonds.*

HANTS: *Bursledon, Southampton.*—The crops of Wheat, Barley, and Oats are all above an average appearance. The Wheat, both early and late sown, is in full crop; and had the blooming time been less windy, with a higher temperature, we might have expected a very large crop; it will, however, no doubt exceed the average produce. Barley has been earlier sown than usual and evenly grown; it may, therefore, be expected to exceed an average yield of good malting quality. Oats were never more promising than at present, and are likely to prove a very full crop. Beans and Peas have been unusually promising until the attack of green and black aphis about 10 days ago; they, however, promise an average crop. Potatoes look remarkably well, with very few complaints of disease or blight. The crop of field hay is unusually light and much damaged; pasture hay light crop, but now stacking under favourable weather. Mangels, Turnips, Carrots, &c., very promising; scarcely any instances of failure in this district. *Joseph Blundell.*——*Winchester.*—We have a little laid hay, otherwise all crops promise a greater abundance than I ever before witnessed during a business recollection of 45 years. I have known each individual crop look as well as now several times, but never conjointly. I expect Wheat to prove nearly one-fourth above an average; Oats the same; Barley over average. Peas average; of Beans we grow but few. The root crops are looking well, and the after cut of Clover good. Harvest will be general the first week in August, unless the weather changes very materially. Some will be cut in July. *J. T, Twynam.*

HEREFORDSHIRE: *Baysham Court, Ross.*—I have great pleasure in informing you there is every prospect in this county that all kinds of corn crops will be above an average, excepting the late planted Barley and late planted Spring Wheat. The autumn planted Wheats are not so thick or luxuriant in the growth of straw as we have frequently had them, nor as at one time we had anticipated would be the case this year, but the brilliant weather during the blossoming, and since then, has given us the prospect of an abundant yield. The same may be said of the spring planted Wheats, of which there is a great breadth grown in this county, except the late planted, and this is a very small proportion, as the season was so very propitious that nothing was behind when the land was cleared of roots by the sheep. The Beans and Peas were never more healthy or more luxriantly in blossom. There are not many Oats grown, but where they are the crop is very good. I think the Barley crop is likely to prove the most deficient, but of this the early planted is a good crop. *T. Duckham.*——*Woodland House, Blakemore.* The Wheat crop is likely to be a full average. Barley thin. Peas and Oats average. *J. Mathews.*

HUNTS: *Godmanchester.*—Wheat, very promising for quantity and quality. Barley, a fair crop. Oats, a moderate crop. Peas, a good crop. Beans complained of for not setting well. Potatoes various. Hay a very short crop. Turnips and Mangel Wurzel generally not good. *R. Beart.*

KENT: *Dumpton, Ramsgate.*—The first paragraph in your report of the corn trade, in this week's *Agricultural Gazette*, applies most truthfully to this neighbourhood. With the exception of Beans "all is well," and they are as bad here as any you have heard of in other counties; some are ploughed up, and others I have seen will not pay the expense of harvesting. *Wm. Manser.*——*Martin, near Dover*—I am pleased to state that the crops are all looking extremely well at present, with every prospect of an early harvest. I hear complaints of dolphin in the Peas; but have not seen any. There has been considerable damage done to the Turnips by the fly. *M. Sandford*

LANCASHIRE: *Mosbro Hall, Rainford.*—The Wheat crop in this locality will be below an average, however favourable the weather may prove, for filling and ripening, as it is thin on the ground. Barley will be about an average; Oats good on light land, rather light on clay soils. Mangels have been much injured in the leaf by an insect, and will in consequence be poor, a small quantity only being sown; Turnips are very promising; Potatoes are likely to be very good, the tops look well, and some farmers who have been marketing the early ones that they may plant Turnips after the crop is

off, say they are doing well. The hay crop will prove an average; pastures are good, and stock doing well. *R. Bell.*

LINCOLN FEN: *Decoy Farm, Spalding.*—Our Wheats on Fen soils have recovered so much from injury by frost that I consider there is the prospect of a full average crop On all the best soils and marsh lands between Spalding, Lynn, and Wisbeach it is promising to be above an average. *Thos. Atkin.*

LINCOLNSHIRE: *Althorpe, near Louth.*—The Wheat crop bids fair to be a good average, but the spring corn, both Oats and Barley, are light. *Croft Shorpley.*——NORTH LINCOLNSHIRE: *Aylesby.*—The crops of Wheat in this part of the country a month ago were considered to be light, but the beautiful rain we had at that time, and the splendid weather we have had since, for that grain has done wonderful things. I think we now have the prospect of an average crop. Spring corn must be light, but it has much improved with the rain. *Fra. Sowerby.*

NORFOLK: *Harpley, Rougham.*—I am very glad to inform you that all the grain crops in West Norfolk are looking remarkably well, and every prospect of a good harvest. *H. B.*——*Denver, Downham Market.*—I never saw the crops of Grain looking better or more promising in this neighbourhood than they do at present. The Wheat is nearly all standing, and seems stiff in the straw, so that it will not easily be put down unless we get a violent storm of wind and rain, and the blooming has been attended with nice weather. Barley has a fine appearance; some of it has been laid during the late rains, and I am afraid if heavy rains should take place, a great deal of it must go down, as it has grown to such an immense height, being between 4 and 5 feet high, and on the other hand if the weather continues hot and dry premature ripeness may come on, especially on the hot scalding soils, that may injure the sample materially; the next three weeks will be the most critical time—nice light showers without wind will be beneficial to it and every thing. Oats and Beans are looking well. *Thomas Brown.*

NOTTINGHAM: *Ruddington Grange.*—My impression, formed from a visit to Ruddington during the Whitsuntide holidays, and confirmed by letters from my bailiff, is that the Wheat promises to be decidedly beyond an average crop. Beans are equally good, and Oats very fair. Barley, where sown upon spring ploughed land, did not come up a level braird; but I believe that the genial weather has improved the prospect, and it may nearly reach an average. *Charles Paget.*——*Normanton Hill.*—Wheat, promising; Barley, early sown, promising; late, indifferent. Beans far from promising. *J. B.*

SHROPSHIRE: *Bawcott, Munslow, Church Stretton.*—The present appearance just in my immediate neighbourhood is as follows:—Wheat not a heavy crop, but looking healthy, an average crop; Oats looking well, full average; Barley rather light, comes out in ear very uneven, under an average; very good in general, quite an average crop; Beans very much blighted, and looking very bad, much under an average. *Richard Shirley.*

SOMERSET: *Wincanton.*—Wheat, good; Barley, good; Oats, good; Beans, blighted in some parts; Peas not much grown. *Dr. Surrage.*

SUFFOLK: *Framlingham, July* 8.—Everything is so promising here that it requires some consideration to find a peg to hang a remark upon. The Wheats are looking beautiful, standing upright with stiff strong straw, and will be ready in our heavy lands in a month. The Barleys on long fallow lands are very fine, and on the Turnip and Beet lands not so thick and heavy; the Beans stout and good; Peas very few grown. Grass rather light, Clover also; the heavy crop is the exception. We had three months drought from March 12, and began to talk with anxiety about the future produce—even the heavy land Wheats were become thirsty for rain, an unusual remark to make; the Barleys, late put in on Turnip and Beet (Mangel) lands were very slow to make even a feeble shoot. The rains came in such moderate, silent, refreshing showers, and in such liberal supplies, that all the face of nature changed, and the farmers' fears were allayed. *George Edwards.*

SUSSEX: *Lynch, Midhurst.*—The Wheat crop is looking pretty well and promises an average, Barley fair, Oats do.; Beans and Peas not good, fast failing; Clover and all plough land hay short, and much of it spoilt; sward hay below the usual quantity, being secured in excellent order. *James Eames.*——*Rose Hill, Robertsbridge.*—I think Wheat and Oats are quite an average, but Barley below; Peas are a fair crop, but Beans not many grown here this year. No blight in the Potatoes as yet, but green crops are very late; too cold at night for them. Both seeds and meadow hay below an average. *John Brotherston.*

WARWICK: *The Chase, Kenilworth.*—I think Wheat will be barely average; Barley, owing to the changeable nature of land in this district and the dry spring, is, I fear under average. Oats will be average; Peas are looking well; Beans, although they blossomed well, have very little corn upon them, and must be written below average. *J. W. Burbery.*

WORCESTERSHIRE: *Northway House, near Tewkesbury, July* 9.—The Wheat crops of this locality have a favourable appearance of productiveness; the straw is not very long or bulky on best soils; on gravels it is short; and on cold, clayey, undrained or badly drained soils it is slender, thin, and short; as a whole I consider it likely to be an average crop, should the spring-planted Wheats continue to progress favourably to maturity, and all kinds go on without mildew, red gum, maggot, &c., though not equal to crops of 1858-59. A very moderate acreage under Wheat—say 1-10th less than three past years. Some fields where artificial manures have been used have too dark an appearance, and likely to mildew. The Barley crop: Early planted is very promising on good and well-farmed soils; on clay soils, and on others where late planted it has a sickly appearance, and must be only a poor crop; upon the whole an average. An increased acreage under Barley, say 10 per cent. Oats: But few planted, those good. Beans variable; in many fields a larger proportion of straw or haulm than corn. I doubt if it will be an average yield of this corn or grain. Peas: A small breadth planted, but good crops, and a full average. Hay crop generally a light one, especially on clay and marl soils; on the whole not over 2-3ds of an average crop, if as much. Apples and Pears nearly a total failure. Potatoes a promising appearance, and at present without disease. Mangel Wurzel nearly a failure of plant. Swedes a good plant and free from fly. Of old Wheat a small quantity in farmers' hands. Beef scarce. Grazing cattle have done badly, pastures being short of Grass and nights too cold for them. Sheep, on the other hand, have done remarkably well through spring and summer. *Wm. Woodward.*——*Pershore, July* 9.—Wheat, a full average crop; Barley, a full average crop; Beans, an average crop; Oats, an average crop; Clover, half a crop; hay, half a crop; Mangels, a failure; Swedes, promising; Turnips, promising; Potatoes early, very poor crop; late, very promising. *H. Hudson.*

YORKSHIRE: *Hessle, Hull.*—I think the Wheat crop is a very handsome one and early to harvest, the first week in August. Barley sown soon a good crop and early, Oats light crop, Beans great straw, but short; of Peas an average crop; Potatoes and Turnips want rain, not having the average quantity of the rest of the country. *J. Clark.*——*Outwood Hall, near Wakefield.*—I am happy to be able to give a favourable report. The Wheat appears most luxuriant and well topped, though perhaps, in some cases, rather short in the straw. The Oats and Barley also promise well, except being likewise short in the straw. The same report, also, will apply to Beans. As to Turnips and Mangel Wurzel they want rain, and I fear may both turn out inferior crops. Owing to the continued dry weather, until about four weeks ago, Grass and Clover are short, and the crops of hay are consequently not abundant. *Henry Briggs.*——*Darrington.*—The Wheat in this neighbourhood promises to be a good crop, and farmers look forward to a better yield than has been for the last three or four years. Barley is not so even. *H. Taylor.*

MR. PAWLETT'S EXPERIENCE AS A WHEAT GROWER.

[No one has published a more useful or more carefully recorded experience as a Wheat grower than Mr. Pawlett of Sandy, Bedfordshire. The following are extracts from his letters, first published during successive years in *Bell's Weekly Messenger*. We give them now as tending to excite observation of the differences which the present harvest will reveal in the produce of different sorts.]

(1855.)

(1). October 12.—The three following sorts of White Wheat were drilled separately, on lands which had previously borne a good crop of White Clover, at the rate of about 7 pecks of seed per acre, at 8 inch intervals.

No.		Quantity per Acre.	Value per Qr.	Value per Acre.
		bh. pk. gl.	*s.*	£ *s.* *d.*
1	American White	44 1 1	86	23 17 0
2	Grace's White	52 2 0	85	27 17 9
3	Imperial White	47 3 0	86	25 13 4

(2). The following sorts of Wheat were drilled at 8-inch intervals (October 17, 1854), on a different part of the farm to those named in Experiment No. 1, on land in a high state of cultivation, and only 6 pecks of seed per acre was allowed. They were all put in on lands contiguous, and produced the following result.

No.		Quantity per Acre.	Value per Qr.	Value per Acre.
		bh. pk. gl.	*s.*	£ *s.* *d.*
1	Improved Browick Red ..	50 1 0	79	24 15 10
2	Uxbridge White	47 0 1	86	25 6 7
3	Grace's White	52 2 0	85	27 17 9
4	Imperial White	47 0 1	86	25 6 7
5	Grace's White, as No. 3 ..	52 1 0	85	27 15 2
6	American White	45 3 1	86	24 13 8
7	Brown Straw White ..	43 2 0	85	23 2 3

(3). On the same day as the above experiment No. 2, and on the same sort of land, the following varieties of Wheat were drilled, also with 7 pecks of seed per acre, in rows at 8 inches asunder, on lands adjoining:—

RESULT.

No.		Quantity per Acre.	Value per Qr.	Value per Acre.
		bh. pk. gl.	*s.*	£ *s.* *d.*
1	Spalding Red	47 3 0	79	23 11 7
2	Albert Red	46 0 1	79	22 15 5
3	Improved Browick Red ..	56 2 0	79	24 18 4
4	Lammas Red	47 1 1	80	23 13 9
5	Prima Donna Red ..	42 3 1	78	20 18 0

(4). An advertisement appeared last autumn of a new variety of Wheat, called the "Ne Plus Ultra." I procured 2 bushels of it only, as the price was rather high, it having cost me, including carriage, 2*l.* 9*s.* This sort was drilled by the side of the Improved Browick in the middle of October, 1854, on a good piece of land, at 8-inch intervals as usual, and at the rate of about 7 pecks of seed per acre. Both sorts came up and planted well, but the Browick was ripe and fit to cut a fortnight before the "Ne Plus Ultra." The weather, however, having continued fine, both sorts were harvested in excellent order:—

No.		Quantity per Acre.	Value per Qr.	Value per Acre.
		bh. pk. gl.	*s.*	£ *s.* *d.*
1	Ne Plus Ultra	47 0 0	68	19 19 6
2	Improved Browick ..	45 1 0	78	22 1 2

The quality of the Ne Plus Ultra Wheat was very coarse, and I think not worth so much, at the present value of Wheat, to the miller by 10*s.* per qr. as the general runs of Red Wheat.

(1857.)

The following experiment was made on a good piece of land, after white Clover, which had been summer eaten by sheep, and drilled at intervals of 8 inches, at the rate of about 6 pecks of seed per acre, on the 13th of October:—

(1).

	Per Acre. Bush.	Pks.	Gal.
No. 1. Hybrid Red	35	3	1
2. Browick Red	45	3	1
3. Grace's White	53	3	0
4. Essex White	45	3	0
5 Imperial White	45	3	0
6. Grace's White as No. 3.	52	0	0

A friend recommended me to try a productive sort of Wheat, the Rough Chaff White, and I accordingly tested its merits against my own "Grace's White," which had for the last two or three seasons beaten every other kind, by bushels per acre. I drilled them after a root crop late in the last season, and put on about 10 pecks of seed per acre in rows at 8 inches apart, when I found the relative value as follows:—

(2).

	Per Acre. Bush.	Pks.	Gal.
Grace's White	40	1	0
Rough Chaff White ..	35	1	0

I believe, from my own experience, that Grace's White is by far the most profitable Wheat that I can grow on my loamy soil, but it may not do so well on land of a lighter description, and that the Browick is the most productive kind of red Wheat, which answers admirably on the gravel soils of this neighbourhood.

(1858.)

The result, hitherto, has been to place Grace's White and the Browick Red as the most profitable kinds to grow. I was, however, still anxious to prove them against any new sorts that might be offered to my notice. The Langham Red and Bowles' Prolific were strongly recommended, and I tried them in the following experiment. On Oct. 16, 1857, the five following sorts were drilled, after a white Clover lea, at the rate of about 7 pecks of seed per acre, at 8-inch intervals, the produce of which is as follows:—

	Quantity per Acre. Bush.	Pecks.	Value per Qr. *s.*	Value per Acre. £ *s.* *d.*
Imperial White	39	3	52	12 18 6
Grace's White	43	0	50	13 8 6
Bowles' Prolific Red ..	39	3	47	11 13 6
Langham Red	40	0	47	11 15 0
Browick Red	44	0	47	12 18 6

(1859.)

I have latterly selected only the most approved sorts to confirm my opinion which are the most profitable varieties to grow. I therefore selected the following, and drilled them on the 20th October last, on an old White Clover lea, at the rate of about 2 bushels per acre of seed, in rows 8 inches asunder:—

	Quantity per Acre. bush.	pk.	gal.	Present value per Qr. *s.*	Value per Acre £ *s.* *d.*
Grace's White	39	1	1	43	10 11 6
Tibbald's Wonder Red .	36	3	1	41	9 6 6
Hunter's White ..	35	3	0	43	9 12 0
Rough Chaff White ..	33	3	1	45	9 10 0
Davis Red	29	0	1	40	7 5 6

P.S. The Browick Red was tried against the above sorts of Wheat, but having lost plant much through some unknown cause, I do not think it proper to give it a place with the others in the account, lest it might mislead. This kind of Wheat having for many years proved for me the most profitable sort of Red to grow, I do not intend to give it up for not having done so well for me this year.

(1860.)

During the last 20 years I have tried nearly 60 sorts of Wheat of the most productive kinds. None has answered better on my farm than Grace's White and the Browick Red. I, therefore, did not sow many sorts last season, and only one new variety, viz., the Giant Wheat, which I procured from Major Quentin, in Ireland, at a cost of upwards of two guineas per bushel, which appeared to me then a very high price, but I am amply repaid by an extra produce. I did not get this Wheat until late in the autumn, and not in time to try against my best sorts of white, nor to sow on my best land, as it was all planted before the Giant Wheat arrived here. I was, therefore, obliged to drill it after Cabbages, very late in November, on light moory land, which has grown Wheat every other year during the last 20. It was put in at 8-inch intervals by the side of the Browick Red, at the rate of only 4 pecks of seed per acre, being desirous, on account of the high price it cost, to make it go over a fair quantity of land. The result has proved as follows, the value per acre having been computed at the price the Wheat is now worth to the miller:—

	Quantity per Acre. Bush.	pks.	Value per Qr. *s.*	Value per Acre. £ *s.* *d.*
Major Quentin's Giant Red	48	2	56	16 19 6
Browick Red	39	3	56	13 19 0

I was anxious to know whether the Giant Wheat required to be sown thin, or moderately thick; therefore, I drilled an adjoining plot of land at the rate of 7 pecks of seed, which produced 52 bushels per acre. This experiment shows an extra yield of 9 bushels in one case, and 12 bushels per acre in the other, with a clear profit of more than 3*l.* per acre over the Browick Red. I believe the produce would have been larger had the Wheat been sown on good land, in proper time, and after a better preparation; and would, under favourable circumstances, in a good season, readily produce 60 bushels per acre. The quality, however, of the Giant Wheat is not equal to the Lammas, nor the Golden Drop, but about the same as the Spalding and the Browick Red. It grows about the same height, but much stronger in the straw, with a very large ear, and tillers, or stools out, more than any Wheat I have met with.

I have only another small experiment worth recording, made with three kinds of Wheat, drilled on the 11th of October, at 8 inches asunder, at the rate of 7 pecks of seed per acre, after a White Clover lea, the produce of which I found to be as under:—

	Quantity per Acre. Bush.	Peck	Value per Qr. *s.*	Value per Acre. £ *s.* *d.*
Grace's White	44	0	60	16 10 0
Corner's White	43	1	62	16 15 0
Browick Red	41	3	56	14 12 3

This experiment was made on some of the best land

I have, on a good preparation, and will, I think, induce me to give up growing the Browick Red; as I find white Wheats generally suit my land best. I intend to sow about an equal quantity of Grace's White and Corner's White, as I do not yet know which is the most profitable; the former yields the best, but the latter is of the best quality. I shall, however, grow a large breadth of the Giant Wheat, as it has beaten the Browick Red in profit from 3*l.* to 4*l.* per acre, and is by far the most productive kind I ever met with.

FISH OFFAL.

[The following are extracts from a prize essay by Mr. R. Scot Skirving, of Camptown, East Lothian, in the late number of the Highland Society's Transactions.]

The fish guano, or rather fish manure, which forms the subject of this paper is composed of the heads, bones, and skin of fish (chiefly the cod), dried in the sun, and afterwards ground into fine particles by machinery. In 1860 a sample of this manure having been sent as a specimen to Professor Anderson, that gentleman was so obliging as to forward it to me in order that it might be tested with the Turnip crop that year. This I accordingly did, contrasting its effects with those of a considerable number of other manures, and the result was so satisfactory that I was induced to procure a quantity from Norway, with which I made a further experiment on the crop of 1861.

The field on which the experiment was made is far from being naturally rich; it is, indeed, rather the reverse, being, in fact, the side of a bank or hill, the rock being not far from the surface. At the same time the soil may be said to be fair, sharp Turnip land.

Plots, consisting of six long drills each, were manured with the fish bones, and with the substances with which I wished to contrast it. The Turnips were Swedes; and as no farmyard or other dung had been used during several previous years, the test was a severe one.

The various manures were sown in the drills by a machine, the quantity being to some extent regulated by the nature of the substances themselves, some of the compositions passing more quickly through the machine than others. It was therefore only after each plot was manured that the exact quantity actually placed upon it could be accurately ascertained. The weight of roots per acre being in this instance the result of calculation founded on a small portion weighed, the quantities given may not be exact, but the relative proportions are, I have no doubt, very nearly correct.

The following is a note of the experiments:—

No.	Manures used.	Weight put on Plots.	Produce per Imp. Acre.
		Stones.	Tons. Cwt.
1	Peruvian guano	11	15 13
2	Concentrated manure..	21	20 0
3	Fish-offal..	17	20 3
4	Phospho-Peruv. guano (Townsend's)	19	13 10
5	Peruvian guano, Bolivian and Super-phosphate	18	18 11
6	Hodson's ammoniacal manure ..	19	18 5
7	Phospho-Peruvian guano (Lawson's)	19	10 10
8	Peruvian guano	20	26 10
9	Townsend's Turnip manure.. ..	22	22 9
10	Peruvian guano, bone-dust, and dissolved bones	18	19 4

It is not the purpose of this paper to enter into the merits of any of the special manures which were used in the experiment, the single object being to contrast the effect of fish offal with a number of well-known fertilisers. I shall only remark, with regard to phospho-Peruvian guano, that I am well aware that it is constantly used with a profit in many localities. It is possible the nature of the weather during the summer of 1860 may have affected it unfavourably. The plot which was manured with the larger quantity of Peruvian guano stood out above all the rest from its greater exuberance of foliage, and, stretching as it did across the centre of the field, it looked during summer like the back-bone of the crop.

The second experiment with Norwegian fish offal was made in 1861, on a crop of Purple-top Turnips. From unavoidable circumstances the seed was not sown till too late, viz., the 25th of June, and in consequence, no doubt, of this delay, the weight of the crop over the whole field was considerably less than it would otherwise have been. This is the more certain, because from the very first brairding of the seed the whole field gave a promise of being a very full crop. Nothing could exceed the healthy and vigorous appearance of the Turnips during summer, and their growth seems to have been checked by the cold nights of autumn before they had attained their full development.

The field used is a good loamy soil, and is naturally much superior to that on which the fish manure was used the previous year. As in the former case, no dung was applied to the crop, nor had the field received any for several years.

The enclosure, which extends to about 20 acres, was divided into four portions, which were respectively manured with—

1. Norwegian fish offal.
2. Peruvian guano.
3. Peruvian guano, bone-dust, and dissolved bones.
4. Townsend's Turnip manure.

All the Turnips brairded freely in a regular manner, and advanced without a check till the 29th of October, when sharp frosts began to be experienced at night, arresting the vigorous plants before their maturity—a penalty paid for the lateness of the date at which they were sown. On this occasion the tops of the Turnips grown by the fish-bones were equally luxuriant with those produced by the guano, and both of these lots exhibited a more redundant foliage than that of the other two divisions. It was intended to manure the ground at the rate of 7¾ cwt. per Scotch acre; but the machine distributed the two guano lots at the lesser rate of 7¼ cwt., or 5,748 imperial.

Proceeding to ascertain the result of this trial, an acre of each, consisting of very equal soil, was selected, measured, and weighed on the 4th January, 1862. So apparently equal were all the four divisions of the field, that it was impossible, by judging from the eye alone, to determine which was best; but all looked a much heavier crop than the result proved to be the case:—

No.	Manure.	Rate per Imperial Acre.	Price per Ton.	Produce of Roots per Imperial Acre.	Value of Manure per Imperial Acre.	Value of Roots per Acre at 15*s.* per Ton.
		Cwt.	£ *s.* *d.*	tns. cwt. qrs. lbs.	£ *s.* *d.*	£ *s.* *d.*
1	Fish offal	6.343	9 0 0	17 14 2 4	2 17 0	13 5 8
2	Peruvian guano	5.748	12 10 0	16 12 6 12	3 11 9	12 9 8
3	Peruvian Guano, Crushed bones, and Dissolved bones	5.748	10 0 0	17 6 3 6	2 17 5	12 19 9
4	Townsend's Turnip manure	6.343	8 5 0	18 12 0 12	2 12 2	13 19 0

Several of the prices of the manures given above require explanation.

The cost of the fish offal is set down at 9*l.* per ton. This is the price, I have learned, at which the merchants in Norway offer to deliver it at Leith, or 8*l.* free on board. The actual cost to me was 10*l.* 7*s.* 6*d.* per ton, but it was imported in a comparatively small quantity for myself in a steamer, and consequently the charge for freight was high. Its value, per the analysis herewith given, is not more than 8*l.* 2*s.* according to Dr. Anderson's formula. With regard to Townsend's Turnip manure, the price marked, 8*l.* 5*s.*, is what was charged in Glasgow, after deducting 5 per cent. for ready money.

In the experiment of 1860 the Peruvian guano outstripped the other manures, whilst in the present trial it ranks the last. In both cases I believe the samples to have been of the best description, having been bought from a merchant in whom I have too much confidence ever to think of analysing. To some extent the difference may be attributed to the fact that in 1860 the rate at which the guano was applied was nearly the highest in the list, whilst in 1861 it was lower than the fish offal or the Townsend's manure.

A mixture of guano with bones in some form has generally given, in my experience, more satisfactory results than when the guano was used alone; and no doubt fish offal ought also to be mixed with other manures, but it is when applied alone that the merits or demerits of a new fertiliser can be most effectually tested. It is within my own knowledge that two other agriculturists in different counties have experimented with Norwegian fish offal with satisfactory results, and my own experience of it seems to prove, that it can at least hold its own with Peruvian guano and other approved manures.

CHEESE-MAKING.

The judicious business man will see that to make the most of his dairy produce requires as much discretion, skill, and attention as to grow good grain and roots, and therefore will furnish his dairy room with implements and utensils of the best and most useful kind, and a sufficiency of them, so that nothing may be wanting on his part to ensure success. It is quite as unwise to be without the proper tools in the dairy as the proper plough or harrow in the field. The expense for furnishing a dairy-room for Cheddar cheese-making is very small, compared with what it was in my own recollection, and every implement is reduced to such simplicity in its character, that the cheese-maker of the smallest means can avail himself of the best and most approved article. In order to make the best cheese, the principle upon which these work should be studied, and the best, from its results, adopted. Thus, there are implements on two distinct principles employed in the first breaking up of the cheese—the small round wire, and the flat knife-like breakers, both cutting the mass; and the revolver mode of round iron rods, and the shovel, made of wood and brass rods, breaking the mass. In my own opinion the latter is far preferable to the former, as it acts, in the hands of the careful operator, as a wedge in a block of wood, cracking and breaking instead of cutting and pulping. One of the best cheeses, bearing very flattering remarks from the judges, which was exhibited at the Association's first show held at Ayr, I think numbered 19 in the catalogue, was made on this principle at White Hills, being broken up by a common hay rake, the handle of which was shortened for the purpose. I doubt, if the cutting principle had been employed, if the cheese would have been so good.

If the dairy implements and utensils can be further simplified and improved, and the labour of cheese-making reduced, it is desirable to do so. To thinking minds, as improvements suggest themselves, they will be laid hold of and carried out. One I would mention, though seemingly trivial. It is a contribution by Mr. Frederick of Dumbreddan, Wigtonshire, who milks a large dairy of cows. In order to save the labour of putting the curd into three or four small vats to be pressed the first time, he has applied a lever power to the seepeer (*Scottice*, dreeper), which he formerly used for making Dunlop cheese. It is of large dimensions, and contained all the curd, which is effectually pressed in a short time, saving the wear and tear of vats, and the girl's time and labour of working. The reduction of labour in cheese-making has not been accomplished by long strides, but rather by short steps like the above. We used to keep our cheese in press a week; then we tried four days, and ultimately three. We used to salt the cheese at several times; now we salt it in the curd at once. Formerly it was half an hour's work for three or four men and boys to carry the whey every morning from the dairy to the piggery; now we lay down pipes and turn a tap, and it runs off. I might occupy a sheet in enumerating the improvements which have taken place, step by step, until the making of good cheese has become a respectable and pleasurable employment, so that I wonder that our neighbours in Wiltshire and Gloucestershire do not follow our example. I was in a dairy not long since where 70 cows were milked. Their daily produce was made up in eight cheeses; these were kept in the press and salted every day for a week; six or seven presses were employed to press them, and every morning 56 cheeses had to be turned, and as many vats and cloths to be washed.

I have been repeatedly asked for my opinion as regards the various mechanical appliances which have been of late years introduced in the making of cheese, particularly Keevil's and Cockey's. The former cannot be at all applied to the Cheddar system of making, but is valuable in making the Wiltshire cheese, as it saves labour and prevents waste. It may be applied to the Dunlop system, as the two modes have some resemblance. Cockey's is the best and only apparatus which I know to be of service in making Cheddar cheese, and is certainly valuable. Nearly all the principal cheese-makers of Somersetshire have it in use it is also rapidly spreading over the other dairy districts in England, and last year it was introduced into several of the largest dairies in Wigtonshire. It consists of a boiler and copper cheese tubs connected by pipes. The cheese tub is fitted with a double bottom forming a chamber; hot water from the boiler circulates in this chamber, heating in a few minutes the night and morning's milk to the required temperature, thus saving the waste and labour of carrying the milk to and from the furnace for that purpose; and I think it not a small advantage to have the milk heated uniformly. By this apparatus the milk of the evening may be kept sweet in the tub; no boynes or other utensils are needed for cooling. This is accomplished by cold water in the chamber, and where practicable a stream of water runs through all night. The scalding process is also performed by the heat from the water in the chamber, the breaking and scalding being performed at the same time, the temperature of the mass rising from 80° to 100° during the operation. This apparatus cannot improve the best or first-class cheese, but it probably would that of the second or third class. I have known it to be the case to the satisfaction and profit of many cheese-makers. Large dairies would do well to use it.

In my recent visit to Scotland, I saw that in a large number of dairies and cheese rooms the necessary alterations and improvements which the making of Cheddar cheese requires had not been effected. In many instances, to accomplish it the outlay would be too large for the tenant. When this is the case, the proprietor should render assistance. Although for the present the profits arising from the improvements in dairy practice seem to be all on the tenant's side, still they must ultimately and permanently settle down on the side of the landlord. The system of farm letting in Scotland will secure this. In some places which I saw the alterations could be made at a very little expense—such as closing a doorway which at present communicates with the byre, and thus excluding the smell Although the byres are regularly washed, and kept far.

cleaner than they are in England, where a number of cows are closely housed, there is always an unpleasant smell, which on no account should be allowed in the dairy. Neither should the milkers be allowed to bring the milk into the dairy, but a receiver (made of tin) should be placed outside the wall, into which the milk may be poured and conveyed to the cheese tub by a conductor attached. The best place for the cheese-room, when practicable, is immediately over the dairy. There is sometimes a difficulty in this, as the dairy should have a north aspect, while that of the cheese room should be south. The sun should be allowed to shine into the cheese room at least once a day; its light and heat keeps the room and cheese more healthy than any artificial means. The window should be furnished with a blind, to exclude the rays at pleasure. Hot water for heating the cheese room is better than a stove. This is effected by Cockey's apparatus, at a small extra expense (as is also the dairy room). The pipes are laid round the room, close to the walls; the heat, therefore, is diffused behind the cheese, which should be on shelves round the room. This is not the case when the source of heat is in the centre of the room, as with a stove. The heating the dairy room is an improvement, and is desirable during the winter months. It is absolutely necessary that good cheese be well kept; it retains its flavour and comes into the market sooner. *Joseph Harding, of Marksbury, Devizes, in the Ayr Advertiser.*

HORSE LABOUR.

Mr. J. C. Morton has a paper on the cost of horse-power in the Journal of the Bath and West of England Agricultural Society, in which he discusses the particulars of five or six farms, and comes to the following conclusions.]

THE immediate object of thus examining a number of additional cases of horse labour upon farms has been to ascertain the accuracy of the estimate I had formerly published, in which 6*d.* per cwt. drawn (= lifted) 2½ miles in an hour came out as the cost of horse labour. The following table contains the result of the calculations now given, from which it appears that this is very slightly an overcharge :—

Name.	Performance per Horse; *i.e.*, lbs. lifted 1 foot per Minute.	Whole Annual Horse Labour		Cost of Horse Labour.			Cost of Horse power per cwt. lifted 2½ miles per hour.
		Cwts. lifted 1 mile per annum.	Cwts. lifted 2½ miles per hour.	Per annum.	Per Hour.		
				£.	s.	d.	*d.*
Whitfield.. ..	22,060	37,600	6·26	329 0	2	9	5
Nottinghamshire	19,712	93,601	14·4	777 18	6	0	5
Bucks	19,361	25,930	4·7	240 10	2	2	5½
Northumberland	17,488	69,250	10·7	787 16	6	0	6¼
Essex	21,376	90,180	18.2	853 0	8	7½	5¾

He then adds the following history of a Dutch farm by Mr. Van den Bosch, of Wilhelminadorp, near Goes.

"'We have here in our Wilhelmina Polder, province of Zeeland in Holland, about 2990 acres in regular cultivation; the rest is wood, pasture, &c. Of this 2825 are of a clayey description, some heavy clay, but never so stiff as in some parts of England, and always a sandy subsoil at various depths. About 150 acres are sandy and poor altogether (old sandbanks on which no alluvial clay was deposited). There are six farms, and on each 14 work-horses, with one old one for extra use, making 90; besides about 20 young horses as we rear them ourselves. During part of the year, 18 pairs, or 36 hired horses, are also employed. There are on each farm five ploughmen, young and unmarried men; they live with the bailiff, and get besides their food and board,—the first ploughman 12*l.*, the second 9*l.* 6*s.* 8*d.*, the third 8*l.* 16*s.* 8*d.*, the fourth 6*l.* 13*s.* 4*d.*, and the fifth 5*l.* 5*s.* They are hired for nine months, from March to December. Generally the horse-work goes on till the middle of December. During winter till March or till the end of February there is nothing to do; but some carrying of straw, of corn, and such like. Besides the five ploughmen living on the farm, there are during nine months or less, two labourers for the remaining two teams (each man works here generally two horses in a team, also in carrying, for which light waggons are used). For rolling, mostly one horse is used; also one horse for light harrowing. In winter there remain two or three ploughmen on each farm, for taking care of horses and cattle. For this they get 36*s.* on each farm, besides food and board. The labourers (not hired ploughmen) get 8*s.* 4*d.* in the week and nothing else. Sometimes boys are employed, chiefly in spring, to work the horse for extra use; they receive 1*s.* per day without food. Other labourers working the horses, as in December and in the winter, get 1*s.* 3*d.* per day. Sometimes in summer in fallow work, or during November, two ploughmen will work with three horses each, for deep ploughing; then sometimes we can spare one of the two aforesaid labourers.

"'The food of our horses is as follows: during about 2½ months in winter, when they do no work, different kinds of straw, chiefly of Beans and Oats, and a little bit of hay. When they begin to work, a little more hay besides 11 bushels of Beans and 11 bushels of Oats per week, for the 14 horses on each farm. In May this food is gradually stopped, as they go to pasture.

"'In June, July, August, till mid September, they receive during the day, cut Red Clover, whilst they are always in pasture during the night. And besides this, they receive on each farm in summer 70 bushels of Beans and Oats altogether. At middle September feeding of Carrots is beginning, and the horses receive besides 25 bushels Oats or Beans per week, on each farm. In October they do not go to pasture any longer; instead they get a little hay, if possible, and the allowance of Carrots is increased to ¾ of a cwt. per horse, per day, and Oats the same as before. November the same as October. In December the feeding of Oats and Carrots is gradually stopped and again changed for different kinds of straw. The Carrots are always cut or pulped, and mixed with chaff of Wheat or cut straw, and given after Oats. Horse-work is severest in autumn, not only for ploughing, but also for carrying madder and roots.

"'Young horses get, till they are one year old, one bushel Oats per week, besides hay and Clover in summer. When they get older, they do not get Oats any more, but they go to pasture for the whole summer, and in winter they receive some cut Mangels and hay.

"'As to the cost of food, it was:—

12*l.* per horse on an average per year, from 1831-1840
9*l.* 16*s.* " " " 1841-1850
9*l.* 8*s.* 2*d.* " " " 1850-1860

From 1831 to 1840 more Beans and Oats were given than the quantities mentioned. So during the last 20 years, the cost of food was about 10*l.* per horse. In your country it is at least twice as much. All is taken into account, except the straw, as when the horses have taken the best of it, it is partly used as litter.

"'Now as to other expenses, I can give you the following account, being the annual averages of ten years:—

	£.	s.	d.	£.	s.	d.
Wages and food of the men working the horses				730	2	0
Farrier and drugs				14	19	9
Shoer				15	14	0
Mending implements, purchase of implements, and harness maker, &c.				370	11	10
Cost of food of the horses				1079	12	5
				£2211	0	0
Purchase of horses (sometimes still necessary)	33	15	9			
Value of horses at the beginning of the year	1168	7	0			
	1202	2	9			
Sold old horses	14	1	8			
Value at the end of year	1162	18	4			
	1177	0	0			
				25	2	9
Total				2236	2	9
Value of the work done by the horses.. ..				2395	1	9
Profit				£158	19	0

"'This profit is realised notwithstanding that for ploughing the horses are credited with only 4*s.* per acre; for ploughing with three horses, only 5*s.* 6*d.* per acre is placed to their account; for harrowing about 1*s.* 6*d.* per acre; light harrowing about 11*d.* per acre; rolling, 8*d.* to 11*d.* per acre; carrying crops in harvest time 4*s.* 8*d.* per acre; carrying madder, roots, and corn, &c., 6*s.* 8*d.* per day, in winter, 5*s.* per day. We hire men with horses and implements for these prices.

"'Now to the questions about the doings of the horses during the course of the year. The 2825 acres of clayey soil are cultivated according to the following rotation: 1st year, Peas; 2d, Wheat; 3d, Mangels, dunged with 10 tons farmyard manure and 2 cwts. guano and bones per acre; 4th, Beans, dunged with 16 tons of manure per acre; 5th, Wheat; 6th, Oats, with Clover and Grass; 7th, Clover; 8th, fallow, dunged on some lands with 14 tons manure per acre; 9th, winter Barley, the stubbles with 20 tons manure per acre; 10th, madder; 11th, madder; 12th madder, dug when 2½ years old; 13th, Peas; 14th, Wheat, with Clover; 15th, Clover; 16th, Oats; 17th, Mangels, Turnips, Potatoes, and Carrots, dunged as the 3d year; 18th, Beans, dunged as the 4th year; 19th, Wheat, with Clover and Grass seeds; 20th, pasture; 21st, pasture.

"'You see every year of each crop we have 135 acres, or 22 or 23 acres on each farm per annum. The 150 acres of sandy soil have the following system of cropping: 1, Turnips; 2, Chevalier Barley; 3, Clover; 4, Rye; 5, Potatoes; 6, Beans; 7, Rye; Turnips, Potatoes, and Beans are manured. The depth of ploughings (we have the improved American eagle ploughs) varies from 2½ to 6 inches with two horses, and from 8 to 12 inches with three horses.

"'Now to the number of ploughings, harrowings, and rollings each crop receives. The pasture, in the autumn of the 21st year, is broken with two ploughings, the second following the first in the same furrow, at a depth of 8 inches. 1st year: in spring, harrowing, drilling of Peas, one light harrowing, and one rolling; ploughing of stubbles, one harrowing, one ploughing or cultivating, two harrowings, one ploughing, one harrowing, drilling of Wheat, one harrowing. (Sometimes we have no opportunity for ploughing thrice, then it is done twice). 2d year: one rolling of Wheat (then worked with hand rakes, better than harrowing); stubbles ploughed, two harrowings, one ploughing with three horses, at 10 inches. 3d, Mangels: harrowings, sometimes one cultivating (Uley cultivator); one rolling, ploughing of ridges, manuring, splitting the ridges, drilling, one rolling; horse-hoeing during summer; in autumn one ploughing at 6 inches. 4th, Beans: harrowing and ploughing in Beans and manure, one or two rollings and harrowings; ploughing of stubbles, &c. for Wheat, the same as the 1st year. 5th, Wheat: in spring, the same as the 2d year; in autumn one ploughing of stubbles, two harrowings, one ploughing with two horses at 6 inches. 6th, Oats: harrowing, drilling of Oats, one harrowing; sometimes one rolling, according to circumstances; light harrowing, with one horse, after the small seeds are sown, or else hand-raking. 7th, Clover. 8th, Fallow: one ploughing of Clover in the autumn before, or if the Clover is needed for sheep in autumn, this is done in spring of the 8th year. Then two harrowings in spring; one ploughing at 6 inches; two harrowings; one ploughing with three horses at 8 inches; two harrowings; one ploughing with three horses at 10 inches; two harrowings (on light soils ploughing in of manure at 5 inches, afterwards one ploughing at 10 inches; then one harrowing and drilling), one ploughing at 6 inches; one harrowing and drilling of winter Barley; one harrowing. 9th, Winter Barley: one rolling and hand-raking, one ploughing of stubbles and manure at 5 inches, one harrowing and one ploughing at 10 or 12 inches. 10th, Madder: in spring, harrowing, cultivating, two harrowings, one rolling, ploughing of ridges, one rolling, and one light harrowing before planting the madder; horse-hoeing during summer and in autumn, covering the ridges with a plough constructed for the purpose. 11th, Madder: horse-hoeing and covering. 12th, horse-hoeing, and as in harvesting the madder in autumn the fields are dug with spades at 3 feet, no horse labour is further bestowed upon it. 13th, Peas: in spring as the 1st year; in autumn for Wheat, as the 1st and the 4th years 14, Wheat: in spring the same as the 2d and 5th year, and hand-raking of Clover seed. 15th, Clover: in autumn breaking up of Clover as the 21st year. 16th, Oats: in spring as the 6th year, one ploughing of stubbles; two harrowings; one ploughing at 10 inches. 17th, Mangels: Turnips, and Potatoes; the same as the 3d year. 18th, Beans: the same as the 4th year. 19th, Wheat: in spring the same as the 14th year. 20th and 21st, Pasture: sometimes rolling of compost. The 150 acres sandy soil are cultivated in a similar manner, but we do not plough deep there. We also grow Flax sometimes.

"'The weight of manure carried is about 10,000 tons per annum. As to the distance, the farmeries are situated about in the midst of their 500 acres. The manure is carried from the steadings to the fields. About 300 tons of manure of the 10,000 is bought at Goes; the distance from there to the fields is various, but often four miles and more. We do not use any quantity of artificial manure. The weight of crops carried to the ricks, I am sure I could not tell exactly, it varies so very much. The weight of roots will be 12 to 25 tons per acre; of madder 7 tons per acre. Roots are carried to the steadings; madder to the village to the kilns for drying. Average distance of the farms to the village, two miles. All the corn to be sold is brought from the farms to the boat at the canal of our village; the distance two miles or more.

"Horses do not carry much hay here, but a good deal of straw to different sheep yards and cattle yards. Produce of Wheat on an average, 38 bushels per acre; of winter Barley, 70 bushels per acre; of Chevalier and summer Barley, 50 bushels per acre; of Oats, 60 bushels per acre; of Rye, 36 bushels per acre; of Beans, 36 bushels per acre; of Peas, 33 bushels per acre.

"'The horses during summer are fetched from the pastures early in the morning. They set so work at half-past three till eight o'clock. Then they are taken to the stables, where cut Clover is given to them. Some of them will do little jobs from nine to twelve o'clock, as horse-hoeing, fetching of mown Clover, &c. At half-past one they set to work again till six o'clock in the evening, when they are brought back to the pastures. In spring and autumn they begin to work at half-past five and continue till ten; or from dawn till about eleven; in the afternoon always the same, from half-past one till six o'clock, or till it is getting dark. So generally they work nine hours per day. During harvest, of course they work as long per day as is needed. In winter, when they have nothing to do, they are allowed once or twice a day to run in the yards, behind the stables. They are brushed and cleaned in the forenoon.

"'A usual day's work at ploughing will be different. Light ploughing 2 acres; ploughing at 5 or 6 inches 1¼ acres. Deep ploughing, 1 acre per day. Ploughing of ridges 3 acres per day. Harrowing very different; say 4 acres per day for good harrowing, light harrowing more per day.

"'I believe I have now answered all your questions. Perhaps these particulars of a large continental farm may be interesting for English readers. You see our horses do a good deal, and they are cheap for food. You will agree with me that steam cultivation therefore could not be profitable here.'

"The reader will agree with me in thinking that the above report does possess great interest for English readers."

A detailed examination of the labour is then made, and the following result is reached.

"The whole labour of the farm thus amounts to about 410,000 cwt. drawn (= lifted) one mile in the year. If the time of labour of the horses be put at 1800 hours per annum, which is quite as much as it is, considering their long winter's holiday, this corresponds

to nearly 2,245,000 lbs. drawn (= lifted) 1 foot per minute during work hours. Now, besides the 90 horses whose labour contributes to this result, Mr. Van den Bosch tells me that his hired horse labour amounts to about 170 or 180 days of 18 teams, or 36 horses; and this is equal to the addition of at least 30 horses per annum to the power, and about 1020*l.* annually to the cost of the horse labour of the farm. If, then, this performance be divided among 120 horses instead of 90, it will amount to 18,700 lbs. per horse drawn (= lifted) 1 foot per minute during work hours—a result curiously near those which have been already reached in the case of English farms. The whole work on this farm being 410,000 cwts. drawn (= lifted) 1 mile per annum, is equal to 164,000 cwts. drawn (= lifted) 2½ miles in that time, or 91 cwts. drawn (= lifted) 2½ miles per hour during working hours per annum. Now on this farm the cost of horse labour is 2236*l.* 2*s.* 9*d.* for home management, and 1020*l.* for hired labour, in all about 3260*l.*, or 35*s.* 6*d.* per hour. The cost of horse labour on this farm thus comes to about 4*d.* per cwt. drawn (= lifted) 2½ miles in an hour.

"This is considerably less than we pay for the same thing in England, though it is by no means certain that Mr. Van den Bosch is right in supposing that steam-power would not be cheaper than horse-power even in Holland."

Home Correspondence.

The Speaker on Steam Cultivation.—Major-General Peel, M.P., went down to the Huntingdon wool fair last week, and before leaving town implored the Speaker to give him some hints with which he might "pitch a yarn" to the Huntingdonshire farmers. The Speaker favoured the Right Hon. and gallant member with the following letter, dated July 6:—

"My dear General,—You ask me how matters are going on in the farming world. The event most interesting to farmers that has occurred lately, especially to farmers cultivating strong clay lands, is the proved success of steam cultivation. It is the strong clay lands that especially require help, and that help is now afforded them by the agency of steam. Ten years ago the Royal English Agricultural Society offered a prize of 500*l.* for an implement worked by steam, which should turn up and till the land, and prepare it for the reception of seed. The idea that land could be ploughed by steam was treated with ridicule by many. But the engineers and machine makers set to work, the difficulties have been overcome, one by one, and now it may be safely said that a 10-horse steam-engine placed in a field can do the work of cultivation both better and cheaper than it can possibly be done by horses. I have been for some years watching with great interest the progress of steam cultivation, but my farm was not large enough to warrant a large outlay on steam machinery. It happened this spring, that a fine farm of between 600 and 700 acres of clay land came into my hands in a very bad state from a slovenly tenant. It seemed to me the time was come to call in the aid of steam. Without troubling you as to the comparative merits of the different machine makers, I decided to adopt the form that seemed to me the most simple; I adopted the method of Mr. Smith, of Woolston. During the dry weather of the month of May, when the land was baked as hard as brick, and when no implement, moved by horses, could make any impression, my 10-horse power steam-engine began its work, smashing and breaking up the land in a manner which was quite surprising. The farmers of the neighbourhood came to look on, and there was not a dissentient voice; every one said—'This is what we want; this is the way to fallow clay land.' I have been able in the last two months to go over all the fallow land of the farm, and to put it in excellent condition for future cultivation. You will ask what is the cost of the machinery, and at what rate per acre can the work be done. I answer both questions. The first cost of machinery is 500*l.* (ten-horse steam-engine by Clayton and Shuttleworth, 300*l.*; two cultivators and wire rope, 200*l.*). Where the ground is very hard the cost the first time over is 6*s.* per acre; the second time over, where a broader cultivator can be worked, 3*s.* per acre. The exact detail of the expenses are these (independently of interest on outlay):—Engine man, 2*s.* 9*d.* per day; windlass man 2*s.* 4*d.*; ploughman, 2*s.* 4*d.*; two anchormen, 4*s.*; three boys, 2*s.*; watercart, man and horse, half of time, 3*s.* 4*d.*; three-quarters of a pint of oil, 6*d.*; 7 cwt. of coal at 7*d.*, 4*s.* 1*d.*; total, 1*l.* 1*s.* 4*d.* The work is so good and so superior to work done by horses that many farmers said they would gladly pay 1*l.* or even 1*l.* 10*s.* per acre to have their land so broken up. It is well worth the consideration of farmers how the first outlay may best be met, whether by neighbours combining together or whether by an arrangement with persons who would make it their business to let the machinery out to hire and to do the work at so much per acre. Farmers on strong clays should be looking out to get the aid of steam on their lands; and steam which has done such wonders in our factories—which has brought Edinburgh within 10 hours of London, and America within 10 days of England—will also perform important services to the cultivators of the soil—Believe me, yours truly, "J. EVELYN DENISON."

Small Birds and the Oak Galls.—Professor Buckman lately published the following interesting communication through the *Wilts Standard*:—"The manly defence of our small birds by your amiable correspondent 'Rusticus' induces me to point out an instance of a very important service which is now being performed by one of our smallest birds, and which, in as far as I know, has not hitherto been noticed. Many of your readers will know that within the last few years a new kind of gall has made its appearance upon our Oak trees, in some cases so thickly as to have changed most of the leaves of the young trees into excrescences having much the appearance, and possessing many of the properties, of the Nut-gall of commerce, which latter is so much used for the making of ink and dyes. This gall is caused by a species of fly known by the name of the Cynips quercus petioli, the female of which laying an egg on the young leaf, the leaf is gradually converted into a gall, in the centre of which there grows a caterpillar; this in time changes into the fly, which eats its way out, making a little hole on the side, indicative of the vacant gall. Now the effect of this abnormal growth has been to utterly ruin some of our young Oak trees, and hence its rapid spread and great increase has naturally caused much alarm to the forester. The following dates will show that its spread, though gradual, was sufficiently rapid:—The galls were gathered in Devon in 1853, the same kind in Somerset in 1854; in Gloucester, on the west side of the river Severn, Forest of Dean, in 1855; in Gloucester, on the east side of the Severn, and as far as Oakley Park, Cirencester, in 1856; in Worcestershire in 1857; in North Wales, Beddgelert (pointed out to me by John Savory, Esq.), in 1859; in Sussex, very sparingly, in 1860; in Alice Holt Forest, far from abundant, in 1861; at Hastings, ditto, in 1862. Now I have this season observed a lot of the young galls about Cirencester, but it is certain that the crop for 1862 has been less abundant than for three or four years previously. At first I was at a loss to account for this, but careful observation of the state of the galls during last autumn showed that in some situations a rough aperture had been made in the majority of these excrescences, and from these the fat maggot or caterpillar had been abstracted. Now, having found out so much, of course I was anxious to learn who was the welcome operator, and I am happy to record that the little fellow to whom the planter is so much indebted is the common Tomtit or Bluecap (Parus cœruleus), of whom Mr. Hewitson says:—'Although he has long been outlawed, and a price set upon his guiltless head, he is of a race still sufficiently numerous to rid us of countless insects, and so heap benefits upon us, in return for all the persecution that he has met with.' Dear little birdie, like me you have been impelled to study insects in aid of your daily necessities, and as this gall is new to our country, it is not to be wondered at that you did not at first understand it; but now that you do so, if wicked people will let you alone, you may solve the enigma which to myself has been an increasing difficulty—of how to destroy the Oak galls—and may you, unlike myself, meet with kind treatment for your applied science. *James Buckman, Cirencester.*"

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

AT an adjourned MONTHLY COUNCIL held on Wednesday, the 8th inst., the Right Hon. Viscount Eversley, President, in the chair, the following new members were elected:—

Anderson, William, Bent House, South Shields
Angus, George, The Grange, Wallsend
Arkle, Thomas, Shaftoe, Newcastle-upon-Tyne
Baker, Eliza Maria, Thorngrove, Worcester
Baker, Henry Orde Lloyd, Hardwicke Court, Gloucester
Barneby, William, Clater Park, Bromyard
Best, James, Jun., The Hill Top, Tenbury
Bridges, Joshua, London Road, Worcester
Brisco, Sir Robert, Bart., Crofton Hall, Wigton
Brown, Thomas, Townsend, Horton, Devizes
Cartwright, Geo. Kingsford, 14, Upper Seymour Street West, Connaught Square
Cattley, Richard, Worcester [Hants
Cavan, Colonel Philip Charles, Longparish, Whitchurch,
Clarke, Jno. William, Cambo, Newcastle-upon-Tyne
Clay, Charles, Whitchurch, Salop
Cookes, Jno. Russell, Woodhampton House, Stourport
Cooper, Joseph, Redmarley, Newent
Cooper, Benjamin, Pattingham, Wolverhampton
Coulson, John, Killingworth, Newcastle-upon-Tyne
Croome, J. Capel, Cerney House, Cirencester
Drinkwater, Fred., Madley, Hereford
Dudfield, Benjamin, Spetchley, Worcester
Edwards, Jno. Jas., Broad Heath, Presteign
Fletcher, John, Sandway Lodge, Northwich
Foster, Richard G., Gloucester
Foster, T. Nelson, Gloucester
Freeman, Thomas, Benton Place, Newcastle-upon-Tyne
Garfit, Charles, Wincham Cottage, Knutsford
Good, Samuel C., Aston Court, Tenbury
Gow, Thomas, Cambo, Newcastle-upon-Tyne
Hare, Thomas William, Berthddu, Caeswys, Montgomery
Hatherton, Lord, Teddesley, Penkridge
Haywood, Edward W., Sillins, Bromsgrove
Hemming, George, Pershore
Heslop, Isaac, Urpeth, Chester-le-Street, Durham
Hewerson, Nelson, Newport, Monmouthshire
Holl, William, Link Tower Lodge, Malvern
Holland, Francis D., Cropthorne, Pershore
Humphries, John, Kidderminster
Jobson, William, Buteland, Hexham
Johnson, John, South Fickenham, Swaffham
Leese, Charles Stewart, Divan Court, Eastling, Faversham
Marshall, James, West Hartford, Bedlington
McLaren, William, North Gosforth, Newcastle-upon-Tyne
Moseley, Henry, Westhide Court Farm, Hereford
Nock, Thomas, Sutton Maddock, Shiffnal
Pace, Edward Henry, Pershore
Parkes, Thos., Warridge Lodge, Grafton Manor, Bromsgrove
Parnell, John, Rugby
Peel, Xavier, Denant, Haverfordwest
Phillpot, Harvey, Weston Lodge, Thames Ditton, Surrey
Powell, Alfred, Avenue House, Worcester
Prosser, John, Holme Lacy, Hereford
Read, Henry, Beccles, Suffolk
Reily, George Hyde, Knight's Hill, Surrey
Robinson, Rowland, Fenny Drayton, Nuneaton
Stephens, S. H., Offoxey, Tong, Shiffnal
Tromayne, John, Heligan, St. Austle
Webb, William, Worcester
West, Thomas, Worcester
Wigham, George, Laverick Hall, Leaton, Dalivel
Wilkins, Walter, Gloucester
Wilson, William Berry, Blagdon, Cramlington
Woodward, Thomas, High House, Seven Stoke

The Council then adjourned.

HAMBURGH; *July* 14.—We learn from the public papers that the great International Agricultural Meeting opened this day with great *éclat*, with a large attendance of spectators. The parcel of our reporter had not arrived on going to press.

Reviews.

Science and Practice in Farm Cultivation. By Prof. James Buckman, F.L.S. (No. 1. *How to Grow good Root Crops.*) R. Hardwicke, 192, Piccadilly.

We have here the first part of a work, to be issued in numbers, in which Professor Buckman is to relate the results of his studies and experiments, and the nature of his teaching during 16 years of residence on the Royal Agricultural College farm. The science and practice of root-cultivation as taught here are given in the form of a series of chapters or essays on the origin of root-crops (from natural species); on the origin of sorts of roots (in variety of cultivation); on trueness of sort in root crops (to be maintained by care in the selection of seeding plants); on degenerate roots (illustrated by examples); on the effects of growing seed from degenerate roots; on the adulteration of seeds, more particularly of Turnips, and on the injuries caused by insects. The following are the general conclusions arrived at:—

"GENERAL CONCLUSIONS.

"To render our subject as complete as possible, we direct attention to the following practical conclusions, to which our whole argument upon the science of root-growing points:—

"First.—Cultivated roots are improved wild ones, only to be obtained by gardening on the small, or farming on the large scale; this gardening or farming being carried on by certain operations at certain seasons which we have comprehended under the term of cultivation processes.

"Second.—The difference in sort of roots is caused either by cross-breeding as the result of accident or design, or of the education of some particular propensity which has been acted upon by the intelligent seed-grower.

"Third.—The maintenance of sorts in purity depends upon careful selection of the right variety for the seeding examples.

"Fourth.—The preservation of a good outline or shape of root can only be maintained by selecting those of good form to seed from; for, as running to seed, multiform top, forkiness, 'finger-and-toe' in roots, is evidence of wild growth, so, then, cultivated plants assuming this form are considered as degenerate, and seed from such roots produces a malformed and poor crop.

"Fifth.—The difficulties of getting good seed—whether of trueness to sort, from carefully selected bulbs, or free from adulteration either of old with new seed, or a mixture of Charlock and others of the same family—are very great. Where, however, good seed can be depended upon, it is much cheaper, though at a considerable increase of first seeds cost, as not only quality but the quantity of live so considerably depends upon the truth and honesty of the seedsman.

"Sixth.—Injuries from insect attacks, though serious as affecting the yield, are yet not due to the seed; and anbury, if it be due to insects, only occurs in the Turnip-crops, and then in particular soils. The true insect attacks to be averted by simultaneous action.

"In fine.—*Good seed, of a true sort,—care in growth,—and a watchfulness of enemies, includes the* SCIENCE *and* PRACTICE *of Root Cultivation.*"

We presume that in an ensuing number Professor Buckman will still have to speak of the science and practice of root cultivation; for it is plain that good seed, care in growth, and a watchfulness of enemies, include only part of this large subject. The details of field management, in order to the growth of a crop, are necessary, along with the care which is here insisted on in the selection of seed. Our readers will recognise much of the useful information which is here collected as having been originally communicated to our columns.

Miscellaneous.

Recreation of the Labourers.—The real difficulty which besets the "recreation" question, is the employment of the spare time of the labourers after their work is done. Of all the plans proposed, we know of none at all likely to give the same benefits as the "allotment" or "small garden" system. It can be easily carried out, for the rent of a shilling a rod per annum will bring in 8*l.* per acre, so that it is no loss for any one to let out land for this purpose. Sixteen men can each have a garden 50 feet square out of each acre, and will gladly give 10*s.* a year for it. As to the benefits resulting from the scheme, the following from Mr. Glenny, who has had large practical experience of the working of the system, will be suggestive:—"It has been said, and may be truly said in some cases, that there is no good without its share of evil. Surely the allotment system is an exception. What evil can arise from it? So far as we can see—and we have seen it working in many parts of the country—good must result from it; harm cannot. We have urged its adoption many times, and sometimes with effect. We have even seen the best effects when it has been carried out on waste land that has been poor and hungry, and wanted more labour and dressing to bring a crop than the crop was worth; but the men were proud of their produce, and reckoned

their labour nothing. Many a prize have we had to award among them for productions that would not discredit a first-rate gardener. At all the shows we have attended as judge (and they have been very numerous), the cottagers' and allotment holders' produce equalled, and often surpassed, those of the gentlemen gardeners; and when men once take to gardening they appear to us to become more enthusiastic and more successful every year. Parochial officers, then, should take land on purpose to let out in small gardens, and allow men to take more or less quantity according to the extent of their families. The officers should also supply tools and seeds, to be paid for by instalments, that a man may begin his gardening with proper implements and materials. The parish would soon feel the benefit, in improved morals and diminished rates." — *R. Scott Burn's Outlines of Modern Farming.*

Extensive sale of Short horns.—The Babraham lot of Short-horns now disposed of, the attention of admirers of this valuable breed of cattle is being turned to the splendid herd at Shethin, which is to come under Mr. Strafford's hammer on the 29th current, the day before the show of the Royal Northern Agricultural Society at Aberdeen. The Shethin herd is the oldest short-horn stock in the North of Scotland—the late Messrs. Hay having bred from Short-horns when there were no others in that part of the country. The stock, which is to be sold without reserve, is most extensive. There are 70 cows and two year-old-heifers, 24 year old heifers, 7 bulls, and 33 of this season's calves—altogether 134 animals. The opportunity which this affords of securing pure bred animals of sound constitution of this valuable stock is too good to be lost, and we expect that the turn-out at the sale will be something extraordinary. The cows are good, and as a whole cannot be surpassed; the young stock contains some most promising animals; while the merits of the bulls, particularly Sir Charles, Cherry Duke the Third, and Chief of the Harem, are very well known. The whole stock has been carefully bred, bulls both of the Bates and Booth tribes having been in use in the herd, which combines some of the most valuable blood in the country.—*Banff Journal.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point, at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Wind. Force, 0—6.	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	July	Inches.	°	°				°	°	°	°	Inches.
Friday ..	10	30.47	72	63	N.	0	0	75	49	91	45	..
Saturday ..	11	30.50	74	64	E.	0	0	77	51	94	47	..
Sunday ..	12	30.45	74	64	E.	0	0	79	53	93	51	..
Monday ..	13	30.58	62	58	N.	0	10	79	59	95	51	..
Tuesday ..	14	30.53	67	61	N.N.W.	0	0	69	44	88	30	..
Wednesday ..	15	30.35	67	61	N.N.E.	0	0	77	51	91	43	..
Thursday ..	16	30.29	65	57	N.N.E.	1	10	79	51	94	44	..

Notices to Correspondents.

CHEMICAL ANALYSIS: *Cor.* Dr. Voelcker's writings are to be found in the Journal of the Royal Agricultural Society. Samples for analysis sent to him as chemist to the Society should, we presume, be forwarded to him at The Cranhams, Cirencester.

ARTIFICIAL MANURES: *Agricola.* For Italian Rye-grass an ammoniacal manure—sulphate of ammonia, 1 cwt. per acre, washed in once or twice a-year. For Turnips superphosphate or phospho-Peruvian guano. The latter is worth its extra price. For Potatoes, as an addition to a dressing of farmyard dung, 2 cwt. of guano sown over the drills before covering up.

ERRATUM. In Mr. Slatter's summary of the Weather for the last quarter, p. 658, col. c., Mean Temperature "of the *Rain*," should have been printed "of the River."

THE HYDROPULT,

EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "The machine is certainly the most compact and efficacious force pump of its size that we have ever seen."—*Daily Telegraph.*

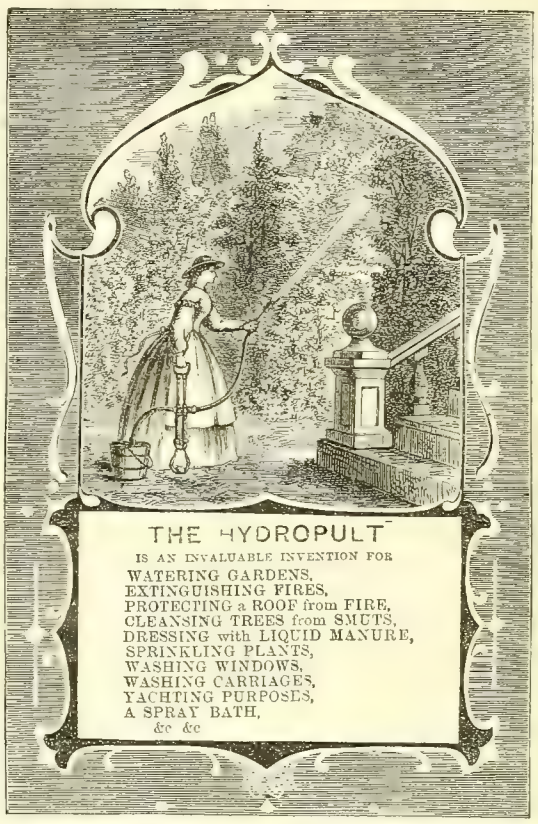
THE HYDROPULT. — "All Londoners and other town residents who care for their gardens and greenhouses should avail themselves of such engines." — *Gardeners' Chronicle and Agricultural Gazette.*

THE HYDROPULT. — "We strongly recommend it to our readers." —*Journal of Horticulture and Cottage Gardener.*

THE HYDROPULT. — "It will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water." — *Gardeners' Weekly Magazine.*

THE HYDROPULT. — "Country readers who order it on our recommendation, will not only not repent, but thank us for calling attention to a machine which, having once used, they will never care to be without."—*Floral World and Garden Guide.*

THE HYDROPULT. — "We can only say that no public establishment or private house should be without one of these useful machines."—*Commercial Daily List.*



EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "We are satisfied that all housekeepers ought to have one, and we are equally satisfied that if they once see it they will order it." — *Liverpool Daily Post.*

THE HYDROPULT. — "We commend it to the notice of the proprietors of warehouses and other buildings, public and private, in the metropolis and provinces."— *Mechanics' Magazine.*

THE HYDROPULT. — "It is admirably adapted for sprinkling gardens, trees, graperies, washing windows, carriages, and for household purposes, its simplicity and portability being its strong recommendation." — *Illustrated News of the World.*

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AN INVENTION FOR THROWING WATER BY HAND POWER

(SECURED by ROYAL LETTERS PATENT),

Price **TWO GUINEAS**

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Small Jet. Weighs but 8 lbs.

Recommended as an efficient and useful Fire Engine by the principal Fire Insurance Companies of Great Britain.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

THOMAS RIVERS, Esq., the eminent Florist, SHIRLEY HIBBARD, Esq., and other well-known gentlemen, recommend it as an invaluable Garden Implement.

EXTRACTS FROM TESTIMONIALS.

"Roya Insurance Office, Liverpool.

"My dear Sir,—I have much pleasure in expressing the high satisfaction, and indeed surprise, with which I witnessed the working of your Hydropult. There can be no doubt that it can be available in the earlier stages of fire in warehouses, manufactories, or private houses, in preventing large conflagrations, while its applicability to gardening and other purposes will be manifest to any one observing its operation.—I am, my dear Sir, yours truly, "PERCY M. DOVE, Manager."

"Chas. P. Button, Esq."

"The invention will prove extremely valuable for all the purposes to which such machines are applied.—SWINTON BOULT, Secretary, Liverpool and London Insurance Company."

"Its portability and facility of operation recommend it to the general notice of the public.—HENRY LOWE, Secretary, District Fire Company."

"In a blowing or mixing room it would be of especial service. — F. J. HALLOWS, Secretary, Caledonian Insurance Company."

CAUTION: Important to the Public.—The extensive sale of the HYDROPULT has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting, as they are often placed under or near the Hydropult show card. The Proprietor therefore issues this caution, and respectfully intimates that parties wishing to purchase the Hydropult, should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, a Portable Fire Annihilator and Garden Engine; GRIFFITHS & BROWETT, Manufacturers, Birmingham; CHARLES P. BUTTON, General Agent (Vose's Patent)." Unless this label be attached, the machine is not the Hydropult.

THE HYDROPULT is MADE of BRASS and COPPER, weighs but 8 lbs., and WILL THROW EIGHT GALLONS of WATER PER MINUTE FIFTY FEET, WHEN WORKED by the POWER of ONE MAN.

Public and private buildings have been saved from destruction by its agency. T. SPENCER, Esq., Inspector of the Royal Society for Protection of Life from Fire, certifies to its efficiency in saving valuable property at Bayswater from destruction.

FIRE FIRE FIRE! THE HYDROPULT IS THE MOST EFFICIENT FIRE-ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.

It can be used for all purposes for which a hydrant or force pump is applicable, and in situations where other contrivances are useless.

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STEAM PLOUGHING and CULTIVATING APPARATUS

WILL BE AT WORK NEAR BEDFORD THROUGHOUT THE SEASON.

Price of a Complete Set with 10-Horse Engine £515 0 0
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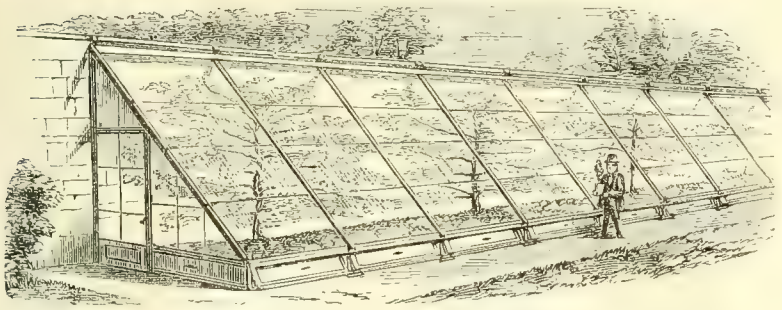
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BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS,

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
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Every description of IRONWORK. *Lists Free.*

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THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c. the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

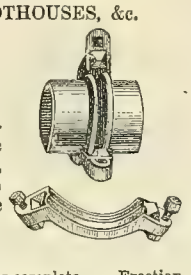
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25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

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By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

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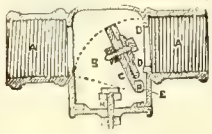
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HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner, all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to SAMUEL HEREMAN, 7, Pall Mall East, London.

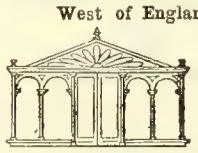
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West of England, Ireland, and Wales.



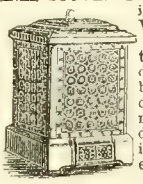
VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER. HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.



VINCENT SKINNER, Bridewell Street, Bristol.

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MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.—This Stove is the nearest approach to Warming by Hot Water, and an efficient aid in Ventilation.

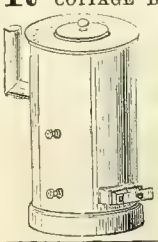


It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for Small Conservatories, with a vapour chamber, which maintains a moist atmosphere for 12 hours with once filling.

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Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

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Price complete from 3*l.* 10*s.*

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CONICAL BOILER AND IRON FURNACE STAND EXHIBITED.

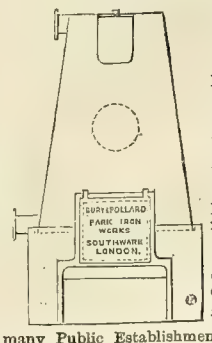
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BURY AND POLLARD, Park Iron Works, New Park Street, Southwark, S.E., Manufacturers of every description of Buildings for Horticultural purposes, with their improved CONICAL BOILER for heating the same, undertake works of any magnitude, and refer, among others, to the works at Frognal the seat of Viscount Sydney, the Lord Chamberlain, ust completed by them.

BURY & POLLARD also call attention to
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invented by them. A most economical, durable, and efficient arrangement for warming Conservatories, &c.

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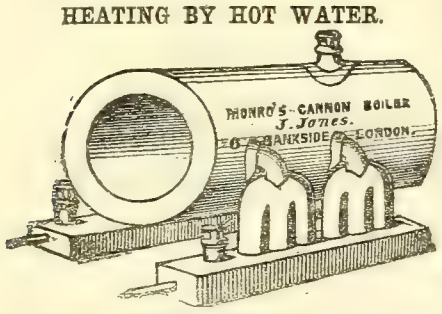
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THE IMPROVED
CONICAL BOILERS,
For HEATING PINERIES, CONSERVATORIES, GREENHOUSES, MANSIONS, HALLS, WAREHOUSES, &c.,
SOLELY MANUFACTURED BY
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(Successors to JOHN R. PEILL, Late STEPHENSON & PEILL).

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NO BRICKWORK SETTING.

These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United kingdom. References where they have been 20 years in constant use.

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MONRO'S CANNON BOILER.

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SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

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CHURCHES, CHAPELS, SCHOOLS,

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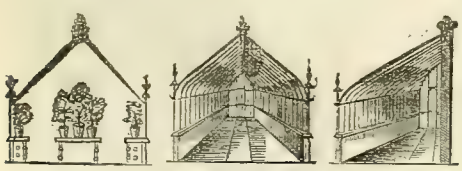
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HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

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DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon



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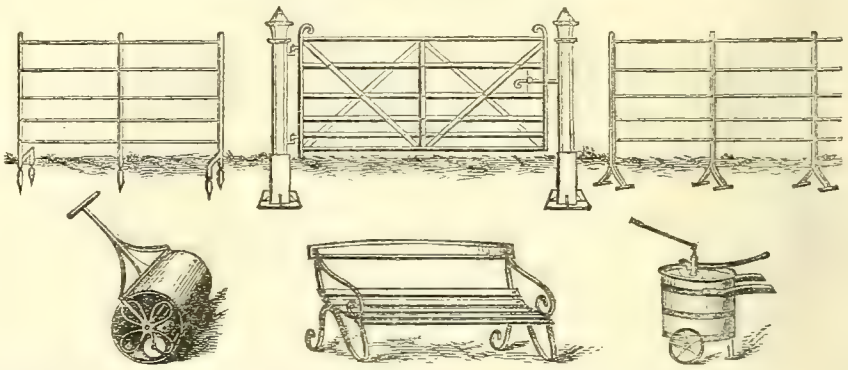
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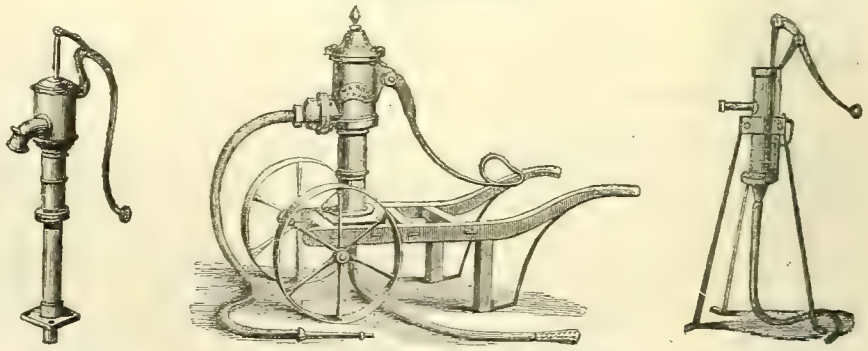
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No. 35. No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP. No. 42

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2¾ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
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No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4
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Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

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4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

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GARDEN BORDER-EDGING TILES. — These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

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Illustrated Price Lists free on application. The Trade supplied

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability. Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

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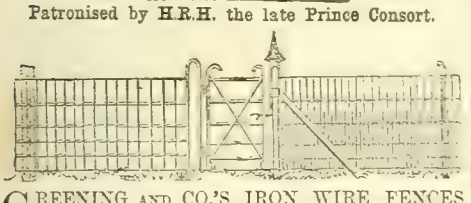
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GREENING AND CO.'S IRON WIRE FENCES for FARMS, DEER PARKS, SHEEP FOLDS, GAME PRESERVES, POULTRY COURTS, GARDENS, &c., are manufactured by Patent Machinery, and possess the following advantages:—

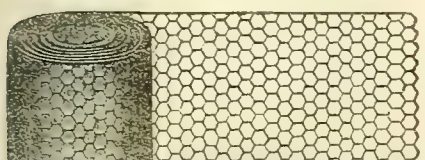
1st. Are easily fixed by unskilled labourers.
2d. Require few and inexpensive supports.
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4th. Have increased strength from their peculiar construction.
5th. Are but half the price of similar hand-made Fences.

G. & Co. will be happy to forward, without charge, an explanatory Circular of the principal varieties. Their enlarged Catalogue of all kinds of Fences and Gates post free on receipt of three stamps.

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BARNARD, BISHOP, AND BARNARDS, Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.

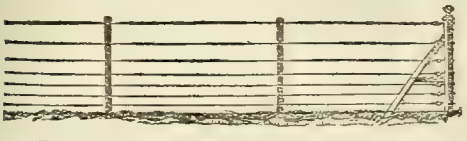


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard.
2-inch mesh, 24 inches wide ..	No. 19	.. 4½d.	.. 3½d.
2-inch ,, ,, ,, .. ,,	18	.. 5	.. 4
2-inch ,, ,, ,, .. ,,	17	.. 6½	.. 5
2-inch ,, ,, ,, .. ,,	16	.. 8	.. 6½
1⅝-inch ,, ,, ,, .. ,,	19	.. 4⅝	.. 4
1⅝-inch ,, ,, ,, .. ,,	18	.. 6	.. 4⅝
1⅝-inch ,, ,, ,, .. ,,	17	.. 7	.. 5½
1⅝-inch ,, ,, ,, .. ,,	16	.. 9	.. 7

All the above kinds can be made any width (under 6 feet), at proportionate prices.

Strong Galvanised Poultry Netting, 7½d. per yard, 3 feet wide, Galvanised Sparrow-proof Netting for Pheasantries, 11d. per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10d. per yard.

The same with Galvanised Wire Rope, 1s. per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

WILLIAM BARRATT, LANDSCAPE and ORNAMENTAL GARDENER, St. John's and Newton Moor Nurseries, Wakefield.

TANNED NETTING, at reduced prices, 1d. per square yard; 200 yards, 14s.; 500, 30s.; 1000 yards, 50s. SCRIM CANVAS, for Wall Fruit; GARDEN MATS; GREENHOUSE SHADES.

Be particular, FREDERICK EDGINGTON & Co., Rick Cloth Manufacturers, Thomas Street, Old Kent Road, London, S.E

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from frost, blight, birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½d.; 2 yards, 3d.; 3 yards, 4½d.; and 4 yards, 6d. per yard run, in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

VARNISHED FLOWER STICKS:—1 foot, 3d.; 14, 4d.; 2, 5d.; 2½, 7d.; 3, 10d.; 4, 1s. 6d. per dozen. DAHLIA do., per dozen:—3 feet, 1s. 6d.; 4, 2s. 3d.; 5, 3s.; 6, 3s. 6d. An allowance to Nurserymen.

Netting for Fruit Trees, Seed Beds, Ripe Strawberries, &c.

TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards, 20s.; 4 yards wide, 6d. per yard, or 50 yards, 20s. NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ¾-inch mesh, 4 yards wide, 1s. 4d. per yard.

Can be had in any quantity of EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

WASPS. — HAYTHORN'S HEXAGON and CHISWICK GARDEN NETS are guaranteed to protect all kinds of Fruit from Wasps, Flies, Birds, &c. These Nets are used and recommended by all the principal Gardeners.

For Testimonials, Patterns, and Prices, please direct to Mr. HAYTHORN, Nottingham.

Glass.

JAMES PHILLIPS AND CO. beg to hand prices of GLASS MILK PANS.

12 ins. diameter ..	1s. 3d.	20 ins. diameter ..	3s. 3d.
14 ,, ..	1 9	22 ,, ..	3 9
16 ,, ..	2 3	24 ,, ..	4 6
18 ,, ..	2 9	26 ,, ..	5 6

GLASS PRESERVE JARS.

In. diam.	Without Lids.	With Lids.	In. diam.	Without Lids.	With Lids.
3 ..	0s. 4½d. ..	0s. 6½d. ea.	7 ..	1s. 0d. ..	1s. 4d. ea.
4 ..	0 6 ..	0 9 ,,	8 ..	1 4 ..	1 8 ,,
5 ..	0 8 ..	0 11 ,,	9 ..	1 8 ..	2 2 ,,
6 ..	0 10 ..	1 2 ,,	10 ..	2 0 ..	2 8 ,,

Intermediate Sizes in proportion.

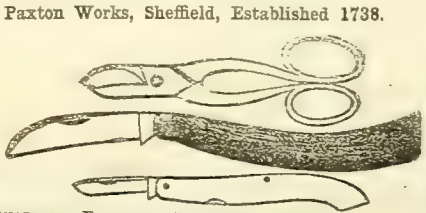
BEE GLASSES.

4 ins. diameter	0s. 6d. each.	9 ins. diameter	1s. 8d. each.		
5 ,,	0 8 ,,	10 ,,	2 0 ,,		
6 ,,	0 10 ,,	11 ,,	2 6 ,,		
7 ,,	1 1 ,,	12 ,,	3 0 ,,		
8 ,,	1 4 ,,				

Not made above 12 inches.

180, Bishopsgate Street Without, London, E.C.

Paxton Works, Sheffield, Established 1738.

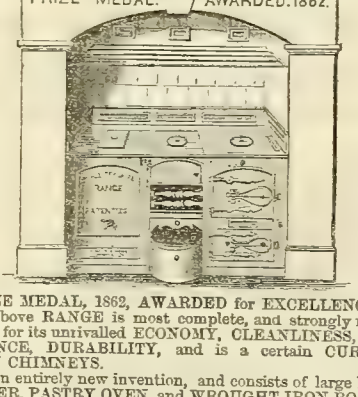


INTERNATIONAL EXHIBITION PRIZE MEDAL WAS AWARDED TO SAYNOR & COOKE FOR SUPERIORITY OF QUALITY IN PRUNING AND BUDDING KNIVES, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

PATENT WORCESTERSHIRE RANGE.



PRIZE MEDAL, 1862, AWARDED for EXCELLENCE.

The above RANGE is most complete, and strongly recommended for its unrivalled ECONOMY, CLEANLINESS, CONVENIENCE, DURABILITY, and is a certain CURE for SMOKY CHIMNEYS.

It is an entirely new invention, and consists of large MEAT ROASTER, PASTRY OVEN, and WROUGHT-IRON BOILER. The top forms a HOT PLATE for BOILING, STEWING, &c. The whole heated by ONE SMALL FIRE. One 5 feet wide is equal to an ordinary Range 8 feet wide.

Extracted from the *London Daily Telegraph*, May 19, 1862.

"INTERNATIONAL EXHIBITION, CLASS 31.

"Of the most recent inventions it should be said that Messrs. JONES & ROWE'S Patent Worcestershire Range has attracted very special attention, and has been commended by the best authorities. A valuable peculiarity of their Ranges is the placing of the OVEN and ROASTER one above the other instead of *side* by *side;* and the ROASTER is constantly replenished with fresh air."

Inventors and Manufacturers, JONES & ROWE, Worcester. Agents for London: BARRON, SON, & WILSON, 436, Strand, W.C.

Illustrated Catalogues, with Testimonials and Prices, forwarded on application.

NOTICE is HEREBY GIVEN, that the COPARTNERSHIP hitherto subsisting between the Undersigned, WILLIAM BRIDGEWATER PAGE & WILLIAM TOOGOOD, as SEED MERCHANTS, at and in the Town and County of the Town of Southampton, under the Firm of "PAGE & TOOGOOD," was this day DISSOLVED by mutual consent. All Debts due and owing to or by the said Copartnership will be received and paid by the said WILLIAM TOOGOOD.

Dated this 30th day of June, 1863.

WILLIAM BRIDGEWATER PAGE.
WILLIAM TOOGOOD.

Oxfordshire Down Rams.

MR. DRUCE begs to inform his friends and the Breeders of Sheep that he has a few SHEARLINGS to DISPOSE OF by Private Contract, and that he will be happy to show them and his flock at any time.

Eynsham, Oxford.—July 18.

To Nurserymen.

FOR SALE, an OLD ESTABLISHED BUSINESS in the County of Surrey, situated close to a first-class Railway Station.

For particulars apply to Messrs. HARRISON, Solicitors, 5, Walbrook, London, E.C.

Broomhall Estate.

TO NURSERYMEN AND OTHERS.

TO BE LET on LEASE, for a term of years, from Michaelmas, 1863, ARABLE and PASTURE LAND, situated in the parish of Windlesham, Surrey, near to the Sunningdale Railway Station, on the Staines and Wokingham Railway, and adjoining the Turnpike Road from Sunningdale Station to Bagshot. The situation is sheltered and the soil well adapted for the growth of Nursery Stock, and particularly of American Plants and Shrubs.

For further particulars apply to the Rev. G. F. REYNER, Bursar, St. John's College, Cambridge; or to Messrs. CLUTTON, 9, Whitehall Place, London, S.W.

TO BE LET, with early possession, NURSERY GROUNDS, situated in Brighton, comprising extensive Ranges of Vineries and Peach Houses, in good bearing condition; large and well-constructed Span-roofed and Lean-to Houses, and Pits for Plants, the whole well heated and ventilated; also a capital Residence for the occupier and Cottages for the men employed on the premises, with extensive Stabling and Coach Houses, which can be readily Let at a good rent.

The Stock, which is large, can be taken at a valuation or a fixed sum as agreed upon. A ready Market for all the produce is at hand, and every facility for carrying on a large Trade in Fruit, Flowers, and Seeds; or a first-rate PARTNER, with Capital, would be accepted, as the occupier is extensively engaged in Landscape Gardening.

Apply by letter to the GARDEN SUPERINTENDENT, Alexandra Park, Tottenham Wood, Hornsey, N.

Sales by Auction.

Periodical Sale of Poultry, Pigeons, Rabbits, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, July 21, at 12 o'Clock precisely, the valuable stud of CARRIER PIGEONS, the property of F. W. Waller, Esq., of Hammersmith, who is compelled through ill health to dispose of the whole of his stock. Amongst them will be found some superior Young Birds bred from the Cock that took Second Prize at Crystal Palace and other Shows last winter. There will also be included in the Sale some good Tumblers, Fantails, &c., from Mr. L. Abbott. Also a capital Lot of POULTRY, comprising the usual varieties from Miss Milward, Messrs. Boghurst, Smith, Brown, Atlee, Cuff, and other well-known Breeders and Exhibitors.

On view the Morning of Sale, and Catalogues had.

Importation of Orchids from Brazil.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, July 28, at half-past 12 o'clock precisely, an Importation of CATTLEYA LEOPOLDII, C. AMETHYSTINA, and LÆLIA PURPURATA in good condition, and for Sale without the least reservation.

On view the Morning of Sale, and Catalogues had.

New Araucarias from Sydney.

A CONSIGNMENT JUST RECEIVED DIRECT, FOR ABSOLUTE SALE.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on TUESDAY, JULY 28, an importation of NEW ARAUCARIAS and other Plants, just arrived per "Light of the Age," from Sydney. Detailed particulars in next Advertisement.

On view the morning of Sale, and Calalogues had.

Tree Ferns from New Zealand.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C. on TUESDAY, July 28, a quantity of NEW ZEALAND TREE FERNS and other Rare and interesting Plants, mostly established and fine Specimens.

On view the Morning of Sale, and Catalogues had.

Shethin, near Tarves, Aberdeenshire.

EXTENSIVE AND IMPORTANT SALE OF SHORTHORNS.

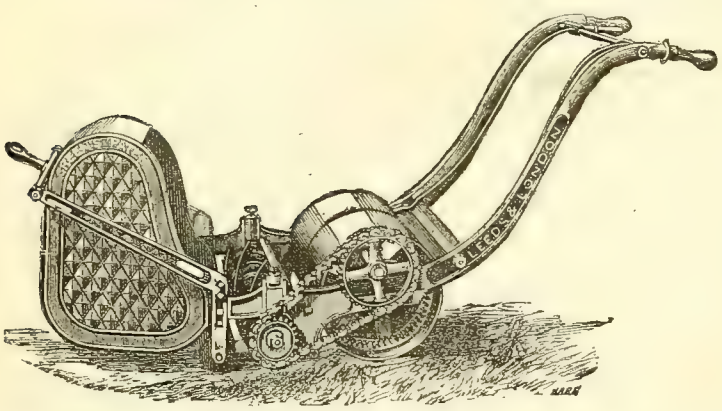
MR. STRAFFORD begs to announce that he is favoured with instructions from Mr. Shepherd, of Shethin, to SELL by AUCTION, without Reserve, on WEDNESDAY, the 29th of JULY NEXT, his Extensive and Valuable HERD of PURE-BRED SHORTHORNS, consisting of upwards of 100 head of Bulls, Cows, and Heifers, which were originally selected by the late Mr. Hay, with great care and skill, from the famed Herds of Capt. Barclay, of Ury; Mr. Bates, of Kirkleavington, and other celebrated Breeders, since which have been used the renowned Bulls Grand Duke (10,284), bred by Mr. Bates; Red Knight (11,976), bred by Mr. John Booth; Bosquet (14,183), bred by Sir C. Knightley; and Cherry Duke 2d (14,265), bred by Mr. Bolden. The Stock have been long and favourably known, and have maintained a distinguished position at the National and Local Shows. They are in a healthy breeding state, and have not been forced for Sale.

Catalogues, with Pedigrees, may be had on application to Mr. SHEPHERD, Shethin; or of Mr. STRAFFORD, 13, Euston Square, London, N.W.

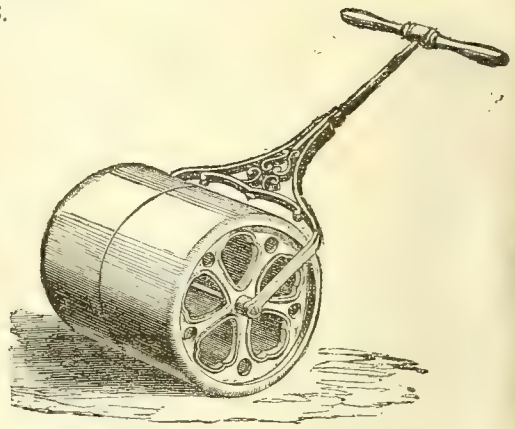
GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWER

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS

DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

The Patentees, after the long experience they have had in the MANUFACTURE of LAWN MOWERS, have come to the conclusion that three things are essential to constitute a real and efficient Implement, namely, Simplicity of Construction, Durability, and General Practicability, and they are glad to be able to state that they have combined the three, and that their Machines are unequalled not merely by giving satisfaction for one or two seasons, but by their long durability.

Upwards of 14,000 of the above Machines have been sold since the year 1856, and thousands of letters have been received by the Patentees testifying to their efficiency. They do not deem it necessary to publish more than the two following :—

TESTIMONIALS.

"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"DEAR SIR,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, GEO. EYLES."

"Royal Gardens, Windsor, March 27, 1863.

"DEAR SIR,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

"To Mr. Green." "Yours very truly, THOMAS INGRAM."

PRICES.

						If with Patent Delivery Box.
To Cut 10 inches	£3	10	0	Suitable for a Lady.		
„ 12 „	5	0	0	Suitable for One Person. If with internal gear, 10s. extra.		
„ 14 „	5	10	0	Do. Do. Do. Do.	10s. extra.	
„ 16 „	6	10	0	Suitable for One Man or Two Boys.		
To Cut 18 inches	£7	10	0	Suitable for One Man and Boy	£8	15 0
„ 20 „	8	0	0	Do. Do.	9	5 0
„ 22 „	8	10	0	Suitable for Two Men	9	17 6
„ 24 „	9	0	0	Do. Do.	10	7 6

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	£12 10 0
„ 26 „	12 10 0	13 12 0
„ 30 „	16 14 0	18 0 0

Leather Boots for Donkey, 16s.; for Pony, 20s.

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	£21 10 0
„ 36 „	23 0 0	24 16 0
„ 42 „	26 0 0	28 2 0
„ 48 „	29 0 0	31 8 0

Leather Boots for Horse, per set, 1l. 4s.

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5s. | Diameter 16 inches, length 17 inches, price £2 10s. | Diameter 24 inches, length 26 inches, price £4 5s.
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

PORTABLE and FIXED STEAM ENGINES; COMBINED THRESHING, SHAKING, and WINNOWING MACHINES;
REAPING and MOWING MACHINES; BONE CRUSHING MILLS; CORN CRUSHING and BEAN SPLITTING MILLS; CHAFF CUTTERS;
TURNIP SHEARS and PULPERS; IMPROVED HAY-MAKING MACHINES, and HORSE RAKES;
CLOD CRUSHERS, and WROUGHT IRON FIELD ROLLERS; PLOUGHS, HARROWS, and CULTIVATORS; VERANDAHS;
PATENT HYDROPULT, and all kinds of GARDEN ENGINES and SYRINGES; GARDEN CHAIRS and TABLES;
ORNAMENTAL FOUNTAINS and VASES; GARDEN TOOLS; PREMIUM CONTINUOUS IRON FENCING and HURDLES;
STRAINED WIRE FENCES, of all kinds; ESPALIER FENCES; GAME-PROOF WIRE NETTING and TRELLIS WORK;
ORNAMENTAL and PLAIN ENTRANCE, WICKET, and FOOTPATH GATES; WROUGHT IRON FIELD GATES; TREE GUARDS;
CATTLE and PIG TROUGHS; SHEEP RACKS; WASHING and WRINGING MACHINES; FIRE-PROOF IRON SAFES; IRON WHEELBARROWS;
IMPROVED IRON STABLE FITTINGS;
and every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;
and MANUFACTURERS of all kinds of IRONWORK for the IMPROVEMENT or EMBELLISHMENT of LANDED PROPERTY.

Illustrated Catalogues on application.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No 11, Bouverie St., in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington St., Parish of St Paul's, Covent Garden, in the said Co.—SATURDAY, July 18, 1863.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspape of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 30.—1863.] SATURDAY, JULY 25. {Price Fivepence. Stamped Edition, 6d.

IN EX.

Alexandra Park fête	701	Hamburg International meeting	706 c
Bees and Heather	701 c	London trees	699 c
Berberis nepalensis	701	Melons	701 b
Books, various	703 b	Mosquitos	703 c
British Columbia, climate of	704 a	Rose Princess of Wales	699 b
Cattell's (Mr.) Roses	703 b	Society, Royal Horticultural	701 b
Darnel	704 a	Strawberries, Yarm	700 a
Engineers, Lives of	702 b	Thujopsis dolabrata	703 c
Fish and Fishing	700 c	Tiptree, meeting at	706 c
Frost in Devonshire	701 a	Trade lists	703 b
— in Yorkshire	701 b	Trees, London	699 c
Grapes, diseased	701 b	Worcester meeting	705 c
Great agricultural meeting	703 c		
Hunters, canine	704 a		

☞ NOTICE TO ADVERTISERS. — *Advertisements should reach the Office by the* THURSDAY *in each week; and they should be written on one side of the paper only.*

ROYAL HORTICULTURAL SOCIETY.—FLORAL COMMITTEE.

LIST OF AWARDS, July 21, 1863.

FIRST-CLASS CERTIFICATES.

CALCEOLARIA BIJOU, from Mr. J. Watson, St. Albans
HELIPTERUM SANDFORDII, from Mr. W. Thompson, Ipswich
PICOTEE LUCY, from Mr. Turner, Slough
HOLLYHOCK ALEX. SHEARER, from Messrs. Downie & Co., Sydenham and Edinburgh

SECOND-CLASS CERTIFICATE.

ACHIMENES MOORII, from Mr. A. Parsons, Welwyn

SPECIAL CERTIFICATE.

Messrs. Downie & Co. a collection of HOLLYHOCKS

The next MEETING of the Committee will take on Aug. 4.

THOS. MOORE, Secretary to the Committee.

Open to all England.

GRAND HORTICULTURAL SHOW to be held at KETTERING on THURSDAY, July 30, in connection with the Northamptonshire Agricultural Society's Show, when Prizes to the amount of 200*l.* will be distributed, including FIVE SILVER CUPS.

The Show Ground adjoins the Midland Railway Station at Kettering. Special Trains will run, of which due notice will be given by the Midland and North-Western Railway Companies.

Schedules, price 3*d.* each, may be obtained of Mr. WADDINGTON, Printer, Kettering.

Vine, Tynninghame Muscat.

ROBERT PARKER begs to offer Plants of this fine variety raised from eyes from the parent plant at 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each. Also various sized plants of all the best varieties. Prices of which will be forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out of all the best kinds. Prices on application.

Highgate Nurseries, London, N.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, now ready for Planting. Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

To Plant Collectors and Others.

B. S. WILLIAMS will be happy to make arrangements with Botanists and others going abroad for the TRANSMISSION of ORCHIDS and other RARE PLANTS in any quantity.

Paradise and Victoria Nurseries, Holloway, London, W.

New Hybrid Mimulus, Cupreus Varieties.

B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, can supply in good plants, Henderson's 10 NEW HYBRID MIMULUS, at 5*s.* the set of 10 varieties.

New Verbenas of 1863.

B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, has now ready to send out the NEW VERBENAS of 1863, at 4*s.* per dozen.

CATALOGUES of VERBENAS and other Novelties sent on application.

ALOCASIA MACRORHIZA VARIEGATA.—Good plants, 10*s.* 6*d.* each.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

Combretum Comosum.

WANTED, 1 or 2 strong plants of the above.—Size and price to

G. H. BUNNEY, Nurseryman, Stratford, E.

NOVELTIES of 1863 at greatly reduced prices.—A CATALOGUE of 30 pages, containing full descriptions of nearly 500 New Choice Plants of the season, including the New Fuchsias and Verbenas, &c. Post free for one stamp.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

DOBSON'S PRIZE PELARGONIUM SEED.—This is the first year of our supplying the public with Seed of our own growth, which has been saved from the most superb Show and Fancy Varieties of the day, and which will be found unequalled for quality. Sealed packets, 2*s.* 6*d.* and 5*s.*

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Agricultural Seeds.

GEORGE GIBBS AND CO. SEEDSMEN, 26, Down Street, Piccadilly, London, W.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Good Turnip Seeds, Carriage Free.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

Best Seeds, Carriage Free.

BUTLER AND MCCULLOCH, SEED MERCHANTS, Covent Garden Market, London, W.C.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.

Dorking Nursery.

Cineraria, Calceolaria, and Primula.

E. G. HENDERSON AND SON offer first-class seed of the above. Also, CINERARIA WEBBI, a new shrubby species, and best English and French Spotted PANSY. Each 1*s.* and 2*s.* 6*d.* per packet.

☞ EXPERIENCED GARDENERS recommended.

Wellington Nursery, St. John's Wood, London, N.W.

The Trade

MAY NOW HAVE QUOTATIONS OF FIRST-CLASS SEED OF CINERARIA, CALCEOLARIA, and PRIMULA, by weight, or otherwise; also of the NEW MIMULUS, hybrids of M. CUPREUS.

E. G. HENDERSON & SON, Wellington Road, London, N.W.

New Hybrid Mimulus.

E. G. HENDERSON AND SON offer Seed of the beautiful new Section, between M. CUPREUS and M. LUTEUS, as now to be seen in the Wellington Nursery, forming an elegant dwarf bedding-plant, and adapted for pot-culture in Conservatories. 1*s.* and 2*s.* 6*d.* per packet.

Wellington Nursery, St. John's Wood, London, N.W.

Cineraria, Calceolaria, and Antirrhinum.

B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, offers SEED of the following, of first-class quality:—CINERARIA, CALCEOLARIA, PRIMULA SINENSIS, ANTIRRHINUM, and PENTSTEMON, at 1*s.* to 2*s* 6*d.* per packet, post free.

British Fern Catalogue.

ROBERT SIM can now send, Post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

CHOICE SEEDS.—CINERARIA, 1*s.* per packet; CALCEOLARIA, 1*s.* do.; PRIMULA, 1*s.* do.; COVENT GARDEN INTERMEDIATE STOCK, 1*s.* do.; MIMULUS, 1*s.* do.; HUNT'S SWEET WILLIAM, 1*s.* do.; CARNATION, 1*s.* do.; PICOTEE, 1*s.* do.; PELARGONIUM, 1*s.* do.

BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

To the Trade.

SCILLA SIBIRICA, strong flowering Bulbs, 40*s.* per thousand.

GEORGE T. FOX, The Nurseries, Wettey Rocks, near Leek.

Calceolaria, Cineraria, and Primula.

F. AND A. SMITH are now sending out their very superior strain of the above, carefully selected from first-class varieties, in Packets at 1*s.*, 1*s.* 6*d.*, and 2*s.* 6*d.* each

The Nurseries, Dulwich, London, S.

The English Lady's Slipper, Cypripedium Calceolus

JAS. BACKHOUSE, AND SON can supply fine strong flowering roots of this rare and handsome BRITISH ORCHIDS. at 12*s.* per dozen; extra strong plants, 21*s.* at per dozen. A liberal allowance to the trade.

York Nurseries, July 25.

STANDARD FUCHSIAS.—A great quantity, 1*s.* 6*d.* and 2*s.* 6*d.* each. BRITISH and FOREIGN FERNS, immense variety. GREEN LIZARDS, SALAMANDERS, LAND and WATER TORTOISE, FOREIGN BIRDS and CAGES, &c.

R. GREEN, 154, Kingsland Road, N.E., and the Bedford Conservatories, Covent Garden Market, W.C.

Herbaceous Calceolaria.

GUARANTEED FINEST QUALITY AND NEW SEED.

WM. CUTBUSH AND SON beg to offer the above, saved with the greatest care from the Stock, which invariably obtains the FIRST PRIZES wherever exhibited. Per packet, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.*, Post-free. Liberal allowance to the Trade.

Highgate Nurseries, London, N.

Paul's Nurseries, Waltham Cross.

WM. PAUL'S ROSES are NOW in FULL BLOOM.

See Advertisement on p. 699.

New Roses of 1863.

E. G. HENDERSON AND SON offer strong healthy plants of the most select kinds at 42*s.* per dozen. The Trade supplied in any quantity.

Wellington Nursery, St. John's Wood, London, N.W.

New Roses for 1863.

BENJAMIN R. CANT offers very fine plants of only the most approved kinds, a DESCRIPTIVE LIST of which may be had on application.

St. John's Street Nursery, Colchester.

New Roses for 1863.

WM. WOOD AND SON are now supplying all the NEW ROSES in splendid Plants at reasonable prices. The leading kinds of PERPETUAL and other ROSES in pots are also offered by the dozen, hundred, or thousand.

Address, Woodlands Nursery, Maresfield, Uckfield, Sussex.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON).—Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7*s.* 6*d.* each, are now ready.

Old Cheshunt Nurseries, Herts.

ROSES, NEW and OLD. CATALOGUES NOW READY.

A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. Those who wish for a fine display of bloom during the present summer and autumn should now give their orders.

CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

Roses.

J. AND J. FRASER, Lea Bridge Road Nurseries, N.E., beg to announce that their ROSES are NOW in BLOOM, and will continue for three or four weeks. The Collection contains many new and fine varieties, and is well worth a visit.

The Nurseries are about five miles from London, and are easily reached by the Great Eastern Railway to Lea Bridge Station.

Roses.

MESSRS. RIVERS AND SON beg to announce that their large COLLECTION of ROSES is NOW in FULL BLOOM. A day may be spent among Roses.

Their ORCHARD HOUSE TREES, particularly APRICOTS, now loaded with fine fruit nearly ripe, are also well worthy of inspection.

The Harlow Station (Great Eastern Railway), where Flys attend, is the most convenient.

Nurseries, Sawbridgeworth, Herts.

"Old" Cheshunt Nurseries, Cheshunt, Herts.

PAUL AND SON have the pleasure to announce that their ROSES are NOW finely in BLOOM, and will continue so throughout July.

Their collection includes the new Roses as well as immense quantities of all the older kinds, and will (in its extent and choice they believe the largest in the kingdom) amply repay a visit.

The OLD Nurseries may be reached by trains from Bishopsgate to Cheshunt Station (within one mile of the nurseries), every one or two hours.

CATALOGUES on application.

Roses on the Manetti Stock.

E. P. FRANCIS announces that he has 20,000 DWARF ROSES on the MANETTI STOCK, NOW in FULL BLOOM, and in the finest state of cultivation. Also a large and extensive Collection of STANDARDS in FULL BLOOM.

Evening and morning are the best times for viewing Roses. Trains direct to Hertford, per Great Eastern Railway, Bishopsgate Station, and Great Northern Railway, King's Cross.

Hertford Nurseries.

American Nurseries, Leytonstone, N.E.

PROTHEROE AND MORRIS beg to announce that their ROSES (which include all the newest and most approved varieties) are NOW in FULL BLOOM, and are well worthy an inspection. The Nurseries are accessible by Railway from Fenchurch and Bishopsgate Street Stations, whence Trains leave 12 times daily to Leytonstone Station, which adjoins the Nurseries.

SWEET WILLIAMS (HUNT'S SUPERB VARIETIES).—The Advertisers having saved a quantity of the above splendid strain, can supply it in 6*d.* and 1*s.* packets, or 2*s.* 6*d.* per oz., post free. The Trade supplied.

E. P. DIXON & SONS, Seedsmen, Hull.

For Present Sowing.

TRIFOLIUM INCARNATUM, TRIFOLIUM, NEW LATE RED.
TRIFOLIUM, NEW LATE WHITE.

New Seed of the above at lowest Market Prices, may be had of SUTTON & SONS, Seed Growers, Reading, Berks.

To Seedsmen, Market Gardeners, and Others.

CABBAGE SEED, in Large or Small Quantities, saved by the late Mr. JAMES NORRIS, of Isleworth, Middlesex, from first-rate sorts in 1861.

For particulars apply to JOHN NORRIS, Sion Hill, Isleworth.

W. VIRGO AND SON have a great quantity of the undermentioned Plants to offer for Sale, at the following prices:—

DRUMHEAD CABBAGE	3*s.* 0*d.* per 1000
DRUMHEAD SAVOY	3 0 "
Red and White Transplanted and strong CELERY	6 8 "

Woneresh, near Guildford.

NEW AND BEAUTIFUL PLANTS FOR 1863.

JAMES VEITCH

Has again the pleasure to submit a very choice selection of NEW and BEAUTIFUL PLANTS, the greater part of which have been introduced by himself through his Son, Mr. JOHN G. VEITCH, from Japan and other parts of the East, and through his Collector, Mr. RICHARD PEARCE, from Chili and Peru—and feels confident that the subjects enumerated will be found fully to sustain the high reputation which his Novelties o previous seasons have gained.

J. V. begs to call particular attention to the SPLENDID NEW JAPANESE LILY, LILIUM AURATUM, which he has no hesitation in describing as one of the FINEST and most ORNAMENTAL PLANTS of recent introduction.

NEW JAPANESE PLANTS.

ABIES ALCOQUIANA (Veitch).

A hardy evergreen tree, discovered by Mr. J. G. Veitch during his interesting trip to the sacred mountain of FUSI-YAMA. At an elevation of 6 to 7000 feet it attains a height of over 100 feet, and forms a tree of majestic appearance.

This fine species, now introduced to our gardens for the first time, belongs to the Spruce Fir Section, and has been most appropriately named after Sir Ruthford Alcock, Her Britannic Majesty's Minister in Japan, through whose kindness Mr. J. G. V. was enabled to visit the celebrated mountain. Fine Seedling plants, price 42*s.* each.

ABIES MICROSPERMA (Lindley).

This very distinct hardy tree was introduced by Mr. J. G. V. from the Island of Jesso, Japan.

It forms a tree of medium height, and is described as one of the finest of the Japanese Abies. Being found in a high latitude, where the thermometer annually falls below zero, no doubt can be entertained of its hardiness. Fine seedling plants, price 42*s.*

ABIES POLITA (Zuccarini).

This perfectly hardy evergreen Conifer was found growing in vast forests in the most northern part of Japan, whence it was introduced by Mr. J. G. Veitch. It attains considerable size, and is in great request and largely used as a timber tree. It is only found growing in the extreme northern part of the Japanese Empire, and no doubt can therefore be entertained of its being perfectly hardy. Price 21*s.* each.

AUCUBA JAPONICA VERA.

As a hardy ornamental evergreen shrub this will doubtless rank as one of the finest of our recent introductions from Japan.

Its dark glossy green foliage, and bunches of scarlet berries, render it a most striking and valuable addition to our shrubberies.

J. V. having been successful in raising a very considerable number of plants from seed sent direct from Japan by Mr. J. G. Veitch, is enabled to offer them at such prices as will at once insure their general distribution throughout the country. Fine seedling plants, price 10*s.* 6*d.* each, or 4*l.* 4*s.* per dozen.

BAMBUSA VARIEGATA.

A very ornamental, variegated species, introduced from Japan, seldom growing more than 15 inches in height.

Its dwarf habit and distinct variegation render it most suitable for forming garden edgings or for pot culture. Price 21*s.* each.

CRYPTOMERIA ELEGANS.

Another of the many fine Coniferæ introduced by Mr. J. G. Veitch from Japan. It forms a tree of rapid growth, with a very elegant and dense habit, and most beautifully glaucus foliage. This plant has been frequently exhibited at the principal metropolitan exhibitions, and has invariably obtained the highest awards. Good plants, price 21*s.* each.

DEUTZIA CRENATA FLORE-PLENO.

A fine double-flowering Deutzia, producing beautiful rose-tinted white flowers. Plants in August, price 10*s.* 6*d.* each.

EUONYMUS JAPONICUS AUREO VARIEGATUS.

A distinct, hardy, handsome, evergreen shrub, with dark green oblong obtuse leaves, having a shining surface, and distinctly marked in the centre with a blotch of bright golden yellow.

It received a medal and commendation at the Royal Horticultural Society's Exhibition, May 27, 1863. Price 10*s.* 6*d.* each.

EUONYMUS JAPONICUS LATIFOLIA ALBO VARIEGATUS.

Another variety of E. Japonicus. It is the finest of all the large-leaved white variegated forms, and will prove a most effective addition to our shrubberies. Price 21*s.* each.

ILEX FORTUNEI.

A hardy evergreen Japanese shrub, with dark glossy green foliage.

The Japanese use this largely as a hedge plant, for which purpose its free growth and close compact habit render it well adapted. Price 21*s.* each.

JUNIPERUS RIGIDA (Lindley).

This exceedingly handsome hardy evergreen shrub was found growing most luxuriantly at a great elevation on the Hakone ridge of mountains by Mr. J. G. Veitch, during his trip to the interior of Japan.

It is described as growing to a height of 15 to 20 feet, and having somewhat pendulous branches thickly studded with light glaucous foliage, giving it at once a very elegant and graceful appearance.

This plant will doubtless prove a very desirable acquisition. Prices 21*s.* each.

LIGULARIA (FARFUGIUM) KŒMPFERI ARGENTEA.

This most striking variegated hardy herbaceous plant was sent from Japan by Mr. J. G. Veitch. In habit it is very similar to the F. Grande, but far surpassing that species in its distinct and regular variegation. Its foliage is of a dark green colour, largely blotched with white.

J. V. can confidently recommend this as a dwarf ornamental plant for pot culture.

It has been shown at the Exhibitions of the Royal Horticultural and Botanic Societies, and awarded Certificates. Price 21*s.* each.

LIGUSTRUM JAPONICUM AUREO VARIEGATUM.

A beautiful variegated variety of the well known Japan Privet, rendered singularly ornamental by its foliage being marked with bright golden blotches.

It was awarded a Prize at the Royal Horticultural Society's Exhibition, June 11, 1862. Price 10*s.* 6*d.* each.

LIGUSTRUM GLABRUM AUREO VARIEGATUM.

Another distinct evergreen species of Japanese Privet. Its foliage is 2 to 2½ inches long, by 1½ inches broad, of a bright glossy green colour, beautifully blotched and marbled with rich yellow.

In habit it is free and bushy, and can be decidedly recommended as one of the most beautiful of Japanese variegated plants. Price 10*s.* 6*d.* each.

LILIUM AURATUM (Lindley).

Of all the Japanese flowering plants which James Veitch has had the pleasure of introducing, this is undoubtedly THE FINEST. No description can exaggerate its beauty; and in annexing an extract from Dr. Lindley's remarks, as published in the *Gardeners' Chronicle* for July, 1862, J. V. would only add, that he confidently recommends this as one of the most beautiful plants he has ever offered.

"First among novelties stood Lilium Auratum, as far superior to other Lilies as an *Equus auratus* to other *Equites*. If ever a flower merited the name of glorious it is this, whether we regard its size, its sweetness, or its exquisite arrangement of colour."

The flower, 8 to 10 inches across, is composed of 6 delicate white ivory parts, each being thickly studded with crimson spots, and having a bright golden band through its centre.

This plant was sent from Japan by Mr. J. G. Veitch in the autumn of 1861, and it affords J. V. much pleasure in being enabled thus early to offer it at the undermentioned low prices.

Last season the then recently imported bulbs produced but one flower on a stem, whereas this year they have borne from three to five flowers each, and there is every reason to believe as the plants gain strength the number of flowers will be increased in proportion.

Good young bulbs	price 21*s.* each.	
,, imported ditto	,, 63*s.* ,,	
Extra strong ditto ditto	,, 105*s.* ,,	

This Lily requires precisely the same treatment as the Lilium lancifolium.

OSMANTHUS ILICIFOLIUS.

A hardy evergreen shrub, with dark green foliage somewhat resembling an English Holly. It bears an abundance of small white flowers. This species and the following varieties rank high among Japanese ornamental shrubs. Price 10*s.* 6*d.* each.

OSMANTHUS ILICIFOLIUS VARIEGATUS.

This beautiful shrub is a variegated form of the preceding, with broad foliage distinctly margined and blotched with white. A very striking and ornamental shrub.

It was awarded a Prize at the Royal Horticultural Society's Exhibition, May, 1862. Price 31*s.* 6*d.* each.

OSMANTHUS ILICIFOLIUS VARIEGATUS NANUS.

In variegation and general aspect this greatly resembles the foregoing variety, although perfectly distinct from it.

Its habit is, however, dwarfer, more dense, and its foliage smaller.

This plant was awarded a first prize at the Royal Horticultural Society's Exhibition for June, 1861, and J. V. recommends it as a valuable addition to ornamental shrubs. Price 21*s.* each.

OSMANTHUS ILICIFOLIUS VARIEGATUS AUREUS.

Another distinct form of this interesting and remarkable genus.

In habit it is in every respect similar to the *Osmanthus ilicifolius*, its foliage being distinctly marked with a beautiful golden margin. Price 21*s.* each.

RAPHIOLEPIS (PHOTINIA) OVATA.

This distinct and ornamental hardy evergreen shrub is strongly recommended as a valuable addition for out-door planting. It was sent from Japan by Mr. J. G. Veitch, who describes it as growing from 8 to 10 feet in height, and forming a very handsome evergreen. Its foliage is *large, ovate*, and of a dark glossy green colour. It also produces spikes of white flowers, 3 to 4 inches in length. Price 21*s.* each.

RETINOSPORA PISIFERA AUREA.

A golden variety, and one of the handsomest of Japanese Conifers. It is of dense habit, and rendered most peculiarly striking and ornamental by its exquisitely fine feathery foliage, and the bright golden hue of its young shoots.

A decided acquisition, which cannot fail to be universally admired. It was awarded a prize at the meeting of the Royal Horticultural Society, May 6, 1862. Price 31*s.* 6*d.*

RHYNCOSPERMUM JASMINOIDES VARIEGATA.

This being a variety of the well-known greenhouse climber, *Rhyncospermum Jasminoides*, little or no description is necessary.

Added to the lovely sweet flowers of the original species, this plant possesses the advantage of having distinct and striking variegated foliage, each leaf being marbled and blotched with pure white.

It was exhibited at the Royal Horticultural Society's Exhibition, July, 1863, and awarded a prize. Price 21*s.* each.

THUJOPSIS LÆTEVIRENS.

An exquisitely beautiful dwarf hardy Coniferous plant, undoubtedly one of the most interesting of the many fine things introduced from Japan by Mr. J. G. Veitch. Its foliage is so fine and delicately marked as greatly to resemble a tree lycopode, for which at first sight it is frequently taken.

The largest specimens of this seen in Japan were from 3 to 4 feet high, in which state they presented a most charming appearance.

It obtained a first prize at the Royal Horticultural Show, May, 21, 1862, and was universally admired by all who saw it. Price 42*s.* each.

THUJOPSIS STANDISHI.

This fine hardy Coniferous tree is apparently midway between a Thujopsis and an Arborvitæ. The most striking feature is the singular beauty of its pendulous habit, which when seen on a plant only a few feet high, renders it exceedingly handsome.

It was sent me from Japan by Mr. J. G. Veitch, and has been awarded prizes at the principal metropolitan exhibitions. Price 42*s.* each.

JAMES VEITCH'S ADVERTISEMENT OF NEW AND BEAUTIFUL PLANTS FOR 1863—(*Continued*).

OTHER JAPANESE PLANTS,

WHICH HAVE BEEN DESCRIBED IN FORMER CATALOGUES.

ABIES FIRMA, one of the finest Japanese Coniferæ, 21*s.* each.
ELÆAGNUS JAPONICUS VARIEGATUS, 10*s.* 6*d.* each.
EUONYMUS RADICANS VARIEGATA, a beautiful dwarf hardy variegated edging plant, 3*s.* 6*d.* each.
EURYA LATIFOLIA VARIEGATA, 21*s.* each.
LONICERA AUREO RETICULATA, fine golden variegated Japanese Honeysuckle, 2*s.* 6*d.* to 3*s.* 6*d.* each.
PINUS DENSIFLORA, 3*s.* 6*d.* each; 30*s.* per dozen.
" KORAIENSIS, 5*s.* each; 42*s.* per dozen.
RETINOSPORA LYCOPODIOIDES, 21*s.* each.
" OBTUSA } Two of the most beautiful and elegant of hardy Japanese
" PISIFERA } Coniferæ, 5*s.* each; 42*s.* per dozen.
SANSEVERIA CARNEA VARIEGATA, a beautiful dwarf variegated plant, 5*s.* each.
SCIADOPITYS VERTICELLATA, the celebrated Umbrella Pine of Japan, and undoubtedly one of the finest of Conifers. 1st size seedlings, 10*s.* 6*d.* each; 2d size, 5*s.* each.
SEDUM CARNEA VARIEGATA, 2*s.* 6*d.* each.
THUJOPSIS DOLABRATA, 7*s.* 6*d.*, 10*s.* 6*d.* to 21*s.* each. } Two exceedingly ornamental
" " VARIEGATA, 21*s.* each. } and perfectly hardy plants.
THUJA FALCATA, 3*s.* 6*d.* each.
" PYGMEA, a most beautiful dwarf species, 21*s.* each.

JAPANESE FERNS.

CHEILANTHES MYSURENSIS, 5*s.*
LASTREA OPACA, 3*s.* 6*d.*
MICROLEPIA STRIGOSA, 3*s.* 6*d.*
POLYSTICHUM SETOSUM, 3*s.* 6*d.*
WOODSIA POLYSTICHOIDES, var. VEITCHI, 5*s.*
WOODWARDIA JAPONICA, 10*s.* 6*d.*
" ORIENTALIS, 10*s.* 6*d.*

JAPANESE CHRYSANTHEMUMS.

BRONZE DRAGON
GRANDIFLORUM
JAPONICUM
LASCINIATUM
ROSEUM PUNCTATUM
STRIATUM
YELLOW DRAGON

} Seven most beautiful Japanese varieties, perfectly distinct in form from all others in cultivation, 7*s.* 6*d.* each; or the set for 35*s.*

MISCELLANEOUS NEW PLANTS (NOT JAPANESE).

ALOCASIA ZEBRINA.

This, one of the most remarkable and beautiful foliaged plants ever introduced, was sent by Mr. John G. Veitch from the Philippine Islands.
Its leaf-stalks, which are upwards of 2 feet in length, present a most striking appearance; they are of a pale yellow colour, marbled in the most distinct manner with dark green.
The leaves are large, of a velvety green colour, and having the sagittate form peculiar to this family.
It was exhibited before the Royal Horticultural Society, June 11, 1862, and again on April 16, 1863, and was awarded a first prize on each occasion. Price 63*s.* and 105*s.* each.

AGLÆONEMA COMMUTATUM (Schott).

An Aroid found in the interior of Luzon, Philippine Islands, from whence it was sent me by Mr. J. G. Veitch.
It forms an ornamental shrub, growing about 2 feet in height, and producing large oblong ovate acuminate leaves, of a dark glossy green, flaked with creamy white and light green.
A desirable addition to our collections of variegated-foliaged plants. Price 21*s.* each.

ASPLENIUM CONSIMILE.

A well marked coriaceous-fronded hardy Fern, introduced by Mr. Pearce from Chili.
It is a dwarf, tufted species, with pinnated deep green fronds, which rise from a dense crown of brownish semi-transparent scales, and are remarkable for their thick enduring texture. This plant can be recommended as a very useful hardy Fern. Price 7*s.* 6*d.* each.

AZALEA INDICA, IMPERIALIS.

A bright rosy scarlet flower, of immense size, superior texture, and perfect form.
It is very vigorous in habit, and possesses the double advantage of being a free and very late bloomer. Whether regarded as a variety suitable for Exhibition purposes, or for general decoration, this is undoubtedly one of the finest Azaleas ever offered. Price 31*s.* 6*d.* each.

AZALEA INDICA, LE LION DE FLANDRES.

A large finely-formed flower, of salmon-red colour, distinctly marked with dark spots on the upper petals.
It is a most abundant bloomer, of a very robust and compact habit, and a fine variety for exhibition. Price 21*s.* each.

AZALEA INDICA VIRGINALIS.

A pure crystal white flower, of excellent form and substance, and most effectively crisped round the edge.
It is of free and robust habit, and can be recommended as being a desirable acquisition to the class of white Azaleas. Price 21*s.* each. Or the Set of Three Plants for 63*s.*

The above Azaleas were selected from among many others as being the three best varieties exhibited at the Great Quinquennial Exhibition of Belgium, held at Ghent in 1862, and the two first named were then awarded the First and Second Prizes respectively.

These three Azaleas will not be ready for sale until October 1st next.

CALCEOLARIA ERICOIDES.

This beautiful hardy herbaceous plant was discovered by our collector Mr. Pearce, on mountains of considerable elevation, near Cuenca, Equador.
It is one of the most distinct of its genus. In habit and foliage it strongly resembles a free-growing Erica, and produces long spikes of bright yellow flowers in great abundance.
This plant was awarded a prize at the Exhibition of the Royal Horticultural Society, September 10, 1862, and was also most favourably noticed in the *Gardeners' Chronicle*, about the same date. Price 7*s.* 6*d.* each.

CALCEOLARIA PLANTAGINEA.

Another of Mr. Pearce's South American introductions.
It was found growing near the line of perpetual snow on the Andes of Chili, and can be confidently recommended as a perfectly hardy herbaceous plant.
It is of very dwarf compact habit, with large glossy green foliage, and produces spikes of large globular bright yellow flowers. Having passed the last three winters in the open ground without the slightest protection, no doubt can be entertained of its being perfectly hardy.
It was awarded a Prize at a Meeting of the Royal Horticultural Society, May 21, 1862. Price 5*s.* each.

ERANTHEMUM RUBROVENIUM.

This really beautiful little plant was sent me from Peru by Mr. Pearce.
In general appearance it resembles an Anæcrochilus, is of a very dwarf trailing habit, having all its leaves thickly veined and netted with deep pink. It is of very free growth and easy culture, and will without doubt be a great favourite.
It was awarded a Medal at the First Grand Show of the Royal Horticultural Society this season. Price 31*s.* 6*d.* each.

HIBISCUS COOPERI.

A very beautiful plant, introduced from New South Wales by Sir Daniel Cooper, Bart., after whom it is named.
It forms a shrub of dense habit, producing large scarlet flowers and tricoloured foliage of great beauty.
The leaves are of a bright green colour, distinctly striped and flaked with crimson and white; and the various shades of colour produced by the foliage, as it assumes different stages of growth, gives it a very pleasing and attractive appearance.
Its free growth and beautiful foliage render it a plant that can be strongly recommended for decorative purposes generally.
It received a Prize at the Meeting of the Royal Horticultural Society, February 25, 1863. Price 10*s.* 6*d.* each.

LILIUM NEILGHERIENSE.

This is a fine species of the longiflorum section, flowering most freely on stems from 12 to 15 inches in height. When first open it is of a warm cream colour, changing as the flower progresses to a pure white. It is, as the name intimates, from the Neilgherry Hills, where it grows at a very great elevation.
It requires the same treatment as the Japan Lilies. Strong Bulbs, 31*s.* 6*d.* each. Smaller Bulbs, 10*s.* 6*d.* each.

LOMARIA GIBBA.

This, which is one of the most beautiful of the Lomarias, was introduced from New Caledonia by Sir Daniel Cooper, Bart., by whom it was presented to me. It has been exhibited at the Exhibitions of 1862 and 1863; at which it has been awarded a First Prize by the Royal Horticultural Society, and a First Class Certificate by the Royal Botanic Society.
The Plant forms a stout erect elevated caudex, which is said to grow 2 or 3 feet high, and from the centre of which the head of erect gracefully-arching fronds, about 2 feet in length, spread out equally on all sides.
The fertile fronds grow up in the centre, and differ chiefly in the narrow soriferous pinnæ and segments.
This is one of the most desirable recently introduced hardy greenhouse ferns. Price 10*s.* 6*d.* each.

MICONIA PULVERULENTA.

This fine bold habited stove shrub, was introduced from Peru by Mr. Pearce. It attains a height of from 3 to 4 feet, being furnished with elliptic rugose dark green leaves 12 to 15 inches long, marked by a broad central silvery bar, the terete stem and the surface of the leaves being hairy.
The flowers are white, succeeded by bunches of red berries.
Both in a young state and as a specimen, this plant has been proved to be a most desirable addition to the class of ornamental foliaged plants.
It has been frequently exhibited during the present season, and awarded numerous Prizes. Price 21*s.* each.

MUTISIA DECURRENS.

This most beautiful climber was discovered by Mr. Richard Pearce, at an elevation of 6000 feet, on the sunny sides of the mountains of Valdivia; and having withstood the past three winters in the open ground without the slightest protection, may be pronounced perfectly hardy.
The flowers, which are produced in great abundance, and measure from 3 to 4 inches across, are of a most beautiful orange-scarlet colour, each flower remaining for a period of nearly three weeks in bloom.
It is almost impossible to give a correct description of the magnificence of this plant when seen in full bloom. It must be seen to be justly appreciated.
It was exhibited at a Meeting of the Royal Horticultural Society, August 18, 1861, when it was awarded a First Class Certificate; and has also been figured in the "Botanical Magazine" for October 1, 1861. Price 21*s.* each.

OURISIA PEARCEI.

A new, beautiful, and perfectly hardy herbaceous plant, introduced from Chili by Mr. Pearce, after whom it has been named by Dr. Philippi.
It has dark red stems and leaf stalks. The leaves are flat, ovate, and crenated, and the flowers, which are produced in abundance on erect and elegant stems about a foot in height, are of a bright crimson colour, with distinct blood red markings on the lip.
In general features it somewhat resembles Ourisia coccinea, but far exceeds that species in the beauty of its appearance.
This cannot fail to be greatly admired as a hardy herbaceous plant.
It was exhibited at a meeting of the Royal Horticultural Society, May 21, 1862, and awarded a First Class Certificate; it is also figured in the "Floral Magazine" for July 1863. Price 7*s.* 6*d.* each.

POURETTIA PUNGENS.

A hardy greenhouse Bromeliaceous plant, introduced from Chili.
It produces erect spikes, 1 to 2 feet in length, of bright scarlet flowers in great abundance. Its habit is dwarf, with pointed radical leaves, the upper of which are pinnate and spiny.
A most promising free flowering plant for conservatory decoration. Price 10*s.* 6*d.* each.

SARMIENTA REPENS.

An exceedingly pretty Chilian plant, of dwarf trailing habit, introduced by Mr. Pearce.
It has fleshy light green oblong convex leaves, about an inch long, with numerous beautiful drooping tubular scarlet flowers, reminding one of Mitraria coccinea.
Its pendulous habit and showy flowers render this a most desirable plant for filling suspending baskets.
It was exhibited at the Royal Horticultural Society's Exhibition, May 21, 1862, and awarded a Silver Knightian Medal. Price 15*s.* each.

SPHÆROGYNE LATIFOLIA.

A plant of truly noble aspect. In habit it somewhat resembles the far-famed Cyanophyllum magnificum; but whilst being perfectly equal to that species in the magnificence of its foliage, it far surpasses it in habit and the general beauty of its appearance.
The stem and leaf-stalks are red and thickly covered with reversed hairs. Its magnificent ovate leaves are of a rich velvety olive-green colour on the upper surface, and of a beautiful red underneath.
J. V. has no hesitation in confidently recommending this plant as a really first-class novelty, and one of the finest of the season.
It was awarded a First Prize at a Meeting of the Royal Horticultural Society, May 21, 1862. Price 63*s.* each.

STENOGASTRA MULTIFLORA.

A pretty dwarf-tufted stove plant, having roundish, ovate, crenate leaves, purplish on the under side, and from the axils of which it produces immense numbers of reddish-lilac tubular flowers.
Like Stenogastra concinna (from which it is a hybrid) in remains in bloom 10 months out of the 12, and being of free and easy growth, is peculiarly suited for cultivation in plant cases and under glass shades in rooms.
It was awarded a Bronze Medal at the Meeting of the Royal Horticultural Society, May 21, 1862. Price 7*s.* 6*d.* each.

THIBAUDIA MACRANTHA.

This very remarkable and beautiful shrub was introduced from Moulmein by Mr. Thomas Lobb.
It requires warm greenhouse treatment, producing in abundance its large blush-coloured drooping flask-shaped flowers, marked with transverse wavy V-shaped red lines. The texture and marking of this striking flower give it a strong resemblance to some handsome piece of china or porcelain.
The leaves are of dark green colour, lanceolate and entire.
It was awarded a First Class Certificate at the Royal Horticultural Society's Meeting, December, 1860. Price 10*s.* 6*d.* each.

The usual discount to the Trade. *Plants are now ready for delivery.*

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

Imported Orchids.

B. S. WILLIAMS has just received a fine importation of the following ORCHIDS:—
LYCASTE SKINNERI | CATTLEYA MOSSIÆ
CATTLEYA SUPERBA
GALEANDRA DEVONIANA, a choice and rare plant, finest of the genus.
Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Choice Seeds.

B. S. WILLIAMS begs to offer First-class quality of the undermentioned SEEDS:—

PRIMULA SINENSIS FIMBRIATA, Red,	Per packet.		
White or Mixed	2s. 0d.	3s. 6d.	
CALCEOLARIA, herbaceous	1 6	2 6	
CINERARIA, from choice named flowers	1 6	2 6	
PANSY, very choice	0 6	1 0	

Paradise and Victoria Nurseries, Holloway, London, N.

WHEELER'S CELEBRATED CALCEOLARIA is of the finest strain, and unsurpassed for colours and quality. Seed now ready, at 1s., 1s. 6d., and 2s. 6d. per packet.
CINERARIA, fine, 1s. per packet.
DELPHINIUMS, from fine perennial kinds, 6d., 1s., and 1s. 6d. per packet.
GEORGE WHEELER, Nurseryman, Warminster, Wilts.

Dutch Bulbs, &c.

LOUIS VAN HOUTTE'S new BULB CATALOGUE, No. 97, is to be had at Messrs. R. SILBERRAD & SON'S Office, 5, Harp Lane, Great Tower Street, London, E.C.
N.B. The LILIUM, GLADIOLUS, and other tribes now in Full Bloom are of course not ready and not included in No. 97; they will be found in No. 98, now in preparation.
Ghent, July 25.

Dutch Bulbs.

E. H. KRELAGE AND SON, FLORISTS and SEEDSMEN, of Haarlem, Holland, beg to announce to the Trade only, that their NEW WHOLESALE CATALOGUE of BULBS has been sent to their Correspondents, and will be addressed to Seedsmen and Florists on prepaid application. This Catalogue forms their Trade Circular for June, and contains principally Hyacinths, Tulips, Crocuses, Narcissus, Anemones, Ranunculus, Fritillaria, Lilium, Iris, &c., with prices per dozen, 100, 1000, or upwards.

Camellias and Indian Azaleas, with Flower Buds.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to remind his friends who patronise him with their confidence, that they should send this season their orders in early for CAMELLIAS, with flower buds, in order they may be well served, as the prospect of flower is now very abundant.
CAMELLIAS, with flower buds, 5l. to 6l. per hundred.
INDIAN AZALEAS, with flower buds, 4l. to 5l. per hundred.
THE NEW HARDY RHODODENDRON AUGUSTE VAN GEERT.—This extraordinary variety will be sent out on the 1st of September, it is the largest bouquet of its class, of which the flower has been seen by many of the leading nurserymen and amateurs in England and on the Continent. A drawing will be sent on application.
Price of Plants free to London, 7s. 6d. to 21s. each. One over for every three taken. Early orders solicited.
A. VAN GEERT, Nurseryman, Ghent, Belgium.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement."

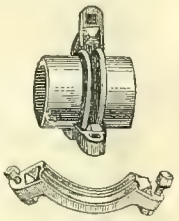
They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.





T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	8 17 6	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

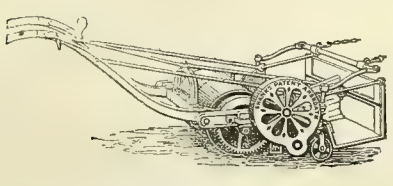
Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

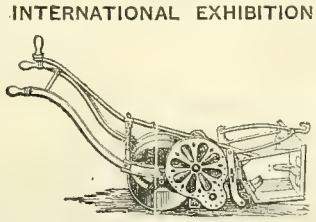
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

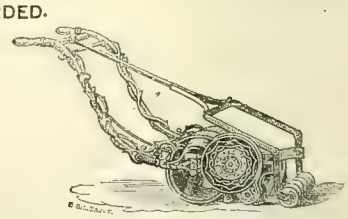
WITH SILENT MOVEMENT IF SPECIALLY DESIRED.
FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine	£28 0 0	40s. extra.
No. 2.—42-inch Machine	26 0 0	40s. „
No. 3.—36-inch Machine	22 0 0	30s. „
No. 4.—30-inch Machine	19 0 0	30s. „

Silent Movement, 20s. extra; Boots for Horse's Feet, 24s. per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine	£15 15 0	30s. extra.
No. 6.—28-inch Machine	14 10 0	30s. „
No. 7.—25-inch Machine	12 10 0	25s. „

Silent Movement, 12s. 6d. extra; Boots for Pony, 21s. per set; ditto for Donkey, 16s. per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25s. extra; Silent Movement, 7s. 6d. extra.
No. 16.—12-inch Machine, for pushing only, £5 5s. Easily worked by a Lady or a Boy; Silent Movement, 4s. extra.
*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

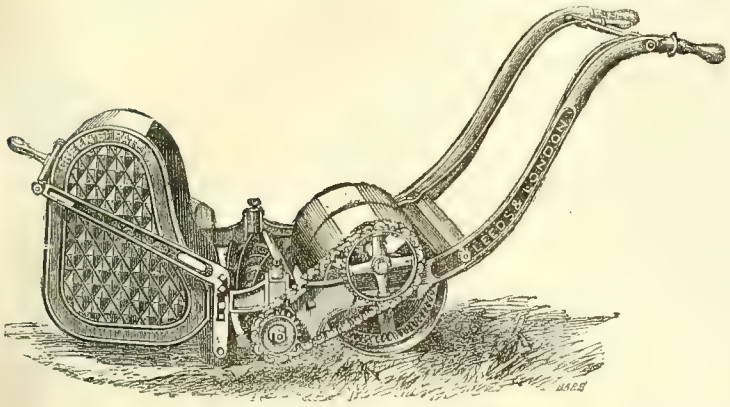
PATENTEES AND SOLE MANUFACTURERS:
ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.
LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

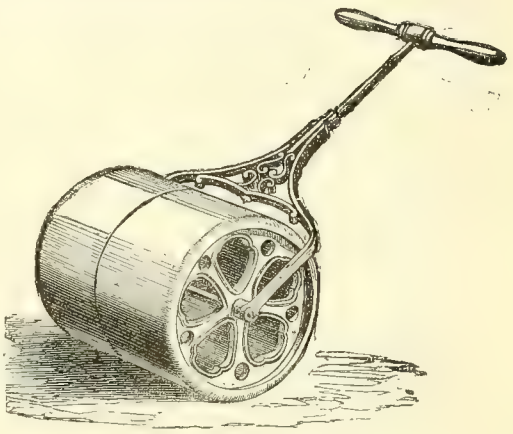
GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS,

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS

DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

The Patentees, after the long experience they have had in the MANUFACTURE of LAWN MOWERS, have come to the conclusion that three things are essential to constitute a real and efficient Implement, namely, Simplicity of Construction, Durability, and General Practicability, and they are glad to be able to state that they have combined the three, and that their Machines are unequalled not merely by giving satisfaction for one or two seasons, but by their long durability.

Upwards of 14,000 of the above Machines have been sold since the year 1856, and thousands of letters have been received by the Patentees testifying to their efficiency. They do not deem it necessary to publish more than the two following :—

TESTIMONIALS.

"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"DEAR SIR,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, GEO. EYLES."

"Royal Gardens, Windsor, March 27, 1863.

"DEAR SIR,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

"To Mr. Green." "Yours very truly, THOMAS INGRAM."

PRICES.

To Cut 10 inches	£3	10	0	Suitable for a Lady.	
„ 12 „	5	0	0	Suitable for One Person.	If with internal gear, 10s. extra.
„ 14 „	5	10	0	Do.	Do. Do. Do. 10s. extra.
„ 16 „	6	10	0	Suitable for One Man or Two Boys.	

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	£12 10 0
„ 26 „	12 10 0	13 12 0
„ 30 „	16 14 0	18 0 0

Leather Boots for Donkey, 16s.; for Pony, 20s.

						If with Patent Delivery Box.
To Cut 18 inches	...	£7	10	0	Suitable for One Man and Boy	£8 15 0
„ 20 „	...	8	0	0	Do. Do.	... 9 5 0
„ 22 „	...	8	10	0	Suitable for Two Men	... 9 17 6
„ 24 „	...	9	0	0	Do. Do.	... 10 7 6

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	... £21 10 0
„ 36 „	23 0 0	... 24 16 0
„ 42 „	26 0 0	... 28 2 0
„ 48 „	29 0 0	... 31 8 0

Leather Boots for Horse, per set, 1*l.* 4*s.*

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5*s.* | Diameter 16 inches, length 17 inches, price £2 10*s.* | Diameter 24 inches, length 26 inches, price £4 5*s.*
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

PORTABLE and FIXED STEAM ENGINES; COMBINED THRESHING, SHAKING, and WINNOWING MACHINES;
REAPING and MOWING MACHINES; BONE CRUSHING MILLS; CORN CRUSHING and BEAN SPLITTING MILLS; CHAFF CUTTERS;
TURNIP SHEARS and PULPERS; IMPROVED HAY-MAKING MACHINES, and HORSE RAKES;
CLOD CRUSHERS, and WROUGHT IRON FIELD ROLLERS; PLOUGHS, HARROWS, and CULTIVATORS; VERANDAHS;
PATENT HYDROPULT, and all kinds of GARDEN ENGINES and SYRINGES; GARDEN CHAIRS and TABLES;
ORNAMENTAL FOUNTAINS and VASES; GARDEN TOOLS; PREMIUM CONTINUOUS IRON FENCING and HURDLES;
STRAINED WIRE FENCES, of all kinds; ESPALIER FENCES; GAME-PROOF WIRE NETTING and TRELLIS WORK;
ORNAMENTAL and PLAIN ENTRANCE, WICKET, and FOOTPATH GATES; WROUGHT IRON FIELD GATES; TREE GUARDS;
CATTLE and PIG TROUGHS; SHEEP RACKS; WASHING and WRINGING MACHINES; FIRE-PROOF IRON SAFES; IRON WHEELBARROWS;
IMPROVED IRON STABLE FITTINGS;
and every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;
and MANUFACTURERS of all kinds of IRONWORK for the IMPROVEMENT or EMBELLISHMENT of LANDED PROPERTY.

Illustrated Catalogues on application.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

TAN GRATIS, in the immediate neighbourhood of Covent Garden Market.

Apply at WILLIAM ESSEX & SON, 28, Stanhope Street, Clare Market, W.C.

The only Certain Remedy for Mildew.

JOHN BELL'S COMPOSITION for DESTROYING MILDEW on Vines, Peaches, Nectarines, Roses, and every other Plant subject to that pest, is proved to be the most efficacious that has ever been offered. Sold in Bottles at 1s. 6d., 2s. 6d., and 5s. each. A 1s. 6d. Bottle will make 12 gallons fit for use.

Seed Warehouse, 10 & 11, Exchange Street, Norwich.

The Gardener's Friend v. the Gardener's Enemy.

This celebrated Trial has been decided unanimously in favour of

FORDHAM'S INVINCIBLE "OLD VIRGINIA SHORTS."—The Greenfly and other Greenhouse and Garden Pests speedily annihilated at one-sixth of the cost of ordinary Tobacco Paper.

Samples of 7lb. and upwards sent free to any Railway Station at 3s. per lb. on receipt of Post-office Order, payable to JOHN FORDHAM, at the W. C. Office.

Factory, 78, Little Queen Street, High Holborn, W.C.

N.B. ½lb. of Shorts equal to 6lb. of the Paper.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

The Old Established Royal South Hants Seed Establishment.

PAGE'S BLIGHT COMPOSITION.—None genuine except that sent from this Establishment, or sold by the accredited Agents of

BRIDGEWATER PAGE, Seed Grower and Merchant, 37 and 38, Oxford Street, Southampton.

Seeing a statement in the paper from my late Partner (of five years standing), to the effect that I was unable to make the above Composition, I leave it open to public opinion to judge of the correctness of such assertion. BRIDGEWATER PAGE.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1s. and 2s. per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1s. per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from one to two ounces to the gallon of water is recommended for growing Plants; one from 4 to 16 ounces for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).



TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850 has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, writing a few days since, say:—"Please send us 10 gallons of Blight Composition, as quickly as possible. We tried 'Gishurst' last year, but it would not do like the Composition."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed JOHN MORLEY.
HENRY DREW.
HENRY SHEERMAN.
GEORGE ISAACS.'

"July 13, 1863."

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, 58, Above Bar, Southampton.

"The President announces to the country that the news from the army of the Potomac up to 10 P.M. of the 3d inst. is such as to cover that army with the highest honour, and promises a great success to the cause of the Union, and to claim the condolence of all for the many gallant fallen, and he especially desires that on this day He whose will, not ours, should ever be done, be remembered and reverenced with the profoundest gratitude."

ALEXANDRA PARK COMPANY.

HORTICULTURAL FETE.

AWARD OF PRIZES FOR FLOWERS AND FRUIT.

12 STOVE and GREENHOUSE PLANTS.
1st, Mr. T. Gilbert., Gr. to E. L. M'Murdo, Esq., Castle Down House, Hastings
2d, Mr. G. Wheeler, Gr. to J. Phillpott, Esq., Stamford Hill
3d, Mr. Kaill, Gr. to Earl Lovelace, Ripley, Surrey

8 STOVE and GREENHOUSE PLANTS.
1st, Messrs. J. & J. Fraser, Lee Bridge Road
2d, O. Rhodes, Sydenham Park, Kent

6 STOVE and GREENHOUSE PLANTS.
1st, Mr. H. Chillman, Gr. to Mrs. Smith, Epsom, Surrey
2d, Mr. R. Baxendine, Gr. to Mr. Smallpiece, Guildford, Surrey
3d., Mr. D. Donald, Gr. to G. Barclay, Esq., Leyton, Essex

COLLECTION of STOVE and GREENHOUSE PLANTS.
1st, Messrs. A. Henderson & Co., Edgware Road
2d, Mr. B. S. Williams, Holloway
3d, Messrs. J. & C. Lee, Hammersmith

10 CAPE HEATHS.
1st, Messrs T. Jackson & Son, Kingston, Surrey
2d, Mr. O. Rhodes, Sydenham
3d, Messrs. J. & J. Fraser, Lee Bridge Road
4th, Mr. G. Wilson, Havant, Hants

8 CAPE HEATHS.
1st, Mr. T. Gilbert, Gr. Hastings
2d, Mr. G. Wheeler, Gr. Stamford Hill
3d, Mr. H. Chillman, Gr. Epsom
4th, Mr. G. Young, Gr. to Mr. H. Stone, Esq., Havant, Hants

6 CAPE HEATHS.
1st, Messrs. J. & C. Lee, Hammersmith
2d, O. Rhodes, Sydenham
3d, C. Smith, Gr. to A. Henderson, Esq., Norwood, Surrey
4th, Mr. H. Chilman, Gr. Epsom

8 BEGONIAS.
1st, Mr. Bigg, Gr. to Alderman Waterloo, Highgate
2d, Mr. Shepherd, Gr. to E. G. Moore, Esq., Fetcham, Surrey
3d, Mr. W. Young, Gr. to R. Barclay, Esq., West Hill, Highgate
4th, Mr. T. Smith, Gr. to S. Hickson, Esq., Hornsey Lane, Highgate

12 FOLIAGE PLANTS.
1st, Messrs. J. & C. Lee, Hammersmith
2d, Mr. B. L. Williams, Holloway
3d, Messrs. A. Henderson, Edgware Road

10 FOLIAGE PLANTS.
1st, Mr. W. Taylor, Gr. to G. Yeates, Esq., Highgate
2d, Mr. W. Young, Gr. to R. Barclay, Esq., Highgate
3d, Mr. D. Donald, Gr. Leyton, Essex
4th, Mr. J. Wheeler, Gr. Stamford Hill

15 EXOTIC ORCHIDS.
1st, Mr. G. Young, Gr. Leigh Park, Havant

8 EXOTIC ORCHIDS.
1st, Mr. B. S. Williams, Holloway
2d, Mr. S. Woolley, Cheshunt, Herts
3d, Messrs. T. Jackson, Kingston, Surrey

8 EXOTIC ORCHIDS (Amateurs).
1st, Mr. H. Chilman, Gr., Epsom, Surrey.

12 EXOTIC FERNS.
1st, B. S. Williams, Holloway
2d, Mr. S. Woolley, Cheshunt
3d, Mr. E. Henderson, Edgware Road

10 EXOTIC FERNS.
1st, Mr. W. Young, Gr. Highgate
2d, Mr. Taylor, Gr. Highgate
3d, Mr. T. Gilbert, Gr. Hastings
4th, Mr. H. Lavey, Gr. to E. A. De Graves, Fetcham, Surrey

6 TREE FERNS.
1st, Mr. B. S. Williams, Holloway
2d, Messrs. J. & C. Lee, Hammersmith

3 GARDEN VASES.
1st, Messrs. A. Henderson, Edgware Road
2d, Mr. B. S. Williams, Holloway
3d, Mr. W. Young, Gr., Highgate
4th, Messrs. Cutbush & Son, Highgate

50 ROSES.
1st, Mr. G. Keynes, Salisbury
2d, Messrs. Paul & Son, Old Nursery, Cheshunt
3d, Mr. E. P. Francis, Hertford
4th, Messrs. J. & J. Fraser, Lea Bridge Road

50 ROSES (Amateurs).
1st, Mr. W. Corp, Salisbury
2d, Mr. J. P. Perry, Esq.

24 ROSES.
1st, Mr. W. Corp, Salisbury
2d, Mr. J. C. Perry, Birmingham
3d, Mr. D. Weymouth, near Bristol

24 CUT FLOWERS.
1st, Mr. G. Young, Gr. to W. H. Stone, Esq., Leyton Park
2d, Mr. B. S. Williams, Holloway
3d, Mr. W. Monk, Tottenham
4th, Mr. Bigg

36 PANSIES.
1st, Messrs. Downie, Laird, & Laing, Nurserymen, Norwood, Sydenham
2d, Mr. John Fraser, Belmont, near Edinburgh
3d, Mr. H. T. Hooper, Widcombe Hill, near Bath
4th, Mr. R. W. Bragg, Nurseryman, Slough
Extra, Mr. E. Shenton, Nurseryman, Hendon

COLLECTION OF FRUIT.
1st, Mr. Charles Turner, Nurseryman, Slough, Bucks
2d, Mr. A. Henderson, Gr. to the Duke of Sutherland, Trentham Hall, Staffordshire
2d, Mr. Geo. Young, Gr. Havant
3d, Mr. J. Case, Gr. to S. L. Hines, Esq., Byfleet Lodge, Surrey.

COLLECTION OF 4 PINE APPLES.
1st, Mr. Thos. Young, Gr. to C. Bayley, Esq., M.P., Ebryman Park, Aberdare, Glamorgan
2d, A. Henderson, Gr. Trentham
3d, Mr. C. Penny, Gr. to H. H. Gibbs, Esq., St. Dunstan's Regents' Park
4th, Mr. Thos. Dawson, Gr. to Earl Cowper, Penshanger, Herts

3 HANGING BASKETS.
1st, Messrs. W. Cutbush & Son, Highgate
2d, Mr. B. L. Williams, Holloway
3d, Messrs. A. Henderson & Son, Edgeware Road
4th, Mr. W. Young, Gr., Highgate

3 GROUPS for DINING DECORATIONS.
1st, Messrs. W. Cutbush & Son, Highgate
2d, Mr. Catleugh, Chelsea
3d, Mr. Wilkinson, Park Cottage, Finchley

6 FUCHSIAS.
1st (withheld).
2d, Henry Bartholomew, Gr. to R. Marshall, Esq., Muswell Hill, Hornsey
3d, George Taylor, Gr. to C. A. Hanbury, Esq., Belmont House, East Barnet, Herts
4th, Mr. Cleall, Nurseryman, Hornsey
Extra, Mr. E. Shenton, Nurseryman, Hendon

6 STANDARDS.
3d, Mr. Mathew Cleall, Nurseryman

6 SCARLET GERANIUMS.
1st, Thomas Duke, Gr. to T. Duckworth, Esq., Finchley
2d, Mr. Windsor, Gr. to Mrs. Crawley, Hampstead, Highgate
3d, H. Lang, Esq.
4th, Mr. W. Young, Gr., Highgate

10 GLOXINIAS.
1st, Mr. G. Taylor
2d, Messrs. Jackson & Co, Kingston
3d, Mr. W. Sutton, Gr. to Lieut.-Col. Geakes, Winchester Hall, Highgate

10 ACHIMENES.
1st, Mr. W. Monk, Gr. to John Drewett, Esq., The Cedars, Tottenham
2d, Mr. Geo. Uzzell, Gr. to the Duchess of Northumberland, Twickenham
3d, Mr. Geo. Taylor, Gr.
4th, Mr. G. Fox, Gr. to R. Gibbs, Esq., Southampton Villa, Highgate

100 ROSES.
1st, John Keynes, Nurseryman, Salisbury
2d, Messrs. Paul & Son, Old Nursery, Cheshunt, Herts
3d, Mr. W. Paul, Nurseryman, Waltham Cross
4th, Mr. E. P. Francis, Nurseryman, Kent

GREEN-FLESH MELON.
1st, Mr. G. Rutland, Garston Castle, Hereford, and Gr. to Captain Peploe
2d, Mr. W. Monk
3d, Mr. C. Turner, Slough

SCARLET-FLESHED MELON.
1st, Mr. G. Stanley, Gr. to R. Munt, Esq., Page Green, Tottenham.
3d, Mr. W. Monk, Tottenham

PINES IN POTS.
1st, Messrs. J. & C. Lee, Hammersmith
2d, Messrs. H. Lane & Son, Berkhampstead

FRUIT TREES IN POTS.
1st, Messrs. H. Lane & Son, Berkhampstead
2d, Messrs. J. & J. Fraser, Leyton
3d, Mr. W. W. Kaile, Ripley, Surrey

MISCELLANEOUS.
1st, Mr. Beach, Gr. to T. Alcock, Esq.
2d, Mr. T. Jackson & Son, Kingston
4 DISHES of PEACHES and NECTARINES.
1st, Mr. C. Turner, Slough
2d, Mr. J. Munro, Rabley, Barnett
3d, W. Hill, gr. to R. Sneyd, Esq., Keele Hall, Staffordshire

2 DISHES of PEACHES.
1st, Mr. Beech, Gardener to Allcock, Esq., King's Wood, Banstead, Essex

2 DISHES of NECTARINES.
1st, Mr. C. Turner, Slough
2d, Mr. G. Munro, Rabley, Barnett

DISH of APRICOTS.
1st, Mr. W. Kaile, Ripley
2d, Mr. R. Knights, Worth, Sussex
3d, Mr. H. Jenkins, Gardener to Brassey Esq., Bromfield, Herts

DISHES of PLUMS.
1st, Messrs. H. Lane & Son, Nurserymen, Berkhampstead, Herts

DISHES of CHERRIES, WHITE.
1st, Mr. C. Turner, Slough
2d, Messrs. H. Lane & Son
3d, R. Knight.

DISHES of CHERRIES, RED.
1st, Mr. C. Turner, Slough
2d, Mr. J. Smith, Gr. to T. Hickson, Esq.
3d, Mr. W. Sutton

PROVIDENCE PINE APPLE.
1st, Mr. H. Cawkell, Gr. to J. G. Riddell, Esq., Hermiston Grange, Ticknill, Rotherham

QUEEN PINE APPLE.
1st, Mr. J. Hall, Gr., to Earl of Scarbro', Sandbeck Park, Rotherham
2d, Mr. W. Kaile, Gr., Ripley
2d, Mr. J. Cave
3d, Mr. C. Smith
4th, Mr. J. Wallace, Gr. to J. Dixon, Esq., Congleton, Cheshire

ANY KIND OF PINE APPLE.
1st, Mr. W. Davies, Gr. to W. Booker, Esq., Valinda House, Cardiff
2d, Mr. T. Young

3 DISHES GRAPES.
1st, Mr. G. Meredith, Garston, near Liverpool
2d, Mr. G. Embery, Gr. to A. Moss, Esq., Chadwell Heath, Essex
3d, A. Henderson, Gr., Trentham

1 DISH BLACK HAMBURGH GRAPES.
1st, Mr. G. Meredith, Garston
2d, Mr. G. Wallace, Gr.
3d, Mr. C. Penney, Gr.

DISH of ANY OTHER GRAPE.
1st, Mr. Meredith
2d, Mr. G. Wallace
3d, Mr. J. Monro, Market Gardener, Rabley, near Barnett

10 lb. GRAPES.
1st, Mr. Meredith
2d, Mr. Wallace
3d, Mr. T. Wilkinson, Gr. to H. Moss, Esq., Bentley, near Brentwood, Essex

DISH of MUSCAT GRAPES.
1st, Mr. C. Turner, Slough
2d, Mr. C. Smith
3d, Mr. J. Embry

Roses.

The ROSES at the WALTHAM CROSS NURSERIES are NOW in FULL BLOOM.

MR. WM. PAUL respectfully invites all lovers of this popular flower to visit and inspect them. TWENTY FIRST PRIZES and NINE SECOND have been awarded to him for ROSES during the present year, and above 100,000 Plants are now growing in these Nurseries. Waltham Cross is 11 miles from London, and a first-class station on the Great Eastern Railway. It is also a delightful drive from the West-end of London, through Tottenham, or the Green Lanes and Enfield.

Entrance to the Nurseries from the platform, Waltham Station (for railway passengers only), and from the High Road, Waltham Cross, N.

DOBSON'S NEW SEEDS.
Quality A 1

CALCEOLARIA, unequalled in the Kingdom; 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
CINERARIA, from our Prize Collection; 1s., 2s. 6d., and 5s.
PRIMULA SINENSIS FIMBRIATA, Superb Mixed; 1s., 2s. 6d., and 5s.
PELARGONIUM Show, extra fine; 2s. 6d. and 5s.
PELARGONIUM Fancy, extra fine; 2s. 6d. and 5s.
SCARLET INTERMEDIATE STOCK, fine; 1s.
MIMULUS CUPREUS; 6d. and 1s.

The above in Sealed Packets and Post Free.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

CALCEOLARIA, CINERARIA, PRIMULA, and PELARGONIUMS.—The most superb strains of the above are to be obtained in packets of seed of the advertisers, who are receiving hundreds of testimonials of their superior excellence.

The Trade will find it the best way of purchasing their supply, both as regards quality and price, as the packets are made of convenient sizes to suit all purchasers; and a very liberal allowance is made, as a large number of packets are always in stock; the order however large, is invariably executed by return of post. Packets, sealed, 1s., 1s. 6d., 2s. 6d., 3s. 6d and 5s.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

New Strawberry, Princess of Wales.

B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, has much pleasure in offering this superb new early STRAWBERRY, feeling confident that it will not fail to become a general favourite, as all who have seen it growing and tasted it on the ground have pronounced it first-class. It is a remarkably early kind, having picked from it on the 22d of May, and no doubt but that it will prove a good forcing variety. The fruit is large, flesh pale red, solid at the core; flavour rich and sugary, partaking largely of the Pine flavour; a most abundant bearer.

The following notices prove its value, without further comment:—

Gardeners' Chronicle, July 4th.

"Your seedling Strawberry, Princess of Wales, large, ovate, or flattened ovate, with flesh pale red, and solid at the core. The variety deserves notice on account of its size, appearance, and not being hollow at the core."

Journal of Horticulture, June 23d.

"Seedling Strawberry (B. W. Knight). The fruit sent is very juicy, and of excellent flavour."

Florist, July.

"Your seedling Strawberry, Princess of Wales, is a fine regularly-shaped ovate fruit, of a pale red colour, and very firm flesh; it has all the appearance of being a good sort."

Plants will be ready to send out early in September, at 21s. per dozen. The names of the Nurserymen who have ordered and will be able to supply it will be announced in a future advertisement.



TURNIP SEEDS for PRESENT SOWING.

As some kinds of Turnips are more suitable for late sowing than others, Messrs. SUTTON beg to recommend the undermentioned as the most desirable for that purpose.

Prices for the months of July and August, 1863:—

SUTTON'S EARLY SIX WEEKS TURNIP, 8d. per lb., or cheaper by the bushel.

SUTTON'S IMPERIAL GREEN GLOBE, very fine, best for the main crop, to be sown in July and August, for autumn and winter use, 8d. per lb., or cheaper by the bushel.

SUTTON'S SHORT-TOP SIX WEEKS, new sort, scarce, 1s. per lb.

CATTLE CABBAGE (the heaviest of all Agricultural Crops), should be sown in July and August, for transplanting in October and in the Spring.

GARDEN and FLOWER SEEDS for AUTUMN SOWING.

Messrs. SUTTON and SONS have a good stock of fresh Seeds of the undermentioned kinds, which should be sown during the months of July, August, and September.

Cabbage, choice sorts	Radish, of sorts
Lettuce, do.	Spinach, do.
Onion, do.	Turnip, do.
Carrot, Early Horn	Cineraria, choice sorts
Cauliflower, choice sorts	Calceolaria, very fine
Endive, of sorts	Primula sinensis

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

TRADE

HALLETT'S PEDIGREE NURSERY WHEAT.

MARK.

The PEDIGREE WHEAT was awarded the Silver Medal by the Jurors of the class "Cereals from all Countries," at the Meeting in 1863 of the Agricultural Society at Odense.

"The produce of 3 acres of this Wheat, grown 1862, in Essex, was sold to the Miller, and realised 19*l.* 7*s.* per acre."

If planted as directed in September this Wheat costs less per acre for seed than common Wheat.

Price one guinea a bushel (or seven guineas a quarter), delivered, with printed directions for planting, at the Brighton Railway Station, in bags sewed up and sealed.

"HOW OUR WHEAT CROPS MAY BE DOUBLED," and other Papers, forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

*** See full advertisement last week, page 674.

OUVIRANDRA BERNERIANA.—Having succeeded in raising a few Seedlings of this extremely curious and beautiful plant, we beg to offer healthy young plants of six or seven leaves at 31*s.* 6*d.* each.

O. Berneriana was exhibited at the Great Show of the Royal Horticultural Society, June 17th, and awarded the First Prize; and at the Great Show of the Royal Botanic Society, June 24th, and then also awarded the First Prize.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

CALCEOLARIA, CINERARIA, PRIMULA, &c.—CALCEOLARIA, saved from carefully hybridised flowers, possessing all the recognised floral qualifications, viz., size, form, colours, and marking. Price, 1*s.* and 2*s.* 6*d.* per packet. CINERARIA, extra choice, 1*s.* per packet. PRIMULA SINENSIS FIMBRIATA, extra choice, 1*s.* and 2*s.* 6*d.* per packet. DRACÆNA (CORDYLINE) INDIVISA, from Mount Egmont, New Zealand; beautiful fine foliaged plant, 1*s.* and 2*s.* 6*d.* per packet.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes.

Sunningdale Nursery, S.W. Rail.

Novelties of 1863.

SPECIAL OFFER TO THE TRADE.

HENRY WALTON has an immense stock of the following in strong healthy plants:—

Fuchsias, 6*s.* per dozen.	Pentstemons, 6*s.* per doz.
Verbenas, 3*s.* per dozen.	Antirrhinums, 5*s.* per doz.
Petunias, 5*s.* per dozen.	Chrysanthemums, 5*s.* per doz.

Private parties will be treated with on equally liberal terms.

DESCRIPTIVE LISTS on application, inclosing Stamps.

EDGEND MARSDEN, near Burnley, Lancashire.

New and Rare Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, amongst which are some very fine specimens.

Now ready, post-free to all applicants.

A NEW GENERAL PLANT CATALOGUE, containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Herbaceous and Alpine Plants, Roses, Hardy Trees and Shrubs, Fruit Trees, &c.

With a DESCRIPTIVE LIST of New, Beautiful, and Rare Plants.

Paradise and Victoria Nurseries, Holloway, London, N.

TO ENGLISH NURSERYMEN.—A Buyer of Herbaceous Plants, Roses, Alpines, and Hardy Ferns, will be glad to receive PRICED CATALOGUES from the Trade.

Address E. WALLACE, Esq., *Gardeners' Chronicle* Office, 41, Wellington Street, Covent Garden, London, W.C.

The Gardeners' Chronicle.

SATURDAY, JULY 25, 1863.

FORTY-THREE years ago an English botanist published a work on ROSES, in the appendix to which appeared as complete a list of garden Roses as could then be formed. Rather more than 200 varieties were enumerated, "all referable to R. gallica, R. parvifolia, R. centifolia, R. damascena, R. alba, and their varieties." Chinese Roses had not departed sufficiently from their imported forms to enter into the author's idea of garden Roses, and nobody had thought of using them for purposes of hybridising. So, there were no Hybrid perpetuals, no Tea-scented, no Noisettes, no Bourbons; and even of Moss Roses, only three were known instead of the 30 or 40 now to be found in all good collections. The bulk consisted of mere summer Roses, most of which are forgotten.

Surely there is no branch of gardening that offers a parallel to this: for in creating a new Rose a permanent gain is easily secured, which is more than can be said of herbaceous things like Pansies, Verbenas, and the like. And what is far more important than mere number, it cannot be denied that the majority of modern Roses are much more handsome than those they have displaced. Who cares now for Belle Violette, Lisbon, Ornement de Parade, Grand Marbled, or even Queen and Shell? Do they exist? or have they not perished from deserved neglect?

In their room we have General Jacqueminot, Lord Raglan, Gloire de Dijon, Reine des fleurs, and some hundred others, from among which the difficulty is to make a selection. And, which is of the highest interest, every year brings forth some improvement upon those which had been raised before; so that it has become impossible to conjecture at what point change will stop. For ourselves we believe that the wish of a Rose-loving damsel of our acquaintance will be gratified some day, and that the time will come when she may command sweet Roses in which to bury her face! Little more can be done for form; intensity of colour can scarcely go further, and size will have to be looked to.

We are led to these remarks by a new Rose, raised by Mr. Wm. Paul of Waltham Cross, and called the "Princess of Wales," specimens of which were exhibited at the last meeting of the Floral Committee of the Royal Horticultural Society. It has a most vigorous healthy habit; the colour is of the deepest and brightest crimson; and the form of the young bud, opening bud, and half-blown bud very near perfection. In general appearance it much resembles the "Beauty of Waltham," *but is a decided improvement*; and that is the point to which we would direct attention; for it shows that improvement, even where improvement could hardly have been anticipated, is marching on slowly, steadily, and surely. Good news this for the lovers of the Rose, that is to say of the whole floral world. Let us hope that it will act as a fresh stimulus to those careful and ingenious cultivators by whom such prodigious improvement in the condition of the Queen of Flowers has been secured in the last 30 years.

So entirely are we convinced that much may still be done, that we venture to offer an annual prize for the next five years of 5*l.* for the best new Rose raised in this country that shall be exhibited to the Floral Committee of the Royal Horticultural Society.

IT will be recollected that some time since (p. 483) we urged upon the just constituted Arboricultural Committee of the Royal Horticultural Society, as a first duty, to try its hand on the very necessary work of determining or finding out what TREES there are, not commonly planted, which are ADAPTED TO THE CLIMATE OF LONDON, and are suited also to yield the shade which is so indispensable to the full enjoyment of our public gardens and promenades. To this, which would have been a public benefit, and remains a public duty awaiting fulfilment, the Committee, in a schedule which it has circulated "widely over Great Britain and Ireland" for the purpose of "obtaining information on various points regarding trees," has made the very weak and insufficient response of propounding, for others to solve, the question whether the tree referred to in each particular schedule "thrives or not in towns," and if so seeks by the same means to learn the atmospheric conditions of the particular town. This complete shelving of so useful and possible a work, together with the suggestion to which we lately alluded (p. 651) of conservatorizing—if we may use the word—the present lath and plaster "Arcadia" of South Kensington, and of planting between the conservatory front thus formed and the Prince Albert and Exhibition Roads, "fast-growing umbrageous trees," so managed as to look like an extension of Kensington Gardens or Hyde Park, induces us to return for a moment to this London tree question.

The advantages of converting into a shady grove this space, which threatens to become a waste wilderness, are self-evident; as is also, we think, the fitness of so doing, whatever be the ultimate destination of the ground. And if, as is to be desired, the space shall be devoted in part to buildings consecrated to science and art, and in part to public offices more or less intimately connected therewith, no more appropriate surroundings or accompaniments than healthy living trees can be wished for. The presence of such accompaniments, too, would be in every way desirable. We don't want mere bald-looking masses of masonry, but we do want trees as freely introduced as the exigencies of the case may permit.

And if it be politic, as we believe it is, to plant these "fast-growing umbrageous trees" on this spot, with which the Royal Horticultural Society is so closely connected; if it be, moreover, desirable, as we are sure it is, to experimentalise and thus gain information beyond what we already possess, as to the fitness of various unused trees for London Parks—how natural is it that the Royal Horticultural Society's Arboricultural Committee should take up and prosecute this work, so entirely within its object, and so closely associated with its own parent stock. There is ample space on the ground in question to place the desired "fast-growing trees," in accordance with the highest point of our present knowledge, and also to add, besides, various experimental trees from which further knowledge might be gained. We would indeed have had the Committee carry out its operations in the public parks, the object being *pro bono publico*, and this may be desirable still; but here at least is one spot, close to its home, on which it might well make its virgin effort. We are by no means sure that the spot itself is not one of the most favourable on which to operate, for what with excavations and restorations, the soil has been thoroughly well broken up, and in the filling up which will be desirable to bring the surface to the proper level there is surely full opportunity, with the sand of the district and burnt clay from the progressing and not very distant

sewers, to lay a foundation for enduring growth—a foundation which may without much difficulty be supplemented by proper materials for the trees during the earlier stages of their growth.

As regards the point with which we set out, we maintain that the Committee in question ought to take up this matter of London trees in a thorough going and hearty manner. What it proposes to do by means of these circulated schedules just amounts to—nothing. In the first place, the filling up of such schedules at all is perfectly optional, and may never be realised. In the second place, the only proposition bearing on the London tree question is, to those whose opinion is sought, a very minor one compared with the general subject of timber and its management to which the papers are really devoted, so that it is quite likely in most cases to be passed over altogether. And in the third place it is not from gentlemen or their agents living in the country, and making their observations in the country, that much useful information on such a point as London tree culture can be expected, even if there were the utmost willingness to impart it; for very few towns indeed can at all compare with London in their influence on tree-life. On the other hand, here, on the spot, all the most important information is to be had for the looking up, and needs only to be aided by a judicious series of trials to lead to some useful results. We have all through referred to London tree-life, because a London atmosphere and London drainage are amongst the strongest possible tests of tree-endurance. Once settle the question as regards which will grow and thrive in London, and few if any towns need hesitate to follow suit.

THE YARM STRAWBERRIES.

FEW beyond the small circle of Fragarians know much about Yarm and the late Mr. Nicholson; who, leaving his ordinary calling of a slater, devoted himself to the culture of the Strawberry, and spared no pains to collect from all parts of the world as many varieties as possible. France and Belgium, through Mr. Ferdinand Gloede, Mr. De Jonghe, and other friends, furnished all the kinds introduced there, and America also supplied nearly every one of her varieties. Almost all the new kinds brought out in England—the productions of Myatt, Rivers, Cuthill, Turner, Doubleday, Radclyffe, Kitley, Stewart and Neilson, Salter, Roden, and other raisers—soon found their way to Yarm, and Mr. Nicholson contributed many seedlings of his own. The autumn of 1862 gave him a fair promise of proving many of these seedlings in the following spring; but in the meantime death called him away, and on other shoulders has his mantle fallen. Feeling desirous of seeing what advance had been made in this favourite and useful fruit, I recently paid a visit to Yarm, where I saw the vast collection of nearly 400 kinds, including seedlings grown there; Yarm is situated in the north of Yorkshire, not far from Darlington and Bedale, where Roses, Hollyhocks, and Dahlias luxuriate; while at Thirsk, a neighbouring town, Apricots are grown against the cottages and ripen their fruit. No wonder, then, Strawberries do well there. Close to Yarm is the small village of Egglescliffe, which was formerly called Eagles Cliff, and here it is that Nicholson's Strawberry garden is the great object of interest. It is really a large orchard or market garden for fruit, the soil of which is stiff and of a marly nature in many places; but not cold and wet. The catalogue of the Yarm Strawberries comprises 255 varieties; but nearly 400 kinds, including seedlings on trial, are grown.

Of Seedling Strawberries of previous years not yet sent out, the best in my opinion is one I was allowed to name after the late Mr. Nicholson's only child, Alice Nicholson, the fruit of which is conical, flesh yellowish, solid and luscious, size medium, with a very rich Pine and Hautbois flavour, and a good bearer. I regard this as one of the finest Strawberries in the world. The next is Gloria, a good-sized handsome round fruit with a rich piquant Hautbois flavour, a very heavy cropper, and altogether a first-class kind. In this variety we have a decided advance in flavour. Orb is another seedling, a good-sized handsome round fruit, moderately rich and juicy, a good bearer, and those who want a large handsome Strawberry will find it here. Yarm is another first-class kind for flavour, medium size, very dark colour, rich sugary flavour, and bears well. One other seedling out of the large number which should be introduced is one Mr. Ewebank, the superintendent of the gardens has named Plover, a medium-sized fruit of a rich scarlet colour, with very rich luscious Hautbois flavour, and a good bearer.

The most wonderful Strawberry for a general crop, and for market gardeners and cottagers, is a Belgian kind named Comte de Zans, which is described in the Catalogue as "a most tremendous bearer." It certainly is the most extraordinary cropper I have ever seen, and I have had 25 years' experience of Strawberries. The plant is of medium growth; fruit conical, often becoming wedge-shaped, very bright colour, medium flavour; a good firm berry for travelling, and keeps up a succession. It is just the Strawberry for those who grow large quantities for sale. Myatt's Crimson Queen is another valuable kind for the market gardeners, as it is a great cropper, fruit large, dark coloured, and of moderately good flavour. The plant is of rather tender habit, and if allowed to stand long in the same ground acquires a stunted habit of growth. Frequent removal suits this kind best. La Constante was very fine, and grows freely. With me it does not grow freely, although it fruits well, but I grow it fully exposed to the sun, whilst at Yarm it seems to be more at home in a shady situation. The fruit is of a medium size, round, handsome, and bright coloured. The flavour is very rich and firm, and stands rain well. This Strawberry should be in every garden.

Reeves's Eclipse, sent out by Mr. Veitch, of Chelsea, I believe, is another first-class kind, although I am afraid the true kind is not grown at Yarm. With me it is identical with the description given at p. 653, by Mr. Radclyffe. At Yarm the fruit instead of being nearly uniform in shape and handsome, was very irregular, and in my opinion not the true kind, still a very heavy cropper. Eclipse is as hardy as Sir Harry, and an excellent dessert fruit, and will travel well. Mr. Radclyffe also speaks well of Marguerite; my observations of this Strawberry at Yarm fully bear out all he says. This is another market gardener's Strawberry, as it is a heavy cropper, of large size, and a free grower, the fruit firm, juicy, and well flavoured; it is really a fine Strawberry. So also is Knevitt's Empress Eugénie, large and handsome fruit of a very dark colour throughout, very juicy and piquant flavour, a very heavy cropper, of firm, hardy growth, and a capital sort for long journeys. This is a variety for everybody, especially growers for sale. May, of Bedale, sent out Culverwell's Sanspariel two or three years since, and it has proved at Yarm to be a fine and useful variety. It is a good-sized conical-shaped fruit, often sporting in form, of a shining deep crimson colour, and the flesh very dark throughout; medium flavour, but a very heavy cropping useful kind. Another of the greatest bearers is a seedling of Nicholson's, already sent out, named Cornucopia; this is evidently a seedling from Filbert Pine, not quite equal in flavour, but a fine handsome fruit, firm and juicy. It is a wonderful cropper, and throws its fruit out from the foliage in masses. Oscar is a moderate cropper, hardy, and of medium flavour, but a useful kind. Myatt's Emily is of the Filbert Pine habit, and Queen style of fruit; very rich flavour, and a good cropper. Mount Vesuvius is a very large handsome fruit, of medium quality, and a good cropper, certainly very fine for exhibition purposes.

British Sovereign is one of the best of Stewart & Neilson's seedlings, and is a very large fruit, rich in flavour, and a strong grower. Choix d'un Connaisseur, sent by Mr. De Jonghe, is of medium size, with a peculiar sugary flavour, very dark throughout, but the seeds are prominent. With good growth I think it will be a fair variety; it has the habit of Keens' Seedling. Bouhon is, I believe, a seedling of Mr. Gloede's, resembling Sir Charles Napier in growth, but different in shape, firm, very juicy, and sugary. Auguste van Geert is a Belgian variety of medium size, dark in colour, solid and juicy, and a heavy cropper. Beauty is one of Nicholson's seedlings, a large wedge-shaped Strawberry of good quality, and an abundant cropper. Leopold is a Belgian kind, a medium-sized dark-coloured fruit of fine sugary flavour, but only a moderate cropper. Jeyes's Wonderful is a good useful well-flavoured kind, and an enormous cropper, another market gardener's Strawberry. Garibaldi is another of Stewart & Neilson's seedlings, and one of the best; a large, handsome fruit, very juicy, and of good flavour—which is slightly acid; a good cropper and vigorous grower. Rifleman and Frogmore Late Pine, two of Turner's last new kinds, both, I think, raised at the Royal Gardens, are promising late sorts for the north; both very late, and therefore most useful; both good croppers and hardy—neither of these were ripe. Frewin's Beauty of England is a large and handsome fruit of good flavour; very juicy and productive. A seedling, marked J, sent by Mr. Gloede, is a large handsome light-coloured fruit of good flavour, and very productive, and will be a good market variety. La Chalonaise the catalogue describes as "a very large and splendid sort of the British Queen race, but much more hardy and productive." I have grown it for three years and can say the same. It is a large and handsome delicious fruit. Sultane is one of Dr. Nicaise's seedlings from France, a large good flavoured kind of medium growth and a heavy cropper, solid and juicy. Palmyre is another French variety, light coloured, flesh firm, melting, luscious, and very juicy, a fine kind. Marquise de la Tour Maubourg is a handsome large well-flavoured and strong growing free cropping kind. This is another French variety of good quality. Belle de Paris is another French kind of the British Queen race, fruit large and handsome, medium flavour, and very free bearer, hardier than the British Queen. Ruby is one of Nicholson's seedlings sent out a few years ago, a good useful late free cropping kind for market purposes. Admiral Dundas and Sir Charles Napier both maintained their good character. Ne Plus Ultra is a seedling sent by Mr. De Jonghe; fruit long and fine, good flavour, and very dark throughout; a most prolific and useful kind. Rivers's Eliza is fine in flavour and a good cropper. Cuthill's Princess Royal of England is a medium-sized cone-shaped fruit of a light colour, with lemon-coloured flesh when ripe, fine flavour, and very prolific. Cox's Hybrid is a fine, sharp-flavoured juicy handsome fruit, of good size, a good cropper, and very late.

Many kinds have been sent from America, and are grown here, but with two or three exceptions cannot be regarded as fine Strawberries, almost all being deficient in flavour. One of the best is Boston Pine, a free cropping variety of medium size, useful for preserving, and very early. Wilson's Albany, however, is the best as seen here; a good-sized handsome round fruit, of a dark red colour throughout; an excellent preserving sort.

In Hautbois, not much advance has been made. The best are Rivers's Monstrous Hautbois and the Black Hautbois, both of which are free bearers, rich-flavoured, and good sized for Hautbois. I don't know if the Hautbois makes a good parent, but the flavour of this and the old Pine is what we want in Strawberries. We have it now to a great extent in the late kinds, but we are sadly deficient of flavour in the early kinds. At present, at Yarm, and in other places northward, May Queen, a small and poor-flavoured kind, is the earliest; next Princess Frederick William, a free-cropping kind, of medium size but poor in flavour—still it is very early. Then comes Boston Pine, and plenty of others. We want fine early kinds, with the flavour of La Constante, Carolina Superba, and British Queen.

Of course British Queen was good at Yarm, as it is everywhere in suitable soil and situation; in fact it is a grand Strawberry when it can be grown well; and at Yarm, Carolina Superba was also superb in all respects. This is a most delicious Strawberry, but generally tender. Sir Harry, and a spurious Sir Harry, are both grown here and elsewhere. With me this year Sir Harry is delicious in flavour, the hot weather exactly suiting it.

I have, I fear, done but imperfect justice to many varieties I saw at Yarm; for to go through so many kinds in one day rendered it almost impossible to do justice to all. I aimed chiefly at selecting the best sorts. *William Dean, Shipley.*

FISH AND FISHING.—No. XI.

TENCH AND CARP PONDS.—*Continued from p. 556.*

THE size and situation of our pond being determined, now comes the great difficulty and expense. If my soil were all Sussex clay, I may merely have to dig and excavate—it is a trifle; but if my soil is not of a nature to retain and maintain a certain depth of water, I must make it so by carting a large quantity of clay from the nearest point, to cover thickly the whole bed and sides of my pond; and having the clay, I must "ram," or "puddle," or "make thick or close with clay, so as to render" the bed and sides of the pond "impervious to water." To produce this "imperviousness to water" may, in some land, be very difficult, if not impossible. In a sandy soil, for instance, the attempt would only end in mortifying disappointment, because a layer of clay of any reasonable thickness might be penetrated by a thrust of a stake, and, like the smallest chink or crevasse in the levee or embankment of a river, "small" would grow to "large," and all hope of establishing the pond would gradually but perceptibly sink and sink, till all the fish died, and nought but "dry land appeared." But in cases where the superstratum, and likewise the substratum, are tolerably retentive, by the use of this clay, with proper attention to manipulation, you are certain to succeed. No better proof of this can I give, than by carrying myself ideally to some parts of Jamaica—the parishes of Clarendon and Manchester.

As may be imagined, in the Tropics, water, good or bad, for man and beast, is indispensible as food. It is life itself! In the central parts of the island, rivers are not numerous, and still less are they constant in their flow. For six weeks altogether may such rivers contain water. For the rest of the year they are dry. What is to be done? On old well-established properties of former days, they built large stone tanks or reservoirs, into which the biennial rains, the "May and October seasons," were conducted; and biennially thousands and thousands of gallons of water were collected. This was used for all domestic purposes, and sometimes, though sparingly, for cattle. The tanks being deep and generally boarded over, the water was generally sweet to drink (you could not get better unless in the neighbourhood of a spring) and tolerably cool. In dry weather, horrifying was the announcement of "only 11 inches of water in the tank," but for cattle, they were in some parts of the one parish and in all parts of the other, obliged to form artificial ponds. In Manchester parish—all mountainous—and in which there is only one natural spring, the super soil is rather retentive red iron loam, but retentive naturally only for a few days after very heavy—"the seasons"—rains. The subsoil is detached boulders of limestone rocks. So, to get their ponds to hold water from one "pond rain" (as heavy rains are there called) to another, they had occasionally in the course of every 8 or 10 years to "ram" or "puddle," as I have mentioned, their artificial ponds—and these ponds held water wonderfully well. Fancy the retention of water under the open absorption of a tropical sun from six months to six months, consumed too by perhaps 50 head of cattle every day—and can any doubt exist that a pond formed

in England in manner as I have mentioned, would succeed?

Brother Gardeners, I beg you to rely on my assurance of success. Say, you who have the land to spare and the "means" to "boot," that you will follow up my idea, and I will tell you how further you are to proceed—what plants you are to place in your ponds; how you are to supply them with animal inhabitants; and, if you need that instruction, how you are to profit hereafter, by catching the fish you have a year or two previously placed in your ponds. What more can I say as to the pleasure you will by and by derive, than my brief hints at the innocent happiness afforded in former hours to myself?

Make therefore your tench and carp ponds; and when they are fairly established invite me in some future hot summer months to fish them, if I live. Promise me a cottage-cooked luncheon of beans, bacon, and cabbage, and a glass of ripe cider, and you will make me a happy guest for an hour or two, basking in shaded sunshine.

* * * *

I had thoughts of concluding this subject as it stands above, but second thoughts advise me to complete it as far as "I think on't" at present.

Weeds seem to be necessary for almost every kind of fresh-water fish, except those of the migratory salmon genus. Trout require them as hiding places, and the coarser genera, as roach and pike, &c., require them as depositories of spawn. Tench and carp require them in still waters for spawning purposes, but also for their delectation while floating lazily almost on the surface of the water in summer's hot sunshine. As far as I have been able to observe, I think that tench are content with what I take to be the pond weed, Potamogeton natans, which has very long leaf-stalks, and dark brownish ovate-lanceolate leaves floating on the surface, dancing thereon on every perturbation, like tiny cock-boats on the smallest ruffle of the sea. Carp also like this weed, but certainly affect also the broader shade of the leaves of the Nymphæa alba, or common white but exquisite Water Lily. The former plant must certainly be in the tench pond, and both may be in the carp pond. But of those water nymphs, oh, angler! beware! You must fish fine for carp, and those nymphs' leaf-stalks are very strong, and though you may easily hook your fish, you must possess a vast amount of dexterity ere you can get a carp into your basket. *E. C.*

Home Correspondence.

Removing Bees to the Moors.—As the time has now arrived for removing bees to the Heather, I wish to remind your readers of the great advantage a hive taken to the Heath has over one that cannot go to the Heather; it gives the bees at least six weeks longer honey harvest, as I find my bees not taken to the moors always lose weight after July. The Heather I find is fast coming into bloom, so no time should be lost in sending them. In removing bees to the Heather, the first thing to be attended to is, to give them plenty of room, as if the weather continues favourable they will collect from the Heath a very great store of honey; therefore the day before I remove them I place another hive on the top of the stock, when I want to join the bees on their return home to another stock, and appropriate to myself the whole of their store of honey, or when I want to take the old hive from the bees and leave them in the new hive; but if I want them to remain in their own hive I place the addition underneath, as the bees always fill the top hive first, and afterwards the bottom one; and the honey in the new hives being deposited in new combs, in which there has been no brood, is very beautiful, and much more valuable than that out of old combs. Where the two hives join I tie a piece of calico with two strings securely round each hive, so that they cannot separate or any bees escape when being removed. I then raise the hives about an inch from the floor board upon pieces of wood, and early next morning I find every bee gone off the floor board into the hive. I spread a piece of net or leno on a board, and lift the hive upon it, and tie the net very securely with two strings round the hive; when so fastened I turn the hive gently upside down, and place it on a cloth, and then tie the corners together; in this way the hive is easily carried by suspending it on a pole laid across the cart; but it matters little whether it is suspended or not, as the combs will not break down. The hive being turned with the bottom upwards, the bees by that means obtain plenty of air, do not melt the combs with their heat when excited, and I do not find the honey to run out of those cells that are not sealed over to do any injury. I let the bees remain at the moors until about the middle of September, and when brought home, I put them upon the scales, and the next day I deprive them of their surplus stores (leaving in bees, combs, and honey twenty pounds weight, which ensures their preservation until next summer), which I consider only a just return for my kindness in having given them a change of air in such luxuriant pastures, where many tons of honey is annually lost to the world from want of collecting. This month has so far been a splendid one for bees, White Clover being very abundant. On several days many of my stocks have collected upwards of two pounds of honey. *Wm. Carr, Clayton Bridge Apiary, near Manchester.*

Frost in Devonshire.—After the sweltering weather of last week, it may be refreshing to your readers to learn that in the mild county of Devon we had frost last night, sufficiently sharp to cut the leaves of out of doors Cucumbers quite black. This place is in a deep valley, and is very subject to severe frosts late in the spring, but I never remember a frost on the 18th of July before. *J. T., Sydenham House, Lew Down, Devon.*

Frost in Yorkshire.—This morning, July 21st, one of Negretti & Zambra's self-registering thermometers indicates 3° of frost, a thing unknown here before at this season. Dahlias, on one plot of ground exposed to the north and east wind which accompanied the frost, are a wreck; the foliage, now that the sun is upon them, being dried up, as if exposed to frost late in autumn. The blooms, which were covered with tiffany, are brown on the upper and exposed sides. I may state that the ground and plants are quite dry, not having had water for the last five weeks. The weather, with the exception of the last few days, has been extremely hot, the thermometer of the 10th inst. registering 87° in the shade. *William Boston, Hope Nurseries, near Bedale.*

Melons.—Your correspondent "Dilemma" seems to have been very successful with his Melons up to a certain point. He then states, "the plants were very subject to break out in soft rotten patches on the stems." I think from this account he must have watered them with stale or bad water. Many succulent and quick-growing plants are easily injured by bad water. This year I lost some Balsams and a good many Perilla nankinensis by giving them bad water. Of the latter many went off as "Dilemma" describes a month after they were put out, while of others in another part of the garden which did not get the bad water not one was lost. *W. S. Brinkley, Knockmarvon House.*——If "Dilemma" will raise the bottom heat of his Melons to 80°, and use water of that temperature, I have no doubt that all will soon be well; it is a fact that plants produce more and better pollen if their roots are kept warm and somewhat dry, and the fruit is of course much more likely to get set. The old dung bed took care of itself in summer; but in these days of hot-water pipes, and when one is well-nigh roasted alive with heat, we are sadly apt to forget our bottom-heat. *J. Rust, Fulham.*

Diseased Grapes.—In my Vinery I have, among other kinds of Grapes, one Vine of West's St. Peter's, that for two years before beginning to colour has had most of the berries covered with round dark, nearly black spots, which to some extent disappear when the Grapes colour, but seem to leave the skin so tender that half the Grapes are cracked in the skin. As none of the other Vines or pots have been similarly affected, I am puzzled to find the reason, and beg to trouble you on the subject. *J. J. D., Gothenburg, Sweden.* [Can any experienced Grape-grower throw light on this matter?]

Berberis nepalensis.—I would not recommend your correspondent to try Berberis nepalensis out of doors, even although his place be 50 miles further south than mine. That it would succeed perfectly in an Orchard-house, provided the requisite amount of shade could be secured, I have not the slightest doubt; indeed, I have myself placed two or three allied species (*e.g.*, B. Bealii, B. japonica, &c.) against a north wall at one end of the Orchard-house at Knypersly. In this situation they grow and flower freely, but have not as yet produced fruit; neither have they a graceful effect when trained or spread out flat upon the surface of a wall. I wish my experience would allow me to endorse all that you say in behalf of these so-called "noble species from China." Although quite hardy with me, I find that out of doors they lose all their lower leaves, and then expose a hideous length of naked upright stems, clinging as close together as those of an Irish Yew or Lombardy Poplar. In order to make them more bushy and more sightly I have cut some of them down to within a foot of the ground, but they appear to be impatient of the knife, and reluctant to send forth fresh shoots. The great advantage of growing B. nepalensis in a cool conservatory is that when so treated it never casts a leaf; my plant, which is now about 12 feet high, is one dense pyramid of the most splendid foliage. *J. B., Biddulph Grange.*——As I live in the North Riding of Yorkshire, it may interest your Correspondent "Diss," to know that a small plant of Berberis nepalensis was planted out here early in the spring of 1861; it was then covered with a pot for protection from spring frosts. During the last two winters it has stood without any protection, and this season it has made a fine shoot, and promises to be a beautiful shrub. The soil in which it grows is a stiff heavy loam with a clayey bottom. The plant is much exposed; Berberises of different sorts grow freely in our soil, among them are B. Bealii and japonica. A fine plant of Fortune's Berberry was killed down below the level of the snow in the winter of 1860 and 1861, after a growth of 10 years, without any protection. It is now again growing freely, and likely to make a fine plant. *W. Culverwell, Thorpe Perrow.*

Societies.

Royal Horticultural: *July* 21. (*Floral Committee*).—Messrs. Downie, Laird & Laing furnished on this occasion beautiful cut blooms of Hollyhocks, among which the most remarkable were Golden Fleece, Purple Prince, Mrs. J. McKenzie (a good crimson), and Empres Eugenie (white). From the same firm also came examples of a beautiful large deep crimson-coloured seedling Hollyhock, named Alexander Shearer, to which a First-class Certificate was awarded. A similar mark of distinction was also conferred on a seedling Picotee named Lucy, from Mr. Turner, who also showed good blooms of a heavy edged kind, called Col. Clerk. To Mr. Parsons, Welwyn, was awarded a Second-class Certificate for a seedling Achimenes, named Moorii, a bright salmon red sort, with comparatively large showy blossoms. Mr. Thompson, of Ipswich, received a First-class Certificate for cut blooms of Helipterum Sandfordii, a golden yellow flowered annual Everlasting from Western Australia. Various handsome-leaved Caladiums were contributed by Mr. Bull, and one or two interesting miniature Dahlias in pots by Mr. Salter, who also sent two cut blooms of his new large double-blossomed Pyrethrums. Mr. Watson, St. Albans, received a First-class Certificate for examples of Calceolaria Bijou, a bright reddish brown shrubby variety which will doubtless be useful for beds. A new seedling Hybrid Perpetual Rose named Princess of Wales, to which allusion is made in another column, came from Mr. Wm. Paul; and from Messrs. Barr & Sugden came specimens (not in good condition) of Gloxinia tubiflora, a handsome white flowered kind, received by them from Sardinia.

July 21: (*Fruit Committee*).—Mr. Terry, of St. Albans, furnished on this occasion beautiful dishes of Currants in every way examples of first class growth. Conspicuous among them were Red and White Dutch, Red Grape, a fine showy Currant, Raby Castle, Old Champagne and Black Naples. To these a first prize was awarded. From the garden of the Society also came specimens of Currants, and we noticed a promising seedling Strawberry, but from whom it came we could not learn. Mr. Whiting contributed fruit of the Jefferson Plum, a sort found to be very suitable for pot-culture; a specimen of Hall's Telegraph Cucumber, a very long kind, was also shown at this meeting.

Alexandra Park Horticultural Exhibition.—A bright sunny cool day on the 23d inst., heralded auspiciously the opening of a new place of public resort, called the Alexandra Park. This is situated on the north side of London at Muswell Hill, and is reached by railway from King's Cross to Wood Green, from which it is distant about three-quarters of a mile. The Park itself remains exactly in the same state in which it was purchased by the Company; no visible ornamentation of any kind has yet been attempted, and horticultural buildings, if it is ever to possess any, have yet to be erected. The flower show took place under tents which were pitched in a field of meadow land, surrounded here and there by trees and rising ground, from which an extensive and delightful view of as pretty a piece of well wooded and interestingly undulating country as is anywhere to be found in the neighbourhood of London is obtained. One tent 195 feet in length, and 50 feet in width, was devoted to stove and greenhouse plants; another 75 feet in length, and 50 feet in width, contained fruit and cut flowers; a third was filled with Fuchsias, Pelargoniums, Petunias, Achimenes, and Rose blooms; and in a fourth were fruit trees in pots, well furnished with fruit from Messrs. Fraser and Lane.

Stove and Greenhouse Plants.—These were furnished in great abundance, and among them examples of skilful cultivation were numerous. They consisted chiefly of Allamandas, Stephanotis floribunda, the beautiful Pleroma elegans, various sorts of Kalosanthes among which the most brilliant was Coccinea superba, and the old fashioned, but extremely handsome Everlasting Gnaphalium eximium, the fine heads of rich orange flowers of which attracted universal admiration.

Awards.—12: 1st, Mr. Gilbert; 2d, Mr. Wheeler; 3d, Mr. Kaile. 8: 1st, Messrs. Fraser; 2d, Mr. Rhodes. 6: 1st, Mr. Chilman; 2d, Mr. Baxendine; 3d, Mr. Donald.

Fine foliaged and Variegated Plants.—Of these some noble specimens were produced, among which the singular looking Alocasia Lowii stood conspicuous. Of A. metallica there were also various excellent examples, as well as of Palms, Cordylines, Dracæenas, and other plants usually found in exhibitions of this kind.

Awards.—12: 1st, Messrs. Lee; 2d, Mr. Williams; 3d, Messrs. A. Henderson. 10: 1st, Mr. Taylor; 2d, Mr. Young; 3d, Mr. Donald; 4th, Mr. Wheeler.

Effective Arrangement.—For this three prizes were offered, the materials to consist of Stove and Greenhouse plants in and out of bloom, and we must confess that the different competitors in this class did their work extremely well. Of Tree Ferns, Orchids, and other plants in flower, charming intermixtures were made which struck all who had an opportunity of inspecting them with delight. They occupied conspicuous positions at the end of one of the tents, which they set off to advantage.

Awards.—1st, Messrs. A. Henderson; 2d. Mr. Williams: 3d, Messrs. Lee.

Cape Heaths.—Several well grown collections of these were exhibited, in which the predominant sorts consisted of varieties of tricolor. We, however, did see a beautiful specimen of Vestita coccinea from Messrs. Lee, of Hammersmith, and from Messrs. Jackson, of Kingston, came prettily grown medium-sized plants of other kinds.

Awards: 10: 1st, Messrs. Jackson; 2d, Mr. Rhodes; 3d, Messrs. Fraser; 4th, Mr. Wilson. 8: 1st, Mr. Gilbert; 2d, Mr. Wheeler; 3d, Mr. Chilman; 4th, Mr. Young. 6: 1st, Messrs. Lee; 2d, Mr. Rhodes; 3d, Mr. Smith; 4th, Mr. Chilman.

Orchids.—The display of these on this occasion was comparatively unimportant; Mr. Williams had a good specimen of a large variety of Dendrobium formosum, and of Cattleyas and Oncids there were one or two good plants in collections from private growers.

Awards.—8: 1st, Mr. Williams; 2d, Mr. Woolly; 3d, Messrs. Jackson. Amateurs: 1st, Mr. Chilman.

Ferns.—These consisted of both tree and other sorts; among the former the best came from Mr. Williams, of Holloway, who showed beautiful specimens, whose refreshing deep green heads of leaves, elevated on noble living pedestals, formed a subject of general admiration; ordinary dwarf kinds too were plentiful, and being well grown had a fine effect. We also noticed fine panfuls of Lycopods from Mr. Young, gr. to R. Barclay, Esq., of Highgate. Among these Wildenovi seemed to excite most interest, as well it might, for its leaves are quite as handsome as those of many Ferns. L. apodum is also a compact growing neat bright green coloured kind, which in small pots has a pretty appearance.

Awards.—12: 1st, Mr. Williams; 2d, Mr. Woolley; 3d, Messrs. A. Henderson. 10: 1st, Mr. Young; 2d, Mr. Taylor; 3d, Mr. Gilbert; 4th, Mr. Lavey. 6 Tree Ferns: 1st, Mr. Williams; 2d, Messrs. Lee.

New Plants.—We observed nothing among these which has not been exhibited and fully reported on by us on former occasions.

Fuchsias.—These were by no means good or effective, which they ought to have been at this season. None of the plants were large, and all were more or less unequal in size; all kind of uniformity in the different groups was therefore destroyed. A few standards were better managed; but even these were not first-rate.

Awards.—6: 1st (withheld); 2d, Mr. Bartholomew; 3d, Mr. Taylor; 4th, Mr. Cheal; extra, Mr. Shenton.

Scarlet Geraniums.—Of these three or four collections were shown in tolerably good condition, the plants were dwarf, compact, and well bloomed; as the names of the sorts did not appear to differ from what have been given in former reports, it would be useless to repeat them.

Awards.—6: 1st, Mr. Duke; 2d, Mr. Windsor; 3d, Mr. Lavey; 4th, Mr. Young.

Achimenes.—Among these we observed nothing new or striking. Such plants as were shown were, however, well grown and flowered.

Awards.—10: 1st, Mr. Monk; 2d, Mr. Uzzell; 3d, Mr. Taylor; 4th, Mr. Fox.

Variegated Begonias.—These were plentiful; but by far too much alike. They therefore made comparatively little display.

Awards: 8: 1st, Mr. Begg; 2d, Mr. Shepherd; 3d, Mr. Young; 4th, Mr. Smith.

Gloxinias.—Such as were shown on this occasion were in no way in advance of kinds that we have been accustomed to see for years, a singular fact, considering that many of the varieties at present in cultivation are really charming things. We allude more particularly to the upright blooming or inverted bell-shaped class in which most novelty is now to be found.

Awards.—10: 1st, Mr. Taylor; 2d, Messrs. Jackson; 3d, Mr Sutton.

Garden Vases.—These, in one or two instances, appeared to be made of Ransom's patent stone, whose grey colour associated well with the brilliant flowers with which they were filled. Some in the form of huge horns of plenty surely none could admire, but of other kinds there were some tasteful exhibitions.

Awards: 3: 1st, Messrs. A. Henderson; 2d, Mr. Williams; 3d, Mr. Young; 4th, Messrs. Cutbush.

Dinner Table Decorations.—Those to which prizes were awarded consisted of Mr. March's design in glass, which when tastefully ornamented with flowers is not easily beaten. Compared with these all others shown on this occasion were, to say the least of them, second rate.

Awards.—1st, Mr. Cutbush; 2d, Mr. Catleugh; 3d, Mr. Wilkinson.

Hanging Baskets.—Mr. Cutbush, of Highgate, furnished some gay examples, which elicited general praise; the same exhibitor had also three nice light wire table baskets, which being well filled were very effective. From Messrs. Williams, Henderson and others were also good examples of this kind of conservatory ornament.

Awards.—1st, Mr. Cutbush; 2d, Mr. Williams; 3d, Messrs. A. Henderson; 4th, Mr. Young.

Roses.—These were confined to cut blooms, which were produced in admirable condition. Nothing indeed could possibly be finer than the magnificent display made by Mr. Keynes, of Salisbury, who stood considerably in advance of all competitors. Chas. Lefebvre, Senateur Vaisse, Prince Leon, Comtesse Cecil de Chabrillant, Madame Chas. Wood, Lord Raglan, Beauty of Waltham, Madame Furtado, and La Ville de St. Denis were wonderfully large and fine; in short one bad bloom could not be picked from his whole collections. Messrs. Paul and others had also good collections, which owing to the coolness of the day kept in good condition.

Awards.—100: 1st, Mr. Keynes; 2d, Messrs. Paul & Son; 3d, Mr. Wm. Paul; 4th, Mr. Francis. 50: 1st, Mr. Keynes; 2d, Messrs. Paul & Son; 3d, Mr. Francis; 4th, Messrs. Fraser. 50: Amateurs: 1st, Mr. Corp; 2d, Mr. Perry. 24: 1st, Mr. Corp; 2d, Mr. Perry; 3d, Mr. Weymouth.

Cut Flowers.—Among these Pansies, Carnations, and Picotees had their admirers; neatly made little bouquets of ordinary garden plants were also present in profusion.

Fruit.—This was plentiful, and most of it excellent both as regards look and quality.

Pine Apples.—Foremost among these was a noble example of the Queen variety weighing no less than 7lbs. 2 oz. It was well ripened, beautiful in form, and in all respects a surprisingly fine specimen of skilful cultivation. It came from Mr. Hall, gr. to Lord Scarborough. Other kinds were not so remarkable.

Awards.—4: 1st, Mr. Young; 2d, Mr. Henderson; 3d, Mr. Penny; 4th, Mr. Dawson. Providence: 1st, Mr. Carkell. Queen: 1st, Mr. Hall; 2d, Mr. Kaile and Mr. Carr; 3d, Mr. Smith; 4th, Mr. Wallace. Other kinds: 1st, Mr. Davis; 2d, Mr. Young.

Grapes.—The best Black Hamburghs were again shown by Mr. Meredith, of Garston, near Liverpool. They were large, both in bunch and berry, finely, coloured, and covered with a beautiful bloom. Of the Trentham Black the same excellent grower also had admirable examples. Mr. Wallis likewise showed good Black Hamburgh and Black Prince. From Mr. Henderson, of Trentham, also came various examples of good Grape growing. Muscats, with the exception of some from Mr. Turner, were unripe. Vines in pots could scarcely be said to be first rate.

Awards.—3 dishes: 1st, Mr. Meredith; 2d, (withheld); 3d, Mr. Embry and Mr. Henderson. 1 dish: 1st, Mr. Meredith; 2d, Mr. Wallace; 3d, Mr. Penny. Dish of any sort: 1st, Mr. Meredith; 2d, Mr. Wallace; 3d, Mr. Monro. 10 lb.: 1st, Mr. Meredith; 2d, Mr. Wallace; 3d, Mr. Wilkinson. Muscats: 1st, Mr. Turner; 2d, Mr. Smith; 3d, Mr. Embry.

Peaches and Nectarines.—These, as might be expected at this season, were numerous, and the fruit to which 1st prizes were awarded was large and well coloured. The sorts did not differ from kinds usually shown on such occasions.

Awards.—4 dishes: 1st, Mr. Turner; 2d, Mr. Monro; 3d, Mr. Hill. 2 dishes: 1st, Mr. Beech. Nectarines—2 dishes: 1st, Mr. Turner; 2d, Mr. Monro.

Apricots.—These were, as far as we could ascertain, wholly confined to the Moorpark variety, of which there were some fine specimens.

Awards.—1st, Mr. Kaile; 2d, Mr. Knight; 3d, Mr. Sawkins.

Plums.—Few were exhibited. Among what were shown were good fruit of Denyer's Victoria, and Jefferson.

Awards.—1st, Messrs. Lane & Son.

Cherries.—Among these were black Circassian, Bigarreau, and Morello, all of good size and quality.

Awards.—White: 1st, Mr. Turner; 2d, Messrs. Lane; 3d, Mr. Knight. Red: 1st, Mr. Turner; 2d, Mr. Smith; 3d, Mr. Sutton.

Melons.—The best green-fleshed variety came from Mr. Rutland, gr. to Capt. Peploe, Garnstone Castle, Hereford. It was oblong in shape, large, yellow-skinned, and ribbed. Flesh, cream-coloured. Among scarlet sorts, the best was Gem, a good fruit of which came from Mr. Stanley, of Page Green, Tottenham.

Awards.—Green-fleshed: 1st, Mr. Rutland; 2d, Mr. Monk; 3d, Mr. Turner. Scarlet: 1st, Mr. Stanley; 2d (withheld); 3d, Mr. Monk.

Collections of Fruit.—On the whole these were not so fine as have been seen in former years. They consisted of little else than a Pine Apple or two, bunches of Grapes in one or two instances by no means first-rate; Moor Park Apricots, a few Plums, Strawberries, and Melons—nothing in fact at all equal to the fine displays that were wont to grace the exhibition tables at Chiswick from the Royal Gardens at Frogmore and elsewhere in days gone by. Let us hope, therefore, that some steps will be taken by the Council of the Royal Horticultural Society to remedy this matter.

Awards.—1st, Mr. Turner; 2d, Mr. Henderson and Mr. Young; 3d, Mr. Carr.

Before concluding we feel that we cannot protest in terms too severe against the disgraceful conduct of the Great Northern Railway people, who kept visitors to and from the Park on this occasion waiting at their stations for trains for hours. It was advertised that "*numerous* special trains" would run on the day in question, and the fact of their not doing so was productive of the greatest possible inconvenience to the public, who were naturally indignant at the treatment they received. If the managers of the Alexandra Park cannot prevent this, their enterprise *must* fail.

Notices of Books.

Lives of the Engineers. Vol. III. (George & Robert Stephenson). By Samuel Smiles. 8vo. Murray.

Mr. Smiles has devoted this, his third volume, to the combined biographies of George and Robert Stephenson, the reasons for which arrangement are fairly stated; and, we think, are entirely satisfactory. "Although it is unusual to embody two biographies in one narrative, it will probably be admitted that in the case of the Stephensons, such a combination is peculiarly appropriate—the life and achievements of the son having been in a great measure the complement of the life and achievements of the father. The care with which the elder Stephenson, while occupying the position of an obscure workman, devoted himself to his son's education, and the zeal with which the latter repaid the affectionate self-denial of his father, are among the most effective illustrations of the personal character of both. As regards their professional history also, it will be found that the relations which existed between them, more particularly with reference to the improvement of the locomotive and the construction of the first passenger railways, were of so intimate a kind, that it is impossible to dissociate the history of the one engineer from that of the other."

The life of George Stephenson is, in fact, to a great extent the history of the locomotive; and as such it possesses an interest apart from that of the mere biography of a gifted man. That power which has changed the aspect of our country, and which has now become so familiar to us as to be looked upon almost with indifference, was yet in its infancy when George Stephenson perceived its dormant capabilities, and devoted the energies of his life to developing and perfecting it.

Nor was he the only labourer in the field; many minds were endeavouring to solve the problem of uniting rapidity of transit with cheapness, and various experiments were made with the view of combining these objects. It was natural that the North should be the first to attain success. Even in the 17th century, tramways had been laid down to facilitate the conveyance of coal from the pits, while stationary steam-engines were employed to work the pumps and raise the coal, long before any one thought of using them as a mode of traction.

"The same circumstances which led to the rapid extension of railways in the coal districts of the north, tended to direct the attention of the mining engineers to the early development of the powers of the steam-engine as an effective instrument of motive power. The necessity which existed for a more effective method of hauling the coals from the pits to the shipping places, was constantly present to many minds; and the daily pursuits of a large class of mechanics occupied in the management of steam power, by which the coal was raised from the pits, and the mines were pumped clear of water, had the effect of directing their attention to the same agency as the most effective means of accomplishing that object."

George Stephenson was one of these workers; employed from his childhood in a colliery, he grew up, not only so familiar with every part of the engine which he daily tended as to be able to repair and even improve it, but also experimentally learning mechanics; and we read of him, now trying to solve the problem of perpetual motion, now teaching himself to clean and regulate clocks, now erecting a sun-dial, which still remains to mark the cottage he lived in. These, and many similar pursuits, were the amusements of his leisure hours, the largest part of his time being fully occupied by his duties at the collieries; but whether by his work or by his amusements, he was alike educating himself for higher things. His life at this period is thus described:—

"George Stephenson's daily life at Willington was that of a steady workman. By the manner, however, in which he continued to improve his spare hours in the evening, he was silently and surely paving the way for being something more than a manual labourer. He diligently set himself to study the principles of mechanics, and to master the laws, by which his engine worked. For a workman, he was even at that time more than ordinarily speculative,—often taking up strange theories, and trying to sift out the truth that was in them. While sitting by the side of his young wife in his cottage dwelling in the winter evenings, he was usually occupied in studying mechanical subjects, or in modelling experimental machines."

Mr. Smiles gives a sketch of the various early attempts to construct a locomotive, which however all proved failures. These were begun so early as 1763; but it was not until 1813 that any decided advance was made which gave reasonable hope of success. "An efficient and economical working locomotive engine, therefore, still remained to be invented; and to accomplish this object Mr. Stephenson now applied himself. Profiting by what his predecessors had done, warned by their failures and encouraged by their partial successes, he commenced his labours. There was still wanting the man who should accomplish for the locomotive what James Watt had done for the steam-engine, and combine in a complete form the separate plans of others, embodying with them such original inventions and adaptations of his own as to entitle him to the merit of inventing the working locomotive, in the same manner as James Watt is to be regarded as the inventor of the working condensing engine. This was the great work upon which George Stephenson now entered, though probably without any adequate idea of the ultimate importance of his labours to society and civilisation."

We cannot follow his improvements step by step; those who are interested in the subject will find them accurately, and perhaps almost too minutely described by Mr. Smiles.

From the first rude locomotive constructed at Killingworth, and which "succeeded in drawing after it eight loaded carriages of 30 tons weight at about four miles an hour," there is a vast interval to the express train, gliding across the country at the rate of half a mile in a minute, yet within the lifetime of one man this interval was spanned, and it is not too much to say that it is to him that are due all the principal improvements, not only in locomotives, but in railway engineering in general.

A detailed history of the various railways surveyed and executed under Mr. Stephenson's superintendence is given in this volume, and we have a graphic account of the various obstacles which beset him in the progress

of his work. Evil prophecies were the smallest of the annoyances. "It was declared that the railway would prevent cows grazing and hens laying. The poisoned air from the locomotives would kill birds as they flew over them, and render the preservation of pheasants and foxes no longer possible. Householders adjoining the projected line were told that their houses would be burnt up by the fire thrown from the engine-chimneys; while the air around would be polluted by clouds of smoke. There would no longer be any use for horses; and if railways extended, the species would become extinguished, and Oats and hay be rendered unsaleable commodities. Travelling by rail would be highly dangerous, and country inns would be ruined. Boilers would burst and blow passengers to atoms. But there was always this consolation to wind up with—that the weight of the locomotive would completely prevent its moving, and that railways, even if made, could never be worked by steam-power."

More formidable difficulties than these chimerical ones had, however, to be overcome, and not least of these was the carrying a line across Chat Moss, of which the following amusing description is given. "The three resident engineers selected by Mr. Stephenson to superintend the construction of the line, were Mr. Locke, Mr. Allcard, and Mr. Dixon. The last was appointed to that portion which included the proposed road across the Moss, the other two being by no means desirous of exchanging posts with him. On Mr. Dixon's arrival, about the month of July, 1826, Mr. Locke proceeded to show him over the length he was to take charge of, and to instal him in office. When they reached Chat Moss, Mr. Dixon found that the line had already been staked out and the levels taken in detail by the aid of planks laid upon the bog. The cutting of the drains along each side of the proposed road had also been commenced; but the soft pulpy stuff had up to this time flowed into the drains and filled them up as fast as they were cut. Proceeding across the Moss, on the first day's inspection, the new resident, when about half-way over slipped off the plank on which he walked, and sank to his knees in the bog. Struggling only sent him the deeper, and he might have disappeared altogether, but for the workmen, who hastened to his assistance upon planks, and rescued him from his perilous position. Much disheartened, he desired to return, and even for the moment thought of giving up the job; but Mr. Locke assured him that the worst part was now past, so the new resident plucked up heart again, and both floundered on until they reached the further edge of the Moss, wet and plastered over with bog sludge. Mr. Dixon's companions endeavoured to comfort him by the assurance that he might in future avoid similar perils, by walking upon 'pattens,' or boards fastened to the soles of his feet, as they had done when taking the levels, and as the workmen did when engaged in making drains in the softest parts of the Moss. Still the resident engineer could not help being puzzled by the problem of how to construct a road for heavy locomotives, with trains of passengers and goods, upon a bog which he had found incapable of supporting his single individual weight."

Our limited space forbids our detailing the ingenious methods by which this, and many other difficulties, were overcome. Ever ready with expedients, Stephenson never shrank from an obstacle, but persevered until he surmounted it. One short anecdote we must quote as exemplifying alike his ingenuity and his perseverance. After he had withdrawn from public life, he took great interest in horticulture and farming, being so successful in the former that his forced fruits, especially Pines, frequently obtained prizes at different exhibitions.

"He took much pride also in his growth of Cucumbers. He raised them very fine and large, but he could not make them grow straight. Place them as he would, notwithstanding all his propping of them, and humouring them by modifying the application of heat and the admission of light for the purpose of effecting his object, they would still insist on growing crooked in their own way. At last he had a number of glass cylinders made at Newcastle, for the purpose of an experiment; into these the growing Cucumbers were inserted, and then he succeeded in growing them perfectly straight. Carrying one of the new products into his house one day, and exhibiting it to a party of visitors, he told them of the expedient he had adopted, and added gleefully, 'I think I have bothered them noo!'"

We have seen it objected to Mr. Smiles that his account of the early life of George Stephenson is not always correct; we think this is very probable, seeing that he himself gives the following account of the manner in which he collected the materials for his work:—

"The information wanted existed but in the memories of individuals, from whom it could only be gathered by direct personal intercourse, and by slow degrees. Many of them were unlettered men, who, though they could communicate in conversation what they remembered, could not place it on written record." Mr. Smiles adds that, being unexpectedly obliged to reside at Newcastle, it became his recreation in the summer evenings to visit the places where George Stephenson had lived—Wylam, where he was born; Dewley, Callerton, Newburn, and Willington Quay, where he had worked as gin-driver, fireman, brakesman, and enginemen by turns; and Killingworth, where he had invented the safety-lamp and worked out the problem of the locomotive. All these places were within easy reach of Newcastle by railway; and thus, helped by the recollections of the engineer's former associates, his life was traced from boyhood to manhood, from the cradle almost to the grave."

Considering the impossibility of arriving at a correct account of anything which has not been committed to writing, it becomes obvious that close accuracy is not to be expected in a narrative confessedly drawn from the lips of illiterate and aged men. The main facts are, however, doubtless true, and well worthy of a careful record, and Mr. Smiles has bestowed much pains on their arrangement; the result of which is not only a readable, but a most interesting and instructive volume.

BOOKS RECEIVED.—*Rapport, &c.* [*Report on the various sorts of Sugar Cane cultivated in the Mauritius.* By Louis Bouton, Mauritius, 1863—a pamphlet.] This careful account of all the Sugar Canes known to the author will be found interesting to Tropical Colonists. ——*A First Year in Canterbury Settlement, New Zealand.* By S. Butler, 8vo, Longmans. The author went to New Zealand to seek his fortune, and in here relating his adventures has made a capital book. All things considered, his choice of Canterbury was a wise one, and we gladly learn "that the results of his undertaking have hitherto fully justified his expectations." The present disturbed state of New Zealand not affecting the Canterbury settlement, Mr. Butler's volume becomes doubly valuable, and we earnestly recommend every one intending to emigrate to provide himself with a copy. The advice and practical information contained in it are invaluable.——*Bradshaw* has published *an alphabetical handbook through London and its environs for the season*, 1863, *with a map*; very useful to strangers.

TRADE LIST RECEIVED.—L. VAN HOUTTE, Ghent, *Prix courant, No.* 97, containing Bulbs and similar plants, with short descriptions of the sorts.

Garden Memoranda.

MR. CATTELL'S NURSERY, WESTERHAM, KENT.—A nine miles' walk in the dog days, with the thermometer at 80°, is not in itself a pleasant undertaking; but when there is something at the end of it worth seeing, there are people who will adventure the toil for the sake of what follows. I am one of those when flowers—*the flowers*—of course I mean Roses—are the relative to the antecedent miles. And who would not undergo a little trouble to see such Roses, glorious alike in colour, form, and size. This nursery has for years past been noted for its excellent stock of Roses, which the proprietor has always cultivated with care, and has been most judicious in his selection, the best kinds only being sent out unless otherwise ordered. And here I cannot forbear entering my protest against the long, tedious, perplexing, unintelligible, "fat" lists of "select Roses" which many distinguished and respected members of the trade "forward on application" to the amateurs and lovers of this cherished flower. Is it a necessity imposed on them, is it only custom, or is it simply vain display? How infinitely better a really select list of the kinds that will grow would be both to seller and buyer, needs in my opinion no argument. Everybody who has a garden, be it large or small, likes to have Roses; they like also to have good Roses; but a very small per centage indeed of the "everybodies" grow them for public exhibition. Exhibitors, too, would learn to have more confidence, and probably become numerous. Let us hope that reformation will be made in this direction, and that growers for sale will thoroughly prove their new brood before it is turned loose upon the public to annoy and disappoint. A lasting debt of gratitude is due to the Rev. W. F. Radclyffe, whose name can never be used but with deep respect for his persevering and truthful endeavours to guide the Rosarian through the doubts that beset him every time the batch is announced.

To return to my subject: among the splendid stock of 20,000 plants, there was one variety in particular I was very desirous of seeing, viz., a new seedling originated here, having myself first publicly written of it in a former article in your columns, Aug. 9, last year, p. 742. I had then seen only the one bloom exhibited at the Bletchingley and Nutfield Show. I then described it as a rich crimson, large and full, and bearing comparison with Beauty of Waltham and others recently sent out, and proving a valuable acquisition to our English-raised Roses. An inspection of a large number of plants of it more than fully confirms the good opinion I had formed of it. It is a seeedling from General Jacqueminot, and as vigorous and free blooming as its parent, and altogether of beautiful habit—it is also much fuller than the General. Owing to Roses being later here than in many places, Mr. Cattell could not exhibit it at the great shows; and hence, in justice to the raiser, its existence should be made known. Judgment has already been pronounced upon John Hopper and Beauty of Waltham. I cannot for a moment think that a different sentence awaits Beauty of Westerham, the name by which this new pet is to be known.

Of new Roses there were but few out, and these, except the above and John Hopper, indicated no particular excellence—the plants were healthy. I am inclined at present to assign the foremost place of last year's novelties to Maurice Bernardin, Prince Camille de Rohan, Beauty of Waltham, and John Hopper. The Tea-scented Triomphe de Guillot fils is superb at this nursery—a really valuable acquisition for conservatory decoration. Among other Teas in good bloom I noticed Madame Willermoz, Comte de Paris, Mad. William, and the inimitable Gloire de Dijon. Noisettes—Celine Forestier and Triomphe de Rennes, both good yellows. Mr. Radclyffe has the finest Triomphe de Rennes probably in England. Of the older Hybrid Perpetuals Madame Furtado is one of the most striking, and certainly the most fragrant—one really good bloom of Furtado is a treasure—but good blooms are few and far between. I fear it will prove a failure; the stock of it here is healthy, but, compared with others, of feeble growth. Of the same year's brood as Furtado, I noticed fine grown plants, well flowered, of Madame Pierson and Agatoide, both deserving a trial by the amateur; General Washington and Princesse Mathilde. Of still older varieties Senateur Vaisse, Cecile de Chabrillant, Madlle. Bonnaire (*they* are the flowers), were in perfection. Victor Verdier, Eugene Appert, Louis IV., which grows well here; William Griffiths, Louise Odier, Duchess of Norfolk, Gloire de Santhenay, Lafontaine, Madame Domage, Madame Boll, Triomphe de l'Exposition, Madame Knorr, Empereur de Maroc, General Jacqueminot, Géant des Batailles, Madame Vidot, Madame Charles Crapelet, Souvenir de la Reine d'Angleterre, Lord Raglan, Reynolds Hole, were all that could be desired.

Just a glance at the belt of fine Conifers down the main road through the nursery; a taste of La Constance Strawberry, a fine fruit, and of Carter's Prolific Raspberry; a run through the orchard house, and then the return home. It is to be hoped the time is not far distant when railroad accommodation will be extended to Westerham, in order that the lovers of beauty may be enabled to visit this rising establishment, which will be always worth the trouble, not only for Roses, but also Dahlias, Phloxes, Gladioli, Chrysanthemums, &c., but of these more hereafter. *Adolphus H. Kent, Bletchingley.*

Miscellaneous.

Thujopsis dolabrata.—While we sipped our tea I had time to make some observations on the surrounding scenery. A quiet and secluded Rice valley formed the foreground to the picture; hills were on each side of us and behind us, densely covered with trees of many different kinds. Pines, evergreen Oaks, Chestnuts, Bamboos, and Palms—the latter giving a somewhat tropical character to the scenery—were the most common species. On a hill-side to the right of where we sat I observed a grove of the beautiful Thujopsis dolabrata, which I had come to look for. A stillness, almost solemn, reigned amongst these woods and temples, broken at times only by the call of the cock pheasant, or the rich clear note of some songster of the woods. What a charming place for a hermit or for some one tired of the busy scenes and oppressing cares of the world! But I had not come here to meditate only; and, therefore, setting down my teacup, I intimated to the good priest that I wished to pay a closer visit to the Asnero, the Japanese name for Thujopsis dolabrata. The old man kindly led the way. On arriving at the grove of these trees we found an old cemetery amongst them; and they had, no doubt, been planted there, along with a number of Cryptomerias, at the time the cemetery was first made. The Asnero is a beautiful tree, straight, symmetrical, attaining a height of 80 to 100 feet, and having leaves of a fine dark green colour. They are imbricated, or overlap each other on the stems, and look almost as if they had been plaited. Beneath they are of a silvery hue, which gives them a somewhat remarkable appearance when blown about by the wind. We could observe some bunches of seeds on some of the higher branches. These were not very easily reached; but both Tomi and I being good climbers, we pulled off our shoes and mounted the trees, much to the astonishment of our good friend the priest, who stood quietly looking on at our proceedings. *Fortune's "Yedo and Peking."*

Mosquitos.—Along the low river-banks, and everywhere on hot and swampy grounds, the blood-thirsty mosquitoes appear periodically in countless multitudes, the dread of all who live in warm climates. Scarcely has the sun descended below the horizon, when these insects arise from the morass to disturb the rest of man and to render existence a torment. Not satisfied with piercing the flesh with their sharp proboscis, which at the same time forms a kind of syphon through which the blood flows, these malignant gnats, of which there are many species, inject a poison into the wound which causes inflammation, and prolongs the pain. In Angola, Dr. Livingstone found the banks of the river Seuza infested by legions of the most ferocious mosquitoes he ever met with during the course of his long travels. "Not one of our party could get a snatch of sleep. I was taken into the house of a Por-

tuguese, but was soon glad to make my escape, and lie across the path on the lee-side of the fire, where the smoke blew over my body. My host wondered at my want of taste, and I at his want of feeling; for, to our astonishment, he and the other inhabitants had actually become used to what was at least equal to a nail through the heel of one's boot, or the tooth-ache." On the eastern slopes of the Andes, the mosquitoes or sancudos are so frequent that even the Indians consider many districts on the Marañon and Huallaga as absolutely uninhabitable. During his first sojourn in the Peruvian forests, Tschudi lay for several days almost motionless, with a swollen head and limbs, in consequence of the bite of these intolerable flies; and although by degrees the skin became more accustomed to the nuisance, and swelling no longer followed, yet their sting never failed to cause great pain. During three months of the year they infest the province of Maynas to such a degree, that even the stoical Indians utter loud complaints, and the dogs endeavour to escape them by burying themselves in the sand. Breeding cattle in these parts is impossible, for the sancudos would be the inevitable death of the calves. In no season of the year, at no hour of the day or night, do they desist in their attacks; but they are more peculiarly abundant in the second half of the rainy season. One of the most remarkable circumstances of their history is that they not only totally avoid certain limited districts, but even small places in the middle of a village. *Hartwig's Tropical World.*

Darnel Grass.—M. Filhol has recently investigated the toxical properties of the Lolium temulentum. Numerous experiments have been at different times made on animals with this plant; but they have not hitherto led to anything certain concerning the nature of the poison contained in it. M. Filhol has discovered that it contains a double poison—a poison of the strychnine class, and one of the narcotic kind. He has isolated these two poisons, and experiments on animals have shown their special actions, and explained their contradictory effects. M. Filhol adds, that the presence of Lolium in Corn may be shown by the shape of its starchy particles, which are different from that of Wheat. *Popular Science Review.*

Climate of British Columbia.—From very careful observations made in 1862 at New Westminster by Corporals Leech and Conroy, R.E., under the direction of Captain Parsons, R.E., we obtain the following interesting facts:—

Highest reading of Barometer, corrected for temperature ..	30.517 in.	
Mean height of do. do., at 9.30 A.M.	29.983 in.	
Lowest do. do.	29.071 in.	
Maximum temperature in sun's rays (black bulb)	104.0°	29th Aug.
Maximum temperature of Air, in shade	88.5°	do.
Do. .. 9.30. A.M. ..	73.9°	23d July.
Do. .. 3.30. P.M. ..	86.0°	28th Aug.
Mean temperature of Air, in shade .. .. 9.30. A.M. ..	46.8°	
Minimum temperature of Air, in shade .. 9.30. A.M. ..	2.0°	below zero, 15th Jan.
Greatest amount of humidity ..	1.000°	
Mean do. do. 9.30. A.M. ..	.842°	
Least do. do.	.320°	3d Jan.

There were slight frosts nearly every night in the month of April, and once in May (16th); they did not recommence until the 9th of October. The severe frosts of January and February have been unknown for many years. The total rainfall amounted to 47,466 inches, of which nearly 8 inches fell in December. The greatest fall of rain in 24 hours measured 2.260 inches on the 20th March. The average fall for every day of the year was 0.130 inches, and for each wet day it was 0.352. On the Fraser River at New Westminster, ice appeared on the 1st of January, 1862; the river was unnavigable on the 4th; it was completely frozen over on the 9th; and the ice attained a thickness of 13 inches in the channel opposite the R. E. Camp, on the 12th of February. Sleighs were running from Langley to several miles below New Westminster, and persons walked from Hope to the latter place, a distance of 80 miles, on the ice, at the end of January. Lake Harrison and the other Lakes were frozen. Navigation from New Westminster was open to the mouth of the river on the 11th of March, and from Yale on the 12th April. Again on the 5th December, there was ice in the river at New Westminster for one day. In January 1861, there was ice at New Westminster, but the navigation to the mouth of the river was not impeded. In 1860 there was no ice.

Canine Hunters.—Three dogs belonging to a rich proprietor in La Vendée went out hunting by themselves, without their master. Having started a rabbit which took refuge in its burrow, one of the dogs squeezed himself so far into the hole in pursuit of it, as to be incapable of retreating. His two companions, after scratching uselessly in order to relieve him, returned home tired and miserable; the next day and the day after they disappeared in the morning and returned at night, with their paws bloody, and their bodies covered with perspiration and earth, and refused all food. The third day the three dogs returned, and the one which had been lost was almost dying of hunger and as thin as a skeleton. That the two dogs had worked and succeeded in rescuing their companion was evident from the large hole made in the burrow. *Les Mondes.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Greenhouse plants out of doors will require canvas or tarpaulin drawn over them during heavy rains. Those still remaining in the house must have abundance of air. Whenever room occurs in the plant houses take in a few of the most forward Fuchsias, Japan Lilies, and Gladioli to assist in keeping up the floral display. Brugmansias and other vigorous growing plants should be frequently assisted with manure water; and as they are liable to get infested with insects, keep the syringe well at work before the plants get into bloom. In the Orchid house a warm moist atmosphere must be maintained to plants in active progress. Such, however, as have made their growth, which may be known by the pseudo-bulbs having attained their full size, should have less water and be gradually inured to a lower temperature and a greater degree of dryness. It should, however, be borne in mind, that this progression to a state of rest in all plants should be slow, and will take a considerable time to effect. So far as Orchids are concerned, those showing indications of matured growth may be first removed to the cool end of the house for a few weeks, and afterwards placed in quarters where the temperature and atmospheric moisture will not interfere with the slow progress of the plants towards a state of rest. Dendrobiums and others of that class should be grown on till the shoots are of sufficient length. Wash any plants infested with insects with a lather of common brown soap, using a sponge for the purpose; destroy, by every possible means beetles and other pests that infest Orchid houses. In mixed greenhouses, some of the Statices, such as imbricata, puberula, &c., exhausted with blooming, may be shaken out of their pots, and repotted. They delight in an open porous compost, with thorough drainage, and some of them are partial to a close and moist atmosphere. Stop gross shoots of greenhouse Azaleas, and see to cuttings being put in of the best Pelargoniums. The earliest sown Primula sinensis may now receive a final shift—these will blossom through October and November, when flowers will be scarce. Continue to pinch off all blossoms from pot Roses intended for flowering in November and December, and stop all luxuriant shoots. Young stock of these for winter work should now have their final shift.

FORCING DEPARTMENT.

PINERIES.—Pines of all ages will now be making great progress; attend to shifting in due course; water with liquid manure rather frequently, except where heavy syringing is practised, which, with high temperatures and occasionally a lively circulation of air, will supersede in some degree the necessity of much watering. Be sure to give abundance of air to all rapid-growing young stock in dung pits.

VINERIES.—Continue to remove, in a progressive way, the laterals of ripening Grapes, especially where they shade the main leaves. Give abundance of air as soon as Grapes begin to colour, and do not, by any means, hurry that part of the process, more especially if heavily cropped.

PEACHES.—Where the early crop is gathered, the lights may be taken off; there is, however, no absolute necessity for this. Those intended for very early forcing may have any late rambling growths stopped, in order to stay the action of the root and induce an early rest.

FIGS.—Continue stopping young wood. Give abundance of water to those in pots or tubs; those in pots do well plunged in an old bark bed if to spare. Syringe constantly between the ripening periods.

LATE MELONS.—As soon as a crop is set and swelling, give the hills a soaking of warm weak liquid manure, depending on light syringings afterwards and shutting up early on bright days. Do not abandon linings through the circumstance of a sunny day or two occurring. Endeavour to keep the bottom heat from 5° to 10° in advance of the average top heat.

FLOWER GARDEN AND SHRUBBERIES.

Beds recently planted will still require watching to get the plants in them fairly established. The heavy rain we have just had will however be of benefit to most things. Continue to clear away everything decaying, and to introduce good things from pots in the reserve ground. Decayed patches of bulbs, which are required to stand for early spring flowering, may have dressy Verbenas, or other things, introduced from pots between them. Cuttings of Pansies should be got out in succession, before the shoots are too much exhausted. All boundary or other hedges should be clipped forthwith. Auricula and Polyanthus seed ought now to be carefully collected; it should be retained in the seed vessels till the proper season for sowing has arrived; perhaps the best way of preserving it is to tie the stems together in small bunches, inserting the whole in thin paper bags, which should be suspended in a dry airy situation. Ranunculuses should now be out of the ground; when withered they are extremely susceptible of moisture, and if not taken up will emit fresh roots, which has a most prejudicial effect on them. They may be parted with facility, and this is better done now than when they are dry and hard. Seedlings should be carefully taken up, many of these will be very minute; in order that none may escape, it is a good plan to put the soil in which they have been grown into a fine wire sieve, then in working it about in a tub of water the soil will be washed away and the roots retained, which may be spread out to dry, and then stored in any place where they cannot contract mouldiness. Continue to put in pipings of Pinks, shading them from extreme heat. Extract decayed petals from the pods in which the seed is forming. As seedlings of Carnations and Picotees show their colour, all bad ones and selfs should be removed, unless any of the latter are of fine form and petal, in which case they might be retained as border varieties.

HARDY FRUIT AND KITCHEN GARDEN.

Persevere in pruning back all superfluous breastwood, more especially in trained trees. Get all summer nailing completed as soon as possible, remembering that the wood of Peaches, Nectarines, and Apricots is seldom over ripe in this climate, frequently, indeed, the reverse. Disbud the gross wood from Figs, reserving the moderate wood, but, above all, that which is short-jointed. Let a plot of ground be trenched and highly manured forthwith to receive a good breadth of Cauliflowers; and the Walcheren and Grange's Broccolies, if true, are most valuable also, as they are of a self-protecting character, and if planted with the Cauliflower will form a good succession. These things done well at this period, will insure a supply of those useful vegetables all through November, December, and even January. Let late Peas have every encouragement, more especially by thorough sticking. The crops of Knight's Marrows and British Queen should be stopped when at the top of their sticks; they will branch out sideways if the ground has been thoroughly prepared. Sow a little Endive. Good breadths of brown Cos Lettuce may also soon be sown. Sow more Coleworts of the dwarf compact kinds; also a pinch of Chervil and Corn Salad. Herb-gathering must be attended to, choosing a dry day, and cutting just as they begin to blossom. Remove all bloom from the latest Alpine Strawberries; the flowers after this period will be sufficient for the latest crop.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending July 22, 1863, as observed at the Horticultural Garden.

July.	Month's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 16	1	30.165	30.152	71	34	52.5	64	62	E.	.00
Friday 17	2	30.100	30.000	73	33	55.5	62	61	E.	.00
Satur 18	3	29.910	29.737	68	27	47.5	61½	61	N.W.	.00
Sunday 19	4	29.968	29.767	75	37	56.0	61	59½	S.W.	.00
Mon. 20	5	29.790	29.722	74	33	53.5	61	59¼	W.	.48
Tues. 21	6	29.752	29.605	73	52	62.5	60	60	S.	.15
Wed. 22	7	29.799	29.448	63	41	52.0	61	59	S.W.	.00
Average.		29.926	29.773	71.7	36.7	54.2	61.5	60.3		.63

July 16—Very fine; overcast; fine.
— 17—Very fine throughout, nearly freezing at night.
— 18—Overcast; fine; cloudy and fine; 5 deg. below freezing at night.
— 19—Clear, bright sun; cold at night.
— 20—Very fine throughout the day; nearly freezing at night.
— 21—Overcast; rain commenced at noon; heavy rain at night.
— 22—Rain; very heavy thunder shower at 11 A.M. overcast; fine.
Mean temperature of the week 8¼ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending Aug. 1, 1863.

July and Aug.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 26 .	73 4	51 0	62.2	18	1.22 in.	2	1	4	2	5	13	7	4
Mon. 27..	74.5	51.6	63.1	17	0.98	2	3	5	2	3	12	7	3
Tues. 28..	76.0	51.7	63 8	19	1.39	2	2	3	1	1	11	11	4
Wed. 29..	75.7	50 9	63 3	16	1.31	3	5	4	1	4	12	5	3
Thurs. 60..	74.9	50.8	62.9	16	0.83	4	3	3	1	2	10	9	5
Friday 31..	74.9	50.8	62 8	14	0.66	2	4	2	—	4	15	8	2
Satur. 1..	76.1	50.9	63 5	17	1.23	1	3	6	2	3	13	8	1

The highest temperature during the above period occurred on the 26th, 1862—therm. 82 deg.; and the lowest on the 1st of August, 1862—therm. 36 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARAUCARIAS: *R.* We suspect that if you will remove the soil in which they are now growing and substitute good loam, your difficulty will vanish, unless, indeed, the ground is over drained.

BROCCOLI: *Messrs. Carter & Co.* Your Broccoli is excellent; it is good in colour, large, and compact.

CURRANTS: *Nieuwmolen.* The fruit has been very carefully compared; but it had been so long packed up in consequence of the mismanagement of some agent, that it was much injured. The Strawberries were ruined. Our reporter says that he was unable to discover any improvement on Knight's large red Currant.

EXHIBITION PLANTS: *W B.* We are of opinion that Musa Cavendishii is not a proper plant to exhibit in a collection of plants with ornamental foliage, and that the judges could rightly disqualify you for so doing.

GLOXINIAS: *W F.* Your Gloxinias are in precisely the same condition as those noticed June 27, 1863. The tissue is decomposed, but from what cause it is impossible to say. Are they kept too wet, or are the roots dead? *M. J. B.*

INSECTS: *P & Son.* Your insects came to hand quite smashed by the post, but we suppose the damage to the Willow stems is done by the weevil grubs, Cryptorhynchus Lapathi, of which you will find a long account in Loudon's Arboretum, p. 1479. Please send other specimens with portion of the stem, showing the burrows to Prof. Westwood, Oxford.—*J.* Your Fern stems were so smashed in the post, and soddened with moisture, as to destroy all trace of the insect. Can you send other specimens more carefully packed to the above address?—*W.* There were no insects on your Pear leaves, which are evidently attacked by the slimy larvæ of the Sawfly (Selandria Æthiops). Lime and gas tar water will certainly destroy them. *W.*

LILIUM AURATUM: *H. Savage.* Your letter is an advertisement.

NAMES OF PLANTS: *R W.* 1, Melia Azedarach; 2, Selliera repens; 3, some species of Lysimachia, but which the specimen sent does not enable us to determine; nor do you say from what country it comes, which might have rendered its identification practicable.

MOULDS: *T S.* The substance on your marble inkstand is complex. There are threads of some moulds, probably the common ink mould (Conferva atramenti, Dillw.) mixed with a white substance which is apparently sulphate of lime, the sulphuric acid being derived from the sulphate of iron used in making the ink. *M. J. B.*

TAYLOR'S BEEHIVES: *Ignoramus.* We understand that Messrs. Neighbour & Sons, of 127, High Holborn, sell Taylor's Beehives. They are, we believe, the only manufacturers of them.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.
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LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1863 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from Messrs. Gibbs: Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
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REIGATE SILVER SAND.—Best quality, 7s. 6d. per ton; packed, 16s. per ton; ditto 5s.; 4 cwt. put on the Rail at Reigate.
Best and second quality PEAT SOIL, LOAM, &c.
N.B. Loaded Trucks can be sent on all the principal Railways.
W. SHORT, Reigate, Surrey.

NORFOLK or SUFFOLK POLLED CATTLE are unsurpassed for Milking properties and for the quality of their Beef. Gentlemen wishing to purchase animals of this profitable and handsome breed can be supplied on application to
THOMAS FULCHER, Elmham, Thetford, Norfolk.

To Dairy Farmers.

THE GOVERNORS of EMANUEL HOSPITAL, WESTMINSTER, hereby give Notice that they will meet at Guildhall, London, E.C., on FRIDAY, the 31st July, inst., at 1 o'clock in the afternoon precisely, to receive Proposals and to CONTRACT for the supply of good pure MILK for the Children of the said Hospital for 12 months, the quantity required being about seven Gallons daily, to be delivered morning and afternoon.
Parties proposing are expected to attend. The Governors will not consider themselves bound to accept the lowest tender.
WM. BARBER, Clerk to the Governors

BURGESS AND KEY'S REAPING and MOWING MACHINES.
No. 1. McCORMICK'S NEW PATENT REAPING MACHINE delivers the Corn in Sheaves by self-acting Rake: price 34l.
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All the above are STANDARD IMPLEMENTS, and as to their efficiency BURGESS & KEY refer intending purchasers to the list of Prizes received from various Agricultural Societies, and, with still more confidence, to the large number of Agriculturists who have them in use in all parts of the world.
Immediate Orders are requested to ensure timely delivery.
Full particulars and drawings forwarded on application to
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CLARKE'S PATENT ADJUSTIBLE SCYTHE is the strongest, lightest, most durable, and best cutting Scythe yet introduced. It is used in the Gardens of the Royal Horticultural Society at South Kensington, and has given great satisfaction to all who have tried it.
The following is from G. EYLES, Esq.
"Royal Horticultural Gardens, South Kensington, May 20, 1863.
"Sir,—I like your scythes very much.—Yours very truly,
"GEO. EYLES."
CLARKE & SON, Patentees and Manufacturers, Brackley, Northamptonshire.

Drainage, &c.

MR. JOSEPH BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements. Valuations made for Sales, or the re-letting of Farms.
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The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
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3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
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Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W.

MESSRS. J. CHALMERS MORTON, Streatley, near Reading, and J. THORNHILL HARRISON, M. Inst. C.E., Frocester Court, Stonehouse, Gloucestershire, AGRICULTURAL ENGINEERS, undertake reports on the Condition of Landed Property, together with the Direction of Land Drainage, Roads, Embankments, Farm Buildings, and other works necessary for its permanent improvement.

AGRICULTURAL and CHEMICAL COLLEGE, 37 and 38, Lower Kennington Lane, London, S.
ASSAYS and ANALYSES promptly attended to by J. C. NESBIT, LANSDELL & Co.

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MR. BAILEY DENTON, C.E., maintains a large staff for the execution of Land Improvements by a commission of 5s. per acre for Under Drainage, and a fixed charge for Outfall and other works.
For particulars apply to him, at 52, Parliament Street, Westminster, S.W.

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The Right Hon. THE EARL DUCIE.
The Right Hon. T. H. SOTHERON ESTCOURT, M.P.
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MATHEMATICS AND SURVEYING.
W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.
DRAWING.—JAMES MILLER.
* These Gentlemen will be in temporary residence.
Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—
AGRICULTURE.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
ROBERT RUSSELL, Editor of the Transactions of the Highland and Agricultural Society—A Course of Lectures on Manures.
AGRICULTURAL CHEMISTRY.
THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.
The College will RE-OPEN AUGUST 10th. For further particulars apply to the Principal.

THE GENERAL STEAM CULTIVATION COMPANY (Limited).
CAPITAL 250,000l., in 25,000 Shares of 10l. each.
With power to increase.
FIRST ISSUE OF 10,000 SHARES.
Deposit 10s. per Share on application, and 1l. on Allotment, and the remainder in calls not exceeding 1l. per Share, at intervals of not less than Three Months.
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This Company has been formed for the purpose of bringing into general use Steam Cultivation, which is acknowledged to be one of the most important improvements of the present time.
The Company proposes to provide Capital for the purchase of Steam Cultivators and other approved Agricultural Implements, receiving one-fourth of the value of the Machinery within Three Months of the date of the Agreement, and the remainder in Instalments extending over a period of Three, Five, or Seven Years.
Prospectuses and Forms of Application for Shares may be had of the Brokers, the Solicitors, and at the Temporary Offices, 70, Cannon Street West, E.C.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1863.
The FIFTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in Bingley Hall, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 1, 2, and 3, when PRIZES (CUPS, or other Articles of Plate, and GOLD and SILVER MEDALS) to the amount of £1940, will be awarded in the following Divisions, viz.:—

FAT CATTLE	£784 5 0
FAT SHEEP	275 15 0
FAT PIGS	60 5 0
BREEDING PIGS ..	76 10 0
CORN and ROOTS ..	68 5 0
POULTRY and PIGEONS	674 4 0

Prize Lists and every information may be obtained from the Secretary. JOHN B. LYTHALL, Secretary.
Offices: 13, Temple Street, Birmingham.

Grand Agricultural and Horticultural Show.
THE MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY'S MEETING will be held in the Park, Birkenhead, on SEPTEMBER 8, 9, and 10. An Exhibition of HORSES, HORNED CATTLE, SHEEP, PIGS, POULTRY, BUTTER, CHEESE, IMPLEMENTS, MACHINERY, HORTICULTURAL and AGRICULTURAL PRODUCE, for which Prizes amounting to upwards of 1400l. are offered. The Local Committee also offer 50l. for a MUSICAL BAND CONTEST. Entries to Close on August 10.
Prize Lists to be had on application to Mr. T. B. RYDER, Treasurer and Secretary to the Society, 57A, Church Street, Liverpool; or to Mr. W. HENDERSON, Honorary Local Secretary, 2, Market Cross, Birkenhead.
N.B.—Subscribers of not less than 20s. to the Local Fund, or parties becoming Members of the Society, and Subscribing not less than that amount, may enter their Stock free of charge.—2, Market Cross, July 25.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.
GRAND SHOW at BIRKENHEAD (in the Park) on SEPTEMBER 8, 9, 10.
Prizes amounting to £1400.
ENTRIES CLOSE on August 10.
For Prize Lists, Regulations, &c., apply to Mr. WM. HENDERSON, Local Secretary, Birkenhead, or to T. B. RYDER, Secretary, 57A, Church Street, Liverpool.

The Agricultural Gazette.

SATURDAY, JULY 25, 1863.

THE great meeting of the Royal Agricultural Society of England at Worcester has come and gone, probably with profit to the Society itself, and certainly with advantage to the large numbers who have witnessed it. Whether they have come for information or for business—whether the yard has been regarded as a museum or a mart—the purpose of the meeting has been fully served. The live stock of the country has been well represented; a better show of Short-horns and of Herefords has been rarely seen, and the sheep and Pig classes, and many of the horse classes, have been well filled. A wonderfully fine collection of farm machinery has been exhibited; several classes of machines have been subjected to a severe trial before assembled judges. The manufacturers of steam ploughing apparatus have had ample opportunity of exhibiting their machinery at work, and in no department of the business of the week has greater interest been taken. This subject was indeed sufficiently attractive to gather 500 gentlemen to the Guildhall, on Tuesday evening, for the discussion of a proposal by which it might be promoted. And the one instance in which a successful public meeting has been held about any special agricultural topic during the whole course of the annual agricultural meetings of the Society which we have attended has thus occurred in connection with steam cultivation. Nothing could be a more satisfactory proof of the great importance which is now attached to steam cultivation by agriculturists than the large meeting in the Guildhall, remaining crowded to the last, of which a short report is given elsewhere.

We understand that sufficient proof of this interest was also afforded by the numerous purchases of their apparatus, which most of the manufacturers have had to report. Certainly there is no place like a gathering of this sort for enabling a man to make up his mind on the subject. He witnesses the elaborate trials before official judges, and the unofficial but very efficient exhibition of the "tackle" at work; and he is throughout the week in an atmosphere of conversation, contributed to by manufacturers, their clients who have already many years' experience, and others who have been students of the subject for as many. He hears Mr. SAVIDGE, of Sarsden, report his Wheats, after steam cultivation by FOWLER'S machinery, to be full of growth and still green, while those sown the same day after horse tillage, alongside, have ripened before their time. He learns that the valuation under the new Assessment Act has put up the Woolston farm 10s. an acre. He hears Mr. WILLIAMS, of Abingdon, speak of the effect of autumn steam tillage on his clays by

HOWARD'S "tackle" in preparing land for the Bean crop, which though sown in spring under unfavourable circumstances, and at first less promising than fields close by under ordinary farm management, have outstripped them wonderfully at harvest time. He hears that Lord BROWNLOW having bought a second-hand set of SMITH'S tackle for 160*l.*, of which 25*l.* was for a wire rope, sold it again after two years' constant use, and obtained for it 157*l.*, having spent 75*l.* in rope and repairs during the interval, so that the whole cost of wear and tear and rope and repairs was 39*l.* a year; not much more than 1*s.* an acre altogether of the work it had accomplished. He learns that a company has been formed since last November near Wakefield which has raised 1500*l.* in 1*l.* shares, purchased a set of FOWLER'S double engine tackle, worked since December last, earned 310*l.* and spent 204*l.* in the spring half-year. If the autumn half should enable it to add 150*l.* to its profits that will enable it to lay by a sufficient sum for the reproduction of the apparatus, and leave enough for a handsome dividend.

Of course those interested in steam cultivation benefit at these meetings also by the warnings which they hear of breakages and disaster of various kinds which will modify and temper the tendencies of sanguine men; so that in both ways these public gatherings are a great service to agriculture and to agriculturists.

It is to be regretted that the full advantage of the meeting at Worcester in the early part of the week was not realised, owing to the weather. The previous week for official trials of the machinery was fine, and the Monday set apart for the official examination of the live stock was also beautiful. Tuesday afternoon was pouring rain. Wednesday afternoon was damp. Under these circumstances it is not to be wondered at that the attendance on those days has been less than usual. The following are the figures up till Thursday:—

	Visitors	at	Receipts.
Monday ..	.. 809 ..	10*s.* 0*d.* ..	£404 10 6
Tuesday ..	.. 7685 ..	2*s.* 6*d.* ..	960 12 6
Wednesday ..	.. 9296 ..	2*s.* 6*d.* ..	1162 0 0

On Thursday the weather was delightful, and immense crowds poured into the yards; amongst whom we were glad to see a very large proportion of agricultural labourers. Nothing could be gayer or more beautiful, both by Art and Nature, than the scene of this year's gathering. The show yard, commanded by land above it, does itself command a finely wooded rolling country, with the blue range of the Malvern hills behind it. And the city is decked out in many-coloured flags for the reception of its visitors, who are welcomed by the joy-bells of the churches, and by the legends on many most effective and artistically designed and gaily decorated arches spanning the principal streets.

THE magnificent International Agricultural Show at Hamburgh last week was a great success. The death of Baron VON MERK who first conceived the design and helped to carry it out, checked the *éclat* with which its numerous visitors would have been received, but in no degree diminished the energy with which the plans to which he had contributed were carried out. Some 500 horses, nearly 1000 cattle, and 1800 sheep together, made a collection to which, for quantity, we have hitherto in England made no approach. The highest quality, however, of course in our own estimation, but also, as evidenced by the prices reached, in that of foreign judges also, lay with the English exhibitors.

The horse show was particularly good; that of cattle also in many of its classes was good, and in all interesting. The sheep show contained a great deal of what was useless to English farmers.

Steam cultivation excited great interest, FOWLER'S apparatus taking the 1st prize, and HOWARD'S the 2d. Gold medals were awarded to CLAYTON & SHUTTLEWORTH, RANSOMES, HOWARDS, HORNSBY, GARRETTS, and BARRETT & EXALL; and silver medals to a number of other English exhibitors of machinery. The traction engines shown by AVELING, RICHARDSON, BURRELL, and others, excited a good deal of interest, as also did the reaping machine. Mr. MCCORMICK takes an honorary gold medal, and silver medals are awarded to BURGESS & KEY, SAMUELSON, BAMLETT, KEMP, BRIGHAM, and WOOD.

The prizes in the Horse classes include first prizes to Messrs. CRISP, of Butleigh, and HOLMES, of Beverley, for mares breeding roadsters. Two first prizes to Sir C. PHIPPS (the Prince Consort's Shaw Farm), for Clydesdale stallions and mares; 1st prizes to Mr. CRISP for old Short-horn bulls, and to Mr. MERTENS for FIRST FRUITS, the Gold Medal yearling at Battersea.

All the prizes for Southdown sheep to Lord WALSINGHAM.

Mr. HUMFREY, of Wantage, takes prizes in the Short-woolled classes; and Mr. HANDY, of Gloucestershire, Mr. CLARKE, of Long Sutton, and Mr. GIBSON, of Woolmet, take prizes in the Long-wools.

The weather, which had been fine during the early part of the week, was extremely wet on Friday and Saturday. The meeting has been extremely successful in respect of the large sales made by exhibitors.

OUR advertising columns have announced the bazaar which is to be held at Tiptree on Thursday and Friday of next week, in behalf of schools about to be erected there. We have received the following letter from Mr. Alderman MECHI, intimating that his farm is on those days open to public inspection:—

"I trust that such of my brother agriculturists as can come, will visit my farm on the 30th and 31st inst. While their ladies are entertained at the bazaar, they can pry into my doings and form an opinion whether the farm 'looks like paying' for drainage and deep cultivation, sewage, irrigation, and other improvement."

STEAM CULTIVATION.

A PUBLIC meeting was called on Tuesday at Worcester to consider the best means of promoting steam cultivation. And the large room at the Guildhall was filled by a very influential and numerous body of tenant farmers. Mr. J. C. Morton was called to the Chair, and stated the purpose of the assemblage.

The first resolution—"That the cultivation of the land by steam is now proved to be an advantageous and highly economical process, and that the machinery used for this purpose is of a character sufficiently perfect to be recommended for the use of practical farmers," was proposed by Mr. J. A. Clarke, who dealt especially with the fact, that steam cultivation is now a success, that no great step in advance need now be looked for—and that therefore it is needless and foolish to delay any longer adopting one or other of the methods of cultivation for which the apparatus of the various manufacturers is provided. Mr. Clarke also referred to the undoubted success, advantage, and economy of steam cultivation on numbers of farms in the country. The resolution was seconded by Mr. Clare Sewell Read, who referred to the results of his examination as judge of steam cultivation into the subject, in proof of the cheapness and excellence of the process. Mr. Ruck, of Cricklade, also related his experience on the subject. The motion was put to the meeting and carried unanimously.

The second resolution — "That the one great obstacle to the progress of steam culture is the inability of the generality of tenant farmers to purchase the expensive machinery now used to break up and prepare the soil," was proposed by Mr. Williams, of Baydon; seconded by Mr. Dring, of Claxby; supported by Mr. Williams, of North Court, Abingdon, and by Mr. Duckham, of Baysham Court, near Ross; and put to the meeting by the chairman, who called attention to the fact that neither Mr. Williams, a client of Fowler, nor Mr. Dring, a client of Smith's, nor Mr. Williams, of Abingdon, a client of Howard's, referred to the faults of the several systems, or to the difficulties or costs or risks respectively; but to the expensiveness of the apparatus as "the one great obstacle." The resolution was adopted unanimously.

The third resolution:—"That considerable advantage would arise to tenant farmers and others by the establishment of a joint stock company, for the purpose of supplying steam apparatus to applicants, allowing them to repay the cost price by instalments extending over a certain number of years; and for the purpose of working for hire wherever suitable districts may be guaranteed"—was ably moved by Mr. Bailey Denton, who referred to his experience as a land-drainer, in illustration of the value of steam cultivation, and to his experience in connection with the advance of money for that purpose, and its repayment by instalments, as throwing light upon the plan here proposed for facilitating the promotion of steam cultivation. The difficulty would be in giving adequate security to the company, the lender of the money; and Mr. Denton suggested that the landowners might come forward to the assistance of tenants. Mr. Hatfield of Stamford seconded the motion, and it was supported by a gentleman from Yorkshire, who related the encouraging experience of the Wakefield Steam Cultivation Company, as proving both the advantage to the tenant farmer, and the profitableness of the operations to the company.

Mr. Howard Reed, the representative of the proposed Steam Plough Company then addressed a few words to the meeting on the large scope for its operations which existed not only in this country but on the continent—and Mr. Morton, before putting the resolution, which was carried unanimously, called the attention of the meeting to the resolutions *seriatim*, which had been adopted, referring to matters within his own knowledge bearing on each, and declaring that he was present merely as a promoter of steam cultivation generally, and not in any sense or degree as a promoter of the proposed company, in which he had no personal interest whatever, but which nevertheless he believed likely to be of great use to English agriculturists.

Mr. Williams, of Baydon, then referred at some length, and with considerable indignation, to an obstacle which at the instance of a noble lord had been placed in the way of steam cultivation by an order from the Secretary of State to the Petty Session district of Salisbury, forbidding the travelling of steam tackle on the high road during daylight. A vote of thanks to the chairman concluded the meeting.

GREAT AGRICULTURAL MEETING AT WORCESTER.

OUR reference last week to the preliminary trials of implements before the judges of the English Agricultural Society, alluded almost exclusively to the work of the steam ploughs and cultivators. This Journal has been so full latterly of reports and discussions on this subject that our readers will hardly expect us to fill the small space at our command, as might easily be done, with a further argument based on the facts determined at this meeting. We understand that in all the cases examined, the cost of the operation (made up of wages, fuel, probable repairs, and interest of money), was less than horses would have incurred; coming to about 5*s.* an acre on the comparatively light land cultivation of Wednesday and Thursday, and to 9*s.* or 10*s.* on the heavy work of Friday and Saturday.

The work of these two days, near the Wadborough station on the Midland Railway was a great test both of the power and of the efficacy of the machinery employed. Friday's field, very stiff below and lighter above, was worked by Fowler's cultivator with digging breasts, by Stevens's cultivator, by Howard's in two places (one drawn by his own 10-horse power engine and windlass, and another drawn by Savory's 10 horse power engines). Smith and Coleman also did good work, but the latter ultimately gave way. All the other tools did good work. It was, however, in another field of exceedingly heavy land covered with a Grassy sward that the machines were put to the most extraordinary test of their power.

Here Fowler distanced all competition and astonished the spectators with the way in which with his apparatus, furnished as a 3-furrowed digger, he tossed about the great masses of earth 8 and 10, and even 12 inches thick, which it tore and cut from the land. Neither Howard nor Smith were equal to a task of this kind; but this, though good and useful as a test of the capabilities of the machinery, was not a process to which such land would have been subjected by a farmer wishing to break it up.

Elsewhere, however, wherever the land was fairly level it appeared to us that Fowler's apparatus has the advantage of its competitors. And this it owes not more to its mode of applying power than to the excellence of the machine which it works. There was nothing in any of the fields that we saw to equal the operation of the cultivator with digging breasts in the first field that was entered. And though Mr. Smith, of Woolston, informs us that he has commissioned five or six separate farmers to go to these fields and name the plots in the order of their merit, and that they have unanimously and invariably declared his own to be the best — yet so far as Fowler's digger is concerned, we believe its work has not been approached by any of the rival machines; while his ordinary cultivator on level ground is as good as can be desired. When it crosses ridge and furrow it does not make good work, but the operation of steam cultivation will make ridge and furrow unnecessary. Mr. Smith's grubber beat all competition on the uneven surface, and it is this which has placed him second in the estimation of the Society's judges. Mr. Howard's tool and apparatus did very good work in the first field and in the third. In the second also it did fair work wherever the land was level. The extremely heavy and uneven land of Saturday was too much for it. When shown at work on Tuesday and Wednesday its grubbing and ploughing were capitally done. Mr. Coleman's apparatus, too, was shown successfully at work on these days. Smith did some thoroughly good grubbing, as good as any that we saw of extremely foul land; and Fowler showed both his smaller set of 10-horse power tackle at work, and his double engine system of cultivating land, where each coils the rope *alternately* in a very ingenious way underneath the boiler as the plough or grubber is drawn to and fro between them.

We have to congratulate Messrs. Savory, of Gloucester, on having won so large a share of the award for the best method of cultivating land by steam. Their double engine, carrying drums revolving around their boilers, were employed to drag Fowler's, Howard's, and Williams's tools in turn, and did capital work.

Williams's large cultivator made very good work, and his enormously heavy harrow and roller followed it, and the land was then ridged up, all by steam-power.

Dr. Agur's revolving cultivator was also shown at

work in the field, but the land was neither loose enough nor clean enough for its efficient operation.

Taking the excellent trials before the Society's judges into account, and also we must say the proof which both Savory and Fowler have given of the efficiency and quickness of the double engine way of applying steam power to the process, there can be no doubt that the Worcester meeting has contributed to the confirmation of the success of steam cultivation.

The other classes of machines, steam-engines, threshing-machines, winnowers, &c., subjected to examination, are precisely those which can be most accurately tested by judges, and the results which the prize list gives are therefore the more trustworthy and useful. Great care was taken to ascertain the power given off by the competing steam-engines, each being supplied with steam of a certain pressure—the result is seen in the awards. The power used in threshing and other machinery was also carefully measured; but the figures which express it are the less interesting because many other circumstances, and especially the quality of the work, guided the decisions of the judges. Those decisions are given below.

The implement yard is both enormous and full. We understand that whereas 1400 railway trucks brought the Show to Leeds, nearly 2000 have been required for its transport to Worcester. There are few novelties, and these with the rest of the machinery generally must be described next week. Grant's portable field railway, Freer's seed planter; Child's new chaff-cutter, which claims to give what is called a drawing cut to the straw, whereas all cuts are more or less *drawing*—and in this the knife is as nearly as possible parallel to itself while at work, thus acting by a chop as perfectly as a guillotine cutter does. All this must be referred to in detail hereafter.

We can only add at present that among the 330 stands, the majority of which of course are filled with agricultural implements and domestic apparatus of various kinds, the seed trade is fully represented by Messrs. Carter, Chivas, Thomas Gibbs & Co., Raynbird, Smith, Sutton, and Wheeler.

The stands of Messrs. Gibbs, Sutton, and Carter are the most striking and perfectly furnished. Mr. Smith, of Worcester, exhibits large specimens of Coniferous trees, Greenhouse plants, and Roses. Mr. Sutton has not before exhibited at the annual meetings of the Society. No prizes of any kind are awarded here, but he informs us of his success at the recent Danish agricultural meeting, when silver medals were awarded to himself, Mr. Hallett, and other exhibitors of plants.

THE CATTLE YARD

was opened on Monday to members free, and to others on payment of 10*s.*, while the adjudication of the prizes was going on, and a considerable number of spectators soon surrounded the rings into which one class after another was introduced and ranged in the order of merit. It was a beautiful day, and there was very great enjoyment, as well as instruction, in the examination of the several well represented classes of cattle, horses, sheep, and pigs, as well as in witnessing their examination by the Society's judges. Of course the yard is not so wonderfully filled as that of last year at Battersea. We miss the fine collection of foreign cattle, as well as the extraordinary exhibition of Scottish breeds of cattle and sheep. There is, however, a remarkably fine show of Short-horns and of Herefords; and the various kinds of sheep and pigs are also well represented. To the Horse Classes reference is made below:—

SHORT-HORNS.

13 bulls competed for three prizes in the first class, the prizes going to Mr. Jacob Wilson, of Woodhorn, Morpeth, for a very grand and massive animal, heavier and deeper however a good deal in the forequarter than behind, where he is rather light. He is descended from Farneley blood, and farther back from blood to which Booth resorted with his most successful results. Lady Pigot, Lord Feversham, Messrs. Dudding, and other well known competitors were among the exhibitors. The second prize goes to Mr. Charlesworth, of Dewsbury, for GENERAL MURAT. The third to Mr. Brawn, of Sheffield. The class contains a dozen animals. Lord Feversham is highly commended for a very fine and massive roan descended from 5th DUKE OF OXFORD, USURER, &c. It is an illustration of one main purpose of these shows, that in this and other classes, a large proportion of the animals are headed "for sale."

Class 2 is a numerous and very fine collection of younger Bulls—the prizes were taken by Viscount Hill, Mr. J. Peel, and Colonel Towneley, 1st, 2nd, and 3rd respectively; and here, too, many of the entries are for sale. Viscount Hill's bull is a straight well-made roan of capital quality of flesh. Sir A. Rothschild who has been very successful at this meeting, shows a fine red bull, deep, and well made everywhere, perhaps hardly so wide as a first rate short-horn ought to be, but exceedingly well covered on a very symmetrical frame nevertheless—"a brick in elevation, a cylinder in section."

Class 3. The Yearling Bulls are a very numerous class, as many as the other two together, and the competition is very close. Mr. Eastwood is 1st, Colonel Towneley 2d, and Mr. Woodward, of Tewkesbury, 3d; beating animals shown by many well-known 1st class breeders, as Lady Pigot who, though unsuccessful here, has ample reason to be satisfied with the standing of her stock in the yard; also Messrs. Peel, Langston, Pawlett, Fawkes, Garne, Bradburn, Robinson, Holland, Pennant, &c. Lady Pigot's is a remarkably well made roan of pure Booth blood; Mr. Langston's, an equally fine red bull of mixed Bates and Booth. The prize bull shown by Mr. Eastwood is white, reminding one in other respects, as well as colour, of the gold medal bull at Battersea last year. Mr. Woodward's bull, 10 months older, is a much larger roan animal, of great width both fore and aft, straight and even back, and well arched rib. The second prize, going to Colonel Towneley, is won by a very recognisable BUTTERFLY, light roan, very level and even—back straight and level as a table—or rather as the flooring of a church, nave and transept both laid out as square and true, and accurately proportioned as could be desired.

Class 4. Bull Calves are another very large and capital class. About three dozen animals were brought into the ring, and a very beautiful show they formed of themselves, but puzzling and pleasing the judges and spectators for a great length of time. Sir A. de Rothschild, Mr. Garne, and Mr. Robinson, of Clifton Pastures, are respectfully 1st, 2d, and 3d, for red, white, and roan yearlings respectively. The whole class is a wonderful illustration of the precocity of the breed; animals 9 and 10 months old, larger than full-grown Devons, make one ask with astonishment what good purpose is served by offering as many and as large prizes for the small local breed as for this, the dominant and prevalent breed of the whole world where either beef or milk is desired? The prize bull is smaller than many of his competitors of the same age.

We now come to the female classes. The old class comprises four cows. Lady Pigot takes the 1st prize with *Pride of Southwicke*, shown, and successful, at Exeter; and Mr. J. Lane the 2d, with *Maid of Athens*. The 1st prize cow is a large, straight, strawberry roan, very evenly covered; the 2d prize is white, massive, heavy, more patchy.

The Heifer class is one of remarkable beauty. Lady Pigot is again successful with one of the finest animals in the yard, as true and cylindrical a barrel as was ever carried on four legs; beautifully fine head, and indeed good everywhere. Mr. Booth is 2d, with a short-legged, sturdy, large-boned, deep-bodied, well-made roan; and the 3d prize goes to one of Colonel Towneley's Butterflies, a red and white cow. This is a very beautiful class, and gave great enjoyment to many spectators. Mr. Butler's (Badminton) roan heifer was most deservedly highly commended.

The Yearling Heifer class is another very large and important class of great beauty. The Duke of Montrose is 1st, Colonel Towneley 2d, and Lady Pigot 3d—all of them roans. Colonel Towneley is also highly commended for a roan yearling descended from the same bull as Mr. Wilson's prize animal in the old bull class.

The Heifer Calves are a very large class, including a score of very beautiful animals. The first prize goes to Mr. Mackintosh, of Romford, for a wonderfully fine specimen of the Short-horn breed—bred by Mr. Mackintosh from one of the imported American bulls out of *Lady Oxford 5th*; both Booth and Bates contributing to her pedigree, the former, however, in small proportion. She is very fine in the hind-quarters and flank, and thick and deep throughout; a very fine bosom, beautiful head, well arched rib, and covered with capital hair. The 2d prize goes to a red calf shown by Mr. Oliver, of Towcester; the 3d to Col. Towneley, for a red and white of the Butterfly tribe. These are the successful ones of a class in which there is unusual competition—many first-rate herds—those of Garne, Fletcher, Towneley, Pennant, and many others contributing to the class.

The following is the list of the awards:—

SHORT-HORNED.

Class 1. To the owner of the best Bull, above 3 and not exceeding 6 years.—25*l.*, to Jacob Wilson, of Manor House, Woodhorn, Morpeth; 15*l.*, to John Charlesworth, of Headfield, Dewsbury, Yorkshire; Silver Medal, to John Brawn, of Sheffield, Walsall, Staffordshire. Highly Commended: Lord Feversham, of Duncombe Park. Commended: Joseph Bickford, of Oxley, Wolverhampton; the Earl of Zetland, of Aske, Richmond.

Class 2. To the owner of the best Bull, above 2 and not exceeding 3 years old.—25*l.*, to Viscount Hill, of Hawkstone; 15*l.*, to Jonathan Peel, of Knowsmere Manor, Clitheroe; Silver Medal, to Colonel Charles Towneley, Burnley. Highly Commended: Sir Anthony de Rothschild, Bart., of Aston Clinton, Tring. Commended: Richard Stratton, of Walls Court, Bristol; George Jones, of Whitley Court, Upton St. Leonards, Gloucester.

Class 3. To the owner of the best Bull, above 1 and not exceeding 2 years old.—25*l.*, to Richard Eastwood, of Thorney Holme, Clitheroe; 15*l.*, to Colonel Charles Townely; Silver Medal, to William Woodward, of Northway House, Ashchurch, Tewkesbury. Highly Commended: the Hon. Colonel E. G. D. Pennant, M.P., Bangor.

Class 4. To the owner of the best Bull Calf, above 6 and not exceeding 12 months old.—10*l.*, to Sir Anthony de Rothschild, Bart.; 5*l.*, to George Garne, of Churchill Heath, Chipping Norton; Silver Medal, Joseph Robinson, of Clifton Pastures, Newport Pagnell. Highly Commended: Sir Anthony de Rothschild, Bart. Commended: Robert E. Oliver, of Sholebrooke Lodge, Towcester; John R. Middlebrough, of South Milford, Yorkshire.

Class 5. To the owner of the best Cow, above 3 years old.—20*l.*, to Emily Lady Pigot, of Branches Park, Newmarket; 10*l.*, to John Lane, of Barton Mills, Cirencester. Highly Commended: Earl Spencer, of Althorpe.

Class 6. To the owner of the best Heifer, in milk or in calf, not exceeding 3 years old.—15*l.*, to Emily Lady Pigot; 10*l.*, to Richard Booth, of Warlaby; Silver Medal, to Colonel Charles Towneley. Highly Commended: Colonel Charles Towneley; William Butler, of Badminton, Chippenham; Richard Taylor, of Manor Farm, Kingham, Chipping Norton; Edward Bowly, of Siddington House, Cirencester; John Lane, of Barton Mills, Cirencester.

Class 7. To the owner of the best Yearling Heifer.—15*l.*, to the Duke of Montrose, of Buchanan Castle, Glasgow; 10*l.*, to Colonel Charles Towneley; Silver Medal, to Emily Lady Pigot. Highly Commended: Colonel Charles Towneley. Commended: Joseph Noble Beasley, of Brampton, Northampton; John Hull, of Wharton Bank, Kirkham; John R. Middlebrough, of South Milford.

Class 8. To the owner of the best Heifer-Calf, above 6 and under 12 months old.—10*l.*, to David M'Intosh, of Havering Park, Romford, Essex; 5*l.*, to Robert E Oliver, of Sholebroke Lodge, Towcester; Silver Medal, to Colonel Charles Towneley. Highly Commended: Joseph Hegan, of Dawpool, Neston, Chester. Commended: Charles Howard, of Biddenham, Bedford; the Hon. Colonel E. G. D. Pennant, M.P.

HEREFORDS.

These, as might be expected from the locality of the meeting, are a very good show. Herefordshire men are as enthusiastic and energetic as those of any other county; and the best animals of the best herds are of course sent in competition for the Society's prizes wherever the meeting is held—but when near their native county the breed is, as might have been expected, represented in greater force. And a very capital show of a first-rate sort of stock every spectator will allow them to be, carrying a great weight of beef at a very early age.

The Old Bull Class includes only five animals, the 1st and 2d prize going to descendants of SIR BENJAMIN, and both of them are bred by Mr. Rea, of Westonbury. The 2d prize animal is the more evenly covered, but the 1st prize is of greater length and size, and Hereford men acquiesce in the decision of the judges. Mr. Arkwright, of Hampton Court, takes the 1st prize, and Mr. Davies, of Lady Meadow, the 2d.

In the class of younger Bulls 10 animals were shown, and here again the effects of descent are seen, the 1st and 2d prizes going to descendants of Lord Bateman's bull CARLISLE. Messrs. Taylor and Morris, near Sudbury, were respectively 1st and 2d. The 3d prize goes to Mr. Evans, near Dilwyn. The whole class is excellent.

Fifteen Yearling Bulls are shown. Mr. Edwards, of Leominster, 1st; Mr. Baldwyn, of Luddington, who was 1st at Battersea with the same animal, is 2d here; and Mr. Turner, of Aston-on-Clun, 3d.

The Bull Calves are another large class. The 1st prize goes to Mr. Roberts, of Ivington Bury, a well-known breeder, for a very deep, thick, well covered animal, remarkably wide and deep in front, and possessing good rib and flank. The 2d prize is taken by Mr. Capper, of St. Weonard's, Ross, descended from the herd of Lord Berwick, whose name stands in as distinguished a relation to the breed as that of the late Earl Ducie does to the Short-horns. Among the class is a white calf shown by Mr. Knight, of Downton Park, grandson of the late Mr. Knight, who was known in Herefordshire as a breeder of good stock, as he was everywhere else for his distinguished services to horticulture.

The female class of Herefords are very numerous and good. The 1st and 2d on the list, undecorated however by prizes, are own sisters, shown by Mr. Capper and Mr. Baldwin respectively, *Agnes* and *Ada*, daughters of *Silver* by ATTINGHAM, and both bred by the late Lord Berwick. *Silver* was purchased we understand of a grazier in open market. From her have descended first class stock, now in the hands of many of the best names in the list of Herefordshire breeders. Her granddaughter, out of one of the cows shown by Major-General Hood, from the Prince Consort's Norfolk farm, was first in her class at Battersea, and is again shown here, and there are others in the yard of her family. The 1st prize in the class goes to Mr. Perry, of Cholstrey, for a cow which was first in the yearling class at Leeds two years ago. She is now a deep, round-barrelled, heavy cow, with very fine flank, too fat, and getting rather patchy on the rump. The 2d prize goes to Mr. Rea, and the 3d to Mr. Duckham, of Baysham Court, Ross, the editor of the Hereford Herd-book, for a cow which though 9 years old, is remarkably evenly covered, and shows very fine quality throughout. The heifer class is well filled; Mr. Tudge, of Adforton, takes the 1st prize; Mr. Pitt, of Dilwyn, 2d; Major Gen. Hood is highly commended, and Mr. Williams, of Leominster, is commended. Now, Mr. Williams's heifer, it is said, must have been first, but the jury declared it to be too fat. Whereas an ordinary spectator cannot see but that the animals to which the prize is awarded are as fat as the heifer which has been disqualified. *Adela*, a daughter of *Agnes*, and granddaughter of *Silver*, shown at Battersea and at Leeds, was then first in her respective classes. She does not now take a prize, owing probably to a little patchiness on the back, which was just beginning to show itself a year ago. The whole class is very fine, but many members of it are excessively fat.

We come now to Yearling Heifers almost as large, many of them as the 2-year olds. The 1st and 3d prize heifers at Battersea are shown here, but altogether passed over by the judges. Mr. Monkhouse of the Stow, Hereford, takes the 1st prize with a heifer, which was commended at Battersea, a very fine dark red heifer just beginning to show signs of patchiness, which will probably develop further. Mr. Read, of Elkston, shows a long and well-made evenly-covered heifer of fine quality; second at Battersea, not successful here. Mr. Roberts, of Ivington Bury, is

2d, with a very deep well-ribbed over-fattened heifer—but a first-rate specimen of the breed; and the 3d prize goes to Mr. Perry, of Cholstrey, for a pretty little heifer.

The Calf class is rather short. Mr. Roberts, of Leominster is 1st, and Mr. Turner, of the Leen, Pembridge, is 2d. Mr. Knight shows two pretty grey or roan Herefords, with Short-horn coats.

We hear complaints from Hereford breeders that the Journal of the English Agricultural Society does not publish the commendations of the judges, though these to those who are honoured with them are as valuable as prizes. Let us not fall into the same error by omitting to mention that Mr. Perry, of St. Oswald, is commended for a very pretty little Hereford heifer in this class. The following is the list of the awards of the judges:—

HEREFORD.

Class 9. To the owner of the best Bull, above 3 and not exceeding 6 years old.—25*l.*, to John Hungerford Arkwright, of Hampton Court, Leominster; 15*l.*, to Thomas Davies, of Lady Meadow, Leominster. Commended: Lord Bateman, of Shobden Court.

Class 10. To the owner of the best Bull, above 2 and not exceeding three years old.—25*l.*, to William Taylor, of Showle Court, Ledbury; 15*l.*, to William Cooke Morris, of Whitwick, Ledbury; Silver Medal, to Henry Rawlins Evans, junior, of Swanston Court, Dilwyn, Leominster. Highly Commended: John Albert Hollings, of How Caple, Ross. Class generally commended.

Class 11. To the owner of the best Bull, above 1 and not exceeding 2 years old.—25*l.*, to Thomas Edwards, of Wintercot, Leominster; 15*l.*, to John Baldwin, of Luddington, Stratford-on-Avon; Silver Medal, to Edward Tanner, junior, of Hopton Castle, Aston-on-Clun, Salop. Commended: George Pitt, of Chadnor Court, Dilwyn, Leominster.

Class 12. To the owner of the best Bull-Calf, above 6 and not exceeding 12 months old.—10*l.*, to Thomas Roberts, of Ivington Bury, Leominster; 5*l.*, to R. Harcourt Capper, of the Northgate, St. Weonard's, Ross; Silver Medal, to Edmund Wright, of Halston Hall, Oswestry. Highly Commended: Edmund Wright.

Class 13. To the owner of the best Cow, above 3 years old.—20*l.*, to William Perry, of Cholstrey, Leominster; 10*l.*, to Thomas Rea, of Westonbury, Pembridge; Silver Medal, to Thomas Duckham, of Baysham Court, Ross. Highly Commended: Philip Turner, of The Leen, Pembridge. Commended: Robert Leyshon, of Island Farm, Bridgend; George Pitt, of Chadnor Court, Dilwyn; Leominster.

Class 14. To the owner of the best Heifer, in-milk or in-calf, not exceeding 3 years old.—15*l.*, to William Tudge, of Adforton, Leintwardine; 10*l.*, to George Pitt, of Chadnor Court. Highly Commended: Major-General the Hon. A. Nelson Hood. Commended: Thomas Thomas, of St. Hilary, Cowbridge; John Williams, of St. Mary's, Kingsland, Leominster.

Class 15. To the owner of the best Yearling Heifer.—15*l.*, to John Monkhouse, of the Stow, Hereford; 10*l.*, to Thomas Roberts, of Ivington Bury: Silver Medal, to William Perry, of St. Oswald, Cholstrey. Highly Commended: the Hon. Thomas Henry Noel Hill, of Berrington.

Class 16. To the owner of the best Heifer-Calf, above 6 and under 12 months old.—10*l.*, to Thomas Roberts, of Ivington Bury: 5*l.*, to A. J. Rouse Boughton Knight, of Downton Castle, Ludlow. Commended: William Perry, Leominster.

DEVONS.

The classes of Devon cattle are, as might be expected at such a distance from home, but scantily filled. One is surprised, after the massive and noble proportions of the Hereford and Short-horn stock, to come upon the dainty little breed to which as great importance is given by the prize list of the Society. The first prize old bull belongs to Mr. Newbury, of Honiton; the second to Mr. Farthing; the judges have thus distinguished the two largest animals in the class. Mr. Surman, of Cheltenham, and Mr. Merson, of North Molton, contributes the two younger bulls in this class, and stand 1st and 2d respectively.

Among Yearling Bulls, a larger class, Major-General Hood, of the Prince Consort's Norfolk and Flemish Farms, takes the 1st prize with PRINCE ALFRED, a son of COLONEL, a well-known bull in the Prince Consort's herd. Mr. Azariah Smith, of Dorchester, takes the 2d; Mr. Perkins is commended. A good yearling bull shown by Mr. Taylor, of Harptree Court, was passed over, owing to its illness. They are very symmetrical, straight-backed, well-ribbed, beautiful animals, these Devons; but their small size is against their becoming more than a merely local breed.

Half a dozen pretty little Calves stand in the fourth class, Mr. Turner, of Exeter, taking the 1st prize, and a commendation, and Mr. Farthing, the 2d prize. Mr. Buller, M.P., is commended.

In the Cow Classes Mr. Azariah Smith, already named, is 1st, Mr. Farthing 2d, and Major-General the Hon. A. N. Hood is highly commended; a cow shown with her calf, by Mr. Smith, is highly commended—a distinction which she deserves by her unusual size and quality.

The Heifer Class includes 6 very beautiful animals; the awards will be found below.

The Yearling Heifer class is a very fine one, though short, containing animals of unusual size for the breed. They are all as well fed as they can be. Mr. Buller and Mr. Turner are 1st and 2d.

The beautiful calf class contains half a dozen specimens, Major-General Hood taking the 1st, with another daughter of COLONEL'S; and the 2d prize goes to Mr. Turner.

The following is the award:—

DEVON.

Class 17. To the owner of the best Bull, above 3 and not exceeding 6 years old.—25*l.*, to Samuel P. Newbery, of Scruel Barton, Honiton, Devon; 15*l.*, to Walter Farthing, of Stowey Court, Bridgwater.

Class 18. To the owner of the best Bull, above 2 and not exceeding 3 years old,—25*l.*, to J. S. Surman, of Swindon Hall, Cheltenham; 15*l.*, to James Merson, of Brinsworthy, North Molton. (Only two exhibited.)

Class 19. To the owner of the best Bull, above one and not exceeding two years old.—25*l.*, to Major-General the Hon A. Nelson Hood, of Cumberland Lodge, Windsor; 15*l.*, to John Azariah Smith, of Bradford Peverell, Dorchester, Dorset. Commended: Charles Frederick Perkins, of the Grange, Kington.

Class 20. To the owner of the best Bull-Calf, above 6 and not exceeding 12 months old.—10*l.*, to George Turner, of Beacon Downes, Exeter; 5*l.*, to Walter Farthing, of Stowey Court. Commended: James Wentworth Buller, M.P., of Downes, Crediton; George Turner, of Beacon Downes.

Class 21. To the owner of the best Cow, above 3 years old.—20*l.*, to John Azariah Smith, of Bradford Peverell; 10*l.*, to Walter Farthing. Highly commended: Major-General the Hon. A. Nelson Hood; John Azariah Smith, of Bradford Peverell; Major-General the Hon. A. Nelson Hood; George Turner, of Beacon Downes. Commended: John Azariah Smith. (The class generally commended.)

Class 22. To the owner of the best Heifer, in milk or in calf, not exceeding 3 years old.—15*l.*, to Charles Hambro, of Milton Abbey, Blandford; 10*l.*, to Walter Farthing, of Stowey Court. Commended: Charles Frederick Perkins, of The Grange, Kingston, Taunton.

Class 23:—To the owner of the best Yearling Heifer—15*l.*, to James Wentworth Buller, M.P.; 10*l.*, to George Turner, of Beacon Downes. Commended: Edward Pope, of Great Toller, Maiden Newton; James John Farquharson, of Langton House, Blandford.

Class 24. To the owner of the best Heifer-Calf, above 6 and under 12 months old.—10*l.*, to Major-General the Hon. A. Nelson Hood; 5*l.*, to George Turner, of Beacon Downes. Highly commended: Major-General the Hon. A. Nelson Hood; James John Farquharson, of Langton House.

SUSSEX.

The Sussex breed is represented in greater size, though also greater coarseness distinguish them from the Devons.

The Old Bull class contains four large and heavy animals. The Young Bull class is represented by only one. Four cows, one heifer, and three yearling heifers are exhibited.

SUSSEX.

Class 25. To the owner of the best Bull, above 2 and not exceeding 6 years old—10*l.*, to William Marshall, of Bolney Place, Cuckfield; 5*l.*, to John and Alfred Heasman, of Angmering. Commended: Edward Cane, of Berwick Court, Lewes.

Class 26. To the owner of the best Bull, above 1 and not exceeding 2 years old.—10*l.*, to John and Alfred Heasman, of Angmering. (Second prize—no entry.)

Class 27. To the owner of the best Cow, above 3 years old.—10*l.*, to Tilden Smith, of Knell, Beckley, Staplehurst; 5*l.*, to John and Alfred Heasman, of Angmering. Highly commended: Edward Cane, of Berwick Court. Commended: Tilden Smith, of Knell, Beckley.

Class 28. To the owner of the best Heifer, in-milk or in-calf, not exceeding 3 years old.—10*l.*, to John and Alfred Heasman, of Angmering, Arundel, Sussex. (Second prize, no entry.)

Class 29. To the owner of the best Yearling Heifer.—10*l.*, to John and Alfred Heasman; 5*l.*, to George Jenner, of Parsonage House, Udimore, Rye.

OTHER BREEDS.

In the remaining of the cattle classes breeds are mingled up together, and thus we have Mr. Baker's little Breton Cows, the large Welsh, the Long-horned and Norfolk cattle, and beautiful Guernsey stock alongside one another. And the judges had a somewhat difficult task before them.

In the first of these classes, for the older Bulls the 1st prize goes to Mr. Davis, of Dorchester, for a long well-made Long-horn, bred by Mr. Burbery, of Kenilworth; the 2d to Colonel Pennant, for a black Welsh bull, long, with deep forequarters, comparatively light hindquarters, ribs not well arched, poor loin; an animal which though representing the improved breed, is yet very deficient when compared with its red brethren of the adjoining county of Hereford. A couple of small Guernsey bulls are shown in this class, the 3d prize going to Mr. Dumbrell, of Ditchling, the well-known Sussex dairy farmer, for one of them.

In the smaller class of younger Bulls, the 1st prize goes to Sir W. Jones, of Fakenham, for a very dark-coloured Norfolk bull, straight, deep, and well-made; and the 2d to Mr. Le Fenore, of St. Peter's, Jersey, for a large dun Jersey bull.

There is a great show in the Cow class, including many capital animals, meeting the wants of the dairy farmer probably more perfectly than any other class in the yard. Large hornless Norfolks, deep black, long-horned Welsh, beautiful Guernsey and Jersey cows, of all sizes and colours, and little Bretons, here compete with one another. The prizes all go to the red Norfolk stock, a distinction which they deserve by their greater size, better handling, and well-formed frames, which exhibit that preponderance of hind-quarters which one looks for in a good dairy cow. There was, however, plenty of difficulty for the judges. The Welsh and Guernsey are in many instances most worthily commended, the latter being in several cases as large as their rivals, and equal to any in dairy produce. The prizes go—1st, to Sir E. Kerrison, M.P., of Suffolk; 2d, to Sir W. Jones, M.P., of Norfolk; 3d, to Lord Sondes, of Norfolk. No fewer than 33 cattle are exhibited in this class. Sir E. Kerrison's cow is larger than the others. The Suffolk sort of the red hornless Eastern Counties breed is perhaps better as a dairy cow; and the Norfolk, a finer sort, makes beef the easier of the two when parted with for the dairy. Mr. Le Gallais, of Jersey, showed a number of very beautiful light brown or light dun cows in this class; and one of Mr. Baker's little Bretons had the honour of a Commendation.

The younger classes of females contain two dozen specimens of all breeds, and here again the 1st and 2d prizes go to the Norfolk polled sort. Sir E. Kerrison gains 1st and Lord Sondes 2d. The bulk of the class being made up of the little Bretons, shown by Mr. Baker: Mr. Le Gallais, who received a 3d prize in this class, showing a number of his beautiful light dun Jerseys.

The Yearling Heifer class contains seven, all of the Norfolk breed, and a very well made neat and pretty class they are. Lord Sondes takes both the upper prizes, and Sir W. Jones the 3d.

OTHER ESTABLISHED BREEDS.

(Not including the Short-horn, Hereford, Devon, or Sussex Breeds.)

Class 30. To the owner of the best Bull, above 2 and not exceeding 6 years old.—10*l.*, to James Davis, of Melcombe Horsey, Dorchester; 5*l.*, to the Hon Colonel E. G. D. Pennant, M.P.; Silver Medal, to James Dumbrell, of Ditchling, Hurstpierpoint. Commended: Sir Edward Kerrison, Bart., M.P., of Brome Hall, Scole.

Class 31. To the owner of the best Bull, above 1 and not exceeding 2 years old.—10*l.*, to Sir Willoughby Jones, Bart., M.P., of Cranmer Hall, Fakenham; 5*l.*, to Henry Le Fenore, of Les Mièmes, St. Peter's, Jersey.

Class 32. To the owner of the best Cow, above 3 years old.—10*l.*, to Sir Edward Kerrison, Bart., M.P.; 5*l.*, to Sir Willoughby Jones, Bart., M.P.; Silver Medal, to Lord Sondes, of Elmham Hall. Highly Commended: Lord Sondes. Commended: The Hon. Colonel E. G. D. Pennant, M.P.; Richard Cowan, of Swissville, St Peter Port, Guernsey; the Rev. James Hunter Gandy, of Rectory, Castle Eaton, Fairford, Wiltshire; Albert de Gallais, of La Moie House, Jersey; James Dumbrell, of Ditchling.

Class 33. To the owner of the best Heifer, in-milk or in-calf, not exceeding 3 years old.—10*l.*, to Sir Edward Kerrison, Bart., M.P.; 5*l.*, to Lord Sondes; Silver Medal, Albert le Gallais, St. Aubins. Highly Commended: Sir Edward Kerrison, Bart., M.P.; Albert Le Gallais. Commended: Lord Sondes; the Earl of Powis, of Powis Castle, Weshpool.

Class 34. To the owner of the best Yearling Heifer.—10*l.*, to Lord Sondes; 5*l.*, to Lord Sondes; Silver Medal, to Sir Willoughby Jones, Bart., M.P. Highly Commended: Sir Edward Kerrison, Bart., M.P.

SPECIAL CLASSES.

The prizes offered by the Worcester local committee have not resulted in a very large competition. Three "pairs of cows in milk" are shown by Mr. Langston, M.P., Mr. Booth, and Mr. Bowley respectively—three first-class names as Short-horn breeders. And this breed alone accordingly is represented. The 1st prize goes to Mr. Booth for two very fat deep heavy cows, *Queen of the Ocean* and *Soldier's Bride*, white and red respectively; and the 2d to Mr. Langston, M.P., for *Dandelion* and *Meretrix*, also white and red, in less pampered condition. Mr. Bowley's are roans, and most of all in the natural condition of dairy cows. Messrs. Bowley, Middlebrough, and Bradburn compete with pairs of heifers in the second class, the 1st prize going to Mr. Middlebrough, for two extraordinary large and deep cows; and the 2d to Mr. Bradburn, for a very well matched pair of smaller size. The 3 year old heifers again include but two pair equal in size to the older one—the 1st prize going to Mr. Booth for two heifers of perfect form, as indicating meat-producing ability, which is also indicated by their actual meaty condition. For form, hair, and appearance of vigorous constitution, they cannot be surpassed; but they are more like meat than milk—*Graceful* and *Lady Joyful!* The 2d prize goes to Earl Beauchamp, for a good pair of roans.

The class of pairs of Yearling Heifers contains but two entries, the 1st going to Colonel Towneley, for white and roan *Butterflies* of great beauty and perfection of form.

We then come upon a very interesting and popular class in the exhibitions of our Provincial Societies, prizes being offered for bull, cow, and offspring. There are three entries. Mr. Stratton takes the 1st prize with KNIGHT OF THE LAGAN, *Lady Hinda*, and calf; Mr. Langston, M.P., the 2d, with LORD OF THE HAREM, *Sally*, and calf. The latter bull a light roan, of greater depth and better filled loin; the former wider, and perhaps better forward than the other.

The special classes for Herefords are not well filled, some of them, indeed, being not represented at all. The prize list is given below.

The Scotch breeds, so nobly shown last year at Battersea, are this year represented by a solitary Ayrshire bull and cow, shown by the Earl of Powis.

SHORT HORNED.

Class 89. To the owner of the best Pair of Cows, in milk, exceeding 4 years old.—15*l.*, to Richard Booth, of Warlaby; 5*l.*, to James Haughton Langston, M.P., of Sarsden House, Chipping Norton.

Class 90. To the owner of the best Pair of Heifers, in Milk and in Calf, not exceeding 4 years old.—15*l.*, to John R. Middlebrough, of South Milford, Yorkshire; 5*l.*, to William Bradburn, of Hilton, Wolverhampton.

Class 91. To the owner of the best Pair of Heifers, in-Calf, not exceeding 3 years old.—15*l.*, to Richard Booth, of Warlaby, Northallerton; 5*l.*, to Earl Beauchamp, of Madresfield Court, Great Malvern.

Class 92. To the owner of the best Pair of Yearling Heifers.—10*l.*, to Colonel Charles Towneley.

Class 93. To the owner of the best Bull, Cow, and their Offspring, the latter not exceeding 12 months old on the 1st of July, 1863; the cow bred by the exhibitor.—20*l.*, to Richard Stratton, of Walls Court, Bristol; 10*l.*, to James Haughton, Langston, M.P.

HEREFORD.

Class 94. To the owner of the best Pair of Cows, in-Milk, exceeding 4 years old.—15*l.*, to John Walker, of Westfield House, Hereford; 5*l.*, to Philip Turner, of The Leen, Pembridge. Commended: George Pitt, of Chadnor Court, Dilwyn.

Class 95. To the owner of the best Pair of Heifers, in-Milk or in-Calf, not exceeding 4 years old.—15*l.*, to the Executors of the late James Rea, of Monaughty, Knighton; 5*l.*, to Henry Rawlins Evans, jun., of Swanstone Court, Dilwyn, Leominster.

Class 98. To the owner of the best Bull, Cow, and their Offspring, the latter not exceeding 12 months old on the 1st July, 1863; the cow bred by the exhibitor.—20*l.*, to Thomas Roberts, of Ivington, Bury, Leominster; 10*l.*, to Henry Gibbons, of Hampton Bishop, Hereford.

Class 100. To the owner of the best Bull, and a Cow in-

Milk, of any Welsh breed.—10*l.*, to Richard Hart Harvey, of Harroldstone, Haverfordwest.

SCOTCH.

Class 101. To the owner of the best Bull, and a Cow in-Milk, of any pure Scotch breed.—10*l.*, to The Earl of Powis, of Powis Castle.

HORSES: HUNTERS.

Class 102. To the owner of the best Mare or Gelding, exceeding 4 years old, in the opinion of the judges equal to 15 stone with hounds.—20*l.*, to John B. Booth, of Killerby, Catterick; 10*l.*, to John Gregory Watkins, of Woodfield, Droitwich. Highly Commended: John Gregory Watkins; William Henry Jones, of Canon Bridge, Hereford.

Class 103. To the owner of the best Filly or Gelding, 3 years old, likely to make a hunter or carriage-horse.—10*l.*, to Henry James Sheldon, of Brailes House, Shipston-on-Stour; 5*l.*, to James White, of Lindoes, Coleford, Gloucestershire.

Class 104. To the owner of the best Filly or Gelding, 2 years old, likely to make a Hunter or Carriage Horse.—10*l.*, to Wm. Baker, of Brailes, Shipston-on-Stour, Warwickshire; 5*l.*, to Henry Allsop, of Hindlip Hall, Worcester.

Class 105. To the owner of the best Cob, not exceeding 15 hands in height, or exceeding six years old.—10*l.*, to Frederick Branwhite, of Chapel House, Long Melford, Sudbury; 5*l.*, to Frederick Branwhite, of Chapel House.

AGRICULTURAL HORSES.

Class 106. To the owner of the best Stallion (Suffolk breed only excluded) exceeding 3 years old and not exceeding seven years old.—40*l.*, to Joseph Miles, of Astwood Claines, Worcester; 20*l.*, to John Crump, of Grafton, Beckford, Tewkesbury.

SHEEP: RYELANDS.

Class 107. To the owner of the best Yearling Ram.—10*l.*, to John Bearcroft Downing, of Holme Lacey, Hereford.

Class 108. To the owner of the best Pen of Five Theaves, of the same Flock.—10*l.*, to John Bearcroft Downing.

WELSH, OR ANY OTHER MOUNTAIN BREED.

Class 109. To the owner of the best Two Shear Ram.—10*l.*, to Jonathan Peel, of Knowlmere Manor.

Class 110. To the owner of the best Pen of Five Theaves, of the same flock.—10*l.*, to Jonathan Peel, of Knowlemere Manor. Highly Commended: Jonathan Peel.

PIGS: LARGE BREED.

Class 111. To the owner of the best Boar, Sow, and their Litter of Pigs, not exceeding six months old.—10*l.*, to William Bradley Wainman.

SMALL BREED.

Class 112. To the owner of the best Boar, Sow, and their Litter of Pigs, not exceeding six months old.—10*l.*, to Titus Bennett Stead, of 20, Upperhead Row, Leeds; 5*l.*, to John Azariah Smith, of Bradford, Peverell.

SHEEP.

There is a very complete illustration of most of our English breeds of sheep. One which will no doubt be exhibited in force next year at Newcastle, was indeed absent—and as our best Mountain breed Cheviots ought to have a constant class of prizes at all our shows, which are visited annually by Welchmen and others interested in the full advantage being taken of mountain pastures.

The chief breeds—Leicesters, Cotswolds, Lincolns, Southdowns, Oxfordshire downs, Hampshire downs, and Shropshires are present in large classes.

The last, though like the others bearing a local name, is fast losing its merely local position, being adopted in large numbers far from its native county. It is worth noting that the Cotswold and the Shropshire, both of them sheep of the province within which the Society this year holds its show, have advanced more in public estimation than any other breeds that can be named, the one chiefly because of its great length and weight of lustre wool, the other for its mutton as well as wool, and great hardiness.

Of LEICESTERS, 45 Shearling Rams, 18 old Rams, and 8 pens of Shearling Ewes, compete. The exhibitors show large numbers apiece, so that not so many flocks are represented here—thus Mr. Pawlett, Colonel Inge, Mr. Creswell, have no fewer than 9 entries each. Mr. Sanday and Mr. Turner have 8 entries, and others show large numbers. The class of Shearlings is not only large but excellent, varying however to some extent in size and in quality of wool, though less in these respects than any other breed that can be named. Mr. Pawlett's sheep have size and wool; Mr. Turner's are finer and smaller, and have less wool. Colonel Inge takes the 1st prize, and several commendations with very true Leicester sheep, having blue faces, great width, levelness of back, rather fine wool, and great girth. Mr. Sanday takes 2nd and 3d prizes with fine woolled sheep, not so long as some others that are shown.

Mr. Borton of Malton, is highly commended for a long wide sheep, hardly so good even for a Leicester behind, as he is over the shoulder.

The same distinction of the flocks appears in the other classes of older sheep. Mr. Turner's sheep are fine woolled, fine bred sheep. Mr. Borton also has fine wool, and his sheep are wide and short, they take 1st, 2nd, and 3rd prizes.

There is a very beautiful class of Yearling Ewes. Colonel Inge's sheep which took the 1st prize, appear to have more wool than those of Mr. Sanday, which take the 2nd.

The COTSWOLDS, though they have derived in the past so much benefit from Leicester blood, are an altogether distinct breed; much larger and longer, and covered with a very heavy fleece of longer staple, and greater lustre. There are 53 shearling rams exhibited, and as many as eight for single flocks. Mr. R. Garne, of Aldworth, Northleach, takes the 1st and 2d and 3d prizes with very long and large sheep.

There is great uniformity of character in the breed, flocks differing but little in the colour of the face and closeness of the fleece, according probably to their nearness to the Leicester blood. There are 18 older rams exhibited—the awards are given below.

Mr. Fletcher (of Shipton Sollars) takes the 1st prize with his pen of shearling ewes in the next class. He has shown two pens, and declared to win with the one which the judges passed—so various are conflicting judgments, and on so little do they hinge.

THE LINCOLN AND OTHER LONG-WOOLLED SHEEP are not well represented. They are hardly so long and noble a sheep as the Cotswold, and are covered with a closer wool. The three classes contains 33 entries—among them are one or two crosses and large Yorkshire Leicesters. Thus Mr. Beale Brown shows a remarkably fine cross bred sheep Leicester and Lincoln, and Mr. Simpson, of Spofforth Park, Wetherby, shows some close woolled large Leicester sheep in this class.

THE OXFORDSHIRE DOWN is very well represented by 35 shearling rams, 11 older rams, and 11 pen of shearling ewes. There is a good deal of difference in the wool and appearance of the breed; some of them approaching the blackfaced Hampshire downs and others more nearly representing the Cotswold element in their composition. One pen shown by H. F. Vernon, M.P., are not distinguishable from fine Sussex downs. The Oxfordshire downs with its wide, massive, stocky form, and close well matted and rather long wool, is nevertheless a perfectly recognisable sheep, and we have specimens of it here from a number of well known flocks those of Messrs. Wallis, C. Howard, J. Bryan, C. Gillett, &c. Mr. C. Hobbs, of Cricklade, sends sheep in the class more like the Hampshire or West Country downs. The awards are given below.

SOUTH DOWNS are exhibited in large numbers. Lord Walsingham's sheep, rather larger than those of the Sussex breeders, are in almost every instance successful. The decision is, we understand, perfectly acquiesced in, so far as the 1st prize sheep are concerned, though it is believed that the decision of some of the lower prizes is not so satisfactory to the Sussex men. The extraordinary success of the Merton Hall flock will be seen in the list of awards below. That it is not owing to want of competition is plain from the Catalogue, which names 34 shearling rams, bred by Messrs. Rigden, Waters, Messrs. Heasman, Sir T. B. Lennard, the Duke of Richmond, and others, and equally well-filled other classes. They are an extremely uniform breed—the only exception perhaps in the whole number being coarser woolled sheep shown by Mr. Perkins, of Royston.

SHROPSHIRES are a magnificennt breed well represented in the best filled classes in the yard. They are rapidly acquiring uniformity of wool and character, and already exhibit less discrepancies than some other older breeds; Lord Dartmouth's sheep have looser, coarser wool than most of the other flocks represented here.

It is understood that the breed originated in the little original Shropshire (Morfe) sheep, which was valuable only for its wool, being the very finest these islands produced. It had its carcase taken into consideration upon the introduction of Spanish and other fine continental wools. At that period some flockmasters must have tried a cross with short wool sheep, others with long wool, and although to cross now with either long-wools or short-wools would be injurious, yet different flocks of what are now pure bred Shropshires show their origin in their fleeces.*

The note below relates the pains and cost necessary to any degree of success. Mr. Holland's flock, thus educated to their present status, has not been successful this year at Worcester.

THE HAMPSHIRE DOWNS are not in such large force this year as usual. Mr. Humfrey, of Chaddleworth, is as usual very successful. His large sheep have extraordinary length, capital twists, and carry large quantities of mutton where it is worth most per lb.

The only remaining sheep are exhibited in two or three pens for the prizes offered by the local committee. A few pens of the neat little well-woolled Ryeland breed, which, natives of Herefordshire, ought to be in greater force—and one or two horned Exmoor, Lonk, and other mountain sheep complete the show.

The following is the list of the awards:—

LEICESTER.

Class 53. To the owner of the best Shearling Ram.—20*l.*, to Lieut.-Col. William Inge, of Thorpe Constantine, Tamworth; 10*l.*, to William Sanday, of Holme Pierrepont; Silver Medal, to William Sanday. Highly commended: William Sanday; John Borton, of Barton House, Barton-le-Street, Malton. Commended: Lieut.-Col. William Inge; William Sanday; Francis Spencer, of Alma House, Claybrooke Magna, Lutterworth.

Class 54. To the owner of the best Ram of any other age.—20*l.*, to John Borton, of Barton House; 10*l.*, to John Borton; Silver Medal, to John Borton. Highly commended: Robert Ward Creswell, of Ravenstone, Ashby-de-la-Zouch. Commended: Robert Ward Creswell.

Class 55. To the owner of the best Pen of 5 Shearling Ewes, of the same flock.—15*l.*, to Lieut.-Col. William Inge; 10*l.*, to William Sanday. Highly commended: William Sanday. Commended: Lieut.-Col. William Inge.

COTSWOLD.

Class 56. To the owner of the best Shearling Ram.—20*l.*, to Robert Garne, of Aldsworth, Northleach; 10*l.*, to Robert Garne; Silver Medal, to Robert Garne.

Class 57. To the owner of the best Ram of any other age.—20*l.*, to Robert Garne, of Aldsworth; 10*l.*, to Thomas Beale Browne, of Salperton Park, Andoversford; Silver Medal, to Edward Handy, of Sierford, Cheltenham. (Class generally highly commended.)

Class 58. To the owner of the best Pen of 5 Shearling Ewes, of the same flock.—15*l.*, to George Fletcher, of Shipton Sollars, Cheltenham; 10*l.*, to William Lane, of Broadfield Farm, Northleach; Silver Medal, to Robert Garne, of Aldsworth. Highly commended: George Fletcher, of Shipton Sollars.

LINCOLN AND OTHER LONG-WOOLLED.

(Not qualified to compete as Leicesters or Cotswold.)

Class 59. To the owner of the best Shearling Ram.—20*l.*, to John Lynn, of Church Farm, Stroxton, Grantham; 10*l.*, to Thomas Cartwright, of Dunston Pillar, Lincoln; Silver Medal, to Joseph Simpson, of Spofforth Park, Wetherby. Highly commended: Clarke Hales, of Bassingbourne, Royston, Cambridgeshire.

Class 60. To the owner of the best Ram of any other age.—20*l.*, to John Lynn, of Church Farm; 10*l.*, to John Lynn; Silver Medal, to Thomas Bumpstead Marshall, of Branston. Highly commended: Joseph Simpson, of Spofforth Park, Wetherby.

Class 61. To the owner of the best Pen of 5 Shearling Ewes, of the same flock.—15*l.*, to Robert George Frederick Howard, of Temple Bruer, Lincoln; 10*l.*, to Thomas Bumpstead Marshall, of Branston. Highly commended: Robert George Frederick Howard, of Temple Bruer.

OXFORDSHIRE DOWNS.

Class 62. To the owner of the best Shearling Ram.—20*l.*, to J. Bryan, of Southleigh, Witney, Oxon; 10*l.*, to Charles Gillett, of Cote House, Bampton, Faringdon; Silver Medal, to Joseph Druce, of Eynsham. Highly Commended: Charles Gillett, of Cote House. Commended: George Wallis, of Old Shifford, Bampton. Commended: George Henry Barnett, of Glympton Park, Woodstock.

Class 63. To the owner of the best Ram of any other age.—20*l.*, to George Wallis, of Old Shifford; 10*l.*, to George Wallis; Silver Medal, to George Wallis. Commended: George Henry Barnett, of Glympton Park.

Class 64. To the owner of the best Pen of 5 Shearling Ewes, of the same flock.—15*l.*, to Charles Gillett, of Cote House; 10*l.*, to The Duke of Marlborbugh, of Blenheim Palace. Highly Commended: Charles Gillett, of Cote House. Commended: Charles Howard, of Biddenham, Bedford: Charles Gillett, of Cote House.

SOUTHDOWN.

Class 65. To the owner of the best Shearling Ram.—20., to Lord Walsingham, of Merton Hall, Thetford; 10*l.*, to Lord Walsingham; Silver Medal, to Lord Walsingham. Highly Commended: Lord Walsingham. Commended: Lord Walsingham.

Class 66. To the owner of the best Ram of any other age.—20*l.*, to Lord Walsingham; 10*l.*, to Lord Walsingham; Silver Medal, to Lord Walsingham. Highly Commended; Lord Walsingham (again); William Rigden, of Hove, Brighton, Sussex. Commended: The Earl of Radnor, of Coleshill, Highworth.

Class 67. To the owner of the best Pen of 5 Shearling Ewes, of the same flock.—15*l.*, to Lord Walsingham; 10*l.*, to John and Alfred Heasman, of Angmering; Silver Medal, to James John Farquharson, of Langton House, Blandford. Highly Commended: The Earl of Radnor, of Coleshill, Highworth; The Duke of Richmond, of Goodwood, Chichester, Sussex.

SHROPSHIRE.

Class 68. To the owner of the best Shearling Ram.—20*l.* to John Stubbs, of Weston Hall, Stafford; 10*l.*, to Thomas Horton, of Harnage Grange, Shrewsbury, Salop; Silver Medal, to Thomas Horton. Highly Commended (specially), William Orme Foster, of Kinver Hill Farm, Stourbridge. Highly Commended: Pryce William Bowen, of Shrawardine Castle; James and Edward Crane, of Shrawardine (again; William Orme Foster, of Kinver Hill Farm; William Goodwin Preece, of Shrewsbury. Commended; Price William Bowen, of Shrawardine Castle; James and Edward Crane, of Shrawardine.

Class 69. To the owner of the best Ram of any other age.—20*l.*, to Pryce William Bowen, of Shrawardine Castle; 10*l.*, to Colonel Dyott, of Freeford Hall, Lichfield; Silver Medal, to John Coxon, of Freeford, Lichfield. Highly Commended: Robert Hanbury Masfen, of Pendeford, Wolverhampton. Commended: Lord Wenlock, of Bourton Cottage, Much Wenlock; Thomas Horley, Jun., of the Fosse, Leamington.

Class 70. To the owner of the best Pen of 5 Shearling Ewes, of the same flock.—15*l.*, to James and Edward Crane, of Shrawardine, Shrewsbury; 10*l.*, to James and Edward Crane; Silver Medal, to Henry Matthews, of Montford, Shrewsbury. Highly Commended: John Hanbury Blackburne, of Pipe-place, Lichfield; William Orme Foster, of Kinver Hill Farm, Stourbridge. Commended: Colonel Dyott, of Freeford Hall, Lichfield; the Earl of Dartmouth, of Patshull, Albrighton.

HAMPSHIRE AND OTHER SHORT-WOOLLED.

(Not qualified to compete as Southdowns or Shropshires.)

Class 71. To the owner of the best Shearling Ram.—20*l.*, to William Humfrey, of Oak Ash, Chaddleworth, Wantage; 10*l.*, to William Humfrey, of Oak Ash, Chaddleworth, Wantage; Silver Medal, to William Browne, Canning, of Elston Hill, Devizes. Commended: James Rawlence, of Bulbridge, Wilton, Salisbury.

Class 72. To the owner of the best Ram of any other age.—20*l.*, to James Rawlence, of Bulbridge, Wilton; 10*l.*, to William Humfrey, of Oak Ash. Highly Commended: William Humfrey, of Oak Ash. Commended: William Browne Canning, of Elston Hill.

Class 73. To the owner of the best Pen of 5 Shearling Ewes,

* We add here the following account, published two years ago, of the progress of a flock of these sheep, which has since attained considerable reputation, that of Mr. E. Holland, M.P. In the year 1852, Mr. Holland wished to try the effect of crossing the Shropshire ewe with the Southdown ram, but the result was not satisfactory. In the following year (1853) the Royal Agricultural Society held its meeting at Gloucester, when the Shropshires appeared in a special class. Mr. Holland gave up the idea of crossing. The Shropshire ewes that had been bought for crossing were kept, and the number made up to 250 with ewes bought at Ludlow, and which were guaranteed to be well-bred Shropshires, using on these, rams from Adney, Horton, Forster, and Williams. The following year (1854) a strong draft was made of the old ewes, the yearlings were kept, and 165 ewes were bought from Foster, Adney, Horton, and other breeders, and another ram from Adney. This brings us to 1855. A very good ram was bought from Adney for 40 guineas. He was got by Buckskin. More ewes were bought from Adney and other Shropshire breeders.

In 1856 the flock of breeding ewes was 450, selecting the sheep from the flocks of Messrs. Crane, H. Smith, and Foster (three rams from the latter), and also Lord Grey, and one of the best rams bred by Messrs. Crane.

In 1857 three rams were bought from Crane, Horton, and Bird, with 49 ewes from Horton. Again, in 1858, Mr. Holland gave Adney 80 guineas for the hire of Lord Salisbury—a sheep that took four prizes at the Royal Agricultural Society meetings. In 1859 he bought three rams from Foster, and two from Bird—both got by Adney's Patentee, and consequently half-brothers to Patentee, the winner at Canterbury, for which he gave 120 guineas (since dead); his own sheep, half-brother to him, also exhibited there and highly commended, for which he refused over and over again 120 guineas during the season This brings us to 1860, when he used the 120 guinea sheep, and some of his own rams.

This concludes the history of all the sheep bought in for this flock. He has, of course, used many of his own bred rams and ewes, but no other male or female has been introduced but those named. He has yearly drafted every inferior animal, never keeping an ewe a second year that had a bad fleece on her back, and always bearing in mind that size and wool must be kept up. The result is seen in the success he has met with. He has exhibited in every show-yard open to Shropshire sheep, and many open classes; and has rarely shown without obtaining a prize or commendation. At Birmingham two years ago, he exhibited a pen of wethers, something like 40 lb. per qr., under 22 months old, and took the 1st prize and silver medal.

of the same flock.—15*l.*, to James Rawlence, of Bulbridge; 10*l.*, to James Rawlence. Highly Commended (specially), James Rawlence, Wilton. Highly Commended: William Rowden Shittler, of Bishopston, Salisbury; Stephen King, of Brockhampton, Lambourne, Berks; William Browne Canning, of Elston Hill; William Humfrey, of Oak Ash.

PIGS.

Boars of a large breed of any colour—the first on the list taking also the 1st prize in his class is an enormous 3 years and 10 months old white boar, the property of Mr. Wainman, of Carhead, who takes a great many prizes as an exhibitor of pigs. The class contains only four animals—of which one shown by Mr. Dyson, declared to be 6 months and 1 week old, is disqualified—the state of the dentition indicating over age. The 2d prize animal is shown by Mr. Dickin, of Stockport.

Small white Boars—are a much larger class, contributed, however, by comparatively few exhibitors. Mr. Wainman taking the 1st prize here also with a long straight pig, 2 years and 8 months old, exhibiting greater constitution than some of its rivals. Mr. Mangles, of Ripon, shows four in this class. Mr. Berkeley, of Spetchley Park, takes the 2d prize, with a short, thick, deep, white boar, 9 months old.

Boars of a small black breed include six animals shown by two exhibitors, Mr. Sexton and Mr. Crisp; the former takes the 2d prize, the latter the 1st. They are a very even well-made lot, and might have been all of one breed and parentage for any difference of size or form or hair that can be easily detected.

BERKSHIRE BOARS.

There is a larger competition in Berkshires, though here too individual exhibitors show a number apiece. Mr. Hewer shows four and Mr. Joyce six. Mr. Hewer takes 1st and 2d prizes with straight, wide, well-made boars of fine hair. They are beyond doubt our most useful bacon breed, combining hardiness, precocity, and size in capital proportion. The 3d prize is taken by Mr. Joyce, of Waterford, who shows half a dozen capital stock.

OTHER BOARS,

though nominally not adapted to the preceding classes, are for the most part large white pigs. The 1st prize indeed goes to Mr. Wainman, for an animal which he might very well have shown in the large class. Mr. Graham, of Leeds, takes the 2d prize, also with a large white boar.

LARGE SOWS OF ANY COLOUR.

We now come to a class, which though of any colour, includes only white sows. The 1st prize goes to Mr. Wainman, the 2nd to Mr. Dickin. The latter is an extraordinary large animal, with a fine litter of pigs.

SOWS OF A SMALL WHITE BREED

Are a very fine class. Mr. Graham's entries are disqualified, owing to the state of the dentition, indicating over age. Mr. Crisp takes the 1st prize, and Sir E. Kerrison the 2d; Mr. Stearn takes the 3d, and he is commended for a most commendable sow with nine capital pigs.

In the class of Sows of Small Black Breed, Lady E. Foley, Mr. A. Smith, Mr. Sexton, Mr. Hemming, and Mr. Crisp compete. Lady E. Foley has wonderfully fine litters. Mr. Crisp takes the 1st prize, Mr. Sexton the 2d, and Mr. Hemming the third.

Berkshire Sows are a fine class. Mr. Sadler, Dr. Hitchman, and the Royal Agricultural College take 1st, 2d, and 3d prizes respectively; there is some talk of the first being unfit, in which case the other two will advance a step. Dr. Hitchman's large sow and nine pigs are admirable. The College sow, thicker than some of them, is also a capital specimen of the herd.

Among the "other Sows" the 1st prize goes to Mr. Crisp; the 2d and 3d to Mr. Wainman, one of whose pens contains a sow and 10 large and first-rate pigs.

There are only three entries in the class of pens of three sow pigs of a large breed of any colour. Mr. Wainman takes the 1st prize, and Mr. Duckering, of Kirton-in-Lindsey, the 2d. The whole of the entries are of white pigs.

Hilts of a small white breed are exhibited in 4 pens. Mr. Waters, of Eastbourne, takes the 1st prize, and Colonel Pennant the 2d.

In the corresponding black class there are four entries, by Messrs. Sexton, Smith, and Hemming. Mr. Sexton and Mr. Hemming take both 1st and 2d prizes.

Berkshire Sow Pigs are well represented in 12 pens. Mr. Joyce, of Waterford, shows a wonderfully fine pen, taking the 1st prize. Mr. Smith, of Henley-in-Arden, takes the 2d; and Mr. Sadler, of Bentham, the 3d.

Mr. Wainman's Sow in the class of "other" Sow Pigs is 1st, and Mr. Keyworth's, 2d. Though entered in a class not eligible for other prizes, they would have been perfectly eligible in the class of small white breeds.

The following are the awards:—

Class 74. To the owner of the best Boar of a large breed, of any colour.—10*l.*, to William Bradley Wainman, of Carhead, Crosshills, Yorkshire; 5*l.*, to Richard Dickin, of 161, Old Road, Stockport.

Class 75. To the owner of the best Boar of a small white breed.—10*l.*, to William Bradley Wainman; 5*l.*, to Robert Berkeley, of Spetchley Park, Worcester; Silver Medal, to George Mangles, of Givendale, Ripon. Highly Commended: George Mangles, of Givendale. Commended: Thomas Rea, of Westonbury, Pembridge.

Class 76. To the owner of the best Boar of a small black breed.—10*l.*, to Thomas Crisp, of Butley Abbey, Wickham Market; 5*l.*, to George Mumford Sexton, of Wherstead Hall, Ipswich. Highly Commended: George Mumford Sexton.

Class 77. To the owner of the best Boar of the Berkshire breed.—10*l.*, to William Hewer, of Sevenhampton, Highworth; 5*l.*, to William Hewer; Silver Medal, to William Joyce, of Abbey Farm, Waterford. Highly Commended: William Joyce; William Hewer; (again). Commended: Joseph Smith, of Henley-in-Arden; William Joyce; (again).

Class 78. To the owner of the best Boar of a breed not eligible for the preceding classes.—10*l.*, to William Bradley Wainman; 5*l.*, to James Graham, of 1, Blackburn's Buildings, York Road, Leeds. Highly Commended: William Bradley Wainman.

Class 79. To the owner of the best Breeding Sow of a large breed, of any colour.—10*l.*, to William Bradley Wainman, Yorkshire; 5*l.*, to Richard Dickin, of 161, Old Road, Stockport.

Class 80. To the owner of the best Breeding Sow of a small white breed.—10*l.*, to Thomas Crisp, of Butley Abbey, Wickham Market; 5*l.*, to Sir Edward Kerrison, Bart., M.P.; Silver Medal, to Samuel Geater Stearn, of Brandeston, Wickham Market. Highly Commended: William Bradley Wainman, Michael Gavins, of Fox Inn, Leeds; the Earl of Radnor, of Coleshill, Highworth. Commended: Samuel Geater Stearn, of Brandeston.

Class 81. To the owner of the best Breeding Sow of a small black breed.—10*l.*, to Thomas Crisp, of Butley Abbey; 5*l.*, to George Mumford Sexton, of Wherstead Hall, Ipswich; Silver Medal, to William Himming, of Coldicott, Moreton-in-Marsh. Highly Commended: Thomas Crisp, of Butley Abbey.

Class 82. To the owner of the best Breeding Sow of the Berkshire breed.—10*l.*, to William James Sadler, of Bentham, Calcutt, Cricklade; 5*l.*, to John Hitchma, M.D, of Mickleover, Derby; Silver Medal, to Royal Agricultural College, Cirencester, Gloucestershire. Highly Commended: Arthur Stewart, of St. Bridge Farm, Gloucester; George Mander Allender, of Lee Grange, Winslow, Bucks. The Class Commended.

Class 83. To the owner of the best Breeding Sow of the breed not eligible for the preceding classes.—10*l.*, to Thomas Crisp, of Butley Abbey; 5*l.*, to William Bradley Wainman; Silver Medal, to William Bradley Wainman.

Class 84. To the owner of the best Pen of 3 Breeding Sow Pigs of a large breed, of any colour, of the same litter, above 4 and under 8 months old.—10*l.*, to William Bradley Wainman, 5*l.*, to Richard Elmhurst, Duckering, of Northorpe Station, Kirton Lindsey.

Class 85. To the owner of the best Pen of 3 Breeding Sow Pigs of a small white breed, of the same litter, above 4 and under 8 months old.—10*l.*, to John Waters, of Motcombe, Eastbourne; 5*l.*, to the Hon. Colonel E. G. D. Pennant, M.P. Highly Commended: Major General the Hon. A. Nelson Hood.

Class 86. To the owner of the best Pen of 3 Breeding Sow Pigs of a small black breed, of the same litter, above 4 and under 8 months old.—10*l.*, to George Mumford Sexton, of Wherstead Hall; 5*l.*, to William Hemming, of Caldicott, Moreton-in-Marsh.

Class 87. To the owner of the best Pen of 3 Breeding Sow Pigs of the Berkshire breed, of the same litter, above 4 and under 8 months old.—10*l.*, to William Joyce, of Abbey Farm, Waterford; 5*l.*, to Joseph Smith, of Henley-in-Arden; Silver Medal, to William James Sadler, of Bentham, Calcutt.

Class 88. To the owner of the best Pen of 3 Breeding Sow Pigs of a breed not eligible for the preceding classes, of the same litter, above 4 and under 8 months old.—10*l.*, to William Bradley Wainman; 5*l.*, to Henry Keyworth, of Woodhouse Moor, Leeds.

HORSES.

The large inner yard, around which the horses are lodged, containing, too, a long elliptical court, within which the several classes were many times every day marshalled and put through their paces, has been always crowded with spectators. And there is no greater enjoyment offered by the whole show than that which thus attracts rows, many deep, of ladies and gentlemen, who all day long have surrounded the exercising ring.

We are not able this week to give a detailed report: 11 thorough-breds have competed for the prizes of 100*l.* and 25*l.* NEVILLE, the property of Mr. Gulliver, of Banbury, is the winner. He is a bay horse, with remarkable action. Twenty-one stallion hunters have competed in class 36. A brown horse, belonging to Mr. Barnett, of Cheltenham, winning the prize in competition with a good class, both as regards number and merit.

The competition amongst agricultural horses has not been so great as at last year's show. There are this year no special classes for Clydesdales, and thus our best breed of farm horses is hardly represented. The classes not qualified to compete as Suffolks, which would have included Clydesdales, are however very fairly represented. Small classes of Drays and Suffolks complete the contents of the horse yard.

The only one of the classes of Suffolks in which there has been any considerable competition is for 2-year-old Stallions. Mr. Mumford, of Needham Market, takes the 1st prize, and Mr. Rist, of Ipswich, the 2d. It is a good class. Mr. Wilson, of Moore Place, Stanford-le-Hope, shows a very fine grey stallion of great bone and substance, symmetry and strength; but unfortunately they had to call in Prof. Simonds to prescribe for him on the Monday when the awards were being made, and his illness disabled him.

The following are the awards:

THOROUGH-BREDS.

Class 35. To the owner of the best Thorough-bred Stud Horse, having served Mares during the season 1863, which, in the opinion of the judges, is best calculated to improve and perpetuate the breed of the sound and stout Thorough-bred Horse for General Stud Purposes.—100*l.*, to William Gulliver, of Swalcliffe, Banbury, Oxfordshire; 25*l.*, to Edward George Simpson, of Levent Bridge, Yarm; Silver Medal, Henry Richard Phillips, of Willesdon Paddocks, Kilburn. Class highly commended.

HUNTERS AND HACKNEYS.

Class 36. To the owner of the best Stallion, suitable for getting Hunters.—25*l.*, to William Barnett, of Bays Hill Lawn, Cheltenham, Gloucestershire; 15*l.*, to John Batty, of Mains Farm, Ripon; Silver Medal, to William Watson, of The Beauthorns, Cheltenham.

Class 37. To the owner of the best Brood Mare, with foal at foot, or in-foal, for breeding Hunters.—15*l.*, to John Watson, of Waresley, Kidderminster; 10*l.*, to Edward Nicholas Heygate, of Buckland, Leominster; Silver Medal, to Andrew Rouse Boughton Knight, of Downton Castle. Commended: James Gregg, of Fencote, Docklow, Leominster.

Class 38. To the owner of the best Brood Mare, with foal at foot, or in-foal, for breeding Hackneys.—15*l.*, to Hugh Percy, of Eskrigg, Wigton; 10*l.*, to Samuel Walker, Urwick, of Leinthall, Ludlow.

PONIES.

Class 39. To the owner of the best Stallion, not exceeding 14 hands.—15*l.*, to James Moffit, of Kirklington Park, Carlisle; 5*l.*, to Silvanus Edwards, of Middleton Priors, Bridgnorth. Commended: William Norman, of Aspatria, Carlisle.

Class 40. To the owner of the best Mare, not exceeding 14 hands.—10*l.*, to Frederick Branwhite, of Chapel House, Long Melford, Sudbury; 5*l.*, to Thomas Fulcher, of Elmham, Thetford, Norfolk; Silver Medal, to John Knight, of Marlborough House, Newbury.

AGRICULTURAL.

(Not qualified to compete as Suffolk).

Class 41. To the owner of the best Stallion, foaled before the 1st of January, 1861.—25*l.*, to Joseph Yeomans, of Pennymore Hay, Shareshill, Staffordshire; 10*l.*, to William Raine, of Morton Tinmouth, Darlington; Silver Medal, to the Duke of Marlborough, of Blenheim Palace.

Class 42. To the owner of the best Stallion, foaled in the year 1861.—20*l.*, to William Coney, of Battenhall, Worcester; 10*l.*, to William Coney; Silver Medal, to Edward Holland, M.P., of Dumbleton Hall, Evesham.

Class 43. To the owner of the best Mare and Foal.—20*l.*, to Elizabeth Bull, of Weobley, Hereford; 10*l.*, to James Corbett, of Coventry Arms, Croome, Kempsey; Silver Medal, to Edmund Herbert, of Powick, Worcester.

Class 44. To the owner of the best 2 years old Filly.—15*l.*, to Charles Priday, of Longford, Gloucester; 10*l.*, to Hon. Colonel E. G. D. Pennant, M.P.

DRAY.

Class 45. To the owner of the best Stallion, foaled before the 1st of January, 1861.—25*l.*, to Thomas Johnson, of Hatfield, Doncaster; 10*l.*, to William Henry Neale, of Old Eclipse Inn, Mansfield.

Class 46. To the owner of the best Stallion, foaled in the year 1861.—20*l.*, to Charles Morrison, of Basildon Park, Reading; 10*l.*, to James Abell, of Leopard Grange, Worcester.

Class 47. To the owner of the best Mare and Foal.—20*l.*, to George Hasell, of Barton Hill, Bristol.

Class 48. To the owner of the best 2-years old Filly.—No entry.

SUFFOLK.

Class 49. To the owner of the best Stallion, foaled before the 1st of January, 1861.—20*l.*, to Walter Garrett Roofe, of East Stockwell Street, Colchester. Only one shown.

Class 50. To the owner of the best Stallion, foaled in the year 1861.—15*l.*, to Morris Mumford, of Creeting St. Peter, Needham Market; 10*l.*, to Isaac Rist, of Tattingstone, Ipswich. Highly Commended: William Wilson, of Baylham Hall, Ipswich.

Class 51. To the owner of the best Mare and Foal.—20*l.*, to Sir Edward Kerrison, Bart., M.P. Only one shown.

Class 52. To the owner of the best 2-years old Filly.—15*l.*, to John Ward, of East Mersea, Colchester; 10*l.*, to Manfred Biddell, of Playford, Ipswich.

The following is the list of officers to whose labours the above awards are due:—

HONORARY DIRECTOR.—Mr. J. Brandreth Gibbs, Half-Moon Street.

STEWARDS OF LIVE STOCK.—Mr. Thomas Pain, of Laverstock Hall, Salisbury; Mr. Milward, of Thurgarton Priory, Southwell, Notts; Mr. Dent, M.P., of Ribston Hall, Wetherby.

JUDGES.—*Shorthorns.*—G. Drewry, W. H. Beauford, J. Unthank. *Herefords.*—E. L. Franklin, J. Coleman, J. E. Jones. *Devons.*—S. Umbers, R. B. Warren, H. W. Keary. *Sussex and Others.*—S. Bloxsidge, T. Harris, W. F. Hobbs. *Thorough-breds and Hunters.*—C. Barnett, H. Thurnall, Honourable Colonel Cotton. *Hackneys and Ponies.*—J. E. Welby, J. E. Bennett, J. Parrington. *Agricultural, Dray, and Suffolk.*—N. G. Barthropp, T. Brooks, R. Nisbett. *Leicesters.*—F. Jordan, J. B. Thompson, R. Woods. *Cotswolds and Lincolns.*—H. Aylmer, T. Greetham, H. Bateman. *Southdowns.*—P. Purves, H. Overman, H. Fooks. *Shropshires and all Others.*—C. Randell, F. Budd, T. H. Saunders. *Pigs.*—J. S. Turner, J. Moon, H. P. Jones.

VETERINARY INSPECTORS.—Professor Simonds, Professor Vanell. *Assistant.*—R. L. Hunt

We are unable to find room for the full list of the prizes for implements. It will appear with our detailed account of the yard next week. Meanwhile we simply report the steam cultivation awards for large occupations as follows:—

Gold Medal and 30*l.*	John Fowler
Gold Medal and 20*l.*	William Savory & Son
Silver Medal	William Steevens
Commended	Coleman & Sons

And for small occupations as follows:—

John Fowler	£25 0 0
William Smith	15 0 0
J. & F. Howard	10 0 0

The prizes for Threshing-machines and Steam-engines were as follows:—

Portable Combined Threshing Machine.

R. Hornsby & Sons	£25 0 0
Clayton, Shuttleworth, & Co.	15 0 0
Wallis, Haslam, & Steevens	10 0 0

PORTABLE STEAM ENGINES: 12-*horse power.*

Hornsby & Sons	£10 0 0
Clayton, Shuttleworth, & Co.	7 0 0
Tuxford & Sons	4 0 0
Barrett, Exall, and Andrewes	4 0 0

8-*horse power.*

Tuxford & Sons	£9 0 0
Barrett, Exall, and Andrewes	8 0 0
Clayton, Shuttleworth, & Co.	7 0 0
Holmes & Sons	1 0 0

THE DOG SHOW.

One of the attractions to Worcester during the past week has been the exhibition of dogs, held in a large wooden building near the show-yard. The foxhounds are exceedingly good, and the first and second prizes in the first, second, and third classes, are obtained by Lieut-Col. Clowes, as master of the Worcestershire hounds. Of harriers and beagles there are few entries. The show of greyhounds could not be excelled, there were 32 entries in the two classes. Another feature of the exhibition is the excellent show of pointers of all sizes. The English setters are, with a few exceptions, good. The show of black-and-tan, or Gorton setters, on the whole is inferior. There were six blood hounds, ten deer hounds, and a numerous show of retrievers. Of Clumber spaniels there were 13 entries, besides

mastiffs, Newfoundland dogs, Dalmatians, bull dogs, sheep dogs, black-and-tan terriers, terriers of any colour, Skye terriers, Scotch terriers, King Charles's spaniels, toy terriers, &c.

Miscellaneous.

Agricultural Societies.—The origin of our first agricultural societies dates back to a period more than a thousand years ago. At that period, as we have elsewhere remarked, "such was the poverty of the husbandman and the wretched condition of husbandry, that it was the custom for six or eight individuals to club together their scanty means to procure a plough, and oxen wherewith to drive it, hedging themselves round in their social organisation with many quaint laws, which, in the minuteness of their details, showed how important to them was their association together, how miserably scanty their means when they had to contribute their mite to the purchase of an instrument, and this so rude, that by enactment about the same period we have alluded to, no man was allowed to guide a plough unless he could first construct it, and make, moreover, the twisted willow withes with which his wretched oxen drew it." Contrasting the farmers' clubs or societies of this period, and the objects for which they were introduced, with those of the present time: when in their grand organisation they are welcomed to the towns which they periodically visit, with arch triumphal and banners flaunting; with their thousands of members giving of their means, not to secure, like their brethren of old, assistance for their individual operations merely, but to collect information and the details of experience for the purpose of scattering them broadcast over the land, that all their brethren might participate in the benefits of their association; contrasting the societies of the two periods, we have examples of ancient and modern association.—*R. Scott Burn's Outlines of Modern Farming,*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.
By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Self-Registering Thermometers. In Shade. Max.	Self-Registering Thermometers. In Shade. Min.	Self-Registering Thermometers. Max. in Sun.	Self-Registering Thermometers. Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		At 9 A.M., Railway Time. Reading of										
		Inches.	°	°				°	°	°	°	Inches.
Friday ..	July 17	30.15	65	57	N.W.	2	8	66	48	82	42	..
Saturday ..	18	29.89	59	51	N.W.	4	10	70	48	84	39	..
Sunday ..	19	30.07	64	53	S.E.	1	0	64	34	75	30	0.05
Monday ..	20	29.91	61	53	N.N.W.	0	2	66	42	80	36	..
Tuesday ..	21	29.87	55	53	S.S.E.	1	10	67	42	82	37	0.01
Wednesday ..	22	29.52	65	61	S.W.	3	10	64	53	70	51	0.94
Thursday ..	23	29.94	65	57	W.	2	4	66	41	77	37	0.02

Notices to Correspondents.

ANBURY: *W H C D.* The specimen sent us we believe to be Anbury. Finger and Toe is another name for the same disease, but it is also applied to that form of degenerate growth which is often the result of bad seed; whereas Anbury attacks plants irrespective of the seed from which they have sprung. Liming proves a specific for the disease, and it must, therefore, be the result of something which liming removes.

HOPS: *Q Q* living in a Hop district, and being a planter, is anxious to know what amount of nutriment there is in the half-dried Hop bines. At this season it is usual to go through the process of "legging;" that is, cutting off the bines to a certain extent, 2, 3, or 4 feet up the poles. The cuttings were this year taken to *Q Q*'s farm, where the cows eat it freely cut up with their other food, and he would not have it done unless some good resulted. [Will any one relate their experience?]

THE HYDROPULT,

EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "The machine is certainly the most compact and efficacious force pump of its size that we have ever seen."—*Daily Telegraph.*

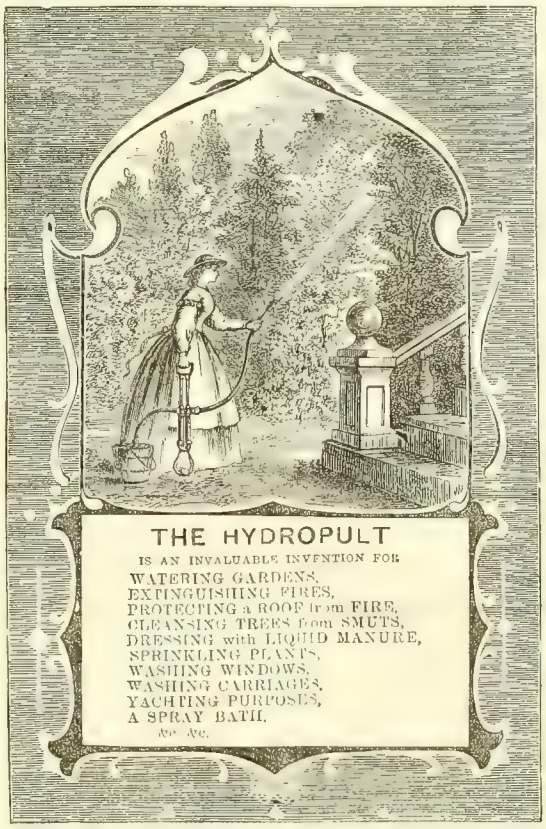
THE HYDROPULT. — "All Londoners and other town residents who care for their gardens and greenhouses should avail themselves of such engines." — *Gardeners' Chronicle and Agricultural Gazette.*

THE HYDROPULT. — "We strongly recommend it to our readers." —*Journal of Horticulture and Cottage Gardener.*

THE HYDROPULT. — "It will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water." — *Gardeners' Weekly Magazine.*

THE HYDROPULT. — "Country readers who order it on our recommendation, will not only not repent, but thank us for calling attention to a machine which, having once used, they will never care to be without."—*Floral World and Garden Guide.*

THE HYDROPULT. — "We can only say that no public establishment or private house should be without one of these useful machines."—*Commercial Daily List.*



EXTRACTS FROM THE PRESS.

THE HYDROPULT. — "We are satisfied that all housekeepers ought to have one, and we are equally satisfied that if they once see it they will order it." — *Liverpool Daily Post.*

THE HYDROPULT. — "We commend it to the notice of the proprietors of warehouses and other buildings, public and private, in the metropolis and provinces.' — *Mechanics' Magazine.*

THE HYDROPULT. — "It is admirably adapted for sprinkling gardens, trees, graperies, washing windows, carriages, and for household purposes, its simplicity and portability being its strong recommendation." — *Illustrated News of the World.*

THE HYDROPULT. — "Nothing has yet been introduced for watering gardens equal to the Hydropult, as any one standing close to the house can water, in a few minutes, any ordinary suburban garden, thus saving much time, and performing the task in an easy, satisfactory manner." — *Builders' Reporter.*

THE HYDROPULT. — "Many of the most scientific men of the age are daily inspecting and testing its uses." — *Age We Live In.*

AN INVENTION FOR THROWING WATER BY HAND POWER

(SECURED by ROYAL LETTERS PATENT),

Price **TWO GUINEAS**

Complete, with 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose or Sprinkler, and Small Jet. Weighs but 8 lbs.

Recommended as an efficient and useful Fire Engine by the principal Fire Insurance Companies of Great Britain

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

THOMAS RIVERS, Esq., the eminent Florist, SHIRLEY HIBBARD, Esq., and other well-known gentlemen, recommend it as an invaluable Garden Implement.

EXTRACTS FROM TESTIMONIALS.

"Royal Insurance Office, Liverpool.

"My dear Sir,—I have much pleasure in expressing the high satisfaction, and indeed surprise, with which I witnessed the working of your Hydropult. There can be no doubt that it can be available in the earlier stages of fire in warehouses, manufactories, or private houses, in preventing large conflagrations, while its applicability to gardening and other purposes will be manifest to any one observing its operation.—I am, my dear Sir, yours truly, "PERCY M. DOVE, Manager."

"Chas. P. Button, Esq."

"The invention will prove extremely valuable for all the purposes to which such machines are applied.—SWINTON BOULT, Secretary, Liverpool and London Insurance Company."

"Its portability and facility of operation recommend it to the general notice of the public.—HENRY LOWE, Secretary District Fire Company."

"In a blowing or mixing room it would be of especial service. — F. J. HALLOWS, Secretary, Caledonian Insurance Company."

CAUTION: Important to the Public.—The extensive sale of the HYDROPULT has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting, as they are often placed under or near the Hydropult show card. The Proprietor therefore issues this caution, and respectfully intimates that parties wishing to purchase the Hydropult, should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, a Portable Fire Annihilator and Garden Engine; GRIFFITHS & BROWETT, Manufacturers, Birmingham; CHARLES P. BUTTON, General Agent (Vose's Patent)." Unless this label be attached, the machine is not the Hydropult.

THE HYDROPULT is MADE of BRASS and COPPER, weighs but 8 lbs., and WILL THROW EIGHT GALLONS of WATER PER MINUTE FIFTY FEET, WHEN WORKED by the POWER of ONE MAN.

Public and private buildings have been saved from destruction by its agency. T. SPENCER, Esq., Inspector of the Royal Society for Protection of Life from Fire, certifies to its efficiency in saving valuable property at Bayswater from destruction.

FIRE! FIRE! FIRE! THE HYDROPULT IS THE MOST EFFICIENT FIRE-ENGINE IN THE WORLD, BECAUSE THE MOST AVAILABLE.

It can be used for all purposes for which a hydrant or force pump is applicable, and in situations where other contrivances are useless.

CHARLES P. BUTTON, PROPRIETOR,

HYDROPULT WAREHOUSE, 27, LEADENHALL STREET, LONDON, E.C.

WEST-END DEPOT, 309, REGENT STREET, W.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.

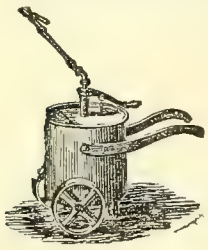


Fig. 570.



Fig. 571.

J. TYLOR & SONS' GALVANIZED IRON TUB GARDEN ENGINES, with Registered Spreader.

8 gal. 12 gal. 16 gal.
2 13 6 £3 5 0 £3 15 0
24 gal. 30 gal.
£5 0 0 £5 18 0

J. TYLOR & SONS' OAK TUB GARDEN ENGINES, with Registered Spreader.

15 gal. 28 gal.
£5 12 6 £7 2 0

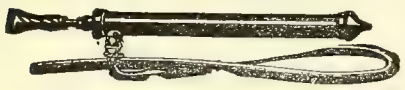


Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 8 0 each.
No. 2. Ditto ditto .. 1 2 6 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,



Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 11s. 6d. each.
,, 589. Middle Ditto ditto .. 10 3 ,,
,, 588. Small Ditto ditto .. 9 0 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 7 6 ,,



Fig. 591. READ'S SYRINGE, with two roses and one jet, 17s. 6d
READ'S SYRINGE, with one rose and jet, 15 0
,, 592. Improved ditto ditto large 14 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

THOMAS MILLINGTON,

GLASS MERCHANT.

ESTABLISHED 1750.

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

The Agricultural Hall, Islington, containing an Acre of Glass, was supplied by T. MILLINGTON.

Mr. Rivers, and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home Use and for Exportation.

☞ *For prices see Advertisement of June 6.*

ST. PANCRAS IRON WORKS,

OLD ST. PANCRAS ROAD, N.W.

IRON HURDLES, FENCING, and GATES.

The PROPRIETORS of the ST. PANCRAS IRON WORKS, OLD ST. PANCRAS ROAD, LONDON, WERE AWARDED THE SILVER MEDAL of the ROYAL AGRICULTURAL SOCIETY for their IRON HURDLES and GATES, which, by their peculiar construction, are more than twice as strong and durable as those in ordinary use.

Lists per post on application. Gates from 30*s.* to 500*l.*

The Hurdles can be seen in process of Manufacture at the Works.

GAME WIRE NETTING.

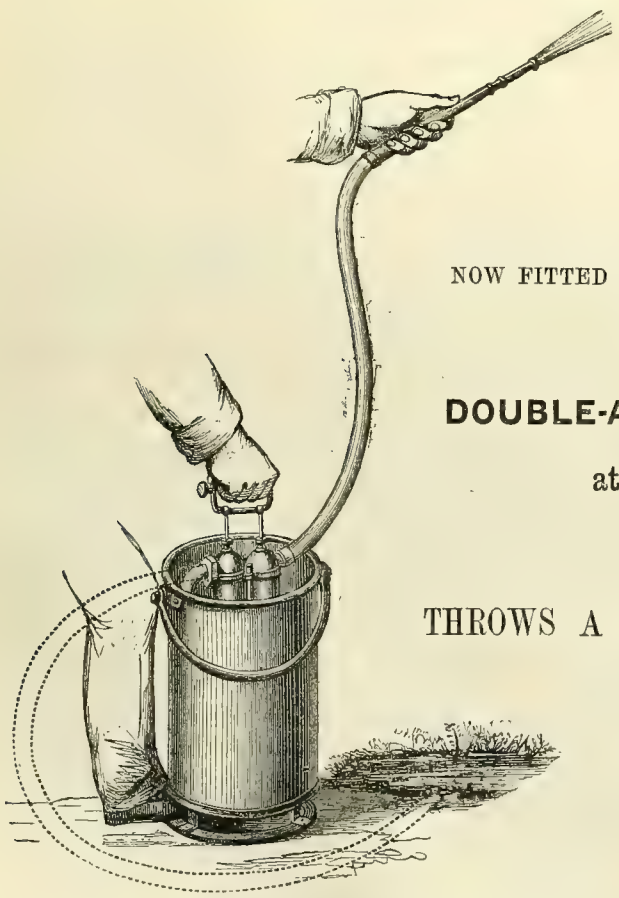
PROFESSOR VARNELL'S ENAMELLED and WROUGHT-IRON STABLE FITTINGS.

These Patent Mangers and Stable Fittings obtained the Commendation and the Silver Medal of the Royal Agricultural Society of England and the Royal Agricultural Society of Ireland, are adopted by the Royal Veterinary College, and Professor Spooner of that Institution states that they should be used by all who value the health and comfort of their Horses. They can be had Plain, Galvanised, or Enamelled.

A Show Room is devoted entirely to every description of Stable Furniture, and full-sized Stalls and Loose Boxes are erected for inspection at St. Pancras Iron Works.

ADDRESS—THE MANAGERS, ST. PANCRAS IRON WORKS,
OLD ST. PANCRAS ROAD, LONDON, N.W., OPPOSITE OLD ST. PANCRAS CHURCH.

WARNERS' IMPROVED PATENT,



NOW FITTED WITH AN AIR VESSEL,

IS THE ONLY

DOUBLE-ACTION ENGINE

at £2 2s.

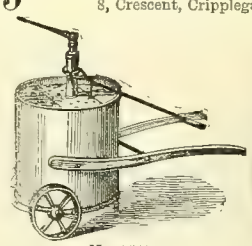
THAT

THROWS A CONSTANT STREAM.

May be obtained of any Ironmonger or Seedsman at the above price, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.

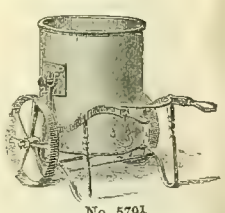


No. 554½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons £2 15 0
16 ,, ... 3 15 0
24 ,, ... 5 0 0

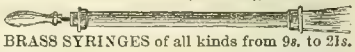
Larger sizes may be had in either Wood or Iron.



No. 579½.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons .. £2 10 0
20 ,, .. 2 0 0



BRASS SYRINGES of all kinds from 9*s.* to 21*s.*



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 5 feet Flexible Suction Pipe,

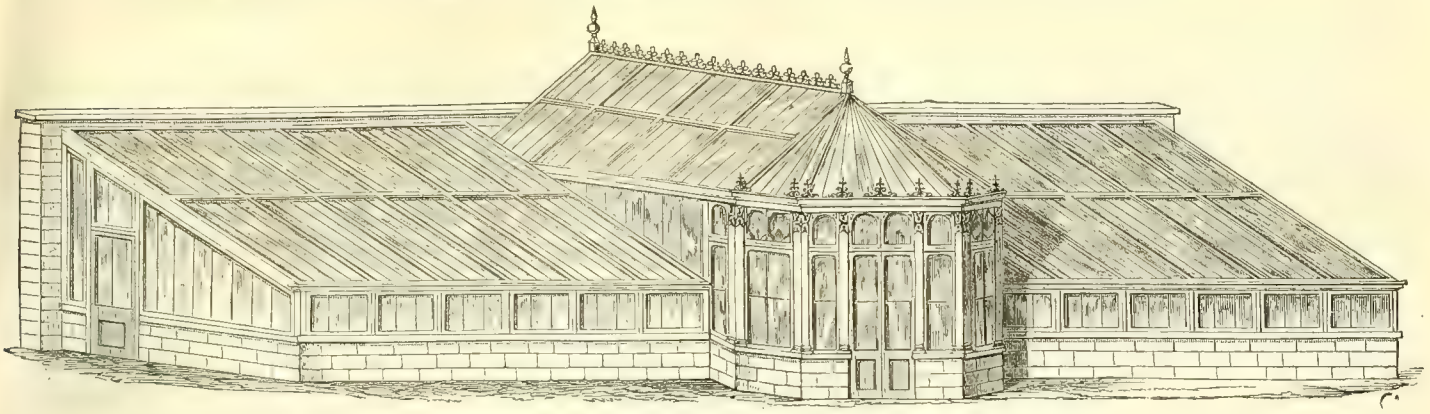
21s.

Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form o Syringe, and may be used as an effectiv Garden Engine with Warners' Wate Barrow, or other supply.

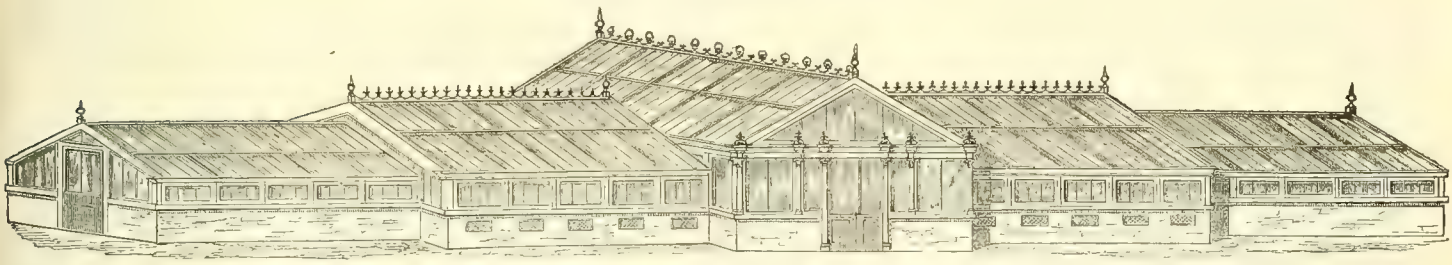
THERE ARE NO SUCTION OR DELIVERY VALVES, hence MUCH FRIC TION AND LIABILITY TO CHOKE with leaves and dirt IS AVOIDED.
JOHN WARNER & SONS, 8, Crescent, Cripplegate, London, E.C



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

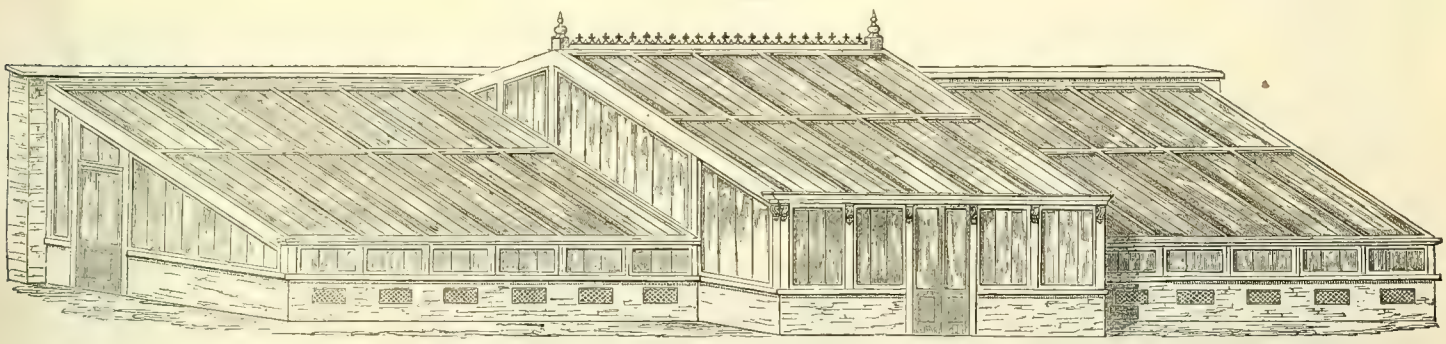
LOWEST PRICES AND BEST MATERIALS.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

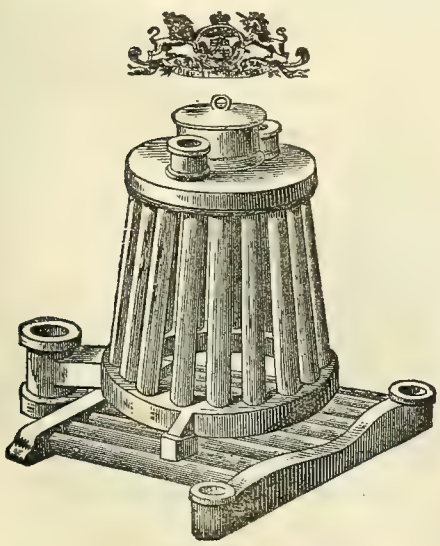
MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

THE FOLLOWING IS THE REASON WHY

ORMSON'S ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become so universally adopted on account of their superior power, great safety, and economy.



ORMSON'S No. 1 BOILERS are heating upwards of 250 feet of Pipe.
ORMSON'S No. 2 BOILERS „ „ 600 „
ORMSON'S No. 3 BOILERS „ „ 1300 „
ORMSON'S No. 4 BOILERS „ „ 3500 „
ORMSON'S No. 5 BOILERS „ „ 7000 „

Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

HENRY ORMSON begs most respectfully to announce that very little inconvenience has resulted to him from the recent Fire on his Premises, and that Business will continue to be conducted in the usual manner.

HENRY ORMSON, Horticultural Builder to Her Majesty,

AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY.

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Hothouses for the Million.—AWARDED A PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, 1862.



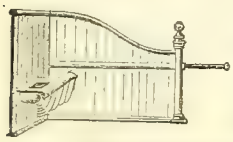
HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner, all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to SAMUEL HEREMAN, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1s.; post free, 1s. 1d.

Exhibition Prize Medal 1862.

MUSGRAVE'S PATENT STABLE FITTINGS and HARMLESS LOOSE BOXES, PATENT IRON COW HOUSE FITTINGS, and IRON PIGGERIES.



These inventions are recommended as possessing numerous advantages not to be found in anything hitherto made. At the late Meeting of the Royal Agricultural Society at Leeds, MUSGRAVE BROTHERS received a Silver Medal, and two Awards of "Highly Commended," being the only Prizes conferred on any competitor in this class.

Particulars sent on application to the Inventors and Makers, MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.

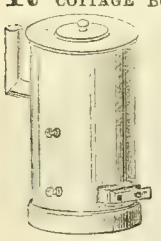


T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES of the above, Glazing without Putty Garden Engines, &c., sent upon application.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



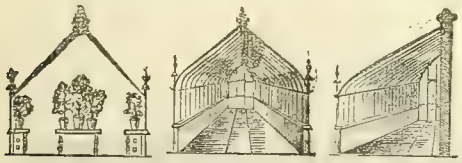
Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3d. per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

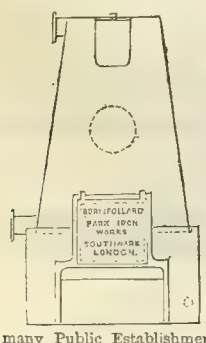
DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon



an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.



LATEST IMPROVEMENTS IN
Heating by Hot Water.
THE IMPROVED
CONICAL BOILERS,
FOR HEATING PINERIES, CONSERVATORIES, GREENHOUSES, MANSIONS, HALLS, WAREHOUSES, &c.,
SOLELY MANUFACTURED BY
BURY AND POLLARD
(Successors to JOHN R. PEILL, Late STEPHENSON & PEILL).

Annexed Sketch shows BURY & POLLARD'S improved arrangement, requiring

NO BRICKWORK SETTING.

These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United kingdom. References where they have been 20 years in constant use.

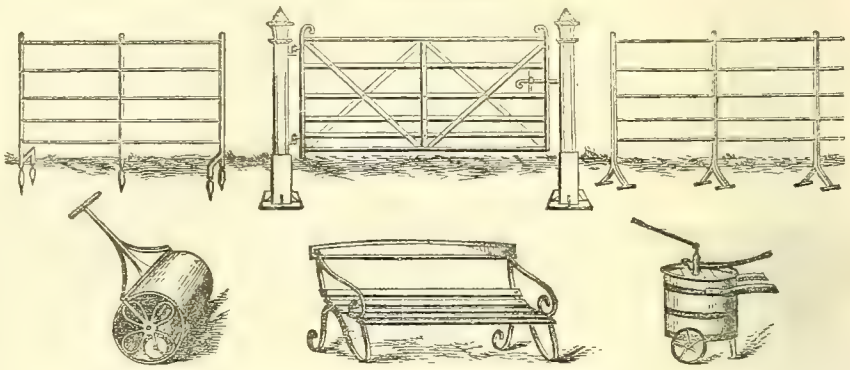
Price Lists on application to BURY & POLLARD, Park Iron Works, New Park Street, Southwark, London, S

FOWLER'S
STEAM PLOUGHING AND CULTIVATING PATENTS.

RANSOMES & SIMS, ORWELL WORKS, IPSWICH,

Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

COTTAM'S
CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,
MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.
PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED IN VARIOUS STYLES.



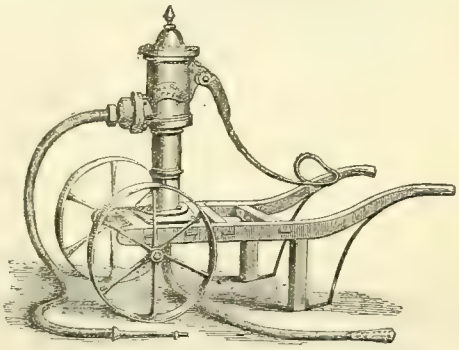
IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.
VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.
The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

Illustrated CATALOGUES and DRAWINGS free on application to
COTTAM & CO., ENGINEERS and IRON FOUNDERS,
2, WINSLEY STREET (OPPOSITE the PANTHEON), OXFORD STREET, LONDON, W.

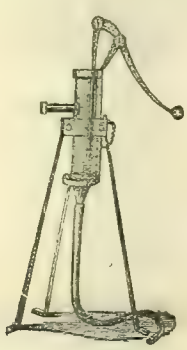
JOHN WARNER & SONS,
BELL AND BRASS FOUNDERS TO HER MAJESTY,
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35.



No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP.



No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high	...	£1	1	0	2½ inches ... ... 3 feet 3 inches high	...	£1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing ...	...	£2	0	0			
2½ inches long, ditto ditto		2	14	0			

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE	...	...	...	...	...	at per foot	0	1	4
2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*)	...	...	...	...	...		3	0	0
3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*)	...	...	...	...	...		3	10	0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

W. J. HOLLANDS, IRON MERCHANT, 31, Bank-side, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

Established A.D. 1818.

CLARK AND HOPE (Late CLARK), MANUFACTURERS of METALLIC and WOOD HOT-HOUSES, COPPER SASHES, VERANDAHS, SKYLIGHTS, WROUGHT IRON WINDOWS, CASEMENTS, and HOT WATER APPARATUS for Horticultural and Domestic purposes.

C. & H. beg to call the attention of the Public to their NEW PATENT STOP VALVES, which are warranted to resist 30 lbs. pressure per square inch, and are so constructed as to allow of being taken out for repairs without interrupting the working of the apparatus, and can be had at the following low prices:—

2 inches, 14*s.* 6*d.*; 3 inches, 19*s.* 6*d.*; 4 inches, 25*s.* 6*d.*

A liberal discount to the trade.

C. & H. also beg to call attention to their NEW TREE COVER, which for simplicity of construction, lightness, and durability (being of Cast and Wrought Iron, is unequalled.

Particulars and prices forwarded upon application; also Lithographed Designs of Horticultural Buildings, Copper Bars, &c. 55, Lionel Street, Birmingham.

JOSEPH SMITH, New Road, Hammersmith, W., undertakes the ERECTION of GREENHOUSES, &c., in any part of the kingdom, and begs to offer for SALE about 10,000 feet of GLAZED LIGHTS for GREENHOUSES, PITS, &c.

Those glazed with 21-oz. glass, 9*d.* per square foot.
" " 16-oz. " 8*d.* " "
21-oz.—Eight. 12 feet 3 inches by 5 feet 8 inches.
Twenty. 11 feet by 4 feet 8 inches.
Nine. 8 feet 6 inches by 4 feet 8 inches.
Ten. 7 feet by 3 feet 11 inches.
Twelve. 5 feet 2 inches by 4 feet 2 inches.
16-oz.—Forty. 7 feet by 4 feet 3 inches.
Twelve. 8 feet 10 inches by 4 feet 2 inches.
Twenty. 6 feet by 4 feet 2 inches.
Twelve. 5 feet 2 inches by 5 feet 8 inches.

Also Span-roof Greenhouse, 27 feet by 16 feet, 47*l.*
Lean-to, 21-oz. glass, 46 feet by 14 feet, 55*l.*
" " 24 feet by 11 feet, 30*l.*
" 16-oz. glass, 50 feet by 14 feet, 55*l.*
Second-hand, 12 feet by 7 feet, 14*l.*
Estimates given for Heating.

TO BE SOLD CHEAP, a quantity of HOT-WATER PIPES; 3-inch 9 feet lengths, 6*s.*; 4-inch do., 7*s.*; 3-inch elbows, 3*s.*; 4-inch do., 4*s.* Several CIRCULAR FRAMES, &c. Delivered to any Railway Station in London.

Apply to Mr. SMITH, Hothouse Builder, 233, Pentonville Road, King's Cross, N. (The Business to be disposed of.)

WANTED to PURCHASE, a good Second Hand CONSERVATORY, about 30 or 40 feet long; also 30 or 40 foot run of FORCING FRAMES.

Address Mr. READ, Railway Station, Gipsy Hill, Norwood, S.

Garden and Architectural Decorations in Terra Cotta.

PRIZE MEDALS OF 1851 AND 1862 AWARDED TO

JAMES PULHAM, Broxbourne, Herts. Also Notice of ARTISTIC MERIT, and of SOUND DURABLE MATERIAL in

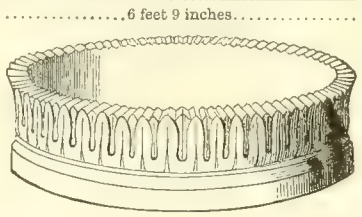
FOUNTAINS, VASES, FIGURES, FERN CASES, and BRACKETS, CONSERVATORY TUBS, with rising bottoms, &c.

The novel FERNDELABUM.—To grow SIXTY FERNS (or Flowers) on a space 4 ft. 8 in. over, 8 ft. high, &c.

Guaranteed to stand frost an unlimited time.

Stereographs sent to inspect for 12 stamps.

Illustrations in the *Art Journal Catalogue*, the *Masterpieces*, and *Gems of the Exhibition*.



AUSTIN, SEELEY, AND CO. beg to inform the Nobility and Gentry that they are prepared to supply, at three months' notice, TAZZE for Flowers or Fountains, as wide as 13 feet. They take this opportunity of referring to some large Flower Basins and Plain Kerbings made by them for the Royal Horticultural Society's Gardens; and also to those lately supplied to the Public Garden in the Regent's Park. They will be happy to forward a List of their Fountains to any gentleman requiring one.

369 to 375, Euston Road, Regent's Park, N.W.



GARDEN BORDER-EDGING TILES.—These Tiles, manufactured in Terra-Cotta, Terro Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

To be obtained at F. & G. ROSHER'S Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.

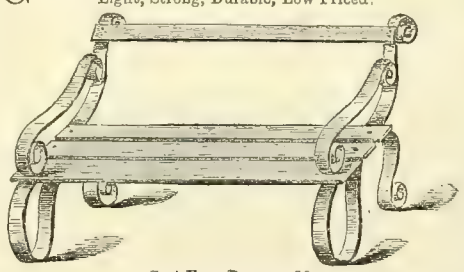
Illustrated Price Lists free on application The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER at their Premises as above.

GARDEN SEAT.
Light, Strong, Durable, Low Priced.



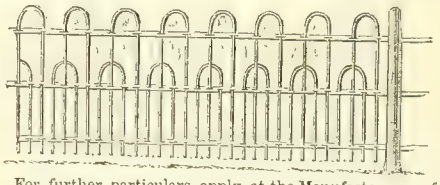
Seat Four Persons, 18*s.*

Delivered to any Metropolitan Railway Station on receipt of Post Office order.

EDWIN LADD, Ironmonger, High Street, Camberwell, S., Garden Implement Depôt.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.



For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

WANTED to LEASE, about 5 ACRES of LAND suitable for a Nursery, with Dwelling-house attached, within 12 miles of London.—Address, with full particulars, to J. K., *Gardeners' Chronicle* Office, W.C.

Broomhall Estate.

TO NURSERYMEN AND OTHERS.

TO BE LET on LEASE, for a term of years, from Michaelmas, 1863, ARABLE and PASTURE LAND, situated in the parish of Windlesham, Surrey, near to the Sunningdale Railway Station, on the Staines and Wokingham Railway, and adjoining the Turnpike Road from Sunningdale Station to Bagshot. The situation is sheltered and the soil well adapted for the growth of Nursery Stock, and particularly of American Plants and Shrubs.

For further particulars apply to the Rev. G. F. REYNER, Bursar, St. John's College, Cambridge; or to Messrs. CLUTTON, 9, Whitehall Place, London, S.W.

SHROPSHIRE SHEEP.
SALE APPOINTMENTS FOR 1863.

Mr. S. BYRD'S, at the Leese Farm, Stafford, JULY 30.
35 RAMS of "Patentee" blood.

Mr. C. BYRD'S, at the Leese Farm, Stafford, JULY 30.
60 EWES and THEAVES, and 250 EWE and WETHER LAMBS.
Chiefly by a son of "Patentee."

Mr. G. A. MAY'S, at Elford Park, near Tamworth, AUGUST 5.
35 RAMS and 120 EWES and THEAVES.

Mrs. BAKER'S, at Grendon, near Atherstone, AUGUST 7.
35 RAMS and 70 EWES and THEAVES.

Mr. J. H. BRADBURNE'S, at Pipe Place, near Lichfield, SEPTEMBER 7.
35 RAMS and 50 EWES and THEAVES.

The GREAT CENTRAL SALE of RAMS, EWES, and THEAVES, at Bingley Hall, Birmingham (by order of several eminent flock masters in the Midland Counties), SEPTEMBER 8.
JOHN B. LYTHALL, Auctioneer.

Catalogues of any of the above Sales, with Pedigrees and full particulars, may be obtained from the Auctioneer.

Offices: 13, Temple Street, and Bingley Hall, Birmingham.

Sales by Auction.

Most Valuable Orchids.

AN IMPORTATION JUST ARRIVED IN THE FINEST POSSIBLE CONDITION, EX MAIL STEAMERS "RIPON" AND "POONAH," FROM SINGAPORE.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on TUESDAY, August 4, at half-past 12 o'clock precisely, ELEVEN large CASES of RARE VANDAS, ÆRIDES, SACCOLABIUMS, DENDROBIUMS and other choice species for absolute sale. Having been sent overland, they have arrived in the finest possible condition, and are well worthy the attention of Orchid growers, they being most probably varieties new to this country.

Highly Important Sale of New and Interesting Araucarias and Dammaras,

JUST ARRIVED IN SPLENDID CONDITION EX "LIGHT OF THE AGE," FROM SYDNEY, AN IMPORTATION OF CATTLEYAS AND OTHER ORCHIDS FROM BRAZIL, AND A VALUABLE COLLECTION OF TREE FERNS & OTHER PLANTS FROM NEW ZEALAND.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, July 28, at half-past 12 o'Clock precisely, an importation of ORCHIDS, just arrived from Brazil, consisting of Cattleya Leopoldii, Cattleya amethistina, and Lælia purpurata, &c., in fair condition, and for Sale without reserve.

A collection of NEW ZEALAND TREE FERNS and other PLANTS, comprising 6 splendid Plants of Cyathea dealbata on stems 2 to 4 feet. 6 ditto, Cyathea Smithii 1 to 5 feet, 36 fine Todea pellucida 4 Dracæna australis, 5 Dicksonia squarrosa, 24 Cyathea dealbata (small), 12 Lomaria discolor, 24 Dracæna Veitchii, 1 Cyathea medularis, 24 fine New Zealand Hymenophyllas, 4 Trichomanes elongata, and 24 Areca sapida; the greater part of them fine established Plants. Also

An importation of new, rare, and interesting ARAUCARIAS and other PLANTS, just arrived in the finest possible condition, ex "Light of the Age," from Sydney, for ABSOLUTE SALE, comprising 5 Wardian Cases, containing 150 fine healthy plants of Araucaria Rulei, 63 Dwarf Araucarias, 2 Podocarpus sp., 10 Dwarf Dammaras, 148 Dammara Morei, 2 large Araucarias, &c.

The following extract from consignee's letter will give an idea of the great difficulty and expense in obtaining these rare and valuable plants:—"Our collector is now withdrawn from New Caledonia, and unless the shipment turns out *A* 1, as to prices, he will not be sent there again. The only plants which we expect to return our outlay of several hundred pounds are the Araucarias. The dwarf species, we think, ought to be a great hit; and we can confidently assert that the plant will always be scarce (as seedling), because it is very local, and we could not procure 500 plants within twelve months, even if we spent 1000*l.* for the purpose. The two large Araucarias are also from New Caledonia; the tree grows to a height of about 50 feet, exceedingly scarce, and hard to establish. The Dwarf Dammara was found on the top of a very high mountain, and no specimens were found of more than 20 feet in height. The Podocarpus is singular in appearance, and probably new."

On view the Morning of Sale, and Catalogues had.

DEANE & COMPANY'S
HORTICULTURAL TOOLS.



DEANE'S MOWING MACHINES, with Patented Improvements, 4*l.* 12*s.*, 6*l.* 10*s.*, 7*l.*, 8*l.*

GARDEN ENGINES, Galvanised Iron. Prices 55*s.*, 65*s.*, 78*s.*, 90*s.*, 100*s.*, 110*s.*

GARDEN ENGINES, Wood, 90*s.*, 110*s.*, 138*s.*

FLOWER STANDS, 4*s.* 6*d.* each.

CAST-IRON ORNAMENTAL FLOWER STANDS to hold Seven Vases, 27*s.*

GREEN'S PATENT MOWING MACHINES.

GREENHOUSE SYRINGES, 8*s.*, 10*s.*, 18*s.* 6*d.*

GARDEN ROLLERS, 1*l.* 14*s.* 6*d.*, 2*l.*, 2*l.* 12*s.*, 3*l.* 3*s.*, 3*l.* 18*s.*, 4*l.* 13*s.*, 5*l.* 12*s.*, 7*l.* 10*s.*

GARDEN STOOLS, 4*s.* 6*d.*

GARDEN SEATS, from 25*s.*

BOYD'S SELF-ADJUSTING SCYTHE, 10*s.* 6*d.*

WIRE WORK, 18 in., 4*d.* per yard run.

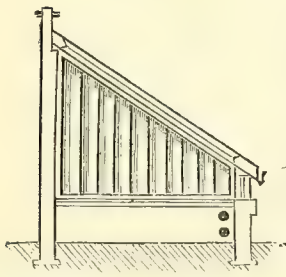
Every Implement for Garden use on the lowest terms.

DEANE'S NEW ILLUSTRATED HORTICULTURAL LIST
POST FREE ON APPLICATION.

DEANE'S, OPENING TO THE MONUMENT, LONDON BRIDGE, E.C.

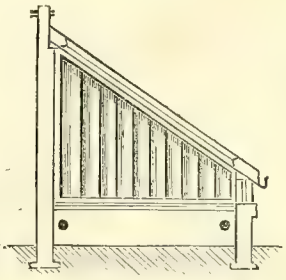
J. JONES'S HOT-WATER APPARATUS.

No. 7.



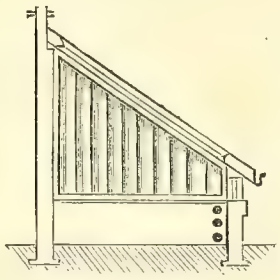
Size of House.	Price
20 by 10 feet	£9 0 0
30 „ 12 „	12 0 0
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100 „ 15 „	26 0 0

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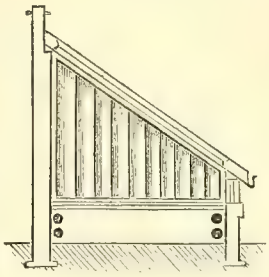
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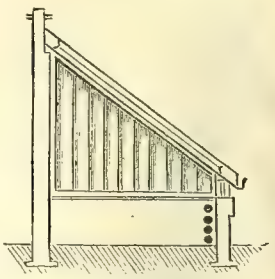
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No. 10.



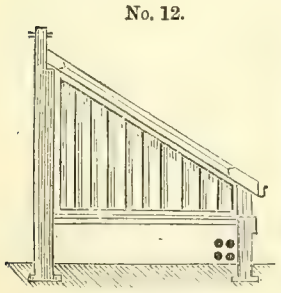
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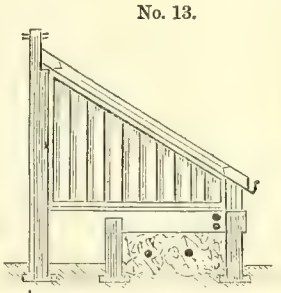
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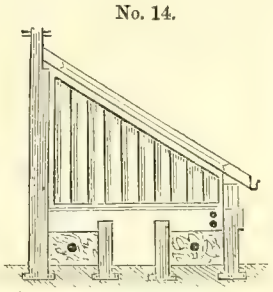
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No. 13.



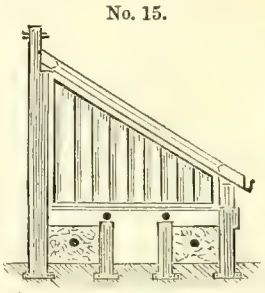
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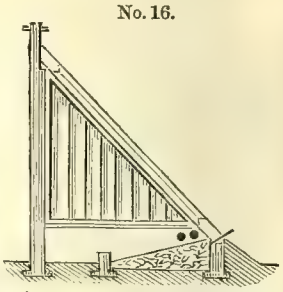
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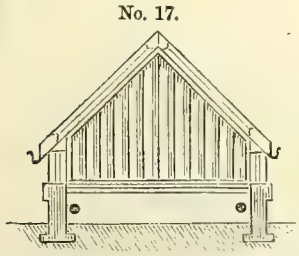
Price
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No. 16.



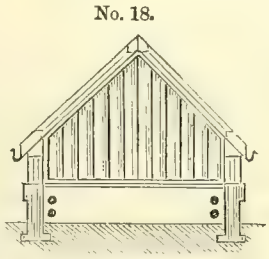
Price
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No. 17.



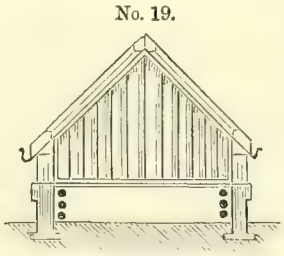
Size of House.	Price
20 by 10 feet	£9 0 0
30 „ 12 „	12 0 0
40 „ 15 „	15 0 0
50 „ 15 „	18 0 0
60 „ 15 „	20 0 0
70 „ 15 „	22 0 0
80 „ 15 „	24 0 0
100 „ 15 „	26 0 0

No. 18.



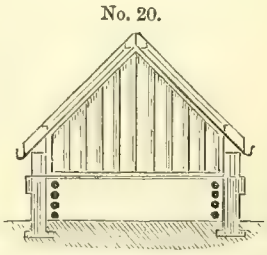
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36 0 0
40 0 0
44 0 0

No. 19.



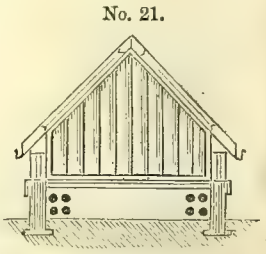
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34 0 0
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44 0 0
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54 0 0

No. 20.



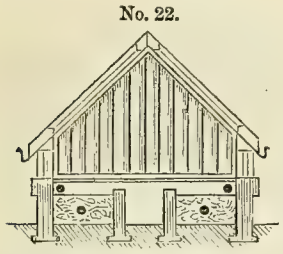
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56 0 0
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70 0 0

No. 21.



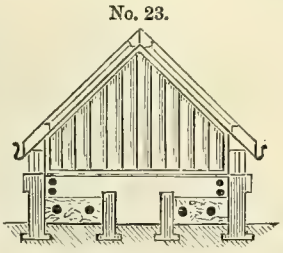
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49 0 0
56 0 0
63 0 0
70 0 0

No. 22.



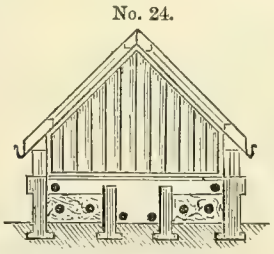
Size of House.	Price
20 by 10 feet	£15 0 0
30 „ 12 „	21 0 0
40 „ 15 „	25 0 0
50 „ 15 „	29 0 0
60 „ 15 „	33 0 0
70 „ 15 „	37 0 0
80 „ 15 „	41 0 0
100 „ 15 „	45 0 0

No. 23.



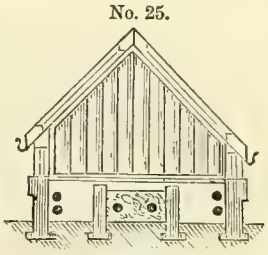
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44 10 0
51 10 0
58 0 0
65 0 0
72 0 0

No. 24.



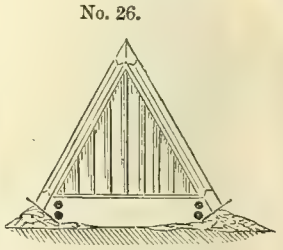
Price
£25 0 0
32 0 0
38 10 0
44 10 0
51 10 0
58 0 0
65 0 0
72 0 0

No. 25.



Price
£18 10 0
25 0 0
30 0 0
35 0 0
40 0 0
45 0 0
50 0 0
55 0 0

No. 26.



Price
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

J. JONES will be happy to supply HOT-WATER APPARATUS for HOUSES according to any of the above Plans, delivered Free to any Station in England at the prices named, which include strong CAST-IRON CYLINDER or SADDLE BOILER, FURNACE DOORS, FIRE BARS, SOOT DOORS, CISTERN and DAMPER 4-inch HOT-WATER PIPES and CONNECTIONS, all of the best quality; or he will forward ESTIMATES for WORK erected complete, with WROUGHT or CAST-IRON BOILER of any sort, at a small addition to the above prices.

☞ *The Black Circles on Sections of Houses show the arrangement of Pipes.*

Illustrated Catalogues and further particulars post free on application to

J. JONES, IRON MERCHANT AND HORTICULTURAL ENGINEER, 6, BANKSIDE, LONDON, S.E.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 31.—1863.] SATURDAY, AUGUST 1. {Price Fivepence. {Stamped Edition, 6d.

INDEX.

Agricultural show at Suffolk	733 b	Plant sales	727 c
Alcock on Japan	726 b	Pyrethrums	723 c
Bees	727 c	Pyrus Sorbus	728 a
Berberis nepalensis	725 c	Resignation of E. Holland, Esq., rev.	734 a
Boiler explosions	733 c	Royal Agricultural College	730 b
Cinchonas, Indian	7.6 a	Rubus leucodermis	725 b
Crops, appearance of	731 b	Salix fragilis	725 c
Cryptogamy, Irish	727 a	Sheds, portable	733 b
Exhibitions and wet weather	725 b	Society, Royal Agricultural	733 b–733 c
Ferns, Indian	727 b	— Royal Horticultural	725 b
Fish and Fishing	724 c	— Bot of Edinburgh	726 a
Grapes, American	728 c	Steam cultivation	732 a
— Golden Hamburgh	725 c	Strawberries	724 a
Japan, Alcock on	726 b	Trees, growth of	723 b
Luxembourg gardens	728 a	— Windsor Forest	727 a
Manor Farm, Brighton	731 a	Weather prognostics	732 c
Monstera deliciosa	728 c	Wellingtonia, fruiting of	725 c
National schools, ventilation of	733 b	Wheat, Pedigree	733 b
Oat crop	730 a	Williams' (Mr.) nursery	727 b
Parthenogenesis of Aberia Caffra	727 c	Willow, Crack	725 c
Pauper colony in Holland	734 c	Windsor Forest	727 a
Pelargoniums, culture of	725 a	Woolston, steam cultivation at	732
Pinetum, Lawson's	727 b	Worcester meeting	729 c

☞ NOTICE TO ADVERTISERS. — *Advertisements should reach the Office by the* THURSDAY *in each week; and they should be written on one side of the paper only.*

ROYAL HORTICULTURAL SOCIETY.—FLORAL COMMITTEE.

The next MEETING of this Committee will take place on TUESDAY, August 4, at 12 o'Clock.

The subjects for Examination must be at Kensington for entry by 11 A.M.

THOMAS MOORE, Secretary to the Committee.

RUGBY HORTICULTURAL and COTTAGE GARDENERS' SOCIETY.

The ANNUAL SHOW of this Society will be held at Rugby on FRIDAY, August 28.

Upwards of 120 Prizes in Class 5, open to all Growers, will be offered for Plants, Fruit, Cut Flowers, and Vegetables; also two Silver Cups, one value 5*l.* 5*s.*, for 36 dissimilar Dahlias; and another, value 4*l.* 4*s.*, for 36 Roses, distinct varieties, one bloom of each.

Entries to be made on or before August 22.

Schedules and particulars on application to

Rugby, Aug. 1. JOHN S. SAVAGE, Hon. Secretary.

To Plant Collectors and Others.

B. S. WILLIAMS will be happy to make arrangements with Botanists and others going abroad for the TRANSMISSION of ORCHIDS and other RARE PLANTS in any quantity.

Paradise and Victoria Nurseries, Holloway, London, W.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, now ready for Planting. Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out of all the best kinds. Prices on application.

Highgate Nurseries, London, N.

Vine, Tynninghame Muscat.

ROBERT PARKER begs to offer Plants of this fine variety raised from eyes from the parent plant at 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each. Also various sized plants of all the best varieties. Prices of which will be forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

300 QUEEN PINE SUCKERS, all well rooted and warranted clean, to be SOLD CHEAP.—Apply to W. H., Castle Malgwyn, Cardigan.

NOVELTIES of 1863 at greatly reduced prices.—A CATALOGUE of 30 pages, containing full descriptions of nearly 500 New Choice Plants of the season, including the New Fuchsias and Verbenas, &c. Post free for one stamp.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

New Verbenas of 1863.

B. W. KNIGHT, FLORIST, &C., 67, High Street, Battle, Sussex, has now ready to send out the NEW VERBENAS of 1863, at 4*s.* per dozen.

CATALOGUES of VERBENAS and other Novelties sent on application.

To the Trade.

SCILLA SIBIRICA, strong flowering Bulbs, 40*s.* per thousand.

GEORGE T. FOX, The Nurseries, Wettey Rocks, near Leek.

ARAUCARIA BRAZILIENSIS, CARYOPHYLLUS AROMATICUS,

Seeds of the above just received;

Also a few ORCHIDS—fine plump pseudo-bulbs—by the Undersigned. Price to the Trade on application.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

SWEET WILLIAMS (HUNT'S SUPERB VARIETIES).—The Advertisers having saved a quantity of the above splendid strain, can supply it in 6*d.* and 1*s.* packets, or 2*s.* 6*d.* per oz., post free. The Trade supplied.

E. P. DIXON & SONS, Seedsmen, Hull.

To Seedsmen, Market Gardeners, and Others.

CABBAGE SEED, in Large or Small Quantities, saved by the late Mr. JAMES NORRIS, of Isleworth, Middlesex, from first-rate sorts in 1861.

For particulars apply to JOHN NORRIS, Sion Hill, Isleworth.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Good Turnip Seeds, Carriage Free.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

Best Seeds, Carriage Free.

BUTLER AND MCCULLOCH, SEED MERCHANTS, Covent Garden Market, London, W.C.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Agricultural Seeds.

GEORGE GIBBS AND CO. SEEDSMEN, 26, Down Street, Piccadilly, London, W.

Hollyhocks.

PAUL AND SONS' selections of this noble Flower are NOW in FINE BLOOM.

The "Old" Nurseries, Cheshunt, Herts.

Superb Double Hollyhocks.

DOWNIE, LAIRD AND LAING'S unrivalled COLLECTION of the above are NOW in BLOOM. Inspection invited any day, Sunday excepted.

Stanstead Park Nursery, Forest Hill, S.E.

CHOICE SEEDS.—CINERARIA, 1*s.* per packet; CALCEOLARIA, 1*s.* do.; PRIMULA, 1*s.* do.; COVENT GARDEN INTERMEDIATE STOCK, 1*s.* do.; MIMULUS, 1*s.* do.; HUNT'S SWEET WILLIAM, 1*s.* do.; CARNATION, 1*s.* do.; PICOTEE, 1*s.* do.; PELARGONIUM, 1*s.* do.

BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

The English Lady's Slipper, Cypripedium Calceolus.

JAS. BACKHOUSE, AND SON can supply fine strong flowering roots of this rare and handsome BRITISH ORCHIDS, at 12*s.* per dozen; extra strong plants, at 21*s.* per dozen. A liberal allowance to the trade.

York Nurseries, Aug. 1.

Herbaceous Calceolaria.

GUARANTEED FINEST QUALITY AND NEW SEED.

WM. CUTBUSH AND SON beg to offer the above, saved with the greatest care from the Stock, which invariably obtains the FIRST PRIZES wherever exhibited. Per packet, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.*, Post-free. Liberal allowance to the Trade.

Highgate Nurseries, London, N.

Cineraria, Calceolaria, and Primula.

E. G. HENDERSON AND SON offer first-class seed of the above. Also, CINERARIA WEBBI, a new shrubby species, and best English and French Spotted PANSY. Each 1*s.* and 2*s.* 6*d.* per packet.

☞ EXPERIENCED GARDENERS recommended.

Wellington Nursery, St. John's Wood, London, N.W.

The Trade

MAY NOW HAVE QUOTATIONS OF FIRST-CLASS SEED OF CINERARIA, CALCEOLARIA, and PRIMULA, by weight, or otherwise; also of the NEW MIMULUS, hybrids of M. CUPREUS.

E. G. HENDERSON & SON, Wellington Road, London, N.W.

New Hybrid Mimulus.

E. G. HENDERSON AND SON offer Seed of the beautiful new Section, between M. CUPREUS and M. LUTEUS, as now to be seen in the Wellington Nursery, forming an elegant dwarf bedding-plant, and adapted for pot-culture in Conservatories. 1*s.* and 2*s.* 6*d.* per packet.

Wellington Nursery, St. John's Wood, London, N.W.

Imported Orchids.

B. S. WILLIAMS has just received a fine importation of the following ORCHIDS:—

LYCASTE SKINNERI | CATTLEYA MOSSIÆ
CATTLEYA SUPERBA

GALEANDRA DEVONIANA, a choice and rare plant, finest of the genus.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Choice Seeds.

B. S. WILLIAMS begs to offer First-class quality of the undermentioned SEEDS:—

	Per packet.	
PRIMULA SINENSIS FIMBRIATA, Red, White, or Mixed	2*s.* 6*d.*	3*s.* 6*d.*
CALCEOLARIA, herbaceous	1 6	2 6
CINERARIA, from choice named flowers	1 6	2 6
PANSY, very choice	0 6	1 0

Paradise and Victoria Nurseries, Holloway, London, N.

WHEELER'S CELEBRATED CALCEOLARIA is of the finest strain, and unsurpassed for colours and quality. Seed now ready, at 1*s.*, 1*s.* 6*d.*, and 2*s.* 6*d.* per packet.

CINERARIA, fine, 1*s.* per packet.

DELPHINIUMS, from fine perennial kinds, 6*d.*, 1*s.*, and 1*s.* 6*d.* per packet.

GEORGE WHEELER, Nurseryman, Warminster, Wilts.

Paul's Nurseries, Waltham Cross.

WM. PAUL'S ROSES are NOW in FULL BLOOM.

See Advertisement on p. 723.

New Roses of 1863.

E. G. HENDERSON AND SON offer strong healthy plants of the most select kinds at 42*s.* per dozen. The Trade supplied in any quantity.

Wellington Nursery, St. John's Wood, London, N.W.

New Roses for 1863.

WM. WOOD AND SON are now supplying all the NEW ROSES in splendid Plants at reasonable prices. The leading kinds of PERPETUAL and other ROSES in pots are also offered by the dozen, hundred, or thousand.

Address, Woodlands Nursery, Maresfield, Uckfield, Sussex.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON).—Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7*s.* 6*d.* each, are now ready.

Old Cheshunt Nurseries, Herts.

ROSES, NEW and OLD. CATALOGUES NOW READY.

A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. Those who wish for a fine display of bloom during the present summer and autumn should now give their orders.

CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

Roses.

J. AND J. FRASER, Lea Bridge Road Nurseries, N.E., beg to announce that their ROSES are NOW in BLOOM, and will continue for three or four weeks. The Collection contains many new and fine varieties, and is well worth a visit.

The Nurseries are about five miles from London, and are easily reached by the Great Eastern Railway to Lea Bridge Station.

Roses.

MESSRS. RIVERS AND SON beg to announce that their large COLLECTION of ROSES is NOW in FULL BLOOM. A day may be spent among Roses.

Their ORCHARD HOUSE TREES, particularly APRICOTS, now loaded with fine fruit nearly ripe, are also well worthy of inspection.

The Harlow Station (Great Eastern Railway), where Flys attend, is the most convenient.

Nurseries, Sawbridgeworth, Herts.

Roses on the Manetti Stock.

E. P. FRANCIS announces that he has 20,000 DWARF ROSES on the MANETTI STOCK, NOW in FULL BLOOM, and in the finest state of cultivation. Also a large and extensive Collection of STANDARDS in FULL BLOOM.

Evening and morning are the best times for viewing Roses. Trains direct to Hertford, per Great Eastern Railway, Bishopsgate Station, and Great Northern Railway, King's Cross.

Hertford Nurseries.

"Old" Cheshunt Nurseries, Cheshunt, Herts.

PAUL AND SON have the pleasure to announce that their ROSES are NOW finely in BLOOM, and will continue so throughout July.

Their collection includes the new Roses as well as immense quantities of all the older kinds, and will (in its extent and choice they believe the largest in the kingdom) amply repay a visit.

The OLD Nurseries may be reached by trains from Bishopsgate to Cheshunt Station (within one mile of the nurseries), every one or two hours.

CATALOGUES on application.

DOBSON'S PRIZE PELARGONIUM SEED.—This is the first year of our supplying the public with Seed of our own growth, which has been saved from the most superb Show and Fancy Varieties of the day, and which will be found unequalled for quality. Sealed packets, 2*s.* 6*d.* and 5*s.*

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

ALOCASIA MACRORHIZA VARIEGATA.—Good plants, 10*s.* 6*d.* each.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.

Dorking Nursery.

LARGE SPECIMEN FERNS for Sale.—For Description and Prices, apply to J. ILLMAN, Nurseryman, Strood, Kent.

A FERN CATALOGUE forwarded, post-free, on receipt of one stamp.

Beautiful Ferns.

F. AND A. SMITH offer the following beautiful varieties in strong plants:—ASPLENIUM BULBIFERUM, 1*s.* 6*d.*; ADIANTUM AFFINE, 1*s.* 6*d.*; A. MAURITZIANUM, 1*s.* 6*d*; GYMNOGRAMMA CHRYSOPHYLLA, 2*s.* 6*d.*; G. TARTARICA, 1*s.* 6*d.*; SELAGINELLA STOLONIFERA, 1*s.* 6*d.*; S. RUBRICAULIS, 2*s.*; with many others, of which a LIST may be had on application.

Dulwich, near London, Surrey, S.

British Fern Catalogue.

ROBERT SIM can now send, Post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

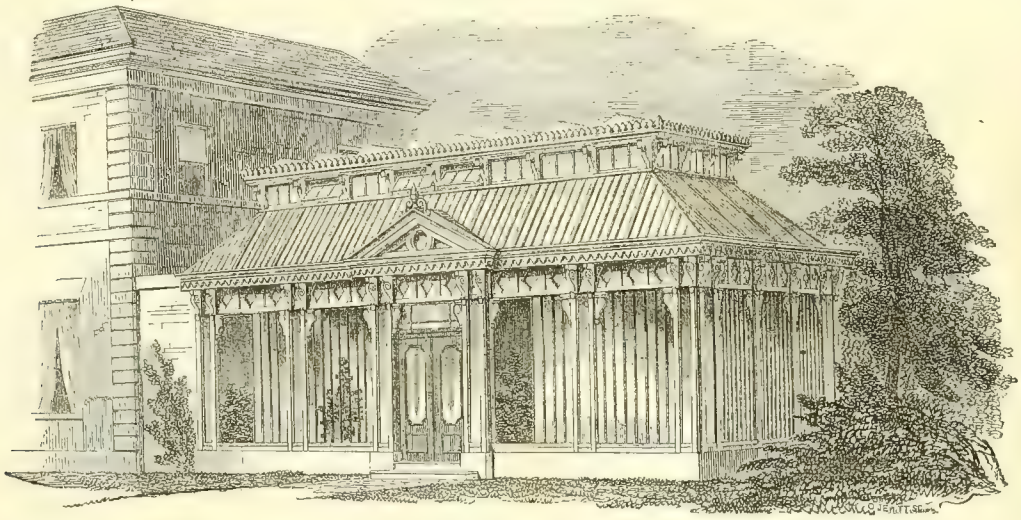
ON THE PRINCIPLE INVENTED AND PATENTED BY

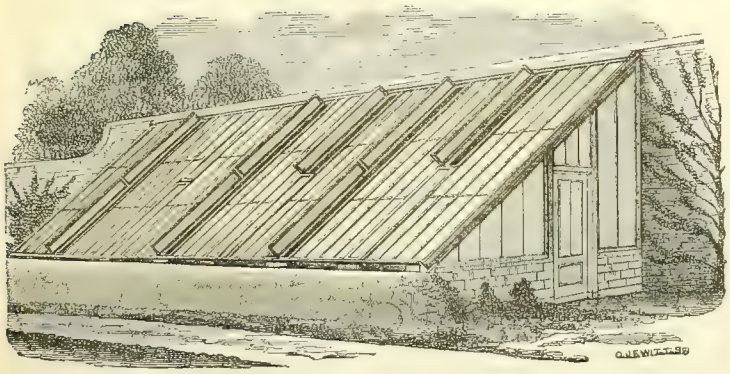
SIR JOSEPH PAXTON, M.P.

COMBINING SIMPLICITY, CHEAPNESS, EXCELLENCE, AND DURABILITY.

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.

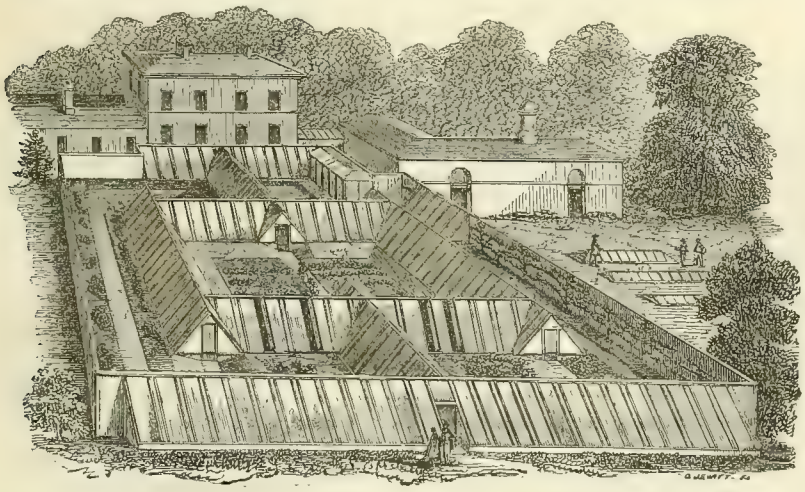
MANUFACTURED in LONDON; NEWTON in CARTMEL, LANCASHIRE; GLOUCESTER; COVENTRY; ABERDEEN, and PAISLEY; in order to supply the Neighbouring Districts, and to save purchasers unnecessary expense in Carriage.







These PATENT GLASS HOUSES are composed of simple parts, and may be lengthened and arranged to form the boundaries of Gardens; they cost less than Brick Walls, and insure a certain crop of Fruit. As Portable Structures they may be removed and refixed at little expense; and though calculated for Gardens of the highest order, they are, from their cheapness, desirable for Market Gardens, where they may be made to cover any extent, as also for Suburban Villas and Cottage Gardens.



This figure shows a large connected Winter Garden, which has been erected for R. L. CHANCE, Esq., at Summerfield House, Birmingham, consisting of Span-roofs of 14 feet Sashes, with Lean-to Roof against the wall, so arranged as to form an extensive promenade of several hundred feet in length. The superficial area covered is about 10,500 feet, and the area of Glass useful for Fruit Growing is upwards of 15,000 feet. Fruit Trees are planted at intervals near the side of the walks of the Span-roofs, and Grapes hang overhead from Vines trained under the glass. Various and rare Fruits grown in pots occupy different parts; Vegetables, Early and Late, fill up all the available space, and form an important feature during the whole of the winter and early spring.

"Nothing can be more easy than to build them—nothing more simple than to remove them."—*Daily News*, May 22, 1862.

"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit, can be obtained as these 'Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.

Circulars with LISTS of PRICES and CARDS to VIEW Houses in operation in the neighbourhood of London, also ESTIMATES for ORNAMENTAL CONSERVATORIES, GREENHOUSES, &c., can be had on application to

SAMUEL HEREMAN, 7, PALL MALL EAST, LONDON, S.W.

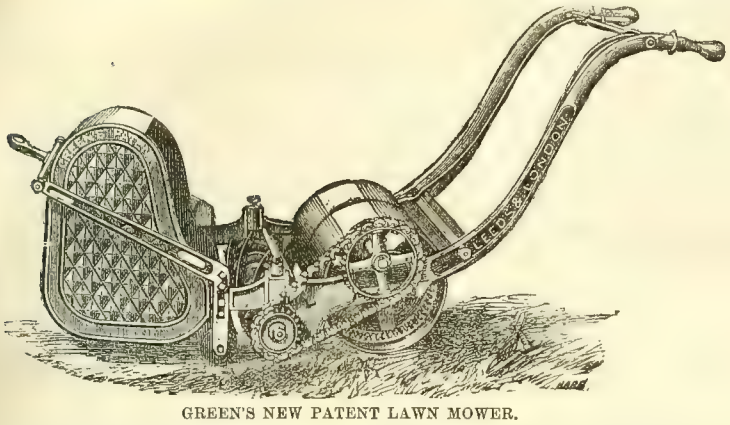
The SECOND EDITION of A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, is now ready, and may be had of Mr. HEREMAN, price 1*s.*; post free, 1*s.* 1*d.*

We strongly recommend this attractive shilling's worth, conscious that none who purchase it will be disappointed."—*Shirley Hibberd, Esq., in Floral World*, May, 1862.

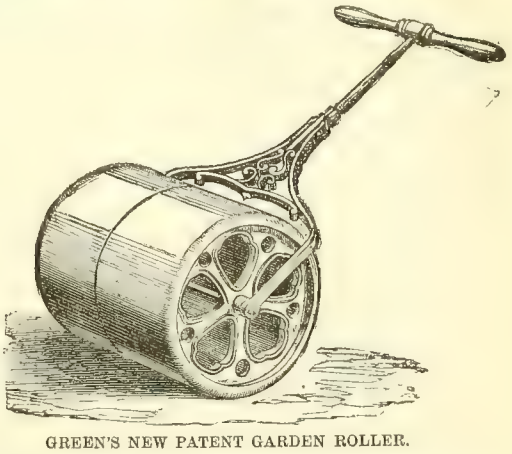
GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS,

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS

DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

GREEN'S PATENT LAWN MOWERS have carried off every Prize that has been given in all cases of competition, and were the only Machines Highly Commended at the Royal Horticultural Society's Great Shows held at South Kensington, May 21, June 11, and July 2, 1862. (No Prizes were given.) They are the only Machines in constant use at the ROYAL GARDENS, WINDSOR; the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON; the BOTANICAL GARDENS, REGENT'S PARK; the CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM; the KENSINGTON PALACE GARDENS; the HYDE PARK GARDENS, and in most of the principal Parks, Squares, &c., of the Nobility, Clergy, and Gentry throughout the Kingdom.

The Patentees, after the long experience they have had in the MANUFACTURE of LAWN MOWERS, have come to the conclusion that three things are essential to constitute a real and efficient Implement, namely, Simplicity of Construction, Durability, and General Practicability, and they are glad to be able to state that they have combined the three, and that their Machines are unequalled not merely by giving satisfaction for one or two seasons, but by their long durability.

Upwards of 14,000 of the above Machines have been sold since the year 1856, and thousands of letters have been received by the Patentees testifying to their efficiency. They do not deem it necessary to publish more than the two following :—

TESTIMONIALS.

"Royal Horticultural Society, South Kensington, W., Feb. 28, 1863.

"Dear Sir,—Your Mowing Machines, which have been in constant use here for two seasons, have answered well. They do their work efficiently, and with a less amount of manual labour than any other Machines I have tried,

"To Mr. Green." "Yours truly, Geo. Eyles."

"Royal Gardens, Windsor, March 27, 1863.

"Dear Sir,—The Hand Mowing Machines you supplied last season for the use of the Royal Gardens, Windsor, give great satisfaction.

"To Mr. Green." "Yours very truly, Thomas Ingram."

PRICES.

						If with Patent Delivery Box.
To Cut 10 inches	£3	10	0	Suitable for a Lady.		
„ 12 „	5	0	0	Suitable for One Person.	If with internal gear, 10s. extra.	
„ 14 „	5	10	0	Do. Do. Do. Do.	10s. extra.	
„ 16 „	6	10	0	Suitable for One Man or Two Boys.		
To Cut 18 inches	£7	10	0	Suitable for One Man and Boy	£8	15 0
„ 20 „	8	0	0	Do. Do.	9	5 0
„ 22 „	8	10	0	Suitable for Two Men	9	17 6
„ 24 „	9	0	0	Do. Do.	10	7 6

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	£12 10 0
„ 26 „	12 10 0	13 12 0
„ 30 „	16 14 0	18 0 0

Leather Boots for Donkey, 16s.; for Pony, 20s.

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	£21 10 0
„ 36 „	23 0 0	24 16 0
„ 42 „	26 0 0	28 2 0
„ 48 „	29 0 0	31 8 0

Leather Boots for Horse, per set, 1l. 4s.

The Horse and Pony Machines have been entirely remodelled for the present season on the same principles as the Hand Machines, which have given such universal satisfaction. All Hand, Donkey, and Pony Machines have the Patent Self-Cleaning Self-Sharpening arrangements, and require no Box of Requisites.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5s. | Diameter 16 inches, length 17 inches, price £2 10s. | Diameter 24 inches, length 26 inches, price £4 5s. Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

PORTABLE and FIXED STEAM ENGINES; COMBINED THRESHING, SHAKING, and WINNOWING MACHINES; REAPING and MOWING MACHINES; BONE CRUSHING MILLS; CORN CRUSHING and BEAN SPLITTING MILLS; CHAFF CUTTERS; TURNIP SHEARS and PULPERS; IMPROVED HAY-MAKING MACHINES, and HORSE RAKES; CLOD CRUSHERS, and WROUGHT IRON FIELD ROLLERS; PLOUGHS, HARROWS, and CULTIVATORS; VERANDAHS; PATENT HYDROPULT, and all kinds of GARDEN ENGINES and SYRINGES; GARDEN CHAIRS and TABLES; ORNAMENTAL FOUNTAINS and VASES; GARDEN TOOLS; PREMIUM CONTINUOUS IRON FENCING and HURDLES; STRAINED WIRE FENCES, of all kinds; ESPALIER FENCES; GAME-PROOF WIRE NETTING and TRELLIS WORK; ORNAMENTAL and PLAIN ENTRANCE, WICKET, and FOOTPATH GATES; WROUGHT IRON FIELD GATES; TREE GUARDS; CATTLE and PIG TROUGHS; SHEEP RACKS; WASHING and WRINGING MACHINES; FIRE-PROOF IRON SAFES; IRON WHEELBARROWS; IMPROVED IRON STABLE FITTINGS;

and every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;

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Illustrated Catalogues on application.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO.

beg to submit their prices as follows:—

PROPAGATING GLASSES.



	Each—s.	d.		Each—s.	d.
2 inches in diameter	0	3½	12 inches in diameter	1	9
3 ,, ,,	0	4½	13 ,, ,,	2	0
4 ,, ,,	0	5½	14 ,, ,,	2	6
5 ,, ,,	0	6½	15 ,, ,,	3	0
6 ,, ,,	0	8	16 ,, ,,	3	6
7 ,, ,,	0	10	17 ,, ,,	4	0
8 ,, ,,	1	0	18 ,, ,,	5	0
9 ,, ,,	1	2	19 ,, ,,	6	0
10 ,, ,,	1	4	20 ,, ,,	7	0
11 ,, ,,	1	6			

HAND GLASSES.



	Each—s.	d.		Each—s.	d.
12 inches	6	0	18 inches	9	0
14 ,,	7	0	20 ,,	10	0
16 ,,	8	0	24 ,,	12	0

Painted and Glazed with 16 oz. Sheet Glass.
If Open at Top, 1s. extra.

CUCUMBER GLASSES.



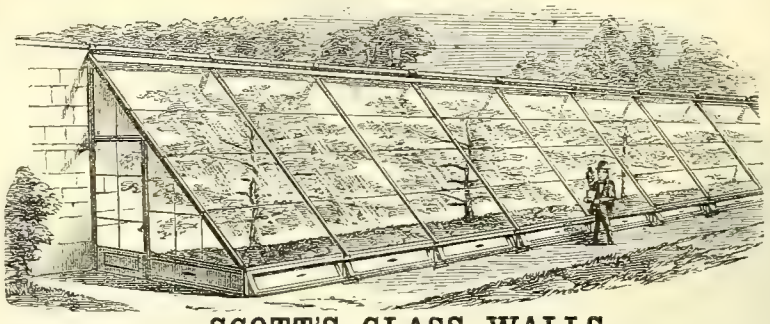
	s.	d.		s.	d.
24 inches long	2	0	16 inches long	1	4
22 ,, ,,	1	10	14 ,, ,,	1	2
20 ,, ,,	1	8	12 ,, ,,	1	0
18 ,, ,,	1	6	Made to any length.		

London Agents for Hartley's Improved Patent Rough Plate.
Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.
180, Bishopsgate Street Without, London, E.C.

ST. PANCRAS IRON WORKS COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS,

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS.

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Every description of IRONWORK. *Lists Free.*

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GLASS MERCHANT. (Established 1750.)

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THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY T. MILLINGTON.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home use and for Exportation.



PROPAGATING GLASSES.

2 inches diam.	0s.	3½d.	each.	
3 ,, ..	0	4½	,,	
4 ,, ..	0	5½	,,	
5 ,, ..	0	6½	,,	
6 ,, ..	0	8	,,	
7 ,, ..	0	10	,,	
8 ,, ..	1	0	,,	
9 ,, ..	1	2	,,	
10 ,, ..	1	4	,,	
11 ,, ..	1	6	,,	
12 ,, ..	1	9	,,	
13 ,, ..	2	0	,,	
14 ,, ..	2	6	,,	
15 ,, ..	3	0	,,	
16 ,, ..	3	6	,,	
17 ,, ..	4	0	,,	
18 ,, ..	5	0	,,	
19 ,, ..	6	6	,,	
20 ,, ..	7	0	,,	

FLOWER TUBES.
2d. each, or 1s. 6d. per dozen.



ZINC HAND GLASSES.
Painted and Glazed with 16-oz. Sheet Glass.

12 inches ..	5s.	6d.	each
14 ,, ..	6	6	,,
16 ,, ..	7	6	,,
18 ,, ..	8	6	,,
20 ,, ..	9	6	,,
24 ,, ..	11	6	,,

If open top, 1s. extra.



BEE GLASSES.

4 inches diameter	0s.	6d.	each
5 ,,	0	8	,,
6 ,,	0	10	,,
7 ,,	1	1	,,
8 ,,	1	4	,,
9 ,,	1	8	,,
10 ,,	2	0	,,
11 ,,	2	6	,,
12 ,,	3	0	,,



FLAT TOP BEE GLASSES.

Height	Width	s.	d.	
4 inches	by 7 inches	1	6	each
4½ ,,	by 7½ ,,	1	9	,,
5½ ,,	by 7½ ,,	2	0	,,
6½ ,,	by 8 ,,	2	3	,,
7½ ,,	by 8½ ,,	2	10	,,

FERN SHADES & STANDS.

Ins. dia.	Shades.		Stands.	
6 ..	1s. 4d. each.		1s. 0d. each	
7 ..	1 8	,,	1 3	,,
8 ..	2 0	,,	1 6	,,
9 ..	2 6	,,	1 9	,,
10 ..	3 3	,,	2 0	,,
11 ..	4 0	,,	2 6	,,
12 ..	5 6	,,	3 0	,,
13 ..	7 6	,,	3 6	,,
14 ..	10 0	,,	4 0	,,
15 ..	14 0	,,	4 6	,,
16 ..	18 6	,,	5 0	,,



WASP TRAP, 2s. 6d. per doz.

Crystal Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimneys and Globes, &c.



MILK PANS.

6 inches diameter	0s.	6d.	each
8 ,,	0	9	,,
10 ,,	1	0	,,
12 ,,	1	3	,,
14 ,,	1	9	,,
16 ,,	2	3	,,
18 ,,	2	9	,,
20 ,,	3	3	,,
22 ,,	3	9	,,
24 ,,	4	6	,,



PRESERVE JARS.

In. diam.	Without Lids.		With Lids.	
3 ..	0s. 4½d.	..	0s. 6½d.	ea.
4 ..	6	..	0 9	,,
5 ..	0 8	..	0 11	,,
6 ..	0 10	..	1 2	,,
7 ..	1 0	..	1 4	,,
8 ..	1 4	..	1 8	,,
9 ..	1 8	..	2 2	,,
10 ..	2 0	..	2 8	,,



FISH GLOBES.

	Without feet.	With feet.
8 inches diam.	Per lb. 7d.	9d.
9 ,,		
10 ,,		
11 ,,		
12 ,,		
13 ,,		
14 ,,		
15 ,,		
16 ,,		



ROLLING PINS.
From 12 inches long, 1½d. per running inch.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1d. per running inch.

SHEET GLASS.
In Cases for cutting up, in Sizes as Manufactured.

	300 feet	200 feet.		
	15 oz.	21 oz.	26 oz.	32 oz
Fourths quality	33s. 6d.	33s. 6d.	39s. 6d.	45s. 0d
Thirds do.	42 0	42 0	49 0	56 0
Seconds do.	62 0	64 0	74 6	85 0
Best do.	88 6	88 6	103 6	118 0

CRYSTAL SHEET GLASS.
For Pictures and best Glazing purposes.
Averaging 16 oz. to the foot.

Best quality, in cases of 200 feet	100s.
Second quality, in cases of 100 feet	82s.

Averaging 30 oz. to the foot.

Best quality, in cases of 100 feet	100s.
Second quality, in cases of 100 feet	82s.

SQUARES, in 100 and 200 Feet Boxes.

Small Squares not exceeding 9½ inches by 7½ inches.

Ins. Ins.	Ins. Ins.	Ins. Ins.	Ins. Ins.
6 by 4	7 by 5	8 by 6	9 by 7
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7¼

Per 100 feet.

4ths.	3rds.	2nds.	Best.
9s. 9d.	11s. 3d.	13s. 9d.	16s. 9d.

Squares not exceeding 14 inches by 11 inches.

10 by 8	12 by 9	12½ by 10½	14½ by 10½
10½ by 6½	12½ by 9½	13 by 10	15 by 10
11 by 9	13 by 9	13½ by 10½	13 by 11
11½ by 9½	12 by 10	14 by 10	14 by 11

Per 100 feet.

4ths.	3rds.	2nds.	Best.
10s. 9d.	12s. 3d.	15s.	18s.

Squares not exceeding 20 inches by 18 inches.

15½ by 10½	14 by 12	17 by 13	24 by 16
16 by 10	14½ by 12½	18 by 13	20 by 17
14½ by 11½	15 by 12	18 by 14	22 by 17
15 by 11	15½ by 12½	22 by 14	24 by 17
15½ by 11½	16 by 12	24 by 14	20 by 18
16 by 11	16½ by 12½	22 by 15	22 by 18
13 by 12	17 by 12	24 by 15	24 by 18
13½ by 12½	18 by 12	22 by 16	

Per 100 feet.

4ths.	3rds.	2nds.	Best.
11s. 6d.	13s. 6d.	16s. 6d.	20s.

Orchard House Sizes, as recommended by Mr. Rivers.

Ins. Ins.	15 oz.		21 oz.	
20 by 12	4ths ..	11s. 6d.	15s. 0d.	Per 100 feet.
20 by 13	3rds ..	13 6	19 0	
20 by 14	2nds ..	16 6	25 0	
20 by 15	Best ..	20 0	30 0	
20 by 16				

Squares Cut to Sizes not on List.

	15 oz.				21 oz.			
Under	4ths.	3rds.	2nds.	1st	4ths.	3rds.	2nds.	1st.
1 ft. super.	1½d.	1¾d.	2d.	2¼d.	2¼d.	2¾d.	3¼d.	4¼d.
2 ft. super.	1⅞	2	2½	3	2¾	3	4	5¼
3 ft. super.	2	2¼	2¾	3¾	3	3½	4¼	6
4 ft. super.	2¼	2½	3	4	3¼	3¾	4½	6½

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

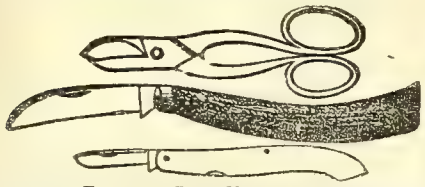
	Per cwt.—s.	d.		Per gallon.—s.	d.		Per gallon.—s.	d.
GENUINE WHITE LEAD	30	0	FINE OAK VARNISH	10s. to 12	0	LINSEED OIL	3	9
ANTI-CORROSION PAINT	28s. to 34	0	,, CARRIAGE	12s. to 14	0	BOILED OIL	4	2
LINSEED OIL PUTTY	8	0	PATENT DRYERS	per cwt. 28s. to 42	0	TURPENTINE	8	6

MILLED LEAD in Sheet and Pipe of all sizes. Old LEAD bought or taken in exchange.

LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of all kinds.

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Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal was Awarded to Saynor & Cooke for superiority of quality in Pruning and Budding Knives, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

Caution.—None are genuine unless marked Saynor. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

MORTON'S NEW IMPROVED PATENT LAWN MOWER, with Sun and Planet Motion, having all the most recent Improvements, is allowed to be the best Machine for preventing Ribbing and Clogging.

To be had, with prices and particulars, of Grimmond, Laird, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath; and all the principal dealers throughout the country.



Lawn Mowers.

BURGESS AND KEY beg to direct attention to their NEW PATENT LAWN MOWING MACHINE. It is simple, efficient, easily worked, and not liable to derangement. GARDENING and HORTICULTURAL TOOLS of every description. Illustrated Price List free. Catalogues by post on receipt of six postage stamps.

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Garden and Architectural Decorations in Terra Cotta.

Prize Medals of 1851 and 1862 awarded to JAMES PULHAM, Broxbourne, Herts. Also Notice of Artistic Merit, and of Sound Durable Material in FOUNTAINS, VASES, FIGURES, FERN CASES, and BRACKETS, CONSERVATORY TUBS, with rising bottoms, &c.

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Guaranteed to stand frost an unlimited time.

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JOSEPH SMITH, New Road, Hammersmith, W., undertakes the ERECTION of GREENHOUSES, &c., in any part of the kingdom, and begs to offer for SALE about 10,000 feet of GLAZED LIGHTS for GREENHOUSES, PITS, &c.

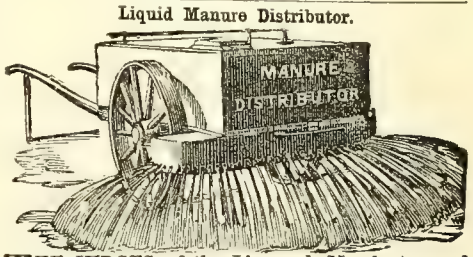
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" " 16-oz. " 8*d.* " "

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Nine. 8 feet 6 inches by 4 feet 8 inches.
Ten. 7 feet by 3 feet 11 inches.
Twelve. 5 feet 2 inches by 4 feet 2 inches.

16-oz.—Forty. 7 feet by 4 feet 3 inches.
Twelve. 8 feet 10 inches by 4 feet 2 inches.
Twenty. 6 feet by 4 feet 2 inches.
Twelve. 5 feet 2 inches by 5 feet 8 inches.

Also Span-roof Greenhouse, 27 feet by 16 feet, 47*l.*
Lean-to, 21-oz. glass, 46 feet by 14 feet, 55*l.*
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Second-hand, 12 feet by 7 feet, 14*l.*
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THE JUDGES of the Liverpool, Manchester, and Staffordshire Agricultural Shows, 1861, have each awarded the First Prize to I. James, Tivoli Works, Cheltenham, for his LIQUID MANURE DISTRIBUTOR, making a total of 17 Prizes. It is also well adapted for Watering Streets, supplying the Steam Plough, Irrigating, or for a Fire Engine. Also his last great improvement in WASHING MACHINES, which have been awarded several First Prizes, and will wash 20 Shirts in 20 minutes.

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STEAM PLOUGHING and CULTIVATING APPARATUS

WILL BE AT WORK NEAR BEDFORD THROUGHOUT THE SEASON.

Price of a Complete Set with 10-Horse Engine £515 0 0
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Catalogues, with Sixty Reports from Purchasers, may be had on application to

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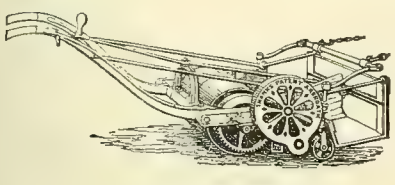
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LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

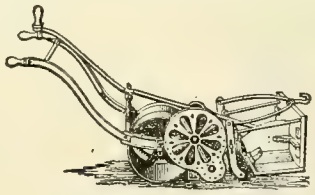
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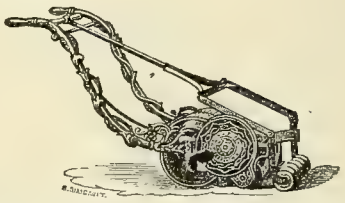
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will Mow equally well on Uneven as on Level Lawns, and whether the Grass be wet or dry. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	40*s.* "
No. 3.—36-inch Machine ...	22 0 0	30*s.* "
No. 4.—30-inch Machine ...	19 0 0	30*s.* "

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine ...	£15 15 0	30*s.* extra.
No. 6.—28-inch Machine ...	14 10 0	30*s.* "
No. 7.—25-inch Machine ...	12 10 0	25*s.* "

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £5 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

WILLIAM BARRATT,
LANDSCAPE and ORNAMENTAL GARDENER.
St. John's and Newton Moor Nurseries, Wakefield.

Landscape Gardening, Ireland.

MR. J. W. CHAPMAN offers his services to the nobility and gentry of Ireland in the formation of Gardens and Pleasure Grounds, and the general improvement of Estates. Plans and Drawings for these purposes will be furnished, and where it is desired, experienced men will be sent to any part of the country to superintend the carrying out of the works.

Mr. C. will be happy to refer to gentlemen in this country and elsewhere, with whom he has been professionally engaged.
27, Molesworth Street, Dublin.—August 1.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they will not be undersold by any House in the Trade. They also warrant one of their Knives to last two of any other make.
Paxton Works, Sheffield.

HAVE YOU a LAWN?—Use BELCHER'S PATENT PLANTAIN EXTRACTOR; which neatly removes Plantain and Daisies, and replaces them with fine Turf. Price 6*s.*: to be had of all Ironmongers.
Wholesale Agents, S. & E. RANSOME & Co., 31, Essex Street, Strand, W.C.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

Netting for Fruit Trees, Seed Beds, Ripe Strawberries, &c.

TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard, or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ½-inch mesh, 4 yards wide, 1*s.* 4*d.* per yard.
Can be had in any quantity of EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

Gutta Percha Tubing for Watering Gardens.

THE GUTTA PERCHA COMPANY have the pleasure to acknowledge the receipt of the following

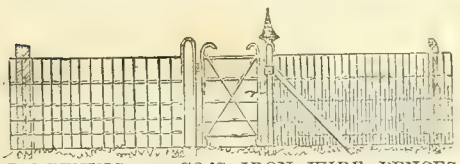
Testimonial from Mr. J. FARRAH, *Gr. to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*

"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."

Manufactured by the GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C., and sold by their Wholesale Dealers in town and country.

WANTED to PURCHASE, a good Second Hand CONSERVATORY, about 30 or 40 feet long; also 30 or 40 foot run of FORCING FRAMES.
Address Mr. READ, Railway Station, Gipsy Hill, Norwood, S.

Patronised by H.R.H. the late Prince Consort.



GREENING AND CO.'S IRON WIRE FENCES for FARMS, DEER PARKS, SHEEP FOLDS, GAME PRESERVES, POULTRY COURTS, GARDENS, &c., are manufactured by Patent Machinery, and possess the following advantages:—

1st. Are easily fixed by unskilled labourers.
2d. Require few and inexpensive supports.
3d. Are ornamental in appearance.
4th. Have increased strength from their peculiar construction.
5th. Are but half the price of similar hand-made Fences.

G. & Co. will be happy to forward, without charge, an explanatory Circular of the principal varieties. Their enlarged Catalogue of all kinds of Fences and Gates post free on receipt of three stamps.
Address GREENING & COMPANY, Victoria Works, 81, Oxford Street, Manchester.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP,
1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.
Both may be obtained of all principal Seedsmen.
Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from one to two ounces to the gallon of water is recommended for growing Plants; one from 4 to 16 ounces for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited).

TRADE
HALLETT'S [PEDIGREE] NURSERY WHEAT.
MARK.

THE PEDIGREE WHEAT WAS AWARDED THE SILVER MEDAL BY THE JURORS OF THE CLASS "CEREALS FROM ALL COUNTRIES" AT THE MEETING IN 1863 OF THE AGRICULTURAL SOCIETY OF DENMARK AT ODENSE.

The produce of 3 acres of this Wheat, grown 1862, in Essex, was sold to the miller, and realised £19 7*s.* per acre.

In September DRILL 4 Bushels on 10 acres.

NONE IS GENUINE UNLESS THE TRADE MARK IS UPON THE BAG.

Apply to FREDERIC F. HALLETT, ESQ., F.L.S., The Manor House, Brighton, Sussex.

PRICE—One Guinea a Bushel (or Seven Guineas a Quarter),

Delivered, with Printed Directions for Planting, at the Brighton Railway Station, in Bags Sewed up and Sealed.

"HOW OUR WHEAT CROPS MAY BE DOUBLED," and other papers, forwarded on application, enclosing six stamps.



In every plant of Wheat, Barley, or Oats there is always ONE BEST EAR, and in every ear there is always ONE BEST GRAIN, which is that one found at the following harvest to produce the best plant, *all* the grains having been planted in competition with each other.

The best of all the competing plants of any "family" of a cereal is ascertained by the most studious comparison of the good qualities they visibly present, *and of the roots of the peculiarities exhibited by each during the whole course of its growth*, such as:—the rapidity with which the parent seed germinates; the manner, time, and extent of the "tillering" of the plant; the periods of its earing, blooming, and ripening; its power of withstanding disease, frost, wet, &c.; the *lengthness* of its straw, and any other characteristics which are essential to forming a correct decision, and which cannot be determined by even the most careful inspection of the perfect plant.

This best plant is called "*the selection*" of the year (say 1861) in which it is thus obtained, and consists of numerous ears, containing many hundreds, and even thousands, of grains which are planted separately; those of each *ear* being kept quite distinct, as although the best grain of any plant is nearly always found to lie in its best ear, it may be otherwise, and the successive parent *ears* must be preserved. At the following harvest (1862), the best plant forms "*the selection of* 1862," and its produce is continued on the experimental ground, while that of the remaining plants furnishes the annual seed for the farm in the Autumn of 1862, and the crops are in 1863 offered to the public. Thus, the selection sold is that of 1861, or in any year that of two years before; *the latest selection, that of the year immediately preceding, is not sold, being solely employed as the home seed.* The separate ears of a plant are designated by different letters, numbers, or names—as A, Z, &c., and each, with its descendants, forms a "*family*" which may develope some valuable peculiarity.

Thus, all the "Pedigree Nursery Wheat" hitherto sold has been of a family called "A," while another family of the same Wheat known as Z having been observed to exhibit marked superiority has been continued separately, and has given a greater progress during 1862 than has been before obtained in any single year.

The original ear of the large published engraving contained up one of its sides 16 "ranks" (spikelets) of grains, while the "Z family" has produced ears of 18 "ranks," and this, without any increase in the *length* of the ear, the "notches" of the axis on which the spikelets grow being placed more closely together. In a small field of this Z family, ears with 17 "ranks" were quite common, while in other fields of the family "A," *not one such ear could be found.*

This family Z will, next harvest, 1863, be *for the first time* offered to the public, and those who wish to secure some of it would do well, at once, to add their names to the Subscription List formed by special request for that purpose. As the joining this list will not involve payment until the Wheat is ready for delivery (of which the earliest possible notice will be given), the advantage of doing so is entirely on the side of the subscriber.

The Old Established Royal South Hants Seed Establishment.

PAGE'S BLIGHT COMPOSITION.—None genuine except that sent from this Establishment, or sold by the accredited Agents of
BRIDGEWATER PAGE, Seed Grower and Merchant, 37 and 38, Oxford Street, Southampton.

Seeing a statement in the paper from my late Partner (of five years standing), to the effect that I (the Inventor) was unable to make the above Composition, I leave it open to public opinion to judge of the correctness of such assertion. BRIDGEWATER PAGE.

The Gardener's Friend v. the Gardener's Enemy.

This celebrated Trial has been decided unanimously in favour of

FORDHAM'S INVINCIBLE "OLD VIRGINIA SHORTS."—The Greenfly and other Greenhouse and Garden Pests speedily annihilated at one-sixth of the cost of ordinary Tobacco Paper.

Samples of 7 lb. and upwards sent free to any Railway Station at 3*s.* per lb. on receipt of Post-office Order, payable to JOHN FORDHAM, at the W. C. Office.
Factory, 28, Little Queen Street, High Holborn, W.C.
N.B. ½ lb. of Shorts equal to 6 lb. of the Paper.

Genuine Tobacco Paper for Fumigating.

H. APPLEBY, (Foreman to Messrs. IVERY & SON, Dorking;) begs to inform his friends and the public, he now offers the above article in 4 lb. Packets. Price on application.
SHEET IRON POTS for Fumigating, 3*s.* 6*d.* each.
All Orders to be accompanied with a Post Office Order, payable to H. APPLEBY, Dorking, Surrey, S.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent.'

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.*; 4 cwt. put on the Rail at Reigate.
Best and second quality PEAT SOIL, LOAM, &c.
N.B. Loaded Trucks can be sent on all the principal Railways.
W. SHORT, Reigate, Surrey.

TAN GRATIS, in the immediate neighbourhood of Covent Garden Market,
Apply at WILLIAM ESSEX & SON, 28, Stanhope Street, Clare Market, W.C.

OUVIRANDRA BERNERIANA.—Having succeeded in raising a few Seedlings of this extremely curious and beautiful plant, we beg to offer healthy young plants of six or seven leaves at 31*s.* 6*d.* each.
O. Berneriana was exhibited at the Great Show of the Royal Horticultural Society, June 17th, and awarded the First Prize; and at the Great Show of the Royal Botanic Society, June 24th, and then also awarded the First Prize.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.
CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.
FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes.
Sunningdale Nursery, S.W. Rail.

New Strawberry, Princess of Wales.

B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, has much pleasure in offering this superb new early STRAWBERRY, feeling confident that it will not fail to become a general favourite, as all who have seen it growing and tasted it on the ground have pronounced it first-class. It is a remarkably early kind, having picked from it on the 22d of May, and no doubt but that it will prove a good forcing variety. The fruit is large, flesh pale red, solid at the core; flavour rich and sugary, partaking largely of the Pine flavour; a most abundant bearer.

The following notices prove its value, without further comment:—

Gardeners' Chronicle, July 4th.

"Your seedling Strawberry, Princess of Wales, large, ovate, or flattened ovate, with flesh pale red, and solid at the core. The variety deserves notice on account of its size, appearance, and not being hollow at the core."

Journal of Horticulture, June 23d.

"Seedling Strawberry (B. W. Knight). The fruit sent is very juicy, and of excellent flavour."

Florist, July.

"Your seedling Strawberry, Princess of Wales, is a fine regularly-shaped ovate fruit, of a pale red colour, and very firm flesh; it has all the appearance of being a good sort."

Plants will be ready to send out early in September, at 21*s.* per dozen. Price to the Trade on application.

New and Rare Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, amongst which are some very fine specimens.

Now ready, post-free to all applicants.

A NEW GENERAL PLANT CATALOGUE, containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Herbaceous and Alpine Plants, Roses, Hardy Trees and Shrubs, Fruit Trees, &c.

With a DESCRIPTIVE LIST of New, Beautiful, and Rare Plants.

Paradise and Victoria Nurseries, Holloway, London, N.

DOBSON'S NEW SEEDS,
Quality A 1.

CALCEOLARIA, unequalled in the Kingdom; 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
CINERARIA, from our Prize Collection; 1s., 2s. 6d., and 5s.
PRIMULA SINENSIS FIMBRIATA, Superb Mixed; 1s., 2s. 6d., and 5s.
PELARGONIUM Show, extra fine; 2s. 6d. and 5s.
PELARGONIUM Fancy, extra fine; 2s. 6d. and 5s.
SCARLET INTERMEDIATE STOCK, fine; 1s.
MIMULUS CUPREUS; 6d. and 1s.

The above in Sealed Packets and Post Free.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

CALCEOLARIA, CINERARIA, PRIMULA, and PELARGONIUMS.—The most superb strains of the above are to be obtained in packets of seed of the advertisers, who are receiving hundreds of testimonials of their superior excellence.

The Trade will find it the best way of purchasing their supply, both as regards quality and price, as the packets are made of convenient sizes to suit all purchasers; and a very liberal allowance is made, as a large number of packets are always in stock; the order, however large, is invariably executed by return of post. Packets, sealed, 1s., 1s. 6d., 2s. 6d., 3s. 6d and 5s.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

CALCEOLARIA, CINERARIA, PRIMULA, &c.—CALCEOLARIA, saved from carefully hybridised flowers, possessing all the recognised floral qualifications, viz., size, form, colours, and marking. Price, 1s. and 2s. 6d. per packet.
CINERARIA, extra choice, 1s. per packet. PRIMULA SINENSIS FIMBRIATA, extra choice, 1s. and 2s. 6d. per packet.
DRACÆNA (CORDYLINE) INDIVISA, from Mount Egmont, New Zealand; beautiful fine foliaged plant, 1s. and 2s. 6d. per packet.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Novelties of 1863.

SPECIAL OFFER TO THE TRADE.

HENRY WALTON has an immense stock of the following in strong healthy plants:—

Fuchsias, 6s. per dozen.	Pentstemons, 6s. per doz.
Verbenas, 3s. per dozen.	Antirrhinums, 5s. per doz.
Petunias, 5s. per dozen.	Chrysanthemums, 5s. per doz.

Private parties will be treated with on equally liberal terms.
DESCRIPTIVE LISTS on application, inclosing Stamps.
EDGEND MARSDEN, near Burnley, Lancashire.

200,000 FOREIGN BULBS.—The Proprietors of the St. John's and Newton-Moor Nurseries, Wakefield, having made large purchases of BULBS, we shall be able to supply first-class kinds in good healthy roots.

A comparison of prices will show that they can be purchased at this Nursery 20 per cent. lower than at many others. No effort has been spared to maintain the high celebrity this establishment has long enjoyed for Bulbous Roots. CATALOGUES gratis.

WM. BARRATT, Manager.

Dutch Bulbs, &c.

LOUIS VAN HOUTTE'S new BULB CATALOGUE, No. 97, is to be had at Messrs. R. SILBERRAD & SON'S Office, 5, Harp Lane, Great Tower Street, London, E.C.

N.B. The LILIUM, GLADIOLUS, and other tribes now in Full Bloom are of course not ready and not included in No. 97; they will be found in No. 98, now in preparation.

Ghent, Aug. 1.

Dutch Bulbs.

E. H. KRELAGE AND SON, Haarlem, Holland, beg to announce to the Trade only, that their TRADE CIRCULAR for July has been sent to their Correspondents. It contains Miscellaneous Bulbs, &c., a collection as rich as ever was offered, with prices per dozen, 100,000 or upwards.

The TRADE CIRCULAR for June contains Hyacinths, Tulips, Crocuses, Narcissus, Anemones, Ranunculus, Fritillarias, Lilium, Iris, &c.

The Gladiolus, Pæonies, Cannas, and other Tribes will be published in the TRADE CIRCULAR for August.

E. H. K. & SON'S Trade Circulars will be addressed to Seedsmen, Nurserymen, or Florists on prepaid application.

Camellias and Indian Azaleas with Buds.

THE NURSERIES, GHENT, BELGIUM.

JEAN VERSCHAFFELT begs respectfully to announce that his Stock of CAMELLIAS and INDIAN AZALEAS with buds, including only first-rate varieties, is particularly large and fine this year, and will enable him to meet every demand. The prices are kept as low as possible, viz.:

CAMELLIAS with buds, fine plants	£6	0	0	per 100
Do. do. larger do., 8l. to	20	0	0	,,
AZALEA INDICA, nice plants, at from	4	0	0	,,

Early orders are solicited, and are to be directed to JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent, Belgium.

THE NEW HARDY RHODODENDRON AUGUSTE VAN GEERT.—This extraordinary variety will be sent out on the 1st of September, it is the largest bouquet of its class, of which the flower has been seen by many of the leading nurserymen and amateurs in England and on the Continent. A drawing will be sent on application.

Price of Plants free to London, 7s. 6d. to 21s. each. One over for every three taken. Early orders solicited.

A. VAN GEERT, Nurseryman, Ghent, Belgium.

Camellias and Indian Azaleas, with Flower Buds.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to remind his friends who patronise him with their confidence, that they should send this season their orders in early for CAMELLIAS, with flower buds, in order they may be well served, as the prospect of flower is now very abundant.

CAMELLIAS, with flower buds, 5l. to 6l. per hundred.
INDIAN AZALEAS, with flower buds, 4l. to 5l. per hundred.



TURNIP SEEDS for PRESENT SOWING.

As some kinds of Turnips are more suitable for late sowing than others, Messrs. SUTTON beg to recommend the undermentioned as the most desirable for that purpose.

Prices for the months of July and August, 1863:—

SUTTON'S EARLY SIX WEEKS TURNIP, 8d. per lb., or cheaper by the bushel.

SUTTON'S IMPERIAL GREEN GLOBE, very fine, best for the main crop, to be sown in July and August, for autumn and winter use, 8d. per lb., or cheaper by the bushel.

SUTTON'S SHORT-TOP SIX WEEKS, new sort, scarce, 1s. per lb.

CATTLE CABBAGE (the heaviest of all Agricultural Crops), should be sown in July and August, for transplanting in October and in the Spring.

GARDEN and FLOWER SEEDS for AUTUMN SOWING.

Messrs. SUTTON and SONS have a good stock of fresh Seeds of the undermentioned kinds, which should be sown during the months of July, August, and September.

Cabbage, choice sorts	Radish, of sorts
Lettuce, do.	Spinach, do.
Onion, do.	Turnip, do.
Carrot, Early Horn	Cineraria, choice sorts
Cauliflower, choice sorts	Calceolaria, very fine
Endive, of sorts	Primula sinensis

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

T. W. DASHWOOD has a quantity of the undermentioned PLANTS for SALE at 3s. per 1000.

Drumhead Savoy	Green Curled Kale
Dark Green Colewort	Broccoli of sorts
Cottager's Kale	

Red and White Celery, 6s. per 1000.
Queen's Road Nursery, Peckham.

W. VIRGO AND SON have a great quantity of the undermentioned Plants to offer for Sale, at the following prices:—

DRUMHEAD CABBAGE	3s.	0d.		per 1000
DRUMHEAD SAVOY	3	0		,,
Red and White Transplanted and strong CELERY	6	8		,,

Wonersh, near Guildford.

Roses.

The ROSES at the WALTHAM CROSS NURSERIES are NOW in FULL BLOOM.

MR. WM. PAUL respectfully invites all lovers of this popular flower to visit and inspect them. TWENTY FIRST PRIZES and NINE SECOND have been awarded to him for ROSES during the present year, and above 100,000 Plants are now growing in these Nurseries. Waltham Cross is 11 miles from London, and a first-class station on the Great Eastern Railway. It is also a delightful drive from the West-end of London, through Tottenham, or the Green Lanes and Enfield.

Entrance to the Nurseries from the platform, Waltham Station (for railway passengers only), and from the High Road, Waltham Cross, N.

ROYAL HORTICULTURAL SOCIETY, FRUIT COMMITTEE.

A MEETING of the COMMITTEE will be held on TUESDAY, August 4, for the Examination of such Fruits and Vegetables as may be then exhibited, and on which occasion the following Prizes are offered:—

CLASS	1st Prize	2d Prize
A.—For the best dish of any of the NEWER varieties of PEACHES	20s.	10s.
B.—Ditto of NECTARINES	20s.	10s.
C.—Ditto of APRICOTS	20s.	10s.
D.—For the best Scarlet-fleshed MELON	10s.	5s.
E.—Ditto Green-fleshed ditto	10s.	5s.
F.—Best 3 dishes of the NEWER sorts of PLUMS	20s.	10s.
G.—Ditto of CHERRIES	20s.	10s.
H.—Ditto of APPLES	20s.	10s.
I.—Ditto of PEARS	20s.	10s.

All Fruit must be ripe and fit for table; and no Fruit will be permitted to compete except what is allowed to be tasted by the Committee.

Communications and packages must be delivered at the Garden, South Kensington, by 11 o'Clock on the day of Meeting, and address to

ROBERT HOGG, LL.D., Secretary to the Committee.

The Gardeners' Chronicle.

SATURDAY, AUGUST 1, 1863.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Aug. 4 { Royal Horticultural (Floral and Fruit Committees) at S. Kensington.

SOME enquiries that have lately reached us show that information is still wanted upon the GROWTH OF ENGLISH TIMBER TREES, notwithstanding what was done by LOUDON in his Arboretum. A more interesting subject can hardly be suggested, and we should be extremely glad to become the medium of conveying such information to the world. We trust that Mr. MENZIES will also go fully into it in his projected great work on Windsor Forest, a notice of which will be found in another column.

By way of assisting in the work, we now publish a return by Mr. ROBERT THOMPSON of the state of the more important trees in the Arboretum of the Royal Horticultural Society at Chiswick. This Arboretum, which is extremely rich in hardy trees and shrubs, was planted in the years 1824 and 1825 upon old market garden ground, by no means too favourable to the growth of timber, and closely covered with grass, either as lawn or for hay. We think it offers a fair specimen of what may be expected in the midland counties of England.

Name.	Girth at 3 feet from the ground.	Estimated height.
	ft. in.	ft. in.
Tilia europæa, the Common Lime Tree	3 5	41 0
Acer macrophyllum	6 0	53 0
,, ericarpum	3 3	35 6
,, Negundo	5 0	35 0
Quercus Cerris, the Turkey Oak	4 10	51 0
,, sessiliflora	6 0	45 0
Juglans nigra, the Black American Walnut	5 3	46 0
Ailanthus glandulosus. Three stems respectively, 3 ft. 2 in., 4 ft., and 3 ft. 7 in.; in all	6 2	48 0
Liriodendron tulipifera, the Tulip Tree	4 4	42 0
Salisburia adiantifolia	1 5	18 0
Platanus orientalis, the Oriental Plane	5 4	37 0
Carpinus Betulus, the Common Hornbeam	3 5	24 0
Fagus sylvatica, the Common Beech	3 10	54 0
Castanea vesca, the Sweet Chestnut	6 3	30 0
Æsculus Hippocastanum, the Horse Chestnut	5 6	48 0
Sophora japonica	6 10	48 0
Salix vitellina, the Yellow Willow	6 2	50 0
Populus angulata, the Carolina Poplar	7 6	75 0
Pinus sylvestris, the Scotch Fir	5 0	50 0
,, Sabiniana	4 8	32 0
,, Lambertiana	6 0	35 0

There is also the famous Wistaria sinensis, planted against a south wall in the year 1825, which has 10 principal arms measuring respectively about 10 inches in girth, and 190 feet in length, with a general girth at the ground of 4 feet.

THOSE of our readers who seek amusement or instruction in our advertising columns will doubtless have observed a few weeks since the announcement, by Mr. SALTER, of an Exhibition of PYRETHRUMS. The race of Pyrethrums to which this announcement referred, and which comes from the stock indifferently called Pyrethrum Carneum or Roseum, is a new garden flower, which promises to rival, if it does not excel, such subjects as the Phlox and the Pentstemon, having moreover the advantage of blooming at an earlier period.

The parent plant is tolerably well-known as a hardy herbaceous perennial, with finely cut almost fern-like leaves, and large daisy-shaped flower-heads with a broad spreading ray of pale pink or rose colour. That it should have given rise to a new race of ornamental border plants with "double" flowers no one would have dreamed a few years since; and yet as its Sisters, the Chrysanthemum and the Feverfew, have shown themselves to be sportive maidens, ever and anon putting on double faces, it is not to be much wondered at that Sister Carneum should follow in their wake.

The first change—a sport in colour—as we learn from Mr. SALTER, took place about 1853; and for following this up cultivators are indebted to the indefatigable hybridizer, the late M. THEMISTERE. In 1858 the first semi-double Anemone-flowered variety was obtained, since which the progress has been so rapid that at the present time, what with singles, semi-doubles, reflexed doubles, and Anemones, there are something like 50 or 60 named varieties, amongst which there occurs a considerable amount of diversity of colour. Here then is a new subject rapidly developing into what is called a florist's flower.

This being so, it behoves us, while the character of the flower is, as it were, being moulded to our desires, to determine what is the most perfect character that can be given to it. It seems to us that the nearly-related show Chrysanthemum will afford the requisite model. Setting aside the mere singles and semi-doubles as border flowers—and very showy border flowers too they are—we have remaining the Anemones and reflexed doubles as the highest points severally attained in two different directions. From these must be moulded more perfect Anemones and more perfect doubles, the latter being the more important class of the two. At present this latter group yields us only varieties with reflexed florets. We must go on seeding and selecting from these till we get the florets arranged with perfect regularity, and the flower heads nearly globular in form, not less than two-thirds of a ball being accepted as perfection. From these in due time we shall no doubt obtain sports with incurved florets, and then these must be seeded, selected, and perfected in the same way. So will these Pyrethrums, viewed as florist's flowers, be rapidly converted into an interesting and novel group of early summer-blooming pet plants.

But they are not flowers for florists only. They are gay, showy, ornamental subjects for the garden, flowering abundantly from the middle of May to the end of June, and again less vigorously

from side shoots in August and September. It so happens that the singles and semi-doubles, from being taller in growth are the more suitable for the least pretentious positions, as shrubbery borders and such-like places, while the choicer double sorts are better fitted for beds and the more dressy parts of the garden. The average height of the double varieties is from 12 to 18 inches, that of the single kinds a couple of feet.

This showy Pyrethrum has one especial good quality, namely, that it will flourish almost anywhere. For high cultivation, however, the most suitable treatment is to plant them in good rich loamy earth, in an open situation; and being herbaceous they can be propagated with every facility by division. This, according to Mr. Salter's experience, is best done in February or March, though it may be effected in July after the first flowering is over. Seeds may be sown either in August or in early spring, and the seedlings, if duly encouraged, generally flower the first year.

In order to give our readers some idea of the nature and extent of the materials which are at present available, we append the following list of the better sorts, which has been kindly handed to us by Mr. Salter, by whom those marked (S) have been raised:—

Double Varieties.

Album plenum	white
Boule Rose	rosy blush
Candidum plenum	white
Carneum plenum	blush
Charles Baltet	bright rose
Comte de Montbrun	rosy lilac
Delicatum (S)	French white
Floribundum plenum	bright rose
Fulgens plenissimum	dark red
Galathée	light rose
Gustave Heitz	bronzy rose
Hendersonii	dark red
Herman Stenger	rose, ranunculus-formed
Iveryanum (S)	very large rosy red, ranunculus-formed
Lysias (S)	dark rosy red
Madame Fourcade	white
M. Bonamy	creamy white
Mr. Dix (S)	bright rose, very large
Mrs. Dix (S)	blush white
Pink Pet	rose pink
Princess Alexandra (S)	large pure white
Purple Prince (S)	dark red purple
Purpureum plenum	red purple
Roseum album (S)	rose, with white centre
Roseum plenum	rose lilac
Striatum plenum (S)	rose, flaked with white
Themis	rose carmine
Thomas Massart	rosy buff
Versailles Defiance (S)	rose, ranunculus-formed
Vilmorin	rose
Wilhelm Kramper	rose, ranunculus-formed

Single Varieties.

Duchesse de Brabant	rose
Gloire de Nimy	red
Kleinholtz	crimson
Milleri	peach
Prince Alfred (S)	bright red, very large
Princesse Charlotte	rosy red
Tom Pouce	red, very dwarf

Even ordinary mixtures of this flower, such as may be obtained from sowing a packet of mixed seeds, produce beds of very gay looking flowers, as we have on more than one occasion witnessed during the present season. We may also mention that a group of some of the earlier varieties of these Pyrethrums will be found in the *Illustrated Bouquet* for Feb., 1860, plate xxxviii.

STRAWBERRIES, AND ONE WORD ABOUT ROSES.

In the House of Commons one of the members is called "Tear'em," or the faithful watch-dog. I have taken upon myself a similar office in respect to Roses and Strawberries. The difference is this:—The member in question points out all the faults he can find; I limit myself chiefly to pointing out the excellencies of Roses and Strawberries; and if purchasers had attended to what has been said, they would not now be recording their disappointments. Nothing therefore but the good of the public service would have induced me to write again so soon.

I have read what has been said in your Number of July 18, page 677. I will refer first to what has been related by Mr. Gloede. I concur in all he has said, so far as I have had experience. John Bull will not try pistillates, if he is instructed (as I was by Mr. W. Prince) to plant a staminate or strong hermaphrodite by their sides in order to produce fruit—a necessity that I do not consent to. I told Mr. Prince that Hovey's Seedling was a bad setter—I might have added sour and pasty—upon which he recommended me to plant by its side a strong hermaphrodite, which I believe he named Peabody's Seedling; unless I am better instructed, I shall not believe that a pistillate requires for fruiting either staminate or hermaphrodite plants. For prolification of seeds of course it will require one or other.

The Americans that I have had are discarded. I have Fillmore on trial. Triumph, a very pretty glazed plant, is the best that I have had. It requires damp ground. It is a great cropper, with handsome red fruit of fair flavour.

As regards planting staminates there is this nuisance to be added to the unnecessary impoverishment of th ground, the immediate and constant running of male runners, which might possibly bewilder and cause confusion when you make a new plantation. Besides, in our limited English gardens, we have not room to allow of an unnecessary duplicate plant.

I will now refer to what Mr. Worsley has said, from whom I have received a kind letter.

La Constante and La Chalonaise are both most delicious and first-class Strawberries, but neither is suitable for all lands. The first has yielded me a fine crop of delicious fruit. The plants have suffered much from sun, and if the winter is severe they will do nothing next year. La Chalonaise is a Queen in leaf and flavour, and like the Queen, dislikes chalky soil. The proper land for these two and the Queen race is land abounding in alumina, of which I have not a particle. The best Queens I have ever heard of have been grown in stiff clay, requiring a pick-axe to break it up. I should think that clay mixed with sandy loam on high ground—at any rate away from our hoar-frosty valleys—would be the proper soil and site for the above Strawberries. For critical situations, and for the country generally, I am persuaded that Rivers's Eliza, Wonderful, and Eugénie—three first-class Strawberries—are the best to have. The crops of the two first, in all ages, from plants set on July 24 last year to three-year old plants, have been enormous. I have never known these sorts fail under any circumstances. Lord Portman's head gardener came here with a present of Grapes late in in the season, accompanied by Mr. Farquharson's gardener. The plants of these two sorts had been picked 4 or 5 times clear, and yet they were astonished at the remnants, and thought them a large crop and the flavour good. Eugénie, Marguerite, Eclipse, Royal Hautbois, Frogmore late Pine, Emma, Lucas, President, and Boisselot Seedling No. 1 (called now La Vineuse), are meritorious Strawberries. Lucas is a seedling from La Constante, in the same line of flavour, and more suited from its strength to go into the lands of England generally. It is not so nice as a plant as pretty tufty La Constante. The crowns are bold and wide apart, the foliage is strong and leggy. It is good, but it has not been equal to La Constante; indeed, it will take a good Strawberry to beat a well ripened La Constante.

One word as regards Sir Harry. Two kinds were distributed by some one or another. I had first the false Sir Harry; and I must say it was best here as a plant, a wonderful cropper, and of good flavour. Mr. Gloede, who detected it, sent me from Mr. Nicholson's, whose kindness and generosity I have not forgotten and whose loss I regret, the true Sir Harry. This sort here was not a success. It requires warmer and well drained land. It is a dwarfish plant, and just like Mr. Underhill's picture of it. The fruit also matched the portrait. The berries are rounder than those of the other. The leaves are almost a circle, and of a smoother appearance. The false Sir Harry's leaves are flatter at the top and more tapering towards the leaf stalk. The false Sir Harry here was a large stalwart plant as high as my knees. I have got rid of both; but I have had a legion of worse friends than the false Sir Harry. I wonder whether Mr. Worsley has got the true or the false?

One word as regards the sending out of false Strawberries. I do not think for one moment that such respectable men as Lucombe and Pince sent out Eleanor or Adair for Nimrod. It was done, I imagine, by some unprincipled intermediate buyer. He has, perhaps, a larger order than he can supply, and makes it up with such plantlings as match in leaf; and when the plants of Eleanor and Nimrod are young the leaves are much alike, but quite dissimilar when they attain age of leaf. I sent the true Nimrod to Mr. Rivers, and he says in his last Catalogue, "a distinct and good sort."

The same observations apply to Mr. Underhill and Sir Harry. This leads me to recommend your readers, and all purchasers of novelties, to go to head-quarters. Do this, or don't complain of charlatans. I am told that in another country the following ingenious fraud is practised in respect to Roses. "A seedling is shown to different people under four different names. The plant and flower then are matched as near as can be, and thus the stock and sale are quadrupled." Of course this trick is only played by unprincipled men who may be found in all countries. It is not a thing that would be done by the numerous high-charactered nurserymen of England and France. As long as the world lasts "Jeremy Diddler and the Lying Valet" will be acted. John Bull is especially fond of being "diddled."

I thank Mr. Dean for his too flattering mention of my name. The account of the Strawberries at Egglescliffe (of such as I have had) is quite correct to an iota. I must not forget also to acknowledge Mr. Kent's compliment in regard to Roses. He will be glad to hear that Prince Camille de Rohan, the darkest of H.P.'s, thick-petalled and velvety, Duc de Rohan, Maurice Bernardin, and Charles Lefebvre are still blooming most beautifully. They are all A 1. Next in merit, and very beautiful and good, are Beauty of Waltham and Madame Boutin. Add F. Lacharme and Eblouissante, Mad. C. Wood, Professor Koch, M. Julie Daran, Maréchal Vaillant, M. Ernest Dreole, and John Hopper (very good here), Archevêque de Paris and Alphonse Damaizen, and you have the largest number of good Roses that have come out in any one year. Nevertheless, except 2, 3, 4, there is nothing equal to Senateur Vaisse and Chabrillant. Turenne is not full enough, but its petals and colour are A 1. All the above Roses are good growers. *W. F. Radclyffe, Rushton.*

FISH AND FISHING.—No. XII.

Tench and Carp Fish Ponds.

(*Continued from* p. 701.)

As to supplying ponds with tench or carp, they being both very long lived fish, even out of water, nothing is easier, provided you can acquire them near by; and necessarily no fish is easier of conveyance from a great distance in a tub of water, provided, according to distance, you take out some of the exhausted water and pour in an equal quantity of fresh soft water every hour or so. A very simple machine was invented by Mr. Eyre, called "a fish carrier," and by it grayling, perhaps the most delicate and shortest lived of fish, were conveyed during the winter months from Derbyshire to Scotland, and 49 out of 50 (if I remember right) survived the journey. By this machine fresh air is pumped into the water, and the water becomes re-aërated. It is in common use for conveying delicate fish, trout and grayling, &c., from distances, but tench and carp for moderate distances would not need such precaution.

There are plenty of shops in London where they undertake the supply of young stocking fish of all kinds—Wright, fishing tackle maker, Strand, and many others. And again, if the talked of Piscicultural Society comes into existence, yearlings or monthlings of tench and carp will be before long procurable in any quantity. But of all things be sure you do not get those wretched useless little fish called Crucian or Prussian carp—rather stock with gold fish.

Somewhere about 43 years ago, my brother Tom and I sallied from Tunbridge Wells to, I think, Ashford in Kent, and there got permission to try for some of these little fish (Crucian carp). We were catching them at a great rate, when the alarm was given that a "Hop oast" close by was on fire! Tom, fond of fire as of water, darted off, leaving me to pack up tackle and fish in a place of safety and join him at the fire. I found him all alive in places of danger, as though in his element. The fire was soon extinguished and we returned, the fishing day having been speedily terminated. Having permission to "try again," he went with a friend, as I was not able to go. The day turned out one of the deluge days, as it poured incessantly, and although the friend had never held a rod before, they caught so many of these "sprats" that they filled a very large basket, and only ceased when the owner of the pond told them they had almost emptied the pond, and in broad terms that they had caught enough! At home they did nothing with these fish—"they were not fit for the gridiron, and were not thought worthy of the frying-pan." And though mad after fishing, and though little older than hoby-de-hoy and boy, we never felt the smallest inclination or desire to try such angling again.

But to return to tench and carp proper, I ought to say a word as to the mode of fishing for them. I believe I always chose and ground-baited one or two particular spots or sites. My ground baits were fowl garbage, grains, or bread crumbs, just as I could get them; and I always plumbed the depth before-hand over night, and I think I regulated my float so that the hook should be one or two inches above the bottom of the pond—perhaps more for tench. Always using fine but sound gut and a small hook, I would bait my hook with small red worms, or gentles, or bread paste—for carp, with the two latter only—and I don't remember being often disappointed of catching fish enough for a large family dinner. Strike at every nibble for carp. For tench or carp strike when the float lies on the surface flat, or when it glides gently away. But of all things, "study to be quiet."

But I remember another early autumnal day never to be effaced, as a picture, from my mind's eye. Tom and I were going out to catch carp in a pond on the Common at Harrow Weald early one morning. My bed room faced the east, and no curtains were drawn. I must have been slightly feverish: for the first glimpse of the rising sun broke me into a wide-awake state in an instant. There was the first smallest segment of the glorious sun, and above and all around him clouds of every tint of gold and crimson, and purple, and of pink—rare signs of coming foul weather. Never till then had I seen so glorious a sight. Since, many. Too restless to sleep again, I woke Tom to see the sight, and though long before our intended time, he rather reluctantly rose, and a short walk brought us to the pond. The carp "bit" most freely, and we had little time to wait for them. We had taken about 20, averaging from a little under 1 lb. to near 3 lbs., when heavy rolls of thunder came from the distance: then at increasing intervals we took fish one by one: then they ceased to bite altogether. We persevered, for there was still a gleam of sunshine, but caught no more. At length the clouds became leaden black, and then the heavens were opened, heavy drops fell first as signals, the lightning flashed and the thunder roared, heavy and incessant, and we beat a retreat to an outshed of our friend (the owner of the pond, who was scarcely risen), until the storm raged in all its fury, and then passed away, leaving its trace in persistent rain, which lasted for an hour or so fiercely. We communi-

cated our distressed condition to our friend in-doors, who answered by permission to fish his large tench pond in his garden, and an invitation, "breakfast ready in an hour." We fished the time for the tench, and they fed most furiously, though it rained ditto. We caught enough and to spare, to send in to our friend four brace of fine golden fellows of about 2lbs. each, and pleading our "moist" condition as an excuse as to breakfast, hurried home to an early luncheon breakfast—to be enjoyed the rather in dry garments. It was doubtless a morning of great success in tench and carp fishing; but the glory of the opening of day, contrasting with the gloom of the forenoon-return-home, has left a painful impression on my mind. *E. C.*

EXHIBITION FLOWERS.

The Pelargonium.—No. I.

The class of Pelargoniums which I intend to bring into notice in this paper is that of the large flowering or show varieties. If we begin with young plants received from a nursery by the beginning of November (and the earlier the better), I may say that as soon as they arrive, if the pots are tolerably well filled with roots, shift them into 6-inch or 32-sized pots, employing a mixture of sound turfy loam (dug at least 12 months before it is used) and well decomposed stable dung, three parts of the former to one of the latter, with a liberal admixture of sharp silver sand, and abundance of drainage. Keep the plants rather close for a few days after potting, in order to encourage rooting into the fresh soil, after which abundance of air should be given on every favourable opportunity—but avoid cold draughts. The temperature at night need not exceed 42°. As soon as they have grown about 5 or 6 inches they should be stopped, which will induce them to make dwarf bushy plants. Keep them as near the glass as possible; this will insure a vigorous and sturdy growth, without which you cannot hope for future success. Fumigation must be strictly attended to; and in watering at this season of the year it is better to incline rather to the side of dryness than otherwise; the operation should however invariably be done in the morning, so that the house may become dry before closing, which should be done early, so as to dispense with fire heat as much as possible.

By February, if all has gone on well, the plants will be in a thriving condition, with from 5 to 6 shoots on each. If the intention is to exhibit, and I am presuming that that is the case, they should now be shifted into 24-sized pots, (which will be large enough for the first season), and encouraged to grow as freely as possible; the object in view being to obtain a large plant in the shortest possible time.

As they progress, the process of training must be commenced; a piece of string should be passed round beneath the rim of the pot, and the shoots gradually brought down; in doing this they should be arranged so as to form a framework, on which, if I may use the expression, to build the future specimen; the shape of which should be that of a dwarf round bush. As the days lengthen, water more freely, and occasionally a little weak liquid manure may be given; that made from sheep or deer dung is the best. Give abundance of air on all occasions, as nothing spoils the Pelargonium like "codling" it.

By the middle of May a slight shade will be necessary during the heat of the day, but be careful not to have too much of this as the plants are then young and sappy. There is now little else to be done except attending carefully to the watering. Before the plants come into bloom fumigate them two or three nights in succession, and exclude all bees.

When they have done flowering set the plants out of doors in the full sun, and give them only a moderate supply of water in order that the wood may become well ripened before cutting them down, which may be done the third week in July. In performing this operation leave the shoots from 6 to 7 inches long, bearing in mind the form of the plant. They should now be protected from heavy rains, and when they have "broken," and the shoots are about half an inch in length, the soil should be shaken from the roots, which latter should be pruned in, and the plants then put back into pots a size smaller. Place them in a pit and keep them close and well shaded during the day, giving plenty of air early in the morning to dry them off, a slight sprinkling will do good in the evening. Give sufficient water to keep the soil moist. When rooted, gradually inure them to light and air. They should be housed by the beginning of September, and receive their final shift into 8-inch pots by the end of October. In training only a few small Willow sticks, will this season be necessary to support them. Attend in every respect to the routine recommended for the first season.

When the bloom is over, cut down, shake out, &c., as before, and this being the commencement of the season in which you are to exhibit, every attention will now be amply repaid.

The plants for the May Shows should receive their final shift not later than the first week in October; and they should be encouraged to make as much growth as possible before Christmas, in order that they may have a period of comparative rest in January, during which time they should be kept as cold as possible to thoroughly ripen the wood, without which neither quality nor head of flower will be obtained. Train carefully as soon as the shoots are sufficiently long, and arrange the latter so as to admit light and air to all parts of the plant. When the days begin to lengthen, the plants may be encouraged a little, by shutting up early on bright afternoons, and a little fire-heat will be occasionally required, but when used admit air at the same time. Occasional waterings with weak liquid manure will be beneficial, and fumigation should be strictly attended to.

Plants for June and later require similar treatment, but of course they will not want exciting so early as the others. Those for blooming latest may be stopped in February, and kept as cool as possible. When in flower, the blooms should be tied a few days before they are wanted for the show, and arranged so as to form as even a mass of blossom as possible. They should be carefully shaded from the sun, bees must be excluded, and the house kept as dry as possible.

The best description of house for the Pelargonium is a "lean-to," which should be made as light as possible; the stage should slope at about the same angle as that of the roof, and it should not be further than 5 feet from the glass. *Henry Bailey, jun., Shardeloes Gardens, Amersham, Bucks.*

Home Correspondence.

Exhibitions and Wet Weather. — It seems to be generally admitted that flowers placed under canvas are much more effectively shown and much better seen than in any other way; but in this climate wet weather cannot be ignored, as the Horticultural and Botanic Societies know to their cost. Now, has not London an opportunity of obtaining the *ne plus ultra* of exhibition spaces at the Horticultural Society? Could not an effort be made to obtain a portion of the vacant ground to the north of the council room entrance, say 150 by 200 feet? letting it be glazed over in the cheapest way, with means for straining very light canvas from pillar to pillar. Tent effects would thus be obtained under cover. I say 150 by 200 feet, for 151 feet happens, I believe, to be the width of the spot I name. It would be amply sufficient for all ordinary exhibitions, and the adjoining arcades would afford space in any exceptional case. By taking the entire width of the space from the road to the arcade, it might be arranged so as to have three large doors in Exhibition Road, by which the plants could be lifted out of the vans, almost at the very spot at which they are to be shown, thus saving the exhibitors of large collections expense of labour. Visitors would have opportunities, the moment they entered the garden, of seeing the display from the high level of the general entrance, and also from the still higher level of the centre arcade. From being under cover the stands could be permanently fixed, which would save the Society the great cost of having to continually put up and pull down the present exhibition stands; and finally, the space being protected from wet, with means for ample ventilation being provided, the plants could, at small additional cost, be kept on view for three days, so as to give all classes outside the Society and its aristocratic supporters an opportunity of seeing the marvels of cultivation, say, as at present, Fellows and 7*s.* 6*d.* tickets on Wednesday, 2*s.* 6*d.* tickets on Thursday, and 1*s.* on Friday. *Humidus.* [We long ago recommended a glazed roof provided with a canvas screen.]

Rubus leucodermis (*White-stemmed bramble of the Himalaya*).—This plant deserves to be more extensively known, for it is perfectly hardy and altogether unlike any other plant in cultivation. Its stems, which are armed with most formidable spines, look as if smeared over with whitewash, indeed many who see them for the first time suppose that they have actually undergone that process (and hence of course the name). They rise 10 feet or more high, even in this comparatively rigorous climate; but I can scarcely doubt that in the sheltered and sunny nooks of Devonshire or Cornwall they would put forth a still greater luxuriance, and rival a specimen which as an experiment I planted out some 18 months ago in the orchard house at Knypersley. Here the canes, which were an inch thick, grew 7 yards in three months, and being clothed at their extremities with slender drooping spray, had a most extraordinary effect. I was led to make this trial, in the hope of obtaining fruit of better quality than that which the plant produces out of doors, and which is too acid to be pleasant; but although under glass the canes this spring flowered profusely, still very little fruit was set, and what there was proved rather insipid, owing no doubt to the temperature of the house (where hot-water pipes are freely used) being somewhat too high. The fruit is larger than that of our wild Raspberry, and of the most intensely brilliant orange colour. Birds are especially fond of it; and I cannot but think that a thicket of this Rubus, which would be almost as impervious as a jungle of Cactus Opuntia, might prove of great service to the preservers of game. I obtained my plants from Mr. Veitch. *J. B., Biddulph Grange.*

The Royal Horticultural Society.—I quite agree as to the benefit which would be derived from the alteration you propose on the Eastern and Western sides of the garden, but fear the value of the land is too great, hopelessly great, and that "her Majesty's Commissioners for 1851" would never listen to such an application; but I do think they might perhaps be willing to aid a little in the improvement of the property, in which they are themselves said to be so deeply interested; and I would suggest that the Society should make an application to them to widen the Eastern arcade 10 or 12 feet; this would give sufficient width for the proposed Conservatory, and as the wall is only at present lath and plaster, would cause no pulling down, and when roofed over with glass, would be indeed a delightful promenade. *Alpha.*

Golden Hamburgh Grape.—Your correspondent who makes a report of the York Flower and Fruit Exhibition (see p. 654), has expressed a desire that I should give your readers my experience of this Grape, and I can the more readily do so, as I have been told by several gardeners who have called at Upleatham, that it is being generally discarded in the North as worthless—a decision to which I certainly have not yet come. I consider that it is of fair average quality, and valuable where Grapes are grown to any extent, on account of its fine and very distinct colour. The principal objection that I have heard raised to it is that it is next to impossible to ripen, or to keep it even a short time without shrivelling. It certainly is a very thin-skinned variety, and except something is done to prevent it, the sun, if the season is a warm one, is sure to damage the berries, and in a way that I have never seen happen with any other Grape. They withstand the heat until approaching ripeness, and are then very apt to suddenly collapse, become much discoloured, and the pulp to be converted into a most insipid liquid. I believe there can be only one remedy for this evil, namely, to shade with a very light material. Shaw's Tiffany is what I used, which checks the evil at once; it admits the sun and light partially through it, and if removed as soon as the Grapes are cut from early houses, no damage to the Vine will follow. I have not tried the Golden Hamburgh as a late Grape, and cannot therefore speak as to its properties when so grown; its constitution does not appear to me so strong and robust as that of many other varieties; it is doubtless much benefited by a moderate amount of heat to the roots while growing and ripening, and it would be altogether useless to plant it except in a border well prepared and above all well drained. *M. Gray.*

Crack Willow (*Salix fragilis*).—It has always been a marvel to me why this tree has not been more generally planted than it is, for it is very useful where immediate effect is concerned. Branches of it of any length stuck into the ground are sure to grow; but it is of its money value I now wish to speak. We have a quantity of it in meadows on the banks of the Thames; almost every year we fell a lot, and replace the plantation by sticking in a few of the straightest branches, and not one in 50 fails to grow. We all know that it is seldom that a man plants a tree and lives to see it come to perfection, but the Willow in question forms an exception, for a person who lives to see three score years and ten, may if he chooses bring to market three successive plantations of this tree during that period; it has been said by some, that while an Oak tree is buying a saddle, a Willow will buy a horse: this is in some respects true, for the price which this tree fetches, and the demand for it are something incredible. I am constantly besieged by Willow merchants every autumn, who tell me that this kind of Willow is getting scarce, and yet there are many waste wet places one sees where it would be quite at home and yield a better return than any tree with which I am acquainted, at least near a good market for it, such as London is. *J. Rust, Broome House, Fulham.*

Berberis nepalensis.—We have two plants here which were put out in the open ground in the spring of 1859. They never have had any protection during winter, and were not in the least injured by the severe frosts of 1860 and 1861. They are sheltered from the east by the mansion, and from the north by a large shrubbery behind them. They are also shaded from the mid-day sun by a Cedar of Lebanon and a large Horse Chesnut tree. They are making strong growths this season, and have flowered for the last two years, but their fruit did not come to perfection. *A. Pettigrew, Richings Park, Conbrook, Bucks.*

Foreign Correspondence.

Nursery of M. André Leroy.—It may be interesting to know that Wellingtonia gigantea is bearing cones in the centre of France. I had lately an opportunity of visiting this nursery, at Angers, and there, on one of M. Leroy's fine specimen trees of Wellingtonia, were several cones. M. Leroy pointed out to me also that above every cone was one or more male catkins, so that there is every reason to hope that the female flowers were fertilised, and that the cones will bear good seed. Many other Conifers were also fruiting most abundantly in the nursery in question. The soil seems to suit this tribe admirably; it is rather strong land resting on a black slate rock, whence "black Angers" gets its name. Roses and Strawberries also flourish on it. We were too early for Roses, but were conducted through the Rose quarter, and also through the Strawberry quarter, by the able cultivator Victor Trouillard. He speaks highly of some of the seedlings he sent out last year, through Mr. Standish, especially I think, M. André Leroy and Souvenir du Marquis de Colbert. The Strawberries were remarkably fine; specimens of nearly all the best varieties, both English and French, were grown, in what I may call the testing ground, and in such abundance, that it was almost a

service of danger, though very pleasant danger, to go through it. I might write a good deal more about this interesting nursery, but I will not conclude without saying what a frank and hospitable reception we met with from M. André Leroy.

Societies.

The Botanical of Edinburgh, *July* 9.—Prof. Balfour, V.P., in the chair. The following communications were read:—I. *Description of New Genera and species of Diatoms from the South Pacific* (*No. II.*) By R. K. Greville, LL.D.——II. *Description of the Fruit and Seed of Clerodendron Thomsonæ.* By Prof. Balfour. This plant was transmitted by the Rev. W. C. Thomson from Old Calabar, and it has flowered and fruited in the Botanic Garden. The fruit is remarkable for a bright scarlet cellular covering on one side, which is well displayed when the achenes are becoming ripe. The succulent mass of cells, containing oil-like globules, seems to act in separating the achenes, so that they spread out in a cruciate manner, displaying the scarlet covering on their upper side. The plant is a very showy one both in flower and fruit, and is well worthy of cultivation in our stoves.——III. *Notice of a Botanical Excursion to Kielder and Deadwater Fell, on 4th July*, 1863. By Prof. Balfour.——IV. *Notice of Mosses found in Fifeshire.* By Mr. C. Howie. Communicated by Mr. Sadler. In this communication the author states that he has collected 248 species and varieties of Mosses in the county of Fife, some of them being of rare occurrence in Britain.——V. *Notice of some of the Woods used for Economical Purposes in New Zealand.* By Dr. Tuke. Dr. Tuke described the various economical purposes to which the wood and other parts of the following plants are applied in New Zealand:—"Kauri" or "Cowri" (Dammara australis), "Totara" (Podocarpus Totara), "Maire" (Santalum Cunninghami), "Puriri" or "Kaneree" (Vitex littoralis), "Rimu" (Dacrydium cupressinum), "Matai" or "Mai" (Podocarpus spicatus), "Kahikatea" (Podocarpus dacrydioides), "Rata" (Metrosideros robusta), "Pukateaake" (Dodonæa viscosa), "Hinau" (Elæocarpus Hinau), "Kahikatoa" or "Manuka" (Leptospermum scoparium), "Karaka" (Corynocarpus lævigatus), "Here Kiakia" or "Kirari" (Phormium tenax), "Koran" or "Pitau" or "Manaku" (Cyathea medullaris), "Koromiko" (Veronica parviflora), "Rowhai" (Edwardsia grandiflora *var.* microphylla), "Mahoe" (Melicytus ramiflorus), "Makomako" (Aristotelia racemosa), "Ngaio" (Myoporum lætum), "Puawhananga" (Clematis indivisa), "Rahurahu" (Pteris esculenta), "Ramarama" (Myrtus bullata), "Rewarewa" (Knightia excelsa), "Tarata" (Pittosporum crassifolium), "Tawa" (Nesodaphne Tawa), Titoki (Alectryon excelsum). The paper was illustrated by growing plants of many of the species referred to from the Botanical Garden and woods from the museum.——VI. *Notice of the Cinchona Cultivation on the Nielgherry Hills.* Transmitted by Dr. Cleghorn. The cultivation of Cinchona, or the Peruvian bark plant, is likely to supply a new produce for the trade of India. Mr. Vincent, an enterprising planter, has secured 5000 Cinchona plants for the land he has purchased; and M. de Facien, an enterprising planter, has secured as many more. Altogether, the orders on record exceed the number of plants Mr. M'Ivor (the superintendent of the Ootacamund garden) will be able to supply at the close of the current official year, which we understand will be 34,000. The plants available in the course of the next year, or from May 1863 to April 1864, are estimated at 100,000. This will be out of the Government nurseries, but the settings from their own stock which planters in the meantime will have been able to rear, will be something considerable, for a single plant, some 6 feet high, in the public garden here, has given Mr. M'Ivor no less than 900 cuttings, each the nucleus of a healthy sapling now, with the promise of a gigantic forest tree hereafter. The enormous source of wealth to which the Cinchona points is actually derived from bricks. When a shoot is taken off a plant, it is immediately placed in a pot filled with brick dust. Hundreds, nay thousands of these pots may be seen in Mr. M'Ivor's conservatories, covered with what look like nothing more than diminutive leaves thrust into them. Here the shoots are allowed to remain, till they recover from the shock attending their severance from the parent stem. They are then transferred to pots charged with a mixture of decomposed felspar and garden mould, in which the process of rooting goes on. Several acres of shola land in the vicinity of the Government garden have been planted, and there can be no doubt that wherever the shade of a forest tree has fallen upon the interesting suckling below, it has pined and withered, or been stunted. The instances of this effect in a romantic glen to which Mr. M'Ivor will cheerfully lead visitors are very remarkable. At a few yards from the umbrage of a group of trees, the plants look exceedingly flourishing, but their healthfulness, size, and vigour, diminish in proportion to their approximation to shade. Some plants, which were put out in the Government garden in various positions a year ago, fully bear out this result. Those in the shade look sickly, and those subjected to drippings look worse. Mr. M'Ivor does not consider the Ootacamund plantation a complete demonstration of his principles, that at Neddiwattum being more corroborative of his views, but any one knowing the difference between a healthy and a sickly plant, must at once acknowledge that shade is not the condition for the active development of the Cinchona. There are, of course, other important particulars connected with the ultimate success of the Cinchona in India, which must be left to time and experiment to establish. We might mention the earliest period of growth at which the alkaloids begin to show themselves, the efficacy of decoctions and infusions made from dry bark and leaves compared with their virtue when prepared with fresh specimens, and the possibility of dispensing in a large measure, if not entirely, with the expensive manufactured article, quinine, in the event of bark and leaf possessing sufficient curative properties to be exhibited in most forms of fever disease. One or more of these points, accompanied with the requisite materials for arriving at correct results, will, we believe, be shortly submitted for decision in England. A very interesting feature in the habitude of the Cinchona plant is its power of reproducing its bark, when deprived of it, to a greater thickness than the original formation. This peculiarity, we learn, has been noticed by Mr. M'Ivor, after covering the denuded parts with moss for a month or two, but whether the larger volume of the bark thus produced will contain a proportionate excess of alkaloids is a subject which at present rests in obscurity.——Professor Balfour read a letter received from J. A. Broun, F.R.S., of the Trevandrum Observatory, Madras, in which he says:—"The finest Palm of these mountains is the Bentinckia Codapana. I think it is the most graceful Palm in Northern India. It grows chiefly in the clefts of precipices and among rocks not easily reached; but there are such forests of it on some slopes that we were kept from starving by cutting it down for the Cabbage (young shoot), which is delicious. Raw, it is like the finest Walnut, but we had it cooked as a vegetable, and as a curry, when we had nothing else to eat. Its effect in the foreground in groups and even in the distance of the landscape is very fine. It is found at a height of from 2500 to upwards of 5000 feet at the place where I have been, but I have no doubt it would grow at higher stations."——Dr. Richard Daunt, Comprinos, St. Paulo, Brazil, sent a specimen of the pod and seeds of "Perovinha do Campo," which are said to be used in epilepsy and other diseases in South America.——Messrs. P. Lawson & Son exhibited a specimen of Sequoia, which had been raised from seed sent from California, and which had been named Sequoia Lawsoniana. They also exhibited and presented roots of Chærophyllum bulbosum or bulbous-rooted Chervil, which are used for food. When cooked they resemble Potatoes.——Prof. Balfour exhibited specimens of Bulbs of Hyacinth and Allium ursinum, assuming a solid corm-like form after flowering.——Prof. M. Bell presented a large branch with fruit of Opuntia vulgaris or "Prickly Pear," cut in his garden at Malta, 17th June, 1863.

Notices of Books.

The Capital of the Tycoon: a Narrative of a Three Years' Residence in Japan. By Sir Rutherford Alcock, K.C.B. Longman & Co.

Very few years have passed over our heads since Japan was a sealed country—a land of mystery; the only accounts of which dated from two centuries back. During those two centuries every attempt to open a less restricted intercourse than the degrading one enjoyed by the Dutch had failed, when, as if by magic, the barricades of ages seemed to be thrown down, and, headed by the Americans, the trading world rushed to take advantage of the new market thus suddenly opened to them. The West overflowed with Japanese productions, the hasty books written by admiring travellers were filled with glowing descriptions of the gentleness, amiability, and intelligence of the people, and at the World's Fair last year, the quaint costumes and singularity of the Japanese ambassadors, made them the lions of the season.

By and by, however, it began to appear that there was a reverse side to the charming picture which had been drawn of life in Japan. Ugly stories reached England of massacres of Europeans, which the government either could not or would not prevent; and the whole is now culminating in all but the certainty of a speedy war. This is no doubt disheartening, after the easy way in which the first ambassadors obtained every concession demanded; but the real fact appears to be, that the Japanese have never departed in the smallest degree from their ancient traditions. They suddenly found themselves pressed by a superior power, which they were unprepared to resist.

"Submission to the exigencies of Western Powers, which some inexorable fate seemed to have let slip upon their devoted country, or resistance with arms in their hands, seemed the only alternatives. The Japanese did, under these circumstances, what almost every Eastern race has done in presence of a superior force. They negotiated and treated, because they felt unprepared to fight. They smiled and dissimulated, employing their utmost skill to give as little as possible; and reserving to themselves the full right hereafter of nullifying all they might feel compelled for the time to surrender."

Another, an equally serious reason, is alleged by Sir Rutherford Alcock for the breaking of our treaties, namely, that they were concluded with the Tycoon only, and that, never having been ratified by the Mikado, the Daimios consider themselves at liberty to contravene them; and this the Tycoon is powerless to prevent. How this mistake is to be rectified does not appear; but the whole course of events since our first entering Japan seems to predict that peace will not be obtained without a previous war.

As might be expected from the responsible situation filled by their author, these volumes form a considerable addition to our knowledge of Japan politics; and they are well worthy of being studied by any one desirous of understanding this singular people. They would, however, have been improved, had they been considerably reduced in dimensions, since they are both diffuse and desultory, and too much extraneous matter is admitted; quotations from Catullus and extracts from De Tocqueville are out of place in a discussion upon Japanese affairs. Nevertheless, the book is both readable and interesting, and all the more so that Sir Rutherford does not confine himself to discussing politics; he gives us an account of the manners and modes of life of the Japanese, and succeeds in bringing them most graphically before us. Here is a picture of the country, and a most tempting and delightful one it is:—"Yes, all this is very true; such fertility of soil, fine growth of ornamental timber, richness and variety of foliage—or such perfection of care and neatness in the hedgerows and shady lanes, the gardens, and the numerous pleasure grounds of the temples, are not, I believe, to be found anywhere out of England. The brilliant green hues and freshness of the grass, and every kind of foliage, rather betokens a damp climate; but the mixture of tropical vegetation with endless succession of evergreen trees, and the hardier race of Pines and Conifers of great variety, gives a character to the whole scenery of the country as novel as it is perfect in effect. The tree Fern, which looks like a Palm in its tufts of top foliage and bare trunk; the Bamboo, Banana, and Palm, side by side with the Pine, the Oak, and the Beech, with a numerous race of timber trees and shrubs, some of which are probably unknown in Europe—open a wide field for the botanist, and give studies for the landscape painter of unrivalled beauty. There is an infinite variety of form, character, and colouring in the masses of foliage that everywhere meet the eye, grouped in the midst of well-kept fields and verdant slopes which any English gentleman might envy for his park."

Japan is peculiarly rich in Conifers; some of the most beautiful of which have recently been introduced into England, through the exertions of Mr. Fortune and Mr. J. Veitch; the latter of whom has supplied an appendix to Sir Rutherford's book, in which are given descriptions of these and the other principal trees of Japan, with a list of such plants as have been sent to England. He has further added some notes on the agriculture of the country, from which it appears that the land is brought to a high state of cultivation, and that great attention is paid to the crops of cereals, fruit, and vegetables; the latter, however, are complained of as insipid and flavourless, a fault attributed to the large use made of liquid manure. Strange to say, the Japanese neither use animal food nor milk! As throughout so large a portion of the East, rice forms the main portion of their food; not, as in India, largely saturated with Ghee, but, if we understand Sir Rutherford aright, simply boiled in water. It is difficult to see how they obtain what chemists assure us are the necessary constituents of the body; possibly, however, those ingredients which are wanting in the rice, may be supplied by fish, which appears to be extensively used as food by all classes.

Mr. Veitch's description of the agriculture is dry and practical, so we will skip it and take instead one of Sir Rutherford's word pictures, from which we gain a better idea of the aspect of the country than from an account, however accurate and useful, of the order of rotation of the crops, or the mode of manuring or harvesting the grain:—

"The tall well-kept hedges and fences are still thickly covered, cut and trimmed in the Dutch manner of gardening (a fashion which there is little doubt, I think, was introduced into Europe from Japan), and how admirably they are planted and trimmed! Nowhere out of England can such hedges be seen, and not in the British Isles can be found such variety. Here is a low hedge, or border rather, made of the Tea-plant, two or three bushes deep, and growing about three feet high, not unlike the ordinary flowering Camellia, of which it is a species. Now we have come to an enclosure fenced in with Nectarines, and there is a hedge of Pomegranate. Inside a tall Orange tree is laden with its golden fruit; and, stranger still, a Cherry tree in full blossom, this 25th day of November! O happy land and pleasant country! that is when no Daimios or officials intrude their presence, which mars all. But I said I would not think of politics. Let us return to the hedgerows and their inexhaustible variety. Now it is a fine tall close twisted fence of Cryptomeria, while over that porch of thatch the Wistaria (or Glycine sinensis, as it has also been called), spreads with

insatiable desire its far reaching arms, to be covered in spring with glorious clusters of purple flowers Little hamlets and farmers' homesteads are dotted about in a sort of picturesque confusion, generally nestled in the valleys and under the hill sides, amidst a clump of trees where the Cryptomeria, the Bamboo, and the Palm all tend to give an Eastern character to dwellings otherwise claiming some resemblance to Swiss châlets. What architecture there is, however, has no originality, and is in fact, only a slight modification of the Chinese style of building, with wooden frames; their temples, gateways, and larger houses are eminently Chinese, only in better style, and infinitely better kept. The country can never look wintry here, unless covered with snow (which it is sometimes after Christmas), for its trees can never be wholly stripped of foliage, there is such a preponderance of Evergreens."

The following is rather a new mode of obtaining a "rotation of crops:"—

"Whether from the force of custom or by law, the Japanese so regulates his land that each part will have time to rest and recreate itself for several years. But while this desirable object is aimed at, no part of the land is allowed to remain perfectly idle. The same principle in action with the brain and intellectual capacity seems equally applicable here—and change of occupation suffices to restore the exhausted powers, or give the needful rest. In fact, as the earth, like the human mind, can never be said to be wholly unoccupied or unproductive—the first in its idleness producing fruit too often of an undesirable kind, and the land if left to itself a plentiful crop of weeds—the true principle would seem to have been adopted by the Japanese,—in never allowing the land to be wholly fallow or unemployed. Thus when not producing edible crops the ground is planted with trees of whatever kind the owner may think best, and by the time that it is again to be brought into cultivation those trees turn out to be useful timber. When the traveller sees a large space, whether on hill or level land, covered with trees and shrubs, and apparently in a wild neglected state, he may, perhaps, infer that the Japanese agriculturist is unthrifty or negligent, and that so much land is far from being turned to its proper account. But this would be a great mistake. The careful and general cultivation of trees and shrubs by the Japanese, serves many useful as well as ornamental purposes. Within the limits of this consular district during the past year many hills might be seen, the sides and summits of which were being cleared of trees; and others which had recently been under cultivation were carefully laid down under crops of trees. The Japanese cannot in truth afford to leave any part of the land idle, because, in the first place, there is population pressing on the means of subsistence derived from the soil, whose every want has been for centuries supplied from that source and their waters. And in the next place, almost all rents and revenues are paid in kind—principally in Rice."

The volumes are embellished with many good and extremely pretty chromo-lithographs and woodcuts; several of the latter being reproductions of Japanese sketches, slight and with perfect disregard for perspective, but nevertheless extremely graphic and effective, and many very humorous.

Dr. Carrington has published as a separate pamphlet (Pamplin) his *Gleanings among the Irish Cryptogams* reprinted from the Transactions of the Botanical Society of Edinburgh, with two good plates representing the microscopical structure of many species. Visitors to Killarney will find it a very useful botanical companion.

Messrs. Longman have circulated the prospectus of a work on Windsor Park and Forest, to be illustrated by photographs by Lord Caithness and Mr. Bainbridge, and written by Mr. Menzies, the Deputy-Surveyor of the Forest. We select the following passages from the prospectus.

"During his researches into the purely arboricultural history of Windsor, the author became acquainted with many curious and interesting facts, hitherto unknown, illustrating chiefly the history of the picturesque old Pollards of the Park and Forest, the old Forest Laws and practices regulating the rights of the Crown and the Commons. In these enquiries he was materially aided by Lord Macaulay. An account is given of the various changes and improvements effected by the succesive Rangers of the Great Park, commencing with the Rangership of Baptist May, who first filled this office, in the reign of Charles II., down to that of the Prince Consort. Much of this history the Author believes to be entirely new, as he has compiled it chiefly from unpublished letters in the Blenheim Library, and from the Manuscript Letter Books of the Constables of the Castle, which have been brought to light only within the last three years. From the year 1791, the Author is able to adduce the testimony of living witnesses among the Woodwards, Commoners, Swineherds, &c., of many of whom, as belonging to a class of English peasantry now almost extinct, some curious and interesting anecdotes are related. A full account is given of the establishment of Norfolk and Flemish Farms under George III., and it is shown that although not profitable at first, they gave a great impulse to the improving of farming land in the raising of green crop, draining, liming, and keeping clean. In reference to this subject, the Author notices the report made by Mr. Kent to the King on a system of grazing by a mixed stock of deer, cattle, and horses,—a system which experience has shown to be the best."

New work on Indian Ferns.—The Fern-loving public will be glad to know that an able and very accurate botanist of Madras, Capt. R. H. Beddome, officiating Conservator of Forests, has commenced, at his own risk, a very interesting work, entitled "The Ferns of Southern India, being Descriptions and Plates of the Ferns of the Madras Presidency," on a large quarto size. Price 2 rupees (4*s.*) each Number, with 12 excellent plates, representing the species of the natural size, together with magnified figures of the fructification. It will be completed in 16 Numbers, to be published monthly, with brief characters in English, a few remarks, and the localities. It will also contain an analytical table of the genera, with their synonyms. The first Number, now before us, includes—1. Adiantum lunulatum, Burm.; 2. Adiantum caudatum, Linn.; 3. Adiantum hispidulum, Sw.; 4. Adiantum Capillus Veneris, Linn.; 5. Adiantum æthiopicum, Linn.; 6. Trichomanes neilgherrense, Bedd., new species; 7. Trichomanes Filicula, Bory; 8. Trichomanes rigidum, Sw.; 9. Hymenophyllum exsertum, Wall.; 10. Acrophorus pulcher, Moore; 11. Acrophorus immersus, Moore; 12. Humata pedata, J. Sm. The author states in a note that as a limited number of copies only will be printed, "subscribers are requested to send their names and address to the author, at the Office of Conservator of Forests (at Madras, we presume), and to pay an advance of 6 rupees for three numbers." These are conditions easy enough to be observed by residents in India. But unless some method be adopted for making the work saleable in Europe, it must be a sealed book to us, and it must be deprived of that degree of popularity which it so eminently deserves. The work is excessively cheap, and practically useful to those who can possess themselves of it. *W. J. H.*

Lawson's Pinetum Britannicum. We have before us Part II. of this noble work, occupied entirely by Pinus Lambertiana. The figure of the species is excellent; but the colouring of the leaves is much too green. The description and history occupy eight pages.

Garden Memoranda.

Mr. B. S. Williams's Paradise Nursery, Seven Sisters Road, Holloway.—This establishment at present is well worth a visit, for although there is not a great amount of bloom, yet the fine collections of Ferns, Orchids, and plants remarkable for the beauty of their foliage are well worth inspection.

Among Ferns we noticed Cibotium princeps, a stronger grower and handsomer kind than Schiedei; Gymnogramma Wetenhalliana also an elegant dwarf tasselled new Fern of good habit. The fronds of the latter are about a foot in length, branched, and finely crested, arching outwards and covered with a sulphury white powder. Of Gleichenias there are many noble specimens, and associated with them is Marattia elegans, a more compact plant than Angiopteris evecta, and therefore better suited for such as have only a limited amount of house room. Of Hemidictyum marginatum and Hymenodium crinitum, two distinct-looking kinds with undivided leaves, we noticed several fine plants. Of the various kinds of variegated Ferns, as well as of all the leading sorts of other varieties at present in cultivation, there is likewise a good stock.

Of Orchids there is an excellent collection of well grown plants, more especially of Vandas, Cattleyas, Dendrobiums and Aerides, with which and others two large span-roofed houses are full. Among plants in flower are Dendrobium heterocarpum, a sweet-scented Primrose coloured kind with a yellow and brown stained lip, the true Vanda insignis, various beautiful kinds of Cypripedium, and Phalænopsis amabilis. Of the last we noticed a fine stock of young plants, and also of the handsome new P. Schillerianа. In short there is no better place near London in which to look for good Orchids.

Of Anæctochiles and other variegated Orchids, Mr. Williams has an extensive assortment. Among newer kinds are Bulleni, a fine species, attaining a height of from 6 to 9 inches, with leaves from 2 to 2½ inches in length, ground colour bronzy green, marked through the entire length with three broad distinct coppery red stripes varying at times to golden; Nevilleana, a lovely species, with leaves marked with orange blotches on a dark velvety ground. In some of the specimens the markings are of a beautiful white, in the way of Sonerila margaritacea. Ruckerii has leaves broadly ovate, ground colour bronzy green, with six rows of distinct spots running the entire length of the leaves. Of other sorts there are also many beautiful plants, in the propagation and growth of which Mr. Williams is very successful.

In a span-roofed stove are good specimens of Pitcher plants; and associated with them beautiful examples of Cyanophyllum magnificum, Cordylines, Theophrasta imperialis (a stately plant), the singular Alocasia Lowii and metallica, and Sphærostema marmoratum; the last evidently likes a considerable amount of shade and moisture, as plants grown rapidly under such circumstances have the markings on the leaves much more white and conspicuous than in specimens in drier and more exposed situations. When well managed, and the white blotches on the foliage are well brought out, this Sphærostema is very handsome.

A span-roofed house, 50 feet long and 23 feet wide, has recently been put up exclusively for Ferns and other handsome-leaved plants, which, being all wonderfully large and fine specimens, form a compact group running the whole length of the house, and being set on the floor on gravel, with merely a brick edging round them, they have a much prettier effect than when elevated on stages. Of the latter there is only one placed immediately inside the house next the glass for the accommodation of small plants. Among the large specimens are variegated Aloe-leaved Yuccas, Cycas revoluta, Dion edule, Tree Ferns *of great size and beauty*, Dracæna indivisa, and Draco, the last with a stem nearly 10 feet high and 18 inches round; Gleichenias of different sorts—immense bushes, and other plants of that description, forming a little dense forest of rich and well varied vegetation.

In a small lean-to house is a fine stage full of Amaryllids, of which Mr. Williams is an enthusiastic cultivator, and in a corresponding house elsewhere are choice Araucarias, Thujas, hardy Ferns, and Yuccas.

Hard-wooded greenhouse plants are now for the most part out of doors, in the shape of clumps interspersed with little walks and edged with variegated Coltsfoot, a plant well suited for that description of decoration.

Of hardy variegated plants Mr. Williams has an unusually fine collection, out of which has again been formed a pretty little ribbon bed; it consists of Plantago purpurea, Funkia undulata, Variegated Coltsfoot, and a dwarf-growing variety of Festuca, the green, white, and red leaves of these plants forming a charming contrast of colour. Many other hardy plants might however also be employed for this purpose, and with equally good effect. A charming ribbon, made of summer flowering plants, also meets the eye on just entering the nursery. This consists of a line of Variegated Arabis next the walk, then one of dwarf Blue Lobelia, which is succeeded by Yellow Calceolaria and Scarlet Geranium, the whole being backed up with Perilla and different varieties of Dahlias.

Along the sides of the principal walk which runs up the centre of the nursery are various Conifers, which though scarcely out of the smoke of London bear a green and healthy aspect.

Masses of rockwork, ornamented with hardy Ferns and other plants suitable for such situations, have lately been put up in different parts of the nursery as screens, and with good effect. Various other little alterations of a decorative character have also recently been made, and everywhere may be observed evidences of taste and good order.

A new place on the road to Hornsey called the Victoria Nursery has lately come into the occupation of Mr. Williams. It already contains two pretty small octagonal conservatories or show houses, besides other glass structures; and at the principal entrance is being erected a large one, (90 feet long and 40 feet wide) which when finished and furnished with plants will have a fine appearance. Here we found a houseful of thriving plants of a new Grape Vine, called Royal Vineyard, a white variety of considerable promise. In the show houses were also fine examples of Tree Ferns, (to the stock of which Mr. Williams is constantly adding imported specimens), and other plants, chiefly valuable for the beauty of their leaves.

Miscellaneous.

Sales by Auction.—A sale of Orchids, Ferns, and other plants took place the other day at Messrs. Stevens'. Lælia purpurata, imported, fetched from 1*l.* to 2*l.* 4*s.* per lot of one plant each; similar lots of Cattleya Leopoldi realised 1*l.*; Cyathea dealbata and C. Smithii, both in good condition, realised from 12*s.* to 5*l.* per plant; similar lots of Dicksonia squarrosa fetched from 17*s.* to 2*l.* 15*s.* For single plants of Lomaria discolor from 12*s.* to 1*l.* 12*s.* was obtained. Todea pellucida fetched from 1*l.* 2*s.* to 1*l.* 12*s.*; Trichomanes elongatum from 9*s.* to 11*s.* and New Zealand-Hymenophyllums from 14*s.* to 18*s.* per lot of three plants each; similar lots of Dracæna australis and Veitchii from 12*s.* to 2*l.* 12*s.*; and Araucaria Rulei and Dammara Moorei fetched from 5*s.* to 1*l.* 10*s.* per lot of three plants each. Some very fine imported Vandas now on view, and Aerides, which have arrived in wonderfully fine condition, are, we understand, to be sold on Tuesday next.

Parthenogenesis of Aberia Caffra.—Dr. Anderson, of the Calcutta Botanical Gardens, mentions that this plant, a thorny bush, had been in the gardens some years without producing flowers. It contains pistils only, being dioecious. In March, 1861, it bore a large crop of well-ripened fruit, which was sown, and gave rise to a vigorous stock of young plants. In February, 1862, it flowered again, and the most careful examination led to the detection of no trace of stamens. This tree was unfortunately destroyed a few months ago in a severe gale; but a second specimen artificially propagated from the first still exists in the gardens. It has never flowered. *Popular Science Review.*

The Home of the Honey Bee.—The question of the

origin of the honey bee is in a state of complete uncertainty. The occurrence of bees simultaneously in the South of Europe, Western Asia, and Egypt may not appear an improbable solution to those who are inclined to ascribe to the bee a southern origin. The comparatively slight diversity of climate in the above-mentioned countries certainly renders possible its original existence in all of them; and the opinions of authors differ essentially only on the one point, whether the bee is indigenous to northern latitudes, or has been acclimatised under them. This question cannot be historically decided with absolute certainty; but it would almost appear that the bee existed in Northern Germany, either originally or at least before any known direct intercourse of that region with Rome. * * * Amongst the reasons which might be adduced in favour of the opinion that the bee is not indigenous in Northern Europe, but introduced from the south, the first to be noticed is the great power of adaptation to external circumstances exhibited by the honey bee, where it is known to have been introduced, as in America, which renders the possibility of its southern origin and northern acclimatisation indisputable; and had the bee confined itself within the limits of the warmer parts of America, this would have been evidence in favour of that view. But, from the statements of Barton, Josselyn, and others, it appears that the parts of America which have proved most favourable to the spread of the bee, and in which it has even become wild, are those under the same isothermal lines as Northern Europe (Germany and Sweden), namely, the central and northern States, up to 47° N. lat., showing that it cannot be regarded as peculiarly a native of the south. As a second reason for the southern origin of our bees, it may be said that in our northern regions they are rarely, and in many places never met with in a wild state, whilst this is commonly the case in Southern Europe, and also in Asia and Africa. This argument would be of force if our northern countries were still in the same condition of cultivation as the more southern parts of the Continent; and we know from the Roman authors that in ancient times wild bees occurred in the forests of Germany. As late as the year 1783, according to Krünitz, the pursuit of the wild bees was still followed in Neumark, Pomerania, Prussia, Lithuania, Courland, Livonia, Poland, &c.; evidently because favourable localities still existed in those countries. If it be urged that, notwithstanding the change produced by cultivation, the bees, if really indigenous to the north, might still easily, like the humble bees and wasps, find a sufficiency of suitable localities for their hives, as well as of nourishment, it may be replied in the first place, that they do become wild, although not frequently, under favourable circumstances; and in the second, that they are with us far more completely domesticated than in southern regions. Hence there seems to be no evidence, either historical or from the present distribution of the varieties of bees in the temperate parts of Europe, in favour of their introduction into the latter from warmer regions. * * * It appears that our honey-bee does not occur, or, at least, has not been discovered as yet, in India and the Sunda Islands, but that over the whole of the rest of Asia, from the coast of Asia Minor to China, no other species except the Apis mellifica is found. The honey bees mentioned in books of travels in India, Ceylon, &c., belong to species differing from the European bee. In Africa, on the contrary, Apis mellifica occurs in all parts, but no other species which can be confounded with it; a few small black species of Melipona from the Guinea coast, which also collect honey, differ so much from our bee, both in size and colour, that an uninformed traveller would hardly regard them as bees at all. *Annals and Mag. of Natural History.*

Pyrus Sorbus (*P. domestica of Smith*).—"The cultivated Service-Tree has precisely the foliage of P. Aucuparia, of which it is believed by some to be a mere variety produced by cultivation. The flowers are rather larger, and the styles often woolly; but the only real distinction is in the fruit, which is very much larger, assuming the form of a little Pear. It has been inserted in the British Floras on the strength of a single tree in the forest of Wyre, near Bewdley, which has, however, been shown to have been in all probability planted there." *Bentham's Handbook of the British Flora.*

The Luxembourg Garden, Paris.—This beautiful promenade has just been enriched by three new conservatories; one temperate, the other two heated by hot water, combining all the necessary qualities of air, light, heat, and humidity. A large portion is reserved for the cultivation of tropical plants. A curious collection of Orchids occupies at present a separate compartment. *Les Mondes.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Carefully examine the stock of pot plants, in order to see that none of them are suffering from want of pot room, or other attention necessary to assist them in making young wood for flowering next season. Also see that proper care is bestowed on late growing plants in borders, for while in active growth more water will be necessary, and insects will be more troublesome than in the case of plants that have completed their growth. Look after Luculias and keep them clear of their great enemy black thrips, giving them plenty of water at the root, and an occasional supply of weak clear manure water to old plants that may not be growing freely, until they have made plenty of wood to ensure a good display of flower. Manure water must not, however, be given to young specimens in vigorous health, as it is apt to induce too gross a growth, a condition in which they seldom flower profusely. In order to secure fine heads of bloom from this plant it should be allowed a few weeks of comparative rest after, say about the middle of next month, keeping the roots rather dry, and exposing the plants as freely to air as can be done without injury to the foliage or the health of their neighbours. Brugmansia sanguinea is also a useful plant for winter and early spring flowering, when managed so as to have it pruned, rested, and starting into growth about this time. See that large specimens of Camellias are not allowed to get too dry at the root after they have set their buds; for shedding of the latter is often due to this cause. Young vigorous plants, however, frequently require to be watered rather sparingly at this period to prevent their making a second growth. Cinerarias for early flowering should now be growing freely and should be shifted when necessary: for if they are to form large specimens for flowering in winter they must not be permitted to sustain any check; remove suckers whenever they can be obtained and pot them for spring flowering. Calceolarias will now be beginning to demand attention; get cuttings of favourite sorts rooted as soon as possible; seed may also now be sown.

FORCING DEPARTMENT.

PINERIES.—Plants intended to furnish the winter and spring supply of fruit must be treated with considerable care and judgment, in order to insure their showing at the proper time, or rather to do all that can be done to insure this, for the most experienced growers cannot always succeed in getting plants to fruit at the desired time. Attend to previous directions on this point, and continue to select the most promising plants, keeping them dry at the root, and fully exposed to light so as to check their growth, and induce a comparative state of rest for a few weeks. And those that have well-matured their growth, if wanted to fruit at once, should be kept close and warm, affording them a brisk bottom heat, and properly moistening the soil about the roots. Those intended to supply ripe fruit late in spring, if not considered sufficiently strong, may be encouraged to grow freely for some time yet, as if these can be got to show in November, they will be sufficiently early. Attend carefully to plants swelling their fruit, giving plenty of manure water at the root, and keeping the atmosphere warm and moist. Attend to the watering of recently potted stock, as if too much is given the fresh soil is apt to become sodden, and if too little the old ball becomes so dry that it is not easy to get it properly moist again, and in either case the check which the roots sustain frequently throws the plants into fruit prematurely. Get all succession stock requiring more pot room shifted as soon as circumstances will allow, in order that they may be well established in their pots before winter.

VINERIES.—Should the weather become cloudy or wet it will be unfavourable for Grapes that are ripe and expected to hang in good condition for a long time, and where the borders are of a strong adhesive nature, it will be advisable to cover with something to throw off heavy falls of rain; but where the soil is of a light nature, and such that the water will drain through it freely, this will be unnecessary. Use gentle fires where the fruit is colouring, with a moderate circulation of air, and on fine days too much air can hardly be given at this stage. In dull weather fire heat will also be necessary where fruit is swelling. The wood will probably be well ripened in the early house, and the foliage turning brown, and in this case it will be desirable here also to prevent the border getting saturated with wet. If this house requires painting or any other repairs, this should be attended to while the house can be thrown open, and such work done more conveniently and much better than at any other season.

PEACHES.—The wood will probably be ripe in the early house by this time. Give therefore all the air possible. Give trees from which the fruit has just been gathered a good washing with the engine to clear the foliage of dust, &c.

MELONS.—Plants in dung frames will require considerable attention. Keep the bottom-heat as regular as possible, and endeavour to secure sufficient warmth from the linings to allow of giving a little air to prevent damp. Water very cautiously, and only when a fresh supply is absolutely necessary, and then give enough to moisten the whole mass of soil.

FLOWER GARDEN AND SHRUBBERIES.

Propagation of stock for next season must very soon be commenced and carried on with expedition, so as to secure strong well established plants before winter, and without the necessity of keeping them so close or warm as to induce weakly and watery growth. To be able to winter bedding stock safely with ordinary care, the cuttings should be put in sufficiently early in the autumn to allow of having them well established and fit to be exposed to the open air by the end of next month. Begin with such as are found to be the most tedious to propagate and prepare for winter. Hollyhocks are general favourites, but they do not afford cuttings freely. They should therefore be examined often for any cuttings which they may afford, as those rooted about this time will make strong plants for next season. Attend to the tying up of these and Dahlias, and go over the masses of Verbenas, &c., frequently for the purpose of regulating the growth, so as to keep it orderly and neat. Sow Ten-week or Intermediate Stocks for spring flowering; transplant Brompton and Queen Stocks, and if the situations in which they are to flower are not at liberty, prick them out in nursery beds, allowing them plenty of space to prevent weakly growth.

HARDY FRUIT AND KITCHEN GARDEN.

Winter Onions may now or very soon be sown, also Cauliflowers for the early crop next season, and a small bed of Brown Cos, and some hardy sorts of Lettuce to stand the winter. The tops of the main crop of Onions had better be laid down if they are inclined to be too rank, going over the bed with a wooden-headed rake, and pressing the tops down sufficiently to check further growth. Plant out a good breadth of Endive on well enriched soil of a light dry nature; also see to providing a good supply of Lettuce, &c., for autumn use. Attend to Celery, keeping it well supplied with water in dry weather, giving it as much manure water as can be spared for it, and keep the early crop rather closely earthed up. Vacant ground or that which can be cleared of early crops may still be planted with winter Greens, first giving it a good dressing of manure and a good deep digging. Stir the surface of the soil among growing crops. Cut Box edgings, and keep every corner clean and neat.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending July 29, 1863, as observed at the Horticultural Garden.

July.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 23	D	29.906	29.832	70	32	51.0	60	60	W.	.10
Friday 24	9	30.078	29.869	71	44	57.5	60	60	W.	.00
Satur 25	10	30.001	29.911	71	36	53.5	60½	60	N.W.	.16
Sunday 26	11	30.093	30.098	78	36	57.0	60½	59	N.E.	.00
Mon. 27	12	30.214	30.128	78	39	58.5	60½	59½	S.	.00
Tues. 28	13	30.070	29.917	82	40	61.0	60½	60	N.E.	.00
Wed. 29	14	30.038	29.976	81	47	64.0	61½	60	N.	.00
Average.		30.057	29.961	75.8	39.1	57.5	60.2	59.8		.16

July 23—Very fine; light clouds; at freezing point at night.
— 24—Very fine throughout.
— 25—Fine; rain; fine; rather cold at night.
— 26—Fine; very fine, exceedingly fine; cold at night.
— 27—Very fine throughout.
— 28—Very fine; hot sun, exceedingly fine.
— 29—Very fine; hot; exceedingly fine; comparatively warm at night.

Mean temperature of the week 5 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending Aug. 8, 1863.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 2	75.9	52 1	64.0	18	1.03 in	1	4	3	—	8	13	5	3
Mon. 3	74.7	51.1	62.9	19	0.38	3	4	3	2	4	15	3	1
Tues. 4	75.6	51.2	63.4	16	0.85	2	3	4	3	4	15	5	1
Wed. 5	73.9	51 2	62.6	17	0.88	1	4	4	2	5	13	5	3
Thurs. 6	72.7	50.9	61.8	17	0.58	—	6	3	1	5	12	8	2
Friday 7	74.7	50.5	62.6	13	0.57	1	4	—	—	5	21	3	—
Satur. 8	74.3	49.7	62.0	16	0.50	2	5	2	—	3	18	5	—

The highest temperature during the above period occurred on the 2d, 1856—therm. 92 deg.; and the lowest on the 6th, 7th, and 8th, 1858—therm. 37 deg.

Notices to Correspondents.

ALLAMANDA: *J K.* The flower you have sent does not appear to differ at all from A. violacea.

GRAPES: *Sussexensis.* Don't think of planting American Grapes. They are detestable. Imagine lumps of gum arabic half dissolved in water that has been employed to wash a fox, and you will form a sufficiently correct idea of their quality.

ICEHOUSES: *H M W.* You will find plans of these in our Vol. of 1857, p. 6.

INSECTS: *Anon.* The Peach shoot is infested by the web spun by minute mites resembling Acarus telarius, which have also doubtless sucked the leaves. The latter are, moreover, attacked by aphides, probably A. Persicæ. The remedies to be applied must be those usually adopted against the red spider and plant lice. *W.*

OAK LEAVES: *K K.* The spots on the back of the leaves are of the same nature as what are called Oak-spangles. They are in fact little disks produced by minute hymenopterous insects called Cynipoideæ, of which a full account was given in the *Gardeners' Chronicle* for the year 1843, p. 52. No opinion can be expressed respecting the caterpillar without seeing it.

ORCHARD HOUSES: *Reuben.* Why not visit these buildings in the Horticultural Garden at Chiswick? You will no where find better or more beautiful examples. Now is the time.

MONSTERA DELICIOSA: *G W.* The photograph is too indistinct to be copied on wood. We ourselves never saw it in flower, but continental writers are well acquainted with it. That its specific name applies to its quality there can be no doubt; but whether or not it deserves to be called delicious we cannot tell. Perhaps you will be good enough to report upon your own case.

NAMES OF PLANTS: *Constant Reader.* Lastrea dilatata. The unmarked specimens appear to be a very ordinary form of the species. The other, tied with blue, is peculiar, but we do not recognise in it any of the named varieties. It was, however, too much dried up when it reached us.—*J M.* Myoporum serratum.—*Bothy.* No doubt Quercus Libani.—*C R.* Your plants are attacked by the wild Cuscuta Epithymum. Fortunately this does not often happen. Burn immediately the plants attacked, and the soil they grow in.—*E K.* 1, Arrhenatherum avenaceum; 2, Festuca pratensis; 3, Avena flavescens; 4, Agrostis vulgaris.—*J R.* Lolium temulentum: the infelix Lolium of the Romans,—*Felthorpe.* 1, Drosera rotundifolia; 2, Parnassia palustris; 3, Epipactis palustris; 4, Triglochin palustre.—*Sunbury.* As far as we can judge from the materials sent it may be a Water Melon, Cucurbita Citrullus.

STRAWBERRIES: *J P.* Last season's plants may be transplanted successfully, and will bear a better crop than plants of this year.

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MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.

GRAND SHOW at BIRKENHEAD (in the Park) on SEPTEMBER 8, 9, 10.

Prizes amounting to £1400.

ENTRIES CLOSE on August 10.

For Prize Lists, Regulations, &c., apply to Mr. WM. HENDERSON, Local Secretary, Birkenhead, or to T. B. RYDER, Secretary, 57A, Church Street, Liverpool.

YORKSHIRE AGRICULTURAL SOCIETY.—GREAT SHOW at SOUTH STOCKTON-ON-TEES.

PROGRAMME.

TUESDAY, August 4	Trials of Implements, Steam Ploughs, Grass Mowers, &c. Admission 1*s*.
WEDNESDAY, August 5	Show Yard open at 10 A.M. Admission 2*s*. 6*d*., Ladies, 1*s*.
THURSDAY, August 6	Show Yard open at 8 A.M. Admission 1*s*.
FRIDAY, Aug. 7	Show Yard open at 8 A.M. Admission 1*s*.

For Cheap Trains see Railway Bills.

JOHN HANNAM, Secretary.

Kirk Deighton, Wetherby.

Agricultural Hall, Islington.

A POULTRY, PIGEON, RABBIT, FLOWER, and FRUIT SHOW will be held at the HALL on the 26th, 27th, and 28th inst.

PRIZE LISTS and other information can be obtained from S. SIDNEY, Esq., Secretary.

Agricultural Hall, Barford Street, Islington, N.

The Agricultural Gazette.

SATURDAY, AUGUST 1, 1863.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	Aug. 3		
to		}	Highland Society at Kelso.
THURSDAY,	— 6		
TUESDAY,	— 4		
to		}	Yorkshire Agricultural Society at Stockton on Tees.
THURSDAY,	— 6		

THE Worcester show, though not in a thickly populated district, stands quite among the foremost in the Society's experience for the number of its visitors.

The Battersea show-yard, opened for nine days, close by three millions of people, was entered by only 115,000 persons ; that at Leeds in the previous year was visited by more than 135,000 ; and the Worcester show-yard was visited by nearly 90,000. The sum received for admission is one of the largest after Leeds and Battersea ; Chester and Warwick standing nearest to it.

A large attendance in an agricultural district is a more useful and more desirable thing than when it arises from the neighbourhood of large towns. And though the railways from Birmingham and Wolverhampton no doubt brought immense numbers into Worcester on the Thursday and Friday of last week, yet the crowds who traversed the show-yard of the Society were manifestly for the most part agricultural ; and a very large number of agricultural labourers thus enjoyed a most useful holiday.

It is certainly one of the most striking and best learnt lessons of late years, by which agriculturists and the labourers they employ have come to understand that machinery is their friend.

The farm where the threshing machine, and the reaping machine, and the mowing machine, and the steam plough are at work, is the farm which employs most labour. It is the sluggish unimproved district where listless men loiter on in the

oldfashioned style, and where machinery is unknown, that wages are lowest and labourers worst off. And the peripatetic society which brings the whole force of our leading manufacturers, our best breeders, and our most energetic agriculturists to bear successively on the various districts of the country—at one time itself acquiring vigour and intelligence from the locality it visits, at another imparting these where they are manifestly wanting—is a most important and valuable agency in the interests of the labourer as well as of his master.

A week or two since, when the Oats had just burst forth from their sheath, it was almost impossible, in the northern districts of Northamptonshire to go into a field without at once observing that a considerable portion of the bells were quite effete and colourless. In many cases the defect amounted to from a sixth to a fourth, while several ears might be found in which a third or even a half of the bells were abortive. In some portions of the fields scarcely a single plant was perfect, and in consequence there was a peculiar colouring which at once attracted the eye. The disease appeared to attack the different varieties indiscriminately, black Oats suffering as much as white; nor, indeed, was it confined to the cultivated species, as the wild Oats suffered equally with the others,—a circumstance which would not be greatly regretted by the farmer.

We have no information as to the occurrence of the disease in other parts of England, but at any rate in those districts with which we are most familiar, the affection is so general that we can attribute it only to some peculiar condition of the atmosphere and temperature during some particular period of growth. The circumstance of its attacking wild as well as cultivated Oats is quite decisive on this point.

Now the disease is altogether identical with one which we described in this journal several years ago (*Agricultural Gazette*, 1855, pp. 569, 586), and which we proved to be capable of propagation year after year by sowing the seed of affected plants. As the loss must be considerable, far greater indeed than any which ever arises from smut, a malady which in some fields accompanies that before us, it is really matter of serious consideration, whether this affection which has arisen, as it appears naturally, may not be of many years' continuance. We would caution the farmer, therefore, whereon the crop has been ascertained to be seriously affected, on no account to make use of the seed derived from it. He should if possible procure his seed from some distant quarter, taking care that the appearance is perfectly healthy. It will not be easy to make a mistake about it, as far as regards his own fields, as even when the Oats are perfectly ripe, the abortive bells will still be seen scattered about indifferently over various parts of the inflorescence, white as snow, and without any trace of fruit. Sometimes they occur in masses, and are then peculiarly conspicuous.

The productive causes of these affections are altogether unknown, but though we are ignorant of the circumstances which favour their development, that is no reason why we should not guard as much as possible against their recurrence.

We have often called our readers' attention to the wisdom of making a far more careful selection of seed than is usually done. It is much to be wished that some intelligent farmers, who have had the benefit of a scientific education, and are acquainted with the chemical necessities of the various plants they cultivate, would make it their business to grow seed corn. For this purpose all over manuring should be avoided. The main point would be to keep the land from being exhausted by weeds, and by superior cultivation to secure as healthy a growth as possible. At the same time the cultivator would take care that the soil for each especial crop was not deficient in those peculiar chemical constituents which are absolutely necessary to the perfect development of the seed, though anything like rank growth or overcrowding should be carefully avoided. We feel convinced that a young and intelligent farmer of high character, would find this a most useful practical application of his college course, and one which in the end would be sure to be eminently lucrative. Even under existing circumstances the seed corn of cultivators in general repute commands some shillings a quarter more in the market than that from ordinary farms; and experience would soon show the superiority of cropping from seed produced with an especial view of preventing as much as possible all probability of disease. *M. J. B.*

THE ROYAL AGRICULTURAL COLLEGE.

A Public Dinner was last week given to Professors Brown, Buckman, Coleman, and Voelcker, by the agriculturists in the neighbourhood of Cirencester, as an expression of the respect in which they are held, the regret felt at their departure, and the gratitude which their long service commanded. The chair was taken by T. C. Brown, Esq., who was supported by the guests of the evening. After the usual toasts, followed by one to the health of Lord Bathurst, the Chairman gave the toast of the evening, the Professors of the Royal Agricultural College. He said:—The toast was connected with double feelings. First a feeling of delight, arising from the advantages which we have all received from the long residence amongst us of those gentlemen—advantages derived not merely from their qualifications in their several departments, but what is of far more importance, their willingness and earnest desire to convey to others those truths of science which they had acquired by hard study during the earlier periods of their lives. They had so long had the advantages of these gentlemen's knowledge, so freely given, that their loss was accompanied by the greatest regret at the separation, though he trusted they would not be far separated. He trusted that in other districts to which they might remove they would still convey their peculiar knowledge to others, particularly to the agricultural community. They had all their lives been in the habit of teaching theory, and though they had not engaged in practice they had urged with the greatest force upon practical men the importance of their understanding the principles by which all sound practice is regulated. For they must know very well that though they ploughed and sowed as their ancestors did, by habit and by rote, the principles connected with agriculture were some of the highest principles of nature. The principles which these Professors had been engaged in teaching were the laws of God which had been revealed to man, but revealed especially to those men who had devoted themselves to acquire the knowledge. They had filled their offices so long, and in such a friendly, such an agreeable, and such a loving way, that it was our bounden duty—they being separated from us, or rather we from them—heartily to thank them for what they had done. There certainly could not be two opinions about that. He was sure that every individual present would heartily thank them for the liberality and kindness with which for so long a period they had not merely conveyed their peculiar instruction to the Royal Agricultural College, but had always been ready to aid individuals and societies in acquiring the same important knowledge. Having made these general remarks, it was proposed to drink the health of the Professors singly. He asked them first to drink Professor Buckman. That gentleman was first noticed because he had been the longest resident, and was the senior Professor. He had had the advantage of personal acquaintance with him during the whole of his residence in Cirencester, and he had found that he was always ready to assist others with the peculiar information he possessed—always ready and willing to point out the advantages, the beauty, and the delights of his science. He therefore proposed the health of Mr. Buckman, Professor of botany and geology in the Royal Agricultural College.

Professor Buckman said: I have been chosen as the first to return thanks to you for this great kindness because I have been at the College a longer period than the rest of the Professors—because, also, I number a few years more than they do; and gentlemen, when I come to put this and that together I find that one-third of my years, and the best of them, have been spent in Cirencester, and in the service of the College. I came to the College within about two years after its foundation. I need not tell you that we have had troubles in the College and its management before this. There was a time of trouble at the College when the students dwindled down to 10. We lectured day after day to 10 or 11 students; and Professors Brown and Voelcker and myself said, "We have faith that this College will get on well, for no institution is more wanted, and if money is at all in the way we will give our services for 12 months for nothing rather than see it fail." We worked hard, and it was found it was not necessary for us to make any sacrifice of the kind suggested, and the Principal and the Council would not accept of any such sacrifice. You know how the College went on, and at that Principal's death there were somewhere about 100 students. I can point now to students in my class who are now members of the Geological and Botanical Societies, and Fellows of the Society of Antiquaries—men who have gone on flourishing in the pursuits they delighted in. I have not wanted to leave this district, there is here everything that could give me delight. If I turned to botanical pursuits, I found a glorious flora in every direction: and by the kind permission of Lord Bathurst, I had access to the Park, and could range over it as freely as if it were my own. Again, if I went to examine the different quarries around the neighbourhood, I found glorious specimens of every fossil I could desire; and when I looked at the beautiful antiquities of this neighbourhood, I could not help being in love with them. I beg to thank you most sincerely and heartily for the kindness you have shown to me and to my brother professors to-day.

The Chairman next proposed the health of Dr. Voelcker, which was received with great cheering. They were aware that Dr. Voelcker got his early instruction from the great European chemist, Liebig—the man who to this day stood highest in the ranks of chemical science. Dr. Voelcker was eminently a practical man. This country had got him and meant to keep him. They had turned his children into English children, and almost the Professor himself. The King of Prussia tempted him to leave Cirencester, but he replied that though he loved the Fatherland, still he was attached to England, where he was taking root, and would not leave. They must heartily regret that he was separated from this Institution, for he was still the great chemist of agriculture.

Dr. Voelcker, who was received with loud applause, said The Chairman has alluded to what little fame I may have as an agricultural chemist, and certainly it is gratifying to every sensible man to know that his reputation extends beyond the borders of his own county. Even that is not to be despised, but it is more gratifying when it extends throughout the length and breadth of a country like England. I may say that without assuming too much, because I occupy the honourable position of consulting chemist to our great national society. Though this is quite true, and though it is a source of great joy and pleasure to me to say as much, yet I can assure you that what gives me more pleasure is to have a good character in my own native town—for I have made it my native town. It is a hard thing, after a man has been tossed about and is settled down, to be thrown by the force of circumstances upon the world at large. But although we shall all have to seek a new field of labour, I truly believe that we shall not be forced to break stones in any of the quarries to which my friend Professor Buckman has alluded. Wherever we go I believe we shall have the hearty good wishes of the people of this neighbourhood, and particularly of my friends the farmers of England.

The Chairman next proposed the health of Professor Brown, another of the band who had been knit together in the closest ties.

Professor Brown returned thanks. They had all worked together, as Mr. Haygarth liked to express it, as a band of brothers. He had seen three Principals at the College, and he believed that some of his colleagues had seen four or five. They had remained faithful to themselves as a body, and there was something not altogether pleasant in the reason why a staff who had worked together so long, were about to leave the institution where their services had been so long employed. With reference to the motives of the Professors, it had been said that they wished to injure the place. This was utterly absurd. What motive could they have to injure an institution which they had served so long, and which they had taken so much delight in serving. The college at the present time stood alone as an institution of the kind. Various schools of agriculture had been tried in different parts, but they had either failed, or had not been what the college was intended to be, a truly national institution. The Royal Agricultural College had attained a very important position, Professor Coleman, he believed, was of opinion that the practice of agriculture was better learnt in the farm than in the college; but it was necessary that we should have the farm as well as the college. A lad learns best the rudiments, and a man learns best from practice. Teach the one what ought to be done, and leave the other to inquire how it is to be done. The Professor then went on to speak of the relation of veterinary science to agriculture, and he referred at some length to the importation of live stock from abroad, bringing with it epidemic diseases, which caused immense havoc on English farms. He said it remained for him to express to the company his profound appreciation of their extreme kindness, but which was only what he had received at their hands ever since he came to the College.

The Chairman said he now came to the health of Professor Coleman. The Professor was the first student at this College, and if he had shown ability and fitness for his position, he had begun to learn it here. He learnt it in the College, and he had gone into the fields and practised it in various parts of England. The best days of the College farm had been under his administration.

Professor Coleman said he was far too modest to think that he had deserved the kindness that had been shown to him; he believed there had been no lack of sincerity either on the part of the Chairman or of the company. An Englishman has a proverbial attachment for his roof-tree, be it never so humble, and would feel great sorrow in leaving it. What must it be then, as in his case, when to use a scriptural expression, his lines had fallen in pleasant places. There was also great uncertainty about the future, which was another subject of regret. He therefore felt that their kindness this evening, which was but an example of the kindness he had received ever since he had been here, would be a most soothing balm for all the troubles and sorrows which he had felt and expected to feel. He saw around him a great number of his fellow-townsmen and a very large circle of his brother farmers, and he could not sit down without expressing to them his heart-felt thanks for the kind way in which, on all occasions, they had received him. Whatever progress he had been permitted to achieve in his position had been due in a great degree to the open hand that had always been extended to him, to the open heart and to the open hand, if he might use the expression. He had never found his brother farmers saying, "We won't tell him anything: he is come to teach us." That had not been the feeling, and he had not felt that he could teach them anything; but in relation to practical agriculture, he was the pupil and they the teachers in this particular district. But he endorsed all that had been said by his brother Professors in relation to the immense value of the Agricultural College. It was not true that he had been wrapt up in practice, and had not appreciated the noble sciences taught in the insutittion. He owed to the instruction he received there, partly under Professor Buckman, that teaching which had enabled him to occupy the position which he had for the last seven years. He maintained that the farmers of this district recoguised the importance of scientific knowledge in agriculture. The recollection of this evening would be a lasting solace to his mind, and he should look back with regret upon the change he was about to go through.

The Chairman said they had now accomplished the list of toasts peculiar to their meeting, and notwithstanding that they had a very pleasant company, and were greatly enjoying themselves, he thought, considering the lateness of the hour, they should now close the proceedings, with a hearty wish for the long life, happiness, and prosperity of their guests, the Professors.

Mr. Vaisey said, before they parted, he wished to propose the health of their worthy Chairman.

The Chairman said he was very much obliged to them. The position he had held that evening had not been sought by him. He had accepted the invitation, that in his person they might remember his lamented brother, who if it had pleased God to preserve him, would have been their fitting chairman on such an occasion as the present. He accepted the post in the place of one whom they all loved.

We may mention here that the usual annual dinner of the Royal Agricultural College Club was held at

Worcester during the past week, when great interest was expressed for the continued prosperity of the College. Professor Coleman, who presided, hoping "that the institution would rally. He believed that its intrinsic value would cause it to rise again in public estimation, especially when the necessity of a great and liberal education in agricultural matters became thoroughly understood. He believed that the College would still succeed in its work of usefulness, and that it would recover from any troubles with which it might happen to be surrounded."

THE MANOR FARM, BRIGHTON.

A gathering of agriculturists took place on Wednesday at Mr. Hallett's Manor Farm, Brighton, for the purpose of making a critical examination of the results his principle of continued selection as exhibited in the crops growing upon his farm.

The company assembled at 1 o'clock, including Sir John Shelley, Bart., M.P.; Thomas Alcock, Esq., M.P.; William Cunningham, Esq., M.P.; James White, Esq., M.P.; W. Rigden, Esq.; James Wood, Esq.; James Dumbrell, Esq.; G. P. Tuxford, Esq.; Howard Reed, Esq.; Robert Leeds, Esq., Lexham; R. Wilson, Esq.; the Mayor of Brighton, the Rev. H. M. Wagner, the Rev. T. Cooke, — Jessie, Esq.; Cordy Burrows, Esq.; Henry Abbey, Esq.; Alfred Hughes, Esq.; Lieut.-Colonel Crofton, Captain Willoughby, R.N.; Lieut.-Colonel Penton, W. H. Hallett, Esq.; G. S. Roupell, Esq.; J. Merrifield, Esq.; F. Merrifield, Esq.; — Campion, Esq., Danny Park; S. Copland, Esq.; Col. Paine; Mr. A. Hardy, of Maldon. They commenced by inspecting the selecting grounds upon which were growing many interesting specimens of varieties of Wheat from various parts of the world; against each of which affixed to a staff was its parent plant of the preceding year, so that the improvement obtained by a single generation of selection might be appreciated at a glance.

This inspection was very important, inasmuch as much discussion has arisen as to whether a variety of Wheat which in sample presents, *primâ facie*, very little in common with the ordinary Red Wheat of commerce could in fact have been derived from it. In order to prove that the apparent change could be produced by selection only, the pedigree Wheat had, as it were, been restarted from the original stock of common nursery. The parent plant grown in 1862 of red nursery, would instantly be admitted to be such by any one, while its immediate descendants in 1863, would in the largest specimens differ so materially as entirely to prevent such recognition. When such is the result of merely one generation of selection, the change that can be effected by its repetition throughout several successive years may easily be conceived.

In every case the parent plant or single ear, as the case might be, was placed side by side with its descendants, and the increase both in the number of "ranks," and grains contained in the ear was most marked; as in all cases both generations had been planted in a similar way, the results could be due to selection alone.

On arriving at the Barley plots the effects of selection were even more striking. The greatest number of grains hitherto obtained in England with a single ear of Chevalier Barley was 39, while here ears containing 44 grains might easily be found, and the smallest of the ears contained a number of grains equal to those in the best ears of the ordinary crops of this cereal. This question of pedigree is in Barley even more important than in other cereals, as when the maltster "wets" it, there are usually found from 3 to 30 per cent. of the grains which never "grow" at all, and upon which, nevertheless, he has to pay the duty of 21*s.* per quarter. In a sample of the Pedigree Chevalier Barley tried in the usual way at the largest malthouse in the country, every grain "grew," a result never before experienced by the maltster.

The value of the principle of selection as regards Barley is further illustrated by the fact that whereas in the neighbouring farms it is almost impossible to produce grain fit for malting purposes, the Barley here produced was of such a character as to excite the astonishment, not only of the maltsters, but of the occupiers of those very adjoining lands.

As to Oats, the principle has been carried out too short a time to exhibit fully the results already obtained in the other cereals; but sufficient advance has been made to convince any one that it is equally applicable to this cereal also.

After having finished with the selecting plots in the garden the company followed Mr. Hallett to an inspection of the farm, where the principles already propounded were found fully carried out on a large scale. During this interesting walk several valuable facts with regard to the produce of the Pedigree Wheat were elicited from various gentlemen. It may perhaps be appropriate to give two or three of these, confining the instances for reasons that will be readily understood, to three extreme points of the kingdom. All of the following crops were produced in 1862—a year that will be remembered by Wheat growers as the most disastrous experienced for many years. In the South of Ireland, from half a bushel of seed per acre, a crop of 62 bushels per acre, weighing 64 lbs. per bushel, was obtained over an extended area. In the extreme north of Yorkshire, upwards of 60 bushels per acre were obtained, while in Essex the produce of three acres was 27 qrs., which was sold to a miller, and realised 19*l.* 7*s.* per acre.—The company sat down to a bountiful dinner, displayed with great taste in a marquee near Mr. Hallett's house, after which several gentlemen made statements which entirely corroborated the facts already detailed. *H. R.*

THE APPEARANCE OF THE CROPS.

Chatteris: *Isle of Ely, July* 20.—The season continues to maintain its character for extremes. The winter was extremely mild, and the spring, especially the month of May, was extremely cold and frosty. The summer has produced extremes both of heat and cold, and winter, spring, and summer have alike been extremely dry. It is true in June we had a nice fall of rain, which gave an impetus to vegetation, but it was scarcely enough to penetrate the soil to the depth of the plough. This has been again succeeded by severe drought, accompanied by a high range of temperature and brilliant sunshine. But a few days ago the temperature underwent another great change, and after having been hot and scorching for some days suddenly became cold again. For a succession of days the thermometer stood at 80° and 82° in the shade, and on Saturday night (July 18) we had a sharp frost. There can be no mistake as to the fact, for to-day the Potatoes on the light soils are perfectly black and withered, as bad as they were in May. Rain is much needed, but lingers long ere it comes. Up to this time the Wheat has looked promising, and has appeared to be ripening kindly. Whether the frost of the other night will injure it or not we cannot tell; we have no experience of the effect of frost upon Wheat in its present stage. We shall anxiously watch its future progress towards maturity. Should the frost occasion premature ripening, what promised to be bold fine grain, will be only a thin shrivelled sample: upon the whole we have a good crop of Wheat. In some instances, upon the warm gravelly soils, the straw is short, but upon cooler lands it is long enough; the ear is good, and appears to be filling well, and the plant is thick upon the ground, but not much laid. The heaviest crops have been gradually falling during the fine weather, and with rain would be laid generally; with suitable weather we shall have some Wheats on the warm lands fit to cut next week, and the following week shall be in the midst of the Wheat harvest. The Oat crop varies a good deal according to the dryness or coolness of the soil. On dry lands it is a short crop of straw, whilst on the moist lands there is plenty of straw. We have commenced cutting Polands to day, and have 70 or 80 acres fit to cut this week. We have only 9 acres of Peas, and these have been cut to-day; the crop is about an average one. Our Barley is nearly all grown after Wheat upon steam cultivated lands, and is a good crop, and for the season much heavier than could have been expected. We have heard great complaints of the Beans, but examination has not confirmed these rumours, although we believe the top blossoms did not set, and the crop is not as promising as it would otherwise have been, still it is not so bad as we have heard it represented; we shall not be surprised to find it very nearly an average. We were fortunate with our crops of Clover hay, and have secured a very fair crop in fine condition. Since we finished we have "smashed up" one field of Clover lev with Howard's cultivator, and made a capital job of it. On the gravelly parts of the field it was very hard, and it was difficult to break it up, whilst on the clay portions of the field, although hard, it broke up admirably. It now lies exposed to the weather, and everything in it possessing vegetable life must, in a few days, be thoroughly destroyed. We have never had such bare and barren pastures as now. We were heavily stocked in the spring, and have consequently all the summer been very short of keeping. Without rain we shall scarcely be able to find sufficient food for the cattle, without resorting to the winter stores. On cool lands our Mangels are growing well, and appear less affected by the drought than most of the other crops. We have finished sowing coleseeds for sheep feed for the winter. The plant has come up well, and is generally healthy and promising, but will not grow much longer with vigour unless we have some moisture. *A. S. R.*

Devonshire: *Stancombe, July* 18.—The grain crops are looking well in this neighbourhood, and are likely to produce far above an average. *Samuel Cornish.*

Gloucestershire: *Didmarton, Chippenham, July* 15. — The general appearance of the Wheat in this neighbourhood, both of autumn and spring Wheat, is very promising; it stands stiff and thick on the ground, and presents a fine ear. With the exception of two or three slight frosts, the last month has been very favourable for the blossoming, Barley, part very good, but some patchy, with thin, white, defective spots, which appear to increase, and moderate rain would do good. Oats generally good, and standing well. Beans and Peas variable, the former appearing till quite lately very promising, but now much blighted, and cannot be expected to yield well; Peas probably will be better. With a continuance of the present fine warm weather, harvest will be early, and if fruitful will be a great blessing to the kingdom generally, and more particularly to the producer, after experiencing some defective seasons. *Stiles Rich.*

Hants: *Eling, Southampton, July* 14.—Wheat crop a little appearance of rust, but on the whole the crop is very promising indeed. Away with the foolish notion that this country is becoming more and more a stock producing and less and less a Wheat producing land—the more wool shorn, the more Wheat and corn. There is no crop which responds so much to good cultivation and high manuring as the Wheat crop, and we hazard the assertion that at the present moment there is a heavier crop of Wheat growing on an equal number of acres than in any other country on the globe. Oats and Barley good; Beans and Peas average, but the former somewhat affected with blight. Roots promising. Potatoes good, but latterly affected with disease. We have had at this place, near Southampton, scarcely any rain during the present month, but in June nearly 4½ inches, and for the six months nearly 14½ inches, more than seven of which have fallen during the last three months. *W. C. Spooner.*—*July* 28.—Wheat has been cut around Portsmouth and south of the Forest. Winter Oats are cut and "isled," crop light and weedy. Spring Oats and Barley (late sown) is blighted and the Wheat slightly so—on the sandy and gravelly soils, the Wheat crops will be light and deficient in straw; but on the strong loams the Wheats hold on and harvest will not be general till the 10th of August. Many have taken to sowing White Wheat, but this variety is not so prolific in yield by a sack, or 6 bushels per acre, and besides, during a wet harvest it soon sprouts, whilst the Red Wheats will sustain any amount of rough weather with proper attention and care. Mangel is good in a few places, but weak and patchy where drilled; the dibbled crops are the surest and most bulky. Swedes are a fair crop, and the fly has not been so busy as during some seasons. Root crops are put in roughly in places, land foul, and Thistles, Lilly and Charlock abundant. The horse hoe, the drill, steam threshing and iron ploughs by Pearce (Poole) and Howard are the favourite implements of husbandry in these days; the flail and the old huge dung-cart are all but exploded. The chief fault of farming is continuous system of cropping foul land, and, "par conséquence" deteriorating crops, and tenants losing money, combined with bad seasons. *X. Y. Z.*

Lancashire: *Holker, Newton-in-Cartmel.*—I never saw the Wheat crops look better than they do this year. The weather the last fortnight has been very favourable for them. Barley looks well. Oats thick on the ground, but rather short of straw; rain would improve them. Beans look well. The hay crop is not heavy, but I never knew it so well saved. Turnips of all descriptions look very promising. Mangels do not look so well. Farmers in this neighbourhood are beginning to tire of them. We can grow so much heavier crops of Swedes than Mangels, and the former are so much better both for cattle and sheep. I know this is contrary to your southern experience. *Geo. Drury.*

Leicestershire: *Knossington.* Wheat, very healthy and promising; Oats, good where got in early, short in straw where late sown; Barley, average early sown, late came up at two growths; Beans, look well; Mangels, bad; Turnips, much injured by the fly; Hay crops, light. *J. Spencer.*

Lincoln: *Wragby.*—Wheat: The early sown Wheats look an average crop; the late sown thin; both are very healthy; an early harvest is expected. Barley: The early Barleys will be an average crop; the late sown very short and thin. Oats: Not quite an average. Beans: Winter Beans an average, unless attacked with filth; spring sown thin. Peas: Nearly an average. Roots: Plenty of plant, but suffering much from the dry weather; the last sown much eaten with fly. *William Dudding, Panton House.*——*Aswarby, July* 21.—The Wheat crops in this neighbourhood vary considerably; generally speaking they are very thin on the ground, but as the weather has been so favourable for their ripening, we hope there will be an average yield. The early sown Barley is looking very well; the late sown has suffered very much from the long continued dry weather. On the whole we believe the Barley will be an average crop. Oats are generally speaking very short, and will scarcely be an average crop. The hay crops were very light indeed, but secured in splendid condition. Mangels are very patchy, only about half the seed having grown on account of the dryness of the soil. Turnips are suffering for want of rain; and the last sown will not come up until rain descends. Potatoes are looking well in the fields, but diseased in the gardens. Harvest will be general here on the 10th August. *Edward Darby.*

Norfolk: *Wymondham.*—According to the present appearance of the grain crops everything is very promising. Wheat is a full average of straw, and grain of first-rate quality. Barley also promises a superabundance of straw, and grain of good quality, save on a few fields of rather dry soil, where the present scorching weather is causing premature ripeness in patches. Oats are a good average crop of straw, and grain, although not so promising as the Barley crop on the cool lands. Beans and Peas about an average yield, the former rather short in stem. Mangel Wurzel and Turnips promise well, but rain would prove very acceptable to everything save the meadow hay now ready to be carted. *T. B.*

Shropshire: *Much Wenlock.*—Our prospect of the Wheat crop this year is far more promising than it has been for the last three years, and if the present glorious weather continues for another fortnight we may anticipate a good average crop; the bulk of straw is not heavy, but the ears have come well out, and are now beautifully in bloom, and the weather is all that can be desired for this critical period in this district; along the whole of the Ludlow range not only dry weather but plenty of sun is absolutely necessary. Wherever the Ludlow rock comes to the surface, anything like a humid or cloudy season is sure to be detrimental to the quality and quantity of the Wheat crop. On the strong loams of this district great difficulty was experienced in getting the land into a proper tilth, and the dry weather setting in caused the Barley to come up very uneven, and consequently the earing also; this probably will deteriorate the malting qualities, and lessen the bushels of the crop when the seed was got in early, and the land properly reduced; the crop is magnificent, and altogether we may look for a good average. Oats, Beans, and Peas very good. The above has reference chiefly to the north side of Cerve Dale. On the south side, with the strong red clays of the sandstone formation, the difficulty of producing a tilth, indeed, in many instances of breaking up the land, was so great that I fear the crop of spring corn will be meagre indeed and as that district is, with the exception of a few bright spots, very thinly supplied with live stock, another year of great difficulty will have to be added to the cultivators of such land, the price of Wheat, their chief dependence, being absolutely below the expense of cultivating. And I cannot help thinking that the landlords have committed an error in adding farm to farm on this description of land; for it is very rare that a man with capital sufficient for more than 200 acres will be content to live in the mud and clay; for, as Mr. Coleman justly observes, to cultivate such land is little better than slavery. Hay and Clover crops very light, but being harvested in splendid order. Turnips very promising. Potatoes looking very healthy and well; nevertheless we occasionally hear of the tubers being much affected with disease. *E. D.*

South Wilts.—Wheat, Barley and Oats luxuriant, now rather "laid" by the late rain. *W. J. P.*

West Dorset.—The crops are unusually promising. *W. J. Pope, Bridport.*

West Sussex, *July* 20.—Harvest is at hand; indeed one or two have begun, and next week it will be general. The Wheat is good, and the Barley where sown in good time is good, but where late sown it is likely to turn off for harvest too quickly. Oats are not perhaps a heavy crop, as a dry season does not suit them so well. Peas are good and are podded well to the top, and coming on to harvest slowly. They are generally ready to carry about the time the Wheat is fit to cut, but this year they will not be ready to cut much before the Wheat. Beans are said to be very good. Potatoes perhaps never looked better, and at present there is little sign of disease, except in low lying places, and very little there. Mangel, though it came on slowly at first during the last month, which was unusually cold, is now going on well; and Swedes sown in the early part of June have come on well, and are now being hoed the second time; but the Turnips, which are not generally sown before the end of June or beginning of July, have not had moisture enough to bring them up regularly, and at present sowing is suspended on account of the drought; and some of the land intended for them, after Vetches, trifolium, &c., has got so hard and dry that it would be useless to sow before rain come, which from the movements of the barometer we may expect before a week passes by. The hay crop is mostly got in; it has been very light, but is got in in good order, and as there is a good deal of old still left there is no fear of scarcity. The pastures are getting very bare; but lean stock are still dear, while fat is a very dull sale, and prices are lower, with an unusually large supply. *G. S.*

STEAM CULTIVATION AT WORCESTER.

A Report by Mr. Smith, of Woolston.

The steam cultivator trials at Worcester are over Let us go quietly through them together to see whether the prizes are awarded upon the terms upon which they were offered.

The prize of 50*l.* for the best application of steam power which may be effectively and safely adopted for small occupiers was worked off first. There were eight entries, viz., Smith, Fowler, Howard, Coleman, Hayes, Savory, Steevens, and Turner, or rather C. Hall.

The first ground was half of it Wheat stubble in 1862, lying unmoved and well baked by the dry summer of 1863, the other half had been ploughed once, and planted with Vetches in the autumn of 1862, and finished clearing off on the morning of trial, consequently it was not so dry and hard as the unmoved stubble of 1862.

Hayes, Smith, Steevens, and Savory's lots were fairly drawn on the hard-baked part, Howard, C. Hall, Fowler, and Coleman were consequently placed on the cool part.

Hayes, after working a Fowler cultivator for a short time broke his drum cogs out to the extent of 15 inches. Smith went very steadily on driving from a 3-foot 10-inches pully on the fly-wheel, and working his engine under its nominal power of 45 lb. pressure per inch, doing his work in a style for quality that could not be surpassed by any one. His next door neighbour Mr. Stevens had the misfortune to pull the tines from his cultivator within a few yards of the start. Savory soon raced over his work, but too fast to leave good work behind him. Howard with a good consumption of power, got through his lighter work pretty well: but not so Mr. Fowler, for he had the mishap of over driving to the extent of blowing the plug out of his engine. Coleman got through very well; but C. Hall did not get to the scratch in time to fairly compete, but in time to show us that his link chain would take some three or four men some hours to screw it together, for a 350 yards furrow and unscrew it again ready for a shift, the cost of which will for ever be a "lame leg" to his fancy chain. Coleman, Fowler, Howard, Savory and Smith were ordered to shift half a mile by another field. According to report Savory shifted, and was ready for work in 30 minutes. Smith shifted, and was fixed ready for a start in 60 minutes: report says, &c. . . . The time actually taken is unknown.

On Thursday the five competitors started at about 10 o'clock, the greater part of the land was Clover lea with a bit of Vetch land at the N.W. corner, the flat over which all the competitors had to cross was Clover lea with the lands running from E. to W.; the furrows were not very deep, the Vetch land was quite as heavy in draught and made less equable work than the Clover lea, although quite as well done.

Coleman's implement soon broke, and put him out of court. Savory after racing away at a fearful pace and breaking his rope once (not at all to be wondered at, with going at such a fearful pace over such hard baked ground) soon finished his two acres. But how was it done? Why not half done. Then what is the good of racing?

Howard worked more steadily, yet hard, to complete his plot in 1 hour 57½ minutes; the hill or flat part of his land was done much better than Savory's, but his furrows running from east to west were left unworked 2 yards in width from end to end.

Fowler made a rough job of it, stopping frequently yet working hard to complete his plot in 1 hour and 57 minutes. The hill or flat part of his land was done very badly, numbers of pieces being jumped altogether. I have examined this the more particularly, Mr. Morton, of Streatley, near Reading, having told me that it was done well. The furrows running on from Howard's plot were jumped, and done worse than Howard's.

Smith worked very steadily, working from his 3 ft. 10 in. pulley, with a pressure on his 10-horse engine of never over 50 lbs. per inch, reducing the wear and tear of his tackle to the lowest point possible, and did his work well from end to end, not even excepting the furrows, which the rest of the competitors never did at all. Time, 2 hours and 30 minutes. Here is the opinion of some men who have since the trial inspected the work:—

"We beg to inform you that we have examined the four plots of land worked (as we are informed) by Fowler, Howard, Smith, and Savory, in competition for the prize of 50*l.* offered for the best application for small occupiers and report that No. 1 is well done, ridge and furrow; that Nos. 2, 3, and 4 are not so well done; No. 4 is the worst. The furrows through these three plots over which the implements crossed were in the main left unworked, therefore the ridge and furrow part of them must be done over again before they can surpass No. 1. The work done on No. 1 is in our opinion of more value than that done on Nos. 2, 3, and 4, especially the latter.

No. 1 (Smith's) is the plot nearest the gate through which we passed into the field, and Nos. 2, 3, and 4 (Fowler's) follow regularly after it. It may be well to state that we have no knowledge whatever as to whose machine did the several plots.

"J. B. Dring, Claxby, Spilsby.
"J. Whiting, Stoke, Goldington.

"Worcester Trial Field, July 21, 1863.
"To Mr. Smith, Newport Pagnell."

"Worcester, July 22.

"We have examined the work done on Thursday and report that No. 1 is by far the best; that No. 4 is the worst, and that Nos. 2, 3, and 4, have missed a good deal down the furrows. We number the plots from the gate going into the field. We entered the field without any knowledge by whom the work on the pieces were executed.

"W. Tibbitts, Wroxhall, Warwickshire.
"John Selkirk, Manor House, Wroxhall, Warwickshire.
"David Burnett Ashley, Stockbridge, Hants."

Mr. Dring and Mr. Whiting I know, but the three gentlemen supplying the last report are strangers to me. One and all agree that the plot nearest the gate was the best, and the one farthest from the gate the wosrt done. The judges have awarded 25*l.* to the worst done, No. 4, furthest from the gate; 15*l.* to the best, No. 1; and 10*l.* to Howard. The 25*l.* must have been awarded to Mr. Fowler because he scratched over his pieces at a few pence per acre cheaper than I did mine, disregarding quality altogether. To have given anything like the quality I did he must have done all his work over again, when his cost would have been doubled and much exceeding mine. To be sure he did some ploughing and digging, that might to some extent weigh with the judges, but to counterbalance that (although I will not turn twitch to the bottom to shelter the everlasting pest) I worked my combined machine in the same field, showing that ploughing and sowing can be done at one operation, besides ploughs can be worked by my tackle; surely then my application, taking it all in all, must have been a better application than Fowler's. It is very simple and durable, and did not break through the trials, whereas Fowler's did break nine clips out of the drum, seven altogether; in fact, the drum was completely smashed on Thursday. Then the prize of 50*l.* ought all of it to have been awarded to me. It was offered in the singular number, and ought not to have been divided; as it is the judges have made milk and water of it. I can understand why it was not awarded to Savory, although he did run the most quickly through his plot, his being two engines clearly beyond the reach of a small occupier.

Now let us go on to Wadbrough and see about the Gold Medal and 50*l.* for the best application of steam power for the cultivation of the soil.

The entries were Smith, Savory, Fowler (two sets), Howard, Coleman, and Steevens.

The first field was a good substantial job, dry and hard—a clean Clover lea; the north side was the toughest as well as the roughest; the east end was rather of a lighter character, with a good deal of sand in it; and the west end was a tough sticky clay, rather warm to work, as Mr. Smith, the tenant, called it. Coleman was fixed No. 1 on the north side, Smith next, then came Savory, Fowler, Howard; and last, on the south, Steevens.

Steevens made pretty good work by very steady working, doing but little until Savory had raced over his plot, and then went to help him.

Savory soon dashed over his, done or not done, or rather done after a fashion.

Coleman soon broke down and was out of court.

Smith having worked on in his steady plodding way, using the least power of any, was the next to come out, leaving, as practical farmers told him, the best work in the field behind him.

Fowler started late with his 14-horse power engine, worked at double its nominal power, came out next, leaving very passable work behind him.

Howard finished very soon after Fowler, leaving very middling work behind him.

Fowler then worked his double engine set, doing some digging that night, and finished his plot on Saturday morning, when Fowler with his two sets, Smith with his one, and Howard with his one, entered the tough rough stuff over the railway, called land, and known eight years ago to have been so poor, that the tenant did not think it worth cultivating, therefore left it to run down of itself, where it has been lying ever since; the dry summer of this year has well baked it, and made it a capital test of power.

Fowler was the first to dash off with his 14 horse engine, but, mind you, very slowly; more than once I heard him wish for more power. The three-tine digger was the implement he used; the rough stuff was very troublesome, rolling back after the implement, filling the furrow, so much that at one time I saw 13 men employed lifting the huge lumps out; upon my remarking it, Mr. Fowler said, "Never mind, I will get two men who can do it." He kept steadily on, and completed his work with one breakage of rope, and some bolts, &c. Altogether he got through well. But the grand question next was—What's to be done to the land? Mr. Torr, one of the stewards, asked me; my reply was, "That it would be a waste of power to touch it again until after the dry suns of this summer and a sharp frosty winter have been over it.

Smith was the next to start, and got off at a depth of from 4 to 7 inches, but could not fix; he did not go far before Mr. Fowler got a chance to laugh at him for choking. "Never mind," was the reply. "I do not care how I get through, so that I get through without a break. Laughing was the order of the day while Smith got the tines of his implement lowered and the wheels properly adjusted to let the huge tough lumps pass through the implement; and, much to the joy of the old fellow, he got through his tough job without a break, but not without a screw, by giving one of his beams a slight twist when he had about half done, which was the only mishap he had during the four days' hard work. But let me here tell you that, tough and rough as his job was, he could easily have got a seed bed on his plot for Wheat next autumn. By passing a clod crusher over it and No. 3 again, the job would have been done.

Howard started next, and got on pretty well by working two tines in the unmoved ground, and one tine in the worked ground, thus doing it over twice, as well as relieving his engine; but the day was not long enough for him to finish—his men left by the train about 8 o'clock.

Fowler after finishing his first plot, then put in his two engines set with the diggers, going straight down the lands; but the lumps fell in just as bad as when he went askew the lands in his first work; he then put on the grubber and bang went his drum before he got to the bottom of the field the first time down.

Thus ended this memorable day's testing of implements against power, for doing practical work it was not. But how goes the prize? The gold medal and 30*l.* to Fowler, and 20*l.* to Savory. What, chopped up again? Why Fowler's 14-horse engine was the master power, and, according to past understanding of the prizes, ought to have had not a shaving but all the prize, and if the judges saw merit in Savory's engine, they ought to have recommended a medal to him. It is not noble of so noble a society as the Royal Agricultural Society of England is, to stretch prizes from the singular to the plural number, and its officers should be careful how they tamper with the terms of its prizes.

In conclusion, I beg to state that the trial grounds at Worcester have been most excellent, and without the Saturday's work the Worcestershire people would not have believed that their tough stuff could have been handled at all. The field management has been quite as excellent, everything in place and in order, as well as fair play to all. I therefore beg to thank the field stewards and judges for their every attention, although I cannot agree with the judgments and awards of the latter; yet I am willing to believe that the mistakes are pardonable. Thus ends the Worcester meeting. *William Smith, Woolston, Bletchley Station, Bucks, July* 29.

WEATHER PROGNOSTICS.

If the clouds in the west are red, with a tinge of purple, it portends fine weather, the reason being that the air when dry refracts more of the red and heat-making rays than when moist, and as dry air is not perfectly transparent, those rays are reflected in the horizon. A coppery or yellow sunset, on the other hand, foretells rain.

A very certain indication of wet weather is in the halo seen sometimes around the moon, which is produced by precipitated water. The observer, though, must not confound the halo with the corona. The former is a luminous circle seen round the moon or sun with a diameter of 20 or more degrees; whilst the corona is a number of coloured rings formed immediately about the moon's place.

When the rainbow appears in the morning, it is a sign of wet; when in the evening, of fine weather. The reason given by Sir Humphry Davy for this is, that as the rainbow can only be seen when the clouds depositing the rain are opposite to the sun, it follows that the morning rainbow must be always in the west, and the evening one in the east. Now, as most of our rain comes with a west wind, a bow in that quarter would indicate that the storm was coming towards the observer; on the other hand, a bow in the east would indicate that the storm was passing from him.

Fair weather is betokened by the swallows flying high: the insects on which these birds feed are always to be found in the warmest stratum of air, and the swallows consequently follow them there. Now as hot air is lighter than that which is colder, it will always occupy the higher position; when, therefore, the swallows are seen flying high, we know that there is no fear of descending currents of colder air; but when they fly low, the warmer air will probably be invaded by the colder stratum descending, and a deposition of water is liable to be the result.

With regard to what may be learnt from the appearances of the sky and clouds, the following general directions will be found useful. As a very good collection of these phenomena, together with the inferences to be drawn from them, they have been brought together by Rear-Admiral Fitzroy, in the publications issued by the Board of Trade, we cannot do better than by quoting the paragraph itself.

"If the first indications of daylight are seen above a bank of clouds, it foretells wind; if the first streaks of light are low, and come from or near the horizon, fair weather may be anticipated. Soft-looking and delicate clouds foretell fine weather, with moderate or light breezes; hard-edged oily-looking clouds, wind. A dark gloomy-looking blue sky foretels wind; but a bright light blue sky a continuance of fair weather. Generally, the softer clouds look, the less wind may be expected; but the harder, more ragged and rolled they look, the stronger will the wind be. Small inky clouds foretell rain; light scud driving across heavy clouds, wind and rain; but if without a background of denser clouds, wind alone. Not unfrequently clouds, at different elevations, will be observed to be going in different directions; whilst the lowest stratum of cloud is moving in the same direction with the wind, the higher and light clouds may be flying across in altogether another course; when this is observed to be the case, it is

usually a sign that the wind will shortly change to the direction in which the upper stratum of air is moving After fine clear weather, the first appearances of a change, in the sky, are small curled or spotty clouds, followed by a gradual clouding in of the sky, formed from an overcasting of vapour. The harder the murky sky appears, the more likely it is to foretell wind; if it looks watery, rain also may be expected. The more distant and higher the clouds are, the more gradual, but extensive, the coming change will prove. When misty clouds and vapours seem to hang or to be spread out over heights, it is a sign of wind and rain; if they rise and disperse themselves, the weather will improve."

The foreknowledge to be gleaned from the close and dawn of day, may be briefly stated as follows, as laid down by Käemtz:—

Since the appearances of twilight depend on the state of the sky, they may serve to foretell, to a certain extent, the weather of the following day. When the sky is blue, and, after sunset, the western region is covered with a slight purple tint, we may be sure that the weather will be fine, especially if the horizon seems obscured with a slight smoke. After rain, isolated clouds, coloured red, and well illuminated, announce the return of fine weather. A twilight of a whitish yellow, especially when it extends to a distance on the sky, is a sign of bad weather for the morrow. Generally, we must expect storms when the sun is of a brilliant white, and sets in the midst of a white light which hardly permits us to distinguish it; the probabilities of bad weather are still more increased when light cirri, that give the sky a dull appearance, appear deeper near the horizon, and when the twilight is of a greyish red, in the midst of which are seen portions of a deep red that pass into grey, and scarcely permit the sun to be distinguished; in this case, vesicular vapour is very abundant, and we may calculate on wind and approaching rain.

The signs to be drawn from daybreak are somewhat different. When it is very red we may expect rain, whilst a grey dawn announces fine weather.

With regard to the appearances of the clouds, the following inferences may be derived: in fair weather the sky is seldom quite clear of small groups of cirrus. Continued wet weather is attended with horizontal sheets of this cloud, which subside presently and pass into the cirro-stratus. Before storms they appear lower and denser, and usually in the quarter from which the storm arises. Steady high winds are also preceded and attended by streaks running quite across the sky in the direction they blow in.

We might sum up these sources of information by remarking that, generally, natural, easy, and delicate tints, with soft undefined and woolly clouds, foretell fine weather; but unusual hues, with striking contrasts of colour, and hard, sharply-marked outlines, usually precede wind and bad weather.

There are some few other sources of foreknowledge which, though not nearly so reliable as the ones we have just enumerated, yet demand some attention from the prudent farmer: we shall therefore give some of them.

Dew is an indication of fine weather, as is also fog. When smoke from chimneys does not ascend readily, but takes a crooked course, it is a sign of a change for the worse. The habits and cries of animals are also thought to be a guide; and, to a certain extent, they are so. Sheep are observed to jump and play about in an unusual degree before rough and wet weather. In winter, when they lie under a hedge, and seem unwilling to go to pasture, it is a sign of a coming storm. When peacocks cry much it is an indication of bad weather. If cocks begin to crow while it is raining, it is said to be a sign that it will soon be fine. The flight of wild geese towards the west, the early appearance of the woodcock and fieldfare, are signs of coming cold.

It has also been asserted that the habits of the spider may afford some hints as to the weather. If the weather be likely to become rainy and stormy, the spider fixes the terminating threads, by which the entire web is suspended, unusually short, and in this state awaits the impending change; on the other hand, if these threads be long, the weather will be proportionately serene. If the spider be completely inactive, rain will follow, but if during rain their wonted activity be resumed, the rain will soon cease, and fair weather will ensue.

From vegetable life we may also draw some conclusions. Most plants expand their flowers in fine bright weather, and close them on the approach of a storm. The down of the dandelion will close in bad weather; but will expand when it is fine. The pimpernel is also a well-known example of a natural weather-indicator: when the flower closes its leaves it will be wet; but when it opens them in the morning, it is a sign of a fine day.

After what we have said about the uncertainty and difficulties in the way of prognosticating the weather, in our country, many hours in advance of the change, we need hardly add that the eye should be always ready to detect the slightest indication of any change. Let not the farmer doubt but that constant and careful attention to these points will prove of infinitely more use to him than all the empirical predictions extant. *Criswick's Weather Guide.*

Home Correspondence.

Pedigree Wheat.—The other week you inserted a report from a gentleman of various kinds of Wheat tried by him over a period of six years from 1855 to 1860, both years' inclusive, and the largest produce he ever once obtained was 56½ bushels per acre. Of the years 1861 and 1862 he says nothing. Now as the object of the above report is to enable agriculturists to judge which is the most profitable Wheat to grow, I may fairly claim, with the same object, to make a bare statement of the produce of the Pedigree Wheat in the almost disastrous season of 1862. In Essex 3 acres of Pedigree Wheat produced 27 quarters, or 72 bushels per acre, and this produce was sold to the miller for 19*l.* 7*s.* per acre! In Ireland it produced 62 bushels per acre, which weighed throughout 64 lbs. per bushel. I beg very confidently to submit these results to my brother agriculturists as a very satisfactory return in pounds, shillings, and pence per acre, which it has always been my object to increase to the utmost. *Frederic F. Hallett.*

Portable Sheds.—A long time ago I think you informed your readers that some ingenious person had invented a portable shed adapted for farming purposes, and subsequently I believe you stated that the inventor had died. Pray, sir, is there no way of resuscitating this invention? As a sheep breeder I feel the want of such an invention greatly, and long to know more about it. *A. F. S.*

Ventilation of National Schools.—Your correspondent "Beta," who kindly reported in your Paper of July 11, upon my success of utilising the heat of the common fire-place to convert it into a ventilating force, to circulate the fresh warmed invigorating atmosphere into the labourer's cottage, will be glad to hear that the same arrangement upon a larger building is now to be seen in operation at the Sandhurst National School, just built, at a cost of over 1000*l.*, by Mr. J. Walters, Esq., M.P. for Berks. In this case my arrangement converts the open fire-grate into a ventilating, warming, and smoke consuming apparatus, that will save one-half the fuel to warm the school room—30 feet by 20 feet; and a class room, 20 feet by 16 feet. I paid the ironmonger 12*l.* for making the stove, ventilators, and regulators, fixing, &c. I have a cold chamber near to hold 1520 feet of fresh air, that I can regulate and supply to my warming chamber, that is 66 ft. of space: it is capable of rarefying the air to supply the circulation into this school room, at ½ a degree to 60° warmer than the external air in summer. The arrangement will enable them to have a cooling circulation of air, without draught at all seasons. My object is to make the climate of external atmosphere in-doors—to improve the health of the children we hope to bring up to be men and women. My plan is to keep the rooms full of air, life-sustaining, and healthy, and this depending upon ourselves. Cold or warm good air has the property of supporting life, but bad air destroys life. Air in circulation promotes health, but in a state of stagnation disease. Ventilation signifies more air, more air, more air! It is not any use saying we require 300 feet of space for each person, or any other quantity, more or less. The most air at a proper temperature without waste of fuel is what we want in our building,—that air to support life. *Joseph Newton.*

English Agricultural Society.—Some time since, Mr. Beale Browne made two suggestions with respect to the Royal Agricultural Society, which well deserve to be freely ventilated. One was, that at the annual meeting in May, the members of council should be elected by the members generally, by means of voting papers, not merely by the few who can attend. The other suggestion was, that the retiring members of council should not be eligible for re-election until a certain time had elapsed. I doubt the wisdom of the latter suggestion, as it is calculated to deprive the society of some useful and active members; at any rate, their retirement should not extend beyond one year. Nothing however can be better than the other suggestion, as to election by voting papers, and I can promise Mr. Browne the support of some members whenever he may choose to bring forward his proposition. However valuable may be the services of the noble lords, gentlemen, agriculturists and amateurs who now compose the council, yet it must not be forgotten that the main strength of the Society resides in the members generally, who, scattered through the length and breadth of the land, make up by their annual subscriptions the principal part of the princely income of the Society, an income which enables it to surge over such difficulties as that caused by the lavish expenditure and insufficient return at Battersea without inconvenience. Such being the case, not only should the interests of the members generally be a foremost consideration; but the system which answers so well with most commercial institutions, that of allowing every member who pleases the power to vote for any members of the Council without the expense to himself of taking a long journey for the purpose. *W. C. S.*

The Suffolk Show.—Nothing could be better or better managed than the late show at Ipswich. The Suffolk cart-horses, which always form the principal attraction of the exhibition, and which we were glad to see very free from bad feet and other defects, were well supported by the goodness of the other departments. Two roped enclosures were devoted to two sets of horse judges, who had no occasion to leave the ring until their labours were completed, and who worked on without respite for some 4 or 5 hours, enabling the public to inspect closely all the remaining stock and at some little distance those animals that were undergoing the judges' examination. It would have been well if some of the stewards of the Royal had been present, as they might have learnt a few lessons, and been enabled to avoid some of the inconveniences which existed at Battersea, where the public pressed by hundreds between the judges and the animals. *W.C.S.*

Steam Cultivation at Tarbat Mains.—In your impression of the 4th ult., I see Mr. Smith complains that Mr. Morton has not classified the steam ploughs and cultivators right. I beg to state that our plough was patented by Messrs. Oliver & Chandler. The plough and all the other apparatus were supplied by Messrs. Howard. I believe Mr. Smith has a right to claim the windlass, anchor, and rollers. If the above had been asked by Mr. Morton I would have answered it. *John Elliot.*

Boiler Explosions.—The frequent boiler explosions which have recently occurred are once more drawing attention to the causes of these death-spreading events. There is one similarity of circumstances in connection with all these recently reported explosions to which I refer, and that is, they have invariably taken place when the engine was not at work; when it had been temporarily stopped (generally during meal-time), the steam being kept up with the object of renewing work as speedily as possible when the time allotted for the meal has expired. The explosions at present referred to have occurred in manufacturing districts; but like accidents, at similar periods of temporary cessation of work, have frequently occurred in agricultural districts. It may be useful therefore to call attention to the report of Mr. J. Hetherington, an engineer of Leeds, who, on occasion of the explosion of a steam boiler attached to a woollen mill at Morley, near that city, was instructed by the coroner to make an examination into the causes of the accident, and reported as follows:—"In my opinion the cause of the explosion was the feed valve not being screwed down, having got set fast with ashes getting between the lid and seat of the valve, so that when the engine was set down at half-past 8 o'clock for breakfast, the pressure of steam forced the water out of the boiler and through the check valve till it got down below the fireboxes and flues to the depth of 6 inches or 7 inches, so that the steam coming in contact with the hot flues it became superheated, and in a short space of time got so high in pressure and temperature that by the small capacity of the safety valve causing a larger amount of stress upon the overheated plates of the boiler they tore asunder, and, giving vent to the elastic power of the steam, was quite sufficient to account for the result which followed—namely, the demolition of the buildings and the projection of the boilers, flues, &c., into the position in which they were found. I cannot close this report without recommending to the millowners the necessity of having two safety valves to each boiler, and made in capacity and form to suit the size of the boilers." The question of having two safety valves to agricultural steam engines was one of the points discussed at a Royal Agricultural Society's Wednesday's meeting last year, and if I remember rightly more than one engineer then present recommended their adoption. Employers of steam power cannot be too cautious and watchful. Perhaps therefore drawing attention to safety valves—their condition and number—may be of service to some of your readers. *Ed. Holland, Dumbleton, Evesham.*

Societies.

ROYAL AGRICULTURAL AT WORCESTER.

The 25th meeting of the Royal Agricultural Society of England stands very high on the list for usefulness and success. Measured by the number of its visitors and by the sums received for entrance to the show-yard, it stands with Warwick, notwithstanding that the district visited is strictly agricultural, and there is no great population in its immediate neighbourhood. The following is the order of the meetings hitherto, and of the Society's experience as to attendance:—

Date.	Place.	Town Contribution.	Paid for admission.	Implement exhibitors.	Head of Cattle exhibited.
		£	£		
1839	Oxford	..	..	..	350
1840	Cambridge ..	..	..	..	451
1841	Liverpool ..	..	..	..	463
1842	Bristol	..	..	84	497
1843	Derby	..	..	113	603
1844	Southampton ..	1000	2432	99	716
1845	Shrewsbury ..	1000	1682	98	527
1846	Newcastle ..	1000	2168	110	775
1847	Northampton ..	1200	2473	142	580
1848	York	1000	2514	146	866
1849	Norwich ..	1000	2360	145	799
1850	Exeter	1260	2493	118	769
1851	Windsor ..	600	3397	..	1226
1852	Lewes	1500	1184	105	828
1853	Gloucester ..	1500	2734	128	931
1854	Lincoln ..	1500	3378	130	931
1855	Carlisle ..	1400	3260	121	1076
1856	Chelmsford ..	1200	2988	151	906
1857	Salisbury ..	1500	3447	166	1462
1858	Chester	1800	6187	197	1444
1859	Warwick ..	1500	5459	246	1601
1860	Canterbury ..	1500	2689	204	891
1861	Leeds	1500	9855	358	1027
1862	Battersea ..	——	9540	342	2000
1863	Worcester ..	4500	5400	330	1219

The class of implements to which this year the

awards of prizes had to be made included steam-engines and barn works. The award is given below. It is in its very nature more trustworthy than such awards generally are. The amount of efficient power given off by a steam engine is capable of accurate measurement by the dynamometer. The time and labour spent in threshing 500 sheaves of corn are both capable of accurate measurement, and although possible errors of judgment come in when the quality of the work is estimated, yet that is a liability of less importance in this than in any other case. The clearness of a sample of grain, or of straw, can be estimated without much difficulty.

The awards of the judges are given below. And we shall next week give the report of the performances of the several machines, examined and drawn up by Mr. Amos, along with a more detailed report of the yard and implement show generally than we have yet been able to prepare.

AWARD OF THE JUDGES OF IMPLEMENTS.

JUDGES.

STEAM CULTIVATORS.	THRASHING MACHINES.	STEAM ENGINES.	DRESSING MACHINES, &c., AND MISCELLANEOUS.
Messrs. H. B. Caldwell.	Messrs. J. Hicken.	Messrs. J. V. Gooch.	Mr. G. M. Hipwell.
C. Sewell Read.	W. Chalcraft.	D. K. Clarke.	
Jacob Wilson.	G. Martin.	J. Stewart.	The Rev. A. Rigg.
William Owen.			

THRASHING AND FINISHING MACHINES.

AMOUNT OF PRIZE.	NAME.	KIND OF IMPLEMENT.
£		
25 ..	R. Hornsby & Sons	Portable Combined Thrashing Machine.
15 ..	Clayton, Shuttleworth, & Co. .	Portable Combined Thrashing Machine.
10 ..	Wallis, Haslam, & Steevens ..	Portable Combined Thrashing Machine.
20 ..	R. Hornsby & Sons	Fixed Combined Steam Thrashing and Finishing Machine.
Silver Medal ..	Holmes & Son	For method of Bagging Chaff in a Portable Combined Thrashing Machine.

COMMENDED.

Robey & Co. .. Portable Combined Thrashing Machine. | Holmes & Son .. Portable Combined Thrashing Machine.

STEAM ENGINES—PORTABLE.

£		
	12-HORSE POWER.	
10 ..	Hornsby & Sons	Portable Steam Engine.
7 ..	Clayton, Shuttleworth, & Co. .	Portable Steam Engine.
4 ..	Tuxford & Sons	Portable Steam Engine.
4 ..	Barrett, Exall, & Andrewes ..	Portable Steam Engine.
	8-HORSE POWER.	
9 ..	Tuxford & Sons	Portable Steam Engine.
8 ..	Barrett, Exall, & Andrewes ..	Portable Steam Engine.
7 ..	Clayton, Shuttleworth, & Co. .	Portable Steam Engine.
1 ..	Homes & Sons	Portable Steam Engine.

COMMENDED.

Brown & May .. .. .. Portable Steam Engine.
James Haywood, Jun. .. .. Portable Steam Engine.
Ellis & Sons .. .. .. Portable Steam Engine.
Parsons .. .. Portable Steam Engine.
Brown & May .. .. .. Portable Steam Engine.

STEAM ENGINES—FIXED.

£		
15 ..	Barrett, Exall, & Co.	Fixed Steam Engine.
15 ..	Crayton, Shuttleworth, & Co. .	Fixed Steam Engine.
10 ..	Hornsby & Sons	Fixed Steam Engine.

HIGHLY COMMENDED

James Ferrabee .. .. .. Fixed Steam Engine.

STEAM CULTIVATORS.—CLASS 1.

Gold Medal and 30*l.*	John Fowler	Fourteen-horse Set of Steam Ploughing Machines, complete—1st Prize.
Gold Medal and 20*l.*	William Savory & Son	Two Ten-horse Self-propelling Winding Engines—2d Prize.
Silver Medal ..	William Steevens	Four-furrow Steam Plough and Cultivator combined—3d Prize.
Commended ..	Coleman & Sons	Set of Steam Cultivating Apparatus.

STEAM CULTIVATORS, FOR SMALL OCCUPATIONS.—CLASS 2.

£		
25 ..	John Fowler	Ten-horse Set of Steam Ploughing Machinery, complete—1st Prize.
15 ..	William Smith	Ten-horse Set complete of Steam Ploughing Machinery—2d Prize.
10 ..	J. & F. Howard	Ten-horse Set complete of Steam Ploughing Machinery—3d Prize.

HAND DRESSING MACHINES.

15 ..	Joshua Cooch	Hand Dressing Machine.
10 ..	William Sawney	Hand Dressing Machine.
5 ..	R. Hornsby & Sons	Hand Dressing Machine.
6 ..	John Penny & Co.	Corn Screens.
4 ..	Robert Boby	Corn Screens.

BARLEY HUMMELLERS.

3 ..	Barrett, Exall, & Andrewes ..	Barley Hummellers.
2 ..	Robert Boby	Barley Hummellers.

MISCELLANEOUS.

Silver Medal ..	Amies & Barford	Wrought-iron Water Ballasting Roller.
,, ..	H. Mackinder	Potato Separator.
,, ..	E. Humphries	Portable Clover Machine.

COMMENDED.

Wallis, Haslam, & Steevens — Patent Steerage attached to Drill.
Clarke & Son .. .. — Adjustable Scythe.
A. W. Gower & Son .. — Combined Corn Distributor.
W. S. Underhill .. .. — Cheese Press.
Seaman & Tipping .. .. — "Excelsior" Steel Whippletrees.
R. Hornsby & Sons .. — Root Pulper.

DURHAM COUNTY: *July* 28.—At the annual exhibition here to-day Mr. J. Wilson's DUKE OF TYNE, Short-horn bull, won the prize in the class of old bulls, being placed as he was at Worcester. In the cow class Mr. Booth's *Soldier's Bride* beat Lady Pigott's *Pride of Southwicke*. They were respectively 1st and 2d.

Reviews.

An Address, on resigning his Professorship, to E. Holland, Esq., M.P., Chairman of the Agricultural College, Cirencester. By James Buckman, F.G.S., F.L.S., F.S.A., &c., Professor of Geology and Botany. —Cheltenham and Cirencester.

This pamphlet, though nominally an address to the chairman of the Council of the Royal Agricultural College, is really an address to the public, to whom it relates the history of Professor Buckman's connection with the Agricultural College during the Principalship of the Rev. J. Constable.

There are three letters published in its pages. It appears to us that the first of these, which seems to have been given up to Professor Buckman "to be burned," ought not to have been published.

The second, which is from Mr. Holland, is of no public interest. The third, which conveys the resignation of Professor Buckman's connection with the College, is a public document which was certainly within the professor's power to publish if he chose, and to it alone we shall here refer. It is not for the purpose of discussing the recent management of the institution, which has resulted in the retirement of its professors, that we do this. The management of the College and the treatment of its professors have been discussed sufficiently often here; and one has to consider in the further discussion of this subject that which they too in the most praiseworthy and disinterested manner have declared paramount — the interests of the institution as a school of agriculture. At the recent meeting of the Royal Agricultural College Club at Worcester, nothing was more striking than the way in which those who spoke—injured as they felt themselves to be—retiring with loss of income and position from offices which formerly they had held with honour and with satisfaction to the Principal and all concerned—yet yielded the first and most important place, in the few and gentle references which were ventured, to the future prosperity of the College itself.

The injury, wherever the responsibility of it lies, and whether the College, or the professors, or both, be sufferers, has been experienced; and the chief object now is to promote the future interests of the institution. It is not, therefore, to recall the state of feeling on the subject which existed at the end of last year, when Professor Buckman's resignation was sent in, that we refer to the pamphlet at present—but to do an act of simple justice in a matter where Professor Buckman has been injured through his services in these columns. We learn from the letter conveying his resignation that he had been accused to the Principal as having "brought disgrace" upon himself "as an analyser of seeds;" and from a comparison of dates somewhat imperfectly given, as well as from direct reference to the *Agricultural Gazette*, it appears that this charge, founded on an example reported in our own columns, had been hurriedly laid against him, before the case to which reference was made was concluded, and before, therefore, it could be fairly determined whether any error had been committed. Mr. Buckman justly complains of this charge, both because he knows its groundlessness, and also because the haste with which it was urged may very fairly be assumed to imply the existence of a prejudice against him on the part of his accuser.

The case in question arose out of two reports having been published of two samples of seeds sent by two different correspondents, which were afterwards alleged to have been taken out of the same bulk. In the one report the Clover was declared to have been mixed with 24,960 weed seeds per pint, "mostly plantain;" and in the second the Clover, it was said, was mixed with plantain to the extent of 17,700 seeds per pint, "in all probability added as a desirable pasture plant." Of the one a half-pint sample was sent, and of the other an ounce. Our assertion at the time was that the opinions thus given, though alleged by the seedsman to be utterly irreconcilable, "were as nearly identical as two handfuls of seed taken out of the bag before and after a journey were likely to be." So far from disgracing himself, Mr. Buckman had given a true and accurate account of the two samples, and considering the differing circumstances under which the samples reached him, they were wonderfully alike. But two samples of Grass seeds accompanied these Clovers; and his reports here differed very materially. What reason, however, have we for supposing that less care was directed to the examination of these received at the same time? And what but prejudice or the assertion of a foregone conclusion should lead any one to accept the report of the seedsman as necessarily true, in order that the report of the analyst might be effectually condemned?

If the reports differed, so also we believe must the samples to which they referred. We are indeed assured that they belonged to the same bulk; but notwithstanding this assertion, there is no certainty on this point. Nor is there any certainty as to the samples having been taken in the same way? Besides, as we stated at the time, "it must be remembered—1st, that an opinion must, either purposely, or unconsciously, always to some extent, be given relatively to the research which may be occupying the mind of the analyst at the time; and it is quite possible that a mixture which, when discussing the proper combination of species in good Grass seed, he has pronounced 'better than usual,' might at another time, when his attention was directed to the quantity of dead and worthless admixture present, be declared 'an inferior sample.' Surely there is such a thing as an 'inferior sample' of even good Grass seeds. 2d, it must be recollected that the sample sent by 'J. S.' is not the same as that afterwards examined for 'A. M.,' though both are alleged to have been taken indiscriminately from the same bulk. And 3d, all these samples come anonymously before the reporter, whose sole object it has been to arrive at the truth regarding the seeds supplied to farmers; and there is no opportunity whatever given for the operation of any possible bias."

We agree with Mr. Buckman in his protest against both the haste and injustice of the charge which was based on these reports. And though he is himself the publisher of the charge, which has heretofore been merely the private expression of an opinion—yet, believing that this opinion has injured him, and certain that his work as an analyst of seeds has been honestly, skilfully, and usefully performed, we think he is right to let the public know how the matter stands.

We cannot but believe with him that some injury was done to him by the communication of the opinion in question; and we should be glad to see the stigma which it affixed removed by the same hand which too hastily, and as we believe, in ignorance affixed it. For we confidently believe that Professor Buckman has done honest, skilful, and useful work as a seed analyst.

Miscellaneous.

Pauper Agricultural Colony in Holland.—45 years ago a public meeting was holden at the Hague, for the purpose of establishing a general pauper agricultural colony. 20,000 members enrolled themselves, and the Society received the hearty support of the King of the Netherlands. A Dutch officer, General van den Bosch, who had lived for some years in Java, and had there studied agriculture under a Chinese mandarin, had lately returned to his native country, and had succeeded so well in putting his lesson into practice, that he sold an estate for nearly eight times the sum which he gave for it. He published a tract, in which he advocated the establishment of agricultural colonies, and became the leading member of the new benevolent association. In a short time 70,000 florins (5833*l.*) was subscribed, and an estate was bought near the town of Steenwyk, on the confines of Friesland, Overyssel, and Drenthe, and on the eastern border of the Zuyder Zee. It consisted of 1300 English acres, of which a part was badly cultivated, and 200 acres were mere heath land. For the whole the Society paid 4660*l.* The river Aa, which runs through the estate, was deepened, so as to make it navigable, and houses were erected for 52 poor families. To each family was granted about seven acres of land, and, in addition to this, an outfit in clothing, two cows, and ten sheep, furniture and implements were given, and money for seed &c., was advanced, so that the total expense of each family was 141*l.* 13*s.* 4*d.* This sum the family was expected to repay to the Society in rent and bour in the course of 16 years. The whole colony was

subject to a strict discipline. The great feature of the cultivation was a most extensive manuring, amounting to 20 tons an acre. The preparation of compost thus became a most important operation, and for this purpose the cattle stalls were constructed so as to preserve every particle of manure. The good work prospered. It was found that a profit of more than 8*l.* an acre was made after paying the rent and advances. The colony found imitators, and in a very few years after the formation of this one of Frederick's Oord, the number of paupers thus converted into farmers was estimated at 20,000. *Bath and West of England Society's Journal*

Calendar of Operations.

JULY.

Wester Ross: *July* 13. Turnip sowing was generally completed previous to the end of June, and since that time our hands have been busily employed in singling Swedes, and the earlier sown common Turnips. All our Turnips brairded quickly, and regularly, and have come to the hoe so speedily, that in another week the first hoeing will be nearly completed. The Swedes are spreading over the ground, and are giving the fields, seen from a distance, a green tinge; but with a continuance of the dry weather we now have, this state of things cannot long continue. For about three weeks we have had no rain, whilst a brilliant sun, and scorching winds have, as speedily as they can; been extracting from the ground the latent moisture, and although little actual damage has as yet resulted, Grass on the lighter soils is beginning to fade, and the crops where there is little depth of soil are withering away. Should the drought continue, the Wheat cannot be seriously affected, as it has now nearly reached its full length, and dry sunny weather is what it most requires to bring it to maturity; but Oats might yet be greatly damaged, as the years are only beginning to appear, and as they require repeated showers to secure a full crop. Should the weather be favourable the crops in this neighbourhood would be a full average; Wheat is generally somewhat thin, but is well strawed, and will we expect be a well yielding crop. Barley is unequal, some fields being very heavy, and not a few unusually light; it is now getting well into ear. Only a short time ago Oats had a very promising appearance, on all the heavier soils they yet look well, and with early showers would still generally be an abundant crop. Potatoes are very irregular; on the lighter soils, and where early planted they never looked better; but on clayey soils from the want of the pulverising action of frost, they are stunted and unpromising. The weather is particularly suitable for hay making, and the work rapidly advances; the crop, however, is not heavy, as there is a general lack of clover. Pasture Grass until now has been unusually abundant, and the stock have been thriving satisfactorily.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.
By the Rev. J. Slatter, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Friday ..	July 24	30.19	65	56	W.	1	5	66	42	79	37	..
Saturday ..	25	30.00	65	58	N.W.	3	9	66	53	73	45	..
Sunday ..	26	30.23	58	52	N.	1	6	66	43	76	38	0.28
Monday ..	27	30.29	70	60	N.E.	1	0	70	43	86	38	..
Tuesday ..	28	30.18	67	59	S.E.	0	6	74	46	90	41	..
Wednesday ..	29	30.13	62	53	N.	1	9	74	53	91	46	..
Thursday ..	30	30.28	65	58	W.	0	5	75	50	92	42	..

Notices to Correspondents.

Alopecurus: *Waltham.* The seeds sent belong to this genus; but whether it be a rough variety of A. pratensis (Meadow Foxtail), or a distinct species, it is difficult to say from the seed alone. *X Y Z.*—The usual practice with regard to the droppings on the pastures is to knock them abroad when they have arrived at a certain degree of consistency. We believe that an old man and donkey cart might be usefully employed constantly during summer in collecting them and forming a heap, wherever there is extent and herd enough to give him work.

Tolls: *S W.* We are not learned in the law. But we may say that, if it is an ordinary turnpike on a public road to which you refer, we imagine you are exempt in all the cases put, unless it be the last.

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STEAM PLOUGHING AND CULTIVATING PATENTS.

RANSOMES & SIMS, Orwell Works, Ipswich,

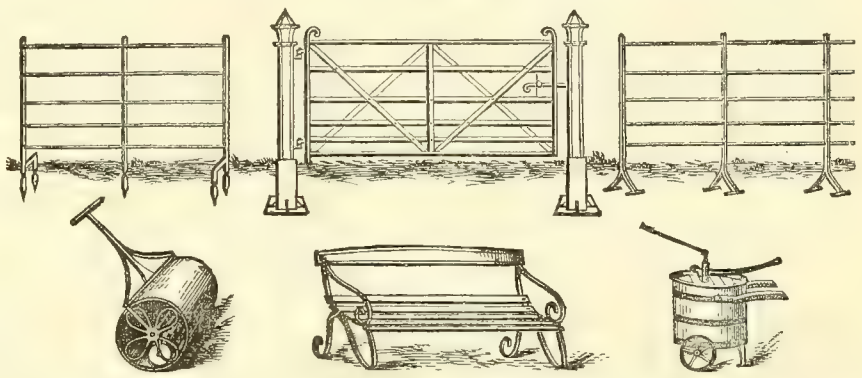
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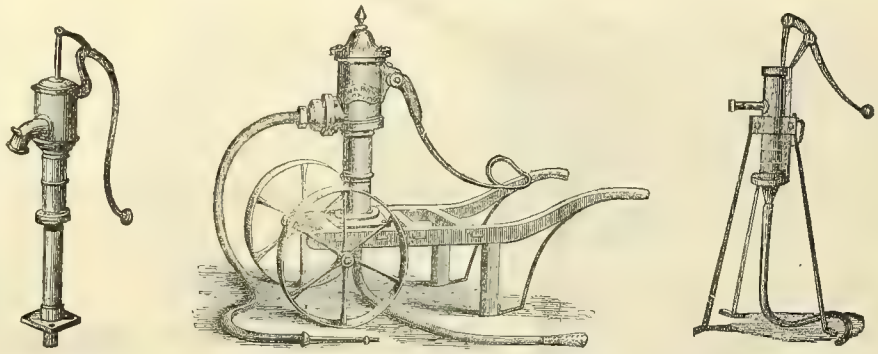
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2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
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Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump one man will force the water in a continuous stream to a height of 50 feet.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER and SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

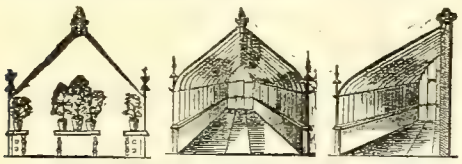
Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon



an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.



LATEST IMPROVEMENTS IN
Heating by Hot Water.
THE IMPROVED
CONICAL BOILERS,
For HEATING PINERIES, CONSERVATORIES, GREENHOUSES, MANSIONS, HALLS, WAREHOUSES, &c.,
SOLELY MANUFACTURED BY
BURY AND POLLARD
(Successors to JOHN R. PEILL, Late STEPHENSON & PEILL).

Annexed Sketch shows BURY & POLLARD's improved arrangement, requiring
NO BRICKWORK SETTING.

These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United kingdom. References where they have been 20 years in constant use.

Price Lists on application to BURY & POLLARD, Park Iron Works, New Park Street, Southwark, London, S.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

West of England, Ireland, and Wales.

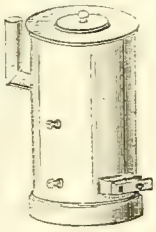




VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER. HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.

VINCENT SKINNER, Bridewell Street, Bristol.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

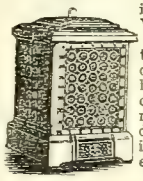
Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.—This Stove is the nearest approach to Warming by Hot Water, and an efficient aid in Ventilation.



It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for Small Conservatories, with a vapour chamber, which maintains a moist atmosphere for 12 hours with once filling.

Particulars and prices post free on application to MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

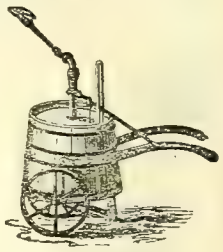


Fig. 571.

J. TYLOR & SONS'
GALVANIZED IRON TUB GARDEN ENGINES,
with Registered Spreader.

8 gal.	12 gal.	16 gal.
2 13 6	£3 5 0	£3 15 0
24 gal.	30 gal.	
£5 0 0	£5 18 0	

J. TYLOR & SONS'
OAK TUB GARDEN ENGINES,
with Registered Spreader.

15 gal.	28 gal.
£5 12 6	£7 2 0



Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 8 0 each.
No. 2. Ditto ditto .. 1 2 6 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,

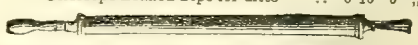


Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 11*s.* 6*d.* each.
,, 589. Middle Ditto ditto .. 10 3 ,,
,, 588. Small Ditto ditto .. 9 0 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 7 6 ,,

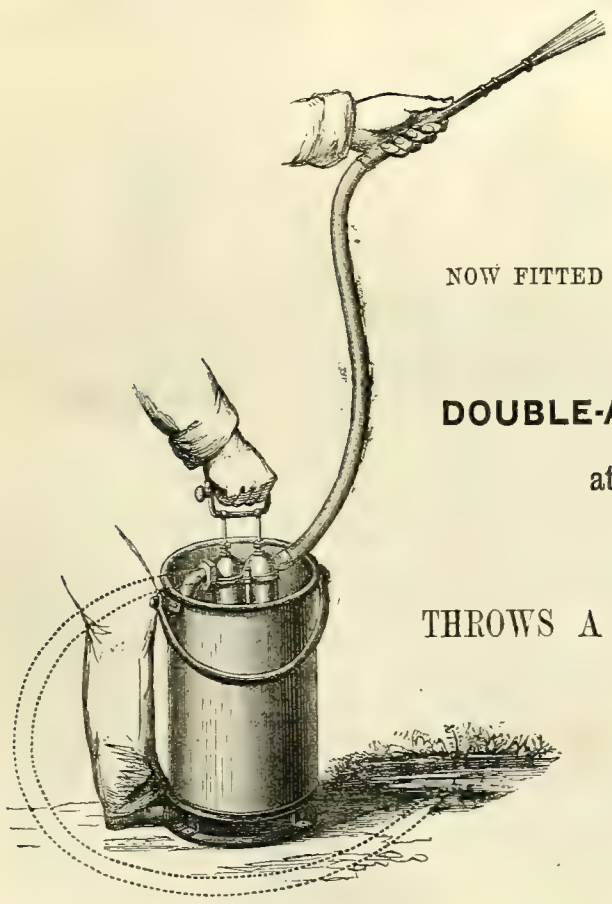


Fig. 591. READ'S SYRINGE, with two roses and one jet, 17*s.* 6*d.*
READ'S SYRINGE, with one rose and jet, 15 0
,, 592. Improved ditto ditto large 14 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

WARNERS' IMPROVED PATENT,



NOW FITTED WITH AN AIR VESSEL,

IS THE ONLY

DOUBLE-ACTION ENGINE

at £2 2s.

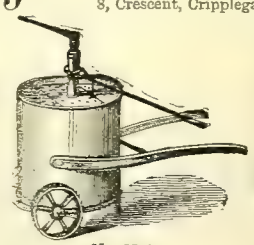
THAT

THROWS A CONSTANT STREAM.

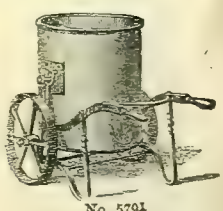
May be obtained of any Ironmonger or Seedsman at the above price, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.



No. 554½.



No. 579½.

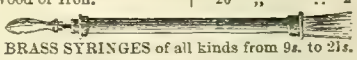
WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons ..	.. £2 15 0
16 ,, ..	.. 3 15 0
24 ,, ..	.. 5 0 0

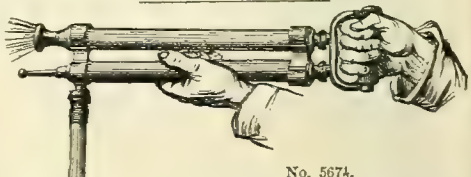
Larger sizes may be had in either Wood or Iron.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	.. £2 10 0
20 ,,	.. 2 0 0



BRASS SYRINGES of all kinds from 9*s.* to 21*s.*



No. 567½.



WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 5 feet Flexible Suction Pipe,

21s.

Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

THERE ARE NO SUCTION OR DELIVERY VALVES, hence MUCH FRICTION AND LIABILITY TO CHOKE with leaves and dirt IS AVOIDED.

JOHN WARNER & SONS, 8, Crescent, Cripplegate, London, E.C.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c. the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

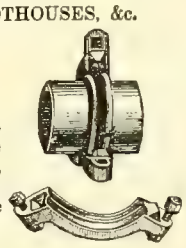
Sizes and Prices on application.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

JOHN TAYLOR & SONS,

HORTICULTURAL BUILDERS AND ENGINEERS,

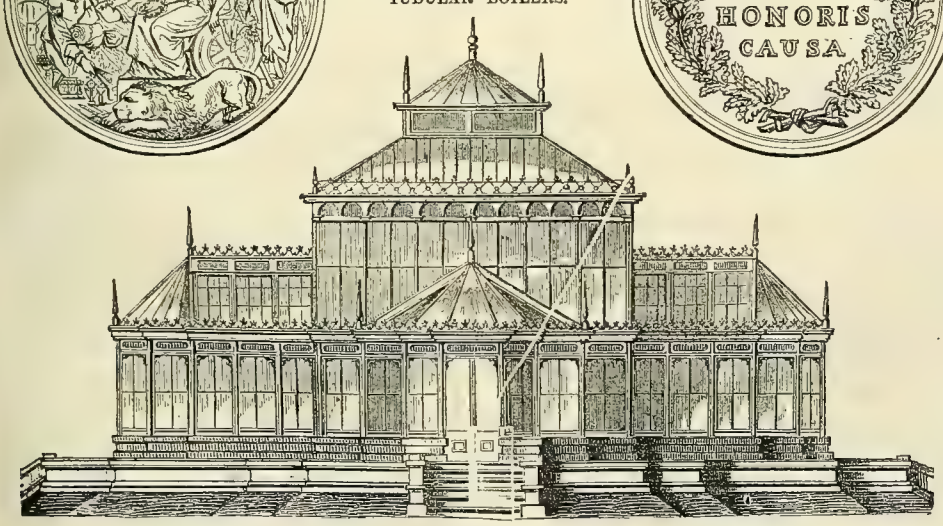
HARROW ROAD, LONDON, W.



INTERNATIONAL EXHIBITION,
CLASS IX., 2191.

PRIZE MEDAL
For CONSERVATORY,
DOUBLE CHAMBER CORRUGATED
and HORIZONTAL
TUBULAR BOILERS.





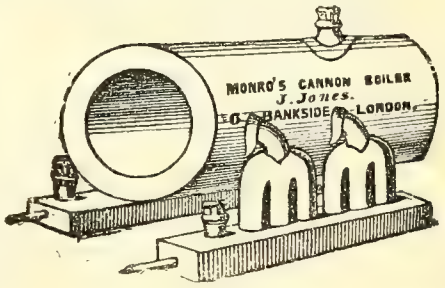
J. TAYLOR AND SONS call the attention of the Nobility and Gentry to the very superior manner in which they erect CONSERVATORIES, VINERIES, FORCING, FRUIT, and PLANT HOUSES of every description combining the most modern improvements with elegance of design and durability of materials and workmanship.

Our VENTILATING APPARATUS for the Roofs and Fronts of Horticultural Buildings, &c., supersedes any now in use, as being the most simple and effective in its action.

Our system of HEATING APPARATUS for Churches, Public Buildings, Mansions, Schools, Offices, Baths, Horticultural Buildings, &c., is particularly worthy of notice, we having for many years devoted especial attention to this branch. The great variety of work which has passed through our hands has gained us such experience in the mechanical details as to insure success and entire satisfaction in any undertaking entrusted to our care.

The superiority of our DOUBLE-CHAMBER CORRUGATED and HORIZONTAL TUBULAR BOILERS has caused them to be acknowledged as the best now in use, being both powerful and rapid in action.

HEATING BY HOT WATER.



MONRO'S CANNON BOILER.

J. JONES,

HORTICULTURAL ENGINEER AND IRON MERCHANT,

SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

HEATING GREENHOUSES,

CONSERVATORIES,

FORCING PITS,

CHURCHES, CHAPELS, SCHOOLS,

HALLS,

BILLIARD ROOMS,

COACH HOUSES, HARNESS ROOMS, &c.,

OF THE BEST QUALITY, AND AT MODERATE CHARGES.

PLANS, ESTIMATES, and DESCRIPTIVE CATALOGUES

SENT POST FREE ON APPLICATION TO

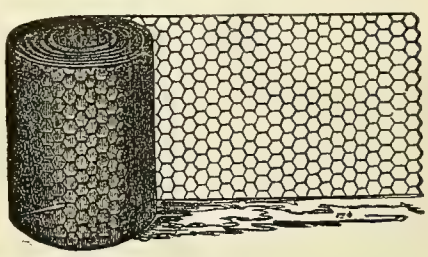
J. JONES,

6, BANKSIDE, LONDON, S.E.

BARNARD, BISHOP, AND BARNARDS,

Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.

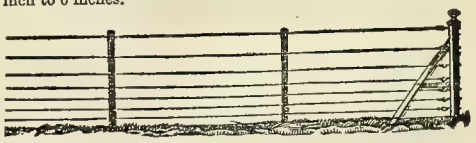


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard.
2-inch mesh, 24 inches wide ..	No. 19	4½*d.*	3½*d.*
2-inch " " " .. "	18	5	4
2-inch " " " .. "	17	6½	5
2-inch " " " .. "	16	8	6½
1⅝-inch " " " .. "	19	4¾	4
1⅝-inch " " " .. "	18	6	4¾
1⅝-inch " " " .. "	17	7	5½
1⅝-inch " " " .. "	16	9	7

All the above kinds can be made any width (under 6 feet), at proportionate prices.

Strong Galvanised Poultry Netting, 7½*d.* per yard, 3 feet wide, Galvanised Sparrow-proof Netting for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10*d.* per yard.

The same with Galvanised Wire Rope, 1*s.* per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

CLARK & HOPE

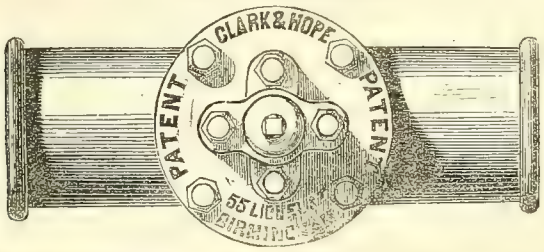
(LATE CLARK),

55, LIONEL STREET, BIRMINGHAM.

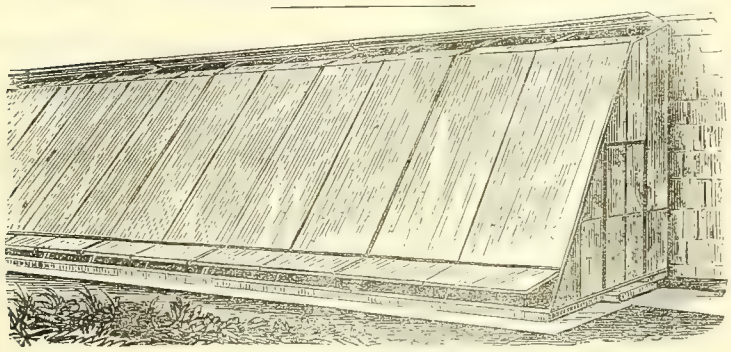
ESTABLISHED A.D. 1818.

HORTICULTURAL BUILDERS AND HOT-WATER APPARATUS MANUFACTURERS.

BY ROYAL LETTERS PATENT.



NEW STOP VALVE FOR WATER, STEAM, OR GAS.



NEW TREE COVER.

CLARK AND HOPE'S TREE COVERS are constructed on an entirely new principle, and being fixed by means of Bolts and Screws are Tenants' Fixtures.

The Wall Plate and Gutter (in one) are of cast-iron, the Rafters, Bars, and Doors, of rolled iron.

They are made 6 feet, 7 feet, and 8 feet wide at bottom, 2 feet wide at top, and up to 14 feet high, as may be desired, and can be glazed with or without putty. The Flap at the top and the Sashes at the bottom are made to open, by means of simple and durable machinery, of any length within 50 feet at one operation.

Lithographed Designs of Horticultural Buildings upon application.

CARSON'S

ORIGINAL ANTI-CORROSION PAINT.

WHITE		BRIGHT RED	Per cwt. 26s.
LIGHT STONE ...	Per cwt. 30s.	DARK DO. (or BRICK COLOR)	
BATH DO.		CHOCOLATE COLOR	
CREAM COLOR		BLACK	
LIGHT PORTLAND STONE ...		BRIGHT GREEN	44s.
DRAB or PORTLAND DO. ...		DEEP GREEN	
LIGHT and DARK OAK ...	26s.	BLUE	
LEAD COLOR			

PATRONISED BY

THE BRITISH GOVERNMENT	THE LAMENTED PRINCE CONSORT	RAILWAY AND CANAL COMPANIES
THE RUSSIAN GOVERNMENT	MOST OF THE NOBILITY & GENTRY	COLLIERIES, IRON MASTERS, &c.

It is extensively used at home and abroad for all kinds of

OUT-DOOR WORK,

and has been proved, after a practical test of 70 years, to surpass any other Paint. It is applicable to WOODEN HOUSES, FARM and other OUT-BUILDINGS, PARK FENCING, GATES, &c.; also IRON ROOFING, BRIDGES, HUEDLING, and every description of Iron Work, while for

PUBLIC EDIFICES, MANSIONS, VILLA RESIDENCES,

and every kind of BRICK, STONE, COMPO, &c., it is unrivalled, presenting the appearance of fine cut stone.

It is undoubtedly the only Paint that will stand on

CONSERVATORIES, GREENHOUSES, FRAMES, &c.

and is in consequence largely used by the Nobility and Gentry, also many eminent Horticulturists, for such purposes. The ANTI-CORROSION is LOWER IN PRICE, and LASTS TWICE AS LONG as the Best White Lead; at the same time is economical in application, as

ANY PERSON CAN LAY IT ON.

The Anti-Corrosion is a Powder, and will keep any length of time.

Carriage paid upon quantities of not less than 5 cwt. to any station in England and Wales, or by Water to any Port in the United Kingdom, where there is a direct communication from London, as Leith, Dublin, Belfast, Glasgow, Aberdeen, &c.

OIL, TURPENTINE, AND BRUSHES.

Patterns, Cards, and Testimonials sent upon application to

WALTER CARSON & SONS (SUCCESSORS TO THE INVENTORS),

9, GREAT WINCHESTER STREET (NEAR THE ROYAL EXCHANGE, LONDON, E.C.)

No Agents throughout the United Kingdom.

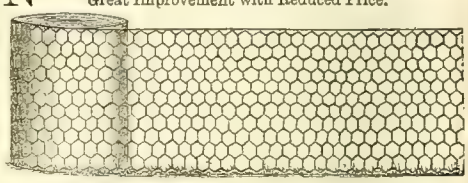
1000 WROUGHT IRON GARDEN CHAIRS to be Disposed of, varnished Green, only 21*s.* the half dozen.

M. J. THURMAN, Manufacturer, 71, Argyl Street, Birkenhead.

BENJAMIN EDGINGTON'S MARQUEES and PAVILIONS, for Royal and noble parties; Rick Cloths, with Poles, &c., complete, new and second-hand; Netting and Bunting for Fruit Trees; Marquees and Tents for sale or hire; Flags of all Nations, in Silk or Bunting.

Address, BENJAMIN EDGINGTON, 2, Duke Street, Southwark, foot of London Bridge, S.E. No other establishment.

NEW IMPROVED PREMIUM WIRE NETTING
Great Improvement with Reduced Price.



PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for.	Light.		Medium.		Strong.		Extra Strong.	
		Jap	Gal	Jap	Gal.	Jap	Gal.	Jap	Gal.
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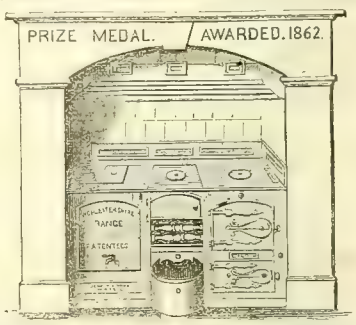
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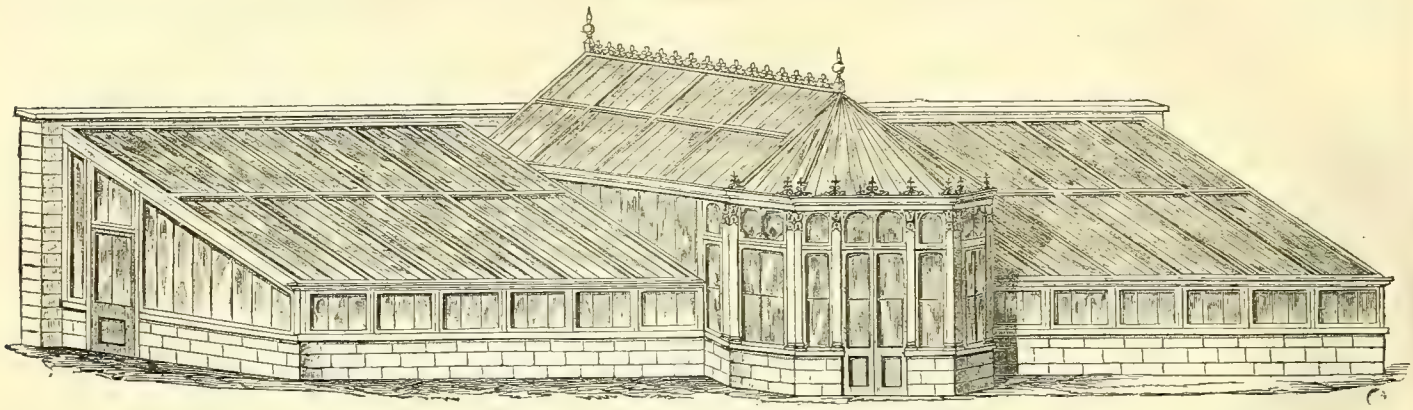
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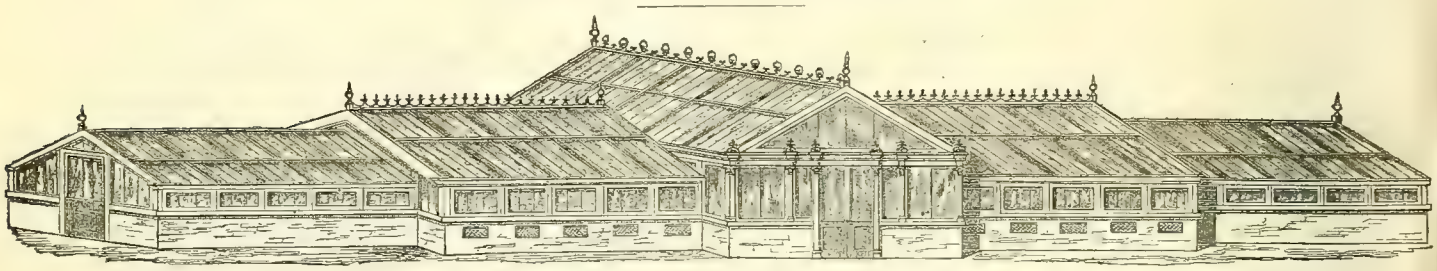
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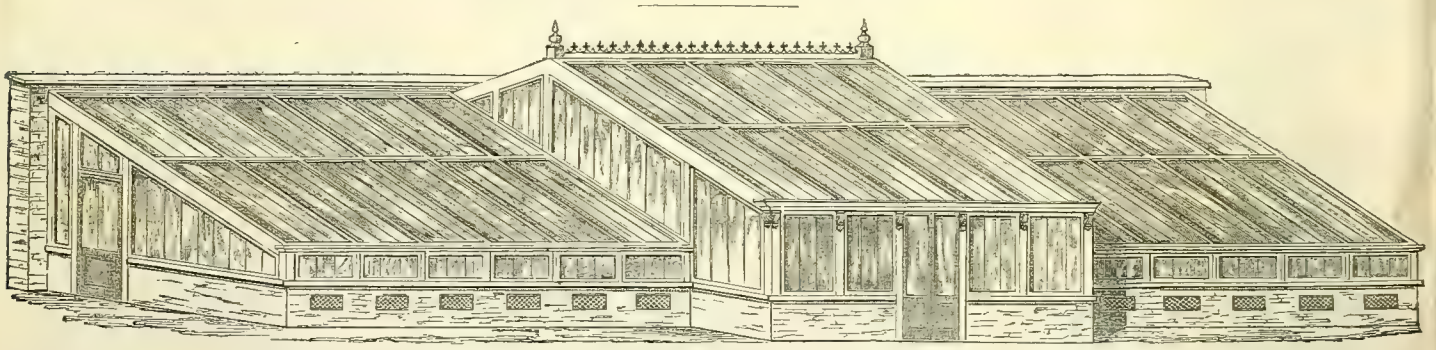
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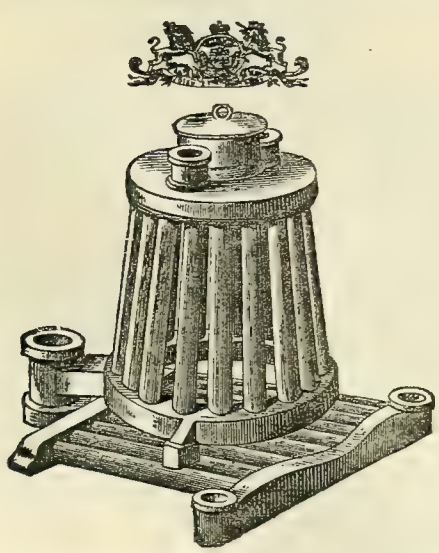
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Berberids	749 b	Reichenbach's (Dr.) appointment	748 a
Buckman and the Council of the R. A. S.	754 b	Results of steam cultivation	759 a
Clover Dodder	760 b	Salt, use of in agriculture	754 a
Covent Garden measures	747 a	Sands, Reigate	749 a
Craven Cottage	751 a	Smoke, town	749 b
Crops, Prospects of	753 b	Society, Royal Horticultural	749 c
Davy's Devon Herd Book	759 c	— Entomological	749 c
Decimal system	747 a	— Blechingley	750 a
Dogs and cats	751 c	— Royal Agricultural	756 c
Domestic animals, prevention of disease in	753 c	— Highland and Agri.	757 b
Excessive fatness of breeding animals	758 a	— Yorkshire	758 c
Farm Homesteads of England	759 b	— Bath and West of England	758 c
Fern sports	747 c	Show of Implements at Worcester	756 c
Feudalism, history of	750 c	Spiræa callosa	749 a
Fish and Fishing	748 a	State of Ireland	756 a
Forests, tropical	752 a	Steam cultivation and the Royal Agri. Society	753 b
Fruit-love, ancient	748 b	Strawberries, spurious	749 b
Gladiolus Brenchleyensis	747 c	Tench and carp ponds	748 a
Guano, solubility of	753 c	The Hoo Park estate	754 c
Hampshire sheep and Devonshire Notts	760 a	Tree heights, measuring	749 b
Japanese flowers	751 c		

CRYSTAL PALACE.—GREAT SHOW of AUTUMN FLOWERS and FRUIT, TUESDAY and WEDNESDAY, September 1 and 2.

Admission, One Shilling each day; Children under 12, Sixpence.

For Schedules of Prizes apply to Mr. W. Hough ton, Secretary to the Show, Crystal Palace, Sydenham.

AMALGAMATED METROPOLITAN CHRYSANTHEMUM SOCIETY, for Nurserymen, Gentlemen's Gardeners and Amateurs.

First Great Exhibition, Agricultural Hall, Islington, WEDNESDAY, THURSDAY, and FRIDAY, November 11, 12, and 13.

260*l.* in General Prizes, and reserve fund for Special Prizes, as awarded by the Judges, open to all England.

Rules, Schedules, &c., to be obtained of the Honorary Secretary by enclosing two postage stamps.

The last day for the enrolment of Members will be October 12. J. Jeffreys, Hon. Sec.

10, Catherine Street, Barnsbury Park, Islington, N.

To Plant Collectors and Others.

B. S. WILLIAMS will be happy to make arrangements with Botanists and others going abroad for the TRANSMISSION of ORCHIDS and other RARE PLANTS in any quantity.

Paradise and Victoria Nurseries, Holloway, London, W.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, now ready for Planting. Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines from Eyes.

WM. CUTBUSH and SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out of all the best kinds. Prices on application.

Highgate Nurseries, London, N.

Vine, Tynninghame Muscat.

ROBERT PARKER begs to offer Plants of this fine variety raised from eyes from the parent plant at 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each. Also various sized plants of all the best varieties, prices of which will be forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

To Fruit Sellers, &c.

FOR SALE, about 200lb. weight of good GRAPES.—Can hang on the Vines to suit the convenience of purchaser.

Apply to J. H., The Gardens, Brookman's Park, Hatfield, Herts.

NOVELTIES of 1863 at greatly reduced prices.—A CATALOGUE of 30 pages, containing full descriptions of nearly 500 New Choice Plants of the season, including the New Fuchsias and Verbenas, &c. Post free for one stamp.

Wm. Dillistone, Munro Nursery, Sible Hedingham, Essex.

New Verbenas of 1863.

B. W. KNIGHT, Florist, &c., 67, High Street, Battle, Sussex, has now ready to send out the NEW VERBENAS of 1863, at 4*s.* per dozen.

CATALOGUES of VERBENAS and other Novelties sent on application.

For Present Sowing.

TRIFOLIUM INCARNATUM,
TRIFOLIUM, NEW LATE RED.
TRIFOLIUM, NEW LATE WHITE.

New Seed of the above at lowest Market Prices, may be had of Sutton & Sons, Seed Growers, Reading, Berks.

Imported Orchids.

B. S. WILLIAMS has just received a fine importation of the following ORCHIDS:—

LYCASTE SKINNERI | CATTLEYA MOSSLÆ
CATTLEYA SUPERBA

GALEANDRA DEVONIANA, a choice and rare plant, finest of the genus.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Good Turnip Seeds, Carriage Free.

SUTTON AND SONS,
Seed Growers and Merchants,
Royal Berkshire Seed Establishment, Reading.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH,
Seed Merchants,
Covent Garden Market, London, W.C.

BARR AND SUGDEN,
Seed Merchants,
12, King Street, Covent Garden, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON,
Nurserymen and Seed Merchants,
Maresfield, near Uckfield, Sussex.

Agricultural Seeds.

GEORGE GIBBS AND CO.,
Seedsmen,
26, Down Street, Piccadilly, London, W.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
Seed Farmers and Nurserymen,
237 and 238, High Holborn, London, W.C.

Hollyhocks.

PAUL and SONS' selections of this noble Flower are NOW in FINE BLOOM.
The "Old" Nurseries, Cheshunt, Herts.

Superb Double Hollyhocks.

DOWNIE, LAIRD and LAING'S unrivalled COLLECTION of the above are NOW in BLOOM. Inspection invited any day, Sunday excepted.

Stanstead Park Nursery, Forest Hill, S.E.

Superb Double Hollyhocks.

WILLIAM CHATER'S unrivalled Collection of this noble Flower is NOW in FULL BLOOM. Open to the inspection of all visitors on any day excepting Sundays.

Nurseries, Saffron Walden.

CHOICE SEEDS.—CINERARIA, 1*s.* per packet; CALCEOLARIA, 1*s.* do.; PRIMULA, 1*s.* do.; COVENT GARDEN INTERMEDIATE STOCK, 1*s.* do.; MIMULUS, 1*s.* do.; HUNT'S SWEET WILLIAM, 1*s.* do.; CARNATION, 1*s.* do.; PICOTEE, 1*s.* do.; PELARGONIUM, 1*s.* do.

Barr & Sugden, Seed Merchants, 12, King Street, Covent Garden, W.C.

The English Lady's Slipper, Cypripedium Calceolus.

JAS. BACKHOUSE and SON can supply fine strong flowering roots of this rare and handsome BRITISH ORCHID, at 12*s.* per dozen; extra strong plants, at 21*s.* per dozen. A liberal allowance to the Trade.

York Nurseries, Aug. 8.

Just Imported,

DOUBLE ROMAN and PAPER WHITE NARCISSUS in fine condition, Wholesale or Retail. Price on application to

James Carter & Co., 237 & 238, High Holborn, London, W.C.

Herbaceous Calceolaria.

Guaranteed Finest Quality and New Seed.

WM. CUTBUSH and SON beg to offer the above, saved with the greatest care from the Stock, which invariably obtains the FIRST PRIZES wherever exhibited. Per packet, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.*, Post-free. Liberal allowance to the Trade.

Highgate Nurseries, London, N.

Cineraria, Calceolaria, and Primula.

E. G. HENDERSON and SON offer first-class seed of the above. Also, CINERARIA WEBBI, a new shrubby species, and best English and French Spotted PANSY. Each 1*s.* and 2*s.* 6*d.* per packet.

☞ EXPERIENCED GARDENERS recommended.

Wellington Nursery, St. John's Wood, London, N. W.

New Hybrid Mimulus.

E. G. HENDERSON and SON offer Seed of the beautiful new Section, between M. CUPREUS and M. LUTEUS, as now to be seen in the Wellington Nursery, forming an elegant dwarf bedding-plant, and adapted for pot-culture in Conservatories. 1*s.* and 2*s.* 6*d.* per packet.

Wellington Nursery, St. John's Wood, London, N.W.

To the Seed Trade.

DOBSON'S FIRST-CLASS SEEDS of CALCEOLARIA, CINERARIA, and PRIMULA.
Supplied to the Trade in Packets only.
A liberal allowance. Price on application.
J. Dobson & Sons, Seedsmen, Isleworth, W.

Azaleas.

TO BE SOLD, the property of an Amateur, Six fine healthy plants of approved varieties of AZALEAS.

To be seen, and particulars to be had of Mr. Wm. Taylor, Regent Nursery, Park Village East, Regent's Park, N.W.

SEEDS, warranted to give satisfaction, of PANSY, HOLLYHOCK, POLYANTHUS, DELPHINIUMS, SWEET WILLIAMS, for present sowing, all saved from the best named Prize Flowers; per packet, 6*d.*, 1*s.*, 1*s.* 6*d.*, and 2*s.* 6*d.* each.

CATALOGUE of NEW PLANTS upon application for one Stamp.

Dillistone & Co., Sturmer and Woodlands Nurseries, Halstead, Essex.

Paul's Nurseries, Waltham Cross.

WM. PAUL'S ROSES are NOW in FULL BLOOM.
See Advertisement on p. 746.

New Roses of 1863.

E. G. HENDERSON and SON offer strong healthy plants of the most select kinds at 42*s.* per dozen. The Trade supplied in any quantity.

Wellington Nursery, St. John's Wood, London, N.W.

New Roses for 1863.

WM. WOOD and SON are now supplying all the NEW ROSES in splendid Plants at reasonable prices. The leading kinds of PERPETUAL and other ROSES in pots are also offered by the dozen, hundred, or thousand.

Address, Woodlands Nursery, Maresfield, Uckfield, Sussex.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (Paul & Son).—Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7*s.* 6*d.* each, are now ready.

Old Cheshunt Nurseries, Herts.

ROSES, NEW and OLD. CATALOGUES NOW READY.

A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. Those who wish for a fine display of bloom during the present summer and autumn should now give their orders.

Charles Noble, Sunningdale Nursery, S.W. Rail.

Roses.

J. and J. FRASER, Lea Bridge Road Nurseries, N.E., beg to announce that their ROSES are NOW in BLOOM, and will continue for three or four weeks. The Collection contains many new and fine varieties, and is well worth a visit.

The Nurseries are about five miles from London, and are easily reached by the Great Eastern Railway to Lea Bridge Station.

ALOCASIA MACRORHIZA VARIEGATA.—Good plants, 10*s.* 6*d.* each.

Thomas Jackson & Son, Nurseries, Kingston, S.W.

J. IVERY and SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.

Dorking Nursery.

LARGE SPECIMEN FERNS for Sale.—For Description and Prices, apply to
J. Illman, Nurseryman, Strood, Kent.
A FERN CATALOGUE forwarded, post-free, on receipt of one stamp.

British Fern Catalogue.

ROBERT SIM can now send, Post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

WHEELER'S CELEBRATED CALCEOLARIA is of the finest strain, and unsurpassed for colours and quality. Seed now ready, at 1*s.*, 1*s.* 6*d.*, and 2*s.* 6*d.* per packet.

CINERARIA, fine, 1*s.* per packet.

DELPHINIUMS, from fine perennial kinds, 6*d.*, 1*s.*, and 1*s.* 6*d.* per packet.

George Wheeler, Nurseryman, Warminster, Wilts.

WANTED, CUTTINGS of TOM THUMB or ATTRACTION GERANIUM.

Address, stating lowest price per 1000, to H. T. J., Mr. Willey, News Agent, 37, Union Street, Birmingham.

To the Trade.

SCILLA SIBIRICA, strong flowering Bulbs, 40*s.* per thousand.

George T. Fox, The Nurseries, Wettey Rocks, near Leek.

W. VIRGO and SON have a great quantity of the undermentioned Plants to offer for Sale, at the following prices:—

DRUMHEAD CABBAGE	3*s.* 0*d.*	per 1000
DRUMHEAD SAVOY	3 0	„
Red and White Transplanted and strong CELERY	6 8	„

Wonersh, near Guildford.

To Seedsmen, Market Gardeners, and Others.

CABBAGE SEED, in Large or Small Quantities, saved by the late Mr. James Norris, of Isleworth, Middlesex, from first-rate sorts in 1861.

For particulars apply to John Norris, Sion Hill, Isleworth.

THE BEST LETTUCES for SOWING NOW—to stand the Winter—are WHEELER'S TOM THUMB and WHEELER'S IMPERIAL COS. The price of the Seed is 1*s.* per packet—post free.

Messrs. Wheeler & Son regret to find that inferior varieties are sometimes substituted, and with a view to prevent this intend publishing a List of Agents of whom next season the Seed may be obtained true.

J. C. Wheeler & Son, Seed Growers, Gloucester.

Chivas' Orange Jelly Turnip for August Sowing.

CHIVAS and WEAVER (late George Chivas) offer NEW SEED of the above, so well known for its rapidity of growth, feeding properties, and reputed to be more hardy than the Swede. Price 1*s.* 6*d.* per lb.

Orders for 20*l.* delivered free at any Railway Station.

Seed Warehouse, Chester.

New Strawberry, Princess of Wales.

B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, has much pleasure in offering this superb new early STRAWBERRY, feeling confident that it will not fail to become a general favourite, as all who have seen it growing and tasted it on the ground have pronounced it first-class. It is a remarkably early kind, having picked from it on the 22d of May, and no doubt but that it will prove a good forcing variety. The fruit is large, flesh pale red, solid at the core; flavour rich and sugary, partaking largely of the Pine flavour; a most abundant bearer.

The following notices prove its value, without further comment:—

Gardeners' Chronicle, July 4th.

"Your seedling Strawberry, Princess of Wales, large, ovate, or flattened ovate, with flesh pale red, and solid at the core. The variety deserves notice on account of its size, appearance, and not being hollow at the core."

Journal of Horticulture, June 23d.

"Seedling Strawberry (B. W. Knight). The fruit sent is very juicy, and of excellent flavour."

Florist, July.

"Your seedling Strawberry, Princess of Wales, is a fine regularly-shaped ovate fruit, of a pale red colour, and very firm flesh; it has all the appearance of being a good sort."

Plants will be ready to send out early in September, at 21*s.* per dozen. Price to the Trade on application.

200,000 FOREIGN BULBS.—The Proprietors of the St. John's and Newton-Moor Nurseries, Wakefield, having made large purchases of BULBS, we shall be able to supply first-class kinds in good healthy roots.

A comparison of prices will show that they can be purchased at this Nursery 20 per cent. lower than at many others. No effort has been spared to maintain the high celebrity this establishment has long enjoyed for Bulbous Roots. CATALOGUES gratis.

WM. BARRATT, Manager.

Dutch Bulbs, &c.

LOUIS VAN HOUTTE'S new BULB CATALOGUE, No. 97, is to be had at Messrs. R. SILBERRAD & SON'S Office, 5, Harp Lane, Great Tower Street, London, E.C.

N.B. The LILIUM, GLADIOLUS, and other tribes now in Full Bloom are of course not ready and not included in No. 97; they will be found in No. 98, now in preparation.

Ghent, Aug. 8.

Dutch Bulbs.

E. H. KRELAGE AND SON, Haarlem, Holland, beg to announce to the Trade only, that their TRADE CIRCULAR for July has been sent to their Correspondents. It contains Miscellaneous Bulbs, &c., a collection as rich as ever was offered, with prices per dozen, 100, 000 or upwards.

The TRADE CIRCULAR for June contains Hyacinths, Tulips, Crocuses, Narcissus, Anemones, Ranunculus, Fritillarias, Lilium, Iris, &c.

The Gladiolus, Pæonies, Cannas, and other Tribes will be published in the TRADE CIRCULAR for August.

E. H. K. & SON'S Trade Circulars will be addressed to Seedsmen, Nurserymen, or Florists on prepaid application.

THE NEW HARDY RHODODENDRON AUGUSTE VAN GEERT.—This extraordinary variety will be sent out on the 1st of September; it is the largest bouquet of its class, of which the flower has been seen by many of the leading nurserymen and amateurs in England and on the Continent. A drawing will be sent on application.

Price of Plants free to London, 7*s.* 6*d.* to 21*s.* each. One over for every three taken. Early orders solicited.

A. VAN GEERT, Nurseryman, Ghent, Belgium.

Camellias and Indian Azaleas, with Flower Buds.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to remind his friends who patronise him with their confidence, that they should send their orders in early this season for CAMELLIAS, with flower buds, in order that they may be well served, as the prospect of flower is now very abundant.

CAMELLIAS, with flower buds, 5*l.* to 6*l.* per hundred.

INDIAN AZALEAS, with flower buds, 4*l.* to 5*l.* per hundred.

New Plants for the Autumn, 1863.

JEAN VERSCHAFFELT begs to call the attention of the Trade in general to the following Novelties, which he intends to send out in September next. J. V. can confidently recommend these Novelties as being first-rate varieties, of superior merit, full descriptions of which will be found in his new DESCRIPTIVE CATALOGUE for 1863, which will be ready in a few days, and will be sent to all his correspondents, viz.:—

AZALEA INDICA PRESIDENT HUMANN, nice plants with buds, 12*s.* each; strong ditto, 20*s.* to 40*s.*
" " SOUVENIR DU PRINCE ALBERT, nice plants, 20*s.* each.
" " SECRETAIRE CLAUS, with buds, 7*s.* each.
" " VICOMTE DE FORCEVILLE, 10*s.*
" " REINE DES DOUBLES, fol. arg. var., 4*s.*
CAMELLIA VICOMTE DE NIEUPORT, 12*s.* each; nice plants, with buds, 20*s.*
RHODODENDRON NOTAIRE BEAUCARNE, a very fine hardy novelty, good plants, 8*s.* each; stronger do., 12*s.* ea.

One plant over on every three to the Trade. The subscription list is open now, and early orders are solicited, as they will be executed in strict rotation. Arrangements made where quantities are required. A carefully coloured Plate of the Azaleas will be sent to each subscriber.

All letters to be directed to JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent, Belgium.

A hardy Gleichenia—Gleichenia alpina.

IT IS WITH GREAT PLEASURE THAT

JAS. BACKHOUSE AND SON offer to the lovers of FERNS this new and beautiful species, of which they have at last succeeded in importing fine living plants. It forms a dense mass, 9 to 12 inches high, of deep lustrous green fronds on rigid wiry stems, and is as finely divided as G. microphylla, dicarpa, and speluncæ, to which section of the genus it belongs. This Fern inhabits a region where the cold is severe, frost and snow being liable to occur every month in the year.

J. B. & SON have received it in the same sods as Lomaria alpina, a Fern which bore the intense frost of 1860; and their plants of Gleichenia have hitherto withstood all frost; even the young uncurling fronds remaining totally uninjured during the winter, and developing finely on the return of spring.

The plant becomes sickly in a greenhouse, and seems to rejoice in the greatest degree of exposure to sun and frost in the open air. Abundant and continuous moisture to the roots in summer, combined with very free drainage, insure success.

Nice established plants, 63*s.* each.

GLEICHENIA DICARPA.—Strong established plants, 5*s.* to 7*s.* 6*d.* each.

CYPRIPEDIUM CALCEOLUS (the English Lady's Slipper).—Strong flowering plants, 12*s.* per dozen.

TRICHOMANES, HYMENOPHYLLUMS, and LINDSÆAS in great variety.

York Nurseries, Aug. 8.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes.

Sunningdale Nursery, S.W. Rail.

Novelties of 1863.

SPECIAL OFFER TO THE TRADE.

HENRY WALTON has an immense stock of the following in strong healthy plants:—

Fuchsias, 6*s.* per dozen.	Pentstemons, 6*s.* per doz.
Verbenas, 3*s.* per dozen.	Antirrhinums, 5*s.* per doz.
Petunias, 5*s.* per dozen.	Chrysanthemums, 5*s.* per doz.

Private parties will be treated with on equally liberal terms.

DESCRIPTIVE LISTS on application, inclosing Stamps.

EDGEND MARSDEN, near Burnley, Lancashire.

First-class Seeds.

F. AND A. SMITH are now sending out from the largest and finest collections and strains the following CHOICE SEEDS:—

Auricula	2*s.* 6*d.*	Mimulus ..	1*s.*, 1*s.* 6*d.*
Cineraria ..	1*s.*, 2 6	Pansy, Fancy ..	1*s.*, 2 6
Heliotrope ..	1*s.*, 2 6	Pelargoniums—	
Primula ..	1*s.*, 1*s.* 6*d.*, 2 6	Show ..	1*s.* 6*d.*, 2 6
Calceolarias ..	1*s.*, 2 6	Spotted..	1*s.* 6*d.*, 2 6
Geranium, Zonal	1*s.*, 2 6	Fancy ..	1*s.* 6*d.*, 2 6

Stock, Scarlet Intermediate, 6*d.*, 1*s.*

Dulwich, near London, S.

CALCEOLARIA, CINERARIA, PRIMULA, &c.—CALCEOLARIA, saved from carefully hybridised flowers, possessing all the recognised floral qualifications, viz., size, form, colours, and marking. Price, 1*s.* and 2*s.* 6*d.* per packet. CINERARIA, extra choice, 1*s.* per packet. PRIMULA SINENSIS FIMBRIATA, extra choice, 1*s.* and 2*s.* 6*d.* per packet. DRACÆNA (CORDYLINE) INDIVISA, from Mount Egmont, New Zealand; beautiful fine foliaged plant, 1*s.* and 2*s.* 6*d.* per packet.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

OUVIRANDRA BERNERIANA.—Having succeeded in raising a few Seedlings of this extremely curious and beautiful plant, we beg to offer healthy young plants of six or seven leaves at 31*s.* 6*d.* each.

O. Berneriana was exhibited at the Great Show of the Royal Horticultural Society, June 17th, and awarded the First Prize; and at the Great Show of the Royal Botanic Society, June 24th, and then also awarded the First Prize.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

Rhododendron Countess of Haddington.

ROBERT PARKER begs to announce that he is now sending out this fine variety, a figure of which will appear in "Illustrated Bouquet," and Photographs may be seen at the Nursery. Habit compact and vigorous, with fine foliage flowers, rosy blush, measuring upwards of 3½ inches in length and diameter, very abundant bloomer, and may be flowered from February to June. For early spring and summer decoration and exhibition purposes this will prove the most useful and ornamental plant of modern introduction. The following Awards have been received at the undermentioned Exhibitions:—

Edinburgh Horticultural Society's Show, March 19, 1861—First Class Certificate.
Royal Horticultural Society's Show, March 19, 1862—First Class Certificate.
Royal Botanic Society's Show, April 2, 1862—First Class Certificate.
Edinburgh Horticultural Society's Show, March 18, 1863—Special Prize.
Crystal Palace Show, May 23d, 1863—First Prize 5*l.* for single specimen of newly introduced extremely rare or beautiful plant, in or out of flower, hardy or exotic.

Good plants, 21*s.* each. The usual discount to the Trade.

Exotic Nursery, Tooting, Surrey, S.

TRADE

HALLETT'S PEDIGREE NURSERY WHEAT.

MARK.

The PEDIGREE WHEAT was awarded the Silver Medal by the Jurors of the class "Cereals from all Countries," at the Meeting in 1863 of the Agricultural Society at Odense.

"The produce of 3 acres of this Wheat, grown 1862, in Essex, was sold to the Miller, and realised 19*l.* 7*s.* per acre."

If planted as directed in September this Wheat costs less per acre for seed than common Wheat.

Price One Guinea a Bushel (or Seven Guineas a Quarter), delivered, with printed directions for planting, at the Brighton Railway Station, in bags sewed up and sealed.

"HOW OUR WHEAT CROPS MAY BE DOUBLED," and other Papers, forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

*** See full advertisement last week, page 674.

TAN GRATIS, in the immediate neighbourhood of Covent Garden Market.

Apply at WILLIAM ESSEX & SON, 28, Stanhope Street, Clare Market, W.C.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.*; 4 cwt. put on the Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

N.B. Loaded Trucks can be sent on all the principal Railways.

W. SHORT, Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent.'

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1863 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from Messrs. Gibbs: Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures. American and other Cakes at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

The Gardener's Friend v. the Gardener's Enemy.

This celebrated Trial has been decided unanimously in favour of

FORDHAM'S INVINCIBLE "OLD VIRGINIA SHORTS."—The Greenfly and other Greenhouse and Garden Pests speedily annihilated at one-sixth of the cost of ordinary Tobacco Paper.

Samples of 7 lb. and upwards sent free to any Railway Station at 3*s.* per lb. on receipt of Post-office Order, payable to JOHN FORDHAM, at the W. C. Office.

Factory, 28, Little Queen Street, High Holborn, W.C.

N.B. ½ lb. of Shorts equal to 6 lb. of the Paper.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from one to two ounces to the gallon of water is recommended for growing Plants; one from 4 to 16 ounces for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1*s.* 6*d.* per yard run.
Four yards wide	2*s.* per yard.
An improved make, 2 yards wide,	1*s.* 3*d.* per yard.
An improved make, 3 yards wide,	2*s.* 6*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 4*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."



GARDEN BORDER-EDGING TILES.—These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

To be obtained at F. & G. ROSHER'S Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER at their Premises as above.

Landscape Gardening, Ireland.

MR. J. W. CHAPMAN offers his services to the nobility and gentry of Ireland in the formation of Gardens and Pleasure Grounds, and the general improvement of Estates. Plans and Drawings for these purposes will be furnished, and where it is desired, experienced men will be sent to any part of the country to superintend the carrying out of the works.

Mr. C. will be happy to refer to gentlemen in this country and elsewhere, with whom he has been professionally engaged.

27, Molesworth Street, Dublin.—August 1.

Change of Residence.

MR. HOWE, Landscape Gardener, (upwards of 20 years in the profession) begs to inform his clients, the nobility and gentry, that his address is now 29, Bessborough Gardens, S.W.; and Grove Lodge, Hounslow, London, W.

Mr. Howe also takes the opportunity to state that he visits Ireland professionally twice yearly.

SMITH'S STEAM CULTIVATOR for SALE, a Bargain.—A complete set of the above Tackle made by Howard, Bedford, with 8-horse engine, double cylinder, by Clayton & Shuttleworth.

Apply to Mr. P. Davis, Bickmarsh Hall, Alcester.

PULHAM'S ROCKWORK FERNERIES, WATERFALLS, CAVES, BANKS of STREAMS and PONDS, executed in the only way it should be, *i.e.*, to imitate Natural ROCKS. Worked with pockets, for plenty of plants to grow about it.

References to works executed in 10 counties, some by the recommendation of W. B. Thomas, Esq., and R. Marnock, Esq.

To Seed Merchants and Nurserymen.

SAYNOR and COOKE, Pruning and Budding Knife Manufacturers, beg respectfully to say that they will not be undersold by any House in the Trade. They also warrant one of their Knives to last two of any other make.

Paxton Works, Sheffield.

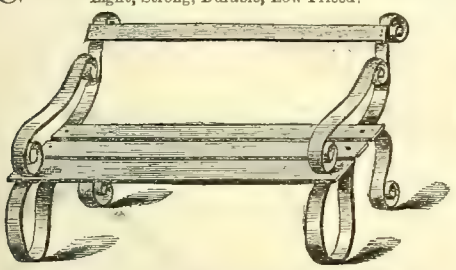
SHAW'S TIFFANY.

For samples and prices apply to

J. Shaw & Co., 29, Oxford Street, Manchester.

GARDEN SEAT.

Light, Strong, Durable, Low Priced.



Seat Four Persons, 18*s.*

Delivered to any Metropolitan Railway Station on receipt of Post Office order.

Edwin Ladd, Ironmonger, High Street, Camberwell, S., Garden Implement Depôt.

Card.

SAMUEL N. McGERROW,

General Horticultural Builder,

Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. Lynch White's Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

CLARK and HOPE (late Clark), 55, Lionel Street, Birmingham. Established A.D. 1818. Manufacturers of Metallic and Wood Horticultural Buildings, Copper Sashes, Verandahs, Skylights, Wrought-iron Windows, Casements, and Hot-Water Apparatus.



C. & H. beg to call the attention of the Public to their PATENT STOP VALVE, which is simple in construction, warranted to resist a pressure of 30 lb. per square inch, and can be taken out for repairs without interrupting the working of the Apparatus. To be had at the following low prices:—2 inches, 14*s.* 6*d.*; 3 inches, 19*s.* 6*d.*; 4 inches, 25*s.* 6*d.* each. A liberal discount to the Trade.



C. & H. also beg to call attention to their New TREE COVER, or Continuous Glass Covering for Garden Walls. They are constructed of Cast and Wrought-iron, devoid of Shadow, and a Tenant's fixture; are made 6, 7, and 8 feet wide at bottom, 2 feet wide at top, and up to 14 feet high, and can be glazed with or without putty. The Ventilating Sashes are opened by means of simple and durable Machinery in lengths of about 50 feet at one operation, and not exceeding the cost of a wooden structure, are unequalled.

It will be evident from the above that the great desire of the Manufacturers is to bring the articles within the reach of a very large class of consumers, who, it is hoped, will avail themselves of the advantages thus offered.

Particulars and prices forwarded upon application, also Lithographed Designs of Horticultural Buildings, Copper Bars &c.

FOWLER'S

STEAM PLOUGHING AND CULTIVATING PATENTS.

RANSOMES & SIMS, Orwell Works, Ipswich,

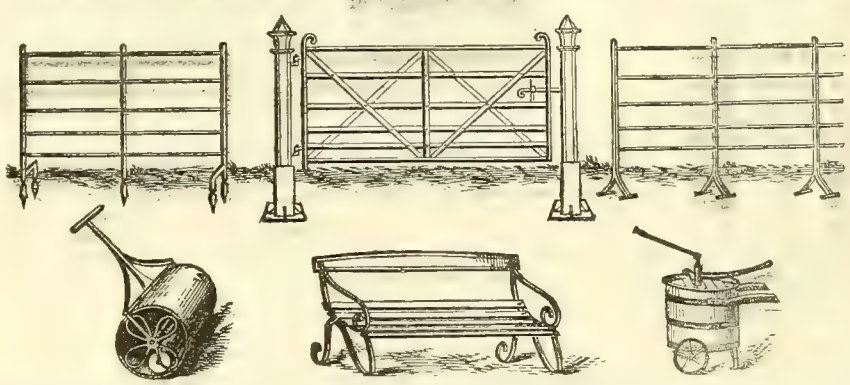
Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

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CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED IN VARIOUS STYLES.



IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.

VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.

The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

Illustrated CATALOGUES and DRAWINGS free on application to

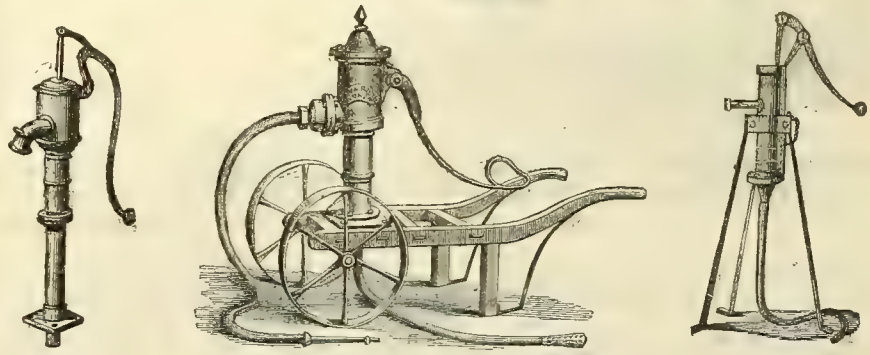
COTTAM & CO., ENGINEERS and IRON FOUNDERS,

2, WINSLEY STREET (Opposite the Pantheon), OXFORD STREET, LONDON, W.

JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. No. 36½. Improved Cast-Iron Lift and Force Pump. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump one man will force the water in a continuous stream to a height of 50 feet.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

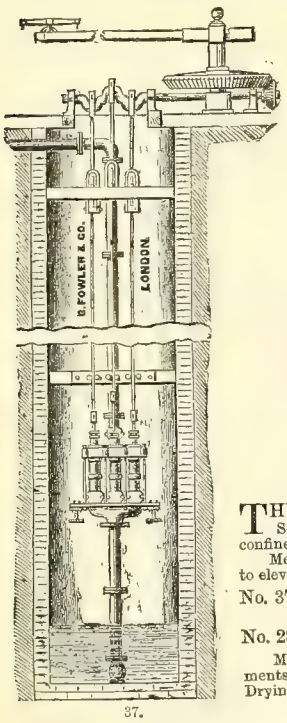
No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

PATENTEES and MANUFACTURERS,

JOHN WARNER and SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.



37.

CLINTON & OWENS,

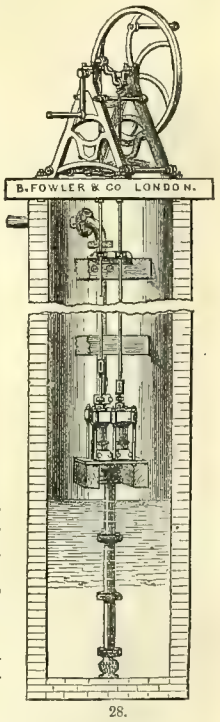
(LATE BENJAMIN FOWLER & CO.),

MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.





28.

THE Landscape Sketch shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for raising water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

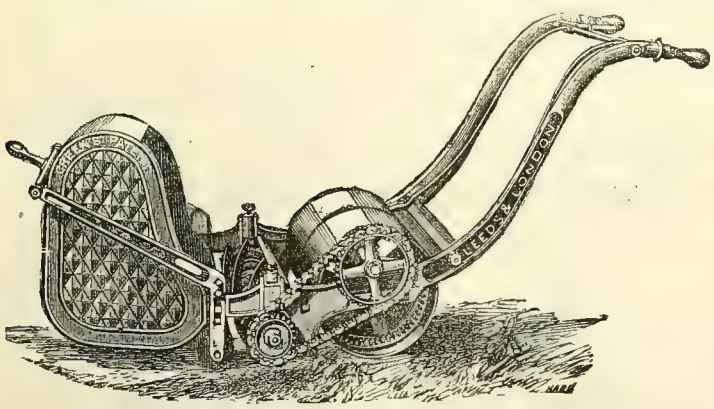
Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c., free on application.

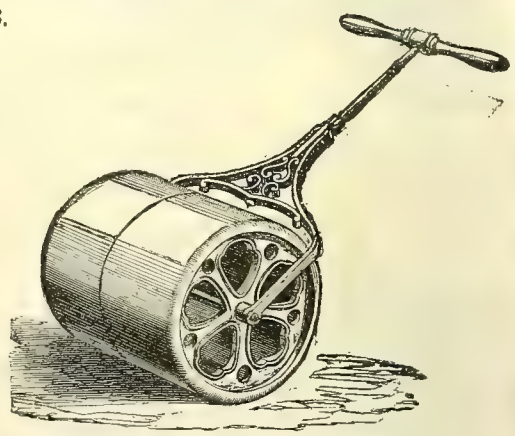
GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.


GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS, PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

PRICES.

						If with Patent Delivery Box.
To Cut 10 inches	£3	10	0	Suitable for a Lady.		
„ 12 „	5	0	0	Suitable for One Person. If with internal gear, 10*s*. extra.		
„ 14 „	5	10	0	Do. Do. Do. Do.	10*s*. extra.	
„ 16 „	6	10	0	Suitable for One Man or Two Boys.		
To Cut 18 inches ...	£7	10	0	Suitable for One Man and Boy	£8	15 0
„ 20 „ ...	8	0	0	Do. Do. ...	9	5 0
„ 22 „ ...	8	10	0	Suitable for Two Men ...	9	17 6
„ 24 „ ...	9	0	0	Do. Do. ...	10	7 6

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	... £12 10 0
„ 26 „	12 10 0	... 13 12 0
„ 30 „	16 14 0	... 18 0 0

Leather Boots for Donkey, 16*s*.; for Pony, 20*s*.

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	... £21 10 0
„ 36 „	23 0 0	... 24 16 0
„ 42 „	26 0 0	... 28 2 0
„ 48 „	29 0 0	... 31 8 0

Leather Boots for Horse, per set, 1*l*. 4*s*.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5*s*. | Diameter 16 inches, length 17 inches, price £2 10*s*. | Diameter 24 inches, length 26 inches, price £4 5*s*.
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

Every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;
and MANUFACTURERS of all kinds of IRONWORK for the IMPROVEMENT or EMBELLISHMENT of LANDED PROPERTY.

Illustrated Catalogues on application.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

CARSON'S

ORIGINAL ANTI-CORROSION PAINT.

White	Per cwt. 30s.	Bright Red	Per cwt. 26s.
Light Stone ...		Dark Do. (or Brick Color)	
Bath Do.		Chocolate Color	
Cream Color		Black	
Light Portland Stone ...			
Drab or Portland Do. ...		Bright Green	44s.
Light and Dark Oak ...	26s.	Deep Green	
Lead Color		Blue	

PATRONISED BY

THE BRITISH GOVERNMENT
THE RUSSIAN GOVERNMENT
THE LAMENTED PRINCE CONSORT
MOST OF THE NOBILITY & GENTRY
RAILWAY AND CANAL COMPANIES
COLLIERIES, IRON MASTERS, &c.

It is extensively used at home and abroad for all kinds of

OUT-DOOR WORK,

and has been proved, after a practical test of 70 years, to surpass any other Paint. It is applicable to Wooden Houses, Farm and other Out-Buildings, Park Fencing, Gates, &c.; also Iron Roofing, Bridges, Hurdling, and every description of Iron Work, while for

PUBLIC EDIFICES, MANSIONS, VILLA RESIDENCES,

and every kind of Brick, Stone, Compo, &c., it is unrivalled, presenting the appearance of fine cut stone.

It is undoubtedly the only Paint that will stand on

CONSERVATORIES, GREENHOUSES, FRAMES, &c.

and is in consequence largely used by the Nobility and Gentry, also many eminent Horticulturists, for such purposes. The Anti-Corrosion is Lower in Price, and lasts twice as long as the Best White Lead; at the same time is economical in application, as

ANY PERSON CAN LAY IT ON.

The Anti-Corrosion is a Powder, and will keep any length of time.

Carriage paid upon quantities of not less than 5 cwt. to any station in England and Wales, or by Water to any Port in the United Kingdom, where there is a direct communication from London, as Leith, Dublin, Belfast, Glasgow, Aberdeen, &c.

OIL, TURPENTINE, AND BRUSHES.

Patterns, Cards, and Testimonials sent upon application to

WALTER CARSON & SONS (Successors to the Inventors),

9, GREAT WINCHESTER STREET (Near the Royal Exchange, London, E.C.)

No Agents throughout the United Kingdom.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—

PROPAGATING  GLASSES.

	Each—s.	d.		Each—s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 ,, ,, ..	0	4½	13 ,, ,, ..	2	0
4 ,, ,, ..	0	5½	14 ,, ,, ..	2	6
5 ,, ,, ..	0	6½	15 ,, ,, ..	3	0
6 ,, ,, ..	0	8	16 ,, ,, ..	3	6
7 ,, ,, ..	0	10	17 ,, ,, ..	4	0
8 ,, ,, ..	1	0	18 ,, ,, ..	5	0
9 ,, ,, ..	1	2	19 ,, ,, ..	6	0
10 ,, ,, ..	1	4	20 ,, ,, ..	7	0
11 ,, ,, ..	1	6			

HAND GLASSES,  WITH OPEN TOPS.

	Each—s.	d.		Each—s.	d.
12 inches	6	6	18 inches	9	6
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

Painted and Glazed with 16 oz. Sheet Glass.

GLASS PRESERVE JARS.

In. diam.	Without Lids.	With Lids.	In. diam.	Without Lids.	With Lids.
3 ..	0s. 4½d. ..	0s. 6½d. ea.	7 ..	1s. 0d. ..	1s. 4d. ea.
4 ..	0 6 ..	0 9 ,,	8 ..	1 4 ..	1 8 ,,
5 ..	0 8 ..	0 11 ,,	9 ..	1 8 ..	2 2 ,,
6 ..	0 10 ..	1 2 ,,	10 ..	2 0 ..	2 8 ,,

Intermediate Sizes in proportion.

CUCUMBER  GLASSES.

24 inches long ..	2s. 0d.	16 inches long ..	1s. 4d
22 ,, ,, ..	1 10	14 ,, ,, ..	1 2
20 ,, ,, ..	1 8	12 ,, ,, ..	1 0
18 ,, ,, ..	1 6	Made to any length.	

London Agents for Hartley's Improved Patent Rough Plate.

Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

MORTON'S NEW IMPROVED PATENT LAWN MOWER, with Sun and Planet Motion, having all the most recent Improvements, is allowed to be the best Machine for preventing Ribbing and Clogging.

To be had, with prices and particulars, of Grimmond, Laird, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath; and all the principal dealers throughout the country.

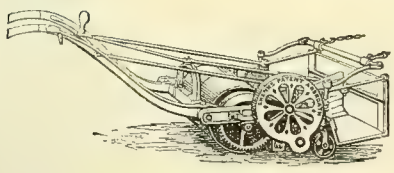
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

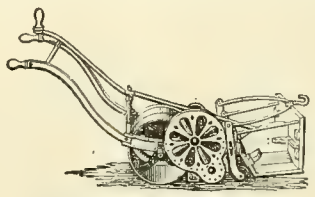
WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

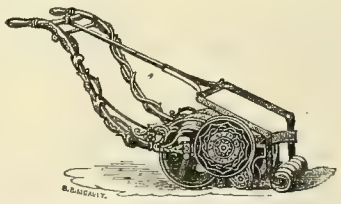
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will Mow equally well on Uneven as on Level Lawns, and whether the Grass be wet or dry. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40s. extra.
No. 2.—42-inch Machine ...	26 0 0	40s. ,,
No. 3.—36-inch Machine ...	22 0 0	30s. ,,
No. 4.—30-inch Machine ...	19 0 0	30s. ,,

Silent Movement, 20s. extra; Boots for Horse's Feet, 24s. per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
No. 5.—30-inch Machine ...	£15 15 0	30s. extra.
No. 6.—28-inch Machine ...	14 10 0	30s. ,,
No. 7.—25-inch Machine ...	12 10 0	25s. ,,

Silent Movement, 12s. 6d. extra; Boots for Pony, 21s. per set; ditto for Donkey, 16s. per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	Easily Worked by Two Men.
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	Ditto by a Man and Boy.
No. 11.—16-inch Machine	£6 17 6	Easily Worked by a Man.
No. 12.—13-inch Machine	6 2 6	Ditto ditto by a Boy.

The Patent Delivering Apparatus, if attached to the Hand Machine, 25s. extra; Silent Movement, 7s. 6d. extra.

No. 16.—12-inch Machine, for pushing only, £5 5s. Easily worked by a Lady or a Boy; Silent Movement, 4s. extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

Choice Seeds.

B. S. WILLIAMS begs to offer First-class quality of the undermentioned SEEDS :—

	Per packet.	
PRIMULA SINENSIS FIMBRIATA, Red, White, or Mixed	2s. 0d.	3s. 6d.
CALCEOLARIA, herbaceous	1 6	2 6
CINERARIA, from choice named flowers	1 6	2 6
PANSY, very choice	0 6	1 0

Paradise and Victoria Nurseries, Holloway, London, N.

New and Rare Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, amongst which are some very fine specimens.

Now ready, post-free to all applicants.

A NEW GENERAL PLANT CATALOGUE, containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Herbaceous and Alpine Plants, Roses, Hardy Trees and Shrubs, Fruit Trees, &c.

With a DESCRIPTIVE LIST of New, Beautiful, and Rare Plants.

Paradise and Victoria Nurseries, Holloway, London, N.

Roses.

The ROSES at the WALTHAM CROSS NURSERIES are NOW in FULL BLOOM.

MR. WM. PAUL respectfully invites all lovers of this popular flower to visit and inspect them. TWENTY FIRST PRIZES and NINE SECOND have been awarded to him for ROSES during the present year, and above 100,000 Plants are now growing in these Nurseries. Waltham Cross is 11 miles from London, and a first-class station on the Great Eastern Railway. It is also a delightful drive from the West-end of London, through Tottenham, or the Green Lanes and Enfield.

Entrance to the Nurseries from the platform, Waltham Station (for railway passengers only), and from the High Road, Waltham Cross, N.

Major's Half-shrubby Calceolaria Seed.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that his CALCEOLARIA SEED for this Season is now ripe, and may be had in packets at 2s. 6d. each, or Three for 5s. post free. Postage stamps received in payment.

N.B.—(*H. Major*).—"The seedling Calceolarias are very fine; the size of the flowers, and the brilliancy of the markings being alike conspicuous. We wonder much why the flower is not more cultivated. It deserves to be generally grown."

See No. 119 of *Journal of Horticulture*, Notices to Correspondents.

Sow in August.

DOBSON'S PRIZE CALCEOLARIA.
The most varied and beautiful strain imaginable.
In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.

Sow in August.

DOBSON'S PRIZE CINERARIA.
A splendid strain. Received 10 first prizes in 1862.
In sealed packets, 1s., 2s. 6d., and 5s.

Sow in August.

DOBSON'S PRIZE PRIMULA SINENSIS
FIMBRIATA. From finely fringed Flowers.
In sealed packets, 1s., 2s. 6d., and 5s.
The above Seeds are unequalled for quality.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Sow at Once.

DOBSON'S Splendid Hybridised CALCEOLARIA, in sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. May be had of the following Agents :—

Mr. Abrahams, Limerick
Messrs. F. & A. Dickson & Co., Chester
Messrs. Dickson, Hogg, & Robertson, Dublin
Messrs. J. & J. Fraser, Lea Bridge Road, Essex
Messrs. Fraser, Richardson, & Goad, 82, Bishopsgate Street Within
Messrs. Fisher, Holmes, & Co., Sheffield
,, Fowler & Sons, Glasgow
,, Garaway & Co., Bristol
Mr. G. Glenny, Fulham
Messrs. Hurst & Son, 6, Leadenhall Street, City
,, Hunter & Co., Bristol
,, Paul & Son, The Old Nurseries, Cheshunt
The Plymouth Seed Company
Messrs. Rollisson & Sons, Tooting
,, Sutton & Sons, Reading
,, Veitch, Chelsea
,, Vilmorin, Andrieux. & Co., Paris [Sussex
,, Wood & Son, Maresfield,

NEW PLANT CATALOGUE.

JAMES VEITCH

BEGS TO ANNOUNCE THAT HIS

CATALOGUE OF NEW AND BEAUTIFUL PLANTS

FOR THE PRESENT SEASON IS NOW READY,

AND WILL BE FORWARDED POST FREE ON APPLICATION.

ROYAL EXOTIC NURSERY, CHELSEA, S.W.—Aug. 8.

AMARANTHUS MELANCHOLICUS RUBER.

THIS BEAUTIFUL FINE FOLIAGE BEDDING PLANT IS NOW IN SPLENDID CONDITION IN A RIBBON BORDER

AT THE

EXOTIC NURSERY, KING'S ROAD, CHELSEA.

MR. VEITCH WILL BE PLEASED TO SHOW IT TO ALL WHO MAY FAVOUR HIM WITH A VISIT.

CHELSEA.—Aug. 8.

ORCHIDS FROM BRAZIL, THE PHILIPPINE ISLANDS, VENEZUELA,

THE TENASSERIM PROVINCES, BORNEO, AND THE MALAYAN ARCHIPELAGO.

HUGH LOW & CO.

Have for Sale, at very moderate prices, large quantities of ORCHIDS, received direct from their Collectors and Correspondents in the above-named countries, and they respectfully invite gentlemen interested in Orchid Cultivation to visit the Nursery and inspect the Collection, which contains many species quite new, and as yet undescribed. Orchidaceous plants at the Clapton Nursery are at present date grown in EIGHT span-roofed houses, and the collection is steadily augmented by a regular system of monthly and bi-monthly importations.

H. L. & Co. subjoin names of some of the species now on Sale, and they have only to add that Purchasers will be treated with great liberality.

AERIDES CRISPUM.
,, CRASSIFOLIUM.
,, FIELDINGI.
,, LARPENTÆ.
,, LOBBI.—Amongst our importations of this fine species, many beautiful varieties have appeared.
,, LINDLEYANA.
,, MACULOSUM.
,, SUAVISSIMUM.
,, ,, Bornean variety, very much superior to the ordinary type of the species.
,, QUINQUEVULNERUM.
,, REICHENBACHI.
,, ROSEUM.
,, VIRENS.
,, ,, SUPERBA.
,, WARNERI.
,, Species Moulmein.
BOLBOPHYLLUM PSITTACOGLOSSUM.
,, CAREYI.
BROUGHTONIA SANGUINEA.
BURLINGTONIA DECORA.
,, FRAGRANS.
,, VENUSTA.
CIRRHOPETALUM STRIATUM.
CYMBIDIUM TIGRINUM.
CALANTHE VESTITA LUTEA.
,, ,, NIVALIS.
,, ,, ROSEA.
,, MASUCHA.
,, VERATRIFOLIA.
CATTLEYA AMETHYSTINA.
,, CITRINA.
,, CRISPA.
,, ELEGANS (Lælia).—Many of the plants imported by H. L. & Co. have recently flowered. Some are the dark varieties in various shades of colour, others light in the way of Lælia Schilleriana, L. Stelzneriana, and L. Warneri.
,, IRORATA.
,, LEOPOLDI.
CATTLEYA LABIATA.
,, LOBATA.
,, MARGINATA.
,, MOSSIÆ, in many varieties.
,, PINELI GRANDIFLORA.
,, SUPERBA.
CHYSIS LIMMINGHI.
CŒLOGYNE CILIATA.
,, ELEGANS.
,, LOWI.
,, PANDURATA.
,, PARISHI (papagena).
,, SCHILLERIANA.
COMPARETTIA COCCINEA.
CYPRIPEDIUM BARBATUM GRANDIFLORUM.
,, BARBATUM SUPERBUM.
,, CAUDATUM.
,, FAIRRIEANUM.
,, HOOKERÆ.
,, HIRSUTISSIMUM.
,, STONEI.
,, VILLOSUM.
DENDROBIUM AGGREGATUM MAJUS.
,, ALBO SANGUINEUM.
,, BICOLOR.
,, CHRYSOTOXUM.
,, ,, SUPERBUM.
,, CRETÆCEUM.
,, CUCULLATUM GIGANTEUM.
,, DALHOUSEANUM.
,, DENSIFLORUM.
,, ,, ALBUM.
,, EBURNEUM.
,, FARMERI.
,, FIMBRIATUM.
,, ,, OCULATUM GIGANTEUM.
,, FORMOSUM GIGANTEUM.
,, FYTCHEIANUM.—Imported by this name, may possibly prove to be the rare D. Heyneanum.
,, INFUNDIBULUM.
,, LUCENS (Reichenbach fil).
,, LOWI.
DENDROBIUM MACROPHYLLUM, Variety DAYANUM. — A very beautiful Bornean Orchid, intermediate between D. macrophyllum and D. anosmum, but more richly coloured than either of these species. H. L. & Co. have imported plants which have bloomed on 4 feet 9 inches in length of the bulbs.
,, NODATUM.
,, PARISHI.
,, PAXTONI.
,, PIERARDI.
,, PICTUM.
,, SCULPTUM (Reichenbach fil).
,, TORTILE ROSEA.
ERIA CONVALLARIOIDES.
IONOPSIS PANICULATA.
LEPTOTES BICOLOR.
,, SERRULATA.
,, Species Brazil.
LÆLIA BRYSIANA.
,, AUTUMNALIS.
,, CINNABARINA.
,, ELEGANS (See Cattleya elegans).
,, MAJALIS.
,, PERRINI MAJOR.
,, PRESTANS (Cattleya Pineli grandiflora).
,, PURPURATA.—Many varieties and plants of various sizes. Our stock of this superb Orchid exceeds 1000 plants.
LIMATODES ROSEA.
,, ,, SUPERBA.
,, ,, VESTALIS (Reichenbach fil).
MILTONIA PINELI.
,, ROSEA.
,, Two unnamed Brazilian species.
ONCIDIUM BARBATUM.
,, CRISPUM.
,, ,, GRANDIFLORUM.
,, ,, MARGINATUM.
,, LANCEANUM.
ONCIDIUM PAPILIO MAJOR.
,, PUBES.
,, VARIEGATUM.
,, Several Brazilian species.
PHALÆNOPSIS AMABILIS.
,, GRANDIFLORA. — Bornean variety. The best white-flowered Phalænopsis yet known. The blooms are produced in the greatest profusion, and on very small plants. During the winter months H. L. & Co. have rarely had fewer than from 100 to 150 plants in bloom, and at one time the number reached 300.
SACCOLABIUM CURVIFOLIUM.
,, AMPULLACEUM.
,, BLUMEI.
,, ,, MAJUS.
,, ,, ,, variety DAYI—on very small imported plants of this beautiful species the flower spikes measure 22 inches in length.
,, CRASSIFOLIUM.
,, GUTTATUM.
,, REIDI.
,, VIOLACEUM.
SARCANTHUS PARISHI.
,, GRACILIS.
SOPHRONITIS CERNUA.
,, GRANDIFLORA.—Many of our imported plants bloomed, and amongst them were fine varieties, very bright in colour and large in size.
VANDA CŒRULEA.
,, BATEMANI.
,, GIGANTEA.—Flower spikes on imported plants, clearly prove this to be a much finer species than it was supposed to be.
,, HOOKERIANA.
,, INSIGNIS.
,, SUAVIS.
,, SPECIES MOULMEIN.
,, TRICOLOR.
ZYGOPETALUM MAXILLARE.

H. L. & Co. specially invite inspection of contents of 12 Cases to hand this week ex steamer *Magdalena*. They contained probably the finest lot yet seen in Europe of BURLINGTONIAS, CATTLEYA MARGINATA and PINELI GRANDIFLORA, ONCIDIUM CRISPUM and CRISPUM GRANDIFLORUM.

A PRICED CATALOGUE can be had on application.

THEOPHRASTA IMPERIALIS, good plants, 21s. each.

CLAPTON NURSERY, LONDON, N.E.

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.

LIST OF AWARDS, August 4, 1863.

First-class Certificate.

Clematis Jackmanii, from Messrs. G. Jackman & Son, Woking.

Clematis rubro-violacea, from Messrs. G. Jackman & Son.

Hymenostachys elegans, from Mr. W. Bull, Chelsea.

Hollyhock R. B. Ullet, from Messrs. Downie & Co., Sydenham.

Hollyhock Mrs. M. Binning, from Messrs. Downie & Co.

Second-class Certificate.

Scarlet Pelargonium Lady Cowper, from Mr. Francis, Hertford.

Hollyhock Cherub, from Mr. W. Chater, Saffron Walden.

Dahlia Alexandra, from Mr. C. J. Perry, Castle Bromwich.

Dahlia John Wyatt, from Mr. J. Keynes, Salisbury.

Commendation.

Nosegay Pelargonium Stella variegata, from Mr. G. Smith, Hornsey Road.

Picotee Exhibition, from Mr. R. Elkington, Buckingham.

Special Certificate.

To Messrs. Downie & Co., for a collection of 36 Hollyhocks.

To Messrs. F. & A. Smith, Dulwich, for a collection of Balsams.

The next Ordinary Meeting will be held on the 25th of August.

Thomas Moore, Secretary to the Committee.

BANBURY HORTICULTURAL SOCIETY.

OPEN PRIZES.

The Seventeenth Annual Exhibition of this Society is fixed for TUESDAY, August 25, when in addition to the usual number of Prizes to be competed for by Members, the following are offered, Open to all England, on payment of an Entrance Fee of 2*s.* 6*d.*

For the best 6 Stove or Greenhouse Plants, either in Flower or Ornamental, of at least four different Genera, but not Fuchsias or Annuals, 1st Prize, 3*l.*; 2d, 2*l.*

For the best 24 Dahlias, 24 varieties, 1st Prize, 3*l.*; 2d, 2*l.*

For the best 18 Hollyhocks, 2 Blooms of each, 1st Prize, 2*l.*; 2d, 1*l.*

For the best 12 varieties of Verbenas (5 trusses in a bunch), 1st prize, 1*l.*; 2d, 15*s.*

The Judges may withhold any prize if the production exhibited is not considered worthy.

Intended Exhibitors must give notice to the Secretary on or before Saturday, August 22.

The Society will, if requested, convey the productions from and to the Railways.

The Band of H.M. 76th Regiment, from Aldershott, and the Orpheus Glee Union will perform during the day.

For further particulars, apply to E. J. Hartley, 57, High Street, Banbury. Acting Secretary.

BISHOP AUCKLAND FLORAL and HORTICULTURAL SOCIETY.

The Annual Exhibition will be held in Auckland Park on FRIDAY, August 28, when the following Prizes, amongst others of the value of nearly 300*l.*, will be awarded, viz. :—

For the best 6 Stove and Greenhouse Plants ..	£10	0	0
For the 2d best ditto	7	0	0
For the best 24 Dahlias, dissimilar	10	0	0
For the second best ditto	7	0	0
For the best 9 Hollyhocks, dissimilar .. .	5	0	0

The renowned Band of the Belgian Guides, consisting of 50 performers, will give two Grand Concerts.

Wm. V. Thompson, Hon. Sec.

RUGBY HORTICULTURAL and COTTAGE GARDENERS' SOCIETY.

The Annual Show of this Society will be held at Rugby on FRIDAY, August 28.

Upwards of 120 Prizes in Class 5, open to all Growers, will be offered for Plants, Fruit, Cut Flowers, and Vegetables; also two Silver Cups, one value 5*l.* 5*s.*, for 36 dissimilar Dahlias; and another, value 4*l.* 4*s.*, for 36 Roses, distinct varieties, one bloom of each.

Entries to be made on or before August 22.

Schedules and particulars on application to Rugby, Aug. 8. John S. Savage, Hon. Secretary.

The Gardeners' Chronicle.

SATURDAY, AUGUST 8, 1863.

The Measures for Fruit, &c., in Covent Garden Market are so different in their names from the imperial ones, that frequent inquiries from various parts of the country are made respecting the quantities they represent. There are sieves and half sieves, bushel sieves and bushel baskets, punnets, shallows, &c. These, however, do not respectively contain uniform quantities, some are larger than others of the same denomination. Formerly the half-sieve was most in use, and was furnished with a rim, within which the fruit was heaped above the cylindrical edge of the basket. Three of these half-sieves were considered equal to a bushel. Many years have elapsed since the Imperial measures were declared to be the only ones legal; but still in Covent Garden fruit and vegetables are bought and sold in baskets suitable to the commodities. The law could not well enforce that delicate, plump, and ripe Peaches, for instance, should be squeezed into hard wooden statute measures. Yet, without compulsion, a change has gradually taken place of late years by accord of the dealers themselves. Let us see the tendency of this free change. It is not to the scheme of reducing every thing to tenths, commonly called the Decimal system, into which some of our doctrinaires are seeking to thrust us, but to that natural system of halving and doubling which generally pervades our weights and measures. The old half-sieve, containing about one-third of a bushel, is fast giving place to a basket equal to half a bushel, the half being practically more convenient than the third of any known measure. Although the decimal system of weights and measures was established by law in France more than half a century ago, it is not to this day fully carried out. On the contrary, instead of a decimal scale, a binary one was legalised, so that the decimal standards were allowed to have each their double and their half, quarter, eighth, &c. The Government had to accommodate the mass of the people, by permitting them to use that system which is universally found the most convenient for the daily transactions of the many, that is the doubling and halving, or *binary* system.

It may be asked—what are the advantages afforded by this system over others? It is the simplest, and it is the best adapted for constructing a set of weights or measures, inasmuch as a smaller number of weights, for instance, will be necessary than when any other is adopted. If there be a series of weights increasing in binary progression, 1, 2, 4, 8, 16, 32, 64, &c., they will weigh any weight not greater than their sum. If these figures represent weights of so many lbs., those seven weights will weigh any number of lbs. that can be named, provided it is not greater than their sum, 127 lbs. If it should be enacted that after three years lbs. should no longer be used, but kilogrammes and hectogrammes instead, the equivalent of the former being about 2 lbs. 3 oz. 4 drams, a person might be shown that quantity, say of tea, and told the price, perhaps 8*s.* In most cases that would be a larger quantity than weekly wages would afford, and a less quantity must be decided upon, and in doing this the decimal system would not readily be called in aid, but halves and quarters on the binary system. The Imperial Government legalised the half kilogramme, under the name of *Livre usuelle*, and this in retail business is divided into halves, quarters, half quarters, or eighths; and if the decimal system should ever become the law of this country, that system would in all probability share the same fate here as in France. So the people may as well be allowed to retain their pound, its double or binary progression upwards, and its half and quarter downward, till we come to ounces; and so with them till we come down to a quarter of an ounce or the 64th part of the pound unit, which is as low a division as is usually required in retailing commodities. If the unit of any quantity is generally well known, as for instance 1 lb., its double and its half will be more easily comprehended by the meanest capacity than any other ratio of increase and decrease. Half a pound is better understood than its decimal representative 0.5 lb. Artificers find the binary system more convenient than the decimal one. The carpenters' rules have the inches divided into $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$, this enables them to take dimensions divisible by 2, which is often necessary. In short the binary system is not only the simplest but also the most convenient in practice.

Many scientific men are in favour of the decimal system because it has advantages on paper and in many calculations; but it should be recollected that when that system was introduced in France men of the highest scientific attainments did not approve of it. By employing a system of weights and measures which shall be in accordance with the one most convenient for the people, high and low, or rich and poor, there can be in it no difficulties which scientific men may not easily surmount. This they will doubtless readily admit. But on the other hand, will they or any person at all conversant with the affairs of ordinary life be prepared to say that the mass of the people will easily or ever get over the difficulties of a decimal system, which is proposed to be enforced. We have endeavoured to point out what we consider to be the best and simplest system, and that which it appears all others ultimately fall into more or less completely, so much so that it may be considered the most natural one, and by far the best for the trading interests of the community. These interests we conclude ought not to be disturbed by a decimal system proposed on purely theoretical grounds, which experience has already proved to be fallacious. *R. T.*

It is needless to say that the Chinese plant called Aralia Sieboldi is one of the finest of our new shrubs in places where its noble foliage is sheltered from wind. What we want to know is its degree of hardiness. That important question seems to be answered by a recent statement from Mr. Stelzner, of Ghent. In the *Journal des Travaux de l'Académie d'Horticulture de Gand* this gentleman states that after a sharp frost at the end of last November, when the thermometer stood at 23°, and its last wood was hardly ripe, the plant did not sustain the least injury. Even a specimen whose top had been taken off for cuttings stood the same frost equally well. It is however to be noted that this most beautiful sort of Aralia must have a light soil and full exposure to the sun.

—— We have received from Messrs. Youell & Co., of Great Yarmouth, specimens of Gladiolus Brenchleyensis, the gorgeous appearance of which cannot be spoken of in terms of exaggeration. Its tall, robust habit, and intensely bright scarlet flowers, place it at the head, not only of the class of plants to which it belongs, but also of all hardy flowers of the autumn. Of the method of cultivation adopted by Messrs. Youell a full account was given in our last year's volume, p. 957; but as many may find it inconvenient to refer to that statement, we briefly recapitulate the instructions there given. They relate chiefly to the proper management of the different varieties of Gandavensis, to which the variety now under notice belongs.

The first thing is to properly prepare the bed for bulbs, and in doing this proceed as follows:—Furnish to begin with a good layer of well rotted manure, which must be dug in at least 1 foot or 18 inches in depth, turning up the ground as roughly as possible. This operation should always be done in autumn, in order that the frost of the succeeding winter may act well upon the soil. When the ground is frozen hard it is also an excellent plan with a three-pronged fork to remove all large lumps to each side of the bed. In this way the next frost will penetrate still further, and will thus cause the mould to be well broken up. Now allow the bed to lay untouched until February, when it should receive another slight coating of manure, and be well turned in with a fork (twice at least), mixing the soil and manure well together: the bed will now be ready to receive the bulbs. The second week in March is the best time for planting, but if you wish to have an earlier bloom, plant in February in a sheltered situation, and if you wish for a later display you must of course regulate the time of planting accordingly. If a succession is desired, plant the last week in February, second week in March, and the first week in April. In this way you will have them in bloom for at least a period of three months.

In planting make the holes for the bulbs about 9 inches apart one way and a foot asunder the other; in each hole put a small portion of sand, which enables one at taking up time to get them out clean. Then insert the bulb 3 inches in depth. Cover with the soil in the bed already well prepared for the purpose, rake neatly, and the operation is finished. The ground being properly prepared and the bulbs skilfully planted, they soon begin to show above the surface and to look vigorous; and at this stage of growth a small hoe run between the rows will be found a great acquisition, especially after a shower; do this, and you will find your plants grow inch by inch until the flowering season commences, when the result will doubtless be most satisfactory, provided the season is at all favourable. You must however strictly adhere to the rules just laid down. If all goes on well the colours will be fine, the flowers large, and the spikes splendid.

Let us now imagine that we have arrived at the middle or latter end of October, when the bulbs of the earliest kinds should be taken carefully up, and put away in some airy place to get well dried; when you think they are fit for storing, put them in paper bags and hang them up in a dry situation where no frost can reach them. In this way you will find your roots in good order for the following spring, when you will willingly go through the same ordeal again, as you cannot possibly be unsuccessful if you adhere to the advice just given.

Such are Messrs. Youell's instructions, which none, we think, can fail to understand, and which all may implicitly follow with equal advantage to themselves.

—— The lovers of curious forms of British Ferns need be in no fear that their pet subjects will be soon exhausted, or that we have nearly reached the limit of the odd sports into which many of the species have been so prone to vary. Mr. Moore sends us the following memoranda respecting certain novel and highly curious forms which fully bear out the above remark:—

"A short time since I received from Mr. W. Ingram of Croydon, a remarkable variety of Lastrea Filix-mas, found by him in Worcestershire, which I propose to distinguish by the name of Ingrami. Its fronds are large, being some 3 or 4 feet in height, and at least a foot in breadth, the pinnules large, averaging an inch in length by a quarter of an inch in breadth, the lowest set on by a narrow base, and the rest becoming gradually decurrent and oblique; they are thus of a narrow linear-oblong form, somewhat acute and cut at the margin into deepish pointed teeth directed forwards. The long narrow obliquely-decurrent incised pinnules give this Fern a very distinct and remarkable appearance. The upper part of the frond only is fertile, and differs from the lower portion in little excepting that the pinnules are more acute, more deeply incised, and a trifle smaller; the long narrow outlines and obliquity of insertion being still preserved. This is one of the most striking

varieties of Filix-mas, of normal development, which has come under my notice.

"Within the last few days Mr. C. MONKMAN, of Malton, has sent me a most singular form of LASTREA DILATATA, which it is proposed to call HOWARDII. In this the fronds have the basal pinnæ normal, while the remainder are abbreviated and transformed as follows:—the pinnules, excepting the basal ones, are dwarfed and irregularly palmately branched into three, four, or five short divisions, which, according to their size, resemble small pinnules or pinnulets, and are finely toothed; the fructification is copious. From this alteration there results a very curious and interesting monstrosity, quite unique amongst the varieties of this species. It was found in the neighbourhood of Castle Howard, the seat of the Earl of CARLISLE, in compliment to whom it has been named, in acknowledgment of the interest his lordship has taken in the Ferns of the Castle Howard district. It is really a most remarkable plant, the pinnæ, with their transformed forked pinnules, having a good deal of resemblance in character to the small fronds of the oddly-shaped Athyrium Filix-fœmina Fieldiæ. It appears to belong to the elegant small pinnuled variety of L. dilatata, to which the name micromera has been given.

"Quite recently too I have been favoured with specimens of a new form of crispy Lady Fern, for which in compliment to its discoverer I have set down the name ATHYRIUM FILIX-FŒMINA SINCLAIRIÆ. This seems to be quite a dwarf-growing plant, related to crispum, but broader and denser in the parts, the fronds irregularly branching in a variety of forms, and all the divisions terminating in dense crispy tufts. This sport was found growing in a stone fence, at Inver, in the county of Donegal, by Miss C. E. SINCLAIR, after whom it is named. It will be an interesting addition to the dwarf tufted forms of this polymorphous species.

"The black Maidenhair Spleenwort is less given to masquerading than our common Male and Female Ferns, but Mr. O'BRIEN has made me acquainted with a very beautiful variety, which may be called CRISTATUM, inasmuch as the fronds all terminate in a large multifid terminal crest. The fronds appear to be small, 4 or 5 inches long, scarcely more than pinnate below, with a few pairs of small pinnæ which are stalked, and have a pair of bluntish lobes, right and left at the base, and a dilated squarish apex. The crested apex in the specimen we have seen, is larger than the rest of the frond. It is reported to be a very constant plant, having no plain fronds. The plant was a solitary specimen found in company with the common form of the species, on rocks in the county of Waterford."

—— Of recent Botanico-horticultural appointments we may mention that Dr. REICHENBACH fil. of Leipsic, who is so well known as a very learned writer on the great Orchidaceous family, has been appointed Director of the Botanic Garden at Hamburg; and that Dr. HOFMEISTER, who has earned a reputation by his valuable observations on the development of the Cryptogamia, has been named Professor of Botany, and Director of the Botanic Garden at Heidelberg.

FISH AND FISHING.—No. XIII.

TENCH AND CARP FISH PONDS.

(*Concluded from p. 725.*)

THE tench I have already referred to were, no doubt, recently introduced by the hand of man into the garden pond last mentioned, for the pond itself looked artificial; but how came the carp in an open unguarded pond in an open common at Harrow Weald? And how came all those tench and carp in every cottage pond in Sussex? How came jack so numerous in exposed ponds, as they used to be 30 years ago on Hounslow Heath, near to Southwell? How were these several fishes introduced into their several localities?

As regards carp, we have sufficient legendary proof that they are of comparatively recent introduction. Izaac Walton says, "The carp is a fish that was not at first bred, nor hath been long in England. It is said they were brought hither by one Mr. Mascal, a gentleman that then lived at Plumstead, in Sussex, a county that abounds more with this fish than any in this nation; and, doubtless, there was a time, about 100 and a few more years ago, when there were no carps in England." He then quotes from Sir R. Baker's Chronicles (he lived between 1568 and 1645):—

> "Hops and turkeys, carps and beer,
> Came into England all in a year."

There is however another version of this, which seems more probable of truth, for why should "Hops" and "beer" both be mentioned?* It is:—

> "Turkeys, carps, pickerel (pike), and beer
> Came into England," &c.

I think we may safely infer that pike and carp first came to England about the year 1540, and were brought by "one Mr. Mascal." I do not however remember to have heard of pike in the Sussex ponds. But how did he bring them? The carp being so long lived he might have brought them in tubs, &c., alive. But how the pike? Could Mr. Mascal have known anything of our modern art of pisciculture?

The puzzle however is—Catholics and Catholic habits being banished from England about the period of the introduction of the carp, 1540—how they became so widely disseminated over the land (Sussex especially) as to be found in so many far distant natural ponds?* Some persons have supposed an answer to this difficulty by, "oh! by spawn adhering to the legs of wading birds," to which I only say "quære, quære."

I will not attempt an answer, but prefer leading the reader on to a greater difficulty. While in Jamaica I was a great land and fluviatile shell collector, and amongst many other new species, I found a fluviatile shell, since called Physa jamaicensis (Adams), which has not the least degree of amphibiousness in its nature. I shall now quote Professor C. B. Adams's words as though they were my own.

"This species was found plentifully in a tank † at Malvern, more than 1000 feet high, in the isolated group of the St. Cruz mountains in St. Elizabeth (Parish). The structure of the country for many miles in every direction is such that no water is ever seen standing on the surface; through innumerable subterranean fissures rain immediately percolates to unseen depths. Artificial tanks are therefore the only places where fresh-water shells can exist in this region. We are quite ignorant of the manner in which this species was introduced to its habitat." This tank was boarded over, and no water-fowl *could* enter it! These "puzzles" are among the mysteries of Nature, yet awaiting solution. *E. C.*

* See note * next column.

* Since the above was put in type, an article has appeared in *Chambers's Journal*, No. 493, June 13, 1863, pp. 379—381. The subject is "The Turkey." As to the period of the introduction of the Turkey into England, it seems to militate against Izaac Walton as an authority. The article gives a still fuller version of the couplet, and carries the introduction of Carp and Pike to a much earlier period, 1422 to 1471, that is, anterior to Henry VI. This would rather favour my idea that the monks introduced them. I beg especially to refer the reader to the article in *Chambers's Journal*, if the subject interests him. *E. C.*

† I have already in this paper described the nature of tanks in Jamaica, ante, p. *E. C.*

ANCIENT FRUIT LORE.—No. IV.

(*Continued from p. 603.*)

How to gather Apples, and how to know when they are ready to be gathered.

And touching ye gathering of apples, beginning first with sommer fruite, as Jeniting apples, Margaret apples, so called in Kent, & others which are too tedious in this place to be nominated: yet by the rules hereafter, although the fruits not mentioned, shall you know their due seuerall times of gathering. If they haue their full growth, some of the ripest will bee dropping off the tree, and commonly the birds will be picking of them. Or els, you may pull off one of the greenest, cut it, & if you finde that it is hollow about the coare, and the kirnell beginning to be loose (as is shewed before in the tryal of Peares) then haue they their full grouth, and they are ready to be gathered. And being gathered either of these waies, they will in the house come to their perfect colour, and ripen kindly of themselues: but if they bee gathered afore, they will shrinke, wither, and eate tough, and doe no seruice.

Winter fruite, how to be gathered.

Winter or lasting fruite, should bee gathered in the wane of the Moone, the winde not being in the East: although indeed the Fruiterers of London by reason of their great quantity doe not obserue the same. For, when they doe once begin to gather, they giue not ouer, untill they haue gathered the last, except in foule or wet weather. For al fruite whatsoeuer being gathered in wet weather, or as long as the deaw hangs vpon the trees, be they euer so good lasting fruite, it will cause them in short time to rot. For, being wet or moyst when they bee gathered, soone after that they be housed and layed, it will bring them into a heate, causing them to rot, and be mildeawed.

How to vse your gathering hooke.

As concerning the better handling of your fruite in the gathering, the placing of the ladder hath been before specified: you must also bee prouided of a hooke and a gathering apron or bag. The hooke, to pul the bough that you cannot reach with your hand: The bagge or gathering apron, to put in your fruite, as you gather them.

Of the gathering apron, and the manner how to fasten it about you.

The gathering apron is commonly euery way an Ell: hauing, at the lower end thereof, in the middest of the hemme, a strong loope. Set this apron about your back, knitting both the vpper ends afore, then take vp the loope-end (which hung downe) putting your girdle through the loope: and so hauing fastened your girdle about you, tye the two corners of the loope end of your apron, the one of one side vnder your girdle, the other on the other side, doubling each of the corners vnder your girdle, for feare of slipping: thê your apron will be necessary for both your handes, or either of thê, to put in your fruite, as you gather it. And when your apron is full, loose but one of the ends fastened vnder your girdle: & so bowing somewhat downe your body on that side, let fall your fruite very tenderly into your prickell or basket. For, in laying them downe roughly, their owne stalkes will pricke them. And although then nothing seene or noted, yet they, that are stalke-prickt, will in time rot, beginning in the verie same place. But if you haue not such aprons ready, then take a bagge of a bushell, halfe a bushell, or thereabout, with a wollen list or some such like thing so broad, both endes sowed to the bagges mouth, in length as might serue to hang vpon your shoulder & reach your girdle.

Fruite to be gathered, without bruts or leaues: and why

Gather your fruite cleane (as neere as you can) without leafe or brut: onely gather it with the stalke. For, pulling any more then the stalke, breeds two discommodities: the one to the tree, the other to the fruite. To the tree, because that the brut would, the next yeere, haue been growne to be a stalke whereupon the fruite might grow. To the fruite, because the brut being gathered, and ioyned to the fruite with the stalke, will (in the powring of them downe) breake the next vnto it, although at that time not much seene: which will cause it to rot before his time. The leaues likewise, being amongst them, will in a short time rot the fruite. And as the fruite is not to be gathered, but with the stalk onely, so is it not to bee gathered without a stalke. For, as the brut, as far as it toucheth, doth hurt the fruite: so, without the stalke, it will not last long, it will rot in the very stalke roome.

How to vse your fallings.

They that fall off the tree, which be not gathered with hâd, are not to be layed with the rest. For, commonly they are broken or bruised, with the fall: by reason whereof they will not last, and, being layed amongst the gathered fruite, will in time spoile them. Yet are those fallings better, that fall when the fruite hath his full grouth, then they which fall before the time of gathering, as wind-falles, & such other. For they that fall before their full grouth wil shrinke, be withered, and neuer doe seruice: but they that are taken vp in gathering time, being layed by themselues, will serue to roast or bake, &c.

Abuses, in gathering of fruite.

In some great fruite countries, as Worcester-shire, and Glocester-shire, they vse to beate downe their coorse fruite, whereof they make their Perry & Cider, and likewise carry them in long carts, iogging one against another, by reason of their loosenes in the cart, also in sackes: which kinde of carriage, doth batter and bruise them: yet serue they for that purpose, or to spend or vse out of the way: but the fruite, that is to bee reserued for other purposes, is not so to be vsed.

How to carry the fruite after the gathering, in what baskets, and how they shall be shot.

If your fruite be gathered neere the place, where they are to bee layed vp, there must bee prouided certaine baskets or prickles, (able to containe two bushels, or a bushell a peece) each of them hauing two eares or handles, that so (being full) they may be carryed: betweene two, holding each of them one of the handles, in their hands, or betwixt them to be carryed vpon a coule-staffe, and so into the place appointed: by which meanes of carriage, the fruite will be neither bruised nor battered. Also haue a care, that they be poured or shot downe very gently, laying euery sort by themselues. But if there bee want of roome, hauing so many sorts, that you cannot well lay them seuerall (for some haue diuers sorts, although very small store of fruite) yet such of summer-fruite as are neerest, in taste, & colour, & of winter fruite, such as will taste alike, may (if neede be) be layed together: and in time they may be seperated, as hereafter shall bee expressed. But if the fruite be gathered, farre from whence they are to be layed, and that they must be carryed or conueyghed by cart or wagon (hauing any good store to carry) there must be prouided great baskets, or (as some call them) Maunds, of quarters or halfe quarters. And for the carriage, especially of summer Peares, greene fearne must be vsed to lyne them withall, on the inside of the Maunds: And here bee carefull to pul the stubborne ends of the fearne, cleane through the basket, that so they may be on the out-side. By this meanes, neither shall the fearne slip to the bottome, when the fruite is poured out into the maund, neither shall those hard ends bruise the fruite. Also couer your maund close with fearne: & with a great packe-needle, bigger then ordinary packe-needles, draw a lyne or small cord closing hard the fearne, that the fruite fall not out, neither be iogged or tossed in carriage. The fearne doth not onely stand in the stead aforesaid, but it causeth the peares soone to ripen (remaining any time therein) and to eate as well as if they had been gathered ripe: but if they be once come to a heate, and not taken out of the fearne in time, they will soone rot & become blacke.

When you haue brought your peares to the place appointed, if at the loosing of them out of the maunds you finde them not ripe, if you will hasten the ripening of them, lay them thicke vpon fearne, and with fearne also couer them close: for, being kept warme, they wil soone ripen and come to their perfect colour: alwaies prouided, that when they be neer ripe, they be vncouered. For, when they begin to ripen, being kept close, they will ripen too fast: and being vncouered, at that time, the ayre wil moderate their heate. But if otherwise, you meane not to hasten the ripening of them, lay them vpon the bare boards, neither too thicke nor too thin, and they will leasurely ripen.

For winter or lasting peares, they may be carryed

and packed either in fearne or strawe: not to the intent that the fearne should hasten the ripening of them: but that in the carriage they may not be battered. Also, at their iourneys end, they must be layed vpon fine sweet straw: prouided that they bee not layed in too warme a roome, least so you bring them into a heate: neither layed in a windy colde roome, for feare of shrinking and riueling them: but in a roome indifferent, where they shall have ayre, & not too much.

How to gather Wardens.

Wardens are to be carried, packt, and layed, as winter Peares.

How to gather Medlers, and how to keep them.

Medlers are to be gathered about Michaelmas, after that a frost hath touched them: at which time they are commonly in their full grouth, & will be then dropping off the tree, but neuer ripe vpon the tree. And after they be gathered, they are to bee layed in a basket, siue, barrell, or any such like caske, and wrapt about with wollen clothes, vnder, ouer, and on the sides: also some waight layed vpon them, hauing a board betweene. For, except that they bee brought into a heate, they will neuer ripen kindely, nor eate well. And after they haue layen so long as you thinke, or finde, that any of them be ripe, (as they will not ripen all together) the ripest, still as they ripen, must be taken from the rest. Therefore poure them out into another siue, or basket, leasurely, that so you may well finde them, that bee ripest: letting the hard ones fal into this other basket, and those that be ripe layed aside, the other that be halfe ripe seuer also in a third basket or siue. For, if they that be ripe, or halfe ripe, be not seperated from the other, the one will bee mouldy before the other bee ripe, and so spoile the rest. And still after that the ripest are taken from the other, they are frô time to time to be vsed as aforesaid, vntill that they bee all ripe.

Home Correspondence.

Spiræa callosa.—Whilst walking in a friend's garden the other day, I was much struck with the appearance of a plant, the tips of whose branches were brilliant with crimson leaves. Upon looking closer I found it to be my old friend Spiræa callosa, but being planted on the west side of the walk the rays of light from the setting sun caught it and produced an effect scarcely to be believed unless seen. How often do we find this same plant wasted by being unskilfully situated! No doubt when it is in blossom it is a universal favourite from producing so many sprays of beautiful little pink, chintz-like flowers, but when out of bloom, unless planted very judiciously, it looks nothing at all, no better than any other plant of a similar kind. You may pass and repass it, and never care to ask what it is. A few years ago this Spiræa was quite a rarity; but now, thanks to the improvement which has taken place in all horticultural affairs, a plant cannot long remain unknown, for when once seen by the public, if it is only hardy, it soon finds its way everywhere. It is not however every one who, when they obtain a new plant, think it necessary to ask themselves which is the best place in their garden for it to be seen to advantage, but having a gap that wants filling up, in it is popped. No wonder then that what we so much admire in our neighbour's garden looks nothing particular in our own. One thing should always be remembered in planting Spiræa callosa, namely, to place it on the west of your walk, where the evening sun will strike it. You may then walk up and down the path admiring the beautiful glowing effect of its folinge, which instead of being transient like flowers lasts months and months to enliven your garden. *Priscilla.*

Reigate Sands.—The sands found about Reigate have long been extensively used for gardening purposes. The different shades of colour among them have been found to number not less than 84, varying from pure white to jet black. The most prominent colours are red, yellow, white, and black, and from these all the other shades appear to proceed. It is remarkable that all these different coloured sands partake of that superior grit, which causes some of them to be of such value for many purposes. The coarse yellowish sand is best for mortar making, and it is most extensively used by builders; it is found in greater abundance in almost every part of the locality than the other kinds. The white, commonly called silver sand, is the next which is in most demand, especially for horticulture, and it is also used in the manufacture of glass, and by smiths in welding steel, iron, &c., as well as for a great number of other purposes. In selecting white sand for special use some judgment is required, as most of the coloured kinds are found in close proximity to it. It is only in separate veins that the pure white sand is found; so changeable is its course that it is sometimes difficult to find it even in the best caves; hence the many coloured sands above alluded to, most of which contain ferruginous particles, which in process of time form iron stone. The principal or original cave is called the Baron's Cave. It was used by the ancient barons in the year 1215, who assembled in it, it is said, to draw up Magna Charta; it is now only shown to visitors in memory of bygone days. It is reached by descending a long flight of steps with lighted candles. Its concave excavations have a peculiar grandeur. The other caves are numerous and most extensive, most of them having entirely ceased yielding any supply of sand. So dangerous had they become that it was considered advisable to discontinue the further working of them so near the town; but as the locality abounds with sand strata new caves have been opened a considerable distance away, which have been found to yield a sufficient supply. *William Short, Reigate.*

Spurious Strawberries.—In reply to Mr. Radclyffe's remarks about sending out spurious kinds of Strawberries, I beg to say that when Nimrod was advertised and very highly spoken of in your columns, I wrote to Messrs. Lucombe, Pince, & Co. for some plants, and received them from that firm in pots. These all proved to be Myatt's Eleanor, and I have the descendants of these plants now growing in my garden. I cannot say how the mistake occurred, but I am quite sure that there was no intentional deception. Two years ago the late Mr. Nicholson sent me six plants as the true Nimrod. This is a very different Strawberry from Eleanor. In his last Catalogue, dated September, 1862, Mr. Nicholson says "Nimrod is very much like Eleanor, if not the same." These remarks will not apply to the variety which he sent to me. It was exactly the same with Sir Harry. I wrote to Mr. Underhill for plants and received a number from him. About half a dozen of these were the true kind. The others, some dark-coloured Strawberry, a most abundant bearer, but so insipid that the blackbirds would not touch it, and neither in foliage nor fruits bearing the least resemblance to the true Sir Harry, which is a fine useful Strawberry. Mr. Underhill, in reply to a letter from me, said that the only fault of Sir Harry was its being liable to sport, and advised me to destroy all the spurious plants. *Henry Doubleday, Epping.*

Measuring Heights of Trees.—In Mr. Thompson's return of the growth of trees planted in the Royal Horticultural Society's arboretum, I observe that while the girths are given by measurement, the heights are only estimated. This induces me to inquire whether your correspondents are aware of a very simple and accurate method of ascertaining the height of trees too high for the ordinary measuring rod. It is this. A quarter-circular segment of some close-grained wood —Box, if possible—is graduated from 0° to 30° (it will be sufficient if the graduation begins at 15°). On one of the legs of the segment, and at right angles to it, are fixed two brass sights, one behind the other, and 2 or 3 inches from it; and from the apex of the segment is suspended a plumb-line; a small bullet, or brass button hanging on a piece of silk thread, will do very well. With this little instrument in the hand, the observer places himself at such a distance from the tree to be measured, that he can just see the topmost twig through the two sights, when the plumb line coincides with the 30th degree, (reckoned from the extremity of the arc furthest from him). He then marks the ground at this spot with a flower stake or anything at hand, and removes further from the tree in the same direction, till its top is again seen through the two sights, the plumb-line now coinciding with the 15th degree, where he marks the ground as before. Then, measuring the distance on the ground between the two marks, halving it and adding the height of his eye from the ground, he obtains the exact height of the tree. Of course this method requires a space extending for some little distance on one side of the tree, and if not quite level, the difference may be easily allowed for. I tried it upon a little Pinus Pinsapo, between 7 and 8 feet high, and found the result to correspond within a quarter of an inch with that given by the measuring rod. *Wm. Frederick Harrison, Bartropps, Weybridge Heath.*

Smoky Chimneys and Town Gardening.—I venture to suggest to you, Mr. Editor, that you should make a few remarks to induce gentlemen living in the neighbourhood of a town who have hot-houses and chimneys with a daily dense volume of smoke issuing from them, to take means to consume the smoke in consideration of neighbours equally interested in floriculture and fruit growing with themselves, who are sufferers from the deposits of smuts on their flowers and plants. Where there are many of these smoky chimneys, the result of them to poor striving gardeners is very disheartening. *Birmingham.*

Berberids.—The replies of several of your Correspondents to my inquiry as to the proper treatment of Berberis nepalensis, and the observation (*Gardeners' Chron.*, 1858, p. 402 *b*) that no species of the genus Epimedium like the full blaze of the sun, makes me think that I have been hitherto very wrong in planting Berberis Darwinii in a border facing due south in front of my house, and suggest the probability that it might thrive better on the north side of a thick hedge running east and west. I raise the plants without difficulty from seed, but can seldom keep them well furnished or good looking after the second year. If any of your readers has kept them in the shade with advantage, I would (fortified by his experience) plant out several plants in the shade this autumn; otherwise I shall experiment sparingly, and wait the result. *Diss.* [We ourselves have no experience with a north aspect. But we find it grow, flower, and fruit magnificently, in a narrow border running north and south, away from the interference of other things, and planted in common garden soil.]

Humble Bees in a Blackbird's Nest.—Having read "E. O.'s" remarks respecting the humble bee, I may mention that I have at my back door a common Laurel about 10 feet high. Early in April last my little girl put into the middle of this bush, 4 feet from the ground, a blackbird's nest for amusement, at the same time putting in it a little Moss. Looking into it a few days afterwards she found to her surprise that a humble bee came flying out of it, and in looking over the Moss she found a small cell of honey. The bee has gone on working, and has established a strong colony, which does not take the least notice of people passing in or out near it. The bees are black on the back, and have sulphur yellow tails. *S. F., St. Leonard's Lodge, Horsham.*

Platycodon sinense.—In reference to your remarks at p. 675 on this plant, I beg to say that it flourishes with me in the open border in common soil. It has stood out unprotected these last five years. I have it single and semi-double, in all shades from white to dark blue, and some prettily veined. I have it now beautifully in bloom in a 16-inch pot; the plant is nearly a yard high, with 21 stems, in common soil. It has a fault or two. Out of doors in moist weather it does not expand well, and the flowers often come a little irregular. Again, a sufficient number of flowers does not open at once. It will strike from cuttings. *A. R.*

Strawberries.—I can endorse Mr. Worsley's remark (p. 677) about La Constante. It is a first-rate variety with us, but has failed completely this year. The blooms it put out never appeared above the foliage at all, and the fruit was very small. Let me recommend one of which I don't see much said, viz., Frogmore Late Pine. Sir Harry won't grow here. *A. R.*

Societies.

Royal Horticultural: *Aug.* 4 (*Floral Committee*). Mr. Francis, of Hertford, contributed specimens of a dwarf-growing scarlet Pelargonium, with a white eye, named Lady Cowper, to which a Second-class Certificate was awarded, and another Pelargonium called Stella, from Mr. George Smith, of Hornsey, with prettily variegated foliage, was commended. This belonged to the Nosegay section. From Messrs. Downie, Laird, & Laing came a collection of Hollyhock blooms, for which a special Certificate was given: to two among them, viz. R. B. Ullett, crimson, large and full, and Mrs. M. Binning, beautiful rose, First-class Certificates were awarded. To a Hollyhock named Cherub, a medium-sized rosy salmon sort, from Mr. Chater, of Saffron Walden, a Second-class Certificate was given. Mr. Buil sent Hymenostachys elegans, to which a First-class Certificate was awarded, two Hymenophyllums, and a bad white variety of the handsome Spiræa callosa. Dahlia Alexandra, white, flushed with delicate lilac and tipped with the same colour, from Mr. Perry, of Castle Bromwich, near Birmingham, received a Second-class Certificate; and John Wyatt, a purple Dahlia, from Mr. Keynes, received a similar award; a heavy crimson-edged Picotee, named Exhibition, from Mr. Elkington, Buckingham, was commended. From Messrs. Smith, of Dulwich, came a collection of Balsams, with large and beautiful blossoms of various colours, varying from pure white to vivid crimson, and in some instances finely mottled; though past their best many of the individual blossoms of these measured fully 3 inches in diameter. The same exhibitors also sent a Common Cabbage plant, with leaves distinctly edged with white. To two pretty seedling Clematis, from Mr. Jackman, of Woking, First-class Certificates were awarded. They were stated to have been raised from venusta and Hendersoni. From Mr. Veitch came the handsome bright orange-flowered Mutisia decurrens. Mr. Toogood sent blooms of a Clove Carnation, named Princess of Wales, and plants in bloom of Disa grandiflora were furnished from the Society's garden at Chiswick.

Aug. 4 (*Fruit Committee*).—Mr. Rivers had on this occasion examples of Belle de Rochmont Cherry, a sort of considerable promise; Dove Bank and Early Mirabelle Plum; and his delicious Victoria Nectarines. Kaisha and Moorpark Apricots, the last fine specimens of good cultivation, came from Mr. Cox, of Redleaf. From Mr. Crawshay, Cyfarthfa Castle, came a scarlet Rock Melon, and Mr. Turner, of Slough, showed a hybrid green-fleshed Melon of good flavour.

Entomological: *July* 6.—F. Smith, Esq., President, in the Chair. The thanks of the Society were presented to W. W. Saunders, Esq., for his liberal entertainment of the members at Reigate on the 21st of the preceding month. Mr. S. Stevens exhibited a box of very interesting insects collected by Mr. G. F. Angas in South Australia; and Mr. Waterhouse specimens of Carabus auratus, a long reputed British species, captured by Mr. Brewer on the coast of Kent, between Dover and Hythe. It was, however, stated that twenty years ago Mr. Walton had turned a number of French specimens loose between Dover and Deal. Mr. Stainton exhibited specimens of Elachista apicipunctella, which had been reared from mined leaves of Holcus lanatus. Professor Westwood gave an account of a bee-hive recently observed in Switzerland, remarkable for the great number of hermaphrodite specimens which it annually produced —a fact which appeared to militate against the theory of Parthenogenesis. He also exhibited drawings of the larva and pupa states of the genus Coronis, an anomalous group of Lepidoptera, from the collection of Dr. Kaden, of

Dresden; and gave an account of the transformations of the equally curious genus Castnia. He also exhibited specimens of Gracilaria rufipennella, which he had observed in enormous quantities destroying the leaves of the Walnut in the Italian Tyrol; also of the butterfly Eucheira socialis, hitherto only known by the remarkable bag-like, family cocoon spun by the larvæ, described 29 years since by Professor Westwood. He also exhibited specimens of Papilio Castor and Pollux, and photographs of a remarkable hermaphrodite proving the two species to be distinct. Mr. Stainton stated that he had found the larvæ of Micropteryx fastuosella in mined leaves on Marlborough high chalk downs. Mr. Dunning exhibited a silk-like deposit, formed upon a quantity of Chicory, probably by the larvæ of some species of Tinea, and Mr. Burchall several specimens of the rare Dianthecia capsophila. Mr. Edwin Shepherd exhibited various rare Coleoptera, taken during the recent Reigate excursion; and the Rev. Mr. Marshall brought a number of specimens of the rare Platyrhinus latirostris for distribution. A paper was read by Mr. Pascoe containing descriptions of 60 new species of Australian Longicorn beetles; and Mr. Walker read a paper containing descriptions of New Sphingidæ and Ægeriidæ, in the British Museum collection. Mr. Stainton exhibited his remarkable collection of the drawings of the metamorphoses of British Microlepidoptera. A resolution was passed unanimously disapproving of the recent nomination, in the place of Mr. A. White, of a person quite unknown as an entomologist, to the situation in the British Museum, lately held by that gentleman. [If such a scandalous appointment has really been made, the case should be laid before Government immediately.]

Blechingley and Nutfield Cottage Garden.—The fifth annual Show of this Society was held on July 22, in the Park of the President for the year, the Rev. Charles Fox Chawner, Rector of Blechingley. The cottagers' produce, with the plants, cut flowers, and bouquets lent for the occasion, were arranged in a tent 90 feet long by 18 wide. The vegetables exhibited by the agricultural labourers were placed on tabling extending the whole length of the tent, on the left hand side, while those sent in by the mechanics and others not allowed to compete with the agricultural labourers were similarly arranged on part of the tabling on the opposite side, the remainder being occupied by the fruit exhibited by the labourers. A stage extending the whole length down the middle, with cross benches at the bottom, was occupied by plants and flowers to be noticed presently. Of the quality of the vegetables and fruit exhibited by the cottagers of the two parishes I feel some embarrassment in endeavouring to speak; I will therefore content myself with recording the observations made by professional growers present, in whose competence to judge of such matters every confidence may be placed. Alluding to the great improvement the cottagers have effected in the quality of their vegetables since the earlier shows of the Society, two of the principal gardeners on the Committee of the Society affirmed that they could not themselves produce better than had been brought by many of the cottagers—and a gentleman connected with one of the principal nurseries in the neighbourhood was of opinion that many of the Potatoes were in as perfect a state as when dug up in the autumn of last year. The fruit, consisting of Gooseberries, Currants, red, black, and white, Raspberries, Cherries, and a few Apples, was also in fine condition. The vegetables were Potatoes, round and kidney; Turnips, Parsnips, Carrots, Onions, autumn and spring sown; Cabbage, Peas, Beans, broad and French; Rhubarb, Lettuce, Vegetable Marrows, and bunches of herbs. I give the list that it may be seen what really useful stuff the cottager can grow when he sets about it properly and under judicious encouragement. Of these various articles about 700 specimens were sent in by 107 exhibitors. It was no light work to arrange and label all these to avoid confusion and mistake, nor was the task of the judges a simple one. Acting on former precedents and the necessity such keen competition excited, there were awarded for round Potatoes to the agricultural labourers two 1st prizes of 5*s.* each; three 2d, of 4*s.* each; two 3d, of 3*s.* each; three 4th, of 2*s.*, and five extras of 1*s.* 6*d.* each. To the mechanics for the same article were awarded a 1st, 2d, and 3d prize of the same amount, the class not being near so numerous as the labourers. For Kidney Potatoes to the labourers were awarded three 1st prizes of 5*s.* each; two 2d, of 4*s.* each; three 3d, of 3*s.* each; one 4th, of 2*s.* each; and three extra, of 1*s.* 6*d.* each. To the mechanics for the same article a 1st, 2d, and 3d of the same amount; in all 33 prizes, in value 5*l.* 4*s.* to the single item Potatoes. It was the more necessary to spread it out in this way, because nearly the whole of the exhibitors brought specimens, and the importance of the article gives it a first consideration by the Society. The other prizes therefore were not so numerous to a single kind; the principal were as follows:—Cabbage, 6 prizes, Onions (autumn), 5; Onions (spring), 9; Peas 9; Carrots, 6, Beans (broad), 8; Turnips 6, and so on; small prizes were also given for plants in pots, noseguys, and nosegays of wild flowers; in the last named a most useful step has been taken by the worthy President, Mr. Chawner, who offers every year a prize of 20*l.* for the most varied collection of wild flowers named, a preference being given to the scientific name, the English name to be also affixed where recognised English names exist; Ferns and Aquatics are allowed, but Grasses excluded. There were but four competitors for this prize last year, this year there were eight entries, but the weather happening to be wet the day before only six collections were sent in, but these exhibited a most gratifying improvement, one collection having as many as 84 kinds. The Society is indebted to the kindness of J. A. Brewer, Esq., F.L.S., of Reigate, for the duty of acting as judge of these collections. In order to make the show as attractive as possible, the Patrons kindly lent many of their beautiful specimens from their conservatories and stoves for the occasion, and the special thanks of the Committee are due to Mr. Cattell of Westerham, and Messrs. Ivery of Dorking, for the readiness with which they contributed their aid in this department. The plants, &c., sent by these gentlemen were arranged on the central stage and cross benches at the end of the tent, the latter being occupied by the fine foliaged and other plants belonging to H. E. Gurney, Esq., one of the Vice-Presidents, exhibited by Mr. Lovell, his gardener, who has frequently obtained a high position at the Royal Horticultural Society's and Crystal Palace Shows. His collection consisted of Cyanophyllum magnificum, a glorious specimen, five feet high; Maranta zebrina, Coleus Verschaffelti, Dracæna terminalis, Gesnera zebrina splendens, Caladium marmoratum, C. Belleymei, C. Chantinii, C. Wightii, C. argyrites. Ferns: Adiantum trapeziforme, Gymnogramma peruviana argyrophylla, G. chrysophylla, Lycopodium umbrosum, Blechnum corcovadense; all the above plants of beautiful foliage were remarkably well-grown. In bloom, Mr. Lovell had Erica Marnockiana, Achimenes four varieties, and one Orchis: Miltonia spectabilis, also a dish of Bellegarde Peaches and one of Violette Hâtive Nectarines. Mr. Cattell's collection consisted of cut flowers, Roses, and Verbenas, and some variegated plants, hardy and half hardy, including a pretty specimen of the new Lonicera from Japan. The Roses were chiefly those named in p. 703: among the best blooms were Chabrillant, Bonnaire, Reine d'Angleterre, Beauty of Westerham, Celine Forestier, La Ville de St. Denis, Jacqueminot, Senateur Vaisse, Belle de Bourg la Reine, Mesdames Boll and Furtado, and Washington.

The magnificent collection of hardy Ferns exhibited by Messrs. Ivery has so frequently been recognised at the great London shows as being of such singular merit that any praise I can award to them would seem superfluous. The Blechingley and Nutfield Society were only too fortunate in having so attractive an addition to their show; it is in this rough climate no small addition to their excellence their being hardy; every amateur should find a corner for some or all of them. Particularly lovely are Asplenium Adiantum nigrum acutum, Athyrium Filix fœmina apuæforme, A. F.-f. corymbiferum, A. F.-f. crispum (dwarf variety), A. F.-f. Fieldiæ, one of the most charming of the novelties, A. F.-f. Frizelliæ (also very striking), Blechnum Spicant molle incisum, B. S. imbricatum (very rare), Lastræa cristata lepidota (a pretty dwarf variety), L. Filix-mas cristata, L. F. m. pumila, Polypodium vulgare cambricum (Welsh Polypody) Scolopendrium vulgare crispum, Lomaria alpina (exotic). The main features of this village show have now been recounted; it remains to be said that the visitors to it had the privilege of inspecting and walking about the beautiful grounds and garden of the Rev. the President, of which the greater number availed themselves. As the number of exhibitors and specimens sent may seem somewhat unusually large, it will not be inappropriate to inquire a little into the causes that raised so sharp a competition within the comparatively small extent of these two country parishes, containing about 9000 acres. Last year the principles which guided the Society in their awards were fully stated in this Journal (Aug. 9, p. 741). It is not my purpose to repeat what was then stated further than is necessary. With a view of extending the benefits of profitable gardening among the working people of the two parishes as far as possible, the whole of the cottage gardens are inspected by the judges of the Society; by this means, all who show any aptitude get a chance of being noticed without any preliminary trouble of giving notice that they would like their garden s to be inspected; it is only in the case of the produce intended for exhibition that they are required to give notice. The certainty that their gardens will be seen and noticed acts as a spur to careful cultivation; good cultivation brings forth the fruit of improved produce. The profit of improved produce to their household stimulates a constant attention to its culture; hence the efforts of the Society are rewarded by the gratifying spectacle of their annual show. The editoria comments on last year's report are fully borne out; the truthfulness of the Editor's words are so striking that I cannot forbear quoting a passage. "We think all must admit that a vast improvement has taken place in the habits of the labourer since provincial associations were formed for the purpose of inciting him to exertion by offering prizes for the produce of his garden; and so popular has the taste for gardening become that there is scarcely a large town or district throughout the country without its horticultural society." This being the case, each place having its own show and bestowing its own rewards, ought it to stop there? I think not; let every society continue earnestly in the work as heretofore, and when that is done, let them compare notes; let the poor man's produce of one county be brought into competition with that of another county. Why should not the rural peasantry have a national exhibition? The artisans have had their turn; the tradesmen theirs; the florists and fruitists theirs; in fact everybody except the class that labour in sunshine, rain, storm, and wind. Their time will come, and that it is practicable I intend to prove next week by a brief outline of a scheme intended to call public attention to the subject. *Adolphus H. Kent, Blechingley, Surrey.*

Notices of Books.

The Lunar World. By the Rev. Josiah Crampton. A. & C. Black, Edinburgh. Pp. 138.

Without being, or pretending to be an astronomer, everybody wants to know something about the moon; but people in general have no mind to buy dry and costly works on the subject, nor does anybody care a straw how long a cannon ball would take to reach the moon. At the same time, a multitude of intelligent people wish very much to know what scientific and practical men really think about various matters. Whether certain appearances in the moon really are parallel roads, or canals, or walls and fortifications, or enclosures, or what? Such persons will be greatly obliged to Mr. Crampton for giving them trustworthy information, in a pretty little three-and-sixpenny book, containing about half a dozen plates, and as many other figures illustrating Selenography, as he calls it. Even good telescopic and microscopic observers in straining their eyes, sometimes fancy they see more than actually exists, and sometimes draw exaggerated or rather too definite pictures of what they see only indistinctly. Such was our feeling at the sight of a "lunar crater," in Plate 6, but it has the exact character of Trukkee, an extinct crater, in the Cutch Hills of India, represented in Plate 7. An officer from Ascension also states that some moon-sketches which he saw, were almost identical with the desolate and dismal scenery of that island. Mr. Crampton has an interesting chapter on the atmosphere and habitability of the moon, and gives, to our mind, convincing proofs against both. We must add, that he sees and points out many proofs of intelligent design and benevolent intention in the various lunar arrangements.

History of Feudalism. By Andrew Bell. Longman & Co., 1863. Pp. 360.

Judging from the way in which this book is got up, we suppose it is intended for the use of young persons who are preparing for an examination, and to aid them in fixing something definite in the memory. A set of questions is introduced at the end of each chapter. The preface is written in a charmingly inflated style, for which we are indebted to Mr. Cyrus Edmonds, whoever that individual may be. The editor thinks that "Human nature is not wholly and infinitely bad. It is only systems;" and accordingly everything connected with the feudal system comes in for his vituperation.

In a state of things where might is right, it is mere folly to expect the Christian virtues, refinement, and civilisation of the 19th century. Surely if there must be thieves, it is better that there should be "honour amongst thieves," than that they should be utterly without it. The "tyranny, rapacity, cruelty, and lust," which existed under the feudal system, were not engendered by it, but in some slight degree curbed and checked by its enactments.

Let the tinsel be stripped from chivalry by all means; we have not the slightest inclination to defend the extortions of the privileged classes, nor judicial combats, nor maiden rents, but we object to the small wit which calls the Franks "freemen, free, at least, as far as making free goes," which speaks of "that often unreasoning and purblind feeling called patriotism," and the execrable taste of such passages as this, from p. 85:—

"The life of the young châtelaines and demoiselles was one of solitary insipidity, varied by sensual dissipations, well adapted to induct criminality. To have some idea of its general nature in war-time we have only to imagine what would ensue if a number of ladies and their attendants were shut up with officers and soldiers in a barrack."

Really this is "vilipending" with a vengeance, and richly deserves the penalties of "scandalum magnatum." It's a good thing for some people that the age of chivalry is past and gone, for every gentleman with a spark of gallantry must long to administer a sound "box on the ear" to such an unmistakeable *villein.* (See p. 74.)

The Angler-Naturalist. By H. Cholmondeley Pennell. Van Voorst. 8vo. London, 1863. Pp. 425.

Among all the nations of the civilised world none are so really fond of fishing as the English. From the days of good old Izaak Walton downwards to the present time, from earliest boyhood to late in contemplative after-life, the "gentle sport" has peculiar fasci-

nations for an English gentleman, which even Dr. Johnson's ill-natured definition of an angler will never eradicate.

And yet how few of our most skilful sportsmen have more than the scantiest knowledge of the characteristic marks and habits of the finny tribe. Not many months ago a distinguished Cantab in simple ignorance was displaying the produce of his day's sport, and really did not know whether his friends were "chaffing" or in earnest, when they assured him he had been incurring unknown penalties for taking fish of the salmon tribe when out of season.

Intelligent people have felt the want of some general outline of Ichthyology in a compendious form, and specially adapted to the requirements of anglers in the British Islands, and this desideratum has been supplied by the excellent little work of Mr. Cholmondeley Pennell; a work which entitles him to the highest praise, and which is beautifully got up, in the first-rate style for which Mr. Van Voorst's books are so celebrated, with every scientific term carefully explained, and its derivation given, and the whole illustrated by upwards of 150 capital wood engravings, most of them from Yarrell's magnificent "History of British Fishes."

An extract from the introductory chapter will speak for itself.

"To the angler the value of even a moderate acquaintance with Ichthyology cannot be exaggerated. Not only is it of the greatest practical use by the insight which it gives him into the habits, food, spawning seasons, &c. of the several fish, and consequently into the best means of taking them, but it also doubles the pleasures of success. The most insignificant captures have to the naturalist an interest of their own, apart from their mere weight in ounces. He is able to identify the various species he meets with (many of which would otherwise pass unrecognised), to distinguish their sexes, ages, and conditions, and to read with an intelligent eye the wonders of this marvellous and beautiful page of nature. In spite of the advance of fish-science of late years, there are still many moot points and disputed theories connected with it which require elucidation, and possibly new varieties of fish yet to be discovered; and it may often be within the power of the angler-naturalist to observe, and accurately describe, characteristics and peculiarities of the highest interest to science. Notwithstanding, however, these inducements, it is astonishing how many there are, calling themselves sportsmen, who are content to remain all their lives simply killers of fish, of the habits, idiosyncracies, and even of the very names of which they are too often ignorant. Nor let it be supposed that this is a mere figure of speech; many species, particularly of the salmon and carp families, are only distinguishable by minute, though well-defined, differences imperceptible to the uneducated observer; and it is perhaps not too much to assert, that a very large proportion of the former are chronicled by their captors under names with which they have no connection whatever. This observation is even in some degree applicable to old and experienced fishermen."

The 2d chapter gives a concise but clear description of the general organisation of fish, their breathing apparatus or gills, for the oxygenation of their blood, which is performed through the medium of water. These gills do not decompose the water, but merely separate the oxygen from the common air contained in the water. Hence fish cannot exist in water which has been deprived of its atmospheric air. Some fish can bear a very high temperature, and some can bear being frozen and thawed again, and even to be transported from place to place in a frozen state, without injury to life.

It is agreed that the sight of fish is very acute in clear water, though the eye is more adapted for affording great power of vision at short or moderate distances, than for very long sight, and the fisherman who would be successful, must study to keep as far away from the water, and as much out of sight as possible. The hearing apparatus of fishes is not very thoroughly understood, but the necessity for the angler keeping perfectly quiet is proved by a multitude of anecdotes. Mr. Yarrell says the Chinese, who breed large quantities of gold-fish, call them with a whistle to receive their food. Sir Joseph Banks used to collect his fishes by sounding a bell; and Carew, the historian of Cornwall, brought his grey mullet together to be fed by making a noise with two sticks.

That fish are not so stupid as many people suppose, is proved by a little incident which was observed at the Zoological Gardens. In some plate-glass tanks were a pike and several perches.

"These fish took no notice of our entrance (says our author) and continued perfectly supine, though the keeper walked several times past their tanks, as if about to feed them, but when directed to walk away from them towards the cupboard where the net with which the baits were caught was kept, the stolid demeanour of the fish, both pike and perch, gave way to the most intense excitement. They rushed to and fro across their enclosures, straining their noses against the glass, erecting their fins, and exhibiting every token of agitation; and when the keeper, having taken the net, proceeded with it towards the bait tank, the whole shoal fastened their eyes upon him, following every movement, and constantly veering round, as if under magnetic attraction, towards whichever part of the room he turned. It was evident that these fish knew where the net was kept—that the keeper was going to fetch it—and that his doing so was a preliminary to their being fed."

The productiveness of fish is something amazing, 6000 ova have been found in a shrimp, 21,000 in a lobster, 36,000 in a herring, 60,000 in a smelt, 350,000 in a tench, 1,000,000 in a sole, 1,500,000 in a mackarel, 9,000,000 in a cod; but the impregnation of these ova is passing strange. "At the spawning time, which differs in almost every species, the fish repair, some to the gravelly shallows or weedy banks of rivers, and others to the sandy bays of the sea. The female then deposits her eggs, in portions at a time, and the male presses his milt out over them; and without this impregnation no vivification or hatching can take place; the eggs could never arrive at maturity; in other words they would be addled. The female is in some instances attended by two males, one on each side, so as to secure the impregnation of the greatest amount of spawn, the range of the milt being immensely increased by diffusion in water. After this process the eggs are left amongst the gravel, or sticking to weeds or other substances, the glutinous nature of each egg supplying the means of adhesion: in due time these are hatched." There are a very few fishes which are not oviparous.

Sharks and some rays are viviparous, and produce their young alive and complete in all respects. A few, such as the dogfish and some of the rays or skates, bring forth their young enclosed in horny cases, which are often found upon the sea shore, and called by children "Mermaid's Purses," "skate barrows," &c.

"In the salmon and herring families the openings between the gills are equal in extent to the length of the bronchial or gill-arches, but in the carps they are partially closed by a membrane, which retains moisture and thus keeps the gills longer in a condition to absorb oxygen from the air, in other words, to breathe, than in the above-named families; a bountiful provision for enabling the fish to survive the droughts of hot climates. Hence, carp may be taken a considerable journey in a basket, with no protection but a damp cloth. This peculiarity is so well known in Holland, that it is no uncommon practice with the Dutch, to fatten carp for the table, by hanging them in a cool cellar, in a net full of damp Moss, for three weeks or a month, and feeding them with bread and milk, which is passed into their mouths with a spoon. They refresh the fish now and then by sprinkling the Moss with water."

(To be continued.)

Garden Memoranda.

Craven Cottage, Fulham.—Of the beauty of the summer decorations of this delightful surburban retreat we have spoken in favourable terms in former volumes (see page 559, 1858), but at no period have they been finer than they have been this season. The cottage in question belongs to Sir Ralph Howard, Bart., and every summer both it and the charming flower garden attached to it, are frequently the scene of large and brilliant meetings of the nobility and gentry, friends of Sir R. and Lady Howard. One of these gay and cheerful gatherings took place a short time ago, and the grounds, which are under the care of Mr. Wilson, were put in beautiful order for the occasion. Gardening in a natural style is here skilfully blended and associated with what is artistical; large weeping Willows, and other trees of handsome growth may be seen rising up behind and overhanging noble masses of Evergreens, the latter fringed with brilliant flowers; old tree stumps are mantled with Ivy, from among which issue Fuchsias in full bloom. Of Deciduous Cypresses, Yews, stately forest trees, and other fine natural objects of interest, there is also abundance, through little openings among which the Thames can be seen to advantage. Materials such as these, as may be imagined, form striking contrasts with a smooth closely cut well kept lawn richly ornamented with flower beds, baskets, and vases, all bright with blossom, provided during the summer time in the greatest profusion.

Terraced floral mounds, several of which occupy the central portion of the lawn, are now, though a little past their best, extremely brilliant. They are in short literally depressed pyramids of bloom, while over the edges hang masses of richly coloured Nasturtiums. The last also, planted by the sides of clumps of evergreens, and allowed to overrun them, have a pretty effect.

On the terrace immediately in front of the cottage, which is of great age and half hid in Ivy, are several handsome beds of flowers supported by an Ivy-covered bank or ramp, tastefully lit up here and there by the introduction of variegated scarlet Pelargoniums. Under trees is a most beautiful mass of Pelargonium Brilliant, which seems to succeed better in shade than most kinds; in other beds are some charming mixtures of different coloured flowers, together with a bed of handsome-leaved plants, which of themselves have a pretty appearance. They consist of Cloth of Gold Pelargonium, intermixed with the dark-leaved Perilla Nankinensis, Coleus Verschaffelti, and the red Japanese Amaranthus melancholicus ruber, edged with blue Lobelia. Than these, nothing in the way of ordinary handsome-leaved plants could well be prettier; other beds, hooped over with Nasturtium-clad iron rods in the form of basket handles, contain Pelargoniums and other plants, edged in some cases with Duke of Cornwall Verbena, an extremely dwarf brilliant scarlet sort. A circular bed of the rose-coloured Pelargonium Christine, intermixed with Salvia patens, has a fine effect, the bright blue spikes of the Salvia being allowed to rise only a suitable height above the Pelargonium. This is managed by pruning down the main spikes of the Sage, thereby inducing offshoots which flower long and freely. We also remarked some good beds of Clove Carnations of different colours.

Of variegated Pelargoniums, Countess of Warwick is that which is the greatest favourite here for bedding purposes, and Attraction is most liked among Scarlets, being a kind which keeps better in winter than Tom Thumb, while it equals that useful kind in brilliancy.

We may mention that Pelargoniums here are taken out of the beds every autumn; the soil is shaken carefully from their roots, the leaves are removed from the stems, which are not cut in, and thus prepared they are stowed away thickly in pots for the winter under greenhouse stages, or anywhere that is dry and free from frost. In spring they are encouraged to grow, which they do satisfactorily, and make good plants by turning out time.

Standard Roses, here as elsewhere, have flowered well this season. Round their bases are numbers of dwarf-growing Verbenas, Campanulas, Nierembergias, blue Lobelia, and plants of that description; a few heads of variegated Pelargoniums that are permitted to just peep above the Lobelia have a pretty effect. These are produced by cuttings stuck into the beds in May, where they soon strike root and flower, the plants themselves being kept in subjection by the Lobelia.

For edgings under trees, Ivy, both common and Irish, is employed with excellent effect; the first is dwarfer and more compact than the last. The best of all plants, however, for this purpose is London Pride, which seems unusually well suited for such situations. All that is required is merely to prepare the ground and dibble the plants in 2 or 3 inches apart. The peculiar green of the leaves of this Saxifrage associates better with Grass than that of Ivy.

In the kitchen garden some Pear trees that have been root-pruned, are bearing good crops, and each tree having had worked upon it many different sorts, a good variety of Pears is obtained from a comparatively small number of trees. Apples, though scarce in some places, are here plentiful.

Miscellaneous.

Spring and Summer Flowers.—The spring flowers have now all disappeared. The gorgeous Peach and Plum Trees, whose falling petals "strewed our path with flowers," are now covered only with leaves; Azaleas, Camellias, Violets, and Primroses, and even the glorious Glycine itself, have all passed by, and will not be seen again until the opening of another year. But although the spring beauties have gone by, another race, equally beautiful in its way, has come to take their places, to paint the woods and hedgerows and gardens with masses of gay colours, and to perfume the air with the fragrance of its blossoms. Wild Roses are now in full flower. The hedges, banks, and uncultivated land are covered with their white blooms. A new species of Weigela is growing wild everywhere, and is also in flower. In the end of May and in June Deutzia scabra and Styrax japonica are very beautiful. They abound on every hill-side, in the hedges, and on the banks of streams. Later in the year the Styrax produces galls, from which a reddish dye is prepared. Honeysuckles, too (Caprifolium japonicum), are abundant, and their flowers, with those of the wild Rose, fill the air with delicious perfume. In gardens, herbaceous Peonies are out; several beautiful kinds of Pinks, quite different from the spring sorts, are also in bloom, and there is a race of summer Chrysanthemums which come in at this time, and which render the gardens extremely gay. In addition to these, I noted two fine new Weigelas, some Clematises, Irises, Spiræa Reevesiana, and the white Banksian Rose. It is a common remark amongst foreigners that flowers are mostly scentless in Japan, and some have gone so far as to attribute this to the nature of the soil of the country. That this is not so will be apparent from the notices of the different fragrant plants above-mentioned. Honeysuckles, Roses (particularly the white Banksian), Gardenias, Peonies, Tuberoses, and a hundred other flowers, are just as fragrant in Japan as they are elsewhere. Violets are scentless, but this appears to be the fault of the species, and not of the soil. During the latter part of the month of June I discovered and added to my collections several new plants of considerable interest, which I must now notice. One day I was out in the country in search of the seeds of a Columbine, which were now ripe. In the grounds of a pretty little temple I came quite unexpectedly upon a new species of Deutzia, having double rose-coloured flowers. It was in full bloom at the time, and was very beautiful. The good priestess of the temple kindly allowed me to gather a few specimens of the flowers for my herbarium, and for a few tempos I induced her to part with some of the plants. This shrub will be hardy in England, and its double rose or pink coloured blossoms will render it very ornamental in our gardens. Curiously enough I found at this time the pretty Spiræa callosa, a shrub

which I had first seen on the Bohea mountains in China, and which I had imported thence into Europe. It grows wild on the hill-sides in Japan, and is also cultivated in gardens and much esteemed by the Japanese. Another Spiræa—a herbaceous kind, resembling our own "Queen of the Meadow," but with deep red flowers—was also met with at this time. Lychnis senno, a plant which I had known from a figure in Siebold's "Flora Japonica," was also found in bloom, and added to my collections. It is cultivated in every cottage garden, and is very showy and handsome when in bloom. Its leaves have a kind of violet hue, somewhat resembling a Tradescantia, while its flowers are of a bright fiery red colour. There are three varieties of this—a red, a white, and one with striped flowers. They are all very ornamental, particularly the striped one. Hydrangeas were also met with, and a beautiful new Honeysuckle, since named Lonicera reticulata. *Fortune's "Yedo and Peking."*

Dogs and Cats.—The following interesting account, which I guarantee, seems to deserve a place amongst the intelligent acts recorded of animals. In the Pyrenees I possess two large dogs of the country, male and female, Pastoureau and Pastourelle. Last year Pastourelle had a family. I was away at the time, and in accordance with an absurd custom of the country the whole litter was drowned, much to the grief of the mother, whose health suffered for some time in consequence. The house is very large, and besides the dogs, half a dozen cats I believe may be found patrolling the premises. Now a fortnight ago three of the cats kittened about the same time, and again all the young were drowned by the servant. But as he was returning from his wholesale murder he was met by Pastourelle, carrying in her large mouth one of the unfortunate kittens, alive and crying. The servant wanted to take it away from her, but she escaped, and for a time no one could make out where she had put it. However, some hours later, at night, a little mewing was heard at the far end of a large stable, and there in a dark corner were the three cats, disputing which had the right of suckling the little one; Pastourelle sat by looking on, and from time to time taking the little kitten in her large paws, and licking and warming it. . . . The dog every now and then came to see how matters progressed, but he evidently took far less interest in the proceeding than Pastourelle, who never left for a minute. My wife and daughter and all the inmates of the house witnessed this curious scene, so the truth of it cannot be doubted. I need hardly say that with us, no one lives like dog and cat; man and beast live in the most perfect harmony—it is our custom. Two years ago, when we had half a hundred bullocks and bulls in the forest, it was quite an interesting sight to see them all come bellowing with delight from different parts of the mountain, at the call of my daughter, a girl of 15, and circle round her to receive a small quantity of salt. *M. Dussard, formerly Prefect of Rouen, in Les Mondes.*

Tropical Forests.—In the tropical zone many loud voices celebrate the night, where, for hours after the sun has disappeared, the cicadas, toads, frogs, owls, and goat-suckers chirrup, cry, croak, howl, and wail. The quietest hours are from midnight until about 3 in the morning. Complete silence, however, occurs only during very short intervals; for there is always some cause or other that prompts some animal to break the stillness. Sometimes the din grows so loud, that one might fancy a legion of evil spirits were celebrating their orgies in the darkness of the forest. The howling of the aluates, the whine of the little sapajous, the snarl of the duruculi, the roaring of the jaguar, the grunt of the pecari, the cry of the sloth, and the shrill voices of birds, join in dreadful discord. Humboldt supposes the first cause of these tumults to be a conflict among animals, which, arising by chance, gradually swells to larger dimensions. The jaguar pursues a herd of pecaris or tapirs, which break wildly through the bushes. Terrified by the noise, the monkeys howl, awakening parrots and toucans from their slumber; and thus the din spreads through the wood. A long time passes before the forest returns to its stillness. Towards the approach of day the owls, the goatsuckers, the toads, the frogs, howl, groan, and croak for the last time; and as soon as the first beams of morning purple the sky, the shrill notes of the cicadas mix with their expiring cries. *Popular Science Review.*

Fruit of the Pandanus odoratissimus.—This species of Screw Pine, whose fruits, when perfectly mature, resemble large rich-coloured Pine Apples, plays an important part in the household economy of the coral-islanders of the South Sea. The inhabitants of the Mulgrave Archipelago, where the Coco-nut is rare, live almost exclusively on the juicy pulp, and the pleasant kernels of the fruit. The dried leaves serve to thatch their cottages, or are made use of as a material for mats and raiment. The wood is hard and durable. They string together the beautiful red and yellow coloured nuts for ornaments, and wear the flowers as garlands. When the tree is in full blossom, the air around is impregnated with delicious aromas. *Hartwig's Tropical World.*

A Loving Goose.—The "Journal de la Somme" tells us that a M. A. Plé, a proprietor at Frucourt, possessed a goose who was so attached to him that she accompanied him everywhere, and at night took up her abode as near as possible to his bedroom, and if she heard him toss about or cough, she gave a little cry. If something called him to a house in the village, the goose would follow him and remain at the door watching anxiously for him to come out. In fact it was such a loving companion that it never left him, and had he been attacked, would doubtless have defended him to the death. Alas! however, the faithful bird the other day very nearly fell a victim to her affection. Her master was cutting wood out of an Apple tree, the poor goose being underneath, when a branch fell on her and wounded her. Luckily, however, she got off with nothing worse than a broken head. *Daily Paper.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—All kinds of soil used in potting should now be laid in without delay before the ground gets sodden with autumn rains. Store them up neatly in narrow ridges, so as to be safe from wet and yet exposed as much as possible to the action of the air; and as success in plant growing very much depends upon having suitable soil for potting, no trouble or expense that may be necessary to procure this should be spared where well grown specimens are expected. Loam of moderately good quality may be obtained in most neighbourhoods, but good peat is not so easily got; this is absolutely necessary, however, for the growth of choice hard-wooded plants, and should be procured at the proper season, so as to have it in a fit state for use at the right time. Stove plants flowering in the conservatory will require attention, especially Achimenes, Gloxinias, and things of that sort, which should be gone over every day in cloudy weather, carefully picking off decayed flowers, &c. Any of the twiners on the roof which have done flowering may be thinned out, so as to prevent their shading the house too much, for after this season permanent shade should be avoided as much as possible. Young stock in cold pits intended to flower next season should be exposed to sunlight in order to ripen the wood, taking care, however, not to do this so rashly as to injure the foliage.

FORCING DEPARTMENT.

Pineries.—Those who intend cultivating Pines on the open bed system cannot begin at a more favourable season than the present. The bed should be from 18 inches to 2 feet deep, and should consist principally of good rich mellow turfy loam, well broken up, and carefully intermixed with a liberal sprinkling of clean sand, and a small proportion of leaf soil or good rich fibry peat; for when rough turfy soil is used and the bed is ever, from any cause, allowed to get thoroughly dry, it is very difficult to moisten it again, as the water passes off through the lumps without penetrating them. But if the loam is well broken up and mixed with some leaf soil, or peat and sand, it will be found to take water freely enough, and the roots will be almost as much under command as when the plants are grown in pots. Persons commencing this method of growing Pines should also endeavour to avoid planting out pot-bound plants, for these, whether young or old, seldom strike freely into the fresh soil, and are very apt to fruit prematurely; but if such plants must be turned out, then care should be used to make the soil firm about the balls, so as to prevent the water passing off without moistening the balls.

Vineries.—Every possible attention must be afforded young Vines planted this spring where strong rods are expected. Let a vigorous root action be secured, and endeavour to get the wood well ripened. Give air freely and early on fine days, so as to avoid any risk of scorching the foliage, but shut up early in the afternoon, sprinkling the floors, &c., so as to cause a genial moisture in the atmosphere, which will be of great service in strengthening the Vines. If plants are grown in the house, see that they are not infested with black thrips, and on no account be induced to regulate the temperature, &c., of the house for the plants, but remove these to other quarters, or make them succumb to the treatment most suitable for the Vines. Keep a sharp look-out for the appearance of red spider in houses where the fruit is ripening, and coat the pipes or flues with sulphur on the first appearance of this enemy. Indeed it is well to do this occasionally by way of a preventive, which, in this case as in most others, is vastly preferable to a cure. Vines in pots intended for early forcing will require attention to get the wood properly ripened, and this should be effected by exposing them freely to light and air.

FLOWER GARDEN AND SHRUBBERIES.

In some neighbourhoods green fly has been troublesome to Verbenas, &c. Where such is the case, tobacco water and soap suds may be used with success. The strength of the mixture should be tested by dipping some of the shoots worst affected into it, and used sufficiently strong to kill the insects, but not so strong as to injure the leaves. It should be applied in the evening when there is a prospect of a dry night, using a fine syringe or fine rosed watering-pot, and giving enough to moisten the whole of the foliage. Go over the beds frequently, and remedy any defect that may be perceptible without loss of time, for the bedding out plants are enjoyed but for a comparatively short season, and now that they are in beauty every means should be used to render them as enjoyable as possible by maintaining the most perfect order and neatness. Where the stock is clean, and growing vigorously, this will involve considerable labour and it will be necessary to go over the beds frequently, pegging down where necessary, removing decayed flowers, and cutting back such of the shoots as may incline to encroach upon the edging of the beds. Keep herbaceous plants neatly tied up, and cut off the flower-stems of any that are becoming unsightly. Take advantage of leisure hours to put in cuttings, and use every possible despatch with this work until there is a good stock in a fair way for rooting of such things as are known to be difficult to winter, except in the shape of well-established plants. Keep gravel walks perfectly clean and smooth by weeding, sweeping, and rolling, as may be necessary. Keep climbers on walls within due limits.

HARDY FRUIT AND KITCHEN GARDEN.

It may be advisable to go over such trees as are over luxuriant, and stop about half the shoots, beginning of course with the strongest, for a general stopping at this time would probably be of little farther service than to induce the production of a mass of useless spray, whereas stopping the stronger shoots or those which incline to grossness will divert the sap into the weaker ones, which will be strengthened, while the buds on the shoots that have been stopped will become full and plump without starting into growth. The only effectual method, however, of curing a gross habit of growth when this is the case in ordinary seasons is root pruning or keeping the roots within proper limits by means of shallow well drained borders. Should it be found that the shoots, after stopping, incline to start into growth, it will be advisable as soon as the fruit is gathered to open a trench at a moderate distance from the stem of the tree, cutting the stronger roots. This will be of the greatest service in checking growth, and will probably do more towards securing ripe wood than anything else that could be adopted. Get the Strawberry plantations intended to stand for next season trimmed as soon as convenient, cutting off and clearing away the runners, so as to afford the leaves plenty of room. Attend to providing plenty of Lettuce, Endive, &c., for winter salads; also see that there is a good bed of Parsley provided in some sheltered spot where it can be readily protected in severe weather.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Aug. 5, 1863, as observed at the Horticultural Garden.

July and August.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 30	O	30.184	30.151	80	35	57.5	62	60	N.E.	.00
Friday 31	16	30.280	30.146	80	44	62.0	61½	60	N.E.	.00
Satur 1	17	30.106	29.975	77	50	63.5	61½	60	E.	.05
Sunday 2	18	29.976	29.973	81	47	64.0	62½	60	S.W.	.00
Mon. 3	19	29.989	29.940	82	44	63.0	63	61	S.W.	.00
Tues. 4	20	29.891	29.883	78	53	66.5	63½	61½	S.W.	.17
Wed. 5	21	29.885	29.822	78	56	66.0	63½	61½	W.	.14
Average.		30.030	29.781	79.1	47.0	63.1	62.5	60.5		.36

July 30—Very fine; hot and dry; cold at night,
— 31—Fine throughout.
Aug. 1—Slight haze; very fine; rain.
— 2—Cloudy, fine; mild at night.
— 3—Very fine; cloudy; hot and dry; fine.
— 4—Fine; clouds in strata; very fine; rain at night.
— 5—Very fine; rather boisterous; rain at night.
Mean temperature of the week equal to the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending Aug. 15, 1863.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 9 .	74.2	50.2	62.2	14	0.40 in.	2	7	1	1	5	13	8	1
Mon. 10..	73.2	52.9	64.0	17	1.06	1	6	2	2	5	13	7	1
Tues. 11..	73.6	51.5	63.6	17	0.78	1	1	3	1	5	14	11	1
Wed. 12..	75.1	51.0	64.0	14	0.47	2	2	1	1	6	13	8	4
Thurs. 13..	74.1	50.2	62.1	17	1.14	1	3	2	3	5	15	3	5
Friday 14..	72.2	51.0	61.6	15	0.79	—	9	4	2	2	13	5	2
Satur. 15..	72.8	50.0	61.4	15	0.61	4	5	4	1	5	8	5	5

The highest temperature during the above period occurred on the 10th, 1842—therm. 93 deg.; and the lowest on the 13th, 1839—therm. 32 deg.

Notices to Correspondents.

Fuchsias: *Old Sub.* Your double flower is inferior to kinds already in cultivation.

Ice Houses: *W M H.* The number you want is unfortunately out of print.

Names of Plants: *H H.* Certainly not either Ferula persica or Prangos pabularia. The absence of fruit except in the youngest state renders it impossible to say what it is. There are far too many rays in the umbel for Prangos fœniculacea. —*H W C.* 1, Gnaphalium germanicum, which disappears under good tillage; 2, Young and barren Equisetum arvense, which will not long exist in dry well-drained land.—*J C.* Masdevallia infracta.—*Rutland.* Francoa appendiculata.—*R. Upcher.* Leaf of a Pyrola; apparently intermedia.—*T D.* We suppose it to be Euonymus atropurpureus. Of what country is it native?—*C. Bailey.* 1, Acæna (Ancistrum) adscendens; 2, Boronia spathulata; 3, Indeterminable; possibly an Edwardsia; 4, Some Escallonia; perhaps montevidensis.

Pentstemons:—*H. H.* The following sorts will give you satisfaction:—Euclide, Adrienne Boppe, Charles Klein, Le Dante, Lord Clyde, Dr. Hogg, Laurent Lowerque, Rose of England, Purple Prince, Mrs. Steans, and Blue Beauty.

Rhodanthe maculata: *Enquirer.* We understand that this fine new Rhodanthe requires to be grown vigorously, and out of doors in order to develop its size and markings. You had better not nurse your plants too tenderly. They come very fine grown about three in a 6-inch pot, under cool pit treatment, and then transferred to an airy greenhouse when in bloom. It is a mistake to sow such things too early, and in much heat. The other sort is not yet sent out.

*** Erratum. We find that the first prize for Currants shown at South Kensington on the 21st ult., was awarded to Mr. Tivey, gardener to Lionel Ames, Esq., The Hyde, near St. Albans; and not to Mr. Terry, St. Albans, as stated in our report of the meeting in question.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

AUTUMN SESSION, 1863.

President—The Right Hon. the Earl Bathurst.

Council.

The Right Hon. The Earl Bathurst.
The Right Hon. The Earl Ducie.
The Right Hon. T. H. Sotheron Estcourt, M.P.
J. H. Langston, Esq., M.P.
Edward Holland, Esq., M.P.

Principal—The Rev. John Constable, M.A., Trin. Coll. Camb.

Resident Professors.

Practical Agriculture.

J. L. Fletcher, Farm Manager.
*T. Baldwin, of Glasnevin—A Course of 20 Lectures on Crops.
*R. Scott Burn, Co-editor of the Book of Farm Buildings—A Course of 12 Lectures on Agricultural Machines.

Chemistry.

Arthur H. Church, B.A., F.C.S., Smith's Exhibitioner, Lincoln College, Oxon.

Assistant to Chemical Professor.

R. Warington, Jun., F.C.S.

Botany.—John Baylon, M.B. Lond. B. Soc.
Veterinary Surgery.—A. J. Murray, M.R.C.V.S.

Mathematics and Surveying.

W. Meredith Lane, B.A., Scholar of Trin. Coll. Camb.

Drawing.—James Miller.

* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

Agriculture.

J. Algernon Clarke, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.
Hewitt Davis, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
Captain Tanner Davy, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. Bailey Denton, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
Thomas Duckham, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
Thomas Ellman, of Beddingham, Lewes—Lecture on South-down and Short-woolled Sheep.
J. Chalmers Morton, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
Willoughby Wood, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.

Agricultural Chemistry.

Thomas Anderson, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.

The College will RE-OPEN AUGUST 10th.

For further particulars apply to the Principal.

AGRICULTURAL and CHEMICAL COLLEGE, 37 and 38, Lower Kennington Lane, London, S.

ASSAYS and ANALYSES promptly attended to by J. C. Nesbit, Lansdell & Co.

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Full particulars of terms will be forwarded on application.

LAND DRAINAGE, the ERECTION of FARM-STEADS, the CONSTRUCTION of ROADS, and other Works of Agricultural Improvements are undertaken by Mr. Humbert, Land Agent and Surveyor, of Watford, Herts, either by contract or on commission; and he will furnish estimates of cost free of charge, expenses out of pocket excepted.

Such works can be executed either under the powers of several special Acts of Parliament, with money raised by loan and paid off by instalments, or with the Landowner's own money.

Drainage, &c.

MR. JOSEPH BEAUMONT, Land Agent, Surveyor, and Drainage Engineer (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.

Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements. Valuations made for Sales, or the re-letting of Farms.

22, Parliament Street, Westminster, S.W.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Special Act of Parliament in 1853.

2, Old Palace Yard, Westminster, S.W.

To Landowners, the Clergy, Estate Agents, Surveyors, &c. in England and Wales and in Scotland.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

For further information, and for forms of application, apply to the Honourable William Napier, Managing Director, 2, Old Palace Yard, Westminster S.W.

MESSRS. WAY and EVANS, Analytical and Consulting Chemists, receive PUPILS for the study of AGRICULTURAL and GENERAL ANALYTICAL CHEMISTRY.

106, Leadenhall Street, E.C.

MESSRS. J. CHALMERS MORTON, Streatley, near Reading, and J. THORNHILL HARRISON, M. Inst. C.E., Frocester Court, Stonehouse, Gloucestershire, Agricultural Engineers, undertake reports on the Condition of Landed Property, together with the Direction of Land Drainage, Roads, Embankments, Farm Buildings, and other works necessary for its permanent improvement.

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MR. BAILEY DENTON, C.E., maintains a large staff for the execution of Land Improvements by a commission of 5*s.* per acre for Under Drainage, and a fixed charge for Outfall and other works.

For particulars apply to him, at 52, Parliament Street, Westminster, S.W.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.

GRAND SHOW at BIRKENHEAD (in the Park) on SEPTEMBER 8, 9, 10.

Prizes amounting to £1400.

ENTRIES CLOSE on August 10.

For Prize Lists, Regulations, &c., apply to Mr. Wm. Henderson, Local Secretary, Birkenhead, or to T. B. Ryder, Secretary, 57A, Church Street, Liverpool.

Agricultural Hall, Islington.

A POULTRY, PIGEON, RABBIT, FLOWER, and FRUIT SHOW will be held at the HALL on the 26th, 27th, and 28th inst.

PRIZE LISTS and other information can be obtained from S. Sidney, Esq., Secretary.

Agricultural Hall, Barford Street, Islington, N.

The Agricultural Gazette.

SATURDAY, AUGUST 8, 1863.

—— At this time last year we announced our intention of publishing the annual statement of our correspondents on the prospects of the current harvest during the following week: adding that little doubt could be entertained that the crops were generally inferior, and that Wheat in particular must prove to be exceedingly below an average crop. This expectation was fully verified in the experience of arable farmers during the past year.

In now making a similar announcement, we are able to preface it with the opinion that the returns this year will in all probability declare the prospect of unusual productiveness. The returns from 200 correspondents in all parts of the country, which we hope to give next Saturday, have indeed been prefaced during the past few weeks by detailed reports from most of the southern and midland counties, which make it certain that if we are favoured with good harvest weather, the summer of 1863 will witness the ingathering of a glorious harvest.

The English Agricultural Society must be prompter with its announcements and publications or it will certainly be outrun and forgotten in the race of agricultural improvement. We do not know to whom its prize has been awarded for the best essay on steam cultivation—but that the award has been made we infer from the swarm of competing essays, whose authors having been "commended" or otherwise by the judges are submitting their productions to the public in the form of pamphlets. Nothing shows more strikingly the interest which is now being taken in the subject of these essays than this rapid publication. Mr. Read's "commended" essay had hardly reached us, and been forwarded to the printer with the descriptive notice of its pages which appears in another column, before the post brought us another, somewhat perversely entitled "Fire and Water *versus* Corn and Hay;" whereas the union of the two appears in the case described to have been greatly to the advantage of the corn and hay produce of the land. To Mr. Hutchinson's very explicit, exact and encouraging account of his experience as a steam cultivator, which is published under this title, we must however refer next week. Meanwhile it is plain that the essayists are a long way ahead of the Society which has called them forth, and that they have a much more lively and accurate impression of the interest which the subject is exciting in the country.

As a lesson of promptitude on this subject, which seems to be needed, we may mention here that Mr. Collinson Hall, witnessing Savory's engines at work at Worcester, one at each end of the furrow drawing the ploughing or cultivating tool to and fro between them, bethought him that his plan of a polygonal pulley fitted to a chain of linked rods would be adaptable to something similar, in which however both the engines should be always and at the same time exerting their force upon the implement. And he forthwith *telegraphed* to his patent agent in London, desiring, almost as soon as the idea was conceived, that he would at once secure his right in it. This week accordingly he has published his scheme for enabling two ordinary six-horse-power engines to put out the force of 12 horses in the draught of a to-and-fro cultivating implement. The linked rods are to be wrapped around the polygonal drums or pulleys on the engines at either end of the furrow, and both engines are to pull at it—and thus unite their power on it—of course in the same direction; the double engines working a double rope just as hitherto a single engine has worked one around an anchor: the second engine being in fact a living anchor, which not merely passes but pulls the rope round in the direction in which the other engine is also driving it. The obstacle in Mr. Hall's way consists in the need of the rope being continually tight, which his long links and the consequent difficulty of letting it out or tightening it hinders it from being. The difficulty in the way of the proposed system generally lies in the need of both engines being worked together and stopped *together;* acting in fact directly under one management, in order to manage such things as stopping, reversing, again proceeding and so on, which are of constant occurrence in the steam-ploughed field. So far as the mere idea is concerned it is plain that it could be much more satisfactorily carried out by Mr. Fowler's clip drums with the slack rope arrangement on his plough than on any other plan. Two ordinary 7 or 8 horse power engines, each furnished with clip drum underneath, could thus work his plough to and fro between them, with as much united power thus brought to bear on the same implement as is ever likely to be needed.

—— We learn that Messrs. Howard, of Bedford, who have exhibited at the meetings of the Royal Agricultural Society ever since the first at Oxford; and who have never questioned any of the awards of the Society's judges to which they have been subjected all that time, have written to the Council to decline the prize awarded to them at Worcester for steam cultivating apparatus.

—— In a recent number of the *Journal d'Agriculture Pratique* Professor Malaguti, of Rennes, publishes a series of experiments, leading, as he says, to the conclusion that the solubility of guano is increased by maceration in water, and that the liquid form of application, on that as on other grounds, is the best. It appears to us that the fact observed by the Professor, that guano just washed in water will after prolonged maceration yield another portion of its phosphates in solution, does not prove that the solubility of the guano has been thereby increased. The observation is simply in accordance with the fact that time is required for the process of solution. Water will take up a certain quantity of gypsum in solution, and fresh waterings will take up successive quantities in the same way—but the solubility of gypsum has not been thereby increased. This is a fixed and well-known quantity, in accordance with which it submits slowly to solution, and disappears gradually by solution in water. This is all that Professor Malaguti proves of the relations of guano and of water. It is nevertheless certain that the liquid mode of applying it to the land is best; and that guano distributed throughout a large quantity of water as much as possible in solution in the first place, is thus mixed more intimately with the soil to which it is applied, brought more thoroughly throughout the soil in contact with the rootlets which are to feed on it, and placed more extensively, and therefore more efficiently, under the dissolving action of the rain water which trickles through the soil as the great feeder of plant roots.

Announcement is made of a Society for the Prevention of Disease amongst our Domestic Animals. The prospectus declares that Live Stock is destroyed especially by contagious disease, in the United Kingdom, to the extent of at least six millions sterling per annum. To guard against the ruinous results of the prevalence of cattle and sheep plagues, Stockowners have relied almost entirely on the ready sale of their diseased animals, alive or dead. They have thus materially

facilitated the spread of contagious affections; and it has been estimated that not less than one-fifth of the meat annually consumed in the British Isles is from diseased animals.

It is believed that the only rational method of preventing so heavy a pecuniary loss to the nation, and so much injury to the people, is to investigate and prevent the maladies which destroy our live stock: and this can only be effected by co-operation.

Hence the proposal to form a Society for the prevention of disease amongst our domestic animals.

The objects of the Society will be attained:—

By collecting information and statistics concerning the diseases of animals—by affording advice and assistance to Stockowners wherever general outbreaks of disease occur—by ascertaining periodically the health of Stock in the countries from which we derive our foreign animals—by stimulating inquiry as to the most advantageous means to dispose of diseased animals or their produce, so as to secure the largest amount of salvage for Stockowners—and by adopting all possible means to check such a traffic in diseased animals as tends to the spread of plagues, or to the sale of diseased meat to the public.

The circular is issued by Professor JOHN GAMGEE, from the New Veterinary College, Edinburgh, with whom those interested in the subject should correspond.

THE USE OF SALT IN AGRICULTURE is the subject of a very well packed pamphlet recently issued by the Salt Chamber of Commerce of Northwich.* Two papers, which received the prizes respectively of 50*l.* and 25*l.*, offered by this body for the best Essays on this subject, are here published, and deserve to be widely read by farmers.

The use of masses of rock salt in the sheep trough, in the manger, and the feeding stall, has been long enough practised by good farmers. And the advantage of applying salt as a manure, especially to Mangel Wurzel, and along with nitrates as top dressings to young corn crops, has been sufficiently proved, to take the subject quite out of the rank of mere speculation. It is certain that even in our little island, which the wind may sweep over in time too short to suppose that it can have lost all it brought with it from the sea—where therefore both soil and plants must always contain a recognisable quantity of sea salt, the use of common salt both as food and as manure has proved of great benefit. And the Salt Chamber, from whom one would of course expect only special pleading on this subject, have nevertheless done good service by thus marshalling all the facts which agricultural experience in this country and elsewhere, and which careful scientific observation in this country and elsewhere, furnish in illustration of the agricultural value of their commodity.

The first of their prize essays discourses on the fact that all plants contain salt in their ashes, and may therefore be expected to require it as food:—"But the direct nourishment salt thus affords to plants and roots is only a very small part of the good it performs in the economy of our cereal plants and roots. By far the most important part, and the one little known of generally even now, and never dreamt of 20 years ago, is its indirect action on the chief agents of vegetable life in the soil." This is the power of salt as a solvent in the soil, and the need of it therefore not more as food than as feeder of our cultivated plants.

For we are told that "when common salt, through the medium of rain water or otherwise, comes in contact with the earthy bases of ammonia, phosphoric and silicic acids, potash, magnesia, &c., either originally in the soil, or carried into it through the rain water or manures, it sets the said ammonia, phosphoric and silicic acids, potash, &c., free, and makes them at once available for the nourishment of the growing plants." In fact weak solutions of common salt have the power of dissolving out of the soil many times the quantity of substances adapted as food for plants that pure water can do. And common salt has long been known to increase the strength of the straw of our corn crops to which it is applied as a top dressing. It is supposed to dissolve the silicic acid of the soil, thus enabling it to enter the roots of the corn plant and to find a place on the straw which it hardens and strengthens.

To this bit of explanation there follows a list of rules and maxims, largely illustrated and corroborated by quite an array of authorities.

Salt should never be applied with the seed.

In cold, heavy, wet, undrained land salt cannot act by itself, nor in sterile land, and it is only in conjunction with other manures that it may do some good in such unprofitable land.

Salt applied with lime will always assist the efficacy of the latter.

The application of salt upon the breaking up of land, and then afterwards top dressing in small quantities at different times, will be found the most beneficial and economical way, and it will also get wire worms, slugs, &c. out of the land.

Salt applied to compost and manures will always repay itself many-fold.

The mixing of all manures containing either phosphates, potash or ammonia with an equal weight of salt, can only tend to make such manures more effective.

Repeated top-dressings in Spring, in small quantities, are far more preferable to heavy ones at one time.

The last of these points is enforced by the consideration that so soluble a substance will escape by the drains if it be applied at once in large quantities. The second part of the essay relates to the use of salt as a condiment; and in an appendix to it directions are given as to the quantities (generally much too large as it seems to us) which should be applied as a manure to crops. 2 or 3 cwt. per acre, along with 1 cwt. of nitrate of soda, is a good dressing for grain crops, and 5 cwt. per acre is quite enough to apply to Mangel Wurzel. If 1 cwt. per load be added as desired to all composts—8 or 10 loads of the compost per acre are all that should be applied—unless they be marly composts for light land. Ten or 12 closely filled pages follow, in which a large mass of experience on the use of salt, gleaned from foreign as well as English journals, is given in detail.

The second essay, by Dr. T. L. PHIPSON, F.C.S., refers in greater fulness to the uses of salt in food, and we shall hereafter give an extract on this subject from its pages in our columns. This writer also speaks of the advantages of mixing salt with hay and other fodder—on the uses of salt in the dairy, and on the salting of bread, bacon, beef, &c., and on the more strictly agricultural uses of common salt in killing Wheat-destroying insects, and particularly as manure. The two essays together contain all that the farmer needs to know upon the subject—and that he does need to know a great deal that has been thus collected is certain from the very limited agricultural use which is yet made of what is one of our most useful home fertilisers. The following are Dr. PHIPSON'S conclusions on the uses of salt as manure:—

1. That without a due proportion of salt plants cannot attain their proper degree of perfection; and this applies especially to Colza, Turnips, Swedes, Beet, Spinach, Wheat, Oats, Maize, and other *grasses*.

2. That salt is an *essential* constituent of plants as well as animals.

3. That the soil is constantly losing, by cultivation, a great amount of salt, taken away by the crops.

4. That none of the manures at present used (except very few of the best superphosphates) contain any salt: even guano shows only four-tenths per cent.

5. That it is necessary to add salt at regular intervals to the soil, in some shape or other, if we wish to derive the greatest possible benefit by our crops.

* SIMPKIN & MARSHALL. London. Pp. 56.

PROFESSOR BUCKMAN AND THE CHAIRMAN OF THE COUNCIL OF THE ROYAL AGRICULTURAL COLLEGE.

To the Editor of the Agricultural Gazette.

Dumbleton, Evesham, Aug. 5.

Sir,—In your last Saturday's Number you review Mr. Buckman's address to the Chairman of the Royal Agricultural College Council, and referring to a private letter of mine which Mr. Buckman has thought it right to publish in this address, you thus express yourself:—

"We cannot but believe with him (Mr. Buckman) that some injury was done to him by the communication of the opinion in question; and we should be glad to see the stigma removed by the same hand which too hastily, and as we believe in ignorance affixed it."

I cannot now, after the lapse of three years, recall to memory the exact manner in which I arrived at the conclusions stated in the letter referred to, but after a perusal of your article in last Saturday's *Gazette*, I am quite ready to admit that I may have arrived at hasty conclusions, and that I may not have been in full possession of facts, when I privately expressed my opinion to the Principal, so that if a stigma (to use your words) has been affixed to Mr. Buckman by any opinion of mine expressed in a private letter, I beg hereby to be permitted to remove it.

Mr. Buckman has for years been a hard and zealous workman in the scientific field. Agriculture and agricultural education are greatly indebted to him. I have always been a friend of his, and hope to continue one. I cannot however rank myself with *those* friends under whose advice, he tells us, he published the letter in question.—I am, sir, faithfully yours,

ED. HOLLAND.

THE HOO PARK FARM, NEAR LUTON, BEDFORDSHIRE.

ONE of the most interesting objects in the show yard at Worcester, hanging in a stand among the sheds devoted to seedsmen, publishers, &c., was the large plan of a capital set of farm buildings, erected on the estate of John Shaw Leigh, Esq., near Luton. Of that plan we give a reduced copy below. It was erected originally from the designs of John Gerard Leigh, Esq., and afterwards altered by Mr. James Ross, the present agent on the estate, chiefly by raising in places the height of some of the sheds and other buildings: but without much alteration of the ground plan here given.

The main purpose of farm buildings is the provision of shelter; and any one looking at this plan will see what enormous provision of this kind it affords. We saw the place last February or March while it was still full of fatting beasts, and thought at the time that we had never seen so large a meat manufactory in such full operation.

Stabling for between 40 and 50 horses; loose boxes for 18 or 20 more; stalls for 60 fatting bullocks and for 18 cows; 10 open yards furnished with nearly 800 feet in length of wide shedding; a dozen pigsties; shedding over open flooring about 75 by 40 feet in extent for sheep; a covered, light, and airy yard about 90 feet by 75 feet for calves; ample room for carts and implements, for grain and food, for roots and corn in the straw:—These are the elements of what is one of the most elaborate homesteads in the country.

The large accommodation for horses shows that it is not merely an agricultural homestead, and this also appears from the separate set of buildings for work connected with the management of the estate. There are however a great many details, and there is the guiding principle of the whole, in both of which useful lessons strictly agricultural may be learned, and to these we shall call attention.

The index to the plan is given underneath it. The buildings consist of three parts. One, "A and B," includes the farmstead properly so called, and for purposes of reference it is divided into two principal blocks, A and B, between which it will be seen the only thoroughfare through the homestead lies, the only entrance to the buildings being obtained at one or other end of this thoroughfare. A and B occupy a quadrangle of about 350 feet by 420 feet.

The outlying yard and offices at C are for estate repairs almost exclusively, and D is a long covered shed for corn in the sheaf.

Perhaps the most striking feature of the whole homestead is the Corn-shed D. A cheap, but strong roof supported on wooden pillars, 18 feet high, and covering a space 36 feet wide and 450 feet in length, is floored with brick, and surrounded by a dwarf brick wall, covered along its upper edge with two feet deep of zinc sheet, which frustrates all the attempts of the rats and mice outside to enter. This enormous store of Corn in the straw after harvest is a most striking sight. The space is filled piecemeal at harvest time, and is threshed out piecemeal by a movable engine and thrashing machine, the corn being at once carried to the granary, and the straw built back in the shed as it is emptied, and carried daily to yards and sheds as it is wanted for litter or for food. In addition to the shed for Corn in sheaf, there are large barns at B *a b c*, where threshing can be carried on by hand or machine, as desired. To these the yards and sheds requiring straw are close at hand; the whole of them being easily accessible by good roads throughout the farmery. The whole unoccupied space within the buildings is indeed paved with granite pitching (4 inch cubes), from Markfield, Leicestershire. The roofs, it may be mentioned, as well as these roads and working spaces, are well drained; and the stalls and yards have a separate drainage to a large tank outside under the cart shed B *p p*, whence the liquid is removed by carts to the field.

The estate, formerly the property of the Marquis of Bute, having been enlarged by the present owner, extends over more than 6000 acres on chalk and chalk gravel. It overlooks and surrounds a large and picturesque demesne—a well timbered and well watered park, with noble mansion—the whole constituting what is known as the Hoo estate. The home farm includes this park, besides some 750 acres of arable land outside, and is in all about 2000 acres in extent; the remainder of the estate lies in farms varying from 200 to 400 acres.

The home farm, together with the regular work of the estate, employs 53 horses, Suffolks and Clydesdales. The farm requires three horses per team for winter ploughing, but it is pair-horse work during summer.

They are worked on the English method from 7 A.M. till 3 P.M., with a quarter hour luncheon time in

the field, receiving 1½ bushels of Oats weekly all the year, along with hay chaff in winter, and Vetches and Clover cut into chaff with Wheat straw all the summer, and a few Beans in addition at periods of extra work.

The arable land is cultivated on the five years' course, viz., Wheat, Oats, fallow crops, Barley, and seeds; Wheat being taken in place of Barley after Vetches, Rape, &c., and other summer folded green crops.

The cropping may thus every year generally be—

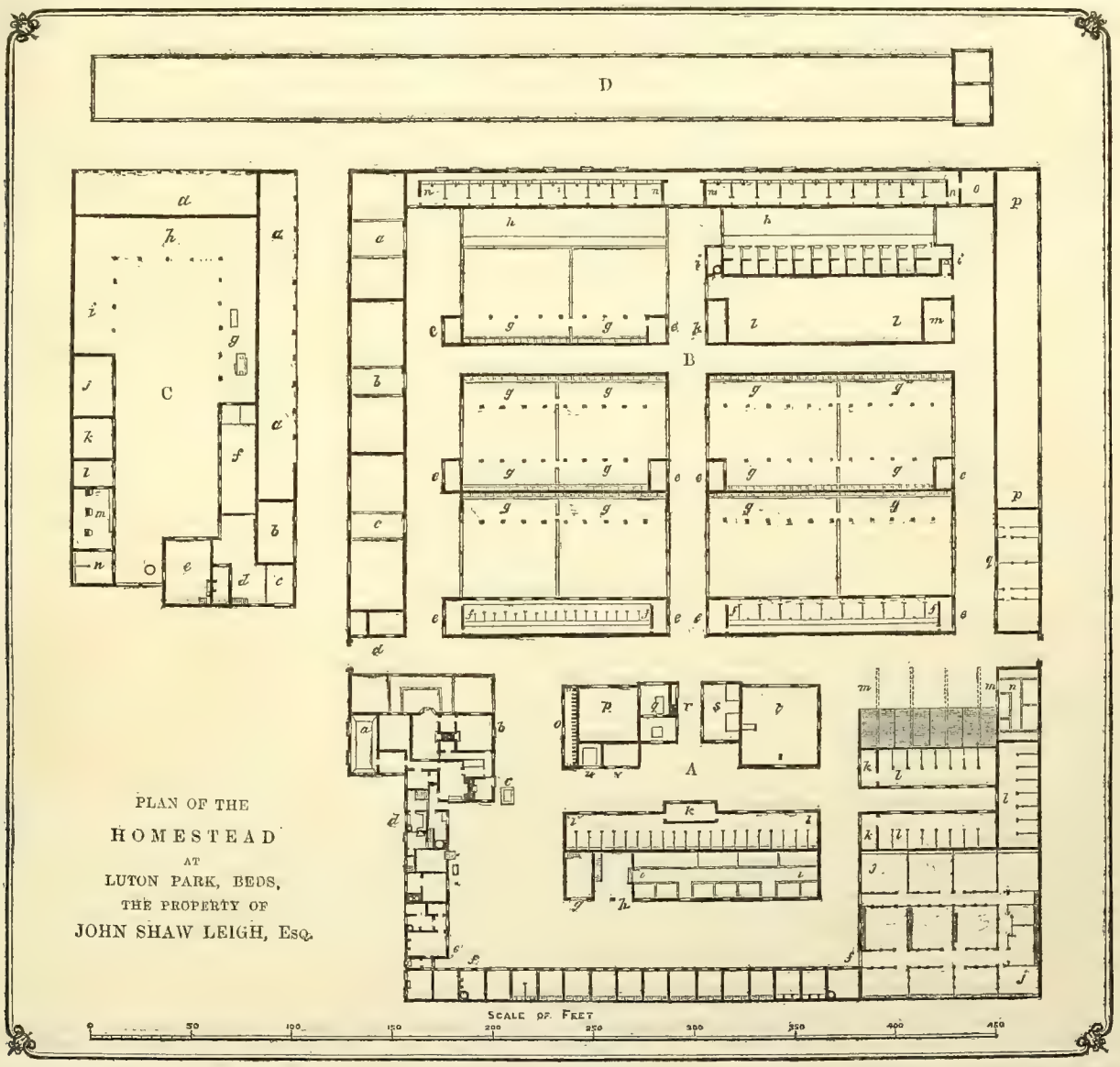
200 acres Wheat	100 acres Barley
150 acres Oats	150 acres seeds
150 acres fallow crops and Vetches.	

The land, though much of it on chalk and gravel, is yet generally sufficiently stiff to make winter folding unadvisable. While therefore sheep are folded on Clover, Vetches, Rape, and early Turnips, receiving corn and cake during summer and autumn, no folding takes place after Christmas. Eight to twelve hundred sheep are kept during summer, 300 or 400 only during winter—a flock of about 200 breeding Hampshire Down ewes being kept throughout the year, and a Cotswold ram being used among them. Most of the others are bought for feeding early in spring, and are sold fat all through the autumn.

The fallow crop includes 60 acres of Swedes and 25 acres of Mangels, all brought home, besides early Turnips and Coleseed, and some 20 acres of Vetches—all folded with sheep in summer and autumn.

Besides the sheep-fold and the manure resulting from the consumption of such large quantities of hay and roots and straw in stables and yards, large quantities of manure are bought. Some 30 tons per week of London dung are bought all through the spring months, costing 7*s.* 6*d.* per ton at the station close by. Fifty to 60 tons of guano are also bought; 2 cwt. per acre being applied to all Oats after Wheat, and 1 to 1½ cwts. being applied along with dung to all the land for green crops.

A great deal has been done on the home farm, and on the estate generally in throwing fields together, removing useless hedgerows, enclosing waste, and otherwise bringing the whole into a thoroughly workmanlike condition. Nothing can be more economical of labour than the state of much of the land now in hand. Ten or 12 pairs of horses carting dung on to the fields, with men spreading it broadcast and sowing artificial manure broadcast over all; ploughs at work, turning the whole under, thus covering the manure; the whole followed by harrow, roller, and seed drill putting in the Turnips,



A. *a*, *b*, Mr. Ross's House, including Parlours, Kitchen, Offices, &c.; *a* itself being the Dairy, and *c* the weigh-bridge with counting house close by; *d* to *e*, Offices and Cottage; *f* to *f*, Loose Boxes; *g*, Coach-house; *h*, Shed with steps to Upper Granary; *i i*, Granary; *j j*, Covered Yard for Calves, divided into separate Pens by Gangways for convenience of Feeding; *l l l*, Farm-horse Stables; *k k k*, Harness Rooms; *m m*, Covered sheep shed, the troughs pulling out into the open on the lines of railway marked on the plan to be replenished with food and pushing back again within the pens; *n*, Shepherds' Granary; *o*, Fowl-house; *p*, Coal-house; *q*, Stationary Engine, with Mill close by; *r*, Gangway. The building is lofty over *q*, *r*, *s*, carrying a large cistern which commands the whole of the homestead; *s*, Steaming-house; *t*, Chaff-house; *u*, Stores; *v*, Saddlers' shop.

B. *a*, Oat Barn; *b*, Wheat Barn; *c*, Barley Barn; *d*, Seed-rooms; *e e*, Store-rooms; *f f*, Cow-stalls and Bullock-stalls; *g g*, Yards for other Cows, Bullocks, and Young Stock; *h h*, Dung-pit; *i i*, Pigsties with Boiling-room at one end and Water-closet at the other; *k*, Slaughter-house; *l l*, Storage for 1000 or 1200 tons of Swedes and Mangel Wurzel; *m*, Store for Oil-cake; *n n*, Stalls for Fatting Beasts; *o*, Bull-house; *p p*, Coal-shed and Implement Shed; *q*, Loose Boxes.

C. *a a*, Cart-sheds; *b*, Store for Grains; *c*, Fire Engine; *d*, Carpenters' and Painters' stores; *e*, Wheel-wrights' shop (with Mess-room between them); *f*, Carpenters' shop, with Store-house and Carpenters' stores at the end of it; *g*, Engine-shed and Saw-bench; *h*, Timber-shed; *i*, Do., do.; *j*, Bricklayers' stores; *k*, Iron Stores; *l*, Do., *m*, Blacksmith's Shop; *n*, Shoeing-house.

D. Corn Shed with two loose boxes at the end of it.

as we saw the whole proceeding a few weeks ago in a field where the furrow was more than half a mile long, presented a scene of very active and unwasted industry.

The main purpose of the homestead to which we have particularly to draw attention is the manufacture of meat. To this end the stores are filled every autumn with roots, straw, and hay; to this end steam power and machinery are provided for threshing the corn, grinding and crushing grain and cake, steaming food, and pulping roots; to this end 500 to 800 bushels of grains are brought every week from Burton (at the rate of 6*d.* per bushel, delivered), and some 15 cwt. of yeast are weekly used along with chaff as a most valuable tonic and digestive, and large quantities of cake and grain are bought and served out daily. To this end a herd of about 30 cows are kept, and some 80 to 100 calves are bought all through the autumn and sold as yearlings, excepting 8 or 10 heifers kept on to maintain this dairy herd; and to this end some 150 Galloway and Kylo bullocks are kept in the yards during winter, and in the pastures during summer; and some 100 to 150 fatting bacon hogs are kept throughout the year.

It is a very large manufactory of meat indeed. Eighty to 90 yearlings are sold out annually for 7*l.* to 8*l.* apiece; 8 or 10 cows are sold off, and 100 to 150 fat Galloways and Kyloes are sold—a very handsome lot of Beasts, averaging 26*l.* to 30*l.* apiece, and upwards of 8 cwt. Some 800 to 1000 fat sheep are sold, averaging probably 24 to 28 lbs. a quarter. The young Galloways, bought in spring, are first summered on the Grass in the park; they receive grains, hay, chaff, and Turnips during the first month on being brought into the yards in autumn; during the second month or thereabouts, they get cake and meal up to 3 lbs. of the former and ½ peck of the latter daily, and along with pulped Swedes and Mangel Wurzel, this is increased to 5 lbs. of the former and a peck of the latter. The last month or two they receive this while tied up in stalls. During the earlier stages, that is while in yards, all the cattle have yeast in their chaff; the food is so arranged that the animals shall neither scour nor sweat. Some 160 bullocks, 30 cows, 100 calves, 150 pigs, and several score of sheep in sheds—the work of preparing their food, chaffing, steaming, pulping, &c., keeps 7 men (one of them the foreman in charge of the yard) and 5 boys in constant employment during winter. The large use of yeast and grains in cattle feeding is one of the most striking features of cattle management here. But probably that which most strikes the visitor is the quiet and orderly arrangement and management of everything. Mr. Ross understands the art of command; he makes foremen responsible in their respective departments; does not himself give orders to the individual men in his employ, but looks to the head men in each department for his instructions being carried out. There is thus great neatness, cleanliness, order and quiet over the whole of this large establishment, even during the winter season, when all its parts are in full employ. And the master's influence is felt everywhere without that continual personal and even noisy interference which one often witnesses.

The whole estate and farm and homestead strike one as a remarkable example of good agriculture, both in the higher branches of estate management and in the details of farming. Mr. Ross himself is a man of great natural ability. Little over 20 years ago, hardly acquainted with the English tongue, working his way in Scotland, in England, and for several years in France, in the several grades of his profession, and throughout displaying his ability for the direction and superintendence of labour—now master of three languages, a skilful agriculturist and land agent, he has attained a position where all his previous training is brought usefully to bear, and where he is doing good service both to the owner of a large estate, and, by a most capital example of good management, to agriculture generally.

Home Correspondence.

Excessive Fatness of Breeding Animals.—Many years ago the columns of the *Agricultural Gazette* contained letters objecting to the excessive fatness of the animals exhibited at the annual meeting of the Royal Society, alluding more particularly to the pigs and sheep. Over-feeding animals, regardless of expense, to excite the wonder of sight-seers, appears to be a mistake. There are cogent reasons for discontinuing the cramming system; the most prominent are waste of food and the deterioration of the quadrupeds for breeding purposes. It is not difficult, by the use of drugs and cooked mixtures, to provoke the appetite of animals, and induce them to swallow large quantities of food, till they become objects of pity rather than admiration. Many defects may also be concealed under a load of grease. No doubt farmers wish to obtain quick-feeding remunerative stock, such as will eat the produce of the land, and thrive upon it. The cost of raising a mound of fat upon the frame of an animal must be great, and out of all proportion to the price paid by the butcher, who may, as an advertisement to attract attention, hang the corpulent body of a pig or sheep in his shop window. It is no criterion of scientific farming to stuff an animal till its natural proportions are obliterated, and its locomotion confined to rising up to eat, and falling down in the same place utterly exhausted with the exertion, and unable without puffing and blowing in a painful manner to walk half a dozen yards. These remarks have been called forth by the extreme obesity of some of the quadrupeds at the late Worcester meeting. *Falcon.*

The State of Ireland is attracting considerable attention; and as I have had the opportunity by serving on two grand juries, and by conversing with men practically acquainted with the country, of obtaining some knowledge of its actual condition, a few remarks may not be without service. There has been considerable misconception of the real state of Ireland. Because it revived after the famine with wonderful rapidity, it was concluded that all cause of ill had disappeared, and that no impediment would henceforth prevent its progress. But it was forgotten that many of the evils which had produced the famine were now eradicated; and that while it was right to indulge sanguine hopes, it was foolish to think that no cause of anxiety remained. Three successive bad seasons brought to pass what a few practical men expected. The small farmers could not insure to themselves a decent living when the elements were against them, while the old Celtic propensity to gain by force what could not be obtained by fair means burst forth. Ireland is still an overpopulated country, not in the number but in the position of some of its inhabitants. Most of those who struggle to exist on a few acres are fit only to be labourers, and there is still many a "squireen" who should abandon the gun for the ploughshare, and the hunter for the carthorse. It is certain that until the system of small farming is destroyed, and with it the ignorance, laziness, and despondency that usually accompany an unsuccessful struggle, Ireland will never prosper. I believe that the distress which exists more or less in different districts, is principally confined to the small farmers, and to those that depend on them for their subsistence. The larger farmers who have any knowledge of their business are in no distress. Among my own tenants one has lately given his daughter 1000*l.*, another 300*l.*, as marriage portions, and they are not men who would be thought in England to have large farms and to be peculiarly skilful in the cultivation of land. The removal of the small farmers would also diminish the exorbitant power of the Roman Catholic clergy; I bear them no theological hatred, I respect their office, and I live with them, when I can, on friendly terms; but I know that their power is directed wholly to the maintenance of their own influence; that they oppose any movement, however good, which they cannot direct, and discourage any association which they think will tend to the diminution of their own authority. The bad success of the Agricultural Societies in more than one county is in great measure to be attributed to them. There is vast capacity for improvement in Ireland. Its climate, soil, and character point it out as the pasture-field of Great Britain. The ox and the sheep there thrive. The horses that it rears are peculiarly hardy, courageous, and enduring. The labourer whom it sends abroad, works with untiring energy on but little food. The soldier that it nurtures adds to his natural courage a cheerfulness of disposition invaluable on a campaign. The police that guard it are remarkable not only for good looks, but for intelligence, cleanliness, and discipline. It is even now a country where tact, good humour and firmness will insure success. But it is still in a transitory state. I have no fear of its ultimate welfare, and I look forward to the day when it will be a and flowing with milk, the abode of herdsmen, and the very paradise of fat kine. *B. M.*

The Education of Ploughmen.—There being very few Scotch farm servants' sons who get less scholastic training than I got, I feel annoyed at people suggesting that hinds ought to be compelled to send their children to school, instead of working to farmers during the summer months. Some hinds are very favourably circumstanced, but some have not a farthing to call their own, and this will always be the condition of a good many. The urgent demand for extra labourers during the summer months, and ploughmen's small wages, compel farmers and hinds to mutually accommodate each other. I acted in the capacity of a cowherd in the summer of my tenth year. I do not remember of being at school during the summer months. I acted as "crawherd" (scarecrow) from the Potatoes during the summer months of 1839, '40 and '41, and I worked for 4*d.* per day in the summer of 1842. I daresay I would not be more than 12 months at school after I was ten years of age. It is the injudicious interference of would-be dictators to practical agriculturists that prompts me. The most accomplished working man I am acquainted with was only six weeks at an agricultural school. Of course he attended evening classes after he had reached manhood. It is a deplorable existence residing in a purely agricultural district without a desire for reading or any intellectual pursuit. I have sat looking at the fire during the winter evenings till my eyes were tired. To break the dreary monotony of such an existence I took a lesson in the Bible, or some other book, or did a few exercises in arithmetic; but notwithstanding my father's entreaties I plodded on without any fixedness of purpose, till coming in contact with others showed me my deficiencies. I trust I know myself better than attempt to justify ignorance; nevertheless, remembering that my father could not have paid the school fees had he been compelled to send me to school during the summer months, I beg to protest against would-be reformers finding fault with farmers employing boys and girls during the summer months. The being able to read and write, and a knowledge of arithmetic are indispensable for keep farm accounts, and scholastic accomplishments are very useful for certain purposes, but theorists must allow practical men to devise schemes for promoting their own interests as rational and responsible beings and as practical agriculturists. The intellectual training at school ought to be regarded as the mere basis upon which young lads have opportunities for building a superstructure after they leave school. There not being any provision made by landowners, gentlemen farmers, and the rural clergy for inducing young men to follow up their scholastic training during the winter evenings, and the majority of schoolmasters not being able to teach the elements of botany, are the principal defects in connection with scholastic education in rural districts. Were parish schoolmasters competent to teach the elements of botany, what an interesting and useful exercise it would be for boys and girls to gather specimens of the plants, grasses, and ferns they see growing on the roads to school. I walked nearly three miles, morning and evening, to and from school. A rural parish school being a focus for the boys and girls scattered over an extensive area, were they to present their specimens at the morning class, and were requested to state the name and order of each plant, boys and girls would thus acquire "a knowledge of common things." A library and reading room in a village would be a good medium for information for those who reside in villages, but the majority of Scotch ploughmen could not avail themselves of such auxiliaries. As a general rule, English ploughmen reside in villages; but Scotch ploughmen are grouped together at a convenient nearness to the farm steadings. Scotch ploughmen's hours of labour are from 6 A.M. to 6 P.M., barring an interval of two hours from 11to 1 P.M. It is the general rule on a good many farms to yoke at 5 A.M., when busy with the fallow, to give the horses a rest from 10 till 1. The groming the horses, the 10 hours' work, and the time occupied in returning from work on extensive farms will occupy 12 hours a day during the summer months, exclusive of the extra hours when harvesting the hay and corn crops. Men so circumstanced would require to have a fixedness of purpose to prompt them to walk to evening classes in a village after a hard day's work; and even during the winter months a good many ploughmen in Scotland are practically prohibited from attending evening classes one or two miles from the farm steadings. It is the general rule for each ploughman to attend the stable and be in it for nearly an hour, either from half-past 7 to half-past 8, or from 8 till 9; therefore a ploughman has not time to go before feeding and grooming the horses, and it is too late after 8 and 9 P.M. Therefore unless each farm-steading is treated as a village with regard to a reading room, and the requisite books and other agencies, it is a mere waste of time and war of words expatiating about the better education of ploughmen. You allowed me to suggest in 1857 the establishing of libraries at farm-steadings. I rejoice to see Lord Kinnaird taking a step in advance. *W.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, August* 5.—Present, Lord Feversham, President, in the Chair; Lord Tredegar, Lord Walsingham, Major General the Hon. A. N. Hood, Mr. Amos, Mr. Raymond Barker, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Druce, Mr. Exall, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Randell, Mr. Robert Smith, Mr. Wallis, Mr. Wells, Professor Wilson, Mr. Frere, Professor Simonds, Professor Voelcker, and Mr. Geo. Wood.

Finances.—The Hon. Major-General Hood presented the report, from which it appeared that the Secretary's receipts during the past month had been examined and found correct. The balance in the hands of the bankers on the 31st of July, was 7563*l.* 11*s.* 3*d.* Cheques were recommended to be drawn for the Stock and Implement prizes at the Worcester meeting, amounting to 2500*l.*, and for the expenses attendant on the Show, which would render it necessary that the 2000*l.* on deposit at the London and Westminster Bank be withdrawn. This report was adopted.

Journal.—Mr. Owen Wallis presented the list of subjects, for which the Committee recommended that premiums should be offered in 1864, which was agreed to:—

1. Hertfordshire	£50
2. Suburban Farm (offered by Sir C. Domville).	25
3. Construction of Cheese Rooms (suggested by the Rev. Hon. A. Vernon).	10
4. Peculiar qualities which render pastures especially adapted for the production of butter and cheese respectively (suggested by Colonel Kingscote).	10
5. The comparative value of Linseed, Cotton, and Rape cakes for feeding purposes	10
6. The best mode of storing Turnips, Mangel, Potatoes, and Carrots	10
7. The best mode of breaking up Grass, and its subsequent management	20
8. Any other agricultural subject	10

Implement.—Colonel Challoner, Chairman, reported that the Committee, after careful consideration of the triennial system of 1856, and the quadrennial system of 1858, recommended a triennial system according to the following classification:—

SPECIAL PRIZE FOR STEAM CULTIVATION.

1864.—I. Implements and Machinery for the Drainage, Tillage, and Cultivation of Land.—Tile and brick machines, draining implements, grubbers, ploughs, cultivators, clod crushers, rollers, harrows.

1865.—II. Implements and Machinery for the Cultivation and Harvesting of Crops.—Drills and distributors, horse hoes, mowing machines, reaping machines, hay-making machines, horse rakes, carts and waggons.

1866.—III. Implements and Machinery for the Preparation of Crops for Market and for Feeding Stock.—Steam engines, threshing machines, dressing machines, mills and crushers, chaff cutters, cake breakers, root cutters and pulpers, dairy implements.

This report was adopted.

The report of the Stewards of Stock exhibited at Worcester was read, and it was agreed that it be referred to the Veterinary Committee to draw up some more stringent rules for exhibitors in the Pig Classes.

On the motion of Mr. Robert Smith, seconded by Professor Wilson, a Committee, consisting of the Hon. Major-General Hood, Mr. Claydon, Mr. Fisher Hobbs, Mr. Holland, M.P., Mr. Randell, Mr. Torr, and Mr. Owen Wallis, with the Stewards and the mover and seconder, were appointed to frame regulations relative to the clipping and preparing sheep for show.

On the motion of Mr. Raymond Barker, seconded by Lord Tredegar, the usual leave of absence was granted to the Secretary, and the Council then adjourned over the autumn recess to Wednesday, the 4th November.

ROYAL AGRICULTURAL IMPLEMENT SHOW AT WORCESTER.

The tabular statements drawn up by Mr. Amos, and given in next page, indicate the kind of trial to which the various implements were subjected which came into competition this year. In the case of the fixed steam-engines, steam at a certain pressure was supplied to them, and the quantity of power which they transmitted was ascertained by the dynamometer. In the case of the moveable steam-engines, a certain quantity of fuel was served out to them, and the period during which they continued to perform a certain kind of work was the measure of their efficiency. In the case of the threshing machines, a certain quantity of corn was given out, and the power taken to drive the machine when empty was ascertained. The decisions of the judges hinged upon the power taken, the time taken, and the quality of the performance in respect of cleanness of the straw and cleanness of the sample. Whether it be wise or not in the Society to encourage a class of locomotive threshing machines which clean the grain twice or even thrice and fit it for market may be doubted. It is rarely that they do in practice fit corn for market at once. The corn is generally put through a dresser afterwards. And a travelling machine which gives a single cleaning to the grain, leaving it to the next class of machines, winnowers and corn screens, to complete the task in the barn, is the more generally useful. Corn screens and winnowers were subjected to trial by

passing a given quantity of grain through them and taking the time and quality of the performance. The results are given below. Mr. Hornsby's unusual success in the competition for threshing machines is perhaps owing to the advantage which his farm adjoining his factory has given him for subjecting every proposed alteration to long practical trial before submitting it either to the judges or the public. Among the details of alteration and improvement in his present machine, is the adoption of an improved beater in which the drum being turned when worn end for end, is again as good as new—the beaters thus taking a double turn.

We have no intention to travel round the yard and describe each of the 330 stands by itself. Several of the more striking stands, including a large quantity of machinery in motion, stood in the 'open' and were crowded by spectators. Among these, Messrs. Bury & Pollard's (Park Iron Works, New Park Street, Southwark) wind engines, and the threshing machine, chaff-cutters, wood cutting machinery, bone-crushers brick and tile machines, &c., of many different makers were shown at work.

Under the shedding there was the usual enormous collection of all kinds of farm implements—ploughs horse hoes, cultivators, sowing and reaping and mowing machines, and carts and waggons, &c.

One of the most interesting of the novelties present—and we may hereafter refer as occasion offers, in more detail, to one and another of the novelties which deserve special notice—was Grant's portable railway, which on clay lands where heavy crops of Mangel Wurzel and other roots have to be moved late in the season, will be of real practical utility.

It consists of iron rails mounted upon longitudinal sleepers of deal creosoted to preserve the wood, and made in lengths of 16½ feet or 1 rod, ½ a rod, and 4 feet, with some shorter curved lengths. They fit together by tongues and sockets, by means of which cross sleepers are superseded, and the utmost scope and despatch in shifting attained. Iron tie rods regulate the gauge, and a few iron spikes, side wedges and dogs are sometimes useful. Price of combined rails and sleepers—rod lengths 15*s.*, half rod 8*s.* 6*d.*, 4 feet 5*s.*, short curved 2*s.* 6*d.* per pair; 11 over and 5 under tie-rods, 1 spike, 1 side wedge, and 2 dogs to every 10 rods; if with 2 feet 2½-inch gauge, 1*s.* 3*d.*, 11-inch gauge 9*d.* per rod extra. The apparatus invented and patented by Mr. Grant, of Westerhill, Linton, near Staplehurst, Kent, was shown in operation on one of the fields where steam ploughing was in operation, and it appeared to be easily movable and easily worked. The different appliances for enabling the railway to adapt itself to varying circumstances, without losing its continuity, and for enabling the easy transmission of waggons from end to end of a crooked line, are ingenious, and the apparatus generally cheap enough and efficient enough to obtain adoption on high farmed fertile clays.

A TABLE OF TIME, POWER, CONSUMPTION, AND COST, AS PREPARED BY MR. AMOS, THE ENGINEER OF THE SOCIETY.

PORTABLE STEAM ENGINES.

	Name of Exhibitor.	Horse-power of Engine.	Getting up Steam: Minutes taken in getting up Steam.	Fuel burnt in getting up Steam: Coal.	Fuel burnt in getting up Steam: Wood.	Coal burnt per hour in lbs.	Coal burnt per horse-power per hour	Price of Engine.	Remarks.
				lbs.	lbs.		lbs.	£	
Table I.	Hornsby & Sons	12	48	62.0	12	45.5	3.79	325	Prize of 10*l.*
	Clayton & Co.	12	99	47.0	12	46.3	3.86	343	,, 7*l.*
	Tuxford & Sons	12	69	60.5	12	55 2	4.60	355	,, 4*l.*
	Barrett, Exall, & Co.	12	123	67.0	12	55 8	4 65	310	,, 4*l.*
	Brown & May	10	78	47.3	10	54.5	5 45	265	Commended.
Table II.	Tuxford & Sons	8	81	32.5	8	28.7	3.59	250	Prize of 9*l.*
	Barrett, Exall, & Co.	8	99	50.2	8	30.3	3.79	230	,, 8*l.*
	Clayton & Co.	8	100	38.3	8	32.4	4 05	238	,, 7*l.*
	Holmes & Sons	8	41	39.0	8	46.5	5.81	240	,, 1*l.*
	Haywood, Jun.	8	76	41 0	8	44.1	5.51	240	Commended.
Table III.	Ellis & Son	7	76	40 5	7	57.5	8.21	220	Commended as good serviceable engine.
	Parsons	8	63	34.0	8	70.6	8.82	225	Ditto ditto ditto
	Warren (Ruston & Co.)	8	95	41.5	8	75.6	9.45	230	
	Gibbons	7	49	30.3	7	76.5	10.92	215	
	Robey & Co.	8	47	39.5	8	95.7	11.96	230	
	Childs (Riches & Watts)	8	69	44.0	8	96.0	12.00	200	
	Ashby & Co.	4½	73	36.5	4½	57.0	12.66	138	
	Gilbert	5	95	31.5	5	66.4	13.28	160	
	Brown & May	8	55	34.0	8	51.2	6.40	220	Highly commended.

FIXED STEAM ENGINES.

Name of Exhibitor.	Horse-power of Engine.	Coal burnt per hour, in lbs.	Coal burnt per horse-power per hour, in lbs.	Price.	Remarks.
				£	
Barrett, Exall, & Co.	10	48 8	4.88	230	Prize of 15*l.*
Clayton & Co.	10	50.4	5.04	240	,, 15*l.*
Hornsby & Sons	10	55.1	5.51	245	,, 10*l.*
Ferrabee	10	71 0	7.10	230	Commended as a plain serviceable engine.
Tuxford & Sons	8	56.5	7.06	200	
Haywood, Jun.	10	87.7	8.77	240	
Johnson & Whittaker	4	61.3	15.32	85	

Table No. 1.

PORTABLE COMBINED FINISHING THRESHING MACHINES.

100 Sheaves Threshed.

Name of Exhibitor.	Time occupied.	Average horse-power taken.
	Min. Sec.	
Goucher	6 55	10.11
Bruckshaw	4 59	6 56
Burrow & Co.	4 30	7.76
Barrett & Co.	5 25	6.44
Tuxford & Sons	3 55	8.85
Turner	5 55	4.52
Clayton & Co.	5 25	6.94
Wallis & Co.	3 50	8.52
Barrows & Co.	4 25	6 63
Hornsby	4 25	6.88
Hornsby	4 0	7.73
Clayton & Co.	3 55	5.71
Clayton & Co.	4 10	6.0
Marshall	3 10	9.79
Nalder	4 0	6.95
Gilbert	5 5	7.7
Gibbons	5 35	6.83
Underhill	..	..
Underhill	4 8	8.9
Parsons	4 30	8.05
Tasker	3 25	11.28
Humphries	4 40	8.18
Robey	5 55	8.87
Savory	4 5	8.79
Holmes	6 3	8.03

Table No. 2.

COMBINED STEAM THRESHING AND FINISHING MACHINES.

Selected and Frictional Trials. 500 Sheaves Threshed.

Name of Exhibitor.	Time occupied in doing the work.	Average horse-power to drive the Machine in work.	Average horse-power required to drive the Machine empty.
	Min. Sec.		
Tasker	23 50	9 99	5.778
Wallis & Co. (3)	15 50	9.6	5.535
Holmes	22 0	10.235	6.817
Robey	18 35	8.7	6.1542
Clayton & Co. (2)	22 10	7.78	3.911
Hornsby (1)	17 36	9.66	4.8
Barrett & Co.	20 55	8.49	4.089

N.B. Each Machine was run empty for Five Minutes, and the result recorded as per last column.
(1) 25*l.* prize. (2) 15*l.* prize. (3) 10*l.* prize.

Table No. 3.

FIXED BARN WORKS.

250 Sheaves Threshed.

Name of Exhibitor.	Time occupied.	Actual horse-power consumed in driving Machine.	Actual horse-power required to drive Machine empty.
	Min. Sec.		
Humphries	16 40	5.59	
Clayton & Co.	12 55	5.83	
Hornsby (1)	9 30	8.24	
Barrett & Exall	10 35	8.53	
RENEWED TRIAL.			
Hornsby	16 5	9.25	3.58
Clayton & Co.			3 93

N.B. The Machines were run empty during a period of Five Minutes. (1) 20*l.* prize.

GREAT MEETING OF THE HIGHLAND AND AGRICULTURAL SOCIETY'S SHOW AT KELSO.

Aug. 4.—The show which has opened with such elements of success is marked by many novel features of arrangement. In the first and most important place the "prize system," which in former years was a regular feature of the Society's Shows, has no longer an existence—not as some seem to think, that the practice of giving prizes to implements or machines is totally done away with, but rather that the prizes are to be given under another and a better system. In place of a multitude of implements being tried at one time, and by a system which was really as useless in its practical results as its operations were in brevity and incompleteness absurd, the implements with machines are to be subjected to trial in seasons and in such a way as to resemble as closely as possible those of the every-day work of the farm. As we have long advocated this mode of trial, we are of course greatly gratified at its being inaugurated by so important a society. The only point in the new arrangement which seems doubtful, and to which objections may be made, is that the Society reserves the right to choose the implements or machines to be subjected to trial, basing their choice on the novelty of the invention, or if not new on its exhibiting a "radical improvement." This principle of giving a machine or implement a trial only on the ground of its being a new one, is, we think, erroneous. The straining after novelty in agricultural mechanism, has, we venture to think, done much harm, as it has drawn the attention of the directors of our shows to new things from the equally and indeed more important object of thoroughly testing the old established implements and machines; and to put all those out of the field of trial will be mischievous. Doubtless it may be said that old implements are admissible for trial with a view to be honoured with a prize if they show a "radical improvement;" but pray, for what are trials instituted, or rather, for what should they be instituted, if not to ascertain truly, and upon accurate results, what really is a radical improvement? We presume that the Society means that no old established implement will be admitted to trial with the view to having a prize given to it, without it displays in its construction or arrangement a radical change. If it means this, it is equivalent to placing the chance of trial upon the novelty of the implement, the danger of which we have already adverted to.

Possibly some may think the meed of as hearty a praise is due to the Society for carrying out another arrangement for the first time at this show. Our readers are well aware, for the subject has often received discussion in our pages, that the system of arranging the implements and machines was classifying them according to the uses for which they were designed; ploughs being kept distinct from grubbers, corn crushers from chaff cutters, and so on. This was always objected to by the manufacturers, who felt it involved much labour and expense, as necessitating them to keep, where they manufactured different articles, attendants at each department. All inconveniences, such as they were, are now obviated by the simple expedient of allowing each manufacturer to take the space he requires, filling it as he likes. Another innovation in the old established practice of the Society, is the covering of the stands with shedding, which is a decided improvement, but which, like that of the Royal Agricultural Society's Show, is not quite weather proof, as the dripping roofs during the showers which fell amply showed.

The whole arrangements then of the Highland Society's Show approximate closely to those of the Royal Agricultural Society, and being so will thus in the estimate of the majority be decided improvements; all however as we know are not pleased with them, but it is difficult to please all.

This is the second visit which the Society has paid to Kelso, the first being in 1832, and nothing affords so good an evidence of the advance in agricultural practice and the interest which its followers take in shows than the statement, that while in 1832 eleven implements were entered, in this show 1101 were entered, or an increase of more than eleven-hundred-fold. Although Kelso is not so favourably situated as regards population, nor so easy of access to visitors, nevertheless, as the following table will show, the entries of stock are really high:—

		Cattle.	Horses.	Sheep.	Swine.
Kelso	1832	88	18	243	19
Berwick	1841	175	96	658	33
Berwick	1854	179	141	771	86
Glasgow	1857	415	240	669	112
Aberdeen	1858	450	189	590	79
Edinburgh	1859	332	118	585	80
Dumfries	1860	298	166	553	54
Perth	1861	338	155	616	79
Kelso	1863	245	127	532	79

Such were the entries, but all the animals entered were not exhibited. Amongst the list of those which were not forthcoming was "Honeydew," entered by Lord Kinnaird, but which was sold at Hamburgh.

The show of stock was remarkably good, and although some of the classes were not numerously represented, still each class was remarkable for its specimens, not only of average goodness, but of exceedingly superior qualities. In the Short-horn class of aged bulls, the bull "Duke of Tyne," of Mr. Jacob Wilson of Woodham, which took the first prize at Worcester, was placed third; Mr. Binning Home's "Van Tromp," second, and Mr. Stirling of Keir's "Forth" first. There were not in the class of two-year-old bulls, the same marked features of excellence as in the aged bulls. In the cows the animal Lady Pigott's "Pride of Southwicke" which took the first prize at Worcester, took also the first here; Mr. Douglas, of Athelstaneford's "Queen of Athelstane," being second. The class

of Polled Aberdeen or Angus animals was well represented, both in numbers and excellence, the same remark being applicable, although in less degree, to the Polled Galloways. But by far the finest feature of the stock yard was undoubtedly the Ayrshire. We do not know when we have received so much pleasure in stock examination as we did in going over this superb collection. While considerable diversity of opinion existed as to the judgments given, there was but one opinion as to the uniform excellence of the whole. The late lamented Duke of Hamilton had paid particular attention to this class, and in his name were several entries. The Highland class was good, indeed superior, containing some remarkably fine examples. Of the class of fat stock, the same may be said, the animal which took the first prize being notable for its fine symmetry and noble size. Of the Horses, the principal feature was the Clydesdales, which were first class generally. Much gratification was afforded to the visitors by the display of horses in the ring. Of the Sheep, it may be said that never before was there such an unmistakeably excellent display at the meetings of the Society. Some of the black-faced sheep and the Cheviots were remarkable as models. The pigs were well represented, but many of them in their obesity were painful to behold, to the non-agricultural mind especially. Of the poultry, the ducks in general excellence formed we think the main feature, but much cannot be expected at this season in this department, and was not therefore looked for.

In the implement department, in which there are 1101 entries, and the catalogue of which extends to 63 pages, we find the stands of the English manufacturers make up, as has been usual of late years, the principal feature. Bentall has perhaps the largest stand, and comes out in full force, almost if not quite as good as at Worcester, with his usual stock of machines—corn-crushers, chaff-cutters, root-pulpers, and the like. In the uncovered department, or what we would call the "machinery in motion" department, the same enterprising manufacturer exhibits combined machinery for the preparation of food at work. Richmond and Chandler are, as usual at the Highland Society's shows, distinguished by the number and the excellence of the machines—chaff-cutters being their speciality—which they exhibit. The Trustees of Crosskill do not let the honour of their old-established house suffer either through the fewness or the workmanship of their examples of reaping machines, clod crushers. A reaping machine exhibited by them proposes to do work of a most comprehensive, or shall we say, gigantic nature, cutting 8 feet wide. Messrs. Howard, of Bedford, came out as usual well; and but for their liberality and enterprise, the Kelso show visitors would have returned to their homes without any practical note of the fact that steam cultivation now formed a part of modern farming in its advanced districts. Messrs. Howard's apparatus works to-day (Wednesday) and to-morrow in a field belonging to the celebrated farmer Mr. Dudgeon, of Spylaw, not far from the railway station. We may mention in parenthesis as some evidence of the increasing hold which the system of steam cultivation introduced by the Messrs. Howard is taking upon the public mind, that since the trial at the Hamburg Show, a goodly number of "sets" have been sold. Messrs. Picksley & Sims exhibit a complete collection of their chaff cutters and mowing and reaping machines; Messrs. Samuelson & Co., their combined reaper and mower; Aveling & Porter, their traction engine, which has travelled 6000 miles; Messrs. Clayton & Shuttleworth and Messrs. Garrett exhibit their well-known threshing machines; Hornsby & Sons are also represented; Francis Morton & Co. have an exceedingly attractive and practically suggestive collection of their galvanised iron buildings, wire fencing, &c.; Williamson Brothers, of Kendall, exhibit their centrifugal pumps and turbine, steam engine, and threshing machinery.

The Scottish manufacturers come out in fair force—Gray of Uddingstone, exhibits a comparatively small but excellent collection of plough and grubbers, of the former exemplifications of implements adapted to throw high shouldered and rectangular furrow slices. On one or two of the features of these we purpose giving a few remarks at an early date. Messrs. Kemp, Murray, and Nicholson exhibited their mowing and reaping machines, while Shireff, of Dunbar, had examples of the well-known drills, manure distributors. Perhaps the largest collection of implements and machines—the produce of various makers—was that of Mr. John Pringle, of Edinburgh and Kelso.

Of novelties, strictly so called, there were few, or perhaps, to speak more correctly, none, but in several of the machines and implements exhibited there were points exemplified which have an important bearing on economical working, and to these we purpose in an early Number making special reference.

Two special features of the Kelso meeting—the lecture by Professor Anderson on Manures on Monday evening, and the dinner or banquet, went off very well. The remarks of the Professor were full of suggestive truths. The dinner was very well attended, upwards of 400 being present. The Chair was taken by the Duke of Argyll, President of the Society, who in his speech made some excellent remarks on the improvement of agricultural stock, and drew pointed attention to the important subject of agricultural statistics, the collection of which he believed to be productive of great benefit to the interests of agriculture. The speech was remarkably good.

The following is a list of the prize-takers:—

CATTLE.

Short-horn breed.

Gold Medal.—Bull "Master Annandale," W. Lambert, Haydon Bridge.

Old Bull.—20*l.*, Wm. Stirling, of Keir, M.P.; 2d, 10*l.*, G. H. M. Home Binning; 3d, J. Wilson, Manor House, Woodhorn. Morpeth.

Bulls, 2 years old.—20*l.*, Wm. Lambert, Haydon Bridge; 2d, 10*l.*, Sir T. B. Hepburn; 3d, Andrew Haddon, Hawick.

Bull, yearling.—10*l.*, A. & A. Mitchell, Alloa; 2d, 5*l.*, James Douglas; 3d, Lord Kinnaird.

Old Cow.—15*l.*, Lady Pigot; 2d, 8*l.*, James Douglas; 3d, Colonel Ferguson, of Raith.

Heifer.—10*l.*, the Duke of Montrose; 2d, 5*l.*, James Douglas.

Heifer, yearling.—8*l.*, A. J. Balfour; 2d, 4*l.*, Viscount Strathallan; 3d, Medal, G. R. Barclay, of Keavil, Dunfermline.

Polled (Aberdeen or Angus).

Old Bull.—20*l.*, Robert Walker, Aberdeen; 2d, 10*l.*, Alex. Bowie, Arbroath; 3d, Alex. Peterson, Keith.

Bull, 2 years old.—20*l.*, Alex. Bowie; 2d, 10*l.*, Alex. Bowie; 3d, the Earl of Southesk.

Old Cow, of any age.—15*l.*, J. H. E. Wemyss, M.P.; 2d, 8*l.*, the Earl of Southesk; 3d, Alex. Ronaldson, Methlic.

Heifers.—10*l.*, the Earl of Southesk; 2d, 5*l.*, the Earl of Southesk; 3d, Alex. Paterson.

Heifer, yearling.—8*l.*, the Earl of Southesk; 2d, 4*l.*, the Earl of Southesk; 3d, Alex. Paterson.

Polled (Galloway).

Gold Medal Cow, "Harriet."—James Graham, Dalbeattie.

Old Bull.—20*l.*, John Cunningham, Dalbeattie; 2d, 10*l.*, William Keir, Tweedenside.

Two year old Bull.—20*l.*, Alexander Jardine, Lockerbie; 2d, 10*l.*, the Duke of Buccleuch; 3d. Robert Stobo, Auldgirth.

Bull Yearling.—10*l.*, James Graham, Dalbeattie.

Old Cow.—15*l.*, James Graham; 2d, 8*l.*, John Cunningham; 3d, ditto.

Heifer.—10*l.*, the Duke of Buccleuch; 2d, 5*l.*, ditto; 3d, ditto.

Heifer, Yearling.—8*l.*, Welwood Maxwell of Glenlee; 2d, 4*l.*, James Graham; 3d, Welwood Maxwell.

Ayrshire.

Gold Medal.—Bull, the Duke of Hamilton.

Gold Medal.—Cow "Collyhill," the Duke of Athole.

Gold Medal.—Cow "Premium," the Duke of Athole.

Old Bull.—20*l.*, W. A. Maclachlan, Balfron; 2d, 10*l.*, Robert Hewetson, Thornhill; 3d, the Duke of Hamilton.

Bull, 2 years old.—20*l.*, Robert M'Kean, Bishopbriggs; 2d, 10*l.*, John Stewart, Strathaven; 3d, Messrs. Rennie, Kilsyth.

Old Cow.—10*l.*, Alexander Fleming, Bothwell; 2d, 5*l.*, the Duke of Hamilton; 3d, ditto.

Cow in Calf.—10*l.*, the Duke of Hamilton; 2d, 5*l.*, David Tweedie, Abington; 3d, the Duke of Hamilton.

Heifer.—10*l.*, A. H. Oswald, Ayr; 2d, 5*l.*, David Tweedie; 3d, ditto.

Heifer, yearling.—8*l.*, the Duke of Hamilton; 2d, 4*l.*, Miss Hope Johnstone, of Annandale; 3d, the Duke of Hamilton.

Highland.

Old Bull.—20*l.*, John Malcolm, Lochgilphead; 2d, 10*l.*, the Duke of Hamilton; 3d, Allan Pollok.

Three year old Bull.—20*l.*, the Duke of Athole; 2d, 10*l.*, John Malcolm; 3d, ditto.

Old Cow.—10*l.*, the Duke of Athole; 2d, 5*l.*, the Duke of Hamilton; 3d, Allan Pollok.

Heifer.—10*l.*, the Duke of Athole; 2d, 5*l.*, the Duke of Hamilton; 3d, John Malcolm.

Heifer Yearling, 1861.—8*l.*, John Malcolm; 2d, 5*l.*, the Duke of Hamilton; 3d, John Malcolm.

Cross Heifers.—Gold Medal, Robert Logan, Birkenside.

HORSES.

For Agricultural Purposes.

Gold Medal, Stallion, "Champion," William Kerr, Lochend, Kilbirnie.

Old Stallion, 30*l.*, David Riddell, Duntocher; 2d, 15*l.*, Andrew Logan, Crossflat; 3d, James Kerr, Kilbirnie.

Entire Colt, 3 years old.—20*l.*, Peter Crawford, Strathblane; 2d, 10*l.*, Hugh Vallance, Strathaven; 3d, James Lawrie, Mitchelston, Stow.

Entire Colt, 2 years old.—15*l.*, William Stirling, M.P.; 2d, 8*l.*, John Findlay, Easterhill, Glasgow; 3d, Samuel Clark, Kilbarchan.

Colt, yearling.—10*l.*, Peter Crawford; 2d, 5*l.*, David Riddell; 3d, Robert Wilson, Kilbarchan.

Old Mare (with Foal at foot).—20*l.*, the Duke of Hamilton; 2d, 10*l.*, Wm. Park; 3d, Alex Naismith.

Young Mare (in Foal).—15*l.*, the Duke of Hamilton; 2d, 8*l.*, ditto; 3d, H. D. Erskine, of Cardross, Stirling.

Filly, 3 years old.—10*l.*, the Duke of Hamilton; 2d, 5*l.*, William Stirling, M.P.; 3d, the Duke of Hamilton.

Filly, 2 years old.—8*l.*, Welwood Maxwell; 2d, 4*l.*, the Duke of Hamilton; 3d, Wm. Kerr, Balbirnie.

Filly, yearling.—6*l.*, the Duke of Hamilton; 2d, 3*l.*, James Lawrie, Mitchelston, Stow; 3d, ditto.

Thorough-bred Horse.—50*l.*, J. H. E. Wemyss, M.P.

SHEEP.

Leicester.

Four-shear Tup.—10*l.*, Wm. Purvis, Kelso; 2d, 5*l.*, H. A. Rennie, Banff.

Shearling Tup.—10*l.*, George Simson, Kelso; 2d, 5*l.*, A. J. Balfour; 3d, Lord Polworth.

Five Ewes.—8*l.*, Lord Polworth; 2d, 4*l.*, George Simson; 3d, Thomas Stark, Mellindean.

Five Shearling Ewes.—8*l.*, W. Purvis; 2d, 4*l.*, George Simson; 3d, Thomas Simson.

Cheviot.

Four-shear Tup.—10*l.*, James Brydon, Langholm; 2d, 5*l.*, Thomas Brydon, Moffat; 3d, Thomas Elliot, Jedburgh.

Shearling Tup.—10*l.*, James Brydon; 2d, 5*l.*, ditto; 3d, Thomas Elliot.

Five Ewes.—8*l.*, James Brydon; 2d, 4*l.*, Thomas Elliot.

Five Shearling Ewes.—8*l.*, James Brydon; 2d, 4*l.*, John W. J. Paterson, Langholm; 3d, Thomas Elliot.

Blackfaced.

Four-shear Tup.—10*l.*, Thomas Murray, Penicuik; 2d, 5*l.*, James Drife, Sanquhar; 3d, ditto.

Shearling Tup.—10*l.*, Thomas Murray; 2d, 5*l.*, John Archibald, Stow; 3d, ditto.

Five Ewes.—8*l.*, John Wilson, Roslin; 2d, 4*l.*, Thomas Murray.

Five Shearling Ewes.—8*l.*, John Archibald; 2d, 4*l.*, the Ear of Airlie; 3d, John Inch, Liberton.

Southdown.

Four-shear Tup.—10*l.*, James Aitchison, Haddington; 2d, 5*l.*, R. Scott Skirving, Drem.

Shearling Tup.—10*l.*, James Aitchison; 2d, 5*l.*, R. S. Skirving.

Five Ewes.—No Award.

Five Shearling Ewes.—8*l.*, R. S. Skirving; 2d, 4*l.*, ditto.

Long-woolled other than Leicester.

Tup.—10*l.*, Thomas Beale Browne, Salperton Park; 2d, 5*l.*, Lord Kinnaird; 3d, T. B. Browne.

Five Ewes, not more than four shear.—8*l.*, John Gibson; 2d, 4*l.*, R. S. Skirving.

Short-woolled other than Southdown.

Tup.—10*l.*, Allan Thomson Douglas, Moneylaws; 2d, 5*l.*, John Gibson, Woolmet; 3d, Lord Kinnaird.

SWINE.

Boar, large breed.—8*l.*, Richard Dickin, Heaton Norris; 2d, 4*l.*, Thomas D. Findlay, Easterhill; 3d, W. B. Wainman, Carbead.

Boar, small breed.—8*l.*, W. B. Wainman; 2d, 4*l.*, ditto; 3d, J. H. E. Wemyss, M.P.

Sow, large breed.—6*l.*, W. B. Wainman; 2d, 3*l.*, T. D. Findlay; 3d, R. Dickin.

Sow, small breed, 6*l.*, W. B. Wainman; 2d, 3*l.*, ditto; 3d, Bronze Medal, R. Thomson, Kelston, Holywell.

Three Pigs, not exceeding 8 months old, large breed.—4*l.*, W. B. Wainman; 2d, 2*l.*, ditto; 3d, Bronze Medal, Major G. C. Dickins, Coldstream.

Three Pigs, not exceeding 8 months old, small breed.—4*l.*, W. B. Wainman; 2d, 2*l.*, Nicol Milne, Melrose; 3d, the Earl of Wemyss.

YORKSHIRE: The annual meeting of the Yorkshire Agricultural Society has been held at South Stockton during the past week. We hope next week to give a report, for which we have not room in our present Number. A grant of money—a branch line to the show yard—even an extemporised pontoon bridge across the river—in fact, all the leading features of the national agricultural meetings, characterise this of the provincial Society. A great show of Short-horns and of horses, and a good show of Leicester sheep and pigs, are always features of the Yorkshire meeting. About 100 manufacturers of agricultural implements exhibit their wares, and among them those of steam ploughs and cultivators show their tackle at work. We must give a prize list and report in our next impression.

BATH AND WEST OF ENGLAND.—A Council meeting of this Society was held at the Railway Hotel, Taunton, on Saturday last; present, Earl Fortescue (in the Chair), Sir J. T. B. Duckworth, Bart.; Colonels Acland and Luttrell, Drs. Gillett and Brent, Rev. T. Phillpotts, Messrs. Adair, Bremridge, Bruce, R. H. Bush, R. H. Clarke, J. Daw, R. R. M. Daw, J. T. Davy, Danger, Dickinson, M. Farrant, J. Fry, R. Dymond, John Gray, Jonathan Gray, J. Gould, C. Gordon, J. Hancock, J. E. Knollys, M. King, H. G. Moysey, R. May, G. S. Poole, J. P. Pitts, P. P. Smith, J. Sillifant, J. W. Sillifant, E. U. Vidal, H. Williams, J. Widdicombe (Director), H. St. J. Maule (Secretary), Goodwin (Editor), &c., &c.

The SECRETARY announced for the information of those desiring the aid of the Chemical Professor that Dr. Voelcker was leaving Cirencester that day, and his future address would be 101, Leadenhall Street, London, E.C.

Dr. GILLETT brought up the quarterly report of the Finance Committee recommending the payment of accounts amounting to 3,060*l.* 19*s.* 6½*d.* He congratulated the Society that independently of the 1000*l.* due from the city of Bristol, the Treasurer had sufficient funds in hand to meet all requirements.

The Stewards, members of Committee, and other officers, who were nominated at the last meeting of the Council, having expressed their willingness to act, were now formally appointed, viz.:—

Stewards of Stock.—Messrs. G. Langdon, E. U. Vidal, and J. P. Pitts. Steward elect, Mr. J. Fry.

Stewards of Horses.—Mr. C. Gordon and Colonel Luttrell.

Stewards of Implements.—Messrs. John Gray and W. Froude (yard); and J. E. Knollys and H. P. Jones (field).

Stewards of Poultry.—Mr. S. Pitman and Dr. Brent.

Stewards of Horticulture.—Mr. Jonathan Gray and Rev. J. Phillpotts.

Stewards of the Arts Department.—Dr. Scott, Messrs. H. Williams, J. Daw, and J. W. Sillifant. Honorary Secretary, Mr. R. R. M. Daw.

Stewards of the Library.—Messrs. Cotterell, Jonathan Gray, and Thompson.

Mr. KNOLLYS reported that the authorities at Bristol were most anxious to render every assistance in their power to the Society, but owing to the great scarcity of arable land in the neighbourhood of the city, it would be necessary at the meeting next year to make a slight deviation from the ordinary arrangements, and he proposed to get up an exhibition of mowing machines, hay tedders, &c., on the Grass land; and of steam ploughs and cultivators on the arable land at their disposal. On the motion of Mr. Jonathan Gray, seconded by Mr. Acland, the matter was directed to be left to Mr. Knollys' discretion.

A long and important discussion ensued, on the motion of Mr. Pitman, relative to the Society's place of meeting in 1865; but the further consideration of the subject was deferred till the October meeting.

On the motion of Mr. Pitman, seconded by Colonel Luttrell, a committee was appointed to consider whether it would be desirable and feasible to add a dog show to the other attractions at the Bristol meeting. Mr. Pitman added that his desire was to make the dog show a pendant to the other depart-

ments, without rendering the Society responsible in event of failure. A committee was appointed, consisting of Messrs. Pitman, Luttrell, R. H. Bush, Knollys, Gordon, and Captain Adair.

Mr. Jonathan Gray, for Mr. H. Williams, moved that a sum of 100*l.* be granted for providing suitable buildings for the display of articles in the arts and manufactures department, and it was ultimately resolved, on the suggestion of Mr. Acland, (who was now occupying the chair in the place of Earl Fortescue), that a special report on the subject should be made by the Arts Committee at the October meeting.

The Spring Horse Show.—Mr. Gordon brought up a report on the Exeter spring meeting, and announced that the horse Ratan, to whom was awarded the prize of 50*l.*, was certified to have covered no less than 107 mares during the season. It was thereupon moved that the prize be forthwith paid, and after some discussion as to whether the 1st prize cart-horse (model) was disqualified or not on the ground of age, it was resolved that on the production of certificates that he had served the stipulated number of mares in the district, the prize of 30*l.* should be paid to his owner. Incidental to the discussion, Mr. Acland drew attention to the very interesting character of the horse show at the Worcester meeting of the Royal Agricultural Society, and he ventured to throw out the hint that if the citizens of Bristol offered any local prize, it could hardly be better applied than in encouraging an improvement in the breeding of horses in the West of England, whilst the presence of a number of good animals at the Bristol meeting would greatly tend to add interest to the proceedings.

The Council then adjourned, after sitting upwards of three and a half hours.

Reviews.

The Royal Agricultural Society's Commended Essay on the Results of Steam Cultivation. By James Marsh Read, Elkstone, Cheltenham. H. Allnutt, at the Agricultural Library and *Estates Gazette* Office, 200, Fleet Street.

We have not heard as yet to whom the prize for the best essay on steam cultivation has been awarded, but here is one which ranks next best in the estimation of the Society's judges. It describes a farm, of which an account was given in our columns so long ago as December, 1861—as then one of the most successful examples of steam cultivation in the country. The year 1862 was not so favourable to the work of the steam plough as that of 1861, and the cost of the work was in that season somewhat greater. The work however was *done*; and that is exactly the point where the advantage of steam power is seen. One of the most interesting of Mr. Read's remarks relates the experience of some of his neighbours who do not apply steam power for the purpose of tillage. Their work that summer was *not* done.

"Owing to the unceasing rains during nearly the whole of the season in this district, cultvation was so interrupted as to prevent a considerable quantity of land being planted at all, and cleaning the land was of course out of the question. Frequently at the early part of the season, after steam had been raised, the rain came and stopped its working; and even when at work the state of the land was such that a much smaller quantity of work was done. However, under these circumstances, the steam plough stood well in comparison with horses. The fault of many modern implements is, that they succeed only under certain favourable circumstances. Although the work done in this, the worst of seasons, may seem small, yet that such machinery is able to accomplish its task in a very adverse season is a result worth noticing. In order to know the exact comparison of steam with cattle, we inquired the proportion left unplanted by three farmers adjoining, of roots. The information is as follows:—

"No. 1, with the usual strength of cattle, had 120 acres to plant, and 40 acres were not planted, or 33 per cent.
"No. 2, with the usual strength of cattle, had 79 acres, and 25 acres left, or 34 per cent.
"No. 3, with the usual strength of cattle, had 66 acres to plant, and 24 left, or 36 per cent.
"No. 4, with steam, and 30 working oxen dispensed with, 154 acres to plant, and 11 undone, or 7 per cent.

"These facts establish the important fact of the capabilities of the steam plough under the most difficult conditions of weather."

The case, therefore, stands thus:—Steam cultivation is cheaper than horse cultivation, it is better than horse cultivation, it is more certain than horse cultivation. The fact that full use can be made by steam power of such snatches of fine weather as may occur in a wet season, makes the work thus to be done both possible and better. The land may be too wet most of the year, and the time when it may be properly worked is too short for horses to accomplish it; they are thus driven to work when the land is not fit, and then do more harm than good. There are many other points connected with the subject, as well put by Mr. Read. His experience is one of the oldest that we have of Fowler's apparatus, and the record of it is more detailed than farmers generally keep.

The following are the conclusions to which it has led him:—

"1st, that after land has been cultivated by steam machinery, the surface water escapes to such an extent that the crops which formerly, under horse culture, commonly perished from an excess of wet, are now as commonly saved, and grow healthily and vigorously; 2d, that by reason of the absence of treading, and the escape of surface water, as well that a greater depth of cultivation is more easily obtained by steam power, a deeper and more perfect tilth is the consequence; 3d, that as a natural sequence of land being drier, and of its more thorough division and admixture, and of the avoidance of treading, and the largely increased volume of active soil obtained, greater crops follow. On all soils the effect of these improved conditions is observable, but more particularly upon the crops of heavy land.

4th, that the cost of obtaining these increased crops is much lessened by the use of the steam plough. On the farm alluded to in this essay, where unusual difficulties present themselves—where coals can only be obtained at a high rate—where rocks and hills abound so as to create a much larger average amount of breakages than other farms so cultivated would give—where detailed and accurate accounts of labour, costs, and expenses of every sort have been kept, a saving has been effected, as compared with horse culture, to a very considerable amount, by an engine and tackle of the earliest manufacture, leaving a most gratifying inference, that those now made, with their important additions and improvements, will afford to the agriculturist who will fearlessly embark in their use the satisfactory results of economised labour and expense, more perfect cultivation, and as a final and the most important consequence, larger crops, and therefore a more remunerative, employment of capital."

We recommend the many who are now considering whether or not they shall adopt steam cultivation, to procure and study Mr. Read's pamphlet on the subject.

The Agriculturist's Weather Guide and Manual of Meteorology. By Henry C. Criswick. of the Royal Observatory, Greenwich. Houlston & Wright.

This is a simple and unpretending statement by an intelligent man long practised as a meteorological observer, of the prognostications of the weather which Nature offers and which scientific instruments present. The author cannot think "that we have any good grounds for connecting those sudden and irregular changes to which our climate is liable, with causes so regular and unvarying as are the phenomena of the heavenly bodies. Knowing the influence that is exerted by the sun, and by our satellite the moon, upon the particles of air and water, we do not think it improbable but that certain changes may be caused by the relative positions of these two bodies with respect to our globe, but what influence they do exert must be at stated periods, and but of short duration, leaving no grounds whatever, we think, for connecting the general changes directly with the positions of either sun or moon."

The following is his advice to the farmer:—

"No general laws can, we think, be of any use to the farmer, but what we would urge in this work is this—let every agriculturist be his own meteorologist; with a few instruments, and attention to the remarks and directions we intend to afford him in the course of the following pages, he will find himself amply repaid for the little expense in procuring, and the slight trouble in using them. The modern farmer has a great advantage over his forefathers in the many and improved instruments he has at his command—an advantage of the first importance. A bad or imperfect instrument is infinitely worse than none at all. The errors likely to arise from the observer being ignorant of the nature of the tools he works with, and also of the inferences to be drawn from them, is easily to be repaid by a little attention on his part, and care on ours that we make our explanations plain. There is an idea in the minds of many practical farmers that anything called by the name of 'science' is of necessity abstruse, and difficult to be acquired. Though we are far from saying that this is not the case with the science of meteorology in its most extended sense, yet so much has been done by scientific men of late years, that the amount of knowledge necessary to render effectual service to him may be acquired with comparative ease, and with a very little attention to the subject. When we look around and see how vast and striking have been the improvements during the past 50 years in every branch of agriculture, both as regards the mechanical construction of implements, the innovations that chemistry has wrought in the management of the ground, and other numerous improvements, for which we are indebted to the perseverance and energy of English agriculturists, we cannot be far wrong when we predict that they have but to give the subject a fair amount of their attention, and the result must be an immense benefit to themselves, and, through them, to the country at large."

We quite agree with the author, and cordially advise the purchase and perusal of his work, which will be found to convey in simple language all the information in meteorology which is likely to serve as a guide to prognostication of the weather.

The Farm Homesteads of England. Parts II. and III. Edited by J. Bailey Denton, M. Inst. C.E., F.G.S.. &c. Chapman and Hall.

This useful and magnificent work continues to appear in Parts. Part II. contains six plates, isometrical views and plans respectively of the Maizemore farmery, near Glo'ster, the Portland farm buildings, near Peterborough, and the Northbrook homestead at Kirtlington, near Oxford. Part III. in like manner contains illustrations of the Woodhouse, Toothill, and Dover Place homesteads, in Cambridgeshire, Hampshire, and Surrey, respectively.

The Maizemore farmery is adapted to the accommodation of a herd—the tenant, Mr. Morris, being a well-known breeder of Short-horns. Accommodation is provided for 12 horses in stalls, 30 fatting beasts in boxes, and 50 to 60 store beasts in yards and sheds. It is of the simple trident form, the central line of building being of double width, and a cross building of double height connecting the three parallel lines whose intervals are arranged as yards. The whole cost 1600*l.*

We learn that Mr. Morris has derived great benefit in the cultivation of his lias clays by the use of the steam plough.

Northbrook farm accommodates 12 oxen in stalls, 50 or 60 store beasts, and 14 horses. It is on the principle adopted at the Prince Consort's Flemish Farm and elsewhere, combining covered and open yards with ordinary stabling. It was erected for 1400*l.* from the designs of Mr. Wilkinson, of Oxford.

The work, which contains this and other designs, well deserves a place in the library of every landowner, who can thus—examining plans of all the best buildings in the country, and reading the accounts of the farms for whose circumstances they were specially designed—determine on plans and even on details adapted to the circumstances of his own estates.

An Address to Young Women of the Working Class, with a few words to Masters and Mistresses. By John Strachan, M.D. Dollar. A. Elliot, Edinburgh.

In a tract of 16 pages Dr. Strachan says enough to convince the outside reader, both of the great importance of the subject on which he writes, and of the wisdom and Christian benevolence of the writer. We wish his words could be heard by every master and mistress, more especially in agricultural districts, where prejudice and custom insist more strongly than elsewhere, upon the observance of a most mischievous rule, particularly in relation to domestic servants. We make our quotation in reference to the large class of female domestic servants from that part of the tract in which the writer addresses mistresses of households:—

"These young persons are taken at a very early age from the supervision of their parents, and are committed to your care. Surely it is not too much to ask that you will interest yourselves in their preservation in the path of rectitude. Imagine any of your own well-regulated children removed from your guidance, how grateful you would be to any one who took a motherly charge of them! But, to be of use, this care must be one of indulgence, not of severe restriction. The plan of restriction and vigilance has long been tried, with the lamentable result which the Registrar-General discloses. Let us bear in mind that our Creator has implanted in human nature not only a desire, but a necessity for recreation and amusement. This is especially the case with the young; and experience constantly teaches that every attempt to restrict this only dams up a stream which will burst forth in a shape of vice. I hope you are already convinced that there is no probability of a diminution of immorality whilst the young continue to be exposed to the temptations arising from intercourse between the sexes at untimeous hours. But a little reflection will assure you that such intercourse will continue unless a more innocent kind be substituted. You cannot expect that girls will not only abandon all social enjoyment, but also all hopes of marriage, which they must do were they kept entirely from male acquaintances. You must, therefore, see the unreasonableness of the usual prohibition of 'followers.'

"No followers! God Almighty by His immutable laws of nature has declared that they shall have followers. Can we imagine that these immortal beings, with the same constitution as ourselves, with intellects as great, with affections as keen, were sent into the world merely to minister to our needs, and to submit to our caprices! It is true that they have work to do, as you and I have, but they have also souls to be trained for immortality, and, like all God's sentient creatures, they have faculties of enjoyment to be gratified. It is the greatest tyranny to attempt to deprive them of the sweetest earthly bliss, that of virtuous love. And what must be the consequence? Try it on your own daughters. Tell them they must have no followers, no friends, no acquaintances, and, within a week, they will have entered on a course of concealment and deception, the first step on the road to ruin."

Davy's Devon Herd Book. Vol. IV. Arranged by John Tanner, of Rose Ash, in South Molton, Devon, &c.

This volume brings the number of registered bulls up to 768, and that of registered cows up to 2474. These are large numbers for a "local" breed only recently brought under a system of registration. It is worth while noting, too, as respects this "local" breed, that besides the home counties, where it is native, we have herd records from Berkshire, Staffordshire, Norfolk, Wilts, Warwick, Herts, and Isle of Wight, besides a great many entries from the other side of the Atlantic.

Ram Sales.

OXFORD: 42 Cotswold shearling rams, bred by Mr. Richard Lord, of Stanton Harcourt; a very fine lot of animals: the highest price realised was 18½ gs., and the average was 9*l.* 13*s.* 10*d.* This sale was followed by that of 31 lambs, from the flock of Mr. Wm. Gillett, of Southleigh, and several of these realised high figures; the prices ranged from 4*l.* to 10*l.*; the average was 4*l.* 19*s.* 4*d.* 40 Cotswold shearling rams, the property of Mr. John Gillett, of Fawler; the highest price was 12*l.* 12*s.*, and the average 7*l.* 5*s.* 2*d.* 30 prime ram lambs, bred by Mr. Mundy, of Culham; the average 55*s.*, while a few choice lots fetched 60*s.* 40 ram lambs, the property of Mr. W. Stevens, from the well-known Gatehampton flock; there was a brisk demand, and prices averaged 6*l.* 16*s.*; the highest price made was for a grand lamb, bought by Mr. Chillingworth, at 17*l.* 10*s.* 10 ram lambs, bred from the flocks of Messrs. Gillet (Cote), Roberts, of Caswell, and Druce, of Eynsham, and the property of Mr. E. Bradshaw, of Lew, who showed this year for the first time; the average price was a little under 5*l.*

Miscellaneous.

Hampshire Sheep and Devonshire Notts.—When I first came to reside amongst the rich marsh lands of Somersetshire, between Bridgwater and the Mendip Hills, I was surprised to see so few black-faced sheep; and, on making inquiries, was told that the Down sheep did not pay for grazing on rich pasture lands, and that it was difficult to get them fit for the market without the aid of corn. Being rather sceptical on this point, and having a decided preference for the mutton of the short-woolled sheep, I was induced to make the following experiment on my farm, which, it should be observed, is situated above the level of the marsh, and consists principally of good pasture on a loamy soil with a clay subsoil, for the most part drained and well adapted to sheep grazing.

In the spring of 1861, I bought 300 two-toothed sheep, all in fresh condition and of good quality; of these 100 were Hampshire Downs and 200 Devon Notts. I picked out 30 of the best Downs to take the first run of the pastures with 60 of the best Devons, intending to sell them off from time to time as they became fit for the butcher. All the Devons became fit for market during the summer, and were sold; but the Downs showed but little improvement.

On October 28 I put the 30 Downs, with 30 of the next best Devons, on a piece of after-grass, which had been previously fed down. At this time I had both lots of sheep weighed, and I again weighed them on November 28, when I found that the 30 Downs had increased in weight 243 lbs., whereas the 30 Devons had increased 446 lbs.

The Devons were then sold, but the Downs still remained on hand, and were folded on a piece of bare upland Grass, with 30 Devons which had been feeding after the others during the season. I gave each sheep on an average daily 1¼ lb. of oilcake, 1½ pint of Oats, 20 lbs. of pulped Swedes, and a small quantity of hay; and the animals were weighed at irregular intervals. At each weighing the increase of weight was greatly in favour of the Devons; but on the last weighing, which took place on March 3, I found that from November 28 to March 3, the 30 Downs had only gained 424 lbs., whilst the 30 Devons had gained 600 lbs., as shown by the following schedule:—

WEIGHINGS OF 30 DOWN SHEEP.

	October 28th.	November 28th.	January 15th.	February 8th.	March 3rd.	Total Gain.	Remarks.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	
Weight	4321	4564	4776	4981	4988	..	
Increase	..	243	212	205	7*	667	After 18 weeks' grazing, when they were sold.

WEIGHINGS OF FIRST LOT OF 30 DEVONS.

	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	
Weight	4819	5265	..	..	..	..	
Increase	..	446	..	..	..	446	After 4½ weeks' grazing, when they were sold.

WEIGHINGS OF SECOND LOT OF 30 DEVONS.

	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	
Weight	..	4195	4436	4724	4795	..	
Increase	..	..	241	288	71	600	After 13½ weeks' grazing.

During the same period, from November 28 to March 3, I also made experiments in order to ascertain whether sheep folded gain weight as fast as those which are allowed to run; and whether the labour of cutting up roots, before they are given as food, is repaid. As already stated, in one field I folded 30 Downs and 30 Devons, giving to each sheep a daily allowance of 1¼ lb. of oilcake, 1½ pint of Oats, 20 lbs. of pulped Swedes, and a small quantity of hay; and into an adjoining field, which had been fed down quite bare, I put 20 Devon sheep, and gave them the same quantity of oil-cake, corn, and hay as to those which were folded; but instead of giving them 20 lbs. of pulped Swedes, I gave them one-third less in weight of Swedes which had not been cut. The following was the result:—The best 20 of the Downs, folded, gained on an average in three weeks, 7 lbs. each; the best 20 of the Devons, folded, gained on an average 9 lbs. each; whereas the 20 Devons, running in the adjoining field, gained on an average 11 lbs. each.

* I cannot account for the want of progress in both pens in the interval between 8th February and 3d March.

Finding that there was a material difference between the price of oilcake and that of cotton-cake, I made the following experiment to ascertain their relative feeding values. I, on December 19 last, put up the several under-mentioned lots of sheep in two folds, and fed both folds exactly alike, except that one fold had 1¼ lb. of oilcake per sheep daily, and the other 1¼ lb. of cotton-cake. The increase on the one fold from December 19 to January 19 was 241 lbs., and that on the other 223 lbs., giving oilcake an advantage of 18 lbs. only, although the oilcake cost (delivered) 12*l.* per ton, the cotton-cake (delivered) 7*l.* per ton. I purpose carrying this experiment farther.

OIL-CAKE.

No.			Weight. On Dec. 19th, 1862.	Weight. On Jan. 19th, 1863.	Increase.	
			lbs.	lbs	lbs.	
1	5	cross-bred two-toothed whether sheep (between the Oxford Down and Devon Nott).	591	657	66	1¼ lb. of oil-cake, 1 pint of Beans, 20 lbs. of Swedes, and a small quantity of hay (not weighed) per day each.
2	1	six-toothed and 8 two-toothed Devon Notts wether sheep.	1123	1267	144*	Same as above.
3	3	Downs (six-toothed)	388	419	31	Same as above.

* The six-toothed Devon wether in Lot 2 made an increase from 127 lbs. to 162 lbs.

COTTON-CAKE.

			lbs.	lbs.	lbs.	
4	5	cross-bred two-toothed wethers, same breed as No. 1.	581	639	58	Same as above, except that 1¼ lb. of cotton-cake was given instead of 1¼ lb. of oil-cake.
5	9	two-toothed Devon Notts wethers.	1187	1306	119	Same as No. 4.
6	3	six-toothed Downs	381	427	46	Same as No. 4.

Mr. H. A. F. Luttrell, of Bridgworth Court, in the Bath and West of England Agricultural Society's Journal.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Stratley, near Reading.

Total Rainfall for July: 1.32 in.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0–6	Amount of Cloud, 0–10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	July	Inches.	°	°								Inches.
Thursday ..	31	30.38	64	61	S.W.	2	10	70	58	84	54	0.10
Friday ..	August 1	30.21	64	55	N.E.	2	2	70	46	88	39	..
Saturday ..	2	30.08	67	60	S.E.	1	4	68	51	80	44	..
Sunday ..	3	30.00	66	61	S.S.E.	1	10	73	54	84	45	0.02
Monday ..	4	29.99	67	64	S.S.W.	1	9	74	56	89	50	..
Tuesday ..	5	29.99	67	63	S.W.	3	10	71	55	83	51	0.07
Wednesday ..	6	29.96	62	53	S.W.	0	10	69	49	78	44	0.32
Thursday ..	7	30.00	64	01	S.W.	2	10	70	58	84	54	0.10

Notices to Correspondents.

CLOVER DODDER. Will any one save us some ripe seeds of Clover Dodder. Let him fence off a small circle of the diseased Clover plant, and dig a trench of a foot wide, and half a foot deep to prevent its spreading—this in fact is the best way to circumscribe it in all cases.

THE FARMER'S BAROMETER, 50*s.*, a New Instrument by NEGRETTI & ZAMBRA, will correctly indicate whether the Barometer falls for Rain or for Wind.

Particulars by enclosing stamp to 1, Hatton Garden, E.C.; 59, Cornhill, E.C.; and 122, Regent Street, W.

CLARKE'S PATENT ADJUSTIBLE SCYTHE is the strongest, lightest, most durable, and best cutting Scythe yet introduced. It is used in the Gardens of the Royal Horticultural Society at South Kensington, and has given great satisfaction to all who have tried it.

The following is from G. EYLES, Esq.

"Royal Horticultural Gardens, South Kensington, May 20, 1863.

"Sir,—I like your scythes very much.—Yours very truly, "GEO. EYLES."

CLARKE & SON, Patentees and Manufacturers, Brackley, Northamptonshire.

HAVE YOU a LAWN?—Use BELCHER'S PATENT PLANTAIN EXTRACTOR; which neatly removes Plantain and Daisies, and replaces them with fine Turf. Price 6*s.*: to be had of all Ironmongers.

Wholesale Agents, S. & E. RANSOME & Co., 31, Essex Street Strand, W.C.

WASPS. — HAYTHORN'S HEXAGON and CHISWICK GARDEN NETS are guaranteed to protect all kinds of Fruit from Wasps, Flies, Birds, &c. These Nets are used and recommended by all the principal Gardeners.

For Testimonials, Patterns, and Prices, please direct to Mr. HAYTHORN, Nottingham.

Exhibition Prize Medal 1862.

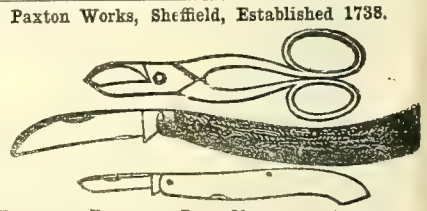
MUSGRAVE'S PATENT STABLE FITTINGS and HARMLESS LOOSE BOXES, PATENT IRON COW HOUSE FITTINGS, and IRON PIGGERIES.



These inventions are recommended as possessing numerous advantages not to be found in anything hitherto made. At the late Meeting of the Royal Agricultural Society at Leeds, MUSGRAVE BROTHERS received a Silver Medal, and two Awards of "Highly Commended," being the only Prizes conferred on any competitor in this class.

Particulars sent on application to the Inventors and Makers, MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

Paxton Works, Sheffield, Established 1738.



INTERNATIONAL EXHIBITION PRIZE MEDAL WAS AWARDED TO SAYNOR & COOKE FOR SUPERIORITY OF QUALITY IN PRUNING AND BUDDING KNIVES, &c.

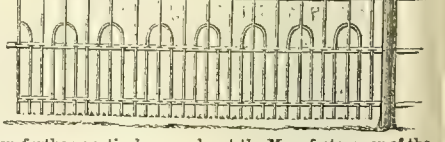
SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.

Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.



For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

Gutta Percha Tubing for Watering Gardens.

THE GUTTA PERCHA COMPANY have the pleasure to acknowledge the receipt of the following

Testimonial from Mr. J. FARRAH, *Gr. to* ROSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*

"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."

Manufactured by the GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C., and sold by their Wholesale Dealers in town and country.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

THOMAS MILLINGTON,

GLASS MERCHANT.

Established 1750.

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

The Agricultural Hall, Islington, containing an Acre of Glass, was supplied by T. Millington.

Mr. Rivers, and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home Use and for Exportation.

☞ *For prices see Advertisement of August* 1.

ST. PANCRAS IRON WORKS,

OLD ST. PANCRAS ROAD, N.W.

IRON HURDLES, FENCING, and GATES.

The PROPRIETORS of the ST. PANCRAS IRON WORKS, OLD ST. PANCRAS ROAD, LONDON, WERE AWARDED THE

SILVER MEDAL of the ROYAL AGRICULTURAL SOCIETY for their IRON HURDLES and GATES, which, by their peculiar construction, are more than twice as strong and durable as those in ordinary use.

Lists per post on application. Gates from 30*s.* to 500*l.*

The Hurdles can be seen in process of Manufacture at the Works.

GAME WIRE NETTING.

PROFESSOR VARNELL'S ENAMELLED and WROUGHT-IRON STABLE FITTINGS.

These Patent Mangers and Stable Fittings obtained the Commendation and the Silver Medal of the Royal Agricultural Society of England and the Royal Agricultural Society of Ireland, are adopted by the Royal Veterinary College, and Professor Spooner of that Institution states that they should be used by all who value the health and comfort of their Horses. They can be had Plain, Galvanised, or Enamelled.

A Show Room is devoted entirely to every description of Stable Furniture, and full-sized Stalls and Loose Boxes are erected for inspection at St. Pancras Iron Works.

Address—THE MANAGERS, ST. PANCRAS IRON WORKS,
OLD ST. PANCRAS ROAD, LONDON, N.W., Opposite Old St. Pancras Church.

J. TYLOR and SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. Tylor & Sons' GALVANIZED IRON TUB GARDEN ENGINES, with Registered Spreader.

8 gal.	12 gal.	16 gal.
2 13 6	£3 5 0	£3 15 0

24 gal.	30 gal.
£5 0 0	£5 18 0



Fig. 571.

J. Tylor & Sons' OAK TUB GARDEN ENGINES, with Registered Spreader.

15 gal.	28 gal.
£5 12 6	£7 2 0

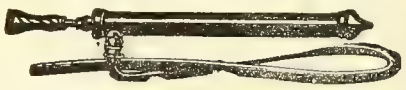


Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 8 0 each.
No. 2. Ditto ditto .. 1 2 6 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,

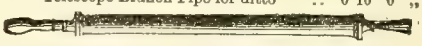


Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 11*s.* 6*d.* each.
,, 589. Middle Ditto ditto .. 10 3 ,,
,, 588. Small Ditto ditto .. 9 0 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 7 6 ,,

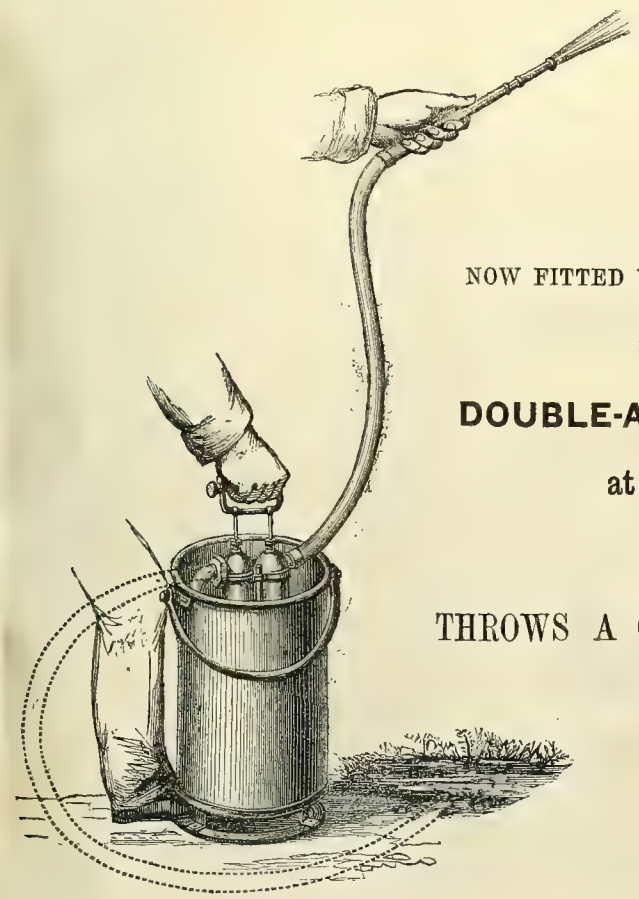


Fig. 591. READ'S SYRINGE, with two roses and one jet, 17*s.* 6*d.*
READ'S SYRINGE, with one rose and jet, 15 0
,, 592. Improved ditto ditto large 14 0

Garden Engines and Syringes of J. Tylor & Sons' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. Tylor & Sons, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

WARNERS' IMPROVED PATENT,



NOW FITTED WITH AN AIR VESSEL,

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at £2 2s.

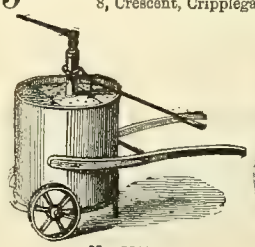
THAT

THROWS A CONSTANT STREAM.

May be obtained of any Ironmonger or Seedsman at the above price, or of

JOHN WARNER and SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

JOHN WARNER and SONS,
8, Crescent, Cripplegate, London, E.C.



No. 554½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons ..	.. £2	15 0
16 ,, ..	.. 3	15 0
24 ,, ..	.. 5	0 0

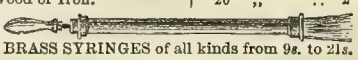
Larger sizes may be had in either Wood or Iron.



No. 579½.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons ..	£2	10 0
20 ,, ..	2	0 0



BRASS SYRINGES of all kinds from 9*s.* to 21*s.*



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 5 feet Flexible Suction Pipe,

21s.

Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

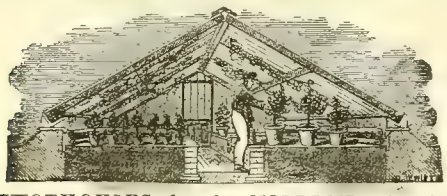
As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

There are no suction or delivery Valves, hence much friction and liability to choke with leaves and dirt is avoided.

John Warner & Sons, 8, Crescent, Cripplegate, London, E.C.

Hothouses for the Million.—AWARDED A PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, 1862.

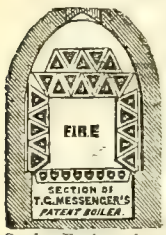


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Illustrated Circulars, with Lists of Prices, can be had on prepaid application to SAMUEL HEREMAN, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1*s.*; post free, 1*s.* 1*d.*

T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.

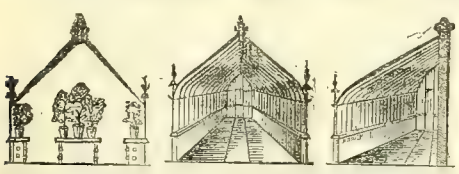


T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES of the above, Glazing without Putty Garden Engines, &c., sent upon application.

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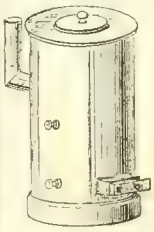
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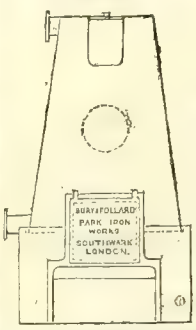


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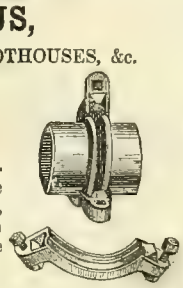
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To Gentlemen or Families Residing in London.

AN OPPORTUNITY, which can seldom occur, offers of LETTING a GARDEN within two miles of the Marble Arch, Hyde Park. The Ground is about 2 Acres, very productive, and fully stocked with Vegetables. There are several Greenhouses, Frames, &c., all stocked with Flowers; Cottage residence for Gardener, Sheds, &c.; with every convenience required, and a comfortable room for the reception of visitors. Stock generally to be taken at a valuation. This is a desirable opportunity for families residing in London, who may wish to secure Flowers and Vegetables through the year.

Application for all particulars to Mr. Alfred Chandler, 1, Devonshire Terrace, Fulham Road, S.W.

Sales by Auction.

Wandsworth Lodge, Wandsworth Common.

Valuable Collection of Stove, Orchid, and Greenhouse Plants.

MESSRS. NORTON, HOGGART, and TRIST have received instructions from the Executors to SELL by AUCTION, on the Premises, on WEDNESDAY, August 19, at 1 o'clock, the valuable and choice collection of RHODODENDRONS, AZALEAS, CAMELLIAS, ORANGE TREES, STOVE and ORCHIDS, and a variety of other plants.

May be viewed on the Monday preceding the Sale, and Catalogues had on the premises, and of Messrs. Norton, Hoggart, & Trist, 62, Old Broad Street, Royal Exchange.

Taunton, Somerset.

First-Class Nursery Grounds and Plant for Sale.

MR. POLLARD is instructed by the Trustees of the late John Young, Esq., deceased, to SELL by AUCTION, at the Castle Hotel, Taunton, on WEDNESDAY, September 16, the old established TAUNTON NURSERIES, together above 12 Acres of very fertile Land, now in full trade, with or without the Stock, Greenhouses, Hothouses, and Forcing Pits, also the Office, Seed Shop, and Show Garden, near the Tone Bridge.

Taunton is the county town on the Bristol and Exeter line, the neighbourhood is highly respectable, the business has been established about 40 years.

It is intended that the usual deposit be paid at the time of Sale, and the residue of the purchase money about Lady Day, 1864; arrangements could be made for immediate occupation.

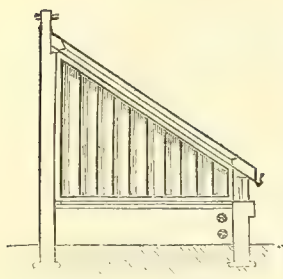
A good portion of the purchase money might remain on mortgage security of the property.

Plans and further particulars are preparing, and may be obtained of Mr. Samuel Knight Pollard, Surveyor, Taunton, and of Messrs. Fry & Otter, Shannon Court, Bristol.

Taunton, August 5.

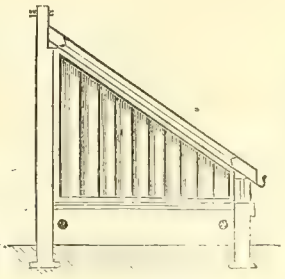
J. JONES'S HOT-WATER APPARATUS.

No. 7.



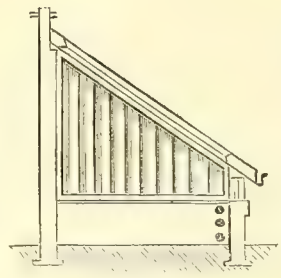
Size of House.	Price
20 by 10 feet	£9 0 0
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40 „ 15 „	15 0 0
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No. 8.



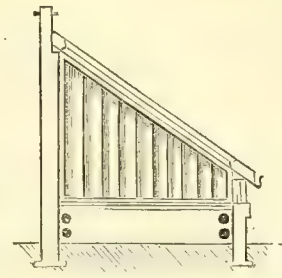
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No. 9.



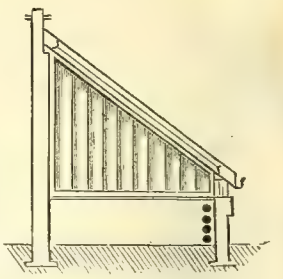
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No. 10.



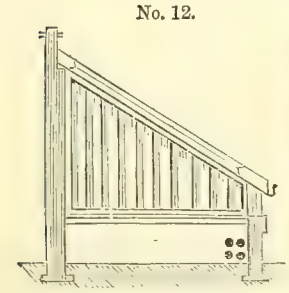
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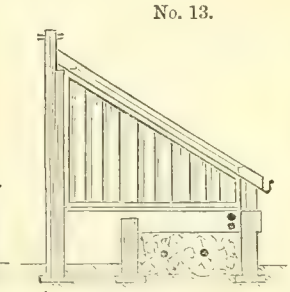
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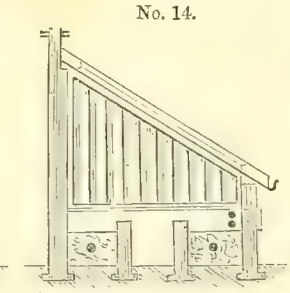
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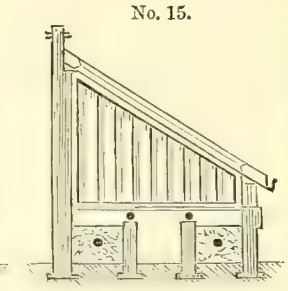
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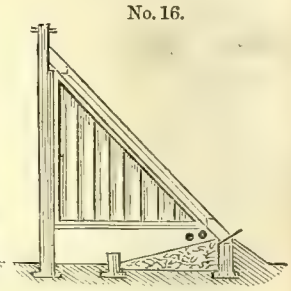
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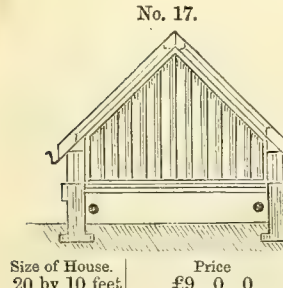
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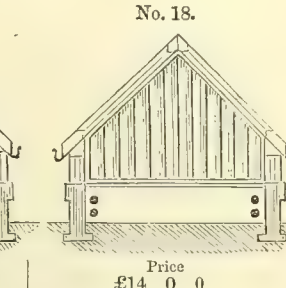
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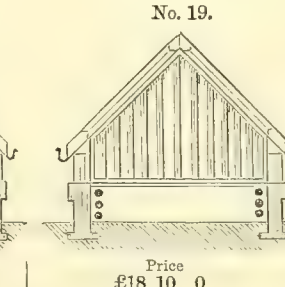
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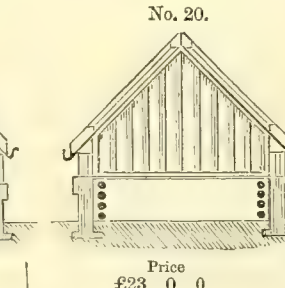
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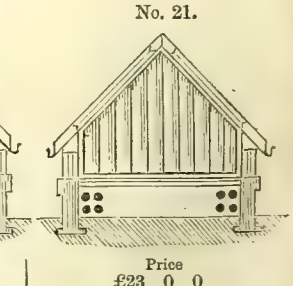
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No. 20.



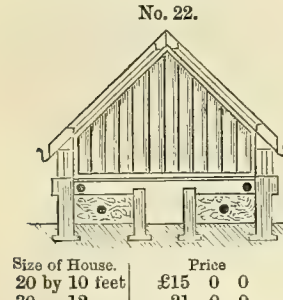
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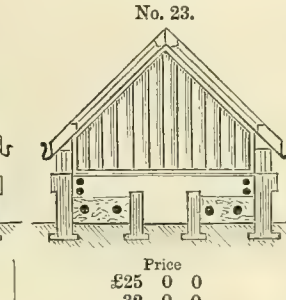
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No. 22.



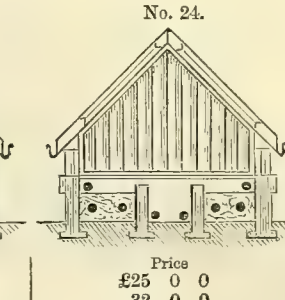
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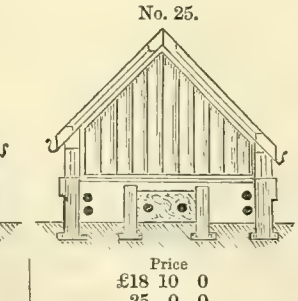
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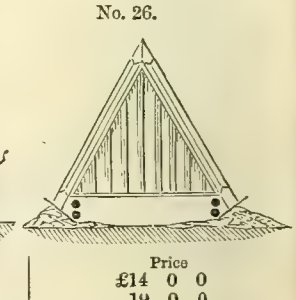
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38 10 0
44 10 0
51 10 0
58 0 0
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72 0 0

No. 25.



Price
£18 10 0
25 0 0
30 0 0
35 0 0
40 0 0
45 0 0
50 0 0
55 0 0

No. 26.



Price
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

J. JONES will be happy to supply HOT-WATER APPARATUS for HOUSES according to any of the above Plans, delivered Free to any Station in England at the prices named, which include strong CAST-IRON CYLINDER or SADDLE BOILER, FURNACE DOORS, FIRE BARS, SOOT DOORS, CISTERN and DAMPER 4-inch HOT-WATER PIPES and CONNECTIONS, all of the best quality; or he will forward ESTIMATES for WORK erected complete, with WROUGHT or CAST-IRON BOILER of any sort, at a small addition to the above prices.

☞ *The Black Circles on Sections of Houses show the arrangement of Pipes.*

Illustrated Catalogues and further particulars post free on application to

J. JONES, IRON MERCHANT AND HORTICULTURAL ENGINEER, 6, BANKSIDE, LONDON, S.E.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 33.—1863.] SATURDAY, AUGUST 15. {Price Fivepence. {Stamped Edition, 6*d*.

INDEX.

Agriculture, science of	778 *a*	Kingston Hall	775 *a*
Angler-Naturalist, rev.	774 *b*	Lilium auratum	771 *c*
Botanical Magazine	774 *c*	Pennell's Angler-Naturalist	774 *b*
Climate and crops	778 *c*	Plants, varieties among	772 *b*
Cottagers' shows	774 *a*	Pinus Bungeana	776 *a*
Crop returns	777 *b*—778 *c*	Potatoes, new	774 *a*
Cucumbers mildewed	776 *c*	Protections, spring	772 *a*
Earwigs, shower of	776 *a*	Regent's Park	771 *b*
Epipactis latifolia	773 *c*	Seaweeds, growing	771 *c*
Exhibitions, seasonable fruit	771 *a*	Silkworm, Ailantus	775 *c*
Fruit lore, ancient	773 *b*	Society, Entomological	774 *b*
— protection	772 *a*	Steam cultivation	777 *b*
— exhibitions, seasonable	771 *a*	Strawberries and sports	773 *c*
Fish and Fishing	774 *b*	— spurious	773 *c*
Hollyhocks, Messrs. Downie, Laird, & Laing's	775 *b*	Varieties, thoughts about	772 *b*
		Wheat, Mummy	775 *c*

☞ *An Edition of the* GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE *is published on Monday Afternoon at 4 o'Clock, containing full Reports of the Mark Lane and Cattle Markets, written expressly for the Paper.*

CRYSTAL PALACE.—GREAT SHOW of AUTUMN FLOWERS and FRUIT, TUESDAY and WEDNESDAY, September 1 and 2.

Admission, One Shilling each day; Children under 12, Sixpence.

For Schedules of Prizes apply to Mr. W. HOUGHTON, Secretary to the Show, Crystal Palace, Sydenham.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, now ready for Planting. Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.

Highgate Nurseries, London, N.

Kempsey Alicante Vine (True).

DOWNIE, LAIRD, AND LAING have to offer a few strong Canes of the above valuable late Grape. Their general collection is also in fine health.

LISTS and PRICES on application.

Stanstead Park Nursery, Forest Hill, London, S.E.

Vines bearing Fruit.

GEO. CLARKE begs to offer handsome Plants, well furnished, with good bunches of fruit now ripening, at 10*s*. and 15*s*. each; the fruit at present upon them is worth more than the price of the plants. A large stock also of younger plants of all the new and best kinds, prices upon application.

Nursery, Streatham Place, Brixton Hill, S; and 4, Windsor Terrace, near the Victoria Railway Station, Pimlico, S.W.

TO BE SOLD, a small quantity of QUEEN PINES, mostly Succession plants.

For further particulars apply to H. T., Post Office, Nuneaton.

Pine Plants.

FOR SALE, 300 good strong Plants, mostly Fruiting, in excellent condition.

For particulars apply to JOHN KEARSLEY & SONS, Nurserymen, Leeds.

Pine Plants Wanted.

WANTED IMMEDIATELY, 400 to 600 Succession PLANTS and SUCKERS of MONTSERRAT PINE. State price and particulars to ADAMS & Co., The Horticultural Establishment, London Road, near Gloucester.

To the Trade.

SCILLA SIBIRICA, strong flowering Bulbs, 40*s*. per thousand.

GEORGE T. FOX, The Nurseries, Wettey Rocks, near Leek.

Imported Orchids.

B. S. WILLIAMS has just received a fine importation of the following ORCHIDS:—

LYCASTE SKINNERI | CATTLEYA MOSSIÆ
CATTLEYA SUPERBA

GALEANDRA DEVONIANA, a choice and rare plant, finest of the genus.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

NOVELTIES of 1863 at greatly reduced prices.—A CATALOGUE of 30 pages, containing full descriptions of nearly 500 New Choice Plants of the season, including the New Fuchsias and Verbenas, &c. Post free for one stamp.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

New Verbenas of 1863.

B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, has now ready to send out the NEW VERBENAS of 1863, at 4*s*. per dozen.

CATALOGUES of VERBENAS and other Novelties sent on application.

To the Trade.

LONICERA AUREO-RETICULATA.

1st size, 18*s*. per dozen}
2d ,, 12*s*. ,,
3d ,, 6*s*. ,,

JAMES WRIGHT & CO., Nurserymen, Edgware, N.W.

Also a large quantity of strong SEAKALE.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH, SEED MERCHANTS, Covent Garden Market, London, W.C.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Good Turnip Seeds, Carriage Free.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Superb Double Hollyhocks.

DOWNIE, LAIRD AND LAING'S unrivalled COLLECTION of the above is NOW in BLOOM. Inspection invited any day, Sunday excepted.

Stanstead Park Nursery, Forest Hill, S.E.

Superb Double Hollyhocks.

WILLIAM CHATER'S unrivalled Collection of this noble Flower is NOW in FULL BLOOM. Open to the inspection of all visitors on any day excepting Sundays.

Nurseries, Saffron Walden.

CHOICE SEEDS.—CINERARIA, 1*s*. per packet; CALCEOLARIA, 1*s*. do.; PRIMULA, 1*s*. do.; COVENT GARDEN INTERMEDIATE STOCK, 1*s*. do.; MIMULUS, 1*s*. do.; HUNT'S SWEET WILLIAM, 1*s*. do.; CARNATION, 1*s*. do.; PICOTEE, 1*s*. do.; PELARGONIUM, 1*s*. do.

BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

Cineraria, Calceolaria, and Primula.

E. G. HENDERSON AND SON offer first-class seed of the above. Also, CINERARIA WEBBI, a new shrubby species, and best English and French Spotted PANSY. Each 1*s*. and 2*s*. 6*d*. per packet.

☞ EXPERIENCED GARDENERS recommended.

Wellington Nursery, St. John's Wood, London, N.W.

New Hybrid Mimulus.

E. G. HENDERSON AND SON offer Seed of the beautiful new Section, between M. CUPREUS and M. LUTEUS, as now to be seen in the Wellington Nursery, forming an elegant dwarf bedding-plant, and adapted for pot-culture in Conservatories. 1*s*. and 2*s*. 6*d*. per packet.

Wellington Nursery, St. John's Wood, London, N.W.

SEEDS, warranted to give satisfaction, of PANSY, HOLLYHOCK, POLYANTHUS, DELPHINIUMS, SWEET WILLIAMS, for present sowing, all saved from the best named Prize Flowers; per packet, 6*d*., 1*s*., 1*s*. 6*d*., and 2*s*. 6*d*. each.

CATALOGUE of NEW PLANTS upon application for one Stamp.

DILLISTONE & Co., Sturmer and Woodlands Nurseries, Halstead, Essex.

Special Offer to the Trade.

MESSRS. A. HENDERSON AND CO. have much pleasure in offering the beautiful New ALOCASIA ZEBRINA, fine healthy Plants at 42*s*. each; and ALOCASIA MACRORHIZA VARIEGATA, 10*s*. 6*d*. each.

Pine-Apple Place, Edgware Road, London.

Just Imported,

DOUBLE ROMAN and PAPER WHITE NARCISSUS in fine condition, Wholesale or Retail. Price on application to

JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

Dutch Flower Roots.

HUGH LOW AND CO. beg to announce that their CATALOGUE of the above is now ready for distribution, and will be forwarded, post free, to all applicants.

Clapton Nursery, London, N.E.

Catalogue of Hyacinths and other Choice Bulbs.

B. S. WILLIAMS begs to announce that his NEW DESCRIPTIVE CATALOGUE, containing select lots of Hyacinths, Tulips, Crocuses, Narcissus, Lilies, Amaryllis, and miscellaneous Bulbs, will be published next week, and forwarded post free to all previous customers and applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

To Importers of Dutch Bulbs.

BETHAM AND BLACKITH, of Cox's and Hammond's Quay, Lower Thames Street, E.C., respectfully recommend the Trade and others importing Roots from Holland, to favour them with immediate instructions for their clearance and despatch, by which means they will insure an early delivery at moderate charges.—August 15.

Paul's Nurseries, Waltham Cross.

WM. PAUL'S ROSES are NOW in FULL BLOOM.

See Advertisement on p. 770.

New Roses of 1863.

E. G. HENDERSON AND SON offer strong healthy plants of the most select kinds at 42*s*. per dozen. The Trade supplied in any quantity.

Wellington Nursery, St. John's Wood, London, N.W.

New Roses for 1863.

WM. WOOD AND SON are now supplying all the NEW ROSES in splendid Plants at reasonable prices. The leading kinds of PERPETUAL and other ROSES in pots are also offered by the dozen, hundred, or thousand.

Address, Woodlands Nursery, Maresfield, Uckfield, Sussex.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON).—Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7*s*. 6*d*. each, are now ready.

Old Cheshunt Nurseries, Herts.

ROSES, NEW and OLD. CATALOGUES NOW READY.

A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. Those who wish for a fine display of bloom during the present summer and autumn should now give their orders.

CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

ALOCASIA MACRORHIZA VARIEGATA.—Good plants, 10*s*. 6*d*. each.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

CHOICE CINERARIA, CALCEOLARIA, PRIMULA FIMBRIATA, and other FLOWER SEEDS for present sowing, 1*s*. per packet, Post free.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

To the Trade.

DOUBLE SNOWDROPS by the 100 or 1000. New COLE SEED (1863), by the Strike or Quarter.

Prices on application to FRANK WARWICK, North Road Nursery, Sleaford.

To the Seed Trade.

DOBSON'S FIRST-CLASS SEEDS of CALCEOLARIA, CINERARIA, and PRIMULA.

Supplied to the Trade in Packets only.

A liberal allowance. Price on application.

J. DOBSON & SONS, Seedsmen, Isleworth, W.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.

Dorking Nursery.

LARGE SPECIMEN FERNS for SALE.—For Description and Prices, apply to J. ILLMAN, Nurseryman, Strood, Kent.

A FERN CATALOGUE forwarded, post-free, on receipt of one stamp.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Ferns to the Trade.

EDWIN COOLING has a large stock of very fine healthy plants now to offer.

A PRICED LIST free on application.

Mile Ash Nurseries, Derby.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

DICKINSON'S NEW ITALIAN RYE-GRASS SEED is now ready for delivery.

Sold only by himself, and for present payment, 48*s*. per quarter, or 7*s*. per bushel.

New Park, Lymington, Hants.

The best Substitute for Swedes.

SUTTON'S GREENTOP YELLOW HYBRID TURNIP sown now will produce a good crop of YELLOW FLESHED TURNIPS, nearly equal in feeding quality to the best Swedes. Price 10*d*. per lb., or cheaper by the Bushel.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

To Seedsmen, Market Gardeners, and Others.

CABBAGE SEED, in Large or Small Quantities, saved by the late Mr. JAMES NORRIS, of Isleworth, Middlesex, from first-rate sorts in 1861.

For particulars apply to JOHN NORRIS, Sion Hill, Isleworth.

THE BEST LETTUCES for SOWING NOW—to stand the Winter—are WHEELER'S TOM THUMB and WHEELER'S IMPERIAL COS. The price of the Seed is 1*s*. per packet—post free.

Messrs. WHEELER & SON regret to find that inferior varieties are sometimes substituted, and with a view to prevent this intend publishing a List of Agents of whom next season the Seed may be obtained true.

J. C. WHEELER & SON, Seed Growers, Gloucester.

GARDENERS' CHRONICLE

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes.

Sunningdale Nursery, S W. Rail.

Rhododendron Countess of Haddington.

ROBERT PARKER begs to announce that he is now sending out this fine variety, a figure of which will appear in the "Illustrated Bouquet," and Photographs may be seen at the Nursery. Habit compact and vigorous, with fine foliage flowers, rosy blush, measuring upwards of 3½ inches in length and diameter, very abundant bloomer, and may be flowered from February to June. For early spring and summer decoration and exhibition purposes this will prove the most useful and ornamental plant of modern introduction. The following Awards have been received at the undermentioned Exhibitions:—

Edinburgh Horticultural Society's Show, March 19, 1861—First Class Certificate.
Royal Horticultural Society's Show, March 19, 1862—First Class Certificate.
Royal Botanic Society's Show, April 2, 1862—First Class Certificate.
Edinburgh Horticultural Society's Show, March 18, 1863—Special Prize.
Crystal Palace Show, May 23d, 1863—First Prize 5*l* for single specimen of newly introduced extremely rare or beautiful plant, in or out of flower, hardy or exotic.

Good plants 21*s.* each. The usual discount to the Trade.

Exotic Nursery, Tooting, Surrey, S.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his New CATALOGUE, containing Select, Descriptive, and Priced Lists of Exotic Orchids, New and Rare Greenhouse, Hardy, and Stove Plants, Ornamental and Variegated foliaged Plants, Azalea Indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, Narcissus, and other Bulbs, is now published and will be forwarded to all applicants.

Exotic Nursery, Tooting, Surrey, S.

Dutch Bulbs.

E. H. KRELAGE AND SON, Haarlem, Holland, beg to announce to the Trade only, that their TRADE CIRCULAR for July has been sent to their Correspondents. It contains Miscellaneous Bulbs, &c., a collection as rich as ever was offered, with prices per dozen, 100,000 or upwards.

The TRADE CIRCULAR for June contains Hyacinths, Tulips, Crocuses, Narcissus, Anemones, Ranunculus, Fritillarias, Lilium, Iris, &c.

The Gladiolus, Paeonies, Cannas, and other Tribes are published in the TRADE CIRCULAR for August.

E. H. K. & Son's Trade Circulars will be addressed to Seedsmen, Nurserymen, or Florists on prepaid application.

200,000 FOREIGN BULBS.

—The Proprietors of the St. John's and Newton-Moor Nurseries, Wakefield, having made large purchases of BULBS, we shall be able to supply first-class kinds in good healthy roots.

A comparison of prices will show that they can be purchased at this Nursery 20 per cent. lower than at many others. No effort has been spared to maintain the high celebrity this establishment has long enjoyed for Bulbous Roots. CATALOGUES gratis.

WM. BARRATT, Manager.

Camellias and Indian Azaleas, with Flower Buds.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to remind his friends who patronise him with their confidence, that they should send their orders in early this season for CAMELLIAS, with flower buds, in order that they may be well served, as the prospect of flower is now very abundant.

CAMELLIAS, with flower buds, 5*l.* to 6*l.* per hundred.
INDIAN AZALEAS, with flower buds, 4*l.* to 5*l.* per hundred.

THE NEW HARDY RHODODENDRON AUGUSTE VAN GEERT.

—This extraordinary variety will be sent out on the 1st of September; it is the largest bouquet of its class, of which the flower has been seen by many of the leading nurserymen and amateurs in England and on the Continent. A drawing will be sent on application.

Price of Plants free to London, 7*s.* 6*d.* to 21*s.* each. One over for every three taken. Early orders solicited.

A. VAN GEERT, Nurseryman, Ghent, Belgium.

Camellias and Indian Azaleas with Buds.

THE NURSERIES, GHENT, BELGIUM.

JEAN VERSCHAFFELT begs respectfully to announce that his Stock of CAMELLIAS and INDIAN AZALEAS with buds, including only first-rate varieties, is particularly large and fine this year, and will enable him to meet every demand. The prices are kept as low as possible, viz.:

CAMELLIAS with buds, fine plants .. £6 0 0 per 100
Do. do. larger do., 8*l.* to 20 0 0 „
AZALEA INDICA, nice plants, at from .. 4 0 0 „

Early orders are solicited, and are to be directed to JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent, Belgium.

New Plants for the Autumn, 1863.

JEAN VERSCHAFFELT begs to call the attention of the Trade in general to the following Novelties, which he intends to send out in September next. J. V. can confidently recommend these Novelties as being first-rate varieties, of superior merit, full descriptions of which will be found in his new DESCRIPTIVE CATALOGUE for 1863, which will be ready in a few days, and will be sent to all his correspondents, viz.:—

AZALEA INDICA PRESIDENT HUMANN, nice plants with buds, 12*s.* each; strong ditto, 20*s.* to 40*s.*
„ „ SOUVENIR DU PRINCE ALBERT, nice plants, 20*s.* each.
„ „ SECRETAIRE CLAUS, with buds, 7*s.* each.
„ „ VICOMTE DE FORCEVILLE, 10*s.*
„ „ REINE DES DOUBLES, fol. arg. var., 4*s.*
CAMELLIA VICOMTE DE NIEUPORT, 12*s.* each; nice plants, with buds, 20*s.*
RHODODENDRON NOTAIRE BEAUCARNE, a very fine hardy novelty, good plants, 8*s.* each; stronger do., 12*s.* ea.

One plant over on every three to the Trade. The subscription list is open now, and early orders are solicited, as they will be executed in strict rotation. Arrangements made where quantities are required. A carefully coloured Plate of the Azaleas will be sent to each subscriber.

All letters to be directed to JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent, Belgium.

Cordyline indivisa.

JAMES CARTER AND CO. beg to offer seed of the above beautiful foliaged plant, just received from New Zealand in fine condition; having been gathered there in the early part of last May and imported in the husk, it is more likely to germinate than old seed as introduced previously into this country; and to ensure success should be sown immediately. Price 2*s.* 6*d.* per packet. Special and very liberal allowance to the Trade on application.

237, 238, and 261, High Holborn, W.C.

A hardy Gleichenia—Gleichenia alpina.

IT IS WITH GREAT PLEASURE THAT

JAS. BACKHOUSE AND SON offer to the lovers of FERNS this new and beautiful species, of which they have at last succeeded in importing fine living plants. It forms a dense mass, 9 to 12 inches high, of deep lustrous green fronds on rigid wiry stems, and is as finely divided as G. microphylla, dicarpa, and speluncæ, to which section of the genus it belongs. This Fern inhabits a region where the cold is severe, frost and snow being liable to occur every month in the year.

J. B. & SON have received it in the same sods as Lomaria alpina, a Fern which bore the intense frost of 1860; and their plants of Gleichenia have hitherto withstood all frost; even the young uncurling fronds remaining totally uninjured during the winter, and developing finely on the return of spring.

The plant becomes sickly in a greenhouse, and seems to rejoice in the greatest degree of exposure to sun and frost in the open air. Abundant and continuous moisture to the roots in summer, combined with very free drainage, insure success.

Nice established plants, 63*s.* each.

GLEICHENIA DICARPA.—Strong established plants, 5*s.* to 7*s.* 6*d.* each.

CYPRIPEDIUM CALCEOLUS (the English Lady's Slipper).—Strong flowering plants, 12*s.* per dozen.

TRICHOMANES, HYMENOPHYLLUMS, and LINDSÆAS in great variety.

York Nurseries, Aug. 15.

LAWES'S MANURES.

The Manures manufactured by J. B. LAWES for the present season of 1863 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from Messrs. Gibbs: Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

THE LONDON MANURE COMPANY

have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

GENUINE TOBACCO PAPER at 8*d.* per pound.

—Apply to HENRY BROWN, Wholesale and Retail Seedsman, 4, Commutation Row, Liverpool.

Importer of DUTCH BULBS.

REIGATE SILVER SAND.

—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.*; 4 cwt. put on the Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

N.B. Loaded Trucks can be sent on all the principal Railways.

W. SHORT, Reigate, Surrey.

TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION

introduced in 1850 has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, writing a few days since, say:—"Please send us 10 gallons of Blight Composition, as quickly as possible. We tried 'Gishurst' last year, but it would not do like the Composition."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed JOHN MORLEY.
HENRY DREW.
HENRY SHEERMAN.
GEORGE ISAACS.

"July 13, 1863."

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, 58, Above Bar, Southampton.

W. TOOGOOD,

(LATE PAGE AND TOOGOOD),

SEED GROWER AND MERCHANT,

58, ABOVE BAR, SOUTHAMPTON,

Has the pleasure to announce that the Partnership, heretofore existing between himself and Mr. W. B. PAGE, Jun., has been dissolved by mutual consent as per advertisement, *and all the Stock, Debts, and Effects of the late Firm, except the fixtures in the shop in Oxford Street, having by arrangement been assigned to him,* he has removed the same to the old place of business (nearly 50 years standing), Above Bar, where he, in future, will conduct his trade in all the branches of the late Firm.

For PRESENT SOWING he has ready for immediate delivery—

Trifolium incarnatum, 4d. per lb.

Of which large quantities are annually saved in this district. With "practical hints" on its cultivation.

New Late Red, 8d. per lb. | **New Late White, 1s. per lb.**

M. M. DUPLESSIS, *of Newtown Park, Lymington, says*:—"In answer to your inquiries about the Late Red and White Trifolium, I have great pleasure in stating that I consider them invaluable; the Late Red coming into bloom a *fortnight* after the common Red, and the White *a fortnight* after the late Red, *trebles* the time during which this plant may be used as green food. I also consider the Late Red and White Trifolium as *superior* to the common Red as green food, and would make much better hay than the latter. I take the opportunity of thanking you for the promptness and attention you have always given to my orders, and have great pleasure in stating that I have always found your seed of first-rate quality."—Aug. 12, 1863.

Italian Rye-grass, 5s. per bushel.

New Stubble Turnip, 6d. per lb. | **New Rape, 3d. per lb.**
Mustard, 3d. per lb. | **Cattle Cabbage, 2s. 6d. per lb.**

For RYE, WINTER OATS, WINTER BARLEY, WINTER VETCHES, and WINTER BEANS, early orders will ensure delivery in good time, and the lowest price consistent with best quality will invariably be charged.

All choice varieties of CABBAGE, ONION, LETTUCE, CHINA RADISH, &c., for Winter Sowing.

PERMANENT PASTURE and LAWN GRASSES succeed well now, as sown at the Royal Farms, Osborne, for the past 10 years, the Southampton Parks, &c., *all of which were selected and mixed by the Advertiser personally.*

The Rev. T. BACON, *Kingsworthy, December* 10, 1860, *says*:—"I have great pleasure in stating that the pasture which you laid down for me in the Spring has been a great success, so much so, indeed, as to attract the constant inquiries of passers by. Within four months of sowing, it bore an excellent and abundant crop of Hay, and it has been continually fed off by cows and sheep ever since, with the exception of the three weeks immediately after mowing. For variety of herbage, equality of plant, and strength of growth, it is acknowledged by some of the best judges in this neighbourhood to be *most excellent*; it already wears the aspect of a rich and well established pasture."

From Mr. BARNES, *late Superintendent (for 7 years) of the Southampton Parks.*

"Sir,—In reply to your note referring to the Permanent Grass Seeds with which I laid down the Southampton Parks, I can only say that I saw you personally measure off the different varieties and mix them in order for sowing. The judgment exercised by you in that selection is apparent in the beautiful herbage and lawn like appearance of the grounds while under my management; in fact the second year there was as fine and thorough a Turf as in a park down 50 years.

"To Mr. WM. TOOGOOD." "ARTHUR BARNES."

"We hereby certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that the Permanent Pasture and Lawn Grasses *were measured and mixed by Mr. Toogood, personally.*

"July 13, 1863." (Signed) JOHN MORLEY, HENRY SHEERMAN, GEORGE ISAACS."

To prevent mistakes it is desirable that all letters referring to the business of the late Firm, or orders for any of the foregoing, should be directed

W. TOOGOOD, ROYAL SOUTH HANTS SEED ESTABLISHMENT,
ABOVE BAR, SOUTHAMPTON.

TRADE

HALLETT'S PEDIGREE NURSERY WHEAT.

MARK.

THE PEDIGREE WHEAT WAS AWARDED THE SILVER MEDAL BY THE JURORS OF THE CLASS "CEREALS FROM ALL COUNTRIES" AT THE MEETING IN 1863 OF THE AGRICULTURAL SOCIETY OF DENMARK AT ODENSE.

The produce of 3 acres of this Wheat, grown 1862, in Essex, was sold to the miller, and realised £19 7*s.* per acre.

In September DRILL 4 Bushels on 10 acres.

NONE IS GENUINE UNLESS THE TRADE MARK IS UPON THE BAG.

Apply to FREDERIC F. HALLETT, ESQ., F.L.S., The Manor House, Brighton, Sussex.

PRICE—One Guinea a Bushel (or Seven Guineas a Quarter),

Delivered, with Printed Directions for Planting, at the Brighton Railway Station, in Bags Sewed up and Sealed.

"HOW OUR WHEAT CROPS MAY BE DOUBLED," and other papers, forwarded on application, enclosing six stamps.



In every plant of Wheat, Barley, or Oats there is always ONE BEST EAR, and in every ear there is always ONE BEST GRAIN, which is that one found at the following harvest to produce the best plant, *all* the grains having been planted in competition with each other.

The best of all the competing plants of any "family" of a cereal is ascertained by the most studious comparison of the good qualities they visibly present, *and of the notes of the peculiarities exhibited by each during the whole course of its growth*, such as:—the rapidity with which the parent seed germinates; the manner, time, and extent of the "tillering" of the plant; the periods of its earing, blooming, and ripening; its power of withstanding disease, frost, wet, &c.; the *toughness* of its straw, and any other characteristics which are essential to forming a correct decision, and which cannot be determined by even the most careful inspection of the perfect plant.

This best plant is called "*the selection*" of the year (say 1861) in which it is thus obtained, and consists of numerous ears, containing many hundreds, and even thousands, of grains which are planted separately; those of each *ear* being kept quite distinct, as although the best grain of any plant is nearly always found to lie in its best ear, it may be otherwise, and the successive parent *ears* must be preserved. At the following harvest (1862), the best plant forms "*the selection of* 1862," and its produce is continued on the experimental ground, while that of the remaining plants furnishes the annual seed for the farm in the Autumn of 1862, and the crops are in 1863 offered to the public. Thus, the selection sold is that of 1861, or in any year that of two years before; *the latest selection, that of the year immediately preceding, is not sold, being solely employed as the home seed.* The separate ears of a plant are designated by different letters, numbers, or names—as A, Z, &c., and each, with its descendants, forms a "*family*," which may develope some valuable peculiarity.

Thus, all the "Pedigree Nursery Wheat" hitherto sold has been of a family called "A," while another family of the same Wheat known as Z having been observed to exhibit marked superiority has been continued separately, and has given a greater progress during 1862 than has been before obtained in any single year.

The original ear of the large published engraving contained up one of its sides 16 "ranks" (spikelets) of grains, while the "Z family" has produced ears of 18 "ranks," and this, without any increase in the *length* of the ear, the "notches" of the axis on which the spikelets grow being placed more closely together. In a small field of this Z family, ears with 17 "ranks" were quite common, while in other fields of the family "A," *not one such ear could be found.*

This family Z will, next harvest, 1863, be *for the first time* offered to the public, and those who wish to secure some of it would do well, at once, to add their names to the Subscription List formed by special request for that purpose. As the joining this list will not involve payment until the Wheat is ready for delivery (of which the earliest possible notice will be given), the advantage of doing so is entirely on the side of the subscriber.

The Gardener's Friend v. the Gardener's Enemy.

This celebrated Trial has been decided unanimously in favour of

FORDHAM'S INVINCIBLE "OLD VIRGINIA SHORTS."—The Greenfly and other Greenhouse and Garden Pests speedily annihilated at one-sixth of the cost of ordinary Tobacco Paper.

Samples of 7lb. and upwards sent free to any Railway Station at 3*s.* per lb. on receipt of Post-office Order, payable to JOHN FORDHAM, at the W. C. Office.

Factory, 28, Little Queen Street, High Holborn, W.C.

N.B. ¼lb. of Shorts equal to 6lb. of the Paper.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from one to two ounces to the gallon of water is recommended for growing Plants; one from 4 to 16 ounces for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent.

HAVE YOU a LAWN?—Use BELCHER'S PATENT PLANTAIN EXTRACTOR; which neatly removes Plantain and Daisies, and replaces them with fine Turf. Price 6*s.*: to be had of all Ironmongers.

Wholesale Agents, S. & E. RANSOME & Co., 31, Essex Street, Strand, W.C.

MORTON'S NEW IMPROVED PATENT LAWN MOWER, with Sun and Planet Motion, having all the most recent Improvements, is allowed to be the best Machine for preventing Ribbing and Clogging.

To be had, with prices and particulars, of GRIMMOND, LAIRD, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath; and all the principal dealers throughout the country.

AGRICULTURAL IMPLEMENTS.—STEAM ENGINES, THRESHING MACHINES, CARTS, WAGGONS, PLOUGHS, HARROWS, CHAFF-CUTTERS for hand and power, PRIZE CHURNS, LAWN MOWERS, WIRE NETTING, GARDEN TOOLS of all kinds.

Illustrated Catalogue on receipt of six postage stamps.

Price Lists free.

BURGESS & KEY, 95, Newgate Street, E.C.

Works, Brentwood, Essex.

BURGESS AND KEY'S REAPING and MOWING MACHINES.

No. 1. McCORMICK'S NEW PATENT REAPING MACHINE delivers the Corn in Sheaves by self-acting Rake; price 34*l.*

No. 2. BURGESS AND KEY'S SCREW DELIVERY REAPER delivers the Corn in Swathe; price 36*l.*

No. 3. BURGESS AND KEY'S COMBINED REAPER and MOWER. The Corn is raked off this machine by a man; price 30*l.*

No. 4. BURGESS AND KEY'S MOWER for Natural and Artificial Grasses; price 25*l.*

All the above are STANDARD IMPLEMENTS, and as to their efficiency BURGESS & KEY refer intending purchasers to the list of Prizes received from various Agricultural Societies, and, with still more confidence, to the large number of Agriculturists who have them in use in all parts of the world.

Immediate Orders are requested to ensure timely delivery.

Full particulars and drawings forwarded on application to 95, Newgate Street, London, or Brentwood, Essex.

SHAW'S TIFFANY

For samples and prices apply to J. SHAW & Co., 29, Oxford Street, Manchester.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they will not be undersold by any House in the Trade. They also warrant one of their Knives to last two of any other make.

Paxton Works, Sheffield.

FOR SALE, a SMALL GREENHOUSE, 8 feet 6 inches high, 11 feet long, 4 feet 8 inches wide. May be seen at 5, Henrietta Street, Covent Garden.

FOR SALE, an IRON WAGGON-ROOFED CONSERVATORY, 30 feet long by 18 feet wide, 14 feet high, all the Side Sashes made to open. Two rows of IRON FRAMED STANDS on BRASS CASTORS, Boiler House, with Pipes and Fittings complete, price 300*l.*

Apply to Mr. F. W. DURRANT, 1, Holland Place, Kensington, W.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING GLASSES.



	Each—*s.*	*d.*		Each—*s.*	*d.*
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 „ „ ..	0	4½	13 „ „ ..	2	0
4 „ „ ..	0	5½	14 „ „ ..	2	6
5 „ „ ..	0	6½	15 „ „ ..	3	0
6 „ „ ..	0	8	16 „ „ ..	3	6
7 „ „ ..	0	10	17 „ „ ..	4	0
8 „ „ ..	1	0	18 „ „ ..	5	0
9 „ „ ..	1	2	19 „ „ ..	6	0
10 „ „ ..	1	4	20 „ „ ..	7	0
11 „ „ ..	1	6			

HAND GLASSES, WITH OPEN TOPS.



	Each—*s.*	*d.*		Each—*s.*	*d.*
12 inches	6	6	18 inches	9	6
14 „	7	6	20 „	10	6
16 „	8	6	22 „	11	6
			24 „	12	6

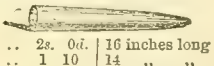
Painted and Glazed with 16 oz. Sheet Glass.

GLASS PRESERVE JARS.

In. diam.	Without Lids.	With Lids.	In. diam.	Without Lids.	With Lids.
3 ..	0*s.* 4½*d.* ..	0*s.* 6½*d.* ea.	7 ..	1*s.* 0*d.* ..	1*s.* 4*d.* ea.
4 ..	0 6 ..	0 9 „	8 ..	1 4 ..	1 8 „
5 ..	0 8 ..	0 11 „	9 ..	1 8 ..	2 2 „
6 ..	0 10 ..	1 2 „	10 ..	2 0 ..	2 8 „

Intermediate Sizes in proportion.

CUCUMBER GLASSES.



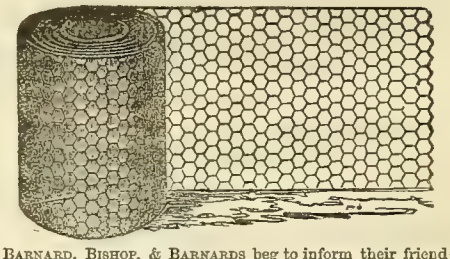
24 inches long ..	2*s.*	0*d.*	16 inches long ..	1*s.*	4*d*
22 „ „ ..	1	10	14 „ „ ..	1	2
20 „ „ ..	1	8	12 „ „ ..	1	0
18 „ „ ..	1	6	Made to any length.		

London Agents for Hartley's Improved Patent Rough Plate. Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

BARNARD, BISHOP, AND BARNARDS, Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.



BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard.
2-inch mesh, 24 inches wide ..	No. 19	4½*d.*	3½*d.*
2-inch „ „ „ ..	„ 18	5	4
2-inch „ „ „ ..	„ 17	6½	5
2-inch „ „ „ ..	„ 16	8	6½
1⅝-inch „ „ „ ..	„ 19	4½	4
1⅝-inch „ „ „ ..	„ 18	6	4½
1½-inch „ „ „ ..	„ 17	7	5½
1⅜-inch „ „ „ ..	„ 16	9	7

All the above kinds can be made any width (under 6 feet), at proportionate prices.

Strong Galvanised Poultry Netting, 7½*d.* per yard, 3 feet wide, Galvanised Sparrow-proof Netting for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10*d.* per yard.

The same with Galvanised Wire Rope, 1*s.* per yard.

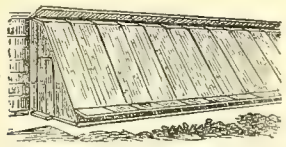
Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

CLARK AND HOPE (late CLARK),
55, Lionel Street, Birmingham. Established A.D. 1818.
Manufacturers of METALLIC and WOOD HORTICULTURAL BUILDINGS, COPPER SASHES, VERANDAHS, SKYLIGHTS, WROUGHT-IRON WINDOWS, CASEMENTS, and HOT-WATER APPARATUS.



C. & H. beg to call the attention of the Public to their PATENT STOP VALVE, which is simple in construction, warranted to resist a pressure of 30 lb. per square inch, and can be taken out for repairs without interrupting the working of the Apparatus. To be had at the following low prices :— 2 inches, 14*s.* 6*d.* ; 3 inches, 19*s.* 6*d.* ; 4 inches, 25*s.* 6*d.* each. A liberal discount to the Trade.



C. & H. also beg to call attention to their New TREE COVER, or Continuous Glass Covering for Garden Walls. They are constructed of Cast and Wrought-iron, devoid of Shadow, and a Tenant's fixture; are made 6, 7, and 8 feet wide at bottom, 2 feet wide at top, and up to 14 feet high, and can be glazed with or without putty. The Ventilating Sashes are opened by means of simple and durable Machinery in lengths of about 50 feet at one operation, and not exceeding the cost of a wooden structure, are unequalled.

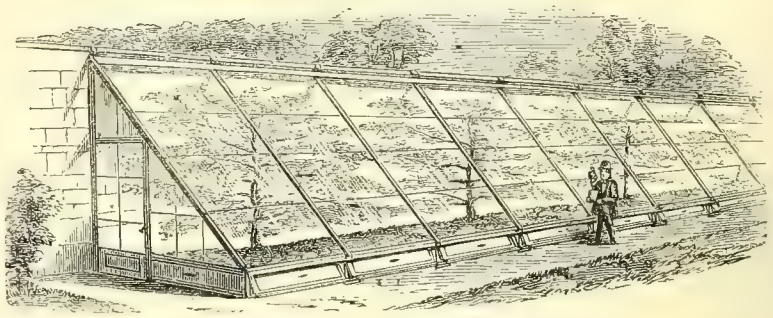
It will be evident from the above that the great desire of the Manufacturers is to bring the articles within the reach of a very large class of consumers, who, it is hoped, will avail themselves of the advantages thus offered.

Particulars and prices forwarded upon application, also Lithographed Designs of Horticultural Buildings, Copper Bars, &c.

ST. PANCRAS IRON WORKS COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS,

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS.

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

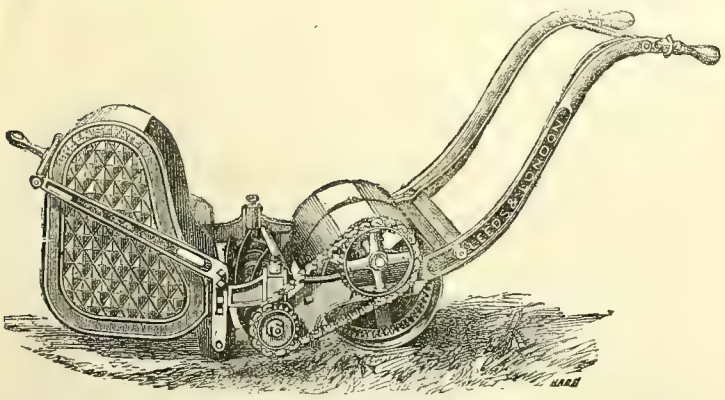
Every description of IRONWORK. *Lists Free.*

ST. PANCRAS IRON WORKS COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

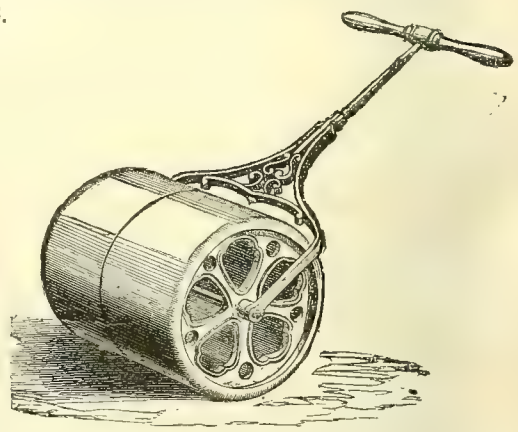
GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS, PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

PRICES.

						If with Patent Delivery Box.
To Cut 10 inches	£3	10	0	Suitable for a Lady.		
„ 12 „	5	0	0	Suitable for One Person. If with internal gear, 10*s.* extra.		
„ 14 „	5	10	0	Do. Do. Do. Do.	10*s.* extra.	
„ 16 „	6	10	0	Suitable for One Man or Two Boys.		

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	... ... £12 10 0
„ 26 „	12 10 0	... ... 13 12 0
„ 30 „	16 14 0	... ... 18 0 0

Leather Boots for Donkey, 16*s.*; for Pony, 20*s.*

						If with Patent Delivery Box.
To Cut 18 inches ...	£7	10	0	Suitable for One Man and Boy		£8 15 0
„ 20 „ ...	8	0	0	Do.	Do. ...	9 5 0
„ 22 „ ...	8	10	0	Suitable for Two Men		... 9 17 6
„ 24 „ ...	9	0	0	Do.	Do. ...	10 7 6

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	... £21 10 0
„ 36 „	23 0 0	... 24 16 0
„ 42 „	26 0 0	... 28 2 0
„ 48 „	29 0 0	... 31 8 0

Leather Boots for Horse, per set, 1*l.* 4*s.*

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5*s.* | Diameter 16 inches, length 17 inches, price £2 10*s.* | Diameter 24 inches, length 26 inches, price £4 5*s.*
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

Every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;
and MANUFACTURERS of all kinds of IRONWORK for the IMPROVEMENT or EMBELLISHMENT of LANDED PROPERTY.

Illustrated Catalogues on application.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c. the Plant Cases will be found an inestimable boon.

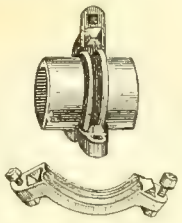
The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.





T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

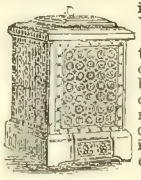
By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.—This Stove is the nearest approach to Warming by Hot Water, and an efficient aid in Ventilation.

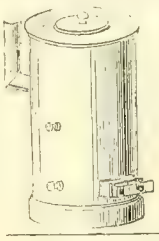


It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for Small Conservatories, with a vapour chamber, which maintains a moist atmosphere for 12 hours with once filling.

Particulars and prices post free on application to MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.

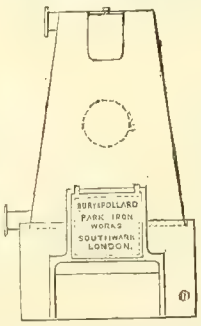


Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.



LATEST IMPROVEMENTS IN

Heating by Hot Water.

THE IMPROVED

CONICAL BOILERS,

FOR HEATING PINERIES, CONSERVATORIES, GREENHOUSES, MANSIONS, HALLS, WAREHOUSES, &c.,

SOLELY MANUFACTURED BY

BURY AND POLLARD

(Successors to JOHN R. PEILL, Late STEPHENSON & PEILL).

Annexed Sketch shows BURY & POLLARD'S improved arrangement, requiring

NO BRICKWORK SETTING.

These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United kingdom. References where they have been 20 years in constant use.

Price Lists on application to BURY & POLLARD, Park Iron Works, New Park Street, Southwark, London, S.

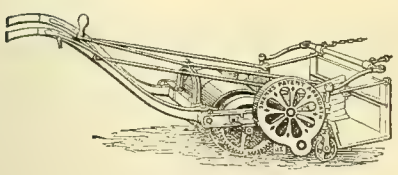
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1863,

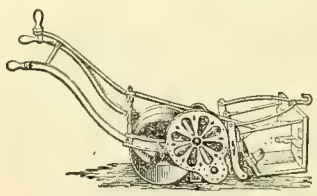
WITH SILENT MOVEMENT IF SPECIALLY DESIRED.

FURTHER AND IMPORTANT IMPROVEMENTS—PROTECTED BY LETTERS PATENT.

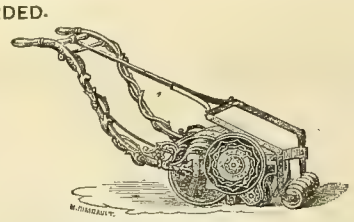
THE FIRST PRIZE INTERNATIONAL EXHIBITION MEDAL AWARDED.



NEW HORSE MACHINE.



NEW PONY MACHINE.



NEW HAND MACHINE.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; and in many hundreds of the principal Gardens in the Kingdom, as well as Abroad, where their merits have been fully proved and their success established.

These Machines will MOW EQUALLY WELL on UNEVEN as on LEVEL LAWNS, and whether the GRASS be WET or DRY. The execution of the work is not only vastly superior to Mowing with the Scythe, but the constant action of the Rollers on the Turf in a very short time greatly improves its appearance.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ...	£28 0 0	40*s.* extra.
No. 2.—42-inch Machine ...	26 0 0	40*s.* „
No. 3.—36-inch Machine ...	22 0 0	30*s.* „
No. 4.—30-inch Machine ...	19 0 0	30*s.* „

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
No. 5.—30-inch Machine ...	£15 15 0	30*s.* extra.
No. 6.—28-inch Machine ...	14 10 0	30*s.* „
No. 7.—25-inch Machine ...	12 10 0	25*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine ...	£8 17 6	*Easily Worked by Two Men.*
No. 9.—22-inch Machine ...	8 7 6	
No. 10.—19-inch Machine ...	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine ...	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine ...	6 2 6	*Ditto ditto by a Boy.*

The Patent Delivering Apparatus, if attached to the Hand Machine, 25*s.* extra; Silent Movement, 7*s.* 6*d.* extra.

No. 16.—12-inch Machine, for pushing only, £5 5*s.* Easily worked by a Lady or a Boy; Silent Movement, 4*s.* extra.

*** *The Machines are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

A Stock of Machines kept at the London Depot, from which Orders can be at once executed.

CALCEOLARIA, CINERARIA, PRIMULA, &c.—CALCEOLARIA, saved from carefully hybridised flowers, possessing all the recognised floral qualifications, viz., size, form, colours, and marking. Price, 1s. and 2s. 6d. per packet. CINERARIA, extra choice, 1s. per packet. PRIMULA SINENSIS FIMBRIATA, extra choice, 1s. and 2s. 6d. per packet. DRACÆNA (CORDYLINE) INDIVISA, from Mount Egmont, New Zealand; beautiful fine foliaged plant, 1s. and 2s. 6d. per packet.

Butler & McCulloch, Seed Merchants, Covent Garden Market, London, W.C.

Choice Seeds.

B. S. WILLIAMS begs to offer First-class quality of the undermentioned SEEDS:—

	Per packet.	
PRIMULA SINENSIS FIMBRIATA, Red, White, or Mixed	2s. 0d.	3s. 6d.
CALCEOLARIA, herbaceous	1 6	2 6
CINERARIA, from choice named flowers	1 6	2 6
PANSY, very choice	0 6	1 0

Paradise and Victoria Nurseries, Holloway, London, N.

New and Rare Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, amongst which are some very fine specimens.

Now ready, post-free to all applicants.

A NEW GENERAL PLANT CATALOGUE, containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Herbaceous and Alpine Plants, Roses, Hardy Trees and Shrubs, Fruit Trees, &c.

With a DESCRIPTIVE LIST of New, Beautiful, and Rare Plants.

Paradise and Victoria Nurseries, Holloway, London, N.

OUVIRANDRA BERNERIANA.—Having succeeded in raising a few Seedlings of this extremely curious and beautiful plant, we beg to offer healthy young plants of six or seven leaves at 31s. 6d. each.

O. Berneriana was exhibited at the Great Show of the Royal Horticultural Society, June 17th, and awarded the First Prize; and at the Great Show of the Royal Botanic Society, June 24th, and then also awarded the First Prize.

Thomas Jackson & Son, Nurseries, Kingston, S.W.

Sow in August.

DOBSON'S PRIZE CALCEOLARIA.
The most varied and beautiful strain imaginable.
In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.

Sow in August.

DOBSON'S PRIZE CINERARIA.
A splendid strain. Received 10 first prizes in 1862.
In sealed packets, 1s., 2s. 6d., and 5s.

Sow in August.

DOBSON'S PRIZE PRIMULA SINENSIS FIMBRIATA. From finely fringed Flowers.
In sealed packets, 1s., 2s. 6d., and 5s.
The above Seeds are unequalled for quality.
J. Dobson & Sons, Woodlands Nursery, Isleworth, W.



Cabbage Seed for Present Sowing.

SUTTON AND SONS can now supply the best sorts of CABBAGE SEED for early Table use next spring and summer.

Also the large DRUMHEAD CATTLE CABBAGE, which should be sown now for Feeding in the autumn of next year, and smaller kinds for Sheep Feeding early next summer.

Prices moderate, but various according to sorts.

Royal Berkshire Seed Establishment, Reading.



The Quickest Turnip Known.

SUTTON'S SHORT-TOP SIX-WEEKS TURNIP.—Good Turnips for table use may be obtained within six weeks from the date of sowing this seed. It is decidedly quicker than any other sort hitherto offered. Price 1s. per lb.

EARLY SIX-WEEKS STUBBLE TURNIP.—This is an excellent sort for Sheep-feed in winter and early spring. It will succeed well if sown before the 1st of September. Price 8d. per lb., or cheaper by the bushel.

Royal Berkshire Seed Establishment, Reading.



For Present Sowing.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, 6s. per bushel, or cheaper in large quantities.

This is the best season for sowing Italian Rye-grass to ensure sheep feed very early in the spring.

TRIFOLIUM INCARNATUM (Early Crimson), 4d. to 5d. per lb., or cheaper in large quantities.

*** A mixture of the above will be found very useful for mending Clover and Grass Seed sown for mowing next spring.

MUSTARD SEED for Sheep Feed in October and November, or for green manure.

RAPE.—New Seed at reduced price.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.



Permanent Grass Seeds for all Soils.

SUTTON AND SONS can supply good fresh SEEDS for immediate Sowing as under:—

PERMANENT GRASS SEEDS for Laying down New Pastures (including CLOVERS in full quantities), 30s. per Acre.

PERMANENT GRASS SEEDS for mending new Pastures, which may have been injured by the Corn crop, 12s. per bushel.

Royal Berkshire Seed Establishment, Reading.

Roses.

The ROSES at the WALTHAM CROSS NURSERIES are NOW in FULL BLOOM.

MR. WM. PAUL respectfully invites all lovers of this popular flower to visit and inspect them. TWENTY FIRST PRIZES and NINE SECOND have been awarded to him for ROSES during the present year, and above 100,000 Plants are now growing in these Nurseries. Waltham Cross is 11 miles from London, and a first-class station on the Great Eastern Railway. It is also a delightful drive from the West-end of London, through Tottenham, or the Green Lanes and Enfield.

Entrance to the Nurseries from the platform, Waltham Station (for railway passengers only), and from the High Road, Waltham Cross, N.

Major's Half-shrubby Calceolaria Seed.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that his CALCEOLARIA SEED for this Season is now ripe, and may be had in packets at 2s. 6d. each, or Three for 5s. post free. Postage stamps received in payment.

N.B.—(*H. Major*).—"The seedling Calceolarias are very fine the size of the flowers, and the brilliancy of the markings being alike conspicuous. We wonder much why the flower is not more cultivated. It deserves to be generally grown."

See No. 119 of *Journal of Horticulture*, Notices to Correspondents.

CUTHILL'S STRAWBERRY PLANTS will be sent out on and after August 31. Strong fine plants, to bear next year, all at 5s. per 100; but if selected, 7s. 6d. per 100—each sort:—EARLY BLACK PRINCE, EARLY PRINCESS ROYAL, HIGHLAND MARY, RICHARD II., PRINCE of WALES, and NEWTON SEEDLING.

MUSHROOM SPAWN, 5s. per bushel. Grown here all the year round.

PRINCE ALBERT WINTER CUCUMBER, 1s. for 10 seeds.

Pamphlets always on Sale.

James Cuthill, F.R.H.S., Camberwell, London, S.

NEW SEEDLING STRAWBERRY, PRINCESS OF WALES.

Opinions of the Press.

Gardeners' Chronicle, July 4th.

"Your seedling Strawberry, Princess of Wales, large, ovate, or flattened ovate, with flesh pale red, and solid at the core. The variety deserves notice on account of its size, appearance, and not being hollow at the core."

Journal of Horticulture, June 23d.

"Seedling Strawberry (B. W. Knight). The fruit sent is very juicy, and of excellent flavour."

Florist and Pomologist, July.

"Your seedling Strawberry, Princess of Wales, is a fine regularly-shaped ovate fruit, of a pale red colour, and very firm flesh; it has all the appearance of being a good sort."

B. W. Knight has much pleasure in offering this superb new early STRAWBERRY, feeling confident that it will not fail to become a general favourite, as all who have seen it growing and tasted it on the ground have pronounced it first-class. It is a remarkably early kind, having picked from it on the 22d May, and no doubt but what it will prove a good forcing variety. The fruit is large, flesh pale red, solid at the core; flavour rich and sugary, partaking largely of the Pine flavour; a most abundant bearer.

Plants will be ready to send out early in September, at 12s. per dozen; 2l. 10s. per 100.

The stock of Runners has proved more abundant than was anticipated, B. W. K. has accordingly reduced the price.

B. W. Knight, Nurseryman and Florist, 67, High Street, Battle, Sussex.

ROYAL HORTICULTURAL SOCIETY.

REMAINING ARRANGEMENTS for the EXHIBITIONS and MEETINGS in 1863,

TO BE HELD AT

THE GARDEN, SOUTH KENSINGTON, W.

Tuesday, August 25	Floral Committee, at 12. Fruit Committee, at 12.
Wednesday, Sept. 9	Autumn Flower Show, at 1. Band at 2. Floral Committee, at 10. Fruit Committee, at 10.
Tuesday, Sept. 22	Floral Committee, at 12. Fruit Committee, at 12.
Friday, Oct. 2	Council, at 11. Meeting for Election of Fellows, at 2.
Tuesday, Oct. 6	Floral Committee, at 12. Fruit Committee, at 12.
Friday, Nov. 6	Council, at 11.
Tuesday, Nov. 10	Floral Committee, at 12. Fruit Committee, at 12.
Friday, Dec. 4	Council, at 11.
Tuesday, Dec. 8	Floral Committee, at 12. Fruit Committee, at 12.
Friday, Dec. 18	Council, at 11.

ELECTION OF FELLOWS.

Gentlemen and Ladies wishing to become Fellows have to be proposed by some one already a Fellow, to whom they are personally known. The subscription is Two Guineas Entrance Fee, and Two Guineas or Four Guineas a year according to the privileges wished.

SHOW OF AUTUMN FLOWERS AND OUT-DOOR FRUITS, WEDNESDAY, SEPTEMBER 9.

Free to Fellows and the Transferable Cards, and also admission by payment at the door or by Tickets previously purchased.

LIST OF PRIZES.

AUTUMN FLOWERS.

Class.	1st Prize.	2d Prize.	3rd Prize.
1. 12 Hollyhocks, single flowers. Distinct kinds (*Open*)	£ s. 2 0	£ s. 1 0	£ s. 0 15
2. 24 German Asters. "Quilled." Distinct kinds (*Open*)	2 0	1 0	0 15
3. 24 French Asters. "Tasselled." Distinct kinds (*Open*)	2 0	1 0	0 15
4. 24 Gladiolus, cut spikes. Distinct kinds (*Open*)	2 10	1 10	1 0
5. 12 Gladiolus, cut spikes. Distinct kinds (*Amateurs*)	2 0	1 10	1 0
6. 24 Phloxes, single trusses. Distinct kinds (*Open*)	2 0	1 0	0 15
7. 24 Verbenas, 5 trusses of each. Distinct kinds (*Open*)	1 10	1 0	0 15
8. 48 Dahlia Blooms. Distinct kinds (*Nurserymen*)	5 0	4 0	3 0
9. 24 Dahlia Blooms. Distinct kinds (*Nurserymen*)	3 0	2 0	1 0
10. 18 Dahlia Blooms. Fancies. Distinct kinds (*Nurserymen*)	3 0	2 0	1 0
11. 18 Dahlia Blooms. Distinct kinds (*Amateurs*)	4 0	3 0	2 0
12 12 Dahlia Blooms. Fancies. Distinct kinds (*Amateurs*)	3 0	2 0	1 0
13. Miscellaneous. For flowers not specified (*Open*)	2 0	1 0	0 10

OUT-DOOR FRUITS (OPEN).

Note.—A Dish of Apples, Pears, Oranges, Lemons, and such like, 6 fruits of each; Plums, 9 fruits.

Class.	1st Prize.	2d Prize.	3d Prize.
	£ s.	£ s.	£ s.
A. Collection of Fruit, 8 dishes, 6 distinct kinds	6 0	4 0	3 0
B. Peaches. 4 Dishes. Distinct kinds	3 0	2 0	1 0
C. Peaches. Single dish	1 10	1 0	0 10
D. Nectarines. 4 dishes. Distinct kinds	3 0	2 0	1 0
E. Nectarines. Single dish	1 10	1 0	0 10
F. Figs. 3 dishes. Distinct kinds. 12 fruits each	2 0	1 10	1 0
G. Figs. Single dish. 12 fruits	1 0	0 15	0 10
H. Cherries. 3 dishes. Distinct kinds	2 0	1 10	1 0
I. Cherries. Single dish. 50 fruits	1 0	0 15	0 10
J. Plums. 4 dishes. Distinct kinds	2 10	2 0	1 10
K. Plums. Single dish	1 0	0 15	0 10
L. Apples, Dessert. 3 Dishes. Distinct kinds	2 0	1 10	1 0
M. Apples, Kitchen. 3 Dishes. Distinct kinds	2 0	1 10	1 0
N. Pears, Dessert. 3 Dishes. Distinct kinds	1 0	0 15	0 10
Miscellaneous	1 10	1 0	0 15

BANBURY HORTICULTURAL SOCIETY.
OPEN PRIZES.

The Seventeenth Annual Exhibition of this Society is fixed for TUESDAY, August 25, when in addition to the usual number of Prizes to be competed for by Members, the following are offered. Open to all England, on payment of an Entrance Fee of 2s. 6d.

For the best 6 Stove or Greenhouse Plants, either in Flower or Ornamental, of at least four different Genera, but not Fuchsias or Annuals, 1st Prize, 3l.; 2d, 2l.
For the best 24 Dahlias, 24 varieties, 1st Prize, 3l.; 2d, 2l.
For the best 18 Hollyhocks, 2 Blooms of each, 1st Prize, 2l.; 2d, 1l.
For the best 12 varieties of Verbenas (5 trusses in a bunch), 1st prize, 1l.; 2d, 15s.

The Judges may withhold any prize if the production exhibited is not considered worthy.

Intended Exhibitors must give notice to the Secretary on or before Saturday, August 22.

The Society will, if requested, convey the productions from and to the Railways.

The Band of H.M. 76th Regiment, from Aldershott, and the Orpheus Glee Union will perform during the day.

For further particulars, apply to E. J. Hartley,
57, High Street, Banbury. Acting Secretary.

BISHOP AUCKLAND FLORAL and HORTICULTURAL SOCIETY.

The Annual Exhibition will be held in Auckland Park on FRIDAY, August 28, when the following Prizes, amongst others of the value of nearly 300l., will be awarded, viz.;—

For the best 6 Stove and Greenhouse Plants ..	£10	0	0
For the 2d best ditto	7	0	0
For the best 24 Dahlias, dissimilar	10	0	0
For the second best ditto	7	0	0
For the best 9 Hollyhocks, dissimilar .. .	5	0	0

The renowned Band of the Belgian Guides, consisting of 50 performers, will give two Grand Concerts.

Wm. V. Thompson, Hon. Sec.

RUGBY HORTICULTURAL and COTTAGE GARDENERS' SOCIETY.

The Annual Show of this Society will be held at Rugby on FRIDAY, August 28.

Upwards of 120 Prizes in Class 5, open to all Growers, will be offered for Plants, Fruit, Cut Flowers, and Vegetables; also two Silver Cups, one value 5l. 5s., for 36 dissimilar Dahlias; and another, value 4l. 4s., for 36 Roses, distinct varieties, one bloom of each.

Entries to be made on or before August 22.

Schedules and particulars on application to
Rugby, Aug. 15. John S. Savage, Hon. Secretary.

The Gardeners' Chronicle.

SATURDAY, AUGUST 15, 1863.

The account given a week or two since of the Yarm Strawberries is strongly suggestive of the interest which would attach to unlimited Exhibitions of Fruit in Season. What we mean is, the bringing together of as large and complete an assortment as can possibly be obtained, and from all parts of the country, of the different varieties of certain selected kinds of fruit, while that fruit is at the height of its season, just as we hold Rose shows at the time when that flower is supposed to be in the highest state of perfection. This fruit examination is a work worthy of our great Horticultural Society; much more so indeed, than many in which it does from time to time engage, and one moreover which would show what just now the Fellows want some convincing proof of, namely, that it is not inclining to loosen its hold on the trustworthy anchorage of solid horticulture, and to permit itself to drift unpiloted over the treacherous and shifting sands of fashion.

A work of the kind we have indicated is of course an extensive one, but need not be set about expensively, or in such a manner as to involve any greater outlay than it fairly deserves. One or two kinds of fruit — such of course as the season happens to have been particularly favourable to— should be selected annually; and the selection itself need not be made until the season is sufficiently advanced to admit of certainty as to the crop being a satisfactory one for this especial object. When the kind of fruit had been decided on, it would be comparatively easy to arrange a "mid-season" meeting, so as to suit the greater number of the growers. Thus one year might especially suit Strawberries, another Peaches and Nectarines, another Cherries, and another Grapes, while of the autumnal and winter fruits, such as Apples and Pears, certain groups of varieties of which the crop was known to be ample, might be set apart for the current year's examination. We do not see that any direct expense need be incurred in carrying out this proposition beyond the amount of a few prizes for the best samples, the cost of carriage, and the hire of dishes, &c., while the exhibitions, how many soever they might be, would form interesting additions to the annual programme, and might surely be so managed with regard to the admission of visitors as to bring back the greater part, if not the whole of their cost. If they would but do this, even without yielding any actual money profit, we must hold that they would confer a direct gain upon horticulture, just in proportion to the interest excited, and the information elicited.

It might be urged as an objection to such exhibitions of fruits, that in cases like that of the Strawberry they would be injured by carriage, and the flavour deteriorated by the time which must elapse between the gathering and the examination. We are not, however, inclined to attach much importance to this objection, inasmuch as soft fruits like the Strawberry form part of all our great summer shows; and are always brought in a presentable condition. Granted that they lose something in flavour from not being tasted directly after gathering; still they would at least all be on equal terms in this respect, and this would make the comparison a fair one. And then as to the result, it would be an immense advantage, especially to private growers, to have it authoritatively decided, say every second or third year, what is the best-flavoured and what the best looking sort we possess, whether of a Strawberry or of any other fruit. If an amount of success like this could be realised, as we believe it might, with so fragile a subject as the Strawberry, there would be still greater chances of a successful result with almost every other kind of fruit; for instance, what an absorbing amount of interest would attach to an exhibition which should include the new high-bred seedlings of Peaches and Nectarines of which we sometimes hear, and how desirable it is that some such public opportunity of testing their merits should be afforded, the arrangements at the same time being on a sufficient scale to give something like general interest to the gathering.

We trust that it will be distinctly understood that in the Exhibitions we have here suggested we have in view entirely the interests of horticulture and of horticulturists, and by no means those of mere idle people of fashion.

Once upon a time, a pedestrian, happening to find himself, some sultry summer's day, in the neighbourhood of the Regent's Park, and desirous of pleasant exercise while inhaling the cool and freshening breezes which he might hope to find sweeping down from Primrose Hill, could have strolled the whole length of the Park from south to north—a goodly promenade—under the shade of lines of trees of, we suppose, some 40 years' growth. On either side of a gravel walk of noble proportions, he would have found Horse Chestnuts, Limes, and Elms in quadruple rank, forming three umbrageous avenues, with seats at intervals, the trees always furnishing a most refreshing shade, and at certain seasons superadding a most delicious sweetness. Nothing could possibly be more pleasant and enjoyable, as we know from experience; and nothing certainly more entirely in accordance with the proper furniture of a Park.

Now, however, the evil genius of alteration seems to be in the ascendant, as we have ourselves with sorrow observed, and as the following paragraph copied from the daily papers so unmistakeably sets forth. The description is only too correct; but we need scarcely observe, that we by no means agree in the conclusion that the promenades in our parks ought to be converted into "beautiful garden walks," certainly not at so great a sacrifice of comfort as has in this case been made:—

"During the early part of the season and up to the present time, the Regent's Park, which is undoubtedly the prettiest in the metropolis, has been undergoing one of the most effective changes which have taken place in it since it was first laid out. The change principally consists in turning the most attractive parts of the Park into beautiful garden walks; and in the 'First Park,' so called from its being the first division near the entrance to the Marylebone Road, the transition from what was previously a broad path, lined with trees on each side, is quite marvellous, though only one portion of it is at present completed. The large Chestnut trees which lined the path have been cut down, and in their stead, the ground has been very artistically laid out, and filled with the choicest shrubs and flowers. The space on the left side of the First Park is divided into about 40 circular and parallel patches, which are neatly railed round, and, in addition to the beautiful display of flowers which have been furnished regardless of expense, each patch—round which paths have been formed, terminating in a large one in the middle—is beautifully ornamented with large vases of Bath stone. These have been supplied at an outlay of several hundred pounds. The right side of the Park is undergoing a similar change, and we believe it is intended to extend the work to the Second Park. Several other improvements have been carried out, among which may be mentioned the action of two beautiful fountains, one near Gloucester Gate, and the other in the middle of the Broad Walk, the space around the latter being also beautifully laid out with exotics, &c."

Instead therefore of sauntering down the leafy avenues as of yore, the poor pedestrian, while panting for a cooling breeze as Sol darts down his fiery rays, is doomed to drag himself along the glaring expanse of hot and dusty or shingly gravel, to take his cooling, we presume, out of the "action of the beautiful fountain," if he manage to reach so far; while as a compensation for the loss of shade he is to be permitted to refresh his eyes by gazing on beds of blazing flowers and plantations of fancy shrubs, fenced in as if only a favoured few were to be permitted to approach them. Unfortunately the work of destruction is accomplished as far as the "First Park" is concerned; but we trust the authorities will pause and reconsider their determination before they set about the spoliation of the avenues in the "Second Park." A few hours, in such a case, are sufficient to destroy all the progress of many years.

We extract the following from the *Athenæum*:—Mr. W. A. Lloyd, Curator of the Hamburg Zoological Society, writes:—"When reading in the *Athenæum*, No. 1864, a notice of Mrs. Gatty's book on 'British Seaweeds,' with some observations on mounting them in a dried state, I was struck by the very few published attempts made at *growing* them in a state of confinement in tanks. About nine years ago, Mr. P. H. Gosse put forward in one of the English scientific journals some few results he obtained in this way, and a little later Mr. Warington did the same thing; and I have myself occasionally had some success in the maintenance of these plants. These results, however, were arrived at by chance rather than by skill; and, owing to the presence or the absence of some conditions unknown (apparently not altogether dependent on light), the luck of being able to keep alive many species in good condition for prolonged periods could seldom be had twice running. In the great aquaria now being erected in Hamburg, however, where the temperature will be low and equable, and where large masses of seawater will be kept well aërated and in constant motion, added to perfect control over the illumination, some continuous endeavours will be made, so that, if possible, some definite principles may be ascertained whereby marine Algæ may be systematically managed in a state of life and health. It may be hoped, therefore, that, as other plants are cultivated in gardens, conservatories and greenhouses, besides being preserved in herbaria, so may sea-weeds be commonly grown in aquaria, as well as being squeezed flat between sheets of paper. Few, if any, vegetable productions yield to marine Algæ in beauty of form and colouring, or in general curiosity, besides the enhancement of interest which the view of objects in clear water always obtains."

Have none of our seaside friends anything to report on this extremely interesting subject?

A magnificent bloom of the handsome new Japanese Lilium auratum was sent to us the other day by Mr. Bullen, gr. to A. Turner, Esq., Bowbridge House, Leicester, indicating to what perfection the flowers of this fine Lily may be brought under good cultivation. The one in question measured rather more than a foot in diameter, each petal having a beautiful band of rich golden yellow down the middle, the intervening spaces being covered in the most charming manner possible with rich brownish-crimson dots, which being backed up by a pure white ground, were set off to excellent advantage. Truly this must be regarded as one of the most valuable importations we have had for years.

Mr. Bullen states that the plant from which the bloom just alluded to was cut was purchased from Mr. Veitch last autumn, and that since that time its growth has been most satisfactory. The stem, measuring from the surface of the soil, is 4 feet 10 inches in height; the leaves are 9½ inches in length, and 51 in number, and the plant has altogether four blooms on it equal to that with which we have been furnished. Some idea, therefore, of the grandeur of the effect produced by such a fine display may be conceived.

We understand that this Lily is also flowering magnificently at Mr. Rucker's at Wandsworth, and elsewhere. Let us hope that some one may be induced to try it out of doors this winter, in order to test its hardiness. As a decorative pot plant, however, under glass it is invaluable.

HOW TO INSURE A CROP OF FRUIT.

Some of your correspondents have inquired if it is absolutely necessary to protect Peach trees in spring in order to insure a crop; I answer without hesitation, yes. But then comes the question, how should this be accomplished, what material should be used, and last, though not least, what expense will be incurred by so doing? The question of protecting wall trees is so important that I cannot let the present opportunity pass, even thus late in the season, without adding a few remarks on the subject.

Present impressions are certainly in favour of covering walls with glass. This method is stated by some to be the only means of insuring a crop: good advice certainly, where expense is not an object; but the same parties add, to be doubly secure, it would be better to have a flow and return hot-water pipe, thus adding to the expense. Now if this is absolutely required, why not build Peach-houses at once, and turn the walls to some other account? Garden walls are not built for fruit-culture only, but for ornament, shelter, and privacy; and it is entirely doing away with the original idea, if they are to be cased with glass. That good Peaches can be produced under glass we are quite aware, and that good Peaches can be produced without it is also a fact; then why should we go to the expense of glass coverings? My late employer, Sir O. P. Wakeman, Bart., used to say that it was no difficult thing for cooks to send up a good dinner, provided they had everything they required to do it with, but the art of cooking and gardening was to produce things really good at as little expense as possible, for we all know anything can be got good for money. What is required at most establishments are things produced first-rate at little expense. Now one item (not always a little one) yearly stands against us, viz., the expense of protecting material; the question therefore is, What will secure wall fruit from frost? To this I would confidently say Frigi Domo, in preference to anything I have ever seen or tried. The improved make 3 yards wide will protect trees on a 12 or 13 feet wall from any spring frosts we may ever live to encounter. One of your correspondents has stated that although he protects his trees his crops are always scanty, and that he has been informed by competent gardeners that it is in consequence of his protecting them. I must add that much mischief is done, the blossom weakened, and crops lost through blight, in consequence of over shading, which may be the case in this particular instance. My practice is to let down the blinds in the evening, and pull them up as soon as the frost is off the trees in the morning, unless cold cutting winds prevail; in such cases the covering remains occasionally down the whole of the day. This is my method of protecting Peach trees, and my success for nine years (excepting 1861, when my trees were nearly killed, by frost) has been all I could desire. I am aware most people imagine that Frigi Domo is dear, that it will wear out, and that as glass walls are permanent, they prefer them. Now, the expense of covering 100 yards of wall with glass would come to a pretty considerable sum; 100 yards of Frigi Domo cost 12*l.* 10*s.*, and it will last good with care for six years, which is little more than 2*l.* per year to insure a crop of fruit.

But suppose we have in use 500 yards, which for ready money would cost 60*l.*, the expense would not be more than 10*l.* per annum to insure fruit enough for a nobleman's establishment, and in many places there would be more than would be required by the household, and 10*l.* worth, or even more, might be parted with, thus getting 500 yards of covering, I may say, for the trouble and labour of letting it up and down.

The question then is no longer one of expense; but nevertheless, will it do, some may say, to risk 60*l.* upon the purchase of Frigi Domo? This is the most important point to decide; but if any doubt exists, try 50 yards, and I feel convinced that you will soon double the quantity.

When we take into consideration the expense of erecting glass walls as they are termed, the annual expense of repairs, &c., and extra labour required, and then not always certain of a crop, for mismanagement and red spider will sometimes occur, I have come to the conclusion that it is preferable to use 500 yards of Frigi Domo at an annual cost of 10*l.*, than to have 100 yards of glass walls, requiring constant attention, painting, repairs, &c., that would cost double the amount of expense annually. But then we are told the wood ripens better under glass, and the fruit is better flavoured; as regards wood ripening, the statement is no doubt true, but my practice is to disbud as early as possible, and to encourage early free growth, and never to suffer the trees to be checked by blight without immediate attention. These points properly attended to the wood will ripen, but lose your first growth through blight, and the second growth does not always get thoroughly matured. With respect to flavour, glass walls in unfavourable and wet seasons are a great help in ripening the fruit, and thus they improve the quality, and where expense is no object and labour plentiful, by all means adopt the plan of glass casing, but where expense is an object and labour scarce, I would recommend the use of Frigi Domo in preference, as I have said, to any other material for protecting. I may here state that the frost of May 1st, this year (12°) destroyed the greater portion of the most promising crop of fruit I have ever seen here. Plums, Cherries, Pears, Apples, &c., are almost a wreck, but I am happy to say all my trees covered with Frigi Domo were not in the least injured. *Edward Bennett, Gr. to G. S. Foljambe, Esq., Osberton Hall, Worksop, Notts.*

THOUGHTS ABOUT VARIETIES.

Our learned friend M. Decaisne, the very able Professor of Cultivation in the Garden of Plants of Paris, has lately brought under the notice of the Academy of Sciences some very interesting remarks upon the varieties of cultivated plants in general, and of Pears in particular, the substance of which is as follows:—

The almost unlimited and ever increasing number of varieties in fruit trees, vegetables, and all useful plants, is a fact to which science has at present given too little attention. What is still more astonishing, this fact has been remarked by those who are almost strangers to the study of plants, whilst from time immemorial it has been an object of important consideration among cultivators. The ancient authors Pliny, Columella, Theophrastus and some others, as well as those of a more recent date, such as the Brothers Bauhin, Ch. and R. Estienne, Dalechamp, &c., have pointed out a pretty good number of such varieties, especially among fruit trees, where they are the most manifest, but it is vain to search for the origin of these varieties in their works; for though these authors leave us loosely to conclude that the varieties are, or may be, the result of cultivation, no one says positively that such a new variety proceeds from such another, nor is it any where explained how it is that they go on multiplying from century to century. These new forms, what are they? Can they be, as has been recently asserted, true species which have remained unknown up to the time when they were first subjected to cultivation, or are they merely modifications of ancient known species, gifted with the property of assuming various appearances according to climate or situation? It may appear strange that such a question should be brought before the Academy, so natural does it seem for a species to be subject to change, but we will show presently that this question is not one that ought to be passed over without examination; for if it is of importance to practical agriculture it ought to be equally so to science itself.

Botanists in the present day may be divided into two schools. The more ancient, which may be called the Linnean, admits the changeableness of species; within limits, no doubt, though it is not always easy to define them. Hence those large polymorphous species, sometimes vaguely defined, but generally easy to characterise by a short descriptive phrase. The other school, which belongs especially to our own time, and which may be designated the school of immutability, denies most positively any tendency to variation in the vegetable kingdom. According to it the forms of species never alter in the slightest degree; and when two plants of the same genus present any palpable difference, however slight it may be, these two plants form two species, radically distinct from the beginning of things. According to M. Jordan, of Lyons, a very eloquent advocate of the modern school, all the races and all the varieties admitted by the ancients become so many species. In his eyes, all our races and all our varieties of fruit trees, of Pears amongst others, are distinct, unchangeable species, always preserving their own characteristics, from generation to generation. Hence it follows, that these trees did not proceed, as is commonly believed, from a single or even from a few specific types, which cultivation has caused to vary, but from as many original types as there are perceptible varieties.

Is it not far more simple to account for this ever-increasing number of congeneric varieties by the principle of the changeableness of species, if this changeableness can be proved? Now I think, says M. Decaisne, it can. Remember those astonishing transformations which have recently been observed amongst Gourds and Melons, whose varieties may be reckoned by hundreds. The facts which I have to mention in the Pear tree are of the same order, and lead to similar conclusions, namely, on the one hand, the simultaneous appearance of new races, and the instability of their crosses, and finally the specific unity of all the races and varieties of the cultivated Pear tree.

In 1853 I raised a number of seedlings from the pips of Pears, selected from four varieties acknowledged by all pomologists as being quite distinct from each other. They were our old Poire d'Angleterre, which everybody knows; the Bosc, the form of which is like that of a longish Gourd, with the skin of a uniform cinnamon colour; the Belle-Alliance, a dumpy Pear with a yellow and red complexion; the Sauger, a wild variety, or nearly so, and which was so named from its foliage resembling in its white woolliness the common Sage. The batch of seedlings of the last were all raised from a tree which grew by itself on the road from Marcoussis to Gué. The pips of these Pears came up the same year as they were sown, whilst those of the Poire d'Angleterre did not appear till the following year, and that in two different sowings, without my being able to account for it. Very few of these trees have begun to bear fruit, which I regret, because the result with which they would have furnished me, if all had produced fruit, would have been more varied and for that reason more conclusive than what I am now able to place before the Academy. The first glance at the coloured figures now produced shows how much the fruit, in each case, has already changed from the original; thus in the Sauger, four trees which have borne fruit have given four different forms; one egg-shaped and entirely green; a second dumpy and almost Apple-shaped, red and green; a third, still more depressed; and a fourth regularly Pear-shaped, twice as large as the preceding ones, and of a uniform yellow tint.

From the Belle-Alliance have come nine new varieties, none of which resemble their mother, either in form, size, or colour, or even in the time of ripening. To two of these I wish to draw attention, one for its size, which is double that of the Belle-Alliance, the other for the dumpy form, which imitates the Apple-shaped Pears. In like manner the Bosc produced three new fruits of very different type, one resembling so much one of the forms obtained from the Sauger as to be scarcely distinguishable. The variations of the Poire d'Angleterre were not less remarkable; from six trees which have fruited we had six new kinds, all as different from each other and from their mother, as she was from the greater part of our old varieties; one of the plants even produced winter fruit similar to the Saint-Germain. It is not only in the fruit that trees raised from the same seed differ, it is also in their time of ripening, general appearance, and the form of their leaves. These differences are striking when the trees are seen growing together in the same border. So many trees, so many different appearances. Some have spines, some have none; some have slender wood, in some it is stout and cearse. Upon some of the seedlings from the old Poire d'Angleterre, the variation went so far as to produce lobed leaves, like those of the Hawthorn or Pyrus japonica. Everything varies in the Pear tree, even to its sap. As proof of this, observe the very different success of the graft, according to the stocks employed. All the varieties and races of Pear trees bear grafting upon a Pear tree, that is to say upon the wild Pear tree; but all will not take upon the Quince; as for example, the Rance, Clairgeau, Bosc, Duchesse de Mars, &c. When it is desired to keep these trees dwarf, which can only be done by employing the Quince stock, the latter must be first grafted with Belle-Angevine, Jaunissette, Crasane, Sucré-vert, or any other that will do on the Quince; and then the first grafts may be successfully regrafted with the sorts whose sap will not agree with the Quince. This operation is known and practised by all nurserymen. The relative size of flowers and the appearance of the foliage present a not less striking variation. Certain sorts, such as the Catillac, Saint-Gall, Gnoeco, Epargne, the Poire de Vallée, have petals very much rounded and waved, a corolla from 5 to 6 centimètres wide, and their wood when young as downy as that of the Sauger; later in life they lose this peculiar woolliness. Others, such as de Héric, Sylvange, Fortunée, &c., have oval or lanceolate petals, with flowers only half as large as the last. Finally, I have seen in the collection of M. Jamin-Durand, a Pear tree which by mistake bore the name of Chartreuse, whose linear-lanceolate petals were not more than 3 millimètres wide by 9 long.

It is evidently vain then to look for specific distinctions in the proportions of the flower and its organs. Can we pretend then to find them in the size and form of the fruit? It has already been seen how these two circumstances vary in the seedlings just spoken of; and nevertheless, my experience goes no further than four varieties, of which only a few trees have fruited. The modifications might have been far more numerous, could I have experimented upon all the known races of Pear trees. We can judge of the enormous difference which exists, with regard to size, when we call to mind that the wild Pear of Blidah, which botanists have named a little prematurely, Pyrus longipes et azarolifera, is only the size of a Pea, whilst our enormous Pears, d'Amour and Belle Angevine, vie in size with a Melon of middling size; that is at least 1200 or 1500 times larger than the first. But, perhaps it will be said, those are precisely the characteristics which prove the specific difference of these Pear trees. But, unfortunately it is not so; for the microscopically small Pear of Blidah passes by insensible transition to the Cent-au-godet, cultivated in our north-western provinces, and scarcely larger than the first; from that you arrive at the Sept-en-gueule, another variety, or rather a collection of sub-varieties, whose fruit varies between the size of a nut and a Walnut. Then come our medium Pears, and from these we arrive at the enormous ones by a very gradual gradation; exhibiting at the same time all the accidental differences of form and colour, from the long Cornemuse and Musette Pears, down to those so much depressed as to justify their being compared to Apples. How, I ask, can any specific characteristic be laid hold of, of however little value, amongst a multitude in which all extremes are united to each other by such insensible gradations, and to such an unlimited extent?

The advocates of plurality of species, more especially

in the case of Pear trees, may say, that if out of this multitude of intermediate forms, we are incapable of recognising distinct specific types, that is because these first species have been crossed and recrossed thousands of times with one another, that their fertile hybrids have enormously increased the number of crosses, and to that may be attributed these innumerable forms which drive classifiers wild. Far be it from me to deny such crosses or their influence; for nothing strikes me as more probable. Indeed it is scarcely possible to doubt it, when we see what takes place in an orchard of Pear trees in full blossom, where the bees, attracted from a league all round, are feeding from morning till night, and brushing about the pollen of all sorts and varieties, and shedding it on stigmas which were never intended to receive it. And these fertilisations, unnatural as they are thought to be, invariably take; all the flowers which receive pollen of any Pear tree whatever, setting their fruit, which always contains fertile seeds. I ask, then, if this constant fertility, after every conceivable cross, proves the diversity of species from their primitive types? To my mind it is precisely the contrary.

Does the graft, as some people maintain, alter the character of the variety? For my part I think not; at least I have never observed anything to make me think so. Duhamel, for example, remarked a century ago, that the Pear Imperiale with Oak leaves (another curious variation of foliage similar to what I mentioned before) never had but three cells in its ovary instead of five. Now it can be proved at the present day that all the fruit of this race or this variety have but three cells; although ever since the time of Duhamel it has never been propagated in any other way than by grafting. Many other facts of the same kind might be brought forward in support of the want of power in the graft to alter the nature of the variety, as for example the property, whatever it may be, which gives flavour to fruit, varying as it does so remarkably in different kinds.

The notion that fruit trees degenerate because they are propagated by grafting is an error which must be exposed. There is no single fact to prove it. Those which have been cited depend upon totally different causes, first and foremost among which are climate, unsuitable soil, and very often bad cultivation, or a neglect of pruning, so common now-a-days. Our ancient Pears, which a century or two ago were so justly esteemed, are now exactly the same as they ever were; they ripen at the same time and keep good just as long. If they are neglected it is no proof that they degenerate. It is only that nurserymen are interested in bringing forward new varieties. The pretended degeneracy of ancient races is in reality nothing more than one of these clever devices of the present day. On the other hand, can it be true, as Van Mons and many pomologists believe, that the pips of a good fruit produce wild austere fruit, and thence return to what they suppose to be the specific type? I do not hesitate to declare the contrary, and I defy any one to bring forward an example of a good fruit, whose flowers were fertilised by its own pollen, or by that of any of its own race, whose seed has produced wild fruit. If a good variety is fertilised by a wild or austere sort, it is only natural that the trees raised from such seed should produce new varieties, some if not all of which will prove inferior in quality; it may even happen that in the number there will be some with fruit as bad as that of the wilding which furnished the pollen; but this degeneracy, if you like to call it so, is nothing but the consequence of an unskilful cross. It may be considered certain, that all superior varieties of the Pear tree, and I may say of all fruit trees, if they are fertilised by themselves, produce good fruit; they may vary, and will probably do so, sometimes in one peculiarity and sometimes another, according to the variety, but none will become wild, any more than our seedling Cantaloupe Melons return to the form and flavour of the little wild Melons of India, or our Cabbages and Cauliflowers return to some one of the wild races or varieties that grow on the sea-shore. Whatever the advocates of immutability may say, the species of plants are really subject to great variation, and there is much truth in the theory which refers to the same specific type races and varieties, which, though very different in appearance, have the same morphological organisation, and which, like the members of the same family, are capable of crossing one with the other. Taking the whole series of possible generations, I am quite aware that there always will be doubtful cases, notwithstanding the proof of fertile crossing; but that is no reason for separating, as so many distinct primordial entities, what observation and analogy show us can proceed from a single original specific type. Take any one of our races of Pear trees, and transport it to all the regions of the globe; wherever it can exist, it will struggle to adapt itself to the situation, and you will find after a few generations it will have given birth to new and numberless varieties. This fact, which takes place under our own eyes, in the case of every cultivated plant that is much distributed over the world, gives the key to those polymorphous species which perplex botanical classifiers, and which have only become what they are, by Nature herself having spread them over an immense expanse of country."

It appears to us, says the Editor of *Les Mondes*, from which these remarks are derived, that the views of M. Decaisne are self evident; that the immutability of species is not at all at variance with the multiplicity of varieties, or of what in other cases are called races. Two Pear trees and two Pears do not differ more from one another, than two dogs or two men.

ANCIENT FRUIT LORE.—No. V.

(*Continued from p. 749.*)

How to order Quinces.

Quinces are a fruite, which, if there be any store of them, be not to be layed in that roome, where any other fruite is, by reason of their strong sent. For, being layed in any close roome, neer other fruit, it will cause the fruite to smell of them. The riper also that they be, the stronger their sent is: especially if they be in a close roome: and they will not onely be hurtfull to the fruite neere them, but noysome also to them that come into the roome where they bee. Therefore they are to bee layed, in such a roome seuerall (vpon fine straw) where they shall haue ayre enough. Also, being to be carryed any far way, they must bee packt in straw: and so likewise Medlers. Their time of gathering also is all one with Medlers.

As the order of packing, & vsage of Peares, Medlers, & Quinces is shewed: so likewise shall bee declared the manner of packing pippins, and al other sorts of apples, beginning with the summer fruite.

How to packe or maunde apples.

All kinde of summer or winter apples must be packt, layed, and carryed in wheate or rather rye straw. And although, for the most part, they are layed in some roome, neere where they growe, vntill they be all gathered & ready to be carryed away: yet the better way for those that are to conueigh their fruite, from whence they are gathered, is to haue maunds, straw, & all ready, lyning them with straw, that whê your baskets or prickels be ful, you may presêtly poure them into the maunds. For, being first layed in one place, and then taken vp again, to be put into maunds or other casks, doth hurt the fruite with too much tossing: but being presently put into the maunds, well packt, and gently handled, will cause summer fruite to keep plumpe, and keep their colour the better.

If you haue not so many of one kind of fruite, or that there be a remnant (as of some sorts, there bee but a fewe, in an orchard) so that the maund cannot be filled: first poure in one sort, and when they bee all in, lay some fine sweet strawe vpon them, then poure in the other kinde of fruite, and so fill your maunde: and being filled and well packt, the two sorts will not come together in the stirring or carriage of them.

How to empty maunds, and how to lay the fruite.

At the emptying of them, see that the fruite bee not rashly poured out, least that the seuerall sorts com together. And although packt and carryed in straw, yet at the emptying let the straw bee pickt out cleane: and, as neere as you can, let euery sort be layed seuerall. Now, if there bee so many sorts, that, for want of roome, some of them must be mixed, be sure that you mingle none, but those that will last alike: But if they bee neere in taste and colour, there needes no separation. But although some sortes doe last alike, and be neere of one taste, yet if they be not of a colour, they are not to be layed together. For, it is an vnseemely sight to see one heape of apples of seuerall colours. But if already they be mingled, let them be taken vp with a Trey: and looke how many sorts there be in the heape, you must haue by you so many baskets, and so part euery sort, seuerall: when they be parted, the ripest to be first spent, & the rest by degrees in their time.

And although they that be summer fruite, be called rathe fruite, yet are they not ripe all at one time. Wherefore, no sorts must be layed together, but those that ripen alike: otherwise, being laid together in a heape, the one will be rotten before the other bee ripe, and cause the hardest amongst them to rot, before they be kindely ripe.

Also Pippins and other winter fruite, are to bee carryed and packt in maunds, lyned with wheate or rye straw: and at the emptying of them, the straw to be cleane pickt out. And when your pippins, or other winter fruite, come to be layed in the house or place appointed, whether they should be conueighed or carryed, vnlace your maunds, take off the straw, at the top: when you haue done, whelme downe the maunds, emptying them gently, into small baskets, picking out the straw as cleane as you can. Haue a great care also in shooting or pouring thê out. For, in pouring of them hard, the one wil hurt the other: especially the stalkes of the one, will run into the other. And being once stalk-prickt, they will not last long, although not presently seene.

Also, being battered or bruised, they cannot keep. Onely the Pippin hath a qualitie by it selfe. For, if it be battered, the skinne being not broken, it will dry vp againe: so that it be when it is greene, and being layed amongst the rest: for then they will soake away the bruise, and make it plumpe againe, it it be not too much bruised.

STRAWBERRIES AND SPORTS.

1. *Nimrod.*—I sent the true sort to Mr. Nicholson at the same time that I sent it to Mr. Rivers. It came to me from a friend at Blandford, who also grew noble Eleanor. My ground was not strong enough for it; I therefore discarded it. Its colour here was orange scarlet. It is not capable of being grown to the size of Eleanor. It is sweet, and of the Queen's flavour. Eleanor is more or less acid. No doubt Mr. Doubleday's six runners sprang from the ones that I sent to Mr. Nicholson; still I was surprised to see Mr. Nicholson's description of Nimrod, viz., "very like Eleanor, if not the same." Messrs. May, Ingram, and Baker of Blandford grew both these sorts. The last gentleman especially recommended Nimrod to me.

2. *The False Sir Harry.*—This was, I believe (and others think so too) Hooper's Seedling. I have had a letter full of groans on the subject, cheered by thanks for my last and other articles. The complainant says the true Sir Harry is slow to grow and slower to run. This I found to be the case. Ninety-five out of 100, I believe, have never had the true Nimrod or true Sir Harry, or they have had them mixed.

3. *La Constante.*—The complaints against the growth and slow running of this good Strawberry are such as I supposed would be the case. Mr. Turner wrote this week for runners, complaining of its slow growth and slow and sparse running. I have not the sign of a runner yet, though I manured and watered close after cropping. If such is the case in the fine ground of Slough and Salt Hill, what can we expect in our inferior lands? I shall make all the plantations of Frogmore Pine that I can (one is already made), and discard this sort. Still, where it will succeed it should be grown. The Frogmore Pines are worthy of the Royal gardens in which they were raised.

4. *Model and Bijou.*—These are two seedlings of M. de Jonghe's, which he rightly describes as slow growers and slow runners. I planted four this spring in front of my south wall. The sharp hoar frosts soon killed them. Bijou is alive and very small, with two diminutive runners. Had not M. de Jonghe asked in a late communication, "what will Mr. Radclyffe say?" I should not have adverted to them. I will, however, take every care of mother and daughters, which might do in the Blandford land, where they can grow good crops of Myatt's Quinquefolia, a curious, handsome, and good-flavoured Strawberry, suitable chiefly for pot culture.

Sports.—Roses, such as M. Campbell and White Bath, will sport. I have seen on M. Campbell a perfectly striped Rose and La Reine (its parent) at the same time. I have seen on the White Bath, white Roses, white and roseated, and also a bloom one half white and the other half rose; but I never saw a Strawberry sport. Still, the freaks of Nature are manifold, or we should not have the term *lusus naturæ*. I bought 12 Sir Harry's (not of Mr. Underhill) for 10*s.*, and Sir Harry sported, or returned to the ancient type of Hooper's Seedling. Let us hope that the raisers of seedlings will, like the calico printers, find out a recipe for fixing. These mishaps put me in mind of the vicarage of Gussage, All Saints, Dorset, to which I was presented by Archdeacon Buckle. The first Sunday that I served the church, the clerk gave out the words of the Psalm—

> "One neighbour now can scarce believe
> What t'other neighbour says!"

W. F. Radclyffe, Rushton.

Home Correspondence.

Appearance of a Plant in a Singular Place.—In a hard gravel walk close to my house, my gardener and myself distinctly remember, about five or six years ago, two little rosettes of purplish leaves pushing their way up. We neither of us could imagine what they were; they were soon trampled down and apparently killed. But this spring they have re-appeared in exactly the same spot, and were protected. They have now flowered and prove to be Epipactis latifolia. This Orchid, though by no means a rare plant, I have never seen in this neighbourhood, and have heard only once of its having been found in a wood about a mile and a half distant. The gravel walk was made 20 years ago; and before that time the spot existed as a little-used carriage drive; and about 25 or 26 years ago it was a pasture field. How could this Epipactis, which is so rare a plant here, have come to this spot? The root stock seems to have lain dormant under the gravel for the last five or six years. Could a seed have been blown here from a distance and have germinated during some season when the walk was neglected? The tall stems growing up in the midst of the bare gravel surface present an odd appearance, and the case seems to me a singular one. *Charles Darwin, Down, Bromley, Kent.*

Spurious Strawberries.—I can fully confirm Mr. Doubleday's statement in reference to this subject in last week's Number; as regards Nimrod, I am of opinion that no other kind has ever been distributed by Messrs. Lucombe, Pince, & Co. under that name, except Myatt's Eleanor, which I got twice from that firm through Messrs. Henderson. What Mr. Doubleday had from the late Mr. Nicholson as the true Nimrod, is, I believe, the same sort which Mr. Radclyffe gave me,

but in my opinion this bears a strong resemblance to Wilmot's Prince Arthur, a splendid sort where it succeeds. As regards the spurious Sir Harry, I believe that everybody who ordered plants at the time when it was advertised got their share of it. Mr. Underhill replied to my complaint, as he did to Mr. Doubleday, that it must be a sport. Now, as far as I know, there exists no such thing among Strawberries as a sport; at least not one of my numerous Strawberry friends has ever heard of such an occurrence. Moreover, since 1855 I have never detected the least variation in Sir Harry, which is one of my favourites. I may add that Wonderful, sent out by Mr. Jeyes, of Northampton, is nothing else than Myatt's Prolific, raised many years ago, and rechristened. It is Wonderful at Northampton, Batswing in Scotland, and Perle de Rastede or Rostock in Germany! It is surprising that nobody should before this have rendered justice in this matter to the late Mr. Myatt, to whom we owe so many fine Strawberries. *Ferdinand Gloede, France.*

New Potatoes.—I have sent for your inspection two samples of seedling Potatoes, raised by a policeman in this neighbourhood. It is about four years since the seed of them was sown; he has carefully attended to them since that time; last year he showed them at several provincial shows and had prizes awarded them. *D. Darr, 2, Widcombe Hill, Bath.* [Both are excellent sorts, the Red one rather shorter than the White. They are even, regularly shaped, without deep eyes, and consequently without waste. When cooked they become very floury; and if they had been a little riper would certainly have been entitled to be placed A 1.]

Exhibition of Cottage Garden Produce.—I hope that gentlemen interested in their poorer neighbours will kindly express their views on this subject, in order that an estimate of general opinion may be obtained. Let it be taken for granted that the articles of garden culture most in request, sought for by the greatest number of persons, and hence of the highest importance, should have a paramount claim to be recognised as proper subjects of reward for successful culture. Such are the things competed for at country shows, viz.: Potatoes, Cabbage, Onions, Rhubarb, and other homely stuff, which nobody can do without, and which not a few are obliged to do almost everything with as regards the common but necessary business of supporting existence. Now, an exhibition of these articles would not in itself be a very attractive sight to sight-seers; it may be seen every morning in Covent Garden Market almost in perfection—hence, if undertaken at all, it must be for a purely benevolent and useful end. Nor would it be a self supporting one for the same reason, but assistance from nurserymen and owners of beautiful plants might be solicited to render it worth visiting to such as would not care to see it on its own merits. The main points are—By whom should it be undertaken?—how, when, and where? The first point must be resolved by some already existing responsible body—a society whose objects comprehend what is useful as well as ornamental. Let us suppose that the Council of the Royal Horticultural Society should be disposed to consider this question. The means at the disposal of any Society whatever are limited. Should this be urged as a reason for declining the charge, it should be remembered that upwards of 225*l.* or thereabouts is awarded two or three times a year by one Society (the Royal Horticultural) for Stove and Greenhouse plants and Orchids alone. I by no means wish to intimate that this sum is too much. It is only asked, can that money or part of it be assigned for once to the objects advocated in this article? An exhibition of the kind here named would not perhaps be necessary every year; let it be tried once. This point gained, it would next be necessary to make it known in time; this could be well effected by provincial societies causing themselves to be registered at the office of the chief society, each of the provincial societies taking charge of the produce sent from its own district, selecting that most worthy for competition, and bringing it to the place of exhibition, &c., at its own expense—which would not be severe—and which of course could not be borne by the exhibitor; for if left to the labourers themselves, nothing would come of it; many of them, if they heard of it at all, would probably have only a muddled notion of what was to take place, and altogether decline taking upon themselves the trouble and expense of sending their articles for competition to the place of show. All difficulties of this description might therefore be obviated by provincial societies taking upon themselves the charge of the produce of their own district—and with advantage too—as the best specimens only would be selected and brought to the test with that of other districts. As to the time when such a show should be held, it is manifest when the greatest number of the most important items of cottage garden culture are at maturity—it would be fairest to the labourer to choose that time. If deferred till late in the autumn, many useful things would necessarily have to be left out of the schedules; for example, Gooseberries and other fruit except Apples. Peas, Broad Beans, and even Cabbage would not be up to the mark. It is found I think by experience that from the middle to the end of July the greatest variety of produce could be exhibited. *Adolphus H. Kent, Blechingley, Surrey.*

Societies.

Entomological: *August* 3.—F. Pascoe, Esq., F.L.S., V.P., in the chair. An account was given of the Entomological captures made during Mr. Waterhouse's expedition across Australia, the insects having been chiefly taken in the northern half of the Continent, and comprising a great number of species (although few in the number of individuals) which exhibited greater affinity to the species inhabiting the islands of the Eastern Archipelago, than to the fauna of South Australia. Mr. Dunning stated that the insects which had spun the tissue over Chicory exhibited at the last meeting, were Ephestia elutella. Mr. Stanton gave an account of the capture of Tinagma resplendella, a beautiful species of Microlepidoptera. Mr. Hayward alluded to the difficulty of rearing the species of Brachelytra (rove-beetles), and exhibited Ocypus ater, which he had obtained from a pupa found in a stump of wood. Mr. Douglas Timmins gave an account of the successful rearing of Lepidoptera in winter, the chrysalids having been kept in warm situations. The Chairman announced the 6th volume of Lacordaire's genera of Coleoptera, devoted to the Rhynchophora or Weevils. Mr. Wallace announced an intended expedition for Zoological pursuits to New Britain, New Ireland, &c., by Messrs. Wilson of Adelaide. The second volume of Mr. Trimen's work on the Butterflies of Caffraria was also announced as nearly ready for publication. Memoirs by Dr. Baly, containing descriptions of New Chrysomelidæ, &c., and by Dr. Stål on New Hemiptera were also read.

Notices of Books.

The Angler-Naturalist. By H. C. Pennell, Van Voorst. 8vo. London, 1863. Pp. 425.

(*Concluded from p.* 751.)

The frogs are said to have remonstrated with a party of rude boys, who were pelting them for mere wanton amusement, something after this fashion—"Young gentlemen! what's sport to you is death to us." It must be confessed that the great drawback to the gentle sport, is that possibly it may be painful to the feelings of the fish. To reassure his readers on this point, Mr. Pennell gives a number of instances which go to prove the very low sensibility to pain which these cold-blooded creatures appear to possess. He mentions having hooked the same pike three times in as many minutes, and once when removing the hook from a perch the fish's eye was displaced and left adhering to the hook. The poor little perch was returned to the water, and the fisherman again threw his line with no other bait but this unfortunate eye. "The float disappeared almost instantly, and on landing the new comer it turned out to be the very fish which I had the moment before thrown in. This incident proves, I think conclusively, that the structure of cold-blooded animals enables them to endure very severe injuries and wounds without experiencing material inconvenience; a fact which may tend to remove any qualms of conscience felt by anglers on the score of the sufferings supposed to be inflicted on their captures." This certainly was not a pleasant circumstance to the fisherman, but apparently it was not so painful to the fish as might have been expected.

While on this subject we must add a single instance of the "hard-dying" qualities of a carp. "He was 'killed' in the usual manner and consigned with others to the cook, in whose care, however, after some hours, he began to show signs of revival. A kind-hearted damsel compassionately transferred him to the vivarium, where he has since thriven, showing no effects of his narrow escape, save a scar on the back of the head, which he will probably never lose."

To the sportsman there is something peculiarly attractive in the pike. Its size, its reckless courage, the dash and *élan* with which it takes the death, its very ferocity has an interest—and who has not listened with open mouth and eager eyes to wonderful tales of the pike's voracity? Here is one related by Dr. Genzik:—

"In 1829 Gouge, who afterwards became a celebrated physician, was bathing with a party of students at Vienna, when suddenly he screamed out and sank. All plunged in to his assistance, and succeeded in bringing him to the surface, and finally in getting him on the boarding of the bath, when a pike was found sticking fast to his right heel, which would not loose its hold, but was killed and eaten by us all in company the same evening. It weighed 32 lbs. Gouge suffered for months from the bite."

Other very recent and well-authenticated accounts of the pike's voracity and ferocity are given in this book, to which we must refer, as also for instances of the travelling of pike and other fishes from one pond to another, the performance of the Perca scandens or climbing perch, and the strange vitality of fish (mentioned by Sir Emerson Tennent in his History of Ceylon, and well known to most East Indians) which can endure the parching dryness of the hot season, and are ready to be caught the moment the rains set in.

Of all the fishes known in Great Britain, those belonging to the genus Salmo are the most important, yet, strange to say, "scarcely anything certain was known of the natural history of the salmon even 30 years ago, beyond the fact that the fish ascended the rivers to spawn during the spring and summer, spawned, and descended to the sea within the following two or three months. Of late, however, and especially during the last very few years, the researches of ichthyologists and the experiments which have been conducted on a large scale by enterprising and scientific men, have thrown a flood of light upon the subject, converting doubts into certainties, theories into practice, and generally advancing our knowledge of the subject, which promises to be productive of most important reforms in the management of our exhausted salmon fisheries, and in the establishment of new ones." To show the extent of knowledge already attained, Mr. Pennell gives in a condensed form a statement of "Proved facts in the history of the salmon," followed by the "distinctive marks of salmon and trout," which are chiefly known by the differences in the form of their gill-covers, the arrangement of their teeth, the shape and size of the tail fins, which include the principal organs of (1), respiration; (2), mastication; (3), motion; which are admitted to be among the most important and unvarying in piscine structure. Into the distinctions of parr, smolt, grilse, of bull trout and salmon trout, we must not enter, but there can be little doubt that Mr. Pennell is a most trustworthy guide. It seems that the Duke of Atholl has for some years caused all kelts (spent or unclean fish), taken with the rod in his waters, to be marked with a numbered copper or gutta percha ticket, fastened to the tail, stating the time when caught, and the then weight, that the increase of weight when recaptured may be observed—a matter of great interest in a variety of ways. To what a pitch of excellence the operations of the "Thames Angling Preservation Society" has attained in the artificial impregnation and hatching of fish ova, we may judge by the fact, as stated by their able superintendent, Mr. Ponder, that the loss has amounted to only 3 per cent. on the whole number of eggs introduced into the breeding boxes. The young fry are carefully reared until they arrive at an age when they can shift for themselves, and are then turned into the river, thus escaping the thousand-and-one enemies to which they would be otherwise exposed. The appearance of the recently hatched ova in what is called the bag-stage is very curious—"The future monarch of the stream is represented by a mere ragged line, fringed at the edges and almost transparent, the head and eyes being prominent, and altogether out of proportion to the body, which measures only about $\frac{3}{8}$ths of an inch in length, and is of a pale peach-blossom or azure tint. An examination of one of these newly-hatched creatures through a powerful microscope, exhibits in perfection the system of the double circulation, or passage and repassage of the blood-globules through the veins and arteries, a fearful and wonderful sight, which seems to bring the beholder face to face with the great mystery of life, in at least its visible aspect.

"In 35 or 40 days from the time of hatching, the yelk bag disappears, and the fry becomes a perfect little fish of about an inch long, with the fins separated and properly developed, and the tail deeply forked at the end. The general colour now also changes to a light brown; and the sides are indistinctly crossed by nine or ten transverse dusky bars, or parr marks, characteristic of all the species of the genus Salmo when in an immature state, and which, in the true salmon, remain more or less visible even in a smolt or parr 6 inches long. In rather more than 12 months from the time of hatching, about half of the last year's parr begin to assume their silver coating of scales, preparatory to making their first trip to sea as smolts. In from six to eight weeks a number of these return to the same river with an increase in weight of from 2 to 5lb., and many of the fry marked when migrating as smolts in May and June are sold in the London markets as grilse in July, August, and September. Very small grilse are sometimes caught, and these, when weighing less than 2 lbs., pass among the London fishmongers by the name of 'salmon peel.'"

Judging by the pleasure which we have had, and the information we have gained, by the perusal of this charming book, it is sure to become a favourite. The extracts given will afford our readers an opportunity of judging of its style and contents, but they can give no idea of the excellence of the woodcuts. Whether he is fortunate enough to catch trout and grilse, or confine his attention to the humbler haunts of perch and sticklebacks, the fisherman who has Mr. Pennell's book to refer to will find an interest in his sport beyond mere fish catching.

The *Botanical Magazine* for July contains figures and descriptions of the following plants:—*Rhododendron Batemani*, a fine species from Bhotan, which has been flowered by J. Bateman, Esq., at Knypersley Hall. It is allied to R. campanulatum, having its broad elliptic-oblong leaves clothed with similar ochreous tomentum on the lower surface, but altogether of a more robust character, the leaves also being larger and longer; the flowers are of a deep crimson red with the rounded segments undulated; and it essentially differs in its ten-celled ovary.—*Ornithogalum capitatum*, a bulb from the interior of the Cape Colony, introduced by W. Wilson Saunders, Esq., and having linear-oblong acuminated leaves, and heads of white starry flowers bearing a good deal of resemblance to those of an Allium.—*Meyenia Fogeliana*, a beautiful stove

shrub, introduced from Fernando Po to Kew by Mr. Gustav Mann. It is a smooth shrub, with erect branches, oblong-ovate acuminate serrated leaves, and copious large funnel-shaped flowers widened in the throat which is orange coloured, the limb being broad and of a rich violet purple. Though retaining the name Meyenia for this plant, Sir W. J. Hooker observes that Dr. Anderson, our best authority for Acanthaceous plants, considers it in no way distinct from Thunbergia. It is described as being much more beautiful than M. erecta, and no doubt is so if the figure may be trusted.—*Nephelaphyllum scapigerum*, a curious dwarf Orchid from Borneo, introduced by Messrs. Low & Co.; the leaves are cordate-ovate unspotted green, one surmounting each of the short barren stems; and the flowers, which are variegated with green white yellow and purple, are on short leafless scapes; they are large for the size of the plant, and the lip is very prettily marked.—*Eria obesa*, a dwarf white-flowered Indian Orchid, chiefly remarkable for its short oval gouty stems.

The August number contains illustrations of the following:—*Calceolaria punctata*, a curious and very distinct-looking species of the gaping equal-lipped or Jovellana group, a Chilian plant, recently introduced by Messrs. Veitch & Son. It is a tall branched herb shrubby at the base, and has largish opposite ovate deeply twice or thrice serrated rugose leaves, and loose many-flowered panicles terminating the stem; the flowers are lilac with a pair of rounded lips like a gaping mouth, the lower side blotched with yellow, and the base dotted with dark spots.—*Crassula rosularis*, a greenhouse succulent, with a tuft of large oblong-lanceolate ligulate leaves and erect stems bearing many opposite close almost capitate cymes of small greenish flowers. It comes from South Africa.—*Anchomanes Hookeri* var. *pallida*, one of a set of aroideous plants, which are very remarkable whether in leaf or flower. "The spathes open in May, reared on the summit of a slender prickly peduncle 2 to 3 feet high, and blotched with purple and green. In the following July the single leaf appears, the petiole of which is longer, more prickly and slender than the peduncle, and bears horizontally on its summit the three-parted lamina, each of which is pinnated, and has two to three pairs of leaflets; each of the lateral leaflets gradually attains a size of 6 inches, and the terminal ones even a foot and a half; when the whole dies down to the ground, the tuber remaining dormant throughout the winter. It was introduced to Kew from Fernando Po by Mr. G. Mann.—*Lewisia rediviva*, a very singular N.W. American perennial, remarkable for its tenacity of life. It belongs to the Portulacaceous order, and is called Spat'lum by the Indians. The plant is a dwarf perennial, with a thick fleshy root, terete fleshy glaucous leaves, and large rose-coloured flowers on short one flowered peduncles. The specific name "rediviva" was given by Pursh in consequence of the remarkable vitality observed in the plant. The specimen figured in the "Botanical Magazine" was taken from a plant growing at Kew, one of many gathered with the view of being preserved for the herbarium by Dr. Lyall, and for this purpose immersed in boiling water. More than a year and a half after, it showed symptoms of vitality, and produced its beautiful flowers in great perfection last May at Kew. It is a native of California.—*Senecio pyramidatus*, a subshrubby South African Groundsel, with terete fleshy glaucous leaves, and large radiate bright yellow flowers, borne in elongate thyrsoid racemes. It is a plant of botanical rather than horticultural interest.—*Ophelia umbellata*, an Indian annual with erect glabrous stems, about a foot in height, bearing opposite leaves, obovate-spathulate on the lower part of the stem, and ovate above. The flowers form a kind of corymbose panicle, of which the ultimate divisions are umbellate, and are four-petaled, white slightly tinged with blue, giving them a grayish appearance.

Books Received.—*Watts' Dictionary of Chemistry*, Part VI. (Longmans) In this part of Watts' excellent work we find capital articles on Cider, Cinchona, Clouds, Coal, Coffee, Colchicum, Combustion, &c. The first volume is now complete.——*Kitto's* very carefully compiled *Cyclopædia of Biblical Literature* (Black), has reached Part V., in which we find a beautiful facsimile of the curious Anglo-Saxon Bible called the "Durham."

Garden Memoranda.

Kingston Hall, Kegworth.—About half way betwixt Leicester and Derby, Kingston Hall, the seat of Lord Belper, can easily be seen from the railway, beautifully situated amongst fine scenery, ornamental waters, and extensive shrubberies and pleasure grounds. The flower garden just now presents a very attractive appearance; among other things it contains a seedling Verbena named Lord Belper, which is certainly the best scarlet we have met with. It closely resembles Robinson's Defiance in colour, has a good truss, and is very short-jointed and free blooming. Lady Victoria Scott, another Verbena, is also largely employed, and for small beds is very effective. A mass of Foxhunter Verbena is likewise extremely showy, but it is not so striking as Lord Belper, and will, we apprehend, not stand rough weather so well. Amaranthus melancholicus ruber succeeds satisfactorily, and where it does grow well it is a very desirable plant. Mr. Westland, the gardener, intends devoting attention to such plants as the variegated Periwinkle, the different kinds of variegated Ivies, and other hardy plants for flower garden decoration. That such materials might be made available we have no doubt, and where large centre beds have to be filled, Acer Negundo variegatum, Purple Beech, variegated Turkey Oak, and other plants would be highly ornamental. Bijou variegated Geranium is a favourite, as is also Tropæolum Eclipse. On the south side of the kitchen garden is a superb riband border, consisting of Lobelia speciosa, Geranium Flower of the Day, Perilla, Tom Thumb Geranium, Calceolaria Kayi, and Geranium Trentham Rose.

Close to the mansion is one of the coolest conservatories in summer we have seen; it is chiefly occupied by Tree Ferns and other ornamental plants, among which we noticed Ficus Cooperi fruiting, Achimenes suspended in wire baskets, producing a pretty effect, especially when the plants are gracefully trained over the baskets; and fine specimens of Alsophila excelsa and australis. Leading from the conservatory to the mansion, is a corridor which is kept well supplied with plants, in the midst of which are some fine specimens of Campanula pyramidalis, an excellent plant for indoor decoration. Mr. Westland sows the seed of it in March, when he puts the young plants out in the open ground, transfers them to pots in autumn, in order that they may get well established by the spring, and in this way they make fine specimens. In one of the frames in the kitchen garden were several examples of Eucharis amazonica; we were informed that it is the practice here to grow this plant in heat early, then to put it out in a cold frame, and bring it into warmth again in the winter, when it produces an abundance of flower.

The Pine Apples look well, being very sturdy, healthy plants, consisting chiefly of Queens, Montserrats, and Smooth-leaved Cayennes, all planted out. Mr. Westland speaks in high terms of the last named kind. In the succession house turners' shavings (the chips or shavings from turning lathes) are used for plunging; they are much cleaner than tan, and they will retain heat for two years at a time. The range of Vineries early in the season is well worth seeing. It comprises four divisions, each having 32 feet rafters, the two centre houses accommodating 12 rods each, and the two others 10 each. One of the centre houses is filled with Muscat of Alexandria in full bearing, and in another compartment we noticed two or three plants of the Muscat Muscadine, one of the finest White Grapes in cultivation, decidedly superior to the White Frontignan or Royal Muscadine, and as hardy as the latter.

The kitchen gardens are extensive; Rocambole, which is now seldom met with, is cultivated here and much esteemed for flavouring dishes. It closely resembles the Shallot in growth, but has a richer and milder flavour. Strawberries are grown extensively, the sorts most esteemed being the true Sir Harry, Carolina Superba, Empress Eugénie, Sir Charles Napier, and the very useful Frogmore Late Pine.

Messrs. Downie, Laird, and Laing's Nursery, Forest Hill.—Lovers of Hollyhocks will be glad to know that a fine collection of them is now in full bloom here, and well worth inspection. Among them we noticed Lady Dacres, a salmon-coloured variety with spikes of flower measuring no less than 3 feet 9 inches in length; George Keith, a vivid crimson rose in equally beautiful condition, as was also R. B. Ullett; of glowing crimsons, the two last are certainly the best. Among yellows we saw nothing so good as Golden Fleece, a bright showy variety, and apparently an unusually free flowerer. Empress Eugénie is a fine large white, but not so pure as Reine Blanche, which has, however, the fault of being small in the flower and difficult to grow. Of purples the best is Purple Prince, a noble kind with fine spikes of flowers, in colour almost approaching claret. Among blacks, which are scarce, are some promising seedlings, especially one called Sambo, a glossy very dark kind. Among other colours were Lord Loughborough, a showy crimson scarlet; Prince of Hesse, and Walden Masterpiece, both buffs, suffused more or less with salmon and yellow, the first the paler of the two; Glory of Stanstead, a deep rose-coloured seedling shaded with violet; and Countess of Craven, the last delicate rose or rather peach, a charming free blooming variety.

The plantations of Seedling Hollyhocks are also well worth inspection, if only for the purpose of seeing how much plants raised from seeds, saved from the same flower, differ one from another in colour; whites may be seen springing from yellows, every shade of rose from crimson. Stanstead Rival, a beautiful early blooming salmon variety, furnishes every shade of that colour; and equally varied results may be found in seedlings raised from other named kinds, the good or bad properties of the female parent generally predominating over those of the male. The choosing of good kinds for seed bearers therefore becomes, it will be seen, a matter of necessity.

Dahlias are also grown here on a tolerably large scale; they are not, however, yet fully in flower. They are planted 5 feet apart each way, and, being carefully mulched with rotten dung and well attended to with water, their growth is excellent, and a fine display of bloom may be expected. Hollyhocks are also mulched with decayed manure and Cocoa-nut fibre refuse, which is found very useful for top dressings.

To Phloxes, both early and late, and Roses, considerable attention is being paid here, and especially to the culture of the last upon the Manetti stock, which seems to suit the stiff clay of this district equally well as the sands of Folkestone. Indeed, notwithstanding the drought to which it has been subjected this season, nothing could be more satisfactory than its growth in this nursery.

Glass houses consist of a series of span-roofed erections, filled at present chiefly with young Vines, among which we noticed fine rods of Lady Downe's Seedling and Black Alicante. Gloxinias, Fuchsias, and plants of that description occupied other compartments, in which were Halley's Geranium Adonis, a fine scarlet with a white eye and strongly-marked horse-shoe leaves; and Calceolaria Cloth of Gold, a very dwarf-growing variety, very bright in colour, and suitable either for pots or beds. Of Lord Craven, a beautiful rich claret-coloured variety of Verbena, we also noticed some fine examples, as well as of Italian Carnations, striped Verbenas, and other choice kinds of florists' flowers, among which fancy Pansies, though now past their best, Antirrhinums, and Pentstemons, must not be forgotten.

Of fruit trees there is a good collection, in which are some Quince stocks budded with Pears, which, although moved this spring, have made most satisfactory growth; not one of them has died, notwithstanding the unfavourableness of the season for spring transplanting.

Miscellaneous.

Silkworms.—Last year the Council reported upon the experiments which Lady Dorothy Nevill had conducted as to the cultivation of the Ailanthus silkworm (Bombyx Cynthia). These experiments have been continued, and with marked success. Mr. Buckland having paid a visit to Lady Dorothy Nevill's silkworm plantation at Dangstem, near Petersfield, Hants, published an account of what he saw in the *Queen* newspaper (February 28, 1863), of which the following is an extract:—

Her ladyship has set apart a portion of her beautiful and well-ordered garden, and has planted it with the young Ailanthus trees, covering them over with a light canvas-made building, a precaution rendered necessary by the birds, who pick off the young worms. On entering this building, I saw, for the first time, the living worms; they were in the highest state of perfection, and really beautiful things to look at; not white-faced, pale-looking things like the common silkworm, but magnificent fellows from 2½ to 3 inches long, of an intense emerald-green colour, with the tubercles tipped with a gorgeous marine-blue. Her ladyship pointed out to me how the silkworms held on to the leaves; they cared nothing for rain, less for the wind. Their feet have greater adhesive powers than the suckers of the cuttle-fish, and their bodies are covered with a fine down which turns the rain drops, like the tiny hairs on the leaf of the Cabbage. Many of them had made their cocoons—picking out snug, quiet corners—and were working away like diligent and useful weavers, as they are. Lady D. Nevill explained how readily and at what little expense they were cultivated, and that she had found a ready market for all the cocoons she could grow, a gentleman in Paris having offered to take all she could supply for French manufacture.

Lady Dorothy Nevill herself gives the following report of her experiments:—

"Of the silkworms I have nothing at present to say, as they are not yet come out, but last summer I netted over three dozen trees, and placed 500 worms on them. They yielded 480 cocoons. A bird got under the net, and took off some before it was arrested in its mischievous career. No wind or weather seemed to hurt the worms, and we kept some of the later ones on the trees, when even the leaves were frost bitten, but the worms did not seem to suffer. I have no doubt as to their hardiness. The three dozen trees, about 5 feet high, would have fed at least 2000 worms, if we had had them, as the more the worms devour the leaves the stronger the latter shoot forth."

These facts seem to establish not only the probability of cultivating the Ailanthus silkworm in this country, but the ease with which it may be carried out. The shrub itself grows hardily and abundantly in the country already, and it may be seen flourishing in several of the gardens of the metropolitan squares, notably Belgrave and St. James's. It will, indeed, live anywhere, and delights in poor and sterile soil; and where it lives the worms will live also. The Council cannot but think that the general introduction of this new form of cultivation would be most beneficial, as it could be carried out upon any, even the smallest scale, by every cottager or small landowner who has a garden, and a ready market may be found for the smallest parcels of cocoons. To ladies especially this operation may be recommended by the fact that they may, without the slightest hyperbole, grow their own silk dresses in their own gardens. *Report of the Acclimatization Society.*

Mummy Wheat.—The *Presse Scientifique des Deux Mondes* contains a description of a series of experiments made in Egypt by Figari-Bey on the Wheat found in the ancient sepulchres of that country. A long dispute occurred a few years ago, as to what truth there might be in the popular belief, according to which this ancient Wheat will not only germinate after the lapse of 3000 years, but produce ears of extraordinary size and beauty. The question was left undecided; but Figari-Bey's paper, addressed to the Egyptian Institute of Alexandria, contains some facts which appear much in

favour of a negative solution. One kind of Wheat which Figari-Bey employed for his experiments had been found in Upper Egypt, at the bottom of a tomb at Medinet-Aboo, by M. Schnepp, Secretary to the Egyptian Institute. There were two varieties of it, both pertaining to those still cultivated in Egypt. The form of the grains had not changed; but their colour, both within and without, had become reddish, as if they had been exposed to smoke. The specific weight was also the same, viz., 25 grains to a gramme. On being ground they yield a good deal of flour; but are harder than common Wheat, and not very friable; the colour of the flour is somewhat lighter than that of the outer envelope. Its taste is bitter and bituminous; and when thrown into the fire, it emits a slight but pungent smell. On being sown in moist ground, under the usual pressure of the atmosphere, and at a temperature of 25° (Réaumur), the grains became soft, and swelled a little during the first four days; on the seventh day their tumefaction became more apparent, with an appearance of maceration and decomposition; and on the ninth day this decomposition was complete. No trace of germination could be discovered during all this time. Figari-Bey obtained similar negative results from grains of Wheat found in other sepulchres, and also on Barley proceeding from the same source; so that there is every reason to believe that the ears hitherto ostensibly obtained from Mummy Wheat proceed from grain accidentally contained in the mould into which the former was sown. *Veterinarian, May* 1863.

Pinus Bungeana at Peking.—Near these royal tombstones I observed a species of Pine tree, having a peculiar habit and most striking appearance. It had a thick trunk, which rose from the ground to the height of three or four feet only. At this point some eight or ten branches sprang out, not branching or bending in the usual way, but rising perpendicularly, as straight as a Larch, to the height of 80 or 100 feet. The bark of the main stem and the secondary stems was of a milky-white colour, peeling like that of the Arbutus, and the leaves, which were chiefly on the top of the tree, were of a lighter green than those of the common Pine. Altogether this tree had a very curious appearance, very symmetrical in form, and the different specimens, which evidently occupied the most honourable places in the cemetery, were as like one another as they could possibly be. In all my wanderings in India, China, or Japan, I had never seen a Pine tree like this one. What could it be?—was it new?—and had I at last found something to reward me for my journey to the far north? I went up to a spot where two of these trees were standing, like sentinels, one on each side of a grave. They were both covered with cones, and therefore were in a fit state for a critical examination of the species. But although almost unknown in Europe, the species is not new. It proved to be one already known under the name of Pinus Bungeana. I had formerly met with it in a young state in the country near Shanghae, and had already introduced it into England, although, until now, I had not the slightest idea of its extraordinary appearance when full grown. I would therefore advise those who have young plants of this curious tree in their collections to look carefully after them, as the species is doubtless perfectly hardy in our climate, and at some future day it will form a very remarkable object in our landscape. One of the trunks, which I measured at 3 feet from the ground, was 12 feet in circumference. *Fortune's "Yedo and Peking."*

Shower of Earwigs.—On the 4th June, at a quarter past 1 o'clock, at a place called Gor Roubou, in the province of Oran, there occurred a real shower of these insects, lasting 20 minutes. The court-yards, walls, and roofs of the houses were literally black with them. *Les Mondes.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—It is now time to provide and encourage an assortment of flowers adapted for blooming late in autumn and in early winter. Camellias if forced into wood will be tolerably forward. They should be kept out of doors in a cool place on cool flags or coal ashes, to prevent worms from deranging the drainage. Chrysanthemums should now receive their last shift, if possible using chiefly good fibrous loam for the purpose, with plenty of charcoal. This is the best way to keep them stiff in habit and to preserve their lower leaves. Any necessary amount of strength may be imparted to them when the flower-buds are formed by good liquid manure. Successions of Brugmansias, Clerodendrons, Euphorbias, Poincettias, &c., should receive a last shift in order that they may produce a rich display in the conservatory. Climbers on ornamental trellises should be occasionally cut back, with the view of having a succession late in the season when flowers become scarce. A batch of such things as Thunbergias, Ipomœas, Jasmines, Stephanotis, Passifloras, &c., should be got up ornamental trellises without delay. Clematis bicolor and C. azurea grandiflora force well in early spring. These latter plants, although perfectly hardy, are well adapted for conservatory trellises. Continue to top up late growing Orchids, and to keep the plants at the warmest end of the house. Give air liberally in the early part of the day, and on very fine mornings syringe occasionally the whole of the stock. A little fire heat must be kept up, if only to ensure a proper circulation of air. Take care, however, that it is very low during the night. In mixed greenhouses look well after winter flowering things of common character, such as Cinerarias, Verbenas, Scarlet Pelargoniums, Heliotropes, Roses, &c. Cinerarias must now be potted off, whether from seed or from suckers, Chinese Primulas also, remembering to give the last shift immediately to those intended to blossom in October and November. Scarlet Pelargoniums to bloom well should be somewhat pot bound.

FORCING DEPARTMENT.

PINERIES.—Plants growing in dung pits must be freely supplied with air to prevent their getting drawn, and they should also be kept near the glass and not allowed to stand too closely together, for strong robust plants need hardly be expected unless this is attended to, and weakly drawn ones seldom or never yield fine fruit. Give careful attention to such as are swelling; afford them plenty of warmth and moisture, and as much manure-water at the root as the soil will bear. Remove useless suckers and gills as soon as they are perceived, which, if left, only rob the fruit and weaken the suckers which it may be necessary to leave on the plant for keeping up the stock. Do not allow young stock in free growth in the succession pits to stand too closely together, nor to sustain any check through neglect in watering, or the want of pot room. Plants growing in beds of soil must also be carefully attended to with water, keeping the soil in a nice moist state. Where rapid growth is required keep as warm and moist as can be done without drawing the foliage, and give plenty of strong clear manure water at the root, and the plants will make rapid progress for the next two months.

VINERIES.—See that Vines from which the fruit has just been cut are free from insects, giving the foliage an occasional washing with the engine if red spider is at all troublesome; and use every precaution to keep the leaves in health as long as possible. Prevent the growth of laterals, which only shade and injure the principal foliage. Late Grapes colouring should be assisted with slight fires in cloudy weather, especially Muscats, which, after this season, where they are not already all but ripe, will require gentle fires, unless the weather should prove unusually fine. Thrips are frequently very troublesome in late Vineries where plants have been grown under the Vines, and where there is any reason to expect these, the foliage should be frequently examined closely; giving the house a heavy smoking as soon as they are perceived, and repeating this for two or three times at intervals of about a week, shading the house the day after smoking where it can be done so as to be able to keep it rather close, will render the cure more effectual; and if the pest is taken before it gets quite established, it will be easily got rid of by two or three smokings, but unless taken in time it is very difficult to eradicate.

PEACHES.—Give every attention to get the wood well ripened, as next year's success will very much depend upon this being properly effected. Keep the foliage clean and free from insects, and endeavour to preserve it in health as long as possible. Give air freely both day and night, but keep the roots as dry as can conveniently be done, therefore guard the inside borders from heavy falls of rain, shutting up the sashes at night when there is reason to apprehend much wet. Any gross shoots that may still incline to grow should be stopped, as if left they encourage the action of the roots, and cause a greater tendency to growth than would otherwise be the case. Loosen the surface of the border where this is at all close, in order to admit air and warmth.

FLOWER GARDEN AND SHRUBBERIES.

Let Rose budding be closely followed up, also the pruning off at least of the dead blooms of those which flowered early. In some neighbourhoods black fly is becoming troublesome on Dahlias and Asters as well as on Cherry trees. Where such is the case tobacco-water and soap-suds may be used with advantage. The strength of the mixture should be tested by dipping some of the shoots worst affected into it and using it sufficiently strong to kill the insects, but not so much so as to injure the leaves. It should be applied in the evening when there is a prospect of a dry night, using a fine syringe or finely rosed watering pot, and giving enough to moisten the whole of the foliage. Go over beds of Verbenas frequently and remedy any defects that may be perceptible without loss of time. Where the stock is growing vigorously, pegging and training will involve considerable attention, and it will be necessary to inspect the beds frequently, removing decayed flowers, and cutting back such of the shoots as may incline to encroach upon the edging of the beds. Keep herbaceous plants neatly tied up, and cut off the flower stems of any that are becoming unsightly.

HARDY FRUIT AND KITCHEN GARDEN.

This is the period in which to lay the foundation of a sure supply of vegetables and Salads for the ensuing winter. We will suppose that all the spring and mid-winter Broccolies have been planted some time, and that Turnips for October and November are in also, still it remains to ensure a continuous succession of Cauliflowers and autumn Broccoli, also a full supply of Salads. The Cape Broccolies, although apt to sport, are amongst the most useful for the certain supply of the house. A rich border should also be prepared for Cauliflowers, which should be planted immediately; these will supply the table until Christmas, provided they are secured from frost. Endives also must be got out with a liberal hand, also Autumn Lettuces. Attend well to fruit trees of all kinds. Little superfluous wood should if possible be formed on tender fruit trees after this time. Not only the fruit but the wood for the ensuing year must be ripened.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Aug. 12, 1863, as observed at the Horticultural Garden

August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 6	0	29.915	29.845	79	59	69.0	64	61½	S.W.	.04
Friday 7	23	30.018	29.974	80	61	70.5	64	61½	S.	.00
Satur 8	24	30.090	30.038	80	50	65.0	65	62	S.W.	.00
Sunday 9	25	30.089	30.044	86	52	69.0	65	62	S.W.	.00
Mon. 10	26	30.048	30.026	80	43	61.5	66½	62½	S.W.	.60
Tues. 11	27	29.978	29.935	83	44	63.5	66	63	S.W.	.00
Wed. 12	28	30.056	29.940	78	45	61.5	64	64	E.	.00
Average.		30.027	29.975	80.8	50.5	65.7	64.9	62.5		.04

Aug. 6—Rain; cloudy; very fine.
— 7—Cloudy, very fine, hot and dry; warm at night.
— 8—Cloudy and fine; very fine throughout.
— 9—Overcast; very hot; fine throughout.
— 10—Very fine, hot and dry, exceedingly fine; overcast.
— 11—Light clouds and fine; very hot; exceedingly fine.
— 12—Light clouds, very fine throughout.
Mean temperature of the week 3 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending Aug. 22, 1863

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 16..	73 1	51 5	64 3	17	0.80 in	—	3	4	2	5	4	8	4
Mon. 17..	73.1	50.5	61.8	20	1.12	5	2	1	2	5	8	12	2
Tues. 18..	73.6	51.8	62.7	13	0.38	3	6	5	3	4	8	7	1
Wed. 19..	73 1	51 8	62 5	17	0.42	2	4	3	2	3	10	9	4
Thurs. 20..	72.7	51.3	62 0	16	0 45	2	3	3	—	5	10	11	3
Friday 21..	72.4	49 8	61.1	13	0.62	3	2	1	1	4	8	12	3
Satur. 22..	71.4	49.9	60 2	14	0.67	2	2	3	—	4	10	11	2

The highest temperature during the above period occurred on the 18th, 1842—therm. 92 deg.; and the lowest on the 21st, 1850—therm. 32 deg.

Notices to Correspondents.

BEDDING GERANIUMS: *A B.* All nurserymen supply them. We cannot recommend dealers.

CHINCHONA: *Medicus, N C.* It is a piece of pedantry to spell Cinchona thus. If you are a sensible man you will have nothing to say to such silly changes.

EXHIBITIONS: *A Y.* A Pitcher plant is admissible in No. 1, *if in flower*—not otherwise. Alocasia metallica should be regarded as a Caladium, and therefore it cannot be shown when Caladiums are excluded. We think a pitcher plant may be exhibited among ornamental foliaged plants.

FOREIGN JOURNALS: *Icenus.* Never forget in reading foreign reports, that their authors see with eyes unlike our own, and that the appreciation of a Frenchman or German is *not* that of an Englishman.

GLOXINIAS: *Anon.* We have seen some living Gloxinias lately exactly in the condition of your specimens. There is nothing in the cultivation to account for it, but apparently the spots are due to Thrips. We saw indeed no living insects, but there was an undoubted dead individual on one of the leaves, and we believe that the gardener was right in his account of the matter. *M. J. B.*

HORTICULTURAL EDUCATION: *A Regular Subscriber* should place his son for a few years in some great *private* garden establishment, where he can go through every process from the rudest to the most refined. All great gardeners always submit to this discipline, which is indispensible. A nursery garden will not answer.

INSECTS: *K.* The blotches on your Apple leaves are formed by the mining larvæ of a beautiful little moth, Cemiostoma scitella; we know no plan of destroying them other than hand picking and burning the infested leaves. *W.*

IRON CURVILINEAR HOUSES: *X.* When properly constructed, allowance being made for the expansion and contraction of the iron, these are just as secure as others, and are far more durable. We know nothing about the person you name, except that he is a highly respectable tradesman.

KITCHEN GARDEN: *Dartmouth.* What's the matter is plain enough. You starve your garden. You can no more grow good crops without plenty of manure than you can make bricks without straw.

MILDEWED CUCUMBERS: *T S.* The only way we know of preventing mildew in Cucumbers, is good cultivation, which comprises good soil, proper watering, and above all free ventilation. Should mildew appear, the affected leaves ought at once to be removed. We have seen this year wonderfully healthy crops, both of Melons and Cucumbers, where the only soil used has been the sweepings of the village street, which consist of pounded oölite and horse droppings. The result would probably be similar in any limestone district. *M. J. B.*

NAMES OF PLANTS: *C W.* Armeria maritima (Garden Thrift). —*G G.* Arrhenatherum avenaceum.—*E.* The plant to which you refer, must, we think, be Gunnera scabra.—*Discipulus.* 1, Madaria elegans; 2, Linanthus dichotomus; 3, Veronica perfoliata; 4, Clarkia rhomboidea.—*C C.* It is some Calystegia, and probably the double C. sepium—but the specimen is not sufficiently good for a more exact determination.—*A J.* 1, Celsia betonicæfolia; 2, Tropæolum Lobbianum. Many questions of this sort are very difficult, and gardeners cannot be expected to answer them.—*Skerborne Lodge.* Conferva capillaris.—*J M K.* We will endeavour to reply next week if health permits. Your question is difficult.—*J M K.* 1, Eranthemum verbenaceum; 2, Ophiorhiza Mungos; 3, Selaginella Wallichii, or some allied species.—*J. B. & Son* next week.

PEAR LEAVES: *Daniel.* Nothing is more common than the affection on your Pear leaves. It consists in an over-development of certain groups of cells, the exact cause of which is not known. It is we believe, like the similar affection of Vine leaves, innocuous. *M. J. B.*

STRAWBERRIES: *J. P.* Last season's plants may be transplanted successfully, and will bear a better crop than plants of this year.

ERRATUM. In the report of the Blechingley Cottage Garden Show (see p. 750), it is stated that the prize for named wild flowers, given by the Rev. C. F. Chawner, was 20*l.*; it should have been 20*s.*

MESSRS. WAY AND EVANS, Analytical and Consulting Chemists, receive PUPILS for the study of AGRICULTURAL and GENERAL ANALYTICAL CHEMISTRY.

106, Leadenhall Street, E.C.

MESSRS. J. CHALMERS MORTON, Streatley, near Reading, and J. THORNHILL HARRISON, M. Inst. C.E., Frocester Court, Stonehouse, Gloucestershire, Agricultural Engineers, undertake reports on the Condition of Landed Property, together with the Direction of Land Drainage, Roads, Embankments, Farm Buildings, and other works necessary for its permanent improvement.

AGRICULTURAL and CHEMICAL COLLEGE, 37 and 38, Lower Kennington Lane, London, S. ASSAYS and ANALYSES promptly attended to by J. C. Nesbit, Lansdell & Co.

AGRICULTURAL and CHEMICAL COLLEGE, Kennington.—Manufacturers and others engaged in making Artificial Manures may obtain every necessary instruction for their economical and efficient preparation by applying to J. C. Nesbit, Lansdell & Co., 37 and 38, Lower Kennington Lane, London, S.

Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and despatch.

Gentlemen, Farmers, or others, desirous of practical knowledge in Chemical Analysis or Assaying, may receive instruction at the College, where the extensive Laboratories give ample facility for pursuing their studies, and there is accommodation for a limited number of Resident Students.

Full particulars of terms will be forwarded on application.

LAND DRAINAGE, the ERECTION of FARM-STEADS, the CONSTRUCTION of ROADS, and other Works of Agricultural Improvements are undertaken by Mr. Humbert, Land Agent and Surveyor, of Watford, Herts, either by contract or on commission; and he will furnish estimates of cost free of charge, expenses out of pocket excepted.

Such works can be executed either under the powers of several special Acts of Parliament, with money raised by loan and paid off by instalments, or with the Landowner's own money.

Drainage, &c.

MR. JOSEPH BEAUMONT, Land Agent, Surveyor, and Drainage Engineer (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.

Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements. Valuations made for Sales, or the re-letting of Farms.

22, Parliament Street, Westminster, S.W.

Land Drainage.

WORKS of DRAINAGE of any extent are EXECUTED by the GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY on all Descriptions of Property, whether Freehold, Entailed, Mortgaged, Trust, Ecclesiastical, Corporate, or Collegiate.

Repayment may be made by the Landowner as successive portions of the works are completed; or the actual expenditure, with a commission thereon, may be charged on the property improved, by way of rent charge on the estate created for various terms of years, so as to adapt the rate per cent. of annual charge to the circumstances of the tenants.

No investigation of title being required, or notices given to Reversioners or Mortgagees, no legal expenses are incurred.

Works of Irrigation, Enclosing, Wood Grubbing, Road Making, and Farm Buildings are executed in a similar manner.

Landowners desirous to execute any of the Improvements by their own Agents, and charge the outlay and expenses on the Estate, may obtain Loans for the purpose.

Applications to be made to William Clifford, the Secretary, at the Offices of the Company, 52, Parliament Street, S.W.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Special Act of Parliament in 1853. 2, Old Palace Yard, Westminster, S.W.

To Landowners, the Clergy, Estate Agents, Surveyors, &c. in England and Wales and in Scotland.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

For further information, and for forms of application, apply to the Honourable William Napier, Managing Director, 2, Old Palace Yard, Westminster S.W.

BASKET PONIES (First-class) for SALE, of various ages and sizes, warranted sound, 12 Guineas each. Address A. B. C., care of Abbott, Barton & Co., Advertisement Contractors, 203, Strand, London, W.C.

Agricultural Hall, Islington.

A POULTRY, PIGEON, RABBIT, FLOWER, and FRUIT SHOW will be held at the HALL on the 26th, 27th, and 28th inst.

PRIZE LISTS and other information can be obtained from S. Sidney, Esq., Secretary.

Agricultural Hall, Barford Street, Islington, N.

The Agricultural Gazette.

SATURDAY, AUGUST 15, 1863.

We make no excuse for filling our columns with an account of one of the finest harvests we have ever known. It is needless to number up the returns in the following pages, as in past years we have done, in order to determine the proportion between those which declare the crop to be over average, and those which declare it to be under average. So far as the Wheat crop is concerned, the returns may be said to be all "over average." The Barley crop is somewhat various—all late sown spring corn having suffered from the prolonged drought of early summer. Oats, too, have thus partly suffered—but both of these crops nevertheless will prove of average productiveness. Beans and Peas, excepting the former in the southern and south-eastern counties, are good. Root crops, where planted early, have come well, and now only wait rain to yield a good return. The hay crop has been light but well got. Harvest is not earlier than usual, but is coming rapidly on in the later districts.

The Potato disease is this year in great measure in abeyance, though from Dorsetshire and Cornwall we hear that it has again suddenly appeared.

On the whole we have to be grateful for the unusual productiveness of our Corn-fields; and for glorious weather, for the safe gathering in of the produce.

—— We have received a letter from Professor Buckman, expressing the gratification which Mr. Holland's letter published last week has given him. He also forwards for our perusal a note from Mr. Holland to himself, dated Oct. 14, 1862, which led him to believe that he was at liberty to publish the "private letter" which has led to this correspondence. The note of Oct. 14, containing a long extract from the letter in question, is itself headed private; but we have received Mr. Holland's permission to publish the following extract from it. And our readers will easily understand how a mistake on the subject may have arisen.

The extract is as follows:—

"My object in heading this note 'private,' is because I have hitherto kept the subject matter of it private, and as far as I am concerned always mean to keep it private, unless you wish it to be made public. But I had much rather send it to you for you to destroy it your own self, that you may rest assured of its ceasing to exist. However, that must be as you please."

Mr. Hutchinson's pamphlet * on Steam Cultivation is one of the most explicit statements on the subject that have yet been published. Its appearance now, as well as rumour early in the year, lead us to the conclusion that it has competed unsuccessfully for the prize offered by the Royal Agricultural Society of England, but it is hardly possible to understand how it has failed to obtain at least a commendation by the Society's judges. The Society professes to prefer statements by the writer of his actual experience, to any other kind of essay. Under such circumstances, and in such a case as the one before us, it cannot hope to have more than one farm described by the writer. If it prefers a statement in which the experience of 20 or 30 farms is tabulated and examined, then it departs from the rule which has hitherto guided its decision of merit. We believe that in the case of steam cultivation a more general statement of the subject, and of the experience that has been realised in connection with it, is to be preferred. But if this was wished it should not have been sought by the offer of a prize, the adjudication of which is bound by rules tending to discourage general statements. It should have been directly commissioned; or the terms of the prize should have been altered so as to include exactly what was wanted. Even now there are many subjects besides steam cultivation of which we want the general experience of farmers, and it would be well to adopt the precedent of last year and issue a supplementary prize list, including such offers as 100*l.* for the best statement of experience in steam cultivation extending over at least two years and 10,000 acres of land; and 100*l.* for the best statement of experience in reaping and mowing by machinery, extending over at least two years, and at least 10,000 acres cut.

If by such means we had collected the experience of 20 farms as we here have the experience of one—fully given both as to cost and as to returns—it is not too much to say that the question of steam cultivation would be at once admitted to be settled, and to be removed from the region of conjecture, doubt, and speculation; and established as a success and certainty in English farm practice.

The farm here described is situate at Dunton Lodge, near Biggleswade, in the county of Bedford, and is the property of the Earl Brownlow. It consists of 546 acres of very deep clay soil, of uniform texture, extending downwards at least 4 feet. At the period of the commencement of the accounts it was completely overrun with Twitch and noxious weeds; so much so, that it was necessary to mow the Twitch before it was cultivated, and when cultivated the roots of the weeds, withering on the surface, caused it to present the appearance of a hay field. Before the accounts commence it had all been well and efficiently drained at the cost of the landlord, into whose hands it fell in the spring of 1861, when, although it was extensively advertised and viewed by some 60 or 70 persons, not one responsible tenant would accept it at the rent of 25*s.* per acre. The landlord, being thus compelled to take it into his occupation, purchased a steam cultivating apparatus (which had been worked three seasons before) at a cost of 180*l.*, and a new 10-horse power double cylinder steam engine at a cost of 320*l.* The work was commenced in earnest before Midsummer, and was continued from day to day during the two seasons, according to the following tabular statements sub mitted.

Quantity of Land Cultivated by Steam, commencing 1st June and ending 22d November, 1861.

No.	Quantity.	Times Cultivated.	Total Cultivated	Days Employed.	Amount Paid for Day Labour.
	A. R. P.		A. R. P.		£ s. d.
72	34 2 9	Twice.	69 0 18		
71	20 0 22	Twice.	40 1 4		
68	20 0 13	Thrice.	60 0 39		
74	37 0 38	4 Times.	148 3 32		
80	40 3 5	4 Times.	163 0 20		
85	51 0 23	Twice.	102 1 6		
69	16 3 20	Twice.	33 3 0		
73	36 0 19	Twice.	72 0 38		
87	18 0 30	Twice.	36 1 20		
88	25 0 2	Once.	25 0 2		
	300 0 21		751 1 19	133	100 2 6

Of these 751 acres, 657 acres were cultivated with Mr. Smith's (of Woolston, Bletchley, Bucks,) very efficient three-tined cultivator and apparatus, clearing about 3 feet in width; and 96 acres were cultivated with a seven-tined implement, clearing about 5 feet in width.

We need not give in similar detail its performance during the following season.

The summary of performance for both years is given in the following table:—

Statement of Performance of Steam Cultivator, each year.

	Amount Cultivated.	Days Employed.	Daily Average.
	A. R. P.		A. R. P.
1861	751 1 19	133	5 2 23
1862	773 0 29	127	6 0 14
	1524 2 8	260	5 3 18

Mr. Hutchinson gives the expense of these operations by adding together the actual wages paid to men and boys, the cost of coals and oil consumed, the expense of repairs, and other charges which are to some extent in the nature of estimate. Thus the cost of horses for water carts and for removals is put at 4*s.* per horse per day; the annual waste of rope is put at one-half the cost when new. Interest of money at 5 per cent., and insurance against fire are among the items. The cost of annual repairs and of a regular overhaul and restoration every five years is estimated. And a fund sufficient with the value of the materials when broken up to reproduce the tackle every 25 years is among the items. The annual interest, the repairs, the insurance, and the quinquennial overhaul, with the charge for the reproduction of the engine every 25 years, amount to about 16½ per cent. per annum on the value. The cost of rope, repairs, interest, and reproduction of the cultivating apparatus amount to about 30 per cent. on the value, or 50 per cent. on the rope and 25 per cent. on the rest of the tackle. Of the annual charges on the engine, three-fifths only are charged to steam ploughing, the remainder to threshing, for which purpose of course the engine is also adapted. The annual cost in all was in the past year 289*l.* 0*s.* 3*d.*, or 7*s.* 8*d.* per acre. In the second year it was

* Fire and Water, *versus* Corn and Hay. Simpkin & Marshall.

273*l.* 2*s.* 6*d.*, or 7*s.* 1*d.* per acre. On the whole 1524 acres were grubbed—588 acres once, 578 a second time, 262 a third time, and 96 a fourth time, for 562*l.* 2*s.* 9*d.*, or 7*s.* 4½*d.* per acre.

Mr. Hutchinson then describes the results in the fertility of the farm, and it is here that his testimony is of rare value. It is not uncommon to keep an account of expenses and of work, but it is very uncommon indeed to keep an accurate record of produce. In 1861 the harvest was after horse cultivation, in 1862 it was after steam tillage. He sold 10 bushels per acre of Barley, 30 bushels per acre of Oats, 13 bushels per acre of Beans, and 8½ bushels per acre of Wheat more in 1862 than in1861. He estimates the increased value of produce thus obtained in 1862, at 776*l.* 2*s.* 4*d.* The rent of the farm is 678*l.* per annum, and thus the value of the extra produce of 1862 greatly exceeds the rent.

Mr. Hutchinson then proceeds to estimate how much horse power would have been needed to do what the steam cultivator did. There is so much 4-horse work, so much 3-horse work, so much 2-horse work—in all there are 3050 days of a horse needed. And this number divided by 133, the number of the working days, gives 23 as the number daily represented by steam power. This number of horses is then charged for 175 days, the period during which the steam work was accomplished, and the cost comes out 586*l.* 12*s.* 6*d.* in the one year, and 593*l.* 18*s.* 8*d.* in the other year—the acreage cost in like manner being 15*s.* 7*d.* per acre in the one case, and 15*s.* 4*d.* per acre in the other.

The following then is the grand result on the first year of steam cultivated crops on East Brownlow Farm :—

"Concluding Summary.

Gain by increased produce the first year steam succeeded horse cultivation	£776	2	11
Balance of expense the first year in favour of steam over horse cultivation (the former 289*l.* 0*s.* 3*d.*, the latter 586*l.* 2*s.* 6*d.*)	297	12	3
First year's advantage by the adoption of steam instead of horse cultivation	£1073	15	2

Besides improving the fee simple value of the farm 1500*l.* over and above what could have been accomplished at a greater cost by horse power."

We take two extracts from Mr. Hutchinson's last page.

1st. *As to the Tenant.*—"Depend upon it, the only sure and practical way to meet increasing supplies of foreign corn and low prices, especially on clay soils, is to drain the land effectually, to adopt steam cultivation, to grow more root crops, to breed more sheep and cattle, and to convert stables into stalls for feeding them."

2d. *As to the Landowner.*—"This brings us fairly to the autumn of 1862. We now find the proprietor, who, in the spring of 1861, could not find a responsible tenant for his land, with plenty of candidates for the occupation of this once despised farm. It was then let to a tenant of capital and enterprise, under the most severe competition that we have ever known during the course of considerable experience.

We conclude as we began by declaring that we have nowhere met with a more precise and detailed account of experience on a steam cultivated farm. And we do not understand how it is that such an essay entered for the English Agricultural Society's prize should have been altogether passed by.

Although we have extracted largely from its pages, readers will find much new and useful matter in it, not referred to here, and we hope it will be widely distributed and read.

THE SCIENCE OF AGRICULTURE.

[The following remarks were made by His Grace the Duke of Argyll at the recent meeting of the Highland and Agricultural Society.]

The Chairman said :—It is my duty to ask this assembly to drink to the prosperity and welfare of that important agricultural society in connection with which you are met that day. The value which you place upon the Highland and Agricultural Society of Scotland would very much depend upon the estimate you have formed of the noble industry to which they devoted their labours. I have called it industry, and so it is. It is more than either industry or art. It is in the highest sense of the word a science. By science I mean not simply knowledge, acquired, so to speak, by rule of thumb. I mean systematic knowledge—knowledge reduced to system, and endeavouring to attain this higher object, of rising to the ascertainment of great natural laws. The power which has been given to man of modifying to his own use the animal and vegetable world is one of the greatest wonders, one of the greatest mysteries of the world. To me who am not a practical agriculturist, or acquainted with the details of agriculture, one point of interest attaching to these shows is the extent to which the power of man is exhibited by them over the animal and vegetable kingdoms, in creating almost, as it were, new species for his own benefit or his own use. I do not say that this power is unlimited, but this I will say, that it is a power of which we do not know the limits, because we have never arrived at that, and probably never shall. It is not properly a creative power, yet it produces results that are very closely allied to creation, and are difficult to be separated from it. I do not know whether there are any in this room, but it is probable there may be a number who have read one of the most remarkable works of the present day—I mean Mr. Darwin on "The Origin of Species." As a book written by a purely scientific naturalist, with a purely scientific object, there is no book which I have ever read that contains more fertile principles for the progress of agriculture. If you read that book you will find that this man, on pure speculative science, gives it as his opinion that all the animals which have been created in the world have, in the course of innumerable ages, been introduced upon this scene by means of those principles of natural selection and of intercrossing and breeding by which the farmer has succeeded in establishing those peculiar breeds of cattle of which specimens had been seen at the show. If we go into one of the shows, it seems as if we are in a new creation. When we compare the West Highland with the Shorthorned and with the polled cattle, and with some of those strange varieties that had sometimes appeared from the Continent, it is almost impossible to believe that they are the same animals; but such has been the power of man in selecting particular animals, as adapted to certain climates and certain uses, that every one of these varieties we are now acquainted with, and many others which we saw in London last year, or which we may see in future shows, have been derived from at most one or two wild varieties of cattle. Not many years ago, in the country with which I am connected, there was turned up in a peat moss the head of a magnificent bull, which Professor Owen told me was one of the finest specimens he had ever seen. It was the head of one of the original cattle of the country; and there is reason to believe that it had existed contemporaneously with man. It certainly must have been a very large animal, but I doubt much whether it had been a very fine animal, and I should like to have seen the countenance of any of our judges on being put into a stall with that wild bull. I suspect the bull would have been found to be an unruly customer, coarser in point of bone, and coarser in point of beef, than our present breed; and that the cow would also be very deficient in milk. But by crossing and breeding we have now established such varieties that, both for human food and dairy produce, we have what is virtually a new species. So much is this the case, that I have been very much struck on reading a book, very different from that which I have referred to—a book written by one of the tenant farmers of this district—Mr. Wilson of Edington Mains—which for clearness of arrangement and expression, and for close adherence to great leading principles, was a perfect model of a scientific treatise. I was much struck at finding the language of this practical farmer so closely agreeing with Mr. Darwin that, in referring to one of the most valuable breeds of sheep introduced into this country—the Leicesters—he actually spoke of them as if they had been the offspring of a single pair. He says, "It is now about a century since this breed was produced by the genius and perseverance of Mr. Bakewell." We do not know, therefore, to what extent improvements may go, or what qualities may be developed by the energy and perseverance of present and future Bakewells. And so in regard to the vegetable kingdom. I would not refer to these varieties of corn sown by the practical farmers of the country, because these might be modified by cultivation—though the most of them were, in their origin, of extreme antiquity; so much so, that it was very difficult to discover much difference between the Wheat grown at the time of the Pharaohs and the Wheat grown at the present day. But going to the lowest stage of the vegetable kingdom—namely, the cultivation of Grasses—I may say with perfect truth that this is a branch of agriculture which in a very large degree remained to be developed, and on which great improvement may take place. And here also I find that the language of the practical farmer is in perfect harmony with the language of the scientific naturalist. It is, I believe, a favourite theory of Mr. Darwin—a theory which he believes he has satisfactorily established—that the distribution of plants depends on what he called the battle of life, or in other words that every plant is endeavouring to smother its neighbour, and the slightest advantage given to any one plant in this struggle enables it to overcome its neighbour, and, so to speak, to overspread the country. If this be true, then it must be the object of the scientific farmer to find out what are those plants most valuable to him, and, secondly, to find out what were the circumstances which enable him to give those plants the advantage in the struggle for life, and thus, as it were, to smother the interior Grasses and produce better pasture over the country. That is the theory of Mr. Darwin, and it is in strict and close analogy with the language used by Mr. Wilson, who, in speaking of the cultivation of pasture lands, says that if the rank Grasses are neglected till the herbage gets dry and withered, the finer plants die out, coarser Grasses usurp the ground, and the pasturage is injured for all future years. The practical farmer is thus agreed with the scientific naturalist that the great object in this struggle of plants for life is to give the advantage to those Grasses that have the highest and most nutritious qualities, and that the ignorance and carelessness of the husbandmen may for years destroy valuable pasturages. Agriculture is therefore not merely an industry or an art, but, in the highest sense of the word, a science—and as a science it is to be promoted and cultivated just as other sciences were.

COMPARISON OF THE CLIMATES OF ENGLAND AND SCOTLAND WITH RESPECT TO THE CROPS.

1. *Wheat and Barley.*—As Wheat and Barley require for their successful cultivation a comparatively high summer temperature and a dry climate, it follows from what has been already stated, that these conditions are best fulfilled in those extensive plains which stretch away to the east from the higher mountain ranges running north and south through the island. Hence the best Wheat growing districts are in the centre and east of the country—the Eastern Plain, the Great Central Plain, the Vale of the Severn, the Plain of York, the Merse, Strathmore, and the shores of the Moray Firth; the best adapted in the west, because screened by Ireland, are Ayrshire, the shores of the Solway, and the Cheshire Plain; to which may be added the shores of the Bristol Channel, and many places in the west of Scotland which are not immediately bounded on the south-west by hills, though their capability in this respect has only lately begun to be understood and developed. Considering the large extent of hilly ground to their south-west, and also their southern exposure, the best Wheat districts in England are the Vale of the Severn and the Plain of York, and in Scotland the Merse in Berwickshire. It is worthy of remark, that in dry seasons the crops in the west attain a bulk and a weight which are rarely reached elsewhere.

Barley requires a climate very similar to Wheat, except that its successful cultivation may be carried to higher elevations and into lighter soils. On this account, much of the land in Scotland is well suited for the growth of this grain.

Investigations into the subject of climate become of vital importance to the British farmer, when it is considered that the summer temperature of even the south of England is, on the average, only 4° higher than the minimum summer heat required for the perfect maturing of the Wheat and Barley crops; while generally, Scotland is only 2° above this critical point, and in the extreme north of the island the limit of cultivation is reached. Hence the disastrous effects of such cold summers as 1862 on the Wheat crops of Britain, and the consequent ruin to the farmer which in so many cases has been the result. As the summer temperature does not follow the usual law of the mean annual temperature in falling 1° for every 300 feet of elevation, but is, in many cases, as high as at some hundreds of feet lower down in the plains, it has been found that Wheat may be cultivated in much more elevated situations than was formerly believed possible. Thus, the best quality of Wheat has been produced on the farms of the Marquis of Tweeddale, in East-Lothian, at 750 feet above the sea. It is probable that Wheat may be grown successfully in England upwards of 1000 feet high. But in pursuing Wheat cultivation to such heights, especially in England, the additional risk ought to be well considered. We say, especially in England, for it has been already shown to be a distinguishing feature between the climates of the two countries, that in cold, wet, and cloudy seasons the summer temperature of England is lowered to a greater extent than that of Scotland,—an obvious consequence of the more southern position of England. Consequently it happens in bad seasons, owing to the greater lowering of the temperature, that the damage sustained in the higher districts of England is greater, and the loss more complete, than in Scotland. Thus, while the Scottish farmer has a lower summer temperature to contend with, the element with which he contends is less capricious and more to be relied on.

2. *Oats.*—As Oats suit a poorer soil and a wetter and colder climate than Wheat or Barley, the western and more elevated parts of the island are best adapted for the cultivation of this grain. In the higher and wetter parts of the country, it supplies the place of the finer cereals, and, considering the difference in the climate and soils of the two countries, it is more peculiarly a Scottish grain.

3. *Green Crops.*—The Scottish climate is, on the whole, better suited for the cultivation of the Turnip than England. As this root requires frequent showers in the earlier stages of its growth, and as rain falls in Scotland during July and August three days more frequently than in England, it is obvious that the advantages of the Scottish climate are very decided. On the other hand, since winter falls a month earlier in Scotland than in England, the autumn growth of the Turnip will be longer continued in England. The later autumn rains and the later approach of winter in England seem to point to a later sowing of this root as more suitable to the climate. *Quarterly Report of the Meteorological Society.*

THE PRESENT APPEARANCE OF THE CROPS.

FROM THE REPORTS (AUGUST 10TH) OF OUR OWN CORRESPONDENTS.

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOES.	ROOT CROPS.	HAY.	WHEN WILL HARVEST BE GENERAL.	NAME AND ADDRESS.
SCOTLAND.										
INVERNESS	Small acreage; average	Unpromising	Not promising	Good	Few sown	Considerably damaged by frost	Unpromising	Average; secured	Aug. 25	Alexander Simpson, Beauly
ABERDEEN	Average; little grown	Below average	Straw short	None	None	Partly damaged by frost	Turnips very good	Very light	Sept. 1	Jas. Macdonald, Huntly
....	....	Fair crop	Average	Good	....	Promising	Turnips good	Light, but well got	Sept. 2	James Laing, Peterhead
STIRLING	Average	Average	Under average	Full average	None	Good, but blighted	Early good; late very sickly	Under average	Beginning of Sept.	——, Stirling
	Nearly average	About average	Considerably below average	Full average	....	Good, but partially frosted	Promising	About average	Sept. 1	Alex. Buchanan, Whitehouse Farm, Stirling
FORFAR	Autumn sown good; spring sown indifferent	Average	Average	Good	....	Good, but cut by the frost of the 16th ult.	Good	A light crop; well got	First week of Sept.	Wm. Smith, W. Drems, Brechin
	Over average	Average	Below average	Above average	Above average	Average	Above average	Under average	About usual time	Robert Colvill, East Newton, by Chance Inn
ELGIN	Good	Unequal	Average	Good	....	Unequal	Very good	Average	Aug. 20	John Grigor, Nurseries, Forres
FIFE	Above average	Under average	Below average	Very good	Good	Good where they were not cut down by frost	Appearance of a good crop	Good	About Aug. 24	John Morton, Lambieletham, by St. Andrews
	Ful. average	Under average	Considerably under average	Average	None sown	Average	Rather under average	Average	Aug. 20	John Pitcairn, Kinaird
MID-LOTHIAN	Full average	Average	Scarcely average	Full average	None grown	Under average	Average over all	Good and secured well	Sept. 1	James Hislop, Mid-Calder
	Above average	Above average in light soils; various	Average	Above average	.. .	Damaged by frost; scarcely average	Early good; late healthy	Good and well got	First week in Sept.	Peter Mc Lagan, Pumpherston
HADDINGTON	Above average	Average	Under average	Average	....	Under average	Under average	Under average	Aug. 13	P. Shirreff, Haddington
	Above average	Above average	Under average	Average	....	Rather under average	Under average	Average	Aug. 17	George Hope, Fenton Barns, Drem
LANARK.....	Average	None grown	Under average	Average	None grown	Various	Turnip average	Full average	Beginning of Sept.	J. M. Mackenzie, Wishaw, Lanark
AYR	Nearly average on light lands	Light; little grown	Short; early sown an average	Generally a fair crop	None grown	Small, and a light crop	Turnips and Mangel generally backward	Not heavy	Sept. 1	And. W. Ralston, Lagg
	Winter sown good; spring sown light	....	Early soils very good; on very light or clay lands under average	Under average	....	Good	Progressing	Good	Beginning of Sept.	W. McJannet, Bogside Farm, Irvine
PEEBLES	Full average	Fine crop; patches scorched	Various; scarcely average	Full average	....	Generally excellent	A large portion good	Average in bulk, and finely got	End of Aug.	James Lyle, Innerleithen
PERTH	Autumn full average; spring very inferior	Fair crop	Considerably under average	Average bulk	Average bulk	Low lands much injured by frost	Turnips very backward	Light crop	Aug. 20	David Edie, Elliothead, Bridge of Earn
BERWICKSHIRE..	Good	Under average	Average	Good	....	Average and sound as yet	Have suffered now growing well	Average and well got	Aug. 20	John Wilson, Edington Mains, Chirnside
	....	....	Not so bulky; promise a good crop	....	....	Nipped by the frost	Not average	Light crops	Sept. 10	John Bertram, Cranshaws, by Dunse
	Above average	Average	Average	Average	....	Under average	Average	Average	Aug. 26	George Logan, Humehall, by Stitchell
DUMFRIES.....	....	About average	Average after lea; below after fallow	....	....	Generally look well	Turnips promise well	Rye-grass and part of meadow	First week of Sept.	J. Little, Langholm
WIGTOWN	Good average	....	Fair crop; straw short	....	....	Look well	Very promising	Good crop	About the end of Aug.	A. H. McClean, Auchneel
ENGLAND.										
NORTHUMBERLAND	Winter sown great; spring sown moderate	Good	Fair crop; not bulky	....	Good	Promising	Very promising	Good	Aug. 25	John Grey, Lipwood House, Haydonbridge
	Full average	Full average	Under average	Over average	....	Very various	On Turnip soils good; on clays late and poor	Light	Next week	Thomas P. Dods, Anick Grange, Hexham
	Full average	Average	Scarcely average	Average	....	Suffering from drought	Promising	Light; well got	Aug. 20	George Laing, Cornhill, Coldstream
CUMBERLAND ..	Above average	Above average	Average	....	....	Below average	Various	Above average on good land	First week in Sept.	William Lawson, Brayton, Carlisle
	Average & good	Above average	Above average	None	None	Average; good	Very promising	Average, and well got	End of Aug.	Thomas Wilson, Beauthorn, Ullswater
	Very good	Good	Under average	Average	None grown	Under average	Over average	Good	About Aug. 25	Thos. Gibbons, Burnfoot, Netherby
	Over average	Average	Under average	Good	Good	Average	Fair	Average	End of Aug.	Jos. Rigg, Abbey House
DURHAM	Above average	Good average	Average	....	Average	Under average	Early good; late not	Not average	End of Aug.	George Crofton, Kimblesworth
	Very good	Average	Average	Good	Good	Very good	Generally good	Never better	End of Aug.	Robt. Bland Dixon, Land Agent, Darlington
	Above average	Good	Under average	Good	....	Healthy; light	Average	Very light	Sept. 1	G. Bell, Hallgarth Street
WESTMORELAND.	Generally very good	Average crop	Generally very light	....	....	Generally good but blighted by frost	Very promising	Good crop, well got in	About Aug. 24	William Key, Castertn Hall, Kirkby - Lonsdale
	Over average	Over average	Under average	None	None	Average	Average	Average; well got	Beginning of Sept.	Jonathan Robinson, Warcop, Penrith
YORKSHIRE.....	Very good, being much improved	Light crops, and very irregular	Good crop, very promising	Much improved; but light	Very few grown	Generally well, but some blighted	Looking well except Mangel Wurzel	Light crops, well secured	Third week in August	John Outhwaite, Bainesse, Catterick
	Good	Not average	Average	....	....	Average	Look well	All got in	Aug. 15	Thos. Taylor, Dorrington
	Very good, but rather lodged	Very good, but rather lodged	Very good	Very good; clean	Fair	Good crops	Turnips rather deficient	Deficient crops; well harvested	Second week in August	Henry Briggs, Outwood Hall, near Wakefield
	Of poor quality; 4 bushels over average	Early sown good	Improved; not average	Light crop; not well corned	Average	Light crop	Turnips good Mangels bad	Light crop; well got	Aug. 10	John Clark, Hessle, Hull
	Full average	Average	Average	Rather short in the stalk	Average	Promising	First sown excellent	Light crop; well got	Aug. 18	H. J. Turner, Richmond
	Good	Under average	Light	Fair	None	Fair	Promising	Light	Aug. 12	Peter Stevenson, Rainton, Thirsk
LANCASHIRE . ..	Very good	Good	Good, but short	Good	....	Very good	Turnips good; Mangels poor	Not heavy, but well saved	Aug. 20	Geo. Drury, Holker
	Below average	About average	Above average	Very good	None grown	Very good	Very good; Mangels injured	Well got: not a great crop	About Aug. 20	R. Bell, Mosbro Hall, Rainford
	First-rate	Good	Abundant and fine	Average	Few grown	Average; some exceptions	Turnips good; Mangels various	Light, but well saved	Aug. 12	Geo. Wm. Fowler, Liverpool (21, Brunswick St.)
CHESHIRE	Generally a full crop and good in the ear; some crops are laid	Very full crops on our best land, but much laid	Very heavy crops on the best land; much laid	Good; free from blight; well podded	....	Generally good and free from blights	Swedes very good; Mangels variable in the extreme	Hay well secured, but scarcely average	Aug. 15 or 17	William Palin, Stapleford Hall, Tarvin
	Not very bulky but promising	About an average	Vary very much	Very bulky, but yield doubtful	None grown	At present very promising	Mangels poor Swedes very good	Light crop; well got	About Aug. 12	William B. Burnham, Spital, Sutton
DERBYSHIRE	....	....	Average	....	....	Excellent	Average	Average; well got	End of Aug.	Benjamin Swaffield, Hartington
	Average	....	Above average	Above average	Average	Good and healthy	Looking well	Light; well got	Aug. 18	John Parkin, Idridgehay Wirksworth

THE PRESENT APPEARANCE OF THE CROPS—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOES.	ROOT CROPS.	HAY.	WHEN WILL HARVEST BE GENERAL.	NAME AND ADDRESS.
ENGLAND.										
NOTTS	One-fifth over average	Full average	Average	Good average	Good	Healthy, but light	Swedes promising; Mangels a bad plant	Two-thirds of a crop; good	Aug. 12.	C. Paget, M.P., Ruddington Grange
	Average	Average	Under average	Under average	Average	Partially diseased	Average	About half a crop; well got	August 10	C. Walton, C lifton, Newark
	Above average	Above average	Average	Spring under average; winter good	Above an average	Under average	Various	Much under average	Aug. 10	John Buckley, Normanton Hill
	Average	Above average	Under average	....	Under average	Very small and light	Average	Under average	Aug. 15	Henry J. Wilson, Newlands, Mansfield
LINCOLNSHIRE	Average	Average	Average	Winter good; Spring inferior	None	Good; partly diseased	Good	Half a crop; well got	Aug. 8	E. Darby, Aswarby, Folkingham
	Above average	Average	Light	Very few grown here	Very few grown here	Average	Good	Light	Aug. 10	FrancisSowerby, Aylesby
	Full average, excepting on light peaty soils	None	Fair crop of corn, short in straw	Few grown; barely an average	Good	Promising	Mangels late, but growing well; Rape very late and poor	Small crop; good quality	Aug. 10	Thomas Aitken, Decoy Farm, Spalding
	Good	Average	Fair crop.	Not average	Good	Good	Turnips light soil, look well	Well got, light	Aug. 8	T. B. Dring, Claxby, Spilsby
	Good]	Average	Light	Under average	Very good	Good	Promising	Light	Aug. 12	Croft Sharpley, Acthorpe, near Louth
	Over average, quality good	Full average	Full average	Average	Average	Look well, and free from disease	Variable	Short crop, well secured	About Aug. 10	W. Fancourt, Aslackby, Folkingham
	Likely to prove good	Good	Very good	Badly corned	Good crop, well podded	The best crop known for many years	All good, and progressing satisfactorily	Average crop well got	Aug. 13	J. Clarke, Long Sutton
	Average, and looking very healthy	Early sown an average; late sown thin	Not quite an average	An average	Nearly an average	Looking healthy	Very good	Very light crop, well got	Aug. 10	W. Dudding, Panton House, Wragby
	Early sown, good; the late not so good	Early sown a full crop; except on clay	A good average crop	Winter Beans part injured by frost	Fine in quality	Promising, and looks healthy	Turnips a full crop	Very light crop	Middle of Aug.	J. G. Dixon, Caistor
	Very good, much laid	Early sown very good; late, short and thin	Good average	Generally good	Generally good	No disease, but small	Early sown very good; late suffering	Short crop	Aug. 12	John Lynn, Church Farm, Stroxton, Grantham.
SALOP	Good	Very good	Very good	Good	Good	Good	Very good	Light	About the 17th	E. Davis, Patton, Wenlock
	20 per cent. above average	Full average	....	....	Good	Healthy	Mangels bad; Swedes small	Very light	Aug. 10	J. W. Bowen, Strawardine Castle
	Full average	Much improved	Full average crop	Very much blighted	Very good	Very good	Moderately good	Rather light; got well	Middle Aug.	Richard Shirley, Bawcott Munslow, C. Stratton
LEICESTER	Rather thin, but quality unusually good	Very good, except where it came at two growths	Average; quality good	Very healthy, quite average	Good	Free from disease	Much improved; good crops generally	Splendid condition, much under average	About Aug. 10	Joshua Spencer, Knossington
NORFOLK	Good; over average	Good	Good	In different	Good	Good, but a little diseased	Pretty good; want rain	Various	Aug. 10	William Cubitt, Bacton Abbey
	Fair average	Average	Average	A little under average	....	Pretty good, a few diseased	Mangels good; Swedes good	Light crop; well secured	Aug. 6	Thos. Brown, Denver, Downham
	Good straw; ears well filled; of good quality	Bulky; rather coarse, but heavy	Full average; fine quality	Barely average; affected by the drought	About average; pulse small	Good in quality; yield diminished	Affected by the drought	Short crop, but well secured	Aug. 7	W. H. Taylor, Wymondham
	Very good	Very good	Good	....	Good	Good	Good; wanting rain	....	Aug. 10	—, Rougham
	Good crop	Good	Good	....	Good	....	Want rain	Light crop	Much finished	John Hudson, Castle Acre Lodge, viâ Brandon
SUFFOLK	Good	Good	Moderate	The worst crop of the year	Fair	Promising, but partially diseased	Mangels partial; late-sown Turnips a failure	Short crop, but excellent	Aug. 7	Henry Edwards, Woodbridge
	Above average	Above average	Above average	Under average	Average	Average; but little diseased	Good average	Light, but got well	About Aug 6	L. O. Cottingham, Rookery Cottage, Yoxford
	Generally good	Decidedly above an average	Few grown	Two-thirds of a crop	Very good	Occasional patches diseased	Early Mangels never better; late middling; Swedes partial	Two-thirds of a crop; quality good	Aug. 3	—, Wickham Market
	Over average crop on both heavy and light soils: quality good	Over an average crop; quality various	Some Canadians good, and very heavy	Winter a good crop; Spring Beans light	Half a crop	Not much diseased; crop short	Good where put in early; "afternoon farmers" cut a sorry figure	Short crop; quality good	Aug. 6	John Hathaway, Farm Bailiff for Rd. Garnett, Carlton Hall, Saxmundham
	Above average	Above average	None grown	Average, fully	Few grown	None grown as field crops	Mangels growing well, but backward	Rather light; well secured	Aug. 11	George Edwards, Framlingham
	Good; above average	Very good; above average	Good	Good	Very good; above average	Not a large crop, but sound	Mangel promise well	Light crop; well secured	Aug. 6	Thomas Crisp, Butley Abbey
CAMBRIDGESHIRE	Good, but more blight and mildew than expected	A good crop; but not much grown	Light on dry soils; average on cool lands	Average straw; but not well podded	Average	Very various; cut by frost	Mangels on cool lands a fair crop	A light crop where early sown	Aug. 8	Alfred S. Ruston, Aylesby House, Chatteris
	On weak soils partially blighted and uneven; elsewhere very good	On gravelly soils, short and uneven; elsewhere good and ripening well	Barely an average appearance; but the quality promises to be very fine	Partially blighted; and generally under an average	Partially blighted; generally above an average	Generally under an average; the early varieties barely half crop	Mangel Wurzel planted badly, and weak growth; Turnips fair	Light upon the high lands; but a fair average upon meadows	Aug. 3	Simon A. Daintree, Fendrayton, St. Ives
	Good	Good on heavy land; on white land much bad	A fair crop; late sown very inferior	Winter good; spring not so promising	A tolerable crop	Good	Late and light	Light crop	Second week in Aug.	—, West Wickham
HUNTINGDON	Above average	Full average	Average	Under average	Above average	Short crop	Generally unpromising	One-third of a crop	Aug. 3	Peter Purves, Brampton
	Good; above an average	Fair; hardly an average	Good	Inferior; not an average	Good	A light crop	Various; but light	A very light crop	About Aug. 1	—, St. Ives (not on the fen)
	Above average	A fair crop	A fair crop	A fair crop	Above an average	Very various	Fair plant; bulbs small	Short; well secured	Aug. 5	Robert Beart, Godmanchester, Huntingdon
NORTHAMPTON	Full average	Barley average	Under average	Bad	Full average	Very good	Very bad	Very light	Aug. 10	S. B. Smeeton, Cromwell House, Naseby
	Very good, and fine quality	Very good, except the late sown	An average; fine quality	Fair; but thinly podded	Good; well got	Cut by frost	Very poor	Very light; well got	Aug. 6	Peter Love, Northampton
	Very good; crop considerably over average	Very good; much over an average	Average quantity; of fine quality	Nearly an average crop	Good average crop	Free from disease, but cut by the frost	A good plant, but very late	Very small in quantity, but excellent	Aug. 7	Owen Wallis, Overstone Grange
WARWICK	Very good	Early sown good; late deficient	Over average	Not well podded	Fair	Middling	Swedes promising; Mangels bad	One-third under in quantity; quality firstrate	Aug. 10	T. Bowick, Stoneleigh, Kenilworth
	Average	Average	Average	Average	Good	Healthy	Various	Three-quarters of an average	Aug. 10	J. W. Burbery, The Chase, Kenilworth
	Very full average crop	Early, a full crop, and of fine quality; late, not promising	....	Average of straw, but badly podded	A good crop	Not a great yield but of good quality	Mangels a thin plant, and grown slowly; early Swedes good	Half a crop; of good quality	From Aug. 7 to Aug. 10	J. C. Adkins, Milcote, Stratford-on-Avon
WORCESTER	Very good	Good	Good	Below average	Average	Fair	Mangels late; Turnips good	Small crop; well harvested	Aug. 8	J. R. Randell, Chadbury, near Evesham
	Good	Good	None	Under average	Average	Under average	Under average	Very light	Aug. 9	B. Bomford, Pitchill, Evesham
	Above average	Above average	Average	Slightly below average	Indifferent	Free from blight and promising	Variable	Half a crop	Aug. 6	H. Hudson, The Elms, near Pershore
MONMOUTH	Very good; lodged	Very good; lodged	Very good; lodged	....	....	Good	Looks well	Light; well got	Aug. 10	W. H. Little, Llanvair Grange, Abergavenny
	Above average crop	Early sown full average; late sown thin	20 per cent. above an average	None grown	None grown	Promise abundance; blight shown in instances	Mangels bad Swedes promising; common Turnips grow rapidly	25 per cent. below an average	Aug. 10	—, Duffryn, Castletown, near Cardiff.

THE PRESENT APPEARANCE OF THE CROPS—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOES.	ROOT CROPS.	HAY.	WHEN WILL HARVEST BE GENERAL.	NAME AND ADDRESS.
ENGLAND.										
HEREFORD	Over average	Good	Good	....	....	Good	Very promising	Light	Middle of Aug.	Henry Pride, The Cwm, near Monmouth
	Good average	Thin; under average	Average	Average	Average	Good	Very late	Very light; well ended	Aug. 3.	John Mathews, Blakemore
	Thin but very healthy; good average	Above an average	Average	Below an average	Above average	The best crop for some years	The early planted good; want rain	Light crop, well ended	Aug. 5	T. Duckham, Baysham Court, Ross
	Full average	Average	Average	Winter average	Good	Very good	Swedes good	Under average	Aug. 8	P. Norman Edwards, Brinsop Court
GLOUCESTER	Very good with few exceptions, and a little red gum.	Patchy, but much improved	Very good; average	Various	Good when sown early	Rather light crops	Good plant but not much growth	Light crops generally	Aug. 10	Henry Cox, Longfords, Minchinhampton
	About average	Early average; late inferior	Average crop	Much under average	Full average	Full crop	Swedes fair; Mangels a failure	Half a crop and pastures bare	Aug. 10	W. Woodward, Ashchurch
	Fully an average	Late bad; early average	Above average	....	Good	....	Swedes though late are promising	Short in quantity	Aug. 10	J. M. Read, Elkstone, Cheltenham
	Very good	Early sown very good; late sown indifferent	Early sown a heavy crop; late sown light	Heavy crops, but light in corn	Good crop	Good tubers; small	Good plant, rather stunted	Rather under average	Aug. 10 to Aug. 14	John Cobban, Whitfield, Berkeley
	Above the average	Early sown good; rest bad	Generally good	Abundance of straw, lightly podded	Remarkably good, above average	Indifferent	Mangels irregular; Swedes good	Universally a light crop, below average	Aug. 8	John Lynch Fletcher, Royal Agricultural College, Cirencester
	Very good	Chiefly good; but some light	Very good	Variable	Tolerably good	Fair crop; healthy	A regular plant, but slow growth	A fair crop, well made	About Aug. 10	Stiles Rich, Didmarton
	Above an average	Early, very good; lite, light	Average	Barely average	Uneven, average crop	Under average	Even plant, attacked with grub	Light crops	Aug. 4	Giles Edmonds, Eastleach, Lechlade
	Excellent	Average	Good	Variable	Average	Abundant, but small	Promising	Short crop, but good	Aug. 10	John F. Peacey, Winchcombe
	Average	Good, except late sown.	Above an average	Under an average	Very good	Fair crop	Inferior	Light; well harvested	Now general	R. F. & J. Witcombe, Picton Court
OXFORD	Very good, above an average	Late planted patchy	Average	Good	Under average	Good	Mangels bad, Swedes and Turnips full plant	Light crops, well secured	Aug. 10	Matthew Savidge, Churchill Mount Farm, Chipping Norton
	Very good	Fair, late planted bad	Good	Fair	Good	Good	Bad	Good quality, but under average	July 30	Samuel Druce, Eynsham
BUCKS.....	Good	Good	Good	Below average	....	Good	Late	Light	Aug. 6	Alex. Fraser, Clayden
	Very good	Very grod	Very good	Good	Middling	Good; little diseased	Not generally good	Light	Now	E. Evans, Boveney Court, Windsor
	Over average	Full average	Average	Average	Average	Good	Want rain; not average	Half average	Aug. 10	W. Smith, Woolston
	Very good	Good	Good	One-third below a crop	Good	Good	Early sown very good; on stronger land, very bad	Prime quality, but deficient in quantity	Aug. 6	W. G. Duncan, Bradwell
BEDS.....	Above average	Average	Average	Under average	Under average	Good	Plenty of plant, but stunted	About half a crop	Aug. 4	James Ross, The Hoo Park Farm, Luton
	Above average	Average	Above average	Under average	Under average	Good	Bad	A light crop	At the present time	William Lavender, Biddenham
	Quite an average	Good, where put in early	The same may be said of Oats as Barley	Not average, but better than expected	Very short; well corned	Small	Mangels bad; Turnips very late	Well got, but little of it	Aug. 3	W. Pike, Stevington
HERTS...	Full average crop	Extremely various	Average	Average	Fair crop	Various	Deficient and late	Light crop	Aug. 3	——, near St. Alban's
	Considerably over average	Variable; under average	About average	Generally a good crop	About an average	Free from disease	Very indifferent	Very light crop; well got	About the 3d inst.	Geo. Webb, Beaumont Hall, St. Alban's
	Above average	Below average	Average	Below average	Below average	Good	Backward; affected by drought	Below average; well secured	Aug. 3	John Bennet Lawes, Rothamsted, St. Albans
BERKS.....	Above average	Full average	Good, except late sown	Bulky as to straw	Average	Very good	Very promising	Good	Aug. 12	E. W. Moore, Coleshill
	Good	Much in want of rain	Good	Under average	Comparative failure	Good	Average	Late cut average	Aug. 6	——, Wantage
	Above average	Average	Above average	Under average	Average	Good	Good plant; wants rain	Good, but short	Aug. 3	J. Adnams, Thatcham
	Above average	Early sown good, late sown indifferent	Early sown good, late sown indifferent	Various	Indifferent	Good	Require more rain	Early, damaged; late, too old to be good	July 30	J. B. Spearing, Moulsford
	Good	Early sown good; late sown middling	Good	Very few grown	Very good	Good, but small	Indifferent	Middling crop, but well secured	Aug. 1	Richard Burniston, Henley-on-Thames
	Generally good as to quantity and quality	Variable; some much beaten down; a fair average	Not so much straw, but promises good yield	Not so well set as promised	Average	Promises well, but shows want of rain	Not at all promising	The early cutting much damaged, but the greatest part got up well	First week in Aug.	Thos. Owen, Clapton, Hungerford
	Very good	Good	Average	Average	Good	Good	Swedes promising; Mangel average	Light; good quality	First week in Aug.	James Brebner, Norfolk Farm, Windsor Gt. Park
	One-fifth over average	Average; quality not quite good	Average, excepting late sown	Under average	An average	Over average	Badly wanting rain	Average crop; well made	Aug. 7	Stephen M. Plummer, Peasemore, Newbury
	Good	Fair	Good	Average	Good	Good	Average	Short	Aug. 12	James Williams, North court, Abingdon
MIDDLESEX.....	Above average	Above average	Above average	Above average	Above average	Good	Good	Under average	Aug. 5	Mr. C. Webster, Uxbridge Common
	Over average	Early sown very fine	Average	Under	....	Good	Wurzel promising; Swedes not so	Light crop	Aug. 3	Thomas Hewett, Cranford, near Hounslow
SURREY	Very good; over average	Over average	Over average	Very indifferent	Under average	Good, but partially diseased	Mangels and Swedes are good plants but late	Clover and Meadow very short	Aug. 3	William Willis, West Moulsey
	Full average	Early sown good; late sown various	Generally light	None grown	None grown	Good	Mangels good; Turnips backward	Light	Aug. 3	James Arnot, Woodcote, Carshalton
ESSEX	Good	Average crop	Tolerably good	Average	Scarcely average	Better than of late	Planted well, but wanting moisture	Short	Aug. 4	A. Barfield, Dunmow
	Wonderfully good	Very fine and abundant, but ripening too fast	Very good	Various	Various.	In general very good	Very good	....	Aug. 7	George Wilkins, Wix, Manningtree
	A very abundant crop; a considerable part above average; all good	Very promising; an average crop	A full crop, except where late	Defective; winter-sown best	Good and full average	Partially diseased in gardens; in field cultivation a fair crop	Mangels partially good; Swedes good plant	Got up well; a moderate crop	Aug. 3	Henry Dixon, Dorwards Hall, Witham
	Much over average; extraordinarily heavy	Much over average, and good for malting	Over average	Partially good; Winter Beans good	Above average	Under average: partially diseased	Very good	Very good, but small	July 27	Abraham Hardy, Maldon
	Very good	Good	Good	Middling	Good	Good	Good, but backward	Short, but good quality	Aug. 3	Collinson Hall, Princes Gate, Romford
	A full average	Good, except the late sown	An average	Winter good; Spring deficient	Good	No appearance of disease	Mangels very deficient; Swedes not growing well	Clover very short; Grass moderate	Aug. 1	——, Chelmsford
	Very good	Good upon heavy land	Good where well farmed	Good	Good	....	Turnips good; Mangel not good	Very short crop	First week in Aug.	E. Roberts, Jun., Berden Hall, B. Stortford
	Above average	Full average	Average	Full average	Full average	Full average; good quality	Fair	Short crop	July 29	Blyth & Squier, Stanford-le-Hope, Romford
	Above average	Above average	Over average	Average	Average	Good	Various	Various	Aug. 10	J. J. Mechi, Tiptree

THE PRESENT APPEARANCE OF THE CROPS—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOES.	ROOT CROPS.	HAY.	WHEN WILL HARVEST BE GENERAL.	NAME AND ADDRESS.
ENGLAND.										
KENT	Over average; of good quality	Average: of various qualities	Good crop of heavy corn	Not half our usual crop	Nearly an average	A large quantity planted; tubers are small but sound	Plant well, but in want of rain	Small crop, well secured	Aug. 6; harvest about half over	Wm. Manser, Dumpton
	Over average	A good average	Generally good	Beans generally indifferent	In most instances very good	No disease, but short crop	Mangels looking well; Turnips suffering	....	About Aug. 7	M. Sandford, Martins, near Dover
	Good	Not much grown; average	Good	Below average	Very good	Good.	Well got in; but requires rain	Short crop	Aug. 3	P. S. Punnett, Chart Sutton, Staplehurst*
	A great crop, and of excellent quality	A very great breadth; of various quality	A great crop	Very good; short breadth	A great crop	An unusually large breadth; good crop	Mangels good; Swedes suffering	A short crop	Aug. 1	Robert Matson, Wingham
SUSSEX	Average; blight mildew	Early good; late bad	Below average	Below average	Average	Good	Not good; too dry	Early hay spoilt; later hay excellent	Aug. 8	James Eames, Linch, Midhurst
	Over average	Good	Early sown good; Late sown suffered	....	Very good	Very promising	Generally good plant	Light crop; the early mown damaged	Aug. 1	H. E. Sadler, Chichester
	Over average	Over average	Average	Average	Over average	Very good	Backward	One-third under average; good	Aug. 3	H. Scott Hayward, Folkington
EAST SUSSEX	Over average; somewhat blighted along the sea coast	Average	Above average	Very good indeed	Very good indeed	Good	Under average	An average crop; seed hay injured	Aug. 1	Frederick F. Hallett, Brighton
WEST SUSSEX	Over average	Average	Under average	Very good	Very good indeed	....	....	Meadow well got		
	Over average	Under average	Average	Below average	Average	Require rain	Very backward	Below the average	Aug. 10	John Brotherston, Rose Hill, Hurst Green
HANTS	Over average	Average	Average	Indifferent	Average	Good	Weak; backward	Average	Aug. 1.	J. T. Twynam, Winchester
	One-fifth over average	Over average	Over average	Average	Over average	Good	Promising	Light and damaged	Aug. 3	J. Blundell, Bursledon, Southampton
	Above average	Good	Good	Deficient	Good	Good	Suffering from dry weather	Early crops damaged	Aug. 10	Hugh Raynbird, Surveyor, &c., Basingstoke
DORSET	Good	Good	Good	Good	Good	Good	Good	Good	After Aug. 10	J. Furmedge, Langdon Manor, Beaminster
	Over average	Over average	Over average	....	Average	Good	Good	Excellent	Aug. 7	W. J. Voss, West Bucknowle, Corfe Castle
	Very promising	Heavy	Good	Good	Good	A good crop and sound	Fair	Very good	Aug. 8	W. T. Pope, Bridport
SOMERSET	Over average	Over average	Good; late sown, rather thin	Good	Good	Good	Good	Good; but scanty	Middle of Aug.	C. P. Collyns, Dulverton
WILTS	Very excellent	Moderately good	Very excellent	Very good	Very good	Not ascertained	Not so good as usual	Short but good	Aug. 10	T. Pearce Brown, Burdcrop, Swindon
	Good	Inferior in quality; very much laid	Middling	Very good	Very good	Most splendid	Middling and backward	Field hay spoiled; pasture and meadow good	Aug. 10	William Barnett, Broad Chalk, Salisbury
	Above average	Early good; late very bad	Average	Under average	Average	Average	Bad; wanting rain	Under average; splendid quality	Aug. 6	Edm. Ruck, Castle Hill, near Cricklade
	Very good	Good	Average	Not a full crop	Good	Good	Not good; wanting rain	Very good and well secured	About 17th	Geo. Brown, Avebury
	Never known to be better	Good	Good	Partially good	Good	Good	Bad	A light crop; well harvested	The end of next week	Rich. Pocock, Mildenhall, Marlborough
	Over average	Average	Fair	Good; moderately corned	Good	Various	Injured by the grub	Moderate; well made	Aug. 3	Thos. Arkell, Swindon
	Considerably above the average	Above the average	Full average	Nearly average	Good average	Very promising	Late and uncertain	Good quality, and average	Aug. 8	Josh. Stratton, Manningford Bruce, Pewsey
	A full average	Above an average	Average	....	Good	Very good	Good	Sainfoin good crop; Clover variable	Aug. 9	T. Chandler, Aldbourne
DEVON	Above average	Average	Average	....	....	Very good	Very good, except Mangel	Well saved	Aug. 12	John Benson, Tavistock
	The finest crop we have had for many years	Full crop; and colouring well	Under an average crop	....	....	Good in crop and quality; disease on the increase	Mangels average; Swedes good	Good crop, and in general well saved	About Aug. 10	R. W. Clark, Plymouth
	Good; above average	Early good; late inferior	Fair average	....	....	Diseased	Irregular, blanky, backward, and unpromising	Average crop, quality good	Aug. 10	P. Cowan, Tawstock Manor, Barnstaple
	Full in the ear; an average crop	Barely an average	Under average	....	Good crop	Good crop; but the disease appearing	Promising well	Short crop, well saved	Aug. 6	George Turner, Beacon Downes, Exeter
	Good average	Good average	Under average	None	None	Good; no disease	Promising	Well saved	Next week	George Langdon, Ashford, Barnstaple
	Above average	Above an average	Above an average	None	None	Very good; slightly diseased	Very good	Good crop	Middle of Aug.	S. Cornish, Stancombe, near Kingsbridge
	Above average	Above average	Above average	....	....	Good	Good	Good	Aug. 12	——, Totnes
CORNWALL	Beyond average	Very good; heavy crop	Very good	None	None	Good; slightly diseased	Very good indeed	Quantity small; quality excellent	August 10	J. Wills, Southpetherwyn, Launceston
	Over average	Average	Full average	....	....	Diseased	Good	Good	Aug. 10	J. Michell, Tregoose, Truro
	Very good	Good	Good	....	....	Good; much diseased	Good	Average; well saved	Aug. 10	T. Davey Simmons, Killiganoon
WALES.										
CARMARTHEN	About average	Very good	Fair	None	None	Looking well	Not good	Very good; crops light	About the middle or third week in Aug.	J. Burnell, Ponyfan, Llanelly
CARNARVON	Promising	Promising	Promising	Promising	Promising	Promising	Promising	Light	Aug. 24	J. Williams, Bodafon
IRELAND.										
DERRY	Very good	Very good	Very good	Very good	....	Very good	Good: in want of rain	Very good	Middle of Sept.	——, Garvagh
	Average	Average	Under average	None	None	Not good	Various	Good	Sept. 20	C. Pollock, Farmhill, Magherafelt, Londonderry
ANTRIM	Good	....	Average	Average	Good	Average	Good	Good	Sept. 1	J. Burniston, Randalstown
DOWN	Good	Bad and scarce	Short of last year	Good	Good	Good	Good Turnips	Good and abundant	Sept. 1	Wm. M'Cleery, Portaferry, Down
	Very good	Good	Fair average	Very good	Little grown here	Very good though disease exists	Very promising	Very light	Aug. 24	John Andrews, Comber
ARMAGH	Good	Good	Good	....	....	Good	Good	Good	1st week in Sept.	Wm. Boyd, Armagh
	Very good	None	Good	Good; very little sown	None	Excellent	Very good	Good	Sept. 1	Robert B. Hardy, Cooley Hill, Tandragee
TIPPERARY	Very fine	....	Particularly fine	....	....	No appearance of blight	Mangels and early sown Turnips are progressing	Early meadows are light	About Aug. 20	William Ryall, Cashel
	....	....	Very good	....	....	Very good	Very good	Light	Aug. 20	R. D. Bolton Massy, Ballywire
FERMANAGH	....	....	Very good	....	....	Very good	Very good	Most excellent	Sept. 1	A. Mair, Brookeboro'
LEITRIM	...	....	Good	....	....	Good	Good	Meadows good	Sept. 10	James Lindsay, Bally Glass, Manor Hamilton
CAVAN	Very good	....	Short average	....	.....	Remarkably fine	A bad appearance	A deficient crop	Beginning of September	J. Albert Nesbitt, Belturbet
	....	....	Short straw; grain abundant	....	....	Excellent	....	Good; well saved	2d week in September	Thomas Chambers, Bailyborough
	Very good	Good	Good	None	None	Very good	Fair	Excellent	Aug. 20	Annesley L. De Renzy, Clonegal
LOUTH	Very good	Very good	Very good	....	....	Excellent	Turnips an average	Very good	Sept. 1	William McCulloch, Mullaharlin

THE PRESENT APPEARANCE OF THE CROPS—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOES.	ROOT CROPS.	HAY.	WHEN WILL HARVEST BE GENERAL.	NAME AND ADDRESS.
IRELAND.										
LONGFORD	....	....	About average	....	....	Average	Good	Light	End of Sept.	J. M. Goodriff, Granard
WESTMEATH	Good	Good	Average	....	....	Good	Average	Light	Sept. 1	Walter Newburne, Gay brook, Mullingar
GALWAY	....	....	Good	....	....	Promising	Looking well	Light	Middle of Sept.	Gordon Lamb, Rosshill, Clonbur
ROSCOMMON	Average	Average	Under average	....	....	Light in upland	Light	Light	Sept. 20	John Kelly, C.E., Brook Lodge
CLARE	Full average	Full average	Over average	Over average	None	Sound and good	Various	Full average	Aug. 24	Edward Bennett, Newmarket-on-Fergus
	Good	Good	Very good	....	....	Fine	Good	Good	Aug. 20.	W. Digan, Killaloe
CARLOW	Good	Good	Good	....	....	Very well	Well	About half a crop	Aug 15 to Aug. 20	Thomas G. Mosse, Rutland House
	Good	Good	Light crop	...	....	Good in general	Average crop	Upland light, but good	Aug. 20	J. W. P. P., Clonegal
KILKENNY	Average	Under average	Good	....	....	Very good	Average	Under average	Aug. 15	Patrick Grace, Freshford
	Good	Good	Good	....	....	Average	Very good	Average	Aug. 15	D. A. Milward, Tullaghan
KERRY	Good	Good	Very good	None	None	Best since 1846	Good	Light, but well saved	Sept. 8	John O'Sullivan, P. P. and V. G., Kenmare
	Good	Middling	Good	....	....	Very good	Good	Light	Aug. 20 to Sept. 1	John Creagh, Tarbert
CORK	Above average	None grown	Below average	....	....	Good; average	Good; average	Below average	Middle Aug.	James Byrne, Wallstown Castle, Shanballymore
	Good	Good	Good	....	....	Good	Good	Good, but light	Aug. 20	Sam. Piddell, Kilderry
	Very good	Good	Very good	None	None	Very good	Turnips good	A very short crop	Aug. 20	D. Clanchy, Charleville
WEXFORD	....	Very good	Good	Good	Fair crop	Scarce; good; no blight	Very good	Very light	End of Aug.	G. Glascott, J.P., Ferns

* Hops have been suffering from aphis and mould, but improve daily; and there is a prospect of a crop above the average on the hilly part of Mid-Kent.

PROPOSALS TO UTILIZE METROPOLITAN SEWAGE.

(1) Dr. Thudichum, M.D., proposes, by a mechanical arrangement, so to separate the house drainage as to retain that which he considers most valuable, and gives a sketch of his closet and drains, and tables of analysis of the constituents of fluid sewage. He estimated the cost of the works for carrying out his process at 1,500,000*l.*, and the net profit at 1,000,000*l.* per annum; of this he proposes that he should receive a percentage, and that one-half of the balance should be paid to the Board, and one-half to the shareholders of a company formed for carrying out the system.

(2) Lord Torrington, Sir C. Fox, and Mr. Thornton Hunt regret their inability to comply with the conditions of the advertisement, on the ground of the impolicy of publicly declaring the land with which they propose to deal, but express their willingness to discuss the matter with the Main Drainage Committee, and to enter into a provisional arrangement for prosecuting a Bill in Parliament during the ensuing Session.

(3) The proposals of the London Sewage Utilization Company had been previously reported on by the Main Drainage Committee, January 17, 1860. These were that the Board should grant the company as much sewage as they might require at Barking Creek for two years, at a rent of 5*l.*; that, should the experiment be successful, the Board should at the end of those two years grant a further term of 21 years at the same rent, and, at the end of such term, that the company should pay such rent for such further term as may be agreed between the parties, or as may be determined by the arbitration of the President of the Institute of Civil Engineers or by the Board of Trade.

(4) The proposals of Mr. Moore were that the Board should grant the sewage for a term of 90 years, of which the first 14 should be at a peppercorn, and at the expiration of that term one-half the profits, after deducting 10 per cent. interest on the capital invested, or on such reasonable return as the Secretary of State may award, to be paid by the grantees to the Board. In a further communication on the 9th of July, 1863, Mr. Moore offers to pay one farthing per ton for every ton of sewage raised by the Board to a height of 200 feet, which, at 80 million gallons daily, would, he estimates, amount to 136,000*l.* per annum. Mr. Moore states that he has already engagements with the occupiers of nearly 60,000 acres for the use of the sewage.

(5) Mr. Shepherd, in answer to the Board's advertisement, adheres to the proposals made in his former letters, and states that he shall shortly be in a position to lay before the Board plans for applying the whole of the sewage; that on obtaining a concession he will apply to Parliament for the necessary powers, and asks for a concession of that of the south side first. Mr. Shepherd's letters extend from January, 1860, to the present date, only two communications are of the nature of tenders. The first, dated the 21st April, 1860, asks for a concession of the whole of the sewage of London for 50 years, and offers to divide with the Board the net profits received by the company, after paying 72 per cent. on the invested capital; after 50 years the company are to deduct 5 per cent. interest on their capital. The second, dated 4th July, 1860, refers to the former tender, but requests that the concession shall be full and free, without let or hindrance, on the part of the Board.

(6) Mr. Kirkman is a patentee for obtaining manure from sewage by filtration and deposit—the water after such treatment to be discharged into the river. He purposes to erect works for the purpose at Barking, on condition that the Board shall convey to him the necessary land adjoining the reservoir, shall deliver the sewage to him from the main outfall sewer into his works, shall grant him the use of the river frontage and wharves for the term of seven years at a peppercorn, seven years at a rent of one-fifth the net profits, after deducting a dividend of 20 per cent. on the capital expended, and for a further term of seven years at a rent of one-fifth the net profits, after deducting 5*l.* per cent. on the capital, and for any further term at such rate as shall be settled by the Secretary of State. Mr. Kirkman states that he is prepared to guarantee a *minimum* rent of 10,000*l.* per annum, and he undertakes to name two or more securities for the performance of his contract. He consents also to surrender the works on two years' notice, subject to the repayment of the capital invested, and of a premium of 25*l.* per cent. thereon, and to a royalty of 1*l.* per cent. for the use of his patent.

(7) Mr. Ellis proposes to pump the sewage from the Board's reservoir to certain covered tanks, constructed at such points as the Board may approve, to flow by gravitation through pipes laid along the sides of the roads adjoining the area to be irrigated, which is also to be approved by the Board. Mr. Ellis, on behalf of the Company to be formed, undertakes to provide and use all necessary deodorising agents, and to subject himself in all things to the directions of the Board. He further offers to submit the Act of Incorporation for the Board's approval. The net profits, deducting working and management expenses and reserve fund, he proposes to divide equally between the company and the Board, and he suggests that three of the directors should be nominated by the Board. The concession of the sewage he requires should be in perpetuity, subject to the Board's power to purchase after 50 years, on giving three years' notice, the price to be fixed by valuers chosen jointly. Messrs. Payne, Eddison, and Ford undertake to pay 60,000*l.* to the credit of Mr. Ellis's local trustees, on his obtaining the concession of the sewage on satisfactory terms.

(8) Messrs. Napier and Hope propose to intercept the whole of the ordinary flow of the northern sewage, near Abbey Mills, to convey it by a culvert 44 miles in length to Maplin Sands on the one hand, and Dengie Flats on the other. Both these areas are at present submerged at high water, and their redemption is part of the project, extending to 15,000 or 20,000 acres. The capital proposed to be invested is 2,000,000*l.*, the concession of the sewage to be for 50 years, subject to Parliament authority being obtained and to a grant of the land from the Crown. The net profits to be divided equally between the company and the Board, after a deduction of 10 per cent. on the outlay. The Board to have the power of resuming the grant of sewage and taking the whole of the land and works at a valuation at the end of the term of 50 years, on giving seven years' notice, or a new concession to be granted, on terms settled by the Secretary of State. The Board to be represented by two directors of the company. The company to be formed within two years after obtaining Parliamentary powers. The company within three months of its formation to pay into the hands of trustees, chosen jointly, a sum of 25,000*l.* India Five per Cent. Stock (interest to be paid to the company) until three-fourths of the works are complete; the whole to be forfeited to the Board, if the company abandon the enterprise before three-fourths are completed.

[The above particulars are extracted from a report to the Metropolitan Board of Works by the committee to whom the several replies to their advertisement asking for tenders had been remitted.]

Home Correspondence.

Potato Crop in Dorsetshire.—Since I sent in my report on the appearance of the crops, we have experienced some heavy showers, and the Potato crop is now, I regret to say, considerably affected, the old disease having made sudden and extensive ravages. The harvest is now being carried on with vigour and promises to prove the best we have known for several years past. There is, however, an unusual and unpleasant quantity of wild Oats growing with the corn crops. In this neighbourhood their presence it often attributed to deep ploughing. Can you inform me if other localities are so infested, or assign a cause for their appearance in such numbers? *William T. Pope, Bridport.*

Societies.

Yorkshire Agricultural.—We regret to say that the long tables of crop returns which fill our pages have hindered our giving a report of the meeting of this Society. We shall however refer to it next week.

Ram Sales.

Shropshire: Mr. T. Horley, of the Fosse Farm, Radford; 31 rams averaged 12 gs. each. The first of Mr. W. G. Preece's annual sales for the present year, of Shropshire sheep, took place last week at the Flash, Shrewsbury; about 150 high-class rams were submitted for public competition, among which were to be found many prize winners; the prices ranged from about 6*l* to 52 gs.; many were unsold.

Weston-under-Penyard, Ross: 50 yearling rams were disposed of at an average of about 9 gs.

Mr. Shittler's Sale: The sale of 75 pure-bred Hampshire Down ram lambs and 5 rams, the property of Mr. Shittler, of Bishopstone, which took place in Salisbury, by Messrs. Ewer & Winstanley, on Tuesday last, attracted a very large attendance, and the whole were disposed of at good prices; some of the lambs sold singly at 27 gs., 16 gs., 21 gs., and 12 gs. each—the whole averaging over 7*l.* per head!

Norfolk: Mr. Hugh Aylmer's set, Abbey Farm, West Dereham; there were 100 ram lambs, 80 shearlings, and 10 two-shear rams offered for competition; the average price of the lambs being 6*l.*, shearling 7*l.* 14*s.*, and two-shear sheep 7*l.* 17*s.*; the highest bid was 18*l.*, and the lowest 5*l.*; the total receipts amounted to 1294*l.* 15*s.*

Markham Hall: Mr. T. Brown's set of long-woolled sheep; 75 shearlings produced a total of 706*l.* 5*s.*, being an average of 9*l.* 8*s.* 4*d.*; and 25 two and three-shear rams let for 154*l.* 15*s.*, or an average of 6*l.* 3*s.* 9½*d.* each.

Middle Aston: Cotswold rams, bred by Mr. Cother; 65 shearlings averaged 8*l.* 9*s.* 11*d.*

Ratfin Farm, Amesbury: ram lambs realized 40 gs., 26 gs., 18 gs., 17 gs. each, &c.; averaging in all 8*l.* 11*s.* 9*d.* each lamb.

Minster Lovell: 50 sheep let and sold at prices giving an average of 10*l.* 3*s.* 2*d.*

Miscellaneous.

American Horse Works.—At p. 278 of your issue for the current year, you kindly inserted a letter from me seeking information on several points connected with agricultural machinery and implements, and especially in regard to a horse-power machine said to be extensively employed on small farms in America.

My letter did not elicit the replies I had hoped to obtain; but shortly afterwards I tumbled accidentally on the very thing required, in an article headed "American Implements, and Methods of Economising Labour," published in the Journal of the Royal Agricultural Society, Vol. xx., 1859. There you will see depicted the very machine to which I refer. The paper is supplemented by a report from Mr. Amos, awarding this American invention a superiority of 16 per cent. in duty done over the lever horse gear ordinarily used on small farms in this country. Considering, then, that the superior advantages of the American machine must at once have been admitted both by manufacturers and the agricultural public generally, I proceeded the other week to the show at Worcester, never dreaming for a moment but that I should there see many specimens of the American horse-power actively engaged in threshing, chaff-cutting, &c. I need scarcely say that in this expectation I was grievously disappointed, but I may remark that astonishment was added to my disappointment, when on making inquiry at the stands of some of the great machinists, I was told that the invention I alluded to was unknown to them, and they could not believe that it could possibly be more effective than, or even equal to, the horse gear which they respectively manufactured, and for which they were ready then and there to take my order. *Brass Spurs.* [The weight of the draught animal occasions a considerable loss by friction in the American horse works, and that is sufficient to condemn what is otherwise a cheap and compendious arrangement. You can see it in use in some of the London livery stables. There was one for some time in Guilford Street, W.C.]

Mr. Alderman Mechi and the Agricultural Benevolent Society.—We learn that (with the cheerful assent of Mrs. Mechi) the Alderman is determined, if spared, upon holding a bazaar at Tiptree Hall, in July, 1864, for the benefit of the Royal Agricultural Benevolent Institution for the relief of decayed farmers, their widows and orphans. It is believed that he will thus be enabled to raise a large sum in aid of the funds of that much needed and philanthropic institution. Mr. Mechi is induced to come to this resolution in consequence of the great success attending his recent efforts to aid a local institution.

Steam Cultivation.—As a result of the recent meeting at Worcester of the Royal Agricultural Society, a public meeting was held in that city on Saturday last, "for the purpose of discussing the subject of steam cultivation, and, if so determined, to adopt measures for providing steam cultivation, and applying the same to land at an acreage cost." The chair was taken by Mr. E. Holland, M.P., and among those present were Lord Northwick, the Hon. F. Lygon, M.P., Sir E. A. H. Lechmere, Mr. Vernon, M.P., and Mr. Padmore, M.P. A letter was read from the Right Hon. Sir J. S. Pakington (absent on the continent), expressing himself favourable to the object of the meeting. The Chairman, in opening the proceedings, entered into the subject of steam cultivation, with which he is practically acquainted, having for some years adopted it on his own estate. He said he should no more think of returning to the old system of ploughing by horses than he would think of threshing his corn with the antiquated flail instead of the modern threshing machine. He stated that experience of the effects of steam cultivation had proved that on an average there was an increase of produce by steam cultivation over the ordinary process to the extent of six or eight bushels an acre, besides which the corn was superior in quality and the land was permanently improved in value. Lord Northwick moved the first resolution— "That as the successful application of steam power to the cultivation of the soil is now placed beyond doubt, and its value is universally admitted, means should be taken to secure its employment in this country." This was seconded by Mr. H. F. Vernon, M.P., and carried. Sir E. A. H. Lechmere next addressed the meeting, dwelling on the advantages of steam cultivation, and the necessity of doing away with small inclosures, widening the arable fields, levelling fences, and draining. He then moved, "That inasmuch as the cost of engines and tackle far exceeds the means of most farmers, it is desirable to establish a joint stock company (limited), for the purpose of providing such implements by hire or purchase." Mr. Lukin seconded this resolution, which was also carried unanimously. Mr. T. G. Curtler then moved a resolution for raising a sum of 3500*l.*, in shares of 1*l.* each, and providing two sets of steam cultivators, with engines. This also was carried. Mr. Baldwin, from Birmingham, while approving of the proposal to establish a steam plough company, made some remarks on the fact that we were sending Irish labourers to America to grow corn for English consumption, whereas he thought they could be better employed in double digging English farms. This brought a rejoinder from Mr. Curtler, who expressed an opinion that it would be all the better for Ireland if all the Irish emigrated to America and were replaced by English. After some further discussion the usual vote of thanks to the Chairman was passed, and the proceedings ended.

Horses v. *Steam.*—Till within the last few years, the agriculturist has skilfully made use of the inferior animals of the creation to supplement his own want of power; he has exerted his own faculty of reason to subdue the more powerful and docile animal, so as to make them subservient to aid in supplying his necessities; and thus, while he has not been able to equal human labour in skill, and in the production of the luxuries, he has surpassed it in the production of the necessaries of life. He has exercised his reason, so as to procure the greatest quantities of those things which are necessary, at the least possible cost. And he now discovers that there exists another power, which he can, to some extent at least, substitute for that of the inferior animals. This is the discovery of the last few years, and it has brought agriculture into a state of transition. For, if it is to be generally adopted, it is clear that we must establish, with regard to this new power, the same maxim which we have laid down with regard to the use of animal power—of obtaining the greatest result at the least cost. The positions, therefore, that we have to maintain are these, that the cost of our new steam power is less than that of horse power, and next, that the produce from the former is greater than that from the latter. If we can establish the truth of one of these positions, it is evident that we shall have succeeded in establishing the truth of our theory. If we can establish both, we add weight to our argument. But since the introduction of a new power must, from the nature of the thing, be attended with certain inconveniences, we are bound, before we can conclude that we have established a fair case for its adoption, to show that the balance of conveniences are so much in favour of our new power, as to render it a matter of profit, either partially or wholly, to substitute our new power for the old one. This proof, it is clear, can only be supplied by direct and careful experiment.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

At 9 A.M., Railway Time.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Reading of Dry Bulb.	Thermometer. Reading of Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	August	Inches.	°	°				°	°	°	°	Inches.
Thursday ..	13	30.11	69	54.5	S.W.	0	0	73	52	88	43	..
Wednesday	12	30.18	63	54	W.	1	4	74	51	87	45	..
Tuesday ..	11	30.11	64	59	W.	2	10	74	56	87	48	..
Monday ..	10	30.20	68	63	S.W.	1	9	77	58	93	52	..
Sunday ..	9	30.23	68	64	S.W.	2	10	72	57	82	53	..
Saturday ..	8	30.22	70	65	S.W.	2	4	78	62	92	60	..
Friday ..	7	30.12	71	66	W.	1	6	70	60	79	50	..

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

BOOKS: *George.* Morton's "Farm Calendar" (Routledge) or the "Cyclopædia of Agriculture" (Blackie), 10*s.* 6*d.* and 3*l.* 15*s.* respectively. The quarter's charge for the Paper is 6*s.* 6*d.*—*Jacobus, Newport.* Nos. 1, 2, & 5, No. 1 best.

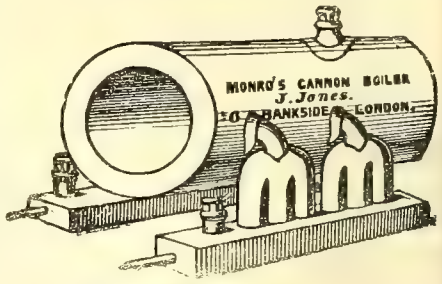
GRASSES: *E K.* Your Grasses are—1, Poa (Glyceria) aquatica, the reed Poa of brooks and watercourses; 2, Bromus mollis, soft Brome, called "Lop," from its heavy seeds; 3, Alopecurus pratensis, Meadow Foxtail; 4, Aira cæspitosa, Hassock or Tussac Grass, tall Hair-grass, sometimes called "bull-pates." *J.B.*

SHEEP: *C J.* Your letter is sent to Mr. W. C. Spooner, Southampton.

SUBSOIL PLOUGH: *Labourer.* Read's (Circus, Piccadilly) as improved by Sleight of Edinburgh, is a good subsoil plough: Cotgreave's is a good trench plough (Ransomes, Ipswich); Parkes' of Birmingham drainage tools are as good as any (Mapplebeck & Lowe); Denton's drainage level (52, Parliament Street, S.W.)

WHEAT AFTER BEANS: *Agricola.* We prefer taking Wheat after Wheat with an intervening crop of Beans, to taking the two without an intervening crop, even though the Beans be not manured.

HEATING BY HOT WATER.



MONRO'S CANNON BOILER.

J. JONES,

HORTICULTURAL ENGINEER AND IRON MERCHANT,

SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

HEATING GREENHOUSES,

CONSERVATORIES,

FORCING PITS,

CHURCHES, CHAPELS, SCHOOLS,

HALLS,

BILLIARD ROOMS,

COACH HOUSES, HARNESS ROOMS, &c.,

OF THE BEST QUALITY, AND AT MODERATE CHARGES.

PLANS, ESTIMATES, and DESCRIPTIVE CATALOGUES

SENT POST FREE ON APPLICATION TO

J. JONES,

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West of England, Ireland, and Wales.



VINCENT SKINNER



(*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER. HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.

VINCENT SKINNER, Bridewell Street, Bristol.

Hothouses for the Million.—AWARDED A PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, 1862.

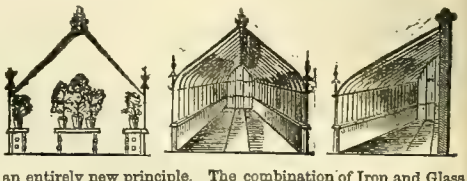


HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner, all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to SAMUEL HEREMAN, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1*s.*; post free, 1*s.* 1*d.*

DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon



an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK,
31, Cornhill, E.C.; late 6, Coleman Street.
*** Catalogues sent on receipt of 6 postage stamps.

JOSEPH SMITH, New Road, Hammersmith, W., undertakes the ERECTION of GREENHOUSES, &c., in any part of the kingdom, and begs to offer for SALE about 10,000 feet of GLAZED LIGHTS for GREENHOUSES, PITS, &c.

Those glazed with 21-oz. glass, 9*d.* per square foot.
" " 16-oz. " 8*d.* " "
21-oz.—Eight. 12 feet 3 inches by 5 feet 8 inches.
Twenty. 11 feet by 4 feet 8 inches.
Nine. 8 feet 6 inches by 4 feet 8 inches.
Ten. 7 feet by 3 feet 11 inches.
Twelve. 5 feet 2 inches by 4 feet 2 inches.
16-oz.—Forty. 7 feet by 4 feet 3 inches.
Twelve. 8 feet 10 inches by 4 feet 2 inches.
Twenty. 6 feet by 4 feet 2 inches.
Twelve. 5 feet 2 inches by 5 feet 8 inches.
Also Span-roof Greenhouse, 27 feet by 16 feet, 47*l.*
Lean-to, 21-oz. glass, 46 feet by 14 feet, 55*l.*
" " 24 feet by 11 feet, 30*l.*
" 16-oz. glass, 50 feet by 14 feet, 55*l.*
Second-hand, 12 feet by 7 feet, 14*l.*
Estimates given for Heating.

Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.
Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.
N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

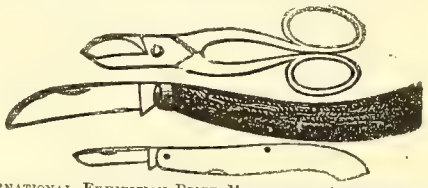
W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

Greenhouses, Orchard Houses, and Conservatories.

H. FREEMAN'S Horticultural Works, Triangle, Hackney, London, N.E., established 20 years.—Good substantially made GREENHOUSES, glazed, ready for fixing, 42 feet by 13 feet, 50*l.*; 21 by 13, 28*l.*; 12½ by 10, 15*l.* Orchard Houses 10 per cent. cheaper. A large assortment kept. Estimates given for Heating or any branch in Iron or Wood.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.
PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.
Two yards wide .. .. .. 1*s.* 6*d.* per yard run.
Four yards wide .. .. .. 3*s.* per yard.
An improved make, 2 yards wide, 1*s.* 8*d.* per yard.
An improved make, 3 yards wide, 2*s.* 6*d.* per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 4*d.* per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

Paxton Works, Sheffield, Established 1738.



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SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.
CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

HOWARD'S

STEAM PLOUGHING and CULTIVATING APPARATUS

WILL BE AT WORK NEAR BEDFORD THROUGHOUT THE SEASON.

Price of a Complete Set with 10-Horse Engine £515 0 0
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Catalogues, with Sixty Reports from Purchasers, may be had on application to
JAMES AND FREDERICK HOWARD, BRITANNIA IRON WORKS, BEDFORD.

THOMAS MILLINGTON,

GLASS MERCHANT. (Established 1750.)

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

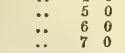
THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY T. MILLINGTON.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home use and for Exportation.



PROPAGATING GLASSES.

2 inches diam.			0*s.* 3½*d.* each.
3	"	..	0 4½ "
4	"	..	0 5½ "
5	"	..	0 6½ "
6	"	..	0 8 "
7	"	..	0 10 "
8	"	..	1 0 "
9	"	..	1 2 "
10	"	..	1 4 "
11	"	..	1 6 "
12	"	..	1 9 "
13	"	..	2 0 "
14	"	..	2 6 "
15	"	..	3 0 "
16	"	..	3 6 "
17	"	..	4 0 "
18	"	..	5 0 "
19	"	..	6 0 "
20	"	..	7 0 "



FLOWER TUBES.
2*d.* each, or 1*s.* 6*d.* per dozen.



ZINC HAND GLASSES.
Painted and Glazed with 16-oz. Sheet Glass.

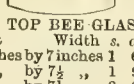
12 inches	..	5*s.* 6*d.* each
14 "	..	6 6 "
16 "	..	7 6 "
18 "	..	8 6 "
20 "	..	9 6 "
24 "	..	11 6 "

If open top, 1*s.* extra.



BEE GLASSES.

4 inches diameter			0*s.* 6*d.* each
5	"		0 8 "
6	"		0 10 "
7	"		1 1 "
8	"		1 4 "
9	"		1 8 "
10	"		2 0 "
11	"		2 6 "
12	"		3 0 "



FLAT TOP BEE GLASSES.

Height		Width	*s.*	*d.*
4 inches	by	7 inches	1	6 each
4½ "	by	7½ "	1	9 "
5½ "	by	7½ "	2	0 "
6½ "	by	8 "	2	3 "
7½ "	by	8½ "	2	10 "

FERN SHADES & STANDS.

Ins. dia.	Shades.		Stands.
6 ..	1*s.* 4*d.* each.		1*s.* 0*d.* each
7 ..	1 8	"	1 3 "
8 ..	2 0	"	1 6 "
9 ..	2 6	"	1 9 "
10 ..	3 3	"	2 0 "
11 ..	4 0	"	2 6 "
12 ..	5 6	"	3 0 "
13 ..	7 6	"	3 6 "
14 ..	10 0	"	4 0 "
15 ..	14 0	"	4 6 "
16 ..	18 6	"	5 0 "



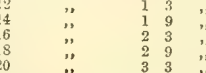
WASP TRAP, 2*s.* 6*d.* per doz.

Crystal Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimneys and Globes, &c.



MILK PANS.

6 inches diameter			0*s.* 6*d.* each
8	"		0 9 "
10	"		1 0 "
12	"		1 3 "
14	"		1 9 "
16	"		2 3 "
18	"		2 9 "
20	"		3 3 "
22	"		3 9 "
24	"		4 6 "



PRESERVE JARS.

In. diam.	Without Lids.		With Lids.
3 ..	0*s.* 4½*d.*	..	0*s.* 6½*d.* ea.
4 ..	0 6	..	0 9 "
5 ..	0 8	..	0 11 "
6 ..	0 10	..	1 2 "
7 ..	1 0	..	1 4 "
8 ..	1 4	..	1 8 "
9 ..	1 8	..	2 2 "
10 ..	2 0	..	2 8 "

SHEET GLASS.
In Cases for cutting up, in Sizes as Manufactured.

	300 feet	200 feet.		
	15 oz.	21 oz.	26 oz.	32 oz
Fourths quality	33*s.* 6*d.*	33*s.* 6*d.*	39*s.* 6*d.*	45*s.* 0*d*
Thirds do.	42 0	42 0	49 0	56 0
Seconds do.	62 0	64 0	74 6	85 0
Best do.	88 6	88 6	103 6	118 0

CRYSTAL SHEET GLASS.
For Pictures and best Glazing purposes.
Averaging 16 oz. to the foot.
Best quality, in cases of 200 feet .. .. .. 100*s.*
Second quality, in cases of 100 feet .. .. 82*s.*
Averaging 30 oz. to the foot.
Best quality, in cases of 100 feet .. .. .. 100*s.*
Second quality, in cases of 100 feet .. .. 82*s.*

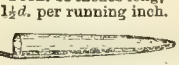


FISH GLOBES.

	Without feet.	With feet.
8 inches diam.		
9 "		
10 "		
11 "		
12 "	Per lb. 7*d.*	9*d.*
13 "		
14 "		
15 "		
16 "		



ROLLING PINS.
From 12 inches long, 1½*d.* per running inch.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1*d.* per running inch.

SQUARES, in 100 and 200 Feet Boxes.

Small Squares not exceeding 9⅓ inches by 7½ inches.

Ins. Ins.	Ins. Ins.	Ins. Ins.	Ins. Ins.
6 by 4	7 by 5	8 by 6	9 by 7
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½

Per 100 feet.

4ths.	3rds.	2nds.	Best.
9*s.* 9*d.*	11*s.* 3*d.*	13*s.* 9*d.*	16*s.* 9*d.*

Squares not exceeding 14 inches by 11 inches.

10 by 8	12 by 9	12½ by 10½	14½ by 10½
10½ by 6½	12½ by 9½	13 by 10	15 by 10
11 by 9	13 by 9	13½ by 10½	13 by 11
11½ by 9½	12 by 10	14 by 10	14 by 11

Per 100 feet.

4ths.	3rds.	2nds.	Best.
10*s.* 9*d.*	12*s.* 3*d.*	15*s.*	18*s.*

Squares not exceeding 20 inches by 18 inches.

15½ by 10½	14 by 12	17 by 13	24 by 16
16 by 10	14½ by 12½	18 by 13	20 by 17
14½ by 11½	15 by 12	18 by 14	22 by 17
15 by 11	15½ by 12½	22 by 14	24 by 17
15½ by 11½	16 by 12	24 by 14	20 by 18
16 by 11	16½ by 12½	22 by 15	22 by 18
13 by 12	17 by 12	24 by 15	24 by 18
13½ by 12½	18 by 12	22 by 16	

Per 100 feet.

4ths.	3rds.	2nds.	Best.
11*s.* 6*d.*	13*s.* 6*d.*	16*s.* 6*d.*	20*s.*

Orchard House Sizes, as recommended by Mr. Rivers.

s. Ins.	15 oz.			21 oz.		
10 by 12	4ths	..	11*s.* 6*d.*	4ths	15*s.* 0*d.*	Per 100 feet.
20 by 13	3rds	..	13 6	3rds	19 0	
20 by 14	2nds	..	16 6	2nds	25 0	
20 by 15	Best	..	20 0	Best	30 0	
20 by 16						

Squares Cut to Sizes not on List.

	15 oz.				21 oz.			
Under	4ths.	3rds.	2nds.	1st	4ths.	3rds.	2nds.	1st.
1 ft. super.	1½*d.*	1¾*d.*	2*d.*	2½*d.*	2½*d.*	2¾*d.*	3½*d.*	4½*d.*
2 ft. super.	1½	2	2½	3	2½	3	4	5½
3 ft. super.	2	2½	2¾	3½	3	3½	4½	6
4 ft. super.	2½	2½	3	4	3½	3¾	4½	6½

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

	Per cwt.—*s. d.*		Per gallon.—*s. d.*		Per gallon.—*s. d.*
GENUINE WHITE LEAD	30 0	FINE OAK VARNISH	10*s.* to 12 0	LINSEED OIL	3 9
ANTI-CORROSION PAINT	28*s.* to 34 0	,, CARRIAGE	12*s.* to 14 0	BOILED OIL	4 2
LINSEED OIL PUTTY	8 0	PATENT DRYERS	per cwt. 28*s.* to 42 0	TURPENTINE	8 6

MILLED LEAD in Sheet and Pipe of all sizes. Old LEAD bought or taken in exchange.

LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of all kinds.

NETT CASH.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

HOT-WATER PIPES, at Reduced Wholesale Prices' with Elbows, Syphons, Tee-Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Garden and Architectural Decorations in Terra Cotta.

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JAMES PULHAM, Broxbourne, Herts. Also Notice of ARTISTIC MERIT, and of SOUND DURABLE MATERIAL in FOUNTAINS, VASES, FIGURES, FERN CASES, and BRACKETS, CONSERVATORY TUBS, with rising bottoms, &c.

The novel FERNDELABRUM.—To grow SIXTY FERNS (or Flowers) on a space 4 ft. 8 in. over, 8 ft. high, &c.

Guaranteed to stand frost an unlimited time.

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GARDEN BORDER-EDGING TILES. — These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

To be obtained at F. & G. ROSHER'S Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER at their Premises as above.

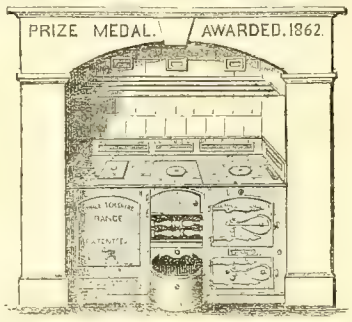
W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.

Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4d. to 1s. 6d. per yard and upwards.

For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

PATENT WORCESTERSHIRE RANGE.



PRIZE MEDAL, 1862, AWARDED for EXCELLENCE.

The above RANGE is most complete, and strongly recommended for its unrivalled ECONOMY, CLEANLINESS, CONVENIENCE, DURABILITY, and is a certain CURE for SMOKY CHIMNEYS.

It is an entirely new invention, and consists of large MEAT ROASTER, PASTRY OVEN, and WROUGHT-IRON BOILER. The top forms a HOT PLATE for BOILING, STEWING, &c. The whole heated by ONE SMALL FIRE. One 5 feet wide is equal to an ordinary Range 8 feet wide.

Extracted from the *London Daily Telegraph*, May 19, 1862.

"INTERNATIONAL EXHIBITION, CLASS 31.

"Of the most recent inventions it should be said that Messrs. JONES & ROWE'S Patent Worcestershire Range has attracted very special attention, and has been commended by the best authorities. A valuable peculiarity of their Ranges is the placing of the OVEN and ROASTER one above the other instead of *side* by *side*; and the ROASTER is constantly replenished with fresh air."

Inventors and Manufacturers, JONES & ROWE, Worcester.
Agents for London: BARRON, SON, & WILSON, 436, Strand, W.C.

Illustrated Catalogues, with Testimonials and Prices, forwarded on application.

J. TYLOR AND SONS, Warwick Lane, Newgate Street, London, E.C., beg to call attention to their very superior manufacture of GARDEN ENGINES and SYRINGES.



Fig. 570.

J. TYLOR & SONS'
GALVANIZED IRON TUB GARDEN ENGINES,
with Registered Spreader.

8 gal.	12 gal.	16 gal.
2 13 6	£3 5 0	£3 15 0

24 gal.	30 gal.
£5 0 0	£5 18 0



Fig. 571.

J. TYLOR & SONS'
OAK TUB GARDEN ENGINES,
with Registered Spreader.

15 gal.	28 gal.
£5 12 6	£7 2 0



Fig. 586. No. 1. REGISTERED SYRINGE, with India-rubber suction tube, one rose and jet .. £1 8 0 each.
No. 2. Ditto ditto .. 1 2 6 ,,
Telescope Branch Pipe for ditto .. 0 10 0 ,,

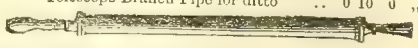


Fig. 590. Large GARDEN SYRINGE, with one rose and jet .. .. 11s. 6d. each.
,, 589. Middle Ditto ditto .. 10 3 ,,
,, 588. Small Ditto ditto .. 9 0 ,,
,, 587. LADIES' GARDEN SYRINGE, with do. 7 6 ,,

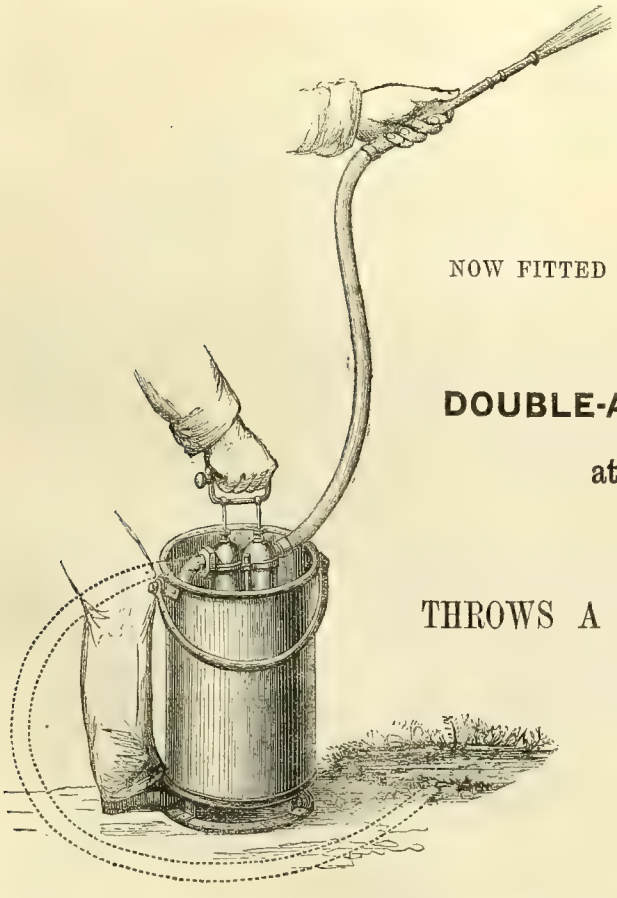


Fig. 591. READ'S SYRINGE, with two roses and one jet, 17s. 6d.
READ'S SYRINGE, with one rose and jet, 15 0
,, 592. Improved ditto ditto large 14 0

Garden Engines and Syringes of J. TYLOR & SONS' manufacture kept in stock by Ironmongers and Seedsmen in every part of the United Kingdom.

J. TYLOR & SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

WARNERS' IMPROVED PATENT,



NOW FITTED WITH AN AIR VESSEL,

IS THE ONLY

DOUBLE-ACTION ENGINE

at £2 2s.

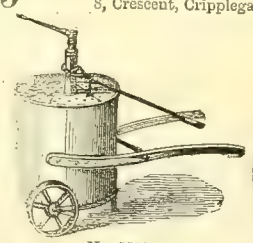
THAT

THROWS A CONSTANT STREAM.

May be obtained of any Ironmonger or Seedsman at the above price, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.

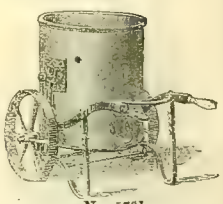


No. 554½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons ..	.. £2 15 0
16 ,, ..	.. 3 15 0
24 ,, ..	.. 5 0 0

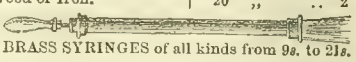
Larger sizes may be had in either Wood or Iron.



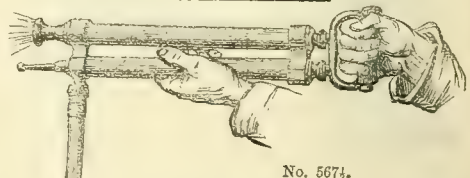
No. 579½.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	.. £2 10 0
20 ,,	.. 2 0 0



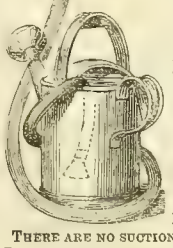
BRASS SYRINGES of all kinds from 9s. to 21s.



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 5 feet Flexible Suction Pipe,

21s.



Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

THERE ARE NO SUCTION OR DELIVERY VALVES, hence MUCH FRICTION AND LIABILITY TO CHOKE with leaves and dirt IS AVOIDED.

JOHN WARNER & SONS, 8, Crescent, Cripplegate, London, E.C.

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STEAM PLOUGHING AND CULTIVATING PATENTS.

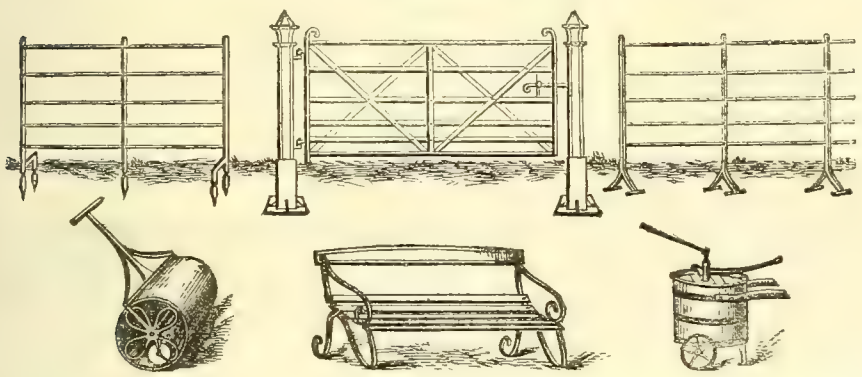
RANSOMES & SIMS, Orwell Works, Ipswich,

Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

COTTAM'S
CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED IN VARIOUS STYLES.

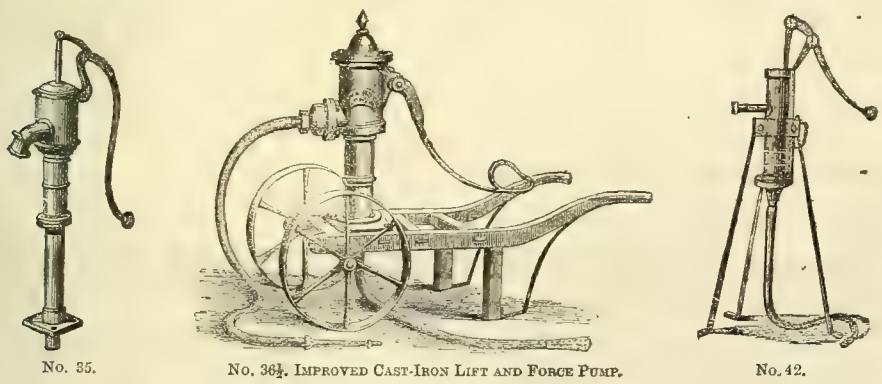


IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES
WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.
VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.
The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

Illustrated CATALOGUES and DRAWINGS free on application to
COTTAM & CO., ENGINEERS and IRON FOUNDERS,
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JOHN WARNER & SONS,
BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. No. 36½. Improved Cast-Iron Lift and Force Pump. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump one man will force the water in a continuous stream to a height of 50 feet.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER and SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

Gutta Percha Tubing for Watering Gardens.

THE GUTTA PERCHA COMPANY have the pleasure to acknowledge the receipt of the following

Testimonial from Mr. J. Farrah, *Gr. to* Boswell Middleton Jalland, Esq., *of Holderness House, near Hull.*

"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."

Manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, E.C., and sold by their Wholesale Dealers in town and country.

Oil Paint no longer Necessary.

HILL and SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to Hill & Smith, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

HORTICULTURAL FÊTE.—TENDERS are required for the HIRE of a TENT 150 by 50 feet, fitted with staging and green baize complete; also for Hire of 1 TENT 6 feet square, to be erected at Highgate on 15th Sept. next.

Written Estimates to be sent to Mr. J. Ward, Jun., 448, West Strand, W.C.

TO BE LET, a NURSERY, within three miles of Hyde Park, and the STOCK to BE SOLD. Immediate possession, the proprietor retiring from business.

Address, M. R., Post Office, Walham Green, Fulham, S.W. No Agents need apply.

Sales by Auction.

Taunton, Somerset.

First-Class Nursery Grounds and Plant for Sale.

MR. POLLARD is instructed by the Trustees of the late John Young, Esq., deceased, to SELL by AUCTION, at the Castle Hotel, Taunton, on WEDNESDAY, September 16, the old established TAUNTON NURSERIES, together above 12 Acres of very fertile Land, now in full trade, with or without the Stock, Greenhouses, Hothouses, and Forcing Pits, also the Office, Seed Shop, and Show Garden, near the Tone Bridge.

Taunton is the county town on the Bristol and Exeter line, the neighbourhood is highly respectable, the business has been established about 40 years.

It is intended that the usual deposit be paid at the time of Sale, and the residue of the purchase money about Lady Day, 1864; arrangements could be made for immediate occupation.

A good portion of the purchase money might remain on mortgage security of the property.

Plans and further particulars are preparing, and may be obtained of Mr. Samuel Knight Pollard, Surveyor, Taunton, and of Messrs. Fry & Otter, Shannon Court, Bristol.

Taunton, August 15.

Belhus, Aveley, Essex.

MR. STRAFFORD is favoured with instructions from Sir T. B. Lennard, Bart., to SELL by AUCTION, at Belhus, Aveley, near Romford, on FRIDAY, August 28, some very superior Suffolk HORSES and MARES, including the renowned Prize Stallion Hero, 3 Short-horned BULLS, 70 Shearling EWES, and 11 RAMS, from his splendid Flock of Southdowns; as well as some PIGS of the best sorts. The whole of the stock have been purchased and bred from the best and most fashionable blood, and will be sold without reserve, except the horse Hero, on whom a moderate reserve will be placed.

Catalogues, with particulars, may be had on application to Mr. Strafford, 13, Euston Square, London, N.W.; or of Mr. J. Church, Belhus, Aveley, near Romford.

Skreens, near Chelmsford.

Important Sale of Short-horned Cattle, Southdown Sheep, Berkshire Pigs, &c.

MR. STRAFFORD is instructed to announce for SALE by AUCTION, without Reserve, on SATURDAY, August 29, at Skreens, near Chelmsford, 26 Head of Pure-bred SHORT-HORNS, 200 SOUTHDOWN SHEEP, and a few BERKSHIRE PIGS, belonging to T. W. Bramston, Esq., M.P. At the same will also be sold 18 Head of valuable Short-horns, the property of Mr. J. Christy, of Boynton Hall, the whole of which are descended from some of the best blood of the day.

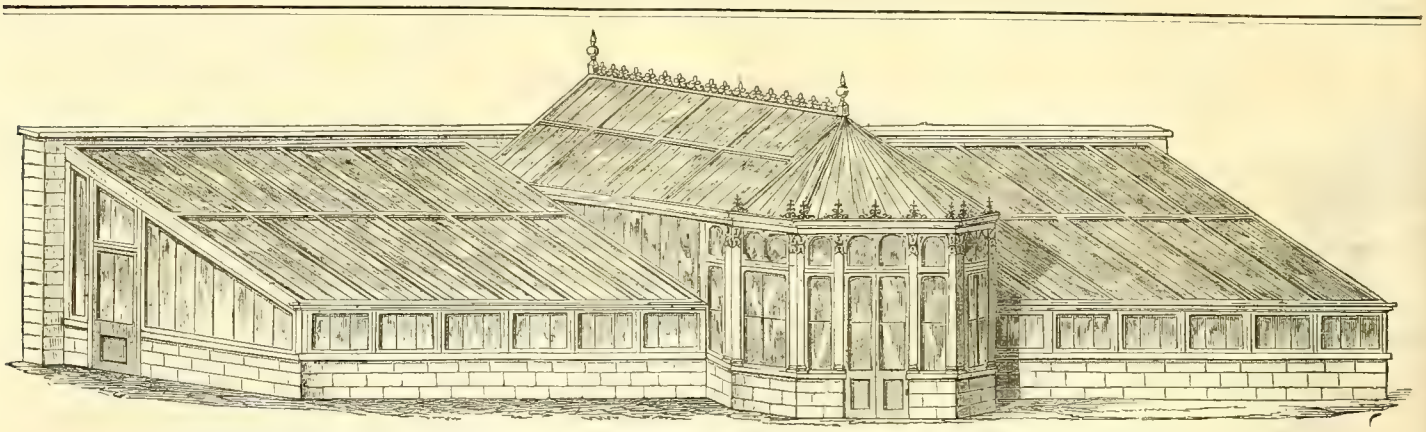
Catalogues, with Pedigrees and other particulars, may be had on application to Mr. Turville, at Tye Hall, Chelmsford; or of Mr. Christy, Boynton Hall; and of Mr. Strafford, 13, Euston Square, London, N.W.

Marton-le-Moor, near Ripon.

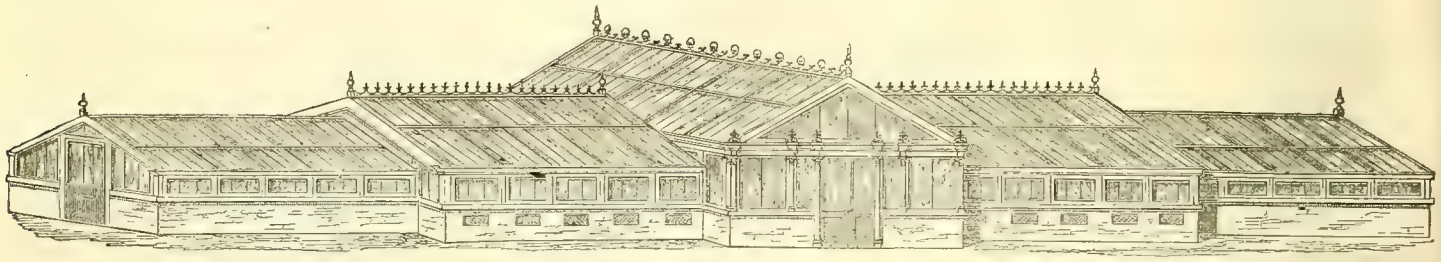
Extensive and Important Sale of First-class Short-horned Cattle.

MR. STRAFFORD begs to announce that he is honoured with instructions from the Executors of the late A. L. Maynard, Esq., to SELL by AUCTION, without any reserve, the Extensive and Valuable Herd of SHORT-HORNS, consisting of upwards of 100 head of BULLS, COWS, and HEIFERS, bred with the greatest care and skill by this eminent judge of Short-horns from an experience of more than 50 years, commencing with the Stock of his Father, Mr. Maynard, of Eryholme, followed with a few judicious Selections from other choice Herds, and latterly from the far-famed Kirklevington Stock, at which sale Mr. Maynard was a spirited purchaser, and for several years has used Bulls of Mr. Bates's celebrated tribe of Short-horns with marked success. The FIRST PORTION of the Herd, consisting of the STOCK at MARTON-LE-MOOR, will be SOLD on WEDNESDAY, September 9; and the REMAINDER of the Herd will be SOLD at STOKESLEY, on THURSDAY, October 15, and will include the fine Steers reared at this Farm, which have obtained such deserved celebrity at the Yarm Fairs for so many years.

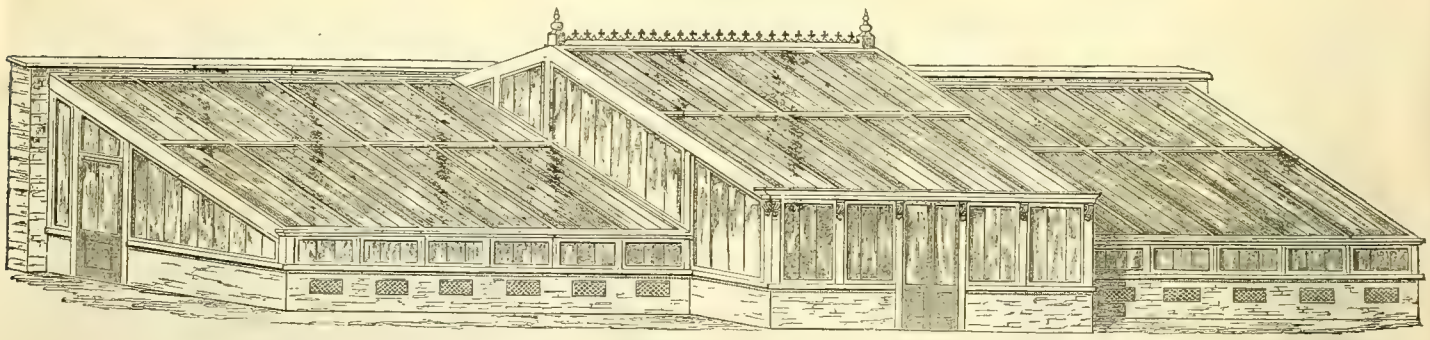
Catalogues with Pedigrees may be had on application to Mr. Strafford, 13, Euston Square, London, N.W., and of Mr. T. Maynard, Marton-le-Moor, near Ripon.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.



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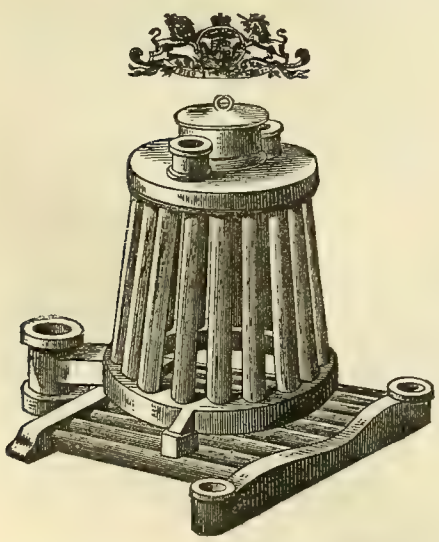


HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.

THE FOLLOWING IS THE REASON WHY

ORMSON'S ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become so universally adopted on account of their superior power, great safety, and economy.



ORMSON'S No. 1 BOILERS	are heating upwards of	250	feet of Pipe.	
ORMSON'S No. 2 BOILERS	„	„	600	„
ORMSON'S No. 3 BOILERS	„	„	1300	„
ORMSON'S No. 4 BOILERS	„	„	3500	„
ORMSON'S No. 5 BOILERS	„	„	7000	„

Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

HENRY ORMSON begs most respectfully to announce that very little inconvenience has resulted to him from the recent Fire on his Premises, and that Business will continue to be conducted in the usual manner.

HENRY ORMSON, Horticultural Builder to Her Majesty,
AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF
HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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Printed by William Bradbury, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and Frederick Mullett Evans, of No. 11, Bouverie St., in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, August 15, 1863.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 34.—1863.] SATURDAY, AUGUST 22. {Price Fivepence. {Stamped Edition, 6d.

INDEX.

Agricultural wages in the west of England	803 b	Manetti Rose stock	798 a
Aster grub	798 a	Oats, Roman	795 c
Barley	803 b	Orchard houses	797 c—799 b
Bates on the Amazons, rev.	798 a	Peaches and Nectarines	796 b
Bees	797 c	Pearson's (Mr.) nursery	799 b
Books, various	799 a	Rose showing	796 a
Cottage building	806 c	Root Fungi	796 a
Cryptomeria japonica	795 c	Salt in food	805 c
Cultivation by steam	807 a	Sewage manure	805 a
Dodder	797 c	Society, Royal Botanic	798 a
Engine, trial of	801 b	— Yorkshire Agricultural	807 b
Entomology	796 a	— Morchard Bishop Reaping Match	808 a
Fruit lore, ancient	797 b	Strawberry, Sir Harry	797 c
Fungi, root	796 a	Steam cultivation, refusals of prize for	803 b
Grafts influence of on stocks	796 c	Superphosphate, application of	803 c
Grain crops	802 c	Temperatures summer	795 a
Gracilaria rufipennella	796 a	Trichomanes radicans	798 a
Harvest, the	807 b	Tuber, new	800 a
Japanese agriculture	800 a	Weed extractor, Belcher's	796 a
John Grey, of Dilston	804 a		

☞ NOTICE TO ADVERTISERS. — *Advertisements must reach the Office by* THURSDAY'S *post. They should be written on one side of the paper only.*

ROYAL HORTICULTURAL SOCIETY.
FRUIT COMMITTEE.

A MEETING of the Fruit Committee will be held on TUESDAY, August 25, for the Examination of such FRUITS and VEGETABLES as may be then submitted for the judgment of the Committee.

All communications and packages must be at the Gardens, at South Kensington, by 11 o'Clock on the day of Meeting, and addressed to

ROBERT HOGG, LL.D., Secretary to the Committee.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.

The next MEETING of this Committee will take place on TUESDAY, August 25, at 12 o'Clock.

The subjects for Examination must be at Kensington for Entry by 11 A.M.

THOMAS MOORE, Secretary to the Committee.

CRYSTAL PALACE.—GREAT SHOW of AUTUMN FLOWERS and FRUIT, TUESDAY and WEDNESDAY, September 1 and 2.

Admission, One Shilling each day: Children under 12, Sixpence.

For Schedules of Prizes apply to Mr. W. HOUGHTON, Secretary to the Show, Crystal Palace, Sydenham.

THE COUNTY of KILDARE HORTICULTURAL EXHIBITION, TUESDAY, September 1; to be held at Naas.

Prizes to the amount of 110*l.*, including a large number open to all competitors, and some to the TRADE ONLY.

For further particulars apply to

W. B. BROWNRIGG, Hon. Secretary and Treasurer, Moor Hill, Brannockstown, Newbridge.

ALNWICK HORTICULTURAL and BOTANICAL SOCIETY.—The ANNUAL EXHIBITION of this Society will be held (by permission of His Grace the Duke of Northumberland, K.G., Patron of the Society) in the Alnwick Abbey Grounds, on THURSDAY, September 3, when several additional Prizes, together with THREE Elegant SILVER CUPS, will be offered for competition.

JOHN THOMPSON
HENRY HUNTER } Hon. Secretaries.

Alnwick, Aug. 22.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.—The TENTH ANNUAL AUTUMN SHOW will be held on WEDNESDAY and THURSDAY, September 16 and 17, at the Royal Pavilion and Grounds, on the same grand scale as on former years, and the usual amount offered in prizes. The Railway Cup, value 10*l.*, is offered for 50 varieties in bunches of three trusses, as the 1st prize; 2d, 5*l.*; 3d, 3*l.*

Schedule of Prizes to be had on application to the Secretary, 96, St. James Street, or of E. SPARY, Superintendent of the Exhibition, Queen's Graperies.

By order of the Committee EDWARD CARPENTER, Sec.

Brighton.—August 22.

RAY SOCIETY.—The ANNUAL GENERAL MEETING of the Ray Society will be held at Newcastle-on-Tyne, on FRIDAY, August 28, at 3 P.M., J. G. JEFFREYS, Esq., F.R.S., in the Chair.

H. T. STAINTON F.L.S., F.G.S., Secretary.

CHOICE SEEDS for AUTUMN SOWING.—CALCEOLARIA, CINERARIA, and PRIMULA, from the finest strains in cultivation, each 2*s.* 6*d.* per packet.

JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.

Highgate Nurseries, London, N.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, now ready for Planting. Prices on application.

Paradise and Victoria Nurseries. Holloway, London, N.

QUEEN PINE SUCKERS for SALE. — Strong healthy Suckers, warranted Clean and free from Scale, 50 and upwards at 6*d.* each.

Apply by letter to the Gardener, J. HANNAN, Cyfarthfa Castle, Merthyr Tydvil.

Mushroom Spawn.

SAMUEL CHEESE begs to inform his numerous patrons that his new MUSHROOM SPAWN is now quite ready, and in first-rate condition.

SAMUEL CHEESE, 231, Oxford Street, W.

BARR AND SUGDEN,
SEED MERCHANTS,
12, King Street, Covent Garden, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON,
NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS and NURSERYMEN.
237 and 238, High Holborn, London, W.C.

Good Turnip Seeds, Carriage Free.

SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

Best Seeds, Carriage Free.

BUTLER AND MCCULLOCH,
SEED MERCHANTS,
Covent Garden Market, London, W.C.

Bella Donna and Guernsey Lilies.

BUTLER AND MCCULLOCH will be obliged by their Customers favouring them with Orders for what they may require of these immediately, as they should be sent out with as little delay as possible after being received. Price 5*s.* 6*d.* per dozen.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

GUERNSEY and BELLA DONNA LILIES. 5*s.* per dozen.

Orders should at once be given for these beautiful flowers.

BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

BELLA DONNA LILIES.—Just arrived in fine condition, 5*s.* per dozen.

JAMES CARTER & Co., 237, 238, High Holborn, W.C.

New Verbenas of 1863.

B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, has now ready to send out the NEW VERBENAS of 1863, at 4*s.* per dozen.

CATALOGUES of VERBENAS and other Novelties sent on application.

Special Offer to the Trade.

MESSRS. A. HENDERSON AND CO. have much pleasure in offering the beautiful New ALOCASIA ZEBRINA, fine healthy Plants at 42*s.* each; and ALOCASIA MACRORHIZA VARIEGATA, 10*s.* 6*d.* each.

Pine-Apple Place, Edgware Road, London.

To the Seed Trade.

DOBSON'S FIRST-CLASS SEEDS of CALCEOLARIA, CINERARIA, and PRIMULA.

Supplied to the Trade in Packets only.

A liberal allowance. Price on application.

J. DOBSON & SONS, Seedsmen, Isleworth, W.

Cineraria, Calceolaria, and Primula.

E. G. HENDERSON AND SON offer first-class Seed of the above; also the same of best ENGLISH and New FRENCH blotched-flowered varieties of PANSIES. Each 1*s.* and 2*s.* 6*d.* per packet.

☞ EXPERIENCED GARDENERS recommended.

Wellington Nursery, St. John's Wood, London, N.W.

New Hybrid Mimulus.

E. G. HENDERSON AND SON offer Seed of the beautiful new Section, as now to be seen in the Wellington Nursery, forming an elegant dwarf bedding-plant, and adapted for pot-culture in Conservatories. 1*s.* and 2*s.* 6*d.* per packet. Trade, per oz., or packets.

Wellington Nursery, St. John's Wood, London, N.W.

IMPORTED DUTCH BULBS.—First-class Dutch Bulbs of every description just imported.

JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

Dutch Flower Roots.

HUGH LOW AND CO. beg to announce that their CATALOGUE of the above is now ready for distribution, and will be forwarded, post free, to all applicants.

Clapton Nursery, London, N.E.

Dutch Hyacinths, Tulips, &c.

CHARLES SOUTHBY, NURSERYMAN, Clapham, has received the above, which are unusually fine this season. Early orders and planting must secure fine blooms.

A DESCRIPTIVE PRICED LIST free by post.

Catalogue of Hyacinths and other Choice Bulbs.

B. S. WILLIAMS begs to announce that his NEW DESCRIPTIVE CATALOGUE, containing Select Lists of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, LILIES, AMARYLLIS, &c., is now ready, and will be forwarded Post free to all applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

DUTCH BULBS, just arrived in first-rate condition, at extraordinary low prices; BRITISH and FOREIGN FERNS, immense variety; GOLD and SILVER FISH, FERN CASES and AQUARIUMS, WIRE WORK, &c.

G. R. GREEN, 154, Kingsland Road; and the Bedford Conservatories, Covent Garden Market, W.C.

To Importers of Dutch Bulbs.

BETHAM AND BLACKITH, of Cox's and Hammond's Quay, Lower Thames Street, E.C., respectfully recommend the Trade and others importing Roots from Holland, to favour them with immediate instructions for their clearance and despatch, by which means they will insure an early delivery at moderate charges.—August 22.

New Roses of 1863.

E. G. HENDERSON AND SON offer strong healthy plants of the most select kinds. The Trade supplied in any quantity.

Wellington Nursery, St. John's Wood, London, N.W.

Paul's Nurseries, Waltham Cross, N.

WM. PAUL'S ROSES are still in FINE BLOOM. Entrance from the Platform, Waltham Station (G. E. Ry.) Half an hour's ride from London.

New Roses for 1863.

WM. WOOD AND SON are now supplying all the NEW ROSES in splendid Plants at reasonable prices. The leading kinds of PERPETUAL and other ROSES in pots are also offered by the dozen, hundred, or thousand.

Address, Woodlands Nursery, Maresfield, Uckfield, Sussex.

ROSES, NEW and OLD.
CATALOGUES NOW READY.

A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. Those who wish for a fine display of bloom during the present summer and autumn should now give their orders.

CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON).—Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7*s.* 6*d.* each, are now ready.

Old Cheshunt Nurseries, Herts.

ORCHARD HOUSES. — The Orchard Houses at Sawbridgeworth are now well worthy of inspection. The Harlow Station, where Flys attend, is 1¼ mile from the Nurseries. THOS. RIVERS & SON.

Superb Double Hollyhocks.

DOWNIE, LAIRD AND LAING'S unrivalled COLLECTION of the above is NOW in BLOOM. Inspection invited any day, Sunday excepted.

Stanstead Park Nursery, Forest Hill, S.E.

CHOICE CINERARIA, CALCEOLARIA, PRIMULA FIMBRIATA, and other FLOWER SEEDS for present sowing, 1*s.* per packet, Post free.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Calceolaria, Cineraria, and Primula.

F. AND A. SMITH are now sending out their very superior strain of the above, carefully selected from first-class Varieties, in packets at 1*s.*, 1*s.* 6*d.*, and 2*s.* 6*d.* each. CATALOGUE on application.

The Nurseries, Dulwich, London, S.

NOVELTIES of 1863 at greatly reduced prices.—A CATALOGUE of 30 pages, containing full descriptions of nearly 500 New Choice Plants of the season, including the New Fuchsias and Verbenas, &c. Post free for one stamp.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.

Dorking Nursery.

LARGE SPECIMEN FERNS for SALE.—For Description and Prices, apply to

J. ILLMAN, Nurseryman, Strood, Kent.

A FERN CATALOGUE forwarded, post-free, on receipt of one stamp.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Ferns to the Trade.

EDWIN COOLING has a large stock of very fine healthy plants now to offer.

A PRICED LIST free on application.

Mile Ash Nurseries, Derby.

ALOCASIA MACRORHIZA VARIEGATA.—Good plants, 10*s.* 6*d.* each.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

WANTED, 15,000 to 20,000 DOUBLE and SINGLE SNOWDROPS.

Address, stating lowest price per 1000, to TOOLE & Co., Seed Merchants, Westmoreland Buildings, Dublin.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

DICKINSON'S NEW ITALIAN RYE-GRASS SEED is now ready for delivery.

Sold only by himself, and for present payment, 48*s.* per quarter, or 7*s.* per bushel.

New Park, Lymington, Hants.

To Seedsmen, Market Gardeners, and Others.

CABBAGE SEED, in Large or Small Quantities, saved by the late Mr. JAMES NORRIS, of Isleworth, Middlesex, from first-rate sorts in 1861.

For particulars apply to JOHN NORRIS, Sion Hill, Isleworth.

Choice Seeds.

B. S. WILLIAMS begs to offer First-class quality of the undermentioned SEEDS:—

	Per packet.	
PRIMULA SINENSIS FIMBRIATA, Red, White, or Mixed	2s. 0d.	3s. 6d.
CALCEOLARIA, herbaceous	1 6	2 6
CINERARIA, from choice named flowers	1 6	2 6
PANSY, very choice	0 6	1 0

CORDYLINE INDIVISA, seed in fine condition, price 2s. 6d. per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

New and Rare Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, amongst which are some very fine specimens.

Now ready, post-free to all applicants.

A NEW GENERAL PLANT CATALOGUE, containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Herbaceous and Alpine Plants, Roses, Hardy Trees and Shrubs, Fruit Trees, &c.

With a DESCRIPTIVE LIST of New, Beautiful, and Rare Plants.

Paradise and Victoria Nurseries, Holloway, London, N.

OUVIRANDRA BERNERIANA.—Having succeeded in raising a few Seedlings of this extremely curious and beautiful plant, we beg to offer healthy young plants of six or seven leaves at 31s. 6d. each.

O. Berneriana was exhibited at the Great Show of the Royal Horticultural Society, June 17th, and awarded the First Prize; and at the Great Show of the Royal Botanic Society, June 24th, and then also awarded the First Prize.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

SEEDS, warranted to give satisfaction, of PANSY, HOLLYHOCK, POLYANTHUS, DELPHINIUMS, SWEET WILLIAMS, for present sowing, all saved from the best named Prize Flowers; per packet, 6d., 1s., 1s. 6d., and 2s. 6d. each.

CATALOGUE of NEW PLANTS upon application for one Stamp.

DILLISTONE & Co., Sturmer and Woodlands Nurseries, Halstead, Essex.

Deutzia crenata fl. pleno—Japan.

JOHN STANDISH has now the pleasure of submitting to the consideration of his friends and the public the above truly valuable and hardy ornamental plant. It has received First-class Certificates both at the Royal Horticultural and Royal Botanic Shows in June and July last (*vide* Report).

"There were a few very interesting new hardy plants shown, first a Deutzia crenata flore pleno, one of Fortune's novelties, flowered by Mr. Standish. This looked like a fine addition to hardy shrubs; it has opposite shortly stalked finely serrated leaves and copious terminal racemes of deflexed double flowers deeply tinged externally with rose."

Plants now ready, 10s. 6d. each; or 6 Plants for 42s.

Royal Nursery, Ascot, Berks.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes.

Sunningdale Nursery, S.W. Rail.

Rhododendron Countess of Haddington.

ROBERT PARKER begs to announce that he is now sending out this fine variety, a figure of which will appear in the "Illustrated Bouquet," and Photographs may be seen at the Nursery. Habit compact and vigorous, with fine foliage flowers, rosy blush, measuring upwards of 3½ inches in length and diameter, very abundant bloomer, and may be flowered from February to June. For early spring and summer decoration and exhibition purposes this will prove the most useful and ornamental plant of modern introduction. The following Awards have been received at the undermentioned Exhibitions:—

Edinburgh Horticultural Society's Show, March 19, 1861—First Class Certificate.
Royal Horticultural Society's Show, March 19, 1862—First Class Certificate.
Royal Botanic Society's Show, April 2, 1862—First Class Certificate.
Edinburgh Horticultural Society's Show, March 18, 1863—Special Prize.
Crystal Palace Show, May 23d, 1863—First Prize 5l. for single specimen of newly introduced extremely rare or beautiful plant, in or out of flower, hardy or exotic.

Good plants, 21s. each. The usual discount to the Trade.

Exotic Nursery, Tooting, Surrey, S.

NEW SEEDLING STRAWBERRY, PRINCESS OF WALES.

OPINIONS OF THE PRESS.

Gardeners' Chronicle, July 4th.

"Your seedling Strawberry, Princess of Wales, large, ovate, or flattened ovate, with flesh pale red, and solid at the core. The variety deserves notice on account of its size, appearance, and not being hollow at the core."

Journal of Horticulture, June 23d.

"Seedling Strawberry (B. W. Knight). The fruit sent is very juicy, and of excellent flavour."

Florist and Pomologist, July.

"Your seedling Strawberry, Princess of Wales, is a fine regularly-shaped ovate fruit, of a pale red colour, and very firm flesh; it has all the appearance of being a good sort."

B. W. KNIGHT has much pleasure in offering this superb new early STRAWBERRY, feeling confident that it will not fail to become a general favourite, as all who have seen it growing and tasted it on the ground have pronounced it first-class. It is a remarkably early kind, having picked from it on the 22d May, and no doubt but what it will prove a good forcing variety. The fruit is large, flesh pale red, solid at the core; flavour rich and sugary, partaking largely of the Pine flavour; a most abundant bearer.

Plants will be ready to send out early in September, at 12s. per dozen; 2l. 10s. per 100.

B. W. KNIGHT, Nurseryman and Florist, 37, High Street, Battle, Sussex.

GLADIOLUS BRENCHLEYENSIS.

YOUELL & CO.

Beg to offer this season strong FLOWERING BULBS of the above at 3s. per dozen, 20s. per 100.

Trade price on application, and when quantities are ordered a considerable reduction will be made.

The *Gardeners' Chronicle* speaks of it thus:—"It cannot be spoken of in terms of exaggeration; the robust habit and intensely bright scarlet flowers place it at the head of all the hardy flowers of the autumn." And again, "The spikes you have sent us are magnificent. We have as yet seen nothing of the kind so handsome near London. It is undoubtedly the most showy of the whole race of Gladioli."

CATALOGUES of their extensive Collection will be forwarded on application.

ROYAL NURSERIES, GREAT YARMOUTH.

EXHIBITION OF CHOICE GLADIOLUS.

YOUELL & CO.'S

COLLECTION of the above, extending over Three Acres, is NOW in BLOOM, and will continue some weeks.

The FIRST PRIZE was awarded them at the Crystal Palace, Open to All England and the Continent.

The FIRST PRIZE was awarded to YOUELL & Co. by the Royal Horticultural Society on Wednesday, Sept. 10, for best Collection of 24 Single Spikes; and the FIRST PRIZE for the best 12 Spikes of Brenchleyensis colour.

We supply them at the following prices:—

No. 1 Collection contains 100 Bulbs, in 50 of the most choice and handsome kinds, with names	£5 0 0
No. 2 Collection contains 100 Bulbs, in 30 ditto ditto	3 15 0
No. 3 Collection contains 100 Bulbs, in 25 ditto ditto	2 10 0

Fine Selections will be supplied at 6s., 9s., 12s., 18s., to 30s. per dozen.

CATALOGUES will be forwarded on application.

ROYAL NURSERIES, GREAT YARMOUTH.

W. TOOGOOD,

(LATE PAGE AND TOOGOOD),

SEED GROWER AND MERCHANT,

58, ABOVE BAR, SOUTHAMPTON,

Has the pleasure to announce that the Partnership heretofore existing between himself and Mr. W. B. PAGE, Jun., has been dissolved by mutual consent as per advertisement, *and all the Stock, Debts, and Effects of the late Firm, except the fixtures in the shop in Oxford Street, having by arrangement been assigned to him,* he has removed the same to the old place of business (nearly 50 years standing), Above Bar, where he, in future, will conduct his trade in all the branches of the late Firm.

For PRESENT SOWING he has ready for immediate delivery—

Trifolium incarnatum, 4d. per lb.

Of which large quantities are annually saved in this district. With "practical hints" on its cultivation.

New Late Red, 8d. per lb. | **New Late White, 1s. per lb.**

M. M. DUPLESSIS, *of Newtown Park, Lymington, says:*—

"In answer to your inquiries about the Late Red and White Trifolium, I have great pleasure in stating that I consider them invaluable; the Late Red coming into bloom a *fortnight* after the common Red, and the White *a fortnight* after the late Red, *trebles* the time during which this plant may be used as green food. I also consider the Late Red and White Trifolium as *superior* to the common Red as green food, and would make much better hay than the latter. I take the opportunity of thanking you for the promptness and attention you have always given to my orders, and have great pleasure in stating that I have always found your seed of first-rate quality."—Aug. 12, 1863.

Italian Rye-grass, 5s. per bushel.

New Stubble Turnip, 6d. per lb. | **New Rape, 3d. per lb.**
Mustard, 3d. per lb. | **Cattle Cabbage, 2s. 6d. per lb.**

For RYE, WINTER OATS, WINTER BARLEY, WINTER VETCHES, and WINTER BEANS, early orders will ensure delivery in good time, and the lowest price consistent with best quality will invariably be charged.

All choice varieties of CABBAGE, ONION, LETTUCE, CHINA RADISH, &c., for Winter Sowing.

PERMANENT PASTURE and LAWN GRASSES succeed well now, as sown at the Royal Farms, Osborne, for the past 10 years, the Southampton Parks, &c., *all of which were selected and mixed by the Advertiser personally.*

The Rev. T. BACON, *Kingsworthy, December* 10, 1860, *says*:—

"I have great pleasure in stating that the pasture which you laid down for me in the Spring has been a great success, so much so, indeed, as to attract the constant inquiries of passers by. Within four months of sowing, it bore an excellent and abundant crop of Hay, and it has been continually fed off by cows and sheep ever since, with the exception of the three weeks immediately after mowing. For variety of herbage, equality of plant, and strength of growth, it is acknowledged by some of the best judges in this neighbourhood to be *most excellent*; it already wears the aspect of a rich and well established pasture."

From Mr. BARNES, *late Superintendent (for 7 years) of the Southampton Parks.*

"Sir,—In reply to your note referring to the Permanent Grass Seeds with which I laid down the Southampton Parks, I can only say that I saw you personally measure off the different varieties and mix them in order for sowing. The judgment exercised by you in that selection is apparent in the beautiful herbage and lawn like appearance of the grounds while under my management; in fact the second year there was as fine and thorough a Turf as in a park down 50 years.

"To Mr. WM. TOOGOOD." "ARTHUR BARNES."

"We hereby certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that the Permanent Pasture and Lawn Grasses *were measured and mixed by Mr. Toogood, personally.*

"July 13, 1863." (Signed) JOHN MORLEY, HENRY SHEERMAN, GEORGE ISAACS.

To prevent mistakes it is desirable that all letters referring to the business of the late Firm, or orders for any of the foregoing, should be directed

W. TOOGOOD, ROYAL SOUTH HANTS SEED ESTABLISHMENT,
ABOVE BAR, SOUTHAMPTON.

New Late Trifolium Seed.

SUTTON AND SONS have New SEED, now ready for delivery, of these very useful new varieties of TRIFOLIUM.

NEW LATE RED, 8*d.* per lb. NEW LATE WHITE, 1*s.* per lb.

TRIFOLIUM INCARNATUM (old sort), New Seed, 4*d.* to 5*d.* per lb., or cheaper in large quantities.

The last named is the most productive sort, and the best for general purposes, the others being very useful for succession.

Carriage free, except very small parcels.

SUTTON & SONS, Seed Growers, Reading.

NEW BEDDING PLANTS, now to be seen on trial at the Wellington Nursery, St. John's Wood, N.W.

Strong plants of all the best new Bedding Plants of the season at reduced prices.

COLEUS ATROPURPUREUS, 1*s.* 6*d.* each.

NEW WHITE MULE PINK, 2*s.* 6*d.*

CARNATION-STRIPED MULE PINK, 2*s.* 6*d.*

LIGULARIA KŒMPFERI ARGENTEA VARIEGATA, 10*s.* 6*d.*

SOLANUM CAPSICASTRUM FOLIA VARIEGATA, 2*s.* 6*d.*

ARGENTEA, 2*s.* 6*d.*

FORTUNE'S seven NEW JAPAN CHRYSANTHEMUMS, strong plants to bloom, the set, 10*s.* 6*d.*

LONICERA BRACHYPODA AUREO-RETICULATA, 9*s.*, 12*s.*, and 18*s.* per dozen.

IMATOPHYLLUM MINIATUM, 5*s.*, 12*s.* and 10*s.* 6*d.* each.

DEUTZIA CRENATA, double, rose-coloured flowers, 10*s.* 6*d.*

BEST BEDDING GERANIUM of the season, MADAME RUDERSDORFF, 2*s.* 6*d*, 3*s.* 6*d.*

DOUBLE CHINESE FRINGED PRIMULAS, with rich brilliant crimson flowers; also the beautiful FERN-LEAVED VARIETIES of Fringed Primulas.

See the NEW BULB CATALOGUE just published.

JEAN VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to announce that his new DESCRIPTIVE CATALOGUE for the Autumn, 1863, is now ready, and contains a great many Novelties of the season.

To be had on application either to himself, or to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

THE BEST LETTUCES for SOWING NOW—to stand the Winter—are WHEELER'S TOM THUMB and WHEELER'S IMPERIAL COS. The price of the Seed is 1*s.* per packet—post free.

Messrs. WHEELER & SON regret to find that inferior varieties are sometimes substituted, and with a view to prevent this intend publishing a List of Agents of whom next season the Seed may be obtained true.

J. C. WHEELER & SON, Seed Growers, Gloucester.

The best Winter Cucumber in Cultivation is

REYNOLDS' PERPETUAL BEARER.—To insure a constant supply all the winter, should be sown the latter part of August, or beginning of September.

Can be had in Packets containing six seeds, price 1*s.* 6*d.* each, of HURST & SON, 6, Leadenhall Street, London, E.C.; or of GEORGE EDWARD, Seedsman, 1, King Street, York.

HALLETT'S PEDIGREE WHEAT, in very fine condition for seed, grown on the Rectory Farm, Mixbury, from seed bought direct from Mr. Hallett last September. Price 10*s.* per bushel, bag included.

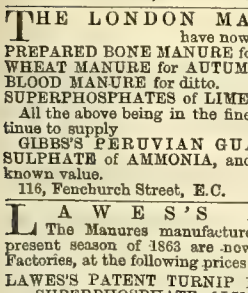
Apply to Mr. MORTON, Mixbury, near Brackley. A remittance must be sent with all orders.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.*; 4 cwt. put on the Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

N.B. Loaded Trucks can be sent on all the principal Railways.

W. SHORT, Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent.'

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.

WHEAT MANURE for AUTUMN SOWING.

BLOOD MANURE for ditto.

SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value.

E. PURSER, Secretary.

116, Fenchurch Street, E.C.

LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1863 are now ready for delivery at his Factories, at the following prices:—

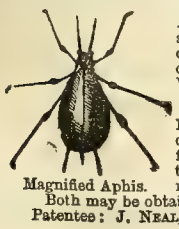
	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from Messrs. Gibbs: Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of Geo. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1856 has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, writing a few days since, say:—"Please send us 10 gallons of Blight Composition, as quickly as possible. We tried 'Gishurst' last year, but it would not do like the Composition."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says:*—"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed JOHN MORLEY.
HENRY DREW.
HENRY SHEERMAN.
GEORGE ISAACS.

"July 13, 1863."

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, 58, Above Bar, Southampton.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from one to two ounces to the gallon of water is recommended for growing Plants; one from 4 to 16 ounces for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).



GARDEN BORDER-EDGING TILES.—These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects. they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

To be obtained at F. & G. ROSHER'S Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER at their Premises as above.

ON SALE, at the Agricultural Hall, Islington, during the Poultry Show, E. & F. CROOK'S perfect FOUNTAINS for POULTRY, &c., FEEDING CAGES, PHEASANT FEEDING BOXES, and their new Sanitary self-cleansing POULTRY NESTS. Also a new and very cheap full size GARDEN SYRINGE, and a new durable Hydro-pneumatic GARDEN PUMP, which will throw a powerful and continuous stream of water as far as any of the expensive patent pumps; the flow continues several seconds after ceasing to pump; the action is much easier, and less than half the price of any other.

E. & F. CROOK, General Ironmongers and Manufacturers, 5, Carnaby Street, London, W.

Gutta Percha Tubing for Watering Gardens.

THE GUTTA PERCHA COMPANY have the pleasure to acknowledge the receipt of the following

Testimonial from Mr. J. FARRAH, *Gr. to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*

"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."

Manufactured by the GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C., and sold by their Wholesale Dealers in town and country.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

Grove Nursery, Coleman Street, Camberwell, S.

MR. GEORGE WELLS having had upwards of 20 years' experience in the Erection of Horticultural and other Buildings, offers his services to the gentry and public in Planning and carrying out such Works by contract or otherwise. Also in Laying out Gardens and Pleasure Grounds, and the Improvement of Estates generally.

Plans and Estimates will be furnished on application. The nobility and gentry are invited to inspect his Nursery as above, Designed and Erected by himself, containing several thousand feet of Glass.

Gardens kept in order by the year or otherwise.

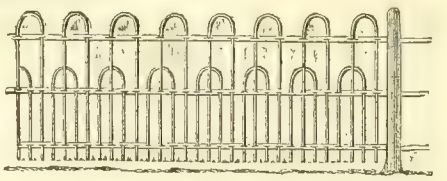
All kinds of Gravel, Peat, Sand, Loam, Leaf-mould, &c., supplied at the lowest possible prices.

Experienced Gardeners recommended.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.

Manufactory: Newport, Salop.

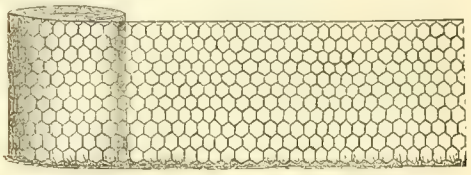
Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.



For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

NEW IMPROVED PREMIUM WIRE NETTING.

Great Improvement with Reduced Price.



PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh	Mostly used for.	Light. Jap	Light. Gal.	Medium Jap	Medium Gal.	Strong. Jap	Strong. Gal.	Extra Strong. Jap	Extra Strong. Gal.
		s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d*	*s. d.*
2¼ in.	Hares, Dogs, Poultry ..	0 3	0 4	0 3¾	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting ..	0 3½	0 4¼	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits, Hares, &c ..	0 4	0 4¾	0 4¾	0 6	0 5½	0 7	0 7	0 9
1½ in	Smallest Rabbits	0 5	0 6	0 5¾	0 7	0 7	0 9	0 9	0 11
1 in	Pheasantries, &c	0 9	0 11	10¾	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c. ..	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.

IRON HURDLES, CONTINUOUS BAR FENCING, IRON and WIRE FENCING, FENCING WIRE, FIELD and ENTRANCE GATES, GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, CAST IRON VASES, and every description of HORTICULTURAL MACHINES, TOOLS, and appliances.

Lists Free on application. Every article guaranteed to be satisfactory.

J. B. BROWN & Co., 18, Cannon Street, City, London, E.C.

Paxton Works, Sheffield, Established 1738.



INTERNATIONAL EXHIBITION PRIZE MEDAL WAS AWARDED TO SAYNOR & COOKE FOR SUPERIORITY OF QUALITY IN PRUNING AND BUDDING KNIVES, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1*s.* 6*d.* per yard run.
Four yards wide	3*s.* per yard.
An improved make, 2 yards wide,	1*s.* 8*d.* per yard.
An improved make, 3 yards wide,	2*s.* 6*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 4*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

AGRICULTURAL IMPLEMENTS.—STEAM ENGINES, THRESHING MACHINES, CARTS, WAGGONS, PLOUGHS, HARROWS, CHAFF-CUTTERS for hand and power, PRIZE CHURNS, LAWN MOWERS, WIRE NETTING, GARDEN TOOLS of all kinds.
Illustrated Catalogue on receipt of six postage stamps.
Price Lists free.
BURGESS & KEY, 95, Newgate Street, E.C.
Works, Brentwood, Essex

Exhibition Prize Medal 1862.
MUSGRAVE'S PATENT STABLE FITTINGS and HARMLESS LOOSE BOXES, PATENT IRON COW HOUSE FITTINGS, and IRON PIGGERIES.

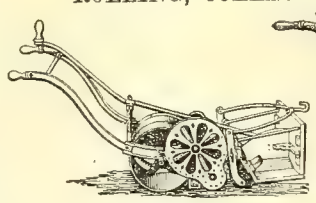


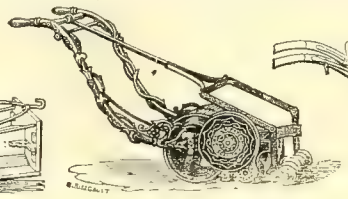
These inventions are recommended as possessing numerous advantages not to be found in anything hitherto made. At the late Meeting of the Royal Agricultural Society at Leeds, MUSGRAVE BROTHERS received a Silver Medal, and two Awards of "Highly Commended," being the only Prizes conferred on any competitor in this class.
Particulars sent on application to the Inventors and Makers, MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

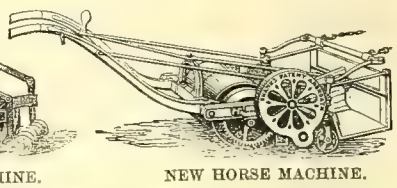
HAVE YOU a LAWN?—Use BELCHER'S PATENT PLANTAIN EXTRACTOR; which neatly removes Plantain and Daisies, and replaces them with fine Turf. Price 6s.: to be had of all Ironmongers.
Wholesale Agents, S. & E. RANSOME & Co., 31, Essex Street, Strand, W.C.

MORTON'S NEW IMPROVED PATENT LAWN MOWER, with Sun and Planet Motion, having all the most recent Improvements, is allowed to be the best Machine for preventing Ribbing and Clogging.
To be had, with prices and particulars, of GRIMMOND, LAIRD, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath; and all the principal dealers throughout the country.

SHANKS' NEW IMPROVED PATENT LAWN MOWING,
ROLLING, COLLECTING, AND DELIVERING MACHINE FOR 863.


NEW PONY MACHINE.


NEW HAND MACHINE.


NEW HORSE MACHINE.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine	£28 0 0	40s. extra.
No. 2.—42-inch Machine	26 0 0	40s. ,,
No. 3.—36-inch Machine	22 0 0	30s. ,,
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Silent Movement, 20s. extra; Boots for Horse's Feet, 24s. per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE

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No. 5.—30-inch Machine	£15 15 0	30s. extra.
No. 6.—28-inch Machine	14 10 0	30s. ,,
No. 7.—25-inch Machine	12 10 0	25s. ,,

Silent Movement, 12s. 6d. extra; Boots for Pony, 21s. per set; ditto for Donkey, 16s. per set.

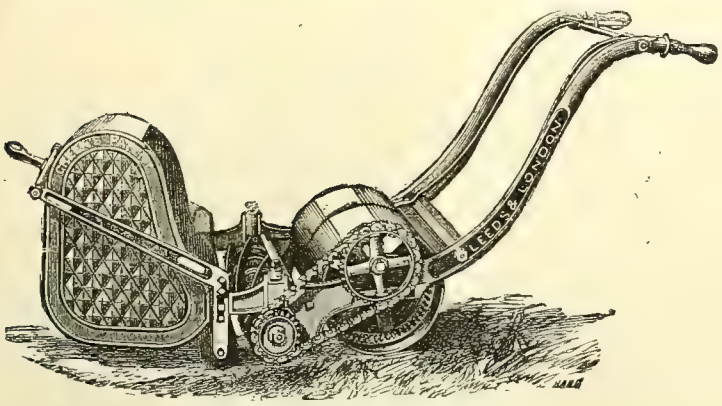
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No. 8.—24-inch Machine	£3 17 6	Easily Worked by Two Men.
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	Ditto by a Man and Boy.
No. 11.—16-inch Machine	£6 17 6	Easily Worked by a Man.
No. 12.—13-inch Machine	6 2 6	Ditto ditto by a Boy.
No. 16.—12-inch Machine	5 5 0	

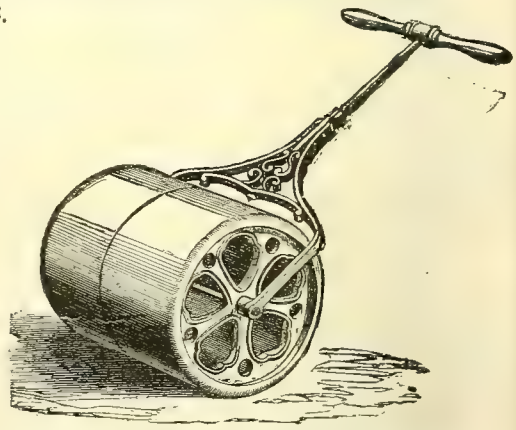
*** *Shanks' Lawn Mowers are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

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GREEN'S LATEST IMPROVED PATENT
NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES
FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.


GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS, PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

PRICES.

					If with Patent Delivery Box.
To Cut 10 inches	£3 10 0	Suitable for a Lady.			
,, 12 ,,	5 0 0	Suitable for One Person.	If with internal gear, 10s. extra.		
,, 14 ,,	5 10 0	Do.	Do.	Do.	10s. extra.
,, 16 ,,	6 10 0	Suitable for One Man or Two Boys.			

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

DONKEY and PONY MACHINES, including Traces.

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To Cut 24 inches	£11 10 0	£12 10 0
,, 26 ,,	12 10 0	13 12 0
,, 30 ,,	16 14 0	18 0 0

Leather Boots for Donkey, 16s.; for Pony, 20s.

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To Cut 18 inches	£7 10 0	Suitable for One Man and Boy			£8 15 0
,, 20 ,,	8 0 0	Do.	Do.		9 5 0
,, 22 ,,	8 10 0	Suitable for Two Men			9 17 6
,, 24 ,,	9 0 0	Do.	Do.		10 7 6

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To Cut 30 inches	£20 0 0	£21 10 0
,, 36 ,,	23 0 0	24 16 0
,, 42 ,,	26 0 0	28 2 0
,, 48 ,,	29 0 0	31 8 0

Leather Boots for Horse, per set, 1l. 4s.

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5s. | Diameter 16 inches, length 17 inches, price £2 10s. | Diameter 24 inches, length 26 inches, price £4 5s. Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

Every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;
and MANUFACTURERS of all kinds of IRONWORK for the IMPROVEMENT or EMBELLISHMENT of LANDED PROPERTY.

Illustrated Catalogues on application.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

FOWLER'S
STEAM PLOUGHING AND CULTIVATING PATENTS.

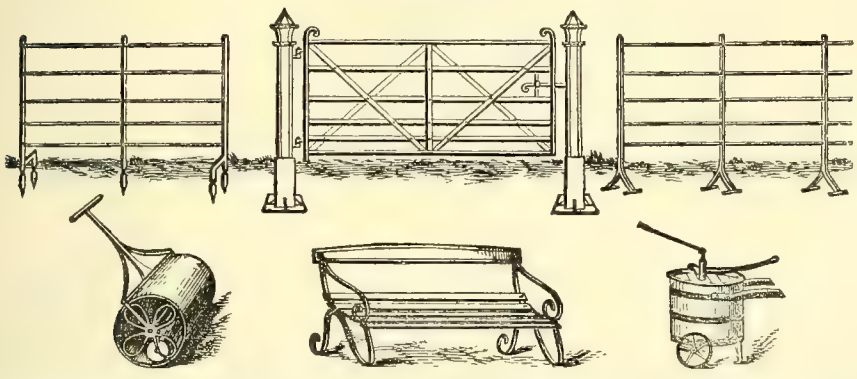
RANSOMES & SIMS, Orwell Works, Ipswich,

Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

COTTAM'S
CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED IN VARIOUS STYLES.

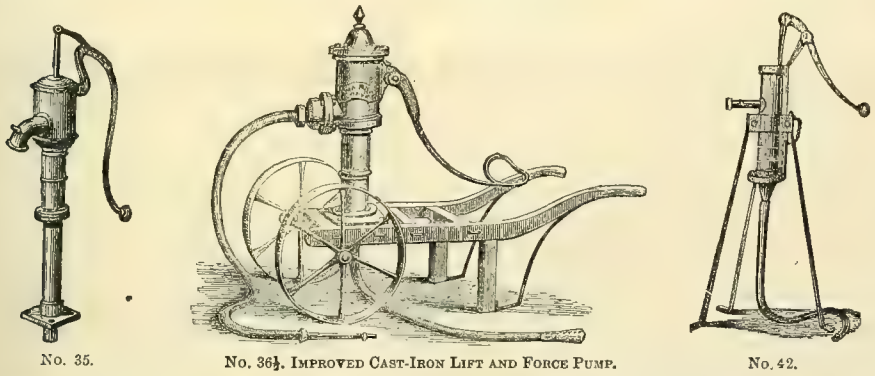


IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.
VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.
The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

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BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. No. 36½. Improved Cast-Iron Lift and Force Pump. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump one man will force the water in a continuous stream to a height of 50 feet.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER and SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

To Seed Merchants and Nurserymen.

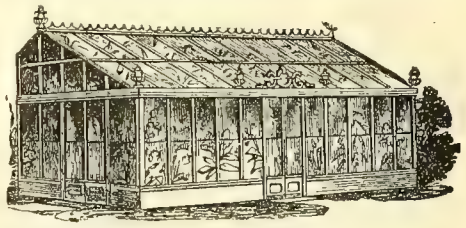
SAYNOR and COOKE, Pruning and Budding Knife Manufacturers, beg respectfully to say that they will not be undersold by any House in the Trade. They also warrant one of their Knives to last two of any other make.
Paxton Works, Sheffield.

PULHAM'S ROCKWORK FERNERIES, WATER-FALLS, CAVES, BANKS of STREAMS and PONDS, executed in the only way it should be, *i.e.*, to imitate Natural ROCKS. Worked with pockets, for plenty of plants to grow about it.
References to works executed in 10 counties, some by the recommendation of W. B. Thomas, Esq., and R. Marnock, Esq.

GARDEN or BATHING TENT, 30*s.*; Cork Mattresses (fluted), roll up, 4*s.* each; Poultry House, 50*s.*; Summer House, 50*s.*; Galvanized Poultry Wire-work, 6*d.* per square yard; Tarpaulings (8 ft. by 4 ft.), with eight eyelet holes, 2*s.* 9*d.*, for Gardens, &c.; other sizes, 9*d.* per square yard; all kinds of Wire-work, &c.
R. Richardson, 99, Euston Road, London N.W.
Large MARQUEES for Flower Shows, Fêtes, &c.; also 800 Flags and Banners on Sale or Hire; 20,000 Variegated Lamps on Hire.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at
Mr. Lynch White's Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

JAMES WATTS and CO., Hothouse Builders and Hotwater Apparatus Manufacturers, near the Green Man, Old Kent Road, London, S.E.



200 CUCUMBER and MELON BOXES and LIGHTS, and from
400 to 500 LIGHTS for PITS of all SIZES kept in STOCK.
Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the kingdom.
10 dozen strong Zinc HAND GLASSES, Glazed and Painted complete, ready for immediate use, 18, 20, and 22, all shifting tops.
Reference to the Nobility, Gentry, and Trade in most of the counties in England.

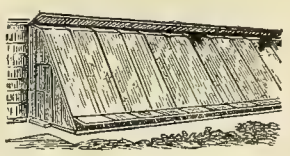
JOSEPH SMITH, New Road, Hammersmith, W., undertakes the ERECTION of GREENHOUSES, &c., in any part of the kingdom, and begs to offer for SALE about 10,000 feet of GLAZED LIGHTS for GREENHOUSES, PITS, &c.

Those glazed with 21-oz. glass, 9*d.* per square foot.
" " 16-oz. " 8*d.* " "
21-oz.—Eight. 12 feet 3 inches by 5 feet 8 inches.
Twenty. 11 feet by 4 feet 8 inches.
Nine. 8 feet 6 inches by 4 feet 8 inches.
Ten. 7 feet by 3 feet 11 inches.
Twelve. 5 feet 2 inches by 4 feet 2 inches.
16-oz.—Forty. 7 feet by 4 feet 3 inches.
Twelve. 8 feet 10 inches by 4 feet 2 inches.
Twenty. 6 feet by 4 feet 2 inches.
Twelve. 5 feet 2 inches by 5 feet 8 inches.
Also Span-roof Greenhouse, 27 feet by 16 feet, 47*l.*
Lean-to, 21-oz. glass, 46 feet by 14 feet, 55*l.*
" " 24 feet by 11 feet, 30*l.*
" 16-oz glass, 50 feet by 14 feet, 55*l.*
Second-hand, 12 feet by 7 feet, 14*l.*
Estimates given for Heating.

CLARK and HOPE (late Clark), 55, Lionel Street, Birmingham. Established A.D. 1818.
Manufacturers of Metallic and Wood Horticultural Buildings, Copper Sashes, Verandahs, Skylights, Wrought-iron Windows, Casements, and Hot-Water Apparatus.



C. & H. beg to call the attention of the Public to their PATENT STOP VALVE, which is simple in construction, warranted to resist a pressure of 30 lb. per square inch, and can be taken out for repairs without interrupting the working of the Apparatus. To be had at the following low prices:—2 inches, 14*s.* 6*d.*; 3 inches, 19*s.* 6*d.*; 4 inches, 25*s.* 6*d.* each. A liberal discount to the Trade.



C. & H. also beg to call attention to their New TREE COVER, or Continuous Glass Covering for Garden Walls. They are constructed of Cast and Wrought-iron, devoid of Shadow, and a Tenant's fixture; are made 6, 7, and 8 feet wide at bottom, 2 feet wide at top, and up to 14 feet high, and can be glazed with or without putty. The Ventilating Sashes are opened by means of simple and durable Machinery in lengths of about 50 feet at one operation, and not exceeding the cost of a wooden structure, are unequalled.
It will be evident from the above that the great desire of the Manufacturers is to bring the articles within the reach of a very large class of consumers, who, it is hoped, will avail themselves of the advantages thus offered.
Particulars and prices forwarded upon application, also Lithographed Designs of Horticultural Buildings, Copper Bars, &c.

Cabbage Seed for Present Sowing.

SUTTON AND SONS can now supply the best sorts of CABBAGE SEED for early Table use next spring and summer.

Also the large DRUMHEAD CATTLE CABBAGE, which should be sown now for Feeding in the autumn of next year, and smaller kinds for Sheep Feeding early next summer.

Prices moderate, but various according to sorts.

Royal Berkshire Seed Establishment, Reading.

The Quickest Turnip Known.

SUTTON'S SHORT-TOP SIX-WEEKS TURNIP.—Good Turnips for table use may be obtained within six weeks from the date of sowing this seed. It is decidedly quicker than any other sort hitherto offered. Price 1*s.* per lb.

EARLY SIX-WEEKS STUBBLE TURNIP.—This is an excellent sort for Sheep-feed in winter and early spring. It will succeed well if sown before the 1st of September. Price 8*d.* per lb., or cheaper by the bushel.

Royal Berkshire Seed Establishment, Reading.

Permanent Grass Seeds for all Soils.

SUTTON AND SONS can supply good fresh SEEDS for immediate Sowing as under:—

PERMANENT GRASS SEEDS for Laying down New Pastures (including CLOVERS in full quantities), 30*s.* per Acre.

PERMANENT GRASS SEEDS for mending new Pastures, which may have been injured by the Corn crop, 12*s.* per bushel.

Royal Berkshire Seed Establishment, Reading.

For Present Sowing.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, 6*s.* per bushel, or cheaper in large quantities.

This is the best season for sowing Italian Rye-grass to ensure sheep feed very early in the spring.

TRIFOLIUM INCARNATUM (Early Crimson), 4*d.* to 5*d.* per lb., or cheaper in large quantities.

*** A mixture of the above will be found very useful for mending Clover and Grass Seed sown for mowing next spring.

MUSTARD SEED for Sheep Feed in October and November, or for green manure.

RAPE.—New Seed at reduced price.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Imported Orchids.

B. S. WILLIAMS has just received a fine importation of the following ORCHIDS:—

LYCASTE SKINNERI | CATTLEYA MOSSIÆ
CATTLEYA SUPERBA
GALEANDRA DEVONIANA, a choice and rare plant, finest of the genus.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

WANTED, CUTTINGS of PELARGONIUMS, good market varieties; also STRAWBERRIES of the following varieties:—Admiral Dundas, Frogmore Late Pine, Oscar, La Constante, Mammoth, Marguérite, Richard III., Sir Harry, Trollope's Victoria.

State lowest price per 100, to the PROPRIETOR, Kew Gardens, Cradley, near Malvern.

Pyrethrum Seeds.

JOHN SALTER can supply new Seeds of Single and Double PYRETHRUMS, saved from his own collection. Single varieties, 1*s.* 6*d.* per pkt. | Double varieties, 3*s.* 6*d.* do. Post free.

Versailles Nursery, William Street, near Hammersmith Turnpike, W.

Vines bearing Fruit.

GEO. CLARKE begs to offer handsome Plants, well furnished, with good bunches of fruit now ripening, at 10*s.* and 15*s.* each; the fruit at present upon them is worth more than the price of the plants. A large stock also of younger plants of all the new and best kinds, prices upon application.

Nursery, Streatham Place, Brixton Hill, S; and 4, Windsor Terrace, near the Victoria Railway Station, Pimlico, S.W.

DUTCH FLOWER ROOTS.

JAMES VEITCH,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEGS TO ANNOUNCE THAT HE HAS RECEIVED HIS

ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND,

and is pleased to say that they are in excellent condition.

CATALOGUES are now ready, and will be forwarded post free on application.

J. V. desires to impress upon those who patronise him the great advantage of giving him their orders early, as the successful Cultivation of Bulbs depends in a great measure upon their being planted early in the season.—August 22.

NEW PLANT CATALOGUE.

JAMES VEITCH

BEGS TO ANNOUNCE THAT HIS

CATALOGUE OF NEW AND BEAUTIFUL PLANTS

FOR THE PRESENT SEASON IS NOW READY,

AND WILL BE FORWARDED POST FREE ON APPLICATION.

ROYAL EXOTIC NURSERY, CHELSEA, S.W.—Aug. 22.

ROYAL HORTICULTURAL SOCIETY.

REMAINING ARRANGEMENTS for the EXHIBITIONS and MEETINGS in 1863,

TO BE HELD AT

THE GARDEN, SOUTH KENSINGTON, W.

TUESDAY, AUGUST 25	Floral Committee, at 12. Fruit Committee, at 12.
WEDNESDAY, SEPT. 9	AUTUMN FLOWER SHOW, at 1. Band at 2. Floral Committee, at 10. Fruit Committee, at 10.
TUESDAY, SEPT. 22	Floral Committee, at 12. Fruit Committee, at 12.
FRIDAY, OCT. 2	Council, at 11. Meeting for Election of Fellows, at 2.
TUESDAY, OCT. 6	Floral Committee, at 12. Fruit Committee, at 12.
FRIDAY, NOV. 6	Council, at 11.
TUESDAY, NOV. 10	Floral Committee, at 12. Fruit Committee, at 12.
FRIDAY, DEC. 4	Council, at 11.
TUESDAY, DEC. 8	Floral Committee, at 12. Fruit Committee, at 12.
FRIDAY, DEC. 18	Council, at 11.

ELECTION OF FELLOWS.

Gentlemen and Ladies wishing to become Fellows have to be proposed by some one already a Fellow, to whom they are personally known. The subscription is Two Guineas Entrance Fee, and Two Guineas or Four Guineas a year according to the privileges wished.

SHOW OF AUTUMN FLOWERS AND OUT-DOOR FRUITS, WEDNESDAY, SEPTEMBER 9.

Free to Fellows and the Transferable Cards, and also admission by payment at the door or by Tickets previously purchased.

LIST OF PRIZES.

AUTUMN FLOWERS.

CLASS.	1st Prize.	2d Prize.	3rd Prize.
	£ s.	£ s.	£ s.
1. 12 Hollyhocks, single flowers. Distinct kinds .. (*Open*)	2 0	1 0	0 15
2. 24 German Asters. "Quilled." Distinct kinds .. (*Open*)	2 0	1 0	0 15
3. 24 French Asters. "Tasselled." Distinct kinds .. (*Open*)	2 0	1 0	0 15
4. 24 Gladiolus, cut spikes. Distinct kinds .. .. (*Open*)	2 10	1 10	1 0
5. 12 Gladiolus, cut spikes. Distinct kinds .. .. (*Amateurs*)	2 0	1 10	1 0
6. 24 Phloxes, single trusses. Distinct kinds .. .. (*Open*)	2 0	1 0	0 15
7. 24 Verbenas, 5 trusses of each. Distinct kinds. .. .. (*Open*)	1 10	1 0	0 15
8. 48 Dahlia Blooms. Distinct kinds .. .. (*Nurserymen*)	5 0	4 0	3 0
9. 24 Dahlia Blooms. Distinct kinds .. .. (*Nurserymen*)	3 0	2 0	1 0
10. 18 Dahlia Blooms. Fancies. Distinct kinds (*Nurserymen*)	3 0	2 0	1 0
11. 18 Dahlia Blooms. Distinct kinds .. .. .. (*Amateurs*)	4 0	3 0	2 0
12. 12 Dahlia Blooms. Fancies. Distinct kinds .. (*Amateurs*)	3 0	2 0	1 0
13. Miscellaneous. For flowers not specified .. .. .. (*Open*)	2 0	1 0	0 10

OUT-DOOR FRUITS (OPEN).

NOTE.—A Dish of Apples, Pears, Oranges, Lemons, and such like, 6 fruits of each; Plums, 9 fruits.

CLASS.	1st Prize.	2d Prize.	3d Prize.
	£ s.	£ s.	£ s.
A. Collection of Fruit, 8 dishes, 6 distinct kinds	6 0	4 0	3 0
B. Peaches. 4 Dishes. Distinct kinds	3 0	2 0	1 0
C. Peaches. Single dish	1 10	1 0	0 10
D. Nectarines. 4 dishes. Distinct kinds	3 0	2 0	1 0
E. Nectarines. Single dish	1 10	1 0	0 10
F. Figs. 3 dishes. Distinct kinds. 12 fruits each	2 0	1 10	1 0
G. Figs. Single dish. 12 fruits	1 0	0 15	0 10
H. Cherries. 3 dishes. Distinct kinds	2 0	1 10	1 0
I. Cherries. Single dish. 50 fruits	1 0	0 15	0 10
J. Plums. 4 dishes. Distinct kinds	2 10	2 0	1 10
K. Plums. Single dish	1 0	0 15	0 10
L. Apples, Dessert. 3 Dishes. Distinct kinds	2 0	1 10	1 0
M. Apples, Kitchen. 3 Dishes. Distinct kinds	2 0	1 10	1 0
N. Pears, Dessert. 3 Dishes. Distinct kinds	1 0	0 15	0 10
O. Miscellaneous	1 10	1 0	0 15

HYACINTHS and other DUTCH BULBS.

The First Prize for a Collection of Hyacinths.
The First Prize for 18 Hyacinths.
The First Prize for 6 New Hyacinths.

Being all the First Prizes offered to Nurserymen at the Royal Horticultural Society's Hyacinth Show on March 18, were awarded to William Paul, Paul's Nurseries, Waltham Cross, N.

PRICED DESCRIPTIVE CATALOGUE free by post.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his New CATALOGUE, containing Select, Descriptive, and Priced Lists of Exotic Orchids, New and Rare Greenhouse, Hardy, and Stove Plants, Ornamental and Variegated foliaged Plants, Azalea Indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, Narcissus, and other Bulbs, is now published and will be forwarded to all applicants.

Exotic Nursery, Tooting, Surrey, S.

CHOICE SEEDS.—CINERARIA, 1s. per packet; CALCEOLARIA, 1s. do.; PRIMULA, 1s. do.; COVENT GARDEN INTERMEDIATE STOCK, 1s. do.; MIMULUS, 1s. do.; HUNT'S SWEET WILLIAM, 1s. do.; CARNATION, 1s. do.; PICOTEE, 1s. do.; PELARGONIUM, 1s. do.

Barr & Sugden, Seed Merchants, 12, King Street, Covent Garden, W.C.

Sow in August.

DOBSON'S PRIZE CALCEOLARIA.
The most varied and beautiful strain imaginable.
In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.

Sow in August.

DOBSON'S PRIZE CINERARIA.
A splendid strain. Received 10 first prizes in 1862.
In sealed packets, 1s., 2s. 6d., and 5s.

Sow in August

DOBSON'S PRIZE PRIMULA SINENSIS FIMBRIATA. From finely fringed Flowers.
In sealed packets, 1s., 2s. 6d., and 5s.
The above Seeds are unequalled for quality.
J. Dobson & Sons, Woodlands Nursery, Isleworth, W.

To the Trade.

LONICERA AUREO-RETICULATA.
1st size, 18s. per dozen
2d " 12s. "
3d " 6s. "
James Wright & Co., Nurserymen, Edgware, N.W.
Also a large quantity of strong SEAKALE.

CALCEOLARIA, CINERARIA, PRIMULA, &c.—CALCEOLARIA, saved from carefully hybridised flowers, possessing all the recognised floral qualifications, viz., size, form, colours, and marking Price, 1s. and 2s. 6d. per packet. CINERARIA, extra choice, 1s. per packet. PRIMULA SINENSIS FIMBRIATA, extra choice, 1s. and 2s. 6d. per packet. DRACÆNA (CORDYLINE) INDIVISA, from Mount Egmont, New Zealand; beautiful fine foliaged plant, 1s. and 2s. 6d. per packet.

Butler & McCulloch, Seed Merchants, Covent Garden Market, London, W.C.

The Gardeners' Chronicle.

SATURDAY, AUGUST 22, 1863.

MEETINGS FOR THE ENSUING WEEK.

Tuesday, Aug. 25 { Royal Horticultural (Floral and Fruit Committees) at S. Kensington.

The present summer has hitherto been most remarkable, both in this country and in France. Here it has been characterised by warm days with a large amount of sunshine, whilst the general and occasionally extreme coldness of the nights is probably unprecedented, in our average hottest month (July) more especially. At Paris we are informed the heat has been greater than has been experienced, excepting perhaps once, for at least 158 years. In *Les Mondes*, a weekly publication conducted by M. L'Abbé Moigno, there is an article relating to this extraordinary high temperature, from data supplied by M. Barral, a few extracts from which may prove acceptable to our readers, many of whom are interested in the subject.

In a note to the editor of *Les Mondes*, requesting that he would have the kindness to say in his next Number what the highest temperature was on the 9th of August, Marshal Vaillant stated that he himself had observed the thermometer for several hours at 100°.4; but it appears from the report of M. Barral, that the temperature of that day reached as high as 102°.2, in the shade. The heat was suffocating in all the streets; between 1 and 3 P.M. there was scarcely a breath of air. The stones were burning hot, and the asphalte of the footpaths was softened by the ardent rays of the sun to such a degree that the feet sank in it. Relief was nowhere to be found, except in streets and squares that had been abundantly watered.

The Luxembourg resembled a hot sand desert. Those who fled thither for air experienced a wind which blowed in their eyes a dry scorching sand. The leaves of the Chesnut trees in the grand avenue which leads to the Observatory are burnt up, some of the trees are even quite leafless, and scarcely any shade is afforded by this avenue, usually so fine. The trees in the inside rows are the only ones which yet retain their foliage.

In the garden of the Rue Notre-Dame-des Champs, where M. Barral's observations were made, the thermometer placed in the shade, and distant from any wall, indicated 39° Centigrade, or 102⅘° Fahrenheit, at 2 h. 30 m. On the 9th, at 4.30 it was still nearly 97°. When the temperature was at the highest in the shade, 102⅕°, it was 149° in the sun, according to the observations of Mercier. It is very rare that at Paris the thermometer in the shade exceeds 96⅓°. Since the commencement of the century it has only once reached so high as 98⅗°; and this was on the 18th of August, 1842.

In the last century higher temperatures than the above have been recorded; but there is some doubts as to whether the thermometers were properly corrected previous to the last 60 years, since which time they have also been differently placed. The thermometrical observations at Paris do not date further back than 1705; and the highest temperatures recorded in the tables are 102°.2 Aug. 19, 1763; 103° Aug. 14, 1773; and 104° Aug. 26, 1765.

The first half of July of the present year was very warm at Paris. The maximum temperature on the 12th was 91½°; and on the 11th and 13th nearly 90°. Since the commencement of August the maximum temperatures have been as follows, at Paris and London:—

August	1.	2.	3.	4.	5.	6.	7.	8.	9.
Paris	84.2	86	87.8	93.5	90	86	84.5	95	102.2
London	77	81	82	78	76	79	80	80	86
Difference ..	7.2	5	5.8	15.5	14	7	4.5	15	16 2

We may here observe that the thermometer has never been observed to stand so high as the above in England. The greatest heat in the shade registered at Chiswick, was 97° on the 5th July, 1852. According to Howard's "Climate of London," the thermometer stood at 98°.5 July 13th, 1808, and at 97° July 18th, 1805. These appear to have been the hottest days in the present century in this country.

We have not at present the means of stating the lowest temperature of each night at Paris during the above period, but it is mentioned in *Les Mondes* that the thermometer never fell below 51° or 52°. Rain fell only on four days at Paris in July, namely the 20th, 21st, 23d, and 25th, and altogether the amount was less than an inch, the average quantity being nearly 2 inches. Some fell on the 2d and 5th of August, but scarcely 1-20th of an inch. With so little rain and excessive heat we can easily imagine that vegetation must have been very much parched and scorched. That trees must have suffered in many situations we may infer from the effects produced on the healthy well established Chesnut trees above mentioned. Vines in the open air we are inclined to believe would withstand the heat, intense as it has been; for an experiment was made with a Vine exposed to the rays of the sun in a three-light frame, kept shut and locked; the thermometer enclosed with the Vine often rose under the influence of the sun's rays as high as 140°. But the Vine lived and grew incessantly for months, indeed, till there was no longer any danger from excessive heat. A thick-leaved tropical Orchid was put in for trial along with the Vine; but it was cooked, apparently parboiled, in one day. Therefore we conclude that Vines will not have been injured by the recent excessively high temperature. On the contrary, where the Vines were not cut off by the frost in spring, the vintage ought to be unusually good. But the most interesting question, as regards the people of this country, in connexion with the great heat and dryness which has prevailed in France, is the state of the grain crops. Being earlier than here it appears these crops had previously completed their maturity; for in a note from Marshal Vaillant to the periodical to which we have been referring, he states that the Wheat crop is magnificent in Alsace and in Flanders; that the harvest is terminated in the valley of the Rhine, and that the produce is about 40 bushels per acre; that the bushel weighs 68 lbs., which has not been the case since 1834; and his conclusion is that in France the Wheat produce of 1863 is nearly equal to that of two ordinary years.

We shall now advert to the weather of the current summer in England, which we mentioned as having been remarkable. It has been as much so for the coldness of the nights as it has been in France for the heat of the days. We had in July a mean maximum temperature of fully 78°, or 3°.66 above the average; but on the other hand the mean minimum was only 40°.8, no less than 10½° below the nightly average. On the 18th the thermometer at night indicated 27°, or 5° below freezing. On 13 nights it was below 40°, as will be seen from the following instances:—

July 9th, 33°; 13th, 37°; 14th, 36°; 16th, 34°; 17th, 33°; 18th, 27°; 19th, 37°; 20th, 33°; 23d, 32°; 25th, 36°; 26th, 36°; 27th, 39°; 30th, 35°. The lowest registered in July at Chiswick for the last 37 years, was 34°, on the 25th, 1860. The frost of the 18th ultimo injured such plants as Kidney Beans and Vegetable Marrow in low situations; but for the hardier kinds of vegetation the weather of the past month proved on the whole favourable, and highly so for the grain crops, owing to the large amount of sunshine. We had a mean temperature of 59°.53, or 3°.7 below the usual mean of July, in consequence of the coldness of the nights, which lowered the mean, notwithstanding the heat from more than usual sunshine. We have often observed that when a certain mean temperature is owing more to the heat of the days than to the warmness of the nights, as has notably been the case in the present summer, the grain crops are substantial and their nutritious properties well developed. This can only be done by the powerful agency of the sun's rays. It appears from the columns of temperature of which we have given the averages, that the sun's rays have exerted a more than usual influence, and the consequence is the finest quality of crop that has perhaps ever been produced; and this is the result of cold nights and warm very sunny days. Doubtless we could as well have dispensed with the former if at the same time we could have had the latter; but it is generally the case in our own climate, that if the nights are warm the days are dull, cloudy, and sunless. From the experience we have had in the present season more especially, we may rest assured that if the days are warmer than usual, even if the nights should be much below their average, the crop will be good and substantial.

R. T.

—— Our readers will doubtless remember some curious remarks on the supposed discovery of Roman Oats, near Alnwick, to which we gave insertion some time since (p. 388); and also a letter relating to the paragraph in question, which appeared in our subsequent Number. We find in the concluding Number of the *Phytologist* (the source whence the former statement was derived) the following letter from Mr. James Binks, on the same subject, and as it contains some further information, we transcribe its substance, as follows:—

"My attention has been recently directed to a letter in the *Phytologist*, written 'for Peter Lawson & Son,' respecting an article on the Roman Oat question, which appeared in your periodical. I must premise, in simple justice to myself, that the article in question was published in your pages in its present imperfect form entirely without my knowledge and concurrence; otherwise I might have supplied additional particulars as to the result of last year's trial of the Oats, a course which might possibly have saved your Correspondent's animadversions, by furnishing the 'further manifestations' he seems to have expected. It appears almost superfluous to remind the writer that, as the opinion of 'nearly every one' at the Battersea Park Show was communicated to me by him at the time in terms precisely synonymous to those in the said letter, it would have been a work of supererogation to have intruded any further notice of my Oats in quarters where the firm he represents has so great influence. Happily, however, another year's careful cultivation of the Oats has warranted experienced agriculturists of the north of England in still retaining opinions entirely hostile to that of 'nearly every one' at the Battersea Park Show. I may further be allowed to state, at the risk of trespassing too much on your valuable space, that it is my intention to re-cultivate the original camp-ground next season, when I have no doubt the specimens with heads resembling Onions will be brought permanently into the catalogue of mortal realities."

—— In a paper describing the effect of geological position on certain Coniferous plants, Lord Ducie has recorded the fastidiousness of Cryptomeria japonica in respect to soil, as observed in and about Tortworth Park. On the limestone its leading shoot, he remarks, is always defective, and its growth generally devoted to the formation of a nest-like mass of small shoots; whilst on the old red sandstone, a formation which is deficient in lime, its growth is regular, upright and graceful; and so rapid that his lordship observes he has no hesitation in affirming that in the locality in question it would outgrow the Larch. The Deodar, on the other hand, appears to be the least discriminating and the most accommodating of all the Conifers.

—— Mr. E. S. Dodwell has given in a recent number of *Gossip* the following description of a

Plantain Extractor invented by Mr. Belcher of Faringdon. This implement, he remarks, "is so simple, yet so efficient for the purpose intended—the removal of weeds from lawns, and the replacing the parts thus denuded of verdure with fine Grasses, that I feel it cannot be too widely known. Like everything really useful, it is very simple, both in its form and mode of application. It is indeed a gun-punch on an enlarged scale—say 3 inches in diameter—fitted with a light iron handle the length of an ordinary spade handle, and a tread to give facility in forcing it into the ground. Placed upon the weed to be removed, a slight pressure drives it into the ground, and a horizontal twist brings the same completely away in the form of a large pellet. This is repeated until the weeds have been wholly removed. Then the operator proceeds to any neighbouring piece of fine Grass, every road side abounding in such, and strikes out an equal number of pellets, deposits the same in the holes made by the removal of the weeds, the fit being neatness itself, and the operation is complete. Mr. Belcher says the merits of the implement are not confined to the removal of weeds from lawns, but that for the converting of arable land into pastures, it is most efficient. On this I pass no opinion, as I have no experience, but as an extractor of weeds and a means efficiently of replacing such weeds with selected pieces of the finest Grasses, I cannot doubt Belcher's Plantain Extractor to be without a rival."

—— Here is a point for discussion amongst Rosarians! Discussing the regulations for the late Rose Show at Birmingham, our contemporary *Gossip* remarks:—"The committee still adhere to the sensible plan of 96 singles, and we should have been glad if they had avoided treble trusses in all cases. The absurdity of simply making a box of Roses so many masses of colour is not to be endured for ever. It is surely much wiser to show a truss of Roses in all its perfection and simplicity: at least all *true* florists think so." This rule of showing treble trusses came in with the early days of Rose-showing, and was, no doubt, adopted more for the purpose of securing an effective display than for any other purpose. As however we secure better sorts and better cultivation, it is quite a question whether it might not be wisely relaxed. Taking into consideration the splendid show made by boxes of single blooms exhibited in the course of the past season, we are inclined to the opinion that single trusses would give us all we want. Probably the rule would also protect us against the infliction of the stale over-blown flowers sometimes necessarily put in to make up the number. What is the general opinion on this matter?

—— Mr. Barnes, of Bicton, has recently, in the *Florist*, given some examples illustrative of the destructive effects of mildew on the roots of Deodars, and of the injury likely to result from suffering old stumps and rotting wood to remain in the ground in which such trees are intended to be planted. In brief, the cases were as follows:—No. 1. Four large trees were, about a dozen years ago, growing at the corners of a square piece of water at Bicton. After some hot sunny weather the foliage of one of these turned suddenly from a luxuriant green to a pale yellow; next spring the plant was unable to put forth new foliage; and as the season advanced the old leaves fell off, leaving it naked. On examination the roots were found to be eaten up with Fungi, which had also run up the heart of the tree. The soil was found to contain a good many old roots and pieces of wood from a shrubbery which had formerly been grubbed. This wood was white with mildew, and was no doubt the real enemy. No. 2. Some 16 or 18 years since a clump of Deodars were planted on a piece of pasture land, and grew away vigorously. Five years ago one of them became unhealthy, and it was found on examination that an old hedge had formerly run across the spot, and that when this hedge was grubbed the roots and broken wood were left in the ground to decay. These undoubtedly were the forerunners of the mischief, to which, Mr. Barnes remarks, several other fine trees have since been sacrificed.

ENTOMOLOGY.

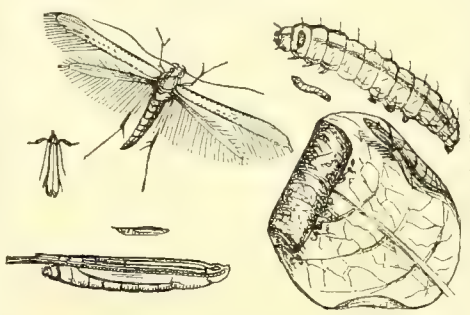
Gracilaria rufipennella.

The common Walnut tree is remarkable for its freedom from the attacks of insects, the peculiar flavour of the leaves being the probable cause of this immunity; indeed, Loudon, in his "Arboretum Britannicum," does not enumerate a single species of insect attached to this tree, although the Black Walnut of North America nourishes the caterpillars of a large moth of the same genus as our great red under-wing moth. A small beetle, however, Lyctus Juglandis, lives under the decaying bark of the English species.

It was therefore with considerable surprise that in passing along the high road from Botzen to the Brenner Pass in the Tyrol in the third week of last May, we observed that the greater part of the Walnut trees which are planted along the road sides had the appearance of having been scorched or affected by a very severe frost, a great proportion of the leaves having a large portion brown and withered. On examining them we found this was caused by their having been rolled up and gnawed to pieces by numbers of minute caterpillars, many of which were still within the rolls, although the greater part of the mischief had already been completed, and the caterpillars left their rolls. There was nothing peculiar in the manner in which the roll was formed, of which an idea will be obtained from the accompanying figure. There had been considerable rain at the time, and a good deal of the excrement of the larvæ combined to give the leaves a decayed state.

The caterpillars are rather more than a quarter of an inch long, fleshy, with a few very fine erect hairs on the different segments of the body. They have a semi-transparent skin, and are of a dull clay colour with a dark brown streak down the body formed by the visceral canal, the jaws are brown, and on the first segment of the body is a darker-coloured horny patch or scale. When ready to assume the chrysalis state these caterpillars had become of a very pale green colour, with the head and tail slightly clay-coloured. In addition to the three ordinary pairs of legs attached to the first three segments, and the single pair at the extremity of the body, these caterpillars were only provided with three pairs of ventral feet.

When full grown they leave the old roll of the leaf, which they have greatly devoured and rendered unsightly, and curl up a small portion of the margin of the still unconsumed part of the leaf, forming it into a kind of cradle, spun round with pale greenish white silk, and within which they assume the pupa state, which is remarkable for its very slender form as well as for the great length of the pair of antennæ-cases, which



extend considerably beyond the extremity of the body. The head terminates in front in a small conic l point, the dorsal portion of the segments of the abdomen is armed with numbers of minute horny points or little reflexed teeth, and the extremity of the body is truncate, and also armed with several minute points. When about assuming the perfect state, the chrysalis thrusts itself half out of its silken cradle (as represented in our figure), the little hooks on its back forming an excellent anchor.

The chrysalis state lasts only about a fortnight, and we had the pleasure of obtaining specimens of the perfect insect developed during our stay in Austria, and the fact of the species attacking the Walnut being new to our entomological friends in Vienna, we consider it may be considered interesting to our readers at home.

The perfect insect is very slender and delicate in its form, belonging to a genus thence appropriately named Gracilaria by our tutor in entomology, the late Mr. Haworth. Its specific name, rufipennella, has been determined for us by Mr. Stainton, who has performed such excellent service to the science by his unwearied observations on the transformations of the difficult family Tineidæ to which the insect belongs. The upper surface of the head and thorax and the fore wings are of a reddish brown colour, varying in some specimens to a more orange, and in some to a greyer tint. The fore edge is marked with a paler streak alternating with a great number (about 20) minute black dots; there are also two or three longitudinal rows of similar dots, but very irregular in number and distinctness, along the disk of the wing as well as on the inner margin; the long fringe of the inner margin is dark grey, which is the colour of the hind wings and their still longer fringe; the legs, especially the middle pair, are a good deal mottled with pale grey, black and reddish coloured scales. The tibiæ or shanks of the middle legs are clothed with broad flat scales, and when the insect is sitting at rest, with the extremity of the wings resting on the surface on which it is standing, and the head considerably elevated, the middle legs are thrown out nearly at right angles with the body, and the fore-legs are brought into contact with them, and completely hidden by the scales of the middle feet. The perfect insect measures two thirds of an inch in the expanse.

From the fact of the Walnut tree not having been hitherto observed to be attacked by this insect, and also from the species before us being ordinarily known to infest the Scyamore,* we presume the attack upon the former tree during the present year to be an unusual instance of divergence of habit in the insect, owing to some peculiarity which we have no means of determining, and consequently, in an economical point of view, as not likely to be continuous and therefore permanently injurious to the Walnut tree. *J. O. W.*

* Frey (in his work on the Swiss Tineæ, p. 234) says that the species is found in Alpine valleys on Acer Pseudo-platanus, sometimes in prodigious multitudes.

CULTIVATION OF PEACHES AND NECTARINES UNDER GLASS.

My experience as an amateur gardener is only limited, and consequently my general knowledge of the subject equally so; but it happens that for several years I have, when at leisure, amused myself a good deal with the cultivation of fruit trees under glass, and therefore I have noticed with no small degree of interest the various opinions that have from time to time been expressed in your columns as to the alleged advantage of growing fruit trees in pots, on what is now very generally known as the orchard house system.

In the present instance, however, my observations will be confined entirely to what I conceive to be the simplest method of growing Peaches and Nectarines; there is little of novelty in it, but now that so much is said and written of the superior merits of orchard house cultivation, I think if a practical comparison could be drawn with that and any other method, it might be both acceptable and instructive to those of your readers who are desirous of having their tables supplied with the best fruit at the lowest cost. I will therefore state as concisely as possible the plan which I have adopted, and the results of the past year. My house is 43 feet long; 10 feet 8 inches wide; height in front, 1 foot 7 inches; height in back, 9 feet 9 inches; length of slope, 13 feet 6 inches. The trees, consisting of two Peaches and one Nectarine, are planted inside the house, and trained on galvanised wire, at a uniform distance of 14 inches from the glass, and there are moveable lights along the bottom, 4 feet long and 3 feet wide, for the convenience of pruning the trees and other purposes. The lower part of the back of the house consists of a dry stone wall plastered inside, and the upper part of half-inch-boards, the whole structure is roughly put together, and consequently a good deal of air finds access for ventilation at all times; indeed for this there is no regular provision. There is however a door at each end of the house, so that by opening these more or less when necessary a regular current of air passes through it. A flue made of fire-clay tubes, 9 inches in diameter, runs the whole length, and heats it admirably with the consumption of a very small quantity of fuel.

In January or beginning of February the trees are pruned, and all the young wood, with the exception of what is extra vigorous, shortened one-half or two-thirds. The more slender shoots are cut down to three or four bloom buds, so as to insure the fruit bearing as near as possible to the old wood, which I believe you have frequently told your readers is a most essential point to be attended to. The Cuba bast ties, with which the trees are fastened to the wire, being a sure refuge for red spider, are all removed and new ones substituted. After pruning no further notice is taken of the trees until the new shoots are sufficiently advanced to render the process of disbudding necessary, which is carefully attended to. For the prevention of green fly, Neal's pastils are I think very efficacious, although the nitrous fumes are sometimes slightly injurious to the foliage. As soon as the fruit is fairly set, and it can be done with impunity, syringing commences; this is continued throughout the summer three or four times weekly, depending of course entirely on the state of the weather; the floor of the house, however, is never allowed to be dry.

In thinning the fruit, which is done rather severely, I always of course leave those on the upper side of the tree next the glass. When it is almost fully swelled the use of the syringe is discontinued, and I am very particular in so arranging the leaves round each fruit that it shall have the full benefit of the sun. This is, I am satisfied, a most important point to be attended to, and quite essential both to good flavour and appearance.

As soon as all the fruit is gathered the application of fire heat commences, and this is continued until the wood appears to be fully ripened, another point which is I believe universally acknowledged to be of the utmost consequence. During the whole time the flues are heated they are kept well painted with sulphur mixed with a little clay; there is now little or no danger of any injury arising from sulphurous fumes, and their continued application is so disagreeable to red spider that few will remain to stock the premises the following spring. When, however, these pests fairly establish themselves, especially in a house roughly put together, I do not believe that any known remedy will thoroughly exterminate them. All the compounds recommended by their several inventors for this purpose are quite temporary in their effect, and are in reality of little use. I have tried most of them to some extent, but the application of sulphur in the autumn, and the regular use of the syringe during the summer, will I believe always keep red spider sufficiently in subjection to protect the trees from injury.

I am not certain as to the correct names of either my Peach or Nectarine trees; one Peach is however considerably earlier than the other, and is, I fancy, the Royal George; the other is a later and a larger kind, but does not set its fruit so freely.

The early Peach produced 250 fruit, the largest being from 8 to 8½ inches round. The late one produced 111, the largest being from 9½ to 10 inches round. From the Nectarine I gathered 111 fruit—the best being from 7 to 7½ inches round; there is also a Nectarine trained against the back wall of the house, always affording a good crop, and from which I gathered six or seven dozen; but being shaded by the other trees the fruit is comparatively both flavourless and colourless. This leads me to suppose that Peaches and Nectarines grown in an orchard-house in pots, where it is impossible they can ever enjoy the full rays of the sun in consequence of the fruit being partially shaded by the foliage itself, never can acquire that excellence either of flavour, size, or beauty which they invariably do under the circumstances named. This garden is upwards of 150 miles north of London, in a cold bleak country, at an elevation of 750 feet, so that as regards locality we certainly do not enjoy any advantages.

The first Peach was gathered on the 30th August, and the last on the 14th October. No means are used to ripen the fruit at an earlier time; on the contrary abundance of air is given at the commencement of the year in order to retard the expansion of the bloom, and thus render it more secure from the effect of unfavourable weather when setting. These fruits are much the most valuable when the commoner kinds are over; moreover the crop is more certain, less expensive, and of superior quality.

I find the present house too small in every respect for three trees; it ought to have been quite 60 feet long and some 3 feet wide in order to give them the elbow room they require.

My object in making this communication is to elicit from some of your Correspondents an exact account of the result of their practice, whatever it may be. I imagine that a simple statement of the number of fruit gathered from one or more trees is no criterion whatever of judicious or successful cultivation. We hear of Nectarines in orchard houses hanging in clusters on the trees like Walnuts, and of Apricot trees being loaded with fruit, but if such is the case, I conceive that it indicates the reverse of good management. The trees here would last year have yielded almost double the produce named had they been allowed to do so—but would it have been of the same quality, and would there have been the same produce this season?

The best system of gardening is doubtless that which will in a given space annually produce the most fruit of the best quality, at the least cost, and many of your readers are no doubt desirous of being informed what that system is.

The crop of fruit here of this season is decidedly superior to that of last, it being so evenly distributed over the trees. You shall have due particulars of the produce when the time arrives. *W., Sheffield, August* 15.

THE INFLUENCE OF SCIONS ON THE STOCKS ON WHICH THEY ARE WORKED.

Many good practical gardeners deny that stocks are in any way influenced by scions; but this opinion seems to me to be clearly erroneous, at all events in the case of Dog Roses when budded.

[All persons who have attended to Rose culture may have remarked that scions of the Malton, Celina, and many others not only produce large magnificent heads of Roses, but also cause the stocks to increase rapidly and grow vigorously. On the other hand scions of some of the older varieties of Moss Roses, such as bullata, cristata, Lucie, Astaix, &c., only produce poor weak heads and prevent the stocks from increasing in size. The effects of working are not only felt by the stock, but also by its suckers; for, as a rule, the latter flourish at the expense of the scions. To this, however, there are exceptions, as in the Malton and others mentioned above; but do not these exceptions prove that with Roses at any rate scions affect both the stocks and the suckers which they send out? I have often seen these suckers grow as thick as one's finger, and a yard and a-half long in the space of four or five days. No such thing is ever seen when Moss Roses, Lettuce-leaved Roses, &c., are worked on Dog Roses. Whatever difficulty therefore there may ordinarily be in tracing the effects of scions on the stocks on which they are grafted, I think it is manifest that there are cases in which the effect cannot be denied.

Leaving Roses, there are certain fruit trees which, do what you will, do not increase in diameter below the scion at the same rate as the scion itself. The consequence of this is the formation of ugly rings where the scion joins the stock. Other scions on the same stocks produce nothing of the sort. What explanation can be given of this if scions have no influence on the stocks on which they are grafted? Is not this influence, moreover, very natural, and if there is any room for astonishment, is it not because the influence cannot be more frequently traced? Let us remember that sap rises through certain vessels and descends by certain others, and passes upwards from the stock to the scion, and downwards from the scion to the stock. We know that the sap is changed in its passage from the stock to the scion, for the taste of the fruit and the improvements produced, according as this or that scion is grafted on this or that stock, all prove this; why, then, it may be asked, should not the sap be also changed in its downward passage from the scion to the stock? If no such double change takes place, if there is only one kind of sap circulating in stock and scion, this one mixed sap must at any rate be admitted to result from two different processes, one of which is carried on in the scion and the other in the stock. As the scion is modified in its fruit, its leaves, its growth, its vitality, it is quite natural that the stock should be also modified in its constitution by the graft. On the contrary, it would be surprising if this mixed sap had no influence on the stock or its roots, or their vital force or power of assimilating those nutritive matters which pass through them into the whole substance of the plant. *M. V. in the Journal de la Société Impériale et Centrale d'Horticulture.*

ANCIENT FRUIT LORE.—No. VI.

(*Continued from p.* 773.)

Of the difference of fruite, growing in one ground, and on one tree.

You must note that there be pippins and other winter fruite, although of one sort, and grow in one ground or orchard, that will last better then other some: and of some trees growe greater fruite thê of other some of the same sort, & in the very same orchard. For, where the sunne hath most power or shineth hottest, the fruite is harder grained, bigger, and of a better colour, then they that grow vpon the very same tree, vpon the lower boughes (which are called water boughes) or the inner boughes of the tree. For, the raine or moysture that lights vpon the tree, falles to the lower parts: by reason whereof they neuer haue any good colour, but are alwaies greene and soft, and eate very waterish: which causeth them, they can neuer last long, nor eat kindely. But the other (as I said) that haue the warmth of the sunne, doe grow greater and better coloured: some being red sided, other some russet: also they last long and eate kindly.

Therefore I wish them, that haue fine lasting fruite, that they make great store of, for the seruice of their owne house, to separate them at the gathering. But otherwise, if they bee such fruite, that no such account is to be made of them, they may be layed altogether: and after that they haue layen, take them vp in a trey, and separate the ripest from the other, and so spend them as occasion serues.

Also, the largenesse & goodnes of the fruite, holds proportiô with the age of the tree. For, while ye tree is in growing to perfection, the fruite groweth euery yeere bigger and bigger, better in taste, & colour, & more firme and hard: but when the tree begins to decay and ware olde, the fruite (which it beareth) doth also decay in bignes, colour, taste & firmenes: & consequently will not last so long.

How to order fruite, in conueighing them by water.

If there bee any occasion of sending fruite any farre way by water, especially such fine fruite, that will keep well and worth sending (for summer fruit are not farre to be sent) prouide some dry hogsheads, barrels, or some such caske, and because they may lye the closer (to auoide iogging and tossing, in remoouing or stirring of the caske) they must be layed in, by hand, one by one: not poured in. For, being poured in, they will lye hollow, & so be spoiled with battering, and bruising one against another, in the remouing of the caske: but, being layed in, one by one, and the caske filled vp, they will not stirre.

Lyne your caskes at both ends, with the finest & sweetest straw, you can get: but not the sides of your caske: for too much warmth will hurt them. You must also pearce holes in both ends, about eight or ten at an end. For, fruite (let them be euer such good lasting fruite) if they haue not ayre, they will quickly come in a great heate, and so sodainly rot. Haue also a great care that they be kept dry in the cariage. For, as the want of ayre doth cause them to rot: so, being wet will rot them likewise.

Also fruite, that are to be carryed by sea, may bee shot under hatches vpon straw, if there be not caske enough to carry them in. Alwayes prouided, that they be shot in a dry place, and with great care that they be kept dry ouer head: now and then opening the hatches to ayre them.

Vnfit times to remoue or carry fruite, by land or water: and the reason thereof.

The fruite that is stirred, packt, or carryed in frosty weather, or in March (if the winde blow sharp) let thê be euer so hard at the taking vp, yet before they come to their iourneys end, being carried by land or water, they wil then be so têder (in frosty weather, by reason of the colde ayre: in March, by reason of the sharpe and bitter winde: and in summer, by reason of heate) that the most part of them will change blacke, and a great many of them so shriueld as if they had been sodden: so that they wil not abide to be tossed, nor carryed at that time of the yeare, by reason of their tendernes. The hardest & the best lasting fruite, that is, after they haue layen long, or especially if they haue layen till March, or neere the Spring, and so likewise vntill July, the weather growing hotter & hotter, although in the taking vp of them they seeme very hard, yet shal you finde a great alteration in them, after their cariage.

Small store of fruite, how to be conueighed by land.

They that haue but small store to carry, or but now and then to carry some, of what sort soeuer, they doe commonly carry them in dossers, panniers, or prickles, &c. one, on each side of the horse: alwaies prouided, that euery or each one be full, the cherries and peares to be lyned with greene fearne, al kinde of apples to be lyned with fine sweet strawe, onely in the bottome and top (not on the sides) of the panniers and dossers. But baskets or prickles (the rods whereof are not so neere together) must be lyned, sides and all.

Home Correspondence.

Bees working two separate Hives.—Allow me to record what appears to be an extraordinary occurrence in the natural history of the honey bee. On the 20th June this year I hived a very strong swarm of bees in a large straw hive. Before they had been in it many days, and consequently before the hive was replenished with combs wherein to store the honey, they discovered an empty hive about 2 feet distant from their own, half filled with good clean empty combs. It was not on the same level with their own, but 17 inches higher, and 17 inches to the right of it. They very sagaciously took possession of it, and used it as a storehouse for honey, whilst combs were being constructed in their new domicile. But what is, if possible, still more extraordinary, is the fact that they did not abandon their storehouse at night, but left a guard of about 500 bees, who remained there patiently and contentedly without any apparent concern at the absence of the queen. For, generally speaking, the absence of the queen for a single hour in summer brings a whole hive to grief and commotion. The storehouse hive happened to be made of wood with glass windows, through which I could watch the bees and examine the combs day and night, and could thus by ocular demonstration, both of myself and others, place the fact beyond the range of mere conjecture. I could see the honey in the combs, and the bees clustered between them, and coming out by hundreds to the glass when I held a light to it at night. During the day the bees at the mouth of the storehouse hive buzzed their wings with joy, and ventilated, just as if the queen had been there. At dusk some of them left the storehouse and flew down to their home; yet I cannot say that they did so more abundantly than during the day, but it became more marked in the evening, because at that time bees had ceased to arrive at both hives from their work. I was in hopes that the hive would have swarmed and taken possession of the storehouse, but it has not done so. After using it for about three weeks the bees removed the honey from it to their permanent abode, and have now abandoned their temporary storehouse, as no longer required for that harvest which was for the time too abundant for their limited accommodation at home. *John Worthy, Euxton, Chorley.*

Orchard House Fruit.—A few weeks ago you recommended some correspondent who doubted about orchard houses, to visit the well managed one at Chiswick. I took the advice to myself and went; no trees could look more healthy. Now as the trees are so well managed, you will, in the course of three weeks, be in the position to answer the most important of all questions connected with these structures, namely, whether the Peaches produced in them be as sweet and high-flavoured as those from the open wall. Mr. R. Thompson will perhaps favour us with his judgment also. The day is gone by for any one to maintain that a Peach tree cannot be grown successfully in a pot under glass, but the quality of the produce is another matter, and your verdict on this point will be considered a boon by many of your readers.—*S. B., Bromley.*

Parasites.—The plant sent herewith is quite new to me. I have some plants of Erica infested with it, and I find that all plants which come in contact with it are precisely in the same condition. What is it? *John Fraser, Bishop's Stortford.* [Your plants are infested with Dodder, a common parasite, called by Botanists Cuscuta Epithymum. Burn the plants, soil and all.]

Sir Harry Strawberry.—This variety has now been cultivated several years. It has been tested both by professional gardeners and amateurs, and it is singular that they have arrived at such different and opposite conclusions respecting it. By some it has been declared not worth growing; by others it is pronounced excellent, and almost without a rival. I am of the latter class, as I have never known it to fail, and have seen nothing equal to it, taking all its qualities into consideration. Upon one plant I have counted 240 blossoms and small berries, most of which came to perfection. In size and flavour it is surpassed by few of its kindred, and in productiveness by none that I have yet seen. Much, however, depends upon the manner in which it is cultivated and still more upon the protection afforded to the fruit when it is approaching maturity; for it sends forth its long fruit stalks 12 inches or more from the plant; these are borne down to the ground by the weight of the berries, comparable for beauty only with a splendid bunch of Grapes, and unless something be interposed between the fruit and the soil, especially in wet weather, the fruit rots and becomes worthless. My practice is to cover the beds with bark knobs, or spent bark, abou

half an inch thick, or rather more; and then, let the weather come as it may, I am never disappointed in Sir Harry. There may be spurious plants of that name, as some of your correspondents intimate, but I have never seen them, although I have observed that some of those under my care have been more bushy and luxuriant, and less productive than others. The best plants lie nearly flat upon the ground for the first two years; they become larger, of course, as they grow older, but at what age they will cease to bear, under judicious management, that is, allowing them plenty of room and constantly cutting off the runners, I have not yet learned. I have no interest in applauding Sir Harry, but in my opinion it is the most valuable of all Strawberries. *W. Worsley, Gainsborough, Aug.* 18.

Manetti Rose Stock.—It is mentioned in your Paper of last week that the Manetti stock grows on the stiff clay of Forest Hill equally well as on the sands of Folkestone. It is an admitted fact that the Manetti grows in the most satisfactory manner here. I may mention, however, that the soil in my nursery where it grows best is a good staple brick earth, 6 feet deep, and that part of it has actually been used for brick-making. In another part of my ground the soil is very light, almost sheer sand; on this the Manetti grows equally well, but not so strongly. In cold wet seasons the light soil, however, has the advantage over that which is clayey, but in dry, warm summers the clay has the best of it. I may add, in reference to the Folkestone sands, that I am now engaged in forming a small lake on a most porous subsoil, every inch of which requires very careful puddling, and that in the midst of Folkestone, within a few feet of the surface, I find clay admirably adapted for the purpose. *James Meikle, The Nurseries, Folkestone.*

Good reason for changing a Botanical Name.—A few days ago a scientific friend of ours directed one of the young men in his place of business to copy a few botanical names for him, and on looking over what had been written, was surprised to find the name "Largenoniaceæ." On pointing out the evident incorrectness of the name, he was informed in all sincerity, that it was not actually incorrect, it being in the original "Bignoniaceæ," and as "big" was rather a slang term, the more classical "large" had been substituted, hence "Largenoniaceæ." *B. S.* [Your young man must be an ASS.]

Aster Grub.—I have a very fine lot of Asters of all the best sorts just in full growth and coming into bloom, but unfortunately they are this week attacked by a brown grub, about an inch long, which eats the rind off quite round the plants, just under the surface of the ground: the plants of course immediately die. I lost nearly 100 plants in two days, and I am afraid that I shall lose all. I have tried dry lime and strong lime-water, also dry soot with effect. I shall be glad if any of your correspondents can suggest any method of saving the plants. I am now trying dry flowers of sulphur, but I do not yet see any good result. *H. J. Hardy, Bures, Essex.*

Trichomanes radicans.—I am happy to find that Mr. Rowbotham has not committed this beautiful and rare plant to the sacrilegious hands which visit the many favourite Fern localities of North Wales. This plant was originally brought from Ireland by poor Williams, the Snowdon guide. Often has he told me about the Fern, but never would divulge its whereabouts. Asplenium septentrionale, Hymenophyllum Wilsoni and tunbridgense, and many other plants, were planted by him in favourable spots upon the Snowdon range. *J. Daniels, Capenhurst Hall, Chester.*

Societies.

ROYAL BOTANIC: *Aug.* 10 (*24th Anniversary.*)—J. Anderson, Esq., in the chair. The following gentlemen were added to the Council for the year 1863-64:—Dr. Neill Arnott, General Buckley, J. W. Freshfield, James Heywood, Sir R. I. Murchison, Lord Alfred Hervey, and the Duke of Buckingham and Chandos. The Earl de la Warr was re-elected President, and Mr. E. Marjoribanks Treasurer. The report from the Council stated that the affairs of the Society were in a much more flourishing condition than last year, their Royal Highnesses the Prince and Princess of Wales and 118 new Fellows having joined the Society since the last anniversary. The receipts had been 11,022*l.* 8*s.* 10*d.*, and the payments 9150*l.* 17*s.* 7*d.*, leaving a balance in hand of 1871*l.* 11*s.* 3*d.* The reports from the Secretary and Curator congratulated the Fellows on the great use the gardens had been to Professors, medical students, and artists, in the pursuit of their respective studies; 165 had availed themselves of the privilege of gratuitous admission to the gardens and museum of the society; and above 22,000 specimens had been distributed to professors at the various hospitals and medical schools in illustration of their lectures.

Notices of Books.

The Naturalist on the River Amazons. By H. W. Bates. 8vo, Murray, 1863.

Fifteen years ago, two enterprising naturalists, Mr. Wallace and Mr. Bates, determined on a joint exploring and collecting expedition to South America, and they fixed on the district watered by the river Amazons. Both were hard working and intelligent men, and accordingly they reaped a rich harvest. Mr. Wallace remained in the country only four years, and then left to prosecute his researches in the Eastern Archipelago; Mr. Bates, however, lingered behind, and it was not until eleven years had elapsed, that ill-health compelled him reluctantly to abandon a country which may well be termed the Naturalist's Eldorado. During these eleven years he collected and transmitted to England the marvellous number of 14,000 species, 8000 of them being new to science. A large proportion of his collections consisted of insects, they being his peculiar speciality; and indeed this family was purposely selected by him from his "having found that this tribe was better adapted than almost any other group of animals or plants to furnish facts in illustration of the modifications which all species undergo in nature, under changed local conditions." In this pursuit he was eminently successful, and the suites of butterflies which he has brought home, together with his notes regarding their habits and habitats, form a most valuable mass of information for those desirous of working out and testing Mr. Darwin's theory of natural selection.

To all lovers of natural history, Mr. Bates's book will be of the greatest interest; his notices on the animals, insects, &c., which fell in his way, showing great powers of accurate observation, and also of shrewd reasoning from the facts observed. We have heard the objection raised, that these volumes are ill-written, and wanting in life; but we are unwilling to be too critical on a book containing so much valuable matter. Eleven years of wandering in a semi-civilised country, succeeded by two years of ill-health, are surely sufficient apology for the literary shortcomings of one who has really done so much for science. We must remember that the good collector and the elegant writer are rarely united in one individual; and we can promise the lovers of natural history that in these volumes they will find such a store of interesting information, that they will have plenty to occupy their attention, without considering the manner in which that information is conveyed. And after all, accuracy and minuteness of detail often produce on the mind the effect of a picture; and thus we think we can almost realise the appearance of a tropical forest, with its noonday silence, and the hot sleepy atmosphere brooding over all Nature, contrasted with the hum and murmur of animal life which rises as twilight comes on. Here are the two pictures.

"The trees were now taller, the underwood less dense, and we could obtain glimpses into the wilderness on all sizes. The leafy crowns of the trees, scarcely two of which could be seen together of the same kind, were now far away above us, in another world as it were. We could only see at times where there was a break above the tracery of the foliage against the clear blue sky. Sometimes the leaves were palmate, or of the shape of large outstretched hands; at others, finely cut or feathery like the leaves of Mimosæ. Below, the tree-trunks were everywhere linked together by sipós; the woody, flexible stems of climbing and creeping trees, whose foliage is far away above, mingled with that of the taller independent trees. Some were twisted in strands like cables, others had thick stems contorted in every variety of shape, entwining snake-like round the tree trunks or forming gigantic loops and coils among the larger branches; others, again, were of zig-zag shape, or indented like the steps of a staircase, sweeping from the ground to a giddy height.

"As we continued our walk the brief twilight commenced, and the sounds of multifarious life came from the vegetation around. The whirring of cicadas; the shrill stridulation of a vast number and variety of field crickets and grasshoppers, each species sounding its peculiar note; the plaintive hooting of tree frogs—all blended together in one continuous ringing sound—the audible expression of the teeming profusion of Nature. As night came on, many species of frogs and toads in the marshy places joined in the chorus; their croaking and drumming, far louder than anything I had before heard in the same line, being added to the other noises, created an almost deafening din. This uproar of life, I afterwards found, never wholly ceased, night or day; in course of time I became, like other residents, accustomed to it. It is, however, one of the peculiarities of a tropical—at least, a Brazilian—climate, which is most likely to surprise a stranger. After my return to England the death-like stillness of summer days in the country appeared to me as strange as the ringing uproar did on my first arrival at Pará."

Mr. Bates has not thrown his narrative into the form of a regular journal, which indeed would have been impossible over such a lengthened period of time; he has, however, given a map by which we can trace his progress up the country, and has in general described the different places pretty much in the order in which he visited them; passing briefly over those excursions which he made in company with Mr. Wallace, and which that gentleman has already spoken of in his book, of which these volumes may to a certain extent be considered a continuation.

Perhaps the two most interesting subjects discussed by Mr. Bates are the habits of different kinds of ants, and the mimetic insects, of which he found several examples. We will endeavour to condense his account of the Termites, or white ants, whose habits he has studied most closely.

"White ants are small, pale-coloured, soft-bodied insects, having scarcely anything in common with true ants, except their consisting, in each species and family, of several distinct orders of individuals or castes which live together in populous, organised communities. In both there are, besides the males and females, a set of individuals of no fully developed sex, immensely more numerous than their brothers and sisters, whose task is to work and care for the young brood. In true ants this class of the community consists of undeveloped females, and when it comprises, as is the case in many species, individuals of different structure, the functions of these do not seem to be rigidly defined. The contrary happens in the termites, and this perhaps shows that the organisation of their communities has reached a higher stage, the division of labour being more complete. The neuters in these wonderful insects are always divided into two classes—fighters and workers; both are blind, and each keeps to its own task; the one to build, make covered roads, nurse the young brood from the egg upwards, take care of the king and queen, who are the progenitors of the whole colony, and secure the exit of the males and females, when they acquire wings and fly out to pair and disseminate the race; the other to defend the community against all comers.

"The males and females form a class apart; they do no kind of work, but in the course of growth acquire wings to enable them to issue forth and disseminate their kind. The workers and soldiers are wingless, and differ solely in the shape and armature of the head. This member in the labourers is smooth and rounded, the mouth being adapted for the working of the materials in building the hive; in the soldiers the head is of very large size, and is provided in almost every kind with special organs of offence or defence in the form of horny processes resembling pikes, tridents, and so forth. Some species do not possess these extraordinary projections, but have, in compensation, greatly lengthened jaws, which are shaped in some kinds as sickles, in others as sabres and saws.

"A Termitarium, although of different shape, size, texture of materials, and built in different situations, according to the species, is always composed of a vast number of chambers and irregular intercommunicating galleries, built up with particles of earth or vegetable matter, cemented together by the saliva of the insects. There is no visible mode of ingress or egress, the entrances being connected with covered roads, which are the sole means of communication with the outer world. The structures are prominent objects in all tropical countries.

"A few weeks before the exodus of the winged males and females a completed Termitarium contains Termites of all castes, and in all stages of development. On close examination I found the young of each of the four orders of individuals crowded together, and apparently feeding in the same cells. The full-grown workers showed the greatest attention to the young larvæ, carrying them in their mouths along the galleries from one cell to another, but they took no notice of the full-grown ones. It was not possible to distinguish the larvæ of the four classes when extremely young, but at an advanced stage it was easy to see which were to become males and females, and which workers and soldiers. The workers have the same form throughout, the soldiers showed in their later stages of growth the large head and cephalic processes, but much less developed than in the adult state. The males and females were distinguishable by the possession of rudimentary wings and eyes, which increased in size after three successive changes of skin.

"Thus I think I made out that the soldier and worker castes are, like the males and females, distinct from the egg; they are not made so by a difference of food or treatment during their earlier stages, and they never become winged insects. The workers and soldiers feed on decayed wood and other vegetable substances: I could not clearly ascertain what the young fed upon, but they are seen of all sizes, larvæ and pupæ, huddled together in the same cells, with their heads converging towards the bottom, and I thought I sometimes detected the workers discharging a liquid from their mouths into the cells. The growth of the young family is very rapid, and seems to be completed within the year; the greatest event of Termite life then takes place, namely, the coming of age of the winged males and females, and their exit from the hive.

"It is curious to watch a Termitarium when this exodus is taking place. The workers are set in the greatest activity, as if they were aware that the very existence of their species depended on the successful emigration and marriages of their brothers and sisters. They clear the way for their bulky but fragile bodies, and bite holes through the outer walls for their escape. The exodus is not completed in one day, but continues until all the males and females have emerged from their pupa integuments, and flown away. It takes place on moist close evenings, or on cloudy mornings; they are much attracted by the lights in houses, and fly by myriads into chambers, filling the air with a loud rustling noise, and often falling in such numbers that they extinguish the lamps. Almost as soon as they touch ground they wriggle off their wings, to aid

which operation there is a special provision in the structure of the organs, a seam running across near their roots and dividing the horny nervures. To prove that this singular mutilation was voluntary on the part of the insects, I repeatedly tried to detach the wings by force, but could never succeed whilst they were fresh, for they always tore out by the roots. Few escape the innumerable enemies which are on the alert at these times to devour them; ants, spiders, lizards, toads, bats, and goatsuckers. The waste of life is astonishing. The few that do survive pair, and become the kings and queens of new colonies. I ascertained that by finding single pairs a few days after the exodus, which I always examined, and proved to be males and females, established under a leaf, a clod of earth, or wandering about under the edges of new tumuli. I once found a newly married pair in a fresh cell tended by a few workers."

We had marked for extract an interesting account of mimetic butterflies, but we find its insertion would make this notice too lengthy; we will therefore give instead the following description of the humming-bird-hawk-moth:—

"Several times I shot by mistake a humming-bird-hawk-moth instead of a bird. This moth (Macroglossa Titan) is somewhat smaller than humming-birds generally are, but its manner of flight, and the way it poises itself before a flower whilst probing it with its proboscis, are precisely like the same actions of humming-birds. It was only after many days' experience that I learnt to distinguish one from the other when on the wing. This resemblance has attracted the notice of the natives, all of whom, even educated whites, firmly believe that one is transmutable into the other. They have observed the metamorphosis of caterpillars into butterflies, and think it not at all more wonderful that a moth should change into a humming-bird. The resemblance between this hawk-moth and a humming-bird is certainly very curious, and strikes one even when both are examined in the hand. Holding them sideways, the shape of the head and position of the eyes in the moth are seen to be nearly the same as in the bird, the extended proboscis representing the long beak. At the tip of the moth's body there is a brush of long hair-scales resembling feathers, which, being expanded, looks very much like a bird's tail. But, of course, all these points of resemblance are merely superficial. The negroes and Indians tried to convince me that the two were of the same species. "Look at their feathers," they said; "their eyes are the same, and so are their tails." This belief is so deeply rooted that it was useless to reason with them on the subject."

We must add that these volumes are got up in Mr. Murray's usual excellent style, and embellished with numerous graphic and admirable woodcuts.

The Book of the Royal Horticultural Society, 1862-1863. By Andrew Murray, Esq., F.L.S. 4to, pp. 225. Bradbury & Evans.

Of this book, "dedicated, *by permission* of her Majesty the Queen, to the Illustrious Memory of the Prince Consort," loyalty and courtesy alike compel us to speak in terms of the deepest respect. Critics have no place in such sacred ground, and it is only to the existence of the volume that we venture to allude.

In a superb 4to volume, upon which all the skill of bookbinder, photographer, wood engraver, colourer, and printer has been profusely lavished, Mr. Murray has given some account of the history of the Society from its foundation in 1804 to the present day, more especially during the time when it enjoyed the inestimable advantage of being presided over by HIM whose loss we all have so much reason to deplore. The Garden at South Kensington is fully described and illustrated with its conservatory, statuary, arcades, and parterres; and in an Appendix are many useful documents bearing upon the manner in which the affairs of the Society have been conducted, together with the names of the persons to whom its destinies have been annually entrusted.

It is, however, as a superb drawing-room book that Mr. Murray's volume must be chiefly regarded, and in that point of view we say without hesitation that it stands without a rival. We doubt, indeed, whether the equals of its admirable photographs of the scenery in the Garden can be found in any printed volume whatever. We especially allude to those which represent Captain Fowkes' Conservatory, probably the most beautiful and well-conceived horticultural structure in the world, and we cannot but regret our inability to give the names of the skilful artists by whom these photographs have been executed.

The *Florist and Pomologist* in its July number gives figures of a Camellia called *Carlotta Papudoff*, and of the *Winter Hawthornden Apple*; while that for August gives representations of the fine variety of *Disa grandiflora* called *superba*, and of the *Zéphirin Grégoire Pear*. The Camellia is one of the mottled class, with moderate-sized imbricated flowers of two shades of carmine-rose, marked with tolerable regularity by conspicuous blotches of white. It has been introduced and flowered by Mr. Veitch, and though perhaps rather undersized, appears to be a free blooming constant and useful variety. The Winter Hawthornden Apple is a large, roundish oblate, smooth, pale yellow fruit, with a flush of red on the sunny side; it is a first-rate culinary Apple, in use from October to February or March, and combines, with the qualities of its parent the old Hawthornden, a firmer flesh. The tree is said to be remarkable while young for its large handsome foliage, and robust shoots; and, unlike its parent, it seldom or never cankers. The variety of Disa above alluded to is the finest of the forms so successfully cultivated by C. Leach, Esq., of Clapham Park, having the flowers larger and better proportioned in the parts than in the majority of the plants in cultivation, and being also more richly coloured, especially in the dorsal sepal, which is deeply stained with purple-rose and marked with distinct crimson-purple forking lines, which run out into dots towards the edge. The Pear Zéphirin Grégoire, proves to be one of the best in its season of the newer Belgian kinds. It was raised by M. Gregoire, and is of medium size, obtusely pyriform, somewhat truncated at the stalk, and when ripe, of a pale yellow strewed with cinnamon-coloured dots; the flesh is white, tender, buttery, and melting, with abundant sugary finely perfumed juice; it is a most delicious Pear, coming into use in December, and continuing until February; makes an excellent pyramid, is perfectly hardy, and is generally a good bearer. Of the papers in these two numbers, the most interesting are an account of the new race of fancy Pansies; remarks on Deodars by Mr. Barnes, and on Strawberries by the Rev. Mr. Radclyffe, and an account of the effects of geological position on certain Conifers by the Earl Ducie, the latter extracted from the "Transactions of the Scottish Arboricultural Society."

In July *Gossip of the Garden*, an "Old Standard" gives some of his experiences among the Roses. He speaks of Triomphe de Rennes as decidedly the best yellow Noisette for constancy; of Prince Camille de Rohan as being incomparable for richness and intensity of colour, the petals being so stout as to be suggestive of rich maroon velvet; of François Lacharme as being one of the most perfect of Roses, unequalled for petal, form, depth, and outline, for such as Paul Ricaut at its very best is an approach, but only an approach to; of John Hopper as disappointing him, as we hear it has done other cultivators; of Senateur Vaisse as exceedingly brilliant and irreproachable in form; and of summer Roses generally as being invaluable for their large masses of bloom. Then there is more Tulip gossip by Mr. Parkinson; and in the instructions for the economical management of small gardens, the Brassica tribe comes under review. In the succeeding number "Old Standard" gives more of his experience in Roses, chiefly of the newer sorts. He finds Charles Lefebvre, a gem of the first water, one of the most brilliant of the velvety scarlets, and one which ought not to be omitted from the most limited collection, as it adds the desirable quality of fragrance to vivid colour, great substance, and excellent form. Duc de Rohan is pronounced another gem; François Lacharme is described as the best Rose the writer ever grew; John Hopper is said to improve on further acquaintance; Louise Darzens, which is welcome for its colour—a white H. P.—is said to be pretty enough, but is not thought equal to Mdlle. Bonnaire; Madame Charles Wood is said to be magnificent, and one of the most lasting of Roses, large, and well-shaped, with stout petals; Mdlle. Bonnaire, aforesaid, is reported as extremely beautiful, the outer petals pure white, the centre shaded with clear flesh colour, "perhaps on the whole the best" H. P. in cultivation. Various other florists' notes and memoranda make up the remainder of this well conducted little work.

The *Floral Magazine* for July gives very indifferent figures of the two Japanese forms of *Clematis*, recently flowered by Mr. Standish; a better but too floriferous picture of *Ourisia Pearcii*; Rollisson's *Rhododendron Prince of Wales*; and a group of herbaceous *Calceolarias*. The August number of the same periodical pictures three varieties of Messrs. E. G. Henderson & Son's hybrid Mimuli crossed with M. cupreus, which are similar in character to those of Mr. Bull already noticed; the fine *Azalea Louise van Baden*, a remarkably attractive sort on account of its purity, but oddly misrepresented as having cordate limb-segments; a showy orange-scarlet *Hippeastrum* under the name of Amaryllis Regina Spectabilis; and finally two varieties of *Ranunculus* called *Fidelia* and *Linden*.

Seemann's Journal of Botany contains a paper on Bignoniaceæ by the Editor, with a plate of Macfadyena corymbosa; some remarks on Hypnum aduncum and its allies, by Mr. Carruthers; notes on some of Wright's Cuban Compositæ, by Dr. C. H. Schultz; a note on the recent discovery of Trichomanes in Yorkshire and Wales, by Mr. Moore; with papers on the application of the Ordeal Bean of Calabar in ophthalmic medicine, by Mr. D. Hanbury; and on the Toot poison of New Zealand, by Dr. W. L. Lindsay.

The *Phytologist* closes its career with the 99th number and 6th volume of its new series, which was issued on July 1.

Garden Memoranda.

Mr. Pearson's Nursery, Chilwell, Notts.—There are few geological formations which present greater natural advantages in a horticultural point of view than the New Red, or Keuper, Sandstone; it offers light soils, loams, and variously modified clays; it is agreeably undulated, it affords good water, and contiguity to the coal measures gives additional advantages to the gardener by offering cheap fuel to extensive forcing establishments. Not only plants but men and animals thrive on this formation. Travelling from the bleak hills of the mountain limestone, or the dry and woody wolds of the Oolitic range, or from the moist depressing climate of the valleys of the Lias, we always feel especial satisfaction and elation on reaching the clean, dry, wholesome Keuper Sandstone, characteristically developed in Nottinghamshire. On our way to visit the nursery of Mr. Pearson at Chilwell we had an opportunity of noticing and contrasting the peculiarities of certain districts thus influenced by distinctive geological characters, and renewed observations confirm as opinion long entertained, that a marked influence in exercised on climate locally by the geological conformation and character of the district. Mr. Pearson's nursery and Mr. Pearson himself are both good illustrations of our theory, the high Keuper development being well and distinctly maintained in each instance, and it extends to the orchard houses, for which Chilwell has become deservedly famous; one house is literally a Peach orchard covered with glass. In the erection of orchard houses Mr. Pearson has eschewed the flimsy structures in vogue in the early days of orchard house experiment, and has built plain substantial structures, and as he has advanced in experience he has even increased the strength and durability of his houses; the first house we enter is 90 feet by 30, an elegant, well proportioned, span-roofed house. The sheets of glass with which it is glazed are 24 by 18 inches; ventilation is from the sides and roof. A certain character is given to the interior of the house by the wood-work being painted blue. This house is chiefly filled with Peach trees in pots, of which there are upwards of a hundred, averaging 6 to 7 feet in height, and each tree bearing 1½ to 3 dozen of fruit; the trees thus loaded with fruit, and circumscribed in their root action, nevertheless exhibit no signs of failing vigour, but on the contrary are uniformly robust, clean and healthy, watchful eyes and careful hands keeping every errant branch within due bounds. It is evident that the system of early repression of growth by pinching is of the utmost importance in orchard house management. Trees stimulated to luxuriant growth may be pruned back, but in doing so a preponderance of roots remain, the balance between the two, root and branch, is disturbed, an excess of sap pushes on an unnecessary lateral growth, and the fruit-bearing powers of the trees are impaired. Axiom in horticultural practice:—disproportionate root-power is inimical to fruitfulness.

It is impossible to visit a house like this, filled with compact fruitful trees, and not to be impressed with the many advantages presented by this plan of growing fruit and notably Peach trees. An unfailing supply of fruit seems the assured reward of the skilful cultivator—a delightful variety in the quality and character of the fruit can be secured. The ripening period may be extended by including in the collection the earliest and latest sorts, so that the Peach season may be prolonged for three months. The advantages given to a nurseryman anxious to test the merits of different varieties of fruit is an appreciable one, when verity of description is felt to be a conscientious obligation.

The Americans tell us that they dispense with our tedious methods of budding and grafting, and merely sow their Peach stones in their orchards, and in three years obtain a crop of fruit from the tree so raised. As orchard houses bring home to us a Peach climate, this experiment may be advantageously tried, as several Peaches, such as Grosse Mignon and Galande, reproduce their varieties from seed. Besides Peaches there are Plums and Apricots in this house, and a few Vines. The Plums were loaded with fruit, and the Apricot trees had full crops, proving the possibility of cultivating with profit this last fruit. A specimen of the fruit we tasted was most delicious.

To the left of the large orchard house we first entered is a handsome span house, especially adapted to the possible convenience of the migratory amateur, being constructed on a new principle contrived by the builder of Mr. Pearson's houses. This house is 60 feet by 24, and is provided with a heating apparatus. A portion only of this house is occupied with Peach trees the other part being devoted to Camellias and other plants. In a third house there are many hundreds of young and vigorous budded trees in 14-inch pots, a fact significant of the requirements of the lovers of Peaches, and patrons of orchard houses. In a raised pit in the centre of this house a line of standard Peach trees have been planted out. These exhibit uncommon vigour and fruitfulness, and suggest the idea of a grove of Peach trees, a thing easy to be realised by any one choosing to imitate one of Mr. Pearson's large houses.

Another large house, of which there are no less than 10, is devoted to the cultivation of young Vines. Upwards of 1000 fine young canes, 10 feet long, the development of a single season, were at the time of our visit in active and vigorous growth. Visiting other large nurseries, we have found the cultivation of young Vines receiving the same marked attention they enjoy at Chilwell, so that one might imagine that our climate had changed or was expected to do so, and that we were preparing for extensive vineyards. The Chancellor of the Exchequer might (although it is unwise perhaps to give him a hint) gather an idea of the increasing prosperity of the country by visiting our large nursery gardens. We plant fruit trees and cultivate gardens

more industriously in times of peace and prosperity; and a nurseryman's books would indicate with tolerable accuracy when the tide of prosperity was at the flow.

One of the large span houses is devoted to Cucumbers, which are exceedingly well cultivated. The favourite variety at Chilwell is the Long Gun, a veritable long Enfield, and decidedly one of the finest Cucumbers in cultivation; like other very high-bred things, there is great difficulty in obtaining seed from it. Mr. Pearson devotes two houses to Vines, that he may prove the newly introduced varieties.

One of the specialities of Chilwell is the propagation and cultivation of the Rhododendron. Large numbers are annually grafted. Mr. Pearson has devoted great attention to the selection of suitable stocks of his scions, and his large plantations of healthy young Rhododendrons attest his success. Peat is not found in the immediate neighbourhood, but is brought from a distance, nevertheless many thousands of American plants are annually prepared for sale.

On an extensive lawn near Mr. Pearson's house, specimen Rhododendrons are clumped, and the general good effect is enhanced by single specimens of the more recently introduced Coniferæ, which are distributed in suitable positions about the lawn.

The cultivation of hardy shrubs is very extensively pursued in the nurseries at Chilwell; the Golden Yew seems an especial favourite. The grand specimens at Elvaston have led many to seek for this handsome variety of Yew.

In illustration of our theory as to the capabilities of the Keuper with all other things, we find Roses flourishing almost as well as they do in Hertfordshire; indeed we believe it is no uncommon thing for growers in this locality to send Roses to that favoured county.

The famous Orchards of Chilwell would have been more interesting had the crop of fruit been greater. The size and healthy character of the trees proves the suitability of the soil for fruit trees.

Various detached nurseries are encompassed by nearly a mile of wall, 1200 yards of which are available for trained trees, and we need scarcely add that the whole space is covered with healthy thriving young trees.

We conclude our notice of these interesting nursery gardens with one expression of regret, that we could not add an opinion as to the quality of the orchard house fruit. We were a month too early for that great pleasure, but we were assured that orchard house fruit is superior to any other. Let sceptics go to Chilwell in the Peach season, and see what the climate and soil of the Keuper Sandstone can do for Peaches. *W.*

Miscellaneous.

A New Tuber.—Among other things recently introduced into France is a new tuber, brought from Peru by M. Cochet, who has resided 20 years in South America. This new plant has been cultivated for two years in the Jardin d'Acclimatation of the Bois de Boulogne, and has passed two winters without requiring more attention than the Potato. Besides its nutritive and medicinal properties it is very rich in sugar of a quality superior to that of Beetroot. The yield of this plant per hectare will average 150,000 kilogs. (60 tons) per English acre. In honour of its introducer this valuable root is called the Poire de terre Cochet. *Guernsey Star.* [What may this be?]

Japanese Agriculture. — I cannot conclude this description of Japanese agriculture without noticing the remarkable connection which exists between the climate and the productions of the country, and how well they are suited to each other. The rainy season does not come on until the dry winter and spring crops are ripe, and ready to be harvested. When the Rice-planting begins, and when the cuttings of the sweet Potato are being put out, the air becomes loaded with moisture, and the rain comes down in torrents. Every hill stream is filled with water, and thus the means of irrigating the Rice fields are ready to the hands of the husbandman. Such excessive moisture would have been fatal to the Wheat and Barley and Rape, but it gives life and vigour to the paddy and sweet Potatoes, and is necessary for their health and luxuriance. The Tea-plant, too, which at this season has had its first leaves plucked, is revived by the moist air and frequent showers, and is enabled to push forth with renewed vigour, and to yield fresh supplies. And when excessive moisture is no longer necessary to these summer products, the rain ceases, the sky becomes clear, and the air comparatively dry. Then the process of ripening begins, and a sunny autumn enables the husbandman to gather into his barns the fruits of his anxious labours. *Fortune's "Yedo and Peking."*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—In order to maintain a certain amount of gaiety in this house a stock of succession plants must necessarily be kept up. Any plants, therefore, in pots, which it is desirable should be grown quickly, may now have a shift; it will not, however, be advisable to give them a large shift at this season, as whatever wood the plant makes after the present shift must be ripened, with perhaps the exception of such free-flowering plants as bloom on the current growing wood. As this shift will have to carry the plant through the winter months, the drainage of the pots should be ample. When established, a free open situation should be selected for the newly-potted plants, in order that any new growth made may be ripened. Where valuable tender-rooted plants are out of doors care must be taken to keep heavy rains off them, and if the weather should remain dull and wet no time should be lost in removing them under temporary shelter. The more hardy plants left out should be examined frequently, to see that water passes freely through the pots. A number of Orchids will by this time have made their growth, and may be removed gradually to a drier and cooler atmosphere. Those which still continue growing must be syringed two or three times a day, according to the state of the weather, and a humid air maintained by well watering all vacant surfaces. At the same time plants growing on blocks or suspended in baskets should be frequently soaked, to effect the complete moistening of the growing material. Some young plants which it is desirable to lose no time with may again have a shift and otherwise be put in order for the winter.

FORCING DEPARTMENT.

Pinery.— Whenever the house for next season's fruiting is ready, succession plants had better be transferred there at once. Forward plants should be selected, and should have their final shift before being put into winter quarters. When it is desirable to have fruit early, say in April and May, the fruiting pot should not be over large, as it will be necessary to get the plants into rest early. As a rule they should have their pots well filled with roots by the middle of September, and while growing allow them all the light you can command, and a proportionate quantity of air. The best Pines for very early forcing are the Black Antigua, common Queen, and the Providence; to assist them a few Jamaicas may be started in October, as they take a couple of months longer to ripen than the above. For the summer crop the plants may remain for a week or two, unless there are reasons for potting them immediately. They may have a larger shift than recommended for the above, and should be kept longer growing in the autumn.

Vinery.—If the wood is quite ripe early forced Vines may have the lights removed; this course is, however, not imperative. But if the sashes are permitted to remain on, cleanliness must be observed and all laterals kept down.

Peaches.—It is a good plan to stop the wood of strong and healthy Peach trees about the period when the last swelling for ripening takes place, at least all the grosser portion of the shoots; give also liquid manure freely at the same time, provided the borders are dry, and that size in the fruit is a particular object.

Cucumbers. —If the weather is bright dew the plants overhead once or twice a week, observing always to use a fine rose, as a heavy stream breaks down the leaves.

FLOWER GARDEN AND SHRUBBERIES.

Flower-gardens will be now in their greatest beauty, and every means must be taken to keep turf, gravel, and edgings of all kinds in the neatest possible order, that no drawback to the complete keeping of the whole may occur; dead flowers should be picked off daily, and stray growths reduced within proper limits. Trailing and climbing plants should be frequently gone over, to keep them neatly trained, and secure from rough winds; for the same purpose examine Hollyhocks, Dahlias, and other tall-growing plants. Remove dead flowers from Roses, and encourage the production of autumn blooms in the Perpetuals, by watering with liquid manure, and mulching the surface of the ground, where practicable. Commence the propagation of plants for next season, in which dispatch with the more delicate Pelargoniums should be urged to get them established before winter. Water Dahlias plentifully every evening when the weather is dry; take care that the laterals are well staked out, and use every means to entrap earwigs and other vermin which injure the flowers. Look over faded blooms of Pinks, extracting the petals from the pods. Should wet set in, these decayed petals will act prejudicially, by retaining moisture round the lower part, which will cause rottenness and consequent destruction. Rooted cuttings of Pansies for making up autumnal beds should now be ready. It will, therefore, be necessary to make beds for their reception. In doing this it is absolutely necessary that wireworms should be caught, therefore the compost should have repeated turnings; for these pests are as destructive to young Pansies as they are to Carnation layers. Throw out the soil from the Tulip bed on to the paths, so that it may sweeten previously to being returned.

HARDY FRUIT AND KITCHEN GARDEN.

The summer pruning and nailing in of the current year's wood will require following up. Pear trees may now, if not already done, have the breastwood cut back to five or six eyes, beginning with the least vigorous first, as they will be least liable to start, and allowing the stronger growing kinds to remain as they are till growth is so far on the decline that all danger of their again breaking is over, which would prevent the formation of fruit buds from the remaining eyes. Where time will permit, Currants, Gooseberries, and Raspberries will be benefited by the remaining wood of the present year's growth being thinned, leaving only sufficient to furnish next season's crop. Clear away haulm, stumps and the refuse of crops directly they are over, burn them, and if the ground is not wanted dig the ashes in and let the land remain till required. At this season, however, there is seldom ground to spare; for it should be remembered, that the supply for several months of the next winter and spring will depend on the diligence now made use of, in planting out so large a supply of those kinds of vegetables most likely to be in demand as can possibly be found room for. Potatoes and other crops soon coming off may therefore be interlined with any of the different kinds of Broccoli or winter Greens; and where the above are not sufficient, a quantity may be planted at one foot apart, to wait for ground as it comes in by the removal of other crops.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Aug. 19, 1863, as observed at the Horticultural Garden

August.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 13	29	29.930	29.878	81	52	66 5	65	63½	—	.00
Friday 14	0	29 994	29.917	82	44	63.0	65½	63	—	.00
Satur 15	1	29 785	29 768	81	54	67.5	66	63	—	.00
Sunday 16	2	29.855	39.810	77	51	64.0	65	63½	—	.01
Mon. 17	3	29.699	29.694	75	46	60.5	65	63	—	.12
Tues. 18	4	29.800	29.758	60	44	52.0	66½	62½	—	.03
Wed. 19	5	29.888	29.697	67	47	57.0	64	62	—	.12
Average.		29 850	29.774	74.7	48 3	61.4	65.3	62.9		.28

Aug. 13—Slight dry haze, very fine; hot; fine at night.
— 14—Cloudy, slightly overcast; fine, overcast.
— 15—Overcast; hot and very dry, fine.
— 16—Fine; cloudy, very fine, cloudy.
— 17—Overcast, cloudy, showery; squally; fine; rain at night.
— 18—Cloudy; fine, overcast, cold at night; slight rain.
— 19—Rain; overcast and cold; showery, lightning in the evening.
Mean temperature of the week 1 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending Aug. 29, 1863

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 23	71.9	48.9	60.4	18	0.95 in.	1	3	3	1	3	10	11	4
Mon. 24	71.5	47.9	59.7	16	0.54	—	7	4	—	5	9	9	3
Tues. 25	71.5	50.7	61 1	15	0.62	2	2	2	1	5	14	6	5
Wed. 26	72.8	48.5	60 2	11	0.51	2	3	3	—	6	9	9	4
Thurs. 27	73.9	49 5	61 2	11	1.32	2	2	4	—	1	10	9	9
Friday 28	73.0	49.6	61 3	16	0.22	2	6	3	—	5	10	7	4
Satur. 29	71.6	48.0	59 8	14	0.58	4	3	4	1	2	1,	7	3

The highest temperature during the above period occurred on the 25th, 1859—therm. 89 deg.; and the lowest on the 29th, 1850—therm. 32 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

Books: *R.* The best book for a young gardener to read, who is desirous of studying the Latin names of plants, is some such catalogue as Loudon's Hortus Britannicus.

Cinchona: *Erul.* The usual way of sounding this word is Sinkóna. *Ch* before *o* is hard.

Delphiniums: *L E R.* We understand that the Delphiniums which are mixed with Geranium Cottage Maid, and edged with Geranium Flower of the Day, at the Crystal Palace, are seedlings raised from Delphinium formosum, which makes the best display in the end of June, and by having them tied or pegged closely down, and not allowing them to seed, a succession of flower is obtained until the autumn. They cannot, however, be recommended for summer beds alone, but mixed with scarlet Geraniums they have a good effect.

Dipladenia: *J Backhouse.* Very handsome no doubt; but by no means equal to D. illustris.

Insects: *Alpha.* The two sets of larvæ sent are those of different species of Tipulidæ, those with round heads belonging to the genus Bibio, the others to a small Tipula (T. maculosa?) The ground should be well stirred and watered with lime water or gas-tar water. *W.*

Lonicera fragrantissima: *S. S.* This seems to have been growing too fast. With ourselves it flowers freely enough without any care. This hot summer will probably make it behave better next year.

Mealy Bug on Vines: *An Old Sub.* To clean the bunches, now they have been allowed to be infested, will be a tedious process; and the attempt to do so will be in vain, unless at the same you clean the shoots and foliage by picking, syringing, and sponging. You cannot sponge the bunches without spoiling the bloom; but after picking off all the insects you can, you may use the syringe pretty strongly, if you direct its force *downwards* on the bunches.‖

Names of Plants: *R B L.* The plants raised from seeds out of the crop of a sand-grouse are Medicago minima, Polygonum Convolvulus, Chenopodium album, and some Poa, the species of which is indeterminable in the present state of the plant —perhaps Poa annua.——*W B Page.* 1, Pilogyne suavis; 2, Cephalandra quinqueloba—quite right.——*Hampton Court.* Your pretty little bulb is Scilla autumnalis. We should sow the Broom seed now.——*A & J.* Lastrea spinulosa.—*X Y.* 1, Nephrolepis tuberosa; 2, Pteris serrulata; 3, Lastrea invisa, apparently; 4, Dennstædtia rubiginosa.—*W Payne.* Your leaf from Ascension belongs to Argemone mexicana, a well known African acrid, emetic, purgative weed.—*B J Williams.* Myanthus barbatus.—*J D.* Spilanthes oleracea.

Peas: *T S M* will feel obliged by any of our correspondents informing him how Peas are preserved green all the winter. He is told that it is done in Germany, and he is anxious to make himself acquainted with the process.

Pruning Forest Trees: *A very Old Subscriber, York,* may prune them any time after the middle of October

Quinquevulnerous Pelargoniums: *HC.* The extract is amusing enough; but we doubt if the learned pundit be not even more "vulnerous" than the poor "Geraniums."

Royal Horticultural Society's Garden: *Episcopus.* We quite agree that the masses of blue in the panels of South Kensington are too heavy, and would have been far more effective if contrasted with scarlet.

Timber: *N.* The best time for cutting Fir trees to be used for timber, is when the wood is dry and ripe; namely the end of October and November.

Verbenas: *A Correspondent* asks if Lord Leigh differs from Foxhunter, and if so in what respect. He adds that where the two are growing side by side, nobody in his locality (Weymouth) can tell one from the other.

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This best plant is called "*the selection*" of the year (say 1861) in which it is thus obtained, and consists of numerous ears, containing many hundreds, and even thousands, of grains which are planted separately; those of each *ear* being kept quite distinct, as although the best grain of any plant is nearly always found to lie in its best ear, it may be otherwise, and the successive parent *ears* must be preserved. At the following harvest (1862), the best plant forms "*the selection of* 1862," and its produce is continued on the experimental ground, while that of the remaining plants furnishes the annual seed for the farm in the Autumn of 1862, and the crops are in 1863 offered to the public. Thus, the selection sold is that of 1861, or in any year that of two years before; *the latest selection, that of the year immediately preceding, is not sold, being solely employed as the home seed.* The separate ears of a plant are designated by different letters, numbers, or names—as A, Z, &c., and each, with its descendants, forms a "*family*" which may develope some valuable peculiarity.

Thus, all the "Pedigree Nursery Wheat" hitherto sold has been of a family called "A," while another family of the same Wheat known as Z having been observed to exhibit marked superiority has been continued separately, and has given a greater progress during 1862 than has been before obtained in any single year.

The original ear of the large published engraving contained up one of its sides 16 "ranks" (spikelets) of grains, while the "Z family" has produced ears of 18 "ranks," and this, without any increase in the *length* of the ear, the "notches" of the axis on which the spikelets grow being placed more closely together. In a small field of this Z family, ears with 17 "ranks" were quite common, while in other fields of the family "A," *not one such ear could be found.*

This family Z *is now for the first time* offered to the public, and is ready for delivery.

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President.—The Right Hon. the Earl of LICHFIELD.

Vice-President.—The Mayor of BIRMINGHAM.

The FOURTH GREAT ANNUAL EXHIBITION of SPORTING and other DOGS will be held at Birmingham, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 1, 2, and 3, 1863.

Copies of the Prize Lists and Regulations, with the statement of Receipts and Expenditure for 1862, may be had on application to the Secretary. GEORGE BEECH, Secretary.

Offices: Rectory Chambers, Temple Row, Birmingham.

The Agricultural Gazette.

SATURDAY, AUGUST 22, 1863.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, Aug. 26 } Agricultural Society of Ireland at Kilkenny.

THURSDAY, — 27 } Gloucester Agricultural Society at Cirencester.

THE late ROBERT STEPHENSON, a few years before his death, took great interest in the trials of engines and implements at the Royal Agricultural Society's Annual Show; and he is reported to have remarked that a careful inspection of this part in particular of the Exhibition would afford a very interesting and instructive lesson to a young engineer. There is no doubt that these trials are worthy of note by even unprofessional observers, from the varied interests developed in their carrying out.

Assuming, as we well may, that the Royal Agricultural Society and its officers are perfectly impartial, we believe that we can notice three distinct interests and parties involved in results of the trials. The large makers, the smaller makers of agricultural implements, and lastly, the farmers and the other ordinary buyers of this class of engineering work, have each separate and distinct interests involved in the result. The large makers have acquired a fixed and established position in the trade; their names have been before the public for years; most of them—at one time or another—have received prizes for their exhibits; and they have thus little to gain and much to lose by renewed trials. The mere expense of attending the show is of itself very great, even if the cost of preparing the exhibits for trials be not taken into account, and it is well known that the extra work on, and experiments with, a portable engine, the previous "running off of its friction," &c. often cost several hundred pounds. No wonder therefore, that many of the larger makers would gladly see the trials abolished, and the ladder kicked down which has helped them to rise to eminence. The interests of the smaller and less known makers of course lie in an opposite direction. The influence of the trials, and their levelling tendencies—while lowering the larger makers—may raise the smaller firms in the commercial scale, and the interests of the latter are thus directly opposed to a cessation of the quadrennial series of tests. The larger firms, with their greater command of capital and skill, are however at an advantage. They can afford to spend more work and capital on the implements to be exhibited, and thus accordingly manufacture special engines, carefully constructed with a view to economy of fuel, and to a development of the utmost dynamic effect. The smaller makers, who generally cannot afford this outlay, would thus gladly see the production of "racing" engines strictly forbidden by the rules of the Society. This racing system appears to be an old grievance, and in the report in the Royal Agricultural Society's Journal on the trials at Chester in 1858, the judges "suggest as a condition to be observed at future trials that steam-engines should not be considered qualified to compete for the prizes unless they are constructed precisely as intended for sale." There would however be many practical difficulties in enforcing this rule, and probably no parties would be better pleased than the makers themselves could it be strictly carried out.

Perhaps such a plan as exhibiting complete drawings and specifications of the prize engines, with a guarantee as to price, in some public place like the Crystal Palace, might meet the difficulty. It might also be required that any engine exhibited should be delivered at the catalogue price to any one; and it is not improbable that farmers would thus make a practice of buying engines at the show.

Of course the interests of the buyers of agricultural steam engines are also directly opposed to the production of special racing engines to the neglect of the more legitimate means of saving fuel, such as simple variable expansions, feed-water-heaters, &c. English farmers, however, with their cheap fuel, generally despise all these economical contrivances, as they necessarily add to first cost, and price of maintenance, while detracting from the simplicity and manageableness of the engine. The contrary is the case with continental purchasers, with whom fuel is three or four times dearer than with us. It is evident that the requirements of the buyers of portable steam engines are very varied; some only care for cheapness in first cost; others for economy of fuel; one buyer wants a light engine, easy of transport; another an engine with its parts easy of access and cheap to repair; while the attainment of most of these qualifications in a high degree, more or less involves a neglect of the others. The interests of the buyers of agricultural machinery would undoubtedly be met by a more complete expression of opinion, on the part of its judges, in the report generally issued at the termination of the trials. Not merely the relative consumption of fuel should be noticed, but also the relative simplicity, excellence of workmanship and design, and lastly the exact price of each engine. Each engine might be weighed as a test of its portability; and the exact time spent in taking the parts to pieces, and putting them together again, should be noted down in the report. Weighing the engines would not merely be a test as to facilities of transport, but also in some degree as to design; as after the engine had developed its powers at the break, a relative lightness of the structure would be an evidence that the right weight was in the right place. It would certainly be a rather onerous operation for the judges to exactly qualify the relative merits of the designs; but still, three or four of our noted engineers ought to have some

determinate opinions on the matter. There is no doubt that the steam pressure—at least for the trials—might with advantage be increased from 50 lbs. to at least 70 lbs. It is to be greatly regretted that the Journal of the Royal Agricultural Society, containing these reports, is generally only published long after the interest attending these trials has evaporated, for there is little doubt that a full and complete report would guide a purchaser in choosing the implement and engine exactly suited to his special case.

The Royal Agricultural Society has been greatly blamed for—indirectly, at least—encouraging the production of racing engines; the Society has been accused of giving prizes for live stock too fat to breed and too costly to eat; and for engines too complicated to work and too expensive to sell. It is, however, easier to blame the Society than to point out a remedy. There is no doubt some check in the racing system would exist if the number of attendants to the engines were limited —say to a single fireman, just as when the engine is under its ordinary working conditions. One man would be unable to properly manage the additional abnormal complications generally attached to a racer. At the late trials, the judges felt so strongly averse to encouraging the old racing system, that they would gladly have given the prize to the ordinary commercial engine of Messrs. Brown & May, although it was considerably behind the racers with regard to consumption of fuel. The fire tubes, however, were too small for the conditions as given in the prize-sheet, being 2½ inches in diameter, outside measure instead of inside measure. In our Number for July 27, we gave the conditions and the results of the trials, the latter according to tables furnished by Mr. Amos. This 8-horse engine of Brown & May burnt 6.4 lbs. of coal per horse-power per hour; and it would no doubt have given a better result if the steam were not actually allowed to condense in a steam jacket (!) cast round the cylinder—before entering the valve chest.

Many of the thoughts that occurred to us during our inspection of the late steam fire-engine trials at the Crystal Palace were again raised in our mind at the sight of the portable engine trials at Worcester. The dynamic effects of the water delivered by the fire engines, and the weight in the brake lifted by the portables, only imperfectly express the actual capabilities of the respective apparatuses. Just as a good jockey will often nullify the turf calculations on the "favourite," so is the amount of coal consumed per engine horse-power often as much a test of the skill of the fireman as of the power of the engine. Only a good horseman in the one case and a skilful fireman in the other, know how horse-power can be developed by judicious jockeying. In one or two cases this jockeying has been pushed rather too far, as in a curious instance which is said to have occurred at the Salisbury Show in 1857. To the astonishment of the judges, and the envy of the owners of the other engines, a rough little portable, made by a country maker of the neighbourhood, appeared to be doing an immense amount of work, and to be outlasting all the other engines. The fireman was shovelling in only old cinders and ashes, and yet the firebox was full of flame. At last the reason of the extraordinary phenomenon was apparent, and it was found out that one of the fire tubes had been previously filled with grease and plugged up with wood. The wooden plug, when consumed by the fire, let in a flood of combustible matter that kept the engine running long after its due portion of coal had been consumed. It is needless to state that this engine was *not* "honourably mentioned," after the discovery of this too-ingenious manœuvre.

The engines we saw at Worcester were in the ordinary styles of construction of the different makers. The lowest amount of coal consumed per horse power per hour at Chester trials was that of Messrs. Tuxford's 8-horse engine—3.914 lbs. This year, although they had one pound of wood per horse power less than they received at Chester, their 8-horse engine only burnt 3.59 lbs. of coal. The most enviable position however in these trials, is evidently that Messrs. Clayton & Shuttleworth, who take a high position in all the three classes. It may be remarked that their fixed steam engine was tried at a disadvantage, as happening to be the first on the list, and being accidentally unprovided with fire-bricks, the fireman could not apportion the area of fire-grate of the Society's boiler to the requirement of the engine. Clayton & Shuttleworth were the first makers of a portable engine with one cylinder, and their example in this respect has been followed by the other makers of portable engines for ordinary purposes; but the only single cylinder engine in the 12-horse power class was one prize engine of Messrs. Hornsby—a fact which in some degree accounts for its success. We certainly cannot see the utility of two cylinders in an ordinary portable engine. It is noticeable that the fire-boxes of Messrs. Hornsby's racers were not logged. For several years this firm have placed the cylinders of their engines inside the fire-box; the only advantage of this plan is evidently to prevent condensation in the cylinder. The exhaust pipes of Messrs. Hornsby's engines are carried back inside the boiler, and they state their adherence to this plan, and their rejection of the usual logging for the fire-box are the results of careful dynamometric trials, demonstrating to their satisfaction that little or no loss of thermal effect follows the adoption of these arrangements.

We did not notice any of Giffard's injectors on the portable engines. Agriculturists probably consider this apparatus as too delicate for farm use; and on the other hand the makers do not like to supersede their pumps by an article upon which they would have to pay a patent-right. That useful appendage in a high-pressure boiler—a blower—is getting into general use. Messrs. Barrett, Exall, & Andrews's engines had fire-boxes flush with the boiler, a mode of construction which does not find the general favour amongst agricultural engineers that it undoubtedly deserves. The objection that these fire-boxes have insufficient steam-room could be easily overcome by the use of a perforated steam-pipe, and more especially by a due attention to a good circulation of water in the boiler.

In conclusion we may remark that, if these trials are of any use at all, four years are too long a period to elapse between them; and a wealthy Society like the Royal Agricultural Society, with 10,000*l.* in the 3 per Cents., could very well diminish the duration of the cycles from four to at least two years, the entire question being merely one of expense. *P.*

Barley is rarely infested with parasites, with the exception of smut, which seems to attack cereals almost indiscriminately. It suffers also occasionally from Ergot, but this it does in common with Wheat, whose spurred corn is said to be a far safer remedy in the peculiar class of disorders to which it is applicable, than that of Rye, which in addition to the Ergotine contains a highly deleterious principle. Barley has as far as we know no parasite peculiar to itself, and has little tendency to be affected by either rust or mildew.

We have however before us a very curious case in which it should seem that rust from some other plant may be productive of serious injury.

Before, however, we advert more particularly to this, we must make a few observations on these parasites in general, without which our remarks would be unintelligible to many of our readers.

It has often been explained in this Journal that the bodies which are usually called spores in rust, mildew, smut, bunt, &c., are not the bodies which immediately generate the new plant. If we take, for instance, the spores of mildew, which consist of two cells placed one above the other, we find that from the tip of either a stout thread is put forth, which becomes branched above, and at the extremity of each branchlet a secondary spore is produced, which is at first globose and then kidney-shaped. This in turn germinates and generates the true mycelium of the Fungus. The first formed body is in point of fact not the real spore, or even spore-bearer, but merely the precursor of the true spore-bearer. The same applies to such other allied genera or species as have been observed during the period of fruit-bearing and germination. Rust has not yet been observed in this state, and in consequence, as will be seen presently, some doubt may arise as to the particular Fungus to which the affection is due which we are about to describe.

We received about three weeks since information from Mr. W. Gregory, an intelligent farmer at Apethorpe, in Northamptonshire, that certain Barley crops in Leicestershire contained a notable proportion of brown withered ears, such as he had never observed before. The land on which the Barley grew was rather exhausted, but this was not sufficient to account for the appearance, and he kindly procured a supply of ears. Some of these had made some progress towards perfection, but others were manifestly nearly abortive. The glumes, and in some cases even the awns, were mottled with brown, and on removing the short miserable grain, though it had attained something like its proper form, the surface was wrinkled and mottled like the outer integuments. The most striking circumstance about it, however, was that each grain was tipped with an elongated triangular whitish or greyish process, about half as long, of a firm texture in parts, but otherwise appearing as if composed of mould-threads, calling to mind the little cap which is so conspicuous in some stages of Ergot. On examination this body was found to be composed of the remains of the stigmas, matted together by a mass of spores in a state of germination. As the mould-threads were swollen here and there after the fashion of those of several of the parasites which have been so closely examined by Tulasne and De Bary, and they were moreover studded with secondary spores resembling exactly in form those of the common mildew, it was at once evident that the spores of some kind of rust had fallen upon the stigmas, and though they had ultimately produced abortion, they did not in the first instance entirely prevent impregnation.

As far as we are aware, Wheat rust has not been traced through the several processes of germination. We cannot, therefore, assert that the spores in question belong to that species, but there is great probability of it, as the district is peculiarly subject to that Fungus. We should not have hesitated, however, a moment about the matter, as the colour and size of the germinating spores agreed with those of the Wheat-rust, were it not for the fact that each spore presented on one side three plane triangular faces, the fourth being spherical, as though the spores in the course of growth had been subjected on one side to considerable pressure. We do not observe this appearance in ungerminated spores of Wheat-rust, but it is very possible that when the contents of the spores are exhausted by the protrusion of the mould-threads, and the formation of secondary spores, traces may be observable of the old pressure, which did not appear so long as the contents (or protoplasm) were undisturbed. The secondary spores are very like those figured by De Bary in Æcidium, but the spores of that genus do not appear to have triangular facets.

The facts just detailed open out a new path of inquiry, and it will be worth notice whether in cases of Wheat blight, the evil may not sometimes arise from the development of rust spores on the stigma. It would be a curious circumstance should it be found that the rust of the Berberry, which belongs to the genus Æcidium, is ever guilty in this direction, a matter which is very possible, though there is no foundation for the popular notion that Wheat mildew is produced by the Berberry rust. Be this however as it may, the subject is full of interest both practically and theoretically, and well worth attention in some future season. *M. J. B.*

The grain crops of the country are in all probability worth 20,000,000*l.* to 30,000,000*l.* more this year than they were last year. We shall certainly arrive at the knowledge of one great class of the causes of fertility if we inquire what has occasioned this great instance of its increase. —Has it been owing to an extension of land drainage? That often repays its cost in a few years, although it is sometimes allowed 10 or 15 years for that purpose in agreements between landlord and tenant. But how many millions spent on land drainage would create an increased value of grain to the extent of 20,000,000*l.* in a single season? Rapidly as land drainage is proceeding, so great an increase of fertility cannot be set down to this as its efficient cause.—Can it then be attributed to improved tillage? Unfortunately for that idea the autumn which preceded the crop of 1862 was much better for tillage work than that which preceded 1863. There has rarely been a finer autumn than that of 1861 for tillage operations, but the crop of 1862 was generally inferior and below the average.

Can it then be set down to extra manuring? How many million pounds worth of guano put on the land in spring will produce 20,000,000*l.* of grain in autumn? It would need, we fear, almost all the contents of the guano islands spread upon the land at once to produce an effect so great.

Notwithstanding all our boasted advances and improvements in all farm operations, this great increase in the year's fertility is not a work of Art at all. It has arisen out of causes altogether independent and outside of Human effort, Will, or Science. Here, then, we have pointed out to

us one great class of facts affecting fertility which are altogether outside of Agriculture—including the whole series embraced between climate on the one side and the vitality and constitution of the plants we grow upon the other. The fitness of climate to the constitution of the plants we grow (both being entirely beyond human control, and to be simply accepted as absolute and inevitable facts) is one great cause of fertility. When the farmer has chosen the plants best adapted to the circumstances of his cultivation, the outer and maximum limits of their productiveness are fixed for him—they are independent of any power he can exercise. Up to those limits he can force his will upon the crops he grows—but beyond those limits he cannot urge them. All the subsequent causes he can bring to bear are in the nature of opportunities given to the plant—its power to use those opportunities is limited by the climate of the year, and by its own essential character and constitution.

Of course the wonderful produce of this year *is* to some extent a work of Art—if the difference upon the whole between the harvest of the present season and that of 1862 cannot be put down to deeper ploughing, more perfect drainage, more liberal manuring, or to any difference in the effort of the farmer, there are plenty of differences between particular farms and fields either of this year or of last which *can*. The reports which we have received of the current crops speak of Barley in particular as being extremely various; where early sown it has prospered, but in the hands of those whom the reporter calls "afternoon farmers," *i.e.*, where sowing has been delayed, it has failed. And in the previous year the Wheat harvest was extremely various; on undrained clay lands it was a failure, while on well drained land and well put in it yielded well. If therefore one great class of circumstances affecting fertility—including all those particulars which make up the climate of the year, and the natural character of the plant—are beyond us, there are many others, including both the adaptation of the soil to the plant and the treatment of the plant itself, according to its natural character, by which we can make or mar a crop.

In Mr. Caird's reports of farms, published several years ago in the columns of the *Times*, there is an instance given illustrative of the rise in the fertility of land during successive weeks of years, during which the average climate must have been nearly constant. The Wheat crop in the seven years preceding 1839 averaged 25 bushels per acre on the farm of Mr. Blyth, near Burnham, Norfolk. In the seven years ending 1846, it was 29 bushels; in the next seven years it was 36 per acre. In like manner, during the same period, Oats had yielded 54, 57, and 68 bushels per acre respectively, and Barley had yielded 31, 33, and 45 bushels per acre. Mr. Caird's remark upon this history is that the great increase in the period since 1846 may be attributed to the use of artificial manures, as a direct application to every crop, which has since that time become a universal practice.

Here, then, is one great and obvious way in which fertility is in our hands; we can feed our plants up to the limit of their powers to assimilate this food; and that this is not always nor generally done is plain from the fact that some increase in productiveness almost always follows the application of additional manuring. Up to the extent which the living powers of the plant permit, and they are determined by the climate of the season, we can urge its growth by the liberal supply of all its wants.

Does fertility depend on the consistence of the soil, we can marl light lands, we can burn clays, we can harden by the sheep fold and the roller, we can lighten by the scarifier and the plough. Does it depend on full opportunity being given to rain water to traverse soil and subsoil and feed the roots of plants, we can by underground channels which carry off the water as it sinks preserve its continual circulation throughout both. Does it depend on the natural contents of the land being fitted for the food of plants, we can lime and burn and till, introduce the natural agency of air and rain and the artificial agency of lime and heat, and thus stimulate that chemical action within the soil on which the preparation of food for plants depends.

Does it hinge on the supply of additional fertilising matter, we can add these matters directly from the dung heap, the manure manufactory and the guano ship, or we can add them indirectly by feeding sheep and cattle on the land upon imported food. Unquestionably fertility is to a very great extent a work of Art. This is not less true on natural and shallow soils, where no such extraordinary change has to be effected in the original character of the land before it will yield good crops, than it is in the fens of Lincolnshire and Cambridge, now laden with rich grain crops and herds and flocks of cattle and of sheep, where the natural fertility yielded formerly but Sedge and Rush and bog and seaside plants, with only wild fowl for the live stock.

—— We understand that Mr. Smith, of Woolston, like Messrs. Howard, of Bedford, has declined the inferior premium awarded to him as a competitor for the prize offered by the Agricultural Society of England for the set of steam cultivating apparatus best adapted to small occupations. He "is of opinion that the terms of the prize did not admit of a division of it," and he therefore cannot accept a part of it.

AGRICULTURAL WAGES IN THE WEST OF ENGLAND.

[The following report on this subject appeared some time ago in the *Times* newspaper.]

It has struck all thoughtful persons in the West of England who are familiar with the condition of the peasantry around them that the Lancashire operative hardly knows what it is to be on "short commons," and the nobles and gentlemen of that much enriched country do not seem to be aware on how very little the working men of the South and West keep themselves and their families in health and content.

I have seen the contrast between the two parts of England alluded to, but I have never seen any statement of facts to bring it out in detail. Being now much among the poor of my native parish in a western county, where I have known the state of all ranks of the inhabitants, more or less, for 40 years, I think I may convey some facts to the public, by the aid of your universally read journal, which may give a true view of the subject that is now much before the public, and is pressing and pressed on the hearts of the compassionate.

My neighbourhood contains a purely agricultural population, the heads of which are proprietors on a moderate scale, and tenant farmers, none of them wealthy. The farms and cottages lie for the most part scattered along hill and dale, on a rich moist soil, which causes great wear and tear of clothes, especially shoe leather. Stone is plentiful, which occasions good dwellings at reasonable rents, excepting where you are near a town. But ways are difficult and conveniences few, which all tends to expense.

You may put the farm labourer's wages at from 8*s.* to 10*s.* a week and his cider. The maximum is reached only by the carter and head shepherd, and then it is usually paid thus—8*s.* per week, with a cottage, small garden and 20 perches of potato ground, and an allowance of firewood. These allowances are valued at 2*s.* a week. For this large wage a man is expected to work a day and a half, the Lancashire folks would call it, as I will show you by and by.

A carter's and shepherd's wages never vary, but a good labourer has the chance of piecework, by which, if he is skilful, he will earn more than his day's wages. Reaping, mowing, hoeing, wooding, are all done by measure. A man on piecework will hardly cease his labour while the light serves him, even in summer. This is his only chance of getting a little beforehand with the world. Cottages may be had of the largest proprietors for from 1*s.* to 1*s.* 6*d.* a week, but the small landlord invariably asks, and gets, more. Coals may be put at 1*s.* per cwt.

The rate at which boys are paid is in small proportion to the men; 6*d.* a week is gladly taken by a poor mother with several children at home for her little boy, to scare the birds from daybreak to sunset on a cold spring day off the lately-sown field. From 6*d.* to 5*s.* would represent the earnings per week of boyhood up to 18 years of age.

But, if the condition of the labouring and vigorous man is so lowly, what is it when he is maimed, or his "work is done," often the case soon after 60, when he has probably some years of life before him, on parish "lowance"? 2*s.* 6*d.* for a single man or woman, 4*s.* 6*d.* for a couple, is the general income of these poor people. They live and are content on it, and would rather starve than go to the workhouse, where they would be well housed and fed, and kept warm.

Living close to me there is a worthy couple, who have 4*s.* 6*d.* per week allowed by the parish, after the hard service of a lifetime has crippled the man. They give 1*s.* 4*d.* for house and garden, 1*s.* per week for coals, and 2*d.* a week is put into a club, which affords all their hope of getting clothes. This leaves them 2*s.* to live on. They do live, do not complain, and they have no debts.

On the other side of me I have a carter in the vigour of life. He rises with the sun, unless the sun is late, for he must be in his stable before 6 o'clock, even in winter: returns home at 7 o'clock to take his breakfast "flying," as his wife told me, for he must go at once with his horses for their eight hours' labour, which is considered a day's work for a horse. He carries his dinner in his pocket, and eats it as he goes along, and thinks himself fortunate if he gets home for a cup of tea in the evening; for, after he has cleaned and provided for his cart-horses, and groomed "master's" hack, and looked after the missing colts, he must work in the cider house or pursue some kindred employment till 8 or 9 o'clock at night during the winter months, and even to a later hour in the summer ones. In all this my neighbour is helped by his eldest boy, a lad of 17, who receives 5*s.* a week for 15 hours' almost incessant work.

This boy comes to my night school when he can, is most diligent about his lessons, but is often more sleepy than bright. He never touches a shilling of his earnings, but is quite happy that it goes to help in feeding, clothing, and housing his father, mother, and six younger children—there have been 11. Another couple I know have eight under 12 years old, and they live on 10*s.* per week earned by the father, and 2*s.* by the eldest boy; 1*s.* per week for house and garden and 1*s.* for coals is their reckoning; 10*s.* is left for all the other necessaries for 10 people.

These are the wages of skilful, vigorous men. The unhandy or weakly have wages lower, according to their deserts. I know a man, hardly middle-aged, who receives but 8*d.* a-day (which is the rate at which a woman is paid); he keeps himself and his wife on that, and has kept a child. I have lately found the wife nursing and washing for a sick brother and sister, all for love. I wonder how it is they live and keep strength for hard work, but I see that they do it and are satisfied, and I must say they very seldom beg, or give you any idea that they are poor to the degree that we think them.

It is not often the women go out to work regularly. We reckon it ruin to her family if wife or mother does so. A notable woman is thankful if she can earn money by work done at home, but the opportunity for that seldom offers.

All these people send their children to a school charitably provided for them at 1*d.* or 2*d.* a week. At my night school I find perfect readiness to buy pens, copybooks, and even books of a trifling cost. I can hardly take it, but I know they would not value my teaching, or their own learning, if it cost them no money. For the most part they are tidily clothed, and their houses would shame those of many persons who are earning an ample livelihood. From these families excellent domestic servants have been formed, and a very little assistance soon lifts up those who have help in themselves.

I am far from pitying the strong labourer with a good wife and healthy family; but I do pity from my heart the sick, the aged, and the worn-out. And I feel, with such a population around us, we ought not to be called on weekly (as is now done in some churches) to give to those who are by comparison well off.

If you offered our families 2*s.* per head a week they would think the riches of Crœsus had fallen on them. Yet these are the people from whom not only have the alms of others been diverted, but money—little enough it is true, but still money—has actually been levied, and that by personal applications of the clergy from house to house, in order that more may be given to those who are in less need. They have—poor, kind creatures!—given cheerfully, because they have been told that their fellow-countrymen are starving, which they understood to mean actually dying of hunger; little thinking that such expressions are used in a metaphorical sense, as by persons accustomed to no stint in food and clothing, and that which a Lancashire man calls "starvation" is affluence to one of themselves.

I have said nothing of the price of meat. It is 8*d.* per lb. The poor seldom see, never buy it. Bread, of course, bears the current price of the season, as elsewhere. It and Potatoes form the chief food, and the bit of "garden stuff." How they subsist in health, and how they make both ends meet, I cannot tell. But that is not the point. It is that we who have little to spare of our own, and have such a chronic state of poverty around us, can neither be expected to call that "famine" which sounds to us to be abundance, nor to take of our scanty means of giving from our very poor neighbours for those who are so much better off, and belong to the wealthy and the money-making.

I could draw a "picture from real life" among my neighbours of such distress as would equal—indeed far surpass, any I have read of in the manufacturing districts. But this would be from exceptional cases. My object has been to show truly the general state of this country and its inhabitants, and to acquaint the north country people, and those who are so kindly helping them in their unwonted trouble, that we are always at a lower state of poverty than that which Lancashire calls a state of starvation, and always have at hand calls for our charity to the full extent of our very limited powers. *Z. A. in the Times.*

THE APPLICATION OF SUPERPHOSPHATE.

As regards the application of superphosphate, I have already remarked that the best farmer makes best use of superphosphate; this is chiefly because his land will be more likely to be in a good condition to receive both seed and manure, so as to allow of the capabilities of the latter being developed to the fullest extent.

The preparation of the soil, by judicious management

and good tillage, is, in fact, a most essential condition for the proper action of all artificial manures, especially superphosphate. If we examine a naturally fertile soil, we perceive that even its mechanical components, or those which compose its bulk and weight, such as clay, sand, &c., are intimately blended and intermixed; while its chemical constituents, or those which constitute its more valuable store of plant food, and the same which we supply in a crude state in artificial manures, occur in such a perfect state of division and uniform admixture, as to defy detection except by appropriate chemical processes. In this condition of the soil, moreover, these latter materials occur in a manufactured state, so to speak; or have, by the operation of natural processes in the soil, of which we at present know little, become mellowed and tempered, so as to be brought into the condition most acceptable to plants. That this is the case we may safely infer from the extraordinary fertility of rich garden mould, or the "maiden earth" of old pastures.

The salts of ammonia, of phosphoric acid, or other of the above materials, as we supply them in manures, are in too crude and concentrated a condition to become at once food for plants; they may, indeed, by injudicious application, become poisons instead of food to plants. Nothing is easier than to poison a plant with guano or superphosphate; indeed much injury to corn crops is often done in this way, by the application of guano, although its after effects in benefiting the crop generally, is in most cases sufficient to conceal and overcome such local injury, but which is nevertheless objectionable and preventible. This is because the salts of ammonia present in guano, as also the soluble phosphate of superphosphate, exercise a corrosive action on the delicate roots, or other organs of plants, with which they may be brought in actual contact; hence it is only when diluted and modified by the action of the soil, as above referred to, that these and other contituents of artificial manures, become fit to supply the roots of plants with food.

Strange as it may seem, there is every reason for believing that soluble phosphate is reconverted into insoluble before being made use of by the plant; the only object gained by the process of manufacture into superphosphate being, therefore, an extreme subdivision of the bone-earth in the soil; but this, as we may now explain, is a sufficiently important object.

Although we have stated that bone-earth is an insoluble salt, as it is compared with what are called soluble salts, such as soluble phosphate, or table salt, &c., yet it, nor scarcely anything else, is absolutely insoluble; that is, which does not dissolve to a small extent. If what we call insoluble phosphate of lime be left to soak in water, the latter takes up a minute quantity of it, but the amount thus dissolved, though always small, varies with the physical condition of the phosphate of lime, as well as upon the presence of other substances which the water may contain.

Thus coprolites treated in this way will hardly yield any phosphate of lime, which is the reason why they are of comparatively little value as manure. Again, fragments of bone will yield very little at first; although, by the slow decay of the animal matter (the gelatine), phosphate of lime will then become soluble. The finer the phosphate of lime, or the material containing it, is broken up or divided, and, consequently, the larger surface it presents, the more of it is dissolved. This holds good as applied to mechanical subdivision by grinding; the finer we grind bones, bone-ash, or even mineral phosphates, the more effective they become as manure; although, except in the first instance, the limit of such means of division fails to render these substances effective manures. It is for this reason that certain phosphatic guanos—such as the Kooria Mooria, Californian, &c.—are more effective than the above forms of phosphate of lime, although they contain little else; having, in all probability, been slowly produced from animal excrements, by the action of rain and other natural agents, by which the soluble matters have been, for the most part, removed, the phosphate of lime remains in an extremely comminuted state. I am inclined to think that even Peruvian guano owes much of its fertilising action to phosphate of lime in this condition; for, apart from the fact that it often contains as much as 4—5 per cent. of real soluble phosphate, the whole of its phosphate of lime (amounting to 20—25 per cent.) being in organic combination, is in a still more favourable condition than in the guanos above mentioned, and approaches, in fact, the soluble phosphate of a superphosphate.

The superior efficacy of the phosphate of lime in these latter examples is owing to the fact that its division has been brought about, in part at least, by chemical means. For this reason the recently precipitated phosphate of lime in a moist condition, as we obtained it in our experiment with bone-ash, is in the most favourable condition possible for being taken up in this way and conveyed to the roots of plants; and this is just the condition into which the soluble phosphate of a superphosphate gets changed after it has remained a short time in the soil. This creamy substance (the result of the experiment just mentioned) consists of a multitude of particles of phosphate of lime, infinitely smaller than could be produced by any process of grinding. The carbonate of lime, the alkalies, &c., present in the soil precipitate the phosphate of lime in this condition, just as the strong alkali soda which we used did at once in our experiment.

Again, the moisture permeating the soil dissolves such phosphate of lime more readily than pure water does; it contains carbonic acid gas, which is known to increase greatly the solubility of phosphate of lime; this, and other bodies existing in the soil, assist in preparing this important compound for assimilation by plants.

Into those properties of soils, which we before alluded to as instrumental in preparing the crude constituents of manures into food for plants, we cannot now enter; it is sufficient to remark, that their proper action depends as much or more upon the physical condition of the soil, its lightness and porosity, the presence of a due amount of air and moisture, &c., as upon its chemical constitution. As the condition of a soil in these respects is, to a great extent, dependent on tillage, it is clear that the latter materially influences the value of superphosphate and artificial manures generally. Hence, in the practical application of superphosphate all care should be taken—not only to prepare the soil for its reception, and that of the seed—but also to ensure its uniform and gradual admixture with the soil, so as to imitate, as far as practicable, the natural condition before referred to; and we may be assured that, the more completely we do this, the further our manure will go and the better result it will yield us.

The plan of mixing superphosphate with ashes before drilling is an excellent one, and much more than are commonly used might often be employed with advantage; the manure being carefully incorporated with the ashes by gentle rubbing and sifting, avoiding all rough usage, which would be calculated to bring the manure into the pasty condition we have pointed out.

It may be questioned whether the plan usually followed of drilling the manure with the seed is the most advantageous mode of applying it. By this plan the manure is put too much in one place, and too much about the plants at the earlier stages of their growth. On the other hand, the plan sometimes adopted of sowing the manure with the "broadcast distributor" before "ridging up," when this mode of cultivation is followed, disperses it too much, and places it too far out of the reach of the plants at first. The liquid manure drill, when it can be used, is superior to either of these modes; though still open to the objection of depositing the manure in one narrow line. Some plan, intermediate between the two former, would probably give the best results. *Mr. Sibson's Lecture on Superphosphates.*

JOHN GREY OF DILSTON.

[At a meeting of the tenantry of Greenwich Hospital, held a few days ago, it was resolved to invite John Grey, Esq., Receiver of the Hospital Estates, to a public dinner, as a method of testifying "the high esteem they entertain for Mr. Grey's character, and to acknowledge the discretion and integrity with which he has, during the long space of 30 years, discharged his arduous office, to the great improvement of the district, and to the advancement of agricultural science in the country generally." Several of Mr. Grey's friends having expressed a wish to join in this testimony to his merits, it was further resolved that the dinner should be open not only to the tenantry, but to such of Mr. Grey's friends as should signify their intention in due time. The dinner was accordingly held at Hexham, on Thursday, July 23, in a spacious tent. Nearly 200 gentlemen were present. The chair was occupied by William Stephenson, Esq., of Throckley House. The Vice-Chairmen were Marshall Stephenson, Esq., Four-stones: Joseph Lee, Esq., Dilston; J. Bolam, Esq., Glororum; and W. Benson, Esq., Allerwash. After the usual loyal patriotic toasts, the CHAIRMAN rose to propose the toast of the evening. He said:—It is universally acknowledged that the highest possible compliment that can be paid to a public man is, to say that he has acted a straightforward and independent course, never having departed from the paths of truth and rectitude; and if that individual should be one who, for a continuous succession of years, has occupied a respectable and important place, requiring no ordinary talent and shrewdness, the acknowledgment is only the more deserved and obligatory. Such an individual is our honoured guest. My connection with the Greenwich Hospital, as a tenant, dates back for 40 years, and during 30 years of that time, Mr. Grey has occupied the position of Receiver of Greenwich Hospital. To say that I individually owe a great deal to Mr. Grey for the counsel and advice he has ever afforded me during the whole of this period, would only be justice; and when I bring to recollection the many acts of kindness I have received at his hand, I cannot desist from embracing this opportunity of thanking him and assuring him of my grateful appreciation. And yet I think I am speaking not only my own thoughts, but the sentiments of the tenants of the Hospital, when I say we are, individually and collectively, obliged to Mr. Grey for his uniform kindness and affability, as well as for the great interest he has ever taken in our welfare, in common with the general prosperity of the estate. When Mr. Grey entered upon the duties of the receivership, the estate was, on the whole, badly cultivated, the tenantry were chiefly in poor circumstances, and, as a necessary result, changes were continually taking place. That matters have been greatly altered for the better, is beyond all doubt and dispute. The farms were all valued, a reasonable system of husbandry introduced and enforced, and every encouragement and assistance given to deserving and industrious tenants. I may be pardoned for the egotism, when I say that the Hospital tenantry, as they now exist, are second to none, either as regards respectability and character, or scientific enterprise and persevering success. Had Mr. Grey been disposed, he might have contented himself by simply attending to his duties as Receiver. But his attention has been at all times directed to the public and general good; his connection with the Hexham Farmers' Club, as its President, and the many valuable papers and speeches which he has from time to time read and delivered, have tended very materially to bring the agriculture of the district to its present state of excellence; and his name will ever be held in the warmest veneration, and handed down to posterity as one of the best and most enlightened supporters of agriculture of his day. I hope, now that he has been relieved from his more arduous duties, we shall still be favoured with his presence and co-operation in our endeavours to further the interests of farming in this district. Mr. Grey, although in advanced years, is in the enjoyment of a green old age, his intellect is still keen and active, his faculties unimpaired, and, by the blessing of Providence, we entertain the hope that he will yet, for many years, be associated with us as our counsellor and friend. The toast was drunk with great enthusiasm.]

Mr. GREY, who was received with great cheering, said—The Chairman has told you, gentlemen, that I have on former occasions, as many of you know, had the privilege of addressing you; but then it was on subjects connected with our common interests, and with the general welfare of the country. We discussed then the improvements that had taken place in agriculture, and those things which have tended to increase the production of the land. On such occasions I had an object in speaking, and I had a subject to speak of; but on this occasion I am placed in circumstances of unusual difficulty and embarrassment, because you have called me to speak on a barren subject, that of my own very inconsiderable self. Mr. Stephenson has reminded me that it is now somewhat more than 30 years since I undertook the office which I have now resigned. That brings to my recollection a circumstance which is similar to the present, for, on the eve of my departure from the scenes of my early occupations, and from the society of my youthful friends, a great number of them were collected, as I have now the honour of seeing a number around me, to send me away with a cheer. Gentlemen, that recollection carries with it, unhappily, a very mournful feeling. It proves to me how great is the havoc which the period of 30 years makes in the numbers and society of living men. For how few are there now who were then instinct with life and vigour to be found? Yet I do recognise on this occasion some old familiar faces. There is, gentlemen, another sentiment connected with the recollection of that period and of that meeting, which bears with it a moral, and that you will allow me to mention to you; for it proves to my mind that a man may be born into the world without any of those adventitious aids of rank, or wealth, or talents, which are the pioneers of success to many others, and yet if he devotes himself with industry and perseverance to the duties of his station, and if he pursues a course of justice and of fair dealing, he will not in the end fall short of receiving something of the approbation and esteem of his fellow-men. It happened to me that I was very fortunate in the preparation which I had had for the office which I have now for 30 years filled; and all my training has been of the kind which would produce the knowledge necessary for this situation. And as you have called me here to-day to recognise, with extreme kindness, the results of my stewardship, I feel myself in some measure called upon to explain to you what you have a right to know—what were the circumstances to which I ascribe any beneficial results and advantages which may have been derived from it. Mr. Stephenson has just reminded me that I have now been in harness for 60 years. That dates from the beginning of this century. At that time you will all know that there was a great impulse given to agricultural improvement, such as had not been known before. That stimulus has been acting, and that improvement has been progressing ever since; and it has mainly been accelerated in the last years that have gone by. From my very earliest youth I was initiated into the business of agriculture. When I was a boy at Richmond school I had the privilege of passing several occasional holidays with the great agriculturists of that day—men whose names have been handed down to posterity as the benefactors of the country—I mean the Collings, Charges, and Booths of that day. When with them I heard very little of anything but agriculture; and I was also initiated into the enthusiasm which pervaded all classes of people at that time with respect to the introduction of the Short-horn breed of cattle; and then it was that I made my acquaintance with those patriarchs of the race, the names of which are familiar to you all still, the Favourites, and Comets, and Dukes of that day. Family circumstances required that I should, at the age of 18, take the management of extensive farming concerns, including amongst them that patrimonial property which very adverse circumstances in this neighbourhood have but recently deprived me of. I was then settled as an inexperienced youth, with much work on my hands; but do not allow yourselves, gentlemen, to conceive that I think it was a hardship that a young man should be put thus early in harness. On the contrary, I believe that it gives him an earnestness of character, and an aptitude for business; and, probably preserves him from many temptations to idleness which he otherwise might be subject to. Those great veterans and leaders in agricultural improvement, the Messrs. Culley, who saw me a youth, inexperienced, and yet in circumstances of great responsibility, bestowed upon me much kindness and much valuable instruction. To them I was indebted for the parental instruction which otherwise I would have been deprived of. I was then, also, associated at an early time with other agriculturists in forming agricultural societies, which were not common, as they now are. One, for instance, the Tweedside Society, which was originated at Cornhill, and afterwards amalgamated with the Border Society of Kelso, which, since that time, has stood as the Union Society, was of great importance to the Tweedside district. Of that society I was one of the earliest members, and for many years one of the most successful exhibitors. In course

of time, I became able to take a position amongst the agriculturists of the county. I then became known to that veteran agriculturist, Sir John Sinclair, whose zeal in agriculture led him to spend his entire life in obtaining information, and in diffusing it by numerous publications. Those publications have been very much set aside, and become obsolete, by the progress of improvement, and by the great numbers of works since published on agricultural subjects. However, there is one work of his—his "Statistical History of Scotland,"—which will always remain a valuable record of that country. When he was engaged on his last and largest work, his "Code of Agriculture," which is a compendium of many of the others, he did me the honour to call me to his aid, and to refer to me the various sheets which that work consists of, for remark and criticism. I only advert to this, gentlemen, to show you that I have been called in former life to study agriculture in theory as well as in practice. At a later time than that I had the honour to be consulted by, and to have much intercourse with, those valuable men who are now, alas, taken from us—the late Lord Althorpe, Mr. Pusey, and Mr. Handley, in originating the Royal Agricultural Society of England. With them I had a bulky correspondence, which I preserve to this day. When that society was originated, I was invited from year to year to act as one of their judges, and to contribute to their publications, and amongst other contributions of mine, there stands to this day the first report from any county in the kingdom. That was written by myself, and is a report of the agriculture of Northumberland. It was written at the instigation of Lord Althorpe, and was suggested to him by the very superior style of farming which he witnessed at the borders of the Tweed when at two not very distant periods he did me the honour to visit me at my former abode. That report of the agriculture of Northumberland took so well when published in the *Journal of Agriculture*, that the committee of the journal offered 50*l.* premium, and have from that received reports from all the different counties in England. It was from the position which I had thus the good fortune to acquire by industry and attention that I became known to agriculturists in different parts of the kingdom. And I doubt not that it was to that position that I was indebted for the notice of the late Earl Grey, who called me and took me as a proper person—as a suitable and likely person—to occupy the situation of Receiver for the Greenwich Hospital Estates, at a time when it was considered right that a change should take place in their management. And there is no sentiment which is to me more gratifying than that which you have called upon me this day to receive—your approbation and your expression of the belief that the result of that appointment has been such as your Chairman has been pleased to describe it. Nothing can be more gratifying to me than the thought that I have been able in some measure to do credit to the recommendation of that high-minded nobleman, whom during his life I so earnestly loved and admired, and whose high principle and honour of heart I shall never cease to revere. Gentlemen, how to thank you for your extraordinary kindness bestowed upon me by this large assembly, which has now met to do me honour, I am perfectly at a loss to know. I can only assure you that I most truly appreciate this evidence of your approbation, and that I shall retain a grateful recollection of your kindness to the latest day of my life. Gentlemen, wishing you all that is good for you, and most earnestly thanking you for your kindness, I now take my leave.

SEWAGE MANURE.

You will do good service to British agriculture by inserting the following very important letter from Baron Liebig. It settles definitively the question, hitherto much disputed, of the value of a ton of town sewage, taken at its outlet.

How much is to be deducted from that value for conveyance to the fields is another part of the question; but it is generally admitted that from one farthing to three farthings per ton, according to elevation, would be an ample deduction. It is strange that our Legislature or Government has never, by a committee or a commission, elicited engineering data on this point. At Croydon the cost is not more than one farthing per ton; at this rate there is ample scope for profit to the ratepayers as well as farmers, at Baron Liebig's estimate of 4*d.* per ton.

Hitherto nearly all our attempts at sewage irrigation by means of steam power, pipes, hose, and jet, have been imperfect, from a want of sound engineering skill; hence they have been unduly costly. A mistake of an inch in the diameter of our supply pipes may increase our expense of delivery 100 per cent.

When once we are agreed as to the value of a ton of town sewage, delivered on the land, we shall not long differ as to the propriety or profit of applying a given quantity per acre. Those who now advocate 10,000 tons per acre per annum will be brought, by the questions of cost and value, to much more reasonable conclusions. 10,000 tons per acre, at Baron Liebig's estimate of 4*d.* per ton, would amount to 166*l.* 13*s.* 4*d.*! Many farmers would be astonished at our ever proposing to expend 5*l.* per acre in manure or guano—What would they say to 166*l.* 13*s.* 4*d.* per acre?

We are all gradually coming to believe in Liebig's great theory, that in order to build up a perfect plant we must have all the necessary materials or elements in due proportion and in a fit condition. No one certainly would doubt this, if applied to a house—for, wanting either lime or water, useless would be the bricks, timber, slates, and other materials. *J. J. Mechi, Tiptree Hall, Kelvedon, Essex, Aug.* 15.

Utilization of Sewage.

The agitation at present going on regarding the application of sewage to the purposes of agriculture, induces me to offer a few remarks which may perhaps assist to throw some light on the different questions belonging to this most important subject.

It seems to me that, on the whole, people have not a correct idea of the matter. In the last twenty years a new branch of industry, which did not before exist, has developed itself on a large scale, and in like manner the importation of guano and the sale of various manures have increased to such an enormous extent. The manufacturers of and dealers in manure are, on principle, inimical to the utilization of sewage, and, in the battle which is being fought, they constitute the inimical army whose forces should be by no means underrated.

The contest which this question has renewed is an old one—the contest, namely, between commercial and industrial and the agricultural interest. The manufacturers of artificial manures fancy their business would stop if it should once happen that the towns supplied the farmer with the necessary manure. If we examine the matter thoroughly we shall find that the anxiety of the manufacturers and dealers in manure is like the panic of the carriers on the eve of the introduction of the railroads. They also feared that the rail would put an end to their business. Yet we know that, owing to the greater traffic, the number of horses in use has since then everywhere increased. The sewage question is most intimately connected with the manufacturers of manure; so much so indeed that the latter may derive from it the greatest profit. It may even be said that it is in reality the manufacture of artificial manure which gives to sewerage its peculiar value and importance for the purposes of husbandry, and it is this which I shall endeavour to explain in what follows.

It is well known that the manufacture of artificial manure is based on the doctrine that the nourishment of all cultivated plants consists of inorganic or mineral substances. Manure consisting of organic substances can be produced by the agriculturist only. The farmer produces farmyard manure; the manufacturer, on the other hand, mineral manure, with which he furnishes the farmer with those efficient elements wanting in stable dung. The most important fabrication is that of superphosphate of lime. The question of immediate importance to be decided is the value to the farmer of the sewerage used, and it is easy to find this by comparing sewage matter with guano, the effect and price of which are known to the farmer, and of whose value he is able to judge. The problem to be solved is, therefore, how much of the efficient elements of guano a farmer can convey to his field in a ton of sewage; or how many gallons of sewage water are equivalent to a cwt. of guano. Regarding the component parts of the best sorts of guano, we have certain and reliable data, those relating to sewer water are less so; but we might long ago have been fully informed of its average contents if, last year, at the mouth of each sewer in London, five gallons of water had been collected morning and evening every day during the week, and at the end of the seventh day one gallon of the collected 70 gallons subjected to chemical analysis. It would be necessary, of course, to determine as nearly as possible the quantity of water discharged at each sewer. Lacking more certain data, I take Professor Way's analysis of sewer water, which this most reliable chemist made at the request of the General Board of Health.

I reckon that Peru guano contains 14 per cent. of nitrogen (=17 ammonia), 12 per cent. phosphoric acid, and 6-10ths per cent. of potash. Professor Way analysed the water of two sewers, one in Dorset-square, and the other in Barrett's-court, and found in one gallon of sewer water—

	Barrett's-court.		Dorset-square.
Ammonia	41.18 grs.	.....	17.96 grs.
Phosphoric Acid..	10.44 ,,	.....	4.17 ,,
Potash	48.18 ,,	.....	3.52 ,,

The difference in the contents of the two sewers is very great, for the first contains twenty-nine more ammonia and phosphoric acid, and fifteen times as much potash as the other. According to the analysis of Dr. Hoffman, Frankland, and others, I am of opinion that I may take the contents of the Dorset-square sewer water as the average standard for my calculation. From the above figures it results that 101 tons (20,200 gallons) of this sewer water contains the same amount of phosphoric acid, more than three times as much ammonia, and sixteen times as much potash, as one cwt. of the best Peruvian guano.

It will be observed that there is a great difference in the proportion of phosphoric acid to ammonia in guano and sewer water. In guano this proportion is 6 parts of phosphoric acid to 8½ parts of ammonia. In sewer water this proportion is 6 parts of phosphoric acid to 26 parts of ammonia. The reason of this disproportion in the amount of phosphoric acid and ammonia in sewer water is at once perceived, if we remember that the bones of the slaughtered animals do not find their way into the sewers. These bones are, however, the manuring matter in which phosphoric acid abounds, and their component parts, let it be well understood, must be given back to the fields if it be intended that the soil shall retain its fertility. Potash and ammonia are, according to their prices, far more costly manures than phosphates, and in many cases quite as necessary for the field as this latter can be. Potash and ammonia are wholly inefficient and useless without the presence of phosphoric acid, but with the addition of phosphates they become efficient and valuable. The manufacturer of manure is not able to supply potash and ammonia to the farmer in sufficient quantity, and at an available price, but it is easy for him to collect the bones and make up the deficiency of phosphate by drawing it from natural sources.

It will, I think, be now perceptible what connection there is between the manufacture of superphosphate and the utilization of sewage. If the farmer add to the sewer water the phosphate which is wanting in it, the efficiency of the water will be increased. Thus, 101 tons of sewer water to which 120 lb. of superphosphate have been added are equivalent to 305 lb. of Peruvian guano, and the value of the sewer water will be 305 lb. of guano, at 13*l.* 12*s.* 6*d.* a ton, 498 pence; from this subtract the price of 120 lb. of superphosphate, at 5*l.* 5*s.*, 76 pence; which gives the value of 101 tons sewer water, 422 pence, or 4*d.* for one ton. It must not be forgotten that sewerage without the addition of phosphate is of much less value, because, if the farmer were to give the soil, in sewerage, as much phosphoric acid as is in 305 lb. guano, he would have to apply 305 tons of sewer water (instead of 101 tons), which would give the value of 1½*d.* per ton. I am of opinion that the proportion of ammonia which is brought into the soil by dressing the land with Peruvian guano is much too large and even noxious for future crops; but this does not belong to the present question.

From exact calculation of the liquid and solid voidings of London (the detail of which would be out of place here) we may conclude that 42 tons of ammonia, 10 tons of phosphoric acid, and 7½ tons of potash find their way into the London sewers daily. These 42 tons of ammonia are contained in 247 tons of guano, the 10 tons of phosphoric acid in 83.3 tons guano; thus 163.7 tons remain in which the phosphoric acid is wanting; or, what is the same thing, if to the sewerage obtained daily from London 100 tons of superphosphate of lime (at 20 per cent. of phosphoric acid) be added, the value of the daily voidings of the metropolis, or the sewage of London, is made equivalent to 247 tons Peruvian guano; or, by the addition yearly of 36,500 tons of superphosphate, we may acquire the value of 90,155 tons guano, at 13*l.* 12*s.* 6*d.* = 1,228,364*l.* Deduct the price of 36,500 tons of superphosphate, at 5*l.* 5*s.* = 191,625*l.*, and we have 1,036,736*l.* as the money value of the sewage. To this should still be added the worth of the potash in the sewer water. Potash is the manure which the farmer obtains with the most difficulty; it is that element, too, which renders his stable dung (the amount of phosphoric acid and ammonia being the same) of greater value and efficacy. In 247 tons of guano about 1¼ ton of potash are contained; but every day 7½ tons are obtained in the sewer water, which gives a surplus of 6 tons, corresponding to 11 tons of sulphate of potash, giving yearly 4015 tons, which at 18*l.* per ton, shows a money value of 72,270*l.* Add this to the sum above given, and we have, as real annual money value of the London sewerage, 1,109,006*l.*

The surplus potash won from the sewer water daily corresponds to the amount contained in 866 tons of stable dung. Without the addition of the superphosphate, the value of the sewerage of London would only be 304,045*l.* In the calculation of the value of sewer water, there is one factor doubtful—viz., the absolute amount of phosporic acid, ammonia, and potash which a ton of said water contains. It might, probably, be found that some sewer water was richer, another more diluted or poorer in these component parts, but in the relative proportion I do not think that any very great difference would be found. Sewer water will, in the average, contain more potash than I have allowed for, inasmuch as the fluid voidings of horses are to be added, which increase the amount of potash. We may assume that one-third of the population of Great Britain, or ten millions of men, live on corn and agricultural produce imported from abroad. For this a pretty considerable number of millions of pounds sterling must be paid, besides another pretty considerable number which must be earned by the nation, in order to pay for the purchase of manures to produce the food of the remaining 20,000,000 of inhabitants. Many superficial observers appeal to statistics, which appear to show that much of the land yields one-third more than it did in the last century, and this is not, they say, a sign of decrease of fertility; but they forget at what costs their larger crops are obtained, and that they are due to an enormous expense of capital for the purchase of foreign manure. It is a sign of a poor or an exhausted soil, if, in order to get high returns, we have to add large quantities of manure from without; a rich or fertile soil does not require such an addition.

The employment of sewerage in agriculture could make it possible to bring large tracts of land into cultivation which hitherto, owing to the expense of tillage, had been laid waste and neglected; others, too, might be so improved as to make the crops remunerative, and good yields would bring in a larger revenue. The vast capital which hitherto has left the country to pay for corn and manure might be kept at home and employed for other purposes. Should the present state of trade and industry not materially change, a great part of this capital would be devoted to agriculture, and the natural consequence would be that the increasing population would find ample occupation in husbandry. Great Britain is large enough, if we take the arable surface of the land, to produce all the corn and meat necessary for its inhabitants. It is neither fantastic nor ridiculous to believe that, without purchasing foreign manure, and by a judicious utilization of the sewage of towns and villages, England would be able to dispense with the importation of food from abroad. For her it would be a blessing if the application of capital to agriculture were found sufficiently profitable to awaken speculation in this direction, so that the industrial population, manufacturers, and tradesmen, might devote themselves to the production of bread and meat. These men are quite of another stamp, and care little for tradition or the authority of custom. They know their multiplication table, however, and in competition with such men the farmers would find it impossible to persevere in their old jog-trot ways. The change thus brought about would be as great as after a revolution. *Justus von Liebig, President of the Royal Academy of Science, and Conservator-General of the Royal Scientific Museum.*

SALT IN FOOD.

The use of salt in the food of cattle must be looked upon as a direct producer of flesh, so much as a necessary element of the economy, without which animals are apt to perish from disease, but with which the body is kept in a normal and healthy state. Not many years ago a German agriculturist, Uberacker, brought forward an experiment which is in direct accordance with this opinion. Wishing to obtain some exact notion of the influence which salt exercised upon his sheep, the flocks of which lived upon a low damp pasture land, and received habitually a certain dose of salt, he fixed upon 10 sheep and struck off their usual allowance of salt. This remarkable experiment was continued for three years, with the following results:—In the first year five of the 10 died of rot and worms; in this year the remainder of the flock, 450 head, lost only four sheep. The second year a new lot of 10 sheep, deprived of salt, lost seven individuals; the remainder of the flock, 364 head, lost five only; a little later the other three died also from diarrhœa. The third year was very rainy; 16 sheep were selected, and deprived of salt. The whole of them died in the course of the year of rot and vermicular pneumonia. We have seen above that in the Brazils and Columbia, flocks may be annihilated by being deprived of salt, here we have an example of the same thing happening in our own latitudes.

M. Garriot, member of the Agricultural Society of Lyons, assures us that the milk of cows subjected to a daily allowance of salt is richer in butter and cheese than when these same cows are deprived of salt.

Sinclair, to whom agriculture owes much useful information, has observed that the habitual use of salt has a marked influence in improving the quantity and quality of the wool of sheep. This is in accordance with Boussingault's experiments on bullocks. Sinclair goes still further as concerns pigs; some of the fattest

pigs killed in Ireland, according to this observer, are those to whom a certain portion of salt is regularly given.

Many other English agriculturists have proved, by direct experiments, that a regular distribution of salt to cattle is especially useful in preventing (Hoove) meteorisation, caused by feeding cattle with leguminous and cruciferous vegetables. And there exists no doubt among those who have tried it, that when employed in proper quantity it increases the appetite, stimulates digestion, keeps up the normal supply of salt in the blood, improves the wool or hair of the cattle, prevents disease, and moreover enables the agriculturist to fatten cattle upon food which they would not enjoy without it were previously mixed with salt. Dr. Desaive, in his treatise on the use of salt for cattle (to which the Academy of Medicine of Brussels awarded a gold medal), has arrived at the conclusion that "the regular and reasonable use of salt in the alimentation of cattle may increase indefinitely every branch of agricultural produce." It is on these grounds that the practice of giving salt to cattle has become so extensive of late years.

But there is another important consideration with regard to the regular distribution of salt to cattle. I allude to its influence in preventing disease. Its daily use becomes of serious consequence when flocks and herds are menaced with those epidemic attacks which too frequently ravage a whole country at once, when a proper use of salt would either prevent them entirely, or at least reduce them to less disastrous proportions. During one of the worst of these epidemics, which sprang up, if I remember rightly, about the year 1840, in the east of Europe, the almost wild cattle of the Ukraine, Podolia, and Hungary, were struck down in much greater numbers than those of Silesia and Bohemia, where the cattle breeders habitually distribute salt to their beasts. Advancing towards the west this scourge diminished in intensity, and finally ceased to show itself in Germany, where particular care is bestowed upon cattle, and where salt has been for many years constantly employed. But whatever be the nature of the disease which threatens, animals are much less disposed to contract it when the body is in perfect health; and we have seen that this is impossible, unless the individual receive each day his proper proportion of salt. Here naturally arises the question, do not the vegetables and herbs eaten by cattle contain the necessary proportion of this substance in their natural state? If so, why do the wild cattle of the plains travel thousands of miles to find it? Wherefore the instinct which causes cows or sheep immediately to put their tongues to the lump of rock-salt lying in the manger? And why are such baneful effects observed when animals are deprived of salt? No, vegetables do not generally contain sufficient salt to supply the wants of the animal economy, though each plant contains enough to administer to its own wants. But the profusion with which nature has spread this useful mineral throughout the earth easily supplies this deficiency.

Our English agricultural journals have more than once drawn attention to the fact that a constant supply of salt, in moderate doses, hastens the development of the colt, and promotes muscular power in the horse. It has been also asserted that the custom of salting the food of horses presents the same advantages we have enumerated above, besides rendering this animal less subject to inflammation of the stomach, indigestion, broken wind, worms, periodic flux, and phymatosis (water in the legs). In the same manner it has been spoken of by authors well worthy of credit, as preserving oxen from inflammation of the intestines, meteorisation (acute indigestion), chronic indigestion, phthisis (consumption), typhus, and the formation of egagropiles (calculary formation in the intestines, having for origin a few bristles, hairs, or fragments of plants). In sheep, experiment has shown us that the habitual use of salt has an extraordinary influence in the prevention of cachexy (rot, &c.), giddiness, worms, parasites, &c.; and in swine it appears to prevent hydatides and some other disorders.

Such are the diseases from which the habitual use of salt has proved itself a preservative, and "prevention is better than cure," says the proverb. I could mention several others upon which salt is supposed to have a beneficial action, either as a preservative or a medicine, but I have preferred restricting myself to the above as being the result of direct observation, by comparing cattle fed with slightly salted food with those taking food without salt.

Of late years an excess of rain in the plains of Derry has given rise to numerous cases of rot in sheep. This disease makes frequent and disastrous ravages among the flocks of that district, principally because few of the farmers have as yet decided upon the constant use of salt. This state of things brought forth an interesting paper by M. Aumerle, an agriculturist of much experience, in which the author states that he prevented this terrible disorder in his flock of 260 sheep, by putting blocks of rock-salt within reach of the animals. "They did not fail," he observed, "to go and lick it several times in a day. The whole of the flock was remarkable for its perfect health and the fine quality of the wool." The author strongly insists upon the necessity of rendering the use of salt, in the feeding of sheep, a commoner practice than it has hitherto been in France.

When salt is given for the first time to sheep or oxen, in whatever shape it is administered, they never fail to give evidence of their delight in the taste of this substance. When it is given as a medicine, either to prevent disease or to combat an illness, it acts better when given pure; but where it is administered regularly every day, or three times a week, as part of the diet, it is preferable to mix it intimately with the food, whether the latter be raw, fermented, or cooked. I have never known a single case in which cattle habitually receiving salt could be observed to waste their fodder, or to leave quantities of it untouched in the manger.

It is now time to fix, if possible, the proper quantity of salt to be distributed regularly to cattle, in order that they may derive the greatest possible advantage from it, and above all to avoid excess. This is not an easy question, nor is it one in which I can rely exclusively upon personal experience in order to establish once and for ever the proper dose of salt for the various species of cattle and domestic animals of our farms. I shall endeavour therefore to avail myself of the experience of others, and of continental agriculturists, as well as English.

In Great Britain, in the best farmed districts, we find the allowance of salt oscillating around the subjoined figures, taken as a centre or basis:—

	Allowance of Salt per diem.
Calf, 6 months old	1 oz.
Bullock or cow, 1 year old ..	3 ,,
Oxen, fattening	6 ,,
Milch cow	4 ,,

In Belgium there exists a legal allowance of salt, that which is intended for agricultural purposes being exempt from the tax levied on the other; and the law fixes for oxen a dose of $2\frac{1}{10}$ oz. per head per diem. This is too much for young calves and too little for bullocks, according to English and German practice. Moreover the Belgians mix their untaxed agricultural salt with gypsum or chalk, in order to render it too impure for other purposes, before distributing it to the farmer.

Horses.—It is generally admitted, wherever salt forms habitually a portion of the horse's diet, that this animal amply repays the slight additional expense or trouble thus incurred. To mix salt with the food of the horse, colt, ass, or mule, is a frequent practice in England and America. In these countries the usual allowance for a full-grown horse, of middle height, is about 2 oz. per diem. In Belgium the quantity of salt appropriated to a full-grown horse by the Government is little more than 1 oz. per diem.

Sheep.—The Romans gave to their flocks of sheep, every fifth day, an allowance of salt, amounting to about half an ounce per head. And this is precisely the quantity which is still employed in England and Saxony daily for sheep full grown and of ordinary size. Numerous experiments have proved that salt is more beneficial to sheep than to any other species of cattle.

Pigs.—The best proportion to adopt as a basis appears to be about one ounce of salt to every 12 lbs. of their wash, or two-thirds of an ounce per head *per diem* for full grown pigs. In cases of anticipated disease the dose may be slightly increased.

In administering salt, unless it be used as a medicine, the more intimately it is mixed with the food, the better. This is not an easy matter with fodder, especially that which has been salted to preserve it, in which case we must endeavour to make a rough estimate of the amount of salt in a given weight of the fodder in order not to administer an injurious excess. In farms where oil or rape cake is given in powder, this being rather an indigestible food, the allowance of salt should be mixed with it in preference to any other fodder. It is easy to mix salt intimately with any cooked or semi-liquid food.

It should be borne in mind that an excess of salt is injurious to any animal, and that is why I have given the preceding figures as a kind of practical guide. An excess of salt produces irritation and inflammation of the mucous membrane, and causes several kinds of skin disease, especially in sheep. With horses, an excess of salt has been known to produce dysentery, and in oxen diseases of the blood.

Moreover, salt should never be given to cattle when a deficiency of food does not enable them to receive abundance of nourishment; in which case we excite an appetite without satisfying it, and the animals lose flesh rapidly. Salt is to be prohibited, also, wherever congestion of any important organ is observed, or where we have perceived inflammation of the bowels, of the liver, bladder, or womb. In such cases we must not be guided by the instinct of the animals themselves, which generally attracts them to salt.

In some diseases of the digestive organs salt has proved beneficial: thus, in cases of rot in the liver, accompanied by loss of appetite, paleness of the membranes, swellings under the throat, &c., Mr. Tanner recommends salt. He says:—"Avoid ground which communicates the rot, and give the sheep a free supply of rock salt, except when breeding and in milk." And for the treatment, "give iodide of iron five grains, spirits of turpentine half an ounce, twice a day, and let the sheep have free access to salt." And, again, for the disease called red-water, a species of dropsy, "liberal supplies of food, a dry resting-place, and the use of rock salt." For numerous other disorders in the treatment of which salt may be advantageously used, I must refer to some of the latest treatises on veterinar medicine.

Considered as a medicine, salt purges animals at the following doses:—

Horses	8 to 10 ozs.
Oxen	10 ,, 16 ,,
Sheep	2 ,, 3 ,,
Pigs	2 ,, 3 ,,
Dogs	1 ,, 2 ,,

It becomes a poison at the following doses:—

Horses	2 lbs.
Oxen	3 ,,
Sheep	6 to 8 ozs.
Pigs	4 ,, 6 ,,

I have now given all the details I consider necessary with regard to the use of salt for cattle, and figures which will enable these notions to be put in practice without danger, by any who have not yet had an opportunity of judging for themselves. If I have entered into too many details, it is because I believe that we cannot too strongly call the attention of the practical farmer and the veterinary surgeon to the subject of this Essay. *Dr. Phipson's Prize Essay on Common Salt.*

COTTAGE BUILDING.

Agricultural labourers live in villages in England and on farms in Scotland. They have a long walk of a morning to the stable or the field here—they are close by the place of their work there. It makes a great deal of difference to the workman as well as to the tenant, and, therefore, to the landowner. The wages may be more in Scotland, but the labour given for it is dearer bought in England; the money given may be less, but the labour bought by it is less in a still greater degree; and, therefore, as we say, it is dearer bought. Great part of the strength of the man is wasted before he takes his tool in hand, and it is only a remainder that he has at his command. Labour, therefore, being dearer, and produce probably being smaller too, there is a less remainder to be divided between the tenant and the landlord; and in this way, among others, the greater rents paid in Scotland may be accounted for.

In Cornwall the labourer has in some mines to go a hundred fathoms deep to the place of his labour, and he must retain the power to climb 100 fathoms high when he leaves it. He can thus afford to give but a small price per ton for the ore which is allotted to him. In Cornwall the miner represents the occupying tenant and labourer in one. When the man-engine was invented and applied, by which the labourer is lifted from his work, and taken to it, without personal exertion, the value of the ore was raised 30 per cent. at once. The Scottish farmer, with cottages upon his farm, has that man-engine in full operation, of which the English farmer, whose labourers come three miles from the nearest village to his work, feels the want.

Mr. Hewitt Davis, the well-known agricultural engineer, who not long ago paid a visit to Scotland, afterwards expressed the opinion that the greater ability of Scotch farmers to pay a high rent was connected with this very point. He mentioned also the prejudices of English land-owners against leases, against altering inclosures, against the removal of hedgerows; but he referred especially to their prejudice against cottage buildings as one of the main causes of inferior agriculture.

We believe that Capt. Dashwood, of Kirtlington, accompanied Mr. Hewitt Davis on his agricultural tour in Scotland; and it is perhaps owing to impressions acquired then and there that cottage building on the Scottish plan, *i. e.*, farm by farm, and as an attachment to the holding of the occupying tenant of the farm, is being energetically pursued on the Kirtlington estate. It is certain that no more useful improvement in the interest whether of the land-owner, his tenant, or the labourer, can possibly be undertaken. The first is interested in whatever adds to the value of the farm to his tenant—the second is interested in whatever enables the labourer to do a fair day's work—the third is interested in everything which increases the value of the labour he has to offer.

This last is interested in more than the increased value of his labour, by which he may expect gradually to obtain a better day's wages, and by which he will be able at once to increase his earnings in all instances of piece-work payment. He is also interested more than any other person can properly estimate in the substitution of a new cottage for an old one, which really generally means a good cottage for a bad one; and that is all the difference in the long run, and on the great scale between ill health, vice, and misery on the one side, and the wholesome healthfulness of a well-conditioned household on the other.

It is here that the details of cottage buildings affect the problem under consideration. And we are persuaded that not only is the example of a good leading principle to be witnessed at Kirtlington in the erection of cottages as parts of the farm homestead—or at least in connection with the several farms of the estate—but the character of the cottages themselves that are being erected well deserves the study of those who are disposed to follow the example which Sir Henry Dashwood is thus offering.

Two years ago the Yorkshire Agricultural Society offered a long list of prizes for double cottages, with three and two bed rooms each—costing 180*l.* to 220*l.* apiece—for single cottages to cost under 120*l.*—and for pairs of cottages, of irregular design, not to exceed 210*l.*

to their cost. These figures are too low; and in all probability the cottages which were admitted to competition, and even those which succeeded in winning the prizes, would in most parts of the country cost more than the figures stated. The Kirtlington cottages, built in pairs, cost at least 250*l*. But they differ from the cottages which competed at Leeds in other important particulars besides their price.

Those who may read Mr. Strickland's valuable report upon the cottage competition at Leeds, in No. 24 of the Yorkshire Agricultural Society's annual Transactions, will find that the arrangements involve in every case a living room, scullery, and pantry, on the ground floor, and three bed rooms above.

In the Kirtlington cottages one of the bed rooms is on the ground floor, and there are only two on the other floor. The scullery is in a lean-to at the back of the house. The cottage, so far as the double-storied part of the house is concerned, thus includes two rooms below and two above. The upper bed rooms ventilate into the staircase passage, which is between them, and is open to the roof. The ventilator is not placed in the roof of the room itself, where it produces a cold draught, and gets stopped up in consequence: and the landing-place at the top of the stairs is so placed at the front of the house that no through draught is possible from the windows through the rooms.

There is a great advantage in having a bed room on the ground floor—in enabling a young couple to keep the old people at home—who are thus made useful in taking care of the children, and at the same time are themselves cared for by their own family. The ground floor bed room is also especially useful in the case of an invalid, who can be tended with less labour, and with more constant watching and attention. Each block of two carriages has an out-house, comprising an oven and bake-house in common, separate ash-pits, &c.

There are many other details which deserve examination, and render the Kirtlington cottages worthy examples. But it is more especially to their influence as an example of estate management—in the interests of tenant and labourer—that we have thus taken the liberty of calling attention to what Sir Henry Dashwood is about. *Oxford Journal.*

Home Correspondence.

Steam Cultivation.—I was unfortunately prevented attending the meeting at Worcester, reported in your last issue, for the purpose of establishing a Company for the promotion of steam cultivation in the county of Worcester; some reference being then made by Lord Northwick to the General Steam Cultivation Company, of Cannon Street West, London, and to myself, as Secretary to the same, you will perhaps kindly allow me space for a word or two on the subject. In the first place allow me to state the objects of the Steam Cultivation Company. They are two: first it is proposed to supply farmers with the costly machinery now used, allowing them to repay the purchase-money by annual instalments extending over a specified number of years; second, it is proposed that the Company should work for hire wherever districts of sufficient extent shall be guaranteed. The first prospectus was issued in May last, and although we have been favoured with considerable support, the Directors are not yet in a position to commence business. This is the more to be regretted, because we are now on the eve of the most important period of the year for steam cultivation, and applications for machinery, to which a negative reply has to be given, are coming in from all parts of the land. Whether that steam cultivation has not sufficiently recommended itself to capitalists, or that a company formed to promote it smacks too much or too little of speculation, I know not; the fact is that the shares are not taken up quite so readily as was expected, and we yet want 2000 additional shares (10*l*. each) to be subscribed for before it will be prudent to send out one set of tackle. Had I been at Worcester I should have proposed that instead of establishing a new local company, hearty support should be given to the "general company" already established by landowners and gentlemen anxious to stimulate the progress of agriculture in this country. The operations of the one will prove so much more extensive than those of the other, and in so far as these small companies working for hire choose the most hazardous and least profitable part of the business, and leave the part of a loan company to us, which will be the most remunerative and safe to shareholders, and in the end the most beneficial to the country, we really possess the greatest claim to public support. We propose to do all that can be done by the Worcester Company, and 10 times more. I cannot but think that when once the General Steam Cultivation Company is at work the farmers of Worcestershire will be very much better served by it than by their own little company with its tiny capital, should that ever get into operation. Although I consider it is better to concentrate rather than to diffuse our strength at the present juncture, and to organise one efficient company rather than several feeble ones, I yet regard the establishment of such associations as that just formed at Worcester, as likely to prepare the way for our own operations. They will do much to familiarise the agricultural mind with the use of steam in tillage operations. It will generally occur that those men who become acquainted with steam apparatus by hiring it, will not rest satisfied until they possess machinery of their own, simply because of the difficulty they will experience in getting the plough or cultivator when they want it; and then they will be ripe to do business with the London Company. We should only regard contracting to work per acre in the light of a disagreeable necessity. It would, in fact, be our "leading article," by which we might perhaps calculate to lose something, though in the end, if it acted as a provocative to the desire of tenant farmers to possess machinery of their own, of course we should be the gainers by employing it as a lure. It will suit our purpose exceedingly well, therefore, if the county companies will take the risky part of the business off our hands, and leave us to supply to the farmers such tackle as they may set their minds upon. I write as a practical farmer in the interest of practical farmers, and though I deny to these associations the power to perform the duties contemplated by the larger one, I freely admit that they may divert attention from a great central effort, and to some extent retard the benefits to be derived from it. *Howard Reed, Secretary, Hendon.*

The Harvest.—Let us one and all return humble thanks to the Giver of all good for a bountiful harvest. Let us farmers each and every one take especial care to reserve a sufficient portion of it for ourselves, and for our labourers, who are the producers, and deserve at least a share of it for our subsistence, in order that we may not be obliged, as we were last year and heretofore, to purchase flour and bread of inferior quality made from foreign rubbish principally, at a dear rate, after selling our own in our depressed markets at too unremunerative a price than supply and demand actually required. This season, be it known to all, Wheat is superlatively fine, and of full weight, as are other cereals and Pulse. Let the labourers' wives and their families, and the still poorer classes, take care to glean all they possibly can before it is spoiled, where they are permitted so to do, and it is hoped that is everywhere; it can be well disposed of by them in the winter. Even the peckling, be it observed, which the vexatious birds are too often allowed to peck up and destroy, is this year very good, the smallest ears being more productive with plump corn than the largest were last year. Let the masses and consumers at large plead against being charged an exorbitant price for their flour and bread, so unequal to the current market value of Wheat. They are all equally interested. The price of flour and bread, and "offal," is and always was so unequal (with the exception of the latter, however, which is now solely caused to be dear by the vast amount of foreign flour brought here, not being manufactured in this country, and hence no offal arising from that source for our use, that is left behind, not paying for its freight), and it has been particularly so, even unpardonably so (for it is not right, and what is not right is not excusable) for the last few years, too unequal, and especially during 1863 to the current value of Wheat, after a fair profit had been secured for the miller and baker, and assuredly it will always be so without great circumspection on our part, till legislative measures step in to the rescue. This year merchants and millers will not have the plea to urge, that our own Wheat will not make good flour and bread without much foreign produce to mix with it. It is an undeniable fact, that our bread and puddings were last year chiefly composed of foreign rubbish (although some might be good), such as our merchants and great millers would not look at in our provincial markets, or if they did, declared sarcastically to the farmers in England, Ireland, and Scotland, that theirs of home growth was only fit for pigs, and that they might take it home for that purpose. *Fairplay.*

Societies.

Yorkshire.—The following is the Prize List of the late agricultural show at South Stockton:—

CATTLE.

Judges—T. Barber, Sproatley, Hull; George Bland, Coleby, Lincoln; J. Unthank, Netherscales, Penrith.

SHORTHORNS.

Old Bulls.—J. Charlesworth, Hadfield, Dewsbury (General Murat); 2d, the Earl of Zetland (Saville).

Bulls of 2 years Old.—Col. Towneley (Royal Butterfly 11th); 2d, J. R. Middleborough, South Milford.

Yearling Bulls.—R. Gell, Grimston Lodge (Master Goldschmidt); 2d, Lady Pigot (Prince Victor).

Bull Calves, upwards of 5 months old.—R. Booth, Warlaby (Prince of Battersea); 2d, Colonel Towneley (Royal Butterfly 14th).

Cows of any age.—R. Booth, Warlaby (Queen of the Ocean); 2d, R. Booth (Soldier's Bride).

Three year old Cows, in calf or milk.—J. Wood, Scarcroft (Yorkshire Rose).

Two year old Heifers, in calf, Lady Pigot (Rosedale); 2d, R. Booth (Queen of the May 2d).

Yearling Heifers.—Colonel Towneley (Frederick's Farewell); 2d, Lady Pigot (Castanira).

Heifer Calves.—Colonel Towneley (Butterfly Pageant); 2d, G. S. Foljambe, Osberton Hall.

CATTLE OF ANY BREED.

Cows for Dairy purposes.—J. Herring, Middlesborough (Daisy); 2d, H. Morley, Melbourne. Highly commended: J. T. Robinson, Leckby, Topcliffe, Thirsk.

Extra Stock.—R. Booth, Warlaby (Queen of the Vale).

SHEEP.

Judges.—W. Bartholomew, Waddington House, Lincoln; J. Buckley, Normanton, Rutland; G. Leighton, Osgodby, Scarborough

LEICESTER OR LONG-WOOLLED (NOT COTSWOLD).

Shealring Rams.—R. Stamper, Highfield House, York; 2d, J. Borton, Barton House, Malton.

Rams of any age.—J. Borton; 2d, J. Borton.

Pens of 5 Ewes.—J. Simpson, Stofforth.

Pens of 5 Shearling Wethers.—George L. Fox, Bramham Park.

Pens of 5 Shearling Gimmers.—S. Wiley, Brandsby; 2d, S. Wiley.

SHORT-WOOLLED.

Shearling Rams.—Lord Wenlock; 2d, Lord Wenlock. Commended: Lord Wenlock.

Pens of 5 Shearling Gimmers.—T. Harris, The Chase, Ulceby; 2d, T. Harris.

MOUNTAIN BREEDS.

Black-faced Ram of any age.—C. Smith, Westerdale, Grosmont; 2d, C. Smith.

Extra Stock.—Silver Medals to S. Wiley, Brandsby (for Leicester ram), and J. Borton, Barton (for Leicester ram). Highly commended—Lord Wenlock (for Southdown ram).

PIGS.

Judges—W. Bartholmew, J. Buckley, G. Leighton.

Boars of a large breed.—J. Hickman, Hull; 2d, J. Dyson, Adelphi Hotel, Leeds.

Sows, large breed, in Pig or Milk.—E. Harrison, Woodhouse, Moor, Leeds; 2d, W. B. Wainman.

Boars, small breed.—W. B. Wainman; 2d, J. Dyson.

Sows, small breed, in Pig or Milk.—J. Hickman; 2d, S. Wiley.

Boars of any breed.—W. B. Wainman; 2d, J. Graham, York Road, Leeds.

Sows of any breed, in Pig or Milk.—J. Hickman; 2d, J. Hickman.

Three Store Pigs, of any breed, and of the same litter, from 4 to 9 months old.—Lord Wenlock; 2d, Sir G. O. Wombwell, Bart., Newburgh Park.

Boars, large breed, under 12 months old.—W. Parker, Bradford.

Sows, large breed, under 12 months old.—W. B. Wainman.

Boars, small breed, under 12 months old.—Lord Wenlock.

Sows, small breed, under 12 months old.—Lord Wenlock.

HORSES

Judges.—For Hunters and Hacks: T. Ellbery, Whitewell Malton; C. N. Nainby, Barnoldby, Grimsby; J. Smith, Humberton, Borobridge.

For Coach and Cart Horses.—N. G. Barthropp, Hacheston, Wickham Market; J. Hodgson, Bramper, Northallerton; J. Johnston, Brigham, Driffield.

Thoroughbred Stallions for Hunters.—E. G. Simpson, Leven Bridge (Cavendish); 2d, J. Stillborn, Yapham (Cawston). Commended: Mrs. Holburn, Wolviston (Motley.)

Stallions for Coach Horses.—R. Gill, Kellfield Grange (by Pottinger), 2d, H. York, High Worsall (Yorkshire Lad).

Stallions for Roadsters.—T. A. Jackson, Quarry Gap (Young Pretender); 2d, F. Cook, Thixendale (Yorkshire Phenomenon).

Stallions for Agricultural Purposes.—J. Kirkham, South Stockton (Black Robin); 2d, J. Goldsborough, Maltby Stockton (Maltby Hero).

Mares and Foals for Hunting.—J. Batty, Bishop Monkton.

Mares and Foals for Coaching.—W. & F. Coulson, Castle Howard. Highly Commended: W. Motheraill, Breckholme, and M. Robinson, Hauxwell.

Roadster Mares and Foals.—F. Rickell, Water. Commended: R. Stevenson, Rainton.

Mares and Foals for Agricultural Purposes.—W. Proude, Kirk Hammerton. Highly Commended: S. Thompson, Skipwith.

Three-year-old Hunting Geldings.—Sir G. O. Wombwell, Newburgh Park. Highly Commended: W. Brand, Salton. Commended: T. J. Smith, The Bank, Northallerton.

Three-year-old Hunting Fillies.—T. B. Maynard, Marton-le Moor.

Three-year-old Coaching Geldings.—R. Jackson, Airderby.

Three-year-old Coaching Fillies.—Mrs. Skilbeck, Swainby. Highly Commended: G. Hall, Ampleforth.

Three-year-old Hackney Fillies or Gelding.—F. C. Matthews, Driffield.

Three-year-old Geldings for Agricultural Purposes.—J. W. Pease, Woodlands.

Three-year-old Fillies for Agricultural Purposes.—Sir G. O. Wombwell, Bart.

Two-year-old Hunting Geldings or Fillies.—D. Fesham, Haughton-le-Skerne.

Two-year-old Coaching Geldings or Fillies.—J. Stephenson, Wheldrade.

Two-year-old Agricultural Geldings.—T. Elcoate, Elton.

Two-year-old Agricultural Fillies.—E. Lee, Stocksfield, Newcastle-upon-Tyne.

Yearling Hunting Geldings or Fillies.—J. Walton.

Yearling Coaching Geldings or Fillies.—W. and F. Coulson.

Pairs of Horses, of either sex, for Agricultural purposes, worked during the season.—J. W. Pease.

Four-year-old Hunting Geldings or Mares.—G. Holmes, Beverley; 2d, W. H. Clark, Hook. Highly Commended: J. Hall, Scarbro'. Commended: Sir G. O. Wombwell, Bart.

Special Prizes given by Lord Wenlock, for the best 5-year old Hunter, Mare, or Gelding, warranted sound, and to possess not less than three crosses of blood.—J. Musgrave, Pocklington (Overplus, by Augur); 2d, J. B. Booth, Killerby, Catterick (Beechwood).

Special Prizes given by Lord Londesborough for the best Hunter, Gelding or Mare, 6-years old and upwards.—R. Botterill, Garton, Driffield (Enchantress); 2d, H. Jewison, Raisthorpe (First Whip).

Special prizes given by J. Dodds, Esq., of Stockton-on-Tees, for the Best Hackney Gelding or Mare of any age, not less than 14 hands high, and qualified to carry 12 stones.—A Silver Cup, P. Kirby, North Duffield; 2d, W. H. Gaunt, Old Thornville.

Special Prizes given by the Local Committee of South Stockton-on-Tees, for the best Cleveland bay Stallion.—H. York, High Worsall, Yarm (Prince of Denmark); 2d, J. Smith, Harlsey Grange, Northallerton (Prime Minister).

Special Prizes for the best Cleveland bay Brood Mare in foal or with foal at her foot.—C. Scurr, Hutton Bonville, Northallerton; 2d, J. Featherstone, Stokesly. Highly commended—T. Rickenson, Seamer, Yarm.

Special Prizes for the best 3-year old Cleveland bay Filly.—R. Benton, Busby Grange, Northallerton; 2d, R. Easby, Ormesby, Middlesbro'.

Special Prizes for the best 2-year old Cleveland bay Filly.—R. Benton; 2d, W. Pickering, Eggleseliffe, Yarm.

Special Prizes for the best Cleveland bay entire Colt.—G. Robinson, Marton, Middlesbro'; 2d, R. Breckon, Norton, Stockton.

IMPLEMENTS.

Judges.—J. Almack, Beverley; R. Kaye, Forcette Valley, Darlington; E. Riley, South Dalton; J. Wells, Booth Ferry, Howden.

STEAM CULTIVATION.

The best application of steam power to the cultivation of the soil, the prize of 50*l*.—J. Fowler, Leeds and Cornhill, London.

The best application of steam-power to the cultivation of the soil, suitable for small occupations, the engine not to exceed eight-horse power, and to be adapted to work the ordinary machinery on the farm, the prize of 50*l*.—J. Fowler.

The best cultivator or drag for more than two horses, 10*l*.—

Coleman & Sons, Chelmsford; 2d, for two horses, *5l.*—Coleman & Son.

Horse rakes, with Clover drill attached, *2l. 10s.*, Spencer, Doncaster.

Pulverising Plough.—*2l. 10s.*, Hancock, Dudley Port.

Turnip Cutters.—*2l. 10s.*, Hornsby & Son, Grantham.

Root Pulpers.—*2l. 10s.*, Hornsby & Son.

Liquid Manure Carts and brass slide.—*2l. 10s.*, the Trustees of W. Crosskill, Beverley.

Wire Strainer.—*1l.*, J. Rider, Leeds.

Cast-iron Pumps.—*1l*, Blinkhorn, Shuttleworth & Co., Spalding.

Ventilators.—*1l*, Fanny Chadwick, Bury.

Chain Harrows.—*1l.*, W. C. Chambers, Bristal, Leeds.

Improvement in Plough Wheels.—*1l.*, Hornsby & Son.

Plain Rollers.—*5l*, the Darlington Implement Company.

Clod-crushing Rollers.—*5l.*, the Trustees of W. Crosskill.

Grubbers for deep working between the Ridges of Green Crops.—*5l.*, the Busby Implement Company.

Scufflers for working between the rows of Green Crops.—*5l.*, the Busby Implement Company.

Grass Mowers.—*10l.*, Ramlett, Ripon: 2d, *5l.*, H. Kearsley, Ripon. The class of mowers highly commended.

Potato Sorter.—*5l.*, Mackinder & Co., of Lincoln.

Cooking Apparatus and Gas Generator.—*5l*, Oglesby, Dickinson & Son, York.

Scarifier.—*10l.*, divided between Coleman of Chelmsford, and Clay of Wakefield.

The Best Implement for bringing Weeds to the Surface.—*5l.*, prize withheld.

MORCHARD BISHOP REAPING MATCH, *Aug.* 12.—The trial field is a part of Roulstone Barton, in the occupation of Mr. R. Pullman. The yield of Wheat therein was about 25 bushels per acre.

We found eight or nine reapers at work; and a very large concourse of agriculturists was assembled, some of them having come from very distant parts in the South, as well as a large number from the immediate East of Devon district, and the North of Devon generally. There was also a strong muster of the local implement makers.

Mr. Cuthbert (who, through his perfecting the reaper, of his own invention, has raised himself from a mere labourer to one of the largest farmers in Yorkshire) was in the field, with his agent, Mr. T. P. Snow, of Crediton. This machine did its work in its usual good style; and we should mention that the ground was in very good condition, there being but little weed discernible. Whilst the reaping was in the field, where the match was held, Mr. Snow took one of Cuthbert's machines into a field of Wheat which had been beaten down, belonging to Mr. Ellis, of Venn Farm, Morchard. This field presented the appearance as if a roller had passed over it. Mr. Snow soon got the reaper at work; and the Wheat was cut and delivered in a clever manner. Messrs. Burrow & Page had several of their excellent machines in the field; and, as at the Bath and West of England meeting, so to-day in the trial field at Morchard, their machines were praised for their extreme lightness of draught and delivery. They were worked with case with one horse. The reaping executed by Mr. Page, with one of these machines, was remarkable for its very good work. Mr. Page succeeded in carrying off one of the prizes—a piece of plate—open to all England. Mr. W. Bragg, of New Buildings, near Sandford, had three machines at work in the field, which also attracted much attention—two being of side delivery construction, and one of the back delivery. The sheaf could be easily bound after the corn was delivered from the machine. These machines had also a light fan, so as to gather the Wheat towards the knife. The work they executed was unexceptionable; but, unlike Burrow & Page's machines, two horses were worked with each of Mr. Bragg's machines. However, the side delivery was warmly praised. Mr. Francis Parkin, of the Bonhay Foundry, Exeter, supplied the castings for Mr. Bragg's machines. By some accident, the eminent firm of Messrs. Picksley & Sims, of Leigh, near Manchester, were not represented—their agent, Mr. Brock, of Crediton, being too late to secure an entry. Mr. Hogg, machine maker of Upton Pyne, near Exeter, had a capital machine in the field—it had a back delivery, but it performed its work very well. This machine got through its half an acre of cutting in 20 minutes. The thorough smartness manifested in the working of Mr. Hogg's reaper is to be ascertained from the fact that the Judges awarded to it the silver cup, in the first class.

There were four classes for the competitors to enter. The first class was open to all England; and the remaining three classes were open to the agricultural labourers of the county of Devon. There were 14 entries in Class A, and more competed; six entries in Class B; five entries in Class C; and several in Class D.

The competitors in Class A were as follows:—Mr. King, of Tiverton, who managed his own reaper; Mr. William Alfred, of Sandford, who used one of Mr. Bragg's machines, of New Buildings; Mr. Robert Page, of Morchard, with a machine manufactured by Messrs. Burrow & Page; Mr. William Pope, of Morchard, working his own reaper; Mr. T. P. Snow, of Crediton, one of Cuthbert's reapers, worked by himself; Mr. Kelland, of Sandford, one of Mr. William Bragg's, (New Buildings) reapers, worked by himself; Mr. William Wreford, of Morchard, one of Messrs. Burrow & Page's machines; Mr. William Clarke, of Cuddiford, with one of Mr. Hogg's (Upton Pyne) reapers; Mr. Richard Bragg, one of Mr. William Bragg's reapers.

The Judges were:—Mr. Tidboald, Sithyland, Cruwys Morchard; Mr. George Ayre, Queen Dart, Witheridge; and Mr. R. Carver, of Cleaveanger, Nymet Rowland.

The following is the Prize List:—

CLASS A.—Open to all England—First Prize, a handsome Silver Cup, Mr. William Clarke, Cuddiford, who used Mr. Hogg's reaper. Second Prize, a handsome Piece of Plate, Mr Robert Page, Morchard. Highly Commended: Mr. W. Pope, Morchard, and Mr. W. Alford, Sandford.

Devon Times.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

At 9 A.M., Railway Time.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Friday ..	August 14	30.14	67	61	S.E.	3	5	77	57	93	53	..
Saturday ..	15	29.89	70	66	S.W.	3	9	74	55	85	51	0.13
Sunday ..	16	29.93	69	64	S.W.	2	5	77	58	88	53	..
Monday ..	17	29.81	66	58	W.	2	4	72	54	85	45	0.36
Tuesday ..	18	29.89	61	55	N.W.	3	9	68	51	80	44	0.66
Wednesday ..	19	30.00	54	52	S.W.	0	10	64	51	72	47	0.21
Thursday ..	20	30.11	57	54	N.W.	4	10	64	49	72	42	0.12

19. Distant thunder in S.E. at 5 P.M.

Notices to Correspondents.

GRUB: *W., Herts.* They are very common this year almost everywhere.

SIX MONTHS' IMPORTATION OF AGRICULTURAL PRODUCE ENDING 30TH JUNE, 1862, AND 1863.—*N.*

ARTICLES.		1862	1863
Oxen, Bulls and Cows ..	No	11,462	24,108
Calves	,,	9,459	11,147
Sheep and Lambs	,,	49,332	110,636
Swine and Hogs	,,	883	982
Bones	Tons	33,607	37,081
Flax, from Russia	,,	229,065	206,297
,, Holland	,,	78,486	83,947
,, Belgium	,,	99,395	87,808
,, Other countries	,,	96,745	88,512
Guano	,,	32,466	127,007
Oil-seed Cakes	,,	37,651	38,173
Potatoes	cwts.	320,551	837,150
Provisions:—Bacon & Hams	,,	821,960	1,308,199
,, Beef, salt ..	,,	138,982	187,505
,, Pork, salt ..	,,	135,318	115,661
,, Butter	,,	381,783	366,341
,, Cheese	,,	251,696	199,116
,, Eggs	No.	115,767,840	143,300,640
,, Lard	cwts.	326,870	318,818
Seeds:—Clover	,,	126,929	228 506
,, Flaxseed & Linseed	qrs.	314,896	402,286
,, Rape	,,	27,673	61,159
Tallow:—Australia	cwts.	27,501	33,608
,, South America ..	,,	66,438	39,286
Wool, Sheep & Lambs' from Hanse Towns & other parts of Europe ..	lbs.	10,423,782	10,879,413
,, British Possessions in South Africa	,,	3,995,637	6,626,777
,, British East Indies ..	,,	4,266,159	5,912,973
,, Australia	,,	31,309,194	36,683,937
,, Other countries	,,	9,700,734	10,581,619
,, Alpaca & the Llama tribe	,,	1,058,396	1,192,479
,, Woollen Rags, torn up to be used as Wool ..	,,	9,222,649	9,411,472
Corn: Wheat from Russia ..	qrs.	397,9 2	356,271
,, Prussia	,,	637 552	565,061
,, Denmark	,,	58,998	66,032
,, Mecklenburgh ..	,,	24,656	46,471
,, Hanse Towns ..	,,	103,644	39,731
,, France	,,	143,170	12,517
,, Turkey, Wal. & Mol.	,,	129.293	61,351
,, Egypt	,,	437,749	368,487
,, United States ..	,,	1,137,181	867,080
,, British N. America	,,	145,045	55,023
,, Other Countries ..	,,	234,350	51,528
,, Barley	,,	745,484	1,139,250
,, Oats	,,	620,662	1,291,263
,, Peas	,,	63,135	141,201
,, Beans	,,	198,823	233,673
,, Indian Corn or Maize	,,	1,199,71:	1,207,538
Wheatmeal & Flour:—			
,, Hanse Towns ..	cwts.	108,531	160,518
,, France	,,	142,225	656,903
,, United States ..	,,	2,629,510	1,379,817
,, British N. America	,,	280,280	133,181
,, Other Countries .	,,	402,141	84,836
Indian Corn Meal	cwts.	5,967	6,430

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

AUTUMN SESSION, 1863.

President—THE RIGHT HON. THE EARL BATHURST.

Council.

The Right Hon. THE EARL BATHURST.
The Right Hon. THE EARL DUCIE.
The Right Hon. T. H. SOTHERON ESTCOURT, M.P.
J. H. LANGSTON, Esq., M.P.
EDWARD HOLLAND, Esq, M.P.

Principal—The Rev. JOHN CONSTABLE, M.A., Trin. Co Camb.

Resident Professors.

PRACTICAL AGRICULTURE.

J. L. FLETCHER, Farm Manager.
*T. BALDWIN, of Glasnevin—A Course of 20 Lectures on Crops.
*R. SCOTT BURN, Co-editor of the Book of Farm Buildings—A Course of 12 Lectures on Agricultural Machines.

CHEMISTRY.

ARTHUR H. CHURCH, B.A., F.C.S., Smith's Exhibitioner, Lincoln College, Oxon.

ASSISTANT TO CHEMICAL PROFESSOR.

R. WARINGTON, Jun., F.C.S.

BOTANY.—JOHN BAYLDON, M.B. Lond. B. Soc.

VETERINARY SURGERY.—A. J. MURRAY, M.R.C.V.S.

MATHEMATICS AND SURVEYING.

W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.

DRAWING.—JAMES MILLER.

* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

AGRICULTURE.

J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
THOMAS ELLMAN, of Beddingham, Lewes—Lecture on Southdown and Short-woolled Sheep.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.
REV. GEORGE WILKINS, Wix Parsonage—Lecture on Tillage. N.B. Mr. Wilkins will Lecture on February 9.

AGRICULTURAL CHEMISTRY.

THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.

For further particulars apply to the PRINCIPAL.

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MR. BAILEY DENTON, C.E., maintains a large staff for the execution of Land Improvements by a commission of *5s.* per acre for Under Drainage, and a fixed charge for Outfall and other works.

For particulars apply to him, at 52, Parliament Street, Westminster, S.W.

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THE CONSERVATIVE LAND SOCIETY.—Share Department, 5 per cent. per annum. Deposit Department, 4 per cent. ditto. The interest warrants issued half-yearly, and withdrawals at fixed periods, according to the amounts, large or small.

No partnership liability; and the taking of land is entirely optional.

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The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

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Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

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NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

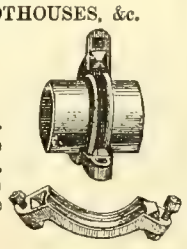
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Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
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Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

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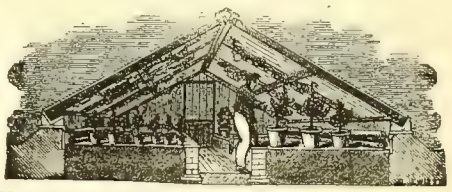
These Patent Mangers and Stable Fittings obtained the Commendation and the Silver Medal of the Royal Agricultural Society of England and the Royal Agricultural Society of Ireland, are adopted by the Royal Veterinary College, and Professor Spooner of that Institution states that they should be used by all who value the health and comfort of their Horses. They can be had Plain, Galvanised, or Enamelled.

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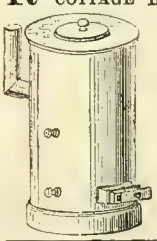


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Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

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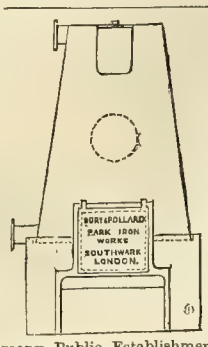
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Annexed Sketch shows BURY & POLLARD'S improved arrangement, requiring

NO BRICKWORK SETTING.

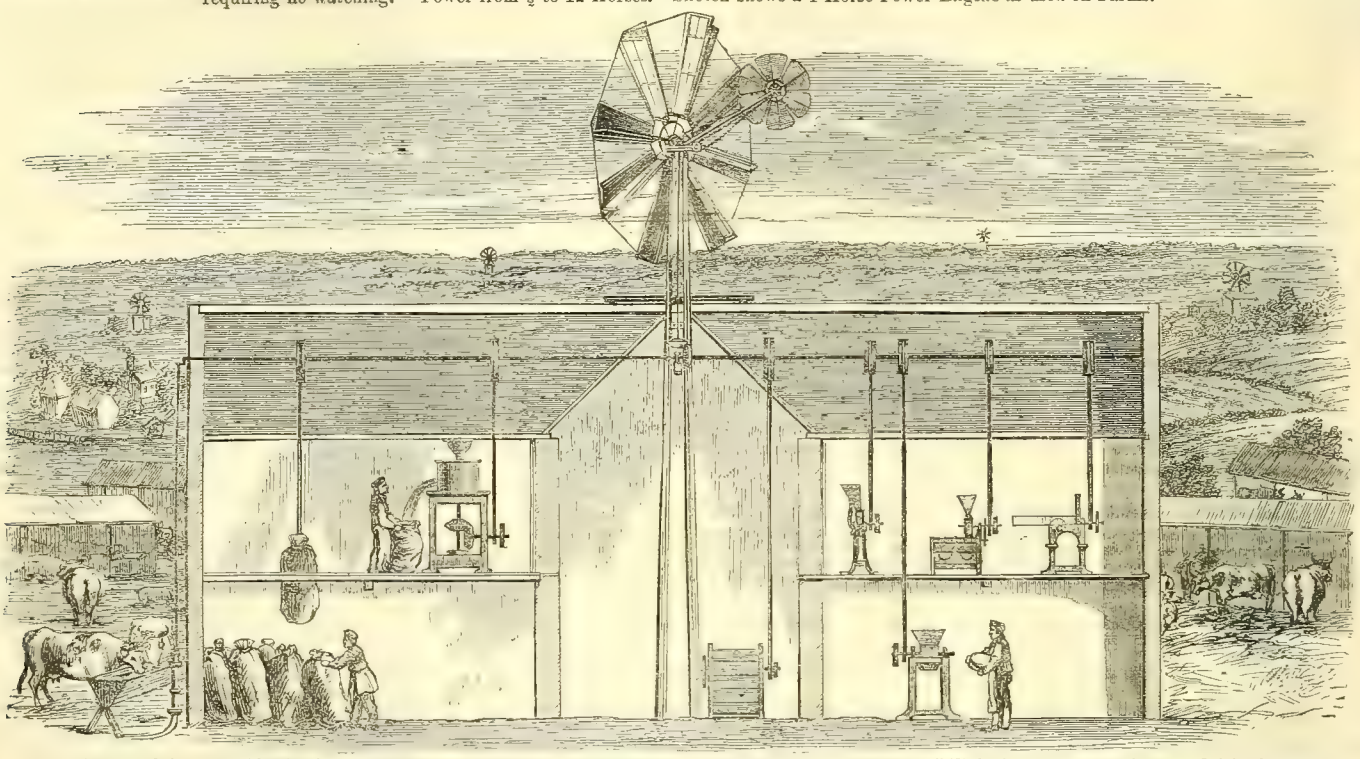
These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United kingdom. References where they have been 20 years in constant use.

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WIND ENGINE,—Patent Self-Regulating, for

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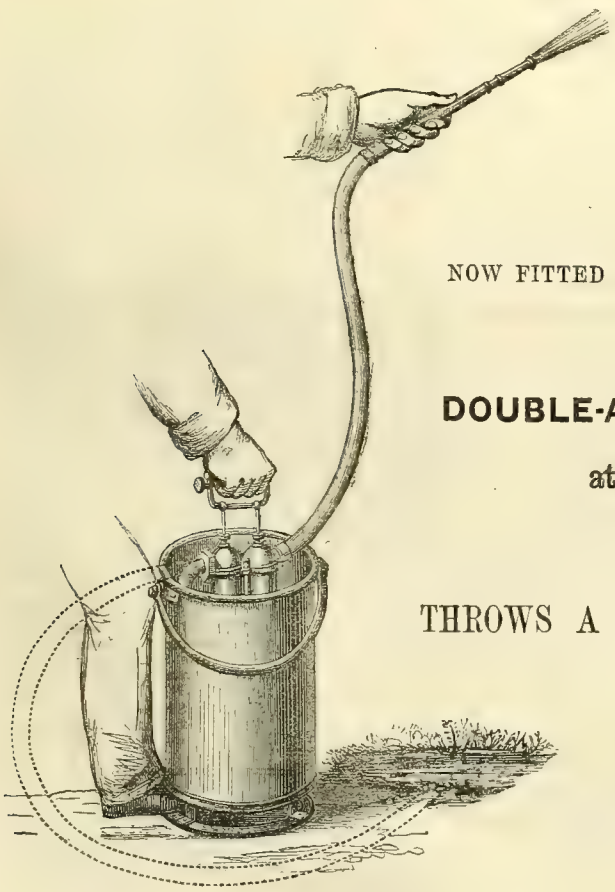
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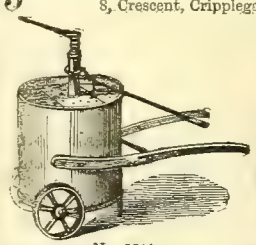
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THROWS A CONSTANT STREAM.

May be obtained of any Ironmonger or Seedsman at the above price, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.

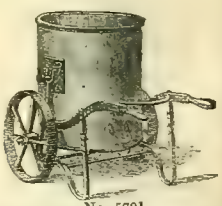


No. 554½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons	..	£2	15 0
16 ,,	..	3	15 0
24 ,,	..	5	0 0

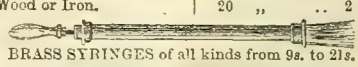
Larger sizes may be had in either Wood or Iron.



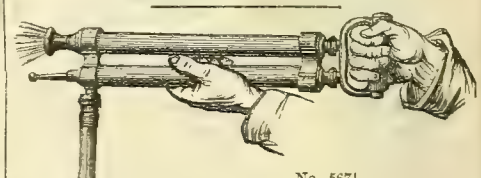
No. 579½.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	..	£2	10 0
20 ,,	..	2	0 0



BRASS SYRINGES of all kinds from 9s. to 21s.



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 5 feet Flexible Suction Pipe,

21s.

Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

THERE ARE NO SUCTION OR DELIVERY VALVES, hence MUCH FRICTION AND LIABILITY TO CHOKE with leaves and dirt IS AVOIDED.

JOHN WARNER & SONS, 8, Crescent, Cripplegate, London, E.C.

Glass for Greenhouses.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

ENGLISH SHEET GLASS packed in crates containing about 300 feet; 16-ounce, 2¼*d.* and 2½*d.* per foot; 21-ounce, 5½*d.* and 3½*d.* per foot.

REDUCED PRICES of GLASS for ORCHARD HOUSES.

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the nobility, clergy, and gentlemen of the United Kingdom.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths	11*s.* 6*d.*	13*s.* 6*d.*	15*s.* 0*d.*
20 „ 13	Thirds	13*s.* 6*d.*	16*s.* 0*d.*	19*s.* 0*d.*
20 „ 14	Seconds	—	English.	English.
20 „ 15	Best	—	18*s.* 0*d.*	23*s.* 0*d.*

The above prices include the Boxes.

We recommend 3ds quality at 16*s.*, or 21-ounce at 19*s.* (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

HORTICULTURAL GLASS, Stock Sizes, 16-ounce.
In 100 feet Boxes.
These prices only apply to the sizes stated.

		4ths.	3rds.		4ths.	3rds.
		s. *d.*	*s.* *d.*		*s.* *d.*	*s.* *d.*
11 by 9 12 by 9	13 by 9 14 by 9	10 9	12 3		12 6	14 0
12 „ 10 13 „ 10	14 „ 10 15 „ 10					
13 „ 11 14 „ 11	15 „ 11 16 „ 11					
14 „ 12 15 „ 12	16 „ 12 17 „ 12					
18 „ 12 19 „ 12	20 „ 12 ..					
16 „ 13 17 „ 13	18 „ 13 ..	11 6	13 6		13 6	16 0
10 „ 13 20 „ 13	21 „ 13 ..					
16 „ 14 17 „ 14	18 „ 14 ..	14 to 15 ozs.		16 to 17 ozs.		
19 „ 14 20 „ 14	21 „ 14 ..	to the foot.				

SQUARES CUT to SPECIAL SIZES.

16 oz. 4ths, 1⅞*d.*, 2*d.*, and 2½*d.* 21 oz. 2¾*d.*, 3*d*, and 3½*d.*
„ 3ds, 2*d.*, 2½*d.*, and 3*d.* „ 3*d.*, 3½*d*, and 4*d.*

SMALL SHEET SQUARES, IN 100 FEET BOXES.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11*s.* 6*d.*
8 „ 6	8½ „ 6⅜	9 „ 7	9½ „ 7½	
		10 „ 8	10½ „ 8½	12 6

Boxes 2*s.* each, returnable at full price.

All Small Squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

London Agents for Hartley's Improved Patent Rough Plate.

Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK,
31, Cornhill, E.C.; late 6, Coleman Street.
*** Catalogues sent on receipt of 6 postage stamps.

LE SOMMIER ELASTIQUE PORTATIF.—The foundation for all Mattress Bedding should be elastic, and the usual Spring Mattress is too heavy and cumbersome for general use. HEAL & SON'S new Patent LE SOMMIER ELASTIQUE PORTATIF is made in three separate parts, and is therefore light and portable; it is also cheap and durable; and as it has no stuffing on the top, it cannot harbour moth.

HEAL AND SON'S ILLUSTRATED CATALOGUE, containing Designs and Prices of 100 Bedsteads, as well as of 150 different articles of Bedroom Furniture, sent free by post.

HEAL & SON, Bedstead, Bedding, and Bedroom Furniture Manufacturers, 196, Tottenham Court Road, W.

CHUBB'S PATENT SAFES, the most secure against Fire and Thieves.
CHUBB'S FIRE-PROOF STRONG ROOM DOORS. CHUBB'S PATENT DETECTOR LOCKS and STREET DOOR LATCHES; CHUBB'S CASH and DEED BOXES.
Illustrated Price List gratis and post free.
CHUBB & SON, 57, St. Paul's Churchyard, London, E.C.

BEDSTEADS, BATHS, and LAMPS.—WILLIAM S. BURTON has SIX LARGE SHOW ROOMS, devoted exclusively to the SEPARATE DISPLAY of LAMPS, BATHS, and METALLIC BEDSTEADS. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country.

Bedsteads, from .. .. 12*s.* 6*d.* to £20 0*s.* each
Shower Baths, from .. 8 0 to 6 0 „
Lamps (Moderateur), from 6 0 to 8 10 „
(All other kinds at the same rate).
Pure Colza Oil .. .. .. 4*s.* 6*d.* per gallon.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 500 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish-Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gasaliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39 Oxford Street, W.; 1, 1A, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place; and 1 Newman Yard, London.

METCALFE, BINGLEY, AND CO'S NEW PATTERN TOOTH BRUSHES, Penetrating Unbleached Hair Brushes, Improved Flesh Brushes, genuine Smyrna Sponges, and every description of Brush and Comb and Perfumery for the Toilet. METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box. The FAIRY BOUQUET; the OXFORD and CAMBRIDGE BOUQUET. In bottles, 2*s.*, 3*s.* 6*d.*, and 5*s.* each. 130 B, and 131, Oxford Street, W.

DINNEFORD'S PURE FLUID MAGNESIA has been during 25 years emphatically sanctioned by the Medical Profession, and universally accepted by the public, as the best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion, and as a mild Aperient for delicate constitutions, more especially for ladies and children. It is prepared in a state of perfect purity and of uniform strength by DINNEFORD & Co, 172, New Bond Street, London, and sold by all respectable Chemists throughout the world.

CORNS and BUNIONS.—A gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their entire removal in a short period, without pain or any kind of inconvenience.
Forward address, on a stamped envelope, to W. GOODALL, Esq., Epsom, Surrey, S.

KEATING'S PERSIAN INSECT DESTROYING POWDER.—Fleas in Dogs, Poultry, &c., are instantly destroyed, as also Bugs, Beetles, and every other Insect, by this Powder, which is perfectly harmless to animal life; Sportsmen particularly will therefore find it invaluable.
Sold in Packets, 1*s*, 2*s.* 6*d.*, and 4*s.* 6*d.* each, or post free for 14, or treble size for 36 postage stamps, by THOMAS KEATING, Chemist, 79, St. Paul's Churchyard, London, E.C. Take notice, each genuine packet bears the above name and address.
For which a Prize Medal was awarded to the Producer at the International Exhibition, 1862.

THRESHER'S COLORED FLANNEL SHIRTS.—PRIZE MEDAL awarded to THRESHER & GLENNY for very fine and superior FLANNEL SHIRTS, India Tweed Suits, and India Gauze Waistcoats.
Lists of Prices on application to THRESHER & GLENNY, General Outfitters, next door to Somerset House, Strand, W.C.

Glenfield Patent Starch.

MESSRS. WOTHERSPOON AND CO. have been appointed STARCH PURVEYORS to H. R. H. the PRINCESS of WALES. This Starch is used in the Royal Laundry and was awarded a Prize Medal. Sold by all Grocers, Chandlers, &c.
WOTHERSPOON & Co., Glasgow and London.

Sauce.—Lea and Perrins'

WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE,"
Is prepared solely by LEA & PERRINS.
The public are respectfully cautioned against worthless imitations, and should see that LEA & PERRINS' Names are on Wrapper, Label, Bottle, and Stopper.
ASK FOR LEA AND PERRINS' SAUCE.
*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c.; and by Grocers and Oilmen universally.

CONCENTRATED BEEF TEA, with FARINACEOUS FOOD, in skins of 1 lb. each, containing the extract of 13 lb. of Beef, 7*s.*; invaluable to public speakers, tourists, and invalids, either as a lozenge, or dissolved in hot milk, water or tea. Also the Patent Tonic BEEF TEA LOZENGE, to create strength, sustain the stomach, and prevent fever. A few dissolved in boiling water will form a Cup of Beef Tea or Gravy for Game. 1*s.* 6*d* Boxes.
PHYTHIAN, 430, West Strand, W.C.; NEIGHBOUR, 127, High Holborn, W.C.
TESTIMONIAL.—You can safely recommend BAKER'S Patent Tonic Beef Tea Lozenges. I was out examining pupils 11 hours, had no other food, and felt none the worse from my labours. —*Rev. P. S.*

SETTER.—WANTED, a steady SETTER. Five Pounds will be given.
E., *Gardeners' Chronicle* Office, W.C.

RETRIEVER.—WANTED, a handsome young BLACK DOG.
Address, stating price and age, J. S., 20, Wellington Street Strand, London, W.C.

Mansion and Farm to Let.

TO BE LET, UNFURNISHED, at Michaelmas, 1863, in the most picturesque part of the Weald of Kent, a MANSION, with every requisite for the occupation of a Family of the first respectability, and surrounded by 416 acres of excellent Grass, Arable, and Hop Land, the whole or part of which will be Let with it.
For particulars and Card to View, apply to Mr. NEVE, Benenden, Staplehurst.

To Nurserymen.—West Norfolk,

WITHIN 5 MILES OF THE BRANDON STATION.
TO BE LET, with Possession at Old Michaelmas next, the old and well known NURSERY and SEED ESTABLISHMENT at Mundford, now in the occupation of Mr. HENRY HAMMOND. The Nursery Grounds comprise a capital Messuage, Seed Shops, and about 9 Statute Acres recently refenced in and made rabbit proof; together with a Small Farm of 75 acres of Tithe-free Land and suitable Outbuildings. The Nursery Stock at the option of the Hirer.
Applications, with references as to capital and respectability, may be addressed to Mr. WELTER, Wickham Market, Suffolk.

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ORIGINAL ANTI-CORROSION PAINT.

WHITE ... ... / LIGHT STONE ...	Per cwt.	30*s.*
BATH DO.		
CREAM COLOR		
LIGHT PORTLAND STONE ...		
DRAB or PORTLAND DO. ...		
LIGHT and DARK OAK ...		26*s.*
LEAD COLOR		

BRIGHT RED ... ... / DARK DO. (or BRICK COLOR) / CHOCOLATE COLOR ... ... / BLACK	Per cwt.	26*s.*
BRIGHT GREEN ... ... / DEEP GREEN ... ... / BLUE		44*s.*

PATRONISED BY

THE BRITISH GOVERNMENT
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MOST OF THE NOBILITY & GENTRY
RAILWAY AND CANAL COMPANIES
COLLIERIES, IRON MASTERS, &c.

It is extensively used at home and abroad for all kinds of

OUT-DOOR WORK,

and has been proved, after a practical test of 70 years, to surpass any other Paint. It is applicable to WOODEN HOUSES, FARM and other OUT-BUILDINGS, PARK FENCING, GATES, &c.; also IRON ROOFING, BRIDGES, HURDLING, and every description of Iron Work, while for

PUBLIC EDIFICES, MANSIONS, VILLA RESIDENCES,

and every kind of BRICK, STONE, COMPO, &c., it is unrivalled, presenting the appearance of fine cut stone.

It is undoubtedly the only Paint that will stand on

CONSERVATORIES, GREENHOUSES, FRAMES, &c.

and is in consequence largely used by the Nobility and Gentry, also many eminent Horticulturists, for such purposes. The ANTI-CORROSION is LOWER IN PRICE, and LASTS TWICE AS LONG as the Best White Lead; at the same time is economical in application, as

ANY PERSON CAN LAY IT ON.

The Anti-Corrosion is a Powder, and will keep any length of time.

Carriage paid upon quantities of not less than 5 cwt. to any station in England and Wales, or by Water to any Port in the United Kingdom, where there is a direct communication from London, as Leith, Dublin, Belfast, Glasgow, Aberdeen, &c.

OIL, TURPENTINE, AND BRUSHES.

Patterns, Cards, and Testimonials sent upon application to

WALTER CARSON & SONS (SUCCESSORS TO THE INVENTORS),

9, GREAT WINCHESTER STREET (NEAR THE ROYAL EXCHANGE, LONDON, E.C.)

No Agents throughout the United Kingdom.

Sales by Auction.

Belhus, Aveley, Essex.

MR. STRAFFORD is favoured with instructions from Sir T. B. Lennard, Bart., to SELL by AUCTION, at Belhus, Aveley, near Romford, on FRIDAY NEXT, August 28, some very superior Suffolk HORSES and MARES, including the renowned Prize Stallion Hero, 3 Short-horned BULLS, 70 Shearling EWES, and 11 RAMS, from his splendid Flock of Southdowns; as well as some PIGS of the best sorts. The whole of the stock have been purchased and bred from the best and most fashionable blood, and will be sold without reserve, except the horse Hero, on whom a moderate reserve will be placed.
Catalogues, with particulars, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. J. CHURCH, Belhus, Aveley, near Romford.

Skreens, near Chelmsford.

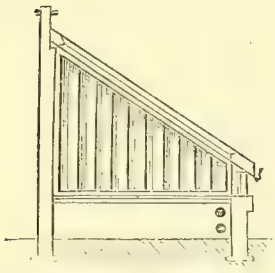
IMPORTANT SALE OF SHORT-HORNED CATTLE, SOUTHDOWN SHEEP, BERKSHIRE PIGS, &c.
MR. STRAFFORD is instructed to announce for SALE by AUCTION, without Reserve, on SATURDAY NEXT, August 29, at Skreens, near Chelmsford, 26 Head of Pure-bred SHORT-HORNS, 200 SOUTHDOWN SHEEP, and a few BERKSHIRE PIGS, belonging to T. W. Bramston, Esq., M.P. At the same will also be sold 18 Head of valuable Short-horns, the property of Mr. J. Christy, of Boynton Hall, the whole of which are descended from some of the best blood of the day.
Catalogues, with Pedigrees and other particulars, may be had on application to Mr. TURVILLE, at Tye Hall, Chelmsford; or of Mr. CHRISTY, Boynton Hall; and of Mr. STRAFFORD, 13, Euston Square, London, N.W.

Taunton, Somerset.

FIRST-CLASS NURSERY GROUNDS AND PLANT FOR SALE.
MR. POLLARD is instructed by the Trustees of the late John Young, Esq., deceased, to SELL by AUCTION, at the Castle Hotel, Taunton, on WEDNESDAY, September 16, the old established TAUNTON NURSERIES, together above 12 Acres of very fertile Land, now in full trade, with or without the Stock, Greenhouses, Hothouses, and Forcing Pits, also the Office, Seed Shop, and Show Garden, near the Tone Bridge.
Taunton is the county town on the Bristol and Exeter line, the neighbourhood is highly respectable, the business has been established about 40 years.
It is intended that the usual deposit be paid at the time of Sale, and the residue of the purchase money about Lady Day, 1864; arrangements could be made for immediate occupation.
A good portion of the purchase money might remain on mortgage security of the property.
Plans and further particulars are preparing, and may be obtained of Mr. SAMUEL KNIGHT POLLARD, Surveyor, Taunton, and of Messrs. FRY & OTTER, Shannon Court, Bristol.
Taunton, August 15.

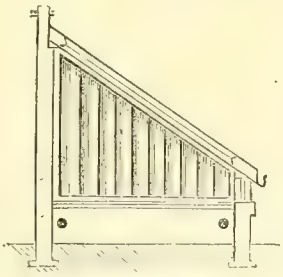
J. JONES'S HOT-WATER APPARATUS.

No. 7.



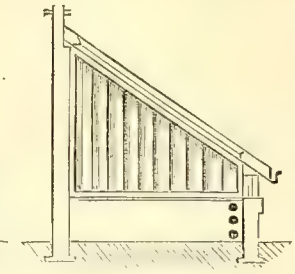
Size of House.	Price
20 by 10 feet	£9 0 0
30 „ 12 „	12 0 0
40 „ 15 „	15 0 0
50 „ 15 „	18 0 0
60 „ 15 „	20 0 0
70 „ 15 „	22 0 0
80 „ 15 „	24 0 0
100 „ 15 „	26 0 0

No. 8.



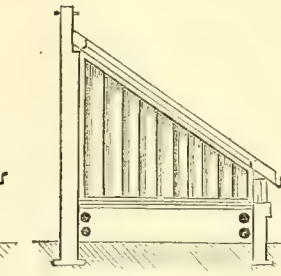
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No. 9.



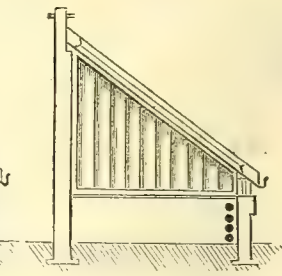
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No. 10.



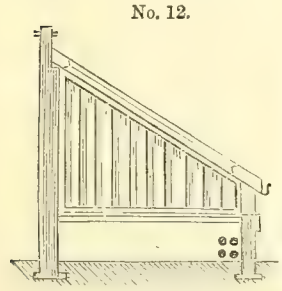
Price
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No. 11.



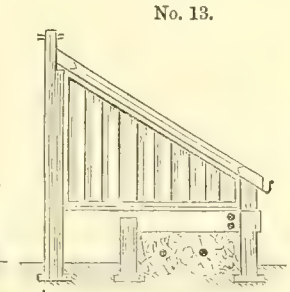
Price
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No. 12.



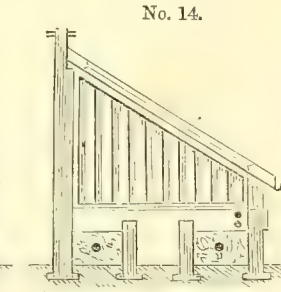
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No. 13.



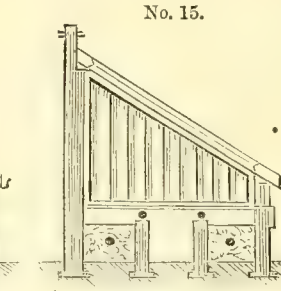
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No. 14.



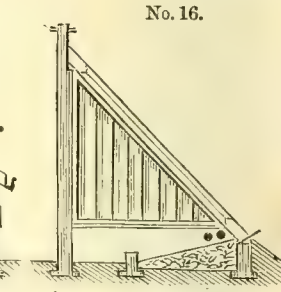
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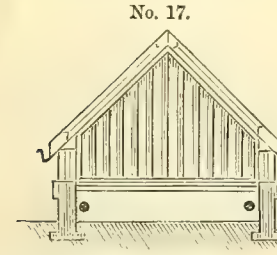
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No. 16.



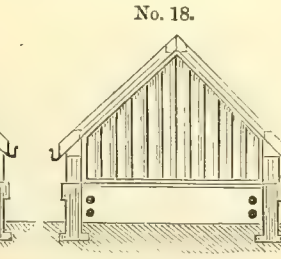
Price
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No. 17.



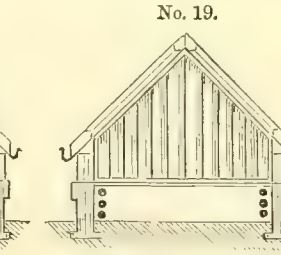
Size of House.	Price
20 by 10 feet	£9 0 0
30 „ 12 „	12 0 0
40 „ 15 „	15 0 0
50 „ 15 „	18 0 0
60 „ 15 „	20 0 0
70 „ 15 „	22 0 0
80 „ 15 „	24 0 0
100 „ 15 „	26 0 0

No. 18.



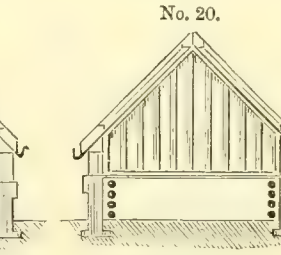
Price
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

No. 19.



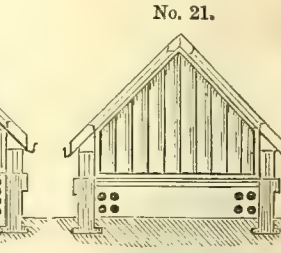
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29 0 0
34 0 0
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44 0 0
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No. 20.



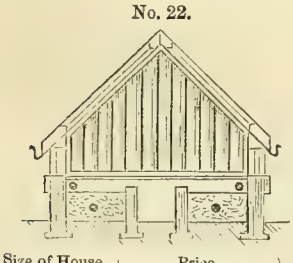
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36 10 0
42 10 0
49 0 0
56 0 0
63 0 0
70 0 0

No. 21.



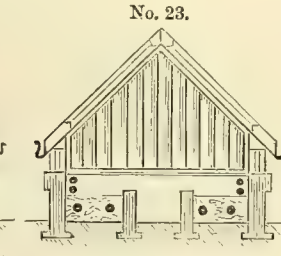
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42 10 0
49 0 0
56 0 0
63 0 0
70 0 0

No. 22.



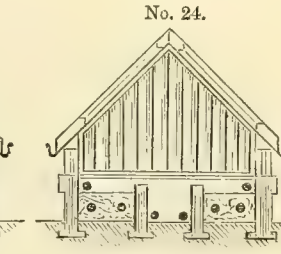
Size of House.	Price
20 by 10 feet	£15 0 0
30 „ 12 „	21 0 0
40 „ 15 „	25 0 0
50 „ 15 „	29 0 0
60 „ 15 „	33 0 0
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80 „ 15 „	41 0 0
100 „ 15 „	45 0 0

No. 23.



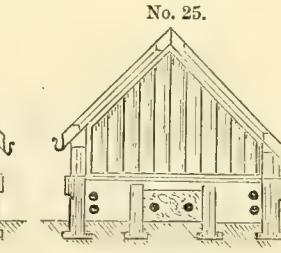
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44 10 0
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72 0 0

No. 24.



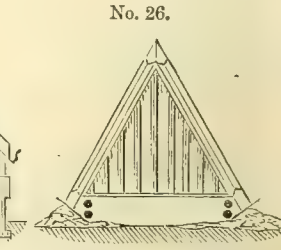
Price
£25 0 0
32 0 0
38 10 0
44 10 0
51 10 0
58 0 0
65 0 0
72 0 0

No. 25.



Price
£18 10 0
25 0 0
30 0 0
35 0 0
40 0 0
45 0 0
50 0 0
55 0 0

No. 26.



Price
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

J. JONES will be happy to supply HOT-WATER APPARATUS for HOUSES according to any of the above Plans, delivered Free to any Station in England at the prices named, which include strong CAST-IRON CYLINDER or SADDLE BOILER, FURNACE DOORS, FIRE BARS, SOOT DOORS, CISTERN and DAMPER, 4-inch HOT-WATER PIPES and CONNECTIONS, all of the best quality; or he will forward ESTIMATES for WORK erected complete, with WROUGHT or CAST-IRON BOILER of any sort, at a small addition to the above prices.

☞ *The Black Circles on Sections of Houses show the arrangement of Pipes.*

Illustrated Catalogues and further particulars post free on application to

J. JONES, IRON MERCHANT AND HORTICULTURAL ENGINEER, 6, BANKSIDE, LONDON, S.E.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 35.—1863.] SATURDAY, AUGUST 29. {Price Fivepence. {Stamped Edition, 6d.

INDEX.

Acclimatisation Society	819 b	Orchids, cool treatment of	819 a
Baldwin on Soils	830 b	Pinus aristata	821 a
Basket gardens	819 c	Ploughs, steam	829 b
Books, various	823 a	Prizes, value of	822 a
Cinchona	822 a	Rabbit, Norman	828 c
Clover sickness	826 a	Regent's Park	821 c
Crop returns	825 c–828 c	Root crop caterpillar	826 c
Dart moth caterpillar, injury done by	826 c	Sewage, utilisation of	827 c
Education, labourers	829 a	Sheep sales	828 a–830 c
Farmer, British	828 c	Society, Royal Horticultural	822 b
Fertility, artificial	826 c	— Royal Hort. of Dublin	822 b
Fish, Japanese	824 a	— Royal Agri. of Ireland	829 b
Frogmore gardens	823 b	— Gloucester Agri.	830 a
Hollyhocks, seedling	819 c	— Acclimatisation	819 b
Hotel, agricultural	831 b	Soils, treatise on	830 b
Law, garden	820 b	Traps and vermin	821 c
Lectures	825 c	Trees, ages of	824 a
Orchard houses	822 a	Vermin and traps	821 c

☞ NOTICE TO ADVERTISERS. — *Advertisements must reach the Office by* THURSDAY'S *post. They should be written on one side of the paper only.*

ROYAL HORTICULTURAL SOCIETY'S AUTUMN SHOW—FLOWERS and FRUIT—WEDNESDAY, September 9, at South Kensington. Open at 1 o'Clock. Royal Artillery Band at 3. Admission, Half-a-Crown.

CRYSTAL PALACE.—GREAT SHOW of AUTUMN FLOWERS and FRUIT, TUESDAY and WEDNESDAY, September 1 and 2.
Admission, One Shilling each day; Children under 12, Sixpence.
For Schedules of Prizes apply to Mr. W. HOUGHTON, Secretary to the Show, Crystal Palace, Sydenham.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, now ready for Planting. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.
Highgate Nurseries, London, N.

Vines bearing Fruit.

GEO. CLARKE begs to offer handsome Plants, well furnished, with good bunches of fruit now ripening, at 10*s.* and 15*s.* each; the fruit at present upon them is worth more than the price of the plants. A large stock also of younger plants of all the new and best kinds, prices upon application.
Nursery, Streatham Place, Brixton Hill, S; and 4, Windsor Terrace, near the Victoria Railway Station, Pimlico, S.W.

PINE PLANTS for SALE. — About 50 PINE PLANTS, various sorts and sizes, all clean and healthy, to be Sold very cheap.
Apply to Mr. SUTTON, Gardener, Winchester Hall, Highgate, London, N.

QUEEN PINE SUCKERS for SALE. — Strong healthy Suckers, warranted Clean and free from Scale, 50 and upwards at 6*d.* each.
Apply by letter to the Gardener, J. HANNAN, Cyfarthfa Castle, Merthyr Tydvil.

CUTHILL'S STRAWBERRY PLANTS, to bear next year.—EARLY BLACK PRINCE, EARLY PRINCESS ROYAL, HIGHLAND MARY, RICHARD II., PRINCE of WALES, and NEWTON SEEDLING, 5*s.* per 100, if Selected, 7*s.* 6*d.*; each Sort lasted in bearing 60 days this year.
STRAWBERRY PAMPHLET, 1*s.*; MUSHROOM do., 1*s.*; CUCUMBER do, 1*s.* MUSHROOMS grown here all the year round; best SPAWN, 5*s.* per bushel.
PRINCE ALBERT, Winter Cucumber, 1*s.* per Packet.
JAMES CUTHILL, F.R.H.S., Camberwell, London, S.

Cineraria, Calceolaria, and Primula.

E. G. HENDERSON AND SON offer first-class Seed of the above; also the same of best ENGLISH and New FRENCH blotched-flowered varieties of PANSIES. Each 1*s.* and 2*s.* 6*d.* per packet.
☞ EXPERIENCED GARDENERS recommended.
Wellington Nursery, St. John's Wood, London, N.W.

Hunt's Improved Sweet Williams.

W. BRAGG begs to inform the admirers of these lovely flowers that his Seed is just Harvested, and will be sent out immediately.
Further particulars in next week's *Chronicle*.
Star Nursery, Slough—August 29.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.
Dorking Nursery.

Ferns to the Trade.

EDWIN COOLING has a large stock of very fine healthy plants now to offer.
A PRICED LIST free on application.
Mile Ash Nurseries, Derby.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH,
SEED MERCHANTS,
Covent Garden Market, London, W.C.

BARR AND SUGDEN,
SEED MERCHANTS,
12, King Street, Covent Garden, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON,
NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

ALOCASIA MACRORHIZA VARIEGATA.—Good plants, 10*s.* 6*d.* each.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

New Hybrid Mimulus.

E. G. HENDERSON AND SON offer Seed of the beautiful new Section, as now to be seen in the Wellington Nursery, forming an elegant dwarf bedding-plant, and adapted for pot-culture in Conservatories. 1*s.* and 2*s.* 6*d.* per packet. Trade, per oz., or packets.
Wellington Nursery, St. John's Wood, London, N.W.

CHOICE SEEDS for AUTUMN SOWING.—CALCEOLARIA, CINERARIA, and PRIMULA, from the finest strains in cultivation, each 2*s.* 6*d.* per packet.
JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

GUERNSEY and BELLA DONNA LILIES.—Just arrived in fine condition, 5*s.* per dozen.
JAMES CARTER & Co., 237 and 238, High Holborn, W.C.

GUERNSEY and BELLA DONNA LILIES, 5*s.* per dozen
BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

To the Seed Trade.

DOBSON'S FIRST-CLASS SEEDS of CALCEOLARIA, CINERARIA, and PRIMULA.
Supplied to the Trade in Packets only.
A liberal allowance. Price on application.
J. DOBSON & SONS, Seedsmen, Isleworth, W.

J. C. PADMAN'S SELECT LIST of BULBS, HARDY FERNS (New, 1863), and ROSES, is now ready, and may be had on application.
Providence Nursery, Boston Spa, near Tadcaster.

Imported Dutch Bulbs.

JAMES CARTER AND CO.'S CATALOGUE of BULBS, with Cultural Directions, forwarded free of charge, on application to 237, 238, High Holborn, London, W.C.

IMPORTED DUTCH BULBS.—First-class Dutch Bulbs of every description just imported.
JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

LARGE IMPORTATION of DUTCH BULBS.—CATALOGUES (gratis) on application to WM. BARRATT, St. John's and Newton Moor Nurseries, Wakefield.

Dutch Flower Roots.

HIGH LOW AND CO. beg to announce that their CATALOGUE of the above is now ready for distribution, and will be forwarded, post free, to all applicants.
Clapton Nursery, London, N.E.

Dutch Hyacinths, Tulips, &c.

CHARLES SOUTHBY, NURSERYMAN, Clapham, has received the above, which are unusually fine this season. Early orders and planting must secure fine blooms.
A DESCRIPTIVE PRICED LIST free by post.

Fresh Imported Dutch Bulbs.

SUTTON AND SONS have just received from Haarlem one of the most Extensive and Rare Collections of BULBOUS FLOWER ROOTS ever imported into this country.
Prices very moderate, as see LIST, which may be had post free.
Royal Berkshire Seed Establishment, Reading.

HYACINTHS and other DUTCH BULBS.

THE FIRST PRIZE FOR A COLLECTION OF HYACINTHS,
THE FIRST PRIZE FOR 18 HYACINTHS,
THE FIRST PRIZE FOR 6 NEW HYACINTHS,
Being all the FIRST PRIZES offered to Nurserymen at the Royal Horticultural Society's HYACINTH SHOW on March 18, were awarded to WILLIAM PAUL, Paul's Nurseries, Waltham Cross, N.
PRICED DESCRIPTIVE CATALOGUE free by post.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his New CATALOGUE, containing Select, Descriptive, and Priced Lists of Exotic Orchids, New and Rare Greenhouse, Hardy, and Stove Plants, Ornamental and Variegated foliaged Plants, Azalea Indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, Narcissus, and other Bulbs, is now published and will be forwarded to all applicants.
Exotic Nursery, Tooting, Surrey, S.

Paul's Nurseries, Waltham Cross, N.

WM. PAUL'S ROSES are still in FINE BLOOM. Entrance from the Platform, Waltham Station (G. E. Ry.) Half an hour's ride from London.

New Roses for 1863.

WM. WOOD AND SON are now supplying all the NEW ROSES in splendid Plants at reasonable prices. The leading kinds of PERPETUAL and other ROSES in pots are also offered by the dozen, hundred, or thousand.
Address, Woodlands Nursery, Maresfield, Uckfield, Sussex.

ROSES, NEW and OLD. CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. Those who wish for a fine display of bloom during the present summer and autumn should now give their orders.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

New Roses of 1863.

E. G. HENDERSON AND SON offer strong healthy plants of the most select kinds. The Trade supplied in any quantity.
Wellington Nursery, St. John's Wood, London, N.W.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON).—Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7*s.* 6*d.* each, are now ready.
Old Cheshunt Nurseries, Herts.

ORCHARD HOUSES. — The Orchard Houses at Sawbridgeworth are now well worthy of inspection. The Harlow Station, where Flys attend, is 1¼ mile from the Nurseries. THOS. RIVERS & SON.

Pyrethrum Seeds.

JOHN SALTER can supply new Seeds of Single and Double PYRETHRUMS, saved from his own collection. Single varieties, 1*s.* 6*d.* per pkt. | Double varieties, 3*s.* 6*d.* do. Post free.
Versailles Nursery, William Street, near Hammersmith Turnpike, W.

JEAN VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to announce that his new DESCRIPTIVE CATALOGUE for the Autumn, 1863, is now ready, and contains a great many Novelties of the season.
To be had on application either to himself, or to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

NEW FORCING GERANIUM, MRS. LEWIS LOYD.—Rich crimson with dark maroon blotch in top petals; of dwarf robust habit, and most profuse bloomer. Forces into flower at any season without drawing. It was exhibited to the Floral Committee of the Royal Horticultural Society on March 31, and then awarded their Certificate of Commendation. Good Plants now ready, 7*s.* 6*d.* each.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

New Verbenas of 1863.

B. W. KNIGHT, FLORIST, &c., 67, High Street, Battle, Sussex, has now ready to send out the NEW VERBENAS of 1863, at 4*s.* per dozen.
CATALOGUES of VERBENAS and other Novelties sent on application.

CHOICE SEEDS.—CINERARIA, 1*s.* per packet; CALCEOLARIA, 1*s.* do.; PRIMULA, 1*s.* do.; COVENT GARDEN INTERMEDIATE STOCK, 1*s.* do.; MIMULUS, 1*s.* do.; HUNT'S SWEET WILLIAM, 1*s.* do.; CARNATION, 1*s.* do.; PICOTEE, 1*s.* do.; PELARGONIUM, 1*s.* do.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.
Address 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

DICKINSON'S NEW ITALIAN RYE-GRASS SEED is now ready for delivery.
Sold only by himself, and for present payment, 48*s.* per quarter, or 7*s.* per bushel.
New Park, Lymington, Hants.

Seeds for Present Sowing.

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, beg to offer the following SEEDS of this year's growth, viz.:—
TRIFOLIUM INCARNATUM | WINTER TARES
ITALIAN RYE-GRASS | DRUMHEAD CABBAGE
ENFIELD MARKET CABBAGE.
Prices on application.

To Seedsmen, Market Gardeners, and Others.

CABBAGE SEED, in Large or Small Quantities, saved by the late Mr. JAMES NORRIS, of Isleworth, Middlesex, from first-rate sorts in 1861.
For particulars apply to JOHN NORRIS, Sion Hill, Isleworth.

The best Winter Cucumber in Cultivation is

REYNOLDS' PERPETUAL BEARER.—To insure a constant supply all the winter, should be sown the latter part of August, or beginning of September.
Can be had in Packets containing six seeds, price 1*s.* 6*d.* each, of HURST & SON, 6, Leadenhall Street, London, E.C.; or of GEORGE EDWARD, Seedsman, 1, King Street, York.

Permanent Grass Seeds for all Soils.

SUTTON AND SONS can supply good fresh SEEDS for immediate Sowing, as under:—

PERMANENT GRASS SEEDS for Laying down New Pastures (including CLOVERS in full quantities), 30s. per Acre.

PERMANENT GRASS SEEDS for mending new Pastures, which may have been injured by the Corn crop, 12s. per bushel.

Royal Berkshire Seed Establishment, Reading.

Cabbage Seed for Present Sowing.

SUTTON AND SONS can now supply the best sorts of CABBAGE SEED for early Table use next spring and summer.

Also the large DRUMHEAD CATTLE CABBAGE, which should be sown now for Feeding in the autumn of next year, and smaller kinds for Sheep Feeding early next summer.

Prices moderate, but various according to sorts.

Royal Berkshire Seed Establishment, Reading.

For Present Sowing.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, 6s. per bushel, or cheaper in large quantities.

This is the best season for sowing Italian Rye-grass to ensure sheep feed very early in the spring.

TRIFOLIUM INCARNATUM (Early Crimson), 4d. to 5d. per lb., or cheaper in large quantities.

*** A mixture of the above will be found very useful for mending Clover and Grass Seed sown for mowing next spring.

MUSTARD SEED for Sheep Feed in October and November, or for green manure.

RAPE.—New Seed at reduced price.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

New Late Trifolium Seed.

SUTTON AND SONS have New SEED, now ready for delivery, of these very useful new varieties of TRIFOLIUM.

NEW LATE RED, 8d. per lb. NEW LATE WHITE, 1s. per lb.

TRIFOLIUM INCARNATUM (old sort), New Seed, 4d. to 5d. per lb., or cheaper in large quantities.

The last named is the most productive sort, and the best for general purposes, the others being very useful for succession. Carriage free, except very small parcels.

SUTTON & SONS, Seed Growers, Reading.

HYACINTHS AND OTHER CHOICE BULBS.

B. S. WILLIAMS,

PARADISE AND VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

Has just received in fine condition his first IMPORTATION of DUTCH FLOWER ROOTS, a PRICED and DESCRIPTIVE CATALOGUE of which will be forwarded Post Free on application.

B. S. W. begs to state that his BULBS have been selected with the greatest possible care, the Catalogue containing only well proved varieties. Careful attention has been paid to the arrangement of this Catalogue, in order to enable the Purchaser to select from with the least possible trouble, and Short Cultural Notes have been added, offering suggestions to the Amateur, by whom it is hoped they may be found useful.

W. TOOGOOD,

(LATE PAGE AND TOOGOOD),

SEED GROWER AND MERCHANT,

58, ABOVE BAR, SOUTHAMPTON,

Has the pleasure to announce that the Partnership heretofore existing between himself and Mr. W. B. PAGE, Jun., has been dissolved by mutual consent as per advertisement, *and all the Stock, Debts, and Effects of the late Firm, except the fixtures in the shop in Oxford Street, having by arrangement been assigned to him,* he has removed the same to the old place of business (nearly 50 years standing), Above Bar, where he, in future, will conduct his trade in all the branches of the late Firm.

For PRESENT SOWING he has ready for immediate delivery—

Trifolium incarnatum, 4d. per lb.

Of which large quantities are annually saved in this district. With "practical hints" on its cultivation.

New Late Red, 8d. per lb. | **New Late White, 1s. per lb.**

M. M. DUPLESSIS, *of Newtown Park, Lymington, says:*—

"In answer to your inquiries about the Late Red and White Trifolium, I have great pleasure in stating that I consider them invaluable; the Late Red coming into bloom a *fortnight* after the common Red, and the White *a fortnight* after the late Red, *trebles* the time during which this plant may be used as green food. I also consider the Late Red and White Trifolium as *superior* to the common Red as green food, and would make much better hay than the latter. I take the opportunity of thanking you for the promptness and attention you have always given to my orders, and have great pleasure in stating that I have always found your seed of first-rate quality."—Aug. 12, 1863.

Italian Rye-grass, 5s. per bushel.

New Stubble Turnip, 6d. per lb. | **New Rape, 3d. per lb.**

Mustard, 3d. per lb. | **Cattle Cabbage, 2s. 6d. per lb.**

For RYE, WINTER OATS, WINTER BARLEY, WINTER VETCHES, and WINTER BEANS, early orders will ensure delivery in good time, and the lowest price consistent with best quality will invariably be charged.

All choice varieties of CABBAGE, ONION, LETTUCE, CHINA RADISH, &c., for Winter Sowing.

PERMANENT PASTURE and LAWN GRASSES succeed well now, as sown at the Royal Farms, Osborne, for the past 10 years, the Southampton Parks, &c., *all of which were selected and mixed by the Advertiser personally.*

The Rev. T. BACON, *Kingsworthy, December* 10, 1860, *says*:—

"I have great pleasure in stating that the pasture which you laid down for me in the Spring has been a great success, so much so, indeed, as to attract the constant inquiries of passers by. Within four months of sowing, it bore an excellent and abundant crop of Hay, and it has been continually fed off by cows and sheep ever since, with the exception of the three weeks immediately after mowing. For variety of herbage, equality of plant, and strength of growth, it is acknowledged by some of the best judges in this neighbourhood to be *most excellent*; it already wears the aspect of a rich and well established pasture."

From Mr. BARNES, *late Superintendent (for 7 years) of the Southampton Parks.*

"Sir,—In reply to your note referring to the Permanent Grass Seeds with which I laid down the Southampton Parks, I can only say that I saw you personally measure off the different varieties and mix them in order for sowing. The judgment exercised by you in that selection is apparent in the beautiful herbage and lawn like appearance of the grounds while under my management; in fact the second year there was as fine and thorough a Turf as in a park down 50 years.

"To Mr. WM. TOOGOOD." "ARTHUR BARNES."

"We hereby certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that the Permanent Pasture and Lawn Grasses *were measured and mixed by Mr. Toogood, personally.*

"July 13, 1863." (Signed) JOHN MORLEY, HENRY SHEERMAN, GEORGE ISAACS."

To prevent mistakes it is desirable that all letters referring to the business of the late Firm, or orders for any of the foregoing, should be directed

W. TOOGOOD, ROYAL SOUTH HANTS SEED ESTABLISHMENT,
ABOVE BAR, SOUTHAMPTON.

NEW SEEDLING STRAWBERRY, PRINCESS OF WALES.

OPINIONS OF THE PRESS.

Gardeners' Chronicle, July 4th.

"Your seedling Strawberry, Princess of Wales, large, ovate, or flattened ovate, with flesh pale red, and solid at the core. The variety deserves notice on account of its size, appearance, and not being hollow at the core."

Journal of Horticulture, June 23d.

"Seedling Strawberry (B. W. Knight). The fruit sent is very juicy, and of excellent flavour."

Florist and Pomologist, July.

"Your seedling Strawberry, Princess of Wales, is a fine regularly-shaped ovate fruit, of a pale red colour, and very firm flesh; it has all the appearance of being a good sort."

B. W. KNIGHT has much pleasure in offering this superb new early STRAWBERRY, feeling confident that it will not fail to become a general favourite, as all who have seen it growing and tasted it on the ground have pronounced it first-class. It is a remarkably early kind, having picked from it on the 22d May, and no doubt but what it will prove a good forcing variety. The fruit is large, flesh pale red, solid at the core; flavour rich and sugary, partaking largely of the Pine flavour; a most abundant bearer.

Plants will be ready to send out early in September, at 12s. per dozen; 2l. 10s. per 100.

B. W. KNIGHT, Nurseryman and Florist, 37, High Street, Battle, Sussex.

Deutzia crenata fl. pleno—Japan.

JOHN STANDISH has now the pleasure of submitting to the consideration of his friends and the public the above truly valuable and hardy ornamental plant. It has received First-class Certificates both at the Royal Horticultural and Royal Botanic Shows in June and July last (*vide* Report).

"There were a few very interesting new hardy plants shown, first a Deutzia crenata flore pleno, one of Fortune's novelties, flowered by Mr. Standish. This looked like a fine addition to hardy shrubs; it has opposite shortly stalked finely serrated leaves and copious terminal racemes of deflexed double flowers deeply tinged externally with rose."

Plants now ready, 10s. 6d. each; or 6 Plants for 42s.

Royal Nursery, Ascot, Berks.

Rhododendron Countess of Haddington.

ROBERT PARKER begs to announce that he is now sending out this fine variety, a figure of which will appear in the "Illustrated Bouquet," and Photographs may be seen at the Nursery. Habit compact and vigorous, with fine foliage flowers, rosy blush, measuring upwards of 3½ inches in length and diameter, very abundant bloomer, and may be flowered from February to June. For early spring and summer decoration and exhibition purposes this will prove the most useful and ornamental plant of modern introduction. The following Awards have been received at the undermentioned Exhibitions:—

Edinburgh Horticultural Society's Show, March 19, 1861—First Class Certificate.
Royal Horticultural Society's Show, March 19, 1862—First Class Certificate.
Royal Botanic Society's Show, April 2, 1862—First Class Certificate.
Edinburgh Horticultural Society's Show, March 18, 1863—Special Prize.
Crystal Palace Show, May 23d, 1863—First Prize 5l. for single specimen of newly introduced extremely rare or beautiful plant, in or out of flower, hardy or exotic.

Good plants, 21s. each. The usual discount to the Trade.

Exotic Nursery, Tooting, Surrey, S.

Camellias and Indian Azaleas with Buds.

THE NURSERIES, GHENT, BELGIUM.

JEAN VERSCHAFFELT begs respectfully to announce that his Stock of CAMELLIAS and INDIAN AZALEAS with buds, including only first-rate varieties, is particularly large and fine this year, and will enable him to meet every demand. The prices are kept as low as possible, viz.:

CAMELLIAS with buds, fine plants .. £6 0 0 per 100
Do. do. larger do., 8l. to 20 0 0 „
AZALEA INDICA, nice plants, at from .. 4 0 0 „

Early orders are solicited, and are to be directed to

JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent, Belgium.

THE EARLIEST PEA KNOWN is CARPENTER'S EXPRESS (pods larger than any other early Pea).

Among *numerous* Testimonials the following has been received:—

From Mr. JONES, *Gardener to Lord Leconfield, Petworth, Sussex. June* 3, 1863.

"I beg to say I have found Carpenter's Express Pea to answer well as an early one; it was sown on the 20th of November, on a south border, and I gathered the first dish on the 7th of May. I had Daniel O'Rourke and your Pea side by side in November, 1861, and gathered First from Carpenter's Express in May, 1862, which led me to grow it as my earliest this year."

New Seed to be had only of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Establishment, 99, St. James's Street, Brighton.

Early Orders are solicited, which will be executed strictly in priority.

SEED WHEAT.—The following Varieties have been grown by "TRITICUM." See *Agricultural Gazette* of October 4, 1862:—

PRINGLE'S BEARDED WHITE, a fine selected sample, 80s. per quarter.

SHIRREFF'S BEARDED WHITE, a fine selected sample, 70s. per quarter.

(The stock originally received from P. Shirreff, Esq.)

In a collection of all the best known Wheats these two have proved the best in all points.

FIRST PRIZE VICTORIA (AUSTRALIAN) WHEAT (stock received from the Editor of the *Agricultural Gazette*), a fine white of superior quality. A few bushels only, at 15s. per bushel.

If ordered in less quantities than quoted, higher rates will be charged. New sacks, 1s. 9d. each.

A remittance must accompany all orders.

Samples of ears and corn may be had on application, enclosing six postage stamps, returnable to purchasers.

Apply to RICHARD BRADLEY & SONS, Halam, near Southwell, Notts.

TAN GRATIS, in the immediate neighbourhood of Covent Garden Market.

Apply at WILLIAM ESSEX & SON, 23, Stanhope Street, Clare Market, W.C.

REIGATE SILVER SAND.—Best quality, 7s. 6d. per ton; packed, 16s. per ton; ditto 5s.; 4 cwt. put on the Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

N.B. Loaded Trucks can be sent on all the principal Railways.

W. SHORT, Reigate, Surrey.

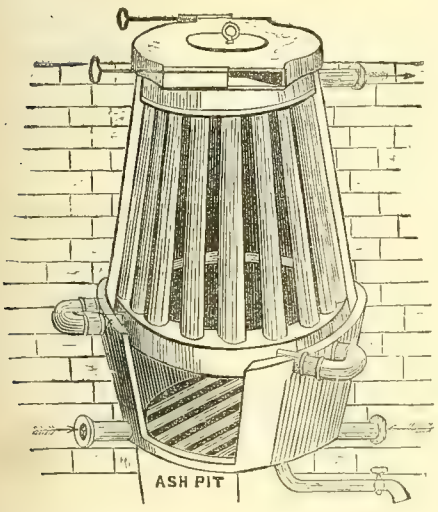
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STEAM PLOUGHING and CULTIVATING APPARATUS

WILL BE AT WORK NEAR BEDFORD THROUGHOUT THE SEASON.

Price of a Complete Set with 10-Horse Engine £515 0 0
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Catalogues, with Sixty Reports from Purchasers, may be had on application to
JAMES AND FREDERICK HOWARD, BRITANNIA IRON WORKS, BEDFORD.



BY HER MAJESTY'S ROYAL LETTERS PATENT.

A PUBLIC BOON.

CLARKE'S NEW WATER JACKET FURNACE BOILER,

SHOWING THE PRINCIPLE OF THE PATENT DEFLECTING FLUE-PLATE OR HEAT PRESERVER.

It will be observed from the annexed diagram, that the deflecting flue-plate is placed on the top of the brickwork just level with the top of the Boiler, leaving a clear space for draught all round, consequently, the great pressure of heat from the furnace is concentrated at the top of the Boiler, and kept in close contact with it by means of the two slides which are regulated in front.

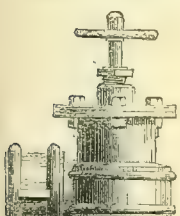
These Boilers are now fully acknowledged by a vast number of practical and experienced Gardeners to be the most Powerful and Economical Boilers extant, requiring less attention and fuel by one-half than any other Boiler they have had to manage, and state that the great improvement consists in the Water Jacket Furnace, and the deflecting flue-plate.

Estimates for every description of Heating, with Boiler and Piping complete, erected upon Mr. C.'s new and much approved principle, for top and bottom heat, sent upon the shortest notice, by applying to the Eagle Iron Foundry, 25, Seel Street, Liverpool. T. C. CLARKE, Proprietor.

P.S.—The Public are hereby respectfully informed that the Action brought against me by Mr. Henry Ormson, of King's Road, Chelsea, for the alleged infringement of his Patent Jointless Boiler, has, by an appeal from the Court of Common Pleas to the Exchequer Chambers, been decided unanimously in my favour, and against the validity of Mr. Ormson's Patent.

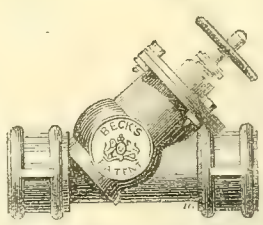
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AT GREATLY REDUCED PRICES.



In. 2	In. 3	In. 4
12s. 6d.	16s. 6d.	20s. 0d.

J. BECK begs respectfully to announce that having erected additional Machinery at his Works as below, he is now enabled to supply his PATENT HOT-WATER VALVES, at Prices very little in excess of the ordinary Throttle Valves.—*Upwards of 4000 of the Patent Valves are now in use and giving the greatest satisfaction.*



J. B. can also supply large quantities of his IMPROVED THROTTLE VALVES on the shortest notice.

JOHN BECK,

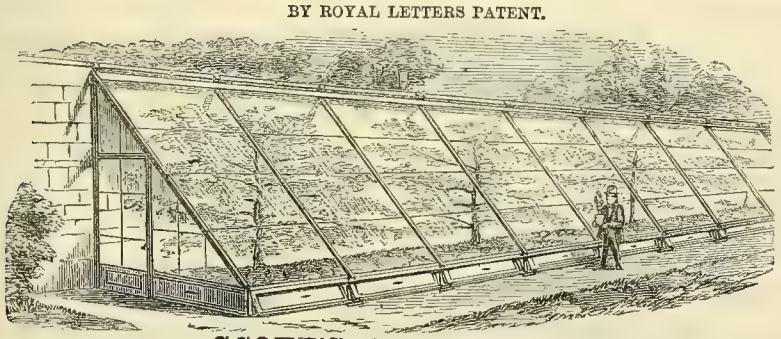
PATENTEE and MANUFACTURER of every description of GAS, WATER, and STEAM FITTINGS, FIRE COCKS, WATER CLOSETS, &c.

PATENT VALVE WORKS AND SANITARY DEPOT,
GREAT SUFFOLK STREET, SOUTHWARK, S.E.

ST. PANCRAS IRON WORKS COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS,

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
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Every description of IRONWORK. *Lists Free.*

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Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING  GLASSES.

	Each—s.	d.		Each—s.	d.
2 inches in diameter..	0	3½	12 inches in diameter ..	1	9
3 ,, ,, ..	0	4½	13 ,, ,, ..	2	0
4 ,, ,, ..	0	5½	14 ,, ,, ..	2	6
5 ,, ,, ..	0	6½	15 ,, ,, ..	3	0
6 ,, ,, ..	0	8	16 ,, ,, ..	3	6
7 ,, ,, ..	0	10	17 ,, ,, ..	4	0
8 ,, ,, ..	1	0	18 ,, ,, ..	5	0
9 ,, ,, ..	1	2	19 ,, ,, ..	6	0
10 ,, ,, ..	1	4	20 ,, ,, ..	7	0
11 ,, ,, ..	1	6			

HAND GLASSES,  WITH OPEN TOPS.

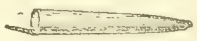
	Each—s.	d.		Each—s.	d.
12 inches	6	6	18 inches	9	6
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

Painted and Glazed with 16 oz. Sheet Glass.

GLASS PRESERVE JARS.

In. diam.	Without Lids.	With Lids.	In. diam.	Without Lids.	With Lids.
3 ..	0s. 4½d. ..	0s. 6½d. ea.	7 ..	1s. 0d. ..	1s. 4d. ea.
4 ..	0 6 ..	0 9 ,,	8 ..	1 4 ..	1 8 ,,
5 ..	0 8 ..	0 11 ,,	9 ..	1 8 ..	2 2 ,,
6 ..	0 10 ..	1 2 ,,	10 ..	2 0 ..	2 8 ,,

Intermediate Sizes in proportion.

CUCUMBER  GLASSES.

24 inches long ..	2s.	0d.	16 inches long .. 1s. 4d
22 ,, ,, ..	1	10	14 ,, ,, .. 1 2
20 ,, ,, ..	1	8	12 ,, ,, .. 1 0
18 ,, ,, ..	1	6	Made to any length.

London Agents for Hartley's Improved Patent Rough Plate. Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

THE NEW WEATHER INDICATOR. By L. CASELLA, for correctly foretelling Changes in the Weather, either for Rain, Wind, or Moisture. Particulars, with rules, by inclosing stamp.

23, Hatton Garden, London, E.C.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they will not be undersold by any House in the Trade. They also warrant one of their Knives to last two of any other make.

Paxton Works, Sheffield.

Garden and Architectural Decorations in Terra Cotta.

PRIZE MEDALS OF 1851 AND 1862 AWARDED TO

JAMES PULHAM, Broxbourne, Herts. Also Notice of ARTISTIC MERIT, and of SOUND DURABLE MATERIAL in FOUNTAINS, VASES, FIGURES, FERN CASES, and BRACKETS, CONSERVATORY TUBS, with rising bottoms, &c.

The novel FERNDELABRUM.—To grow SIXTY FERNS (or Flowers) on a space 4 ft. 8 in. over, 8 ft. high, &c.

Guaranteed to stand frost an unlimited time.

Stereographs sent to inspect for 12 stamps.

Illustrations in the *Art Journal Catalogue*, the *Masterpieces*, and *Gems of the Exhibition*.



GARDEN BORDER-EDGING TILES. — These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

To be obtained at F. & G. ROSHER'S Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER at their Premises as above.

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PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

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An improved make, 2 yards wide, 1s. 8d. per yard.
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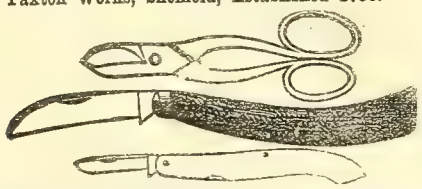
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Illustrated Catalogue on receipt of six postage stamps.
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SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

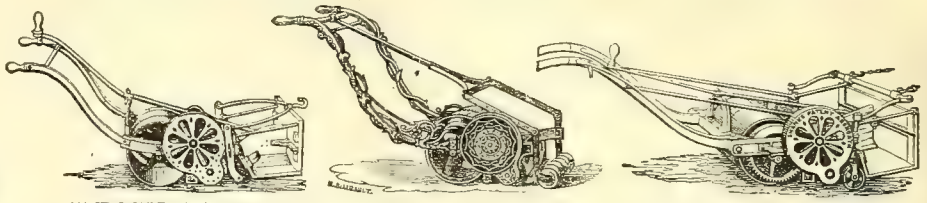
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HAVE YOU a LAWN?—Use BELCHER'S PATENT PLANTAIN EXTRACTOR; which neatly removes Plantain and Daisies, and replaces them with fine Turf. Price 6*s.*: to be had of all Ironmongers.
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Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine	£28 0 0	40*s.* extra.
No. 2.—42-inch Machine	26 0 0	40*s.* ,,
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Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

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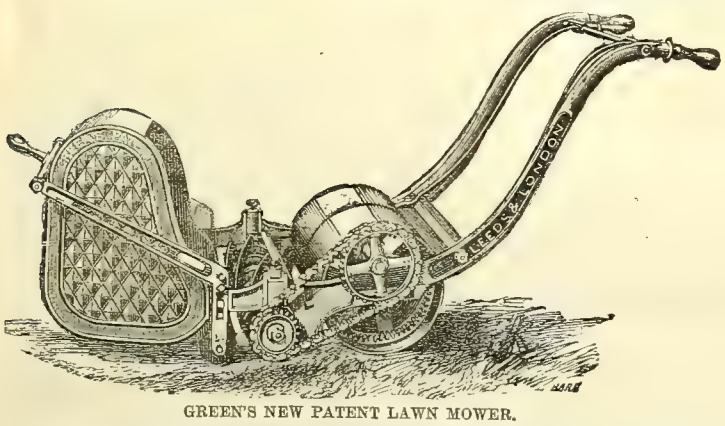
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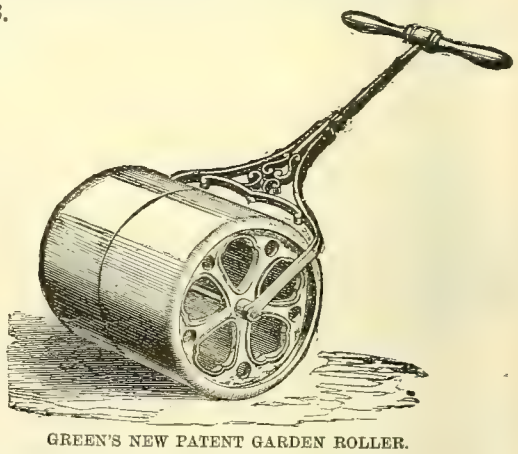
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FOR THE PRESENT SEASON 1863.



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THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS, PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

PRICES.

To Cut 10 inches	£3	10	0	Suitable for a Lady.	
,, 12 ,,	5	0	0	Suitable for One Person. If with internal gear, 10*s.* extra.	
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The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	£12 10 0
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,, 30 ,,	16 14 0	18 0 0

Leather Boots for Donkey, 16*s.*; for Pony, 20*s.*

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,, 22 ,,	8	10	0	Suitable for Two Men	9 17 6
,, 24 ,,	9	0	0	Do. Do.	10 7 6

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To Cut 30 inches	£20 0 0	£21 10 0
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,, 42 ,,	26 0 0	28 2 0
,, 48 ,,	29 0 0	31 8 0

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The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

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Diameter 20 inches, length 22 inches, price £3 5*s.* | Diameter 16 inches, length 17 inches, price £2 10*s.* | Diameter 24 inches, length 26 inches, price £4 5*s.*
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

Every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;
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Illustrated Catalogues on application.

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ORIGINAL ANTI-CORROSION PAINT.

WHITE ... ... / LIGHT STONE ... / BATH DO. ... ... / CREAM COLOR ... ... / LIGHT PORTLAND STONE ... / DRAB OR PORTLAND DO. ...	Per cwt. 30s.
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It is extensively used at home and abroad for all kinds of

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and has been proved, after a practical test of 70 years, to surpass any other Paint. It is applicable to WOODEN HOUSES, FARM and other OUT-BUILDINGS, PARK FENCING, GATES, &c.; also IRON ROOFING, BRIDGES, HURDLING, and every description of Iron Work, while for

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It is undoubtedly the only Paint that will stand on

CONSERVATORIES, GREENHOUSES, FRAMES, &c.

and is in consequence largely used by the Nobility and Gentry, also many eminent Horticulturists, for such purposes. The ANTI-CORROSION is LOWER IN PRICE, and LASTS TWICE AS LONG as the Best White Lead; at the same time is economical in application, as

ANY PERSON CAN LAY IT ON.

The Anti-Corrosion is a Powder, and will keep any length of time.

Carriage paid upon quantities of not less than 5 cwt. to any station in England and Wales, or by Water to any Port in the United Kingdom, where there is a direct communication from London, as Leith, Dublin, Belfast, Glasgow, Aberdeen, &c.

OIL, TURPENTINE, AND BRUSHES.

Patterns, Cards, and Testimonials sent upon application to

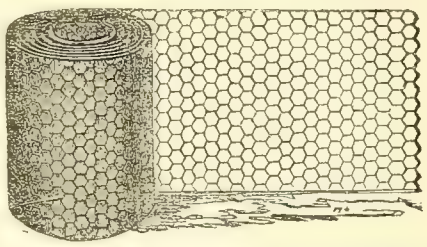
WALTER CARSON & SONS (SUCCESSORS TO THE INVENTORS),

9, GREAT WINCHESTER STREET (NEAR THE ROYAL EXCHANGE, LONDON, E.C.)

No Agents throughout the United Kingdom.

BARNARD, BISHOP, AND BARNARDS,
Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.

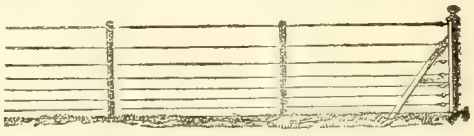


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard.
2-inch mesh, 24 inches wide ..	No. 19	4½d.	3½d.
2-inch ,, ,, ,, .. ,,	18	5	4
2-inch ,, ,, ,, .. ,,	17	6½	5
2-inch ,, ,, ,, .. ,,	16	8	6½
1⅝-inch ,, ,, ,, .. ,,	19	4¾	4
1⅝-inch ,, ,, ,, .. ,,	18	6	4¾
1⅝-inch ,, ,, ,, .. ,,	17	7	5¾
1⅝-inch ,, ,, ,, .. ,,	16	9	7

All the above kinds can be made any width (under 6 feet), at proportionate prices.

Strong Galvanised Poultry Netting, 7½d. per yard, 3 feet wide, Galvanised Sparrow-proof Netting for Pheasantries, 11d. per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

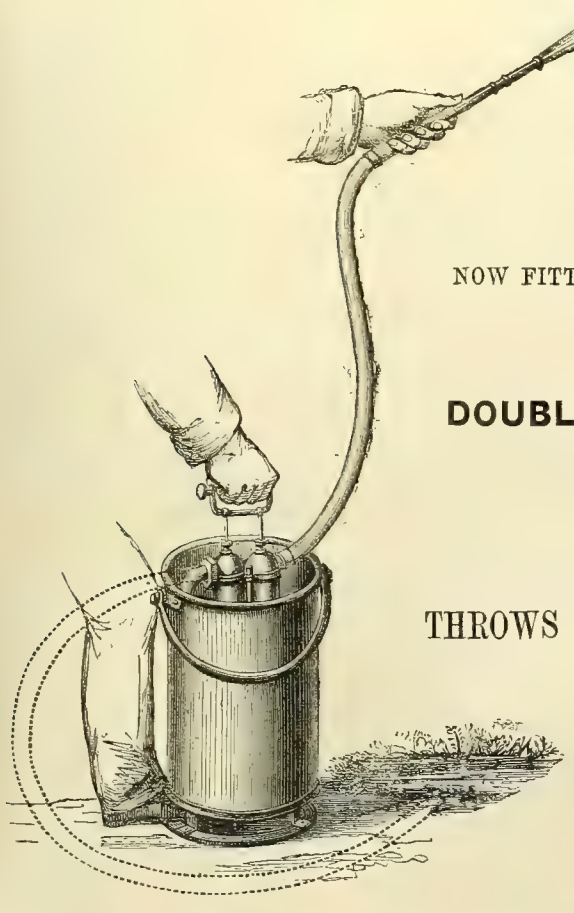
Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10d. per yard.

The same with Galvanised Wire Rope, 1s. per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

WARNERS' IMPROVED PATENT,



NOW FITTED WITH AN AIR VESSEL,

IS THE ONLY

DOUBLE-ACTION ENGINE

at £2 2s.

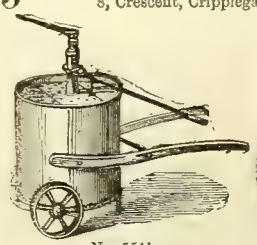
THAT

THROWS A CONSTANT STREAM.

May be obtained of any Ironmonger or Seedsman at the above price, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.

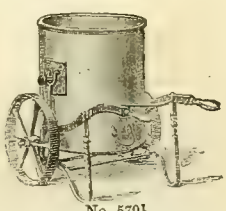


No. 554½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons ..	.. £2 15 0
16 ,, ..	.. 3 15 0
24 ,, ..	.. 5 0 0

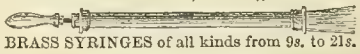
Larger sizes may be had in either Wood or Iron.



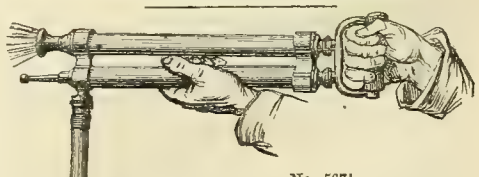
No. 579½.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	.. £2 10 0
20 ,,	.. 2 0 0



BRASS SYRINGES of all kinds from 9s. to 21s.



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 5 feet Flexible Suction Pipe,

21s.

Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

THERE ARE NO SUCTION OR DELIVERY VALVES, hence MUCH FRICTION AND LIABILITY TO CHOKE with leaves and dirt IS AVOIDED.

JOHN WARNER & SONS, 8, Crescent, Cripplegate, London, E.C.

Imported Orchids.

B. S. WILLIAMS has just received a fine importation of the following ORCHIDS:—

LYCASTE SKINNERI | CATTLEYA MOSSIÆ
CATTLEYA SUPERBA |
GALEANDRA DEVONIANA, a choice and rare plant, finest of the genus.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Choice Seeds.

B. S. WILLIAMS begs to offer First-class quality of the undermentioned SEEDS:—

	Per packet.	
PRIMULA SINENSIS FIMBRIATA, Red, White, or Mixed	2s. 0d.	3s. 6d.
CALCEOLARIA, herbaceous	1 6	2 6
CINERARIA, from choice named flowers	1 6	2 6
PANSY, very choice	0 6	1 0

CORDYLINE INDIVISA, seed in fine condition, price 2s. 6d. per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

New and Rare Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, amongst which are some very fine specimens.

Now ready, post-free to all applicants.

A NEW GENERAL PLANT CATALOGUE, containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Herbaceous and Alpine Plants, Roses, Hardy Trees and Shrubs, Fruit Trees, &c.

With a DESCRIPTIVE LIST of New, Beautiful, and Rare Plants.

Paradise and Victoria Nurseries, Holloway, London, N.

New Roses of 1863.

JOHN KEYNES, Castle Street Nursery, Salisbury, can supply some thousands of the above, well-established Plants in pots, comprising the very best varieties of the NEW ROSES of 1863, at 36s. per dozen. The usual discount to the Trade. To amateurs such plants are invaluable; they can be planted at once and will produce fine bloom next season, as time will be given them to draw fresh root.

CATALOGUES, with full description, containing all the leading flowers, both old and new, will be forwarded on application.

JOHN KEYNES' STANDARD and DWARF ROSES for the Autumn are in the finest condition.

The stock of ROSES of 1862, comprising Charles Lefebvre, François Lacharme, &c., both Standards and Dwarfs, cannot be surpassed. Salisbury.—Aug. 29.

CHEAP HARDY CLIMBERS.—The following in strong plants in pots, hamper included, and carriage paid to London, for 20s.:—

6	CHOICE HONEYSUCKLES	(sorts)
6	ROSES	,,
4	IVIES	,,
2	PASSION FLOWERS	,,
2	CLEMATIS	,,
2	JASMINUMS	,,
1	CHIMONANTHUS FRAGRANS	
1	VINCA ELEGANTISSIMA	

Post Office Orders on Castle Hedingham.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

NEW BEDDING PLANTS, now to be seen on trial at the Wellington Nursery, St. John's Wood, N.W. Strong plants of all the best new Bedding Plants of the season at reduced prices.

COLEUS ATROPURPUREUS, 1s. 6d. each.
NEW WHITE MULE PINK, 2s. 6d.
CARNATION-STRIPED MULE PINK, 2s. 6d.
LIGULARIA KŒMPFERI ARGENTEA VARIEGATA, 10s. 6d.
SOLANUM CAPSICASTRUM FOLIA VARIEGATA, 2s. 6d.
,, ARGENTEA, 2s. 6d.
FORTUNE'S seven NEW JAPAN CHRYSANTHEMUMS, strong plants to bloom, the set, 10s. 6d.
LONICERA BRACHYPODA AUREO-RETICULATA, 9s., 12s., and 18s. per dozen.
IMATOPHYLLUM MINIATUM, 5s., 12s. and 10s. 6d. each.
DEUTZIA CRENATA, double, rose-coloured flowers, 10s. 6d.
BEST BEDDING GERANIUM of the season, MADAME RUDERSDORFF, 2s. 6d, 3s. 6d.
DOUBLE CHINESE FRINGED PRIMULAS, with rich brilliant crimson flowers; also the beautiful FERN-LEAVED VARIETIES of Fringed Primulas.

See the NEW BULB CATALOGUE just published.

NEW PLANTS, CHEAP.—The Advertiser having this season purchased and proved all the New Kinds of the undermentioned Plants, which are now in bloom, he begs to offer from his extensive collection such, and only such, as are worthy of being added to the most beautiful kinds now in cultivation. Purchasers leaving the selection to W. D. may rely upon receiving real good plants of the most approved kinds:—

		s.	d.
NEW ANTIRRHINUMS	per doz.	4	0
,, FUCHSIAS	,,	6	0
,, VERBENAS	,,	4	0
,, PETUNIAS	,,	5	0
,, PENTSTEMONS	,,	6	0
,, LOBELIAS (including PAXTONIANA)	,,	3	0
,, TROPÆOLUMS	,,	6	0
,, GERANIUMS	,,	12	0
,, CHRYSANTHEMUMS	,,	6	0
,, HELIOTROPES	,,	6	0
,, LANTANAS	,,	9	0
,, MIMULUS (MACULOSUS)	,,	4	0
,, LONICERA AUREO-RETICULATA	6s., 9s., and	12	0
,, ECHIVERIA METALLICA	each	1	0
,, SOLANUM CAPSICASTRUM, fol. var.	,,	1	0
,, PERPETUAL FLOWERING PINK "OPTIMA"	,,	1	0
,, PANSY "GOOD GRACIOUS,"	per doz.	9	0
,, PAMPAS GRASS (GYNERIUM ARGENTEUM ROSEUM)	per doz.	9	0
,, KERRIA JAPONICA, fol. var	each	1	0
,, HEMEROCALLIS ELEGANS, fol. var.	,,	1	6
ŒNOTHERA MISSOURIENSIS (EVENING PRIMROSE)	per doz.	6	0

A CATALOGUE of all the NEW PLANTS, free for one stamp.

Post Office Orders on Castle Hedingham.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

TO HYACINTH GROWERS.

SORTS RECOMMENDED BY SUTTON & SONS.

The undermentioned HYACINTHS are fresh Imported Bulbs, and being all free blooming kinds, will be found most suitable either for Forcing or for Exhibition.

Price 9s. per dozen.

RED, of Various Shades.

GENERAL ZEITHEN, light red, dark stripe.
BOUQUET TENDRE, deep red, fine truss.
PANORAMA, red, dark eye, very double.
ACTEUR, deep rose, very double.
GROOT VOORST, fine blush, large truss.
REGINA VICTORIA, salmon rose, large bells, good truss.
L'UNIQUE, purple mauve, very distinct.
L'AMI DU CŒUR, dark red, moderate truss.
NORMA, delicate waxy pink, large bells.

BLUE, of Various Shades.

BRIDE of LAMMERMOOR, bright blue.
DUC DE NORMANDIE, fine dark blue.
LORD WELLINGTON, dark porcelain, good truss.
PRINCE of SAXE-WEIMER, dark purple, large flower.
BLOCKSBERG, light blue, striped, large bells.
MIGNONNE DE DRYFHOUT, large bells, porcelain.
BLEU MORESQUE, purple lilac, compact truss.
CHARLES DICKENS, porcelain blue, shaded with purple, large flower.

BLUE, of Various Shades (Continuation).

EMICUS, dark blue, with white eye.
GRANDE VIDETTE, clear porcelain, large bells, splendid truss.
NIMROD, fine light porcelain, close truss, dwarf.
PORCELAIN SCEPTRE, bright porcelain, fine truss.

WHITE, of Various Shades.

ANNA MARIA, purple eye, very double and compact.
MISS KITTY, blush white, dark eye.
PASSE VIRGO, rosy eye, large truss.
PENELOPE, large flower with pink eye.
LA TOUR D'AUVERGNE, fine pure white.
GRAND VAINQUEUR, pure white, very fine truss.
VOLTAIRE, creamy white, fine, large truss.

YELLOW, of Various Shades.

BOUQUET D'ORANGE, reddish orange, dwarf habit.
FLEUR D'OR, deep canary yellow, close truss.
HEROINE, bright citron tipped with green.

The NEW GARDEN SEEDS for EARLY SOWING will shortly be ready.

All Goods Carriage Free, except very small Parcels.

SUTTON & SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

DUTCH FLOWER ROOTS.

JAMES VEITCH,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEGS TO ANNOUNCE THAT HE HAS RECEIVED HIS

ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND,

and is pleased to say that they are in excellent condition.

CATALOGUES are now ready, and will be forwarded post free on application.

J. V. desires to impress upon those who patronise him the great advantage of giving him their orders early, as the successful Cultivation of Bulbs depends in a great measure upon their being planted early in the season.—August 29.

GLADIOLUS BRENCHLEYENSIS.

YOUELL & CO.

Beg to offer this season strong FLOWERING BULBS of the above at 3s. per dozen, 20s. per 100.

Trade price on application, and when quantities are ordered a considerable reduction will be made.

The *Gardeners' Chronicle* speaks of it thus:—"It cannot be spoken of in terms of exaggeration; the robust habit and intensely bright scarlet flowers place it at the head of all the hardy flowers of the autumn." And again, "The spikes you have sent us are magnificent. We have as yet seen nothing of the kind so handsome near London. It is undoubtedly the most showy of the whole race of Gladioli."

CATALOGUES of their extensive Collection will be forwarded on application.

ROYAL NURSERIES, GREAT YARMOUTH.

EXHIBITION OF CHOICE GLADIOLUS.

YOUELL & CO.'S

COLLECTION of the above, extending over Three Acres, is NOW in BLOOM, and will continue some weeks.

The FIRST PRIZE was awarded them at the Crystal Palace, Open to All England and the Continent.

The FIRST PRIZE was awarded to YOUELL & Co. by the Royal Horticultural Society on Wednesday, Sept. 10, for best Collection of 24 Single Spikes; and the FIRST PRIZE for the best 12 Spikes of Brenchleyensis colour.

We supply them at the following prices:—

No. 1 Collection contains 100 Bulbs, in 50 of the most choice and handsome kinds, with names		**£5**	**0 0**
No. 2 Collection contains 100 Bulbs, in 30	**ditto**	**3**	**15 0**
No. 3 Collection contains 100 Bulbs, in 25	**ditto**	**2**	**10 0**

Fine Selections will be supplied at 6s., 9s., 12s., 18s., to 30s. per dozen.

CATALOGUES will be forwarded on application.

ROYAL NURSERIES, GREAT YARMOUTH.

CALCEOLARIA, CINERARIA, PRIMULA, &c.—CALCEOLARIA, saved from carefully hybridised flowers, possessing all the recognised floral qualifications, viz., size, form, colours, and marking. Price, 1s. and 2s. 6d. per packet. CINERARIA, extra choice, 1s. per packet. PRIMULA SINENSIS FIMBRIATA, extra choice, 1s. and 2s. 6d. per packet. DRACÆNA (CORDYLINE) INDIVISA, from Mount Egmont, New Zealand; beautiful fine foliaged plant, 1s. and 2s. 6d. per packet.

Butler & McCulloch, Seed Merchants, Covent Garden Market, London, W.C.

Sow in August.

DOBSON'S PRIZE CALCEOLARIA.
The most varied and beautiful strain imaginable.
In sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.

Sow in August.

DOBSON'S PRIZE CINERARIA.
A splendid strain. Received 10 first prizes in 1862.
In sealed packets, 1s., 2s. 6d., and 5s.

Sow in August.

DOBSON'S PRIZE PRIMULA SINENSIS FIMBRIATA. From finely fringed Flowers.
In sealed packets, 1s., 2s. 6d., and 5s.
The above Seeds are unequalled for quality.

J. Dobson & Sons, Woodlands Nursery, Isleworth, W.

OUVIRANDRA BERNERIANA.—Having succeeded in raising a few Seedlings of this extremely curious and beautiful plant, we beg to offer healthy young plants of six or seven leaves at 31s. 6d. each.

O. Berneriana was exhibited at the Great Show of the Royal Horticultural Society, June 17th, and awarded the First Prize; and at the Great Show of the Royal Botanic Society, June 24th, and then also awarded the First Prize.

Thomas Jackson & Son, Nurseries, Kingston, S.W.

T. LOCKHART, Florist, North End, Fulham, S.W., begs to offer his best Collection of 100 EARLY TULIPS in 25 sorts for 25s., Carriage paid. Early DUC VAN THOLL TULIPS, per dozen, 3d.; DOUBLE TOURNESOL do., 1s.; YELLOW CROCUS, per 100, 2s. Postage Stamps taken in payment.

Rhododendrons.

Crimson, White, Purple, and Scarlet.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes.

Sunningdale Nursery, S.W. Rail.

The Gardeners' Chronicle.

SATURDAY, AUGUST 29, 1863.

MEETING FOR THE ENSUING WEEK.
Tuesday, Sept. 1 } Crystal Palace Autumn Exhibition.
Wednesday, — 2 }

If there remained any lingering doubts regarding the perfect success of the system of cool treatment as applied to Orchids, they would have been finally set at rest by the beautiful specimen of Epidendrum vitellinum exhibited by Mr. Bateman on Tuesday last at the meeting of the Floral Committee of the Horticultural Society. This specimen—which was growing in a small pot—carried four spikes, each of them bearing more flowers than either of those represented in the figure of the species published twenty years ago in the "Sertum Orchidaceum," and which, though avowedly prepared from dried specimens, was received with no small measure of incredulity by the "growers" of that day, who were unacquainted with the plant, except as it presented itself under *hot* treatment. Yet in the letter-press that accompanied the figure, the true principles for cultivating this and all other cool-country Orchids were laid down distinctly enough; and it may rank as one of the greatest marvels of horticulture that until the last few years no one has ever thought of applying them.

As Mr. Bateman, in an interesting paper that accompanied the specimen, referred to the passage in question, we may be permitted to reproduce it here, especially as what is said of Epidendrum vitellinum applies equally to hundreds of brilliant Orchids that affect the same or analogous habitats.

"Epidendrum vitellinum is undoubtedly the handsomest of its genus when it is in a state of perfect health, a condition in which no one has yet seen it in this country. Let us hope that the accompanying representation, taken from specimens gathered by Mr. Hartweg on the Cumbre of Totontepeque at 9000 feet above the sea, and in which nothing is in the smallest degree exaggerated, will rouse the possessors of it to exertion, and induce them to give it the care to which its singular merits entitle it. In what is known of its habits in its native country we possess the key to its proper management, and the explanation of any failure that has accompanied its cultivation up to the present time. It is strictly speaking an Alpine plant, rooting among Lichens, Jungermannias, and other inhabitants of a cool moist climate, and never exposed on the one hand to a higher temperature than 75°, nor on the other to one lower than 45°; but undoubtedly in its season of rest enduring so small an amount of heat as that. Indeed, the circumstance mentioned by Humboldt that at the elevation of 9000 feet on the mountains of Mexico there are found Dog Roses and Strawberries mixed with Pepperworts (Peperomia), and the Manita (Cheirostemon platanoides), indicates with some accuracy the kind of climate enjoyed by Epidendrum vitellinum." *Sertum Orchidaceum*, sub t. xlv.

Had the hint conveyed in the above passage been only taken at the time it was given, we should ere this have seen more houses dedicated to the culture of Orchids from cool countries than are now filled with such of their family as either require or endure an almost intolerable amount of heat. It is the expense and discomfort of maintaining the latter that has hitherto kept Orchid growing in comparatively few hands; but since it is at length demonstrated that some of the most beautiful of the family will flourish in an artificial climate that is easily attainable and perfectly enjoyable at all seasons of the year, Orchidomania in a new phase is certain to prevail more extensively than ever! And let nurserymen bestir themselves, and obtain for us again all the Odontoglossums, Telipogons, Masdevallias, &c., that we have hitherto lost as fast as we received them, besides a host of other glorious things from Mexico and Peru that have never been received at all.

The new report of the Acclimatisation Society is before us, and a very satisfactory report it is.

At the last Annual Meeting, the constitution of the Society was as follows:—Life Members, 24; Annual Subscribers, 48; Total, 72. At the present time, the Society consists of Life Members, 46; Annual Subscribers, 139; Total, 185. "Showing a clear increase during the year of more than 135 per cent. upon the number of subscribing Members. So considerable an addition to the ranks of the Society cannot be regarded otherwise than as a proof that its efforts are appreciated by the Public." The Report adds that the working of the Society has been carried on with due regard to economy, and that, in addition to the property in live stock now in hand, and to a sum of 150*l.* now being expended in Australia, and of an unascertained balance on account of Chinese sheep, there is a balance at the bankers of 488*l.*

What most concerns the readers of our *Chronicle* is that part of the report which relates to cultivation. Of the Chinese Yam (*Dioscorea Batatas*) little new is said. With some it succeeds, with others it fails; that is to say in suitable soil, with proper treatment, and an expert cook, it answers every expectation; in the absence of those conditions it fails, all which gardeners knew before. More interest attaches to other matters. A plant called *Brazilian Arum* (whatever that may be) is favourably spoken of.

"The Council, not having received a single unfavourable report with regard to the Arum, feels itself warranted in pronouncing this experiment to be decidedly successful. Members who have cultivated this plant should bear in mind that the mode of preparing it for use is identical with that which is used in the case of Potato Starch. They should, however, bear in mind Mr. Martin's caution as to the acridity of the juice and his directions for obviating the same."

Then we are told of a sort of Kidney Bean, called *Dolichos unguiculatus*, or Hook-podded Pea, and *Phaseolus limensis*, or Lima Bean (supplied by Governor Darling, of Jamaica), which have not been successful, "the wet and cold season of last year being obviously inimical to the success of any importation from such a climate as Jamaica."

Lastly, seeds of a sort of *North American Fescue*, called *Bunch Grass*, are ready to be distributed. Of this plant Burton (in his "City of the Saints") gives the following account:—"This invaluable provision of Nature is first found, I believe, about 50 miles westward of the meridian of Fort Laramie, and it extends to the eastern slope of the Sierra Nevada. The Festuca is a real boon to the land, which without it could hardly be traversed by cattle. It grows in clumps, as its name denotes, upon the most unlikely ground—the thirsty sand and the stony hills; in fact it thrives upon the poorest soil. In autumn, about September, when all other Grasses turn to hay, and their nutriment is washed out by the autumnal rains, the Bunch Grass, after shedding its seed, begins to put forth a green shoot within an apparently withered sheath. It remains juicy and nutritious like winter-Wheat in April under snow, and contrary to the rule of the Gramineæ, it pays the debt of Nature, drying and dying about May; yet even when in its corpse-like state, a light yellow straw, it contains abundant and highly flavoured nutriment. I brought back with me a small packet of the Bunch Grass seed, in the hope that it may be acclimatised; the sandy lands about Aldershot, for instance, would be admirably fitted for its growth. Fort Laramie is on the River Platte, North America, latitude above 42 N., longitude 105 W., and must be 4000 or 5000 feet above the sea."

—— Some reformation seems to be needed in the manner usually adopted in showing Seedling Hollyhocks, at least when the object is to secure an award which shall stamp the character of the variety as an exhibition flower. Though not an universal, it has become a very common custom to exhibit only single blooms, arranged in stands like those of the Dahlia. Now, although this plan may lead to a result approximately correct, it is evident that it does not afford a complete test of merit in the case of a flower in which the blossoms naturally grow in an aggregated manner, and must therefore be viewed as part of a compound inflorescence, not as being complete in themselves. It cannot be overlooked that while the scrutiny is confined to three or even six blossoms (these being the numbers usually required), it may be comparatively easy to find the requisite number of good samples, and yet that the rest of the spike may, either wholly or in part, be made up of more or less inferior blossoms. Even if this is not the case, and the individual flowers are of general good quality, yet as the beauty of a Hollyhock in the garden depends greatly on the nature and proportions of the flower-spike, and as the spike, or a portion of it at least, is demanded on the exhibition stage, it requires no argument to show that the character of the spike itself, in a new variety, should, before an award is made, be subject to the same scrutiny as that of the separate flowers. Now, therefore, that the varieties of Hollyhock are plentiful, and well advanced towards perfection, our floral tribunals should take care to make an imperative rule in favour of spike-showing, and at once discountenance the practice of adjudicating upon separate blooms.

It might seem an obstacle to the adoption of the plan of spike-showing, that it would occasion the destruction of a fine specimen which might be required for seeding; but the objection has not in reality the force which appears to attach to it at first sight. And for this reason. No Hollyhock ought to be put forward for honours till it has been proved, for at least one season; and of a seedling which has sufficient promise to be worth proving, the grower ought to have in a general way and barring accidents, a sufficient number of plants to be able to spare one spike without regret. But independently of all this, an exhibitor of novelties produced for the express object of winning Certificates of Merit, is laying himself out to reap an advantage, and is therefore bound to comply with any reasonable conditions that may be imposed. He has moreover no just ground of complaint if, as varieties increase and merit advances, he finds the conditions of exhibition made more and more stringent. Therefore, we say, he must not complain if required to produce his seedling Hollyhocks in their natural state: that is in the spike, instead of plucked from the stem.

The only real objection to spike-showing lies in the greater difficulty attending the removal from place to place of spikes of bloom, as compared with that of boxes of separate blooms; but as this circumstance, together with the qualm that might sometimes be felt at the sacrifice of a handsome spike, would probably have a potent influence in the direction of keeping mediocrities and inferiorities at home—which is the proper place for them—we are not inclined to attach any great weight to the objection.

BASKET GARDENS.

There is one sort of arrangement for the flower garden which belongs, I think, quite by right to ladies; for it is so well adapted to the smallest garden, gives so much room for the display of taste, and last, not least, brings their proceedings so perfectly into hand.

When, for instance, we are the unhappy owners of gardens with bad soil, or gardens with soil precisely opposed in nature to that required by the plants that we want to grow, or when there is some empty space which we desire effectively to enliven without a great deal of labour, the invention of flower-baskets or of raised beds for the plants becomes an amazing help; while the original cost of such things is very soon repaid by the saving that they effect in respect to soil and plants and labour. I have myself been always very fond of these basket beds or gigantic vases—beds, that is, edged with rustic work or with a deep stone kerbing; and now that the season is auspicious for reconsidering our plans for filling such ornaments with the various

flowers suitable, I hope to be allowed to say a few words about them.

One of the great advantages of raised beds or baskets is that they generally produce so much effect in proportion to their size. The fact of their being raised of course makes them so very much more conspicuous; and, for instance, in one of our miserable hopeless town gardens, what should there be to hinder our having a raised centre bed surrounded with stone moulding, or one even made of any tile or wood work?

I have seen banks of turf, too, produce a most charming effect of greenness and of verdure, though these are only suitable to use in country places, where turf grows really well and looks always green.

Placed upon gravel, or in a balcony, or used for the centre of a conservatory, stone or tiles are doubtless the materials that will be found most suitable on account of their cleanliness, and of their being thus so easily kept in order; but for a garden on Grass, or for a very rustic balcony, a particularly pretty kind of stand is made of sticks with the bark on, nailed to the sides of a strong board, and simply crossed—each pair being tied, nailed, or wired together in the middle. Few shapes look prettier than the plain oval, about half as wide as long, and this is well supported by two rustic posts. For all such open baskets a lining of turf, green side out, looks very nice indeed, or some people make patterns with the cones of Pines and Pinasters, which are very neat. Such things are also pretty made of slices of wood, so to say, fitted in closely and roughly polished. Paint however generally looks bad, and green paint worst of all.

My hints, then, will refer to circular or other centre beds for gardens and for conservatories, long boxes and stands for balconies or roofs, and window gardens made in boxes and supported on brackets from outside—all the following remarks applying to one just as well as to another, except that for the balconies and windows, boxes of tiles or wood are better than those of stone, and the turf, I fear, cannot be so well used in the very close parts of towns.

Two particularly charming gardens that I recollect in this style, have left on me the impression of nothing at all but Roses, Geraniums, and the scent of Heliotrope. One was in the country, and laid out on turf; the other in a town, on gravel, and with a sort of turf wall to everything. This latter occupied a sort of little terrace of a circular form, planted by the house, the windows of which opened on it; and it was near these windows that the white pillar Roses grew with such luxuriance. The centre was occupied with one immense raised bed of Tom Thumb Geranium, in most perfect keeping; and the wall which in part surrounded the charming little terrace was made of turf, filled all along the top with the most densely growing plants of the same Geranium, while smaller beds of Heliotropes gave their scent to everything. The centre bed must have been very large, quite 14 feet across; and there was not one break or inequality in the beautifully rounded surface. It had the sun all day, but in the evening, as soon as its rays were off, underwent a most thorough soaking. The other garden was on turf, and there was also a sort of bank or wall of turf, about 3 feet high, which entirely surrounded it, a most brilliant parterre being thus quite enclosed in green. The shape being square the beds here were formed in double cubes, which gave a curious air of quaintness and formality, and was a good arrangement for surrounding a square old-fashioned sun-dial, with a quantity of white Clematis trailing all about it.

Another such garden filled the site of an old pond; but there the baskets were only accessories. In all such places they are, however particularly pretty, and are very suitably formed of split posts driven into the ground close to one another, so as to form a sort of rough rustic wall.

For all these kinds of baskets or raised beds it is of immense importance to choose the freely growing and profusely flowering plants, such as will rapidly fill and overflow the baskets. Even such things as Nasturtiums, Canary-flowers, Convolvuluses, Calystegias, or Cobœas are excessively useful here. Finer plants can readily be put in, but we must have something to give graceful leafage, and all those just-named can well be brought on planted in pots in shelter, till they have grown large enough to make some display. The choice of plants for these purposes indeed is very great, for while many kinds flower much better for having their roots in some degree confined by the pots they grow in, those which do need more room can also root down readily into the bed of soil.

In the case of plants which suffer from long-continued dryness, it is a most easy and useful plan to lay at the bottom of the bed or basket, a thick layer of moss, in which most roots luxuriate, and whence they can draw much moisture. The bottom of the bed, if it is not raised, may be lined with bricks or stones, or coal ashes rammed hard, to prevent the nuisance of earth-worms getting in. This bed will require to be periodically filled and emptied, just as in the case of a basket. The soil taken out will often do to use again in another place when well aired and turned; but when the quantity is reduced to that which will simply fill even a good large bed, the expense attending an entire change is made extremely trifling. I have heard that sand and cocoa-fibre mixed is a good kind of compost for beds of this sort; but this I cannot answer for. The best soil I ever knew for all kinds of flowers was got from the bottom of a deep sort of copse or ash bed, where leaves and turf and roots must have for long accumulated. It was sought for American plants, but Roses and Geraniums throve in it also wonderfully. The soil, however, can be varied infinitely. *E. A. M.*

(To be continued.)

THE CULTIVATION OF TROPICAL ORCHIDS IN THE OPEN AIR IN SUMMER.

By M. François Josst, Head Gardener at Tetschen in Bohemia.

The following mode of cultivating Orchids has been attended with considerable success for several years; and as no account of any similar treatment has, so far as I know, appeared in print, I am induced to publish it.

I have been now for more than 22 years head gardener to Count Thun Hohenstein, at Tetschen. When I first entered his service I found 40 tropical Orchids cultivated in his garden. There are now 662 species or varieties in cultivation there, forming the richest collection in Austria. The success of my plan is demonstrated by the fact that from 40 to 50 species or varieties are in flower in every month of the year.

In 1852 I observed that some of the species did not flower well; and it then occurred to me to place them in the open air in the early part of July. The plants which I put out were Brasavola glauca, Cymbidium marginatum, Cypripedium insigne, Dendrobium Prinzianum, D. speciosum, and Lycaste Skinneri. They grew perfectly, although in the morning the temperature was sometimes as low as 5° Reaumur, (43° Fahr.) In the daytime the heat in the shade was often as high as 30° Reaumur, (99½° Fahr.)

Tetschen is subject to frequent changes of temperature; it is surrounded by mountains, and is in a valley along which the Elbe flows after receiving all the waters of Bohemia.

I took the plants in at the end of August. After a short time flower-buds made their appearance, and a little while afterwards flowers followed in perfection.

This good result led me to try the same experiment again on a larger scale; and I have since repeated it every year, until I am now in the habit of putting 75 species or varieties out into the air for three months in the year, viz., June, July, and August.

What I do is this: I select a half-shady place, where I put some trunks of trees (Oaks), on which I place my baskets of Orchids. Between the trunks I plant Ferns, some Philodendron pertusum, Tradescantia zebrina and viridis, and Cissus marmorea, so as to produce a pretty effect. In order to protect the plants against the scorching rays of the sun and very heavy rains I cover the spot with canvas, but I endeavour to avoid too much shade, for I find that plants which are shaded too much never flower so well as others. I water in the ordinary way employed in hothouses. This year the temperature has several times fallen as low as 4° Reaumur, (41° Fahr.), but the plants have not in the least suffered; they are even more vigorous; several of them actually flowered.

These facts prove that many gardeners keep their Orchids and other exotics too hot. All plants require some period of rest in order to vegetate well.

The following is a list of the Orchids which I treated in the way above described:—

Barkeria spectabilis, Batem.
Brasavola glauca, Lindl.
Calanthe striata, R. Br.
Cattleya citrina, Lindl.
Cœlia macrostachya, Lindl.
Cypripedium insigne, Wall.
,, ,, var. puberulum, Rchb. fil.
Dendrobium calamiforme, Lodd.
,, Jenkinsii, Wall.
,, Pringianum, Bidw.
,, speciosum, Sm.
Epidendrum Candollei, Lindl.
,, cochleatum, L.
,, diffusum, Sw.
,, falcatum, Lindl.
,, radiatum, Lindl.
,, selligerum, Batem.
,, Skinneri, Batem.
,, Stamfordianum, Batem.
,, varicosum, Batem.
,, virgatum, Lindl.
,, vitellinum, Lindl.
Gongora galeata, Rchb. fil.
,, Batemani, Rchb. fil.
,, luteola, Rchb. fil.
Lælia acuminata, Lindl.
,, albida, Batem.
,, anceps, Lindl.
,, ,, var. Barkeriana, Hort.
,, ,, var. superba, Hort.
,, autumnalis, Lindl.
,, candida, Hort.
,, furfuracea, Lindl.
,, Galeottiana, Morren.
Lycaste majalis, Lindl.
,, rubescens, Lodd.
Lycaste superbiens, Lindl.
,, violacea, Rchb. fil.
,, aromatica, Lindl.
,, Colleyi, Lindl.
,, consobrina, Rchb. fil.
,, cruenta, Lindl.
,, Skinneri, Lindl.
,, ,, var. alba, Hort.
,, ,, var. latimaculata, Hort.
,, ,, var. leucochila, Hort
,, ,, var. picta, Hort.
Maxillaria cucullata, Lindl.
,, tenuifolia, Lindl.
Odontoglossum bictoniense, Lindl.
,, citrosmum, Lindl.
,, Cervantesii, Llave.
,, grande, Lindl.
,, Insleayii, Lindl.
,, læve, Lindl.
,, nebulosum, Lindl.
,, pulchellum, Batem.
,, ,, var. grandiflorum, Hort.
Oncidium bicalloseum, Lindl.
,, filipes, Lindl.
,, leucochilum, Batem.
,, microchilum, Batem.
,, sphacelatum, Lindl.
,, suave, Lindl.
Sobralia decora, Batem.
,, dichotoma, R. et. Pav.
,, Liliastrum, Lindl.
,, macrantha, Lindl.
,, violacea, Lindl.
Stanhopea connata, Rchb. fil.
Trichopilia tortilis, Lindl.
,, ,, var. pallida, Hort.

—*Journal de Gand.*

GARDEN LAW.—No. VI.

MALICIOUS INJURIES TO PROPERTY.

Fortunately, malicious injuries to gardens are not very frequent; but it is not the less desirable that people should know that such injuries cannot be committed with impunity, and that those who do commit them are liable to be severely punished. The law relating to this subject is contained in the Act of Parliament of the 24th and 25th Vict. c. 97, sections 16 to 24, which we subjoin. It will be observed that the offences more particularly specified are 1, setting fire to crops, stacks, &c. (s. 16—18); 2, destroying hop-binds (s. 19); 3, destroying trees and shrubs (s. 20—22); and 4, destroying other plants (s. 23—24). It will be further observed, that in the last two cases a distinction is drawn between trees, &c., in gardens, and those in open fields; it being a more serious offence maliciously to injure plants in the former than in the latter. The punishment for these offences is sufficiently severe, being in all cases of a serious nature, penal servitude, or imprisonment with or without hard labour, and with or without solitary confinement, and with or without flogging, as the court may direct.

The enactments referred to are as follows:—They are given *verbatim*, as it is extremely difficult, not to say wholly impracticable, to abridge them satisfactorily.

§ 16. *Setting fire to crops, &c.*— Whosoever shall unlawfully and maliciously set fire to any crop of hay, Grass, corn, grain, or Pulse, or of any cultivated vegetable produce whether standing or cut down, or to any part of any wood, coppice, or plantation of trees, or to any Heath, Gorse, Furze, or Fern, wheresoever the same may be growing, shall be guilty of felony, and being convicted thereof shall be liable at the discretion of the Court to be kept in penal servitude for any term not exceeding 14 years and not less that three years, or to be imprisoned for any term not exceeding two years, with or without hard labour, and with or without solitary confinement, and if a male under the age of 16 years, with or without whipping.

§ 17. *Setting fire to stacks.*—Whosoever shall unlawfully and maliciously set fire to any stack of corn, grain, Pulse, Tares, hay, straw, haulm, stubble, or of any cultivated vegetable produce, or of Furze, Gorse, Heath, Fern, turf, peat, coals, charcoal, wood, or bark, or to any steer of wood or bark, shall be guilty of felony, and being convicted thereof, shall be liable at the discretion of the Court to be kept in penal servitude for life or for any term not less than three years, or to be imprisoned for any term not exceeding two years, with or without hard labour, and with or without solitary confinement, and if a male under the age of 16 years, with or without whipping.

§ 18. *Attempting to set fire.*—Whosoever shall unlawfully and maliciously by any overt act attempt to set fire to any such matter or thing as in either of the last two preceding sections mentioned, under such circumstances that if the same were thereby set fire to the offender would be under either of such sections guilty of felony, shall be guilty of felony, and being convicted therof shall be liable at the discretion of the Court to be kept in penal servitude for any term not exceeding seven, and not less than three years, or to be imprisoned for any term not exceeding two years, with or without hard labour, and with or without solitary confinement, and if a male under the age of 16 years, with or without whipping.

§ 19. *Destroying Hop-binds.*—Whosoever shall unlawfully and maliciously cut or otherwise destroy any Hop-binds growing on poles in any plantation of Hops shall be guilty of felony, and being convicted thereof shall be liable at the discretion of the Court to be kept in penal servitude for any term not exceeding 14, and not less than three years—or to be imprisoned for any term not exceeding two years with or without hard labour, and with or without solitary confinement, and if a male under the age of 16 years, with or without whipping.

§ 20. *Destroying trees, &c., in gardens.*—Whosoever shall unlawfully and maliciously cut, break, bark, root up, or otherwise destroy or damage the whole or any part of any tree, sapling, or shrub, or any underwood growing in any park, pleasure-ground, orchard, or avenue, or in any ground adjoining or belonging to any dwelling house (in case the amount of the injury done shall exceed the sum of 1*l.*), shall be guilty of felony, and being convicted thereof shall be liable at the discretion of the Court to be kept in penal servitude for the term of three years, or to be imprisoned for any term not exceeding two years, with or without hard labour, and with or without solitary confinement, and if a male under the age of 16 years, with or without whipping.

§ 21. *Destroying trees, &c., elsewhere.*—Whosoever shall unlawfully and maliciously cut, break, bark, root up, or otherwise destroy or damage the whole or any part of any tree, sapling, or shrub, or any underwood growing elsewhere than in any park, pleasure ground, garden, orchard, or avenue, or in any ground adjoining to or belonging to any dwelling house (in case the amount of injury done shall exceed the sum of 5*l.*), shall be guilty of felony, and being convicted thereof, shall be liable at the discretion of the Court to be kept in penal servitude for the term of three years, or to be imprisoned for any term not exceeding two years, with or without hard labour, and with or without solitary confinement, and if a male under the age of 16 years, with or without whipping.

§ 22. *Other injuries to trees, &c.*—Whosoever shall unlawfully and maliciously cut, break, bark, root up, or otherwise destroy or damage the whole or any part of any tree, sapling, or shrub, or any underwood wheresoever the same may be growing, the injury done being

to the amount of 1s. at the least, shall on conviction thereof before a justice of the peace at the discretion of the justice either be committed to the common gaol or house of correction, there to be imprisoned only, or to be imprisoned and kept to hard labour for any term not exceeding three months or else shall forfeit and pay, over and above the amount of the injury done, such sum of money not exceeding 5*l.*, as to the justice shall seem meet; and whosoever having been convicted of any such offence either against this or any former Act of Parliament shall afterwards commit any of the said offences in this section before mentioned, and shall be convicted thereof in like manner, shall for such second offence be committed to the common gaol or house of correction, there to be kept to hard labour for such term, not exceeding 12 months, as the convicting justice shall think fit; and whosoever, having been twice convicted of any such offence (whether both or either of such convictions shall have taken place before or after the passing of this Act), shall afterwards commit any of the said offences in this section before mentioned, shall be guilty of a misdemeanour, and being convicted thereof shall be liable at the discretion of the Court to be imprisoned for any term not exceeding two years, with or without hard labour, and with or without solitary confinement, and if a male under the age of 16 years, with or without whipping.

§ 23. *Damaging other plants in gardens, &c.*—Whosoever shall unlawfully and maliciously destroy, or damage with intent to destroy, any plant, root, fruit, or vegetable production growing in any garden, orchard, nursery ground, hothouse, greenhouse, or conservatory, shall, on conviction thereof before a justice of the peace, at the discretion of the justice, either be committed to the common gaol or house of correction, there to be imprisoned only, or to be imprisoned and kept to hard labour for any term not exceeding six months, or else shall forfeit and pay over and above the injury done such sum of money not exceeding 20*l.* as to the justice shall seem meet; and whosoever having been convicted of any such offence, either against this or any former Act of Parliament, shall afterwards commit any of the said offences in this section before mentioned, shall be guilty of felony, and being convicted thereof, shall be liable at the discretion of the Court to be imprisoned for any term not exceeding two years, with or without hard labour, and with or without solitary confinement, and if a male under the age of 16 years, with or without whipping.

§ 24. *Damaging plants grown for food, &c., not in gardens, &c.* — Whosoever shall unlawfully and maliciously destroy, or damage with intent to destroy, any cultivated root or plant used for the food of man or beast, or for medicine, or for distilling, or for dyeing, or for or in the course of any manufacture, and growing in any land, open or enclosed, not being a garden, orchard or nursery ground, shall on conviction thereof before a justice of the peace, at the discretion of the justice, either be committed to the common gaol or house of correction, there to be imprisoned only, or to be imprisoned and kept to hard labour for any term not exceeding one month, or else shall forfeit and pay, over and above the amount of the injury done, such sum of money not exceeding 20*s.*, as to the justice shall seem meet, and in default of payment, together with the costs, if ordered, shall be committed as aforesaid for any term not exceeding one month, unless payment be sooner made; and whosoever, having been convicted of any such offence, either against this or any former Act of Parliament, shall afterwards commit any of the said offences in this section before mentioned, and shall be convicted thereof in like manner, shall be committed to the common gaol or house of correction, there to be kept to hard labour for such term not exceeding six months, as the convicting justice shall think fit. *Lincoln's Inn.*

PINUS ARISTATA, *Engelmann*:

A NEW NORTH AMERICAN CONIFER.

[We find the following in the new number of the Transactions of the Academy of Sciences of St. Louis, for which we are indebted to our friend, Dr. Engelmann.]

During his first botanical expedition to the Pike's Peak region, Dr. Parry, in searching for James' Pinus flexilis, found, instead of one, two five-leaved Pines, which evidently had been confounded by Dr. James; thus the discrepancies of his description are fully explained. His general description of the tree and the edible seeds belong to what we now name P. flexilis, while the "erect cones" (smaller than those of P. rigida) "with unarmed scales" must be either very imperfect young ones of this, or old ones of the new species, which had lost their awns.

Pinus aristata, spec. nov.: arbor mediocris seu humilis; foliis dense congestis quinis uncialibus integris acutiusculis ex axillis perularum per plures annos persistentium, squamis vaginantibus obtusis mox patulis squarrosis demum totis deciduis; amentis masculis ovatis involucro 4-phyllo munitis in axilla bracteæ ovatæ acuminatæ persistentis stipitatis, antherarum crista ad umbonem parvulum singulum vel binos reducta; amentis femineis erectis herbaceo-echinatis atro-purpureis; strobilis ovatis horizontalibus violaceo-fuscis, squamarum elongato-cuneatarum apophysi rhombea parum tumescente transverse carinata medio in umbone parvo breviter aristata; seminibus ala ipsa oblique obovato duplo minoribus.

On alpine heights, between 9200 and 11,800 or 12,000 feet high, on Pike's Peak and the high mountains of the Snowy Range, Dr. Parry, 1861 and 1862; Messrs. Hall and Harbour, (Coll. No. 530) 1862. Also on the heights of the Coochetopa Pass, nearly S.W. of Pike's Peak, (altitude over 10,000 feet), where Captain Gunnison discovered in 1853 what seems to be this species without fruit; (see Pac. R. R. Rep. II., p. 130); the leaves which I could compare are those of our plant. Fl. end of June and beginning of July. Flourishing best in the higher elevations and never descending below 9000 feet, in its lower ranges not ripening its fruits as well as on the bleak heights, this truly alpine species—in that respect our representative of the European P. Pumilio—characterises the highest belt of timber on the peaks of Colorado. On sheltered slopes a tree 40 or 50 feet high and 1-2 feet in diameter, it becomes a straggling bush, prostrate, and almost creeping, on the bleak summits of the high ridges. The bark is thin and scaly, even in older trees not more than 3 or 4 lines thick, of a light grayish-brown colour; that of the younger branches smooth, with many large vesicles containing a clear fluid balsam, which remains between the layers of the old bark. Wood white, tough, not very resinous: of extremely slow growth, so that a small smooth-barked stem of 13 lines diameter exhibited about 50 annual rings, all between $\frac{1}{8}$ and $\frac{1}{30}$ line wide, the smaller ones consisting of 3-6, the widest ones of 15-25 layers of cells, each cell 0.007 line in diameter. A tree of 2 feet thickness would at that rate indicate an age of over 1000 years; but the annual rings of larger trees growing in favoured situations are wider, and if a specimen sent by Dr. Parry is not mislabelled, sometimes as wide as $\frac{1}{3}$ line, giving the largest trees a probable age of 500-800 years. Branches spreading, very often many of them twisted, stunted, or dead; the larger branches and the stem itself frequently covered with young branches or shoots, which seem to keep life in the old trunk. Leaves crowded from the axils of ovate, acuminate, brittle, at first light brown scales, which, persisting longer than the leaves themselves, cover the branches with their rough blackish remains; leaves light green on both sides without white dots, mostly with numerous exsudations of white resin, usually curved upwards, entire on edges and keel, abruptly acutish, stouter in fruit bearing, more slender in such trees as produce principally male flowers, in very robust specimens 1¼ and rarely even 1½, usually about 1 inch long; on sterile branches straight and horizontal, "giving the branches the appearance of so many bottle brushes." The vaginæ consist of 7-8 oblong scales with fringed margins, adpressed and forming a sheath 3-4 lines long on the young leaf, soon spreading and squarrose, falling off in the second or third year. Many lanceolate acuminate scales, perulæ, sheathe the lower part of the young shoots; shorter and broader bracts, bearing in their axils the male aments, follow next. The aments together form a very short spike, or rather head, 6 or 8 lines long; often these heads persist on the axis for two or even three years with a few bunches of leaves above each one, giving the appearance of a leafy spike 1 or 1½ inches long! I have seen branches with 16 spaces where male flowers once grew, proving that leaves were persistent for 16 years—a fact unheard of among Pines, whose leaves are said to endure generally only three years. The stipitate oval ament 3-4 l. long, has a proper involucrum of four oblong scales or bracts of equal length. It seems that the involucrum of the male ament and the form of the ament and of the anthers, together with the fruit and seed, offer characters of importance for the distinction and arrangement of species, hitherto neglected, probably because living nature has not been studied as diligently as the dried mummies of the herbaria, and these contain so few good flowering specimens of Pines; the number of leaves, so much relied on, is of secondary consideration, and is often calculated to mislead, separating the most natural affinities, such as our Cembroid Nut Pines with 1-5 leaves, or the Pinecid Pines (P. Pinea, P. Sabiniana, P. Torreyana) with 2-5 leaves. P. sylvestris has an oval ament 3 l. long, with an involucrum of 3 equal lance-linear acute scales in the axil of a lanceolate recurved bract, which is deciduous with the ament; anther with a short nearly entire crista. P. austriaca has a cylindric curved ament 1½ inches long, with an involucrum of about 10 very unequal and almost distichous oval scales, in the axil of a linear-lanceolate recurved persistent bract; anther, with a semicircular entire crista, large enough to entirely hide the body of the anther in the yet closed ament, and give the latter the appearance of a young cone. Crista of the anther scarcely indicated by a knob, smaller than in any Pine examined by me. Female aments single, or two together, near the end of the young shoot, bristling with the lanceolate aristate erect scales, of a purple-black color. Cones oval, obtuse, 2¼-2½ inches long, about half as much in diameter, often covered with resin as if varnished; their purplish-brown or blackish color is found also in a little group of alpine Pines of the Popocatepetl with 3-5 leaves, discovered by Roezl. Bracts, as in all Pines, not obliterated ("evanidæ") as is usually stated, but much altered, and rather indistinct; more or less thickened and partly connate with the base of the scale; in our species, only the upper obtuse mucronate part membranaceous and free; scales 10-15 l. long and 4-6 l. wide at their exposed part; transverse ridge of the rhombic rather flat protuberance of the scale very conspicuous; the slender mucro or awn, from the small rhombic central knob, 2-3 l. long, curved upwards, at last tortuous and easily broken off, has suggested the name for the species. Seed nearly 3 l. long, with the obovate wing 6-7 l. long; embryo in all the seeds examined by me with 7 short cotyledons.

Systematically, this species belongs to Endlicher's section Pseudostrobus, which comprises many Mexican, some Central American, and a single West Indian species; it is its only representative in the territory of the United States.

Home Correspondence.

Regent's Park.—The article at p. 771 on this park contains much good sense, though it must not be forgotten that the trees Mr. Cowper cut down were long condemned. During the time Lord John Manners was First Commissioner, these trees were examined by very competent persons, and it was concluded that the only chance of saving them was by digging the earth and renewing the soil around them. This, however, failed in restoring them to vitality. Whether Mr. Cowper would have done better in replanting the avenue is a question of taste, but I do not think that the Italian garden, as a means of immediate decoration, is ill designed or ill placed. I perfectly agree, however, that it would be very improper to fill the parks up with gardening of this description. In some spots, where trees and sward cannot conveniently grow, flower-beds well laid out are in good taste. The flower beds in Hyde Park are admirable, and those in Battersea Park still better. But the principal object should be to retain the character of a park, and to depend for effect on judicious planting, well massed, which in skilful hands may be made to give variety, distance, and apparent change of level. Kensington Gardens are beautiful, and owe their beauty to these principles. In the Regent's Park there is a large surface, presenting in hot weather so bald and bare a look that it might be mistaken by one of the neighbouring camels for its native plain. It might be made to give a very different effect by the judicious arrangement of trees and shrubs, breaking them with glades, or grouping them against the sky line, where the nature of the ground permitted it. Shady avenues might be made for those who walk; spaces, surrounded by cool trees, left for the assembling of a crowd, and perhaps a soft road made for those who ride. Another advantage of the plan I propose, would be, that distinct means of communication might be made from one part of the park to another. I do not mean for carriages, but for those on foot. Nothing can be at present more unsightly than the paths which cross the parks. Each year they assume a different form and size. The gravel struggles into the Grass, advancing like a wave on the sea shore in every variety of indentation, though all this might be avoided by a little judicious control. It would be also very desirable that the police and cleaning of the parks should be better. I am told that as evening closes in most of the parks present very disgraceful scenes, while the litter of dirty paper, besides other unsavoury relics, is little pleasing to the eye. The truth is, the park constables have both too much and too little to do. They should be replaced, with the exception of those who have lodges, by working gardeners, and the parks placed under the control of the metropolitan police. England has been long remarkable, not only for the beauty of its gardening, but for the taste which presided equally over the villa pleasure ground and the lordly demesne. We have been in the habit of expressing the greatest admiration for our parks. Let it be then a national feeling which provides for their utmost embellishment, their due care, and renders them neither the privilege of a few nor the riot of the many. *B. M.*

Vermin and Traps.—It is a common observation that cases of brutality to horses, asses, and other large quadrupeds, are much less frequently witnessed now than they were some time ago. This is no doubt owing to the general increase of humanity, and to these animals being now under the protection of the law. An English gentleman would not himself give a moment's unnecessary pain to any living creature, and would instinctively exert himself to put an end to any suffering before his eyes; yet it is a fact that every game preserver in this country sanctions a system which consigns thousands of animals to acute agony, probably of eight or ten hours duration, before it is ended by death. I allude to the setting of steel traps for catching vermin. The iron teeth shut together with so strong a spring, that a pencil which I inserted was cracked and deeply indented by the violence of the blow. The grip must be close enough not to allow of the escape of a small animal, such as a stoat or a magpie; and therefore when a cat or a rabbit is caught, the limb is cut to the bone and crushed. A humane game-keeper said to me, "I know what they must feel, as I have had my finger caught." The smaller animals are often so fortunate as to be killed at once. If we attempt to realise the sufferings of a cat, or other animal when caught, we must fancy what it would be to have a limb crushed during a whole long night, between the iron teeth of a trap, and with the agony increased by constant attempts to escape. Few men could endure to watch for five minutes, an animal struggling in a trap with a crushed and torn limb; yet on all the well-preserved estates throughout the kingdom, animals thus linger every night; and where game keepers are not humane,

or have grown callous to the suffering constantly passing under their eyes, they have been known by an eye-witness to leave the traps unvisited for 24 or even 36 hours. Such neglect as this is no doubt rare; but traps are often forgotten; and there are few game keepers who will leave their beds on a cold winter's morning, one hour earlier, to put an end to the pain of an animal which is safely in their power. I subjoin the account of the appearance of a rabbit caught in a trap, given by a gentleman, who, last summer witnessed the painful sight many times. "I know of no sight more sorrowful than that of these unoffending animals as they are seen in the torture grip of these traps. They sit drawn up into a little heap, as if collecting all their force of endurance to support the agony; some sit in a half torpid state induced by intense suffering. Most young ones are found dead after some hours of it, but others as you approach, start up, struggle violently to escape, and shriek pitiably, from terror and the pangs occasioned by their struggles." We naturally feel more compassion for a timid and harmless animal, such as a rabbit, than for vermin, but the actual agony must be the same in all cases. It is scarcely possible to exaggerate the suffering thus endured from fear, from acute pain, maddened by thirst, and by vain attempts to escape. Bull baiting and cock fighting have rightly been put down by law; I hope it may never be said that the members of the British Parliament will not make laws to protect animals if such laws should in any way interfere with their own sports. Some who reflect upon this subject for the first time will wonder how such cruelty can have been permitted to continue in these days of civilisation; and no doubt if men of education saw with their own eyes what takes place under their sanction, the system would have been put an end to long ago. We shall be told that setting steel traps is the only way to preserve game, but we cannot believe that Englishmen when their attention is once drawn to the case, will let even this motive weigh against so fearful an amount of cruelty. The writer of these remarks will be grateful for any suggestions, addressed to A. B., Mr. Strong, Printer, Bromley, Kent. *C. D.*

Value of Prizes.—In a late Number you said that "exhibitors are surely not overpaid by the prizes they gain." This is a dangerous subject to touch on, but as the amount of prizes often affects the vitality of small country associations, by making exhibitors hesitate about showing if a large amount of money is not given away, I venture to ask if you had not omitted from your mind, at the moment of writing the article, the commercial benefit derived by exhibitors even in small districts. Surely a fine display of plants to all the plant purchasers, is the very best advertisement a seller could wish for, and worth all the trouble and expense of exhibiting. *An Hon. Officer.* [Yes: but the advertisement alone would not be found to satisfy him; and besides, all exhibitors are not sellers.]

Orchard-house Peaches.—The question as to whether Peaches produced in Orchard houses are as sweet and highly-flavoured as those from the open wall, is one of those which admit of various answers, depending on many combinations of circumstances. Generally speaking, Peaches ripened in Orchard-houses are decidedly not equal in quality to those from a good south wall. When the season is favourable, the fruit cannot under any circumstances attain greater excellence than against a good high south wall. Near London, and in the southern parts of England generally, so much produce and so much flavour cannot be obtained from an equal space, by any other means, as can be obtained from walls. The Peach requires for its perfection the direct light and rays of the sun in front, and the reflection of these by the wall at back. Grown over moist soil, the under side of the fruit retains a greenish hue, which becomes remarkably conspicuous when contrasted side by side with a fruit of the same sort from against a wall. Then there is the difference between the direct light of the sun's rays, and the same transmitted through glass, and consequently weakened by a large amount of reflection, and paralysed by refraction; the latter, it is well known, manifesting itself greater in proportion to the distance which the rays travel after passing through the glass; and if this be far, their energy is next to moonshine. I do not say that we may as well grow Cucumbers by moonlight only, as to give flavour to a Peach situated a long way from the glass; but the two processes are somewhat akin. At all events we may build orchard houses both wide and high, and we may fill them with trees in pots from bottom to top; but all of that space which is available for flavour is, say not more than about 2 feet from the glass. Imagine then a plane to extend parallel to that of the glass and 2 feet from it; between the two we may obtain a pretty good approximation to the flavour of wall fruit, and better than that of fruit produced against the open wall in bad seasons and unfavourable climates and situations. Under such circumstances, and likewise in the case of persons who cannot command wall space, orchard houses, and trees in pots, may be made to afford a supply of fruit of good flavour; but, I beg to repeat, only near the light. *R. Thompson.*

Cinchona.—With all deference, *ch* in Spanish is sounded as in church; and if Cinchona is a Spanish word it would be pronounced Sinchona in that language. If the *ch* is pronounced *k*, the word should be Italian, and in that case the initial *c* ought to be pronounced *ch*, making the word Chincona. *Exul.*

Societies.

Royal Horticultural: *Aug.* 25 (*Floral Committee*).—A paper from J. Bateman, Esq., Biddulph Grange, near Congelton, was read. Mr. Bateman also furnished, in illustration of his paper, an extremely pretty specimen of Epidendrum vitellinum as an example of what can be done with that plant treated on what he terms the cool system of management, of which some account will be found in another column. It had four flower-spikes on it, each containing 10 or more brilliant orange blossoms, which were stated to have been in beauty for nearly three months, and yet most of the flowers were as perfectly fresh and high-coloured as when first developed. The leaves, too, indicated the most robust health, and altogether the plant well deserved the Special Certificate which was awarded it. It was grown at Knypersley by Mr. Sherratt, Mr. Bateman's gardener there. From Messrs. Backhouse of York came a potful of Cyrtanthus sanguineus, for which a First-class Certificate was awarded; and a special Certificate was given to Mr. Bull for beautiful examples of the charming variety of Vallota purpurea called eximia, which was said to be the same as that called major, a kind with a pale centre, which set off the large brilliant scarlet flowers to much advantage. From Messrs. Veitch came the beautiful Lilium neilgherrense, a kind with large sweet-scented flowers of a creamy white colour, suffused more or less with yellow, and very much in the way of Lilium longiflorum. Two other Lilies from Japan, apparently L. lancifolium album, were also shown by Messrs. Veitch. From Messrs. E. G. Henderson came plants of a pretty tricolor-leaved scarlet-flowered bedding Pelargonium named Mrs. Benyon, for which a Certificate was awarded. Among Dahlias The Bride, from Mr. Legge, received a Second-class Certificate; it is white suffused and tipped with violet. A similar award was also made to Formidable, a red-coloured kind tipped with white, from the same grower, who also sent Nonesuch, an orange and red variety, to which a Certificate was also given. Mr. Keynes had a Second-class Certificate for Anna Keynes, a white Dahlia with lilac tip, and a similar award was made to the same grower for Surety, a buff tipped with red. Earl of Pembroke, purple, from Mr. Keynes, received a First-class Certificate, as did also a fine yellow called Fanny Purchase; and finally Mr. Keynes received a Second-class Certificate for Regularity, a carnation-striped white. Besides these he also showed other varieties of Dahlias well worthy of notice. Coronet and Symmetry from Mr. Wheeler were also good dark Dahlias. Among Hollyhocks The Queen, from Messrs. Downie, Laird & Laing, received a Second-class Certificate; and to Acme, a beautiful peach-coloured kind, from Mr. Chater, a First-class Certificate was given; Volunteer, a reddish brown sort, from Mr. Porter, had a Second-class Certificate, as had also Willingham Defiance, a rosy peach-coloured kind, shown by the Rev. E. Hawke.

Aug. 25 (*Fruit Committee*).—Mr. Melville sent from Dalmeney Park beautiful bunches of Champion Muscat Grape, a kind large both in bunch and berry, possessing a fine Muscat flavour, and in the opinion of many one of the best Grapes in the world. It was stated that it ripens perfectly along with the Black Hamburgh, which it resembles. A seedling black Grape, not so good as the Black Hamburgh, came from Mr. Mathison, Codrington. Muscat of Lunel was shown by Mr. Hadwen, Fairfield, near Manchester; and from Mr. Dick, gr. to Lord Vernon, came two Derbyshire varieties of Grape without name. The Cricket Nectarine and a yellow-fleshed Peach were contributed by Mr. Pearse, of Yeovil, and a hybrid red-fleshed Melon of bad quality came from Mr. Cooling, of Derby. From Mr. Beasley, Twyford, came good examples of Green Gage Plums from a west aspect; and a yellow Apple, tinged with red on the sunny side, stated to have been raised from the Cornish Gilliflower, was shown by Mr. Gidley, of Exeter. From Mr. Chater also came Apples, the produce of last year's crop, still in a good state of preservation. Finally the "Camote," a Lima Pole Bean, was exhibited by Mr. Kendall, of East Sheen. It is said to produce tuberous roots of large size, which are used as a table vegetable in Peru. From the plant shown, however, no opinion of its value as an esculent could be formed.

Royal Horticultural of Dublin: *Aug.* 20.—The annual autumnal exhibition of the Society was held at Salthill near Dublin. His Excellency the Lord Lieutenant honoured the fête with his presence, and there was a large attendance of the nobility and gentry.

The exhibition was one of great excellence for an autumn show, nothing inferior in point of quality to any seen in England. The chief feature of the show was a superb display of fine fruit, the most noticeable of which were some exceedingly fine Smooth-leaved Cayenne Pines, sent by Mr. Davies, gr. to Sir Charles Coote, Bart., and some remarkably fine Black Hamburgh and Muscat Gaapes, exhibited by Mr. Roberts, gr. to the Hon. A. Bury, Charleville. Three bunches of Black Hamburgh, which took the 1st prize, weighed 10 lb., and a single bunch exhibited in the class for heaviest single bunch, weighed 4 lb. These had been grown on Vines four years old planted outside the house. The Muscats were also very large in bunch and berry, but not ripe enough, or they would have taken the 1st prize. As it was, Mr. Roberts was obliged to yield the honour to Mr. Walsh, gr. to John D'Arcy, Esq., whose Muscats were very fine and well ripened; and Mr. Smith, gr. to his Excellency the Lord Lieutenant, came in third with some fine fruit. Some very fine Golden Hamburghs came from the Lord Lieutenant's Garden, and the Buckland Sweetwater, from the Hon. A. Bury, were greatly admired, both bunch and berry being large and of a deep amber colour. There can be no doubt about this being a first-class Grape. Three fine bunches of Muscat Hamburgh Grapes from Mr. Burns, gr. to J. L. W. Naper, Esq., were conspicuous amongst a quantity of Black Grapes. Fleming's Trentham Hybrid took the 1st prize in the White or Green-fleshed section of Melons, and was exhibited by Herbert Mander, Esq.; the Lord Chancellor's gardener, Mr. Byers, taking the 2d prize with Seymour's Golden Perfection. Turner's Scarlet Gem took the lead in the class for Scarlet-flesh kinds.

Peaches were both numerous and good, the 1st prize being awarded to Mr. Roberts, gr. to the Hon. A. Bury, for Royal George; and the 2d prize to Mr. Smith, gr. to the Lord-Lieutenant, for Bellegarde. Apricots were numerous, and Mr. Hynes, gr. to Sir Robert Shaw, Bart., was deservedly 1st. There was a great display of Plums, and amongst the dark kinds was a dish of remarkably fine Victorias exhibited by J. W. Lane, Esq.; Reine Claude de Bavay took the 2d prize, and Angelina Burdett, 3d, both fine and useful kinds.

There were Green Gages in abundance, and very fine Cherries from Thomas Thompson, Esq., and the Chief Secretary, who also sent, not for competition, some fine fruit of the Granadilla.

The display of Cut Flowers was excellent, especially of Gladiolus. These are extensively cultivated about Dublin, and on this occasion there was a remarkably fine display. Messrs. Dickson, Hogg, & Robertson, the Seedsmen, of Dublin, presented a Silver Cup, value 5*l*., for the best 24 spikes of Gladioli, which was won by J. F. Lombard, Esq., with a stand of well-coloured, stout, and fine flowers. Mr. Lombard does not shade his plants, but has them secured from injury by wind, and applies the syringe repeatedly until they are in flower. This stand of flowers were in the best possible condition, and consisted of Dr. Andry, Ninon de l'Enclos, Brenchleyensis, Le Poussin, Sulphureus, Samuel Waymouth, a most superb light scarlet, with light centre; Madame Poignant, Rebecca, Linnie, Madame Loséble, a beautiful light kind; Paddy from Cork, a very fine light seedling; Isoline; Achille, very fine; The Favorite, beautifully mottled flesh colour; John Waterer, a most superb scarlet with large light centre, lighter in colour than Samuel Waymouth; Clemence, Madame Binder; Impératrice Eugénie, a most beautiful and distinct kind; Madame Vatry, Junon, Dixie, a seedling quite new in colour and very distinctly marked; Diana, Calendulaceus; and Ensign, a first-class kind, and the finest scarlet in cultivation. The 2d prize for Gladioli was awarded to J. W. Lane, Esq., for a noble stand, the finest of which were Madame Eugène Verdier, a most brilliant and fine kind; John Leech, a beautifully mottled light kind; Joan of Arc; a superb spike of Impératrice Eugénie, a handsome variety; Madame Celeste, quite novel in colour and fine; El Dorado; Junon, very fine; Comte de Morny; Madame Rabourdin, a distinct and fine kind; John Waterer, Isoline, and Reine Victoria, a distinct and handsome light flower which should be in every collection. 3d prize to Messrs. Dickson & Sons, Newtonards Nursery, near Belfast. For 12 spikes Messrs. Dickson & Sons were 1st; J. F. Lombard, Esq., 2d; and J. W. Lane, Esq., 3d. W. E. Gumbleton, Esq., Cork, also showed some fine flowers in the class for six spikes, as did Mr. Lombard also. There was a strong competition for the Silver Cup for 36 Dahlias, seven exhibitors having entered for this class, and to the surprise of many, an amateur unknown to fame fairly carried off the prize. He is a Mr. Lachlan, gr. to J. B. Houston, Esq., Belfast, and his flowers were Lord Palmerston, Beauty of Slough, Beauty of Hilperton, Hugh Millar, Duke of Wellington, Volunteer, Chieftain, William Dodds, Imperial, Dinorah, Bob Ridley, Maid of Bath, Golden Drop, Criterion, Coralline, Warrior, John Dory, Queen Mab, Summertide, Jenny Austin, Andrew Dodds, Goldfinder, Lady Douglas Pennant, Earl of Shaftesbury, William Corp, Gen. Turr, Charles Turner, Pioneer, Gem, Delicata, Model, Elegans, Donald Beaton, Captain Harvey, Chairman, and the New Delicata, a beautiful and novel flower. 2d, Messrs. Campbell & Sons, Nurserymen, Glasnevin, whose best blooms were Madame Sherrington, Mrs. Henshaw, Baron Taunton, Norfolk Hero, and a beautiful Umpire. 3d, Messrs. Dickson & Sons.

Mr. Green, gr. to the Marquis of Londonderry, sent six noble spikes of Hollyhocks. Some good Roses were exhibited by Messrs. Dickson & Sons, Messrs. Campbell & Sons, and J. F. Lombard, Esq. Some fine cut blooms of Hollyhocks were shown; the first prize lot from J. F. Lombard, Esq. were very fine, the best blooms being Purple Prince, Amandine, Rosy Gem, David Fowlis, Alice, and Homer. A few good Orchids were sent from Joseph Hone, Esq., who had well-grown examples of Saccolabium Blumei majus, Cattleya Aclandiæ, Vanda insignis, Phalænopsis grandiflora, and a very fine Lælia elegans. 2d prize to the Lord Chancellor of Ireland, in whose lot were good plants of Aerides quinquevulnerum, Odontoglossum grande, and

Saccolabium guttatum. Several exceedingly well-grown Achimenes were shown, especially those from Joseph Watkins, Esq., and M. Brooks, Esq.

The 1st prize, a silver cup, for the best collection of plants was awarded to Mr. McNeill, gr. to the Chief Secretary for Ireland; and the 2d prize to Mr. Smyth, gr. to his Excellency the Lord Lieutenant; the 3d prize to Robert Gray, Esq. Some superb Heaths came from W. Jamieson, Esq., and the Lord Lieutenant's gr.; and fine foliaged plants from the Chief Secretary's gr., and the gr. to the Lord Chancellor. Six good well grown Fuchsias from Robert Gray, Esq., took the 1st prize.

Dublin may well be proud of this exhibition, for it reflected great praise on all concerned—the exhibitors, the Council, and especially Mr. Balfe, the courteous and hard working Secretary to the Society; for it plainly demonstrated that in Ireland as elsewhere, gardening skill is every day more and more developed; and that such exhibitions tend very greatly to produce this result no one can doubt.

Notices of Books.

Home Walks and Holiday Rambles. By the Rev. C. A. Johns, B.A., F.L.S. Pp. 275. Longman & Co.

On opening this attractive little volume we were arrested in the list of contents by the words—"Cherry Gatherer," "Prawning at Clovelly." Now, if there are things for which we confess a weakness, they are Prawns and Cherries. As to the Cherries we are not to imagine that featherless bipeds with all their arts, can keep them entirely to themselves, for while men are gathering them, the birds will fearlessly take their share from the upper branches of the same tree; and a flight of starlings has been known to devour or destroy, in the course of two hours, fruit which it had been computed would occupy several men a whole day to gather. We are also here informed that Prawning is attended with some risk to the inexperienced and unwary, for the dredge brings ashore, not only prawns, and the delicate kinds of seaweed that grow in shallow water, but every haul produces one or more "sting-bulls," the local name given to the "Lesser Weevor" (Trachinus Vipera), a small fish about 3 inches in length, provided with a black dorsal fin, armed with acute spines, which the animal has the power of elevating at pleasure, and which inflict an exquisitely painful wound, like the sting of a wasp, causing not only pain and swelling, but producing inflammation which extends up the arm, with an intense aching that lasts for hours.

Many young persons will thank Mr. C. A. Johns for furnishing them with examples of the way to investigate and observe those common but interesting objects by which we are surrounded, but which so many fail to see, because their attention has never been directed to them in youth. Limited space prevents our giving any long examples of the author's style, but a concluding remark of his is so important that we cannot refrain from transcribing it. "Should any one ask," he says, "'Do you consider the time profitably employed which is devoted to such pursuits by young people whose occupation it ought to be to store their minds with the knowledge which will be of use to them in after life?' my answer is, 'Decidedly yes.' The mind which has taught the eye to distinguish in a bed of Moss half a dozen specific forms, has itself during the process acquired a discriminating power which will, from that time forward, be exercised on all objects presented to it, and will never be lost."

The experiment of the Walnut, tied by a string to the branch of an Apple tree, and the efforts of the Blue Tit to secure its contents, makes an elegant and appropriate ornament for the outside of this little book of notes upon Natural History, collected during a year of Home Walks and Holiday Rambles. There are several capital wood engravings.

Warner's Select Orchidaceous Plants have appeared with fresh lustre in the 5th part, partly because of the extreme beauty of the species figured, and partly owing to the artistic excellence of the plates, which are occupied by *Pleione* (Cœlogyne) *lagenaria, Vanda cærulea, Dendrobium Wardianum,* and *Lælia superbiens.* To our mind the Bauers themselves never surpassed Fitch's drawings of the three last; the *Pleione,* which is very inferior, comes from another hand. All these glorious things are well known to gardeners, except the Dendrobium;—what is that? To this we reply, without the least hesitation, *D. Falconeri;* but a variety without the violet stain at the base of the lip that has always been seen in that species, and which is itself nearly related to *D. Dalhousieanum.* We extract Mr. Warner's statements respecting his plant:—

"Dendrobium Wardianum is a plant of pendent habit, having long rod-like stems, 3 feet in length, with knotty joints, bearing light green leaves of an ovate-lanceolate attenuated form, 2 or 3 inches long. It is of deciduous habit, losing its leaves annually, previous to flowering. The flowers are produced in threes, on opposite sides of the stem, and each flower measures upwards of 4 inches across. The sepals and petals are white, tipped with rich magenta; the lip also is white, tipped with magenta, its lower part of a deep orange-yellow, marked on each side with patches of crimson. The flowers are produced in April and May, and last for several weeks."

"According to our own experience and that of the other growers who possess it, this is a free growing species. Mr. Day's plant is making its fresh growth even finer than before; and his gardener, Mr. Stone, is of opinion, as the growth is earlier, that he will be able to ripen the bulbs much better, and thus cause the plants to produce a still greater abundance of flowers. In this we have no doubt he is correct: indeed, this is the only way to secure a vigorous and abundant bloom."

"This Dendrobium Wardianum, being a species of pendent growth, will be better grown in baskets or on blocks than in pots. We cannot do better than explain the course of treatment adopted by Mr. Stone. The plant is on a block of wood, on which it seems to root freely, the roots hanging from the block some 2 feet in length. It is grown, suspended from the roof, in the Cattleya-house, where the heat is not over 60° or 65° in winter, though in summer the temperature is higher. In the growing season it has a liberal supply of water at the roots. Growing thus on a block of wood, the plant requires more water than under other treatment; indeed, a little moss over the roots would be of great advantage, as they would then be kept more regularly moist, and in summer, without some such precaution, the blocks dry very quickly. If the plants are allowed to get too dry it causes the stems to shrivel, and this injures the young growth: in fact, under such circumstances, it is arrested for a season. The plants will also do well in a basket, with sphagnum moss and broken potsherds, the basket being suspended from the roof. In this way they do not require so much water as when on blocks."

The Arts of Writing, Reading, and Speaking: in Letters to a Law Student. By Edward W. Cox, Recorder of Falmouth, Author of "The Advocate," &c. Crockford. Fcp. 8vo. Pp. 336.

The main feature of this book is twaddle. No doubt a few useful hints may be discovered in it, but even these are to be found in a better form elsewhere. Amongst other things insisted upon is the value of the habit of thinking; and Mr. Cox recommends persons to think whilst weeding their gardens; but whether they are then to think about what they are doing or about something else, is not very clear. So far, however, as we can make out, it is the latter.

Civil Service Examinations: Solutions of Questions on Arithmetic and Book-keeping used in the Civil Service Examinations of 1862. By the Rev. John Hunter, M.A. Longmans. 12mo., pp. 79.

This little work is intended for persons preparing for the Civil Service examinations, and will probably be found useful by them. It has no higher pretensions.

Garden Memoranda.

Royal Gardens, Frogmore.—Of the high cultivation and generally excellent condition which these gardens exhibit at the present time, it is impossible to speak in terms of exaggeration. The young plantations of Conifers, and other trees and shrubs, made by Mr. Ingram some years ago outside the walls near the entrance, have now attained sufficient size, not only to furnish shelter, but to render them objects of interest in an ornamental point of view, especially the Deodars, whose growth has been all that could be desired. Inside the gates the noble terrace that confronts the visitor on entering is literally a blaze of floral beauty, consisting on the side next the glass houses of Petunias, and Scarlet and other Pelargoniums, edged with variegated Alyssum and blue Lobelia, while here and there in advance, at certain distances apart, beautiful tufts of the silvery-leaved Cineraria maritima and Centaurea candidissima come effectively into view.

On the other side of the walk, amid a throng of gay herbaceous plants, set off to much advantage by the liberal introduction of Scarlet Pelargoniums and other summer bedding things, we noticed noble masses of Tritoma Uvaria, than which when well bloomed as these were, nothing can possibly be handsomer. The fine terrace now under notice, which is 1132 feet in length, and nearly 60 feet in breadth, is moreover well supported by beds of gay flowers in front of the dwarf wall, which cuts it off from the body of the garden, and altogether the portion devoted to plants of a decorative character is as gay as it could well be even at this season of the year.

Pine Apple plants, now confined to pits, are the admiration of even Pine growers themselves, as well they might be, for nothing could possibly excel them either in robustness of health or vigour of growth. They consist chiefly of Queens and Cayennes, many of which promise to furnish fruit of great size and weight. The Pineries in the principal range of houses are not yet filled, it being necessary to afford the Vines, which occupy the back part of the houses over the path, a month or six weeks' rest. The Pines in the houses just named are grown in pots without bottoms, plunged in a bed of leaves placed over an ample drainage of flints, among which are laid hot-water pipes.

From Peaches and Nectarines in houses the sashes are all removed, an operation which is done immediately the fruit is gathered. The trees are in excellent condition, and have this season borne heavy crops.

The Vineries now of themselves well repay a visit, a statement which we think will receive credit when we mention that in two of them, each of which measures 101 feet in length and 16 feet in width, ripe Grapes hang as thickly as it would be judicious to allow them—fine bunches, black as Sloes, and covered with a beautiful bloom. The rich appearance of these, spread out as they are over so large a surface, is only equalled by that of the great Grapery at Cumberland Lodge, where from one Vine, covering a roof 138 feet in length and 16 feet in width, bunches of fruit just colouring, hang in equal profusion; and in this latter instance the only heating apparatus employed is an ordinary smoke flue.

In addition to the two Vineries in the Royal Gardens just alluded to, there is also one containing Muscats, 50 feet in length and 14 feet in width. In this there is likewise a fine crop, which will probably be ripe some time in October. The borders of these houses are manured every year, both inside and out, with a good dressing of cow-dung before the Vines are started into growth, a system which has been practised with the best results. Although now nearly 20 years of age, and with stems measuring on an average 9 inches in circumference, the spurs of these Vines are at most only 3 or 4 inches in length; the ugly snags usually found on old Vines can therefore never exist here so long as the skilful mode of pruning hitherto practised continues to be followed. Vines are also grown well in pots, and a house is now being cleared out to be ready for their reception. From early Vineries that were started in November last, and ripened their crop in March, the lights have been removed entirely, exactly as is done in the case of Peach houses. In one of the houses, among St. Peter's and Black Hamburgh, is growing what is called the Strawberry Grape, a small black variety with a smack of Strawberry flavour in it, which though liked by some cannot certainly be called good. On walls out of doors is also the Parsley-leaved Grape and Napoleon, the last a capital kind for open air culture.

In the warm and cool plant departments at the extremities of the range of forcing houses, are some interesting examples of good plant growing. Among other things Ferns are largely grown for indoor decoration at Windsor Castle, as are also Gesneras, Achimenes, Begonias, Coleus, Centradenia floribunda, and plants of that description. A Luculia in the cool department flowers beautifully every year, and Bignonia grandiflora is at present loaded with rich orange blossoms.

In pits are late Cucumbers and Melons, put in after Potatoes. Among the Melons we observed the Beechwood, a variety not now so common as it was some years ago, but when found true, as it is here, excellent. Among Cucumbers the Frogmore Prize is the kind chiefly grown, both for early and late work.

The Asparagus house is now being got ready for use next season. In order to keep up a good supply of roots for forcing, two or three new beds are made every year in the open ground, from whence after say three years growth, they are transferred to the forcing pit and inserted as thickly as the heads can well stand together. Capsicums, now ripe, occupy a back shelf.

In the Cherry house Chrysanthemums are about to be introduced for early winter flowering, the Cherries which are in pots being now plunged out of doors in a north aspect. For purposes of forcing two sets of plants are kept, one being forced one year, and the other the next. Thus an alternate season of rest and growth is given to each set of trees, and in this way heavy crops are obtained.

Out-of-doors fruit of all kinds is yielding a good crop, with perhaps the exception of Apples, which are in some cases thin. Plums on walls are very plentiful; first come Wilmot's Early Orleans, Smith's ditto, and the Fotheringham, a blue variety of good quality; then Victoria and Washington, Goliath, blue Magnum Bonum, Reine Claude Violette, Green Gage, and lastly Coe's Late Red, Golden Drop, and different kinds of Imperatrice, all forming a good and useful succession.

Peaches are excellent and in robust health in all cases except those in which smooth serrated kinds are concerned. Nothing but varieties with smooth leaves should be grown on walls out of doors; the others get so attacked by mildew and red spider that they can only be kept in health at a great expense of labour and trouble, a fact well worth the remembrance of all who are about adding fresh trees to their Peach walls, or about to raise new ones.

Figs under a movable glass case are abundant, and ripen well. They require plenty of air, and in order that they may have it when wanted the sashes are made to move on vertical pivots, a plan by which the trees can be almost as much exposed as if the lights were taken entirely away. Cherries also succeed under a case of this description.

Pears on walls are also an excellent crop, especially Knight's Monarch, which will keep good after being gathered from November until March, and it has the good property of seldom going rotten, which some Pears are apt to do. Among early sorts may be named the Lammas, Citron des Carmes, Jargonelle, and Williams's Bon Chrétien. Then came Fondante

d'Automne, one of the best Pears of its season; Marie Louise; British Queen, a melting and most excellent November Pear, a seedling raised by Mr. Ingram, and rewarded with first prizes wherever it has been shown; and last but not least, Glou Morceau, Winter Nelis, Beurré Rance, and Prince Albert, the last a handsome late variety, sound and useful after all others are gone.

Among Apples, Small's Golden Pippin and Admirable, the last a good kitchen fruit of the Hawthornden class, but a better keeper; of the old Nonpareil we observed good crops on walls, without the aid of which this useful sort does not succeed here. The Frogmore Nonpareil, Cox's Pomona, and Rosemary Russet, were also bearing plentifully, as were likewise many others.

Among Currants still in fruit on a north wall were specimens of Warner's Grape, which is certainly one of the best reds, the berries being large, and many of the clusters measuring 6 inches in length. It is also sweeter than the common red Grape Currant.

Of Seedling fruits, in addition to the valuable British Queen Pear already named, Mr. Ingram has succeeded in raising several of excellent quality, especially Plums, some of which will prove real acquisitions. In one, to the size and appearance of Victoria has been added the delicious flavour of the Green Gage; others more resemble the Jefferson. Among Peaches, too, are some useful improvements which we hope to see again.

Vegetables on the whole were good, with the exception of Carrots, which have suffered from the attacks of grub. Among Broccoli the Frogmore Protecting is that which is mostly grown; it comes in at the end of March, and will last till May. Early and late Purples are also cultivated here, as are likewise Snow's Winter and Walcheren. In the way of Cauliflowers nothing beats the Frogmore Forcing, which when planted out early, often comes in sooner than others that have been protected by glass.

Among Potatoes there is this year little or no disease. For early work Myatt's Ash-leaf is the kind used both for pits and open ground. Ash-leaved, Regents, and Dalmahoy are also found to be good and useful sorts.

Celery is chiefly confined to Turner's Incomparable, a dwarf variety, which is not liable to run. Of this and other kinds of Celery, 20,000 heads are often planted.

In conclusion it may be mentioned that the beautiful grounds attached to Frogmore House have lately come under Mr. Ingram's charge, and that the high state of keeping which they exhibit does his management in this, as in all other cases in which he is employed, the utmost credit. The walks are neatly rolled, the Grass short and smooth, and the water in the charming lake in front of the house clean and refreshing to look upon. In the grounds here we noticed a famous Wellingtonia, the growth in height of which in one year was no less than 4 feet 6 inches.

The slopes around Windsor Castle are also in excellent order, the late rains having restored to them their wonted verdure and beauty.

Miscellaneous.

Japanese Mode of Catching Fish.—During the last days of April the sea-shore was lined with natives of both sexes, who were busily engaged in catching a curious species of fish, which, it seems, visits these parts for a few days at this season of the year. The mode of catching the fish was novel and interesting. Each fisherman had a pair of decoys—that is, living fish of the same kind as the intended prey. A long line was attached to each fish, being fastened to the skin on the top of its head. The slack of this line was wound up on a piece of wood; and unrolled at the pleasure of the fisherman. Then a net was fastened to, and slung between, two bamboo poles, these forming the two sides of a triangle. The third side of the triangle was open, with the mouth of the net hanging beneath it, and in this state it was pushed forward into the sea. The line was now unrolled, and the decoys were sent forth into deeper waters, to make friends with other members of the tribe who were still free. A sufficient time being allowed for these gay deceivers to get a congregation around them and to expatiate on the luxuries of the land, the fisherman hauls the line gently home until the decoys and their near friends who have followed the n, get in the water above his net. The net is then lifted rapidly upwards out of the water, and decoys and decoyed are entangled in its meshes. The latter are taken out and placed in a basket on shore, while the former are sent to sea again in search of new friends. This mode of fishing lasted for a few days only; the species in question appeared to come suddenly on the coast, and as suddenly to take its departure, first, however, leaving a good supply of its number to assist in feeding the inhabitants of Yokuhama and Yedo. It was a curious-looking animal, short, flabby, and blown up, looking as if it consisted chiefly of wind and blubber. Some of the natives said it was poisonous; but, if so, this could be only in certain conditions, for it was a great favourite with the Japanese, who cut it up, dried it in the sun, and preserved it for future use. *Fortune's "Yedo and Peking."*

Age of Trees.—We find the following scrap (taken from a German work by Dr. Walser), by Prof. Oliver, in the "Natural History Review," Oct., 1862. Eleven Lime trees are enumerated, to which ages are assigned as under, "with more or less probability:"—

Lime at Leutkirch	.. .. ..	346 years
,, do. (Tilia parvifolia)	..	364 ,,
,, Friburg, Switzerland	.. ..	384 ,,
,, Leutkirch (T. grandifolia)	..	405 ,,
,, Nurnberg	.. ..	500 ,,
,, Leutkirch (T. grandifolia)	..	660 ,,
,, Norwich	.. ..	815 ,,
,, Neustadt	.. ..	892 ,,
,, Vulars en Moing	.. ..	961 ,,
,, Donndorf	.. .. ..	1235 ,,
,, Chaillé (nr. Melles)	.. ..	1252 ,,

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.— Japan Lilies will now be coming into bloom, and should be neatly staked before the flowers get injured through being blown about. When removed to the conservatory they should be placed in a cool airy part of the house, shaded from bright sunshine, and liberally supplied with water, so as to preserve the beauty of the flowers as long as possible; for except they are properly cared for, their beauty is apt to be but short lived. Continue to trim and regulate the growth of twiners, cutting out any shoots that have done flowering, which will tend to strengthen those left, and cause them to bloom later than would otherwise be the case. Maintain an active war against insects, and endeavour to get these thoroughly subdued before the damp cloudy weather of autumn sets in, when it will not be safe to use the engine with the same freedom as now. Also get any repairs, painting, &c., which must be done this season, finished as soon as possible, for the period is fast advancing when the plants must be got into their winter quarters, and it is exceedingly inconvenient having workmen about the houses among the plants. See that Chrysanthemums are liberally supplied with water, and do not allow them to be injured for the want of staking. Young stock in cold pits intended to flower next season, should be exposed to the midday sun, in order to ripen the wood, taking care not to do this so rashly as to injure the foliage. This, however, will only be proper in the case of such things as have already made plenty of young wood; but it is advisable after this season to be anticipating the approach of winter, and to use every possible means to forward the growth of valuable hard-wooded plants, in order to get it somewhat firm and able to resist damp, &c., as soon as possible; and th s is especially necessary where the plants have to be wintered in cool houses.

FORCING DEPARTMENT.

PINERIES.—Endeavour to afford plants swelling their fruit a high temperature with as little assistance from fire-heat as possible, which, as it tends to render the atmosphere dry, is not conducive towards obtaining large finely-formed fruit. Therefore economise the sun's influences as much as possible, shutting up early on the afternoons of bright days after syringing the plants and moistening every available surface, so as to maintain a high temperature during the day, giving air sparingly. But fruit approaching maturity will be improved in flavour by a moderate use of fire-heat, a freer circulation of air, and a dry atmosphere. Where there are no means of avoiding having plants swelling their fruit and those ripening it in the same compartment, then it will be advisable to keep the atmosphere rather dry and airy while fruit is colouring, as size is of little importance unless combined with quality; but this will be best decided by employers' tastes, &c. Give careful attention to securing a fair supply of fruit for winter and spring use. Look over stock in pots frequently to make sure that it is properly supplied with water at the root, and give a liberal supply of clear strong manure-water where free vigorous growth is desired.

VINERIES.—Give abundance of air on all favourable opportunities where the fruit is ripening, using fire-heat rather freely when the weather is damp and cloudy, and be careful to secure a dry state of the atmosphere where the fruit is ripe and expected to hang for any length of time, using a little fire-heat when necessary to dispel damp. See that ripe fruit is secure from the depredations of wasps, if these are at all troublesome. Give every possible attention to Vines in pots intended for fruiting early next season, and endeavour to get the wood strong and thoroughly ripened as early in the autumn as possible so as to allow of giving the plants a fair season of rest. Keep Vines planted this season growing as freely as possible, and see that they are kept clear of insects, for as a house with the Vines in this stage is found very useful for growing plants, and is often used for this purpose, insects are apt to find their way off the plants on to the Vines, occasioning great injury. Therefore if plants are grown under the Vines see that they are not in a state to communicate to the latter black thrips or red spider, for unless the foliage is kept in health there will be no possibility of getting the wood well ripened, or the canes to break strongly next season.

FLOWER GARDEN AND SHRUBBERIES.

The earliest put-in cuttings should be potted off as soon as they are sufficiently rooted to bear the operation, placing them in a close pit or frame until they get fairly established in their pots, when they should be freely exposed to the air, in order to induce short-jointed firm growth, which, with ordinary care, will be easily carried over the winter, whereas, plants got up late in autumn in a close moist atmosphere will, notwithstanding every care and attention, be largely thinned before spring. Push forward the putting-in of cuttings, and get the autumn propagation out of hand as speedily as possible. Where alterations involving the removal of large trees or shrubs are in view for this autumn, the necessary arrangements for commencing them cannot be made too soon; for although large plants may be removed with care successfully at almost any season of the year, it can be done more cheaply, and with less risk of failure, in September than at any other period.

HARDY FRUIT AND KITCHEN GARDEN.

See that Strawberry plants for forcing are well cared for, as nothing but proper attention in preparing the plants will insure a good crop. Keep them regularly supplied with water, expose them fully to the sun, pinch off runners immediately they are perceived, and use every means to secure fine strong plants with bold crowns; with such there will be no risk of failure next spring. Gather Apples and Pears as they become ripe, and before the greater portion is blown down and injured. Tomatoes must be kept thin of wood, checking all shoots, and exposing the fruit to the action of the sun's rays as much as possible. Take advantage of dry days to earth up Celery, sprinkling a good dusting of quicklime or soot about the plants in the lines, and over the surface of the ground for some distance on each side, to destroy slugs, which generally do considerable damage to Celery, especially in wet seasons. The soot or lime should be applied two or three times before soiling up the plants, at intervals of a few days, and early in the morning, before the pests have retired to their hiding-places. Take up and dry Onions that have completed their growth.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Aug. 26, 1863, as observed at the Horticultural Garden

August.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot deep.	2 feet deep.	Wind.	Rain.
Thurs. 20	6	29.973	29.919	66	34	50	62	62	N.W.	.01
Friday 21	7	30.131	30.075	70	44	57	61¼	61½	W.	.00
Satur 22	8	30.064	29.985	76	50	63	61½	61	S.W	.02
Sunday 23	9	29.935	29.871	76	58	67	61¼	61	W.	.00
Mon. 24	10	29.859	29.775	74	48	61	62½	61½	W.	.00
Tues. 25	11	29.680	29.364	70	38	54	61	61	W.	.35
Wed. 26	12	29.459	29.354	65	55	60	61½	61	S.	.54
Average.		29.871	29.763	71.0	46.7	58.8	61.6	61.3		.92

Aug. 20—Cloudy; slight showers; fine, but cold at night.
— 21—Fine; overcast; fine at night.
— 22—Uniformly overcast, densely clouded; fine.
— 23—Fine, very fine throughout.
— 24—Very fine; cloudy; fine.
— 25—Very fine; heavy masses of clouds; thunder storm; with heavy showers
— 26—Fine; showery; very heavy rain at night.
Mean temperature of the week 1½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending Sept. 5, 1863.

August and Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 30	71 9	48 1	60.0	8	0.92 in.	2	6	3	—	5	8	10	3
Mon. 31	71.2	47.5	59.3	15	1.31	2	7	3	2	2	8	8	5
Tues. 1	70.5	47.4	58 9	19	1.50	3	5	3	4	3	11	4	4
Wed. 2	70.6	47 5	59 1	15	0.44	7	5	1	1	2	8	9	3
Thurs. 3	70.3	47.5	58.9	15	0.49	3	7	3	1	5	9	6	3
Friday 4	70.3	46.5	58.4	15	0.58	3	7	4	1	1	7	3	6
Satur. 5	70.0	47.1	58.7	15	0.30	3	9	7	—	3	8	6	2

The highest temperature during the above period occurred on the 1st, 1843—therm. 85 deg.; and the lowest on the 3d, 1862—therm. 33 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ADVERTISEMENTS: *A Garden.* We cannot interfere. If your Gardening is no better than your writing and spelling, you should not expect a place higher than a day labourer's.

BOOKS: *J D H.* George Lindley's Guide to the Orchard and Kitchen Garden, or Hogg's Fruit Manual. We say both.—*Exmouth.* Mills on the Cucumber and Melon; practical and useful.

DISEASED LEAVES. *Clericus.* They are attacked by some Uredo: possibly U. intrusa, but the specimens are too young for identification. The Uredo is an internal fungus, bursting through the skin, and destroying the leaves by its spawn developed in the inside of the cellular matter of the leaves. The mischief has probably been caused by the dryness of the soil. There is no known remedy except avoiding such extreme dryness.

GRAPES: *Anon.* Your berries were so much crushed as to make it difficult to say much about them. They are, however, clearly suffering from rust, which is caused by draughts of cold air, or rough usage; and apparently from spot, which depends on the roots being too deeply planted, or being placed under unfavourable conditions. *M. J. B.*

NAMES OF PLANTS: *F C.* Maxillaria racemosa.—*E W.* 1, Rosa arvensis; 2, R. spinosissima; 3, R. dumetorum; 4, R. systyla.—*Coniophilus. a* is probably Eryngium Palmito; *b*, Dorema meifolium. N.B. We could not have undertaken to examine these dried fragments, had they been less skilfully prepared and selected.—*H W.* Coleus Verschaffelti we believe. *G.* 1, Lycium barbarum; 2, Lysimachia Ephemerum.—*W R.* 1, Araujia (or Physianthus) albens; 2, Achillea Ptarmica, with double flowers.

POTATO DISEASE: *P B.* It has long been known that this is caused by the action of a mildew fungus. Insects have no more to do with it than fleas with Small Pox.

POTATOES: *W S Epps, Maidstone.* Your seedling is without exception the best we ever tasted, and if, as you say, it is a great cropper, you should name it Epps's Glory.

TRADE

HALLETT'S PEDIGREE NURSERY WHEAT.

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NOW READY FOR DELIVERY.

THE PEDIGREE WHEAT WAS AWARDED THE SILVER MEDAL BY THE JURORS OF THE CLASS "CEREALS FROM ALL COUNTRIES," AT THE MEETING, IN 1863, OF THE AGRICULTURAL SOCIETY OF DENMARK AT ODENSE.

The produce of 3 acres of this Wheat, grown 1862, in Essex, was sold to the miller, and realised £19 7*s.* per acre

In September DRILL 4 Bushels on 10 acres.

NONE IS GENUINE UNLESS THE TRADE MARK IS UPON THE BAG.

Apply to FREDERIC F. HALLETT, ESQ., F.L.S., The Manor House, Brighton, Sussex.

PRICE—One Guinea a Bushel (or Seven Guineas a Quarter),

Delivered, with Printed Directions for Planting, at the Brighton Railway Station, in Bags Sewed up and Sealed, upon receipt of Cheque or Post-office Order, which must in all cases accompany the Order.

"HOW OUR WHEAT CROPS MAY BE DOUBLED," and other papers, forwarded on application, enclosing six stamps.



In every plant of Wheat, Barley, or Oats there is always ONE BEST EAR, and in every ear there is always ONE BEST GRAIN, which is that one found at the following harvest to produce the best plant, *all* the grains having been planted in competition with each other.

The best of all the competing plants of any "family" of a cereal is ascertained by the most studious comparison of the good qualities they visibly present, *and of the points it exhibited by each during the whole course of its growth*, such as:—the rapidity with which the parent seed germinates; the manner, time, and extent of the "tillering" of the plant; the periods of its earing, blooming, and ripening; its power of withstanding disease, frost, wet, &c.; the *toughness* of its straw, and any other characteristics which are essential to forming a correct decision, and which cannot be determined by even the most careful inspection of the perfect plant.

This best plant is called "*the selection*" of the year (say 1861) in which it is thus obtained, and consists of numerous ears, containing many hundreds, and even thousands, of grains, which are planted separately; those of each *ear* being kept quite distinct, as although the best grain of any plant is nearly always found to lie in its best ear, it may be otherwise, and the successive parent *ears* must be preserved. At the following harvest (1862), the best plant forms "*the selection of* 1862," and its produce is continued on the experimental ground, while that of the remaining plants furnishes the annual seed for the farm in the Autumn of 1862, and the crops are in 1863 offered to the public. Thus, the selection sold is that of 1861, or in any year that of two years before; *the latest selection, that of the year immediately preceding, is not sold, being solely employed as the home seed.* The separate ears of a plant are designated by different letters, numbers, or names—as A, Z, &c., and each, with its descendants, forms a "*family*" which may develope some valuable peculiarity.

Thus, all the "Pedigree Nursery Wheat" hitherto sold has been of a family called "A," while another family of the same Wheat known as Z having been observed to exhibit marked superiority has been continued separately, and has given a greater progress during 1862 than has been before obtained in any single year.

The original ear of the large published engraving contained up one of its sides 16 "ranks" (spikelets) of grains, while the "Z family" has produced ears of 18 "ranks," and this, without any increase in the *length* of the ear, the "notches" of the axis on which the spikelets grow being placed more closely together. In a small field of this Z family, ears with 17 "ranks" were quite common, while in other fields of the family "A," *not one such ear could be found.*

This family Z *is now for the first time* offered to the public, and is ready for delivery.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

AUTUMN SESSION, 1863.

President—THE RIGHT HON. THE EARL BATHURST.

Council.

The Right Hon. THE EARL BATHURST.
The Right Hon. THE EARL DUCIE.
The Right Hon. T. H. SOTHERON ESTCOURT, M.P.
J. H. LANGSTON, Esq., M.P.
EDWARD HOLLAND, Esq., M.P.

Principal—The Rev. JOHN CONSTABLE, M.A., Trin. Coll. Camb.

Resident Professors.

PRACTICAL AGRICULTURE.

J. L. FLETCHER, Farm Manager.
*T. BALDWIN, of Glasnevin—A Course of 20 Lectures on Crops.
*R. SCOTT BURN, Co-editor of the Book of Farm Buildings—A Course of 12 Lectures on Agricultural Machines.

CHEMISTRY.

ARTHUR H. CHURCH, B.A., F.C.S., Smith's Exhibitioner, Lincoln College, Oxon.

ASSISTANT TO CHEMICAL PROFESSOR.

R. WARINGTON, Jun., F.C.S.

BOTANY.—JOHN BAYLDON, M.B. Lond. B. Soc.

VETERINARY SURGERY.—A. J. MURRAY, M.R.C.V.S.

MATHEMATICS AND SURVEYING.

W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.

DRAWING.—JAMES MILLER.

* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

AGRICULTURE

J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
THOMAS ELLMAN, of Beddingham, Lewes—Lecture on South-down and Short-woolled Sheep.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.
REV. GEORGE WILKINS, Wix Parsonage—Lecture on Tillage.
N.B. Mr. Wilkins will Lecture on February 9.

AGRICULTURAL CHEMISTRY.

THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.

For further particulars apply to the PRINCIPAL.

Drainage, &c.

MR. JOSEPH BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.

Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements. Valuations made for Sales, or the re-letting of Farms.

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MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.—GRAND SHOW at BIRKENHEAD (in the Park), on the 9th and 10th SEPTEMBER NEXT (preceded by a preliminary exhibition of IMPLEMENTS only, and TRIAL of STEAM CULTIVATORS, on TUESDAY, the 8th). The Prizes offered for competition on this occasion amount to 1400*l.*, for Horses, Horned Cattle, Sheep, Pigs, Poultry, Dogs, Seeds, Roots, Horticultural productions, Cheese, Butter, Implements, Machinery, &c.

ENTRIES CLOSED on the 10th inst. T. B. RYDER, (Surveyor, &c.), Secretary.

57A, Church Street, Liverpool, August 29.

SMITHFIELD CLUB FAT CATTLE SHOW, 1863.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY AFTERNOON, December 7, and four following days.

In addition to Prizes to the amount of 1825*l.*, the following CUPS will be offered:—

A Silver Cup, value 40*l.*, for the best Steer or Ox in any of the Classes.
A Silver Cup, value 40*l.*, for the best Heifer or Cow in any of the Classes.
A Silver Cup, value 20*l.*, for the best pen of Leicesters, Cotswolds, Lincolns, Kentish, or other Long-woolled breed in any of the Classes.
A Silver Cup, value 20*l.*, for the best pen of 1-year-old Southdowns, Hampshire, or Wiltshire Downs.
A Silver Cup, value 20*l.*, for the best pen of Shropshire, Oxfordshire, cross breed, or any other breed of Sheep (not specified above) in any of the Classes.
A Silver Cup, value 10*l.*, to the Butcher who shall expend the largest amount of money in purchasing animals from the Classes in the Show Yard.

The Prize Sheet now contains distinct Classes as under:—

CATTLE.

Devons	Norfolk or Suffolk	Scotch Polled
Herefords	Polled	Irish
Short-horns	Long Horns	Welsh
Sussex	Scotch Horned	Cross or Mixed

SHEEP.

Leicesters	Southdowns	Oxfordshire
Cotswolds	Hampshire or Wiltshire Downs	Mountain
Lincolns	Shropshire	Cross Breeds (Long and Short Wool)
Kentish or Romney Marsh, and other Long Wools		

PIGS.

Four Classes, different ages, up to 18 months old.

The Entries for LIVE STOCK CLOSE on NOVEMBER 2.

The Entries for AGRICULTURAL IMPLEMENTS, &c., CLOSE on OCTOBER 1.

Prize Sheets and Printed Forms of Certificates, with full particulars, can be obtained on application to

Mr. DAVID PULLEN, Assistant Secretary,
At the Office of the Honorary Secretary,
Corner of Half Moon Street, Piccadilly, London, W.

N.B.—It is particularly requested that applications for Prize Sheets and Forms of Certificates, &c., be addressed to the ASSISTANT SECRETARY as above, and all Communications should have the words SMITHFIELD CLUB outside, to distinguish them from private letters. If this be neglected, there may be risk of delay and inconvenience.

The Agricultural Gazette.

SATURDAY, AUGUST 29, 1863.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, Sept. 2 } Meeting of the Sparkenhoe Farmers' Club
THURSDAY, — 3 } at Nuneaton.
FRIDAY, — 4 } Sale of Mr Read's Herefords at Elkstone, near Cheltenham.

ALTHOUGH the weather has not during the past week been favourable for harvest operations, yet no real injury has been done by the rain, and in the meantime it becomes plainer every day that we have a magnificent crop of Wheat to gather in. We have received samples of last year's Wheat and ears of the present crop from the same farm, and the contrast is very great indeed. There will be an unusual waste of shed corn both in the field and in carriage from it, as there always is when the grain is bold and large. The following is a tabular analysis of the harvest reports we have received from our correspondents. And we add those of previous years that our readers may

perceive how great a contrast the current harvest presents to those of recent years.

Crops 1863.	Over average.	Average.	Under average.	Total Reports.
Wheat	131	60	1	192
Barley	58	109	23	190
Oats	49	110	40	196
Beans	24	77	48	149
Peas	29	82	10	121

The following on the other hand is the report of 1862, and it will be seen how exactly it is the converse of that which our columns have recently published, only *one* report of the Wheat crop having been over average in 1862, only one being *under* average in 1863 :—

Crops.	Over average.	Average.	Under average.	Total Reports.
Wheat	1	37	150	188
Barley	26	108	53	187
Oats	37	108	55	200
Beans	42	80	13	135
Peas	10	73	23	106

Lastly we give the returns from 1857 up to 1861 :—

Reports of Crops, 1861, &c.

Crops.	Under average.	Average.	Over Average.	Total.
Wheat, 1857 ..	13	50	74	137
,, 1858 ..	8	92	101	201
,, 1859 ..	46	120	20	186
,, 1860 ..	93	46	1	140
Wheat, 1861 ..	114	76	14	204
Barley, ,, ..	29	94	75	198
Oats, ,, ..	28	80	102	210
Beans, ,, ..	71	44	29	144
Peas, ,, ..	13	37	61	111

—— The scheme of agricultural lectures during the current session at the Royal Agricultural College, Cirencester, includes, as our readers are aware, occasional addresses to the students by gentlemen known in connection with particular agricultural topics of which they have long been the exponents. We are glad to learn that on Wednesday, the 9th of September (at 9 A.M.), a lecture on Plant Cultivation and Thin Seeding is to be delivered in the theatre of the College by the Rev. G. Wilkins, of Wix. We mention this here that any of his readers and admirers, whether in the neighbourhood of the College or elsewhere, may have the opportunity thus within their reach of hearing him.

—— We understand that the prize of 25*l.* offered by the Royal Agricultural Society of England for the best essay on Steam Cultivation has been awarded to Mr. W. J. Moscrop, of Kirkleatham, near Redcar, late farm manager to R. Campbell, Esq., of Buscott, near Faringdon, the steam cultivation of whose estate has been described in these columns.

There is perhaps no problem in farming more difficult of solution than that of Clover sickness. There are few farmers but know something about it, and few but have attempted to account for it; and though various views have been expressed upon the subject, yet they all at last tend to the expression of an opinion that the land is tired of the growth of Clover; and it is hence termed Clover sick.

Have we not, however, a clue to this mystery—if we for a moment consider that our Clovers attain to the height of as much as 2 feet, whilst the plant from which they have been derived scarcely attains to 6 inches; that our crop plant is large, broad-leaved, more or less smooth, whilst its parent is small and hairy, and not remarkable for succulence; and that in its natural state it is not used to those luxuries in which the cultivated family has been brought up. If seed be brought from a rich soil to a poorer or from a warm to a colder climate, we may expect that its plants grown amid Barley, and drawn up during the summer, would have but a poor constitution to stand the winter, but can we in such a case say the land is sick of it? Of course such seed will do better in one place than in another, for example, we have traced some American seed of broad Clover grown by itself in deep rich soil of the vale of Gloucester, where the climate is so much milder as to be a fortnight before the Cotteswolds, producing an abundant crop; while when the same Clover formed part of a mixture of "seeds," with Rye-grass and Plantain on the Cotteswolds, the two latter have taken possession of the soil, and the Clover has made no way at all. The more we import seed from warmer climates—and this is rapidly on the increase—the more difficult is it found to make Clover stand, but this difficulty increases in proportion to the thinness of soil and backwardness of climate, so that the elevated districts on the stony Cotteswolds present perhaps more of the so-called Clover-sick land than any other of like extent. The seed of Clover has indeed become more pampered, more and more the offspring of large crops from deep rich alluvial soils under the tropical summer heat of the south of France and the United States, where it is grown as a self crop, and not fed merely on what the corn could not carry away. But while this source of enervation has gone on, we expect it to withstand the shock of a lower temperature with cutting winds and an impoverished soil—soil from which Barley has extracted the last ounce of food, and then we say that the land is Clover-sick, when in truth it is the seed that sickens under such conditions.

Another circumstance which has contributed to the increased difficulty of growing Clover on thin soils has been that whereas we formerly adopted the plan of paring and burning once in a rotation, now this system has been nearly discarded, and to the prejudice of the Clover crop, as follows :—

Paring and burning had the effect of converting some of the hard limestone brash into lime, in which case it is broken up, and so restores lime and alumina which are quickly lost in thin soils, so much so that not unfrequently the whole depth of soil upon a limestone will consist of sand.

Again, paring and burning decomposed the humus, which is found in quantity in what is called dead soil.

Another most salutary effect was in the destruction of insects, and more especially the wire-worm, which now makes such inroads into all our crops, showing in Clover bare patches, often of great extent.

Insects indeed are yearly becoming more destructive, not only on account of a difference in farming, but also from the determined destruction of birds.

The food of birds is in general very mixed, but at one season of the year when they are breeding they are most determined destroyers of insects, but it is just at this time that they are kept from the crops, and just too at this time that insects are working the most mischief. Thus it was that on a recent visit to Dorsetshire we saw a man employed to keep the birds from a field where several men were engaged Barley-sowing. It is quite true that unless he had been there the rooks would have most industriously followed the drill, but as we thought scarcely to pick up Barley, where there were more of the Elater—the parent of the wire-worm—than we ever saw in a day before. This bird-keeper would have done more good to the Barley and succeeding Clover by picking up 100 of these beetles than by blazing away at rooks and sparrows for a twelvemonth, and this certainly might have been done in a morning. Still that it is found difficult to grow Clover year after year cannot be doubted. Messrs. Lawes and Gilbert's experiments are conclusive upon this point, as the following remarks in their experiments on the growth of Red Clover testify.

"Experiments on the growth of Clover, with different descriptions of manure, were commenced in 1849, and, with the occasional interposition of a corn crop, or fallow, have been continued up to the present time. As with Beans, the result was that mineral constituents, applied as manure, particularly potash, and, more or less, phosphoric acid also, considerably increased the early crops; whereas ammonia salts had comparatively little effect. But after the first few years all further attempts to grow Clover year after year on this land have failed, notwithstanding that fresh seed has again and again been sown. Neither ammonia-salts, nor organic matter rich in carbon as well as other constituents, nor mineral manures, nor a mixture of all, has availed to restore the Clover-yielding capabilities of the land.

"It is, however, worthy of remark that, in 1854, Red Clover was sown in a kitchen garden only a few hundred yards distant from the experimental field, on soil which has been under ordinary garden cultivation probably for two or three centuries, and it has every year since shown very luxuriant growth; and (after once re-sowing during the period) there is, at the present time, little or no indication of failure."

But with all experiments upon the growth of Clover we have had only the derived plant to deal with. We hope therefore some day to be able to record the result of a series of trials conducted with wild seed collected for the purpose, as it appears to us that the difficulty of growing Clover is just that of a repetition of Potatoes and other garden esculents, not to say farm root crops, of any particular sorts in the same district. These fail after a time and newer sorts succeed; not that the land has got tired of the crop, but that the derived sort has got tired of the land. A newly derived strain of Clover might be useful, and if it be so thought by any one willing to try the matter, a new sort can, we are persuaded, be as readily attained as has been a new variety of any other cultivated plant.

PEST OF THE FARM ROOT CROPS.

In the summer of 1852, I was struck with astonishment on visiting a field of Swedish Turnips which four days before had been covered with an even plant some 6 inches high, to find not a trace of vegetation of any kind, but a glaring white surface of chalk and flint. Upon crossing a broad green turf road about 60 feet wide, I found about 2 acres of a field of Rape gone in a similar manner. The destroyers evidently consumed the Rape in line, for the outside of the standing crop, which was about 24 inches high, was perfectly straight the whole way across the field. Upon examination, no trace of any kind of caterpillar could be found either among the Rape or in the ground at its foot. Upon visiting the crop at midnight, however, it was found covered with caterpillars of the common Dart Moth (Agrotis segetum), the noise of whose feeding resembled the sound caused by a heavy shower of rain. On the following morning upon search being again made in the ground, nothing for a space of 5 feet wide could be seen of them, but upon searching 6 feet from the standing crop 50 could be found upon each square foot 2 inches below the surface. I then ploughed a trench (and afterwards excavated the chalk below) all round them, and at night, as they crossed this trench on their way to the feeding ground, poured upon them sulphuric acid and water. The few that escaped I caused to be collected by hand, paying 10*d.* a pint for them. Since that year one or two may occasionally have been seen upon the farm. This year they have again appeared, and, having utterly destroyed 4 acres of a beautiful field of white Carrots, are now busily endeavouring to destroy an adjoining one of 23 acres of Mangels: but I am employing an army of boys to pick them out and boil them. In recently crossing one of the Mangel fields belonging to a neighbour, I found half his crop gone already, and of course informed him of what was going on. As they once caused nearly a famine in Germany, and necessitated the calling out of the soldiers to collect them, and as it appears that their ravages are not confined to my own crops, I have thought it right to put my brother agriculturists upon their guard. The following description is from Morton's Cyclopædia of Agriculture," under the heading Surface Grubs. "They are most of them as large as a goose quill when full grown, an inch or two long, tough, smooth, and shining. Those produced from the eggs of the common Dart Moth, sometimes commit sad devastation in Turnip and young Mangel Wurzel fields; they are also very destructive in the corn field. They are in existence all the year, and in some seasons are abundant and full grown from the beginning of June till the approach of winter. In summer they will often eat off the crowns of the Turnips, and in autumn groups of them are found eating holes in the bulbs just at the surface. In the garden they clear off the Cabbage tribes and Lettuces with astonishing rapidity by eating through the tap-root a little below the surface, and at night they come forth and draw the detached leaves into their burrows. As soon as a plant droops, if the earth be carefully removed, the surface-grub will be found 2 or 3 inches below, and about the same distance from the root; but if left for a night the culprit comes forth, travels with great speed to a neighbouring plant to accomplish the same mischief, and thus in a short period one caterpillar will destroy several plants." I may add that every Mangel here has at least one or two grubs eating it, and some have as many as 30; that their ravages first make themselves known by the under leaves turning yellow and falling off; and that these pests will eat entirely through the tap-root of a Mangel or Swede whose bulb is 6 or 7 inches in diameter. *Fred. F. Hallett, The Manor House, Brighton, August* 18.

ON ARTIFICIAL FERTILITY.

The Recapitulation of a Lecture.

You enter on a farm, and of course you want to raise large crops of everything you grow. Your ability to do this *profitably* depends upon your careful and economical observance and *satisfaction* of the habits and wants of the several crops as these have been ascertained by the experience of farmers. Each crop has certain habits to which its treatment by the cultivator must be adapted, as well as certain requirements in the way of climate, which you cannot materially alter, but which (when you have ascertained the circumstances of your farm) will guide you in your choice of the crops which you shall cultivate. Having concluded what crops your climate, and your soil, and your markets make it advisable for you to cultivate, then each must be treated so as to obtain the largest produce of each which you profitably can. There is a

maximum produce in the case of each, beyond which, on the one side, the natural circumstances of the climate, and on the other side the character and vital power of the plant will hinder your going. How near to this maximum you can profitably get, depends in the first place on the cheapness of manures, and the cheapness and efficiency of labour, on the state of the produce markets, and other things of a purely practical kind, of which the so-called agricultural sciences take no account.

But in the next place it depends on the skill and knowledge with which you artificially adapt your soil to the wants of the crop. In order to this you cultivate and till the land, and you manure it so as to get just that tilth, that texture, stiffness, richness of the land which suit the plant and which it can use to the best advantage during the season of its growth—and then you sow the seed of these plants at such times, in such quantity per acre, at such a depth, in such an order of succession year after year, and cultivate and attend to them during their growth, adopting in all these cases such rules as experience has shown to be advisable. Here, on the other hand, it is plain that the sciences both of botany and chemistry will throw much useful light.

There is, however, such a thing as fertility apart from the power of any particular crop to give expression to it. Soils naturally differ in their fertility, and, left to nature to clothe them, one will exhibit a luxuriant growth, and another will exhibit a stunted growth of those plants with which they were naturally covered. Take your stand on the top of Stinchcom'be Hill, and look down on the vale of Gloucester spread out before you, and observe the wastes and common lands within the limits of the extremely various geological formations, and on the consequently extremely various soils of that district. One common is covered with rich and abundant Grass, another with a very scanty growth of Sedge and Rush, half hid in Thorn and Bramble; the conditions of fertility naturally existing in the one case and not in the other. Observe also how, even on the enclosed and cultivated portions of the land, whatever be the crop, there is such a thing as luxuriance of growth here and scantiness of growth there, the result of an artificially created fertility, varying in degree (altogether independently of the particular crop which is exhibiting it) according to the energy, the liberality, the skill with which the rules of good farming have been observed. Thus, if you traverse that district, you will always find on the dairy farms, whatever be the soil, the home grounds, which are constantly manured by the stock being foddered on them during winter, are the greenest and the best. And comparing one farm with another you will see (no matter what the crops—apart even in great degree from whether *they* are skilfully cultivated or not)—and apart altogether, I am sorry to say, from the question whether or not they are *profitably* cultivated—you will see the fertilising effect of drainage—of deep tillage—of dressings of farm yard dung, guano, bonedust, superphosphate, lime—of burning calcareous clays—of marling sands—of sheep folding and so on.

It is this general subject of fertility then which was my subject. I had comparatively little to do with the fitness of the operations which I recommended to the habits of growth of particular plants; not so very much with the way in which the fertility (which my rules if observed will produce) may be made profitable; but knowing that there is such a thing as a fertile soil on the one side, and a barren soil on the other, I told you what are the methods by which any particular soil may be improved and placed higher on the scale between the two.

In order that you might the more satisfactorily hold in one view all those particular qualities which a fertile soil possesses, and the corresponding operations by which a comparatively infertile soil may have these qualities conferred upon it, I told you that students of this subject had arranged all the facts under two principal divisions—the one concerning the soil itself as it may be called—the other concerning the contents of the soil; the one including the so-called physical properties of the soil, the other referring exclusively to the composition of the soil.

I told you that a soil may be considered as a store-room of food for plants, as a laboratory in which it is prepared, as a vehicle by which it is conveyed—that its fertility depends—first, on this store-house being not only full but accessible—secondly, upon this laboratory being actively at work, and supplied naturally or artificially with the material which it requires for all the processes which result in the food by which the store room of a fertile soil is well supplied; and, thirdly, upon the vehicle by which the food is conveyed to the plants being in sufficient activity—certainly not stagnant, but not more active than is necessary for the supply of food as fast as plants can use it.

I told you that among the physical properties of soils are their texture and consistence, their weight, their power of absorbing, holding, and retaining moisture, their shrinkage under drought, their relations to external warmth. I said that upon their texture especially, and the consequent relations of soils to water, hinged the cost of cultivation as well as a very great deal indeed of the fitness of the soil as a laboratory, store-room, and vehicle in which food for plants is made, placed, and conveyed. I told you that upon the fineness of the particles to which the texture is due, depends the quantity of inner surface of the soil, and that upon *this* depends the quantity of store room which the soil possesses within a given bulk, as well as the quantity of pasture ground, as it were, on which the roots of plants can feed within that bulk. As to the composition of the soil, or rather of its contents, stored away upon and between these surfaces, I referred very shortly to those ingredients of the soil which chemists have shown to us that the plants we grow contain. In conclusion, I referred to the practical methods by which these substances are supplied to a soil, and by which in all its characters as store-room, laboratory, and vehicle, the fertility of a soil is increased.

If as a storehouse it is imperfectly supplied, we can add to its ingredients directly from the dung heap, the manure factory, and the guano ship, or indirectly by feeding stock upon it on purchased or imported food—if the supplies are inaccessible within the soil, and as a vehicle it is sluggish or stagnant, we must by drainage induce a constant current of water throughout its substance, and by deeper and more thorough tillage we must lighten its texture and open those passages between its particles, by which root fibres may enter and through which water, the great feeder of their roots, may pass. But the storehouse may neither be inaccessible nor really empty—the material of which food can be prepared may lie naturally there in sufficient quantity, but the soil may be deficient as a laboratory, in which this food has to be prepared before it can be used. Additional chemicals, so to speak, for this purpose must be therefore introduced. Drainage will improve it in this respect by bringing and distributing throughout it those contents of the air which rain water has washed out of it during its formation and fall. Lime may be added, and will be a new and active element: and by burning the soil an altogether new set of combinations will be brought about.

This description of the soil as a store-room, laboratory, and vehicle of vegetable food, thus embraces all the processes by which fertility is conferred on soils. It does not include all those special adaptations to their individual wants which the several crops require, but it does include the drainage and tillage of the soil, the liming, marling, burning, and even the manuring of the soil, in order to the creation of fertility. This general aspect of fertility of soils was our subject.

No doubt a man in the occupation of a farm of which he knows the faults wants to be doing something to improve it, and he may be impatient of general truths like these. I think however that this general view of the whole of the operations he may have to superintend for its improvement is useful to him, and certainly it is useful to the agricultural student. It cannot be considered as a beating about the bush. It does lead to an intelligent acquaintance with farm practice thus to state each item, particular, and operation of it as an instance and illustration of more general truths. And I must add that whatever may be the impatience of the practical man, or possibly of those among yourselves who may want to get at the actual things that must be done in order to get, in the cheapest and best way, at the tangible proots of artificial fertility which heavy crops of grain and roots and Grass present—I do not mean either myself to let go or to let you lose sight of those central general truths (this theory in short) by which the whole course of the experience of the tillage farmer is embraced, explained, and understood. Nor, let me add, do I mean either to forget for myself or to cease reminding you of the limits within which these central truths must be understood to operate.

To take this fertility of soil, for example, about which I have been speaking—

An intelligent observance of the rules to which these general considerations lead will create this fertility; but that is of no use whatever until it has found its expression in actual crops; and in order to these you have to observe not only the general rules of fertility but the habits and character of these crops, and these must limit the operation of the general rules of fertility.

It is a general rule of fertility that water is not a mischievous thing but a beneficial thing. Provided it be kept from stagnation in the land it tends to activity in all the processes on which growth depends. I remember, however, condemning one day before a farmers' club that definition of land drainage which declares it to be a contrivance for getting rid of water. On the contrary, I declared it was a contrivance for making use of water. "Water in motion is a useful thing; what more fertile than a water-meadow?" and so on.

I there and then got a lesson of the kind I am giving you by the exclamation of a practical farmer, who interrupted me with the declaration that he had never known a good Wheat crop except it was a dry summer. The general truth on which I was expatiating *is* a truth, but so also is that nearer, more immediate, and therefore more practical one, which in the case of the Wheat crop limited its application.

Again, on the subject of tillage. I shall point out to you the importance of making the full use of the whole depth of your soil and the need of introducing all kinds of fertilising agencies, whether air and rain or manure throughout its substance. I shall urge upon you that whether as a store-room, a laboratory, or as a vehicle of food, the soil is improved by thorough tillage—the inference being that deep ploughing and grubbing and stirring to the full depth are fertilising operations. Well, you will go out immediately to the Clover or the Bean stubble, and you will be told about the preparation of the land for Wheat sowing. Almost the first thing I have no doubt that you will hear will be—"We don't plough deep for Wheat, we do not like to stir or loosen the soil too much in such a case—all we want is to bury the surface vegetation and retain as firm and unbroken a soil and subsoil as possible."

Here then is another case in which the general truth regarding a large and well-filled store-room, with easy access to its contents, as an indication of fertility, is over-ridden by the need on behalf of the Wheat plant of a firm unbroken seed bed.

Besides the general consideration, then, of the causes of fertility in soils, to which I referred, and which, subject by subject, I shall in the course of my remaining lectures discuss, there are the special consideations regarding every plant by which you hope to give expression to that fertility which you also need to learn, and of which you will be told both in the lecture-room and field by others.

UTILISATION OF SEWAGE.

I see that in your impression of Aug. 22 you give Baron Liebig's recent letter on the agricultural value of town sewage, and also a shorter one introducing it by Mr. Mechi, in which he says, "It settles definitively the question, hitherto much disputed, of the value of a ton of town sewage, taken at its outlet." And further on Mr. Mechi assumes that Baron Liebig's estimate establishes the value of 4*d*. per ton.

Is it really the case that in Baron Liebig's letter there is to be found a definitive settlement of the important question of the value of the manurial constituents in a ton of average metropolitan sewage? Nothing of the kind. The substance of what Baron Liebig really does say may be stated in a very few words. He says that *if* the average sewage have a certain assumed composition, and *if* to every 100 tons of sewage of such composition rather more than 1 cwt. of superphosphate of lime be added, it will then (after deducting the cost of the superphosphate) be worth about 4*d*. per ton, reckoned according to the constituents it contains; but that if the superphosphate of lime be not added, it will only be worth 1½*d*. per ton.

But does Baron Liebig himself claim that his estimate is founded upon sufficiently established information as to the average composition of the metropolitan sewage? Quite the contrary. We have his own opinion on this point very clearly stated. In reference to the analysis of sewage upon which he founds his calculations, he says—"Lacking more certain data, I take Professor Way's analysis of the sewer water, which this most reliable chemist made at the request of the General Board of Health." He says—"Regarding the component parts of the best sorts of guano, we have certain and reliable data; those relating to sewer water are less so; but we might long ago have been fully informed of its average contents if, last year, at the mouth of each sewer in London, five gallons of water had been collected morning and evening every day during the week, and at the end of the seventh day one gallon of the collected seventy gallons subjected to chemical analysis." Again, he says, "In the calculation of the value of sewer water there is one factor doubtful, viz., the absolute amount of phosphoric acid, ammonia, and potash, which a ton of the said water contains." What, then, I would ask, does Mr. Mechi mean by telling the public that Baron Liebig's letter "settles definitively the question, hitherto much disputed, of the value of a ton of town sewage taken at its outlet?"

But is it even probable, judging from the evidence we have at command, that the average metropolitan sewage is anything like so strong as that upon the analysis of which Baron Liebig bases his estimates? Certainly not. I quite agree with Baron Liebig that, however much individual samples of sewage may differ from one another, the relation of the ammonia to the other valuable constituents may, upon the average, be considered as pretty definite; and since the ammonia is reckoned to give three-fourths (more or less) of the money value, we may take the relative amounts of ammonia in sewage as indicating, approximately, the relative values of different samples. Now Baron Liebig adopts, as the basis of his estimates, the analysis by Professor Way of a sample of sewage from the Dorset Square sewer, which gave 17.96 grains of ammonia per gallon. In reference to that sample I have this morning received a letter from Professor Way, in which he says that I have his full authority for stating that it was "much above the average," and he adds, "I should say fully twice the average strength." Again, Messrs. Hofmann & Witt give as the average of their analyses of the undiluted sewage, that is the sewage without rainfall, 8.2 grains of ammonia per gallon. And again, taking into calculation the rate of flow, &c., Dr. Letheby's analyses, which constitute the most extensive series relating to the metropolitan sewage, give a lower average still. Lastly, from entirely independent data, I think there is very little doubt that the real average metropolitan sewage would show less amounts of ammonia, and the associated valuable matters, than even the average of Dr. Letheby's samples. In fact, I believe there is no doubt that 10,000 tons of average metropolitan sewage calculated by Baron Liebig's scale and method, but on the basis

of its real composition, would show a value of less than one-fourth of 166*l.* 13*s.* 4*d.*, so triumphantly assumed by Mr. Mechi on the basis of 4*d.* per ton.

I fully agree with Mr. Mechi, however, that the area over which town sewage can be profitably utilised must very much depend on the cost of application to the land. Indeed, at a recent meeting of the committee of sanitary science at the Society of Arts I suggested that the Society should take some steps to get reliable engineering information on this point. But what Mr. Mechi can mean by referring to Croydon, as if the experience there could be any guide as to the cost of raising sewage to given elevations, or were at all in favour of applying small quantities per acre, I cannot understand. It happens that I visited the Croydon meadows only last week. I was informed that the sewage of 18,000 to 20,000 people was confined to something under 250 acres, and to succulent crops exclusively. Now, if we say 250 acres and 20,000 people we have, besides other matters, the excretal matters of about 80 people to each acre; which, at Mr. Mechi's estimate of 1*l*s. per head would give 64*l.*, and at 6*s.* 8*d.* per head, the estimate of Mr. Lawes and myself, 26*l.* 13*s.* 4*d.* for the value of the manurial constituents per acre. But what was the complaint at Croydon? Why, that notwithstanding, as Mr. Fenton told us in his evidence last year, the dry weather sewage amounts to 800,000 gallons per day, which is equal to 40 gallons per head per day, or 65 tons per head per annum without rainfall, they had been suffering during this dry season for want of a sufficient bulk of sewage for the area of land under irrigation, and that the crops of meadow and Italian Rye-grass had in consequence not answered expectations. The system at Croydon, too, is to let the sewage flow over a given area of land for several days and nights together.

I quite agree with Baron Liebig also, that there is one factor "doubtful" in the calculation of the value of sewer water, viz., its average composition. I would suggest that a mixed commission of engineers and chemists, in whom all might have confidence, be appointed to superintend the gauging, sampling, analysis, and calculation, in such manner as really to settle definitively the approximate average composition of the metropolitan sewage, as it will have to be dealt with in any plan of utilisation. From my own experience of such matters, however, I do not think it would be sufficient to take samples night and morning only, as proposed by Baron Liebig.

But besides the engineering, chemical, and agricultural factors, there is a *moral* factor still wanting, without which a satisfactory solution of the sewage question bids fair to be long postponed.

This moral factor is courage on the part of all really anxious for the profitable utilisation of town sewage to deal candidly with the public in regard to it, and not to misrepresent the real facts of the case.

This leads me to say a few words in conclusion on Baron Liebig's unworthy allegation—not only unfounded, but directly contrary to the facts—that the manufacturers of artificial manures are "inimical to the utilisation of sewage, and, in the battle which is being fought, they constitute the inimical army whose forces should be by no means underrated." Such an accusation may perhaps be naturally enough conceived of, and propagated by schemers who are directly interested in keeping the public ignorant on this question; but that it should be echoed by Baron Liebig, not only without a word of evidence in its support, but when himself putting forth estimates and calculations, which, if based upon well established facts, would most strikingly confirm the estimates and views of those he seeks to traduce, is surely highly discreditable; though it will be well understood by all acquainted with recent agricultural discussions having no reference to the sewage question. It is, however, doubly discreditable to his prompters here, who, better still knowing the facts, have sought to get the weight of Baron Liebig's authority in condemnation of those whose statements they cannot refute. They seem to forget that as the public becomes better informed on the subject, they will be apt to conclude that the allegation of mean and improper motive and bias, is perhaps less appropriate against those who fearlessly put the facts before them in spite of obloquy, than against those who are constantly reiterating erroneous statements. *J. H. Gilbert, Harpenden, St. Alban's, Aug.* 25.

THE HOLME PIERREPONT LEICESTERS.

ON Wednesday of last week the sale of the last of Mr. Sanday's Leicesters took place at Holme Pierrepont. The lots included 64 shearling rams, and 88 shearling ewes.

This famous flock, which has made Holme Pierrepont a household word with breeders of Leicesters throughout the British Islands, is now dispersed all over the world. Many have been purchased for Australia, America, and the Continent, especially to Spain; but the greater number have been kept in Great Britain and Ireland. In retiring from the labours to which he has so long and so successfully devoted himself, Mr. Sanday has the satisfaction of being assured that he has done more for the preservation in its purity of the Leicester breed of sheep than any other competitor in the same pastoral pursuit. No breeder of sheep has obtained so many prizes, and his collection of medals, awarded at the several shows in England, Ireland, and Scotland, at which he exhibited, is sufficiently numerous to furnish forth a respectable museum.

The sheep were penned up in the Home Paddock, and were attentively inspected by the visitors. Mr. H. Strafford was the auctioneer. At the luncheon which preceded the sale, Mr. Torr, Aylesby Manor, in proposing the health of Mr. Sanday, said:—

I decline to make any lengthened speech in reference to the gentleman whose health I am about to propose to you, and even if I attempted to do so I have no words of my own which would enhance his character in your estimation. If I tell you that William Sanday, of Holme Pierrepont, is an honest man, and that an honest man is the noblest work of God, I need say but little further to make you be of the same opinion as I am, and as I believe you are already. He has long been connected with this, the classic ground of Leicesters. That ground has been well tilled, and it is now left in as fertile a state as when he took it; and those who borrow from him on this occasion that blood which he inherited, I trust may receive from it as much good as it has done to him, and I hope they may live to transmit it as pure as he has done. Various opinions may, and I believe do, exist throughout the length and breadth of the land on the subject of breeding; to my mind the world is wide enough for us all; but still I hold to this position, and it is one which Mr. Sanday has held throughout his career, that the greatest attention should be paid to preserving pure that strain of blood that came from one of the first philosophers in this country. I refer to Mr. Bakewell. Mr. Sanday has trod in his footsteps, and preserved the purity of the breed intact; and for so doing he has not only deserved the thanks of this company, but of the country at large. And here, perhaps, I may say that such thanks have been paid to him in one way, and that a public way, for he has won, perhaps, more prizes than any other breeder of Leicesters in the kingdom. If that be a test of public thanks, it should be satisfactory to Mr Sanday, and it must be satisfactory also to those who possess any more of his blood, that the animals have bred so well and have fared so well when offered to public competition.

The toast was drunk with enthusiasm.

Mr. Sanday, on rising to return thanks, was greeted with renewed cheers. He said:—

"I wish, Mr. Chairman and gentlemen, that I could thank you as the high compliment which you have just paid me deserves, but my feelings will not allow me to do so. At any time I am a bad speaker, but on the present occasion I feel it impossible to express my sense of your kindness. I think, gentlemen, you are all aware that it has always been my study to use my best endeavours to breed Leicesters as well as I possibly could, both for my own interest as well as for the benefit of the public at large. In all my transactions I have endeavoured to do as I would be done by. And that, gentlemen, is as much as you can expect from any man. I trust that the purchases will be satisfactory to all who buy. I could only have wished that we had a few more here, but those that are here I am delighted to see. Whatever the sheep fetch, I shall be perfectly satisfied. I shall now only thank you most sincerely and cordially, and wish you many years of happiness and prosperity."

Mr. Strafford's health was warmly drunk, and the compliment as warmly responded to.

RAMS.—SHEARLINGS.

The following is a return of the principal sales and the purchasers:—

Lot.	Gs.
1. Mr. Garde, Co. Cork, Ireland	30
2. Mr. Hall, Scorbro	30
3. Mr. Biddle, Warwickshire	18
4. Mr. Cresswell, Ashby-de-la-Zouch	62
5. Mr. Turner, Exeter	41
6. Mr. R. O'Dogherty, Cornwall	26
7. Mr. W. Morris, Cotgrave	20
8. Mr. Hall, Scorbro	40
9. Mr. Torr, Aylesby Manor	32
10. Mr. Dixon, Brands Barton	24
11. Messrs. Ashbourne & Staples	20
19. Mr. Morris, Cotgrave	20

The remainder of the 64 lots realised from 3*l.* to 16*l.* each.

SHEARLING EWES.

Lot.	Gs.
1. Mr. Torr, Aylesby Manor	20
2. Mr. Cresswell, Ashby-de-la-Zouch	32½
3. Mr. Hall	55
4. Mr. Turner	40
5. Mr. Darrell	32½
6. Mr. W. Morris	27½
7. Do.	27½
8. Mr. Stamper, Oswadkirk	25
9. Mr. Waters	17½
10. Do	20
11. Rev. M. O'Grady	17½
12. Mr. Pinder, Barrowby	22½
13. Mr. Torr, for Mr. Riall	20
16. Mr. Nicholls, Packington	20

The remainder of the lots fetched from 10½ to 17½ gs.

SUMMARIES.

August 19th Sale:—		
64 Rams	£794 17 0	
Average, 12*l.* 8*s.* 6*d.*		
88 Ewes	462 10 6	
Average, 5*l.* 5*s.*		
	£1257 7 6	
THE WHOLE OF THE SALES:—		
July 9, 1862,—72 Rams	£1905 15 0	
Average, 26*l.* 9*s.* 4½*d.*		
Sept. 10, 1862,—37 Rams	688 16 0	
Average, 18*l.* 12*s.* 4*d.*		
August 19, 1863,—64 Rams	794 17 0	
Average, 12*l.* 8*s.* 6*d.*		
173 Rams, averaged 19*l.* 12*s.*	3389 8 0	
Sept. 10, 1862.—245 Ewes	1526 14 0	
Average 6*l.* 4*s.* 8*d.*		
August 19, 1863.—88 Ewes	462 10 6	
Average, 5*l.* 5*s.*		
333 Ewes averaged 6*l.*	1989 4 6	
	£5378 12 6	

Total 506 Sheep, averaged 10*l.* 12*s.* 6*d.*

At the instance of Mr. Torr, a collection was made as a parting gift to George Newton, the shepherd of Mr. Sanday's flock. Mr. Torr paid the highest encomiums to George's skill and attention; and the appreciation in which this excellent and most deserving man is held, was fully testified by the contribution of 14*l.*, which Mr. Torr presented to George in the drawing-room, with many warm wishes for his welfare. *Abridged from the Nottingham Guardian.*

THE APPEARANCE OF THE CROPS.

BERKSHIRE: *Sutton Courtney.*—Wheat, very good; Barley and Oats, very good; Beans and Peas average; Potatoes, good; Root crops bad, Mangels excepted; Hay, short crop. *E. Pullen.*

STAFFORD: *Penkridge.* Wheat, over average; Barley, full average; Oats, average; Beans, good crop, not heavily cornel; Peas, average; Potatoes, average, free from disease; Root crops, good Turnips, Mangels indifferent; Hay, very light, well harvested.

WEXFORD: *Larchill, Kilmore.* Wheat, little sown here, but a good average crop. Barley, rather an uneven crop; about one-half thin, but a good grain; the other half very heavy, and excellent in quality. Oats, autumn-sown thin and short; spring-sown a heavy crop, but affected with blight. Beans, generally thin and short, slightly blighted, better than last year, but below an average. Potatoes, good in quantity, excellent in quality; the tubers are beginning to be diseased; uncertain how they may turn out; all root-crops promise well. Hay a very light crop. *William Boxwell.*

Home Correspondence.

The British Farmer.—To use the words of a contemporary, "farmers on the whole are an eminently good sort." Taken as a class, you find less affectation, less vulgarity—in a word, less snobbishness among them, than perhaps among any other class of the community. In book knowledge, granted, they are certainly inferior, and their minds no doubt more sluggish than those of the inhabitants of towns and cities. But, after all, if we exclude a very small circle, how much of the enjoyment of life consists either of literature, or of keen intellectual contests? The farmer generally has good sense, good nature, and is always hospitable. He is to be sure not usually the kind of man one would care, or be safe to travel with to Rome or Athens. But in truth, within his own house, or in his own fields, he is often a capital companion, and moreover always an unexceptionable host!

Crops in County Dublin.—The crops in this district are very promising. All the Cereals sown in due time are particularly good, and now fit for reaping. Late sown Oats are light and uneven; the crop of Black Tartary Oats is remarkably good throughout the parts of the county which I have seen. Green crops have made very rapid growth since the late mild, but somewhat copious rainfalls; these rainfalls have rather benefited the corn. The yield of Grass this year has been under an average. This day fortnight I had a tour through parts of the counties of Kildare and Carlow; on the light lands there, the crops are poor enough. The large number of Scotch farmers who have settled on the Duke of Leinster's property have very fine crops. I was particularly pleased with Mr. Anderson's crops at Livitstown, which I went to see especially; there is a large breadth of late sown corn, which will yield far below an average. *T. B.*

The Norman Rabbit.—The autumnal tourist who is wearing out his fortnightly or monthly return ticket between London and Paris by "doing" the towns for which he has a coupon, cannot have failed to notice in the markets and shops of the Norman towns the large wicker cages of sleek high-bred looking rabbits. The increased intercourse between ourselves and the French shows each nation how much it may learn from the other, and in things of great importance and of amount sufficiently large to employ the capital of a "company limited" we are quick enough to take pattern. It is, however, in the minor details of rural and domestic life that we may learn from the French as much as they may in return gather from us of domestic comfort. "Mony a pickle maks a muckle," and a close inspection of the contents of one of those clumsy tilted carts, drawn by a white horse of the rough Rosa Bonheur stamp, would make us wonder at the many ways employed by many of the French to eke out the very scanty income on which many of them live. From the fact that at the death of the head of the family the property is divided into equal parts among the children, we may easily account for there being so many small estates in France, on the produce of which it is almost an impossibility to do more than live. They are too small to work is farms, and too large for gardens. Among the class of people above mentioned, the breeding and rearing of rabbits is carried out to a great extent; and the numbers of them sold very large. Except in the large manufacturing towns in England, and the poorer classes in London, one hardly ever sees a rabbit at table in our country, and one reason for this is, that with us the breeding and rearing of rabbits gets no attention except as regards the lop-eared variety for exhibition. The Rabbits that are with us sent to market for consumption are generally full grown ones, consequently extremely strong and nasty in flavour; or else young ones that have been half fed and badly tended, and therefore are dry and lean. From these causes an animal that on many farms might be reared and fed at a nominal cost, is in disrepute among us as an article of consumption simply, for want of development and attention. I should say that of course I mean reared in confinement. If an inspection be made of the higglers' baskets that bring the few rabbits sold in England to market, it will be found that the colours vary very much, all shades of all colours, but a great proportion are of the description called among the rabbit fanciers blood suckers, *i. e.* nearly all white, with

a few grey patches and marks on the head, ears, and over the back. If these be examined they will almost always be found to be thin, and badly furred, indeed their presence is always a sign of degeneracy. The French rabbits, on the contrary, are nearly all of a rich golden brown like the common wild rabbit, with a rich tinge on the skin. They grow larger than ours, are better shaped, and will bring at least one-third more good meat to the table at an earlier age than ours. In shape this rabbit is large and high over the haunches, very small in the bone and feet, broad over the loins and shoulders, and very full in the neck; the dewlap is very large and well developed, the eye very bright and full, the ears fine, small, upright, and pointed. It is a very free breeder, very hardy, and attains early maturity. Some excellent specimens were shown at the poultry exhibition in Paris a short time since, and from the attention they received it was evident they are well known and appreciated in their own country. It should be understood the above remarks do not apply to wild rabbits. *E. P. B.*

Practical Education for Working Men.—The majority of working men in rural districts not being able to keep their children long enough at school is the principal difficulty which competent teachers have to contend with. The prevalent practice of changing masters at short intervals retards the children's progress. It is difficult to anticipate what varied duties a boy will be called upon to perform in his journey through life, but it is an easy task to state what scholarship is indispensable for a man who aspires to bring himself up to the standard of qualifications for the highest appointment in a particular sphere of labour. I have been surprised at some of the most advanced agriculturists referring to the extensive use of expensive implements and machinery as demanding a better education than formerly. I should like to be shown where I am wrong in stating that the superintending of labour, and the applying a specified quantity of manure on a given extent of surface, either broadcast or in drills, are the most important duties of farm stewards. A man may be a first-class builder and thatcher of corn and hay ricks, a sower of seeds, and ploughman, without being able to read the alphabet; but without the requisite scholarship such men must labour under a disadvantage. For instance, set an illiterate man to apply 360 cubic yards of farm-yard manure and 3 tons of guano to a 30 acre field, and he would be in a fix to do so in a systematic manner; but such an operation is quite simple to a ploughman who can reduce an acre of land to inches. Although I cannot boast of my accomplishments, my experience emboldens me to state that there is nothing to hinder a young ploughman, who can read the English language, to qualify himself for a steward or foreman even on a farm where there is a steam engine and the most advanced systems of agriculture carried on. Some complicated threshing machinery propelled by an engine is managed and worked by very illiterate men. A thorough practical knowledge of farm implements, being well grounded in arithmetic, possessing tact for superintending labour, and a knowledge of stock, are the most important parts of a practical agriculturist's duties. A great deal of misunderstanding is caused by confusing indispensable knowledge with what are useful but unnecessary accomplishments. Farm management and land improvement embrace so many details that very few master the whole of them. In addressing you thus, I do not pretend to be able to score many points either in indispensable knowledge or accomplishments, but my varied experience has given me opportunities of observing the education necessary for general occupations. Scholarship is a pass key to literature and science, and enables man to make scientific research; but very few men acquire "a knowledge of common things" like land drainage, the superintending of labour, our social system, the payment of wages, and a knowledge of technical and abstruse subjects. It is not creditable to farmers that they should be indebted to the late Rev. James Duncan, of Denholm, by Hawick, for his essay on Grub in Turnips. A knowledge of insects and of plants would enable farmers to solve such problems for themselves. As a general rule, well-to-do farmers give their sons an education to enable them to make scientific researches, but the Latin learned at school is soon forgotten by the majority of farmers. Mr. M'Lagan, of Pumpherston, and several farmers consider that an agricultural college is much wanted in Scotland. Farmers' sons could attend lectures on chemistry, geology, and other sciences in the towns where they are educated. I have seen men of independent means, whom the late Lord John Scot jocularly designated "mud students," as greasy as a butcher, clipping sheep, and going among the ploughmen and learning to balance a swing plough. Perhaps I may be wrong, but I fancy Cirencester College cannot give scope to all who attend it for learning to plough, sowing seeds, building and thatching ricks, and clipping sheep. It is no business of mine whether you, Sir, graduated at a university, but you would have sufficient scholarship for performing the duties of a farmer, and even of an editor, before your father would have trusted you with the management of a farm. I have seen the most highly cultivated districts in England and Scotland. Agriculture has been brought to such perfection by comparatively ignorant men, that it is now called a science. A man cannot acquire too much of experimental science, which is of practical utility; but it is positively ridiculous using technical and abtruse subjects as tests of a man's abilities. Although a knowledge of the languages is required for the duties of a clergyman, "S. G. O," in England, and Dr. Begg in Scotland, have furnished proofs that their scholarship is no better than old lumber when meddling with farming economics. Some believe that science is something else than knowledge practically applied. *W.*

The Steam Plough Essays.—The interesting notice you gave of the steam plough essays rejected by the Journal Committee of the Royal Agricultural Committee, created general dissatisfaction that the Journal should not give this information to its members. This Society has expended one way or the other over a thousand pounds to obtain a practical method of applying steam power to the cultivation of the soil, and the gigantic importance of the satisfactory solution of this problem is fully known and appreciated. Yet although the public are anxious for information, and notwithstanding the large amount expended by the Society, the Journal has contained next to nothing upon this subject—so that its members have to obtain any information they may require elsewhere. This is as if the Society were inclined to desert its own offspring, and leave to others the task of supplying information on this—a subject almost of its own creation. The last two Journals have been occupied to the extent of 100 pages mostly by the "Foreign Intelligence" of the editor, which I venture to say one quarter of the members do not take the slightest interest in. It was not until lately that the Journal committee showed the least wish to supply its members with any information of value upon the progress this subject was making, and then came the offer of a 25*l.* prize for an account, which according to the rules must necessarily be very restricted. This proffered prize it seems, meagre and paltry as the amount is, called forth some competitors, and what is most remarkable instead of their productions being printed in the Journal, they come out as pamphlets, price 1*s.* each. The reviews you gave of them would show that they are cheap at the money, and therefore, instead of members getting this for nothing, as they might reasonably expect to do if they would now read them, 1*s.* each has now to be paid. It is by no means common for a paper offered to the Society to be printed elsewhere. Is there any reason why Mr. Hutchison's meritorious work did not appear in the Society's Journal? If so this reason should be known. Can any of your readers supply information on this head? It would be worth knowing if they could. The Society having expended so much of the members' contributions in promoting steam cultivation, it is assuredly due to the members that they through the Journal should be supplied with a proper and satisfactory account of the progress of the enterprise. A 25*l.* prize for a thorough and adequate handling of the subject is ridiculous, and therefore I readily endorse your views that such an amount be apportioned for obtaining a complete and thorough investigation of the subject as may be equivalent to the trouble and expense of doing it; at the same time I would make one express condition—that practical and competent men be the judges. It is the misfortune now a days for "patrons" of agriculture to delude themselves into the belief that they are "authorities" in matters upon which they are scarcely novices. Another word—to repeat the question asked by a contemporary in regard to the late essays: "Who were the judges?" *A Member of the Royal Agricultural Society.*

Societies.

ROYAL AGRICULTURAL OF IRELAND.

The Kilkenny meeting of the Royal Irish Agricultural Society opened under most favourable auspices. The city is in a rich district, is large and populous, and is surrounded by a spirited gentry and an intelligent and well-to-do class of tenant farmers. The season, too, has buoyed up the flagging spirits of the nation, Ceres having been propitiated this year by her votaries in the sister country.

During our railway run from Dublin to Kilkenny, the surrounding objects directed our thoughts to the position and prospects of Irish agriculture and the influence exercised thereon by the Royal Irish Society, whose exhibition we have come to examine.

The first reflection that arose in our mind is one which, doubtless, will form the topic for the speech-makers at the Society's banquet this evening; we mean the prosperity of the country.

No person well informed on the state of Ireland will deny that the small farmers have had a trying time of it since 1859; sore distress prevailed too among the labouring classes, but these are temporary checks caused by natural agencies, to which every country is liable, and not surely equal in intensity to the privation produced in parts of Britain by unnatural causes. We have had and heard several extraordinary arguments (?) regarding the recent progress of Ireland. An influential member of the Royal Irish Society, who happened to travel with us, is full of the notion that Ireland is going fast to ruin, because she is not growing all her own breadstuffs. The cash payment for grain imported is in his opinion—and it is one shared by many—draining away the wealth of the country. We should like to see more corn raised in Ireland, and all her light lands under the plough; but it is preposterous to argue, as our friend does most warmly, that Ireland is on the road to ruin, because she imports corn. Why, look at the remarkable progress in her exports of live stock. We give here the numbers for four well marked periods:—

	1790.	1826.	1849.	1859.
Cattle	19,457	57,427	196,042	302,043
Sheep	?	62,929	255,682	429,360
Pigs	5,685	73,913	110,787	368,275

Another subject which engages our attention in travelling through Ireland is her climate. It is said on almost all sides that the climate of that country is not at all adapted to tillage; it is even broadly stated that the weather has of late become so fickle as to render it next to impossible to grow remunerative cereal crops. For our own part we can only say, as the Duke of Argyle said lately of similar statements regarding the climate of Scotland, that much of what is said on this subject is sheer nonsense. They have in Ireland as good a climate for Wheat as we have in the south and south-east of England. But the good farmers of Ireland raise excellent crops of Wheat and splendid crops of Oats. We had lately an opportunity of examining a large farm of very indifferent land, which Mr. Anderson, a Forfar man, rents along the railway to Kilkenny, and by good tillage and judicious management, he finds no difficulty in raising remarkably fine crops of Fenton and Champion Wheat. The climate of many parts of the west of England and Scotland is worse than that of Kildare. There are thousands of acres of unprofitable Grass land in Ireland at present, which by a similar course of treatment would yield remunerative crops of Wheat and Oats; and we think the statement is worthy of the serious consideration of the Royal Agricultural Society, which by a timely discussion of the subject could direct public opinion in a healthy direction.

This year's Show is one of the most successful held in the sister country. The interest it has created in Kilkenny city and county, and the select character of the stock and implements, show signs of progress and a growing taste; and the patriotic way in which the local parties have responded to the appeal of the National Agricultural Society are convincing proofs of the advent of a new state of things in Ireland. When the Society held its last meeting in Kilkenny, Ireland was drained to the dregs, and the cultivation of disaffection was thought more about by many of the labouring classes than the tillage of fields or the caring of stock.

The time at our disposal only permits us to give a very hurried notice of the principal prizes:—

Section 1.—Bulls calved on or after January 1, 1858, and previous to January 1, 1861. The 1st prize goes to Mr. Butler of Ballycarron, Co. Tipperary, for *Soubador*, bred by Mr. Richardson, of Lisburn. *Soubador* is also awarded the Gold Medal as the best of all the prize bulls. He is a well formed animal; has Warlaby blood, and among other good points, a rarely-developed twist. The 2d prize is awarded to Mr. Cooke of New Ross, for a massive bull, *Paterfamilias*, bred by Mr. Carr, of Stackhouse, Yorkshire. This animal is well bred, has many good points, a very full brisket, but is a little plain about the tail.

Section 2.—Bulls calved in 1861. The Marquis of Waterford has carried off the two prizes in this class by two animals out of Mr. Christie's bull *Foundation*. The 1st prize was won by *Field Marshal the 2nd*, whose muzzle we do not like; and the 2nd by *Knave of Hearts*, a well furnished white bull. Both these animals are very tender in their feet; and the Knave of Hearts has a plain rump, and is quite too fat. If the unnecessary or injurious fat on this beast were removed, we rather think the points to admire would suffer very considerably.

Section 3.—Bulls calved on or after January 1, 1862. The 1st prize goes to Viscount de Vesci, for the *Crown of Lothian*, out of Lamp of Lothian, and bred by Mr. Crosbie, of whom, it is said, he was purchased for 150*l.* Crown of Lothian is a lengthy bull for his age. His fore ribs, though not bad, would scarcely satisfy Mr. Douglas. The Marquis of Waterford comes in here for a 2d prize with his white bull *Anthony*, which is over-fed and too corpulent. Allan Pollok has a very nice animal, *John o'Tuam*, out of Dr. McHale, in this section, possessing, however, some of the weak points of his sire.

Section 4.—Bull Calves, dropped on or after Jan. 1, 1863. Mr. Crosbie, of Co. Kerry, gains the two prizes in this class. The 1st prize calf, now called Gwynne of Lothian, is remarkably even, and gives much promise of future fame. We should like to see the ribs a little less flat; but he handles as a first-class Short-horn should. The 2d prize calf, *Ravenswood*, is smaller and lighter, being two months younger; and he appeared a little "drawn up" as we saw him in his stand.

Section 5.—Cows in calf or in milk, of any age. In this class the competition was very close. Over and over again the junior judges, Messrs. Wiley and Wood, were in consultation with Mr. Wetherall, their veteran. The 1st prize was indeed decided soon, for *Recherché*, the property of Captain Ball, had been taken round the ring but once, when Mr. Wetherall waved his stick and said they saw enough of her. And the hero did betake himself and her out of the way, and thus gave the spectators a better opportunity of seeing that she did deserve the first place.

The contest evidently lay among Mr. Whalley's *Manuclita*, Mr. Blomfield's *Bluebell*, and Mr. Jones's

Vineleaf. Ultimately the steward placed the second prize card on old Bluebell, a cow ten years old, but whose eyes, gait, and style bespeak the vigour of fewer years. The Vineleaf was highly commended, and Manuclita got a simple commendation. As it is this class was a very creditable collection.

Section 6.—Heifers in calf or in milk, and calved in 1860. In this there were four entries, but two did not put in an appearance. It must therefore be 1st or 2d with the competitors. The rivals, however, contested the 1st prize very closely, and a capital match they made. Ultimately the first place was awarded to Mr. Anderson, of Grace Dieu, Waterford, for *Lady of Avenal*, which thus placed Mr. Barcroft's Lucia 2d. The Lady is even backed, symmetrical and compact, but her tail is not so well set on as that of Lucia.

Section 7.—Heifers calved in 1861, and now in milk or calf. The *Rose of Suir* takes the 1st prize for Mr. Anderson in this section. She is too much covered with fat on the ribs; and if her hind quarters were equally well fleshed, she would present almost all the lines of beauty in a Short-horn. Mr. Barcroft comes in second with *Mysie*, whose fore end is very good indeed, but shows more "light" than her competitor.

Section 8.—Heifers calved on or after January 1, 1862. The 1st prize is taken by a rich red heifer, *Woodflower*. Mr. Barcroft's beautiful little *Maid of Rocklands* comes in second; and Mr. Jones's (Waterford) heifer *Lady Spenser*, makes a capital third.

Section 9.—Heifer calves, dropped on or after January 1, 1863. We doubt the policy of giving prizes to calves. But the half score shown form a capital lot, and so far as we can judge from calves, promise well. *Wit of Gwynne*, a remarkably well covered calf belonging to and bred by Mr. Crosbie, wins 1st prize; Captain Ball's *Pride of the South* ranks 2nd; and Messrs. Bloomfield, Allan Pollok, and Ball, are each highly commended.

Altogether this show of Short-horns is one of the best we have had for a long time at any of the Royal Irish Agricultural Shows. We miss some familiar names in the prize list; but we are glad to see a new exhibitor advancing at once to the front ranks.

The show of Sheep, usually the prominent feature at the Royal Agricultural Society's Shows in Ireland, does not present as large a number of entries as has been the case with some of the late exhibitions. Mr. Turner, who sends over a lot of very nice sheep from Exeter, fails in taking a prize. This exhibitor obtained 1st prize in the Shearling Class of Leicesters last year at Limerick. His sheep are rather small, their points are very beautiful, but the feeling in favour of size in sheep, now becoming general in Ireland, will not serve to make them general favourites. Mr. Owen, of Blesinton, takes 1st prize with a very capital shearling; his back rib and breast are very good, and the hind quarters show a rather improved development when his quality is compared with some Leicesters coming to late shows. Mr. Gregory Watkins, Droitwich, and Mr. Thos. Marris, Lincolnshire, take 2d and 3d prizes respectively. These sheep are larger than Mr. Turner's, and it would seem that the prize was awarded chiefly on this account. In the aged section for Leicesters, Mr. Owen takes 1st prize with a very fine two-shear; Mr. Longfield, Castlemary, being 2d. Mr. Owen's sheep is a fine even animal of good size; Mr. Turner, of Exeter, and Mr. Thunder, of Navan, another noted exhibitor, have a good many entries, but fail to take a prize. In the sections for ewes Mr. Turner is more fortunate, taking 1st prize with a pen of five beautiful shearlings. These sheep are small, but very neat. Mr. Owen, Blessinton, is placed 2d with five growthy sheep; but their condition is not up to his usual standard. The entries of lambs were few, and the quality scarcely average—Mr. Mowbray, of Mountrath, takes 1st prize for five nice lambs. In the class of "Other Long-woolled Sheep," we have Mr. Beale Browne successful in almost every instance, taking 1st, 2d, and 3d prizes with shearling Cotswold rams; 1st and 2d for aged Long-woolled rams, and his shearling ewes were fit to compete at any exhibition; they were deservedly placed first.

In the Sections for Southdowns, Mr. Marris, Lincolnshire, is chiefly successful; his sheep are fair, but nothing more. The entries are few in these sections.

The Shropshires are few in entries, but the quality of the sheep shown here is superb. Mr. Chas. Wm. Hamilton exhibits some capital sheep. His shearling ewes are extremely good and perfectly uniform; indeed in this department the uniformity of the breed shows that typical points have been impressed on this valuable breed.

The show of Pigs was fair as regards number, and the quality of the animals was as fine as need be desired. Mr. Joyce, of Waterford, may be said to be eminently successful; but a point in this show deserving some notice is when sows suckling ten and eleven young pigs have defeated animals with few. Mr. Malcolmson, of Portlaws, shows a Berkshire sow with 11 young pigs, for which he is awarded 2d prize. A distinction has not been made between white and coloured breeds; all compete in same sections. The Commissioners of National Education took 1st prize with a very fine Yorkshire Sow from a large section of coloured pigs.

GLOUCESTERSHIRE: *Cirencester, Aug.* 26 and 27.—The charming site of this year's show, Lord Bathurst's Park—the excellence of most of the breeds and classes of stock exhibited—an illustration, which is now never wanting at any of our provincial meetings, of steam cultivation—a trial of reaping machines—a very good general show of agricultural implements (the last three items presided over by Mr. Savory of Gloster, and Mr. Coleman, late of the Royal Agricultural College, as judges)—a very considerable company of spectators, in spite of very unfortunate weather:—these make up the principal features of what, had it not been for the rain, would have been a very successful meeting. Mr. Fowler received the Society's prize for the best illustration of steam ploughing. His apparatus was indeed the only competing one on the ground.

There were very good classes of Short-horns and Herefords, including no fewer than 67 entries of the former breed. Mr. Langston's LORD OF THE HAREM and Mr. Lane's MAJESTY are respectively 1st and 2d in the class of older bulls; the former the more massive and the grander animal of the two, particularly deep and good in his hind quarters, though somewhat coarse in the shoulder. Mr. Woodward takes the 3d prize in this class. Mr. Holland, M.P., is 1st, and Messrs. R. & W. Hewer 2d and 3d in the younger class of bulls. There is a capital class of bull calves. Mr. Robinson, of Slimbridge, 1st; Lord Radnor, 2d; and Mr. Stratton, commended. Three capital entries of bull, cow, and calf for the prize offered by Mr. Bengough, result in Mr. Stratton's success as first, with a second prize to Mr. Lane. There are capital classes of cows and heifers, and heifer calves. The best cow is shown by Mr. Lane, and the second by Mr. Langston. The best heifer in calf is shown by Mr. Taylor, of Chipping Norton; the second by Mr. W. Butler (commended at Worcester); and the third by Mr. John Lane.

Mr. Holland's prizes for Yearling Heifers go—1st, to Mr. Logan, of Newport; 2d, to Lord Radnor; 3d, to Mr. Stratton; and the Heifer Calves to—1st, Mr. Stratton; 2d, Mr. Garne. The majority of the stock is shown by tenant farmers, and nothing is a more striking mark of agricultural progress in this district than the superiority of the ordinary live stock in the fields which one sees as a consequence of this extension of pure bred Short-horns—now as compared with 20 years ago.

The Herefords are well shown. Mr. Read, of Elkstone, near Cheltenham, whose sale comes off next Friday, takes the first prize for yearling bulls; Mr. Morris, of Ledbury, the first prize for older bulls; and Mr. Taylor, of Ledbury, the first for bull calves; Messrs. Duckham, J. Smith, Bradstock, Wigmore, Bennett, and Hewer are among the other prize takers, Mr. John Wigmore, of Weston under Penyard, Herefordshire, being particularly successful.

Forty-two capital entries of Cotswold sheep make a magnificent display of this noble breed; Mr. Smith, of Bibury, Mr. Read, of Elkstone, Mr. Elwes, Mr. Handy, Mr. Lane, and others being successful. There are very short classes for short-woolled and Shropshire sheep, Lord Radnor and Mr. Holland being successful.

A very good show of Pigs, containing about 60 entries, Messrs. Hobbs and Yells, the Rev. J. H. Bailey, of Swindon, the Earl of Radnor, and the Royal Agricultural College being successful.

The Horse Ring was as attractive at Cirencester as it generally is elsewhere. And the classes of both agricultural and hunting horses were fairly filled. Mr. Holford, M.P., the Duke of Beaufort, Messrs. Hanks & Purday, being successful in the agricultural classes.

The Society and its visitors dined together—a large company of ladies and gentlemen—on Wednesday evening, in a tent within the park, which sheltered them from the heavy rain which fell all the afternoon.

Reviews.

An Elementary Treatise on Soils. By Thomas Baldwin, of the Agricultural Department of National Education in Ireland. Second Edition. McGlashan & Gill, Upper Sackville Street. Pp. 68.

We call attention to this useful little book, which discusses, in ten chapters, the formation, composition, properties, and characters of various soils. Mr. Baldwin is about to give a course of lectures at the Royal Agricultural College. The following is his description of the way in which the faults of clay soils may be corrected.

"There are three means by which these defects may be corrected. 1st. Drainage; 2d. Altering the texture of the clay; 3d. Efficient tillage. We shall offer a few remarks on each of these.

"Drainage is the first and most essential step to be taken in the improvement of clay land. As we discuss the subject of drainage in another chapter, it is only necessary to observe here that conflicting opinions are entertained as to the proper depth and frequency of drains in clay soils.

"In land through whose pores water finds its way to the drains, a manifest hydrostatic law can leave no room for doubting the superiority of deep drains. The advocates of shallow draining urge that clay soils and subsoils are so tenacious that water cannot percolate through 3½ or 4 feet of them, which is the usual depth of deep drains; and that it has a greater chance of finding its way into shallow than deep drains. The advocates of shallow draining on the very stiff and impervious kind of land now under consideration seem to us to forget that a thin layer will hold water on its surface as completely as one 4 feet thick, and that very little good can be produced by the drainage of such land at all unless its texture is so improved as to permit some at least of the water to percolate through it. It may be said, however, that water descends through the cracks and fissures that are formed in clay land, and that as these cracks and fissures do not generally descend to the depth to which deep drains are generally cut, shallow drains may carry off surface water better than deep ones. This appears to me the great argument in favour of the shallow draining of heavy clay soil. But I cannot admit that it is a final or conclusive one. It would possess some weight if our object were merely to get rid of the surface water as speedily as possible, and if we did not aim at improving the texture of the soil. The speediest way of removing the water off wet land is not ultimately and necessarily the best. The best system of drainage appears to me to be that in which the water percolates uniformly through the entire body of the soil, and in its descent, 'warps' itself round the particle of the clay, leaving behind it the fertilising matters it holds in solution, and diffusing moisture evenly through the soil. And though I hold that clay land cannot be improved without drainage, I maintain at the same time that the improvement of heavy clay is but half accomplished unless steps are taken to improve its texture. Regard being had, then, to the full improvement of which clay land is susceptible, I cannot refrain from expressing my opinion in favour of drains from 3½ to 4 feet deep, and about 25 feet apart.

"The other means which suggest themselves for the improvement of stiff clay land, are—(1) mixing with sand; (2) paring and burning or charring; (3) liming; (4) skilful and effective cultivation. The last may be said to include all the rest, at all events some of them. It will, however, be more convenient to consider each separately.

"The application of sand to heavy clay land would appear one of the most common sense ways of overcoming its extreme tenacity. The instances are, as we shall afterwards see, innumerable in which the contrary practice of adding clay to light land has been attended with the best results. We believe, however, there are comparatively few well authenticated examples of the improvement of clay land by applications of sand. The late Mr. Pusey has made the same remark in one of his valuable essays. We have, however, seen sand applied with marked success on clay land in the south of Ireland.* And, according to the 'Scottish Farmer,'† an application of from 200 to 300 loads of sand to heavy clay land has been found of permanent advantage in North Britain. 'The cost of the dressing will vary from 2*l*. to 5*l*. per acre; but the outlay will be repaid even with only eight or 10 years of a lease to run.' When sand can be applied at the above cost of from 3*d*. to 6*d*. per load or ton, the outlay may be expected to prove highly remunerative. In many places it will cost far more; in some cases the sand may be so remote, or so ill-adapted for the purpose, that its application should not be attempted.

"Under those circumstances torrefaction, or the agency of heat, may be resorted to for improving the character of very heavy clay land. 'Paring and burning' is a very old practice, and one on which the most contradictory opinions are entertained. Some contend that it is an injudicious, if not ruinous, practice on any land; others maintain that on clays and peats it is very beneficial. We are of the latter opinion, and shall now proceed to give a concise sketch of the theory and practice of the operation."

Then follows an account of the operation of paring and burning, which we may give hereafter. Lastly Mr. Baldwin under this head describes the operations of liming and of tillage. His remaining chapters on light soils, peaty soils, &c., are equally well done.

Ram Sales.

Shropshires.

MR. MASFEN'S SALE.—Six rams were let at Pendeford, on Tuesday se'nnight, at over 10*l*. each, and 29 sold, averaging 11*l*. 17*s*. 9*d*. Mr. Preece, of Shrewsbury, was auctioneer.

MR. MAY'S SALE, at Elford Park, near Tamworth,

* "It has been estimated that 300,000 tons of sea sand are annually removed from the beach of Youghal in the Co. Cork. It is carted many miles inland. It is brought up the Blackwater in boats or 'lighters.' We have paid 1*l*. per boat of 40 tons for it, on the banks of that river, to which is to be added the cost of carting it from the wharf. In that part of the country the sand, which contains some animal matter, is applied by the tenant farmers to all kinds of land. It proves beneficial even on light land. The explanation of this is, that the land having been subjected to a scourging and objectionable system of grain crop culture is very grateful for the small quantity of ammonia and phosphates which the animal matters present in the sand are capable of conveying to the soil; and also, that the sand is made into a compost with clay and the dung of the domestic animals. These substances are mixed together several months before the compost is required for use. I have seen excellent crops of Potatoes raised off very indifferent light land by this mixture. If repeated too often, however, on light land as has occurred in some instances with which I am acquainted, the quantity of silica becomes so excessive that the soil is permanently injured. A more correct and rational system, in such cases, would be the adoption of a suitable rotation of crops, the growth of green crops, and the conversion of these crops into beef, mutton, and manure. The use of sand could thus be dispensed with on all but the heavy lands.

† "Of January 15th, 1862.

was held on Wednesday se'nnight. Mr. J. B. Lythall disposed of 34 rams, including five old sheep, averaging about 9 gs. each. There were 110 ewes and theaves sold. Prices ranged from 45*s.* to 65*s.* per head, the average being as near as possible 55*s.* per head.

The Kinver Hill Flock.—The commended, highly commended, and specially commended, or reserved shearlings at Worcester, made 42, 50, and 35 gs. respectively. The other rams realised prices which brought the average to very nearly 15*l.* per head. There was a good demand for the ram lambs and ewes, but nearly every one seemed bent on obtaining a pen of theaves, consequently high figures were the order of the day. 7*l.* 7*s.*, 6*l.*, and 5*l.* 5*s.* each were made, and the 60 realised nearly 5*l.* each. The sale was conducted by Mr. Nock, of Bridgnorth.

The Grendon Flock.— Mrs. Baker's annual sale of rams and ewes took place on Friday se'nnight, the disposal of the animals being intrusted to Mr. Lythall. The average for the 32 rams, including two let, would be 9*l.* 19*s.* The ewes were very true to type and colour, and sold readily at from 46*s.* to 65*s.* per head, averaging 52*s.*

The Oxford Sales were held near Worcester College. A large number of very fine animals were put up to competition by Mr. Jonas Paxton, Messrs. Lyne, and Messrs. Mallam, and the attendance was very numerous, comprising all the leading agriculturists of the district, and not a few gentlemen from a distance.

Messrs. T. Mallam & Son disposed of 2 Oxfordshire Down rams and 30 ram lambs, bred by Mr. Button, of Botley. The rams fetched 15 guineas each. The price of the lambs averaged 7*l.* 14*s.* 6*d.*

Messrs. Paxton sold 200 Oxfordshire Down ewes and 2 rams, the property of Mr. Thomas Gillett, of Prior's Court Farm, Chievely. 184 ewes were sold at prices ranging between 45*s.* and 65*s.* each, the average being 53*s.* 7*d.* The 2 rams, both of which took prizes at the Battersea Show last year, realised 8½ and 9½ guineas.

Messrs. Paxton next offered some Oxfordshire Down shearling rams from the flock of Mr. Roberts, of Caswell, near Witney. Two 3-shear sheep were first put up, and were disposed of to Mr. Bateman of Lew, and Mr. Brown, for 9½ and 6½ guineas. Thirty shearlings were offered; the highest prices were 18½, 17, and 13 guineas, the lowest 5½, and the average 8*l.* 3*s.* 6*d.*

Next came 40 Oxfordshire Down shearling rams and a few older sheep, from the flock of Mr. C. Gillett, of Cote. The average being 14*l.* 2*s.* 3*d.*

Mr. Paxton next submitted 18 Oxfordshire Down shearling rams, from the flock of the Duke of Marlborough. The average price was 7*l.* 7*s.* 7*d.*

The next sale was that of 20 Oxfordshire Down shearling rams, the property of Mr. G. H. Barnett, of Glympton Park. The average price was 7*l.* 14*s.* 6*d.*

Mr. Paxton next offered 10 Oxfordshire Down shearling rams and a few older sheep, from the well known flock of Mr. H. L. Gaskell, of Kiddington. Mr. Leaver, of Studley, bought No. 1, the twin to which won the prize at Battersea and got 70 lambs last year, at 5½ guineas, and several others were purchased by the Duke of Marlborough, Mr. Franklin, and Mr. Monk, while some of the animals were withdrawn, the agriculturists present having apparently all been supplied with rams.

Thirty Oxfordshire Down ram lambs, the property of Mr. John Hutt, of Watereaton, were then submitted, and sold at the average price of about 60*s.*

The next and last sale excited great interest, being that of 50 Cotswold ram lambs, from the flock of Messrs. T. & G. West, of Bletchingdon, who have won so large a number of silver cups and medals, besides upwards of 250*l.* in money, at Birmingham, London, and in France. The highest figure was 18*l.* 10*s.*; other superior animals were bought for 15*l.* and 13*l.* 10*s.* The average price was about 6*l.* 10*s.*

Mr. Treadwell, at Upper Winchendon, near Aylesbury: 62 draft ewes were disposed of at an average of 55*s.* per head. A few wether lambs made from 35*s.* to 39*s.* per head. Eighteen shearling rams came next. The average for those was within a fraction of 9*l.* per head, the highest price made being 13*l.* 2*s.* 6*d.* Twenty-one ram lambs found ready purchasers at an average of 4*l.* 16*s.* per head, the prices ranging from 3½ to 7 guineas.

Cotswold Ram Sales.—On the 1st inst. Mr. Lyne sold for Mr. Smith, of Bibury, 44 sheep, at an average of 11*l.* 4*s.* 6*d.*

On the 3d inst, in Cirencester Market, Mr. Villar sold for Mr. T. Porter 30 sheep, at an average of 8*l.* 16*s.* 9*d.* Mr. Villar also sold in the market 20 sheep for Mr. H. Cole, of Ashbrook, which made an average of 10*l.* 10*s.* 6*d.* The other sales in the market were generally satisfactory. Mr. Beale Browne's sheep were sold by Mr. Lyne, and averaged about 6*l.*, also Mr. Thomas Barton's by Mr. Acock.

On the same day, at Barton Mill, Mr. Villar sold for Mr. John Lane 50 sheep at an average of 11*l.* 18*s.* 9*d.*

On the 14th inst. Mr. Villar sold at Sierford, for Mr. Edwd. Handy, 48 sheep at an average of 9*l.* 15*s.*

On the same day, at Fyfield, by Mr. Arthur Acock, Mr. Charles Barton sold 44 sheep, at an average of 14*l.* 14*s.* 11*d.*

On the 5th inst, at Shipton, by Mr. Villar, Mr. George Fletcher sold 52 sheep, at an average of 13*l.* 10*s.* 6*d.*

On the 6th inst., at Northleach, Mr. Villar sold for Mr. W. Hewer 50 sheep, at an average of 17*l.* 5*s.*

On the 7th inst, at Kilkenny, near Bibury, Mr. Acock sold for Mr. W. Garne 48 sheep at an average of 11*l.* 6*s.* 9*d.*

On the 8th inst, Mr. Acock sold for Mr. James Walker, at Northleach, 35 sheep at an average of 11*l.* 9*s.* 9*d.*

Southdowns.—The 12th sale of Mr. James Harding, of Waterson, consisted of 24 lots of 5 full-mouthed ewes, 9 one-year-old rams, 10 two-year-olds, and 7 three-year-olds; and the rams for letting comprised 20 one-year-olds, 6 two-year-olds, and 5 three-year-olds. The ewes realised 43*s.* each, whilst the rams for letting averaged 8*l.* 6*s.* 8*d.* each. The highest sum given was 30*l.* for a three-year-old ram, which had won prizes at Wells, Crewkerne, Dorchester, and most of the local shows. The rams for sale averaged about 7*l.* 3*s.* each, the highest bid being 13*l.*, offered by Sir Edward Baker, Bart., for a one-year-old ram.

Miscellaneous.

The Agricultural Hotel.—It will be seen from an advertisement in to-day's paper that an Agricultural Hotel is about to be erected in Salisbury Square, under the auspices of many leading men identified with the rural interest; while it is understood that special accommodation will be provided, in one wing of the building, for the Central Farmers' Club. The site is certainly one of the best in London, admirably central, but at the same time remarkably quiet, and with full scope for the laying out of suitable premises. The nominal capital is put at 100,000*l.*; but it is thought that every due purpose may be provided for at an outlay of something like half this amount. *Mark Lane Express.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.
By the Rev. J. Slatter, Shrawley, near Reading.
At 9 A.M., Railway Time.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Reading of Dry Bulb.	Thermometer. Reading of Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Friday ..	Aug. 21	29.55	61	55	N.	1	6	63	44	75	37	0.11
Saturday ..	22	30.18	60	58	W.	0	10	67	52	79	51	0.11
Sunday ..	23	30.04	64	60	S.W.	2	10	60	54	83	49	..
Monday ..	24	29.97	66	59	S.W.	2	5	71	55	82	53	0.14
Tuesday ..	25	29.83	66	53	S.W.	3	6	69	51	83	46	..
Wednesday .	26	29.58	61	58	S.W.	0	10	65	50	72	45	1.02
Thursday ..	27	29.42	62	58	S.	2	9	68	54	68	52	0.07

25. Thunderstorm at 5 P.M.

Notices to Correspondents.

Clover Dodder: We have received some Clover Dodder from *G W C*, for which we thank him; but as its seed is not ripe, could he kindly "train up" a bit to ripen and then think of us again with a liberal parcel.

Disease in Wether Sheep: *C J.* The case is very unusual and mysterious. In the absence of any account of the *post mortem* appearances we can only suggest that the disease is doubtless connected with the food. We advise a change of food and pasturage, and a dose of Epsom salts (1½ ounce) to each sheep. *W. C. S.*

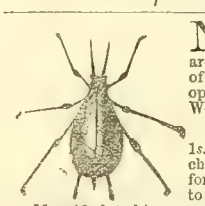
Hereford Stock. We see that Mr. Read, of Elkstone, is, on Friday of next week (Sept. 4), to dispose of a portion of his first-class Hereford herd, which has achieved great success in competition at agricultural meetings.

Toll Bars: *Inquirer.* We are not learned in the law; but it is plain that the spirit of the Act, and of decisions under it, is against the charges you name, viz., for carting the tops of trees (not timber) from one part of a farm to the other, and for the farmer riding his pony from one part of the farm to the other.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. Purser, Secretary.
116, Fenchurch Street, E.C.

LAWES'S MANURES. The Manures manufactured by J. B. Lawes for the present season of 1863 are now ready for delivery at his Factories, at the following prices:— Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME £6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES .. 5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES 8 0
These Manures can be obtained of Mr. Lawes, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from Messrs. Gibbs: Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address John Bennet Lawes, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.


COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. Barsham & Co.
Barsham's BRUSHES and MATS are sold in every town.
Caution.—Every Brush is stamped 'J. Barsham's Patent.


Magnified Aphis.
NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of Geo. Glenny, Esq., in his Works on Gardening, &c.
NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.
Both may be obtained of all principal Seedsmen.
Patentee: J. Neal, Edward Street, Birmingham.

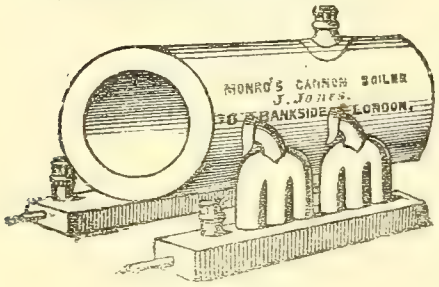

Red Spider Magnified.
GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from one to two ounces to the gallon of water is recommended for growing Plants; one from 4 to 16 ounces for Trees at rest.
Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by Price's Patent Candle Company (Limited).



TOOGOOD'S (late Page & Toogood's) IMPROVED BLIGHT COMPOSITION introduced in 1850 has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. Cutbush & Son, the eminent Nurserymen, writing a few days since, say;—"Please send us 10 gallons of Blight Composition, as quickly as possible. We tried 'Gishurst' last year, but it would not do like the Composition."
Mr. E. Sage, *Gardener to* Lord Howe, *says:*—"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst' will be used by practical men."
"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. Page & Co., and subsequently Page & Toogood, that we Manufactured the Blight Composition under Mr. Toogood's *sole directions, and that he alone knew the proportions of the various ingredients.*
Signed John Morley.
Henry Drew.
Henry Sheerman.
George Isaacs.'
"July 13, 1863."
May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. Toogood, 58, Above Bar, Southampton.

To the Farmers of England.
Gentlemen,—Smith's Combined Cultivator and Drill will smash up his Bean stubbles and drill in the Wheat at one operation.
The days on which the Machine will be worked may be known by applying for a card.
There are already eight of these Machines dispersed over England ready for work this autumn.
The price of the Machine is 55*l.* to Smith's Customers, and 80*l.* to those who go astray for their tackle.
Your obedient Servant, William Smith.
Woolston, Bletchley Station, Bucks.—Aug. 29, 1863.

HEATING BY HOT WATER.



MONRO'S CANNON BOILER.

J. JONES,

HORTICULTURAL ENGINEER AND IRON MERCHANT,

SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

HEATING GREENHOUSES,

CONSERVATORIES,

FORCING PITS,

CHURCHES, CHAPELS, SCHOOLS,

HALLS,

BILLIARD ROOMS,

COACH HOUSES, HARNESS ROOMS, &c.,

OF THE BEST QUALITY, AND AT MODERATE CHARGES.

PLANS, ESTIMATES, and DESCRIPTIVE CATALOGUES

SENT POST FREE ON APPLICATION TO

J. JONES,

6, BANKSIDE, LONDON, S.E.

West of England, Ireland, and Wales.



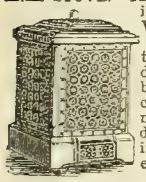
VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER. HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.



VINCENT SKINNER, Bridewell Street, Bristol.

Exhibition Prize Medal, 1862.

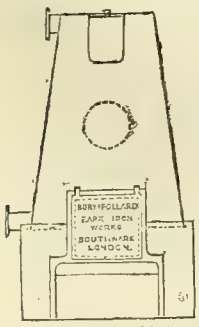
MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.—This Stove is the nearest approach to Warming by Hot Water, and an efficient aid in Ventilation.



It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for Small Conservatories, with a vapour chamber, which maintains a moist atmosphere for 12 hours with once filling.

Particulars and prices post free on application to MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.



LATEST IMPROVEMENTS IN **Heating by Hot Water.**

THE IMPROVED CONICAL BOILERS,

For HEATING PINERIES, CONSERVATORIES, GREENHOUSES, MANSIONS, HALLS, WAREHOUSES, &c., SOLELY MANUFACTURED BY

BURY AND POLLARD (Successors to JOHN R. PEILL, Late STEPHENSON & PEILL).

Annexed Sketch shows BURY & POLLARD'S improved arrangement, requiring

NO BRICKWORK SETTING.

These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United kingdom. References where they have been 20 years in constant use.

Price Lists on application to BURY & POLLARD, Park Iron Works, New Park Street, Southwark, London, S.



HOTHOUSES FOR THE MILLION.



AWARDED A PRIZE MEDAL, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY

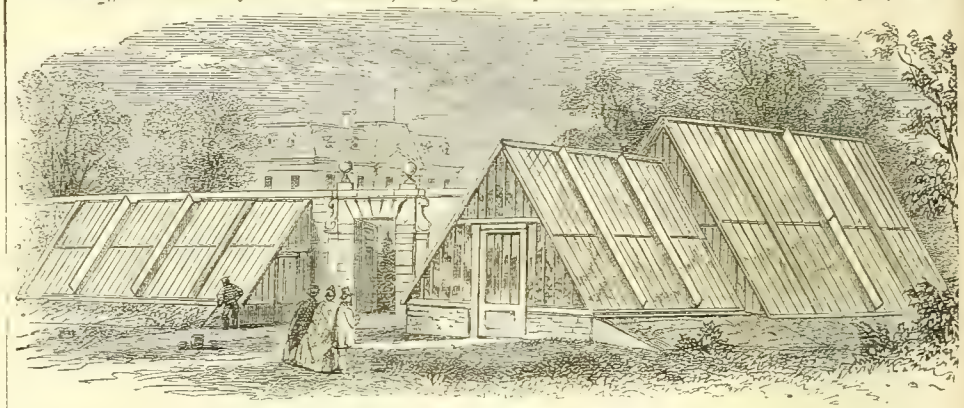
SIR JOSEPH PAXTON, M.P.

COMBINING SIMPLICITY, CHEAPNESS, AND DURABILITY,

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.

"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit can be obtained as the 'Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.



The Cash Prices of LEAN-TO HOUSES, with Water-troughs, Doors and Ends complete, are as follows:—

Ft. In.	8 ft. Lights	10 ft. Lights	Ft. In.	12 ft. Lights	14 ft. Lights	16 ft. Lights
20 7 in length	£12 0 0	£16 0 0	20 11 in length	£21 18 0	£28 10 0	£34 5 0
31 3 in length	16 10 0	21 2 6	31 9 in length	29 6 0	37 12 0	45 16 0
41 11 in length	20 18 0	26 18 6	42 7 in length	36 16 0	46 14 0	57 7 0
63 3 in length	30 6 0	38 10 0	64 3 in length	51 14 0	64 18 0	80 10 0
84 7 in length	39 6 0	49 11 6	85 11 in length	66 12 0	83 2 0	103 11 0
105 11 in length	48 17 6	60 12 6	107 7 in length	81 10 0	101 10 0	126 13 0

SPAN-ROOF HOUSES at double the above prices for each length of house.

Circulars with Lists of Prices and Cards to view houses in operation in the neighbourhood of London, also Estimates for Heating and Erection complete, can be had on application to

SAMUEL HEREMAN, 7, PALL MALL EAST, LONDON, S.W.

Manufactured in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen, and Paisley.

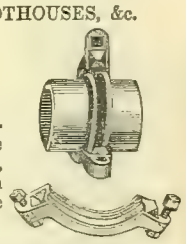
A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN, price 1*s.*; post free, 1*s.* 1*d.*

"We cannot do better than advise every reader who has a spark of gardening spirit and taste in him to write at once for a Copy."—*Bell's Weekly Messenger*, March 17, 1862.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.





T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c. the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.

FOWLER'S
STEAM PLOUGHING AND CULTIVATING PATENTS.

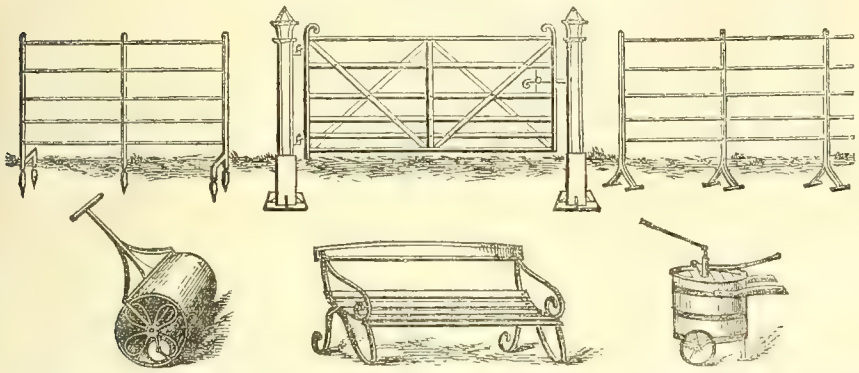
RANSOMES & SIMS, ORWELL WORKS, IPSWICH,

Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

COTTAM'S
CONTINUOUS IRON FENCE, HURDLES, and FIELD GATES,

MADE OF SUPERIOR IRON (NO CINDER IRON USED) IN THE BEST MANNER.

PARK ENTRANCE GATES, and RAILING of CAST and WROUGHT IRON COMBINED IN VARIOUS STYLES.



IRON GARDEN ROLLERS, GARDEN CHAIRS, GARDEN ENGINES, LAWN MOWING MACHINES, WIRE WORK, PUMPS, and every description of Implements for Horticultural and Gardening purposes.
VERANDAHS, GREENHOUSES, CONSERVATORIES, HOT-WATER APPARATUS, &c.
The Improved IRON MANGERS and RACKS for Stables, HARNESS BRACKETS, &c.

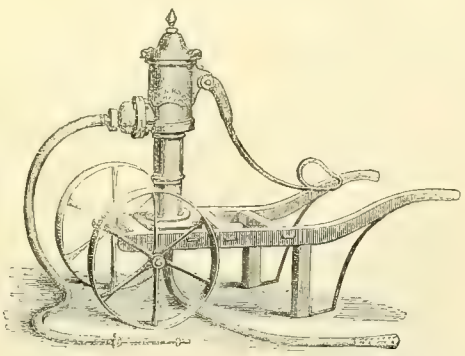
Illustrated CATALOGUES and DRAWINGS free on application to
COTTAM & CO., ENGINEERS and IRON FOUNDERS,
2, WINSLEY STREET (OPPOSITE the PANTHEON), OXFORD STREET, LONDON, W.

JOHN WARNER & SONS,
BELL AND BRASS FOUNDERS TO HER MAJESTY,

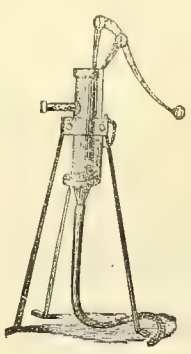
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35.



No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP.



No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.
When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

Greenhouses, Orchard Houses, and Conservatories.

H. FREEMAN'S Horticultural Works, Triangle, Hackney, London, N.E., established 20 years.—Good substantially made GREENHOUSES, glazed, ready for fixing, 42 feet by 13 feet, 50*l.*; 21 by 13, 28*l.*; 12½ by 10, 15*l.* Orchard Houses 10 per cent. cheaper. A large assortment kept. Estimates given for Heating or any branch in Iron or Wood.

Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

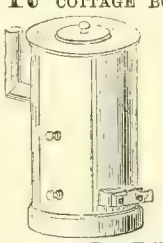
Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the
Patentee's Warehouse, 155, Cheapside, London, E.C.
Price complete from 3*l.* 10*s.*
Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

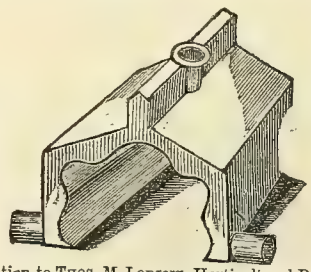
DENNIS'S PATENT HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon



an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.
The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.

T. M. LOBJOIT'S PATENT HOT-WATER BOILERS are acknowledged by all who have them in use to be the most powerful Boilers now known, and are the most economical, requiring less fuel and attention than any other. They are made of various sizes, suitable for heating the smallest Greenhouse to the largest Conservatory, Churches, and Buildings of all descriptions.



Testimonials forwarded on application to THOS. M. LOBJOIT, Horticultural Builder and Hot-Water Apparatus Manufacturer, Turnham Green, W., and at Acton, Middlesex, W. The Trade supplied.

JOSEPH SMITH, New Road, Hammersmith, W., undertakes the ERECTION of GREENHOUSES, &c., in any part of the kingdom, and begs to offer for SALE about 10,000 feet of GLAZED LIGHTS for GREENHOUSES, PITS, &c.

Those glazed with 21-oz. glass, 9*d.* per square foot.
" " 16-oz. " 8*d.* " "
21-oz.—Eight. 12 feet 3 inches by 5 feet 8 inches.
Twenty. 11 feet by 4 feet 8 inches.
Nine. 8 feet 6 inches by 4 feet 8 inches.
Ten. 7 feet by 3 feet 11 inches.
Twelve. 5 feet 2 inches by 4 feet 2 inches.
16-oz.—Forty. 7 feet by 4 feet 3 inches.
Twelve. 8 feet 10 inches by 4 feet 2 inches.
Twenty. 6 feet by 4 feet 2 inches.
Twelve. 5 feet 2 inches by 5 feet 8 inches.
Also Span-roof Greenhouse, 27 feet by 16 feet, 47*l.*
Lean-to, 21-oz. glass, 46 feet by 14 feet, 55*l.*
" " 24 feet by 11 feet, 30*l.*
" 16-oz. glass, 50 feet by 14 feet, 55*l.*
Second-hand, 12 feet by 7 feet, 14*l.*
ESTIMATES given for HEATING.

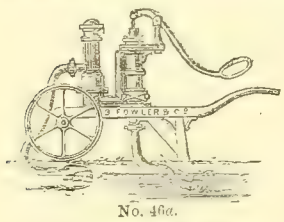
CLINTON & OWENS

(LATE BENJAMIN FOWLER & CO.),

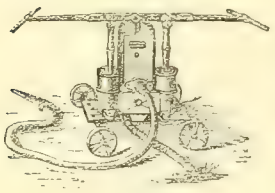
MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

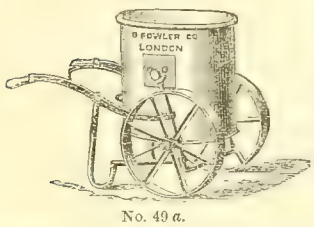
WHITEFRIARS STREET, FLEET STREET, LONDON.



No. 46*a*.



No. 50.

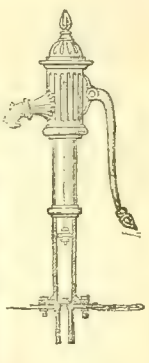


No. 49*a*.

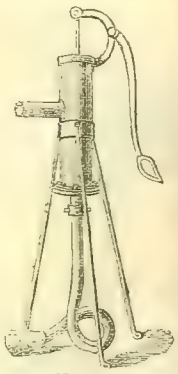


THE Landscape Sketch shows an adaptation of THE IMPROVED HYDRAULIC RAM for forcing water to considerable heights and distances to supply Mansions, Farms, &c., where a few feet fall can be obtained. Full particulars of this useful Self-acting Machine can be had on application.

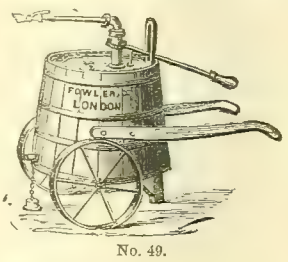
No. 4. FOWLER'S Useful YARD, GARDEN, and COTTAGE PUMPS, from 1*l*. 5*s*. each.
No. 38. FOWLER'S Portable LIQUID MANURE PUMPS, with flexible suction pipe.
No. 46*a*. FOWLER'S DOUBLE-ACTION PORTABLE FORCE PUMPS and FIRE ENGINES for Water or Liquid Manure.



No. 4.



No. 38.



No. 49.

No. 50. FOWLER'S Improved (Holman's Patent) DOUBLE-BARREL FARM FIRE ENGINES and IRRIGATING PUMPS.
No. 49. GARDEN ENGINES of all sizes.

No. 49*a*. Improved SWING WATER CARRIERS, holding 24 and 35 gallons, for Garden Use.

Further Particulars, Estimates, and Illustrated Price Lists on application.

THOMAS MILLINGTON,

GLASS MERCHANT. (Established 1750.)

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

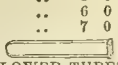
THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY T. MILLINGTON.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home use and for Exportation.



PROPAGATING GLASSES.

2 inches diam.			0*s*. 3½*d*. each.
3	,,	..	0 4½ ,,
4	,,	..	0 5½ ,,
5	,,	..	0 6½ ,,
6	,,	..	0 8 ,,
7	,,	..	0 10 ,,
8	,,	..	1 0 ,,
9	,,	..	1 2 ,,
10	,,	..	1 4 ,,
11	,,	..	1 6 ,,
12	,,	..	1 9 ,,
13	,,	..	2 0 ,,
14	,,	..	2 6 ,,
15	,,	..	3 0 ,,
16	,,	..	3 6 ,,
17	,,	..	4 0 ,,
18	,,	..	5 0 ,,
19	,,	..	6 0 ,,
20	,,	..	7 0 ,,



FLOWER TUBES.
2*d*. each, or 1*s*. 6*d*. per dozen.



ZINC HAND GLASSES.
Painted and Glazed with 16-oz. Sheet Glass.

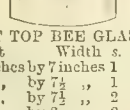
12 inches	..	5*s*. 6*d*. each
14 ,,	..	6 6 ,,
16 ,,	..	7 6 ,,
18 ,,	..	8 6 ,,
20 ,,	..	9 6 ,,
24 ,,	..	11 6 ,,

If open top, 1*s*. extra.



BEE GLASSES.

4 inches diameter			0*s*. 6*d*. each
5	,,		0 8 ,,
6	,,		0 10 ,,
7	,,		1 1 ,,
8	,,		1 4 ,,
9	,,		1 8 ,,
10	,,		2 0 ,,
11	,,		2 6 ,,
12	,,		3 0 ,,



FLAT TOP BEE GLASSES.

Height		Width	*s*. *d*.
4 inches	by 7 inches	1	6 each
4½ ,,	by 7½ ,,	1	9 ,,
5½ ,,	by 7½ ,,	2	0 ,,
6½ ,,	by 8 ,,	2	3 ,,
7½ ,,	by 8½ ,,	2	10 ,,

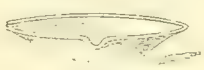
FERN SHADES & STANDS.

Ins. dia.	Shades.		Stands.	
6 ..	1*s*. 4*d*. each.		1*s*. 0*d*. each	
7 ..	1 8	,,	1 3	,,
8 ..	2 0	,,	1 6	,,
9 ..	2 6	,,	1 9	,,
10 ..	3 3	,,	2 0	,,
11 ..	4 0	,,	2 6	,,
12 ..	5 6	,,	3 0	,,
13 ..	7 6	,,	3 6	,,
14 ..	10 0	,,	4 0	,,
15 ..	14 0	,,	4 6	,,
16 ..	18 6	,,	5 0	,,



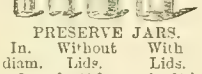
WASP TRAP, 2*s*. 6*d*. per doz.

Crystal Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimneys and Globes, &c.



MILK PANS.

6 inches diameter			0*s*. 6*d*. each
8	,,		0 9 ,,
10	,,		1 0 ,,
12	,,		1 3 ,,
14	,,		1 9 ,,
16	,,		2 3 ,,
18	,,		2 9 ,,
20	,,		3 3 ,,
22	,,		3 9 ,,
24	,,		4 6 ,,



PRESERVE JARS.

In. diam.	Without Lids.		With Lids.	
3 ..	0*s*. 4½*d*.	..	0*s*. 6½*d*. ea.	
4 ..	0 6	..	0 9	,,
5 ..	0 8	..	0 11	,,
6 ..	0 10	..	1 2	,,
7 ..	1 0	..	1 4	,,
8 ..	1 4	..	1 8	,,
9 ..	1 8	..	2 2	,,
10 ..	2 0	..	2 8	,,

SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

	300 feet		200 feet.		
	15 oz.	21 oz.	26 oz.	32 oz
Fourths quality ..	33*s*. 6*d*.	33*s*. 6*d*.	39*s*. 6*d*.	45*s*. 0*d*
Thirds do. ..	42 0	42 0	49 0	56 0
Seconds do. ..	62 0	61 0	74 6	85 0
Best do. ..	88 6	88 6	103 6	118 0

CRYSTAL SHEET GLASS.

For Pictures and best Glazing purposes.

Averaging 16 oz. to the foot.

Best quality, in cases of 200 feet	100*s*.
Second quality, in cases of 100 feet	82*s*.

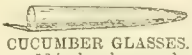
Averaging 30 oz. to the foot.

Best quality, in cases of 100 feet	100*s*.
Second quality, in cases of 100 feet	82*s*.



FISH GLOBES.

8 inches diam.	Without feet.	With feet.
9 ,,	Per lb. 7*d*.	9*d*.
10 ,,		
11 ,,		
12 ,,		
13 ,,		
14 ,,		
15 ,,		
16 ,,		



ROLLING PINS.
From 12 inches long, 1½*d*. per running inch.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1*d*. per running inch.

SQUARES, in 100 and 200 Feet Boxes.

Small Squares not exceeding 9½ inches by 7½ inches.

Ins. Ins.	Ins. Ins.	Ins. Ins.	Ins. Ins.
6 by 4	7 by 5	8 by 6	9 by 7
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½

Per 100 feet.

4ths.	3rds.	2nds.	Best.
9*s*. 9*d*.	11*s*. 3*d*.	13*s*. 9*d*.	16*s*. 9*d*.

Squares not exceeding 14 inches by 11 inches.

10 by 8	12 by 9	12½ by 10½	14½ by 10½
10½ by 6½	12½ by 9½	13 by 10	15 by 10
11 by 9	13 by 9	13½ by 10½	13 by 11
11½ by 9½	12 by 10	14 by 10	14 by 11

Per 100 feet.

4ths.	3rds.	2nds.	Best.
10*s*. 9*d*.	12*s*. 3*d*.	15*s*.	18*s*.

Squares not exceeding 20 inches by 18 inches.

15½ by 10½	14 by 12	17 by 13	24 by 16
16 by 10	14½ by 12½	18 by 13	20 by 17
14½ by 11½	15 by 12	18 by 14	22 by 17
15 by 11	15½ by 12½	22 by 14	24 by 17
15½ by 11½	16 by 12	24 by 14	20 by 18
16 by 11	16½ by 12½	22 by 15	22 by 18
13 by 12	17 by 12	24 by 15	24 by 18
13½ by 12½	18 by 12	22 by 16	

Per 100 feet.

4ths.	3rds.	2nds.	Best.
11*s*. 6*d*.	13*s*. 6*d*.	16*s*. 6*d*.	20*s*.

Orchard House Sizes, as recommended by Mr. Rivers.

Ins. Ins.	15 oz.		21 oz.	
20 by 12	4ths ..	11*s*. 6*d*.	4ths	15*s*. 0*d*.
20 by 13	3rds ..	13 6	3rds	19 0
20 by 14	2nds ..	16 6	2nds	25 0
20 by 15	Best ..	20 0	Best	30 0
20 by 16				

Per 100 feet.

Squares Cut to Sizes not on List.

	15 oz.				21 oz.			
Under	4ths.	3rds.	2nds.	1st	4ths.	3rds.	2nds.	1st.
1 ft. super.	1½*d*.	1¼*d*.	2*d*.	2½*d*.	2½*d*.	2¾*d*.	3½*d*.	4½*d*.
2 ft. super.	1⅝	2	2½	3	2½	3	4	5¼
3 ft. super.	2	2½	2¾	3½	3	3½	4½	6
4 ft. super.	2½	2½	3	4	3½	3¾	4½	6½

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

	Per cwt.—*s*. *d*.		Per gallon.—*s*. *d*.		Per gallon.—*s*. *d*.
GENUINE WHITE LEAD	30 0	FINE OAK VARNISH	10*s*. to 12 0	LINSEED OIL	3 9
ANTI-CORROSION PAINT	28*s*. to 34 0	,, CARRIAGE	12*s*. to 14 0	BOILED OIL	4 2
LINSEED OIL PUTTY	8 0	PATENT DRYERS	per cwt. 28*s*. to 42 0	TURPENTINE	8 6

MILLED LEAD in Sheet and Pipe of all sizes. Old LEAD bought or taken in exchange.

LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of all kinds.

NETT CASH.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

Universal Microscope. Price £5 5s.
SMITH, BECK, AND BECK,
31, Cornhill, E.C.; late 6, Coleman Street.
*** Catalogues sent on receipt of 6 postage stamps.

Grove Nursery, Coleman Street, Camberwell, S.
MR. GEORGE WELLS having had upwards of 20 years' experience in the Erection of Horticultural and other Buildings, offers his services to the gentry and public in Planning and carrying out such Works by contract or otherwise. Also in Laying out Gardens and Pleasure Grounds, and the Improvement of Estates generally.
Plans and Estimates will be furnished on application. The nobility and gentry are invited to inspect his Nursery as above. Designed and Erected by himself, containing several thousand feet of Glass.
Gardens kept in order by the year or otherwise.
All kinds of Gravel, Peat, Sand, Loam, Leaf-mould, &c., supplied at the lowest possible prices.
Experienced Gardeners recommended.

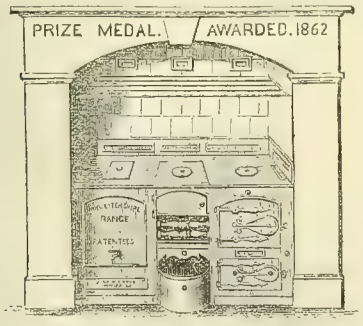
TREE and PLANT LABELS.—10,000 CLOTH or PATENT PARCHMENT PUNCHED LABELS for 30s. Delivered free in London on receipt of a Post-office Order or Stamps for the amount.
Address JOHN FISHER & Co., West Road Works, Boston, Lincolnshire.

200 CUCUMBER and MELON BOXES and LIGHTS, and from
400 to 500 LIGHTS for PITS of all SIZES kept in STOCK.
Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the kingdom.
References to the Nobility, Gentry, and Trade in most of the counties in England.
JAMES WATTS & Co, Hothouse Builders and Hot-Water Apparatus Manufacturers, near the Green Man, Old Kent Road, London, S.E.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.
Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4d. to 1s. 6d.; per yard and upwards.
For further particulars apply at the Manufactory, or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

Gutta Percha Tubing for Watering Gardens.
THE GUTTA PERCHA COMPANY have the pleasure to acknowledge the receipt of the following
Testimonial from Mr. J. FARRAH, *Gr. to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*
"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."
Manufactured by the GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C., and sold by their Wholesale Dealers in town and country.

Oil Paint no longer Necessary.
HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

PATENT WORCESTERSHIRE RANGE.


PRIZE MEDAL, 1862, AWARDED for EXCELLENCE.
The above RANGE is most complete, and strongly recommended for its unrivalled ECONOMY, CLEANLINESS, CONVENIENCE, DURABILITY, and is a certain CURE for SMOKY CHIMNEYS.
It is an entirely new invention, and consists of large MEAT ROASTER, PASTRY OVEN, and WROUGHT-IRON BOILER. The top forms a HOT PLATE for BOILING, STEWING, &c. The whole heated by ONE SMALL FIRE. One 5 feet wide is equal to an ordinary Range 8 feet wide.
Extracted from the *London Daily Telegraph*, May 19, 1862.
"INTERNATIONAL EXHIBITION, CLASS 31.
"Of the most recent inventions it should be said that Messrs. JONES & ROWE'S Patent Worcestershire Range has attracted very special attention, and has been commended by the best authorities. A valuable peculiarity of their Ranges is the placing of the OVEN and ROASTER one above the other instead of *side* by *side;* and the ROASTER is constantly replenished with fresh air."
Inventors and Manufacturers, JONES & ROWE, Worcester.
Agents for London: BARRON, SON, & WILSON, 436, Strand, W.C.
Illustrated Catalogues, with Testimonials and Prices, forwarded on application.

THE AGRICULTURAL HOTEL COMPANY (LIMITED).
Incorporated under "The Companies Act," by which the liability of each Shareholder is strictly limited to the amount of his Shares.
Capital 100,000*l.*; in 10,000 Shares of 10*l.* each.
Deposit 10*s.* per Share on application, and 1*l.* 10*s.* on allotment, and the remainder in Calls not exceeding 2*l.* per Share, at intervals of not less than three months.
Directors.
The Hon. ELIOT THOMAS YORKE, M.P., Cambridgeshire, Chairman.
John Clayden, Esq., Littlebury, Essex.
William Cheffins, Esq., Moorgate Street, London.
Thomas Congreve, Esq., Leamington, Hastings, Rugby.
Joseph Druce, Esq., Eynsham, Oxfordshire.
James Howard, Esq., Bedford.
Robert Leeds, Esq., West Lexham, Norfolk.
Joseph Shuttleworth, Lincoln.
Henry Trethewy, Esq., Silsoe, Ampthill.
With power to add to their number.
Auditors.
Edwin H. Galsworthy, Esq., 7, Waterloo Place, S.W.
Samuel Walliker, Esq., Money-order Office, St. Martin's-le-Grand.
Solicitors.—Messrs. Kingsford & Dorman, Essex Street, Strand.
Architect.—John Giles, Esq., 2, Verulam Buildings, Gray's Inn.
Bankers.—Messrs. Barclay, Bevan, Tritton, & Co., 54, Lombard Street, E.C.
Brokers.—Messrs. Allender & Son, 3, Copthall Court.
Secretary.—Henry Corbet, Esq.
Temporary Offices—23, Essex Street, Strand.
This Company has been formed for the purpose of erecting in the most central part of the Metropolis a building which shall offer to country gentlemen and others engaged in Agricultural pursuits all the advantages of a first-class Hotel, and also to provide accommodation now required by the (Central) Farmers' Club. This Club already consists of nearly 600 Members.
The Agricultural Hotel will afford every facility for the holding of Public Meetings, the transaction of business, and be, in fact, a point of union for that important class of the community for whose use it is chiefly intended.
A site in Salisbury Square, including Rider's Hotel and the adjoining houses, has been secured.
By the purchase of Rider's Hotel an established business connection is secured for the benefit of the Company.
Salisbury Square presents the most favourable position in which a building for the purpose above stated could be erected. It is within 100 yards of Fleet Street, and not more than five minutes' walk of St. Paul's Cathedral and the present Metropolitan Station in Farringdon Street. To this spot (the heart of London) all the principal railways are converging, and even now the site is within a shilling fare of nearly all the great London termini.
Salisbury Square offers the rare advantage of an extremely quiet situation, although contiguous to perhaps the greatest thoroughfare in London. This advantage cannot be too highly valued where (as in this case) the main supporters of the Hotel would be those to whom a residence in London, free from its ceaseless noise and turmoil, is of the first consideration.
The Hotel will have a frontage of 93 feet in Salisbury Square, and 100 feet and 90 feet respectively on the two sides in Dorset Street and Primrose Hill, making a total of 288 feet of frontage.
Notwithstanding the great and increasing difficulty of obtaining land in the City of London, this large extent of ground has been secured on favourable terms.
The Agricultural Hotel will be a handsome and substantial building, occupying one entire side of the square, and containing all the coffee, reading, billiard, and smoking rooms of a first-class hotel, a ladies' coffee and reading rooms; also numerous private, sitting, and bed rooms en suite, besides upwards of 150 bed-chambers of various sizes, all lofty, light, and well ventilated.
In addition to these there will be apartments for the Farmers' Club, complete and separate. These will consist of dining and coffee room, dressing room, a library and secretary's room. A number of bed-rooms will be arranged so that they can be entirely appropriated to the Club, or used for the Hotel when not required by the members.
There will also be a large hall for public dinners, meetings, or discussions, the want of which is much felt in this neighbourhood.
There will be lifts, baths, a post office, and telegraph station (communicating with all parts of the kingdom), together with every modern improvement calculated to contribute to the comfort of visitors within the building.
The greatest attention will be bestowed upon the kitchens, service, &c. The architect appointed having had special opportunities of examining the arrangement of the great Continental and American Hotels in this respect, it is believed that the plans of the Agricultural Hotel will be found to combine the advantages of all.
A responsible firm of contractors have offered to complete the building within 12 months at prices to be fixed by the Company's surveyors, and to receive payment to the extent of 10 per cent. of the amount of the contract in fully paid-up Shares of the Company.
The Directors are convinced that the superior accommodation offered by this Hotel, especially to the agricultural world, will ensure a large and remunerative custom. This, together with the support they will receive from the Farmers' Club, and the arrangements they have been able to make for the purchase of Rider's Hotel, and the erection of the building, will guarantee a large dividend to the Shareholders.
Although the nominal capital is fixed at 100,000*l.*, it is believed that 70,000*l.* will cover every expenditure.
The shareholders will incur no liability beyond the amount of shares allotted to them. Each applicant will be required to pay to the Bankers of the Company 10*s.* per share on the number of shares applied for, and, upon allotment, to make further payment of 1*l.* 10*s.* per share on the shares allotted to him. No further call will be made without three months' notice, and no call to exceed 2*l.* per share.
If no allotment be made the deposit will be returned in full.
Prospectuses and forms of application for Shares may be had of the Secretary, the Brokers, the Solicitors, and at the Temporary Offices, 23, Essex Street, Strand, W.C.

LE SOMMIER ELASTIQUE PORTATIF.—The foundation for all Mattress Bedding should be elastic, and the usual Spring Mattress is too heavy and cumbersome for general use. HEAL & SON'S new Patent LE SOMMIER ELASTIQUE PORTATIF is made in three separate parts, and is therefore light and portable; it is also cheap and durable; and as it has no stuffing on the top, it cannot harbour moth.
HEAL AND SON'S ILLUSTRATED CATALOGUE, containing Designs and Prices of 100 Bedsteads, as well as of 150 different articles of Bedroom Furniture, sent free by post.
HEAL & SON, Bedstead, Bedding, and Bedroom Furniture Manufacturers, 196, Tottenham Court Road, W.

SETTER.—WANTED, a steady SETTER. Five Pounds will be given.
E., *Gardeners' Chronicle* Office, W.C.

RETRIEVER.—WANTED, a handsome young BLACK DOG.
Address, stating price and age, J. S., 20, Wellington Street, Strand, London, W.C.

To the Nursery Trade.
WANTED, a PARTNER, or extra CAPITAL to be invested in a rapidly improving Nursery Business. References given and required.—Address, X., care of James Carter & Co., 238, High Holborn, London, W.C.

To Nurserymen, &c.
FOR SALE, the LEASE of an excellent NURSERY GROUND, near London, with Greenhouse Stock, &c.
Apply to Mr. T. F. CHORLEY, Solicitor, 48 A, Moorgate Street, City, E.C.

Sales by Auction.

Preliminary Notice.
GREAT SALE OF WELLINGTONIA GIGANTEAS AND OTHER RARE CONIFERS AT EDMONTON.
MR. J. C. STEVENS begs to announce that he has been favoured with Instructions to announce for SALE by AUCTION, on the premises, opposite the Golden Fleece, at Edmonton, N., on THURSDAY, October 1st and following day, the largest and finest Stock of Seedling WELLINGTONIA GIGANTEAS ever offered for public Sale, consisting of about 20,000 plants of various sizes, chiefly in pots, and a large number of other Conifers.
More detailed particulars in next Advertisement.
Catalogues will be ready two weeks prior, and can be obtained of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, W.C.

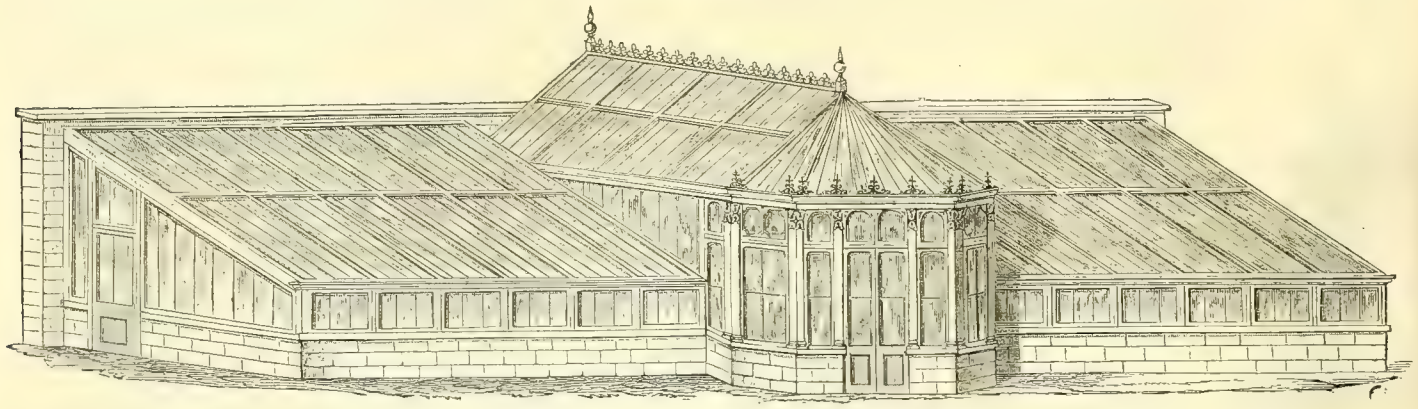
Bingley Hall, Birmingham.
IMPORTANT SALE OF SHEEP.
MR. JOHN B. LYTHALL is honoured with instructions to SELL by AUCTION, on THURSDAY, Sept. 10, in Bingley Hall, Broad Street, Birmingham—
100 Superior SHROPSHIRE SHEARLING and older RAMS, and about
500 Beautiful young SHROPSHIRE BREEDING EWES.
The above will include several Prize and other Animals at the Royal Agricultural Society and other Exhibitions, and the following Flocks will be represented, viz., those of:—

The Right Hon. Lady Willoughby de Broke	Mr. Coleman
Henry J. Sheldon, Esq.	Mr. Farncombe
P. F. Hussey, Esq.	Mr. W. Glover
Dr. Bell Fletcher	Mr. E. Lythall
Mrs. Baker	Mr. May
Mrs. Goodall	Mr. Joseph Smith
Mr. M. Baker	Mr. John Stubbs
Mr. S. Byrd	Mr. T. B. Wright
	Mr. Yates, &c., &c.

Also about Ten OXFORDSHIRE DOWN SHEARLING RAMS from the celebrated Flock of Mr. G. WALLIS, whose Sheep have annually won Medals and Prizes wherever exhibited.
Terms and particulars on application.
Luncheon at 11. Sale at 12 prompt.
Auctioneers' Offices, 13, Temple Street; and Bingley Hall, Birmingham.

Taunton, Somerset.
FIRST-CLASS NURSERY GROUNDS AND PLANT FOR SALE.
MR. POLLARD is instructed by the Trustees of the late John Young, Esq., deceased, to SELL by AUCTION, at the Castle Hotel, Taunton, on WEDNESDAY, September 16, the old established TAUNTON NURSERIES, together above 12 Acres of very fertile Land, now in full trade, with or without the Stock, Greenhouses, Hothouses, and Forcing Pits, also the Office, Seed Shop, and Show Garden, near the Tone Bridge.
Taunton is the county town on the Bristol and Exeter line, the neighbourhood is highly respectable, the business has been established about 40 years.
It is intended that the usual deposit be paid at the time of Sale, and the residue of the purchase money about Lady Day, 1864; arrangements could be made for immediate occupation.
A good portion of the purchase money might remain on mortgage security of the property.
Plans and further particulars are preparing, and may be obtained of Mr. SAMUEL KNIGHT POLLARD, Surveyor, Taunton, and of Messrs. FRY & OTTER, Shannon Court, Bristol.
Taunton, August 29.

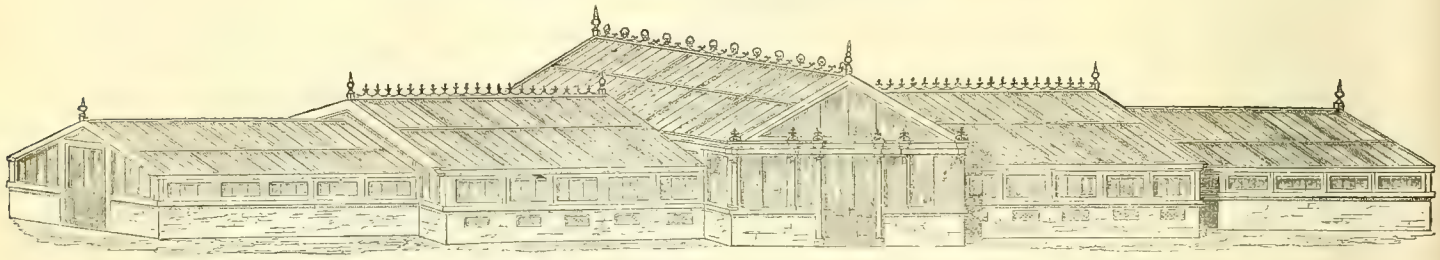
Marton-le-Moor, near Ripon.
EXTENSIVE AND IMPORTANT SALE OF FIRST-CLASS SHORT-HORNED CATTLE.
MR. STRAFFORD begs to announce that he is honoured with instructions from the Executors of the late A. L. MAYNARD, Esq., to SELL by AUCTION, without any reserve, the Extensive and Valuable Herd of SHORT-HORNS, consisting of upwards of 100 head of BULLS, COWS, and HEIFERS, bred with the greatest care and skill by this eminent judge of Short-horns from an experience of more than 50 years, commencing with the Stock of his Father, Mr. Maynard, of Eryholme, followed with a few judicious Selections from other choice Herds, and latterly from the far-famed Kirklevington Stock, at which sale Mr. Maynard was a spirited purchaser, and for several years has used Bulls of Mr. Bates's celebrated tribe of Short-horns with marked success. The FIRST PORTION of the Herd, consisting of the STOCK at MARTON-LE-MOOR, will be SOLD on WEDNESDAY, September 9; and the REMAINDER of the Herd will be SOLD at STOKESLEY, on THURSDAY, October 15, and will include the fine Steers reared at this Farm, which have obtained such deserved celebrity at the Yarm Fairs for so many years.
Catalogues with Pedigrees may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W., and of Mr. T. MAYNARD, Marton-le-Moor, near Ripon.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

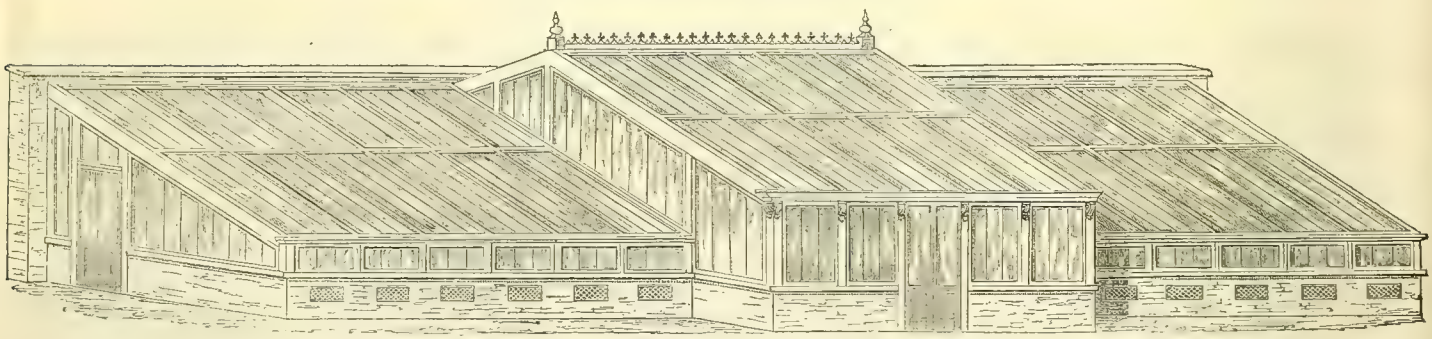
LOWEST PRICES AND BEST MATERIALS.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

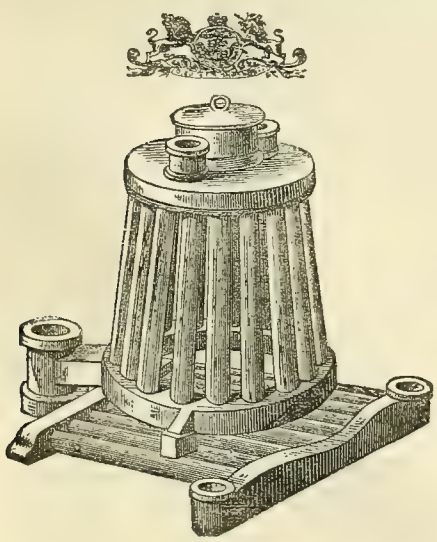
MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

THE FOLLOWING IS THE REASON WHY

ORMSON'S ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become so universally adopted on account of their superior power, great safety, and economy.



ORMSON'S No. 1 BOILERS	are heating upwards of		250	feet of Pipe.
ORMSON'S No. 2 BOILERS	„	„	600	„
ORMSON'S No. 3 BOILERS	„	„	1300	„
ORMSON'S No. 4 BOILERS	„	„	3500	„
ORMSON'S No. 5 BOILERS	„	„	7000	„

Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

HENRY ORMSON begs most respectfully to announce that very little inconvenience has resulted to him from the recent Fire on his Premises, and that Business will continue to be conducted in the usual manner.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,

AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 36.—1863.] SATURDAY, SEPTEMBER 5. {Price Fivepence. STAMPED EDITION, 6d.

INDEX.

Agave americana	844 c	Lime tree, old pollard, at Aix-la-Chapelle	844 c
— lurida	847 b	Manure adulteration	854 b
Agriculture, Irish	854 a	Masters' (Mr.) nursery	847 b
— Lancashire	852 a	Oak, Herne's	847 b
Alpine Guide, Ball's, rev.	846 c	Ophioglossums, African	847 b
Basket gardens	847 c	Peaches	843 b
Broccoli	848 c	Peas	848 c
Cactus fruit	847 c	Pelargoniums, show	843 a
Cinchona	845 b	Poets, Japanese	847 c
Cottages	853 a	Polypodium Robertianum	842 c
— prize designs for	850 a	Population, decrease of agri.	852 c
Crops, continental	853 b	Protection, spring	845 a
Crystal Palace Show	845 c	Reaping and mowing machines	853 b
Cuttings, striking without soil	845 b	Rubus biflorus	845 a
Digger, Ager's patent	855 c	Shorthorns, sale of	849 c
Dinner table plants	842 b	Silkworm, a curious	848 a
Dog, sheep	855 c	Society, Manchester Agri.	853 b
Drainage	851 b	— Lasswade Agri.	854 b
Epidemics	850 a	— Kilkenny Agri.	854 c
Epidendrum vitellinum	846 b	— Leicester Agri.	853 c
Farm, Brown Hall	855 b	— Isle of Man	854 c
— Urchany	850 c	— East Lothian	854 b
Farmers and clergymen	854 a	Statistics, agricultural	853 c
Farming, Northumberland	853 b	Stock farm	850 c
Fish and Fishing	843 c	Tate on Arithmetic, rev.	847 a
Fruit lore, ancient	841 a	Traps and vermin	845 a
Gladiolus showing	842 b	Trichomanes radicans	842 b
Grape seeds, to sow	845 b	Vine growing	845 b
Hyacinths	847 c	Wheat growing	854 b
Lapageria rosea	846 b		

ROYAL HORTICULTURAL SOCIETY'S AUTUMN SHOW, WEDNESDAY NEXT, at South Kensington. Open at 1 o'clock. Royal Artillery Band at 3 o'clock. Admission Half a Crown.

The Show will be in the Southern Arcades.

All Plants, &c., to be brought in by the Council Room Entrance.

HORTICULTURAL AUTUMN SHOW, on WEDNESDAY NEXT, September 9. The Garden will not be open till ONE o'clock.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.—The TENTH ANNUAL AUTUMN SHOW will be held on WEDNESDAY and THURSDAY, September 16 and 17, at the Royal Pavilion and Grounds, on the same grand scale as on former years, and the usual amount offered in prizes. The Railway Cup, value 10*l*., is offered for 50 varieties of Roses in bunches of three trusses, as the 1st prize; 2d, 5*l*.; 3d, 3*l*.

Schedule of Prizes to be had on application to the Secretary, 96, St. James Street, or of E. SPARY, Superintendent of the Exhibition, Queen's Graperies.

By order of the Committee, EDWARD CARPENTER, Sec.

Brighton.—Sept. 5.

LEYTON and WALTHAMSTOW FLORICULTURAL SOCIETY.—The AUTUMN EXHIBITION will take place in the National School Room, Leyton, on TUESDAY, Sept. 8. Admission from 1 till 4 o'clock, 1*s*. each; from 4 till 6 o'clock, 6*d*. each.

For further particulars apply to E. GOAD, Hon. Secretary, Beulah Road, Walthamstow, N.E.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, now ready for Planting. Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.

Highgate Nurseries, London, N.

QUEEN PINE SUCKERS for SALE. — Strong healthy Suckers, warranted Clean and free from Scale, 50 and upwards at 6*d*. each.

Apply by letter to the Gardener, J. HANNAN, Cyfarthfa Castle, Merthyr Tydvil.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.

Dorking Nursery.

Ferns to the Trade.

EDWIN COOLING has a large stock of very fine healthy plants now to offer.

A PRICED LIST free on application.

Mile Ash Nurseries, Derby.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

New Hybrid Mimulus.

E. G. HENDERSON AND SON offer Six most beautiful sorts, ANNIE, BESSY, HELENE, MARY, MINNIE, and ROSA (see description in separate advertisement), 1*s*. 6*d*. and 2*s*. 6*d*. each.

Seed of the same, mixed, 1*s*. and 2*s*. 6*d*. per packet. The Trade supplied by the oz. or packet.

Wellington Nursery, St. John's Wood, London, N.W.

New Pyrethrums.—New Seed.

E. G. HENDERSON AND SON offer New Seed from 30 choice Named Varieties, at 4*d*. per packet (as offered in their SPRING CATALOGUE), or an Assortment of 12 Double and Single-Flowered Varieties at 4*s*. Mixed, from the same kinds, 1*s*. per packet.

Wellington Nursery, St. John's Wood, London, N.W.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON,
NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Best Seeds, Carriage Free.

BUTLER AND MCCULLOCH,
SEED MERCHANTS,
Covent Garden Market, London, W.C.

GUERNSEY and BELLA DONNA LILIES.
Just arrived in fine condition, 5*s*. per dozen.
JAMES CARTER & Co., 237 and 238, High Holborn, W.C.

GUERNSEY and BELLA DONNA LILIES.
5*s*. per dozen.
Orders should at once be given for these beautiful flowers.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

GUERNSEY and BELLA DONNA LILIES.
5*s*. per dozen.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Hyacinths, Tulips, Crocuses, &c.

BUTLER AND MCCULLOCH'S BULB CATALOGUE or AMATEUR'S GUIDE, may be had Post free upon application.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

J. C. PADMAN'S SELECT LIST of DUTCH BULBS, HARDY FERNS, NEW (1863) and other ROSES, is now ready, and may be had on application to Providence Nursery, Boston Spa, near Tadcaster.

Imported Dutch Bulbs.

JAMES CARTER AND CO.'S CATALOGUE of BULBS, with Cultural Directions, forwarded free of charge, on application to 237, 238, High Holborn, London, W.C.

IMPORTED DUTCH BULBS.—First-class Dutch Bulbs of every description just imported.
JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

LARGE IMPORTATION of DUTCH BULBS.—CATALOGUES (gratis) on application to WM. BARRATT, St. John's and Newton Moor Nurseries, Wakefield.

Dutch Bulbs.

S. PONSFORD begs to announce the arrival of his annual importation of the above. HYACINTHS, TULIPS and CROCUSES are unusually fine.
PRICED CATALOGUES gratis.
Loughborough Park Nurseries, Brixton, Surrey, S.

Fresh Imported Dutch Bulbs.

SUTTON AND SONS have just received from Haarlem one of the most Extensive and Rare Collections of BULBOUS FLOWER ROOTS ever imported into this country.
Prices very moderate, as see LIST, which may be had post free.
Royal Berkshire Seed Establishment, Reading.

New Bulb List for 1863.
New Rose List for 1863-64.

WM. WOOD AND SON are now daily issuing copies of the above, and in a few days all their customers will be supplied with the same.
W. W. & S. will furnish CATALOGUES gratis, and Post free on application.

A Large Importation of Dutch Bulbs.
Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.
Bulbs sent carriage free, excepting very small parcels.
WM. WOOD AND SON have received a large consignment of the above, and will be happy to receive orders for the same. The Bulbs are in first-rate condition, and true to name.

Hyacinths, Crocuses, Tulips, Narcissus, &c.

JAMES FAIRHEAD AND SON beg to announce the arrival of their DUTCH BULBS in splendid condition, and unusually fine. CATALOGUES post free on application.
A large quantity of MUSHROOM SPAWN of superior quality, 2*s*. 6*d*. per bushel.
7, Borough Market, London, S.E.

THE FINEST NAMED HYACINTHS
FOR GLASSES OR POTS.
6*s*., 7*s*. 6*d*., 10*s*., 12*s*., and 15*s*. per dozen.
Forwarded immediately on application to
HOOPER & Co., Seedsmen, Covent Garden Market, London, W.C.
NEW DESCRIPTIVE CATALOGUE, just published, sent Post free.

To the Trade.

GREEN HOLLIES.—Fine stout, healthy, good-rooted stuff, 2-years Seedling and 2-years bedded, 22*s*. 6*d*. per 1000. Cash is respectfully requested from unknown correspondents.
C. WHITEHOUSE, Brereton Nurseries, Rugeley, Staffordshire.

New Roses of 1863.

E. G. HENDERSON AND SON offer the most select kinds. The Trade supplied.
Wellington Nursery, St. John's Wood, London, N.W.

Paul's Nurseries, Waltham Cross, N.

WM. PAUL'S ROSES are still in FINE BLOOM. Entrance from the Platform, Waltham Station (G. E. Ry.) Half an hour's ride from London.

New Roses for 1863.

WM. WOOD AND SON are now supplying all the NEW ROSES in splendid Plants at reasonable prices. The leading kinds of PERPETUAL and other ROSES in pots are also offered by the dozen, hundred, or thousand.
Address, Woodlands Nursery, Maresfield, Uckfield, Sussex.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. Those who wish for a fine display of bloom during the autumn and ensuing summer should now give their orders.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON).—Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7*s*. 6*d*. each, are now ready.
Old Cheshunt Nurseries, Herts.

Cineraria, Calceolaria, and Primula.

E. G. HENDERSON AND SON offer first-class Seed of the above.
Wellington Nursery, St. John's Wood, London, N.W.

CHOICE SEEDS for AUTUMN SOWING.—CALCEOLARIA, CINERARIA, and PRIMULA, from the finest strains in cultivation, each 2*s*. 6*d*. per packet.
JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

Picea nobilis.

WILLIAM BARRON can supply stroug and remarkably well rooted SEEDLING plants of the above in store pots. Per doz., 10*s*.; per 100, 3*l*. 10*s*.
Elvaston Nurseries, near Derby.

WILLIAM BARRON'S PRICED CATALOGUE is now ready, and may be had post-free on application.
Elvaston Nurseries, near Derby.

ORCHARD HOUSES. — The Orchard Houses at Sawbridgeworth are now well worthy of inspection. The Harlow Station, where Flys attend, is 1¼ mile from the Nurseries. THOS. RIVERS & SON.

ALOCASIA MACRORHIZA VARIEGATA.—Good plants, 10*s*. 6*d*. each.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

WANTED, WINTER ACONITES.—Offers enclosing Sample, and stating quantity, to be addressed BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

NEW FORCING GERANIUM, MRS. LEWIS LOYD.—Rich crimson with dark maroon blotch in top petals; of dwarf robust habit, and most profuse bloomer. Forces into flower at any season without drawing. It was exhibited to the Floral Committee of the Royal Horticultural Society on March 31, and then awarded their Certificate of Commendation. Good Plants now ready, 7*s*. 6*d*. each.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

ORCHIDS.—A Small Collection (100 plants) for PRIVATE SALE, all good, and in fine health, comprising some 20 specimens, in 13-inch pots. Phalænopsis grandiflora; P. g., Borneo variety; P. amabilis; P. Schilleriana. Cattleyas, Lælias, Dendrobiums, Vandas, Aerides, Odontoglossums, Oncidiums, &c.
For List and price, apply to B. CRANE, 4, Lily Terrace, Warwick Road, Kensington, W.

JEAN VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to announce that his new DESCRIPTIVE CATALOGUE for the Autumn, 1863, is now ready, and contains a great many Novelties of the season.
To be had on application either to himself, or to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

New Grass Seeds, growth of 1863.

SUTTON AND SONS have now ready for delivery and for Exportation, NEW SEEDS of some of the most desirable kinds of GRASS SEEDS for present sowing, and others are coming to hand shortly. Prices very moderate, and quality unusually fine.
Royal Berkshire Seed Establishment, Reading.

DICKINSON'S NEW ITALIAN RYE-GRASS SEED is now ready for delivery.
Sold only by himself, and for present payment, 48*s*. per quarter, or 7*s*. per bushel.
New Park, Lymington, Hants.

New Italian Grass Seed.

J. DIXON, SEED FACTOR, Kendal, is offering lots of NEW ITALIAN, for Cash payment.
Kendal.—Sept. 5.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWT
Address 89, Seed Market, Mark Lane; or Basing
Samples and prices on application.

RAYNBIRD, CALDECOTT, AND B
SEED FARMERS and MERCHANTS,
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Prize Medals, 1851, for Wheat; 18
"Excellent Seed Corn and Se

E. G. HENDERSON AND SON'S DESCRIPTIVE LIST of BULBS as a Guide for the Amateur's selection is now published, and will be forwarded post free on application.

GUERNSEY and BELLA DONNA LILIES, 5s. per doz.
HYACINTHS, choice by name, 6s., 8s. and 9s. per doz.
Do., MIXED in colours, 3s. per doz.
Do., BEDDING VARIETIES, in kinds, each colour, 4s. per doz.
Do., MINIATURE FLOWERED VARIETIES, 3s. per doz.
TULIPS for Forcing, 6d. to 1s. per doz.
Do. EARLY SINGLE, and DOUBLE MIXED, 5s. and 6s. per 100.
Do., LATE, show varieties, mixed, 1s. per doz.
SNOWDROPS, single and double, 2s. per 100.
WINTER ACONITES, 2s. 6d. per 100.
CROCUS, in sorts, 1s. 6d. and 2s. per 100.
SCILLA SIBIRICA, 7s. 6d. per 100.
ANEMONES, 3s. 6d. and 5s. 6d. per 100.
RANUNCULUS, 3s. to 5s. per 100.
AMARYLLIS, by name, 3s. 6d. each,
GLOXINIAS, by name, 9s. and 12s. per doz.
ACHIMENES by name, 2s. 6d. and 3s. per doz.
GLADIOLUS BRENCHLEYENSIS, 3s. per doz., 20s. per 100.
" GANDAVENSIS, the finest collection offered in England.
CYCLAMEN, a choice collection of 30 varieties by name.
OXALIS, by name, 40 varieties offered.
IXIAS, mixed, 1s. per dozen; 40 varieties in collection offered, the inferior kinds discarded.
BABIANA, SPARAXIAS, and TRITONIAS, each 1s. 6d. per dozen.
LILIES, 60 fine varieties offered.
TRITOMA UVARIA, 12s. per doz.
TRITONIA (CROCOSMA) AUREA, 3s. per doz.
EARLY SPRING-FLOWERING PLANTS, in various colours, as HEPATICAS, DOUBLE PRIMROSES, VIOLETS, CHRISTMAS ROSE, and 60 other early-flowering perennials.
Strong Clumps of NEAPOLITAN and other VIOLETS in pots for winter blooming.
Do. LILY of the VALLEY.

Wellington Nursery, St. John's Wood, London, N.W.

E. G. HENDERSON AND SON offer the following NEW and RARE PLANTS, with NEW STRAWBERRIES.

CAMELLIA JAPONICA "PUNICEA."—This beautiful kind was originated in the Establishment of the late Messrs. Chandler & Sons, when proprietors of the Vauxhall Nursery, and on their retirement from business passed into the hands of Messrs. Milne & Co., from whom the stock was purchased. The well executed figure of it in the Floral Magazine (pl. 12) shows it to be one of the finest varieties. Plants, 21s. each.

EURYCLES CUNNINGHAMI (the Brisbane Lily).—A free flowering cool greenhouse bulbous plant, in growth and habit resembling Eucharis amazonica, having rich, glossy, dark green leaves, and terminal cluster of rotate, or lobed salver-like white blossoms, during June and July. Each, 2s. 6d.

AGAPANTHUS UMBELLATUS ALBIFLORUS.—A very interesting and beautiful greenhouse species, of a neat habit of growth, quite distinct from the variety generally known in gardens as the white-flowered Agapanthus, with dirty bluish-white flowers. The present one is much smaller, with narrow strap-shaped leaves, and terminal clusters of snow-white blossoms in the summer months. The plant now offered will shortly be figured in the "Illustrated Bouquet." Each, 2s. 6d.

HYBRID MIMULUS.—The following Hybrid Mimulus are intermediate between the beautiful M. cupreus and the large garden varieties, combining the dwarf compact growth and free blooming habit of the former, with the large blossoms of the latter. The growth is neat and densely branched, with a tendency to flower well from the earliest spring months until autumn. They are admirably adapted for pot-culture in conservatory decoration as a succession to the winter-blooming Primulas, or in continuation with them and Cinerarias, &c. For flower gardens they form a very gay feature in beds during early summer, and are equally adapted for detached groups in flower-borders when grown in rich soil.

ANNIE.—Buff-yellow ground, sprinted with bronze crimson.

BESSY.—Yellow, densely marmorated with bronze-red, and crimson front-belt or zone.

HELENE.—Rich crimson lobes, golden centre, and bronze-red bars.

MARY.—Rich buff yellow, mottled with bronze, and crimson front-bars.

MINNIE.—Spotted bronze on buff ground, and triple crimson bars.

ROSA.—Beautiful bronze crimson, eyeletted with yellow on the margin.

Plants of the above, 1s. 6d. and 2s. 6d. each. Seed mixed, 1s. and 2s. 6d. the packet.

TRIUMPH OF HOLLAND ALPINE STRAWBERRY.—Among Strawberries, the Alpine varieties are specially valuable and interesting on account of yielding a long-continued crop after all others are past bearing, and a second great advantage attending their culture in medium sized gardens, is their adaptation for edgings, or single margin rows in narrow borders, by their compact growth and freedom from runners.

The present fine variety has been obtained by an eminent grower of the Alpine section, after 20 years' experimental culture. The varieties previously known, though valuable in themselves for autumnal desserts, have been too small for general adoption, but the one now offered is far superior to all kinds hitherto grown in English gardens for productiveness, size, and flavour. The habit of growth is vigorous and compact, the yield four times the quantity of others grown upon the same bed, the fruit about equal in size to a medium size Keen's Seedling, of a bright red crimson tint, and a rich piquant flavour, between the old scarlet and the Hautbois.

Its average value as garden produce may be estimated by its great and continuous crop throughout the late autumn season, as a table fruit by the most desirable properties above mentioned. It is one of the most important acquisitions of the year, and will eventually supersede the kinds hitherto comprised in the Alpine section. Twelve plants, 4s.; 50 plants, 14s.; 100 plants, 25s.

THE TIETJEN STRAWBERRY.—Is offered as a valuable addition to those already possessed, and highly recommends itself in being perfectly hardy and a vigorous grower, succeeding well where the British Queen fails from its delicate constitution, and among the light-coloured varieties furnishes a beautiful and distinct dish for the dessert-group.

The berry is distinguished from most others by its conically oblong form. The fruit shows a rich glossy scarlet colour the flesh is firm and solid, white in the centre, and merging into a rich carmine-red at the under surface, remarkably juicy and fine flavoured. It ranks with the Filbert-Pine section, and is an abundant bearer. Figured in the "Illustrated Bouquet." Per dozen 2s. 6d., the 50 plants 8s., the 100 15s.

DEUTZIA CRENATA FLORE PLENO.—10s. 6d. each.

FORTUNE'S SEVEN NEW JAPAN CHRYSANTHEMUMS.—10s. 6d. and 15s. the set.

LIGULARIA KÆMPFERI ARGENTEA MARGINATA.—7s. 6d. and 10s. 6d. each.

Wellington Nursery, St. John's Wood, London, N.W.

New Roses of 1863.

JOHN KEYNES, Castle Street Nursery, Salisbury, can supply some thousands of the above, well-established Plants in pots, comprising the very best varieties of the NEW ROSES of 1863, at 36s. per dozen. The usual discount to the Trade. To amateurs such plants are invaluable; they can be planted at once and will produce fine bloom next season, as time will be given them to draw fresh root.

CATALOGUES, with full description, containing all the leading flowers, both old and new, will be forwarded on application.

JOHN KEYNES' STANDARD and DWARF ROSES for the Autumn are in the finest condition.

The stock of ROSES of 1862, comprising Charles Lefebvre, François Lacharme, &c., both Standards and Dwarfs, cannot be surpassed. Salisbury.—Sept. 5.

New Azalea (indica) "Souvenir de Prince Albert."

E. G. HENDERSON AND SON having purchased the Sale in England of this most distinct and beautiful new double flowered variety, now offer strong plants at 20s. each, and by their purchasing a large quantity they will be able to allow the Trade a discount due to them in accordance with the usual English custom. Colour, a warm Peach-rose, margined with pure white; habit good; a free bloomer, and very valuable as a decorative variety in effect, being a greater novelty than any other Azalea sent out since "Etoile de Gand."

Deutzia crenata fl. pleno—Japan.

JOHN STANDISH has now the pleasure of submitting to the consideration of his friends and the public the above truly valuable and hardy ornamental plant. It has received First-class Certificates both at the Royal Horticultural and Royal Botanic Shows in June and July last (*vide* Report).

"There were a few very interesting new hardy plants shown, first a Deutzia crenata flore pleno, one of Fortune's novelties, flowered by Mr. Standish. This looked like a fine addition to hardy shrubs; it has opposite shortly stalked finely serrated leaves and copious terminal racemes of deflexed double flowers deeply tinged externally with rose."

Plants now ready, 10s. 6d. each; or 6 Plants for 42s.
Royal Nursery, Ascot, Berks.

New and Rare Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, amongst which are some very fine specimens.

Now ready, post-free to all applicants.

A NEW GENERAL PLANT CATALOGUE, containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Herbaceous and Alpine Plants, Roses, Hardy Trees and Shrubs, Fruit Trees, &c.

With a DESCRIPTIVE LIST of New, Beautiful, and Rare Plants.

Paradise and Victoria Nurseries, Holloway, London, N.

NEW PLANTS, CHEAP.—The Advertiser having this season purchased and proved all the New Kinds of the undermentioned Plants, which are now in bloom, he begs to offer from his extensive collection such, and only such, as are worthy of being added to the most beautiful kinds now in cultivation. Purchasers leaving the selection to W. D. may rely upon receiving real good plants of the most approved kinds:—

	s.	d.
NEW ANTIRRHINUMS .. .. per doz.	4	0
" FUCHSIAS .. .. "	6	0
" VERBENAS .. .. "	4	0
" PETUNIAS .. .. "	5	0
" PENTSTEMONS .. .. "	6	0
" LOBELIAS (including PAXTONIANA) "	3	0
" TROPÆOLUMS .. .. "	6	0
" GERANIUMS .. .. "	12	0
" CHRYSANTHEMUMS .. .. .. "	6	0
" HELIOTROPES .. .. "	6	0
" LANTANAS .. .. "	9	0
" MIMULUS (MACULOSUS) .. .. "	4	0
" LONICERA AUREO-RETICULATA.. 6s., 9s., and	12	0
" ECHIVERIA METALLICA .. .. .. each	1	6
" SOLANUM CAPSICASTRUM, fol. var. .. "	1	0
" PERPETUAL FLOWERING PINK "OPTIMA" "	1	0
" PANSY "GOOD GRACIOUS," .. per doz.	9	0
" PAMPAS GRASS (GYNERIUM ARGENTEUM ROSEUM) .. .. per doz.	9	0
" KERRIA JAPONICA, fol. var .. .. each	1	6
" HEMEROCALLIS ELEGANS, fol. var. .. "	1	6
ŒNOTHERA MISSOURIENSIS (EVENING PRIMROSE) .. .. per doz.	6	0

A CATALOGUE of all the NEW PLANTS, free for one stamp.

Post Office Orders on Castle Hedingham.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

SEEDS.—FANCY or BELGIAN PANSY, best quality, 2s. 6d. per Packet.

This has been saved from W. DEAN'S extensive collection. See reports in the *Gardeners' Chronicle* of July 4, 1863, and *The Florist and Pomologist* for July, 1863.

DEAN'S AURICULA-EYED SWEET WILLIAM.—A list of Agents for these Seeds will be given shortly. Special offer to the Trade on application. 1s. per Packet.

PLANTS.—FANCY PANSIES, very choice sorts, 12s., 18s., 24s., and 30s. per doz. A CATALOGUE can be had in October.

WILLIAM DEAN, Bradford Nursery, Shipley, Yorkshire.

Scarlet-flowered Gastronema—Gastronema sanguinea (Lindley).

JAS. BACKHOUSE AND SON can now supply this new and highly ornamental plant, which they have introduced from South Africa. The flowers are borne on single stems, rising from 6 to 12 inches high from the bulbous root, and are from 3 to 4 inches across, resembling the expanded blossom of a large-flowered Crocus, but of a clear Apricot-scarlet, varying to pure scarlet or Orange-red; and with the addition of a broad pale (sometimes white) Amaryllis-like tube. Being a native of the same country as Gladiolus psittacinus it will no doubt prove hardy. Dr. Lindley, who first named and described it, says, "It is a very handsome plant, deserving general cultivation, even in the most select collections."

It has recently obtained a FIRST-CLASS CERTIFICATE from the Floral Committee of the Royal Horticultural Society.

A limited number only of strong flowering roots can be supplied at 21s. each.

CYPRIPEDIUM CALCEOLUS.—J. B. & SON can still supply strong flowering plants of The Lady's Slipper—the rarest and handsomest of British Orchises. Its labellum resembles a large yellow Calceolaria, and the brownish-purple sepals and petals spread 3 inches across. 12s. per dozen, or extra strong, 21s. per dozen.

York Nurseries, Sept. 5.

Strawberry "The Premier," or "British Queen Seedling."

WM. PAUL has now ready good healthy plants of this superb Strawberry, price 12s. per 100, or 2s. 6d. per dozen. A few fruiting plants in pots, 9s. per dozen.

DESCRIPTION.—Fruit very large and handsome, colour bright crimson, combining the flavour of Keen's Seedling and Elton Pine, without the acid of the latter; the fruit carries well and retains its flavour long after gathered. It is of a very hardy and vigorous habit, thriving well in all soils and climates; a most abundant bearer, often producing from 20 to 30 trusses of fruit on a single plant; ripens three days later than Keen's Seedling, and remains in season a fortnight after that variety is over.

Large and handsome.—*Gardeners' Chronicle.*

The flavour is very good.—*Journal of Horticulture.*

A choice collection of Fruit Trees, including Grape Vines in splendid condition. PRICED CATALOGUES free by post.

PAUL'S Nurseries, Waltham Cross, N.

NEW SEEDLING STRAWBERRY, PRINCESS OF WALES.

OPINIONS OF THE PRESS.

Gardeners' Chronicle, July 4th.

"Your seedling Strawberry, Princess of Wales, large, ovate, or flattened ovate, with flesh pale red, and solid at the core. The variety deserves notice on account of its size, appearance, and not being hollow at the core."

Journal of Horticulture, June 23d.

"Seedling Strawberry (B. W. Knight). The fruit sent is very juicy, and of excellent flavour."

Florist and Pomologist, July.

"Your seedling Strawberry, Princess of Wales, is a fine regularly-shaped ovate fruit, of a pale red colour, and very firm flesh; it has all the appearance of being a good sort."

B. W. KNIGHT has much pleasure in offering this superb new early STRAWBERRY, feeling confident that it will not fail to become a general favourite, as all who have seen it growing and tasted it on the ground have pronounced it first-class. It is a remarkably early kind, having picked from it on the 22d May, and no doubt but what it will prove a good forcing variety. The fruit is large, flesh pale red, solid at the core; flavour rich and sugary, partaking largely of the Pine flavour; a most abundant bearer.

Plants will be ready to send out early in September, at 12s. per dozen; 2l. 10s. per 100.

B. W. KNIGHT, Nurseryman and Florist, 67, High Street, Battle, Sussex.

CHEAP HARDY CLIMBERS.—The following in strong plants in pots, hamper included, and carriage paid to London, for 20s.:—

6	CHOICE HONEYSUCKLES	(sorts)
6	" ROSES	"
4	" IVIES	"
2	" PASSION FLOWERS	"
2	" CLEMATIS	"
2	" JASMINUMS	"
1	" CHIMONANTHUS FRAGRANS	
1	" VINCA ELEGANTISSIMA	

Post Office Orders on Castle Hedingham.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

OUVIRANDRA BERNERIANA.—Having succeeded in raising a few Seedlings of this extremely curious and beautiful plant, we beg to offer healthy young plants of six or seven leaves at 31s. 6d. each.

O. Berneriana was exhibited at the Great Show of the Royal Horticultural Society, June 17th, and awarded the First Prize; and at the Great Show of the Royal Botanic Society, June 24th, and then also awarded the First Prize.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

WELLINGTONIA GIGANTEA.—To noblemen and gentlemen wishing to plant an avenue or group of the above, WILLIAM BARRON begs to offer a number of splendid specimens from 6 to 14 feet high, remarkably cheap, all of which can be insured to remove with safe balls.

6, 7 and 8 feet	3l. 3s. to 5l. 5s.	
9, 10 and 11 feet	6 6 to 8 8	
12, 13 and 14 feet	9 9 to 10 10	

14 × 12. Stem 4—6 in circumference.

The most handsome plant in the country, remarkably dense. Special price on application.

Elvaston Nurseries, near Derby.

PINUS LARICIO.—To gentlemen planting out largely for profit WILLIAM BARRON begs to make a special offer of his fine and well-rooted stock of the above. This fine Pine supersedes the Larch for Forest-planting, producing timber much sooner for Railway Sleepers. It is also used for Spars and Masts in the French navy.

2-years' Seedlings, strong plants	per 1000	15s. 0d.
2-years' transplanted, 9 to 18 inches ..	"	30 0
2 to 3 feet..	"	70 0

Elvaston Nurseries, near Derby.

THE EARLIEST PEA KNOWN is CARPENTER'S EXPRESS (pods larger than any other early Pea).

Among *numerous* Testimonials the following has been received:—

From Mr. JONES, *Gardener to Lord Leconfield, Petworth, Sussex. June 3*, 1863.

"I beg to say I have found Carpenter's Express Pea to answer well as an early one; it was sown on the 20th of November, on a south border, and I gathered the first dish on the 7th of May. I had Daniel O'Rourke and your Pea side by side in November, 1861, and gathered First from Carpenter's Express in May, 1862, which led me to grow it as my earliest this year."

New Seed to be had only of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Establishment, 95, St. James's Street, Brighton.

Early Orders are solicited, which will be executed strictly in priority.

SEED WHEAT.—The following Varieties have been grown by "TRITICUM." See *Agricultural Gazette* of October 4, 1862:—

PRINGLE'S BEARDED WHITE, a fine selected sample, 80s. per quarter.

SHIRREFF'S BEARDED WHITE, a fine selected sample, 70s. per quarter.

(The stock originally received from P. Shirreff, Esq.)

In a collection of all the best known Wheats these two have proved the best in all points.

FIRST PRIZE VICTORIA (AUSTRALIAN) WHEAT (stock received from the Editor of the *Agricultural Gazette*), a fine white of superior quality. A few bushels only, at 15s. per bushel.

If ordered in less quantities than quoted, higher rates will be charged. New sacks, 1s. 9d. each.

A remittance must accompany all orders.

Samples of ears and corn may be had on application, enclosing six postage stamps, returnable to purchasers.

Apply to RICHARD BRADLEY & SONS, Halam, near Southwell, Notts.

HUNT'S IMPROVED SWEET WILLIAMS.

From the *Royal Standard*, Windsor, June 27.

"We were particularly struck with some beds of Sweet Williams, known as Hunt's Sweet Williams, and it would be well worth a visit to see them alone," &c.

From the *Gardeners' Chronicle*, July 4.

"At the Crystal Palace Rose Show, Miscellaneous Subjects; these consisted of Cut Specimens of Verbenas, Iris, Pinks, and Bragg's beautiful sorts of Sweet Williams."

From the *Gardeners' Weekly Magazine, &c.*, July 4.

"A fine stand of Hunt's Seedling Sweet Williams was exhibited by Mr. W. Bragg, Star Nursery, Slough; these were really superb, being all beautiful with large round pips of fine distinct colours."

Star Nursery, Slough. The Trade supplied. Names advertised, and Printed Packet papers furnished.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.*; 4 cwt. put on the Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

N.B. Loaded Trucks can be sent on all the principal Railways.

W. SHORT, Reigate, Surrey.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

LAWES'S MANURES. The Manures manufactured by J. B. LAWES for the present season of 1863 are now ready for delivery at his Factories, at the following prices:—

	Per Ton.
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	£6 6
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES ..	5 5
LAWES'S BARLEY, GRASS, and MANGEL MANURES	8 0

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from Messrs. Gibbs: Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from one to two ounces to the gallon of water is recommended for growing Plants; one from 4 to 16 ounces for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

TAN GRATIS, in the immediate neighbourhood of Covent Garden Market.

Apply at WILLIAM ESSEX & SON, 28, Stanhope Street, Clare Market, W.C.

Fresh Fruit all the Year Round.

JENNINGS' MODEL PRESERVING JAR affords the means to every one to lay by a store of Fruit or Vegetables for Winter use at a very small cost and little trouble.



This is effected by means of an AIR-TIGHT CAP or COVER, which can be placed or removed in a moment, and will last for years in any climate, superseding the use of Bungs, Corks, Bladder, &c., for all kinds of Preserved Meats, Fruits, or Pickles.

Descriptive Illustrations, Prices, &c., from the Wholesale Depôt, Palace Road, Lambeth, S. Retail from all China and Glass Dealers, Ironmongers, and others.

ROCKWORK FERNERIES, WATERFALLS, CAVES, BANKS of STREAMS and PONDS, executed in the only way it should be, *i.e.*, to imitate Natural ROCKS. Worked with pockets, for plenty of plants, by JAMES PULHAM, Broxbourne, Herts.

References to works executed in 10 counties, some by the recommendation of W. B. THOMAS, Esq., R. MARNOCK, Esq., and E. MILNER, Esq.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

TREE and PLANT LABELS:—10,000 CLOTH or PATENT PARCHMENT PUNCHED LABELS for 30*s.* Delivered free in London on receipt of a Post-office Order or Stamps for the amount.

Address JOHN FISHER & Co., West Road Works, Boston, Lincolnshire.

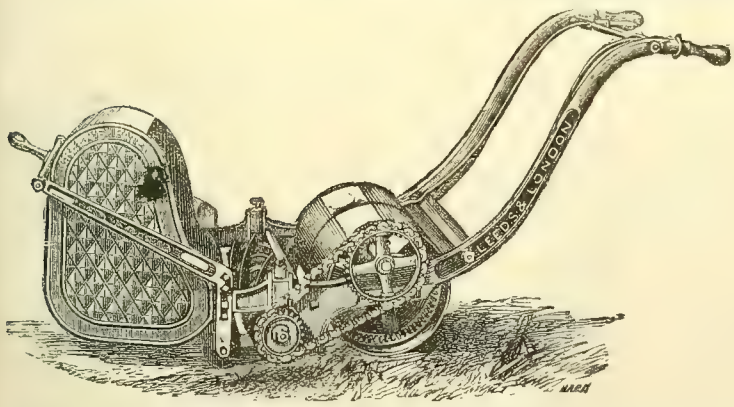
Slate Tubs.

WANTED, 12, 18, 24, and 30-inch TUBS.—Persons having such can forward list of prices to E., *Gardeners' Chronicle* Office, W.C.

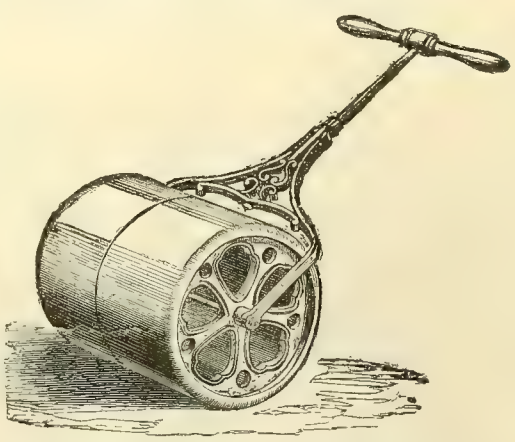
GREEN'S LATEST IMPROVED PATENT

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



GREEN'S NEW PATENT LAWN MOWER.



GREEN'S NEW PATENT GARDEN ROLLER.

THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS, PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

PRICES.

						If with Patent Delivery Box.
To Cut 10 inches	£3	10	0	Suitable for a Lady.		
„ 12 „	5	0	0	Suitable for One Person. If with internal gear, 10*s.* extra.		
„ 14 „	5	10	0	Do. Do. Do. Do.	10*s.* extra.	
„ 16 „	6	10	0	Suitable for One Man or Two Boys.		
To Cut 18 inches ...	£7	10	0	Suitable for One Man and Boy	£8	15 0
„ 20 „ ...	8	0	0	Do. Do.	9	5 0
„ 22 „ ...	8	10	0	Suitable for Two Men	9	17 6
„ 24 „ ...	9	0	0	Do. Do.	10	7 6

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	£12 10 0
„ 26 „	12 10 0	13 12 0
„ 30 „	16 14 0	18 0 0

Leather Boots for Donkey, 16*s.*; for Pony, 20*s.*

PRICES of HORSE MACHINES, including Box of Requisites and Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 30 inches	£20 0 0	£21 10 0
„ 36 „	23 0 0	24 16 0
„ 42 „	26 0 0	28 2 0
„ 48 „	29 0 0	31 8 0

Leather Boots for Horse, per set, 1*l.* 4*s.*

The above Machines are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and if not approved of can be at once returned, if sent Carriage Free to Leeds.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLERS.

Diameter 20 inches, length 22 inches, price £3 5*s.* | Diameter 16 inches, length 17 inches, price £2 10*s.* | Diameter 24 inches, length 26 inches, price £4 5*s.*
Diameter 30 inches, length 32 inches, price £7.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

Every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;
and MANUFACTURERS of all kinds of IRONWORK for the IMPROVEMENT or EMBELLISHMENT of LANDED PROPERTY.

Illustrated Catalogues on application.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

OFFICE AND WAREHOUSES, MARKET PLACE, READIN G

SUTTON'S SELECT BULB LIST FOR 1863.

BULBOUS FLOWER ROOTS FOR BLOOMING DURING THE WINTER AND SPRING.

Carriage Free to all parts, except very small parcels.

SUTTON'S CHOICE COLLECTIONS for OPEN GROUND.

		£	s.	d.
No. 1.	A large and Choice COLLECTION of ANEMONES, HYACINTHS, CROCUSES, TULIPS, RANUNCULI, NARCISSI, SNOWDROPS, IRIS, GLADIOLI, &c.	2	2	0
No. 2.	Do. do., consisting of all the same kinds in reduced quantities ...	1	1	0
No. 3.	A small and choice do.	0	10	6

SUTTON'S CHOICE COLLECTIONS for POTS and GLASSES.

		£	s.	d.
No. 4.	A splendid COLLECTION of HYACINTHS, JONQUILS, NARCISSI, EARLY TULIPS, new large CROCUS, &c. ...	2	2	0
No. 5.	The same, in reduced quantities	1	1	0
No. 6.	A small and choice assortment	0	10	6

N.B. Any article above specified, if not required, will be excluded, and additional quantities of others included, according to the wish of the purchaser.

SUPERB DUTCH HYACINTHS FOR POTS AND GLASSES.

☞ For Descriptive List and Prices of separate kinds of Hyacinths see our GENERAL AUTUMN CATALOGUE, now publishing.

COLLECTIONS of HYACINTHS, Selected by Messrs. Sutton from choice named varieties, fresh imported:—

100 in 100 very choice sorts, by name	...	£1	4	0	50 in 25 very choice sorts, by name	...	£1	15	0	12 in 12 choice sorts, by name	... £0	9	0
100 in 50 ,, ,,	...	3	10	0	25 in 25 ,, ,,	...	1	1	0	12 in 12 good sorts ,,	...	0	6	0
50 in 50 ,, ,,	...	2	2	0	12 in 12 extra fine, by name	...	0	12	0	Early White Roman Hyacinths	per doz.	0	3	0

Quantity required.	MIXED HYACINTHS, FOR BEDS (FRESH IMPORTED).	Per 100.	doz.
		s.	d.
	Double Red	21	0
	,, Blue	21	0
	,, White	21	0
	,, Mixed	21	0
	Single Red	21	0
	,, Blue	21	0
	,, White	21	0
	,, Mixed	21	0

	DUTCH HYACINTHS, IN DISTINCT COLOURS FOR MASSING, BEDDING, RIBBON GARDENING, &c.	Per 100.	doz.
	Double Red	30	0
	,, Rose	30	0
	,, White, pure	30	0
	,, ,, col'rd eyes	30	0
	,, Dark Blue	30	0
	,, Light Blue	30	0
	Single Red	30	0
	,, Rose	30	0
	,, White	30	0
	,, Dark Blue	30	0
	,, Light Blue	30	0
	,, Yellow	30	0

	MINIATURE HYACINTHS.	
	Choice sorts, by name, per dozen	4 0

	POLYANTHUS NARCISSUS.	
	50 in 12 choice sorts	15 0
	25 ,, 12 ,,	8 0
	12 ,, 12 ,,	4 0
	100 fine mixed	15 0
	12 ,,	2 0

		Each.	doz.
		s.	d.
	Apollo	0	6
	Bathurst	0	6
	Bazelman Major	0	6
	Blanc de Neige	0	6
	Czar de Muscovi	0	4
	Double Roman	0	4
	Florence Nightingale	0	6
	General Windham	0	6
	Gloriosa	0	4
	Grand Monarque	0	4
	Grand Primo	0	4
	Groot Voorst	0	4
	Juno	0	6
	Lord Mayor	0	6
	Lord Canning	0	6
	Louis le Grand	0	6
	Luna	0	4
	Muzard Orientalis	0	4
	Paper White	0	4
	Queen Victoria	0	6
	Queen of the Netherlands	0	6
	Sir Isaac Newton	0	9
	Soleil d'Or	0	4
	Staten General	0	4

	GARDEN NARCISSUS.		
	100 in 6 sorts		7 6
	50 ,, 6 sorts		4 0
		per 100.	doz.
	Fine Mixed	7 6	1 0
	Double White	9 0	1 3
	Incomparable	7 6	1 0
	Orange Phœnix	9 0	1 3
	Pheasant Eye	7 6	1 0
	Sulphur Kroon	9 0	1 3
	Trumpet Major	7 6	1 0
	Van Zion	7 6	1 0
	Bulbocodium		4 0

	JONQUILS.	Each.	doz.
		s.	d.
	Largest double	2	6
	Second size, ditto	1	6
	Sweet-scented, single	2	0
	Campernelle	1	0

Quantity required.	RANUNCULUS.	s.	d.
	100 named varieties	20	0
	50 ,,	10	
	25 ,,	5	0
	12 ,,	3	0
		per doz.	100
	Finest double, mixed	0 9	5 0
	Fine mixed border vars.	0 6	3 6
	Bella Donna	1 0	7 6
	Fireball	0 9	5 0
	Lion d'Orange	0 9	5 0
	Lupus	1 6	10 0
	Prince de Galitzin	0 9	5 0
	Queen of the Netherlands	1 6	10 0
	Scarlet Star	1 0	7 6
	White Pearl	1 6	10 0

	TURBAN RANUNCULUS.		
	1000 in 8 varieties	45	0
	500 in 8 ,,	22	6
	250 in 5 ,,	12	6
	100 in 4 ,,	5	0
	100 mixed	3	0
		Per doz.	100
	Scarlet	0 4	2 0
	Yellow	0 6	3 0
	Black	0 4	2 6
	Citron	0 6	3 6
	New Golden	0 6	3 6
	Crimson	0 9	5 0
	New White (Hercules)	2 0	15 0
	,, Spotted (Souci dore)	1 0	7 6

	ANEMONES.		
	100 named varieties	16	0
	50 ,,	9	0
	25 ,,	5	0
	12 ,,	3	0
		Per 100.	doz.
	Finest new large double, mixed, large roots	6 0	1 0
	Ditto, ditto, smaller roots	4 6	0 8
	Finest single, many colours, large roots	4 6	0 8
	Do. do. smaller roots	3 6	0 6
	Single Scarlet	6 0	1 0
	Double Scarlet	10 0	1 6
	Duchess of Lotharingen	10 0	1 6
	Harold	10 0	1 6
	Josephine	15 0	2 6
	L'Eclair	16 0	2 6
	Lord Nelson	16 0	2 6
	Preciosa	15 0	2 6
	Prince Albert	20 0	3 0
	Rose Mignonne	16 0	2 6
	Scarlet, superb	15 0	2 6
	Victoria Regina	15 0	2 6

	SNOWDROPS.		
	Double flowering	Per 100	1 9
	Single flowering	,,	1 9

WINTER ACONITE.
Price 6*d.* per dozen; 3*s.* 6*d.* per 100.

SCILLA PRÆCOX.
10*s.* 6*d.* per 100; or 1*s.* 6*d.* per dozen.

	CROCUS, for OPEN GROUND.	
	1000 in 8 varieties	18 0
	500 in 8 ,,	10 0
	250 in 5 ,,	5 6
	100 in 5 ,,	2 3
		Per 100
	Cloth of Silver	2 6
	Cloth of Gold	2 0
	Large Mixed	1 6
	Larged Blue	2 0
	Large Purple	3 0
	Large Striped	2 6
	Large White	2 3
	New Large Yellow	2 6
	Versicolor	2 6
	Yellow	2 0

Quantity required.	CROCUS, for POTS.	sorts	s.	d.
	1000 named Crocus, in	25	40	0
	500 ,, ,,	25	21	0
	250 ,, ,,	25	12	0
	100 ,, ,,	10	5	0
	50 ,, ,,	10	2	6
	25 ,, ,,	5	1	4
	12 ,, ,,	3	0	8
	Albion	Lord Raglan		
	Antoinette	Mary Stuart		
	Argus	Mont Blanc		
	Bicolor	Mrs. Beec. Stowe		
	Bride of Abydos	Ne plus ultra		
	Bride of Lammermoor	Orondatus		
	Captain Cook	Othello		
	David Rizzio	Prince Albert		
	Dorville	Queen of Sheba		
	Elfrida	Queen Victoria		
	Grande Vedette	Sir John Franklin		
	Johanna	Sir Robert Peel		
	Lamplighter	Sir Walter Scott		
	La Majestueuse	Sky Blue		
	Lord Byron	Van Speyk		
		Vulcan		

Any of the above 8*d.* per dozen, or 5*s.* per 100.

	TULIPS, Early Varieties.	s.	d.
	100 in 20 choice varieties	18	0
	100 in 10 ,,	14	0
	50 in 10 ,,	7	6
	25 in 5 ,,	4	0
	12 in 4 ,,	2	0
		Per 100.	doz.
	Double Tournesol	7 0	1 0
	,, Duc Van Thol	3 6	0 6
	Single ,,	5 0	0 9
	Rose ,,	7 6	1 0
	Yellow ,,		1 6
	Scarlet ,,		2 6
	Gold Striped ,,		5 0
	White ,,		3 6
	Alba Regalis		2 6
	Alida Maria		3 6
	Clarimond		6 0
	Couronne Pourpre		2 9
	Duc d'Orange		1 6
	Duchess de Parma		1 0
	Florentine		2 9
	Kanarie Vogel		1 0
	Keizer Kroon		3 0
	La Belle Alliance		3 6
	La Reine		1 6
	Lac Van Rhein		1 6
	Pottebakker, white		1 6
	,, yellow		1 6
	Samson		1 6
	Standard Royal		1 9
	Vermilion Brilliant		5 0
	Finest mixed	7 6	1 0

	LARGE DOUBLE TULIPS.	
	100 in 10 choice sorts	15 0
	50 in 10 ,,	7 6
	25 in 5 ,,	4 0
	12 in 4 ,,	2 0
		Per doz.
	Admiral Kingsbergen	1 6
	Blanc Borde Pourpre	1 6
	Blue Flag	2 6
	Duke of York	1 9
	Gloria solus	1 0
	Imperator rubrorum	3 6
	La Candeur	2 6
	Mariage de ma fille	2 0
	Overwinnaar	2 6
	Pæony roos	1 6
	Purper kroon	1 6
	Rex rubrorum	1 0
	Yellow roos	1 6
	Finest mixed, 100, 10*s.* 6*d.*	1 0

Quantity required.	PARROT TULIPS. Per doz.	s.	d.
	Belle jaune	1	6
	Constantinople	1	6
	Mark graaf	1	6
	Monstre rouge	1	9
	Perfecta	1	6
	Mixed	0	9

	LATE SINGLE TULIPS.	Per 100.	doz.
	Gesneriana	7 6	1 0
	Finest mixed	12 6	1 6
	Fine ,,	7 6	1 0

	GLADIOLUS.		
	100 in 50 choice varieties	£4	0 0
	50 in 50 ,,	2	2 0
	25 in 25 ,,	1	2 6
	12 in 12 ,,	0	12 0
	12 in 12 good varieties	0	9 0
		Per 100.	doz.
	Finest mixed, very choice	40 0	6 0
	Fine ditto, all good sorts	25 0	3 6

	G. RAMOSUS HYBRIDS.	each.	doz.
	Alma	1 6	10 6
	Aurora	1 0	10 6
	Cardinalis	0 3	2 0
	Colvilli	0 3	2 0
	Crocata	1 0	10 6
	Duchesse d'Orleans	0 6	5 0
	Elegantissimus	0 3	2 6
	Emicans	0 4	3 6
	Formosissimus	0 3	2 6
	Imperialis	0 9	7 6
	Insignis	0 6	5 0
	Jenny Lind	1 0	10 6
	Kouingen der Nederlanden	0 6	5 0
	La Ville de Haarlem	0 4	3 6
	La plus Eclatante	0 9	7 6
	Lindleyana	0 6	5 0
	Lord Auckland	0 4	3 6
	Multiflora	0 4	3 6
	Prince Alexander	1 0	10 6
	Princess Alice	1 0	10 6
	Pride of the Isles	0 9	7 6
	Queen Victoria	0 4	3 6
	Queen of England	0 9	7 6
	Ramosus	0 3	2 6
	Rosa mundi	0 4	3 6
	Zenobia	0 6	5 0

	G. GANDAVENSIS HYBRIDS.	each.	doz.
	Achille	2 0	—
	Anna Paulownia	0 6	5 0
	Bertha Rabourdin	3 6	—
	Brenchleyensis	0 4	3 6
	Canary	1 0	10 6
	Ceres	2 0	—
	Courantia fulgens	0 4	3 6
	Don Juan	0 4	3 6
	Dr. Audry	1 0	10 6
	Endymion	1 0	10 6
	Floribundus	0 3	2 6
	Gandavensis	0 3	2 6
	Goliath	1 0	10 6
	Hebe	1 0	10 6
	Helena	0 9	7 6
	John Bull	1 0	10 6
	Lord Granville	1 0	10 6
	MacMahon	1 0	10 6
	Magnificus	0 3	2 6
	Marie	3 0	—
	Mathilda de Landevoisin	1 6	15 0
	Mons. Vinchon	0 9	7 6
	Mrs. Binder	1 6	15 0
	Napoleon III.	1 6	—
	Ninon de l'Enclos	1 0	10 6
	Osiris	0 9	7 6
	Pegase	0 9	7 6
	Penelope	1 0	10 6
	Rebecca	1 0	10 6
	Vulcan	1 6	15 0

IRIS.—Per dozen.

Quantity required.	Fine English, by name 2*s.* 6*d.*	Quantity required.	Fine Spanish, by name 1*s.* 9*d.*	Quantity required.	Pavonia, or Peacock 2*s.* 6*d.*	Quantity required.	Each.
	,, mixed 1*s.* 3*d.*		,, mixed 0*s.* 6*d.*		Persian, for pots 1*s.* 9*d.*		Susiana, or Chalcedonian 0*s.* 9*d.*

IXIAS, SPARAXIS, BABIANAS, OXALIS, &c., as per CATALOGUE, to be had free on application.

N.B. In the above Select List columns are ruled on the left side of each article for the convenience of marking the quantities required. Orders thus marked and enclosed in a letter, with instructions as to conveyance, &c., will receive prompt attention.

All goods delivered Carriage Free, except very small parcels.

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes.

Sunningdale Nursery, S.W. Rail.

Rhododendron Countess of Haddington.

ROBERT PARKER begs to announce that he is now sending out this fine variety, a figure of which will appear in the "Illustrated Bouquet," and Photographs may be seen at the Nursery. Habit compact and vigorous, with fine foliage flowers, rosy blush, measuring upwards of 3½ inches in length and diameter, very abundant bloomer, and may be flowered from February to June. For early spring and summer decoration and exhibition purposes this will prove the most useful and ornamental plant of modern introduction. The following Awards have been received at the undermentioned Exhibitions:—

Edinburgh Horticultural Society's Show, March 19, 1861—First Class Certificate.
Royal Horticultural Society's Show, March 19, 1862—First Class Certificate.
Royal Botanic Society's Show, April 2, 1862—First Class Certificate.
Edinburgh Horticultural Society's Show, March 18, 1863—Special Prize.
Crystal Palace Show, May 23d, 1863—First Prize 5*l.* for single specimen of newly introduced extremely rare or beautiful plant, in or out of flower, hardy or exotic.
Good plants. 21*s.* each. The usual discount to the Trade.

Exotic Nursery, Tooting, Surrey, S.

WILLIAM ROLLISSON AND SONS beg respectfully to inform the Nobility, Gentry, and Trade, that their GENERAL CATALOGUE of PLANTS, SHRUBS, FRUIT TREES, &c., for 1863 is now ready, and will be forwarded on application, prepaid.

W. R. & SONS beg also to state that their new SEEDLING RHODODENDRON PRINCE OF WALES, at 31*s.* 6*d.*, and their Three new beautiful and distinct INDIAN AZALEAS, at 21*s.* each—Azaleas Princess of Wales (Todman), Lord Canning (Todman), Rifleman (Todman)—will be sent out next May. A Coloured Plate by Andrews will be sent to all purchasers of Rhododendron Prince of Wales.

The usual allowance to the Trade.

Parties requiring Fruiting and other sized plants of GRAPE VINES in pots of the best and most popular varieties, can be supplied at very moderate prices, which will be forwarded on application.

The Nurseries, Tooting, London, S.

For Present Sowing.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, 6*s.* per bushel, or cheaper in large quantities.

This is the best season for sowing Italian Rye-grass to ensure sheep feed very early in the spring.

TRIFOLIUM INCARNATUM (Early Crimson), 4*d.* to 5*d.* per lb., or cheaper in large quantities.

*** A mixture of the above will be found very useful for mending Clover and Grass Seed sown for mowing next spring.

MUSTARD SEED for Sheep Feed in October and November, or for green manure.

RAPE.—New Seed at reduced price.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading

Permanent Grass Seeds for all Soils.

SUTTON AND SONS can supply good fresh SEEDS for immediate Sowing as under:—

PERMANENT GRASS SEEDS for Laying down New Pastures (including CLOVERS in full quantities), 30*s.* per Acre.

PERMANENT GRASS SEEDS for mending new Pastures, which may have been injured by the Corn crop, 12*s.* per bushel.

Royal Berkshire Seed Establishment, Reading.

Imported Orchids.

B. S. WILLIAMS has just received a fine importation of the following ORCHIDS:—

LYCASTE SKINNERI | CATTLEYA MOSSIÆ
CATTLEYA SUPERBA |
GALEANDRA DEVONIANA, a choice and rare plant, finest of the genus.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Choice Seeds.

B. S. WILLIAMS begs to offer First-class quality of the undermentioned SEEDS:—

	Per packet.	
PRIMULA SINENSIS FIMBRIATA, Red, White or Mixed	2*s.* 0*d.*	3*s.* 6*d.*
CALCEOLARIA, herbaceous	1 6	2 6
CINERARIA, from choice named flowers	1 6	2 6
PANSY, very choice	0 6	1 0

CORDYLINE INDIVISA, seed in fine condition, price 2*s.* 6*d.* per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

Adiantum radiatum (true).

MR. WILLIAM BULL can now supply good Plants of this extremely rare and exquisite FERN, at 10*s.* 6*d.* each.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

HYACINTHS and other DUTCH BULBS.

THE FIRST PRIZE FOR A COLLECTION OF HYACINTHS,
THE FIRST PRIZE FOR 18 HYACINTHS,
THE FIRST PRIZE FOR 6 NEW HYACINTHS,

Being all the FIRST PRIZES offered to Nurserymen at the Royal Horticultural Society's HYACINTH SHOW on March 18, were awarded to WILLIAM PAUL, Paul's Nurseries, Waltham Cross, N.

PRICED DESCRIPTIVE CATALOGUE free by post.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his New CATALOGUE, containing Select, Descriptive, and Priced Lists of Exotic Orchids, New and Rare Greenhouse, Hardy, and Stove Plants, Ornamental and Variegated foliaged Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, Narcissus, and other Bulbs, is now published and will be forwarded to all applicants.

Exotic Nursery, Tooting, Surrey, S.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON'S first importation of the above has arrived, and from the extraordinary heavy weight of the Bulbs they promise a fine bloom. Early orders are earnestly solicited. DESCRIPTIVE PRICED CATALOGUES free.

N.B.—17 FIRST PRIZES were awarded to WM. C. & SON last spring for HYACINTHS, TULIPS, and CROCUSES. In addition to this, EVERY FIRST PRIZE at the London Exhibitions to Amateurs was for Bulbs supplied by them.

The ONLY address is Highgate Nurseries, London, N.

CUTHILL'S STRAWBERRY PLANTS, to bear next year.—EARLY BLACK PRINCE, EARLY PRINCESS ROYAL, HIGHLAND MARY, RICHARD II., PRINCE of WALES, and NEWTON SEEDLING, 5*s.* per 100, if Selected, 7*s.* 6*d.* each Sort. Lasted in bearing 60 days this year.

STRAWBERRY PAMPHLET, 1*s.*; MUSHROOM do., 1*s.*; CUCUMBER do., 1*s.* MUSHROOMS grown here all the year round; best SPAWN, 5*s.* per bushel.

PRINCE ALBERT, Winter Cucumber, 1*s.* per Packet.

JAMES CUTHILL, F.R.H.S., Camberwell, London, S.

HYACINTHS AND OTHER CHOICE BULBS.

B. S. WILLIAMS,

PARADISE AND VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

Has just received in fine condition his first IMPORTATION of DUTCH FLOWER ROOTS, a PRICED and DESCRIPTIVE CATALOGUE of which will be forwarded Post Free on application.

B. S. W. begs to state that his BULBS have been selected with the greatest possible care, the Catalogue containing only well proved varieties. Careful attention has been paid to the arrangement of this Catalogue, in order to enable the Purchaser to select from with the least possible trouble, and Short Cultural Notes have been added, offering suggestions to the Amateur, by whom it is hoped they may be found useful.

GLADIOLUS BRENCHLEYENSIS.

YOUELL & CO.

Beg to offer this season strong FLOWERING BULBS of the above at 3*s.* per dozen, 20*s.* per 100.

Trade price on application, and when quantities are ordered a considerable reduction will be made.

The *Gardeners' Chronicle* speaks of it thus:—"It cannot be spoken of in terms of exaggeration; the robust habit and intensely bright scarlet flowers place it at the head of all the hardy flowers of the autumn." And again, "The spikes you have sent us are magnificent. We have as yet seen nothing of the kind so handsome near London. It is undoubtedly the most showy of the whole race of Gladioli."

CATALOGUES of their extensive Collection will be forwarded on application.

ROYAL NURSERIES, GREAT YARMOUTH.

EXHIBITION OF CHOICE GLADIOLUS.

YOUELL & CO.'S

COLLECTION of the above, extending over Three Acres, is NOW in BLOOM, and will continue some weeks.

The FIRST PRIZE was awarded them at the Crystal Palace, Open to All England and the Continent.

The FIRST PRIZE was awarded to YOUELL & Co. by the Royal Horticultural Society on Wednesday, Sept. 10, for best Collection of 24 Single Spikes; and the FIRST PRIZE for the best 12 Spikes of Brenchleyensis colour.

We supply them at the following prices:—

No. 1 Collection contains 100 Bulbs, in 50 of the most choice and handsome kinds, with names			**£5**	**0**	**0**
No. 2 Collection contains 100 Bulbs, in 30	**ditto**	**ditto**	**3**	**15**	**0**
No. 3 Collection contains 100 Bulbs, in 25	**ditto**	**ditto**	**2**	**10**	**0**

Fine Selections will be supplied at 6*s.*, 9*s.*, 12*s.*, 18*s.*, *to* 30*s. per dozen*

CATALOGUES will be forwarded on application.

ROYAL NURSERIES, GREAT YARMOUTH.

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.

LIST OF AWARDS, August 25, 1863.

FIRST-CLASS CERTIFICATE.

CYRTANTHUS SANGUINEUS, from Messrs. Backhouse & Son, York
HOLLYHOCK ACME, from Mr. W. Chater, Saffron Walden
PELARGONIUM MRS. BENYON, from Messrs. E. G. Henderson & Son, St. John's Wood
DAHLIA FANCY PURCHASE, from Mr. Keynes, Salisbury
DAHLIA EARL OF PEMBROKE, from Mr. Keynes

SECOND-CLASS CERTIFICATE.

LILIUM NEILGHERRENSE, from Messrs. Veitch & Son, Chelsea
DAHLIA CORONET, from Mr. Wheeler, Warminster
DAHLIA ANNA KEYNES, from Mr. Keynes
DAHLIA SURETY, from Mr. Keynes
DAHLIA REGULARITY, from Mr. Keynes
DAHLIA THE BRIDE, from Mr. Legge, Edmonton
DAHLIA FORMIDABLE, from Mr. Legge
HOLLYHOCK WILLINGHAM DEFIANCE, from the Rev. E. Hawke, Willingham
HOLLYHOCK VOLUNTEER, from Mr. Bird Porter, Epping
HOLLYHOCK THE QUEEN, from Messrs. Downie, Laird, & Laing, Sydenham

COMMENDATION.

DAHLIA CRIMSON PERFECTION, from Mr. Legge
DAHLIA NONSUCH, from Mr. Legge
DAHLIA SYMMETRY, from Mr. Wheeler

SPECIAL CERTIFICATE.

To James Bateman, Esq., Knypersley, for EPIDENDRUM VITELLINUM
To Mr. Bull, Chelsea, for VALLOTA PURPUREA MAJOR

The NEXT MEETING will take place on September 9, the da of the Show of Autumn Flowers, when all subjects for examination must be at the Garden for entry by Half-past 8 o'clock. No previous notice is required.

THOMAS MOORE, Secretary to the Committee.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 5, 1863.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, Sept. 9 { Royal Horticultural (Fruit & Floral Sub-Committees) at S. Kensington 10 A.M. / AUTUMN FLOWER SHOW, at South Kensington .. .. 1 P.M.

THE appearance of the Bulb Catalogues reminds us that we have arrived at the season when it is necessary, if we desire to have a good and early display of Dutch bulbs, that we should make up our minds as to what to select, and then promptly hand our "order" to some trusty tradesman. This consideration especially refers to the HYACINTH, which occupies the most prominent and important place amongst the bulbs we here refer to, and to which we now confine our attention.

Those who have witnessed the fine display of Hyacinths which is made at the metropolitan spring shows—where in its season this flower certainly holds the foremost place—may have selected for themselves from amongst the rich profusion spread out before them; but those who may not have had this opportunity, or have failed to make use of it, may be glad of a few seasonable hints as to the present state of Hyacinthology.

Let us however first say a word or two respecting the spring exhibitions to which we have alluded.

We have had them in the month of February; but in our opinion, at that early season, the Hyacinths and other flowers which make them what they are, would be much more happy at home, and may be seen to much better effect either in the conservatory or in the in-door plant case, than in any possible exhibition room. The out-door conditions of the month of February don't quite harmonise with flower-shows, the elements of which must, we know, owe their floriferous condition to the application of a very considerable degree of artificial heat. Moreover the drooping heads which one is then apt to see at every turn, occasioned by sudden exposure to a colder atmosphere, are painful and jarring sights to a sensitive mind. No, let us decorate our conservatories, public or private, and our parlours and drawing-rooms also, to our hearts' content, as early as we please, but let us forego flower-shows till we may calculate on having them illumined by sunshine. All this applies forcibly to Hyacinths, which may be had much better in March than in February.

And now as to details. Of the larger and more imposing groups invited to these spring meetings, groups which have called forth the prowess of champions like Messrs. PAUL and CUTBUSH, we have nothing more to say than to express a hope that the combatants may each again appear heading a batallion worthy of his former fame. After having alternately won the victory, the struggle will now be for the championship. If we were to venture any remark on these collections it would be this—that for appearance sake the size of the pots made use of should be kept within the narrowest possible compass, and hereatter, if it cannot well be done now, this size should be defined.

The encouragement of the growth and exhibition of this flower by amateur cultivators, and by ladies especially, is a matter we would particularly suggest to those concerned in making the arrangements for these early meetings. No flower can be more successfully grown in a room than the Hyacinth, and probably no flower is in reality more extensively thus grown, but to ask for 12 plants is too much for our indoor gardeners. Let the dozens and the larger miscellaneous groups from the great campaigners come by all means, but let us invite along with them half-dozens and threes, grown in pots, the only conditions being in-door, *i. e.*, room culture; and let us also have half-dozens and threes grown in TYE'S elegant glasses, as further examples of window gardening. We might thus spread the growth of Hyacinths, and with it all the little pleasures attending on their successful management, amongst a large proportion of the ladies of London. And if they could be induced to enter heartily into the pursuit, who can doubt that they would achieve success?

In order to bring out one of the most distinct and attractive features of the Hyacinth, and to stimulate the production of new varieties possessing this particular characteristic, we should further like to see a prize offered for half-a-dozen varieties having white eyes. Those which have this peculiarity, Argus, Lord Palmerston, and Lamplighter for example, are amongst the most attractive of their respective colours.

But to revert to the question of choice. For all purposes of decoration or exhibition, it is to be ever borne in mind that there is no comparison between those varieties with single and those with double flowers. The former class is infinitely preferable, and furnishes at least nine-tenths of those which appear prominently on our exhibition tables. During the last few years many fine new sorts have been brought into circulation; but in certain tints some of the old and familiar flowers are even yet hardly surpassed for general utility. The greatest advances have been made in respect to colour, especially amongst the reds and yellows, but to those also with extra-large bells, of which Grand Lilas may serve as an illustration, additions have been made sufficient to bring this large-flowered set into prominence in a general collection.

Commencing then with the Red varieties, there are of the cheaper series Amy and Robert Steiger amongst the deeper shades, and Sultan's Favourite, Norma, and Duchess of Richmond of the paler tints, which give not only variety but merit; while of the newer and dearer sorts Lina, Reine des Jacinthes and Howard are a good selection of deep reds, and Cavaignac and Macaulay of those of paler tints. Of the Mauves or Reddish-violets L'Unique may be recommended as a cheap purplish-mauve, and Haydn as a fine though expensive lilac mauve. Of the Blues the cheap series afford good sorts in Emicus, Bleu Mourant, and Baron Van Tuyll among the deeper tints, and Charles Dickens and Grand Lilas among the paler ones; while of more expensive sorts Argus, Marie, and Lord Palmerston among dark varieties, and Pieneman as a light sort, are some of the more distinct and desirable. Then of Black-purples none is better than the low-priced Prince Albert, though the dearer General Havelock and Lamplighter are also fine. Whites yield good low-priced pure varieties in Grand Vainqueur and Queen of the Netherlands, and blush white tints and larger bells in Elfrida, Grandeur à Merveille and Tubiflora; while of the newer sorts Madame Van der Hoop, Paix de l'Europe, Mont Blanc, and Fair Maid of Denmark, all pure in colour, deserve the highest praise. Little can be said of the cheap yellows, except that they are passable; but of the newer sorts we have San Francisco, a pure deep yellow, Ida, of a canary tint, and Duc de Malakhoff, streaked with red, all of which are beautiful and ornamental varieties.

As a last word, we advise our amateur friends to pot early, to force gently, and to air freely in order to secure good trusses of high coloured flowers.

THERE are some plants admirably adapted for the purpose of DINNER-TABLE DECORATION which do not seem to have attracted the amount of attention that might have been expected, although such plants are no doubt here and there made use of in this way. We allude to those having the foliage covered with a felt of white hairs, which gives them an appearance resembling that of frosted silver. There is a remarkable chasteness in the effect produced by plants of this character when associated as they are on the dinner table with silver ornaments and glass; but they are chiefly available for furnishing vases, and are not adapted to supply standard specimens such as a year or two since were made the subject of a special prize at one of the shows at South Kensington.

As examples of the class of plants referred to, in every way suited for the purpose, we may mention the white-leaved Centaureas, which are now a good deal grown for the decoration of the greenhouse and flower garden, and are therefore readily accessible. Those known under the names of C. argentea and ragusina are amongst the most useful, and, to our taste, the most telling; but the common "Dusty Bob" of the flower borders, Cineraria maritima, is another which might be turned to very good account, and Centaurea candidissima is perhaps better still. The two species to which we give the preference are sufficiently distinct to make a good contrast in regard to form, C. ragusina having broadish and boldly chiselled pinnatifid leaves, while those of C. argentea are more compound, with more finely divided parts. In a general way vigorous young plants with a single crown would furnish the best-looking and most available examples for the use we have thus briefly pointed out, but larger tufts may be provided by making use of older plants.

We may also mention, in connection with this subject, that certain pale-coloured almost entirely silvered varieties of dwarf Begonias come in extremely useful for the same purpose, and for the same reason, namely that their chaste metallic colouring associates well with the ornaments and appliances of a dinner table.

— DECIDEDLY the best garniture for the spikes of the GLADIOLUS when presented on the exhibition table, is the foliage of the Gladiolus itself, used in just sufficient quantity to take off the baldness which is apparent in the ungarnished flower-spikes. That some dressing off is necessary or desirable, was made very evident, as it appeared to us, at the recent Crystal Palace exhibition—all the more so indeed in consequence of the undressed condition of Mr. STANDISH'S noble spikes, which, as they well deserved to do, carried off the first prize; for notwithstanding the greater intrinsic merit of these flowers, which was abundantly manifest on a very cursory examination, yet the general effect of the second prize and inferior but dressed-up group, was far more pleasing than that of the other. These garnished specimens, as well as a much larger collection from the same growers, Messrs. YOUELL & Co., were set off with Gladiolus leaves, and it is to the use of these that their superior effect was due. Nothing that we have yet seen used suits the flower so well as its own proper foliage—as indeed might have been expected. It may then be assumed—(1), that some garniture is necessary in showing Gladiolus spikes; and (2), that the natural foliage is the right thing to use.

— At p. 602 we briefly noticed the recent discovery of TRICHOMANES RADICANS in what had been fairly supposed to be wild habitats hitherto unknown in the north of England and in Wales; and though perhaps in neither of these cases was the station altogether free from suspicion of the Fern having been originally planted, yet it was interesting to know that so rare a plant was capable of holding its own (at least for many years, as it must have done in both instances) in habitats so far to the northward of what had latterly come to be regarded as its limit in the British Isles. We have, however, now to record a still more northerly station, namely, the Isle of Arran in the Firth of Clyde, where it was found during the past month, "in damp dark fissures of rocks, occurring in several patches," by Mr. G. J. COMBE, of Glasgow. The plant occurs at the north end of the island. Mr. COMBE writes thus:—"It appeared to me that the plant occupied a truly natural habitat. The position was favourable, well sheltered, and had a constant drip of water. I have not the slightest idea of its having been planted there; but even supposing this to have been the case, it must have been some years ago, as I fancy nobody would think of laying down so much of it as is now there. Its occurrence proves at least that the Trichomanes will grow and flourish even in Scotland. But although it has raised fine fronds, and looks quite at home, yet I could not discover any fruit, which shows that it is near its limit."

We have also to record the first Scotch habitat for POLYPODIUM ROBERTIANUM, which has been sent us by Mr. C. S. FORBES, of Aberdeen, from "the mound of an old limestone quarry on Scotston moor, near Aberdeen." The quarry, he supposes, has not been worked for 20 or 30 years, and the Fern is scattered, more or less, over all the north side of the mound, but is confined to that side. The specimen sent is a genuine one.

BASKET GARDENS.

(*Concluded from p.* 820.)

WHEN these baskets fail, it is because they have been applied to such wrong uses: bulbs perhaps planted in them, when exceedingly well drained and very dry indeed; or Pansies, and Clove Carnations, when moisture has been provided—the plants being simply put in without a second's consideration of the conditions requisite. Of course it is not likely that things would thrive in this way. Baskets look frightful unless they have the aspect of brimming-over fulness, and the beauty of the arrangement is just that it is made so easy by them to provide what each plant wants—light dry soil for some, and deep moist beds of dampest food for others, all contrived especially for especial tastes.

It seems to me indeed that drainage itself means underground husbandry rather than "removing water," and that thus in basket gardening we should consider equally how to give the water or secure the dryness, how to ensure the due entrance of fresh air, and how to save the tender roots from drying over much. Of course, when we know the flowers that we want, we must consider their special tastes in making all these arrangements.

Quantities of non-absorbent drainage, such as flints and clinkers, may go where we want to have unusual dryness; and the holes may be numerous, thus retaining no moisture. Moss and sandstone, potsherds and charcoal, may on the contrary suck up every drop, and keep it ready to supply the roots of more water-loving plants.

I do not know if the rule will be of service to other amateur gardeners, but I always reckon that any climbing plant which thrives in a balcony does well on the basket system, and by this simple test I have saved myself much trouble in re-arranging such things.

It seems to me too that the larger and more roughly made baskets should have large sweeping waves of foliage to enwrap them, but the little neatly carved stone vases, or the small delicate kinds of baskets should have little neat-made things such as would show their tracery.

I remember in the country some large rustic baskets made of great hollow trees, with great yellow waves of climbers sweeping naturally round one side; small Roses and Convolvuluses quite entwined the other, but these plants were grown in the cracks and crevices, some, too, at the top; and all were planted in such a manner that the course of the sun should draw them the way that we wished they should go. Mignonette grows beautifully, and looks extremely pretty in this kind of baskets; and Minor Convolvuluses make a most brilliant show.

The most beautiful basket bed that I ever saw was one, however, on the side of the Malvern Hills. One large basket of Tom Thumb Geranium made an unbroken surface of dark velvet green, and then the scarlet flowers lighted it up most brilliantly.

It is a great thing in planting these beds thoroughly to avoid the appearance of *lines;* the best way I know (unscientifically) for planting all such round things is to find, first, the middle, and then draw a number of concentric circles (with a stick and string), counting the distance between each row as the same as that to be between plant and plant in the rows.

It is a great thing to have nice spreading plants to put out, 14 inches each way will not then look bare; but though many people try, having a bed of annuals, to make the ground green at first, I myself never care to do this, as to those who like gardening the sight of

a nice fresh black bed of mould is by no means unpleasant.

Lines must be avoided with the greatest possible care, as was said just now. But, so that a general linear arrangement is guarded against, there is no need to worry if three plants somewhere should chance to meet each other. One great thing, I think, in planting, is not to have odd inches to "pucker in," as in sewing! The circumference should thus be divisible by the number of inches given—as for instance, where a bed is 14 feet in circumference, 12 plants, 14 inches asunder, will produce an even circle. There would, in this case, then, be only three rows at all, but each would be divisible by 14 inches.

The outer margin may be half the width that is allowed between the rows, or two thirds of it; but this should be separately reckoned for, counting the circumference as that of the outer row. Most people manage to place in the centre a very promising plant, and it is also well to raise the bed a little towards the middle. I have known, in places where the water was apt to run off very fast, a wonderfully good effect produced by a drain pipe (or hollow tile) being stuck up on end down into the soil. The water poured in through it must go down inside, and a good supply at the roots is worth 20 surface sprinklings; it does not dry up like they do, and it has a chance of really reaching the little thirsty fibres.

Scarlet Geraniums do certainly thrive well on a sunny aspect, but thorough watering is essential to keep them in the brilliant beauty that renders them so perfect for the sole contents of these large raised beds.

It may be well however to name a few more flowers that do very well. Most charming baskets may be filled with Heliotropes alone, both covering the centre and drooping down outside, and where these flowers are used, a wreath of the large white Bind-weed or Calystegia is very pretty growing up around.

White Ivy Geranium and pink ones again are good, but I have not often seen anything prettier than a basket filled with Ivy, forming a border and trained down all over it, and then small crimson China Roses tied down to the Ivy. White Roses too I am sure would be also lovely; and the common old Moss Rose, when pegged down in beds, puts out short flowering spurs, and makes the most perfect mass of beautiful pink flowers. The common Moss, and the small red China Roses are the two I have seen do best in this manner, but many other kinds would no doubt answer beautifully, and especially I have heard that the yellow Brier race has a good effect, and some of the Noisettes. A delightfully gay basket is made of Convolvulus minor, surrounded with dark Ipomœas and White Calystegias.

For a perfect gem the little blue Lobelia filling the inside, and rose and white Ipomœas twining round the outside, is however as charming as anything I can suggest. Ivy is always suitable, and when it is used in summer for the ground of a bed of Roses, it may in winter be made beautiful with Snowdrops and little pale blue Crocuses growing up amongst it.

White and scarlet or crimson Verbenas look very well, but require a moist soil and abundant water. These again are greatly benefited by the slight shade of Ivy.

Very pretty beds can be made too entirely of Ipomœas trained down throughout, the many varying colours producing a good effect; and White Petunias, Linaria Cymbalaria, and the creeping kinds of Mimulus, are often very pretty.

I am myself greatly against mixing flowers in any kind of pattern or border fashion, in baskets of this sort. They always have to me an air of unnaturalness or of smallness when this is done, as a regular plan. For a single basket however, it is impossible to say too much of the charming effect produceable by a perfect mixture. Geraniums, Heliotropes, Roses, Verbenas, Lobelias, and even Stocks, looking most bright and gay. Of course in these cases one has to go to work just as if arranging a monster bouquet. It is necessary to have some ruling colour selected, with which the rest may harmonise; and it is better to have moreover a ground colour like that of Mignonette or Heliotrope. Brilliantly coloured Geraniums, Arums, Stocks, Sweet Peas, Fuchsias, Roses—all are really lovely when mingled in such a basket, and the trailing flowers may both climb up from below, and creep out through the interstices of the basket edge.

I really do hope that these kind of things may meet with more attention. No one can tell till they try, the difference even for a balcony or for the smallest garden, between a set of plants scattered all about, and the self-same flowers—no matter how common they may be—when well put together and grouped into a bed. Such arrangements, too, give us all the pleasure of a successful small "work of art," added to the delight of seeing most naturally growing and most fresh-looking flowers. *E. A. M.*

EXHIBITION FLOWERS.

THE PELARGONIUM.—No. II.

IN plants for exhibition much may be done in the way of getting up, consisting of tying, and dressing the bloom; and effective arrangement is of the greatest importance. Many I know object to the practice of dressing flowers on the ground that it is a deception, inasmuch as it makes them appear to be what they are not. I do not, however, see any more harm in arranging the petals of a flower than in training the branches of a plant, the one is as artificial as the other. It will be found that many varieties will not expand properly, therefore the flowers must be opened and the petals laid back, using a small camel's hair brush for this operation. It will improve their appearance immensely; in fact, there are but few varieties that may not be improved in this way. When staging them endeavour so to arrange the colours as to form a pleasing and harmonious whole.

The improvement that has taken place in this flower during the last few years has been great indeed, and those who do not possess the new varieties should lose no time in procuring them. Many of those sent out during this last year or two possess every requisite for first-rate exhibition flowers, viz., profuseness of bloom, good form, well-defined markings, and large size. The class of spotted varieties is also making rapid strides, possessing as it does novel colours combined with good form.

Subjoined is a list of a few of the very best sorts in cultivation. Those which are best adapted for early work I have marked thus*.

Light Varieties.—Pericles, *Ariel, *Desdemona, *Empress Eugenie, Lady Taunton, Princess Beatrice, and Prince of Prussia.

Roses.—*Rose Celestial, Royal Albert, very fine, Regina formosa, Colossus, Eastern Beauty, *Lady Canning, and Simon.

Scarlets and Crimsons.—Lord Clyde, very fine, Illuminator, *Beacon, *Bellatrix, *Ensign, Glow-worm, Flora, Conflagration.

Rosy Purples.—Improvement, Lord Palmerston, *Leviathan, Merrimac, Royalty, *Couleur de Rose.

Lilacs.—*Lilacina and *Viola.

Tinted Flowers.—Perdita, Tycoon, *Beauty of Reading, Adine, Mulberry, *Sir C. Campbell, Princetta, and Rosa Bonheur (Hoyle).

Spotted Sorts.—*Landseer, William Bull, Feu de Joie, Diophantus, *Guillaume Severyns, *Sanspareil, Spotted Gem, *Osiris, Fair Rosamond, and John Leech.

If the hints I have given (see p. 725) on the cultivation of the Pelargonium are attended to, I do not think that any cultivator will be disappointed in the result. *Henry Bailey, Jun., Shardeloes Gardens, Amersham, Bucks.*

PEACHES.

I HAVE given, in a previous Number, the quantity of Peaches grown here for several years, the aggregate of which, when divided by the number of years that I have protected with a sheet, amounts to rather over 500 Peaches per annum for three trees, ranging from 27 to 43 years of age, and which are now beautifully wooded and foliaged, having not had more than two dozen blistered leaves, which occurred after the removal of the sheets at night on the 1st of June. Usually they are put on about the 1st of March, and removed about the 6th of May; this year they were put up on the 13th of Feb., and removed at the above date. Within a few nights of removal, the sheets were as stiff with hoar frost as if they had been starched. The crop counted in my presence was this year 335. The first Peach was gathered on the 5th of August. They are three times the size of those that I have seen under glass. About three weeks before gathering 30 dropped from the intense heat of the wall; but after syringing no more fell. Mr. Danby Seymour, M.P. for Poole, called to see the Roses, and among other things he saw, and pronounced the crop of Peaches, wood and foliage, splendid. I regret that I was absent.

I was glad to read Mr. Bennett's article, in page 772, because it is a corroboration of what I have written. Except that his sheets move (I suppose) on rollers, there is no other difference whatever in our treatment of this "exotic," which could not be grown except on alien stocks.

I will not say a word against glass: but I will say that I have seen mismanagement. As to flavour, I have never eaten a Peach grown under glass so good as one grown in the open air on a south wall. Flavour depends upon the sort grown, sufficiency of water, sun, and air, and disfruiting. It is curious that if the sorts are good, large Peaches and Swedish Turnips are of better quality than small ones of the same kind. As regards protection and the sort of protection requisite, much depends upon circumstances and the aspect of the wall. A south wall requires more protection than any other. Much depends on whether the Peach is to be grown in Cornwall, Dorset, or Yorkshire, on a hill or in a valley. If you were to examine non-protectors, you would find the following things, viz., that they will not tell you when they fail; and that they are already greatly or sufficiently protected in a favourable season. They have Fir trees on the hills to keep off rough winds and sideway rains; they have a nice low mud wall or brick wall with a 2-feet coping of thatch, which defends the trees from descending dews and rains; their gardens are on high grounds where hoar frost—which makes me think of the frozen soldiers in the Beresina—is seldom severe; and then they tell us that they don't want protection. Well, let them descend into my valley, where the fogs will wet a man to his skin in the fore part of the night, and where the frosts at the turn of the night freeze the protecting sheet as stiff as a shirt collar, and there begin their meditations. If they don't wish themselves in "their sheets" I shall be mistaken.

There is one objection made to covering at night with sheets (I cover for days together, when the weather is bad, or likely to be bad), viz., that it stops the blossoms from setting. I find no difficulty, as the trees are never allowed during blossoming, nor till hoar frosts are over, to be bedewed or rained into. I give the trees water at the stumps according to judgment, and I have always found them set their blossoms immediately and abundantly.

It is a pity that people do not cultivate a trifle more of that rare "exotic," common sense, which would get them their Peaches and reasonings out of the last figure but one in rhetoric, called "dilemma."

I shall not make a clean breast of it unless I observe—

(1). That I think people injure their Peach trees by severe disbudding—in wood they deprive the tree of its lungs (which confer enteric and esoteric benefits), and bring on pleuro-pneumonia, or rather canker and gum. Why not skin the tree as well? I chiefly take off foreshoots: others I spur, but leave on the main of the wood till winter is over. Beware of getting the centre and base bare.

(2). That you must return to the land (unless it is inexhaustible soil) what the wood and fruit have taken out, instead of starving the tree and disbudding to meet it.

(3). That Peaches are stopped in their growth from not being disfruited as soon as they are set.

(4). That they drop from not having sufficient water at stoning time, and from unripeness of wood.

(5). That you must never let your trees get old, but cut back either the wings or centre, and let up new wood from time to time.

(6). That canker and gum are not to be attributed only to soil or roots, but to the disarrangement of health by external violations of one kind or another, from which it is our province to defend the tree.

And lastly, that if your trees are

"Bare and naked as lances,"

the sooner you cut them down, cut off their perpendicular roots, shorten their horizontals, and renew the ground with maiden earth and a little dung, the sooner you will be in a position to respect the trees and yourself too. *W. F. Radclyffe, Rushton, August* 31.

FISH AND FISHING.—No. XIV.

(1.) HOW GRAYLING GOT TO ENGLAND

THE shutters were closed, the curtains were drawn and, between a glowing fire on one side, and a soft shining lamp on the other, in his easy chair, sat the old angler, deeply ruminating. He had just turned down his book, and after conning over a few pages of "Salmonia" as though by way of reference, he might soon have dozed himself off in his contemplative brown study, when "Catholicus" stood beside him. "How art 'er? mine ancient Piscator?" His ancient friend started up, as though he had just hooked a 20 lb. salmon, wide awake.

"What art'er about, as the Lancastrians say, my Piscator? What's here? What? dozing over 'Baynes' Tourist's Guide to the antiquities of Conway Castle,' and what's this? 'Salmonia?' Ay, I see, still gloating over the Conway and salmon! A 'Tourist Guide,' indeed! all trash!

Piscator: No, my friend, you are all in the wrong. But sit down and help my thoughts. Though little the pamphlet, and though a mere "Tourist's Guide," there is so much matter for reflection in it, after my repeated visits to the town and castle of Conway and its neighbourhood, that I have read it through twice, and am proceeding to "the third reading." So, sit down, and make up a quorum, and let us pass "a Bill!" I love antiquity, though I am a "know-nothing" as to antiquarian lore. And again, you are wrong, for I had, for the time at least, wandered far from thoughts of the Conway to minor streams, and from the salmon to a minor of the family Salmonidæ. In truth, from what I read in the "Guide" about the "monks of old," I turned again to "Salmonia" where Sir Humphry Davy talks about the little fish, called the Grayling, the "Thymallus vulgaris," of Cuvier, and "Salmo thymallus," of Linnæus, having been first introduced into England by the "monks of old." You know, that though I believe there were bad "monks" and perhaps bodies of monks, I also believe that the vast majority were good and enlightened men, or at least that the majority were governed by enlightened men, wise and talented in the highest degree—the age considered,—and for the good works they did, I love and venerate those monks. Who, I would ask, raised those splendid edifices of Canterbury, York, Durham, Westminster, and a hundred others, which even in their very ruins still beautify this land, the very sight of which softens and subdues the heart towards the builders, and to bow itself before Him to whose honour and glory they were dedicated? The monks! Who civilised the world by rescuing from barbarism ancient literature, ere the art of printing was known? The monks! Who made Oxford, Oxford? The monks! Who were foremost in encouraging the sweet sounds of music, the

blessings of agriculture, the taste for horticulture, the usefulness of arboriculture, the vineyards and orchards of old; or in protecting our inland fish, or establishing our fish ponds or our sea fisheries—not to gratify their epicurianism or their gluttony, as is the vulgar idea, but because the discipline of their religion, on occasions, limited them, and all then Catholic England, to vegetable and fish diet, and debarred them at seasons from the use of animal or flesh food? Again, the monks! and yet—ye gods and little fishes!—how my blood tingles to hear those refined and refining tastes turned against them, and to perceive that even angling-authors, who should write nothing but "peace and good will towards men," must sometimes go out of the way to shoot their goosish shafts at those venerable men—"the monks of old."

Cath.: Stop, stop, my friend. Why! from Conway you are wandering wide at sea, beyond Great Orme's Head: and from salmon or grayling, you are falling into the abyss of growling! "Try back" to the Grayling, if introduced by the "monks of old;" and leave the defence of monachism to us Catholics.

Pisc.: Well, well, pardon me; I was carried a little to sea by the tide of reflection, and I thank you for "picking me up." But do let me have one more growl, one more; "Who?" Well, were not the monks the depositaries of all the arts and sciences known in their time, and are not some of those arts which are known to have been in their keeping, lost to us wise ones in the middle of the 19th century, and may not the art of pisciculture have been known to them and now only again dawning on us? There now, the wind is no longer "in the East," so let us get on with the subject and pursue it as learned antiquarians might like to do. Did or did not the monks know all about pisciculture and introduce the Grayling into Britain, is my question.

Cath.: Be it so; I understand very little about fish or fishing, but as far as my Catholic knowledge can help you, it shall. Upon what is the supposition founded? Why should it be an imported fish?

Pisc.: That the grayling is an imported fish seems now almost universally conceded.* The concession proceeds from the fact that not being known in Scotland or Ireland (I don't speak of modern introduction), but only in England and Wales, the grayling is, even in the latter countries, a very scarce fish, limited to certain rivers or parts of rivers, and becoming more and more scarce, except in places well adapted to it, or where artificially reproduced, which would not be the case, I contend, were it an indigenous fish. Whereas on the continent, and in Sweden, Lapland, and Norway, it is supposed always to have existed, and apparently ever will.

Cath.: But does their decrease prove them to be exotic? May they not have been originally planted here by Nature and be dying out of creation in certain English rivers, as the Dodo is supposed to have done elsewhere?

Pisc.: Their decrease is only a link in the chain of the supposition; and why, let me ask, are not grayling "dying out" in the other foreign localities I mention?

Cath.: Our rivers are not in the same natural state as when the fish were created.

Pisc.: Too true indeed. Still trout, which we know or believe to be indigenous, are not "dying out" save by pollution, but are still, to a certain extent, flourishing in the same rivers which the grayling are deserting; which at least tends to show that the hand of Nature, whose works are perfect, never placed the latter in those our English rivers.

Cath.: A fair argument; and as you say, a link in the proof. Fish are altogether a mystery; much still beyond our power of solution; come; back to the monks—and the author of the supposition.

Pisc.: We may have to recur to the first step again, for the questions of whether and by whom imported, are much commingled. *E. C.*

(To be continued.)

* See Yarrell, Brit. Fish. tits. "Grayling," "Vendace."

ANCIENT FRUIT LORE.—No. VII.

(Concluded from p. 797.)

In what kinde of roomes, winter-fruite are to be layed, and in what manner.

For the better reseruing or keeping of winter-fruite, first there must be great heede taken, what place or roome they are layed in: for it must be neyther too hot nor too colde, neither too close nor too open. For, as the closenes of the roome brings thê in a great heate, so doth too much ayre make them shrinke, and be withered: besides, in time of yeare, the frost will sore nip them. You must also haue a great care, that they be neither layed vpon the grouֹd, in any low roome, or cellar: vnles it be either paued or boarded. For, although they be vnderlayed well with strawe, yet the moystnes of the bare ground wil cause the straw to be mustie, & the mustines ascend to the fruite: which wil make them both musty and mouldy.

The laying of fruite in a lowe roome or cellar (so that the roome be sweet, and eyther boorded or paued, being not very close) is good, from Christmas vntill the latter end of March: which will both keepe them from the frost, and from the sharpnes of the March winde. Betweene March and the latter end of May (being the chiefe of the spring) the cellars be hot: and, in that time, the fruite will run out, or rot, more in those roomes, then in other cõuenient places. Roomes, that be very opê, are neither good for winter nor summer: and especially such as are neere the tyles where no seeling is ouer them. For, in winter, the sharp windes and frosts wil haue accesse through the chinkes or creuisses of the windowes, although shut: and, betwixt the tiles, the heate of the sunne, in hot weather will pearce likewise. As cellars be hot toward the spring, they be cold in summer: and are then good to keep fruite in.

Roomes, that be seeled ouer head, are good for fruite, hauing ayre sufficient, where the windowes may be shut and opened, as occasion serueth. For, being seeled it will keep away dust, that might haue fallen downe, and the heate of the sunne. Alwayes prouided, in what roome soeuer, that they be vnderlayed, with good, cleane, and sweet strawe, eyther wheate or rye. Take also the longest of the straw, and let it be layed to the walles, standing vp as far as the fruite reacheth: not thicke, but onely sufficient to keep the fruite from the wall. Which, if it be a stone wall, will giue, at euery change of the weather. If any other wall, it wil be ful of dust. Therfore the straw is good, both to dry vp the moystnes before it comes to the fruite, and likewise to keep away the dust.

But if the roome bee eyther wayne-scotted or boarded round, there needs no straw, betweene the walles and the fruite.

How winter-fruites, of one sort and kinde, are to be culled, and sorted diuersly.

As it is shewed how Summer-fruite (that is, such as be rathe fruite, and to be spent in summer) are to be ordered: so now shall be shewed, how winter or lasting fruite shall be vsed, and kept in their kinde, for their best lasting. And as there be diuers kindes of fruite that will not last, but must be vsed in summer, some at one time and some at another: so likewise there are diuers sorts, which will naturally last, some but til Alhollantide, some till Christmas, some till Candlemas, & other some till Shrouetide, &c. But especially, Pippins, John apples, or as some call them Dewzins, Pearmaynes, winter-russettings, and such other lasting seruiceable fruite, with good vsage, will last till new fruite come in.

It is the order in Kent, and in most fruite countryes in England, when they haue great heapes of fruite, lying in their houses, to take a long rod or staffe, with a nayle, or some such sharpe poynted thing, in the end thereof, and with the same to take vp those they see rotten, vpon the top or side of the heapes: not regarding how they rot vndermost, and in the heart of the heape: where, is more waste, then in the outward parts. And other some neuer stirre them, but when the haue occasion to use thê, and then taking them vp, and throwing out the rotten ones, doe let the rest rot that will.

But if you haue any fruit, that you meane to keep or reserue, as long as they can, by their seuerall naturall kindes, they must be vsed in another sort. When there is seene any perisht fruite, eyther vpon the toppe or sides of your heape, then it sheweth that some are rotten in the inner parts. Therfore, hauing a trey, with the same gently take them vp, being carefull, that you neither thrust the trey hard to the heape, nor with your nayles touch them. And heere know, that although the fruite of your heape be all of one kinde, yet at the turning or taking vp of them, they are to bee parted into three sorts: for they will not keep alike, although they grew all vpon one tree. Therefore your trey being filled set it before you, with your prickles or baskets round about you, & taking them out of the trey, peruse them well, and lay the hardest, or those that are without spots, which will last longest, in the basket next vnto you, laying them downe gently: the other sort that are broken skinned, stalke-pricked, or vnderrun (that is beginning to perish) will be as good for the present time to spend, and as sound as the other sort, so that they be taken in time. For, when they begin once to be spotted, or any way the skinne broken, if it be but the breadth of a pins head, they will not last long. This second sort you must put into the second prickle or basket. The third sort (for your third basket) are those that are already perisht, or worme eaten: which must be layed by themselues seuerall, and spent out of hand: and those that are found throughly rotten, to bee cast out, which will be but a fewe, if they be carefully looked into, shutting or pouring euery sort seuerall: and alwayes as they are turned, to bee vnderlayed with fresh and sweet straw. But if the be not taken vp, and looked to in time, you shal haue them, that be but stalk-prickt, or any way broken skind, soone rotten: and the other that be but a little perisht, whê these other begin to perish, wil be all rotten, and so spoile them that would last long.

The times when long lasting fruite, should be stirred and turned.

Pippins, John-apples, Peare-maines, and other such long lasting fruite, need not to bee turned, vntill the weeke before Christmas, except that there bee some riper kinde of fruite mingled with them (which must be take out) or that the fallings haue not been taken out at the gathering, or any strawe left amongst them.

The second time, that you should turne these lasting kindes of fruite, is about Shrouetide, or the latter end of March, or the beginning of Aprill. For, towards the spring all kinds of fruite will rot, more thê at other times. And so vntill Whitsontide turne them once in the month, and afterwards once in a fortnight. Still, in the turning, lay your heape lower and lower and your straw vnderneath them very thinne. Alwaies prouided, that you do not touch your fruite, in any great frost, and especially if they bee in an open roome.

In a cellar or close roome, where the frost cannot come at them, they may be touched, if there be any occasion of haste (or else not,) so that you keepe the roome very close shut too, when they be in turning.

At the thaw, the fruite is wet and moyst: and as long as they be so, they must not be touched, nor any way stirred, vntill that they be dry againe. And so likewise in rainy weather, they will be danke and moyste, and giue, according to the weather: at which times they may not be touched. For, being touched in any of those times aforesayd, they wil turn black: and hauing once changed colour, they will not last. Therefore in what roome soeuer you lay them, set open your windows, doores, or other entrances for ayre (that so the winde may come in vpon them); in winter, betwixt nine in the forenoone, and foure in the afternoone: and in summer you may open at sixe in the morning vntill eight at night. For, before and after these times, the ayre is too colde. In March open not your windowes at all: for the March winde will cause the fruite to shrinke.

When Pippins, and other long lasting fruite, begin to be shriueled: and the reason.

Lasting fruite, after that the middle of May is past, begin to wither: by reason that then they ware dryer. And thê, the moysture being gone, which caused them to keep plumpe, they looke withered and become smaller. Also when nature is decayed in them (doe what you can) they will rot. For, in the spring, as the tree yeelds fruit, springing and budding euery day more and more: so, doe the kirnels of the olde fruite, at that time, begin to swell & sprout within: and commonly it makes way at the stalke, and there begins for the most part to rot.

Home Correspondence.

The old Pollard Lime tree near Aix-la-Chapelle.—Some two miles and a half from this charming German watering place, there stands a huge Pollard Lime tree, close to a house named Vorst. It is said to be 1000 years old, for aught that is known to the contrary; and this is no extravagant surmise, when we contemplate its present appearance, and think of the many years that must have elapsed from the period of its renovation; for, at some epoch long gone by, it must have been truncated by the hand of man, or decapitated by the ruthless tempest, about 12 or 14 feet from the ground. The bole of this old giant of the forest measures in circumference full 44 feet at the base; but where its mutilation has occurred, and where new shoots have succeeded to the enormous branches which it once possessed, its dimensions have increased considerably by the swelling of the renovated parts. These parts now bear six stately trees, nearly equidistant, one of them being a trifle smaller than its brothers. But they are all in full vigour and in excellent condition, as their last year's shoots and their present foliage amply testify. The parent stock is hollow, and at first sight you might suppose that it consists of six or seven distinct trees. But this is not the case. They are only part and parcel of one single individual plant; they appear very much dilated, and are very hollow. Still there is quite enough of sound wood remaining to support the six new trees which have sprung up at the part where their unfortunate parent has lost its head. Here youth and age combine their powers to form an interesting sight in sylvan scenery, never to be found except in vegetable nature. Were this old Pollard Lime tree mine, I could easily put it in a condition to defy "rude Boreas, blustering railer," in his every attempt to lay it low for ever. I would first clear the trunk of all decaying wood from top to bottom, and then I would build up within the hollow a solid pillar of stone, grouted well with Roman cement. Every year a new sap at the periphery, would commence to roll slowly over this artificial interior, till at last the present separated parts would reunite. All this would tend to strengthen the old trunk itself; and Nature, in the course of time, would put all to rights again, by her own inimitable process. It were to be wished that the injured timber in our noble parks were more attended to than it is at present. I have at home just now four convalescent trees, the state of which must give satisfaction to every beholder. The first is a Dutch Elm, which lost an enormous branch about 70 years ago. The second is also a Dutch Elm; it is seven years since an amazing arm fell from it in a dead calm; and as it lay on the ground, I received the sum of 2*l.* 10*s.* for it from a timber merchant. The third is a Pollard Walnut; and the fourth a Willow. These are all now in a renovated state of improvement, well worthy the attention of the curious, and showing what can be done when proper means are used. *Charles Waterton, Aix-la-Chapelle, Frank's Hotel, Bellevue.*

Agave americana.—A fine specimen of this noble plant is now showing flower in the gardens of T. F. Brockholes, Esq., Claughton Hall, Garstang. On June 9 the plant measured 15 feet across, *i. e.* from point to point, and 7 feet in height. The flower stem was 11 feet 6 inches in height, and 13 inches in circumference at the base; it is now 22 feet in height and is still growing, there are between 4000 and 5000 flower buds

on it not yet all developed. Through the kindness of Mr. Brockholes, all who wish to see this interesting aloe may have an order to do so on any day except Sunday, by forwarding their address on a stamped envelope to Mr. Walsh, the head gardener, who will furnish the proper admission to the grounds. Claughton Hall is situated about midway between Preston and Lancaster, and is two miles distant from Garstang and Brock stations. *D. James, Carton Park, Maynooth.*

Rubus biflorus of the Himalayas.—Your correspondent "J. B., Biddulph Grange," has by a communication inserted in your publication of the 1st of August, given a very interesting account of his Rubus leucodermis of the Himalayas. I have an account to give not less astounding as regards the R. biflorus, also a white-stemmed Bramble, and from the same hills, and derived, as I have reason to believe, from the same eminent nurserymen, Messrs. Veitch, of the King's Road, Chelsea, who, I observe from Loudon's Supplement, had obtained the plant from Nepal, and had for a time cultivated it under the name R. leucodermis—"a name," it is there observed, "it might justly claim (from the pure white stems of the plant), were it not that a north-west American species had been so designated by Douglas, and the name adopted by Drs. Torrey and Gray in their Flora of North America." So that the plant, which "J. B." refers to, may be safely regarded as the identical species which I possess under the name of R. biflorus. I put out my plant in the very early spring on a gable wall facing the west. It was then a bushy thing with several stems, the tallest of which would be only about 3 feet high. It was in bloom on the 15th of May last, and in due season ripened fruit of an amber tint, and of a sweetish pleasant flavour. About the early part of April I observed a young vigorous shoot starting from the collar of the plant, which very rapidly shot up, throwing off lateral branches, so as to completely cover over and nearly hide the original plant. The following are now the dimensions, as I have to-day taken them, with my gardener:—Height of leader from the ground, 12 feet 6 inches; spread of principal lateral branches, from 16 to 17 feet; longest lateral branch, 11 feet; girth of main stem, at 3 feet from the ground, 3 inches. There are above 20 lateral branches, and these again have several side-shoots, which my gardener lately thinned. The tree, for such it certainly is, is still growing vigorously, and has already covered up two young Jargonelle Pear-trees which had the misfortune of being planted on each side of the original plant. The stems are thickly coated as if with whitewash, which the rain does not remove, though it is easily rubbed off with the hand. It is truly a noble plant, and if the fruit should be as abundant as the berries are large it would be worth while to cultivate the species as a fruit-bearing plant. But though with me it was sweet it wanted aroma; yet it may be improved by cultivation. I have failed to cross it. *Isaac Anderson Henry, Hay Lodge, Trinity, Edinburgh.*

Peach-tree Protection.—At page 772 Mr. Bennett recommends the use of Frigi Domo in preference to any other material for spring protection, even including glass itself. My experience leads me to a wholly different conclusion. I would recommend glass in preference to anything else whatever. Under moderately good management it is certain to produce satisfactory results. A 12 or 14 feet wall need not cost more than from 18*s.* to 20*s.* a foot run. The fruit from such a wall is superior to that from situations unprotected; and provided there is a flow and return pipe, which there always should be, a convenience for bedding plants, Strawberries, &c., is secured, a point of much importance in most places. In short, a Peach wall covered with glass will in four or five years repay the expense of covering it. It will cost little to keep it in repair, and in all respects it will be the most economical in the end. *S., Manchester.*

Vermin and Traps.—I rejoice that the attention of your readers has been directed to the cruel practice of catching rabbits with steel traps, by your correspondent "C. D." The amount of suffering thus occasioned must be very great, and it would be well worth the consideration of some of our societies for preventing cruelty to animals whether they would not be carrying out the object for which they are associated by offering a prize for the discovery of some more humane way of destroying these animals. That they must be destroyed in some way or other admits of no doubt. Not to speak of vermin, strictly so called, in which game preservers are more directly interested, the breed of rabbits in some of the southern counties, especially near the sea coast, is so rapid, that unless kept down they would soon disappoint all the hopes of the husbandmen. In such situations trappers are usually kept employed from November to the middle of February. One man is supposed able to attend to three dozen traps. These are set in the day, and are taken up as soon as it is light enough in the morning, so that rabbits, which feed early, are sometimes many hours in the traps with broken legs, and often show by the state of the ground around them what desperate efforts they have made to escape. Copses can be netted, but this mode of taking rabbits cannot be applied to all places, and with the greatest care will not clear them off sufficiently to satisfy farmers. As there are many persons interested in this subject, I trust that "C. D." will publish in your columns any useful information he may gain in answer to his inquiry, and that his letter may elicit a further discussion of the subject in behalf of the suffering race of rabbits. *J. B.*

Vine Growing, &c.—I took possession of my present situation in the autumn of 1862. Amongst other houses, I have two new Vineries. The Vines, two-year from eyes, were planted about the 24th of May in the same year; they made a growth of about 20 feet. In due time they were pruned some to five eyes, others to three eyes. They showed plenty of bunches. In thinning the bunches I left from three to five on a Vine. They ripened well; one Vine, a White Nice, had three bunches which weighed respectively 3 lbs. 12 oz., 3 lbs. 5¼ oz., and 2 lbs. 7 oz. Lady Downe's seedling furnished some very good Grapes, which I have not yet cut. Golden Hamburgh was a very good early Grape. Muscat of Alexandria produced three splendid bunches, with which I took a 1st prize at a local provincial show, against six competitors. I cut ripe Grapes (five bunches) from a White Frontignan a fortnight under the 12 months from planting. Most of the Vines have made 30 feet of good strong wood this season. In the early house I have a pit for growing stove plants, in which I planted Cucumbers in Seakale pots, plunged in the bark, and trained them up the rafters with the Vines, and at the present time the plants are as healthy and clean as if it were May, and full of fruit. I keep them clean by washing two or three times a week with soap water; I never use Tobacco for that purpose. In the late house I planted three Peach trees in November last, from which I got from six to nine fine Peaches, and they are as full of blossom buds as can be. *J. C. Nicholson, Gardener, Osgodby Hall, Selby.*

Epidendrum vitellinum.—I can fully confirm Mr. Bateman's remarks respecting the culture of this lovely Orchid on the "cool house system," as I have a plant under my care which has been grown cool, and which has produced as many as 16 spikes of flowers this summer. Some of the spikes measured from 15 to 20 inches in length, and contained from 12 to 23 flowers each. The plant itself is in perfect health, and measures 2 feet through: a glorious specimen. *G. Toll, Gr. to J. A. Turner, Esq., M.P., Pendlebury House, Manchester.*

Cinchona.—Your Correspondent "Exul" objects to your very correct directions for pronouncing Cinchona, on the ground that the word is Spanish. To this I would reply that we are not speaking Spanish, but English, or botanical Latin which we pronounce after English rules. You have on former occasions shown that what ever may have been the derivation of the word, the alteration now of the spelling from Cinchona to Chinchona, would be a piece of gratuitous pedantry opposed to all the rules of botanical nomenclature. Linnæus may or may not have known that the plant was named after a Countess of Chinchon; he would not at any rate have adopted Chinchona, for that would have to be pronounced in German (one of the languages he was most familiar with), and in other East European languages as Hinhona or Khinkhona, and for euphony he would have altered it to Cinchona. Such alterations have been frequently made. We have made Brunonia out of Brown, Stranvæsia out of Strangways, &c. Cinchona therefore, having been fixed as the name of the genus, and adopted by all eminent botanists, is now a settled word in botanical Latin, and is pronounced by each nation as it pronounces Latin The Spaniard may say Sinchona, and the Italian Tshinkona, but the German and Russian will say Tsinhona or Tsinkhona; the Swede (if I recollect right, but I have forgotten much of my Swedish) Tshinkhona or Tshinhona, whilst we say Sinkona; the Frenchman pronounces the *c* and the *ch* as we do, but gives to the *in* that peculiar sound which it acquires in that language before a consonant, and which we cannot render in English letters. If we are to adopt the Spanish pronunciation for all words, not only Spanish but derived from the Spanish, let us begin by saying Mādrith for Madrid and Cādith for Cadiz. *G. B.*

Seedling Grapes.—I have been crossing several varieties of Grapes, and I wish to raise young plants from the seeds; but having several times sown Grape seeds, I find that they don't spring readily. Some come at once, some next year, some not at all. What is the surest way to insure their growing? Steeping in hot water is recommended for some seeds—would it suit those of Grapes? *A. B.* [We should sow at once, and wait patiently.]

Tropical African Ophioglossums.—I send a little Ophioglossum discovered on the 24th of April, near the town of Ikonito, and not far from the banks of the river at Old Calabar, by Mr. Milne, a young man who was sent out last February to Western Africa from this city to collect plants and other specimens of natural history. Having observed a statement in the "Vegetable Kingdom" to the effect that "in the tropical parts of Africa and in Barbary these seem unknown," I thought it would be interesting to record this fact. *P. Clarke, Glasgow.* [The specimen seems to belong to O. nudicaule.]

Striking Cuttings without Soil.—Since my communication on this subject appeared (see p. 434 of our volume for 1860), I have received many inquiries respecting this simple mode of propagation. That cuttings of almost all plants will strike and grow in the way just named is a well-known fact. In water, on a piece of old wood, or suspended in a continually moist atmosphere, plants will live and do well, so that the striking of cuttings without soil is no new idea; but I have found how to bring this simple every-day culture into home practice, and it is now within the means of every one who has a garden and can procure a few cuttings, or keep an old stock plant over winter. With my simple means, any one can grow sufficient for his wants in an incredibly small space. Not only Roses, but bedding plants can be grown and kept in good health for years without soil. I herewith send you a bundle of Roses, which you will perceive are now three year old plants. They were cuttings tied in a bundle, struck, and kept in the same state as you now see them, never having been separated or planted out in any soil, yet if they were now planted in any common garden mould they would soon be fine healthy trees. On the other hand, I could undertake to keep these selfsame plants in a healthy state for many years, without adding an atom of soil of any kind; hence follows an important question—namely, what is the use of keeping plants in this retarded state? For my own part I am inclined to think that in a few years we shall see thousands of continental Roses and other plants introduced to this country at any season of the year, in perfect health, with all the luxuriance of their native clime, without the slightest check on vegetation, by this means. *W. Prestoe, Cornwell Place, Basingstoke, Hants.* [The samples are as above described: well-rooted and healthy, but not vigorous].

Societies.

CRYSTAL PALACE HORTICULTURAL EXHIBITION.—A Fruit and Dahlia show was held here on Tuesday and Wednesday last, and was well attended. The display of fruit was unusually large, and in many instances excellent, especially in the case of Black Grapes, which were all that could be desired.

Collections of 8 dishes of Fruit.—These were numerous, and among them were many excellent examples of skilful cultivation. In Mr. Henderson's, gr. to the Duke of Sutherland, at Trentham, were three bunches of Barbarossa Grapes, which weighed together 10 lbs. 11 oz.; a similar number of Black Hamburgh, weighing 6 lbs. 8 oz., good Barrington Peaches, Moor Park Apricots, an Enville Pine Apple, Trentham Hybrid Green-fleshed Melon, Morello Cherries, Pitmaston Nectarines, and Canon Hall Muscat Grapes. Mr. Bailey also furnished good fruit, among which were excellent Bowood Muscat Grapes, from a Vine stated to have been grown in a pot, Black Hamburgh, a Providence Pine Apple, Red Magdalen Peaches, Elruge Nectarines, Washington Plums, Bon Chrétien Pears, and Bailey's Green-fleshed Melon. In other collections we noticed a good Otaheite Pine Apple, excellent Grapes of different kinds, including three bunches of Black Prince, from Mr. Pottle, gr. to B. D. Colvin, Esq.; Pears, chiefly of the Bon Chrétien kind, Peaches, Nectarines, Plums, and Melons.

Awards.—8 dishes: 1st, Mr. Henderson, Trentham; 2d, Mr. Bailey, gr. to T. T. Drake, Esq., Shardeloes; 3d, Mr. Henderson. Extra, Mr. Beale, gr. to A. Smith, Esq., M.P.

Pine Apples.—These were not plentiful; but among them were one or two glorious examples of fine growth, especially a Queen, from Mr. Hall, gr. to Lord Scarborough, which weighed 7 lbs. 10 oz.; it was a finely formed fruit, but scarcely ripe. Mr. Young, Aberdare and Mr. Grant, Finchley, both showed good specimens, of Queens, which weighed respectively 5 lbs. 6 oz. and 4 lbs. 14 oz. Mr. Dwerrihouse furnished a fine fruit of Smooth-leaved Cayenne, and there were also some good Envilles from other growers.

Awards.—Queens: 1st, Mr. Hall, gr. to the Earl of Scarborough; 2d, Mr. Young, gr. to C. Bailey, Esq., M.P.; 3d, Mr. Grant, gr. to G. Plucknett, Esq. *Any other Variety.*—1st, Mr. Page, gr. to W. Leaf, Esq.; 2d, Mr. Dwerrihouse, gr. to Viscount Eversley; 3d, Mr. Page.

Grapes.—These were, as has been stated, excellent and abundant in quantity. Mr. Meredith's were unequalled for high cultivation and fine finish. Three bunches of Black Hamburgh from him weighed together 10 lbs. 13 oz. Mr. Morris likewise contributed admirable Black Hamburghs, as did also Mr. Henderson, Mr. Richards, and Mr. Drummond. The last named grower also exhibited bunches of Muscat beautifully ripened and well coloured; and from Mr. Meredith came a bunch of Trebbiana weighing 5 lbs., which though scarcely ripe, and slightly spotted with rust, was nevertheless a magnificent cluster. Mr. Goldsmith had a bunch of Barbarossa weighing 5 lbs. 14 oz.; it was not, however, in first-class condition. Golden Hamburgh, not very good, came from Mr. Tillery; and we noticed a bunch of the large green Grape, Marchioness of Hastings, from Mr. Henderson. Vines in pots were shown in good condition by Messrs. Lane.

Awards.—12 lbs.: 1st, Mr. Meredith, Garston, near Liverpool, and Mr. Morris, gr. to A. Bosanquet, Esq., Southgate; 2d, Mr. Harrison, Oatlands, and Mr. Wortley, Norwood; 3d, Mr. Drummond, gr. to J. A. Smith, Esq., Tunbridge Wells. Extra, Mr. Henderson, Trentham. *Black Grapes*, 3 bunches: 1st, Mr. Richards, Grimston; 2d, Mr. Meredith; 3d, Mr. Drummond. Extra, Mr. Henderson and Mr. Omant, gr. to J. Levick, Esq., Epsom. *White Grapes*, 3 bunches: 1st, Mr. Drummond; 2d, Mr. Wills, gr. to Sir P. G. Egerton, Bart., M.P.; 3d, Mr. Simpson, gr. to Lord Wrottesley. Extra, Mr. Bailey, Shardeloes. Heaviest bunch: 1st, Mr. Meredith; 2d, Mr. Goldsmith, gr. to Sir W. Farquhar, Bart.; 3d, Mr. Henderson.

Peaches.—Of Barrington, Mr. Kaile sent a dish of unusually large fruit; Mr. Dawson and Mr. Cross had Violette Hâtive, and Barrington, both excellent; and Vanguard was shown by Mr. Plester. Of these and

other sorts there were also a great many dishes of good fruit.

Awards.—1st, Mr. Kaile, gr. to Lord Lovelace; 2d, Mr. Cross, gr. to Lord Ashburton, and Mr. Dawson, gr. to Lady Cowper; 3d, Mr. Plester, gr. to Mrs. Rush, Bishop's Stortford.

Nectarines.—Beautiful fruit of Pitmaston Orange came from Mr. Ferguson, of Stowe; and Mr. Henderson and Mr. Plester also had good dishes of other kinds, among which were Elruge, Red Roman, and Hunt's Tawny.

Awards.—1st, Mr. Ferguson; 2d, Mr. Henderson, Trentham 3d, Mr. Plester, Bishop's Stortford.

Melons.—These were furnished in profusion. Among the best were a hybrid Green-fleshed sort, like Bromham Hall, Orion, and Marquis of Ailsa; the last came from Mr. Turner, of Slough. Among Scarlet-fleshed sorts one of the best was Gem, and hybrids from it, most of which were unnamed.

Awards.—Green-fleshed: 1st, Mr. Scorer, gr. to G. T. Eyre, Esq., Woodlands, Havant; 2d, Mr. Varney, gr. to W. Smith, Esq., Brixton; 3d, Mr. Turner, Royal Nursery, Slough. *Scarlet-fleshed*: 1st, Mr. Gadd, Dorking; 2d, Mr. Whittaker, gr. to Lord Crewe; 3d, Mr. Kaile, gr. to Lord Lovelace.

Figs.—These were chiefly Brown Turkey and White Marseilles.

Awards.—1st, Mr Eman, gr. to Miss Trotter; 2d, Mr. Wyatt, gr. to H. Willis, Esq.; 3d, Mr. Turner.

Cherries.—Besides Morello, we noticed Late Duke, Bigarreau, and Florence.

Awards.—1st, Mr. Bailey, Shardeloes; 2d, Mr. Dawson, Panshanger; 3d, Messrs. Lane & Son, Great Berkampstead.

Plums.—Of these there was a large display, consisting chiefly of Green Gage, Reine Claude de Bavay, Prince of Wales, Goliath, Washington, Jefferson, Coe's Golden Drop, Magnum Bonum, Kirke's Victoria, Sir C. Napier, and others, all large fine-looking fruit.

Awards.—1st, Mr. Bailey, Shardeloes; 2d, Mr. Pomfrett, gr., Eton College; 3d, Mr. Webb, Culham House, Reading.

Apples.—These were numerous, for the most part large, and free from speck or blemish. Among dessert kinds in the winning collections were Downton, Ribston, Fearn's, Kerry, and Cox's Orange Pippins, Summer Pearmain, Quarrenden, Cox's Pomona, and Peach Apple. Among kitchen sorts the best were Alfriston, Chancellor, Praiseworthy, French and Springrove Codlins, Tower of Glammis, Hawthornden, Lord Suffield, Lord Derby, Five-crowned Pippin, Emperor Alexander, Flower of Kent, and Wellington.

Awards.—Dessert: 1st, Mr. Pomfrett, Eton; 2d, Dr. Cooper, Slough; 3d, Mr. Holder, Maidstone. *Kitchen.*—1st, Mr. Mortimore, gr. to A. Smee, Esq., Carshalton; 2d, Mr. Vicary, Eltham; 3d, Messrs. Lane, St. Mary Cray, Kent.

Pears.—These were also plentiful and good. Among table sorts were splendid fruit f om Mr. Harrison of Williams' Bon Chrétien, Marie Louise, and Duchesse d'Angouleme, and from others came Gansel's Bergamot, and Louise Bonne of Jersey, in fine condition. The 1st prize for fine flavour was awarded to Williams' Bon Chrétien; and to Gansel's Bergamot a third prize was given. The heaviest Pears consisted of Uvedale's St. Germain, 12 fruits of which weighed 10lb. 8 oz.

Awards.—6 dishes: 1, Mr. Harrison, Oatlands; 2, Mr. Nicholls, Hammersmith; 3 Mr. Donald, gr. to J. G. Barclay, Esq., Leyton *Single dish for weight.*—1, Mr. Goldsmith, gr. to Sir W. Farquhar, Bart.; 2, Mr Dwerribouse gr. to Viscount Eversley; 3, Mr. Turner, Slough. *Single dish for flavour.*—1, Mr. Mortimore, gr. to W. Potts, Esq., Carshalton; 2, Mr. Gale, Hammersmith; 3, Mr. Grover, Hammersmith.

Miscellaneous Subjects.—These consisted of Peach and other trees in pots, well furnished with fruit, from Messrs. Fraser and Lane; various kinds of Nuts from Mr. Webb; Moorpark Apricots from Mr. Henderson; Winter Cherries, Red and White Currants, Guavas and Cucumbers from other growers. The names of the last were Emperor, Hallis's Volunteer, and Telegraph, all examples of fine growth.

Dahlias.—The display of these was large, and the blooms for the most part in good condition. Those from Mr. Turner and Mr. Keynes especially were very fine. Good stands were also contributed in the amateur class. In the different collections we noticed beautiful examples of Lord Palmerston, Lady Franklin, Lady Popham, Goldfinder, Earl of Shaftesbury, Heroine, Commander, Hon. Mrs. Trotter, Madge Wildfire, Criterion, Hon. Sidney Herbert, Model, Captain Harvey, Cygnet, Chieftain, Lord and Lady Elcho, Lord Cardigan, Joy, Hope, Volunteer, Pioneer, Hugh Miller, Norah, Pluto, Lord Derby, Duchess of Wellington, Perfection, Sir George Douglas, Lord Eversley, Miss Pressley, Mr. Stocken, Mrs. Pigott, Mr. Boshell, Marquis of Beaumont, Chairman, Jenny Austin, Norfolk Hero, Mrs. H. Vyse, Cherub, Warrior, Juno, Lord Dundreary, Gold Drop, Umpire, Bob Ridley, Delicata, General Jackson, Mauve Queen, Dinorah, Count Cavour, Charlotte Dorling, Beauty of Hilperton, Donald Beaton, Mrs. Henshaw, Midnight, Peri, Willie Austin, Disraeli, Lord Canning, and George Brown.

Among what are called Fancies we noticed fine blooms of Harlequin, Countess of Bective, Pauline, Starlight, Elegans, Queen Mab, Confidence, Lady Paxton, Miss Jones, Mrs. Crisp, Norah Creina, Madame Sherrington, Summertide, Fairy Queen, Mrs. C. Kean, Countess of Shelburne, Pluto, Zebra, Garibaldi, Rev. J. Dix, Triomphe de Roubaix, Mrs. Wickham, Duchess of Kent, Leopold, Oliver Twist, Flirt, and Gem.

Seedlings came chiefly from Mr. Keynes, who received First-class Certificates for Edward Purchase, dark velvety crimson; Polly Faucett, yellowish buff ground heavily tipped with pink; Samuel Bartlett, deep lilac striped and flaked with crimson; Fanny Purchase, bright yellow; Anna Keynes, white tipped with purplish lilac. The same raiser also had Second-class Certificates for John Wyatt, violet shaded purple; Fascination (Rawlings), delicate pink strongly striped and blotched with crimson; Lady Lilian Paulett, French white, delicately tipped with violet; and Regularity, carnation striped white. First-class Certificates were awarded to Mr. Legge, of Edmonton, for Nonsuch, buff suffused and shaded with red; and to Mr. Collier, of Bethnal Green, for Princess Alexandra, golden yellow, striped and flaked with red. To Mr. Legge were given Second-class Certificates for Fancy Boy, buff shaded and striped with red; and for Enchantress, lemon ground, heavily tipped with pu ple; Mr. Bragg, of Slough, had a similar award for Ranger, a scarlet flower of fair properties. Second-class Certificates were also given to Mr. Burgess, for Chelsea Hero, deep buff tipped with violet; and to Mr. Wheeler, of Warminster, for Mrs. Wheeler, white, heavily tipped with purplish lilac. In addition to these Mr. Perry sent a compact small sort called Nilus, yellowish buff tipped with red.

Awards.—48 *blooms*: 1st, Mr. Turner, Slough; 2d, Mr. Keynes, Salisbury; 3d, Mr. Cattell, Westerham; 4. Mr. Walker, Thame. 24 *blooms.*—1st, Mr. Turner; 2d, Mr. Keynes; 3d, Messrs. Saltmarsh, Chelmsford; 4th, Mr. Walker; 5th, Mr. Legge, Edmonton; 6th, Mr. Barnes, Stowmarket. 12 *Fancies.*—1st, Mr. Turner; 2d, Mr. Keynes; 3d, Mr. Legge; 4th, Mr. Cattell. 24 *blooms (Amateurs).*—1st, Mr. Thornycroft, Weedon; 2d, Mr. Sladden, Ash; 3d, Rev. C. Fellows, Norwich; 4th, Mr. Perry, Castle Bromwich; 5th, Mr. Moffat, gr. to Viscount Maynard, Dunmow; 6th, Mr. Avis, gr. to the Rev. C Rose, Bury St. Edmunds. 12 *blooms.*—1st, Mr. Thornycroft; 2d, Mr. Charlton, Kibworth; 3d, Mr. Sladden, Ash; 4th, Mr. Wakeman, Eltham; 5th, Mr. Batten, Eton; 6th, Rev. C. Fellows, Norwich; extra, Mr. Steer, Eltham. 12 *Fancies (Amateurs).*—1st, Rev. C. Fellows; 2d, Mr. Sladden; 3d, Mr. C. Perry, Castle Bromwich.

Asters.—Exhibitions of these were numerous, and seemed, as well they might, to excite much interest; for when neatly set up, as they were on this occasion, few flowers have a more captivating appearance. Some admired the French sorts most; others the German; both were, however, very handsome.

Awards.—24 *German*: 1st, Mr. Betteridge, Milton Hill, near Steventon; 2d, Mr. Besley, East Hendred, Berks; 3d, Mr. Jennings, Shipton-on-Stour. 24 *French.*—1st, Mr. Betteridge; 2d, Mr. Wyatt, gr. to H. Willis, Esq., Epsom; 3d, Mr. Sandford, gr. to T. Thomasset, Esq., Walthamstow; extra, Messrs. Saltmarsh.

Roses.—A few boxfuls were shown, all of which more or less indicated the ill effects of the stormy weather which we have lately experienced. Among them there were, however, fair examples of most of the leading varieties, foremost among which stood Senateur Vaisse, Gloire de Santanay, M. Eugène Verdier, Gloire de Dijon, and Celine Forestier. The last appears to be an excellent bright yellow late autumn Rose.

Awards: 36 *Varieties.*—1st, Messrs. Paul & Son; 2d and 3d prizes withheld. 24 *Sorts.*—1st, Messrs. Paul & Son; 2d, Mr. Turner, Slough; 3d, Mr. Clarke, Brixton. 18 *Varieties (Amateurs)*—1st. Mr. Exell, gr. to J. Hollingworth, Esq., Maidstone; 2d, Mr. Dennis, gr. to H. S. Hayward, Esq., Hurst Green; 3d, Dr. Cooper, Slough; 4th, Mr. Moffatt, gr. to Viscount Maynard, Dunmow.

Hollyhocks.—Various stands of cut blooms were shown, in which were excellent examples from Mr. Hawke, of David Foulis, J. Ullett, Mrs. Cochrane, Purple Prince, Premier, Prince Charlie, Lord Loughborough, Queen Victoria, and J. Clarke. Mr. Chater, and Messrs. Downie, Laird & Laing, also showed handsome blooms.

Awards.—12 *blooms*: 1st, Mr. Hawke, Gainsborough; 2d, Mr. Plester, Bishop's Stortford; 3d, Mr. Forrester, Beckenham; extra, Mr. Smail, Norwood. 24 *blooms (Nurseryman).*—1st, Mr. Chater, Saffron Walden; 2d, Messrs. Downie, Laird & Laing, Forest Hill; 3d, Mr. Chater, Cambridge.

Gladioli.—From Messrs. Youell, of Yarmouth, came a handsome collection in which the following were good and striking, viz., Brenchleyensis, scarlet; Achilles, red and white; Clemence, delicate pink striped with crimson; Comte de Morny, cerise with white throat; Egerie, rose striped salmon; Erato, bright rose; Isoline, delicate pink; John Bull, saffron veined white; Le Poussin, red with white throat; Linné, cerise blotched with yellowish white; Madame Binder, carmine striped white; Ophir, purple spotted yellow; Penelope, creamy white; and Vesta, carmine spotted white. In a fine group of 24 varieties from Mr. Standish the best were Imperatrie Eugénie, a charmingly marked kind; Scottish Chief, Reine Victoria, Madame Standish, Ensign, Rev. Joshua Dix, W. F. Lane, Basil (large and showy), Rosenberg, Edith Dombrain, and Miss Howell, the last a good pink. From Mr. Cattell came some good spikes; but Gladioli we understand are not flowering well this year in many places.

Awards —Best collection: 1st, Messrs. Youell. 24 *spikes.*—1st, Mr. Standish; 2d, Messrs. Youell; 3d, Mr. Cattell.

Miscellaneous Subjects.—Among these were some fine Verbenas from Messrs. Perkins of Coventry and Mr. Perry of Castle Bromwich; a pan of good double Zinnias from E. Banks, Esq., Sholden Lodge, Deal; and last but not least a magnificent specimen of Lapageria rosea in a pot from Mr. Geo. Uzzell, gr. to the Duchess Dowager of Northumberland at Mount Lebanon, Twickenham. It was trained on all sides over a double trellis about 6½ feet in height and nearly as much in width, and contained about 130 fully expanded flowers, of which there were not unfrequently as many as three and four in a bunch. Mr. Uzzell, we remember, showed a fine specimen of this glorious plant at one of the Royal Horticultural Society's meetings at South Kensington in 1861, but the one now under notice is by far the best that he or we believe anybody else has yet produced under pot culture. It was, as it deserved to be, the admiration of all who saw it.

Notices of Books.

The Alpine Guide. Part I. By John Ball, M.R.I.A., F.L.S., &c., late President of the Alpine Club, London. Longman & Co. Pp. 517.

Five and twenty years ago, it was a very unusual thing for travellers to deviate materially from the beaten track, as they crossed the various passes of the Alps. In those days few people cared to carry a mountain barometer to the top of some snow-clad peak, for the purpose of ascertaining its height above the sea; and fewer still were willing to encounter the inconveniences and risk the dangers of mountaineering, for the sake of the views which might be obtained from commanding elevations, or for the inexpressible delight of securing some minute but rare Alpine plant for the herbarium. A cool head and a clean pair of legs for climbing, and remarkable powers of endurance, were combined, in the person of Mr. Ball, with a bold spirit of adventure, and a keen appreciation of the beauties of nature, and a certain stimulus was added, by the natural desire which he had of extending the boundaries of science. It is more than probable that the meetings of the British Association, which brought together men of congenial pursuits, suggested also some system of combined action in the exploration of mountain phenomena. Professors Forbes and Tyndall may with justice be considered successors to Saussure in the importance of their investigations.

The delights of mountain climbing once fairly tested, the passion for adventure grew marvellously. The exhilarating effects of the pure atmosphere which was inhaled, the rarity of the air, the invigorating exercise, the dazzling snowy scenery, the sense of exaltation, the mastering of difficulties, and the satisfaction felt in striking out a new path, soon attracted a band of daring comrades, who were presently consolidated into the Alpine Club.

The late President is well known as an accomplished botanist and geologist. He is highly valued by a large circle of friends for his scientific attainments, an inexhaustible fund of information, and singularly good taste and judgment. His agreeable manners and rare social qualities render him at all times the most charming companion, while his never-failing cheerfulness, intrepid courage, and ready resources in difficulty and danger, eminently fitted him for a leader in perilous enterprises.

Among the other qualifications which Mr. Ball possesses for writing an Alpine Guide must be mentioned "a somewhat prolonged and extensive acquaintance with the greater portion of the Alps, in the course of which he has crossed the main chain 48 times, by 32 different passes, besides traversing nearly 100 of the lateral passes." With such qualifications in the Editor, with so extensive an experience of his own, and with valuable assistance, of which mention is made in the preface, we are not surprised to find that the work before us possesses merits of a very high order—merits which very possibly will not be appreciated by those who expect to find in it merely a lively and popular account of Alpine scenery and adventure, such as one meets with in "The Leisure Hour" or "Good Words," but which will be appreciated by the actual traveller, who really requires the help of a guide in his difficulties. The book is in fact intended to give valuable information to real travellers, and not to supply amusement and excitement to those who tarry at home. This object is borne steadily in view by the Editor, and there are everywhere evidences of the care and labour it has cost.

In the introduction many valuable pieces of information are given, such as only experience will suggest, *e. g.*:—"With ladies it is prudent to take a guide for each horse or mule. It is a rule of the first importance to abstain from interfering with the animal in difficult and dangerous passes. There is scarcely an instance of accident arising from a fall where the animal is left to his own sagacity, but many in cases where the rider has attempted to interfere with him. To this cause is to be attributed the unfortunate fate of a French lady dashed to pieces in 1861, when riding down the Gemmi Pass." On the subject of guides we are told—"The large majority of tourists do no more than follow a frequented path, where one native of the district is as well able to lead him as another. The increased desire to explore the less accessible parts of the Alps, and to undertake difficult and dangerous expeditions, has led to a demand for the services of a superior class of men. Guides of the ordinary class are usually found wherever a regular demand exists for their services. Their duties are defined and their pay fixed, and usually each carries a book, containing a certificate of good character and general fitness, and his employers enter their names and any remarks they think proper to add." "In places where guides do not exist as a regular class, the best plan is to apply to the innkeeper, or, in remote places, to the curé, rather than take without inquiry persons who come to offer their services. This is a precaution especially necessary, where, for an excursion

of difficulty, you have sought after the best known chamois-hunters, who are not always steady men. Guides of the highest class are usually engaged weeks or months before hand, by members of the Alpine Club. An alphabetical list of about 36 of the best known guides, with their addresses and qualifications, is given with careful discrimination in page 35 of the introduction.

In the matter of knapsack and its contents, the traveller will do well to profit by the experience of others, which is given here. As to clothing, the guides themselves are often too careless. Only the other day there was a paragraph in the *Times*, stating that several guides had been severely frost-bitten from neglecting to furnish themselves with gloves.

Mr. Ball says "surefootedness is essential to satisfactory mountaineering, and depends upon two habits, which may be easily acquired; first, that of lifting the foot well from the ground and bringing it down at once; secondly, that of observing the spot on which the foot is to rest, and accustoming the muscles instinctively to prepare for the exertion. In passing at a level along the face of a very steep slope, the beginner involuntarily shrinks from the apparent danger, and is apt to lean in the opposite direction. This is a mistake, as by causing an outward thrust of the foot, the risk of slipping is much increased. In all such places the body should be kept perfectly upright, and the alpenstock held in both hands ready to steady the balance, &c. It must be recollected that wherever the alpenstock is really wanted, it must be held in both hands. On very steep ground it is sometimes extremely difficult to avoid detaching loose fragments of rock, which may be a source of real danger to the traveller's companions; when possible, especially in a descent, it is best to take slightly different lines, so that the foremost shall not be in the way of stones sent down by the next comer; where this is not possible, the best plan is for the party to keep close together. The risk of harm is much less, when the detached stone has not acquired a dangerous velocity." Such are some of the practical hints to the young traveller.

The inconveniences he is subjected to are stated to be first—thirst, which is painfully felt by those who are not used to such expeditions. Cold tea seems to be the best remedy; a dried Prune kept in the mouth as long as possible is also recommended.

Next comes the excessive heat of the sun, which beats down upon the head with immense power, and has been known to raise the thermometer, exposed on a black felt hat, to 151° Fahr. A layer of wadding round and over the hat gives some protection. The Editor, at the risk of appearing eccentric, sometimes carried an umbrella. We fancy we can see him now.

Another annoyance is called mountain sickness, which arises from the combined effects of unusual exertion and the diminished density of the air at great heights. Difficulty of breathing is the first symptom, succeeded by headache, drowsiness, and nausea; strong drink as a restorative should be carefully avoided. Inflammation of the eyes and the surrounding membranes produced by the glare of the snow is another discomfort, to prevent which a gauze veil is recommended, or dark spectacles.

For blistering and peeling off of the skin, caused by the direct rays of the sun, or reflection from the snow, or the sharp wind which usually blows at great heights, glycerine and cold cream are used.

The dangers of Alpine expeditions, we are told, are of two kinds—the real and the imaginary.—"When a ridge or slope of rock or ice is such that it could be traversed without difficulty, if it lay but a few feet above the level of a garden, the substitution on either side, of a precipice thousands of feet in depth, or of a glacier crevasse, makes no real difference in the work to be done, though it may have a formidable effect on the traveller's imagination. Those who cannot remove this source of danger by accustoming themselves to look unmoved down vertical precipices, and, in cases of real difficulty, to fix their attention exclusively on the ledge or jutting crag to which they must cling with foot or hand, should avoid expeditions where a moment's nervousness may endanger their own lives or those of others."

(To be continued.)

The Higher Rules and Operations of Arithmetic. By Thomas Tate. London: Longmans. Pp. 137.

There can be no doubt that "the method of teaching arithmetic from first principles" is the mode universally adopted by those who desire to exercise the reasoning powers of their pupils; and the little book before us, which we have carefully looked through, seems to be everything that can be desired in that way. It begins with Rule of Three, and ends with continued fractions (by no means an easy subject), operations with circulating decimals, and properties of numbers. The "arithmetical problems," which are really simple applications of algebra, are very good, and will be relished by sharp-witted boys.

Canon Moseley says of the little book to which this is the sequel:—"Of the numerous works on education published by Mr. Tate, there are two, the influence of which on elementary teaching has been remarkable. The one is his 'Arithmetic,' in which he, first of all the authors who have attempted it in England, succeeded in making arithmetic the 'Logic of the People,' by giving for the rules of arithmetic such *reasons* as it was possible to teach to poor children." This is high praise.

Garden Memoranda.

MR. MASTERS' NURSERY, CANTERBURY.—One of the most noticeable features in the home grounds of this well-known and well-stocked establishment is the picturesque effect which the extensive experience of Mr. Masters in laying out and planting grounds has enabled him to produce without any serious sacrifice of space. Instead of the straight lines and regular quarters which one generally finds in a nursery garden, and which doubtless furnish in ordinary cases the most convenient mode of arrangement, the ground here has been very skilfully disposed so as to form little peeps of scenery, often bringing in some of the fine and interesting architectural features of the archiepiscopal city, these peeps being now rendered all the more finished by the aid of judiciously-disposed trees, which have had time to become well established. Thus at each turn one meets with some distinct and pleasing picture, and the apparent extent of the grounds is much increased.

In one corner of the nursery there still stands an interesting relic, one of the oldest Lombardy Poplars in England. The trunk of this notable tree, which must be some 15 feet in circumference at 4 feet from the ground, and more near the base, still supports a considerable head, though it bears marks of age, and has been subjected to some serious accidents. Another interesting tree, of which there is a fine vigorous specimen, is the Naples Alder, a species which is said to retain its foliage longer than most other deciduous trees. There is also near this a well grown Drooping pubescent Lime. Negundo fraxinifolium was pointed out to us as a most useful tree in landscape scenery, its utility being well illustrated by a good example growing in the nursery. The pale-coloured foliage has the quality of, as it were, collecting light, and consequently when placed so that it has a dark background, the effect is to give increased depth to the picture in which it occurs. Such instances are suggestive of how much may be done in giving effect to scenery and plantations by studying the tints of foliage assumed by different trees, and of the importance of judiciously contrasting them. Another suggestive group was a set of hardy climbers, such as Clematis, Ampelopsis, &c., trained to stout poles, and then when the poles were well covered, allowed to take their natural style of growth. Such groups would come in admirably as screens.

Amongst the curiosities noted, recalling memories of "other days," was a living arch consisting of four Hornbeams grafted together so as to form open-work sides, and surmounted by a single-stemmed symmetrical head: an interesting memorial of the "conceits" in which our forefathers indulged.

Many of what are called "old-fashioned plants," and which one would seek in vain in most nurseries of the present day, were observed scattered through the extensive collections of all kinds of plants. In one of the greenhouses Rhynchospermum jasminoides, planted out, was growing in more robust health than one usually sees this fine plant, and flowering freely as a greenhouse climber; and Mr. Masters informed us that it had lived out-doors with him against a wall for the last 15 years, but did not under these conditions flower so well. Elsewhere, among rock, fronting a greenhouse, we noticed Polygonum complexum, an interesting trailer, quite established and hardy.

We noticed besides a very good collection of hardy and British Ferns; a large collection of herbaceous plants, unfortunately, when we saw them, in great measure past their beauty; and many interesting trees and shrubs, of which a fuller series is cultivated at a distant nursery we had not time to visit. We found, moreover, a genial spirit, imbued with a love of plants for their own sakes, presiding over all.

OXFORD BOTANIC GARDEN.—We understand that there is now flowering in one of the conservatories of the Oxford Botanic Garden an unusually fine plant of the Vera Cruz Aloe (Agave lurida). It has a flower stem upwards of 20 feet in height, bearing on its numerous lateral branches many hundreds of pale green flowers, which, although not particularly showy, are of great rarity and interest. The only recorded instance of a plant of this species producing flowers in this country appears to be that of one which flowered in the Royal Gardens, Kew, in the summer of 1811, and was figured in the *Botanical Magazine*, t. 1522. The plant now in bloom is of about 80 years' growth, thus going far, observes a local journal, "towards verifying the frequent assertion that plants of the genus Agave flower but once in a century."

Miscellaneous.

Herne's Oak.—The shattered trunk of Herne's Oak was blown down on Monday morning last. A branch of the tree which fell from the trunk upwards of 20 years ago has been carefully preserved in the Royal stores at Windsor Castle. Since then this famous tree has been fenced in with park pales, and a plate has been attached to it upon which is engraved a quotation from "The Merry Wives of Windsor." The identity of Herne's Oak has been disputed by many writers, but in a plan of the Castle and Tower of Windsor, published at Eton in 1742, the position of the Oak is clearly defined. It is marked as Falstaff's Oak. The fairies' dell has been partially filled up, but the late Prince Consort had much of the earth removed, when the remains of large Oaks in an upright position were discovered. *Times.*

Japanese Poets.—Leaving poor Heuskin's grave, we rode on in a westerly direction for about two hours, taking many a winding path in order to see the more remarkable portions of this beautiful suburban scenery, with which Mr. Harris was well acquainted, and of which he was one of the most enthusiastic admirers. Our destination was a place called Joo-ne-shoo, or the Temple of the Twelve Altars. This temple is situated in a wood, and has a waterfall on one side, and a lake on the other. Numerous tea-houses do a thriving trade here, as the place is much resorted to by the good citizens of Yedo. Saki, which is rather stronger than tea, is also consumed in considerable quantities. Report says that many of the visitors are particularly fond of composing and reciting poetry in one of the avenues near the temple, and that sundry draughts of the favourite beverage are taken to brighten the intellect and to excite the imagination. At the upper end of this avenue there are sundry jets of water, each having a fall of about 6 feet, which are used in a curious way that is worth mentioning. It seems that, when the poet or philosopher, or whoever he may be, has imbibed so much saki as to render him incapable of further enjoyment—in fact, when he is what is vulgarly termed drunk—he gravely proceeds and places his head under one of these jets of cold water. This has the effect of making him a more sober, if not a wiser, man, and it enables him to return once more to the enjoyment of his saki. How often this system can be repeated in an afternoon with the same results, I am not informed. It is to be hoped, however, that it is more beneficial to the literature of the country than it can be to the constitutions of those who thus enjoy themselves at the "Temple of the Twelve Altars." *Fortune's "Yedo and Peking."*

Cactus Fruit.—Dr. Engelmann communicated the results of his investigations on the nature of the pulp of the Cactus fruit, illustrated by many drawings. Zuccarini, than whom none better understood the morphology, as well as the systematic characters of the Cactaceæ, had already in the year 1845 (Plant. Nov., fasc. 5, pag. 34) expressed the opinion that in Cactaceæ, as well as in Cucurbitaceæ, the funiculi assisted in forming the pulp of the fruit. Schleiden (Grundzüge, ed. 3, p. 408) ascribes the pulp of Mamillaria to an arillus, dissolving into single juicy cells. Gasparrini, in his extended, but rather odd description of the Opuntiæ fruit, (Osservazioni, 1853, p. 20,) also considers the pulp as a peculiar sort of an arillus. I had long since come to the conclusion, especially after examining the somewhat dry fruits of Cereus cæspitosus and Echinocactus setispinus, that the funiculi alone constitute the pulp, and in Cact. Mex. Bound., T. 20, fig. 12, I had figured the enlarged funiculi of the latter plant. The Cactus fruit is usually succulent; only some Echinocacti and some Opuntiæ are known to bear dry fruits. The succulent fruit consists of the fleshy walls of the fruit itself, originating from the carpel and the adhering calyx (or part of the stem, as Zuccarini will have it), coalescing and forming a homogeneous mass, and of the juicy pulp, in which latter the seeds are imbedded. In some species the parenchyma of the walls, in others the mass of the pulp prevails. The pulp is always the product of the funiculus or its appendages. The funiculus, even at the flowering period, bears on its inner side a beard of transparent fibres, 0.01–0.10 line in length; the fruit maturing, these fibres are enlarged, and the whole cellular tissue of the funiculus becomes as it were hypertrophic, every cell swelling up, filling with a sweetish, mostly red-coloured juice; at last the cells in most species separate from one another, and leave the seeds floating in the pulp attached only to the slender spiral vessels. The mass of the funiculi and their proportion to the mass of the seed is very different in different species; in Lepismium Myosurus it constitutes only $\frac{1}{5}$ or $\frac{1}{3}$ of the seed; in Mamillaria Nuttallii it bears, perhaps, a still smaller proportion; while in other Mamillariæ, *e. g.* M. polythele and M. pusilla, it is 2-4 times as large as the seed. In the large edible fruits of Cerei, such as C. triangularis, C. grandiflorus, C. giganteus, &c., it constitutes by far the largest part of the fruit. The cells are globular, oval, or variously compressed; in some species I find them extremely small, 0.01–0.03 l. long, while in others they are 0.1–0.2 and 0.3 l. long. The genus Opuntia apparently differs in having the whole seed covered with juicy cells, which, in size and quantity, vastly predominate over the cells of the rather insignificant funiculus proper. But the whole bony coating of the seed being but an arillary enlargement of the funiculus (Cact. Mex. Bound., p. 76), this peculiar case entirely falls into the analogy of the other Cactaceæ. The real difference is caused by the nature of the arillus, which, getting extremely hard, leaves the cells of the epidermis only to grow out, and finally to form the pulp of the fruit. Soon after fecundation these cells gradually become elongated, cylindrical, and disconnected among one another, rising perpendicularly from the surface of the seed; they are shorter, of nearly equal length, and perfectly straight on the faces of the young seed, and

longer, hair-like, and twisting in different directions on and near the rim. In O. glaucophylla, which I take to be a mere variety of O. Ficus indica, I find them at their first appearance on a seed of less than one line in diameter only about 0.004 l. long and wide; on the rim they soon grow to twice the diameter and 10 times the length, till at maturity the larger ones are 0.3–0.5 l. long. These cells, at first simple and cylindrical, become at last jointed and clavate, the terminal cells being many times larger than the basal ones, thus properly filling the interstices between the seeds. During winter, the fruit and seeds having reached their full growth, these cells contain a colourless, viscous, insipid fluid; in the following spring, when the fruit has assumed a deep purple colour, and attained full maturity, they contain a sweetish, purple liquid, and soon separate, forming what is properly called the pulp. The single cells are mostly oval or oblong, 0.02–0.20 l. in length. I find the same structure in O. Engelmanni, which, however, ripens its fruit, with us, in autumn, and it undoubtedly obtains in all Opuntiæ with large and juicy fruit. In O. Rafinesquii, and probably in all species with less juicy fruit, the cells on the face of the seed are not developed, only those on the rim producing the pulp, which in this species as well as in O. vulgaris and O. Pes Corvi, remains, even at full maturity, insipid and viscous and of pale red colour. In this condition the fruit adheres to the plant, without any change, until it falls off in the following spring. In O. brasiliensis and O. monacantha these epidermis-cells are greatly elongated, forming, in fact, a matted, tough beard, 2-3 lines long, analogous to that of the unripe Cotton seed; each hair consists of several slender joints, 0.01–0.02 l. in diameter, the terminal one often thickly clavate or otherwise variously inflated. I have found them thus in the unripe fruit late in autumn; how they may change at maturity I have been unable to ascertain. No such development of the epidermis-cells seems to take place in the Opuntiæ with dry fruit, such as O. missouriensis, O. clavata, &c.; the seed, consequently, has a whiter, polished, ivory-like surface, while that of the juicy Opuntiæ fruits is dull and almost rough, and not so white. The cells of the parenchyma of the fruit, as well as those of the bony seed-coat, are full of aggregations of crystals; those of the funiculus proper contain fewer and smaller clusters; but in the pulp itself I have never seen them; neither could I discover any in the parenchyma, or in the pulp of the fruits of Mamillariæ. *Engelmann, in Proceedings of the Academy of Sciences of St. Louis.*

A Curious Silkworm.— One afternoon about this time I came upon a group of countrymen, sitting under the shade of some trees, busily engaged in taking a kind of silk or gut from a large species of caterpillar. The animal was fully four inches long, its upper side was of a lively green colour, while the under was white and covered with long white hairs. It feeds upon the leaves of a species of Chesnut very common on all the hill-sides in this part of Japan. In the baskets containing the worms were a quantity of these leaves, which, judging from the rapid manner in which they were being eaten up, must be very palatable. But the curious part of the business remains to be told. These worms are not allowed to come to maturity, and then spin cocoons like the common silkworm, but each individual is disembowelled alive, and two short thread-like substances are taken out of its body. These threads are at first about three inches in length, and are covered thickly with a glutinous fatty substance. When dipped in a solution of some kind, apparently vinegar, this fatty matter comes readily off, and the threads are drawn out to their full length. Those which I measured on the spot were fully five feet long. I believe they are largely used in the manufacture of fishing-lines, for which there is a considerable demand in Japan. The countrymen engaged in collecting them informed me they were also woven into articles of clothing, but if such be the case, which I think doubtful, such cloth must be very expensive. *Fortune's "Yedo and Peking."*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Keep Begonias for winter display thin that their foliage may be as much as possible uninjured. Plumbago capensis being almost indispensable for supplying cut flowers for autumn use must not be overlooked. Attend also to Chrysanthemums; water them freely with liquid manure. The earliest winter-flowering Heaths and Epacrises should now or soon be placed under cover, as it will forward their blooming; give air, however, freely. The potting of Hyacinths for forcing must soon occupy attention; in doing this do not forget to put in a few miniature ones, which are stated to bloom beautifully in proportion to their size; they form good outside rows to vases fuls of large flowered varieties, which should, of course, occupy the centre. About equal portions of good fibrous loam and decayed leaf-mould with silver sand will be the best soil for them if for forcing, but well-decomposed cow dung must be substituted for the leaf-mould when the bulbs are intended for late flowering. After potting place them on a dry bottom and cover the pots 2 to 3 inches deep with old tan, ashes, or better than either, Cocoa-nut refuse, preserving them at the same time as much as possible from heavy rains; under this treatment they will fill their pots with roots, and will be in readiness when wanted. Ixoras, which have bloomed and which it may be desirable to increase in size as fast as possible, should be cut back, repotted if necessary, thoroughly cleaned, tied out, and placed in the warmest end of the house. These, if properly attended to, will make a fine growth before winter. Shake out and re-pot Pelargoniums that are sufficiently advanced after having been cut back, keeping them rather close and moist until they strike into the new soil. Plants, however, that are fairly established after re-potting can hardly be too freely exposed to air or kept too cool. Let Cinerarias also be kept cool and moist, attending to re-potting such as require it, and fumigating immediately green fly appears on any of the plants. Primulas must also be carefully attended to, in order to encourage them to make rapid growth, particularly the double varieties, which are invaluable for winter work. Keep Tree Violets clear of their great enemy red spider, by a liberal use of the syringe, and give them plenty of manure water, which will help to keep them in vigorous health.

FORCING DEPARTMENT.

PINERIES.—Let the soil about the roots and also the atmosphere be somewhat dry about fruit that is ripening; therefore be careful not to over-water, and it will be advisable to use slight fires during dull weather. Endeavour to afford growing stock a steady bottom-heat of about 70°, and keep it well supplied with manure-water at the root, but avoid getting the soil too wet. As fire-heat will soon be necessary to a considerably larger extent than has been the case during summer, care must be exercised to secure a properly moist state of the atmosphere, keeping the evaporating pans or troughs regularly supplied with water, and moistening the floors, &c., frequently, as any sudden change from a moist to a dry state of the atmosphere would be most injurious to growing stock, and also to plants swelling their fruit. Be as sparing of fire-heat, however, as circumstances will permit, and shut up early on the afternoons of bright days. Where young stock is grown in dung pits care must be exercised after this season not to get the plants weakly through keeping them too close and warm; air should be admitted freely on every favourable opportunity, and sufficient command of warmth should be secured from the linings to allow an opportunity of giving a little air at night and on warm cloudy days.

VINERY.—Remove all decayed or unhealthy berries from ripe Grapes, and keep the house well aired and free from moisture. Where the crop is cleared, the wood ripe, and the leaves beginning to decay, the sashes, if not already done, may be removed altogether.

MELONS.—Take advantage of the present comparatively bright weather to give the soil a good soaking with water where this is necessary, and also to trim the Vines, removing all useless laterals, &c., an operation which is best done in favourable weather, as then there is little danger of the occurrence of canker. Where fruit is ripening, give air as freely as the state of the weather will permit, and keep the atmosphere as dry as possible. If late plants are infested with spider, syringe morning and afternoon as freely as can be done without injuring the leaves; in short use every means to get the plants perfectly clean, while water can be employed without danger of creating too much damp.

CUCUMBERS.—Where a supply is required during winter, vigorous young plants should be secured at once, either from seed or cuttings, as plants that have been bearing through the autumn, however promising they may look, seldom answer well for winter fruiting.

FLOWER GARDEN AND SHRUBBERIES.

Propagation of all the more important bedding-out plants must now be finished as quickly as possible; late struck cuttings, as we have often remarked, are bad to keep through the winter through having an insufficient amount of roots and ill-matured wood. Let Scarlet and other Pelargoniums struck in the open ground be taken up and potted immediately they have made roots; they will require a close frame for a week or two, when they should be placed on a dry bottom in a southern exposure to harden them for the winter. For the same purpose Verbenas, Petunias, &c., struck in pans and intended to be kept in them through the winter, should be placed in a similar situation, at the same time stopping the points of the shoots. It should in fact be a point to keep them as hardy as possible by fully exposing them, until they are placed in their winter quarters. Mignonette for winter and spring flowering may yet be sown. Phloxes and other herbaceous plants will now be making a tolerably good show. If Auriculas are not already potted for the winter it should be done without delay. Remove suckers or offsets, and place them round the sides of the pots, which should be 6 inches across. Auriculas are impatient of rich compost during winter, turfy loam, river sand, and very rotten horse-dung—a small portion of the two latter will make a suitable compost. It is far better to give them a rich top-dressing in the spring than to have it of too forcing a nature for their winter food. The layers of Carnations and Picotees may be taken off and potted without delay, using compost as before directed. Look well to composts generally, especially that for the blooming bed of Tulips, frequently turning it, picking out wire-worms, and freely exposing it to the action of the weather.

HARDY FRUIT AND KITCHEN GARDEN.

Finish planting Broccoli and all Winter Greens as speedily as possible. Make the principal sowing of Cabbage for spring use; and plant out those sown last month for Coleworts. Sow Brown Cos and hardy Cabbage Lettuce towards the end of the month for spring use; plant out those sown last month in a warm situation; these will probably be useful in November. Earth up Celery in a forward state. Sow Turnips and make a sowing of Early Dutch at the end of the month, for use in spring; also Early Horn Carrot—these should remain in the ground for winter use. Sow Tripoli Onion, also Prickly Spinach for winter and spring supply. Any Potatoes, in which symptoms of disease have appeared, should be taken up and used first. Fortunately, however, Potato crops in general are pretty free from the malady this year. All herbs, if not gathered, should be cut immediately. Sweet Basil should be bunched and hung in a hot kitchen; also Sweet Marjoram.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON, For the Week ending Sept. 2, 1863, as observed at the Horticultural Garden

August and Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 27	13	29.346	29.331	71	40	55.5	61¼	61	S.	.68
Friday 28	○	29.624	29.568	78	45	61.5	61½	61	S.W.	.12
Satur 29	15	29.776	29.667	73	47	60.0	62	61½	S.W.	.00
Sunday 30	16	29.824	29.741	75	53	64.0	62	61	S.W.	.04
Mon. 31	17	29.848	29.643	69	38	53.5	62	61½	W.	.12
Tues. 1	18	30.032	29.939	71	50	60.5	61½	61	S.W.	.00
Wed. 2	19	29.949	29.838	70	52	61.0	61½	60¼	S.	.19
Average.		29.771	29.675	72.4	46.4	59.3	61.7	61.1		.54

Aug. 27—Fine; showery and boisterous; overcast.
— 28—Fine; very fine; low dusky and white clouds; showery; lightning.
— 29—Fine; cloudy and fine; very fine.
— 30—Very fine throughout; rain in the night.
— 31—Boisterous with rain; cloudy; fine; cold at night.
Sept. 1—Very fine; cloudless; very fine throughout.
— 2—Very fine; showery; rain at night.
Mean temperature of the week ½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK, During the last 37 years, for the ensuing Week, ending Sept. 12, 1863

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 6	69.6	45.8	57.7	16	0.70 in.	1	10	4	—	1	13	7	1
Mon. 7	69.6	47.2	58.4	17	0.55	1	6	6	1	6	11	4	2
Tues. 8	69.0	47.2	58.1	16	0.65	3	7	2	2	3	14	3	3
Wed. 9	68.8	48.1	58.4	16	1.09	—	6	2	3	5	8	8	2
Thurs. 10	69.4	48.7	57.5	19	1.27	2	4	1	7	8	9	2	2
Friday 11	68.4	47.1	57.8	10	0.68	2	8	1	2	5	6	9	4
Satur 12	68.9	44.8	56.9	15	0.49	1	6	1	4	2	8	11	1

The highest temperature during the above period occurred on the 12th, 1858—therm. 86 deg.; and the lowest on the 6th, 1850—therm. 30 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

BROCCOLI: *G A* Florentine Cape is an excellent kind either for early or late use; you should also plant Walcheren, Snow's Winter, Adams's Early White, Summer's Late White, Imperial, and Frogmore Protecting; the last is one of the best late kinds.

CAULIFLOWERS: *J S.* Frogmore Early Forcing is the earliest of all kinds of Cauliflowers for spring use.

FERNS: *T Bush.* The following Ferns are not properly admissible in a collection shown as hardy, if the class is interpreted strictly, though one or other of them may have occasionally endured our winters in the open air; they belong to the group of half-hardy or greenhouse species:—Todea pellucida, Nephrodium molle corymbiferum, Lomaria nuda and magellanica, Adiantum chilense.

GREEN ROSE: *A. Browne.* You will be able to get this curiosity doubtless, from any of the Rose growers whose names appear in our columns. It is a very interesting, though by no means handsome variety.

INSECTS: *J W.* The grubs which have attacked your Swedes are the caterpillars of the Dart Moth, of which you will find a full account in the agricultural part of our last week's *Gardeners' Chronicle. W.*

NAMES OF PLANTS: *Felix.* 1, Lastrea decomposita, not British; 2, Cystopteris fragilis; 3, Nephrodium molle.—*Birmingham.* Apparently a starved piece of Sheep's Fescue, Festuca ovina, but there are no flowers; though wiry, it is admissible in moderation in the herbage of a lawn.—*J W G.* Digitaria sanguinalis.—*R H P.* The specimen is insufficient: it may belong to Pinus densiflora.—*E F N.* 1 A, a wretched bit of Athyrium Filix-fœmina crispum—apparently; 1 E, Davallia novæ-zelandiæ, *alias* Acrophorus hispidus; 2 B, some seedling Lastrea, too young to name; 2 E, Blechnum occidentale minor.—*J M., Truro.* The inclosed plant is Drocera rotundifolia, and it does not "cause the rot in sheep."

ŒNOTHERA MACROCARPA: *S T.* To have flowering plants for next year the seed should have been sown earlier. Cuttings are now your best resource, but even these should have been rooted by this time to make good strong plants for next season. The root is perennial.

PARISIAN GARDENING: *J P.* The scarlet flower springing from a tuft of Dock-like leaves, extensively planted and forming a prominent feature in the gardens of the Champs Elysées, is no doubt a Canna.

PEAR LEAVES: *Thornton in Craven.* A very common affection in Pear trees, the cause of which is unknown. It is certainly not Fungoid, but is apparently a preternatural development of the tissue of the under side of the leaves similar to that which occurs in Vines, and perhaps arising from a similar cause. It is quite useless to apply chemicals. *M J B.*

PEAS: *Alpha.* The following will come in in succession, and all of them are good varieties, viz., Royal Dwarf, Daniel O'Rourke, Emperor, Advancer, Champion of England, Scimitar, and British Queen.

WYCH ELM: *C R S.* The spelling is unsettled, but custom is in favour of "Wych," not "Wytch." It is also sometimes written "Witch" or "Wich." The tree is not only called Wych Elm, but Witch Hazel, "probably from the similarity of its leaves to those of the Hazel, and hence, like it, the twigs were formerly employed for riding switches to ensure good luck on the journey. Forked branches of Wych Elm, as of Hazel, were once used as divining rods."

MISC.: *J C.* Packages containing Fruit, &c., for examination, MUST BE SENT CARRIAGE PAID, or they will be refused.

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thus obtained, and consists of numerous ears, containing many hundreds, and even thousands, of grains which are planted separately; those of each *ear* being kept quite distinct, as although the best grain of any plant is nearly always found to lie in its best ear, it may be otherwise, and the successive parent *ears* must be preserved. At the following harvest (1862), the best plant forms "*the selection of* 1862," and its produce is continued on the experimental ground, while that of the remaining plants furnishes the annual seed for the farm in the Autumn of 1862, and the crops are in 1863 offered to the public. Thus, the selection sold is that of 1861, or in any year that of two years before; *the latest selection, that of the year immediately preceding, is not sold, being solely employed as the home seed.* The separate ears of a plant are designated by different letters, numbers, or names—as A, Z, &c., and each, with its descendants, forms a "*family*" which may develope some valuable peculiarity.

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W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.

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* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

AGRICULTURE

J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
THOMAS ELLMAN, of Beddingham, Lewes—Lecture on Southdown and Short-woolled Sheep.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.
REV. GEORGE WILKINS, Wix Parsonage—Lecture on Tillage. N.B. Mr. Wilkins will Lecture on February 9.

AGRICULTURAL CHEMISTRY.

THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.

For further particulars apply to the PRINCIPAL.

MESSRS. J. CHALMERS MORTON, Streatley, near Reading, and J. THORNHILL HARRISON, M. Inst. C.E., Frocester Court, Stonehouse, Gloucestershire, AGRICULTURAL ENGINEERS, undertake reports on the Condition of Landed Property, together with the Direction of Land Drainage, Roads, Embankments, Farm Buildings, and other works necessary for its permanent improvement.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.—GRAND SHOW at BIRKENHEAD (in the Park), on the 9th and 10th SEPTEMBER NEXT (preceded by a preliminary exhibition of IMPLEMENTS only, and TRIAL of STEAM CULTIVATORS, on TUESDAY, the 8th). The Prizes offered for competition on this occasion amount to 1400*l.*, for Horses, Horned Cattle, Sheep, Pigs, Poultry, Dogs, Seeds, Roots, Horticultural productions, Cheese, Butter, Implements, Machinery, &c.

ENTRIES CLOSED on the 10th inst. T. B. RYDER, (Surveyor, &c.), Secretary.

57A, Church Street, Liverpool, Sept. 5.

SMITHFIELD CLUB FAT CATTLE SHOW, 1863.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY AFTERNOON, December 7, and four following days.

In addition to Prizes to the amount of 1825*l.*, the following CUPS will be offered:—

A Silver Cup, value 40*l.*, for the best Steer or Ox in any of the Classes.

A Silver Cup, value 40*l.*, for the best Heifer or Cow in any of the Classes.

A Silver Cup, value 20*l.*, for the best pen of Leicesters, Cotswolds, Lincolns, Kentish, or other Long-woolled breed in any of the Classes.

A Silver Cup, value 20*l.*, for the best pen of 1-year-old Southdowns, Hampshire, or Wiltshire Downs.

A Silver Cup, value 20*l.*, for the best pen of Shropshire, Oxfordshire, cross breed, or any other breed of Sheep (not specified above) in any of the Classes.

A Silver Cup, value 10*l.*, to the Butcher who shall expend the largest amount of money in purchasing animals from the Classes in the Show Yard.

The Prize Sheet now contains distinct Classes as under:—

CATTLE.

Devons	Norfolk or Suffolk Polled	Scotch Polled
Herefords	Long Horns	Irish
Short-horns	Scotch Horned	Welsh
Sussex		Cross or Mixed

SHEEP.

Leicesters	Southdowns	Oxfordshire
Cotswolds	Hampshire or Wiltshire Downs	Mountain
Lincolns	Shropshire	Cross Breeds (Long and Short Wool)
Kentish or Romney Marsh, and other Long Wools		

PIGS.

Four Classes, different ages, up to 18 months old.

The Entries for LIVE STOCK CLOSE on NOVEMBER 2.

The Entries for AGRICULTURAL IMPLEMENTS, &c., CLOSE on OCTOBER 1.

Prize Sheets and Printed Forms of Certificates, with full particulars, can be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, At the Office of the Honorary Secretary, Corner of Half Moon Street, Piccadilly, London, W.

N.B.—It is particularly requested that applications for Prize Sheets and Forms of Certificates, &c., be addressed to the ASSISTANT SECRETARY as above, and all Communications should have the words SMITHFIELD CLUB outside, to distinguish them from private letters. If this be neglected, there may be risk of delay and inconvenience.

SMITHFIELD CLUB FAT CATTLE SHOW, 1863. IMPLEMENT DEPARTMENT.

The LAST DAY for receiving Entries for the Implement Department of the Show is Thursday, OCTOBER 1, 1863.

Forms of Certificates, and all information can be obtained of Mr. DAVID PULLEN, Assistant Secretary. Corner of Half Moon Street, Piccadilly, London, W.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 5, 1863.

Two important sales of pure bred Short-horn stock are announced, the one by Mr. STRAFFORD, on Wednesday, Sept. 9; and the other by Mr. WETHERELL, on Tuesday, the 22d. The former, the herd of the late A. L. MAYNARD, Esq., of Marton-le-Moor, near Ripon; the latter, the herd of Lady PIGOT, of Branches Park, Cambridge. Mr. MAYNARD's herd dates from the early part of this century. Mr. MAYNARD commenced it about 50 years ago with his father's stock bred at Eryholme, from which herd Mr. CHARLES COLLING obtained the dam of Phœnix, the progenitor of Comet (155), sold in 1810 for 1000 guineas. A few judicious selections have since been added from other choice herds, including some fine specimens of the far-famed Kirklevington stock, at the sale of which Mr. MAYNARD was a spirited purchaser. Bulls of Mr. BATES's celebrated tribe of Short-horns have been used for many years with marked success. Mr. STRAFFORD has received the most positive instructions from the executors to sell the whole of this valuable herd without the slightest reserve.

Lady PIGOT's herd, though of comparatively recent date, is well known by its achievements in the competitions of the National and Provincial Agricultural Societies. It is thus described by Mr. WETHERELL:—"No less than seven females of pure BOOTH blood are offered, namely, *Spicy Almacks Belle*, *La Vallière* (dam of PRINCE TALLEYRAND), *Rose of Promise* (of the *Mantalini* tribe), for one of whom, *Victoria*, Lady PIGOT gave Mr. BARNES, in Ireland, 525*l.*; *Rose of Hope* from *Rose of Promise* by PRINCE ALFRED; *Castanet*,

of the *Farewell* tribe, and who will calve to Mr. BOOTH'S RAVENSPUR a week after the sale; and her daughter, *Castianira*, a prize heifer. Also, there are six pure BOOTH bulls offered, amongst them BRIAN BORUE (for the mother of whom Lady PIGOT offered Mr. BARNES 500 guineas before she calved); PRINCE VICTOR, from Mr. BARNES *Victoria* by PRINCE ALFRED; METEOR, from *Belle Etoile* by BRITISH PRINCE; BRITISH HOPE, from *Isabella Hopewell*, by BRITISH PRINCE; COUNT DE VERMANDOIS (a red and white yearling from *La Valière*), &c.

There are also in the sale several very valuable cows, breeders of prize animals, such as *Rosey*, dam of *Rosedale* (also offered for sale), *Lady Sarah*, *Victoria 35th* (of MASON'S blood), *Pride of Southwicke*, *Magnolia*, *Lady of Bonhill*, &c.

Out of the whole herd only nine animals are reserved, one of whom, *Lady Windsor*, is a hopeless breeder; and three calves, born since the announcement of this sale.

This herd, since its formation in 1856, has won up to the present time 217 prizes, including three 1sts, one 2d, and two 3ds at the Royal Agricultural Society's Show; nine cups, five gold, and twenty silver and bronze medals.

Many of these animals are sold with great reluctance, but Lady PIGOT has considered it right to offer everything except those originally named.

There have been nine deaths since last year, principally after calving, most of the cows in the herd being great milkers, which will account for many deficiencies in the list.

The whole are offered unreservedly, and the animals are in a perfectly healthy breeding condition.

—— WE are glad to see it announced that two prizes of 25*l.* each, to which is added the Society's medal, have been placed in the hands of the Council of the Society of Arts, by Mr. BAILEY DENTON, to be offered for the most approved designs for cottages, with three bedrooms in each, to be built singly or in pairs, at a cost not exceeding 100*l.* each. The following are the particulars of the advertisement:—

"They are offered, one for competition among the members of the Architectural Association, and the other to be open to the United Kingdom.

"In order to secure a proper sanitary condition, such provisions are to be made as have the sanction of practical experience.

"It is deemed necessary that each cottage should contain, on the ground floor, a living room, of about 150 feet superficial; a scullery, or kitchen, of not less than 70 feet superficial, with a ventilated pantry; and, on the upper floor, three bedrooms, one of which must not be less than 100 feet superficial; in two of the bedrooms fire-places should be provided. The height from ground to first-floor should be 9 feet, and the bedroom, or upper floor, be 8 feet clear.

"The memorandum of the Inclosure Commissioners with respect to the substantiality of agricultural buildings (as applied by them under the several Improvement Acts) shall be adhered to.

"The drawings are to be on a uniform scale of one-eighth of an inch to a foot, and they are to be not fewer than six in number, viz, two plans, three elevations, and one section.

"Each design is to be accompanied by a detailed specification, and an estimate stating in full the quantities of all the materials required, and the cost price at which they are calculated. Brickwork at 8*l.* per rod reduced; countess slates at 23*s.*; and Baltic Pine timber at 2*s.* 3*d.* per foot cube. In regard to other materials and labour the whole are to be calculated at cost price. An allowance of 20 per cent. is to be made for contingencies and builder's profit, with 5 per cent. for the cost of superintendence, so that the prime cost of each house must not exceed 80*l.*, which amount must include not only the cottage but the fixtures, water supply or well, fencing, paving, and all those necessary addenda which the cottage owner must provide, and which, costing money to provide, he requires interest for in the shape of rent.

"The judges will be an architect, a land agent, and a builder, named by the Council of the Society of Arts.

"It would be an advantage if each competitor could name a contractor who will undertake the erection of 10 pairs of cottages, according to the design and estimate.

"The plans, drawings, and specifications must be sent to the Society's House, John Street, Adelphi, W.C., not later than the 1st of January, 1864."

AT the recent meeting of the British Medical Association in Bristol, Dr. W. BUDD, of that city, delivered the address on Medicine, with especial reference to the subject of epidemics.

In the course of his remarks he said that if they wished to obtain clear views on epidemics generally, their surest plan was to begin with the study of the contagious group, and of that group, with those which admitted of being propagated artificially, which offered in other words the incomparable advantage of being studied experimentally. He would further wish the sufferers under his own eye and their incomings and outgoings and intercourse with one another known to him, or better still, determined by him. These were conditions not to be met with in human life, and only in the case of domestic animals. The pest to which he was about to refer was new to this country. For a century at least nothing had occurred in this island more deeply instructive to the epidemologist than the remarkable outbreak of the disease popularly known by the name of "small-pox," which ravaged the Wiltshire flocks last autumn. On the 13th Sept. 1862, while the disorder was still rife, he visited the diseased flocks, and enjoyed the great privilege of studying the malady from life under the able guidance of Professor SIMONDS. As there were still at the time some 600 or 800 patients in all stages of the disorder, it was not difficult under such able teaching to become acquainted even in the short compass of a single day with its leading characteristics.

The very name which the distemper bore—small pox in sheep—attested its human interests, as the series of relations which suggested the name attested the entire applicability of any inferences drawn from it to the great and important group of which human small-pox was the type.

With a brief allusion to the history of the disease, the speaker passed on to say that it would be enough to bear in mind two salient points: first, that from time immemorial the disease had prevailed in almost every part of the whole world, but that, until 17 years ago, with perhaps one doubtful exception, it had remained entirely unknown in this country. He observed that before 1847 the whole number of foreign sheep imported amounted only to a few hundreds, and those selected with care to ensure freedom from disease. A few years after the number had grown to several hundred thousand, and the sheep, instead of being picked out, were sent wholesale to the English market by the foreign flock-masters. Quarantine had fallen into discredit, and contagion came to be looked upon as of small account. The want of acquaintance with the epidemic maladies of foreign live stock, and other concurring causes, were detailed in order to show how contagion had entered into the English from diseased foreign sheep imported, after which the characters of the disease were slightly dwelt upon, a reference being made to drawings, and a parallel given between the human and ovine eruption, a few minor discrepancies being noted. The facts connected with the outbreak, its rise and suppression, were then detailed, and after a reference to inoculation, Dr. BUDD remarked that in results free from all ambiguity and open to the eye, the great fact was revealed that it was in the body of the sheep that that strange poison was fashioned and multiplied. He observed also in passing that in the facts that had been recorded a repetition was shown in one of the lower animals, of a series of relations that had been observed in another and kindred disease in man. They had found as the result of experiment that the virus of variola ovina was bred in the body of the sheep. By the same means it had been ascertained that virus was incapable of breeding in the body of any other animal, or at least of the great group of animals familiar to them, which like sheep came in relation with them in their daily life. Yeomen and shepherds fed largely on mutton—men whose bodies might not inaccurately be described as consisting in great part of mutton built up into man, might be seen brandishing the diseased animals in all manner of ways with the most perfect impunity.

Having narrated several facts the speaker said, admitting them, it became interesting to inquire in what way the germ of the disease was transmitted from one flock to another. The virus, he said, might have been conveyed first, by flies or by starlings from the diseased to sound sheep; second, by men who had visited diseased flocks; third, by sheep themselves unaffected from the infected district; fourth, by atmospheric dispersion as it was cast off by the diseased animals. He spoke assuringly of the stringent measures that had been adopted to check the epidemic, and which had been successful, and observed that the events in Wilts were of incomparable value, as showing by data which were scarcely inferior in severity and precision to those of the exact sciences, the entire fallacy of the view that had been entertained in the case of contagions in the human family, that some new element had come into play of an entirely different order from those which were in operation when the extension of the disease was confined to a single group. Every other element was there before; it only needed the introduction of the germ of the disease, and the result followed which he had related. He showed that the variola ovina bore the same relation to human smallpox as two kinds of Thistle, as one sort of Mushroom to another, as two species of Algæ identical in all the laws of their growth, but yet specifically different. He asked however whether, although specifically different, there might not after all be some generic connection between them, and in conclusion he applied the truths his paper was intended to illustrate to the contagious fevers of our race, referring specially to typhoid and scarlet fevers, and he argued that as the poison issued from the infected bodies it was entirely within their power to destroy it, and thus bar the succession of disease from others.

URCHANY, NAIRNSHIRE:
A MEAT-PRODUCING FARM.

IN your Number of August 10. you gave a very interesting and instructive account of the Hoo Park Farm, in Bedfordshire; which under the skilful management of Mr. Ross has become a very large meat manufactory. It is, unquestionably, to meat production that the agriculturists of Great Britain must in future look for profitable returns. Corn has poured in from the corn-growing regions of Europe and America, for the last two years, in quantities that a short time ago would have been considered incredible; and we may well anticipate that now when the consuming power of Britain has been ascertained (its paying power has long been proverbial), corn will be sent to it in increased quantities. And, under present circumstances, even with our present good harvest, much of it will still be needed. But it should not be. We think that the soil of our own island, cultivated up to a not very extreme point of "high farming," could produce not only all the animal food, but also all the corn required by its population; and we confess to a feeling of mingled surprise and regret, when we reflect that while the surplus capital of our country is poured in floods into every other conceivable enterprise at home and abroad, it finds its way but in driblets into the almost illimitable field offered for its profitable employment in the development of the agricultural resources of our own glorious island.

You do well to call attention to what is doing for this development at places such as Hoo Park, where capital supplied by liberal enterprise and applied by skilled experience, is so successful in producing large results. There, as everywhere, large stock keeping is not antagonistic, but necessary to large corn production. But there is a class of agriculturists, your correspondent Mr. Mechi (whose general services to the cause of agricultural progress we gladly admit) prominent among the number, by whom stock keeping is considered and pronounced to be merely a troublesome and expensive mode of manure manufacture. We do not think so. We are convinced that stock, judiciously bred or purchased and fed, pay amply for the food supplied to them, and leave besides valuable stores of rich manure, which could by no other means be procured. As bearing upon this we here reproduce remarks we had lately occasion to make in our county (Inverness-shire). Report.—"Stock has been the farmer's best money producer and promises to continue so. We are inclined to say from our personal experience that with fairly-bred cattle (we insist on a high-bred Shorthorn male, and then the female is of comparatively little consequence) well attended to, a return of 1*l.* per month from the birth to the butcher should be realised. This of course implies an addition of corn or cake to the ordinary fare of Grass and Turnips. But is this an expense? Does not the use of the one economise so much the consumption of the other that a very much larger head of stock can be maintained, and thus larger returns depended upon to meet rental and other expenses—larger heaps of richer manure produced, and hence fewer carts sent to the manure stores and a richer corn-yard in the autumn. Bearing on those questions we shall adduce the *fact* (men, particularly agriculturists, are never convinced by mere arguments) that at a public sale this spring on a farm on the confines of the county, we saw 80 animals in high condition sold off, leaving behind a large breeding and growing stock, while the Turnip acreage of the farm did not amount to 50 acres."

This statement, applying as it did to a farm in this northern district, attracted some attention. In order to satisfy the curiosity of others as well as ourselves, as to how such a large head of stock could be supported on so limited an area, we applied to the tenant of the farm for information. He has kindly explained to us, not only the system he follows, but, being a business man who keeps regular accounts of his operations, he has also placed in our hands full details of expenditure and returns from stock keeping for the past year. On examining these we found that they gave a more lucid view of the results of stock keeping on an extensive scale than we have fallen in with in our agricultural reading, in fact give decisive answers to two frequently discussed questions: "Does live stock pay?" "What is the value of a ton of Turnips?"

The farm "Urchany," Nairnshire, the stock feeding and production at which we are about to describe, is in the tenancy of Mr. N. F. McLennan, who is not a resident upon it, being engaged in commercial pursuits. It is on the property of the Earl of Cawdor, and situated at an elevation of at least 500 feet above the sea, with an exposure to the blasts from the German Ocean. Thus it affords an example, in more than one sense, of high farming. Ten years ago, one making his tedious way by 4 miles of hilly road from the little county town of Nairn to the farm would have found nothing to repay his labour. He would have found six

or eight fields or rather patches of cultivated ground scattered over an area of some 250 acres. Rocks, boulders, pits, and bramble, and whin thickets, surrounding and encroaching upon the patches under a stunted cultivation. The stock would be eight or 10 half-starved cows with their followers. Some sheep from the hill districts would be wintered on the Turnips grown. This would be the meat production of the farm. A few stacks of Oats would comprise all its contribution of corn. This was when the place was managed by that agricultural favourite, but generally great obstructive to bold enterprise, "a real practical farmer." Things were changed when it fell into the occupancy of the present tenant, who handles the place as an investment for capital and energy. The landlord co-operated with him in a spirit of liberal fairness, which we would be glad to see largely imitated. The land was let on a 19-years lease at its fair agricultural value as it then lay. The improvable ground has been brought under cultivation at a large expense, of which the landlord bore one-half share, the tenant the other. The tenant reaps the value of this improved land, during the currency of the lease, as a return for his expenditure. The landlord's return will be realised at the expiration of the present lease, when of course a large increase will take place in the rent. This is a system of co-operation, fraught with benefit alike to landlord and tenant, and to the labouring class by whom the trenching and other work is performed, and we may well add to the nation at large, for every additional acre of improved land of our island's surface is an addition to the most steadfast portion of the national capital.

We have now as the result of this co-operation a farm of nearly 250 acres arable, in fact all its extent has been brought under the plough. The old buildings have been very cheaply remodelled to suit the new plans. Walls have been built around the fields. Those fields well limed and manured, and cultivated by a full staff of efficient servants, with a full strength of active horses.

It is farmed on that 5-course shift so general throughout Scotland, viz.:—1, Turnips; 2, Barley; 3, sown Grass; 4, pasture Grass; 5, Oats.

With the corn production we do not at present purpose to deal. Where large root crops are produced, good corn crops will follow as a necessary consequence. Perhaps the usual formula of roots as preparatory to corn may now be safely changed. May we not rather say (the mineral theory of Liebig notwithstanding), that good corn crops are necessary for the production of the requisite manure for root crops?

The area producing cattle food for crop 1862, was —first year's Grass, 46 acres; second year's Grass, 43 acres; Turnips, 47 acres.

The system of stock keeping followed by Mr. McLennan is to keep a herd of fairly bred (perhaps 3-fourths of Short-horned blood) cows, using with them a bull of pure Short-horn breeding. Thus 25 to 30 calves are annually produced. They are kept in the grass fields with their mothers, whom they suck for eight months, and thus acquire a healthy, hardy, *growthy* character, which no pail-fed beasts ever have. After a winter's feeding in the courts on Turnips and Oat straw, supplemented by bruised corn and cake, they are sold off in spring in first-rate condition for grazing. Fifty to sixty head of 2-year old cattle, crosses between Short-horn bulls and country cows, are bought in in the autumn; and in October, when the Turnips have made good bulbs, are tied up in stalls for winter feeding, which, beginning with Turnips and Oat straw, is gradually supplemented by bruised corn, chiefly the light corn grown on the farm, and for the latter months by oil-cake. There is also used some 40 tons of hay, the produce of the larger portion of the breadth of first year's grass, which is, however, previously thrashed for its seed. The result of this feeding is that by the month of April some 30 head of cattle in thriving condition for the grazier, and 50 prime fat cattle for the butcher, are ready for sale. And thus provided with attraction for his brother farmers and for butchers, Mr. McLennan, instead of having before him the weary task of higgling for the sale of his stock at the local cattle markets, or being obliged to entrust them to the mercies of salesmen in southern cities, exposes them to competition by public auction; and we always find that where a lot of good cattle is to be sold, even at such an outlying farm as this, a good attendance of purchasers may be expected, and bids to the full value of each animal exposed calculated upon.

We took share with much satisfaction in the bountiful lunch provided by Mr. McLennan on the 13th April for his friends and purchasers, after which all adjourned to the sale ring, where 80 animals were briskly competed for, and satisfactorily sold. And now we come to the results.

	£	s.	d.	£	s.	d.
The roll of sale, after making provision for discount to represent 4 months' credit, and the expenses of advertising, lunch, &c., amounted to				1395	19	0
To which has to be added—						
The value of dairy produce sold, being the milk drawn from the cows after the calves were fully done to	45	0	0			
Rye-grass seed sold	65	6	0			
				110	6	0
Cash sales, say				1506	5	0
The purchase-money of the feeding cattle was	699	15	0			
Linseed-cake purchased	58	10	0			
	£758	5	0			

	£	s.	d.	£	s.	d.
Brought up	758	5	0	1506	5	0
Corn purchased or valued over from the corn produce of the farm	100	13	0			
				858	18	0
Leaving a balance to meet Turnips and Grass of				647	7	0
But the 10 farm horses had been summer grazed on the Grass fields, say at 6*l.* each	60	0	0			
And had a Turnip feed during winter, and some hay in spring, say 3*l.* each .	30	0	0			
				90	0	0
Giving thus a return of .. .. as the produce of the Grass and Turnip breaks of the farm.				£757	7	0
We would apportion the return thus—						
47 acres Turnips, at 8*l.*	376	0	0			
46 ,, first year's Grass, at 5*l.* ..	230	0	0			
43 ,, second year's Grass, at 3*l.* .	129	0	0			
				735	0	0

The straw of the corn crop was of course also consumed, and cattle attendance required the services of three men during the winter months. But this is so much more than balanced by the very valuable store of manure produced by such a head of well-fed cattle, that we would be inclined to throw in along with it the charge that might appear due for interest on the capital invested in the cattle stock, say—

On 600*l.* in breeding stock for a whole year, at 5 per cent.	£30	0	0
700*l.* feeding stock for half a year	17	10	0
	£47	10	0

The breeding stock of cows and their followers varies little in value from year to year. Its tendency is rather to increase.

We think the above statement of results shows—1st, that live stock does pay; and 2d, calculating the Turnip produce at 20 tons per acre, which it certainly did not exceed, that 8*s.* per ton is their feeding value. *S.*

ON LAND DRAINAGE.

THE RECAPITULATION OF A LECTURE.

A SHORT general review of what has been already said is the more necessary when stepping from the region of general considerations, general laws, and theory, on to the field of actual practice. You ask a man who has drained his wet clay fields what results have followed the operation. He tells you that he has better and cheaper crops of Wheat and of other grain than he ever had before, by 6 to 10 or even 20 bushels per acre in the return, by 15*s.* up to 50*s.* per acre in the expense; that he has also heavier crops of Clover, Vetches, and other forage plants; that he can now grow root crops where formerly he had to put up with bare fallow, or if he used to grow root crops, they are heavier, better, more easily dealt with now when fully grown than ever he has known them.

The next question is—how do you account for your experience? "Well!" he will tell you, "as to the harvesting of the produce, I find the grain crops all ripen together, and can be secured when all at the proper stage, whereas formerly the crop used to be so patchy that one part spoiled before the rest was ready, so that the crop, though heavier than it has ever been before, is yet got in more easily and at less expense. I find too that the root crops can be carted off without injury, and if ready early enough that they can be folded to a much later period of the year than has been possible heretofore, or perhaps folding all through winter has now become possible where formerly it would have been madness.

The cultivation too is more easily accomplished. There used to be a patch of wet and swamp in *that* field which delayed the cultivation of the whole of it, even though much of it was ready betimes. I find the young Wheat too is not in winter so liable to be thrown out by the frost; and as to the rest of my land I find that I need not now be so careful about waiting till April or even later before cross-ploughing. I find I need not be so careful about keeping the surface furrows cleaned out. I even find a great advantage in cross ploughing and tilling before winter, and I leave it so without any surface drains whatever. And in place of poaching when it is trod, or ploughing up in a paste of stiff, unkind, and unctuous clay as it used to do, I either find it unnecessary to plough it at all in spring—or if I do more than merely stir the surface, I find the land turns over so far mellowed that it is comparatively easy to secure the proper tilth of it for a seed bed. I attribute the greater fertility of my land to this deeper and more easy cultivation of the soil which drainage has enabled.

If you press him further he will tell you that manures now prove more efficient—that he can always secure the proper seed time which the plants he cultivates requires — that he no longer finds the differences between a wet season and a dry one so enormous as they used to be—that his soil does not poach so much in wet weather, nor do his crops so readily burn in dry weather. And further still, though here perhaps he has no very clear understanding of the connection between the two, he will tell you that on his now drained fields he finds that neither snow lies so long, nor is hoar frost so thickly deposited—nor do fogs collect as they used to do in winter; and all this he presumes points to a healthier and better state of things for the plants.

And we can go further than these mere outside proofs which he has read of the benefits of the land drainage which he has found so useful. We know that these differences betwen a drained and undrained field have been owing to the alteration which has thus followed in the whole set of relations which water sustains to the soil and to the plant. Whereas it was not only a stagnant uselessness but mischievous by its actually breeding poisons within the substance of the soil and occasioning loss of heat from its surface—now, moving from the surface downwards, finding outlets below both soil and subsoil, and impelled towards them by its weight—it acts the part not only of a preparer but of a carrier of food into the soil, and it at the same time carries not only food but warmth to the plants.

Whereas moreover it was formerly a hindrance to tillage operations—not only rendering them useless but making them really mischievous—now, though it is still unadvisable to plough and till the land when wet, yet, following such operations, it is the complement and completion of the purpose they serve. It really is the true tiller of the land, converting what as the result of artificial clod crushing would be merely fragments of clods into the state we call tilth. It is in this way—by enabling it both to till and feed the soil, and to warm and feed the plants—that drainage has produced all those effects which the practical farmer has observed.

Ask him now how the operations are carried out by which these results have been obtained. He will tell you: "I dug narrow trenches 4 feet deep, and placing a continuous pipe in 12 inch pieces end to end along the bottom of them, carefully preserving the uniformity of slope, I covered the whole up again with the stuff that was taken out. I dug such channels 6 or 8 yards apart up and down the slope, taking care that the outfall should enable the easy and ready outlet of what water trickles through them to it.

Or he may perhaps tell you: "I dug such channels 2 feet deep, a perch apart, and put a straw rope on a few thorns along the bottom of them, and filled them lightly in. *Or* he may tell you, "I yoked a long team of oxen on to a mole plough—a framework on wheels, carrying a conical horizontal plug at the end of a strong coulter, and I thus drew this cone along through the clay, some 20 or 24 inches below the surface, thus securing for the time the channel which its passage through the subsoil at that depth left behind it. *Or* he may tell you, "I dug channels 30 inches deep, and filled them up with small stones to within 15 or 18 inches of the surface." He will tell you, "I placed these channels right down the slope;" or he may say, "I put them right *across* the slope." He may even tell you, "I got all this good by a single conduit dug deep enough, or only two or three dug deep enough, which cleared all my farm of the water in excess which used to swamp and starve it." This, however, he is not likely to say, unless his farm be a light soil over gravel. Certainly a homogeneous clay was never drained in so easy and wholesale a way.

I have no doubt that a collection of real instances could be made in which results in the meantime so uniformly good have followed means so various. The difference between a soil in which water is stagnant and one where water has the chance given it anyhow to move downward through the soil is so great that however imperfect the means of outlet given it, the increase of fertility will be very great so long as they last. All these plans of drainage *have* given an outlet and consequent motion to stagnant water, and hence in various degrees they have all conferred fertility.

The quantity and the permanence of the increased fertility thus conferred depends on the quality of the soil and subsoil through which the passage has been given to the water, and on the strength, and position, and permanence of the drainage conduits thus made.

In order that *we* might not be in the position of the man who has found so much good from straw rope drainage, or from mole plough drainage, that he will listen to no other plan, I endeavoured to state the principles on which all drainage depends. The sole operating cause being the weight of the water to be moved—greatest, therefore, when the drains are deepest—and all the *difficulties*, arising from the narrowness of the passages through which the water has to find its way, the mere *friction* through these passages being one class of difficulties, greater in clays than in sands and gravels; and the rest being included in the term capillary attraction, which, where the whole mass of earth above the level of the drains may be considered as standing on a wet subsoil, has the effect of holding up the water there above the level of the drains with more or less tenacity, and to a greater or less height according to the fineness of the pores through which it has to pass.

The difficulty of traversing the pores and passages of the soil creates the need of more frequent drains in clays where these pores and passages are small, and it creates the need of larger drains in wet climates where the quantity of water seeking a passage is greater. It is a consequence of this difficulty of traversing soils and subsoils that the line of water level within the soil rises from the drain at whatever depth that may be as the distance from the drains increases —and that whenever drains are too far apart the middle part is imperfectly drained, owing to the water level thus approaching too near the surface there. Mr. Clutterbuck, of Long Wittenham, who has made this

subject his especial study, thus describes the state of things consequent upon the existence of the water level within the soil.

"In flat unbroken ground (speaking of ordinary clay soils), as the soil is saturated with the rain, the water will rise gradually on a level throughout; should there be any depression in the surface it will form pools, the level of whose surface will coincide with the subterranean level. If a drain be dug, the water level will assume an inclination to that drain, the angle at which it declines being greater or less in proportion as the soil is pervious to or retentive of water: thus the inclination will represent the amount of friction or resistance which the water encounters in its passage through the soil, and it is with reference to this angle of inclination that all draining operations must be conducted, and the width between and the depth of drains determined. The practice of ridging land is but to place a portion of the soil above the subterranean level, which shows itself above ground at every furrow in wet weather."

So much then for those difficulties in the way of draining land which arise from the *friction* which water experiences in passing through it. It is owing to this that we require to put drains so near to one another as we do. But I also referred to the difficulties due to capillary attraction, which also are greater in the case of clay soils where the pores and passages are the smallest. It is this capillary attraction on the other hand that makes us require to put drains down as deep as we do.

If you have wet land you want, like the Hampshire farmer to whom I referred, at any rate 10 inches of dry soil, and as it is plain that drains will not remove any water which may be in the subsoil *below* them, they must be at least 10 inches deep for this purpose, but this capillary attraction makes it necessary to put them deeper still. For owing to this it is that drains do not remove the water which lies even in some of the soil and subsoil *above* them. For the capillary attraction of that portion of the subject which is immediately above them will, in spite of these drains, lift that water above their level.

If the land be of very finely divided material, and very clayey, it will lift or hold the water higher than if it be sandy. The capillary attraction of a clay soil is stronger than of a sandy soil, and the inference is that a drain needs to be deeper in a homogeneous clay soil than in a homogeneous sand, in order to produce a given depth of drained land. If you push this theory arising out of the capillary action of soils on water so as to infer from it that drains deeper than 4 or 5 feet in stiff clays would be still more efficient, or so as to infer from it that the deeper the drains the better, you do not do it justice. There may be, and there are other elements affecting this problem as you increase your depth—the time required for the percolation downwards of the rain is one of them—the cost of the work is another. The useful purpose of the theory will have been attained if we gather from it confidence in the results of which we often hear of deep drainage in clays; and if when we hear of successes and when we hear of failures of 4 feet drains in clay soils, we shall be led by it to look upon the former as the result of the general rule, and upon the latter as the exceptional result, either of the circumstances of the case or of the nature of the work, and not to think, as is very often asserted, that the shallower drainage is the more reasonable of the two for clays—but that deep drains do sometimes answer on account of cracks and sandy partings, and other departures from that homogeneous structure which we have supposed.

There is one consideration worth noting in explanation of the warning which I gave you not to run away with the impression that the fair inference from these words about capillary attraction was that you must always drain deeper in clay than in sands. The consideration which qualifies such an inference is that a thinner layer of active soil above the level at which water will stand in drained land does, when that layer is clay, contain much more food for plants than a greatly thicker layer of sand contains. Taking this alone into consideration it might be supposed that a shallower drainage of clay land is all that is required. And though this is not correct, because in clays the level at which water stands above the drains is much higher than in sands, owing to the greater capillary attraction which exists in the smaller passages between the finer particles of the former, so that it needs a greater depth of drains in a clay soil than in sands in order to the provision of a given thickness of dry and permeable soil, yet it is plain that in this way may be explained how a comparatively shallow drainage of clays is often efficient, and may be all that they need.

We may moderate between the two considerations by assuming that it needs probably an equal depth of drains in clays and lighter soils in order to the provision of a given nutritive value (so to speak) of dry and permeable soil in both.

AGRICULTURE IN LANCASHIRE.

The following remarks were made by Lord Stanley at the late meeting of the North Lancashire Agricultural Society.]

IT is only 13 years since the late Sir Robert Peel wrote to an agricultural friend a letter which has since been published, and in which this passage occurs:—"You will find immense tracts of good land in Lancashire and Cheshire, with good roads, good markets, and moist climate, which remain pretty nearly in a state of nature—undrained, badly fenced, and wretchedly farmed." Now, I ask any one to compare the Lancashire of 1850 with the Lancashire of 1863, and to say whether the difference of those 13 years is not, in all probability, greater than the difference in the 50 years preceding. We started, I say, 20 years ago, from a comparatively low level, but if we confine ourselves to the consideration of the relative progress made during the last 20 years I believe we have kept pace in point of improvement with any county in England. But, while I say that, I am bound to add that we are still in point of agricultural improvement far, very far behind those counties in England in which agriculture has been most attended to. I am not speaking now of that kind of improvement which may or may not pay—in the utilisation of sewage, in the introduction of machinery upon a great scale, in the making of enormous farms, and fields half a mile wide. I take the county as it is, a county of small farms, where capital has rather tended to go by preference into the town; and I say that, as regards the simple and elementary processes of agricultural improvement—large fields, straight fences, deep drains—there is probably at this moment not one-half of this county in a state in which it ought to be, in a state which it might be, or in a state in which the next generation will see it. Only last spring I rode and drove through a great part of the Fylde district. I saw there the most interesting country. I saw small freeholders and hard-working tenant farmers, whose families had lived upon their land from time immemorial. I saw gardens filled with flowers; I saw houses neat beyond the ordinary standard of English neatness. I saw everywhere the signs of hard work, of honest independence, of comfort, and even of a certain degree of refinement. In a social point of view, nothing could be more satisfactory; but when one came to look at it with the eye of an agricultural reformer, I cannot say the picture was so pleasing. For I saw water standing on the land after little rain; I saw crops of rushes so luxuriant that one might have thought them the staple crop of the soil; I saw fields—so small that most of them were overshadowed by the hedgerow timber; and I saw large tracts of fair, good land, going comparatively to waste because the owners and the occupiers had not been able to unite among themselves so as to secure the proper drainage outfall to carry off the water in time of flood. No doubt there are many exceptions; but perhaps it would be invidious to name any, and therefore I will not do so. But I think the description I have given does apply to a very large portion of the district. I was rather struck with this—and I mention it because it confirmed the belief I have always entertained as to the immense benefit of the master's eye upon the work, and the presence of the landlord among his tenantry—that of all the unsatisfactory estates I saw the most unsatisfactory were those of the Duchy of Lancaster, which were under the direct control of the Crown. Now, in other parts of the county undoubtedly much greater progress had been made. I do not mean to flatter you if, reverting to earlier recollections, I say that I know no part of the county in which greater progress has been made than in the immediate vicinity of Lancaster. But we have still large tracts of moss land unreclaimed; we still have uplands which only need some expenditure and care to render them valuable for posterity: we have still a very general want of deep drainage and straight fences, and above all, we have still, comparatively speaking, a very inadequate use of mechanical appliances for farming purposes. Now, what is the explanation of these deficiencies? Partially, I think it is—but in this I refer more to the southern and eastern districts of the county, because in this district the case is precisely the opposite—that many landlords, especially those who have property on the coalfields, or in the vicinity of towns, derive their revenue from below the soil, or from the buildings which stand upon it, and not in any considerable degree from agriculture; and, therefore, I think they are not so deeply concerned in agriculture as they would be if it were otherwise. Partly, also, we must allow for this—that the unequal growth of the trading and the manufacturing interests in this county has very generally turned the attention of active and enterprising men with a little capital away from the farming districts and into the towns, or they have been tempted by the difference between the agricultural and the manufacturing profits. That is very natural, but I am afraid they forget there is a difference also between agricultural and manufacturing risks. Partly also we are, or until the last two years have been, considerably hampered with the remains of the old system of life leases. Against that system it is unnecessary to say anything now, because it has been long since exploded. We all understand how it drains the tenant of his capital—the only kind of drainage it ever does promote—how it takes away from the landlord all interest in his estate, and how it introduces a gambling spirit into the relations of landlord and tenant. It is exploded now; but I apprehend that very many of the old life leases, granted 50 or 60 years ago, still remain; and, wherever they do remain, they are undoubtedly an obstacle to improvement. Well, then, on the whole, what is our position? We have against us a climate less genial than that of the South; a soil which, though it has the immense advantages of being free from drought, is, for the most part, damp, stiff—not unproductive, but requiring a good deal of labour to work it; holdings generally smaller than is now considered convenient; and we have not perhaps, that agricultural experience, or those conditions, which prevail in some of the more purely agricultural counties. On the other hand, to set against that, we have the advantage of an abundant supply of effective, although somewhat costly, labour; we have a population increasing at a very rapid rate; we have an insatiable market and demand for all kinds of produce; and we have a class of landlords who generally have been enriched by the general prosperity of the district, and who are recruited—and I for one am glad to see that they are so recruited—by new men coming from the towns, bringing with them business experience and handy active habits which they have acquired in their former occupations. Taking all together, and setting the good against the bad, it seems to me that we have not much to complain of. It is not climate, it is not soil—it is human industry, it is human skill, it is human energy, that in the long run make the difference between the producing powers of one country and another. Naples is a wilderness; the lowlands of Scotland are a garden. Now, I have confidence in Lancashire men. I know what they have done, and I know what they can do. I believe that agricultural science is comparatively in its infancy; and I confidently look forward to the day when an undrained field shall be a rare sight, when smaller fences shall surround larger fields, when much of the work which is now done by hand or by horse labour shall be performed by mechanical means, and when no man will go into the occupation of the farmer without bringing with him some little capital, or without thinking it necessary to qualify himself by some professional knowledge. Now, gentlemen, there were other topics with which I had intended to trouble you. One of these was the utilisation of sewage, of which I will say nothing now. The other is the more general employment of machinery, which I cannot pass over without one word. Already, in every part of England the threshing machine has superseded the flail. Very rapidly the reaping machine and the mowing machine are superseding the scythe and the sickle. The next great step—and when it is taken it will amount to nothing less than a revolution in English agriculture—will be the general introduction of ploughing by steam. Now, it may be asked, "When costly implements of this kind become necessary, what are the small farmers to do? Are they to go to the wall?" It is a natural question, but I think there is a very obvious answer. The answer is—associations can do what individuals cannot. There are already societies formed for the purpose of letting out implements. How far those societies will succeed upon a large scale is a question which I do not go into: but I have no doubt about this—that if a few farmers in one locality, whether aided or not by their landlords, associate together to obtain implements of that kind, they will probably find that they are very well repaid for their outlay. Now, I do not want to suggest any rash, or any hasty, or any premature action in this matter. We may not and have not got that form of machine which will be ultimately adopted. All I say is that it is a question which cannot be avoided; sooner or later it will force itself upon you; in all times and in trades the competition between mechanism and hand labour has been too unequal to be long sustained; and I say that those will be the wisest who, observing what has happened in other branches of industry, take warning in time and take care not to be left behind in the race.

THE DECREASE OF THE AGRICULTURAL POPULATION, 1851-61.

[The following is an abstract of a paper read by Mr. Purdy before the British Association at Newcastle.]

MR. PURDY said,—"That, notwithstanding the prosperity which had attended English farming, at the last census it was found that the only counties which had decreased in population were the agricultural ones of Cambridge, Norfolk, Suffolk, Wilts, and Rutland. To exhibit the decrease in the population ascribed to the class 'agricultural' in the census of occupiers of 1861, the writer divided the kingdom into three sections,—(1) 24 counties of highest rank, where upwards of 20 per cent. of the adult population are occupied in agriculture; (2) 16 counties of intermediate rank, where over 10 and under 20 per cent. are employed; and (3) 5 counties of lowest rank, where less than 10 per cent. are employed. Between 1831 and 1861 the first section of counties had increased 1,093,000, or 22 per cent. in the population generally; the second section, 1,651,000, or 39 per cent.; and the third section, 3,425,000, or 73 per cent. It was stated that in 1831 the population was pretty equally divided between the three sections, the respective proportions were then 5.0, 4.2, and 4.7. In 1861, however, in consequence of the unequal rate of increase, these ratios became 6.1, 5.9, and 8.1. In 1851 the number of persons in England and Wales aged 20 years and upwards occupied in agriculture was 1,576,080; in 1861 the same class had fallen to 1,531,275. This shows an actual decrease of 44,790 persons, or nearly 3 per cent. in the 10 years. The greatest decline had taken place in the south-western and the Welsh divisions. In the former, consisting of the counties of Wilts, Dorset, Devon, Cornwall, and Somerset, the decrease was 20,381, or 9 per cent.; and in the latter, which includes Monmouthshire, it was 13,285, or 8 per cent. The ratio of adults engaged in agriculture in

England and Wales on the adult population generally in 1851 was 16.1 per cent., and in 1861 it was 13.9 per cent., which was therefore a decline of 2.2 per cent.; in other words, 22 in every 1000 of the adult population had, between 1851 and 1861, ceased to belong to the agricultural class." Mr. Purdy showed "that during the last decade the falling off in certain counties was very considerable; Sussex had lost 2698, Hants 3412, Berks 1158, Herts 1095, Bucks 1048, Suffolk 3306, Wilts 2837, Dorset 1343, Devon 9475, Cornwall 3917, Somerset 2809, Gloucester 1166, Northumberland 1265, Cumberland 2099, Monmouth 1089, South Wales 4530, and North Wales 7666. The highest percentages of decrement took place, in Devon 13.3, North Wales 11.0, Cornwall 10.5, Hampshire 8.8, Cumberland 7.7, Monmouth 7.6, Wilts 7.3, Sussex 6.5, Suffolk 6.4, Dorset 5.6, South Wales 5.6, Hunts 5.4, Bucks 5,1, and Northumberland 5.1. It was observed of Wiltshire that, while the population generally had decreased by 4.904, the decrease of the adult agricultural population was 2837, and that in Suffolk the general decrease was only 147, while the agricultural decrease was 3306." Mr. Purdy stated, however, "that 11 counties had increased their agricultural population. The six most remarkable instances were these:—Salop had increased 1226 or 3.5 per cent., Worcester 1281 or 5.7, Leicester 1371 or 6.0, Lincoln 2139 or 3.3, Chester 1550 or 4.2, and Lancaster 5336 or 7.1 per cent."

The paper also directed attention to the fact—

"That the largest increase had occurred in our great manufacturing county, and further, that Lancashire in 1861 employed a larger agricultural population than any other county. The number of adults so engaged was 80,222. The West Riding of Yorkshire, which in this respect comes next, only employed 77,168, and Lincoln, a purely agricultural county, 67,357. Though the adult agricultural population of Lincoln is 11,000 less than Lancashire, the return of the farmers' profits (Schedule B) in 1859-60 in the former county exceeded those of the latter by 1,000,000*l.*, the valuation in both counties having been made upon precisely the same principle—that is, by assessing all the farms, whether their occupiers were liable to pay the income-tax or not. In 1851 there were in Lincolnshire 10,970 farms; one-fourth of the number exceeded 100 acres each; while in Lancashire, with 15,365 farms, less than one-twentieth of them exceeded 100 acres each. Excluding from each county those persons placed under the agricultural class, but who, in fact, work in woods or in gardens, it is found that in Lincolnshire there were 65,849, and in Lancashire 76,496 adults engaged in agriculture properly so called. The Schedule B valuation of the first county is 2,647,000*l.*, and of the second 1,605,000*l.* Dividing these sums among the adults respectively employed in each, gives 38*l.* per head for Lincolnshire and 21*l.* for Lancashire. The exact relation between the agricultural capacity of the two counties can only be satisfactorily shown when England adopts a system of agricultural statistics like that of Ireland. The diminution of the agricultural population was attributed to emigration and to the attraction of higher wages in other industries; though a considerable advance had taken place of late years in the money wages of the farm labourer. In Wales, where a large decrease of the agricultural class has been noted, the men's wages had risen from 7*s.* 6*d.* in 1837, to 11*s.* in 1860. Contemporaneously with the general advance of agricultural wages large tracts of waste land had been enclosed for cultivation. The Enclosure Commissioners state the total area to be 390,000 acres; this is equal in extent to the whole county of Hertford."

Home Correspondence.

Cottages.—It appears from the state of the dwellings of the working classes that it is quite impossible to carry out the home education of children, so essential in teaching them to become useful and intelligent members of society, and valuable in checking the tendency to immorality so prevalent from causes now beyond the control of the parents. The police reports too clearly indicate the lamentable extent of juvenile depravity at the present time. The following statement is copied from the Judicial Statistics of 1860, published by authority:—

ENGLAND AND WALES.

NUMBER OF PERSONS COMMITTED TO PRISON in 1860.

	Male.	Female.
Under 12 years of age	1307	173
12 to 16 ditto	5438	1091
16 to 20 ditto	14,281	6231

The above extract gives a sad picture of the domestic history of the working classes; it shows the number of youthful delinquents coming within the grasp of law, whose crimes have been discovered, but says nothing of the mass of iniquity, either undetected or which cannot be punished in a court of justice. What a mass of infamy must exist to produce such vice in children of tender age! What excuse has a country of unbounded wealth for allowing the rising generation to be fearfully neglected, when it has the power of mitigating the evil? Is it not a reflection on the name of England, to be told that the working classes are exposed to debasing influences, and have no means of escape? The obstacles which nullify the exertions of the philanthropist, in his attempt to assist his poorer brethren, are numerous; but that which defeats all good intentions is the "crowded cottage," where men, women, and children live together, without the possibility of observing common decency. The fact of inadequate accommodation for labourers throughout the United Kingdom is well known, yet no strenuous efforts are made to supply the deficiency. To erect a few model houses with expensive fittings, and striking elevations, is not the way to set about the work in earnest. A plain, comfortable cottage, warm, roomy, and well ventilated, is the desideratum—rent to be within the means of the labourers of the district. *Falcon.*

Agriculture of Northumberland.—In the graphic account given by Mr. Grey, late of Dilston, of his agricultural career, as reported in the *Agricultural Gazette* last week, he mentions writing a report on the farming of the county for the Royal Agricultural Society, which suggests to the writer, now that the Society has decided to hold its next exhibition in the chief town of Northumberland, the desirability of its offering a prize for another "report," enumerating the alterations and improvements effected since the date of that written by Mr. Grey. Such a report would be interesting, instructive, and useful, and if it could be got out previous to the Show, and offered for sale in the yard at 1*s.* per copy, no doubt an immense sale would be the result, adding to the funds of the Society, and to the means of disseminating over a wide area a knowledge of a system of farming as simple and excellent as can be found in the British Isles. This offer would not be without precedent, as witness the 50*l.* prize offered when the Society held its second show in Yorkshire, given by the president for the year, Lord Powis; and to show the importance in which such reports are held in that county, an offer of a similar prize for a similar object has since then been offered by one of the large landed proprietors and most distinguished agriculturist of it. This second prize, although offered for the last two years, has not been awarded, owing, we understand, to an insufficiency of merit in the competing essays. But we venture to say that if such a prize were offered for Northumberland, there would here be found respondents equal to the occasion; and if the Society does not come forward with a prize, we trust, Mr. Editor, with your advocacy, that some one among the many large and wealthy landed proprietors will take the matter into consideration, and offer a prize for an essay on the farming of Northumberland—such would redound to his own and also to the credit of the country. *J. M. W.*

Foreign Correspondence.

SCHENEFIELD, HOLSTEIN.—*Crops on the Continent, Aug.* 10.—We have now completed the harvesting of the Rye, Barley, Peas, and parts of the Wheat and Oats, all in good condition, and fair crops. The Potato is now ripe, and, excepting on the silt soils, only slightly touched with blight, which showed itself about a week ago, when the yellowing of the leaf and stem from ripeness had generally commenced. Indeed a new feature of the blight seemed to be a slightly premature yellowing and withering up—only in partial cases—in the moister and richer localities, giving out the nauseous effluvia of corruption. The bulk of tubers, from the absence of blight till near the natural completion of growth, is greater than of any previous season since the blight appeared. On the rich damp silt land of the Elbe delta and sea-bord alluvions, however, considerable numbers of the tubers show discoloured spots of disease and commencement of rot; on the *geest* or dry land the tubers are all sound. Generally in Low Germany, including the Danish peninsula and islands, the crops are fair, sufficient for the thriving increasing population, with considerable surplus for export. In High Germany, southward, and in Hungary, the drought-heat has been excessive; and latterly every green herb, what is termed burned up. The preservation of stock will, therefore, make considerable inroads upon the reaped crop, in many places defective from the drought, while in northern Low Germany, which has enjoyed timeous showers, the pastures are green and the Turnips (Swedes) and Beet covering the ground. Hence, there may be some internal demand from the north southward. In Poland, too, intestine war will have destructive effects, and contrary to the American war, which is more an affair of frontier, in all probability lessen food export.

Societies.

MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY. *Trial of Combined Reaping and Mowing Machines.*—This preliminary trial was connected with the forthcoming meeting of the Manchester and Liverpool Agricultural Society, at Mr. Kerr's, Arrowbrook Farm, Arrow, Cheshire. Thirteen competitors entered for the contest, but only seven turned up, viz.:—Messrs. J. & T. Young, Ayr, one machine; Mr. Walter A. Wood, London, two machines (represented by Richmond & Chandler); Messrs. Samuelson & Co., Banbury, two machines; Mr. George M'Culloch, Pemberton, near Wigan, and Mr. James Lockhart, Burton Farm, Neston, one machine each. The machines were all what are termed combined ones. The contest commenced at about 11 o'clock in the morning. A part of a large field of grain, allowed for the purpose by Mr. Kerr, was portioned into plots of one acre and a half each, it being understood that the machines which reaped the allotted corn in the shortest time were entitled to the prizes offered by the society. Mr. M'Culloch retired soon after commencing, owing to an accidental breakage, but all the others went through the work allotted them in the corn field; after which, two machines of Messrs. Samuelson & Co., and one of Mr. Wood's, entered an adjoining Clover field for the purpose of testing their mowing capabilities. The result of the competition was announced at the conclusion of the contest by Mr. Ryder, the secretary to the association. It appeared that the two-horse machine of Messrs. Samuelson reaped the allotted quantity in 1 hour 34 minutes; the one-horse machine of the same firm in 1 hour 2 minutes. Messrs. Young & Co.'s in 1 hour 59 minutes 30 seconds, Mr. W. A. Wood's first machine in 1 hour 55 minutes, and Mr. Lockhart's in 2 hours and 11 minutes. The first and second prizes of 20*l.* and 10*l.* were therefore awarded to Messrs. Samuelson's machines respectively. The sum of 5*l.* was awarded to Mr. W. A. Wood's first machine, and his second one not being eligible for a prize in consequence of being only a reaper, was highly commended; while the machines of Messrs. Young and Lockhart, not being combined ones, were judged non-competitive. *Liverpool Journal.*

LEICESTER: *Agricultural Statistics.*—At the recent meeting here of the Agricultural Society, Mr. Heygate thus spoke on the subject. He said—

"He was not a very great agriculturist himself, but he felt very great interest in its prosperity, and nothing, he thought, would be more useful to those who were practically engaged in it than that there should be established a good system for the collection of agricultural statistics. He wished them to consider whether the time had not now arrived when the nation should be put into possession of that information in regard to the cultivation of the soil which would show the agricultural progress of the country from year to year, which would show the increase or decrease of its agricultural wealth, which should give to its population that information which was possessed and highly appreciated by the population of almost every country in Europe besides our own, and which we had remained so long without, entirely from what he conceived to be prejudice. He knew very well that as soon as the words "agricultural statistics" were pronounced there were some among them who would be disposed to fire up and to say, 'No, let us have no interference with our private affairs;' but what he wished to persuade them was, although there might be some good there could not by possibility be any harm in the collection of agricultural statistics. What harm could there be in collecting this information about the state of the cultivation and the amount of the produce of the land? Information was valuable on every subject; it was always useful to throw light upon everything. Why, then, should this subject be shrouded in darkness, especially when he could prove to them that agricultural statistics could be collected without the smallest interference with private property, or the invidious exposure of the affairs of any one? It was now eight years since a committee of the House of Lords, composed of individuals by no means unfriendly to the agricultural interest, reported that it was a matter of national importance and utility that there should be an organised system of agricultural statistics; that among the various classes who would be benefited thereby none would gain greater advantages than the agriculturists themselves, and they further reported that, inasmuch as it was a matter of national interest, the requisite expenses for the collection of agricultural statistics ought to be borne out of the national exchequer. The machinery, indeed, for their collection need not be of a very complicated character, for if they could obtain two returns only they would gain a great deal of valuable information. In the first place what they would require every year was an account of the acreage under cultivation, setting out the acreage of the different white and root crops, and in the second place they would require an account of every description of stock, which might be easily obtained in the spring. If they could obtain those returns annually, they would be able to form a sound judgment with respect to how far the country was advancing or going back in respect to its material wealth. If, then, information was all that was wanted, what objection could there be to their making attempts to obtain it? Nobody would deny that the information which would be obtained from agricultural statistics was useful; nobody would now-a-days say it was wrong to obtain it with the consent of the farmers if they could. In Ireland this information was now collected annually from something like 600,000 holdings, and it was collected throughout the whole country without a dissentient voice. Such returns were of great importance in debates in the House of Commons; and, in point of fact, the whole character of the debates on agricultural questions very much depended upon the nature of those returns. Only last year the Registrar-General of Ireland congratulated the country on the increasing popularity of agricultural statistics, and the facts he laid before the country abundantly showed that not only the manufacturers, who were a small class in Ireland, but the landowners and tenant farmers were alike anxious to press forward most earnestly the collection of those statistics; and those who now heard him might depend upon it that if such collection had been found in the smallest degree injurious to the agricultural interest, not only would it not have been persisted in, but the loudest complaints would have been heard that such an experiment should have been tried at the expense of the Irish farmers. He would only quote one fact to show how completely isolated we in this country were in this respect. Agricultural information as he might call it was possessed by France, by Belgium, by Holland, by Prussia, by part of Austria, by Saxe-Coburg and Gotha, by Spain, by Norway and Sweden, by North America, by our Australian colonies, and last, but not least in importance, by Ireland. We were, as had been stated by Mr. Wren Hoskyns on this subject, secessionists from the body corporate of nations, so thoroughly had we neglected a subject of such importance to the nation at large. At the same time he quite admitted that it was a question mainly for the consideration of the farmers themselves, for depend upon it that if the information was not wished for by a very large body among the farmers themselves the country would never have it at all; but he was himself of opinion that the agriculturists of this country were of far too great intelligence to hesitate much longer on the subject, and that the country might very soon look forward to being in possession of such information as would enable it to say how far the farmers of England were capable of providing it with food. Strange as it might sound to some in this age of statistics, it was a positive fact that it was impossible for any one to say whether the growers of grain in this country were supplying 5 per cent. or 50per cent. of the food of the nation. It might not be a

matter of very great consequence in time of peace, but they might depend upon it that such information would become of vital importance in the event of a war, especially if what he hoped would never occur took place, and we were to a great extent to lose the mastery of the sea. Entertaining views of so strong a nature on this subject, he had thought it not out of place to attempt to impress them upon agriculturists on the present occasion, and he sincerely hoped to see an efficient organisation for the collection of agricultural statistics before long."

ISLE OF MAN: *Relations of Clergymen and Farmers.*—At the meeting at Ramsey lately the LORD BISHOP, in reply to the toast of the clergy, defended the absence of the clergy from the show ground, which had been remarked upon by one of the speakers, and said that a clergyman had been brought before the public a little too much for his too intimate connection with those engaged in agricultural pursuits. It had been said, but he did not know whether to believe it as truth, that one clergyman had been suspended—he did not mean by the neck—for associating too much with those engaged in the cultivation of land. It was possible, therefore, that the clergy of this island were a little afraid of having the same operation performed upon them. But one reference had been made by the Chairman, and he thought his words would have effect with the clergy, when he pointed out the Archdeacon as an excellent example of a clergyman taking part in agricultural matters. He thought that the Chairman's statement, and the example set by the Archdeacon, would have an excellent effect upon the clergy, especially if the Archdeacon would give them as much information as he had at a former meeting, when he communicated the new discovery he had made of fattening pigs without costing a farthing. The Archdeacon, he was glad to see, had again come forward in a spirited manner at this show, and carried off several prizes. He was not willing to "charge" his clergy upon the subject, or even to address to them a pastoral letter in reference thereto; but if any words of his would influence the clergy to follow the Archdeacon's example, he would gladly give the necessary encouragement. He might at least assure them that he did not feel inclined to suspend them, in any sense of the word, for employing themselves in a greater or less degree in the occupation of agriculture; and he was not disposed to suspend them, or find fault even if they surpassed the Archdeacon in the breeding of pigs. For his own part he had never regarded agriculture as an ecclesiastical offence; indeed, in this respect, as in others, he was content to tread humbly in the steps of the revered Bishop Wilson—than whom no man had exerted himself more for the advancement of agriculture in this island by setting an example of good farming. Since his appointment as Bishop of this diocese, he had done something as an agriculturist to improve the breed of sheep in this island; but he found that on this occasion he was, for the first time, beaten, and well beaten. He had to thank the judges for deciding against what was, at one time, the best flock of sheep on the island, by giving the palm over his head to some body else more deserving of it. His object in endeavouring to improve his stock, as well as his object in making these remarks, was to give rise to emulation and activity, and to lead them to take encouragement from his past success, and from the success of those by whom, at this show, he had been himself surpassed. He was glad that his example had been taken, and at every future exhibition he would be glad to acknowledge the man that had beaten the Bishop in sheep. For his own part, he did not feel himself in his spiritual capacity degraded, but rather elevated and encouraged, by social communication with the laity at all times and the laity of all classes in society.

The Ven. the ARCHDEACON, having been loudly called upon, also rose to respond. After humorously alluding to the necessity which sometimes existed for the State keeping the Church in order, he said the Chairman had referred to the absence of the clergy from this and similar meetings; but he suspected that the Chairman would have done much more towards procuring their attendance if he would have praised those who were present instead of blaming them for the negligence of those who were absent. There was another subject to which he must likewise refer—namely, his fat pigs. It seemed as if they could never be let alone. The Archdeacon and his pigs were always the subjects of comment. Even on entering the show-yard that morning, the first thing that greeted him was:—"Well, Archdeacon, prize pigs again." He felt annoyed, and in reply said:—"Well, it is very annoying. These pigs are a regular plague to me, and I suppose I must get done with them." However, there was one consolation, he supposed—they must either belong to the sheepish multitude or to the swinish multitude—and he would as soon be of the latter as of the former. To come now to something practical. He observed that it was a very short-sighted policy on the part of the Manx farmers to decline exhibiting any stock unless they were pretty sure of a prize. In his opinion, they ought to exhibit their cattle whether they would win or not; and thus, if they were beaten, they would be led to endeavour to improve the breed and condition of their animals. For his own part, he had that day sent some animals to the show which he certainly did not expect would gain prizes; and the only regret which his servant-man expressed was that they had not brought his (the Archdeacon's) year-old heifer, for, said the man—"She would have beaten everything in the place." He hoped, therefore, they would not hereafter be deterred from exhibiting stock by the fear of being beaten. As to the clergy being degraded by connection with agriculture, he looked upon agriculture as one of the noblest of employments—the first art of civilised life. The first art introduced by missionaries when they wished to civilise the heathen was to induce them to till their land. They talked greatly of the mighty commerce of England, and of her manufacturing and mining interests. Judging of the importance of these by the capitals therein invested, he believed the capital invested in agriculture exceeded them. For the promotion of agriculture in this island, he would like to see established something in the way of parochial farmers' clubs.

EAST LOTHIAN.—The following are reports on experiments in growing Wheats upon the farms of Fenton Barns and Mungoswells, respectively occupied by Messrs. Hope and Shirreff, for the premium given by the Society, for the best conducted experiment with three kinds of White and Beardless Wheat, as compared with Hunter's, at two different visits, the first about the end of May, and the other upon the 1st of August.

Fenton Barns.—No. 2. Best at both visits, and we also considered that this lot tillered out most plants at the root, and kept closest to the ground in spring, and therefore might be sown thinner than any of the rest, say as 3 to 4 of No. 4. No. 1. Second best at both visits, and we would also recommend that it should be sown thicker than Nos. 2 and 3, at least 2 pecks per acre. No. 3. At the first visit this was inferior to No. 1, and at the second it was the worst. This lot sent out plenty of plants, but was small in the straw, and is apt to lodge. No. 4. This was worst at the first visit, but at the second it was third best. We, however, advise that if this grain be sown, it should be wherever there is any danger of the crop lodging, as the straw is both thick and stiff, but should be thick sown.

Mungoswells.—No. 2. Best at first visit, and at the second by far the best. This lot sent out many shoots from the root; and may be sown thinner than any of the other kinds exhibited upon this farm. It indeed showed a fuller head, stronger straw, and, to all appearance, was a better crop than any of the other kinds. No. 3. Inferior to No. 2, but at first visit the difference was little; at the second, however, it was more perceptible. No. 1. Third best at both visits, and should be sown one-fourth per acre thicker than Nos. 2 or 3. We also think that this Wheat should be sown on loamy land in preference to clay, as it does not suit a poor or clay soil so well as Nos. 2 or 3. No. 4. Worst at both visits, but has strong and stiff straw. N.B. We have also to mention, that at Fenton Barns, four kinds of Red Wheat were exhibited, whereas Mr. Shirreff showed none, and upon the Red Wheat we make the following report:—

Fenton Barns.—No. 5. This lot, called Yellow Wheat, was the best at our first visit, and at our next was much more so; indeed, it was our opinion that we had never seen so productive a looking crop. No. 6. At first visit this lot was later than No. 5, and a little inferior, but at the second it seemed early, but now much inferior to the last. No. 7. Inferior to both the other kinds already mentioned at both visits. No. 8. This lot was very healthy at first, but at our second visit it seemed broken down. We think that this kind, which is Rivet, should be only sown upon soft land, where the other kinds would not succeed.

On a field at Fenton Barns we looked at two kinds of white Wheat, the one Hunter's, the other Woolly-ear, and thought the latter at least three quarters of an acre better than Hunter's; but at Mungoswells, from seeing both kinds of Wheat, we would have drawn a quite different conclusion.

The reporters recommended both the experiments as equally deserving of the Society's prize.

LASSWADE, MID-LOTHIAN: *Adulteration of Artificial Manures.*—Mr. BROWN, of Pentland Mains, said:—I have confined myself to a few authentic remarks, gathered from the writings of some of our most eminent chemists, warning farmers to what a large extent adulteration is practised upon artificial manures previous to being exposed for sale. These remarks will more particularly apply to three varieties of artificial manures—namely, Peruvian guano, dissolved or prepared bones, and nitrate of soda.—(1) First, as to adulteration practised by fraudulent dealers or their agents upon Peruvian guano; Professor Nesbit thus gives us an example of the dexterity and peculiar manner adopted by men who make it a regular and lucrative profession in London, Newcastle—and, in fact, almost all large towns throughout Great Britain—and who in many cases realise handsome incomes at the expense of the innocent agriculturist. This example was given in the course of one of his lectures to an audience composed principally of farmers, warning them against buying any manures without a guaranteed analysis. He thus describes the process of manufacture. Having obtained two samples of Peruvian guano, the one genuine and the other adulterated, he gave the two bottles in which they were contained to the chairman of the company he was addressing, and asked which of the two he considered the genuine guano. He chose the adulterated as the one he considered the pure guano, which from analysis contained nearly half its weight of Essex marl, and had been exposed for sale as genuine guano. The mode of mixing is cleverly done. The guano and marl are not mixed together at once. The large lumps are first picked out from the pure guano; the marl is thereafter mixed with the small (sometimes being ground to a fine powder before mixing), the lumps are then carefully added so as not to break them, the whole thereafter appearing as genuine guano. It has also been ascertained, in the analysing of samples of Peruvian guano, that other materials are used in adulteration—such as sand, clay and chalk, limestone, bricks, tiles, gypsum, ground when necessary to a fine powder, and sometimes found mixed with guano to the extent of from 40 to 50 per cent. Ichaboe being a strong smelling guano, a little is sometimes added by adulterators in bringing up the odour so often taken by many farmers as a sure test that the guano must be first-class if it contains this ingredient. This adulterated guano is sometimes sold by analysis (which can quite easily be a borrowed one), and very often no analysis is asked for by the farmer. The manufacturer or his agents—who are not a scarce class in our markets—by dint of good language and persuasion in offering his guano at 1*l.* or 2*l.* per ton cheaper than the honest trader, tries, and very often succeeds, in persuading the farmer what a bargain he is getting; but little does he know how barefacedly he is robbed, perhaps paying 10*l.* or 12*l.* per ton for a guano intrinsically not worth more than 3*l.* or 4*l.* The success which attends the sale of adulterated guano and other manures is truly marvellous when we are told by an eminent chemist that he considers 100,000*l.* is annually paid by farmers for worthless materials mixed by fraudulent dealers amongst artificial manures.—(2) My remarks will now apply to the adulteration practised upon bones, likewise carried on to a large extent. Coprolites, costing from 2*l.* to 3*l.* per ton less than from bones, are largely used in the manufacture of bones. Coprolites are composed of the fossil excrements of different species of animals, found in small quantities in some of the midland counties of England, but are mostly imported. Their nominal value, according to analysis, principally consists in the phosphate of lime, magnesia, and carbonate of lime which they contain, and is estimated, when manufactured, by Professor Liebig to be worth 6*l.* per ton. I certainly admit that coprolites are a good manure, but cannot think that we should pay 7*l.* 15*s.* for coprolites sold as pure dissolved bones, varying as they do to a large extent in the bone-earth which they contain. Oyster shells, from their possessing the property of splitting up into nice fragments and incorporating so thoroughly with the bones as can scarcely be detected with a glass, also soap-boilers' waste and sand, are likewise used to a large extent in the manufacture of bones. I advocate that, to ensure ourselves against adulteration, every farmer should manufacture what bones he intends using during the year, some of our eminent chemists asserting that in every ton of pure bones we buy we are not receiving more than 10 cwt. of pure bones, the other 10 cwt. being composed of saw-dust, ashes, &c., used for drying up the moist matter occasioned by bones in the process of fermentation, and bringing them into a sufficiently dry powder state for sale. The mode given us of making bones into a prepared manure, by care and attention on the part of the farmer, may easily be accomplished. First prepare a space sufficient in size for the quantity you intend to use, having a hard bottom, and if possible under cover; enclose it with deals, so as to keep the bones together when in the process of fermentation; purchase so many tons of pure bones, which can be ground half-inch size for 5*s.* per ton; as many tons of bone-ash; also from five to ten gallons of sulphuric acid to the ton. Mix the bones and bone-ash in alternate layers, pour over them ten gallons hot water to the ton, thereafter adding the sulphuric acid, and covering the whole with three to four inches prepared compost or earth, which should be at hand, allowing them to lie fermenting in this state for six weeks or two months; and, after being turned over several times, they will be found sufficiently well pulverised and dry enough for application, having read and likewise been informed by those who have done so, when judiciously performed, that they succeeded to their entire satisfaction.—(3) In reference to nitrate of soda, it is found to be sometimes adulterated with common salt; but, as the latter occurs in crystals of a whiter colour, a closer inspection will almost lead to its detection. Nitrate of soda, when pure, should burn with a fine yellow flame, but when mixed with a rather large proportion of common salt it gives forth a greenish light. In confining my remarks upon these three classes of manures, we are led to believe, by the research which our ablest chemists have made in the art of agriculture, and also by the experience of our most scientific farmers, that in the application of any one of these manures, or in a combined state, we are giving to the soil most of the known ingredients requisite for the production of healthy and vigorous plants. I believe that adulteration in artificial manures being carried on a large extent, we cannot be too careful in the purchasing of them, that we should only buy from men of respectability and character, and that by guaranteed analyses only, which, if attended to, would be taking the surest means of rooting out these men who make it a regular and lucrative profession in adulterating artificial manures at the sole expense of the farmer. An instance of the value to be derived from analysing came under my notice lately. A large arable farmer in Berwickshire, who annually spends a considerable sum upon artificial manures, resolved to purchase by guaranteed analyses only, and from well-known manufacturers; yet upon sending samples of the bulk after delivery to be analysed, which cost him 12*l.*, found after all that he had saved nearly 40*l.* by so doing.

KILKENNY: *Irish Agriculture.*—At the annual meeting of the Agricultural Society of Ireland the LORD

Lieutenant thus spoke:—"Upon a later occasion of these annual meetings of the Royal Agricultural Society, and especially at the last of all, which was held in Limerick, it was my painful duty to speak in rather gloomy tones of the then subsisting agricultural condition and prospects of the country. It is true that four successive most unfavourable seasons have preceded the present year. 1859 was a year of unusual drought, which made an inroad on our live stock that has hardly yet been repaired, and with this perished a great quantity of our manure. Then three summers of almost incessant rain followed. The crops one by one felt the unhappy influence; land dropped out of cultivation, and the last year was the worst of all. So that if we were now obliged to confine ourselves wholly to retrospect, and not to indulge at all in prospect—if we only dealt with memory, and did not consider what was due to hope—this would be the very moment of the greatest depression. But you will all remember in the sacred page how, when the Prophet stood on the ridge of Carmel, he was told six times that there was no prospect of relief in the parched earth or in the burning sky; yet, on the seventh occasion he gathered from the sight of a small cloud, like a man's hand, a prestige of the coming deliverance, which then came in the form of rain. So we, I trust, may thank God that we can read in the sunbeams which have gladdened our eyes tokens of returning plenty and recovery. I observed that land, under the baneful influence of the seasons, fell from time to time out of cultivation, and naturally the last reclaimed and the least productive lands were the first to be given up, and in the same gradation the best land was the last retained in tillage, and it is of that best land that we may now hope to enjoy the fruits under the best influence of a mended climate. And it was gratifying to me to find that it has been computed by most trustworthy persons, that if the crops of this season only equal the average yield of the last 10 years, their value—supposing there should be no great disturbance in price—would exceed the value of the crops of 1862 by some ten millions of money. And if they should exceed that average of the last ten years, of course the gain would receive a proportionate increase. Amidst the general depression which affected almost every kind of agricultural produce, I find an exception in the article of Flax, and I learn that this year 60,000 more acres of Flax have been sown than the last ten years, or, probably, more than ever were yet sown in Ireland; and the activity of the linen trade, in such marked contrast with that of the Cotton trade, encourages the hope that the Flax crop, over and above its abundance, will realise satisfactory prices. With respect to other crops which cannot attain that amount which the favourable nature of the present season might otherwise have secured to them, if land had not been previously thrown out of cultivation, we may hope that, whereas the sufferings of a bad year are nearly mainly confined to the year itself, the caution and resources, which are altogether best learned and only learned in seasons of difficulty and trial, will bring with them salutary permanent results. I think it may be a matter of serious reflection whether the least favoured lands ought to be restored to a more precarious crop, as I believe that lands that have hitherto been devoted to Wheat would be much better applied to those grains that suit better with colder and moister climates. No lesson of the past has been more permanently taught than the necessity of continued attention to drainage, and I rejoice to find that two measures have been adopted in the last session of Parliament for giving facilities to proprietors for making outlets to their drains, and for enabling them to form drainage districts to effect a more complete arterial drainage. And I believe these two measures rest on the sound principle of facilitating proprietors in executing the works themselves, without any undue influence on the part of the Government. The competition of the whole world, acting now upon us through new facilities of transit and new means of access, of which the Galway line is the last, of course continually grows more intense. The great enterprise of your neighbours, the pork merchants of Waterford, has given activity to the bacon trade, of which this city may be considered in some respects the centre, and the vigorous promise of the Potato crop bids fair—for we all know the connection between pigs and Potatoes—to contribute to the further extension of the pig trade in Ireland. I believe almost the only article of food the importation of which into the United Kingdom has been diminished within the past year is butter. Now, the state of Ireland affords considerable facilities for that trade, which it has long enjoyed, and I trust that continued attention to dairy farming will carry on and advance its prosperity. I had wished almost to indulge myself in some little reflections upon certain processes of hay-making which I observe carried on in Ireland; but I have found my views so completely summed up in the old survey of the county of Kilkenny, written, I believe, by the father of my excellent and honoured host, Col. Tighe, that I cannot help quoting what he says, rather regretting that the subsequent amendment has not been as complete as we might have hoped. 'The principal faults,' he says, in 'common practice are drying the hay too much, and exposing it too long to injury in every way. The great object seems to me to be to prevent heating, to accomplish which the wind and rain often extract all the nutritious parts of the hay long before it quits the field. There can be no doubt that it is highly useful for the hay to heat moderately. If it is cut while the Grass is succulent, and permitted to heat, the saccharine process takes place, and an additional quantity of saccharine matter—one of the most nutritious substances—is formed by combination with the oxygen; it only requires that it should not be allowed to go too far. It often happens that the hay is allowed to remain too long in the fields. It loses then in the saccharine matter, and there is also the additional disadvantage that the ground is debarred from the benefits which it would otherwise receive from exposure to the light and air of heaven.' Such topics as the better selection of seeds, the questions of the steam plough, the treatment of the disease of cattle and sheep, I wish entirely to leave to those better competent to offer an opinion upon these subjects, as well as upon the particular merits of the very successful show we have witnessed this day. I am very glad to perceive that among other objects which the Society has cordially adopted is one institution, patronised, I am very gratified to see, by the ladies of Ireland, and by some of the highest, the fairest, and best amongst them. They have become associates of the Royal Agricultural Society for the special object of improving the dwellings and domestic condition of the agricultural population of Ireland. I am sincerely anxious that the tenements of the labourers should be made to keep an equal pace of improvement with the care bestowed on your flocks and on your herds. Looking for a moment, and only for a moment, to the general condition of the country, apart from the special province of agriculture, although the distress caused by the late inclement seasons has naturally told with great and distressing effect in the several districts of the country, yet it appears that the rate per head on the population on the relief of the poor in Ireland amounts at present to 2*s.* 6*d.*, whereas the rate per head in both England and Wales reaches up to 6*s.* With respect to that most important subject, the education of the people, it appears that in the year 1841 54 per cent. of the male population and 41 of the female could read. In 1851 this proportion had risen to 58 per cent. of the male population and 49 of the female; and in the last census, 1861, the proportion had further obtained the gratifying increase to 65 per cent. of the male population and 58 of the female. And in the county of Kilkenny, in our immediate neighbourhood, I am glad to find that while the attendance in the National Schools in 1851 was 1 in 10 of the population, in 1861 the attendance had risen to 1 in 6 of the population. There is a small item in statistics that I have ascertained, and which affords me some astonishment, I confess. In the last census of 1861 there were in Great Britain of persons 100 years of age and upwards, 201. How many do you think were in Ireland, in not nearly so large a population? 765. That fact speaks highly for the health of the old men and old women. The only thing further I have to add to my summary of statistics, and perhaps I should consider it the most important, is that in the last year there has been a sensible decrease of crime as compared with preceding years. Now, my lord and gentlemen, I will only add that this is not a country to despond about. There are now two sets of principles and of influences at work for mastery over its future destinies. On that mountain top which overlooks so great a portion of the country, on the majestic Slievenamon, one set of those principles and influences finds its vent in shrill and ill-omened shrieks for strife, for discord, and for the bloodshed of those who possess and those who till the soil. The other or counter set of principles breathes through such organs of peace as this and other kindred societies, of which it is the harmonising and healing purpose to spread the knowledge of useful improvement, to encourage the proprietors of the land to reside on their estates, and to take an interest in the land they live on and the men they live with, and to unite all classes and all grades, landlords and tenants, farmers and labourers in one blessed reciprocity of good will and good deeds."

Farm Memoranda.

Brown Hall, occupied by Mr. Brown, contains 560 imperial acres. The rent, which is regulated by the price of grain, being half money and half a corn rent, may be put down at 2600*l.*, or nearly 4*l.* 15*s.* per imperial acre, about 6*l.* per Scotch or Cunningham acre. The rotation of cropping followed is the six course shift—Potatoes, Wheat, Turnips, Barley, Grass, and Oats.

1st. Potatoes, 93 acres. The land manured with 30 tons of horse and cow manure in autumn, when the land is ploughed, which cannot be too deep. The Potatoes are planted in March and April, the land being grubbed, but seldom ploughed in spring. The seed 2 bolls or 8 cwt. per acre. Those planted in March got 4 or 5 cwt. of guano and bones, mixed in the drill, to bring them fast forward for the early market in July or August. The Dalmahoy Early is the Potato planted for that purpose. Those planted in April seldom get any manure at planting, as they are more liable to the disease, not being lifted until October. The crop should be worth 20*l.*, although some years 30*l.* have been got, and in others only 10*l.*, according to the disease.

2d. Wheat, 93 acres. Drilled in with 2½ bushels of seed to the acre. Time of sowing, October and November. Potatoes are often lifted at one side of the field, while the land is being ploughed, and Wheat sown at the other. An average crop should be five quarters, and at 52*s.*—13*l.* per acre.

3d. Turnips, 93 acres. Manured in autumn, with 30 tons street manure, costing 4*l.* per ton. Time of sowing, May 15 to June 15. The land being generally ploughed again before sowing, and 6 to 8 cwt. of guano and bones mixed, applied in the drill. The Turnips are generally sold in the autumn to the dairymen, but lately most of them have been eaten on the land with sheep, and a few with cattle in the courts. They are eaten, one half on the lands they grow on, one fourth on the Grass lands, the other fourth going to the horses and cattle. A crop to sell on the lands is generally worth from 14*l.* to 18*l.*, or to eat with sheep, from 10*l.* to 14*l.* The difference will be made up in the condition of the land.

4th. Barley, 93 acres. Drilled in March, the land being ploughed during winter as the Turnips are consumed. Seed, 2½ bushels, along with which Grass seeds for next year's crop—12 lbs. Italian Rye-grass seeds, and 16 lbs. Clover. An average crop of Barley worth 11*l.* 18*s.*, or 7 quarters, at 34*s.* per quarter per acre.

5th. Grass, 93 acres. The first crop cut for hay. Top-dressed with guano and nitrate, 1 cwt. of each to the acre. An average crop, 2½ tons at 4*l.* per ton—10*l.* per acre. The after math eat with sheep, generally worth 30*s.* per acre.

6th. Oats, 93 acres. The land ploughed during winter and sown in March, with 2½ bushels drilled, so as to have them hoed when the crop is well brairded. An average crop, 8½ quarters at 25*s.*—10*l.* 12*s.* per acre.

The straw is all sold except what is required for the horses and cattle, from 400*l.* to 500*l.* being usually got for straw every year. The manure is all got from Portobello, Edinburgh. A man and a horse are kept doing nothing else but driving manure from Portobello, at the rate of six tons per day, the price being from 6*s.* to 7*s.* per ton. 19 horses and 18 men are kept all the year round, about 24 women from 1st March until August, and 12 the rest of the year. During harvest there are generally 100 men shearing for two or three weeks, over and above the usual hands. 400 acres of the farm are light land, the remaining 160 acres strong clay. Mr. Brown has drained 200 acres the last two years, at a cost of 5*l.* per acre, and has 50 acres still remaining to be drained.

The farm is let on a 19 years' lease. The steadings and other buildings on the farm, built by the landlord about 35 years ago, at a cost of 5000*l.* Repairs done by the tenant during his lease.

At the expiration of the lease, the usual course for the tenant (unless a new agreement be made) is to leave the farm without compensation, save for unexhausted improvements. The farm is five miles from Edinburgh, and there is a turnpike gate on the road, in going through which 1*s.* is paid for each cart, whether going or returning. *Marquis of Abercorn, at Londonderry.*

Miscellaneous.

Ager's Patent Digger.—A private trial of this machine was made the other day at Longham Hall, near Dereham, the residence of John Hastings, Esq.; and the result was very satisfactory so far as substituting a better action for that of the plough and the cultivator. We hope to report upon it more particularly after a public exhibition which Mr. Hastings proposes to make of it in a few days. We must however at once express the opinion that it by no means acts as a harrow as its manufacturers assert; on the contrary one of its chief defects consists in its wanting that action. We also venture to suggest that it is better suited to steam power than to horse power. (*From an Occasional Correspondent.*)

Deep Drains in Clay.—It is utterly untrue that I am dissatisfied with the experiment of deep draining. I have had many prejudices to contend against; the purely stupid ones against any novelty—any innovation on the old system of agriculture: those, too, prompted by self-interested jealousy of the new machinery which innovation renders necessary. . . . I have permitted some drains to be laid at less than 4 feet, partly to humour tenants, on strong clays, who wished to avoid the expense of very close draining at the additional depth. . . . If I had a field in my own occupation, of stiff clay, I should place close drains 21 or perhaps 18 feet apart; but I should prefer 4 feet, notwithstanding the additional expense, to 3." *The late Sir R. Peel.*

The Sheep Dog.—To any inquiry of a Scotch shepherd as to the race of one of his faithful ministers, you would receive the answer, "Hout! he is jist a collie." But this designation is far too indiscriminate, for it is applied equally to the malapert animal which, at the sound of your wheels, rushes from every black hut, and having pursued you for a few score yards with his petulant yaffle, give his tail a conceited curl and trots back to inform the family that he has driven you off the premises. Far different is the sheep dog. Whether employed in driving on the road, or herding on the hill, his grave and earnest aspect evinces his full consciousness that important interests are committed to his charge. When on duty he declines civilities, not surlily,

for he is essentially a good-tempered beast, but he puts them aside as ill-timed. At an early age the frivolity of puppyism departs from him, and he becomes a sedate character. At home he shares his master's porrich; lies on the best place before the fire; suffers with complacency the caresses of the children, who tug his ears and tail, and twist their little fingers into his long coat; and without inviting familiarity from a stranger, receives him with dignified courtesy. When accustomed to the road he will, in his master's temporary absence, convey the flock or herd steadily forward, without either overpacing them or suffering any to ramble; and in the bustle of a fair he never becomes unsteady or bewildered. But the hill or moor is his great theatre. There his rare sagacity, his perfect education, and his wonderful accomplishments, are most conspicuous. On the large sheep-farms a single shepherd has the charge of from three to six or more thousand sheep, varying according to the nature of the country and climate. In performing his arduous duties, he has in ordinary seasons no assistance except from his dogs. Those shepherds who have studied political economy introduce the principle of division of labour into their kennels. When on the hill they are usually accompanied by two dogs: of these, one is the driving-out, and the other the bringing-in dog. To the first he points out a knot of sheep, and informs him by voice and action that he wishes them to be taken to a distant hill. The intelligent animal forthwith gathers the sheep together, and acts according to his master's instructions. By similar means he informs the second that a lot of sheep on a distant hill are to be brought to the spot on which he then stands: and with equal certainty they are shortly at his feet. To either dog he indicates the individual sheep which he is to catch and hold. The eagerness and impetuosity with which the dog rushes at the neck of his captive would lead you to suppose that the poor animal was in great danger. Nothing of the sort. The dog follows Izaak Walton's precept, and handles him as if he loved him. The hold is only on the wool. The sheep stand in no habitual terror of the dog; though within a few yards of him, the elder will quietly chew the cud, and the younger shake their heads and stamp with their feet, provoking him to frolic, or mimic war. We have spoken here, simply, of the daily occurrences of the sheep walk—milk for babes—for we fear that the more staggering, but not very ill-authenticated, instances of canine shepherding, with which we might fill our pages, would prove too strong for southern stomachs. Whoever has not read the Collie stories of the great Ettrick herd and bard, has anyhow a rich amusement before him. We love the long face, sharp nose, and sincere countenance of the sheep dog:—

"His honest, sonsie, baws'nt face
Ay gat him friends in ilka place."

Gisborne's Essays on Agriculture.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

At 9 A.M., Railway Time.

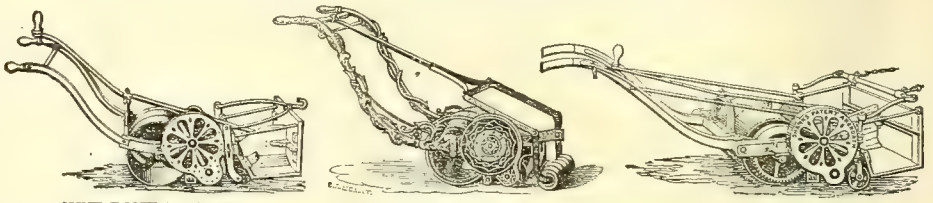
Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	August 28	Inches. 29.72	° 64	° 58				° 66	° 48	° 74	° 41	Inches. 0.16
Friday ..	29	29.79	62	57	S.W.	2	5	69	53	79	51	0.50
Saturday ..	30	29.97	58	55	S.W.	1	10	66	50	77	44	0.08
Sunday ..	31	29.70	60	59	N.E.	0	10	66	53	79	47	0.55
Monday ..	Sept. 1	30.16	61	53	W.	2	3	66	49	80	41	...
Tuesday ..	2	29.93	55	55	S.W.	2	10	69	52	79	49	0.01
Wednesday ..	3	29.78	61	56	S.W.	4	10	68	52	71	47	0.03
Thursday ..												

FOWLER'S
STEAM PLOUGHING AND CULTIVATING PATENTS.

RANSOMES & SIMS, ORWELL WORKS, IPSWICH,

Have the pleasure to announce that they have arranged with JNO. FOWLER for the use of the above PATENTS, and they will answer any inquiries respecting them, and execute any Orders promptly.

SHANKS' NEW IMPROVED PATENT LAWN MOWING,
ROLLING, COLLECTING, AND DELIVERING MACHINE FOR 1863.



NEW PONY MACHINE. NEW HAND MACHINE. NEW HORSE MACHINE.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine	£28 0 0	40s. extra.
No. 2.—42-inch Machine	26 0 0	40s. ,,
No. 3.—36-inch Machine	22 0 0	30s. ,,
No. 4.—30-inch Machine	19 0 0	30s. ,,

Silent Movement, 20s. extra; Boots for Horse's Feet, 24s. per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE

Width of Cutter.		If with Patent Delivering Apparatus.
No. 5.—30-inch Machine	£15 15 0	30s. extra.
No. 6.—28-inch Machine	14 10 0	30s. ,,
No. 7.—25-inch Machine	12 10 0	25s. ,,

Silent Movement, 12s. 6d. extra; Boots for Pony, 21s. per set; ditto for Donkey, 16s. per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

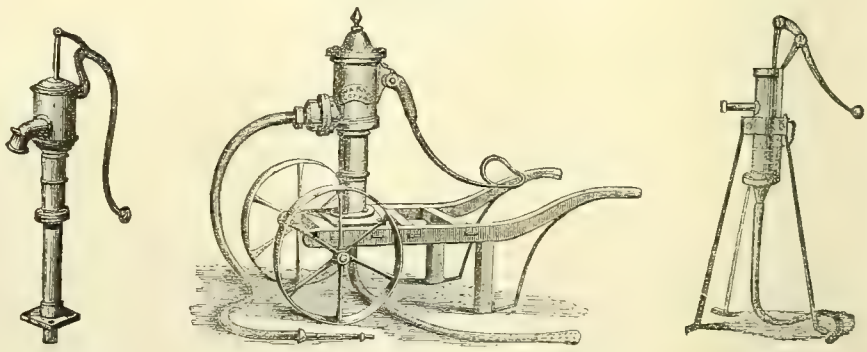
Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	Easily Worked by Two Men.
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	Ditto by a Man and Boy.
No. 11.—16-inch Machine	£6 17 6	Easily Worked by a Man.
No. 12.—13-inch Machine	6 2 6	Ditto ditto by a Boy.
No. 16.—12-inch Machine	5 5 0	

*** *Shanks' Lawn Mowers are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.
LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

JOHN WARNER & SONS,
BELL AND BRASS FOUNDERS TO HER MAJESTY,
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4
2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3l. 3s.) 3 0 0
3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3l. 15s.) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET. When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2l. 15s.; 2-inch Flexible Rubber and Canvas Suction Pipe, 2s. 5d. per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

Exhibition Prize Medal 1862.

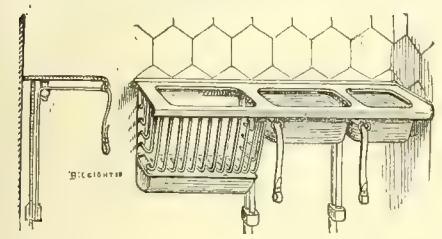
MUSGRAVE'S PATENT STABLE FITTINGS and HARMLESS LOOSE BOXES, PATENT IRON COW HOUSE FITTINGS, and IRON PIGGERIES.

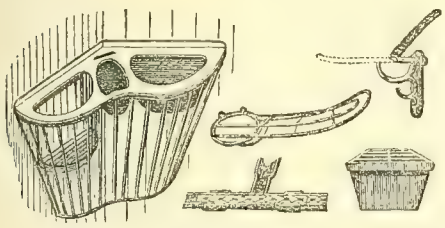


These inventions are recommended as possessing numerous advantages not to be found in anything hitherto made. At the late Meeting of the Royal Agricultural Society at Leeds, MUSGRAVE BROTHERS received a Silver Medal, and two Awards of "Highly Commended," being the only Prizes conferred on any competitor in this class.

Particulars sent on application to the Inventors and Makers, MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

COTTAM'S PRIZE STABLE FITTINGS and HARNESS BRACKETS.





These Fittings, now so generally specified by Architects in their specifications, may be seen at the Manufactory, 2, Winsley Street, Oxford Street, W, where a large supply is always on hand and regular sizes kept in stock, and where full-size Stalls and loose Boxes (variously arranged, with a view to the economy of space) can be examined.

COTTAM & COMPANY, Manufacturers and Patentees, hold the Prizes of 1851, 1855 (Paris) and 1862, for these Fittings.

*** Apply for No. 3 Catalogue, to be had free of COTTAM & Co., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½d.	... 7½d.
Seconds	3½d.	... 5d.
Thirds	2½d.	... 3½d.
Fourths	2¼d.	... 3¼d.

HORTICULTURAL GLASS.

Stock Sizes, 16-ounce. In 100 feet Boxes.

These prices only apply to the sizes stated.

				4ths.	3rds.	4ths.	3rds
				s. d.	s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9				
12 „ 10	13 „ 10	14 „ 10	15 „ 10	10 9	12 3	12 6	14 0
13 „ 11	14 „ 11	..	..				
14 „ 12	15 „ 12	15 „ 11	16 „ 11				
18 „ 12	19 „ 12	16 „ 12	17 „ 12				
16 „ 13	17 „ 13	20 „ 12	21 „ 14	11 6	13 6	13 6	16 0
19 „ 13	20 „ 13	18 „ 13	..				
16 „ 14	17 „ 14	21 „ 13	..	14 to 15 ozs.		16 to 17 ozs.	
19 „ 14	20 „ 14	18 „ 14	..	to the foot.			

HARTLEY'S

PATENT ROUGH PLATE GLASS.

Packed in Boxes of 50 feet each.

		s.	d.	
6 by 4	and 6½ by 4½	10	6	per box.
7 „ 5	„ 7½ „ 5½	12	0	„
8 „ 6	„ 8½ „ 6½	13	6	„
9 „ 7	„ 9½ „ 7½ and 10 by 8 ...	15	0	„

GLASS for ORCHARD HOUSES.

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12 }	Fourths ...	11s. 6d.	13s. 6d.	15s. 0d.
20 „ 13 }	Thirds ...	13s. 6d.	16s. 0d.	19s. 0d.
20 „ 14 }	Seconds		English.	English.
20 „ 15 }	Best		18s. 0d.	23s. 0d.

The above prices include the Boxes.

We recommend 3rds quality at 16s., or 21-ounce at 19s. (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½ } 11s. 6d.
8 „ 6	8½ „ 6⅜	9 „ 7	9½ „ 7½ }
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Boxes 2s. each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

London Agents for Hartley's Patent Rough Plate.

Perforated Glass for Ventilation.

Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

Glaziers' Diamonds from 10s. to 21s. each.

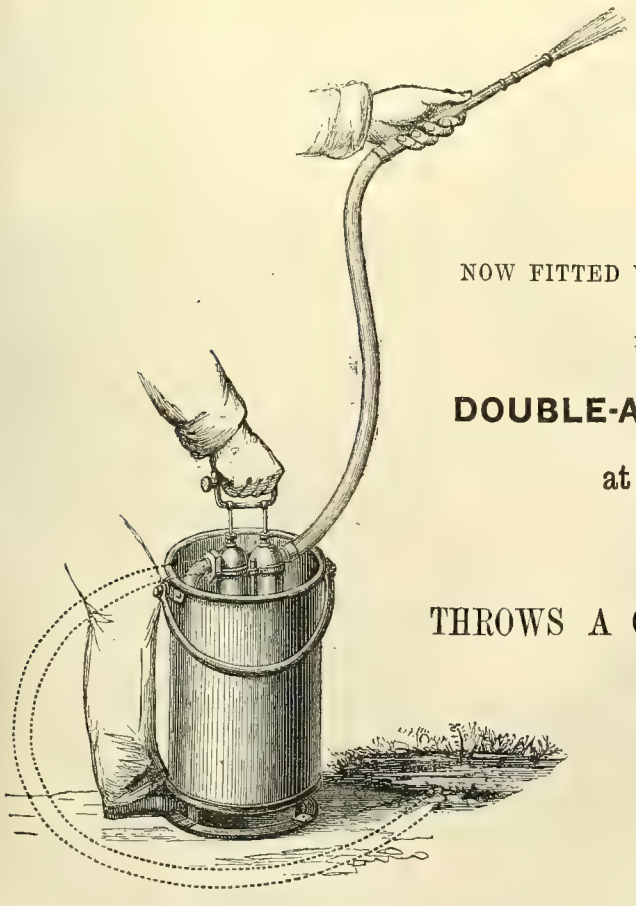
Glass Tiles and Slates in Sheet and Rough Plate. Plate Glass, Patent Plate, and Hartley's Improved Rough Plate.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD. | ANTI-CORROSION PAINT. | LINSEED OIL PUTTY. | FINE OAK VARNISH. | FINE OAK CARRIAGE. | PATENT DRYERS. | LINSEED OIL. | BOILED OIL. | TURPENTINE.

LEAD in SHEETS or CUT to SIZES, LEAD PIPE, LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of every description.

WARNERS' IMPROVED PATENT,



NOW FITTED WITH AN AIR VESSEL,

IS THE ONLY

DOUBLE-ACTION ENGINE

at £2 2s.

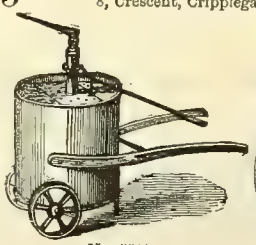
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THROWS A CONSTANT STREAM.

May be obtained of any Ironmonger or Seedsman at the above price, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

JOHN WARNER AND SONS
8, Crescent, Cripplegate, London, E.C.

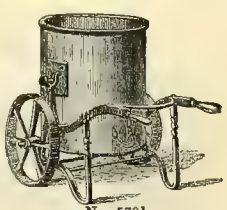


No. 554½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons ..	.. £2 15 0
16 „ ..	.. 3 15 0
24 „ ..	.. 5 0 0

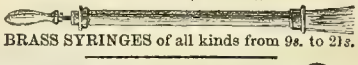
Larger sizes may be had in either Wood or Iron.



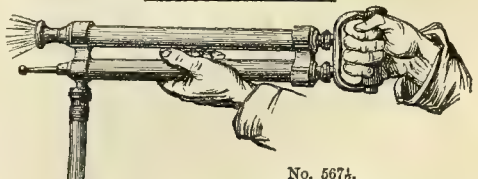
No. 579½.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	.. £2 10 0
20 „	.. 2 0 0



BRASS SYRINGES of all kinds from 9s. to 21s.



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 5 feet Flexible Suction Pipe,

21s.



Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

THERE ARE NO SUCTION OR DELIVERY VALVES, hence MUCH FRICTION AND LIABILITY TO CHOKE with leaves and dirt IS AVOIDED.

JOHN WARNER & SONS, 8, Crescent, Cripplegate, London, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement."

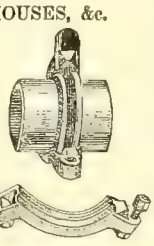
They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.





T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREEN-HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection
16 feet by 8 feet	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to
T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

JOHN TAYLOR & SONS,

HORTICULTURAL BUILDERS AND ENGINEERS,

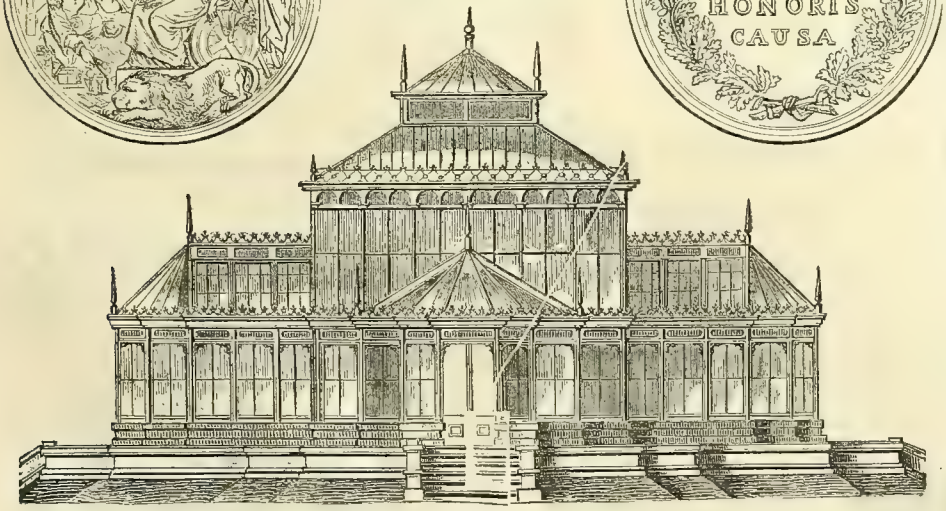
HARROW ROAD, LONDON, W.



INTERNATIONAL EXHIBITION,
CLASS IX., 2191.

PRIZE MEDAL
For CONSERVATORY,
DOUBLE CHAMBER CORRUGATED
and HORIZONTAL
TUBULAR BOILERS.





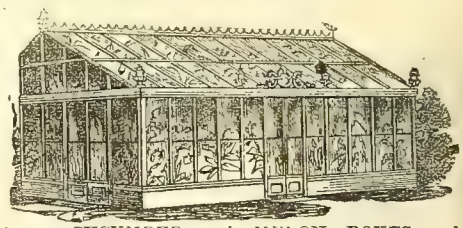
J. TAYLOR AND SONS call the attention of the Nobility and Gentry to the very superior manner in which they erect CONSERVATORIES, VINERIES, FORCING, FRUIT, and PLANT HOUSES of every description, combining the most modern improvements with elegance of design and durability of materials and workmanship.

Our VENTILATING APPARATUS for the Roofs and Fronts of Horticultural Buildings, &c., supersedes any now in use, as being the most simple and effective in its action.

Our system of HEATING APPARATUS for Churches, Public Buildings, Mansions, Schools, Offices, Baths, Horticultural Buildings, &c., is particularly worthy of notice, we having for many years devoted especial attention to this branch. The great variety of work which has passed through our hands has gained us such experience in the mechanical details as to insure success and entire satisfaction in any undertaking entrusted to our care.

The superiority of our DOUBLE-CHAMBER CORRUGATED and HORIZONTAL TUBULAR BOILERS has caused them to be acknowledged as the best now in use, being both powerful and rapid in action.

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOTWATER APPARATUS MANUFACTURERS, near the Green Man, 353, Old Kent Road, London, S.E.



200 CUCUMBER and MELON BOXES and LIGHTS, and from
400 to 500 LIGHTS for PITS of all SIZES kept in STOCK.
Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the kingdom.
10 dozen strong Zinc HAND GLASSES, Glazed and Painted complete, ready for immediate use, 18, 20, and 22, all shifting tops.
Reference to the Nobility, Gentry, and Trade in most of the counties in England.

TO BE LET, with early possession, NURSERY GROUNDS, situated in Brighton, comprising extensive Ranges of Vineries and Peach-houses, in good bearing condition; large and well-constructed Span-roofed and Lean-to Houses, and Pits for Plants, the whole well heated and ventilated; also, a capital Residence for the occupier, and Cottages for the men employed on the Premises, with extensive Stabling and Coach Houses, which can be readily Let at a good rent.
The Stock, which is large, can be taken at a valuation or a fixed sum, as agreed upon. A ready Market for all the produce is at hand, and every facility for carrying on a large Trade in Fruit, Flowers, and Seeds; or a First-rate PARTNER with Capital would be accepted, as the Occupier is extensively engaged in Landscape Gardening.
Apply, by letter, to the GARDEN SUPERINTENDENT, Alexandra Park, Tottenham Wood, Hornsey, N.

To Nurserymen, Florists, &c.

TO BE SOLD by TENDER (for the benefit of those whom it may concern) in One Lot, the STOCK in TRADE, IMPLEMENTS, and EFFECTS, in and about the Nursery in Addington Road, Bow, E. London.
The Tenders will be opened at the Offices of Messrs. CHARLES BROWN & DUBOIS, Accountants, 10, Basinghall Street, City, on FRIDAY, September 11, at 12 o'clock at noon.
Further information may be obtained on applying by letter to Mr. H. A. DUBOIS as above, or to H. L. HAMMACK, Esq., Estate Office, Bow.
The highest Tender will not necessarily be accepted, but 1*l.* 1*s.* will be paid if not accepted, for the Bidder's expenses, and if accepted, a deposit of 20 per cent. to be at once paid down. Also by separate Tender, 8 PITS and 2 GREEN-HOUSES, as shown on the ground.
N.B. Due Notice will be given of the Sale of the Glasshouses on the Premises.

Kensington.

TO MARKET GARDENERS, HORTICULTURISTS, NURSERYMEN, AND OTHERS.

EXPECTED SALE near the LAST WEEK in SEPTEMBER, 1863, comprising 200 3-Light Boxes and Lights in excellent condition; 6 Spring Vans and Market Waggons; Market and Dung and Tumbril Carts; Ploughs, Harrows, and every kind of Horticultural Implements; Hand Glasses; 5 Horses; Chaises; 2000 Bushels of Onions; quantity of Straw, Potato Sets, and a variety of useful articles.
Notice of View and Day of Sale will be duly announced.

Sales by Auction.

Homerton.

TO GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Fry, to SELL by AUCTION, on the Premises, Homerton Nursery, Homerton, within three minutes' walk of the Hackney Station on the North London Railway, on WEDNESDAY, Sept. 30, without reserve, the ground being immediately required for building purposes, the whole of the valuable GREENHOUSE PLANTS, consisting of about 4000 fine Azalea indica, and 500 Double Camellias, of various sizes, including fine specimens adapted for cut blooms, all well furnished with flower buds; 1000 Myrtles, 2500 Diosmas, 600 Acacias, fine Standard Fuchsias, Cytisus, Ericas, 3000 Show, Fancy, and French Pelargoniums, Scarlet and Variegated Geraniums, &c. Sundry Nursery Stock, together with a nearly new half circular Iron Roof Stow House, Eleven Greenhouses, several Pits, One, Two, and Three-light Boxes, quantity of Lights, 3 and 4-inch Hot-water Piping, Boilers, Garden Pots, nest Seed Drawers, Counter, and Sundry Effects.
May be viewed prior to the Sale. Catalogues (when ready) may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Bingley Hall, Birmingham.

IMPORTANT SALE OF SHEEP.

MR. JOHN B. LYTHALL is honoured with instructions to SELL by AUCTION, on THURSDAY, Sept. 10, in Bingley Hall, Broad Street, Birmingham—
100 Superior SHROPSHIRE SHEARLING and older RAMS, and about
500 Beautiful young SHROPSHIRE BREEDING EWES.
The above will include several Prize and other Animals at the Royal Agricultural Society and other Exhibitions, and the following Flocks will be represented, viz., those of:—

The Right Hon. Lady Willoughby de Broke	Mr. Coleman
Henry J. Sheldon, Esq.	Mr. Farncombe
P. F. Hussey, Esq.	Mr. W. Glover
Dr. Bell Fletcher	Mr. E. Lythall
Mrs. Baker	Mr. May
Mrs. Goodall	Mr. Joseph Smith
Mr. M. Baker	Mr. John Stubbs
Mr. S. Byrd	Mr. T. B. Wright
	Mr. Yates, &c., &c.

Also about Ten OXFORDSHIRE DOWN SHEARLING RAMS from the celebrated Flock of Mr. G. WALLIS, whose Sheep hav annually won Medals and Prizes wherever exhibited.
Terms and particulars on application.
Luncheon at 11. Sale at 12 prompt.
Auctioneers' Offices, 13, Temple Street; and Bingley Hall, Birmingham.

Notice.

MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER), *begs to announce that he has* BUILT *a spacious* GALLERY *around his present Auction Rooms in King Street, Covent Garden, W.C., which will enable him to hold* SALES *by* AUCTION *of* PLANTS, SEEDS, *and* BULBS *more frequently and extensively than he has hitherto been able to do.*

Terms and full particulars will be forwarded on application.

To Noblemen, Gentlemen, Nurserymen, Florists, Seedsmen, and others.

PERIODICAL SALES by AUCTION of PLANTS, SEEDS, and BULBS.

MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER), begs to announce that he holds SALES by AUCTION EVERY WEEK throughout the year, at his Great Rooms, 38, King Street, Covent Garden, W.C., and elsewhere, for the disposal of Orchids, Ferns, Camellias, Azaleas and other Stove, Greenhouse, Fine-foliaged and Variegated Plants, Conifers, Roses, Rhododendrons, Ornamental Evergreens, and deciduous Trees and Shrubs, Fruit Trees, Bedding Plants, Seeds, Dutch and Cape Bulbs, &c.

Small Consignments are received and inserted in Sales with property of a kindred description, thus giving the same advantages to the owner of a few Lots as to the Possessor of large Collections.

Mr. STEVENS begs to notify that the Sales are advertised in the *Times, Express, Standard, Daily Telegraph, Daily News, Gardeners' Chronicle, Cottage Gardener*, and other Weekly and Daily Papers; and the extensive circulation of his Catalogues in all parts of the country and on the continent, constitute advantages that cannot fail to ensure a beneficial result in any business with which he may be honoured. Nurserymen, Seedsmen, and Gentlemen will find these Sales a convenient medium for disposing of their surplus Stock, and as the Plants for Sale are generally well selected and well grown, Purchasers and Vendors may both rely upon having justice done them. Mr. S. will be happy to execute Commissions for gentlemen living at a distance who are unable themselves to attend.

Importations of Plants and Seeds for Sale by Public Auction received from Mexico, California, Vancouver's Island, South America, Japan, Singapore, Manilla, China, New Zealand, Sydney, Melbourne, East and West Indies, Belgium, France, Holland, and other parts of the world.

Collections Catalogued and Valued for the Probate of Legacy Duty, or for Public or Private Sale; Valuations made of Horticultural Buildings, &c.

Catalogues will be forwarded on receipt of a stamped envelope by Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, W.C.

A Collection of Greenhouse Plants, the Property of a Gentleman.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, Sept. 19, 250 CHOICE GREENHOUSE PLANTS, in fine health, consisting of Epacris, Ericas, Azaleas, Camellias, Acacias, Genistas, Diosmas, Orange Trees, Hoyas, Bignonias, and other Greenhouse Plants. The whole for absolute sale without reserve.

On view the Morning of Sale, and Catalogues had.

Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, September 19, at half-past 12 o'Clock precisely, without reserve, a fine assortment of DOUBLE and SINGLE HYACINTHS, Tulips, Crocuses, Jonquils, Narcissus, Iris, Ranunculus, Allium Mollii, and other Dutch Bulbs, comprising all the newest and best varieties.

On view the Morning of Sale, and Catalogues had.

Consignment of Dutch Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, September 26, at half-past 12 o'Clock precisely, SIX CASES of HYACINTHS, TULIPS, CROCUSES, and other Choice Bulbs, both Double and Single, of the newest and best varieties.

On view the Morning of Sale, and Catalogues had.

Bagshot, Surrey.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS ENGAGED IN ORNAMENTAL PLANTING.

MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER), 38, King Street, Covent Garden, W.C., begs to announce that he has been favoured with instructions from Mr. Standish, in consequence of removal to Ascot, to SELL by AUCTION, on the Premises, Bagshot, Surrey, 2½ miles from the Sunningdale Station on the London and South-Western Railway, on MONDAY, Oct. 12, and several following days, at half-past 12 o'Clock precisely each day, without the least reserve, a Valuable Collection of HARDY CONIFEROUS and other PLANTS, comprising:—

Araucaria imbricata, 2 to 4 ft.
Abies Albertii, 2½ to 4 ft.
,, Douglasii taxifolia, 3 to 5 feet
,, Menziesii, 4 to 6 ft.
Cedrus atlantica, 2 to 5 ft.
,, Deodara, 3 to 7 ft
Chamæcyparis sphæroidea, 2 to 3 ft.
Cryptomeria japonica, 3 to 6 ft.
Cupressus Lawsoniana, 2 to 4 ft.
Cephalotaxus Fortuni, 2 to 4 ft.
,, Drupacea, 2 to 3 ft.
Libocedrus chinensis, 2 to 3 ft.
Taxus fastigiata, 3 to 7 ft.
Taxus dovastoni, 3 to 4 ft.
Pinus Benthamiana, 4 to 7 ft.
,, excelsa, 2 to 3 ft.
,, tuberculata, 1 to 2 ft.
,, Wincesteriana, 1 foot
,, Hartwigi, 1 ft.
,, Sabiniana, 1 to 2 ft.
Picea grandis. 1 to 2 ft.
,, amabilis, 1 to 2 ft.
,, Pinsapo, 2 to 3 ft.
,, Nordmanniana, 1½ to 4 ft.
,, nobilis, 1 to 3 ft.
Thuia gigantea, 1 to 2 ft.
Wellingtonia gigantea, 2 to 4 ft.
&c., &c., &c.

The whole having been transplanted within the last twelvemonth, are in a fine state for removal, and are lotted to suit Private Buyers and the Trade. Also various first-class EVERGREENS and DECIDUOUS TREES and SHRUBS, including 200 Skinnera japonica, 500 Variegated and Green Hollies, 1000 Portugal and Common Laurels, 600 Standard and other named Rhododendrons, 300 Kalmia latifolia, 1000 Standard Dwarf and Pot Roses, Standard and Pyramidal Apple and Pear Trees, Camellias, hardy Azaleas, &c., all of which are in the finest possible health, and for Sale without the least reserve.

On view the week prior and mornings of Sale. Catalogues had at Mr. STANDISH'S Nurseries, Bagshot and Ascot; and of Mr. J. C. STEVENS, at his Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Approved Bills at three months taken of purchasers above 50*l*. A Van will meet the train starting from Waterloo at 10 25 and 10 50, arriving at Sunningdale Station at 12 o'clock to convey parties to the Sale. Refreshments will be provided on the ground for the buyers at the Sale.

NOTE.—On WEDNESDAY and THURSDAY, October 21 and 22, and on TUESDAY and WEDNESDAY, October 27 and 28, will be sold by AUCTION, by Mr. J. C. STEVENS, at his Great Rooms, 38, King Street, Covent Garden, W.C., a portion of Mr. Robert Fortune's recent INTRODUCTIONS from JAPAN, and the whole of his CHINESE PLANTS. They will be on view at Mr. STANDISH'S Nursery at Bagshot, during the sale of his Nursery stock.

Important Notice of Forthcoming Sales by Auction in the Autumn.

MR. J. C. STEVENS begs to announce that he will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on

Friday, Sept. 11—Valuable Jewellery in Pins, Lockets, Chains, Watches, &c.; Photographic Lenses, Cameras, and other Apparatus, &c.
Tuesday, ,, 15—A Choice Assortment of Poultry, Pigeons, Rabbits, and Fancy Birds.
Friday, ,, 18—Philosophical Instruments, Books, Prints, Pictures, and other items.
Saturday, ,, 19—A collection of Greenhouse Plants, the property of a gentleman, and an assortment of Dutch Bulbs, consisting of Hyacinths, Crocuses, Tulips, &c.
Friday, ,, 25—A miscellaneous assemblage comprising Natural History, Specimens, and other scientific property.
Saturday, ,, 26—A consignment of Dutch Bulbs from Holland
Tuesday, ,, 29—Photographic Apparatus, Philosophical Instruments, &c.
Thursday, Oct. 1—First portion of the stock of 20,000 Wellingtonia gigantea, and other Conifers, in pots, to be sold on the Premises at Edmonton
Friday, ,, 2—Second portion of the Stock to be sold at Edmonton.
Saturday, ,, 3—An importation of Hyacinths and other Bulbs from Holland.
Tuesday, ,, 6—250 lots of Choice Poultry, Pigeons, and Rabbits
Friday, ,, 9—A collection of Miscellaneous Articles.
Saturday, ,, 10—A collection of Dutch Bulbs.
Monday, ,, 12—Great Sale of Plants at Mr. Standish's Nursery, Bagshot; first day's Sale.
Tuesday, ,, 13—Second day's Sale of Plants at Bagshot, Surrey
Tuesday, ,, 13—Library of Medical Books of a deceased Surgeon.
Wednesday, ,, 14—Third day's Sale of Plants at Bagshot.
Thursday, ,, 15—Fourth day's Sale of Plants at Bagshot.
Friday, ,, 16—Philosophical Instruments, Books, Prints, Pictures, &c.
Saturday, ,, 17—A consignment of Bulbs from Holland.
Tuesday, ,, 20—250 lots of Poultry, Pigeons, and Ornamental Birds.
Wednesday, ,, 21—A selection of rare Plants, being a portion of Mr. Fortune's, recent introductions from Japan.
Thursday, ,, 22—Second day's Sale of Mr. R. Fortune's Japanese Plants.
Friday, ,, 23—A Miscellaneous Scientific Instrument Sale.
Saturday, ,, 24—A further consignment of Dutch Bulbs.
Tuesday, ,, 27—The whole of Mr. Robert Fortune's recent recent Chinese introductions, and a part from Japan.
Wednesday ,, 28—Second day's Sale of Chinese and Japanese Plants.
Friday, ,, 30—An assortment of Photographic Apparatus, Chemicals, &c.
Saturday, ,, 31—A collection of Miscellaneous Plants, Roses, &c.
Tuesday, Nov. 3—Sale of Poultry, Pigeons, and Rabbits.
Friday, ,, 6—Valuable Philosophical Instruments, &c.
Saturday, ,, 7—A collection of Rare and Valuable Plants.

Also the following, the DAYS of SALE of which will shortly be announced:—

The Library of a Medical Professor giving up Lecturing, including Diagrams, &c.
An expensive Set of Phantasmagoria Lanterns and Slides, the property of a nobleman.
A valuable Collection of Turquoises from Arabia Petrea.
An importation of Impeyan, Argus, and other Pheasant Skins from the Himalaya Mountains.
500 lbs. of clean Seed of Cedrus Deodara from India.
A Portion of the Natural History and Botanical Collections of the Linnean Society of London, sold by order of the Council, and confirmed by a General Meeting of the Society.
12,000 Standard and other Roses, the property of a gentleman.
Several Importations of Orchids from India, Brazils, and other parts.
A consignment of Camellias and Azaleas from Ghent.
A valuable Collection of Photographic Cameras and Lenses, the property of an officer.
A Collection of Bird Skins and Eggs from Lapland.
A fine Collection of Tree Ferns and other Plants from New Zealand.
The Stock of a Large Manufacturing Optician deceased.
A consignment of Hardy Plants from Holland.
A Collection of Coniferous Seeds from California.
An interesting Collection of Bones of rare Birds and Animals, including the Moa from New Zealand and the Gorilla from Africa.
A consignment of First-class Fruit Trees from one of the largest growers in England.
A Collection of Valuable Equatorial and Transit Instruments, the property of a Gentleman.

Catalogues of any of the above Sales will be forwarded on receipt of two stamps.

Great Sale of Wellingtonia gigantea and other Choice Conifers at Edmonton.

MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER), 38, King Street, Covent Garden, W.C., begs to announce that he has been favoured with instructions to SELL by AUCTION, without reserve, on the Premises opposite the Golden Fleece, Edmonton, London, N., on THURSDAY and FRIDAY, October 1 and 2, at half-past 12 o'clock precisely each day, the finest Stock of SEEDLING WELLINGTONIAS in the kingdom, consisting of about 20,000 plants of various sizes, from 9 inches to 4 feet, chiefly in pots, and in the most robust health. Also a fine assortment of choice CONIFERS, in pots, comprising 20,000 Cupressus Lawsoniana, 2000 Araucaria imbricata, 600 Picea Nordmanniana, and a large number of others, including Pinus ponderosa, P. Sabiniana, P. Lambertiana, Pinus insignis, P. Don Pedri, Cupressus macrocarpa, &c. The whole of these plants are in prime condition for autumn planting, and are well deserving the attention of the Nobility, Gentry, and the Trade, being lotted to suit all buyers.

On view for several days previous to Sale, and Catalogues had on the Premises, and of Mr. J. C. STEVENS, at his Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Omnibuses run every half hour from the Flower Pot, Bishopsgate Street, E.C. There are also frequent trains from the Shoreditch Station on the Great Eastern Railway, and the one that leaves the Shoreditch Station at 12 noon arrives at Edmonton at half-past 12, just in time for the Sale.

To the Trade.

HIGHLY IMPORTANT SALE OF JAPANESE PLANTS.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, London, W.C., on WEDNESDAY and THURSDAY, October 21 and 22, at half-past 12 o'Clock precisely each day, without reserve, a PORTION of Mr. Robert Fortune's recent JAPANESE INTRODUCTIONS, removed from Mr. Standish's Nursery, Bagshot; comprising the following new and interesting Plants.

100 Thujopsis dolabrata variegata, 6 inches.
100 Euonymus radicans foliis variegatis, 6 inches.
150 Euonymus japonica variegata, 1 to 2 feet.
100 Juniperus chinensis variegata.
50 Retinispora pisifera aurea, 6 inches.
30 Corylopsis spicata, 6 to 9 inches.
50 Osmanthus ilicifolius, 9 inches.
150 Osmanthus ilicifolius variegatus nanus, 9 inches.
400 Lonicera aureo-reticulata, 1 to 2 feet.
50 Raphiolepis ovata (Photinia), 1 to 2 feet.
200 Thuja (Biota) falcata.
200 Iris lævigata.
250 Sciadopitys verticillata, 6 inches.
100 Microlepia scabra, 1 foot.
500 Lastrea opaca, 1 foot.
100 Ilex Fortunei, 1 foot.
500 Pinus densiflora.
50 Eurya latifolia variegata, 6 inches.
300 Retinispora obtusa, 6 inches to 1 foot.
200 Retinispora pisifera, 1½ feet.
400 Japanese Chrysanthemums.
50 Taxus Fortuni.

Also the following:—

50 Dracæna Banksii, 2 to 3 feet.
150 Desfontainea spinosa, 1½ feet.
50 Cyathea dealbata.
300 Rhododendron Nuttalli, 1 to 2 feet, &c.

The whole for absolute sale, and in the finest possible health.

On View on the Premises, Bagshot, Surrey, during the Sale of Mr. Standish's Nursery Stock, also on the days of Sale at Mr. J. C. STEVENS's Auction Rooms and Offices, 38, King Street, Covent Garden, W.C., where Catalogues can be obtained, by forwarding two postage stamps.

Mr. Robert Fortune's Chinese Plants for Absolute Sale.

EXTENSIVE SALE OF RARE AND VALUABLE INTRODUCTIONS FROM CHINA.

MR. J. C. STEVENS has much pleasure in announcing that he has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY and WEDNESDAY, October 27 and 28, at half-past 12 o'Clock precisely, without the least reserve, in consequence of the agreement which existed between Messrs. Standish and Fortune with regard to the Chinese Plants having terminated, the most important COLLECTION of RARE and VALUABLE PLANTS ever offered for public sale, including the whole of Mr. Robert Fortune's RECENT INTRODUCTIONS from CHINA, and a part from JAPAN, including—

3000 Torreya grandis, 4 to 10 inches
150 Abies Kæmpferi, 2 to 4 feet
2000 Chamærops Fortunei
50 Pinus Bungeana
1000 Pinus sp. (nova) Pekin (Tabulæformis), 4 to 6 inches
25 Bambusa variegata
500 Thuja sp. (Pekin)
500 Lastrea opaca
400 Lonicera aureo-reticulata
200 Iris lævigata
200 Retinispora obtusa
200 Retinispora pisifera, &c., &c.

The whole of these Plants are in the finest possible health and are lotted to suit all buyers, and are well worthy the attention of the Nobility, Gentry, and Trade.

On view at Mr. STANDISH'S Nursery, Bagshot, during the Sale of his Nursery Stock, and on the days of Sale at Mr. J. C. STEVENS'S Auction Rooms and Offices, 38, King Street, Covent Garden, London, W.C., where Catalogues and full particulars can be obtained.

Periodical Sales of Poultry, Pigeons, Rabbits, and Fancy and Ornamental Birds.

SEASON 1863 AND 1864.

MR. J. C. STEVENS has much pleasure in announcing that the SALES by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., of FANCY POULTRY, PIGEONS, RABBITS, and LIVE BIRDS, will be continued on the FIRST and THIRD TUESDAY in every month during the Winter and Spring season, and on the THIRD TUESDAY in each month during the Summer and Autumn season, with occasional Extra Sales at intervals. Parties desirous of having Birds included in the Catalogue, are requested to make their entries at least Three Weeks prior to each Sale, but in order to ensure correct description in the Catalogue, the List need not be sent till Eight Days before the Sale.

The DAYS of SALE are

TUESDAY, Sept 15, 1863.	TUESDAY, March 1, 1864.
,, Oct. 6, ,,	,, ,, 15, ,,
,, ,, 20, ,,	,, April 5, ,,
,, Nov. 3, ,,	,, ,, 19, ,,
,, ,, 17, ,,	,, May 3, ,,
,, Dec. 1, ,,	,, ,, 17, ,,
,, ,, 15, ,,	,, June 7, ,,
,, Jan. 5, 1864.	,, ,, 21, ,,
,, ,, 19, ,,	,, July 19, ,,
,, Feb. 2, ,,	,, Aug. 16, ,,
,, ,, 16, ,,	,, Sept. 20, ,,

In consequence of numerous complaints having been made of the wrong description of the Birds sent for Sale, Mr. STEVENS will feel greatly obliged if the owners would be particularly careful in describing the Birds as accurately as possible.

The Birds are on View the Mornings of Sale, from half-past 10 to 12 o'Clock, at which hour the Sale commences.

Marked Catalogues, with Post-office Orders or Cheques, sent on the Saturday after the Sale.

Catalogues will be forwarded on receipt of a Stamped directed Envelope, by Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Periodical Sale of Poultry, Pigeons, Rabbits, Fancy and Ornamental Birds, Dogs, &c.

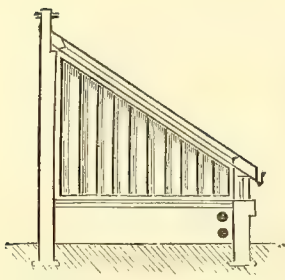
MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 15, at 12 o'clock precisely, a choice assortment of POULTRY, consisting of Cochins, Hamburghs, Game, Dorkings, Spanish, Bantams, Aylesbury and Black velvet Ducks, Canadian Geese, &c. Also some good PIGEONS and a few DOGS from well known breeders and exhibitors.

Entries for this Sale should be sent at once.

On view the Morning of Sale, and Catalogues had.

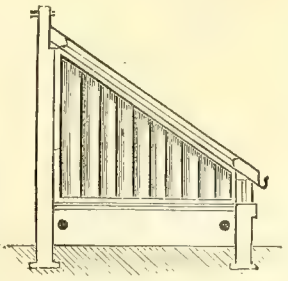
J. JONES'S HOT-WATER APPARATUS.

No. 7.



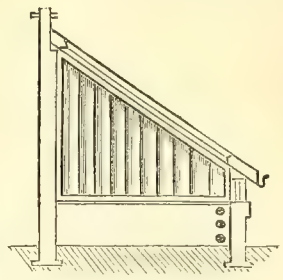
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20 by 10 feet	£9 0 0
30 „ 12 „	12 0 0
40 „ 15 „	15 0 0
50 „ 15 „	18 0 0
60 „ 15 „	20 0 0
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80 „ 15 „	24 0 0
100 „ 15 „	26 0 0

No. 8.



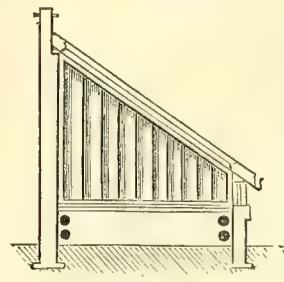
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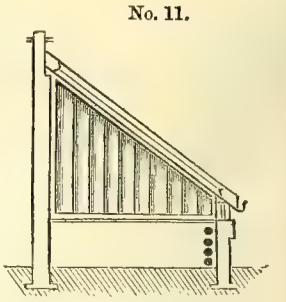
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No. 10.



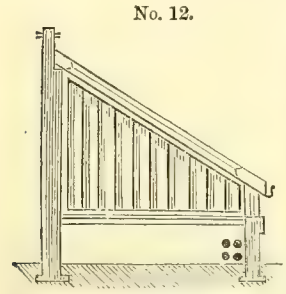
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No. 11.



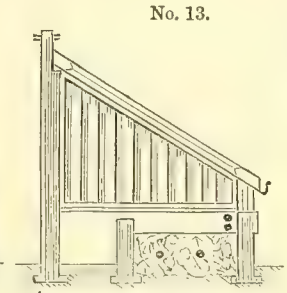
Price
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21 0 0
25 0 0
29 0 0
33 0 0
37 0 0
41 0 0
45 0 0

No. 12.



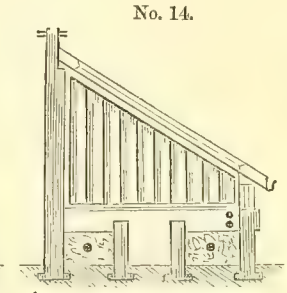
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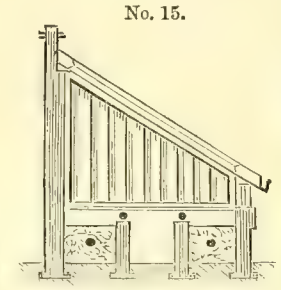
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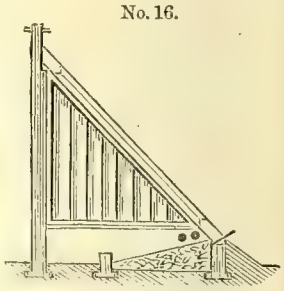
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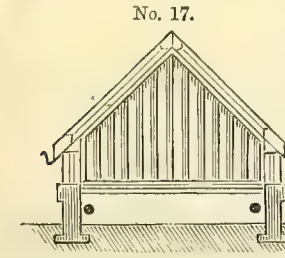
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No. 16.



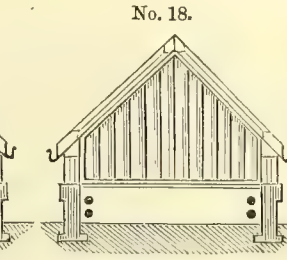
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No. 17.



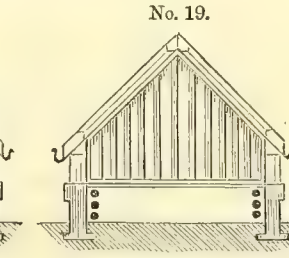
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40 „ 15 „	15 0 0
50 „ 15 „	18 0 0
60 „ 15 „	20 0 0
70 „ 15 „	22 0 0
80 „ 15 „	24 0 0
100 „ 15 „	26 0 0

No. 18.



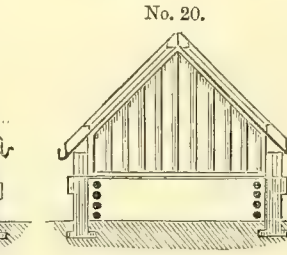
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32 0 0
36 0 0
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44 0 0

No. 19.



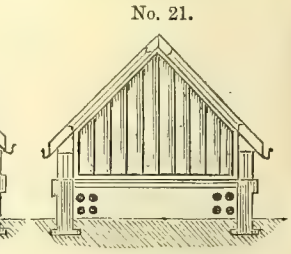
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34 0 0
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49 0 0
54 0 0

No. 20.



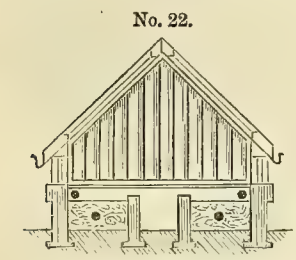
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42 10 0
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63 0 0
70 0 0

No. 21.



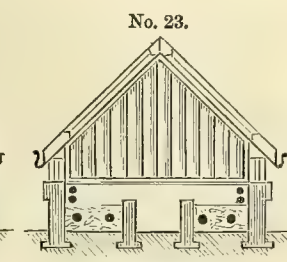
Price
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49 0 0
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70 0 0

No. 22.



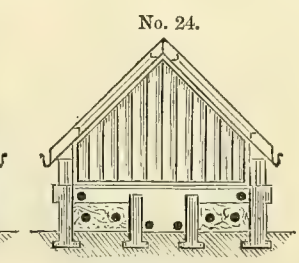
Size of House.	Price
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30 „ 12 „	21 0 0
40 „ 15 „	25 0 0
50 „ 15 „	29 0 0
60 „ 15 „	33 0 0
70 „ 15 „	37 0 0
80 „ 15 „	41 0 0
100 „ 15 „	45 0 0

No. 23.



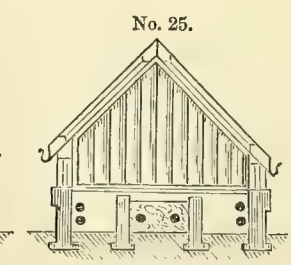
Price
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38 10 0
44 10 0
51 10 0
58 0 0
65 0 0
72 0 0

No. 24.



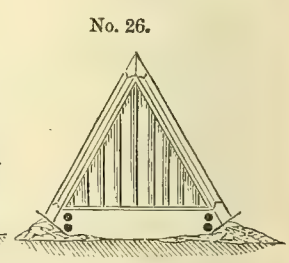
Price
£25 0 0
32 0 0
38 10 0
44 10 0
51 10 0
58 0 0
65 0 0
72 0 0

No. 25.



Price
£18 10 0
25 0 0
30 0 0
35 0 0
40 0 0
45 0 0
50 0 0
55 0 0

No. 26.



Price
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

J. JONES will be happy to supply HOT-WATER APPARATUS for HOUSES according to any of the above Plans, delivered Free to any Station in England at the prices named, which include strong CAST-IRON CYLINDER or SADDLE BOILER, FURNACE DOORS, FIRE BARS, SOOT DOORS, CISTERN and DAMPER, 4-inch HOT-WATER PIPES and CONNECTIONS, all of the best quality; or he will forward ESTIMATES for WORK erected complete, with WROUGHT or CAST-IRON BOILER of any sort, at a small addition to the above prices.

☞ *The Black Circles on Sections of Houses show the arrangement of Pipes.*

Illustrated Catalogues and further particulars post free on application to

J. JONES, IRON MERCHANT AND HORTICULTURAL ENGINEER, 6, BANKSIDE, LONDON, S.E.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 37.—1863.] SATURDAY, SEPTEMBER 12. {Price Fivepence. {Stamped Edition, 6d.

INDEX.

Agricultural difficulties	876 c	Oilcake	879 a
America, harvest in	879 b	Orchard-house Peaches	868 b
American horse works	878 a	Peaches, orchard-house	868 b
Anagallis tenella	868 a	Pelargoniums, variegated	872 c
Bark trees for India	868 a	Plant cases	867 a
Books noticed	871 a	Ram sales	878 b
Bowenia spectabilis	867 b	Rhododendrons	868 a
British Association	869 a	Roses	869 c
Cinchona	869 b	Seaweed, new British	868 a
Fish and Fishing	868 a	Sewage, utilisation of	877 c
Flax, statistics of	879 b	Society, Royal Horticultural	869 c
Fucus furcatus	868 a	— Keighley	878 a
Gladioli, seedling	872 c	Strawberry, Triomphe de Hollande	869 c
Glaux maritima	868 a	Students, agricultural	874 c
Grub, Jamieson's Lecture on	875 a	Swiss Scientific Congress	871 c
Grubs	874 a	Vine growing	869 b
Harvest in Egypt	879 b	Vine mildew	872 a
Hollyhocks, Mr. Chater's	871 b	Wardian cases	867 a
Honkeneja peploides	868 a	Wheat, four varieties of	876 a
Hyacinth glasses	872 c	Weather, Hints for Farmers on the	877 b
Irish agriculture	878 a	Weather, the	873 c
Ivy	869 c		
Mildew, Vine	872 a		
Oak, new	872 a		

☞ NOTICE TO ADVERTISERS. — *Advertisements must reach the Office by* THURSDAY'S *post. They should be written on one side of the paper only.*

AMALGAMATED METROPOLITAN CHRYSANTHEMUM SOCIETY, for Nurserymen, Gentlemen's Gardeners, and Amateurs.

FIRST GREAT EXHIBITION, Agricultural Hall, Islington, WEDNESDAY, THURSDAY, and FRIDAY, November 11, 12, and 13.

260*l.* in General Prizes, and Reserve Fund for Special Prizes, as awarded by the Judges, open to all England.

Rules, Schedules, &c, to be obtained of the Honorary Secretary by enclosing two postage stamps.

The last day for the enrolment of Members will be October 12. J. JEFFERIES, Hon. Sec.

10, Catherine Street, Barnsbury Park, Islington, N.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.—The TENTH ANNUAL AUTUMN SHOW will be held on WEDNESDAY and THURSDAY, September 16 and 17, at the Royal Pavilion and Grounds, on the same grand scale as on former years, and the usual amount offered in prizes. The Railway Cup, value 10*l.*, is offered for 50 varieties of Roses in bunches of three trusses, as the 1st prize; 2d, 5*l.*; 3d, 3*l.*

Schedule of Prizes to be had on application to the Secretary, 96, St James Street, or of E. SPARY, Superintendent of the Exhibition, Queen's Graperies.

By order of the Committee, EDWARD CARPENTER, Sec.

Brighton.—Sept. 12.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, now ready for Planting. Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.

Highgate Nurseries, London, N.

VINES.—Fine strong Canes in peck Pots for Fruiting, 5*s.* each. Strong Planting Vines, 3*s.* 6*d.* each.

J. R. & A. PEARSON, Chilwell Nurseries, Nottingham.

PINE PLANTS.—Very fine QUEEN PINE PLANTS, in all sizes, warranted from a stock that never had scale.

Apply to M. ROCHFORD, Market Gardener, Page Green, Tottenham, N.

Pine Plants and Vines.

T. PAPE can supply PROVIDENCE and MONTSERRAT PLANTS all sizes. Also strong VINES for Fruiting in Pots or Planting out.

Undercliffe Gardens, Bradford, Yorkshire.

Picea nobilis.

WILLIAM BARRON can supply strong and remarkably well rooted SEEDLING PLANTS of the above in store pots. Per doz., 10*s.*; per 100, 3*l.* 10*s.*

Elvaston Nurseries, near Derby.

Picea nobilis Seedlings.

JOHN PERKINS has a large quantity of the above to offer. Price on application.

52, Market Square, Northampton.

Cineraria, Calceolaria, and Primula.

E. G. HENDERSON AND SON offer first-class Seed of the above. 1*s.* and 2*s.* 6*d.* per packet.

Wellington Nursery, St. John's Wood, London, N.W.

CHOICE SEEDS for AUTUMN SOWING.—CALCEOLARIA, CINERARIA, and PRIMULA, from the finest strains in cultivation, each 2*s.* 6*d.* per packet.

JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

To the Trade.

DOBSON'S UNEQUALLED FIRST-CLASS SEEDS of CALCEOLARIA, CINERARIA, & PRIMULA supplied to the Trade in packets. Price on application.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

New Pelargoniums.

J. DOBSON AND SON'S NEW DESCRIPTIVE CATALOGUE is now ready, and contains several Novelties offered for the first time; also some splendid New CINERARIAS, post free on application.

Woodlands Nursery, Isleworth, W.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech. SPECIAL PRICED LIST of NEW SEEDS on application.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH, SEED MERCHANTS, Covent Garden Market, London, W.C.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

WILLIAM BARRON'S PRICED CATALOGUE is now ready, and may be had post-free on application. Elvaston Nurseries, near Derby.

ALOCASIA MACRORHIZA VARIEGATA.—Good plants, 10*s.* 6*d.* each.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

Hyacinths, Tulips, Crocuses, &c.

BUTLER AND McCULLOCH'S importation of DUTCH BULBS are unusually fine this season. CATALOGUES Post free upon application.

BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Fresh Imported Dutch Bulbs.

SUTTON AND SONS have just received from Haarlem one of the most Extensive and Rare Collections of BULBOUS FLOWER ROOTS ever imported into this country. Prices very moderate, as see LIST, which may be had post free.

Royal Berkshire Seed Establishment, Reading.

J. C. PADMAN'S SELECT LIST of DUTCH BULBS, HARDY FERNS, NEW (1863) and other ROSES, is now ready, and may be had on application to Providence Nursery, Boston Spa, near Tadcaster.

Imported Dutch Bulbs.

JAMES CARTER AND CO.'S CATALOGUE of BULBS, with Cultural Directions, forwarded free of charge, on application to 237, 238, High Holborn, London, W.C.

IMPORTED DUTCH BULBS.—First-class Dutch Bulbs of every description just imported.

JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

LARGE IMPORTATION of DUTCH BULBS.—CATALOGUES (gratis) on application to WM. BARRATT, St. John's and Newton Moor Nurseries, Wakefield.

Dutch Bulbs.

S. PONSFORD begs to announce the arrival of his annual importation of the above. HYACINTHS, TULIPS and CROCUSES are unusually fine.

PRICED CATALOGUES gratis.

Loughborough Park Nurseries, Brixton, Surrey, S.

A Large Importation of Dutch Bulbs.

Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.

Bulbs sent carriage free, excepting very small parcels.

WM. WOOD AND SON have received a large consignment of the above, and will be happy to receive orders for the same. The Bulbs are in first-rate condition, and true to name.

THE FINEST NAMED HYACINTHS FOR GLASSES OR POTS.

6*s.*, 7*s.* 6*d.*, 10*s.*, 12*s.*, and 15*s.* per dozen.

Forwarded immediately on application to HOOPER & Co., Seedsmen, Covent Garden Market, London, W.C. NEW DESCRIPTIVE CATALOGUE, just published, sent Post free.

Hyacinths, Crocuses, Tulips, Narcissus, &c.

JAMES FAIRHEAD AND SON beg to announce the arrival of their DUTCH BULBS in splendid condition, and unusually fine. CATALOGUES post free on application.

N.B. GUERNSEY and BELLA DONNA LILIES on offer.

A large quantity of MUSHROOM SPAWN of superior quality, 2*s.* 6*d.* per bushel.

7, Borough Market, London, S.E.

To the Trade.—Iris reticulata (true).

T. HANDASYDE, Glen Nurseries, Musselburgh, N.B., begs to offer fine flowering BULBS of the above beautiful hardy Spring-flowering IRIS.

Prices on application.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.

Dorking Nursery.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Paul's Nurseries, Waltham Cross, N,

WM. PAUL'S ROSES are still in FINE BLOOM. Entrance from the Platform, Waltham Station (G. E. Ry.) Half an hour's ride from London.

New Roses of 1863.

E. G. HENDERSON AND SON offer the most select kinds. The Trade supplied.

Wellington Nursery, St. John's Wood, London, N.W.

New Roses for 1863.

WM. WOOD AND SON are now supplying all the NEW ROSES in splendid Plants at reasonable prices. The leading kinds of PERPETUAL and other ROSES in pots are also offered by the dozen, hundred, or thousand.

Address, Woodlands Nursery, Maresfield, Uckfield, Sussex.

New Rose Catalogue for 1863-64.
New Bulb Catalogue for 1863.

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON will be happy to send copies of the above gratis and post free to all applicants.

ROSES, NEW and OLD. CATALOGUES NOW READY.

A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. Those who wish for a fine display of bloom during the autumn and ensuing summer should now give their orders.

CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON).—Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7*s.* 6*d.* each, are now ready.

Old Cheshunt Nurseries, Herts.

GUERNSEY and BELLA DONNA LILIES. Just arrived in fine condition, 5*s.* per dozen.

JAMES CARTER & Co., 237 and 238, High Holborn, W.C.

GUERNSEY and BELLA DONNA LILIES. 5*s.* per dozen.

Orders should at once be given for these beautiful flowers.

BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

GUERNSEY and BELLA DONNA LILIES. 5*s.* per dozen.

BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Yew Trees.

WANTED, this AUTUMN, about 12 dozen of YEW TREES,

Address, stating height of trees and price with carriage paid Rev. EDMUND FOWLE, Vicarage, Shipton, Marlborough.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Woking Nursery, Surrey.

Imported Orchids.

B. S. WILLIAMS has just received a fine importation of the following ORCHIDS:—

LYCASTE SKINNERI | CATTLEYA MOSSIÆ
CATTLEYA SUPERBA |
GALEANDRA DEVONIANA, a choice and rare plant, finest of the genus.

Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Waite's Daniel O'Rourke Peas.

JOHN GEORGE WAITE begs to inform the Trade that he has this year grown a large quantity of the above Peas, and hopes to receive early orders for any that may be required, in order to avoid the disappointment experienced last year.

Price may be had on application to 181, High Holborn, W.C.

New Grass Seeds, growth of 1863.

SUTTON AND SONS have now ready for delivery and for Exportation, NEW SEEDS of some of the most desirable kinds of GRASS SEEDS for present sowing, and others are coming to hand shortly. Prices very moderate, and quality unusually fine.

Royal Berkshire Seed Establishment, Reading.

New Italian Grass Seed.

J. DIXON, SEED FACTOR, Kendal, is offering lots of NEW ITALIAN, for Cash payment.

Kendal.—Sept. 12.

DICKINSON'S NEW ITALIAN RYE-GRASS SEED is now ready for delivery.

Sold only by himself, and for present payment, 48*s.* per quarter, or 7*s.* per bushel.

New Park, Lymington, Hants.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Seed Wheat.

MR. S. A. DAINTREE, of Fendrayton, St. Ives, Hunts, has for SALE selected and true stocks of GOLDEN DROP, BROWICK RED, HALLETT'S, and other varieties, at very moderate rates.

Terms on application as above.

Adiantum radiatum (true).



MR. WILLIAM BULL can now supply good Plants of this extremely rare and exquisite FERN, at 10*s.* 6*d.* each.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

RHODODENDRON COUNTESS of HADDINGTON. Good plants, 21*s.* each.

VINE TYNNINGHAME MUSCAT. Good plants, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each.

ROBERT PARKER begs to announce that he is now offering for sale the above first-class Plants. Full descriptions with List of Awards received are published in his NEW CATALOGUE of PLANTS and BULBS, which will be forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes.

Sunningdale Nursery, S.W. Rail.

DOBSON'S FIRST-CLASS SEEDS FOR PRESENT SOWING.

CALCEOLARIA, the finest strain in the kingdom, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d*, and 5*s.*
CINERARIA, unequalled for quality, 1*s.*, 2*s.* 6*d.*, and 5*s.*
PRIMULA, superb Fimbriated, 1*s.*, 2*s.* 6*d.*, and 5*s.*
INTERMEDIATE STOCK, fine, 6*d.* and 1*s.*

Special prices to the Trade on application.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

New Roses of 1863.

JOHN KEYNES, Castle Street Nursery, Salisbury, can supply some thousands of the above, well-established Plants in pots, comprising the very best varieties of the NEW ROSES of 1863, at 30*s.* per dozen. The usual discount to the Trade. To amateurs such plants are invaluable; they can be planted at once and will produce fine bloom next season, as time will be given them to draw fresh root.

CATALOGUES, with full description, containing all the leading flowers, both old and new, will be forwarded on application.

JOHN KEYNES' STANDARD and DWARF ROSES for the Autumn are in the finest condition.

The stock of ROSES of 1862, comprising Charles Lefebvre. François Lacharme, &c., both Standards and Dwarfs, cannot be surpassed. Salisbury.—Sept. 12.

Striking Cuttings without Soil.

W. PRESTOE respectfully informs his friends that he intends to commence sending-out his Striking Boxes for Roses, &c., about the 24th inst. They will be supplied in strict rotation as ordered, smallest size 2 feet by 6 inches, 10*s.* each, with printed cultural directions.

Post-office Orders payable to WILLIAM PRESTOE, Basingstoke.

N.B. Improved MUSHROOM SPAWN, five dozen cakes, 5*s.*, with cultural directions.

NEW FORCING GERANIUM, MRS. LEWIS LOYD.—Rich crimson with dark maroon blotch in top petals; of dwarf robust habit, and most profuse bloomer. Forces into flower at any season without drawing. It was exhibited to the Floral Committee of the Royal Horticultural Society on March 31, and then awarded their Certificate of Commendation. Good Plants now ready, 7*s.* 6*d.* each.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

WELLINGTONIA GIGANTEA.—To noblemen and gentlemen wishing to plant an avenue or group of the above, WILLIAM BARRON begs to offer a number of splendid specimens from 6 to 14 feet high, remarkably cheap, all of which can be insured to remove with safe balls.

6, 7 and 8 feet	.. .. ..	3*l.* 3*s.* to 5*l.* 5*s.*
9, 10 and 11 feet	.. .. ..	6 6 to 8 8
12, 13 and 14 feet	.. .. ..	9 9 to 10 10

14 × 12. Stem 4—6 in circumference.

The most handsome plant in the country, remarkably dense. Special price on application.

Elvaston Nurseries, near Derby.

New and Rare Plants.

B. S. WILLIAMS invites inspection of his large and well-assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, amongst which are some very fine specimens.

Now ready, post-free to all applicants.

A NEW GENERAL PLANT CATALOGUE, containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Herbaceous and Alpine Plants, Roses, Hardy Trees and Shrubs, Fruit Trees, &c.

With a DESCRIPTIVE LIST of New, Beautiful, and Rare Plants.

Paradise and Victoria Nurseries, Holloway, London, N.

To Amateurs in Gardening.

MR. MASTERS has a very extensive COLLECTION of HARDY ENGLISH and EXOTIC FERNS, which he is willing to supply at very moderate prices, and also has just received a first-rate importation of DUTCH BULBS.

Mr. M. would also call attention to his choice assortment of the varieties of GERMAN IRIS, which he can now supply in 50 sorts, at 6*s.* per dozen.

A PRICED CATALOGUE of GENERAL NURSERY STOCK may be had upon application.

Exotic Nursery, Canterbury.

AUGUSTE VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to state that his new CATALOGUE of PLANTS is now ready, containing the leading novelties and many very interesting plants.

Can be had on application to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

A. V. G. begs to announce that he is now sending out his new RHODODENDRON AUGUSTE VAN GEERT in good healthy plants, at 7*s.* 6*d.* and 21*s.* each.

SUTTON AND SONS have the honour of announcing the arrival of their DUTCH FLOWER ROOTS from the celebrated grounds of Messrs. De Boom, Byvoet, Veen, and others, of Haarlem. The undermentioned, with many others, can with confidence be recommended:—

COLLECTIONS of HYACINTHS.

Selected by Messrs. SUTTON from choice named varieties.

25 in 25 very choice sorts, by name	..	£1 1 0
12 ,, 12 extra fine	,,	.. 0 12 0
12 ,, 12 choice	,,	.. 0 9 0
12 ,, 12 good	,,	.. 0 6 0

New White Roman Hyacinths, 3*s.* per dozen.

MIXED HYACINTHS FOR BEDS.

	Per 100.	doz.
	s. d.	*s. d.*
Double Red..	.. 21 0	3 0
,, Blue	.. 21 0	3 0
,, White	.. 21 0	3 0
,, Mixed	.. 21 0	3 0
Single Red ..	.. 21 0	3 0
,, Blue ..	.. 21 0	3 0
,, White	.. 21 0	3 0
,, Mixed	.. 21 0	3 0

POLYANTHUS NARCISSUS.

	Per dozen.—*s. d.*
Choice sorts, by name	.. 4 0
Fine mixed	.. 2 0

CROCUS, FOR OPEN GROUND.

1000 in 8 varieties	..	18 0
500 ,, 8 ,,	..	10 0
250 ,, 5 ,,	..	5 6
100 ,, 5 ,,	..	2 3
	per	100.
Cloth of Silver	.. ..	2 6
Cloth of Gold	.. ..	2 0
Large Mixed	.. ..	1 6
Large Blue	.. ..	2 0
Large Purple	.. ..	3 0
Large Striped	.. ..	2 6
Large White	.. ..	2 3
New Large Yellow	..	2 6
Versicolor	.. ..	2 6
Yellow	.. ..	2 0

SNOWDROPS.

Double flowering..	.. 1 9
Single flowering ..	.. 1 9

WINTER ACONITE.

Price 6*d.* per doz.; per 100	3 6

SCILLA PRÆCOX.

10*s.* 6*d.* per 100; or per doz.	1 6

TULIPS. EARLY VARIETIES.

100 in 20 choice varieties		18 0
100 ,, 10 ,,		14 0
50 ,, 10 ,,		7 6
25 ,, 5 ,,		4 0
12 ,, 4 ,,		2 0
	Per 100.	doz.
Double Tournesol	.. 7 0	1 0
,, Due Van Thol	3 6	0 6
Single ,,	5 0	0 9
Mixed Early ..	.. 7 6	1 0
Mixed Double	.. 7 6	1 0
Mixed Parrot	.. —	0 9
Finest Mixed Late	..12 6	1 6

LILIES. per doz.

Bella Donna	.. .. 6 0
Guernsey ..	.. .. 6 0
Martagon (scarlet)	.. 6 0
,, (mixed)	.. 5 0

LILIUM LANCIFOLIUM. *s. d.*

Album	.. .. .. 1 0
Roseum	.. .. .. 2 6
Rubrum	.. .. .. 2 6
Speciosum	.. .. .. 3 6

MISCELLANEOUS BULBS.

Agapanthus umbellatus,	each 1 0
Alstrœmeria, by name ,,	1 0
,, mixed, per doz.	6 0
Colchicum, single ,,	1 6
,, double ,,	2 6
Cyclamen Persicum	each 1 0
,, Coum ,,	1 0
Dog's Tooth Violets, white	per doz. 2 6
,, ,, red ,,	1 6
Feathered Hyacinths ,,	1 6
Grape do. ,,	1 6
Musk Hyacinths ,,	5 0
Fritillarias, mixed ,,	2 6
Lachenalia tricolor ,,	4 0
Tropæolum tricolorum,	each 2*s.* to 3 6
,, Jarrattii ,,	2*s.* to 3 6
,, pentaphyllum	each 1 6
Vallotta purpurea ,,	2 0

SUNDRIES.

HYACINTH GLASSES. each

Tye's in Plain Glass	9*d.* to 1 0
,, Gilt ..	.. 2 6
,, Plain Opal	.. 2 0
,, Gilt ..	.. 3 6
Com. Upright Plain Glass	0 6

CROCUS GLASSES.

Tye's Registered Plain Gl.	0 6
,, ,, Gilt Glass	1 3
,, ,, Plain Opal	0 9
,, ,, Gilt ,,	1 6
Com. Upright Plain Glass	0 4
Hyacinth Supports ..	0 6
Crocus Supports ..	.. 0 2

FEATHER GRASS. per bunch

White ..	.. .. 0 6
Various colours, dyed	.. 0 9

Shaw's Tiffany.
Gisburst Compound.
Netting for Fruit Trees.
Saynor's Pruning Knives.
Saynor's Budding Knives.
Parmenter's Preparation.
Appleby's Tobacco Paper.
Largest Garden Mats, cheap.
Wall Nails and Shreds.
Wolff's Permanent Pencil, 3*d.* each.
Wolff's Permanent Pencil, extra thick, 6*d.* each.
Neal's Aphis Pastils.
Cuba Bast for Tying.

The NEW CATALOGUE will shortly be ready, and may be had gratis on application.

Royal Berks Seed Establishment, Reading.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select, Descriptive, and Priced Lists of Exotic Orchids, New and Rare Greenhouse, Hardy, and Stove Plants, Ornamental and Variegated foliaged Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, Narcissus, and other Bulbs, is now published and will be forwarded to all applicants.

Exotic Nursery, Tooting, Surrey, S.

HYACINTHS and other DUTCH BULBS.

THE FIRST PRIZE FOR A COLLECTION OF HYACINTHS,
THE FIRST PRIZE FOR 18 HYACINTHS,
THE FIRST PRIZE FOR 6 NEW HYACINTHS,

Being all the FIRST PRIZES offered to Nurserymen at the Royal Horticultural Society's HYACINTH SHOW on March 18, were awarded to WILLIAM PAUL, Paul's Nurseries, Waltham Cross, N.

PRICED DESCRIPTIVE CATALOGUE free by post.

DUTCH HYACINTHS, TULIPS, &c.

12 FINE NAMED HYACINTHS	.. .. ..	6*s.* 0*d.*
12 CHOICER Ditto	.. .. ..	8 0
12 CHOICEST IMPORTED Ditto	.. .. ..	10 6
100 BORDER (Separate Colours) Ditto	.. ..	21 0
1 Doz. TOURNESOL TULIPS, 1*s.*	.. ..	100 7 0
1 Doz. REX RUBRORUM Ditto, 1*s.*	.. ..	100 7 0
100 DOUBLE VAN THOL Ditto	.. .. ..	3 6
100 SINGLE VAN THOL Ditto	.. .. ..	4 6
100 LARGE BLUE CROCUS, 1*s.* 6*d.*	.. ..	1000 12 6
100 LARGE YELLOW Ditto, 1*s.* 6*d.*	.. ..	1000 12 6

All the above are the finest imported. For other BULBS see LIST, post free.

CHARLES SOUTHBY, Seedsman, Clapham, London, S.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON'S first importation of the above has arrived, and from the extraordinary heavy weight of the Bulbs they promise a fine bloom. Early orders are earnestly solicited. DESCRIPTIVE PRICED CATALOGUES free.

N.B.—17 FIRST PRIZES were awarded to WM. C. & SON last spring for HYACINTHS, TULIPS, and CROCUSES. In addition to this, EVERY FIRST PRIZE at the London Exhibitions to Amateurs was for Bulbs supplied by them.

The ONLY address is Highgate Nurseries, London, N.

E. G. HENDERSON AND SON'S DESCRIPTIVE LIST of BULBS as a Guide for the Amateur's selection is now published, and will be forwarded post free on application.

GUERNSEY and BELLA DONNA LILIES, 5*s.* per doz.
HYACINTHS, choice by name, 6*s.*, 8*s.* and 9*s.* per doz.
Do., MIXED in colours, 3*s.* per doz.
Do., BEDDING VARIETIES, in kinds, each colour, 4*s.* per doz.
Do., MINIATURE FLOWERED VARIETIES, 3*s.* per doz.
TULIPS for Forcing, 6*d.* to 1*s.* per doz.
Do. EARLY SINGLE, and DOUBLE MIXED, 5*s.* and 6*s* per 100.
Do., LATE, show varieties, mixed, 1*s.* per doz.
SNOWDROPS, single and double, 2*s.* per 100.
WINTER ACONITES, 2*s.* 6*d.* per 100.
CROCUS, in sorts, 1*s.* 6*d.* and 2*s.* per 100.
SCILLA SIBIRICA, 7*s.* 6*d.* per 100.
ANEMONES, 3*s.* 6*d.* and 5*s.* 6*d.* per 100.
RANUNCULUS, 3*s.* to 5*s.* per 100.
AMARYLLIS, by name, 3*s* 6*d.* each,
GLOXINIAS, by name, 9*s.* and 12*s.* per doz.
ACHIMENES by name, 2*s.* 6*d.* and 3*s.* per doz.
GLADIOLUS BRENCHLEYENSIS, 3*s.* per doz, 20*s.* per 100.
,, GANDAVENSIS, the finest collection offered in England.
CYCLAMEN, a choice collection of 30 varieties by name.
OXALIS, by name, 40 varieties offered.
IXIAS, mixed, 1*s.* per dozen; 40 varieties in collection offered, the inferior kinds discarded.
BABIANA, SPARAXIAS, and TRITONIAS, each 1*s.* 6*d.* per dozen.
LILIES, 60 fine varieties offered.
TRITOMA UVARIA, 12*s.* per doz.
TRITONIA (CROCOSMA) AUREA, 3*s.* per doz.
EARLY SPRING-FLOWERING PLANTS, in various colours, as HEPATICAS, DOUBLE PRIMROSES, VIOLETS, CHRISTMAS ROSE, and 60 other early-flowering perennials.
Strong Clumps of NEAPOLITAN and other VIOLETS in pots for winter blooming.
Do. LILY of the VALLEY.

Wellington Nursery, St. John's Wood, London, N.W.

Scarlet-flowered Gastronema—Gastronema sanguinea (Lindley).

JAS. BACKHOUSE AND SON can now supply this new and highly ornamental plant, which they have introduced from South Africa. The flowers are borne on single stems, rising from 6 to 12 inches high from the bulbous root, and are from 3 to 4 inches across, resembling the expanded blossom of a large-flowered Crocus, but of a clear Apricot-scarlet, varying to pure scarlet or Orange-red; and with the addition of a broad pale (sometimes white) Amaryllis-like tube. Being a native of the same country as Gladiolus psittacinus it will no doubt prove hardy. Dr. Lindley, who first named and described it, says, "It is a very handsome plant, deserving general cultivation, even in the most select collections."

It has recently obtained a FIRST-CLASS CERTIFICATE from the Floral Committee of the Royal Horticultural Society.

A limited number only of strong flowering roots can be supplied at 21*s.* each.

CYPRIPEDIUM CALCEOLUS.—J. B. & SON can still supply strong flowering plants of The Lady's Slipper—the rarest and handsomest of British Orchises. Its labellum resembles a large yellow Calceolaria, and the brownish-purple sepals and petals spread 3 inches across. 12*s.* per dozen, or extra strong, 21*s.* per dozen.

York Nurseries, Sept. 12.

Choice Gladiolus.

CHARLES VERDIER, Son and Successor, (Late VICTOR VERDIER PÈRE & CHARLES VERDIER FILS), Nurseryman, 32, Rue du Marché aux Chevaux à Paris.

NEW GLADIOLUS for 1863.

	s. d.
BLANC PRÉCOCE (DUVAL).—Pure white, with carmine spots	1 3
CARDINAL (D.)—Orange red, with carmine and white spots	1 8
CHARLES DICKENS (SOUCHET).—Light rose, shaded chamois, striped and mottled bright rose carmine ..	4 10
JAMES CARTER (S.)—Brilliant orange light red, with large spots, pure white, (dwarf)	4 0
JAMES VEITCH (S.)—Very large flowers, bright red, with violet spots	4 10
PETER LAWSON (S.)—Rosy lilac or violet, very large white spots (new colour)	4 0
PRINCE of WALES (S.).—Very brilliant dark red, with white and striped violet spots	5 8
PRINCESS of WALES (S.).—White striped rose carmine, with dark carmine spots	4 10
ROI LEOPOLD (Audry).—Light orange rose, very fine white spots	4 0
STUART LOW (S.).—Violet rose, spotted and shaded, rose darker on white	3 3
WALTER SCOTT (S.).—Bright rose, with white centre, striped carmine rose (dwarf)	5 8

CATALOGUES of his extensive collection will be sent free on application.

CATALOGUES of ROSES are now in preparation.

HYACINTHS AND OTHER CHOICE BULBS.

B. S. WILLIAMS,

PARADISE AND VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

Has just received in fine condition his first IMPORTATION of DUTCH FLOWER ROOTS, a PRICED and DESCRIPTIVE CATALOGUE of which will be forwarded Post Free on application.

B. S. W. begs to state that his BULBS have been selected with the greatest possible care, the Catalogue containing only well proved varieties. Careful attention has been paid to the arrangement of this Catalogue, in order to enable the Purchaser to select from it with the least possible trouble, and Short Cultural Notes have been added, offering suggestions to the Amateur, by whom it is hoped they may be found useful.

Choice Seeds.

B. S. WILLIAMS begs to offer First-class quality of the undermentioned SEEDS:—

	Per packet.	
PRIMULA SINENSIS FIMBRIATA, Red, White, or Mixed	2s. 0d.	3s. 6d.
CALCEOLARIA, herbaceous	1 6	2 6
CINERARIA, from choice named flowers	1 6	2 6
PANSY, very choice	0 6	1 0

CORDYLINE INDIVISA, seed in fine condition, price 2s. 6d. per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

MIMULUS TIGRIDIOIDES.—Having purchased the entire stock of a new, very beautiful, and distinct strain from Mr. Smith, of Walworth, obtained by hybridising the Mimulus cupreus with the best named varieties of Mimulus, we have much pleasure in offering these collections of unique, blotched, and spotted varieties, selected from more than 200 Seedlings, for their dwarf, compact habit, beauty, diversity of colour and marking, and free blooming qualities. The dwarf habit and freedom of growth of these desirable novelties render them great acquisitions for Flower-garden bedding; and for Greenhouse and Conservatory decoration they are invaluable, equalling the finest Herbaceous Calceolarias in the variety of their brilliant colours.

Plants, 8 best varieties, named	10s. 6d.
„ 6 „ „ „	7s. 6d.
„ 4 „ „ „	6s.
Seed, per packet	2s. 6d.

*** This strain is distinct from the varieties already sent out by Messrs. Henderson and Bull, and is much superior to them in form and substance.

JAMES CARTER & Co, 237 & 238, High Holborn, London, W.C.

New Azalea (indica) "Souvenir du Prince Albert."

E. G. HENDERSON AND SON having purchased the Sale in England of this most distinct and beautiful new double-flowered variety, now offer strong plants at 20s. each, and by their purchasing a large quantity they will be able to allow the Trade a discount due to them in accordance with the usual English custom. Colour, a warm Peach-rose, margined with pure white; habit good; a free bloomer, and very valuable as a decorative variety in effect, being a greater novelty than any other Azalea sent out since "Etoile de Gand."

NEW FUCHSIAS.

RIFLEMAN.—Fine habit, compact, and densely branched, with neat small leaves, forming a beautiful pot-plant for the table and exhibition by its profuse bloom, and corresponding graceful growth. Sepals scarlet, of great substance; corolla, large and open, of a lavender-purple colour, 5s. each.

NORTHERN LIGHT.—Well branched growth, with a free blooming habit. Sepals light carmine, reflexed similar to Souvenir de Chiswick; corolla bluish-purple, neat and attractive, 5s. each.

Other New Plants with new Perpetual Strawberry, TRIUMPH OF HOLLAND, also the TIETJEN Pine Strawberry are described at page 838, Sept. 5, of this paper.

Wellington Nursery, St. John's Wood, London, N.W.

To Noblemen, Gentlemen, and Others engaged in Ornamental Planting.

FINE SPECIMEN CEDARS, GOLDEN YEWS, FLORENCE COURT YEWS, ARAUCARIAS, &c.

The extensive Collection of Choice CONIFERS, of good size, to produce an immediate effect, planted singly on Lawns in Ornamental Gardens and Pleasure Grounds, being the residue of the Stock of 300,000 Plants offered by Auction by Mr. J. C. STEVENS, at Leamington, last Autumn, but remaining unsold, are now ON SALE at the Arboretum, Leamington, on reasonable terms, as the Proprietor is clearing his Grounds for other purposes.

For terms and particulars apply to J. HITCHMAN, Esq., Hydropathic Establishment, Leamington; or to Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.



For Present Sowing.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, 6s. per bushel, or cheaper in large quantities.

This is the best season for sowing Italian Rye-grass to ensure Sheep Feed very early in the spring.

TRIFOLIUM INCARNATUM (Early Crimson), 4d. to 5d. per lb., or cheaper in large quantities.

*** A mixture of the above will be found very useful for mending Clover and Grass Seed sown for Mowing next spring.

MUSTARD SEED for Sheep Feed in October and November, or for green manure.

RAPE.—New Seed at reduced price.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

THE EARLIEST PEA KNOWN is CARPENTER'S EXPRESS (pods larger than any other early Pea).

Among *numerous* Testimonials the following has been received:—

From Mr. JONES, *Gardener to Lord Leconfield, Petworth, Sussex. June 3, 1863.*

"I beg to say I have found Carpenter's Express Pea to answer well as an early one; it was sown on the 20th of November, on a south border, and I gathered the first dish on the 7th of May. I had Daniel O'Rourke and your Pea side by side in November, 1861, and gathered First from Carpenter's Express in May, 1862, which led me to grow it as my earliest this year."

New Seed to be had only of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Establishment, 96, St. James's Street, Brighton.

Early Orders are solicited, which will be executed strictly in priority.

SEED WHEAT.—The following Varieties have been grown by "TRITICUM." See *Agricultural Gazette* of October 4, 1862:—

PRINGLE'S BEARDED WHITE, a fine selected sample, 80s. per quarter.

SHIRREFF'S BEARDED WHITE, a fine selected sample, 70s. per quarter.

(The stock originally received from P. Shirreff, Esq.)

In a collection of all the best known Wheats these two have proved the best in all points.

FIRST PRIZE VICTORIA (AUSTRALIAN) WHEAT (stock received from the Editor of the *Agricultural Gazette*), a fine white of superior quality. A few bushels only, at 15s. per bushel.

If ordered in less quantities than quoted, higher rates will be charged. New sacks, 1s. 9d. each.

A remittance must accompany all orders.

Samples of ears and corn may be had on application, enclosing six postage stamps, returnable to purchasers.

Apply to RICHARD BRADLEY & SONS, Halam, near Southwell, Notts.

TAN GRATIS, in the immediate neighbourhood of Covent Garden Market,

Apply at WILLIAM ESSEX & SON, 28, Stanhope Street, Clare Market, W.C.

REIGATE SILVER SAND.—Best quality, 7s. 6d. per ton; packed, 16s. per ton; ditto 5s.; 4 cwt. put on the Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

N.B. Loaded Trucks can be sent on all the principal Railways.

W. SHORT, Reigate, Surrey.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address 89, Seed Market, Mark Lane; or Basingstoke.

Samples and prices on application.

LAWES'S WHEAT MANURE for AUTUMN SOWING.

A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8l. per ton.

2 to 3 cwts. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

SUPERPHOSPHATE of LIME	£6 6
MINERAL SUPERPHOSPHATE	5 5

Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

Autumn Sowing.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),

Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.

Chairman.—JOHN CLAYDEN, Littlebury, Essex.

Managing Director.—JAMES ODAMS.

Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex.

ODAMS'S BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, has been in use for upwards of 11 years, and has given great satisfaction to consumers.

Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.

Offices: 109, Fenchurch Street, London, E.C.

Price 7l. 10s. per Ton, delivered at any Railway or Wharf in London.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

Genuine Tobacco Paper.

JOHN KEARSLEY AND SONS, NURSERYMEN, Leeds, can supply the above article, first-class quality, at 7l. per cwt.



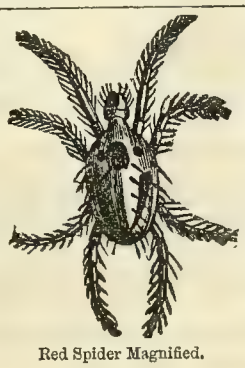
Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1s. and 2s. per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1s. per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from one to two ounces to the gallon of water is recommended for growing Plants; one from 4 to 16 ounces for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

Estate Alterations and Landscape Gardening.

JOSEPH NEWTON undertakes all kinds of IMPROVEMENTS in Land Draining, Forest Planting, Horticulture, Agriculture, Renovating Grass Land, &c.

Address 30, Eastbourne Terrace, W.; or 25, Bishopsgate Street, City, E.C.

Grove Nursery, Coleman Street, Camberwell, S.

MR. GEORGE WELLS having had upwards of 20 years' experience in the Erection of Horticultural and other Buildings, offers his services to the gentry and public in Planning and carrying out such Works by contract or otherwise. Also in Laying out Gardens and Pleasure Grounds, and the Improvement of Estates generally.

Plans and Estimates will be furnished on application. The nobility and gentry are invited to inspect his Nursery as above, Designed and Erected by himself, containing several thousand feet of Glass.

Gardens kept in order by the year or otherwise.

All kinds of Gravel, Peat, Sand, Loam, Leaf-mould, &c., supplied at the lowest possible prices.

Experienced Gardeners recommended.

Card.

SAMUEL N. McGERROW, GENERAL HORTICULTURAL BUILDER, Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

WILLIAM HASTINGS, HORTICULTURAL BUILDER and HOTWATER APPARATUS MANUFACTURER, 235, Old Kent Road, London, S.E. (for many years with WEEKS & Co.)

W. H's. long experience in the above business enables him to erect and heat Hothouses and other Buildings in the most approved style at greatly reduced prices.

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HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d.; 3-inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from stock, 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

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HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

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N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

MR. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Cast Tubular Boilers.



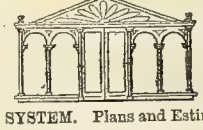
ORMSON'S PATENT, entitled "AN IMPROVEMENT in the MANUFACTURE of CAST TUBULAR BOILERS."—TAKE NOTICE, that a DISCLAIMER has been filed in the Patent Office and allowed by the Attorney-General, by which such part of the above Patent as was considered questionable by the Court of Exchequer Chamber has been disclaimed. Any person infringing the said Patent after this Notice will be proceeded against according to Law.

Disclaimer allowed, Sept. 1, filed Sept. 2, 1863.

I BEG to NOTIFY, that having by leave of her Majesty's Attorney-General DISCLAIMED such part of my Patent as was considered by the Court of Exchequer Chamber as questionable, the said Patent is now absolutely confirmed; and any person infringing the same will be proceeded against according to law.

HENRY ORMSON, Horticultural Builder and Hot-water Apparatus Manufacturer, Stanley Bridge, King's Road, Chelsea, London, S.W.

West of England, Ireland, and Wales.

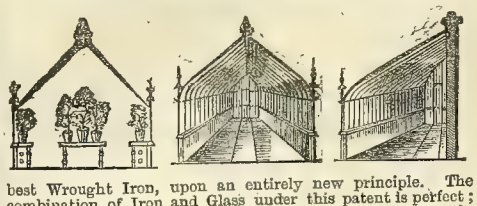


VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER. HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.



VINCENT SKINNER, Bridewell Street, Bristol.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the

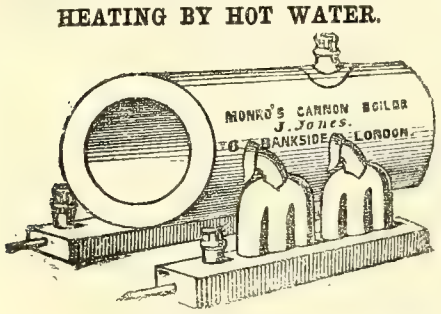


best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure.

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St., Chelmsford, Essex.

HEATING BY HOT WATER.



MONRO'S CANNON BOILER.

J. JONES,

HORTICULTURAL ENGINEER AND IRON MERCHANT,

SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

HEATING GREENHOUSES,

CONSERVATORIES,

FORCING PITS,

CHURCHES, CHAPELS, SCHOOLS,

HALLS,

BILLIARD ROOMS,

COACH HOUSES, HARNESS ROOMS, &c.,

OF THE BEST QUALITY, AND AT MODERATE CHARGES.

PLANS, ESTIMATES, and DESCRIPTIVE CATALOGUES

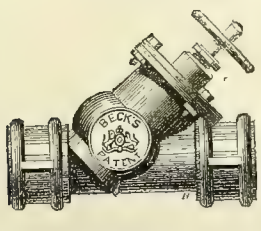
SENT POST FREE ON APPLICATION TO

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PATENT HOT-WATER VALVES



AT GREATLY REDUCED PRICES, viz. :—

2 In.	3 In.	4 In.
12s. 6d.	16s. 6d.	20s. 0d.

Upwards of 4000 *of the Patent Valves are now in use and giving the greatest satisfaction.*

JOHN BECK can also supply large quantities of his

IMPROVED THROTTLE VALVES

on the shortest notice.

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OF EVERY DESCRIPTION OF

GAS, WATER, and STEAM FITTINGS,

FIRE COCKS, WATER CLOSETS, ETC.

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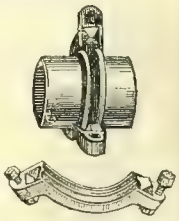
AND SANITARY DEPOT,

GREAT SUFFOLK STREET, LONDON, S.E.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.





T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices :—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

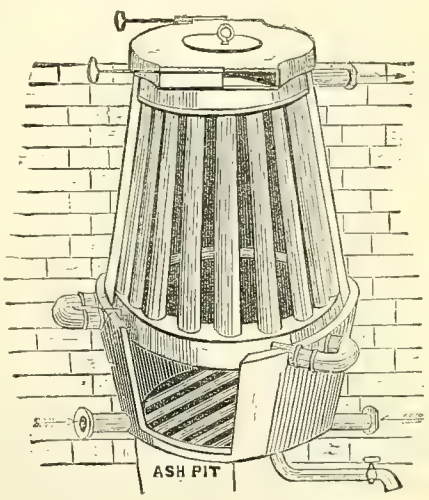
Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

Erections beyond 25 *miles of London, Railway Fare for one Man charged extra.*

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

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BY HER MAJESTY'S ROYAL LETTERS PATENT.

A PUBLIC BOON.

CLARKE'S NEW WATER JACKET FURNACE BOILER,

SHOWING THE PRINCIPLE OF THE PATENT DEFLECTING FLUE-PLATE OR HEAT PRESERVER.

It will be observed from the annexed diagram, that the deflecting flue-plate is placed on the top of the brickwork just level with the top of the Boiler, leaving a clear space for draught all round, consequently, the great pressure of heat from the furnace is concentrated at the top of the Boiler, and kept in close contact with it by means of the two slides which are regulated in front.

These Boilers are now fully acknowledged by a vast number of practical and experienced Gardeners to be the most Powerful and Economical Boilers extant, requiring less attention and fuel by one-half than any other Boiler they have had to manage, and state that the great improvement consists in the Water Jacket Furnace, and the deflecting flue-plate.

Estimates for every description of Heating, with Boiler and Piping complete, erected upon Mr. C.'s new and much approved principle, for top and bottom heat, sent upon the shortest notice, by applying to the Eagle Iron Foundry, 25, Seel Street, Liverpool. T. C. CLARKE, Proprietor.

P.S.—The Public are hereby respectfully informed that the Action brought against me by Mr. Henry Ormson, of King's Road, Chelsea, for the alleged infringement of his Patent Jointless Boiler, has, by an appeal from the Court of Common Pleas to the Exchequer Chambers, been decided unanimously in my favour, and against the validity of Mr. Ormson's Patent

HOWARD'S

STEAM PLOUGHING and CULTIVATING APPARATUS

WILL BE AT WORK NEAR BEDFORD THROUGHOUT THE SEASON.

Price of a Complete Set with 10-Horse Engine £515 0 0
Price of a Complete Set without Engine 220 0 0

Catalogues, with Sixty Reports from Purchasers, may be had on application to

JAMES AND FREDERICK HOWARD, BRITANNIA IRON WORKS, BEDFORD.

ST. PANCRAS IRON WORKS,

OLD ST. PANCRAS ROAD, N.W.

IRON HURDLES, FENCING, and GATES.

The PROPRIETORS of the ST. PANCRAS IRON WORKS, OLD ST. PANCRAS ROAD, LONDON,

WERE AWARDED THE

SILVER MEDAL of the ROYAL AGRICULTURAL SOCIETY for their IRON HURDLES and GATES, which, by their peculiar construction, are more than twice as strong and durable as those in ordinary use.

Lists per post on application. Gates from 30*s.* to 500*l.*

The Hurdles can be seen in process of Manufacture at the Works.

GAME WIRE NETTING.

PROFESSOR VARNELL'S ENAMELLED and WROUGHT-IRON STABLE FITTINGS.

These Patent Mangers and Stable Fittings obtained the Commendation and the Silver Medal of the Royal Agricultural Society of England and the Royal Agricultural Society of Ireland, are adopted by the Royal Veterinary College, and Professor Spooner of that Institution states that they should be used by all who value the health and comfort of their Horses. They can be had Plain, Galvanised, or Enamelled.

A Show Room is devoted entirely to every description of Stable Furniture, and full-sized Stalls and Loose Boxes are erected for inspection at St. Pancras Iron Works.

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Glass for Garden Purposes.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows :—

PROPAGATING GLASSES.



	Each—s.	d.		Each—s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 ,, ,, ..	0	4½	13 ,, ,, ..	2	0
4 ,, ,, ..	0	5½	14 ,, ,, ..	2	6
5 ,, ,, ..	0	6½	15 ,, ,, ..	3	0
6 ,, ,, ..	0	8	16 ,, ,, ..	3	6
7 ,, ,, ..	0	10	17 ,, ,, ..	4	0
8 ,, ,, ..	1	0	18 ,, ,, ..	5	0
9 ,, ,, ..	1	2	19 ,, ,, ..	6	0
10 ,, ,, ..	1	4	20 ,, ,, ..	7	0
11 ,, ,, ..	1	6			

HAND GLASSES, WITH OPEN TOPS.



	Each—s.	d.		Each—s.	d.
12 inches	6	6	18 inches	9	6
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

Painted and Glazed with 16 oz. Sheet Glass.

HYACINTH and FLOWER DISHES.
6 inches diameter, 1s. ; 9 inches, 1s. 6d. ; 12 inches, 2s. 6d.
Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

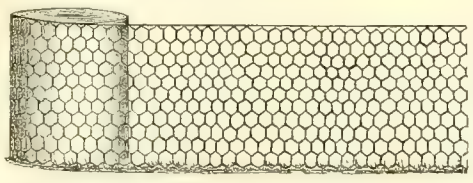
HYACINTH GLASSES.
Common shape, p. doz., 2s. 6d. | Improved shape, p. doz., 4s. 6d.
Patent shape, per dozen, 6s. 6d.

London Agents for Hartley's Improved Patent Rough Plate.

Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

NEW IMPROVED PREMIUM WIRE NETTING.
Great Improvement with Reduced Price.



PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for.	Light.		Medium.		Strong.		Extra Strong.	
		Jap	Gal.	Jap	Gal.	Jap	Gal.	Jap	Gal.
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2½ in.	Hares, Dogs, Poultry ..	0 3	0 4	0 3¾	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting ..	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits, Hares, &c. ..	0 4	0 4¾	0 4¾	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits	0 5	0 6	0 5¾	0 7	0 7	0 9	0 9	0 11
1 in	Pheasantries, &c.	0 9	0 11	10¾	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c. ..	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.

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NEW REGISTERED ETRUSCAN HYACINTH VASE, the most beautiful Table Ornament extant. To be obtained only of
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Illustrated Catalogue on receipt of six postage stamps.
Price Lists free.
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Works, Brentwood, Essex.

200 CUCUMBER and MELON BOXES and LIGHTS, and from
400 to 500 LIGHTS for PITS of all SIZES kept in STOCK.
Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the kingdom.
References to the Nobility, Gentry, and Trade in most of the counties in England.
JAMES WATTS & Co, Hothouse Builders and Hot-Water Apparatus Manufacturers, near the Green Man, 353, Old Kent Road, London, S.E.

Greenhouses, Orchard Houses, and Conservatories.

H. FREEMAN'S Horticultural Works, Triangle, Hackney, London, N.E., established 20 years.—Good substantially made GREENHOUSES, glazed, ready for fixing, 42 feet by 13 feet, 50*l.* ; 21 by 13, 28*l.* ; 12½ by 10, 15*l.* Orchard Houses 10 per cent. cheaper. A large assortment kept. Estimates given for Heating or any branch in Iron or Wood.

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REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

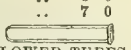
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PROPAGATING GLASSES.

2 inches diam.	0s.	3½d.	each.
3 ,, ..	0	4½	,,
4 ,, ..	0	5½	,,
5 ,, ..	0	6½	,,
6 ,, ..	0	8	,,
7 ,, ..	0	10	,,
8 ,, ..	1	0	,,
9 ,, ..	1	2	,,
10 ,, ..	1	4	,,
11 ,, ..	1	6	,,
12 ,, ..	1	9	,,
13 ,, ..	2	0	,,
14 ,, ..	2	6	,,
15 ,, ..	3	0	,,
16 ,, ..	3	6	,,
17 ,, ..	4	0	,,
18 ,, ..	5	0	,,
19 ,, ..	6	0	,,
20 ,, ..	7	0	,,



FLOWER TUBES.
2d. each, or 1s. 6d. per dozen.



ZINC HAND GLASSES.
Painted and Glazed with 16-oz. Sheet Glass.

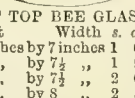
12 inches ..	5s.	6d.	each	
14 ,, ..	6	6	,,	
16 ,, ..	7	6	,,	
18 ,, ..	8	6	,,	
20 ,, ..	9	6	,,	
24 ,, ..	11	6	,,	

If open top, 1s. extra.



BEE GLASSES.

4 inches diameter	0s.	6d.	each
5 ,,	0	8	,,
6 ,,	0	10	,,
7 ,,	1	1	,,
8 ,,	1	4	,,
9 ,,	1	8	,,
10 ,,	2	0	,,
11 ,,	2	6	,,
12 ,,	3	0	,,



FLAT TOP BEE GLASSES.

Height	Width	s.	d.	
4 inches by	7 inches	1	6	each
4½ ,,	by 7½ ,,	1	9	,,
5½ ,,	by 7½ ,,	2	0	,,
6½ ,,	by 8 ,,	2	3	,,
7½ ,,	by 8¼ ,,	2	10	,,

FERN SHADES & STANDS.

Ins. dia.	Shades.		Stands.	
6 ..	1s. 4d. each.	1s.	0d.	each
7 ..	1 8 ,,	1	3	,,
8 ..	2 0 ,,	1	6	,,
9 ..	2 6 ,,	1	9	,,
10 ..	3 3 ,,	2	0	,,
11 ..	4 0 ,,	2	6	,,
12 ..	5 6 ,,	3	0	,,
13 ..	7 6 ,,	3	6	,,
14 ..	10 0 ,,	4	0	,,
15 ..	14 0 ,,	4	6	,,
16 ..	18 6 ,,	5	0	,,



WASP TRAP, 2s. 6d. per doz.

Crystal Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimneys and Globes, &c.



MILK PANS.

6 inches diameter	0s.	6d.	each
8 ,,	0	9	,,
10 ,,	1	0	,,
12 ,,	1	3	,,
14 ,,	1	9	,,
16 ,,	2	3	,,
18 ,,	2	9	,,
20 ,,	3	3	,,
22 ,,	3	9	,,
24 ,,	4	6	,,



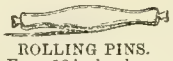
PRESERVE JARS.

In. diam.	Without Lids.		With Lids.	
3 ..	0s. 4½d.	..	0s. 6½d.	ea.
4 ..	0 6	..	0 9	,,
5 ..	0 8	..	0 11	,,
6 ..	0 10	..	1 2	,,
7 ..	1 0	..	1 4	,,
8 ..	1 4	..	1 8	,,
9 ..	1 8	..	2 2	,,
10 ..	2 0	..	2 8	,,

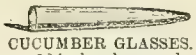


FISH GLOBES.

8 inches diam.	Without feet.	With feet.
9 ,,		
10 ,,		
11 ,,	Per lb. 7d.	Per lb. 9d.
12 ,,		
13 ,,		
14 ,,		
15 ,,		
16 ,,		



ROLLING PINS.
From 12 inches long, 1½d. per running inch.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1d. per running inch.

SHEET GLASS.
In Cases for cutting up, in Sizes as Manufactured.

	300 feet			200 feet.		
	15 oz.		21 oz.	26 oz.		32 oz.
Fourths quality	33s.	6d.	33s. 6d.	39s.	6d.	45s. 6d
Thirds do.	42	0	42 0	49	0	56 0
Seconds do.	62	0	64 0	74	6	85 0
Best do.	88	6	88 6	103	6	118 0

CRYSTAL SHEET GLASS.
For Pictures and best Glazing purposes.
Averaging 16 oz. to the foot.

Best quality, in cases of 200 feet	100s.
Second quality, in cases of 100 feet	82s.

Averaging 30 oz. to the foot.

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SQUARES, in 100 and 200 Feet Boxes.

Small Squares not exceeding 9½ inches by 7½ inches.

Ins. Ins.	Ins. Ins.	Ins. Ins.	Ins. Ins.
6 by 4	7 by 5	8 by 6	9 by 7
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½

Per 100 feet.

4ths.	3rds.	2nds.	Best.
9s. 9d.	11s. 3d.	13s. 9d.	16s. 9d.

Squares not exceeding 14 inches by 11 inches.

10 by 8	12 by 9	12½ by 10½	14½ by 10½
10½ by 6½	12½ by 9½	13 by 10	15 by 10
11 by 9	13 by 9	13½ by 10½	13 by 11
11½ by 9½	12 by 10	14 by 10	14 by 11

Per 100 feet.

4ths.	3rds.	2nds.	Best.
10s. 9d.	12s. 3d.	15s.	18s.

Squares not exceeding 20 inches by 18 inches.

15½ by 10½	14 by 12	17 by 13	24 by 16
16 by 10	14½ by 12½	18 by 13	20 by 17
14½ by 11½	15 by 12	18 by 14	22 by 17
15 by 11	15½ by 12½	22 by 14	24 by 17
15½ by 11½	16 by 12	24 by 14	20 by 18
16 by 11	16½ by 12½	22 by 15	22 by 18
13 by 12	17 by 12	24 by 15	24 by 18
13½ by 12½	18 by 12	22 by 16	

Per 100 feet.

4ths.	3rds.	2nds.	Best.
11s. 6d.	13s. 6d.	16s. 6d.	20s.

Orchard House Sizes, as recommended by Mr. Rivers.

	15 oz.			21 oz.		
s. Ins.						
10 by 12	4ths ..	11s. 6d.		4ths	15s. 0d.	Per 100 feet.
20 by 13	3rds ..	13 6		3rds	19 0	
20 by 14	2nds ..	16 6		2nds	25 0	
120 by 15	Best ..	20 0		Best	30 0	
20 by 16						

Squares Cut to Sizes not on List.

	15 oz.				21 oz.			
Under	4ths.	3rds.	2nds.	1st	4ths.	3rds.	2nds.	1st.
1 ft. super.	1½d.	1¾d.	2d.	2½d.	2½d.	2¾d.	3¼d.	4½d.
2 ft. super.	1⅞	2	2½	3	2⅞	3	4	5½
3 ft. super.	2	2¼	2⅞	3½	3	3½	4¼	6
4 ft. super.	2¼	2½	3	4	3¼	3⅞	4½	6½

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

	Per cwt.—s. d.
GENUINE WHITE LEAD	30 0
ANTI-CORROSION PAINT	28s. to 34 0
LINSEED OIL PUTTY	8 0

	Per gallon.—s. d.
FINE OAK VARNISH	10s. to 12 0
,, CARRIAGE	12s. to 14 0
PATENT DRYERS	per cwt. 28s. to 42 0

	Per gallon.—s. d.
LINSEED OIL	3 9
BOILED OIL	4 2
TURPENTINE	8 6

MILLED LEAD in Sheet and Pipe of all sizes. Old LEAD bought or taken in exchange.

LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of all kinds.

NETT CASH.

CUTHILL'S STRAWBERRY PLANTS, to bear next year.—EARLY BLACK PRINCE, EARLY PRINCESS ROYAL, HIGHLAND MARY, RICHARD II., PRINCE of WALES, and NEWTON SEEDLING, 5s. per 100, if Selected, 7s. 6d. each Sort. Lasted in bearing 60 days this year.

STRAWBERRY PAMPHLET, 1s.; MUSHROOM do., 1s.; CUCUMBER do., 1s. MUSHROOMS grown here all the year round; best SPAWN, 5s. per bushel.

PRINCE ALBERT, Winter Cucumber, 1s. per Packet.

JAMES CUTHILL, F.R.H.S., Camberwell, London, S.

The Kimberley Strawberry.

CHARLES KIMBERLEY has much pleasure in offering the above new SEEDLING STRAWBERRY, feeling confident it will give the greatest satisfaction. It is quite distinct from all other varieties, is of a robust, hardy constitution, a most prolific bearer, of a bright shining crimson; fruit red throughout, firm and solid, with brisk and most agreeable flavour; an excellent sort for all purposes. Strong Plants are now ready at 2l. per 100.

Stoke Nursery, near Coventry—Sept. 12.

Strawberry "The Premier," or "British Queen Seedling."

WM. PAUL has now ready good healthy plants of this superb Strawberry, price 12s. per 100, or 2s. 6d. per dozen. A few fruiting plants in pots, 9s. per dozen.

DESCRIPTION.—Fruit very large and handsome, colour bright crimson, combining the flavour of Keen's Seedling and Elton Pine, without the acid of the latter; the fruit carries well and retains its flavour long after gathered. It is of a very hardy and vigorous habit, thriving well in all soils and climates; a most abundant bearer, often producing from 20 to 30 trusses of fruit on a single plant; ripens three days later than Keen's Seedling, and remains in season a fortnight after that variety is over.

Large and handsome.—*Gardeners' Chronicle.*

The flavour is very good.—*Journal of Horticulture.*

A choice collection of Fruit Trees, including Grape Vines in splendid condition. PRICED CATALOGUES free by post.

PAUL's Nurseries, Waltham Cross, N.

NEW SEEDLING STRAWBERRY, PRINCESS OF WALES.

OPINIONS OF THE PRESS.

Gardeners' Chronicle, July 4th.

"Your seedling Strawberry, Princess of Wales, large, ovate, or flattened ovate, with flesh pale red, and solid at the core. The variety deserves notice on account of its size, appearance, and not being hollow at the core."

Journal of Horticulture, June 23d.

"Seedling Strawberry (B. W. Knight). The fruit sent is very juicy, and of excellent flavour."

Florist and Pomologist, July.

"Your seedling Strawberry, Princess of Wales, is a fine regularly-shaped ovate fruit, of a pale red colour, and very firm flesh; it has all the appearance of being a good sort."

B. W. KNIGHT has much pleasure in offering this superb new early STRAWBERRY, feeling confident that it will not fail to become a general favourite, as all who have seen it growing and tasted it on the ground have pronounced it first-class. It is a remarkably early kind, having picked from it on the 22d May, and no doubt but what it will prove a good forcing variety. The fruit is large, flesh pale red, solid at the core; flavour rich and sugary, partaking largely of the Pine flavour; a most abundant bearer.

Plants will be ready to send out early in September, at 12s. per dozen; 2l. 10s. per 100.

B. W. KNIGHT, Nurseryman and Florist, 67, High Street, Battle, Sussex.

FOR SALE, some fine ORANGE, LEMON, and CITRON TREES in full bearing, a choice Selection of GERANIUMS, FUCHSIAS, and other Plants in Pots, to be disposed of at once in consequence of the death of the Proprietor.

Prices and particulars may be obtained of Mr. BARNWELL, Royal Oak, Woburn, Beds.

OUVIRANDRA BERNERIANA.—Having succeeded in raising a few Seedlings of this extremely curious and beautiful plant, we beg to offer healthy young plants of six or seven leaves at 31s. 6d. each.

O. Berneriana was exhibited at the Great Show of the Royal Horticultural Society, June 17th, and awarded the First Prize; and at the Great Show of the Royal Botanic Society, June 24th, and then also awarded the First Prize.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

PINUS LARICIO.—To gentlemen planting out largely for profit WILLIAM BARRON begs to make a special offer of his fine and well-rooted stock of the above. This fine Pine supersedes the Larch for Forest-planting, producing timber much sooner for Railway Sleepers. It is also used for Spars and Masts in the French navy.

2-years' Seedlings, strong plants	per 1000	15s.	0d.
2-years' transplanted, 9 to 18 inches ..	,,	30	0
2 to 3 feet..	,,	70	0

Elvaston Nurseries, near Derby.

Deutzia crenata fl. pleno—Japan.

JOHN STANDISH has now the pleasure of submitting to the consideration of his friends and the public the above truly valuable and hardy ornamental plant. It has received First-class Certificates both at the Royal Horticultural and Royal Botanic Shows in June and July last (*vide* Report).

"There were a few very interesting new hardy plants shown, first a Deutzia crenata flore pleno, one of Fortune's novelties, flowered by Mr. Standish. This looked like a fine addition to hardy shrubs; it has opposite shortly stalked finely serrated leaves and copious terminal racemes of deflexed double flowers deeply tinged externally with rose."

Plants now ready, 10s. 6d. each; or 6 Plants for 42s.

Royal Nursery, Ascot, Berks.

WILLIAM ROLLISSON AND SONS beg respectfully to inform the Nobility, Gentry, and Trade, that their GENERAL CATALOGUE of PLANTS, SHRUBS, FRUIT TREES, &c., for 1863 is now ready, and will be forwarded on application, prepaid.

W. R. & SONS beg also to state that their new SEEDLING RHODODENDRON PRINCE OF WALES, at 31s. 6d., and their Three new beautiful and distinct INDIAN AZALEAS, at 21s. each—Azaleas Princess of Wales (Todman), Lord Canning (Todman), Rifleman (Todman)—will be sent out next May. A Coloured Plate by Andrews will be sent to all purchasers of Rhododendron Prince of Wales.

The usual allowance to the Trade.

Parties requiring Fruiting and other sized plants of GRAPE VINES in pots of the best and most popular varieties, can be supplied at very moderate prices, which will be forwarded on application.

The Nurseries, Tooting, London, S.

JEAN VERSCHAFFELT,

NURSERYMAN, GHENT, BELGIUM,

Begs to offer the following fine NOVELTIES, which he is now sending out for the first time, and which he can recommend as being truly first-rate varieties, viz.:—

AZALEA INDICA PRESIDENT HUMANN (J. VERSCH.).—The largest flower known, fine rose shaded with salmon, extra fine form and substance, being the same shape as Azalea Roi Leopold; very compact habit, and a very free flowering variety. Strong plants with buds, 12s. each.

AZALEA INDICA SECRETAIRE CLAUS (J. VERSCH.).—Large flowers, beautiful light rosy lilac, edged with white, and spotted with crimson; good form and substance. Good plants, 7s. each.

AZALEA INDICA VICOMTE DE FORCEVILLE (J. VERSCH.).—Very large flowers, semi-double, of the deepest red yet known in Azaleas; form very good, fine habit, very abundant bloomer; altogether one of the best. Good plants, 10s.

AZALEA INDICA REINE DES DOUBLES, fol. arg. var. (J. VERSCH.).—The same as Azalea Reine des Doubles, but with fine silvery edged foliage. 4s.

CAMELLIA VICOMTE DE NIEUPORT (J. VERSCH.).—One of the finest rose-coloured Camellias yet sent out; large flat shaped flower, imbricated with the greatest regularity to the very centre; good compact habit, very free and abundant bloomer. Good plants, 12s. each; with buds, 20s. each.

RHODODENDRON NOTAIRE BEAUCARNE (J. VERSCH.).—A very fine hardy novelty; fine large pyramidal-shaped trusses; flowers of a beautiful rosy lilac, marked with dark brown spots on the upper petals; a first-rate variety. Good plants, 8s.; stronger plants, 12s.

One plant over to the Trade on every three taken. A carefully Coloured Plate of Azalea President Humann, Vicomte de Forceville, and Secretaire Claus will be sent to each subscriber.

All orders to be directed, JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent, Belgium.

J. V.'s NEW DESCRIPTIVE CATALOGUE may be had on application to his Agents, Messrs. A SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

JEAN VERSCHAFFELT begs to announce that he has sold the English sale of his new Azalea, SOUVENIR DU PRINCE ALBERT, to Messrs. E. G. HENDERSON & SON, of the Wellington Nursery, St. John's Wood, London, and that consequently all orders he may receive for the same will be executed through the said Firm.

THE NURSERIES, GHENT, BELGIUM.

ROYAL HORTICULTURAL SOCIETY.

SHOW OF AUTUMN FLOWERS,

WEDNESDAY, SEPTEMBER 9, 1863.

AWARDS OF THE JUDGES.

CLASS 1.—12 HOLLYHOCKS, single flowers, distinct kinds (Open).
1st, Messrs. W. Chater, Nurseryman, Saffron Walden, 2l.
2d, Messrs. W. Minchin & Son, Nurserymen, Hook Norton, Oxon, 1l.
3d, Messrs. G. Paul & Son, Nurserymen, Cheshunt, 15s.

CLASS 2.—24 GERMAN ASTERS, "Quilled," distinct kinds (Open).
1st, Mr. R. H. Betteridge, Milton Hill, near Steventon, 2l.
2d, Mr. C. Wyatt, Gr. to H. Willis, Esq., Epsom, 1l.
3d, Mr. C. Sandford, Gr. to T. Thomasset, Esq., Walthamstow, 15s.

CLASS 3.—24 FRENCH ASTERS, "Tasselled," distinct kinds (Open).
1st, Mr. R. H. Betteridge, Milton Hill, near Steventon, 2l.
2d, Mr. C. Wyatt, Gr. to H. Willis, Esq., Epsom, 1l.
3d, Mr. C. Sandford, Gr. to T. Thomasset, Esq., 15s.

CLASS 4.—24 GLADIOLUS, cut spikes, distinct kinds (Open).
1st, Messrs. Youell & Co., Royal Nurseries, Great Yarmouth, 2l. 10s.
2d, Mr. J. Standish, Royal Nursery, Ascot, 1l. 10s.
3d, Mr. G. Prince, Seed Establishment, Market St., Oxford, 1l.

CLASS 5.—12 GLADIOLUS, cut spikes, distinct kinds (Amateurs).
1st, Mr. J. Sladden, Ash next Sandwich, Kent, 2l.
2d, Mr. C. J. Perry, The Cedars, Castle Bromwich, 1l. 10s.
3d, The Rev. H. H. Dombrain, Deal, 1l.

CLASS 6.—24 PHLOXES, single trusses, distinct kinds (Open).
1st, Mr. Charles Turner, Royal Nurseries, Slough, 2l.

CLASS 7.—24 VERBENAS, 5 trusses of each, distinct kinds (Open).
1st, Messrs. S. Perkins & Son, Park Nursery, Coventry, 1l. 10s.
2d, Mr. C. J. Perry, The Cedars, Castle Bromwich, 1l.
3d, Messrs. W. Minchin & Son, Hook Norton, Oxon, 15s.

CLASS 8.—48 DAHLIA BLOOMS, distinct kinds (Nurserymen).
1st, Mr. C. Turner, Slough, 5l.
2d, Mr. J. Keynes, Salisbury, 4l.
3d, Mr. J. Cattell, Westerham, 3l.

CLASS 9.—24 DAHLIA BLOOMS, distinct kinds (Nurserymen).
1st, Mr. C. Turner, Slough, 3l.
2d, Mr. J. Keynes, Salisbury, 2l.
3d, Mr. J. Perkins, 52, Market Square, Northampton, 1l.

CLASS 10.—18 DAHLIA BLOOMS, Fancies, distinct (Nurserymen).
1st, Mr. J. Keynes, Salisbury, 3l.
2d, Mr. C. Turner, Slough, 2l.
3d, Mr. H. Legge, Edmonton, 1l.

CLASS 11.—18 DAHLIA BLOOMS, distinct kinds (Amateurs.)
1st, Mr. H. Thorneycroft, Floove, near Weedon, 4l.
2d, Mr. T. Charlton, Kibworth, near Leicester, 3l.
3d, Mr. W. Corp, Milford, Salisbury, 2l.
Extra, The Rev. C. Fellowes, Shottesham Rectory, Norwich, 1l.

CLASS 12.—DAHLIA BLOOMS, Fancies, distinct kinds (Amateurs).
1st, The Rev. C. Fellowes, Norwich, 3l.
2d, Mr. W. Corp, Milford, Salisbury, 2l.
3d, Mr. J. Sladden, Ash next Sandwich, 1l.
Extra, Mr. C. J. Perry, The Cedars, Castle Bromwich, 15s.

CLASS 13.—MISCELLANEOUS, for Flowers not specified (Open)
1st, Mr. C. Turner, for Collection of Cut Roses, 2l.
2d, Messrs. Paul & Son, for Collection of Cut Roses, 1l.
3d, Mr. G. Clarke, for two Boxes of Cut Roses, 10s.
Extra, Messrs. W. Cutbush & Son, for Collection of 18 French Asters, 15s.
Extra, Mr. J. Standish, for Collection of Cut Gladiolus, 15s.

FRUIT.

CLASS A.—COLLECTION of FRUIT, 8 dishes, 6 distinct kinds
1st, Mr. C. Turner, Royal Nurseries, Slough, 6l.
2d, Mr. A. Henderson, Gr. to the Duke of Sutherland, Trentham, 4l.
3d, Mr. W. Kaile, Gr. to the Earl of Lovelace, Ripley, Surrey, 3l.

CLASS B.—PEACHES, 4 dishes, distinct kinds.
1st, Mr. Thos. Dawson, Gr. to Earl Cowper, Panshanger, 3l.
2d, Mr. A. Henderson, Gr. to the Duke of Sutherland, Trentham, 2l.
3d, Mr. T. Benning, Gr. to H. Brandreth, Esq., Houghton Hall, near Dunstable, 1l.

FRUIT.

CLASS C.—PEACHES, single dish.
1st, Mr. J. Rust, Gr. to the Right Hon. R. Sulivan, Fulham, 1l. 10s.
Equal 1st, Mr. W. Kaile, Gr. to the Earl of Lovelace, Ripley, Surrey, 1l. 10s.
2d, Mr. T. Dawson, Gr. to Earl Cowper, Panshanger, 1l.
3d, Mr. F. Rutland, Gr. to Capt. Peploe, Hereford, 10s.
Equal 3d, Mr. S. Snow, Gr. to Countess Cowper, Silsoe, Beds, 10s.
Extra, Mr. J. Westcott, The Gardens, Dulwich House, 7s. 6d.

CLASS D.—NECTARINES, 4 dishes, distinct kinds.
1st, Mr. T. Dawson, Gr. to Earl Cowper, Panshanger, 3l.
2d, Mr. A. Henderson, Gr. to the Duke of Sutherland, Trentham, 2l.
3d, Mr. F. Rutland, Gr. to Capt. Peploe, Hereford, 1l.

CLASS E.—NECTARINES, single dish.
1st, Mr. G. Wilson, Gishurst Cottage, Weybridge Heath, 1l. 10s.
Equal 3d, Mr. T. Bailey, Gr. to T. T. Drake, Esq., Amersham, 10s.
Equal 3d, Mr. S. Snow, Gr. to Countess Cowper, Silsoe, Beds., 10s.

CLASS F.—FIGS, 3 dishes, distinct kinds, 12 fruits each.
1st, Mr. A. Bousie, Gr. to Lord Taunton, Stoke Park, 2l.

CLASS G.—FIGS, single dish, 12 fruits.
1st, Mr. T. Bailey, Gr. to T. T. Drake, Esq., Amersham, 1l.
2d, Mr. J. Sayers, Gr. to E. Ellis, Esq., Epsom, 15s.
3d, Mr. S. Snow, Gr. to Countess Cowper, Silsoe, Beds., 10s.

CLASS H.—CHERRIES, 3 dishes, distinct kinds.
(No competition.)

CLASS I.—CHERRIES, single dish, 50 fruits.
1st, Mr. S. Snow, Gr. to Countess Cowper, Silsoe, Beds, 1l.
2d, Mr. C. Turner, Slough, 15s.
3d, Mr. R. Budd, Gr. to the Earl of Darnley, Gravesend, 10s.
Extra, Mr. R. H. Betteridge, Milton Hill, near Steventon, 7s. 6d.

CLASS J.—PLUMS, 4 dishes, distinct kinds.
1st, Mr. S. Snow, Gr. to Countess Cowper, Silsoe, Beds, 2l. 10s.
2d, Mr. J. Cox, Gr. to W. Wells, Esq., Redleaf, Penshurst, 2l.
3d, Mr. T. Bailey, Gr. to T. T. Drake, Esq., Amersham, 1l. 10s.
Extra, Mr. R. Budd, Gr. to the Earl of Darnley, Gravesend, 7s. 6d.
Extra, Mr. J. Sayers, Gr. to E. Ellis, Esq., Epsom, 7s. 6d.

CLASS K.—PLUMS, single dish.
1st, Mr. S. Snow, Gr. to the Countess Cowper, Silsoe, Beds, 1l.
2d, Mr. J. Wright, Gr, to Mrs. Ramsden, Twickenham, 15s.
3d, Mr. A. Alves, Southharrow, Bromley, Kent, 10s.

CLASS L.—APPLES, DESSERT, 3 dishes, distinct kinds.
1st, Mr. A. Bousie, Gr. to Lord Taunton, Stoke Park, 2l.
2d, Mr. J. Martimore, Wallington, Carshalton, 1l. 10s.
3d. Mr. W. Wren, Gr. to E. Purser, Carshalton, 1l.
Extra, Mr. G. Grover, Wistaria Cottage, Hammersmith, 7s. 6d.
Extra, Mr. J. Wright, Gr. to Mrs. Ramsden, Twickenham, 7s. 6d

CLASS M.—APPLES, KITCHEN, 3 dishes, distinct kinds.
1st, Mr. S. Snow, Gr. to Countess Cowper, Silsoe, Beds, 2l.
2d, Mr. H. Anstiss, Market Gardener, Chiswick, W., 1l. 10s.
3d, Messrs. G. & J. Lane, St. Mary's Cray, 1l.
Extra, Mr. J. Martimore, Wallington, Carshalton, 7s. 6d.
Extra, Mr. A. Bousie, Gr. to Lord Taunton, Stoke Park, 7s. 6d.

CLASS N.—PEARS, DESSERT, 3 dishes, distinct kinds.
Equal 1st, Mr. W. Wren, Gr. to E. Purser, Esq., Carshalton, 1l.
Equal 1st, Mr. G. Wilson, Gishurst Cottage, Weybridge Heath, 1l.
2d, Mr. H. Beasley, The Gardens, Twyford Abbey, Acton, 15s.
3d, Mr. J. Martimore, Wallington, Carshalton, 10s.
Extra, Mr. H. Anstiss, Market Gardener, Chiswick Mall, 7s. 6d.

CLASS O.—MISCELLANEOUS.
1st, Mr. A. Henderson, for a Box of 24 Apricots, 1l. 10s.
2d, Mr. G. Perry, for 6 dishes of Currants, 1l.
3d, Mr. P. Leslie, for a basket of Ridge Cucumbers, 15s.
Extra, Messrs. H. Lane & Son, for a collection of Grapes in Pots, 2l.
Extra, Messrs. H. Lane & Son, for a collection of Orchard-house Fruit Trees in Pots, 10s.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.

LIST OF AWARDS, September 9, 1863.

FIRST-CLASS CERTIFICATE.

CIONIDIUM MOORII, from Mr. W. Dean, Shipley
PTERIS PELLUCIDA, from Mr. Bull, Chelsea
ADIANTUM CARDIOCHLÆNA, from Mr. Bull
CENTAURFA ARGENTEA, from Messrs. E. G. Henderson & Son, St. John's Wood
DAHLIA WHITE PERFECTION, from Mr. Legge, Edmonton
DAHLIA THE BRIDE, from Mr. Legge
DAHLIA ANNA KEYNES, from Mr. Keynes, Salisbury
DAHLIA CORONET, from Mr. Wheeler, Warminster

SECOND-CLASS CERTIFICATE.

DAHLIA WATTY, from Mr. Wheeler
DAHLIA SAM. BARTLETT, from Mr. Keynes
DAHLIA MAGPIE, from Mr. Keynes
DAHLIA BRUNETTE, from Mr. Hopkins, Brentford
DAHLIA CHELSEA HERO, from Mr. Burgess, Chelsea
DAHLIA ENCHANTRESS, from Mr. Legge
DAHLIA ROUNDHEAD, from Mr. Legge
DAHLIA MESSENGER, from Mr. Kimberley, Coventry
DAHLIA SYLPH, from Mr. C. J. Perry, Castle Bromwich
DAHLIA GARIBALDI, from Messrs. Bragg & Co., Slough
DAHLIA USEFUL, from Messrs. Bragg & Co.
DAHLIA PRINCE OF WALES, from Mr. Turner, Slough
DAHLIA ANNIE, from Mr. Collier, Bethnal Green Road
GLADIOLUS CHARLES DAVIS, from Mr. Standish, Ascot
CATTLEYA EXONIENSIS, from Messrs. Veitch & Son, Exeter & Chelsea

COMMENDATION.

DAHLIA (bedding) TOM THUMB, from Mr. Rawlings, Bethnal Green
ANEMONE JAPONICA HONORINE JOBERT, from Messrs. F. & A. Smith, Dulwich
PHYTOLACCA DECANDRA VARIEGATA, from Messrs. E. G. Henderson & Son
GLADIOLUS MRS. DIX, from Mr. Standish
GLADIOLUS ETNA, from Mr. Standish
GLADIOLUS RANDLE JACKSON, from Mr. Standish

SPECIAL CERTIFICATE.

To Messrs. Veitch & Son, for a GROUP of ORNAMENTAL PLANTS.
To Messrs. E. G. Henderson & Son, for COLLECTIONS of BEDDING and POMPON DAHLIAS, VARIEGATED PELARGONIUMS, and TREE IVIES

At a SPECIAL MEETING held on Aug. 11, a First-class Certificate was awarded to PELARGONIUM LORD OF THE ISLES, from Mr. G. Smith, Hornsey Road.

The next ORDINARY MEETING of the Committee will take place on Sept. 22.

THOMAS MOORE, Secretary to the Committee.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 12, 1863.

AT this season of the year, when in the garden we see everywhere around us unmistakeable indications of fading beauty, there is a more than ordinary temptation to turn to those contrivances by which we may manage to preserve fresh and pleasant pictures of vegetation in our very houses. It is at this season, with dreary November looming in the not distant future, that the utility of such things as indoor PLANT-CASES, regarded as a means of continuing on something like a vibration of the pleasurable emotion afforded by the summer garden when at its zenith, becomes a fixed idea with many of us. It were well if this were so with a larger number, for even dull depressing November, and still more the months which follow, may, by a little forethought in the way of in-door gardening, be made almost as cheery if not as gay as many a day in summer. The question is, How to do it.

First, we must have a plant-case. It may be an ordinary Wardian case, or it may be that modified form of it called the Patent Indoor Plant-case, which has been so successfully arranged and introduced by Miss MALING, and to which frequent allusion has been made in our columns. This latter has indeed the advantage of being heated, and may therefore be made available for more tender plants than the other, but a very pleasant winter scene, though of a different character, may be got out of either

To secure this, however, the case must be filled with plants; and the choice and variety is almost endless. In an ordinary living room, in one of these plant-cases not too rigorously closed in, any ordinary greenhouse plant would hold its own during winter. The Wardian Case generally pre-supposes a permanent group made up and planted out, either amongst rock-work or in the free soil, according to the style of arrangement adopted; while Miss MALING'S case is rather associated with the idea of grouping potted plants, either grown and flowered in the case or merely brought into it for their blooming season, the whole thus admitting of rearrangement as often as any of the inmates become exhausted, or when a new picture is desired. The latter is in truth therefore, nothing more than a modified application of the Wardian case.

Suppose then we wish to fill one of the cold plant-cases, and have had the forethought to provide small dwarf plants of early and late-flowering Chrysanthemums, large and Pompon; these alone, commencing to blossom by November, would carry on with flowers quite to the end of the year or even longer, and then red and white Chinese Primroses would furnish a succession, soon to be varied by Cinerarias and other spring bloomers. The filling out of the picture by means of evergreens, of bright-berried plants, and of plants with ornamental or variegated foliage, might be varied *ad infinitum*.

If, instead of one of the usual cases without heat, we were filling up one of the patent heated cases just now referred to, almost all the treasures of the stove and Orchid-house might be safely introduced, at least during the period the plants continued in flower, inasmuch as a temperature of from 65° to 90° may be commanded. It would only be necessary that the case should be entirely filled with heat-loving or heat-enduring plants. But, even without providing anything more than the mild temperature of an intermediate house, what a glorious association of half-tender Ferns and Begonias, and such like plants, might be accommodated. And herein, as it appears to us, consists one of the chief merits of Miss MALING'S heated cases: that of enabling one to preserve, yea even to cultivate, in a parlour, tender plants that otherwise would soon perish or lose their freshness and beauty in the variable and parching or chilling atmosphere of such a situation. For it is not to be forgotten in estimating the utility of cases of this kind, that it is from the ordinary or temporary inmates of the stove, or at least of the warmer of our garden glass-houses, that during winter and early spring we must draw the chief supply of pleasant-looking flowers and foliage. And if it be a satisfaction even to preserve such delicate subjects in beauty by the aid of a contrivance of this character, how much greater satisfaction must an amateur gardener derive from the fact of being able to cultivate and bring them into flower by its aid.

Let us see for a moment what combinations might, even in foggy November, be made to yield a bright and refreshing group, the temperature being kept at the moderate or intermediate point. Of Ferns we might introduce the red variegated Pteris tricolor, the white variegated Pteris albo-lineata, the bright green Adiantum cuneatum, which is the gem of gems amongst decorative Ferns, and the feathery decompound-fronded Davallia dissecta; if the case were large enough the white variegated Pteris argyræa might be added, and, for filling up, any quantity of dwarf neat-growing species might be used. Dracæna terminalis, with its crimson-stained leaves, would yield a distinct form and colour, towering above the rest; and of the variegated Begonias any number, including silvery or parti-coloured or crimson-leaved sorts, might be introduced. The charmingly mottled Cissus discolor, and other climbers, might be trained about the roof, and dwarf Lycopods in variety might carpet the basement. Neat bushes of Ardisia with their scarlet berries might atone for the dearth of flowers, but even these latter need not be wanting, for such plants as Begonia insignis, and B. fuchsioides, the former with pink, the latter with coral-coloured, and B. parvifolia with snow-white blossoms, might be had in all their beauty, though necessarily limited as to size. Here alone would be ample materials, with the necessary evergreens as a set-off, to fill a moderate case, but the choice is in reality much more extended. Dwarf Palms, of which some very elegant ones have appeared at recent exhibitions, might vary the foliage of the prominent non-floriferous subjects; Caladiums, such as argyrites at least, and small plants of some others, might do good service in the same way; all the cool-house Orchids, whatever might chance to be in flower, would be quite at home; plants like Vriesia would be very effective; Torenia asiatica and pulcherrima would be charming; dwarf Poinsettias would be brilliant; while of really handsome variegated-leaved plants "unenumerated" the name is legion. What exquisite *tableaux* would not a lady of taste work up out of materials like these?

Well, to enjoy all "this sort of thing" by and by, it must, like the buying and planting of Dutch bulbs, be set about at once. The case, which we may call a Drawing-room Greenhouse, must be obtained, if it is not already possessed; the group must be designed in the mind's eye, and may require critical re-examination; and the requisite plants must be secured, and the designs perfected. By the time all this has been done in a careful and leisurely way, we shall have our outer gardens quite despoiled of their summer attractions, and shall be glad to turn to the smaller but not therefore less pleasing picture provided in the Indoor Plant-case.

So many interesting forms of the singular race of Cycads occur in cultivation, and the whole family possesses features so distinct from that of other plants, and in general so well marked, that the advent of an entirely new form, presenting features hitherto unknown, is a circumstance deserving prominent notice. Such a form occurs in a plant called BOWENIA, already incidentally mentioned in our present volume (p. 127), and which has since been received in a living state at Kew, where it is now flourishing.

This plant was first discovered, so long since as 1819, by the late ALLAN CUNNINGHAM, one of whose specimens is preserved in the British Museum, as we learn from a notice by Dr. SEEMANN, who writes:—"In a list of plants A. CUNNINGHAM collected in the tropical parts of New South Wales (as Queensland was then called) and forwarded to Sir JOSEPH BANKS, we read, under No. 289, the following:—'*Aroideæ*, a strong herbaceous plant appearing of this family, with 3-pinnate obliquely-elliptical acute leaves, without fructification. Shaded woods, Mount Cook, Endeavour River. July 2, 1819. Can this be a Fern?' [In his private herbarium CUNNINGHAM had labelled the specimen doubtfully as an Acrostichum; thus confirming the Fern-like aspect of these singular plants.] On turning to No. 289 of the collection alluded to in the British Museum, I find a single frond which is forked, and has below the forking two leaflets, but 15 leaflets on each of the branches (pinnæ). The entire length of these branches is 18 inches. The leaflets are larger than those of the living plant at Kew. There is little doubt that HILL'S plant, gathered two or three degrees south of Endeavour River, is identical with that of CUNNINGHAM; but as CUNNINGHAM'S specimen is without the lower part of the stipes, it is impossible to determine whether it was a clerical error or not when he stated the leaves to be 3-pinnate. In HILL'S very young living plant they are bi-pinnate, but it may be different in older specimens."

The admirable figure of FITCH, published in the *Botanical Magazine* (t. 5398), will render the aspect of this rare and interesting plant, which has been named BOWENIA SPECTABILIS, familiar to those who are unable to examine the growing plant for themselves; and as embodying all that is known of its history, we subjoin Dr. HOOKER'S account which accompanies this figure.

"With the exception of Stangeria paradoxa, no more remarkable Cycadeous plant has been discovered than the subject of our present plate; and like that plant it differs from every member of its order in the nature of its leaves, which present remarkable analogies with those of the Ferns. Whereas, however, the anomalous character of Stangeria is afforded by the venation of the pinnules, which so exactly simulated those of a Lomaria that two authors had (unknown to one another) referred it to that genus, the resemblance, in the case of Bowenia, is in some respects carried further, inasmuch as the leaf is not simply pinnate as in Stangeria and other Cycadeæ, but decompound like a Marattia.

"The discoverer of this singular plant was the late ALLAN CUNNINGHAM, from whom we received upwards of 40 years ago a portion of a frond collected at the Endeavour River (lat. 15° S.) in 1819, and referred by him provisionally to Aroideæ. Nothing, however, was known further of it till Mr. WALTER HILL, the zealous and able head of the Brisbane Botanic Garden, rediscovered it in Rockingham Bay, and sent a young living plant, with full grown dried leaves and a male cone, to the Royal Gardens, Kew, in 1863. From these materials the plate and description have been made; and in accordance with Mr. HILL'S desire as well as our own, we have attached the name of the present enlightened Governor of Queensland (Sir GEORGE F. BOWEN, G.C.M.G., Captain-General and Governor-in-Chief) to the genus, in recognition no less of that officer's position as Governor of the district of Australia in which the plant was found, than of his liberal encouragement of botany, and of Mr. HILL'S exertions in particular.

"As a genus the most prominent character of Bowenia is the compound leaf, its general characters (all but shape), texture, and venation. The leaflets do not differ from those of Macrozamia, and are so very similar to those of some West Indian Zamias that it is difficult to distinguish them generically, except that in Bowenia the leaflet is decurrent by the petiole, and not articulated with the rachis. The habit of growth, caudex, &c. entirely accord with that of the South American Zamias, as does the male amentum; the female amentum and fruit are both at present unknown, but we trust ere long they will be detected and published."

Mr. HILL'S plant, which is that which has

reached our gardens in a living state, was found on the north bank of the Mackay River. It has, like other Cycads, a thick subcylindraceous stem, surmounted by one or two ample leaves, which have a long slender terete petiole, and a bipinnatisected lamina of suborbicular circumscription, the pinnules of which are decurrently petiolate, and non-jointed, obliquely falcato-lanceshaped, entire or one-toothed, caudately acuminate, bright green, flaccid, and furnished with parallel sparingly anastomosing veins.

—— We understand that Mr. CROSS, who is already favourably known in his connection with the introduction of Cinchonas into India, and who was lately engaged on the eastern side of Chimborazo in collecting ornamental plants for Messrs. VEITCH, has, at the request of the India Office, started for Popayan and Bogotá to procure seeds of the Pitaya and other valuable New Grenadian bark trees for the Government plantations in India.

—— During a tour on the west coast of Ireland in July last, Prof. HARVEY and Mr. N. B. WARD were fortunate enough to discover a new British Seaweed, the Fucus furcatus of AGARDH. This addition to our marine flora is the more interesting, as this species of Fucus had hitherto only been found at Unalaschka, and on the Newfoundland coast.

—— At Hunstanton on the coast of Norfolk, Prof. BABINGTON states that a complete turf is formed over extensive flats by Glaux maritima or Anagallis tenella, each quite alone. Honkeneja peploides also covers very extensive sands. Statice caspica is so abundant in one place as nearly to cover the whole surface of probably a square of a 100 yards; it was coming into flower on July 13, and its presence was manifested at a considerable distance by the mass of its flowers.

—— It is very well remarked in the present number of the *Floral Magazine* that hardy Rhododendrons are amongst the most serviceable and ornamental of our flowering shrubs, enduring as they do our severest frosts, and bearing with much patience even the smoke and dust of our great metropolis. Hence it is a source of astonishment that the growth of plants which will not submit to these conditions should so pertinaciously be persisted in, to the neglect of so really attractive a subject as the Rhododendron. "The failure of many things which have been tried under the most favourable auspices at South Kensington and elsewhere, ought not to be without its lesson on those who are desirous of maintaining some recollection of the country during their sojourn in London."

FISH AND FISHING.—No. XV.

(2.) How Grayling got to England.

(*Continued from* p. 844.)

Piscator: But supposing the concession to need further arguments to support it, let us analyse the name "Grayling." "What's in a name?" says Shakspeare. But in a question like this a name is of very great importance! This same fish in former days was called by various names on the Continent—Ombrina, Umbla, Umbra, Umbrina, &c., and by the modern French, and in some parts of Great Britain, it is called the Umber; and much space is occupied about its name in Gesner, Rondeletius, Aldrovandus, and other ancient authors; and with much *nominal* confusion, because a sea-fish passed under the same synonymes. Whence comes our English name for this fish—Grayling—so unlike those names of the Continent? Gray-lines (see Yarrell) is far too modern to be satisfactory. Whether the "Gray," (originally taken from the idea of *ombre*, a shadow, or *umbra*) has been changed into the Sax. *greg*, *græg*; German, *grau*; Dutch, *graauw*; Dan., *grae*; or Sw., *gra*; all which signify the colour grey; and whether the terminal *ling* is derived from the Sax. *leng*, long, or from the Sax. termination *ling*, denoting primary state, condition, or subject, as in darling, firstling, or the young of an animal or small one, a shadowy or grey little thing, or darling, or firstling, (see Webster's Dictionary), or GRAYLING, is an important question, and interesting, so far as this inquiry is concerned. The latter, Grey-ling, will surely point to something new or newly imported, and a petted thing, as the grayling, if imported, must have been.

As to who is the author of the supposition of its being an introduced fish, and not indigenous, I had at one period of my life, before Sir H. Davy wrote, thought it a settled accepted fact; but all my researches do not enable me to carry the authorship of idea beyond "Salmonia." Now I beg you to observe that Sir H. D. in "Salmonia" alludes to the subject in a very singular manner. He starts by his character "Haleus," (supposed to be Sir H. D.'s self) stating that his former opinion favoured the position that it was an imported fish (he says nothing against the monks being the instrument), but now doubts it. He then makes his "Poietes" think the alteration of opinion wrong. The two characters then argue the point, and in the character of Haleus he (Sir H. Davy) sums up the matter as though he recanted his heresy. Thus in abstract stands the passage.*

* Salmonia, 2nd edition, page 200.

"*Hal.:* I formerly used to account for this by supposing it (the grayling) an imported fish, and not indigenous; but," &c., "I doubt the correctness of this my early opinion."

"*Poiet.:* Which was, I conclude, that it was introduced by the monks," &c., "and I think you have done wrong to relinquish this idea," &c.

Then Hal. proceeds to show reasons con. the proposition, and Poiet. pro, and Hal. sums up the point thus: "There may be truth in what you are now imagining, for," &c., all which dialogue seems to me to prove Sir H. D. did *not* "doubt the correctness" of his "former opinion," but had misgivings and was not satisfied, and inserted the subject in his work for the purpose of provoking further discussion upon the point, the thought originating in himself.

Cath.: Does old Izaak Walton say anything upon the subject?

Pisc.: Yes. Just enough to throw a doubt upon the matter, by omitting mention of its being an imported fish, or who were the importers. All he says, and says so beautifully, is "I shall only tell you that St. Ambrose, the glorious Bishop of Milan, who lived when the Church kept fasting days, calls him (the Grayling) "the Flower fish" or "Flower of fishes," and that he was so far in love with him, that he would not let him pass without the honour of a long discourse.

I had been for a long time quite at a loss where to discover this "long discourse" in the writings of St. Ambrose, until almost in despair, at the British Museum I called for the American edition of Walton of A.D. 1847, by Wiley & Putnam, London and New York; and at p. 121, note, I found the following:—"The burst of enthusiasm by the saintly lover of fish is so hearty that I give it at length. He has been treating very quietly of other fish, when he exclaims"—[there having been a few typographical errors, I now quote the passage as it stands in St. Ambrosii Opera, tom. i. p. 68—9 (Venice Edit. A.D. 1783) lib. v., cap. ii. tit. Hexaemeron Admonitio in Sex Libros; and in Patrologiæ Cursus Completius, tom. xiv., A.D. 1845 (Paris) Ambrose, vol. i., lib. v. De Opera quinti Diei, cap. ii., p. 208.]" Neque te inhonoratum nostra prosecutione, Thymalle, dimittam, cui à flore nomen inolevit; seu Ticina unda te fluminis, seu amœni Atesis unda nutrierit, flos es. Denique sermo testatior, quod de eo qui gratam redolet suavitatem, dictum facete sit; aut piscem olit aut florem; ita idem pronuntiatus est piscis odor esse qui floris. Quid specie tua gratius? Quid suavitate jucundius? Quid odore flagrantius? Quod mella flagrant hoc tu corpore tuo spiras!" "In justification (the American note goes on to say) of the good bishop, it may be added that the grayling of the Alpine waters is particularly good for those who 'keep fasting days.'" *Am. Ed*

The translation might read thus,—"Nor will I pass over in our discourse thee, unhonoured, Oh! Thymallus, whose name emanates from a flower! * Whether the waters of Ticinus or of the pleasant Atesis have nurtured thee: a flower thou art! Indeed, the more confirmatory is the common saying, facetiously applied to him who is delicately perfumed, "He smells of fish or of flower," so, the odour of thy body, oh! Thymallus, is declared to be that of fish or of flower. What is more graceful than thy form? What more agreeable than thy sweetness? What more fragrant than thy perfume? All that honey-stores give forth thou exhaleth from thy body!"

The translation I have attempted is a liberal one, and may be, strictly speaking, too much so. I do not vouch for it, though I have been assisted by many more competent than myself. We are not satisfied, quite. The Latin of the editor (1783) of St. Ambrose not being classical, there is great difficulty in avoiding error, especially in the second and sixth sentences. It may, however, certainly be observed that there is nothing in the edition from which I quote, which justifies the expression in Walton, "The flower fish, or the flower of fishes," though earlier editions or MS., to which I have not access, may give a totally different version. Walton wrote more than a century before the edition (1783) was published.

For the benefit of general readers I may here explain that "Hexaemeron" signifies "six days;" and that this "Hexaemeron" of St. Ambrose has reference to the six days of The Creation, and that St. Ambrose is not speaking of the grayling and other things as of the world, as good for the voluptuary or bon vivant; but he is deducing "admonitio"—moral and religious advice for man—from instances which the creation of the world in its purity affords us. The revilers of the monks of old may take a hint from this. *E. C.*

* "Thymallus" is evidently derived from "Thymum," the herb "Thyme." The fish, when first taken, certainly smells deliciously of Thyme.

ORCHARD HOUSE PEACHES.

I have been much interested in reading the rather temperate letter of Mr. Thompson on this subject; there is perhaps no man in England that better understands the culture of wall Peach trees, and I think I may add, no one loves their culture and training more. As far as I am able to judge, his experience in Orchard-house grown Peaches, and his love for that mode of culture, are more limited. I have had reason to think that the hot weather we have had, ripened many early kinds of Peaches in orchard houses long before their usual period, and this, like too much heat in a forcing house, detracted from their flavour. I mention this because I have found the three varieties of Grosse Mignonne Peaches—the Early, the Common, and the Tardive de Lepére—all ripening together, although they generally follow each other very regularly. They were very juicy, but had not their usual piquant flavour. The heads of these trees were about 6 feet from the roof of a large span-roofed house, 12 feet high. Later kinds of Peaches, which have ripened more slowly, have been as fine in flavour as Peaches could be, yet they here stood side by side with those not quite so good as usual. I have tested the flavour of orchard house Peaches with those grown on walls in the following manner:—

Some ten years since I supplied a near neighbour with a large number of Peach trees, which were planted against high walls with a south-west aspect. When these trees came into full bearing our proceedings were as follows—I call to mind more particularly the years 1860, '61, and '62:—A table was placed in front of the wall, on which were placed my orchard house Peaches, of the same varieties as those growing on the wall; these were tasted *seriatim*, and in no single instance can I recollect that the wall Peaches were equal in flavour to my Peaches; they were not so melting and juicy, nor so rich. On thinking the other day of my nearly annual test I visited my neighbour's garden, and found to my regret his trees eaten up with red spider, and his fruit small and poor. I can scarcely forbear smiling when I read my old friend Thompson's theory of the energy of the sun's rays transmitted through the glass to any considerable distance being "next to moonshine." How I wish he could have visited me last week to have seen his theory made "mild as the moonbeam" in this way. A Shanghae Peach tree, the fruit of which seldom or never ripens well on a wall, stands on the floor nearly in the centre of a large Orchard house 12 feet high; this tree is in a 13-inch pot, and only 3 feet high, consequently, making due allowance for the slope in the roof, its top is 8 feet from the glass; the fruit it bore measured some 9 inches and some 10½ inches in circumference. To my surprise they were more sugary and of higher flavour than I ever found them; this was of course owing only to the excess of sun-heat transmitted through the glass to a distance of 8 feet.

I remember well the gardening axiom, which I have often employed—"the nearer the glass the finer the fruit;" but rules in gardening as well as in grammar have many many exceptions. I have within these few minutes gone into one of my large span-roofed houses 12 feet high. I gathered from a bush tree of the Noblesse Peach in a pot—the upper surface of the tree; the branch from which I gathered the fruit I found to be 7 feet from the roof. This fruit (a Malta Peach from a tree standing by its side was even more rich), was as rich and juicy as any Peach could be. I then gathered a Noblesse Peach from a standard planted in the border of the same house; this was growing about 2 feet from the glass. I found its flavour not at all equal in richness to the first-named. The cause seems to me very apparent; the roots of the standard tree are growing in a temperature some degrees lower than those of the tree in a pot.

The finest and richest Peaches I have eaten this season, or I may add the finest I have ever eaten, were taken from some young trees in 11-inch pots, standing in a small span-roofed orchard house about 5 feet from the glass. The most flat and insipid Peaches I think I have ever tasted I have gathered from a tree of the Bellegarde Peach, in a pot standing alongside the Noblesse and Malta Peach trees alluded to above!

From what I have stated, my mode of testing orchard-house Peaches with wall Peaches will, I think, seem efficient. I have only to say that I have accounted for many wall Peaches being ripe at the summit and unripe at their base from the impossibility of the heat of the sun penetrating through the Peach to the wall so as to heat it near the stalk of the fruit and ripen it at that part. I have accounted for the superiority in the ripening of orchard-house Peaches by the fact that each fruit is as it were wrapped in hot air, for during this summer my orchard houses have often shown a temperature of 90° and 95° in the shade under the leaves of the trees, and from 100° to 110° in the sun, the thermometer placed near the ground in an inverted flower pot. Now the air surrounding a Peach on a wall must be of unequal temperature, for the wall behind a large Peach, a non-conductor of heat, is always comparatively cool, and has but little ripening power.

With regard to the colouring of Peaches, as a rule wall Peaches are deeper in colour than those under glass, but, as if to ignore any rule, and to show that Peaches grown at a distance from the glass are not always of a "greenish hue," as stated by my worthy friend, my deepest coloured Peaches—their rinds of a very dark crimson—have been grown on low trees, the fruit being 9 feet from the glass. But then my glass is in very large squares, and the house span-roofed, 100 feet long and 24 feet wide, well placed in an airy open position, and also thoroughly ventilated by low side ventilation, a method not yet fully carried out, and sometimes pooh-poohed by regular builders.

Mr. Thompson has most probably not made his observations on orchard house Peaches in a light well ventilated house, which will account for his low estimate

of their appearance and flavour. The highest coloured Peaches and the most inferior in flavour I have tasted this season have been gathered from walls—the Bellegarde and Royal George — the palest in colour and the richest in flavour have been gathered from the orchard house—the Noblesse, the Malta, and one or two seedlings. This is, however, no rule, for the converse may have been experienced by many cultivators both amateur and professional.

I can say with truth that I have gathered some very inferior Peaches from orchard house trees this season (the fruit properly thinned, and the trees standing in the full glare of sunshine near the glass) of good varieties that generally produce excellent fruit, and I have been at a loss to account for it. As a rule, half standard, low standard trees, and pyramids, should occupy the greater portion of large orchard houses from 12 to 15 feet in height.

From what I have said it will be seen that in spite of what Mr. Thompson says with regard to "the sun's rays being weakened by a large amount of reflection" in passing through glass, and "paralysed by refraction," my thermometers have shown strong facts to the contrary. A temperature of 95° in the shade, and 110° in the sun, is very unlike that given by "moonshine," and an attempt to grow Peaches in it is not quite so vain as to attempt to grow Cucumbers by moonlight only, as half suggested by Mr. Thompson.

It is very agreeable to read a letter like that of Mr. T. (page 822); its philosophy seems sound and good. I have given nothing but plain facts in reply to his interesting theory. As he has not given us his usual signature of "R. T.," but seems to wish to make himself responsible for all he says by giving his name in full, I beg to be allowed to incur the same responsibility for all that I have said by omitting the usual "T. R.," and signing myself *Thos. Rivers.*

BRITISH ASSOCIATION.

We find little to interest our readers in the recent proceedings at Newcastle. The following matters however are suited to our columns:—

On the Cultivation of Cinchona in India, by Mr. C. R. Markham.—Dr. Thomson said it was those only who knew how rapidly the supply of Quinine from Chili and South America was being exhausted that could know how inestimable was the work which the paper of Mr. Markham described. The experiments which had been made, had shown, not only that the plant might be grown in other countries, but that the bark of the young tree yielded a much larger proportion of Quinine than that of the old. The good which would result from carrying the cultivation of the plant into new fields was immense; for while the application of Quinine was extending, many of the hospitals had had to restrict its use on account of the expense; and the result of the recent discoveries would be that physicians, when prescribing bark alone, would give the preference to young bark.

On Glass.—By Mr. R. W. Swinburne.—The art of casting plate glass by throwing the molten material on an iron or copper table, and rolling it into a sheet of equal thickness, was first adopted in England, in Lancashire, in 1771; but there is abundant proof that plate glass of smaller dimensions was made before that time at South Shields, near this town, where is situated the only manufactory of plate glass in this district. In the early part of the 17th century, an article called blown plate glass was made at that place, and the manufacture was continued by the family who originally established it until 1845, when the process was abandoned, being entirely superseded by the cast plate. In this is afforded an instance of the superiority of machinery over manual labour. Blown plate glass, which was the great original of the art in all countries, depended entirely in its manipulation on the strength of lungs and dexterity of muscle of the individual operator, whose *chef d'œuvre* was about four feet long and two and a half feet wide, whereas the cast plate is made by the co-operative efforts of 20 men who move from the furnace the crucible in which the material is melted, and by means of powerful machinery roll it into a plane of any required dimensions. The record of the daily manufacture of blown plate glass at South Shields, in 1750, is still extant, and affords a curious proof of the infancy of the art and of the difficulties of the operator. Up to the year 1845, the returns of the Excise duty show that there was more plate glass made at South Shields than at any other manufactory in the kingdom. In that year the Excise duty on glass was abrogated, and in consequence, the produce of this manufactory has been quadrupled. Previously to 1845, the quantity of unpolished plate glass blown and cast at South Shields was 312,000 feet per annum: now its capability of produce is 1,240,000 feet per annum. A new kind of plate glass, called rolled plate, has been for some time manufactured at Sunderland, by the spirited firm of Messrs. Hartley & Co. The invention is due to Mr. James Hartley, who has had the honour of establishing a new branch of manufacture of great public utility. This new article somewhat resembles unpolished plate glass, but is lighter in substance and eminently fitted for roofing and other purposes of construction where translucency only is required. Ordinary window-glass was first used in Great Britain for architectural purposes at the great monasteries at Monkwearmouth, on the River Wear, and at Jarrow, on the Tyne. The Venerable Bede, our first ecclesiastical historian, who flourished at the former place in the seventh century, relates that his contemporary, the Abbot Benedict, sent for artists beyond the seas to glaze the Monastery of Wearmouth. St. Bede and St. Benedict were, in their day, great promoters of literature and the fine arts, and they imported from all parts of Europe everything that could give splendour to their churches and inspire their disciples with a lofty enthusiasm. Such was the change made in their churches by the use of glass instead of other and more obscure substances for windows, that the unlettered people avowed a belief, which was handed down as a tradition for many generations, "that it was never dark in old Jarrow Church." The extreme rarity of window-glass in this locality prior to its being made in this borough, in 1616, is evinced by the following entry in the minutes of a survey of Alnwick Castle made in 1573:—"And because, throwe extream windes, the glasses of the windowes of this and other my lords castels and houses, here in the country, dooth decay and waste, yt were good the whole leightess of everie windowe, at the departure of his lordshippe from lyinge at anie of his sade castels and houses, and duringe the time of his lordshippes absence, or others lyinge in them, were taken down and lade up in saftie, and at sooch tyme as other his lordshippe or anie other sholde lye at any of the sade places, the same might then be set uppe of newe with small charges to his lordshippe, whereas now the decaye thereof shall be verie costlie and chargeable to be repayred." By a singular coincidence, the first manufactory of window or crown glass in Great Britain was established at Newcastle-upon-Tyne, within a few miles of these monastic establishments. In the year 1616, Admiral Sir Robert Maunsell erected glass-works at the Ouseburn, Newcastle, which were carried on without interruption till nearly the middle of the present century, when they were closed. When the British Association first held its meeting in Newcastle-upon-Tyne there were six large crown-glass manufactories in operation on the river Tyne, producing annually upwards of seven millions of feet of window-glass. These manufactories have now ceased to exist, owing chiefly to the introduction of sheet glass into this country, and the comparatively low price at which plate glass can be now had. Crown glass is made in a circular shape, which of course involves a considerable loss of surface in being reduced to the rectangular shape in which all window-glass is used, and the knob or "button" in the centre limits the size of the window panes. The public taste now demands panes of large dimensions—an object which is attained by the use of sheet glass; and although crown glass maintains the palm of greater brilliancy, yet it must be esteemed in the light of an effete manufacture, and will gradually die out in this country, as it has already done on the Continent. Flint glass, the "crystal" of the ancients, has been made in Newcastle and its neighbourhood for a very considerable period, but its early history in this locality is obscure. It is more than probable that its manufacture was first introduced here by Sir Robert Maunsell, who, as before remarked, established window-glass works in this borough in 1616.

Home Correspondence.

Vine Growing in Yorkshire.—It is evident that Mr. Nicholson considers his success (see p. 845) worthy of record. Every practical gardener will however see at once that it is nothing more than it ought to be under judicious management. Such results ought to be the rule and not the exception. In the spring of 1861, I repotted and started several two-year old Vines in a heat varying from 60° to 65°. By the latter end of May they had made what is called nice shoots, but the weather proving cold, I deferred planting out till about the middle of June. I then planted them in what I considered a well prepared border outside the house. They never made a stand, but furnished canes measuring from 25 to 35 feet in length. One Vine (Pope's Black Hamburgh) grew to an unusual size. This I did not cut back to the base as I did the rest. Early in the spring of 1862 all broke vigorously, showed fruit in abundance, and by the middle of June I had some of the very best Grapes upon them I have ever seen in this locality. I allowed the Pope's Hamburgh to bear no fewer than 25 bunches; this I know is considered cutting the throat of a Vine; notwithstanding I had this year 37 bunches on the same Vine, weighing from 2 to 3 lb. each, and one was 3½ lb. The bunches were not quite so heavy the first year, but the berries were quite as large. I have exhibited Grapes at our show at York in June off the same lot. I showed two bunches of Chasselas Musqué, which came in for a prize. At another local show I exhibited two magnificent bunches of Muscat of Alexandria, 3 lb. weight, which the judges pronounced perfect. This I simply state in order to encourage those who are starting Grape growing for the first time, for I believe that no sort of fruit will better repay the outlay of doing the thing well, than the Vine will. I may add that the above results have been accomplished within a mile and a half of the smoky town of Leeds. *James Thomson, Wortley, Leeds.*

Cinchona.—If, as your correspondent "G. B." says, it has been already decided by competent authority how Cinchona is to be pronounced, then the matter is settled, and that is what I want to know. But it may have been settled wrongly nevertheless, and if, as I believe, Cinchona is a Spanish word, the simplest way of making it either English or English-Latin would have been to pronounce it exactly as if it were an English word, not derived from any language in which the *ch* is sounded gutturally like the Greek χ, and this would be the proper Spanish pronunciation also, for we need not adopt the Madrideñan lisp, as "G. B." suggests we must do in such a case. There can be no reason for sounding it Chinkona. *Exul.*

Ivy.—About five years ago, when making some repairs and additions to my house, I was compelled to cut through the stem of an Ivy plant just below the ground, removing the lower part of the stem and the roots. I did not move the upper part of the stem and the branches, from a sort of vague desire to see what would become of them. Their subsequent history has surprised me. The stem and branches, after a separation from mother earth for 4 complete summers, are not merely alive, but apparently in a vigorous condition. So powerful is their vitality that they are rapidly extending over new brickwork, and that for a considerable space. I may remark that another Ivy plant, the stem of which was not divided, is growing in the immediate vicinity of that operated upon. The branches of the two plants interlace, and it has been suggested to me that the maimed plant may derive nourishment from its more fortunate brother. It is for others to inform me whether the phenomenon may be best explained by the above supposition, or whether the atmosphere, together with the brick and mortar to which it adheres, can afford sufficient nourishment to the Ivy plant. My gardener will be ready to show what I have imperfectly described to any person who may take an interest in the matter. I may add that both these Ivy plants must be over 30 years old, and are about 9 inches in circumference near the ground. *Geo. B. Norman, Bromley, Kent.*

Triomphe de Hollande Strawberry.—Last winter a nurseryman in North Holland sold, by means of a beautifully coloured engraving, a new Alpine Strawberry under this name. Although I had my doubts about its being really a new and distinct kind, I nevertheless ordered 50 plants of it for trial. After having tested them carefully, I have come to the conclusion that the famous Strawberry in question is nothing more nor less than "La Meudonnaise" or Lettuce-leaved Alpine, a variety raised some 15 years ago at Meudon near Paris, by Mr. Laffay, and easily obtainable in France at about 5*s.* a hundred! No doubt the Triomphe de Hollande, accompanied by the tempting engraving just alluded to, has also found its way into England. If so, all interested in the subject may easily ascertain the truth of my assertions by procuring runners of "La Meudonnaise" either from Mr. Rivers or Mrs. Nicholson, both of whom possess it. *Ferdinand Gloede, Les Sablons, France.*

Roses.—Now that good Hybrid Perpetual Roses are plentiful, I think prizes should be offered in classes confined to such Roses, say for the best 12, 24, or 36; and so for Bourbons, and Teas with Noisettes; the other kinds, being less grown now, might be lumped in one class, except perhaps Mosses. Bourbons not being plentiful, the kinds might be limited to 6, 12, or 18. I object to trusses of Roses, and I do not see why single blooms should not be shown of Roses as well as of Pinks, Carnations, Chrysanthemums, and Dahlias. I am quite sure that size and refinement can be combined in single blooms, and I am equally certain that no adequate notion of what some Roses are can be obtained without liberal disbudding. I always disbud, as I prefer one good bloom to three or four indifferent ones. Probably the best Rose bloom which I have had this year was one of Souvenir de la Reine d'Angleterre, big enough for a Pæony, but smooth, high coloured, and in short, refined in the highest degree. It was like a giant Countess Chabrillant in shape. *P.*

Societies.

Royal Horticultural: *Sept.* 9 (*Great Fruit and Dahlia Show*).—Hardy fruit was furnished on this occasion in great abundance; but owing to the absence of Grapes and Pine Apples from the competition classes, the display as a whole was not so effective as autumn fruit-shows usually are.

Collections of Fruit.—The best of these came from Mr. Turner, of the Royal Nursery, Slough, who had good examples of Washington Plum, Brown Turkey Figs, Incomparable and Walburton Admirable Peaches, Warner's Red Grape Currant, very fine Williams's Bon Chrétien Pears, Morello Cherries, and Pitmaston Orange Nectarines. Among other collections, of which there were in all six, we noticed Double Bearing Raspberries, White Dutch Currants, Warrington Gooseberries still in good condition; Victoria, Coe's Golden Drop, and Magnum Bonum Plums; Ribston and Kerry Pippin Apples; Black Hamburgh and Muscat Grapes; and Barrington and Têton de Venus Peaches.

Awards.—8 dishes: 1st, Mr. Turner; 2d, Mr. Henderson 3d, Mr. Kaile.

Peaches.—Among these were some good fruit, especially a dish from Mr. Kaile of what was called Barrington, the size of which astonished all who saw them. From Mr. Dawson came very fine Violette Hâtive, not very large but well coloured. Mr. Snow

had Bellegarde; and from Mr. Rust came beautiful examples of Walburton Admirable. Some very fine fruit also came from Mr. Bousie. Among other sorts were Vangnard, Galande, Grosse Mignonne, Noblesse, Royal Charlotte, Improved Admirable, Chancellor, Late Admirable, Royal George, and Champion.

Awards—4 dishes: 1st, Mr. Dawson; 2d, Mr. Henderson; 3d, Mr. Benning. *Single dish*: 1st, Mr. Rust and Mr. Kaile; 2d, Mr. Dawson; 3d. Mr. Rutland and Mr. Snow; extra, Mr. Westcott.

Nectarines.—Among these were good dishes of Violette Hâtive, Newington, Pitmaston Orange, Elruge, Brugnon, Red Roman, and Balgowan.

Awards—4 dishes: 1st, Mr Dawson; 2d, Mr. Henderson; 3d, Mr. Rutland. *Single dish*: 1st, Mr. Wilson; 2d (withheld); 3d, Mr. Bailey and Mr. Snow.

Cherries.—These consisted of Morello, Kentish and Florence.

Awards.—1 dish: 1st, Mr. Snow; 2d, Mr. Turner; 3d, Mr. Budd; extra, Mr. Bettridge.

Dessert Apples.—Among these were examples of Cox's Orange Pippin, King of the Pippins, Downton Pippin, Old Nonpareil, Ribston Pippin, Cellini, Fearn's Pippin, Duchess of Clarence, Kerry Pippin, Nonsuch, Col. Waugh, Devonshire Quarrenden, Esher Pippin, Court of Wick, Ball's Golden Reinette, Cornish Gilliflower, Blenheim Orange, and Golden Pippin.

Awards.—3 dishes: 1st, Mr. Bousie; 2d, Mr. Martimore; 3d, Mr. Wren; extra, Mr. Grover and Mr. Wright.

Kitchen Apples.—These consisted of Baltimore, Reinette du Canada, Dumelow's Seedling, Waltham Abbey Seedling, Grenadier, Cox's Pomona, Hollambury, English Codlin, Emperor Alexander, Lewis's Incomparable, Lord Suffield, Lord Derby, Hawthornden, Scarlet Admirable, Dutch Codlin, Royal Russett, Duchess of Oldenburgh, Cellini, Blenheim Orange, Alfriston, Chancellor, Golden Noble, Kentish Fillbasket, Clifford's Golden Harvey, Lord Nelson, Cumberlean, London Pippin, and Yorkshire Greening.

Awards.—1, Mr. Snow; 2, Mr. Anstiss; 3, Messrs. Lane; extra, Mr. Martimore and Mr. Bousie.

Dessert Pears.—These were confined chiefly to Duchesse d'Angoulême, Beurré Bosc, Marie Louise, Crassane, Chaumontel, Louise Bonne of Jersey, Williams' Bon Chrétien, Napoleon, Glou Morceau, Belle et Bonne, Beurré Diel, Beurré Rance, Comte de Lamy, Van Mons Leon le Clerc, Gansel's Bergamot, Albertine, Beurré d'Amanlis, and Poire Pêche. Last, but not least, were some admirable specimens of Pears grown on trees in pots from G. Wilson, Esq., of Gishurst Cottage, Weybridge. These consisted of Maréchal de la Cour, Louise Bonne, and Beurré d'Anjou, all magnificent fruit, which well deserved a 1st prize, which was awarded them.

Awards.—1st, Mr. Wilson and Mr. Wren; 2d, Mr. Beasley; 3d, Mr. Martimore; extra, Mr. Anstiss.

Currants.—Six dishes of magnificent fruit were contributed by Mr. Tivey, gr. to Lionel Ames, Esq., The Hyde, near St. Alban's. The sorts were Raby Castle, Old Champagne, Red and Black Naples, Red Grape, and White Dutch. The two last were the best flavoured; but the handsomest was the Raby Castle, the fruit of which was wonderfully large and fine. They were grown, we believe, on espaliers, well netted up to preserve them from birds.

Figs.—These were chiefly confined to Brown Turkey, White Genoa, and Brunswick.

Awards.—3 dishes: 1, Mr. Bousie. Single dish: 1, Mr Bailey; 2, Mr. Sayers; 3, Mr. Snow.

Plums.—Of these some beautiful fruit was shown, consisting of Magnum Bonum, Diamond, Coe's Golden Drop, Pond's Seedling, Goliath, Jefferson, Green Gage, Washington, Kirke's, and Reine Claude de Bavay, the last an excellent variety. From Mr. Wilson, Gishurst Cottage, came fine examples of Brady's Green Gage, Waterloo, Golden Drop, and Fulton, a sort in the way of Washington, all from trees in pots grown in an orchard house not artificially heated.

Awards—4 dishes: 1, Mr. Snow; 2d, Mr. Cox; 3d, Mr. Bailey; extra, Mr. Budd and Mr. Sayers. Single dish: 1st, Mr. Snow; 2d, Mr. Wright; 3d, Mr. Alves.

Seedling Fruits.—Among the scanty productions shown under this head, was a yellow-fleshed Peach from Mr. Rust, gr. to the Right Hon. L. Sulivan, which was said to be late and good; but which the Fruit Committee requested might be shown to them again later in the season. A Nectarine called The Shardeloes, contributed by Mr. Bailey, was considered not to be better than the Violette Hâtive. The specimens shown were however over ripe. From Messrs. Lucombe, Pince & Co., came a promising Black Grape in the way of Snow's Muscat Hamburgh, of which good examples were shown by Mr. Blackburn. From Mr. Melville came a large-berried grizzly or rather pale amber Grape not in good condition, but sweet and fleshy. Its colour was however considered objectionable. Finally a large round-fruited Chinese purple Egg-plant or Aubergine, was shown by Mr. Standish.

Of *Grapes*, a highly interesting collection was shown from the Society's Garden at Chiswick; among black kinds were the Frankenthal, one bunch of which weighed 2 lbs.; Barbarossa, 4 lbs.; Black, Mill Hill, and Dutch Hamburghs, one bunch of the last weighing 1 lb. 9 oz.; Black Monukka, 3 lbs. 4 oz.; Black Prince, Black Morocco, Esperione, Burchard's Prince, weighing 2 lbs. a bunch; Morocco Prince, Muscat Hamburgh, Muscat Noir de Jura, Oldaker's West's St. Peter's, weighing 1 lb. 8 oz. a bunch; Violet Frontignan, Strawberry, Gros Colman, Prune de l'Hérault, and Black Corinth. Of White sorts there were Muscat of Alexandria, Golden Hamburgh, one bunch of which weighed 2 lbs.; Royal Muscadine, 1 lb. 6 oz.; Raisin de Calabre, Trebbiana, Reeves's Muscadine, White Frontignan, White Nice, Ward's Early, and some Chasselas variety. Among grizzly or rose-coloured kinds were Ahbee, Chasselas Rose de Falloux, De Candolle, and Tokay des Jardins. Among these the Ahbee and Golden Hamburgh were beautiful bunches, especially the latter, which was well ripened and without speck or blemish. These were cut from the Vines in the great conservatory, the crop in which this year has in no way been behind its predecessors either in size, quantity, or quality.

Miscellaneous Fruits.—Foremost among these were three handsome bunches of Black Hamburgh Grapes from Mr. Morris, gr. to A. Bosanquet, Esq., and a boxful of Moorpark Apricots from Mr. Henderson, gr. to the Duke of Sutherland at Trentham. From Mr. Grover of Hammersmith came Morello Cherries, Warrington Gooseberries, Crab Apples, Pears, Cucumbers, and Tomatoes. Melons were furnished by various growers. Lord Clyde Cucumbers, long and straight, were shown by Mr. Halls, and various fruit trees in pots, finely grown and loaded with fruit, were contributed by Messrs. Lane of Great Berkhampstead. From Mr. Hall, gr. to Lord Scarborough, came a very fine Queen Pine Apple, which weighed 5¾ lbs.

Dahlias.—Great quantities of these were shown, and for the most part in excellent condition, especially the stand of 48, furnished by Mr. Turner, of the Royal Nursery, Slough, which in addition to fine quality contained blooms of unusually large size. The varieties were Norfolk Hero, Andrew Dodds, Mr. C. Waters, Donald Beaton, Hon. Mrs. Trotter, Warrior, Seedling (yellow), Sidney Herbert, Miss Pressley, Seedling (purple), Mrs. Church, Mr. Stocken, Criterion, Garibaldi, Princess of Prussia, Midnight, Madge Wildfire, Mrs. Bush, Grand Master, Triomphe de Pecq, Goldfinder, Pre-eminent, Seedling (white), Seedling (rosy lilac), Lord Cardigan, Beauty of Hilperton, Hugh Miller, Lord Derby, Delicata, Mrs. W. Piggott, Gen. Jackson, Sir Geo. Douglas, Seedling (lilac), Lady Popham, Bob Ridley, Mrs. Henshaw, Earl of Shaftesbury, Chairman, Juno, Pioneer, Charlotte Dorling, Lord Clyde, Volunteer, George Eliott, Umpire, Mauve Queen, Cygnet, and Lord Palmerston. From Mr. Keynes of Salisbury, who also showed fine blooms, were Edward Purchase, Juno, Lord Derby, Disraeli, Willie Austin, G. Eliott, John Keynes, Miss Henshaw, Goldfinder, Harlequin, King of Sweden, Model, Earl Shaftesbury, Gold Drop, John Wyatt, Anna Keynes, D. Beaton, Fanny Purchase, Garibaldi, Jennie Austin, Pauline, Criterion, Lord Clyde, Miss Herbert, Delicata, Souter Johnny, Seedling (yellow), Lady Lilian Paulett, Norfolk Hero, Leopard, Seedling (yellow ground, heavily tipped with crimson), Lilac Queen, Regularity, General Jackson, Earl Pembroke, Marquis of Beaumont, Andrew Dodds, Hon. Mrs. Trotter, British Triumph, Count Cavour, Hugh Miller, Bob Ridley, Sir G. Douglas, Seedling (crimson), Charlotte Dorling, Cherub, Baron Taunton, and Lord Palmerston. Mr. Cattell, who also showed in this class, had nearly the same varieties as those just named. And in stands of 24 the same varieties were generally shown. Exhibitions from amateurs were all that could be desired, as far as size and quality were concerned.

Awards.—48: 1, Mr. Turner; 2, Mr. Keynes; 3, Mr. Cattell. 24: 1, Mr. Turner; 2, Mr. Keynes; 3, Mr. Perkins. *Amateurs.*—18: 1, Mr. Thorneycroft; 2, Mr. Charlton; 3, Mr. Corp; extra, Rev. C. Fellowes.

Fancy Dahlias.—Among these we noticed fine blooms of Harlequin, Countess of Bective, Pauline, Starlight, Elegans, Queen Mab, Confidence, Lady Paxton, Miss Jones, Mrs. Crisp, Norah Creina, Madame Sherrington, Summertide, Fairy Queen, Mrs. C. Kean, Countess of Shelburne, Pluto, Zebra, Garibaldi, Rev. J. Dix, Triomphe de Roubaix, Mrs. Wickham, Duchess of Kent, Leopold, Oliver Twist, Flirt, The Cure, Elizabeth, Mary Lauder, Prince of Wales, Gloire de Kain, and Gem.

Awards.—18: 1st, Mr. Keynes; 2d, Mr. Turner: 3d, Mr. Legge. *Amateurs*—12: 1st, Rev. C. Fellowes; 2d, Mr. Corp; 3d, Mr. Sladden; extra, Mr. Perry.

Roses.—Exhibitions of these were furnished in tolerably good condition, and among them were fine blooms of the following varieties, viz., Senateur Vaisse, Souvenir de Leveson Gower, Louis the Fourteenth, Madame Furtado, Lord Clyde, General Washington, Jules Margottin, Souvenir de Malmaison, Comtesse Cecile de Chabrillant, Baron Gonella, Gloire de Santenay, General Jacqueminot, Pourpre d'Orleans, Celine Forestier (clear yellow), Catherine Guillot, Maréchal Vaillant, Madame Falcot (bronzy yellow), Gloire de Dijon, François Lacharme, Madame C. Crapelet, Narcisse (yellow), Acidalie (pure white), and Victor Verdier, all excellent late autumn Roses.

Awards.—1st, Mr. Turner; 2d, Messrs. Paul & Son; 3d, Mr. Clarke.

Gladioli.—Of these there was a fine display from various growers, whose best varieties were Madame Vilmorin, pink, striped with purple; Lord Raglan, salmon, with dark blotches on the under petals; Othello, deep crimson scarlet and yellow; Oracle, rose striped with carmine; Princess Clotilde, rosy salmon, striped with purple; Napoleon III., scarlet, with a yellow throat; Le Poussin, very handsome rosy salmon, with a clear white centre; Madame Haquin, white, striped and flushed with lilac; Mazeppa, large red and yellow; Jeanne d'Arc, French white, striped with purple; Brenchleyensis, glowing crimson scarlet; Endymede, large rosy salmon; Mrs. F. Rouget, like the last, but darker; Madame de Vatry, white striped with crimson; Queen Victoria, white flushed and streaked with purplish lilac; Madame Basseville, salmon with white blotched under petals; Penelope, delicate pink striped with purple; Madame Souchet, pink stained and streaked with crimson; Mrs. Reynolds Hole, carnation striped white; Prospero, crimson scarlet; Impératrice Eugénie, a splendid kind, white, striped and suffused with rosy lilac; Etna, scarlet; Mrs. Dix, white, striped with purple; Chas. Davis, crimson streaked with purple; Brian Boru, scarlet streaked with violet; Roscius, large showy rich salmon, streaked with violet; and Comte de Morny, crimson and white.

Awards.—1st, Messrs. Youell; 2d, Mr. Standish; 3d, Mr. Prince. *Amateurs.*—12: 1st, Mr. Sladden; 2d, Mr. Perry; 3d, Rev. H. H. Dombrain.

Hollyhocks.—A few blooms of these were shown, among which the best were the Rev. J. Dix, Prince of Wales, Princess, Geo. Young, Macrantha, Decision, Minerva, Invincible, Warrior, Acme, and Carus.

Awards.—12: 1st, Mr. W. Chater; 2d, Messrs. Minchin & Son; 3d, Messrs. Paul & Son.

Asters.—The different exhibitions of these were much admired, the German sorts being beautifully quilled and otherwise in fine condition, and the French kinds large and handsome — in short equal in size and doubleness to ordinary blooms of Dahlias themselves. From Mr. Cutbush came a collection in pots, consisting of large well bloomed plants.

Awards.—24 *German*: 1st, Mr. Betteridge; 2d, Mr. Wyatt; 3d, Mr. Sandford. 24 *French*: 1st, Mr. Betteridge; 2d, Mr. Wyatt; 3d, Mr. Sandford.

Phloxes.—Of these we only noticed one collection, which came from Mr. Turner; it contained some fine rosy pink and white kinds, and others, white with crimson centres; among the last the best was Cheerfulness.

Verbenas.—Of these there were several interesting exhibitions, in which were fine trusses of Emperor of Morocco, plum with white eye; Ida, rose; Rosy Morning, bright rose with white eye; Count Orsini, purple with white eye; Lord Leigh, scarlet with white eye; L'Avenir de Ballant, delicate pink with rosy eye; Annihilator, crimson with white eye; Mrs. Moore, deep violet with white eye; Mauve Queen; Modesty, purplish crimson with white eye; Ruby King, salmon red; Startler, crimson with white eye; Rubens, like the last, but a shade or two darker; Countess of Bradford, lavender; and Fairest of the Fair, white with purple eye; all valuable show varieties.

Awards.—24: 1st, Messrs. Perkins; 2d, Mr. Perry 3d, Messrs. Minchin & Son.

Miscellaneous Subjects.—Conspicuous among these was a group of Autumn-flowering Annuals from Messrs. Carter & Co., of Holborn. Among them were charming examples of miniature orange and striped Marigolds, also large showy deep orange and pale lemon-coloured varieties of the same useful flower; variously coloured bouquets of hardy Everlastings; Asters large and fine, some beautifully striped, others self-coloured; and, last but not least, some surprisingly fine blooms of Double Zinnia. From Mr Salter, of Hammersmith, came a collection of hardy variegated plants. Mr. Barker of Godalming had a beautiful stand of Tropæolum blooms; also Cupressus Barkerii, a Weeping Cypress, which, when first shown, the Floral Committee honoured with a certificate. Finally, from Mr. Whiting, of The Deepdene, near Dorking, came an interesting collection of Potatoes, of which separate notice will be taken next week.

Besides the Seedling Dahlias, on which we shall take another opportunity of commenting, there were some interesting novelties submitted for the examination of the Floral Committee. Some of the most remarkable of these belonged to the class of Ferns. Thus, Mr. Dean, of Shipley, showed a very nicely-grown specimen of Cionidium Moorii, an Australasian species, discovered by Mr. C. Moore, after whom it is named, and particularly interesting as a netted-veined representative of Deparia, a Fern in which the fructification forms little cups set out on short stalks from the margin. The fronds of this Cionidium, which were rather broad-surfaced, and divided something after the manner of Aspidium trifoliatum, appeared fringed by the multitude of these projecting sori. Another was Pteris pellucida, from Mr. Bull, of Chelsea, a pinnate Fern with long broadish ribbon-like pinnæ, which were conspicuously wavy at the edge, the young fronds having a rich reddish-brown tint. Mr. Bull also had Adiantum cardiochlæna, one of the best of the larger growing hothouse Maidenhairs, a very handsome species, which though here and there met with in collections, was deserving of the First-class Certificate which was now awarded to it, a similar award being also made to each of the plants previously mentioned. Another First-class award was made to Centaurea argentea from Messrs. E. G. Henderson & Son; this is one of the beautiful white-leaved plants alluded to at p. 842, and is at present scarce. A Second-class Certificate was given to a very handsome hybrid Orchid called Cattleya exoniensis shown by Messrs. Veitch & Son, and which we understand was the result of a cross between C. Mossiæ and Lælia purpurata; it was dwarfish in habit, with moderate-sized blossoms of a blush white, the petals somewhat acuminated and frilled, the lip tipped with a broad definite patch of purple rose, the hinder part being yellow, with a dark patch at the base;

as it gains vigour and age it will probably prove a very fine thing in its class. A similar award was made to Gladiolus Charles Davis, from Mr. Standish, of Ascot, a smooth, bright, rosy scarlet, with purple markings. Commendations were given to the same exhibitor for other varieties of Gladiolus, named Mrs. Dix, a faintly-striped white with distinct purple flame; Mount Etna, a large bright pale scarlet; and Randle Jackson, a blush-white striped with pink. Several other fine seedlings came from the same source. Some interesting variegated plants were produced, especially Phytolacca decandra variegata, a bold herbaceous perennial, with very strongly-marked leaves edged with creamy-yellow, the small green portions of which next the midrib were mottled with grayish green; when well established this must be a very effective plant; it received a Commendation, as did also Anemone japonica Honorine Jobert, from Messrs. F. & A. Smith, of Dulwich, a continental variety producing showy white flowers, and likely to be useful as an autumn-flowering perennial. A Special Certificate was awarded to Messrs. Veitch & Son for a miscellaneous group of flowering plants; in it the glorious Japanese Lilium auratum, and the interesting Anthurium Scherzerianum with its reflexed scarlet spathes were conspicuous. Similar Certificates were assigned to Messrs. E. G. Henderson & Son for a large group of cut blooms of Pompon and Bedding Dahlias, set up in Hyacinth glasses, and forming a very interesting feature of the show; for a large group of Variegated-leaved Pelargoniums, amongst which Lucy Grieve and Mrs. Benyon were conspicuous; and for a most interesting collection of 10 sorts of Tree Ivies, of which neat bushes grown in pots were shown. The names of the best Dahlias were Little Mistress, Little Dear, Pretty Polly, German Daisy, and Fairy Child. Messrs. Henderson showed cut blooms of a fine looking Verbena named Lady Palmerston, a broad-lobed white with deep rose eye and more or less flushed with rose; and Mr. Eckford, of Coleshill Gardens, sent a large deep but coarse scarlet, named Lord Radnor. Some attractive Pelargoniums were shown by Messrs. Saltmarsh & Son, Chelmsford, one of which, called Little Treasure, of dwarf bushy habit with small zonate leaves, and a profusion of scarlet flowers, promises to be useful; and another, Luna, a yearling, had handsomely marked leaves of a golden yellow with a well defined zone of brownish red. Finally, Mr. Bull showed a large number of interesting plants, including the very fine Vallota purpurea eximia, which appears to be distinct from major in having a pale centre, serving to set off the glow of the broad flame-scarlet perianth segments; Geonoma Ghiesbreghtii, a good looking broad-lobed pinnate Palm, from Mexico; the pretty Fern Cheilanthes or Adiantopsis radiata, shown under the now discarded name of Adiantum radiatum; Schizocasia Portei, a cut-leaved Caladium; some shrubby variegated Begonias, which may perhaps be useful for stove decoration; and one or two good forms of velvety-leaved richly-coloured Gesneras of the zebrina set. The list of awards made to the Seedling Dahlias will be found in our advertising columns. We ought not to omit to mention some Fuchsia blooms from the collection of E. Banks, Esq., of Deal, which were placed on the table by Messrs. E. G. Henderson & Son. There were among them several remarkably fine things, but two which attracted especial attention had the corollas spread out nearly flat, like great Melastoma flowers; one of them which we measured was 2½ inches across.

Notices of Books.

The *Botanical Magazine* of this month contains figures of some very interesting plants. One of the most prominent is *Bowenia spectabilis*, noticed elsewhere, a fine bipinnate-fronded species, discovered originally by Allan Cunningham, and more recently by Mr. Walter Hill, by whom it has been introduced to our gardens. Another of considerable interest is *Silene Elizabethæ*, a dwarf perennial Catchfly, reminding one, in the size and form of its flowers, of accidental five-petaled blossoms of Clarkia with undivided petals. This rare and handsome species is a native of Italy, and forms a dwarf viscidly pubescent tuft of lanceolate acute spreading leaves, with stems of about a span high, terminated by a dichotomous panicle of several bright rose-coloured flowers, which measure an inch and a half in diameter; it is grown at Kew. *Musa vittata* is also figured from plants which have blossomed at Kew, and is regarded as a striped-leaved form of *M. sapientum*. "The remarkable variety of the common Banana here figured," writes Sir W. Hooker, was discovered by the late W. Ackerman in the island of St. Thomas, in the Bight of Benin, and by him sent to his employer M. Van Houtte of Ghent. At about the same time, that island was visited by Mr. G. Mann, our own energetic collector, by whom fine young plants were sent to the Royal Gardens, where they flowered in June of the present year. Though similar in all essential characters to the common Banana, this forms, especially in its young state, a very striking feature amongst the dark green foliage of a tropical house; but as the plants come to maturity the colours fade. The fruit in all our plants bears no seed, and there seems little doubt, both from this circumstance, and from the information we have received from Mr. Mann, that the variety is a cultivated one, and that the M. sapientum is nowhere indigenous to Africa. It is indeed suggested by M. Rodigas, that M. vittata is a variety of M. sinensis, which is the M. Cavendishii of Paxton, and differs chiefly in stature and habit from M. sapientum." The other figures represent *Homoianthus viscosus*, a Chilian herb, apparently perennial, introduced by Messrs. Veitch & Son, and which has radical leaves 3 or 4 inches long, lanceolate or narrowly spathulate, tapered into a long winged petiole, and crenately toothed, and bears corymbs of several large flower-heads made up of three or four rows of blue florets, the central ones two-lipped; and lastly, *Catasetum cernuum*, a green-flowered species of the Myanthus group.

Seemann's Journal of Botany contains a continuation of the Editor's revision of the Bignoniaceæ, with a plate of *Dolichandra cynanchoides*; a paper by Prof. Babington on the Botany of South Pembrokeshire; Sir W. J. Hooker's report on Kew Gardens; a notice by Mr. J. G. Baker of Hypericum lineolatum, which is identified with a plant found sparingly near Thirsk, but of which it is remarked that it appears to be a mere form of our common H. perforatum; a critique by the Editor on the position of Hydrocotyle, Opa, Commia, and Blastus in the Natural System, and sundry book notices and scraps of botanical news. Hydrocotyle is referred, along with some other reputed Umbellifers, to Araliaceæ, Opa is identified with Rhaphiolepis which it supersedes, Commia proves to be the same as Excœcaria Agallocha, and Blastus is an overlooked Melastomaceous genus synonymous with Bentham's Anplectrum parviflorum.

The illustrations of the *Floral Magazine* consist of a group of *Ixias*, beautiful flowers which ought never to have been otherwise than popular; *Rhododendron Countess of Devon*, a handsome hardy variety with French white finely spotted flowers, raised by Messrs. Lucombe Pince & Co.; *Bourbon Rose Rev. H. Dombrain*, a fine looking carmine rose, said to be very fragrant, and of which it is predicted that it will be a general favourite, "no flower of the same form and colour having previously appeared amongst the Bourbons;" and finally a group of the Double-flowered *Pyrethrums*, to which we have adverted on a former occasion. The present number appears without the usual "companion."

Garden Memoranda.

MR. CHATER'S NURSERY, SAFFRON WALDEN.—To Mr. Chater chiefly belongs the merit of being the originator of the improved race of Hollyhocks that now occupy our gardens. By patient cross-breeding new varieties, better than their predecessors, yearly sprung up under his care, until now, thanks to him as well as to other raisers, little is left us to desire, at least as far as size, doubleness, and quality are concerned. New colours are, however, still a desideratum, and to that point particular attention is now being directed.

As regards cultivation, all the Hollyhock requires is good garden soil, well trenched to the depth of 2 feet or so, incorporating with it, as the operation proceeds, plenty of thoroughly decomposed manure, such as that from old Cucumber beds, or decayed night soil. If the subsoil is wet, Hollyhocks will thrive remarkably well in it in summer, but in winter wet is injurious to them, *i. e.*, in cases in which old plants are allowed to remain out of doors; to prevent that Mr. Chater removes the mould round the neck of the plant, and fills up with white sand, an operation which he states preserves them from wet and insects, from which, in winter, they are apt to suffer, if not killed. He however recommends young plants being planted every year, as one would Dahlias, if fine flowers are desired. Hollyhocks may be propagated by single eyes in July and August, also by cuttings in spring, placed on a slight bottom heat. Plants raised in summer are best preserved by repotting them in October into large pots—the larger the better, in light rich sandy earth, and placed in a cold frame or greenhouse, giving plenty of air on all favourable occasions; they will then grow during winter. In March or April turn them out into the open ground, and they will bloom as finely and as early as if planted in autumn. Plants even put out in May will flower the same year. Plant them not less than 4 feet apart from row to row, and 3 feet asunder in the row. If grouped in beds they should not stand nearer than 3 feet each way. They succeed under the shade of trees, but not too near their roots. In May or June, when the spikes have grown a foot high, thin them out according to the strength of the plant; if well established and very strong, leave four spikes; if weak two or three; when required for exhibition only one must be left. In good varieties the individual flowers on the spike should all be perfect, the edges smooth and even. The florets occupying the centre must be full and compact, closely arranged, rising in the middle in a half globular form, with a stiff guard petal extending outwards about half an inch in proportion to the size of the centre, so that the different parts of the flower may present a uniform appearance. The arrangement of the flowers on the spike should also be regular, and not crowded together into a confused mass, nor hanging loosely with open spaces between each flower; they should in short be so disposed that the shape of each may be distinctly seen, and when fully blown the uppermost should cover the top; nothing can add more to the beauty of a spike than a few small green leaves between the flowers, which give it an elegant and graceful appearance. As regards colours the brightest and most distinct stand first, a point that should be kept constantly in view with seedling raisers.

In exposed situations Hollyhocks must be staked before they get too high, or they are apt to be broken or otherwise injured by wind. The most robust do not require a stake higher than 4 feet from the ground. In dry weather they may be watered with a solution of guano, or any other liquid manure, carefully applied round the roots, not too near the stem. In order to have fine flowers, cut off the lateral shoots, thin the flower buds if crowded together, and remove the top of the spike to the height desired, paying attention to the usual size and habit of the plant. By topping, one may increase the size of the blooms, but at the same time it shortens the duration of flowering, and sometimes disfigures the appearance of the spike.

As regards varieties among the different shades of rose, the best were Crusader, Rosea magnifica, Village Maid, Amandine, Rosy Gem, David Foulis, Beauty of Walden, Queen Victoria, Lady Palmerston, Carus, Miss Barrett, and Rose Celestial.

Among Peach-blossomed kinds Countess Russell and Shortgrove Perfection were conspicuous, as were also Lizzy, Rosea pallida, Beauty of Dysart, the Hon. Mrs. Ashley, Blushing Bride, Joan of Arc, and Beauty of Mitford.

White, or nearly white sorts, consisted of Lady Paxton, Candidissima, Royal White, Queen of Whites, Mont Blanc, and Snowflake.

Of Cherry and Crimson-coloured varieties, the most striking were Beauty of Cheshunt, Lady Helen Stuart, Prince Albert, B. R. Cant, Lady Jocelyn, Warrior, Comet, Lady King, Walden Gem, Candidate, and Conqueror.

Among Scarlets, the most effective were Governor General, Royal Scarlet, Illuminator, Glory of Walden, Joshua Clarke, Garibaldi, Brilliant and Meteor.

Of Salmons, Lady Dacres, Mrs. Oakes, Imperator, Invincible, Stanstead Rival, Excelsior, Premier, and Walden Masterpiece, appeared to be the best.

Among Yellows none were better than Golden Fleece, Defiance, Gem of Yellows, and Miss Lizzy King.

Black Knight appeared to be the best dark kind.

Of Seedlings, Mr. Chater has this year several kinds which promise to be first-class flowers. Some of them indeed have already this autumn received certificates.

Miscellaneous.

Swiss Scientific Society.—An English guest of this Society sends us an account of their pleasant congress in the Alps.—"Samaden, the principal village of the Upper Engadine, has this year been enlivened for three days by the presence of 150 Swiss *Naturforscher*, who there assembled to hold their 47th annual meeting, under the presidence of Herr National Rath von Planta, the worthy and highly intelligent representative of one of the oldest families of this elevated, primitive and charming valley. The general meeting on the first day, the 24th, was held in the Church of Samaden; and the well-known Prof. Vogt there gave his lecture 'On the Antiquity of Man.' On the table beneath the pulpit were casts of the renowned Neanderthal and Enghis skulls, of which the characteristic features were explained. Of course, the famous jaw of Moulin-Quignon, with its decayed teeth, proving, as the lecturer remarked, 'that Adam suffered from tooth-ache,' was amply discussed. Prof. Vogt appeared to entertain no doubt of the authenticity of this jaw, and strange to say he attributed the scepticism of English naturalists, in a great measure, to the fact that the jaw in question exhibits no ape-like characters! This astounding assertion, it is but fair to add, met with no support; at the conclusion of the lecture, in fact, Prof. Heer rose, and quietly, but firmly, expressed his opinion that the sceptics in question had fully established the existence of fraud, and had thereby rendered a great service to science. This lecture was, perhaps, the most interesting event of the meeting on the second day. The several sections assembled wherever they could find accommodation. The Physical and Chemical section, under the presidence of Prof. Clausius, assembled in the Café of the Hôtel de Bernina, and Prof. Wislicenus appropriated the chalk and black board of the billiard-marker in order to illustrate the most modern views of the composition of succinic and other acids. The most characteristic and pleasing features of the meeting, however, were the hearty hospitality of the entertainers and the hilarity of their guests. All the vehicles of the valley, from the most luxurious and elegant barouche to the most excruciating *char-à-banc*, were placed gratuitously at the disposal of the visitors. Each day a procession of 30 or 40 such vehicles wended its way, under triumphal arches, to the several adjacent points of interest, the Mortiratsch glacier, the village of Capella, and the Baths of St. Moritz. The proprietors of the last establishment generously provided a dinner of sumptuous elegance, which, the altitude of 5500 feet being taken into consideration, astonished every one. On the first and third days the 150 guests found ample room to dine in one of the halls of the President's quaint mansion, at Samaden. The young ladies

of the village volunteered their services as cooks and waiters, and the jingle of knives and forks, between the several patriotic toasts, was drowned by national melodies well chanted and played by the amateur musical societies of the valley. Even to the Swiss themselves, and much more to their foreign visitors, the meeting had a peculiar charm; it was unique of its kind, and will be long remembered by both hosts and guests. The next meeting will be held in the more civilised town of Zurich." *Athenæum.*

A New Oak.—On the sides of these hills [west of Peking] I met with a new Oak tree (Quercus sinensis) of great interest and beauty. It grows to a goodly size—60 to 80 feet, and probably higher—has large glossy leaves, and its bark is rough, somewhat resembling the Cork tree of the south of Europe. Its acorns were just ripe, and were lying in heaps in all the temple-courts. They are eagerly bought up by traders, and are used in the manufacture of some kind of dye. I secured a large quantity of these acorns; and they are now growing luxuriantly in Mr. Standish's nursery at Ascot. As this fine tree is almost certain to prove perfectly hardy in Europe, it will probably turn out to be one of the most valuable things I have brought away from Northern China. A species of Maple and an Arbor-vitæ of gigantic size were also met with on these hills, apparently distinct from the species found in the more southern provinces of the Chinese empire, and Walnut trees were observed covered with fruit in some of the temple gardens. *Fortune's "Yedo and Peking."*

Vine Mildews.—Dr. Engelmann exhibited specimens and numerous drawings of two species of Fungi, which infest our vineyards to such an extent as to materially diminish the crop, and influence the culture of the Grape, at least that of the Catawba in our region. The first is a species of Botrytis, and perhaps the same as Berkeley's B. viticola, (very near B. acinorum, Pers.?) It makes its appearance in the latter part of June, on the lower downy surface of the leaves of the Catawba variety of Vitis Labrusca (the only one extensively cultivated here,) forming irregular confluent spots. The horizontal fibres of the mycelium have a diameter of 0.005 line, finer and whiter than the hair of the down with which they are interwoven; the erect fructiferous stems, about 0.3–0.4 line high, and a little thicker than the horizontal fibres, bear numerous horizontal branches, upwards gradually shorter, the last divisions of which form very short pedicels, always two or three together, bearing oblong or oval, very deciduous spores, 0.008–0.011 lines in the longer diameter. About the same time the mildew appears on the pedicels, and often also on the young berries when they are of the size of small Peas or smaller; Dr. E. never saw it on full grown berries. Those attacked on their surface, or on their pedicels soon fall off; but the most material damage is done by the mildew infesting the leaves, whereupon the greater part of the berries will gradually turn yellowish-brown at their base, shrivel from that point, assume a club shape, and at last dry up entirely, usually remaining adherent to the withered racemes. This he designated as the brown rot. The second kind of rot—the black rot—is brought on by a very different fungus, which he believed was undescribed by botanists. It evidently belonged near Ehrenberg's genus Nemaspora, and ought to bear the name ampelicida. It makes its appearance only on nearly full grown berries, exhibiting in the first stage a discoloured spot on the side, but never at the base of the berry, about 2 lines in diameter, with a dark dot in the centre. This spot soon becomes light brown and remains so, while the surrounding part of the berry gets darker, and exhibits a rough or (under a magnifier) pustulous surface; gradually, now, the berry shrivels up and turns black. The individual Fungi are little spherical bodies (0.07–0.10 line in diameter), formed under the surface in large numbers, which, growing, elevate, and at last burst the epidermis, then open at their apex by a small jagged hole, and, shrivelling with the berry, eject a more or less curled or twisted thread, which, moistened, becomes gelatinous, and shows the innumerable oval sporules (0.004–0.005 line long), each imbedded in its coat of mucilage. These kinds of Fungi are found either on distinct Vines, or sometimes also on the same; they are very rarely seen on Grapes cultivated in yards and on houses, but are very common, not to say universal, in our gardens and vineyards, in some seasons more so than in others. It is said that vineyards further north, *e. g.* in Northern Illinois, are free from these pests. Whether other diseases assist in the destruction of the Grape, as wine-growers will have it, he cannot, from his own experience, determine. He has never seen the Erysiphe, which is so destructive to the Gooseberry, and to Vines in graperies, on Grapes cultivated in the open ground. *Proceedings of the Academy of Sciences of St. Louis.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c. — Summer flowering twiners, which usually become unsightly about this season, should be cut back rather freely, as also any others that will bear this treatment. Shade can now well be dispensed with; therefore not a spray that can be spared should be left to obstruct the light. Acacias, and other winter-flowering plants having been subjected to a period of comparatively dry treatment, to ensure their blooming profusely, should now be pretty liberally supplied with water at the root, in order to get them into flower during the dull season, when they will be much more esteemed than in spring, when flowers are plentiful. Manure water, if it can be used, should be given frequently to Chrysanthemums. Give air freely on favourable opportunities, avoiding cold draughts against plants that have been brought from a warm house, and guard against damp by using gentle fires with a little top air on wet days. Let pot specimens in bloom be frequently re-arranged, so as to make the most of them, for the finest specimens become too familiar to be interesting when allowed to remain too long in one place. Be careful not to over-water things brought from the stove, and also to use the water in a tepid state. Use weak liquid manure for Salvia splendens, so as to preserve the plants in a vigorous state, and keep them blooming as long as possible. Give attention to securing a plentiful succession of things for maintaining the gaiety of the house during winter.

FORCING DEPARTMENT.

PINERIES.—As has been frequently mentioned, plants swelling their fruit should be assisted with a brisk temperature, say from 65° to 75° at night, regulating this according to the state of the external temperature, keeping the house rather close on sunny days and allowing the thermometer to rise to 80° or 85° before giving air freely. Also endeavour to proportion the moisture to the temperature, for a high dry temperature is not favourable to the swelling of the fruit, and there is no chance of getting well swelled heavy fruit without plenty of warmth and moisture. Maintain a steady bottom-heat of about 85°, and use every care to keep the soil in a healthy state as to moisture. When watering is necessary, use clear manure-water, give sufficient to moisten the whole of the soil, and avoid frequent dribblings, for when this system of watering is practised it is nearly impossible to keep the under soil in a healthy state. Use the syringe sparingly, and only to dew the plants, as heavy syringings after this season are apt to keep the surface soil so moist as to render it difficult to judge as to when water should be given. Any young plants growing in pots which may require re-potting should be seen to at once so as to allow an opportunity of getting them established in fresh pots, while they can be kept moderately warm. See that the balls are in a proper state as to moisture before repotting, as neglect of this is a frequent cause of young stock fruiting prematurely. Keep moist and rather warm for a time after shifting, so as to encourage the formation of fresh roots.

VINERIES.—Before wet weather sets in we would again advise covering the borders of the early house with dry stable litter, fern, or whatever can be obtained most conveniently that will answer the purpose of keeping the border dry. Nothing answers better for this purpose than clean straw, provided the border has a proper slope from the front of the house; in that case it is easily thatched so as to throw off the wet entirely. Wooden shutters or tarpaulin also answer the same purpose. It will also be advisable to cover the borders of houses in which it is intended to keep ripe Grapes for any length of time, so as to prevent the soil getting saturated about the roots. Look over ripe Grapes frequently, particularly in damp weather, cutting out any tainted berries immediately they are perceived, and keep the atmosphere as dry as possible, using gentle fires when necessary with a free circulation of air; but a warm temperature is nearly as injurious as damp, therefore use no more fire-heat than may be absolutely necessary.

FLOWER GARDEN AND SHRUBBERIES.

The principal work in this department for the present will be mowing and clearing up; and if anything like neatness is to be maintained, sweeping up of leaves will soon require daily attention; also see to getting gravel walks thoroughly cleared of weeds and Moss; roll them frequently when wet, to keep the surface hard and smooth. Continue to afford young plants in pits and frames the most careful attention, and endeavour to get them well rooted and strong without keeping them so close or warm as to render them soft and liable to fog off on the first approach of winterly weather. Therefore admit air freely to all plants that are sufficiently rooted to bear it without flagging. Newly potted-off things should, however, be placed on a gentle bottom heat, which will impart a little warmth to the soil and encourage the formation of roots, but sufficient air should be given to prevent anything like weakly growth. Cuttings of Calceolarias, Scarlet Geraniums, &c., may still be put in where the stock is deficient. Scarlet Geraniums will root almost anywhere, but Calceolarias are not quite so accommodating, as cuttings taken from plants in the open ground are very liable to damp off in heat; these will be found to do very well, however, in a close pit or frame where there is the means of applying a little warmth when necessary to dispel damp. See to securing as many cuttings as possible of any scarce plants which it may be desirable to increase while there is a fair chance of rooting them, and also be prepared to protect Scarlet Geraniums and other things which it may be intended to take up and winter, for we may expect frost any time after this period, and if such things can be protected so as to prevent the foliage and young wood from being much injured they are much more easily wintered. Where Annuals have sown themselves on borders, let them if possible be retained; they will bloom early and strongly in spring, especially the Californian kinds, and may then be transplanted if desired to other situations.

HARDY FRUIT AND KITCHEN GARDEN.

As formerly recommended, look over fruit remaining out of doors frequently, and gather it as it becomes fit. Also examine that stored in the fruit room, as there will occasionally be found a few decaying for a few weeks after housing, and these should be removed as soon as perceived. Keep the fruit room cool and airy, in order to allow of the escape of moisture given off by the fruit, which is considerable for a few weeks at first. Where it is intended to make fresh plantations of fruit trees this season, the ground should be prepared at the earliest convenience, and any fresh soil to be used for planting should be thoroughly exposed to the action of the weather so as to have it in a mellow state when wanted for use. If not already done, clean and dress Strawberry plantations, clearing away all useless runners, giving a good dressing of manure when necessary, but be careful to select that which is thoroughly decayed, and which can be covered without the necessity of digging deep or injuring the roots. The principal crop of Celery should now be kept rather closely earthed up, using quick lime and soot freely to destroy slugs. Give every attention to autumn Broccolies; also to autumn and winter Lettuce, watering with liquid manure to make them crisp, and tying up in regular succession. Blanch Endive and cut away all superfluous shoots from Tomatoes. Brown and Bath Cos Lettuce, as well as Hammersmith Cabbage, for early spring work, should now be pricked out; more especially if getting what is technically termed proud.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON, For the Week ending Sept. 9, 1863, as observed at the Horticultural Garden.

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 3	20	29.719	29.706	72	51	61.5	60½	60½	S.	.44
Friday 4	21	29.848	29.777	73	36	54.5	60½	60½	S.	.02
Satur. 5	22	29.793	29.677	62	43	52.5	60½	60½	S.	.26
Sunday 6	23	29.864	29.618	67	52	59.5	60	60	S.W.	.39
Mon. 7	24	29.739	29.537	70	41	55.5	60	60	W.	.00
Tues. 8	25	29.917	29.839	65	48	56.5	60	60	S.W.	.07
Wed. 9	26	29.755	29.700	69	44	56.5	59½	59½	S.W.	.69
Average.		29.812	29.696	68.3	45.0	56.6	60.1	60.1		1.87

Sept. 3—Very fine; clear, cloudy and fine; heavy rain at night.
— 4—Clear; quite cloudless; very fine; lightning; cold at night.
— 5—Clear; heavy and constant rain; showery.
— 6—Clear; with cool west wind; rain.
— 7—Fine; windy, very drying air; boisterous at night.
— 8—Fine; cloudy; boisterous with rain.
— 9—Rain; densely overcast, showery; thunder, lightning, much sheet lightning and heavy rain.

Mean temperature of the week 1¾ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK, During the last 37 years, for the ensuing Week, ending Sept. 19, 1863.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 13..	67.8	45.9	56.5	17	0.42 in.	2	3	6	2	4	7	8	5
Mon. 14..	66.8	46.3	56.5	19	0.84	1	4	7	4	3	9	6	3
Tues. 15..	67.2	46.5	56.9	19	0.63	1	5	6	2	7	4	6	5
Wed. 16..	68.2	47.9	58.0	15	0.50	3	7	5	1	9	4	6	2
Thurs. 17..	69.0	46.0	57.5	14	0.90	1	6	6	2	2	12	4	4
Friday 18..	66.7	47.1	56.9	17	0.84	3	9	3	1	2	9	6	5
Satur. 19..	66.8	45.4	56.1	18	0.60	4	10	3	1	5	7	4	3

The highest temperature during the above period occurred on the 17th, 1843—therm. 84 deg.; and the lowest on the 17th, 1840—therm. 29 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

GLADIOLUS: *W. H.* We have already explained in our volume for 1861 (p. 382) what the qualities are which, in our opinion, should be insisted on in seedling Gladioli. In brief they are these:—1, the habit should be vigorous; 2, the flower spike should be long, well-furnished, with the flowers inclined towards each other so as to form one face; 3, the individual flowers should represent an obtuse-angled triangle either erect or reversed, the lip marking being confined in the former case to the one and in the latter to the two lower petals, or if continued on the sepals then symmetrically disposed; 4, the colours should be clear and the marking distinct; 5, the surface and margins should be smooth, and the texture firm and stout. Now seedlings are getting numerous, we hope censors will be firm in applying these rules, for though all Gladioli are handsome flowers, yet all are not worth naming and distributing.

HYACINTH GLASSES: *N B.* Tye's have greatly the advantage in appearance, and as far as our experience goes, the bulbs grow quite as well in them as in the old fashioned glasses. Vessels of the same form as Tye's glasses, are, we observe, now made of fine red earthenware, but we have had no experience of their use.

NAMES OF PLANTS: *H H.* The Fern is Cheilanthes or Adiantopsis radiata; Adiantum radiatum is antiquated, and, according to our present knowledge of Fern structure, erroneous.—*W M.* Vallota purpurea, one of the finest of autumn-flowering bulbs.—*H R S.* Centaurea ragusina.—*E D.* 1. Cystopteris fragilis dentata; 2 Cystopteris fragilis.—*W C T.* Apparently Yucca aloifolia.

VARIEGATED PELARGONIUMS: *H. Dodds.* Lucy Grieve is, as far as we have seen, the best of the red zoned yellow-edged, or golden tricolor-leaved sorts, as they are sometimes called. It comes nearest to Mrs. Pollock. Sunset is quite different, and very pretty in its way. We hardly know enough of Mrs. Benyon, the new one certificated the other day, but it at least is a free bloomer. The Nosegays are a fine race for decorative purposes, despite their want of "properties," as a florist would say; indeed Nosegay Stella is probably unequalled for effect.

WOODLICE: *Sub.* One of the best remedies for these is pouring boiling water round the sides of your frame, both inside and out. It must, however, be done carefully, so as not to injure the roots of the Cucumbers. The powder you mention has been advertised in our columns; it will not, however, we fear, be found to answer your purpose so well as the boiling water.

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This best plant is called "*the selection*" of the year (say 1861) in which it is called "A," while another family of the same Wheat known as Z having been observed to exhibit marked superiority has been continued separately, and has given a greater progress during 1862 than has been before obtained in any single year.

The original ear of the large published engraving contained up one of its sides 16 "ranks" (spikelets) of grains, while the "Z family" has produced ears of 18 "ranks," and this, without any increase in the *length* of the ear, the "notches" of the axis on which the spikelets grow being placed more closely together. In a small field of this Z family, ears with 17 "ranks" were quite common, while in other fields of the family "A," *not one such ear could be found.*

This family Z *is now for the first time* offered to the public, and is ready for delivery.

thus obtained, and consists of numerous ears, containing many hundreds, and even thousands, of grains which are planted separately; those of each *ear* being kept quite distinct, as although the best grain of any plant is nearly always found to lie in its best ear, it may be otherwise, and the successive parent *ears* must be preserved. At the following harvest (1862), the best plant forms "*the selection of* 1862," and its produce is continued on the experimental ground, while that of the remaining Plants furnishes the annual seed for the farm in the Autumn of 1862, and the crops are in 1863 offered to the public. Thus, the selection sold is that of 1861, or in any year that of two years before; *the latest selection, that of the year immediately preceding, is not sold, being solely employed as the home seed.* The separate ears of a plant are designated by different letters, numbers, or names—as A, Z, &c., and each, with its descendants, forms a "*family*" which may develope some valuable peculiarity.

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AUTUMN SESSION, 1863.

President—THE RIGHT HON. THE EARL BATHURST.

Council.

The Right Hon. THE EARL BATHURST.
The Right Hon. THE EARL DUCIE.
The Right Hon. T. H. SOTHERON ESTCOURT, M.P.
J. H. LANGSTON, Esq., M.P.
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W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.

DRAWING.—JAMES MILLER.

* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

AGRICULTURE

J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
THOMAS ELLMAN, of Beddingham, Lewes—Lecture on Southdown and Short-woolled Sheep.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.
REV. GEORGE WILKINS, Wix Parsonage—Lecture on Tillage.
N.B. Mr. Wilkins will Lecture on February 9.

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THE COURSE OF STUDY EMBRACES THE FOLLOWING CLASSES:—

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4. Chemistry, Theoretical and Descriptive, from commencement of Session till end of January	Dr. A. DALZELL.
5. Veterinary Materia Medica and Pharmacy, from beginning of February till end of Session	Dr. A. DALZELL.
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The Prizes now offered consist of 1825*l.* in money; 60 Silver Medals; Two Silver Cups, value 40*l.* each, for Cattle; Three Silver Cups, value 20*l.* each, for Sheep; and a Gold Medal for Pigs; also a Butcher's Silver Cup, value 10*l.*

There are now separate Classes for Eleven distinct Breeds of Cattle and Ten distinct Breeds of Sheep, and Four Classes for Pigs of different ages.

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The Entries for AGRICULTURAL IMPLEMENTS, &c., CLOSE on OCTOBER 1.

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At the Office of the Honorary Secretary,
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SMITHFIELD CLUB FAT CATTLE SHOW, 1863. IMPLEMENT DEPARTMENT.

The LAST DAY for receiving Entries for the Implement Department of the Show is Thursday, OCTOBER 1, 1863.

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The Agricultural Gazette.

SATURDAY, SEPTEMBER 12, 1863.

WE see in the columns of a contemporary Agricultural Journal that Mr. DU BOULAY claims the current weather as the fulfilment of his prediction at the time of the Vernal equinox. He says that our dogmatism in the *Agricultural Gazette* on this subject has been brought to a laughable conclusion in a recent Number, when numerous correspondents gave ample information that the harvest is gloriously fine; so that our remarks in April last are likely to turn out to have been "gloriously stupid." The following, we presume, are the remarks to which he refers. At page 322, on April 6, we said:—"Mr. DU BOULAY may be right in his prediction, certainly we do not undertake to say the early hay crop will not be as good as he foretells. We know nothing about it; the only thing indeed of which we are equally certain is that neither does he. Either of us, however, may make a lucky shot, and so contribute one as we may imagine towards that myriad which must be forthcoming before a reasonable Englishman will believe that he has got a clue to the mysteries of English weather." Mr. DU BOULAY's idea is that the weather of the equinoctial week prefigures that of the ensuing summer. There is not a particle of reason to be adduced why it should do

so, and this therefore is one of those cases of an alleged general law which need a multitude of examples before our faith in it can be fairly claimed. Certainly we are not in the least disposed to believe it yet; when the experience of half a dozen generations of men shall have proved that the alleged coincidence does generally obtain, then some degree of faith may be forthcoming. But can anything like this be quoted in its favour up till now? It is as yet unreasonable. There is no *reason* why we should expect it to be true; and in the absence of that we must repeat what with "glorious stupidity" we said last April—that "no induction of particulars, though gathered from the life time of the oldest man, will furnish any 'law' to which the details of so variable and at all times so capricious a thing as English climate will be found obedient."

Does Mr. DU BOULAY claim the weather of the current season as an instance of obedience to his so-called "law?" On the whole the weather of the equinoctial week was remarkably good—cool with slight showers at the beginning, beautiful and warm towards the end; and there was no difficulty in Mr. DU BOULAY'S way such as sometimes happens when weather is not only various within the week, but various within the island during it. The weather was uniformly good over the United Kingdom. But how does his recent letter to the *Mark Lane Express* characterise the season which has followed this beautiful week? He says that heat and cold, and dryness and wet, have all been present during the season in an eminent degree. He speaks of the cold of May and June—the drought of May, the wet of June, and both the frost and heat of July.

It has been a "glorious summer," as was foretold, but the character of the crops on which its claim to this title is alone founded has been owing to the weather previous to the vernal equinox as well as to that which has succeeded it. And *that* on the other hand has not been what the equinoctial week led Mr. DU BOULAY to expect.

The Wheat produce *has* been "superlatively fine;" Mr. DU BOULAY made "a lucky shot" in that. He did not however "see why the early crop of hay should not be good"—though it was really spoiled by the rain; and though it was "just possible," according to his theory, "that the later pastures may be rather bare from dryness and heat, and that Turnips in England in the months of August and September may be inclined to mildew from the same cause." Yet both pastures in September, and Turnips in August and September, have been fed with rain sufficiently, and promise well. The crops in England, Scotland, and Ireland, are unfortunately not "likely to be housed in the best condition before the arrival of the autumn rain." In all this Mr. DU BOULAY'S "shot" has not so accurately hit the mark. And how the sprouted Barley of the southern, western, and midland counties, and the difficult harvest of the north, which we owe to the weather since the date of his letter, falls in with his prediction we do not know. Let us hope that a passage of one of the "larger comets" behind which any apparent failures of his theory may at any time be sheltered, has occurred, at any rate to himself, as the sufficient explanation of a change of weather which must otherwise have tried his equanimity.

HAVING received several complaints of the injuries being committed by Grubs to the Turnip crop, we determined to look into the matter. In doing so the first crop of Swedes entered upon afforded us the observations which we now describe.

The crop in question was very uneven as regards size; here and there were considerable gaps in the rows, on examining which more carefully we saw an occasional plant of a sickly reddish-brown colour. Some of these were taken up by the roots, and in only one instance did we fail to find one or more brownish caterpillars, the nature of whose operations was soon seen in the more or less eroded bulb by which this peculiar colour of leaf is accompanied.

The roots seem to be eaten away in separate holes, much like those that we sometimes meet with in Potato tubers, and we have no doubt in both cases by the same grub. These holes appear to be managed with a peculiar instinct, so that the bulb is not entirely eaten through until it is pretty nearly consumed.

Still, upon looking more closely along the denuded rows, we found the tops of Turnips here and there turned upside down, in some of which the root had been nearly eaten away; in others, however, they seemed to have been broken off, and we are led to conclude by the rooks.

Now the grub that is committing these ravages is about an inch and three quarters in length, grounded with a kind of drab or *cuir* colour, indistinctly marked with greyish bands, both transversely and longitudinally. His skin is thick and leathery, and thinly scattered over with short stiff hairs, and he seems a most lively and active creature. The grub is the larva of the common Dart Moth (*Noctua segetum*), and so is one of a genus the several species of which are most destructive to both field and garden crops. In 1858 our China Asters were eaten off by this same caterpillar to such an extent as to threaten their destruction, until we discovered the grubs and destroyed them.

In the same year the Turnip crops were attacked as extensively as in this season, early springs and long summers contributing to the production of more than a single brood, and hence probably we may account for the different sized grubs we meet with, and their great increase when compared with a short, wet, or cold summer season.

We have said that the grubs are very active, and some notion may be gained of their powers when we observe whole rows of Turnips being denuded by their means, after having been thinned and got to some size. They walk very fast, and at night, favoured by the dews of St. Bartholomew, they travel from one plant to another, so that even a few caterpillars may do an immense amount of mischief; how much more, then, when they are so thick on the ground that we have known good wages obtained by picking this and some of its allies at the price of a few pence per pint. This operation is readily performed by poking away the soil with a spoon-shaped bit of wood, and picking the grubs from suspected plants. CURTIS says that Lord SUFFOLK cleared a field of eight acres of Swedes by hand-picking; a boy followed each hoer, and collected upwards of 1000 daily. About 16,000 were picked up at an expense of less than 2*s.* per acre.

We may now offer a few remarks upon the destruction of this pest. Applications of quick lime, salt, tar-water, infusion of tobacco, and hosts of like remedies will be found to bother these grubs more or less, especially when they come forth at night, as they will do, either to attack the leaves of the plants, or to proceed to fresh individuals. These may be done to some effect in the garden, but in the field we must either pick them ourselves, or allow the rooks to do so.

Turning ducks and pigs into a freshly ploughed field when for Turnips will tend to the destruction both of unhatched chrysalids as also of the young hatched grubs, and it is for these and wireworms that the rook so industriously follows the plough. "The rooks," says CURTIS, "are often accused of doing great mischief to crops when attacked by the grub; they not only search the roots of the infested plants, it is said, but they pull up all as they go. The rook is so sagacious, that I would fain release him from this accusation; when he thus pulls the plants about, I suppose that slugs, wireworms, and grubs, are at the roots; if he did not kill them the plants must die, and without his aid the insects would remain; it is therefore clear that the farmer is a gainer by his services, inasmuch as he gets rid of the vermin which infest the soil, so that at all events his succeeding crops will be free from their attacks."

We can indorse these opinions from repeated observations. We have ever seen the rook actively at work, if let alone in affected fields, but we *never yet saw a truly healthful-looking Turnip turned up by them in their search for these grubs.* The truth is, these birds are keener observers than most farmers; they at once go to the discoloured plants, and are seldom if ever disappointed of their prey.

We well recollect in 1858 being triumphantly introduced to a field of Swedes by a most implacable enemy of the rooks, with something like the following remark—"There now! defend those rascals any longer if you can; I saw dozens of rooks doing all that mischief with my own eyes." Well, certainly the ground was strewn with upturned young Swedes, all however with the reddish purple tops indicative of a something deeper at the root of the matter than our farmer friend had detected, and so we soon proved, for on turning up some of the affected plants from which the rooks had been kept (for the farmer put a boy to keep them off) there we found from two to five of the very same kinds of caterpillars we have been describing.

We cannot conclude this notice without remarking that several species of *Noctua* have been abundant this year, such as *N. brassicæ*, the Cabbage moth; *N. pronuba*, the yellow under-wing moth; *N. exclamationis*, heart and dart moth; with perhaps allied forms. Their caterpillars are much alike in size, and approach each other in colour, so that it is not at all improbable that different districts may present different species, while in some the whole may perhaps be found about the different parts of a single district.

[On a recent visit to a farm in Dorsetshire we were told that the surface grub had then commenced its attack upon the Turnips, but that they had been found out by the Lapwing, who was so industrious as to check the evil in a short space of time. Our informant assured us that he considered the Lapwing or Peewit so valuable that he did all he could to secure it from molestation. Every gardener knows how useful these birds are in keeping slugs, insects, &c., from his crops, and it may soon be shown that they live wholly on animal food. Such large birds, then, must be invaluable as farm servants. It is however getting very scarce over a great part of England, as the greed for their eggs is so great they have but a poor chance of continuance amongst us, a circumstance much to be deplored when we look at the value of its services, the beauty of the bird, and its peculiarly interesting habits.]

TO AGRICULTURAL STUDENTS.

IN CONCLUSION—ON LAND DRAINAGE.

I HAVE now gone over the subject of Land Drainage—one great branch of the purely mechanical part of agriculture—where (the laws of matter only acting) uniformity of practice and experience may be anticipated. The relations of water to the feeding ground of plants (itself food as well as feeder—and cook as well as food)—these relations have been discussed, and the practical methods by which they may be established and improved have been described. A great quantity of detailed description, and many memoranda have been given you. A skeleton of central and general truth has been clothed with the material needed to make it stand a symmetrical well furnished body of useful history and fact.

Are you now prepared, do you think, from what you have now heard, at once to undertake the direction of land drainage?—if only of your own farm? Are you prepared at once to draw up the right plan, and carry it out economically to completion? I address myself, of course, only to those who have now for the first time heard the subject discussed before them, or who have not had any practical experience in the field.

I have not the smallest hesitation in saying you are not. And yet, if anywhere, it is here that a mere description of the operations to be done should be sufficient. The subject is in many respects extremely simple. Of course you know when land is wet—any one can tell when the water gets into his shoes as he walks across his field. And the relations between the water and the earth are of the simplest kind. There are but two forces in operation—the force of gravity, and that surface force of matter to which both friction and capillary attraction are due. Such points as level, depth, dimensions, direction, material, outfalls, obstacles, are capable of easy and exact description. Warmth and rainfall can be measured exactly by instruments, and described precisely by mere words.

It is a question of mere matter, and of the material forces only. If ever words were capable of conveying all the truth, it would be here. And yet I have no hesitation in saying that you have not been enabled by having listened to my story here to reproduce in practice, and realise elsewhere with profit and economy for yourselves, the body of truth which we have been discussing together during the past fortnight. I assert this confidently in this particular instance, because it is probably an instance which more than any other that could be named might be supposed the exception to an assertion of this kind. The unquestionable fact is that you cannot be taught an art by "word of mouth." I cannot teach you agriculture here—not though I had a perfect knowledge of the subject—not though I had a perfect command of language for the purpose.

Gentlemen, there is great responsibility resting on those who profess to teach and give advice—and 20 years' experience have made me wary—and I must therefore warn you—I warn any man who thinks to go from this theatre and these class rooms on to his farm and start business for himself, equipped for that purpose with only what he has heard, listened to, taken note of, even well thought over here, that he will lose his money. I will have no one who may ultimately find himself in this predicament—and there *are* some of you who will—able to tell me "YOU are responsible for this." And therefore I urge it upon you that self instruction by the eye and hand is the real education of the practical man.

Of course it may be that some here are present only that they may obtain general scientific knowledge. Their purpose is served by that mathematical training which they may here undergo, by that knowledge which may be here acquired of the behaviour of matter

under the influence of the forces which the chemist studies, and (as seen in the forms and habits of plants and animals) under the influence of the vital force, and so on.

They do not propose to earn a livelihood by farming. They are interested in agriculture only as a field where these material forces operate, and where their operation may be studied. Well chosen words *can* tell them nearly all they want to know, and my protest does not apply to them; but I hope it will be listened to by others.

Whenever a man wants to do a thing, especially if in order to a profit, he must SEE it done. Words are imperfect; he can detect with the eye many a point which can never reach him through the ear. And then he must teach his hand as well as his mind. He must *do* it for himself, or try to do it, until—having *heard* if you please—but SEEING how the thing is done by others, he at length manages to accomplish it himself.

There may be some here who propose to acquire skill in chemical analysis. Are they satisfied with only being attentive listeners to the Professor of Chemistry? Knowledge of the atomic theory which they may thus acquire is of course essential to them—an acquaintance such as may be conveyed by words with the properties and tendencies and behaviour of every atom which this theory recognises is essential to them. But will all this which they can learn by listening to the Professor here make them analysts? No; they must follow him into the laboratory, and watch the process of analysis, and not only see it done before them, but do it step by step many times themselves.

Gentlemen, there is a great laboratory out of doors. This is a college not of chemistry but of agriculture. If *that* great laboratory is neglected—I say it confidently—the purpose of this institution remains unfulfilled. You cannot learn to farm unless you practise there. All the lectures on all the sciences—even all the lectures upon agriculture—will not make you farmers. Like the man who, wishing to be a practical analyst, carefully watches, superintends, and practises in the laboratory, you must carefully watch, superintend, and practise on the farm. Even there it is not the ear, it is the eye which must instruct you. Your observation can only be directed by another; you must observe for yourselves; not so much for the sake of adding this, that, or the other fact to your store of knowledge, as for the sake of acquiring a habit of observation, so that at length a glance will suffice to tell you whether things are going right or wrong. If I wanted to take a farm on leaving Cirencester College, I would be up in the morning and see the men go to their work—see how orders are given, taken, and obeyed—see how stock is cared for hour by hour and all day long—hold the plough—watch the behaviour of the soil for hours together under every implement of tillage. Especially I would observe, from early morning on till night, the operations of the working men. Yes! and their behaviour too. Even those who are new to the College know that these men have changed masters this summer. The most useful lesson of the session, as I dare say it will be found by those who know how to profit by it, will be given by the behaviour of the men towards their new master, and the behaviour of their new master towards the men. A farmer does not do everything himself—his profits come out of the direction of labour. And the patience, perseverance, temper, resolution, tact, which have to be displayed on an occasion of this kind, are the very finest and most useful laboratory experiment that you can watch.

I fear it may be thought that these remarks have run away from my subject. Land drainage is that operation to which perhaps they less apply than any other. For the behaviour of the soil in relation to water is to a large extent capable of description—while the behaviour of living things under the various influences which affect them cannot be described — and the knowledge of the student and of the farmer here (on which after all his profits directly depend) must be acquired by careful and habitual observation. But it is true even of land drainage. The principles I have urged are capital guides—the details with which you have filled your note book this morning will no doubt be useful to you. But it will not be until you have had practice in the field—until you have seen the actual performance of the operation—until you have once or twice carried it out yourselves, and got punished for your blunders, that you will acquire skill and confidence in the direction of labourers, and that after all lies at the bottom of all agricultural success.

THE GRUB.

[Mr. Jamieson, Fordyce Lecturer on Agriculture at Aberdeen, lately delivered on this subject the last of his course of lectures during the past Session. The Grub here described is the larva of Tipula oleracea—the *Crane Fly* or *Daddy-long-legs*; it is a tough clay-coloured grub about an inch long, and exceedingly destructive in Grass and grain crops.]

"Grub" is a name applied to the larva or maggot of various insects; but the "grub" of the farmer is the larva of a kind of fly known to entomologists as the crane-fly, more familiarly called the daddy longlegs piper, or spinning maggie. (Mr. Jamieson then traced with considerable minuteness the history of the grub through its various stages—from the egg, through the larva and the pupa to the imago or perfect state.) The fly makes its appearance in greatest strength in July and August, and shortly after lays its eggs. The number of eggs laid by one insect is very numerous—in one case he counted as many as 600, but the usual quantity was probably about 300. They were deposited in Grass land in a great variety of situations—in meadows, in lea-lands, by roadsides, the skirts of plantations, in garden lawns, and even in the turf on the roofs of cottages. How long the eggs lie before the larva come out he could not tell, but probably the majority were hatched in autumn or before winter; and they would be found in the grub or larva state from January to August. The eggs being deposited in Grass land, it was accordingly in the corn crop which had been sown in land ploughed up out of Grass that the larvæ made their appearance—that was to say, in what farmers call their lea corn. It was rarely that they were found in the corn following a crop of Turnips; neither were they found in a crop of corn taken upon land that was under a grain crop the previous season. Although not complained of, there could be no doubt that the grub is as plentiful in Grass land or pasture as among lea corn; for a case is mentioned in the spring of 1813, where in Holderness, in Yorkshire, several hundred acres of pasture were destroyed by the grub. Grass plots in London were said to be attacked by them, as well as many garden plants, such as Lettuce, Dahlias, Carnations, &c. It was related, too, that in some of the midland counties of England, where they are in the habit of taking a crop of Potatoes after Clover, it has been found necessary to breast-plough the turf and burn it before planting the Potatoes, to prevent this grub from destroying the crop. In France, also, the Grass land suffers from it.

The grub remains under the turf and flat stones during the day, coming out to feed after dark, and during the night they might be found eating at the tender blades of the young braird. It is probable they attack the roots, but it seems to be the green blade they prefer. About the month of July the grub assumes the state of a pupa or chrysalis, casting its skin, and being covered by a brownish membraneous case; and after a week or two the brownish membrane covering the head or thorax splits, and the creature having wriggled up to the surface, gradually extricates its limbs from their covering, and out it comes as a daddy longlegs—certainly a most marvellous transformation.

Mr. Jamieson then proceeded to consider various remedies for the grub.

Salt has been recommended as a cure; and he could vouch that it killed those he tried it with. He put some grubs into a saucer with a little earth; in the evening he sprinkled salt over them, and in the morning they were all dead. In the field, however, they might crawl away from the salt, so that it was likely any amount of salt that could be put on without injuring the crops would not have much effect in killing them. It was a cheap remedy, however, and worth trying. It was said to have some effect if sown and harrowed in along with the seed. Mr. Jamieson continued—

I have observed that, on ground infested with this pest, the end ridges usually escape injury, even where the rest of the field may be badly grubbed; and so far as I can hear, this appears to be a fact of very general observation—the ground around the gates and corners of fields seldom suffers. This would seem to show that the treading of the animals' feet is beneficial. In the fox-hunting districts of England it has likewise been remarked that the Wheat over which the horses have galloped often turns out the best part of the crop. This suggests the propriety of adopting some means of compressing the ground. For this purpose the pressing-roller, or Croskill's clod-crusher, will probably be found the best. The ordinary rollers are too light to have much effect. Some who have used this crusher inform me that they have found it of advantage. There is another plan which has been tried against the enemy with some success, although at first it may seem to be rather a problematical one. This is making holes a few inches deep, by means of a smooth stick or piece of metal, so as to leave the sides clean and smooth. When the grubs come abroad at night to feed, they fall into these holes, and, as they have no feet, they can't get out again if the holes are properly made. A farmer near Ellon, who tried this plan during the present season, took a census of the numbers that were thus entrapped, and he found that in the course of four nights one hole alone yielded 39 prisoners. I have also been informed that some of the fisher folk along the coast of Kincardineshire keep their crofts free of grub in this way. If the holes are not carefully made, so as to be well smoothed off on the sides, the creatures get out.

I have seen it recommended to sow Italian Grass seed along with the corn, to prevent injury by grub, under the idea that the creature prefers the Grass to the corn, and leaves the latter untouched. Whether this is the case, I can't say, but as the Grass springs slower, the corn, I should think, would be injured before the Grass came up. Plants are most apt to suffer from the attacks of insects at certain critical periods of their growth, when they are in a weakly state, and have not got their organs fully developed. It is just before the corn begins to take the second growth that it is most likely to be injured—that is to say, when the nourishment contained in the soil, and which has served to send up the first blade, is becoming exhausted, and the young plant is thrown upon its own resources; it is at this critical time, before it has got its roots well established in the ground, that the grub is likely to get the better of it. I am of opinion that you have not much chance of being able to kill the grub by any application that wouldn't injure the plant at the same time; and I think that the best plan of combating the enemy is to fortify the young plant by all the means in your power. It is generally when the braird is, from some cause or other, not very vigorous that the creature gets the better of it; for, when the plant comes up strong and healthy, and develops its roots and leaves with sufficient rapidity, it bids defiance to the grub, and grows away in spite of it. This is very well exemplified in some cases where different kinds of seed have been used in the same field. In these instances, it has been occasionally observed that the injury is confined to one kind of seed, the part of the field sown with the other being comparatively untouched. And, accordingly, we hear a change of seed recommended as a preventive of grub. This, I would explain by one of the kinds of seed employed being stronger than the other, and sending up a more vigorous braird. Again, it is found that in some seasons the injury is chiefly confined to the damp clay ground, and in another season to the dry, light soil. Here, in like manner, I should be inclined to say that the explanation lies in the fact that the weather in the one case had been more favourable for the preparation of the one soil, and in the next year more favourable to the other. In the dry spring, the moist clay land would resist the drouth better than the bare thin knolls, and much would also depend upon the kind of weather each got when it was ploughed and harrowed. The fact of the end ridges and land that has been much trodden or compressed escaping injury may be also explained according to the above view. In a dry season, the drought won't penetrate such ground so readily as the loose, open soil, and the circumstance of the cattle standing more about the gates and sides of the fields, and consequently, dropping more manure there, is also to be taken into account. Some have recommended the land to be thoroughly harrowed and prepared before sowing the seed. This, of course, can be best done when a drilling-machine is used; but it answers well enough even when the corn is sown broadcast. The ground receives some four or five turns of the harrows — enough, in short, to make the mould thoroughly — and then the seed is sown and covered by one double stroke (of the harrows) up and down the ridge. It is then immediately rolled across, which helps further to cover the seed. In this way there will, of course, be a good deal of the seed left on the surface, and to look at it one would say it is badly covered. But then there is scarcely any lost by dropping down too deeply between the furrows, and the braird is found to be quite as thick as when covered in the usual way, if not thicker. Now, the reason of this method proving of service to prevent grub, I have no doubt lies in the fact that seed (as I explained in a former lecture), brairds most strongly when it has but a shallow covering of earth; when it is too deeply buried it either doesn't braird at all, or it comes up more slowly, and the shoot, when it is up, is weaker than that which springs from a grain with a more shallow covering. The ground, you will observe, receives much the same amount of harrowing and rolling in both cases, so that one cannot suppose that the grub itself is more affected in the one way than the other—the difference consisting almost solely in this, that under the one method you give the greater part of the harrowing before the seed is sown, whereas under the usual system you give it after. It can scarcely be supposed, then, that you kill or injure the grub; it is, as I conceive, that you promote a more vigorous braird of the young plant. By using a drill sowing machine, the ground can be thoroughly harrowed and prepared beforehand, and the seed can be regularly lodged at any depth you choose. In this way you can prevent loss from burying it too deeply or from leaving it on the surface, to be plucked up by the birds. My advice, therefore, for the prevention of grub is shortly this. Promote the vigour of the young plant as much as possible. Endeavour to work your land in right season, get the best seed you can, and get it from an earlier district; if the ground is poor, give it a liberal application of guano, or some other manure such as nitrate of soda or superphosphate. The roller should follow immediately after the sowing. Then, if the season be dry, or the soil light and powdery, and the enemy make its appearance, roll again with the heaviest roller you can get—with a Croskill if you have one. I should think it a good plan to harrow the land thoroughly before sowing, with the view of preventing the seed being too deeply buried, as I have before explained, that if after all the grub was making much way, holes might be made to reduce their numbers.

In some cases, I believe, a good deal of the injury attributed to the grub is caused by another creature altogether—viz., the slug. I examined a field near my own house this season which was a good deal thinned, and on looking at it after dark, I found the slugs much more numerous than the grub, and observed

them busily devouring the young blades of corn. Now, I believe rolling at night would kill a good deal of slug, but it would have little or no effect upon the grub; for they are very tough, and not easily killed in this way.

FOUR VARIETIES OF WHEAT.

[The following report by Mr. Patrick Shirreff, of Haddington, was written in competition for the United East-Lothian Agricultural Society's Premium.]

1. *Soil.*—A heavy loam, the substratum retentive of moisture. The preceding crop was Beans manured in the drills, and an application followed the removal of the Beans.

2. *Extent.*—The ridges were ploughed four and four, in the manner termed casting. A Scotch acre was measured by a chain off the ends of four ridges, excluding the headland. The measurement included 16 ridges, and the open furrows formed the line of division betwixt the acres.

3. *Seed.*—The four species of Wheat were Woolly-ear, Mungoswells, Hunter's, and Howden's. The seed of each was of crop 1831. Woolly-ear and Mungoswells grew at Mungoswells, Hunter's at Tynefield, and Howden's at Chapel. The quality of each was good, perhaps that of Howden's best, Woolly-ear worst.

4. *Sowing.*—On 17th October, I myself sowed three bushels of grain on each acre. Woolly-ear occupied the most westerly position, Mungoswells, Hunter's, and Howden's followed in succession. The remainder of the field was sown with Gregorian and Mungoswells Wheat.

5. *Germinating.*—Mungoswells Wheat came first above ground, Howden's second, and Woolly-ear last; the difference betwixt the first and last four days. On 23d December, all the kinds appeared healthy, and equal in thickness, except Woolly-ear, which seemed thinner than the others.

6. *Modes and Appearances of Growth.*—On April 1, 1862, the plants of Woolly-ear presented a green of silvery hue, broad leaves, erect stems, and few tillers or offsets; since the 1st of March it has looked taller and greener than Mungoswells and Hunter's. The plants of Mungoswells exhibited a pale green tinged with yellow, narrow leaves, procumbent stems, and numerous tillers; since 1st March it has appeared greatly inferior to Woolly-ear and Howden's. The plants of Hunter's in every particular resemble those of Mungoswells, but do not seem quite so narrow in leaf and procumbent in stem. The plants of Howden's are like those of Woolly-ear, being, however, darker in green, broader in leaf, more erect in stem, and fewer tillers; since March it has greatly surpassed the others in length and vigour. The superiority of appearance possessed by Howden's and Woolly-ear is not, however, real, and arises from their broad leaves and erect stems concealing the ground more effectually from view than Hunter's and Mungoswells, the leaves of which are narrow and procumbent.

7. About 20th April the leaves of all became yellow, Woolly-ear least affected, and at this date equalled Howden's in appearance. The character of the foliage of all is unchanged. Howden's and Woolly-ear are evidently thinner on the ground than Hunter's and Mungoswells, a result of their inferior tillering powers.

8. By 1st June the Wheats varied considerably in appearance. Woolly-ear, at this date, was not so dark in colour as Hunter's and Mungoswells; flag leaves erect, and under leaves brown and decaying. Mungoswells has the flag leaf large and gracefully bending, the under leaves fresh and vigorous, the colour a glossy pleasing green, and superior to others in apparent health and strength. Hunter's still resembles Mungoswells, but the shade of green is paler, and other appearances mark them distinct species. Howden's is still like Woolly-ear, but more faded in leaf, and thinner on the ground.

9. In Woolly-ear the ears escaped from the sheath generally on the 11th, Howden's on the 13th, and Hunter's and Mungoswells on the 15th June. The ear of Woolly-ear is close set in the fertile joints; Hunter's wider than Woolly-ear, and a very little closer than Mungoswells; Howden's is wide, set with strong chaff.

10. The Wheats attained their ultimate height by 1st July; when Mungoswells surpassed Hunter's by 2, Howden's by 4, and Woolly-ear by 6 inches in length.

11. Rain fell moderately on 3d July. Woolly-ear and Howden's were not lodged by it, while Hunter's and Mungoswells were considerably so, especially Hunter's. Ultimately every stalk of Hunter's and Mungoswells became prostrate, Woollyear lodged partially, Howden's not in the slightest degree.

12. Howden's ripened first, Mungoswells second, and Hunter's last. Difference between earliest and latest about four days.

13. Reaping took place, under my superintendence, on 10th August, by 24 individuals, three on each ridge. Two kinds of Wheat were thus reaped at the same time; and when the reapers reached half the length of the ridge, those on the front ridges changed places with those on the rear ones, by which means each reaper cut an equal portion of each kind of Wheat. The crop produced by two ridges was stooked on one; and each kind consisted of two rows of stooks standing on contiguous ridges, with two cleared ones intervening.

14. *Stacking and Threshing.*—The stacking took place on August 22, followed by thatching on the succeeding day, and the threshing on October 31. The grain of Woolly-ear was least plump, most transparent, and reddest in colour. Howden's largest, plumpest, and whitest. Mungoswells smallest, and in colour half way betwixt Woolly-ear and Howden's. Hunter's was larger than Mungoswells, and of the same colour.

15. *Contingencies* were highly favourable throughout the experiment. The winter was without frost; at no time was the soil either saturated with moisture or affected seriously by drought; the Wheat fly rendered none of the florets sterile; mildew injured not the quality of the grains, and wind diminished not their number. The crops did not receive rain after being cut down, and remained a sufficient time in the stack to mature the colour and condition of the grain.

16. The following is a tabular view of the produce:—

WHEATS.	GRAIN.				SCOTCH ACRE.		
	1st.	2d.	Weight.	Straw.	Grain.	Weight.	Straw.
	bush.	bush.	lbs.	lbs.	bush.	lbs.	22-lb. st.
Woolly-ear ..	47	4 4-10	64	4297	51 4-10	3268	195
Mungoswells .	49	5 3-10	63½	5799	54 3-10	3397	263
Hunter's ..	51	5 2-10	63¼	5620	56 2-10	3527	255
Howden's ..	44	2	64½	3930	46	2902	178

Observations.—Agriculturists being of opinion that a change of seed, that is, sowing grain on a soil differen from that which produced it, is beneficial, it will be seen by referring to paragraph 3, that the seeds of Woolly-ear and Mungoswells species only are on a parity of circumstances. If different species of corn are, in the first place, sown in the same field, their true properties will be obtained by sowing their seeds in the second year.

By paragraph 4, each species of Wheat was sown with the same quantity of seed; when this circumstance is viewed, in connection with what is stated in paragraph 15, regarding the size of grains, and in paragraph 6, regarding tillering, the different thicknesses or number of stalks of each crop is accounted for. I shall not conjecture what effect a more liberal allowance of seed would have had on Howden's, but believe the produce of Hunter's and Mungoswells to have been lessened by the crops being too thick. Experience and observation lead to this conclusion with regard to Mungoswells, and it is almost established by the fact that the portion of the field (10 acres) carrying this Wheat, not sown for experiment, and which was thinly planted from receiving imperfect seed, yielded a greater return than the experimental acre. A thickly planted Wheat crop is generally weak in straw, small in ear, and less productive than that of medium thickness.

The characters of foliage, as described in paragraphs 6th, 8th, 9th, and 10th, will obtain generally. Circumstances may affect the decaying of leaves when the plant is about to ear. The leaves of Woolly-ear decayed this season on Mungoswells, and remained vigorous on an adjoining farm.

The yellow tinge alluded to in paragraph 7th, proceeds from a fungus, and is the true rust, although the term is often applied to mildew. In a collection of 50 kinds of Wheat growing at Mungoswells, the Talavera species was least affected by rust.

The germination, earing and ripening of the different species deserve notice. Woolly-ear has sometimes escaped injury from the Wheat-fly, while other kinds suffered, which is owing to it earing early (see paragraph 9th), the fly generally depositing eggs on such ears only as are in the act of escaping from the sheath.

The size of the grains of Wheat, and perhaps of corn generally, is affected by the thickness of the crop. On this account the grains of Mungoswells Wheat, in the experiment, were smaller than usual (see paragraph 14); the grains of it, are, however, generally smaller than those of Hunter's.

An experienced eye may prefer a particular colour and shape of grain (see paragraph 14), with regard to one species of Wheat, both are, however, affected by contingent circumstances, and to judge all the species of Wheat by such appearances would be as fallacious as determining the merits of Apples and Potatoes by one standard of shape and colour.

The experiment grains were indifferently dressed, and all the kinds might have been dressed to 64½ lbs. per bushel. In this case there would have been a greater quantity of second quality of grain.

The season seems to have been favourable to Woolly-ear and Howden's, as none of the plants perished, and consequently these kinds were not affected by their want of tillering.

The bounty of Providence is manifest in the abundance of the crops; the returns of autumnal sown Wheats in this neighbourhood not having averaged for the previous five successive years more than 22 bushels per Scotch acre.

Conclusions.—Woolly-ear and Howden's do not tiller much, and therefore may be sown thick.

Hunter's and Mungoswells tiller plentifully, and may be sown thin.

Woolly-ear and Howden's yield little straw produce, and can only be cultivated with a chance of success on land in very high condition. In seasons favourable to the growth of Wheat, such as 1832, the different species seem to differ less in quality, than quantity of grain.

AGRICULTURAL DIFFICULTIES.

[The following passages are extracted from an able address by Mr. Cunningham, Jun., of Shields, Ayrshire, to the Ayrshire Agricultural Association,]

1. There is first a want of a sufficient agricultural education. Notwithstanding the poverty of its soil, and the rigorous nature of its climate, Scotland has long held the first place among the agricultural countries of the world; but of late years our neighbours south of the Tweed, and even some continental countries, have made some rapid strides to overtake, and in certain departments they have already surpassed us.

Much of their success is doubtless attributable to certain causes over which we have no control, such as superiority of soil and climate: but I think the principal cause may be traced to a mighty power which at first sight is not so apparent to the unreflecting mind—viz., education; and it is a well-known fact that to a large extent in England and some other countries greater attention has been paid to educating young men, more especially in the science and art of agriculture, than has hitherto been customary with us Scotch; for whilst we have been plodding away almost exclusively at the practical part, they have been enjoying a happy combination of both it and the theoretical; and mere practice will as completely fail to make an intelligent farmer as mere theory, for the science of agriculture must be as truly learned as the art—its principles as well as its practice—the former being based on a right knowledge of certain conditions which are essential to the full development of plants. Liebig says—"There is no profession which can be compared in importance with that of agriculture, for to it belongs the production of food for man and animals—on it depends the welfare and development of the whole human species, the riches of States, and all commerce. There is no other profession in which the application of correct principle is productive of more beneficial effects, or is of greater and more decided influence." Yet, notwithstanding that farming is acknowledged to comprise a greater variety of observations, and involve a greater amount of scientific principles than almost any other art practised by man, strange to say, most people unacquainted with its theory, and ignorant of its practice, consider every other art to be more technical and complicated, and as requiring far higher abilities and a far more learned and lengthened course of study for their successful performance. But whilst these were the sentiments of those entirely ignorant of agricultural affairs, still they were not less homologated by many farmers themselves; for time was when they in the education of their families considered it unnecessary for those sons who intended following their father's calling to require or to get the same amount of education as those who were destined for some other occupation; and what was still more wonderful, whilst these latter, after receiving a superior curriculum, had to undergo a long apprenticeship before being qualified for any department of mere handicraft, the others were not apprenticed at all to manage a farm. But I am glad to observe that public opinion has improved in this respect, and made it imperative that farmers be educated comparatively with other men in something like the proportions of their avocations; for if Scotland is to maintain her vaunted superiority in farming, her farmers must receive a special agricultural education. The great obstacle to this is the want of schools with farms attached, where young men could be thoroughly trained in the practical art and science of agriculture. In this we are considerably behind other countries, for both in England and Ireland, and the Continent of Europe, there are several institutions of the kind, and the beneficial results of such a system have been proved to be incalculable. I have often been astonished, and somewhat abashed, when conversing with foreigners who had come across to examine into our mode of farming, to hear the clear and explicit answers given to any questions proposed regarding their agricultural practice, and also to hear them assign scientific reasons for the same. Surely the Highland Agricultural Society could not turn their accumulated wealth to a better purpose than in founding an agricultural school—an enterprise which would doubtless be hailed with acclamation by every intelligent farmer in the land. But why might we not have more? There are few of our large counties but could easily maintain an institution of the kind; and were such an establishment in this neighbourhood, I feel confident in saying that it would be largely patronised by the farmers' sons in the county, and, moreover, would unquestionably prove a valuable incentive to agriculture in general.

And here let me notice another difficulty arising out of the want of such a school. In this free country of ours a man is at liberty to set up in whatever business he may think proper, but the question naturally arises, is he qualified to undertake such and such a business? or, again, he may be honoured by receiving an appointment from the State to fill some high and responsible situation, and does not popular opinion demand that he be capable of performing the duties thereof satisfactorily? But long and extensive preparation is needed to make him eligible for such employment. So with farmers. They, too, should possess the proper qualifications before being intrusted with a farm, for the better the position of the tenant, the more respectable and intelligent he is, the better for the landlord. And is it too much to hope that landlords would give some weight and preference to those who held certificates of ability from such a source, when choosing their tenants? This would be a mighty improvement on the present system, and would also prove a preventive of a world of evils that arise through the loose hap-hazard method which prevails at present on some estates, where the man who offers a foolish, extravagant rent (which he never pays), though he be utterly ignorant of even the rudiments of agriculture, is preferred to him who has proved himself to be an able and intelligent farmer. Now, this is not as it should be; and will, if persisted in, prove pernicious to both proprietor and tenant, as I could very easily show from numerous cases which have happened too frequently of late; but I shall forbear at present, trusting that proprietors and factors who act thus will be brought soon to see that they are playing a losing game.

2. The next difficulty with which we have to contend is the prevalence of disease both in animal and vegetable life.

No one can have perused the address delivered by Professor Gamgee, of Edinburgh, at the International Congress of Veterinary Surgeons in Hamburgh last week, without being startled at the statistics of mortality amongst stock of all kinds. He stated that there died of disease in one year, 1860, in Great Britain and Ireland, cattle to the value of nearly four millions of pounds, and more than the half of these died from pleuro-pneumonia alone. He farther stated that the value of cattle imported into this country was estimated at 836,552*l.*; but as one year could not be considered a fair estimate, he gave the calculations for the six years ending 1860. The estimated total value of cattle which died during that time amounted to nearly 26 millions of pounds; while the value of cattle imported during the same six years amounted to nearly four and a-half millions, so that the loss by disease was four times the number of cattle imported. Mr. Gamgee closes his address by adverting to the injury inflicted on the British people by the foreign trade; and although he was not desirous to stop free trade in cattle, he thought that the prevention of so much disease—the saving of so much money to the nation—was a matter of

paramount importance. Few farmers in this county but have suffered more or less from this direful malady, pleuro-pneumonia; and though there have been conflicting opinions given forth by veterinary surgeons and others regarding its contagion and incurability, still, I believe there are many cases which, when taken in the first stages and treated judiciously, have been saved. We have frequently been told by experienced persons of cures from certain modes of treatment, and would it not be just and humane to make known these publicly, so as some unfortunate brother or neighbour might reap the benefit? for there are many animal diseases which, were some simple precautionary measures adopted, if people only knew of them, might not altogether prevent, but would mitigate, many of their most fatal effects. For instance, we have considerable mortality in dairy stocks through puerperal or milk fever, the predisposing causes of which are a plethoric state of the vascular system, either constitutional or induced by unduly high feeding. Now, were all such animals treated simply with a good dose of Epsom salts a day or two previous to parturition, there would be much fewer cases of this kind. It is a good many years since we first obtained this information from a cattle-dealer, and I can testify to its verity from personal experience in many instances. Now, I just mention such things to show the beneficial results which might accrue from our meeting together for the interchange of thoughts and opinions. And as in the animal, so in the vegetable world there are certain causes as well as preventives of diseases, which, if attended to, might augment the produce of our farms very materially; but from the want of practical information through the experience of others, we are left to grope our way in the dark and suffer the consequences. For example, last year the Oat crop in this country was very much curtailed through the ravages of grup, and had our meetings being then in existence, there might have been much valuable information gathered by each one stating his observations, and the varied circumstances brought out of whether, after old or young lea, whether ploughed wet or dry, whether seed used was from another district or sown on the farm, whether sown early or late, and whether artificial or other manures were used or not, which would have proved useful in future practice, prevention being better than cure.

§ 3. And this brings me to notice another difficulty—viz., the adulteration of manures. Next to the rent the manure account is the heaviest bill which most arable farmers have to pay now-a-days, and it is one which is surrounded with many difficulties and perplexities; for contrary to almost every other part of our business, ocular demonstration affords us very little assistance in the selection and purchase of manures, and consequently, we are liable to be victimised by unprincipled parties.

An agricultural school would have been eminently useful in assisting us with this difficulty—for all the manures manufactured or brought into the country could have been analysed and practically tested before farmers ran the risk of losing both their money and their crops. Generally speaking, an analysis by an eminent chemist, and the character of the exposer, is a good guarantee as to the genuineness of the manures they sell; but of late the discovery of mineral phosphatic substances, which can be obtained at a cheap rate, and which gives a manure that analyses well, has introduced a new element into the trade—for even parties termed respectable manufacturers do not scruple to use this cheap article, and at the same time have neither changed the name nor the price, which is scarcely fair dealing. Professor Anderson bears me out in this assertion, in an article contributed by him to the Transactions of the Highland Society on manures, wherein he says that "a large portion of manures made from mineral and other substances is still sold as dissolved bones, while a manure from genuine dissolved bones is now more the exception than the rule." If the manufacturer wishes to retain the custom and confidence of the consumer, then he must state candidly the principal ingredients of which his manure is composed, and make his price accordingly—for he may depend upon it that farmers will be driven to scrutinise more narrowly, and be more explicit in demanding a knowledge of the component parts of all substances designated as manures. Whilst farmers are in part indebted to manufacturers for their productions, I think we should not allow ourselves to be so much at their mercy, and more especially here, having the advantage of so many seaports, where bones could be easily imported and applied to the land in a dry crushed state, or prepared with sulphuric acid and mixed with other ingredients. There are many who would dissolve bones for their own use, but have been troubled in getting them dry enough for sowing. Now, I think this difficulty may be easily overcome by preparing them some months before they are required, and mixing the guano, gypsum, and other substances all into one mass, and keeping them under cover, so that by the time they are needed they will be as dry as a heap of lime.

4. The next and last difficulty I shall bring under your consideration is—The precarious nature of our climate.

The climate of the west coast of Scotland has always been characterised as being moist and variable, and not well suited for producing grain crops of very fine quality; but what with draining and a higher state of cultivation, we have been enabled in ordinary seasons to grow large crops of both Wheat and Oats very successfully; but, naturally speaking, Ayrshire seems better adapted for the growth of Grass than of grain, and should our seasons continue similar to those of late years, then it will be imperative for us to change our system of farming, for it is utterly impossible that clay land farmers can meet their engagements with their landlords if the system heretofore pursued is still to be adhered to. I have always had a great liking for green cropping, and looked upon it as the basis and fundamental principle of all good husbandry, yet I have no hesitation in saying that the green cropping of clay land in a wet season is the perfect ruination of it. Should any one doubt this, I would refer him to the meagre crop of Oats, both this and last year, following green crops, which is calculated to ruin the tenants likewise. But notwithstanding that we be favoured with better seasons, the question is forced upon us, whether we cannot do better with our land than cultivate cereal crops? for it does seem that in future, whether we have a good crop or a deficient one, prices will not be remunerative, from the vast resources of other countries in growing grain of superior quality and the easy means of transit into our markets. Now, looking at the price of cattle, sheep, and dairy produce, it does seem that the best course under present circumstances is to curtail the cropping and to increase the grazing; and were we to manage and manure our Grass as we do our grain roots, the results would be very favourable.

And now, gentlemen, whilst I have spoken to you of science and theory, with special reference to their usefulness and importance, I would use them only as helps, for practical experience must ever be the sheet anchor of the farmer; and with a view to the advantages of our meeting from time to time for discussion, practical experiments and the results thereof ought to be stated for our mutual benefit; for although we have the advantage of agricultural papers and writings, we ought to some extent to be self-reliant, seeing we have a soil and climate differing from others, which ought always to be borne in mind; and as I said before, ought not we Ayrshire farmers to be able to contribute our quota, however small, to the common good? And while we meet to discuss our business as cultivators of the soil, there are other matters arising out of this—viz., our political and social condition. I do not intend that we should discuss political subjects, such as whether a Whig or Tory Government is best for us, but how we are affected by the present laws. Merchants and other classes do this, and why ought farmers to neglect such a privilege in this country? We, as well as they, have, or ought to have, a voice in the laws that come to bear on us locally. Might it not be time for tenant-farmers, as well as the community at large, to ask how they are affected by the law of hypothec? Few are aware of the unfair advantages proprietors enjoy in connection with this law, and the peculiar hardship it sometimes proves to the public, as well as to the farmers. A case in point has attracted considerable attention. A respectable firm in the grain trade in this place purchased a short time ago a quantity of grain from a farmer, which was paid on delivery in the usual way. It, however, turns out that the tenant was in arrears of rent. This could not be known to the purchaser of the grain, and the proprietor brings on a sequestration, and demands re-payment from the merchant. The case is now pending in the Court of Session, and if this claim is supported by the judges of the land, then the law is certainly not in keeping with the age, and the sooner it is repealed or modified the better. This law also directly affects the interests of the skilful farmer, in so far that when land comes to be let, some proprietors seem indifferent as to whether the offerer has knowledge and capital sufficient for the undertaking, provided he offers the highest rent; and of course the tenant comes, in virtue of his position, to get the usual credit from the seed merchant, the manure merchant, and the general public; but it sometimes turns out that he has been merely an adventurer, and has neither skill nor capital, and the foolish rent promised cannot be paid out of the farm, when the proprietor brings on sequestration to protect himself, and may thus leave nothing for the unfortunate creditors. But for the law of hypothec, proprietors would be more particular as to whom they took for tenants.

Then, how are we affected by the law of the road? A large portion of the revenue from tolls is contributed by farmers, yet they have no voice in its application. How do the game-laws affect us? As they have been interpreted and applied in this county, a farmer dare not send out his son to scare the crows off his crop if a gamekeeper or police-constable says there was game disturbed, although not killed. I declare when I read the decision arrived at by the judges, I felt ashamed of my position, and almost wished I had chosen another calling.

WEATHER HINTS FOR FARMERS.

WHETHER clear or cloudy, a rosy sky at sunset presages fine weather; a sickly-looking greenish hue wind and rain; a dark (or Indian) red, rain; a red sky in the morning, bad weather or much wind (perhaps rain); a grey sky in the morning, fine weather; a high dawn, wind; a low dawn, fair weather.

Soft-looking or delicate clouds foretel fine weather, with moderate or light breezes; hard-edged, oily-looking clouds, wind. A dark gloomy blue sky is windy, but a bright blue sky indicates fine weather. Generally, the softer clouds look the less wind (but perhaps more rain) may be expected; and the harder, more "greasy," rolled, tufted, or ragged, the stronger the coming wind will prove. Also, a bright yellow sky at sunset presages wind; a pale yellow, wet; therefore, by the prevalence and kind of red, yellow, or other tints, the coming weather may be foretold very nearly—indeed, if aided by instruments, almost exactly.

Small inky-looking clouds foretel rain; light scud clouds driving across heavy masses show wind and rain; but if alone, may indicate wind only.

High upper clouds crossing the sun, moon, or stars, in a different direction from that of the lower clouds, or the wind then left below, foretel a change of wind toward their direction.

After fine clear weather, the first signs in the sky of a coming change are usually light streaks, curls, wisps, or mottled patches of white distant clouds, which increase, and are followed by a murky vapour that grows into cloudiness. This appearance, more or less oily or watery, as wind or rain will prevail, is an infallible sign.

Unusually the higher and more distinct such clouds seem to be the more gradual, but general, the coming change of weather will prove.

Light delicate quiet tints or colours, with soft undefined forms of clouds, indicate and accompany fine weather; but unusual or gaudy hues, with hard, definitely outlined clouds, foretel rain, and probably strong wind.

Misty clouds forming or hanging on heights, show wind and rain coming, if they remain, increase, or descend. If they rise or disperse, the weather will improve or become fine.

When sea-birds fly out early, and fly to eastward, moderate wind and fair weather may be expected. When they hang about the land, or over it, sometimes flying inland, expect a strong wind with stormy weather. As many creatures besides birds are affected by the approach of rain or wind, such indications should not be slighted by an observer who wishes to foresee the weather, or compare its variations.

There are other signs of a coming change in the weather known less generally than may be desirable, and therefore worth notice; such as, when birds of long flight—rooks, swallows, or others—hang about home, or fly up and down or low, rain or wind may be expected. Also when animals seek sheltered places, instead of spreading over their usual ranges; when pigs carry straw to their styes; when smoke from chimneys does not ascend readily (or straight upwards during calm), an unfavourable change is probable.

Dew is an indication of fine weather, so is fog. Neither of these two formations occur under an overcast sky, or when there is much wind. One sees fog occasionally rolled away, as it were, by wind, but seldom or never formed while it is blowing.

Remarkable clearness of atmosphere near the horizon—distant objects, such as hills, unusually visible, or raised (by refraction)—and what is called a good "hearing day," may be mentioned among signs of wet, if not wind, to be expected.

More than usual twinkling in the stars, indistinctness or apparent multiplication of the moon's horns, halos, "wind dogs," and the rainbow, are more or less significant of increasing wind, if not approaching rain with or without wind.

Near land in sheltered harbours, in valleys or over low ground, there is usually a marked diminution of wind during part of the night, and a dispersion of clouds. At such times an eye on an overlooking height may see an extended body of vapour below (rendered visible by the cooling of night) which seems to check the wind.

The dryness or dampness of the air and its temperature (for the season) should always be considered with other indications of change or continuance of wind and weather. *Admiral Fitzroy's Practical Meteorology.*

Home Correspondence.

The Utilisation of Sewage.—As a manufacturer of chemical manure I must protest against the assumption conveyed in Baron Liebig's letter that manufacturers are opposed to the utilisation of sewage, and are actuated in so doing by such an unworthy motive as a belief that its use will militate against their interests, and will destroy their trade. There is not one particle of evidence that can be produced to show that they are opposed to its utilization, that if used it would injure their trade, or that they were so ignorant as to suppose that any wishes or efforts of theirs could prevent the establishment of a great truth. It has been proved over and over again by the failure of every attempt of the kind that the elements of sewage cannot be converted into a solid manure with any profit whatever. The explanation of this fact is due to Professor Way, who first demonstrated that nearly all the valuable parts of sewage remained in solution; and now few rational men believe otherwise than that the only way to use it is by means of pumping or irrigation, and that the only crops that will pay for distributing apparatus are the Grasses. That the growth of Italian Rye-grass can be enormously increased by the copious application of liquid manure no one doubts, but no other kind of crop will pay for return in anything like the same proportion. If, therefore, the expense of some six or seven pounds per acre is incurred in laying down iron pipes, &c., it is necessary to utilise this expenditure and grow crops that will sufficiently respond to this expenditure, and such are the Grasses alone. Now it is very well known that nine-tenths of the concentrated manures, whether manufactured or imported, are used for roots and corn, and as these crops thus assisted are by no means greater than the demand, there is no reason to suppose that the auxiliary manures would be dispensed with, even if all the sewage in the kingdom were utilized. The effect of the latter would be principally shown in the increased production of dairy produce and the lesser necessity of importing butter and cheese from other countries, as well as an increased production of meat to supply our increasing population. I have witnessed the rich infusion pumped over the fields of Alderman Mechi, as well as various samples of ordinary sewage, and there is as much difference between the one and the other as there is between the brewers' XXX and the very smallest of small beer; and I can hardly conceive greater denial to the worthy Alderman than that for one twelvemonth or two he should have no other manure than the London sewage, and in no greater quantity than he now applies, and at no greater or lesser price than 4*d.* per ton. As a national question the utilisation of sewage is of great importance, but its promoters and well wishers will not further the object by wittingly or unwittingly deceiving the public mind, and deluding municipal bodies by a fictitious representation of its actual value, but rather by regarding the teachings of nearly every eminent chemist who has applied his mind to the subject, and by impressing on municipal bodies that if they must have for sanitary purposes a large supply of water and underground sewers, and wish to keep their rivers pure, they must be prepared to go to a considerable expense in removing the sewage to a distance and supplying it

free or nearly so to any set of men who will undertake to use it as a speculation, for which purpose land must be purchased and laid down to Grass. It may be, as Baron Liebig suggests, a very good plan to combine it with superphosphate of lime before distributing it, but I do not see any justice in estimating it at more than double its former value after the process of admixture. We do not find that the ammonia or sulphate of ammonia or the nitric acid in nitrate of soda is of less value in consequence of its not being combined with the phosphates; on the contrary, in both instances the nitrogen commands a higher price than in guano. There is a very great error too frequently committed in estimating the ammonia contained in a very bulky form, such as sewage, at the same value as in a concentrated manure such as guano. It ought rather to be estimated at the same value as we can procure it in stable or scavenge dung or in vegetable matters, where it can be purchased at at least half the price it is valued at in guano. Since my remarks were written I have seen in your columns an able paper on the subject by Dr. Gilbert, in which he makes the important statement that he is authorised by Professor Way to state that although the sewage from the Dorset Square Sewer referred to by Liebig, was considerably weaker than from Barrett's Court, yet he considers that it was at least twice as rich as an average sample. It is a very great mistake indeed to suppose that all the elements of the food pass down the sewers, for even in the metropolis this is not the case, and in towns both large and small, night-soil is removed at night in very considerable quantities. But although no one doubts its fertilising qualities and its infinite superiority to sewage, the price paid for it is little or nothing beyond the labour of removal, and there is very little competition for it even then. This after all is the best test of its pecuniary value. *W. C. S.*

American Horse Works.—If "Brass Spurs" would like an American horse-power, I have almost a new one made by Messrs. Hughes and March, and well put up by them at Gurney's Manor, Hingham, Norfolk. But I find it not of sufficient power to do all I require for some 300 to 400 animals, and although it will work well, I shall exchange it for steam the first opportunity as more suitable to my fixed works. If "Brass Spurs" writes to Messrs. Hughes & Co., Engineers, Loughborough, Leicestershire, he will hear of my engine, and can have them take it down and send it to any part of England. *W. B. Hurnard, Gurney's Manor, Hingham, Norfolk.*

Irish Agriculture.—Your Kilkenny Correspondent, in his account of the Cattle Show, declares that he considers Ireland as well suited for the growth of corn as are many parts of England. Although Oats may be often a productive crop, I doubt if Ireland will ever grow Wheat with the same success that it is grown in England. But whatever skill may do in counteracting the effects of climate, I am certain that nature has adapted Ireland more for the raising of beef and mutton, than for the production of corn. It is also a question that has been much discussed, whether this be not also the case in England. In the "Quarterly Review" of July, in the article on Austria, the superiority of that country to England for the growth of cereals is very well stated; and the paper read by Mr. R. Smith before the London Farmers' Club, referred to. Cereals, it is remarked, are natives of a warm climate. They thrive best in dry places, where rain is not abundant, and where the mean summer temperature is high. Our mean January temperature varies from 54° to 61°; in Austria it ranges from 73° to 77°; while the temperature of the Irish summer is lower than that of England, and the rain-fall greater. Both England and Ireland are placed under considerable disadvantage in competing with the Wheat lands of the Continent, Ireland more so than England. In the raising of stock Ireland need fear no rival. The demand for meat is increasing, the rearing of stock requires less capital than does arable farming, and should always be produced at less cost at home than abroad. The truth is, that the growing of corn, and the growing of roots and grasses require conditions of climate antagonistic one to the other, except at that expense of labour and capital which all exotic plants require. I do not allude to political considerations, for it has ceased to be a theory of sound politicians, that any industry which is not remunerative should be maintained at the public cost. Man in his pursuits, his habits, and his food, is influenced by the conditions under which he lives, and of these the most important is climate. They who dwell surrounded by the sea, exposed to the winds and showers of a northern ocean, are fitted to excel as seamen and masters of flocks. The energy of our countrymen has enabled them to overcome many of the obstacles which are presented by natural causes. But I think that the farmers of the British Islands will see soon the necessity of gradually approaching that character of husbandry which nature points out as the best suited to their climate and to their country. *B. M, Buxton, Sept. 2.*

Societies.

KEIGHLEY: *Sept.* 4.—The Duke of Devonshire presided at the annual dinner of this Society. His Grace said that day they had seen specimens of as good animals in the Short-horn breed as were to be found in the whole country. Of course, such animals were not to be found in the farmyards of agricultural tenants generally, but they would take a very mistaken view of the subject if they supposed that the benefit of this high breed in animals did not extend far beyond the possessors of them. It was due to those who had spent many years in the breeding of that description of stock to remark that whatever might have been the result, so far as their own pockets were concerned, the agricultural classes generally had derived benefits from their labours. In every part of the country the good effected by the infusion of that high-bred blood was now felt more or less. Great as had been the advance of this country in almost every department during the last 20 years—so great that it was thought the farmers could not keep pace with it—yet when they took a fair dispassionate view of it, he really believed that the progress that had been made in farming matters was not less remarkable and rapid than that which had taken place in every other department of English industry. Every one connected with agriculture was so familiar with the great topics to which the attention of the agricultural world had been called that it was almost unnecessary for him to refer to them; but on that occasion having been almost invited to take a retrospect of the 21 years of this society's existence, he would call their attention to the question of drainage, which was the first and greatest of all improvements, then quite in its infancy, now so familiar that it was hardly necessary to allude to it. It was the very rudiment and first element of good farming. In how few words could the stock of implements which the farmer had at his command at that period be described; but now he knew nothing so surprising as to gaze at the vast array of implements of the finest construction which they had seen that day, and which they saw at the exhibitions of the agricultural societies generally. Perhaps this might serve to display the ingenuity of the makers, but, at any rate, a very large proportion of them had done good service to the cause of agricultural improvement. He believed it was scarcely ten years since the first reaping and mowing machines were introduced into this country. Now, in many parts, no farmer thought it possible to get in his crops without the use of them. Then they saw, as the final triumph of science, the application of steam playing an important part in all departments of agriculture. Indeed, it was long since in all the purely arable districts that portable steam engines superseded both the flail and horse threshing machines. He, himself, though not very far advanced in years, could remember the time when there were great disturbances in some parts of the south of the country because of the introduction of threshing-machines, and when agricultural labourers threatened little less than an insurrection unless the use of them was discontinued; but now it was hardly possible, even if any one wished it, to get a labourer who would submit to use the flail. The district in which he was making those remarks was not perhaps one in which many of those topics attracted great attention. It was a district of small farms; but still every portion of the agricultural world must feel an interest in what concerns the general advance of agriculture. He was well aware that it would not do to talk of everything as if it were bright, and as if there were no dark side to the picture. At any rate, if there was not a dark side, there was a side of which they could not speak with anything like praise. However great the advance made in some parts, there was still much connected with land both for owners and occupiers to do. Everyone was aware that much improvement could not be made where the land from careless management had been left to produce half what it was capable of producing. They still saw there was a vast deal of niggardly and parsimonious management, assisted at the same time by wasteful management. A farmer grudged the proper outlay for superior articles; he allowed his manure to run to waste and his crops to be overrun with weeds, and that was a niggardly, a parsimonious, and wasteful management. At the same time, there was every reason to look forward with confidence to the prospect before them. The last 20 or 30 years had worked remarkable changes in the direction of agricultural improvement. They had every reason to believe that the influence of good example—that the influence of the Keighley and other agricultural societies, would tend to promote that improvement, and he looked forward with confidence to the time when no one would venture to make such remarks as those he had just offered, and which now formed the exception to the rule. Every one, however, who travelled along the railway must see that there was a great difference between the well cultivated and the badly cultivated land.

Ram Sales.

Leicesters.—Mr. J. Thomson, of Mungoswells, Dunse, N.B., 38 Leicester rams, shearlings, from 3*l.* 15*s.* to 16*l.* 15*s.* Average 6*l.* 11*s.* 9*d.* Sold by auction in Dunse Fair, August 26, 1863.

Lincolnshire Sheep.—The season for the sale and letting of rams in Lincolnshire commenced last week, and the prices obtained have been more remunerative to the breeders than those of any previous year. With immense frames, and a ready aptitude to fatten, they are fit for market at an early age, and fleeces of 14 lb. weight are not at all uncommon; indeed, it is frequently mentioned at the ram lettings that some of the animals have clipped as much as 22 lbs. each. On Thursday the annual letting of Mr. T. Kirkham's rams took place at Biscalthorpe. In all 138 sheep were offered, and from the commencement the biddings were exceedingly brisk, 50*l.*, 60*l.*, 70*l.*, and even 80*l.* being given for the use of a single ram for the year. The aggregate amount given for the 138 sheep was 2713*l.* 10*s.*, being an average of no less than 19*l.* 13*s.* 3*d.* The average of the shearlings was 21*l.* 1*s.* each; two-shears, 17*l.* 16*s.* 6*d.*, and of the three-shears and upwards, 20*l.* 7*s.* 3*d.* All the sheep offered were taken, and there were customers for as many more. The rams of Mr. Chaplin, of Tathwell, were let by auction on the previous Tuesday; 120 realised 1500*l.*; one of the shearlings let for 55*l.*, and another for 37*l.*; a two-shear made 50*l.*, another 35*l.*, and a three-shear 40*l.* The competition for them was of a very spirited character, and the prices made were in many instances very large, while the average for the whole was 12*l.* 8*s.* per head, that for the shearlings being 12*l.* 16*s.*, and for the older sheep just 12*l.* per head. This is for letting only, for the sheep will be returned to Mr. Chaplin at the end of the season.

DUMBLETON: *Shropshires.*—A two-shear, let last year to Lord Dartmouth for 36 gs., took second honours at Birmingham last year, and on the present occasion was let to Mr. Garrard for 21 gs. Lot 2, Patentee 3d, let last year for 20 gs., was sold to Mr. Baker for 15 gs. Lot 4, a two-shear, which we had marked as the gem of the day, was bought by Mr. Cogland for 20½ gs. Lot 20, a fine shearling, Mr. W. Barber for 20 gs. Mr. Webb secured a good sheep for 15 gs., and Mr. Guilding one for 13 gs. These were the highest prices obtained. There were more sheep for sale than were required. The average for the rams was 9*l.* 4*s.* 6*d.*, and for the theaves and ewes 44*s.* 4*d.*

Calendar of Operations.

SEPTEMBER.

BERWICKSHIRE MERSE FARM: *Aug.* 29.—For some time we have been reading glowing accounts of the weather in the south; but we have not been so favoured in this our first week of general harvest. With a steadily falling barometer, the wind got into N.N.E. on the evening of the 25th, and the proverbial three days' rain culminated last night in a perfect deluge from S.E. After 4 o'clock there fell 2 inches of rain; but the land being exceedingly dry, our streams did not overflow. A week ago, the crops were all standing in fine order for machine work, but now they are all laid and twisted. This bright and breezy afternoon, however, has helped to raise up the lightest of them. Irish reapers were numerous, and little for them to do; but next week the balance will be in their favour. In the earlier parishes much corn is in stook; but, early or late, everything has been cut very green. Unless hands be very scarce, we are not likely to see much of what used to be called ripe corn. Winter Wheat is a fine crop; spring-sown irregular, and much affected with red gum. Barley and Oats are good on rich loams; but on hard clays and gravelly land very poor indeed. However, if we have fair weather, the quality will be very superior. Beans are well grown, and fairly podded. Peas, we understand, are uncommonly good. Potatoes, hitherto but slightly discoloured, are likely to go unless we have breezy weather. The Turnip crop will be immensely benefited by this soaking. On clay soils, especially, the drills seemed as if they would never close in at all, and whole fields of Swedes were being riddled by a small green caterpillar. Pastures, too, were utterly brown and bare. But a change is already visible, and we have good hope of sufficient winter keep. *J. T.*

SOUTH HANTS: *Sept.* 4, 1863.—Since my last report, heavy thunder storms and continuous showery weather have prevailed. Carting Barley and Oats has been going on, but in a very bad and in some instances watery condition. Much spring Wheat and Barley remain out, much of the latter still standing and dead ripe; hands have been very scarce. Many farms seem to have their rick-yards crowded with ricks, whilst some do not contain such ricks in size as under former tenants. Later sown spring crops not to be attributed to "afternoon farming," but really early sowing to what the old custom in Hants was. Oats and Barley sown in March, and the latter early in April, have not turned out well. Peas have not "kidded" well, and spring-sown Beans are a bad crop. But as to fine spring crops on heavy loams and clays, they are not to be expected, and farmers are in such a hurry, that rather than see their horses in the stable, and wait till the surface water has cleared, they put in the plough—and all the drags, grubbers, iron-teethed rollers, can never make a proper tilth out of brick sods. March winds dry and harden the furrows, but Norwegian harrows and many useless implements are only applied to mend bad tillage, and still worse husbandry; but these can never restore it to its normal condition. Never plough wet clays and loamy soils, driving the water out of the end of a furrow as out of a shoot, and then say you are ploughing for Barley, or preparing it for Mangel and Swedes; an hour of tribulation—and all the afternoon—awaits this "brother mud" or "land scratcher," as some northern grouse shooters designate their calling. One great evil attending farming is, that the labourer is not educated for his calling—his reaping or "hacking," hoeing, hedging, is all bad and miserably unskilful, and his ploughing is bad, and as to old leas, he cannot make much out of these. The mowing in general is very bad, and much of the crop is lost from a proper care of guiding the scythe from "heel to point;" the point comes away a foot too soon, leaving a stumpy ridge of the crops standing up every "swarth," like a ridge of ploughed land. We must next mention cottages—these are very bad and unfit for decent cohabitation, as many as six to eight of both sexes retiring to rest in the same room. Landlords ought to build good cottages for the labourer as a great religious duty—and next to that, for the good of youth, put down the number of beer houses and refuse licenses to them; three and four of these in a small village is ruin to families—destructive to labour and good conduct on the farm, and the older teach the younger, beyond the reach of a master's reclaim. Turnips are various, and Mangels also; the best we have seen were sown in drills, and all the work done by hand—no machine, *i.e.*, used, save the horse-hoe abundantly, and hardly a weed to be seen. Farming in South Hants is wonderfully better than we remember it in 1833-4—Turnips sown broadcast, no ditches cleaned out, hedges running over ditches and headlands, not a Mangel or a Carrot hardly to be seen in a field, gates broken down, harrows sticking all winter on the hedge-tops till

wanted next year, labourers sauntering about masters of all they surveyed, their masters unable to read or write like themselves, &c. But we trust a better time is coming. *X. Y. Z.*

WESTER ROSS, *Sept.* 7.—Exactly a fortnight ago we commenced our harvest, and for seven days it has been general throughout the district; but so unsettled has been the weather that little progress has been made in cutting, and none of the crop has been carted to the stackyard. On the 29th ult. it poured heavily all the day; to-day, again, a great deal of rain has fallen, and yet it appears heavy and lowering as ever. The weather on the whole has been calm and warm, and was ill suited, consequently, for drying stooks, or accelerating cutting with the scythe. Yesterday, however, was a fine, cool, breezy day, which greatly advantaged the stooks, but to-day they are thoroughly soaked anew, and harvest work is quite suspended. The crops, particularly the Oats, are less bulky than usual, but the ear is large and well filled, and, if well harvested, will thresh out abundantly. Our Barley, which appeared of fine quality, is in danger of being deteriorated by this continued wet, and if much longer exposed to such weather must be reduced from being of fine malting quality to be fit only for secondary purposes. We have to-day, however, a strong cool breeze, and there is little danger of sprout. Within these ten years the mode of cutting the crop in this district has undergone a thorough revolution. Then nearly the whole breadth was cut by women with the sickle, at 1*s.* per day, without food; now there is scarcely a shearer to be seen, and well nigh the whole is cut with the scythe or reaping-machine. Within the circuit of a few miles nearly a dozen reapers may now be seen at work, and when the crop is standing and the field suitable, the work is well executed—a great deal more evenly done than by the scythe; but when the crop is laid, as all our heavier ones will mostly be, the work is incomparably better done by the scythe or sickle. In a district where scythemen can be had at from 2*s.* 6*d.* to 3*s.*, binders at 2*s.*, and women for gathering at 1*s.* 6*d.* per day, without rations, the saving, if any, by the reaper, is quite inconsiderable, and consequently the plan best suited to the crop should be adopted. The showers which have so much interrupted harvest work have greatly benefited Turnips and Grass. Turnips, especially, have much improved of late, and with the exception of late-sown patches, which lacked moisture sufficient to braird them in the proper season, promise to be a full crop. Potatoes, as yet, are free from disease, are abundant, and of good quality.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Friday ..	Sept. 4	29.96	64	50	S.W.	2	5	64	46	75	38	0.17
Saturday ..	5	29.82	58	55	S.W.	2	10	65	46	76	41	0.36
Sunday ..	6	30.01	59	53	N.W.	2	5	60	47	60	30	0.61
Monday ..	7	29.66	63	50	N.W.	5	2	62	53	73	49	0.41
Tuesday ..	8	30.07	58	54	N.W.	1	S	63	47	74	40	..
Wednesday	9	29.95	59	56	S.W.	1	8	60	51	67	59	0.23
Thursday ..	..	..	..	..	..	..	..	..	..	..	..	..

Miscellaneous.

Oilcake.—It is amenable to no local facilities, and is just as applicable to one situation as to another. In spite of repeated denunciations, it maintains its ground. The popular tradition respecting it is singular. For many years linseed crushers threw what they considered as the refuse of the mill to the manure heap. A cottager's lane-fed cow, having access to one of these heaps, was observed to be frequently feeding at it; and she gave evidence, by the sleekness of her coat and the increased fulness of the pail, that the food was highly beneficial. So it came into use, and was soon found to produce fat as no article had ever produced it before. Veterans of our standing will remember the denunciation of cake-fed beef. It had an unnatural taste—the shambles where it prevailed had an unnatural smell—the grain was coarse—the fat was liquid or rancid—the meat would not keep—and so forth. Now Mr. Giblett or Mr. Slater gives 6*d.* per Smithfield stone extra for a Norfolk-fed Scot (the animal of all in the market which has ate the most oil-cake), simply because they dare not send any other sort of beef to the nobility and gentry who are their customers. No other article of food (except, perhaps, bean-meal, which has the disadvantage of making the flesh hard) gives to a butcher the same full confidence that the dead weight of an animal will be fully equal to his appearance when alive. *Gisborne's Essays on Agriculture.*

Flax: Agricultural Statistics, Ireland, 1863.—The following return—which exhibits an increase of the area under Flax in every county except Dublin—is published, as in previous years, in anticipation of the General Abstracts, which will show the acreage under the various crops, and the number of live stock, by counties and provinces—they will, I trust, be ready for publication in the course of the ensuing month. I do not apprehend that any difference of importance will be found between the acreage under Flax here given, and that which will appear in the detailed Tables now in course of compilation.

Return, showing, in Statute Acres, the Extent under Flax in each County in 1862 *and* 1863, *compiled from Returns obtained by the Constabulary, who act as Enumerators:—*

Counties and Provinces.	Extent of Land under Flax. 1862.	1863.	Difference between 1862 and 1863. Increase.	Decrease.
ULSTER.	Acres.	Acres.	Acres.	Acres.
Antrim	13,020	21,548	8,528	—
Armagh	16,204	24,066	7,862	—
Cavan	6,150	10,279	4,129	—
Donegal	19,489	24,089	4,600	—
Down	30,532	44,970	14 438	—
Fermanagh	2,273	4,479	2,206	—
Londonderry ..	19,098	25,868	6,170	—
Monaghan	14.289	20,051	5,762	—
Tyrone	24,834	31,995	7,161	—
Total of Ulster ..	146,489	207,345	Increase 60,856 Acres.	
MUNSTER.				
Clare	441	586	145	—
Cork	291	662	371	—
Kerry	259	380	121	—
Limerick	73	190	117	—
Tipperary	197	327	130	—
Waterford .. .	13	38	25	—
Total of Munster .	1274	2183	Increase, 909 Acres.	
LEINSTER.				
Carlow	3	12	9	—
Dublin .. .	1	1	—	—
Kildare	1	6	5	—
Kilkenny	19	51	32	—
King's	162	337	175	—
Longford	192	406	214	—
Louth	181	704	523	—
Meath	139	324	185	—
Queen's	37	63	26	—
Westmeath	68	158	90	—
Wexford	18	33	15	—
Wicklow	—	4	4	—
Total of Leinster	821	2099	Increase, 1278 Acres.	
CONNAUGHT.				
Galway	138	299	161	—
Leitrim	529	888	359	—
Mayo	455	695	240	—
Roscommon . ..	173	327	154	—
Sligo	191	256	65	—
Total of Connaught ..	1486	2465	Increase, 979 Acres.	

	1862.	1863.
Total Acreage under Flax in Ireland in 1862 and 1863	Acres. 150,070	Acres. 214,092

Total increase in 1863, 64,022 acres.

Extent of Flax grown in Ireland in each of the following years:—

Years.	Acres.	Years.	Acres.
1854.	151,403	1859.	136,282
1855.	97,075	1860.	128,595
1856.	106,311	1861.	147,957
1857.	97,721	1862.	150,070
1858.	91,646	1863.	214,092

William Donnelly, Registrar-General, Agricultural and Emigration Statistics Office, 5, Henrietta Street, Dublin, Aug. 14, 1863.

The Harvest in Egypt.—A letter from Alexandria says the corn harvest has terminated in Egypt, and it is generally satisfactory and superior in quality to that of last year. The considerable development given to the cultivation of cotton in Egypt leads to the hope that the next picking, commencing in September, will be abundant.

Harvest in the Northern States.—The Commissioner of Agriculture has published his statement of the crop of last month throughout the United States. The condition of the Wheat is very nearly but not quite up to the average, and a larger breadth of land has been sown than ever before. Corn also is slightly below the average.

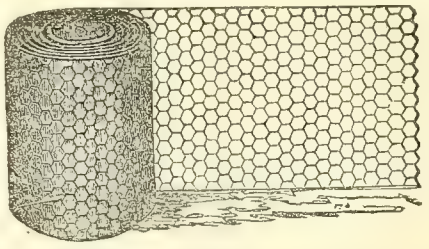
Notices to Correspondents.

BOOKS: *Jacobus* was answered some weeks ago. We recommend 1, 2, 4, 5. We also recommend as among the best of the dear and of the cheap publications respectively Blackie's Cyclopædia of Agriculture and Morton's Farmers' Calendar (Routledge).

FARM IN HUNGARY: *Mr. Foitsek* informs us that a very large estate in the South of Hungary, supplied with all kinds of the newest invented agricultural implements and machines, with the best arable land, is to be let for 12 years. Mr. Foitsek, Flitzing, Schmiedgasse, near Vienna, in Austria, will give more details.

BARNARD, BISHOP, AND BARNARDS, Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.

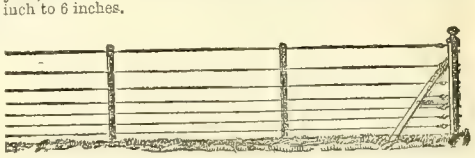


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard.
2-inch mesh, 24 inches wide ..	No. 19	4½*d.*	3½*d.*
2-inch ,, ,, ,, .. ,,	18	5	4
2-inch ,, ,, ,, .. ,,	17	6½	5
2-inch ,, ,, ,, .. ,,	16	8	6½
1⅝-inch ,, ,, ,, .. ,,	19	4¾	4
1⅝-inch ,, ,, ,, .. ,,	18	6	4¾
1⅝-inch ,, ,, ,, .. ,,	17	7	5½
1⅝-inch ,, ,, ,, .. ,,	16	9	7

All the above kinds can be made any width (under 6 feet) at proportionate prices.

Strong Galvanised Poultry Netting, 7½*d.* per yard, 3 feet wide, Galvanised Sparrow-proof Netting for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

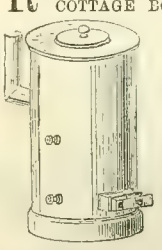
Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10*d.* per yard.

The same with Galvanised Wire Rope, 1*s.* per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



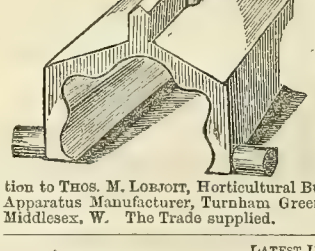
Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

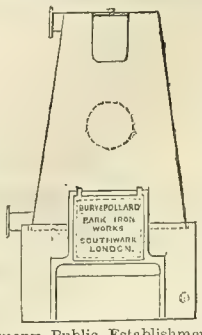
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T. M. LOBJOIT'S PATENT HOT-WATER BOILERS are acknowledged by all who have them in use to be the most powerful Boilers now known, and are the most economical, requiring less fuel and attention than any other. They are made of various sizes, suitable for heating the smallest Greenhouse to the largest Conservatory, Churches, and Buildings of all descriptions.



Testimonials forwarded on application to THOS. M. LOBJOIT, Horticultural Builder and Hot-Water Apparatus Manufacturer, Turnham Green, W., and at Acton, Middlesex, W. The Trade supplied.



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BURY AND POLLARD (Successors to JOHN R. PEILL, Late STEPHENSON & PEILL).

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Price Lists on application to BURY & POLLARD, Park Iron Works, New Park Street, Southwark, London, S.

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THE GUTTA PERCHA COMPANY have the pleasure to acknowledge the receipt of the following

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"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."

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GARDEN BORDER-EDGING TILES. — These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

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LIGHT and DARK OAK ...	26s.	BRIGHT GREEN	44s.
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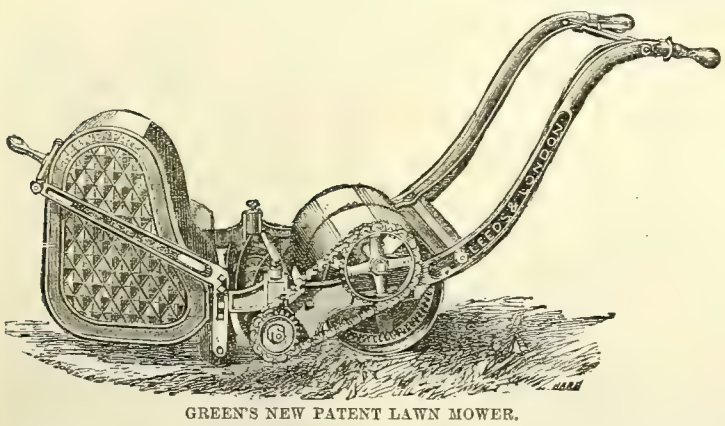
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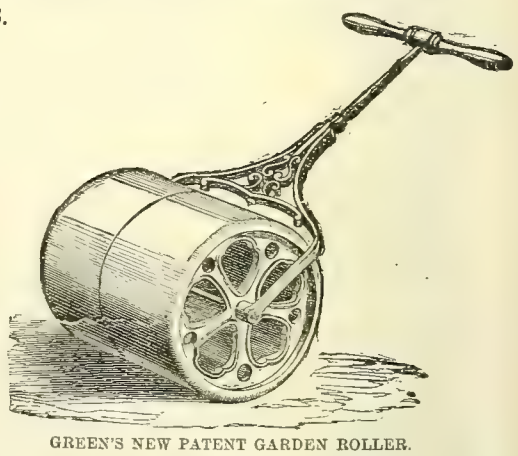
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„ 20 „ ...	8	0	0	Do. Do.	9	5 0
„ 22 „ ...	8	10	0	Suitable for Two Men	9	17 6
„ 24 „ ...	9	0	0	Do. Do.	10	7 6

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Diameter 20 inches, length 22 inches, price £3 5*s.* | Diameter 16 inches, length 17 inches, price £2 10*s.* | Diameter 24 inches, length 26 inches, price £4 5*s.*
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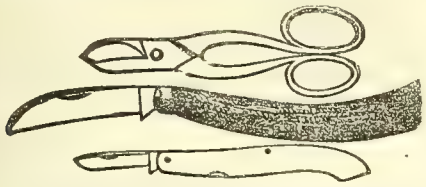
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Every description of HORTICULTURAL and AGRICULTURAL IMPLEMENTS;
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Illustrated Catalogues on application.

T. GREEN & SON, SMITHFIELD IRON WORKS, LEEDS; & 2, VICTORIA STREET, HOLBORN HILL, E.C.

HAVE YOU a LAWN?—Use BELCHER'S PATENT PLANTAIN EXTRACTOR; which neatly removes Plantain and Daisies, and replaces them with fine Turf. Price 6s.: to be had of all Ironmongers.
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Paxton Works, Sheffield, Established 1738.

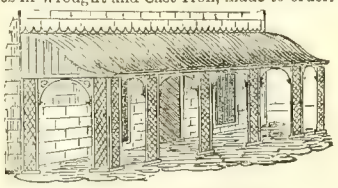


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SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

VERANDAHS, COVERED WAYS, AWNINGS, CONSERVATORIES, and every description of Roofing and Sashes in Wrought and Cast Iron, made to order.



Apply to COTTAM & Co., Manufacturers, (Iron Works) 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

Garden and Architectural Decorations in Terra Cotta.

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The novel FERNDELABRUM.—To grow SIXTY FERNS (or Flowers) on a space 4 ft. 8 in. over, 8 ft. high, &c.

Guaranteed to stand frost an unlimited time.

Stereographs sent to inspect for 12 stamps.

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TREE and PLANT LABELS.—10,000 CLOTH or PATENT PARCHMENT PUNCHED LABELS for 30s. Delivered free in London on receipt of a Post-office Order or Stamps for the amount.

Address JOHN FISHER & Co., West Road Works, Boston, Lincolnshire.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence of Ealing Park, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent-prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. .. 1s. 6d. per yard run.
Four yards wide .. .. .. 3s. per yard.
An improved make, 2 yards wide, 1s. 8d. per yard.
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Also "Frigi Domo" Netting, 2 yards wide, 1s. 4d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

Fresh Fruit all the Year Round.

JENNINGS' MODEL PRESERVING JAR affords the means to every one to lay by a store of Fruit or Vegetables for Winter use at a very small cost and little trouble.



This is effected by means of an AIR-TIGHT CAP or COVER, which can be placed or removed in a moment, and will last for years in any climate, superseding the use of Bungs, Corks, Bladder, &c., for all kinds of Preserved Meats, Fruits, or Pickles.

Descriptive Illustrations, Prices, &c., from the Wholesale Depôt, Palace Road, Lambeth, S. Retail from all China and Glass Dealers, Ironmongers, and others.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, LONDON, S.W.

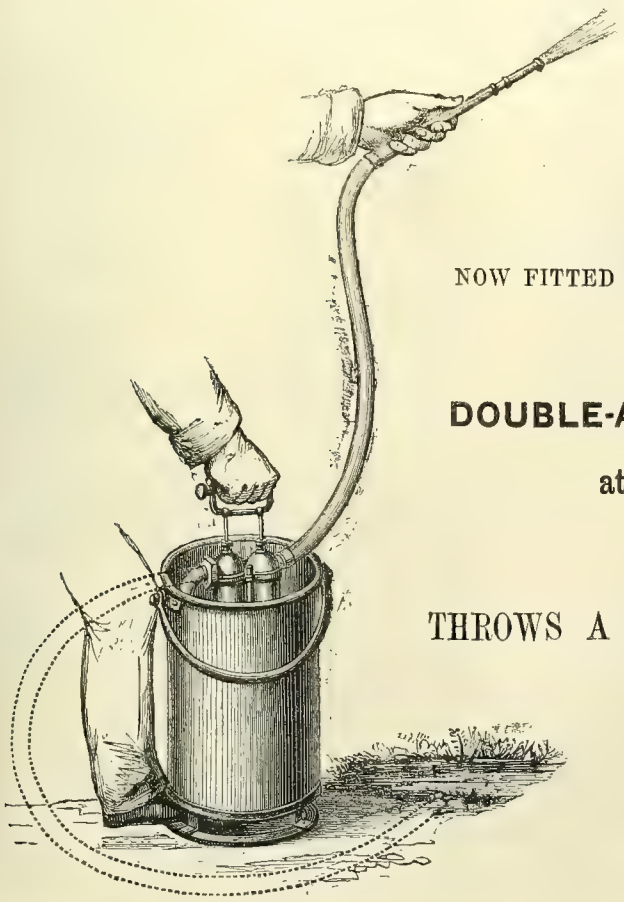
The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c. the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.

WARNERS' IMPROVED PATENT,



NOW FITTED WITH AN AIR VESSEL,

IS THE ONLY

DOUBLE-ACTION ENGINE

at £2 2s.

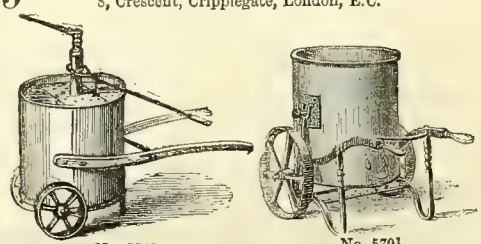
THAT

THROWS A CONSTANT STREAM.

May be obtained of any Ironmonger or Seedsman at the above price, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.



No. 554½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

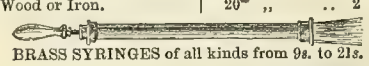
10 gallons	..	£2	15 0
16 ,,	..	3	15 0
24 ,,	..	5	0 0

Larger sizes may be had in either Wood or Iron.

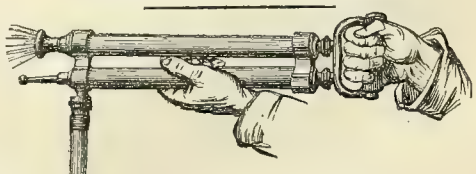
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WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	..	£2	10 0
20 ,,	..	2	0 0



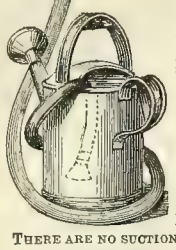
BRASS SYRINGES of all kinds from 9s. to 21s.



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 5 feet Flexible Suction Pipe,

21s.



Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

THERE ARE NO SUCTION OR DELIVERY VALVES, hence MUCH FRICTION AND LIABILITY TO CHOKE with leaves and dirt IS AVOIDED.
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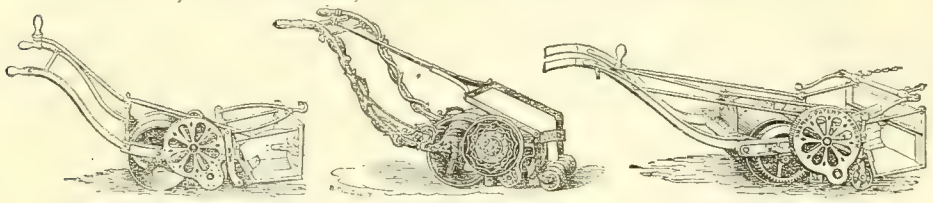
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CHUBB'S PATENT SAFES, the most secure against Fire and Thieves.
CHUBB'S FIRE-PROOF STRONG ROOM DOORS. CHUBB'S PATENT DETECTOR LOCKS and STREET DOOR LATCHES; CHUBB'S CASH and DEED BOXES.
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PARAWAX CANDLES, Three to the Pound.—These Candles, manufactured by PRICE'S Patent Candle Company expressly for dinner-table chandeliers, recommend themselves by their beauty of appearance and brilliancy of light. Price 1s. 8d. per lb.
Can be had of all Chandlers and Grocers.

SHANKS' NEW IMPROVED PATENT LAWN MOWING,
ROLLING, COLLECTING, AND DELIVERING MACHINE FOR 1863.



NEW PONY MACHINE. NEW HAND MACHINE. NEW HORSE MACHINE.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine	£28 0 0	40s. extra.
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No. 3.—36 inch Machine	22 0 0	30s. ,,
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Silent Movement, 20s. extra; Boots for Horse's Feet, 24s. per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE

Width of Cutter.		If with Patent Delivering Apparatus
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No. 6.—28 inch Machine	14 10 0	30s. ,,
No. 7.—25-inch Machine	12 10 0	25s. ,,

Silent Movement, 12s 6d. extra; Boots for Pony, 21s. per set; ditto for Donkey, 10s. per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

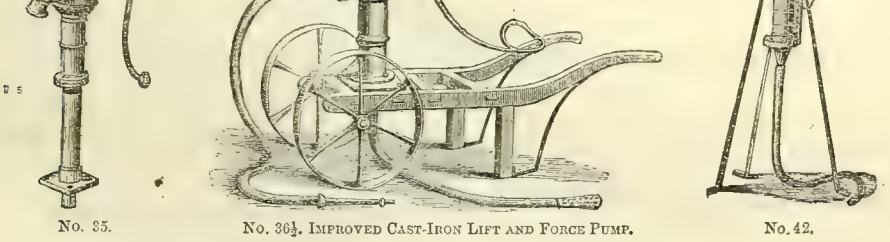
Width of Cutter.		
No. 8.—24 inch Machine	£8 17 6	*Easily Worked by Two Men.*
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No. 10.—19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
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*** *Shanks' Lawn Mowers are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

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BELL AND BRASS FOUNDERS TO HER MAJESTY,
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No. 35. No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0
1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4
2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0
3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

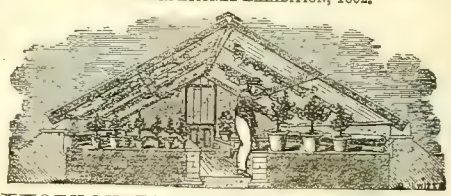
By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.
When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

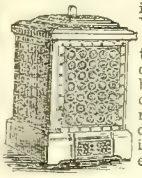
Hothouses for the Million.—AWARDED A PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, 1862.



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Illustrated Circulars, with Lists of Prices, can be had on prepaid application to SAMUEL HEREMAN, 7, Pall Mall East, London.
Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1s.; post free, 1s. 1d.

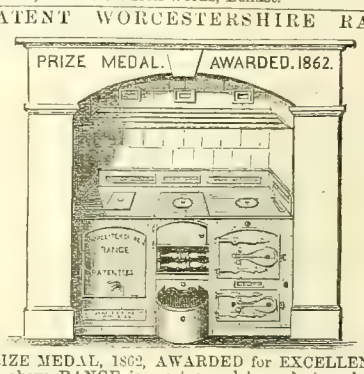
Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.—This Stove is the nearest approach to Warming by Hot Water, and an efficient aid in Ventilation.



It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3d.; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.
It is also made for Small Conservatories, with a vapour chamber, which maintains a moist atmosphere for 12 hours with once filling.
Particulars and prices post free on application to MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

PATENT WORCESTERSHIRE RANGE.



PRIZE MEDAL, 1862, AWARDED for EXCELLENCE.
The above RANGE is most complete, and strongly recommended for its unrivalled ECONOMY, CLEANLINESS, CONVENIENCE, DURABILITY, and is a certain CURE for SMOKY CHIMNEYS.
It is an entirely new invention, and consists of large MEAT ROASTER, PASTRY OVEN, and WROUGHT-IRON BOILER. The top forms a HOT PLATE for BOILING, STEWING, &c. The whole heated by ONE SMALL FIRE. One 5 feet wide is equal to an ordinary Range 8 feet wide.
Extracted from the *London Daily Telegraph*, May 19, 1862.
"INTERNATIONAL EXHIBITION, CLASS 31.
"Of the most recent inventions it should be said that Messrs. JONES & ROWE'S Patent Worcestershire Range has attracted very special attention, and has been commended by the best authorities. A valuable peculiarity of their Ranges is the placing of the OVEN and ROASTER one above the other instead of *side by side;* and the ROASTER is constantly replenished with fresh air."
Inventors and Manufacturers, JONES & ROWE, Worcester.
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Illustrated Catalogues, with Testimonials and Prices, forwarded on application.

PRICE'S CHILD'S NIGHT LIGHTS are perfectly safe, and burn their time. The quality of these night lights can now be relied on.

SHERWOOD BED LIGHTS, Sixpence and Eighteenpence a box.—These candles are made to supply a want very generally expressed, a cheap, really good chamber candle. They will be found inferior only to "PRICE'S CANDLES, WHICH WILL NOT DROP GREASE WHEN CARRIED," which are sold in boxes, 1s. and 3s. each.

GLYCERINE, which very simple tests show to be impure, is being sold on the statement that it is "in every respect equal to Price's." Most medical men prescribe "PRICE'S GLYCERINE." Where purity is of importance patients can ensure it by desiring to have their Glycerine in 1 lb., 8 oz., 4 oz., or 2 oz bottles, with capsule over the stopper marked "Price's Patent."
Belmont, Vauxhall.

FENDERS, STOVES, FIRE-IRONS, and CHIMNEY PIECES.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW-ROOMS. They contain such an assortment of FENDERS, STOVES, RANGES, CHIMNEY-PIECES, FIRE-IRONS, and GENERAL IRONMONGERY as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with ormolu ornaments, 3*l.* 15*s.* to 33*l.* 10*s.*; Bronzed Fenders, with standards, 7*s.* to 5*l.* 12*s.*; Steel Fenders, 3*l.* 3*s.* to 11*l.*; ditto, with rich ormolu ornaments, from 3*l.* 3*s.* to 18*l.*; Chimney-pieces, from 1*l.* 5*s.* to 100*l.*; Fire Irons, from 2*s.* 3*d.* the set to 4*l.* 4*s.* The BURTON and all other PATENT STOVES, with radiating hearth-plates.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 500 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish-Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39 Oxford Street, W.; 1, 1A, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place; and 1 Newman Yard, London.

METCALFE, BINGLEY, AND CO'S NEW PATTERN TOOTH BRUSHES, Penetrating Unbleached Hair Brushes, Improved Flesh Brushes, genuine Smyrna Sponges, and every description of Brush and Comb and Perfumery for the Toilet METCALFE'S celebrated Alkaline Tooth Powder, 2s. per box. The FAIRY BOUQUET; the OXFORD and CAMBRIDGE BOUQUET. In bottles, 2s., 3s. 6d., and 5s. each. 130 B, and 131, Oxford Street, W.

Sauce.—Lea and Perrins'

WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE," Is prepared solely by LEA & PERRINS.

The public are respectfully cautioned against worthless imitations, and should see that LEA & PERRINS' Names are on Wrapper, Label, Bottle, and Stopper.

ASK FOR LEA AND PERRINS' SAUCE.

*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c.; and by Grocers and Oilmen universally.

DINNEFORD'S PURE FLUID MAGNESIA has been during 25 years emphatically sanctioned by the Medical Profession, and universally accepted by the public, as the best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion, and as a mild Aperient for delicate constitutions, more especially for ladies and children. It is prepared in a state of perfect purity and of uniform strength by

DINNEFORD & Co, 172, New Bond Street, London, and sold by all respectable Chemists throughout the world.

KEATING'S PERSIAN INSECT DESTROYING POWDER.—Fleas in Dogs, Poultry, &c., are instantly destroyed, as also Bugs, Beetles, and every other Insect, by this Powder, which is perfectly harmless to animal life; Sportsmen particularly will therefore find it invaluable.

Sold in Packets, 1s, 2s. 6d., and 4s. 6d. each, or post free for 14, or treble size for 36 postage stamps, by THOMAS KEATING, Chemist, 79, St. Paul's Churchyard, London, E.C. Take notice, each genuine packet bears the above name and address.

For which a Prize Medal was awarded to the Producer at the International Exhibition, 1862.

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Forward address, on a stamped envelope, to W. GODALL, Esq., Epsom, Surrey, S.

CONSUMPTION.—All Nervous, Bilious, Liver and Stomach Complaints are only aggravated and accelerated by drugs of every description, but perfectly curable by DU BARRY'S health-restoring REVALENTA ARABICA FOOD, as proved by thousands of cases which had been considered hopeless. We quote a few.—Cure, No. 46,270. Mr. James Roberts, of Frimley, Surrey, of 30 years' diseased lungs, spitting of blood, liver derangement, and partial deafness.—Cure, No. 47,121. Miss Elizabeth Jacobs, of extreme nervousness, indigestion, gatherings, low spirits, and nervous fancies.—Cure, No. 54,816. The Rev. James T. Campbell, Fakenham, Norfolk, "of indigestion and torpidity of the liver, which had resisted all medical treatment."—In tins 1 lb., 2s. 9d.; 2 lb., 4s. 6d.; 5 lb., 11s.; 12 lb., 22s.; 24 lb., 40s.

BARRY DU BARRY & Co., No. 77, Regent Street, London, W.; also at 61, Gracechurch Street, E.C.; 4, Cheapside, E.C; 63 and 150, Oxford Street, W.; and all Grocers and Chemists in every town of the United Kingdom.

CHILD'S PONY for SALE.—Singularly handsome, warranted quiet and sound, in the hands of the Breeder. Apply to X. Y. Z., care of Messrs. Abbott, Barton & Co., Advertisement Contractors, 203, Strand, London, W.C.

AN OLD-ESTABLISHED COUNTRY NURSERY BUSINESS, with Plant Houses, and first-class Stock, on Six Acres of Ground, for Positive SALE, at a sacrifice, or a PARTNER accepted, who could Purchase half the Stock, and promote the Business. He would have the privilege of Purchasing the whole as soon as prepared or disposed to do so. Declining health of the Proprietor induces him to make this advantageous offer.

Address, NURSERY, Post Office, York.

TO BE LET, NURSERY GROUNDS in Brighton, comprising extensive Vineries and Peach-houses, in good bearing condition; large Span-roofed and Lean-to Houses, and Pits for Plants; also, a capital Residence and Cottages, with Stabling and Coach Houses.

The Stock can be taken at a valuation or a fixed sum, as agreed upon, or a PARTNER with Capital would be accepted.

Full Particulars to be had on application to the GARDEN SUPERINTENDENT, Alexandra Park, Tottenham Wood, Hornsey.

To Market Gardeners, Florists, and Nurserymen.

TO BE LET, with possession at Michaelmas next, 12 ACRES of very superior GARDEN GROUND in full cultivation, well stocked with Fruit Trees and Bushes, with Forcing House and requisite Buildings, Dwelling House and Offices, situate at King's Lynn, in the county of Norfolk.

The above has been for many years successfully occupied as a Market Garden, and offers an excellent opening for a Nurseryman and Florist, there being none in the place. The soil is of first-rate quality, and peculiarly adapted for the growth of Roses.

Further particulars may be obtained of Messrs. CRUSO & SON, Estate Agents, King's Lynn.

Sales by Auction.

Earl's Court Farm, Kensington.

TO MARKET GARDENERS, NURSERYMEN, AND FARMERS.

MR. W. T. ATTWOOD will SELL by AUCTION, on the Premises, on TUESDAY and WEDNESDAY, September 22 and 23, by directions of Mr. Allaway, who is quitting the premises, the LIVE and DEAD STOCK, comprising about 200 capital 3-Light Boxes and Lights, Hand Glasses, 7 Spring and other Waggons; Market, Dung, and Tumbril Carts; Pony and other Chaises, and Light Cart; 5 useful Cart Horses and Pony; Sets of Harness; 1200 bushel Onions; quantity of Shaw and Kidney Potato Sets; Ploughs, Harrows, Rollers, Barrows, Iron Hurdles, Watering Pots, quantity of Deals, and a variety of useful articles.

May be viewed the day before and Mornings of Sale. Catalogues at the principal Inns in the London Markets; on the Premises; and the Auctioneer, Mortlake, Surrey.

Forty Farm, Preston, near Cirencester.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD has received instructions from Mr. JOHN LANE, of Barton Mills, to offer for SALE by AUCTION, without reserve, on THURSDAY, September 24, at the Forty Farm, Preston, his entire Herd of Superior SHORT-HORNS, consisting of about 60 head of Bulls, Cows, and Heifers. Specimens of this Herd have distinguished themselves at the meetings of the Royal Agricultural Society of England, the Bath and West of England, Chippenham, Gloucester, Tredegar, Warwickshire, Worcestershire, and other local Shows: after which will be Sold a few choice Short-horns, from the Herd of E. Bowly, Esq., Siddington.

Catalogues, with pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or, Mr. BOWLY, Siddington House, Cirencester; and of Mr. LANE, Barton Mills, Cirencester.

Homerton.

TO GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Fry to SELL by AUCTION, on the Premises, Homerton Nursery, Homerton, within three minutes' walk of the Hackney Station on the North London Railway, on WEDNESDAY, Sept. 30, without reserve, the ground being immediately required for building purposes, the whole of the valuable GREENHOUSE PLANTS, consisting of about 4000 fine Azalea indica, and 500 Double Camellias, of various sizes, including fine specimens adapted for cut blooms, all well furnished with flower buds; 1000 Myrtles, 2500 Diosmas, 600 Acacias, fine Standard Fuchsias, Cytisus, Ericas, 3000 Show, Fancy, and French Pelargoniums, Scarlet and Variegated Geraniums, &c. Sundry Nursery Stock, together with a nearly new half circular Iron Roof Stow House, Eleven Greenhouses, several Pits, One, Two, and Three-light Boxes, quantity of Lights, 3 and 4-inch Hot-water Piping, Boilers, Garden Pots, neat Seed Drawers, Counter, and Sundry Effects.

May be viewed prior to the Sale. Catalogues (when ready) may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Waltham Abbey, N.

TO GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MR. C. PRYOR will submit to public SALE by AUCTION on the Premises, Waltham Nursery, Waltham Abbey, N., about one mile from the Waltham Station, G.E.R., on THURSDAY, October 1, at 12 o'clock, a choice COLLECTION of fine healthy ERICAS, Acacia armata, Genistas (Cytisus fragrans), Ceronillas, Myrtles; Show, Fancy, and French Pelargoniums; Scarlet and Variegated Geraniums, Azaleas, Fuchsias, Ferns, Cyclamens, Deutzia gracilis, Calceolarias, Roses, Chrysanthemums, and a variety of other plants; also a quantity of Rhododendron arboreum, suitable for grafting.

May be viewed the day prior to and Morning of Sale, and Catalogues had on the Premises, and of the Auctioneer, Waltham Abbey, N.

Trees and Shrubs.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS ENGAGED IN PLANTING.

Brereton Nurseries, near Rugeley, Staffordshire.

MESSRS. C. AND H. GILLARD have received instructions from Mr. C. Whitehouse, in consequence of his having a superabundant stock, and requiring further room, to submit for positive SALE by AUCTION, on MONDAY and TUESDAY, October 5 and 6, on the premises at the above Nursery Grounds, under the usual conditions, a fine selection of FOREST and ORNAMENTAL TREES, QUICKS, EVERGREENS, and FLOWERING SHRUBS, &c.

Catalogues will be prepared in due course, and may be obtained from the Auctioneers, Lichfield and Stafford, and from Mr. WHITEHOUSE, Brereton, near Rugeley.

Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, September 19, at half-past 12 o'Clock precisely, without reserve, a fine assortment of DOUBLE and SINGLE HYACINTHS, Tulips, Crocuses, Jonquils, Narcissus, Iris, Ranunculus, Allium Mollii, and other Dutch Bulbs, comprising all the newest and best varieties.

On view the Morning of Sale, and Catalogues had.

A Collection of Greenhouse Plants, the Property of a Gentleman.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, Sept. 19, 250 CHOICE GREENHOUSE PLANTS, in fine health, consisting of Epacris, Ericas, Azaleas, Camellias, Acacias, Genistas, Diosmas, Orange Trees, Hoyas, Bignonias, and other Greenhouse Plants. The whole for absolute sale without reserve.

On view the Morning of Sale, and Catalogues had.

Great Sale of Wellingtonia gigantea and other Choice Conifers at Edmonton.

MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER), 38, King Street, Covent Garden, W.C., begs to announce that he has been favoured with instructions to SELL by AUCTION, without reserve, on the Premises opposite the Golden Fleece, Edmonton, London, N., on THURSDAY and FRIDAY, October 1 and 2, at half-past 12 o'clock precisely each day, the finest Stock of SEEDLING WELLINGTONIAS in the kingdom, consisting of about 20,000 plants of various sizes, from 9 inches to 4 feet, chiefly in pots, and in the most robust health. Also a fine assortment of choice CONIFERS, in pots, comprising 20,000 Cupressus Lawsoniana, 2000 Araucaria imbricata, 600 Picea Nordmanniana, and a large number of others, including Pinus ponderosa, P. Sabiniana, P. Lambertiana, Pinus insignis, P. Don Pedri, Cupressus macrocarpa, &c. The whole of these plants are in prime condition for autumn planting, and are well deserving the attention of the Nobility, Gentry, and the Trade, being lotted to suit all buyers.

On view for several days previous to Sale, and Catalogues had on the Premises, and of Mr. J. C. STEVENS, at his Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Omnibuses run every half hour from the Flower Pot, Bishopsgate Street, E.C. There are also frequent trains from the Shoreditch Station on the Great Eastern Railway, and the one that leaves the Shoreditch Station at 12 noon arrives at Edmonton at half-past 12, just in time for the Sale.

Bagshot, Surrey.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS ENGAGED IN ORNAMENTAL PLANTING.

MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER), 38, King Street, Covent Garden, W.C., begs to announce that he has been favoured with instructions from Mr. Standish, in consequence of removal to Ascot, to SELL by AUCTION, on the Premises, Bagshot, Surrey, 2½ miles from the Sunningdale Station on the London and South-Western Railway, on MONDAY, Oct. 12, and several following days, at half-past 12 o'Clock precisely each day, without the least reserve, a Valuable Collection of HARDY CONIFEROUS and other PLANTS, comprising:—

Araucaria imbricata, 2 to 4 ft.
Abies Albertii, 2½ to 4 ft.
,, Douglasii taxifolia, 3 to 5 feet
,, Menziesii, 4 to 6 ft.
Cedrus atlantica, 2 to 5 ft.
,, Deodara, 3 to 7 ft.
Chamæcyparis sphæroidea, 2 to 3 ft.
Cryptomeria japonica, 3 to 6 ft.
Cupressus Lawsoniana, 2 to 4 ft.
Cephalotaxus Fortuni, 2 to 4 ft.
,, Drupacea, 2 to 3 ft.
Libocedrus chinensis, 2 to 3 ft.
Taxus fastigiata, 3 to 7 ft.
Taxus dovastoni, 3 to 4 ft.
Pinus Benthamiana, 4 to 7 ft.
,, excelsa, 2 to 3 ft.
,, tuberculata, 1 to 2 ft.
,, Wincesteriana, 1 foot
,, Hartwigi, 1 ft.
,, Sabiniana, 1 to 2 ft.
Picea grandis, 1 to 2 ft.
,, amabilis, 1 to 2 ft.
,, Pinsapo, 2 to 3 ft.
,, Nordmanniana, 1½ to 4 ft.
,, nobilis, 1 to 3 ft.
Thuia gigantea, 1 to 2 ft.
Wellingtonia gigantea, 2 to 4 ft.
&c., &c., &c.

The whole having been transplanted within the last twelvemonth, are in a fine state for removal, and are lotted to suit Private Buyers and the Trade. Also various first-class EVERGREENS and DECIDUOUS TREES and SHRUBS, including 200 Skinnera japonica, 500 Variegated and Green Hollies, 1000 Portugal and Common Laurels, 600 Standard and other named Rhododendrons, 300 Kalmia latifolia, 1000 Standard Dwarf and Pot Roses, Standard and Pyramidal Apple and Pear Trees, Camellias, hardy Azaleas, &c., all of which are in the finest possible health, and for Sale without the least reserve.

On view the week prior and mornings of Sale. Catalogues had at Mr. STANDISH'S Nurseries, Bagshot and Ascot; and of Mr. J. C. STEVENS, at his Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Approved Bills at three months taken of purchasers above 50l. A Van will meet the train starting from Waterloo at 10 25 and 10 50, arriving at Sunningdale Station at 12 o'clock to convey parties to the Sale. Refreshments will be provided on the ground for the buyers at the Sale.

NOTE.—On WEDNESDAY and THURSDAY, October 21 and 22, and on TUESDAY and WEDNESDAY, October 27 and 28, will be sold by AUCTION, by Mr. J. C. STEVENS, at his Great Rooms, 38, King Street, Covent Garden, W.C., a portion of Mr. Robert Fortune's recent INTRODUCTIONS from JAPAN, and the whole of his CHINESE PLANTS. They will be on view at Mr. STANDISH'S Nursery at Bagshot, during the sale of his Nursery stock.

Important Sale of Mr. R. Fortune's Japanese Plants.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, London, W.C., on WEDNESDAY and THURSDAY, October 21 and 22, at half-past 12 o'Clock precisely each day, without reserve, a PORTION of Mr. Robert Fortune's recent JAPANESE INTRODUCTIONS, removed from Mr. Standish's Nursery, Bagshot; comprising the following new and interesting Plants.

100 Thujopsis dolabrata variegata, 6 inches.
100 Euonymus radicans foliis variegatis, 6 inches.
150 Euonymus japonica variegata, 1 to 2 feet.
100 Juniperus chinensis variegata.
50 Retinispora pisifera aurea, 6 inches.
50 Osmanthus ilicifolius, 9 inches.
150 Osmanthus ilicifolius variegatus nanus, 9 inches.
400 Lonicera aureo-reticulata, 1 to 2 feet.
50 Raphiolepis ovata (Photinia), 1 to 2 feet.
200 Thuja (Biota) falcata.
200 Iris lævigata.
250 Sciadopitys verticillata, 6 inches.
100 Microlepia scabra, 1 foot.
500 Lastrea opaca, 1 foot.
100 Ilex Fortunei, 1 foot.
500 Pinus densiflora.
50 Eurya latifolia variegata, 6 inches.
300 Retinispora obtusa, 6 inches to 1 foot.
200 Retinispora pisifera, 1½ feet.
400 Japanese Chrysanthemums.
50 Taxus Fortuni.

Also the following:—

50 Dracæna Banksii, 2 to 3 feet.
150 Desfontainea spinosa, 1½ feet.
50 Cyathea dealbata.
300 Rhododendron Nuttalli, 1 to 2 feet, &c.

The whole for absolute sale, and in the finest possible health.

On View on the Premises, Bagshot, Surrey, during the Sale of Mr. Standish's Nursery Stock, also on the days of Sale at Mr. J. C. STEVENS's Auction Rooms and Offices, 38, King Street, Covent Garden, W.C., where Catalogues can be obtained, by forwarding two postage stamps.

Mr. Robert Fortune's Chinese Plants for Absolute Sale.

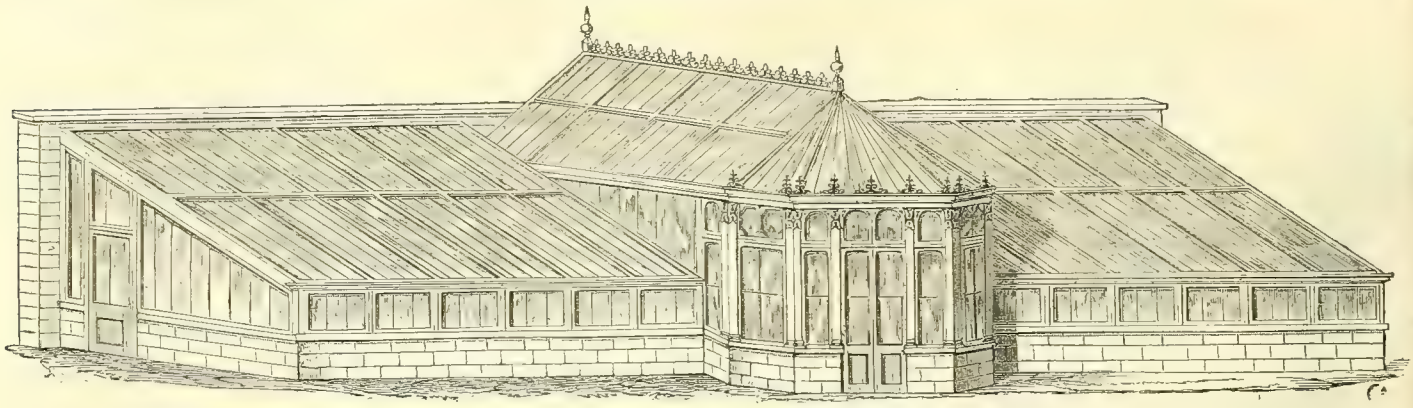
EXTENSIVE SALE OF RARE AND VALUABLE INTRODUCTIONS FROM CHINA.

MR. J. C. STEVENS has much pleasure in announcing that he has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY and WEDNESDAY, October 27 and 28, at half-past 12 o'Clock precisely, without the least reserve, in consequence of the agreement which existed between Messrs. Standish and Fortune with regard to the Chinese Plants having terminated, the most important COLLECTION of RARE and VALUABLE PLANTS ever offered for public sale, including the whole of Mr. Robert Fortune's RECENT INTRODUCTIONS from CHINA, and a part from JAPAN, including—

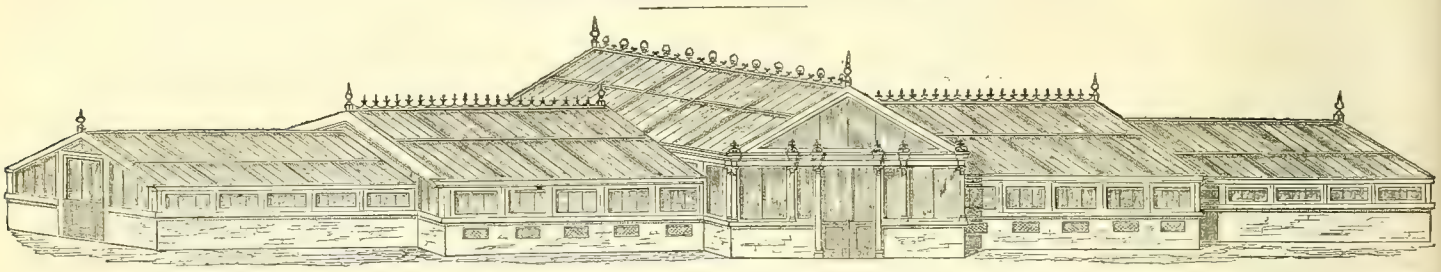
3000 Torreya grandis, 4 to 10 inches
150 Abies Kæmpferi, 2 to 4 feet
2000 Chamærops Fortunei
50 Pinus Bungeana
1000 Pinus sp. (nova) Pekin (Tabulæformis), 4 to 6 inches
25 Bambusa variegata
500 Thuja sp. (Pekin)
500 Lastrea opaca
400 Lonicera aureo-reticulata
200 Iris lævigata
200 Retinispora obtusa
200 Retinispora pisifera, &c., &c.

The whole of these Plants are in the finest possible health and are lotted to suit all buyers, and are well worthy the attention of the Nobility, Gentry, and Trade.

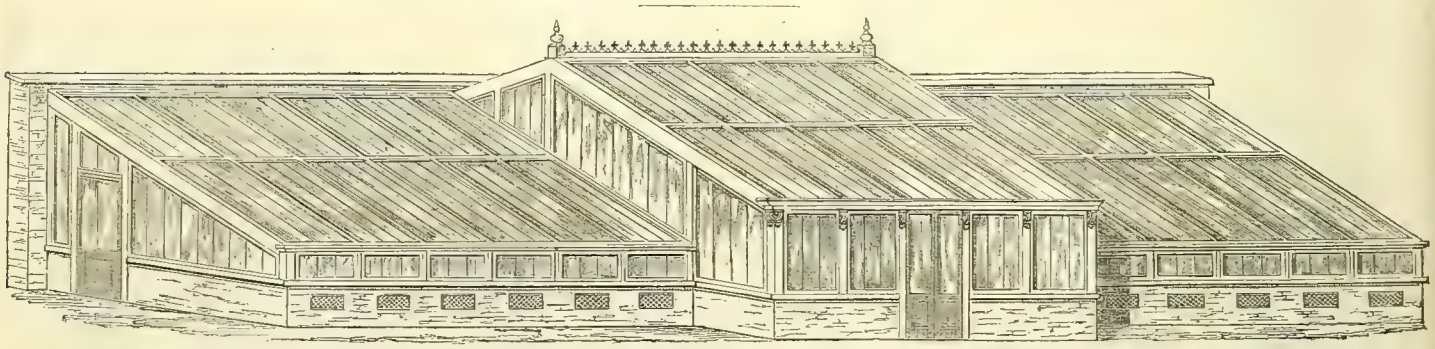
On view at Mr. STANDISH'S Nursery, Bagshot, during the Sale of his Nursery Stock, and on the days of Sale at Mr. J. C. STEVENS's Auction Rooms and Offices, 38, King Street, Covent Garden, London, W.C., where Catalogues and full particulars can be obtained.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.



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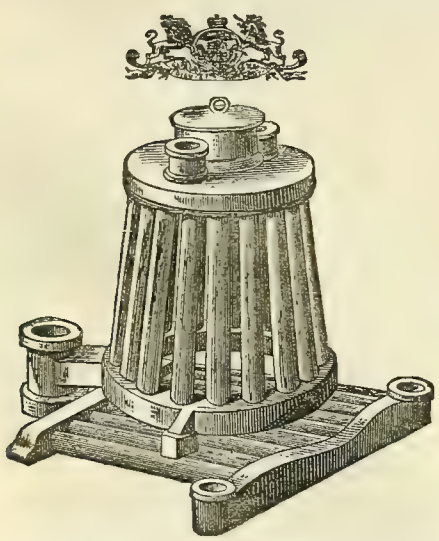


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MANUFACTURED BY STEAM POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.

THE FOLLOWING IS THE REASON WHY

ORMSON'S ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become so universally adopted on account of their superior power, great safety, and economy.



ORMSON'S No. 1 BOILERS are heating upwards of 250 feet of Pipe.
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ORMSON'S No. 3 BOILERS „ „ 1300 „
ORMSON'S No. 4 BOILERS „ „ 3500 „
ORMSON'S No. 5 BOILERS „ „ 7000 „

Boilers of larger sizes if required to heat 12,000 or 15,000 feet of Pipe.

IRON and WOOD CONSERVATORIES of the most chaste and elaborate design; VINERIES PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES for WALL TREES, PITS, &c. designed and built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,
AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF
HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 38.—1863.] SATURDAY, SEPTEMBER 19. {Price Fivepence. Stamped Edition, 6*d*

INDEX.

Agricultural education	897 *c*	Lincoln Fair	903 *a*
Agriculture in the Shetlands	903 *c*	Moss on lawns	896 *c*
Alpine Guide, rev.	894 *b*	Negro	893 *b*
Anacharis Alsinastrum	889 *c*	Oak, Herne's	895 *c*
Bell glasses, cure for bedewing of	890 *b*	Orchard house Peaches, 893 *b*—	894 *a*
British Association	893 *b*	Pansy, fancy	893 *a*
Cinchona planting	893 *c*	Parks, new public	895 *c*
Cottage building	901 *a*	Peach house, dimensions of a	896 *c*
Dahlias, seedling	890 *c*	Potatos	891 *c*
Dairy management	900 *a*	Ram sales	902 *c*
Denton's (Mr.) Lecture on Land Drainage	898 *b*	Rhus succedaneum	894 *a*
Disa grandiflora	894 *a*	Roses, new	892 *c*
Experiments with Wheat	903 *b*	Rose showing	893 *c*
Farmers	901 *a*	Royal Agricultural College	898 *b*
Feat of Drainage	901 *c*	Sale of Short-horns	898 *b*
Fleurs Castle	895 *a*	Society, Brighton Horticultural	894 *a*
Flower garden arrangement	890 *a*	— Manchester & Liverpool	902 *a*
Fungi	893 *c*	— Royal Northern	902 *b*
Grape growing	893 *c*	Steam Cultivation Company	901 *b*
Harvest expedients	898 *a*	Trade lists	895 *a*
Hyacinth culture	894 *a*	Value of a rain gauge to farmers	901 *b*
Ink plant	893 *c*	Water rights	892 *a*
Labourers' cottages	901 *c*	Water weed	889 *c*
Land Drainage	904 *a*	Wilkins' (Rev. Geo.) Lecture	898 *b*
Law, garden	892 *a*	Willow stem midge	891 *a*
Leicesters	903 *a*	Yedo, scenery around	895 *c*

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.

The next MEETING of this Committee will take place on TUESDAY, September 22, at 12 o'clock. The subjects for examination must be at South Kensington for entry by 11 A.M.

THOMAS MOORE, Secretary to the Committee.

AMALGAMATED METROPOLITAN CHRYSANTHEMUM SOCIETY, for Nurserymen, Gentlemen's Gardeners, and Amateurs.

FIRST GREAT EXHIBITION, Agricultural Hall, Islington, WEDNESDAY, THURSDAY, and FRIDAY, November 11, 12, and 13.

260*l.* in General Prizes, and Reserve Fund for Special Prizes, as awarded by the Judges, open to all England.

Rules, Schedules, &c, to be obtained of the Honorary Secretary by enclosing two postage stamps.

The last day for the enrolment of Members will be October 12. J. JEFFERIES, Hon. Sec.

10, Catherine Street, Barnsbury Park, Islington, N.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, now ready for Planting. Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.

Highgate Nurseries, London, N.

Grape Vines.

WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery. PRICED LIST on application.

PAUL'S Nurseries and Seed Warehouse, Waltham Cross, N.

THE best STRAWBERRY in cultivation is the True SIR HARRY.

May be had of G. HUDSON at 10*s.* per 100, warranted every plant true; various other kinds of first-class quality at current prices. Kingston, near Kegworth, Derby.

STRAWBERRIES, Trade price.—British Queen, Black Prince, Admiral Dundas, Eleanor, Elton Pine, Keen's Seedling, Oscar, Wizard of the North, 15*s.* per 1000; Alice Maude, Duc de Malakoff, Eliza, Empress Eugenie, Prince of Wales, Princess Royal, Sir C. Napier, 2*s.* per 100.

GEO. CORNWELL, Seedsman, &c., Barnet, Herts, N.

GUERNSEY and BELLA DONNA LILIES. 5*s.* per dozen.

Orders should at once be given for these beautiful flowers.

BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

GUERNSEY and BELLA DONNA LILIES. 5*s.* per dozen.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

GUERNSEY and BELLA DONNA LILIES. Just arrived in fine condition, 5*s.* per dozen.

JAMES CARTER & Co., 237 and 238, High Holborn, W.C.

WILLIAM BARRON'S PRICED CATALOGUE is now ready, and may be had post-free on application. Elvaston Nurseries, near Derby.

ALOCASIA MACRORHIZA VARIEGATA.—Good plants, 10*s.* 6*d.* each.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

Cineraria, Calceolaria, and Primula.

E. G. HENDERSON AND SON offer first-class Seed of the above. 1*s.* and 2*s.* 6*d.* per packet.

Wellington Nursery, St. John's Wood, London, N.W.

CHOICE SEEDS for AUTUMN SOWING.—CALCEOLARIA, CINERARIA, and PRIMULA, from the finest strains in cultivation, each 2*s.* 6*d.* per packet.

JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

Hendon Park Nurseries, N.W.

PANSIES.—One of the largest and most varied Stocks in the kingdom for Exhibition. Now is the time to plant for next spring. Price from 6*s.* per dozen. All orders prepaid. EDWARD SHENTON.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech. SPECIAL PRICED LIST of NEW SEEDS on application.

Best Seeds, Carriage Free.

BUTLER AND MCCULLOCH, SEED MERCHANTS, Covent Garden Market, London, W.C.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Hyacinths, Tulips, Crocuses, &c.

BUTLER AND MCCULLOCH'S importation of DUTCH BULBS are unusually fine this season. CATALOGUES Post free upon application.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Imported Dutch Bulbs.

JAMES CARTER AND CO.'S CATALOGUE of BULBS, with Cultural Directions, forwarded free of charge, on application to 237, 238, High Holborn, London, W.C.

IMPORTED DUTCH BULBS.—First-class Dutch Bulbs of every description just imported.

JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

Fresh Imported Dutch Bulbs.

SUTTON AND SONS have just received from Haarlem one of the most Extensive and Rare Collections of BULBOUS FLOWER ROOTS ever imported into this country. Prices very moderate, as see LIST, which may be had post free.

Royal Berkshire Seed Establishment, Reading.

NEW PLANTS and BULBS, at reduced prices. LISTS free.

W. DILLISTONE, Munro Nursery, Sible Hedingham.

LARGE IMPORTATION of DUTCH BULBS.—CATALOGUES (gratis) on application to WM. BARRATT, St. John's and Newton Moor Nurseries, Wakefield.

Hyacinths and other Choice Bulbs.

B. S. WILLIAMS'S DESCRIPTIVE CATALOGUE of the above post free to all applicants.

Choice HYACINTHS for Glasses or Pots, 6*s.*, 8*s.*, 10*s.*, 12*s.* per dozen.

Paradise and Victoria Nurseries, Holloway, London, N.

A Large Importation of Dutch Bulbs.

Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.

Bulbs sent carriage free, excepting very small parcels.

WM. WOOD AND SON have received a large consignment of the above, and will be happy to receive orders for the same. The Bulbs are in first-rate condition, and true to name.

Dutch Bulbs.

S. PONSFORD begs to announce the arrival of his annual importation of the above. HYACINTHS, TULIPS and CROCUSES are unusually fine. PRICED CATALOGUES gratis.

Loughborough Park Nurseries, Brixton, Surrey, S.

THE FINEST NAMED HYACINTHS FOR GLASSES OR POTS.

6*s.*, 7*s.* 6*d.*, 10*s.*, 12*s.*, and 15*s.* per dozen.

Forwarded immediately on application to HOOPER & Co., Seedsmen, Covent Garden Market, London, W.C. NEW DESCRIPTIVE CATALOGUE, just published, sent Post free.

Hyacinths, Crocuses, Tulips, Narcissus, &c.

JAMES FAIRHEAD AND SON beg to announce the arrival of their DUTCH BULBS in splendid condition, and unusually fine. CATALOGUES post free on application. N.B. GUERNSEY and BELLA DONNA LILIES on offer. A large quantity of MUSHROOM SPAWN of superior quality, 2*s.* 6*d.* per bushel.

7, Borough Market, London, S.E.

Hyacinths, &c.

WM. PAUL'S selection of DUTCH BULBS has arrived in splendid condition.

Good named HYACINTHS, 6*s.* per dozen and upwards.

Early TULIPS, for pots or beds, 1*s.* per doz. and upwards.

CROCUS, NARCISSUS, ANEMONES, &c., best sorts, at moderate prices.

DESCRIPTIVE CATALOGUE free by Post.

PAUL'S Nurseries and Seed Warehouse, Waltham Cross, N.

DUTCH BULBS.—Best named HYACINTHS, 6*s.* per dozen; Mixed do., 20*s.* per 100; CROCUS, 8*s.* per 1000, &c. A fine lot of choice named GERANIUMS must be sold for want of space; British and Foreign FERNS, immense variety.

R. GREEN, 154, Kingsland Road, N.; and the Bedford Conservatories, Covent Garden Market, W.C.

To the Trade.—Iris reticulata (true).

T. HANDASYDE, Glen Nurseries, Musselburgh, N.B., begs to offer fine flowering BULBS of the above beautiful hardy Spring-flowering IRIS.

Prices on application.

New Rose Catalogue for 1863-64. New Bulb Catalogue for 1863.

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON will be happy to send copies of the above gratis and post free to all applicants.

New Roses for 1863.

WM. WOOD AND SON are now supplying all the NEW ROSES in splendid Plants at reasonable prices. The leading kinds of PERPETUAL and other ROSES in pots are also offered by the dozen, hundred, or thousand.

Address, Woodlands Nursery, Maresfield, Uckfield, Sussex.

New Roses of 1863.

E. G. HENDERSON AND SON offer the most select kinds. The Trade supplied.

Wellington Nursery, St. John's Wood, London, N.W.

SUPERIOR STANDARD ROSES, 18*s.* per doz., and upwards; Do. DWARF Do., 9*s.* per doz., and upwards. All the NEW ROSES, including BEAUTY of WALTHAM, Mrs. WM. PAUL, and LORD MACAULAY (three of the best), at lowest advertised prices.

The NEW PRICED CATALOGUE is now ready, free by post.

WM. PAUL (Son and Successor to the late A. Paul), Nurseries and Seed Warehouse, Waltham Cross, N.

ROSES, NEW and OLD. CATALOGUES NOW READY.

A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. Those who wish for a fine display of bloom during the autumn and ensuing summer should now give their orders.

CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

NEW HYBRID PERPETUAL ROSE, LORD CLYDE (PAUL & SON).—Rich scarlet crimson, deeply shaded; large, full, and of good form, full foliage, and of vigorous growth. Figured in "Floral Magazine." Good plants, at 7*s.* 6*d.* each, are now ready.

Old Cheshunt Nurseries, Herts.

MESSRS. WRIGHT beg to call attention to their fine Stock of EVERGREENS, &c., ROSES, FRUIT TREES, SEAKALE, LONICERA AUREO-RETICULATA, &c., extending over upwards of 20 acres. Their Nursery at Hendon is two miles from Hampstead Heath, where conveyances can always be had, and customers will be sent on to Mill Hill or Edgware if they wish.

Edgware, N.W.

Picea nobilis.

WILLIAM BARRON can supply strong and remarkably well rooted SEEDLING PLANTS of the above in store pots. Per doz., 10*s.*; per 100, 3*l.* 10*s.*

Elvaston Nurseries, near Derby.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.

Dorking Nursery.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Seed Wheat.

MR. S. A. DAINTREE, of Fendrayton, St. Ives, Hunts, has for SALE selected and true stocks of GOLDEN DROP, BROWICK RED, HALLETT'S, and other varieties, at very moderate rates.

Terms on application as above.

Mushroom Spawn.

SAMUEL CHEESE, who has stood unrivalled as a Mushroom Grower upwards of 60 years, begs to inform Nurserymen and Seedsmen that his new MUSHROOM SPAWN is now ready. Orders strictly attended to.

SAMUEL CHEESE, 231, Oxford Street, W.

DILLISTONE'S FIRST EARLY PEA.—For the above, genuine, apply to

W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Potato Onions.

JAMES FAIRHEAD AND SON beg to offer good SOUND BULBS of the above, cheap.

7, Borough Market, London, S.E.

New Grass Seeds, growth of 1863.

SUTTON AND SONS have now ready for delivery and for Exportation, NEW SEEDS of some of the most desirable kinds of GRASS SEEDS for present sowing, and others are coming to hand shortly. Prices very moderate, and quality unusually fine.

Royal Berkshire Seed Establishment, Reading.

DICKINSON'S NEW ITALIAN RYE-GRASS SEED is now ready for delivery.

Sold only by himself, and for present payment, 48*s.* per quarter, or 7*s.* per bushel.

New Park, Lymington, Hants.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Rhododendron Countess of Haddington.

Good plants, 21*s.* each.

Vine Tynninghame Muscat.

Good plants, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each.

ROBERT PARKER begs to announce that he is now offering for sale the above first-class Plants. Full descriptions with List of Awards received are published in his NEW CATALOGUE of PLANTS and BULBS, which will be forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes.

Sunningdale Nursery, S.W. Rail.

New Roses of 1863.

JOHN KEYNES, Castle Street Nursery, Salisbury, can supply some thousands of the above, well-established Plants in pots, comprising the very best varieties of the NEW ROSES of 1863, at 30*s.* per dozen. The usual discount to the Trade. To amateurs such plants are invaluable; they can be planted at once and will produce fine bloom next season, as time will be given them to draw fresh root.

CATALOGUES, with full description, containing all the leading flowers, both old and new, will be forwarded on application.

JOHN KEYNES' STANDARD and DWARF ROSES for the Autumn are in the finest condition.

The stock of ROSES of 1862, comprising Charles Lefebvre, François Lacharme, &c., both Standards and Dwarfs, cannot be surpassed. Salisbury.—Sept. 19.

New Pansies for 1863-64.

DICKSONS AND CO. will be prepared to offer the following NEW PANSIES, which they can with confidence recommend, on and after the 1st October, viz.:—

ALEXANDRA.—Pure white, with rich deep purple belt and top petals, large dense blotch, fine substance, and very constant. 5*s.*

DUX.—A dark self, of exquisite form and texture. 5*s.*

HOMER.—Yellow, with deep maroon belt and top petals, fine blotch, form and texture excellent. 5*s.*

MAGGIE.—A beautiful primrose self, fine blotch; a distinct and very fine flower. 5*s.*

TENNYSON.—A pure dark self, free from any shading, rich glossy texture, and extra fine form. 5*s.*

VILLAGE MAID.—White, with fine purple belt and top petals, blotch large and very dense; a fine show flower. 5*s.*

The usual Discount to the Trade.

1, Waterloo Place, Edinburgh.

PINUS LARICIO.—To gentlemen planting out largely for profit WILLIAM BARRON begs to make a special offer of his fine and well-rooted stock of the above. This fine Pine supersedes the Larch for Forest-planting, producing timber much sooner for Railway Sleepers. It is also used for Spars and Masts in the French navy.

2-years' Seedlings, strong plants	.. per 1000	15*s.*	0*d.*
2-years' transplanted, 9 to 18 inches	.. ,,	30	0
2 to 3 feet..	,,	70	0

Elvaston Nurseries, near Derby.

NEW FERN, CIONIDIUM MOORII, to which a First-class Certificate was awarded by the Royal Horticultural Society, Sept. 9.

The following extract is from the *Gardeners' Chronicle*, of Sept. 12:—

"Some of these interesting novelties belonged to the class of Ferns. Thus, Mr. Dean of Shipley, showed a very nicely grown specimen of Cionidium Moorii, an Australasian species, discovered by Mr. C. Moore, after whom it is named, and particularly interesting as a netted veined representative of Deparia, a Fern in which the fructification forms little cups set out on short stalks from the margin. The fronds of this Cionidium, which were rather broad surfaced, and divided something after the manner of Aspidium trifoliatum, appeared fringed by the multitude of these projecting sori."

WILLIAM DEAN can now supply good plants of this interesting and beautiful NEW FERN, at 15*s.* each. The usual discount to the Trade.

Bradford Nursery, Shipley, Yorkshire.

CUTHILL'S STRAWBERRY PLANTS, to bear next year.—EARLY BLACK PRINCE, EARLY PRINCESS ROYAL, HIGHLAND MARY, RICHARD II., PRINCE of WALES, and NEWTON SEEDLING, 5*s.* per 100, if Selected, 7*s.* 6*d.* each Sort. Lasted in bearing 60 days this year.

STRAWBERRY PAMPHLET, 1*s.*; MUSHROOM do., 1*s.*; CUCUMBER do., 1*s.* MUSHROOMS grown here all the year round; best SPAWN, 5*s.* per bushel.

PRINCE ALBERT, Winter Cucumber, 1*s.* per Packet.

JAMES CUTHILL, F.R.H.S., Cambridge, London, S.

The Kimberley Strawberry.

CHARLES KIMBERLEY has much pleasure in offering the above new SEEDLING STRAWBERRY, feeling confident it will give the greatest satisfaction. It is quite distinct from all other varieties, is of a robust, hardy constitution, a most prolific bearer, of a bright shining crimson; fruit red throughout, firm and solid, with brisk and most agreeable flavour; an excellent sort for all purposes. Strong Plants are now ready at 2*l.* per 100.

Stoke Nursery, near Coventry—Sept. 19.

Strawberry "The Premier," or "British Queen Seedling."

WM. PAUL has now ready good healthy plants of this superb Strawberry, price 12*s.* per 100, or 2*s.* 6*d.* per dozen. A few fruiting plants in pots, 9*s.* per dozen.

DESCRIPTION.—Fruit very large and handsome, colour bright crimson, combining the flavour of Keen's Seedling and Elton Pine, without the acid of the latter; the fruit carries well and retains its flavour long after gathered. It is of a very hardy and vigorous habit, thriving well in all soils and climates; a most abundant bearer, often producing from 20 to 30 trusses of fruit on a single plant; ripens three days later than Keen's Seedling, and remains in season a fortnight after that variety is over.

Large and handsome.—*Gardeners' Chronicle.*

The flavour is very good.—*Journal of Horticulture.*

A choice collection of Fruit Trees, including Grape Vines in splendid condition. PRICED CATALOGUES free by post.

PAUL'S Nurseries, Waltham Cross, N.

NEW SEEDLING STRAWBERRY, PRINCESS OF WALES.

OPINIONS OF THE PRESS.

Gardeners' Chronicle, July 4th.

"Your seedling Strawberry, Princess of Wales, large, ovate, or flattened ovate, with flesh pale red, and solid at the core. The variety deserves notice on account of its size, appearance, and not being hollow at the core."

Journal of Horticulture, June 23d.

"Seedling Strawberry (B. W. Knight). The fruit sent is very juicy, and of excellent flavour."

Florist and Pomologist, July.

"Your seedling Strawberry, Princess of Wales, is a fine regularly-shaped ovate fruit, of a pale red colour, and very firm flesh; it has all the appearance of being a good sort."

B. W. KNIGHT has much pleasure in offering this superb new early STRAWBERRY, feeling confident that it will not fail to become a general favourite, as all who have seen it growing and tasted it on the ground have pronounced it first-class. It is a remarkably early kind, having picked from it on the 22d May, and no doubt but what it will prove a good forcing variety. The fruit is large, flesh pale red, solid at the core; flavour rich and sugary, partaking largely of the Pine flavour; a most abundant bearer.

Plants will be ready to send out early in September, at 12*s.* per dozen; 2*l.* 10*s.* per 100.

B. W. KNIGHT, Nurseryman and Florist, 67, High Street, Battle, Sussex.

WILLIAM ROLLISSON AND SONS beg respectfully to inform the Nobility, Gentry, and Trade, that their GENERAL CATALOGUE of PLANTS, SHRUBS, FRUIT TREES, &c., for 1863 is now ready, and will be forwarded on application, prepaid.

W. R. & SONS beg also to state that their new SEEDLING RHODODENDRON PRINCE OF WALES, at 31*s.* 6*d.*, and their Three new beautiful and distinct INDIAN AZALEAS, at 21*s.* each—Azaleas Princess of Wales (Todman), Lord Canning (Todman), Rifleman (Todman)—will be sent out next May. A Coloured Plate by Andrews will be sent to all purchasers of Rhododendron Prince of Wales.

The usual allowance to the Trade.

Parties requiring Fruiting and other sized plants of GRAPE VINES in pots of the best and most popular varieties, can be supplied at very moderate prices, which will be forwarded on application.

The Nurseries, Tooting, London, S.

Grape Vines, Late.

J. MEREDITH has some Strong VINES of the true variety of BLACK ALICANTE (which he has never occasion to set artificially) in 13 and 8-inch pots.

J. M. obtained a Prize at the Great International Show in October last, at South Kensington, for the above excellent late Grape. Splendid bunches of this valuable Grape may be seen at his Vineyard.

J. M. has also to offer some extra strong LADY DOWNES in 13 and 18-inch pots.

Prices on application to J. MEREDITH, The Vineyard, Garston, near Liverpool.

WELLINGTONIA GIGANTEA.—To noblemen and gentlemen wishing to plant an avenue or group of the above, WILLIAM BARRON begs to offer a number of splendid specimens from 6 to 14 feet high, remarkably cheap, all of which can be insured to remove with safe balls.

6, 7 and 8 feet	3*l.* 3*s.* to	5*l.* 5*s.*
9, 10 and 11 feet	6 6 to	8 8
12, 13 and 14 feet	9 9 to	10 10

14 × 12. Stem 4—6 in circumference.

The most handsome plant in the country, remarkably dense. Special price on application.

Elvaston Nurseries, near Derby.

To Amateurs in Gardening.

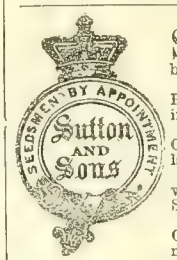
MR. MASTERS has a very extensive COLLECTION of HARDY ENGLISH and EXOTIC FERNS, which he is willing to supply at very moderate prices, and also has just received a first-rate importation of DUTCH BULBS.

Mr. M. would also call attention to his choice assortment of the varieties of GERMAN IRIS, which he can now supply in 50 sorts, at 6*s.* per dozen.

A PRICED CATALOGUE of GENERAL NURSERY STOCK may be had upon application.

Exotic Nursery, Canterbury.

For Present Sowing.



SUTTON'S IMPROVED ITALIAN RYE-GRASS, 6*s.* per bushel, or cheaper in large quantities.

This is the best season for sowing Italian Rye-grass to ensure Sheep Feed very early in the spring.

TRIFOLIUM INCARNATUM (Early Crimson), 4*d.* to 5*d.* per lb., or cheaper in large quantities.

*** A mixture of the above will be found very useful for mending Clover and Grass Seed sown for Mowing next spring.

MUSTARD SEED for Sheep Feed in October and November, or for green manure.

RAPE.—New Seed at reduced price.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

THE EARLIEST PEA KNOWN is CARPENTER'S EXPRESS (pods larger than any other early Pea).

Among *numerous* Testimonials the following has been received:—

From Mr. JONES, *Gardener to Lord Leconfield, Petworth, Sussex.*
June 3, 1863.

"I beg to say I have found Carpenter's Express Pea to answer well as an early one; it was sown on the 20th of November, on a south border, and I gathered the first dish on the 7th of May. I had Daniel O'Rourke and your Pea side by side in November, 1861, and gathered First from Carpenter's Express in May, 1862, which led me to grow it as my earliest this year."

New Seed to be had only of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Establishment, 96, St. James's Street, Brighton.

Early Orders are solicited, which will be executed strictly in priority.

SEED WHEAT.—The following Varieties have been grown by "TRITICUM." See *Agricultural Gazette* of October 4, 1862:—

PRINGLE'S BEARDED WHITE, a fine selected sample, 80*s.* per quarter.

SHIRREFF'S BEARDED WHITE, a fine selected sample, 70*s.* per quarter.

(The stock originally received from P. Shirreff, Esq.)

In a collection of all the best known Wheats these two have proved the best in all points.

FIRST PRIZE VICTORIA (AUSTRALIAN) WHEAT (stock received from the Editor of the *Agricultural Gazette*), a fine white of superior quality. A few bushels only, at 15*s.* per bushel.

If ordered in less quantities than quoted, higher rates will be charged. New sacks, 1*s.* 9*d.* each.

A remittance must accompany all orders.

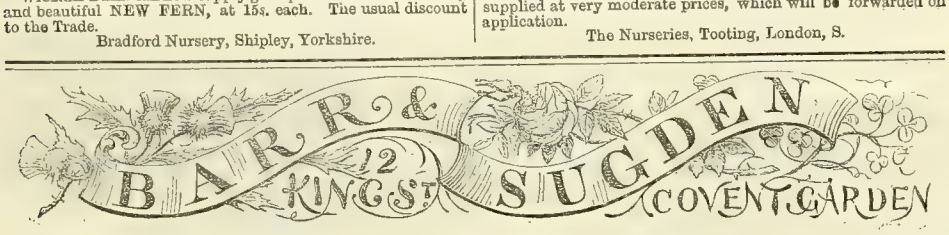
Samples of ears and corn may be had on application, enclosing six postage stamps, returnable to purchasers.

Apply to RICHARD BRADLEY & SONS, Halam, near Southwell, Notts.

E. G. HENDERSON AND SON'S DESCRIPTIVE LIST of BULBS as a Guide for the Amateur's selection is now published, and will be forwarded post free on application.

GUERNSEY and BELLA DONNA LILIES, 5*s.* per doz.
HYACINTHS, choice by name, 6*s.*, 8*s.* and 9*s.* per doz.
Do., MIXED in colours, 3*s.* per doz.
Do., BEDDING VARIETIES, in kinds, each colour, 4*s.* per doz.
Do., MINIATURE FLOWERED VARIETIES, 3*s.* per doz.
TULIPS for Forcing, 6*d.* to 1*s.* per doz.
Do. EARLY SINGLE, and DOUBLE MIXED, 5*s.* and 6*s.* per 100
Do., LATE, show varieties, mixed, 1*s.* per doz.
SNOWDROPS, single and double, 2*s.* per 100.
WINTER ACONITES, 2*s.* 6*d.* per 100.
CROCUS, in sorts, 1*s.* 6*d.* and 2*s.* per 100.
SCILLA SIBIRICA, 7*s.* 6*d.* per 100.
ANEMONES, 3*s.* 6*d.* and 5*s.* 6*d.* per 100.
RANUNCULUS, 3*s.* to 5*s.* per 100.
AMARYLLIS, by name, 3*s.* 6*d.* each,
GLOXINIAS, by name, 9*s.* and 12*s.* per doz.
ACHIMENES by name, 2*s.* 6*d.* and 3*s.* per doz.
GLADIOLUS BRENCHLEYENSIS, 3*s.* per doz., 20*s.* per 100.
" GANDAVENSIS, the finest collection offered in England.
CYCLAMEN, a choice collection of 20 varieties by name.
OXALIS, by name, 40 varieties offered.
IXIAS, mixed, 1*s.* per dozen; 40 varieties in collection offered, the inferior kinds discarded.
BABIANA, SPARAXIAS, and TRITONIAS, each 1*s.* 6*d.* per dozen.
LILIES, 60 fine varieties offered.
TRITOMA UVARIA, 12*s.* per doz.
TRITONIA (CROCOSMA) AUREA, 3*s.* per doz.
EARLY SPRING-FLOWERING PLANTS, in various colours, as HEPATICAS, DOUBLE PRIMROSES, VIOLETS, CHRISTMAS ROSE, and 60 other early-flowering perennials.
Strong Clumps of NEAPOLITAN and other VIOLETS in pots for winter blooming.
Do. LILY of the VALLEY.

Wellington Nursery, St. John's Wood, London, N.W.



All Orders amounting to 21s., sent Carriage Paid.

DUTCH AND CAPE BULBS

FOR WINTER AND SPRING GARDENING.

The COVENT GARDEN COLLECTIONS of BULBS for WINTER and SPRING GARDENS.

For particulars see Page 12 of BARR AND SUGDEN'S "ILLUSTRATED FLORAL GUIDE."

"A" Collection, 105s.; "B," 63s.; "C," 42s.; "D," 21s.; "E," 15s. 6d.; "F," 10s. 6d.

The PAXTONIAN COLLECTIONS for ORNAMENTING the SPRING GARDEN;

"G" Collection, 105s.; "H," 63s.; "I," 42s.; "J," 21s.; "K," 15s. 6d.; "L," 10s. 6d.

The KENSINGTON GARDEN and CRYSTAL PALACE COLLECTIONS, for ORNAMENTING the WINTER FLOWER GARDEN;

"M" Collection, 105s.; "N," 63s.; "O," 42s.; "P," 30s.; "Q," 21s.; "R," 10s. 6d.

HALF COLLECTIONS of the above are supplied.

The ILLUSTRATED FLORAL GUIDE to WINTER and SPRING GARDENING, Price 1*s.*, is now ready.

AGENTS for TYE'S REGISTERED GLASSES, Illustrated in the "Floral Guide."

BARR & SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN W.C.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Woking Nursery, Surrey.

Nursery, High Beech, Essex.

JAMES CRAWFORD, having a Large Stock of fine healthy GRAPE VINES, now fit for planting out, begs to offer them on advantageous terms.

JAMES CRAWFORD, having a Numerous and Select COLLECTION of STOVE and GREENHOUSE PLANTS, FERNS, and ROSES, will be glad to serve Ladies and Gentlemen with Collections at low prices.

OUVIRANDRA BERNERIANA.—Having succeeded in raising a few Seedlings of this extremely curious and beautiful plant, we beg to offer healthy young plants of six or seven leaves at 31*s.* 6*d.* each.

O. Berneriana was exhibited at the Great Show of the Royal Horticultural Society, June 17th, and awarded the First Prize; and at the Great Show of the Royal Botanic Society, June 24th, and then also awarded the First Prize.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

Deutzia crenata fl. pleno—Japan.

JOHN STANDISH has now the pleasure of submitting to the consideration of his friends and the public the above truly valuable and hardy ornamental plant. It has received First-class Certificates both at the Royal Horticultural and Royal Botanic Shows in June and July last (*vide* Report).

"There were a few very interesting new hardy plants shown, first a Deutzia crenata flore pleno, one of Fortune's novelties, flowered by Mr. Standish. This looked like a fine addition to hardy shrubs; it has opposite shortly stalked finely serrated leaves and copious terminal racemes of deflexed double flowers deeply tinged externally with rose."

Plants now ready, 10*s.* 6*d.* each; or 6 Plants for 42*s.*

Royal Nursery, Ascot, Berks.

MR. ALEXIS DALLIERE, NURSERYMAN, Ghent, Belgium, begs to inform Amateurs and the Trade that he is now ready to supply the undermentioned plants, viz:—

CAMELLIAS, with from three to five flower buds, at 5*l.* the 100, all fine, handsome, healthy plants, of the finest varieties, the greater part being of the following:—

Alba plena (double white)	Jubilee
Auguste Delfosse	Mathotiana
Augustina superba	,, alba
Archiduchesse Augusta	Mrs. Abby Wilders
De la Reine	Prince Albert
Dride	Princess Bacchiocchii
Imbricata	Rubens
Jenny Lind	Valtevarada, &c.

and many other well known favourites, a detailed list of which would occupy too much space.

Fine admirable plants of the above varieties, well furnished with branches (without flower-buds) from 1 foot to 1½ foot high, and from 1½ to 3 feet in circumference, at from 4*l.* to 6*l.* per 100, according to size.

AZALEA INDICA.—Fine strong plants about 3 feet in circumference, covered with flower buds, at from 9*d.*, 1*s.*, 1*s.* 3*d.*, to 1*s.* 8*d.* per plant, according to size.

DEUTZIA CRENATA, fl. pl., 4*s.* 2*d.*; magnificent double varieties.

PHYLLAGATHIS ROTUNDIFOLIA, 2*s.*

THUJA RECURVA NANA (new), 4*s.*

DIOSMA AMBIGUA, 1*s.*

PULTENÆA STRICTA, 1*s.* and 1*s.* 3*d.*

DAPHNE D'ACEPHIN and THYMELÆA, fol. var., 1*s.*

The above are all fine strong plants, well set with flower-buds, and may be had by the dozen or by the hundred; 10 per cent. discount allowed if 100 or more plants are taken. No reduction can be made in the prices of the Camellias or Azaleas, unless several hundred are taken by the same person.

Orders to be sent either direct to Mr. A. DALLIERE, Nurseryman, Ghent, Belgium; or to his London Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.*; 4 cwt. put on the Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

N.B. Loaded Trucks can be sent on all the principal Railways.

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THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

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LAWES'S WHEAT MANURE for AUTUMN SOWING.

A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8*l.* per ton.

2 to 3 cwts. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

SUPERPHOSPHATE of LIME £6 6
MINERAL SUPERPHOSPHATE 5 5

Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

Autumn Sowing.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),

Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.

Chairman.—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.
Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex.

ODAMS'S BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, has been in use for upwards of 11 years, and has given great satisfaction to consumers.

Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.

Offices: 109, Fenchurch Street, London, E.C.

Price 7*l.* 10*s.* per Ton, delivered at any Railway or Wharf in London.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

Autumn Wheat Sowing.

PHOSPHO GUANO direct from the Importers' Stores. Free on board or rail at Liverpool, 11*l.* per ton, net cash, bags included. Delivered, plus freight or carriage, at all parts of the United Kingdom.

PETER LAWSON & SON, Contractors, Edinburgh; and 28, King Street, Cheapside, London, E.C.

*** This Guano, from islands within the tropics, contains 35 to 40 per cent. of Soluble Guano Phosphates, 3½ per cent. of actual Ammonia, in addition to Potash, and has been pronounced by Liebig "to be far superior to any artificial Manure at present known, and to surpass most certainly, by its more correct and constant composition, the best sorts of Peruvian Guano." The Contractors solicit trials, as they are confident of the most satisfactory results.

The advantage of applying PHOSPHO GUANO in Autumn is, that it enables the Farmer to harrow it well into the soil before sowing, which is better than top-dressing the crop in the Spring. It promotes a strong braird, vigorous growth, and produces a full and plump grain. Apply at the rate of 1½ to 2 cwt. per acre.

TAN GRATIS, in the immediate neighbourhood of Covent Garden Market,

Apply at WILLIAM ESSEX & SON, 28, Stanhope Street, Clare Market, W.C.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

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Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

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For samples and prices apply to
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GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement."

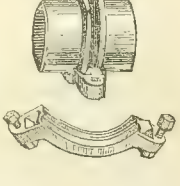
They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.





T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to
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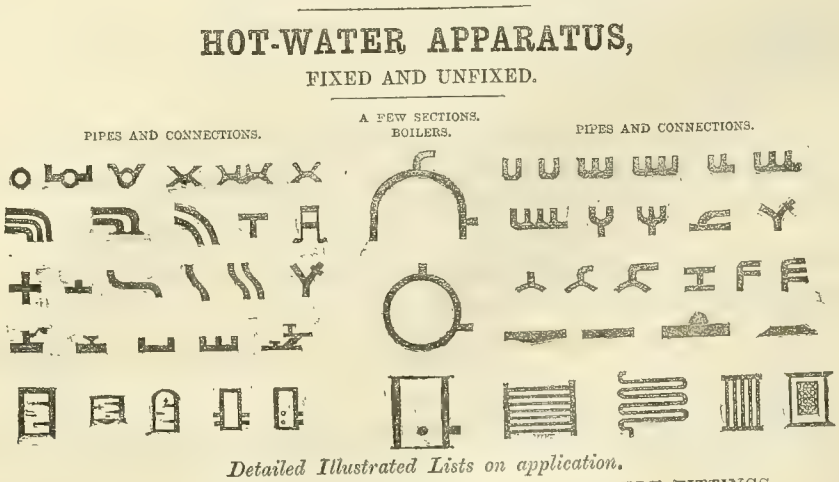
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OLD ST. PANCRAS ROAD, LONDON, N.W.

HOT-WATER APPARATUS,

FIXED AND UNFIXED.

PIPES AND CONNECTIONS. A FEW SECTIONS. BOILERS. PIPES AND CONNECTIONS.



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CONSERVATORIES, GREENHOUSES, &c. PATENT STABLE FITTINGS.

EVERY DESCRIPTION OF IRON WORK.



HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

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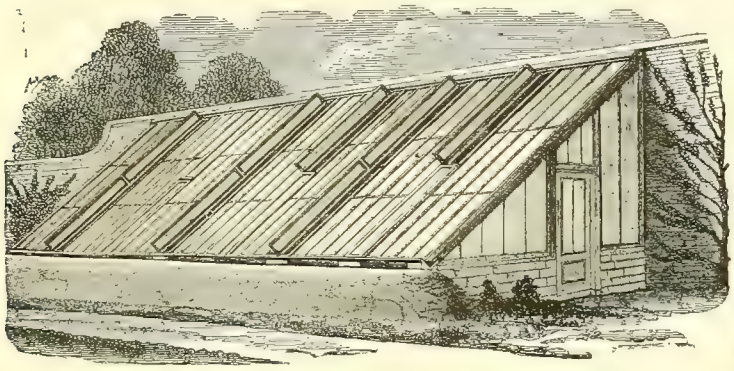
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COMBINING SIMPLICITY, CHEAPNESS, EXCELLENCE, AND DURABILITY.

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.



MANUFACTURED in LONDON; NEWTON in CARTMEL, LANCASHIRE; GLOUCESTER; COVENTRY; ABERDEEN, and PAISLEY; in order to supply the Neighbouring Districts, and to save purchasers unnecessary expense in Carriage.





These PATENT GLASS HOUSES are composed of simple parts, and may be lengthened and arranged to form the boundaries of Gardens; they cost less than Brick Walls, and insure a certain crop of Fruit. As Portable Structures they may be removed and refixed at little expense; and though calculated for Gardens of the highest order, they are, from their cheapness, desirable for Market Gardens, where they may be made to cover any extent, as also for Suburban Villas and Cottage Gardens.

TESTIMONIALS.

"Grosvenor House, May 19, 1863.

"The Marquis of Westminster writes, in reply to Mr. Hereman's note, to say that he has much pleasure in informing him that the Glass Houses for Peaches, &c., which he constructed for him in Dorset, 1860, have fully answered their purpose, and prove very satisfactory."

"5, Prince's Gate, S.W., May 16, 1863.

"Sir,—I am happy to be able to inform you that the Lean-to Roof which you sent to me at Bryanstone is most successful, and I am quite satisfied will repay its cost.

"Mr. S. HEREMAN." "Yours &c., PORTMAN."

"27, Grosvenor Square, May 14, 1863.

"Sir,—I have much pleasure in reporting to you that I am quite satisfied with the Patent Glass Houses which you furnished in 1861. My gardener at Hackness is of opinion, as far as his experience of them up to this moment goes, that the system of ventilation which you adopt is quite equal, if not superior, to any other system which he has yet tried.

"Mr. S. HEREMAN." "I remain, &c., [Sir] JOHN V. B. JOHNSTONE."

"Woodcote [Newport, Salop], May, 1863.

"Mr. Cotes has much pleasure in stating that he considers the Glass Lights put up by Mr. Hereman to be a great addition to the Woodcote garden, and shall be always ready to testify as to their efficiency."

"Mr. S. HEREMAN, 7, Pall Mall East."

"Belgrave, near Leicester, May 20, 1863.

"Sir,—The Lean-to House which you supplied to me in 1860 has fully answered my expectations. The House is planted with Vines, and Figs on the back wall; there is no artificial heat, and, though last year was a most unfavourable one, some of the bunches of Black Hamburgh Grapes weighed more than a pound, and ripened well for the season.

"The material and construction of the house have proved highly satisfactory.

"Mr. HEREMAN." "Yours &c., ALFRED ELLIS."

"Johnson Hall, near Eccleshall, Staffordshire, May 11, 1863.

"Sir,—I have had in operation for several years, Lean-to Vineries made with your 14 feet sashes at an angle of about 50°, the lower or front wall being 3 feet high. Nothing can be more simple than their construction; the mode of ventilation is excellent, and entirely obviates the annoyance and breakage caused by movable sashes, and I feel much pleasure in recommending these structures.

"Mr. S. HEREMAN." "Yours, &c., EDWARD LYON."

"Shalimar, Acton, N., May 11, 1863.

"Sir,—In reply to your letter of the 9th inst., I am happy to say that I was so very well satisfied with the Lean-to Houses erected by you in my garden three years since, that I had another put up last November.

"Mr. S. HEREMAN." "I remain &c., SAMUEL RICKARDS."

"Wath-upon-Dearne, near Rotherham, May 12, 1863.

"Dear Sir,—The three small Glass Houses you sent me answer admirably. The Lean-to with 16 feet sashes covers now about 25 healthy and strong Vines; last year the produce and quality of the fruit were surprising. * * * * I recommend every one who is so fortunate as to take pleasure in his garden, and who can afford the expense, to erect one or more of your cheap 'Hothouses for the Million'—a never-falling source of profitable amusement.

"I have other more costly and extensive glass structures, but, having regard to their cost and efficiency, they bear no comparison with those I had of you.

"I am surprised that market gardeners do not adopt them more generally.

"Mr. SAMUEL HEREMAN." "I remain, &c., G. P. NICHOLSON."

"Norfolk Villa, Eastbourne, May 12, 1863.

"Mrs. Baugh has much pleasure in informing Mr. Hereman that her Orchard House is perfect in every way, and answers admirably for the culture of fruit trees in pots. Mr. Hereman is at liberty to make whatever use he wishes of these few lines, as Mrs. Baugh thinks it a pity these houses should not be more general in this growing place."

"Inverary [Castle] Gardens, May 21, 1863.

"Dear Sir,—I have much pleasure in bearing testimony to the efficiency of the Lean-to Glass Houses which you erected here for covering in Peach and Fig trees. Although our wall is 17 feet high, the fruit sets regularly over the whole surface, and, with the command of ventilation these houses have, fruit can be forwarded or retarded at pleasure.

"I remain, &c., JOHN CAIE [Gardener to His Grace the Duke of Argyll."]

"Mr. S. HEREMAN."

"The Grove, Stanmore, May 12, 1863.

"Dear Sir,—I am happy to inform you that the Glass House supplied by you answers every expectation. I am using one division for Cucumbers, and the other for bedding-out plants, which thrive remarkably well, being so near the glass, and having a thorough ventilation, which your method of construction so amply secures.

"Mr. S. HEREMAN." "I remain, &c, W. LEWIS [Gardener to Joseph Gillott, Esq."]

"Nothing can be more easy than to build them—nothing more simple than to remove them."—*Daily News*, May 22, 1862.

"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit, can be obtained as these 'Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.

Circulars with LISTS of PRICES and CARDS to VIEW Houses in operation in the neighbourhood of London, also ESTIMATES for ORNAMENTAL CONSERVATORIES, GREENHOUSES, &c., can be had on application to

SAMUEL HEREMAN, 7, PALL MALL EAST, LONDON, S.W.

The SECOND EDITION of A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, is now ready, and may be had of Mr. HEREMAN, price 1*s.*; post free, 1*s.* 1*d.*

'We strongly recommend this attractive shilling's worth, conscious that none who purchase it will be disappointed."—*Shirley Hibberd, Esq., in Floral World*, May, 1862.

CHOICE GLADIOLUS.

YOUELL & CO.

Have much pleasure in offering their Stock of the above, which are this season in vigorous and healthy condition, as a proof of which they have had awarded them this month

FIRST PRIZE at the CRYSTAL PALACE,
FIRST and SECOND PRIZES at the ROYAL HORTICULTURAL SOCIETY, LONDON,
FIRST PRIZE at BRIGHTON.

CATALOGUES will be forwarded on application.

ROYAL NURSERIES, GREAT YARMOUTH.

DUTCH FLOWER ROOTS,

CARRIAGE FREE, EXCEPTING VERY SMALL PARCELS.

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, UCKFIELD, SUSSEX.

WM. WOOD & SON

WILL SUPPLY BULBS AS UNDER, ALL IN THE FINEST POSSIBLE CONDITION:—

HYACINTHS.

25 in 25 superb kinds, named	...	...	...	...	...	£1	1 0
12 in 12 extra fine ,,	...	...	...	...	...	0	12 0
12 in 12 fine ,,	...	...	...	...	...	0	9 0
12 in 12 good ,,	...	...	...	...	...	0	6 0

MIXED HYACINTHS, for Beds.

Each colour, separate, 3s. per dozen; 20s. per 100.
Double Red, Blue, White, and Yellow;
Single Red, Blue, White, and Yellow.

MIXED HYACINTHS.

DOUBLE HYACINTHS, all colours in mixture, 2s. 6d. per dozen; 17s. 6d. per 100.
SINGLE HYACINTHS, all colours in mixture, 2s. 6d. per dozen; 17s. 6d. per 100.

CHEAP HYACINTHS, by name (our selection).

Including only distinct varieties, both double and single, the most hardy, and such as are best adapted for beds or growing in masses.

N.	100 strong Bulbs in	50	varieties	..	..	£2	10	0
O.	50 ,,	,,	25	,,	..	1	5	0
P.	50 ,,	,,	12	,,	..	1	1	0
Q.	25 ,,	,,	8	,,	..	0	10	6

CROCUS, by name (our selection).

*** In ordering, it will be sufficient to mention the letter (only) prefixed to the assortment required.

A.	1000 fine roots in	50	distinct kinds	..	..	35s.	0d.	
B.	1000 ,,	,,	25	,,	..	30	0	
C.	500 ,,	,,	25	,,	..	17	6	
D.	500 ,,	,,	10	,,	..	15	0	
E.	250 ,,	,,	25	,,	..	9	0	
F.	100 ,,	,,	10	,,	..	3	0	

LARGE DUTCH CROCUS, in separate colours.

	P. 1000. s. d.	P. 100 s. d.		P. 1000. s. d.	P. 100 s. d.
BLUE ..	14 0	— 1 6	VARIEGATED	17 6	— 2 0
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Fine MIXED CROCUS, all colours, per 1000, 12s.; per 500, 6s. 6d.; per 100, 1s. 4d.

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DOUBLE FLOWERING, per 100 .. .. 2s. 0d.
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Price 6d. per dozen; 4s. per 100.

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Fine Mixed EARLY TULIPS, per 1000, 50s.; per 100, 6s.; per dozen, 1s.
Extra Choice Mixed EARLY TULIPS, per 1000, 70s.; per 100. 8s.; per dozen, 1s. 3d.
EARLY TULIPS, by name (our selection), per 100, 17s. 6d.; per dozen, 3s.
Extra Choice EARLY TULIPS, by name, for exhibition (our selection, per dozen, 4s.
Fine Mixed DOUBLE TULIPS, per 1000, 50s.; per 100, 6s.; per dozen, 1s.
Extra Choice Mixed DOUBLE TULIPS, per 1000, 70s.; per 100, 8s.; per dozen, 1s. 3d.
DOUBLE TULIPS, by name (our selection), per 100, 17s. 6d.; per dozen, 3s.
DUC VAN THOL, per 100, 3s. 6d.; per dozen, 6d.
Fine Mixed PARROT, per 100, 5s.; per dozen, 9d.

SCILLAS, by name (our selection).

A. 100 in 10 varieties	15s. 0d.	C. 25 in 12 varieties ..	4s. 6d.
B. 50 in 10 ,,	8 0	D. 12 in 6 ,, ..	2 6

DOUBLE ANEMONES, by name (our selection).

*** In ordering it will be sufficient to mention the letter (only) prefixed to the assortment required.

A.	100 Choice DOUBLE ANEMONES,	in 50 sorts ..	20s.	0d.	
B.	50 ,,	,, in 50 sorts ..	12	6	
C.	25 ,,	,, in 25 sorts ..	6	6	
D.	12 ,,	,, in 12 sorts ..	3	6	

	per 100. s. d.	per doz. s. d.
Fine Mixed DOUBLE ANEMONES	5s. 0d.	— 0s. 9d.
Mixed DOUBLE SCARLET ANEMONES	7 6	— 1 0

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LA BRILLANTE ECLATANTE, extra fine, bright scarlet	4 0	— 0 8
Mixed SCARLET	4 0	— 0 8
Mixed SEEDLINGS, all colours, very fine..	4 0	— 0 8

ANEMONE HORTENSIS (Star Anemone).

	per doz. s. d.	each s. d.		Per doz. s. d.	each s. d.
DOUBLE RED	2 0	— 0 3	PURPLE ..	2 6	— 0 3
SINGLE RED	2 6	— 0 3	MIXED, very fine	2 0	

In 25 fine new varieties, by name, per 100, 21s.; per doz., 3s.

BELLADONNA LILIES, CYCLAMENS, IRIS, IXIAS, SPARAXIS, and all other Bulbs.

Catalogues will be sent gratis and post free on application.

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NURSERYMAN, GHENT, BELGIUM,

Begs to offer the following fine NOVELTIES, which he is now sending out for the first time, and which he can recommend as being truly first-rate varieties, viz.:—

AZALEA INDICA PRESIDENT HUMANN (J. VERSCH.).—The largest flower known, fine rose shaded with salmon, extra fine form and substance, being the same shape as Azalea Roi Leopold; very compact habit, and a very free flowering variety. Strong plants with buds, 12s. each.

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CAMELLIA VICOMTE DE NIEUPORT (J. VERSCH.).—One of the finest rose-coloured Camellias yet sent out; large flat shaped flower, imbricated with the greatest regularity to the very centre; good compact habit, very free and abundant bloomer. Good plants, 12s. each; with buds, 20s. each.

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One plant over to the Trade on every three taken. A carefully Coloured Plate of Azalea President Humann, Vicomte de Forceville, and Secretaire Claus will be sent to each subscriber.

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J. V.'s NEW DESCRIPTIVE CATALOGUE may be had on application to his Agents, Messrs. A. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

JEAN VERSCHAFFELT begs to announce that he has sold the English sale of his new Azalea, SOUVENIR DU PRINCE ALBERT, to Messrs. E. G. HENDERSON & SON, of the Wellington Nursery, St. John's Wood, London, and that consequently all orders he may receive for the same will be executed through the said Firm.

THE NURSERIES, GHENT, BELGIUM.

New and Choice Pelargoniums.

B. S. WILLIAMS has much pleasure in announcing that he has made arrangements for the distribution of BECK'S NEW PELARGONIUMS, and that he will be prepared to supply strong Plants about the end of October.

A DESCRIPTIVE and PRICED CATALOGUE of the above, with Select Lists of other Choice Show, French, and English Spotted and Fancy Pelargoniums, will be published shortly and forwarded post free to all Customers and applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

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DOBSON'S CALCEOLARIA, in packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
DOBSON'S CINERARIA, in pkts., 1s., 2s. 6d., and 5s.
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J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

NEW PELARGONIUMS and CINERARIAS.—Our NEW CATALOGUE, containing many Novelties of the above, offered for the first time, is now ready, and will be forwarded post free on application. Also selections of the very best known kinds, cheap.

Our NEW BULB LIST is also just published.

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Exotic Nursery, Tooting, Surrey, S.

HYACINTHS and other DUTCH BULBS.

THE FIRST PRIZE FOR A COLLECTION OF HYACINTHS,
THE FIRST PRIZE FOR 18 HYACINTHS,
THE FIRST PRIZE FOR 6 NEW HYACINTHS,

Being all the FIRST PRIZES offered to Nurserymen at the Royal Horticultural Society's HYACINTH SHOW on March 18, were awarded to WILLIAM PAUL, Paul's Nurseries, Waltham Cross, N.

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Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON'S first importation of the above has arrived, and from the extraordinary heavy weight of the Bulbs they promise a fine bloom. Early orders are earnestly solicited. DESCRIPTIVE PRICED CATALOGUES free.

N.B.—17 FIRST PRIZES were awarded to WM. C. & SON last spring for HYACINTHS, TULIPS, and CROCUSES. In addition to this, EVERY FIRST PRIZE at the London Exhibitions to Amateurs was for Bulbs supplied by them.

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The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 19, 1863.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Sept. 22 { Royal Horticultural (Floral and Fruit Committees) at S. Kensington .. Noon

NOT many years ago a mysterious WATER-WEED, rejoicing in the name of *Anacharis Alsinastrum*, with as many aliases as a London thief, made its appearance in the river Cam, much to the injury of the navigation of that classical but very scanty river, and more to the disgust of a small board of gentlemen who are denominated Conservators of the Cam.

These gentlemen, in the discharge of their fluviatile duties, indulge in an annual excursion down the river, and after refreshing themselves with an excellent dinner, proceed, as in duty bound, to drink prosperity to river navigation in general, and that of the Cam in particular; and malicious people say (though it must be admitted upon very inadequate information) that the name of an eminent botanist was ironically coupled with the usual toast as the supposed introducer of this noxious weed from Canada or the United States, in both which regions it is native.

It is generally understood that this gentleman merely introduced a single specimen of the interesting stranger into the pond of the old Botanic Garden, which has long since been dismantled, and it is supposed that a very few plants of the same were placed by him in the bed of a fine clear water course called HOBSON'S Conduit, which with its handsome iron palisade adorns the celebrated Wrangler's Walk at the entrance to Cambridge by the old London road. Small branches of this stream run down the principal streets of Cambridge, forming a characteristic feature of the town; some of the Colleges are supplied with its

water, and their famous baths are filled by it; and then, after its little course of usefulness is completed, the whole is discharged into the river.

Alas! what great results may follow from small beginnings! A snowball set in motion on a mountain top may presently become an avalanche, destroying whole villages in its thundering career. Our little plant required only time to develop as extensive powers of mischief.

The intelligent Curator of the present Botanic Garden (not he in whose reign the plant was introduced) recollects how 20 years ago he was instructed to cherish a specimen of the then rare *Anacharis*, when he resided somewhere near the banks of the Tweed. Scientific people begged to be allowed to examine it, and in returning it safely expressed their admiration of its beauty. Some specimens there introduced into a spring-water pond had great difficulty in keeping alive. At Cambridge, however, there was no want of vitality to be complained of. The fecundity of this interesting little stranger is excessive. The piece of water in the present Botanic Garden at Cambridge has been just fied out (to use a Norfolk expression), and 50 loads of stuff have been stacked in the back premises, and are beginning to emit a thoroughly pond-weed odour, which will increase in intensity as the putrefactive process goes on.

It is said to be rich in nitrogenous elements, and to make such excellent manure, that some people think it will repay the expense of cleaning out the places it selects for its residence. We wish we could indulge in so pleasant an anticipation. Unfortunately the only circumstance that is certain is its amazing power of multiplication. Twelve years ago it had begun to impede our inland navigation; boats could not be forced through it; and sluices were choked by it. Then, however, it had not travelled further than Cambridgeshire; and had it confined its attentions to the waters of that learned county no further notice of it would have been necessary. But we regret to announce the uncomfortable fact that *Anacharis* is spreading fast in every direction. It is already at Norwich, as our own eyes have told us, and it will soon overrun the kingdom, *unless some means can be found to destroy it.*

How then is that to be done? A more important question has seldom called for an answer. Nevertheless answer there is none. Ten years ago information on the point was called for by Mr. MARSHALL, of Ely, who saw the mischief that was breeding "to watermen, sluice keepers, rowers, swimmers, and fishermen," to say nothing of the drainage of fen countries. But to this day, as far as we can learn, no method of destruction has been proposed, except the obvious one of removing the weed by main force.

Surely this is a subject to which scientific attention especially should be directed, and in the hope of eliciting suggestions, or the results of experimentation, we venture to revive the inquiry. It may be indeed, that Mr. MARSHALL'S alarming declaration that "it can't be got rid of at all," is true. But such a conclusion should not be acquiesced in until much more knowledge about *Anacharis* and her doings is collected than the public as yet possesses. We therefore invite communications on this most important question, in the hope that in a multitude of counsels something practically valuable may be contained. Of this gentlemen may be sure—there is no domestic danger comparable to that which must follow the stoppage of internal water motion.

THE BULB SEASON brings with it other duties than those of potting Hyacinths and Tulips for the forcing house, or planting the choicer selected samples in glasses for the window. There are the beds in the spring garden to be thought of, and it is well to have the arrangements for filling these planned and settled early, so that advantage may be taken of the most congenial weather for the work. Besides, we hold that this work should not only be planned early, but that the Bulbs should be planted early in autumn, so that they may have time to have rooted freely before winter sets in. On this, and on the proper preparation of the soil with which the bulbs are to be surrounded, we believe a vigorous and early bloom mainly depend. For all flower-garden purposes the unnamed bulbs, sold in quantities at a low rate, serve admirably; but they should be bought true to one shade of colour, and planted accordingly.

Our object at present, however, is not to deal with this subject of bulb-planting so much in reference to the details of culture, as to take the opportunity of pointing once again to the desirability, we may almost say the necessity, if a good display and a continuous effect are to be obtained, of planning our FLOWER-GARDENS—we of course have geometrical gardens in view at this moment—so that the design shall form at least two parts, one of which shall be a distinct design, with the members perfectly balanced, included within the other or general design, the two thus forming parts of one whole. The necessity for this, so to speak, arises from the fact that beds of bulbs, on which the glory of a spring display must in great measure depend, are necessarily bare in winter, and bare beds, no less than full ones, not symmetrically disposed, have a bad appearance in a formal garden. The advantage of such a plan of arrangement is, that one series of beds, forming one connected pattern or portion in the design, may in autumn be planted with bulbs and left bare; while the other portion of the pattern, forming the second design, may be planted with a variety of evergreens, so as to look furnished. The evergreens and the bare beds each being regularly disposed would together yield a winter picture by no means so unsightly as that which would be presented by a parterre, either all bare throughout that dreary season, or with the bulb beds scattered amidst beds of evergreens without regularity of arrangement.

Perhaps we ought to explain more fully what is meant by a design within a design, especially as we claim that the advantages of such an arrangement are by no means confined to the effect produced during the bulb season, but hold good throughout all the arrangements necessary for the summer furnishing of the beds. Suppose, then, a parterre of circular outline, to contain four elliptical beds set crosswise, one end of each pointing to the centre, and the remaining space to be filled out uniformly by beds of any other shape; there may or may not be a bed occupying the centre. In such a case, the four elliptical beds would of themselves, or including the centre, form a distinct and perfectly balanced figure, and the rest of the design would form another perfectly distinct yet completely balanced figure. Now, if the elliptic beds were planted with bulbs, and the others with evergreens, or *vice versâ*, there would be a symmetrical picture, from the first day they were filled, and even the bare beds of the bulbs, merely from the fact of the colour of their surface being equally disposed in the picture, would not be offensive to the eye, as they would be if the masses of colour they presented had not been balanced. The colour of the bulb beds, heavy and earthy no doubt while the surface remained unfurnished—unless indeed it were lightened up by an edging of such a plant as Cerastium—would be relieved and enlivened by the varied tints of foliage in the beds of evergreens, and later in the season, when the bulbs came to be in flower, they would in turn lighten up the then more sombre foliage of the shrubs. At a more advanced period the evergreens would give way to one set of summer flowers, and either before or after them, as might be most convenient, the bulbs would give way to another set. Thus the whole of the changes—and such changes are indispensable—might be made without any real disfigurement.

This illustration is on a very small scale and very simple, but the principle will be all the more evident. The principle may, of course, be also applied to include the most extensive parterre of the most complicated design. It may even be extended, so that instead of one included design there may be two or three, or more. That merely depends on fertility of invention in the mind of the designer. We hold, however, that no flower garden is perfect, or can be filled to the best advantage, the design or pattern of which does not admit of being thus resolved into at least two series of symmetrically balanced figures; one only of which should be unfurnished at any one time.

THOSE who are in the habit of exhibiting at our flower-shows any of the delicate forms of vegetation which require to be shielded from the outer atmosphere, and many of those also who are in the habit of visiting the exhibitions, will be aware of the inconvenience which is generally experienced in consequence of the BEDEWING OF THE BELL-GLASSES, which are employed to afford the necessary shelter. This, indeed, frequently occurs to such an extent as to disguise, if it does not entirely enshroud, the plants which the glasses are used to protect. The consequence is, that the exhibition is more or less marred; and this is all the more to be regretted, inasmuch as the subjects which require treatment of this kind, the group of Anœctochilus for example, generally rank amongst the most beautiful objects to be found on the tables.

One method of overcoming the evil has been happily hit upon by one of the most successful patrons of gardening in Belgium, Madame LEGRELLE-D'HANIS of Antwerp, whose exhibitions won most of the leading prizes competed for by amateurs at an exhibition of the Société Royale de Flore de Bruxelles, held in Brussels a few weeks since. We are indebted to a Correspondent for the following remarks upon the plan this lady had adopted. The group thus treated carried off the first prize.

"Allow me to draw attention to the method at present adopted for displaying at horticultural exhibitions certain delicate objects, such as small Ferns and plants of Anœctochilus. From their delicacy they are shown under glasses, and the evaporation is always such as to obscure them so carefully from the eye of the visitor, that beautiful as are their forms and markings, they are either passed over, or the glasses have to be taken off, which is of course an infringement of the rule not to touch, and often results in damage to the plant in the process of re-covering. Now, at the late flower show at Brussels I noticed a glass case, exhibited by a lady, containing a large number of Anœctochiles looking as bright as possible, and on examining the treatment which had produced this result, I found that over the earth she had laid a thick coat of woollen thread, which absorbing the rising moisture left the glass clear during the hours of exhibition. The exhibitor had chosen wool stained of colours best suited to show off her plants."

WE may regard the exhibition at South Kensington on the 9th inst. as the wind-up of the season of SEEDLING DAHLIAS. It may, therefore, be worth while to take a general review of the result as indicated by the awards at the principal metropolitan tribunals.

We venture to preface our catalogue with the remark that Dahlias show a want of novelty of character. The mass of the new varieties brought forward annually are, to an uncritical observer, mere repetitions of what he has seen in former seasons; and though a gradual change in the way of improvement in the florist's sense is no doubt going on, yet it is not often that the floricultural expert can point to a novelty which stands out clearly in advance of existing varieties—stands out, that is to say, so much in advance that the uncritical and non-floricultural eye can see and appreciate the progress which has been made. No flower of the present year, as far as we have seen, stands out thus like the Lord Derby which for the two past seasons carried all before it. Last year, we seemed, if not indeed to have secured a new colour in the red-laced yellows, at least to have witnessed a marked development in this class, which contained some really beautiful things, but no advance has been made in this direction during the present year, and even the varieties which last autumn delighted us with their freshness of character and brightness of colouring, have not been generally seen again in the prominent position they might have been expected to occupy. We venture to suggest to seedling raisers that it is to the improvement and variation of this red-laced yellow group, and also of the laced white-ground series, that their attention should be directed. Light brightly-margined sorts, such as we allude to, are required to give more effect to the stands of cut blooms, to say nothing of their more lively appearance in the garden. There is also abundant room for improvement in the class of striped varieties, few of which come up to the model of form; besides which as a class they are getting so much flushed and stained in the ground-colour that they have at best but a dingy look. A pure white or yellow ground wants restoring to these striped Dahlias, and we could very well dispense with at least half the markings on the florets, provided the remainder thereby became more prominent and distinct. The raisers of Seedling Dahlias, then, have work enough before them; and what has already been achieved should encourage them onwards.

The great public bodies who offer prizes for these flowers at their exhibitions have apparently not yet reached the point of appreciating the absurdity of calling a Dahlia with white tips to its florets a "fancy" flower, while those with dark tips to the florets are thrown in with selfs to make up the class of "show" flowers; this at least is the presumption, inasmuch as they continue to admit Fancies into their schedules, and allot to them distinct prizes. We can only repeat what we have before urged, that this classification is an absurdity; and if the leading associations to which we have alluded, which ought to take such a matter as this in hand, so as to rectify an admitted *lapsus linguæ*, do not set the example by giving up the "fancies," and adopting distinctions which have at least some reason as their basis, we trust that the florists will as a body no longer hesitate to take the initiative, and do it for themselves.

Of the seedlings exhibited this year in London, our note book records 10 which have gained First-class Certificates, and to two of this number, both from Mr. KEYNES, namely, Anna Keynes and Fanny Purchase,

the first-class award has been duplicated. We are not disposed to question the prominence which has thus been given to the varieties represented by these fair names. Anna Keynes yields full-sized and well-made blooms, of a blush-white deeper in the outer florets, and very faintly tipped with lilac. Fanny Purchase is neat and symmetrical in form, and of a clear bright yellow colour. Perhaps—getting thus as far as possible from the heavy reds and purples and the dingy stripes—we may give the next place to Legge's White Perfection, which is a fair ivory white, a trifle too flat to please us quite. Then comes The Bride, from the same grower as the last, a blush-white tipped at the back with purple. Collier's Princess Alexandra is a full-sized compact neatly formed Indian yellow, striped with bright crimson; its chief drawback is the want of brightness in the ground colour, a quality which it shares with many, indeed most of the striped sorts. Keynes' Edward Purchase is a well-formed compact-set ruby crimson; Wheeler's Coronet a deep and full purple violet; and Keynes' Earl of Pembroke a deep full mulberry purple. Keynes' Sam Bartlett, a blush striped with crimson; and Polly Fawcett, a kind of amber tipped with white and suffused at the back of the florets with rosy purple, were neither of them to our taste. Anna Keynes, The Bride, Coronet, and Sam Bartlett had already gained second-class awards before the higher Certificates were awarded to them.

We find memoranda of 23 varieties which gained Second-class Certificates, exclusive of those which afterwards were moved up into the first place. Of these Legge's Enchantress, Burgess's Chelsea Hero, and Keynes' Regularity and John Wyatt had the award twice over. Enchantress is a pale apricot tipped with rosy carmine, a pretty pleasant-looking sort; Chelsea Hero is a well made flower of a fawn colour, tinged with peachy-lilac; Regularity is a blush-white, often heavily striped with crimson, but variable in the amount of striping; and John Wyatt is a full deep rosy purple. Before all these, however, our choice would rest on Hopkins' Brunette, Perry's Alexandra, and Wheeler's Mrs. Wheeler, the choice being perhaps influenced by a predilection for light distinctly-marked varieties. Thus Brunette, the most attractive flower of the season which has come under our notice, is a bright apricot colour, very heavily laced with carmine crimson, sufficiently large, and good in outline; Alexandra is a neatly built even flower, white, delicately but clearly laced with lilac; and Mrs. Wheeler is a clear white, heavily laced with bright rose purple, a most lively and telling variety. Scarcely if at all below these would come Keynes' Magpie, a distinct-looking variety, rosy purple ground tipped with white. The remainder of this second-class batch consist of Wheeler's Watty and Bragg's Garibaldi, orange red; Bragg's Useful, ruby red; Legge's Roundhead, purple maroon; Perry's Sylph, blush suffused with lilac; Keynes' Lady Lilian Paulet, blush white, faintly tipped at the back with rosy lilac; Bragg's Ranger, rosy buff; Perry's Nilus, straw colour, faintly tipped with red; Keynes' Fascination, peach white, striped with magenta; Legge's Fancy Boy, buff yellow, striped with red; Kimberley's Messenger, a symmetrically built light rosy lilac, heavily striped with rosy purple; Collier's Annie, shaded maroon crimson, tipped with white; Turner's Prince of Wales, pale yellow; the series winding up with Legge's Formidable and Keynes' Surety. All these are varieties of respectable character, but the majority justify our previous remark, that we want something more novel and startling than such as these to give an impetus to the Dahlia Fancy.

The award of a Commendation card has been made to Legge's Nonsuch and Crimson Perfection, the last a neat ruby crimson, and to Wheeler's Symmetry, a dark ruby red; while the "unrewarded" form a heavy brigade, whose names it would be tedious to enrol.

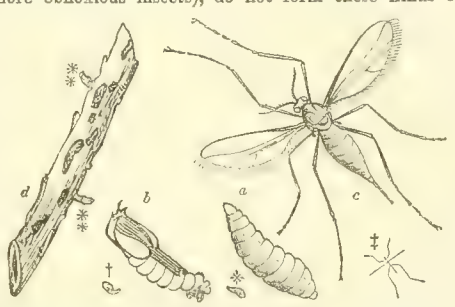
We may observe by way of conclusion that there is vast room for improvement in the arrangement of our shows of autumn cut flowers. As in the Rose shows of summer, we are required to gaze upon too much of a mere flat surface of colour, and something is wanted in both cases to break up this monotony of surface. In the Dahlia season, nothing could be easier than to press into service for this purpose the pretty class of Pompons, and even some of the large-flowered sorts, possessing decorative qualities, might be very well employed; large vases filled with branches of these tastefully arranged, might be distributed about the stages and other parts of the exhibition room with very good effect.

ENTOMOLOGY.

The Willow Stem Midge.

In the *Gardeners' Chronicle* for September 4, 1847, we published the history of a minute two-winged fly which renders useless the young twigs of Willows and Osiers employed as basket rods. The woodcut illustrating this species, to which we gave the name of Cecidomyia (Rabdophaga) viminalis, is here reproduced (the upper cut annexed) for the purpose of comparison with the figures of another species of midge belonging to the same genus, which is equally injurious to the same kind of trees, and to which our attention has been directed during the past summer.

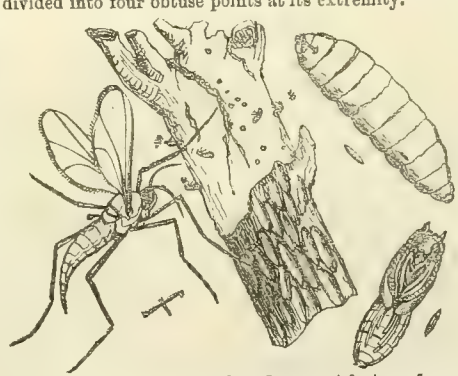
Before proceeding to narrate the history of the latter insect, it will be serviceable to give the following extract from the Baron R. Osten-Sacken's Memoir on this genus, just published by the Smithsonian Institution of Washington (Miscellaneous Collections—Monographs of Diptera of North Amemera, Part I., April, 1862). "It is a peculiarity of the family of Cecidomyidæ that its natural history has always been studied in close connection with its classification. This is owing chiefly to the fact that [in a great number of the species] the gall, the produce of the insect in its first stage of life, is generally a more striking object in nature than the insect itself. The latter, small, tiny, difficult to preserve on account of its great delicacy, still more difficult to distinguish from its congeners on account of the uniformity of their appearance and colouring, would afford a very unsatisfactory object of study, unless in connection with the varied deformations which their larvæ produce on plants. The study of this family, different in this respect from most of the other families of insects, cannot be prosecuted apart from the observation of living nature, and for this very reason will always be a monopoly of the naturalist so situated as to afford such observations." The Baron's observations were directed chiefly to the species which form galls on different plants, but other species (including many still more obnoxious insects), do not form these kinds of



excrescences; thus there are several kinds, the larvæ of which devour the pollen of Cereals, one species, C. Tritici, the Hessian fly, being one of our most formidable insect enemies, whilst the larvæ of the two species more immediately before us burrow into the wood or young shoots of trees.

During the past month of June Sir William J. Hooker placed in our hands the upper portions of some stems of diseased Willow trees which he had received from Mr. Monckton Milnes (now Lord Houghton), who stated that the disease was caused by a small red grub which eats its way into the plant, and completely destroys its vegetation. It seemed only to affect the hardier and more valuable sorts of Willows, and appeared to be partial in the extent of its ravages, not being known beyond the particular district between Leeds and the Humber.

On examining some of the pieces of stems forwarded, we found the bark in parts flaked off, and in other places bored with a number of very minute round holes, and on removing the bark in the latter parts we found the surface of the wood burrowed to a small depth into a vast number of elongated cells, each of which had formed the residence of a minute bright orange red maggot, represented, as full grown, of the natural size and magnified in the accompanying woodcut; it is destitute of legs, and its head is furnished with an elongated flat horny appendage, dilated and divided into four obtuse points at its extremity.



The pupa into which this red maggot is transformed is also represented of the natural size and magnified, as seen on its ventral surface, the limbs of the future insect in a contracted state being folded on the breast, to which they are closely applied; the head is armed at its frontal extremity with two hard horny points, in front of which are two slender hairs. When ready to assume the perfect state the pupa pushes itself half out of the circular hole, or exit from the burrow, which has been instinctively prepared for that purpose by the larva previous to assuming the pupa state. Here the white skins of the pupæ may be found when the perfect insects have escaped. Several of these empty pupa-skins are indicated in our woodcut by a small star near each of them.

The perfect insect, of which we only obtained two dead female specimens, is of a dark grey-brown colour, the abdomen having the sides and connecting membranes of a dark fleshy tint; the legs and antennæ are nearly black, and the wings of a slight smoky hue. The antennæ of the female consist of 18 joints, the first rather oblong, the second cup-shaped, and the remainder rather more necklace-shaped, but squared at their tips, and setose; the wings have the four veins distinct, the inner one being much curved; and the abdomen in the female sex has the terminal segments formed into a long telescope-like appendage or borer, which enables the insect to introduce her eggs into the crevices of the bark of the trees.

We presume our insect to be identical with the Cecedomyia saliciperda incidentally mentioned by the Nestor of entomologists, M. Léon Dufour ("Annales des Sciences Naturelles," 2d ser., xvi., p. 262), his short account of the ravages of the larva, and description of the pupa and its habits, exactly according with those of the insect now under our notice. His specimens were observed on the "tronc de saule vivant." Dr. Giraud has also observed the same, or a closely allied species, on the banks of the Danube, near Vienna, on the Salix purpurea and other species, which are attacked by the insect to such an extent that the stem "était comme lardé de ces robes de nymphes blanches." ("Verhandl. Zool. Bot. Ver. Wien," 1861, p. 479.) The same observer had also reared what he considers to be the same insect from young twigs of Populus alba, which were deformed by elongated swellings in which the larvæ resided. We are, however, inclined to believe that the latter insects specifically differed both from Cecidomyia saliciperda and from our C. viminalis. Indeed, as Dr. Giraud states that the females of his species have only 15 or 16 joints in the antennæ, and that the third vein of the wing is bifurcate, we doubt the identity of the Vienna and Yorkshire specimens.

As almost all the perfect insects had made their escape from the stems when we received them in June, we apprehend that the most beneficial plan for the destruction of the pest would be to examine the trees carefully in February or March, and cut off and burn the heads of the stems found to be infested, as we notice that it is chiefly close to the top of the stem that the insects abound. This will have the effect of checking the future production of the broods of these troublesome little creatures. It will also prevent the growth of twigs on the infested stems, which from their weak condition would only produce feeble and useless shoots. *J. O. W.*

POTATOS.

[For the following particulars respecting the Deepdene collection of Potatos, exhibited the other day at the Royal Horticultural Society's Show at South Kensington, we are indebted to Mr. Whiting, whose instructive account of the different kinds of which it consisted, will doubtless be read with interest. He says:—]

The Potatos exhibited by me on the 9th inst. were the following sorts:—

Round Potatos.—1. Daintree's Earliest; 2. Golden Prolific; 3. Early Shaw; 4. Dalmahoy; 5. Fortyfold; 6. Red Regent; 7. Ormskirk; 8. Napoleon; 9. Wellington; 10. Cheltenham; 11. Jersey Blue.

Kidney Potatos. — 1. Ash-leaved; 2. Myatt's Prolific Ash-leaved; 3. Jackson's Ash-leaved; 4. Sutton's Early Racehorse; 5. Eugénie; 6. Webb's Imperial; 7. Brockley; 8. Fluke.

[1. Round Potatos.]

No. 1 is a very early Potato, and it appears to be of good quality, but having grown it only one season, I cannot say much about it.

No. 2. This also is an early kind, coming into use some days before the Ash-leaved Kidney, and it is one of the best of its class. The name above given is, however, not the correct one. Some say it is the Handsworth Prolific.

No. 3. Although not of first-rate quality, this is a very useful variety, inasmuch as it is very productive and yields tubers of a large size early in the season. Those therefore who have to supply a large family will find the Shaw valuable.

No. 4. I am inclined to believe that "Dalmahoy" is merely a new name given to an old sort. When I first came to this place 23 years ago a Potato was grown here under the name of the Champion. I have grown that Potato side by side with the Dalmahoy without being able to find any real distinction between them, and both are nearly akin to the Regent. This is a strong-growing productive sort, very white and mealy, but requiring great care in cooking from its tendency to break on the outside before the middle is sufficiently boiled. It is one of the best of what are termed second Early Potatos, but it does not keep well after February.

No. 5. A Potato of the same class and quality as the preceding variety, differing chiefly if not entirely in the colour of the skin, which in the Fortyfold is a mixture of dark purplish red and white.

No. 6. I am not certain that the Potato I exhibited is the true Red Regent, which is a variety of recent origin, and probably differs from its prototype in nothing but the colour of its skin. One moderate sized tuber cut into single eyes was planted in the ordinary way last spring, and the produce is a heaped bushel.

No. 7. This excellent variety does not appear to be known in the south of England. A neighbour brought it from Lancashire, and I have cultivated it two or three years. It somewhat resembles the Dalmahoy in shape, but differs in colour, the Ormskirk being

tinted with purple round the eyes at the crown end of the tuber. This also is a second early sort.

No. 8. One of the handsomest Potatos grown, and I believe as good as it looks. In form it is unusually smooth and regular, with scarcely any indentation at the eyes; colour a purplish red, frequently pied with white; the flesh is white and mealy, and seems to retain its goodness till late in the season.

No. 9. Another valuable variety, which is not so well known as it deserves. The tuber is large and handsome, its only fault being large and deep eyes at one end, where it is generally stained with red. This Potato is good from autumn to Midsummer.

No. 10. An old yellow-fleshed variety, neither large nor prolific, but worthy of cultivation on account of its good keeping properties and superior flavour.

No. 11. This very much resembles an old sort which has been grown for years under various names—as Yorkshire Red, Phillips's Red, &c. It is an excellent late Potato, but, like all late varieties, subject to injury from the Potato disease.

[2. KIDNEY POTATOS.]

No. 1. An old and well-known sort, generally esteemed, its principal defect being its comparative unproductiveness.

No. 2. This is said to be an improvement upon the old variety, but I have not grown it long enough to make a fair comparison between them.

No. 3. A much heavier cropper than No. 1, but not its equal in flavour. It is a large and handsome Potato, with a particularly white flesh.

No. 4. With me this has come very small this season. I shall give it another trial under more favourable conditions.

No. 5. This I am told is a sport from Napoleon, and not having received a name with it I call it Eugénie. It is similar in colour to Napoleon, equally handsome, and equally good.

No. 6. I have seen larger Potatos of this sort than of any other Kidney, with the exception of a monstrous pig Potato, which was exhibited last autumn at the Society's show. With me the Imperial Kidney is inferior to Jackson's Ash-leaved both in appearance and quality.

No. 7. This is a very handsome Potato, and while some reckon it a very good one, others condemn it on account of its yellow flesh.

No. 8. The Fluke is well known as a late keeping kind, which resists the blight better than any other late Potato. In the light sandy soil of this garden it does not succeed so well as in some other places; nevertheless it is a very valuable variety.

GARDEN LAW.—No. VII.

WATER RIGHTS.

GARDENERS want water more than most other people, and the right to get it is therefore of more than usual importance to them. Water is supplied by nature to any particular spot in all or some of the following ways, viz.:—1, directly from above; or 2, by rivers, brooks, or other visible streams flowing in defined channels along the surface of the ground; or 3, by smaller streams which, whether visible or not, percolate over or through the ground in channels not defined, and not readily traced. For legal purposes it is necessary to consider these several modes of supply separately; for the right of a person to appropriate the water which naturally comes to his ground depends mainly on the manner in which it gets there.

As to water falling directly in the shape of rain on a person's land, little need be said. He has a right to catch and keep it all, however much his neighbours may suffer by his not allowing it to fall and run away on to their property. Every one has a right to the unobstructed enjoyment of all that is above his own land, and to have rain fall upon it; but no one has a right to insist that another shall allow his land to be rained upon. Even if rain falling on my land feeds a well on yours, I may intercept the rain and so destroy your well. It does not however follow, that because a man may collect and use the rain falling on his own land, he may, when he has done with it, turn it off as he likes on to his neighbour's land. That is quite another matter. Moreover when rain has fallen without being intercepted, the right to appropriate and use it will depend upon the form in which it continues to exist; or in other words upon whether it is or is not part of a stream with a visible defined bed.

With respect to rivers, brooks, and streams flowing in defined channels along the surface of the ground, the right of every proprietor of soil over which such a stream flows, is limited by the equal rights of the other proprietors. The consequence of this is that in the absence of special circumstances, no one proprietor is entitled to use the stream in any way detrimental to the others. With this restriction however they can all make use of it for their own purposes as they like. As a learned judge said some years ago:—"The right to the use of water rests upon clear and settled principles; *primâ facie*, the proprietor of each bank of a stream is the proprietor of half the land covered by the stream, but there is no property in the water. Every proprietor has an equal right to use the water which flows in the stream, and consequently no proprietor can have the right to use the water to the prejudice of any other proprietor. Without the consent of the other proprietors who may be affected by his operations, no proprietor can either diminish the quantity of water which would otherwise descend to the proprietors below, or throw the water back upon the proprietors above. Every proprietor who claims a right either to throw the water back or to diminish the quantity of water which is to descend below must, in order to maintain his claim, either prove an actual grant or license from the proprietor affected by his operations, or must prove an uninterrupted enjoyment of 20 years." The statement, however, that no proprietor can diminish the quantity of water which would otherwise descend to the proprietor below, must not be taken too literally. A pailful of water taken out of the Thames at Richmond no doubt diminishes the quantity which would otherwise descend to Gravesend; but even lawyers have a little common sense, and with them it is a maxim peculiarly applicable to such cases as these, *de minimis non curat lex*. The sense and law of the matter are that each owner of land bordering a stream is entitled on the one hand to have the natural accustomed flow of water left uninterfered with, and on the other to take and use the water in the stream for his own purposes, provided he does not materially interfere with the similar rights of others. As may naturally be expected, these conflicting rights give rise to frequent disputes, which are sometimes very difficult to settle; for although the legal principle applicable to them is clear, it may be far from easy to determine whether in a particular case the right to make use of water in a stream has or has not been exercised in an immoderate or improper manner.

As regards water supplied to a place naturally by percolation over or through the soil, but not collected into a visible stream with a defined bed, the owner of the soil in which such water is may treat it as his own, and intercept and use it accordingly, unless there be some special grounds precluding him from so doing. Every one has a right to drain his own land. He cannot, indeed, as already observed, interfere directly with natural streams flowing through his property; but he is at perfect liberty to intercept, collect, and apply to his own purposes all stagnant water on it. He may draw his own wells dry, and empty his own ponds; and he may drain off all water which is percolating through his own land, even although, if left alone, such water would ultimately form a stream or pass into the well or pond of a neighbour. To such an extent is the owner of the soil master of all water upon or under it, but not forming a visible stream, that he can sink wells to any depth he likes on his own land, even although he thereby lays dry the whole surrounding country. It was not long ago that the Local Board of Health at Croydon sunk a well so deep as to draw off large quantities of water that would otherwise have found its way into the Wandle. The owner of an old mill, formerly turned by that river, brought an action against the Board for damage sustained by the stoppage of his mill, which the river was no longer able to turn. The case was fought with great obstinacy and skill on both sides; but it was ultimately decided that the mill owner was not entitled to compensation. This and other cases settle that persons whose wells or ponds are drained by wells sunk in other lands have no legal remedy for the damage they sustain. They can, however, deepen their own wells and ponds to any extent they please. *Lincoln's Inn.*

ORCHARD HOUSE PEACHES.

I HAVE read with some interest the discussion in your Paper between Mr. Thompson and Mr. Rivers upon the comparative advantages of growing Peaches under glass, and of growing them upon walls in the open air.

Had Mr. Thompson been content simply to give his opinion as a horticulturist, that in growing Peaches under glass no success could be hoped for at a greater distance than a couple of feet from the light, I should not have ventured to question his authority. But when, in addition to his opinion, he gives the reasons upon which it is founded, and travels for them into the domain of optics, every one is entitled to judge of their validity.

The objections stated by Mr. Thompson to cultivation under glass appear to me to be so unfounded, I confess I have not much faith in the soundness of his conclusions.

To quote the objections in his own words, they consist in "the difference between the direct light of the sun's rays, and the same transmitted through glass, and consequently weakened by a large amount of reflection, and paralysed by refraction; the latter manifesting itself greater in proportion to the distance the rays travel after passing through the glass; and if this be far, their energy is next to moonshine." If the above statement were true, the sooner that Peach cultivation under glass were given up, the better.

But what are the facts? The loss of light by reflection, and by passing through glass at a high angle, is not more than two or three rays in 100; while the dispersion or "paralysis," in passing through parallel glass, is absolutely nil, and it does not increase with the distance the rays have to travel.

Upon the question of the "paralysis" of the light at a distance from the glass, I have appealed to a high authority, by asking the question of the sun, whose answer I have received through the medium of a piece of common photographic paper. Having divided the paper into two parts, both pieces were exposed simultaneously, under the same conditions, parallel to the roof, in a "lean-to" house, for the space of two minutes; the only difference being that the one piece was exposed within a foot of the glass, while the other was at the distance of 10 feet from it.

I chose a cloudy day in preference to sunshine, in order to have the light coming from the whole sky, between east and west, which would be the case between the rising and setting sun.

The test papers are enclosed for your inspection, and you will perceive that the one exposed within a foot of the glass has been acted upon by the light with double, or perhaps more than double, the energy to the other. This I confess was contrary to my expectation, but the result has nothing to do with "refraction," "paralysis," or "reflection." It is simply the effect of the one paper having received about double the quantity of light to the other, the quality being the same in both cases; nearly the whole of the lateral and more oblique light having, in the latter case, been intercepted and shut out by the rafters and sash bars, as any one may see who inspects the interior of a greenhouse. The difference shown by the two papers would, I believe, be very much less in sunshine. I doubt indeed if it would be perceptible. [They are placed before Mr. Thompson.]

In a favourable season like the present, no one doubts that Peaches may be grown in perfection upon a south wall, and I must now admit that under glass they will probably ripen in greater perfection near the light than at a distance from it. At the same time, I can entirely confirm the experience of Mr. Rivers, that the advantages of temperature under glass are so considerable, as in a great degree, if not altogether, to countervail the loss of "energia" by diminished light, and that excellent Peaches may be ripened, far beyond the narrow limits allowed by Mr. Thompson. To assume, as he does, that "the Peach requires for its perfection the direct light of the sun in front, and its reflection by the wall at back," appears to me to be begging the whole question; which is, whether the Peach cannot be as well grown, and with greater certainty, under other conditions. *An Amateur, Clapham, Sept.* 15.

NEW ROSES.

I HAVE received a list of the new Roses of 1863. There are in it 48 H. Perpetuals, 6 Bourbons, 3 Teas, and 1 Autumnal Moss. Last year I received a private recommendation of Sœur des Anges and Madame Briançon. The former, very beautiful, has not opened so well as I could wish; the last is about to bloom, and I believe it will be very good. The forms of the buds are good, and the petals are thick. Sleekness, smoothness, and thorough colouring of the under as well as the upper sides of the petals are essentials. No Rose, however beautiful it may be, can be considered perfect that is not as well coloured on the under side of the petals as on the upper side.

I call attention only to those which are described as large or very large, vigorous or very vigorous, full, of good form, or very good form. The descriptions are those of the raisers; and of their worth some opinion may be formed by the names attached.

HYBRID PERPETUALS.

La Duchesse de Morny (Verdier).—Magnificent very fresh pale rose, the reverse of the petals silvery. Figured in the French Journal of Horticulture.

Madame Victor Verdier (Verdier).—Of a rich and fresh brilliant rose-cerise colour (extra).

Baronne Pelletin de Knikelin (Granger).—Beautiful vivid red, shaded with purple and very vivid poppy.

Kate Hausburg (Granger).—Very vivid beautiful rose de Chine.

Eugène Verdier (Guillot fils).—Superb dark violet.

Paul de la Meilleray (Guillot fils).—Beautiful purple rose-cerise.

Senateur Reveil (Damaisin).—Brilliant red crimson, shaded with dark purple (extra).

Madame Maeker (Damaisin).—White, very slightly roseated, the issue of Mère de St. Louis.

Maréchal Suchet (Damaisin).—Beautiful rose-carmine.

Madame Ducamp (Fontaine père).—Beautiful red purple.

Docteur Vingtrinier (Fontaine père).—Beautiful vivid red carmine, shaded with purple.

Alphonse Belin (Gautreau).—Vivid red cerise, reverse of the petals clear rose, very scented.

Madlle. Gabriel de Perronny (Lacharme).—Fiery red, shaded with purple in the centre.

Madame Devreux Donville (Leveque).—Beautiful pale rose, bordered with white.

TEA.

Lays (Damaisin).—Brimstone yellow (*jaune souffre*), effective.

BOURBONS.

Madame Josephine Guyet (Touvais).—Erect habit, brilliant vivid red in the centre, the exterior of the petals dark red.

Madame de Stella (Guillot).—Beautiful vivid rose.

Rev. H. Dombrain (Margottin).—Cupped, very brilliant carmine.

I have omitted, as I have just stated, naming any that have not attached to them the words vigorous, large, full, and of good form. For living on, we must have them vigorous; and for show, we must have them large and full, and of good form. We also want more cups and globes, the two best forms of Roses. I do not know any Roses that have so many points of excellence as Cecile Chabrillant, Senateur Vaisse, and Jules Margottin. As regards Bourbons, I wish the raisers would scent them. *W. F. Radclyffe, Rushton, Sept.* 14.

THE FANCY PANSY.

"THEY are all very well," exclaimed an old-fashioned florist the other day, "but I shall never fancy them things." "Why?" I asked. "Why," replied he, "they are all sorts of colours, and are nohow." Of course I easily understood what my worthy old floricultural friend meant, because he, in common with many others I have met with, will recognise nothing in a Pansy which is not either a "white ground," "yellow ground," or a "self" flower, from which in their opinion there must be no divergence in variety of colours. Of course these Mede and Persian laws of florists keep us to such classes; and although as florists we would not tolerate any relaxation of them, we can at least recognise in the Fancy Pansy an unlimited diversity of rich and beautiful colours, and in many of the new flowers, forms scarcely inferior to that in the best florists' varieties. No flower has become more rapidly and deservedly popular, or has been so rapidly improved.

These Fancy Pansies possess one great recommendation to all classes of cultivators. They generally are free and sturdy growers, requiring more room than the florists' kinds, and not being so liable to die off suddenly. Here we use a moderately light surface soil made up with siftings from beneath the potting bench, rotten leaf, and fresh maiden pasture soil. This forms the upper surface of the bed, whilst underneath is a stiffer garden soil, with which a little rotten manure and a portion of the above-named compost has been incorporated. I find that the roots cling with remarkable tenacity to the stiffer subsoil, and the plants hold out longer in dry weather. The lighter top soil is adopted because it enables us to keep the surface readily cleaned and stirred, and as we keep the shoots pegged out close to the ground, the side pieces (*i. e.*, side shoots) root into the soil very readily. Occasional slight mulchings of fresh soil are placed about the plants, to assist them in creating stock. If the amateur adopts this plan, young plants can be obtained much better than by bothering with cuttings, for they can be readily pulled away from the parent.

In sheltered districts it is best to plant out in the autumn, always securing the plant from injury by wind by pegging it down or otherwise fixing it. The soil should never be allowed to become caked on the surface, and repeated syringings over head in hot weather keep the plants in vigorous health. Fly, which is well known to amateurs, should be kept down by washing the plants with tobacco water, or a very weak solution of Gishurst. We apply it with a small brush. In wet cold districts it is best to winter Pansies in cold dry frames, where the plants can be kept dry and hardy during the winter. The Pansy is perfectly hardy, and the most severe frosts will not injure it; but it is particularly susceptible of damp, and readily succumbs to this mortal enemy. I use brick frames or pits chiefly; these are filled above the ground level with about 15 inches of drainage, on which is placed from 3 to 4 inches of soil. In this I plant out for the winter, keeping them close to the glass and well aired, and never cover with mats or any other material even in very severe weather, but at that time I water sparingly, and only in the morning and in fine weather.

Seed can be sown at almost any time—now until December, to bloom early next summer, and if sown later of course the plants bloom later. Seedling plants are generally very robust, and should have plenty of room given to them.

Fancy Pansies were a few years ago taken in hand by Mr. Salter and Mr. Downie, but so strong was the prejudice against them on the part of our floricultural friends, that they could not make headway, until the late M. Miellez, of Lille, raised and introduced some good things, including Miracle, Princess Mathilde, Prince Imperial, Napoleon III., Ali Bey, and a few others. Messrs. E. G. Henderson & Son then took them up; but of course London smoke did not agree with them, nor, what was still worse, the confinement of a London garden. The cooler soil and climate of Yorkshire were considered more congenial, and plants were sent here. I soon saw that with some attention the Fancy Pansy could be made a popular favourite, and determined it should become so, and I have now the satisfaction of knowing that the majority of the finest in cultivation have been raised here.

As a decorative plant the Pansy is almost ignored, and yet there is nothing more valuable for garden decoration. In proof of this, I refer to what Mr. Fleming does at Cliveden in early spring decoration with the Cliveden Blue, Magpie, Yellow, Purple, and White Pansies. At Shipley at the present time, my seedling beds are masses of flower. The seed was sown in cold frames last September, and the young plants were planted out in April; they commenced blooming towards the end of June, and have continued blooming ever since. These beds are full of flowers, whilst the heavy rains we have lately had, have washed out the flowers of Verbenas and Geraniums. Magpie is a little beauty for garden decoration, and the Cliveden Blue is a gem in a flower garden. The double Pansy, an old kind, introduced by the name of "Good Gracious," is pretty, but does not last long in flower. I knew this kind many years ago, and there is an abundance of it in Ireland; a few years since it was also extensively grown at the Royal Gardens at Frogmore.

The following are some of the finest new kinds to be introduced this autumn. Those marked * have been raised by Messrs. Downie Laird and Laing. The others have been obtained here:—

Her Majesty	*Earl of Rosslyn
Prince of Wales	*Mr. Nethercote
Princess of Wales	*Sulphur Queen
Thomas Moore	*Maccaroni
King of Italy	*Black Prince
Richard Dean	William Paul
Mrs. Turner	Admiration
Mrs. Dean	Duchess of Cambridge
Annie Brooksbank	Princess Beatrice
Clara Dean	Lord Provost
Alexandra	Singularity
Prince Alfred	Blue Beard
Columbine	Firefly
Hibernia	Moonshine
*Mrs. Nethercote	

Of older sorts, some of the best are:—

Mrs. Moore	Octavie Demay
Prince Napoleon	Princess Alice
Aurea marginata	Princess Mathilde
Imperatrice Eugénie	Prince Imperial
Harlequin	Tiger
Maid of Honour	Prince Arthur
Princess Louise	Carlotta Patti
Creole	Paul Bedford
Le Géant	Rainbow
Belle Esquermoise	Aunt Nelly
Belle Lilloise	Talisman
Brigand	Grand Vizier
Distinction	Louisa Angel
Etoile du Nord	Mont Blanc
Louise Meillez	Magenta
Michael Angelo	Sunshine
Massaniello	Merry Monarch
Miracle	Fire King
Napoleon III.	Louisa Pyne
Naomi Demay	Gladiator

The distinctly blotched kinds, such as Thomas Moore, Aurea marginata, Donald Beaton, Merry Monarch, Hibernia, Butterfly, and Dandie Dinmont often come without blotches early in the season, but as soon as hot weather sets in they become distinctly marked. The best plan is to plant these kinds in poor sandy soil, that is, nearly all river sand, certainly not in rich earth. In the south, Pansies should be planted in as cool and shady a situation as possible, but not under trees. Avoid wet situations, as they would suffer too much in very wet weather. They should always have good drainage to avoid the possibility of stagnant water about the roots. *William Dean, Bradford Nursery, Shipley.*

BRITISH ASSOCIATION.

AN interesting paper, *On the Physical and Mental Character of the Negro*, was read by Dr. J. Hunt. This paper brought up Mr. Craft, a negro of nearly pure black skin, in defence of his race. Mr. Craft said, that as Africans were very dark, and the inhabitants of Northern Europe very fair, and as, moreover, the nations of Southern Europe were much darker than those of Northern Europe, it was perfectly fair to suppose that climate had a tendency to bleach as well as to blacken. The thickness of the skull of the negroes had been wisely arranged by Providence to defend their brains from the tropical climate in which they lived. If God had not given them thick skulls their brains would probably have become very much like those of many scientific gentlemen of the present day. The woolly hair was not considered by Africans as a mark of inferiority, though some of them shaved it off, but it also answered the purpose of defending the head from the sun. With regard to his not being a true African, his grandmother and grandfather were both of pure negro blood. His grandfather was a chief of the West Coast; but, through the treachery of some white men, who doubtless thought themselves greatly his superiors, he was kidnapped and taken to America, where he (Mr. Craft) was born. He had recently been to Africa on a visit to the King of Dahomey. He found there considerable diversities even among the Africans themselves. Those of Sierra Leone had prominent, almost Jewish features. Their heels were quite as short, generally, as those of any other race, and upon the whole they were well formed. Persons who had any knowledge of Africans knew that, when they enjoyed advantages, they were capable of making good use of them. He might refer to the instance of the little girl brought to this country by Capt. Forbes. This child was presented to the Queen, who had her carefully educated. When she grew up, she mingled in good society, and interested every one by her proficiency in music; and recently she had been married to a commercial gentleman of colour at Lagos. Another case was mentioned by Mr. Chambers in one of his works; and another case was that of Mr. Crowther, who was well known to many gentlemen in this country. One word with reference to the ancient Britons. When Julius Cæsar came to this country, he said of the natives that they were such stupid people that they were not fit to make slaves of in Rome. It had taken a long time to make Englishmen what they now were, and therefore it was not wonderful if the negroes made slow progress in intellectual development. It was, however, proved that they made very rapid progress when placed in advantageous circumstances. As to the negro not being erect, the same thing might be said of agricultural labourers in this country. He pointed to Hayti as furnishing an instance of independence of character and intellectual power on the part of the negro; and contended that in America the degraded position which he was forced to occupy gave him no chance of proving what he really was capable of doing. He was sorry that scientific and learned men should waste their time in discussing a subject that could prove of no benefit to mankind. He spoke with great deference to their opinions; but, for his own part, he firmly agreed with Cowper, that

> Fleecy locks and black complexion
> Cannot alter nature's claim;
> Skins may differ, but affection
> Dwells in white and black the same.

—*Athenæum.*

Home Correspondence.

Fungi.—Having often proved gratefully your readiness to answer a question honestly asked to obtain information, I do not hesitate to ask your advice as to the best means of getting rid of a pest in the shape of a Fungus, which increases so fast it threatens to overrun our little garden. The garden was made five years ago, the flower beds being cut out of the turf. The first summer one or two of this cone-shaped Fungus appeared; the next year more than 50; and this season the crop covers an area of 20 yards square, coming through the turf and amongst the flowers in every direction. I shall be greatly indebted to you if you can suggest a remedy short of the troublesome operation of taking up the turf. I send a small specimen; it is sometimes 6 or 7 inches in height, and the root as deep in the ground. *J. M. C.* [The specimen was so squelched that nothing could be made of it. Perhaps some kind correspondent can advise J. M. C.]

Grape Growing (see p. 869).—Allow me to make a few observations respecting Mr. Thomson's Grape growing in Yorkshire. Mr. T. commences by noticing Mr. Nicholson's practice (see p. 845), which he considers ought to be the rule, not the exception; he then relates his own proceedings (which by the way most Grape growers, I feel convinced, will consider ought to be the exception, not the rule); he takes 25 bunches from a Vine the second year after planting, following it up by taking 37 the succeeding year, and speaks of such practice being considered by some to be cutting the throat of the Vine. The result may not be so striking at first as the operation just alluded to, but destruction will be equally certain in the end. For Vines of the age mentioned, I consider the crops which Mr. T. speaks of, to be more than double what are consistent with good practice. I can point to Vines in scores of houses that have been completely ruined in a few years by overcropping, especially whilst young; and to others that have been planted 50 years, that have never failed to produce good crops annually. The latter were however never overcropped. I have no intention to disparage anything that Mr. Thomson may accomplish, neither am I disposed to parade my own doings; I merely wish to show that I am not a mere theorist, and therefore I may state that I have exhibited Black Hamburghs at six shows within the last three weeks, and have taken first prizes at all of them, viz., at Bishop Auckland, Ripon, Manchester, Bowdon, Alderley, and Bradford; at the last place Mr. Thomson was second, with just such Grapes as might be expected from his account of their treatment; they were deficient in colour and small in the berry, although thinned enough to hang till March. *T. Baines, Gardener to H. L. Micholls, Esq., Summerfield, Bowdon, Cheshire.*

Cinchona Planting for the West India Islands.—Seeing the great and costly efforts that have been made to introduce Cinchona planting in the East, the question naturally arises—why should not anything similar have been attempted in the West? The proximity to the American continent offers great facilities, and it may reasonably be supposed that the mountains in Jamaica, St. Lucia, Trinidad, &c., would offer every possible advantage in point of climate. *G.*

Ink Plant.—I was much pleased the other day on going over the Gardens at Chiswick to see that the Society was in possession of the very interesting Coriaria thymifolia, or Ink-plant, of which an account was given a few weeks ago at the Linnean Society. We shall soon no doubt be able now to investigate its curious properties at home. *A Fellow.*

Showing Roses.—With all deference to those who think otherwise, I cannot agree in the opinion that Roses should be shown singly, as Dahlias, &c. The Dahlia is a formal flower, and is probably best shown on the present system, but the buds and leaves of Roses are, in my opinion, a beautiful addition to the flower; and the Rose would lose in interest and grace, as our exhibitions would lose in variety, if this and some other flowers are brought to one uniform standard. It seems to me bringing Nature's variety to "one idea," instead of giving to each its proper scope and natural development. Three trusses of each variety are desirable, because the bud, the half-blown, and the full-blown flower may be exhibited at the same time. A good number of sorts is also desirable, because where one lover of Roses grows for exhibition, 20 grow for garden decoration, and some of the freest blooming and most highly decorative Roses are least suitable for exhibition. Again, if all the buds surrounding a central flower be removed, succession or continuity of flowering is destroyed. The Rose is certainly not fully or fairly represented by small numbers or single blooms, and the tendency of exhibiting such is to narrow the range of the very first of English garden favourites. *Wm. Paul, Waltham Cross, N.*

Hyacinth Culture.—In Mr. Fortune's admirable papers, "A Visit to the Bulb Farms of Holland," I do not find any allusion to the temperature of the soil, which I conceive plays an important part in the cultivation of this beautiful spring flower. On a recent visit to that country, I was standing in the Hyacinth ground of Messrs. Van der Schoot & Sons of Hillegom, one of the largest and most respectable cultivators in Holland, when I was struck by a sensation of heat through the soles of my boots, and on placing my hands on the soil found it too hot to be comfortable. The nature and colour of the soil scarcely accounted to my mind for the degree of heat, and I turned to the sky. The latter was not completely overcast, but broken masses of watery clouds were floating about, between which the sun's rays poured down with a concentration that seemed at the moment to help in the solution. If such consequences result from this state of sky (which I was informed was more common than in England), here is an important condition in cultivation. *Wm. Paul, Waltham Cross, N.*

Disa grandiflora.—As I exhibited this handsome Orchid in bloom the other day at the Manchester Horticultural Show, perhaps the following remarks on the manner in which I treated it may not be without interest. I received the plant in a small state about this time last year, and shifted it at once into a small pot, using a compost of fibrous peat and a little silver sand. On examining the plant about the end of October I found that it required another shift. I, therefore, moved it into a pan 8 inches in diameter and 4 inches deep, using the same compost as before. I then plunged it in a larger pan filled with moss, and gave it a good watering over head with cold water once or twice a day, which kept the soil and moss saturated. I kept it in a cool airy greenhouse shaded from the mid-day sun. In the beginning of February I removed as much of the old surface soil as I could without injuring the roots, and added a good top dressing of rough peat and sand. After that the plant progressed favourably and commenced to throw up a flower stalk about the beginning of June. The latter grew very rapidly until it reached 2 ft. in height. The first flower opened on the 30th July; each of the blooms measured 4 inches one way and 3¼ inches the other. The last flower is now just expanding, and I expect that it will remain in perfection at least six weeks. *E. Mitchell, Gardener to R. F. Ainsworth, Esq., Lower Broughton, Manchester.*

Rhus succedaneum.—Can any of your correspondents inform me whether this species of Rhus is hardy enough for our climate. Its brilliantly-tinted autumnal foliage induced me three years ago to purchase a plant of it, which has now got too large for pot and cool house treatment, and if I was sure of its hardiness I would plant it out. *Sumach.* [We have had no experience on the point in question.]

The Asserted Refraction of the Sun's Rays through Glass.—I have been tempted to test this with as much accuracy as possible, and this morning, at 10 A.M. (Sept. 16), the sun shining very brightly, I took two of Negretti's thermometers—one I placed outside on the glass, the roof sloping to the south-east, the other inside, sloping at the same angle, both 5 feet from the ground surface, and the latter 9 feet from the glass. In a few minutes the thermometer outside rose to 87°, that placed inside to 103°, showing 16° of difference, thus showing glass to be conductive rather than refractive. I find on referring to a maximum thermometer placed in one of my orchard houses (and forgotten) completely in the shade, behind a bag of Moss, so that no direct sun-heat could affect it, that it has registered 105°. This was, I presume, in the hot weather in July and August; this was surely a high ripening temperature. *T. R.*

Societies.

BRIGHTON HORTICULTURAL: *Sept.* 16, 17.—The Autumn Show of this Society was held in the Pavilion, and was in most respects an excellent one. Cut flowers were the chief features, and were exhibited in great numbers, most of the principal growers being represented.

Roses.—The Railway 10-guinea Cup, which was offered for the best 50 Roses, was awarded to Messrs. Paul & Son, of Cheshunt, who contributed an excellent collection, in which the most conspicuous were Empereur de Maroc, La Ville de St. Denis, Comtesse Cecile de Chabrillant, Madame Caillatt, Madame Falcot, Victor Verdier, Lord Clyde, Madame C. Crapelet, Anna de Diesbach, François Louvat, Lord Canning, Catherine Guillot, President, and Louise Peyronny. Mr. Mitchell's collection contained good blooms of Dr. Rushpler, Senateur Vaisse, Georgina Milner, Comte de Paris, Peter Lawson, Duc de Bassano, Gloire de Santenay, Comtesse Cecile de Chabrillant, Vainqueur de Goliath, and Madame Wm. Paul. Mr. Keynes had nice examples of François Lacharme, Anna de Diesbach, Monte Cristo, Madame C. Crapelet, Olivier Delhomme, Madame Boutin, Madame C. Wood, Vicomte Vigier, and Prairie de Terre Noir.

Awards.—1st, Messrs. Paul & Son; 2d, Mr. Mitchell; 3d, Mr. Keynes; Extra for 100 varieties, Mr. Mitchell.

Collections of 24 varieties were well shown. In the various stands were good specimens of Adam, Senateur Vaisse, Comtesse Cecile de Chabrillant, Olivier Delhomme, Gloire de Dijon, Lord Raglan, Souvenir d'Elise, and La Reine.

Awards.—1st, Messrs. Bragg & Co.; 2d, Mr. Gosling; 3d, Mr. Woolland.

Dahlias as a whole were unusually good. In Mr. Turner's stand of 48 were beautiful blooms of Cygnet, Earl of Shaftesbury, Delicata, Model, Andrew Dodds, Miss Henshaw, Hugh Miller, Charlotte Dorling, Lord Derby, and Midnight. Mr. Keynes had Delicata, Model, British Triumph, Bellona, Anna Keynes, Lord Derby, Pauline, and Juno in nice condition; and Mr. Harrison showed good blooms of Mauve Queen, Lord Derby, Hugh Miller, Earl of Shaftesbury, Mrs. Bush, and Delicata.

Awards.—1st, Mr. C. Turner; 2d, Mr. John Keynes; 3d, Mr. Harrison.

In collections of 24 Fancy varieties Mr. Keynes took the lead; his set contained fine blooms of Baron Alderson, Pauline, Magpie, Duchess of Kent, Samuel Bartlett, and Lady Paxton; Mr. Legge had Norah Creina, Formidable, and Prince of Wales; and Mr. Perry, Pluto and Comus.

Awards.—1st, Mr. Jno. Keynes; 2d, Mr. Legge; 3d, Mr. C. J. Perry.

In the Amateurs Class of 24, some good blooms of Bob Ridley, Andrew Dodds, Miss Henshaw, Delicata, Model, Lord Derby, and Criterion were shown.

Awards.—24: 1st, Rev. C. Roe; 2d, Mr. J. Sladden; 3d, Mr. C. J. Perry. 12: 1st, Mr. Sladden; 2d, Mr. Lock; 3d, Mr. Hopkins.

In the Amateurs collections of 12 Fancies, nice blooms of Charles Perry, Summertide, Pauline, Pluto, and Baron Alderson, were exhibited.

Awards.—1st, Mr. Batter; 2d, Rev. C. Roe; 3d, Mr. C. J. Perry.

Verbenas were good for the season. We may here observe that five trusses are always more effective than three. Excellent examples were shown by Mr. Perry of l'Avenir de Ballent, Ruby King, Colossus, and Magnificens; and Seedlings Modesty, Pink Perfection, Rubens, Mauve Queen, and Princess. A first prize was awarded.

Hollyhocks were shown in considerable quantity. Among the collections were fine blooms of Empress Eugénie, Lady Dacres, Lilac Perfection, Countess of Craven, Reine Blanche, Invincible, Governor-General, Lady Paxton, Mrs. Chater, Morning Star, Princess of Wales, and Lucifer.

Awards.—1st, Messrs. Downie & Laird; 2d, Mr. Harrison; 3d, Mr. Chater.

Gladioli were very showy; some fine spikes were shown of Madame Basseville, Belle of Yarmouth, Achille, Ophir, Othello, Janire, and Neptune.

Awards—1st, Messrs. Youell & Son; 2d, Mr. Cattell; 3d, Mr. J. Sladden.

Orchids, Stove plants, and plants with variegated foliage, were well shown. The most remarkable were Caladium Belleymei and Chantini, and Croton angustifolium from Mr. Hudson, gr. to F. Barchard, Esq.; Alocasia macrorhiza variegata, Caladium bicolor magnificum, and Alocasia metallica, from Messrs. Henderson & Co.; and Cordyline indivisa from Mr. Young, gr. to H. Stone, Esq.

Fruit was very fine, more especially the Grapes Marchioness of Hastings and Muscat of Alexandria from Mr. Parsons; the Muscats and Black Hamburghs from Mr. Russell; and the Barbarossa from Mr. Drummond. Prizes were offered for stands of fruit and flowers for table decoration, to be competed for by ladies only. Some very pretty designs were produced. The 1st prize went to Mrs. Johnson, Regency Square, Brighton; the 2d to Madame Temple, Brighton; and the 3d to Miss R. Miller, Hurstmonceaux.

Notices of Books.

The Alpine Guide. By John Ball. London: Longman & Co. Pp. 517.

(*Continued from p.* 847.)

Mr. Ball assures us, "the real dangers of the high Alps may, under ordinary circumstances, be reduced to three. First, the yielding of the snow bridges that cover glacier-crevasses; second, the risk of slipping upon steep slopes of hard ice; third, the fall of ice or rocks from above. From the first and most frequent source of danger, absolute security is obtained by a precaution generally known, but often neglected. In the higher region of the glaciers, crevasses even of considerable width are often completely bridged over by a covering of snow or névé, so that no indication of their existence is seen on the surface of the glacier. These bridges, especially when formed of fresh snow, often yield under the weight of a man's footsteps; in such a case an active man, whose attention is on the alert, may sometimes extricate himself at once, but it more commonly happens that he falls into the chasm beneath, in which case his chance of life is faint indeed. But if several travellers are tied together with a stout rope, as it is in the highest degree improbable that a majority of them should fall at the same moment into the same crevasse, no appreciable danger from this cause need be incurred. Even two travellers tied together, may, with proper attention, avoid this risk, but greater security is obtained when they are three or more in number. It is necessary to see that the rope be sound and good, and it is not less important to insist that it should be fastened round the body of each member of the party, guides included, so that both hands may be free to use the alpenstock, in case of a slip. A neglect of this obvious rule led, in 1860, to the loss of three English travellers and one of their guides, in the descent from the Col du Géant to Courmayeur. This mode of reducing the coefficient of danger to an inappreciable quantity by the theory of probabilities is very ingenious, and thoroughly characteristic of the worthy Editor, but it will scarcely be considered altogether convincing by less able mathematicians. "The ascent and descent of steep ice slopes are among the most difficult operations that commonly fall in the way of the mountaineer, but when properly conducted there should be little or no danger to those concerned." After describing the proper mode of procedure he adds, "In spite of every precaution a traveller may slip on an ice-slope, where, if unchecked, a fall would lead to certain destruction. Against this danger the rope is usually an effectual preservation. Cases are said to occur where the footing is so precarious that a party cannot be tied together, as if one were to slip he would inevitably drag all his companions along with him to destruction. It is for those concerned to consider whether, in such instances, the object in view is such as to justify the inevitable peril of the ascent."

There is much good sense in this remark, as also in the next paragraph, where, after describing the danger lest even a slight disturbance of the newly fallen snow on a steep slope should produce an avalanche and bury the entire party, Mr. Ball says that practical experience is necessary to determine whether the ascent can be safely attempted, adding that the only fatal accident recorded in the numerous ascents of Mont Blanc arose from the travellers insisting on persevering, against the judgment of the guides, when the snow was in a dangerous condition. It is obviously mere folly to persevere in the face of bad weather. We next come to the geology of the Alps, and must be content with a single extract:—

"The alpine geologist has not merely to contend with the difficulties arising from upheaval and depression, the repeated folding of the strata, or the actual reversion of their original order of superposition; he has to deal with deposits which scarcely ever retain the characters which are elsewhere familiar to him. The marls and clays here appear as hard slates, the calcareous deposits as crystalline marble, as dolomite, or as cellular limestone, and even where their mineral structure is less changed, the colour is constantly altered. Thus the representative of the chalk in the Sentis is a black limestone. The most formidable difficulty of all arises from the absence or rarity of fossils. It is not surprising that the first attempts of Alpine geologists should have failed to discover a clue through this labyrinth. For a long time the opinion prevailed, that the Alps were composed of peculiar rocks altogether different from those elsewhere known to geologists; and even 30 years ago, the stratified rocks of the Alps were generally classed only in three general divisions, under the names of Calcaire Alpin, Flysch, and Verrucano." With the names of foreigners who have laboured in the field, Mr. Ball associates those of our distinguished countrymen, Sir Roderick Murchison and Professor Sedgwick.

The Editor gives 10 pages of works relating to the Alps from which information may be obtained, and then we come to what may be called the body of the "Alpine Guide," which is arranged much after the style of Murray's Handbooks, and divided into routes, A, B, C, D, &c., under the different recognised districts, such as Mont Blanc district, Sixt district, Evolena district, &c., the whole coming under the larger divisions of Maritime Alps, Cottian Alps, &c. There are also nine maps and three indices, one of peaks or mountains, one of mountain passes, and one of general matters.

As we have already stated, the "Alpine Guide" is written mainly with an eye to real mountain work. Trustworthy information is supplied with regard to every peak or pass that has been surmounted, amply sufficient for any Englishman in good condition, with or without a local guide. Where it is only supposed that a way might be found from one point to another, the Editor takes care distinctly to say that it is only a conjecture; where information is too scanty or altogether wanting, he takes care to make known the want. The whole is done in a business-like manner, and sensational writing is carefully eschewed. There is a short notice of the tunnel through the Alps. The entire distance to be pierced is stated to be about 7¾ English miles; for one-half of the way the railway will rise with an uniform slope of $\frac{23}{1000}$; it is estimated that the tunnel may be opened in 1875.

There is also a very interesting digression on the pass of the Petit Mont Cenis, which claims special attention on account of recent investigations, which make it highly probable that this was the pass by which Hannibal entered Italy. The Editor tells us he is indebted to the Rev. T. G. Bonney, of St. John's College, Cambridge, for a summary of the arguments, deduced from the writings of the Rev. Robert Ellis, of the same University, and which he puts into the concise form of "conditions which must be fulfilled by any route over the Alps, which claims to be that of Hannibal." Mr. Ball tells us where to find adverse criticisms and replies, if anybody cares to make himself master of the subject.

Our readers may form some notion of the qualities required in these Alpine expeditions, by a few lines

extracted from the ascent of the Dent Blanche (14,318 feet). "The ascent lay at first over loose rocks, and then up an ice slope to a little plateau at the lower end of the main arête. This is formed of projecting towers and pinnacles of rock, alternating with very steep slopes of ice, and the course lies sometimes round the face of the rocks, sometimes along the edge of the arête. In addition to the inevitable difficulties of the way, the weather was extremely unfavourable, violent winds and clouds sweeping round the peak of the mountain. In one place a rock covered with snow, and with a slope of 52°, was climbed on hands and knees, and at last the top of the arête was found to consist of an overhanging cornice of snow. The actual highest point, 6 or 7 feet higher than the nearly level ridge, overhung so much that it was thought too dangerous to trust a man's weight to it."

We must not omit to inform our readers that from very early days Mr. Ball was distinguished for his success in collecting rare plants. He seemed instinctively to know exactly what to look for, and where, and pounced upon the treasure the moment it came in sight. Indeed, we suspect it was the love of botany which first encouraged those scansorial powers, which his admiration of the grand and beautiful in nature subsequently developed.

He evidently revels in the Alpine Flora, for in the very first route, Route A, which occupies only two and a half pages, he introduces us to no less than 17 very rare plants; and in Route B, consisting of two pages, we count up as many as 18, and every now and then he lets us know that his favourites are not forgotten.

There can be little doubt that numbers of the young and adventurous will be charmed with this book, and find it most valuable in their Alpine rambles; and will be ready to join with those who have the pleasure of knowing the accomplished Editor in giving "Three cheers for John Ball!"

TRADE LISTS RECEIVED.—BARR & SUGDEN'S *Illustrated Autumn Floral Guide*; pp. 64.——BUTLER & M'CULLOCH'S *Autumn Catalogue of Dutch, Cape, and other Bulbs.*——DICKSON & SONS' (Chester) *Catalogue of Dutch Flower Roots.*——HOOPER & Co.'s (Covent Garden) *Autumn Catalogue of Dutch, Cape, and other Flowering Bulbs.*

Garden Memoranda.

FLEURS CASTLE.—This princely residence, belonging to the Duke of Roxburgh, is situated on the north bank of the Tweed, about a mile north-west of the town of Kelso. It is a modern erection in the castellated style, built from designs furnished by Mr. Playfair, and placed upon the site formerly occupied by the old Castle. From the south front a commanding view of the surrounding country is obtained, the Cheviot hills coming in in the distance, while beautiful windings of the Tweed and Teviot rivers occupy the foreground, the latter forming a junction with the former nearly opposite the Castle. On a narrow peninsula formed by the union of the two rivers just named stand the ruins of old Roxburgh Castle, formerly a royal residence of the Scottish kings, and in the park in front of the Castle of Fleurs is a Holly tree, planted upon the spot where James II. was killed by the bursting of a cannon while besieging Roxburgh Castle.

The pleasure-grounds embrace an area of more than 30 acres, a great portion of which is devoted to plantations and shrubberies. On the south or garden front of the castle is an extensive lawn ornamented by magnificent Beech trees. A natural slope fully 20 feet deep runs parallel with the Castle, and about 150 feet in front of it. At the foot of this is a large breadth of level lawn with a gravel walk running through it, and a short distance in advance of this is a sunk fence, which separates the pleasure-ground from the park.

The lawn stretches away to a considerable distance east and west, forming a luxuriant green carpet, from which beautiful vistas have been made through the surrounding trees. The good taste which has excluded all modern planting from this part of the lawn cannot be too highly commended; nothing whatever is suffered to come into competition with the giants of the forest—in the shape of Beeches, just referred to.

On the west side, at the end of the Castle wall, is a small flower garden, gay in the season with summer blooming plants; and at the back, raised upon a terrace, is a span-roofed conservatory 62 feet long and 22 feet wide, in which is a bed in the centre edged with a stout stone kerb; a shelf is carried along the front and both ends for the accommodation of flowering plants; and at the back is a trellis covered with Oranges, Shaddocks, &c. The roof is supported upon five cast-iron columns, and between each of these and upon either side specimen Camellias are planted, fine trees in the best possible health, covered with blossom-buds. They are about 8 ft. high, and as much through at the bottom, and are trained to form pyramids. The varieties are two double whites, two double striped, one Chandleri, one imbricata, and one other kind. The columns are covered with Fuchsias, and the roof with Tacsonia mollissima.

A short walk through the plantation leads to the flower garden, at the south side of which is another conservatory and forcing houses, &c. The flower garden consists of a square piece of ground with a walk around it, and two across the centre at right angles, forming four squares; flower beds occupy the corners and centres of these squares.

On the Grass borders outside the walk are beds of Rhododendrons, and a broad belt of these plants form the outside boundary to the flower garden. Standard Rhododendrons are also introduced upon the grass between the flower beds, and some Coniferous plants on the outside margin. On the south side is the Conservatory plant and fruit houses raised upon a terrace, about 3 feet above the ordinary level of the garden; these from their arrangement have quite a novel effect. The Conservatory at the back is 250 feet in length, and 20 feet in width; it has a span roof and a serpentine walk through it; the borders are planted with the usual occupants of such houses, amongst which are remarkably good specimens of Camellias, Acacias, Oranges, and such like. From the front of this conservatory seven houses jut out; these are span roofed, and each 60 feet long by 26 feet wide, all entered from the conservatory, and placed about 20 feet distant from each other, the whole forming a very imposing range of glass, well built, well heated, and well ventilated.

The first of these houses is filled principally with good plants of Heaths and Azaleas; the shelves and centre platform are made of cast-iron. The second is a Peach-house planted with good trees, bearing fine fruit. The third, a Vinery, is planted principally with Muscats, which are a good crop. The fourth is a plant stove, in which are beautiful specimens of Allamanda cathartica and neriifolia, blooming profusely, fully 6 feet high, and nearly as much through; these are pruned close in every season. There are also fine plants of Dracænas, from 8 to 10 feet high; the variegated Duranta, and many other favourite stove plants; Musa Cavendishii was turned out in the pit, growing luxuriantly, and showing a fine bunch of fruit. The fifth house is a second early Vinery, planted principally with black Hamburghs, bearing an excellent crop of Grapes, good bunches, well coloured. The sixth, a late Vinery, had one side planted with Lady Downe's Grape, and the other with the West's St. Peter's and other late keeping sorts. The seventh house is devoted to Geraniums and Cinerarias; a few large specimens of the former are still in beauty, and bear fair comparison with some of the specimens of the same kind of plants shown at our metropolitan exhibitions; we also observed many large plants that had done flowering, and were cut down. This house is now gay with Fuchsias, which are grown largely to succeed the Geraniums and Cinerarias. These houses were built five years ago from designs furnished by Mr. Thomson of Dalkeith. The Vines and Peach trees have done well, and considering the short time since they were planted, are bearing heavy crops.

The kitchen garden adjoins the flower garden. It is from 5 to 6 acres in extent (a portion of which forms a belt for rough vegetables outside the walls). Four acres are inside the walls, and are divided into four quarters by walks running across the centre from north to south and from east to west. A walk is also carried round the outside, leaving sufficient space between it and the wall for the fruit tree borders. The garden was finished only about three years ago, when all the ground was well trenched; the soil is a fine hazel loam. The fruit trees are growing luxuriantly. Pear and Apple trees planted 8 feet apart all round the sides of the walks are now nearly touching each other. The trees also against the walls are growing vigorously. The Peach trees on a portion of the south wall are growing well, but the crops, owing to the effects of spring frosts, are very precarious. To secure Peaches and Nectarines so far north the walls must be glazed.

Four forcing houses, each 50 ft. long, occupy the upper portion of the south wall. Two of these are Pineries, one an early Vinery, and one a Peach house. Some of the Pines are in pots, but a portion of them is turned out into the border; the kinds for the most part are Queens. There is a noble plant of the Granadilla (Passiflora quadrangularis) growing in the bark bed, in the tan only. This plant has borne 97 fruits this season, 27 were upon it when we saw it. It is pruned in quite closely every season, and treated similarly to a Vine.

Early Vines are now pruned ready for starting into growth; they are commenced in October, and ripe Grapes are cut in February.

In front of the glass houses just named is another range of four houses, each 47 feet long and about 18 feet wide. The first of these is devoted to the growth of Orchids, and contains some good specimens. Stanhopeas are flowering freely, and there is a goodly number of Vandas, Aerides, &c., all clean and in good health. A fine young plant of Granadilla is also here bearing fruit in great profusion. The remaining three houses are filled with stove plants and Ferns.

A third range of smaller houses is placed in front of the second; these are principally for Cucumbers and Melons, and for propagating plants for the houses and flower gardens, for which purpose they are well adapted. There is a bed on each side of a central walk; some of them have bottom-heat applied to them, the others are heated when necessary with fermenting material. These houses are mostly occupied with Achimenes, of which there is a good collection; also Fuchsias and Scarlet Geraniums, and a goodly assortment of autumn-flowering plants. Thunbergias are trained up the pillars which support the roof, and Achimenes of different sorts were suspended in baskets from the roof, the whole presenting a gay appearance. A range of cold pits, forming the fourth line, make up the remainder of the glass.

Flowers are planted in the borders on each side of the walks, and present a gay appearance. Tritoma Uvaria is extensively cultivated here, and flowers abundantly. This plant appears to thrive in a northern climate. Vegetables of all kinds appear to succeed well in this soil. Strawberries have also been very fine. Mr. Rose, the gardener, has been experimenting with Strawberries, and informed us that by planting 3 feet from row to row, and 1 foot 6 inches apart in the row, he gathered more fruit in a given space than by planting in the ordinary way. This mode of treatment also admits of a crop of Lettuces, or similar plants, being planted between the rows.

The garden is well sheltered on three sides, viz., east, west, and south, by a high wood, but it is quite open to the north. The gardener's house, a very pretty and commodious building, is situated in the south-east corner, and the houses for the young men, potting sheds, and other necessary buildings, are placed at the back of the south wall, extending its entire length. The entire garden arrangement and other works were executed under the superintendence of Mr. Rose, and the general keeping of the place bears ample testimony to his assiduous care and ability.

Miscellaneous.

New Public Parks.—The whole of Hornsey Wood and the land lying between it and the Green Lanes and the Great Northern Railway, northward of the Seven Sisters Road as far as the New River, has been purchased under an agreement, the price to be settled by arbitration, for the formation of Finsbury Park. A more fortunate piece of foresight than this event shows it would be difficult to name. Having already expressed an earnest opinion on the desirability of retaining for a public park some of the space of land yet remaining open in the south-eastern district of the metropolis, we rejoice to see that Bermondsey is bestirring itself in a matter so deeply its own concern. The Metropolitan Board of Works' Street Committee has recommended that a letter received from the vestry of Bermondsey parish should be referred back to the committee, with instructions to negotiate for a suitable site, not exceeding 40 acres in extent, for the park so much needed. The recommendation has been adopted by the Board, and we hope that ere long the thing may be done. *Athenæum.*

Scenery near Yedo.—Never in my wanderings in any other country did I meet with such charming lanes as we passed through on this occasion. Sometimes they reminded me of what I had met with in some of the country districts of England; but I was compelled, notwithstanding early prejudices, to admit that nothing in England even could be compared to them. Large avenues and groves of Pines, particularly of Cryptomeria, were frequently met with, fringing the roads, and affording most delicious shade from the rays of the sun. Now and then magnificent hedges were observed, composed sometimes of evergreen Oak, sometimes of Cryptomeria japonica and other Evergreens. These were kept carefully clipped, and in some instances they were trained to a great height, reminding one of those high hedges of Holly or Yew which may sometimes be met with in the parks or gardens of our English nobility. Everywhere the cottages and farm-houses had a neat and clean appearance, such as I had never observed in any other part of the East. Frequently we came upon tea-houses for the refreshment of travellers; and these had little gardens and fish-ponds in their rear, of which glimpses were obtained as we rode slowly by. The scene was always changing and always beautiful—hill and valley, broad roads and shaded lanes, houses and gardens, with a people industrious, but unoppressed with toil, and apparently happy and contented. Such is the appearance of the sylvan scenery in the vicinity of Yedo. I could scarcely fancy myself on the borders of one of the largest and most populous cities in the East, with a population of two millions of human beings, and covering nearly 100 square miles of land. *Fortune's "Yedo and Peking."*

Herne the Hunter's Oak.—The venerable and almost classical tree, to which so many pilgrimages have been made, in Windsor Park, has been laid prostrate by the autumn winds. We hear, however, that what remains is to be preserved in Windsor Castle; but so much anxiety has been shown to appropriate portions of it as it lay in the Home Park, that it has been necessary to place a keeper to watch over it night and day, previous to its removal to a place of security. We do not like to interfere with long-cherished associations, and seldom do so; but in this instance, it is at least questionable whether the leafless trunk which has just fallen be the identical tree which was known as Herne's Oak in Shakspeare's days (about 300 years ago). The writer has often had his misgivings on this point; particularly after comparing with it the size of the far-famed Windsor Park Oak and others not far away, as

well as some of the huge Oaks at Hatfield and elsewhere, in connection with the tradition of Herne the Hunter. There was no doubt a tree called by the name of the sprite who with ragged horns was said to have circled around it; and from Shakspeare's description of the spot, it would be almost heresy to doubt that "Herne's Oak" was seen by the eyes of our great poet; but the question for consideration is, was the tree which has just fallen the Oak which Shakspeare saw? Towards the end of the last century "Herne's Oak" was marked on the plans of Windsor, about the spot where this tree stood; but we are not aware of the existence of any distinct mark of the position of this same tree at a more early date. It would be very interesting could some of our readers give information on the point. In the dell, close by, there have been found the remains of Oaks of very great antiquity, and of far more important size than that which was until lately left; and one of these, which, by its commanding size, attracted to it the story of the weird hunter, may have been the original tree. Three centuries is a long period of time, during which many changes have taken place; and it must be remembered that it was not until about the middle of last century that the knowledge of Shakspeare's plays began to be generally spread among the multitude, and when persons would be likely to search for relics associated with these marvellous works. However this may be, all will regret the fall of "Herne's Oak," if it were only on account of the care which the late Prince Consort took of this relic, which tradition certainly tells us was the identical hollow Oak in which the hunter dwelt. A portion of this celebrated tree fell from the trunk upwards of 20 years ago, and has been carefully preserved in the royal stores at Windsor Castle. Since then the tree has been fenced in with park pales, and a plate attached to it, upon which is engraved—

> There is an old tale goes, that Herne the Hunter,
> Sometime a keeper here in Windsor Forest,
> Doth all the winter time, at still midnight,
> Walk round about an Oak.—*Merry Wives of Windsor.*

Shakspeare, when he wrote the "Merry Wives of Windsor," is said to have lodged at the "Hope Inn," Frogmore, at that time known as "The Bottle on the Moor:" this inn was about 200 yards distant from the tree. Herne is said to have been one of the forest keepers in the earlier part of the reign of Queen Elizabeth; and having committed some offence that would have occasioned his dismissal from office, he formed the desperate resolution to hang himself upon this tree. Its identity as "Herne's Oak" has been disputed by many writers. In the plan of 1742, already referred to, the position of the Oak is clearly defined and marked as Falstaff's Oak. The fairies' dell has been partially filled up; but the late Prince Consort had much of the earth removed, when the Oaks, in an upright position, were discovered at the bottom of the dell, which, no doubt, will now be put into a condition to perpetuate the scene of Falstaff's distress and the pranks of the "Merry Wives of Windsor." *Builder.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Hyacinths and other Dutch bulbs, if not already got, should now be procured and potted without delay. Orange trees meant for forcing in winter for the decoration of this house should also be attended to. These and Daphnes are invaluable for winter blooming, and should be largely grown for that purpose. Also see to having plenty of Salvia splendens, which is useful for mixing among Chrysanthemums. It is a good practice to place the largest specimens of Salvias in a shady situation out of doors for a few weeks in autumn; plants so treated will be found to bloom more strongly, and last longer in beauty than others drawn up in a warm house. Look carefully after the watering of large specimen hard-wooded plants in pots, especially Heaths, which are soon injured by being either over or under-watered. Examine the specimens often and carefully, and where they are found to be dry water thoroughly, so as to moisten the whole of the ball; also look sharply after mildew on soft-wooded Heaths, and dust with sulphur directly the enemy is perceived. Get Azaleas tied into form as soon as can be done, in order to give them a neat appearance. Also attend to the staking and training of other things as leisure time can be found. Look carefully after red spider on Bossiæas, Chorozemas, and anything else found to be liable to that pest, and see that it is eradicated before the plants get disfigured. Red spider is easily got rid of by laying the affected plant on its side, and well washing the under sides of the leaves with the engine, applying the water with as much force as the foliage will bear. Repot strong growing Pelargoniums; plants that are fairly established after repotting can hardly be kept too cool. Also keep Cinerarias as cool and moist as is consistent with safety, and attend to repotting such as require it. Primulas must be also carefully attended to, in order to encourage them to make rapid growth, particularly double varieties. Keep Tree Violets clear of their great enemy, red spider, by a liberal use of the syringe, and give them plenty of manure water, which will assist in keeping them in vigorous health. Van Thol Tulips for forcing may be potted. Place them on coal ashes, cover them as recommended for Hyacinths, and early in November remove them into heat.

FORCING DEPARTMENT.

PINERIES.—Any plants which may appear to require repotting should be examined and shifted at once, if this is found necessary, in order that the roots may get hold of the fresh soil before dull weather sets in, when it will not be safe to encourage free growth. And any necessary re-arrangement of plants growing in the open bed should also be effected as soon as possible. Encourage plants expected to show fruit next January to make vigorous growth, for these should be sufficiently advanced by the beginning of November to allow of keeping them rather cool and dry, so as to check and thoroughly ripen their growth, for unless this is attended to there will be considerable risk about getting them to show fruit at that season. Plants which have been prepared for fruiting, and which it is desired to get up at once, should be encouraged with a moist warm atmosphere, keeping the soil about their roots in a healthy state as to moisture. Some have a dread of applying water at the root in the case of plants that have been kept dry for a time to check growth, and withhold it until the fruit is perceptible; but this is a mistake, causing loss of time as well as injuring the plants, for unless root action is encouraged, plants cannot be expected to start freely. If artificial treatment must be resorted to in order to get the plants to fruit at the desired time, there is no method so certain or so little injurious as keeping them cool and dry for a month, and then affording them a moist warm temperature and a brisk bottom-heat, giving sufficient water at the root to properly moisten the soil. Take off and pot, or plant out suckers at short intervals as they can be obtained of sufficient strength for that purpose.

VINERIES.—Give air freely whenever the weather is dry in houses where the ripening of the wood is an object, and if a little fire-heat is used with the air, this will be much more efficacious now than later. But except in the case of young Vines with a very gross habit it will hardly be necessary to use fire heat if the weather is dry. Before wet weather sets in we would again advise covering the borders of the early house with dry stable litter, fern, or whatever can be obtained most conveniently that will answer the purpose of keeping the border dry. Nothing answers better for this purpose than clean straw, provided the border has a proper slope from the front of the house; in that case it is easily thatched so as to throw off the wet entirely. But the straw is too valuable in most parts of the country to be used for this purpose, and wooden shutters or tarpauling would be found cheaper in the end. It will also be advisable to cover the borders of houses in which it is intended to keep ripe Grapes for any length of time, so as to prevent the soil getting saturated about the roots. Look over ripe Grapes frequently, particularly in damp weather, cutting out any tainted berries immediately they are perceived, and keep the atmosphere as dry as possible, using gentle fires when necessary with a free circulation of air; but a warm temperature is nearly as injurious as damp, therefore use no more fire-heat than may be absolutely necessary.

FIGS.—Where any are ripening keep the atmosphere as dry as can conveniently be done, and also let the trees be on the side of dryness at the root, but avoid such a degree of drought as would be likely to injure the foliage or the bearing wood for next crop. Keep the shoots thin and neatly tied in, so as to expose them fairly to light and air, but avoid stopping at this season. Keep the atmosphere moist where the fruit is swelling, giving the foliage a good washing with the syringe frequently to prevent red spider, and give plants in pots or tubs a liberal supply of manure water.

FLOWER GARDEN AND SHRUBBERIES.

Cuttings should be carefully looked over to see that nothing has been omitted, and that a sufficient quantity of everything is in a promising state for making nice plants before winter; it should be borne in mind that things which are at all difficult to winter rooted after this season may be considerably thinned before spring, and also that they will not be sufficiently strong to furnish many cuttings for spring propagation; consequently a larger quantity than would have been necessary had the cuttings been put in earlier should be provided. But if there is a reserve stock of strong plants in pots, which is a safe practice where there is a large quantity of bedding things required, and proper convenience for growing them and propagating them in spring, these will furnish a large quantity of cuttings next March, which, as has been formerly stated, will form equally good plants by turning out time as cuttings put in now. In the case of such things as Ageratums, Heliotropes, and dwarf Lobelias, it is useless wintering young stock, as these grow so freely in heat, and are so easily propagated from soft cuttings that a few good-sized old plants which require but little room or attention in winter will furnish a very large quantity of plants by bedding-out time. Attend to the potting of cuttings sufficiently rooted, and give every after attention to these in order to get them well established. Persevere with leaf-sweeping and other routine work.

HARDY FRUIT AND KITCHEN GARDEN.

Pay every attention to getting the wood of Peaches and Apricots well ripened, by exposure, shortening, &c. Most kinds of Apples may be gathered during this and next month. Late Pears should be left on the trees while the weather continues favourable for their ripening. Prepare for planting all kinds of fruit trees, by getting the ground in good order for the different kinds. On cold stiff soils it is advisable to plant on hillocks, 1 foot or 18 inches higher than the surrounding surface. The trees will not grow so fast in consequence, and will require more attention in summer in the way of mulching, but they will form short-jointed, well ripened, fruitful wood, which is the best preventive of canker, gum, &c., and will save the labour of resorting much to root-pruning. No opportunity should now be lost for getting Potatoes that are ripe out of the ground, and stored in a dry condition. Potatoes may either be kept in narrow pits, with a little dry earth sprinkled among them, or in airy dark sheds. Before storing, however, take care to separate the bad ones, fortunately very scarce this season, from those that are sound. Use Cauliflower before it gets too large, and prepare a shed or pit to plant a quantity on the first approach of frost. French Beans may require a slight protection at night. Plant out Lettuces and Endive for spring use. If planted on the sloping sides of wide ridges they will stand better, damp being quite as destructive as frost.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Sept. 19, 1863, as observed at the Horticultural Garden

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 10	27	29.957	29.815	71	38	54.5	60	60	W.	.00
Friday 11	28	30.149	30.137	67	36	51.5	60	59½	W.	.00
Satur. 12	29	30.199	30.175	65	42	53.5	59½	59½	W.	.60
Sunday 13	●	30.205	30.125	68	36	52.0	59½	59½	W.	.00
Mon. 14	1	30.196	30.120	64	47	55.5	59	59	W.	.00
Tues. 15	2	30.179	29.995	63	48	55.5	59½	59	S.W.	.00
Wed. 16	3	30.012	29.902	71	33	52.0	59	59	W.	.00
Average.		30.142	30.051	67	40	53.5	59.5	59.3		.01

Sept. 10—Partially overcast, fine; dusky white clouds; fine; lightning at night.
— 11—Quite clear; very fine throughout; dry air.
— 12—Overcast; cloudy and fine; very fine.
— 13—Fine; very fine throughout; cool at night.
— 14—Overcast; fine; overcast.
— 15—Overcast and fine.
— 16—Slight drizzle, very fine; nearly freezing at night.
Mean temperature of the week 3½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending Sept. 26, 1863.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 20	67.0	44.0	55.5	16	0.45 in	3	5	5	4	3	7	6	4
Mon. 21	66.5	45.1	55.8	19	0.50	2	5	6	2	6	7	7	2
Tues. 22	66.7	45.7	56.2	18	0.89	1	4	9	1	6	10	5	2
Wed. 23	69.1	46.4	57.7	17	1.21	—	6	8	2	6	9	5	1
Thurs. 24	65.7	45.1	55.4	17	0.75	2	8	3	1	5	11	6	1
Friday 25	65.7	44.0	55.8	18	0.30	2	4	3	3	6	12	6	1
Satur. 26	65.3	44.7	55.0	19	1.68	—	5	6	2	9	1	2	3

The highest temperature during the above period occurred on the 25th, 1833—therm. 82 deg.; and the lowest on the 26th, 1855—therm. 26 deg.

Notices to Correspondents.

AMERICAN WEED: *M H K.* See a leading article to-day.

DUTCH BULBS: *R T C.* What we have received from Messrs. Krelage & Co. cannot be excelled for quality. We believe they supply Messrs. Veitch.

DWARF CHINA ASTERS: *Emilia.* The finest we ever saw were raised from seed bought of Sutton & Co., and they were wonderful. You may look at them now at one of the stations on the Great Eastern Railway; but we forget which.

EVERGREENS: *G L E.* Let them alone until hot dry weather is fairly gone; say—the beginning of November.

GLADIOLUS: *Mary.* There is no question about the right pronunciation. All the vowels are short, and each is distinctly sounded. Turn to a Latin dictionary, and you will find the very word itself thus:—"Gladiolus, sword-grass, a kind of sedge."

INSECTS: *W B P.* The insects which have attacked the young Elms planted by the Corporation of Southampton are the well-known Scolytus destructor. The wound on the branch sent was not caused by that insect. You will much oblige by giving the particulars of the attack by the Scolytus. Were the young trees sound and healthy? Is there any reason to suppose that the situation where the trees were planted would render healthy trees unhealthy?—*W P.* Your pill box was of course smashed in the post, and the insect escaped. *W.*

MOSS ON LAWN: *A G.* Water it well with gas-water. The Grass may seem dead after the operation, but it will soon recover and smother the invader.

NAMES OF FRUITS: *T W R.* Peaches: 1, 2, Grosse Mignonne; 2, 4, Royal George. *W W.* Your Pear is not known; it was quite decayed at the core.‖

NAMES OF PLANTS: *Stettin.* An ill-grown morsel of Disa spatulata.—*Tunbridge Wells.* The huge mass of fungus found in a damp corner of the carpenter's shop is too young for identification. It is some Agaricus related to appendiculatus, and that is all we venture to say.—*J P D.* Quercus Phellos, not Ilex.—*B S.* Some Anomatheca; but we believe an undescribed species.——*Montreal.* 1, Clematis Flammulastrum; 2, Croton corylifolius; 3, Rousselia lappulacea; 4, Cassia domingensis. All Cuba things.——*Paxtonia.* Cuphea ocymoides we believe; native of some temperate region of America—but which is not stated.

PEACH-HOUSE: *James.* You may build a small Peach house that will answer very well on the following general plan:—Width inside, 12 feet; height of back wall, 12 feet. Front with brick-work carried up to 1 foot above the ground level. On this very low front wall place wall plate and front sashes so constructed that the rafter plate above them shall be 4 feet above the ground level. The pitch of the sloping portion of the roof will be about 34 degrees. If intended for early forcing better raise the back wall a foot higher, so as to make the pitch about 38 degrees. As for the length, you can determine that yourself, allowing a foot for every dozen of fine large Peaches you require. Fix training wires to the under side of the rafters.

PRIZE MONEY: *A Hunt.* It is certainly not usual for the officials to withhold halt the amount of a prize awarded by the judges at a flower show, when that amount is specified in the schedule. We cannot, of course, tell what the inducing circumstances may have been in the case you mention.

ROSES AND GERANIUMS: *E H.* We are obliged to make it a rule never to recommend dealers. Undoubtedly any of the great growers will supply you if you describe your wishes to them as clearly as you have done to us.

TRADE

HALLETT'S PEDIGREE NURSERY WHEAT.

MARK.

NOW READY FOR DELIVERY.

THE PEDIGREE WHEAT WAS AWARDED THE SILVER MEDAL BY THE JURORS OF THE CLASS "CEREALS FROM ALL COUNTRIES," AT THE MEETING, IN 1863, OF THE AGRICULTURAL SOCIETY OF DENMARK AT ODENSE.

The produce of 3 acres of this Wheat, grown 1862, in Essex, was sold to the miller, and realised £19 7*s.* per acre.

In September DRILL 4 Bushels on 10 acres.

NONE IS GENUINE UNLESS THE TRADE MARK IS UPON THE BAG.

Apply to FREDERIC F. HALLETT, ESQ., F.L.S., The Manor House, Brighton, Sussex.

PRICE—One Guinea a Bushel (or Seven Guineas a Quarter),

Delivered, with Printed Directions for Planting, at the Brighton Railway Station, in Bags Sewed up and Sealed, upon receipt of Cheque or Post-office Order, which must in all cases accompany the Order.

"HOW OUR WHEAT CROPS MAY BE DOUBLED," and other papers, forwarded on application, enclosing six stamps.



In every plant of Wheat, Barley, or Oats there is always ONE BEST EAR, and in every ear there is always ONE BEST GRAIN, which is that one found at the following harvest, to produce the best plant, *all* the grains having been planted in competition with each other.

The best of all the competing plants of any "family" of a cereal is ascertained by the most studious comparison of the *good* qualities they visibly present, *end of the nots of the peculiarities exhibited by each during the whole course of its growth*, such as—the rapidity with which the parent seed germinates; the manner, time, and extent of the "tillering" of the plant; the periods of its earing, blooming, and ripening; its power of withstanding disease, frost, wet, &c.; the *toughness* of its straw, and any other characteristics which are essential to forming a correct decision, and which cannot be determined by even the most careful inspection of the perfect plant.

This best plant is called "*the selection*" of the year (say 1861) in which it is thus obtained, and consists of numerous ears, containing many hundreds, and even thousands, of grains which are planted separately; those of each *ear* being kept quite distinct, as although the best grain of any plant is nearly always found to lie in its best ear, it may be otherwise, and the successive parent *ears* must be preserved. At the following harvest (1862), the best plant forms "*the selection of 1862*," and its produce is continued on the experimental ground, while that of the remaining plants furnishes the annual seed for the farm in the Autumn of 1862, and the crops are in 1863 offered to the public. Thus, the selection sold is that of 1861, or in any year that of two years before; *the latest selection, that of the year immediately preceding, is not sold, being solely employed as the home seed.* The separate ears of a plant are designated by different letters, numbers, or names—as A, Z, &c., and each, with its descendants, forms a "*family*" which may develope some valuable peculiarity.

Thus, all the "Pedigree Nursery Wheat" hitherto sold has been of a family called "A," while another family of the same Wheat known as Z having been observed to exhibit marked superiority has been continued separately, and has given a greater progress during 1862 than has been before obtained in any single year.

The original ear of the large published engraving contained up one of its sides 16 "ranks" (spikelets) of grains, while the "Z family" has produced ears of 18 "ranks," and this, without any increase in the *length* of the ear, the "notches" of the axis on which the spikelets grow being placed more closely together. In a small field of this Z family, ears with 17 "ranks" were quite common, while in other fields of the family "A," *not one such ear could be found.*

This family Z *is now for the first time* offered to the public, and is ready for delivery.

MESSRS. WAY AND EVANS, ANALYTICAL and CONSULTING CHEMISTS, receive PUPILS for the study of AGRICULTURAL and GENERAL ANALYTICAL CHEMISTRY.

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MESSRS. J. CHALMERS MORTON, Streatley, near Reading, and J. THORNHILL HARRISON, M. Inst. C.E., Frocester Court, Stonehouse, Gloucestershire, AGRICULTURAL ENGINEERS, undertake reports on the Condition of Landed Property, together with the Direction of Land Drainage, Roads, Embankments, Farm Buildings, and other works necessary for its permanent improvement.

LAND DRAINAGE, the ERECTION of FARMSTEADS, the CONSTRUCTION of ROADS, and other Works of Agricultural Improvements are undertaken by Mr. HUMBERT, Land Agent and Surveyor, of Watford, Herts, either by contract or on commission; and he will furnish estimates of cost free of charge, expenses out of pocket excepted.

Such works can be executed either under the powers of several special Acts of Parliament, with money raised by loan and paid off by instalments, or with the Landowner's own money.

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AUTUMN SESSION, 1863.

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MATHEMATICS AND SURVEYING.

W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.

DRAWING.—JAMES MILLER.

* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

AGRICULTURE.

J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
THOMAS ELLMAN, of Beddingham, Lewes—Lecture on Southdown and Short-woolled Sheep.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.
REV. GEORGE WILKINS, Wix Parsonage—Lecture on Tillage.
N.B. Mr. Wilkins will Lecture on February 9.

AGRICULTURAL CHEMISTRY.

THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.

For further particulars apply to the PRINCIPAL.

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MR. BAILEY DENTON, C.E., maintains a large staff for the execution of Land Improvements by a commission of 5*s.* per acre for Under Drainage, and a fixed charge for Outfall and other works.

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For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster S.W.

SMITHFIELD CLUB FAT CATTLE SHOW, 1863.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY AFTERNOON, December 7, and four following days.

The Prizes now offered consist of 1825*l.* in money; 60 Silver Medals; Two Silver Cups, value 40*l.* each, for Cattle; Three Silver Cups, value 20*l.* each, for Sheep; and a Gold Medal for Pigs; also a Butcher's Silver Cup, value 10*l.*

There are now separate Classes for Eleven distinct Breeds of Cattle and Ten distinct Breeds of Sheep, and Four Classes for Pigs of different ages.

The Entries for LIVE STOCK CLOSE on NOVEMBER 2.

The Entries for AGRICULTURAL IMPLEMENTS, &c., CLOSE on OCTOBER 1.

Prize Sheets and Printed Forms of Certificates, with full particulars, can be obtained on application to

Mr. DAVID PULLEN, Assistant Secretary,
At the Office of the Honorary Secretary,
Corner of Half Moon Street, Piccadilly, London, W.

N.B.—Applications for Prize Sheets and Forms of Certificates must be addressed to the ASSISTANT SECRETARY as above, and all letters must bear outside the words "SMITHFIELD CLUB."

SMITHFIELD CLUB FAT CATTLE SHOW, 1863.
IMPLEMENT DEPARTMENT.

The LAST DAY for receiving Entries for the Implement Department of the Show is Thursday, OCTOBER 1, 1863.

Forms of Certificates, and all information can be obtained of

Mr. DAVID PULLEN, Assistant Secretary.
Corner of Half Moon Street, Piccadilly, London, W.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 19, 1863.

HOW IS A MAN TO LEARN FARMING?—Just as he would acquire any other art or profession—*by serving an apprenticeship to it.* This is really the only safe answer to the question.

If agricultural education be not practical, neither is it profitable. Of course we do not call it useless—no addition to mental wealth is ever altogether useless—but it stops short of the point where, in ordinary language, it can be turned to *use*. What do young men go to Colleges of Agriculture for?—It is that they may there learn how to make a livelihood and income by farming. But if the education they receive be not practical, it will not enable them to reach this end. The student of Agriculture may have acquired a knowledge of the general principles involved in his profession; but, until he has learned the art, this knowledge cannot guide aright. And a graduate of either the Highland Society's examinations or those of the Royal Agricultural College, who has not added practical knowledge to his sciences, will only bring his diploma to contempt. These, it may be said, are mere assertions; but examples in abundance of the insufficiency of mere general and scientific knowledge can be cited in illustration of their accuracy.

No one is less likely than the present writer to contend for a regard to Agriculture exclusively as a money-making routine of operations. Let us admit it cordially and gratefully as "the art of all the Sciences,"—affording in its intelligent prosecution scope for the exercise and enjoyment of the whole nature of man. The farm is no mere field for dull routine—it is the platform on which the best minds of the day are successfully employing their highest energies. We must not, however, forget that Agriculture *is* a routine of operations; and unless a man knows how each is to be performed he is not an Agriculturist. Instruction

in the details of farm practice is thus an essential part of agricultural education; and unless our agricultural colleges take jealous and especial care of this, the agricultural degree which they confer upon their finished students will prove agriculturally worthless.

Suppose the case, which is not impossible unless this care be taken, of a farmer writing "M. R. A. C." after his name who cannot "make his rent!" That would be an awkward thing for the Institution which had passed him! *It* would of course become the laughing stock of those whose respect it especially desires to gain. And what would be the effect on *him*?—where, the pride with which his diploma was received?

"You professed," we imagine him addressing the authorities, "to have done all that your Institution could for me. I was competent in your judgment as an agriculturist. I had answered all your questions, and you made me a member of your body; and sent me out with your diploma, prepared to take a farm, and expecting, as I believed you, to prosper on it.—I found myself incompetent. Your chemistry and botany, and your agricultural lectures were insufficient. I had not learnt from you how nor when to give my orders either in the field or in the homestead, nor did I know when they had been properly and sufficiently obeyed. Your diploma has been worthless to me. My confidence in it has resulted in all this loss and waste.——My son shall seek *his* qualifications as an agriculturist at the hands of a working farmer. He shall never blame me for sending him where only the sciences are taught, where practical instruction is considered comparatively unimportant, or in any degree inferior in rank or value; where the result on every student's future farm at harvest time is not kept in view as the end and test of his instructions, by every teacher in the place,"—And this is not the language of angry disappointment. It is, we firmly believe, the language of true and sober judgment.

The man whose agricultural instructions we should seek must be *first* an energetic and successful farmer; and next he must have such a knowledge of the sciences as enables him to recognise in every fact he witnesses upon his farm the illustration of a general law. What a magnificent agency for Agricultural education must that Institution be where every phase and side of this man's professional ability and character is especially exhibited by a separate professor—where every item of the qualifications he possesses is represented by a teacher who has directed his life-long attention to just that particular point—and where over all these is the commanding harmonising influence of the Christian gentleman. In such an Institution agricultural students are sure in every way to prosper, and genuine agricultural education is certain to be given and received.

But this will never be unless here, as in the instance of our representative teacher, practical agriculture shall occupy the leading place, and successful farm management shall prove the efficiency of the practical instruction given.

If instruction in the sciences in such an Institution be regarded as the end for which it was established—if proficiency in them alone gives rank, consideration, and position—if sound practical intelligence and ability in the field (the leading qualification of our representative teacher) shall come to be regarded as conferring only second rate position and inferior rank—if the farm and farming shall ever come to occupy the second place in the estimation of the teachers and the pupils—if the place shall ever thus *degenerate*, as we should say, to be either a lounge or a gymnasium, as it may happen, for mere students of the sciences, then its agricultural influence and value will have gone; it will certainly and quickly fall. And in the interests of English agriculture, which will want something useful in its place, we confidently say—*the sooner the better.*

THE wet weather of the last few weeks gives great importance to suggested methods by which DAMP GRAIN may be HARVESTED, and we accordingly reproduce a paragraph published some years ago. Mr. GOULD, of AMBERD, near Taunton, had written on this subject as follows:—"My Wheat was reaped on Wednesday, the 9th of August. On Thursday it rained all day, the Wheat being shocked; Friday was showery; Saturday was very fine, and I made my men put the sheaves with the ears inwards in a circle, and on those to lay others, diminishing the circle until the whole formed a conical mow containing about a load; the top was surmounted by a cap of reed. This morning, Aug. 21, after a very rainy and stormy night, I pulled out one of the stalks with the ear, to show that even in this most precarious season corn may be preserved uninjured. Most of the corn in this neighbourhood is in a sad state."

This is one plan: another, which we regard as preferable, was suggested some years ago by Mr. HANNAM, of North Deighton. He recommends the placing of two parallel rows of hurdles 3 feet apart, as long as convenient, erect on some dry piece of land. He then advises to build sheaves one on the other, laid horizontally, ears inwards, to the hurdles, forming a row sheaf-long wide on each side of them. He builds these sheaves up to the height of the hurdles, and then covers the interval and stooks a row of sheaves all along over the top.

There need not be an ear that is not in contact with the air, on this plan; for the tunnel is open from end to end, and the sheaves are all placed with their heads to it, while the top sheaves and the row of stooked sheaves overhead hinder the access of rain. There is nowhere sufficient bulk of corn to heat, though it may be damp; nor is there sufficient weight to hinder the lowest sheaves from getting rapidly dry. Of course it will be advisable to lay the first sheaves not immediately on the land, but against the hurdles.

——WE are glad to announce that on Wednesday next, September 23, the first of a short course of lectures on Land Drainage will be given at the Royal Agricultural College, Cirencester, by Mr. BAILEY DENTON, M. Inst. C.E. He thus joins a number of practical and distinguished men who have wished by their gratuitous services both to further the objects of that Institution during the coming session, and to express their confidence in its present management.

—— THE entire herd of Short-horns bred by Mr. JOHN LANE, of Barton Mills, near Cirencester, will, on Thursday, September 24th, be sold by auction by Mr. STRAFFORD. Eleven Short-horns belonging to Mr. E. BOWLY, of Siddington House, will also be disposed of at the same time.

Mr. LANE'S herd has obtained 33 prizes in 1862 and during the current year, at the Shows of the Royal Agricultural Society, the Bath and West of England Agricultural Society, and the provincial and local agricultural shows in Worcestershire, Warwickshire, and Gloucestershire.

THE ROYAL AGRICULTURAL COLLEGE.

THE REV. GEORGE WILKINS, of Wix, near Manningtree, delivered a lecture to the students of the Royal Agricultural College on Wednesday of last week. We make the following extracts from it:—

Agricultural Education.—"Gentlemen, I hope the time is passing away in which it has been considered, and almost universally, that the practice of agriculture was the simplest and easiest in the world, and that all that any one required to become a proficient in it was to be the son of a farmer, who was himself the son of a farmer, and he again the son of a farmer, or the nephew, or cousin, or some relative or other, either near or remote, and being such, although he could not understand the principles upon which any operation ought to be conducted, whether chemical or mechanical—yet such a man, I repeat, if he were a near or distant relative of a farmer, that is, born of a pure farming stock, he would be considered quite fit to take and manage a farm for himself, or to be engaged at a rather high salary to manage that of some other man.

"Now, I grant that farmers are by nature like other men, and I know from experience that as a body they are a very excellent race—perhaps as men and neighbours none are better, but still I cannot think that their having been born of farming parents alone, as has hitherto been generally thought, can be a sufficient qualification for them to become skilful, practical and scientific farmers, though I have read, and most likely you, gentlemen, have read and heard the same, that the seventh sons of seventh sons are all born skilful, practical and scientific doctors.

"But as the matter is of the first importance, and as a man is universally considered to have had all the preparation requisite for the making of him a farmer if his father and forefathers have been such, let us briefly examine how this reasoning applies to men whose fathers and forefathers were of other professions, or arts, or trades likewise. For example, as to barristers, because some men are deeply learned in law, or are keen and skilful special pleaders, and who become such by long and ardent and unwearied study, and who are deeply learned also in literature and mathematical knowledge, does it follow, or is there one example of the kind, that when such men beget sons, they must, as a matter of course, inherit all the acquired and natural knowledge and qualifications of their fathers? Then, again, as to physicians, because sons of physicians see their fathers take scraps of paper and write prescriptions upon them for the mitigation or cure of diseases, does it follow again that those sons, from no more preparation than this, are innately qualified to prescribe on scraps of paper also remedies for diseases in the same way? No, unless they are the seventh sons of seventh sons—a prolificness even in doctors which we may safely conclude has never in any one instance taken place, nor among any other race of men.

"But, again, the sons of skilful surgeons may witness their fathers amputating limbs, operating upon cataracts, or for the stone, or cutting out cancers from the breast; but unless those sons should do much more than merely witnessing these delicate and dangerous operations being performed, should they take their saws and bandages and knives in hand to do the same, their having been the sons of skilful surgeons would avail them nothing, for in all probability, like Doctor Sangrado's patients, every one of theirs would die under their hands. And so we might go through every other profession, art, and trade, and the conclusion would be the same—the being begotten by men of the same professions, arts, or trades, would avail the offspring but little or nothing, nor could the sons arrive at the same state of eminence as their fathers had, unless they had gone through the same kind of training that their fathers had under tutors and professors properly qualified to teach them.

"Now, farming, to understand even the little that is now known of it, requires practice in the homestead and field, properly to perform the operations which are done there, and in the laboratory a knowledge of vegetable life, and the proper kinds of pabula that each kind of crop requires, whether grain crops or roots, and the nature and composition of the soil in which the crops are to be grown, must also be obtained—but can these, the mere rudiments of the art, be acquired by merely looking at the operations of those who had never learnt them, and were as ignorant of them as themselves? Impossible.

"It is true that to a certain extent land can be cultivated and crops grown by unskilful men, or by men who know but little or nothing of the sciences upon which a uniformity of success depends; and hence, from a lack of this necessary knowledge, the continual failures of crops we hear of, and complaints against the seasons, &c; which in reality are nothing less than murmurings against Providence itself, the real faults (perhaps nine times out of ten) being in those who complain."

Mr. Wilkins then referred to the services rendered to agriculture by men not born and bred as practical farmers, in illustration of the above remarks, naming Mr. Alderman Mechi, Mr. Hewitt Davis, and Mr. Hallett.

On Tillage Operations and Thin Seeding.—"Of Mr. Alderman Mechi's operations in tillage, and deep draining which is a part of tillage, and more rational seeding, little or nothing can be said to add to the world-wide reputation he has justly gained, and which will doubtless continue to increase in the minds of men capable of appreciating excellences like his, coupled with the names of Tusser and Tull, wherever the English language shall be known, and as long as it shall endure. But of Mr. Davis and Mr. Hallett a little more must be said, and first as to Mr. Davis, who some years since informed me that before he became a farmer he visited the market gardens round London to see how matters were carried on there, considering that a farm, however large, ought to resemble a well cultivated garden; and there in those gardens he learned how really to cultivate, and to run counter to much of the farming operations in common practice, namely, to plough two or three times as deep, to thoroughly comminute his soils to those depths, and to put into them less than half the usual quantities of seed for every kind of crops he grew, and I myself frequently saw crops of all kinds of cereals, Pulse, and roots, on the several farms in his occupation, for luxuriance and abundance and quality, taking them for all in all, among the very best I have ever seen grow: and so free from weeds they were, or of anything for which he himself did not sow the seed, that on one occasion, on going over a farm in his cultivation near Croydon, on looking for some weeds in a magnificent crop of Wheat, as we read a Dutch Embassy did in fields of corn in China, and for the same purpose, and with the same result, I could not find a single weed; and this was the more remarkable and pleasing because practical farmers tell us that thin-seeding cannot be adopted generally, for, if it were, the corn crops would be smothered with weeds of all kinds. Of the quantity of Wheat put in per acre I think the average was almost a bushel, and of Barley a bushel and a half, and I remember this very correctly, because one of Mr. Davis's very intelligent farming bailiffs told me that the bushel and a half put the seed too thick in the rows, and that 4 or 5 pecks would have produced better and larger crops.

"But what I wish to draw particular attention to is this—Mr Davis, copying from the gardeners, put in his Peas in rows 27 and 30 inches asunder, whilst you know farmers put in theirs in rows 6 or 8 inches asunder only. On one occasion I went with several farmers to visit farms of his at Shirley, and the farm was a portion of Lord Eldon's Park; and another gentleman had the adjoining part to Mr. Davis's, and some iron railings divided them. It so happened that both gentlemen had a large plot of Peas, the iron railings alone separating them. Now, both sowed the same kind of Peas, and both put his seed in at the same time, Mr. Davis adopting the plan of gardeners, and cultivated his land and put in his seed as they did 27 inches and 2½ feet asunder in the rows; and the other gentleman cultivated his side the railing on the plan of the practical farmers, putting in four or five times the number of rows that Mr. Davis did, and three times the quantity of seed: and what were the results? Most remarkable they were, and observe scores of gentlemen saw them as well as myself; Mr. Davis's Peas were acknowledged by all to have been the finest, the pods the largest, and fullest they had ever seen, and I may add that I ever saw; whilst on the other side the iron railing, as if the iron had acted as a spell, the Peas were entirely—I repeat the] word entirely—destroyed by lice; and as I find by an advertisement that Mr. Davis will have the pleasure of giving a lecture to you, I hope some gentlemen will get the account also from his own mouth in confirmation of what I state.

"I have also several other cases in which men from gardeners have become extensive farmers, and they are all among the most intelligent and best cultivators I know; they are also comparatively thin seeders, and their crops both of corn and roots are every year good. In one case, taking them for all in all, they are the best I ever saw, of Wheat 12, 13, and 14 coombs an acre, and everything else in proportion; and the merchant who purchases this man's Wheat told me that he always gave higher prices for it than for any other farmer's, because it was heavier and finer, and of course made the most and best flour. But one more word about the growing of Peas. Some years ago, like Mr. Davis, when I had an opportunity I delighted to go into the market gardens; and on one occasion, on going into a field of Peas in the spring, the rows of which were 30 inches apart, and on my remarking to the proprietor that a farmer would have five rows where he had but one—"Yes," he replied, "the farmer would, but then he himself gave 4*l.* an acre for his land, whilst the farmer gave but about 30*s.*; and therefore the farmer could afford to grow straw, whilst he himself must grow Peas or he could not pay his rent." One remark I will make, also, here, and that is, that should real science ever get into field cultivation, lice on Beans and Peas will be banished from our fields, as they are from gardens, as they never appear until disease has first attacked the crop, and this from bad cultivation and over seeding; and then in such cases, by a universal law of nature, both animal and vegetable, animalcules are bred to put what they feed upon as fast as possible out of the way, to make way for vigorous and healthy subjects to follow, whether of an animal or vegetable nature."

Mr. Hallett.—"With reference to the system adopted and practised by Mr. Hallett, the foundation of it being that adopted by Nature herself throughout all her operations, and practised by the ancients, as we learn from Virgil, who set Nature before them in all they did, I should hope that he will ultimately succeed, and more especially as thin-seeding and thorough cultivation

are the bases of all his operations, and as the acting upon them whether by himself or others can alone secure success. I have seen remarkably fine samples of Wheat in the ear of Mr. Hallett's growing, and such as could not be produced except by the mode of culture and seeding which he has adopted."

Mr. Wilkins then referred to the defects of English agriculture as proved by its inability to feed our population:—

A Comparison of the National produce and our importation of Food—"I must trespass upon you a little further for a brief space, whilst I express my sentiments upon a subject which I consider to be of the highest importance that can engage the thoughts of Englishmen at the present day, that is the enormous importations of food of all kinds, which are now required for the support of our country; of grain alone I read from 20 to 24,000,000 of quarters annually; and of meat, live and dead, and rice, bacon, cheese, butter, eggs, poultry, and game, and I know not what besides, in proportions equally as great.

"Nor is this more than half the evil; for our farmers now acknowledge that they cannot grow the crops of grain they wish without the aid of guanos, foreign bones, and other foreign fertilisers; nor, they also inform us, and experience proves the truth of what they say, can they feed their cattle, either bullocks or sheep, without the aid of foreign-made oil-cake, Maize, Locust, Beans, and anything else of foreign produce which merchants can import for them. Surely this is an awful state of things, and it proves in my opinion that British agriculture has not made the progress it ought. Nay, there are indications that it has rather retrograded, and to an alarming extent, and what I think is a proof of this is that during our long and severe continental war, the importations of corn were as nothing compared to what they are now; and of live and dead meat, I believe there was none; and as for guanos, they were not known, nor any of the stimulants under the name of guanos. But it is now certain that with all the foreign guanos, bone dust, home-compounded guanos, &c., and the increase and improvement of machinery, and the vast strides made in chemical as well as in mechanical science, Great Britain might nearly as well be a mere rock, for I read it as stated on good authority that the whole agricultural productions of it do not annually feed the population for more than 18 or 20 weeks in a year out of the 52.

"Nor can the increase of population account for the necessity of this enormous increase in the importations of food for the support of it, unprecedentedly great as the increase of the population has been, for the importations of food during that long continental war with the first French Emperor were comparatively nothing to what they are now, for they now amount, it is said, to two thirds more in quantity than is the produce of our own country. And as much of both the home produced grain and roots is grown by the aid of imported guanos, and the dung of animals fed upon imported oil-cake, Locust Beans, Maize, &c., this one third can hardly, with propriety of language, be really called the production of our own country.

"The United Kingdom of Great Britain therefore presents such an anomaly as was never before known in the world, in any age or country; the wealthiest and most powerful nation of the earth, and yet the most dependent for the very necessaries of life of every kind, besides the luxuries or non necessaries of life, upon the will of foreigners for 30 weeks out of every year—yes, upon the will of foreigners, for were those foreigners to combine so as to shut their ports against us, or to refuse to supply us with food, this in one single year would depopulate the whole land."

The principles on which a more perfect system of agriculture must be founded were then discussed, and a comparison drawn between ancient and modern practices.

Ancient Agriculture.—"Egypt, China, and Japan, both in ancient and modern times, had populations in proportion to the extents of those countries greater than any of the more modern nations of Europe possess at the present time, and yet all were supported by the produce of those countries alone without importations from foreign lands; and the same, I believe, may be said of Persia, Palestine, Greece, and nearly so of Rome; and the accounts we have lately received of the modern husbandry of China and Japan show clearly, that with all our superior chemical and mechanical science, those countries are much before us in the art of tillage, seeding, and in the knowledge of what are the real pabula of plants.

"Nay, further, the extracting the volatile alkali, the food of plants, from the urine of cattle, was known to the priests of the Temple of Jupiter Ammon, according to Pliny, 3600 years back, and the alkali obtained the name of ammonia from the place at which it was made, the name it has retained to the present day.

"It is quite clear to me, that all those ancient nations understood and practised the essentials of husbandry, namely, tillage, seeding, and the pubula to be given to plants, and better than our modern husbandmen do, and the reason is clear—because studied and practised by the wisest and chiefest of the philosophers of those times. Thus, in Palestine, Elisha was ploughing in his field with 12 yoke of oxen and all before him, and himself with the 12th, when the Prophet Elijah passed by him and cast his mantle upon him.

"Xenophon, the learned and philosophical Greek, also understood agriculture so well that he taught it to Socrates, the most celebrated man of his country, and the work he wrote on agriculture and domestic affairs of all kinds has been to me the most instructive on those arts of any I have ever read.

"The Bucolics of Virgil also, which are familiar to most people, and the writings of Theocritus and Columella, all show that their countrymen were as much before us in the knowledge and practice of agriculture as others of their countrymen were in other arts.

"And all the really useful knowledge on agriculture we have has been obtained from the books of the ancients, though not directly, but through the writings of Tusser and Tull and a few others, who were fine classical scholars. The ancient monks, also being classical scholars, likewise have left indisputable evidences that they may probably be classed among the best farmers this country has possessed—that they knew more about the qualities of soils and how to cultivate them than the most skilful of our modern farmers do."

Mr. Wilkins then discussed the subject with which his name is more immediately connected, and referred at some length to the reasons on which he founds his arguments upon it.

Thin Seeding.—"My own doings in this way have been necessarily small, but I believe no man in England has grown finer crops than I have, and I have grown Wheat after Wheat for four years in succession on the same land, and then Barley, and yet I never used more than 2 pecks an acre of Wheat and 2½ of Barley; I have grown nearly 8 quarters of as fine Barley as ever was grown, and have averaged 44 bushels of Wheat an acre, or 176 bushels in four years, and never put in more than 2 pecks of seed an acre, and sometimes a little with one peck an acre only.

It is not the *quantity* of seed, but the *manner* in which it is put into the ground, on which success depends. For my part were a prize offered for the largest quantity of the finest grain of either Wheat, or Barley, or Oats, and I were to contend for it, I would not use more than 2 pecks of any kind of Wheat an acre, and of very long-strawed kinds not so much; nor would I use more than 2½ pecks an acre of either Barley or Oats.

"But before I use the seed of any grain, I ascertain, as I can do in 5 or 10 minutes, how many grains there are in a bushel. I do this because of Wheat, for example, some seeds are nearly twice as large as others, and the same of Barley and Oats; and because I stint the number of seeds to given quantities of land, putting them in one by one, as Xenophon, the learned Greek, describes they should be to his disciple Socrates. The Wheat and Barley and Oats I show you to-day were all grown from single grains put in with the drill I invented and made, the action of which I will explain to you; and I would allow you to blind-fold and lead me, and I would pull up root after root, having 2000-fold, and I have had more than 4000-fold, and all from single grains. I put the seed in with my drill, and there was no mystery about it, only I put it in as all nature, and, I think, also common sense, teaches it should be put in, seed by seed.

"If men would only reflect and exercise the brains they are supplied with, it would be impossible for them to put their 5½ bushels an acre or 45 grains of seed Barley, and their 30 or 35 grains of Wheat on every square foot of ground, as very many do; and some even advertise their doings as if they were wonderful exploits; whereas, if it were not common, the man who should use those numbers of seeds would be considered to be insane, and probably put under the care of a keeper, or into confinement.

"And one word with reference to the beards on Barley; they are exquisitely serrated, and the object of their serratures is to enable them to travel when the ears fall to the ground, so that when they sow themselves to continue their species they travel from each other, so that no two grains should be together, and I have seen them when formed into a circle 3, 4, or 5 inches in diameter in this way, or perhaps more. The way they do it is this: when quite dry the beards extend in length like as does a string, and when wet or damp they contract, but in consequence of the serratures they can only contract one way, and that is to draw the grain from the ear, and this repeated thinly sows the grains.

"Mr. President, Messrs. Professors, Ladies and Gentlemen, and especially Students, I thank you very sincerely for the attention you have all given me during the whole time I have been delivering my very long lecture. I acknowledge my views may seem extreme, but they have been long and anxiously reflected upon by me, and I will venture to state, that should you be induced to give them a trial, if only on a small scale at a time, I shall consider that the time you have so attentively bestowed upon me has not been spent in vain. I again, Gentlemen Students, thank you, and I wish you all success through a long life in all your farming operations, and may you all feel the importance of deep and thorough draining, deep and thorough cultivation, and of seeding your lands as Nature taught all ancient civilised nations, and as, we learn, the modern Chinese and Japanese are now seeding theirs, that is, rationally."

LABOURERS' COTTAGES.

THE following are extracts from recent correspondence in the *Times* on this subject. "S. G. O." writes as follows:—

"I am tired of that cuckoo cry, 'My dear fellow, cottages never pay; do you expect us to throw our money away?' Does the attic of the housemaid pay, the bed-room of the butler or the footman pay? Does the lodge of the keeper pay? The conservatory, the peach-houses, the stables, &c.,—do these brick-and-mortar creations pay rent, return cash, in return for cash expended in their erection?

"My dear lord or squire, you can't have your 'Mary Duster,' 'Mr. Coolwine,' 'James,' or that six-foot-two civil 'Dick Partridge,' unless you house them, brick and glaze and chimney-pot them. Your dogs must have kennels, your horses stables, your pigs styes. Your boy buys a tame squirrel for 1s.; you will find 3s. 6d. charged in Furnace's bill for the cage. When you gave Ned permission to buy the beast, did you expect it would contemplate quarter-day as it cracked its nuts?

"The machinery of the farm, the dead plant, requires to be housed, or it rusts, becomes so deteriorated as soon to be of little use. If labourers were subterranean dwellers, their 'earths' would occupy a good deal of soil at a loss, for I presume the ground rents would be difficult to collect. If they were dwellers on tree tops, the timber occupied would be timber scarcely saleable. I never yet could see why landlords expect to get human labour on different terms from that of horse and ox work; it must be housed because it is human, the housing ought not to be mere stabling, for human nature is our common nature; the peer or prince is, after all, only one of the labourer species, who by the certainty of inheritance, or the good chances of wealthy endowment, has obtained the difference in position.

"Forced, then, to regard labourers as of our own species, we cannot be blind to the fact that they are men of like—in degree, feelings, passions, as ourselves. We know that out of the wages they earn they could not live healthily, and pay real interest for the capital the houses in which alone they can live decently would cost. An estate must be peopled to be prosperous, as its fields must be cleared of weeds to bear corn. Those fields and farms require men of capital, men of intelligence to cultivate them; these must have the dwellings appropriate to their position. Never did England show to any foreigner anything more astonishing than the dwellings of the tenantry and their farm buildings as year by year they crop up on most landed estates. But, sir, I assert that they are not too good for the men who embark their capital in these large holdings. It may give offence to write it, but it is undeniable there is no class in this land which has more rapidly advanced in every respect during the last 50 years than the tenant farmers of England; they are fast acquiring a position which will make them most powerful for good or for evil, in spheres of national work, in which their forefathers would never have dreamt of taking a part; they are, the majority of them, as disgusted as myself at the condition of the labouring classes, on whom they are so dependent. They say, in all truth, that not only are the majority of the cottages utterly unfit for human beings, but even of these there are not enough; they will admit that where cottages are in their own hands they are forced to crowd them, or allow them to be crowded, simply because they know not how else to obtain the presence on the spot of the labour they require."

Mr. Holland, M.P., quotes a leading article from the *Times* to the following effect:—

"A cottage has all the room that is wanted for a family, but the occupier chooses to add to his weekly income by taking in lodgers. He thus deprives his family of the accommodation, &c. . . . What is the landlord to do, then? Is he to put his veto on this arrangement, and prevent the labourer from getting his extra shilling?"

He then adds:—

"The enclosed 'form of letting' is the one I have had in practice here for many years, and all concerned have found this system of letting work effectively and satisfactorily. The form is in duplicate. Both lessor and lessee sign each duplicate: one duplicate is retained by the landlord, the other is handed over to the tenant.

"I never refuse permission to take in a lodger without there being grave cause for doing so, and I believe that the labourers are grateful for an arrangement which gives them a *selected* lodger without any undue interference being exercised as regards their domestic comfort. ——

"I agree to take the cottage from Mr. Holland, at the yearly rent of upon the following conditions—viz., that the rent shall be paid quarterly, and that I will give up the cottage to Mr. Holland on receiving a quarter's notice to that effect. But if I take in a lodger without Mr. Holland's consent, I render myself liable to quit at any time on one month's notice being given me."

DISEASED MEAT.

[The following is an abridgment of a report which has appeared in the Edinburgh papers, of the discussion on this subject which recently took place before the Edinburgh Town Council.]

TREASURER CURROR said:—The public of Edinburgh is entitled, by Acts of Parliament, to have a thorough inspection of all flesh-meat before it leaves the Slaughter houses, to the effect that the flesh of all diseased animals shall be condemned and destroyed on the premises, and none but sound and wholesome flesh fit for human food, be permitted to pass from the slaughter-houses to the market; and also a similar thorough inspection of all dead flesh brought into the town, to the effect that all flesh of diseased animals shall be condemned and destroyed at the sight of a competent inspector appointed by the Council. It is not unreasonable to suppose that between the two inspectors armed with these powers of statutes and by-laws, the traffic in diseased carcases would be effectually kept down. But not so. As to the shambles, a statistical table applicable to the year to July 1862, is given in the fifth report of the medical officer to the Privy Council, in which it is stated that in 88 dairies in Edinburgh the average number of cows kept were 1839. Of these 1075 were sold diseased during that year—791 to butchers, and slaughtered for human food, and 284 to feed pigs, destined themselves to become human food. If any faith is to be placed in the books kept at the shambles, and so far as the entries by the gatekeepers of apparently diseased carcases are concerned, they seem faithfully and accurately kept, and to be worthy of credit as evidence, matters are no better in 1862-63, but rather worse. In the year 1862, 1059 apparently diseased animals entered the slaughter-houses, of which 875 went out as human food, and 183 to feed the pigs; and in the month of March last, 91 apparently diseased carcases entered—52 of the number being carried in dead; and all went out as human food, except 18 to the pigs. Disease was so palpable in these 1059 carcases as to be apparent to the gatekeepers in passing in at the gates. Many less palpable cases may have passed in without the gatekeepers' observation; hence these 1059 cannot be accepted as the whole number of diseased carcases entering the shambles in 1862. 1059 is said to be a very small proportion of the animals slaughtered that year. But it gives about three diseased carcases to this city per day; and I apprehend that is a proportion high enough to call for the immediate exercise by this Council of all the powers they have for putting down traffic in diseased carcases. A complaint was recently made that diseased meat was passed freely into and out of the shambles, and an investigation was made, when the following facts were elicited:—

That animals are brought in and the carcases thereof taken out of the shambles without ever having been seen by the inspector; that animals apparently diseased—entered as such in the "apparently diseased" book—are slaughtered and the carcases removed without having been seen by the inspector; that animals apparently diseased — entered as such in the "apparently diseased" book—have been inspected by the inspector and condemned, and the sentence of condemnation recorded in the book, but the sentence erased, and sound and marketable substituted, written by the inspector on the erasure; that entries of apparently diseased animals in the book (which animals the inspector has found to be sound and marketable, and has so recorded the fact) have been erased, and sound and marketable superinduced; that an entry of an animal apparently diseased, entered as such in the books, has been erased entirely report, and all, if ever reported on; that apparently diseased carcases, entered as such in the books, have been passed by the shambles inspector, been exposed in the market, and there condemned at the instance of the inspector and at the sight of the magistrates; that there are booths in the shamble the doors of which this inspector, appointed to search for diseased flesh, does not cross for weeks; and that diseased meat—unsound and unmarketable—does get into and out of the shambles for want of inspection.

Major MAIR seconded Mr. Curror's motion, saying, it was very hard for a man who could only spend a small portion of money on meat that he should pay for unwholesome food, and pay for it nearly the same price as for wholesome.

Mr. FORD said: The reckless assertions they sometimes read in the newspapers were bringing odium on a most respectable class of our fellow-citizens. He thought it their duty as a Town Council to shed a little common-sense on the subject. He was sure that the Lord Provost would say that the way to get business, to keep business, and to get money was not by searching land and sea for inferior articles to sell, but by doing the reverse, searching land and sea to get the best articles

possible to sell. If that was a principle in business it must prevail in the butcher or flesher trade as in any other trade. They all knew that diseased cattle were slaughtered in Edinburgh. He had observed a letter in the newspapers that morning from a respectable firm—Messrs. John Swan & Sons, cattle agents. They gave some statistics from the slaughter-house books, and with reference to 1862 they state that in that year 21,722 cattle were entered in the Edinburgh slaughter-house books. Of that number 920 were apparently diseased, and out of that 920, 148 were condemned. That they had diseased animals they could not deny, for these figures showed that they had 148 out of the 21,722 cattle entered in the Edinburgh slaughter-house books in 1862 diseased. He quite agreed, however, with Treasurer Curror, that if they could by supervision prevent even that 148 from entering the slaughter-houses, they should do it.

Mr. BRYSON took a considerable amount of interest last year in this subject, he went through a considerable number of dairies, where he saw cattle that were scarcely able to stand. These cattle were milked. In one instance he observed that the milk was not allowed to go in amongst the other, but in other cases he saw it mixed. He happened to ask a dairy-woman what she was to do with a cow which was likely to die next morning. She said she would sell it to a person who fed pigs. He went to the house of the party referred to, and there he saw the carcases of 20 cows in the process of being boiled down to feed the pigs. He saw, however, that they were not all boiled down, but that a great deal of beef was kept aside. He was told that these pieces were kept for another boiling. On going to the inspector, he told him that these pieces found their way into the city of Edinburgh, and instead of being supplied to the poor they were made into good salt rounds for supplying the rich.

After some further conversation, it was agreed to remit the matter back to the Market Committee.

DAIRY MANAGEMENT.

AT a recent meeting of the Eye Farmers' Club the following paper was read by Mr. Horn:—What is the Breed of Cows best adapted for Dairy purposes?

It will be within our province this evening to review only those most especially that belong to the class of dairy cows, which we may classify as follows—the Yorkshire, Ayrshire, Alderney, and Suffolk.

The Yorkshire is the largest and most numerous, we therefore take her first. The Yorkshire cow, as we term her, is descended from the Holderness crossed with the Durham bull, but a different animal to the Teeswater or high bred Short-horn. They are held in high estimation in and around London for the quantity of milk they yield; and, if well kept, at the same time making flesh for the butcher. An average cow of this breed, for several months after calving, yields 20 quarts a day; while some have been known to yield from 30 to 40 for months together. Some cows are supposed to yield from 4000 to 5000 during the year. It must be borne in mind that the food is of the most forcing description for the production of milk, without regard to quality—brewers' grains being a *sine quâ non*. These cows form all the dairies of the midland counties; their milk is not rich in cream, yet on rich pastures or high feeding this is more than counter-balanced in quantity, and making beef at the same time, as we have the testimony of Mr. Horsfall, Burley Hall, Yorkshire, who so explicitly described his mode of management in his papers to the Royal Society's Journal.

I next advert to the Ayrshire; and I believe, taken as a breed, they are the most select as to milking properties. Ayrshire being a dairy county, the breed has been cultivated with the greatest care, and selected by distinguishing points known only to the initiated; and I hesitate not to state that we have no other class of cows, taken as a breed, that will produce the quantity of milk for food consumed. Hence the high estimation in which they are held in cheese-making districts. I shall give you one illustration. We have one small cow in our dairy (of said breed) which is called Victoria, now well up in her teens, for one season (pasture in the meadows only), for three months she averaged 26 quarts a day. We have records of much greater quantities than this, but she was a small cow, then only about 56 stones imperial live weight; so that every 27 or 28 days she produced her entire weight in milk; in short, she may be termed a milking machine. Even now, when in full profit, her bag seems as large as her body.

I now come to the Alderney or Channel Island cows, which in their own island are most valuable, both for the quantity and quality of butter they produce. They are not much in favour in the eastern counties, in consequence of the high prices which have to be paid for them when in profit, and their comparative small value to the butcher; and, moreover, our sharp east winds rather tell on their delicate constitution. When kept, it is mostly by private gentlemen for family use. They yield a fair quantity of milk, which is very rich in cream, and produces excellent butter. In their own island they are reported to yield from 10 to 12 lb. of butter a week during the summer; that result is very seldom obtained in this district, unless under very favourable circumstances. In the West of England they are greater favourites than with us. However, W. Fisher Hobbs, Esq., of Boxted Lodge, has favoured me with the following account of two cows kept by him of the same breed. He writes as follows:—"At your request I send you a correct account of the produce of two cows (Alderneys) which I kept at my own residence, Boxted Lodge, in 1861. I had no other cows there during that time. You will observe that the produce from these two cows was kept separate, from the period of their calving until the 12th of July. After that time the cream was mixed. The total produce of these cows in 34 weeks was 860 lb., besides what cream was used in my house;" this being an average of 25½ lb. for the two cows during the 34 weeks. You will observe Mr. Hobbs states that the milk was kept separate, from the period of calving until the 12th of July. For 14 weeks previous to the date one cow averaged 17½ lb., and one week 20 lb. 1 oz., a quantity (for the length of time, be it remarked) I am not aware has ever been obtained from a cow of any other breed. So much for the Alderneys.

We shall now briefly refer to the Suffolk. There are many gentlemen in this room who are better qualified to give an account of the Suffolk cow than I am, from the short period that I have been amongst them, and I shall be glad to hear them this evening. However, we have records of a polled breed of cattle in Suffolk for about 200 years, but of what shape or form we are left to surmise. In my opinion, at no distant period they have been crossed with the old Aberdeen, to which the best animals of the present day bear a striking resemblance. Blood red is now the favourite colour, with little or no white, unless the tips of the tails; but they been so indiscriminately crossed latterly, with all sorts of brutes which could be called bulls, that in consequence we have nearly lost the original stock. In short, since the dispersion of the late Sir E. Kerrison's stock, it has been difficult in this district to find pure animals to breed from; and I wish to impress upon my dairying friends that it is just as essential, in order to obtain good milkers, that the male should be descended from as good milking stock as the female. Most people are careful as to the milking properties of the cow they breed from for the dairy, but the bull is seldom taken into consideration; and it somewhat surprises me, considering the haphazard manner in which they have been bred, how the Suffolk cows have still kept the milking properties for which they are justly celebrated. We have obtained 24 quarts a day from a Suffolk cow when in full profit, and I presume my dairying friends will not term them useful unless they yield from 18 to 20 quarts a day when in full profit. They are better adapted for the arid climate, rough and badly-farmed pastures of the eastern counties, than any other breed. They yield a good quantity of milk, and when properly fed, their milk is pretty rich in butter. Taken as a breed, their skins are coarser than either the short-horn or Ayrshire; in consequence, they are not so sensitive of flies; and, moreover being without horns, they are more suitable when in yards. Likewise they are favourites with the Society for the Prevention of Cruelty to Animals, as they cannot inflict severe torture on each other; and when crossed with a proper Short-horn bull, produce a good animal for fatting purposes. And further, we have the testimony of Mrs. Rainer, Thorpe, confirmed by other eye witnesses, of her polled cow producing in one week 19 lbs. 15 oz. of butter, and for weeks in succession 18 lbs. 12 oz., and for nine months 11 lbs. 4 oz. was the average. Mrs. Rainer had only this one cow; but, to use her own words, she "treated her like a child." Again, we have the late Mr. Lingwood's cow, at Brome, which produced 16 lbs. 4 oz. in one week, and for weeks averaged 15 lbs. She was also a single cow, kept by a private gentleman.

The late Mr. Pusey truly said, "Books will not teach farming; but if they describe the practices of the best farmers, they will make men think, and show when to learn it." Acting on this motto, I shall read you a few extracts from J. C. Morton's "Hand Book on Dairy Husbandry," The yield of milk, Mr. Morton truly states, is the first point to which attention is directed on any review of dairy statistics. The first case given is that of Mr. Telfer's, near Ayr, where his dairy of 47 Ayrshire cows produced annually 650 gallons each. The next is that of Mr. Buttery's, Calder Bank, whose dairy of 30 cows, same breed, produced 632 gallons. Then, further, he gives reports of Yorkshire cows, as Messrs. Wright, of Surrey, and Crawley, of Cheshire. Mr. Wright's average is given as 810 gallons, and Crawley's as 866. Three out of the four it has been my privilege to inspect. The cows were kept on the most forcing food, soiled mostly during the summer on Italian Rye-grass, with other extras in addition.

Having now given an outline of the produce, we next proceed to the systems of converting the produce into money. The most profitable is when the milk can be sold sweet from the cow, which in most localities will sell for about 8*d.* per gallon; and if we take the general average of the Yorkshire cow, when well kept, as being about 800 gallons, then we find the produce will amount to something like 26*l.* annually. In turning to our own country cows, they, on an average, may be supposed to yield 500 gallons, being about two gallons a day for nine months. Supposing these 500 gallons to be sold at 1½*d.* per quart, we would then realise about 16*l.* 10*s.*, with calf 10*s.*, would make the result 17*l.* per cow. When the milk cannot be sold, we must then convert the 500 gallons into cheese; then we should realise something over 500 lbs. of cheese, which at 6*d.* per lb. gives 12*l.* 10*s.*; calf and whey for pigs, 30*s.*, would make 14*l.* per cow. By converting the cream into butter and the partly-skimmed milk into cheese, we would then realise 160 lbs. of good butter at 1*s.*, and 300 lbs. of part skim milk cheese at 4*d.* per lb., which, with calf and whey at 30*s.*, stands at 14*l.* 10*s.*, and, with proper management producing a good article, the price of produce may be raised, and these terms may be exceeded. We shall now find how this tallies with other districts. In Dorset and some parts of Somerset it is customary for dairymen to rent the cows from the farmer, the dairyman doing all labour, and the farmer providing cows and keep, for which the former pays for produce of cows 9*l.* 10*s.* to 10*l.* 10*s.* The produce is mostly converted into butter and skim-milk cheese in Dorset; while in Somerset, some of the best Cheddar cheese is made now worth 9*d.* per lb. A similar system prevails in the West of Scotland, but the produce is entirely converted into cheese, the cows are better kept, and the rents are higher, both to the farmer and dairyman. A late employer of mine rented a farm in the said district of 600 acres, his rent being 1200*l.* He kept a dairy of 100 cows; and I have known his dairyman pay 12*l.* for each cow, which covered the farmer's rent. The agreement was—the dairyman to do all labour attending the cows, unless some milking the farmer had to provide. Keep of cows was 1¾ acres for each cow of good Grass for summer; six tons of Swedes and two bushels of Bean meal for each cow, with straw *ad libitum*. The dairyman would realise about 4½ cwt. of cheese from each cow, and when properly manufactured would sell about 70*s.* per cwt. The produce would run from 14*l.* to 15*l.* per cow.

I have thus endeavoured to bring under your notice the different systems that are practised in other districts. I have stated results which have been and may be realised with proper management, and one naturally begins to wonder why Suffolk, once so prominent in dairy management, is now getting into the shade; the complaints are loud and long that no dairy-maids are to be found. Again, some maids maintain that there are no places for them to learn, as no one will take the trouble to teach them. But they are not easily taught who don't want to learn; and as crinolines and feathered caps are more in unison with nursery-maids, table-maids, and house-maids, the washing, scrubbing, working, rosy-cheeked dairy-maid of old is nowhere to be found. We are told that cleanliness is next to godliness; and in no case is it more applicable than in dairy management. Morning and evening, Sunday and Saturday, twice-a-day the dairy must be attended to; for, be it remembered, it is only a first-class article which commands attention in the market.

We now come to the last branch of our subject, and one on which I doubt not all of you are familiar—converting the cream into butter; a very simple, but at certain seasons, with certain feeding, a very ticklish operation. I shall give you an outline of the system we pursue. During the winter our cows are fed on roots and chaff in conjunction; the first part of the season on Scotch yellow Turnips or Swedes:—after Christmas on Mangels. Those in full profit receive about 4 lbs. to 5 lbs. of cake or corn in addition. It is when fed on roots that the care and experience of the dairy-maid are put to the test to produce a good article. Our dairy people maintain that if we send the milk into the dairy free from taint, they will produce butter agreeable to the palate; therefore, when the cows are on roots we invariably use a small quantity of saltpetre put into the milk warm from the cow, in order to dispel any effluvium the roots may produce. Care must be taken not to use too much; if so the butter will taste rancid; say an ounce to every 30 gallons. We shall now go into the dairy, and, to use an Irishism, we don't allow the butter to spoil before it is made; that is, stale vessels taint the milk, or stale milk taints the cream, and tainted cream will not produce first-class butter; and as our object is quality before quantity, our customers being rather fastidious in taste, we must endeavour to produce a sweet article. The milk is first creamed at 24 hours, and again at 36; in so doing, both milk and cream keep sweeter than if only once creamed at 36. We churn thrice a week. We use no artificial colouring. Our spare butter goes to a "West-end miss," at prices varying from 14*d.* to 17*d.* per lb. There are many *ifs* and *ands* in order to make good butter when cows are fed on roots; but the dairymaid claims them as her knowledge of the art, and which would be tedious to describe. Gentlemen's dairies are in unison with "home farms." Neither are proverbial for large profits. However, while our injunctions are to produce a first-class article, we at the same time have an eye to profit. Our dairy of milk cows are 24, and they cost us for dairying and attendance 24*s.*, or 1*s.* a head per week; and on examining our dairy book for 1862, after deducting said labour, I find a credit of 10*l.* standing for each cow. Be it remembered, we wean a calf for each cow in addition. In the foregoing observations I have endeavoured to bring under your notice the breeds of cows best adapted for dairy purposes: thus we find the Yorkshire the favourite, where pastures are rich and quantity required. And again, in the western part of our island, where cheese-making prevails, we find the Ayrshire the universal favourite; and when only cream and butter are required, we find the Alderney in esteem. It is said: Ireland for the Irish, and we must say "the Suffolk cow for Suffolk," for after a trial of all the breeds I have named, it is found by experiment in our establishment that they are the cows best adapted for the district.

Home Correspondence.

Cottage Building.—Dr. Begg stated at the Social Science meeting at Liverpool that "very marked peculiarities come out in connection with the rural districts of Scotland, where the most advanced farming in the kingdom and the highest rents are often coupled with the lowest state of physical comfort on the part of the working men. Through most of the Lothians the ploughmen, till lately, had only one apartment for a whole family. The poet Burns, in coming from Ayrshire to Edinburgh, remarked this as a sad result of improved Scotch farming more than half a century ago." Since the building of cottages is a duty which devolves upon landowners, I fail to perceive why "the lowest state of physical comfort on the part of the working men" can be "the sad result of improved Scotch farming." I unhesitatingly assert that it is the result of the culpable negligence of landowners and their agents. Dr. Begg identified himself at Liverpool with the remarks of Burns, and yet stated at Haddington, in October, 1861:—"Now, as a good deal of misunderstanding exists in regard to our views and objects, let me first explain what I do not hold in regard to the question before us. I do not hold that enlarged farms and improved agriculture necessarily result in evil to the working classes. This may seem an unnecessary remark, but you must be aware that the contrary is a doctrine held by some, and that it receives some apparent countenance from the fact that the greatest degradation of the ploughmen is found in some of the most highly cultivated districts. But there cannot be any necessary connection." Again, Dr. Begg stated at Liverpool in 1858:—The present shameful state of matters is spreading like a canker throughout the whole community. It is filling the town with pauperism; and, whereas in former times deterioration of cities was supplied by a pure stream of healthy and moral life from the rural districts, the rural districts are becoming more degraded and debased than the cities themselves." And yet Dr. Begg stated at Haddington:—"Neither do I hold, as some have supposed, that the rural population of Scotland is more degraded or immoral than the population in some parts of our cities. But it is startling to find that it is not uniformly much better, and that the relative immorality of our city and rural populations differ in some districts so widely from that of other lands." Such contradictory statements must of necessity stagger citizens, but they are easily dealt with by rustics. Illegitimacy is merely the unavoidable result of social lawlessness, which is fostered by the different classes of masters and mistresses not recognising courtship as a necessary preliminary to marriage. In trying to vindicate Dr. Begg, the *North British Agriculturist* stated at page 1008 for 1861, "At the present time the majority of the cottages in East Lothian are dwellings of one apartment, the floors of clay, ceiling boards provided by the occupants, and the roofs pantiles. Generally the walls are unplastered, and where plastered the work has been very imperfectly executed. There have been a considerable number of new cottages erected on general estates, but few of them contain the minimum number of apartments suggested by the Cottage Improvement Association, namely, three sleeping apartments." Such cottages—hovels—are not only residences for married ploughmen with young families, but gentlemen farmers compel hinds to provide lodgings for a field labourer in such hovels. A good many farmers have abolished the compulsory bondage system, and had recourse to bothies for those females who require to be imported. And Dr. Begg and others of his class had the presumption to find fault with the farmers in East Lothian for relieving the hinds from bondage! I showed at page 37 of the *Agricultural Gazette* for 1863, that some farmers have the services of two able-bodied labourers for a twelvemonth, for from 44*l.* 8*s.* 0½*d.* to 50*l.* 12*s.* 10*d.*, and a house and garden free, and coals carted. The hind had to pay the bondager from 10*l.* to 13*l.* per annum for wages, and also give the bondager board, lodging, and washing off this gross total! I have stated in general papers that building houses with general apartments is not a remedy for the bondage system. Fancy a young woman being a domestic drudge to a ploughman's wife in the morning before 6 o'clock, midday and in the evening after a day's work of ten hours to the farmer! I should like antibothyites to show me where I am wrong in stating that a bothy is not only a necessary expedient or makeshift for the bondage system, but bothies are indispensable parts of a model farm steading. A farm of 630 acres may require 22 men and 35 lads and women regularly. Reckoning each of the 22 men to be married, and each to have a bondager, the bondage system would not provide the complement of manual labour—35 lads and women. Mr. Smith, of Whittingham, expressed my views on bothies at Haddington, in October, 1861. I lodged under the parental roof for 25 years, and have resided in six garden bothies, so I claim a knowledge of what I am writing about. *W.*

Farmers.—With reference to what I said the other day at Cirencester about farmers, I admit of course that they are in nature like all other men, and from experience I know that as a body they are a very excellent race, both males and females; and I go further, and am happy to state that, as far as my experience has gone, and it has been rather extensive, I have found them within the last 20, or a few more years, to have very greatly improved in many social virtues and advancements, notwithstanding the many painful drawbacks which distinguish the age in which we live. For one example among others which I can state with perfect confidence, farmers now, compared to what they were, like other men, some 30, 40, and 50 years back, and even more, are a really sober race; as now, among the higher educated society, a man the worse for liquor is seldom or never seen, such also it is gratifying to know is the improvement among farmers; and drunkenness among the agricultural population is confined almost entirely to the labourers; and even among the labourers it is further gratifying to know that it is fast wearing out; and my opinion is, that from the example set by their employers, and the improvements of the age in this as among other things, the time is not far distant when drunkenness will be altogether banished from our rural population. So much I rejoice to be able to state in praise of the race among whom it is my happiness to live. *Geo. Wilkins.*

The Steam Cultivation Company.—[The following letter has been addressed to Mr. Howard Reed, the Secretary].—In reading your recently published letter, I find you are of opinion that those men who become acquainted with steam cultivating apparatus by hiring it, will not long rest satisfied until they possess it for their own use entirely. Those remarks I am able thoroughly to endorse, having now had several years' experience in the use of it. It will so happen that the sets of tackle let out for hire will be in very great request immediately after harvest especially, and whenever an occupier of four or five hundred acres of land once gets hold of the tackle in dry weather, he finds it of so much service to him that he will not let it go off his farm for weeks perhaps. Not until the best weather for killing his rubbish was gone by, would he part with it. In the meantime his neighbour, who is looking over the hedge, and sees how quickly he and his horse-power are being outdone, is somewhat uneasy by the thought of the difference that will exist in the rival stack-yards next year. What is being done by the steam tackle must necessarily cause the one to be better filled than the other; and the man who has been disappointed of steam to aid in breaking up his stubbles, at once makes up his mind that as he cannot hire and run even with his neighbour, he will at once buy a set for himself. But just fancy the feelings of the man who peeps over the hedge, appreciates the value of the work being done, and yet has not the money to buy the tackle! There are hundreds of such men, and to these your Company will be a godsend, seeing that it is proposed to supply machinery to those who require it, to allow the farmers to make choice of what is best adapted to their own land, and to make the payments for it easy. The large amount of business that would be done must ensure a good return on the employment of the Company's capital. Steam cultivation is now no moonshine. Great interest is taken in it. We have plenty of facts to show its value, and I think the half is not yet told, for I think that clay lands will be prodigiously improved and increased in value by it, and that throughout the districts where these abound the Company will find the greatest encouragement. But it would be, in my opinion, very unwise for a Company to do anything but lend money and take security. I mean it would be unwise to let out tackle, because in the long run it would not pay. The Company would find a great loss in moving from farm to farm; and after the best season was over there would not be that demand, as the horse power, which the farmer is obliged to keep as the cheapest power for carting corn and manure, would be sufficient for the rest. Every one knows, too, who is possessed of engines, &c., that standing idle out of doors they rust and get out of order. The staff of men also would be difficult to keep always profitably employed, and there are several other reasons why this branch of business should not be engaged in. It is the farmer who ought to have the tackle on his own premises. It should be so simple that his ordinary men, at reasonable wages, should be able to work it. When the season is past it should be cleaned and put away until again wanted, and the men should be sent to other employment. Such are the views I entertain on this subject, and they are founded upon my practical experience. *T. B., Dring, Claxby, near Spilsby.*

The Value of a Rain Gauge to Farmers.—Few farmers keep rain gauges, though there are many occasions on which it is of practical importance to know the absolute quantity of rain that falls in a given time. The experience of more than 20 years has taught me that no one can judge the quantity, especially when the rain falls during a stormy night. On the night of Sunday, September 6th, judging by the sound of the wind and rain, I expected that my gauge would have registered at least .75 or ¾ of an inch; to my astonishment I found only .25 or a ¼ of an inch had fallen. As there was a drying wind I examined my corn in shock at noon; I found that it was dry, and carried it before night. A farmer who met my waggons going to the field, said "I am astonished at your master going to cart." I passed a labourer setting up the sheaves of Barley that had been blown down; he said "our master is gone to market; we want him at home to set us on carrying." Both these farmers said they were quite astonished to find the corn so dry when, too late in the evening, they examined it; they had simply over-estimated the rainfall. Fortunately the next day was fine, but rain fell again in the night, and much of the corn is still in the field. The construction of a gauge is simple. Have a tin or zinc funnel made exactly a foot square at the top; put this into any convenient vessel holding—say 3 quarts. Every pint of water represents .25, or ¼ of an inch of rain, without the fraction, which does not signify for practical purposes; .25 or ¼ of an inch is a moderate rain, .50 or ½ an inch a soaking rain, such as penetrates the sheaves, and so on in proportion. *J. C. C.*

A Feat of Drainage.—About five years ago a Mr. Wallace purchased an estate in Roscommon on which was a lake called Corkip, or Keoghville, covering 137 acres, and containing several islands, with a depth of water varying from 5 feet to 16 feet. Some attempts had been made by former proprietors to drain this lake, but they were frustrated by the obstinacy of other landlords and the superstition of the peasantry. Nothing daunted, however, Mr. Wallace employed 40 or 50 men and made an arterial cut two and a half miles long connecting the lake with the river at Milltown Pass. This cut is 4 feet wide at bottom and 13 feet at top, and in some places 18 feet deep. For a mile it passes through solid rock, which had to be blasted. The result is that the lake has disappeared, and in its place is a large tract of rich alluvial soil, giving every promise of luxuriant vegetation. A correspondent of the *Western Star* thus describes the metamorphosis:—"I had the pleasure of walking across the valley which was once the bottom of the lake, and inspecting the drainage works by which such a large extent of valuable land has been successfully reclaimed. Where, six months ago, the wildfowl congregated in myriads, and where fish were captured last year, not only cattle, but sheep were grazing on excellent pasture! There are portions of the soil in rents from the drought, but in every case it is rich and friable and easily pulverised. Where the water was deepest, the soil partakes somewhat of a peaty property, and is not as yet clothed with anything like verdure, but where Rape and Grass seeds have been sown by way of experiment they have vegetated sufficiently well. What were at one time islands, and are so defined on the Ordnance map, look now like so many raths or hills dotted over the valley, and tend rather pleasingly to diversify its appearance." *M. S.*

Labourers' Cottages.—The *Times* of September 9, having taken up the subject of "the crowded state" of the labourers' cottages, brought before the public some weeks ago in the *Gardeners' Chronicle and Agricultural Gazette*, it is to be hoped other journals will follow so good an example, and render assistance to a deserving class of men, on whom we depend for soldiers and sailors, to whose exertions we are indebted for success in agriculture, and whose muscles and sinews enable the manufacturers of England to conquer, in an amicable struggle, all competitors in the markets of Europe, and Asia. Animals are improved in usefulness by providing them with warm sheds and stables to protect them from the severity of the weather, as well as by giving them wholesome food to eat. The additional expense and trouble are amply repaid by the greater amount of labour performed by the horses on the farm, and also by a large saving in fatting stock. The commodious buildings rising up around a substantial holding, show a beneficial change on behalf of the quadrupeds. Men and women are benefited in a greater degree, by breathing pure air, having dry and roomy lodging and nutritious food, than the lower animals; the enjoyment of these comforts influences both the mind and body, producing contentment and cheerfulness under hard labour, as well as strength to accomplish the daily toil without impairing the constitution. These facts cannot be denied, and yet those who employ men in the fields or manufactories, never seem to trouble themselves about the condition of their servants. If no high motive impressed the masters with the duty they owe to their fellow creatures, self interest might open their eyes to the desirability of having intelligent, able bodied, and respectable workmen about their premises, whose dwellings, though humble, were known to be convenient for the purposes of civilised life. People leaving tracts at the poor man's door during the days, and in the evening at home, at their own particular tea parties, lamenting over the sad immorality existing amongst the lower classes, should make themselves acquainted with one of the principal causes of mischief, over which the poor have no control—"crowded unwholesome dwellings." Those possessing money and power must no longer shut their eyes to this monstrous evil, under which the United Kingdom is groaning; increasing the number and improving small tenements will not prove a panacea for vice and wickedness, but it will go a great way towards ameliorating the social condition of the working classes, and prepare the way for those who kindly take an interest in their neighbours' welfare, and are willing to offer real help to those who are inclined to help themselves. Society, the term used when a certain mass of human beings are congregated together, wears a fair exterior, nevertheless there is something very faulty in the interior economy of our great nation, domestically speaking; family teaching and home discipline, amongst the middle and upper classes, rest on a sandy foundation. *Falcon.*

Societies.

MANCHESTER AND LIVERPOOL: *September* 5.—The advantages enjoyed by this Society this year, in having at its command a capacious and picturesque showground, a liberal list of prices, a more than usually numerous entry for all classes of implements and stock, furnished all the elements for a thoroughly successful meeting, and fine weather, in spite of unfavourable symptoms early in the morning, was enjoyed. The ground had not recovered from the muddiness caused by the wet of previous days, but by a judicious laying of straw and planks visitors were able to thread their way without being very inconveniently soiled. More than 5000 persons paid for admission. The show was pronounced to be the most successful ever held in connection with the Society. The entries numbered 1513 agricultural implements and miscellaneous articles. For the prizes offered for horned cattle there were 162 entries. For the Short-horn bulls open to general competition, Sir R. Gerard, Bart., carried off the 1st prize; there were very excellent animals shown in the same class by Mr. D. R. Davies, of Mere Old Hall, Knutsford, and by Viscount Hill, of Hawkstone, Shrewsbury. Sir R. Gerard's animal was a splendid roan, bred by Mr. Nailer, of Preston. For the two-year-old bulls, in addition to the prize earned by Mr. Eastwood, the other bulls which were awarded prizes or highly commended were those of Mr. Atherton, of Speke; the Hon. Colonel Douglas Pennant, M.P.; and Viscount Hill. The prize for the best bull calf was won by Mr. Benjamin Baxter, of Skipton. Lady Pigot carried off the whole of the prizes offered for cows and heifers in the classes open to the United Kingdom. The sheep were remarkably fine, and the Shropshire breed especially were conspicuous for their quality and number. Of Leicesters there were shown 18 aged rams, 15 yearling rams, 14 ram lambs, 5 aged ewes, 8 yearling ewes, and 5 ewe lambs; total, 65. Cotswold: 2 aged rams, 1 yearling ram, 1 ram lamb, 1 aged ewe; total, 5. Shropshire: 14 aged rams, 20 yearling rams, 28 ram lambs, 15 aged ewes, 12 yearling ewes, 13 ewe lambs; total, 102. Mr. Henry Smith, of Newhouse Farm, Sutton-maddock, Shiffnal, Salop, took the prize for the best shearling Shropshire, with the same animal that won the prize at Sparkenhoe show. Mr. W. B. Wainman, of Carrhead, Crosshills, Yorkshire, won the whole of the first prizes offered for pigs in the classes open to general competition. For horses there were 212 animals entered, those of the draught and farming purposes being the most numerous. There was also a show of fowls, vegetables, fruit, and dogs. The dogs and poultry especially attracted the attention of the ladies.

At the annual dinner the Chairman, the Hon. W. Egerton, M.P., proposed "Success to the Manchester and Liverpool Agricultural Society." In no town had that Society been better received than in Birkenhead. Thirty years ago, when the Liverpool Agricultural Society was formed, Birkenhead was a village containing about 16 houses and 110 inhabitants. Through the energy and enterprise of a few individuals, among whom was their excellent member (Mr. Laird), Birkenhead had made most remarkable strides, and its great natural advantages had been availed of as a great mart for commerce and shipbuilding. About 15 years ago the Liverpool and Manchester Agricultural Societies were amalgamated, and since that period the history of the Society was one of continual successes. Its operations had encouraged scientific agriculture, the drainage of farms, and the manufacture of those implements which economised labour. The farmers had been willing to take advantage of the experiments made by a few gentlemen of capital and enterprise. Farmers were no longer satisfied with the old system of careless farming, allowing the ground to be covered with weeds, and using a few simple inefficient implements to till it. Such associations as that whose anniversary they were celebrating stood on very high ground. Associations like that which recently met at Newcastle had done much for commerce and manufactures; associations like theirs had done as much for agriculture. It might or might not matter to Birkenhead whether there would be a sufficient supply of coal 200 years hence; but it was of present importance to Birkenhead that food should be obtainable in the cheapest and best manner possible. That was the object of their Society—to increase and cheapen the supply of food; and it was no idle aim. The Government had lately brought forward the question of agricultural statistics. It was important that there should be a thorough knowledge of what was grown, and of the amount of stock in the country. An attempt to get such statistics in Ireland had been attended with considerable success. There they had been obtained through the constabulary. He believed that there would be an objection in England to the collection of such statistics by the constabulary or by the overseers. It would be better to get them in some such way as in Scotland, where they were obtained by the Highland Agricultural Society. However they might be got, it must be by the voluntary efforts of the farmers. All scientific farmers would acknowledge how very useful the compilation of such statistics would be. Such a compilation was made with respect to manufactures and commerce, and there was no reason why it should not also be made with respect to agriculture. Mr. Bass, the great brewer, found it worth while, for his own business purposes, to ascertain how much Barley was grown in the year. This reminded him that last year he accompanied a deputation of farmers to an interview with the Chancellor of the Exchequer to ask him to reduce the duty on malt. It was stated on that occasion by excellent agriculturists that the value of malted Barley for feeding purposes was very great, and that it was only the duty which prevented a number of animals being fattened on it. If that was really so, this was a subject which agricultural societies might well take up, in order to press upon the Chancellor of the Exchequer the reduction of the duty. He believed that if the case was properly put before that gentleman he would reduce the duty on the first opportunity. He (the Chairman) was glad to notice that there were between 200 and 300 more live stock exhibited that day than had ever been exhibited before by the Society. That was a very healthy sign, for nothing was more needed than meat. They could import corn, but they could not import good cattle. Doubtless, the demand was very great, for during the whole of the distress last year the price of meat in Manchester remained the same. He believed that there was no county in England better suited to raise and fatten cattle than Cheshire. Its admirable Grass and moist climate were very great advantages. Even should the Cheshire cheese, which had a world-wide reputation, be beaten out of the market by the American cheese,—of the goodness of which he did not pretend to judge,—it would be a profitable undertaking for the farmers to turn to the raising of stock for fattening. *Manchester Guardian.*

ROYAL NORTHERN: *Competition with Reaping Machines.*—A trial was lately made of the four reaping-machines set aside for that purpose at the Royal Northern Agricultural Society's Show held at Aberdeen, in July last. The competitive trial came off on the farm of Hillside, belonging to Mr. Walker, and conveniently situated near the railway station, Portlethen. The field on which the machines were tested was one of common Oats after Turnips on a good bottom. The crop was rather a light one, and somewhat late. The field was quite level, measured about 11 acres, and, owing to the thinness of the crop, there was a good deal of Grass, which made it rather stiffer to cut than if it had been clean reed. Four patches, each measuring 1 acre and 12 poles, were marked off to be cut by the different machines, the time occupied in, and the quality of the work being, of course, taken into account in determining their merits. The judges were—Mr. Porter, Monymusk; Mr. Campbell, Blairton, and Mr. Gray, manager, Messrs. M'Kinnon & Co.'s foundry, Aberdeen.

Lot 1 was cut by Messrs. Samuelson & Co.'s "Eclipse" reaper, shown by Messrs. B. Reid & Co., Aberdeen. This machine, which was drawn by one horse, runs upon a single wheel, surmounting which is a seat for the "tilter" or deliverer of the sheaves, while the person driving the horse walks alongside. The principle upon which this reaper is wrought is very simple, the whole machinery in fact consisting of a pinion running on the outside of the driving wheel, and which gives the motion to the knives. In case of the machine encountering an obstruction, the man sitting upon it can elevate or lower the cutter by a small screw. The "Eclipse" is made to cut a width of 5 feet, and is fitted up with plain knives, the protecting finger points between them being 3 inches apart, about half an inch less than those of the other machines. When in motion, this machine has a smooth action, and the weight being only 5 cwts., it is apparently easily drawn by one horse when at work. The cutting was done in a manner which could not fail to satisfy the most fastidious. As the knives can be elevated or lowered, the length of the stubble can be determined by the party using the machine; while the sheaves can also be made any size. The mode of delivering the sheaves is also very simple, and is the same in all the machines tried. The platform is fixed, so that its lower edge rests upon the finger bar, and slopes upwards to the back. The tilter fixes his foot to the lower edge of the platform with a small belt, and whenever there is sufficient corn on the platform to make a sheaf, it is slightly raised by the foot so as to reverse the slope, and a touch from a hand rake carried by the tilter makes it slip to the ground to await the binder. The platform is again lowered in front, and the same process continued. As the crop was not very heavy, the work was easier for the tilter, having longer intervals between the delivery of the sheaves than he would have had if the crop had been heavy. We should state, however, that the horse placed in the "Eclipse" had not been at work during the summer, and getting restive, detained the work for some time, and another had ultimately to be put in his place. Notwithstanding these delays, the "Eclipse" finished the given amount of work in 64 minutes.

The "Eclipse," it should be understood, was not exhibited as the most perfect machine for reaping which the makers can produce, but as a machine well fitted in general for the work on farms in Aberdeenshire, and as particularly adapted for the requirements of farmers of limited means. One of the peculiarities is that, at the expense of a guinea extra, the reaper can be turned into a mower at pleasure—to do this only requiring the removal of the platform and the substitution of a smaller shoe. The price of the reaping machine is 16 guineas.

2. The second lot was cut by the "Buckeye," a patented machine manufactured and exhibited by Messrs. Brigham & Bickerton, Berwick-on-Tweed. This machine is a combined reaper and mower, with double gearing, and made to be drawn by a pair of horses, both the driver and tilter having a seat upon it. The mechanism of this reaper is probably more complicated than that of the others, but it has better protection. The gearing is mounted in the centre of the machine, where the power of both wheels is concentrated as drivers. The cutting bar is double jointed, and hinged independent of the framing, which obviates any inconvenience which would otherwise arise from inequalities in the ground, and enables the cutters to remain in their normal position, whatever weight may be brought to bear upon the frame. The cutting bar is portable, and on the removal of the platform can be folded across the body of the machine, and thus will go through any opening that will pass two horses abreast. The "Buckeye" is priced at 28*l*. It weighs 8½ cwts., and by the removal of the zinc platform is turned into a mower, and made a half cwt. lighter. The reaper is fitted with serrated knives, and has capacity for cutting a width of 5 feet. The "Buckeye" was managed on this occasion by one of the makers, Mr. Brigham, who, not having had time to send for a "tilter," acted in that capacity himself. The work was done steadily and uninterruptedly, the sheaves being laid down in exactly the same manner as by the other machines. The reaper wrought fair round the square, and was perfectly manageable at the corners, always driving fair out at the corner before commencing the swathe on the next side—the cutters being raised as it cleared the standing grain, and let down when the machine was wheeled in position. The "Buckeye" finished its allotted work in 46 minutes.

3. The other two lots were cut by machines made by Messrs. Brown & Young, Stirling, for whom Mr. John Farquharson, Broad Street, Aberdeen, is the agent for the North of Scotland. Lot No. 3 was cut by a double geared reaper, which weighs 9 cwt., and is sold for 24*l*. The characteristics of this machine are that the platform works on a universal joint, and suits itself to the unevenness of the land. It can also be folded up, so as to make its entrance at gateways easier. The motion is got from the wheel by a pinion, and the gearing is so set, that while turning at the corners, the knives are kept moving. The finger guards, or knife protectors, are 3½ inches apart. Several of these machines had been fitted up with the finger guards 3 inches apart, but it was found that, when cutting a very heavy crop, they were apt to get choked up, and this appears to be remedied by giving them a ½ inch more of pitch. In the last two or three swathes cut by this machine, the centre knives seemed to have got rather blunt, so that the reeds bent before them, and more straw was left at the root in the centre than on either side. The complement was cut, however, in shorter time than by any of the other machines, the time taken being 42 minutes.

4. The single-geared reaper, by Messrs. Brown & Young, is made on the same principle as the other. The only difference is that it wants one of the wheels, and having no universal joint, the platform cannot be raised, but then the cost of this reaper is only 21*l*. It is much lighter than the double-geared machine, but would not be so well adapted for cutting on hilly land. Both machines are fitted with serrated knives, and are capable of cutting a breadth of 5 feet 3 inches. The platforms are made so that, when a short crop is being cut, they can be reduced in breadth, which will facilitate the delivery of the sheaves. The fourth lot was cut by this machine in 46 minutes.

Before the reapers had done more than one-half of their allotted work, it became apparent to the judges that there would be great difficulty in deciding as to their merits. The cutting was in every case excellently done—far better than it would be possible to do it with hand labour. Not a single stalk was inverted in the sheaves as they lay after coming from the machine; and if the bandsters were particular in gathering their sheaves clean from the ground, the use of the time-honoured rake might be dispensed with. The judges expressed a desire to have the machines tested on a field bearing a heavy crop before they gave their decisions, which was of course carried into effect, Mr. Walker placing another field at their disposal.

The second field operated on was at Belquharn, a short distance to the south of the former one. There was no note taken of the quantity cut, the object being merely to test the efficiency of the machines in cutting a thick crop. The Oats was a crop after two-year-old lea. It was a very heavy crop, and a little laid in some parts. The reapers went through the work in the same satisfactory manner as on the former field, not the slightest appearance of choking being seen. The thickness of the crop allowed the tilter less time to do his work, as the sheaves were mor numerous and larger than on the lighter field. The judges were agreed as to the uniform efficiency of all the machines in the field, and from their equality in this respect more stress had to be laid upon their lightness and adaptability to the district; and their judgments were as follows:—

A first prize to Samuelson & Co.'s one-horse power Eclipse Reaper, exhibited by Messrs. B. Reid & Co., Seedsmen, Aberdeen.
A first prize to two-horse single-gear Reaper, exhibited by Messrs. Brown & Young, Stirling.
A second prize to the Buckeye Reaper, exhibited by Messrs. Brigham & Bickerton.

The time occupied in cutting the above lots cannot be taken as a fair criterion of the quantity which the machines will uniformly cut. The horses were made to walk quicker than they could be expected to do at ordinary work, or than they could continue for a whole day. The breadth which the machines would cut was calculated at from 9 to 10 acres a-day, and in this respect no one of the reapers tried would differ much from the others. The number of binders required to follow a machine would of course depend very much upon the nature of the crop.

On the whole, this trial resulted most satisfactorily, and allowed many agriculturists who were present to compare for themselves the completeness of the different reapers. *Banffshire Journal.*

Ram Sales.

SHROPSHIRE.—The second great sale of the current year of Shropshire rams and ewes took place on Tuesday last, Mr. W. G. Preece being the auctioneer. Upwards of 150 rams and nearly 700 ewes, from the most noted flocks in the county, were included in the catalogue, and nearly all were disposed of at good prices, notwithstanding so large a number of first-clas sheep were sold at the July sale. Among the ram were many animals of great merit, but the absence of what may be considered prize sheep will account for the difference between the prices obtained at this sale and the previous one; still the result must be considered satisfactory to all concerned, and proves incontestibly that the breed of Shropshire sheep is at length not only recognised by the British farmer, but also duly appreciated. The first lot of rams introduced were those of Mr. Pembrey, and fetched 5 and 5½ guineas each. These were followed by 10 of the Rev. C. P. Peters's, which ranged from 5½ to 12 guineas. Mr. G. Adney's lot of eight averaged nearly 13*l*. each, the first, a two-shear,

fetching 21 guineas, and a yearling, 19 guineas. Of Mr. Evans's, of Uffington, 12 were sold at prices ranging from 5½ to 10 guineas. Mr. Stanier's, of Wroxeter, fetched from 5½ to 12 guineas, and Mr. Pryce Bowen's 22 sheep ranged from 6 to 14 guineas, the average being over 10*l.* 10*s.* Mr. Mansell's lot averaged about 10*l.* Mr. H. Matthews's yearlings fetched from 6 to 11½ guineas. Mr. Maddox's, of Harley, from 5 to 8½ guineas, and Mr. Thornton's from 5½ to 9½ guineas. Lord Wenlock's lot of four sold at from 5½ to 7½ guineas, and Mr. A. H. Minor's and Mr. Lee's, of Brompton, fetched similar prices. Messrs. Crane's rams, of which there were 11 sold, ranged from 5 to 15 guineas; and of Mr. Horton's, the two first, a two-shear and a yearling, were let for the season, the former for 20 and the latter for 10 guineas. Immediately after the last ram was sold, the sale of the ewes was proceeded with, and lot after lot was rapidly knocked down, until the whole were disposed of, at prices varying from 45*s.* to 80*s.* apiece. The ewes were chiefly from the flocks of the gentlemen above named, and also Mr. Evan Bowen, Mr. J. Preece, Cressage; Mr. Payne, Wilcott; Mr. Holder, Bayston; Mr. Dayus, Longnor; Mr. Meredith, Frodesley; Mr. T. Jones, Lyth; Mr. Poole, Chilton, &c.—*Shrewsbury Journal.*

LINCOLN: *Mr. John Davy, Owersby, near Market Rasen.*—The 50 rams brought out on Monday last were Mr. Davy's first public attempt. The average made was upwards of 10*l.* for hire.

Mr. Howard, Temple Bruer.—There were 60 shearlings and 20 two-shear rams brought to the ring, the former making 780*l.* 10*s.*, or 10*s.* over 13*l.* each, the latter making 205*l.*, or 10*l.* 5*s.* each.

Mr. Mayfield, Dogdyke.—The number of rams for show this year was 100. The average, however, was 9*l.* 14*s.* 6*d.* each.

LINCOLN RAM FAIR.—*The Nocton Rise rams* by Mr. E. Howard, averaged 13*l.* 5*s.* There were 20 of these sheep.

Mr. William Gilliat, of Martin, near Horncastle, had 31 sheep. The 31 sold for 276*l.* 10*s.*, being an average of nearly 9*l.* each.

The Thurlby Grange rams were represented by 20 shearlings, and 3 two-shear rams. They made the good average of 11*l.* 2*s.* 6*d.* each.

The Panton rams, 30 shearlings with 8 let, making 308*l.*, or nearly 10 guineas each.

The Nocton Heath rams were 50 large and good sheep. The average price made on Friday was the topping one of exactly 14 guineas each.

[The above particulars regarding recent sales of Lincolnshire sheep are extracted from the full report given by *Bell's Messenger.*]

LEICESTERS: *Kelso, September* 11.—Throughout the forenoon the biddings were spiritedly given, and as an instance of the ready demand for sheep of established reputation, we may mention that Mr. Purves, Linton Burnfoot, was offered 1000*l.* down for his lot of fine rams, numbering 100—which offer, of course, he declined.

No. sold.
40. Mr. Thomson, Rutherford, highest price, 10*l.* 5*s.*; average, 4*l.* 15*s.* 6*d.*
100. Colonel Nisbet of Mersington, highest price, 9*l.*; average, 4*l.* 10*s.* 2*d.*
40. Mr. Wilson, Haymount, highest price, 10*l.*; average, 6*l.* 8*s.*
18. Mr. Cockburn of Menslaws, highest price 8*l.* 10*s.*; average, 5*l.* 17*s.* 6*d.*
22. Mr. Smith, Windywalls, highest price, 5*l.* 17*s.* 6*d.*; average, 4*l.* 8*s.* 6*d.*
15. Mr. Gibson, Windydoors (half-bred), highest price, 6*l.*; average, 4*l.* 5*s.* 6*d.*
30. Mr. Thomson, Little Ryle, highest price, 15*l.* 10*s.*; average 8*l.*
25. Mr. Ord, Chatto (half-bred), highest price, 8*l.* 5*s.*; average 4*l.* 1*s.*
55. Mr. Stark, Mellendean, highest price, 17*l.* 10*s.*; average 8*l.* 2*s.*
20. Mr. Brydon, Nether Barns (half-bred), selling at from 3*l.* to 6*l.*
38. Mr. Scott, High House, Alnwick, highest price, 7*l.* average, 4*l.* 17*s.* 9*d.*
8. Mr. William Yeats, highest price, 15*l.* 10*s.*; average, 6*l.* 3*s.* 4*d.*
29. Mr. Chisholm, Fenwick Steads, Belford, highest price, 22*l.*; average, 7*l.* 7*s.* 5*d.*
20. Messrs. Dinning, Nilestone Ridge, Haydon Bridge, highest price, 7*l.* 5*s.*; average, 4*l.* 6*s.* 9*d.*
36. Mr. John Dinning, Adderstone, Belford, highest price, 20*l.*; average, 8*l.* 5*s.* 1*d.*
35. Mr. Angus, Whitefield, Morpeth, highest price, 12*l.* 10*s.*; average, 7*l.* 10*s.* 8*d.*
28. Mr. Cairns, Branton, Alnwick, highest price, 9*l.* 10*s.*; average, 5*l.* 9*s.* 1*d.*
80. Rev. R. W. Basanquet, Rock, Berwick, highest price, 28*l.*; average, 9*l.* 10*s.*
50. Mr. Davison, Brandon White House, Wooler; average, 5*l.* 2*s.*
30. Mr. Roberton, Harpertoun, highest price, 10*l.* 10*s.*; average, 5*l.* 5*s.*
65. Mr. Nisbet, Lambden, highest price, 11*l.* 10*s.*; average, 4*l.* 17*s.* 5*d.*
17. Mr. Tait, St. Cuthbert's, highest price, 9*l.*; average, 5*l.* 5*s.* 7*d.*
100. Mr. Purves, Linton Burnfoot, highest price, 24*l.*; average, 10*l.* 12*s.* 3*d.*
70. Mr. Robeson, Springwells, highest price, 20*l.*; average, 8*l.* 8*s.* 11*d.*
26. Mr. Oliver, of Lochside, highest price, 8*l.* 5*s.*; average, 5*l.* 17*s.* 3*d.*
25. Mr. Torrance, Sisterpath, highest price, 20*l.*; average, 9*l.* 10*s.*
35. Right Hon. Lord Polwarth, highest price, 60*l.*; average, 21*l.* 7*s.* 3*d.*
30. Mr. Wotherspoon, Spotsmains, highest price, 8*l.*; average, 4*l.* 14*s.* 7*d.*
30. Mr. Simson, Courthill, highest price, 27*l.*; average, 11*l.* 16*s.* 6*d.*
15. Mr. Jameson, Nottylees, highest price, 12*l.*; average, 5*l.* 9*s.* 4*d.*
20. Mr. Bell, Lenton, highest price, 11*l.*; average, 6*l.* 1*s.* 6*d.*
25. Mr. Cunningham, Mount Robert, highest price, 4*l.* 2*s.* 6*d.*; average, 3*l.* 8*s.* 4*d.*
10. Mr. William Raw, highest price, 4*l.* 15*s.*; average, 4*l* 0*s.* 0*d.*
66. Mr. Simson, Blainslie, highest price, 14*l.*; average, 7*l.* 2*s.* 1*d.*
6. Mr. John Greaves, highest price, 7*l.*; average, 5*l.* 15*s.* 10*d.*
15. Mr. Peake, Craigend (half-bred), highest price, 11*l.*; average, 6*l.* 8*s.*
12. Mr. Jackson, Fenwick Granary, highest price, 5*l.* 15*s.*; average, 4*l.* 17*s.* 1*d.*
58. Mr. William Robinson, Romanby, Northallerton, highest price, 13*l.*; average, 5*l.* 4*s.*
12. Mr. George Yeats, Studley, Ripon, highest price, 9*l.* 10*s.*; average, 5*l.* 12*s.* 3*d.*
20. Mr. Wilson, Woodhorn, Morpeth, highest price, 4*l.* 12*s.* 6*d.*; average, 4*l.* 3*s.* 1*d.*

CHEVIOTS: *Beattock, Sept.* 10.—At the seventh biennial sale of Cheviot rams bred by Mr. James Brydon, Moodlaw, the rams—165 in number—and 21 lambs were shown during the forenoon. Only two five-year-old sheep were sold; these brought 8*l.* and 4*l.* respectively. 25 4-year old rams were sold at prices from 4*l.* to 63*l.*—the latter sum being realised for "Thorley," winner of four premiums; he was bought by Mr. Archibald, salesman, Duddingstone. The proceeds of the 3-year-olds were 350*l.*, and the average 14*l.*; the average of 1861 was 12*l.* 15*s.* 6*d.* The 3-year-old rams were 51 in number, and sold from 2*l.* 10*s.* to 45*l.*—the latter price being given by Mr. Aitchison, Linhope, for "Garwold Hornie." The proceeds of this lot were 492*l.* 15*s.*; the average 9*l.* 13*s.* 3*d.*; and the average of 1861, 8*l.* 18*s.* Of 2-year-old rams 60 were offered, and sold at prices from 2*l.* 5*s.* to 41*l.*—the highest price being given for "Ettrick," winner of three premiums; he was bought by Mr. Borthwick, Hopsrig. The proceeds amounted to 557*l.* 5*s.*, and the average to 9*l.* 5*s.* 9*d.*—the average of 1861 being 8*l.* 10*s.* 3*d.* The Dinmonts numbered only 27. The proceeds were 142*l.* 5*s.*, and the average 5*l.* 5*s.*—that of 1861 was 6*l.* 14*s.* Twenty-one lambs were sold at prices from 18*s.* to 2*l.* 12*s.* 6*d.*, the proceeds being 28*l.* 19*s.* 6*d.*

The total proceeds of the sale of 165 rams and 21 lambs are as follows:—Five-year-old rams, 12*l.*; 4-year old do., 350*l.*; 3-year-old do., 492*l.* 15*s.*; 2-year old do., 557*l.* 5*s.*; 1-year-old do., 142*l.* 5*s.*; lambs, 28*l.* 19*s.* 6*d.*—total, 1583*l.* 4*s.* 6*d.*

IN IRELAND: *Mr. Hamilton's Shropshire.*—The rams averaged 10*l.* 10*s.* each; the ewes, 3*l.* 2*s.* 6*d.*; and 15 rams and 35 ewes still remain undisposed of. The King's Bridge Sale was unsatisfactory.

Lord Cloncurry, Leicesters. Average price, 8*l.* 2*s.* 2*d.*; highest price, 10*l.* 10*s.*; lowest, 7*l.* 7*s.*
Loftus H. Bland, Esq., Border Leicesters. Average, 9*l.*; highest, 21*l.*; lowest, 5*l.* 5*s.*
T. B. Browne, Esq., Cotswolds. Average, 11*l.* 0*s.* 9½*d.*; highest, 15*l.* 4*s.* 6*d.*; lowest, 6*l.* 6*s.*
Thomas Robertson, Esq., Border Leicesters. Average, 7*l.* 14*s.* 7*d.*; highest, 8*l.* 18*s.* 6*d.*; lowest, 6*l.* 6*s.*
Ralph S. Cusack, Esq., Shropshires. All withdrawn but four.
Joseph Tuite, Esq., Shropshires. One sold and two withdrawn.
Phineas Riall Riall, Esq., good Leicesters. Withdrawn.
Wm. Owen, Esq., English Leicesters. Average, 10*l.* 14*s.*; highest, 20*l.* 9*s.* 6*d.*; lowest, 7*l.* 7*s.*
Thomas Mitchell, Esq., English Leicesters. Average, 8*l.* 0*s.* 7*d.* All sold.
George Thunder, Esq., English Leicesters. Average, 10*l.* 6*s.*; highest, 19*l.* 19*s.*; lowest, 7*l.* 17*s.* 6*d.*
Captain Wilson, first-rate Shropshires. One sold; remainder withdrawn.
Captain M. Filgate, Leicesters. One sold; remainder withdrawn.
T. Rutherford, Esq., Shropshires. Average, 7*l.* 8*s.* 4*d.*; highest, 10*l.* 10*s.*; lowest, 5*l.* 5*s.*
J. Farrell, Esq., Shropshires. Average, 6*l.* 1*s.* 1*d.*; highest, 7*l.*; lowest, 5*l.* 5*s.*
H. Cusack, Esq., Shropshire rams. One sold for 6*l.* 6*s.*; remainder withdrawn.
— Donovan, Esq., prime Shropshires. All withdrawn.
Representatives of J. H. Smith Barry, prime Shropshires. Average, 7*l.* 14*s.*; highest, 11*l.* 11*s.*; lowest, 5*l.* 15*s.* 6*d.*
Henry Purdon, Esq. One lot at 10*l.* 10*s.*; remainder withdrawn.

Miscellaneous.

Mr. Pawlett's Experiments with Wheat.—Having been several times asked for a report of my Wheat crop of the present season, I will now present it, with your permission, through the columns of the *Messenger.* My experiments were on a small scale this year, as I had not any new varieties recommended to my notice, so that I again determined to test my old kinds of Wheat which have done so well with me, and found the result to agree with the account published in the *Messenger* of last season. I am not generally satisfied with one or two trials between the best kinds of Grain, and often repeat the experiments for three or four years; as the seasons vary so much, the produce of one kind may be greater one year than on the average of many. These experiments were made on a piece of sharp gravel land, which, owing to a very dry season, caused the crop to be very light in appearance; consequently, my report will show a less production per acre than may be expected from me in this prolific year. Had they been on my best land, I should have had from 10 to 12 bushels per acre more; nevertheless, the experiment may be quite as satisfactory, indeed, I am inclined to think that trials of the comparative value of different kinds of grain are best when made on secondary soils, as almost any sort of Wheat will produce well on first class. October 18, 1862.—The following three varieties of Wheat were drilled after the rate of 6 pecks of seed per acre, at 8-inch intervals on plots of land adjoining each other, a row being missed between them, on a piece of White Clover lea, the result of which trial was as follows:—

	Produce per Acre.		Value per Quarter.	Value per Acre.		
	Bush.	Pk.	*s.*	£	*s.*	*d.*
Burmah, white ..	38	0	46	10	18	6
Corner's, white ..	43	1	48	12	19	6
Grace's, white	47	0	46	13	10	0

On the same day another trial was made in the same field, and under the same circumstances as the former; the result was as follows:—

	Produce per Acre.		Value per Quarter.	Value per Acre.		
	Bush.	Pk.	*s.*	£	*s.*	*d.*
Browick, red	52	0	45	14	12	6
Golden Drop, red ..	50	1	45	14	1	0
Tibbald's Wonder, red..	53	0	45	14	14	0
Grace's, white	52	2	46	15	1	6

The first experiment shows a greater difference in yield between Grace's Wheat and Corner's than I generally have found. This may be accounted for from the long continued drought, as the former grows much more straw than the latter. Grace's Wheat has produced, on the average of the last five years 46 bush. per acre, and Corner's 45. They are both very profitable sorts. I have grown the red "Tibbald's Wonder" the last four seasons, and the average produce has been 48 bush. 1 peck per acre. It has beaten this season the Browick and Golden Drop, both excellent sorts; so that it must be regarded as a first-class Wheat. The Wheat in this part of the country has been harvested in fine condition, and the yield is remarkably good. Many reports of the crops already threshed out are quite unprecedented. *T. E. Pawlett, Beeston, Sept.* 9, *in Bell's Messenger.*

Agriculture in the Shetlands.—A short tour to the north of Scotland has pleasantly occupied us since our last. The rain was a sad drawback during our visit to the Shetlands, and its endless vista of peat bogs, and the chances of harvest to a Southron, after such a wet July, seemed sadly remote. The sheep were a most varied and curious little race, the wool of the ewes all running to hair, while that of the lambs was nice enough. Some Scottish farmers have introduced Cheviots, and a cross with the Southdown and Cheviots as well. Short-horns have also made their way to the island of Brassey, with considerable success. From 500 to 600 of the native cattle are exported each year, and from 400 to 500 ponies, principally for the Newcastle coal pits, although it is said that they will soon be superseded there by machinery. The horse-ponies are principally used in this way. Shetlanders are rather careless about the style of sires; but still even the mare-ponies keep up their prices well; and in August, when we saw them, they were full of condition. Their power of carrying weight is only equalled by that of the Shetland women, one of whom we met scaling the hills with 56 lb. of hosiery on her back, and making nothing of it; and it is said that they can carry 70 lb. for miles in as good style as the Auvergnats in Paris. Owing to the lack of grass, the cows were very cheap, and one cotter's wife vainly pressed us to give her 2*l.* for a two-year-old bullock, and lead it the 18 miles which we had to walk back from the interior to the steamer. If the Shetlands are gradually improving (and people are not half alive yet to the value of the Shetland cow, both for park, milk, and beef purposes, and crossing with the Short-horn) the Orkneys are improving still more, and Shapinshey, under the watchful eye of its landlord proprietor, Mr. Balfour, of Balfour and Trenabie, is quite a model settlement of itself, with its cattle shows, and fairs, and volunteer artillery troop. In the Orkneys, generally, the crops are very fair—oats best—but rather behindhand, owing to the drought in June and July and the wet season which followed. Horses are singularly cheap. We bought a five-year-old mare of nearly 15 hands, which carried us 52 miles at a pinch through Caithness in one night, for 10*l.*, and fresh shoes all round for a luck penny; and a friend got an excellent Clydesdale mare, which had worked four or five seasons, for 12*l.* 10*s.*! Cattle keep up their prices well; and about 6000 are exported each year for Aberdeen, Banffshire, Edinburgh, Morayshire, &c. When the Channel Fleet was there last year the island furnished 6000 lbs. of meat per diem and supplies for 10 days more "without deranging the export by a single horn." The Turnips in Caithness are not very remarkable, as it was too wet in the spring and too dry in the summer to suit them; and the recent heavy rains will keep back a very promising harvest for at least a fortnight. Stock has been selling well, many of the top breeders getting rid of their yearlings, which are all wisely brought up at the teat and not by the pail, at about 1*l.* for each month's keep since their birth. Malachite is quite a Royal hero at Sir John Sinclair's, where he is being used as a cross for the Galloway cattle as well as the country cows. The former cross is one to which the Baronet has especially devoted his attention, and with no small success. Sir George Dunbar, on the contrary, crosses the Short-horn bull with country cows and Shetlanders. The calves of the latter cross very soon become as big as their dams, and

are thrifty good doers. Sir George has sold about 50 Leicester rams this year, reserving a first-prize shearling and a three-shear for his own use, the latter of which would, if we mistake not, have held his own well if he had gone to Kelso. *Illustrated News.*

Land Drainage.—"Many of those who drain extensively neglect to have a plan of the draining of each field made at the time that the work is done: a hint as to the advantage of this might be advisable." *The late Sir R. Peel to Mr. Gisborne.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0–6	Amount of Cloud, 0–10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in 24 hours previous on the Ground.
	Sept.	Inches.	°	°				°	°	°	°	Inches.
Thursday	11											
Friday	12	30.32	57	53	N.W.	0	9	63	44	76	42	1.93*
Saturday	13	30.36	59	56	N.W.	1	9	61	51	72	42	
Sunday	14	30.44	55	51	N.W.	2	10	65	41	76	33	
Monday												
Tuesday												
Wednesday												
Thursday												

* This the result of a heavy thunderstorm on the night of the 9th, and very heavy rain on the night of the 10th.

Notices to Correspondents.

BARLEY: *A Constant Subscriber* asks any of our correspondents to favour him with the names of any kinds of Barley fit for malting, that ripen before the Chevalier, and where they can be procured. [Any particulars of the South of Europe Barleys would be acceptable. The common or early English Barley is earlier than Chevalier. There is also a "*July* Barley" so-called.]

GROWING FLAX.—The following is the extent of Flax grown in Ireland in each of the following years:—1854, 151,403 acres; 1855, 97,075 acres; 1856, 106,311 acres; 1857, 97,721 acres; 1858, 91,646 acres; 1859, 136,282 acres; 1860, 128,595 acres; 1861, 147,957 acres; 1862, 149,889 acres. This last item has been recently published.

MEASURE: *T B.* The sack of Potatoes is in general 3 heaped bushels—in some places it is 4 bushels, in some places it is 1½ cwt., in others 2 cwt., in others 240 lbs., in others 280 lbs. !

POTATOES: *G P.* says on digging my Potatoes I find a good crop, but many of the finest of them have the disease, now, I fear, a permanent one amongst us. To what use (if any) can I apply this refuse of the crop? [Steam them, put a little salt, and ram them hard into any tank or vessel you may have for pig food.]

PRODUCE OF WHEAT: *H V F.* It is not possible to state absolutely what is the average produce of Wheat for soils of given annual value to rent, because a soil which will not grow Wheat at all (so to speak) may yet have a considerable agricultural value for other purposes. Still less is it possible to state the farm produce of such land for any one year, because two fields of equal value to rent may be affected the one favourably and the other unfavourably, by such a summer as we had this year. Nevertheless, taking the case of land neither heavy nor light, we should be inclined to say that if worth 30*s.* an acre to rent, it ought to yield 30 to 32 bushels of Wheat; if worth 25*s.* it ought to yield 24 to 26 bushels of Wheat; if worth 20*s.* it may yield 18 to 22 bushels; if worth 15*s.* per acre only you can hardly expect to grow Wheat on it at all.

THE MORTON-LE-MOOR HERD OF SHORTHORNS: *R.* The following was the result of the sale of a portion of this herd by Mr. Strafford the other day. The highest price given was 105 guineas for *Water Maid*, by Mr. G. R. Barclay, Keavil, Fife. That portion of the herd just offered for sale comprised 56 females and 10 males. The remainder, numbering about 50 bulls, cows, and heifers, will be sold on the 15th October. The following is a summary of the late sale:—57 cows and heifers realised 2290*l.* 1*s.*, being an average of 40*l.* 3*s.* 6*d.*; 10 bulls realised 263*l.* 11*s.*, being an average of 26*l.* 7*s.* 1*d.* The total proceeds of the sale amounted to 2533*l.* 12*s.*, so that the 67 head of cattle averaged 38*l.* 2*s.* 3*d.*

THOMAS MILLINGTON,

GLASS MERCHANT.

ESTABLISHED 1750.

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

The Agricultural Hall, Islington, containing an Acre of Glass, was supplied by T. MILLINGTON.

Mr. Rivers, and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home Use and for Exportation.

☞ *For prices see Advertisement of August* 1.

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HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½*d.* ...	7¼*d.*
Seconds	3½*d.* ...	5*d.*
Thirds	2½*d.* ...	3½*d.*
Fourths	2¼*d.* ...	3¼*d.*

HORTICULTURAL GLASS.

Stock Sizes, 16-ounce. In 100 feet Boxes.

These prices only apply to the sizes stated.

	4ths.	3rds.	4ths.	3rds
	s. d.	*s. d.*	*s. d.*	*s. d.*
11 by 9 12 by 9 13 by 9 14 by 9	10 9	12 3	12 6	14
12 „ 10 13 „ 10 14 „ 10 15 „ 10				
13 „ 11 14 „ 11				
14 „ 12 15 „ 12 15 „ 11 16 „ 11				
18 „ 12 19 „ 12 16 „ 12 17 „ 12				
16 „ 13 17 „ 13 20 „ 12 21 „ 14	11 6	13 6	13 6	16 0
19 „ 13 20 „ 13 18 „ 13				
16 „ 14 17 „ 14 21 „ 13	14 to 15 ozs. to the foot.		16 to 17 ozs.	
19 „ 14 20 „ 14 18 „ 14				

HARTLEY'S

PATENT ROUGH PLATE GLASS.

Packed in Boxes of 50 feet each.

	s.	*d.*
6 by 4 and 6½ by 4½	10	6 per box.
7 „ 5 „ 7½ „ 5½	12	0 „
8 „ 6 „ 8½ „ 6½	13	6 „
9 „ 7 „ 9½ „ 7½ and 10 by 8 ...	15	0 „

GLASS for ORCHARD HOUSES.

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12 }	Fourths ...	11*s.* 6*d.*	13*s.* 6*d.*	15*s.* 0*d.*
20 „ 13 }	Thirds ...	13*s.* 6*d.*	16*s.* 0*d.*	19*s.* 0*d.*
20 „ 14 }	Seconds		English.	English.
20 „ 15 }	Best		18*s.* 0*d.*	23*s.* 0*d.*

The above prices include the Boxes.

We recommend 3rds quality at 16*s.*, or 21-ounce at 19*s.* (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½ }	11*s.* 6*d.*
8 „ 6	8½ „ 6⅜	9 „ 7	9½ „ 7½ }	
		10 „ 8	10½ „ 8½	12 6

Boxes 2*s.* each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

London Agents for Hartley's Patent Rough Plate.

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Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

Glaziers' Diamonds from 10*s.* to 21*s.* each.

Glass Tiles and Slates in Sheet and Rough Plate. Plate Glass, Patent Plate, and Hartley's Improved Rough Plate.

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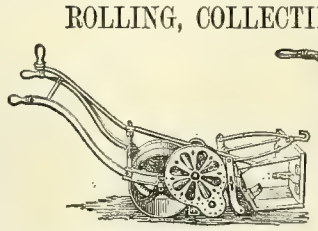
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TURPENTINE.

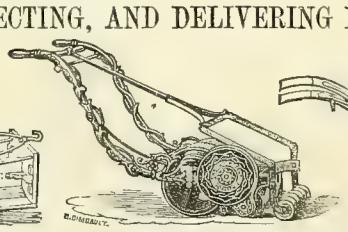
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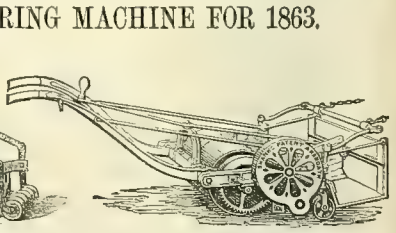
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Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine ..	£28 0 0	.. 40*s.* extra.
No. 2.—42-inch Machine ..	26 0 0	.. 40*s.* „
No. 3.—36-inch Machine ..	22 0 0	.. 30*s.* „
No. 4.—30-inch Machine ..	19 0 0	.. 30*s.* „

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

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Width of Cutter.		If with Patent Delivering Apparatus,
No. 5.—30-inch Machine ..	£15 15 0	.. 30*s.* extra.
No. 6.—28-inch Machine ..	14 10 0	.. 30*s.* „
No. 7.—25-inch Machine ..	12 10 0	.. 25*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; ditto for Donkey, 16*s.* per set.

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Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6 }	*Easily Worked by Two Men.*
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No. 10.—19-inch Machine	7 12 6	*Ditto by a Man and Boy.*
No. 11.—16-inch Machine	£6 17 6	*Easily Worked by a Man.*
No. 12.—13-inch Machine	6 2 6	*Ditto ditto by a Boy.*
No. 16.—12-inch Machine	5 5 0	

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HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

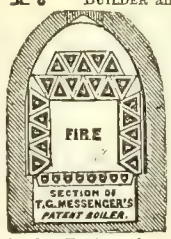
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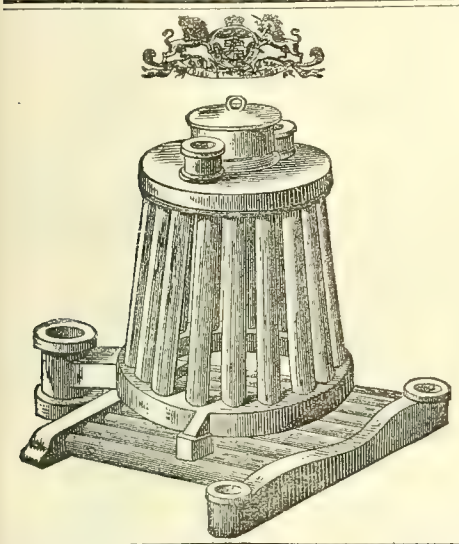
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"AN IMPROVEMENT IN THE MANUFACTURE OF CAST TUBULAR BOILERS."

TAKE NOTICE, that a DISCLAIMER has been filed in the Patent Office and allowed by the Attorney-General, by which such part of the above Patent as was considered questionable by the Court of Exchequer Chamber has been disclaimed. Any person infringing the said Patent after this Notice will be proceeded against according to Law.

Disclaimer allowed, September 1, filed September 2, 1863.

I BEG to NOTIFY, that having by leave of her Majesty's Attorney-General DISCLAIMED such part of my Patent as was considered by the Court of Exchequer Chamber as questionable, the said Patent is now absolutely confirmed; and any person infringing the same will be proceeded against according to law.

HENRY ORMSON,

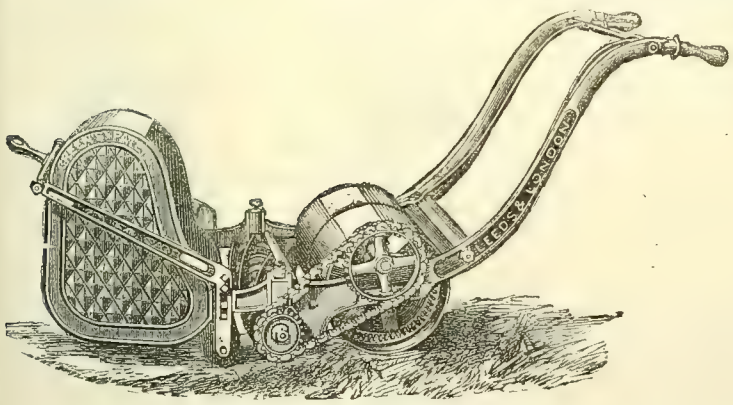
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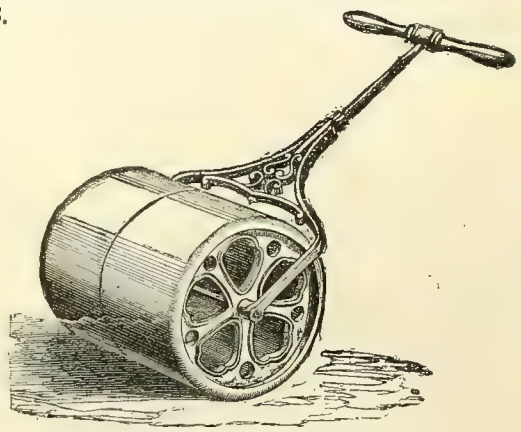
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NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

FOR THE PRESENT SEASON 1863.



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THE FIRST PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION WAS AWARDED TO THOS. GREEN FOR HIS PATENT LAWN MOWERS, PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN ON THREE SEPARATE OCCASIONS DURING THE SEASON OF 1862, AND DURING THE PRESENT SEASON 1863.

PRICES.

To Cut 10 inches	£3	10	0	Suitable for a Lady.								
„ 12 „	5	0	0	Suitable for One Person. If with internal gear, 10*s.* extra.								
„ 14 „	5	10	0	Do.	Do.	Do.	Do.	10*s.* extra.				
„ 16 „	6	10	0	Suitable for One Man or Two Boys.								

The 16-inch and 14-inch Machine, with internal gear, are particularly recommended for use by one person.

DONKEY and PONY MACHINES, including Traces.

	With Collecting Box.	With Patent Delivery Box.
To Cut 24 inches	£11 10 0	£12 10 0
„ 26 „	12 10 0	13 12 0
„ 30 „	16 14 0	18 0 0

Leather Boots for Donkey, 16*s.*; for Pony, 20*s.*

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To Cut 18 inches ...	£7 10 0 Suitable for One Man and Boy £8 15 0
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„ 24 „ ...	9 0 0 Do. Do. ... 10 7 6

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Prospectus with Testimonials to be had at the Manufactory, 83, Great Portland Street, W.

Slate Tubs.

WANTED, 12, 18, 24, and 30-inch TUBS.—Persons having such can forward List of Prices to E., *Gardeners' Chronicle* Office, W.C.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK, 31, Cornhill, E.C.; late 6, Coleman Street.

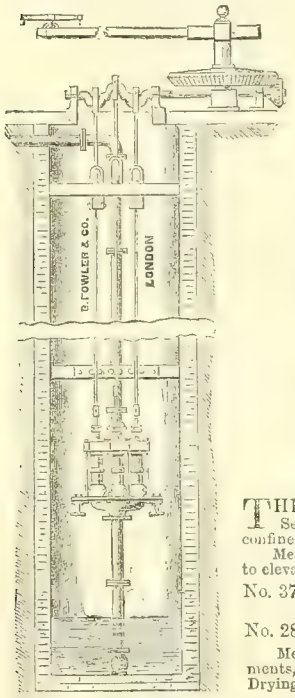
*** Catalogues sent on receipt of 6 postage stamps.

MORTON'S NEW IMPROVED PATENT LAWN MOWER, with Sun and Planet Motion, having all the most recent Improvements, is allowed to be the best Machine for preventing Ribbing and Clogging.

To be had, with prices and particulars, of GRIMMOND, LAIRD, & Co., 15, Cannon Street West, London, E.C; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath; and all the principal dealers throughout the country.

HAVE YOU a LAWN?—Use BELCHER'S PATENT PLANTAIN EXTRACTOR; which neatly removes Plantain and Daisies, and replaces them with fine Turf. Price 6*s.*: to be had of all Ironmongers.

Wholesale Agents, S. & E. RANSOME & Co., 31, Essex Street, Strand, W.C.



CLINTON & OWENS,

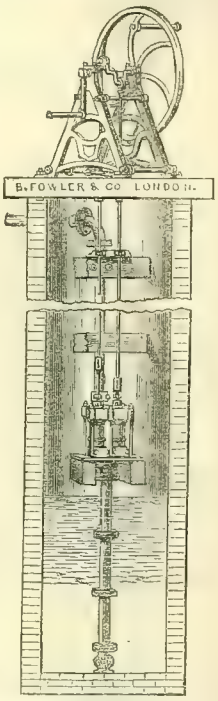
(LATE BENJAMIN FOWLER & CO.),

MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.





THE Landscape Sketch shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for raising water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

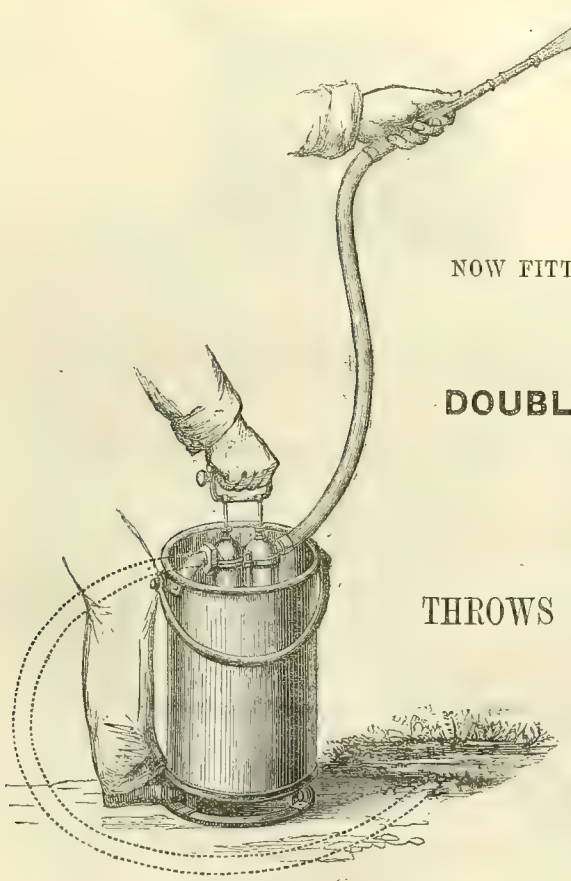
No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c., free on application.

37. 28.

WARNERS' IMPROVED PATENT,



NOW FITTED WITH AN AIR VESSEL,

IS THE ONLY

DOUBLE-ACTION ENGINE

at £2 2s.

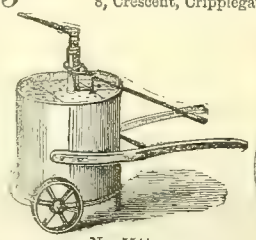
THAT

THROWS A CONSTANT STREAM.

May be obtained of any Ironmonger or Seedsman at the above price, or of

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.

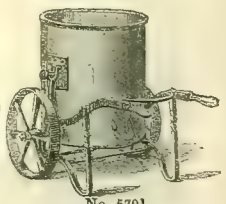


No. 554½.

WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons	.. ..	£2 15 0
16 „	.. ..	3 15 0
24 „	.. ..	5 0 0

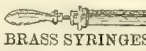
Larger sizes may be had in either Wood or Iron.



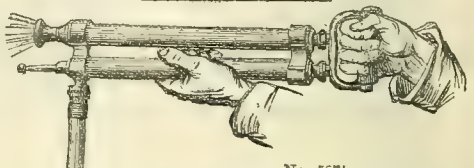
No. 579½.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	..	£2 10 0
20 „	..	2 0 0



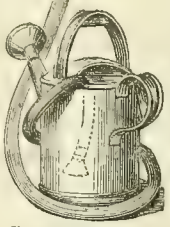
BRASS SYRINGES of all kinds from 9*s.* to 21*s.*



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 5 feet Flexible Suction Pipe,

21s.



Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

THERE ARE NO SUCTION OR DELIVERY VALVES, hence MUCH FRICTION AND LIABILITY TO CHOKE with leaves and dirt IS AVOIDED.

JOHN WARNER & SONS, 8, Crescent, Cripplegate, London, E.C.

1000 GARDEN TARPAULINGS, 8 feet by 4 feet, with 8 brass eyelets. 32*s.* per dozen, or 2*s.* 9*d.* each; any size 9*d.* per square yard. THICK TARPAULING; WATERPROOF large-size CAPES, 3*s.* 6*d.* each; ditto POLICE CAPES, 24*s.* to 36*s.* per dozen. HORSES' LOIN CLOTHS, 7*s.* each. DRIVING APRONS, with straps, 10*s.* WAGGON and CART TARPAULINGS, CORDS, ROPES, &c.

R. RICHARDSON, 99, Euston Road, London, N.W.

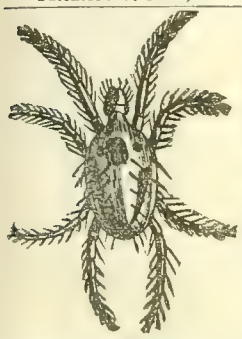
N.B. 800 yards COCOA-NUT FIBRE MATTING, 6*d.* per square yard. Has been used; but in good clean state.
WIRE FENCING for RABBITS, 4½*d.* per square yard.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP,
1*s.* per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.
Both may be obtained of all principal Seedsmen.
Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from one to two ounces to the gallon of water is recommended for growing Plants; one from 4 to 16 ounces for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited).

City of Manchester.

TO ARCHITECTS AND LANDSCAPE GARDENERS.

MANCHESTER CEMETERY.—The Council of the City of Manchester are desirous of RECEIVING DESIGNS for the DRAINING and LAYING OUT of the LAND opposite the Philips Park, intended for a Cemetery; and Designs for the Chapels, Entrance Gates, and various other Buildings required in such Cemetery. The following Premiums will be given:—For the best plan, a premium of 100*l.*; for the second, a premium of 40*l.*; for the third, a premium of 20*l.* The designs obtaining premiums to become the property of the Council, who are not to be bound necessarily to employ any of the competitors to carry out the works. A plan of the land, and all other necessary particulars, may be obtained at the office of the City Surveyor, Town Hall, King Street, Manchester, on or after the 24th day of September.—By order,
JOSEPH HERON, Town Clerk.
Town Hall, King Street, Sept. 19, 1863

WANTED, a NURSERY and SEED BUSINESS, with 2 or 3 Acres of Land attached, within 20 miles South or West of London.
J. B., care of BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, London, W.C.

To Nurserymen and Others.

TO BE SOLD, by Private Contract, a large VINERY or GREENHOUSE, about 40 feet by 16, the purchaser to take it down.
Apply to Mr. H. HARRIS, Leyton, N.E.
Can be viewed between the hours of 10 and 5 for the next week.

TAUNTON NURSERIES (late Mr. Young's).—The Purchaser of the greater part of these grounds is willing to LET them, with immediate possession.
The taker can now have the advantage of Purchasing the whole of the Stock and Plant.
Immediate application is needful to Mr. SAMUEL K. POLLARD, Surveyor, Taunton.
Dated Sept. 17, 1863.

AN OLD-ESTABLISHED COUNTRY NURSERY BUSINESS, with Plant Houses, and first-class Stock, on Six Acres of Ground, for Positive SALE, at a sacrifice, or a PARTNER accepted, who could Purchase half the Stock, and promote the Business. He would have the privilege of Purchasing the whole as soon as prepared or disposed to do so. Declining health of the Proprietor induces him to make this advantageous offer.
Address, NURSERY, Post Office, York.

TO BE LET, NURSERY GROUNDS in Brighton, comprising extensive Vineries and Peach-houses, in good bearing condition; large Span-roofed and Lean-to Houses, and Pits for Plants; also, a capital Residence and Cottages, with Stabling and Coach Houses.
The Stock can be taken at a valuation or a fixed sum, as agreed upon, or a PARTNER with Capital would be accepted.
Full Particulars to be had on application to the GARDEN SUPERINTENDENT, Alexandra Park, Tottenham Wood, Hornsey.

Notice.

THE SALE of LIVE and DEAD STOCK at Mr. ALLAWAY'S, Earl's Court Farm, Kensington, as announced for Sept. 22 and 23, will NOT TAKE PLACE.

Sales by Auction.

Forty Farm, Preston, near Cirencester.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD has received instructions from Mr. JOHN LANE, of Barton Mills, to offer for SALE by AUCTION, without reserve, on THURSDAY, September 24, at the Forty Farm, Preston, his entire Herd of Superior SHORT-HORNS, consisting of about 60 head of Bulls, Cows, and Heifers. Specimens of this Herd have distinguished themselves at the meetings of the Royal Agricultural Society of England, the Bath and West of England, Chippenham, Gloucester, Tredegar, Warwickshire, Worcestershire, and other local Shows; after which will be Sold a few choice Short-horns, from the Herd of E. Bowly, Esq., Siddington.
Catalogues, with pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or, Mr. BOWLY, Siddington House, Cirencester; and of Mr. LANE, Barton Mills, Cirencester.

Woolton.

CHOICE COLLECTION OF ORCHIDS, FERNS, HOTHOUSE AND STOVE PLANTS.

MR. BRANCH will SELL by AUCTION, on the Premises, Acre Field, Woolton, near Liverpool, on TUESDAY, September 22, at 11 o'Clock, a Choice and Valuable Collection of ORCHIDS, FERNS, HOTHOUSE and STOVE PLANTS, of fine description and in splendid condition, the property of James M'Kinnell, Esq., who is discontinuing their cultivation.
To be Viewed on Monday, September 21, when Catalogues may be had at Acre Field; or at Mr. BRANCH'S Offices, in Hanover Street, Liverpool.

To Noblemen, Gentlemen, Nurserymen, and Others.

SALE AT THE SANDIACRE STATION NURSERY.

POTT AND NEALE will SELL by AUCTION, by order of Mr. John Frettingham, on TUESDAY, September 29, commencing at 12 o'Clock precisely (without Reserve), the following NURSERY STOCK, now growing upon 2 Acres of Land, near the Railway Station, at Sandiacre, on the Erewash Valley Line:—

6000 Green Hollies, from 2 to 3 feet
2000 Striped Hollies, in variety, 1 to 2 feet
100 Pinus excelsa, 3 to 4 feet
100 Arborvitæs, 5 to 6 feet
300 Rhododendrons, in variety
400 Berberries
200 Irish Junipers, 1 to 2 feet
500 Siberian Arborvitæs, &c., &c.

The whole of which were transplanted last season.
Refreshments will be provided at 11 o'clock, at the Warren Arms Inn.
Catalogues descriptive of the various lots may be had of Mr. FRETTINGHAM, at the Stapleford Nursery; at the *Mercury* Office, Derby; or at the Auctioneers' Offices, Nottingham, on application by post or otherwise.

Homerton.

TO GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Fry to SELL by AUCTION, on the Premises, Homerton Nursery, Homerton, within three minutes' walk of the Hackney Station on the North London Railway, on WEDNESDAY, September 30, and THURSDAY, October 1, without reserve, the ground being immediately required for Building purposes, the whole of the valuable GREENHOUSE PLANTS, consisting of about 4000 fine Azalea indica, and 500 Double Camellias, of various sizes, including fine specimens adapted for cut blooms, all well furnished with flower buds; 1000 Myrtles, 2500 Diosmas, 600 Acacias, fine Standard Fuchsias, Cytisus, Ericas, 3000 Show, Fancy, and French Pelargoniums, Scarlet and Variegated Geraniums, &c. Sundry Nursery Stock, together with a nearly new half circular Iron Roof Slow House, Eleven Greenhouses, several Pits, One, Two, and Three-light Boxes, quantity of Lights, 3 and 4-inch Hot-water Piping, Boilers, Garden Pots, nest Seed Drawers, Counter, and Sundry Effects.
May be viewed prior to the Sale. Catalogues (when ready) may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Sudbury, Suffolk.

FRUIT TREES AND ORNAMENTAL NURSERY STOCK.

MESSRS. BLUNDEN AND SQUIRE have received instructions from Mr. STEPHEN BROWN, Sudbury, Suffolk, who is declining the Nursery branch of his trade, to offer by PUBLIC AUCTION early in October, at the Nursery near the Railway Station, about 3500 very handsome Pyramidal Standard and Trained FRUIT TREES, comprising Apples, Pears, Plums, Cherries, Apricots, Peaches, Nectarines, &c. A large number of FRUITING VINES and other Fruit Trees in Pots; also many thousands of Choice CONIFERÆ, EVERGREENS, and the General Ornamental Nursery Stock, all in the finest condition. The Pyramidal Fruit Trees are particularly worth the notice of purchasers, being some of the handsomest in the Trade, and many of very fine size.
Further particulars, with date of Sale, will appear in future Advertisements.

Waltham Abbey, N.

TO GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MR. C. PRYOR will submit to public SALE by AUCTION on the Premises, Waltham Nursery, Waltham Abbey, N., about one mile from the Waltham Station, G.E.R., on THURSDAY, October 1, at 12 o'clock, a choice COLLECTION of fine healthy ERICAS, Acacia armata, Genistas (Cytisus fragrans), Coronillas, Myrtles; Show, Fancy, and French Pelargoniums; Scarlet and Variegated Geraniums, Azaleas, Fuchsias, Ferns, Cyclamens, Deutzia gracilis, Calceolarias, Roses, Chrysanthemums, and a variety of other plants; also a quantity of Rhododendron arboreum, suitable for grafting.
May be viewed the day prior to and Morning of Sale, and Catalogues had on the Premises, and of the Auctioneer, Waltham Abbey, N.

Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, September 26, at half-past 12 o'clock precisely, a fine Assortment of DUTCH FLOWER ROOTS and BULBS, consisting of Double and Single Hyacinths, Double and Single Tulips, Polyanthus, Narcissus, Crocus, New Double Anemones, Ranunculus, &c.
On view the Morning of Sale, and Catalogues had.

Great Sale of Wellingtonia gigantea and other Choice Conifers at Edmonton.

MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER), 38, King Street, Covent Garden, W.C., begs to announce that he has been favoured with instructions to SELL by AUCTION, without reserve, on the Premises opposite the Golden Fleece, Edmonton, London, N., on THURSDAY and FRIDAY, October 1 and 2, at half-past 12 o'clock precisely each day, the finest Stock of SEEDLING WELLINGTONIAS in the kingdom, consisting of about 20,000 plants of various sizes, from 9 inches to 4 feet, chiefly in pots, and in the most robust health. Also a fine assortment of choice CONIFERS, in pots, comprising 20,000 Cupressus Lawsoniana, 2000 Araucaria imbricata, 600 Picea Nordmanniana, and a large number of others, including Pinus ponderosa, P. Sabiniana, P. Lambertiana, Pinus insignis, P. Don Pedri, Cupressus macrocarpa, &c. The whole of these plants are in prime condition for autumn planting, and are well deserving the attention of the Nobility, Gentry, and the Trade, being lotted to suit all buyers.
On view for several days previous to Sale, and Catalogues had on the Premises, and of Mr. J. C. STEVENS, at his Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.
Omnibuses run every half hour from the Flower Pot, Bishopsgate Street, E.C. There are also frequent trains from the Shoreditch Station on the Great Eastern Railway, and the one that leaves the Shoreditch Station at 12 noon arrives at Edmonton at half-past 12, just in time for the Sale.

Bagshot, Surrey.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS ENGAGED IN ORNAMENTAL PLANTING.

MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER), 38, King Street, Covent Garden, W.C., begs to announce that he has been favoured with instructions from Mr. Standish, in consequence of removal to Ascot, to SELL by AUCTION, on the Premises, Bagshot, Surrey, 2½ miles from the Sunningdale Station on the London and South-Western Railway, on MONDAY, Oct. 12, and several following days, at half-past 12 o'Clock precisely each day, without the least reserve, a Valuable Collection of HARDY CONIFEROUS and other PLANTS, comprising:—

Araucaria imbricata, 2 to 4 ft.
Abies Albertii, 2½ to 4 ft.
,, Douglasii taxifolia, 3 to 5 feet
,, Menziesii, 4 to 6 ft.
Cedrus atlantica, 2 to 5 ft.
,, Deodara, 3 to 7 ft.
Chamæcyparis sphæroidea, 2 to 3 ft.
Cryptomeria japonica, 3 to 6 ft.
Cupressus Lawsoniana, 2 to 4 ft.
Cephalotaxus Fortuni, 2 to 4 ft.
,, Drupacea, 2 to 3 ft.
Libocedrus chinensis, 2 to 3 ft.
Taxus fastigiata, 3 to 7 ft.
Taxus dovastoni, 3 to 4 ft.
Pinus Benthamiana, 4 to 7 ft.
,, excelsa, 2 to 3 ft.
,, tuberculata, 1 to 2 ft.
,, Wincesteriana, 1 foot
,, Hartwigi, 1 ft.
,, Sabiniana, 1 to 2 ft.
Picea grandis, 1 to 2 ft.
,, amabilis, 1 to 2 ft.
,, Pinsapo, 2 to 3 ft.
,, Nordmanniana, 1½ to 4 ft.
,, nobilis, 1 to 3 ft.
Thuja gigantea, 1 to 2 ft.
Wellingtonia gigantea, 2 to 4 ft.
&c., &c., &c.

The whole having been transplanted within the last twelvemonth, are in a fine state for removal, and are lotted to suit Private Buyers and the Trade. Also various first-class EVERGREENS and DECIDUOUS TREES and SHRUBS, including 200 Skinnera japonica, 500 Variegated and Green Hollies, 1000 Portugal and Common Laurels, 600 Standard and other named Rhododendrons, 300 Kalmia latifolia, 1000 Standard Dwarf and Pot Roses, Standard and Pyramidal Apple and Pear Trees, Camellias, hardy Azaleas, &c., all of which are in the finest possible health, and for Sale without the least reserve.
On view the week prior and mornings of Sale. Catalogues had at Mr. STANDISH'S Nurseries, Bagshot and Ascot; and of Mr. J. C. STEVENS, at his Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.
Approved Bills at three months taken of purchasers above 50*l.* A Van will meet the train starting from Waterloo at 10 25 and 10 56, arriving at Sunningdale Station at 12 o'clock to convey parties to the Sale. Refreshments will be provided on the ground for the buyers at the Sale.
NOTE.—On WEDNESDAY and THURSDAY, October 21 and 22, and on TUESDAY and WEDNESDAY, October 27 and 28, will be sold by AUCTION, by Mr. J. C. STEVENS, at his Great Rooms, 38, King Street, Covent Garden, W.C., a portion of Mr. Robert Fortune's recent INTRODUCTIONS from JAPAN, and the whole of his CHINESE PLANTS. They will be on view at Mr. STANDISH'S Nursery at Bagshot, during the sale of his Nursery stock.

Important Sale of Mr. R. Fortune's Japanese Plants.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, London, W.C., on WEDNESDAY and THURSDAY, October 21 and 22, at half-past 12 o'Clock precisely each day, without reserve, a PORTION of Mr. Robert Fortune's recent JAPANESE INTRODUCTIONS, removed from Mr. Standish's Nursery, Bagshot; comprising the following new and interesting Plants.

100 Thujopsis dolabrata variegata, 6 inches.
100 Euonymus radicans foliis variegatis, 6 inches.
150 Euonymus japonica variegata, 1 to 2 feet.
100 Juniperus chinensis variegata.
50 Retinispora pisifera aurea, 6 inches.
50 Osmanthus ilicifolius, 9 inches.
150 Osmanthus ilicifolius variegatus nanus, 9 inches.
400 Lonicera aureo-reticulata, 1 to 2 feet.
50 Raphiolepis ovata (Photinia), 1 to 2 feet.
200 Thuja (Biota) falcata.
200 Iris lævigata.
250 Sciadopitys verticillata, 6 inches.
100 Microlepia scabra, 1 foot.
500 Lastrea opaca, 1 foot.
100 Ilex Fortunei, 1 foot.
500 Pinus densiflora.
50 Eurya latifolia variegata, 6 inches.
300 Retinispora obtusa, 6 inches to 1 foot.
300 Retinispora pisifera, 1½ feet.
400 Japanese Chrysanthemums.
50 Taxus Fortuni.

Also the following:—

50 Dracæna Banksii, 2 to 3 feet.
150 Desfontainea spinosa, 1½ feet.
50 Cyathea dealbata.
300 Rhododendron Nuttalli, 1 to 2 feet, &c.

The whole for absolute sale, and in the finest possible health.
On View on the Premises, Bagshot, Surrey, during the Sale of Mr. Standish's Nursery Stock, also on the days of Sale at Mr. J. C. STEVENS'S Auction Rooms and Offices, 38, King Street, Covent Garden, W.C., where Catalogues can be obtained, by forwarding two postage stamps.

Mr. Robert Fortune's Chinese Plants for Absolute Sale.

EXTENSIVE SALE OF RARE AND VALUABLE INTRODUCTIONS FROM CHINA.

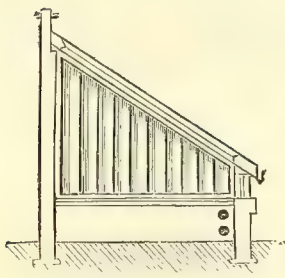
MR. J. C. STEVENS has much pleasure in announcing that he has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY and WEDNESDAY, October 27 and 28, at half-past 12 o'Clock precisely, without the least reserve, in consequence of the agreement which existed between Messrs. Standish and Fortune with regard to the Chinese Plants having terminated, the most important COLLECTION of RARE and VALUABLE PLANTS ever offered for public sale, including the whole of Mr. Robert Fortune's RECENT INTRODUCTIONS from CHINA, and a part from JAPAN, including—

3000 Torreya grandis, 4 to 10 inches
150 Abies Kæmpferi, 2 to 4 feet
2000 Chamærops Fortunei
50 Pinus Bungeana
1000 Pinus sp. (nova) Pekin (Tabulæformis), 4 to 6 inches
25 Bambusa variegata
500 Thuja sp. (Pekin)
500 Lastrea opaca
400 Lonicera aureo-reticulata
200 Iris lævigata
200 Retinispora obtusa
200 Retinispora pisifera, &c., &c.

The whole of these Plants are in the finest possible health and are lotted to suit all buyers, and are well worthy the attention of the Nobility, Gentry, and Trade.
On view at Mr. STANDISH'S Nursery, Bagshot, during the Sale of his Nursery Stock, and on the days of Sale at Mr. J. C. STEVENS'S Auction Rooms and Offices, 38, King Street, Covent Garden, London, W.C., where Catalogues and full particulars can be obtained.

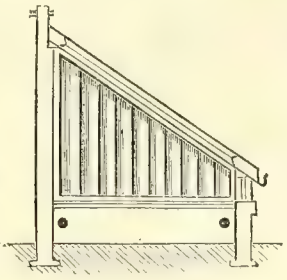
J. JONES'S HOT-WATER APPARATUS.

No. 7.



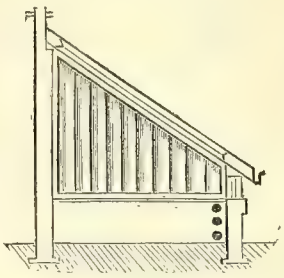
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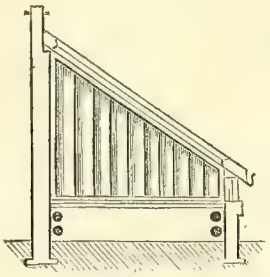
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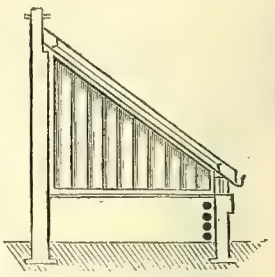
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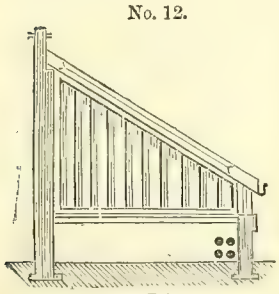
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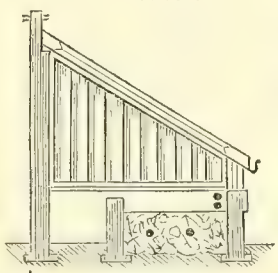
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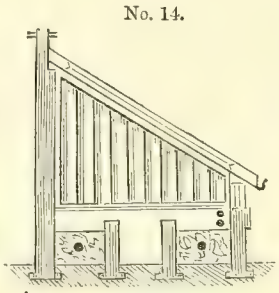
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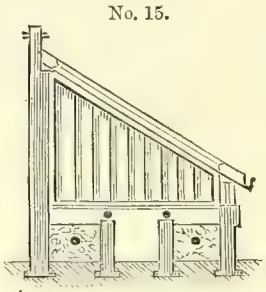
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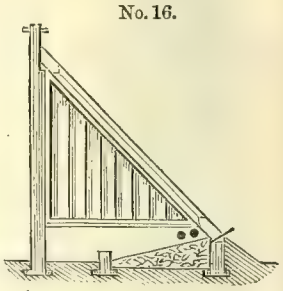
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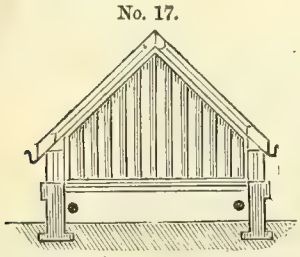
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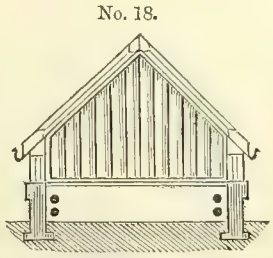
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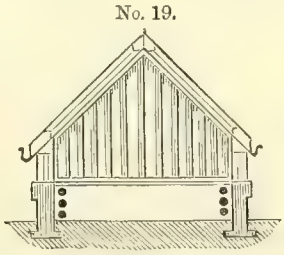
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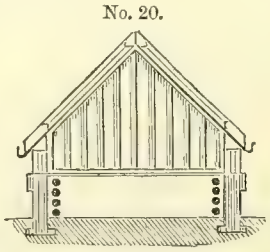
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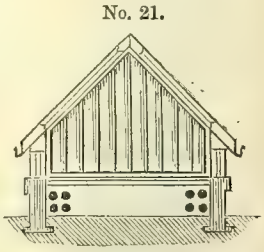
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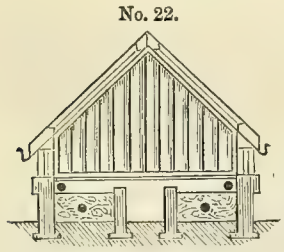
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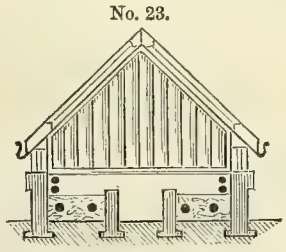
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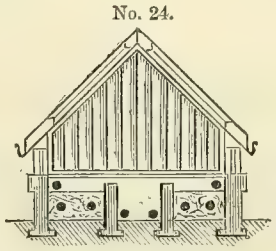
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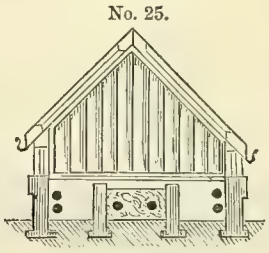
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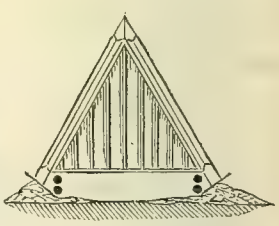
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No. 25.



Price
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25 0 0
30 0 0
35 0 0
40 0 0
45 0 0
50 0 0
55 0 0

No. 26.



Price
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

J. JONES will be happy to supply HOT-WATER APPARATUS for HOUSES according to any of the above Plans, delivered Free to any Station in England at the prices named, which include strong CAST-IRON CYLINDER or SADDLE BOILER, FURNACE DOORS, FIRE BARS, SOOT DOORS, CISTERN and DAMPER, 4-inch HOT-WATER PIPES and CONNECTIONS, all of the best quality; or he will forward ESTIMATES for WORK erected complete, with WROUGHT or CAST-IRON BOILER of any sort, at a small addition to the above prices.

☞ *The Black Circles on Sections of Houses show the arrangement of Pipes.*

Illustrated Catalogues and further particulars post free on application to

J. JONES, IRON MERCHANT AND HORTICULTURAL ENGINEER, 6, BANKSIDE, LONDON, S.E.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 39.—1863.] SATURDAY, SEPTEMBER 26. {Price Fivepence. Stamped Edition, 6*d*.

INDEX.

Agricultural cottages	923 *a*	Pampas Grass	917 *b*
— progress	925 *b*	Park, Sunderland	918 *b*
Anacharis	917 *c*	Pelargonium, the	916 *b*
Battersea Park, decoration of	915 *c*	Pine Apple, large	918 *c*
Belladonna Lily	915 *b*	Plants, new	916 *a*
Books noticed	919 *b*	Plants, rewarding new	915 *a*
British Association	916 *c*	P. tatos	917 *a*
Conifers, abnormal growth of	917 *c*	Protection, fruit	917 *b*
Cottage, and rent of	925 *a*	Quality of manures	9.6 *c*
Cucumber, Russian Ridge	918 *b*	Reasoning, false	920 *a*
Cumberland farming	924 *a*	Rhus succedaneum	918 *a*
Dahlias, seedling	915 *c*	Roses, showing	918 *a*
Exhibition flowers	916 *b*	Royal Agricultural College	922 *c*
Farming in Cumberland	924 *a*	Samples of Wheat	925 *b*
Florists' flowers	916 *a*	Society, Royal Horticul-	
Fruit competitions	918 *a*	tural	918 *c*
Fungi on lawns	917 *c*	— Cumberland and West-	
Grub, the	922 *b*	moreland	925 *c*
Harewood House	919 *b*	— Ayrshire	926 *b*
Indoor Gardener	919 *a*	Swedish Turnips, destruction	
Kicking cows, remedy for	927 *a*	of	922 *b*
Land drainage	922 *c*	Swift, the	917 *b*
Lark Lyathi	916 *a*	Testimonials	922 *b*
Low (Mr.) death of	920 *a*	Treatise on Mills, rev.	926 *c*
Mill work	926 *c*	Tree, poor old	920 *a*
Mushroom spores	920 *c*	Vine growing	918 *c*
Orchids, cool treatment of	918 *b*	Water weed	917 *c*
Our imports	927 *a*	Weather predictions	916 *c*
Overfeeding breeding stock	921 *c*	Wheat, varieties of	922 *c*

ROYAL HORTICULTURAL SOCIETY.—Notice is hereby given that an ORDINARY GENERAL MEETING for the ELECTION of FELLOWS will be held in the Council Room on FRIDAY, October 2. The Chair to be taken at 2 P.M. Fellows who may then be elected will, on payment of their subscriptions, be entitled to privileges up to January, 1865. ANDREW MURRAY, Assistant Secretary.
South Kensington, Sept. 26.

AMALGAMATED METROPOLITAN CHRYSANTHEMUM SOCIETY, for Nurserymen, Gentlemen's Gardeners, and Amateurs.
FIRST GREAT EXHIBITION, Agricultural Hall, Islington, WEDNESDAY, THURSDAY, and FRIDAY, November 11, 12, and 13.
260*l*. in General Prizes, and Reserve Fund for Special Prizes, as awarded by the Judges, open to all England.
Rules, Schedules, &c, to be obtained of the Honorary Secretary by enclosing two postage stamps.
The last day for the enrolment of Members will be October 12. J. JEFFERIES, Hon. Sec.
10, Catherine Street, Barnsbury Park, Islington, N.

AMERICAN ALOES.—At Wickham Court, near Bromley, Kent, are Two AMERICAN ALOES, both measuring 8 feet from point to point, and 5 feet high, which being too large for the owner's convenience in growing them, he kindly offers to present them to any one who would like to have them. Apply to the GARDENER as above.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, now ready for Planting. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.
Highgate Nurseries, London, N.

Grape Vines.

WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery. PRICED LIST on application.
PAUL's Nurseries and Seed Warehouse, Waltham Cross, N.

Grape Vines.

PAUL AND SON beg to announce that their VINES are this season even finer than usual. Well ripened Canes of all sorts are now ready for delivery.
"Old" Cheshunt Nurseries, Herts, N.

PINE PLANTS for SALE.—30 Succession BLACK JAMAICA, warranted clean and free from scale.
Apply to Mr. G. FLETCHER, The Gardens, Picton Castle, Haverfordwest, S. Wales.

Pines for Sale.

TO BE SOLD, 400 extra fine PLANTS, in good condition. For particulars apply to JOHN KEARSLEY & SONS, Nurserymen, Leeds.

STRAWBERRIES, Trade price.—British Queen, Black Prince, Admiral Dundas, Eleanor, Elton Pine, Keen's Seedling, Oscar, Wizard of the North, 15*s*. per 1000; Alice Maude, Duc de Malakoff, Eliza, Empress Eugenie, Prince of Wales, Princess Royal, Sir C. Napier, 2*s*. per 100.
GEO. CORNWELL, Seedsman, &c., Barnet, Herts, N.

NEW STRAWBERRY "PRESIDENT."—This fine new variety, so much admired at the Great Exhibitions during the past season, is now ready in strong plants at 20*s*. per 100; also "JOHN POWELL," 15*s*. per 100.
A DESCRIPTIVE CATALOGUE is now ready of all the best in cultivation.
The Royal Nurseries, Slough.

STRAWBERRY PLANTS.—For Sorts and Prices apply to DILLISTONE & Co., Sturmer and Woodlands Nurseries, Ha'stead, Essex.
N.B. Please be particular as to the address—"Sturmer and Woodlands Nursery."

To the Trade.—Iris reticulata (true).

T. HANDASYDE, Glen Nurseries, Musselburgh, N.B., begs to offer fine flowering BULBS of the above beautiful hardy Spring-flowering IRIS.
Prices on application.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Best Seeds, Carriage Free.

BUTLER AND MCCULLOCH, SEED MERCHANTS, Covent Garden Market, London, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

RICHARD SMITH, NURSERYMAN and SEED MERCHANT, Worcester.
DESCRIPTIVE PRICED CATALOGUES free on application.

WILLIAM BARRON'S PRICED CATALOGUE is now ready, and may be had post free on application Elvaston Nurseries, near Derby.

ALOCASIA MACRORHIZA VARIEGATA.—Good plants, 10*s*. 6*d*. each.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

Flower Seeds for Autumn Sowing.

SUTTON'S AUTUMN CATALOGUE is now ready, and will be sent post free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

To Gladiolus Growers.

SUTTON'S PRICED LIST of the best Sorts exhibited this Season is now ready, and will be forwarded post free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

CHOICE SEEDS for AUTUMN SOWING.—CALCEOLARIA, CINERARIA, and PRIMULA, from the finest strains in cultivation, each 2*s*. 6*d*. per packet.
JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

Cineraria, Calceolaria, and Primula.

E. G. HENDERSON AND SON offer first-class Seed of the above. 1*s*. and 2*s*. 6*d*. per packet.
Wellington Nursery, St. John's Wood, London, N.W.

Cinerarias.

CHARLES TURNER'S COLLECTION, which includes several New Varieties, are now ready for sending out in strong Plants.
The Royal Nurseries, Slough.

Roses.

PAUL AND SON have this season much pleasure in offering both STANDARD and DWARF ROSES in any quantity, at moderate prices. Their Stock is unequalled, both of the new and older kinds.
"Old" Cheshunt Nurseries, Herts, N.

New Rose Catalogue for 1863-64.
New Bulb Catalogue for 1863.

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.
WM. WOOD AND SON will be happy to send copies of the above gratis and post free to all applicants.

ROSES.—CATALOGUES for 1863 and 1864 forwarded free on application.
JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

New Roses of 1863.

E. G. HENDERSON AND SON offer the most select kinds. The Trade supplied.
Wellington Nursery, St. John's Wood, London, N.W.

SUPERIOR STANDARD ROSES, 18*s*. per doz., and upwards; Do. DWARF Do., 9*s*. per doz., and upwards. All the NEW ROSES, including BEAUTY of WALTHAM, Mrs. WM. PAUL, and LORD MACAULAY (three of the best), at lowest advertised prices.
The NEW PRICED CATALOGUE is now ready, free by post.
WM. PAUL (Son and Successor to the late A. Paul), Nurseries and Seed Warehouse, Waltham Cross, N.

ROSES, NEW and OLD. CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. Those who wish for a fine display of bloom during the autumn and ensuing summer should now give their orders.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

MESSRS. WRIGHT beg to call attention to their fine Stock of EVERGREENS, &c., ROSES, FRUIT TREES, SEAKALE, LONICERA AUREO-RETICULATA, &c., extending over upwards of 20 acres. Their Nursery at Hendon is two miles from Hampstead Heath, where conveyances can always be had, and customers will be sent on to Mill Hill or Edgware if they wish.
Edgware, N.W.

WINTER VETCHES, 6*s*. 6*d*. per 60 lb.
WINTER RYE, 5*s*. per bushel.
H. BROWN, Seedsman, 4, Commutation Row, Liverpool.

Potato Onions.

JAMES FAIRHEAD AND SON beg to offer good SOUND BULBS of the above, cheap.
7, Borough Market, London, S.E.

Hyacinths, Tulips, Crocuses, &c.

BUTLER AND MCCULLOCH'S importation of DUTCH BULBS are unusually fine this season.
CATALOGUES Post free upon application.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Imported Dutch Bulbs.

JAMES CARTER AND CO.'S CATALOGUE of BULBS, with Cultural Directions, forwarded free of charge, on application to 237, 238, High Holborn, London, W.C.

IMPORTED DUTCH BULBS.—First-class Dutch Bulbs of every description just imported.
JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

NEW PLANTS and BULBS, at reduced prices. LISTS free.
W. DILLISTONE, Munro Nursery, Sible Hedingham.

LARGE IMPORTATION of DUTCH BULBS.—CATALOGUES (gratis) on application to WM BARRATT, St. John's and Newton Moor Nurseries, Wakefield.

CHEAP BULBS.—Purchasers of DUTCH FLOWER ROOTS should, before ordering, see H. BROWN'S PRICED DESCRIPTIVE CATALOGUE post free on application. The Bulbs are extra fine.
4, Commutation Row, Liverpool.

Dutch Bulbs.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE of the above is now ready, and may be had on application. The Bulbs are unusually fine this season.
The Royal Nurseries, Slough.

Hyacinths and other Choice Bulbs.

B. S. WILLIAMS'S DESCRIPTIVE CATALOGUE of the above post free to all applicants.
Choice HYACINTHS for Glasses or Pots, 6*s*., 8*s*., 10*s*., 12*s*. per dozen.
Paradise and Victoria Nurseries, Holloway, London, N.

A Large Importation of Dutch Bulbs.

Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.
Bulbs sent carriage free, excepting very small parcels.
WM. WOOD AND SON have received a large consignment of the above, and will be happy to receive orders for the same. The Bulbs are in first-rate condition, and true to name.

Dutch Bulbs.

S. PONSFORD begs to announce the arrival of his annual importation of the above. HYACINTHS, TULIPS and CROCUSES are unusually fine.
PRICED CATALOGUES gratis.
Loughborough Park Nurseries, Brixton, Surrey, S.

DUTCH BULBS.—Best named Hyacinths, 6*s*. per doz.; ditto, Mixed, 20*s*. per 100; Crocus, 8*s*. per 1000, &c. A fine lot of Choice-named GERANIUMS must be sold for want of space. BRITISH and FOREIGN FERNS, immense variety. Fern Cases and Aquariums of every description.
R. GREEN, 154, Kingsland Road, N.E.; and Bedford Conservatories, Covent Garden Market, W.C.

BULBS, Carriage Paid.—For COLLECTIONS of BULBS see our large advertisement in *Gardeners' Chronicle*, Sept. 19, p. 886.
For PRICED LIST of BULBS for the SPRING GARDEN, CONSERVATORY, and SITTING ROOM, see our large advertisement in *Gardeners' Chronicle*, Sept. 26, p. 914.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

Hyacinths, Crocus, Tulips, Narcissus, &c.

JAMES FAIRHEAD AND SON beg to announce the arrival of their DUTCH BULBS in splendid condition, and unusually fine. CATALOGUES post free on application.
A large quantity of MUSHROOM SPAWN of superior quality
7, Borough Market, London, S.E.

Hyacinths, &c.

WM. PAUL'S selection of DUTCH BULBS has arrived in splendid condition.
Good named HYACINTHS, 6*s*. per dozen and upwards.
Early TULIPS, for pots or beds, 1*s*. per doz. and upwards.
CROCUS, NARCISSUS, ANEMONES, &c., best sorts, at moderate prices.
DESCRIPTIVE CATALOGUE free by Post.
PAUL's Nurseries and Seed Warehouse, Waltham Cross, N.

Picea nobilis.

WILLIAM BARRON can supply strong and remarkably well rooted SEEDLING PLANTS of the above in store pots. Per doz., 10*s*.; per 100, 3*l*. 10*s*.
Elvaston Nurseries, near Derby.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.
Dorking Nursery.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

New Grass Seeds for Exportation.

SUTTON AND SONS have now ready for delivery New Seeds of all the most desirable kinds of GRASSES for PERMANENT PASTURE, and are packing the same in the execution of orders for Australia, New Zealand and other Foreign parts.
Prices, &c., will be sent post free on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

NEWSPAPER

Nursery, High Beech, Essex.

JAMES CRAWFORD, having a Large Stock of fine healthy GRAPE VINES, now fit for planting out, begs to offer them on advantageous terms.

JAMES CRAWFORD, having a Numerous and Select COLLECTION of STOVE and GREENHOUSE PLANTS, FERNS, and ROSES, will be glad to serve Ladies and Gentlemen with Collections at low prices.

GRAPE VINES.—Strong well ripened Canes of the following, at 3*s.* 6*d.* to 5*s.* each:—Black Hamburgh, Grizzly Frontignan, Black Prince, Chasselas Musqué, Black St. Peter's, Black Frontignan, Cannon Hall Muscat, Précoce Malingre, White Frontignan, White Sweetwater, Muscat of Alexandria, Tokay, Golden Hamburgh, Syrian Muscat Hamburgh, Mill Hill Hamburgh, Lady Downes, Black Cluster, Esperion, Muscat Troveron, Royal Muscadine, Trentham Black, Blanc de Kentsheim, Black July, Ingram's Prolific, Buckland Sweetwater, Cavoush.

JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

Grape Vines, Late.

J. MEREDITH has some Strong VINES of the true variety of BLACK ALICANTE (which he has never occasion to set artificially) in 13 and 8-inch pots.

J. M. obtained a Prize at the Great International Show in October last, at South Kensington, for the above excellent late Grape. Splendid bunches of this valuable Grape may be seen at his Vineyard.

J. M. has also to offer some extra strong LADY DOWNES in 13 and 18-inch pots.

Prices on application to J. MEREDITH, The Vineyard, Garston, near Liverpool.

The Kimberley Strawberry.

CHARLES KIMBERLEY has much pleasure in offering the above new SEEDLING STRAWBERRY, feeling confident it will give the greatest satisfaction. It is quite distinct from all other varieties, is of a robust, hardy constitution, a most prolific bearer, of a bright shining crimson; fruit red throughout, firm and solid, with brisk and most agreeable flavour; an excellent sort for all purposes. Strong Plants are now ready at 2*l.* per 100.

Stoke Nursery, near Coventry—Sept. 26.

CUTHILL'S STRAWBERRY PLANTS, to bear next year.—EARLY BLACK PRINCE, EARLY PRINCESS ROYAL, HIGHLAND MARY, RICHARD II., PRINCE of WALES, and NEWTON SEEDLING, 5*s.* per 100, if Selected, 7*s.* 6*d.* each Sort. Lasted in bearing 60 days this year.

STRAWBERRY PAMPHLET, 1*s*; MUSHROOM do., 1*s*; CUCUMBER do., 1*s*. MUSHROOMS grown here all the year round; best SPAWN, 5*s.* per bushel.

PRINCE ALBERT, Winter Cucumber, 1*s.* per Packet.

JAMES CUTHILL, F.R.H.S., Camberwell, London, S.

The Royal Hautbois Strawberry.

MESSRS. THOMAS RIVERS AND SON now offer Plants of the above. The variety was selected by them in 1861 from many hundreds of Seedlings raised from La Belle Bordelaise Strawberry, a variety of the Hautbois received from France, and has proved to be by far the largest and most prolific of the race, with the true Hautbois flavour.

Plants, 4*s.* per dozen, 30*s.* per 100. A few extra sized bearing plants, 9*s.* per dozen; carriage paid to London.

Nurseries, Sawbridgeworth.

Strawberry "The Premier," or "British Queen Seedling."

WM. PAUL has now ready good healthy plants of this superb Strawberry, price 12*s.* per 100, or 2*s.* 6*d.* per dozen. A few fruiting plants in pots, 9*s.* per dozen.

DESCRIPTION.—Fruit very large and handsome, colour bright crimson, combining the flavour of Keen's Seedling and Elton Pine, without the acid of the latter; the fruit carries well and retains its flavour long after gathered. It is of a very hardy and vigorous habit, thriving well in all soils and climates; a most abundant bearer, often producing from 20 to 30 trusses of fruit on a single plant; ripens three days later than Keen's Seedling, and remains in season a fortnight after that variety is over.

Large and handsome.—*Gardeners' Chronicle.*

The flavour is very good.—*Journal of Horticulture.*

A choice collection of Fruit Trees, including Grape Vines in splendid condition. PRICED CATALOGUES free by post.

PAUL'S Nurseries, Waltham Cross, N.

Fruit Trees.

JOHN CRANSTON offers superior, healthy grown plants of all the best varieties of FRUIT TREES, DESCRIPTIVE CATALOGUES of which will be forwarded on application.

	Each.—*s. d.*
APPLES.—Very fine Dwarf-trained	2 6
,, Pyramids	2 6
,, Standards	2*s.* to 2 6
APRICOTS.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
CHERRIES.—Dwarf-trained	3*s.* 6*d.* to 4 6
,, Pyramids	2*s.* 6*d.* to 3 6
GRAPE VINES.—Standards	2 6
,, Very fine and well-ripened	3*s.* 6*d.* to 5 0
NECTARINES.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
PEACHES.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
PEARS.—Dwarf-trained	3 6
,, Pyramids	2*s.* 6*d.* to 3 6
,, Standards	2 6
PLUMS.—Dwarf-trained	3*s.* 6*d.* to 4 6
,, Standards	2 6
WALNUTS.—Standards	2 6
,, Extra strong	3*s.* 6*d.* to 5 0

GOOSEBERRIES, CURRANTS, FIGS, RASPBERRIES, STRAWBERRIES, &c.

PEACHES, NECTARINES, and APRICOTS, established in Pots for Orchard House Culture, 5*s.* each.

ASPARAGUS, two years 2*s.* 6*d.* per 100

SEA KALE, ,, 8*s.* per 100

Nurseries, King's Acre, near Hereford.

WILLIAM ROLLISSON AND SONS beg respectfully to inform the Nobility, Gentry, and Trade, that their GENERAL CATALOGUE of PLANTS, SHRUBS, FRUIT TREES, &c., for 1863 is now ready, and will be forwarded on application, prepaid.

W. R. & SONS beg also to state that their new SEEDLING RHODODENDRON PRINCE OF WALES, at 21*s.* 6*d.*, and their Three new beautiful and distinct INDIAN AZALEAS, at 21*s.* each—Azaleas Princess of Wales (Todman), Lord Canning (Todman), Rifleman (Todman)—will be sent out next May. A Coloured Plate by Andrews will be sent to all purchasers of Rhododendron Prince of Wales.

The usual allowance to the Trade.

Parties requiring Fruiting and other sized plants of GRAPE VINES in pots of the best and most popular varieties, can be supplied at very moderate prices, which will be forwarded on application.

The Nurseries, Tooting, London, S.

New Roses of 1863.

JOHN KEYNES, Castle Street Nursery, Salisbury, can supply some thousands of the above, well-established Plants in pots, comprising the very best varieties of the NEW ROSES of 1863, at 30*s.* per dozen. The usual discount to the Trade. To amateurs such plants are invaluable; they can be planted at once and will produce fine bloom next season, as time will be given them to draw fresh root.

CATALOGUES, with full description, containing all the leading flowers, both old and new, will be forwarded on application.

JOHN KEYNES' STANDARD and DWARF ROSES for the Autumn are in the finest condition.

The stock of ROSES of 1862, comprising Charles Lefebvre, François Lacharme, &c., both Standards and Dwarfs, cannot be surpassed. Salisbury.—Sept. 26.

EUGÈNE VERDIER FILS AINÉ, FLORIST, 6, Rue des Trois Ormes, Gare d'Ivry, Paris, has the honour to inform the Florists and Nurserymen of England, and the public generally, that his DESCRIPTIVE CATALOGUES of NEW GLADIOLI, ROSES, and PÆONIES are quite ready, and will be forwarded on prepaid application to him.

N.B. Special Prices Current for the Trade.

Catalogues.

PAUL AND SON have just published their NEW DESCRIPTIVE PRICED ROSE CATALOGUE for 1863-64

DESCRIPTIVE CATALOGUE of HYACINTHS and other DUTCH BULBS, post free.

Also their DESCRIPTIVE CATALOGUE of EVERGREENS, DECIDUOUS TREES, CONIFERS, AMERICAN CLIMBING and HERBACEOUS PLANTS, post-free for one stamp.

"Old" Cheshunt Nurseries, N.

E. R. GREENUS, RAILWAY NURSERIES, Watford and Rickmansworth, has to offer this season a fine healthy Stock of FRUIT and FOREST TREES, FLOWERING SHRUBS and EVERGREENS, CONIFERS, STANDARD and DWARF ROSES, CLIMBERS, &c., all of which will remove with the greatest safety; and from E. R. G.'s proximity to the London and North-Western Railway he can execute orders with promptitude and despatch to any part of the kingdom, or Continent.

CATALOGUES forwarded on application.

P.S. A very large Stock of IRISH IVIES, large, in pots, and CLIMBING ROSES; also VARIEGATED and GREEN BOX, 1½ to 2 feet.

DUTCH FLOWER ROOTS.

JAMES VEITCH,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEGS TO ANNOUNCE THAT HE HAS RECEIVED HIS

ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND,

and is pleased to say that they are in excellent condition.

CATALOGUES are now ready, and will be forwarded post free on application.

J. V. desires to impress upon those who patronise him the great advantage of giving him their orders early, as the successful Cultivation of Bulbs depends in a great measure upon their being planted early in the season.

DUTCH FLOWER ROOTS,

CARRIAGE FREE, EXCEPTING VERY SMALL PARCELS.

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, UCKFIELD, SUSSEX.

WM. WOOD & SON

WILL SUPPLY BULBS AS UNDER, ALL IN THE FINEST POSSIBLE CONDITION:—

HYACINTHS.

25 in 25 superb kinds, named		£1 1 0
12 in 12 extra fine	,,	0 12 0
12 in 12 fine	,,	0 9 0
12 in 12 good	,,	0 6 0

MIXED HYACINTHS, for Beds.

Each colour, separate, 3*s.* per dozen; 20*s.* per 100.

Double Red, Blue, White, and Yellow;
Single Red, Blue, White, and Yellow.

MIXED HYACINTHS.

DOUBLE HYACINTHS, all colours in mixture, 2*s.* 6*d.* per dozen; 17*s.* 6*d.* per 100.

SINGLE HYACINTHS, all colours in mixture, 2*s.* 6*d.* per dozen; 17*s.* 6*d.* per 100.

CHEAP HYACINTHS, by name (our selection).

Including only distinct varieties, both double and single, the most hardy, and such as are best adapted for beds or growing in masses.

N.	100	strong Bulbs in	50	varieties	..	£2	10	0
O.	50	,,	,,	25	,,	1	5	0
P.	50	,,	,,	12	,,	1	1	0
Q.	25	,,	,,	8	,,	0	10	6

CROCUS, by name (our selection).

*** In ordering, it will be sufficient to mention the letter (only) prefixed to the assortment required.

A.	1000	fine roots in	50	distinct kinds	..	35*s.*	0*d.*	
B.	1000	,,	,,	25	,,	30	0	
C.	500	,,	,,	25	,,	17	6	
D.	500	,,	,,	10	,,	15	0	
E.	250	,,	,,	25	,,	9	0	
F.	100	,,	,,	10	,,	3	0	

LARGE DUTCH CROCUS, in separate colours.

	P. 1000. *s. d.*	P. 100 *s. d.*		P. 1000. *s. d.*	P. 100 *s. d.*
BLUE	14 0	— 1 6	VARIEGATED	17 6	— 2 0
PURPLE	14 0	— 1 6	WHITE	17 6	— 2 0
STRIPED	17 6	— 2 0	YELLOW, largest var.	17 6	— 2 0

Fine MIXED CROCUS, all colours, per 1000, 12*s.*; per 500, 6*s.* 6*d.*; per 100, 1*s.* 4*d.*

SNOWDROPS.

DOUBLE FLOWERING, per 100	2*s.*	0*d.*
SINGLE ,, ,,	1*s.*	9*d.*

WINTER ACONITES.

Price 6*d.* per dozen; 4*s.* per 100.

TULIPS.

Fine Mixed EARLY TULIPS, per 1000, 50*s.*; per 100, 6*s.*; per dozen, 1*s.*

Extra Choice Mixed EARLY TULIPS, per 1000, 70*s.*; per 100, 8*s.*; per dozen, 1*s.* 3*d.*

EARLY TULIPS, by name (our selection), per 100, 17*s.* 6*d.*; per dozen, 3*s.*

Extra Choice EARLY TULIPS, by name, for exhibition (our selection, per dozen, 4*s.*

Fine Mixed DOUBLE TULIPS, per 1000, 50*s.*; per 100, 6*s.*; per dozen, 1*s.*

Extra Choice Mixed DOUBLE TULIPS, per 1000, 70*s.*; per 100, 8*s.*; per dozen, 1*s.* 3*d.*

DOUBLE TULIPS, by name (our selection), per 100, 17*s.* 6*d.*; per dozen, 3*s.*

DUC VAN THOL, per 100, 3*s.* 6*d.*; per dozen, 6*d.*

Fine Mixed PARROT, per 100, 5*s.*; per dozen, 9*d.*

SCILLAS, by name (our selection).

A.	100 in 10 varieties	15*s.* 0*d.*	C.	25 in 12 varieties	4*s.* 6*d.*
B.	50 in 10 ,,	8 0	D.	12 in 6 ,,	2 6

DOUBLE ANEMONES, by name (our selection).

*** In ordering it will be sufficient to mention the letter (only) prefixed to the assortment required.

A.	100 Choice DOUBLE ANEMONES, in	50	sorts	..	20*s.* 0*d*
B.	50 ,, ,,		in 50 sorts	..	12 6
C.	25 ,, ,,		in 25 sorts	..	6 6
D.	12 ,, ,,		in 12 sorts	..	3 6

	per 100. *s. d.*	per doz. *s. d.*
Fine Mixed DOUBLE ANEMONES	5*s.* 0*d.*	— 0*s.* 9*d.*
Mixed DOUBLE SCARLET ANEMONES	7 6	— 1 0

SINGLE ANEMONES.

LA BRILLANTE ECLATANTE, extra fine, bright scarlet	4 0	— 0 8
Mixed SCARLET	4 0	— 0 8
Mixed SEEDLINGS, all colours, very fine	4 0	— 0 8

ANEMONE HORTENSIS (Star Anemone).

	per doz. *s. d.*	each *s. d.*		Per doz. *s. d.*	each *s. d.*
DOUBLE RED	2 0	— 0 3	PURPLE	2 6	— 0 3
SINGLE RED	2 6	— 0 3	MIXED, very fine	2 0	

In 25 fine new varieties, by name, per 100, 21*s.*; per doz., 3*s.*

BELLADONNA LILIES, CYCLAMENS, IRIS, IXIAS, SPARAXIS, and all other Bulbs.

Catalogues will be sent gratis and post free on application.

SUTTON'S HYACINTH LIST.

ALL FRESH IMPORTED BULBS.

HYACINTHS in DISTINCT COLOURS,

FOR MASSING, BEDDING, RIBBON GARDENING, ETC.

To meet the increasing demand for HYACINTHS of good decided colours for the above purposes, SUTTON & SONS have again imported the various shades of colour separate; the great advantage of which over the usual mixture is that masses, circles, or ribbons, may be planted of whatever shade of colour is desired, thus ensuring uniform effect.

	Per 100	30s. 0d.	Per doz.	4s. 0d.
DOUBLE RED				
,, ROSE	,,	30 0	,,	4 0
,, WHITE, pure	,,	30 0	,,	4 0
,, ,, with coloured eyes	,,	30 0	,,	4 0
,, DARK BLUE	,,	30 0	,,	4 0
,, LIGHT	,,	30 0	,,	4 0

	Per 100	30s. 0d.	Per doz.	4s. 0d.
SINGLE RED				
,, ROSE	,,	30 0	,,	4 0
,, WHITE	,,	30 0	,,	4 0
,, DARK BLUE	,,	30 0	,,	4 0
,, LIGHT ,,	,,	30 0	,,	4 0
,, YELLOW	,,	30 0	,,	4 0

MIXED HYACINTHS for BEDS or OPEN BORDERS.

		21s. 0d.	Per doz.	3s. 0d.
DOUBLE RED, of various shades (without names)	Per 100	21 0		3 0
,, BLUE ,,	,,	21 0	,,	3 0
,, WHITE ,,	,,	21 0	,,	3 0
,, ALL COLOURS, mixed	,,	21 0	,,	3 0
SINGLE RED, of various shades	,,	21 0	,,	3 0
,, BLUE ,,	,,	21 0	,,	3 0
,, WHITE ,,	,,	21 0	,,	3 0
,, ALL COLOURS, mixed	,,	21 0	,,	3 0

THE FINEST HYACINTHS for EXHIBITION.

Names and colours marked, the Selection being left to Messrs. SUTTON.

100	in	100	very choice sorts	..	..	..	..	£4	4	0	25	in	25	very choice sorts	..	..	..	..	..	£1	1	0
100	,,	50	,,	..	..	..	..	3	10	0	12	,,	12	extra fine ,,	..	..	..	..	..	0	12	0
50	,,	50	,,	..	..	..	..	2	2	0	12	,,	12	choice ,,	..	..	..	..	..	0	9	0
50	,,	25	,,	..	..	..	..	1	15	0	12	,,	12	good ,,	..	..	..	..	..	0	6	0

TULIPS, CROCUSES, and other BULBS, equally cheap. PRICED LISTS post free.

SUTTON AND SONS, READING, BERKS.

SUTTON'S COLLECTIONS of BULBS

FOR

BLOOMING DURING THE WINTER AND SPRING.

THESE are every year becoming more popular, and the HYACINTHS, ANEMONES, TULIPS, &c., which we imported last season from the celebrated Dutch Florists, Messrs. de Boom, Veen, Byvoet, and others, having been so generally admired, we have imported from the same parties still more extensively. *As many of these sorts are at present unknown to English cultivators, we have considered it advisable to make up Collections* of the sorts which, after careful observation, we have found to be the best worthy of cultivation, being THE MOST SHOWY AND MOST CERTAIN TO THRIVE WELL under any ordinary treatment, and for which any good Garden soil (not particularly heavy) will be suitable.

Nos. 1, 2 and 3 are suitable for Out-door Decoration; and

Nos. 4, 5 and 6 contain those sorts best suited for growing in Pots and Glasses.

No. 1. Sutton's Collection of Bulbs for Open Ground, 42s.

12 FINE MIXED MINIATURE HYACINTHS
24 ,, BORDER Do.
12 ,, POLYANTHUS NARCISSUS
25 PHEASANT'S EYE Do.
25 MIXED BORDER Do.
12 LARGE CAMPERNELLE JONQUILS
100 FINE MIXED DOUBLE RANUNCULUS
100 SCARLET TURBAN Do.
25 FINE MIXED DOUBLE ANEMONES
25 ,, SINGLE Do.
300 FINE CROCUS, in sorts
100 DOUBLE SNOWDROPS
50 WINTER ACONITES
12 FINE MIXED GLADIOLUS

25 DUC VAN THOL TULIPS
12 REX RUBRORUM Do.
12 DOUBLE YELLOW Do.
12 FINE MIXED PARROT Do.
12 GESNERIANA Do.
50 FINE MIXED Do.
12 CHOICE ENGLISH IRIS
12 ,, SPANISH Do.
6 LILIES, of sorts
6 TRITONIA AUREA
6 FERRARIA
6 ALSTRŒMERIA VAN HOUTTE
12 DOG'S TOOTH VIOLET

No. 2. Collection of all the same kinds in Reduced Quantities, 21s.

No. 3. A Small and Choice Collection, selected from the above, 10s. 6d.

No. 4. Sutton's Collection of Bulbs for Pots and Glasses, 42s.

24 FINE HYACINTHS, by name
12 FINE MINIATURE Do., do
12 POLYANTHUS NARCISSUS, do.
12 LARGE DOUBLE JONQUILS
12 SINGLE SWEET-SCENTED Do.
12 ,, VAN THOL TULIPS
6 SCARLET Do. Do.
6 DUCHESSE DE PARMA Do.
6 KANARIE VOGEL Do.

6 VERMILION BRILLIANT TULIPS
6 DOUBLE TOURNESOL Do.
6 REX RUBRORUM Do.
12 SCILLA PRÆCOX
6 PERSIAN IRIS
6 PEACOCK Do.
100 FINE CROCUS, by name
12 CHOICE IXIAS, do.

6 CHOICE SPARAXIS, by name
6 ACHIMENES, do.
6 FERRARIA PAVONIA
6 LACHENALIA TRICOLOR
1 CYCLAMEN PERSICUM
1 JACOBŒA LILY
1 LILIUM LANCIFOLIUM ALBUM
1 ,, ,, RUBRUM

No. 5. Collection of the same sorts in Smaller Quantities, 21s.

No. 6. A Small and Choice Assortment, 10s. 6d.

N.B. Any article above specified, if not required, will be excluded, and additional quantities of others included, according to the wish of the purchaser.

SUTTON & SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

New and Choice Pelargoniums.

B. S. WILLIAMS has much pleasure in announcing that he has made arrangements for the distribution of BECK'S NEW PELARGONIUMS, and that he will be prepared to supply strong Plants about the end of October.

A DESCRIPTIVE and PRICED CATALOGUE of the above, with Select Lists of other Choice Show, French, and English Spotted and Fancy Pelargoniums, will be published shortly and forwarded post free to all Customers and applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

NEW PINKS.

	Per pair.—s.	d.
Attraction (Maclean)	5	0
Betram (Turner)	5	0
Bridesmaid (Turner)	5	0
Cristabel (Turner)	3	6
Diadem (Turner)	5	0
Elcho (Maclean)	5	0
Exquisite (Turner)	5	0
Lizzie (Turner)	5	0
Marion (Turner)	5	0
President (Turner)	3	6
Rev. George Jeans (Kirtland)	5	0
Sylph (Garrett)	3	6
Setiens (Kirtland)	3	6

Strong Plants of the above, also a full collection of established varieties, are now ready. This is the best time for planting Pinks. The Royal Nurseries, Slough.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

Hardy Scarlet Rhododendrons.

JOHN WATERER'S CATALOGUE of HARDY SCARLET and other CHOICE RHODODENDRONS as annually displayed in the Royal Botanic Gardens, Regent's Park, can now be had on application.

It contains faithful descriptions of all the varieties really worthy of cultivation, as well as a selection of HARDY CONIFERS, with heights and prices, with ORNAMENTAL EVERGREENS, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey.

Rhododendron Countess of Haddington.

Good plants, 21s. each.

Vine Tynninghame Muscat.

Good plants, 3s. 6d., 5s., and 7s. 6d. each.

ROBERT PARKER begs to announce that he is now offering for sale the above first-class Plants. Full descriptions with List of Awards received are published in his NEW CATALOGUE of PLANTS and BULBS, which will be forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

PINUS LARICIO.—To gentlemen planting out largely for profit WILLIAM BARRON begs to make a special offer of his fine and well-rooted stock of the above. This fine Pine supersedes the Larch for Forest-planting, producing timber much sooner for Railway Sleepers. It is also used for Spars and Masts in the French navy.

2-years' Seedlings, strong plants	per 1000	15s.	0d.
2-years' transplanted, 9 to 18 inches ..	,,	30	0
2 to 3 feet	,,	70	0

Elvaston Nurseries, near Derby.

Deutzia crenata fl. pleno—Japan.

JOHN STANDISH has now the pleasure of submitting to the consideration of his friends and the public the above truly valuable and hardy ornamental plant. It has received First-class Certificates both at the Royal Horticultural and Royal Botanic Shows in June and July last (*vide* Report).

"There were a few very interesting new hardy plants shown, first a Deutzia crenata flore pleno, one of Fortune's novelties, flowered by Mr. Standish. This looked like a fine addition to hardy shrubs; it has opposite shortly stalked finely serrated leaves, and copious terminal racemes of deflexed double flowers deeply tinged externally with rose."

Plants now ready, 10s. 6d. each; or 6 Plants for 42s.

Royal Nursery, Ascot, Berks.

WELLINGTONIA GIGANTEA.—To noblemen and gentlemen wishing to plant an avenue or group of the above, WILLIAM BARRON begs to offer a number of splendid specimens from 6 to 14 feet high, remarkably cheap, all of which can be insured to remove with safe balls.

6, 7 and 8 feet	3l.	3s.	to	5l. 5s.
9, 10 and 11 feet	6	6	to	8 8
12, 13 and 14 feet	9	9	to	10 10

14 × 12. Stem 4—6 in circumference.

The most handsome plant in the country, remarkably dense. Special price on application.

Elvaston Nurseries, near Derby.

THE ALPINE SNAPDRAGON or TOAD FLAX, LINARIA ALPINA.—This charming little plant ought to be in every garden. It forms silvery tufts, 3 to 4 inches high, bearing a profusion of corymbs of lilac-purple and vivid orange flowers. It is perfectly hardy (from the Swiss Alps) and grows in all soils, keeping up a more or less continuous succession of flower for 6 months! When planted in a bed it forms a low dense mass covered with a sheet of bloom. Our plants of 3 years old have formed complete pictures during the past season. Strong flowering plants in pots, 6s. per dozen, or 42s. per 100.

THE PERENNIAL CALANDRINIA, C. UMBELLATA.—Forms dense tufts 3 to 6 inches high, of vivid magenta crimson flowers, in umbels, keeping up a succession of bloom for 7 or 8 weeks. Scarcely any flower can exceed this in brilliancy and beauty when expanded in the sunshine. Old plants (3 or 4 years) form very dense masses from a strong woody root. Perfectly hardy, where well drained in winter. Deserving of extensive cultivation. Good blooming plants, 4s. per dozen or 30s. per 100. Extra strong, 6s. to 9s. per dozen.

AUCUBA-LEAVED or GOLD NETTED DAISY.—Very effective for winter garden decoration. Fine strong well coloured plants, 4s. per dozen, 21s. per 100.

LYCHNIS (AGROSTEMMA) CORONARIA.—In its dense tufts of silvery foliage, this closely resembles the well-known Stachys lanata, but instead of a dull and worthless spike, it bears magnificent panicles, 1½ to 2 feet high, of brilliant rosy crimson flowers, as large as a half crown. Strong blooming plants, 5s. per dozen, or 21s. and 31s. 6d. per 100.

JAS. BACKHOUSE & SON, York Nurseries.

NEW FORCING GERANIUM, MRS. LEWIS LOYD.—Rich crimson with dark maroon blotch in top petals; of dwarf robust habit, and most profuse bloomer. Forces into flower at any season without drawing. It was exhibited to the Floral Committee of the Royal Horticultural Society on March 31, and then awarded their Certificate of Commendation. Good Plants now ready, 7s. 6d. each.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

UNEQUALLED SEEDS.

DOBSON'S CALCEOLARIA, in packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
DOBSON'S CINERARIA, in pkts., 1s., 2s. 6d., and 5s.
DOBSON'S PRIMULA, in pkts., 1s., 2s. 6d., and 5s.
DOBSON'S HOLLYHOCK, in pkts., 1s., 2s. 6d., and 5s.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Roses.

JOHN CRANSTON offers selections of STANDARD and DWARF ROSES of very superior quality.

The robust growth and hardy constitution of the plants grown in this Nursery has long been acknowledged, and the Stock to offer this season is perhaps superior to any previous growth.

He also begs to direct attention especially to DWARF ROSES on the Manetti stock, of which he has an enormous stock.

The plants upon their own roots are also very strong and well grown.

	Per dozen—s. d.
STANDARD ROSES of all the leading varieties in cultivation	18 0
Do. Newer varieties, introduced in 1861 and 1862	24 0
DWARF ROSES, extra fine plants upon the Manetti stock	9s. to 12 0
Do., do., upon Dog-rose stock	9 0
Do. Newer Varieties, introduced in 1861 and 1862	15s. to 18 0
Do., do., of 1862 and 1863	24s. to 30 0
STANDARD and HALF-STANDARD TEA-SCENTED ROSES, all the best varieties	24 0
DWARF ROSES upon their own roots, Hybrid Perpetuals, and Bourbons	9s. to 12 0
Do., do., Tea-scented	12s. to 15 0
CLIMBING ROSES	9 0
PILLAR ROSES, extra strong plants, 4 to 5 feet	12s. to 15 0
STANDARD WEEPING ROSES	each 2s. to 2 6
ROSES in 8 and 9-inch pots grown especially for Forcing or Greenhouse culture, the best Hybrid Perpetuals, China, and Tea-scented varieties	24s. to 30 0

DESCRIPTIVE CATALOGUES forwarded free on application.
Nurseries, King's Acre, near Hereford.

Lilium lancifolium.

JEAN VERSCHAFFELT begs to intimate that he has this year a very large Stock of the above in extra large sized Bulbs, all of which are in splendid condition, and which he is now offering at the following low prices, viz.:—

	Per 100—£ s. d.
LILIUM LANCIFOLIUM RUBRUM	2 0 0
,, ,, extra strong roots	3 0 0
,, ,, ALBUM	2 0 0
,, ,, extra strong	2 10 0
,, EXCELSUM (TESTACEUM), the beautiful Nankin coloured Lily, extra strong bulbs per 25	1 12 0

Early orders are solicited, and are to be directed to JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent (Belgium).

J. V.'s CATALOGUES to be had at his London Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

MESSRS. THOMAS RIVERS AND SON beg to submit to the public the following SYNOPSIS of their FRUIT TREE CULTURE, which they trust will be found on inspection the most complete and extensive in Europe. The DESCRIPTIVE CATALOGUE of FRUITS contains 35 pages of original and useful matter, and will be sent post free on receipt of 6 postage stamps, to Customers gratis on application, Carriage of all packages paid to London.

APPLES on CRAB STOCKS.—Standards for orchards, dwarfs and dwarf-trained for espaliers.
APPLES on PARADISE STOCKS, for gardens. Pyramids, dwarf bushes, dwarf-trained for espaliers, and pyramids in pots.
APRICOTS.—Standards, standards trained, half standards trained, and dwarfs trained for walls; standards, half-standards, and pyramids and dwarfs in Pots; bearing trees for orchard houses.
CHERRIES on COMMON CHERRY STOCKS.—Standards, standards trained, dwarfs, dwarfs trained, pyramids in a bearing state, and pyramids and dwarfs in pots, bearing trees.
CHERRIES on the MAHALEB STOCK.—Dwarf bushes for potting and culture as bushes, dwarfs trained for walls, dwarfs and pyramids in pots, bearing trees; and pyramids, bearing trees.
CURRANTS.—Dwarf bushes and pyramids, including some new and fine varieties.
FIGS in POTS in a bearing state, and trained trees for walls.
GOOSEBERRIES.—Small high flavoured old sorts, and all the large new Lancashire varieties.
GRAPES for VINERIES, from EYES in POTS.—Strong plants, 2 and 3-year old, 8 to 9 feet high; ditto in pots, dwarf bushes for Orchard-houses; ditto hardy sorts from the open ground for walls.
MEDLARS.—Standards, pyramids, and dwarfs.
MULBERRIES.—Standards, dwarfs trained for walls, and half standards and dwarfs, in pots.
NECTARINES and PEACHES. — Maiden standards and standards trained; maiden half standards, and ditto trained standards and half standards in pots; dwarf and dwarfs trained from walls, bearing trees; bearing trees trained on stems, 2 feet 4 inches in height, for trellises; and dwarfs and pyramids, bearing trees, in pots, for Orchard-houses or for Forcing.
NUTS and FILBERTS.—Dwarf bushes and standards, 4 feet high, grafted on the Hazel Nut.
PEARS on the PEAR STOCKS.—Standards, and standard-trained, dwarfs, and dwarfs horizontally trained for espaliers and walls; pyramids in a bearing state; these are well adapted for gravelly and chalky soils unfavourable to pyramids on the Quince stock.
PEARS on QUINCE STOCKS.—Standard trained for walls; pyramids, and pyramids root-pruned, bearing trees; dwarf bushes for potting, or for culture as bushes; dwarf bushes and pyramids in pots, bearing trees, for orchard houses; dwarfs horizontally trained, and dwarfs upright trained, bearing trees.
PLUMS.—Standards, standards trained, dwarf, and dwarf bushes, for potting or for garden culture; dwarfs trained for espaliers and walls; dwarf bushes and pyramids, bearing trees in pots, for orchard houses.
QUINCE.—Standards of the common Quince, and pyramids and standards of the Large Portugal Quince.
RASPBERRIES.—Canes of the finest varieties.
STRAWBERRIES.—Runners of the finest varieties.
WALNUTS.—Dwarfs for gardens of the Dwarf Prolific; other sorts as standards for orchards.
Nurseries, Sawbridgeworth, Herts.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANS PLANTED FOREST TREES, &c.
Woking Nursery, Surrey.

Ranunculuses, Anemones, &c.

CAREY TYSO, Wallingford, Berks, offers choice named assortments as under.

*RANUNCULUSES,	50 fine varieties	£1 0 0
,,	50 good do.	0 14 0
,,	50 choice Seedlings	2 10 0
,,	50 mixed, 4s. to	0 10 0
*ANEMONES,	50 double sorts	0 10 6
,,	50 fine mixed, 3s. 6d. to	0 5 0

* These can be sent safely by post.

IMPORTED DUTCH BULBS in variety.
ROSES, CARNATIONS, PICOTEES, PANSIES, and other florists' flowers.
CATALOGUES sent for one stamp.
Treatise on "Successful Culture of the Ranunculus," post free, seven stamps.
Treatise on Anemone, four stamps.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

To Amateurs in Gardening.

MR. MASTERS has a very extensive COLLECTION of HARDY ENGLISH and EXOTIC FERNS, which he is willing to supply at very moderate prices, and also has just received a first rate importation of DUTCH BULBS.

Mr. M. would also call attention to his choice assortment of the varieties of GERMAN IRIS, which he can now supply in 50 sorts, at 6s. per dozen.

A PRICED CATALOGUE of GENERAL NURSERY STOCK may be had upon application.
Exotic Nursery, Canterbury.

To Gardeners and Others.

WANTED, LARGE ORANGE TREES, CAMELLIAS, TREE FERNS, ORCHIDS, and SPECIMEN GREENHOUSE PLANTS. The Plants must be clean and good, and of well-known varieties.
Address, Mr. DEAL, Messrs. Weeks & Co., King's Road, Chelsea, S.W.

WANTED, STRONG TRANSPLANTED OAK, SPRUCE, and THORNS.—WANTED, a large quantity of the above, stout and well rooted. Apply, stating quantities, sizes, and lowest prices per 1000.

Also WANTED, Standard-trained PEACHES and NECTARINES. State kinds, quantities, and prices, to
FRANCIS & ARTHUR DICKSON & SONS, 106, Eastgate Street, Chester.

WANTED, BEECH, HORNBEAM, and any PLANTS for HEDGES, about 3 feet high. Birch, Limes, Beech, Larch, and any hardy Firs from 3 to 6 feet high. Common Hollies, Box, Yews, Portugal Laurels, Aucubas, Evergreen Oaks, Berberis, Common Laurels, and any hardy Evergreens, from 1 to 3 feet high. Chesnut, Horse Chesnut, Copper Beech, Mountain Ash, from 3 to 6 feet high. Send the lowest cash price per thousand for the smaller, and per hundred for the larger and choicer sorts, to
ZETA, care of Mr. Cooper, Architect, 2, Queen Square, Bloomsbury, W.C.

THE EARLIEST PEA KNOWN is CARPENTER'S EXPRESS (pods larger than any other early Pea).

Among *numerous* Testimonials the following has been received:—

From Mr. JONES, *Gardener to Lord Leconfield, Petworth, Sussex. June 3, 1863.*

"I beg to say I have found Carpenter's Express Pea to answer well as an early one; it was sown on the 20th of November, on a south border, and I gathered the first dish on the 7th of May. I had Daniel O'Rourke and your Pea side by side in November, 1861, and gathered First from Carpenter's Express in May, 1862, which led me to grow it as my earliest this year."

New Seed to be had only of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Establishment, 96, St. James's Street, Brighton.

Early Orders are solicited, which will be executed strictly in priority.

19 SACKS of WHEAT per ACRE.—Farmers requiring HALLETT'S PEDIGREE WHEAT for Seed may obtain the same from the crop, which is just threshed, and yielded 19 Sacks and Half-a-bushel per Acre, weighing 63 lbs. per bushel, by applying to SAMUEL DODGE, Farm Bailiff to W. Manfield, Esq., Portisham, Dorchester, Dorset.
Price 10s. per Bushel for Cash on delivery.
Portisham, Sept. 26.

Seed Wheat.

SEED WHEAT (RED) of a superior sort, remarkable for the fineness of its berry and absence of dross, to be had of Mr. THOMAS DAVEY, Garboldisham Ling Farm, Norfolk.

Seven Acres just threshed with a yield of 100 coombs 2 bushels; being 3 coombs per Acre more than was grown from Hallett's Pedigree Wheat on the same description of Land.

SEED WHEAT.—The following Varieties have been grown by "TRITICUM." See *Agricultural Gazette* of October 4, 1862:—

PRINGLE'S BEARDED WHITE, a fine selected sample, 80s. per quarter.
SHIRREFF'S BEARDED WHITE, a fine selected sample. 70s. per quarter.
(The stock originally received from P. Shirreff, Esq.)
In a collection of all the best known Wheats these two have proved the best in all points.
FIRST PRIZE VICTORIA (AUSTRALIAN) WHEAT (stock received from the Editor of the *Agricultural Gazette*), a fine white of superior quality. A few bushels only, at 15s. per bushel.

If ordered in less quantities than quoted, higher rates will be charged. New sacks, 1s. 9d. each.
A remittance must accompany all orders.
Samples of ears and corn may be had on application, enclosing six postage stamps, returnable to purchasers.
Apply to RICHARD BRADLEY & SONS, Halam, near Southwell, Notts.

NEW PELARGONIUMS and CINERARIAS.—Our NEW CATALOGUE, containing many Novelties of the above, offered for the first time, is now ready, and will be forwarded post free on application. Also selections of the very best known kinds, cheap.
Our NEW BULB LIST is also just published.
J. DOBSON & SONS, Woodlands Nursery, Isleworth.

EARLY OXFORD POTATO.—Four or Five Tons for Sale at 5l. 10s. per ton; the finest sample ever sent out; all have been roughed this season. Also about 150 lbs. of ROSETTE COLEWORT SEED, and 30 or 40 bushels of BURBIDGE'S ECLIPSE PEA, and a great many thousand STRAWBERRY PLANTS, to be sold cheap for cash. May be seen on the place where grown, or a sample sent on application.—RICHARD RICHARDSON, Cottenham Park.

REIGATE SILVER SAND.—100 Tons of SILVER SAND, at 5s. per ton, Cash, put on the Rail at Reigate Station, in 4, 6, and 8 tons in a truck.
W. SHORT, Reigate, Surrey.

REIGATE SILVER SAND.—Best quality, 7s. 6d. per ton; packed, 16s. per ton; ditto 5s.; 4 cwt. put on the Rail at Reigate.
Best and second quality PEAT SOIL, LOAM, &c.
N.B. Loaded Trucks can be sent on all the principal Railways.
W. SHORT, Reigate, Surrey.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.
116, Fenchurch Street, E.C.

LAWES'S WHEAT MANURE for AUTUMN SOWING.

A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8l. per ton.

2 to 3 cwts. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

SUPERPHOSPHATE of LIME	£6 6
MINERAL SUPERPHOSPHATE	5 5

Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.
American and other Cakes at market prices.
Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

Autumn Sowing.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),
Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.
Chairman.—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.
Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex.

ODAMS'S BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, has been in use for upwards of 11 years, and has given great satisfaction to consumers.

Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.
Offices: 109, Fenchurch Street, London, E.C.
Price 7l. 10s. per Ton, delivered at any Railway or Wharf in London.

Autumn Wheat Sowing.

PHOSPHO GUANO direct from the Importers' Stores. Free on board or rail at Liverpool, 11l. per ton, net cash, bags included. Delivered, plus freight or carriage, at all parts of the United Kingdom.
PETER LAWSON & SON, Contractors, Edinburgh; and 28, King Street, Cheapside, London, E.C.

*** This Guano, from islands within the tropics, contains 35 to 40 per cent. of Soluble Guano Phosphates, 3½ per cent. of actual Ammonia, in addition to Potash, and has been pronounced by Liebig "to be far superior to any artificial Manure at present known, and to surpass most certainly, by its more correct and constant composition, the best sorts of Peruvian Guano." The Contractors solicit trials, as they are confident of the most satisfactory results.

The advantage of applying PHOSPHO GUANO in Autumn is, that it enables the Farmer to harrow it well into the soil before sowing, which is better than top-dressing the crop in the Spring. It promotes a strong braird, vigorous growth, and produces a full and plump grain. Apply at the rate of 1½ to 2 cwt. per acre.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

City of Manchester.

To ARCHITECTS AND LANDSCAPE GARDENERS.

MANCHESTER CEMETERY.—The Council of the City of Manchester are desirous of RECEIVING DESIGNS for the DRAINING and LAYING OUT of the LAND opposite the Philips Park, intended for a Cemetery: and Designs for the Chapels, Entrance Gates, and various other Buildings required in such Cemetery. The following Premiums will be given:—For the best plan, a premium of 100l.; for the second, a premium of 40l.; for the third, a premium of 20l. The designs obtaining premiums to become the property of the Council, who are not to be bound necessarily to employ any of the competitors to carry out the works. A plan of the land, and all other necessary particulars, may be obtained at the office of the City Surveyor, Town Hall, King Street, Manchester, on or after the 24th day of September.—By order,
JOSEPH HERON, Town Clerk.
Town Hall, King Street, Sept. 19, 1863.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1s. and 2s. per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP, 1s. per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from one to two ounces to the gallon of water is recommended for growing Plants; one from 4 to 16 ounces for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

HOOPER'S NEW REGISTERED ETRUSCAN HYACINTH and CUT FLOWER VASES.—Agents are hereby informed that these superb articles will be ready next week, when orders will be rapidly executed.

A List of Agents throughout the realm will be published in next week's *Gardeners' Chronicle*, Oct. 3.

WHOLESALE LISTS forwarded on application.

HOOPER & Co., Covent Garden Market, London, W.C.

Striking Cuttings and Keeping Plants for Years without Soil.

W. PRESTOE begs to announce that he will continue to supply PROPAGATING BOXES for ROSES and all kinds of Greenhouse Plants, usually termed Bedding-out Plants, smallest size 2 feet by 6 inches, 10s. each, with printed cultural directions. Each box will contain a bundle of cuttings and plants and prepared moss, so that no failure can possibly take place. Grape Vines strike admirably without soil. Mushrooms, Seakale, and Rhubarb force exceedingly well in any common shed in larger-sized boxes. Post-office Order payable to

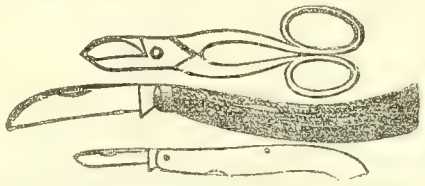
WILLIAM PRESTOE, Basingstoke.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they will not be undersold by any House in the Trade. They also warrant one of their Knives to last two of any other make.

Paxton Works, Sheffield.

Paxton Works, Sheffield, Established 1738.

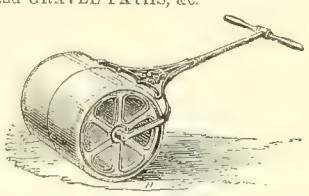


INTERNATIONAL EXHIBITION PRIZE MEDAL WAS AWARDED TO SAYNOR & COOKE FOR SUPERIORITY OF QUALITY IN PRUNING AND BUDDING KNIVES, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

GREEN'S IMPROVED NEW PATENT ROLLER for LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS, &c.



These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the very best materials, and are got up in a manner surpassing any ever yet brought out.

PRICES:—

Diameter 30 inches, length 32 inches ..	..	£7	0 0
,, 24 inches, ,, 26 inches ..	..	4	5 0
,, 20 inches, ,, 22 inches ..	..	3	5 0
,, 16 inches, ,, 17 inches ..	..	2	10 0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

Horticultural Agent and Valuer.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS) continues to undertake all kinds of VALUATIONS connected with Horticulture.

1, Devonshire Terrace, Fulham Road, S.W.

Estate Alterations and Landscape Gardening.

JOSEPH NEWTON undertakes all kinds of IMPROVEMENTS in Land Draining, Forest Planting, Horticulture, Agriculture, Renovating Grass Land, &c.

Address 30, Eastbourne Terrace, W.; or 25, Bishopsgate Street, City, E.C.

Grove Nursery, Coleman Street, Camberwell, S.

MR. GEORGE WELLS having had upwards of 20 years' experience in the ERECTION of HORTICULTURAL and other BUILDINGS, offers his services to the gentry and public in Planning and carrying out such Works by contract or otherwise. Also in Laying out Gardens and Pleasure Grounds, and the Improvement of Estates generally.

Plans and Estimates will be furnished on application. The nobility and gentry are invited to inspect his Nursery as above, Designed and Erected by himself, containing several thousand feet of Glass.

Gardens kept in order by the year or otherwise.

All kinds of Gravel, Peat, Sand, Loam, Leaf-mould, &c., supplied at the lowest possible prices.

EXPERIENCED GARDENERS recommended.

MORTON'S NEW IMPROVED PATENT LAWN MOWER, with Sun and Planet Motion, having all the most recent Improvements, is allowed to be the best Machine for preventing Ribbing and Clogging.

To be had, with prices and particulars, of GRIMMOND, LAIRD, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath; and all the principal dealers throughout the country.

HAVE YOU a LAWN?—Use BELCHER'S PATENT PLANTAIN EXTRACTOR; which neatly removes Plantain and Daisies, and replaces them with fine Turf. Price 6s.: to be had of all Ironmongers.

Wholesale Agents, S. & E. RANSOME & Co., 31, Essex Street, Strand, W.C.



GARDEN BORDER-EDGING TILES. — These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

To be obtained at F. & G. ROSHER'S Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability. Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER at their Premises as above.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

Gutta Percha Tubing for Watering Gardens.

THE GUTTA PERCHA COMPANY have the pleasure to acknowledge the receipt of the following

Testimonial from Mr. J. FARRAH, *Gr. to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*

"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."

Manufactured by the GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C., and sold by their Wholesale Dealers in town and country.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the COLD WINDS and MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. .. 1s. 9d. per yard run.
Four yards wide .. .. .. 3s. 4d. per yard.
An improved make, 2 yards wide, 1s. 9d. per yard.
An improved make, 3 yards wide, 2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

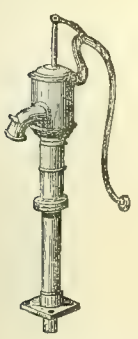
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

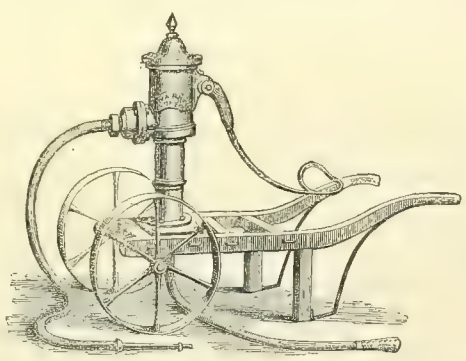
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BELL AND BRASS FOUNDERS TO HER MAJESTY,

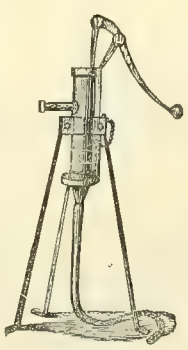
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35.



No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP.



No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this PUMP ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

PATENTEES and MANUFACTURERS,

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his New CATALOGUE, containing Select, Descriptive, and Priced Lists of Exotic Orchids, New and Rare Greenhouse, Hardy, and Stove Plants, Ornamental and Variegated foliaged Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, Narcissus, and other Bulbs, is now published and will be forwarded to all applicants.

Exotic Nursery, Tooting, Surrey, S.

HYACINTHS and other DUTCH BULBS.

THE FIRST PRIZE FOR A COLLECTION OF HYACINTHS,
THE FIRST PRIZE FOR 18 HYACINTHS,
THE FIRST PRIZE FOR 6 NEW HYACINTHS,

Being all the FIRST PRIZES offered to Nurserymen at the Royal Horticultural Society's HYACINTH SHOW on March 18, were awarded to WILLIAM PAUL, Paul's Nurseries, Waltham Cross, N.

PRICED DESCRIPTIVE CATALOGUE free by post.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON'S first importation of the above has arrived, and from the extraordinary heavy weight of the Bulbs they promise a fine bloom. Early orders are earnestly solicited. DESCRIPTIVE PRICED CATALOGUES free.

N.B.—17 FIRST PRIZES were awarded to WM. C. & SON last spring for HYACINTHS, TULIPS, and CROCUSES. In addition to this, EVERY FIRST PRIZE at the London Exhibitions to Amateurs was for Bulbs supplied by them.

The ONLY address is Highgate Nurseries, London, N.

DUTCH HYACINTHS, TULIPS, &c.

12 FINE NAMED HYACINTHS	..	..	6s. 0d.
12 CHOICER Ditto	..	..	8 0
12 CHOICEST IMPORTED Ditto	..	..	10 6
100 BORDER (Separate Colours) Ditto	..	..	21 0
1 Doz. TOURNESOL TULIPS, 1s.	..	100	7 0
1 Doz. REX RUBRORUM Ditto, 1s.	..	100	7 0
100 DOUBLE VAN THOL Ditto	..	..	3 6
100 SINGLE VAN THOL Ditto	..	..	4 6
100 LARGE BLUE CROCUS, 1s. 6d.	..	1000	12 6
100 LARGE YELLOW Ditto, 1s. 6d.	..	1000	12 6

All the above are the finest imported. For other BULBS see LIST, post free.

CHARLES SOUTHBY, Seedsman, Clapham, London, S.

E. G. HENDERSON AND SON'S DESCRIPTIVE LIST of BULBS as a Guide for the Amateur's selection is now published, and will be forwarded post free on application.

GUERNSEY and BELLA DONNA LILIES, 5s. per doz.
HYACINTHS, choice by name, 6s., 8s. and 9s. per doz.
Do., MIXED in colours, 3s. per doz.
Do., BEDDING VARIETIES, in kinds, each colour, 4s. per doz.
Do., MINIATURE FLOWERED VARIETIES, 3s. per doz.
TULIPS for Forcing, 6d. to 1s. per doz.
Do. EARLY SINGLE, and DOUBLE MIXED, 5s. and 6s. per 100.
Do., LATE, show varieties, mixed, 1s. per doz.
SNOWDROPS, single and double, 2s. per 100.
WINTER ACONITES, 2s. 6d. per 100.
CROCUS, in sorts, 1s. 6d. and 2s. per 100.
SCILLA SIBIRICA, 7s. 6d. per 100.
ANEMONES, 3s. 6d. and 5s. 6d. per 100.
RANUNCULUS, 3s. to 5s. per 100.
AMARYLLIS, by name, 3s. 6d. each.
GLOXINIAS, by name, 9s. and 12s. per doz.
ACHIMENES by name, 2s. 6d. and 3s. per doz.
GLADIOLUS BRENCHLEYENSIS, 3s. per doz., 20s. per 100.
" GANDAVENSIS, the finest collection offered in England.
CYCLAMEN, a choice collection of 20 varieties by name.
OXALIS, by name, 40 varieties offered.
IXIAS, mixed, 1s. per dozen; 40 varieties in collection offered, the inferior kinds discarded.
BABIANA, SPARAXIS, and TRITONIAS each 1s. 6d. per dozen.
LILIES, 60 fine varieties offered.
TRITOMA UVARIA, 12s. per doz.
TRITONIA (CROCOSMA) AUREA, 3s. per doz.
EARLY SPRING-FLOWERING PLANTS, in various colours, as HEPATICAS, DOUBLE PRIMROSES, VIOLETS, CHRISTMAS ROSE, and 60 other early-flowering perennials.
Strong Clumps of NEAPOLITAN and other VIOLETS in pots for winter blooming.
Do. LILY of the VALLEY.

Wellington Nursery, St. John's Wood, London, N.W.

JOHN KERNAN, SEEDSMAN, 4, Russell Street, Covent Garden, W.C., has the pleasure of announcing that the DUTCH and CAPE BULBS, just received, are in the choicest condition, especially the Hyacinths, Tulips, Crocus, Narcissus, &c. Hyacinths, particularly large and extremely fine, are now offered at 6s. per dozen, including all the varieties puffed as bargains at 9s. by provincial advertisers, who the more readily to gull the public to think them so hold out as a bait the sending of them carriage free, for which purpose 6d. or 1s. at the utmost would be required.

J. K. also offers excellent Hyacinths, in separate and distinct colours, at 2s. 6d. per dozen, quite equal if not superior to those advertised by puffing houses at 3s. 6d. per dozen; Intermediate Stock, Calceolaria, Cineraria, and Primula, from the finest collections, together with every description of Flower Seeds, including the latest novelties, which may be depended on.

J. K. recommends for immediate sowing (for winter and spring use), Winter Spinach, Ne Plus Ultra Cabbage, Hardy Green Cabbage Lettuce, Lisbon Onion, Green Curled Endive, Olive Radish, Snowball Turnip, Ash-leaf and Handsworth Early Potatos (for forcing), Sion House and other early Cucumbers, Musbroom Spawn, &c. Also as early food for cattle, Imported Italian Rye-grass, Trifolium incarnatum, Winter Tares, St. John's Day Rye, Alsike Clover, all the finest varieties of natural Grasses, separate or mixed, for Permanent Pasture, Aira cæspitosa (most suitable for Game covers), &c.

J. K. has constantly on sale Garden Syringes, Fumigators, Aphis-Brushes, Japan Flax, Cuba Bass, Knives (warranted the manufacture of GEO. HALL & SON, whose superiority over all competitors since the death of Mr. Saynor, to whom the head of this firm was Foreman, is universally acknowledged by all Gardeners), and all other Garden Utensils. The Trade supplied.

CATALOGUES to be had on application.

OUVIRANDRA BERNERIANA.—Having succeeded in raising a few Seedlings of this extremely curious and beautiful plant, we beg to offer healthy young plants of six or seven leaves at 31s. 6d. each.

O. Berneriana was exhibited at the Great Show of the Royal Horticultural Society, June 17th, and awarded the First Prize; and at the Great Show of the Royal Botanic Society, June 24th, and then also awarded the First Prize.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

THE VICTORIA NECTARINE (Rivers).

MESSRS. THOS. RIVERS & SON

now offer Trees for Sale of this new and delicious Fruit, at 10s. 6d. each,

CARRIAGE PAID TO LONDON.

The Tree was raised from a stone of the Violette Hâtive Nectarine, the flower of which had been fertilised with the pollen of the Stanwick Nectarine. It bore fruit in 1861; was awarded a First-class Certificate by the Fruit Committee of the Royal Horticultural Society in September of that year, and was named as above.

The Tree has the small flowers of the Violette Hâtive; the fruit is of the same shape, and nearly as bright in colour; large, often measuring 9 inches in circumference, and like that of a bright crimson near the stone; in this respect totally unlike the Stanwick, which is white at stone. It has the true flavour of the Stanwick, with all its fine aroma and sugary richness. It ripens a fortnight after the Violette Hâtive, and about the same period before the Stanwick (at a season when fine Nectarines are scarce), thus proving the most perfect cross-bred fruit ever raised.

The Trees offered are—1st, MAIDEN TREES in pots, all full of blossom buds from having been grown under glass, and all capable of bearing next season; 2d, SMALL TRAINED TREES, with three branches, for walls; 3d, STANDARD and HALF STANDARD MAIDEN TREES from the open ground; 4th, a few large bearing PYRAMIDS, in pots, at 21s. each.

NURSERIES, SAWBRIDGEWORTH.

BARR & SUGDEN 12 KING ST COVENT GARDEN

Just Published, price One Shilling,

THE ILLUSTRATED FLORAL GUIDE

TO

WINTER AND SPRING GARDENING,

SHOWING HOW FLOWERS MAY BE HAD IN SEASON FROM DECEMBER TO MAY.

Bulbs for the Adornment of the Spring Garden, Conservatory, and Sitting Room.

(For Collections, see our Advertisement, page 886 of *Gardeners' Chronicle*, Sept. 19.)

	per dozen.	per 100.		per dozen.	per 100.
HYACINTHS	2s. 6d. to 15s.	18s. to 100s.	RANUNCULUS	6d. to 2s. 6d.	2s. to 10s 6d.
TULIPS	6d. to 3s. 6d.	3s. 6d. to 18s. 6d.	ANEMONES	6d. to 2s. 6d.	3s. 6d. to 10s. 6d.
POLYANTHUS NARCISSUS	3s. to 4s.	21s. to 30s.	GARDEN NARCISSUS	6d. to 2s. 6d.	3s. 6d. to 10s. 6d.
CROCUS	4d. to 8d.	1s. 6d. to 4s. 6d.	SCILLAS	1s. 6d. to 4s. 6d.	10s. 6d. to 14s. 6d.
SNOWDROPS	4d. to 6d.	2s. to 3s. 6d.	WINTER ACONITES	6d.	3s. 6d.

For PRICED and DESCRIPTIVE LISTS of BULBS necessary for Winter and Spring Gardening, with the best methods of successfully cultivating and advantageously arranging them, see

BARR & SUGDEN'S

ILLUSTRATED FLORAL GUIDE TO WINTER AND SPRING GARDENING.

ESTABLISHED UPWARDS OF A CENTURY.

BUTLER & McCULLOCH,

COVENT GARDEN MARKET, LONDON, W.C.

All Orders amounting to 21s. sent Carriage Paid.

COLLECTIONS of BULBS for GREENHOUSE or CONSERVATORY.

Purchasers who may not require all the sorts mentioned, can have increased quantities of other kinds, or if they think proper, may select from the Catalogue to the amount. The numbers in the columns indicate the quantity of Bulbs in each Collection.

	No. 1. £5.	No. 2. £2 10s.	No. 3. £1 5s.	No. 4. £1 1s.	No. 5. 10s. 6d.
HYACINTHS, for Pots, Glasses, or Moss, named varieties	60	30	15	15	12
POLYANTHUS NARCISSUS, do. do., do.	26	13	6	6	3
TULIPS, single, do. do., do.	50	25	12	..	..
" double, do. do., do.	50	25	12	..	..
" DUC VAN THOL, single	25	12	6	6	12
" " scarlet	12	6	3	3	..
" " rose	12	6	3	3	..
" " yellow	12	6	3	3	..
JONQUILS, double, sweet-scented	12	6	3	3	3
" single, "	12	6	3	..	..
LILIUM LANCIFOLIUM	3	2	1	1	1
IXIAS	25	12	6	6	3
SPARAXIS	25	12	6	6	3
BABIANA	6	3	1	6	3
CYCLAMEN	6	3	2	1	..
VALLOTA PURPUREA	1	1	1	..	..
AMARYLLIS FORMOSISSIMA	12	3	3	3	..
NEWEST SEEDLING CROCUS, named varieties	200	100	50	50	50
SCILLA SIBIRICA	12	6	6	3	3
OXALIS SPECIOSA	25	12	6	6	3
TROPÆOLUM JARRATTII	1	1	..	..	..
IRIS PAVONIA	6	3	3	..	..

ROYAL HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.

LIST OF AWARDS, September 22, 1863.

FIRST-CLASS CERTIFICATE.

PELARGONIUM BEAUTY, from Messrs. E. G. Henderson & Son, St. John's Wood

HOLLYHOCK NEATNESS, from Messrs. Downie & Co., Sydenham

DAHLIA WILLIE AUSTIN, from Mr. W. Keynes, Salisbury

DAHLIA NONSUCH, from Mr. Legge, Edmonton

DAHLIA ENCHANTRESS, from Mr. Legge

DAHLIA FAIRY QUEEN, from Mr. Alexander, Leyton

SECOND CLASS CERTIFICATE.

ERANTHEMUM TUBERCULATUM, from Messrs. Veitch & Son, Exeter and Chelsea

ERANTHEMUM (?), from Messrs. Veitch & Son

DIANTHUS HYBRIDUS MULTIFLORUS, from Messrs. E. G. Henderson & Son

DIANTHUS HYBRIDUS STRIATIFLORUS, from Messrs. E. G. Henderson & Son

DIANTHUS HYBRIDUS MARIE PARÉ, from Messrs. E. G. Henderson & Son

PELARGONIUM PRINCESS OF WALES, from Mr Wills, Oulton Park

HOLLYHOCK LORD CLIFDEN, from Messrs. Downie & Co.

DAHLIA COUNTESS (Fellowes), from Mr. Turner, Slough

DAHLIA FAVOURITE (Fellowes), from Mr. Turner

DAHLIA MISS HERBERT, from Mr. Keynes

COMMENDATION.

CHEIRANTHUS MARSHALLII VARIEGATUS, from Messrs. E. G. Henderson & Son

PELARGONIUM VOLCANO, from Mr. Wills

DAHLIA EREBUS, from Mr. G. Rawlings, Bethnal Green

SPECIAL CERTIFICATE.

To Messrs. Veitch & Son, for Lapageria rosea v. albiflora

To Messrs. Downie & Co., for a Collection of 36 Hollyhocks

The NEXT MEETING will take place on the 6th of October.

THOMAS MOORE, Secretary to the Committee.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 26, 1863.

MEETING FOR THE ENSUING WEEK.

FRIDAY, October 2 { Royal Horticultural (Election of Fellows) at South Kensington .. .. 2 P.M.

As the schedules of next year's flower shows have not yet appeared,—though by the by it is high time that those having reference to spring shows should be in the hands of intending exhibitors—there is still an opportunity of formally objecting to the system followed by some of our great societies, of REWARDING NEW PLANTS by medals of intrinsic value. It may have been all very well in days gone by, when the number of novelties produced in the course of a season bore some proportion to the number of medals assigned as prizes for new plants; but it is far otherwise now, when introductions have so much increased, that at a single show—*e. g.* that of last July at South Kensington—we get, exclusive of seedling flowers, no fewer than 110 subjects entered, amongst which there are, when the schedule is strictly interpreted, only a dozen medals to be distributed. These medals, too, it must be remembered, include three different values, so that it is impossible in most cases to award them without doing flagrant injustice. The fact is, that out of 110 plants such as our plant-seekers now send us from the four corners of the earth, there would in all probability be more than a dozen deserving of the very highest reward. If the whole of the available medals were of the highest value and no others were given, no further injustice would be perpetrated than that of neglecting subjects of secondary interest; but it is manifest that when four medals would indicate a first prize, four a second prize, and the other four a third prize, and these are absorbed by the 12 best plants shown amongst the 110, all 12 being in such a case, beyond all doubt, first-class plants, there must be a great wrong done even to two-thirds of the rewarded subjects, to say nothing of second and third-rate unrewarded plants, whose proper medals had been thus improperly diverted from them.

Practically the difficulty is not quite so great as this, because the merit of the subjects exhibited compels the duplication to some extent of the several medals, so that, following up our selected illustration, we find that there was actually awarded on the occasion referred to, no less than seven medals of the first-class, ten of the second, and eleven of the third. But this was by no means a remedy for the injustice of which we complain. The 28 best subjects—if the censors were correct in their judgment—were no doubt rewarded; but in all probability the eleven which were thus stamped as third-class plants ought not to have been so branded; and of the surplus it is certain that many went unrewarded that deserved to have received something besides neglect.

We say that under this system, which necessarily restricts the number of the awards made, it is impossible that justice should be meted out on either hand. The position of the two or three leading subjects, no less than that of those placed beneath them, is falsified when, as we are assuming and as experience generally proves to be the case, there are more than enough of first-class plants to receive the first-class medals. The prizes must, under such circumstances, go according to the bias of the censors—the bias, we mean, not for the persons of the exhibitors but for particular classes of plants, amongst which every one naturally enough has his favourites. The position of the plants to which are assigned the inferior medals, is, as we have already shown, almost necessarily falsified. The whole thing thus becomes a sham, inasmuch as the prizes do not, as they ought to do, represent the relative importance and merit of the plants to which they are given.

But over and above all this there is a financial objection to the present system. We have seen that it necessitates the duplication of medals which are often costly, so that practically a Society thus offering medals for New Plants does not really know the amount of liabilities it is incurring. This is wrong in principle, even though the amount involved may not be ruinous, or indeed such as to occasion serious inconvenience. But then, we say, that SOCIETIES OUGHT NOT TO GIVE MONEY PRIZES FOR NEW PLANTS AT ALL. We are by no means for restricting the amount of prizes given for collections or specimens involving cultural skill in their production, inasmuch as we are convinced that the producers of such things are not overpaid for the unremitting care and the skill which must be brought into play before a successful issue can result; but the case is very different with new plants. They are shown for trade purposes in almost every case, the ultimate object being to obtain either a good price for the "stock" of a novelty, or an abundance of orders for the plant when "let out." The real reward therefore for the exhibitor of new plants, lies in the notoriety thus secured, (1) by placing the plant itself thus prominently before a crowd of admirers, some of whom it is presumed will become purchasers, and (2) by the certification of merit which the fact of its obtaining an award conveys to the whole mass of the gardening public not present to judge for itself. THE PROPER REWARD THEREFORE FOR A NEW PLANT IS A CERTIFICATE OF MERIT OF THE FIRST, SECOND, OR THIRD CLASS; AND EVERY NEW PLANT SHOWN IN PUBLIC OUGHT TO HAVE ONE OR THE OTHER, UNLESS IT IS SO INFERIOR AS TO BE UTTERLY WORTHLESS. A certificate gained at a public meeting or exhibition—for there should be no difference—would then as it ought to do convey to the remotest corners of the land, yea throughout Europe or wherever gardening is cared for, a fair assurance of the degree of merit possessed by the plant to which it had been assigned. This is so—barring occasional errors of judgment—in the awards of a body like the R.H.S. Floral Committee; but it is not so at the great shows even of the same society, where a third prize has no sort of parallelism with a third-rate plant, as it ought to have. Nor can this assurance be conveyed by the prize list of a great show while the medal system, or what is quite as bad, the money-prize system, is followed.

THE appearance again at their appointed season, of the blossoms of the BELLADONNA LILY, tempts us to claim for it some consideration as a neglected flower. Surpassingly lovely as are the delicately tinted flowers, and easily as the plants are to be procured and grown, they are not by any means common in gardens, notwithstanding that they appear at a time when most out-door flowers are waning, and when consequently any that come in fresh like them should be doubly welcome.

The bulbs of these so-called Lilies, which, however, belong to the very distinct family of Amaryllids, may be had in the shops for 5*s.* the dozen; and they may be grown in any deep dry loam without the least difficulty, if one or two simple rules are observed. (1.) They should be planted at least 6 inches below the surface of the ground. (2.) A situation near the foot of a south wall or the front of a greenhouse or conservatory should be allotted to them. (3) In severe seasons a little protection in the shape of mulching may be given. This last, however, is not absolutely necessary, if the deep planting is observed, and the situation is at all sheltered.

We may here add a few of the observations of the late Dean HERBERT, who was particularly versed in all matters relating to bulbs. He writes thus: "These bulbs are natives of the Cape of Good Hope, and are naturalised in Madeira, having been probably disseminated from gardens. They are exceedingly hardy, but two things are necessary to their flowering, a strong growth of the leaves, and absolute rest from midsummer till the period of flowering in September. If the leaves sprout early, and are so much damaged by severe frosts that a vigorous growth does not ensue in spring, or if they are prevented by drought in the spring from developing themselves, or are preserved green by a wet summer after the period of rest, or if they have not moisture in September to promote the blossoming, it will fail. * * At Spofforth, the bulbs of Amaryllis Belladonna are placed at 2 feet distance from the front wall of a stove and greenhouse; and there in a favourable season near 200 stems rise in September in thick patches. I have seen 30 stems in close contact. A rich and even strong and manured soil is agreeable to them, and a south wall promotes the drying of the roots in summer. They very rarely flower with me in the middle of the garden. The proper treatment of all greenhouse bulbs that flower before the appearance of the leaf in autumn, is to promote a vigorous growth of leaf in as airy a situation as may be found suitable to their respective constitutions, to keep them hot and dry while at rest, and to water them freely when the time for vegetation arrives."

——THERE are some things which appear to be especially deserving of mention in the FLORAL DECORATIONS OF BATTERSEA PARK, beyond the general praise which is due for the manner in which these decorations have been carried out. First, a row of the STELLA NOSEGAY PELARGONIUM entirely eclipses all the other scarlet varieties, of which very large quantities, in considerable variety, are planted. The plants of Stella bloom profusely, the habit is moderately vigorous, and the large trusses of flowers are so effective as to make other varieties of the ordinary character appear paltry and insignificant. Whatever may be yet in store for us in this way, and report whispers something of the superiority of one called Cybister, there can be no question that Stella has proved herself to be a grand acquisition for flower-garden purposes. Second, a bed of COLEUS VERSCHAFFELTII forms a dense mass of the richest colour, and is extremely handsome as a mass of its peculiar colour, which is a rich red-brown with a dash of purple. This bed fixes the attention of all who go near it, the plant being perfectly healthy and happy in its position, short-jointed, and thickly set with leaves, which are perhaps rather smaller than in vigorous indoor pot-grown examples of the same kind. One circular bed, 6 or 8 feet across, and edged with Centaurea ragusina is the most perfect thing we have seen. It also entirely fills, excepting a very narrow edge of Cerastium or something of that kind, another bed of considerable diameter—10 or 12 feet at least—and as a mass of its own rich-looking and very striking colour, nothing can be more satisfactory on a bright cheerful day. Third, in one part of the park a few beds are edged with CLIPPED CERASTIUM, which is allowed to rise 3 or 4 inches in height, and about the breadth of an ordinary Box-edging. The plant is entirely clipped in to a smooth even surface. The effect is very good, and suggestive of the fitness of such a mode of treatment to produce the effect of neat stone edging in a formal terrace garden. Fourth, the red-leaved AMARANTHUS MELANCHOLICUS has in one part of the park, by dint of pruning and shortening, been made to form lines well furnished with leaves, and about a foot in height. These leaves being very distinct in colour from the Coleus, more of a red purple, and the colour being effective, especially in a bright light, the plant must be set down as a flower-garden acquisition. The present season has no doubt been particularly favourable both for the Coleus and Amaranthus, but under such circumstances as they have this summer enjoyed, these plants appear to be preferable to the Perilla, being of brighter and richer colours. Some other points of interest we may notice hereafter.

The modern system of park flower gardens has been carried out to a very great extent, and we must add with very great success at Battersea, under the experienced management of Mr. GIBSON, and the ground being well diversified with irregular groups of trees and shrubs, around the margins of which the flowers are disposed, the conditions generally admitting of their appearance in grand flowing curves, the result is certainly very much more satisfactory than when existing established trees are sacrificed to a mania for the setting up of formal parterres in such inappropriate places as the generality of our London parks. We cannot however resist the conviction that flower-gardening is a little overdone even at Battersea, although, from the nature of the arrangements, it is less obtrusively so than in some places that could be mentioned.

—— We have to add to our memoranda concerning SEEDLING DAHLIAS at p. 890, a few notes arising out of the awards made at the meeting of the R. H. S. Floral Committee on the 22d inst., the favourable weather having permitted a very considerable display of these flowers to be made on that occasion. The awards consisted of four First-class and three Second-class Certificates, and one Commendation. Of the four first, LEGGE'S Enchantress had already twice gained a Second-class, and LEGGE'S Nonsuch had been Commended, the other two being KEYNES' Willie Austin and ALEXANDER'S Fairy Queen. The last is a model in form, and of full size, but unfortunate in its colour, which is a sort of creamy blush, deeper in the

outer florets, and tipped at their back with purple, the whole bloom becoming more strongly flushed with rose as it gets older; it is the most perfect in form of any of the novelties of this season which we have seen. Willie Austin is a flower of full size and presenting many points of excellence, the colour being a golden amber. This particular class of flowers seems on this occasion to have been in favour with the Committee, no fewer than three of the eight rewarded varieties belonging to it, though slightly varying as they were more or less flushed with some deeper hue. Nonsuch, which gained a Commendation early in the season, was now of full size and well brought out, the colour a buff yellow stained behind with rose. Enchantress was much improved in character, while size, regularity, depth, and such like technical points, were well marked; the colour was, however, a little varied by the touch of autumn, the florets being now of a straw colour, deepest at the base, and the tips well developed, of a bright rose. Oh that we could see flowers thus marked with a pure white ground colour!

Of the Second-class set, KEYNES' Miss Herbert is another of the amber-coloured group; its buff yellow florets stained at the back with purple, therefore approaching nearer to those of Nonsuch than of Willie Austin; the blooms shown were rather young, but it is no doubt a flower of merit. Countess and Favourite, both shown by Mr. TURNER, were raised by the Rev. C. FELLOWES; the former is a large deep built creamy white, the latter a large and showy bright amaranth purple. The Commended flower was RAWLINGS' Erebus, a medium-sized variety of an intensely dark maroon colour, the award being made on account of this marked intensity of colouring.

One or two other striking varieties may be named. Mr. HOPKIN'S Brunette, which was again shown, seems to get more strongly coloured as autumn comes on, but perhaps was not on this occasion equal in quality to what it was on the 9th inst. BURGESS'S Chelsea Hero, too, one of the amber class with lilac backs, was shown again of good quality. MORSE'S Lord Clifden, a sort of improved Stafford Gem, is a very promising flower, but was not brought forward in good condition; its colour is purple, just tipped with yellow, and its size large. PERRY'S Proserpine, too, is a very showy flower, a deep maroon crimson, distinctly tipped with white. There was a considerable sprinkling of the dirty-looking stripes, but the more we see of them the less we are able to admire them.

New Plants.

259. LARIX LYALLII, *Parlatore, January*, 1863.

L. "coma pyramidali, ramis subhorizontalibus, (fuscis), ramis annotinis, lanato-arachnoideis, canescentibus, ramulis gemmiferis ovali-globosis, perulis brevissimis, imbricatis, rotundatis, (fuscescentibus), margine longe fimbriato-arachnoideis, foliis numerosissimis (40-50 in quoque fasciculo, 22-33 mill. longis, ½-⅝ mill. latis), utrinque subcarinatis, obtusiusculis, curvulis, erecto patulis, molliusculis, amentis masculis oblongis, obtusis, (8-10 mill. longis, 4 mill. latis) primum subsessilibus, dein pedicello brevisculo munitis, basi perulis latiusculis, obtusis, fimbriatis cinctis, amentis fœmineis reflexis, oblongis, obtusiusculis, (4-5 cent. longis, 2 cent. fere latis), bracteis late ellipticis, margine apicem versus crenulatis, (castaneo-fuscis) nervo medio dilutiore in cuspidem longam, subulatam, patulam, squama multo longiorem producto, squamis subcartilagineis, suborbicularibus, apice submarginato et margine longe fimbriatis, nervis validis a basi fere ad apicem radiatim notatis, nuculis parvis, ala squamam subæquante."

A tree found on the Eastern slope of the Rocky Mountains in the Cascade and Galton Ranges, by Mr. Lyall, at about 49° N. lat., and at an elevation above the sea of between 6000 and 7000 feet. A remarkable species because of the cobweb-like wool that clothes the leaf-buds and young shoots, and the long fringe of the scales of the former. The tree grows from 36 to 45 feet high, and is therefore much dwarfer than the allied *Larix occidentalis*, which is also different in the number of leaves in a cluster, their direction and form, and in the cones. *Parlatore.*

NATURAL PRODUCTIONS AND FLORISTS' FLOWERS.

I HAVE long had doubts as to the soundness of those artificial rules by which florists judge the value of their favourite productions in the vegetable kingdom. By the term florists, I mean all who are engaged in the study and production of new varieties of flowers, and not merely such as trade in them. Take, for example, roundness of form as one of these standards of perfection. I can easily believe that a flower, which Nature intended—if I may use the expression—to be round, but which from some cause or other is imperfect, would be improved by passing through the hands of the florist. It may, therefore, be well to insist on this form in such flowers as the Polyanthus, the Chinese Primrose, and the Auricula; but why, let me ask, should the flowers of a Pelargonium, an Azalea, or a Heartsease be compelled to submit to the same arbitrary rule? It may be a want of taste on my part, but I confess that I enjoy more real pleasure when looking on many of Nature's own productions, pure and simple, than when these have been tortured by the hands of the florist.

A case just occurs to me. One day last summer, at the Horticultural Gardens in South Kensington, I had been looking over a blaze of bloom in the nave of the Exhibition Building, when chance led me into the arcades, in which were placed the collections as examples of greenhouse and conservatory decoration. Here I remarked a little Geranium in full bloom. I must confess its blossoms were not round, but their colour was bright and beautiful, and the spikes of flowers contrasted well with the bright green healthy foliage from which they sprung. To me this had much more real beauty than the finest creation of the modern florist, and I think a true artist would have been of the same opinion. But, as I have already said, it was possibly a want of taste on my part which enabled me to enjoy the sight of this modest little flower.

That florists have done much good in their day, and that they have derived unalloyed pleasure from their pursuits, I would be amongst the foremost to acknowledge. But I fear I must charge them at the same time with doing no small amount of harm. What, for example, have they been doing with the Fuchsia? Look at that new race of sickly looking things, with large gorged flowers and unhealthy looking leaves, which has taken the place of the earlier varieties. True, the flowers of the new comers are large enough and round enough to satisfy the most enthusiastic florist, but where are those beautiful long slender blossoms of bright and dazzling colours, and that vigorous and healthy green foliage which we were accustomed to see in the varieties common in gardens 30 years ago. I allude to such kinds as F. coccinea, gracilis, discolor and Riccartoni, which at that time used to be the glory of our gardens, both in the greenhouse and in the open air.

Although the old kinds of Fuchsias have almost disappeared from the gardens about London, I am happy to say they still exist in many parts of the country, particularly in the north of England and in Scotland. On a recent tour in some of those districts where florists have not much penetrated, I met with noble bushes of these old varieties blooming in the open air, and having foliage of the healthiest green colour. In the Lothians, about Edinburgh, and far north among the highland vallies about Dunkeld, in Perthshire, they seem to have established themselves on the walls of farm-houses and in cottage gardens. Let us hope that when our tastes in the south take a more healthy turn, these discarded favourites may come south once more. Or, upon the principle of natural selection, if not from other causes, it may be that the crop of artificial monstrosities may die out of themselves, and leave the field to these natural beauties. *Robert Fortune.*

EXHIBITION FLOWERS.

THE PELARGONIUM.—No. III.

THE Fancy Pelargonium, although of comparatively easy culture, is perhaps more generally mismanaged than any other. Instead of short sturdy specimens, the plants are frequently weak, drawn, and sickly, and covered with aphides, whereas with ordinary care they ought to be all that could be desired. As a decorative plant the Fancy Pelargonium stands in the first rank, producing as it does large masses of flower of the gayest and most varied colours; in fact, by slightly varying the treatment it should ordinarily receive, it may be had in bloom nearly the whole year round.

The mode of treatment which I have found most successful is as follows:—Commencing with the propagation of the plant: to insure success, the cuttings should be made of moderately firm and well-ripened shoots, which can be obtained about the end of June. The soil in which they thrive best is thoroughly decomposed loam and dung; this, with a liberal admixture of sharp silver sand, and a little good leaf-mould, is all that is necessary in order to grow them in perfection. Having secured a supply of the foregoing, next procure some clean 48-sized pots; drain them well with broken potsherds, make the soil fine, fill them, and press moderately firm; then insert the cuttings, putting in as many as the pot will hold without crowding; make them quite tight, and the operation is complete. Place them on a light warm shelf. Do not shade, as they will bear any amount of light to which they are likely to be subjected; give occasional supplies of water, and in three weeks or a month they will have struck root. When rooted sufficiently pot them off separately into small 60-sized pots, taking care to preserve as much of the root as possible. After potting, place them where they can be kept close and warm. As soon as established, give abundance of air; and should green fly make its appearance fumigate immediately. This is of the greatest importance.

Their next shift may be into 48-sized pots, in which, after pushing a few joints, they may be stopped, which will cause them to break and make dwarf bushy plants by the end of November. If they have been well attended to they will be ready for another shift into 32-sized pots, which will be large enough for the first season. Use the compost rather coarser than before; some of the fibre should be placed over the drainage, to prevent any stoppage. After this keep them somewhat close for a few days, until they become established, when, on all favourable opportunities, they should have abundance of air, but cold draughts must be avoided. The night temperature need not exceed 42°. It is a common mistake to keep Fancies too warm; by giving them heat they may be grown to a great size, but it will be at the expense of both quantity and quality of flower, and size without quality will not often be admired. In watering great care is necessary; it is better to find six dry than one too wet; there is a remedy for the one, but none for the other. In damp weather fire-heat will occasionally be required to dry the house, giving air at the same time.

Training must be commenced as soon as the shoots are sufficiently long for that purpose. I have described the method in my remarks on the large-flowering Pelargoniums (see p. 725); the same system is applicable to this class.

When the days lengthen, pay every attention to them, encourage growth with a little weak liquid manure, and occasionally the syringe may be drawn over them. When the trusses of bloom make their appearance, a slight shade will be necessary in bright weather; increasing it as the season advances. Before the flowers expand, fumigate two or three nights in succession, this will keep them clean for the rest of the season. The cultivator will now have little to do but to admire their beauties, and prolong their bloom.

After they have done flowering set them out of doors, cut them down when ripe enough, and treat them in every respect as recommended for large flowering ones, following the same routine throughout the second season, by which time they should be good-sized plants. Those for the early shows should be potted by the beginning of October into 8-inch pots; the later plants in November. They will require great care to prevent them from becoming drawn; tie the shoots as thinly as possible, and keep the plants near the glass. Attend carefully to the removal of all decayed foliage, which if allowed to remain, will cause the shoots to turn black and die.

In January, those intended for early flowering should receive a little fire heat, with a temperature of 45° at night and 50° by day. Increase the temperature as the season advances. Give occasional supplies of weak liquid manure, and attend strictly to fumigation. The latest plants should be stopped in February. When the plants are in bloom, carefully exclude all bees, and invariably water in the morning, so that the plants may become dry before night. If the house is closed when damp, the flowers decay and soon fall off. They will not require many sticks, just enough to keep them in form. If well managed they will now measure from 2 to 3 feet through, and will be loaded with flowers of fine quality, and fit for any of the metropolitan exhibitions.

The following are a few of the best varieties in cultivation:—viz., Acme, Arabella Goddard, Edith, Ellen Beck, Lady Towers, Miss-in-her-Teens, Bridesmaid, Cloth of Silver, Delicatum, Captivator, Fleur de Marie, Musjid, Formosum, Lady Craven, Madame Sainton Dolby, Madame Rougiere, Modestum, Rosabella, Reliance, Sarah Turner, Negro, and Zoë. *Henry Bailey, Jun., Shardeloes Gardens, Amersham, Bucks.*

BRITISH ASSOCIATION.

[The following remarks "On the System of Forecasting the Weather pursued in Holland," were made by Dr. BUYS BALLOT. The author said:—]

"I SHALL not abuse your indulgence, which I earnestly implore. I shall very shortly explain (1), what are the rules about foretelling weather in Holland, given before a similar system was introduced in England; (2), how they behaved themselves; and (3), what is to be done now; and I will very abundantly answer to any question or remark if they be made, for in that case I am justified in trespassing on your time.—1. Under our plan, where observations are taken in Holland, there are four principal places; Helder indicated by H, Groningen indicated by G, Flushing indicated by V, and Maestricht indicated by M, on the indications of which I base my forecasts, and in the first place on the barometer readings. For every day of the year and for every hour of the day I have very carefully determined the height of the barometer in the place of observation at that height above the sea, where it is suspended. This is a cardinal point not sufficiently observed in England, and not at all in France. The difference of an observed pressure from that calculated on I call the departure of the pressure—positive when the pressure is greater, negative when it is less. Those departures, besides the observations of the other instruments, are communicated from post to post. The rule is now very simple. If the departures are greater (more positive) in the southern places than in the northern, greater at M or V than at G or H, the wind will have a W in its name; when the departures are greater in the northern places the wind will have an E. in its name. More accurately, you may say, the wind will be nearly at right angles with the direction of the greatest difference of pressures. When you place yourself in the direction of the wind (or in the direction of the electric current) you will have at your left the least atmospheric pressure (or the north pole of the magnet). When the difference of pressure of the southern places above the northern is not above four millimètres, there will be no wind of a force above 30 lb. on the square mètre. Moreover, the greatest amount of rain will fall when the departures are negative; and at the places where the departures are most negative, there also the force of the wind will be generally stronger. Moreover, there will be no thunder if the barometic pressure is not less than two milli-

mètres above the average height, and when at the same time the difference of the departures of temperature is considerable.

"Those rules, and especially the first two, were laid down by me, in 1857, in the 'Comptes Rendus,' and on the 1st of June, 1860, the first telegraphic warning by order of the Department of the Interior was given in Holland. It was unfortunate that those telegraphic warnings were not introduced four days sooner, for in that case the first communication would have been a first warning against the fearful storm of May 28, 1860, called the Finster-storm. All of you know how amply Admiral FitzRoy has arranged the telegraphic warnings all over England.

"2. Those rules used in Holland have behaved themselves very well, as is laid down in the translation of a paper of Mr. Klein, captain of a merchant ship, whereto I have added my observations and signals compared with the signals of Admiral FitzRoy in Table A, p. 25. My own paper dates from June 1, 1860, and is extracted by Mr. Klein as you may see, but I preferred that the less complete and precise paper of a practical man be translated, because I thought that the seamen would put more reliance on it. From the tables added to that translation it appears that I have warned from my four stations, just as Admiral FitzRoy has done from his 20. It must, however, be recorded that besides those four stations, there are also some stations — Paris, Havre, Brest, in France, and some in England — Hartlepool, Yarmouth, Portsmouth, Plymouth—that send me their observations. Generally they arrive too late, and therefore they throw but very little light on the forecasting, principally while the barometers are not so well known. So much for the strength, now for the direction. The direction is in the first 24 hours after the observations, three times of the four such as indicated, and the second 24 hours and the third 24 hours still two times of the three such as indicated (see Table B, p. 29), and moreover no storm has occurred in those six years when not before the difference of the southern departures above the northern has been 4 millimètres.

"3. What is to be done? The normal heights of barometric pressure, or better of the barometers, which are read, must be conscientiously taken, the observation must be made at more points once a day, and mutually communicated, and at days when there are greatly different departures, that is to say, of three millimètres, or when there is change of inclination, there must be sent a message at noon or in the evening of the same day. In all cases, not only the pressure in the morning, but likewise that at night should be given. A critical indication is, when the previous day the northern stations had greater departures and the following day the southern had greater departures, even when the difference in the latter case was small. There is caution to be had when the difference of the departures is 4 millimètres. But I may not trespass on your time and kindness in expressing wishes only, it may be sufficient to have communicated the general rule." *Athenæum.*

POTATOS.

I am glad Mr. Whiting has given you a description of the Potatos he exhibited, because it enables us to compare notes in different parts of the country, and see what progress we are making in the Potato as well as in other things.

That an early Potato should be a Kidney seems to be almost universally desired; why, I know not, unless the shape is thought preferable; but so it is, and the Ash-leaf Kidney is the favourite, although it has the great drawback of being only a moderate cropper. There is a kind grown in Yorkshire called the French Ash-leaf, but I see little or no difference betwixt this and the old kind. Mr. Rivers sent out another kind of Ash-leaf Kidney last spring, but I forget the exact name of it; I saw it growing in the Isle of Man this summer, and there it appeared identical with Myatt's Prolific Kidney. The person in whose garden I saw it, told me he got it direct from Sawbridgeworth.

What we really want is an early Kidney, as early or earlier than the Ash-leaf, a much better producer, and with as little haulm as possible. I met with a Potato in the Isle of Man, called Mona's Pride, which I think justly merits such a description. It is partially known in the North of England, but judging from what I saw and the most flattering testimonials published, it is one of the best if not the best early Kidney Potato we have. It is fully as early as the Ash-leaf (I think earlier), and produces twice as many tubers. I have also been strongly recommended to grow an early Kidney, known in Worcestershire as the Early May. I know nothing of this variety, but am assured it supersedes the Ash-leaf. Perhaps this passing remark will bring out some further information respecting it.

I some time since met with a very early and exceedingly dwarf-growing Potato, which is now known about here as Dean's Early Prolific Kidney. It is within a few days as early as the Ash-leaf, the haulm is very short, and the tubers are produced in great abundance round the neck of the plant. It is a wonderful cropper, the tubers being neither kidney nor round in shape, but intermediate, and of a medium size, just fit for a gentleman's table.

For second early Kidneys we cannot have better than Myatt's Prolific Kidney, which is a first-class kind, and a good cropper. This Potato is getting a great reputation northwards, and most deservedly so. Then there is Haigh's Seedling, a first-class Kidney, which can be in use from digging-time until April. We have no better Potato, but it is subject to disease. I am, however, inclined to think we should have very little disease if we grew the earlier kinds, and dug them as soon as the haulm began to decay and pitted them. Of course this sounds like theory, but I now dig early, believing from observation it is a safe plan. One thing is certain —here we get no diseased Potatos.

For a late crop I think we have no better kind than the Fluke, but with this, as with many other kinds, all soils do not suit it. I think a moderately dry stiff loamy soil produces the best flavoured Fluke Potatos. Mr. Turner used to grow it well at Slough in his nursery, and he has a soil of this description. Wet, cold soils do not suit Potatos, as they are deficient in starch, and light sandy soils do not always show a Potato in its best character. There is a smooth thin-skinned handsome early Kidney in Yorkshire, named Wonderful Early Red Kidney, which is a full flavoured most productive Potato for a general crop, and I never yet knew it diseased. One reason probably is that it is so soon ready for digging, or it may be that Red Potatos are not so subject to disease as the Whites. I fancy they are not, but am not prepared to prove it.

Webb's Imperial Kidney has been grown here this season, and in my opinion is not so valuable as Myatt's for a gentleman's garden. It is no earlier than Myatt's, much larger, but not better if so good in flavour. It is a good cottager's or market Potato, but grows too large for a gentleman's table.

There are some good Potatos in Lancashire which are but little known. One district in Lancashire especially, Morecambe, has a reputation for early Potatos. Morecambe is a favourite sea-bathing place, and the soil is light, and the situation mild and warm in early spring; therefore the Lemon Kidneys, a kind of Ash-leaf, grown here, are procured very early in the season; but I find if the seed got thence is grown in a heavier and colder soil, they are by no means so early. Haigh's Seedling and the Fluke are both Lancashire Potatos, and there is a very fine and handsome round Potato known there called Arrowsmith's Seedling, which I can well recommend to market gardeners. It is a wonderful producer, and is a good-sized handsome tuber of good quality. The Handsworth Prolific is our best early round. The Dalmahoy is a heavy cropper, but rather late in the north, and gets diseased. *W. Dean, Shipley.*

Home Correspondence.

Ensuring Fruit Crops.—My attention has just been drawn to an article that recently appeared in your Paper (p. 772), headed "How to ensure a crop of fruit." The article in question is altogether wrongly entitled; instead of "how to ensure a crop of fruit," it ought to have been "How to protect trees from frost while in blossom;" we might then have known what to expect. I can assure you, Mr. Editor, I was rather startled at such a glorious heading; I thought that some valuable discovery had been made in the gardening world, and I soliloquised thus:—"Rivers and his orchard houses are thrown into the shade; Paxton's houses are out of date; a mighty edifice is erected; and the sum and substance of the whole is this: protect your trees in spring by Frigi Domo." Now Frigi Domo is a good serviceable article no doubt, but will it ripen the wood in autumn? It is in the presence of unripe wood combined with unhealthy roots, that the evil mainly lies. Covering in spring is indispensable—no one will deny that; but it is not the basis of insuring a crop of fruit, for we often find to our sorrow that our stone fruit falls after setting, and oftener still that even with covering we cannot get it to set at all. I do not for a moment doubt that Mr. Bennet is successful in pursuing the mode he has stated. The nature of the soil in the neighbourhood of Worksop, with the mildness of the climate, will greatly assist him; but his thoughts appear to have been confined to the plains of Notts, and not to have ranged over the hills of Yorkshire and Derbyshire, where many of his fraternity have to practise. An employer, after reading Mr. Bennet's article, will be likely to interrogate his gardener, if he should have no fruit, as to the use he has made of Frigi Domo. This question of how to insure a crop of fruit in the cheapest way is one of great importance, and ought, I think, to be left open for further discussion in your columns. *W. R. R.* [No subject could possibly be more interesting — or, let us add, more difficult. We shall eagerly accept communications.]

Pampas Grass.—I wrote to you last year (see p. 910) respecting this Grass. I am induced again to record its wonderful beauty and increased growth. I counted the spikes on it about a fortnight ago, and they numbered 130; they are now bursting into bloom. Have any of your correspondents a plant with more spikes on it? *John Hollingworth, Turkey Mills, Maidstone.*

The Swift.—For about 20 years I have been interested in observing the swallow tribe, and especially the Swift; this year after the middle of August I expected any day to notice that these birds had taken their departure, but September came, and still they were with us, in number about 30. On the 10th inst., however, the majority left us, and the remainder on the 16th or 17th. I cannot account for their departure being delayed so late. I do not believe that their nests were disturbed at the usual breeding time, as there are several colonies of them in different parts of this town, and generally in very inaccessible places. Nor has the weather from the 20th of August to the present time been remarkably fine and warm; on the contrary, I should say that it has been colder than the average of seasons. As Yarrell mentions in his History of British Birds that one Swift was seen by R. B. Hale, M.P., of Alderly, on the 9th of September, 1839, it may be worth recording the very remarkable circumstance of 30 or upwards remaining till the 10th of September, 1863. If any of your correspondents have observed any similar irregularity in the time of the migration of the Swift it would be interesting to hear of it. *Joshua Whiting, Hitchin.*

Fungi in Pleasure Grounds.—Your correspondent "J. M. C." (see p. 893), need not apprehend that "the pest in the shape of a Fungus" will be everlastingly in his garden. Did it appear there, before he caused the sod to be disturbed and broken up? No. So soon then, as old Dame Nature shall have recovered her wonted position in those parts which have been disordered by the displacing of the turf in his "little garden," the Fungi will cease to be prolific, and ultimately appear no more. Now, breaking the subject for a moment, I consider our large gray rat (commonly called the Hanoverian rat) is everlasting in its possession of our grounds, our granaries, and our gardens; and I fancy that these real pests cannot be started from their strongholds, but by the giant arm of some all-powerful Hercules. But to the point. These intrusive Fungi complained of by "J. M. C." are the effect of a cause. Nothing more. They may be considered as aliens, tolerated by Nature for a given time; and when the soil and sod shall have recovered their pristine temperament, the alien Fungi will disappear for ever. I venture to assert that all Fungi, be they great or be they small, on the branches and on the boles of trees, are entirely the effect of a cause. Arboreal disease alone produces them. [Undoubtedly.] Fungi are never seen upon a perfectly healthy tree. Full 70 years ago I was fond of climbing trees in quest of adventures; and I still pursue the same fascinating exercise. Long practice has enabled me to pronounce that all Fungi which appear on trees are produced by a certain state of disease in the trees themselves. I have some very curious specimens of tree-fungus, now lying on the table before me. *Charles Waterton, Walton Hall, near Wakefield.*

Abnormal Growth in Conifers.—When lately in Auvergne, I observed on many of the trees in the Silver Fir forests in the neighbourhood of Mont Doré, a curious abnormal condition of the branches, which at first sight had the appearance of a parasitical growth, —upright branches springing from the normal horizontal branches of the trees, and some of them evidently of several years' growth. On examining them, they appeared to rise from a spot punctured by an insect, probably depositing its ova. The foliage of these branches was always of a lighter green than that of the healthy branch from which they sprang; and the unhealthy state was also indicated by the leaves being always covered with a Fungus (Æcidium), from which the rest of the foliage was free. What insect is it which causes this curious abnormal growth? Can you refer me to any author who has written on the remarkable power that insects possess (as in this and other cases, such as the various galls, &c.) of diverting the juices of plants to serve their purposes in forming a nidus for their young? *W. C. Trevelyan, Wallington.* [We believe the abnormal condition of the branches of the Silver Fir to have been caused by the punctures of a species of Chermes when the buds were young, which retarded the growth of the twig for the time, and then, being weakened and swollen, it threw out delicate shoots. The vegetable physiology of galls requires investigation. Bremi in Switzerland, Hartig in Germany, and Baron Osten Sacken in America, have written much lately on the *makers* of these excrescences, but the question requires the attention of a vegetable physiologist. *J. O. W.*]

American Water-weed.—In answer to your leading article (see p. 889), inviting communications on the Anacharis, I beg to give you our experience. Several years ago the weed made its appearance in a five-acre pond on Wandsworth Common. We were told that an aquarium owner, living more than half a mile off, had put a small plant in a pond near his house, for the sake of getting a good tank specimen. With us it spread very rapidly, soon overpowering all the old weeds, and destroying all pleasure in rowing. My brother, who had lately returned from India, suggested dragging it up by means of a boat oar pushed to the bottom and then twisted round and round; this brought up a huge bunch of weeds, with their roots and some mud adhering to them. We found this by no means a bad gymnastic evening exercise, and two of us, one at each end of a punt, in little more than an hour had pulled up as great a load as it was pleasant to punt with. Finding a greater impression had been made on the enemy than we at first anticipated would be the case, a man was employed to work constantly, and in

about three weeks an immense pile on the bank was the result; this in a few months settled down into a solid black mass, cutting like cheese, which being used as manure for the garden has given such Peas and Cabbages as we never had before. Next year the weed came up again in about the same strength. Our friend the late Professor Henslow gave us some hopes that the great strength of growth was partly due to its having found, to it, a virgin soil. Next year it came up equally strong again, and was converted into another great heap of good manure. This year the growth has been stronger than ever. This is probably due not to the fine summer alone, but also to the fact that our windmill used to keep up the water supply has been out of order, and that consequently the pond popularly known as the "Black Sea" has been much shallower than for some years past. It took about five weeks to clear weed enough to make rowing pleasant, and now we have a still greater heap of the manure than usual. We calculated that for our thin soil over gravel the value of this soil-like manure about paid for the man's wages employed. In the country, where there are young men with leisure time and a boat, amateur extraction will be found by no means an unpleasant muscular exercise. *G. F. Wilson, Wandsworth Common.*

Showing Roses.—With all deference to Mr. Wm. Paul's remarks (see p. 893), I still think that when Roses are shown as cut flowers, they should be shown in the highest state of perfection attainable, and he will not venture to say that this can be done, in some varieties at any rate, without disbudding. Of course leaves set off a Rose, and I have not advocated their removal. I agree with Mr. Paul that it is beautiful to see the full-blown and the half-blown flower and the bud, but these should be seen on plants in pots. Mr. Paul says a "good number of sorts" is desirable; I say the more the better if the sorts are good and distinct, but I cannot admit that Roses which are simply floriferous or bright and striking in colour should be exhibited as cut flowers. Such Roses should be shown in pots, when a proper estimate of their worth could be arrived at. It would be quite as sensible to exhibit bedding Dahlias with the florist's varieties, as these Roses with others possessing the qualifications of a florist's Rose. And confining cut Roses to such as in a great measure come up to the florists' standard, and exhibiting the floriferous and bright decorative kinds in pots, would have the very effect—and it seems to me the most certain effect—of producing that variety and preventing that dreary sameness of appearance which is inseparable from long formal rows of blooms only. I think that showing trebles is undesirable, because it lessens competition, and causes many very indifferent flowers to be shown. I cannot see what succession or continuity of bloom has to do with the question of disbudding Roses intended for exhibition. If the buds are not previously removed they must certainly come off with the Rose when cut for exhibition, and their continuity of bloom is thus as effectually cut short as by their removal at first. Besides, continuity of bloom on the plant can be effected by leaving buds of different stages of growth, and by judicious pruning. To sum up, when Roses are exhibited as cut flowers, they should show all the points required by the florist in the highest degree attainable by the particular variety. If disbudding be necessary for this, then it should be allowed. Roses simply decorative, and not coming near the florists' standard, should be shown in pots, and not as cut flowers. *P.*——To show Roses as single blooms would, I think with Mr. W. Paul, be exhibiting them in too formal a manner. I have shown them in this way myself years ago, and have also seen others do the same; they do not, however, show their natural beauty in this way. I am an advocate for single trusses (*i.e.*, all the buds and foliage really belonging to the shoot on which the expanded flower is produced) in preference to the trebles, as trebles throw the large prizes into the hands of the large growers, who have acres to pick from. Many a small grower could show 48 or more single trusses, when three trusses of each kind would be an impossibility. It frequently happens too that one or more in the treble is very faulty. A stand of single trusses, well arranged as to colour and size, placed by the side of three blooms of a sort, in my opinion would lose nothing by the contrast. The managers of the large exhibitions have no doubt studied this well, as we usually see classes for single blooms as well as trebles. The latter may catch the eye, and be most effective at a distance, but on a close inspection I fancy the single trusses would be generally most admired. *W. H.*

Rhus succedaneum.—In answer to your correspondent "Sumach" (see p. 894), I beg to say that I planted some seeds of the Rhus succedaneum (the Japan Wax-tree) in small pots; they appeared to live through one winter at least, but I have not been able to discover what has become of them since. *G. W., Weybridge Heath.*

Fruit Competitions.—At a provincial horticultural exhibition held last week not 100 miles from London, prizes were offered for the best collection of eight dishes of fruit. There were six competitors; the collection of one contained three dishes of Grapes, two dishes of Peaches, a Pine, a Melon, and a dish of Apricots. The 1st prize was awarded it. There was no disputing the quality of the Grapes, which consisted of Lady Downes' Seedling, Muscat of Alexandria, and Black Hamburgh. The Pine was second rate, being unevenly swelled. The Melon, judging from appearance, was good. Peaches were so much alike that none but an experienced persicologist could detect any differences among them; one dish consisted of Walburton Admirable, and to the other some new name was attached, I forget now what. The Apricots (Moor Park) were inferior. A question arose between exhibitors and non-exhibitors whether that collection, if deprived of one dish of Grapes and one dish of Peaches, would have held the same position? and the reply was an emphatic no! Therefore some rule should be laid down in framing schedules respecting the number of dishes of one class of fruit that would be admissible in a collection; or another season Mr. A. may have four dishes of Grapes, two varieties of Pines, and two distinct kinds of Melons; Mr. B. may have four Pines, three Melons, and one dish of Grapes, and so make a collection of eight dishes; but no gardener would think of sending such a dessert to his employer's table—not even three dishes of Grapes in eight, or he would be considered—no matter what. Another point much discussed on the same occasion was this, that a collection of fruit was staged by a gentleman who afterwards acted as one of the judges. Now we all know something about the weakness of human nature, and it is just possible that there might have been a leaning on the part of the judges to the productions of their friend, or of those in whom they felt interested. *One who has Exhibited and seen a Collection of Fruit.*

Cool Treatment of Orchids.—The plants so often mentioned by you in the *Chronicle* as being under drawing-room treatment here, are in most excellent health. Lycaste Skinneri is growing vigorously, and showing three new pseudo-bulbs, which will no doubt flower as formerly in the spring. Odontoglossum grande is now in fine flower, bearing a spike 13 inches long, with four superb flowers, each measuring 5⅛ inches across and fully 6 inches in length; the colours I have seldom seen surpassed. Barkeria Skinneri flowered in July, and has now seven new shoots, two likely to flower in November or early in December. These plants have never received any other treatment than that originally given, only I, having left Somers Villa last June, put them under the charge of my friend Mrs. King, of Lyttleton House, and they have stood on a landing of the staircase, having a southern aspect, and well protected by a blind from the noonday sun. Perhaps the Odontoglossum (which is a very small plant) may have had rather too much moisture, which has caused the flower-stem to extend itself unnaturally, and the plant to have flowers very large for its size. Last year this plant was put out of doors to receive a genial shower, and some bird I expect cut off the young shoot, consequently it did not flower last year; but as a new pseudo-bulb has furnished the present show, that could hardly have influenced the immense production of this year. From personal acquaintance with its wild habitat my treatment has been assimilated as much as possible to its native climate. If any sceptics yet exist, I would ask them to visit Wembly Park, Sudbury, near Harrow, the residence of the Rev. J. E. Gray, F.R.H.S., and see there a Lycaste Skinneri, imported by Mr. Veitch in March last, and which has seven (originally eight) flowers in perfect beauty, and they have been in that condition for seven weeks; also Odontoglossum grande, a perfect blaze of flowers, having 17 very fine, on five flower stems, and likely to remain for a month in perfection still, under the skilful treatment of Miss Gray. Their situation is a centre window, with an eastern aspect, in the small drawing room. I have no doubt now that many other houses in England have ladies already enjoying the same luxury, and I shall be glad if others would give the results of their experience in this matter. *G. U. Skinner, Malvern Link, Sept.* 21.

Russian Ridge Cucumber.—I do not know if this is generally known (or grown) in England. It is a most abundant bearer, producing from three to five of its little fruit at each joint, and the plant does not spread so far about as our Ridge Cucumbers. A friend who brought the seeds from Russia assured me that they were grown very extensively there, and pickled (or packed in salt) in tubs, and sold in the markets in winter; they are sold by measure, as per peck, &c. *Charles Levett, Gardener, Fakenham Rectory, Ixworth.* [This is not cultivated here because it would be difficult to find persons to eat salted Cucumbers; and this Russian makes very indifferent Gurkins. We formerly grew it, but threw it away. It makes, however, a considerable item in the diet of Russian poor.]

The People's Park, Sunderland.—A few years ago various opinions were expressed in your Paper concerning the laying out of this Park. It may be remembered that one statement was to this effect, viz., that it was second to none in England. One Correspondent thought the beds or clumps were like the Willow beds by the River Trent. It may be interesting to some to know that the Park has in many respects improved. The shrubs are now beginning to furnish the place, giving relief to the eye tired with looking on the buildings. The walks are so traced as to make the most of the ground; at each turn is some object of interest, either some gay bed of flowers, or shrubs or rockwork. Among other subjects placed in the park is a fine statue (by Behnes) of the late Gen. Havelock, with the following inscription:—"Born 5th April, 1795, at Ford Hall, Bishopwearmouth. Died 24th Nov., 1857, at Dil Koosha, Lucknow." Also two Russian guns as trophies from the Crimea, and a fine Japanese bell, presented by Capt. Holmes of the ship Troas. The Park is highly appreciated. The leading gentlemen of Sunderland, wishful for the enjoyment and instruction of the people, have purchased about 11 acres to add to its extent, and it is now under consideration what will be the best way to lay it out. It is determined to have it, or part of it, made into a botanical garden. It is to be hoped that the managers may be able to accomplish this scientific project, which will make the Park little inferior, if any, to similar places of public resort in England. *R. D.*

Vine Growing (see p. 893).—Allow me in justice to myself to inform Mr. Baines that the Black Grapes shown by me at Bradford, which were second to his, were not from the Vines described by me at p. 869. Although he so minutely describes the defects and short-comings of my Black Grapes, he omits to say that I exhibited at the same show two bunches of Muscats, weighing 4½ lbs., which obtained a 1st prize. These were from the Vines referred to by me—I leave them to be judged by Mr. B. When I referred to Mr. Nicholson's success (see p. 845) it was not with the view of detracting from the merit of his Grape growing, but the allusion gave me an opportunity of expressing my conviction that the Vine under judicious management is capable of producing great and abundant crops, though the fruit may not be in all points what is termed first class, such as that exhibited by Mr. B., and carried from show to show. I know that the sentiments which I express are contrary to the long-established custom of allowing Vines two or three years to establish themselves, as it is called. But why should so rapid and vigorous a growing plant as the Vine, require so long a time to ramify and strengthen itself? With regard to over-cropping and the evils resulting from it, I quite agree with Mr. B.; but at the same time I consider that the Vines themselves are sure indicators of their own strength. Let them start life with a strong and robust constitution, and if well fed and cared for they may be expected to reach a fruitful middle life, if not old age. *J. Thomson, Gardener to J. Cliff, Esq., Wortley, Leeds.*

Societies.

ROYAL HORTICULTURAL: *Sept.* 22 (*Floral Committee*).—A Special Certificate was awarded on this occasion to Messrs. Veitch for the white-flowered variety of Lapageria rosea, shown in charming condition, and forming part of a collection of interesting plants, among which were the handsome Lilium auratum, and a variety of L. speciosum rubrum, with an unusual amount of colour in it; also two new Eranthemums, to both of which Second-class Certificates were awarded. Of these we shall give some account next week. One is a first-class plant. That from New Caledonia, labelled tuberculatum, formed a compact little bush, covered with small ovate leaves and pure white flowers, produced in great profusion; the other, a taller-growing plant, had long lance-shaped leaves, furnished on the edges with a few blunt teeth, and bearing conspicuous white flowers, each beautifully mottled on the undermost segment with minute purple dots. From Messrs. E. G. Henderson & Son came Anemone vitifolia, and the white A. japonica Honorine Jobert; also a Pelargonium named Beauty, to which a First class Certificate was awarded, a kind belonging to the zonate class, with finely-formed white flowers, edged at the base of the petals with salmon pink; a variegated variety of Cheiranthus Marsballi received a label of Commendation; and various semi-double flowered mule Pinks, one bright crimson, another carnation-striped, and a third pure white, to all of which Second-class Certificates were awarded, likewise came from the same growers. Messrs. Downie Laird & Laing showed a collection of Hollyhock blooms, to which a Special Certificate was given; among them were Neatness, a deep crimson kind, to which a First-class Certificate was awarded; and to Lord Clifden, a bright carmine shaded crimson, in the same collection, a Second-class Certificate was assigned. Among Dahlias contributed, one from Mr. Rawlings, named Erebus, was commended for its colour, which is nearly black. Miss Herbert, from Mr. Keynes, received a Second-class Certificate, and Willie Austin from the same raiser, a First-class; these were both rich golden yellow, shaded more or less with red. Nonsuch, from Mr. Legge, also nearly of the same colour, received a First-class Certificate, as likewise did Enchantress from the same grower, a yellowish white kind heavily tipped and shaded with cherry. To Dahlia Fairy Queen, from Mr. Alexander, Leyton, a variety with a creamy yellow ground shading off to rosy lilac, a First-class Certificate was awarded; and Second-class Certificates were given to Dahlias Favourite (Fellowes), purple, and Countess (Fellowes), large white, both from Mr. Turner, of the Royal Nursery, Slough. Three or four varieties of bedding Lobelias, the best of which were Crystal Palace Gem, Fairy Queen and Delicata, were shown from the Crystal Palace by Mr. Gordon; and two handsome Pelargoniums belonging to the Scarlet class were contributed from the gardens at Oulton Park by Mr. Wills. To one, a fine horseshoe-leaved variety named Princess of Wales, with delicate pink flowers strongly flushed in the centre with salmon-red, a Second-class Certificate was awarded; the other, a brilliant scarlet named Volcano, was Commended.

September 22 (*Fruit Committee*).—A magnificent Queen Pine Apple, finely ripened, and weighing 7 lb. 3 oz., was shown on this occasion by Mr. Carr, gr. to P. L. Head, Esq., Byfleet Lodge, Cobham. Beautiful specimens of Belle de Fontenay Raspberry came from Mr. Turner, and Cushing's Yellow Raspberry was shown from the Society's Garden at Chiswick. From Mr. Rivers came a most excellent Seedling Plum,

raised from Coe's Late Red, with a flavour even superior to that of Reine Claude de Bavay itself, which it somewhat resembled in colour; also a curiosity in the shape of a "Nectarine Peach," *i.e.*, a variety half Nectarine half Peach, a cross-bred between these two kinds of fruit; the Fulton Plum, an American variety, ripening a little earlier than Coe's Golden Drop; Coe's large Yellow Peach, a showy market kind; and a variety of Peach from Georgia, with yellow flesh, becoming blood red just under the skin, a singular looking fruit, but worthless to eat. Mr. Rust, gr. to the Right Hon. L. Sullivan, Broom House, Fulham, again showed his yellow-fleshed seedling Peach, which this time was considered worthy of Commendation. It is certainly greatly superior in flavour to the Salway, fine looking fruit of which were shown by Mr. Turner. Mr. Scobie, gr. at Holland House, had fruit, scarcely ripe, of the Yellow Late Admirable, in favourable seasons a good late Peach. From Messrs. Downie Laird and Laing came a fleshy Grape like Black Morocco; and a Seedling Grape of little merit came from Mr. Tillery. Other fruit consisted of some Peaches from Messrs. Veitch, and various kinds of Apples from other growers, sent chiefly for the purpose of being named.

Notices of Books.

The Indoor Gardener. By Miss Maling. London: Longmans. 12 mo., pp. 274.

The authoress of this handy book of Indoor Gardening is already well and favourably known by a former brochure on the same subject, and by her contributions to our columns. She has now recorded her more matured experience, and the result is a volume which not only amateurs and lady gardeners, to whom of course it is specially addressed, but professionals themselves may use with advantage.

The intention of the writer, as we learn from her preface, has been to supply a very simple but comprehensive guide to room and greenhouse plant-growing, for the use of those who are not already gardeners, and who may therefore wish to find the minutest points explained. It is only a fellow-feeling, she observes, that can teach one to do this, and thus the experience of one such gardener is often perhaps more useful here than that of those great men who can never have tried to practise small ways of doing things. The plants which I have treated of, she continues, "may some of them seem at first sight to be too ambitious, but none are included which I have not grown or known to be grown successfully. And even although so many of the plants are most beautiful, they are not on that account at all more hard to grow than many commoner flowers."

We are told further that two chapters of the present book have already in great part appeared in the publication just alluded to, which is out of print; and part of the others have been reprinted from the series of papers on Indoor Gardening which has appeared in our columns. Mr. Radclyffe has also contributed "Ten easy rules for Rose-growing;" the Rose being a flower which is indeed always longed for, but seldom at first well grown by amateurs, without the aid of advice from some one of experience in the matter.

The management of Roses, Fuchsias, Carnations, Begonias, Plantes Vertes, Geraniums, Japan Lilies, Orchids, &c., is amply treated; other chapters give directions for forcing and retarding Lilies of the Valley, and for growing such plants as Camellias and Azaleas all the year round in windows and conservatories. There are directions about plants for boxes and screens for windows, rustic dishes and stands, baskets of Ferns and flowers, watering, seed-sowing, cuttings, &c.; together with hints for constructing and arranging the popular flower-casements common in France and Belgium for fitting up outside windows: so that the whole scope of window gardening is brought under review.

As an illustration of the way these subjects are dealt with, we will take Miss Maling's observations on Orchids as room-plants. "There is an idea," she says, "held by many people, that Orchids will not grow in rooms, or in fact in any place short of hot shaded Orchid houses, in which, if the flowers are beautiful, it is almost too damp to enjoy them. During the last few years, however, some people have been trying a variety of experiments as to the endurance of these plants. . . . For the Lycastes, for instance, has been predicted a future like the Tulip; the flowers gain so much strength by exchanging the close-shaded Orchid house for summer drier air. These are perhaps the very best of Orchids for our drawing-rooms. Then there are the Barkerias, growing on blocks of wood, air-plants, strange and beautiful, with bunches of lilac flowers."

After referring to Mr. Skinner's success with these, Miss Maling proceeds thus:—"Hearing all these things, I became ambitious also of trying Orchid-growing, and some lovely Calanthes bloomed for a good many weeks in a plant case in my drawing-room. Any one may imagine the charm of such flowers at Christmas—long curving flower-spikes, stretching out all along most waxen red-lipped flowers, several on each stem. The Limatodes too was of a bright pale rose-colour, something the colour perhaps of the pink Almond blossom; and yet we can hardly compare the Orchid colours to those of other flowers, so much more richly do they seem to be painted. . . . These plants, from accidental causes, went out of blossom sooner than they should have done, and then I thought fit to practise the man and his donkey fable. My plants were growing quite famously, had swelled out great large pseudo-bulbs, were beginning to make fat leaf-shoots, when alas! I took advice on them, and straightway locked up my water-can. They ought to have gone on having as much water as they would imbibe, with a good deal of heat at the same time. Mr. Low assures me that I only *just missed* succeeding, and therefore I report myself as a warning to all others.

"Next came a Lycaste Skinneri; its magnificent blossoms just open, large outspreading petals, and a lip of most brilliant purple—purple or crimson, the richest and the bloomiest. On this plant the blossoms were not with me so successful, but then in return its leaves have never ceased for more than twelve months to be most green and beautiful. The whole of the last year it has been the centre-piece, its long green leaves stretching out from one end to the other of my four-foot plant case—far more precious for leaves than anything else for blossom."

Here is a seasonable hint about Hyacinths:—"For planting the bulbs in the first instance it is necessary to guard against a wet bowl to the vase; the few drops of water which are splashed upon it, and supposed not to signify, are probably the cause of half our mouldy Hyacinths. The wet would not signify perhaps, if they were exposed to air and light, but as this is quite impossible, the damp soon becomes blue mould, and if it goes no farther, at least looks unhealthy. The best plan is to try exactly how deep each bulb will go in its empty glass; then stick on the name and date by means of a slip of adhesive paper (like the edge of the postage-stamp sheets) underneath the glass, put in the charcoal, and fill up the glass with rain water, so that the bulbs may just *not* touch the water; then carefully wipe the inside of the bowl, put the bulb in its place, and carry it off forthwith to a dark dry cupboard, or better still, a cellar; the best place of all, however, is a shelf in a housemaid's closet, which generally is found placed in some dry cool corner—in all probability under the kitchen stairs!"

The book forms a neat volume, and notwithstanding a few occasional mis-spellings of the names of plants, may be recommended as a useful and reliable manual of Indoor Gardening.

Messrs. Longmans now announce the early appearance of their illustrated folio work on *Windsor Park and Windsor Forest*, by W. Menzies, the Resident Deputy Surveyor (see p. 727). The purpose of this work is to give an account of the Park and Forest of Windsor which shall be not only interesting in itself, but also of practical utility to all persons engaged in the management of timber. The author will therefore give a description of the several plantations, and he has been enabled to trace their history from the commencement of each, with an exactness which it would probably be impossible to attain in the history of any other estate in England. The plantations have been carefully measured, and the age and size of each with their contents are to be given in a tabular form—a large map being annexed, so that any one may find them, and, by comparison, may judge of the age or condition of their own woods. An account is to be given of the Geology of the Great Park, which is interesting and important as leading to a knowledge of the water-bearing strata, and of the probable capacity of the ground for yielding a supply. The subject of the great stones, resembling those of Stonehenge, found in Bagshot Sands will also be fully entered into. The work is to be illustrated by 20 large photographs, mounted in the book, of the most interesting trees of Windsor.

The first part of the 2nd vol. of Dr. Harvey's *Thesaurus Capensis* has appeared, containing some very curious terrestrial Orchids and other rare plants.

We have also before us the *Botanische Zeitung*, from July 24 to August 21; Watts' *Dictionary of Chemistry* for September, reaches from Conhydrine to Cyanic acid.

In the third part of Vol. II. of Reichenbach's *Xenia Orchidacea* are 10 quarto plates of rare Orchids, carefully drawn, but very ill coloured. Where are such greens to be found? unless in a copper mine.

Trade Lists Received.—Paul & Son's *Descriptive Catalogue of Evergreens, Deciduous Trees, Conifers, American, Climbing, and Herbaceous Plants.* Also their *Rose Catalogue for* 1863-4.——Thos. Rivers' *Descriptive Catalogue of Roses* for the same years. ——*Descriptive List of Strawberries and Grape Vines grown for Sale by* Wm. Paul, and the same grower's *Rose Catalogue for* 1863-64.

Garden Memoranda.

Harewood House, Yorkshire.—This, the seat of the Right Hon. the Earl of Harewood, is celebrated for its extensive pleasure grounds and delightful terrace gardens, to which the public is liberally admitted. It is easy of access from Leeds, either by road or by railway, the nearest point being Arthington station, on the South-Eastern line.

The Lower Terrace Garden, which is close to the mansion, is on a very extensive scale, laid out in the Italian style, and liberally interspersed with Irish Yews and other suitable evergreens, planted at equal distances apart; while statuary and fountains occupy conspicuous positions. The form of each bed is indicated by Box edging upon a light-coloured sand, and here and there are raised scrolls of Portugal Laurel and Yew, so that a winter garden is secured when the beds cannot be used for bedding plants. This terrace is 450 feet long and 120 feet wide, and at each end are stone seats flanked by handsome standard Portugal Laurels and other shrubs.

The beds have this year been extremely gay, and at the period of our visit were masses of striking colours, for Mr. Fowler, the gardener, uses chiefly decided colours, relieved by masses of Cineraria maritima, Centaurea candidissima, Variegated Pelargoniums, and Cerastium tomentosum. Several beds were filled with Christine Pelargonium, and these being of bright rose colour had a most telling effect in contrast with similar groups of the Purple Zelinda Dahlia. Other beds were filled with Pelargonium Brilliant, Collisson's Superb Pelargonium, a very fine blooming scarlet; Verbenas Purple Rival, Purple King, Mars a capital scarlet variety, and Snowflake, still one of the best whites. Two kinds of Calceolarias are extensively used here: Aurea floribunda and Trentham Yellow, both excellent for bedding purposes; and for broad margins and smaller beds, Lobelia speciosa. The beds of Gazania splendens were very bright, and told well in the shape of large masses. Running parallel with the terrace immediately below the upper terrace is a mixed border of shrubs, Roses, and herbaceous plants, in which we noticed several Cannas, whose diversified foliage looked well amongst other things of a less ornamental character. A broad flight of steps from the centre leads to the Upper Terrace, from which a capital view of the lower terrace is obtained, and it is not easy to conceive a grander display of floral beauty than might here be seen this summer. At each end of the mansion, on the upper terrace, are two smaller Italian gardens, in which pyramidal Irish Yews, &c., are planted; they are also kept gay with bedding plants. Conspicuous in these two gardens were beds of Gladiolus in full beauty and in luxuriant health; and as Gladioli this year generally look unhealthy and are failing in many places, we inquired of Mr. Fowler what treatment these had had. The roots, he said, were potted in March, kept in a cool house and planted out in the middle of May, and very little water was given them during the summer; the soil is light, about 15 inches deep and good. Heliotropes and other bedding plants were planted along the edges of the beds.

Between the pleasure grounds and the kitchen garden is a long conservatory used chiefly for specimen Azaleas, Camellias, and other greenhouse plants, immediately in front of which, close to the wall, was a long line of the light variety of Amaryllis Belladonna, which is perfectly hardy here and was in full flower. This is truly a lovely hardy plant for cutting from, growing from 15 to 18 inches high with clusters of flowers nearly as large as the Vallota purpurea, but of a delicate pencilled pink colour with white centre. This charming plant is rarely met with now; it should however be in every garden. Here it is never disturbed and increases freely. Close by is the large walled-in kitchen garden, and on either side of the main walk is a good riband, 460 feet long, in which the Purple Zelinda Dahlia was a conspicuous feature, and in one part of the garden we noticed a good bed of Mimulus cupreus raised from seed; among them some were of a brighter scarlet than others. This kitchen garden has been considerably improved of late years, fresh walks having been made and a portion of the walls planted with young trees. Peaches, Apricots, Pears, Plums, and Cherries have been good, Apples only an average crop. Three kinds of Beet are grown here, viz., Nutting's Dwarf Red, an upright-growing dwarf kind with very dark foliage; a Dwarf Dark Beet, but with glossy very dark leaves; and the Pine-Apple Beet, which has the lightest coloured foliage, but is most esteemed by Mr. Fowler for culinary purposes, the root being richest in colour, of finer texture, and more juicy than that of either of the others. That grown here as the Dwarf Dark Beet would make a striking plant for a riband, and be superior to the Perilla. Strawberries in pots are extensively grown, and are in fine condition; 3000 pots are now ready for next season's demand. All are grown in 5-inch pots; the Sir Harry is grown largely for a late crop, and Oscar is also a favourite. Keens' Seedling is likewise in great demand, as is also British Queen.

One large Vinery, 64 feet long and 20 feet wide, is filled entirely by one plant of the Tokay Grape, planted in the year 1783; it occupies 17 rafters. Previous to 1856 it suffered very much from a damp worn out border, and the Grapes were unfit for use; but in that year Mr. Fowler carefully lifted the roots and renewed the border, since which the Vine has made wonderful progress, and now produces an excellent crop of Grapes, seldom having a bad berry from the time of setting until they are cut. Last spring they were kept hanging plump and good up to March. At one end of this house is a large group of Musa Cavendishii in fruit.

There are two Vineries adjoining the large one just named, each 55 feet long and 30 feet wide, in which is a quantity of strong young Vines, which promise in a year or two to furnish capital crops of fruit. Figs in pots and against the walls are extensively grown;

those in pots yield a large quantity of fine fruit. The Peach trees in the houses are furnished with abundance of plump buds. In one of the Vineries we noticed the Passiflora laurifolia, producing bright orange-coloured fruit about as large as an Apricot; it is used as a dessert fruit, and has a peculiar but decidedly pleasant flavour—it is well worth cultivating. Pines are grown well; they consist chiefly of Queens, Providence, and Smooth-leaved Cayennes. In one of the greenhouses was a fine lot of Balsams, very double, and some of them of a dwarf bushy habit for table decoration; and for the same purpose no autumn blooming plant deserves more extensive cultivation than the crimson and yellow Celosias, of which Mr. Fowler has a good batch of dwarf stocky plants in full flower. Altogether the grounds are kept in beautiful order, and reflect credit on Mr. Fowler's management.

Miscellaneous.

Death of Mr. Hugh Low.—This, we regret to record, took place at Clapton Nursery on the 15th inst. Mr. Low, who was in his 70th year, died from bronchitis, a disease to which he has long been subject. The many fine plants introduced by him which bear his name connect him closely with horticulture, and are living monuments of his untiring perseverance and energy. To his home circle his loss is a severe calamity. He was a warm friend, and many now holding responsible situations in different parts of the world will remember with gratitude that to him they owe their first start in life. His son, Mr. S. Low, succeeds him in the business.

A Poor Old Tree.—I am a helpless and most ill-used individual, and my friends have advised me to make my grievances known. To make my tale short I belong to that class of national property which guide books call "objects of interest," of which this old historic country possesses so large a share; but I am not an old abbey nor an old tower, nor even an old cairn; I am simply an old Yew tree. My residence is in a church-yard, in a very lovely valley in Derbyshire called Darleydale. From the reverence which has been paid to me for more generations than I care to name, and from the admiration which pilgrims from all parts of the world who come to see me bestow upon me, I conceive that I am no common tree. My trunk alone girths 33 feet, but within the memory of man I have stretched my arms across one entire side of the churchyard, and 40 years ago the young urchins of the parish used to climb from the outer wall into my branches, and from my branches on to the church leads. My age is fabulous, and learned naturalists now calculate that I must have been born 300 years before the Gospel was planted in this country, in which case I was probably associated with an old pagan building, the foundations of which are still discovered in digging graves in my immediate neighbourhood. If my memory did not fail me of course I could tell all about this better than the naturalists, but age has made me somewhat hazy in this respect, so that I must leave my origin to the genealogists to settle. Well, with all these claims to reverence, is it not shameful that in this year of grace 1863 men should cut and break and mutilate my poor old person in all conceivable ways? Until tourists began to multiply and excursion trains to run I had scarce a single scar, other than time and tempest had left, on my body. But now the Snookses and Tomkinses and Joneses have begun to immortalise themselves (as is the fashion of that race) by cutting their names all over my bark, and the other day two fellows of this tribe commenced a still more cruel process. While one of them smoked his pipe and watched, the other drew out a saw, and actually set to work to cut out a great slice of my very flesh, which, but for the lucky intervention of the clerk, he would soon have accomplished. You may believe me, when I tell you that I quite dread the sight of an excursion train, and, from all that I hear, I am not alone in these apprehensions. My fellow "objects of interest" are crying out on every side of me and all over the land that the Goths are coming again. Oh, sir, can you not repel these barbarians? The foe of all abuses, will you not make your potent voice heard to put an end to this abuse? *Times.*

False Reasoning.—The mind ought in everything to be accustomed to form a just judgment. If it became accustomed to loose ideas of truth and falsehood, what would be the result when it had to pronounce a stern judgment on itself, to overcome temptation, and when everything depended upon that uprightness of mind which was able, from long practice and constant training, on no occasion to swerve by a hairsbreadth on one side or the other? That the training of the mind must be by the individual was self-evident. No two persons thought and felt alike. He would illustrate his meaning by referring to a well-known fact, although it might be regarded as rather commonplace. From the earliest ages poets and agriculturists had considered two trees as intimately united together—the Elm and the Vine; and those who had visited the beautiful plains and valleys of Italy must have been struck by the loving group and their verdure and fruitfulness. The Elm grew up a stately tree. The Vine crept up by its side, a miserable sapling, without vigour or strength, unable to sustain itself. The one tree lent strength, the other gave beauty. They were born together, their roots were mingled almost inseparably beneath the soil, they lived upon the same food, they sucked up nourishment from the same ground, they drank the same dew and the same rains of heaven. And yet no skill, no power could make them the same. The husbandman might trim and prune and enrich the soil as much as he pleased, but he would never bring a single Grape out of the Elm and never form a self-sustaining stock for the Vine. They received the same nourishment, but they created what was given to them into a different substance. —*Cardinal Wiseman on Self Culture, as reported in the Times.* Surely this is not "forming a just judgment." Feed a sow and a dog on the same substances as long as you like, the breeder will never have a single pup from the former, or pig from the latter. What organised beings of whatever kind produce, does not depend upon what they feed on, but on their several natures. We cannot but wonder at so acute a man as his Eminence overlooking this obvious distinction.

Sale of Conifers.—Our readers may be glad to be reminded that an important sale of Conifers, including some 20,000 plants of Wellingtonia, and about the same number of Cupressus Lawsoniana, is to take place at Edmonton in the course of next week. The plants are said to be in prime condition for autumn planting.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—As has been formerly stated, summer-flowering twiners, which usually get unsightly at this season, should be cut back freely; so should also any others that will submit to that kind of treatment. In the case of cold pits, the time has now arrived for getting straw shutters or whatever else it may be intended to use as coverings for them put in readiness for use without delay. Straw shutters if well made are expensive in the first instance, but are considered by many to be the most efficient of any kind of covering in use; and taking into account the time they last, they are perhaps as cheap as any. Expose the stock in such pits freely to air on every favourable opportunity, so as to check growth and get the wood firm. Little water will be required at the root, but look over the plants every few days, withholding water until it is absolutely necessary, and then giving a soaking.

FORCING DEPARTMENT.

PINERIES.—The trying period for those who have to winter their young stock in pits heated by fermenting materials may be expected soon to arrive, for with short days and cold nights it is a difficult matter to preserve Pines in a healthy state, where warmth must be accompanied by excessive moisture. Keep the linings sufficiently strong to maintain the temperature at about 65°, which will allow of giving air rather freely on fine days, and a little must also be given in all states of the weather, when doing so does not cause the thermometer to sink under 55°. There should be no attempt made at inducing growth, but the linings should be kept rather strong, so as to be prepared against the setting in of unfavourable weather, and also to allow of giving sufficient air to prevent excess of moisture. See that efficient coverings are prepared, and endeavour to keep the bottom-heat steady at about 75°, and the soil in a rather dry state. This system of Pine growing is now, however, but little practised.

VINERIES.—Where very early Grapes are required, the first house must soon be started; endeavour therefore to secure a little warmth for the roots in the outside border, and if fermenting materials be used, watch these narrowly, and endeavour by timely additions and frequent turnings to secure a regular gentle warmth of 60° or 65° at a foot below the surface of the soil. If fermenting materials are employed, there will be a great saving of labour, &c., by thatching them with a good coat of something to throw off wet, and preserve them from the weather.

FLOWER GARDEN AND SHRUBBERIES.

Chrysanthemums will soon be beginning to occupy attention; let them be tied out so as to display their blossoms to the best advantage, and where too thick, thin out the buds. Protecting materials had also better be got ready for such plants as require to be covered up in winter; where dry Fern can be had it answers the purpose perfectly. If the weather sets in wet, choice sorts of Hollyhocks may be taken up, potted, and wintered in a cool house; they will be exceedingly useful for furnishing cuttings, and these if got in early in spring will make excellent plants for next season. Be careful to secure transplanted things against wind, especially large plants, which should never be left until they are properly staked or otherwise made fast, for when this is put off it frequently happens that the roots get injured through the tops being rocked about. Get spare ground intended to be planted early next season deeply trenched and ridged up so as to expose it as much as possible to the weather, putting in plenty of good rotten manure, especially where strong growing plants, such as Hollyhocks or Dahlias, are to stand, for these require a deep rich soil.

HARDY FRUIT AND KITCHEN GARDEN.

The weather hitherto has been favourable for the ripening of late fruits. Continue therefore gathering both Apples and Pears, most varieties of which will now be fit. Nonpareils should be amongst the last gathered, and the same may be said of Glou Morceau, Beurré Rance, and Easter Beurré Pears. If Coe's Golden Drop Plums be carefully gathered, wrapped singly in thin paper after remaining some days in a dry airy room, and then packed in shallow boxes, they will keep a long time, and so will the Blue Imperatrice and the Ickworth Imperatrice, the latter being the more preferable Plum of the two. It cannot be too often repeated that all choice fruit should be gathered when perfectly dry, and in storing, wherever an extensive surface of fruit is exposed, air must be admitted freely, for at this period exhalations are most abundantly given out, and more especially by the early varieties on their becoming fit for use. These, in fact, ought not to be in the same apartment with the more valuable late keeping sorts. Look frequently over the fruit room, and remove at once any fruit that appears to be unsound. Prepare ground for planting. Take advantage of wet days for making fresh Mushroom beds, and clearing out those that are spent; also collect and prepare droppings for forming fresh beds by spreading them in a shed and turning them every day.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Sept. 23, 1863, as observed at the Horticultural Garden

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 17	4	30.075	30.055	70	36	53.0	59	59½	S.W.	.00
Friday 18	5	30.062	29.922	73	39	56 0	59	59	S.W.	.00
Satur. 19	6	29 789	29 032	75	48	61.5	59	59	S.W.	.66
Sunday 20	)	29 485	29.399	63	40	51.5	59½	59	S.W.	.00
Mon. 21	8	29.184	29.032	62	40	51.0	58	58½	S.W.	.04
Tues. 22	9	28 938	28.806	63	35	49.0	57½	58½	W.	.05
Wed. 23	10	29.164	29.036	62	32	47.0	57	58	N.W.	.06
Average.		23.512	29.326	66.7	38 5	52.7	58.8	58.9		.79

Sept. 17—Clear, fine, with low white clouds; very fine.
— 18—Overcast; very fine throughout.
— 19—Densely overcast; fine; cloudy; boisterous at night; rain.
— 20—Rain, fine throughout.
— 21—Fine; low clouds, boisterous; fine; rain.
— 22—Overcast; fine, boisterous; showery and rough.
— 23—Heavy dew; clear, boisterous and showery; at freezing at night
Mean temperature of the week 3 4-5ths deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending Oct. 3, 1863.

Sept. and October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 27 .	65 2	45 3	55.2	22	0.57 in.	—	2	4	3	7	11	8	2
Mon. 28..	64.6	44.8	54.7	20	1.44	1	4	4	1	10	10	4	3
Tues. 29..	65.3	44.9	55.1	24	0.46	2	3	3	4	7	13	3	2
Wed. 30..	64.9	43 5	54.2	22	0 58	3	2	3	4	6	9	9	1
Thurs. 1..	63.6	45.1	54.3	19	0.53	2	2	2	2	7	16	4	2
Friday 2..	64.6	44.0	54 3	18	0.48	2	3	1	—	9	11	7	4
Satur. 3..	63.9	44.2	54 1	16	1.01	2	3	1	1	11	11	5	3

The highest temperature during the above period occurred on the 27th of Sept., 1832—therm. 79 deg.; and the lowest on the 2d of Oct., 1853—therm. 17 deg.

Notices to Correspondents.

ASPLENIUM VIRIDE: *Subscriber.* There is no better reason for making this a variety of A. Trichomanes, than there is for combining almost any other pair of nearly related plants. It is more a matter of fancy than of fact. Certainly, none of our special Fern authorities unite them, but they are sometimes combined by the writers of general Floras, even of the present day.

BOOKS: *W D L S.* Send him Loudon's Encyclopædia of Gardening.

FUNGI: *G H S.* Your fungus is Sparassis crispa, a highly interesting esculent species. Would you kindly write a line directed "Rev. M. J. B., King's Cliffe, Wansford," to say where you find it, and whether it occurs in any abundance. *M J B.*

GRAPES.—We have received an account of the destruction at the General Post Office of a letter containing Grapes in a highly offensive state. This will account for the correspondent who sent them not receiving any answer. *M J B.*

INSECTS: *J & J H.* We do not think that insects have had anything to do with the diseases of your Heaths, Heliotropes, and Fuchsias, as we fail to discover the slightest traces of insects or their action on your specimens. Over cultivation and Fungi seem to be the causes of the mischief. We will enquire further and report next week.—*M & Co.* The grubs sent are the caterpillars of the Dart moth. *W.*

MARIGOLDS: *J J.* They are certainly not the African, but very like what is called the New Orange French, which is a large and very showy deep orange-coloured sort, such as yours. It may be the result of a cross, but we do not know its origin.

MUSHROOMS: *S W M.* These plants are propagated by spores, not seeds. If you place an old Mushroom over a sheet of white paper in a *very still place*, the paper will, in a few hours, be covered by the finest possible dust. That dust consists of their spores. Mycelium is Mushroom "spawn."

NAMES OF FRUITS: *A Young Gardener.*—1, 2, King of the Pippins; 3, 4, Dumelow's Seedling; 5, Imperatrice Plum; 6, Jefferson ditto. Received: *W G* and *F H S* ||

NAMES OF PLANTS: *S E P.* Bartonia aurea.—*Moulsey.* Rhamnus catharticus; berries purgative.—*Barr & Co.* Phytolacca icosandra.—*Strawberry Leaves.* The specimen is in such a state that Œdipus himself would be unable to reply.—*Diss.* The Oak from Mannington is a form of Q. pedunculata, before unknown to us. It is most like a Neapolitan Oak distributed by Tenore, under the name of Quercus Natalena.—*Staffordshire.* It is rarely possible to name exotic plants, and least of all seedlings, unless in flower. No better protection is needed in winter than dry dead leaves.—*J R S.* We cannot undertake to name plants not in flower.—*G.* Pyrus spuria of De Candolle, a variety of Pyrus hybrida of Linnæus.—*T B Bowdon.* Oncidium barbatum.—*W H.* Blue, Nepeta ukranica; Red, some Pentstemon looking like cordifolius, but the specimen is so bad that we cannot say more.

POTATOS: *D D.* We will report next week after they have been cooked.

VINERIES: *Harpagon.* You should visit the great Iron Conservatory in the garden of the Horticultural Society at Chiswick.

MISC.: *R S P.* We assure you, that of our own personal knowledge the statement is wholly false. The source from which it is known to have come, will, we doubt not, put people on their guard.—*A Young Gardener.* Sixpence a line, consisting of 10 words to the line.—*B C D.* We cannot publish a libel, as the statement about stamps certainly is. The County Court provides a remedy. Carnations from seed will not bloom the first year, at least not satisfactorily. The other question shall be put to our Correspondents next week.—*J E, Dublin.* We do not know, but are enquiring.—*L V H.* The white substance on your Rose leaf is mildew.

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In every plant of Wheat, Barley, or Oats there is always ONE BEST EAR, and in every ear there is always ONE BEST GRAIN, which is that one found at the following harvest to produce the best plant, *all* the grains having been planted in competition with each other.

The best of all the competing plants of any "family" of a cereal is ascertained by the most studious comparison of the good qualities they visibly present, *and of the sole of the peculiarities exhibited by each during the whole course of its growth*, such as:—the rapidity with which the parent seed germinates; the manner, time, and extent of the "tillering" of the plant; the periods of its earing, blooming, and ripening; its power of withstanding disease, frost, wet, &c.; the *toughness* of its straw, and any other characteristics which are essential to forming a correct decision, and which cannot be determined by even the most careful inspection of the perfect plant.

This best plant is called "*the selection*" of the year (say 1861) in which it is called "A," while another family of the same Wheat known as Z having been observed to exhibit marked superiority has been continued separately, and has given a greater progress during 1862 than has been before obtained in any single year.

The original ear of the large published engraving contained up one of its sides 16 "ranks" (spikelets) of grains, while the "Z family" has produced ears of 18 "ranks," and this, without any increase in the *length* of the ear, the "notches" of the axis on which the spikelets grow being placed more closely together. In a small field of this Z family, ears with 17 "ranks" were quite common, while in other fields of the family "A," *not one such ear could be found.*

This family Z *is now for the first time* offered to the public, and is ready for delivery.

thus obtained, and consists of numerous ears, containing many hundreds, and even thousands, of grains which are planted separately; those of each ear being kept quite distinct, as although the best grain of any plant is nearly always found to lie in its best ear, it may be otherwise, and the successive parent *ears* must be preserved. At the following harvest (1862), the best plant forms "*the selection of* 1862," and its produce is continued on the experimental ground, while that of the remaining plants furnishes the annual seed for the farm in the Autumn of 1862, and the crops are in 1863 offered to the public. Thus, the selection sold is that of 1861, or in any year that of two years before; *the latest selection, that of the year immediately preceding, is not sold, being solely employed as the home seed.* The separate ears of a plant are designated by different letters, numbers, or names—as A, Z, &c., and each, with its descendants, forms a "*family*" which may develope some valuable peculiarity.

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DRAWING.—JAMES MILLER.

* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

AGRICULTURE.

J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
THOMAS ELLMAN, of Beddingham, Lewes—Lecture on Southdown and Short-woolled Sheep.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.
Mr. BAILEY DENTON, M. Inst. C.E., will lecture on Drainage on the Afternoon of Thursday, October 1.
N.B. Mr. Wilkins will Lecture on February 9.

AGRICULTURAL CHEMISTRY.

THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.

For further particulars apply to the PRINCIPAL.

Drainage, &c.

MR. JOSEPH BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.

Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements. Valuations made for Sales, or the re-letting of Farms.

22, Parliament Street, Westminster, S.W.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Special Act of Parliament in 1853.

2, Old Palace Yard, Westminster, S.W.

TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &C. IN ENGLAND AND WALES AND IN SCOTLAND.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster S.W.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1863.

The FIFTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in Bingley Hall, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 1, 2, and 3, when PRIZES (CUPS, or other Articles of Plate, and GOLD and SILVER MEDALS) to the amount of £1940, will be awarded in the following Divisions, viz.:—

FAT CATTLE	..	.. £784	5 0
FAT SHEEP	..	.. 275	15 0
FAT PIGS	..	.. 60	5 0
BREEDING PIGS	..	76	10 0
CORN and ROOTS	..	68	5 0
POULTRY and PIGEONS		674	4 0

Prize Lists and every information may be obtained from the Secretary.

The ENTRIES CLOSE on SATURDAY, October 31.

JOHN B. LYTHALL, Secretary.

Offices: 13, Temple Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW, 1863.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY AFTERNOON, December 7, and four following days.

The Prizes now offered consist of 1825*l.* in money; 60 Silver Medals; Two Silver Cups, value 40*l.* each, for Cattle; Three Silver Cups, value 20*l.* each, for Sheep; and a Gold Medal for Pigs; also a Butcher's Silver Cup, value 10*l.*

There are now separate Classes for Eleven distinct Breeds of Cattle and Ten distinct Breeds of Sheep, and Four Classes for Pigs of different ages.

The Entries for LIVE STOCK CLOSE on NOVEMBER 2.

The Entries for AGRICULTURAL IMPLEMENTS, &c., CLOSE on OCTOBER 1.

Prize Sheets and Printed Forms of Certificates, with full particulars, can be obtained on application to

Mr. DAVID PULLEN, Assistant Secretary,
At the Office of the Honorary Secretary,
Corner of Half Moon Street, Piccadilly, London, W.

N.B.—Applications for Prize Sheets and Forms of Certificates must be addressed to the ASSISTANT SECRETARY as above, and all letters must bear outside the words "SMITHFIELD CLUB."

SMITHFIELD CLUB FAT CATTLE SHOW, 1863. IMPLEMENT DEPARTMENT.

The LAST DAY for receiving Entries for the Implement Department of the Show is Thursday, OCTOBER 1, 1863.

Forms of Certificates, and all information can be obtained of

Mr. DAVID PULLEN, Assistant Secretary.
Corner of Half Moon Street, Piccadilly, London, W.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 26, 1863.

MEETING FOR THE ENSUING WEEK.

FRIDAY, October 2—Bedfordshire.

WE have received a proposal from our excellent correspondent "FALCON," who has for many years in these columns written on the waste of overfeeding breeding stock, and on the folly of a prize system, by which agricultural societies foster a wasteful practice. The following is his proposition:—

"My remarks relative to over-feeding animals, were intended to draw the attention of the members of the Royal Agricultural Society and of agriculturists in general to a subject of great interest—viz., the breeding and feeding of animals, and how they can be made profitable to the farmer and at the same time afford cheap food to the consumer. To what extent it is advisable to fatten animals for exhibition is a fair and open question, and well worth discussing. Would it not be better to have distinct classes, separating the

monsters from those best calculated to increase their species, and those ready for the butcher. If it is considered advisable to show mountains of fat there can be no objection, provided the ox, sheep, or pig carrying the burthen does not obtain the highest prize. Fatting beyond a certain point leaves competition in the hands of wealthy farmers; men of limited capital cannot afford to spend a ten pound note extra on a few sheep for the sake of a small sum of money or a recommendation; but if the animals exhibited, no matter of what description, were either fit for breeding or immediate slaughter, a ready sale might be found for them without loss, to the advantage of the owner, who would not have the risk of taking home animals unable to stand, which might die during a long journey by rail, as I understand many of them do. It may be worth trying the following experiment at the meeting of the Royal Agricultural Society in 1864.

"Three prizes to be offered, of 10*l.* each, for the six best oxen, 10 best sheep, and 10 best Pigs; a Dr. and Cr. account to be shown of the expense of feeding. The animals to be in good condition, ready for the market, and not too fat. If 29 members will subscribe 1*l.* each for the above purpose, the writer will make the 30th. The cash to be forwarded to the treasurer of the Royal Agricultural Society, and acknowledged in the *Agricultural Gazette*."

We add, as relating to the same subject, the list of rules to guide judges and exhibitors at shows of breeding stock, which was drawn up many years ago by Mr. FAWKES, a leading breeder of Short-horn cattle in Yorkshire, and urged by him on the Council of the Yorkshire Agricultural Society:—

1. All the cattle duly qualified for competition to wear round their necks in the show yard, labels bearing certificates from their owners of the years and months they are old.

2. No 2-years and 5, 6, 7, 8, 9, 10, or 11-months old heifer to be qualified for competition unless she bears on her label a certificate from her owner "that she is six weeks past her bulling," and her premium not to be paid till she has produced a live calf.

3. No 3-year old heifer to be qualified for competition, unless she bears on her label a certificate from her owner "that she is five months gone in calf," and her premium not to be paid till she has produced a live calf.

4. No 3 years and 6 months old heifer to be qualified for competition under any circumstances.

5. No cow, not in milk or calf, to be qualified for competition. Each cow to have on her label a certificate from her owner "of how many live born calves she is the dam," and her premium not to be paid till, if in calf and not in milk, she has produced a live one.

6. No yearling bull (if 1½ years old) to be qualified for competition, unless he bear on his label a certificate from his owner "that cows are holding to him."

7. No 2 years old or aged bull to be qualified for competition, unless he bear on his lable a certificate from his owner "that he is the sire of 12 live born calves.

These rules appear to us more likely to meet the evil of which "Falcon" and others justly complain, than any provisions, the working of which must hinge upon the award of a judge, as to what comes properly within such terms as "over fat," and "breeding condition," &c.

The office of judge, difficult and unpleasant at any time, would hardly be accepted by any one if decisions of this kind were among its duties. "Men, however," as Mr. H. S. THOMPSON, M.P., once said in a letter to Mr. FAWKES on this very point, "volunteer on other forlorn hopes, and let us, for the sage of argument, suppose that a competent person could be found to volunteer on this. What would be his chance of success? for after all the real question is, Could the thing be done? I appeal to yourself, who, as the owner of a splendid herd, are as well able to decide such a point as any one I know:—Could you have undertaken to pass in review the Short-horns exhibited last year at Wakefield, and have drawn a line between the pardonably and unpardonably fat, with sufficient distinctness to have satisfied your own mind that it would be fair and just to have sent those on the right to compete for prizes, and to turn those on the left out of the yard? I, for one, should be quite content to let the decision on this point rest on your answer after trial. I feel sure that it could not be done. It would be very easy to walk through the yard and select an animal which is atrociously fat, and which, every one would agree, might go to the door; but after dismissing one offender, you could not walk far without finding another so nearly as bad as the last that it would be a gross injustice to condemn the one and (possibly) reward the other, and it must, therefore, be sent after its fellow. Next would be found one, rather less corpulent certainly, but with so little interval between him and the preceding culprit that the line could not be drawn between them; and in this way, I am fully persuaded, you might find almost imperceptible degrees of decreasing fatness, which would carry you from the most unwieldy to the leanest animal in the yard, without a possibility of stopping anywhere and saying—thus far will I go, and no farther."

It appears to us that Mr. FAWKES's rules, by which not the tendencies but the results of over fatness in breeding animals are made the test of exclusion from competition, are the most likely to meet the evil of which our correspondent "Falcon" complains.

WE lately called attention (p. 874) to a particular instance of the destruction of a crop of Swedish Turnips by "the grub." The crop in question was very uneven as regards size; here and there were considerable gaps in the rows, on examining which more carefully we saw an occasional plant of a sickly reddish-brown colour. Some of these were taken up by the roots, and in only one instance did we fail to find one or more brownish caterpillars, the nature of whose operations was soon seen in the more or less eroded bulb by which this peculiar colour of leaf is accompanied.



The roots seemed to be eaten away in separate holes, much like those that we sometimes meet with in Potato tubers, and we have no doubt in both cases by the same grub. These holes appear to be managed with a peculiar instinct, so that the bulb is not entirely eaten through until it is pretty nearly consumed.

The annexed represents one of the eroded roots or bulbs eaten nearly through, just below the neck of the plant.

Upon looking more closely along the denuded rows, we found the tops of Turnips here and there turned upside down, in some of which the root had been nearly eaten away; in others, however, they seemed to have been broken off by the rooks.

The grub that is committing these ravages—the larva of the common Dart Moth (*Noctua segetum*)—may be destroyed by quick lime, salt, tar-water, infusion of tobacco, when it comes forth at night, These may be applied with some effect in the garden, but in the field we must either pick them ourselves, or allow the rooks to do so.

Turning ducks and pigs into a freshly ploughed field when for Turnips will tend to the destruction both of unhatched chrysalids as also of the young hatched grubs, and it is for these and wire-worms that the rook so industriously follows the plough.

IT ought to be made known through the columns of the Agricultural Journals as a matter of general agricultural interest, that a testimonial towards which agriculturists generally, as well as agricultural students, may fairly be asked to contribute, is about to be presented to Dr. VOELCKER, Professor BUCKMAN, and Professor COLEMAN, on their retirement from the Royal Agricultural College, "as a slight acknowledgment of the valuable services they have rendered to the Students under their instruction, as well as to the general progress of Agricultural Science."

A resolution to this effect was adopted by the Royal Agricultural College Club at Worcester last July, and we cannot doubt that the propriety of it will be generally admitted. Any person wishing to contribute to this testimonial should communicate with Mr. HY. TANNER, at 2, Claremont Place, Clifton.

We also mention that Professor BUCKMAN's friends have resolved that he shall not be permitted to leave Cirencester without some direct expression of the gratitude of the neighbourhood for his many public spirited labours in its service. "He was among the first, and perhaps the most earnest and efficient of the members of the Cotswold Naturalists' Club, of which he was for some years the secretary."—"With Mr. POOLEY and a few others he established the Cirencester Naturalists' Club, of which he was the President and principal support."—"His long continued superintendence in conjunction with Mr. C. NEWMARCH in securing our fine Roman pavement (the great expense of the works and building being generously borne by Earl BATHURST) are well known. Nearly all the Roman articles in this interesting museum, some of them unique, were collected and furnished by him, many at his own cost."—"By Mr. BUCKMAN's love of science, and his readiness to impart knowledge, he has drawn many into the same paths."

These are extracts from a circular issued by Mr. THOMAS WARNER and other gentlemen of Cirencester; and they certainly convey sufficient reasons why, "altogether apart from matters in dispute with the Royal Agricultural College," some expression should be given to the good will and gratitude to which Professor BUCKMAN's long and useful residence at Cirencester has given rise.

—— WE are glad to announce that on Thursday, October 1st, the first of a short course of lectures on Land Drainage will be given at the Royal Agricultural College, Cirencester, by Mr. BAILEY DENTON, M. Inst. C.E. He thus joins a number of practical and distinguished men who have wished by their gratuitous services both to further the objects of that Institution during the current session, and to express their confidence in its present management.

Mr. DENTON's lecture will be given in the theatre of the College between 2 and 4 o'clock.

NINE VARIETIES OF WHEAT.

The following report, by Mr. George Hope, of Fenton Barns, was written in competition for the premium of the United East Lothian Agricultural Society.]

ON the 14th October, 1831, the following eight varieties of Wheat were sown after drilled Beans, the soil a heavy loam, and very similar in condition and quality over the whole field, each variety occupying a Scotch acre. Ten pecks of seed were allowed for each sort, and they succeeded each other as follows:—

No. 1. Hunter's
2. Mungoswells
3. English, or Chapel White
4. Gregorian
5. English, or Belton Red
6. Lammas Red
7. Peaston Red
8. Rivet

the field being occupied by the sorts already stated; but wishing to ascertain the value of the Woolly-eared kind as compared with Hunter's, recourse was had for that purpose to another field after Potatoes, the soil a light loam, the quantity of seed for both being the same as for the other kinds, and sown the 22d of October. Amongst the first eight varieties, there was no discernible difference in the braird, and it was hardly possible to distinguish one from another during the winter. On the other field, however, the Woolly-eared started sooner than Hunter's, and continued to look earlier during the winter.

During the month of April, the different kinds began to distinguish themselves from each other in a greater or less degree. Nos. 1 and 2 were very much alike in every particular. No. 3 was much darker in colour, and broader in leaf than the preceding two. No. 4 was a paler green than Nos. 1 and 2, but broader and more vigorous in the leaf. No. 5 was darker in the colour, broader in the leaf, and apparently more vigorous than any of the varieties in the field. No. 6 was in colour a shade lighter than Nos. 1 and 2. No. 7 was very like No. 6, the difference being merely perceptible. No. 8 had a sort of bluish green colour, stood more upright, being more off the ground than any of the other sorts.

On the other field, the difference between Hunter's and the Woolly-eared was still obvious, though rapidly lessening.

By the latter end of May, No. 2 had got taller and broader in the leaf than No. 1. No. 3 was still darker in the colour, but it had lost that broadness of leaf which previously distinguished it. The comparative luxuriance of No. 4 had also fallen off. No. 5 had still the most promising appearance of any of the varieties. No. 6 and 7 continued similar in appearance to each other, and in their thickness and vigour of plant something like No. 1. No. 8 was still very dark in colour, and the plants were smoother and softer to the hand than any of the other sorts in the field.

The Woolly-eared kind began to burst into ear on the 14th of June, which was five or six days earlier than Hunter's variety. In the other field, No. 4 began to shoot into ear about the same period, Nos. 3, 5, 6, 7, and 8, were all nearly alike, being from two to four days later than No. 4, while Nos. 1 and 2 were again 3 or 4 days later than these in getting into ear, the two being nearly on a par in point of earliness. It may be also noticed here, that Nos. 3 and 4, while in the shot blade, had more of what is termed rust on the leaf than any of the other kinds. The period of blooming, after shooting, is no doubt regulated by the nature of the weather, but in this case, the whole varieties were in their thickest stage of blossoming about ten days after the heads generally made their

appearance. No. 8, however, was an exception to this observation, as it required nearly eight days longer to complete the blooming process.

On the 11th of August, the two sorts after the Potatos were cut, the Woolly-eared appeared a little riper than Hunter's; it had likewise a richer coloured straw, and a beautiful square close set ear; Hunter's, like all the rest of the white varieties at present known in the county, being long and open-eared. The other field was cut on the 20th of the month; there was hardly any perceptible difference in the ripeness of the several kinds, though the trifling difference that did exist was in favour of Nos. 3 and 4. The straw of No. 1 was of a bright yellow; that of No. 2 was rather less so, but bulkier, arising from a greater quantity of leaf on the stem, and chaff on the ear. The colour of the straw of No. 3 was a dead white, stiff, short and thin in the ground; however, from the size of the ear it promised to be productive to its bulk. The straw of No. 4 was also a dead white, it was much smaller in the stalk than any of the others, and in length and in abundance of leaf similar to No. 2, and equally close planted in the ground with it and No. 1. The straw of No. 5 was close on the ground, remarkably thick and firm in the texture, and although rather short, was the most bulky of all the varieties; the ear also from its size, and the closeness with which it was set, was equally superior. No. 6, though like the preceding, a red variety, was, in bulk of straw and form of ear, something similar to No. 1. No. 7, another red variety, in respect to the foregoing particulars, appeared to hold something like a medium between Nos. 5 and 6. No. 8 was the only bearded variety, it was thinner on the ground, but about a foot taller in the straw than No. 1, and was remarkably long in the ear.

It may be proper to remark, that the capabilities of the different varieties to resist inclement weather, may be inferred from the appearance they presented on the 4th of July, after a heavy shower. No. 4 was laid perfectly flat, No. 2 partially so. Nos. 1, 6, and 8, were only what is called sweighed; and the others were totally unaffected.

The different kinds on both fields were stacked in separate ricks on the 28th of August, with the exception of the Rivet, the carrying in of which was delayed by rain till the 5th of September.

The subjoined table presents a condensed view of the quantity of grain per Scots acre, the weight per boll of 4 bushels, the weight of straw, and the date of threshing all the different varieties on the two fields.

But it is proper to remark that as the ricks were exposed to the heavy rain on the 29th of August, some damp sheaves were found in each of them, which, with the bottoms of the ricks, were threshed by themselves, and the small grains of each lot were mixed and dressed with their own parcel of softer grain. The quantity and weight of each are given in the table. *George Hope, Fenton Barns, November* 2.

No.	Names of Varieties.	Dates of Threshing.	Number of Bolls.	Weight per Boll.	Total of Bolls per acre.	Weight of Straw per acre.
			bolls.	st. lb.	bolls.	stones
1	Hunter's	Oct. 8	11	15 12	15½	340
			4¼	15 2		
2	Mungoswells .	Oct. 4	10½	15 10	15	318
			4½	15 4		
3	Eng. or Chapel ..	Oct. 3	10	15 12	13	253
			3	15 10		
4	Gregorian	Oct 9	10	15 14	12¾	304
			2¾	15 8		
5	Belton Red ..	Oct. 8	13½	16 3	17¾	367
			4¼	15 8		
6	Lammas Red ..	Sep. 25	10	15 14	13½	327
			3¼	14 5		
7	Peaston Red ..	Oct. 2	10½	15 14	13	270
			2½	15 6		
8	Rivet	Oct. 23	13	15 0	14½	369
			1½	14 14		
	FIELD AFTER POTATOS.					
	Hunter's	Sep. 25	8	15 1	8¾	216
			¾	14 6		
	Woolly-eared	Oct. 3	10	15 8	11½	258
			¾	15 0		

NOTE.—To know the produce per acre, both positively and relatively, with the weight per boll, as the test of quality of any of the varieties generally cultivated in the county, appears quite sufficient for the ordinary purposes of both growers and sellers. But as Nos. 5 and 7 are new in the district, their produce in flour has been ascertained, to enable the Society to judge, with greater accuracy, of their relative and intrinsic merits. No. 5 gave 13 stones of fine flour, and No. 7 gave 12 stones 8 lbs.: both kinds giving great satisfaction to the baker. The weights used for weighing both corn, flour, and straw, were 16 ounces to the pound, and 16 pounds to the stone. *G. H.*

AGRICULTURAL COTTAGES.

[The following striking picture of cottage accommodation in the county of Norfolk appeared in the *Times* newspaper on Wednesday, September 9.]

DURING the past 12 months I have inspected very many parishes in this county, and made reports as to their sanitary condition. These reports have been officially presented to the authorities and duly recorded, and in no instance has their truthfulness been disputed.

The following extracts are fairly selected from inspections made by me in three Unions in this county, the reports of which have been subjected to the scrutiny of gentlemen residing on the spot, and well able to judge of their accuracy; the localities and names of owners and occupiers are for obvious reasons suppressed:—

"I found a cottage with one small bedroom, occupied by a man, his wife, and four children; the woman far advanced in pregnancy. In the same room were a married daughter, her husband, and child. The only ventilation was by a casement 1 foot wide and 2 feet deep.

"I found in one rickety tenement, wholly unfit for human habitation, a poor consumptive-looking old woman, belonging to ——— who had been bedridden for some time, large apertures in the walls near the bed, which is on the low floor; the walls are propped up, and likely, in my opinion, at any moment to fall. This place is surrounded by filthy dykes, full of stagnant drainage matter; no privy accommodation; the old woman has been in bed since last Christmas.

"In one instance I found a small bedroom occupied by a young man, aged 17 years, sleeping in the same bed on the floor with his sister, aged 18 years."

The next case to which I beg to draw your attention is truly remarkable for the gross indecency it discloses:—

"A man, his wife, and seven children occupy a small place not large enough to be called a room, being, in fact, the space between the ceiling and the roof. Here we find the man, his wife, a daughter aged 20 years: girl, 16; boy, 13; girl, 11; boy 8; a girl, 6; and a girl, 3; the only ventilation and light being afforded by one square of glass 11 in. by 9 in."

"A dilapidated old cottage unfit for human habitation, neither wind nor water tight; two bedrooms, one occupied by a man and his housekeeper, and the other by his five children. The windows are stuffed with rags, and the floor, full of large holes, with large crack in the walls. The lower floor is pulled up; pieces of wood stretched across the rooms to support the roof; a disgraceful place used as a privy, without any door, and drainage run into an open ditch."

"A bedroom, occupied by a widower and six children—girl, 16; girl, 13; boy, 10 years of age, and two others. Ventilation bad."

"There is a small lean-to bedroom, used as a sleeping-room for seven children of the following ages:—girl, 19; boy, 17; girl, 15; girl, 11; boy, 10; boy, 5; girl, one year. Ventilation by a small casement of 2 ft. by 12 in."

"One small bedroom for a man and his wife and 6 children, all boys from 16 years to 12 months. Ventilation by a small casement of 2 ft. by 13 in. There is a large foul ditch at the rear, from want of proper drainage, and the water from the well that is near is impure."

"Overcrowded bedrooms occupied by a man and his wife, who have 13 children; 10 are now at home. I found in one room two stump bedsteads without any curtains, in which six of the children sleep, of the following ages:—daughter, 22, and bastard child, 2 years; daughter, 16; son, 20; son, 12; another illegitimate boy, 12 years; there was also an addition to this number a short time since of another daughter, aged 18 years. The drainage to this cottage is also defective, there being a foul open ditch, and the privy emptying into it."

"The sleeping rooms of a cottage adjoining are insufficient; in one room a man, his wife, and sick daughter, aged 20 years; in the other room a girl, aged 14; boy, 18; girl, 12 years."

"A dilapidated cottage, with one bedroom, which is neither wind nor water tight, occupied by a man, his wife, and four children—son, 21; daughter, 23, with an illegitimate child, and a boy of 11 years; there are four beds with no separation, there is no privy beyond a block of a tree with the middle out standing in centre of a shed, and drainage defective."

"Occupier, aged 33 years, sleeps in same room as father and mother; the woman is sick, and the ceiling full of holes."

"One bedroom occupied by a man, his mother, and three children, one a girl of 15 years: girl, 11, and a young man, aged 22 years, a bastard of his wife's."

"A block of miserable old buildings, one of them occupied by a man, his wife, and seven children; six of the children sleep in a small false ceiling sort of place, with a clay floor, and is approached by a ladder, the only ventilation being by a small casement of 1 ft. square, which is partly blocked up by the thatch of another building; the size of this place is 9ft. 6in. by 8ft. 10in., and not 4ft. high all over; it is cold in winter and suffocating in summer; the lower place used as a sleeping room for the man and his wife is very damp."

"Bedroom in false ceiling unsafe, occupied by a man, his wife, and six children of the following ages:—Daughter, 22; son, 18; daughter, 17; girl, 9; boy, 8; girl, 7. There are two stump bedsteads and one bed on the floor; only one casement that opens."

"One small bedroom, occupied by a man, his wife, and six children—son, 22; son, 15; girl, 13; girl, 9; boy, 7; boy, 4 years."

"Seven children sleep in one room, with low ceiling. Complained of being very hot in summer. The size of the window, 2ft. 11in. Ages of children—Son, 17; daughter, 15; daughter, 13; boy, 11; girl, 8; boy, 6; girl, 4; boy, 2."

"A cottage, with two small sleeping rooms, occupied by a man, his wife, and 10 children. Son, 23; daughter, 21; son, 19; son, 17; son, 15; daughter, 14; son, 11; daughter, 8; son, 6; son, 4 years of age."

"A cottage, with one bedroom, occupied by a man, his wife, and four children. The four children sleep in one room upstairs, and parents in low room. Son, 16; daughter, 14; girl, 7; girl, 3. The ventilation is by a small casement of 15 in. by 10 in."

"A cottage occupied by a man, his wife, and six children. Two bedrooms. The ages of children are as follows:—Daughter, 17; son, 15; girl, 14; girl, 11; girl, 6; boy, 2. A wretched upstair room, windows broken out, no doors to separate the rooms, an old partition broken away, no plaster over the reeds that form the roof, a hole cut in the wall to give ventilation, and bricks put in the hole at night. A disgraceful privy formed of old sacking."

"A cottage, with one bedroom, occupied by a man, his wife, and three children of the following ages:—Son, 18; girl, 13; boy, 11 years of age. Three beds in the room."

"A hovel, occupied by a man, his wife, and seven children of the following ages:—Son, 18; boy, 13; girl, 11; girl, 9; girl, 4; and boy, one year. Two boys sleep in a room with ground for the floor, windows broken away, and no ceiling to the room."

"A cottage occupied by a man, his wife, and four children of the following ages:—Daughter, 23; son, 26; son, 20; boy, 11. One bedroom. Size of bedroom, 12 ft. by 6 ft., and defective ventilation."

"A cottage occupied by a man, his wife, and seven children of the following ages:—Girl, 17; boy, 13; boy, 11; girl, 9; boy, 7; girl, 5; girl, 9 months. There is only one bedroom, but a partition has been built across the room, which is broken and dangerous; the rain comes through the roof, as there is no ceiling over the reeds; to one part of the room parted off there are no windows; the stairs are very dangerous."

"A miserable old tenement with one bedroom, with a rough partition to form another room. The parents sleep in one part, and the children of the following ages in the other:—Daughter, 23; son, 13; girl, 11; boy, 9; boy, 5; girl, 3 years. There is no window or ventilation to the part the children sleep in. The privy is a disgusting nuisance, being only a rail and stumps."

"A small cottage occupied by a man, his wife, and nine children; all sleep in one small, ill-ventilated bedroom. Ages of the children are as follows: Daughter, 20; boy, 14; boy, 12; boy, 12; boy, 10; girl, 8; boy, 7; girl 3; and another. The stench of this place is sickening and is calculated to promote disease; in fact, the stench was so intolerable that I was compelled to leave the room quickly. I have not experienced anything so bad in the county; there is no privy for the use of this large family, and a foul, open cesspool near the door. I was informed that during last summer 12 persons slept in the same room."

"A cottage, occupied by a man, his wife, and nine children; eight of the children sleep in a small ill-ventilated room only 12 feet square. Ages of children are as follows:—Daughter, 19; son, 17; daughter, 12; boy, 7; boy, 6; girl, 5; girl, 2."

"One bedroom, occupied by a man, his wife, and six children. Ages of children are as follows:—Girl, 18; boy, 14; boy, 12; boy, 8; girl, 5; girl, 3."

"One bedroom, occupied by a man, his wife, and two children. Daughter, 26; son, 23 years of age."

"An old tenement occupied by a man and wife and six children; only one bedroom; it is dilapidated and dangerous, and unfit for human habitation. The ages of the children are as follows:—Daughter, 18; son, 16; girl, 14; boy, 10; boy, 8; boy, 6. No privy accommodation."

"A cottage occupied by a man and his wife and 10 children, and wife's mother; one bedroom recently parted off and made into two; the ventilation bad and intermingling of sexes objectionable. Ages of children:—Daughter, 19; daughter, 16; daughter, 14; son, 13; boy, 12; girl, 9; girl, 7; boy, 6; boy, 2½ years; and a boy, 8 months."

"A cottage occupied by a man and his wife and four children; two bedrooms. Ages of the children that sleep in one room:—Son, 20; son, 17; daughter, 16; daughter, 13."

"A widow and her daughter, aged 29, and son 28, all sleep in one bedroom."

"A cottage occupied by a man, his wife, and seven children, and grandmother; two bedrooms. The father and children of the following ages sleep in one small ill-ventilated room:—Daughter, 18; son, 15; daughter, 14; girl, 10; boy, 8; boy, 6; boy, 3."

"One bedroom, occupied by a woman and her son, aged 30; daughter, 25; daughter, 21; and an illegitimate child of the daughters."

"A cottage with one bedroom. Son, 18, sleeps in a cupboard in the parent's room. No window or ventilation to it."

"Two small sleeping rooms, occupied by a man, his wife, and eight children. Five children, of the following ages, occupy one of the rooms, the ventilation to which is by a small casement of only 15 in. square:—Son, 20; daughter, 15; daughter, 14; boy, 13; boy, 9; another daughter of 19, who was married last Christmas, had recently left."

"One bedroom to a cottage, 17 ft. by 9 ft. 2 in. This place is occupied by a man, his wife, and seven children, of the following ages:—Girl, 17: boy, 16; girl, 13; boy, 10; boy, 7; boy, 3; girl, 7 weeks. There are three beds in the room. The woman was recently confined in this room, in which I found the flour for domestic use was kept."

"A bedroom occupied by a son of 20 and a sister 13 and their grandmother."

"A cottage occupied by a man, his wife, and eight children. There was formerly only one bedroom to this cottage, but the occupier, to observe a little decency, built a partition across the room, but as there was only one casement one of the places parted off is without any ventilation, there being no casement opening into it. This room I found occupied by a daughter, 24; son, 21; daughter, 15; son, 17; girl, 11; girl, 7; boy 5; the other is an infant and sleeps with its parents. There are only two stump bedsteads in the room, the room 6 ft. wide, 14 ft. 6 in. long."

"A cottage with only one bedroom, occupied by a man, his wife, and four children. The parents sleep in lower room and the four children above. Daughter, 23; son, 17; son, 13; daughter's son, 6 years."

"A house occupied by a man and a woman. The roof of this house is in such a dilapidated condition that the sleeping room above (the only one there is) is rendered utterly unfit for use; the bed is therefore placed in the room below, which serves both as a sitting and sleeping apartment. The place is altogether in such a dilapidated condition that it is necessary during a heavy rain to set vessels in different parts of the room to catch the water."

"A house occupied by a man, his wife, and three children—two girls aged 10 and 6, and a boy 13 years of age. This house, like the rest, consists of but one sitting and one bedroom, in the latter of which all the family sleep; the roof is in a sad condition, there being in one part a large hole, through which the water enters in such quantities during wet weather as to render it necessary to remove the bed (or rather shake-down), which is placed on that side of the room, to another side of the apartment."

"One bedroom, occupied by four persons of the following ages:—Daughter, 21; daughter, 20; son, 22; boy, 12. Below is a room used as an infant school."

"One bedroom to a cottage occupied by a man, his wife, and four children. The parents sleep below and the children upstairs—of the following ages:—Daughter, 23; son, 22; son, 21; boy, 3 years. No separation whatever."

"One bedroom, occupied by the following persons:—Son, 19; daughter, nearly 20; boy, 16; girl, 14; girl, 10; boy, 9; a son of 23 also slept at home till last Christmas. The mother of the children in this case said her daughters dreaded going to bed and getting up."

"A place occupied by a man and woman and child; the cottage, which is built of clay, is in a most ruinous condition; there is but one small room, which answers the purpose of both kitchen and bedroom, and one end of which has been partitioned off, and is used by the man as a workshop. There are no upstairs rooms, the walls being only as high as the doorway; the roof is in a very wretched state."

"Another cottage, consisting of a lower room and one sleeping room, occupied by a man and his wife and children of the following ages:—Son, 17; daughter, 15; boy, 11; all occupying the same sleeping apartment. The lower room is in a shockingly dilapidated state, and the walls seem hardly able to bear the weight of the roof."

"A cottage with one bedroom, occupied by a man, his wife and seven children of the following ages:—Boy, 15; boy, 12; boy, 10; boy, 7; boy, 5; girl, 4; boy, 1 year. The room is very small, about 13 ft. square with a slanting roof, the window is small and the room badly ventilated. The woman informed me that she was obliged, in summer, to place a pail of water in the room at night to cool it. There is no privy accommodation for this large family."

"A cottage with one bedroom, occupied by a man, his wife, and four children of the following ages:—Son, 19; daughter, 17; boy, 14; boy, 12. The ventilation is defective, and no privy accommodation."

"A cottage in an unsafe condition occupied by a man, his wife, and seven children. The children, of the following ages, sleep in one room:—Son, 14; girl, 12; girl, 10; girl, 8; boy, 5; girl, 4; girl, 1 year. The casement is loose and cannot be set open, the floor broken away and very dangerous, the ventilation defective, and no privy accommodation."

"A cottage occupied by a man, his wife, and five children. There are two very small bedrooms, one of them is scarcely fit to be described as a bedroom, and is occupied by four children of the following ages:—Daughter 19, who is a pupil teacher; son, 16; girl, 12; boy, 7. There are two stump bedsteads with no curtains or separation, the place is only 8 feet

wide, with a slanting roof, no window or ventilation whatever, and only two glass tiles to give light."

I trust that a perusal of the above will satisfy your readers that your remarks on this subject are, unhappily, more than justified by the actual condition of the dwellings of the poor, and may assist in awakening a spirit of inquiry in this land overflowing with philanthropy, which may lead owners to come to the conclusion that it is not to their interest (without appealing to higher considerations) to drive the labourer to a wretched home, in too many cases far removed from his employment, to avoid the contingency of having to contribute to his maintenance when he cannot obtain or perform the labour required to secure his humble subsistence.

It is true that in some parishes enlightened owners have thought it necessary to bestow as much care and consideration to the proper and decent accommodation of the labourer as is shown to the brute creation, whose services are also required in the cultivation of the soil.

It may be supposed by some that the cases I have given are not true types of the general state of the cottages of the labourer in this country; but so far from this being the case I regret to say that my experience of 14 years as a sanitary inspector enables me to affirm that I have simply shown the average condition of the dwellings of the poor, suppressing some cases of the intermingling of the sexes too revolting for insertion in your columns.

I am happy to say, that at the agricultural meetings held in this county an occasional voice is raised on this subject, and I hope before long that it will obtain the prominence it deserves, and lead to a searching inquiry, to be instituted by Parlament, by commission or otherwise. *Samuel Clarke, Sanitary Inspector, 24, Castle Meadow, Norwich.*

CUMBERLAND FARMING.

At an important meeting, which took place at White Hall, near Carlisle, where between 50 and 60 practical farmers of the district had been invited by Mr. George Moore to discuss agricultural matters, Mr. MECHI, who has been Mr. Moore's guest, made the following speech]

HE had great respect for the north country. He knew that it had its difficulties, and he always thought that everything that came from the north—whether it was the men or whether it was the cattle—was very hardy; they had been used to rough circumstances, and when north countrymen got to the south they were supposed to make money faster than those in the south, and they also took more care of it when they had got it. Be that as it may, that training prepared men's minds for difficulties, and made them persevering, patient, and resolved to succeed. Different counties varied so much in their climate, and their soil, and their practice, that, unless the people residing in them met together occasionally and made comparisons there were apt to be misunderstandings.

For instance, he knew many Scotch farmers and farmers from the north country who, when they went to Essex, thought it right to put in their Turnips early in May, as they had done at home. He could tell them, as he had done, that they would be frizzled up. They would get on very well at first, but by the 1st September, when people went out shooting, they would find they could not get near the birds because the leaves of the Turnips crackled like paper. They were dried up; the climate would not admit of early sowing, and the seed should not be put in till the 24th June. In Essex they had no great hills to stop the clouds; the sun there shone direct on the soil instead of its rays being intercepted by vapour, and it gave them capital Wheat with a stiff straw, but not early Turnips. They could grow Mangel Wurzel, which did not want so much rain, but which wanted warmth, and which farmers had no business to attempt to grow here; and could grow 30 tons of it more easily, with the same quantity of manure, than they could grow 50 tons of Swedes in this part of the country. Again, about Beans, when he came from the south, where they grew splendid Beans, as high as himself, he found that no Beans were grown here. He could easily understand the reason for it—that their climate was unsuited to them, that their Beans rotted, and if they got straw they did not get pods. They grew Grass and they grew Clover. With regard to Clover, he did not agree with their practice. He found that, instead of using pure Clover, they used Clover and Rye-grass, and kept it down two years, considering it a frugal practice. But that practice was different from their practice in Essex. There they sowed Red Clover once in eight years and White Clover once in four years. They mowed the Clover as hay, let it grow up again and fed it off with sheep eating plenty of cake. In the south they considered Rye-grass the worst possible preparation for corn. In the second year they got a great quantity of weeds, and by letting it grow two years here they lost a year before they came to their Wheat. In his practice he took Clover, got a good crop, put sheep on, giving them as much oilcake as they liked; and the land was in such good condition that he took a Wheat crop, which was rather too saucy—had rather too much straw. He put it under Red Wheat, and perhaps got 5 quarters; he then got Revet Wheat—long bearded Wheat, and got 6 quarters of Revet Wheat in addition to the 5 quarters of Red Wheat in the previous year—that made 11 quarters in the two years. Then he rested it with something else. They took a crop of Beans, and then something else. He always guanoed the second crop of Wheat, scarifying the stubble and putting on guano. They always manured well for the Beans, their manure coming from stock fed with plenty of cakes.

He saw with sorrow and regret as he came along the railway from London at 40 miles an hour that there were no oilcake troughs in the fields for the last 150 miles.

If they went into Lincolnshire they would find that, whatever the animals were feeding on, they were never allowed to feed without plenty of oilcake. What was the result? The animals were half as long again on the land: or the land was able to keep one-half as many animals per acre. And there was another question: the quality of the manure had a great deal to do with the corn they produced afterwards, and the quality of the manure much depended upon the food they gave their animals. A neighbour of his who was feeding off some Rape, on one side of the field gave a certain quantity of oilcake to the animals, and on the other side he fed them liberally on Barley of the same value. The field was afterwards sown with Barley, and he had two quarters more Barley per acre on the part where the animals had been fed with oilcake than he had on the part fed with the same money value of Barley. That was extraordinary. If they took the chemical analysis of Barley and the chemical analysis of the same amount of oilcake or cottoncake, looking at the value of each after it has been consumed, according to the rule which governs the price of guano, they would see that Barley is 1*l.* 9*s.* per ton, while oilcake, rapecake, or cottoncake is 4*l.* 12*s.* They could not wonder that his neighbour had 2 quarters per acre more value. He thought they were bound in these times to make experiments in accordance with the rules of science. Don't let them do anything rash; it was as easy to try it on 1 acre as it was upon 1000. It seemed extraordinary to him that in Cumberland there was so little oilcake used. In Norfolk, one of the celebrated counties for supplying London with beef and corn, the climate was very dry; whereas in Cumberland they had a great deal more rain, and therefore grew a great deal more Grass. In Norfolk, he knew a man who farmed 1200 acres of land, almost all arable land; perhaps 100 acres of natural Grass land, and the principal portion artificial Grasses. On 1200 acres of land, how much oilcake did they suppose he brought on the land? 3500*l.* was the amount of his bill in the year; or about 3*l.* an acre. He sometimes lost by it; but he sometimes made a great deal of money by it. The consequence was that on that poor land he grew such crops of Wheat and such crops of Turnips and Mangels as would surprise them. The consequence was that they grew enormous crops of corn, and produced enormous quantities of meat in Norfolk and Leicestershire, which might be called the butcher's shop and the baker's shop of London. Then he came to the question whether—being large Grass farmers, and having especially a Grass climate—it would pay to use plenty of oilcake here. He told them that it would pay. The whole question of any operations in farming depended upon the question whether it would pay. He had seen enough of this county to know that it would be much better for more manure. Did any one differ from him on that point? (No.) They wanted more manure, and they could not produce more manure, or produce it more cheaply than by feeding animals with Cotton, cake and Rape cake. It involved rather more capital if they had to keep so many more animals, and it was necessary that they should have oilcake to give them. That was another question; if they could not make the money fit the land, they must make the land fit the money. They saw what the result of feeding with cake would be. They would not only get more Grass, but they would produce manure and produce more corn, and they could take a liberty with their land which they could not otherwise do. He himself never consumed less than 530*l.* worth of cake on his farm of 170 acres in a year. Did any gentleman here use cake?

Mr. BOGUE: I should say there is not a gentleman here who does not use it a little.

Mr. MECHI said he believed they only used it in winter. They gave Turnips and hay in winter and Grass in summer; and he wanted to know why they did not give cake in summer as well as winter. If they believed it to be profitable, would they use it?

Mr. BOGUE: Certainly.

Mr. MECHI urged them to try it. He would give his evidence that it would succeed: he would promise that it would succeed. That was one weak point in farming in Cumberland, that summer grazing was not attended by the constant use of oilcake.

And there was another point. In the rapid growing time the Grass grows very rapidly—in the months of May and Jane—and he believed it would pay any man better to bring the Grass to the cattle than to bring the cattle to the Grass.

The practical farmer knew very well that if sheep wandered over a piece of a field, and if there did not come a shower of rain to sweeten it, a great deal was wasted, and they did not eat it with relish. He looked upon this as a vital point. He was sure that an animal had three or four mouths when it had to run about a field, and only one when the Grass was brought home to it. On his farm he had a little irrigation with a jet, over Italian Ryegrass. He had somewhere about 80 or 90 head of young and old bullocks, and they did not eat more than 1 acre per week; but if he were to turn them out on 4 acres of Italian Rye-grass, he should like to know what would be the cost. He had also 100 sheep They went on the Rye-grass in March. As soon as the Grass began to grow rapidly—in April and May, when it was too high even to trust them in the field—he put them in iron hurdles on wheels, and 100 heads appeared through the iron hurdles as regularly as if they were drilled. The result was that on 6 acres of Italian Rye-grass he put these 100 sheep in March, and there was plenty of food round and round to last until the end of July. That was 16⅔ sheep per acre, which was not very bad. Yet this was on some of the poorest land in England. He irrigated the land with sewage; and, in addition, he sowed some guano, washing it in with sewage of the farm. The result was that the land would grow anything. He had been down in Norfolk in October last year, and he asked what Mr. Hudson was feeding his bullocks on. He was told, "22 lbs. of cake, some Beanmeal, and all the Turnips and hay they like to eat." That might frighten some of them here. He was giving it to produce the corn after. Another gentleman told him at the same time that he had some good Lincolns, and he gave them nothing but straw, 28 lbs. of cake a-day, and plenty of water. The adoption of the management he had described had made Norfolk and part of Lincolnshire and the wolds of Yorkshire what they are. When they had a crop of Turnips to feed off the land they crammed the sheep full of oilcake. ["That is a long story about oilcake," said Mr. Mechi, "I will now drink your good healths in a glass of wine." The toast having been drunk, the speaker resumed.]

They now came to another point—that of a landlord's duties.

They had a capital fellow here (Mr. Moore), who had plenty of money, and was willing to lay it out where he had a chance of a fair return. The late Lord Leicester, formerly Mr. Coke, was a gentleman to whom the country owed a debt of gratitude. He had poor land, and he invited men of capital and intelligence to join with him. If a young man went to him to ask for a farm, he would say, "How much money have you got? and how much can your friends raise for you." The young man would say, "I have got so much;" but Lord Leicester would not let him have a farm he had not got money for; he would say "You have not money enough for the farm you want, but I have a smaller farm that will suit you." If the young man went on to the farm and used a great deal of cake, he would probably go to his Lordship and say, "I use a great deal of cake and want more room." His Lordship put up the buildings, well knowing that his tenant was making the land more valuable. By such policy he had raised his rental 300 per cent. in the course of time. When the lease was out, a liberal arrangement was made, the tenant who had improved the land sharing the benefit with the landlord. He hoped next time he came down here to find his friend Moore scratching his head and considering a request of his tenants for more sheds, and consenting to put them up for 4½ per cent., or not so much. [Another glass of wine having been taken by the company, Mr. Mechi proceeded.]

There was another question. What quantity of seed per acre ought they to put in according to climate and circumstances?

They knew what was the quantity put in here. He had been looking at the sheaves, and he found a great many "schrinchlings." If they put 20 horses into a pasture where there was only plenty for two, they would be falling out, and some of them would be coming out "schrinchlings." They would fight for it; some would get the largest share, and others would be starved out. That was the way with a great quantity of corn he had seen in Cumberland. He did not advise them to go rashly and change the custom, but let them set apart half an acre and try it with rather less seed than they now used, as an experiment. If they now sowed one Carlisle bushel, which is three imperials, let them take off one-third. On his own land he had tried one bushel against two bushels on land side by side, and the one bushel had the advantage over the two bushels. He then altered it and tried one against one and a-half; but there he found not so much difference. As a rule, four or five pecks seemed to be about the quantity for his land, under his general farming. Only, the higher you farm the less seed you should put in. Mr. Ellwood, of Crosscanonby, had told him at the Cockermouth show that he had some of Hallett's Pedigree Wheat; he had put in half a Carlisle bushel per acre and had a crop of six or seven quarters per acre. He had a strong impression that if a whole Carlisle bushel had been put in instead of half he would not have had that. This was a very vital question to the British public and the British farmer. Mr. Caird, who had collected statistics throughout the kingdom, said that he found that the average was that if you sow one bushel or one kernel you get nine; so that the increase is eight to one. Did they think they could put a kernel into the earth and make it produce so little as nine? Did it not tiller? Then, how was it they could only get nine? There should be 37 stems, and 50 in a head, which would produce 1850 kernels for one. How was this? He would tell them. There was a great battle going on; kernels fought with one another till they killed one another, and a great many were thus half killed, while others were killed altogether. So that they might safely diminish the quantity of seed they sowed. He begged the farmers present to oblige him, and oblige their families, by making a small experiment in putting in half the quantity of seed they now sow. He thought they were dreadfully behind in this county where they did not use the drill, but sowed broadcast. It was a sign of antiquity which ought to be done away with. Often when he talked with his men and his neighbours they spoke about what paid and what did not pay. By that means they arrived at certain conclusions; and he had arrived at this conclusion—that a half crop did not pay. They must have a whole crop, or it did not pay. There was a friend of his, a very successful farmer, who, whenever he had a crop that was not a full crop, ploughed it up, manured it, and put another crop in directly. He would not have a half crop. If that gentleman found Mangel Wurzel missing, he took boys with water, and a man with a half round trowel, and filled up the vacant places, saying, "We pay for the land, and we must have a crop everywhere."

He thought they might improve their fences in this county. To show the importance of attending to small matters of this kind, he said there were 56,000,000 of acres of land in England, and 56,000,000 pennies would be a large sum of money.

He was sure of several things. He was sure it did not pay to grow weeds—they should only have one crop at a time; if they had a crop of corn it should be left to itself; if they got a lot of ugly weeds it was like sitting down to dinner and having a lot of other chaps you don't want sitting down to dine with you. (Laughter.) He was very pleased to see such men as Mr. Foster and Mr. Moore coming to spend their money in the county. He would like to see more English money spent in England; it grieved him when he saw the Emperor of Russia when rather empty in the breeches pocket coming here. Every poor monarch who was hard up for cash came here for what he wants. It is true they generally paid the interest, although some of them did not. If they could have that money spent in this country, a great deal of labour would be employed. It rejoiced his heart to see capital flow out of town into country; and he would like to see landlords and tenants lay their heads together and see if they could not arrange to have work done for them if they paid the interest. He had often been told he had done a great deal of good by the errors he had committed. Well, he had drained his land, he had built labourers' cottages, he had put up covered yards for his stock, he did not waste his manure, he kept it under cover. If these did not pay—if these things were not right—he wanted to know what was.

Mr. MOORE proposed the health of Mr. Jefferson, of Preston Haws.

Mr. JEFFERSON said: Mr. Mechi had referred to the climate and the quantity of rain that fell in Cumberland. In his experience they could never have too dry a summer; it was the rain that bothered them. Grass and Turnips they certainly could grow, but in his opinion they ought to stick to them more than they do. He knew that Mr. Mechi's was an arable farm. He had had the pleasure of visiting it; but on coming home he found that the only thing in which they could not compete with him was the climate. He thought they manured as hard as Mr. Mechi did, and they consumed a great deal of cake. He did not believe in 28 lb. of cake for one cow, and giving them that quantity was not according to what the chemists told them; for they said only a proportion of cake or any other feeding stuff could be appropriated in the form of flesh. [Mr. Mechi—I did not say they appropriated it; I said they ate it.] If out of 28 lb. five or seven could be appropriated, 21 lb. went only as manure at 10*l.* 10*s.* or 11*l.* per ton. That was very dear manure. He certainly thought a little cake would pay very well, but to give a large quantity at the price it was now at was, he thought, the dearest feeding stuff. They could buy Indian Corn at 10*d.* per stone, whereas for cake they had to give 11*l.* per ton. If they wanted manure, let them buy it and put it on; don't waste it by putting it through a cow. He could not agree with Mr. Mechi as to Rye-grass; it was here the very worst Grass they had. It was a Grass nothing would eat off if they could get anything else. With regard to sowing, he himself sowed a peck and a-half of Barley; from two to three pecks of Wheat, according to the season; and one bushel of Oats (Cumberland measure). These were rather below Cumberland quantities; but he thought they were sufficient if they had the land in good order; but he did not believe in extremely thin sowing. In Cumberland, if you sow very thin indeed, you are never like to harvest. The thicker the sowing the earlier the harvest. If you sow very thin, it tillers out and shoots into diminutive heads which come to nothing; you have more hinder-ends, and the grain is longer in ripening. He did not approve of giving so much cake on Grass as Mr. Mechi advised; he thought it loosened the cattle too much; he would give oats in preference to cake, or something more binding. This summer stall feeding had been tried by many clever men he had known, and who had given it up again: and he had tried it himself, and given it up, because he could not get men to

attend to his stock and please him. He had no doubt you could keep more stock on the same quantity of land by feeding in the house than by turning the cattle out into the pasture. In regard to buildings, that was entirely a landlord's question. If a tenant had been farming very well, and went to the landlord to ask him to put up more sheds, the landlord would very probably say, "They served the former tenants; John, I don't see why they should not serve you." As to Beans and Wheat, he had grown them for 12 or 14 years. Beans pay very well if you can only get them in time. He had followed Beans with Wheat, and if the land was clean, sown it with seeds, and if not, given it a summer fallow; but he never yet got seeds after Beans. Why he could not tell; he had written to several agricultural papers on the subject, and could never get the point satisfactorily answered. With regard to gentlemen farmers, they were a sort of cattle they did not produce in Cumberland—although they had had some importations. But these generally went off in a galloping consumption. A man to make a living in Cumberland by farming, must live like a farmer and must work like a farmer, ay, and must screw like a farmer, or he will have the balance on the wrong side of the book. Mr. Mechi said that it would not pay to have half a crop; that was very true. In conclusion, Mr. Jefferson said that if he had never ploughed a single furrow when he took his farm 18 years ago he should have been richer. He could get more profit out of a pair of Irish cows' jaws than he could get out of an acre of Wheat

Mr. Bogue agreed with Mr. Jefferson about not being able to grow seeds after Beans. The greatest fault he had to find with the farming in Cumberland was the fallow land which he hoped would grow less and less every year. It was hard to pay heavy rent for two years for the sake of growing a very small crop of Wheat; he was sure the fallow lands in this county last year did not pay an average of 4*l.* for two years' rent. Would it not be better if they had a good crop of Turnips? He considered that the land which would not grow Turnips could grow Beans if it was only dry enough in the spring, and they would have a good crop of Wheat after. He trusted that ere long fallows would be done away with altogether. With regard to Italian Rye-grass, he expressed an opinion that it could not generally be grown in Cumberland with much profit. He thought fattening cattle on oilcake a very paying concern, and that it ought to be gone into more. He himself used a great deal of cake. He ground a great deal of his Oats—he mixed that with oilcake 4 lb. to 4 lb., and he gave his cattle that per day. He pulped all his Turnips, he mashed all his straw, but he did not like to mash straw if he could get chaff. Last year he had fed nearly 100 fat cattle, and nothing paid him better.

Mr. Grainger said, with regard to thin sowing, that he had tried it. He had sowed with a drill 3½ Carlisle pecks, but to try thin sowing they had stopped up each alternate spout. The result was that they were much disappointed. The harvest was at least a week later, the ripened grain very much coarser, and unfortunately rather less in measure.

Mr. Mechi—What time was it sown?

Mr. Grainger—About the 10th November.

Mr. Mechi—Too late; it should have been sown in October.

Mr. Grainger said that he fully approved of what Mr. Jefferson said respecting Grass. Old Cobbett said when he came into Cumberland, "The climate cries 'Grass, grass,'! but the people say 'Corn, corn;'" and he believed Cobbett was right. He urged the desirability of deep drainage, and said he was sorry to see that of late years all drainage was imperfect; after a dozen years or so it grew worse and worse. He would like to know the reason why drains act so imperfectly after a dozen or 15 years.

Mr. Mechi, replying to the speeches which had been made during the evening, said they could not grow Rye-grass in Essex without irrigation, it was such a thirsty soil, and fond of drink. Prof. Way found that irrigated Grasses contained 25 per cent. more nutritive matter than those not irrigated; and if he had pursued his investigations into Ryegrass irrigated with sewage he would have found it still more. His experience was that an animal could eat any quantity of it and never scour. Italian Rye-grass was of immense growth, and of so close growth that a rat could not go into it; and it not only kills its enemies, but eats them up afterwards. Not a Dock, not a Thistle, or a bit of Twitch or Couch Grass can live in the field. He had often been asked "Does it pay?" Does what pay? Does deep cultivation pay? does plenty of oilcake pay? does a covered yard pay? do good roads pay? does having the buildings in the centre of the farm instead of at the furthest end pay? But then it costs a good deal of money to do all that, they would say. If each particular item in that list paid, if they added them together would they not pay? Adverting to things he had seen in this county, Mr. Mechi said he had seen Mr. William Lawson's steam-engine at work, and he was draining a low place where it used to be a bog. Mr. Lawson was erecting on his farm the best buildings he had seen anywhere. Certain people might shake their heads, and say he was spending a great deal of money—but when those buildings were complete he knew of no farm-buildings so likely to contribute to profit as these Mr. Lawson was erecting. In cultivating his land he was moving soil which had never been moved before, and the result must be there would be a crop which people would be surprised at.

Mr. Lawson asked if the farmers in this room believed in giving 28lb. of oilcake to one beast in a day. He thought that one of the weak points of Mr. Mechi's speech.

Mr. Mechi said he had not stated that he had given it himself. He did not say he would give more than 4 or 5 lb.; but a tail with oilcake left a mark behind which was not forgotten in the corn.

Mr. Blackburn said he did not quite agree with the plan of giving the enormous quantity of oilcake spoken of; he thought they should give no more than the animal system could assimilate. He thought that to give so much was most wasteful; he recommended the use of other manure instead of adopting that plan.

Mr. Mechi said that if they wanted to exhaust the soil, let them put on guano year after year; it gave a flash at first, but they would feel it by-and-by. A ton of straw, if ploughed into the land, without consumption, was worth 9*s.* 6*d.*, according to Mr. Lawes, and if passed through an animal it was worth three times as much. *Carlisle Journal.*

Home Correspondence.

Cottages, and Rent of Cottages.—In Hampshire the size and condition of the farm labourer's cottage is disgraceful as to morality and honesty! As to morality the rooms are so few and small, that several of both sexes and all ages retire to rest in one room, and if a member of the family is sick, there is no quiet chamber for the invalid. Four men and five females have been seen retiring to rest in the same apartment. It is dishonest, because the land-owner demands a rent far above the value of the tenement, and the tenant seldom repairs the dwelling; and instead of waiting till harvest, will draw the rent weekly from the all but pauper labourer, leaving him and his family 7*s.* to 7*s.* 6*d.* a week to find food and clothing. *F.*

Samples of Wheat.—We take the liberty to enclose for your inspection and opinion, samples (just as they were threshed, without having anything removed but the chaff) of five varieties of Wheats obtained under the afternamed circumstances, viz.:—The land upon which they were grown is very light sand; up to the year 1861 it had laid from time immemorial in an uncultivated state, overgrown with Furze and Heath. In the winter of 1861 it was ploughed over, and left to decay until the summer of 1862, when it was cleaned, and a very small quantity of farm-yard dung, and some green tops of Lupins were dug in. In consequence of the extreme poverty of the land a large crop was not to be expected. On Sept. 19, 1862, 25 square yards of each variety were planted, single grains 6 ins. apart all ways.

	lbs.
1. Shirreff's Bearded White, straw longer than any of the others, ripe and cut August 8, produced (66½ lb. per bushel)	19½
2. First Prize Victoria (Australia), straw a little shorter than No. 1, ripe, &c. August 11, produced	12¾
3. Shirreff's Bearded Red, straw about the same as No. 2, ripe, &c. August 11, produced	16½
4. Hallett's Pedigree, straw about same as No. 2 and 3, ripe, &c. August 17, produced	16¼
5. Pringle's Bearded White, straw shortest of the five, ripe, &c. August 11, produced	17

We have given you the facts of the trial and refrained from expressing any opinion, leaving that to you, which we shall be pleased to know at your convenience through the medium of your *Agricultural Gazette.* You will also find enclosed another sample (taken from bulk as prepared for market) of "Shirreff's Bearded White," grown on a fast hazel soil; the crop was all that could be desired. *Triticum.* [The following is the account of the samples sent:—*Shirreff's Bearded White.*—Very beautiful White Wheat, as good as can be, short berried, plump and white. *Second sample of the same.*—Very beautiful White Wheat, short berried, rather more horny in texture and appearance than No. 1. *Australian Wheat.*—Very good White Wheat, larger berried, horny in appearance. *Pringle's Bearded White.*—Very beautiful White Wheat, larger and longer berried, horny. *Shirreff's Bearded Red.*—Good large berried, fine Red Wheat. *Hallett's Pedigree.*—A sample of large and coarse Red Wheat. We shall be very glad indeed to receive your report of the larger experiment to which you refer.]

Societies.

Cumberland and Westmorland, *Sept.* 11.—*On Agricultural Progress.*—At the dinner of the members of this Society, Lord Naas, who presided, said:—

There is a greater difficulty in the advancement of agriculture than in almost any other pursuit. Men devoted to agriculture live apart and have not the same means of meeting and talking over their affairs as the inhabitants of towns have—and perhaps for that reason agricultural enlightenment has not been so quick as it has been among other industrial pursuits. The farmer has always to contend with great difficulties which those engaged in other pursuits have not. He has not only to consider with the manufacturer the proper and most advantageous way of laying out his capital, but he has also to consider the chances of the weather, and often diseases among his animals, which render it perhaps the most uncertain and risky pursuit that a man can be engaged in. But notwithstanding all this, there is so much that is ennobling and so much in conformity with the tastes and habits of this country in the pursuit of agriculture, that, notwithstanding all its disadvantages and risks, it is the most popular employment that a man can be engaged in, and the most gratifying to the feelings of every man who wishes to live at home and do his duty to his neighbour and to his God. Since the beginning of this century thorough draining, which is the grammar of all farming, has actually been discovered and carried on. Nobody denies it now that you can't cultivate an ordinary field, that is, one field out of ten, without commencing with thorough draining. The introduction of guano and artificial manure is a thing that has taken place entirely within the last century, and therefore we may claim them as almost quite modern discoveries. But if these great essentials have been practised with success, and great improvements have taken place in them, equal improvement has taken place in the breeding of stock. This Short-horn breed is a new breed altogether, created by our grandfathers, and now taking its place as the first breed of cattle in the universe. The well known and distinct breeds of the country have been improved in proportion. You find the Herefords now looking almost like a mass of muscle and fat; the symmetry of the Devon has increased, the milking qualities of the Ayrshire and the Alderney have greatly increased; and even the West Highlander has not escaped improvement. The sheep is also being improved. Then the pigs. You remember those extraordinary animals we used to see about 40 years ago, whose principal features were snout and legs. In the modern pigs snout and legs are the only things you can't see. If in the cultivation of the land and the rearing of stock so much has been done in very few years, a most extraordinary advance has been made in agricultural machinery. Machines of every kind have been invented, and find a ready sale throughout the country. This is always the case. The labourer has nothing to fear from the introduction of machinery and the advancement of engineering skill. It has always been the case that wherever machinery has been introduced and brought fully into play, there capital has been produced, production has been augmented, and in consequence the number of hands employed has been enormously increased. The same rules that apply to the introduction of all kinds of machinery apply to agriculture, and therefore I believe that the British labourer has nothing to fear from the introduction of agricultural machinery; on the contrary, he will be the first person to benefit, and the only difference will be that his labour will not be quite so severe as it would be under the old system. Gentlemen, any one who reads what has lately been published on this subject, must come to the conclusion that the dwellings of the agricultural population of this country are very far from what they ought to be. If I put it upon the lowest possible grounds, there is much to be said in favour of some improvement of these dwellings. Your labourer is really the most valuable machine upon your farm. His weakness is your loss, and his strength your gain, and you will find that even in a money point of view you will get much more value for his wages from the labourer who is well housed, well clothed, comfortable, and happy, and if you put him in a position to render as little unpleasant as possible the very hard lot which he is obliged to bear. But when you think of the higher consideration that this man is of the same flesh and blood as yourselves, actuated by the same feelings, the same hopes and fears, and the same desires; that he is like us engaged in his way in the great struggle of life, and is wending his way I hope, also like us, to that distant land where all are free and all will be equal, we must feel that that which was a matter of economy in money becomes a matter of duty of the very highest order. I believe that those engaged in the interest of agriculture in this country only require to have this great defect pointed out to them, and that all classes, both landlord and tenant, will combine together to remedy this dreadful evil, and bring comfort, or at least decency, home to the dwellings of every person connected with the agricultural labouring class throughout the country.

The Hon. Percy Wyndham, M.P., proposed "The Strangers, coupled with the health of Mr. Mechi." He had heard farmers in a small way speaking of Mr. Mechi, who was known from John O'Groat's to St. Michael's Mount, but saying, "If I were to follow his example I should be ruined in a week." Well, that was true, but they held different positions. Mr. Mechi was the advanced guard in the agricultural army. He tried experiments, and unless he had tried experiments he could not have succeeded in the way he had done. If he did not succeed he wrote over it "This is no go," but if he did succeed he said, "Follow this and you will make money."

Mr. Alderman Mechi rose to respond, amid loud and continued cheers. He said he rose with great gratitude to respond to the toast of his health coupled with "The strangers." He had made so long a speech at Wigton the other day that he would now only touch upon one or two topics that he had not then time to allude to, and state his impression on certain things he had seen here to-day and in Cumberland generally. He had exceedingly admired the graceful and well developed forms of the ladies of Cumberland, and so much had they impressed him that he felt somewhat doubtful of the gallantry of the men of Cumberland. For, when he looked upon those forms and those graces, he was astonished to find them doing men's work in the fields, and he could not understand who was at home taking care of the children and doing all those domestic duties which were of the greatest consequence to the comfort of men. But it did startle him as coming from the south, where they rarely saw a woman in the field, except when she was taking her husband's dinner at harvest, to see that they were so hard upon the ladies of Cumberland as to make them do men's work. Adverting to the exhibition, he said there were certain things that pleased him extremely in the show to-day. He saw, as he had remarked to a friend of his, six good horses to be sold for £50. His friend stared, and apparently did not believe him till he told him he had seen a little steam-engine, with boiler complete, which was said to be three-horse power, which would kill any six horses, as he knew by experience, that they could be put against it for a long day's work. He saw that engine offered, and he was pleased to see it, by a manufacturer of Kendall for the small sum of 50*l.* Although he was not a judge of horses, he had had a steam engine of six horse-power for fifteen or sixteen years almost constantly at work on his farm, and therefore he was a judge of what that horse was, and able to compare its power with the more expensive animals generally used. His horse after 15 years' work was as good now as he was on the first day he had him, and likely to be good for 10 or 15 years longer, and therefore he was astonished to see so little steam power was used in practical agriculture in Cumberland, when they saw that it was one of the things which paid. Mr. Wyndham had repeated the somewhat common story that Mr. Mechi was a very good natured man, who tried experiments and lost a great deal of money by them for the benefit of agriculturists. But most of his operations had been carried out 20 years ago. He put up his steam engine 15 or 16 years ago; and took care of the liquid manure of his farm, instead of letting it go down to the brook, 15 or 20 years ago. These things all cost money, and they would ask whether they paid. He very often consulted with his excellent farmer neighbours on each particular point, and he was happy to say that they only differed from him in that they had not got the money to do all that he had done, and they wished they had. That was a very different story from what they told him 20 years ago, and it was very gratifying to his feelings. He had a veneration for prejudice, and had once intended to give a long lecture upon it; prejudice prevented them believing too suddenly that which they had not tried. He had been exceedingly pleased to-day to find that one of the practical farmers of this neighbourhood had been using Wood's reaping machine with advantage. He had been cutting a great crop of Oats, and could get it out of the field at 5*s.* an acre. That proved that the machine was one which ought to be extensively used. They did not grow so much corn here as the farmers did in the south, but there must be an immense amount of hay to be cut up and given to the cattle in the winter, and it was a well-established axiom among the best agriculturists that it was best to give the animals straw and food cut up and prepared instead of giving it in a slovenly and loose way, in which they would not thrive upon it. They could not, however, do it cheaply enough without using steam power. The fact that the London

Omnibus Company used corn and hay so prepared by steam power was a good proof that it paid. So particular were they as to the quantity that they had tried several great makers, with the view of obtaining a cutting machine that would cut two tons per hour, saying, "If you will give us the machinery we will find the power." He believed Mr. Bentall, of Malvern, had made them such a machine. Every operation of a horse's mouth and the exercise of force in the operation of mastication was essential to a certain point, but they might depend upon it that the sooner they could get the stomachs of the animals comfortably filled, the sooner would they lie down and rest, and that was a great gain. He thought horses were going out of date for the plough, and he knew enough of steam as applied to agriculture to say that the steam plough would be found extremely profitable. A gentleman went on to his farm the other day who had 700 acres of land, and said, "I have a 14 horse-power steam plough, and I give my men 2*s.* an acre for ploughing, and they do so much ploughing that they can earn 4*s.* a day." The engine walks out to do his work, and walks home, threshes the corn, cuts the chaff, grinds the Beans, and when he goes to sleep he does not want any supper, nor does he want any breakfast the next morning. That was more than they could say about a horse. If there was a sore place it was the keep of agricultural horses. They knew they were expensive articles; their health is uncertain; and it is far more profitable to keep a steam engine in repair than it is to have anything to do with horses. In this part of the country they produce a great deal of beef and mutton, and a great deal of pork. They ate it themselves, and sent it to people in towns. Now, would they not like to have it back again, if they could, after it had been consumed? They were laughing, but it was a serious subject. He believed there were ten millions of people who live in towns—probably more. If he were to put this question to farmers of England having ten millions of sheep—and there is no difference between sheep and human beings, except rather in favour of human beings—they would not like to see what came from them thrown into the river. He heard that in Cockermouth they were now constituting a Board of Health—to dispose of the dirt, and do some other things. He was not aware how they were situated locally, but he wished them to understand that the only difficulty in applying the sewage of towns to the land was the cost of pumping and laying down pipes. He had the highest authority for stating that a ton of that liquid could be lifted up as high as St. Paul's for less than a farthing per ton; and they might depend upon it if they could do that it would flow to any lower elevation provided they put down pipes to carry it. What was the cost of putting down pipes at Croydon? There was a population of 18,000 persons with water-closets for 10,000. The water was supplied to them at the rate of a million gallons per day through a pipe only a foot in diameter; and it came through again in the shape of sewage which used to go into the river. The millers and gentlemen of the neighbourhood were opposed to this, and one gentleman had told him that he himself had spent 7000*l.* in Chancery suits to prevent it going there; and the result was that the Board of Health had been obliged to take a farm of 300 acres at 4*l.* rental, which only used to let for 30*s.* But they were obliged to have it, and they had let it to a friend of his, a practical farmer with a long head from Essex, at 5*l.* an acre, and he was putting a million gallons a day of that liquid upon the land. The pipes he used had a slight fall, and it was a most simple operation. A little cutting took the sewage down to a course upon the top of the field, and from that he cut a grip down every 50 feet into which he turned it when he liked. What was the result? His Italian Rye-grass in June or July had a stalk a yard long, and the Rye grew so thick that a rat could not get into it. His rent was 5*l.* an acre, he had a lease for eight years, and he had spent 4*l.* an acre to put it into condition; and he now knew that when his time was out his rent would be doubled, simply because the sewage of the town was made to flow over it. What was done in one place could be done in another; and if their rainfall could bring down their beef, and mutton, and pork, after they had done with it, Grass would grow much larger and of better quality than now. At one time he used to be called a nasty fellow because he talked about sewage, and he was pooh-poohed for introducing that into company 15 years ago. But gradually it had come to be believed. It supported the Chinese, who did not eat any meat. There, where there was a population of 450,000,000 of people, their cultivation was entirely maintained by taking care of what we wasted. He heard that in Carlisle Mr. M'Dougall had applied some portion of the sewage of that city. He had not seen it, and did not know the exact details, but he supposed it paid or else it would be given up. Well, he would leave the sewage to time, and he had no doubt it would come to be used in times to come, and then, if anybody told them they must waste their manure, they would say, "You are a most silly fellow to propose it." Mr. Mechi then alluded to the drainage of Tarn Waddling by Lord Lonsdale, and in conclusion urged farmers to associate themselves together so as to raise capital for the improvement of land.

AYRSHIRE AGRICULTURAL: *The Quality of Manures.*—At a special meeting of the directors of this Association, Mr. BELL of Enterkine, said he was sorry to see that the crops in some districts of Ayrshire had in a great measure fallen off, and it appeared to him very desirable that they should ascertain what was the reason of this falling off. Some said it was the seed; others said perhaps it was bad seasons; others that it was over-cropping; and others again that it was the inferior quality of the artificial manures that had been applied to the land of late. They were not able to control the weather; but they could do something to ascertain whether the artificial manures they were now purchasing contained manurial qualities equal to the price put upon them. He did not mean at present to make any substantive motion; but he thought that a committee should be appointed to take the subject into consideration, and report to a future meeting. It was of great importance that they should know whether the manures they purchased were worth the price they paid for them, and also that they should be able to ascertain the constituent parts of those manures, so that they might judge what crops it would be suitable to apply them to. At present it was not uncommon for farmers to purchase manures of different qualities and apply them to all their crops without any idea as to whether they were suited for that crop. He believed a manure that would grow good Italian Rye-grass would not grow good Potatos, and *vice versâ*. Meantime, there could be no harm in having a committee to talk over the matter and ventilate it a little.

Mr. DRENNAN said there could be no doubt that it would be a convenience to have a chemist in some central part of the country to whom they could apply; but the difficulty was how to get a trustworthy chemist, thoroughly trained, who would at the same time have the confidence of the manure trade and of the farmers. He had been making some inquiry on this point, and he was informed that there were only three chemists in Scotland who made more than 100 agricultural analyses in the course of a year. Ayrshire had not in any year required nearly 100 analyses; but supposing that number could be guaranteed, and 1*l.* of fee paid for each analysis, there would not, after payment for a laboratory apparatus and other expenses, remain more than 50*l.* to the chemist, which was not good journeymen's wages. But it was possible an arrangement might be entered into by which this matter might be put on a better footing. It was very desirable there should be a larger number of analyses than had been made hitherto. The committee might correspond with Dr. Anderson, and be able to ascertain whether anything could be done to give facilities for more frequent analyses of manures.

The Steam Plough.—Mr. WEIR then, at the request of the Chairman, gave some details with reference to the working of the steam-plough in this county. He said he would not tax their patience so far as to read at length the daily operations of the plough, but should content himself with giving a summary of these operations from July 1862 to July 1863. On October 13, 1862, steam was got up, and things put in order, and the steam-plough was started at Clune the following day. It was out till January 10, 1863, which was 78 days. There being no employment for it, it was then laid aside, and lay unemployed till March 26, when it was again taken out, and was employed till April 17, which was 20 days—making together 98 days. During that time it worked on the farms of Clune, Kirklandholm, Crossburn, Shields, Aikenbrae, and Orangefield. He found those 98 days thus occupied:—Travelling and setting down, 11 days 8 hours; stopped by rain, 17 days 8 hours; stopped by soft ground, 4 days 6 hours; stopped by frost, 3 days 2 hours; working, 60 days. The work done, and amount realised by it, was as follows:—Grubbed 75 imperial acres, at an average of 4*s.* 4*d.*—16*l.* 7*s.* 6*d.*; ploughed 104½ acres, at 9*s.* 1*d.* an acre—37*l.* 14*s.* 6*d.*; digged 22½ acres, at 11*s.* 1*d.*—12*l.* 10*s.*—being a total sum received of 76*l.* 12*s.* The expense of working was as follows:—Wages paid, 98 days, 82*l.* 13*s.* 11*d.*; average outlay for coals, 2*s.* 6*d.* a-day, 12*l.* 5*s.*; do. for oil, tallow, &c., 1*s.* a-day, 4*l.* 18*s.*; water-cart and horse, say 20 days at 4*s.*, 4*l.*; horses at shifting, say 12 days at 6*s.*, 3*l.* 12*s.*—making a total of 107*l.* 8*s.* 11*d.*; showing a loss on the working during the season of 30*l.* 16*s.* 11*d.* If he added to this the amount paid to Mr. Fowler for improvements and repairs (there having been no fewer than 53 breakages), and the interest on the 560*l.* he had paid for the plough, the amount expended by him would exceed the amount received to the extent of 140*l.* 16*s.* 11*d.*; and this did not include any charge for tear and wear, or for depreciation, or for men's wages while the plough was laid aside, though the men had to be kept on, he finding other employment for them, nor for his own trouble and expenses, nor for Mr. Fowler's plough-maker coming to Ayrshire and examining the fields, &c. He need scarcely say he regretted that this effort to introduce steam cultivation into Ayrshire had not been more successful. Of its results on the land he would not speak, as there were gentlemen present whose practical knowledge would give weight to their opinion, and he hoped they would be good enough to favour the meeting with some remarks on the subject.

Mr. BELL said he was very sorry that the working of the plough had not been remunerative. There were always difficulties at first, but he hoped they would yet be got over.

Mr. WEIR said the season had been unfavourable for the plough. He had every confidence in its success if it could be fully employed in one district. Travelling was very injurious to it. A day's travelling was worse upon it than a day's working.

Mr. CUNNINGHAM said that circumstances had been unfavourable for the development of the steam-plough last season. It was late before the harvest was finished, and that was the time when he thought the plough was to be useful in cleaning the land and preparing it for an autumn crop. It was so far in the year before the crops were cleared off that the plough could not be much used in this way. Then, the weather got very wet, which was also much against it. Then, after a number of unfavourable seasons, there was less enterprise amongst farmers, and less money to be expended in trying new things. But even allowing for that, farmers were more backward than they should have been. Mr. Weir might have had more sympathy and support from them. As far as his observations had gone, his opinion was that although Fowler's plough was a good implement, it wanted a good deal to make it useful for Ayrshire. There was no doubt much required in the way of making their fields larger, laying their land flat, and in taking out stones, before the steam-plough could be a useful implement in Ayrshire. And before this county could be profitably cultivated by steam, there must be a great improvement in the steam cultivator. For instance, the account was very heavy for breakages. He did not wonder at it. There were parts of it made of cast-iron, and very easily broken, which, if made of malleable-iron by an Ayrshire blacksmith, would last long enough. He thought Fowler's plough would be more profitable to the maker or repairer of it than to the person who used it. Then as to the work—he would just compare the plough to a mechanic sawing up wood. When it was sawn into planks it was just prepared for further operations. And so with the plough. It did not finish anything as it might do. He had read a great deal of nonsense about the performance of this plough. It might do very well on dry land, but when the land was hard it would not touch it. Still he would not have been pleased if they had not had the steam plough; but all things considered, he was afraid it was not going to be profitable to Mr. Weir. There might be a good start made this season, as the crops would be early off the field. So far as he had seen, the grain crops on land ploughed by the steam plough were at least as good as on land otherwise ploughed. He had had a field dug up intending it for Turnips, but in consequence of there having been no frost, he could not use the field as he intended, but was obliged to bare fallow it. This, however, was not the fault of the plough; and he intended to use it again this season if he could get it.

Mr. GUTHRIE, Crossburn, said he had thought this plough was going to be a benefit to him. He had it on both light land and heavy land. But the light land was so soft that the engine sank in it; they could hardly get it out of the field—and on the heavy land, of which he had two or three hundred acres, there were so many stones that it could not get on without breaking. He found, therefore, that it did not answer on his land at all. He was afraid there was too little land in this county of the right kind for the plough to work. The fields were too small; and a great deal of time was wasted in shifting from one field to another. It might be suitable to a few farmers. Mr. Cunningham's farm, for instance, was well suited for it, having large fields, and free from stones. The time they required it was the winter time, and then the ground was too wet for it. That was his opinion of it.

Mr. KENNEDY said he had been disappointed that the plough was not tried in Carrick. He had arranged with Mr. Weir last year that it should be sent up as soon as the harvest was over. He had a 30-acre field that he intended to put it upon; but from difficulty of transit, or some other cause, he had not had an opportunity of judging its effects.

Mr. WEIR said they would all understand that it was very difficult to suit everybody at one time. He might explain that when Mr. Fowler's plough-maker was down, he sent him to look at several of the fields where the plough was asked for. He said the field at Kilkenzie was a very fine one, but part of it had been ploughed across the middle, and of course, the steam plough could not go upon it.

Mr. KENNEDY said he had seen Howard's plough at work at Kelso. With regard to the difficulty caused by those natural obstructions, he had a conversation with Mr. Howard, who told him, that now in England they were succeeding in overcoming these by the power the man had over the plough, which enabled him, when he met with a stone, to raise the plough over it, the same as an ordinary ploughman would do. He had seen an instance of this in the field where the plough was working. There was a place which had been carted upon, and was very hard, and when the plough came to it it was thrown out; the engine was immediately reversed and the plough was put again into the ground, and broke it. He did not wish to draw any comparison between Fowler's and Howard's apparatus; but intelligent parties in England, who had tried steam cultivation, had uniformly reported very highly of it.

Mr. HAMILTON.—There is but one opinion as to that.

Mr. BELL said he hoped some arrangement would yet be made by farmers in some locality which suited the plough to give it a fair trial during the ensuing season.

Mr. WEIR said the only way that the plough could be successfully wrought would be for a number of farmers to employ it regularly on their farms. They could then be able to dispense with a number of their horses. Unless they did this, they could not get so much benefit from it. Of course, he would stipulate his own price, for it was not intended he should lose by it. But by some arrangement of this kind, he believed it could be wrought to the advantage of the farmers, and in such a way as not to cause loss to him.

Reviews.

Treatise on Mills and Mill Work. Part II. By W. Fairbairn, Esq., C.E., LL.D., F.R.S., F.G.S., &c.

Of this elaborate work, which is only incidentally of agricultural interest, we extract the following description from the preface:—

"In the first part of this work I endeavoured to give a succinct account of nearly 50 years experienced in the profession of a mill architect, millwright, and mechanical engineer. My professional career commenced just at a time when the manufacturing industry of the country was recovering from the effects of a long and disastrous war, and I was enabled, from this circumstance, to grow up with and follow out consecutively nearly the whole of the discoveries, improvements, and changes that have since taken place in mechanical science. These discoveries have been numerous and invaluable in contributing to the development of our industrial resources, the diffusion of knowledge, and the extension of trade and commerce throughout the globe.

"It will not be necessary to repeat what steam, gas,

and electric telegraphs have effected both on sea and land in the same time, and how much we are indebted to these agencies for the abundant comforts, luxuries, and enjoyments which we now possess, as compared with the age in which our fathers lived. It will be found on inquiry that in mills, where these agencies are employed, and where the manufacture of cotton, silk, flax, and wool are carried on, are some of the elements to which we are indebted for the numerous advantages which enter into the improved state of our social existence. To mills, therefore, I have directed my attention, and in this volume I have endeavoured to follow up more in detail the principles of construction and other serviceable data to which, I trust, the intelligent student may refer with some prospect of advantage.

"On prime movers as comprised in water-wheels, turbines, steam-engines, &c., I must refer the reader to the first part of this work. The present volume is chiefly directed to what is known by the name of mill-gearing." * * *

The Journal of the Royal Agricultural Society of England. Vol. XXIV., Part 2.

We have received this volume too late this week to give any account of its contents. This must be left till our next impression. Meanwhile a hasty examination enables us to congratulate Mr. Frere and the Journal Committee on the production of one of the best numbers of the series which has for many years been issued. The subject of Steam Cultivation in particular is most ably and efficiently discussed.

Miscellaneous.

Our Imports.—The imports of foreign and colonial goods into the United Kingdom are of four classes. The first comprises articles of food. The computed real value of these in the returns for 1862 was no less than 93,027,988*l.*, a sum equal to three-fourths of the value of the entire export of British and Irish produce and manufactures. By far the largest item is for corn and flour, the imports of which in that year reached the enormous amount of 37,755,060*l.* The import of grain, meal, and flour never reached 12,000,000 quarters until the bad harvest of 1860, in which year it was 14,494,976 quarters, but in 1861 it was 16,094,914 quarters, and in 1862 18,441,791 quarters. The average price on which the value of the Wheat imported was computed in 1862 has not yet been stated; in 1861 it was 53*s.* 9*d.* for Russian, 60*s.* 2*d.* for Prussian, 39*s.* 9*d.* for Egyptian, and 55*s.* 2*d.* for American. There were other imports of food of astonishing amount. Not to speak of strong drink, nor of tea, coffee, and sugar, we imported in 1862 cattle, sheep, and swine, and salted meat and lard, to the amount of more than 6,000,000*l.* (the oxen and bulls were put in 1861 at an average of 17*l.* 11*s.*, and the sheep at 45*s.*); butter, nearly 5,000,000*l.*; cheese, 1,500,000*l.*; rice, 2,400,000*l.*; eggs, 600,000*l.*; poultry, 85,000*l.* A second class of our imports consists of raw materials of manufacture; and the value of these arrivals in 1862 was 96,513,430*l.* In 1860 the amount was 98,984,804*l.* The import of wool in 1862 was the largest ever received. The falling off in the import of cotton is by no means expressed by a statement of the value of the imports; the rise in price must be borne in mind. The quantity fell from 12,419,096 cwt. in 1860 to 4,678,333 cwt. in 1862; the computed value from 35,756,889*l.* to 31,093,045*l.* In 1860 the computation was on American cotton at 60*s.* 4*d.* per cwt.; in 1861 at 72*s.* 5*d.* A third-class of imports consists of articles used in manufacture or agriculture, not being raw materials of manufacture; and these articles reached 16,643,572*l.* in the year 1862. The chief items in this class are wood, sawn or split, planed or dressed; oils, guano, copper partly wrought, and iron in bars. The remaining class comprises manufactured articles, and the import of these in 1862 amounted to 17,196,463*l.*; a few unenumerated articles bringing the whole amount of the imports of 1862 up to 225,716,974*l.* The chief manufactured articles imported were silks, of the value of more than 6,000,000*l.*; woollens, 1,574,281*l.*; cottons, 899,738*l.*; leather goods (chiefly gloves), 851,256*l.*; clock and watches, 464,009*l.*; manufactures of hair and goat's-wool, 397,454*l.*; and glass, 408,388*l.*

Remedy for Kicking Cows.—Last November I bought a "kicking cow," black as a coal, as homely as Lear, and to strangers appeared a "real tiger." The owner, a farmer 40 years old, said she would make more butter in a year than any other one he ever had, and he offered her for sale solely because her heels were too light for her body, and as he depended on hired help entirely to do his milking, he wouldn't bother with her any longer. I paid him 16 dols for her, which was her value to fat for beef. I milked her three times—the fourth time she pushed the bottom of my pail out; but as I am a peaceable man I made no words with her, thinking that as she was six years old, she had probably heard as strong arguments in her youth as any I could offer. Instead of words or blows, or trying to "catch her foot," or quieting her by letting her "sit in my lap," &c., I set up firmly a strong plank close behind her, having a two inch hole in the lower end; put a ring in the post of the stable, some three feet farther back; took the hitching strap from a halter, put it through the hole in the plank, and buckled it to her right hind ankle; having first taken up one fore leg and buckled a strap around it, so that she would be obliged to allow me to put the strap to her hind leg. I then put the other end of the strap through the ring, and drawing it taut, buckled it; then let down her fore leg and bid her kick if she dared, and sat down and finished milking. After a few efforts, she saw it was useless to try, and gave up. In two or three days she learned to let me to put the strap on her ankle quietly, without raising her foreleg, and she has had it on every milking since, and proves to be a very valuable cow, worth to-day 45 dols. It does not take a fourth part of a minute to put on and take off the strap, and I set the pail under her and milk with perfect impunity, while she actually appears to like to be milked, without being in fear of a scrape. I milked her to within three weeks of calving, when she gave two quarts per day—now gives 18 to 22 quarts, and very rich at that. To any one who has a first-rate "kicking cow," and can conveniently turn her into a stable to milk, I say go and do likewise. Don't "fret and stew," scold and maul the innocent cow, because her bag is as ticklish as some children's necks! An extra cow is worth saving at so little extra trouble as mine costs me. After a year or two, and perhaps less, I think she will forget that she ever could kick, and the strap may be left off; but if not I care but little. A staple and ring in the stable floor might be better, where several kickers are milked side by side, than the upright plank. (*Albany*) *Country Gentleman.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.
By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0–6	Amount of Cloud, 0–10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.										Inches.
Friday ..	Sept. 18	30.19	53	51	W.	1	10	63	47	76	39	..
Saturday ..	19	29.80	62	58	S.W.	2	2	62	51	77	44	..
Sunday ..	20	29.59	51	49	S.W.	1	10	66	50	77	43	0.42
Monday ..	21	29.27	52	48	S.W.	1	5	59	46	69	38	0.06
Tuesday ..	22	29.03	52	49	S.W.	0	10	57	46	70	39	0.27
Wednesday ..	23	29.16	52	48	S.W.	1	7	58	42	71	35	0.02
Thursday ..	24	29.38	52	49	S.W.	2	6	56	37	68	30	0.10

Calendar of Operations.

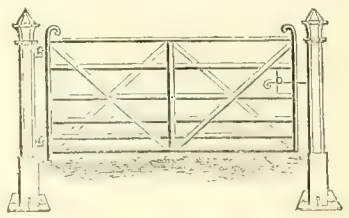
SEPTEMBER.

HAMPSHIRE: *Sept.* 16.—Since my last report very severe hail storms and torrents of rain, accompanied with thunder like artillery, have occurred; much Barley uncut cannot have much of the corn remaining in the stalk. Hands very scarce this year, and thus much Wheat and other cereals were still out, and some sprouted corn has been reported in places. The seeds have not taken, and few fields show a good plant; but in part this may be attributed to the great bulk of Barley-straw. Such ricks of Barley have not been seen for many years; but the grain is not even in the later sown. Barley sown in February and early in March show the best samples. Wheat will not be more than an average crop in some places, the long frosts and want of rain did hurt to both Wheat and Barley; but where they had favourable rains the crops on the strong loams are very fine; still on the whole there is not such a bulk of Wheat straw as in some seasons. Turnips vary much, and very few fields show a good plant of Mangel. The white Turnips along the coast line of Hants are not so good as the Swedes. These last are now going ahead. Deep ploughing is much needed for the Hampshire loams, which yield more abundantly than the old-fashioned ebb-ploughing, and holding on to the virtues of having "floors" and "pans," which the old New Forester declared should never be disturbed. Many are yet in darkness, and lay down the law, who were unborn in 1830; and the old tenants back on the labourer, but a little lower in intelligence than themselves. *X. Y. Z.* [Many thanks].

Notices to Correspondents.

PROFESSOR GAMGEE: *A G Lock.* The address is New Veterinary College, Edinburgh. The discourse to the International Congress at Hamburg was given fully, we believe, in the *Scottish Farmer* of the date.

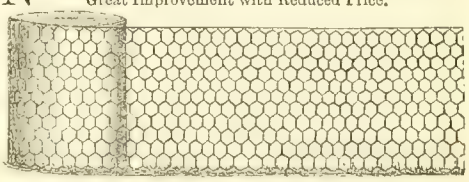
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Size of Mesh.	Mostly used for.	Light. Jap	Light. Gal	Medium. Jap	Medium. Gal	Strong. Jap	Strong. Gal	Extra Strong. Jap	Extra Strong. Gal
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2½ in.	Hares, Dogs, Poultry ..	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in	Game or Poultry Netting ..	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits, Hares, &c. ..	0 4	0 4⅞	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in	Smallest Rabbits	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in	Pheasantries, &c	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c. ..	1 0	1 3	1 6	1 9	..	..	..	..

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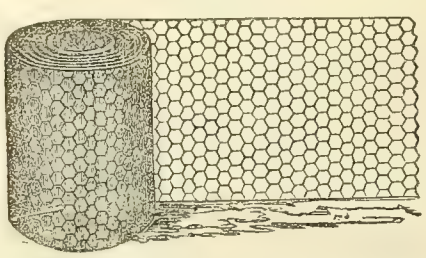
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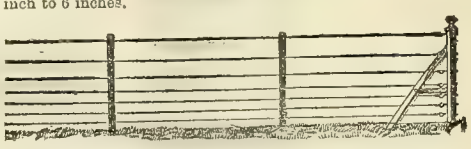


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2-inch mesh, 24 inches wide ..	No. 19	.. 4½d.	.. 3½d.
2-inch ,, ,, ,, .. ,,	18	.. 5	.. 4
2-inch ,, ,, ,, .. ,,	17	.. 6½	.. 5
2-inch ,, ,, ,, .. ,,	16	.. 8	.. 6½
1⅝-inch ,, ,, ,, .. ,,	19	.. 4⅞	.. 4
1⅝-inch ,, ,, ,, .. ,,	18	.. 6	.. 4⅞
1½-inch ,, ,, ,, .. ,,	17	.. 7	.. 5½
1⅜-inch ,, ,, ,, .. ,,	16	.. 9	.. 7

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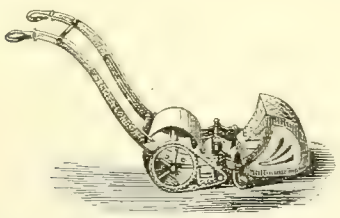
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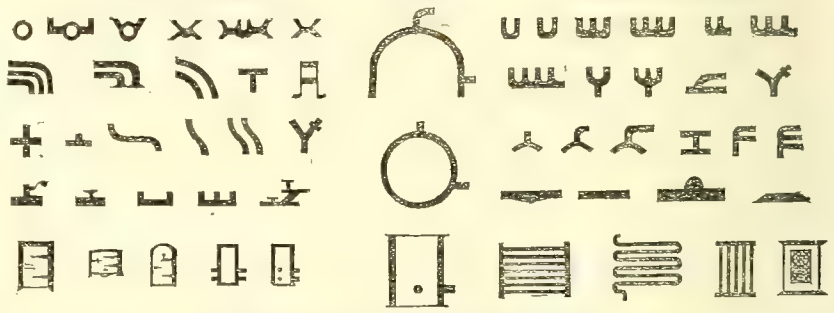
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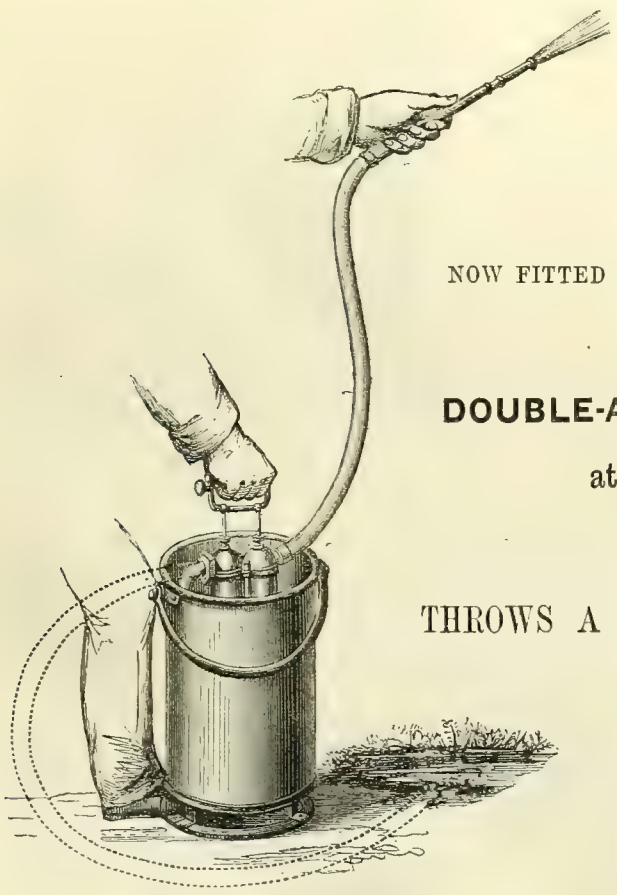


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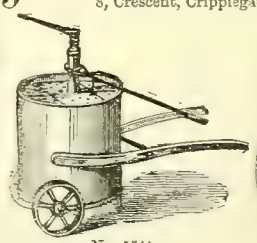
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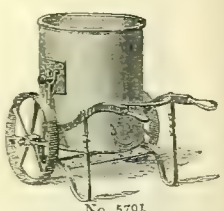


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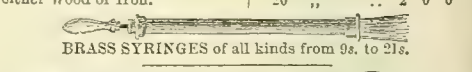
Larger sizes may be had in either Wood or Iron.



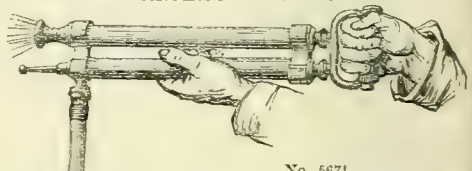
No. 579½.

WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	.. £2 10 0
20 ,,	.. 2 0 0



BRASS SYRINGES of all kinds from 9s. to 21s.



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 5 feet Flexible Suction Pipe,

21s.

Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

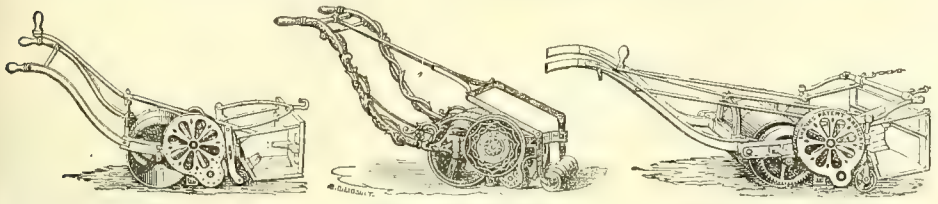
It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

THERE ARE NO SUCTION OR DELIVERY VALVES, hence MUCH FRICTION AND LIABILITY TO CHOKE with leaves and dirt IS AVOIDED.

JOHN WARNER & SONS, 8, Crescent, Cripplegate, London, E.C.

SHANKS' NEW IMPROVED PATENT LAWN MOWING,

ROLLING, COLLECTING, AND DELIVERING MACHINE FOR 1863.



NEW PONY MACHINE. NEW HAND MACHINE. NEW HORSE MACHINE.

PRICES, including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
No. 1.—48-inch Machine	£28 0 0	40s. extra.
No. 2.—42-inch Machine	26 0 0	40s. ,,
No. 3.—36-inch Machine	22 0 0	30s. ,,
No. 4.—30-inch Machine	19 0 0	30s. ,,

Silent Movement, 20s. extra; Boots for Horse's Feet, 24s. per set.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
No. 5.—30-inch Machine	£15 15 0	30s. extra.
No. 6.—28-inch Machine	14 10 0	30s. ,,
No. 7.—25-inch Machine	12 10 0	25s. ,,

Silent Movement, 12s. 6d. extra; Boots for Pony, 21s. per set; ditto for Donkey, 16s. per set.

SHANKS' NEW PATENT HAND MACHINE, for Pushing or Drawing Separately or Together.

Width of Cutter.		
No. 8.—24-inch Machine	£8 17 6	Easily Worked by Two Men.
No. 9.—22-inch Machine	8 7 6	
No. 10.—19-inch Machine	7 12 6	Ditto by a Man and Boy.
No. 11.—16-inch Machine	£6 17 6	Easily Worked by a Man.
No. 12.—13-inch Machine	6 2 6	Ditto ditto by a Boy.
No. 16.—12-inch Machine	5 5 0	

*** *Shanks' Lawn Mowers are warranted to give ample satisfaction, and if not approved of they may be at once returned.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE AND SHOW ROOMS: 27, LEADENHALL STREET, E.C.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING GLASSES.



	Each—s. d.		Each—s. d.
2 inches in diameter	0 3½	12 inches in diameter	1 9
3 ,, ,,	0 4½	13 ,, ,,	2 0
4 ,, ,,	0 5½	14 ,, ,,	2 6
5 ,, ,,	0 6½	15 ,, ,,	2 0
6 ,, ,,	0 8	16 ,, ,,	3 6
7 ,, ,,	0 10	17 ,, ,,	4 0
8 ,, ,,	1 0	18 ,, ,,	5 0
9 ,, ,,	1 2	19 ,, ,,	6 0
10 ,, ,,	1 4	20 ,, ,,	7 0
11 ,, ,,	1 6		

HAND GLASSES, WITH OPEN TOPS.



	Each—s. d.		Each—s. d.
12 inches	6 6	18 inches	9 6
14 ,,	7 6	20 ,,	10 6
16 ,,	8 6	22 ,,	11 6
		24 ,,	12 6

Painted and Glazed with 16 oz. Sheet Glass.

HYACINTH and FLOWER DISHES.

6 inches diameter, 1s.; 9 inches, 1s. 6d.; 12 inches, 2s. 6d.

Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

HYACINTH GLASSES.

Common shape, p. doz., 2s. 6d. | Improved shape, p. doz., 4s. 6d. Patent shape, per dozen, 6s. 6d.

London Agents for Hartley's Improved Patent Rough Plate.

Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

THOMAS MILLINGTON,

GLASS MERCHANT. (Established 1750.)

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

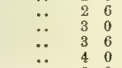
THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY T. MILLINGTON.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home use and for Exportation.

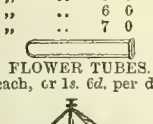


PROPAGATING GLASSES.

2 inches diam.	0s. 3½d.	each.	
3 ,, ..	0 4½	,,	
4 ,, ..	0 5½	,,	
5 ,, ..	0 6½	,,	
6 ,, ..	0 8	,,	
7 ,, ..	0 10	,,	
8 ,, ..	1 0	,,	
9 ,, ..	1 2	,,	
10 ,, ..	1 4	,,	
11 ,, ..	1 6	,,	
12 ,, ..	1 9	,,	
13 ,, ..	2 0	,,	
14 ,, ..	2 6	,,	
15 ,, ..	3 0	,,	
16 ,, ..	3 6	,,	
17 ,, ..	4 0	,,	
18 ,, ..	5 0	,,	
19 ,, ..	6 6	,,	
20 ,, ..	7 0	,,	



FLOWER TUBES.
2d. each, or 1s. 6d. per dozen.



ZINC HAND GLASSES.
Painted and Glazed with 16-oz. Sheet Glass.

12 inches ..	5s. 6d.	each
14 ,, ..	6 6	,,
16 ,, ..	7 6	,,
18 ,, ..	8 6	,,
20 ,, ..	9 6	,,
24 ,, ..	11 6	,,

If open top, 1s. extra.



BEE GLASSES.

4 inches diameter	0s. 6d.	each
5 ,,	0 8	,,
6 ,,	0 10	,,
7 ,,	1 1	,,
8 ,,	1 4	,,
9 ,,	1 8	,,
10 ,,	2 0	,,
11 ,,	2 6	,,
12 ,,	3 0	,,



FLAT TOP BEE GLASSES.

Height	Width	s. d.	
4 inches	by 7 inches	1 6	each
4½ ,,	by 7½ ,,	1 9	,,
5½ ,,	by 7½ ,,	2 0	,,
6½ ,,	by 8 ,,	2 3	,,
7½ ,,	by 8½ ,,	2 10	,,

FERN SHADES & STANDS.

Ins. dia.	Shades.		Stands.	
6 ..	1s. 4d.	each.	1s. 0d.	each
7 ..	1 8	,,	1 3	,,
8 ..	2 0	,,	1 6	,,
9 ..	2 6	,,	1 9	,,
10 ..	3 3	,,	2 0	,,
11 ..	4 0	,,	2 6	,,
12 ..	5 6	,,	3 0	,,
13 ..	7 6	,,	3 6	,,
14 ..	10 0	,,	4 0	,,
15 ..	14 0	,,	4 6	,,
16 ..	18 6	,,	5 0	,,



WASP TRAP, 2s. 6d. per doz.

Crystal Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimneys and Globes, &c.



MILK PANS.

6 inches diameter	0s. 6d.	each
8 ,,	0 9	,,
10 ,,	1 0	,,
12 ,,	1 3	,,
14 ,,	1 9	,,
16 ,,	2 3	,,
18 ,,	2 9	,,
20 ,,	3 3	,,
22 ,,	3 9	,,
24 ,,	4 6	,,



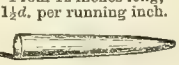
PRESERVE JARS.

In. diam.	Without Lids.		With Lids.	
3 ..	0s. 4½d.	..	0s. 6½d.	ea.
4 ..	0 6	..	0 9	,,
5 ..	0 8	..	0 11	,,
6 ..	0 10	..	1 2	,,
7 ..	1 0	..	1 4	,,
8 ..	1 4	..	1 8	,,
9 ..	1 8	..	2 2	,,
10 ..	2 0	..	2 8	,,

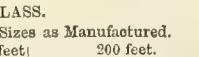


FISH GLOBES.

	Without feet.	With feet.
8 inches diam.	Per lb. 7d.	9d.
9 ,,		
10 ,,		
11 ,,		
12 ,,		
13 ,,		
14 ,,		
15 ,,		
16 ,,		



ROLLING PINS.
From 12 inches long, 1½d. per running inch.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1d. per running inch.

SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

	300 feet	200 feet.		
	15 oz.	21 oz.	26 oz.	32 oz
Fourths quality	33s. 6d.	33s. 6d.	39s. 6d.	45s. 0d
Thirds do.	42 0	42 0	49 0	56 0
Seconds do.	62 0	64 0	74 6	85 0
Best do.	88 6	88 6	103 6	118 0

CRYSTAL SHEET GLASS.

For Pictures and best Glazing purposes.

Averaging 16 oz. to the foot.

Best quality, in cases of 200 feet	100s.
Second quality, in cases of 100 feet	82s.

Averaging 30 oz. to the foot.

Best quality, in cases of 100 feet	100s.
Second quality, in cases of 100 feet	82s.

SQUARES, in 100 and 200 Feet Boxes.

Small Squares not exceeding 9½ inches by 7½ inches.

Ins. Ins.	Ins. Ins.	Ins. Ins.	Ins. Ins.
6 by 4	7 by 5	8 by 6	9 by 7
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½

Per 100 feet.

4ths.	3rds.	2nds.	Best.
9s. 9d.	11s. 3d.	13s. 9d.	16s. 9d.

Squares not exceeding 14 inches by 11 inches.

10 by 8	12 by 9	12½ by 10½	14½ by 10½
10½ by 6½	12½ by 9½	13 by 10	15 by 10
11 by 9	13 by 9	13½ by 10½	13 by 11
11½ by 9½	12 by 10	14 by 10	14 by 11

Per 100 feet.

4ths.	3rds.	2nds.	Best.
10s. 9d.	12s. 3d.	15s.	18s.

Squares not exceeding 20 inches by 18 inches.

15½ by 10½	14 by 12	17 by 13	24 by 16
16 by 10	14½ by 12½	18 by 13	20 by 17
14½ by 11½	15 by 12	18 by 14	22 by 17
15 by 11	15½ by 12½	22 by 14	24 by 17
15½ by 11½	16 by 12	24 by 14	20 by 18
16 by 11	16½ by 12½	22 by 15	22 by 18
13 by 12	17 by 12	24 by 15	24 by 18
13½ by 12½	18 by 12	22 by 16	

Per 100 feet.

4ths.	3rds.	2nds.	Best.
11s. 6d.	13s. 6d.	16s. 6d.	20s.

Orchard House Sizes, as recommended by Mr. Rivers.

I s. Ins.	15 oz.		21 oz.	
20 by 12 }	4ths ..	11s. 6d.	4ths	15s. 0d. } Per 100 feet.
20 by 13 }	3rds ..	13 6	3rds	19 0
20 by 14 }	2nds ..	16 6	2nds	25 0
20 by 15 }	Best ..	20 0	Best	30 0
20 by 16 }				

Squares Cut to Sizes not on List.

	15 oz.				21 oz.			
Under	4ths.	3rds.	2nds.	1st	4ths.	3rds.	2nds.	1st.
1 ft. super.	1½d.	1¾d.	2d.	2½d.	2½d.	2¾d.	3½d.	4½d.
2 ft. super.	1¾	2	2½	3	2¾	3	4	5¼ 9
3 ft. super.	2	2½	2¾	3½	3	3½	4½	6 2
4 ft. super.	2¼	2½	3	4	3½	3¾	4½	6½ 6

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

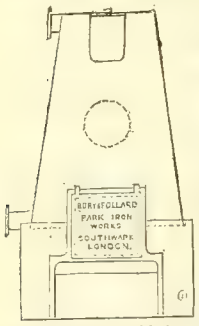
PAINTS, COLOURS, VARNISHES, &c.

	Per cwt.—s. d.		Per gallon.—s. d.		Per gallon.—s. d
GENUINE WHITE LEAD	30 0	FINE OAK VARNISH	10s. to 12 0	LINSEED OIL	3
ANTI-CORROSION PAINT	28s. to 34 0	,, CARRIAGE	12s. to 14 0	BOILED OIL	4
LINSEED OIL PUTTY	8 0	PATENT DRYERS	per cwt. 28s. to 42 0	TURPENTINE	8

MILLED LEAD in Sheet and Pipe of all sizes. Old LEAD bought or taken in exchange.

LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of all kinds.

NETT CASH.



LATEST IMPROVEMENTS IN
Heating by Hot Water.
THE IMPROVED
CONICAL BOILERS,
For HEATING PINERIES, CONSERVATORIES, GREENHOUSES, MANSIONS, HALLS, WAREHOUSES, &c.,
SOLELY MANUFACTURED BY
BURY AND POLLARD
(Successors to JOHN R. PEILL, Late STEPHENSON & PEILL).

Annexed Sketch shows BURY & POLLARD'S improved arrangement, requiring
NO BRICKWORK SETTING.

These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United Kingdom. References where they have been 20 years in constant use.

Price Lists on application to BURY & POLLARD, Park Iron Works, New Park Street, Southwark, London, S.

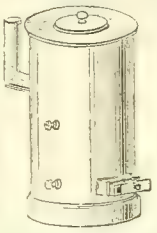
Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

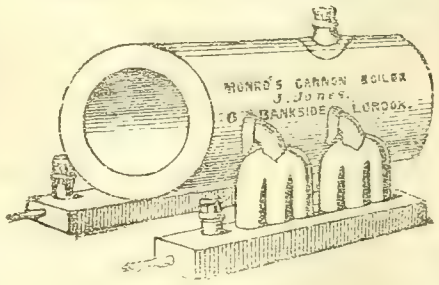
Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

HEATING BY HOT WATER.



MONRO'S CANNON BOILER.

J. JONES,
HORTICULTURAL ENGINEER AND IRON MERCHANT,
SUPPLIES OR ERECTS, COMPLETE,
HOT-WATER APPARATUS
OF EVERY DESCRIPTION,
FOR
HEATING GREENHOUSES,
CONSERVATORIES,
FORCING PITS,
CHURCHES, CHAPELS, SCHOOLS,
HALLS,
BILLIARD ROOMS,
COACH HOUSES, HARNESS ROOMS, &c.,
OF THE BEST QUALITY, AND AT MODERATE CHARGES.

PLANS, ESTIMATES, and DESCRIPTIVE CATALOGUES
SENT POST FREE ON APPLICATION TO
J. JONES,
6, BANKSIDE, LONDON, S.E.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

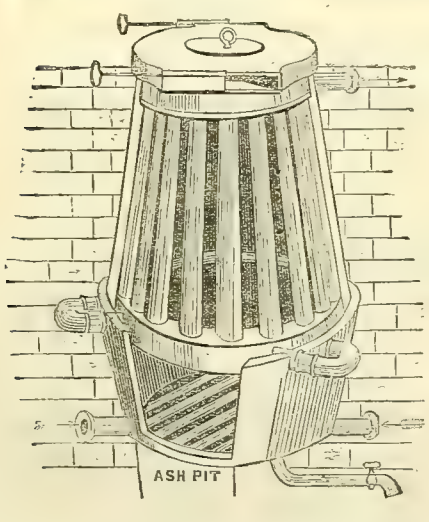
JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.



BY HER MAJESTY'S ROYAL LETTERS PATENT.

A PUBLIC BOON.

CLARKE'S NEW WATER JACKET FURNACE BOILER,

SHOWING THE PRINCIPLE OF THE PATENT DEFLECTING FLUE-PLATE OR HEAT PRESERVER.

It will be observed from the annexed diagram, that the deflecting flue-plate is placed on the top of the brickwork just level with the top of the Boiler, leaving a clear space for draught all round, consequently, the great pressure of heat from the furnace is concentrated at the top of the Boiler, and kept in close contact with it by means of the two slides which are regulated in front.

These Boilers are now fully acknowledged by a vast number of practical and experienced Gardeners to be the most Powerful and Economical Boilers extant, requiring less attention and fuel by one-half than any other Boiler they have had to manage, and state that the great improvement consists in the Water Jacket Furnace, and the deflecting flue-plate.

Estimates for every description of Heating, with Boiler and Piping complete, erected upon Mr. C.'s new and much approved principle, for top and bottom heat, sent upon the shortest notice, by applying to the Eagle Iron Foundry, 25, Seel Street, Liverpool. T. C. CLARKE, Proprietor.

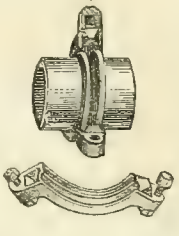
P.S.—The Public are hereby respectfully informed that the Action brought against me by Mr. Henry Ormson, of King's Road, Chelsea, for the alleged infringement of his Patent Jointless Boiler, has, by an appeal from the Court of Common Pleas to the Exchequer Chambers, been decided unanimously in my favour, and against the validity of Mr. Ormson's Patent.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

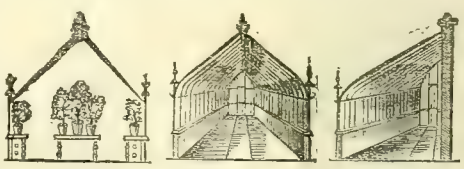
Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the



best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St. Chelmsford, Essex.

BERKSHIRE PIGS.—The Advertiser, who has taken First Prizes at the Royal Agricultural and other shows, has a few choice young BOARS and SOWS for SALE.

Apply, post paid, to X. H., *Gardeners' Chronicle* Office, W.C.

WANTED, on LEASE, within 8 or 10 miles of London, a small and compact NURSERY of 2 or 3 Acres, with Glass.

Address, stating all particulars and lowest rent, to A. F., 4, Oakfield Terrace, Oakfield Road, Clapton, N.E.

AN OLD-ESTABLISHED COUNTRY NURSERY BUSINESS, with Plant Houses, and first-class Stock, on Six Acres of Ground, for Positive SALE, at a sacrifice, or a PARTNER accepted, who could Purchase half the Stock, and promote the Business. He would have the privilege of Purchasing the whole as soon as prepared or disposed to do so. Declining health of the Proprietor induces him to make this advantageous offer.

Address, NURSERY, Post Office, York.

To Nurserymen, Gardeners, and Others.

TO BE DISPOSED OF, by Private Treaty, and with early application (in consequence of the failing health of the present Proprietor) an OLD-ESTABLISHED and EXTENSIVE NURSERY, with Hot and Green Houses, doing a good Business, in an excellent situation, and within a few miles of Liverpool.

For particulars apply by letter to "J. W.," care of Wren & Sons, Temple Court, Liverpool.

TO BE LET, NURSERY GROUNDS in Brighton, comprising extensive Vineries and Peach-houses, in good bearing condition; large Span-roofed and Lean-to Houses, and Pits for Plants; also, a capital Residence and Cottages, with Stabling and Coach Houses.

The Stock can be taken at a valuation or a fixed sum, as agreed upon, or a PARTNER with Capital would be accepted.

Full Particulars to be had on application to the GARDEN SUPERINTENDENT, Alexandra Park, Tottenham Wood, Hornsey.

Nursery and Seed Business.

TO BE LET, with Immediate Possession, a First-class Country Business, comprising extensive ranges of GREENHOUSES and PITS, capital RESIDENCE and SEED SHOP, and about 12 ACRES of LAND, well stocked with Fruit Trees and Shrubs, and one of the largest and best collections of Roses in the kingdom, the trade for which has been rapidly extended in the last four years, owing to the reputation obtained by the present proprietor.

Apply by letter to B., *Gardeners' Chronicle* Office, W.C.

TO BE LET, a small NURSERY, 11 miles from London, and one from a Railway Station, comprising about 4000 feet of GLASS, with improved HEATING APPARATUS, a good collection of STOVE and GREEN-HOUSE PLANTS, EVERGREENS, ROSES, &c., all in good condition, situate in a healthy locality and growing neighbourhood. A capital chance for a young man of ability as a Surveyor, Nursery, Seed, and new Ground Workman.

For particulars apply to Messrs. PROTHEROE & MORRIS, Auctioneers, Valuers, and Nurserymen, Leytonstone, Essex.

Sales by Auction.

Sudbury, Suffolk.

FRUIT TREES AND ORNAMENTAL NURSERY STOCK.

MESSRS. BLUNDEN AND SQUIRE have received instructions from Mr. STEPHEN BROWN, Sudbury, Suffolk, who is declining the Nursery branch of his trade, to offer by PUBLIC AUCTION early in October, at the Nursery near the Railway Station, about 3500 very handsome Pyramidal Standard and Trained FRUIT TREES, comprising Apples, Pears, Plums, Cherries, Apricots, Peaches, Nectarines, &c. A large number of FRUITING VINES and other Fruit Trees in Pots; also many thousands of Choice CONIFERÆ, EVERGREENS, and the General Ornamental Nursery Stock, all in the finest condition. The Pyramidal Fruit Trees are particularly worth the notice of purchasers, being some of the handsomest in the Trade, and many of very fine size.

Further particulars, with date of Sale, will appear in future Advertisements.

Waltham Abbey, N.

TO GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MR. C. PRYOR will submit to public SALE by AUCTION on the Premises, Waltham Nursery, Waltham Abbey, N., about one mile from the Waltham Station, G.E.R., on THURSDAY, October 1, at 12 o'clock, a choice COLLECTION of fine healthy ERICAS, Acacia armata, Genistas (Cytisus fragrans), Coronillas, Myrtles; Show, Fancy, and French Pelargoniums; Scarlet and Variegated Geraniums, Azaleas, Fuchsias, Ferns, Cyclamens, Deutzia gracilis, Calceolarias, Roses, Chrysanthemums, and a variety of other plants; also a quantity of Rhododendron arboreum, suitable for grafting.

May be viewed the day prior to and Morning of Sale, and Catalogues had on the Premises, and of the Auctioneer, Waltham Abbey, N.

Hounslow, Middlesex, W.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MR. J. WILLMER begs most respectfully to announce that he will submit to PUBLIC AUCTION, without reserve, on the Premises, The Nursery, Wellington Road, Hounslow Heath, on TUESDAY, October 6, at 11 o'Clock, the remaining portion of the NURSERY STOCK of the late Mr. G. Patching, comprising 3000 Rhododendrons, from 1 ft. to 3 ft.; 1000 Azaleas, of sorts, 2 ft.; 4000 Common Laurels, 2 ft. to 4 ft.; Yews, Syringa, Cotoneaster, Pyrus japonica, Laurustinus, Bays, Arborvitæ of sorts, Kalmia angustifolia, Yellow Broom, Lilac, Striped Box, 1000 Spruce Fir, 2 ft. to 4 ft.; Standard Roses, Standard Thorns, Birch, Poplar, Acacia, Fruit Stocks of sorts, New Dwarf Persian Lilac, China Roses, Sweetbriar, 1000 2-years Worked Apples and Pears, 1000 2-years Worked Plums, of sorts; fine Standard and Dwarf Specimen Plants of Portugal Laurels, 400 fine Cedrus Deodara, from 2 ft. to 7 ft.; Pinus Cembra, Pinus excelsa, Aucubas, Abies canadensis, 200 dozen Plants, in pots, of various kinds; Span-roof Greenhouse, 70 ft. by 11 ft.; Ditto, 32 ft. by 11 ft.; 20 Lights, and Framework, as fixed; and a useful Horse, Spring Cart, and Harness.

May be viewed one week prior to the Sale, and Catalogues had at the Coach and Horses, Brentford, W.; Red Lion, Southall, W.; Greyhound, Richmond, S.W.; Sun, Kingston, S.W.; Angel, Staines; on the Premises; and of Mr. J. WILLMER, Auctioneer, Surveyor, and Valuer, Springfield Nursery, Sunbury, Middlesex, S.W.

Homerton.

TO GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Fry to SELL by AUCTION, on the Premises, Homerton Nursery, Homerton, within three minutes' walk of the Hackney Station on the North London Railway, on WEDNESDAY, September 30, and THURSDAY, October 1, without reserve, the ground being immediately required for Building purposes, the whole of the valuable GREENHOUSE PLANTS, consisting of about 4000 fine Azalea indica, and 500 Double Camellias, of various sizes, including fine specimens adapted for cut blooms, all well furnished with flower buds; 1000 Myrtles, 2500 Diosmas, 600 Acacias, fine Standard Fuchsias, Cytisus, Ericas, 3000 Show, Fancy, and French Pelargoniums, Scarlet and Variegated Geraniums, &c. Sundry Nursery Stock, together with a nearly new half circular Iron Roof SLow House, Eleven Greenhouses, several Pits, One, Two, and Three-light Boxes, quantity of Lights, 3 and 4-inch Hot-water Piping, Boilers, Garden Pots, nest Seed Drawers, Counter, and Sundry Effects.

May be viewed prior to the Sale. Catalogues (when ready) may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Camden Town.

TO GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION on the Premises, Camden Nursery, Camden Town, N.W., on TUESDAY, October 6, at 11 o'Clock, by order of Mr. Thomas Ansell, the lease having expired, the whole of the NURSERY STOCK, consisting of Forest Trees, Planes, Poplars, Limes, Sycamore, Birch, Laburnums, Thorns, Acacias, &c., fine Evergreens, including Aucubas, Arbor-vitæ; several thousands of Euonymus, Box, Savin, &c.; Deciduous Shrubs, comprising the usual assortment; also 2000 Chrysanthemums, fine blooming plants; Geraniums, Fuchsias, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; at the Seed Shop, 9, Brecknock Place, near the Camden Town Railway Station; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Isleworth.

TO GENTLEMEN, NURSERYMEN, MARKET GARDENERS, & OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. C. W. Buck, to SELL by AUCTION, on the Premises, Wood Lane, near the Isleworth Station, on the South Western Railway, on TUESDAY, October 13, at 11 o'Clock, the Lease having expired, the whole of the NURSERY STOCK, consisting of Evergreens and Deciduous Shrubs, 5000 Dwarf, Moss, Provence, and other Roses, 500 large Dwarf China Roses, 1000 fine young Standard fruiting Plums, Pyramid Pears, 120 yards capital Privet Hedge, several beds of Asparagus and Herbaceous Plants, 3000 Bulbs Gladiolus Brenchleyensis, 1500 Greenhouse Plants, various; together with 3 Greenhouses, Tubular Boiler, 3-inch Hot-water piping, Thirty Light Boxes and ranges of Pits, Garden Pots, Tumbril Cart, useful Bay Gelding, Fowls, and sundry effects.

May be viewed four days prior to the Sale. Catalogues may be had on the Premises; of Mr. C. W. BUCK, Covent Garden; at the principal Seedshops in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Roses, Dutch Bulbs, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, on FRIDAY, Oct. 16, a fine Collection of DUTCH BULBS of first-class size and quality; a splendid Assortment of STANDARD and DWARF ROSES, AMERICAN PLANTS, &c.

On view the Morning of Sale, and Catalogues had at the Mart a week prior.

Trees and Shrubs.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS ENGAGED IN PLANTING.

Brereton Nurseries, near Rugeley, Staffordshire.

MESSRS. C. AND H. GILLARD have received instructions from Mr. C. Whitehouse, in consequence of his having a superabundant stock, and requiring further room, to submit for positive SALE by AUCTION, on MONDAY and TUESDAY, October 5 and 6, on the premises at the above Nursery Grounds, under the usual conditions, a fine selection of FOREST and ORNAMENTAL TREES, QUICKS, EVERGREENS, and FLOWERING SHRUBS, &c.

Catalogues will be prepared in due course, and may be obtained from the Auctioneers, Lichfield and Stafford, and from Mr. WHITEHOUSE, Brereton, near Rugeley.

Hardy and Ornamental Plants and Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, October 3, at Half-past 12 o'Clock precisely, a choice assortment of HARDY and ORNAMENTAL PLANTS, comprising Roses, Laurels, Privets, Apple, Apricot, Pear, Peaches, Plum, Nectarine, Cherry, Gooseberry, and Currant Trees, Hollies, Berberis, Rhododendrons, Cupressus Lawsoniana, C. macrocarpa, Jupinerus Cracovia, Retinispora ericoides, Abies Menziesii, and other hardy Conifers, Kalmias, Walnuts, Almonds, Laburnums, Weigelas, Magnolias, Poplars, Clematis, Hederas, &c. Also an importation from Haarlem of DOUBLE and SINGLE HYACINTHS, Tulips, Crocuses, Narcissus, Anemones, and other Dutch Bulbs, in fine condition.

On view the Morning of Sale, and Catalogues had.

Bagshot, Surrey.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS ENGAGED IN ORNAMENTAL PLANTING.

MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER), 38, King Street, Covent Garden, W.C., begs to announce that he has been favoured with instructions from Mr. Standish, in consequence of removal to Ascot, to SELL by AUCTION, on the Premises, Bagshot, Surrey, 2½ miles from the Sunningdale Station on the London and South-Western Railway, on MONDAY, Oct. 12, and several following days, at half-past 12 o'Clock precisely each day, without the least reserve, a Valuable Collection of HARDY CONIFEROUS and other PLANTS, comprising:—

Araucaria imbricata, 2 to 4 ft.
Abies Albertii, 2½ to 4 ft.
,, Douglasii taxifolia, 3 to 5 feet
,, Menziesii, 4 to 6 ft.
Cedrus atlantica, 2 to 5 ft.
,, Deodara, 3 to 7 ft
Chamæcyparis sphæroidea, 2 to 3 ft.
Cryptomeria japonica, 3 to 6 ft.
Cupressus Lawsoniana, 2 to 4 ft.
Cephalotaxus Fortuni, 2 to 4 ft.
,, Drupacea, 2 to 3 ft.
Libocedrus chinensis, 2 to 3 ft.
Taxus fastigiata, 3 to 7 ft.
Taxus dovastoni, 3 to 4 ft.
Pinus Benthamiana, 4 to 7 ft.
,, excelsa, 2 to 3 ft.
,, tuberculata, 1 to 2 ft.
,, Wincesteriana, 1 foot
,, Hartwigi, 1 ft.
,, Sabiniana, 1 to 2 ft.
Picea grandis, 1 to 2 ft.
,, amabilis, 1 to 2 ft.
,, Pinsapo, 2 to 3 ft.
,, Nordmanniana, 1½ to 4 ft.
,, nobilis, 1 to 3 ft.
Thuia gigantea, 1 to 2 ft.
Wellingtonia gigantea, 2 to 4 ft.
&c., &c., &c.

The whole having been transplanted within the last twelvemonth, are in a fine state for removal, and are lotted to suit Private Buyers and the Trade. Also various first-class EVERGREENS and DECIDUOUS TREES and SHRUBS, including 200 Skimmera japonica, 500 Variegated and Green Hollies, 1000 Portugal and Common Laurels, 600 Standard and other named Rhododendrons, 300 Kalmia latifolia, 1000 Standard Dwarf and Pot Roses, Standard and Pyramidal Apple and Pear Trees, Camellias, hardy Azaleas, &c., all of which are in the finest possible health, and for Sale without the least reserve.

On view the week prior and mornings of Sale. Catalogues had at Mr. STANDISH'S Nurseries, Bagshot and Ascot; and of Mr. J. C. STEVENS, at his Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Approved Bills at three months taken of purchasers above 50*l*. A Van will meet the train starting from Waterloo at 10 25 and 10 50, arriving at Sunningdale Station at 12 o'clock to convey parties to the Sale. Refreshments will be provided on the ground for the buyers at the Sale.

NOTE.—On WEDNESDAY and THURSDAY, October 21 and 22, and on TUESDAY and WEDNESDAY, October 27 and 28, will be sold by AUCTION, by Mr. J. C. STEVENS, at his Great Rooms, 38, King Street, Covent Garden, W.C., a portion of Mr. Robert Fortune's recent INTRODUCTIONS from JAPAN, and the whole of his CHINESE PLANTS. They will be on view at Mr. STANDISH'S Nursery at Bagshot, during the sale of his Nursery stock.

Important Sale of Mr. R. Fortune's Japanese Plants.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, London, W.C., on WEDNESDAY and THURSDAY, October 21 and 22, at half-past 12 o'Clock precisely each day, without reserve, a PORTION of Mr. Robert Fortune's recent JAPANESE INTRODUCTIONS, removed from Mr. Standish's Nursery, Bagshot; comprising the following new and interesting Plants.

100 Thujopsis dolabrata variegata, 6 inches.
100 Euonymus radicans foliis variegatis, 6 inches.
150 Euonymus japonica variegata, 1 to 2 feet.
100 Juniperus chinensis variegata.
50 Retinispora pisifera aurea, 6 inches.
50 Osmanthus ilicifolius, 9 inches.
150 Osmanthus ilicifolius variegatus nanus, 9 inches.
400 Lonicera aureo-reticulata, 1 to 2 feet.
50 Raphiolepis ovata (Photinia), 1 to 2 feet.
200 Thuja (Biota) falcata.
200 Iris lævigata.
250 Sciadopitys verticillata, 6 inches.
100 Microlepia scabra, 1 foot.
500 Lastrea opaca, 1 foot.
100 Ilex Fortunei, 1 foot.
500 Pinus densiflora.
50 Eurya latifolia variegata, 6 inches.
300 Retinispora obtusa, 6 inches to 1 foot.
200 Retinispora pisifera, 1½ feet.
400 Japanese Chrysanthemums.
50 Taxus Fortuni.

Also the following:—

50 Dracæna Banksii, 2 to 3 feet.
150 Desfontainea spinosa, 1½ feet.
50 Cyathea dealbata.
300 Rhododendron Nuttalli, 1 to 2 feet, &c.

The whole for absolute sale, and in the finest possible health.

On View on the Premises, Bagshot, Surrey, during the Sale of Mr. Standish's Nursery Stock, also on the days of Sale at Mr. J. C. STEVENS's Auction Rooms and Offices, 38, King Street, Covent Garden, W.C., where Catalogues can be obtained, by forwarding two postage stamps.

Mr. Robert Fortune's Chinese Plants for Absolute Sale.

EXTENSIVE SALE OF RARE AND VALUABLE INTRODUCTIONS FROM CHINA.

MR. J. C. STEVENS has much pleasure in announcing that he has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY and WEDNESDAY, October 27 and 28, at half-past 12 o'Clock precisely, without the least reserve, in consequence of the agreement which existed between Messrs. Standish and Fortune with regard to the Chinese Plants having terminated, the most important COLLECTION of RARE and VALUABLE PLANTS ever offered for public sale, including the whole of Mr. Robert Fortune's RECENT INTRODUCTIONS from CHINA, and a part from JAPAN, including—

3000 Torreya grandis, 4 to 10 inches
150 Abies Kæmpferi, 2 to 4 feet
2000 Chamærops Fortunei
50 Pinus Bungeana
1000 Pinus sp. (nova) Pekin (Tabulæformis), 4 to 6 inches
25 Bambusa variegata
500 Thuja sp. (Pekin)
500 Lastrea opaca
400 Lonicera aureo-reticulata
200 Iris lævigata
200 Retinispora obtusa
200 Retinispora pisifera, &c., &c.

The whole of these Plants are in the finest possible health and are lotted to suit all buyers, and are well worthy the attention of the Nobility, Gentry, and Trade.

On view at Mr. STANDISH'S Nursery, Bagshot, during the Sale of his Nursery Stock, and on the days of Sale at Mr. J. C. STEVENS'S Auction Rooms and Offices, 38, King Street, Covent Garden, London, W.C., where Catalogues and full particulars can be obtained.

PUBLIC SALE OF NEW JAPANESE PLANTS.

MR. JAMES VEITCH,

Having the largest STOCK of JAPANESE PLANTS in the country, has determined on offering a portion of them by PUBLIC AUCTION, at the Mart, Bartholomew Lane, City, E.C., on WEDNESDAY, October 7.

They will be lotted to suit the convenience and interest of THE TRADE as well as of PRIVATE PURCHASERS.

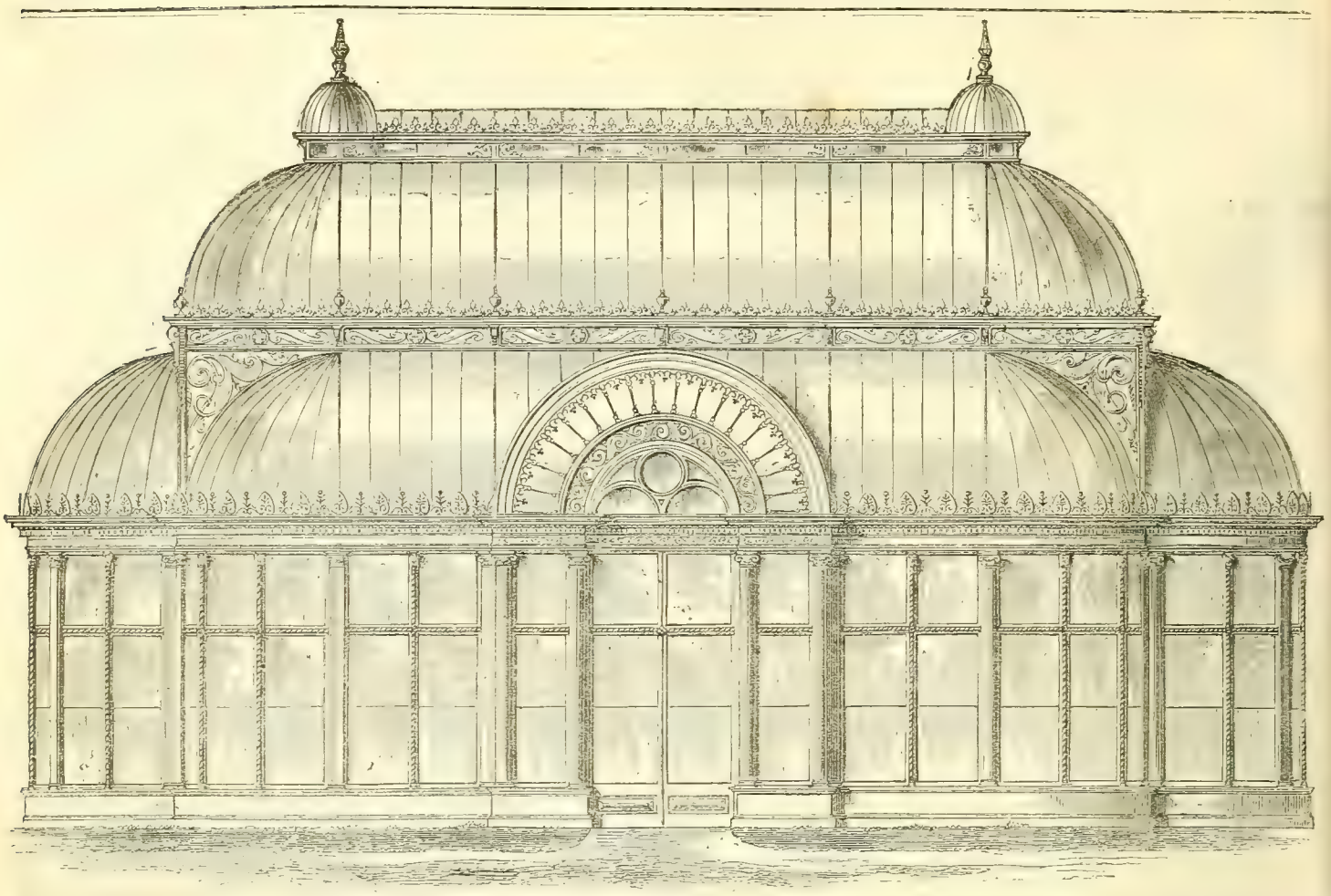
Catalogues will shortly be ready and forwarded on pre-paid application.

The plants offered will embrace:—

LILIUM AURATUM.—The splendid new Japanese Lily.
SCIADOPITYS VERTICILLATA.—The Umbrella Pine.
RETINISPORA OBTUSA.—The Tree of the Sun of the Japanese.
THE VARIEGATED THUJOPSIS DOLABRATA.
THE GOLDEN-LEAVED HONEYSUCKLE.
THE HARDY JAPANESE PALM.
THE JAPAN BAMBOO.
THE TRUE BERRY-BEARING, GREEN-LEAVED AUCUBA.

With many other fine and beautiful Plants, of which full particulars will appear in the Catalogue.

ROYAL EXOTIC NURSERY, CHELSEA, S.W.



THIS SPLENDID CONSERVATORY FOR SALE AT LESS THAN COST PRICE.

ORMSON'S CONSERVATORY, INTERNATIONAL EXHIBITION 1862.

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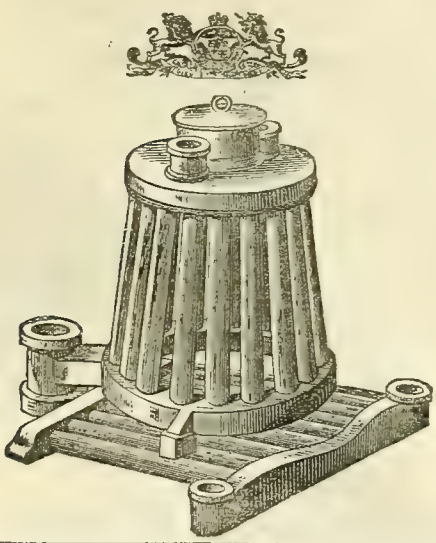
"No object in the Horticultural Department attracts the eye sooner than the splendid Conservatory erected by Henry Ormson, of King's Road, Chelsea."—The Illustrated London News.

"This construction, however, not only stands first among the Conservatories at Kensington, and indeed of any we have ever seen, but is worthy of the highest commendation on account of its eminent fitness for the purpose for which it was made."—The Illustrated News of the World.

"The beauty of this structure is as good a lesson of the value of iron as any that could be furnished in the whole Exhibition."—Gardeners' Weekly Magazine.

ORMSON'S ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become universally adopted on account of their superior power, great safety, and economy.



BY HER MAJESTY'S ROYAL LETTERS PATENT.

ORMSON'S PATENT,

ENTITLED

"AN IMPROVEMENT IN THE MANUFACTURE OF CAST TUBULAR BOILERS.'

TAKE NOTICE, that a DISCLAIMER has been filed in the Patent Office and allowed by the Attorney-General, by which such part of the above Patent as was considered questionable by the Court of Exchequer Chamber has been disclaimed. Any person infringing the said Patent after this Notice will be proceeded against according to Law.

Disclaimer allowed, September 1, filed September 2, 1863.

I BEG to NOTIFY, that having by leave of her Majesty's Attorney-General DISCLAIMED such part of my Patent as was considered by the Court of Exchequer Chamber as questionable, the said Patent is now absolutely confirmed; and any person infringing the same will be proceeded against according to law.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,

AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 40.—1863.] SATURDAY, OCTOBER 3. {Price Fivepence. {Stamped Edition, 6*d*.

INDEX.

Ager's (Dr.) digger	947 *b*	Law relating to moving bedding plants	942 *b*
Agricultural steam engines	951 *a*	Orchard-house Peaches	939 *b*
Anacharis alsinastrum	943 *a*	Pampas Gruss	943 *a*
Asters	943 *b*	Paring and burning	948 *c*
Barn Owl and Co.	941 *b*	Peach, double-blossomed	943 *b*
Birds	943 *b*	Peaches, orchard-house	939 *b*
Birds v. gardens	941 *c*	Pinus flexilis	940 *a*
Branches Park herd	946 *c*	Plants, cultivation of specimen	939 *a*
Carnations	940 *a*	Plants, new	940 *a*
Carter's (Messrs.) grounds	943 *b*	Potatos	942 *c*
Cemeteries, planting	939 *b*	Potatos, Mona's Pride	944 *a*
Croydon sewage irrigation	948 *a*	Roses	941 *b*
Diseases, parasitic	944 *c*	Society, Entomological	943 *b*
Fire and Water, rev.	951 *a*	— Vale of Evesham	949 *b*
Forest clearing contrivance	946 *c*	— Thame	950 *a*
Fruit tree protection	942 *b*	Soils	944 *c*
Infusoria and germination	944 *a*	Steam engines, agricultural	951 *a*
Improvemant of the agricultural steam engine	945 *c*	Stettin Horticultural exhibition	940 *b*
Irish agriculture	948 *b*	Tea plant in America	944 *a*
Japanese plants	940 *a*	Wall fruit, ripening of	939 *b*
Journal of Royal Agricultural Society, rev.	950 *b*		

☞ Notice to Advertisers. — *Advertisements must reach the Office by* Thursday's *post. They should be written on one side of the paper only.*

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.
A Meeting of this Committee will take place on TUESDAY, October 6, at 12 o'clock.
The subjects for exhibition must be at South Kensington for entry by 11 A.M.
Thos. Moore, Secretary to the Committee.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, now ready for Planting. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines from Eyes.

WM. CUTBUSH and SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.
Highgate Nurseries, London, N.

Grape Vines.

WM. PAUL (Son and Successor to the late A. Paul) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery.
PRICED LIST on application.
Paul's Nurseries and Seed Warehouse, Waltham Cross, N.

Grape Vines.

PAUL and SON beg to announce that their VINES are this season even finer than usual. Well ripened Canes of all sorts are now ready for delivery.
"Old" Cheshunt Nurseries, Herts, N.

PINE PLANTS.—Very fine QUEEN PINE PLANTS, in all sizes, warranted from a stock that never had scale.—Apply to M. Rochford, Market Gardener, Page Green, Tottenham, N.

STRAWBERRIES, Trade price.—British Queen, Black Prince, Admiral Dundas, Eleanor, Elton Pine, Keen's Seedling, Oscar, Wizard of the North, 15*s*. per 1000; Alice Maude, Duc de Malakoff, Eliza, Empress Eugenie, Prince of Wales, Princess Royal, Sir C. Napier, 2*s*. per 100.
Geo. Cornwell, Seedsman, &c., Barnet, Herts, N.

STRAWBERRY PLANTS.—For Sorts and Prices apply to Dillistone & Co., Sturmer and Woodlands Nurseries, Halstead, Essex.
N.B. Please be particular as to the address—"Sturmer and Woodlands Nursery."

NEW STRAWBERRY "PRESIDENT."—This fine new variety, so much admired at the Great Exhibitions during the past season, is now ready in strong plants at 20*s*. per 100; also "JOHN POWELL," 15*s*. per 100.
A DESCRIPTIVE CATALOGUE is now ready of all the best in cultivation.
The Royal Nurseries, Slough.

Picea nobilis.

WILLIAM BARRON can supply strong and remarkably well rooted SEEDLING PLANTS of the above in store pots. Per doz., 10*s*.; per 100, 3*l*. 10*s*.
Elvaston Nurseries, near Derby.

AMERICAN ALOES.—For IMMEDIATE DISPOSAL, TWO very fine PLANTS, which have been in the owner's possession 30 years.
To view, apply to Mr. Thomas, 5, Acton Place, Camden Town, London, N.W

WELLINGTONIA GIGANTEA.—The undersigned has to offer a fine stock of SEEDLING PLANTS in Pots at the following low prices:—

1-year SEEDLINGS in single pots	.. ..	2*l*. per 100.
2-year " 8 inches	.. .. ..	3*l*. "
Ditto, in 48-pots, 1 foot 5 inches	.. ..	5*l*. "

J. Henchman, Edmonton, London, N.

To Railway Contractors, Nurserymen, &c.

ANDREW G. DALY, Newry, Ireland, can supply Two Millions of strong Transplanted THORN QUICKS, from 4 to 6 years old, price very moderate, delivered in Liverpool or Glasgow. Two Millions of COMMON LAURELS, 12 to 18 inches, 2*s*. per 100, delivered in Liverpool or Glasgow.

H. and F. SHARPE, Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Best Seeds, Carriage Free.

BUTLER and McCULLOCH, Seed Merchants,
Covent Garden Market, London, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD and SON, Nurserymen and Seed Merchants,
Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER and CO., Seed Farmers and Nurserymen,
237 and 238, High Holborn, London, W.C.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.
DESCRIPTIVE PRICED CATALOGUES free on application.

Good Seeds, Carriage Free, at Market Prices.

SUTTON and SONS, Seed Growers and Merchants,
Royal Berkshire Seed Establishment, Reading.

RAYNBIRD, CALDECOTT, and BAWTREE, Seed Farmers and Merchants,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

WILLIAM BARRON'S PRICED CATALOGUE is now ready, and may be had post-free on application.
Elvaston Nurseries, near Derby.

ALOCASIA MACRORHIZA VARIEGATA.—Good plants, 10*s*. 6*d*. each.
Thomas Jackson & Son, Nurseries, Kingston, S.W.

CHOICE SEEDS for AUTUMN SOWING.—CALCEOLARIA, CINERARIA, and PRIMULA, from the finest strains in cultivation, each 2*s*. 6*d*. per packet.
James Carter & Co., 237, 238, High Holborn, London, W.C.

Cineraria, Calceolaria, and Primula.

E. G. HENDERSON and SON offer first-class Seed of the above. 1*s*. and 2*s*. 6*d*. per packet.
Wellington Nursery, St. John's Wood, London, N.W.

Cinerarias.

CHARLES TURNER'S COLLECTION, which includes several New Varieties, is now ready for sending out in strong Plants.
The Royal Nurseries, Slough.

ROSES.—CATALOGUES for 1863 and 1864 forwarded free on application.
John Cranston, Nurseries, King's Acre, near Hereford.

New Roses of 1863.

E. G. HENDERSON and SON offer the most select kinds. The Trade supplied.
Wellington Nursery, St. John's Wood, London, N.W.

Roses.

PAUL and SON have this season much pleasure in offering both STANDARD and DWARF ROSES in any quantity, at moderate prices. Their Stock is unequalled, both of the new and older kinds.
"Old" Cheshunt Nurseries, Herts, N.

New Rose Catalogue for 1863-64.
New Bulb Catalogue for 1863.
Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.

WM. WOOD and SON will be happy to send copies of the above gratis and post free to all applicants.

SUPERIOR STANDARD ROSES, 18*s*. per doz., and upwards; Do. DWARF Do., 9*s*. per doz., and upwards. All the NEW ROSES, including BEAUTY of WALTHAM, Mrs. WM. PAUL, and LORD MACAULAY (three of the best), at lowest advertised prices.
The NEW PRICED CATALOGUE is now ready, free by post.
Wm. Paul (Son and Successor to the late A. Paul), Nurseries and Seed Warehouse, Waltham Cross, N.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. Those who wish for a fine display of bloom during the autumn and ensuing summer should now give their orders.
Charles Noble, Sunningdale Nursery, S.W. Rail.

MESSRS. WRIGHT beg to call attention to their fine Stock of EVERGREENS, &c., ROSES, FRUIT TREES, SEAKALE, LONICERA AUREO-RETICULATA, &c., extending over upwards of 20 acres. Their Nursery at Hendon is two miles from Hampstead Heath, where conveyances can always be had, and customers will be sent on to Mill Hill or Edgware if they wish.
Edgware, N.W.

SEED WHEAT.—GOLDEN DROP, BROWICK RED, HALLETT'S, and other red varieties, in 5 qr. lots, at the moderate rate of 6*s*. per bushel of 63 lbs.
Address Mr. S. A. Daintree, of Fendrayton, St. Ives, Hunts.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

Imported Dutch Bulbs.

JAMES CARTER and CO.'S CATALOGUE of BULBS, with Cultural Directions, forwarded free of charge, on application to 237, 238, High Holborn, London, W.C.

IMPORTED DUTCH BULBS.—First-class Dutch Bulbs of every description just imported.
James Carter & Co., 237, 238, High Holborn, London, W.C.

LARGE IMPORTATION of DUTCH BULBS.—CATALOGUES (gratis) on application to Wm. Barratt, St. John's and Newton Moor Nurseries, Wakefield.

CHEAP BULBS.—Purchasers of DUTCH FLOWER ROOTS should, before ordering, see H. Brown's PRICED DESCRIPTIVE CATALOGUE, post free on application. The Bulbs are extra fine.
4, Commutation Row, Liverpool.

Dutch Bulbs.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE of the above is now ready, and may be had on application. The Bulbs are unusually fine this season.
The Royal Nurseries, Slough.

Hyacinths and other Choice Bulbs.

B. S. WILLIAMS'S DESCRIPTIVE CATALOGUE of the above post free to all applicants.
Choice HYACINTHS for Glasses or Pots, 6*s*., 8*s*., 10*s*., 12*s*. per dozen.
Paradise and Victoria Nurseries, Holloway, London, N.

Dutch Bulbs.

S. PONSFORD begs to announce the arrival of his annual importation of the above. HYACINTHS, TULIPS and CROCUSES are unusually fine.
PRICED CATALOGUES gratis.
Loughborough Park Nurseries, Brixton, Surrey, S.

Hyacinths, Tulips, Crocuses, &c.

BUTLER and McCULLOCH'S importation of DUTCH BULBS are unusually fine this season.
CATALOGUES Post free upon application.
Butler & McCulloch, Seed Merchants, Covent Garden Market, London, W.C.

A Large Importation of Dutch Bulbs.

Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.
Bulbs sent carriage free, excepting very small parcels.

WM. WOOD and SON have received a large consignment of the above, and will be happy to receive orders for the same. The Bulbs are in first-rate condition, and true to name.

BULBS, Carriage Paid.—For COLLECTIONS of BULBS see our large advertisement in *Gardeners' Chronicle*, Sept. 19, p. 886.
For PRICED LIST of BULBS for the SPRING GARDEN, CONSERVATORY, and SITTING ROOM, see our large advertisement in *Gardeners' Chronicle*, Sept. 26, p. 914.
Barr & Sugden, Seed Merchants, 12, King Street, Covent Garden, W.C.

Hyacinths, &c.

WM. PAUL'S selection of DUTCH BULBS has arrived in splendid condition.
Good named HYACINTHS, 6*s*. per dozen and upwards.
Early TULIPS, for pots or beds, 1*s*. per doz. and upwards.
CROCUS, NARCISSUS, ANEMONES, &c., best sorts, at moderate prices.
DESCRIPTIVE CATALOGUE free by Post.
Paul's Nurseries and Seed Warehouse, Waltham Cross, N.

NEW PLANTS and BULBS, at reduced prices. LISTS free.
W. Dillistone, Munro Nursery, Sible Hedingham.

J. IVERY and SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.
Dorking Nursery.

Ferns, Roses, Gladiolus.

R. M. STARK has just published a CATALOGUE of the above, comprising all the Novelties of the season, with many other plants of interest.
Edgehill Nursery, Dean, Edinburgh—Oct. 3.

WANTED, several Thousands of one-year-old PLANTS, COMMON LAURELS, LAURUSTINUS, PHILLYREA, COMMON HOLLY, &c. Price per 1000 to H. D. Austin, Castle Hill, Ealing.

WANTED, SCILLA SIBIRICA, True
Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.
Apply to Wm. Wood & Son as above.

LETTUCE PLANTS for SALE.—500,000 of the best and hardiest COS LETTUCE ever offered; 4*s*. per 1000.
S. Evans, Seedsman, &c., Chichester.

WINTER VETCHES, 6*s*. 6*d*. per 60 lb.
WINTER RYE, 5*s*. per bushel.
H. Brown, Seedsman, 4, Commutation Row, Liverpool.

Potato Onions.

JAMES FAIRHEAD and SON beg to offer good SOUND BULBS of the above, cheap.
7, Borough Market, London, S.E.

GENUINE ITALIAN RYE-GRASS.—This Seed, grown from second cut Foreign, weighing up to 21 lbs. per bushel, is sold as usual by Mr. Simon A. Daintree, of Fendrayton, St. Ives, Hunts.

The Royal Hautbois Strawberry.

MESSRS. THOMAS RIVERS AND SON now offer Plants of the above. The variety was selected by them in 1861 from many hundreds of Seedlings raised from La Belle Bordelaise Strawberry, a variety of the Hautbois received from France, and has proved to be by far the largest and most prolific of the race, with the true Hautbois flavour.

Plants, 4s. per dozen, 30s. per 100. A few extra sized bearing plants, 9s. per dozen; carriage paid to London.

Nurseries, Sawbridgeworth.

Strawberry "The Premier," or "British Queen Seedling."

WM. PAUL has now ready good healthy plants of this superb Strawberry, price 12s. per 100, or 2s. 6d. per dozen. A few fruiting plants in pots, 9s. per dozen.

DESCRIPTION.—Fruit very large and handsome, colour bright crimson, combining the flavour of Keen's Seedling and Elton Pine, without the acid of the latter; the fruit carries well and retains its flavour long after gathered. It is of a very hardy and vigorous habit, thriving well in all soils and climates; a most abundant bearer, often producing from 20 to 30 trusses of fruit on a single plant; ripens three days later than Keen's Seedling, and remains in season a fortnight after that variety is over.

Large and handsome.—*Gardeners' Chronicle.*

The flavour is very good.—*Journal of Horticulture.*

A choice collection of Fruit Trees, including Grape Vines in splendid condition. PRICED CATALOGUES free by post.

PAUL's Nurseries, Waltham Cross, N.

The Kimberley Strawberry.

CHARLES KIMBERLEY has much pleasure in offering the above new SEEDLING STRAWBERRY, feeling confident it will give the greatest satisfaction. It is quite distinct from all other varieties, is of a robust, hardy constitution, a most prolific bearer, of a bright shining crimson; fruit red throughout, firm and solid, with brisk and most agreeable flavour; an excellent sort for all purposes. Strong Plants are now ready at 2*l.* per 100.

Stoke Nursery, near Coventry—Oct. 3.

THE KIMBERLEY STRAWBERRY.—The above fine Strawberry is now being sent out. The following Nurserymen and Dealers have ordered plants and can now supply it; those marked with an asterisk thus * have seen the fruit and tested it—

*Mr. Parker, Fruiterer, Broad Gate, Coventry
*Mr. H. Pope, Nurseryman, Gib Heath, Birmingham
*Mr. Vertegans, Nurseryman, Harborne Road, Birmingham
*Mr. Thos. Wood, Nurseryman, Quinton, near Birmingham
*Mr. Dale, Market Gardener, Long Itchington
*Mr. Wilson, Nurseryman, Warwick
*Mr. Ogden, Nurseryman, Coventry
*Mr. Gilbert, Seedsman, Cross Cheaping, Coventry
*Mr. Ivery, Nurseryman, Peckham, near London
*Mr. G. Smith, Nurseryman, Hornsey Road, Islington, London
Mr. B. W. Knight, Nurseryman, Battle, Sussex
Mr. W. Dillistone, Nurseryman, Sible Hedingham, Essex
*Mr. C. Turner, Royal Nursery, Slough, near Windsor
*Messrs. Hurst & Son, Seedsmen, 6, Leadenhall Street, London, have kindly consented to become Agents; and *Mr. Wills, Nurserymen, 80, Regent Street, Leamington

Other names will be added as soon as received.

CHARLES KIMBERLEY, Stoke Nursery, near Coventry.

Grape Vines, Late.

J. MEREDITH has some Strong VINES of the true variety of BLACK ALICANTE (which he has never occasion to set artificially) in 13 and 8-inch pots.

J. M. obtained a Prize at the Great International Show in October last, at South Kensington, for the above excellent late Grape. Splendid bunches of this valuable Grape may be seen at his Vineyard.

J. M. has also to offer some extra strong LADY DOWNES in 13 and 18-inch pots.

Prices on application to J. MEREDITH, The Vineyard, Garston, near Liverpool.

GRAPE VINES.—Strong well ripened Canes of the following, at 3s. 6d. to 5s. each:—Black Hamburgh, Grizzly Frontignan, Black Prince, Chasselas Musqué, Black St. Peter's, Black Frontignan, Cannon Hall Muscat, Précoce Malingre, White Frontignan, White Sweetwater, Muscat of Alexandria, Tokay, Golden Hamburgh, Syrian Muscat Hamburgh, Mill Hill Hamburgh, Lady Downes, Black Cluster, Esperion, Muscat Troveron, Royal Muscadine, Trentham Black, Blanc de Kentsheim, Black July, Ingram's Prolific, Buckland Sweetwater, Cavoush.

JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

Fruit Trees.

JOHN CRANSTON offers superior, healthy grown plants of all the best varieties of FRUIT TREES, DESCRIPTIVE CATALOGUES of which will be forwarded on application.

	Each.—s. d.
APPLES.—Very fine Dwarf-trained	2 6
,, Pyramids	2 6
,, Standards	2s. to 2 6
APRICOTS.—Dwarf-trained	3s. 6d. to 5 0
,, Standard-trained	5s. to 7 6
CHERRIES.—Dwarf-trained	3s. 6d. to 4 6
,, Pyramids	2s. 6d. to 3 6
GRAPE VINES.—Standards	2 6
,, Very fine and well-ripened	3s. 6d. to 5 0
NECTARINES.—Dwarf-trained	3s. 6d. to 5 0
,, Standard-trained	5s. to 7 6
PEACHES.—Dwarf-trained	3s. 6d. to 5 0
,, Standard-trained	5s. to 7 6
PEARS.—Dwarf-trained	3 6
,, Pyramids	2s. 6d. to 3 6
,, Standards	2 6
PLUMS.—Dwarf-trained	3s. 6d. to 4 6
,, Standards	2 6
WALNUTS.—Standards	2 6
,, Extra strong	3s. 6d. to 5 0

GOOSEBERRIES, CURRANTS, FIGS, RASPBERRIES, STRAWBERRIES, &c.

PEACHES, NECTARINES, and APRICOTS, established in Pots for Orchard House Culture, 5s. each.

ASPARAGUS, two years	2s. 6d. per 100
SEA KALE, ,,	8s. per 100

Nurseries, King's Acre, near Hereford.

E. R. GREENUS, RAILWAY NURSERIES, Watford and Rickmansworth, has to offer this season a fine healthy Stock of FRUIT and FOREST TREES, FLOWERING SHRUBS and EVERGREENS, CONIFERS, STANDARD and DWARF ROSES, CLIMBERS, &c., all of which will remove with the greatest safety; and from E. R. G.'s proximity to the London and North-Western Railway he can execute orders with promptitude and despatch to any part of the kingdom, or Continent.

CATALOGUES forwarded on application.

P.S. A very large Stock of IRISH IVIES, large, in pots, and CLIMBING ROSES; also VARIEGATED and GREEN BOX, 1½ to 2 feet.

Catalogues.

PAUL AND SON have just published their NEW DESCRIPTIVE PRICED ROSE CATALOGUE for 1863-64.

DESCRIPTIVE CATALOGUE of HYACINTHS and other DUTCH BULBS, post free.

Also their DESCRIPTIVE CATALOGUE of EVERGREENS, DECIDUOUS TREES, CONIFERS, AMERICAN CLIMBING and HERBACEOUS PLANTS, post-free for one stamp.

"Old" Cheshunt Nurseries, N.

New Roses of 1863.

JOHN KEYNES, Castle Street Nursery, Salisbury, can supply some thousands of the above, well-established Plants in pots, comprising the very best varieties of the NEW ROSES of 1863, at 36*s.* per dozen. The usual discount to the Trade. To amateurs such plants are invaluable; they can be planted at once and will produce fine bloom next season, as time will be given them to draw fresh root.

CATALOGUES, with full description, containing all the leading flowers, both old and new, will be forwarded on application.

JOHN KEYNES' STANDARD and DWARF ROSES for the Autumn are in the finest condition.

The stock of ROSES of 1862, comprising Charles Lefebvre, François Lacharme, &c., both Standards and Dwarfs, cannot be surpassed. Salisbury.—Oct. 3.

Roses.

GEORGE CLARKE has to offer this season an unusually fine quantity of STANDARD and DWARF ROSES in the best possible condition, and including the newest and most popular of the older varieties in cultivation. The prices will be—

STANDARDS .. .. 18*s.* per dozen and upwards
DWARFS .. .. .. 9*s.* ,, ,, ,,

And to distant purchasers, Plants will be given to compensate for cost of carriage.

The Nurseries also abound in extensive collections of Fruit Trees, Evergreens, and stock in general, well worth the inspection of intending purchasers.

Nursery, Streatham Place, Brixton Hill, S.; and at 4, Windsor Terrace, Pimlico, London, S.W.

Roses.

JOHN CRANSTON offers selections of STANDARD and DWARF ROSES of very superior quality.

The robust growth and hardy constitution of the plants grown in this Nursery has long been acknowledged, and the Stock to offer this season is perhaps superior to any previous growth.

He also begs to direct attention especially to DWARF ROSES on the Manetti stock, of which he has an enormous stock.

The plants upon their own roots are also very strong and well grown.

	Per dozen—s. d.
STANDARD ROSES of all the leading varieties in cultivation	18 0
Do. Newer varieties, introduced in 1861 and 1862	24 0
DWARF ROSES, extra fine plants upon the Manetti stock	9*s.* to 12 0
Do., do., upon Dog-rose stock	9 0
Do. Newer Varieties, introduced in 1861 and 1862	15*s.* to 18 0
Do., do., of 1862 and 1863	24*s.* to 30 0
STANDARD and HALF-STANDARD TEA-SCENTED ROSES, all the best varieties	24 0
DWARF ROSES upon their own roots, Hybrid Perpetuals, and Bourbons	9*s.* to 12 0
Do., do, Tea-scented	12*s.* to 15 0
CLIMBING ROSES	9 0
PILLAR ROSES, extra strong plants, 4 to 5 feet	12*s.* to 15 0
STANDARD WEEPING ROSES	each 2*s.* to 2 6
ROSES in 8 and 9-inch pots grown especially for Forcing or Greenhouse culture, the best Hybrid Perpetuals, China, and Tea-scented varieties	24*s.* to 30 0

DESCRIPTIVE CATALOGUES forwarded free on application.

Nurseries, King's Acre, near Hereford.

NEW PINKS.

	Per pair.—s. d.		Per pair.—s. d.
Attraction (Maclean)	5 0	Lizzie (Turner)	5 0
Betram (Turner)	5 0	Marion (Turner)	5 0
Bridesmaid (Turner)	5 0	President (Turner)	3 6
Cristabel (Turner)	3 6	Rev. George Jeans (Kirtland)	5 0
Diadem (Turner)	5 0	Sylph (Garrett)	3 6
Elcho (Maclean)	5 0	Setiens (Kirtland)	3 6
Exquisite (Turner)	5 0		

Strong Plants of the above, also a full collection of established varieties, are now ready. This is the best time for planting Pinks. The Royal Nurseries, Slough.

NEW PLANTS.—

FUCHSIA RIFLEMAN and NORTHERN LIGHT. AZALEA INDICA SOUVENIR DU PRINCE ALBERT. CAMELLIA PUNICEA.

MIMULUS PARDINA (leopard-spotted and marbled).—The long continuance of bloom from succession plants of this beautifully marked flower is a valuable feature for Conservatory and Greenhouse decoration from February until August. 1s. per packet. The Trade supplied per ounce, or smaller quantities.

Similar Hybrids have been also raised from the same species (M. cupreus) as M. pardina, at two other sources in the neighbourhood of London, and by crossing the species above named with the type of a second one. The exceptional differences of the three crosses were thus:—The first was M. cupreus with a good hybrid of M. luteus; the second was with the common garden forms of M. luteus, and the third now offered are the production of M. cupreus crossed with several of the finest garden hybrids of English and Continental origin, from which was obtained a beautiful strain of varieties superior to any flowers shown to us from the two sources alluded to, and which are remarkable for picturesque spotting and diversity of feature in colours. They are the same as exhibited by us at several London exhibitions during the past summer.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London.

WELLINGTONIA GIGANTEA.—To noblemen and gentlemen wishing to plant an avenue or group of the above, WILLIAM BARRON begs to offer a number of splendid specimens from 6 to 14 feet high, remarkably cheap, all of which can be insured to remove with safe balls.

6, 7 and 8 feet	3*l.* 3*s.* to 5*l.* 5*s.*
9, 10 and 11 feet	6 6 to 8 8
12, 13 and 14 feet	9 9 to 10 10

14 × 12. Stem 4—6 in circumference.

The most handsome plant in the country, remarkably dense. Special price on application.

Elvaston Nurseries, near Derby.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

Hardy Scarlet Rhododendrons.

JOHN WATERER'S CATALOGUE of HARDY SCARLET and other CHOICE RHODODENDRONS as annually displayed in the Royal Botanic Gardens, Regent's Park, can now be had on application.

It contains faithful descriptions of all the varieties really worthy of cultivation, as well as a selection of HARDY CONIFERS, with heights and prices, with ORNAMENTAL EVERGREENS, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey.

Rhododendron Countess of Haddington.

Good plants, 21s. each.

Vine Tynninghame Muscat.

Good plants, 3s. 6d., 5s., and 7s. 6d. each.

ROBERT PARKER begs to announce that he is now offering for sale the above first-class Plants. Full descriptions with List of Awards received are published in his NEW CATALOGUE of PLANTS and BULBS, which will be forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

GEO. BAKER begs to announce that his extensive Collection of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Woking Nursery, Surrey.

NEW FORCING GERANIUM, MRS. LEWIS LOYD.—Rich crimson with dark maroon blotch in top petals; of dwarf robust habit, and most profuse bloomer. Forces into flower at any season without drawing. It was exhibited to the Floral Committee of the Royal Horticultural Society on March 31, and then awarded their Certificate of Commendation. Good Plants now ready, 7s. 6d. each.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

New and Choice Pelargoniums.

B. S. WILLIAMS has much pleasure in announcing that he has made arrangements for the distribution of BECK'S NEW PELARGONIUMS, and that he will be prepared to supply strong Plants about the end of October.

A DESCRIPTIVE and PRICED CATALOGUE of the above, with Select Lists of other Choice Show, French, and English Spotted and Fancy Pelargoniums, will be published shortly and forwarded post free to all Customers and applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

LAURELS, COMMON, bushy and good, 2 to 3 feet, 12*s.* per 100; per 1000, 5*l.* Do., 3 to 4 feet, extra fine, 25*s.* per 100; Do., second quality, 20*s.* per 100.

PORTUGAL LAURELS, well-rooted and finely furnished, 2 to 2½ feet, 50*s.* per 100; Do., second quality, 30*s.* per 100.

The true SPEAR-LEAVED LAURELS, very ornamental and hardy, 30*s.* per 100.

RHODODENDRON PONTICUM, full of bloom buds, 2 to 2½ feet, well furnished, 18*s.* per doz.; 1½ to 2 feet, fine do., 12*s.*; Second quality, 6*s.* per doz., 40*s.* per 100.

ORCHARD HOUSE TREES, well set with buds in 11-inch pots, 42*s.* to 60*s.* per doz.

NEW ROSE CATALOGUES for 1863 and 1864, now ready and forwarded post free upon application.

Through Trucks, without incurring any expense of package.

A. GODWIN & SON, The Nurseries, Ashbourn, Derbyshire.

Ferns.—TO NOBLEMEN, GENTLEMEN, AND PROPRIETORS OF PUBLIC GARDENS, &c.

TO BE SOLD, some of the handsomest FERNS and other PLANTS in England, late the property of a gentleman who for many years exhibited and obtained many first and second prizes.

Apply to the present proprietor, T. HAWKINS, 3, Inverness Terrace, Bishop's Road, Bayswater, W.

THE ALPINE SNAPDRAGON or TOAD FLAX, LINARIA ALPINA.—This charming little plant ought to be in every garden. It forms silvery tufts, 3 to 4 inches high, bearing a profusion of corymbs of lilac-purple and vivid orange flowers. It is perfectly hardy (from the Swiss Alps) and grows in all soils, keeping up a more or less continuous succession of flower for 6 months! When planted in a bed it forms a low dense mass covered with a sheet of bloom. Our plants of 3 years old have formed complete pictures during the past season. Strong flowering plants in pots, 6*s.* per dozen, or 42*s.* per 100.

THE PERENNIAL CALANDRINIA, C. UMBELLATA.—Forms dense tufts 3 to 6 inches high, of vivid magenta crimson flowers, in umbels, keeping up a succession of bloom for 7 or 8 weeks. Scarcely any flower can exceed this in brilliancy and beauty when expanded in the sunshine. Old plants (3 or 4 years) form very dense masses from a strong woody root. Perfectly hardy, where well drained in winter. Deserving of extensive cultivation. Good blooming plants, 4*s.* per dozen or 30*s.* per 100. Extra strong, 6*s.* to 9*s.* per dozen.

AUCUBA-LEAVED or GOLD NETTED DAISY.—Very effective for winter garden decoration. Fine strong well coloured plants, 4*s.* per dozen, 21*s.* per 100.

LYCHNIS (AGROSTEMMA) CORONARIA.—In its dense tufts of silvery foliage, this closely resembles the well-known Stachys lanata, but instead of a dull and worthless spike, it bears magnificent panicles, 1½ to 2 feet high, of brilliant rosy crimson flowers, as large as a half crown. Strong blooming plants, 5*s.* per dozen, or 21*s.* and 31*s.* 6*d.* per 100.

JAS. BACKHOUSE & SON, York Nurseries.

OUVIRANDRA BERNERIANA.—Having succeeded in raising a few Seedlings of this extremely curious and beautiful plant, we beg to offer healthy young plants of six or seven leaves at 31*s.* 6*d.* each.

O. Berneriana was exhibited at the Great Show of the Royal Horticultural Society, June 17th, and awarded the First Prize; and at the Great Show of the Royal Botanic Society, June 24th, and then also awarded the First Prize.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to announce that his NEW CATALOGUE, No. 73, extremely rich in Novelties, is now ready, and can be obtained free at his Agents,

Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

Lilium lancifolium.

JEAN VERSCHAFFELT begs to intimate that he has this year a very large Stock of the above in extra large sized Bulbs, all of which are in splendid condition, and which he is now offering at the following low prices, viz.:—

	Per 100—£	*s.*	*d.*
LILIUM LANCIFOLIUM RUBRUM	2	0	0
,, ,, extra strong roots ..	3	0	0
,, ,, ALBUM	2	0	0
,, ,, extra strong ..	2	10	0
,, EXCELSUM (TESTACEUM), the beautiful Nankin coloured Lily, extra strong bulbs .. .. per 25	1	12	0

Early orders are solicited, and are to be directed to JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent (Belgium).

J. V.'s CATALOGUES to be had at his London Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

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TRADE PRICES, without Discount, of NEW GLADIOLUS.

GLADIOLUS (GANDAVENSIS). each—*s.* *d.*	
CHARLES DICKENS (SOUCHET).—Rose, delicately tinted buff, flamed and striped bright carmine rose .. ..6 fr.=	4 10
JAMES CARTER (SOUCHET).—Clear brilliant orange red, very large and beautifully marked pure white, dwarf .. ..5 fr.=	4 0
JAMES VEITCH (SOUCHET).—Very large bright cochineal red, violet marked, very showy .. ..6 fr.=	4 10
PETER LAWSON (SOUCHET).—Lilac-rose and violet-tinted, very large white blotch, the shade new and beautiful .. .. 5 fr.=	4 0
PRINCE OF WALES (SOUCHET).—Very brilliant fiery red, white blotch, feather violet (extra) ..7 fr.=	5 7
PRINCESS OF WALES (SOUCHET).—White, feathered with carmine rose, with deep carmine blotch, small and very vigorous .. ..6 fr.=	4 10
STUART LOW (SOUCHET).—Violet rose colour, blotched and flamed with deep rose on a white ground..4 fr.=	3 3
WALTER SCOTT.—Very bright rose with a white ground, feathered carmine rose; flowers very delicate, dwarf .. ..7 fr.=	5 7

The CATALOGUE of his important collection of the above, also Roses, which embraces a large extent of ground, will be sent gratis upon prepaid application to EUGÈNE VERDIER, Fils Aîné, Rue des Trois Ormes, Paris; or to his Agents, BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

THE EARLIEST PEA KNOWN is CARPENTER'S EXPRESS (pods larger than any other early Pea).

Among *numerous* Testimonials the following has been received:—

From Mr. JONES, *Gardener to Lord Leconfield, Petworth, Sussex. June* 3, 1863.

"I beg to say I have found Carpenter's Express Pea to answer well as an early one; it was sown on the 20th of November, on a south border, and I gathered the first dish on the 7th of May. I had Daniel O'Rourke and your Pea side by side in November, 1861, and gathered First from Carpenter's Express in May, 1862, which led me to grow it as my earliest this year.'

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Early Orders are solicited, which will be executed strictly in priority.

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H. AND F. SHARPE are now prepared to make special offers to the Trade of the following varieties of SEED POTATOS, which have been harvested in fine condition, and free from disease. They comprise all the sorts worthy of cultivation, and have been grown with much care from the finest selected stocks. As the yield this season is very fine, the prices will be moderately low, and may be had on application.

Improved Ash-leaved Kidney	Early Fox's Seedling
Jackson's do. do.	Early Round Frame
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Myatt's Prolific do. (very productive)	Early Golden Globe
Fluke Kidney	Early King (for forcing)
Lapstone do.	Early British Queen
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Seed Growing Establishment, Wisbech.

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REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.*; 4 cwt. put on the Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

N.B. Loaded Trucks can be sent on all the principal Railways.

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CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

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THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

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A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8*l.* per ton.

2 to 3 cwts. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

SUPERPHOSPHATE of LIME	..£6 6
MINERAL SUPERPHOSPHATE ..	.. 5 5

Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.

American and other Cakes at market prices.

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Autumn Sowing.

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Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.

Chairman.—JOHN CLAYDEN, Littlebury, Essex.
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Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex.

ODAMS'S BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, has been in use for upwards of 11 years, and has given great satisfaction to consumers.

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Price 7*l.* 10*s.* per Ton, delivered at any Railway or Wharf in London.

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PHOSPHO GUANO direct from the Importers' Stores. Free on board or rail at Liverpool, 11*l.* per ton, net cash, bags included. Delivered, plus freight or carriage, at all parts of the United Kingdom.

PETER LAWSON & SON, Contractors, Edinburgh; and 28, King Street, Cheapside, London, E.C.

*** This Guano, from islands within the tropics, contains 35 to 40 per cent. of Soluble Guano Phosphates, 3½ per cent. of actual Ammonia, in addition to Potash, and has been pronounced by Liebig "to be far superior to any artificial Manure at present known, and to surpass most certainly, by its more correct and constant composition, the best sorts of Peruvian Guano." The Contractors solicit trials, as they are confident of the most satisfactory results.

The advantage of applying PHOSPHO GUANO in Autumn is, that it enables the Farmer to harrow it well into the soil before sowing, which is better than top-dressing the crop in the Spring. It promotes a strong braird, vigorous growth, and produces a full and plump grain. Apply at the rate of 1½ to 2 cwt. per acre.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1*s.* and 2*s.* per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

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Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.



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GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from one to two ounces to the gallon of water is recommended for growing Plants; one from 4 to 16 ounces for Trees at rest.

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Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

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PROTECTION from the COLD WINDS and MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1*s.* 9*d.* per yard run.
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An improved make, 2 yards wide, 1*s.* 9*d.* per yard.	
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Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.

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"It is much cheaper than Mats as a covering."

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Universal Microscope. Price £5 5*s.*

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SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they will not be undersold by any House in the Trade. They also warrant one of their Knives to last two of any other make.

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JENNINGS' MODEL PRESERVING JAR affords the means to every one to lay by a store of Fruit or Vegetables for Winter use at a very small cost and little trouble.



This is effected by means of an AIR-TIGHT CAP or COVER, which can be placed or removed in a moment, and will last for years in any climate, superseding the use of Bungs, Corks, Bladder, &c., for all kinds of Preserved Meats, Fruits, or Pickles.

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GARDEN BORDER-EDGING TILES.—These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

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Testimonial from Mr. J. FARRAH, *Gr. to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*

"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."

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Oil Paint no longer Necessary.

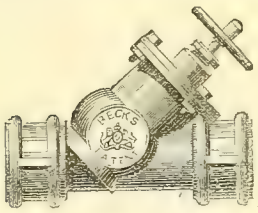
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Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

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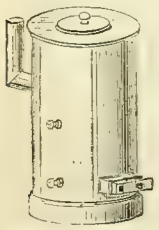
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Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3d. per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

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The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure

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The Agricultural Hall, Islington, containing an Acre of Glass, was supplied by T. MILLINGTON.

Mr. Rivers, and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home Use and for Exportation.

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ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½*d.*	... 7¼*d.*
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These prices only apply to the sizes stated.

				4ths.	3rds.	4ths.	3rds.
				s. d.	*s. d.*	*s. d.*	*s. d.*
11 by 9	12 by 9	13 by 9	14 by 9				
12 „ 10	13 „ 10	14 „ 10	15 „ 10	10 9	12 3	12 6	14 0
13 „ 11	14 „ 11	..	..				
14 „ 12	15 „ 12	15 „ 11	16 „ 11				
18 „ 12	19 „ 12	16 „ 12	17 „ 12				
16 „ 13	17 „ 13	20 „ 12	21 „ 14	11 6	13 6	13 6	16 0
19 „ 13	20 „ 13	18 „ 13	..				
16 „ 14	17 „ 14	21 „ 13	..	14 to 15 ozs. 16 to 17 ozs.			
19 „ 14	20 „ 14	18 „ 14	..	to the foot.			

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Packed in Boxes of 50 feet each.

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6 by 4	and 6½ by 4½	... ...	10	6	per box.
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As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy and Gentlemen of the United Kingdom.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs
20 by 12	Fourths ...	11*s.* 6*d.*	13*s.* 6*d.*	15*s.* 0*d*
20 „ 13	Thirds ...	13*s.* 6*d.*	16*s.* 0*d.*	19*s.* 0*d.*
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We recommend 3rds quality at 16*s.*, or 21-ounce at 19*s.* (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

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In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11*s.* 6*d.*
8 „ 6	8½ „ 6⅜	9 „ 7	9½ „ 7½	
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Boxes 2*s.* each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

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Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

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Glass Tiles and Slates in Sheet and Rough Plate. Plate Glass, Patent Plate, and Hartley's Improved Rough Plate.

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GENUINE WHITE LEAD. ANTI-CORROSION PAINT. | LINSEED OIL PUTTY. FINE OAK VARNISH. | FINE OAK CARRIAGE. PATENT DRYERS. | LINSEED OIL. BOILED OIL.

TURPENTINE.

LEAD in SHEETS or CUT to SIZES, LEAD PIPE, LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of every description.

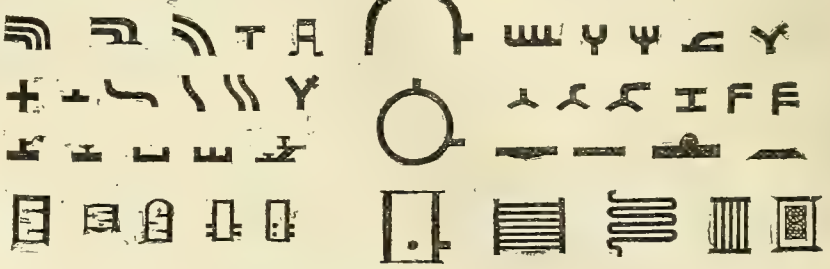
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HOT-WATER APPARATUS,

FIXED AND UNFIXED.

PIPES AND CONNECTIONS. A FEW SECTIONS. BOILERS. PIPES AND CONNECTIONS.



Detailed Illustrated Lists on application.

CONSERVATORIES, GREENHOUSES, &c. PATENT STABLE FITTINGS.

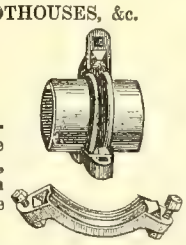
EVERY DESCRIPTION OF IRON WORK.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	8 17 6	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. Gray begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

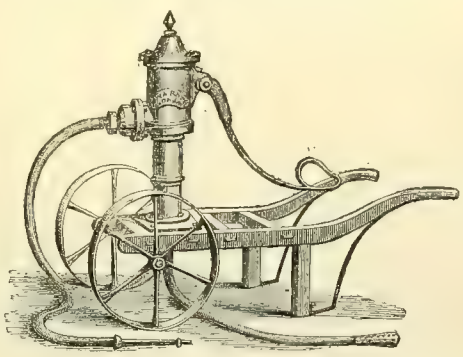
JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

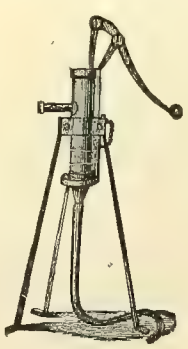
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35.



No. 36½. Improved Cast-Iron Lift and Force Pump.



No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve, and cannot clog in action.

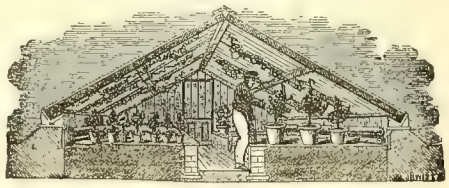
4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

PATENTEES and MANUFACTURERS,

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

Hothouses for the Million.—Awarded a Prize Medal at the International Exhibition, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner, all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to Samuel Hereman, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1*s.*; post free, 1*s.* 1*d.*

Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

Apply to Joseph Meredith, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

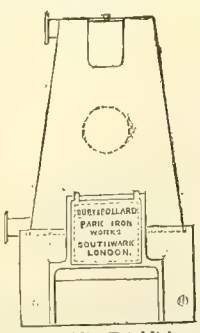
Greenhouses, Orchard-houses, and Conservatories.

H. FREEMAN'S Horticultural Works, Triangle, Hackney, N.E. Established 20 years.

Good substantially made GREENHOUSES, glazed, ready for fixing, 42 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 28*l.*; 12½ feet by 10 feet, 15*l.* ORCHARD-HOUSES, 10 per cent. cheaper. A handsome CONSERVATORY, 46 feet by 19 feet, for Sale. Estimates given.

W. J. HOLLANDS, Iron Merchant, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.



Latest Improvements in
Heating by Hot Water.

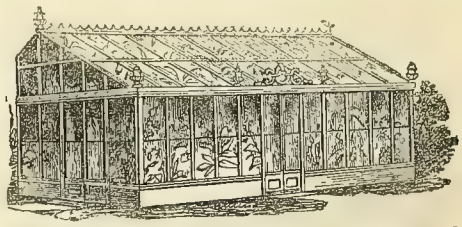
THE IMPROVED
CONICAL BOILERS,
For Heating Pineries, Conservatories, Greenhouses, Mansions, Halls, Warehouses, &c.,
SOLELY MANUFACTURED BY
BURY AND POLLARD
(Successors to John R. Peill, Late Stephenson & Peill).

Annexed Sketch shows Bury & Pollard's improved arrangement, requiring
NO BRICKWORK SETTING.

These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United Kingdom. References where they have been 20 years in constant use.

Price Lists on application to Bury & Pollard, Park Iron Works, New Park Street, Southwark, London, S.

JAMES WATTS AND CO., Hothouse Builders and Hotwater Apparatus Manufacturers, near the Green Man, 353, Old Kent Road, London, S.E.



200 CUCUMBER and MELON BOXES and LIGHTS, and from
400 to 500 LIGHTS for PITS of all SIZES kept in STOCK.
Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the kingdom.
10 dozen strong Zinc HAND GLASSES, Glazed and Painted complete, ready for immediate use, 18, 20, and 22, all shifting tops.
Reference to the Nobility, Gentry, and Trade in most of the counties in England.

JOSEPH SMITH, New Road, Hammersmith, W., undertakes the ERECTION of GREENHOUSES, &c., in any part of the Kingdom, and begs to offer for Sale about 10,000 feet of GLAZED LIGHTS for GREENHOUSES, PITS, &c.

Those glazed with 21-ounce glass, 9*d.* per square foot.
" 16-ounce " 8*d.* "
" No. of Lights.
21-ounce.—Eight. 12 feet 3 inches by 5 feet 8 inches.
" Twenty. 11 feet by 4 feet 8 inches.
" Nine. 8 feet 6 inches by 4 feet 8 inches.
" Ten. 7 feet by 3 feet 11 inches.
" Twelve. 5 feet 2 inches by 4 feet 2 inches.
16-ounce.—Forty. 7 feet by 4 feet 3 inches.
" Twenty. 6 feet by 4 feet 2 inches.
" Twelve. 5 feet 2 inches by 5 feet 8 inches.
Also Span-roof Greenhouse, 27 feet by 16 feet, 47*l.*
Lean-to, 21-ounce glass, 46 feet by 14 feet, 55*l.*
" 21-ounce glass, 24 feet by 11 feet, 30*l.*
" 16 ounce glass, 50 feet by 14 feet, 55*l.*
Second-hand, 12 feet by 7 feet, 14*l.*

☞ ESTIMATES given for HEATING.

HYACINTHS and other DUTCH BULBS.

THE FIRST PRIZE FOR A COLLECTION OF HYACINTHS,
THE FIRST PRIZE FOR 18 HYACINTHS,
THE FIRST PRIZE FOR 6 NEW HYACINTHS,

Being all the FIRST PRIZES offered to Nurserymen at the Royal Horticultural Society's HYACINTH SHOW on March 18, were awarded to WILLIAM PAUL, Paul's Nurseries, Waltham Cross, N.

PRICED DESCRIPTIVE CATALOGUE free by post.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON'S first importation of the above has arrived, and from the extraordinary heavy weight of the Bulbs they promise a fine bloom. Early orders are earnestly solicited. DESCRIPTIVE PRICED CATALOGUES free.

N.B.—17 FIRST PRIZES were awarded to WM. C. & SON last spring for HYACINTHS, TULIPS, and CROCUSES. In addition to this, EVERY FIRST PRIZE at the London Exhibitions to Amateurs was for Bulbs supplied by them.

The ONLY address is Highgate Nurseries, London, N.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his New CATALOGUE, containing Select, Descriptive, and Priced Lists of Exotic Orchids, New and Rare Greenhouse, Hardy, and Stove Plants, Ornamental and Variegated foliaged Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, Narcissus, and other Bulbs, is now published and will be forwarded to all applicants.

Exotic Nursery, Tooting, Surrey, S.

30,000 Hyacinths, 30,000 Tulips, 10,000 Narcissus, and 100,000 Crocus in varieties.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, the largest Grower of the above in England. J. H. B. has again purchased, for ready money, in Holland, in addition to his usual large Stock, the above surplus Stocks of some very large growers, which he now offers at unheard of low prices. The following Roots for 1*l.*:—50 Hyacinths in 25 splendid sorts; 150 Early Tulips, sorts; 200 Crocuses, mixed; 50 Snowdrops, and 12 very large noble Narcissuses. Half the above quantity for 10*s.* 6*d.*

HYACINTHS, in 10, 20, 30, 40, or 50 splendid varieties, at One Guinea per 100. Less by the 1000.

LILIUM LANCIFOLIUM RUBRUM (true), large roots, 1*s.* each, 10*s.* per dozen, 3*l.* 5*s.* per 100, or 30*l.* per 1000.

N.B. To save trouble all Orders to be prepaid.

E. G. HENDERSON AND SON'S DESCRIPTIVE LIST of BULBS as a Guide for the Amateur's selection is now published, and will be forwarded post free on application.

GUERNSEY and BELLA DONNA LILIES, 5*s.* per doz.
HYACINTHS, choice by name, 6*s.*, 8*s.* and 9*s.* per doz.
Do., MIXED in colours, 3*s.* per doz.
Do., BEDDING VARIETIES, in kinds, each colour, 4*s.* per doz.
Do., MINIATURE FLOWERED VARIETIES, 3*s.* per doz.
TULIPS for Forcing, 6*d.* to 1*s.* per doz.
Do. EARLY SINGLE, and DOUBLE MIXED, 5*s.* and 6*s.* per 100.
Do., LATE, show varieties, mixed, 1*s.* per doz.
SNOWDROPS, single and double, 2*s.* per 100.
WINTER ACONITES, 2*s.* 6*d.* per 100.
CROCUS, in sorts, 1*s.* 6*d.* and 2*s.* per 100.
SCILLA SIBIRICA, 7*s.* 6*d.* per 100.
ANEMONES, 3*s.* 6*d.* and 5*s.* 6*d.* per 100.
RANUNCULUS, 3*s.* to 5*s.* per 100.
AMARYLLIS, by name, 3*s.* 6*d.* each,
GLOXINIAS, by name, 9*s.* and 12*s.* per doz.
ACHIMENES by name, 2*s.* 6*d.* and 3*s.* per doz.
GLADIOLUS BRENCHLEYENSIS, 3*s.* per doz., 20*s.* per 100.
" GANDAVENSIS, the finest collection offered in England.
CYCLAMEN, a choice collection of 20 varieties by name.
OXALIS, by name, 40 varieties offered.
IXIAS, mixed, 1*s.* per dozen; 40 varieties in collection offered, the inferior kinds discarded.
BABIANA, SPARAXIS, and TRITONIAS each 1*s.* 6*d.* per dozen.
LILIES, 60 fine varieties offered.
TRITOMA UVARIA, 12*s.* per doz.
TRITONIA (CROCOSMA) AUREA, 3*s.* per doz.
EARLY SPRING-FLOWERING PLANTS, in various colours, as HEPATICAS, DOUBLE PRIMROSES, VIOLETS, CHRISTMAS ROSE, and 60 other early-flowering perennials.
Strong Clumps of NEAPOLITAN and other VIOLETS in pots for winter blooming.
Do. LILY of the VALLEY.

Wellington Nursery, St. John's Wood, London, N.W.

New Cinerarias.

J. DOBSON AND SONS' Splendid Set will be ready in October. See CATALOGUE.

New Pelargoniums.

J. DOBSON AND SONS will send out their Superb Set in October. See CATALOGUE.

A General Collection of the above is now ready. Prices very low.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

TO THE TRADE.—The Trade supplied with packets (in any quantity) of DOBSON'S unequalled CALCEOLARIA, CINERARIA, and PRIMULA SEED. Price on application. Retail price, 1*s.*, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

PINUS LARICIO.—To gentlemen planting out largely for profit WILLIAM BARRON begs to make a special offer of his fine and well-rooted stock of the above. This fine Pine supersedes the Larch for Forest-planting, producing timber much sooner for Railway Sleepers. It is also used for Spars and Masts in the French navy.

2-years' Seedlings, strong plants ..	per 1000	15*s.* 0*d.*
2-years' transplanted, 9 to 18 inches ..	,,	30 0
2 to 3 feet	,,	70 0

Elvaston Nurseries, near Derby.

Deutzia crenata fl. pleno—Japan.

JOHN STANDISH has now the pleasure of submitting to the consideration of his friends and the public the above truly valuable and hardy ornamental plant. It has received First-class Certificates both at the Royal Horticultural and Royal Botanic Shows in June and July last (*vide* Report).

"There were a few very interesting new hardy plants shown, first a Deutzia crenata flore pleno, one of Fortune's novelties, flowered by Mr. Standish. This looked like a fine addition to hardy shrubs; it has opposite shortly stalked finely serrated leaves, and copious terminal racemes of deflexed double flowers deeply tinged externally with rose."

Plants now ready, 10*s.* 6*d.* each; or 6 Plants for 42*s.*

Royal Nursery, Ascot, Berks.

THE VICTORIA NECTARINE (Rivers).

MESSRS. THOS. RIVERS & SON

now offer Trees for Sale of this new and delicious Fruit, at 10s. 6d. each,

CARRIAGE PAID TO LONDON.

The Tree was raised from a stone of the Violette Hâtive Nectarine, the flower of which had been fertilised with the pollen of the Stanwick Nectarine. It bore fruit in 1861; was awarded a First-class Certificate by the Fruit Committee of the Royal Horticultural Society in September of that year, and was named as above.

The Tree has the small flowers of the Violette Hâtive; the fruit is of the same shape, and nearly as bright in colour; large, often measuring 9 inches in circumference, and like that of a bright crimson near the stone; in this respect totally unlike the Stanwick, which is white at stone. It has the true flavour of the Stanwick, with all its fine aroma and sugary richness. It ripens a fortnight after the Violette Hâtive, and about the same period before the Stanwick (at a season when fine Nectarines are scarce), thus proving the most perfect cross-bred fruit ever raised.

The Trees offered are—1st, MAIDEN TREES in pots, all full of blossom buds from having been grown under glass, and all capable of bearing next season; 2d, SMALL TRAINED TREES, with three branches, for walls; 3d, STANDARD and HALF STANDARD MAIDEN TREES from the open ground; 4th, a few large bearing PYRAMIDS, in pots, at 21*s.* each. Trade Prices given on application.

NURSERIES, SAWBRIDGEWORTH.

ESTABLISHED UPWARDS OF A CENTURY.

BUTLER & McCULLOCH,

COVENT GARDEN MARKET, LONDON, W.C.

All Orders amounting to 21s. sent Carriage Paid.

COLLECTIONS of BULBS for GREENHOUSE or CONSERVATORY.

Purchasers who may not require all the sorts mentioned, can have increased quantities of other kinds, of if they think proper, may select from the Catalogue to the amount. The numbers in the columns indicate the quantity of Bulbs in each Collection.

	No. 1. £5.	No. 2. £2 10s.	No. 3. £1 5s.	No. 4. £1 1s.	No. 5. 10s. 6d.
HYACINTHS, for Pots, Glasses, or Moss, named varieties ..	60	30	15	15	12
POLYANTHUS NARCISSUS, do. do., do. ..	26	13	6	6	3
TULIPS, single, do. do., do. ..	50	25	12	..	..
,, double, do. do., do. ..	50	25	12	..	..
,, DUC VAN THOL, single	25	12	6	6	12
,, ,, scarlet	12	6	3	3	..
,, ,, rose	12	6	3	3	..
,, ,, yellow	12	6	3	3	..
JONQUILS, double, sweet-scented..	12	6	3	3	3
,, single, ,, ...	12	6	3	..	..
LILIUM LANCIFOLIUM	3	2	1	1	1
IXIAS	25	12	6	6	3
SPARAXIS	25	12	6	6	3
BABIANA	6	3	1	6	3
CYCLAMEN	6	3	2	1	..
VALLOTA PURPUREA	1	1	1	..	..
AMARYLLIS FORMOSISSIMA	12	3	3	3	..
NEWEST SEEDLING CROCUS, named varieties	200	100	50	50	50
SCILLA SIBIRICA	12	6	6	3	3
OXALIS SPECIOSA	25	12	6	6	3
TROPÆOLUM JARRATTII..	1	1	..	..	..
IRIS PAVONIA	6	3	3	..	..

BARR & SUGDEN 12 KING ST. COVENT GARDEN

Just Published, price One Shilling,

THE ILLUSTRATED FLORAL GUIDE

TO

WINTER AND SPRING GARDENING,

SHOWING HOW FLOWERS MAY BE HAD IN SEASON FROM DECEMBER TO MAY.

Bulbs for the Adornment of the Spring Garden, Conservatory, and Sitting Room.

(For Collections, see our Advertisement, page 886 of *Gardeners' Chronicle*, Sept. 19.)

	per dozen.	per 100.		per dozen.	per 100.
HYACINTHS	2*s.* 6*d.* to 15*s.*..	18*s.* to 100*s.*	RANUNCULUS	6*d.* to 2*s.* 6*d.* ..	2*s.* to 10*s.* 6*d.*
TULIPS	6*d.* to 3*s.* 6*d.*..	3*s.* 6*d.* to 18*s.* 6*d.*	ANEMONES	6*d.* to 2*s.* 6*d.* ..	3*s.* 6*d.* to 10*s.* 6*d.*
POLYANTHUS NARCISSUS	3*s.* to 4*s.* ..	21*s.* to 30*s.*	GARDEN NARCISSUS..	6*d.* to 2*s.* 6*d.* ..	3*s.* 6*d.* to 10*s.* 6*d.*
CROCUS..	4*d.* to 8*d.* ..	1*s.* 6*d.* to 4*s.* 6*d.*	SCILLAS	1*s.* 6*d.* to 4*s.* 6*d.* ..	10*s.* 6*d.* to 14*s.* 6*d.*
SNOWDROPS	4*d.* to 6*d.* ..	2*s.* to 3*s.* 6*d.*	WINTER ACONITES ..	6*d.* ..	3*s.* 6*d.*

For PRICED and DESCRIPTIVE LISTS of BULBS necessary for Winter and Spring Gardening, with the best methods of successfully cultivating and advantageously arranging them, see

BARR & SUGDEN'S

ILLUSTRATED FLORAL GUIDE TO WINTER AND SPRING GARDENING.

ROYAL HORTICULTURAL SOCIETY.
FRUIT COMMITTEE.

A Meeting of this Committee will be held on TUESDAY, October 6, for the Examination of such Fruits and Vegetables as may then be submitted for the opinion of the Committee. The following Prizes are offered:—

Class A.—Best Collection of any varieties of GRAPES, one Bunch of each, 42*s.*, 21*s.*

Class B.—Best Dish of COX'S ORANGE PIPPIN, 10*s.*, 5*s.*

Class C.—Ditto ditto, GOLDEN REINETTE, 10*s.*, 5*s.*

Class D.—Ditto ditto, of any variety of Pine Apple-flavoured DESSERT APPLE,* 10*s.*, 5*s.*

* This includes such varieties as Lucombe's Pine, Pine Apple Russet, Pine Golden Pippin, &c.

*** All Communications and Packages must be at South Kensington by 11 o'Clock on the day of Meeting. Chair to be taken at 12 o'Clock precisely.

Robert Hogg, LL.D., Secretary to the Committee.

AMALGAMATED METROPOLITAN CHRYSANTHEMUM SOCIETY, for Nurserymen, Gentlemen's Gardeners, and Amateurs.

FIRST GREAT EXHIBITION, Agricultural Hall, Islington, WEDNESDAY, THURSDAY, and FRIDAY, November 11, 12, and 13.

260*l.* in General Prizes, and Reserve Fund for Special Prizes, as awarded by the Judges, open to all England.

Rules, Schedules, &c., to be obtained of the Honorary Secretary by enclosing two postage stamps.

The last day for the enrolment of Members will be October 12. J. Jefferies, Hon. Sec.

10, Catherine Street, Barnsbury Park, Islington, N.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 3, 1863.

MEETINGS FOR THE ENSUING WEEK.

Tuesday, October 6 { Royal Horticultural (Floral and Fruit Committees) at S. Kensington .. Noon

In the choice and cultivation of plants for the decoration of the greenhouse and conservatory as well as for exhibition at our floral shows, our taste has always differed in a remarkable manner from that of our friends on the Continent. Our efforts have been directed to the production of what are called "specimen plants" covered with blossoms of a large and showy kind. Our ideas of perfection in an Azalea or favourite stove plant are huge size, symmetry in form, and a large quantity of flowers. Pelargoniums also are tolerated only when in the same condition. Year after year plants have been grown in this way, the only difference observable being a gradual increase in size, showing an extraordinary example of patience and horticultural skill in the cultivator. Leaves on such plants would appear to be quite a secondary consideration, and in many instances are completely hidden, either naturally or artificially, by the flowers. When we consider how much leaves of a green and healthy kind have a tendency to enhance the beauty of flowers by the contrast, it would seem that more attention ought to be paid to their production.

It is true that the difference betwixt continental gardeners and ourselves in the cultivation of plants was more remarkable a few years ago than it is at the present time. Our tastes have changed to a certain degree, and we can now admire plants with handsome foliage, although we may rarely see their blossoms, and although such blossoms may not be very showy or attractive when they are produced. This would appear to be a move in the right direction, and it might be of some advantage to us to move onwards. We might follow the example of foreigners as well as of the directors of our Botanical Gardens, and extend our admiration of large and showy flowers to smaller ones. All the productions of nature are beautiful; even what we are accustomed to call weeds have a beauty of their own, although we would not go so far as to recommend such apparently insignificant things for exhibition purposes. That our specimen plants would be improved by allowing leaves to grow amongst the blossoms can scarcely be doubted, and perhaps a form somewhat more natural in the general outline of the plant itself might be an improvement.

A circumstance which is somewhat remarkable has suggested the above observations, and to this we venture to draw the attention of our readers. We have watched with much interest the rise and progress of floral exhibitions in this country. We have seen how the plants have year after year grown larger and larger, gradually and surely exhibiting a greater degree of horticultural skill, until the magnificent results have been attained which have been shown in our gardens during the season which has just passed by. During many years of this progress the public, as a body, seemed to derive as much pleasure from looking at these examples of horticultural skill as the gardener himself who produced them, and who was so justly proud of his handy work. A change, however, is but too visible in the tastes of the gay crowds who patronise our flower shows. Any attentive observer during the past season must have remarked this circumstance. The Orchids, it is true, appear to be as attractive as ever; Roses, new plants, and any remarkable form of vegetable structure have crowds of admirers; but why is there no longer any crowding in front of the magnificent Azaleas, stove plants, and Heaths, which one used to see in former years? Is it because the same things are presented too often in the same way, or are our tastes undergoing a change? The matter, we think, is worthy of the attention of Horticultural Societies and promoters of flower shows.

A Correspondent has written to ask our opinion upon the following question, which appears to be daily becoming more worthy of consideration: "Should cemeteries be decorated with the gayest flowers that can be obtained; or, would it not look far more in character with the place, to substitute trees, shrubs, and plants of a sombre tint?"

Now we look upon this question as involving considerations of pure taste and feeling, upon which any person possessing those qualities is capable of giving an opinion; we therefore should be very glad to know the views of any of our correspondents who have considered the matter, while, without assuming the airs of an "*arbiter elegantiarum*," we venture to express ourselves very decidedly in favour of the shrubs of sombre hue, and against the gaudy flowers. Or perhaps we should like best of all to keep the general features of a cemetery to some extent sombre and funereal, while we should wish the tenderest emotions to be raised by the sight of individual graves thoughtfully cared for, rendered pleasing to the eye, and soothing to the mind, with a few simple wild flowers, and fragrant with Primroses, Violets, or Sweetbriar, the sacred labour of some female hand, the tribute of some loving heart. Such flowers of Nature speak for themselves; they tell their own tale. But, perhaps, to confine ourselves to such as these would be imposing too narrow a limitation. Surely there can be no objection to the presence of any flowers that do not require the continual labour of the gardener and his men, provided that they are not introduced into the walks, or ranged in elaborate parterres, which would give a notion of paid-for work, and not be suggestive, as they manifestly should be, of an offering of affection, a labour of love. Among the flowers that would seem to be most appropriate, one thinks of the modest Snowdrop, peeping above ground ere the winter is gone—the harbinger of spring, or the Crocus expanding its beauteous flowers on the first cheering sunshiny day; Anemones, bright and hopeful; Blue Bells, sweet and elegant, hanging down their heads; the true old Fuchsia coccinea, with pendent spray, but not its vulgar "improvements." All these are admissible, and our fair readers will easily think of a multitude of others, quite as appropriate.

It appears to us that the endeavour to harmonise outward objects with our inward feelings is a true mark of delicacy and refinement; and, on the contrary, the abrupt introduction of matters perfectly incongruous with our frame of mind, ever must be harsh and jarring to the sensitive. To "rejoice with them that do rejoice, and weep with them that weep," is at once a Christian maxim, and the dictate of a warm and sympathising nature. To make cemeteries into a gay promenade would be as painful to the feelings, and almost as much out of place, as dancing at a funeral.

Having been asked for an opinion as to whether Peaches produced in orchard-houses are as sweet and high-flavoured as those from the open wall, Mr. Thompson stated, at p. 822, that, generally speaking, Peaches ripened or grown in orchard-houses are decidedly not equal in quality to those from a good south wall. He admitted at the same time that the question turned on many combinations of circumstances, and that some of these may give rise to exceptions to the general rule. On the other hand, Mr. Rivers mentions several instances of wall Peaches being inferior to his orchard-house ones.

There is a great difference in the quality of wall fruit in different seasons, and according as the trees are well managed or the contrary. The fruit in some cases might be such as could only be termed *good*, compared with which orchard-house Peaches might be pronounced *better*, although not equal to the *best* that are produced against walls under good management. Again, in a very large collection, such as Mr. Rivers possesses, some varieties may be better suited for orchard-house culture than others, and thus form exceptions to a general rule. The Shanghae Peach appears to be one of these; we know indeed that it often does not ripen so as to part freely from the stone against a wall; but Mr. Rivers informs us that it succeeds better in an orchard-house. The shelter afforded by the latter proves suitable in like manner to certain varieties of Apples, Pears, &c., which are not adapted for our out-door climate, more especially in the northern districts of the kingdom.

With regard to the colouring of Peaches, Mr. Rivers admits that "as a rule, wall Peaches are deeper in colour than those under glass." This admitted, he says, exceptionally on the other hand, "his deeper coloured Peaches—their rinds of a very dark crimson—have been grown on low trees, the fruit being 9 feet from the glass." We have seen well coloured fruit on one side under glass, and whilst in the house they appeared of a ripe yellowish hue on the shaded side, they nevertheless showed a greenish tinge when brought out to open day.

Of the different kinds of fruits grown in orchard-houses, we believe that the Peach requires more especially the direct rays of the sun to bring it to the utmost perfection as regards colour and richness of flavour, with fine aroma. If it cannot have the direct rays, as must be the case under glass, then it should be situated where it can have the nearest approach to direct rays, and that Mr. Thompson said was within a short distance of the glass, for he knew from experience, as all cultivators do, that the farther from the glass the more the plant suffers from the weakness of the light. The brightest glass in use for horticultural purposes is to some extent a screen, even to vegetation near it; and plants grown at too great a distance from it prove evidently that the light is weakened in some proportion to the distance it traverses after passing through the glass.

"An Amateur, Clapham," at page 892 says, "the loss of light by reflection, and by passing through the glass at a high angle, is not more than two or three rays in 1000." This agrees sufficiently with Bouguer's Table of Rays reflected from Glass, according to which at a high angle, or when the rays fall in a perpendicular direction, or nearly so, to the surface of the glass, only 25 in 1000 are reflected; but, by the same authority, when the angle of incidence is as much as 85°, or when the rays come in a very slanting direction, as many as 543 out of 1000 are reflected, or more than one-half. Lambert found that when the rays of light fell at a perpendicular incidence, 62 out of 1000 were reflected; but when the glass which he used was less transparent only 811 were transmitted, and 137 were lost even when they fell not the least slanting. Now the rays of light must fall in very slanting directions on a plane like a glass roof for the greater portion of the day; and only for an instant in each day can they be strictly perpendicular. The loss by reflection in the course of the day must therefore be much greater than was asserted by "An Amateur." He next appealed to a high authority, as he says, by asking the question of the sun, whose answer it appears he received in two minutes on two pieces of photographic paper, both of which have been forwarded to us. One was placed within a foot of the glass; the other 10 feet from it. The answer he admits was contrary to his expectation. He estimates, and we think very correctly, that "the one exposed within a foot of the glass has been acted upon by the light with *double, or perhaps more than double*, the energy to the other. Probably he will favour us with the result of a similar experiment with the sun's rays. We tried these with a lens, not by any means powerful, nor was the sunshine very bright. When the rays were concentrated *outside* a window, we could bear them on the hand no longer than 12 seconds; but inside we could bear them equally concentrated for 20 seconds. We have seen a good thermometer exposed in the open air against a south wall standing at 130°; whilst another against the same wall, but under glass, with abundance of air, was only raised to 80°. The Peaches exposed to where the 130° were indicated were finer and better flavoured than those under the glass; yet, like Mr. Radclyffe, we will not say a word against glass; but we firmly believe that

orchard-houses or glass-houses for fruit-growing do require, and will admit of, great improvement, to which we trust that this little discussion will tend. * *

—— The CARNATION and the PICOTEE seem to hold their own in the midland and northern counties, for it is reported of the "National" exhibition of these flowers held in the past summer at Manchester, that such an array of fine sound blooms as have been seldom if ever before witnessed were on this occasion brought together. We hope to see them yet occupying a more prominent position than they have lately taken in the exhibition arrangements of the south, for no flowers can possibly be more lovely. We have been scanning over the prize list at the "great" exhibition just referred to, in order to ascertain, by their repeated recurrence in the stands, which are the favourite sorts amongst growers in the districts referred to, and the result of our search is as follows:—

Carnations.	Blooms	*Picotees.*	Blooms
S. F. Sportsman ..	.. 10	H. P. Mrs. Bayley	.. 11
S. B. Admiral Curzon	.. 10	H. R. Mrs. Dodwell	.. 11
R. F. Lovely Ann ..	.. 7	L. Ro. Bertha ..	.. 10
C. B. Jenny Lind ..	.. 6	L. P. Mrs. Hanaford	.. 9
P. B. Falconbridge	.. 5	H. Ro. Flower of the Day	7
S. B. Dreadnought	.. 5	H. Ro. Northern Star ..	6
R. F. Uncle Tom ..	.. 4	L. R. William Summers	6
R. F. Apollo ..	.. 4	H. R. Countess of Wilton	6
R. F. Samuel Moreton	.. 4	H. R. John Smith ..	6
C. B. Lord Milton ..	.. 4	L. R. Ada Mary ..	.. 5
C. B. Warrior ..	.. 4	L. R. Rosetta ..	.. 5
L. F. Henry Steward	.. 4	H. P. Lord Nelson	.. 4

The remaining varieties consisted of: *Carnations*—Earl of Sefton, 4 blooms; Merrimac, Queen Boadicea, Ariel, Premier, Earl of Wilton, Juno, Lady Peel, John Bayley, Lord Raglan, 3 blooms; Beauty of Woodhouse, Lord Rancliff, Bianca, Ivanhoe, Mayor of Nottingham, and Nymph, 2 blooms; and King John, Companion, Magnet, Alhambra, Favourite, Black Diamond, Fancy, Sarah Payne, Cleopatra, Duke of York, Squire Meynell, Mrs. Knivett, Ruth Hannah, British Hero, Sir J. Paxton, William IV., Mrs. Chapman, Constellation, Garibaldi, 1 bloom: *Picotees*—Mrs. Norman, Rosy Circle, Finis, 3 blooms; Ann Simonite, Elise, Rev. H. Matthews, Mrs. Turner, Mrs. Barnard, Lucy Alice, Lauretta, Picco, National, Mrs. May, Mrs. Bloomfield, 2 blooms; Haidée, Aurora, Mrs. Drake, Favourite, Sarah Ann, Countess, Amy Robsart, Mrs. Simonite, Miss Riley, Mrs. Eyre, Miriam, Rebecca, Miss Wood, Sultana, Venus, Princess Alice, Princess Helena, Princess of Wales, Miss Holbeck, Mrs. Reynolds Hole, 1 bloom. The position of Premier Carnation in the whole exhibition was awarded to C. B. Jenny Lind, and that of Premier Picotee to L. P. Ann Simonite. The most conspicuously fine blooms were afforded by Mrs. Dodwell, Countess of Wilton, Mrs. Norman, John Smith, Rosetta, Ada Mary, Mrs. Bayley, Picco, Lord Nelson, Ann Simonite, Mrs. Hanaford, Flower of the Day, Princess Alice, Elise, Northern Star, Miss Meeking, Bertha, Rosy Circle, and Lucy Alice amongst Picotees; and by Admiral Curzon, Warrior, Jenny Lind, Sir J. Paxton, Falconbridge, Earl of Sefton, Henry Steward, Sportsman, John Bayley, Mrs. Chapman, Earl of Wilton, Premier, Lovely Ann, Uncle Tom, and Merrimac amongst Carnations.

We give this brief sketch of the Manchester meeting for the purpose of showing what an amount of interest gathers around these fragrant summer flowers; and to afford again the opportunity of expressing a hope that the managers of some of our metropolitan shows will break through the *ad nauseam* routine of compressing three summer shows into the space of six weeks, and will give us instead at least one show that may admit the Carnation and Picotee in all their glory.

—— Some very important public sales of JAPANESE PLANTS are announced for the early part of October. First in point of date is that of Mr. VEITCH at the Auction Mart, on the 7th instant, some of the attractions of which are to consist of Lilium auratum, Sciadopitys verticillata, Retinispora obtusa, and Thujopsis dolabrata, &c. On the 21st and 22d instant, part of Mr. FORTUNE'S collections reared by Mr. STANDISH are to be disposed of at Stevens's rooms. Amongst other fine things, Osmanthus ilicifolius, the Retinisporas, Thuja falcata, the beautiful Golden-veined Honeysuckle, and the new Japanese Chrysanthemums will be offered. Catalogues of both sales are, we believe, now procurable.

New Plants.

260. PINUS FLEXILIS, *James, in Long's Exped.* 2, p. 27 & 34; *Torrey, in Ann. Lyc. N. Y.* 2, p. 249.

Arbor mediocris seu elatior; foliis dense confertis quinis subbiuncialibus rigidis integris acutiusculis ex axillis perularum lanceolatarum deciduarum, squamis vaginantibus obtusis laxis mox evanidis; amentis masculis ovatis involucro sub-8-phyllo munitis in axillis bracteæ lanceolatæ patulæ deciduæ sessilibus, antherarum crista minore irregulariter inciso-dentata; amentisfemineis subverticillatis in pedunculo brevi perulis late lanceolatis acutis dense stipato erectis squarrosis; strobilis ovato-cylindraceis squarrosis horizontalibus seu declinatis e rubello fuscis, squamis e basi breviter cuneata latissimis orbiculato-rhombeis, apophysi convexa semicirculari incrassata margine area parva subrhombea inermi notata; seminibus magnis obovatis exalatis carinatis.

On the Rocky Mountains, from New Mexico to the 49th parallel, "occupying the subalpine belt, never forming entire forests, in the lower elevation associated with P. contorta, approaching the alpine districts, scattering with P. aristata" (Parry's Notes); on the Sandia Mountains, New Mexico, 12,000 feet high, to the top, *Dr. Bigelow;* mountains of Santa Fé, *A. Fendler* (No. 832); Colorado, *James, Parry, Hall & Harbour* (No. 529); Laramie Mountains, *H. Engelmann;* mountains from the Platte to the Bear River, *Nuttall;* Wind River Mountains, *Fremont;* Big Horn Mountains and mountains at the headwaters of Snake River, *Dr. Hayden*, to the British boundary, *Dr. Lyall.* Nuttall's figure in his Sylva, pl. 112, is very poor, and even quite incorrect; nor can I learn that any specimen of his is preserved in the herbarium of Mr. Durand or of the Academy of Natural Science, in Philadelphia, but suppose that he had our species in view.—P. flexilis, the American representative of P. Cembra of the old world, is a middle-sized tree, usually 30—50 feet high, though Fendler, a good authority, saw it near Santa Fé 60—80 feet high; Dr. Bigelow's trees, of the height of 100—130 feet, on the San Francisco Mountain (Bot. Whipple, p. 20), must belong to some other 5-leaved species. In Colorado it is a fine tree, with tapering trunk and oval outline, branching almost from the base, lower branches horizontal, upper ones ascending; wood white, hard, annual rings from ⅛ to ½ line, on an average ¼ line wide; trees become in 250—300 years about 1 foot thick. Leaves crowded towards the end of the very flexible branches, persistent 5 or 6 years, usually 1½—2½, very rarely 1 or 3 inches long; sheaths similar to those of P. Strobus or P. Cembra, 8 l. long, deciduous. Male aments 4—5 l. long, forming a thick spike 10—12 l. long; cones subcylindric, tapering to the end, 4—5 inches long, 2 inches in the largest diameter, on short peduncles; scales 12—14 l. long, 10—12 l. wide, squarrose; lowest sterile ones recurved; fertile ones with deep impressions for the reception of the seeds both on the upper, inner side, and on the back, the latter cavities partly formed by the large (4—6 l. long) ligneous or rather corky bract. Seeds 4—5, rarely 6 l. long, irregularly ovate or obovate; wing minute, not deciduous nor adhering to the scale, as in P. Cembra, P. edulis, &c., but reduced to a persistent keel on the upper end and outer edge of the seed; embryo with 8 or rarely 9 cotyledons. *Engelmann, in Transactions of Academy of Sciences of Philadelphia.*

HORTICULTURAL EXHIBITION AND SCIENTIFIC MEETING AT STETTIN.

THE migratory Scientific Association which first suggested the idea of the British Association, is the German Naturalist and Physical Association, which has just held its 38th meeting at Stettin, "Versammlung Deutscher Naturforscher und Aertze." Established in 1822, it has held its meetings in different towns throughout Germany annually ever since, with the exception of three years, during which no meetings took place, owing to such accidental interruptions as the cholera in 1832, and the revolution in 1848. The honour of having the meeting held in their towns is as highly esteemed and as eagerly sought for in Germany as are those of the British Association at home, and last year Stettin obtained only by a narrow majority the preference over Dresden for this year's meeting. The preference however has been justified by the result. Upwards of 600 members have attended the meeting, which must be considered a great success, seeing that the numbers which attended last year's meeting at Karlsbad were only about 350, while the numbers at Speyer in the previous year were still fewer. Nor has the quality of the meeting been inferior to its quantity. Where such men as Virschow, Haeckel, Maedler, Dove and Koch led the van, it may be well supposed that there was no lack of first-class men of science to keep them company. The busy town of Stettin has thus been full to overflowing, and its ancient hospitality has been largely drawn upon. The visitors were billeted on the principal inhabitants, who vied with each other in lavishing kindness and attention upon their guests. They may not have displayed their hospitality quite in the same fashion as that recorded of their ancestors by Kanzow in his curious "Chronicle of the Customs of the Old Stettiners and Rugianers,"* who, he tells us, held it a shame for a host not to drink with his guest until they had consumed everything in his house, and when that was done it was their custom to sally forth to or upon his neighbour and drink him up likewise, the visit and the drinking being by some mystical fancy held equivalent to that of God himself. Their recent hospitality did not go so far, but the spirit which gave rise to the custom still survives, and if any of their visitors had wished it, there is no doubt that they would have revived it and carried it out to the letter.

What more concerns us, however, is that simultaneously with the "Versammlung" a horticultural exhibition was held, in which we take considerable interest on various grounds. It was the first effort of a new society. Twelve months ago no horticultural society existed in Pomerania. Ten years ago horticulture itself was little cared for. Within that time our science has penetrated into the district, and taken root—not, we fear, from any love of the subject, but from the more powerful influence of the pocket. Fruit trees grow in Pomerania like weeds, and the Stettiners have recently found a remunerative market for their produce both at Copenhagen and St. Petersburg. There is now a cheap, rapid, and regular steam-boat communication between Stettin and these towns, and with and from it there has sprung up a pretty extensive traffic in fruit and vegetables. Any one establishing himself as a market gardener near Stettin could scarcely fail to make money rapidly; that is, always supposing that he knew his business, and was a man of business. The trade is at present, for the most part, in the hands of cottagers and small farmers, who bring their cargo of fruit to Stettin, ship it and themselves with it to Copenhagen or St. Petersburg, where they sell it, receive the price, and return with the money to repeat the operation so long as the season or their crop lasts. The trade has to them all the charm of novelty. It is a new source of wealth—almost literally "found money."

The climate of Pomerania is admirably adapted for the growth of fruit. We have just returned from a visit to Hoekendorf, a small country village, about 8 or 10 miles beyond Stettin, on the borders of the Pomeranian Beech forests. As with "an earth-directed eye" we strolled along a foot path searching for new plants and animals, we noticed without noticing every now and then a Plum or two scattered on the ground. In the simplicity of our hearts we said to ourselves—some one eating Plums has passed this way and has dropped some or thrown away the unripe ones. Presently we came to a whole scatter of Plums, which made us look up, and then we saw that the hedge-row timber all along was composed of Plum trees, heavily laden with dark Damsons, and that the Plums which we had passed on the ground were those which had fallen from the trees by the wayside. It is not in the least an exaggeration to say that we could in our morning walk have easily filled a couple of bushels with the dropped Plums which lay beneath our feet. Nor were the other trees less fruitful; Apple trees and Pear trees growing in orchards, with fences which were no fences, were bending under a heavy crop. But the Stettiners have now discovered that it is as easy to grow good fruit as bad—a large Apple as a small one—and they are eagerly seeking to improve their stocks and increase their orchards. With the demand comes the supply. Nurseries and nurserymen are increasing in number—all, however, paying more attention to fruit and trees than flowers; and among other symptoms of progress has sprung up the "Stettiner Gartenbau Vereins," the Horticultural Society of Stettin, and the late Horticultural Exhibition there. Notwithstanding the disadvantages attendant on inexperience and haste in getting it up, for, as Professor Koch described it, it was only a seven months' child, having been resolved upon seven months ago, at the suggestion of the Berlin Horticultural Society, the exhibition would have been creditable to any old society. It was well supported by the nurserymen of the province, and also owed a good deal to M. Haage, of Erfurt. Our own Royal Horticultural Society, anxious to give encouragement to the young Society, readily responded to its invitation to contribute, and sent a collection of named Apples and Pears from Chiswick, which, as it turned out, was the very direction in which it could be most useful. The fruit grown in the neighbourhood (almost entirely upon standards) formed an interesting part of the exhibition, some of the Apples and Pears exceeding what can be grown in Britain, both in size, beauty, and flavour; however, generally speaking, the fruit of the country, although so plentiful, is susceptible of improvement in quality. Nor were the specimens confined to the sorts already known and recognised as good. Messrs Schmidt & Haffner of Radetkow (a well-known house), the chief nurserymen in the province, whose nursery is about 150 acres in extent, are turning their attention to raising new varieties, one of which was particularly striking, from its beauty and unusual colour, the red cheek—at least, what should have been the red cheek—being of a delicate pale mauve colour upon white, as if the Apples intended that they too should share in the advantages of the discovery of aniline. Their Peaches, and more especially their Plums, were as fine as could be desired. Schmidt again exhibited a collection of Hazel Nuts, of between 40 and 50 different kinds, similar to that which attracted a good deal of attention at the Exhibition at Namur last year.

The flowers exhibited, although we observed few of rarity, seemed richer and deeper in colour than in England. The Roses were as fine as with us in June, and there was a very fair display of the ordinary fine-foliaged plants. It is almost unnecessary to say that they were displayed, and that the place in which they were exhibited was decorated with great taste. Taste is the rule on the continent—want of it the exception. It may, however, be worth while now, whilst the subject of tents for exhibitions is still a vexed question among horticulturists in England, to say a word upon the place in which the exhibition was held. In England tents are preferred, not only for the subdued light which they secure, but also for its equal diffusion. On the continent they seem quite alive to the advantage of the former, but either from necessity or want of appreciation pay less attention to the latter. Most of the larger towns are fortified, and of course contain a body of troops, and equally of course almost, there is a riding school—a large oblong wooden unpaved building, with a row of small windows pretty

* A chronicle containing much curious information, written by Kanzow, a contemporary of Luther and Melanothon, in 1540, and edited and published by Bohmer in 1835.

high up, admitting a subdued light only, but somewhat unequally distributed. This riding school is the usual *locale* chosen by our neighbours for horticultural exhibitions, and it was so by the Stettin Society in the present instance. Their building was from 15 to 20 feet high, between two and three hundred feet in length, and about 40 in breadth; turf was laid down, out of which some of the plants exhibited appeared to grow naturally. One end was artificially raised, up which the walks and grass sloped, and the other end was broken into bays and alleys by hedges of the fine-foliaged plants. The effect was very good, and it may be a question whether some modification of such a building might not be contrived for our English shows. It might be erected at no great expense, and would escape the contingencies which seem inevitably sooner or later to attend the best constructed and most expensive tents.

The exhibition of vegetables was very meagre, and we did not observe any specimens of one of the most interesting kinds for which Prussia is celebrated, viz., the Telltower Turnip. Probably this is to be accounted for by that singular Turnip not being a native of the district. It is confined to a small sandy circuit at a place called Telltower not far from Berlin, and every effort to grow it elsewhere has been unsuccessful. It is small, about the size of a Radish, with a delicate aromatic flavour. It is highly prized by gastronomes; many attempts have been made to introduce it into other districts, but it has invariably degenerated into the ordinary fine large Turnip. This is the more singular that the soil of the neighbourhood of Stettin is to all appearance composed of exactly the same sandy materials as that of Telltower, and the same treatment has been tried with it, but all without success. But if we saw no specimens of this root at the show we saw plenty of them at the dinner-table. Like the real turtle of the alderman, or the duck and green peas of the citizen, the Telltower Turnip is now *par excellence* the delicacy of the season in that country where "delicatessen" are so much appreciated. Their Sanderfish is a dish to set before a king, their raw smoked eels a feast for the gods, but *Telltower Rüben mit Enten*—Telltower Turnips with duck: mark the emphasis!—not duck and Telltower Turnips, but Telltower Turnips the principal, with duck as a mere accessory, are thought by Stettiners to beat them all. We recommend the Zeesander or Sanderfish to the attention of the Acclimatisation Society—the smoked eels to the curers of our kippered herrings, and the Telltower Turnip to the care of the Royal Horticultural Society. Not for trial at Chiswick, though there is no harm in that too, but for trial by the Fellows themselves. The large number of country Fellows scattered over every variety of soil in Great Britain, gives the Society especial advantages for conducting to a successful issue any experiments upon plants which require a peculiar soil as the condition of their success. Let the Council distribute with their annual distribution of seeds in spring, packets of the seed of the Telltower Turnip, with memoranda of the information already possessed regarding it, and an analysis or a sample of the soil in which it grows, and we may next autumn have our own *Telltower Rüben mit Enten*, at our civic feasts. We expect a garland of Oak leaves from the Lord Mayor for the suggestion.*

Before turning our backs upon Stettin we must notice another subject which may interest our Arboricultural friends. We mean the Pomeranian forests, more especially the Beech forests near Stettin; these extend from about eight or ten miles north-west of Stettin, for 20 miles or more in length by five or six in breadth. A portion of them (perhaps five miles in extent) is of considerable age, 200 or 250 years; of the beauty and grandeur of these it is impossible to convey by words any adequate idea; the rest is of all ages, from one year up to 120 or more. Instead of a rotation of cropping it is subjected to a rotation of cutting. A portion is cut down every year, and the parts to be cut are so arranged that their turn to be again laid low will not come round for 120 or 130 years. When the time draws near for any portion to be cut, the forest authorities take precautions for securing a fresh crop of trees after the old ones shall have been removed. The first step taken is to warn the neighbouring cottagers and farmers, who either have, or exercise without having it, a right of pasturage in the forest, that that must cease on the portion to be cut. We may call it a right of pasturage, but pasturage there is none. Every one knows how impossible it is to get anything to grow under old Beech trees. The fallen leaves seem to poison the ground and to bring the curse of sterility with them to all but itself, but when the Beech tree sheds its mast these furnish ample food for pigs, large flocks of which are turned into the woods to feed upon them. But now that the trees are to fall, the mast must no longer be disturbed. It must lie on the ground to germinate and raise a new crop. This might seem difficult in a forest where there are no fences nor apparent boundaries—but it is easy notwithstanding. All that is done is to stick up a board bearing the magical word "Schonung," or indulgence; as much as to say that the peasants are entreated to have the indulgence to forbear from sending pigs into that part of the forest. How much better this is than "Trespassers will be prosecuted with the utmost rigour of the law." It may in practice mean the same thing, but how delicate the touch compared with our coarseness! It is like the practice of medical men in their treatment of the insane, who when a patient is more than ordinarily rude or violent confound him by ceremonious politeness, which often restores him to a calmness, which roughness or force would fail to do.

For three years the "Schonung" lasts and then the trees come down—not always all at once; sometimes a number of the best here and there are left for a few years, but soon they are cut down too. The young crop has now sprouted, and the ground is covered as close as a nurseryman's bed with young Beech trees. These are allowed to grow untouched for about 20 years; no knife or axe comes near them. At that stage they are impenetrable to aught but the squirrel and the martin or their like. Even when no higher than mid leg, it is laborious and difficult to traverse them; when twice a man's height, and with branches interlaced in every direction, it is impossible. After having been once thinned, the operation is periodically repeated—but the effect of their close growth during the early period of their life is never lost. They are drawn up into long straight trees with boles as regular and branchless as the mast of a ship. Nature has pruned them herself, and so they grow until their turn to fall again comes round. Such at least has been their fate hitherto, but there are symptoms in progress indicative of more rapid and frequent falls of timber to satisfy the pecuniary necessities of the present administration in Prussia.

Some years ago a proposal was made in the Prussian Parliament to clear away a large portion of these forests and turn the land into corn fields. This was happily defeated, chiefly, we believe, through the energetic protest and remonstrances of Herr Dohrn of Stettin, the well-known entomologist, who by the way presided over the recent meeting of the Association at Stettin. He knew better than our idiotical sparrow clubs the value of small birds to the agriculture of a country, and pointed out to the Parliament of which he was a member that insects would soon eat up the crops if there were no small birds to keep down their numbers, and that the small birds would soon be exterminated if there were no woods or forests for them to build their nests in. The argument prevailed, and the woods were saved for the time. *M.*

* This sort of Turnip well cooked is very nice, but we warn our friends that it demands the digestion of a navvy. *Ed.*

THE BARN OWL AND CO.

Last year, in the hollow of a huge Oak tree, I had an extraordinary ornithological family. The lower parts of this Oak serve me for a warm and sheltered seat, to watch the wild water-fowl in the lake below it, on their periodical return from the Arctic regions; the upper part serving as a retreat for jackdaws, owls, starlings, *et id genus omne*. There is only one entrance into the uppermost chamber. The tree is roofed with slates in such a manner, that, in lifting up some of them, I can see, with a nicety, what is going on amongst the tenants.

Last year, in the month of July, I made my usual visitation. Sideways from the entrance, a jackdaw was sitting on five eggs; and on a projecting ledge, within 2 feet of the jackdaw's nest, there was a redstart's nest, with six green eggs in it. The rest of the chamber was tenanted by six barn-owls, independently of the two old birds, which flew away at my intrusion. Two of the young owls were nearly feathered; but, apparently, not quite ready to fly. Two others were half-fledged; and two others (making six in all) were barely covered with white down. I then bade good night to these pretty babes of the old Oak tree (by the way, it was 10 o'clock in the morning), and I closed the slates, promising that nobody should ever molest them.

Some years ago I had two little unfeathered barn-owls, in an adjacent tower, on Christmas morning. Owls are not the only birds of mysterious incubation. Some five and forty years ago, in a field of young growing Wheat, I found and examined minutely 10 eggs of a partridge, and six of a pheasant. They had been laid promiscuously in a little hollow of the ground before me. There was scarcely a blade of Grass to serve by way of feather-bed. But the investigation ceased, as I was called away on business. Possibly, there might have been some connubial understanding betwixt these two old hen birds which had laid their eggs in the same nest. However, let me not mislead the reader. This is mere conjecture—and conjecture is not worth much. *Charles Waterton, Walton Hall*

ROSES.

1. *A Pole Rose.*—Some people have no other idea of what constitutes a Pole Rose, than that it grows vigorously and runs up a pole. A Pole Rose is evidently intended for effect. It should therefore break well at all its eyes, which should be numerous and close to each other; its leaves and flowers, both numerous, should cover its stalks from the base to the summit; its side branches should not be long, straggling, or blind, but should be from 8 inches to 12 inches long, compact, and with a Rose at the end of each shoot. Madame Plantier is the best example of what a Pole Rose should be; properly managed it is a pillar of purity, and its branches, leaves, and flowers hide its main stems. The Boursault Amadis, crimson, is also a good specimen of a Pole Rose.

The following autumnals, though they will not fulfil all the conditions just named, may be used for such a purpose, viz., Acidalia, Anna Alexieff, Louise Carique, Caroline de Sansal, Alexandrine Bachmeteff, Jules Margottin, Baronne Prevost, General Jacqueminot, Gloire de Dijon, La Ville de St. Denis, Souvenir de la Reine d'Angleterre, Duchesse de Cambacérès, Sir J. Paxton, Mrs. Elliot, Madame Boll, Duchess of Norfolk, Prince Camille de Rohan, Duc de Cazes, and Princesse Mathilde, the three last dark Roses of great beauty, and abundant and continous bloomers.

The subjoined summer Roses are also good for the purpose, viz., Lanei, Madame Zoutman, La Ville de Bruxelles, Charles Lawson, Paul Perras, and Chénédolé. These autumnal and summer Roses are not only suitable for pole purposes, but they are also good Roses.

2. *A Perfect Rose.*—A Rose may be perfect as a flower, whether it be small, medium, or large. For show purposes large Roses are best adapted, and usually defeat the medium-sized Roses, although, perhaps, the latter may be the best. At exhibitions, from travelling and other causes, Roses are generally on the wane; then the big ones are sure to beat medium-sized kinds in the same condition. The grandeur of size still remains, and the contemplative minds of judges imagine all the rest. I do not say that 24 Roses well matched in size should beat a box of Roses where the sizes are various, without reference to variety of colours and other perfections, but I fear that that is sometimes the case.

Let me endeavour, without regard to exhibitions, to state what constitutes a first-rate Rose. The stalk should be stiff, and the leaves close in texture, and of good size and substance; the outline of the Rose should be circular, and the petals velvety, thick, deep, smooth-edged, round, well-disposed, and concealing the eye. The colour should be decided and fixed, and the reverse of the petals should be as well coloured as the surface. For lack of substance, and fixed and thorough colouring, what a sorry figure do many, otherwise nice Roses, display, both in the garden and also at exhibitions!

As regards shapes, the recognised forms are globed, cupped, upraised or vased, bomb-shaped, expanded, compact, rosetted, and peony-formed. The two first are, I think, the best shapes; but still we require variation in shapes as well as in colours, and if each is perfect in its shape it must be accepted.

There are other things besides formation which constitute a perfect Rose. The habit and hardihood of the plant, the free-blooming, the continuity and abundance of blooms, the invariability of good form, the power of the leaves to resist blights, and the endurance of blooms in good condition under torrid suns or pouring rains, form no small part of the good qualities of a first-rater.

How difficult is it to find all these qualities in a Rose plant and its flowers! I do not know any Rose that answers so well to the foregoing descriptions as Senateur Vaisse. Chabrillant will also fulfil all but the colouring of the reverse of the petals, which is different from that of the surfaces—still the silvery whiteness is very beautiful: for perfection of form there is nothing superior to her. Madame Furtado is also most perfect as a bloom, but deficient in growth and hardihood.

In the description of new Roses there are usually these most important omissions: thorough colouring, fixity of colour, and substance of petals. We also want variety in colours. People are inclined to give up the varied tintage of summer Roses to grasp at Hybrid Perpetuals, which are chiefly rose or crimson.

The readers of this will, no doubt, think that I have overlooked the excellence of Maurice Bernardin, Duc de Rohan, and Charles Lefebvre. Far from it, they are most noble additions, and they may possibly beat S. Vaisse; but, till we have seen an equal number of these four Roses side by side go through a severe winter and two summers, the one wet and cold, the other torrid, it would be wise to suspend such a judgment. *W. F. Radclyffe, Rushton, Sept.* 26.

BIRDS *versus* GARDENS, &c.—No. I.

A somewhat lively discussion has been going on recently in the columns of the *Times*, as to the merits or demerits of birds in their relation to gardens, &c., and both sides of the question have been advocated with considerable point. The discussion has necessarily included the farm with the garden, and certain "large" birds along with the "small" ones. We propose to give a summary of the arguments and statements put forward on both sides, and begin by the statements favourable to the feathered race.

Mr. Edward Wilson opens in the *Times* of Sept. 4, by drawing attention to a collection of the stomachs of birds which was to be seen in the French department of the International Exhibition. These were the work of M. Florent-Prevost, the celebrated French naturalist, who for 30 years has been prosecuting inquiries, and endeavouring to stop the persistent and indiscriminate slaughter of these beautiful little creatures. In taking steps to impress particularly upon the younger people in Australia the mistake they commit in destroying these birds which we are taking such trouble to introduce among them, Mr. Wilson had put himself in communication with this kind-hearted and enlightened philosopher, and by his aid had prepared a tolerably complete list of what is eaten during each month of the year by

the more common of our birds. This list, he thinks, is worth study at home, when the destruction of small birds by poison and other means is attracting Parliamentary notice.

M. Florent-Prevost's experiments were made in France. His specimens, moreover, showed the important fact that many birds, living a good deal upon grain, feed their young entirely on insects, so that they are serving us admirably in this way at a season when insects are most rife, even when the examination of their own stomachs would lead us to denounce them as little better than plunderers. Mr. Wilson mentions another set of experiments recently reported as suggestive of the incredible quantity of insects destroyed by such agencies. A gentleman took some young robins and fed them himself, weighing them and their food accurately day by day, to discover what quantity a young bird required to keep it in a growing and healthy condition. He found that, taking the common earthworm as a representative of the food, the daily supply required to keep a young robin in its highest health, laid end to end would reach the almost incredible length of 14 feet. M. Prevost's list is as follows:—

Long eared Owl.—Jan., Feb, March, mice; April, cockchafers; May, rats, squirrels, cockchafers; June, meal worm, beetles, shrew mice; July, mice, ground and other beetles; Aug., shrew and other mice; Sept., Oct., Nov., mice.

Short-eared Owl.—Jan., mice; Feb., harvest mice; March, mice: April, crickets, harvest mice; May, shrew mice, cockchafers; June, beetles; July, field mice, birds; Aug., field and shrew mice; Sept., Oct., field mice, beetles; Nov., common and field mice; Dec., mice, spiders, wood lice.

Barn Owl.—Jan., Feb., mice; March, April, May, June, field mice; July, Aug., mice; Sept., Oct., field and shrew mice; Nov., mice, black rat; Dec., mice.

Rook.—Jan, field mice, grub of cockchafer; Feb, field mice, grub of cockchafer, red worms; March, grubs, chrysalids; April, slugs, worms, chrysalids; May, beetles, grubs, wire worms; June, cockchafers, eggs of birds, woodboring beetles; July, young birds, beetles, &c.; Aug., birds, field mice, weevils, crickets, grasshoppers; Sept., grubs, worms; Oct., grasshoppers, ground beetles, young animals; Nov., young rabbits, insects, grubs; Dec., animals, decaying substances.

Magpie.—Jan., grubs of cockchafers, young beetles, corn, seeds; Feb., the same, with berries; March, the same; April, crickets, water rats, mice; May, cockchafers, glowworms, fruits; June, the same, and weevils; July, beetles, field mice; Aug., birds' eggs, weevils; Sept., beetles, worms, barley, grasshoppers; Oct., grasshoppers, carrion beetles, green locusts; Nov., grasshoppers, kernels of fruits; Dec., grubs of cockchafers, young rabbits, berries.

Jay.—Jan., grubs of cockchafers, acorns, berries; Feb., chrysalids, grains, seeds; March, grubs, insects, wheat, barley; April, grubs of beetles, snails; May, cockchafers, locusts; June, eggs of birds, cockchafers, beetles; July, young birds, flies, beetles; Aug., the same, acorns, grubs, dragon flies; Sept., the same, fruits; Oct., Nov., beetles, slugs, snails, grain; Dec., the same, haws, hips, &c.

Starling.—Jan., worms, grubs of cockchafers, dung of animals; Feb, grubs, snails, slugs; March, April, grubs of cockchafers, snails; May, the same, grasshoppers, fruits; June, flies, grubs of various flies, fruits; July, grubs, fresh-water shell fish, fruits; Aug., flies, glow worms, various beetles, fruits; Sept., green locusts, grubs of carrion beetles, worms; Oct., worms, beetles; Nov., snails, slugs, grubs; Dec., hips, haws, buds of trees.

Golden Oriole.—Jan., chrysalids; Feb., chrysalids, worms; March, grubs, beetles; April, ground beetles, weevils; May, beetles, moths, butterflies, grubs; June, grubs, grasshoppers, bees, cherries; July, cherries, beetles; Aug., weevils, chrysalids, fruits, worms; Sept., beetles, grubs, worms, fruits; Oct., grubs, herbs, chrysalids, berries, barley; Nov., ants, worms.

Crested Hoopoe.—Jan., worms, grubs, snails; Feb., March, April, the same, birds; May, flies, dragon flies, grubs of May-fly; June, water and land snails, flies, &c.; July, Aug., Sept., the same, wood-lice; Oct., Nov., snails, flies, spiders; Dec., the same, worms.

Green Woodpecker.—Jan., ants; Feb., worms, grubs of ants; March, slugs, beetles, grubs of ants; April, ants, worms, May, red ants, grubs of wasps; June, bees, ants; July, red ants; Aug., red ants, worms; Sept, ants, worms; Oct., grubs of ants; Nov., grubs of ants, bees; Dec., ants.

Reed Thrush.—March, grubs, insects; April, aquatic grubs; May, grubs of house and dragon flies; June, worms, grubs, flies, May-flies; July, beetles, dragon flies; Aug., worms, eggs of insects, beetles; Sept., aquatic insects.

Great Titmouse.—Jan., beetles, eggs of insects; Feb., grubs; March, winter snails, beetles, grubs; April, cockchafers, beetles, bees; June, cockchafers, flies, and other insects; July, the same; Aug., insects, fruits; Sept., seeds, grasshoppers, crickets; Oct., berries; Nov., seeds.

Blackbird.—Jan., Feb., seeds, spiders, chrysalids; March, worms, grubs, buds of trees; April, insects, worms, grubs; May, the same, cockchafers; June, the same, fruit; July, Aug., Sept., all sorts of worms and fruit; Oct., grubs of butterflies, worms; Nov., Dec., seeds, chrysalids.

Skylark.—Jan., seeds of wild plants; Feb., seeds, corn: March, insects, worms, seeds, corn; April, insects, beetles, corn; May, flies, various insects; June, grasshoppers, worms; corn; July, crickets, grasshoppers; Aug., insects, corn, seeds of weeds; Sept., seeds, worms, barley; Oct, Nov., seeds, corn, berries; Dec., seeds of wild plants.

Redbreast.—Jan., insects, worms, chrysalids; Feb., insects, worms, wood lice; March, chrysalids, worms; April, moths, eggs of insects, and cockchafers; May, grubs, beetles; June, flies, moths, spiders, worms; July, moths, butterflies, wood lice; Aug., Sept., the same, worms; Oct., eggs of insects, aquatic insects; Nov., worms, chrysalids; Dec., chrysalids, grubs, eggs of moth.

Nightingale.—Feb., grubs, worms; March, the same, chrysalids, ground beetles; April, flies, meal worms, beetles, red worms; May, butterflies, cockchafers, weevils, grubs; June, spiders, wood-boring beetles, worms; July, worms, grubs, eggs of locusts, grasshoppers, moths, flies; Aug., locusts, glow-worms, weevils, grubs; Sept., locusts, beetles, worms, dragon flies: Oct., grubs, worms, beetles; Nov., flies, worms.

Linnet.—Jan., Feb., March, April, seeds, berries; May, June, July, Aug., Sept., the same, insects; Oct., Nov., Dec., berries, seeds, buds of trees, fruit.

Chaffinch.—Jan., seeds, berries, kernels of fruit; Feb., the same, corn; March, the same, insects; April, moths, flies, insects of various kinds; May, cockchafers, grubs, eggs of insects; June, the same, wild fruit; July, the same, grubs of beetles; Aug., moths, butterflies; Sept., eggs of insects, worms, seeds; Oct., wood-boring beetles, insects; Nov., seeds; Dec., seeds, buds.

Greenfinch.—Jan., Feb., March, seeds, berries, wild fruit, worms, &c.; April, May, June, July, Aug., the same, insects, Sept., Oct., Nov., Dec., seeds, berries, worms, wild fruit, &c.;

Sparrow.—Lives near the habitation of man, and varies its food according to circumstances. In a wood it lives on insects and insects and seeds; in a village it feeds on seeds, grain, and larvæ of butterflies, &c.; in a city it lives on all kinds of *debris*. But it prefers cockchafers and some other insects.

The Rev. F. O. Morris tells us that the cause assigned for the destruction of small birds is the damage they do to the corn. Assuming, then, for the moment that for three weeks or a month, while the grain is in a ripe state, the produce of the cornfields is exposed to the depredations of a host of small birds to the extent that is commonly and most ignorantly supposed, there remain 11 months out of the 12 during which it is simply impossible that they can be feeding on ripe grain. How then, he asks, are they employed, for the most part, during these other 11 months? This he answers by quoting in detail a series of observations made by Mr. Weir, who with much patient watching found that a pair of thrushes between 2.30 A.M. and 9.30 P.M. fed their brood 206 times; and that in the case of the blackbird, between 2.30 A.M. and 8.40 P.M., the male fed the young 44, and the female 69 times, the former at the time the observations were discontinued being engaged in pouring forth his most charming melody. Again, a pair of the blue titmouse, between 2.15 A.M. and 8.30 P.M., when they stopped in their labour of love, fed their young 475 times; they appeared to feed them solely with caterpillars, sometimes bringing in a single large one, and at other times two or three small ones, so that it was impossible to say how many had been carried in during the day.

A "Sincere lover of birds, fruits, and flowers," who has encouraged birds to the utmost extent, in spite of the complaints of his prejudiced gardener, and had still had an abundance of fine fruit and vegetables, sufficient not only to supply a family of 14 persons, and all the birds in the garden, but also occasionally to sell and give away, accounts for this in some measure by the larger birds being very fond of the berries of the Laurel and Portugal Laurel, which were very plentiful; but he believes that he is indebted to the birds for insuring good crops by keeping the plants clear of blight and insects, and that he should have lost far more from these, without the birds, than he does with them. The depredations of different insects, especially of the gardener's worst enemy—the ant—are, he says, often laid to the charge of the comparatively innocent birds.

C. R. S. argues that naturalists know, and those who have gardens may soon perceive, that certain fruits are liable to be attacked by some species of birds, and that the sparrow will eat Wheat; but that this evil is partial. It certainly may press heavily upon the owners of fruit trees in particular districts who will not take common precautions when fruit is not very abundant. However, during 10 or 11 months in the year the birds are ceaselessly occupied in destroying the larvæ of an infinity of insects most pernicious to vegetation, which the eye of man cannot detect; and if some of these birds come to exact toll for the benefits they have conferred, it is only the short-sighted who will dispute their claims. In gardens and grounds where the birds have been poisoned and shot there is invariably a corresponding loss of fruit and vegetables from the ravages of insects.

Home Correspondence.

Law relating to Moving Bedding Plants.—Do you happen to know what is customary or legal in the following case? Some property having been sold, the vendor claims a quantity of greenhouse plants, which have been turned out of their pots into beds for the summer to be replaced before winter, as removable by him. The purchaser, on the other hand, objects on the ground that being in the beds at the time of purchase they are legally his, just as much as other plants growing without pots in the garden. Under these circumstances I venture to ask information on the subject through your columns, thinking similar cases may have occurred elsewhere. *J. E., Dublin.* [We are not aware of any special custom applicable to the case; and in the absence of any particular agreement relating to the plants in question, they would belong to the purchaser. But dates may be important; and if you want exact information as to your rights, you must consult your solicitor.]

Fruit-tree Protection.—Your correspondent "W.R.R." (see p. 917), does not appear to approve of my having headed my paragraph (see p. 772), "How to insure a crop of fruit." It however matters little how things are headed provided the subject-matter is correct; and as I wished to direct particular attention to the best method of protecting wall trees from spring frost, I selected the heading in question as most likely to attain that end. My object in writing respecting fruit protection was three-fold; in the first place my remarks were intended to be a reply to observations made by a Maidstone correspondent; secondly, I wished to convince another correspondent, who stated a short time ago that Peaches could not be grown without glass walls, that good Peaches and full crops could be produced without the aid of glass; and last, though not least, I wished to point out to all concerned in fruit culture, the cheapest and best method of protection, an operation which can be effected without a mighty edifice being erected at grea cost, as your correspondent expected to find me advocating, but simply by means of Frigi Domo. I am a great admirer of Rivers's orchard houses, and approve of the culture of fruit trees in pots; also of the Paxton houses; and I do not object to glass coverings where expense is no object and labour plentiful, but I do maintain that good Peaches can be grown on walls with the use of Frigi Domo as a spring covering, and that with as much certainty of a crop as under glass. Such at least is my experience. With regard to ripening the wood in autumn, I find no difficulty whatever. My practice is to disbud as early as I possibly can to encourage early free growth, and never to suffer the trees to be checked by blight. These points properly attended to, the wood will ripen, but if you lose your first growth through blight, the second growth does not get thoroughly matured. In addition to keeping the trees clean I generally crop them heavily, and I find that under that system the wood ripens satisfactorily. Your Correspondent admits that covering in spring is indispensible, but says that "it is not the basis of insuring a crop of fruit, for we often find to our sorrow that our wall stone-fruit falls after setting, and oftener still, that even with covering we cannot get it to set at all." For my own part I have no cause for complaint respecting the setting of fruit, nor of its falling off; but I admit that much evil is done, and that crops are destroyed through over shading; the blossoms in such cases become weakened, the young growth gets blighted, and the blooms fall on their first full exposure to sun and air. My practice is to let down the blinds in the evening, and to pull them up again in the morning as soon as the frost is off the trees, unless cold cutting winds prevail, in which case the covering occasionally remains down the whole of the day. Let us hope, however, that we shall have the experience of competent persons made known through your columns respecting the cheapest and best method of wall-tree protection. I will therefore add nothing further on the subject at present. I have already stated that 100 yards of Frigi Domo cost 12*l.* 10*s.*, and that with care they will last for six years; thus it will be seen that 100 yards of wall trees can be protected for a trifle more than 2*l.* per year, and I have no hesitation in saying that Frigi Domo will keep out any spring frosts we may ever live to see. I shall, however, be only too happy to find a better and cheaper way of protecting fruit trees, and I for one rejoice to see you invite communications on the subject, but all of them should be accompanied by the names and addresses of their respective writers. [Yes.] *Edward Bennett, Gr. to G. S. Foljambe, Esq., Osberton Hall, Worksop, Notts.*

Potatos.—In your last number Mr. Dean gives us some observations on Potatos, and as it seems to me makes a statement not quite compatible with sound judgment, for he says he saw the Royal Ash-leaved Kidney growing in the Isle of Man, and that "it appeared identical with Myatt's Prolific Kidney." If he had cultivated the root in his own garden, and had made his observation without prejudice, it might have been worthy of some little attention. That the Royal Ash-leaved Kidney is a distinct variety I can with confidence assert; its history is as follows: In 1858 I happened to be on a visit to the late James Ashwin, Esq., of Bretforton Hall, near Evesham, a very clever experimental horticulturist; while looking over his kitchen garden he pointed out some rows of seedling Potatos raised from the Ash-leaved as very promising; he had distinguished them as A, B, and C, and gave me some tubers of each. In 1859 I found them to increase admirably in my soil, but in the wet summer of 1860, A proved too delicate to resist disease, so I lost the root, much to my regret now, as it was most remarkable for its dwarf habit, not growing more than 6 inches high, and would have been invaluable for pot culture in forcing houses. C was a good kind, but sported too much, many of its tubers becoming round. B proved very valuable for its earliness, productiveness, and excellent flavour, so that in 1861 I named it the Royal Ash-leaved Kidney, and I have no hesitation in saying it is, as Mr. Dean says, "what we really want, an early Kidney Potato." It is like all the race in shape and flavour, differing from them only in its robust habit and superior productiveness—Myatt's Prolific being the only sort that approaches it in this respect; but whether owing to my soil, a sandy calcareous loam, or what other cause I cannot tell, it far surpasses that excellent sort in productiveness, for whereas Myatt's has here given from 12 to 15 at a root, the Royal has given from 20 to 30, and in one piece of light friable soil, trenched and manured, the tubers planted whole and 3 feet apart, it gave this season 50 at a root. In 1862, I planted a large bed of all the early Kidney Potatos known, one row of each sort; the Royal was the earliest of all and the most productive, and Myatt's Prolific the next in productiveness. Haigh's, or the Lapstone Kidney, is a most valuable late autumn and winter sort, and although when first introduced here it was liable to be diseased, it is now always perfectly free, and so delicious in flavour that a round Potato seldom or never makes its appearance on my table—Regents and Dalmahoys being as inferior to it in flavour as a Hessel Pear is to a Gansel's Bergamot. To point out to Mr. Dean to how great an extent Potatos are influenced by soils, I may mention that the Fluke Kidney here in a clay soil is seldom or never good—often detestable; the Lapstone always excellent even till May. I have cultivated the Early Handsworth, and find it to be in every respect exactly like the Early Ten Week, a sort I received 20 years or more since from a Mr. Chatwin, then a Potato Salesman in Hungerford

Market, and like, if not the same as, a sort very popular some 40 years since, called the Early Betty. These early round Potatos are, compared with the early kidney Potatos, hard, flavourless, indigestible, and not worthy of cultivation. In raising seedling Potatos it is interesting to note with what fidelity some kinds reproduce themselves so as to partake of the nature of a species. Seedlings from the Ash-leaved Kidney always bear a strong resemblance to their parent, hence we have the Gloucestershire Kidney, Early Rose Fluke Kidney, Nonsuch Kidney, Prizetaker, and some others, all good, and all more or less like the old Ash-leaved, and, like it, not very robust in habit or very prolific. Seedlings from the Fluke Kidney are still more remarkable for their adherence to their parent stock, for on closely observing a great number for two seasons, I have not been able to observe the least difference, either in earliness, productiveness, or in the size and shape of their tubers. *T. R.*

Pampas Grass.—It may interest some to know that my plant, which last year had 74 spikes on it, has this year 121. *C. Wilkinson, Sandfield, Tonbridge Wells, Sept.* 29.——Allow me to inform your Maidstone Correspondent that we have a plant of this beautiful Grass now in full bloom, with 150 spikes on it. It is growing in a cold wet exposed situation. *Henry Appleby, Foreman to Messrs. Ivery & Son, Dorking.*

Anacharis Alsinastrum.—It seems rather hard that I should be charged in your leading article of Sept. 19, with doing what Mr. Marshall (who is therein quoted) long since showed that I did not do. I did not introduce the Water Thyme from America. It was first found in Europe by the late Dr. G. Johnston at Dunse Castle in Berwickshire in 1842; and secondly by Miss Kirby, in the canal at Foxton, near Market Harborough, in 1847. How it got to the former place no person has explained; but it is suspected to have reached Foxton in the cracks of timber brought from America. From Foxton it passed along that network of canals which covers the centre of England, and communicates with the upper waters of our chief rivers, viz., Thames, Severn, Trent, Ouse, Nene, &c., and has established itself in all of them. I beg, therefore, to protest against the charge of having introduced the plant either intentionally or accidentally into any of those rivers. [Hear, hear!] By some mode it attained the best possible position for reaching them all, and has done so in a natural manner. It came to Cambridge in this wise. I gave a piece of it, received from Foxton, to the late Mr. Murray, the Curator, for cultivation in the Botanical Garden in 1847, and he placed it in the watercourse in 1848. It spread with wonderful and unexpected rapidity from thence down the river Cam, and, singular to add, also up that river and its tributary brooks. It has likewise long since reached the Cam by natural causes from Foxton, having descended the river Ouse, with a branch of which the Cam communicates at a few miles below Cambridge. It would therefore have filled the Fen rivers even if it had never arrived there from the Cambridge Botanical Garden. Indeed very much of what is now found in the fens came from the rivers Ouse and Nene, and the canals connecting them with the original locality near Market Harborough. Certainly the quantity of it in the Cam is very much less than was the case formerly. In all probability Professor Henslow's idea was correct, and it has now consumed most of the matters congenial to it in the soil. At first it seemed to smother all the natural vegetation of the waters; now the native plants have reappeared about as abundantly as in former times. The Anacharis is associated with them, but is not strong enough to suffocate them. The pond in the Botanical Garden is of recent formation, and the Water Thyme does not seem yet to have exhausted the supplies derived from its soil. It is expected that such will soon be the case, and that the plant will then decrease in quantity. There is no probability that the Anacharis will ever vanish from our waters, but there is much reason to think that it will not long continue especially troublesome. It will run its course and then take its place amongst our aquatic plants, without attracting the particular attention of ordinary observers. Swans are very fond of it, and if those beautiful birds were encouraged and defended, they would soon increase in number upon our rivers, and the Anacharis correspondingly decrease in quantity. *C. C. Babington, Cambridge.*——We have two ponds here several acres in extent; one of which flows into the other, with a fall of several feet, and is fed by means of springs and drains from the land above, unconnected with any stream. The Anacharis made its appearance in the lower pond about 12 years ago, and speedily filled it. Six years later it was observed in the higher pond. I can only account for its appearance by the supposition that it was brought here by wild fowl, which at times are plentiful on the lower water, but as the upper pond is bounded by the flower garden, they do not often settle there. A pair of swans located on each pond, were never known to trespass on each other's water until one of the male birds died, when they travelled regularly from one pond to the other, and about that time, the weed was discovered in the upper pond, and of late years it has almost put a stop to the use of boats. In the winter of 1857 the lower pond was emptied, and a severe frost following, the weed was completely killed for a time, but in three years afterwards it again became troublesome. A curious fact connected with this matter is that previous to the weed being seen here, the swans reared their young regularly, but since that time, although they have hatched a brood yearly, the young ones have only lived a few days. *William Culverwell, Thorpe Perrow.*——I think I recollect to have heard it stated in conversation that a water weed which I would presume to be the Anacharis, entirely filled a small lock at Dunse Castle in Berwickshire, and that it was completely extirpated by swans, who throve wonderfully, as long as they had it to live on. I do not doubt that you have readers in Berwickshire who can confirm or correct my recollections. *C.*

Asters.—Will seeds of the French Aster, taken from the middle of a blossom-head near the eye, where the florets are bad and only partially developed, produce flowers as good as the parent, or as good as those from seeds taken from the outer part, where the florets are fully developed? In trying to save seed from a few favourites, I find that seed forms and ripens much more readily at the bad florets than the good. A practical reply will oblige. Theory would suggest that the finest florets would produce the finest seed, which appears not to be the case; and a seed from a self-coloured floret or a two-coloured one from the same head will, I imagine, in either case reproduce the parent. *B. C. D.*

Birds.—The following particulars respecting migrants at this East coast (Seaham, near Sunderland), may prove of interest to your correspondent "J. W." (see p. 917).

1862.	Arrival.	Departure.	Remarks.
Blackcap	May 11	Aug. 10	Common
Chiffchaff	April 27	Aug. 10	Ditto
Cornerake	May 10	July	Ditto
Cuckoo	April 29	Aug. 12	Ditto
Swift	May 24	Aug. 24	Ditto
Swallow	April 27	Oct. 30	Ditto
Martin	April 28	Sept. 14	Rare
Whitethroat	April 27	Aug. 12	Common
Sedgewarbler ..	April	....	Ditto
Willowwren	April 24	Oct. 13	Ditto
Flycatcher	May 2	August	Ditto

1863.	Arrival.	Departure.	Remarks.
Blackcap	April	....	Rare
Chiffchaff	April 23	August	Ditto
Cornerake	May 6	July	Common
Cuckoo	May 5	Sept. 1	Ditto
Swift	May 13	Sept. 3	Rare
Swallow	May 1	Sept. 27	Common
Martin	May 17	Sept. 1	Rare
Whitethroat	May 10	Sept. 10	Common
Sedgewarbler ..	April 24	July 30	Ditto
Willowwren	April 18	Sept. 10	Ditto
Flycatcher	May 17	July 30	Ditto

R. D.

Double-blossomed Peach.—In case it should be an unusual circumstance for the Chinese White double-blossomed Peach to mature its fruit, I send you herewith one for your examination, also the twig on which it grew. The peculiarity of the present case as it appears to me, is, that one blossom produced three distinct fruit, attached to the branch, as you will see, by one fruit stalk. One Peach dropped off when about the size of a nut, but the other two ripened. The one sent herewith would perhaps have been riper had it been left on the tree a few days longer. *X., Gateshead, September* 28.

Societies.

Entomological: *Sept.* 7.—F. Smith, Esq., President, in the chair. Mr. Dunning exhibited portions of a bin which had been filled with chicory, which, as well as the woodwork itself, had been covered with a fine white, closely spun, silken web, the surface of the wood displaying quite a smooth surface. It was suggested that the web had been spun by Tinea granella. Mr. Stevens exhibited a small collection of insects made in the interior of Australia during the recent expedition by Mr. Waterhouse. Mr. F. Bond exhibited some beautifully preserved specimens of Caterpillars of various Lepidopterous insects by Mr. Baker of Cambridge, and Professor Westwood explained the manner in which such specimens are prepared by the German Entomologists. Mr. Sharp exhibited a specimen of the rare Coccinella labilis, from Herne Bay; and Mr. Waring specimens of Lithostega nivearia from Suffolk, and Stirrha sacraria from Banstead Downs. Mr. Stainton exhibited a large tabulated plan showing the various leading peculiarities of the transformations and habits of the different genera of Tineidæ. A paper by Mr. Walker, containing descriptions of new species of Moths of the families Castniidæ, Agaristidæ, and Glaucopidæ was read, also a descriptive catalogue of the family of the Stag-beetles (Lucanidæ) by Major Parry.

Garden Memoranda.

Messrs. Carter & Co.'s Annual Grounds at Dedham and St. Osyth, Essex.—Of the more important floral decorations of these extensive grounds, a full account was given in our last year's Volume (p. 743). The following remarks therefore apply more particularly to vegetables, on the culture of which equal care is bestowed as on that of flowers, and among which we observed some improvements on existing varieties.

As to Peas two of the best are Advancer, a dwarf green wrinkled Marrow, of fine flavour, and nearly as early as Daniel O'Rourke, and Carter's Surprise, a new and most prolific kind. Carter's Champion early forcing Potato is also worthy of notice. It is a Kidney, earlier than the Ashleaf, with scarcely any haulm, and therefore very suitable for cultivation in frames. In Celery, of which some 25 acres are said to be grown for seed, we saw nothing superior to Carter's Incomparable Dwarf Red, a new and excellent kind, fine in flavour and rich in colour, also Manchester Red, and Cole's Crystal White. Ivery's Nonsuch and Hood's Imperial Dwarf are likewise both red kinds of excellent quality; and among other white varieties the best is Incomparable Dwarf White, a Celery closely resembling the Celeri Court Hâtif of the French, grown largely in the Royal Gardens at Frogmore. Among Cauliflowers Carter's Dwarf Mammoth appears to be a variety worthy of especial notice. It is compact in habit and has a firm white head, larger than that of most other kinds. Among Lettuces, the best for autumn sowing is perhaps Dunnett's Giant Black-seeded Brown Cos, a crisp sweet sort which runs with difficulty to seed; and Wheeler's Tom Thumb, Carter's Giant White Cos, Bath Cos, Wheeler's Imperial Cos, Hammersmith, Tennisball, and Victoria Cabbage, are also excellent kinds. Of Beets, the Pine Apple, and Carter's St. Osyth, are two of the best, both being dwarf, rich in colour, and producing little top. Of Carter's Champion Cucumber, Lynch's Star of the West, and Stillwell's Matchless, whole frames full, each consisting of 120 lights, are grown; and although they get no heat beyond what the sun supplies, they grow luxuriantly and fruit abundantly. Among Broccolies, Carter's Champion stands at the head, being the latest variety in cultivation, very large, white, and unusually free from the strong taste which spoils so many Broccolies. Self-protecting, Snow's Superb, Large Spring White, Early White Malta, Late Large White, Southampton White, Adam's Early White, Chappell's Cream, Dalmeney Park, Ellet-son's Mammoth, Knight's Protecting, Miller's Dwarf, Maule's Late White, as white as a Cauliflower, and Early Purple Cape are also useful kinds of Broccoli. Varieties of Cabbage are numerous, occupying as they do some 25 acres of ground; among the best were Kemp's Incomparable, which is a very early, dwarf and compact kind, as are also Carter's superfine Early Dwarf, Enfield Market, Nonpareil, and Sugarloaf. Leeks comprised the true Musselburgh, one of the best in cultivation; Ayton Castle and Henry's Prize are also good varieties. Carter's improved Garnishing Kail was very finely marked in every shade of colour. The true Custard Vegetable Marrow was growing and fruiting finely on sloping banks along the south side of a filled up watercourse, as was also a large cream-coloured sort, apparently a most productive kind. Warm and otherwise waste situations were thus turned to profitable account. Parsley consisted of 12 acres of beautifully curled kinds, consisting of Drummond's Extra Curled, Myatt's, Dunnett's Garnishing, and other fine sorts.

As regards flowers, it will be remembered that Messrs. Carter exhibited at South Kensington on the 9th ult., a very attractive collection of late flowering Annuals. They consisted of charming examples of miniature orange and striped Marigolds, also large showy deep orange and pale lemon-coloured varieties of the same useful flower; variously coloured bouquets of hardy Everlastings; Asters large and fine, some beautifully striped, others self-coloured; and, last but not least, some surprisingly fine blooms of Double Zinnia. These we saw growing at Dedham, on the Monday previous to the exhibition in question, and when seen *en masse*, as they were there, nothing in their way could possibly have a gayer or more striking appearance. It is therefore clear that by means of a judicious selection of such flowers as those just mentioned, together with the assistance of the different kinds of Calliopsis and similar late blooming plants, such as Lobelia speciosa, Chelone barbata coccinea, Dianthus Heddewigi, Sweet Alyssum, Marvel of Peru, Œnothera Lamarckiana, Œ. cinnabarina, Rhodanthe Manglesi, Ageratum mexicanum, Tagetes pumila, Verbena pulchella, and others, Phlox Drummondi, and Perilla nankinensis, a fine display may be kept up out of doors, provided the autumn is favourable, even until almost the very verge of winter.

Conspicuous among Asters, which have bloomed beautifully this year, was one named Victoria, a lovely variety of the dwarf French kind called Perfection, large and double, and possessing a bright rosy colour, shading off into white at the ends of the petals. Than this, not even the bright-looking miniature Dahlias could possibly make a more showy bed. Various other sorts were also in excellent bloom, such as Crown varieties, *i. e.*, kinds with beautiful white centres, surrounded with a broad margin of some dark colour; also Emperor and Bouquet Asters, both free blooming fine kinds, and others equally handsome. To have these as fine as they were here, seeds of them should be sown about the middle of March or beginning of April (according to the season) in a cold frame or in pans on a greenhouse shelf in good rich compost; after carefully hardening off they may be transplanted when of sufficient size for that purpose, say about the end of May; afterwards even under ordinary treatment they will scarcely fail to bloom beautifully and give the utmost satisfaction. Asters, especially the Chrysanthemum-flowered kinds, also make admirable window

plants; three or four of different colours pricked off into an 8-inch pot may be kept dwarf, induced to bloom freely, and to last at least three weeks or more in great beauty.

Of French Marigolds we also noticed delightful beds, especially of the miniature orange and other sorts, which are everybody's favourites; in large masses, the sulphur-coloured and deep rich orange African kinds made a grand display, as did also beds of dwarf and tall French mixed, the colours of which consisted of pure yellow, lemon, orange, and rich maroon laced with gold, while the shape, in most instances, equalled that of a Ranunculus.

Among Everlastings (Helichrysums), there is likewise now great variety of colour, some being as brilliant in that respect as even the greenhouse varieties of Aphelexis themselves. For the purpose of cutting and drying for winter bouquets alone these annual kinds are most valuable, being infinitely handsomer than the artificially coloured bouquets now so largely imported from the continent.

German Stocks in separate colours had been very gay, as had also been beds of the different kinds of Tom Thumb Nasturtiums and Tropæolum Lobbianum; but the beauty of the latter, except in one or two instances, was nearly over.

Of Gladioli we observed a large plantation, the showy colours of which, varying as they did from bright scarlet to nearly pure white, were brilliant and striking in the extreme. Gladioli have not bloomed everywhere satisfactorily this season; at St. Osyth however, in a light sandy soil in the neighbourhood of the sea, nothing in their way could be finer, the growth being strong, and the spikes individually large and showy.

In a similar situation the handsome red-leaved Amaranthus melancholicus ruber has succeeded well this year, the foliage being unusually brilliant, and the plants in excellent health.

Miscellaneous.

Discovery of the Tea Plant in America.—The Tea plant has been discovered by a Chinaman, covering a large area of land in the central counties of Pennsylvania. It forms the undergrowth of the woodland generally. The soil is a fertile red shale, and the indigenous Grass is White Clover. The climate is unusually favourable. Artificial vegetation is not needed. During summer, scarce a week passes without refreshing showers. With their usual alacrity, the Americans are at once "pitching into" tea making. Samples of their first make have been sent to us, only three weeks from the green leaf; and finer tea we never saw. Great commercial changes are certain to follow this discovery; and as it is in American hands, we may look for a rapid development. We are informed that already a machine is in successful operation for curing the leaf at a merely nominal cost. *Daily Paper.* [BOSH!]

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Plants getting past their best should be replaced at once by something of a more showy character. When the principal collection of Chrysanthemums comes into bloom a selection should be made of the best and most useful sorts, for there are many worthless varieties in cultivation, and it is better to grow duplicates of really good kinds than to retain such as are but indifferent, merely for the sake of having a long list of names. Give timely attention to providing a succession of bloom with which to keep this house gay, and avoid as far as possible the expense of forcing, which is injurious to most plants. Be careful not to let things in bloom suffer for want of water, and use every means to preserve the beauty of specimen plants as long as possible. Damp and mildew are the great enemies to be guarded against at present in conservatories and greenhouses, and these must be sharply looked after, especially in the case of plants that have not ripened their growth well, and are in a rather soft state. If damp is troublesome it must be got rid of by means of free ventilation on mild days, using a little fire-heat at the same time, and for mildew a dry airy atmosphere is the best preventive, but the plants should be frequently examined, applying sulphur on the first appearance of the evil. Very little water will be required here at present, but the plants should be carefully looked over about twice a week, so as to make sure that nothing is allowed to feel the want of it. If not already done, get plants tied into proper form with the least possible delay, for it is difficult to tie a plant so that it will not look somewhat stiff and unnatural, and the sooner all this kind of work is done the better the specimens will look when in bloom. If Mignonette to stand the winter has not yet been sown, that operation had better be seen to without delay.

FORCING DEPARTMENT.

PINERIES.—Plants in bloom will require very careful management to prevent their being injured by damp, and the atmosphere must be kept dry, with a rather brisk temperature, admitting a little fresh air on every favourable opportunity; and if there is, as there should be, a proper ventilating apparatus or the means of admitting air over the pipes, so that it may get warmed before coming in contact with the plants, a little should be admitted constantly. Plants in bloom should also be near the glass, and where they will catch every ray of sunshine. It is nearly impossible to get fruit to swell anything like properly at this season, therefore unless a succession of ripe fruit is indispensable, and cannot be secured except by driving plants that bloomed late, these had better be kept rather quiet until spring. Where an attempt must be made at present to get fruit to swell, a moist warm temperature of about 70° at night and 75° by day must be maintained, allowing it to rise to 80° with the assistance of sunshine, and the bottom-heat must be kept regular at about 85°, taking care to keep the soil in a healthy state as to moisture.

VINERIES.—As soon as the early house is closed for forcing, be careful to secure a thoroughly moist state of the atmosphere by frequently sprinkling the floors and every available surface, but as observed previously, a regular moist state of the atmosphere is most effectually secured by means of a slight bed of fermenting materials in the house, which will also afford a little warmth, and the moisture from this is much more congenial to vegetation than anything that can be effected by the most careful use of the syringe or evaporating pans.

FLOWER GARDEN AND SHRUBBERIES.

The weather is still very favourable for executing alterations; and where these are in hand they should be prosecuted with the greatest possible despatch. Planting, or the removal of large evergreens, cannot be finished too soon; for it is of the utmost importance that the plants should be afforded some chance of making fresh roots before bad weather sets in. See to even small plants being secured against wind; for these are often greatly injured by being blown about after planting, which a small stake and a few minutes' work would prevent. Get in a stock of Briars for budding upon as soon as the leaf is down. Let the roots be well trimmed, cutting back closely the strong ones; for these, if left, will be of little use except to furnish an endless supply of suckers. Sub-tropical plants and other choice things in the parterre can no longer be depended on as to display; it is therefore desirable at this period to look over the masses and see if there be anything of a tender character which it is desirable to secure for next year; such may be potted with balls and wintered in a cold pit. As the winter approaches, protection of some kind should be provided for plants and shrubs of tender character; almost any material is eligible, provided it will, in a considerable degree, throw off wet. Canopies for this purpose should be so contrived as to admit of one or two sides being opened at pleasure. If only one, it should be on the north or west side—certainly not on the south; as the excitement occasioned by fits of sunshine is apt to prove very prejudicial. The covering, or canopy, should by no means be allowed to touch the plant; and the greater the space allowed between it and the plant the better will it afford protection. It is bad practice to bundle the shoots together like a broom in order to make them occupy a more limited space; such may save trouble and material, but is a most injurious proceeding. More injury is occasioned by confined damp, in a majority of cases, than by lowness of temperature. Hoodings of straw, so formed as to overlap the protecting material beneath, are very good and simple protectors, and if rightly contrived, may be removed with as much facility, for ventilation, as the top of an ordinary handglass. Oil-cloth will make a good protection also, formed into a kind of cone, on the sides of which a small flap or two may be made to open without admitting rain. Before the application of any top-covering, we would advise an inch or two of the surface soil around the collar to be removed, and replaced with dry cinder siftings—the newer the better, or where it can be kept dry, Cocoa-nut refuse. This last should be piled as high up the stem as the plant will admit, taking care not to choke too many of the lower leaves, and if the canopy is so contrived as to overlap this mound, the covering will be complete. The only thing that remains is to give air in favourable opportunities, particularly avoiding cutting winds, which in all probability do more harm than frosts. Planting of bulbs must now occupy attention.

HARDY FRUIT AND KITCHEN GARDEN.

If any transplanting or root pruning of fruit trees has to be done let this be attended to as soon as the leaves are off, and see that those exposed to wind are securely staked before leaving them. Also get the ground prepared for fresh plantations. Give air freely to Lettuce and Cauliflower plants under glass; indeed, the sashes should merely be used to throw off rains, for the plants will do all the better for being kept hard. A sowing of Peas on a well sheltered dry border may soon be made, and do not spare the seed, for it will be some time exposed to the depredations of mice. Take advantage of the first sunny day that may occur with the ground in a dry state to earth up Celery. Mushroom beds made early last month will now be bearing; it is a good plan to sprinkle or syringe the surface of the bed, a week or so before the Mushrooms make their appearance; more especially in Mushroom houses where a fire may have been used occasionally; this is far better than watering after the Mushrooms are through. The water, however, must not be allowed to penetrate the manure—merely to soften the soil.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON, For the Week ending Sept. 30, 1863, as observed at the Horticultural Garden

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 24	11	29.400	29.303	60	30	45.0	56	57½	S.	.10
Friday 25	12	29.797	29.613	67	29	45.0	56	57	S.W.	.00
Satur. 26	13	30 123	30 017	62	27	44.5	55	56	W.	.00
Sunday 27	○	29.989	29.781	60	47	53.5	55	56	W.	.00
Mon. 28	15	29.866	29.748	61	29	45.0	54½	55½	W.	.23
Tues. 29	16	29.992	29.907	64	25	44.5	54	55½	S.	.00
Wed. 30	17	29.881	29.631	68	48	58.0	55½	55½	S.	.30
Average.		29.864	29.714	63.1	33 5	48.3	54.8	56.1		.63

Sept. 24—Overcast; showery; fine; frosty at night.
— 25—Clear; very fine; fine; frosty.
— 26—Fine throughout, frosty at night.
— 27—Fine; mild at night.
— 28—Heavy rain; fine, slight frost at night.
— 29—Slight fog; very fine, 7 deg. below freezing at night.
— 30—Dense fog; very fine; heavy rain at night.
Mean temperature of the week 5½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending Oct. 10, 1863.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 4	64 1	43.7	53.9	18	1.06 in.	—	6	1	3	7	16	3	2
Mon. 5	63.2	41.5	52.4	18	0.82	4	4	2	1	6	12	7	1
Tues. 6	62.0	44.3	53.1	21	0.78	1	4	5	3	5	11	6	2
Wed. 7	62.6	44.4	53.5	18	0.58	2	6	3	2	4	14	5	1
Thurs. 8	61.4	42.0	51.7	19	0.63	1	6	3	4	6	7	9	1
Friday 9	60.5	42.7	51.6	20	0.52	—	7	2	1	5	14	6	2
Satur. 10	61.5	43.8	52 7	22	0.68	3	3	4	—	7	10	6	4

The highest temperature during the above period occurred on the 4th, 1859—therm. 80 deg.; and the lowest on the 5th, 1850; 8th, 1852; and the 9th, 1849—therm. 28 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

BOOKS: *Mr. Ewart.* We do not know of any small publication answering to your wants. Paxton's Botanical Dictionary gives briefly part of the required information; and for more general matters we cannot point to a more trustworthy guide than Thompson's Gardener's Assistant, but it is rather a large book.

DIANTHUS: *A Z.* A good double muled Indian Pink, but the colour is somewhat dull. We should prefer the sort known as D. hybridus multiflorus, which is much more glowing, and as far as we can see from your specimens has a different leaf.

DISEASES: *J & J H.* We have in vain hunted for any parasite to which the disease of your plants may be due. From the appearance, however, of the Heath, we suspect that a minute mould, a species of *Polyactis*, has been at work, and if so you have a troublesome enemy to contend against. Sulphur and sulphur-fumigation have proved useless or worse than useless, and nothing but a free circulation of air, which can scarcely take place if your plants are overcrowded, is likely to prove effectual. As we have not been able to detect the mould, our opinion must be taken merely for what it is worth under imperfect information. *M J B.*

EXHIBITIONS: *W F.* The loss upon them is too great, as we are informed.

FRENCH CULTIVATION: *T G.* Thanks. We will endeavour to find room next week.

FUNGI: *G D P.* It is the true Dry-rot Fungus, Merulius lacrymans. *M J B.*

GLADIOLUS: *W H.* Sandy or rather perhaps light loamy fields are its natural habitation. If any one has said that the genus has had Sedgy leaves the remark applied to habit not to habitat.

GUERNSEY LILIES: *S S.* We fear you are not likely to blossom them a second year; but you may do so in the third provided the second year is employed in restoring the bulbs to vigour. See p, 742 of our volume for 1852.

LETTUCES: *W. Cutbush & Son.* Your White-seeded Bath Cos is crisp and sweet. With the exception of being a little "run," we do not know how a Lettuce could well be more perfect.

NAMES OF FRUITS: *W G.* 1, probably Boston Russet; 2, Newtown Spitzenberg?; 4, London Pippin.—*F H S.* 1, Vicar of Winkfield; 2, Bon Parent.—*G S., Liscard.* 6, Vicar of Winkfield; 9, Dumelow's Seedling; 11, Easter Beurré. The others are too green to be recognised.

NAMES OF PLANTS: *J S G.* Brunfelsia americana, an old stove plant of the Scrophulariaceous order where it touches Solanaceæ.—*Annie, Monmouth.* 1, Rhamnus catharticus; 2, Euonymus europæus; 3, Pyrus Aria.—*T B.* Hippophäe conferta.—*W R W.* 1, Polygonum vaccinifolium; 2, broken to pieces and indeterminable. The R. Horticultural Society, S. Kensington. Apply to the Secretary.—*J M J.* Some kind of Hornbeam. What sort of seeds do the trees bear?

ORANGE TREES: *Window Gardener.* Your Orange trees appear to be suffering from a complication of disorders. Two Fungi have been at work, and some of the remaining spots are due to sunburn, and others in all probability to sudden draughts of cold air, a cause from which spotting and other disorders are known frequently to arise. *M J B.*

PLANT SALES: *Anonym.* No! no! ten times no!

POTATOS: *D Davis.* Both sorts are of excellent form, without deeply sunk eyes; but Scamell's Glory, which is as perfect in all respects as it is possible for a Potato to be, tender, and floury, without a fault, is much better than the Purple Prince. This is the verdict of a jury requested to consider the matter.

R. HORTICULTURAL SOCIETY: *S S-y.* Between the years 1830 and 1840 the Society gave away about 96,000 new plants, 364,000 packets of seeds, and above 54,000 parcels of cuttings. Surely this was *not* niggardly.

SOILS: *W R P.* The samples Nos. 1, 2, and 3, are not suitable for Melons, Pines, &c., being of a hungry character and wanting fibre. Nos. 4, 5, and 6 seem to be much better suited to the purpose, but even they are not overgood. Your Cucumber leaves are so crushed that nothing can be made of them. If the plants bring the disease with them as soon as they germinate, which we have no doubt is often the case, the most scientific treatment will not avail, and yours is probably one of those hopeless cases. The cause of this constitutional weakness is quite unknown. *M J B.*

TRADE CATALOGUES: *Jersey.* Consult Van Houtte's Catalogue, No. 96, than which none is better and few so good. It will give you the information you seek, and a good deal more in the same direction. His Fruit Catalogue of this year we do not remember to have seen.

VINES: *Amateur.* If the canes are not crowded and shaded by the laterals, you need not remove these entirely. Fire heat, with abundant ventilation, will assist the ripening; we cannot judge whether yours require such assistance, but as you say the ripening process is going on fairly we should think not.

WEST INDIES: *T.* We will enquire and report.

TRADE

HALLETT'S PEDIGREE NURSERY WHEAT.

MARK.

THE PEDIGREE WHEAT WAS AWARDED THE SILVER MEDAL BY THE JURORS OF THE CLASS "CEREALS FROM ALL COUNTRIES," AT THE MEETING, IN 1863, OF THE AGRICULTURAL SOCIETY OF DENMARK AT ODENSE.

The produce of 3 acres of this Wheat, grown 1862, in Essex, was sold to the miller, and realised £19 7*s.* per acre.
This Wheat produced in 1863 nearly 10 quarters per acre, weighing 63 lbs. per Bushel.

First half of October } DRILL 4 Bushels on { 8 acres.
Last " " } { 6 "

NONE IS GENUINE UNLESS THE TRADE MARK IS UPON THE BAG.

Apply to FREDERIC F. HALLETT, ESQ., F.L.S., The Manor House, Brighton, Sussex.

PRICE—One Guinea a Bushel (or Seven Guineas a Quarter),

Delivered, with Printed Directions for Planting, at the Brighton Railway Station, in Bags Sewed up and Sealed, upon receipt of Cheque or Post-office Order, which must in all cases accompany the Order.

"HOW OUR WHEAT CROPS MAY BE DOUBLED," and other papers, forwarded on application, enclosing six stamps.



In every plant of Wheat, Barley, or Oats there is always ONE BEST EAR, and in every ear there is always ONE BEST GRAIN, which is that one found at the following harvest to produce the best plant, *all* the grains having been planted in competition with each other.

The best of all the competing plants of any "family" of a cereal is ascertained by the most studious comparison of the good qualities they visibly present, *and of the notes of the peculiarities exhibited by each during the whole course of its growth*, such as:—the rapidity with which the parent seed germinates; the manner, time, and extent of the "tillering" of the plant; the periods of its earing, blooming, and ripening; its power of withstanding disease, frost, wet, &c.; the *toughness* of its straw, and any other characteristics which are essential to forming a correct decision, and which cannot be determined by even the most careful inspection of the perfect plant.

This best plant is called "*the selection*" of the year (say 1861) in which it is called "A," while another family of the same Wheat known as Z having been observed to exhibit marked superiority has been continued separately, and has given a greater progress during 1862 than has been before obtained in any single year.

The original ear of the large published engraving contained up one of its sides 16 "ranks" (spikelets) of grains, while the "Z family" has produced ears of 18 "ranks," and this, without any increase in the *length* of the ear, the "notches" of the axis on which the spikelets grow being placed more closely together. In a small field of this Z family, ears with 17 ranks were quite common, while in other fields of the family "A," *not one such ear could be found.*

This family Z *is now for the first time* offered to the public, and is ready for delivery.

Thus obtained, and consists of numerous ears, containing many hundreds, and even thousands, of grains which are planted separately; those of each *ear* being kept quite distinct, as although the best grain of any plant is nearly always found to lie in its best ear, it may be otherwise, and the successive parent *ears* must be preserved. At the following harvest (1862), the best plant forms "*the selection of* 1862," and its produce is continued on the experimental ground, while that of the remaining plants furnishes the annual seed for the farm in the Autumn of 1862, and the crops are in 1863 offered to the public. Thus, the selection sold is that of 1861, or in any year that of two years before; *the latest selection, that of the year immediately preceding, is not sold, being solely employed as the home seed.* The separate ears of a plant are designated by different letters, numbers, or names—as A, Z, &c., and each, with its descendants, forms a "*family*" which may develope some valuable peculiarity.

Thus, all the "Pedigree Nursery Wheat" hitherto sold has been of a family

Shirreff's New Wheats.

SHIRREFF'S WHITE.—This fine variety is now ready for delivery. Selected parcels harvested without rain, 60*s.* per qr. Good sowing qualities, 55*s.* per qr.
PRINGLE'S WHITE, 55*s.* per qr.
SHIRREFF'S RED, 50*s.* per qr.
Bags, 1*s.* 10*d.* each. Samples forwarded, and the Wheats delivered at the railway on receiving a remittance.
PATRICK SHIRREFF, Haddington.—Oct. 3.

Seed Wheat.

SEED WHEAT (RED) of a superior sort, remarkable for the fineness of its berry and absence of dross, to be had of Mr. THOMAS DAVEY, Garboldisham Ling Farm, Norfolk.
Seven Acres just threshed with a yield of 100 coombs 2 bushels; being 3 coombs per Acre more than was grown from Hallett's Pedigree Wheat on the same description of Land.
Price 7*s.* per bushel; sacks, 1*s.* 6*d.* each.

SEED WHEAT.—The following Varieties have been grown by "TRITICUM." See *Agricultural Gazette* of October 4, 1862:—
PRINGLE'S BEARDED WHITE, a fine selected sample, 80*s.* per quarter.
SHIRREFF'S BEARDED WHITE, a fine selected sample. 70*s.* per quarter.
(The stock originally received from P. Shirreff, Esq.)
In a collection of all the best known Wheats these two have proved the best in all points.
FIRST PRIZE VICTORIA (AUSTRALIAN) WHEAT (stock received from the Editor of the *Agricultural Gazette*), a fine white of superior quality. A few bushels only, at 15*s.* per bushel.
If ordered in less quantities than quoted, higher rates will be charged. New sacks, 1*s.* 9*d.* each.
A remittance must accompany all orders.
Samples of ears and corn may be had on application, enclosing six postage stamps, returnable to purchasers.
Apply to RICHARD BRADLEY & SONS, Halam, near Southwell, Notts.

Land Drainage, and other Agricultural Improvements.

MR. BAILEY DENTON, C.E., maintains a large staff for the execution of Land Improvements by a commission of 5*s.* per acre for Under Drainage, and a fixed charge for Outfall and other works.
For particulars apply to him, at 52, Parliament Street, Westminster, S.W.

LAND DRAINAGE, the ERECTION of FARMSTEADS, the CONSTRUCTION of ROADS, and other Works of Agricultural Improvements are undertaken by Mr. HUMBERT, Land Agent and Surveyor, of Watford, Herts, either by contract or on commission; and he will furnish estimates of cost free of charge, expenses out of pocket excepted.
Such works can be executed either under the powers of several special Acts of Parliament, with money raised by loan and paid off by instalments, or with the Landowner's own money.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
AUTUMN SESSION, 1863.
President—THE RIGHT HON. THE EARL BATHURST.
Council.
The Right Hon. THE EARL BATHURST.
The Right Hon. THE EARL DUCIE.
The Right Hon. T. H. SOTHERON ESTCOURT, M.P.
J. H. LANGSTON, Esq., M.P.
EDWARD HOLLAND, Esq., M.P.
Principal—The Rev. JOHN CONSTABLE, M.A., Trin. Coll. Camb.
Resident Professors.
PRACTICAL AGRICULTURE.
J. L. FLETCHER, Farm Manager.
*T. BALDWIN, of Glasnevin—A Course of 20 Lectures on Crops.
*R. SCOTT BURN, Co-editor of the Book of Farm Buildings—A Course of 12 Lectures on Agricultural Machines.
CHEMISTRY.
ARTHUR H. CHURCH, B.A., F.C.S., Smith's Exhibitioner, Lincoln College, Oxon.
ASSISTANT TO CHEMICAL PROFESSOR.
R. WARINGTON, Jun., F.C.S.
BOTANY.—JOHN BAYLDON, M.B. Lond. B. Sc.
VETERINARY SURGERY.—A. J. MURRAY, M.R.C.V.S.
MATHEMATICS AND SURVEYING.
W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.
DRAWING.—JAMES MILLER.
* These Gentlemen will be in temporary residence.
Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—
AGRICULTURE.
J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
THOMAS ELLMAN, of Beddingham, Lewes—Lecture on Southdown and Short-woolled Sheep.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.
N.B. Mr. Wilkins will Lecture on February 9.
AGRICULTURAL CHEMISTRY.
THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.
For further particulars apply to the PRINCIPAL.

MESSRS. WAY AND EVANS, ANALYTICAL and CONSULTING CHEMISTS, receive PUPILS for the study of AGRICULTURAL and GENERAL ANALYTICAL CHEMISTRY.
106, Leadenhall Street, E.C.

Drainage, &c.

MR. JOSEPH BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements. Valuations made for Sales, or the re-letting of Farms.
22, Parliament Street, Westminster, S.W.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
To LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c. IN ENGLAND AND WALES AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
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4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster S.W.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1863.
The FIFTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in Bingley Hall, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 1, 2, and 3, when PRIZES (CUPS, or other Articles of Plate, and GOLD and SILVER MEDALS) to the amount of £1940, will be awarded in the following Divisions, viz.:—

FAT CATTLE	£784	5	0
FAT SHEEP	275	15	0
FAT PIGS	60	5	0
BREEDING PIGS ..	76	10	0
CORN and ROOTS ..	68	5	0
POULTRY and PIGEONS	674	4	0

Prize Lists and every information may be obtained from the Secretary.
The ENTRIES CLOSE on SATURDAY, October 31.
JOHN B. LYTHALL, Secretary.
Offices: 13, Temple Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW, 1863.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY AFTERNOON, December 7, and four following days.
The Prizes consist of 1825*l.* in money; 60 Silver Medals 6 Silver Cups and a Gold Medal.
The ENTRIES CLOSE on NOVEMBER 2.
Prize Sheets and Printed Forms of Certificates, with full particulars, can be obtained on application to
Mr. DAVID PULLEN, Assistant Secretary,
At the Office of the Honorary Secretary,
Corner of Half Moon Street, Piccadilly, London, W.
N.B.—Applications for Prize Sheets and Forms of Certificates must be addressed to the ASSISTANT SECRETARY as above, and all letters must bear outside the words "SMITHFIELD CLUB."

The Agricultural Gazette.

SATURDAY, OCTOBER 3, 1863.

THE IMPROVEMENT OF THE AGRICULTURAL STEAM ENGINE is of very great importance to the farmer. It is perhaps of more importance to him than an improvement in the breed of horses. At any rate progress has a wider field in the direction of the steam engine. In spite of Mr. DARWIN and his theory of the progressive development of species, we have probably long reached our uttermost tether in the improvement of the flesh and blood animal. We cannot make our thoroughbreds beat the performances of ECLIPSE and FLYING CHILDERS, the "favourites" of the last century. Not so, however, with the steam horse. He is still a very expensive creature, both to buy and to keep; his limbs too often need the services of the surgeon; he consumes an undue amount of provender; he is still a somewhat unmanageable and dangerous animal; his lifetime is much too short. To drop the metaphor, the steam engine still costs too much in first price, in repairs, and in fuel.

Now, in spite of the great competition in

the agricultural engine trade, it is to the increasing knowledge of the buyer that we must mainly look for improvement in agricultural machinery. Supply follows demand, not merely in quantity, but also in quality. As yet, from want of special knowledge in the buyer, the supply has been mainly in the direction of quantity.

Competition unfortunately seems to have a greater tendency to depreciate a manufacture, than to improve its quality. In fact the tendency of competition to lower prices and quality, can only be checked by increased knowledge in the customer—and it is almost as easy to be a good judge of an engine as of a horse.

The directions in which engines may be improved, are evidently those of a diminution of first cost, of expense of maintenance, and of consumption of fuel. We in England look mainly to the anatomy of an engine—to its working parts and simplicity of general construction. The cheapness of our coal allows us to comparatively disregard consumption of fuel—the physiology of an engine. The two hundred years' limit assigned by Sir WILLIAM ARMSTRONG for the duration of our coal-beds, is too far off to affect us personally; the unprincipled saying that "it will be all the same to us a hundred years hence," is the vulgar rejoinder to the objection of science against our present form of engine.

The evident drawback to almost all arrangements for lessening the consumption of fuel, is the necessary complication attending them. High pressure, high rates of steam expansion, superheaters, feed-water heaters, variable expansions, smoke-consuming apparatus—one and all of course increase the number of working parts. The use of high pressures of steam is perhaps an exception, but additional skill and care is undoubtedly required to drive a very high pressure engine. There is no doubt, however, that the use of high pressures of steam, and of other economical arrangements, is extending, and will still further extend, in direct proportion to the increase of intelligence in the farm labourer. The usual effect of machinery in elevating the abilities of the operative will thus soon permit us to more generally adopt the different scientific contrivances for diminishing the consumption of fuel.

To the purchaser of an engine, the universal and mysterious connection between beauty and efficiency ought to be as much a guide as in purchasing a horse. Farmers may take the word of an engineer of varied opportunities for observation, that it is but seldom that high constructive ability is unattended with a taste for simple and elegant outlines. Beauty in art is as little the result of chance as is beauty in nature; it is the evidence of thought. Of course, we do not mean the skin-deep prettinesses of bright work and of paint; nor meretricious extraneous ornamentation. Whenever we see an ill-shaped and ugly machine, we at once feel instinctively that the construction and workmanship of the apparatus are not what they ought to be; and a deeper examination has never failed to confirm our first impression. It does not cost one farthing more to give an elegant shape to the pattern of a casting; or to the template for a piece of wrought iron work. The neglect of beauty is a proof of negligence and ignorance; and the workmanship of an engine or machine is generally on a par with its shape and design.

The beauty and simplicity of the flush boiler—in which the firebox top is on a line with the boiler barrel—are equal to the strength and cheapness in first cost of that mode of construction. As yet, we regret to say, the flush boiler is only seldom made. Manufacturers do not like the expense of altering their patterns and templates. The portable engine is evidently an offshoot of the locomotive engine, and the manufacture of the latter undoubtedly demands greater scientific skill. Agricultural engineers would thus do well to carefully notice the progress of the prototype of their work. Now flush boilers are largely used for locomotives. Most of the locomotives in last year's Exhibition had flush boilers. This mode of construction does away with expensive and heavy angle iron, lessens the amount of riveting required, and thus effects a saving in weight and expense while adding to the strength of the structure. The smokebox could also be made in a line with the barrel of the boiler. Any diminution of steam-room in the firebox could be easily made up by increasing the diameter of the whole. It is really astonishing that only one firm of eminence in the agricultural engine trade has adopted the flush border—Messrs. BARRETT, EXALL, and ANDREWS, of Reading. It is not improbable that the use of heavy angle iron has a tendency to prevent an equal contraction and expansion of the boiler, thus producing dangerous strains in the intervening plates.

The material of which a boiler is made is another important consideration. There is no doubt that, sooner or later, all boilers will be made of steel. Many locomotive boilers have already been made of this material. Messrs. SHORTRIDGE, HOWELL, & Co's. homogeneous iron—in reality a "mild" steel—has been largely used for firebox plates. Several locomotives with steel firebox plates from Messrs. CAMMEL & Co. are now running on the Great Western. In Lancashire and other parts of the country, many large boilers of BESSEMER steel are now at work. We have seen a report of some experiments lately conducted by a scientific commission in Prussia, on steel boilers as compared with iron boilers. The steaming power of a steel boiler compared with an identically similar one of iron, was actually 28 per cent. higher, with a proportionate saving in fuel. With this rapid evolution of steam, only a very slight amount of incrustation was observable in the steel boiler, as compared with the one of common plate. The experiments were made after the boilers had been in use nearly two years.

Although the agricultural engine is not perhaps of such intrinsic importance as the locomotive, its numerical importance is perhaps greater. There are about 6000 locomotives in England, against nearly 10,000 portable engines. The locomotive is always under strict scientific supervision, which is not, unhappily, the case with its agricultural brother. A strong construction of boiler is thus of almost greater importance to the portable engine. Agricultural engineers ought to adopt welded joints for the longitudinal seams, and double butt joints for the transverse seams of their boilers. The strength of the boilers would be thus nearly doubled.

We were lately informed by an eminent manufacturer that his adoption of steel fire-boxes had an unsuccessful result—the tube plates gave way between the holes. Now this was evidently an accidental circumstance, or else why should steel locomotive fire-boxes answer? It is very important that steel plates should get into use for portable engines. The price of portable engines prevents the adoption of copper plates for the fire-box, and it is well known that the thicker the plate is rolled the more irregular and uncertain is it in its structure. The use of steel would also lessen, by one half, the weight of the boiler. The diminution of weight in a portable engine is too often neglected, and it was our observation of this neglect, that led us to lately propose that the Royal Agricultural Society should weigh the engines submitted to competition at the trials.

Manufacturers will ask who is to pay them for these improvements: "prices are already too low." We answer: the enlightenment of the buyers will induce them to be less penny-wise, and increased competition as to quality will do the rest.

A failing in many agricultural engines consists in no attempt being made to counterbalance their working parts. Now this is really an unpardonable omission. Any amateur turner knows the advantage of balancing his lathe, and yet men calling themselves engineers neglect such an obvious and easy improvement in their engines. There is not merely a loss of power from the rocking motion given to the engine, but these jerks also injuriously affect the durability of the working parts. It is true that it is impossible to perfectly counterbalance one engine for all speeds, but there is a normal speed at which the engine is usually driven to which the counterweight could be very easily adjusted. We would prefer not to cast a slip on the rim of the flywheel, as the centrifugal power increases with the speed; the farther the weight is from the centre, the greater the liability to variation. A lump of iron near the boss of the flywheel is also unsightly. The best plan would perhaps be to cast the boss of the flywheel of a rather larger diameter, leaving hollow spaces opposite the counterweight.

Some of the makers carry the exhaust pipe back inside the boiler. It would be extraordinary if the exhaust steam, usually at a temperature not much higher than that of the air, should not take up some heat during its passage. We have been favoured with the results of some dynamometric experiments (by an eminent maker), conducted with a view to ascertain the truth of this matter. An engine was tried, on the friction break, at first with the exhaust pipe inside, and afterwards with the exhaust pipe outside the boiler. To our great surprise, the consumption of coal was in both instances the same. In any case, however, it is not so convenient to have the exhaust pipe inside—it is not so easy to get at, and it is difficult to detect any leakage of the steam.

We have seen some outrageously and unnecessarily heavy and complicated pistons in portable engines. Now, these complicated "machines" are quite unnecessary. Look at the pistons used in locomotive engines. RAMSBOTTOM'S consists of a simple cast-iron body with three narrow grooves, into which are sprung square wire rings of steel, fitting the grooves easily, and springing out to form the joint. Another excellent and simple piston, in extensive use in locomotives, consists of a simple cast iron body into which are fitted a couple of half-inch broad brass rings. Small holes are drilled on each side of the rim of the body, for the passage of the steam, which thus helps the elasticity of the rings. Two rings, sprung out by a third ring of a V shape, also form an excellent and simple piston—somewhat on the plan (but simpler) of GOODFELLOW'S well-known piston—the patent of which is expired. Simplicity is of the utmost importance in all branches of engineering, but more especially so in agricultural engineering, from the way in which agricultural implements are treated by the incompetent men into whose hands they necessarily fall.

Another point in which agricultural engines should follow the example of locomotives, consists in forging the oilcups in one piece with the straps of the connecting rods, and in casting them solid on the eccentric clips. This would greatly add to the simplicity and neatness of the engine. We also prefer to see the oilcups cast on the glands of the stuffing boxes. It is a much more mechanical job, and is less likely to give trouble than a loose oilcup.

Several of the above improvements here pointed out diminish the first cost, while all add to the efficiency and durability of the *anatomy* of the engine. It is impossible to simplify and improve the working parts of an engine without diminishing its consumption of fuel—without improving its *physiology*. At the same time, there are certain contrivances more specially adapted for diminishing the consumption of fuel, and these we propose to consider on a future occasion. *P.*

THE whole of the Branches Park herd of pure bred Short-horn cattle, with the exception of nine retained by Lady PIGOTT as the foundation of a new stock, were disposed of last week by Mr. WETHERELL at the satisfactory average price of 57*l.* 12*s.*

There were 58 cows, heifers, and heifer calves, which sold for close on 3500*l.*, or upwards of 60*l.* each. And 20 bulls and bull calves averaged close on 50*l.* Among the highest prices were 200 guineas for *Rose of Promise*, 5 years old, bought by Mr. GIBSON; 120 guineas for *Pride of Southwick*, bought by Lord FEVERSHAM; 155 guineas for *Castanet*, bought for Australia; 215 guineas for *Rosedale*, bought by the Duke of MONTROSE; 125 guineas for *Rose of Hope*, a four months heifer calf, bought by Mr. GIBSON; 230 guineas for PRINCE VICTOR, a well-known yearling bull, bought by Mr. MAXWELL.

The sale of Mr. LANE'S herd of Short-horns, near Cirencester, took place on Thursday of last week by Mr. STRAFFORD; they averaged upwards of 30 guineas.

Mr. BOWLEY'S selections from his herd, sold at the same time, averaged 38*l.*

ONE of the results of the unfortunate internecine war now raging amongst our kindred across the Atlantic, has been the diverting of many of the ordinary currents of trade into fresh channels; and King Cotton is now bringing under his dominion countries that would otherwise have remained unexplored for many long years. Extensive districts, until lately untrodden by the foot of man, are being opened out in various parts of the world for the production of the cotton and grain, intended to fill up the commercial vacuum created by the American war. Before, however, civilised man can raise his bread from the vast forest wilds still scattered over the surface of the globe—before the civilising plough can trace its furrows over a virgin soil, many arduous and difficult mechanical operations have to be carried out by the intending settlers. The forest monarchs must be levelled to the ground, and their far-reaching roots have to be completely eradicated from the soil. To carry out this work by means of the axe alone, demands very great skill and exertion on the part of the emigrant, and we accordingly find that many extremely ingenious

expedients have been adopted for lightening his heavy toil. Such numbers of our countrymen are now emigrating to the Far West—encouraged by almost gratuitous grants of land from the Federal Government—that a short sketch of a few of these expedients may not be unacceptable to some of our readers; especially as it is within our own knowledge that several engineers in the country are directing their attention to supplying a demand for this class of machinery.

The most important and widely used instrument for cutting down trees in America is the backwoodsman's felling axe—that great pioneer of our materialistic civilization. This implement is in the shape of a broad wedge, being made at the back with a deep eye, into which is inserted a long curved handle of tough Hickory wood. Curiously enough the head of the Yankee felling axe is the exact pattern of the antique headsman's axe, still exhibited in the Tower of London. In the hands of a stalwart and experienced axeman this instrument does a remarkable amount of work, but at a somewhat wasteful expenditure of wood and muscular power, as a deep and broad notch has to be cut into the tree before it can be felled. In Eastern Europe, and indeed in most semi-civilised countries, almost all the operations in shaping wood are carried out by means of the axe. We have often been astonished at the quickness with which this kind of work has been carried out on the banks of the Elbe and of the Danube. Two axemen, with their peculiar narrow sharp hatchets, will often shape a log of wood as quickly as the same operation could be carried out by means of a cross-cut saw.

A saw, worked by two men, is often employed for felling trees, wedges being used as the work progresses, in order to keep the tree from jamming the tool. By means of the saw, a tree can evidently be felled more expeditiously than with an axe, and a considerable amount of timber is saved at the same time.

Several kinds of machines are used in America for felling trees, and where a machine can be applied, the usual saving of time and labour follows as a matter of course. It is, however, evident that it would be difficult to construct a machine that could be used in all situations in the thickly wooded forests of a new country. Some amount of time is lost in fixing and anchoring the machine; it is not always very easy to determine beforehand which way a tree will fall, and an oversight in this respect will often cause the complete destruction of the machine. The Highland Agricultural Society of Scotland offered in 1831 a premium for the best sawing machine for felling timber; the Society rewarded four different schemes, all more or less ingenious and impracticable—only one of which, however, seems to have been carried into practice. These plans will be found described in the Society's Journal for 1831.

The Americans employ an extremely ingenious and original method for felling and sawing up trees in a forest. A current of steam is conveyed from the boiler through an armed flexible India rubber hose pipe into an engine cylinder, at the end of whose piston is attached a common saw.

It is to be greatly regretted, as the North Americans are so famous for their ingenious labour-saving contrivances, that unfortunate circumstances prevented a complete exposition of Yankee notions in last year's Exhibition. It is probable that no country could show more ingenious contrivances for saving labour in clearing forest land; although the class of machinery of this description employed in America is more suited for working on a small scale, than for extensive enterprises conducted by large capitalists. Only one machine for sawing wood and felling trees was exhibited in the American Court. The reciprocating motion of the saw was given by a crank working in a slide; such as is sometimes used in obtaining the to-and-fro motion in small slotting or shaping machines. In these machine tools a simply straight, reciprocating motion is required, and the tool is merely made to work in guides. The handsaw, however, requires a radial motion to set itself to the work. To carry this out, the slide, fixed to the saw, can swing radially in its block, and thus, by means of a lever, it is made to follow up its work. We believe that the American inventor has patented this movement in all the countries where patents are given out. The machine can be easily adjusted to the horizontal position required for felling trees; and, driven by a strap from a portable engine, the apparatus could, no doubt, turn out a great deal of work.

It does not, however, always happen that the emigrant in the backwoods is in possession of the capital enabling him to wait till the land is completely cleared before beginning to sow. In such a case he "girdles" or cuts a ring of bark out of the large trees, and the flow of sap being stopped, they die, and leave a free passage for the sun's rays to the intervening soil. The underwood is then burnt out, the ground is sown for the next harvest, and the large trees are felled at leisure in succeeding years.

Next in order to felling the body of the tree comes the extraction of its roots and stump. The difficulty of clearing away the earth, caused by the impenetrable resistance offered by the dense mass of fibrous roots, always makes this operation one of great labour.

About eight or ten patents are or were annually taken out in the States of America for "stump extractors." They generally consist of mechanical contrivances that can be easily constructed and repaired by the means at the disposal of people living in out of the way districts.

The most generally used form of stump extractor in America consists of a compound lever of wood strengthened with iron. This lever is about 30 feet long, with a wheel at each end, and it is worked horizontally, by a team of oxen. The stump with the firmest roots is chosen for the fulcrum, from which, aided by pulleys, the lever extracts the stumps in the surrounding neighbourhood. Most of the American stump extractors are modifications of the above.

It is not improbable that a strong differential pulley and chain—like the contrivance sold under the name of Weston's pulley block—might be used to extract stumps. It would have to be mounted on a strong three-legged frame above the stump. A powerful screw could also be used in the same way.

The powers of water, fire, and gunpowder, have also been used for eradicating the roots of trees, and the two latter means would evidently be very efficient and speedy, but perhaps not unattended with danger.

Some 50 years ago the hydraulic press is said to have been used for raising the roots of trees from the ground in Hyde Park and in St. James's Park. In the American backwoods, however, such a contrivance could not be very well kept in repair by the emigrant, but no doubt a very efficient hydraulic apparatus could be constructed for clearing land on a large scale. A strong lever could be chained to the root, the other end of which might be raised by an hydraulic jack.

Some 20 years ago Sir John Jamieson—then Governor of New South Wales—was awarded a gold medal from the Society of Arts for his plan of eradicating the stumps of trees from freshly cleared forest land. A number of wooden logs were rolled close round each stump, and when this was done, the entire extent of perhaps 20 acres was set on fire. A few men attended to the fires, and in four or five days 99 per cent. of the stumps were burnt out. Sir John Jamieson considers it of much importance to the success of clearing land upon this plan that the trees should be felled at that period of the summer when the stumps are exhausted of a considerable portion of their sap. The stumps are then left to season for two or three years before being burnt out. It appears that this plan does not succeed on gravelly or moist sandy soil; it is more fitted for argillaceous or rich vegetable mould. It has been also carried out with success by some of the German emigrants in Russia.

Messrs. Kennan of Dublin exhibited in the Eastern annexe of the late Exhibition, a very simple blasting apparatus for breaking up the stumps of trees, so as to facilitate their removal. A hole is bored obliquely by means of a common auger, two-thirds across the root, and a charge of blasting powder of from 3 to 5 ounces, according to the size of the root, is inserted into the hole. A short perforated plug is then screwed in by means of a lever; a length of fuse is passed through the screw plug, and a light is applied. A space is left between the end of the screw plug and the gunpowder, in order to produce the same effect as leaving the wadding in the muzzle of a gun barrel. As is well known, a gun is almost always burst if the wadding be incautiously left in the muzzle; the explosion of the powder is so instantaneous that it has not time to drive out the wadding, and thus find an exit. A gun-barrel, unless it be of extraordinary strength, is generally burst in this manner.

Most of the above experiments are more fitted for an emigrant family of limited means, than for the profitable employment of capital on a large scale. The use of steam in felling and carrying away the trees would evidently greatly facilitate and cheapen all the operations, especially as the furnace could be fed by the waste wood.

Mr. John Fowler, who has done so much in the application of steam to agriculture generally, has also used this powerful agent for clearing forest land. Instead of sawing down the trees, and thus leaving a stump in the ground to be afterwards eradicated by the means we have alluded to above, the main root or roots are cut through with the axe. A seven horse portable engine is made to drive a powerful windlass firmly anchored to the ground. The windlass draws in a chain or steel rope tied to the tree, which is thus dragged bodily out of the ground, the tree itself thus acting as a lever to extract its own roots. Hainault Forest, in Essex, was lately cleared for Government by this plan. Only about five men are required to carry out the operation. If a traction engine were used to transport the timbers off the ground, it would probably require a set of Boydell's endless rails, in order to prevent any inconvenience from the deep holes caused by the extraction of the roots.

DR. AGER'S DIGGER.

The Head Master of the Collegiate School at Aylsham, Dr. Ager, has invented a very ingenious machine for pulverising the soil and extirpating the weeds without breaking them. Everybody has now heard of Dr. Ager's Digger, but few people know how well it works. Had it been brought out a few years earlier, when Coleman and Bentall held the field with their cultivators and parers, it would have created more stir than it does now, when we are all attentive to the manner in which the steam problem, so far as it concerns the tillage of the land, is being wrought out before our eyes.

It is creating a good deal of excitement, however, amongst those who farm the light soils of Norfolk, to which, as yet, steam has not been applied as an economical substitute for horse-power, and being requested to witness the performance of one of these machines on the farm of Mr. Hastings, who occupies a fine farm under the Earl of Leicester at Longham, near Dereham, I availed myself of the invitation, and was much pleased with what I saw.

The occasion chosen for its exhibition was one of those ploughing matches which have effected so much for agricultural progress in this country, by establishing and recognising a community of interest between the farmer and his labourer. A good mutual understanding between these two classes of the body politic, together with an acknowledgment of the worth of the lower on the part of the higher, is at the foundation of successful farm practice. I arrived at Longham just when the ploughmen with their team had assembled upon the fields allotted to them. A strong group, with good cattle and cheery faces. A good deal of nervous twitching of the mouth and spasmodic rubbing of hands, &c. — all evidences of the anxious state of mind on the part especially of the younger competitors, who were enduring the chaff of the more experienced. In all there mustered 34; the men with iron-wheeled ploughs going into one field, those with the old Norfolk swing-plough into another. The fact is that the committee are obliged to separate the two because it goes hard with the wooden ploughs when they come in competition with the iron-wheeled ploughs. This is of course a concession of the point as to the superiority of the wheel plough; but as the prize is offered for the benefit of the men, and not to distinguish the merits of the different ploughs, but little exception can be taken to the practice.

It is well at these simple meetings when there is some novelty to excite curiosity, stimulate thought, and collect the neighbourhood. In place of steam, which is often resorted to by various Societies to increase their receipts, this Digger was brought upon the field from Lord Sondes', where it had been working, and aroused a good deal of interest, as it was sure to do.

From what I had seen of the implement at the Worcester Show, where it was put to a very severe test, beside the steam apparatus of the various competing exhibitors, and gained its designer much credit, I knew what to expect. That one was not worked by the manufacturers, Messrs. Barnard, Bishop, & Barnards, of Norwich, but by Mr. Hudson of Pershore, who purchased it at the Battersea Show, and has since worked it "to his entire satisfaction."

The Digger is intended to perform the duties of the plough, cultivator, and harrow at one operation, in fact to leave the land as it would be left after a thorough forking with a springy steel fork, the weeds being all deposited on the surface of a finely pulverised seed bed in a perfectly denuded state. The implement consists of a frame upon four wheels, containing two cylinders formed of seven discs or segments, from whose peripheries protrude a number of steel curved teeth, 6 inches in length. This cylinder, revolving in the direction of the digger's advance, enters the soil with great ease, and to the depth of the teeth lifts it in a mass to the rear. There it is met by the rowels of the other and smaller cylinder, which work between the teeth of the larger one, being actuated by toothed wheels and pitch chain from the same; then free it of its load, and, revolving in a reverse direction, catch the weeds, divest them of mould, and scatter them lightly over the surface in the wake of the implement. The breadth of land taken by the implement I saw was 27 inches; the diameter of the large cylinder 36 inches, and of the smaller one 18 inches.

The stubble on which the operation was performed stood in some need of cleansing, and therefore showed the digger to advantage. It would have done better, however, had no rain fallen during the night. There is no ploughing on this finely cultivated farm that would require more than two horses, and much that might be done with one. It is for the most part a thin staple on a gravel subsoil, much benefited by pretty frequent doses of clay. The digger was worked with six stout horses and two men. The pace at which they went would give about 3½ acres a day, which I learn is a fair day's work for it.

In the opinion of the most experienced men who witnessed the work, the one operation equalled one ploughing, 5*s.* 3*d.*; one scarifying with three horses, 1*s.* 3*d.* an acre; and one rolling and harrowing, 9*d.* an acre; total, 7*s.* 3*d.* (the three ploughs doing 4 acres). On the other hand, the 3½ acres would be cultivated by the digger for 1*l.*, so that a slight saving is effected by its employment. The great advantage, of course, lies in the expedition with which the work is done at the right time; that is to say, the six or eight weeks that follow harvest.

It has been well remarked, that the farmer's aim should be to obtain the gardener's tilth without going to the expense of the gardener. Certainly, the digger equals any tilth a garden can require, and at much less cost. Nothing could be more perfect. There will always be some disadvantages—for instance the

implement weighs nearly one ton and a half, and one of the wheels which carries this weight leaves its impress, but a tine or two fixed to the frame in its wake of course would remedy this defect. Were it to be worked with six horses, I should find some other faults with it, but since I think it is eminently adapted for steam, if it is to be of any use at all, these are not worth mentioning. I understand that Mr. Brown, of Denver, near Downham, has tried one of the diggers attached to the steel rope, and that he is having a large one of great strength purposely made for him. No implement requiring six horse-power can be advantageously worked without steam; the loss of power when six horses are linked to pull is immense. As I shall probably have an opportunity of giving a brief notice of the manner in which the digger behaves with this stronger motor, I need say no more about it now.

The little company that assembled at lunch, including Lord Sondes and Dr. Ager, and who were hospitably entertained by Mr. Hastings, seemed to think highly of the invention, especially as being adapted to deal with the stubble in autumn. I had the opportunity of hearing a good deal about the past harvest; the reports were very glowing; never so good a corn crop. I heard of many positive results reaching 6 and 7 qrs. of Wheat and as many of fine Barley. The root crop, however, is a failure. *R.*

THE CROYDON SEWAGE IRRIGATION.

I HAVE received so many letters respecting the irrigation fields at Beddington, that a few explanatory remarks will be interesting to your readers. Our irrigation has stood the severe test of several injunctions in Chancery; but we have for nearly two years surmounted all opposition. The water runs clear from our outfall, in which several fine trout have been caught; and the offensive matter, instead of fouling the river, is now manuring the land, and producing luxuriant crops of Grass.

In order to shorten this letter, I propose to classify my remarks under different heads.

Firstly.—In what manner can sewage water be most economically applied to land?

The Croydon method is very simple and inexpensive, being carried out by gravitation.

The water is led into a channel along the highest part of the field; it passes from this channel in streamlets on to the fields at regular distances. Another channel is formed along the lower end of the fields to receive the water after it has irrigated the land. From the lower channel, the partly purified water is conducted in open "carriers" on to the land at the lower end of the farm, where the process is repeated; and it is then carried into the river Wandle.

I need not compare this with the hose and jet system, which must cost at least ten times more than the Croydon system.

Secondly.—What quantity of water will the land and crops take?

This depends on the nature of the land and the quality of the sewage water. At Rugby, I find that they have used 9000 tons per acre; at Croydon we use 18,000 tons per acre. The Rugby sewage is, however, twice the strength of the Croydon sewage.

Thirdly.—To what land and crops can it be applied.

With regard to growing crops, it is, with few exceptions, only applicable to fields of Water-grass or Italian Rye-grass. The sewage water has so stimulated the production of the last named Grass, that from 30 tons to 35 tons per acre have been cut at Beddington during the spring, summer, and autumn months, and sold at from 18*s.* to 25*s.* per ton.

There is no doubt, if the sewage water is put on to the arable land two months before the land is prepared for sowing, that it will have the same effect as a dressing of farmyard manure.

Fourthly.—What expense is incurred by the Croydon system of irrigation?

There is the expense of levelling the land, cutting the channels, sluices, &c., which in no case need exceed 3*l.* per acre, provided the position of the water courses be well selected.

The attendance required is very trifling. One man can turn the water, keep the channels clear, &c., on 100 acres.

The contrast between this and the expense of the hose and jet system is very great. Laying water pipes, hydrants, hose and jets, pumping the water to get a head, would cost at least 30*s.* to 40*s.* per acre per annum; and the labour, if a sufficient quantity of water is put on, would be enormous.

Fifthly.—What is its value as a manure?

This of course depends on the strength of the sewage. When asked the question before the Committee on the Sewage of Towns, I declined to answer. From my experience since, I think the Croydon sewage is not worth one farthing per ton; and, according to the report of the commissioners on the Rugby fields, it is not worth there one halfpenny per ton. The exaggerated value put upon the sewage water by some, arises from not allowing for waste and evaporation.

Sixthly.—Can it be easily applied to the outfall of town sewers?

I think that there are few places where the system cannot be applied. It is especially applicable to the inland towns. In every case, by pumping a moderate height, the Croydon irrigation system might be carried out, even in cases where no profit would arise from using the hose and jet.

I will conclude by stating, confidently, that if the local Boards were to make the irrigation system a part of their drainage scheme in the first instance, they would make a great profit by it. The Croydon Board have hired their land at the great price of 4*l.* per acre, and let it for a term at 5*l.* per acre; but the land was taken and let under the pressure of legal proceedings, which circumstance I need not say was a great disadvantage. *James Fenton, Civil Engineer, in the Builder.*

IRISH AGRICULTURE.

IT is a great pity that those who write on Irish agriculture with the view of removing both Irish and English prejudices, often fail to make others understand them. Your Kilkenny Correspondent, of whom I know nothing whatever, must have failed to make himself understood by your Correspondent "B. M., Buxton," who himself falls into a somewhat similar error in what he has read regarding the report from the Kilkenny Show. The latter says: "Your Kilkenny Correspondent, in his account of the cattle show, declared that he considers Ireland as well suited for the growth of corn as many parts of England." Your Kilkenny Correspondent does not say so, though he is made to say something perhaps equally inconsistent. He says: "They have in Ireland as good a climate for Wheat as we have in the south and south-east of England. But the good farmers of Ireland raise excellent crops of Wheat, and splendid crops of Oats." If instead of giving these two short paragraphs in the manner above quoted, he had said, what I suspect he intended to say, "Although they have not in Ireland as good a climate for Wheat as we have in the south and south-east of England, the good farmers of Ireland raise excellent crops of Wheat and splendid crops of Oats"—if his meaning was such, I would as an Irishman, well acquainted with the various soils and variable climate of Ireland, subscribe to all he said, whilst I would hesitate to subscribe to some important parts of the short letter of "B. M.," notwithstanding that he truly says "In the rearing of stock Ireland stands unrivalled." I cannot agree with him when he says "the rearing requires less capital than does arable farming, and should always be produced at less cost both at home and abroad." Perhaps it should, but somehow or other it seldom if ever is the case in Ireland, though she "stands unrivalled" in stock rearing. If I understand your correspondent's meaning, he appears to think we should abandon tillage, and devote the entire country to stock rearing. That would certainly be the worst possible policy for Irish farmers to adopt, as already too many of them know to their cost, and are now striving to regain the position they have lost by such a procedure. It is true we have in Ireland, and in every one of the 32 counties, varying in extent in each, lands which, however indifferently laid down for grazing purposes, improve every year as such till broken up again. We have much more land in each county that when laid down even indifferently will improve as pasture for several years, when they will degenerate as pastures, and require to be broken up again, and when laid down again they will give good Grass, even without any very costly manuring, during a suitable course of tillage. But we have a far larger space of land that when laid down in the best possible manner will give but three, two, or perhaps not more than one year's Grass, worth the rent, taxes, and cost of production, till broken up and manured again. And if this renewed breaking and manuring be omitted for any considerable period, the produce in Grass will not be worth the taxes, to say nothing at all of rent. These are facts well known to every practical man conversant with Ireland, nor can the principles involved be questioned by the most philosophic theorist.

Ireland, as a whole, is not so good a Wheat or Barley growing country as England or parts of Scotland either; still there are certain soils in certain parts of Ireland capable of producing as heavy an acreable produce, and as weighty a sample per bushel of both Barley and Wheat as are produced in any part of either England or Scotland; and as to the growth of Oats, Ireland, as a whole, is far superior to either England or Scotland, provided suitable means be always adopted for their production. There are many other crops too for the growth of which strangers to Ireland believe the climate to be unfavourable in all situations. This would be a great mistake. The crops I mean are Beans and Peas for horticultural as well as agricultural purposes. The saving of farm and garden seeds, too, has been successfully practised, even in seasons as unfavourable for such purposes as were those of 1861 and 1862 in Ireland. The seeds I mean are those of Turnips of all kinds, Clover Red and White, Rape, Mangels, Carrots, Parsnips, Flax, Onions, Lettuce, &c. Of all these things I could give practical proofs in abundance. But supposing I could not do so, how, may I ask, can the rearing of stock, to say nothing at all of fattening them, be profitably conducted if tillage be abandoned? This course has been tried, and to a great extent within the last few years, more especially, and what were the consequences? Look to the agricultural statistics of the Registrar-General, and you will find the answer to be a loss of many millions of pounds sterling in that short time. It is by good and increased tillage, even on some of the best Grassing lands, that we can hope to be successful in rearing stock to meet the increased and increasing demand for flesh meat in England. And although during time of peace with the great corn-producing countries it may in many instances be more profitable to us to purchase Wheat for the use of the aristocratic, and Indian Corn for the use of the labouring classes, it will be always better policy to grow our cattle and other stock-feeding provender at home.

Your correspondent "B. M." concludes his letter with this paragraph:—"But I think that the farmers of the British isles will soon see the necessity of gradually approaching that character of husbandry which Nature points out as best suited to their climate and country." I will go further than your correspondent has gone in this view, and I tell him that there is not a plant noticed by me in the foregoing that does not belong to the natural orders of plants indigenous to Ireland. Many of them belong to the same genus, and not a few to the same species of our indigenous plants. What are we to do then to aid Nature in seeking to improve their qualities and extend their cultivation? To drain our lands judiciously and economically, and then to cultivate and manure them by all and every means which the arts and sciences place within our reach. Let us evade this by laying down our laws and leaving them to Nature, and what will be the result? A further decrease in our store stock and a certain return to what I once heard a naval officer describe Irish beef when out at sea—"Soldier's beef," meaning thereby that it was so far free from any kind of fat as to be incapable of soiling a soldier's knapsack. A like falling off will be seen in our mutton and wool, so desirable for English manufacturers; so with the consumers in Ireland of English manufactures, and of excisable articles. Nor need I say that as the income-tax would be diminished in Ireland, the Chancellor of the Exchequer might feel it necessary, if permitted, to increase its rate per pound in England. Abandon tillage in Ireland, and the half reclaimed mountain lands will again return to produce Heath and Ferns; the light dry uplands to produce Irish Furze, Broom, and a stunted valueless Fiorin Grass and the poisonous Fairy Flax; the half reclaimed, low and deep bog will return to the production of the moisture-holding Sphagna. Abandon tillage and you further reduce the Irish rent roll, whilst you increase the poor rate from having filled the poor houses with the aged and young impotent paupers, because you will further drive into what may sooner or later be an enemies' country the able-bodied, who, if employed at home, would increase the rent rolls and diminish the poor rates. Abandon tillage, and you destroy your nursery ground, not only for stock rearing but for the rearing of soldiers and sailors, whom you will drive away to fight in the ranks of other countries, and you cannot tell how soon against yourselves, on your colonial lands if not nearer home. But the majority of Irishmen have no such fear from the sound-thinking, and they are by far a majority, of Englishmen, whose policy, if I mistake not, is and will be the very opposite of that implied, if not fully expressed, in the letter of "B. M., Buxton." *Edward Carroll, 6, College Street, Dublin, Sept. 15.*

PARING AND BURNING.

THE operation is usually performed at that period of the rotation when the land is foulest. A paring plough, or spade, slices off and turns over about two inches of the surface, whether in Grass or stubble, in which state it remains till dry enough for burning. The slices are then made into small heaps and burnt, and the ashes afterwards spread evenly and ploughed in. In the heavy clay land districts of Essex "there are usually about 40 heaps to the acre, each containing three cubic yards of ashes. The labourer commences by forming a sort of artificial furnace with some of the larger slices, leaving it open to the windward side; on the top of this he places some dry stubble, and wood or thorns, and partially covers with some of the driest pieces; the fire is then applied, and as it progresses, more slices are put on; and care is taken not to allow the fire to burn out through the external surface without applying a fresh supply of them." We have seen this system of burning carried out at a cost of 1*l.* 10*s.* per statute acre, the quantity of ashes obtained being about 80 cubic yards, which gives 4½*d.* per cubic yard.* Instead of collecting the skinned surface as described above, the ground is sometimes ploughed and harrowed, and if necessary cross-ploughed before the harrow. The clods are then collected and burned. This operation is called "clod" burning; and if the clods are burned in small heaps throughout the field it need not, in this country, cost much more than 25*s.* per acre. When collected into

* In a prize essay on Paring and Burning, in the 8th vol. of the English Agricultural Society's Journal, Mr. Rawlinson estimates the cost of the practice, as described in the text, at from 4*d.* to 8*d.* per cubic yard.

large heaps of 200 or 300 cubic yards, it will cost more.*

The advantages of burning heavy land in the modes now described, have been supported by the clearest and strongest testimony. In Essex, says Mr. Pusey, it renders the land more easy to pulverise for several years, and improves the first grain crop 20 to 25 per cent.; and the quality of the Barley is imported to the value of 2*s.* per quarter. But, perhaps, the most striking case on record is that of a piece of poor clay in Worcestershire. In its unimproved state it was worth 7*s.* 6*d.* per acre. In May, 1840, it was skin-ploughed to the depth of about an inch and a half, and all that the plough raised was burned with faggots at a cost, including spreading, of 42*s.* per acre. It was then ploughed and scuffled, and rendered perfectly clean. In October it was planted with Vetches, upon which sheep were folded the following summer. This was followed by Wheat, which yielded 45 bushels per acre, and which sold for more than the fee simple of the land in its former state.†

Excellent results have followed the burning of a portion of the heavy soil of the School Farm, Belfast. The subsoil was turned over into large clods; which when dry were burnt into brick dust; and when once brought into this state they prevent the soil from returning again into clay. The ground is vastly improved in texture, being much more porous and easily laboured. The ploughman knows at once when he comes to a piece of ground which has been burned, the implement passing through it as if it were a stratum of light land.‡

Sometimes, again, a system called "border" burning is adopted. This consists in burning, in large heaps, the clay of headlands, waste corners, &c., and spreading the ashes over the land. A farmer who practised this system for 17 years in two English counties, Cambridge and Bedford, thus describes the system:—"The work of burning borders, headlands, &c., is begun in May and continued throughout the summer, in heaps containing from 50 to 100 yards each, at an expense of from 6*d.* to 7*d.* per cubic yard. The quantity of the ashes applied to strong clay land varied from 40 to 50 yards per acre. And by this application the average produce of Wheat was increased 10 bushels per acre, and other crops in proportion.§

Having shown that paring and burning improves the texture of heavy clay land, it now remains for us to examine its other effects on the ground. These may be reduced to two heads—It destroys, or at least diminishes, the organic matter; and 2ndly, It produces chemical changes in the inorganic constituents of the soil.

Organic matter performs three most useful functions in the soil. By its decomposition, carbonic acid, water, and ammonia are produced, and serve as direct food for plants. 2. These compounds aid in dissolving the mineral constituents of the soil. 3. Organic matter imparts to the soil the property of absorbing moisture largely. The mere enumeration of these functions is enough to show the farmer that paring and burning would be injurious on all light land except the peaty, as it would render them still lighter and more porous; and by dissipating the small quantity of organic matter they contain, it would render them less absorbent of moisture than before. It is different with heavy clay lands. Their texture is improved by torrefaction. And, besides, as clays retain a good deal of rain water, they are not as dependent on the absorption of atmospheric moisture as light lands.

The beneficial effects produced on the inorganic constituents of the soil by torrefaction have been recently investigated by Dr. Voelcker. A heavy clay was analysed in four different states—1. In its natural state; 2. After it was exposed to a dull red heat in a closed platinum crucible, and kept at that temperature for half-an-hour, after which it had a dark grey colour; 3. After exposure to a red heat for half-an-hour in an open crucible; and 4. Another portion was analysed after it was exposed for about three hours to the action of a full red heat. The following are the most important results deducible from these analyses:—

1st. The application of heat up to a given degree increased the quantity of soluble matter in the soil. But when the temperature was very high, the clay was overburnt, and its constituents rendered less soluble than in the natural state. The per centage of soluble inorganic matter.¶

1. In the unburned state was	6.74
2. Slightly burned	10.51
3. Burned with a strong heat	8.95
4. Over-burned	5.38

Now, as there can be no doubt that the soil is most fertile when its inorganic constituents are in the most soluble or available condition, it is evident that a moderate degree of heat may prove very beneficial, but that excessive heat is to be avoided in paring and burning.

2d. It was found that in burning, a considerable quantity of alkaline matter, and more especially of potash, was rendered soluble and available for crops. The per centage of alkaline matter soluble in the soil in the four states was as follows:—

	Potash.	Soda.
1. In the natural state..	.260	.220
2. Slightly burned	.941	.336
3. Burned with a stronger heat than No. 2	.512	.314
4. Over-burned	.544	.104

Potash being one of the most valuable and essential constituents of soils, it may be assumed, from these figures, that its liberation is one of the chief chemical causes of the beneficial effects of burning heavy clay. And the more insoluble potash the soil contains, the more likely it is, *cæteris paribus*, to be benefited by torrefaction. A heavy clay, in which fragments of felspar and other minerals rich in potash exist, or in which the chemist can discover a large quantity of insoluble potash, is sure to have some of this potash made available for plants by the judicious application of heat. On the other hand, when, as in the case of the Ulster School Farm,* the soil does not contain so large a quantity of insoluble potash, the effects of paring and burning are less striking.

Paring and burning is in its nature and effects an exhausting practice. It causes the soil to yield up to plants some of its valuable mineral constituents. Some heavy clays contain such an abundance of these constituents that even after the quantity rendered soluble by the operation is used by plants, the soil will still contain an adequate supply of them. But it is not so on what may be called siliceous clay like that of the Ulster School Farm, which would be soon exhausted if paring and burning were often repeated upon it. If liberal applications of manure followed paring and burning, the exhaustion of the soil would, of course, be prevented; but it is evident that one of the objects of the practice is to dispense with manure. And this brings us to remark upon the woful effects of paring and burning when practised indiscriminately, and on land for which it is not at all suited.

Farmers are often known to resort to paring and burning on light land as the easiest and cheapest way of raising a crop; and as they are either ignorant of its effects, or prompted by cupidity, they never think of returning, in the shape of manure, any of the constituents which the heat rendered available, and which the crops removed from the ground. The consequences of such a system are manifest. If repeated too often, it would weaken and impoverish the strongest and richest land. It would soon render light land barren. When these lands are cropped with cereals, after paring and burning, symptoms of exhaustion manifest themselves immediately. If green crops were grown on the pared and burned ground, and these crops consumed on the farm, the practice would not be quite so objectionable. And if some manure were applied at the same time, or to the subsequent grain crops, the practice may be excusable in some cases. But it cannot be too often impressed on the attention of landed proprietors and farmers that the practice of burning, as a substitute for manure, is sure to end in the ruin of light land.

While reprobating the abuse of paring and burning, we contend that there are in this country thousands of acres of heavy clay land, whose productiveness could be vastly and economically increased by the judicious application of heat. *Mr. Baldwin's Elementary Treatise on Soils. McGlashan, Dublin.*

Societies.

Vale of Evesham.—At the recent annual meeting of this Society an admirable speech was made by H.R.H. the Duc d'Aumale, who presided as one of the landed proprietors of the district. We make the following extracts:—He said: Gentlemen, first of all, that art which is the profession of most of my hearers cannot be carried on all over the world by the same process. Climate, laws, customs, the temperament of the population, its wants and means, and the division of property, must have, and necessarily have, a great influence over the way in which man works the land and draws out of it the innumerable products which are given to us by the munificence of our Creator. From the nature of your climate and your geographical situation you have been induced to apply your energies and your skill principally to two great points, which are the growing of corn and the breeding and feeding of animals. The two great aims of English agriculturists are the production of meat and bread. These are the two great objects you have had, and you have pursued them with the tenacity that is one of the characteristics of your race. In this you have been well served by circumstances, and you have reached a degree of advancement which may be, and certainly will be, carried further, but which is not generally surpassed out of these islands. It is for this reason that your agriculture is the subject of study and attention to many foreign economists and practical men. A friend of mine, M. de Lavergne, has given a very good description of your agriculture in a work entitled "L'Agriculture Anglaise," which has been translated into English; and an account of your agricultural experiments and meetings is periodically published in French. Gentlemen, I will try to point out some of the features which seem to strike more particularly foreign visitors to this country. The first is the nature of your farm buildings, which are strictly limited to what is necessary, and are much less extensive than those that would be required abroad for the same extent of land in the same state of cultivation. I believe this practice is a wise one to pursue, for it saves a great amount of capital, which can thus be more profitably invested. However, there is an improvement which is much required, and which has recently been much discussed—I mean the dwellings of your labourers. Although the rural population in this country are upon the average better fed, better clad, and better lodged than in most other countries, it is very certain that in many places the cottages of the labourers have not been improved in proportion to the improvements made in the landlords' mansions and the farmers' houses. I am happy to say that in this neighbourhood much has been done in this direction; but much still remains to be done. To increase the welfare of the agricultural labourer is one of the purposes of this Society, and as it is an object worthy the attention of the landlord and the tenant, and as it must be in the end profitable to both of them, I believe it is an object worthy of your careful and constant consideration Another fact which rather surprises the foreign economist in this country is, that the land should have been brought to the high degree of cultivation that it has been when, in many parts of the country, it is held under tenure at will, and without any very distinct agreement between landlord and tenant; but if there is a deficiency in that respect, I think you have it supplied by that mutual trust and confidence which happily exist here between the various classes of society. However, success has not made you deaf to the calls for improvement. The question of landlord and tenant right has very often attracted your attention, and has been more especially brought under your notice by one of our friends, in whose judgment, experience, and fairness we have the greatest confidence. I hold in my hand the proposed form of agreement which has been prepared by your special committee. I am not called upon to give an opinion on the subject of the various clauses of the proposed code, but I believe that any arrangement which may be found practicable, and which may induce a larger outlay on farming and increase the safety of the investment of capital in farming, is a step in the right path. The code may introduce some more complications than the mere verbal or common written agreement; but improvements often make complications. Is not the rifle with which your soldiers are armed a more complicated thing than the old "Brown Bess?" The steam plough on your farms—the various implements now used on your farms—are certainly less simple than the *aratrum* which Virgil so beautifully describes, and which I have seen at work, just as it is pictured by the immortal author of the "Georgics," under the lofty Olive trees of Sicily, or through the plains of Algiers. The use of steam power and of artificial manure answers a double purpose. Where hands are deficient they supply the deficiency. Where hands become easily obtained, and where there is no lack of capital, I think it is admitted that the use of steam increases rather than decreases the demand for manual labour. Then with the help of man's labour and capital it gives the means of drawing out of the land an increased produce, for which in the present state of trade, industry, and commerce outlets will always be easily found. When I consider what progress has been made in the last 50 years, and since the adoption of a proper course of cultivation, I am rather induced to believe that if a large additional productive power be made use of, the result will be a more constant employment of labour, more profit for the farmer, and even in the long run, which we won't forget, higher rents for the landlord, and more prosperity for the rest of the community at large. Gentlemen, the life I have led has accustomed me to be a good deal in the open air, and I like to go through your fields, and follow a covey of birds, wild as they are, and I venture to gallop sometimes after the hare or the fox over your hedges and ditches and your heavy clay. And when I see a good piece of Turnips or Mangels I like it the better, not because I know that the birds will lie better, but because I see good husbandry. And at a time when the scent is good and the hounds will run, when I feel under the hoofs of my horse good elastic ground, I am glad, because I know that the clay has been burnt and the land drained. When I have to clear, instead of a blind fence, a good clean ditch and a well trimmed hedge, I am certainly pleased, not only in having a safer ground before me, but because I notice the improvement in agriculture. And when at luncheon time or during a check I meet with a nice cottage or a commodious farmhouse, it is not only the pint of cider or the glass of sherry which soothes my thirsty soul, but it is the sight of the happiness, the comfort, and the hospitality shown by the cottager or the yeoman which cheers my heart. Well, gentlemen, I hope that every year I may meet in this neighbourhood with straighter fences, cleaner ditches,

* Mr. Mechi, who adopts this practice, gives the cost at 7*d.* per cubic yard, which includes firewood.—*Jour. Roy. Ag. Soc. Eng.*, vol. vii., p. 299.

† Journal of the Royal Agricultural Society of England, vol. vii., p. 299.

‡ Mr. Smyth, the manager of this farm, writes to me to say that, after careful observation, he would strongly recommend the practice of burning for improving the defective quality of heavy clays.

§ Journal of the Roy. Agricultural Society of England, vol. iii., p. 333.

¶ The quantity of soluble matter here represented was ascertained by acting on the soil with dilute muriatic acid.

* The application of a moderate degree of heat has been found very beneficial on this farm. The subsoil was only operated on; as the surface soil was not supposed to possess all the conditions suitable for the purpose.

better drained land, finer cattle, more comfortable cottages, and happier people, and it is because I believe this Society has promoted and will promote all these improvements, that I offer you my best wishes for its prosperity and success. So, gentlemen, I fill my glass with what I may call, and what I am proud to call, the agricultural produce of my own merry and beloved land. It is a produce which Worcestershire men, with all their skill, cannot grow in their fields. I now fill my glass, then, with what I may call a genuine countryman of mine own, and I drink to the prosperity of the Evesham Agricultural Society.

His ROYAL HIGHNESS, who spoke with great fluency, concluded his very eloquent address amid great cheering.

Mr. HOLLAND, M.P., responded to this toast, and in the course of his remarks briefly alluded to the topic of the dwellings of the agricultural labourers. He expressed his opinion that it was absolutely necessary, now that they had implements that required more skilled labour, that they should have a more intelligent race of labourers imbued with self-respect, which self-respect they could not attain under their present condition. He traced the history of the labourer from his boyhood, and showed how the want of home accommodation drove him to the beerhouse, and how the crowding of families of all ages into a common sleeping room must lower the tone of morals in the class. He thought landlords should not look to a large direct return in rent for their cottage property, but that they should consider the indirect advantages which these cottages afforded to an estate in having the supply of labour close at hand and under direct supervision. In conclusion he proposed the "Health of the Duc and Duchesse d'Aumale and the Prince Condé," remarking that the address of the Duc led them to forget that he was a foreigner.

Drunk with three times three.

The Duc D'AUMALE replied, and said it was because he felt deeply interested in the prosperity of agriculture and the rural population that he had always been happy to promote any improvements in his own neighbourhood. It was true that his heart and thoughts were very often on the other side of the water; but, if anything could soften the regrets of the exile, it was to find in a foreign country that hospitable welcome which he and his family had found here.

THAME: *Agricultural Statistics.*—At the annual meeting, Mr. HENLEY said a greater mistake was never made than that of charging farmers with opposing the collection of agricultural statistics as mere matter of information. They have no reluctance whatever to give information; they have no objection to the country knowing how much Wheat has been grown in a year. The thing was first mooted some 16 or 17 years ago, when Sir C. Wood was Chancellor of the Exchequer, and when it was first proposed in Parliament that agricultural statistics should be collected not a dissentient voice was heard. All that the members of agricultural constituencies demanded was that the farmers should not be asked to pay for their collection; they said:—"As this is a matter in which the whole country is concerned, and not the farmer alone, if you want to get at how many acres of corn are planted, get it by all means, but let the nation pay for it." That, however, did not suit the gentlemen who were clamorous for the collection of agricultural statistics; they wanted to get them without paying for them, or, in other words, they wanted the farmers to pay. Now, we in Parliament said that was unreasonable. We were not—that is, if there was any sound basis for the statements of those who were pressing the matter on the attention of the Government—the only parties interested; therefore it was not right to tax the farmer for them. But "Oh," said the Chancellor of the Exchequer, "it will never do to charge the nation; I shall have to bring in a new budget, and I don't know what," and so the matter ended at the time. Well, it has gone on, shuffle, shuffle, ever since. They have always been calling out about the farmer: "The farmer stops the way;" "We should have agricultural statistics if it were not for the objections made by the farmer." But the farmers never made any objection to my knowledge, (and I think if they had I must have heard of it) to the country knowing the number of acres of Wheat, or Barley, or Oats that are annually sown. As it is, they have gone on in this track, always raising the same cry, and nothing has been done. We are now told to look at what has been done in Ireland; it is said that in Ireland agricultural statistics are collected, with the greatest ease, from 500,000 or 600,000 tenant farmers. I will not now stop to inquire what is the extent of the holdings, but I strongly suspect that most of them are five-acre farmers. The great thing is, that the Government pay every farthing of the expense of collecting agricultural statistics in Ireland. The machinery used there for their collection is the police; the police are paid by the Government; and nobody is put to a single farthing of expense but the Government, which, you know, is paid by all of us. The Government get the statistics up, draw out the tables and publish them. With regard to this country, the last move has been as follows:—The Government wrote down to all the country magistracy, and said, "Will you collect agricultural statistics through the county police?" A circular of that kind was sent to the magistrates assembled in quarter sessions, all over the country. About half the quarter sessions objected, and said they would have nothing to do with it; but we did not. We said, "We do not object to our police carrying about papers and leaving them at different farm-houses for the farmers to fill up if they choose to do so, neither do we object to the policemen calling for them and depositing them in the proper office; but this will impose an additional amount of duty upon them, and it is only fair that for that extra duty they shall be paid; give them a moderate sum and they will do it." That was our reply to the proposition of the Government; and what was the consequence? Why, that we heard no more about it. It is plain enough, then, that those who are desirous of getting agricultural statistics wish to obtain them for nothing. But, gentlemen, it will be a very troublesome thing to be sending a parcel of papers about the country to every man who holds a farm, be it five or five hundred acres in extent. It must cause a little expense, and therefore it is only just and reasonable that those parties who are so particularly desirous for this information should pay for it. I think it is quite enough to expect the farmers to fill up the papers. As to the want of this kind of information by the farmers themselves, I do not believe that, so far at least as their own neighbourhood is concerned, they want to know how many acres Farmer So-and-so has got in Wheat or Barley. As a matter of fact, in most cases, they know it already. I never heard any one among the farmers say they cared a pin about it. It was nothing to them; every one gets as much as he can from his farm, quite irrespective of knowing how much his neighbour gets. If you want the information for general purposes, you can have it by paying for it; but it is rather hard that the farmers should be accused of a desire to withhold this information because they do not care about collecting it at their own expense for other people. That is the whole A B C of the question.

Reviews.

The Journal of the Royal Agricultural Society of England. Vol. XXIV., Part 2. J. Murray.

We have here for six shillings some 400 octavo pages as full of useful agricultural information as the English language permits. It is the cheapest book in an agricultural library, and we are persuaded that a book of this quality thus issued by the Society at a price very much below its real value, will have tenfold the influence in adding to the roll of members than if as heretofore it had been sold at an enormous price or exclusively to members. The Editor has associated with himself the ablest writers of the day in the several subjects here discussed, and the result is apparent in one of the best numbers of the serial which has been published since the death of Mr. Pusey. There are two useful papers on the breeding of horses by Mr. Dickenson and Mr. Gamgee; two papers on steam cultivation—one a prize essay by Mr. Moscrop, and the other an elaborate analysis and collation of evidence on this subject by Mr. J. A. Clarke. There is a complete and most interesting publication of the reports of the Worcester Meeting by the various judges and stewards of departments. There is a paper on the reclamation of waste lands, by Mr. C. Belcher; scientific report on milk, by Dr. Voelcker; on root development, by the Rev. M. J. Berkeley; on M. Reizet's agricultural experiments, by the Editor; on Grass-land manuring, by Messrs. Lawes & Gilbert. There are a number of capital short essays — as on clay burning, on portable fences, on annatto, on farm buildings, on dairy practice, and on homœopathic treatment of cattle, by Mr. Raudell, of Evesham, Mr. T. Bowick, Dr. Voelcker, Mr. J. F. Clarke, Mr. E. Harding, and the Editor respectively. There are the usual statistical reports by Mr. Glaisher and Mr. Harding; and there is a series of abstract reports of the discussions before the Council on cottage construction, under drainage, oilcake adulteration, parasites, steam cultivation, sheep feeding, and Grass-land management. The whole together form a collection of papers of very great agricultural interest.

On steam cultivation, which is probably the subject at present of leading interest, and on which the Journal has long been silent, Mr. Moscrop with his personal experience, and Mr. J. A. Clarke with a most elaborate comparison and examination of examples, many of which have been already published in these columns, give all the information that can be desired.

The report of the Worcester trials before the Society's judges, together with the awards, without however any attempt to connect the two, is also given; accompanied by the significant recommendation that longer and more extensive trials of steam cultivators should in future be made, on which such conclusions as may be of service to the public may be based.

We extract a passage from one of the shorter contributions to this number of the Journal, in illustration of its quality—on *Clay Land Farming*, by Mr. C. Randall.

"After a field has been once moderately well burned, very little good appears to result from repeating the work; therefore my operations in this way are now almost entirely confined to burning large heaps, to be drawn into the yards and sheds wherein a large portion of the roots are consumed by sheep. They there absorb the urine, and are mixed with the dung made in the yards; the portion under cover is mixed with artificial manure, and drilled with the root-crops.

"And this leads me to the consideration of a subject affected to a considerable extent by this burning question, viz., the additional capability of carrying a flock of sheep which clay land acquires by the change of texture brought about by this process. I do not mean that clay land can by this, or by any means, be made to produce food for sheep as beneficially or as certainly as that which is by nature Turnip land; but its capabilities in this respect may be enlarged, which is a matter of some importance at a time when the price of wool and mutton is relatively much higher than that of Wheat (the more natural product of strong land) is, or is likely to be, whilst importations pour in from every quarter. Not that I would displace any portion of the Wheat crop by the substitution of fodder crops for sheep; one half of the arable portion of a clay-farm should always grow Wheat. It is the mainstay of the occupiers of such soil; and whatever may be the price, it must be grown; and it is not only for the production of mutton and wool, but as a means of increasing the Wheat crop, that the increase of the sheep stock becomes so important.

"Under any circumstances, whether recourse is had to burning or not, I hold that there is no preparation for a Wheat crop upon any land so unprofitable as a bare fallow; and that if half of the arable portion of a clay farm be, as I recommend, under Wheat, the other half, with the exception of a portion manured for Beans, must be producing food for sheep. It is in facilitating the increased growth of this food for sheep that the burning of clay soil adds so materially to the land's capability of producing wool and mutton, and consequently Wheat.

"I am strongly tempted by the result of six years' experience of the value of steam-cultivation in working out the system of cropping clay land, which is intended to be most productive of these rent-paying commodities to say a few words upon the subject; but as it has only facilitated, not changed, the system, and as those who are employing steam in the cultivation of the soil are not the men whose attention need be called to the advantages of growing green crops, I will withstand the temptation, and rather hope that my suggestions may receive consideration from those who occupy farms not of sufficient extent to justify the heavy outlay at present involved in the adoption of steam cultivation.

"The question of details as to the mode of carrying out this system of cropping when the land has been burned must still depend in some degree upon the nature of the farm. Few clay-land farms are, and none should be, without some portion of Grass land, on which to winter the breeding ewes, summer some beasts, and provide hay to assist in making the straw into manure; if they have the additional advantage of including some light land, no difficulty will exist in making the clay land share equally with this light land the production of food for sheep, and the conversion by them of the larger portion of the straw into manure.

"Assuming, then, that a farm consists of 20 acres pasture, 40 acres light or medium land, and 160 clay land, and that 100 breeding ewes are kept, and their produce reared and fattened, there will then be annually—

	Acres.
Wheat	100
Clover—mown	20
Mixed seeds—grazed	20
Beans	10
Fallow crops	50

viz., 10 acres upon light land, of which 5 acres are to be Italian Rye-grass, succeeded by Swedes; 5 acres Vetches, followed by Turnips, both having been manured after harvest, not only to force early and abundant crops of food for the ewes and lambs, but also to save time, by having the land ready manured for Swedes and Turnips. The Italian Rye-grass upon this light land, forced on by the manure applied after harvest, will be fed off by the middle of May. The roots should then be worked to the surface by Coleman's cultivator, by harrowing, rolling, and again harrowing, then buried by one deep ploughing, and the land planted with Swedes before the middle of June. The fallow crops upon 40 acres of clay-land will be,—Mangels, 12 acres; Cabbages (of two varieties, to be planted in October), 8 acres; and Vetches, 20 acres.

"The green crops will be reversed every four years. Thus, where Red Clover was grown in 1860, there would be mixed Seeds and Beans in 1864; where Rye-grass and Swedes in 1860, Vetches and Turnips in 1864; and where Mangels and Cabbages in 1860, Vetches in 1864. It should also be borne in mind that on the clay-land, Clover should be the next green crop after the Mangel and Cabbages; mixed seeds after the Vetches.

"The breeding ewes must be kept as long as possible upon the seeds; and while they are eating down those upon the clay to prepare the way for the plough, those on the lightest land—that which may be planted as soon as ploughed—must be saved. Upon this, when the clay-land seeds are finished, the ewes must be fed, with the addition of some chaff, if necessary, and so kept off the Grass until the end of November, by which time all the land after seeds should be sown with Wheat. The ewes then go into the strawyard, to be kept upon a mixture of hay and Wheat-chaff, with malt-dust. They should be turned out four or five hours every day upon a fresh portion of the Grass-land, a very small one; but the hurdles must be moved every

day, and the allowance of Grass increased, and the dry food improved, by the addition of Oats or oilcake, as the yeaning time approaches. After lambing, they go to the Italian Rye-grass, of which they must have a fresh portion every day; for, be it remembered that all the green food is supposed to be hurdled off; not only because it is economised thereby, but because the sheep will do better, and the land will be more equally manured than by giving the whole field at once. If all this Italian Rye-grass is eaten before it is necessary that the land should be prepared for Swedes, it will still be useful to remove the sheep to that field at night from off the other seeds, where their feet in the frosty mornings would be destructive. I need not point out how, with the provision of food for the summer months above indicated, the flock may be maintained—this, I hope, is sufficiently obvious; they are to be kept upon the land until the Cabbages, Turnips, and Swedes are eaten, and then go into yards. The wether and draft-ewe lambs (tegs, as they are here called; hogs, in other counties) will then be fattened upon Mangels, with a liberal allowance of Clover chaff and malt-dust, and ½ lb. oilcake daily; the ewe-lambs intended to be kept for stock will have Mangels, with a mixture of Clover and Wheat-chaff. Both will do better with 10 lbs. of roots each per day, from December to the end of February, than they would do with an unlimited quantity, provided they have as much dry food as they will eat. After February the allowance of Mangel should be increased if the store will allow of this, and by the end of March the fattening tegs will be fit to go shorn, to the butcher. If they can be kept a month longer so much the better. I have thus been supposing the case of a clay-land farm which is assisted by a small portion of a lighter character. Where there is only clay there will often be greater difficulty; and it may be necessary sometimes to sell off all, or a portion of the lambs before September instead of wintering them. In that case, as the whole of the straw cannot properly be made into manure, it is better that part should be sold off, the money arising from such sale being expended, half in guano and half in oilcake; the former to be applied to the Wheat crop, the latter given to the ewes and lambs upon the seeds and Vetches. I have conclusive proof in the field I named at the commencement of this letter, that farmyard manure is not essential to the fertility of clay-land, but that after draining and burning, the poorest of it may be maintained in productive condition, and grow Wheat every other year by the aid of sheep, oilcake, and guano."

We have here an example in which drainage, clay burning, and steam cultivation, all of them agencies dealing with the texture of the land, have been brought to bear on a stiff clay farm.

It quite bears out the opinion that a new era is dawning on the clay land farmer, and that steam power applied to their cultivation, in addition to the other methods which have hitherto been employed by our best cultivators, [will greatly increase the fertility and the profitableness of all the stiffer class of soils.

Fire and Water, versus *Corn and Hay. An Essay on the Effects of Steam Cultivation.* By Simon Hutchinson, Manthorpe Lodge, Grantham. Third Edition. Fourth Thousand. Simpkin, Marshall, & Co.

Mr. Hutchinson's Essay, not even commended by the Society's Judges of the Essays on Steam Cultivation, is likely to have as many readers as Mr. Moscrop's, to which they awarded the prize, notwithstanding that the latter has 5000 or 6000 readers in virtue of their membership of the Society.

The present is the superior of the other in definite information on its subject; but we presume that it is "undecorated" because its writer has not sufficiently observed the rules laid down for competition. Mr. Moscrop speaks in detail of all the points to which the attention of competitors was directed. Mr. Hutchinson does not; but his information is more precise, satisfactory, and conclusive. The present essay is more likely to extend steam cultivation than its rival; and we are bound to add it will do more to extend Mr. Smith's system, which its writer followed, than the experience related by Mr. Moscrop will do to extend that of Mr. Fowler, adopted by him.

Miscellaneous.

Agricultural Steam Engines.—A recent fatal disaster to a portable agricultural engine at Clearsfield, Suffolk, has induced the Agricultural Society of that county to adopt a resolution under which the association recommends the appointment of a competent engineer as inspector of such motors. The inspection is proposed to be made at least half-yearly at a certain fixed payment per engine for each examination, the charge to be paid, with the exception of a small annual grant from the funds of the association, by the owners of the engines. The inspector will be required to keep a registry of all engines inspected by him from time to time, with the name of the makers, the date or age of the engine, and the limited amount of pressure in pounds to the square inch upon the boiler, all of which is to be painted in large and legible letters upon the engine. The inspector is also to examine every engine-driver as to his fitness, and if satisfied with him to give him a certificate which will enable him to wear a badge on his right arm, having a number upon it corresponding with the inspector's book. This badge or distinction the driver is to be obliged to wear when at work with his engine. The inspector is also once a year to make out a schedule of all engines examined by him, with a report upon their condition, together with any suggestion which may occur to him in the course of his inspection. A committee of the association, comprising the Earl of Stradbroke, Major Parker, M.P., Sir E. C. Kerrison, M.P., &c., has been appointed to obtain such information as may seem necessary for carrying this object into effect, and is to report the result of their inquiries in three weeks. Meanwhile a subscription list has been opened to defray incidental expenses.

Calendar of Operations.

SEPTEMBER.

West Sussex: *Sept.* 22.—The bulk of harvest has been finished nearly a month; there were some few late patches left out then that had to lie nearly a fortnight before they could be got in, and of course were to some extent damaged, but this will hardly affect the general crop and its condition, which may be called good. There was a good deal threshed during harvest, and the yield in some cases is said to have been as high as 15 or 16 sacks per acre; but from the owner of steam-threshing machines we learn that the yield may be put at from 9 to 11 sacks a load per acre, and the quality is good and weighs at least 2 lb. per bushel heavier than usual, but the price is low—about 3*s.* per load below last year, so that if there are 3 sacks per acre more, it will not pay much more. There is some good Barley, but there is also a good deal rather inferior. Oats turn out a good sample, but will not yield so well as last year. Our pastures were very bare at the end of harvest, and some hardly knew what to do with their cattle; but now all is right—the rains could not have been more suitable; but still the late sown Turnips do not do very well, and we can hardly expect that they will come to much now. On the whole we may put the crop down as deficient; but the Mangel is good, and so are the Swedes. The hay crop, though light, is good in quality; there is a good deal of old left, and there is no fear of scarcity of winter food. Potatos are an extra crop, and generally free from disease, but it has appeared in some low lands rather severely. I have no doubt that the coveted 2 cwt. per rod will be got in many places. We are now preparing for Wheat sowing, and there has been rather more than the usual amount of stubble cleaning since harvest, some much requiring it, as the last two damp seasons have produced more than the average amount of weeds; but it is likely that this operation is at an end, as we have had another heavy fall of rain, the barometer being lower than it has been for a long time. Work is well forward, and unless the weather break up badly, Wheat will be got in in good time. *G. S.*

Meteorological Observations—Berkshire.

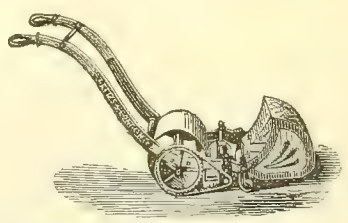
By the Rev. J. Slatter, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Thursday..	Sept. 25	29.84	56	53	S.W.	1	0	58	41	68	35	0.09
Wednesday	30	30.09	54	51	S.W.	0	5	60	36	74	30	..
Tuesday ..	Oct. 1	30.35	54	50	S.W.	3	9	59	37	72	29	0.03
Monday ..	2	29.85	50	50	W.	0	10	56	48	60	47	0.31
Sunday ..	3	30.11	53	49	N.E.	1	4	56	37	69	33	0.10
Saturday ..	4	29.97	52	48	S.	1	5	58	33	70	28	..
Friday ..	5	29.31	57	54	S.	2	8	59	50	66	46	0.52

Notices to Correspondents.

Rabbits: *Cor.* If there is anything specially adapted to meet the difficulty you name, a Correspondent to whom we have sent your letter will inform us for you.—*A Subscriber.* If your rabbits are kept in hutches, the troughs should be broad at top, narrow at the bottom, and fastened to the front. They should not be filled; but only sufficient bran or corn put in for the one meal. If the rabbits be at liberty in a pen, the trough should be too heavy for them to overturn, and should have bars over the top to prevent them from getting into it.

GREEN'S LATEST IMPROVED PATENT NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES, which gained the First Prize Medal of the International Exhibition.



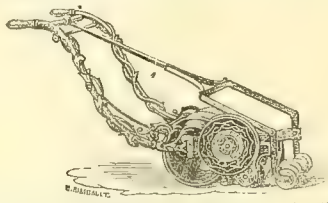
Patronized by Her Most Gracious Majesty the Queen during the seasons of 1862 and 1863.

These Machines have proved to be the best, and have carried off every prize that has been given in all cases of competition.

ILLUSTRATED PRIZE LISTS on application.

Thomas Green & Son, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

SHANKS' NEW IMPROVED LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINES were awarded the First Prize Medal of the International Exhibition.



Shanks' Patent Lawn Mowers are in use in the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

These Machines are allowed to be the best and by far the most durable ever offered to the public.

ILLUSTRATED CATALOGUES on application to A. Shanks & Son, Dens Iron Works, Arbroath; or 27, Leadenhall Street, London, E.C.

HOOPER'S NEW ETRUSCAN HYACINTH and CUT FLOWER VASES.

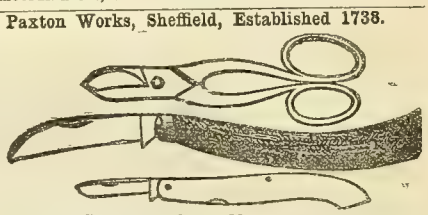
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,, Potter, Farringdon Street
,, Taylor, King's Road, Chelsea
Axminster, W. Baker
Brechin, Dickson & Turnbull
Beccles, Laws, Thomas
Brough, D. Wood
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Cheltenham, C. E. Brydges
Chester, F. & A. Dickson & Sons
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Leeds, Kearsley & Sons
Liverpool, R. P. Ker
Manchester, Dicksons & Brown
Montrose, P. Macdonald
Norwich, R. Elphinstone
Peterborough, C. Quincey
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Hooper & Co., Covent Garden Market, London, W.C.

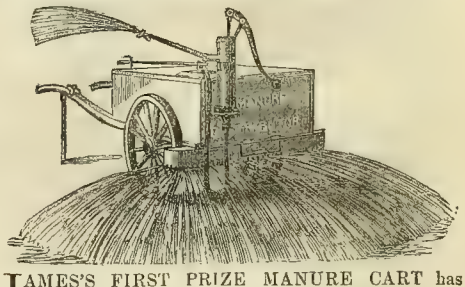
Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal was Awarded to Saynor & Cooke for superiority of quality in Pruning and Budding Knives, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

Caution.—None are genuine unless marked Saynor. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.



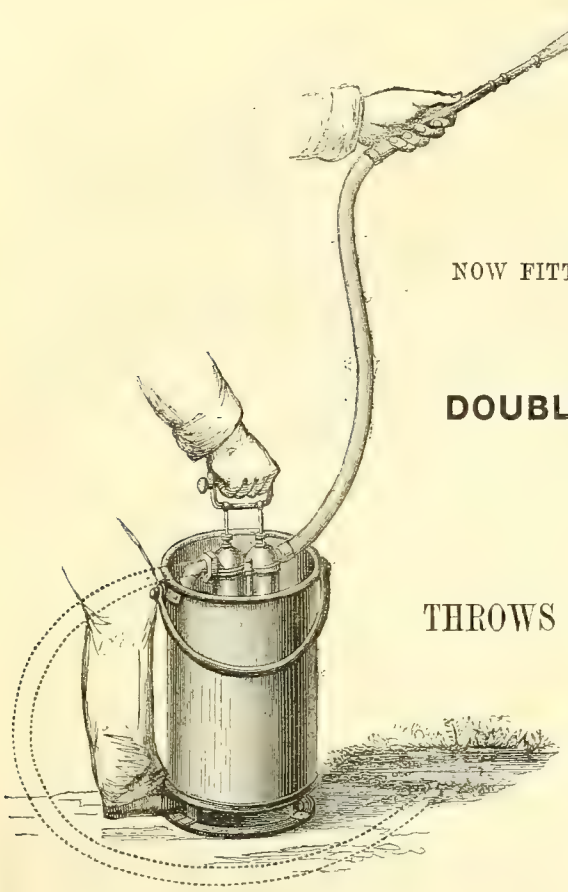
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at £2 2s.

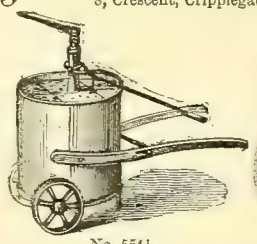
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May be obtained of any Ironmonger or Seedsman at the above price, or of

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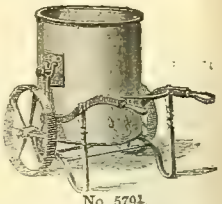


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WARNERS' GALVANIZED IRON TUB GARDEN ENGINE, with Registered Spreader, is strongly recommended for durability and low price—viz.:

10 gallons	..	£2 15 0
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24 ,,	..	5 0 0

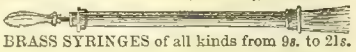
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WARNERS' SWING GARDEN BARROW (holding about 35 gallons) is intended for all large establishments where much watering is done by the Watering Pot. By its use the Gardener will save much time and labour, particularly where the Tank, Pond, or Pump, is at a distance from the Garden.

35 gallons	..	£2 10 0
20 ,,	..	2 0 0



BRASS SYRINGES of all kinds from 9s. to 21s.



No. 567½.

WARNERS' IMPROVED PATENT DOUBLE-ACTION SYRINGE, with 5 feet Flexible Suction Pipe,

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Will draw water from water-pot, pail, tank, or pond, in conservatory or garden, and throw the water, either in a fine shower or a strong stream, to a distance of 30 feet.

As this Syringe draws and forces the water at both up and down strokes, the unpleasant stooping necessary to charge the ordinary Syringe is avoided.

It is superior to any other form of Syringe, and may be used as an effective Garden Engine with Warners' Water Barrow, or other supply.

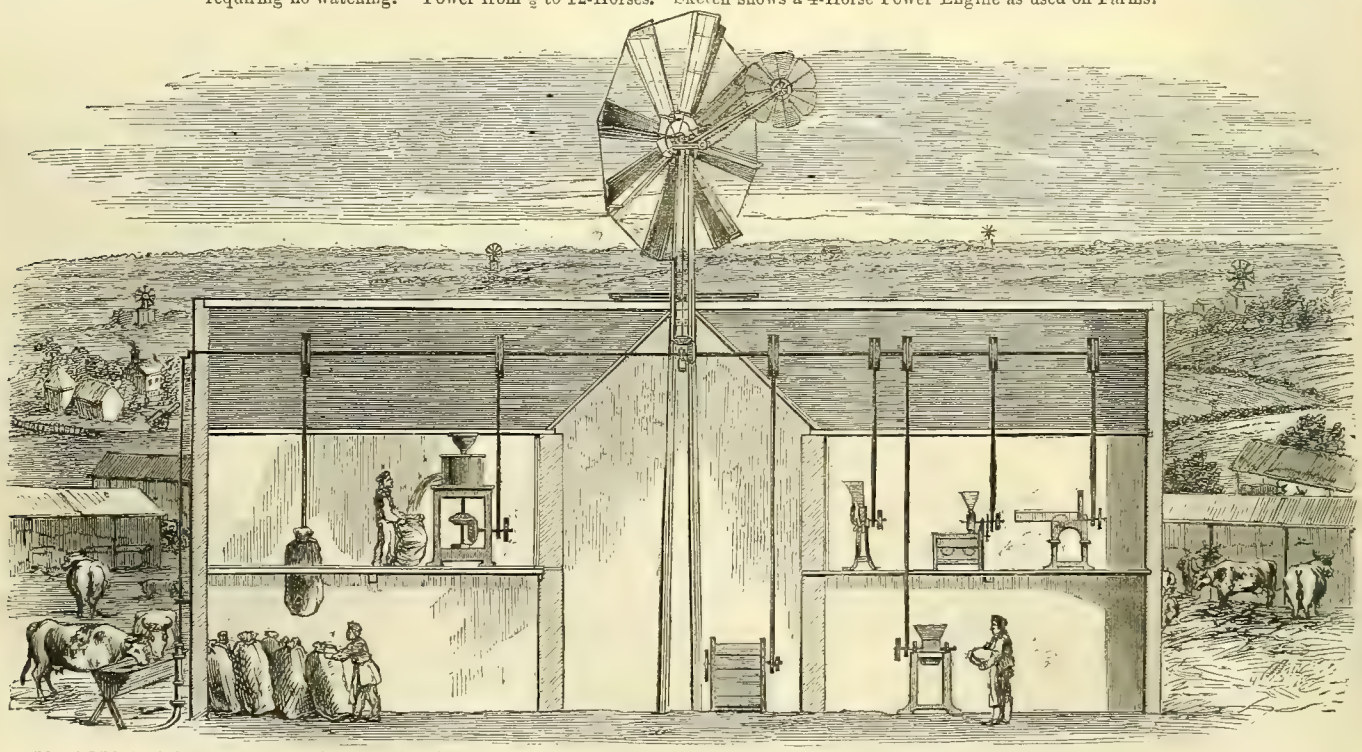
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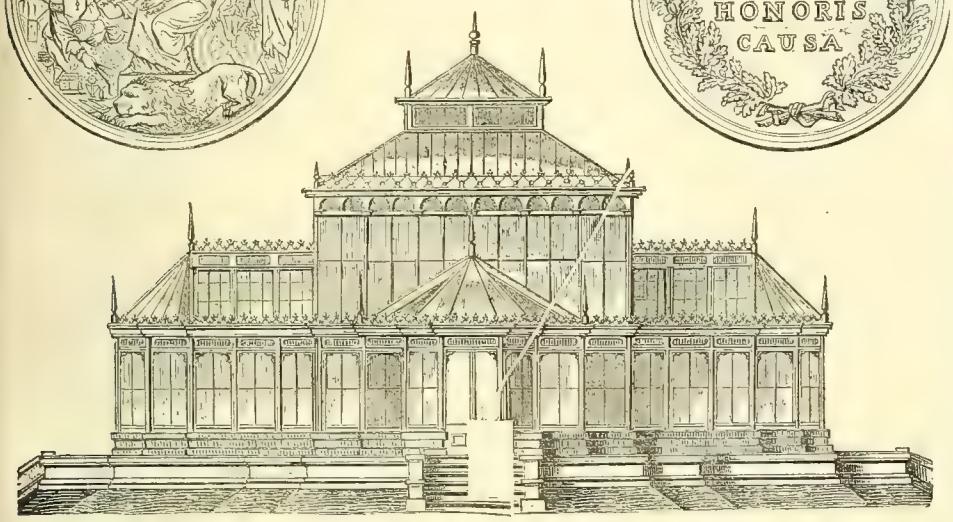
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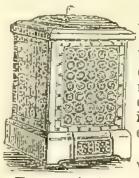
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It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

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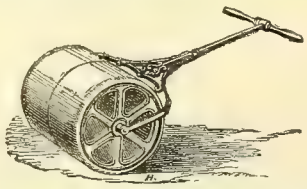
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Apply to WM. H. JACKSON, Plate, Crown, and Sheet Glass Warehouse, 315, Oxford Street, W.

GREEN'S IMPROVED NEW PATENT ROLLER for LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS, &c.



These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the very best materials, and are got up in a manner surpassing any ever yet brought out.

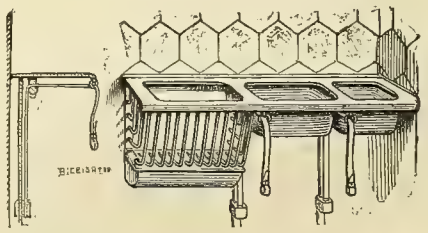
PRICES :—

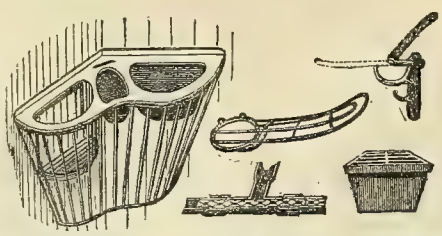
Diameter 30 inches,	length 32 inches ..	..	£7	0 0
,, 24 inches,	,, 26 inches ..	..	4	5 0
,, 20 inches,	,, 22 inches ..	..	3	5 0
,, 16 inches,	,, 17 inches ..	..	2	10 0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

COTTAM'S PRIZE STABLE FITTINGS and HARNESS BRACKETS.





These Fittings, now so generally specified by Architects in their specifications, may be seen at the Manufactory, 2, Winsley Street, Oxford Street, W., where a large supply is always on hand and regular sizes kept in stock, and where full-size Stalls and loose Boxes (variously arranged, with a view to the economy of space) can be examined.

COTTAM & COMPANY, Manufacturers and Patentees, hold the Prizes of 1851, 1855 (Paris) and 1862, for these Fittings.

*** Apply for No. 3 Catalogue, to be had free of COTTAM & Co., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

CHUBB'S PATENT SAFES, the most secure against Fire and Thieves.

CHUBB'S FIRE-PROOF STRONG ROOM DOORS. CHUBB'S PATENT DETECTOR LOCKS and STREET DOOR LATCHES; CHUBB'S CASH and DEED BOXES.

Illustrated Price List gratis and post free.

CHUBB & SON, 57, St. Paul's Churchyard, London, E.C.

FENDERS, STOVES, FIRE-IRONS, and CHIMNEY PIECES.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW-ROOMS. They contain such an assortment of FENDERS, STOVES, RANGES, CHIMNEY-PIECES, FIRE-IRONS, and GENERAL IRONMONGERY as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with ormolu ornaments, 3*l.* 15*s.* to 33*l.* 10*s.*; Bronzed Fenders, with standards, 7*s.* to 5*l.* 12*s.*; Steel Fenders, 3*l.* 3*s.* to 11*l.*; ditto, with rich ormolu ornaments, from 3*l.* 3*s.* to 18*l.*; Chimney-pieces, from 1*l.* 5*s.* to 100*l.*; Fire Irons, from 2*s.* 3*d.* the set to 4*l.* 4*s.* The BURTON and all other PATENT STOVES, with radiating hearth-plates.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 500 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish-Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39 Oxford Street, W.; 1, 1a, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place; and 1 Newman Yard, London

Glenfield Patent Starch.

MESSRS. WOTHERSPOON AND CO. have been appointed STARCH PURVEYORS to H. R. H. the PRINCESS of WALES. This Starch is used in the Royal Laundry and was awarded a Prize Medal. Sold by all Grocers, Chandlers, &c.

WOTHERSPOON & Co., Glasgow and London.

CAPTAIN WHITE'S ORIENTAL PICKLE, CURRY or MULLIGATAWNY PASTE, CURRY POWDER and CURRY SAUCE, may be obtained from all Sauce Vendors, and Wholesale of

CROSSE & BLACKWELL, Purveyors to the Queen, Soho Square, London, W.C.

Sauce.—Lea and Perrins'

WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs

"THE ONLY GOOD SAUCE,"

Is prepared solely by LEA & PERRINS.

The public are respectfully cautioned against worthless imitations, and should see that LEA & PERRINS' Names are on Wrapper, Label, Bottle, and Stopper.

ASK FOR LEA AND PERRINS SAUCE.

*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c.; and by Grocers and Oilmen universally.

CONCENTRATED BEEF TEA, with FARINACEOUS FOOD, in skins of 1 lb. each, containing the extract of 13 lb. of Beef, 7*s.*; invaluable to public speakers, tourists, and invalids, either as a lozenge, or dissolved in hot milk, water or tea. Also the Patent Tonic BEEF TEA LOZENGE, to create strength, sustain the stomach, and prevent fever. A few dissolved in boiling water will form a Cup of Beef Tea or Gravy for Game. 1*s.* Boxes.

PHYTHIAN, 430, West Strand, W.C.; NEIGHBOUR, 127, High Holborn, W.C.

TESTIMONIAL.—You can safely recommend BAKER'S Patent Tonic Beef Tea Lozenges. I was out examining pupils 11 hours, had no other food, and felt none the worse from my labours. —*Rev. P. S.*

DINNEFORD'S PURE FLUID MAGNESIA has been during 25 years emphatically sanctioned by the Medical Profession, and universally accepted by the public, as the best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion, and as a mild Aperient for delicate constitutions, more especially for ladies and children. It is prepared in a state of perfect purity and of uniform strength by

DINNEFORD & Co., 172, New Bond Street, London, and sold by all respectable Chemists throughout the world.

PRICE'S CHILD'S NIGHT LIGHTS are perfectly safe, and burn their time. The quality of these Night Lights can now be relied on.

SHERWOOD BED LIGHTS, Sixpence and Eighteenpence a box.—These candles are made to supply a want very generally expressed, a cheap, really good Chamber Candle. They will be found inferior only to "PRICE'S CANDLES, WHICH WILL NOT DROP GREASE WHEN CARRIED," which are sold in boxes, 1*s.* and 3*s.* each.

GLYCERINE, which very simple tests show to be impure, is being sold on the statement that it is in every respect equal to Price's." Most medical men prescribe "PRICE'S GLYCERINE." Where purity is of importance patients can ensure it by desiring to have their Glycerine in 1 lb., 8 oz., 4 oz., or 2 oz. bottles, with capsule over the stopper marked "Price's Patent."

Belmont, Vauxhall.

CONSUMPTION.—All Nervous, Bilious, Liver and Stomach Complaints are only aggravated and accelerated by drugs of every description, but perfectly curable by DU BARRY'S health-restoring REVALENTA ARABICA FOOD, as proved by thousands of cases which had been considered hopeless. We quote a few.—Cure No. 46,270. Mr. James Roberts, of Frimley, Surrey, of 30 years' diseased lungs, spitting of blood, liver derangement, and partial deafness.—Cure No. 47,121. Miss Elizabeth Jacobs, of extreme nervousness, indigestion, gatherings, low spirits, and nervous fancies.—Cure No. 54,816. The Rev. JAMES T. Campbell, Fakenham, Norfolk, "of indigestion and torpidity of the liver, which had resisted all medical treatment."—In tins 1 lb., 2*s.* 9*d.*; 2 lb., 4*s.* 6*d.*; 5 lb., 11*s.*; 12 lb., 22*s.*; 24 lb., 40*s.*

BARRY DU BARRY & Co., No. 77, Regent Street, London, W.; also at 61, Gracechurch Street, E.C.; 4, Cheapside, E.C.; 63 and 150, Oxford Street, W.; and all Grocers and Chemists in every town of the United Kingdom.

THRESHER'S COLORED FLANNEL SHIRTS.—PRIZE MEDAL awarded to THRESHER & GLENNY for very fine and superior FLANNEL SHIRTS, India Tweed Suits, and India Gauze Waistcoats.

Lists of Prices on application to THRESHER & GLENNY, General Outfitters, next door to Somerset House, Strand, W.C.

LE SOMMIER ELASTIQUE PORTATIF.—The foundation for all Mattress Bedding should be elastic, and the usual Spring Mattress is too heavy and cumbersome for general use. HEAL & SON'S new Patent LE SOMMIER ELASTIQUE PORTATIF is made in three separate parts, and is therefore light and portable; it is also cheap and durable; and as it has no stuffing on the top, it cannot harbour moth.

HEAL AND SON'S ILLUSTRATED CATALOGUE, containing Designs and Prices of 100 Bedsteads, as well as of 150 different articles of Bedroom Furniture, sent free by post.

HEAL & SON, Bedstead, Bedding, and Bedroom Furniture Manufacturers, 196, Tottenham Court Road, W.

KEATING'S PERSIAN INSECT DESTROYING POWDER.—Fleas in Dogs, Poultry, &c., are instantly destroyed, as also Bugs, Beetles, and every other Insect, by this Powder, which is perfectly harmless to animal life; Sportsmen particularly will therefore find it invaluable.

Sold in Packets, 1*s*, 2*s.* 6*d.*, and 4*s.* 6*d.* each, or post free for 14, or treble size for 36 postage stamps, by THOMAS KEATING, Chemist, 79, St. Paul's Churchyard, London, E.C. Take notice, each genuine packet bears the above name and address.

For which a Prize Medal was awarded to the Producer at the International Exhibition, 1862.

METCALFE, BINGLEY, AND CO'S NEW PATTERN TOOTH BRUSHES, Penetrating Unbleached Hair Brushes, Improved Flesh Brushes, genuine Smyrna Sponges, and every description of Brush and Comb and Perfumery for the Toilet. METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box. The FAIRY BOUQUET; the OXFORD and CAMBRIDGE BOUQUET. In bottles, 2*s.*, 3*s.* 6*d.*, and 5*s.* each. 130 B, and 131, Oxford Street, W.

GRATITUDE.—The following appeared in *The Times* Newspaper, Sept. 23, 1863:—

"PARR'S LIFE PILLS.—These are a most invaluable remedy for all diseases if persevered in. This advertisement is inserted by one who has been saved from an early death by their use, and who wishes his fellow creatures to partake of the benefits which he has derived from them."

Messrs. T. ROBERTS & Co., 8, Crane Court, Fleet Street, London, E.C., the Proprietors of PARR'S LIFE PILLS, positively declare that the above testimony to the value of their medicine was inserted without their aid or knowledge. It is a true and spontaneous act of gratitude for benefits received from the use of PARR'S LIFE PILLS.

CORNS and BUNIONS.—A gentleman, many years to mented with Corns, will be happy to afford others the infor u tion by which he obtained their entire removal in a short er od, without pain or any kind of inconvenience.

Forward address, on a stamped envelope, to W. GOODALL, Esq., Epsom, Surrey, S.

7th Edition, 10th Thousand, price 2*s.* 6*d.*, post-free, 32 stamps.

DISEASES of the SKIN; a Guide to their Treatment and Prevention. Illustrated by Cases. By THOS. HUNT, F.R.C.S., Surgeon to the Western Dispensary for Diseases of the Skin, 21A, Charlotte Street, Fitzroy Square.

"Mr. Hunt has transferred these diseases from the incurable class to the curable."—*Lancet.*

London: T. RICHARDS, 37, Great Queen Street, W.C.

BERKSHIRE PIGS.—The Advertiser, who has taken First Prizes at the Royal Agricultural and other shows, has a few choice young BOARS and SOWS for SALE.

Apply, post paid, to X. H., *Gardeners' Chronicle* Office, W.C.

To Seedsmen and Florists.

SPACE TO BE LET for the EXHIBITION and SALE of GOURDS, BULBS, ROOTS, and SEEDS during the CHRYSANTHEMUM SHOW in the AGRICULTURAL HALL, Islington, on NOVEMBER 11, 12, and 13.

For particulars apply to Mr. J. H. SILLITOE, at the Hall.

Nursery and Seed Business.

TO BE LET, with Immediate Possession, a First-class Country Business, comprising extensive ranges of GREENHOUSES and PITS, capital RESIDENCE and SEED SHOP, and about 12 ACRES of LAND, well stocked with Fruit Trees and Shrubs, and one of the largest and best collections of Roses in the kingdom, the trade for which has been rapidly extended in the last four years, owing to the reputation obtained by the present proprietor.

Apply by letter to B., *Gardeners' Chronicle* Office, W.C.

To Nurserymen, Gardeners, and Others.

TO BE DISPOSED OF, by Private Treaty, and with early application (in consequence of the failing health of the present Proprietor) an OLD-ESTABLISHED and EXTENSIVE NURSERY, with Hot and Green Houses, doing a good Business, in an excellent situation, and within a few miles of Liverpool.

For particulars apply by letter to "J. W.," care of Wren & Sons, Temple Court, Liverpool.

TO BE LET, NURSERY GROUNDS in Brighton, comprising extensive Vineries and Peach-houses, in good bearing condition; large Span-roofed and Lean-to Houses, and Pits for Plants; also, a capital Residence and Cottages, with Stabling and Coach Houses.

The Stock can be taken at a valuation or a fixed sum, as agreed upon, or a PARTNER with Capital would be accepted.

Full Particulars to be had on application to the GARDEN SUPERINTENDENT, Alexandra Park, Tottenham Wood, Hornsey.

TO BE LET, in the neighbourhood of a thriving town in Gloucestershire, and one mile from a railway station, a NURSERY, containing about 9 Acres of excellent Land, with a Stove and Greenhouse, Pits, and requisite Offices, with superior Fittings all complete.

To an industrious Man desirous of entering the Nursery Business with a small capital, this is an opportunity which seldom presents itself. Coming-in very low. There is a Cottage adjoining, and a Shop may be had in the town if thought necessary.

For particulars apply to Mr. JOHN SEALY, Mugland Nursery, St. George's, near Bristol.

To Gardeners and Others.

FOR SALE, a MARKET GARDEN, about 5½ Acres. A very good opening for a Nurseryman.

Apply to E. ADCOCK, Horncastle.

AN OLD-ESTABLISHED COUNTRY NURSERY BUSINESS, with Plant Houses, and first-class Stock, on Six Acres of Ground, for Positive SALE, at a sacrifice, or a PARTNER accepted, who could Purchase half the Stock, and promote the Business. He would have the privilege of Purchasing the whole as soon as prepared or disposed to do so. Declining health of the Proprietor induces him to make this advantageous offer.

Address, NURSERY, Post Office, York.

Sales by Auction.

Camden Town.

TO GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION on the Premises, Camden Nursery, Camden Town, N.W., on TUESDAY, October 6, at 11 o'Clock, by order of Mr. Thomas Ansell, the lease having expired, the whole of the NURSERY STOCK, consisting of Forest Trees, Planes, Poplars, Limes, Sycamore, Birch, Laburnums, Thorns, Acacias, &c., fine Evergreens, including Aucubas, Arbor-vitæ; several thousands of Euonymus, Box, Savin, &c.; Deciduous Shrubs, comprising the usual assortment; also 2000 Chrysanthemums, fine blooming plants; Geraniums, Fuchsias, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; at the Seed Shop, 9, Brecknock Place, near the Camden Town Railway Station; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Highly Important Sale of Japanese Plants, the Property of Mr. James Veitch.

MESSRS. PROTHEROE AND MORRIS are instructed to offer for unreserved SALE, by Public AUCTION, at the Mart, Bartholomew Lane, City, E.C., on WEDNESDAY, October 7, at 12 o'Clock, a large portion of the rare and valuable COLLECTION of PLANTS recently imported from Japan by Mr. James Veitch, of the Exotic Nursery, King's Road, Chelsea, the whole of which are in the finest possible health, including the following:—

Lilium auratum
Sciadopitys verticillata
Retinispora obtusa
" pisifera
Pinus densiflora
" koraiensis
Thujopsis dolabrata
" variegata
" Standishi
Thuja falcata
Abies firma
Aucuba japonica vera
Osmanthus ilicifolius
" " variegatus
Euonymus radicans variegatus
" japonicus aureo-variegatus
Ligustrum glabrum aureo variegatum
Lonicera aureo-reticulata
Ligularia (Farfugium) Kæmpferi argentea
Raphiolepis ovata
Chamærops Fortunei
Eurya latifolia variegata
Bambusa Metake
Sanseviera carnea variegata
Serissa fœtida variegata
Sedum carneum variegatum
Lastrea opaca
Polystichum setosum
Woodwardia japonica
" orientalis
Cheilanthes mysurensis
Woodsia polystichoides var Veitchii, &c.

May be viewed previous to the Sale at the Exotic Nursery, King's Road, Chelsea, and at the Mart the Morning of Sale, where Catalogues may be had, also of the principal Seedsmen in London, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Isleworth.

TO GENTLEMEN, NURSERYMEN, MARKET GARDENERS, & OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. C. W. Buck, to SELL by AUCTION, on the Premises, Wood Lane, near the Isleworth Station, on the South Western Railway, on TUESDAY, October 13, at 11 o'Clock, the Lease having expired, the whole of the NURSERY STOCK, consisting of Evergreens and Deciduous Shrubs, 5000 Dwarf, Moss, Provence, and other Roses, 500 large Dwarf China Roses, 1000 fine young Standard fruiting Plums, Pyramid Pears, 120 yards capital Privet Hedge, several beds of Asparagus and Herbaceous Plants, 3000 Bulbs Gladiolus Brenchleyensis, 1500 Greenhouse Plants, various; together with 3 Greenhouses, Tubular Boiler, 3-inch Hot-water piping, Thirty Light Boxes and ranges of Pits, Garden Pots, Tumbril Cart, useful Bay Gelding, Fowls, and sundry effects.

May be viewed four days prior to the Sale. Catalogues may be had on the Premises; of Mr. C. W. BUCK, Covent Garden; at the principal Seedshops in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Roses, Dutch Bulbs, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, on FRIDAY, Oct. 16, a fine Collection of DUTCH BULBS of first-class size and quality; a splendid Assortment of STANDARD and DWARF ROSES, AMERICAN PLANTS, &c.

On view the Morning of Sale, and Catalogues had at the Mart a week prior.

Balham.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. CURTIS to SELL by AUCTION on the Premises, Balham Nursery, Balham, on MONDAY, October 19, at 11 o'Clock, without reserve, the ground being immediately required to be cleared, the whole of the valuable NURSERY STOCK, consisting of Evergreens and Deciduous Shrubs, Ornamental Fruit and Forest Trees, Standard and Dwarf Roses, Climbing Plants, various, in Pots, &c.; also upwards of 200 Double Camellias, 2 to 8 feet, choice Azalea Indica, sorts, a pair of fine Aloes, Oranges, &c. Two Stacks of prime Meadow Hay, a handsome Black Gelding Cob, a capital set of Harness, a light Spring Cart, Heap of Manure, and sundry effects.

May be viewed a week prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Hendon, Middlesex.

TO FLORISTS, NURSERYMEN, GARDENERS, AND OTHERS.

MR. SPENCER will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, October 9, at 12 for 1 o'Clock, a VALUABLE LEASEHOLD PROPERTY of about 3 acres, with a small Dwelling House, 4 Greenhouses, Forcing House, and Pits, known as the Hendon Park Nurseries, held on a Lease for an unexpired term of 9 years, at a rental of 20*l.* per annum; also the extensive collection of choice Trees, Shrubs, Plants, Stock, Utensils, Fittings, &c.

May be viewed by application on the Premises, where particulars may be had; at the Auction Mart; of JOHN EVANS, Esq., 10, John Street, Bedford Row, W.C.; and at Mr. SPENCER'S Office, 1, Bream's Buildings, Chancery Lane, E.C.

TO BE SOLD by AUCTION, at the Market Place, Swindon, Wilts, on MONDAY, October 12, in consequence of the Proprietor having left the neighbourhood, a 14-HORSE FOWLER'S STEAM PLOUGH, with latest improvements, having been only 8 months at work, including a MOLE DRAINING PLOUGH.

Further particulars on Hand Bills.

Sudbury, Suffolk.

CHOICE FRUIT TREES, SHRUBS, &c.

MESSRS. BLUNDEN AND SQUIRE have received instructions from Mr. Stephen Brown, who is declining the Nursery Branch of his Trade, to submit to PUBLIC AUCTION, at the Nursery, near the Railway Station, on TUESDAY, October 13, and following day, 2000 PYRAMIDAL PEARS, APPLES, PLUMS, CHERRIES, &c.; 1000 STANDARD Do.; 500 TRAINED Do., and PEACHES, NECTARINES, and APRICOTS. A quantity of fine Fruiting Trees in pots, 150 Fruiting and other Vines in pots, 150 Scarlet and other Thorns, 400 Double Blossom Furze in pots, also many thousands of Choice Coniferæ (including fine specimen trees), Roses, Evergreens, and Ornamental Nursery Stock. The Pyramidal Fruit Trees are very handsome, and some of the finest in the trade, many of them of fine size, and the general stock is in the finest and most healthy condition.

May be viewed at any time prior to the Sale, and Catalogues as soon as ready may be obtained at the Nursery and the Seed Establishment; also of Messrs. HURST & MCMULLEN, 6, Leadenhall Street, E.C.; Messrs. FRASER, RICHARDSON, & GOAD, 82, Bishopsgate Street Within, London, E.C.; and at the Office of the Auctioneers, Sudbury, Suffolk.

N.B. Approved Bills of 3 months' date will be taken of purchasers in the Trade for amounts of 20*l.* and upwards.

☞ An advantageous opportunity offers to any practical industrious person with small capital wishing to purchase part of the stock with a view of continuing the business.

Stokesley in Cleveland, Yorkshire.

IMPORTANT SALE OF FIRST-CLASS SHORT-HORNED CATTLE.

MR. STRAFFORD begs to announce that he is honoured with Instructions from the Executors of the late A. L. Maynard, Esq., to SELL by AUCTION, without any reserve, at Stokesley, on THURSDAY, October 15, the entire remainder of the First-Class HERD of SHORT-HORNS, consisting of about 50 head of Bulls, Cows, and Heifers that have been so long and carefully bred by this eminent judge of Short-horns; also the very superior Steers reared at this Farm, comprising about 40 head of various ages, and of the same character as those which have obtained such deserved celebrity at the Yarm Fairs for so many years.

Catalogues, with Pedigrees and other particulars, may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. C. L. MAYNARD, at Harewood, near Leeds.

ENGLISH WOOL SALES by PUBLIC AUCTION in LONDON.—Our next SALE of ENGLISH WOOL by PUBLIC AUCTION in London, will take place on October 28, or the day preceding the next series of Australian Wool Sales, when about 1200 PACKS of LONG and SHORT WOOL from various counties will be offered.

Parties intending to send Wool for these Sales are requested to communicate with the undersigned, who will forward empty sheets, and instructions for packing and forwarding on application.

BRADBURY & COOK, Wool Brokers, 17, Basinghall Street, London, E.C.

Notice.

MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER), *begs to announce that he has* BUILT *a spacious* GALLERY *around his present Auction Rooms in King Street, Covent Garden, W.C., which will enable him to hold* SALES *by* AUCTION *of* PLANTS, SEEDS, *and* BULBS *more frequently and extensively than he has hitherto been able to do.*

Terms and full particulars will be forwarded on application.

SALE THIS DAY AT ½ PAST 12 O'CLOCK PRECISELY.

Hardy and Ornamental Plants and Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, October 3, at Half-past 12 o'Clock precisely, a choice assortment of HARDY and ORNAMENTAL PLANTS, comprising Roses, Laurels, Privets, Apple, Apricot, Pear, Peaches, Plum, Nectarine, Cherry, Gooseberry, and Currant Trees, Hollies, Berberis, Rhododendrons, Cupressus Lawsoniana, C. macrocarpa, Juniperus Cracovia, Retinispora ericoides, Abies Menziesii, and other hardy Conifers, Kalmias, Walnuts, Almonds, Laburnums, Weigelas, Magnolias, Poplars, Clematis, Hederas, &c. Also an importation from Haarlem of DOUBLE and SINGLE HYACINTHS, Tulips, Crocuses, Narcissus, Anemones, and other Dutch Bulbs, in fine condition.

On view the Morning of Sale, and Catalogues had.

38, King Street, Covent Garden, London, W.C.

GREAT SALE OF JAPANESE PLANTS ON WEDNESDAY AND THURSDAY, OCTOBER 21 and 22.

MR. J. C. STEVENS begs to announce that CATALOGUES of the above SALE are now ready, and will be forwarded post free on application.

Auction Rooms and Offices, 38, King Street, Covent Garden.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, October 6, at 12 o'clock precisely, a COLLECTION of POULTRY, consisting of Dorkings, Cochins, Spanish, Malays, Hamburghs, Turkeys, Aylesbury Ducks, &c. Also a choice assortment of PIGEONS, comprising Carriers, Pouters, Nuns, Turbits, Fantails, Swallows, Jacobins, Tumblers, Runts, &c., from the yards and lofts of well-known Breeders and Exhibitors.

On view the Morning of Sale, and Catalogues had.

Important Sale of Valuable Philosophical Instruments.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from the Executors to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY and FRIDAY, October 8 and 9, at half-past 12 o'Clock precisely, the entire of the valuable STOCK in TRADE of the late Mr. Thomas Rubergall, Optician to her Majesty, 24, Coventry Street, Haymarket, W.C., consisting of expensive Theodolites, Levels, Sextants, Quadrants, Compasses, Barometers, Thermometers, Microscopes, Telescopes, Opera and Race Glasses; Air Pumps; Gold, Silver, Steel, and Tortoiseshell Spectacles; Eye-glasses, Dissolving Views, Magic Lanterns and Slides, Mirrors, Object Glasses, Lenses, &c. The whole for absolute sale, without the least reservation.

On view the Day prior and Mornings of Sale, and Catalogues had.

Dutch Bulbs and Hardy Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, October 10, at half-past 12 o'Clock precisely, a choice assortment of HYACINTHS, TULIPS, CROCUSES, and other DUTCH BULBS, and a collection of HARDY and ORNAMENTAL PLANTS.

On view the Morning of Sale, and Catalogues had.

Bagshot, Surrey.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS ENGAGED IN ORNAMENTAL PLANTING.

MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER), 38, King Street, Covent Garden, W.C., begs to announce that he has been favoured with instructions from Mr. Standish, in consequence of removal to Ascot, to SELL by AUCTION, on the Premises, Bagshot, Surrey, 2½ miles from the Sunningdale Station on the London and South-Western Railway, on MONDAY, Oct. 12, and several following days, at half-past 12 o'Clock precisely each day, without the least reserve, a Valuable Collection of HARDY CONIFEROUS and other PLANTS, comprising:—

Araucaria imbricata, 2 to 4 ft.	Taxus dovastoni, 3 to 4 ft.
Abies Albertii, 2½ to 4 ft.	Pinus Benthamiana, 4 to 7 ft.
,, Douglasii taxifolia, 3 to 5 feet	,, excelsa, 2 to 3 ft.
,, Menziesii, 4 to 6 ft.	,, tuberculata, 1 to 2 ft.
Cedrus atlantica, 2 to 5 ft.	,, Wincesteriana, 1 foot
,, Deodara, 3 to 7 ft	,, Hartwigi, 1 ft.
Chamæcyparis sphæroidea, 2 to 3 ft.	,, Sabiniana, 1 to 2 ft.
Cryptomeria japonica, 3 to 6 ft.	Picea grandis. 1 to 2 ft.
Cupressus Lawsoniana, 2 to 4 ft.	,, amabilis, 1 to 2 ft.
Cephalotaxus Fortuni, 2 to 4 ft.	,, Pinsapo, 2 to 3 ft.
,, Drupacea, 2 to 3 ft.	,, Nordmanniana, 1½ to 4 ft.
Libocedrus chinensis, 2 to 3 ft.	,, nobilis, 1 to 3 ft.
Taxus fastigiata, 3 to 7 ft.	Thuja gigantea, 1 to 2 ft.
	Wellingtonia gigantea, 2 to 4 ft.
	&c., &c., &c.

The whole having been transplanted within the last twelvemonth, are in a fine state for removal, and are lotted to suit Private Buyers and the Trade. Also various first-class EVERGREENS and DECIDUOUS TREES and SHRUBS, including 200 Skinnera japonica, 500 Variegated and Green Hollies, 1000 Portugal and Common Laurels, 600 Standard and other named Rhododendrons, 300 Kalmia latifolia, 1000 Standard Dwarf and Pot Roses, Standard and Pyramidal Apple and Pear Trees, Camellias, hardy Azaleas, &c., all of which are in the finest possible health, and for Sale without the least reserve.

On view the week prior and mornings of Sale. Catalogues had at Mr. STANDISH'S Nurseries, Bagshot and Ascot; and of Mr. J. C. STEVENS, at his Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Approved Bills at three months taken of purchasers above 50*l.* A Van will meet the train starting from Waterloo at 10 25 and 10 50, arriving at Sunningdale Station at 12 o'clock to convey parties to the Sale. Refreshments will be provided on the ground for the buyers at the Sale.

NOTE.—On WEDNESDAY and THURSDAY, October 21 and 22, and on TUESDAY and WEDNESDAY, October 27 and 28, will be sold by AUCTION, by Mr. J. C. STEVENS, at his Great Rooms, 38, King Street, Covent Garden, W.C., a portion of Mr. Robert Fortune's recent INTRODUCTIONS from JAPAN, and the whole of his CHINESE PLANTS. They will be on view at Mr. STANDISH'S Nursery at Bagshot, during the sale of his Nursery stock.

Botanical Books—Important Sale.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY and WEDNESDAY, October 13 and 14, at half past 12 o'Clock precisely each day, without the least reserve, the valuable STOCK of BOTANICAL BOOKS of Mr. PAMPLIN, of Frith Street, Soho, who is removing from London and retiring from business.

On view the day prior and Morning of Sale, and Catalogues had.

Japanese Plants (Imported Specimens).

MR. J. C. STEVENS begs to announce that in order to give additional interest to the SALE at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY, October 21 and 22, he has been instructed to include ONE HUNDRED FINE SPECIMENS, from 2 to 3 feet high, being the original Plants imported by Mr. Robert Fortune from Japan, including—

Lilium auratum	Retinispora obtusa nana
Aucuba japonica vera	,, pisifera
Deutzia crenata (flore pleno)	Thujopsis dolabrata variegata
Podocarpus corrugata	Ilex Fortuni
,, macrophylla alba variegata	Euonymus japonicus variegatus
,, ,, aurea variegata	,, radicans foliis variegatis
Quercus sinensis	Eurya latifolia variegata
Elæagnus japonicus variegatus	Taxus Fortuni
,, reflexis alba variegata	Osmanthus ilicifolius
,, ,, aurea variegata	,, ,, variegatus nanus
Nageia japonica	Raphiolepis ovata (Photinia)
,, ovata	Sciadopitys verticillata, &c.
,, ovata glauca	

The whole for absolute Sale without the least Reserve, and are all in the most robust health, including some of the finest Plants in the country.

On view at Mr. STANDISH'S Nursery, Bagshot, during the Sale of his Nursery Stock; and on the days of Sale, at Mr. J. C. STEVENS'S Auction Rooms and Offices, 38, King Street, Covent Garden.

Important Sale of Mr. R. Fortune's Japanese Plants.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, London, W.C., on WEDNESDAY and THURSDAY, October 21 and 22, at half-past 12 o'Clock precisely each day, without reserve, a PORTION of Mr. Robert Fortune's recent JAPANESE INTRODUCTIONS, removed from Mr. Standish's Nursery, Bagshot; comprising the following new and interesting Plants.

100 Thujopsis dolabrata variegata, 6 inches.
100 Euonymus radicans foliis variegatis, 6 inches.
150 Euonymus japonicus variegatus, 1 to 2 feet.
100 Juniperus chinensis variegata.
50 Retinispora pisifera aurea, 6 inches.
50 Osmanthus ilicifolius, 9 inches.
150 Osmanthus ilicifolius variegatus nanus, 9 inches.
400 Lonicera aureo-reticulata, 1 to 2 feet.
50 Raphiolepis ovata (Photinia), 1 to 2 feet.
200 Thuja (Biota) falcata.
200 Iris lævigata.
250 Sciadopitys verticillata, 6 inches.
100 Microlepia scabra, 1 foot.
500 Lastrea opaca, 1 foot.
100 Ilex Fortunei, 1 foot.
500 Pinus densiflora.
50 Eurya latifolia variegata, 6 inches.
300 Retinispora obtusa, 6 inches to 1 foot.
200 Retinispora pisifera, 1½ feet.
400 Japanese Chrysanthemums.
50 Taxus Fortuni.

Also the following:—

50 Dracæna Banksii, 2 to 3 feet.
150 Desfontainea spinosa, 1½ feet.
50 Cyathea dealbata.
300 Rhododendron Nuttalli, 1 to 2 feet, &c.

The whole for absolute sale, and in the finest possible health.

On View on the Premises, Bagshot, Surrey, during the Sale of Mr. Standish's Nursery Stock, also on the days of Sale at Mr. J. C. STEVENS'S Auction Rooms and Offices, 38, King Street, Covent Garden, W.C., where Catalogues can be obtained, by forwarding two postage stamps.

Mr. Robert Fortune's Chinese Plants for Absolute Sale.

EXTENSIVE SALE OF RARE AND VALUABLE INTRODUCTIONS FROM CHINA.

MR. J. C. STEVENS has much pleasure in announcing that he has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY and WEDNESDAY, October 27 and 28, at half-past 12 o'Clock precisely, without the least reserve, in consequence of the agreement which existed between Messrs. Standish and Fortune with regard to the Chinese Plants having terminated, the most important COLLECTION of RARE and VALUABLE PLANTS ever offered for public sale, including the whole of Mr. Robert Fortune's RECENT INTRODUCTIONS from CHINA, and a part from JAPAN, including—

3000 Torreya grandis, 4 to 10 inches
150 Abies Kæmpferi, 2 to 4 feet
2000 Chamærops Fortunei
50 Pinus Bungeana
1000 Pinus sp. (nova) Pekin (Tabulæformis), 4 to 6 inches
25 Bambusa variegata
500 Thuja sp. (Pekin)
500 Lastrea opaca
400 Lonicera aureo-reticulata
200 Iris lævigata
200 Retinispora obtusa
200 Retinispora pisifera, &c., &c.

The whole of these Plants are in the finest possible health and are lotted to suit all buyers, and are well worthy the attention of the Nobility, Gentry, and Trade.

On view at Mr. STANDISH'S Nursery, Bagshot, during the Sale of his Nursery Stock, and on the days of Sale at Mr. J. C. STEVENS'S Auction Rooms and Offices, 38, King Street, Covent Garden, London, W.C., where Catalogues and full particulars can be obtained.

Japanese Conifer Seeds.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 29, at half-past 12 o'Clock precisely, an importation of JAPANESE CONIFER and other MISCELLANEOUS SEEDS, perfectly fresh, and of the finest quality comprising—

Abies firma.	Abies Tsuga.
,, Alcoquiana.	Juniperus, sp.
,, polita.	Larix leptolepis.
,, sibirica.	Pinus Massoniana.
,, Veitchiana.	,, parviflora.

And many other very choice sorts.

On view the Morning of Sale, and Catalogues had.

PUBLIC SALE OF NEW JAPANESE PLANTS.

MR. JAMES VEITCH,

Having the largest STOCK of JAPANESE PLANTS in the country, has instructed Messrs. PROTHEROE AND MORRIS to offer a portion of them by PUBLIC AUCTION, at the Mart, Bartholomew Lane, City, E.C., on WEDNESDAY, October 7. They will be Lotted to suit the convenience and interest of THE TRADE as well as of PRIVATE PURCHASERS.

Catalogues are now ready, and can be obtained of Mr. VEITCH, or of Messrs. PROTHEROE & MORRIS, Leytonstone, Essex.

The plants offered will embrace:—

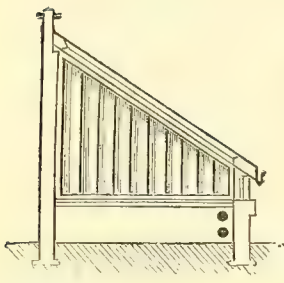
LILIUM AURATUM.—The splendid new Japanese Lily.	THE GOLDEN-LEAVED HONEYSUCKLE.
SCIADOPITYS VERTICILLATA.—The Umbrella Pine.	THE HARDY JAPANESE PALM.
RETINISPORA OBTUSA.—The Tree of the Sun of the Japanese.	THE JAPAN BAMBOO.
THE VARIEGATED THUJOPSIS DOLABRATA.	THE TRUE BERRY-BEARING, GREEN-LEAVED AUCUBA.

With many other fine and beautiful Plants, of which full particulars will appear in the Catalogue.

ROYAL EXOTIC NURSERY, CHELSEA, S.W.

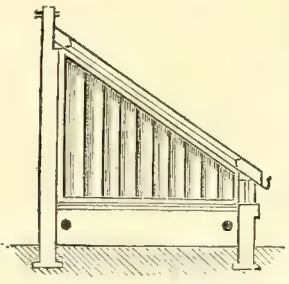
J. JONES'S HOT-WATER APPARATUS.

No. 7.



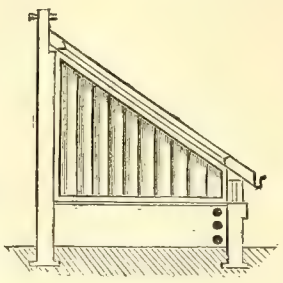
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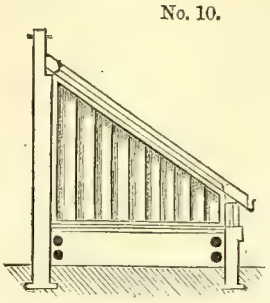
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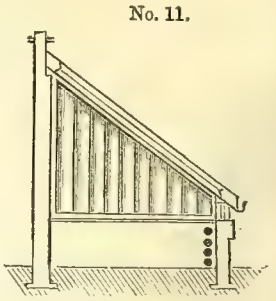
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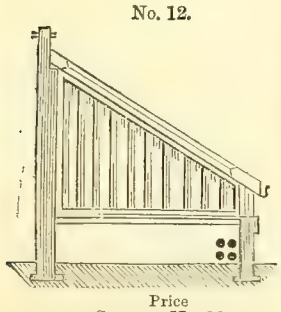
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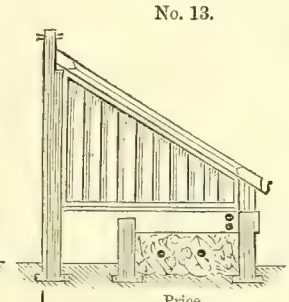
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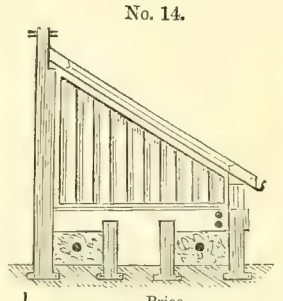
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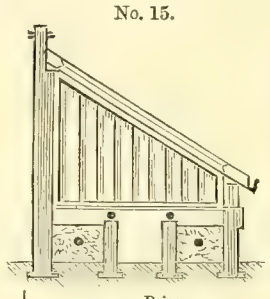
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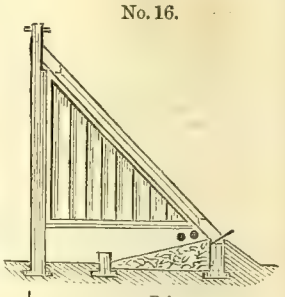
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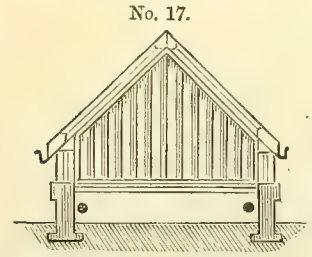
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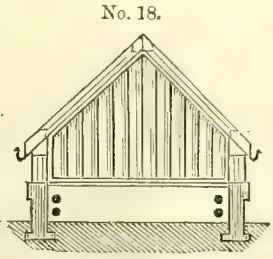
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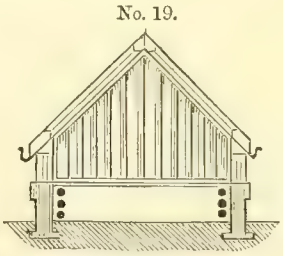
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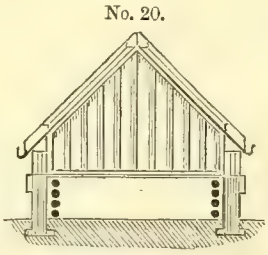
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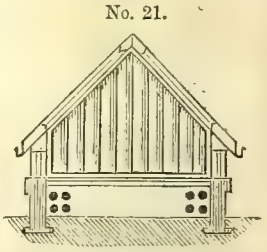
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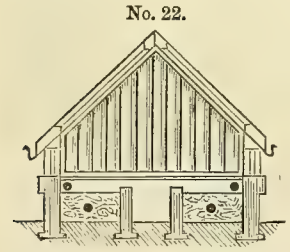
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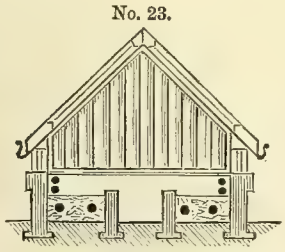
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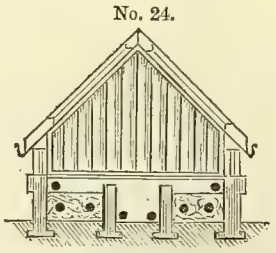
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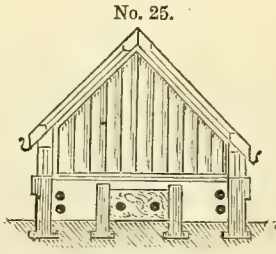
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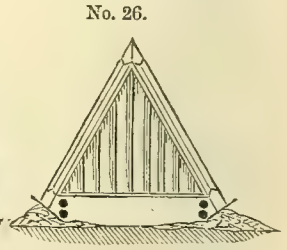
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No. 25.



Price
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25 0 0
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55 0 0

No. 26.



Price
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

J. JONES will be happy to supply HOT-WATER APPARATUS for HOUSES according to any of the above Plans, delivered Free to any Station in England at the prices named, which include strong CAST-IRON CYLINDER or SADDLE BOILER, FURNACE DOORS, FIRE BARS, SOOT DOORS, CISTERN and DAMPER, 4-inch HOT-WATER PIPES and CONNECTIONS, all of the best quality; or he will forward ESTIMATES for WORK erected complete, with WROUGHT or CAST-IRON BOILER of any sort, at a small addition to the above prices.

☞ *The Black Circles on Sections of Houses show the arrangement of Pipes.*

Illustrated Catalogues and further particulars post free on application to

J. JONES, IRON MERCHANT AND HORTICULTURAL ENGINEER, 6, BANKSIDE, LONDON, S.E.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 41.—1863.] SATURDAY, OCTOBER 10. {Price Fivepence. {Stamped Edition, 6d.

INDEX.

Agricultural educat on	972 b	Pinus albicaulis	964 b
Battersea Park	963 c	Population, &c., thoughts on	967 b
Beet in France	964 b	Potato, Mona's Pride	968 a
Books, various	967 b	Potatos, taking up	972 a
Capillary attraction	972 b	Protection, spring	966 b
China Grass	968 c	Ringwood Hall	967 c
Churchyards, Japanese	968 c	Roses	964 b
Conifers, situations for	9 3 b	Scolytus destructor	966 b
Cotton, French	964 b	Sewage manure	970 c
— home-grown hybridised	966 b	Society, Royal Horticultural	967 a
Dion strobilosum	964 b	— Bath and West of England	972 c
Egyptian gardening	965 b	— East Berkshire	672 c
Farm memoranda—Dairy	974 a	— Stafford-shire	973 b
Farmers' Club, Newmarket	973 c	— Huntingdonshire	973 b
Fish and Fishing	965 a	Straw as food	969 c
Flax, Japan	968 c	Sugar canes	966 c
Florists' standard	964 c	Swallows	966 c
Grapes, list of	967 a	Title to Land, registration of, rev	974 c
Infusoria and germinati n	968 a	Tobacco, French	964 b
Improved reaping machine	971 c	Trade lists	967 c
Lilium auratum	968 c	Turnip, Teltow	966 a
Marigolds	966 c	Vintage, French	964 b
Notes on weeds	971 a		
Orchard-house Peaches	965 c		
Peaches under glass	965 c		

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, now ready for Planting. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.
Highgate Nurseries, London, N.

Grape Vines.

WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery.
PRICED LIST on application.
PAUL's Nurseries and Seed Warehouse, Waltham Cross, N.

Grape Vines.

PAUL AND SON beg to announce that their VINES are this season even finer than usual. Well ripened Canes of all sorts are now ready for delivery.
"Old" Cheshunt Nurseries, Herts, N.

STRAWBERRY PLANTS.—For Sorts and Prices apply to
DILLISTONE & Co., Sturmer and Woodlands Nurseries, Halstead, Essex.
N.B. Please be particular as to the address—"Sturmer and Woodlands Nursery."

ROSES.—CATALOGUES for 1863 and 1864 forwarded free on application.
JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

New Roses of 1863.

E. G. HENDERSON AND SON offer the most select kinds. The Trade supplied.
Wellington Nursery, St. John's Wood, London, N.W.

ROSES.—Superb Standards, 18s. per dozen.
Ditto, ditto, Dwarfs, 12s. per dozen.
DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Rose

E. P. FRANCIS'S NEW and DESCRIPTIVE CATALOGUE of ROSES for 1863 and 1864 is now ready and will be forwarded gratis upon application.
Nurseries, Hereford.

Rose

PAUL AND SON have this season much pleasure in offering both STANDARD and DWARF ROSES in any quantity, at moderate prices. Their Stock is unequalled, both of the new and older kinds.
"Old" Cheshunt Nurseries, Herts, N.

New Rose Catalogue for 1863-64.
New Bulb Catalogue for 1863.

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON will be happy to send copies of the above gratis and post free to all applicants.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. Those who wish for a fine display of bloom during the autumn and ensuing summer should now give their orders.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ALOCASIA MACRORHIZA VARIEGATA.—Good plants, 10s. 6d. each.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

Centaurea argentea.

S. WILKINSON, NURSERYMAN, Sleaford, can supply strong Cuttings of the above by the 100 or 100. Price on application. Sleaford.—Oct. 10.

Picea nobilis.

WILLIAM BARRON can supply strong and remarkably well rooted SEEDLING PLANTS of the above in store pots. Per doz., 10s.; per 100, 3l. 10s.
Elvaston Nurseries, near Derby.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH,
SEED MERCHANTS,
Covent Garden Market, London, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON,
NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

WILLIAM BARRON'S PRICED CATALOGUE is now ready, and may be had post-free on application.
Elvaston Nurseries, near Derby.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to announce that his NEW CATALOGUE, No. 73, extremely rich in Novelties, is now ready, and can be obtained free at his Agents,
Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

Flower Seeds for Autumn Sowing.

SUTTON'S AUTUMN CATALOGUE is now ready, and will be sent post free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

To Gladiolus Growers.

SUTTON'S PRICED LIST of the best Sorts exhibited this Season is now ready, and will be forwarded post free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz.; 20s. per 100.
Trade price on application,
Royal Nurseries, Great Yarmouth, Norfolk.

Royal Nursery, Great Yarmouth.

YOUELL AND CO.'S New CATALOGUE of GREENHOUSE PLANTS, Rare and Hardy CONIFERÆ, SHRUBS, GLADIOLI, &c, is ready, and will be forwarded on application.

Larch, Larch.

WANTED, from 30,000 to 40,000 good stout LARCH, 4 to 5 feet high.
Apply by letter, stating price per 1000, to Mrs. ELIZA PULLEN, The Nurseries, Midhurst, Sussex.

WANTED, 100 old Plants of ROLLISSON'S PURPLE UNIQUE GERANIUM, as dug up from the Flower Garden.
Price, &c., to C. E. WEST, Newnham Paddox, Lutterworth, Leicestershire.

To Railway Contractors, Nurserymen, &c.

ANDREW G. DALY, Newry, Ireland, can supply Two Millions of strong Transplanted THORN QUICKS, from 4 to 6 years old, price very moderate, delivered in Liverpool or Glasgow. Two Millions of COMMON LAURELS, 12 to 18 inches, 2s. per 100, delivered in Liverpool or Glasgow.

To Gentlemen in Want of Mulberry Trees.

MR. J. A. FISHER, of 21, New Street, Battersea Park, near Nine Elms, S., has a quantity of fine Fruit-bearing MULBERRY TREES for Sale, which must be sold shortly.

BLACK THORNS.—The undersigned has upwards of Two Millions of the above. Also WHITE THORN, 2, 3, and 4 years transplanted.
For price, and further particulars, apply to JOHN PERKINS, 52, Market Square, Northampton.

Wanted, Hornbeam or Beech, 8 to 10 feet high.

JAMES GARAWAY AND CO., Durdham Down Nurseries, Bristol, are in want of the above. Persons having it to offer will please write, stating price, quantity, and when last moved.
JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.
Dorking Nursery.

FERNS, British and Foreign, immense variety, FERN CASES and AQUARIUMS of every description.—HYACINTHS, best named, 6s. per dozen; ditto mixed, 20s. per 100; CROCUS, 8s. per 1000. Gold and Silver Fish, Water Tortoise, Salamanders, Green Lizards, &c
R. GREEN, 154, Kingsland Road; and the Bedford Conservatories, Covent Garden Market, W.C.

MINIATURE HYACINTHS.
The best sorts of MINIATURE HYACINTHS by name, at 5s. per dozen.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Best Twelve Hyacinths Imported by

SUTTON AND SONS
for Twelve Shillings (Carriage free).
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

To Hyacinth Growers.

SUTTON'S DESCRIPTIVE LIST is NOW READY.
Post Free.
SUTTON & SONS, Reading, Berks.

Hyacinths and other Choice Bulbs.

B. S. WILLIAMS'S DESCRIPTIVE CATALOGUE of the above post free to all applicants
Choice HYACINTHS for Glasses or Pots, 6s., 8s., 10s., 12s. per dozen.
Paradise and Victoria Nurseries, Holloway, London, N.

BULBS, Carriage Paid.—For COLLECTIONS of BULBS see our large advertisement in *Gardeners' Chronicle*, Sept. 19, p. 886.
For PRICED LIST of BULBS for the SPRING GARDEN, CONSERVATORY, and SITTING ROOM, see our large advertisement in *Gardeners' Chronicle*, Sept. 26, p. 914
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

A Large Importation of Dutch Bulbs.

Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.
Bulbs sent carriage free, excepting very small parcels.
WM. WOOD AND SON have received a large consignment of the above, and will be happy to receive orders for the same. The Bulbs are in first-rate condition, and true to name.

Imported Dutch Bulbs.

JAMES CARTER AND CO.'S CATALOGUE of BULBS, with Cultural Directions, forwarded free of charge, on application to 237, 238, High Holborn, London, W.C.

IMPORTED DUTCH BULBS.—First-class Dutch Bulbs of every description just imported.
JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

Hyacinths, Tulips, Crocuses, &c.

BUTLER AND McCULLOCH'S importation of DUTCH BULBS are unusually fine this season.
CATALOGUES Post free upon application.
BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Dutch Bulbs.

S. PONSFORD begs to announce the arrival of his annual importation of the above. HYACINTHS, TULIPS and CROCUSES are unusually fine.
PRICED CATALOGUES gratis.
Loughborough Park Nurseries, Brixton, Surrey, S.

NEW PLANTS and BULBS, at reduced prices. LISTS free.
W. DILLISTONE, Munro Nursery, Sible Hedingham.

CHOICE SEEDS for AUTUMN SOWING.—CALCEOLARIA, CINERARIA, and PRIMULA, from the finest strains in cultivation, each 2s. 6d. per packet.
JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

Cineraria, Calceolaria, and Primula.

E. G. HENDERSON AND SON offer first-class Seed of the above. 1s. and 2s. 6d. per packet.
Wellington Nursery, St. John's Wood, London, N.W.

Potato Onions.

JAMES FAIRHEAD AND SON beg to offer good SOUND BULBS of the above, cheap.
7, Borough Market, London, S.E.

WANTED, 50,000 strong CABBAGE PLANTS.—Send the sort and price per Rod or Thousand to W. G. K. BREAVINGTON, Vicarage Farm, Hounslow.

GENUINE ITALIAN RYE-GRASS.—This Seed, grown from second cut Foreign, weighing up to 21 lbs. per bushel, is sold as usual by Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts.

SEED WHEAT.—GOLDEN DROP, BROWICK RED, HALLETT'S, and other red varieties, in 5 qr. lots, at the moderate rate of 6s. per bushel of 63 lbs.
Address Mr. S. A. DAINTREE, of Fendrayton, St. Ives, Hunts.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his three new PRICE LISTS, No. 97, 98, and 99, containing the Stove, Greenhouse, and Hardy Plants (212 pages 12mo).
Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

WELLINGTONIA GIGANTEA.—The undersigned has to offer a fine stock of SEEDLING PLANTS in Pots at the following low prices:—

1-year SEEDLINGS in single pots	2l. per 100.
2-year ,, 8 inches	3l. ,,
Ditto, in 48-pots, 1 foot 5 inches	5l. ,,

J. HENCHMAN, Edmonton, London, N.

To Nurserymen and Florists.

NOTICE.—Any ALTERATION in the STYLE or ADDRESS of any FIRM that may have occurred since December, 1862, is requested to be sent to 162, Fleet Street, E.C., so that the necessary correction may be made in the DIRECTORY portion of The GARDENERS' YEAR-BOOK ALMANACK, and DIRECTORY for 1864, which will be published on December 1.

GARDENERS' CHRONICLE NEWSPAPER

Sutton's Unrivalled Collections of Bulbs.

SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.

SUTTON'S GUINEA COLLECTION for BEDS and BORDERS.

For particulars see SUTTON'S AUTUMN CATALOGUE, which may be had Gratis and Post free.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.



HYACINTHS for EXHIBITION.

FRESH IMPORTED BULBS.

SUTTON'S SELECTION.

	Per 100.	Dozen.
Finest sorts by name ..	£4 4s.	12s.
Very fine ditto ..	3 10	9
Good ditto ..	2 10	6

Good Hyacinths for Beds, Ribands, &c. in separate colours (fresh imported), 21s. per 100.

Anemones, Crocuses, Tulips, Gladioli, &c., also very low in prices, as per CATALOGUE, which may be had gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his New CATALOGUE, containing Select, Descriptive, and Priced Lists of Exotic Orchids, New and Rare Greenhouse, Hardy, and Stove Plants, Ornamental and Variegated foliaged Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, Narcissus, and other Bulbs, is now published and will be forwarded to all applicants.

Exotic Nursery, Tooting, Surrey, S.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON'S first importation of the above has arrived, and from the extraordinary heavy weight of the Bulbs they promise a fine bloom. Early orders are earnestly solicited. DESCRIPTIVE PRICED CATALOGUES free.

N.B.—17 FIRST PRIZES were awarded to WM. C. & SON last spring for HYACINTHS, TULIPS, and CROCUSES. In addition to this, EVERY FIRST PRIZE at the London Exhibitions to Amateurs was for Bulbs supplied by them.

The ONLY address is Highgate Nurseries, London, N.

DUTCH HYACINTHS, TULIPS, &c.

12 FINE NAMED HYACINTHS	6s.	0d.
12 CHOICER Ditto	8	0
12 CHOICEST IMPORTED Ditto	10	6
100 BORDER (Separate Colours) Ditto	21	0
1 Doz. TOURNESOL TULIPS, 1s. 1 0	7	0
1 Doz. REX RUBRORUM Ditto, 1s. 100	7	0
100 DOUBLE VAN THOL Ditto	3	6
100 SINGLE VAN THOL Ditto	4	6
100 LARGE BLUE CROCUS, 1s. 6d. 1000	12	6
100 LARGE YELLOW Ditto, 1s. 6d. 1000	12	6

All the above are the finest imported. For other BULBS see LIST, post free.

CHARLES SOUTHBY, Seedsman, Clapham, London, S.

E. G. HENDERSON AND SON'S DESCRIPTIVE LIST of BULBS as a Guide for the Amateur's selection is now published, and will be forwarded post free on application.

GUERNSEY and BELLA DONNA LILIES, 5s. per doz.
HYACINTHS, choice by name, 6s., 8s. and 9s. per doz.
Do., MIXED in colours, 3s. per doz.
Do., BEDDING VARIETIES, in kinds, each colour, 4s. per doz.
Do., MINIATURE FLOWERED VARIETIES, 3s. per doz.
TULIPS for Forcing, 6d. to 1s. per doz.
Do. EARLY SINGLE, and DOUBLE MIXED, 5s. and 6s. per 100.
Do., LATE, show varieties, mixed, 1s. per doz.
SNOWDROPS, single and double, 2s. per 100.
WINTER ACONITES, 2s. 6d. per 100.
CROCUS, in sorts, 1s. 6d. and 2s. per 100.
SCILLA SIBIRICA, 7s. 6d. per 100.
ANEMONES, 3s. 6d. and 5s. 6d. per 100.
RANUNCULUS, 3s. to 5s. per 100.
AMARYLLIS, by name, 3s. 6d. each.
GLOXINIAS, by name, 9s. and 12s. per doz.
ACHIMENES by name, 2s. 6d. and 3s. per doz.
GLADIOLUS BRENCHLEYENSIS, 3s. per doz., 20s. per 100.
" GANDAVENSIS, the finest collection offered in England.
CYCLAMEN, a choice collection of 20 varieties by name.
OXALIS, by name, 40 varieties offered.
IXIAS, mixed, 1s. per dozen; 40 varieties in collection offered, the inferior kinds discarded.
BABIANA, SPARAXIS, and TRITONIAS, each 1s. 6d. per dozen.
LILIES, 60 fine varieties offered.
TRITOMA UVARIA, 12s. per doz.
TRITONIA (CROCOSMA) AUREA, 3s. per doz.
EARLY SPRING-FLOWERING PLANTS, in various colours, as HEPATICAS, DOUBLE PRIMROSES, VIOLETS, CHRISTMAS ROSE, and 60 other early-flowering perennials.
Strong Clumps of NEAPOLITAN and other VIOLETS in pots for winter blooming.
Do. LILY of the VALLEY.

Wellington Nursery, St. John's Wood, London, N.W.

30,000 Hyacinths, 30,000 Tulips, 10,000 Narcissus, and 100,000 Crocus in varieties.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, the largest Grower of the above in England. J. H. B. has again purchased, for ready money, in Holland, in addition to his usual large Stock, the above surplus Stocks of some very large growers, which he now offers at unheard of low prices. The following Roots for 1l.:—50 Hyacinths in 25 splendid sorts; 150 Early Tulips, sorts; 200 Crocuses, mixed; 50 Snowdrops, and 12 very large noble Narcissuses. Half the above quantity for 10s. 6d.

HYACINTHS, in 10, 20, 30, 40, or 50 splendid varieties, at One Guinea per 100. Less by the 1000.

LILIUM LANCIFOLIUM RUBRUM (true), large roots, 1s. each, 10s. per dozen, 3l. 5s. per 100, or 30l. per 1000.

N.B. To save trouble all Orders to be prepaid.

PINUS LARICIO.—To gentlemen planting out largely for profit, WILLIAM BARRON begs to make a special offer of his fine and well-rooted stock of the above. This fine Pine supersedes the Larch for Forest-planting, producing timber much sooner for Railway Sleepers. It is also used for Spars and Masts in the French Navy.

2-years' Seedlings, strong plants	per 1000	15s.	0d.
2-years' transplanted, 9 to 18 inches ..	,,	30	0
2 to 3 feet	,,	70	0

Elvaston Nurseries, near Derby.

BARR & SUGDEN
12 KING ST. COVENT GARDEN

Just Published, price One Shilling,

THE ILLUSTRATED FLORAL GUIDE

TO

WINTER AND SPRING GARDENING,

SHOWING HOW FLOWERS MAY BE HAD IN SEASON FROM DECEMBER TO MAY.

Bulbs for the Adornment of the Spring Garden, Conservatory, and Sitting Room.

(For Collections, see our Advertisement, page 886 of *Gardeners' Chronicle*, Sept. 19.)

	per dozen.	per 100.		per dozen.	per 100.
HYACINTHS	2s. 6d. to 15s.	18s. to 100s.	RANUNCULUS	6d to 2s. 6d.	2s. to 10s 6d.
TULIPS	6d. to 3s. 6d.	2s 6d to 18s. 6d	ANEMONES	6d. to 2s 6d.	3s. 6d. to 10s. 6d.
POLYANTHUS NARCISSUS	3s. to 4s.	21s. to 30s.	GARDEN NARCISSUS..	6d. to 2s 6d.	3s. 6d. to 10s 6d.
CROCUS..	4d. to 8d.	1s 6d to 4s. 6d.	SCILLAS	1s 6d to 4s 6d	10s. 6d. to 14s. 6d.
SNOWDROPS	4d. to 6d.	2s. to 3s. 6d.	WINTER ACONITES ..	6d.	3s 6d.

For PRICED and DESCRIPTIVE LISTS of BULBS necessary for Winter and Spring Gardening, with the best methods of successfully cultivating and advantageously arranging them, see

BARR & SUGDEN'S

ILLUSTRATED FLORAL GUIDE TO WINTER AND SPRING GARDENING.

ESTABLISHED UPWARDS OF A CENTURY.

BUTLER & McCULLOCH,

COVENT GARDEN MARKET, LONDON, W.C.

All Orders amounting to 21s. sent Carriage Paid.

COLLECTIONS of BULBS for GREENHOUSE or CONSERVATORY.

Purchasers who may not require all the sorts mentioned, can have increased quantities of other kinds, or if they think proper, may select from the Catalogue to the amount. The numbers in the columns indicate the quantity of Bulbs in each Collection.

	No. 1. £5.	No. 2. £2 10s.	No. 3. £1 5s.	No. 4. £1 1s.	No. 5. 10s. 6d.
HYACINTHS, for Pots, Glasses, or Moss, named varieties ..	60	30	15	15	12
POLYANTHUS NARCISSUS, do. do., do. ..	25	13	6	6	3
TULIPS, single, do. do., do. ..	50	25	12	..	..
,, double, do. do., do. ..	50	25	12	..	..
,, DUC VAN THOL, single	25	12	6	6	12
,, ,, scarlet	12	6	3	3	..
,, ,, rose	12	6	3	3	..
,, ,, yellow	12	6	3	3	..
JONQUILS, double, sweet-scented..	12	6	3	3	3
,, single, ,, ...	12	6	3	..	..
LILIUM LANCIFOLIUM	3	2	1	1	1
IXIAS	25	12	6	6	3
SPARAXIS	25	12	6	6	3
BABIANA	6	3	1	6	3
CYCLAMEN	6	3	2	1	..
VALLOTA PURPUREA	1	1	1	..	..
AMARYLLIS FORMOSISSIMA	12	3	3	3	..
NEWEST SEEDLING CROCUS, named varieties	200	100	50	50	50
SCILLA SIBIRICA	12	6	6	3	3
OXALIS SPECIOSA	25	12	6	6	3
TROPÆOLUM JARRATTII..	1	1	..	..	..
IRIS PAVONIA	6	3	3	..	..

THE SEMPER FIDELES RASPBERRY.

MESSRS. JAMES SCLATER & CO.,

DEVON NURSERIES, near EXETER,

As the largest Fruit Growers in the West, can with every confidence recommend this most productive and superior Fruit. The canes from 10 to 12 feet in height, and the fruit proportionately large, of fine flavour, pleasing red colour, and very solid. The canes are of that strength and the wood of that peculiar hardness that they require no support. The most certain cropper, producing fruit in corymbs from 18 inches to 2 feet in length, from the bottom of cane to the top, fruiting in clusters from every eye, producing fruit from July to October. They have been seen by numerous first-class Horticulturists, whose testimonials can be had on application.

All Orders supplied in strict rotation at 100s. per 100 Canes, or 18s. per dozen.

Carriage paid to London, Bristol, or Plymouth.

MESSRS. HURST AND SONS, SEED MERCHANTS, 6, LEADENHALL STREET,

SOLE LONDON AGENTS.

DUTCH FLOWER ROOTS.

JAMES VEITCH,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEGS TO ANNOUNCE THAT HE HAS RECEIVED HIS

ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND,

and is pleased to say that they are in excellent condition.

CATALOGUES are now ready, and will be forwarded post free on application.

J. V. desires to impress upon those who patronise him the great advantage of giving him their orders early, as the successful Cultivation of Bulbs depends in a great measure upon their being planted early in the season.

NEW AZALEA INDICA.

MR. JAMES VEITCH

Begs to call attention to the Three undermentioned splendid NEW AZALEAS, which he can confidently recommend as being distinct and valuable acquisitions.

They were selected from among many others as being the three best varieties exhibited at the GREAT QUINQUENNIAL EXHIBITION of BELGIUM, held at GHENT in 1862, and the two first named were there awarded the First and Second Prizes respectively.

AZALEA INDICA IMPERIALIS.

A bright rosy scarlet flower, of immense size, superior texture, and perfect form. It is very vigorous in habit, and possesses the double advantage of being a free and very late bloomer. Whether regarded as a variety suitable for exhibition purposes, or for general decoration, this is undoubtedly one of the finest Azaleas ever offered. This had the FIRST PRIZE at Ghent. Price 31*s.* 6*d.* each.

AZALEA INDICA LE LION DE FLANDRES.

A large finely-formed flower, of salmon-red colour, distinctly marked with dark spots on the upper petals. It is a most abundant bloomer, of a very robust and compact habit, and a fine variety for exhibition. This had the SECOND PRIZE at Ghent. Price 21*s.* each.

AZALEA INDICA VIRGINALIS.

A pure crystal white flower, of excellent form and substance, and most effectively crisped round the edge. It is of free and robust habit, and can be recommended as being a desirable acquisition to the class of White Azaleas. Price 21*s.* each.

Or the Set of Three Plants for 63s.

Fine Plants of the above are now ready for Sale.

THE ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

LILIUM AURATUM.

MR. JAMES VEITCH

Has much pleasure in again directing public notice to this truly magnificent NEW JAPANESE LILY, which is undoubtedly one of the very finest Plants of recent introduction.

Having been already so often described, further remarks are unnecessary.

Plants continue to BLOOM, and J. V. will be happy to show them to any one who may favour him with a visit.

Good Bulbs, varying in size, can be supplied at the undermentioned prices:—

Small sized Bulbs	**21s. each.**	
Second size ,, ...	**42s.** ,,	All these, with ordinary treatment, will certainly bloom next season.
Strong ,, ...	**63s.** ,,	
A few extra strong Bulbs ...	**105s.** ,,	

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

Great Reduction in the Price of Roses.

NOT TO BE UNDERSOLD BY ANY RESPECTABLE HOUSE IN THE TRADE.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

Since issuing their NEW ROSE CATALOGUE for the Autumn of 1863 and the Spring of 1864,

WILLIAM WOOD AND SON have ascertained that other Houses in the Trade are offering some kinds of Roses at a lower rate than themselves, and as they are fully determined NOT TO BE UNDERSOLD by any RESPECTABLE House, they have prepared a REVISED LIST of ROSES at reduced prices, and shall have much pleasure in forwarding copies of the same, Gratis and post-free, to all applicants.

Paul's Nurseries, Waltham Cross, N.

ROSES.—SUPERIOR STANDARD, 18*s.* per doz., and upwards; Do. DWARF Do., 9*s.* per dozen, and upwards. All the NEW ROSES, including BEAUTY of WALTHAM, Mrs. WM. PAUL, and LORD MACAULAY (three of the best), at lowest advertised prices.

The NEW PRICED CATALOGUE is now ready, free by post.

WM. PAUL (Son and Successor to the late A. Paul), Nurseries and Seed Warehouse, Waltham Cross, N.

Roses.

GEORGE CLARKE has to offer this season an unusually fine quantity of STANDARD and DWARF ROSES in the best possible condition, and including the newest and most popular of the older varieties in cultivation. The prices will be—

STANDARDS .. .. 18*s.* per dozen and upwards
DWARFS .. .. .. 9*s* ,, ,, ,,

And to distant purchasers, Plants will be given to compensate for cost of carriage.

The Nurseries also abound in extensive collections of Fruit Trees, Evergreens, and stock in general, well worth the inspection of intending purchasers.

Nursery, Streatham Place, Brixton Hill, S.; and at 4, Windsor Terrace, Pimlico, London, S.W.

New Roses of 1863.

JOHN KEYNES, Castle Street Nursery, Salisbury, can supply some thousands of the above, well-established Plants in pots, comprising the very best varieties of the NEW ROSES of 1863, at 36*s.* per dozen. The usual discount to the Trade. To amateurs such plants are invaluable; they can be planted at once and will produce fine bloom next season, as time will be given them to draw fresh root.

CATALOGUES, with full description, containing all the leading flowers, both old and new, will be forwarded on application.

JOHN KEYNES' STANDARD and DWARF ROSES for the Autumn are in the finest condition.

The stock of ROSES of 1862, comprising Charles Lefebvre, François Lacharme, &c., both Standards and Dwarfs, cannot be surpassed. Salisbury.—Oct. 10.

Roses.

JOHN CRANSTON offers selections of STANDARD and DWARF ROSES of very superior quality.

The robust growth and hardy constitution of the plants grown in this Nursery has long been acknowledged, and the Stock to offer this season is perhaps superior to any previous growth.

He also begs to direct attention especially to DWARF ROSES on the Manetti stock, of which he has an enormous stock.

The plants upon their own roots are also very strong and well grown.

	Per dozen—*s.*	*d.*
STANDARD ROSES of all the leading varieties in cultivation	18	0
Do. Newer varieties, introduced in 1861 and 1862 ..	24	0
DWARF ROSES, extra fine plants upon the Manetti stock .. .. 9*s.* to	12	0
Do., do., upon Dog-rose stock	9	0
Do. Newer Varieties, introduced in 1861 and 1862 15*s.* to	18	0
Do., do., of 1862 and 1863 .. .. 24*s.* to	30	0
STANDARD and HALF-STANDARD TEA-SCENTED ROSES, all the best varieties	24	0
DWARF ROSES upon their own roots, Hybrid Perpetuals, and Bourbons .. .. 9*s.* to	12	0
Do., do, Tea-scented .. .. 12*s.* to	15	0
CLIMBING ROSES	9	0
PILLAR ROSES, extra strong plants, 4 to 5 feet 12*s.* to	15	0
STANDARD WEEPING ROSES .. . . each 2*s.* to	2	6
ROSES in 8 and 9-inch pots grown especially for Forcing or Greenhouse culture, the best Hybrid Perpetuals, China, and Tea-scented varieties . .. . 24*s.* to	30	0

DESCRIPTIVE CATALOGUES forwarded free on application.

Nurseries, King's Acre, near Hereford.

New Roses, raised from Seed by

EUGÈNE VERDIER, FILS AINÉ, FLORIST, 6, Rue des Trois Ormes, Gare d'Ivry, Paris.

TRADE PRICES, without Discount.

Each variety separately, 25 fr. or 20*s.*; the eight varieties together, 160 fr., or 6*l.* 8*s.*; 5 Plants of one Variety, 100 fr. or 4*l.*; 5 Plants of each Variety, 640 fr., or 25*l.* 12*s.*

HYBRIDS (Perpetual).

CLAUDE MILLION (VERDIER).—Shrub vigorous, flowers full, about 3 inches in diameter, cup-shaped, imbricated, 4 or 5 flowers in a bunch, of a beautiful velvety scarlet carmine, shot with rose and violet.

GEORGE PAUL (VERDIER).—Shrub vigorous, flowers full, 3¼ to 3¾ inches in diameter, 6 to 8 in a terminal head; beautiful dazzling velvety rose, not fading in the sun.

GEORGE PRINCE (VERDIER).—Shrub vigorous, flowers full, 3½ inches in diameter, globe-shaped, beautiful dazzling red shaded with deep red, with a whitish reflection on the exterior of the petals.

H. LAURENTIUS (VERDIER).—Shrub vigorous, flowers full, 3 to 3½ inches in diameter, cup-shaped, 3 or 4 in a terminal head, of a fine velvety blackish crimson.

JOHN NESMITH (VERDIER).—Shrub vigorous, flowers full, 2¾ inches in diameter, cupped, well formed, bright crimson, veined with purple and violet.

JOSEPH FIALA (VERDIER).—Shrub vigorous, flowers very full, 3½ to 3¾ inches in diameter, cup perfectly formed, 5 to 6 flowers in a terminal bunch, deep bright red with a whitish edge.

LA DUCHESSE DE MORNY (VERDIER).—Shrub vigorous, flowers full, 3¾ inches in diameter, fine globe shape, 5 to 6 together, magnificent delicate rose, very fresh, with the reverse of the petals silvered; this variety is figured in the French Horticultura Journal. An engraving will be sent out with this Rose.

MADAME VERDIER (VERDIER).—Shrub vigorous, flower full, 3½ to 3¾ inches in diameter, forming a perfect cup, 10 to 12 in a head, of a rich and fresh coloured bright cerise rose, extra.

Mr. E. V. fils Ainé has the honour to state that he is publishing his CATALOGUE of all the NEW ROSES for the season 1863; it will contain 3 Tea, 6 Bourbon, 48 Hybrid Perpetuals, and 1 Moss. Catalogues will be sent gratis and Post free in reply to all prepaid applications. Apply as above, or to BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

Grape Vines, Late.

J. MEREDITH has some Strong VINES of the true variety of BLACK ALICANTE (which he has never occasion to set artificially) in 13 and 8-inch pots.

J. M. obtained a Prize at the Great International Show in October last, at South Kensington, for the above excellent late Grape. Splendid bunches of this valuable Grape may be seen at his Vineyard.

J. M. has also to offer some extra strong LADY DOWNES in 13 and 18-inch pots.

Prices on application to J. MEREDITH, The Vineyard, Garston, near Liverpool.

GRAPE VINES.—Strong well ripened Canes of the following, at 3*s.* 6*d.* to 5*s.* each:—Black Hamburgh, Grizzly Frontignan, Black Prince, Chasselas Musqué, Black St. Peter's, Black Frontignan, Cannon Hall Muscat, Précoce Malingre, White Frontignan, White Sweetwater, Muscat of Alexandria, Tokay, Golden Hamburgh, Syrian Muscat Hamburgh, Mill Hill Hamburgh, Lady Downes, Black Cluster, Esperion, Muscat Troveron, Royal Muscadine, Trentham Black, Blanc de Kentsheim, Black July, Ingram's Prolific, Buckland Sweetwater, Cavoush.

JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

Strawberries.

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON having an immense Stock of the following STRAWBERRIES, will be happy to supply them at the lowest possible prices.

Special offers to the Trade on application.

Adair	Elton Pine	Oscar
Alice Maud	General Havelock	Rival Queen
Boyd's Surprise	Keen's Seedling	Sanspareil
British Queen	Myatt's Surprise	Sir Charles Napier
Carolina Superba	Nimrod	Sir Harry
Eleanor	Omar Pasha	Stirling Castle Pine

Wizard of the North.

Strawberry "The Premier," or "British Queen Seedling."

WM. PAUL has now ready good healthy plants of this superb Strawberry, price 12*s.* per 100, or 2*s.* 6*d.* per dozen. A few fruiting plants in pots, 9*s.* per dozen.

DESCRIPTION.—Fruit very large and handsome, colour bright crimson, combining the flavour of Keen's Seedling and Elton Pine, without the acid of the latter; the fruit carries well and retains its flavour long after gathered. It is of a very hardy and vigorous habit, thriving well in all soils and climates; a most abundant bearer, often producing from 20 to 30 trusses of fruit on a single plant; ripens three days later than Keen's Seedling, and remains in season a fortnight after that variety is over.

Large and handsome.—*Gardeners' Chronicle.*

The flavour is very good.—*Journal of Horticulture.*

A choice collection of Fruit Trees, including Grape Vines in splendid condition. PRICED CATALOGUES free by post.

PAUL'S Nurseries, Waltham Cross, N.

The Kimberley Strawberry.

CHARLES KIMBERLEY has much pleasure in offering the above new SEEDLING STRAWBERRY, feeling confident it will give the greatest satisfaction. It is quite distinct from all other varieties, is of a robust, hardy constitution, a most prolific bearer, of a bright shining crimson; fruit red throughout, firm and solid, with brisk and most agreeable flavour; an excellent sort for all purposes. Strong Plants are now ready at 2*l.* per 100.

Stoke Nursery, near Coventry—Oct. 10.

THE KIMBERLEY STRAWBERRY.—The above fine Strawberry is now being sent out. The following Nurserymen and Dealers have ordered plants and can now supply it; those marked with an asterisk thus * have seen the fruit and tested it—

*Mr. Parker, Fruiterer, Broad Gate, Coventry
*Mr. H. Pope, Nurseryman, Gib Heath, Birmingham
*Mr. Vertegans, Nurseryman, Harborne Road, Birmingham
*Mr. Thos. Wood, Nurseryman, Quinton, near Birmingham
*Mr. Dale, Market Gardener, Long Itchington
*Mr. Wilson, Nurseryman, Warwick
*Mr. Ogden, Nurseryman, Coventry
*Mr. Gilbert, Seedsman, Cross Cheaping, Coventry
*Mr. Ivery, Nurseryman, Peckham, near London
*Mr. G. Smith, Nurseryman, Hornsey Road, Islington, London
Mr. B. W. Knight, Nurseryman, Battle, Sussex
Mr. W. Dillistone, Nurseryman, Sible Hedingham, Essex
*Mr. C. Turner, Royal Nursery, Slough, near Windsor
*Messrs. Hurst & Son, Seedsmen, 6, Leadenhall Street, London, have kindly consented to become Agents; and *Mr. Wills, Nurserymen, 80, Regent Street, Leamington

Other names will be added as soon as received.

CHARLES KIMBERLEY, Stoke Nursery, near Coventry.

The Royal Hautbois Strawberry.

MESSRS. THOMAS RIVERS AND SON now offer Plants of the above. The variety was selected by them in 1861 from many hundreds of Seedlings raised from La Belle Bordelaise Strawberry, a variety of the Hautbois received from France, and has proved to be by far the largest and most prolific of the race, with the true Hautbois flavour.

Plants, 4*s.* per dozen, 30*s.* per 100. A few extra sized bearing plants, 9*s.* per dozen; carriage paid to London.

Nurseries, Sawbridgeworth.

Fruit Trees.

JOHN CRANSTON offers superior, healthy grown plants of all the best varieties of FRUIT TREES, DESCRIPTIVE CATALOGUES of which will be forwarded on application.

	Each.—*s.* *d.*
APPLES.—Very fine Dwarf-trained	2 6
,, Pyramids	2 6
,, Standards	2*s.* to 2 6
APRICOTS.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
CHERRIES.—Dwarf-trained	3*s.* 6*d.* to 4 6
,, Pyramids	2*s.* 6*d.* to 3 6
GRAPE VINES.—Standards	2 6
,, Very fine and well-ripened	3*s.* 6*d.* to 5 0
NECTARINES.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
PEACHES.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
PEARS.—Dwarf-trained	3 6
,, Pyramids	2*s.* 6*d.* to 3 6
,, Standards	2 6
PLUMS.—Dwarf-trained	3*s.* 6*d.* to 4 6
,, Standards	2 6
WALNUTS.—Standards	2 6
,, Extra strong	3*s.* 6*d* to 5 0

GOOSEBERRIES, CURRANTS, FIGS, RASPBERRIES, STRAWBERRIES, &c.

PEACHES, NECTARINES, and APRICOTS, established in Pots for Orchard House Culture, 5*s.* each.

ASPARAGUS, two years 2*s.* 6*d.* per 100
SEA KALE, ,, 8*s.* per 100

Nurseries, King's Acre, near Hereford.

Hardy Scarlet Rhododendrons.

JOHN WATERER'S CATALOGUE of HARDY SCARLET and other CHOICE RHODODENDRONS as annually displayed in the Royal Botanic Gardens, Regent's Park, can now be had on application.

It contains faithful descriptions of all the varieties really worthy of cultivation, as well as a selection of HARDY CONIFERS, with heights and prices, with ORNAMENTAL EVERGREENS, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey.

Rhododendron Countess of Haddington.

Good plants, 21*s.* each.

Vine Tynninghame Muscat.

Good plants, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each.

ROBERT PARKER begs to announce that he is now offering for sale the above first-class Plants. Full descriptions with List of Awards received are published in his NEW CATALOGUE of PLANTS and BULBS, which will be forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

JOSEPH BAUMANN, NURSERYMAN, Ghent, Belgium, begs to offer the following plants:—

100 CAMELLIAS, with flower buds, all the best old kinds	£6	0	0
100 GHENT AZALEAS, with flower buds, from 4*l.* to	6	0	0
100 AZALEA INDICA, from 4*l.* to	6	0	0
100 LILIUM LANCIFOLIUM ALBUM	2	0	0
100 ,, ,, RUBRUM	2	0	0
100 CORRÆA CARDINALIS, from 5*l.* to	7	0	0
100 PERPETUAL STRAWBERRIES (Triomphe de Hollande)	1	0	0
100 VIBURNUM MACROCARPUM	3	0	0
100 ASCLEPIAS TUBEROSA	1	10	0
100 WELLINGTONIA GIGANTEA, fine plants, in baskets, 3 to 4 feet high	60	0	0
100 ARALIA PAPYRIFERA	2	0	0
100 HARDY RHODODENDRONS, best sorts, 10*l.*, 15*l.*,	20	0	0
100 STANDARD ROSES 4*l.*, 5*l.*,	6	0	0

CHEAP and REALLY GOOD HARDY PLANTS.

CALANDRINIA UMBELLATA.—4 inches high, long succession of bloom, vivid magenta crimson; few, if any, flowers exceed this in brilliancy and beauty, 3*s.* per dozen.

TROLLIUS EUROPÆUS.—8 inches high. Its long succession of bright golden yellow double globular flowers ought to give it a place in every garden, 4*s.* per dozen.

AGROSTEMMA CORONARIA.—Its beautiful silvery foliage and magnificent panicles of brilliant rosy crimson flowers makes this quite a favourite, 4*s.* per dozen.

SPIRÆA ULMARIA VARIEGATA.—The golden variegation of this foliage is superb, 4*s.* per dozen.

ŒNOTHERA TARAXACIFOLIA.—Yellow, very showy, 2*s.* 6*d.* per dozen.

SOLDANELLA ALPINA.—3 inches, flowers the size of a shilling, rich purple, beautifully fringed, 6*s.* per dozen.

PRIMULA MUNROI.—6 inches; it has been in flower the last six months; pure white—most beautiful, 5*s.* per dozen.

IRIS CRISTATA ELEGANS.—6 inches, I think the handsomest of the tribe, 2*s.* 6*d.* per dozen.

DACTYLIS ARUNDINARIA PICTA.—6 inches, beautiful dense silvery variegated foliage, first-rate for edging and for ribbon bordering, 6*s.* per dozen.

TRITOMA UVARIA GRANDIFLORA.—Its graceful growth and majestic flowers have been the admiration of visitors to Kew Gardens this season, 9*s.* and 12*s.* per dozen.

Choice selection of HERBACEOUS PLANTS for borders or rockwork, 3*s.*, 4*s.*, and 6*s.* per dozen.

Also, for want of room, a choice collection of CINERARIAS and GERANIUMS, fine plants, 6*s.* per dozen.

AZALEA INDICA.—Fine large bushy plants with flower-bud, 12*s.* per dozen.

Post-office Orders payable to W. B. JEFFRIES, Arboretum Nurseries, Ipswich.

New Grass Seeds for Exportation.

SUTTON AND SONS have now ready for delivery New Seeds of all the most desirable kinds of GRASSES for PERMANENT PASTURE, and are packing the same in the execution of orders for Australia, New Zealand and other Foreign parts.

Prices, &c., will be sent post free on application.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

NEW PLANTS.—FUCHSIA RIFLEMAN and NORTHERN LIGHT. AZALEA INDICA SOUVENIR DU PRINCE ALBERT. CAMELLIA PUNICEA.

MIMULUS PARDINA (leopard-spotted and marbled).—The long continuance of bloom from succession plants of this beautifully marked flower is a valuable feature for Conservatory and Greenhouse decoration from February until August. 1*s.* per packet. The Trade supplied per ounce, or smaller quantities.

Similar Hybrids have been also raised from the same species (M. cupreus) as M. pardina, at two other sources in the neighbourhood of London, and by crossing the species above named with the type of a second one. The exceptional differences of the three crosses were thus:—The first was M. cupreus with a good hybrid of M. luteus; the second was with the common garden forms of M. luteus, and the third now offered are the production of M. cupreus crossed with several of the finest garden hybrids of English and Continental origin, from which was obtained a beautiful strain of varieties superior to any flowers shown to us from the two sources alluded to, and which are remarkable for picturesque spotting and diversity of feature in colours. They are the same as exhibited by us at several London exhibitions during the past summer.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London.

TO BE DISPOSED OF, Six Large CAMELLIAS in Pots, nicely proportioned plants, well set for Bloom. Camellia elegans, 9 feet in height; C. Chandlerii, 9 feet do.; imbricata, 8 feet do.; C. corallina, 8 feet do.; C. Colvillii, 7 feet do.; C. Double White, 6 feet do.

Price and particulars may be obtained of Mr. DURRANT, Holly Lodge, Luton, Beds.

THE EARLIEST PEA KNOWN is CARPENTER'S EXPRESS (pods larger than any other early Pea).

Among *numerous* Testimonials the following has been received:—

From Mr. JONES, *Gardener to Lord Leconfield, Petworth, Sussex.*
June 3, 1863.

"I beg to say I have found Carpenter's Express Pea to answer well as an early one; it was sown on the 20th of November, on a south border, and I gathered the first dish on the 7th of May. I had Daniel O'Rourke and your Pea side by side in November, 1861, and gathered First from Carpenter's Express in May, 1862, which led me to grow it as my earliest this year."

New Seed to be had only of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Establishment, 96, St. James's Street, Brighton.

Early Orders are solicited, which will be executed strictly in priority.

Seed Potatoes.

H. AND F. SHARPE are now prepared to make special offers to the Trade of the following varieties of SEED POTATOES, which have been harvested in fine condition, and free from disease. They comprise all the sorts worthy of cultivation, and have been grown with much care from the finest selected stocks. As the yield this season is very fine, the prices will be moderately low, and may be had on application.

Improved Ash-leaved Kidney	Early Fox's Seedling
Jackson's do. do.	Early Round Frame
Walnut-leaved do.	Early Martin's Globe
MYATT'S PROLIFIC do. (very productive)	Early Golden Globe
Fluke Kidney	Early King (for forcing)
Lapstone do.	Early British Queen
EARLY DALMAHOY	Early Cockney
Early Oxford	Early Forty-fold
	Early Snowball

Seed Growing Establishment, Wisbech.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early variety is certified in the "Journal of Horticulture," page 269, to have yielded this season at the rate of 22 TONS per Acre.

Present price 6*l.* per Ton, or 8*s.* per Cwt.; and to prevent disappointment orders for present or spring delivery should now be sent to Mr. S. A. DAINTREE, of Fendrayton, St. Ives, Hunts.

PAUL'S NURSERIES, WALTHAM CROSS, N.

ALL THE FIRST PRIZES

OFFERED TO NURSERYMEN FOR HYACINTHS

BY THE ROYAL HORTICULTURAL SOCIETY IN MARCH LAST,

WERE AWARDED TO WILLIAM PAUL.

WILLIAM PAUL

Has now much pleasure in offering the following, of first-rate quality:—

HYACINTHS, the finest SINGLE and DOUBLE, for Show or Decorative purposes, 9*s.* to 15*s.* per doz.; 60*s.* to 100*s.* per 100.

HYACINTHS, SINGLE and DOUBLE, good sorts for early Forcing, 6*s.* to 8*s.* per doz.; 50*s.* per 100.

HYACINTHS, SINGLE or DOUBLE, in separate distinct colours for Beds or Borders, 3*s.* per doz.; 21*s.* per 100.

POLYANTHUS NARCISSUS, best sorts, 3*s.* to 4*s.* per doz.

TULIPS, EARLY SINGLE and DOUBLE, for Pots or Massing, the finest and most distinct sorts, 9*d.* to 3*s.* per doz.; 5*s.* to 12*s.* per 100.

CROCUS, in 20 best selected sorts, 2*s.* to 5*s.* per 100.

JONQUILS, LARGEST DOUBLE, sweet-scented, 2*s.* 6*d.* per doz.

ANEMONES, RANUNCULUS, GLADIOLI, &c.

PRICED DESCRIPTIVE CATALOGUE, Free by Post.

Violets.

ROBERT SHACKELL begs to offer strong healthy plants at the following prices, basket and package free :—

	Per dozen—s.	d.
SHACKELL'S RUSSIAN SUPERB	12	0
DOUBLE PURPLE TREE VIOLET	4	0
,, SPRING BLOOMING ..	4	0
NEAPOLITAN"	4	0
DOUBLE WHITE	4	0
SINGLE WHITE RUSSIAN	4	0
OLD RUSSIAN, 10s. per 100 or	2	0

Violet House, 5, Broad Street, Bath.

WELLINGTONIA GIGANTEA.—To noblemen and gentlemen wishing to plant an avenue or group of the above, WILLIAM BARRON begs to offer a number of splendid specimens from 6 to 14 feet high, remarkably cheap, all of which can be insured to remove with safe balls.

6, 7 and 8 feet	3l. 3s. to 5l. 5s.
9, 10 and 11 feet	6 6 to 8 8
12, 13 and 14 feet	9 9 to 10 10

14 × 12. Stem 4—6 in circumference.

The most handsome plant in the country, remarkably dense. Special price on application.

Elvaston Nurseries, near Derby.

Nursery Stock.

H. ADDISCOTT, NURSERYMAN, St. Thomas, Exeter, has to offer at very reduced prices the following :—

2000 Fine Dwarf-trained PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS, and APPLES.
2000 STANDARD, HALF-STANDARD, and PYRAMIDAL PEARS and APPLES.
200 GRAPE VINES from Eyes, "Strong."
1000 STANDARD ROSES.
100,000 Strong THORNS (Quick).
10,000 Strong LAURELS.
2000 LAURUSTINUS.
2000 PORTUGAL LAURELS.
[20,000 other good SHRUBS, AUCUBA, ARBORVITÆ, BERBERIS, CEDARS, CYPRESS, EUONYMUS, HOLLIES, YEWS, &c., all well grown, and in excellent condition.

Also a few hundred Specimen Plants, 6 to 10 feet, very handsome, of PINUS INSIGNIS, CEMBRA, and EXCELSA; CEDRUS DEODARA, ENGLISH and IRISH YEWS, TAXODIUMS, LUCOMBE and FORD OAKS; STANDARD PORTUGAL LAURELS, 5 feet in stem, with good heads; all of which will be sold at low figures, as the Lease of a portion of the Nursery expires next Spring, and the ground must be cleared. An inspection of the stock is respectfully solicited.

CATALOGUES will be forwarded on application.

St. Thomas, Exeter.—October 10.

E. R. GREENUS, RAILWAY NURSERIES, Watford and Rickmansworth, has to offer this season a fine healthy Stock of FRUIT and FOREST TREES, FLOWERING SHRUBS and EVERGREENS, CONIFERS, STANDARD and DWARF ROSES, CLIMBERS, &c., all of which will remove with the greatest safety; and from E. R. G.'s proximity to the London and North-Western Railway he can execute orders with promptitude and despatch to any part of the kingdom, or Continent.

CATALOGUES forwarded on application.

P.S. A very large Stock of IRISH IVIES, large, in pots, and CLIMBING ROSES; also VARIEGATED and GREEN BOX, 1½ to 2 feet.

ARAUCARIA IMBRICATA (from 3 to 12 feet in height). — The finest and largest Stock in Europe, unrivalled for Parks, Avenues, Lawns, &c. Also ABIES DOUGLASII, CEDRUS DEODARA, LIBANI, and a general assortment.

P.S. The present is the best time to remove them.

H. LANE & SON, Nurseries, Berkhampsted.

Shirreff's New Wheats.

SHIRREFF'S WHITE.—This fine variety is now ready for delivery. Selected parcels harvested without rain, 60s. per qr. Good sowing qualities, 55s. per qr.

PRINGLE'S WHITE, 55s. per qr.

SHIRREFF'S RED, 50s. per qr.

Bags, 1s. 10d. each. Samples forwarded, and the Wheats delivered at the railway on receiving a remittance.

PATRICK SHIRREFF, Haddington.—Oct. 10.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

LAWES'S WHEAT MANURE for AUTUMN SOWING.

A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8l. per ton.

2 to 3 cwts. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

SUPERPHOSPHATE of LIME	£6 6
MINERAL SUPERPHOSPHATE	5 5

Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

Autumn Sowing.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),

Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.

Chairman.—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.

Offices: 109, Fenchurch Street, London, E C.
Manufactory: Plaistow Marshes, Essex.

ODAMS'S BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, has been in use for upwards of 11 years, and has given great satisfaction to consumers.

Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.

Offices: 109, Fenchurch Street, London, E.C.

Price 7l. 10s. per Ton, delivered at any Railway or Wharf in London.

REIGATE SILVER SAND.—Best quality, 7s. 6d. per ton; packed, 16s. per ton; ditto 5s; 4 cwt. put on the Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

N.B. Loaded Trucks can be sent on all the principal Railways.

W. SHORT, Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

ALDERSON'S TOBACCO PAPER, of choicest quality for Fumigating purposes, warranted the best and most effectual remedy for the extirpation of the Green Fly. References to the most eminent Gardeners can be given.

For Price please address JAMES ALDERSON, 30, Nelson Street, Leeds.

NEAL'S PLANT SOAP and APHIS PASTILS.—1s. and 2s. per packet, may be obtained from all respectable Seedsmen.

Testimonials forwarded on application to the Patentee, J. NEAL, Edward Street, Birmingham.



Magnified Aphis.

NEAL'S PATENT APHIS PASTILS, 1s. and 2s. per packet, are the only cheap and effectual way of Fumigating a Greenhouse. See opinion of GEO. GLENNY, Esq., in his Works on Gardening, &c.

NEAL'S PLANT SOAP,

1s. per packet of four cakes, is the cheapest preparation hitherto invented for washing plants. It will be found to destroy all Insects. Each cake makes one Gallon of Wash.

Both may be obtained of all principal Seedsmen.

Patentee: J. NEAL, Edward Street, Birmingham.

Winter Dress all Fruit Trees with



Red Spider Magnified.

GISHURST COMPOUND.

Copy of a Letter from Mr RIVERS.

Nurseries, Sawbridgeworth, Herts.
Oct. 22, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq, of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."

For Orchard-house Trees 4 ounces to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), Belmont, Vauxhall, London, S.W.

Horticultural Agent and Valuer.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS) continues to undertake all kinds of VALUATIONS connected with Horticulture.

1. Devonsbire Terrace, Fulham Road, S.W.

City of Manchester.

To ARCHITECTS and LANDSCAPE GARDENERS.

MANCHESTER CEMETERY. EXTENSION of TIME.

NOTICE.—Persons desirous of obtaining Plans and other Particulars to enable them to compete for the Design for LAYING OUT this CEMETERY, can obtain them by applying at the City Surveyors' Office, Town Hall, Manchester, on or after October 8.

The date of furnishing Particulars having been postponed, a proportionate extension has been made in the time allowed for sending in Designs.

For particulars as to Premiums offered, &c. see former advertisements. By order. JOSEPH HERON, Town Clerk.

Town Hall, Manchester, Oct. 10.

TREE and PLANT LABELS.—10,000 CLOTH or PATENT PARCHMENT PUNCHED LABELS for 30s. Delivered free in London on receipt of a Post office Order or Stamps for the amount. Address JOHN FISHER & Co., West Road Works, Boston, Lincolnshire.

Striking Cuttings and Keeping Plants for Years without Soil,

W. PRESTOE begs to announce that he will continue to supply PROPAGATING BOXES for ROSES and all kinds of Greenhouse Plants, usually termed Bedding-out Plants, smallest size 2 feet by 6 inches, 10s. each, with printed cultural directions. Each box will contain a bundle of cuttings and plants and prepared moss, so that no failure can possibly take place. Grape Vines strike admirably without soil. Mushrooms, Seakale, and Rhubarb force exceedingly well in any common shed in larger-sized boxes. Post-office Order payable to

WILLIAM PRESTOE, Basingstoke.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS and MACHINES of every description.

Illustrated Catalogues on application.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

AGRICULTURAL IMPLEMENTS.—STEAM ENGINES, THRESHING MACHINES, CARTS, WAGGONS, PLOUGHS, HARROWS, TURNIP CUTTERS, CHAFF CUTTERS for hand and power, LAWN MOWERS, PRIZE CHURNS, CASK STANDS, WIRE NETTING, and GARDEN TOOLS.

Illustrated Catalogues on receipt of 6 stamps. Price Lists free.

BURGESS & KEY, 95, Newgate Street, E.C.
Works, Brentwood, Essex.

MORTON'S NEW IMPROVED PATENT LAWN MOWER, with Sun and Planet Motion, having all the most recent Improvements, is allowed to be the best Machine for preventing Ribbing and Clogging.

To be had, with prices and particulars, of GRIMMOND, LAIRD, & Co., 15, Cannon Street West, London, E.C.; or of the Patentee, Catherine Street Engine and Machine Works, Arbroath; and all the principal dealers throughout the country.

Garden and Architectural Decorations in Terra Cotta

PRIZE MEDALS OF 1851 AND 1862 AWARDED TO

JAMES PULHAM, Broxbourne, Herts. Also Notice of ARTISTIC MERIT, and of SOUND DURABLE MATERIAL in FOUNTAINS, VASES, FIGURES, FERN CASES, and BRACKETS, CONSERVATORY TUBS, with rising bottoms, &c.

The novel FERNDELABRUM.—To grow SIXTY FERNS (or Flowers) on a space 4 ft. 8 in. over, 8 ft. high, &c.

Guaranteed to stand frost an unlimited time.

Stereographs sent to inspect for 12 stamps.

Illustrations in the *Art Journal Catalogue*, the *Masterpieces*, and *Gems of the Exhibition*.

Fresh Fruit all the Year Round.

JENNINGS' MODEL PRESERVING JAR affords the means to every one to lay by a store of Fruit or Vegetables for Winter use at a very small cost and little trouble.



This is effected by means of an AIR-TIGHT CAP or COVER, which can be placed or removed in a moment, and will last for years in any climate, superseding the use of Bungs, Corks, Bladder, &c., for all kinds of Preserved Meats, Fruits, or Pickles.

Descriptive Illustrations, Prices, &c., from the Wholesale Depôt, Palace Road, Lambeth, S. Retail from all China and Glass Dealers, Ironmongers, and others.

Gutta Percha Tubing for Watering Gardens.

THE GUTTA PERCHA COMPANY have the pleasure to acknowledge the receipt of the following

Testimonial from Mr. J. FARRAH, *Gr. to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*

"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."

Manufactured by the GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C., and sold by their Wholesale Dealers in town and country.

SHAW'S TIFFANY, For samples and prices apply to J. SHAW & Co., 29, Oxford Street, Manchester.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the COLD WINDS & MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 8d. per yard run.
Four yards wide	3s. 4d. per yard.
An improved make, 2 yards wide,	1s. 9d. per yard.
An improved make, 3 yards wide,	2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

1000 GARDEN TARPAULINGS, very thick, 8 ft. by 4 ft., with 6 brass eyelets, 32s. per doz., or 2s. 9d. each; any size made up at 9d. per square yard. GARDENERS' CAPES, 3 ft. deep, 3s. 6d. each. POLICE CAPES, from 18s. to 36s. per doz. DRIVING APRONS, 10s. HORSES' LOIN CLOTHS, lined with woollen and strapped, 7s. each. CART and WAGGON COVERS, PATENT FELT.

R. RICHARDSON, 99, Euston Road, London, N.W.

N.B. GALVANISED WIRE WORK, 18 in. gauge, 1§ in. mesh, 7d. per square yard, in all widths.

RICK CLOTHS.—A large quantity of SECOND-HAND CANVAS, remaining over from the season 1863, and suitable for Rick Cloths, Waggon Cloths, &c.

To be Sold at BENJAMIN EDGINGTON'S Marquee, Tent, and Rick Cloth Manufactory, 2, Duke Street, London Bridge, S.E.

Early application will secure immediate attention.

N.B. No other Establishment.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

HUGH LOW & CO.

Have pleasure in announcing that their Stock of WINTER and SPRING FLOWERING PLANTS is this season unusually large, and the Plants are well-grown and of very fine quality. In consequence of the hot weather of the summer months the wood is particularly well matured, and a profusion of flower may be expected.

H. L. & Co. append the names of those Genera most largely in demand, and have only to add that Purchasers will on all occasions be liberally treated. An inspection of the GENERAL NURSERY STOCK is respectfully invited.

AZALEA INDICA.—A selection can be made from many thousands of plants of various sizes.
ACACIAS in variety.
CYTISUS or GENISTAS in large numbers.
DAPHNES of sorts.
DEUTZIA CRENATA FLORE-PLENO.—Of this very beautiful double flowering Japan Deutzia, H. L. & Co. have a large stock, and they offer plants at 3s. 6d. each; by the 100 a considerable reduction will be made.
LONICERA AUREO-RETICULATA can be supplied by the 1000 at a low price.
DILLWYNIAS, CHOROZEMAS, CORRÆAS, CHIRONIAS, ERIOSTEMONS, OXYLOBIUMS, PIMELEAS, and MISCELLANEOUS GREENHOUSE PLANTS.
EPACRIS.—A selection can be made from very many thousands of plants of various sizes.
ERICAS do. do. do. do. do.
CAMELLIAS do. do. do. do. do.
ORANGES, LARGE-FRUITED and OTAHEITE, with and without fruit.
JASMINUM GRANDIFLORUM, grafted on short stems, and full of flower buds.

AUSTRALIAN TREE FERNS.

The centre of a span-roofed House, 155 feet in length by 25 feet in width, filled with upwards of 200 specimens, on stems varying in height from 1 to 6 feet, and in circumference from 15 to 30 inches.

KINGIA AUSTRALIS (Australian Grass Tree).—Very fine imported specimens on large stems.

ARAUCARIA IMBRICATA.

A consignment of fresh Seeds just to hand, *viâ* Panama, in unusually fine condition. Price per bushel or per 1000 seeds on application.

CLAPTON NURSERY, LONDON, N.E.

ORCHIDS FROM BRAZIL, THE PHILIPPINE ISLANDS, VENEZUELA,

THE TENASSERIM PROVINCES, BORNEO, AND THE MALAYAN ARCHIPELAGO.

HUGH LOW & CO.

Have for Sale, at very moderate prices, large quantities of ORCHIDS, received direct from their Collectors and Correspondents in the above-named countries, and they respectfully invite gentlemen interested in Orchid Cultivation to visit the Nursery and inspect the Collection, which contains many species quite new, and as yet undescribed. Orchidaceous plants at the Clapton Nursery are at present date grown in EIGHT span-roofed houses, and the collection is steadily augmented by a regular system of monthly and bi-monthly importations.

H. L. & Co. subjoin names of some of the species now on Sale, and they have only to add that Purchasers will be treated with great liberality.

AERIDES CRISPUM.
,, CRASSIFOLIUM.
,, FIELDINGI.
,, LARPENTÆ.
,, LOBBI.—Amongst our importations of this fine species, many beautiful varieties have appeared.
,, LINDLEYANA.
,, MACULOSUM.
,, SUAVISSIMUM.
,, ,, Bornean variety, very much superior to the ordinary type of the species, and probably synonymous with Aerides nobile.
,, QUINQUEVULNERUM.
,, ROSEUM.
,, VIRENS.
,, ,, SUPERBA.
,, WARNERI.
,, Species Moulmein.
BOLBOPHYLLUM (Sarcopodium) PSITTACOGLOSSUM.
,, CAREYI.
BROUGHTONIA SANGUINEA.
BURLINGTONIA DECORA.
,, FRAGRANS.
,, VENUSTA.
CIRRHOPETALUM STRIATUM.
CYMBIDIUM TIGRINUM.
CALANTHE VESTITA LUTEA.
,, ,, NIVALIS.
,, ,, ROSEA.
,, MASUCHA.
,, VERATRIFOLIA.
CATTLEYA AMETHYSTINA.
,, BICOLOR.
,, CITRINA.
,, CRISPA.
,, ELEGANS (Lælia).—Many of the plants imported by H. L. & Co. have recently flowered. Some are the dark varieties in various shades of colour, others light in the way of Lælia Schilleriana, L. Stelzneriana, and L. Warneri.
,, IRORATA.
,, LEOPOLDI.
,, LABIATA.
,, LOBATA.
,, MARGINATA.
CATTLEYA MOSSIÆ, in many varieties.
,, PINELI GRANDIFLORA.
,, Species Juaz de Fora.
,, Species Parihiba, resembling C. Harrisonii in bulbs.
,, SUPERBA.
CHYSIS LIMMINGHI.
CŒLOGYNE CILIATA.
,, ELEGANS.
,, LOWI.
,, PANDURATA.
,, PARISHI (papagena).
,, SCHILLERIANA.
COMPARETTIA COCCINEA.
CYPRIPEDIUM BARBATUM GRANDIFLORUM.
,, BARBATUM SUPERBUM.
,, CAUDATUM.
,, FAIRRIEANUM.
,, HOOKERÆ.
,, HIRSUTISSIMUM.
,, species from Mount Ophir, Malacca.
,, STONEI.
,, VILLOSUM.
DENDROBIUM AGGREGATUM MAJUS.
,, ALBO SANGUINEUM.
,, BICOLOR (palpebræ).
,, CHRYSOTOXUM.
,, ,, SUPERBUM.
,, CRETACEUM.
,, CUCULLATUM GIGANTEUM.
,, DALHOUSEANUM.
,, DENSIFLORUM.
,, ,, ALBUM.
,, EBURNEUM, a lovely new species now in bloom at the Nursery. A First-class Certificate was awarded to it by Floral Committee of Royal Horticultural Society on October 6.
,, FARMERI
,, FIMBRIATUM.
,, ,, OCULATUM GIGANTEUM.
,, FORMOSUM GIGANTEUM.
,, FYTCHEIANUM.—Imported by this name, may possibly prove to be the rare D. Heyneanum.
,, INFUNDIBULUM.
,, LUCENS (Reichenbach fil).
,, LOWI.
DENDROBIUM MACROPHYLLUM, Variety DAYANUM. — A very beautiful Bornean Orchid, intermediate between D. macrophyllum and D. anosmum, but more richly coloured than either of these species. H. L. & Co. have imported plants which have bloomed on 4 feet 9 inches in length of the bulbs.
,, NODATUM.
,, PARISHI.
,, PAXTONI.
,, PIERARDI.
,, PICTUM.
,, SCULPTUM (Reichenbach fil).
,, TORTILE ROSEA.
EPIDENDRUM, 3 species unnamed from North Brazil.
ERIA AVELLANA (convallarioides) white and very fragrant.
HOULLETIA BROCKLEHURSTIANA.
IONOPSIS PANICULATA.
LEPTOTES BICOLOR.
,, SERRULATA.
,, Species Brazil.
LÆLIA BRYSIANA.
,, CINNABARINA.
,, ELEGANS (See Cattleya elegans).
,, MAJALIS.
,, PERRINI MAJOR.
,, PRESTANS.
,, PURPURATA.—Many varieties and plants of various sizes. Our stock of this superb Orchid exceeds 1000 plants
LIMATODES ROSEA.
,, ,, SUPERBA.
,, ,, VESTALIS (Reichenbach fil).
MILTONIA CANDIDA GRANDIFLORA.
,, PINELI.
,, ROSEA.
,, STELLATA.
,, SPECTABILIS.
,, Two unnamed Brazilian species.
ONCIDIUM ARTICULATUM.
,, BARBATUM.
,, CRISPUM.
,, ,, GRANDIFLORUM.
,, ,, MARGINATUM.
ONCIDIUM LANCEANUM.
,, PAPILIO MAJOR.
,, PUBES.
,, VARIEGATUM.
,, Several Brazilian species.
PHALÆNOPSIS AMABILIS.
,, CORNU-CERVI.
,, GRANDIFLORA. — Bornean variety. The best white-flowered Phalænopsis yet known. The blooms are produced in the greatest profusion, and on very small plants. During the winter months H. L. & Co. have rarely had fewer than from 100 to 150 plants in bloom, and at one time the number reached 300.
,, ROSEUS.
,, SCHILLERIANUS.
SACCOLABIUM CURVIFOLIUM.
,, AMPULLACEUM.
,, BLUMEI.
,, ,, MAJUS.
,, ,, ,, variety DAYI—on very small imported plants of this beautiful species the flower spikes measure 22 inches in length.
,, CRASSIFOLIUM.
,, GUTTATUM.
,, REIDI.
,, VIOLACEUM.
SARCANTHUS PARISHI.
,, GRACILIS.
SOPHRONITIS CERNUA.
,, GRANDIFLORA.—Many of our imported plants are now in bloom, and amongst them are fine varieties, very bright in colour and large in size.
VANDA CŒRULEA.
,, BATEMANI.
,, GIGANTEA.—Flower spikes on imported plants, clearly prove this to be a much finer species than it was supposed to be.
,, HOOKERIANA.
,, INSIGNIS.
,, SUAVIS.
,, SPECIES MOULMEIN.
,, TRICOLOR.
ZYGOPETALUM MAXILLARE.

The very large Stock held by HUGH LOW & CO. *enables them to offer unusual advantages to gentlemen commencing the Culture of Orchids.*

Collections of 12, 25, 50, or 100 Species and Varieties (selection being left to H. L. & Co.) can be furnished on very reasonable terms.

ALOCASIA (CALADIUM) LOWI, good plants, 15s.; larger, 21s. to 63s.
THEOPHRASTA IMPERIALIS, good plants, 10s. 6d. each.

CLAPTON NURSERY, LONDON, N.E.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

THE RED LODGE NURSERY, SOUTHAMPTON, extends over 60 acres, and contains an unrivalled stock of AMERICAN PLANTS, FRUIT, FOREST, and ORNAMENTAL TREES, EVERGREEN and FLOWERING SHRUBS, CHOICE CONIFERÆ, STANDARD and DWARF ROSES, &c., all in the best state for removal.

CATALOGUES, and every information obtainable on application to the Proprietor, Mr. W. H. ROGERS.

Catalogues.

PAUL AND SON have just published their NEW DESCRIPTIVE PRICED ROSE CATALOGUE for 1863-64. DESCRIPTIVE CATALOGUE of HYACINTHS and other DUTCH BULBS, post free.

Also their DESCRIPTIVE CATALOGUE of EVERGREENS, DECIDUOUS TREES, CONIFERS, AMERICAN CLIMBING and HERBACEOUS PLANTS, post-free for one stamp.

"Old" Cheshunt Nurseries, N.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANS PLANTED FOREST TREES, &c.

Woking Nursery, Surrey.

GEO. BAKER begs to announce that his extensive Collection of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

Prize Gladioli.

YOUELL AND CO were awarded the following PRIZES for the above in September last:—

FIRST AND SECOND PRIZE, CRYSTAL PALACE,
FIRST PRIZE, ROYAL HORTICULTURAL SOCIETY,
FIRST PRIZE, BRIGHTON.

CATALOGUES of this collection will be forwarded on application.

Royal Nurseries, Great Yarmouth, Norfolk.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

New Cinerarias.

J. DOBSON AND SONS' Splendid Set will be ready in October. See CATALOGUE.

New Pelargoniums.

J. DOBSON AND SONS will send out their Superb Set in October. See CATALOGUE.

A General Collection of the above is now ready. Prices very low.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

TO THE TRADE.—The Trade supplied with packets (in any quantity) of DOBSON'S unequalled CALCEOLARIA, CINERARIA, and PRIMULA SEED. Price on application. Retail price, 1s., 1s. 6d., 2s. 6d., 3s. 6d., and 5s.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

NEW FORCING GERANIUM, MRS. LEWIS LOYD.—Rich crimson with dark maroon blotch in top petals; of dwarf robust habit, and most profuse bloomer. Forces into flower at any season without drawing. It was exhibited to the Floral Committee of the Royal Horticultural Society on March 31, and then awarded their Certificate of Commendation. Good Plants now ready, 7s. 6d. each.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

New and Choice Pelargoniums.

B. S. WILLIAMS has much pleasure in announcing that he has made arrangements for the distribution of BECK'S NEW PELARGONIUMS, and that he will be prepared to supply strong Plants about the end of October.

A DESCRIPTIVE and PRICED CATALOGUE of the above, with Select Lists of other Choice Show, French, and English Spotted and Fancy Pelargoniums, will be published shortly and forwarded post free to all Customers and applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

OUVIRANDRA BERNERIANA.—Having succeeded in raising a few Seedlings of this extremely curious and beautiful plant, we beg to offer healthy young plants of six or seven leaves at 31s. 6d. each.

O. Berneriana was exhibited at the Great Show of the Royal Horticultural Society, June 17th, and awarded the First Prize; and at the Great Show of the Royal Botanic Society, June 24th, and then also awarded the First Prize.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

LAURELS, COMMON, bushy and good, 2 to 3 feet, 12s. per 100; per 1000, 5l. Do, 3 to 4 feet, extra fine, 25s. per 100; Do., second quality, 20s. per 100.

PORTUGAL LAURELS, well-rooted and finely furnished, 2 to 2½ feet, 50s. per 100; Do., second quality, 30s. per 100.

The true SPEAR-LEAVED LAURELS, very ornamental and hardy, 30s. per 100.

RHODODENDRON PONTICUM, full of bloom buds, 2 to 2½ feet, well furnished, 18s. per doz.; 1½ to 2 feet, fine do., 12s.; Second quality, 6s. per doz., 40s. per 100.

ORCHARD HOUSE TREES, well set with buds in 11-inch pots, 42s. to 60s. per doz.

NEW ROSE CATALOGUES for 1863 and 1864, now ready and forwarded post free upon application.

Through Trucks, without incurring any expense of package.

A. GODWIN & SON, The Nurseries, Ashbourn, Derbyshire.

New Azaleas.

AZALEA (INDICA) QUEEN of BEAUTIES.—Mr. WILLIAM BULL begs to announce that he has purchased from M. Ambroise Verschaffelt the sole right of supplying this exquisite variety in the United Kingdom.

DESCRIPTION.—Salmon pink margined with white, and flaked with carmine, densely and very richly spotted with crimson; flowers large, of good shape and substance; one of the best Azaleas ever offered. Price 21s. each.

AZALEA (INDICA) WAXWORK.—Unusually thick waxlike petals; flowers immensely large and finely formed; pure white striped and flaked with purple, a most desirable variety, there being only one or two kinds of white striped with purple (and these not to be compared to the one now offered), while there are several whites striped with red. Price 21s. each.

AZALEA (INDICA) WILLIAM BULL.—This variety was raised in Belgium, and named by M. Ambroise Verschaffelt, from whom the stock for circulation in the United Kingdom was purchased. The flowers individually are of unusual size and substance, double, and well formed; colour, crimson and violet. Price 15s. each.

AZALEA (INDICA) BELLE GANTOISE, 7s. 6d.
HORTENSE VERVAENE, 7s. 6d.
MADAME AMBROISE VERSCHAFFELT, 7s. 6d.
MADAME WAGNER, 15s.
PRESIDENT HUMANN, 21s.
REINE DES DOUBLES fol. VARIEGATA, 7s. 6d.
SOUVENIR DU PRINCE ALBERT, 21s.
SECRETAIRE CLAUS, 10s.
VICOMTE DE FORCEVILLE, 15s.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE is HEREBY GIVEN that an ELECTION of THREE PENSIONERS on the Funds of this Institution will take place in JANUARY NEXT. All persons desirous of becoming Candidates are requested to send in their applications to the Committee on or before the 12th November next, after which time they will not be received.

Preference will be given to those Candidates who may have been Subscribers to the Society for 15 years and upwards. Should it happen that there are not sufficient Applicants of that class, then the Claims of those who have not subscribed so long or not at all, will be considered.

Application to be made upon printed forms, which may be had upon applying to the Secretary.

By Order, EDWARD R. CUTLER, Secretary.

14, Tavistock Row, W.C.—October 10.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 10, 1863.

ANIMALS and plants have been formed by an Allwise Providence for the SITUATIONS ON THE SURFACE OF THE GLOBE WHICH THEY NATURALLY INHABIT. A negro with his thick skull can bask under the rays of a tropical sun which would be fatal to the native of a more northern climate. The Banyan tree of southern India grows luxuriantly in its own hot country, and extends its branches over an incredibly large space of ground, but it sickens and dies in a country like ours. In like manner the plants of northern latitudes are with difficulty kept alive when transported to warm countries. All lovers of plants who have resided in India will bear witness to the truth of the existence of this natural law. How often have they endeavoured to introduce the loved flowers of their youth—the Primroses, Cowslips, and Daisies of their native country, to look upon and enjoy in the land of their exile. All the means at their disposal are applied to give coolness or shade, and these means are perhaps successful for a time. But the rainy season comes on, when everything is deluged with water, or the dry season comes next, when the fierce rays of the sun bake the ground from morning till night, and raise the temperature to a degree unusual in temperate climates. In these circumstances the favourite plant may exist for a time, but it gradually loses its energy and then dies.

Then, again, some plants are destined to grow in water or on marshy land, while others thrive only in dry soil. The sacred Lotus and the Papyrus of the Nile, Rice, and many other productions are examples of the former class; while Cotton, Wheat, Barley, Rape and other grains, require well drained land. Certain species appear to grow equally well on level land if it is well drained, and on the sides of hills, while others prefer undulating or hilly land. The Tea plant of China is always found to succeed best on the lower slopes of the hills, and we know that nearly the whole of the Fir tribe will flourish in like situations.

We might go on adding instances to those already brought forward, and show how some plants thrive in places where they are fully exposed to the sun's rays, while others prefer to grow under the shade of trees; or again, how others flourish under the ever-dripping rocks in the deep mountain ravine. But enough has been brought forward to prove the existence of certain natural laws which ought to be studied by all who cultivate plants or who plant trees. We dismiss, for the moment, the discussion of those laws which prevent species which have been formed for existence in warm countries from succeeding in cold ones, or *vice versâ*. To this we may return on a future occasion. At present our remarks are confined to plants which have a natural preference for hilly or undulating land. Amongst these there are many trees of great importance, of which the Fir tribe just noticed forms a very prominent example. There can be no doubt that nearly the whole of this family prefer hilly or undulating situations, and most certainly have an abhorrence of wet level land. In the Scottish Highlands, in the Himalayas, in China, and Japan, California, the Pine tribe seem always most at home amongst the hills. This fact cannot be set too prominently before all those who are engaged in planting the old well-known kinds or the new introductions of this beautiful and valuable tribe of trees. To plant a Pine in a low or marshy place, when a more suitable can be found, is an act of vegetable cruelty which cannot be too severely condemned. Even certain aspects are sometimes found more suitable than others, and the formation of the soil and rocks is frequently of considerable importance. This was clearly pointed out by Lord DUCIE the other day, when describing the effects of geological position upon certain Conifers about Tortworth Park.

It is true that almost all the species of this ornamental family may be made very effective and very enjoyable objects of garden decoration, even on flat land. Many gardens and parks of this description in the valley of the Thames, and in other places where the land is equally flat, might be pointed out as a proof of this assertion. But if valuable timber is the object of the planter he must take a lesson out of the book of Nature, and choose elevated or hilly land for his Pine trees.

—— The SUBTROPICAL GARDEN IN BATTERSEA PARK a plot of considerable size, lying in a sheltered nook at the western extremity of the lake, has presented during the past summer one of the most interesting features in out-door gardening to be met with, at least in the neighbourhood of London. Ferdinandias have there reared their heads proudly, and Wigandias have cast their broad shadows o'er the grassy surface; while Cannas in profusion have been revelling under the judicious *régime* to which Mr. GIBSON has subjected them; and hosts of other plants which are usually seen only under the shelter of glass have made very satisfactory progress. What the general features of Mr. GIBSON'S treatment have been, we shall explain next week. In the meantime the manner in which the Subtropical Garden has been furnished deserves to be put on record.

Commencing on the eastern side, the first group consisted of an oblong bed 66 feet long by 6½ feet wide, planted with Canna Annæi in the centre, outside of which was a row of C. discolor, edged with Pteris cretica albo lineata; the Fern has not done well. In front of this was a bed 10½ feet across, filled with Coleus Verschaffelti, plunged in pots, this being edged with the broad silvery-leaved Centaurea ragusina; this bed was the most perfect picture imaginable. Another round bed 6 feet in diameter was filled with Golden Chain Pelargonium, edged with blue Lobelia; another of the same size with Pelargonium Pink Nosegay, edged with Little David. To the right of these was an oblong bed 35 feet by 9½ feet, planted with Caladium esculentum; and another 40 feet by 7½ feet, filled with Wigandia caracasana, and edged with Farfugium grande.

The next group consisted of a bed 50 ft. by 9 ft., the centre of which was planted with Canna Annæi, C. Fintelmanni, crenulata, and lutea picta, the whole edged with the dwarf C. angustifolia. In front of this were two radiating beds planted with Stella Nosegay Pelargonium edged with Silver Chain; and as a centre to them a round bed of variegated Pelargonium Jane, edged with Lobelia Gordoni. To the left of these was a round bed 17 ft. diameter, the centre consisting of Brugmansia Knightii and suaveolens; next standard Fuchsias in variety, then Lantanas and Aralia papyrifera, edged with Cloth of Gold Pelargonium. Near the last was an irregular bed at the junction of two walks, in which the following were planted out for trial:—Uhdea pinnatifida; Nicotiana glauca, and wigandioides; Polymnia grandis; Verbesina sinuata, and verbascifolia; Senecio Ghiesbreghti; Solanum marginatum, pyracanthum, atropurpureum, sodomeum, macrophyllum, robustum, laciniatum, betaceum, and glutinosum; Hibiscus rosa sinensis; Cassia corymbosa, and schinifolia; Basella speciosa; and Plumbago capensis. The spaces between these were filled up with Lantanas, Vinca rosea and alba, &c., and the group was edged on the outer side with Amaranthus melancholicus ruber, and on the inner side with Pelargonium Dandy, and Lantana Sellowi. What these and similar plants may do in an ordinary season or in an unfavourable one, remains yet to be seen. This season they have appeared to be quite at home. They

were taken up and potted at the end of September, for further trial next year. The experience of the present year has shown that Solanum macrophyllum and robustum would be as well planted singly in sheltered sunny spots, for their leaves are furnished with such formidable spines that they are apt to be torn and to tear their neighbours if within reach; and that Solanum marginatum, if planted in a mass and edged with Amaranthus melancholicus ruber, would have an imposing effect, its leaves being so thickly clothed with white tomentum. It may be observed in passing that Cannas and Wigandias have borne the wind without any injury to their foliage, while Ferdinandia, whose leaves are very thick and brittle, has required temporary shelter from strong winds.

A round bed to the right of that last described, about 6 feet diameter, was planted with Cyperus alternifolius, the surface between being covered with Lycopodium denticulatum and helveticum, and the whole edged with Salvia argentea, whose broad leaves, of silvery whiteness, produced a striking and singular contrast. Further on to the left, a bed 50 feet by 9 feet had Canna Annæi and limbata in the centre, next C. Warscewiczii, and an edging of C. mutabilis, a dark-leaved variety. The next bed, a round one 6 feet diameter, had a tall Dracæna congesta in the centre, the remainder being filled with Dracæna terminalis plunged in pots, and the soil covered entirely with Gnaphalium lanatum.

On the opposite side of the walk from the beds last named, were two scroll beds 3 feet wide planted with Pelargoniums and Calceolarias; in the recesses of these were circular beds thickly planted with Ivy. This not only relieves the scroll beds, but corresponds with the Ivy border on each side of the walk in this part of the garden. Behind the scrolls a bed, 31 ft. by 6½ ft., was filled with Ficus elastica, the plants being from 2 ft. to 3 ft. high. The next bed, and a very effective one, was an oval, 18 ft. by 8 ft., planted with Ferdinandia eminens, edged with the purple-leaved variety of Plantago major: the Ferdinandia, being 9 ft. high, had a noble appearance. In front of this were two round beds of Pelargoniums, one planted with Minnie in the centre and edged with Princess Royal, the other planted with Mountford in the centre, edged with Silver Queen. Then followed a group of foliage plants, plunged in their pots on the grass, at a point where the ground has a slight elevation, and is partly shaded with trees. In this group was Dracæna brasiliensis, congesta, ferrea, terminalis, and rubra, several plants of each; Dracæna nutans and Draco; Cordyline indivisa in several little groups; Saccharum Maddeni; Bambusa gracilis in groups, and B. japonica; Livistonia borbonica; Aralia farinifera; Rhopala corcovadensis, elegans, and organensis; Trepidanthus calyptratus; Crinum amabile; Hedychium Gardnerianum; Phœnix sylvestris; Panax excelsa; and Yucca aloifolia, and aloifolia variegata, several fine plants. Similar groups were plunged in other telling parts of the garden. In plunging these plants, care was taken to place 4 or 5 inches of coarse ashes beneath each pot for drainage, to place the pots quite level, to have them filled in close around the outside, no cavity being left, and to make the plants quite secure with stakes. Further on was a round bed of Pelargoniums, planted with Stella Nosegay, edged with Minnie; then an oval 30 feet by 9 feet, with a centre of Canna warscewiczioides, a handsome dark-leaved sort, surrounded by C. bicolor, and edged with Statice bellidifolia. This completed the arrangements on that side of the walk.

On the opposite side of the walk, between the last named bed and that of Ferdinandia, before described, was a magnificent oblong bed of Cannas 80 feet long by 8½ feet wide, planted with C. edulis in the centre, then C. zebrina, next the dwarf C. pedunculata, and outside of all an edging of Cerastium Biebersteini. This bed, from its size and the robust luxuriance of the plants, excited much admiration. Nearly opposite each end of this Canna bed and in front of it were two round ones 8½ feet diameter, planted with Caladium esculentum, some of the leaves of which measured 26 inches in length; and between them an oval of Pelargoniums 30 feet by 5½ feet, with a centre of Christine, and an edging of the Variegated Jane. Lastly, in a sheltered nook further on, was a round bed 8½ feet diameter, containing fine plants of Musa glauca, Cavendishii, and coccinea, with Dracæna ferrea and terminalis planted between them; the surface of the bed being covered with Gnaphalium lanatum, which had a very pleasing effect.

These were the principal of the beds in this Subtropical Garden. We may add that the plants enumerated bore the exposure for between three and four months without injury, and many of them made vigorous growth, and produced flowers in considerable quantity. Rhopala corcovadensis may be especially mentioned as having made shoots a foot long, and Musa Cavendishii as having unfurled several of its leaves; while Brugmansia Knightii was rendered conspicuous by the profusion of its flowers, and Cannas by the production of flowers and the ripening of their seed. That this result was owing in a great measure to the unusually fine season we cannot doubt, and probably the same success would not be realised with the same plants in a wet cold season; yet the whole arrangements and their results reflect the very highest credit on Mr. GIBSON, whose experience will, we are sure, not be thrown away in regard to the future. In such a season as the present indeed it is probable that many other so-called tender plants, at least many such as are equally indifferent to slight frost, might succeed quite as well as those which have now been mentioned, and produce an equally pleasing effect. It is Mr. GIBSON'S opinion that such plants as the hardiest of the Cannas, Wigandia, Ferdinandia, and others, will generally succeed under proper treatment; for we understand that these plants are as fresh now at the beginning of October as they were a month back, although in some other parts of the Park the Dahlias have been killed with frost.

—— A short time since M. LEMAIRE gave an account of a supposed second species of Dion existing in the gardens of Belgium, to which he proposed to apply the name of DION STROBILOSUM. Has anything further been ascertained respecting this plant? M. LEMAIRE'S observations were founded on a male cone (the fronds were not examined) which appeared to present some notable differences from those of the normal D. edule, as figured by himself and M. MIQUEL. The cone of D. edule is cylindrical-oblong about 20 centimètres in length, and five or six in breadth; while that of D. strobilosum is quite ovoid, measuring 15 centimètres in length, and eight in breadth at the thickest part.

—— The *Times* gives the following scraps of information relating to certain crops grown in France, which have no doubt in some measure been influenced by the exceptionally fine season we have experienced:—An attempt to cultivate COTTON has been made in the Jardin des Plantes at Clermont, in the department of the Puy de Dôme, and has been attended with success. Several feet of ground were sown with Cotton seed brought from America. The plant has blossomed, and should the autumn prove fine the director of the garden expects to gather a plentiful crop.——TOBACCO culture seems to be on the increase in the Department of the Haut Rhin. According to a report addressed to the Council-General of the Department, it appears that 424 hectares were planted in the year 1861, and 435 hectares in 1862. The produce in the first year was worth 1439 f. the hectare, and 1757 f. in 1862. This year the number of hectares planted is 593, and the crop promises to be very productive.—— The VINTAGE in the South of France is this season reported to be magnificent, and the crop has been got in in splendid weather. At Cognac, however, though the crop of white wine Grapes has been abundant, yet the Vine dressers have complained of the coldness of the nights, which has retarded the maturation of the Grapes, notwithstanding the abundant sunshine.—— In the North of France, the BEETROOT crop is very deficient, owing to the small size of the roots, occasioned by long-continued drought, and to the havoc committed by the white worm. The deficiency of the crop is estimated at more than one-third, without taking into account the depreciation in quality.

New Plants.

261. PINUS ALBICAULIS, *Engelmann; P. cembroides, Newberry, Pac. R. R. Rep.* 6, *Bot. p.* 44, *c. ic., non Zucc.*

An Alpine species from the Cascade Mountains in Oregon, may be a western form of this species, though I am inclined to consider it as different, and intermediate between P. flexilis and P. Cembra, distinguished by the pubescent branchlets, few scattered teeth on the edges of the leaves, and especially by the short oval cones with thick squarrose scales pointed with a knob. The name is suggested by the colour of the bark of the tree, which is "as white as milk." *Engelmann in Trans. of Acad. of Sc. of Philadelphia.*

ROSES.

"ALL the new Roses!" When I see the advertisements thus headed I wonder if people can be found innocent enough, or as some would say, "green" enough to buy them all. New Roses, *i.e.*, Roses new in name, are becoming quite a nuisance, and, like the new Dahlias so numerous some 15 or 20 years since, when a guinea was charged for every new variety, are enough to disgust the true lover of Roses. The French gardeners for some few years past have found the English florists quite willing to buy every Rose with a new name, provided its price was 25 francs (1*l.*), consequently numerous small growers have entered into the speculation. Thousands of seedlings have been raised, among them many really worthy of notice, but too many mere repetitions of the same colour and habit, so that the most experienced eye cannot distinguish any difference. And then the new names!—I quote from a list just published:—"Gloire de Sacré Cœur," "La Reine de la Pape," "Baume Pelleton de Kinkelin," &c., besides the names of many English florists who happen to give these Rose raisers an order. Really these things put the patience of a Rose amateur to the test. I find that these new Roses are "dedicated," as they call it, to Englishmen without asking their consent, so that often a very inferior sort is foisted on the public because it happens to bear a respectable name. I have recommended one very active raiser of new Roses to give the next three he sends to us the names of Brown, Jones, and Robinson, as being names of high repute in England, and I expect to see them figuring in the catalogues another season.

There are, I observe, this autumn, about 60 new Hybrid Perpetual Roses offered; from 30 to 40 of these are different shades of crimson. Now is it possible for them to be distinct? they are priced from 15 to 25 francs each, so that to buy them all nearly 50*l.* must be expended. To those who can sell "all the new Roses," this may be a profitable speculation, but to the amateur it is simply disheartening. If I may be permitted to advise the English Rose growers, I should say buy but very few of the high-coloured sorts, for it is just impossible to find very brilliant-coloured Roses to surpass Charles Lefebvre or Senateur Vaisse. By thus, to a certain extent, ceasing to buy, this annual attempt at imposition may be checked, and the Rose amateur not troubled with such a long list of meaningless names. In your pages from No. 9 to 23, Mr. W. Paul gave us a long descriptive list of Roses, all described as they are in catalogues, and accurately enough; but I felt much regret at the time that he did not make better use of his experience, and have given us the names of a few really good and distinct kinds, with a sound and more lengthy descriptive paragraph to each. It would have been a real benefit to us lovers of the Rose, and most especially so with the new Roses, which are all named and described by him after the manner of the French catalogues. Now, if a few—and very few they are—had been pointed out as being distinct in colour and habit, we should have all pounced upon them as worthy of cultivation

In looking over these lists of Roses, I come to Mr. W. P.'s Rose dicta, p. 581, and I find that he says, "Do not buy a new Rose unless recommended from trustworthy sources." Now, this is what he should have done for us, and have mentioned in plain terms the few sorts really worthy of notice. Again, he says—"A new Rose that is not at least equal to, or different from all its predecessors, is not worth growing;" this is a good homely truth, but it ought to have been followed up by his giving the names of "all the new Roses" sent out last spring really worth growing. The majority of his dicta are sound enough, but I am posed at No. 9, "the new Roses you *must* buy on the Manetti stock." Why? There are plenty of young Dog Roses to be had, on which they could be grafted. Again, "never buy old Roses on the Manetti stock." I presume he means old varieties of Roses. Now I know that in Mr. P.'s nursery there are many, many thousands of Manetti stocks budded with Roses, not all new, which he will doubtless supply his customers with. Dictum 10: "Avoid plants that have been coddled by raising and growing in heat." All the new Roses sent out last spring—not only by Mr. P., but by all the Rose growers, were grafted in forcing houses, and then what they call hardened off. All the cuttings of Tea-scented Roses and others were taken from forced plants and struck in heat—the practice is universal, and at the Waltham Cross Nurseries as elsewhere.

Dictum 6 is out of date. The most effectual way of destroying Rose aphides is not by that offensive infusion tobacco water, but by a decoction of Quassia chips boiled 10 minutes in soft water, 4 ounces to the gallon, dissolving in it while cooling 4 ounces of soft soap. This is not offensive, and is the most certain killer of aphides ever employed. It may be applied with a brush, or to Roses against walls with a syringe, for it is very cheap. I have heard that the Messrs. Fraser used some hundreds of gallons of this mixture the past summer with deadly effect. Dicta 15 and 17 are especially worthy of notice, the former particularly so, for Tea-scented Roses grown in large pots in cold houses, or planted in the borders of orchard-houses, are always most beautiful.

We have still much to wish for in Roses. A pure white Hybrid Perpetual, equal in shape and size to Madame Vidot or Madame Rivers, is still lacking, and straw-coloured and yellow Roses of this class are not impossibilities.

There is, I fear, a sad want of science in the French Rose growers of the south, so unlike the determined quiet perseverance of the English gardener; they seem to have no idea of that careful cross-breeding which has done so much for floriculture in England. Their fine climate—I allude more particularly to the Rose growers in the south of France—ripens Rose seed thoroughly; heaps of it are sown, and out of large numbers of seedlings some are certain to be good double flowers. No matter whether distinct or not, as long as they are double and showy, they are named and sent out to the Rose world with one certain condition appended to their names—a high price, either 20 or 25 francs. To illustrate what I have advanced as to the lack of scientific perseverance in the Rose growers of the south of France, so unlike that of our English gardeners, who will, in spite of most obstacles, conquer nature, I may mention the Cloth of Gold Noisette Rose, the most perfect and beautiful yellow Rose of its class ever seen. It is now 20 years since it was raised, still it rests alone in its beauty. Now I feel assured that an English florist, with the climate of Lyons or Nimes to work under, would long ere this have created something good and new among Tea-scented Roses, probably some compact-growing free-blooming sorts, from a cross between Vicomtesse Decazes and Cloth of Gold. It is

an apt illustration of the well-known truism "where Nature is bountiful man is idle," to observe how for many years we have lacked a yellow Tea scented Rose, a free bloomer equal in beauty to the Cloth of Gold Noisette, yet not one really good Rose has been raised. We have indeed in the French catalogues plenty described as "beau jaune" and "jaune clair," but not a fine thick-petaled grand yellow Rose like our old Noisette, which would, I feel assured, have been created under the care of an English gardener in the sunny south. To the Rose lover it is pleasing to reflect that we have still good things to hope for and expect; it is true we appear to have arrived at the end of the tether as far as regards crimson Hybrid Perpetual Roses, perhaps beyond it "*con*siderably," as a Yankee would say, but we have a right to expect some nice sweet-scented yellow Roses of that class. Rose-cultivators know well that the Tea-scented Rose hybridises freely with almost any variety; there is therefore plenty of room to hope that if a clever English cross-breeder could be induced to settle in the extreme south of France, some fine yellow Hybrid Perpetuals would in time be produced with the aid of the Cloth of Gold Noisette, Vicomtesse Decazes, and that bright but badly shaped Rose La Boule d'Or, which by the way never in the least deserved its name or the high price at which it was sold at. If we could call for restitution from the Rose growers of France for the mistakes of the last 20 years, the money to be spent in new Roses, what a glorious fund we should have!

It is rather odd that although we have made such rapid advances in brilliant coloured Roses—by the way all owing to that abundant seed-producer, General Jacqueminot, we are almost *in statu quo* with respect to bright rose-coloured Roses of the Hybrid Perpetual class. Not one of our new Roses approaches in beauty, in fragrance, in hardiness and perpetuality of flowering, to Jules Margottin. I have a bed of dwarf trees of this sort growing in a soil composed of what is called here "stiff blue clay;" they are about 10 years old, are, or were, on the Manetti stock, and planted so as to cover the junction of the bud; I believe they have struck roots from the young stems, but I know that they are the earliest and most beautiful of all my Roses, and also the latest, for they never cease to give flowers till the buds are destroyed by frost. I think of Mr. W. P.'s dictum when I see this bed of old Roses—"never buy old Roses on the Manetti."

I hope again one day to have the pleasure of reading in your columns a descriptive list of Roses written by Mr. Wm. Paul, and I trust he will then seek out only a few of the best, and tell us which we ought to cultivate, making himself responsible for all that he says, so that if called for, we Rose lovers may bring him to the County Court—of Roses, and fine him in accordance with justice. In writing about new Roses, platitudes, the bane of inexperienced authors, should be avoided—plain descriptions in as few words as possible are all we require.

With regard to the 60 new varieties of Hybrid Perpetual Roses offered to the English florists, by our loving—no, our loving-our-money—neighbours, I fully believe that not one of the 30 or 40 crimson Roses among them will be found equal to many in that beautiful collection (I do not like the word "brood," now used by some roseists, reminding one of a farm yard) sent out in the spring of 1861, among which Charles Lefebvre, Professor Koch, Maurice Bernardin, Duc de Rohan, François Lacharme, and some others are so brilliant and beautiful. *Monte-Rosa.*

FISH AND FISHING.—No. XVI.

(3) How Grayling got to England.

(*Continued from p.* 868)

Piscator: Now recurring to Izaak Walton, he wrote I think about the year 1653, and at the first blush it would seem, that had there then been any tradition as to the introduction of this grayling by the monks, he would have known and have mentioned it in his chapter about grayling.

Cath.: 1653 say you? Would it have been safe for Walton in those days to have said even that much in favour of the monks of old? I fear me that it would have risked his life. Ten years previously, in 1643, you are aware, an ordinance passed the Parliament, directing that "all altars and tables in churches should be utterly taken away and abolished, all communion tables removed from the east end of the church, all rails about them pulled down, all candlesticks, tapers, and basins standing on them taken away, and that all crucifixes, crosses, images, and pictures of any one or more persons of the Trinity or Virgin, and all other images and pictures of Saints and all superstitious inscriptions, whether in church or churchyard, should be obliterated or otherwise destroyed;" and in May 1644, St. Paul's Cross, Charing Cross, and that in Cheapside, London, were actually levelled. Surely it might have brought old Izaak into sore trouble, even to mention the monks in such a fevered time, especially if it amounted to our being in debt to them for the fish, and announcing them public benefactors.

Pisc.: There is much in what you say. Walton was undoubtedly a good and charitable man, too much so to pander to the vices of the times by saying anything against the monks; too wise, and perhaps too much devoted to the Reformed Church, to write and print anything in their favour—wise, for the reasons you have mentioned—devoted, he proves himself to have been, by the introduction into his "Complete Angler" of the lines of Herbert, commencing—

"What! Prayer by the Book? and Common?
Yes, why not?"

And other passages. I do not think he once mentions the monks of old throughout his "Complete Angler." Besides, he was the biographer and lover of one, who wrote so strenuously against the Catholics in his "Pseudo-Martyr," namely, Dr. Donne, of whom Izaak says, "He preached as an angel, *from* a cloud, but not *in* a cloud." The reasons which Sir Humphry Davy assigns for the proposition that grayling are exotic, are that "the rivers that contain it (the grayling) are near the ruins of great monasteries. The Avon, near Salisbury; the Ure, near Fountains Abbey; the Wye, near the great Abbey of Tintern. And," he continues, "if I am not mistaken, in the lower part of this valley* there are the remains of an extensive establishment of friars: and that as a favourite fish of St. Ambrose it was worth cultivating, as well as for its own sake." Sir Humphry Davy does not mistake. At Bromfield, which is in the lower part of the valley, are the remains of a Benedictine cell, built about Henry I., part of which is now the church of Bromfield, and attached to which is still the curious old romantic mill on the Teame. On the same river, or within three or four miles of it, at Wigmore, in Herefordshire, there was also a stately monastery.

Cath.: St. Ambrose, you are aware, was one of the most shining ornaments of the Church of the fourth century—its most zealous supporter. Elected to fill the office of Bishop of Milan, against his own persevering repugnance, and most unexpectedly, by the unanimity of the previously divided people—Catholics and Arians—when he was Governor-General of the province of Milan, and in person proceeding to compose the disorders, he had addressed the violent people assembled in large numbers upon their civil duties, on social order and public tranquillity. His eloquent harangue was followed by the unanimous acclamatory shout, "We will have Ambrose for our Bishop." "In vain," says a modern Protestant author,† "did the Bishop-elect, in order to disqualify himself in the eyes of the people for a sacred office, publicly commit some acts of judicial cruelty and flagrant immorality," (mind you, he was then merely a catechumen, undergoing a probationary claim to baptism into the Church); "the people exclaimed, 'Thy offence be upon our heads.' In vain that he escaped from the city and concealed himself at the residence of a faithful friend; he was discovered and conducted in triumph to Milan." "He enjoyed universal celebrity throughout Christendom, and deserved from succeeding generations the praise that he was the first effectual assertor of those exalted ecclesiastical pretensions so essential to the existence of the Romish system." He wrote also strenuously in favour of fasting. Being then so popular during his life and so venerated at his death, having "honoured" this particular fish, as Walton says, with "a long discourse," and being so zealous a supporter of fasting, there is a great reason to think that the monks of England and Wales might have desired to possess the favoured fish. But let me inquire, is it an ascertained fact that on all rivers where the grayling is found, there formerly stood monasteries or abbeys?

Pisc.: There we require the aid of history and of the antiquary. In passing, let me remark on one of the objections by Sir H. Davy to the proposition. He says: "There are rivers near the ruins of the most magnificent establishments of this kind in Europe, and those nearest the continent, where the grayling is not found; for instance, in the Stour at Canterbury. And if the grayling be an imported fish, it is wonderful that it should not be found in the rivers in Kent and along the south-west coast of England, as in Dorsetshire, Devonshire, and Cornwall, where the monastic establishments were numerous; and why it should be found in some rivers in the mountainous parts of Wales, as in that near Llanwrted" (in Brecknockshire, on the Irvon, 12 miles from Llandovery) and the Dee; not near Valle Crucis Abbey, but 15 miles higher up between Corwen and Bala," which he makes Poiet. answer thus—"It may have been a fish imported from the continent and carried to a number of rivers, only a few of which may have suited its habits, and have remained there and multiplied." To which Hal. replies—"There may be truth in what you are now imagining, for the grayling requires a number of circumstances in a river to enable it to increase." *E. C.*

* Leintwardine, near Ludlow.

† "History of the Church," published by the Society for the Diffusion of Useful Knowledge.

EGYPTIAN GARDENING.

The following extract is from a letter received from Mr. Hardie in June last; owing to circumstances I was prevented from preparing it for your columns earlier. It conveys such an idea of the wonderful productive powers of Egypt that I hope even now it will be thought worthy of insertion.

"The Gardens, Gazeera, Cairo,
May, 1863.

"I have got a fine crop of Grapes here, and have just about finished thinning—a new thing in this country. My men wondered what we were doing, and thought it a sin to cut out the berries. Some of my Vines are very large, measuring from 2 to 2½ feet in circumference. I wish you could see the bunches of some of the old fellows. I can assure you, as a general crop, I have seen nothing to equal them for size of bunches. Many of them measure from 12 to 20 inches long and as much across the shoulders. I will report their weight and quality when ripe. This seems to be one of the finest countries in the world for fruits. The climate being hot is suitable for all of a tropical character, viz., Musas, Custard Apples, or Cherimoyers, of which I ordered two from you, which was like carrying coals to Newcastle. I am raising a lot of seedlings at present. There are plenty of fruit-bearing trees about Alexandria. I have a fine Mango tree with not less than from 500 to 600 fruit set on it; the Guavas are in flower, and setting a fine crop; the Mespilus japonica does well here, also Pomegranates, Figs of sorts, and the Prickly Pear and Grapes. Peaches and Apricots we have gathered for the last two weeks from native seedlings, which are not of fine quality; the fruit is small, dry, and some of it a little acid. We have a small white Apricot from France, a great bearer, rich and delicious; Quinces are fine, but, like the Apple trees, much troubled with the borer, a large grub which eats into the stems, and goes right up through them. Do you know it?—it is white with a black head. Plums, Pears, Apples, Strawberries, all appear to fruit well here, and make enormous growths. The Apples have made shoots from 6 to 12 feet in one season, and strange to say, those shoots on being shortened back have thrown out flower-buds, and are setting fruit; but what is more strange, almost all fruit trees strike from cuttings or layers. Apples strike freely. Some Vine cuttings were put in an open border to strike during the winter; struck they have, and many of them with one and two bunches in full flower at present. I intend to see what they will produce.

"This is the place where Mr. Peter Wallace was, who wrote last year on Egyptian Gardening in the *Chronicle*. Roses do well here, also all tropical plants—it is one vast hothouse. I never saw the Banksian Roses in perfection before. The Weeping Willow grows most luxuriantly, and is here an evergreen; we have two marble fountains planted round with them, as well as a large pond, which is a nice cool retreat in the heat of the day, especially when the fountains are playing, and has a truly Oriental appearance. The Bougainvillea, described by Mr. Wallace, is one sheet of flower. I think it surpasses in beauty any plant I ever saw. The Cinnamon and Pepper tree flourishes; the Cannas and Gladiolus are beautifully in flower; Dracænas; Ficus, of sorts; Gardenias, 6 feet high, and as much through, covered with flowers; Hedychiums often 8 feet high, with beautiful spikes of waxy flowers; Jasmines in perfection; Palms, and Pandanus, Plumbago, Poinsettia, Rondeletia, Russelia juncea, Stephanotis, Vincas, Clerodendrons, &c., too numerous to mention. These plants are all clean and healthy, and do not require the sponge as they do in England. It is a great pleasure to look at them. Geraniums are splendid, and require a good deal of the knife; you might get scarlets any size you like; plenty of them 6 feet high and as much through, and very compact, covered with flowers. The Date tree has a fine picturesque effect in this country, and is a source of great income to its owner.

"I trust I have said enough to give you a slight idea of what gardening is in this old, old country." *T. R.*

PEACHES UNDER GLASS.

In your last issue (p. 939) I have read an article which is intended, I presume, as an answer to some observations of mine which appeared at p. 892; but which article is in fact a reiteration under another form of certain doctrines which I think ought to be controverted; I hope therefore you will allow me to say a few words in that direction.

Admitting the authority of Bouguer, it must be evident to the writer of the article in question, and will I hope be equally so to the readers of this, that the quotation from his tables proves a great deal more than was intended; and shows that, in the exceptional circumstances quoted, the glass roof of an ordinary greenhouse will transmit more light than will be received by a model south wall.

According to Bouguer, as quoted by your correspondent, the loss of light by reflection, when it falls upon glass at an angle of incidence of 85°, is upwards of one half of the whole; that is, when the rays deviate as much as 85° from perpendicular to the surface of the glass.

It is not easy to conceive under what circumstances such a deviation would be possible. It could only take place, I apprehend, when the sun is nearer the north than the south, when the sun would be actually behind the south wall, which would thus turn its back upon itself, as the quotation does upon the argument.

As to the light being "weakened in some proportion to the distance it traverses after passing through the glass," that is by no means a correct statement of the fact; the light which does pass, would pass on, without being weakened (horticulturally speaking), *ad infinitum*.

It is true, as shown in my former communication, that there is less light at a distance from the glass than near it, and to any one who wishes to ascertain the

cause of the difference I would suggest the following experiment.

In an ordinary greenhouse, let him extend his arms so as to embrace a right angle, touching the glass with the points of his fingers, and let him count the number of rafters and sash bars included. Let him then retire to the distance of 10 or 12 feet, and extend his arms in the same manner.

His arms will, in both cases, include the same arc of the sky, and, but for the roof, his eye would receive the same quantity of light. In the latter case, however, the arc will include four or five times the number of rafters and sash bars; and it will be obvious that the so-called "weakening" of the light, ascribed to its traversing a few feet of air, is caused by the obstructive timber of the roof, which merely diminishes its quantity.

If changes are to be made in horticultural structures of glass, with a view to the improvement of their light, the first step is to ascertain the nature of the defect to be remedied; and I apprehend it will not be found in any change suffered by the light after it has passed through the glass.

In the different notices which have appeared in your Paper upon this subject, it has surprised me to find eminent horticulturists testing the effects of the sun's rays by thermometers, which are affected by heat alone, and take no notice of the luminous rays, nor of the chemical rays, which last, to vegetation, may be even more important than either of the others.

I may perhaps be allowed to express some doubts as to the soundness of another opinion contained in the paper under discussion, as to the absolute superiority of the direct rays of the sun in the open air, over the rays received through glass in a house enjoying a better climate, in sunshine, by 10° or 15° of temperature.

We all know how much chemical and physiological action are assisted by heat, and how much they are depressed by its absence. By the aid of a little artificial heat, we see Grapes ripening at Christmas, under the clouds of an English sky: and at Midsummer we see Mr. Glaisher in his balloon, nearly frozen to death in the brightest sunshine, which shone without effect on his photographic paper; the "energia" of the light, as well as that of the aëronaut, being paralysed by the cold.

In England, Peach trees are very grateful for 10 or 15 degrees additional heat. The energia of the light they receive through glass will thus, we may presume, be rendered more effective, as in the case of the Christmas Grapes; and I am inclined to believe that in summer, with the advantage of superior heat, we shall for the reasons given, have sufficient light to ripen Peaches under glass (shaded though they be), equal to any that are grown out of doors. *An Amateur, Clapham, October* 6.

Home Correspondence.

The Teltow Turnip.—I was amused with the inflated account which your Correspondent has given, at page 941, of this curious variety of Turnip. It is by no means such a novelty to English gardeners as he seems to imagine, as its culture in this country dates from 1790; and it is recorded as a fact that the Queen of George III. had supplies of it regularly forwarded from Mecklenburg. By reference to the Transactions of the Horticultural Society, Vol. 6, it will be found to have been first brought under the notice of that body by the late Mr. John Hunneman, who exhibited roots of it in 1822, at one of the meetings of the Society in Regent Street, and communicated some particulars respecting its management in the neighbourhood of Teltauer in Brandenburg, where it is principally grown. The seed is there sown twice a year—in April for the roots to be drawn in July, and again in August, after the Rye or Potato crops have been cleared, for taking up late in autumn and preserving in cellars packed in dry sand, in which it will keep good until the following spring. The poor sandy soil of the Teltauer district seems almost necessary for the growth of this Turnip, as it degenerates when grown at a distance from it. A total absence of manure is said to be essential in order that the roots may attain perfection. That, as a vegetable, it has long been well known and much esteemed in France, Germany, and Holland, for the peculiar flavour which it gives to soups and similar dishes, I readily admit; but I doubt very much if it is entitled to the extravagant praise that your Correspondent has bestowed upon it; and from the warning you have given your friends, I am inclined to think you are of the same opinion. Year after year the Horticultural Society has distributed seeds of this variety of Turnip, and been soundly abused for doing so. [If any of "the upper ten thousand" have a desire to cultivate it for their own use, they will have no difficulty in obtaining seeds from some of our great London seedsmen; but the Council of the Royal Horticultural Society, I trust, will find some better sort of vegetable for distribution than this, and one that will be more acceptable to the Fellows. *F. H. S.*

Royal Horticultural Society.—Will the Secretary be kind enough to explain the reason why the exhibitions before the Fruit and Floral Committees are invariably consigned to a loft where nobody is likely to find them. I hear that the fruit last Tuesday, especially Mr. Meredith's Grapes, was superb, but that not five persons except the Committee saw it. *F.H.S., a Lover of Common Sense.*

Home-grown Cotton Hybridised.—I enclose you a spray and pod of cotton, the produce of a plant which produces brown wool, but whether it is the real Nankin sort I do not know. The flower was fertilised by the pollen of the kind which bear black seeds, naked except at one extremity, where the tuft of cotton is attached to them. The seeds of the brown-woolled parent are entirely clothed with the down. The flower of the male parent has purple blotches at the base of the petals, the female parent none. The cross-bred plant has the purple spots clear and distinct. The cotton, as you will see, is nearly bleached by the influence of the male parent, and the fibre is somewhat less strongly attached to the seed. The plant is extremely vigorous and prolific, and the crossing is effected with certainty. India will probably soon supply the world with quinine from plants raised by English skill in English hot-houses, and there is no reason why the Cotton plant should not be improved thus, and sent out to be grown in our new cotton fields. There exists an immense field for improvement by the intermixture of the many types of the plant and their ramifications. There are, I understand from the books, several cases where certain sorts cannot be grown but in peculiar soils and situations, while others thrive best under totally different circumstances. Again, cases occur where one sort possesses, we will say, quality A and lacks quality B, while the qualities of another are exactly reversed as respects the first named. Here a mutual interchange and equalisation of properties by the skill of the hybridist would tend to improve the plant in an extraordinary way. The specimen I enclose shows how much is done even by a first cross of sorts. I should feel obliged to any persons who may possess, or be able to procure Cotton seeds, if they would send me a few before spring. Native Indian or wild sorts from any part of the world would be most desirable. There is a wild sort named vitifolium, which I should like to experiment upon especially. The Editor will perhaps kindly assist in communicating between myself and any person who may favour me in this matter. *R. T. C.* [We most willingly offer our services. The specimen sent is, we suppose, Gossypium barbadense, which is usually white-woolled. But we have a specimen from Coimbatore, communicated by Dr. Wight, of what looks like that species, in which the wool is brown. It is, however, very difficult to make out the botanical distinctions of the species of Gossypium.]

Ensuring Crops of Fruit.—Mr. Bennett tells us (see p. 942) that Peaches can be procured as good and with as much certainty on open walls as they can be under glass. Does he mean in some localities, or in all parts? If the former, he should have said so; if the latter, I am compelled to doubt the truth of the assertion. I have seen tolerably good crops not 20 miles from Sheffield, but the cold weather comes on before the fruit can be ripened. To have good flavoured Peaches, equal to those obtained under glass, is a rarity in the north of England. I witnessed at one place, in the autumn of 1860, a splendid crop of Peaches, but I was afterwards informed that scarcely any of them became fit for table. By the aid of a flued wall the wood had been ripened, and much care had been bestowed on spring protection, "all adding to expense," but with no good result. In the following spring the trees were found to be almost dead from winter frost. Mr. Bennett has recorded the cheapness of Frigi Domo, but he has not told us what he lost by frost in 1861; and from his own showing I think your readers will be able to judge which would be the cheapest in the end, Frigi Domo or glass protections. If such a season as that of 1861 occurred once, it is probable that some time or other a similar one may be experienced again. The old adage, therefore, that "prevention is better than cure," holds good in this as in many other cases. Frigi Domo may be good, but glass protection is safest and cheapest. *W. R. R.*

Scolytus destructor.—In reply to your inquiries, I have to state that the town of Southampton is approached from the London road through an avenue of Elms, standing upon a fine loamy soil, and that many of the trees contain above a hundred feet of timber. The line of the avenue is north and south. About 30 years ago the trees in a portion of this avenue were divested of their lower branches, and young trees were planted contiguous to them. These trees have never succeeded, and lately the insects are feeding alike upon the larger trees and these younger ones, making incursions upon the joints of their branches; those upon the west side were the first to suffer. The exposure to the south-west wind washed the bark so completely that its corky rind was soaked with water, which gradually extended itself around the entire stem. Twenty-three years ago I submitted to the Corporation drawings of the trees so pruned as compared with those in their natural state, and predicted this result. It must be observed that all those upon the eastern side remained perfect until those upon the western were removed, when in gradual succession they were subjected to the same decay. The trees upon the south end of the avenue, and those upon the continuous line of the north, which have not been pruned, still remain fine timber, and a line of young trees, now from 30 to 40 feet high, are in fine healthy growth. When the outer bark first became loose, and portions were falling off, the Corporation had the stems covered with Forsyth's Composition, and cradled to protect it. *R.* [The foregoing note is a reply to inquiries made by us as to the particulars of the destruction of a plantation of young Elm trees at Southampton, as was supposed, by Scolytus destructor, numerous specimens of which were sent to us, together with portions of several young branches. The latter, however, exhibited no traces of the action of the Scolyti, but were gnarled with numerous deep cracks, extending nearly round the branches, so that the action of the sap was greatly retarded. We have no evidence as to the cause of these wounds, the Scolyti being certainly not chargeable with this part of the mischief which the trees have suffered. *J. O. W.*]

Lilium auratum.—In your Paper of August 15, I observe a suggestion that some of your readers should leave a bulb of Lilium auratum in the open ground to test its hardiness. Having tried the experiment last winter, I think a report of the result may have some interest. The Lily was bloomed by me early in July, 1862, and described in the August number of the "Gardeners' Monthly" of that year. I left two bulbs in the open ground, one as large as a hen's egg, the other the size of a filbert. They were protected with 4 inches of dry leaves, over which boards were laid. The winter, though mild for this part of the world, was far more severe than an ordinary English winter. Both bulbs survived, grew vigorously, and the larger one bloomed some three weeks earlier than L. lancifolium, planted beside them. *F. Parkman, Jamaica Plain, near Boston, U. S. A.*

Sugar Canes.—Can you inform me what is the best treatise on the cultivation of Sugar Canes in our West Indian Isles, and the best works on the islands generally. *T.* [Sloane's Jamaica is always worth consulting; so is Browne's Jamaica. Then there is Schomburgk's History of Barbados; and in Hooker's Botanical Miscellany, vol. i., p. 95, is a good report on Sugar Canes.]

The Florists' Standard of Perfection.—Many of your readers will, I am sure, echo Mr. Fortune's lament for the slavish obedience to fashion, and for the arbitrary standard acted on by florists, in their endeavours to beautify our parterres and greenhouses. Let all due praise be given to florists for the wonders they have effected; they have done so much that they have taught us how much more they might do were they so inclined. Can they not be persuaded, or some of them at least, to adopt a less arbitrary and unvarying, and a more rational standard of perfection? Surely plant lovers might agree upon certain general principles and lay down certain canons to be adopted with a degree of latitude, so as to allow sufficient liberty to the subject, without being tied down despotically to an unnatural uniformity, or allowed to run rampantly into anarchy. One such rule might be laid down thus:—"Consult the genius of the plant in all." Take the Pelargonium or the Pansy as illustrations. These flowers under ordinary circumstances have a form referrible to what artists call bi-lateral or linear symmetry—the right and left divisions of the flower are nearly alike, while the upper and lower divisions differ. The florist, instead of availing himself of this indication, endeavours with more or less success to counteract it, and to produce a flower with a circular outline, exemplifying the so-called "radiating symmetry." Occasionally, it is true, a Pelargonium will sport into a circular form, but what happens? Not a mere change in outline, but a change in colour, in direction, an addition to, or a suppression of some of the parts present in an ordinary flower—changes of great interest to the botanist and real flower-lover, and frequently of great beauty, but changes which are practically ignored by the florist *pur et simple.* I will not trespass on your space with other illustrations, but I would ask the florists to consider, whether in attempting to give to one flower the shape that belongs of right to another, and thus overlooking that most important element of beauty—fitness of things—they are not exposing themselves to such ridicule as that spoken of by Horace, when—

> "If a painter should design
> A human visage, and subjoin
> A horse's neck, with plumage swoll'n,
> And limbs from various creatures stol'n,
> Until the figure, in th' event,
> Which for a beauteous dame was meant,
> At length most scandalously ends
> In a black fish's tail; my friends,
> Admitted to so strange a sight,
> Would not your laughter be outright?"

Maxwell T. Masters.

Swallows.—One of your Correspondents states that the swallows in his neighbourhood have delayed their autumnal flight later than usual, and that he had observed them as late as the 10th of September. Here, in Torquay, on the 1st of October, swallows may still be seen. At this moment I see them from my window skimming over the Torre Abbey Fields, and darting in and out amongst the avenues of Lime trees that form so attractive an object to this place. A few days ago I observed a congregation of swallows evidently meditating their periodical "flitting." There are still some hundreds left. I may add that the climate here is the mildest in all England, as is shown by Mr. Vivian's well-known meteorological tables extending over 20 years. *J. T. White, 3, Western Terrace, Torquay, Devon.*

Marigolds.—One of your correspondents inquires in

your issue of the 26th ult. about a Marigold called the New Orange French; this we beg to say was first raised at Dedham and sent out by us about 3 years ago. *James Carter & Co., High Holborn.*

Societies.

Royal Horticultural: *Oct.* 2.—The Duke of Buccleuch, President, in the Chair. The following candidates were elected, viz.:—

J. Brand, Esq.; Mrs. Bucknill, Mrs. Cahill, S. Gibbins, Esq.; C. Grimwade, Esq.; Major-General Hutt, Miss Otway Mayne, and F. J. Sargood, Esq., Ordinary Fellows. D. W. Beadle, Esq., St. Catharine's, Canada West, was elected a Corresponding Member; and H.I.H. The Grand Duke Nicholas of Russia an Honorary Member.

Oct. 6 (*Floral Committee*).—Messrs. E. G. Henderson obtained on this occasion a Second-class Certificate for the white variety (?) of Anemone japonica, called Honorine Jobert. The same firm also furnished various Tree Carnations, white, crimson, and striped; all useful kinds for winter decoration. From Mr. Bull came Pandanus candelabrum, a long narrow-leaved graceful looking plant; the handsome double-blossomed Petunia called Edith; and various zonate Pelargoniums, among which Faust, scarlet, Novelty, beautiful rose, and Favourite, white strongly flushed around the eye with rosy salmon, were the best. Dahlia Mrs. Wheeler, a white variety heavily tipped with cherry, was shown by Mr. Wheeler; a red-shaded orange Dahlia, named G. Griswold, came from Mr. Burgess, of Chelsea; and Dahlia Useful, and another kind, of good colour but faulty in shape, together with different kinds of Belgian Pansies, were furnished by Messrs. Bragg & Co., of Slough. Very fine blooms of a large-flowered variety of Vallota purpurea came from Mr. Parker, of Tooting. To Messrs. Low was awarded a First-class Certificate for a new Dendrobium called eburneum, a white kind from Moulmein, stained with orange red at the base of the lip. The same firm also contributed the charming Sophronitis grandiflora, with one large showy crimson-scarlet bloom on it, measuring nearly three inches across; and two Cattleyas, one of which was named irrorata; both appeared to be closely related to C. elegans.

Oct. 6 (*Fruit Committee*).—Foremost among Grapes, of which a large quantity was exhibited on this occasion, was a magnificent collection from Mr. Meredith, Garston, near Liverpool, to which a first prize was awarded. They consisted of Canon Hall Muscat, and Muscat of Alexandria, Trebbiano, a large and fine bunch of Syrian, Trentham Black, Black Hamburgh, White and Charlesworth Tokay, and the true Black Alicante in splendid condition, the bunch being unusually large, black as Sloes, and covered with a most beautiful bloom. Than this it would be difficult to find a more perfect specimen of good Grape-growing. From the same excellent grower also came a very fine bunch of a white Grape named Garston Seedling, a promising kind, which we hope to see again; also Lady Downes's Seedling, West's St. Peter's, Black Prince, Ingram's Hardy Prolific Muscat, and Snow's Muscat Hamburgh, the two last shrivelled and approaching the condition of raisins, as were likewise different kinds of Frontignan, examples of which were also in the same collection. A bunch of the Royal Vineyard, a new white Grape having some good properties, was shown by Mr. Williams, of Holloway; and from Messrs. Lane, of Great Berkhampstead, came a collection of Grapes consisting of Trentham Black, Golden Hamburgh in good condition, White Frontignan, West's St. Peter's, Muscat of Alexandria, Black, Dutch, Mill Hill, Champion, Pope's and Snow's Muscat Hamburghs, the last plump and good; White Nice, Royal Muscadine, Black Prince, Trebbiano, Muscat Romane, Esperione, large and fine; Bidwill's Seedling, Buckland Sweetwater, Précoce de Malingre, Black Alicante, and Frankenthal, all from a house to which very little artificial heat has been applied. These were considered worthy of an extra prize. Black Hamburgh Grapes from an open wall were shown, we believe, by Mr. Tivey, who again contributed dishes of red and white Currants still in a state of good preservation. A most excellent Melon called Scarlet Perfection, to which a First-class Certificate was awarded, was shown by Messrs. Downie Laird & Laing. Mr. Page, gr. to W. Leaf, Esq., Streatham, had a specimen of Hurst House Seedling Pine Apple weighing 7 lbs., an excellent summer variety, first sent out by Mr. Williams, of Holloway, and deserving to be better known than it is. Mr. Turner contributed an admirable dish of Cox's Orange Pippin Apple, to which a 1st prize was awarded, and the same variety, highly coloured but a little bruised, came from Mr. Rivers. G. Wilson, Esq., Gishurst Cottage, Weybridge, had beautiful examples of Melon and Northern Spy Apples, together with large and fine Chaumontel Pears, all grown in pots in an Orchard house; an extra prize was given to them. From Messrs. Paul & Son came two promising Seedling Apples; good specimens of Golden Reinette, and Pine Apple Russett came from Mr. Spivey; among other Apples we also noticed a handsome dish of Pitmaston Nonpareil; also Cluster Golden Pippin, a small bright yellow kind. Messrs. Pince & Co. again showed their Seedling Grape, of which some account has been given in former reports.

Notices of Books.

Thoughts on Population and Food. By Agrestis. Pp. 206. Longman & Co., London, 1863.

The writer of this little work holds that the happiness and moral well-being of the community depend greatly upon an early initiation into the sanctities of married life, and the elevating influence of virtuous women, as wives and mothers. He therefore advocates moderately early marriages, both among the upper and lower orders. With regard to the former, he reminds us that the public papers have of late been constantly exposing the unhealthy state of affairs; that letters from Belgravia complain that the prospect of marriage is daily becoming less, and with numbers of refined and accomplished ladies the chance is almost desperate. This ought not to be the case, but why it is so, the *Times* has well stated: "In the upper ranks of life there exists an almost universal desire to keep up an appearance, and which, too generally, makes the marriageable of both sexes expect to begin where their parents ended;" or, as another writer has it—"We must bring up our daughters to marry upon less, and curtail all needless expenses to assist them, or take the consequence of their not marrying at all." Agrestis thinks that there is an excess of the seemingly prudential element, and far too little of the real moral element of self-restraint. This however is only by the way. It is with the lower classes of society that our author is most concerned. Here too he thinks the obstructive and anti-connubial system has been too much insisted upon, and maintains that "a well-conducted and willingly laborious healthy couple of full age and strength, who have for a while entertained a genuine fondness for each other, and have means enough between them to furnish a cottage or a decent lodging, and to buy some week's supply of food without credit from the general shop, have an unquestionable right to marry," and might marry with great advantage to the community, but for certain hindrances which he mentions, and which he proposes either to remedy or remove.

One of these is "the ignorance of our females of the lower class in all the details of housekeeping, and especially their inability to prepare invigorating and appetising meals for their hardworking husbands, out of cheap and scanty elements. Scarcely one housemaid in a hundred brought up in good families, has ever paid sufficient attention to the labours of the cook to know how to dress a small joint of meat as it should be; or by what process, and with what ingredients a cheap broth, or vegetable savoury soup can be made agreeable." Agrestis considers that any number of healthy and virtuously brought up children would be like the arrows in the hand of the giant for home defence, and of untold value in our colonies, which latter statement he makes good by several pages of statistics.

The subject on which our author treats naturally resolves itself into the question, how a more abundant supply of nourishing food can be produced? and here he enters with much gusto upon the application of sewage and the cultivation of Italian Rye-grass, which he thinks would greatly increase the supply of meat; and last of all we come to his grand hobby, an adequate supply of pure milk and vegetables. Here, nobody can deny there is room enough for vast improvement.

On the authority of Dr. Lankester, he tells us "there is no type of food so perfect as milk. It really represents all that of which we partake that is not medicinal. That it is so, is found in the fact that the young of all the mammalia are fed on it for months, and get no other food. During this period they grow most rapidly, and increase in size; consequently they must have obtained all that which constitutes their muscle, nerve, bone, and every other tissue, from the milk they take as food." And yet of milk, confessedly so indispensable for the young, the supply is utterly insufficient, the price exorbitant, the quality execrable. "Certain it is that the liquid sold under that name is often deteriorated, even before it reaches the udder of the cow, by the use of stimulating and of watery food, such as brewers' grains, &c.; and it is commonly skimmed afterwards, and more or less abundantly watered." The truth of all this is admitted on all hands, but nobody cares to provide a remedy. The victims are content to be fleeced and imposed upon, and their only practical resistance is simply to go without, to the injury of their young children, and "the deterioration of our race." Agrestis proposes various plans to meet the evil, such for instance as co-operative societies among the poor, the embarkation of capital, by philanthropic and practical men, in the combined production of milk and vegetables, which he believes, and endeavours to prove, would yield an enormous profit. We wish well to the labours of Agrestis, and are only sorry to say, that in page 2 there are some shocking arithmetical mistakes, which tend to shake the reader's faith in his somewhat extensive calculations.

Books Received.—*The Technologist*, No. XXXIX., gives a medico-physiological account of the poisonous *Coriaria ruscifolia*, or Toot plant of New Zealand.——The *Pharmaceutical Journal* for October contains an interesting paper on the destruction of noxious insects by means of a Pyrethrum, called Willemoti, which paper had previously appeared in the Technologist.——In the *Annals and Magazine of Natural History*, No. 70, is a further, and still more interesting paper by Prof. Gulliver on the raphides of Onagrads.——The *Popular Science Review*, No. 9, has some good mycological matter by Mr. M. C. Cooke, who seems to make parasitical Fungi, such as smut, bunt, and the like, his special study.——*Watts' Dictionary of Chemistry* goes as far as Electricity, a good article just begun.——The *Natural History Review* is unusually good and among the best of our periodicals. The number before us includes a capital review of Bentham's Flora Australiensis, a sharp article on Daubeny's late volume on Climate, a sharper but very just show-up of Parlatore's notions about Natural Systems in Botany, an elaborate examination of some recent German Cryptogamic speculations, and other really valuable contributions.

Trade Lists Received.—John Cranston's *Descriptive Catalogue of Selected Roses* for the forthcoming season.——S. Glendinning & Son's (of Chiswick Nursery) *Catalogue of Dutch Flowering Roots for* 1863.——Sutton & Sons' *Autumn Catalogue of Bulbous Flower Roots*; also of *Geraniums, Carnations, Fruit Trees; and a Select List of Seeds.*

Garden Memoranda.

Ringwood Hall, Chesterfield, the Seat of R. Barrow, Esq.—Close to Staveley, and only a short distance from Chesterfield, lies Ringwood Hall, quite invisible from the railway, but in every respect worthy of a visit. Its *specialité* is Grape growing, not because this is the chief feature or done better than anything else; but the fact is, Grapes are grown so well here, that a casual observer would be more struck with them probably than with anything else. Ours was a hurried visit, or we should have taken copious notes of the beautiful grounds. In a semi-circular riband in the flower garden a capital effect was created by using Cerastium tomentosum, Lobelia speciosa, Christine and Brilliant Pelargonium, and Calceolaria Kayi. In beds close by, Flower of Spring Pelargonium completely beat Flower of the Day, and yellow Prince of Orange Calceolaria boldly put in his claim for a first place amongst gardening favourites. Scarlet Pelargonium Attraction is much used here, and was in grand condition, blooming freely, its large trusses and stout foot-stalks seeming to defy the weather. Stella Nosegay Pelargonium filled the centre of a large circular bed, and was in glorious bloom of a rich crimson colour; then came a broad band of the rose-coloured Christine with a broad edging of Cloth of Gold; this was one of the most telling beds we have seen.

Not far off was a decided novelty now-a-days, a riband border of Annuals 60 yards long, which Mr. Petch, the gardener, said cost about 5*s.*; it was undoubtedly a very telling border, and from a distance had an excellent effect. It consisted of Blue Nemophila in the first row, then Sweet Alyssum, dark purple Candytuft, with a back row of Erysimum Peroffskianum.

Mr. Petch grows a good Scarlet Pelargonium for bedding called Souvenir, which is darker than Tom Thumb, and a very free bloomer. A lot of old shouldered plants of Beaton's Imperial Crimson also made a striking bed. Variegated Pelargoniums are extensively used here, and every new sort is tried, but Bijou seems to be one of the best.

A handsome winter garden forms three sides of a square. Camellias and other things are planted out in it. Passiflora Colvilli is yielding festoons of handsome yellow-fruit-studded shoots; and our old friend, Fuchsia Dominiana (which is not grown so much as it should be) is rich in bright-coloured blossoms. In the square is a pretty architectural flower garden harmonising with the handsome conservatory or winter garden, each bed being picked out with stone edging, and the whole interspersed with vases, and Irish and Variegated Yews. Here Pelargonium Christine was indeed gay, and Madame Gassier Verbena, of a light rosy crimson colour, still seemed unrivalled as a bedding sort of this useful colour; in habit, too, it is all that can be desired. In the centre of this garden is an ornamental stone basin bordered with Lobelia Paxtoni and Golden Chain Pelargonium. Lobelia Paxtoni is extensively grown here, and makes a capital bedding plant, Mr. Petch has also this season bloomed many hundred seedlings from Paxtoni, some of which are most valuable bedders, particularly a white kind, the flowers of which are large, and the habit just what we want.

Passing down a flight of steps from the winter garden, we come to the lower flower garden. The first things here to arrest attention were two circular masses of Mrs. Pollock Pelargonium, a superb bedding kind. In this lower garden we noticed a bed of Gold Pheasant Pelargonium, which is a little inferior to Mrs. Pollock, but a fine useful bedder with a bright scarlet flower. Mrs. Milford is used here; it appears to be a sport from Goldleaf, but has tender foliage, and does not stand cold and wet weather so well as some others. Centaurea ragusina is also used, and is a superb silver foliaged plant. Another bed was filled with Silver Chain Pelargonium, a smooth-leaved clear-coloured plant of excellent habit, with rosy carmine flowers. This is a good bedder, so is also Flower of Spring, which together with Silver Chain and Bijou, Mr. Petch regards the three best Silver variegated Geraniums out.

At one end of a range of Vineries is a Strawberry

house, which will soon be filled with plants, in which a succession will be kept up. For this purpose upwards of 2000 strong plants now occupy 32-sized pots, and consist of Black Prince for the first crop in January and February; then Keens' Seedling for March, to be followed in due course by Sir Charles Napier, Carolina Superba, Wonderful, British Queen, and Adair; and for a general crop by Oscar, which is extensively grown here. In the kitchen garden is a range of seven houses —four being for Vines, two for Peaches, and the Strawberry house just alluded to. Each house is 35 feet long, with top and bottom-heat, except the Strawberry-house, which does not require bottom-heat. The trees are planted inside, but the roots go outside, into chambered borders heated with hot-water pipes, and from September until April the outside borders are protected by glass coverings. In the first Vinery are Black Hamburgh, Muscat Hamburgh, and Black Prince. In the second is a Barbarossa, which had grown 40 feet in length since February 1, although it had been stopped five times, and the base of the young wood is 2½ inches in diameter; on this were some superb bunches. Here also was Black Alicante, which Mr. Petch regards as the king of Black Grapes, resembling a Black Hamburgh, but the berry is more oval in form. This keeps a month longer than Lady Downes's. In this house the latter was in good character, and all these black Grapes were compact bunches, with fine berries, and exceedingly well coloured. In one of the Vineries were four kinds of Muscats: — Muscat of Alexandria, Bowood Muscat, Barnes's Muscat, and the Charlesworth Tokay. These were all grown well, but the Charlesworth Tokay had the finest bunch and richest flavour. These Vines have only been planted two years, but they have made fine wood, and promise to furnish a fine crop next year. The Strawberry house has during the summer been occupied by Melons, Capsicums, and Tomatos.

In another vinery, at the lowest part of the garden, are the most superb and by far the best flavoured Black Barbarossa Grapes we have met with. This is rather an old-fashioned house, with a narrow pit running through the centre of it, underneath which are four rows of 4-inch pipes, and in this bed the Black Barbarossas and some Muscats are planted. Mr. Petch considers a strong warmth at the root necessary to flavour this really fine late Grape—for it is fine in every respect as grown here. The bunches had been thinned, and the shoulders shortened so as to produce symmetrical pyramidal bunches of splendid berries. In this house is the Trebbiano, a late white Grape producing a large bunch; the Abbee and other Grapes were also here on trial. In an early Vinery were Black Alicante, which although ripe the first week in June, had fruit now hanging as plump and fresh as ever, and which will hang till Christmas; whilst the bunches of Muscat of Alexandria, ripe at the same time, had commenced shrivelling in August. These few bunches have been left to see how long the Black Alicante can be kept. There are other houses, and ranges of Cucumber and Melon pits, which need not be noticed now. In one of the greenhouses were a few of the new Horse-shoe Pelargoniums, one of the finest of all being Roi d'Italie, with very fine trusses of large superbly formed bright cerise flowers. Madame Lemoine, blush, with large pale rosy salmon centre; and Virgo Marie, a fine white, were amongst the best. The Callicarpa purpurea is grown here for winter decoration. Dwarf compact plants of it clothed with rich bluish-purple berries are very pretty, and tell well on the tables.

Ringwood Hall is easily reached from Staveley or Chesterfield. The place is now in fine order, and is highly creditable to Mr. Petch, the gardener, who has effected great improvements in it during the past eight years.

Miscellaneous.

Japanese Churchyards.—The Japanese, like their neighbours in China, pay great attention to the graves of their dead. They frequently visit them, and place branches of Skimmi (Illicium anisatum), Laurels, and other evergreens, in Bamboo tubes in front of the stones. When these branches wither they remove them and replace them by others. The trade of collecting and selling these branches must be one of considerable magnitude in Japan; they are exposed, in large quantities, for sale in all the cities and villages; one is continually meeting with people carrying them in the streets; and they seem always fresh upon the graves, showing that they are frequently replaced. *Fortune's "Yedo and Peking."*

Infusoria and Germination.—At a recent sitting of the Academy of Sciences, M. Lemaire sent in a paper, in which he endeavoured to show that Infusoria play an important part in germination. If Beans, Lentils, Barley, or Oats be placed upon powdered porcelain, or a wet sponge, in the course of 24 hours, while the above seeds are still hard and horny, numerous Bacteria (animalcules having the shape of sticks) make their appearance; after 48 hours Vibrios and Monads (microscopic worms and specks) appear. If to the distilled water used one or two milligrammes of phenic acid be added, which prevents the development of the infusoria, germination is prevented, but recommences when the phenic acid has evaporated.

Potato Mona's Pride.—We learn that "Mona's Pride" has achieved a great triumph at the show of the Manchester and Liverpool Agricultural Society, held lately at Birkenhead, in Cheshire, the best Potato producing county in England. In the prize list we see that it gained the Society's silver medal. We also find that the Mona's Prides have gained the first prize at the County Kildare Horticultural Exhibition. *Country Paper.* [Sample just received.]

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservary, &c.—Climbers, at least some of the most rambling, will now want a smart dressing where they obstruct light in any material degree. Such as flower on the young wood, and which are now in a ripening condition, or approaching a state of rest, may be pruned in close. Others, such as the late-blooming Passifloras, Combretums, Echites, Ipomœas, Stephanotis, Thunbergias, Mandevillas, &c., which are still thriving, must be regulated with a more gentle hand, cutting away merely barren shoots, and drawing the remainder into somewhat closer festoons, in order to throw sunlight into the interior of the house. Chrysanthemums, though late this season, will soon be the chief feature of attraction, and where these are largely grown they will require some attention. They are very impatient of a close rather warm atmosphere, and if the house contains plants requiring this treatment, the Chrysanthemums should as far as practicable be placed in the coolest part, where air can be given freely on every favourable opportunity; for except they can be pretty fully exposed to air their foliage soon gets attacked and disfigured by mildew, especially if the plants are bushy and well grown. See also that they are kept well watered at the root. Use fire-heat only when absolutely necessary either to prevent the temperature from falling too low or to dry the atmosphere. If such things as Geraniums, Cinerarias, and Calceolarias must be wintered in the same house with Heaths and other hard-wooded plants, they should be kept as much as possible by themselves, as they will require a somewhat closer temperature than hard-wooded plants, but where circumstances admit of it these should occupy a house or pit by themselves. Cinerarias and Geraniums intended for late flowering will do very well in a cold pit if the weather should not prove unfavourable.

FORCING DEPARTMENT.

Pineries.—Plants expected to show early next year will be benefited by being kept in a comparatively dry state for a few weeks previous to subjecting them to a warm moist temperature. The atmosphere should be kept dry, also allow the soil about the roots to become as dry as can be done with safety. Do not, however, subject the plants to a very low temperature, but keep this at from 60° to 65° by means of fire-heat, for although they will bear a considerably low temperature without any apparent injury, those not subjected to any unnecessary extremes will produce the finest fruit; and a short period of comparatively dry treatment will ripen the growth and just as effectually induce a tendency to show fruit as checking the energies of the plant by an unnaturally low temperature, and without any of the ill effects of the latter method. Little dependence can be placed on the weather after this season, therefore see to plants in pits with insufficient means of heating being well protected by means of covering at night; and maintain the command of a rather high temperature by frequently renewing the linings, &c., so as to be prepared for any sudden decrease of heat. Avoid anything approaching excess of atmospheric moisture among young stock, whether in pits, heated by linings, or in better arranged structures; it only tends to promote a too free growth for the amount of light.

Vineries.—Where early forcing is to be carried out attend to previous directions as to keeping the atmosphere moist, as there will be some difficulty in getting Vines to break freely except this is attended to. If circumstances allow of having a bed of fermenting manure inside the house, this will be found the best means of keeping the atmosphere regularly moist, but if this cannot be used the house must be sprinkled with the syringe frequently, and the evaporating troughs kept full. Also see that the roots are afforded a steady gentle warmth, until the buds are fairly swelled; keep the temperature about 50° by fire-heat at night, and 60° by day, letting it rise to 70° on sunny days.

FLOWER GARDEN AND SHRUBBERIES.

As was stated last week, alterations of grounds and planting of Evergreens should now be carried on with dispatch, but on no account attempt planting where the soil is not in good condition; the drier mould is when placed round the roots of newly planted shrubs (provided they are judiciously watered in) the sooner they will emit fresh roots. Mulching is, however, requisite to keep out frost, and earlier in the season to prevent evaporation. Where it can be had Cocoa-nut refuse will doubtless be found useful for this purpose. As tree leaves are always in request either as a fermenting material or for leaf soil, they should be carefully collected. If they are required only as manure they may be stowed away in any bye place and left to rot; but if, as is generally the case, they are in demand as a cheap mode of furnishing bottom-heat to Pines as well as for forcing different kinds of vegetables, some pains should be taken to keep them dry. For this purpose they should be stacked up in some back place or behind the garden walls, where access can be had to them at all times, and after allowing time for them to settle, covered with a coat of thatch to effectually secure them from rain. By these means they will be found in a state fit for use for a twelvemonth to come. If not already done, soils of different kinds should also be collected and stacked in a somewhat similar manner.

HARDY FRUIT AND KITCHEN GARDEN.

Look over fruit stores frequently to see that all is keeping well, and remove any fruit that may show symptoms of decay, so as to prevent the mischief from spreading; attend to gathering fruit as formerly directed. A good stock of Lettuce fit for use should be put into cold frames or turf pits, where they can be protected during frost by means of straw mats or some other efficient covering; also take care to secure a good supply of Endive for winter use. Cauliflowers coming in must be frequently examined; those not wanted for use should be taken up and stored till wanted. Take advantage of the present favourable weather to get manure wheeled on quarters where it will be wanted, and have all ground trenched and ridged as soon as it gets cleared of summer crops. Get Potatos out of the ground as soon as possible; they are now becoming badly diseased, and must be frequently inspected even after they are stored, in order to separate the bad from the good.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Oct. 7, 1863, as observed at the Horticultural Garden

Oct.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 1	18	29.341	29.221	60	48	54.0	55	55	S.W.	.18
Friday 2	19	29.798	29.673	58	51	54 5	55½	55½	S.W.	.03
Satur 3	20	29 948	29.821	62	57	59.5	56	56	S.W.	.00
Sunday 4	21	29.951	29.859	67	31	49.0	57	56	S.W.	.01
Mon. 5	22	29.867	29.821	62	27	49.5	56½	56½	S.W.	.03
Tues. 6	23	29.919	29.831	61	32	46.5	56	56½	E.	.00
Wed. 7	24	29.782	29 682	64	52	58.0	55	56	E.	.20
Average.		29.801	29.698	62.0	42 5	52.3	55.8	55.9		.4u

Oct. 1—Clear; heavy rain; fine.
— 2—Overcast; densely overcast; fine at night.
— 3—Densely clouded, overcast, boisterous at night.
— 4—Densely overcast, cloudy; very fine.
— 5—Slight haze; drizzly; overcast; frosty.
— 6—Earthquake early A.M.; slight fog; very fine; clear; at freezing at night.
— 7—Hazy, slight haze, fine; heavy showers at night.
Mean temperature of the week 1½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending Oct. 17, 1863

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 11..	61 9	42 9	52.4	20	0.34 in.	2	5	2	2	4	12	5	5
Mon. 12..	60.5	42.3	51 4	21	1.00	2	2	3	1	9	6	10	4
Tues. 13..	60.4	42.5	51 5	19	0.33	2	4	4	1	6	9	8	3
Wed. 14..	60.0	41 6	50.3	17	0.50	2	5	4	1	8	8	5	4
Thurs. 15..	58.8	41.0	49.9	18	1.04	2	2	4	1	10	6	4	8
Friday 16..	58.7	40.2	49.4	16	0.56	1	6	5	1	4	8	8	4
Satur. 17..	58.2	41.2	49.7	16	0.31	—	5	5	—	2	11	9	5

The highest temperature during the above period occurred on the 15th, 1842—therm. 74 deg.; and the lowest on the 15th, 1860—therm. 24 deg.

Notices to Correspondents.

Books: *A Country Orchid-lover.* Harvey's "Thesaurus Capensis," vol. ii., part 1, does not contain *all* the Orchids of the region. The descriptions are in English. The price of the Part is 5*s*.

China Grass and Japan Flax: *J Allison.* These materials have a very strong and fine fibre, and appear to be well suited for garden purposes, such as tying up plants, especially where fine ties are requisite. The Yellow Japan Flax would probably be the best where neatness is an object. They are much pleasanter materials to work with than either common or Cuba bast.

Insects: *W J C.* The only work on the insects of Madeira is Wollaston's "Insecta Maderensia," which is confined to the beetles. *W.*

Names of Fruits: *E W.* 1, Beurré d'Aremberg; 2, Lemon Pippin; 3, King of the Pippins.—*J F.* 2, Ne plus Meuris, nearly its usual size, "from the *open ground*;" 1, the same sort, "from an *Orchard-house*," but it is as large as a Catillac, fully 11 inches in circumference.—*W R F.* 1, Crassane; 2, Beurré Bosc; 3, Brown Beurré; 4, Beurré Diel; 5, Passe Colmar; 6, Winter Nelis; 7, St. Germain.‖

Names of Plants: *L G.* 1, probably Thuja compacta; 2, Cupressus macrocarpa; 3, Cupressus torulosa; 4, Juniperus macrocarpa; 5, Juniperus virginiana; 6, Thuja variegata. It must, however, be observed that all these names except 4 are in some measure conjectural, it being impossible to name such things with certainty without their cones.—*A B.* Neither a Truffle nor Yam, but a common Puffball.—*Balshill.* Probably the roots of Alopecurus bulbosus.—*F C.* 1, Cattleya granulosa; 2, Epidendrum ciliare; 3, Epidendrum inversum.—*A Z.* 1, Melilotus leucantha; 2, Chelone glabra.

Oak Galls: *R D S.* They appear to be the common Oak gall that has now become such a pest in some places. Its existence in England is no doubt coeval with that of the Cynips that produces it.

Temperatures: *Halesleigh.* As you observe, although the distance between Greenwich and Chiswick is not great, yet there is often a very considerable difference of temperature between the two places; for instance, on July 18 last, the minimum at Greenwich was 44°.8; at Chiswick 27°, or 5° below freezing. The latter observation was from the indication of one of Negretti and Zambra's first-class thermometers, and as so low a degree was remarkable in July, the figures were doubly underlined at the time. The observation was moreover corroborated by a radiating thermometer by Newman, which at the same time indicated as low as 24 deg. The occasional discrepancy between the temperature of the two places is probably owing to Greenwich being on an elevation. In a long series of years the mean temperature deduced from the registered observations at Greenwich and Chiswick, agree to within a small fraction of a degree. ‖

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The produce of 3 acres of this Wheat, grown 1862, in Essex, was sold to the miller, and realised £19 7*s.* per acre.
This Wheat produced in 1863 nearly 10 quarters per acre, weighing 63 lbs. per Bushel.

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The best of all the competing plants of any "family" of a cereal is ascertained by the most studious comparison of the good qualities they visibly present, *and of the notes of the peculiarities exhibited by each during the whole course of its growth*, such as:—the rapidity with which the parent seed germinates; the manner, time, and extent of the "tillering" of the plant; the period of its earing, blooming, and ripening; its power of withstanding disease, frost, wet, &c.; the *toughness* of its straw, and any other characteristics which are essential to forming a correct decision, and which cannot be determined by even the most careful inspection of the perfect plant.

This best plant is called "*the selection*" of the year (say 1861) in which it is called "A," while another family of the same Wheat known as Z having been observed to exhibit marked superiority has been continued separately, and has given a greater progress during 1862 than has been before obtained in any single year.

The original ear of the large published engraving contained up one of its sides 16 "ranks" (spikelets) of grains, while the "Z family" has produced ears of 18 "ranks," and this, without any increase in the *length* of the ear, the "notches" of the axis on which the spikelets grow being placed more closely together. In a small field of this Z family, ears with 17 "ranks" were quite common, while in other fields of the family "A," *not one such ear could be found.*

This family Z *is now for the first time* offered to the public, and is ready for delivery.

thus obtained, and consists of numerous ears, containing many hundreds, and even thousands, of grains which are planted separately; those of each *ear* being kept quite distinct, as although the best grain of any plant is nearly always found to lie in its best ear, it may be otherwise, and the successive parent *ears* must be preserved. At the following harvest (1862), the best plant forms "*the selection of 1862*," and its produce is continued on the experimental ground, while that of the remaining plants furnishes the annual seed for the farm in the Autumn of 1862, and the crops are in 1863 offered to the public. Thus, the selection sold is that of 1861, or in any year that of two years before; *the latest selection, that of the year immediately preceding, is not sold, being solely employed as the home seed.* The separate ears of a plant are designated by different letters, numbers, or names—as A, Z, &c., and each, with its descendants, forms a "*family*" which may develope some valuable peculiarity.

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CIRENCESTER.
AUTUMN SESSION, 1863.

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CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
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Copies of the Prize Lists and Regulations, with the Statement of Receipts and Expenditure for 1862, may be had on application to the Secretary. GEORGE BEECH, Secretary.

Offices, Rectory Chambers, Temple Row, Birmingham.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1863.

The FIFTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in Bingley Hall, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 1, 2, and 3, when PRIZES to the amount of £1940 will be awarded in the following Divisions, viz.:

FAT CATTLE	.. ..	£784	5 0
FAT SHEEP	.. ..	275	15 0
FAT PIGS	.. ..	60	5 0
BREEDING PIGS	..	76	10 0
CORN and ROOTS	..	68	5 0
POULTRY and PIGEONS		674	4 0

Prize Lists and every information may be obtained from the Secretary.

The ENTRIES CLOSE on SATURDAY, October 31.

JOHN B. LYTHALL, Secretary.

Offices: 13, Temple Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW, 1863.

—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY AFTERNOON, December 7, and four following days.

The Prizes consist of 1825*l.* in money; 60 Silver Medals 6 Silver Cups and a Gold Medal.

The ENTRIES CLOSE on NOVEMBER 2.

Prize Sheets and Printed Forms of Certificates, with full particulars, can be obtained on application to

Mr. DAVID PULLEN, Assistant Secretary,
At the Office of the Honorary Secretary,
Corner of Half Moon Street, Piccadilly, London, W.

N.B.—Applications for Prize Sheets and Forms of Certificates must be addressed to the ASSISTANT SECRETARY as above, and all letters must bear outside the words "SMITHFIELD CLUB."

The Entries for the Implement Department Closed on Oct. 1.

The Agricultural Gazette.

SATURDAY, OCTOBER 10, 1863.

THE time is approaching when the value of straw for fodder will again be determined in the experience of cattle feeders. And we call attention, therefore, to the very valuable and detailed report on this subject read by Dr. CHARLES C. CAMERON, of Dublin, some months ago before the Royal Agricultural Society of Ireland. We shall not quote from him the detailed collection of analyses by VOELCKER, ANDERSON, and himself with which his lecture was illustrated—it will suffice to enumerate the conclusions to which as a chemist these analyses have led him. He learns from them that straw is more valuable when it is cut in the just ripe state than when it is permitted to over-ripen, and that green straw contains a far greater amount of nutriment than is found in it even when just ripe. It appears also that the least nutritious kind of straw equals the best varieties of Turnips in its amount of flesh-forming principles, and greatly exceeds them in its proportion of fat-forming elements. He further gathers that in general the different kinds of straw will be found to stand in the following order, the most nutritious occupying the highest, and the least nutritious, the lowest place:—

1. Pea-haulm.
2. Oat-straw.
3. Bean-straw with the pods.
4. Barley-straw.
5. Wheat-straw.
6. Bean-stalks without the pods.

On the relative values of Irish-grown straw, it appears that when properly harvested, as the specimens had been which were subjected to analysis, properly harvested Irish Oat and Wheat-straws are far more valuable than those of

Scotland, though somewhat less nutritive than those produced in England. They also show that Irish Wheat-straw is often allowed to over-ripen, by which a very large proportion of its nutritive principles is altogether lost, and much of the remainder converted into an insoluble, and therefore less easily digestible state. There is no advantage to the grain gained by allowing it to remain uncut after the upper portion of the stem has changed from a green to a yellowish colour; on the contrary it has been clearly proved that Wheat cut when green yields a greater amount of better grain than when it is allowed to ripen fully; and thus grain, as well as straw, is injured by allowing the crop to stand after it is ripe.

Oat straw is generally more valuable as fodder than Wheat, chiefly because Oats are not so often permitted to over-ripen as Wheat is. They are cut earlier, being more liable to shed their seed; and when there is a greater breadth to be reaped this necessitates an early beginning; and, lastly, it is generally known that over-ripe Oat-straw is worth but little for feeding purposes, as compared with it when still greenish-yellow.

Dr. CAMERON compares good Oat straw with common white Turnips as to the nutritious value of the crop. It appears the former is the better food: Turnips contain but little more than 1 per cent. of flesh-formers, and less than 5 per cent. of fat-formers. Good Oat straw on the other hand includes about 4 per cent. of flesh-formers, and 13 per cent. of fat-formers. In comparison with hay—taking into consideration the prices of both articles—Oat straw also stands high, as will be seen by comparing the following analyses of common meadow hay, and properly harvested straw:—

	Meadow hay. (25 *analyses.*)	Oat straw. (4 *analyses.*)
Water	14.61	14.0
Flesh-forming constituents	8.44	5.0
Respiratory and fatty matters	43.63	13 3
Woody fibre	27.16	63.1
Mineral matter (ash)	6.16	4.6
	100.00	100.00

As to the woody fibre of hay and straw, it appears to have been proved that it is a mistake to suppose it incapable of contributing to the nutrition of animals.

"In the summer of 1859 two German chemists, STOCKHARDT and SUSSDORF, made a series of experiments with the view of ascertaining whether or not the cellulose* of the food of the sheep is assimilated by that animal. The results of this inquiry are of importance, seeing that they clearly prove that even the hardest kinds of cellulose—*lignine*, in fact—are capable of being assimilated by the Ruminants. The animals selected were two wethers, aged respectively five and six years. They were fed—1st, upon hay alone; 2nd, upon hay and Rye-straw; 3rd, upon hay and the sawdust of Poplar wood, which had been exhausted with lye. (To induce the sheep to eat the sawdust, it was found necessary to mix through it some Rye-bran and a little salt); 4th, hay and Pine-wood sawdust, to which was added bran and salt; 5th, Spruce sawdust, bran, and salt; 6th, hay, pulp of linen rags (from the paper maker), and bran. The experiments were carried on from July till November, excepting a short time, during which the animals were turned out on pasture land, to recover from the injurious effects of the fifth series of experiments—produced probably by the resin of the Spruce. The animals, together with their food, drink, and ejecta, were weighed daily. The amount of cellulose in the food was determined, and the proportion of that substance in the ejecta was also ascertained; and as there was a considerable discrepancy between the two amounts, it was evident that the difference represented the weight of the cellulose assimilated by the animals. In this way it was ascertained that from 60 to 70 per cent. of the cellulose of hay, 40 to 60 per cent. of the cellulose of straw, 45 to 50 per cent. of the cellulose of the Poplar wood, 30 to 40 per cent. of the cellulose of the Pine, and 80 per cent. of the cellulose of the paper pulp, was digested."

In order to render a larger portion of this cellulose and lignine digestible, Dr. CAMERON recommends that straw should be cooked; and this recommendation is quite in accordance with the experience of farmers. "When straw in an unprepared state is consumed, a large proportion of its cellulose remains unappropriated, and it is certain that the hard woody fibre protects, by enveloping them, the soluble and easily digestible constituents of the straw, from the action of the gastric juice. He therefore recommends that straw should be either cooked or fermented before being used. An excellent mode of treating straw is to reduce it to chaff, subject it to the action of steam,* and mix it with roots and oil-cake or corn. A cheaper plan is to mix the straw with sliced roots, moisten the mass with water, and allow it to remain until a slight fermentation has set in. This process effectually softens and disintegrates, so to speak, woody fibre, and set free the stores of nutritious matters which it envelopes.

Dr. CAMERON proceeds to quote Mr. BLUNDELL of Southampton, and other experienced men on the actual results of the use of straw in cattle feeding. Mr. BLUNDELL found that dairy cows, in the winter months, if fed on large quantities of roots, particularly Mangels and Carrots, will refuse to eat straw almost entirely and become very lean; but that they will always eat a full portion of sweet well harvested straw, when they get a small and moderate allowance of roots, say, for an ordinary sized cow, 15 lbs. of Mangel three times per day, the roots being given whole, just in the state they come from the store heap. Mr. BLUNDELL gives us the tabulated results of one of his experiments, proving that, by the use of straw, there is to be obtained something more than manure by the feeding of stock:—

COST OF FEEDING AN OX PER WEEK WITH STRAW, &c., ACCORDING TO MR. BLUNDELL.

	s.	d.
4 lbs. of oil-cake per day, or 28 lbs. per week, at 10*l.* per ton	2	6
64 lbs. of roots ditto, or 4 cwt. ditto, at 13*s.* 4*d.* ditto	2	8
20 lbs. of straw feeding, or 1¼ cwt. ditto, at 30*s.* ditto	1	10½
20 lbs. of straw litter, or 1¼ cwt. ditto, at 15*s.* ditto	0	11
Attendance, &c., per week	0	1
	8	0½
Deduct value of manure, per week	1	3½
	6	9
	s.	*d.*
Increased value of ox per week	10	0
Deduct cost of feeding	6	9
Profit	3	3

It is, however, chiefly from the chemical point of view that Dr. CAMERON regards his subject. And assuming that 100 parts of Oat straw contain on an average—1 part of oil, 4 parts of flesh-formers, 10 parts of sugar, gum, and other fat-formers, and 30 parts of digestible fibre, he finds that the farmer buys in a ton of it for 30*s.* the following quantities of feeding material:—22½ lbs. of oil, 90 lbs. of flesh-forming material, 2 cwt. of starch and fat, and 6 cwt. of digestible fibre. Compare, now, this with what the farmer buys for 11*l.* in a ton of oilcake. He there purchases 582 lbs. of flesh-forming substances, 268 lbs. of oil, and 761 lbs. of gum, sugar, &c., and 74 lbs. of fibre. He pays 11*l.* for 2000 lbs. of nutriment in the cake, and 30*s.* for 1000 lbs. of nutriment in the straw. Straw is relatively deficient in the flesh-forming principles, and abounds in the fat-forming elements—of which, however, the most valuable, oil, is the least abundant. If, therefore, we add to it a due proportion of some substance very rich in flesh-formers and oil, the compound will possess, in nicely adjusted proportions, all the elements of nutrition. Perhaps the best kind of food which we could employ for this purpose is Linseed meal. It contains about 24 per cent. of flesh-formers, 35 per cent. of a very bland oil, and 24 per cent. of gum, sugar, and mucilage. As Linseed possesses laxative properties, it cannot be largely employed; the addition, however, of Bean meal—the binding tendency of which is well known—to a diet partly composed of Linseed, will neutralise the relaxing influence of the oily seed.

If oil-cakes be used as an adjunct to straw, Rape-cake will be found more economical than Linseed-cake. If it be free from Mustard, well steamed, and flavoured with a little treacle, or a small quantity of Locust Beans, it will be readily consumed, and even relished, by dairy and fattening stock.

This, then, is the practical conclusion to which all these theoretical considerations lead:—Along with a certain proportion of green food in Swedes or Mangel Wurzel give cooked straw chaff, with which boiled Rape-cake or Linseed-meal, to the extent of from 2 lbs. to 8 lbs. according to the advanced state of the fatting beast, is added daily per head of the herd.

WHAT difference would it make to the manure manufacturers, though London sewage should prove capable of profitable utilization? Is Mr. LAWES likely to lose his custom though 40,000 acres of Grass land and market gardens around London should receive the double blessing which they may then expect? The suggestion, evidently intended by its author to have a personal application, that projects for turning London sewage to account have been hindered by the interested opposition of manure manufacturers, appears to us as weak as it is unworthy: *weak*, for the opposition of manure manufacturers must, looking at it from LIEBIG'S point of view, be the best testimony a sewage projector can desire—and *unworthy*, for everybody knows that Mr. LAWES and Dr. GILBERT are listened to, not as manufacturers, but as scientific men.

We are not aware, indeed, that any sewage scheme has been opposed by manure manufacturers, or that an opinion on the impossibility of turning the waste of London to account has been published by manure manufacturers as a body. They know that their judgment would be regarded (however ignorantly) by the general public as biassed by their interests, and they have accordingly been silent. Mr. LAWES and Dr. GILBERT have, however, frequently written and spoken on the subject, for they on the other hand know that they stand before English agriculturists much more prominently as men of science than as manufacturers. No one is in a better position to form an independent judgment on such a subject. For 20 years experienced in the application of manures—and a student of their effects upon all farm crops for a greater length of time, on a greater scale of application, than any other man—one of a Royal Commission which has now for several years investigated the subject in the hope that some economical solution of the difficulties which surround it may appear—and lastly, without any chance either of benefiting or of suffering by the issue, whatever it might be, of the investigations which this subject has been receiving—no man we say is likely to form a sounder and more influential opinion on it than Mr. LAWES. Knowing how generally this is understood, and what weight accordingly attaches to the judgment he pronounces, the advocates of particular schemes for utilising London sewage have not failed to insinuate that the opinions on this subject of the manufacturers of artificial manures are worthless on the ground of personal bias. And even the great German chemist himself has condescended to a meanness of this kind. He does indeed attack the class generally, but it is with a sufficiently obvious personal intention; and although his attack, so far as it is personal, does not require defence, it is worth while considering its weakness as against manufacturers generally, and their alleged opposition to all schemes for utilising sewage.

There is one consideration which seems to us conclusive on the subject, namely, that water is the cheapest possible carrier of whatever it holds in solution or suspension. The sewage of towns, if ever turned to any use, must carry itself to the place of its application. It will never "pay" to extract its contents by a bulky and heavy precipitation, and send them, after proper desiccation, by railway, cart, or canal to fields a hundred miles away. It must be pumped up bodily, and carried and distributed by its own gravity. For this reason it is that the Thameside manufacturers of "superphosphate" have no personal interest whatever in the solution of the sewage question. We can imagine that if all the phosphates and all the possible ammonia traversing the sewers of London could be extracted easily and cheaply, so as to be saleable at prices below the cost of the one in bones and of the other in guano; then, however useless their opposition might be, this probability would not be regarded by the manure manufacturers with very friendly interest. Even then, however, sewage will be much more valuable for direct application close by than for this analysis and application a hundred miles away. It is near the towns which produce it that it must be applied—to Grass lands below the level at which it can be

* Cellulose is the term applied to the chemical substance which forms woody fibre. The latter is made up of very minute spindle-shaped tubes. In young and succulent plants these tubes are often lined with layers of soft cellulose. In many plants—such as trees—in a certain stage of development, the substance lining the cells is very hard, and is termed lignine. This substance is merely a modification of cellulose; and both resemble in composition sugar and starch so closely, that, by heating them with sulphuric acid, they may be converted into sugar.

* Mr. LAWRENCE, of Cirencester, describes his plan of using chaff as follows:—"We find that, taking a score of bullocks together fattening, they consume, per head per diem, 3 bushels of chaff mixed with just half a hundred weight of pulped roots, exclusive of cake or corn; that is to say, rather more than 2 bushels of chaff are mixed with the roots, and given at two feeds, morning and evening, and the remainder is given with the cake, &c., at the middle day feed, thus:—We use the steaming apparatus of STANLEY, of Peterborough, consisting of a boiler in the centre, in which the steam is generated, and which is connected by a pipe on the left-hand with a large galvanised iron receptacle for steaming food for pigs, and on the right with a large wooden tub lined with copper, in which the cake, mixed with water, is made into a thick soup. Adjoining this is a slate tank of sufficient size to contain one feed for the entire lot of bullocks feeding. Into this tank is laid chaff, about 1 foot deep, upon which a few ladles of soup are thrown in a boiling state; this is thoroughly mixed with the chaff with a three-grained fork, and pressed down firm; and this process is repeated until the slate tank is full, when it is covered down for an hour or two before feeding time. The soup is then found entirely absorbed by the chaff, which has become softened, and prepared for ready digestion."

easily and cheaply delivered—and it will make no difference whatever to the Thameside manufacturers of manures when London sewage has thus received the only agricultural utilisation of which it seems capable.

NOTES ON WEEDS.

BY JAMES BUCKMAN, F.L.S., &C., PROFESSOR OF GEOLOGY AND BOTANY.

The natural order of Umbelliferæ or umbel-bearers are now to be described in reference to their characters as weed plants. They form a well defined group depending upon the umbel, which Prof. Lindley defines as "an inflorescence in which the flowers expand centripetally, and their stalks radiate from a common point." It is a large natural order very variable in quality and medicinal properties, hence the Cicuta virosa, Water Hemlock, Conium maculatum, Common Hemlock, are known as deadly poisons, and are hence avoided by any boy in search of rabbit food; while Petroselinum sativum, Common Parsley, and Anthriscus vulgaris, Hedge Parsley, are esteemed, the former as sheep food and the latter for the rabbits. Mistakes however are fatal, such as that of Petroselinum segetum, Corn Parsley, which will afterwards be reviewed in its character of a poison to sheep, and Æthusa cynapium, Fool's Parsley, equally so to any animal partaking of it in quantity. That the tribe on the whole possesses active principles is in itself a reason for concluding many of its subjects to be weeds. However, it may be remarked that though they may be very active in a green state, and probably the more so the greater the amount of heat and light to which they have been subject, yet blanching as in Celery—and it is stated in Hemlock—makes not only a delicious but wholesome vegetable. Drying, as in haymaking, again dissipates much of the active principle of even the most poisonous, and it is even possible that when ripe, much of the poison of the tribe is converted into aroma, as in the spicy seeds of Caraway and Coriander; the seeds and leaves of the latter, though smelling like crushed bugs when green, have a highly aromatic taste and smell in a state of dryness. In this condition, then, it is not improbable that many species of Umbelliferæ may be wholesome in giving apetetic or flavouring principles, and hence we conclude, as regards the plants of this order which affect the hay field, not to encourage them if constant depasturing be our main object; whilst if not too large, so as to smother Grass growth, they are little objectionable in the rick. In estimating these plants as weeds we may allocate them as follows :—

1. Pasture and agrarian
2. Bank and hedgerow } Umbel-bearers.
3. Water weeds

List of Pasture and Agrarian Umbelliferous Weeds.

Botanical Names.	Trivial Names.	No. of Seeds to a Plant.
1. Petroselinum segetum ..	Corn Parsley	
2. Ægopodium Podagraria ..	Gout-weed	
3. Carum Bulbocastanum ..	Tuberous Caraway	
4. Bunium flexuosum	Earth Nut	
5. Pimpinella Saxifraga ..	Burnet Saxifrage	
6. Beupleurum rotundifolium ..	Hare's Ear	
7. Œnanthe pimpinelloides, and others	Dropwort	
8. Æthusa cynapium	Fool's Parsley ..	2,400
9. Silaus pratensis	Pepper Saxifrage	
10. Pastinaca sativa	Wild Parsnip ..	18,400
11. Heracleum Sphondylium ..	Cow Parsnip	
12. Daucus carota	Common Carrot ..	10,000
13. ,, maritimus	Seaside Carrot	
14. Caucalis daucoides	Bur Parsley	
15. Torilis Anthriscus	Hedge Parsley ..	3,240
16. ,, infesta	Spreading Parsley	
17. ,, nodosa	Knotted Parsley ..	1,800
18. Scandix Pecten-veneris ..	Shepherd's Needle ..	600
19. Coriandrum sativum	Coriander	
20. Anthriscus vulgaris	Wild Hedge Parsley	

1. Corn Parsley only a few years since was quite a rare British plant, it is now however almost coextensive with the cultivation of "seeds," in which we have little doubt it has been principally spread from the continent. The bright green pinnate smooth leaves of the first year of this plant rest quite flat upon the soil, and so prevent the young Clovers occupying that position, but it has lately acquired an importance beyond this, which ought to be described. Prof. Voelcker has more than once had plants sent to him for examination, which had been suspected of poisoning sheep which had depastured upon them. These we ascertained to be the Corn Parsley, and it has such a strong flavour as to render it highly probable that it is of a poisonous nature, though we must confess that, as a general rule, this would be likely to prevent sheep feeding upon it. It can readily be removed by the hoe either in the autumn or the following spring, which would at all events be of benefit to the young Grasses and Clovers. It is in spring that it has been observed in the fields where it has been suspected of doing the injury to sheep.

2. Gout-weed, when it takes possession of a pasture, is a great pest by reason of its large leaves, and its tendency to spread by means of creeping underground stems—rhizomata; its eradication here must proceed upon the principle that the destruction of leaves results in the death of the whole plant, and to this end the leaves should never be allowed to perfect themselves, but should be cut down or pulled as often as they appear.

In the arable field or garden, where this plant is often a pest, forking the rhizomata, or else careful hand-picking after the plough, or in digging, will be found the readiest mode of destroying it. It may however here be noted that although the arable land may produce a large number of weeds which increase by this underground method, yet it is seldom that any besides the Couch is hand-picked, so that the weed picker, while carefully extracting the wires of the Couch Grass, would mostly overlook those of the Corn Bindweed, Corn Thistle, Corn Mint, Coltsfoot, Goutweed, and others of a like character.

3 and 4. These are so much alike as for a long time to have been confounded. They both grow an underground tuber called the Earth-nut or Pig-nut, the latter because eagerly sought after by hogs turned into the meadow in which they grow, and hence the destruction of turf to which pigs have access should be well looked into, as if these Earth-nuts be the object of search it may be well to remove the animals, as they are doing more harm than good. If however it should turn out to be the larvæ or grub of the Melolontha vulgaris, may-bug or cockchafer, these would do more mischief than the pigs, and so the latter would thus act as the farmers' friend in ridding the Grass of such a destructive pest. These plants are easily removed by pulling, but their light growth and innocuous qualities only render them diluents in pasture, and of course Grass cannot grow in the space it occupies.

5. The Burnet Saxifrage; 7, the Dropwort; and 9, Pepper Saxifrage, are weeds in pasture, in proportion to the space they occupy—they are rarely found to any extent in good meadows, but where they prevail indicate a want of cultivation; thick depasturing, by feeding sheep if necessary, will be found most successful in destroying such useless plants and supplementing them by good Grasses.

The Dropwort, of which there are two or three forms, curiously indicate either a proximity to the sea or else the prevalence of former marine conditions—thus its frequent occurrence on the marine sands of the old Severn Sea in the counties of Gloucester, Worcester, Shropshire, and Cheshire mark the position once occupied by a marine strait which formerly separated England and Wales, and so its presence becomes a pretty sure indication that the soil below will consist of those alluvial deposits of sand, mud, and sea-shells which would be expected in an upheaved and exposed sea-bottom.

6. Hare's Ear, a broad-leaved arable weed, remarkable for its structure, sometimes found in quantity in corn and Beans; but only a local plant.

8. The Fool's Parsley is a farm and garden pest, like the Shepherd's Needle, 18; and the Coriander, 19. These are all weeds tracking cultivation, and were probably originally introduced to our country in imported seeds; they are mischievous only in proportion to their quantity, and are only to be kept under by never allowing them to seed on the one hand, or sowing their seeds on the other. They are very injurious in root crops, such as the Turnips, but more especially the Carrot, by smothering the young crop plant, and in our grain crops, because they take room and appropriate food—and they are mostly good livers—and they too often leave a green mass in the bottom of the Wheat and Barley crops, which in growing not only exhale a quantity of moisture contributing to mildew, but render it necessary to wait some time before a crop can be carried to the rick, a fact which results in many a farmer having still a "bit of Barley" to carry when the rest of the harvest has been some time over.

10. Wild Parsnip is so frequent in some parts of the country as to be a pest in the hedgerows and about the borders of the arable field, where it seeds so freely, and its seeds are so prolific, that it will if allowed soon take absolute possession whenever it is once established. It is easily destroyed; the golden rule "never let it seed" is here especially applicable; the root plants of the first year may be destroyed by cutting them off below the crown; if, however, the cut be across the crown itself, it will only result in a multi-headed second year's growth, which will abundantly seed the pest if allowed. It is curious that this plant should be found so soon to become elevated to an esculent in garden cultivation. While however we know that excellent Parsnips can be produced from the wild plant, we confess to the belief that, common as is the weed, it may have sprung from an early introduction to England of the Parsnip as a vegetable.

11. The Cow Parsnip is a pasture weed, which like Hedge Parsley, 15 and 16, and the Anthriscus vulgaris, Wild Hedge Parsley, 20, has got from the thicket and the hedgerow into the meadows, in which its large growth renders it mischievous. Both it and the Wild Parsley are sometimes recommended as food for animals, but the truth is, in a meadow, Grass for the most part is the most profitable plant; and so whatever takes its place is usually inferior in quality. The best way to rid a pasture of the Cow Parsnip or any large umbelliferous plant will be to pull either by hand or with the dock lifter, but while removing the plants from the meadow, where it seldom seeds, we must take care not to let it seed in the hedges or around the borders of the field, as its seeds readily travel in a high wind, and it is thus a plant for which we are too often indebted to a badly kept road side or a careless neighbour.

12, 13. The Wild Carrots, whether inland or littoral, are often great weed pests; they, however, mostly affect the arable fields, banks, and hedge rows, in which they are most prolific in seed; we incline to consider them as varieties, though our experiments would point to the probability of our field and garden Carrots having been derived from the sea-side, a circumstance indeed which is rendered the more likely from the fact that so many of our garden esculents have descended from sea-side originals.

14. The Bur Parsley is spreading as an arable weed, no doubt introduced to our corn fields from the south of Europe or Asiatic Russia in imported seeds. It is more prevalent in the warmer counties of England than elsewhere. We have met with it on the Cotteswolds, but its spread here seems to be checked by the rigid climate not allowing it to ripen its seed.

17. The Knotted Hedge Parsley is much like the above, and indeed is included in the same genus by Mr. Bentham. It is common on the oolites, chalks, and other calcareous formations, where it is often a great pest in seeds, as from its trailing habit it takes up much room, and is not only useless, but, like the preceding, its seeds—small "burrs"—stick into the wool of the sheep, and are troublesome to remove.

Both are easily prevented by clean cultivation, but with these and all umbelliferous arable weeds we must take care and not introduce them with our seeds, and if they have established themselves they should be studied by the farmer with a view to their eradication by the hand or the hoe in the early growth of seeds, as then they will have done but little mischief by their own presence on the one hand, or the check which they offer to the growth of better matter on the other.

The Hedgerow and Water Weeds of the umbelliferous family will be considered in a future paper.

IMPROVED REAPING MACHINE.

Mr. Gray, Brownrigg, East Lothian, has patented an improvement on the ordinary manual delivery reaping machine that is calculated to prove of much practical benefit to the agriculturist. Mr. Gray's improvement has for its object the laying down of the band under the sheaf when it is tilted over from the back of the "reaper," both band and sheaf falling on the ground at the same moment—the band in its proper position underneath the centre of the sheaf, and ready for being tied up by the bandster. This important improvement, which at once does away with all the "lifting" hands on the harvest field, is accomplished in a very simple, but at the same time ingenious manner. To the upper part of the tilting platform, which in this case must be moveable, there is attached a narrow trough-shaped box across the entire breadth of the platform, and provided with a hinged lid, which partially opens at each movement of the platform. This box is for the purpose of receiving the band, which is deposited in it by a female worker, who accompanies the machine in its onward progress, and whose duty it is to see that a fresh band is replaced after the sheaf has been laid on the ground. The band, in its narrow receptacle, cannot fall out till the sheaf is tilted over; and the platform is so adjusted that, no matter whether the grain be long or short in the straw, the band falls immediately underneath the centre of the sheaf. It can easily be seen that were the crop a short one, and the outer edge of the tilting-board set pretty high, the band might be deposited outside of the sheaf altogether, and that the reverse might happen when the straw was long and the platform set low. To provide against either of these contingencies, Mr. Gray has constructed his tilting platform on the telescopic principle, and thus is able to adjust its length to the height of any crop, so as to secure that the band fall in its proper place, ready to be seized by the binder. At the end of the machine, and so placed as to be of readiest access to the arms of the woman who deposits the bands in the groove, is placed a narrow wooden box, containing a sufficient supply of bands for the length of a rig—the supply being renewed at the end, when the horses start for a freshcut. Mr. Gray has made no alteration on the cutting power of the machines, and the one which he is at present exhibiting is an old Gardner & Lindsay's that has done good service in its day. It can thus—and this is one of the great recommendations of the invention—be adapted to any of the manual delivery machines at present in use, so that farmers, in order to avail themselves of its advantages, have only to get the telescopic platform, with grooved trough, fitted to the machines they may have on hand.

On Friday, Sept.—, Mr. Gray exhibited his improved machine at work on a field of Oats belonging to Mr. Elder, Amisfield Mains. The crop was rather short in the straw, and the platform had to be set correspondingly low, but even with this disadvantage, and the fact that the young woman who followed the machine had no previous practice in the laying in of the bands, the work was done in a very satisfactory manner. Among other gentlemen on the ground we observed Mr. Hope, Fenton Barns; Mr. Begbie, Queenstonbank; Mr. Douglas, Athelstaneford; Mr. Dale, Auldhame; Mr. Nelson, Castleton; Mr. P. Shirreff, Haddington, and others—all of whom seemed to be highly pleased with the way in which the band and the sheaf were regularly and

evenly laid down together. As no arrangement had been made for testing the economy of the invention, all that the spectators could determine for themselves was that the plan looked a very feasible one, and was likely to succeed. On Monday however we had the opportunity of seeing the machine at work on a crop of Wheat at Brownrigg, when there was a practical proof given, in the presence of several of the neighbouring farmers, that it is calculated to effect a decided and important saving in the working of the harvest field. We believe the ordinary complement of workers for a machine, independent of the boy who guides the horses and the man who rakes, is eight lifters and four binders—12 in all. In some cases there may be more, but never less. On Monday, upon a heavy crop of Wheat, part of it a good deal laid and twisted, and therefore not so favourable for the inventor, eight people proved amply sufficient to do the work—viz., three girls, one of them following the machine, the other two making bands, and five men binding. The bands were laid with so much regularity and precision that the men, in about as much time as they would have taken had the sheaf been laid down to them in the ordinary way by the lifters, gathered it together, bound it, and laid it up in stook. The invention has another advantage, which will no doubt commend itself to the farming community. As the sheaf has only to be gathered together once before being set up in stook, it is easy to see that there is much less loss than by the present system, where, by the double handling, there is an increased chance of dropping "singles." We believe the opinion of all practical men who have seen the invention is decidedly in its favour. It is simple, not expensive, thoroughly practical, and we have not the slightest doubt that, when once introduced into the market, it will become universally adopted. A saving of four hands out of every 14 in harvest time is a matter of no small consideration to agriculturists, when it is considered how busy they usually are at that season of the year. *Haddington Courier.*

Home Correspondence.

Taking up Potatos.—This is one of the most general and most important of our farm operations at this season. The quantity of Potatos grown in this country and in some particular districts is very great. The crop this year is a large and full one, and thus far not much damaged by "the Potato disease." It is also yet in full growth in some localities, and danger will arise from carelessness or mismanagement in the taking up. Every experienced grower or market gardener knows that if they are taken up before they are ripe, except for immediate use, they will rot in the grave. Now as the period of ripening this year is so uncertain, it behoves every grower to be very watchful as to their state. Ripeness is chiefly denoted by the skin being so firmly set as to resist a smart rubbing of the hand. The haulm is also a criterion. If that retains its greenness, depend upon it the tubers are not fit to take up; but of this be assured, if the haulm has for some time been decaying, and is nearly all decayed, if the tubers retain a whole skin after being rather hard rubbed, then I affirm the crop is fit to take up. This being the case, the most favourable time should be chosen for harvesting them. It is very unpleasant work, and attended with some danger to their keeping, to take them up in a wet and an unseasonable time; far better to wait for weeks rather than to get them up in a wet and dirty state. Should, however, the weather be suitable, too much expedition cannot be exercised in securing them in grave and earthing them down. They will then keep till spring without loss. The mode of taking up Potatos in the district from which I write is easy and simple. They are usually ploughed up with the common plough, but thanks to our inventive mechanicians we have a better implement now, made so by placing a heart-shaped share armed with goose-necked prongs on the nozzle or point of the share. This addition lifts up and spreads the Potatos in a way more ready for the pickers, and saves the expense of forking after the plough. As they are thus thrown out by this arrangement of the plough, it will this year take about 35 women and children to keep a good team in work. The carting and graving is of course carried on at the same time. The grave should not exceed 6 to 7 feet in width, and the slant gradual, so as to finish in a ridge at 4 feet in height. It should be thatched down every night, and be earthed up as soon as convenient after the graving. Small chimneys filled with straw should be left in the ridge or top at 8 to 12 feet intervals to prevent fermentation. The straw will keep out the rains. Care should be used in the picking not to mix the diseased tubers with the sound ones. It has been customary since the commencement of the disease, to have a division of labour amongst the pickers, some to pick the good, others the bad. This practice has been very beneficial in preventing loss in the grave. Many growers prefer cleaning and separating the seed and "chats" from the bulk before finally pitting them. In order to do this, the grave is merely cased with earth just to suffice to keep out the rain. This is very desirable certainly, but it interferes much with the progress of taking up. Several machines have been invented to effect this cleaning and preparation for market, but hitherto they have not met with much favour. They cannot equal the Potato riddle in practised hands, and at present our Potato dealers will have a true and even sample. Indeed, every housekeeper in laying in her weekly stock insists upon their all being of equal size and quality. This is all very right, but good small Potatos are not to be despised, and a moderate-sized tuber is generally much better in quality than a large one. Too much stress is laid upon evenness of sample, not by any means to account for the difference in price. If such a great difference was not made, housekeepers might have excellent Potatos at a moderate price. In the present state of the trade the best qualities make an extreme price, the second secures a price unnecessarily low. *O. F.* [The Potato disease has been extremely destructive in Gloucestershire this autumn.]

Capillary Attraction.—I observe in a late impression that you appear to still adhere to this theory. Mr. Donald states in his pamphlet on Land Drainage: "A certain quantity of water is retained in suspension, and no more; and when dry weather occurs the water suspended is slowly drawn upward from a considerable depth by capillary attraction, bringing with it such organic or inorganic matter as it may have dissolved." Since water is 817 times heavier than common air, the attraction of gravity must overcome capillary attraction in clay soils. According to Mr. Donald's statements, capillary attraction is a fertilising agent in dry weather, and it cannot prevent the descent of water where the land is surcharged with it. I have read somewhere in Morton's "Cyclopedia of Agriculture," that 100 lbs. of dry sand in a bag will take up and hold 25 lbs. of water before it begins to drip; that 100 lbs. of loam will in like manner take up about 40 lbs. of water, and that 100 lbs. of pure dry clay will take up 70 lbs. of water." This shows that land may be saturated to the dripping point by rainfall, and not affected by capillary attraction. *W.* [We do not see that it does.]

Agricultural Education.—A good many people speak and write on this subject as if there were something mysterious connected with farm management. You allowed me to state in No. 35, at page 829, that a thorough knowledge of farm implements, being well grounded in arithmetic, possessing tact for superintending labour and a knowledge of stock, are the most important parts of a practical agriculturist's duties. I may add that being able to keep memoranda that would bear the scrutiny of professional accountants and surveyors, embraces an education which would enable a practical man to meet the requirements of his position. Although my late father was brought up in the capacity of a ploughman, he kept such memoranda of permanent improvements, such as the position and number of drains in the different fields, and what they were filled with; the quantity of seed sown on each field; the date of sowing and reaping; the quantity of grain grown on each field, and when and to whom it was sold and delivered. He drew a skeleton map of the stackyard, and noted down the number of each site, and what field the corn grew upon. Where accounts are kept in a systematic manner it requires very little time each evening to note down all that is required to keep correct memoranda. The Rev. George Wilkins practically illustrated in his lecture at Cirencester, how foolish it is theorists meddling with a science and art of such simplicity as agriculture is supposed to be. Mr. Wilkins, however, appears to ridicule the indisputable fact that sons unconsciously acquire a knowledge of the details connected with their father's profession. Where sympathy exists between father and son, the son unconsciously acquires a knowledge of details. Although I never acted in the capacity of a farm steward, assisting my late father gave me as intimate a knowledge of machinery, the keeping of accounts, and other details as if I had. A great many people labour under the mistaken idea that being well grounded in one branch of science is a qualification for knowing another science and art, such as agriculture, without making it a branch of special study; but this is a mistake. Mr. Wilkins referred to several classes not brought up as farmers who have been successful. The public hear of their success, but not of the blunders in serving their apprenticeship. For instance, one distinguished amateur laid his drain-pipes only 22 inches below the surface. That man is compelled to confine himself to shallow cultivation. Water stands 6 to 18 inches above the bottom of the drain when the subsoil is wet; hence the inferences of experienced drainers. An amateur land-steward told you in 1858 that "large farms are a great loss to the country; that small farms produce more grain, more stock, and employ more labour." This amateur land steward had also the confidence to state at p. 715, for 1859:—"The farmer (with some exceptions), how different a character to the gardener; the generality of farmers are not reading men, do not care for improvements; they will say, 'I shall not bother about new fangled ways.' * * * The sons of farmers rarely talk but of shooting, coursing, trotting, cricketing, billiards, and preaching down labourers' wages, and the poor labourers are ground down to the lowest poverty with 9*s.* and 10*s.* a week for a man to support himself and his wife, and perhaps young family, and house rent" *An Agri. Labourer*

Societies.

Bath and West of England.—The usual monthly meeting of the Council of this Society was held on Saturday last. In the absence of Earl Fortescue, the President, through indisposition, the chair was taken by the Earl of Portsmouth. There were also present Colonels Acland and Luttrell, Rev. T. Phillpotts, Dr. Gillett, Messrs. Archer, Andrews, Badcock, Bruce, C. Bush, R. H. Bush, Cotterell, Dickinson, T. Danger, Davy, Daw, Drewe, H. Fookes, M. Farrant, J. Fry, John Gray, Jonathan Gray, R. N. Grenville, J. Hooper, H. P. Jones, J. E. Knollys, J. Lush, H. G. Moysey, R. May, S. Pitman, G. S. Poole, W. Porter, J. Sillifant, J. W. Sillifant, W. Thompson, E. U. Vidal, J. W. Walrond, H. Williams, Robertson, Goodwin (Editor), &c.

Arts Committee.—Mr. Drewe brought up the report of this committee, and on the motion of Mr. H. Williams, the sum of 200*l.* was voted for the erection of a second building for the exhibition of works of art manufacture, in lieu of the unsatisfactory annexe hitherto used for the purpose.

Stock Prizes.—Mr. Moysey, as chairman of the stock prize list committee, presented a list of prizes recommended to be offered at the Bristol meeting. He said that as the Society was about to visit a large and influential city, it had been thought advisable to add very materially to the value of the prizes for the various kinds and classes of stock. The increase suggested amounted in all to about 152*l.*; but on the other hand, considering that the spring stallion show, tried as an experiment at Exeter, had not answered the expectations of the Council—although he admitted there was a division of opinion on the subject—it was proposed to do away with it, and to endeavour by the offer of good prizes to get a respectable show of horses at the Society's ordinary annual meeting.—The Earl of Portsmouth said nothing could have been a greater failure than the exhibition of horses for riding purposes at Exeter, and he was strongly of opinion that they ought not to give prizes at all for thorough-bred stallions, but to give good prizes for results. With this view he recommended a prize for four-year-old hunting colts, an age at which it was easy to judge of a horse's character and qualities. The truth was the owners of first-class stallions would not show them at all, let them offer whatever prize they might; and he would remind them that though the stock got by a celebrated owner of the Derby (named), fetched a high figure as yearlings, they had greatly disappointed expectation.—A long discussion ensued, in the course of which Colonels Acland and Luttrell, and Messrs. N. Grenville, Pitman, Drewe, and others took part, and subject to renewed consideration at the next meeting of Council, should it be thought necessary, it was resolved that the spring horse show should be discontinued. As the Society will hold its next meeting in Gloucestershire (viz., at Bristol), it was resolved, as a compliment to local breeders, that a special class for Cotteswold sheep shall for this year be instituted; the prizes to be of the same amount as in the other sheep classes. The prizes given at Exeter for Dartmoor sheep not being thought applicable to a meeting at Bristol, were ordered to be discontinued. In accordance with suggestions by Earl Portsmouth, Colonel Acland, Colonel Luttrell, Mr. Pitman, and others, the Horse Classes were entirely remodelled, and in the hope of getting better animals shown, a number of small prizes were done away with, classes were amalgamated, and considerably better prizes were substituted in the old classes retained and the new ones created. The prize list was eventually referred back to the committee to be remodelled in accordance with the suggestions of Council; but it may be stated that, subject to future modification, it is recommended that at the Bristol meeting, the following increased scale of prizes shall be given: Cattle prizes—3-year-old bulls, 20*l.* and 10*l.*, instead of 15*l.* and 8*l.*; young bulls, 20*l.*, 10*l.*, and 5*l.*, instead of 15*l.*, 8*l.*, and 5*l.*; cows in calf, 12*l.*, 8*l.*, and 4*l.*, instead of 12*l.*, 6*l.*, and 3*l.*; heifers in calf, 12*l.*, 8*l.*, 4*l.*, instead of 12*l.* 6*l.*, and 3*l.*; 2-year-old-heifers, 10*l.*, 5*l.*, and 3*l.*, instead of 6*l.*, 4*l.*, and 2*l.* In the sheep classes the prizes for yearling rams are to be raised from 8*l.* and 4*l.* to 10*l.* and 5*l.*, with probably a third prize not as yet settled. In the horse classes there are prizes of 30*l.* and 15*l.* for agricultural stallions; 30*l.* and 10*l.* for the best hunting mare or gelding 4 years old; 20*l.* and 10*l.* for carriage horses; and 10*l.* and 5*l.* for Galloways not over 14½ hands. In reference to the prize list generally, Mr. Fookes said he had had considerable experience in judging, and he considered the prize list as now recommended would give very general satisfaction, and prove creditable to the Society. Owing to the lateness of the hour, the other notices of motion on the Agenda paper were directed to stand over till next meeting.

New Members: Mr. Troyte, Huntsham Court, Bampton; Mr. A. Stewart, Barton House, Gloster; Mr. C. A. Williams.

East Berks: *Oct.* 1.—At the annual meeting of this Society, held at Maidenhead, Mr. Walter, M.P., spoke of the past harvest:—

They had literally seen, in the language of the Psalmist, "the valleys covered over with corn." Of course, in the first place, they were indebted for this to the almost unexampled season; but with all the

influence of the skies they could not have reaped such a harvest if they had not made the best use of the means and appliances within their own power. It pleased Providence to work by human means; and while it did not diminish their feelings of gratitude that they had enjoyed so signally a prolific harvest, they might at the same time congratulate themselves on the skill and industry which had contributed in a large measure to that happy result. He could only speak from his own observation, that since he had introduced steam cultivation on his own farm, the result had been most striking; and in a field which some of them would remember to have seen under the steam plough about this time last year, he had one of the finest crops of Swedes that could be seen in the county. Certainly none of his neighbours could show anything like it. This might be some encouragement to others to introduce the steam plough, which he had no doubt would be employed in cultivation more and more every year, and its results would amply repay the farmer's outlay. But the season had not only been most prolific in its produce, it had also been remarkable for the sensible and pertinent remarks which had been made by many of the speakers at these agricultural meetings. One of the most striking speeches, perhaps, was that delivered at Evesham by the Duke D Aumale, who was a master of our language and well acquainted with our institutions. He pointed to these institutions as an example of the good results derived from free institutions unassisted by Government interference. That noble personage, however, had made one remark, which if he had been better acquainted with this part of the country he would have been led to qualify. He spoke a good deal of the small size of the farm buildings in England as compared with France. Now, in Herefordshire, which was a grazing county, no doubt there was some foundation for the remark; but if he had travelled into Berks or Oxfordshire and other corn-growing counties he would have seen no reason to complain of the want of size in the farm buildings. Certainly his own knowledge of the farm buildings in France led him to a very different conclusion. There was one subject referred to at most of these meetings which had struck him most forcibly, indeed from the great prominence which had been given to it, they must all anticipate to what he alluded—the importance of providing good cottages for the agricultural class. Not a single meeting had been held, and scarcely a speaker had risen, without commenting on that subject. And he confessed he regarded this fact with the more satisfaction, because some years ago he had drawn the attention of his neighbours to it, and only last year he went so far as to propose a prize, which was accepted by that Society, but not competed for. There were some features connected with the system of prizes given by that and other societies on which they had agreed to differ. Prizes were assigned for good conduct to encourage labourers and females for long continuance in one situation. These were matters in which he maintained, and should maintain, that society was not competent to judge; they were private and personal questions that ought to be settled between master and labourer. His own belief was that the great want of cottages in the country had arisen from the unfortunate state of the law of settlement. That law of settlement was intended to give a man a right to relief in a particular parish in consequence of his residing there a certain length of time. The foundation of a man's title to relief was not supposed to be the fact of his residing, but of his working in a particular place. A man's place of residence and work was generally one and the same, and therefore it was supposed as the ground of relief that he must reside a certain length of time in the parish. What was the consequence? By degrees large proprietors of close parishes belonging to one or two persons found it convenient to draw their supply of labour from outlying parishes, and the law of settlement clearly operated as a discouragement to build cottages. Every one must know that cottages were systematically prevented being built in particular parishes in order that landlords living in those parishes might draw their labour from parishes which might be saddled with the relief of the labourers when they came to require it. Every one must see the injustice of such a state of things. What the remedy might be was a different question. His own opinion was inasmuch as they had got a union rate, they should make the area of settlement and rating coincide. He had a very strong feeling that the law of settlement required a remedy, and was one of the main obstacles to the building of cottages. Another evil was that, after all, cottages did not pay. Now, he should be extremely sorry to mislead the company by holding out any expectation that cottages should be made to pay. The Society of Arts had published a circular inviting some clever inventors to send in designs for cottages that should cost only 100*l*. Now, he had had some experience in building cottages, and knew very well what they ought to cost, and he held it an entire delusion to suppose that cottages could be built for such a sum. Mr. Walter then read and commented at some length on the circular of the Society of Arts, showing that the calculation was totally inadmissible, and that the scheme was most likely only to meet the views of some speculative builder, who would run up the cheapest and most unsubstantial fabrics, and who was generally one of the greatest pests of a neighbourhood. He also adverted to the opinion of Lord Walsingham, delivered at the Wayland Agricultural Society, in Norfolk, as to the difficulty of filling cottages after they were built with the sort of men he wished to have. He strongly condemned such an opinion. He did not believe that men in general were so degraded that they would not take pride and pleasure in keeping their cottages in good condition.

Staffordshire.—At the annual meeting of this Society, the Earl of Lichfield thus referred to a prize of 50*l*. offered by himself for the best form of agreement between landlord and tenant, giving security to the tenant for unexhausted improvements, and protecting at the same time the rights of the landlord. He said:—"When he offered the prize, he was quite aware that the security which many tenants preferred was a lease which would ensure their land to them for a great number of years, so that they should have sufficient time to recover the capital laid out. But he knew that although a lease was, in the minds of many, preferable to an agreement, it was objected to by many landlords, and not only by many landlords, but by many tenants also; and as the lease was objected to, he felt that it was of very great importance to the country that an agreement should be generally adopted. Sanguine as he was when he first broached this subject that it would lead to good, his expectations had been much more than realised by the very attentive and patient consideration given to the subject by the committee who sat to adjudicate upon the forms of agreement submitted to them. Their having met and discussed the subject upon so many occasions had, independently of the agreement which had been the result of it, produced a great deal of good, by informing both landlords and tenants more accurately upon various subjects of interest to both classes. He had derived a great deal of information by attending the meetings of the committee, and had been glad to hear discussed subjects which he had not hitherto thoroughly understood. The agreement which had been fixed upon to obtain the prize would not perhaps be found to be perfect; but he thought it would be acceptable to a great number if not all of the landlords and all the tenants in the county. The agreement was wanted in that county especially to encourage the sinking of capital in land—capital which ought to be laid out on the land, but which was not laid out upon it, because there was neither law nor custom which would ensure to the tenant fair compensation for his loss in case his tenancy should expire whilst his improvements were unexhausted. In Lincolnshire there was a custom which secured the tenant against loss in such cases; and from all that he could learn, the custom had a beneficial effect upon the farming of the county. Lincolnshire was, he believed, the only county in which such a custom existed; and, as he had said, its working there was such as to encourage both the landlords and tenants of Staffordshire to endeavour to obtain the same results by adopting a form of agreement, securing the tenant compensation. There were altogether 47 agreements sent in to the committee, including almost every description of agreement that could well be drawn up. The one that was selected for the prize was drawn up by an agriculturist who was well known in Staffordshire, Mr. May, of Helford Park. In a large meeting of the committee there was no difference of opinion whatever; but it was unanimously considered that Mr. May's form of agreement was the best. He feared he might cause some disappointment by adding, it was not the intention of the committee to publish that form of agreement for the present, because they felt that before committing themselves to it they ought to take the advice of some of the agents upon it. He thought it would require very little alteration indeed. The committee had agreed to keep together until they should have arrived at a final decision on the subject. The agreement contained a clause giving the tenant security for unexhausted improvements remaining at the expiration of his tenancy, and provided also for a certain system of cultivation, which, although it presented no difficulties in the shape of restrictions, might be safely said to give encouragement for better farming. It provided that the tenant on quitting should leave his land in proper condition, and no one who was at all likely to be placed in the position of an incoming tenant would for a moment dispute the propriety of that provision.

Huntingdonshire: *Sept.* 30.—*Lord R. Montagu on Agricultural Topics.*—At the annual dinner of this Society, Lord R. Montagu observed that he did not see why a man should in these days be afraid or ashamed of taking a holiday. One of the greatest statesmen of our times, a man whose head was silvered by the snow of years, recently went down to the north on a great occasion and chose to speak on a subject befitting the dignity of the occasion, and that subject was the advantage of holidays. The noble lord showed that it was the duty of every constituency to see that its members kept proper holidays (laughter). Now, that advice would have come with a much better grace from a member of the House of Commons than from a peer. Hon. members in that House sat night after night expecting some motion to be called on. Hour after hour were they waiting on uneasy seats,—11 o'clock came, 12 o'clock struck, and the motion did not come on at all, and then they went home, sometimes without their dinners. He agreed with the noble earl who had spoken on the virtue of holidays. To use language somewhat metaphorical, he might say that by not taking holidays—by engaging too much in particular pursuits, the mind—the mental Wheat—became blighted, the intellectual Potatos got smaller, the moral Turnips got the finger-and-toe disease. (Loud laughter.) But there was another great peer who also went down to the north, who delivered a great speech on a great subject which more nearly touched the agriculturists. The Duke of Argyle said, with a good deal of levity, that all good agriculture was derived from Darwin's work on the "Origin of Species." Perhaps it might be necessary to explain what that theory was. Darwin held that no one species was ever created, but that every one grew out of some one below it. But he did not say how the first came into existence. Take an example of Darwin's mode of treating the subject. Men were not created; monkeys were first made. One little luckless monkey sat down on a chair, and continued using the chair until his tail was worn off, and he became a man. That was the origin of man. And that was a subject chosen by a noble duke on which to enlighten the people of Scotland. (Loud laughter.) His noble friend had alluded to the malt tax. He happened to be one of a deputation who waited on the Chancellor of the Exchequer, who received that deputation very graciously. One Suffolk farmer stated that according to the present law a man might buy sheep in Hertfordshire or Cambridgeshire and export them to Boulogne or any other part of France; he might then come to this country and purchase his malt and export that, having a drawback allowed, and fatten his sheep on that malt and bring the sheep to England to compete with the British farmer in Huntingdonshire or Cambridgeshire. There was one thing at the present show which had struck him with great admiration, and that was the steam plough, which did twice as much work as horses, at a much less cost. Hard soils could be ploughed by steam at 8*s*. or 9*s*. per acre, and softer soils at 5*s*. per acre. As the process became cheaper a man could afford to take in worse soils, and there was many a bog and bad piece of ground which might be turned to advantage and add immensely to our arable land. If there was one feeling in the British heart stronger than another, it was that of independence. Now, by the use of the steam plough we might grow more Wheat, and not be dependent on foreigners. It might be said that although large farmers could invest their money in a steam plough, small farmers were unable to do so. But why should not an agricultural society invest its capital in that manner, and let out the engine to its members at as low a rate as possible? A steam plough or a steam threshing machine might be let out to the farmers in rotation with the greatest possible advantage. But it might be asked, what is to become of those who now use the plough? Now, machines which lightened labour did not injure the labourer at all. On the contrary, it increased the amount of labour, and merely altered its quality. Instead of doing manual labour a man would have to perform more intellectual labour, and therefore he would be a gainer. Although the character of the work might be altered, the labourer would not get less work, and would be altogether placed in a better position than that which he now occupied.

Farmers' Clubs.

Newmarket: *Oct.* 6.—*Lord George Manners, M.P., on Agricultural Affairs.*—At the annual meeting of this Club on Tuesday last, the Chairman (Lord Geo. Manners, in the absence of the Duke of Rutland), in proposing "Prosperity to the Newmarket Farmers' Club," said—

It was a toast of so much importance that he regretted deeply his inability to do justice to it; and he felt that inability the more because, in consequence of a combination of circumstances, he was unable to be present in the town at as early an hour as he could have wished, and, therefore, it was not in his power to devote that time to the inspection of the ploughing field and the show yard as he could have desired; but he was enabled to take counsel with some practical friends whom he had had the pleasure of meeting, and relying, as he was justified in doing, upon their judgment, he was in a position to say that, as far as the ploughing went, there was a decided improvement upon the work that had been done in former years, and, therefore, he was justified in asserting that the chief objects for which the Club was originally instituted were in course of realisation, and that, excellent as was the practice of farming in the locality previously, it was still year by year becoming better and better. This was as it should be, and they would agree with him, that if they were to combat successfully with unrestricted competition and low prices it would not do to stand still. They must strain every nerve to be getting forward. He thought when agriculturists assembled together it was only fitting they should, in some form, express their thankfulness to an allwise Providence for the bountiful harvest which had this year crowned their labours. It was of primary importance that they should have a good harvest this year, because there was still a large class of their countrymen, the operatives in Lancashire, who were wholly unemployed, or at least but partially employed, and therefore to that large body it was of essential importance that during the coming winter prices should rule low; but though low prices were very excellent things for the poor consumer, they were not so good for the producer, be he rich or poor. It was therefore a matter of some gratification to be able to reflect that the present low prices were not owing to increased

importations of foreign Corn, so much as from the state of their own stack yards. He thought he could show by reference to a very few figures that that was the case. On referring to the last returns issued by the Board of Trade, he found that in the eight months ending the 31st of August, 1861, the importations of Wheat amounted to 4,908,000 qrs.; in 1862, to 5,510,000 qrs.; and in 1863 to only 3,595,000 qrs. The imports of Wheat meal in the same period were in 1861, 5,030,000 qrs; in 1862, 5,007,000 qrs.; and in 1863, 3,409,000 qrs. Testing it by the money value of the importations, he found that the value in 1861 was 15,657,000*l.*; in 1862, 14,578*l.*; and in 1863, 8,308,000*l.* He further found that the value of the Wheat and Wheat meal imported from the United States of America amounted in 1861 to 6,340,000*l.*, in 1862 to 6,376,000*l.*, and in 1863 to 3,271,000*l.*, showing, therefore, that there was not only a very material decrease from all countries, but especially—as they might have expected—from the United States of America. He thought this led them to reflect what their position might be as a nation another year, should the unhappy contest in the United States of America continue—and he thought he would be a very sanguine man who fancied he could see the end of it—when the importations must naturally decline more and more, till, after a time, they would become small indeed; and in addition to that—what was far from improbable—if there should be a war on the Continent of Europe, shutting up to a considerable extent the sources of importation; and if, in addition to all that, they should have the misfortune to have a bad harvest, he thought their position would not be altogether satisfactory. Therefore it seemed to him, considering all these matters, that it was wise for them to ponder the deep importance of striving in every way to increase the production of their own soil, and if possible, to diminish the cost of it. He believed that steam cultivation alone would materially assist them in so doing. He must ask permission to express his conviction that they must look to steam cultivation to perform for them the double purpose of diminishing the cost of production, and increasing the amount of produce. In attempting to prove this, he should not offer them any silly theories of his own, but refer for a moment to a pamphlet which had been published by Mr. Hutchinson, Lord Brownlow's agent, in which the subject was fully treated. He dare say that many gentlemen in that room might have seen the pamphlet, and he thought those who had would consider that it deserved attentive consideration. He found from Mr. Hutchinson's statement (these were facts which were the ascertained results of two years continuous working upon a farm cultivated mainly by steam), that the cost of cultivating a farm of 546 acres for two years—by which he meant the cost of preparing the soil for the reception of seed—amounted to 562*l.* 2*s.* 9*d.*, the cost per acre being 7*s.* 4½*d.* The estimated cost upon the same farm of cultivation by horse-power would have been 1180*l.* 11*s.* 2*d.*, and the average 15*s.* 5½*d.*, leaving a balance in favour of steam cultivation of 618*l.* 8*s.* 5*d.*, and a balance upon the acreage of 8*s.* 1½*d.* In addition to this, the money value in the second year of the increased produce was stated to have been 776*l.* 2*s.* 11*d.*, or 98*l.* 2*s.* 11*d.* more than the rent of the farm. He imagined that the correctness of this conclusion must depend mainly upon the number of horses which the steam cultivation would enable the farmer to dispense with. Mr. Hutchinson said that one-third of the ordinary number would be amply sufficient. But, even if it were admitted that they could dispense with half, surely there was a great element of cost withdrawn, and a number of acres which had been employed in growing food for those useless horses would be free to grow food for men, or crops for the purpose of feeding beef and mutton. No doubt the answer to that would be that the maintenance of those horses was necessary for the sake of their manure; but he believed that the increased fertility which would be obtained by the exposure of ten inches of soil to the action of the sun and air would more than counterbalance the fertility obtained by the manure of the horses. Then, again, in catching seasons, especially on clayey soils, when every hour was of importance, and they had a difficulty in getting upon the soil, they would obtain an advantage in steam cultivation. He believed, too, there was no reason why this cultivation by steam should not go on in an emergency by night as well as by day, for the steam horse was never tired, and no amount of work ever put him out of condition. Hitherto the extreme cost of the apparatus had been an effectual bar to its general application; but a public company (the General Steam-Cultivation Company) had been formed under high auspices, by means of which it would be put in the power of every solvent farmer to possess himself of the requisite apparatus; and, further, it would be in his power within four years to become the proprietor of the machinery in question, and to pay for it out of the profits arising from its use. He (Lord G. Manners) would be the last man to introduce any controversial question into that room, or to allude to anything bordering upon politics, least of all should he desire to galvanise the defunct corpse of Protection, but there was one branch of free trade which appeared to him to have worked so exceedingly ill that he really thought a case might be made out for some alteration. He alluded to the free trade in live stock, the effect of which had been to cause a large trade in duty-free vaccine disease, for he believed it was capable of proof that the amount of good British meat lost year by year to the consumer was very far in advance of the amount which had been imported. Therefore the producer was in a materially worse position, and the consumer was materially injured as well. He did not know that it would be necessary positively to prohibit the importation of foreign stock, because it was very well known in London that a great deal of the bad beef was slaughtered in Aberdeen. He could see no reason why, if they chose to slaughter beef in Belgium or Holland, it should not be introduced; but experience had shown that the importation of foreign live stock was a blunder. The only other question which he thought it necessary to allude to was of a more social and domestic nature, viz., the employment of boys and girls in field husbandry. He was not so Utopian as to think that that was to be dispensed with, but he would take that opportunity of suggesting that the employers of labour would do well to take every precaution that a certain amount of judicious surveillance was exercised over them, and that some well qualified person should superintend, as far as possible, the work they were called upon to perform. He knew that was done in many places, and he believed with very happy results. With those few remarks he begged to propose "Prosperity to the Newmarket Farmers' Club."

The remainder of the toasts were of the usual constitutional and local character, but we should not omit to mention that in proposing the health of his Royal Highness the Prince of Wales, the Chairman made the gratifying announcement that her Royal Highness the Princess is in the interesting condition which promises an heir to the throne of these kingdoms, an announcement received with most jubilant applause.

Farm Memoranda.

Dartry.—The demesne includes some 1500 Irish acres; but besides this extensive tract, Lord Cremorne has from time to time taken some land into his own hands, outside the demesne—lands which had been reduced by miscropping, but which are now being put into a regular course of tillage. The close, retentive bottom of the soil common to Dartry and its neighbourhood renders thorough draining absolutely necessary, and although the greater part of the demesne has been drained at some time or other, it has been found necessary to go over some of it a second time, particularly where the drains had been cut rather shallow at first. The draining latterly has been chiefly 4 feet in depth, 1½ inch pipes being the description of tile used for the minor drains. But even thorough draining does not altogether correct the tendency of the Grass lands at Dartry to run to Moss and Rushes, especially when the land is allowed to lie out for some years as pasture. The only preventive is occasional tillage, combining deep cultivation with liberal applications of lime and dung. There are some parts of the demesne which cannot be treated in this manner, and considerable improvement has been effected in such cases by the application of lime in the form of compost with earth, applied after harrowing the surface, which has had the effect of banishing the moss and of rendering the pasture finer. Folding fatting sheep during winter and spring on part of the grounds has also done much good to the Grass, and repeatedly mowing any Rushes which appear on drained land has served to weaken their growth, and thus renders them less troublesome and unsightly.

In several parts of the demesne nasty bottoms of a boggy nature have existed, but these have been for the most part reclaimed, a considerable portion having been improved within the last two years. These bottoms were formerly full of deep holes and sloughs, dangerous to cattle, while the other parts of the surface were of extremely little value for any purpose. The portion which was reclaimed last year was planted with Potatos on the rough surface, in ridges, or "lazy beds," which Mr. Stoddart, his lordship's manager, was obliged to adopt from the nature of the ground, although preferring the drill system. These ridges were manured, and the varieties grown were Skerry Blues and White Rocks. The crop far exceeded every expectation which had been formed regarding it, proving not only large in quantity but also of good quality, and free from disease. It was mostly sown for seed, and was sent to all parts of the country. After the Potatos were dug out, the land was ploughed where this could be done, and dug in those places where horses could not walk. It lay in that state all winter, and was sown last spring with black Tartary Oats, which have yielded a heavy well filled crop. Another portion of land of the same kind lay in its original state until the second week in April of this year, when Mr. Stoddart set about its reclamation, and had it ploughed and grubbed, and afterwards broken with the Norwegian harrow. By the third week in June it was ready for Turnips. Any rough sods left after the Norwegian harrow were gathered and put in the bottom of the drills. Pomeranian Globe Turnip seed was then sown on farm-yard dung, and the result is a capital crop. Other parts were planted with Cabbages, which have done well, and another part of the bog, which had been prepared earlier in the year, was planted in March with the same varieties of Potatos as those which were grown last year, and which promise to turn out fully as good a crop in all respects. In this manner a tract of land which was formerly not only an unprofitable eyesore, but positively dangerous, has been changed into useful land, and this has been done at a cost which was never felt; for it was a sort of bye job, done with the regular labourers about the place, when other work permitted. We should mention that the land had been drained a year or two before it was broken up, but notwithstanding the draining, some spots remained too soft to allow horses to pass over them without sinking.

We consider the state of the green crops on a farm the best index of the management in other respects, and we were much gratified when going over the large green crop break at Dartry to find good crops, bearing every token of good cultivation. The land is not only deeply cultivated during the preparatory working, but the summer culture is also of the most effective nature, the spaces between the drills being thoroughly stirred up by means of a proper drill grubber, and not merely scratched over with a light scuffler. Lime was also applied previous to drilling the land, and as there is a large command of farm-yard dung at Dartry, that alone has been used in growing both Mangels and Swedes. The corn crops are all reaped with the scythe, costing between cutting and stooking 6*s.* an Irish acre. Mr. Stoddart uses the rough, triangular ventilators, which we have so often recommended as most beneficial, especially in an unfavourable harvest, for the use of these ventilators enables one to carry the crop much sooner than it could possibly be done when the corn stacks are built solid in the usual way. The upright triangles are not, however, the only means of ventilation adopted in the case of the large oblong hay ricks at Dartry, for another, framed of the same material—rough poles—runs along the entire length, just about the top of the body of the rick, so that there is a constant current of air passing through the stack.

A few pure bred Short-horns are kept at Dartry, chiefly for the purpose of having some young bulls on the estate for the use of the tenantry. A herd of Ayrshire cows had been kept for the dairy, and these were crossed with Short-horn bulls, chiefly Easter Gift, a capital bull, bred at Glenmore, and a winner when a yearling at a Royal Dublin Spring show. These crosses proved not only useful dairy cattle, but were easily fattened, especially those got by Easter Gift, and the bullocks of that cross, although very moderately kept during the first part of their lives, have brought easily about Christmas, when rising three years old, from 18*l.* to 20*l.* each. Of late a considerable number of the cross-bred cows have been cleared away in order to make room for a lot of cows of the Suffolk breed which Lord Cremorne imported from Sir Edward Kerrison, M.P., whose Suffolks were winners at the Worcester Royal, as well as elsewhere. The Suffolk cattle are much liked in the east of England, being excellent milkers, and very docile. They are all polled, and generally of a yellowish red colour, some of those at Dartry having a few white spots about the flank. They have good skins, clean necks, with a very fair make of carcase, set on short legs. Dartry is the only place in Ireland, so far as we know, where the breed is to be found, and although the Grass in that demesne is not the best, perhaps, for developing the milking properties of any breed of cattle, the results, so far, have been very much in their favour. At the same time, we must remark that their superiority as dairy cows rests more on the quality of the milk they yield than on the quantity; but they also milk steadily throughout the season, and keep long to it. A correct account is kept by the steward of the milk given by the cows daily, as well as the number of pounds of butter produced; and on referring to this record we found that during spring, when the cows were getting some steamed roots with a little bran, the cream of 24 quarts of milk from the Suffolk cows yielded 3 lbs. of butter. At a later period, when the cows were out constantly on the Grass, it took the cream of 9 quarts of their milk to make 1 lb. of butter. These were special trials; for the milk of the Suffolks and of the half-bred Ayrshires is usually put together, and the cream churned without any distinction; but on referring to the milk and butter accounts of the previous year, when Ayrshires or cross-breds alone were kept, Mr. Stoddart finds the amount of butter produced this year considerably increased from the same quantity of milk. Thus, in former seasons it required the cream of 12 quarts of milk to produce 1 lb. of butter;* while this year, with a mixed herd of half-breds and Suffolks, it only requires the cream of a little over 10 quarts of milk to produce a pound of butter. It is probable from the success which has attended the trial of the Suffolks made this year that Lord Cremorne will increase their number—there are at present a dozen of Suffolks at Dartry—and get over a pure bred bull of the same description, so as to keep the herd pure, and ultimately desseminate it through the country, a step which will likely do much good, as the Suffolks are an excellent description of cattle for crossing with short-horn bulls, and are very likely to take with graziers as well as dairymen.

Reviews.

Registration of Title to Land; what it is, why it is needed, and how it may be effected. By Robert Wilson. With Maps and Forms. Longmans.

The title of this book is a sufficient index to the nature and contents of the work, to which a fuller reference must hereafter be made. Meanwhile, as illustrating the history of its subject, and the experience of its author, we quote the following note from one of its pages:—

"My first proposition on the subject of this volume—'Outlines of a plan for adapting the machinery of the Public Funds to the Transfer of Real Property,' 1844, p. 66—was to the best of my belief the first specific and detailed proposition ever made in this country for the registration of title to land. While preparing it, I procured a copy of the report of the Real Property Commissioners on Registration (1830), with its appendix; and learned, for the first time, from a perusal of the appendix, that the general notion of imitating the machinery of the funds had been suggested by Mr. Fonnereau and Mr. Hogg to the Commissioners, though not alluded to in their report.—(Appendix, pp. 11, 52, and 96.)

"My plan was again published in 1846, in an article 'On the Registration of Landed Property,' in the 'Westminster Review,' Vol. 45, p. 107 (in which I dated the forms 20 years forwards, as an estimate of their chance of progress); and again in the same year, in a report of a committee of the Law Amendment Society, recommending 'A Register under which Landed Property would be transferable like Stock in the Public Funds' (which report, with others of the Society's papers, was presented to Parliament in 1851,

* This is about an average yield. Thus, Mr. Horsfall found that in the average composition of milk 16 quarts per day yield 1½ lb. butter. In the case of Mr. Young's cows, reported upon by the late Mr. Haxton, in "Morton's Cyclopædia," it was stated that "the average proportion of milk, cream, and butter to each other is one gallon of cream to nine of milk, and three lb. of butter to one gallon of cream, or 1 lb. of butter to 3 gallons of milk as it comes from the cow." In another case reported by Mr. Haxton it required 14½ quarts of milk to produce 1 lb. of butter. See "Meat Manufacture." [In Morton's "Manual of Dairy Husbandry" it appears that it takes 21 pints of milk on an average to make 1 lb. of butter].

and is printed in the Parliamentary papers of that year); and again in 1850, with an approving mention, and a full set of forms, in the report and appendix of the Registration and Conveyancing Commissioners.

"Since 1850, Registration of Title has been almost constantly before the public. It has been discussed in papers read before the Law Amendment Society, and in reports upon them, and in pamphlets and other publications. In 1853, it was recommended by the report of a Committee of the House of Commons; and in 1857, by the report of the Registration of Title Commission. In 1860, 1861, and 1862, it became law in South Australia, New Zealand, and Victoria. (See copies of Acts presented to Parliament, and Mr. Duffy's 'Land Law of Victoria.') And, in 1862, its introduction into England was commenced by the Chancellor's Land-transfer Act."

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. Slatter, Streatley, near Reading.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Reading of Dry Bulb.	Thermometer. Reading of Wet Bulb.	Wind. Direction.	Wind. Force, 0–6.	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in 24 hours previous 9 A.M. on the Ground.
	Oct.	At 9 A.M., Railway Time.										
Friday ..	2	Inches. 29.82	51°	49°	S.W.	0	10	58°	48°	67°	44°	Inches. 0.40
Saturday ..	3	29.93	50	47	S.W.	2	10	58	50	59	49	0.01
Sunday ..	4	29.97	62	57	S.W.	2	10	62	57	66	55	0.03
Monday ..	5	30.00	47	45	S.W.	0	0	60	36	76	33	..
Tuesday ..	6	30.05	45	42	N.W.	0	0	54	34	58	30	..
Wednesday ..	7	29.75	55	52	S.E.	3	10	53	39	68	34	0.10
Thursday ..	8	29.64	59	57	S.E.	4	7	59	50	65	47	2.40

8. Severe thunderstorm at 2 P.M.: about 2 inches fell within half an hour

Calendar of Operations.

OCTOBER.

Northumberland Farm: *Oct.* 6.—Since our last report (July) the most important period of the year—Harvest—has come and gone. The weather throughout this anxious time has been of an unsettled character, especially during the beginning of September, when we had a long continuance of rain, at the same time having a large breadth of Wheat and Barley standing in stook, and not a single stack in the yard; whilst to make matters worse we were visited by a violent shake-wind on the morning of the 7th, which did sad injury to the ripe Oats and Barley that remained uncut,—knocking down stooks and spreading the sheaves in wild disorder throughout the field. Fortunately, however, it was unaccompanied by much rain, so that it had the effect of putting the Wheat in first rate condition for carting, which was at once proceeded with by all the available force. Subsequent to this we have had a fine time for cutting the remainder of the Oats and Beans, though it has been somewhat unfavourable for carting. However all our White Corn is now in stack, and nothing remains but Beans to be carried. On the whole it has been a long wearying harvest, although we commenced about a fortnight earlier than usual. As usual we have cut our entire crop with a Burgess & Key's Swathe-delivering Reaper, which up to this period has cut about 1700 acres, and seems quite fit to cut as much more. I still hold to the opinion that this is the best machine for the general purposes of reaping on a large farm, for it can cut any kind of crop by judicious application and management, whilst the swathe is evidently the best form in which corn can be delivered. Stackyards have assumed an imposing appearance and are better filled than we have seen them for many seasons, whilst the yield in Wheat is enormous as compared with recent years. Oats and Barley are not an average on the stronger description of soils. We hear of much that has been damaged by the late rains, but we have not experienced anything of the kind here; the small quantity of Wheat that we have already threshed is of first-rate quality, weighing 63½ lbs. per bushel. *J. W.*

Notices to Correspondents.

Steam Engines: *W. A. Wooler.* Thanks for your letter. Your former letter on the subject has been lying a long time before us. This one has now been put into the hands of a competent reporter.

Weight of Joints: *Subscriber for many years.* We will inquire.

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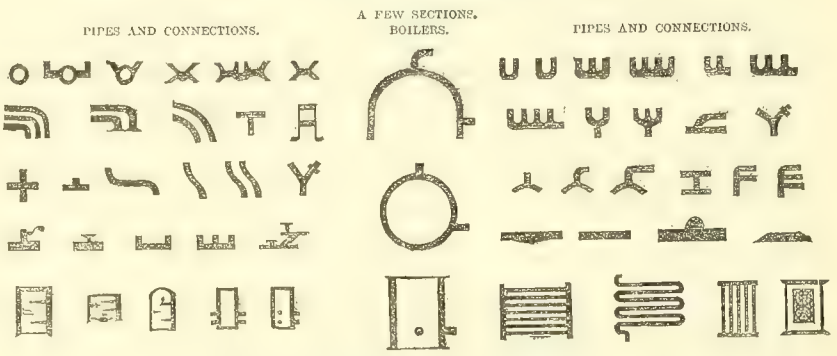
JAMES and FREDERICK HOWARD, BRITANNIA IRON WORKS, BEDFORD.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

HOT-WATER APPARATUS,

FIXED AND UNFIXED.



Detailed Illustrated Lists on application.

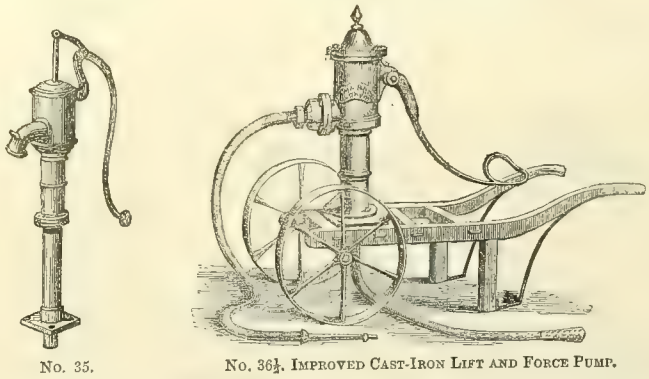
CONSERVATORIES, GREENHOUSES, &c. PATENT STABLE FITTINGS.

EVERY DESCRIPTION OF IRON WORK.

JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. No. 36½. Improved Cast-Iron Lift and Force Pump. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

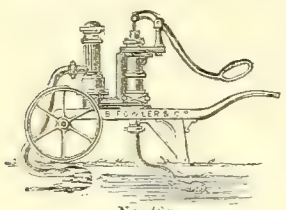
No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

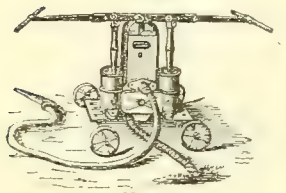
The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

PATENTEES and MANUFACTURERS,

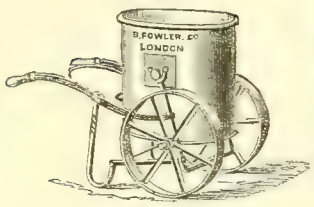
JOHN WARNER and SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.



No. 46a.



No. 50.



No. 49a.

CLINTON & OWENS

(LATE BENJAMIN FOWLER & CO.),

MANUFACTURERS OF

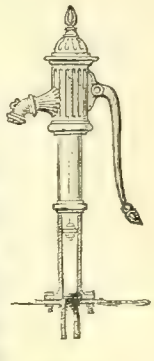
PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON.

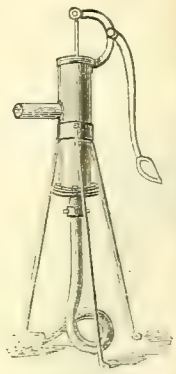


THE Landscape Sketch shows an adaptation of THE IMPROVED HYDRAULIC RAM for forcing water to considerable heights and distances to supply Mansions, Farms, &c., where a few feet fall can be obtained. Full particulars of this useful Self-acting Machine can be had on application.

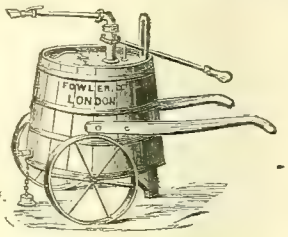
No. 4. FOWLER'S Useful YARD, GARDEN, and COTTAGE PUMPS, from 1*l.* 5*s.* each.
No. 38. FOWLER'S Portable LIQUID MANURE PUMPS, with flexible suction pipe.
No. 46*a*. FOWLER'S DOUBLE-ACTION PORTABLE FORCE PUMPS and FIRE ENGINES for Water or Liquid Manure.



No. 4.



No. 38



No. 49.

No. 50. FOWLER'S Improved (Holman's Patent) DOUBLE-BARREL FARM FIRE ENGINES and IRRIGATING PUMPS.
No. 49. GARDEN ENGINES of all sizes.

No. 49*a*. Improved SWING WATER CARRIERS, holding 24 and 35 gallons, for Garden Use.

Further Particulars, Estimates, and Illustrated Price Lists on application.

THOMAS MILLINGTON,

GLASS MERCHANT. (Established 1750.)

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

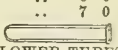
THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY T. MILLINGTON.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home use and for Exportation.



PROPAGATING GLASSES.

2 inches diam.	0*s.* 3½*d.*	each.
3 „ ..	0 4½	„
4 „ ..	0 5½	„
5 „ ..	0 6½	„
6 „ ..	0 8	„
7 „ ..	0 10	„
8 „ ..	1 0	„
9 „ ..	1 2	„
10 „ ..	1 4	„
11 „ ..	1 6	„
12 „ ..	1 9	„
13 „ ..	2 0	„
14 „ ..	2 6	„
15 „ ..	3 0	„
16 „ ..	3 6	„
17 „ ..	4 0	„
18 „ ..	5 0	„
19 „ ..	6 6	„
20 „ ..	7 0	„



FLOWER TUBES.
2*d.* each, or 1*s.* 6*d.* per dozen.



ZINC HAND GLASSES.
Painted and Glazed with 16-oz. Sheet Glass.

12 inches ..	5*s.* 6*d.*	each
14 „ ..	6 6	„
16 „ ..	7 6	„
18 „ ..	8 6	„
20 „ ..	9 6	„
24 „ ..	11 6	„

If open top, 1*s.* extra.



BEE GLASSES.

4 inches diameter	0*s.* 6*d.*	each
5 „	0 8	„
6 „	0 10	„
7 „	1 1	„
8 „	1 4	„
9 „	1 8	„
10 „	2 0	„
11 „	2 6	„
12 „	3 0	„



FLAT TOP BEE GLASSES.

Height.	Width *s. d.*	
4 inches by	7 inches	1 6 each
4½ „ by	7½ „	1 9 „
5½ „ by	7½ „	2 0 „
6½ „ by	8 „	2 3 „
7½ „ by	8½ „	2 10 „

FERN SHADES & STANDS.

Ins. dia.	Shades.	Stands.
6 ..	1*s.* 4*d.* each.	1*s.* 0*d.* each
7 ..	1 8 „	1 3 „
8 ..	2 0 „	1 6 „
9 ..	2 6 „	1 9 „
10 ..	3 3 „	2 0 „
11 ..	4 0 „	2 6 „
12 ..	5 6 „	3 0 „
13 ..	7 6 „	3 6 „
14 ..	10 0 „	4 0 „
15 ..	14 0 „	4 6 „
16 ..	18 6 „	5 0 „



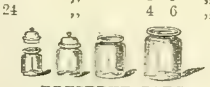
WASP TRAP, 2*s.* 6*d.* per doz.

Crystal Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimneys and Globes, &c.



MILK PANS.

6 inches diameter	0*s.* 6*d.*	each
8 „	0 9	„
10 „	1 0	„
12 „	1 3	„
14 „	1 9	„
16 „	2 3	„
18 „	2 9	„
20 „	3 3	„
22 „	3 9	„
24 „	4 6	„



PRESERVE JARS.

In. diam.	Without Lids.	With Lids.
3 ..	0*s.* 4½*d.* ..	0*s.* 6½*d.* ea.
4 ..	0 6 ..	0 9 „
5 ..	0 8 ..	0 11 „
6 ..	0 10 ..	1 2 „
7 ..	1 0 ..	1 4 „
8 ..	1 4 ..	1 8 „
9 ..	1 8 ..	2 2 „
10 ..	2 0 ..	2 8 „

SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

	300 feet		200 feet.	
	15 oz.	21 oz.	26 oz.	32 oz
Fourths quality ..	33*s.* 6*d.*	33*s.* 6*d.*	39*s.* 6*d.*	45*s.* 0*d*
Thirds do. ..	42 0	42 0	49 0	56 0
Seconds do. ..	62 0	64 0	74 6	85 0
Best do. ..	88 6	88 6	103 6	118 0

CRYSTAL SHEET GLASS.

For Pictures and best Glazing purposes.

Averaging 16 oz. to the foot.

Best quality, in cases of 200 feet .. .. .. 100*s.*
Second quality, in cases of 100 feet .. .. 82*s.*

Averaging 30 oz. to the foot.

Best quality, in cases of 100 feet .. .. .. 100*s.*
Second quality, in cases of 100 feet .. .. 82*s.*

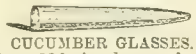


FISH GLOBES.

	Without feet.	With feet.
8 inches diam.		
9 „		
10 „		
11 „	Per lb.	
12 „	7*d.*	9*d.*
13 „		
14 „		
15 „		
16 „		



ROLLING PINS.
From 12 inches long, 1½*d.* per running inch.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1*d.* per running inch.

SQUARES, in 100 and 200 Feet Boxes.

Small Squares not exceeding 9½ inches by 7½ inches.

Ins. Ins.	Ins. Ins.	Ins. Ins.	Ins. Ins.
6 by 4	7 by 5	8 by 6	9 by 7
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½

Per 100 feet.

4ths.	3rds.	2nds.	Best.
9*s.* 9*d.*	11*s.* 3*d.*	13*s.* 9*d.*	16*s.* 9*d.*

Squares not exceeding 14 inches by 11 inches.

10 by 8	12 by 9	12½ by 10½	14½ by 10½
10½ by 6½	12½ by 9½	13 by 10	15 by 10
11 by 9	13 by 9	13½ by 10½	13 by 11
11½ by 9½	12 by 10	14 by 10	14 by 11

Per 100 feet.

4ths.	3rds.	2nds.	Best.
10*s.* 9*d.*	12*s.* 3*d.*	15*s.*	18*s.*

Squares not exceeding 20 inches by 18 inches.

15½ by 10½	14 by 12	17 by 13	24 by 16
16 by 10	14½ by 12½	18 by 13	20 by 17
14½ by 11½	15 by 12	18 by 14	22 by 17
15 by 11	15½ by 12½	22 by 14	24 by 17
15½ by 11½	16 by 12	24 by 14	20 by 18
16 by 11	16½ by 12½	22 by 15	22 by 18
13 by 12	17 by 12	24 by 15	24 by 18
13½ by 12½	18 by 12	22 by 16	

Per 100 feet.

4ths.	3rds.	2nds.	Best.
11*s.* 6*d.*	13*s.* 6*d.*	16*s.* 6*d.*	20*s.*

Orchard House Sizes, as recommended by Mr. Rivers.

	15 oz.		21 oz.	
18 by 12	4ths ..	11*s.* 6*d.*	4ths	15*s.* 0*d.*
20 by 13	3rds ..	13 6	3rds	19 0
20 by 14	2nds ..	16 6	2nds	25 0
20 by 15	Best ..	20 0	Best	30 0
20 by 16				

Per 100 feet.

Squares Cut to Sizes not on List.

	15 oz.				21 oz.			
Under	4ths.	3rds.	2nds.	1st	4ths.	3rds.	2nds.	1st
1 ft. super.	1¼*d.*	1¾*d.*	2*d.*	2¼*d.*	2¼*d.*	2¾*d.*	3¼*d.*	4¼*d*
2 ft. super.	1¾	2	2½	3	2¾	3	4	5¼
3 ft. super.	2	2¼	2¾	3¼	3	3½	4¼	6
4 ft. super.	2¼	2½	3	4	3¼	3¾	4½	6½

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

	Per cwt.—*s. d.*		Per gallon.—*s. d.*		Per gallon.—*s. d.*
GENUINE WHITE LEAD	30 0	FINE OAK VARNISH	10*s.* to 12 0	LINSEED OIL	3 9
ANTI-CORROSION PAINT	28*s.* to 34 0	„ CARRIAGE	12*s.* to 14 0	BOILED OIL	4 2
LINSEED OIL PUTTY	8 0	PATENT DRYERS	per cwt. 28*s.* to 42 0	TURPENTINE	8 6

MILLED LEAD in Sheet and Pipe of all sizes. Old LEAD bought or taken in exchange.

LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of all kinds.

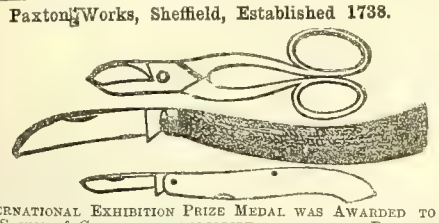
NETT CASH.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they will not be undersold by any House in the Trade. They also warrant one of their Knives to last two of any other make.

Paxton Works, Sheffield.

Paxton Works, Sheffield, Established 1738.

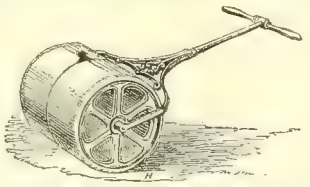


INTERNATIONAL EXHIBITION PRIZE MEDAL WAS AWARDED TO SAYNOR & COOKE FOR SUPERIORITY OF QUALITY IN PRUNING AND BUDDING KNIVES, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

GREEN'S IMPROVED NEW PATENT ROLLER for LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS, &c



These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the very best materials, and are got up in a manner surpassing any ever yet brought out.

PRICES:—

Diameter 30 inches,	length 32 inches	..	..	£7	0	0
,, 24 inches,	,, 26 inches	..	..	4	5	0
,, 20 inches,	,, 22 inches	..	..	3	5	0
,, 16 inches,	,, 17 inches	..	..	2	10	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

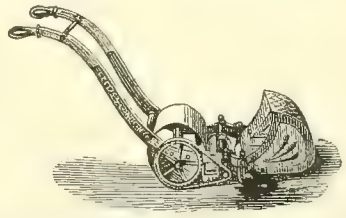
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

Glass for Orchard Houses or Conservatories.

ENGLISH MANUFACTURED SHEET GLASS, 15 and 21 oz. to the foot, in sizes from 9 × 7 to 24 × 20, packed in 100 feet boxes, to be sold cheap.

Apply to WM. H. JACKSON, Plate, Crown, and Sheet Glass Warehouse, 315, Oxford Street, W.

GREEN'S LATEST IMPROVED PATENT NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES, which gained the First Prize Medal of the International Exhibition.



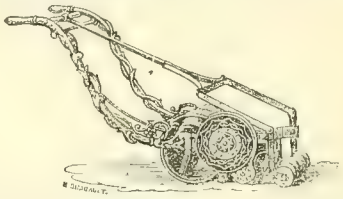
Patronized by Her Most Gracious Majesty the Queen during the seasons of 1862 and 1863.

These Machines have proved to be the best, and have carried off every prize that has been given in all cases of competition.

ILLUSTRATED PRICE LISTS on application.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

SHANKS' NEW IMPROVED LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINES were awarded the First Prize Medal of the International Exhibition.

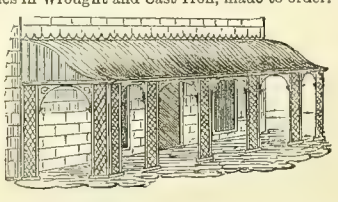


Shanks' Patent Lawn Mowers are in use in the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

These Machines are allowed to be the best and by far the most durable ever offered to the public.

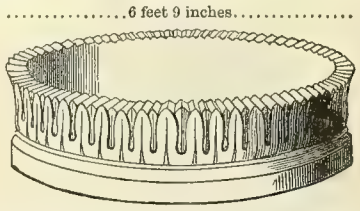
ILLUSTRATED CATALOGUES on application to A. SHANKS & SON, Dens Iron Works, Arbroath; or 27, Leadenhall Street, London, E.C.

VERANDAHS, COVERED WAYS, AWNINGS, CONSERVATORIES, and every description of Roofing and Sashes in Wrought and Cast Iron, made to order.



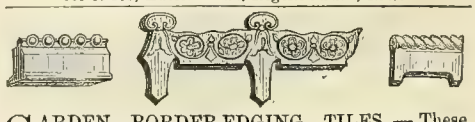
Apply to COTTAM & Co., Manufacturers, (Iron Works) 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

.....6 feet 9 inches.....



AUSTIN, SEELEY, AND CO. beg to inform the Nobility and Gentry that they are prepared to supply, at three months' notice, TAZZE for Flowers or Fountains, as wide as 13 feet. They take this opportunity of referring to some large Flower Basins and Plain Kerbings made by them for the Royal Horticultural Society's Gardens; and also to those lately supplied to the Public Garden in the Regent's Park. They will be happy to forward a List of their Fountains to any gentleman requiring one.

369 to 375, Euston Road, Regent's Park, N.W.



GARDEN BORDER-EDGING TILES.—These Tiles, manufactured in Terra-Cotta, Terro-Metallic Ware, and Red Ware (in the above and other patterns), are recommended in preference to Box and other "grown" Edgings for the following reasons:—They do not harbour slugs and insects, they take up less room, require no attention, are far more durable, and consequently, in the end, prove much cheaper. For Kitchen Gardens, Town, and Sea-side Gardens, they are invaluable.

To be obtained at F. & G. ROSHER'S Wharves, London; Ward's Wharf, Upper Ground Street, Blackfriars, S.; Old Swan Wharf, Queen's Road, Chelsea, S.W.; and Kingsland Road Wharf, near the Canal Bridge, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER at their Premises as above.

JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½d. ...	7¼d.
Seconds	3¾d. ...	5d.
Thirds	2½d. ...	3½d.
Fourths	2¼d. ...	3¼d.

HORTICULTURAL GLASS.

Stock Sizes, 16-ounce. In 100 feet Boxes.

These prices only apply to the sizes stated.

				4ths.		3rds.		4ths.		3rds.	
				s.	d.	s.	d.	s.	d.	s.	d.
11 by 9	12 by 9	13 by 9	14 by 9								
12 „ 10	13 „ 10	14 „ 10	15 „ 10	10	9	12	3	12	6	14	0
13 „ 11	14 „ 11	..	..								
14 „ 12	15 „ 12	15 „ 11	16 „ 11								
18 „ 12	19 „ 12	16 „ 12	17 „ 12								
16 „ 13	17 „ 13	20 „ 12	21 „ 14	11	6	13	6	13	6	16	0
19 „ 13	20 „ 13	18 „ 13	..								
16 „ 14	17 „ 14	21 „ 13	..	14 to 15 ozs. to the foot.				16 to 17 ozs.			
19 „ 14	20 „ 14	18 „ 14	..								

HARTLEY'S

PATENT ROUGH PLATE GLASS.

Packed in Boxes of 50 feet each.

		s.	d.	
6 by 4 and 6½ by 4½	... ...	10	6	per box.
7 „ 5 „ 7½ „ 5½	... ...	12	0	„
8 „ 6 „ 8½ „ 6½	... ...	13	6	„
9 „ 7 „ 9½ „ 7½ and 10 by 8	...	15	0	„

GLASS for ORCHARD HOUSES.

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Packed in 100 feet Boxes.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths ...	11s. 6d.	13s. 6d.	15s. 0d.
20 „ 13	Thirds ...	13s. 6d.	16s. 0d.	19s. 0d.
20 „ 14	Seconds ...	...	English.	English.
20 „ 15	Best ...	...	18s. 0d.	23s. 0d.

The above prices include the Boxes.

We recommend 3rds quality at 16s., or 21-ounce at 19s. (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	}	11s.	6d.
8 „ 6	8½ „ 6⅜	9 „ 7	9½ „ 7½			
		10 „ 8	10½ „ 8½		12	6

Boxes 2s. each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

London Agents for Hartley's Patent Rough Plate.

Perforated Glass for Ventilation.

Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

Glaziers' Diamonds from 10s. to 21s. each.

Glass Tiles and Slates in Sheet and Rough Plate. Plate Glass, Patent Plate, and Hartley's Improved Rough Plate.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD. ANTI-CORROSION PAINT.	LINSEED OIL PUTTY. FINE OAK VARNISH.	FINE OAK CARRIAGE. PATENT DRYERS.	LINSEED OIL. BOILED OIL.

TURPENTINE.

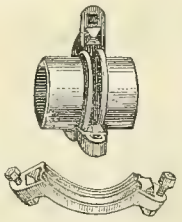
LEAD in SHEETS or CUT to SIZES, LEAD PIPE, LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of every description.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.



HOTHOUSES FOR THE MILLION.



AWARDED A PRIZE MEDAL, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY

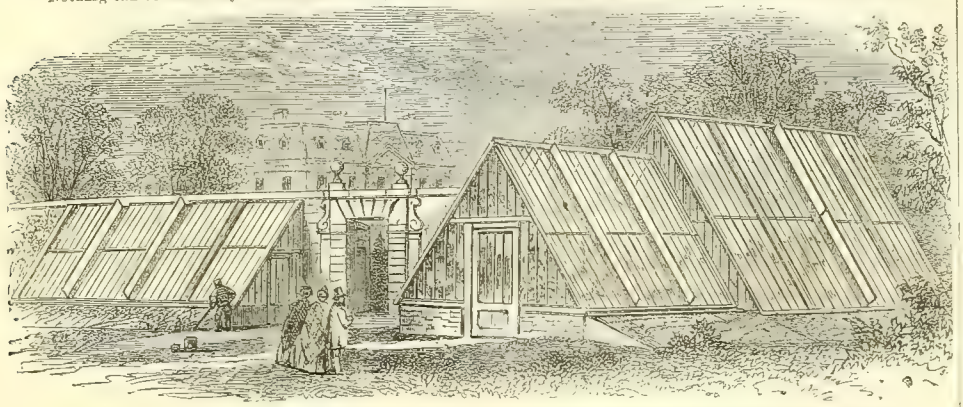
SIR JOSEPH PAXTON, M.P.

COMBINING SIMPLICITY, CHEAPNESS, AND DURABILITY,

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.

"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit can be obtained as the 'Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.



The Cash Prices of LEAN-TO HOUSES, with Water-troughs, Doors and Ends complete, are as follows:—

Ft. In.	8 ft. Lights	10 ft. Lights	Ft. In.	12ft. Lights	14ft. Lights	16ft. Lights
20 7 in length	£12 0 0	£16 0 0	20 11 in length	£21 18 0	£28 10 0	£34 5 0
31 3 in length	16 10 0	21 2 6	31 9 in length	29 6 0	37 12 0	45 16 0
41 11 in length	20 18 0	26 18 6	42 7 in length	36 16 0	46 14 0	57 7 0
63 3 in length	30 6 0	38 10 0	64 3 in length	51 14 0	64 18 0	80 10 0
84 7 in length	39 6 0	49 11 6	85 11 in length	66 12 0	83 2 0	103 11 0
105 11 in length	48 17 6	60 12 6	107 7 in length	81 10 0	101 10 0	126 13 0

SPAN-ROOF HOUSES at double the above prices for each length of house.

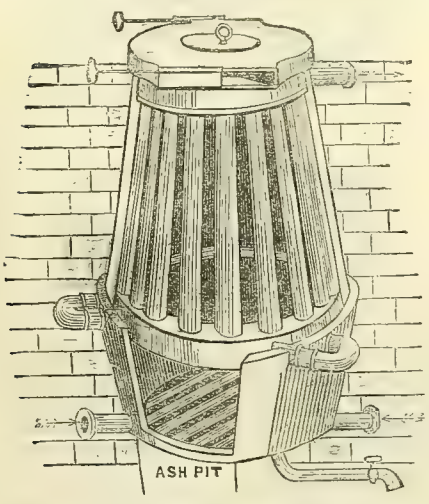
Circulars with Lists of Prices and Cards to view houses in operation in the neighbourhood of London, also Estimates for Heating and Erection complete, can be had on application to

SAMUEL HEREMAN, 7, PALL MALL EAST, LONDON, S.W.

Manufactured in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen, and Paisley.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN, price 1*s.*; post free, 1*s.* 1*d.*

"We cannot do better than advise every reader who has a spark of gardening spirit and taste in him to write at once for a Copy."—*Bell's Weekly Messenger*, March 17, 1862.



BY HER MAJESTY'S ROYAL LETTERS PATENT.

A PUBLIC BOON.

CLARKE'S NEW WATER JACKET FURNACE BOILER,

SHOWING THE PRINCIPLE OF THE PATENT DEFLECTING FLUE-PLATE OR HEAT PRESERVER.

It will be observed from the annexed diagram, that the deflecting flue-plate is placed on the top of the brickwork just level with the top of the Boiler, leaving a clear space for draught all round, consequently, the great pressure of heat from the furnace is concentrated at the top of the Boiler, and kept in close contact with it by means of the two slides which are regulated in front.

These Boilers are now fully acknowledged by a vast number of practical and experienced Gardeners to be the most Powerful and Economical Boilers extant, requiring less attention and fuel by one-half than any other Boiler they have had to manage, and state that the great improvement consists in the Water Jacket Furnace, and the deflecting flue-plate.

Estimates for every description of Heating, with Boiler and Piping complete, erected upon Mr. C.'s new and much approved principle, for top and bottom heat, sent upon the shortest notice, by applying to the Eagle Iron Foundry, 25, Seel Street, Liverpool. T. C. CLARKE, Proprietor.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

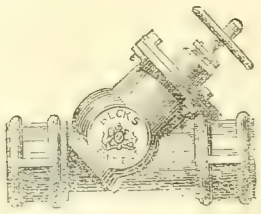
To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c. the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.

BECK'S

PATENT HOT-WATER VALVES



AT GREATLY REDUCED PRICES, viz.:—

2 In.	3 In.	4 In.
12s. 6d.	16s. 6d.	20s. 0d.

Upwards of 4000 of the Patent Valves are now in use and giving the greatest satisfaction.

JOHN BECK can also supply large quantities of his

IMPROVED THROTTLE VALVES

on the shortest notice.

JOHN BECK,

PATENTEE AND MANUFACTURER

OF EVERY DESCRIPTION OF

GAS, WATER, and STEAM FITTINGS,

FIRE COCKS, WATER CLOSETS, ETC.

PATENT VALVE WORKS

AND SANITARY DEPOT

GREAT SUFFOLK STREET, LONDON, S.E.

IMPROVED BERKS PIGS.—Some superior Pigs of different ages, from Prize Stock.
Apply to A. C., Post Office, Cricklade, Wilts.

To the Trade.

WANTED IMMEDIATELY, as PARTNER in a Provincial Nursery, within 50 miles of London, a thorough active business Man, of good address, to take the Travelling Department more particularly. A person having some knowledge of Landscape Gardening and giving Plans and Estimates of Ground Work is very desirable, and a perfect knowledge of the Seed Trade is indispensable.

The Nursery consists of 15 acres of ground in good condition, and well stocked, with the opportunity of adding 15 acres more land if desirable. The present occupier and predecessor have held it for nearly 50 years. The opportunity that now offers itself to an intelligent respectable Man will be found very advantageous. The Advertiser is 50 years of age; no family. Some Capital will be required.

Apply to Messrs. BECK, HENDERSON, & CHILD, Seed Merchants, 11, Adelphi Terrace, Strand, London, W.C.; or to S. SHILLING, North Warnbro Nursery, near Odiham, Hants.

To Nurserymen and Florists.

TO BE DISPOSED OF, an eligible piece of GROUND, with DWELLING HOUSE, in the immediate vicinity of Upper Clapton; the Ground is well stocked with every description of Plants. Fourteen years' Lease at a very low rent.

For terms and other particulars apply on the Premises, Mrs. COOLE, Florist, Lea Bridge Road, Upper Clapton.

AN OLD-ESTABLISHED COUNTRY NURSERY BUSINESS, with Plant Houses, and first-class Stock, on Six Acres of Ground, for Positive SALE, at a sacrifice, or a PARTNER accepted, who could Purchase half the Stock, and promote the Business. He would have the privilege of Purchasing the whole as soon as prepared or disposed to do so. Declining health of the Proprietor induces him to make this advantageous offer.

Address, NURSERY, Post Office, York.

To Nurserymen, Gardeners, and Others.

TO BE DISPOSED OF, by Private Treaty, and with early application (in consequence of the failing health of the present Proprietor) an OLD-ESTABLISHED and EXTENSIVE NURSERY, with Hot and Green Houses, doing a good Business, in an excellent situation, and within a few miles of Liverpool.

For particulars apply by letter to "J. W.," care of Wren & Sons, Temple Court, Liverpool.

Nursery and Seed Business.

TO BE LET, with Immediate Possession, a First-class Country Business, comprising extensive ranges of GREENHOUSES and PITS, capital RESIDENCE and SEED SHOP, and about 12 ACRES of LAND, well stocked with Fruit Trees and Shrubs, and one of the largest and best collections of Roses in the kingdom, the trade for which has been rapidly extended in the last four years, owing to the reputation obtained by the present proprietor.

Apply by letter to B., *Gardeners' Chronicle* Office, W.C.

TO BE LET, in the neighbourhood of a thriving town in Gloucestershire, and one mile from a railway station, a NURSERY, containing about 9 Acres of excellent Land, with a Stove and Greenhouse, Pits, and requisite Offices, with superior Fittings all complete.

To an industrious Man desirous of entering the Nursery Business with a small capital, this is an opportunity which seldom presents itself. Coming-in very low. There is a Cottage adjoining, and a Shop may be had in the town if thought necessary.

For particulars apply to Mr. JOHN SEALY, Mugland Nursery, St. George's, near Bristol.

TO BE LET, NURSERY GROUNDS in Brighton, comprising extensive Vineries and Peach-houses, in good bearing condition; large Span-roofed and Lean-to Houses, and Pits for Plants; also, a capital Residence and Cottages, with Stabling and Coach Houses.

The Stock can be taken at a valuation or a fixed sum, as agreed upon, or a PARTNER with Capital would be accepted.

Full Particulars to be had on application to the GARDEN SUPERINTENDENT, Alexandra Park, Tottenham Wood, Hornsey.

TO BE LET, a small NURSERY, 11 miles from London, and one from a Railway Station, comprising about 4000 feet of GLASS, with improved HEATING APPARATUS, a good collection of STOVE and GREEN-HOUSE PLANTS, EVERGREENS, ROSES, &c., all in good condition, situate in a healthy locality and growing neighbourhood. A capital chance for a young man of ability as a Surveyor, Nursery, Seed, and New Ground Workman.

For particulars, apply to Messrs. PROTHEROE & MORRIS, Auctioneers, Valuers, and Nurserymen, Leytonstone, Essex.

To Gardeners.

TO BE LET, with immediate possession, a most desirable GARDEN, containing about 4 acres, with excellent Vineries, Peach Houses, and Orchard, in full working order. Coming-in very moderate.

G. W. H., *Gardeners' Chronicle* Office, W.C.

WANTED, in a good Market Town, a SEED BUSINESS, with a SMALL NURSERY; if containing Glass Erections, would be the more desirable. Incoming not to exceed from 500*l.* to 600*l.*

W. M., *Gardeners' Chronicle* Office, W.C.

Sales by Auction.

TO BE SOLD by AUCTION, at the Market Place, Swindon, Wilts, on MONDAY, October 12, in consequence of the Proprietor having left the neighbourhood, a 14-HORSE FOWLER'S STEAM PLOUGH, with latest improvements, having been only 8 months at work, including a MOLE DRAINING PLOUGH.

Further particulars on Hand Bills

ENGLISH WOOL SALES by PUBLIC AUCTION in LONDON.—Our next SALE of ENGLISH WOOL by PUBLIC AUCTION in London, will take place on October 28, or the day preceding the next series of Australian Wool Sales, when about 1200 PACKS of LONG and SHORT WOOL from various counties will be offered.

Parties intending to send Wool for these Sales are requested to communicate with the undersigned, who will forward empty sheets, and instructions for packing and forwarding on application.

BRADBURY & COOK, Wool Brokers, 17, Basinghall Street, London, E.C.

Stock of a Greenhouse and General Builder.

J. G. BOND is instructed by the Proprietor to SELL by AUCTION, on the Premises, No. 205, King Street West, Hammersmith, on WEDNESDAY, October 14, at 12 for 1 o'clock, the remaining STOCK, comprising THREE LEAN-TO GREENHOUSES, 21 by 11, 17 by 11.3, and 15 by 9, glazed ready for use. Garden Frames and Pit Lights, Garden Seats, quantity of Panel Doors, Sashes and Frames, Dressers, Ladders, Steps, Tressels, &c.

Catalogues at Bond's Estate Offices, Hammersmith Road, W. The Goodwill of the Business to be disposed of.

Stokesley in Cleveland, Yorkshire.

IMPORTANT SALE OF FIRST-CLASS SHORT-HORNED CATTLE.

MR. STRAFFORD begs to announce that he is honoured with Instructions from the Executors of the late A. L. Maynard, Esq., to SELL by AUCTION, without any reserve, at Stokesley, on THURSDAY NEXT, October 15, the entire remainder of the First-Class HERD of SHORT-HORNS, consisting of about 50 head of Bulls, Cows, and Heifers that have been so long and carefully bred by this eminent judge of Short-horns. Several of them are directly descended from the stock of his Father, bred at Eryholme, and of the same tribe as the dam of Phœnix, the progenitor of Comet (155), sold at Mr. C. Colling's sale, in 1810, for 1000 guineas. Bulls of the highest breeding and character have long been used; latterly those of the justly-famed Kirklevington sort; also the very superior Steers reared at this Farm, comprising about 40 head of various ages, and of the same quality as those which have obtained such deserved celebrity at the Yarm Fairs for so many years. The whole will be sold in the same *bond fide* manner as the first portion of the Herd at Marton-le-Moor.

Catalogues, with Pedigrees and other particulars, may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. C. L. MAYNARD, at Harewood, near Leeds.

Newark-upon-Trent.

To NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

Important Sale of Nursery Stock under a Deed of Assignment for the Benefit of Creditors.

MR. WM. MOSS will SELL by AUCTION, on WEDNESDAY, THURSDAY, and FRIDAY, October 21, 22, and 23, commencing each day at 10 o'Clock, at the Nursery Grounds, situate respectively in Lincoln Street, near the Great Northern Station, in Newark aforesaid, and on the Lincoln Road, by order of the Assignees of Mrs. Betsy Ann Girton, the whole of the valuable NURSERY STOCK, and Sundry effects.

Catalogues may be had of Mr. HERBERT HALL, Seedsman, Stodman Street, Newark; and of the AUCTIONEER, Newark.

Auction and Valuation Offices, 83, Barnby Gate, Newark.

Langhedge Nursery, near the Bell Inn, Upper Edmonton.

To GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS ENGAGED IN PLANTING.

MR. A. RICHARDS will SELL by AUCTION, (by order of Mr. C. Woolven), on TUESDAY and WEDNESDAY, October 20 and 21, at 11 for 12 o'clock each day, the Valuable NURSERY STOCK, choice FRUIT TREES, fine EVERGREENS, SHRUBS, STANDARD ROSES, CONIFERS, &c. The Stock comprises 2000 Fine STANDARD, PYRAMID, and TRAINED APPLES; 1000 Ditto, ditto, PEARS; upwards of 2000 STANDARD and TRAINED CHERRIES, PLUMS, DAMSONS, and other Fruit Trees to name; 800 handsome trained PEACH, NECTARINE, and APRICOTS, 3000 GOOSEBERRIES and CURRANTS, 1000 fine Standard ROSES, of the choicest varieties (to name); fine EVERGREENS, including Portugal and Common Laurels, Laurustinus, Aucubas, Specimen China Arbor-vitæ, Lignum and Siberian Arbor-vitæ, Irish and Fan Yews, Variegated and Green Hollies, Box, Rhododendrons, Red Cedars, Berberries, Spruce Firs, Weymouth Pines, Cedrus Deodara, Wellingtonia gigantea, Limes, Laburnums, Double and Single Scarlet Thorns, Poplars, Privet, Quick; 100 fine WEEPING ASH; White and Yellow Brooms, Wisterias, Climbing Roses, Ivies, Honeysuckle, Clematis, Cedar of Lebanon, &c. Also a useful Brown MARE, and sundry Effects.

May be viewed Saturday and Monday previous. Catalogues obtained on the Premises; at the usual Inns in the neighbourhood; and of the Auctioneer, Tottenham, N.E.

Isleworth.

To GENTLEMEN, NURSERYMEN, MARKET GARDENERS, & OTHERS

MESSRS. PROTHEROE AND MORRIS are directed by Mr. C. W. Buck, to SELL by AUCTION, on the Premises, Wood Lane, near the Isleworth Station, on the South Western Railway, on TUESDAY, October 13, at 11 o'Clock, the Lease having expired, the whole of the NURSERY STOCK, consisting of Evergreens and Deciduous Shrubs, 5000 Dwarf Moss, Provence, and other Roses, 500 large Dwarf China Roses, 1000 fine young Standard fruiting Plums, Pyramid Pears, 120 yards capital Privet Hedge, several beds of Asparagus and Herbaceous Plants, 3000 Bulbs Gladiolus Brenchleyensis, 1500 Greenhouse Plants, various; together with 3 Greenhouses, Tubular Boiler, 3-inch Hot-water piping, Thirty Light Boxes and ranges of Pits, Garden Pots, Tumbril Cart, useful Bay Gelding, Fowls, and sundry effects.

May be viewed four days prior to the Sale. Catalogues may be had on the Premises; of Mr. C. W. BUCK, Covent Garden; at the principal Seedshops in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Handsome Standard and Dwarf Roses, Dutch Bulbs, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, October 16, at 12 o'Clock, a first-class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Crocus, Tulips, Jonquils, Anemones, Iris, &c.; also 300 handsome STANDARD and DWARF ROSES, comprising the best Hybrid Perpetuals, Bourbons, Chinas, &c., choice assortment of American Plants, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Balham.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Curtis to SELL by AUCTION on the Premises, Balham Nursery, Balham, on MONDAY, October 19, at 11 o'Clock, without reserve, the ground being immediately required to be cleared, the whole of the valuable NURSERY STOCK, consisting of Evergreens and Deciduous Shrubs, Ornamental Fruit and Forest Trees, Standard and Dwarf Roses, Climbing Plants, various, in Pots, &c.; also upwards of 200 Double Camellias, 2 to 8 feet, choice Azalea indica, sorts, a pair of fine Aloes, Oranges, &c. Two Stacks of prime old Meadow Hay, a handsome Black Gelding Cob, a capital set of Harness, a light Spring Cart, Heap of Manure, and sundry effects.

May be viewed a week prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Lewisham.

To GENTLEMEN, NURSERYMEN, BUILDERS, AND PUBLIC COMPANIES ENGAGED IN PLANTING.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Maller to offer for unreserved SALE by AUCTION, on the Premises, opposite the Castle Inn, Lewisham, on MONDAY, October 26, and following day, at 11 o'Clock each day, the whole of the valuable NURSERY STOCK, consisting of fine Evergreens and Deciduous Shrubs, including Common and Portugal Laurels, Green Hollies, Aucubas, Berberis, Spruce Fir, Arbor-vitæ, sorts; Rhododendrons, Azaleas, Yews, Cedrus Deodara, 2 to 5 feet; Cupressus, sorts; Lilacs, Guelder Roses, Syringa, &c.; also Ornamental and Forest Trees of the usual varieties; handsome Dwarf-trained Peaches and Nectarines, Standard and Dwarf-trained Plums, Pears, Cherries, Apples; a quantity of Prince of Wales, Red Antwerp, and Fastolff Raspberries; Rhubarb; Ivies, sorts; Sweet Briar; Virginian Creepers, Wistaria and Clematis, and Hops; 2000 fine Standard, Half Standard, Dwarf and Climbing Roses; 6000 Pinks. Cloves, Carnations, &c.; a quantity of Loam, &c.; together with a useful Cart Horse, a Pony, and other Effects.

May be viewed prior to the Sale. Catalogues may be had at Mr. MALLER'S, Granville Terrace, Lewisham; at the principal Seed shops in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Sudbury, Suffolk.

CHOICE FRUIT TREES, SHRUBS, &c.

MESSRS. BLUNDEN AND SQUIRE have received instructions from Mr. Stephen Brown, who is declining the Nursery Branch of his Trade, to submit to PUBLIC AUCTION, at the Nursery, near the Railway Station, on TUESDAY, October 13, and following day, 2000 PYRAMIDAL PEARS, APPLES, PLUMS, CHERRIES, &c.; 1000 STANDARD Do.; 500 TRAINED Do., and PEACHES, NECTARINES, and APRICOTS. A quantity of fine Fruiting Trees in pots, 150 Fruiting and other Vines in pots, 150 Scarlet and other Thorns, 400 Double Blossom Furze in pots, also many thousands of Choice Coniferæ (including fine specimen trees), Roses, Evergreens, and Ornamental Nursery Stock. The Pyramidal Fruit Trees are very handsome, and some of the finest in the trade, many of them of fine size, and the general stock is in the finest and most healthy condition.

May be viewed at any time prior to the Sale, and Catalogues as soon as ready may be obtained at the Nursery and the Seed Establishment; also of Messrs. HURST & MCMULLEN, 6, Leadenhall Street, E.C.; Messrs. FRASER, RICHARDSON, & GOAD, 82, Bishopsgate Street Within, London, E.C.; and at the Office of the Auctioneers, Sudbury, Suffolk.

N.B. Approved Bills of 3 months' date will be taken of purchasers in the Trade for amounts of 20*l.* and upwards.

☞ An advantageous opportunity offers to any practical industrious person with small capital wishing to purchase part of the stock with a view of continuing the business.

Cooper's Hill, Englefield Green, Surrey.

VALUABLE COLLECTION OF HOTHOUSE PLANTS.

MESSRS. BUCKLAND AND SONS have received instructions from the Proprietor to SELL by AUCTION on the Premises, on THURSDAY, October 15, at 12 for 1 o'clock, all the GREENHOUSE, CONSERVATORY, and HOTHOUSE PLANTS, comprising a selection of choice Orchids, Maranta zebrina, Begonias, Epiphyllum, Achimenes, large Ferns, Camellias, Lilium lancifolium, Azalea, Epacris of sorts, Auriculas, Geraniums, Fuchsias, and other valuable plants.

Catalogues may be had on the Premises; and of Messrs. BUCKLAND & SONS, Auctioneers, &c., Windsor.

Consignment of Bulbs from Holland,

AND A VARIETY OF HARDY PLANTS FROM SURREY.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, October 17, at half-past 12 o'Clock precisely, an IMPORTATION from HAARLEM, of DUTCH BULBS, comprising most of the newest and best varieties; and a COLLECTION of HARDY and ORNAMENTAL PLANTS from a well known Nurseryman in the middle of England.

On view the Morning of Sale; and Catalogues had.

Bagshot, Surrey.

To NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS ENGAGED IN ORNAMENTAL PLANTING.

MR. J. C. STEVENS (HORTICULTURAL AUCTIONEER and VALUER), 38, King Street, Covent Garden, W.C., begs to announce that he has been favoured with instructions from Mr. Standish, in consequence of removal to Ascot, to SELL by AUCTION, on the Premises, Bagshot, Surrey, 2½ miles from the Sunningdale Station on the London and South-Western Railway, on MONDAY, Oct. 12, and several following days, at half-past 12 o'Clock precisely each day, without the least reserve, a Valuable Collection of HARDY CONIFEROUS and other PLANTS, comprising:—

Araucaria imbricata, 2 to 4 ft.
Abies Albertii, 2½ to 4 ft.
,, Douglasii taxifolia, 3 to 5 feet
,, Menziesii, 4 to 6 ft.
Cedrus atlantica, 2 to 5 ft.
,, Deodara, 3 to 7 ft
Chamæcyparis sphæroidea, 2 to 3 ft.
Cryptomeria japonica, 3 to 6 ft.
Cupressus Lawsoniana, 2 to 4 ft.
Cephalotaxus Fortuni, 2 to 4 ft.
,, Drupacea, 2 to 3 ft.
Libocedrus chinensis, 2 to 3 ft.
Taxus fastigiata, 3 to 7 ft.
Taxus dovas'oni, 3 to 4 ft.
Pinus Benthamiana, 4 to 7 ft.
,, excelsa, 2 to 3 ft.
,, tuberculata, 1 to 2 ft.
,, Wincesteriana, 1 foot
,, Hartwigi, 1 ft.
,, Sabiniana, 1 to 2 ft.
Picea grandis, 1 to 2 ft.
,, amabilis, 1 to 2 ft.
,, Pinsapo, 2 to 3 ft.
,, Nordmanniana, 1½ to 4 ft.
,, nobilis, 1 to 3 ft.
Thuja gigantea, 1 to 2 ft.
Wellingtonia gigantea, 2 to 4 ft.
&c., &c., &c.

The whole having been transplanted within the last twelvemonth, are in a fine state for removal, and are lotted to suit Private Buyers and the Trade. Also various first-class EVERGREENS and DECIDUOUS TREES and SHRUBS, including 200 Skinnera japonica, 500 Variegated and Green Hollies, 1000 Portugal and Common Laurels, 600 Standard and other named Rhododendrons, 300 Kalmia latifolia, 1000 Standard Dwarf and Pot Roses, Standard and Pyramidal Apple and Pear Trees, Camellias, hardy Azaleas, &c., all of which are in the finest possible health, and for Sale without the least reserve.

On view the week prior and mornings of Sale. Catalogues had at Mr STANDISH'S Nurseries, Bagshot and Ascot; and of Mr. J. C. STEVENS, at his Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Approved Bills at three months taken of purchasers above 50*l.* A Van will meet the train starting from Waterloo at 10 25 and 10 50, arriving at Sunningdale Station at 12 o'clock to convoy parties to the Sale. Refreshments will be provided on the ground for the buyers at the Sale.

NOTE.—On WEDNESDAY and THURSDAY, October 21 and 22, and on TUESDAY and WEDNESDAY, October 27 and 28, will be sold by AUCTION, by Mr. J. C. STEVENS, at his Great Rooms, 38, King Street, Covent Garden, W.C., a portion of Mr. Robert Fortune's recent INTRODUCTIONS from JAPAN, and the whole of his CHINESE PLANTS. They will be on view at Mr. STANDISH'S Nursery at Bagshot, during the sale of his Nursery stock.

Important Sale of Mr. R. Fortune's Japanese Plants.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, London, W.C., on WEDNESDAY and THURSDAY, October 21 and 22, at half-past 12 o'Clock precisely each day, without reserve, a PORTION of Mr. Robert Fortune's recent JAPANESE INTRODUCTIONS, removed from Mr. Standish's Nursery, Bagshot; comprising the following new and interesting Plants.

100 Thujopsis dolabrata variegata, 6 inches.
100 Euonymus radicans foliis variegatis, 6 inches.
150 Euonymus japonicus variegatus, 1 to 2 feet.
100 Juniperus chinensis variegata.
50 Retinispora pisifera aurea, 6 inches.
50 Osmanthus ilicifolius, 9 inches.
150 Osmanthus ilicifolius variegatus nanus, 9 inches.
400 Lonicera aureo-reticulata, 1 to 2 feet.
50 Raphiolepis ovata (Photinia), 1 to 2 feet.
200 Thuja (Biota) falcata.
200 Iris kævigata.
250 Sciadopitys verticillata, 6 inches.
100 Microlepia scabra, 1 foot.
500 Lastrea opaca, 1 foot.
100 Ilex Fortunei, 1 foot.
500 Pinus densiflora.
50 Eurya latifolia variegata, 6 inches.
300 Retinispora obtusa, 6 inches to 1 foot.
200 Retinispora pisifera, 1½ feet.
400 Japanese Chrysanthemums.
50 Taxus Fortuni.

Also the following:—

50 Dracæna Banksii, 2 to 3 feet.
150 Desfontainea spinosa, 1½ feet.
50 Cyathea dealbata.
200 Rhododendron Nuttalli, 1 to 2 feet, &c.

The whole for absolute sale, and in the finest possible health.

On View on the Premises, Bagshot, Surrey, during the Sale of Mr. Standish's Nursery Stock, also on the days of Sale at Mr. J. C. STEVENS's Auction Rooms and Offices, 38, King Street, Covent Garden, W.C., where Catalogues can be obtained, by forwarding two postage stamps.

Mr. Robert Fortune's Chinese Plants for Absolute Sale.

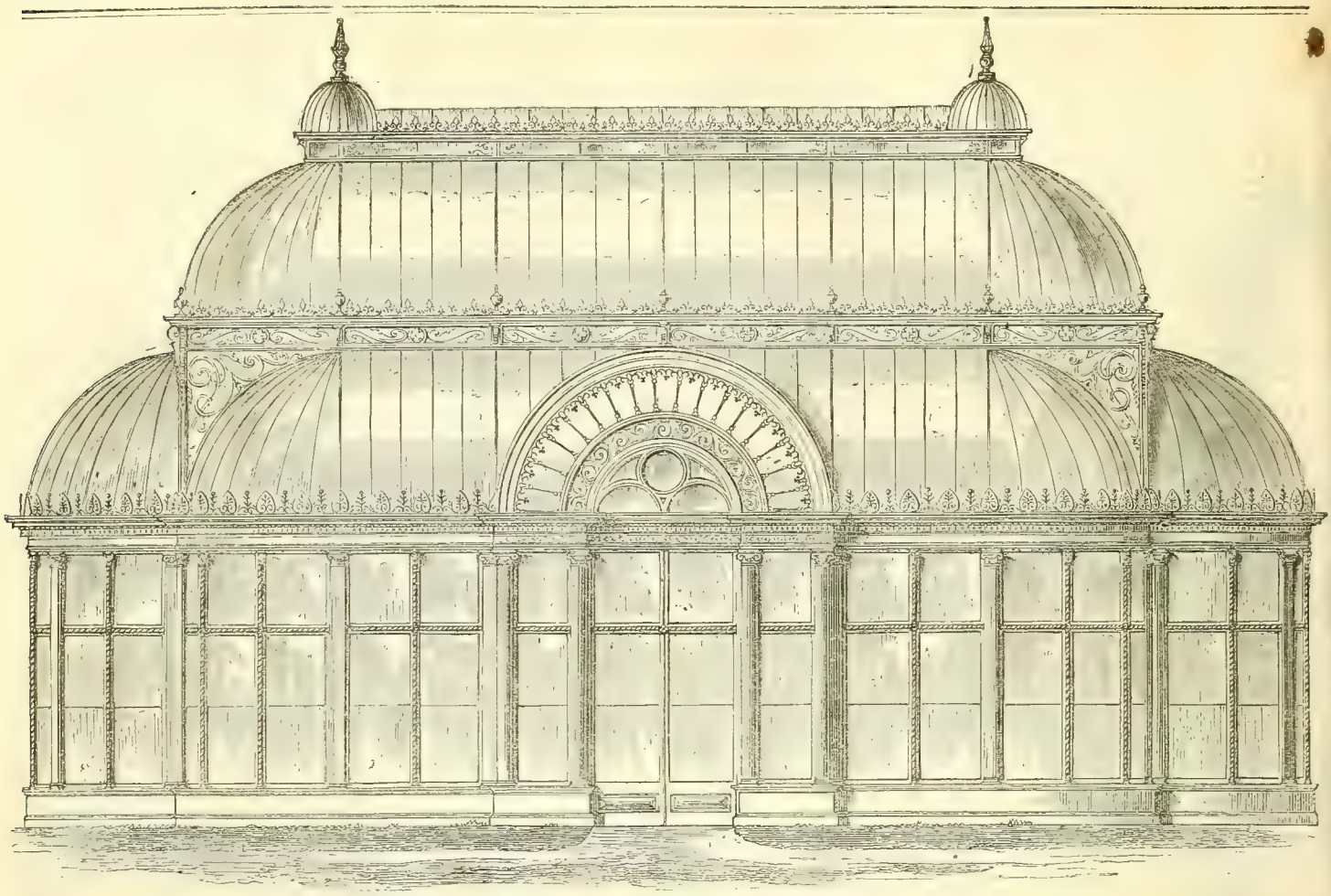
EXTENSIVE SALE OF RARE AND VALUABLE INTRODUCTIONS FROM CHINA.

MR. J. C. STEVENS has much pleasure in announcing that he has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY and WEDNESDAY, October 27 and 28, at half-past 12 o'Clock precisely, without the least reserve, in consequence of the agreement which existed between Messrs. Standish and Fortune with regard to the Chinese Plants having terminated, the most important COLLECTION of RARE and VALUABLE PLANTS ever offered for public sale, including the whole of Mr. Robert Fortune's RECENT INTRODUCTIONS from CHINA, and a part from JAPAN, including—

3000 Torreya grandis, 4 to 10 inches
150 Abies Kæmpferi, 2 to 4 feet
2000 Chamærops Fortunei
50 Pinus Bungeana
1000 Pinus sp. (nova) Pekin (Tabulæformis), 4 to 6 inches
25 Bambusa variegata
500 Thuja sp. (Pekin)
500 Lastrea opaca
400 Lonicera aureo-reticulata
200 Iris lævigata
200 Retinispora obtusa
200 Retinispora pisifera, &c., &c.

The whole of these Plants are in the finest possible health and are lotted to suit all buyers, and are well worthy the attention of the Nobility, Gentry, and Trade.

On view at Mr. STANDISH'S Nursery, Bagshot, during the Sale of his Nursery Stock, and on the days of Sale at Mr. J. C. STEVENS's Auction Rooms and Offices, 38, King Street, Covent Garden, London, W.C., where Catalogues and full particulars can be obtained.



THIS SPLENDID CONSERVATORY FOR SALE AT LESS THAN COST PRICE.

ORMSON'S CONSERVATORY, INTERNATIONAL EXHIBITION 1862.

OPINIONS OF THE PRESS.—(EXTRACTS).

"As a First-class Designer and Manufacturer Mr. Ormson stands unrivalled."—Bell's Weekly Messenger.

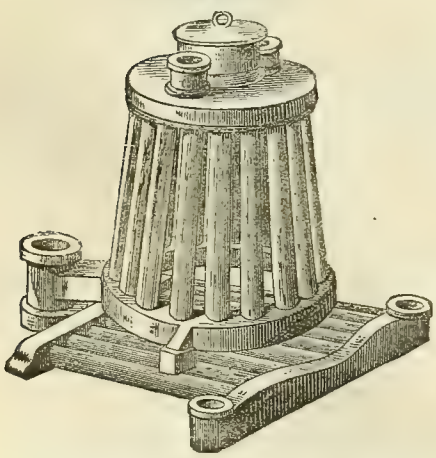
"No object in the Horticultural Department attracts the eye sooner than the splendid Conservatory erected by Henry Ormson, of King's Road, Chelsea."—The Illustrated London News.

"This construction, however, not only stands first among the Conservatories at Kensington, and indeed of any we have ever seen, but is worthy of the highest commendation on account of its eminent fitness for the purpose for which it was made."—The Illustrated News of the World.

"The beauty of this structure is as good a lesson of the value of iron as any that could be furnished in the whole Exhibition."—Gardeners' Weekly Magazine.

ORMSON'S ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become universally adopted on account of their superior power, great safety, and economy.



BY HER MAJESTY'S ROYAL LETTERS PATENT.

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"AN IMPROVEMENT IN THE MANUFACTURE OF CAST TUBULAR BOILERS."

TAKE NOTICE, that a DISCLAIMER has been filed in the Patent Office and allowed by the Attorney-General, by which such part of the above Patent as was considered questionable by the Court of Exchequer Chamber has been disclaimed. Any person infringing the said Patent after this Notice will be proceeded against according to Law.

Disclaimer allowed, September 1, filed September 2, 1863.

I BEG to NOTIFY, that having by leave of her Majesty's Attorney-General DISCLAIMED such part of my Patent as was considered by the Court of Exchequer Chamber as questionable, the said Patent is now absolutely confirmed; and any person infringing the same will be proceeded against according to law.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,

AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 42.—1863.] SATURDAY, OCTOBER 17. {Price Fivepence. Stamped Edition, 6d.

INDEX.

Agricultural Benevolent Institution	994 a	Heat, bottom	986 b
— produce, annual average	994 a	Hyacinth glasses, new	992 c
Apples, select	991 b	Hybridising	990 b
Aston Park	999 b	Japanese plants, sale of	991 c
Battersea Park	986 b	Journal of Agriculture, rev.	999 a
Birds	987 c	Laburnum poisoning	991 c
British Columbia	989 a	Mimuli, hybrid	992 c
Casks, improvement in purifying	995 b	Monthlies, garden, noticed	991 a
Cemeteries	990 c	New plant prizes	990 a
Conifers, what are genera in	992 a	Peaches under glass	990 c
Cotton	987 a	Pelargonium Mrs. Milford	991 a
Cultivation, French experiments in	986 b	Potatos	987 b—990 b
Dairy statistics	995 b	Roses	987 a—989 c
Dalgig, Ayrshire	999 c	Scolytus destructor	990 c
Diseases of live stock	994 c	Society, Edinburgh	996 a
Dry rot	992 c	— Rugeley	996 b
Farmers' Club, Winfrith	998 b	— Cheshire	997 a
Floral exhibition buildings	985 c	— Berkeley and Thornbury	997 c
Food consumption	993 c	— Bath	997 c
Fuchsia deformities	989 a	— Isle of Man	998 b
Fungi, microscopic	992 a	Swallows	990 b
Garden at Rushton	990 b	Tattenhall, near Chester	999 b
Geese, Canadian	987 b	Theobald's Park	991 b
Harvest, the past	994 b	Tulip, the	988 b
		Turnip, Teltow	980 b
		Water, wanted pure	991 c
		West Highland cattle	1000 a

HORTICULTURAL SOCIETY of LIVERPOOL.—The FIRST EXHIBITION of CHRYSANTHEMUMS and FRUIT will be held in St. George's Hall, Liverpool, on WEDNESDAY, November 18.

For Schedules, &c., apply to Robert W. Ker, Honorary Secretary, 4, Basnett Street, Liverpool.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines from Eyes.

WM. CUTBUSH and SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.

Highgate Nurseries, London, N.

Grape Vines.

WM. PAUL (Son and Successor to the late A. Paul) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery. PRICED LIST on application.

Paul's Nurseries and Seed Warehouse, Waltham Cross, N.

Very Strong Standard and Pyramid Pears and Plums.

JAMES GARAWAY and CO., Durdham Down Nurseries, Bristol, offer the above, of the best varieties, 24s. to 30s. per dozen. Prices to the Trade on application.

AUTUMN CATALOGUE and FOREST TREE LIST free by post.

Jas. Garaway & Co., Durdham Down Nurseries, Bristol.

Pear Culture.

A DESCRIPTIVE CATALOGUE of PEARS, by Thomas Rivers (separate from the Catalogue of Fruits) sent free on application.

Nurseries, Sawbridgeworth.

STRAWBERRY PLANTS.—For Sorts and Prices apply to

Dillistone & Co., Sturmer and Woodlands Nurseries, Halstead, Essex.

N.B. Please be particular as to the address—"Sturmer and Woodlands Nursery."

STRAWBERRIES, sorts, strong plants.—Trade Price 10s. to 15s. per 1000; 2s. per 100. DOUBLE WHITE (Sweet-scented) NARCISSUS, DOUBLE YELLOW ditto, DOUBLE DAFFODILS, LILY of the VALLEY, DUTCH HONEYSUCKLE, 1 and 2-year ASPARAGUS, large bushy LAURUSTINUS, 3 feet.

Geo. Cornwell, Seedsman, &c., Barnet, Herts, N.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.

Richard Smith, Nurseryman and Seed Merchant, Worcester.

Mulberry Trees.

TO BE SOLD, Eight very handsome MULBERRY TREES, about 12 feet high.

Apply Swiss Cottage, John Street, Albany Road, Old Kent Road, London, S.E.

Lavender Bushes.

FOR SALE, One Thousand fine BUSHY PLANTS of the above, 2 feet high, and three years old, at very moderate prices. Apply to

H. & F. Sharpe, Nurserymen and Seedsmen, Wisbech.

WANTED, TREE BOX, COMMON HOLLIES, and YEWS; stout stuff, about 1½ or 2 feet each.

State price per 100 to John Morse, Nurseryman, Dursley, Gloucestershire.

To Railway Contractors, Nurserymen, &c.

ANDREW G. DALY, Newry, Ireland, can supply Two Millions of strong Transplanted THORN QUICKS, from 4 to 6 years old, price very moderate, delivered in Liverpool or Glasgow. Two Millions of COMMON LAURELS, 12 to 18 inches, 2s. per 100, delivered in Liverpool or Glasgow.

Centaurea argentea.

S. WILKINSON, Nurseryman, Sleaford, can supply strong Cuttings of the above by the 100 or 100. Price on application. Sleaford.—Oct. 17.

ABIES WHITMANIANA.—100 Handsome Plants, 1½ to 2 feet high, of the above beautiful CONIFER for SALE.

Apply to E. F. Fairbairn, Nurseryman, Carlisle.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD and SON, Nurserymen and Seed Merchants, Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER and CO., Seed Farmers and Nurserymen, 237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.

SUTTON and SONS, Seed Growers and Merchants, Royal Berkshire Seed Establishment, Reading.

H. and F. SHARPE, Seed Growers and Merchants, Wisbech. SPECIAL PRICED LIST of NEW SEEDS on application.

Best Seeds, Carriage Free.

BUTLER and McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

RAYNBIRD, CALDECOTT, and BAWTREE, Seed Farmers and Merchants, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

WILLIAM BARRON'S PRICED CATALOGUE is now ready, and may be had post-free on application. Elvaston Nurseries, near Derby.

Roses.

THE DESCRIPTIVE CATALOGUE of ROSES for the present season, the 30th Edition, by Thomas Rivers, is now ready, and will be sent free on application. Nurseries, Sawbridgeworth.

ROSES.—CATALOGUES for 1863 and 1864 forwarded free on application.

John Cranston, Nurseries, King's Acre, near Hereford.

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E. P. FRANCIS'S NEW and DESCRIPTIVE CATALOGUE of ROSES for 1863 and 1864 is now ready and will be forwarded gratis upon application. Nurseries, Hertford.

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ROSES, NEW and OLD. CATALOGUES NOW READY.

A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. Those who wish for a fine display of bloom during the autumn and ensuing summer should now give their orders.

Charles Noble, Sunningdale Nursery, S.W. Rail.

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New Rose Catalogue for 1863-64.
New Bulb Catalogue for 1863.

Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.

WM. WOOD and SON will be happy to send copies of the above gratis and post free to all applicants.

To Gladiolus Growers.

SUTTON'S PRICED LIST of the best Sorts exhibited this Season is now ready, and will be forwarded post free.

Sutton & Sons, Royal Berks Seed Establishment, Reading.

Gladiolus Brenchleyensis.

YOUELL and CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz.; 20s. per 100.

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LOUIS VAN HOUTTE, Nurseryman and Seedsman, Ghent, Belgium, begs to call attention to his three new PRICE LISTS, No. 97, 98, and 99, containing the Stove, Greenhouse, and Hardy Plants (212 pages 12mo).

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To Hyacinth Growers.

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MINIATURE HYACINTHS. The best sorts of MINIATURE HYACINTHS by name, at 4s. per dozen.

Ditto, not named, but in separate colours, 2s. 6d. per doz.

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JAMES CARTER and CO.'S CATALOGUE of BULBS, with Cultural Directions, forwarded free of charge, on application to 237, 238, High Holborn, London, W.C.

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James Carter & Co., 237, 238, High Holborn, London, W.C.

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B. S. WILLIAMS'S DESCRIPTIVE CATALOGUE of the above post free to all applicants.

Choice HYACINTHS for Glasses or Pots, 6s., 8s., 10s., 12s. per dozen.

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BULBS, Carriage Paid.—For COLLECTIONS of BULBS see our large advertisement in *Gardeners' Chronicle*, Sept. 19, p. 886.

For PRICED LIST of BULBS for the SPRING GARDEN, CONSERVATORY, and SITTING ROOM, see our large advertisement in *Gardeners' Chronicle*, Sept. 26, p. 914.

Barr & Sugden, Seed Merchants, 12, King Street, Covent Garden, W.C.

A Large Importation of Dutch Bulbs.

Woodlands Nursery and Seed Warehouse, Maresfield, near Uckfield, Sussex.

Bulbs sent carriage free, excepting very small parcels.

WM. WOOD and SON have received a large consignment of the above, and will be happy to receive orders for the same. The Bulbs are in first-rate condition, and true to name.

Hyacinths, Tulips, Crocuses, &c.

BUTLER and McCULLOCH'S importation of DUTCH BULBS are unusually fine this season. CATALOGUES Post free upon application.

Butler & McCulloch, Seed Merchants, Covent Garden Market, London, W.C.

Exhibition Hyacinths, Tulips, Crocus, &c.

Carriage Paid.

BARR and SUGDEN, Seed Merchants and Importers of Continental Bulbs, 12, King Street, Covent Garden, W.C.

J. IVERY and SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.

Dorking Nursery.

Cineraria, Calceolaria, and Primula.

E. G. HENDERSON and SON offer first-class Seed of the above. 1s. and 2s. 6d. per packet.

Wellington Nursery, St. John's Wood, London, N.W.

Royal Nursery, Great Yarmouth.

YOUELL and CO.'S New CATALOGUE of GREENHOUSE PLANTS, Rare and Hardy CONIFERÆ, SHRUBS, GLADIOLI, &c., is ready, and will be forwarded on application.

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GENUINE ITALIAN RYE-GRASS.—This Seed, grown from second cut Foreign, weighing up to 21 lbs. per bushel, is sold as usual by Mr. Simon A. Daintree, of Fendrayton, St. Ives, Hunts.

SEED WHEAT.—GOLDEN DROP, BROWICK RED, HALLETT'S, and other red varieties, in 5 qr. lots, at the moderate rate of 6s. per bushel of 63 lbs.

Address Mr. S. A. Daintree, of Fendrayton, St. Ives, Hunts.

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Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, London, E.C.

To Nurserymen and Florists.

NOTICE.—Any ALTERATION in the STYLE or ADDRESS of any FIRM that may have occurred since December, 1862, is requested to be sent to 162, Fleet Street, E.C., so that the necessary correction may be made in the DIRECTORY portion of The GARDENERS' YEAR BOOK, ALMANACK, and DIRECTORY for 1864, which will be published on December 1.

ONE PENNY

Great Reduction in the Price of Roses.

NOT TO BE UNDERSOLD BY ANY RESPECTABLE HOUSE IN THE TRADE.
WOODLANDS NURSERY, MAPLESFIELD, NEAR UCKFIELD, SUSSEX.
Since issuing their NEW ROSE CATALOGUE for the Autumn of 1863 and the Spring of 1864,

WILLIAM WOOD AND SON have ascertained that other Houses in the Trade are offering some kinds of Roses at a lower rate than themselves, and as they are fully determined NOT TO BE UNDERSOLD by any RESPECTABLE House, they have prepared a REVISED LIST of ROSES at reduced prices, and will have much pleasure in forwarding copies of the same, Gratis and post-free, to all applicants.

Paul's Nurseries, Waltham Cross, N.

ROSES.—SUPERIOR STANDARD, 18*s.* per doz., and upwards; Do. DWARF Do., 9*s.* per dozen, and upwards. All the NEW ROSES, including BEAUTY of WALTHAM, Mrs. WM. PAUL, and LORD MACAULAY (three of the best), at lowest advertised prices.

The NEW PRICED CATALOGUE is now ready, free by post.
WM. PAUL (Son and Successor to the late A. Paul), Nurseries and Seed Warehouse, Waltham Cross, N.

Standard and Dwarf Roses.

BENJAMIN R. CANT will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES. As a guarantee of the value of his collection, B. R. C. begs to state that he has THIS YEAR obtained 19 FIRST PRIZES for CUT ROSES at the principal Shows. Nothing can be finer than the Plants he has for Sale, and the price is much lower than former years.

St. John Street Nursery, Colchester.

Roses.

GEORGE CLARKE has to offer this season an unusually fine quantity of STANDARD and DWARF ROSES in the best possible condition, and including the newest and most popular of the older varieties in cultivation. The prices will be—

STANDARDS .. .. 18*s.* per dozen and upwards
DWARFS .. .. .. 9*s.* ,, ,, ,,

And to distant purchasers, Plants will be given to compensate for cost of carriage.

The Nurseries also abound in extensive collections of Fruit Trees, Evergreens, and stock in general, well worth the inspection of intending purchasers.

Nursery, Streatham Place, Brixton Hill, S.; and at 4, Windsor Terrace, Pimlico, London, S.W.

New Roses of 1863.

JOHN KEYNES, Castle Street Nursery, Salisbury, can supply some thousands of the above, well-established Plants in pots, comprising the very best varieties of the NEW ROSES of 1863, at 36*s.* per dozen. The usual discount to the Trade. To amateurs such plants are invaluable; they can be planted at once and will produce fine bloom next season, as time will be given them to draw fresh root.

CATALOGUES, with full description, containing all the leading flowers, both old and new, will be forwarded on application.

JOHN KEYNES' STANDARD and DWARF ROSES for the Autumn are in the finest condition.

The stock of ROSES of 1862, comprising Charles Lefebvre, François Lacharme, &c., both Standards and Dwarfs, cannot be surpassed. Salisbury.—Oct. 17.

Roses.

JOHN CRANSTON offers selections of STANDARD and DWARF ROSES of very superior quality.

The robust growth and hardy constitution of the plants grown in this Nursery has long been acknowledged, and the Stock to offer this season is perhaps superior to any previous growth.

He also begs to direct attention especially to DWARF ROSES on the Manetti stock, of which he has an enormous stock.

The plants upon their own roots are also very strong and well grown.

	Per dozen—*s.*	*d.*
STANDARD ROSES of all the leading varieties in cultivation	18	0
Do. Newer varieties, introduced in 1861 and 1862	24	0
DWARF ROSES, extra fine plants upon the Manetti stock .. .. 9*s.* to	12	0
Do., do., upon Dog-rose stock	9	0
Do. Newer Varieties, introduced in 1861 and 1862 15*s.* to	18	0
Do., do., of 1862 and 1863 .. ..24*s.* to	30	0
STANDARD and HALF-STANDARD TEA-SCENTED ROSES, all the best varieties	24	0
DWARF ROSES upon their own roots, Hybrid Perpetuals, and Bourbons .. .. 9*s.* to	12	0
Do., do, Tea-scented .. ..12*s.* to	15	0
CLIMBING ROSES	9	0
PILLAR ROSES, extra strong plants, 4 to 5 feet 12*s.* to	15	0
STANDARD WEEPING ROSES .. . each 2*s.* to	2	6
ROSES in 8 and 9-inch pots grown especially for Forcing or Greenhouse culture, the best Hybrid Perpetuals, China, and Tea-scented varieties . .. ..24*s.* to	30	0

DESCRIPTIVE CATALOGUES forwarded free on application.
Nurseries, King's Acre, near Hereford.

To the Trade.

WM. PAUL respectfully informs his friends and the Trade generally, that he has a large and superior Stock of the following. Prices very moderate, and will be given on application.

STANDARD, DWARF, and CLIMBING ROSES.
Large DECIDUOUS TREES and SHRUBS, including Planes, Elms, Poplars, Acacias, Laburnums, Thorns, &c.
WEEPING TREES, of sorts.
CLIMBING PLANTS, in pots.
EVERGREENS, of all sorts.
FRUIT TREES, of sorts: Pyramidal and Dwarf Apples and Pears, very fine.
GRAPE VINES, for Fruiting or Planting, also very fine.
PAUL'S Nurseries, Waltham Cross, N.

Hardy Scarlet Rhododendrons.

JOHN WATERER'S CATALOGUE of HARDY SCARLET and other CHOICE RHODODENDRONS as annually displayed in the Royal Botanic Gardens, Regent's Park, can now be had on application.

It contains faithful descriptions of all the varieties really worthy of cultivation, as well as a selection of HARDY CONIFERS, with heights and prices, with ORNAMENTAL EVERGREENS, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey.

IMPROVEMENTS.—Gentlemen wishing to make alterations or improvements in PLEASURE GARDEN, KITCHEN GARDEN, LAWN, or PARK, would do well to consult H. LANE & SON'S

ROSE CATALOGUE,
FRUIT CATALOGUE, and
TREE and SHRUB CATALOGUE, &c.

which may be had on application at the Nurseries, Berkhamstead, Herts.

An inspection of the stock is earnestly requested.

The finest and largest quantity of ARAUCARIA IMBRICATA in Europe.

Prize Gladioli.

YOUELL AND CO were awarded the following PRIZES for the above in September last:—
FIRST AND SECOND PRIZE, CRYSTAL PALACE,
FIRST PRIZE, ROYAL HORTICULTURAL SOCIETY,
FIRST PRIZE, BRIGHTON.

CATALOGUES of this collection will be forwarded on application.

Royal Nurseries, Great Yarmouth, Norfolk.

THE RED LODGE NURSERY, SOUTHAMPTON, extends over 60 acres, and contains an unrivalled stock of AMERICAN PLANTS, FRUIT, FOREST, and ORNAMENTAL TREES, EVERGREEN and FLOWERING SHRUBS, CHOICE CONIFERÆ, STANDARD and DWARF ROSES, &c., all in the best state for removal.

CATALOGUES, and every information obtainable on application to the Proprietor, Mr. W. H. ROGERS.

SPECIMEN STOVE PLANTS on Sale, including STEPHANOTUS FLORIBUNDA, IXORA JAVANICA, IXORA COCCINEA SUPERBA, ALLAMANDA CATHARTICA, DIPLADENIA CRASSINODA, RHYNCHOSPERMUM JASMINOIDES.

The above are all fine specimens, and in perfect condition.
Apply to J. WILLIAMS, Woodlands, Aigburth, Liverpool.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c.; and a most extensive general Nursery Stock.

For Prices and Conditions of Free Delivery see Catalogue, which will be forwarded on application.

Cheap Thorns, &c.

CHAS. DALY AND SON will SELL
3 years SEEDLING THORNS at 2*s.* 6*d.* per 1000.
2 Years Transplanted ,, at 6*s.* per 1000.
1 Year ,, ,, fine, at 4*s.* per 1000.
COMMON LAURELS, 1 to 1½ ft., 15*s.* per 1000.
PORTUGAL ,, 1 to 1½ ft. 4*s.* per 100.

The above will be sold for Cash Only, or by Orders through HURST & SON, London.

PRICES of SHRUBS and FOREST TREES Free on application.

Coleraine, Ireland—Oct. 17.

KNAP HILL NURSERY, WOKING, SURREY.

WATERER & GODFREY

INVITE ATTENTION TO THE FOLLOWING PLANTS:—

ARAUCARIA IMBRICATA, 1½ foot, 30*s.* per doz.; or 10*l.* per 100.
2 feet, 42*s.* per doz.; 3 feet, 60*s.* per doz.
4 feet, 10*s.* 6*d.* to 21*s.* each; 5 to 7 feet, 31*s.* 6*d.* to 63*s.* each; 7 to 8 feet, 84*s.* to 105*s.* each. A large number of very fine specimens, 8, 10, and 12 feet high. Prices on application.

CEDRUS DEODARA, every plant moved last February, and as handsome as can well be, 2½ to 3 feet, 30*s.* per doz; 10*l.* per 100.
3 to 4 feet, 30*s.* to 42*s.* per doz.; 12*l.* 10*s.* per 100.
5 to 6 feet, 60*s.* to 84*s.* per doz.
7 and 8 feet, 7*s.* 6*d.* and 10*s.* 6*d.* each.
Large specimens, 10, 12, and 15 feet high.

PICEA NOBILIS, Seedlings, 3 to 5 in a pot, 9*s.* per doz.; 63*s.* per 100.
1 foot, 7*s.* 6*d.* each; 75*s.* per doz.
1½ feet, 10*s.* 6*d.* each; 6*l.* per doz.
Splendid plants, 2, 3, 4, 5, 6 and 7 feet high, from 21*s.* to 147*s.* each. We have several hundred of these large sizes; none are grafted; grafted plants are of course to be had at much lower rates.

PICEA NORDMANNIANA, (all Seedlings) 1 to 1½ feet, 10*s.* 6*d.* each; 6*l.* per doz.
A large number of very handsome plants, 3, 4, 5, 6, 7, 8, and 10 feet, 63*s.* to 210*s.* each.

PICEA PINSAPO, 1½ feet and as wide, 42*s.* per doz.
2½ to 3 feet, 10*s.* 6*d.* to 21*s.* each.
3½ to 5 feet, 31*s.* 6*d.* to 63*s.* each.
Large specimens, 6, 7, 8, and 10 feet.

ABIES MERTENSIANA or ALBERTI, 2 feet, 30*s.* per doz.

ABIES ORIENTALIS, very handsome seedling plants, 3, 4, 5, 6, 8, and 10 feet, 5*s.* to 63*s.* each.

CUPRESSUS LAWSONIANA, all seedlings, 1½ foot, 5*l.* per 100; 18*s.* per doz.
3 to 4 feet, 30*s.* and 42*s.* per doz.
4 to 5 feet, 5*s.* each.
6, 7, 9, and 10 feet, splendid plants, nothing handsomer can be desired, 10*s.* 6*d.* to 31*s.* 6*d.* each.

JUNIPERUS CHINENSIS, handsome plants, 2 to 3 feet, 30*s.* per doz.; 10*l.* per 100.
4 to 5 feet, 60*s.* to 84*s.* per doz.
6 to 7 feet, 10*s.* 6*d.* each. A large number of very fine specimens, 10, 12, and 15 feet high (all recently removed).
Irish Upright, 3 to 4 feet, 18*s.* to 30*s.* per doz.
Fine plants, 5, 6, 7 and 8 feet, 2*s.* 6*d.* to 21*s.* each.

YEWS, GOLDEN, many hundred fine specimens, 3, 4, 5, 6, 7 and 8 feet high.
IRISH, handsome plants, 4 to 6 feet, 2*s.* 6*d.* to 5*s.* each.
Do. fine, 6, 7, 8 and 10 feet.
COMMON ENGLISH, a vast number, 3, 4, 5, 6, 7, 8, 10 and 12 feet high.

THUJA AUREA, 1½ foot, and wide in proportion, 2*s.* 6*d.* each 24*s.* per doz.
2, 3, 4, and 5 feet high, 7*s.* 6*d.* to 105*s.* each; measuring from 12 to 15 feet in circumference, perfect globes; this plant originated here, and our stock of it comprises large numbers of very much finer plants than can be found in any other Nursery.

THUJA GIGANTEA, 3, 4, 5, 6, & 7 ft. high, 7*s.* 6*d.* to 21*s.* each.

THUJOPSIS BOREALIS, 2 feet, 18*s.* per doz.
3 feet, 30*s.* per doz.
4, 5, 6, and 7 feet, splendid specimens, in large numbers, 5*s.*, 7*s.* 6*d.*, 10*s.* 6*d.*, to 21*s.* each.

WELLINGTONIA GIGANTEA, stout plants, seedlings, 1 foot, 6*l.* per 100, 18*s.* per doz.
1½ to 2 feet, 30*s.* to 42*s.* per doz., 10*l.* to 12*l.* 10*s.* per 100.
3 feet, 10*s.* 6*d.* each, 84*s.* per doz.
A large number of Plants, 3½, 4, 5, 6, and 7 feet; all recently removed, 21*s.* to 63*s.* each.

GOLDEN HOLLIES.—The best variety, or "Queen;" many hundred most beautiful plants, 3, 4, and 5 feet high.

"WATERER'S" HOLLY.—This variety originated in this Nursery, and we hold a vast number of splendid plants, 3, 4, and 5 feet high, and 8 to 15 feet in circumference.

HOLLY.—Common Green, laurifolia, and Scottica, of all sizes, up to 10 feet high, and move with balls like Rhododendrons.

COMMON LAURELS.—Very bushy, healthy, and well rooted, 2, 3, 4, and 5 feet high.

All the Plants referred to in this Advertisement are handsome, well-grown, and well rooted, and any one in search of such will not regret a visit to the Nursery, where may also be seen one of the most extensive stocks of all the acknowledged hardy evergreens and deciduous plants in existence.

HARDY RHODODENDRONS.—More than 40 acres of Land may be seen covered with Rhododendrons and other American plants. We are prepared to offer them upon very advantageous terms. The sorts following are perhaps as good a selection as can be made; the plants are very healthy and bushy, 1½ to 2 feet high, many with flower buds; better cannot be desired of the size, at 30*s.* to 42*s.* per dozen, 12*l.* 10*s.* to 15*l.* per 100, in variety

ALARM	FASTUOSUM fl. PLENO
ATROSANGUINEUM	JOHN WATERER
ALBUM ELEGANS	LADY E. CATHCART
ARCHIMEDES	LORD JOHN RUSSELL
BLANDYANUM	MACULATUM SUPERBUM
BARCLAYANUM	MRS. WATERER
BRAYANUM	MINNIE
EYLESIANUM	NERO
CONCESSUM	REEDIANUM
CURRIEANUM	ROSEUM PICTUM
DELICATISSIMUM	SIR CHARLES NAPIER
ELFRIDA	TITIAN
EVERESTIANUM	VANDYCK
FLEUR DE MARIE	

Larger plants of these may be had at an increased price

These next, the majority of which are raised from layers, and are as healthy and bushy as it is possible to grow them, about 1½ to 2 feet high, at 18*s.* per doz., 6*l.* 6*s.* per 100:—

ALARIC	MACULATUM
ATTILA	NIGRUM
ANDERSONI	RUBRUM
AUGUSTUS	PURPUREUM
AZUREUM	MARC ANTONY
BLATTEUM	LEE'S DARK PURPLE
BICOLOR	NE PLUS ULTRA
CHANCELLOR	ORNATUM
CŒLESTINUM	PARDOLOTON
CORIACEUM	PICTUM
COLUMBUS	MULTIMACULATUM
DELICATUM	SIR ISAAC NEWTON
DESDEMONA	STANDARD of FLANDERS
GLORIOSUM	HYACINTHIFLORUM
GLENNYANUM	VICTORIA
LEOPARDI	VAN HOUTTI
LUCIDUM, or QUEEN of the WEST	VERVAENEANUM and others.
MACRANTHUM	

RHODODENDRON CATAWBIENSE, from seed, varying much in colour, nice bushy plants, 9 to 12 inches, 25*s.* per 100, 10*l.* per 1000.
Do., 1 to 1½ feet, 42*s.* to 63*s.* per 100.
Very fine plants, 2 and 3 feet and upwards.

RHODODENDRON PONTICUM, for cover, stout bushy plants, about 1 foot, at 7*l.* 10*s.* per 1000.
1 to 1½ feet, 25*s.* to 30*s.* per 100; 10*l.* to 12*l.* 10*s.* per 1000.
Seedling varieties of different colours (very superior in habit and foliage to the common Ponticum), about 1 foot and bushy, at 30*s.* per 100.

The following varieties of PONTICUM, all from layers, and very healthy and bushy, about 18 inches, at 50*s.* per 100:—

ALBUM	NIVATICUM
ATROPURPUREUM	CLETHROIDES
BLANDUM	PALLIDUM
VERSICOLOR	GUTTATUM
ROSEUM	CUNNINGHAM'S WHITE, &c.
MAGNOLIFOLIUM	

DWARF RHODODENDRONS, the three best being WILSONIANUM, OVATUM, and MYRTIFOLIUM, very healthy bushy plants, 12 to 18 inches, 18*s.* per doz., 5*l.* per 100.

STANDARD RHODODENDRONS of all sizes, and nearly all the sorts; beautiful plants at reasonable rates.

AZALEAS, the very finest varieties, in capital plants, 1½ to 2 feet high, covered with buds, 18*s.* to 30*s.* per doz., 5*l.* to 10*l.* per 100.
Ordinary kinds, pink, white, yellow, and scarlet, 50*s.* to 75*s.* per 100.

ANDROMEDA FLORIBUNDA, very nice plants, healthy, bushy, and every one covered with bloom, 18 inches, 30*s.* per doz.

KALMIA LATIFOLIA, bushy plants and full of bloom, 12*s.*, 18*s.*, and 24*s.* per doz.

HARDY HEATHS, a selection of the most desirable kinds, including a very large quantity of the pretty E. herbacea, and plants that cannot be excelled, 6*s.* per dozen, 30*s.* to 42*s.* per 100 in variety.

As it not unfrequently happens that plants fall far short of the description given them, we shall be very pleased to send samples of any to intending purchasers.

A PRICED and DESCRIPTIVE CATALOGUE sent free on application.

We can now send our goods throughout in the same truck from Woking to almost every Station in the Kingdom, and when a quantity is required to be sent any distance, we should be happy to arrange for their transit to the nearest Station. The Nursery is readily reached by Train from Waterloo to Woking. Conveyances are at all times at the Station.

Grape Vines, Late.

J. MEREDITH has some Strong VINES of the true variety of BLACK ALICANTE (which he has never occasion to set artificially) in 13 and 8-inch pots.

J. M. obtained a Prize at the Great International Show in October last, at South Kensington, for the above excellent late Grape. Splendid bunches of this valuable Grape may be seen at his Vineyard.

J. M. has also to offer some extra strong LADY DOWNES in 13 and 18-inch pots.

Prices on application to J. MEREDITH, The Vineyard, Garston, near Liverpool.

GRAPE VINES.—Strong well ripened Canes of the following, at 3s. 6d. to 5s. each:—Black Hamburgh, Grizzly Frontignan, Black Prince, Chasselas Musqué, Black St. Peter's, Black Frontignan, Cannon Hall Muscat, Précoce Malingre, White Frontignan, White Sweetwater, Muscat of Alexandria, Tokay, Golden Hamburgh, Syrian Muscat Hamburgh, Mill Hill Hamburgh, Lady Downes, Black Cluster, Esperion, Muscat Troveron, Royal Muscadine, Trentham Black, Blanc de Kentsheim, Black July, Ingram's Prolific, Buckland Sweetwater, Cavoush.

JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

The Royal Hautbois Strawberry.

MESSRS. THOMAS RIVERS AND SON now offer Plants of the above. The variety was selected by them in 1861 from many hundreds of Seedlings raised from La Belle Bordelaise Strawberry, a variety of the Hautbois received from France, and has proved to be by far the largest and most prolific of the race, with the true Hautbois flavour.

Plants, 4s. per dozen, 30s. per 100. A few extra sized bearing plants, 9s. per dozen; carriage paid to London.

Nurseries, Sawbridgeworth.

Strawberries.

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON having an immense Stock of the following STRAWBERRIES, will be happy to supply them at the lowest possible prices.

Special offers to the Trade on application.

Adair	Elton Pine	Oscar
Alice Maud	General Havelock	Rival Queen
Boyd's Surprise	Keen's Seedling	Sanspareil
British Queen	Myatt's Surprise	Sir Charles Napier
Carolina Superba	Nimrod	Sir Harry
Eleanor	Omar Pasha	Stirling Castle Pine

Wizard of the North.

The Kimberley Strawberry.

CHARLES KIMBERLEY has much pleasure in offering the above new SEEDLING STRAWBERRY, feeling confident it will give the greatest satisfaction. It is quite distinct from all other varieties, is of a robust, hardy constitution, a most prolific bearer, of a bright shining crimson; fruit red throughout, firm and solid, with brisk and most agreeable flavour; an excellent sort for all purposes. Strong Plants are now ready at 2l. per 100.

Stoke Nursery, near Coventry—Oct. 17.

THE KIMBERLEY STRAWBERRY.—The above fine Strawberry is now being sent out. The following Nurserymen and Dealers have ordered plants and can now supply it; those marked with an asterisk thus * have seen the fruit and tested it—

*Mr. Parker, Fruiterer, Broad Gate, Coventry
*Mr. H. Pope, Nurseryman, Gib Heath, Birmingham
*Mr. Vertegaus, Nurseryman, Harborne Road, Birmingham
*Mr. Thos. Wood, Nurseryman, Quinton, near Birmingham
*Mr. Dale, Market Gardener, Long Itchington
*Mr. Wilson, Nurseryman, Warwick
*Mr. Ogden, Nurseryman, Coventry
*Mr. Gilbert, Seedsman, Cross Cheaping, Coventry
*Mr. Ivery, Nurseryman, Peckham, near London
*Mr. G. Smith, Nurseryman, Hornsey Road, Islington, London
Mr. B. W. Knight, Nurseryman, Battle, Sussex
Mr. W. Dillistone, Nurseryman, Sible Hedingham, Essex
*Mr. C. Turner, Royal Nursery, Slough, near Windsor
Messrs. Perkins & Sons, Park Nursery, Coventry
Messrs. A. Henderson & Co., Nurserymen, Edgeware Road, London.
*Messrs. Hurst & Son, Seedsmen, 6, Leadenhall Street, London, have kindly consented to become Agents; and *Mr. Wills, Nurserymen, 80, Regent Street, Leamington

Other names will be added as soon as received.

CHARLES KIMBERLEY, Stoke Nursery, near Coventry.

WELLINGTONIA GIGANTEA.—The undersigned has to offer a fine stock of SEEDLING PLANTS in Pots at the following low prices:—

1-year SEEDLINGS in single pots	.. ..	2l. per 100
2-year ,, 8 inches	.. ..	3l. ,,
Ditto, in 48-pots, 1 foot	.. ..	5l. ,,

J. HENCHMAN, Edmonton, London, N.

Splendid New Grape—"Mrs. Pince's Black Muscat."

LUCOMBE, PINCE AND CO. respectfully beg leave to state that the above Superb New SEEDLING GRAPE, raised in their Establishment, was exhibited before the Fruit Committee of the Royal Horticultural Society of London, October 6, 1863, when it was unanimously awarded a First-class Certificate.

L., P. & Co. being fully convinced that this Grape is possessed of first-rate qualities (in which opinion they are supported, not only by the award of the Fruit Committee, before whom it has twice been exhibited, but also by numerous competent judges, who have this season tested its qualities), have determined upon erecting a House for its especial culture, so that parties visiting their Nursery during the ensuing season will have an opportunity of forming their own opinion of the superior merits of this fine Seedling, previously to its being sent out to the Public, which will be in the autumn of 1864. Full Particulars and Descriptions will appear in future Advertisements.

N.B. Their Superb New HYBRID RHODODENDRON "COUNTESS of DEVON" (PINCE'S), figured and described in the "Floral Magazine" of Sept. 1863, will also be sent out at the same time.

Exeter Nursery, Exeter.

New Seedling Apple, Lord Clyde.

B. WHITHAM has much pleasure in offering the above new APPLE, as one of the finest flavoured and best keeping Apples ever raised. The fruit is of the medium size, flavour rich, sugary, and aromatic. Fit for use in September, and will keep almost 12 months.

Parties purchasing the same and not being satisfied with it after fruiting will have their money returned, on receipt of the Plants here.

Reddish Road Nurseries, near Stockport.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

Rhododendron Countess of Haddington.

Good plants, 21s. each.

Vine Tynninghame Muscat.

Good plants, 3s. 6d., 5s., and 7s. 6d. each.

ROBERT PARKER begs to announce that he is now offering for sale the above first-class Plants. Full descriptions with List of Awards received are published in his NEW CATALOGUE of PLANTS and BULBS, which will be forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

Violets.

ROBERT SHACKELL begs to offer strong healthy plants at the following prices, basket and package free:—

	Per dozen—s.	d.
SHACKELL'S RUSSIAN SUPERB	12	0
DOUBLE PURPLE TREE VIOLET	4	0
,, SPRING BLOOMING ..	4	0
NEAPOLITAN	4	0
DOUBLE WHITE	4	0
SINGLE WHITE RUSSIAN	4	0
OLD RUSSIAN, 10s. per 100 or	2	0

Violet House, 5, Broad Street, Bath.

JOSEPH FRYER, Clarendon Nurseries, Camberwell New Road, S., has a large stock of the undermentioned of various sizes, which he can supply to the Trade; Limes, Lombardy and Balsam Poplars, Birch, Scarlet Thorns, Lilacs of all sorts and sizes, Althæa frutex, Salisburias, Aucubas, Euonymus japonica and variegata, Weigela rosea and amabilis, Guelder Rose, Irish Ivies, Clematis, Glycine sinensis, Passion-flowers, Periplocas, Menispermums, Aristolochias, Figs, Grape Vines from layers, Eugenia Ugni in fruit, Ferns, Herbaceous and Rock plants, &c.

PINUS LARICIO.—To gentlemen planting out largely for profit, WILLIAM BARRON begs to make a special offer of his fine and well-rooted stock of the above. This fine Pine supersedes the Larch for Forest-planting, producing timber much sooner for Railway Sleepers. It is also used for Spars and Masts in the French Navy.

2-years' Seedlings, strong plants	per 1000	15s.	0d.
2-years' transplanted, 9 to 18 inches ..	,,	30	0
2 to 3 feet	,,	70	0

Elvaston Nurseries, near Derby.

Now Ready.

J. DOBSON AND SONS beg to call particular attention to the following Superb Varieties of Plants which they have the pleasure to offer for the first time:—

NEW PELARGONIUMS (SHOW).	£	s.	d.
BUCKSTONE (D. & SONS), extra fine rose	1	1	0
BEATRICE (D. & SONS), a very pleasing white ..	0	15	0
CARACTACUS (D. & SONS), glossy purple, novel ..	1	1	0
CLAUDIA (D. & SONS), purplish rose, fine	1	1	0
EXPRESS (D. & SONS), white with maroon blotch ..	1	1	0
THE RANGER (D. & SONS), mottled, deep rose, fine	1	1	0
NEW PELARGONIUMS (SPOTTED).			
LEOTARD (D. & SONS), delicate rose, maroon spots..	1	1	0
SPECIAL (D. & SONS), rosy scarlet, dark spots ..	1	1	0

The set for 7l. Hamper and packing free.

SPLENDID NEW CINERARIAS.

The following Set cannot be equalled.

EMPEROR (JAMES), shaded plum, superb—Certificate	0	5	0
METEOR (D. & SONS), crimson scarlet, white ring ..	0	5	0
MODEL of PERFECTION (D. & SONS), white and crimson, extra	0	5	0
NORMA (D. & SONS), very large white and crimson	0	5	0
PRINCE of WALES (D. & SONS), soft magenta, white ring	0	5	0
PRINCESS of WALES (D. & SONS), white with mauve edges—splendid	0	5	0
PRINCESS DAGMAR (D. & SONS), white and rosy purple—Certificate	0	5	0
SNOWFLAKE (PAGE'S), the best white existent—Certificate	0	5	0

The Set for 35s; hamper, &c., included.

We beg to call particular attention to a few Plants sent out by us last season, which have given such general satisfaction. No collection is complete without them.

PELARGONIUMS (SHOW).

QUEEN of WHITES (D. & SONS), the very best white ever raised, a magnificent flower	0	7	6
STARTLER (D. & SONS), crimson scarlet, superb ..	0	5	0
STELLA (D. & SONS), rose striped and veined ..	0	5	0

PELARGONIUMS (SPOTTED).

COMMANDANT (D. & SONS) crimson purple, deep spots	0	5	0
SANSPAREIL IMPROVED (D. & SONS), extra fine..	0	5	0

CINERARIA.

CONQUEROR (LEE'S), the finest crimson self ever offered	0	2	6

The Set 24s., hamper and packing included.

We have a general collection of PELARGONIUMS and CINERARIAS, &c., now ready for sending out, which we can do very reasonable by the dozen, best sorts.

CATALOGUES post free on application.

Woodlands Nursery, Isleworth, W.

PELARGONIUM QUEEN of WHITES (DOBSON'S) is the most beautiful and distinct variety, as well as the most useful that has been offered to the public for some time. Strong plants 7s. 6d. each. No collection of Pelargoniums is complete without it.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

DOBSON'S CHOICE SEEDS, CALCEOLARIA, CINERARIA, and PRIMULA, in packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s., the finest strains possible.

J. DOBSON & SONS, Seedsmen, Isleworth, W.

FERN SEEDS, FERN FRONDS.—FERN FRONDS, bearing Seeds in quantity of the most useful and choice varieties, particularly those adapted for Wardian or Fern Cases, as also for the Stove, Greenhouse, and open air.

20 varieties, post free	.. ..	..	5s.
40 ,,	,, ..	.. ..	9s.
60 ,,	,, ..	.. ..	17s.

Apply to Mr. FREDK. BREWER, 2, Park Place, Carlton Road, London, W.

Deutzia crenata fl. pleno—Japan.

JOHN STANDISH has now the pleasure of submitting to the consideration of his friends and the public the above truly valuable and hardy ornamental plant. It has received First-class Certificates both at the Royal Horticultural and Royal Botanic Shows in June and July last (*vide* Report).

"There were a few very interesting new hardy plants shown, first a Deutzia crenata flore pleno, one of Fortune's novelties, flowered by Mr. Standish. This looked like a fine addition to hardy shrubs; it has opposite shortly stalked finely serrated leaves, and copious terminal racemes of deflexed double flowers deeply tinged externally with rose."

Plants now ready, 10s. 6d. each; or 6 Plants for 42s.

Royal Nursery, Ascot, Berks.

E. R. GREENUS, RAILWAY NURSERIES, Watford and Rickmansworth, has to offer this season a fine healthy Stock of FRUIT and FOREST TREES, FLOWERING SHRUBS and EVERGREENS, CONIFERS, STANDARD and DWARF ROSES, CLIMBERS, &c., all of which will remove with the greatest safety; and from E. R. G.'s proximity to the London and North-Western Railway he can execute orders with promptitude and despatch to any part of the kingdom, or Continent.

CATALOGUES forwarded on application.

P.S. A very large Stock of IRISH IVIES, large, in pots, and CLIMBING ROSES; also VARIEGATED and GREEN BOX 1½ to 2 feet.

NEW PLANTS.—FUCHSIA RIFLEMAN and NORTHERN LIGHT. AZALEA INDICA SOUVENIR DU PRINCE ALBERT. CAMELLIA PUNICEA.

MIMULUS PARDINA (leopard-spotted and marbled).—The long continuance of bloom from succession plants of this beautifully marked flower is a valuable feature for Conservatory and Greenhouse decoration from February until August. 1s. per packet. The Trade supplied per ounce, or smaller quantities.

Similar Hybrids have been also raised from the same species (M. cupreus) as M. pardina, at two other sources in the neighbourhood of London, and by crossing the species above named with the type of a second one. The exceptional differences of the three crosses were thus:—The first was M. cupreus with a good hybrid of M. luteus; the second was with the common garden forms of M. luteus, and the third now offered are the production of M. cupreus crossed with several of the finest garden hybrids of English and Continental origin, from which was obtained a beautiful strain of varieties superior to any flowers shown to us from the two sources alluded to, and which are remarkable for picturesque spotting and diversity of feature in colours. They are the same as exhibited by us at several London exhibitions during the past summer.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London.

TO THE SEED TRADE. NOVELTIES FOR 1864.

W. THOMPSON, SEEDSMAN,

TAVERN STREET, IPSWICH,

Respectfully announces that he is now prepared to supply Seeds of the following highly interesting introductions from Australia, and has appointed Messrs. ARTHUR HENDERSON & Co., Pine Apple Nursery, Edgware Road, London, W., his AGENTS for the SALE of the same.

RHODANTHE ATROSANGUINEA.

A beautiful and very distinct species of dwarf habit, with magenta-coloured flowers, the eye or disk being of a dark purple, and contrasting very strikingly with the ray. Received the award of a Banksian Medal at Exhibition of Royal Horticultural Society, July 2, 1862.

RHODANTHE MACULATA ALBA.

A most charming variety of R. maculata, differing from it only in its pure, silvery-white ray-scales. This is unquestionably the finest white Everlasting in cultivation. Received a First-class Certificate at Regent's Park Exhibition, in July 1862.

HELIPTERUM SANFORDII.

A very pretty dwarf, tufted, bright yellow Everlasting, quite distinct from any other in gardens, and of easy management. Received First-class Certificate from Floral Committee of Royal Horticultural Society, July 21, 1863.

Prices of the above may be obtained on application to Messrs. HENDERSON, Pine Apple Place, S.W.; or to W. THOMPSON, Ipswich.

A COLOURED PLATE has been prepared, and will be sent to all purchasers of the Seed.

£34 10s. Prizes.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.

The Royal Horticultural Society in March, 1864, offer Prizes to the amount of 34*l.* 10*s.* for HYACINTHS, TULIPS, and CROCUS.

See BARR & SUGDEN'S enumerated varieties of Exhibition HYACINTHS, TULIPS, and CROCUS; also their Advertisement, page 985.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his New CATALOGUE, containing Select, Descriptive, and Priced Lists of Exotic Orchids, New and Rare Greenhouse, Hardy, and Stove Plants, Ornamental and Variegated foliaged Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, Narcissus, and other Bulbs, is now published and will be forwarded to all applicants.

Exotic Nursery, Tooting, Surrey, S.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON'S first importation of the above has arrived, and from the extraordinary heavy weight of the Bulbs they promise a fine bloom. Early orders are earnestly solicited. DESCRIPTIVE PRICED CATALOGUES free.

N.B.—17 FIRST PRIZES were awarded to WM. C. & SON last spring for HYACINTHS, TULIPS, and CROCUSES. In addition to this, EVERY FIRST PRIZE at the London Exhibitions to Amateurs was for Bulbs supplied by them.

The ONLY address is Highgate Nurseries, London, N.

E. G. HENDERSON AND SON'S DESCRIPTIVE LIST of BULBS as a Guide for the Amateur's selection is now published, and will be forwarded post free on application.

GUERNSEY and BELLA DONNA LILIES, 5*s.* per doz.
HYACINTHS, choice by name, 6*s.*, 8*s.* and 9*s.* per doz.
Do., MIXED in colours, 3*s.* per doz.
Do., BEDDING VARIETIES, in kinds, each colour, 4*s.* per doz.
Do., MINIATURE FLOWERED VARIETIES, 3*s.* per doz.
TULIPS for Forcing, 6*d.* to 1*s.* per doz.
Do. EARLY SINGLE, and DOUBLE MIXED, 5*s.* and 6*s.* per 100.
Do., LATE, show varieties, mixed, 1*s.* per doz.
SNOWDROPS, single and double, 2*s.* per 100.
WINTER ACONITES, 2*s.* 6*d.* per 100.
CROCUS, in sorts, 1*s.* 6*d.* and 2*s.* per 100.
SCILLA SIBIRICA, 7*s.* 6*d.* per 100.
ANEMONES, 3*s.* 6*d.* and 5*s.* 6*d.* per 100.
RANUNCULUS, 3*s.* to 5*s.* per 100.
AMARYLLIS, by name, 3*s.* 6*d.* each,
GLOXINIAS, by name, 9*s.* and 12*s.* per doz.
ACHIMENES by name, 2*s.* 6*d.* and 3*s.* per doz.
GLADIOLUS BRENCHLEYENSIS, 3*s.* per doz., 20*s.* per 100.
" GANDAVENSIS, the finest collection offered in England.
CYCLAMEN, a choice collection of 20 varieties by name.
OXALIS, by name, 40 varieties offered.
IXIAS, mixed, 1*s.* per dozen; 40 varieties in collection offered, the inferior kinds discarded.
BABIANA, SPARAXIS, and TRITONIAS, each 1*s.* 6*d.* per dozen.
LILIES, 60 fine varieties offered.
TRITOMA UVARIA, 12*s.* per doz.
TRITONIA (CROCOSMA) AUREA, 3*s.* per doz.
EARLY SPRING-FLOWERING PLANTS, in various colours, as HEPATICAS, DOUBLE PRIMROSES, VIOLETS, CHRISTMAS ROSE, and 60 other early-flowering perennials.
Strong Clumps of NEAPOLITAN and other VIOLETS in pots for winter blooming.
Do. LILY of the VALLEY.

Wellington Nursery, St. John's Wood, London, N.W.

30,000 Hyacinths, 30,000 Tulips, 10,000 Narcissus, and 100,000 Crocus in varieties.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, the largest Grower of the above in England, J. H. B. has again purchased, for ready money, in Holland, in addition to his usual large Stock, the above surplus Stocks of some very large growers, which he now offers at unheard of low prices. The following Roots for 1*l.*:—50 Hyacinths in 25 splendid sorts; 150 Early Tulips, sorts; 200 Crocuses, mixed; 50 Snowdrops, and 12 very large noble Narcissuses. Half the above quantity for 10*s.* 6*d.*

HYACINTHS, in 10, 20, 30, 40, or 50 splendid varieties, at One Guinea per 100. Less by the 1000.

LILIUM LANCIFOLIUM RUBRUM (true), large roots, 1*s.* each, 10*s.* per dozen, 3*l.* 5*s.* per 100, or 30*l.* per 1000.

N.B. To save trouble all Orders to be prepaid.

Catalogues.

PAUL AND SON have just published their NEW DESCRIPTIVE PRICED ROSE CATALOGUE for 1863-64.

DESCRIPTIVE CATALOGUE of HYACINTHS and other DUTCH BULBS, post free.

Also their DESCRIPTIVE CATALOGUE of EVERGREENS, DECIDUOUS TREES, CONIFERS, AMERICAN CLIMBING and HERBACEOUS PLANTS, post-free for one stamp.

"Old" Cheshunt Nurseries, N.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

JAS. GARAWAY AND CO.'S AUTUMN CATALOGUE for 1863, containing Priced Lists of Shrubs, Ornamental Trees, Conifers, Roses, and Fruit Trees of all descriptions, is now ready, and will be forwarded Post-free on application.

Orders exceeding 5*l.* Carriage Paid to the Irish ports in direct communication with Bristol.

JAS. GARAWAY & CO., Durdham Down Nurseries, Bristol.

HOLLAND AND BAYLEY'S DESCRIPTIVE PRICED CATALOGUE of Carnations, Picotees, Pinks, Pansies, Phloxes, Auriculas, Polyanthuses, Azaleas, Roses, Apples, Gooseberries, Currants, &c., is now ready, and may be had on application.

Bradshaw Gardens, Chadderton, near Manchester.

NEW FORCING GERANIUM, MRS. LEWISLOYD.—Rich crimson with dark maroon blotch in top petals; of dwarf robust habit, and most profuse bloomer. Forces into flower at any season without drawing. It was exhibited to the Floral Committee of the Royal Horticultural Society on March 31, and then awarded their Certificate of Commendation. Good Plants now ready, 7*s.* 6*d.* each.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Woking Nursery, Surrey.

GEO. BAKER begs to announce that his extensive Collection of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

EDWARD TAYLOR, NURSERYMAN, Malton, Yorkshire, offers—

		s.	d.
BLUE DUTCH CROCUS	Per 1000	10	0
YELLOW DUTCH CROCUS ..	,,	10	0
WHITE ,, ,, ..	,,	14	0
STRIPED ,, ,, ..	,,	14	0
WINTER ACONITES	Per 100	2	0
GLADIOLUS BRENCHLEYENSIS	,,	20	0
DOUBLE VAN THOL TULIPS ..	,,	3	0
DOUBLE TOURNESOL TULIPS	,,	6	0
DOUBLE REX RUBRORUM TULIPS	,,	6	0
DOUBLE YELLOW ROSE TULIPS ..	,,	6	0
MIXED HYACINTHS	,,	17	6

ANEMONES, 4*s.* per lb., or 100.

CATALOGUES gratis on application.

PAUL'S NURSERIES, WALTHAM CROSS, N.

ALL THE FIRST PRIZES

OFFERED TO NURSERYMEN FOR HYACINTHS

BY THE ROYAL HORTICULTURAL SOCIETY IN MARCH LAST,

WERE AWARDED TO WILLIAM PAUL.

WILLIAM PAUL

Has now much pleasure in offering the following, of first-rate quality:—

HYACINTHS, the finest SINGLE and DOUBLE, for Show or Decorative purposes, 9*s.* to 15*s.* per doz.; 60*s.* to 100*s.* per 100.

HYACINTHS, SINGLE and DOUBLE, good sorts for early Forcing, 6*s.* to 8*s.* per doz.; 50*s.* per 100.

HYACINTHS, SINGLE or DOUBLE, in separate distinct colours for Beds or Borders, 3*s.* per doz.; 21*s.* per 100.

POLYANTHUS NARCISSUS, best sorts, 3*s.* to 4*s.* per doz.

TULIPS, EARLY SINGLE and DOUBLE, for Pots or Massing, the finest and most distinct sorts, 9*d.* to 3*s.* per doz.; 5*s.* to 12*s.* per 100.

CROCUS, in 20 best selected sorts, 2*s.* to 5*s.* per 100.

JONQUILS, LARGEST DOUBLE, sweet-scented, 2*s.* 6*d.* per doz.

ANEMONES, RANUNCULUS, GLADIOLI, &c.

PRICED DESCRIPTIVE CATALOGUE, Free by Post.

BECK'S NEW SEEDLING PELARGONIUMS,

OFFERED FOR THE FIRST TIME.

B. S. WILLIAMS,

PARADISE AND VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Has much pleasure in stating that he has been entrusted with the distribution of BECK'S NEW PELARGONIUMS; and from the reputation the Flowers sent out yearly by this raiser have enjoyed for so long a time, B. S. W. is enabled with great confidence to bring before the public notice the forthcoming NOVELTIES, which have received Certificates of the highest merit during the past and previous seasons. They have been selected with great care, and are far in advance of any yet offered.

Strong and well-established Plants will be ready about the end of October.

BECK'S NEW SHOW PELARGONIUMS.

	Each.—s.	d.
DIANA.—Good habit, abundant bloomer, constant and well shaped; maroon back petals, narrow margin of crimson, well defined; lower petals deep pink, slightly blotched. Fine for exhibition	21	0
HECTOR.—Large round flower of fine quality, good substance, and free; top petals maroon, crimson margin; lower petals warm pink, pure white eye..	21	0
PRINCESS of WALES.—Free bloomer and constant; long in the bottom petals; back petals crimson maroon, even and rich in colour; lower petals warm, salmon-veined and slightly blotched, large distinct white eye. Very effective	21	0
PARIS.—Excellent habit, very free bloomer; top petals maroon, rosy margin; lower petals rosy pink, white eye. Fine exhibition flower	21	0
SCARLET NONPAREIL.—Constant, free bloomer, good habit and substance; high scarlet colour, with dark maroon blotch on top petals. Fine for exhibition	21	0
THE CHARMER.—A very effective and constant variety, good in quality and substance; flowers large; back petals lively maroon, shaded with a lively carmine edge; lower petals deep carmine, white eye, good shape and habit. First quality ..	21	0

The above Set for £5 5*s.*

BECK'S NEW SPOTTED PELARGONIUMS.

	s.	d.
DISPLAY.—Large free-blooming variety; pink, with large maroon spots. Very effective; good for exhibition ..	15	0
MAGGIE.—Top petals maroon, white margin; lower petals light pink; maroon spots; good habit, abundant bloomer. Fine exhibition flower	15	0
SPOTTED NONPAREIL.—Habit good, an abundant bloomer; top petals maroon, with pink margin; lower petals rosy pink, with large maroon spots	15	0

NEW SHOW PELARGONIUM, QUEEN BERTHA.

B. S. W. has much pleasure in offering the above-named Pelargonium, the seedling production of Mr. G. SMITH. Having seen it in bloom during the past season, he can confidently recommend it as a valuable addition to this beautiful class of plants.

QUEEN BERTHA.—Upper petals dark maroon, lower petals mottled rose, white centre, very large flower, of fine form and substance. First-class exhibition plant .. .. 15*s.*

In connection with the above, B. S. W. begs to draw attention to his GENERAL LISTS of SHOW, FANCY, and SPOTTED PELARGONIUMS, which embrace all the known really good kinds.

A PRICED and DESCRIPTIVE CATALOGUE post free to all applicants.

ESTABLISHED UPWARDS OF A CENTURY.

BUTLER & McCULLOCH,

COVENT GARDEN MARKET, LONDON, W.C.

All Orders amounting to 21s. sent Carriage Paid.

COLLECTIONS of BULBS for GREENHOUSE or CONSERVATORY.

Purchasers who may not require all the sorts mentioned, can have increased quantities of other kinds, or if they think proper, may select from the Catalogue to the amount. The numbers in the columns indicate the quantity of Bulbs in each Collection.

	No. 1. £5.	No. 2. £2 10s.	No. 3. £1 5s.	No. 4. £1 1s.	No. 5. 10 6d.
HYACINTHS, for Pots, Glasses, or Moss, named varieties ..	60	30	15	15	12
POLYANTHUS NARCISSUS, do. do., do. ..	26	13	6	6	3
TULIPS, single, do. do., do. ..	50	25	12	..	..
,, double, do. do., do. ..	50	25	12	..	..
,, DUC VAN THOL, single	25	12	6	6	12
,, ,, scarlet	12	6	3	3	..
,, ,, rose	12	6	3	3	..
,, ,, yellow	12	6	3	3	..
JONQUILS, double, sweet-scented..	12	6	3	3	3
,, single, ,, ...	12	6	3	..	..
LILIUM LANCIFOLIUM	3	2	1	1	1
IXIAS	25	12	6	6	3
SPARAXIS	25	12	6	6	3
BABIANA	6	3	1	6	3
CYCLAMEN	6	3	2	1	..
VALLOTA PURPUREA	1	1	1	..	..
AMARYLLIS FORMOSISSIMA	12	3	3	3	..
NEWEST SEEDLING CROCUS, named varieties	200	100	50	50	50
SCILLA SIBIRICA	12	6	6	3	3
OXALIS SPECIOSA	25	12	6	6	3
TROPÆOLUM JARRATTII..	1	1	..	..	..
IRIS PAVONIA	6	3	3	..	..

BARR & SUGDEN 12 KING ST. COVENT GARDEN

Orders amounting to 21s. sent Carriage Paid.

£34 10s. Prizes for Hyacinths, Tulips, and Crocus.

The Royal Horticultural Society in March, 1864, offer PRIZES to the above amount for HYACINTHS, TULIPS, and CROCUS.

For DESCRIPTIVE LIST of NEW and EXHIBITION HYACINTHS, TULIPS, and CROCUS, see Barr & Sugden's "ILLUSTRATED FLORAL GUIDE," price 1s.

HYACINTHS.

100 in 100 exhibition varieties .. 105s.	100 in 100 extra fine varieties .. 84s.	100 very fine varieties .. .. 63s.
50 in 50 ,, ,, .. 50s.	50 in 50 ,, ,, ,, .. 42s.	50 ,, ,, ,, ... 30s.
24 in 25 ,, ,, .. 25s.	25 in 25 ,, ,, ,, .. 21s.	25 ,, ,, ,, ... 15s.
12 in 12 ,, ,, .. 15s.	12 in 12 ,, ,, ,, .. 12s.	12 ,, ,, ,, .. 8s. to 9s.

TULIPS.

100 in 50 exhibition varieties .. 25s.	100 in 30 exhibition varieties .. 17s. 6d.	25 in 25 exhibition varieties .. 5s. 6d.
100 in 40 ,, ,, .. 21s.	50 in 25 ,, ,, .. 10s. 6d.	12 in 12 ,, ,, .. 3s. 0d.

CROCUS.

500 in 20 exhibition varieties .. 21s. | 250 in 20 exhibition varieties .. 10s. 6d. | 100 in 20 exhibition varieties .. 4s. 6d.

COLLECTIONS of BULBS (see our Advertisement, page 886, *Gardeners' Chronicle*, Sept. 19), for the adornment of the SPRING FLOWER GARDEN, CONSERVATORY and SITTING-ROOM.

For PRICES of BULBS generally, see our Advertisement, page 958, *Gardeners' Chronicle*, Oct. 10.

For PRICED and DESCRIPTIVE LISTS of BULBS necessary for WINTER and SPRING GARDENING, with the best methods of successfully cultivating and advantageously arranging them, see

BARR & SUGDEN'S

ILLUSTRATED FLORAL GUIDE TO WINTER AND SPRING GARDENING.

THE SEMPER FIDELIS RASPBERRY.

MESSRS. JAMES SCLATER & CO.,

DEVON NURSERIES, near EXETER,

As the largest Fruit Growers in the West, can with every confidence recommend this most productive and superior Fruit. The canes from 10 to 12 feet in height, and the fruit proportionately large, of fine flavour, pleasing red colour, and very solid. The canes are of that strength and the wood of that peculiar hardness that they require no support. The most certain cropper, producing fruit in corymbs from 18 inches to 2 feet in length, from the bottom of cane to the top, fruiting in clusters from every eye, producing fruit from July to October. They have been seen by numerous first-class Horticulturists, whose testimonials can be had on application.

All Orders supplied in strict rotation at 100s. per 100 Canes, or 18s. per dozen.

Carriage paid to London, Bristol, or Plymouth.

MESSRS. HURST and SON, SEED MERCHANTS, 6, LEADENHALL STREET, SOLE LONDON AGENTS.

Sutton's Unrivalled Collections of Bulbs.

SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.

SUTTON'S GUINEA COLLECTION for BEDS and BORDERS.

For particulars see SUTTON'S AUTUMN CATALOGUE, which may be had Gratis and Post free.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

HYACINTHS for EXHIBITION.
FRESH IMPORTED BULBS.
SUTTON'S SELECTION.

	Per 100.	Dozen.
Finest sorts by name ..	£4 4s.	12s.
Very fine ditto ..	3 10	9
Good ditto ..	2 10	6

Good Hyacinths for Beds, Ribands, &c. in separate colours (fresh imported), 21s. per 100.

Anemones, Crocuses, Tulips, Gladioli, &c., also very low in prices, as per CATALOGUE, which may be had gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

New Azaleas.

AZALEA (INDICA) QUEEN of BEAUTIES.—Mr. William Bull begs to announce that he has purchased from M. Ambroise Verschaffelt the sole right of supplying this exquisite variety in the United Kingdom.

Description.—Salmon pink margined with white, and flaked with carmine, densely and very richly spotted with crimson; flowers large, of good shape and substance; one of the best Azaleas ever offered. Price 21s. each.

AZALEA (INDICA) WAXWORK.—Unusually thick wax-like petals; flowers immensely large and finely formed; pure white striped and flaked with purple, a most desirable variety, there being only one or two kinds of white striped with purple (and these not to be compared to the one now offered), while there are several whites striped with red. Price 21s. each.

AZALEA (INDICA) WILLIAM BULL.—This variety was raised in Belgium, and named by M. Ambroise Verschaffelt, from whom the stock for circulation in the United Kingdom was purchased. The flowers individually are of unusual size and substance, double, and well formed; colour, crimson and violet. Price 15s. each.

AZALEA (INDICA) BELLE GANTOISE, 7s. 6d.
HORTENSE VERVAENE, 7s. 6d.
MADAME AMBROISE VERSCHAFFELT, 7s. 6d.
MADAME WAGNER, 15s.
PRESIDENT HUMANN, 21s.
REINE DES DOUBLES fol. VARIEGATA, 7s. 6d.
SOUVENIR DU PRINCE ALBERT, 21s.
SECRETAIRE CLAUS, 10s.
VICOMTE DE FORCEVILLE, 15s.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE is HEREBY GIVEN that an ELECTION of THREE PENSIONERS on the Funds of this Institution will take place in JANUARY NEXT. All persons desirous of becoming Candidates are requested to send in their applications to the Committee on or before the 12th November next, after which time they will not be received.

Preference will be given to those Candidates who may have been Subscribers to the Society for 15 years and upwards. Should it happen that there are not sufficient Applicants of that class, then the Claims of those who have not subscribed so long or not at all, will be considered.

Application to be made upon printed forms, which may be had upon applying to the Secretary.

By Order, Edward R. Cutler, Secretary.
14, Tavistock Row, W.C.—October 17.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 17, 1863.

One of our Correspondents, in the course of some observations on a recent horticultural exhibition at Stettin, has remarked that on the continent the public riding schools are very frequently selected as the *locale* of the flower shows; and hence, he hints at the possibility of a simple wooden building being after all the most economical and useful structure, if not also the most appropriate, that can be contrived for such a purpose. As the question of shelter is one of the most important considerations in respect to the very existence of flower shows in our climate, and is, just now, a pressing consideration with one of our great exhibition-holding Societies, we venture to offer a few remarks on the different ways in which it may be afforded.

The practical difficulty lies in the choice of materials to be employed, and the alternatives would seem to be these:—1, masonry; 2, wood; 3, iron and glass; 4, canvas. To these may be added a combination of any two or more of them.

The employment of masonry may at once be put out of the question, for a building sufficiently removed from baldness and vulgarity in respect to its style and decorations to be in harmony with the locality in which it was placed, and with the uses to which it was to be applied, would certainly be of far too expensive a character; and after all would be one of the least fit for the purpose, so far as regards an advantageous setting of the horticultural subjects for whose display it was

reared. The flower halls of masonry which have been erected with a special reference to flower shows do not offer any temptations in this direction; neither does the effect of the exhibitions we may occasionally have seen held in some public building of this character—St. James's Hall, for example.

As to wood, the objections seem to us to be pretty much the same as those to be urged against masonry, except as regards the sum total of cost. A wooden building would not display plants better than one of brick or stone, but then it would cost less, and *per contra*, would, of course, be less durable. Neither a building of masonry or wood, by any contrivance that could be adopted for lighting it, would give us the proper kind of light for the most effective display of plants and flowers, and that is argument enough against them both.

A building of glass and iron of appropriate size, and effectually shaded in bright sunny weather, would be all that could be desired in one point of view. The shelter would be perfect, and the light could be regulated so as to be exactly what was wanted either in dull or bright weather. It would have the advantage over tents in this respect; for though in bright weather tents are all that can be wished, yet in dull weather, and especially in the spring months, they are too dark. The glass building however must be of moderate size—not a Crystal Palace nor an Exhibition building, both of which afford about the worst possible conditions for the effective display of plants, and are tolerable only on the ground of providing comfortable accommodation for the visitors. But then after all, a building of glass and iron is a costly toy; and in hot weather there is the strong objection to it that the temperature cannot very readily be kept down without draughts, or the employment of a good deal of ventilating apparatus, which latter would make it all the more costly.

The canvas tent, of ample size, is without doubt the *beau ideal* of an exhibition place—provided only the external requisites of sunshine and fair weather can be secured. But there's the rub. We suppose that on an average, half the number of days on which our great metropolitan shows are held turn out to be either drenchers or drizzlers, and on these wet days the best of tents is simply wretched. A large tent, too, is a very costly plaything, so that it has no recommendation on the financial score.

Putting this and that together, we have long made up our minds as to what any contrivance for the shelter of an exhibition in the climate of London and on the metropolitan scale ought to realise. It ought to secure at least these three conditions:—First, that the subdued, but equably diffused light of a tent—such a light as is produced under canvas on a bright day—may be imitated. Secondly, that there may be absolute immunity from the discomforts attendant upon a pluvial day. And, thirdly, that the exhibited subjects may not be depreciated by the size or accessories of the arena whereon their merits are to be contested. Where a Crystal Palace or an International Exhibition building exists, the second point being assured, a very little contrivance may fairly realise the rest, but decidedly Crystal Palaces would not be our models for any buildings to be contrived for the purposes of plant showing; they are too large, with too confined an atmosphere. Neither should we be inclined to brave all chances of tempestuous weather, and pitch our tents for the reception of the plants and company; they are too often too dewy and too breezy to be enjoyable. Our model would rather be constructed thus:—A simple glazed roof, made up of a sufficient number of small spans, all on the same level or of different heights (as for example with a raised centre, or raised ends, or both), as might be preferred; supported on hollow iron columns to carry off the water; festooned with drapery on the inside to moderate the light, the drapery being readily removable in dull weather, or in spring time; and closed in at the sides with canvas walls, so far as might be desirable during the time of the exhibition. Such a structure would be comparatively cheap; it would also be permanent, and it would secure all the desiderata of a floral exhibition, so far as its surroundings were concerned, namely, subdued light, abundant and controllable ventilation, dryness, and ample but not overpowering space.

If we may venture to apply these opinions to the circumstances of the Royal Horticultural Society, which, now that it is certainly to lose its monster neighbour, *must* provide some other accommodation for its exhibitions, we should say at once—as converting a present eyesore into something useful and enjoyable— put a simple glazed roof to the arcades, close up the front openings with glass in such a way that sufficient ventilation may be obtained in hot weather, and here and there throw across a glazed partition to prevent draughts. This would make a useable if not a model place for exhibitions, and would convert what is now for nine-tenths of the year utterly unenjoyable into a pleasant promenade, which might be still further improved by having its walls covered with Camellias, Roses, &c., and by being furnished with removable evergreens when not required for exhibition purposes. A more perfect exhibition building, according to the model we have slightly sketched, might of course be put up on the spot where the monster tent once stood; and as that luckless canvas might in this way be turned to good account, no better course could be adopted, so far as the exhibitions themselves are concerned.

A CONTINENTAL newspaper reports the result of an unexpected visit made by the EMPEROR of the FRENCH to see some experiments in cultivation by M. DANIEL HOOIBRENCK, upon M. JACQUESSON'S estate at Epernay. The statement is by no means clear, but we believe the following to be its meaning. The system has not been applied to fruit trees more than eighteen months. We are assured that it is founded upon a grand law of nature, "observed and discovered" by M. HOOIBRENCK, according to which law, when a branch has a certain inclination below the horizontal, all the nutritive gases absorbed by the leaves combine with the sap to mount upwards, nourishing the fruit in its way, and at last rejoin the trunk or principal stem, giving it additional strength, and forming a depôt of nutritive matter, to supply any deficiency which may occur through the destruction of a branch. After numerous minute observations, M. HOOIBRENCK was of opinion that the inclination which answered best was 112½°, reckoning from the vertical, and dividing the circumference into 400°. This system of cultivation has been applied to all fruit trees, vegetables, and even to the flowers of M. JACQUESSON'S kitchen garden. All the Vines belonging to M. JACQUESSON'S son, that is to say a space of 190 acres, partly at the chateau of Sillery and partly at Châlons, have been cultivated in this manner, and the results obtained surpass all expectation. His Excellency the Minister of Agriculture has already sent a commission composed of MM. PAYEN, DECAISNE, and PEPIN, to investigate the question, and we expect their report with no little curiosity.

The attention of the EMPEROR was afterwards drawn to a new method of artificially fertilising Corn crops, also the invention of M. HOOIBRENCK. The method is very simple, being merely a rope 20 or 30 yards long, covered with a fringe of wool of 25 or 30 centimetres deep, resembling a long woollen comb, which is drawn across the field two or three times whilst the corn is in flower. The pollen sticks to the woollen threads and is then deposited upon the female organs of the ear; fertilization thus takes place, we are told, with a regularity and a completeness which the finest season cannot ensure. This experiment, we are assured, has again been made at M. JACQUESSON'S Chateau de Sillery upon 200 acres of Wheat, Rye, Barley, and Oats. A commission has also been appointed by the Minister to examine into the results thus obtained, the members being MM. PAYEN, DAILLY, and SIMON. Without anticipating the report of the Commissioners, says the French Journal, we are happy to state that from each area of the different corn crops experimented upon, the following results have been obtained—

	Litres.		Kilos.
Rye not fertilised	22.6	weighing	16
Rye fertilised	34.6	,,	25.5
Wheat not fertilised	30.5	,,	21
Wheat fertilised	41.5	,,	31
Barley not fertilised	28	,,	16
Barley fertilised	40	,,	24
Oats not fertilised	30	,,	12
Oats fertilised	42	,,	17

This discovery would seem to be capable of immense results, since M. HOOIBRENCK has increased the quantity of his crop by about 50 per cent. without sensibly increasing labour. It is also to be observed, that this year's harvest being abundant is rather against the experiment, the difference being much more evident in a worse season.

WE have given at p. 963 a short descriptive sketch of the extremely interesting SUB-TROPICAL GARDEN IN BATTERSEA PARK, and we have now the pleasure of explaining, in his own words, the mode of cultivation which Mr. GIBSON has practised with so much success upon these so-called tender plants, this very result being suggestive that more remains to be accomplished in the same direction. It will be seen that the foundation of success lies in an ingenious and novel way of providing bottom-heat, which Mr. GIBSON thus describes:—

"In reference to the treatment of Cannas and other foliage plants in the sub-tropical garden in this park, I would in the first place advert to one point in their cultivation heretofore practised in England, which has been most probably suggested by the treatment said to prevail on the Continent, viz., the use of hot manure, which has been considered necessary as a means of warming the soil in which such plants were intended to be grown, in order to ensure their successful cultivation in the open air. That plan was adopted here last season upon a limited scale, but it was found both expensive and troublesome, though the result was more or less satisfactory. The difficulty of obtaining hot manure in sufficient quantity, and the expense of preparing the beds in this way, would thus have rendered it necessary to confine the cultivation of foliage plants within narrow limits. Attention was therefore directed to the subject, and the idea was formed that sufficient warmth could be obtained for the growth of such plants, without the aid of hot manure, by forming the beds upon a mass of brick rubbish above the ordinary level of the ground, placing them in such form as to admit of solar action upon their sides during the whole day, in order that more or less warmth might be absorbed from the sun's rays. It was thought that if this could be done, the brick rubbish would retain the warmth for some time, and the result has justified the expectations which had been formed.

"The raised beds in this sub-tropical garden were consequently formed upon heaps of brick-bats, 18 inches to 2 feet thick, according to the width of the bed, the latter being first excavated 9 inches below the ground line; the brick-bats were so placed as to form at the edge an angle of about 25°, extending 2 feet or more beyond the outside of the bed all round; and upon the marginal slope thus formed,, only about 3 inches of mould was placed for the Grass to grow in. Turf was then placed over the brick-bats, the grassy side downward, and the prepared compost was filled in to the depth of from 9 to 12 inches. This compost consisted of leaf-mould, loam, and river (Thames) sand, forming a rich soil, of which the slopes of the beds were also formed. This arrangement, which secured the most perfect drainage, rendered it necessary that water should be applied copiously in dry weather; but in wet weather the soil did not become saturated, and to prevent this is of as much importance to these plants as copious artificial waterings are in dry weather. The beds were made quite level on the surface, in order that water might pass *equally* through the whole mass of soil. The Grass on the slopes of the beds being so near the brick rubbish, has required frequent waterings in dry weather to prevent its becoming brown and unsightly.

"The shape of the beds was confined to the circular, oval, or oblong. The *ends* of the ovals and oblongs were placed as nearly north and south as circumstances would allow, in order that one or other of their *sides* might receive the sun's rays nearly the whole of the day, which of course resulted in an increased amount of warmth being imparted to the roots of the plants. The soil, thus placed upon brick rubbish soon becoming dry in hot weather, much artificial watering has this season been required. It was moreover found necessary about the middle of August to apply a thorough mulching of rotten manure, which considerably increased the vigour and luxuriance of the plants.

"These beds were planted about the middle of June, and for some time the plants made but little progress. Many of them had been started and grown in heat, and although hardened before being turned out, the Cannas felt the check considerably, and all the foliage they had made under glass appeared to suffer and die off. This would be prevented by adopting the plan of planting out the dry roots of the Cannas at once in the beds, as practised on the continent; and having planted two beds in that way this season, I am satisfied it is the best plan, and intend to adopt it in future, planting them out in May. The Cannas, however, that were started in heat, after having recovered the check, commenced growing most vigorously, each succeeding shoot being stronger than before, and they have

nearly filled the beds with their underground roots. Canna Annæi has attained the height of 8 feet, and C. robusta, discolor, and zebrina, from 5 to 6 feet, while the dwarfer growing kinds have shown equal luxuriance; Ferdinandia eminens from spring-struck cuttings has grown 9 feet high, and similar plants of Wigandia caracasana have reached from 6 to 7 feet high."

Success such as this is certainly enough to fortify Mr. Gibson in his opinion, that much may yet be done in the way of preparing or hardening tropical plants for a summer's exposure in the open air of our English climate. Upon this matter of extension, some experience has been gained in the sub-tropical garden in question during the present year. Thus it was found that of several plants of the same kind turned out at the same time, some stood perfectly well, while others that had not fully made their growth and ripened their shoots, and whose leaves had not become sufficiently hard, suffered more or less. The inexperienced need therefore to be cautioned against turning out tender plants while in a state of growth from being kept in heat under glass, or before their shoots and leaves have become perfected and hardened; for although plants of the same kinds would probably make shoots out of doors if put out in a proper state of rest, yet they would not bear even the first chill of exposure to the open air if they had begun to grow in heat under glass, and were not matured so as to be in a kind of resting state. This has been especially remarked with Cannas, Musas, &c.

Mr. Gibson has also observed in reference to shelter, that the protection afforded by large trees only is insufficient for these tender plants, which are known to suffer more or quite as much from the under-current below the "browsing-line" such as that formed by cattle, or by pruning artificially for head-room, as when fully exposed. Yet large trees with belts of shrubberies underneath, so placed as to intercept the under-current, are capable of forming the most perfect shelter. This latter is the kind of shelter afforded by the arrangements in the formation of the Battersea Park sub-tropical garden.

In reference to the extension of this idea of growing plants usually thought to be tender in the open air during summer, Mr. Gibson, remarking on the common practice of placing Cape and New Holland plants in some back enclosure out of sight during the summer months, and also that of overcrowding the splendid collections of stove plants to be found in many English gardens, points out, that "if the plan adopted in the sub-tropical garden at Battersea Park should eventually succeed in the average of seasons, and should be adopted by the possessors of such collections, so that the plants may be tastefully arranged in a suitable spot in the open garden, much more real enjoyment would be secured than is now the case. The principle is capable of further extension, and I would venture to apply it to the Orchid house with as much confidence as to the stove. Here, indeed, one must be influenced in some measure by the known value of many of the kinds, and there are others that one would not think of so exposing. It would, however, be a pleasing task to try many of our old favourite Orchids in the open air, under such shelter and shade as before described; and amongst those for trial would be found Cœlogyne Wallichii, maculata, and others; Phajus and Cypripedium, several species of each; Dendrobium nobile, moniliforme, cœrulescens, heterocarpum, formosum, Cambridgeanum, Devonianum, chrysanthum, and others. As an inducement to institute these trials, the success which has attended similar attempts on the Continent may be fairly quoted."

We have just had the satisfaction to receive some remarks on Cotton Cultivation and Hybridization from the pen of Dr. Wight, perhaps the most experienced of our scientific friends in this great question. They unfortunately arrived too late for insertion this week, but they will be certainly found in our next issue. The subject is second to nothing in importance, and we cannot but feel that English horticulturists, skilful as they are beyond all men in what relates to such management, if assisted by observers practically familiar with the details of Indian husbandry, will throw a new light upon the whole question.

—— The Rev. Mr. Radclyffe gives in the September *Florist* his out-door experience of the Roses of 1862—a season of which he remarks, in reference to these flowers: "I never knew so many good ones come out in one year." He places them thus:—1. *Extra Choice, and A* 1: Maurice Bernardin, Duc de Rohan, Charles Lefebvre, Prince Camille de Rohan. 2. *Choice and A* 1: Beauty of Waltham, Madame Boutin, Maréchal Vaillant, François Lacharme. 3. *Fine, fit for show, good but not choice in colour:* John Hopper, L'Eblouissante, Madame Charles Wood, Madame Clemence Joigneaux, all good constitutioned varieties, strong growers and good bloomers. 4. *Good:* Professor Koch, Mademoiselle Julie Daran, Mademoiselle Ernest Dréol, Turenne, Vicomte Vigier, Alphonse Damazin, Archevêque de Paris. 5. *First-rate full-sized show Roses of doubtful constitution:* Emile Dulac, Gloire de Chatillon; only fit for first-class lands and favourable situations. In the number for October, he adds:—1. *Roses since proven*: Olivier Delhomme. 2. *Roses previously mentioned that have bloomed lately and beautifully:* Beauty of Waltham, Maréchal Vaillant, Le Rhone, Turenne, Professor Koch, Madame Boutin. 3. *Roses of* 1863: Mrs. William Paul, a beautiful first-class Rose, which lives and dies well; Madame Brianson, has the appearance of a very superior Rose; 3. Madame Alfred de Rougemont, French white, valuable for its colour and continuous blooming. Most of these have been recommended in other quarters, and may be pretty safely recognised as acquisitions.

ON THE CHANGE OF PLUMAGE IN SOME BIRDS.

We have here, the year throughout, from 14 to 40 Canada geese, which are not sufficiently domesticated to be considered private property, nor wild enough to be under the denomination of *ferœ naturæ*. They come and go we know not whither, and this is all that we can say of their frequent flights across the heavens when they suddenly take wing.

At the summer solstice the long feathers in the wings of these birds drop off, but their places are supplied by new ones with wonderful rapidity; so that, in the course of about one month, they are enabled to fly again. Although the young birds of this year do not lose the long feathers in the wings, still their entire plumage undergoes a marvellous change of colour. After passing through the gosling state, we see the succeeding feathers throughout the whole body gradually acquiring the tints of an adult bird; and by the end of summer the young geese can scarcely be distinguished from the old ones, except by size. During the privation of the powers of flight, these old birds, cunning as the Hanoverian rat, keep close to the water's edge, ready for a plunge in case of danger. But we never take advantage of Dame Nature's mysterious arrangements in these affairs, and thus the disabled geese are allowed to live free from slaughter, to the evident disappointment of the longing cook-maid.

Whilst treating of geese I would fain add a word or two of their eccentricities. In the flock of our Canadian geese there may be seen at present an individual of snow-white plumage. It is an intruder, having formerly belonged to a flock of common domestic geese, which were purchased lean in the autumn, and fattened for the use of the table after winter had set in. I saved its life when all its companions had fallen under the knife of the merciless larder-butcher. This solitary goose, finding that the last of its own companions had disappeared, went and joined the Canadian flock; and it has kept company with its new friends ever since. It is now of great service to us, by pointing out at the close of day the exact locality of its dark associates through the impending gloom.

In the spring of each year it singles out to itself a companion from the Canadians. Still their union is a mere farce, and their loves platonic, but nothing more. They dissolve partnership at the return of summer. This year we hatched a Canadian gosling under a common dunghill hen, which has brought it up with great care. It lives and eats with her, and with her it retires to her own hen-house, without paying the smallest attention to its congeners, which are feeding on the grass in every direction around it. It is tame, almost to a nuisance; and it has already afforded a daily opportunity of examining minutely the gradual change in the colour of its plumage, which has not fallen off, but has even now assumed the appearance of birds in the adult state.

Why these two geese of different species have changed society I cannot tell. "De gustibus disputare nequeo." Perhaps some of our seers, deeply versed in zoological economy, may be able to unravel the mystery. Should they make the attempt, from my heart I wish them better success than when they strove to enlighten the world on the nature and habits of the gorilla, one of the most shy and harmless of its tribe on the whole coast of distant western Africa. *Charles Waterton, Walton Hall, near Wakefield.*

POTATOS.

We owe much to Mr. Whiting, Mr. Rivers, and Mr. Dean for Potato information. I consider Potatos and Apples to be the two most indispensable things in horticulture, as they can be cooked in more ways, or turned to more account, than any other vegetable or fruit; moreover they can be eaten more prolongedly than any other vegetable or fruit without cloying. A good Potato is essential to the rich as well as to the poor. This, therefore, must be my apology for saying a few words.

Of Kidneys I recommend the following:

1. *The Red and also the White Ash-leaf.*—The Red is larger and hardier than the White, the quality and flavour being nearly the same.

2. *Mona's Pride.*—This is far stronger as a plant than either of the foregoing, and earlier by some days. The tubers are as large, or nearly so, as those of the Fluke. It is an immense cropper, and the quality is excellent. It is a seedling raised from the White Ash-leaf, and kindly sent to me by Mr. Rutledge, of Hague House, Douglas, Isle of Man. I see by a Northern paper that it won a 2*l.* prize and silver medal, at a great Agricultural and Horticultural meeting at Birkenhead, a few days ago. He sent me three white Ashleafs to test that kind, they produced 60 Potatos, but they were nothing like the Monas for size and weight, their average crop being about 14 tubers per plant. He also sent seven small Early Handsworths, which were cut into 13 sets, and produced 218 tubers, chiefly large, but too deep-eyed.

3. *Flukes.*—These are admirable for mid-season and late use, and generally gain the prize for Kidneys at our shows; I have, however, known them to throw out a small excrescence or tubercle.

4. *Prize-takers.*—These are excellent for quality and appearance. They require very good ground.

5. *Silver-skins.*—My servant grows these. They are the best in skin of all Potatos, good croppers, and of excellent quality. He sent some to the Blandford Exhibition, which I fancy did not meet the judges' eyes. The Flukes were larger, but none were equal to them in skin.

6. *Red, and also Salmon Kidneys.*—These are first-rate, and are good till new Potatos are fit to dig.

Kidney Potatos require richer ground and more care than Rounds. Ash-leafs, and those derived from them, should not be much cut. Walnut-leaved Potatos should not be planted till the eye has started. The earth, when placed over them, should be fine. Very early sorts should have an inverted trough like the roof of a house placed over them at night, and the ends, resting on bricks, should be raised as the plants grow. My Monas were so served, and escaped the severe spring frosts, which blackened and cut to the ground (May 7) unprotected sorts, some of which were a foot high. As the roots come out of the eye, I think the eyes should be planted downwards. In my locality people usually plant the eye uppermost.

Secondly, Rounds.—The best in quality I have ever had, are 1, Flourballs; 2, Fortyfolds; 3, Breadfruits; and 4, Early Manns. These are delicious, and fit especially for a gentleman's table. 5, Dalmahoys are good and much like the Fortyfolds. 6, Jersey Blues are good, but too late for blighting seasons. 7. Welsh Whites are good croppers, and of fine flavour. 8. Early Dugdales are excellent for field purposes. Mr. H. Simmonds, Yeoman, of Milborne, sent me a tuber of this sort this year, which weighed at digging time 1½ lb. It is now in my house. The variety is a heavy cropper; and its short and stout greens resist blight well. It is not first-rate in quality.

Finally, Potato Blight.—From the simultaneity of this malady over the world, I am inclined to think that it arose from electricity. The tubers then became injured in their cellular tissue by injury to their lungs; and being debilitated, they afterwards became more liable to fungoid disease—fungus being the "prince of the power of the air" in the natural world. Potato blight may have arisen from fungus only, but I confess that with my glasses I never could detect a spore.

All nostrums here have failed. There has not been a theory "set up" that has not been "set down."

Probably change of seed, change of ground, spare manuring, early ripening sorts, and early planting, afford the best chances of escape; but I have known all these fail. "In Deo fiducia!" *W. F. Radclyffe, Rushton, Oct. 7.*

BIRDS *versus* GARDENS, &c.—No. II.

(*Continued from p. 942.*)

Let us now see what are the statements on the other side. First, a "Country Parson," who thinks the birds ought to be grateful to their advocates, tells us that he, too, has his hobby, which is gardening. I have a weakness for fruit, he says; I am also fond of birds—I like to hear them sing, and to see them about me, and to watch their habits; but I find it impossible to have birds and fruit together. And then he relates his experience of the present year. "In the early spring I had a passing visit from a family of bullfinches, who stayed with me about a week, and were busily engaged in searching the blossom-buds (I am charitable enough to suppose) for grubs; but in prosecuting this laudable design they entirely destroyed the prospect of a crop of Plums. A pair of blackbirds made their nest in a Laurel bush close to the house, and not only did the cock bird sing most beautifully, but it was very pleasant to see him "worming" for the support of his family; but directly the Strawberries began to ripen I found my friends a nuisance. The parent birds and their five young ones

were eating Strawberries from morning till night. I could have put up with this, in consideration of the old birds' song; but in a few days other blackbirds came dropping in, and thrushes innumerable—birds from a distance, whose song I had never enjoyed; they cared nothing for the nets with which the beds were covered; they "stocked" the fruit through them; they perched on a new mawkin which I had obtained of a pattern warranted to terrify; they ate a good portion of the fruit. When we had finished the Strawberries among us, they turned their attention to the Raspberries. The weather was now hot, the soil hard, and consequently little could to be done in the way of worming. The result was that out of a considerable plantation of Raspberries we, the proprietors, did not get more than a couple of quarts, and these had to be gathered in a half-ripened condition in order to save them. In this work the blackbirds and thrushes were assisted by robins. Next, the Gooseberries came in. The crop was abundant, but the only portion we were able to secure was the fruit of a few trees which were covered with nets. The rest of the plantation was completely stripped in the course of a few days. Then came a little cessation from fruit. My friends from a distance went away to other gardens, while my own family of blackbirds finished the handsome berries of the Berberries, which happened to be the only edible things left in my garden; to these they are always welcome. I have a particular weakness for Pears, and am very choice in my sorts, but later the blackbirds returned and were pecking at them all day long, assisted by a family of the titmouse, who perhaps do more harm than their larger companions, inasmuch as they "stock" a small hole in one Pear, thus spoiling it, and then go on to another. The rascals will not touch perry Pears, but confine themselves to Mr. Rivers's choicest varieties. Now, what am I to do? It seems that I must give up either birds or fruit. It comes to this. The small birds must be destroyed, or fruit can only be had in orchard-houses."

Then "Cantab" asks for an explanation how it is that because thrushes, blackbirds, wagtails, and titmice feed their young very frequently, therefore sparrows, yellow-hammers, &c., do little or no harm; and he reminds Mr. Morris that sparrows do not wait for corn to be ripe, but eat it as soon as it begins to swell, so that the month during which it is confessed that they live on grain, may be pretty nearly doubled. He believes the mischief done by sparrows, finches, &c., far outbalances any good they may do. They have, he says, a very easy time of it with me, and the result is that the sparrows stop up the waterpipes with their nests, plunder the Peas, and play havoc with small fruits, in spite of nets and watchfulness, while they leave grubs to eat the Gooseberry bushes, caterpillars of the buff-tip to form colonies on the Rose bushes, and those of the Cabbage butterfly to make their appearance at table in the Cauliflowers; and let weeds seed unchecked, except by man or boy. One day's labour in picking or hoeing will destroy more grubs than all the sparrows in the garden in a twelvemonth. With blackbirds and thrushes it may be an open question whether you prefer your Cherries or their song, but you cannot have plenty of both. Yellow-hammers and buntings live much as do sparrows. Titmice do little harm and little good.

At this point a "London Incumbent" gives his experience of several years, which is, that you cannot protect the vested interests of rooks, magpies, jays, wood-pigeons, missel-thrushes, blackbirds, song-thrushes, robins, sparrows, finches, and tomtits, and at the same time retain any vested interest whatever in your own fruit garden.

A writer who signs himself "Sense," and who lives among the Cotswold Hills, in a wooded district, has long since given up in despair any attempt to preserve any kind of fruit (including Peas under this name), unless carefully matted up as soon as it exhibits any indication of ripeness. Unprotected Currants and Gooseberries disappear as fast as they ripen; Apples and Pears are all tapped one by one long before maturity; and in average winters the fruit trees, especially the Gooseberries, are stripped of every bud. Here, he asks, in a garden where the birds are practically unmolested, might we not expect that, however much fruit we lose, we might find some compensation in being rid of slugs and grubs? But he says, the very opposite is the case; the plague of these vermin and of the birds is co-extensive.

"Guy Fawkes" suggests firing a pistol or gun loaded with powder only, some half-dozen times a day, for a few days successively, which will very materially, if not entirely, rid a garden of the intruders.

To these heavy charges Mr. "Blackbird" makes the following pathetic rejoinder:—

"I am one of a community of little birds living very happily upon a small estate, the proprietor of which will not let us be shot. The gardeners all want to do this, but master won't hear of it. Now, please hear our side, Sir, and judge who takes the fruit. Worms and insects we acknowledge we do, and the gardener won't blame us for this, though he always lays the blame of short fruit crops on us 'little birds.' The estate was taken two years ago by a family who looked very sharp after, not us, but the gardener. They would have their Peas and Asparagus for the gentleman, who was an invalid; so the lady was daily in the kitchen garden, and so were her children, and they watched the growth of all the vegetables and the fruit, and had an abundant supply for themselves, and we were never blamed. They left the next year, and master, who only comes down to the estate in August to stay, though mistress goes there for a day once or twice every month, was told that the short supply which ensued was all our doing. Mistress saw with her own eyes a good crop of Strawberries, Currants, Gooseberries, and Cherries, and appointed an early day for preserving. She did not quite keep to the day, but, going a few days after, every kind of fruit, Sir, was gone, and we the little birds had eaten them in four days. So no preserves were to be had that year. The gardener shot a jay, and tied his carcase to the remainder of the Pea plot, because he quoted Latin, and said '*Credat judæus Apella*,' when the little birds were accused by him. Shortly after a fine crop of large Cabbages were taken by the gipsies, who appeared to have crossed a neighbour's garden, well stocked with these, to take ours. Pray, Sir, do tell the 'Country Parson' to try a change of gardener, instead of recommending extermination of us little birds, every two of which Parson Rook says were worth a farthing 1863 years ago, and so must be worth much more now. Stick up for us, Sir, and we will engage to cleanse your trees and crops, and will sing you a morning and evening song, which is all we can do for those whom we love, and who love us."

EXHIBITION FLOWERS.

The Tulip.

Many will no doubt shake their heads in firm belief that the Tulip is not a popular flower, and that because fabulous sums are not now given for a single root, as in days of yore, that few trouble their heads about them. With the Tulip, as with the Fancy Pansy, the English florists have completely taken the wind out of the foreign florists' sails, and the Dutch growers would certainly now find a great difficulty in sending us over a new kind which would beat or even equal kinds now known to us as of home produce. A few days since I was looking over a catalogue of one of the finest collections in Holland, and find our Dutch friends are a very long way behind us in first-class sorts, and that we should refuse to grow a great many which they call first-rate. The truth is that English florists mark out for themselves a high standard of excellence, and leave no stone unturned to gain it. This has been particularly the case with the Tulip, and Mr. Headly, Mr. Willison, the late Mr. Groom, and several other keen Tulip growers have raised a large number of first-class seedlings, some already distributed, and others shortly to be so, many of them more or less valuable additions to our existing collections.

Tulips, however, do still fetch high prices, for new kinds are generally let out at from one guinea to five guineas a bulb. A list of new kinds just issued by Mr. Wm. Willison, of Whitby, describes 17 new kinds ranging from 2*l.* to 7*l.* 10*s.* a bulb. Mr. Turner publishes one of the best catalogues, and the prices will be found to range from 2*s.* 6*d.* to 4*l.* 4*s.* Although there is not so much talk about Tulips as formerly, I believe they are quite as much grown. Years back it was the fashion to grow them, just as people have since rushed into the Cochin China fowl business; then it ceased to be a mania, and became a pleasurable pursuit to those who are now the acknowledged cultivators of this really beautiful flower. There are still a great many growers in the south, especially about Stratford and other parts of London, whilst Mr. Turner's fine collection at Slough must be worth several hundred pounds, for he added largely from the late Mr. Groom's stock, and more recently from the fine collections of the late Mr. Lawrence and Dr. Sandars.

Every Tulip grower knows of Mr. Headly's fine seedlings, but those outside of the charmed circle will not be aware that Mr. Richard Headly, of Stapleford, near Cambridge, has an extraordinary collection of seedlings, many of which will, in all probability, be brought to the hammer next summer. Then there are several other growers about London, such as Mr. Norman, Mr. Brown, Mr. Williams, and a host of others who are enthusiastic cultivators, and also raisers of seedlings.

I know no class of florists so truly fond of a flower as Tulip growers are of the Tulip. There is a wonderful enthusiasm amongst them, and it is of no use for any anti-Tulip individual to hope to get much conversation out of them during the blooming season, unless about Tulips. This floral brotherhood is even more strongly developed northwards, especially in Lancashire, Cheshire, and Yorkshire, great strongholds of the Tulip, and where there are numerous exhibitions held purposely for this flower. Should any person doubt what I am saying, let him during the month of June next take a run to Manchester, Stockport, Ashton, and other towns, and judge for himself. I know one enthusiastic cultivator who often will stay up nearly all night watching his Tulips, and waiting upon them with more care than he would give his babies; and have heard him declare that his wife would fetch out the blankets from the bed when a storm was imminent rather than the Tulips should incur risk. I strongly advise all those who contemplate becoming exhibitors, to novitiate in Lancashire and get into all the secrets of "collaring" the flowers, both inside and out, and packing them with cotton wadding and mastering all the other little intricacies peculiar to this beautiful but short-lived flower.

None but those who move amongst Tulip growers can have any idea of the great amount of money invested in this flower, and what great interest many working men, even in the manufacturing districts, take in the Tulip. Still, despite the beauty and popularity of the flower, no other is so uncertain as the Tulip, for unlike the Rose, Pansy, Auricula, Ranunculus, and other flowers which are the same in character every year, a very fine Tulip bought for say two or three guineas may the following year prove what is called a "heavy" flower: which means that the colour has gone back to the breeder state.

The breeder state is the early stage of the Tulip's career, for after the seed is sown it is about five or six years before it flowers, and then as a self flower, from which state it will at some time or other break into character, that is, become either a Bizarre, Byblœmen, or Rose, the three classes into which broken, or as they are called, rectified flowers are divided. A Bizarre flower has a yellow ground colour, and is either flaked with some shade graduating between brown and maroon, in which state it is a flamed flower, or it has a margin of colour round the upper portion of each petal, in which case it is a feathered flower. Byblœmens have a white ground colour, and are either flamed or feathered with some shade of rosy purple or violet. A Rose flower has a white ground colour, and is either flamed or feathered with rosy carmine or some shade in which this colour is apparent. Stern laws are laid down regarding form, which should be nearly two-thirds of a ball, and purity is held to be indispensable. This means purity of the white or yellow ground colour of the flower, and in which no stain should be perceptible. There are certain points about the marking which would sadly puzzle a novice, but strict rules in judging Tulips are absolutely necessary, and perfection of marking is one of them.

The breaking of Breeder (self) Tulips into flamed or feathered flowers is an enigma which I have never yet heard solved, and I believe it is beyond the power of a florist to state what is the actual cause of this transmission of colour, or positively to state a time within which it can be accomplished. The past summer has given us some extraordinary results with respect to the breaking of Tulips. In the neighbourhood of Derby, Nottingham, and other midland towns, there has been an unusually large quantity of seedlings broken into fine rectified flowers; whilst at Stapleford, near Cambridge, where Mr. Headly bloomed thousands of seedlings, not two in a thousand came other than self flowers. I saw there in May last a large number of roots of Adonis breeder (*i.e.* seedlings saved from Adonis, a feathered Byblœmen flower), every one of which was self-coloured, as in previous years, and about a dozen roots from the same lot given me by Mr. Headly, and planted here in November last, also maintained their original character, and not one broke from it. I also planted several seedling or self flowers of other kinds obtained from growers in the midland districts, and broke six out of each 10 I grew. I am unable to account for this singular fact, and although I have asked many growers to account for it, I have failed in getting information. [Can some philosophical florist throw any light on this curious subject.]

A decided difference of opinion exists on the culture the Tulip should have. I am glad to find that the old fashioned plan of growing a Tulip in poor soil, fearing it would cause the flower to run (*i.e.*, become a self-coloured flower), has less adherents than formerly. Thoroughly rotten manure well dug into the bed some weeks before planting in November, I have found decidedly advantageous. I have now before me a letter from a well known cultivator, Mr. Battersby of Mansfield, Nottinghamshire, in which he replies to a question from me by saying, "I believe growers have generally been over cautious in not allowing a particle of manure to enter into the composition of their soil. I find that a few inches of old frame dung, or pure cow dung, is beneficial when it can be used, and buried some inches below the bulbs; it conduces materially to their strength, and especially when they most require a stimulant, namely, when they are approaching the blooming point. It not only does not prove injurious to the marking of the flower, but will add such vividness to the tints as those only who are bold enough to adopt this method can believe." Of course the Tulip requires shading when in its beauty, but a heavy or dark shade is most objectionable. A very light and almost transparent material should be used, sufficient to deaden the sun's rays, but not to exclude light, if intensity of colour and strength of petal is wanted.

Any amateur wishing to commence Tulip growing, and not having much experience of Tulips, had better consult some respectable cultivator as to the sorts he should start with, but I would caution him to begin with really good kinds, if only a few. He will soon gain experience in growing—indeed not much is wanted, for the Tulip is very easily cultivated; and a knowledge of properties and defects peculiar to the different kinds, will soon be ascertained.

I can speak from experience of my own, and from what I have seen in many others, that the Tulip soon becomes a favourite flower with any person who has a love for florists' pursuits. Not only is there a great variety of rich and beautiful shades of colour, but there is a considerable degree of pleasurable excitement about the uncertainty of the flower: watching for its

opening, and joyously admiring its perfections, or wofully lamenting some defect, it may be a break in the feathering, an impure base, a dirty stamen, or a split petal. It is only in the florist's estimation, however, that either of these flaws is a flaw. To the uninitiated, the flower is still as beautiful as ever. *William Dean, Shipley.*

FUCHSIA DEFORMITIES.

Among the many beautiful varieties of Fuchsia now in cultivation are some, the names of which I have unfortunately not noted, wherein the petals show some interesting gradations in form, between that which is proper to them and that which pertains to the stamens. A florist will readily supply the names of the varieties presenting these appearances, while the botanical interest of the specimens is not lessened by my negligence in having omitted to observe the garden names belonging to them.

It will be remembered that in Fuchsias as we commonly see them the petals have no stalk or claw, and are curved somewhat like the bowl of a spoon. The simplest and most frequent deviation from the usual state consists in the presence of long stalks to the petals, the stalks bearing purple blades of the ordinary form, but having their margins rather more than usually rolled inwards. In the next stage the inturned margins cohere, and thus a more or less perfect cup is formed at the end of the stalk. Projecting from the hinder portion of the cup into its cavity may be seen one or two anther lobes.

The next gradation shows that the organ has assumed more of the characters of the anther than of the petal, the only trace of the latter being manifest in a petal-like wing, projecting from the side of the anther and occupying the position of one of its lobes.

Hence then, these deviations only tend to confirm, what indeed now-a-days needs no further confirmation, the notion that the filament of the stamen or the claw of the petal are the representatives of the leaf-stalk, while the anther and the blade of the petal are but modifications of the blade of the leaf. Were these the only inferences to be drawn from these specimens, it would have been an impertinence to have taken up your space with such oft-repeated and well-established facts. But the true nature of the sutures of the anther, those chinks through which the pollen makes its escape, is not so thoroughly understood.

Originally, most anthers have four cavities or compartments, an upper and a lower one (or outer and inner, according to the direction in which the stamen is placed) on each side of the midrib or connective. Do the chinks or sutures, as one might at first sight readily suppose, correspond to the margins of the antheral leaf, or do they answer to the lines that separate the two pollen cavities on each half of the anther, the one from the other? For the reply to this question, I must refer to Prof. Oliver's paper in the Linnean Transactions, vol. xxiii, 1862. The Professor therein sums up in favour of the latter of the two alternatives just mentioned. The specimens above described appear to me to add confirmation to this opinion: that the sutures of the anther correspond to the divisions between its thickened pollen-bearing quarters, because the imperfect anther projecting into the petal-like cup, does emit its pollen along a line which separates the pollen-bearing portion of the anther from the petaloid portion, or that part which under ordinary circumstances would also be filled with pollen. The true margins of the leaf are here infolded, and, as we have seen, become fused together to form the cup.

The double-flowered Arbutus Unedo, amid very many other instances that have come under my own observation, is especially noticeable as affording further support to the notion originally brought forward by Bischoff, and now supplemented by the observations of Prof. Oliver.

The presence of ovules on the margins of a structure combining the form and attributes of anther and carpel, such as may often be met with in the flowers of the common Houseleek, forms no valid objection to this view, as Mohl long ago remarked; but it is a noteworthy circumstance that in all, or almost all, the cases where we find various intermediate forms between petals and anthers, or between anthers and carpels, that it is the upper or inner surface of the leaf which bears the pollen cavities, and the lower or outermost surface which is petaloid or carpellary. Prof. Oliver's drawings show this clearly, and in the monstrous flowers of the common Houseleek it is still more remarkable, as the outer half of the leaf bears the ovules, the inner half of the same leaf, or that portion nearest to the centre of the flower, contains the pollen. *Maxwell T. Masters.*

MR. BROWN'S BOTANICAL EXPEDITION TO BRITISH COLUMBIA.

MUCH ABRIDGED FROM THE "SCOTTISH FARMER."

When I last wrote I was about to sail for Alberni. After being delayed both in Victoria and Barclay Sound, I arrived there on the 28th of May. On the 3d of June I started in a little schooner bound on a trading expedition with the Indians along the coast. I was particularly anxious to visit Nootka, as this was the locality visited by Cook, La Perouse, Meares, Vancouver, and also Menzies, who collected here the few plants he had from this part. Though it is not my intention to particularly describe the botany of the localities I visited, I may mention that I obtained Pinus ponderosa, Rubus nutkanus, Cupressus nutkaënsis, &c., all species interesting from the locality, and worthy of the seed being sent home. We returned on the 20th of June with all the *éclat* of a successful expedition. The weather, however, during the whole of our trip was very wet, the rain pouring from morning to night, for sometimes a week at a stretch. I landed, however, on every opportunity, going as far as the dense bush would allow me, and returning regularly every afternoon drenched to the skin (for the Indians had stolen my waterproof coat), with no place to dry my clothes, for a temporary fire was only lit in a grate on deck to cook our food (twice a day), and the rain soon extinguished it. In the little "pigeon house" of our small schooner, called a cabin, we had barely room to squat about, surrounded by trading articles—blankets, beads, tobacco, brass-wire, paint, calico, &c.; and often when turning into our "bunks" at night we found that the rain had penetrated and soaked our beds. As you may well suppose, our paper got but an imperfect drying. On one occasion, in despair I had to take it under my blanket at night. Of course, all these inconveniences were counterbalanced by many other pleasant occurrences—such as seeing strange scenes, wild men, new places. I now understand the method of treating Indians, their customs, and the Chinook jargon—the ordinary language of communication with the whites—tolerably well. I can now strike bargains, engage men, and travel alone without any assistance from the whites. I need scarcely tell you how valuable this proves to me in such a very rough roadless country, only peopled by a civilised population in a few places in the vicinity of the mines, &c., and where nothing can be procured except at enormous prices.

On the 24th June, I started on another excursion, to explore the botany of the interior lakes, hitherto almost unknown. As the sawmills at Alberni were stopped at that time to undergo some repairs, four men accompanied me in my excursion. We proceeded up the Som-ass River to a lake, on the lower arm of which Anderson & Co. have established a "logging camp." After exploring a small arm six miles long, and sleeping for a night among the Moss, and having the dubious pleasure of hearing the "wolf's long howl from Unalaska's shore" (by the way, we were only a few days' sail from Unalaska), owing to a storm arising on the lake we were prevented from returning, as we had expected, to the back-woods camp. We returned at daybreak perfectly ravenous. That same morning we started in a canoe, with an Indian guide (Quasson, 3d chief of the Opis-chesats), up a long arm of the lake, which no one knew the termination of. We paddled along all day, landing here and there along the wooded banks to cook our dinner, or to "prospect" on an island. I found a Thuja allied to Thuja gigantea (Craigana, Balf.), but I think, distinct; and once I picked the cones of Abies grandis, and one very like Pinus contorta, Dougl. I "blazed" the tree, and will return in the autumn to it, if I do not find it elsewhere. Just as the sun was setting, we came to the termination of the lake, which I have named "Sproat's Lake," after the resident partner in the firm of Messrs. Anderson & Co., my friend and countryman—Gilbert Malcolm Sproat. It is about 23 miles in length in its longest axis. Here we found a river flowing in. We ascended this in our canoe for a mile, when, the navigation becoming difficult, we camped, and enjoyed a sound sleep by a blazing fire, notwithstanding the mosquito and various other pests, of which, to those who have camped "*sub frigido Jove*" in North-West America, there requires no explanation. Next morning, after pork and biscuit, we took to the woods, ascending the banks of the river through a fine open valley, comparatively thinly covered with fine timber, and free of undergrowth—a great rarity for Vancouver's woods. If the wood was clear of undergrowth, we found a pest which incommoded us considerably—Panax horridum, well deserving its name, with its long waving stem, crowned with a Pecten like head of leaves, and a raceme of white flowers. In many places the ground was covered with snow a foot and a half deep, through which some Auchias (?) and bulbous plants were pushing flowers. In the course of the day, I made a very agreeable discovery in the examination of what I thought the Abies canadensis of the Atlantic slope; but which I found represented by a species which may be little known in England. It has only been recently described by my friend Dr. Albert Kellogg, secretary of the Californian Academy, in their Transactions, vol. ii., p. 8, under the name of Abies Bridgei. I will send you plenty of it later in the season. It is a tree 80 to 100 feet in height, of dark verdure and graceful appearance. The branchlets are very villous, slender, and drooping. The timber is said to be firmer, finer, and straighter grained than the Canadian Hemlock Spruce, which it represents on the Pacific coast. It is certainly closely allied to A. canadensis, but I believe, with Kellogg, that it is distinct. Even the Canadian woodsmen, who are very apt to forget that similarity is not identity, and apply "old country" names to anything at all resembling what they are familiar with in Canada or Maine, recognise this.

We returned to our camp just before dark, very tired and very hungry, and sweetly did we that night enjoy our bed of Pine branches, prefaced by a substantial supper of salt pork, hard biscuit, and tea—our provisions on all such journeys in this country. While cutting the branches for my bed, I found Taxus brevifolia (? Lindleyana, Murr.), but without fruit. Our fire was of Pinus Douglasii. Abies Menziesii was not uncommon, but the commonest was the former—Abies Bridgei and Pinus Strobus, with Rubus spectabilis, R. nutkanus and R. leucodermis, and Ribes (two species)—I did not see Ribes sanguineum, so common in our English shrubberies; but it is excessively common on the southern part of the island, particularly the Indian Reserve at Victoria—Vaccinium ovatum, and occasionally the Indian Sal-al (Gaultheria Shallon). Next morning, looking about the neighbourhood, we re-entered our canoe (hollowed out of Cupressus nutkaënsis, the mats we sat upon being made of the liber of the same tree; ropes of the same material, and occasionally of Thuja plicata.) The river mentioned above I named after one of our party, Mr. Taylor, an Edinburgh man, who had formerly accompanied me on my first journey on the island, when we were lost in the Nanaimo Mountains, wet and half starved, for two days. Some of the mountains round I dedicated to others of our Edinburgh friends, as will afterwards appear, when I send home to the Geographical Society the chart of my journey. The Indians told us that it flowed out of a lake near Clay-o-quot Sound, and that the Clay-o-quots sometimes descend it. We reached the camp (logging) for supper, and slept among some hay that night sorely harassed by aphaniptera. Next day we started again in our canoe down the south arm of "Sproat's Lake," and landed three miles off in the wood. We now started off, each man with his blankets on his back, over an Indian trail. After travelling for about two miles through dark shady woods, over a tolerably good trail marked by knotted twigs, we were startled by the appearance of a man. It was Kan-ash, second chief of the Opis-chesats.

About 2 o'clock, the Great Central Lake, 45 miles long, burst upon our view, the landing places scattered round with bones of bears and deer, remains left by Indians who had formerly camped here. We stayed that night near the lake, and returned next day to the mouth of the Somass River, where, after a good deal of trouble at the Opis-chesat village, I obtained a canoe, and swept down the river, and thence into the Alberni Canal. Such is a short account of one out of many similar journeys. Of course, on such excursions a botanist can only collect one or, at most, two specimens of each plant he meets with; and frequently, so limited are his means of conveyance in an almost trackless country, he can only take such as he has not seen in other places, noting, however, the occurrence of all others, in addition to all such observations as ordinary travellers make. So many mishaps come over one's precious load before it gets to a place of safety, that sometimes I have been mortified to find, after a laborious excursion, the tangible results, notwithstanding all my care, consisted only of a few blackened, indifferently dried specimens. I was preparing to cross the island by the Indian trail to Quallicom, and thence by Nanaimo and the valley of Corvitchen to Victoria, a distance of about a hundred miles, when the rain began to fall in torrents, and so fell for 10 days in a continuous pour, until, losing all hope of being able to effect this journey for the present, I came down to Victoria in the Thames, where I arrived after 20 hours' steaming.

I here take the opportunity of recording my thanks to Messrs. Anderson & Co. for the great kindness and assistance they rendered me through Mr. Gilbert M. Sproat, the resident partner, and without which it would have been utterly impossible to have undertaken anything at all approaching to such a lengthened exploration. On my arrival in Victoria, I found that my visit to the Nootkas had got noised abroad, and all the newspapers were anxious to have the first account. By request of his Excellency the Governor, I called upon him next day, when he was pleased to express great statisfaction at my safe return, and at the mode in which I had conducted the exploration. Among other favours, he offered me letters to the Magistrates and district officers in British Columbia, Governor Douglas, some people say, is about to resign; and if so, his loss, I am sure, will be a deep blow to the success of the colony, for, notwithstanding many differences of opinion from interested or disappointed people, no man will ever be found with such a thorough knowledge of the wants of the country and all that concerns it. *Victoria, Vancouver, July* 24, 1863.

The following copy of a letter from Governor Douglas to the late Edward Ellice, Esq., M.P., shows how earnestly his Excellency desires to promote the objects of this expedition.

Victoria, August 9, 1863.

My Dear Sir,—I have received your note by Mr. Robert Brown, Collector for the Botanical Association of Scotland, and I may assure you that it will afford me great pleasure to forward the objects which the Association has in view in this country. It offers a wide field to the lovers of natural science, and I feel deeply solicitous that it should be better known to the world through some work of respectable character systematically describing its climate and native productions. The results of Mr. Brown's researches are likely to be highly interesting to the public, as there is a wide range of unexplored country, with much that is new and peculiar. Mr. Brown appears to be a most zealous and energetic person, highly worthy of the confidence of the Association. I remain, my dear sir, very truly yours, (signed) James Douglas.

Edward Ellice, Esq., M.P., &c.

ROSES.

Reply of Mont Blanc to Monte-Rosa.

My Dear Monte-Rosa.—I have read your epistle on Roses, for I always see the *Gardeners' Chronicle*, and while I heartily subscribe to much that you have indited (p. 964), I cannot but take exception to some trifling matters on which, with all brotherly affection, I would seriously invite your further reflection.

The same snows which have whitened alike your head and mine have, I fear, made you somewhat cold and censorious. Believe me you would find more happiness in becoming the Horticultural Nestor than the Horticultural Hector of the age. If I am correctly informed, Roses do not now grow so near your summit as of yore. Whether this arises from the change of atmosphere (political), or from some slip of earth, matters but little. I fear their greater distance from your mountain top has placed them below the mists which gather and roll adown your glorious sides, and that thus they are kept out of sight. You seem to have singled out Roses and Dablias, because your remotest dependants, as the special objects of your censure. From my higher point of view (602 feet higher), I find that there are more things in heaven and earth than seem dreamt of in your philosophy. All that you have said of new Roses and new Dahlias, and something more, might be said of other new flowers, and especially of new fruits. Do you not think, dear Monte Rosa, that the new Pears, the new Grapes, the new Strawberries, are becoming almost as numerous as the new Roses, and even more questionable as objects of value, because the palate has a less varied standard of excellence than the eye. To have been consistent you should at least have included in your censure the new fruits. Who has told us all that we desire to know of them? From the brief but honeyed descriptions sometimes met with, the uninitiated would almost expect to gather "Grapes of Thorns" and "Figs oft Thistles!"

It strikes me that your censure on the describers and descriptions of new Roses is rather severe and invidious. More reliable and precise information is no doubt desirable in reference to all novelties in horticulture, but is it attainable? Can even your own superior knowledge of the subject supply the desiderata? Reflect and tell me whether you are not obliged to prove all new productions before you can give a lengthened and reliable description of them, and by the time they are proved they are no longer new.

I cannot agree with you that it is "just impossible" to find very brilliant coloured Roses to surpass Charles Lefebvre and Senateur Vaisse. I have seen such dogmas advanced over and over again during the last 20 years, and refuted by some new freak of Nature almost before the penman's ink was dry. In this doctrine of "finality" I have no faith; Nature's stores are inexhaustible; and while man has the mind to conceive and the hand to apply, the resources of nature will never fail.

With regard to Mr. Wm. Paul's Rose dicta, as you term them, you take exception to 3 out of 17—Nos. 6, 9, and 10. Dictum 6 is, you say, out of date. That, I apprehend, is a mere matter of opinion. Do you not know that the substitute you recommend for tobacco-water was recommended by Mr. W. Paul in the "Rose Garden," nearly 20 years since? I know you too well to accuse you of the machiavelism of borrowing a neighbour's thought and kicking him to conceal the act. Nevertheless I would seriously advise you to acknowledge the obligation. You tell us you are "posed" at No. 9—"the new Roses you must buy on the Manetti stock." You deny this by implication, further telling us "there are plenty of young Dog-Roses to be had on which they could be grafted." Could be! but are they? And know you not that there is a wide difference between the possible and the actual?

It seems to me that you have too implicit a faith in our countrymen, the Ms.—Manetti and Machiavelli. Now both are very well in their way, but can either be implicitly trusted? I must frankly tell you that I have about as much faith in the one as in the other. You are a good citizen of the Alps, Monte-Rosa, but I should like to see you become a citizen of the world. For the present, farewell. Should these sentiments need fuller explanation, send me a note by way of St. Bernard, and I will step over some morning and breakfast with you; more, I will dine with you; nay, if necessary, stop and sup with you rather than my meaning should be mistaken, or remain doubtful or obscure. You know I have a cool and hard head, but this is not incompatible with a sound heart. In all sincerity, therefore, I subscribe myself, my dear Monte-Rosa, your affectionate brother, *Mont Blanc.*

Home Correspondence.

New Plant Prizes.—Should prizes be awarded to New Plants? By prizes I mean awards of intrinsic value. The writer of your leading article of the 26th ult. thinks not. Would as many novelties find their way to the exhibitions then, as if prizes were awarded?—this seems to me to be the primary question. New plants are the principal attraction at our metropolitan Horticultural shows: why then withhold prizes from them? Now that flower shows are on the increase, would not their founders and the framers of their schedules best consult their own interests by offering the most awards for what is of the most interest to the public? There certainly needs some reformation and alteration in respect to the awarding of prizes to new plants, but to assume that because there are now so many exhibited, therefore no prizes ought to be given, because all that are deserving cannot have awards, does not seem to me to be meeting the point in the best possible way. Surely the fact of so large a number being exhibited proves the greater need of stamping the character of a certain number with something more than an honorary award, as well to encourage their exhibition as to show their unexceptionable character. What I would suggest then is that a certain number of first prizes of a given value should be awarded, and that the number and their value should be distinctly inserted in the schedules in the same explicit manner as the prizes are inserted for specimens and collections generally, instead of in the vague form now generally adopted; that no second or third prizes should be given, but instead of these, honorary certificates of merit of the first, second or third class, unless the subject is so inferior as to be utterly worthless; and that any of the plants so certified should be allowed to compete once again for a higher award, in which case, if it were really good, and had been exhibited in company with so many first-rate things that it could only at first be awarded an honorary first-class certificate, it would at some subsequent show be almost certain to get its proper first prize. If prizes were entirely withheld from new plants at our great horticultural shows, it would appear like discouraging those things in which the public take a great interest. That new plants will always be exhibited for "trade purposes," "to obtain either a good price for the stock of a novelty, or an abundance of orders for the plant when let out," is doubtful. With few exceptions, and these generally in florist flowers, those that buy the stocks of new things rely on their own judgment, and are not influenced in the least by any award or awards the proffered object may have received; and as for the abundance of orders being the real reward, and a sufficient compensation for the exhibitor, I can only say that if it is a plant that would merit a first prize or even a first-class certificate, it needs no exhibiting to secure orders for it. Any one who has paid the least attention to the subject must have observed that New Plants, including seedling florist's flowers (and foremost among these Pelargoniums), Orchids, and Roses, are the most attractive features at our great exhibitions; to withhold prizes from the first of these seems therefore scarcely consistent. Not that I would give them an undue prominence, for large specimens of Azaleas, Stove and Greenhouse plants, Pelargoniums, Ferns, as also ornamental and variegated-leaved plants, &c., are as essential to make a grand show as the plants I have named. To make a telling Horticultural show, two elements appear to be necessary, viz., large specimen plants in collections, to produce an effect; and new and rare or miscellaneous plants to create an interest. Unfortunately honorary awards are not sufficiently appreciated by the public generally. One great objection attendant on the honorary system is, that under it persons in the country having new things, will not be at the trouble and expense of bringing them to the London shows. This feeling is to be regretted, but it is strong in the country. I have yet to learn that exhibiting new plants with all the notoriety to be attained either directly or indirectly, added to money prizes, quite compensates for the direct loss sustained in various ways by exhibiting; and if prizes are to be altogether withheld it will become a financial question whether it will not be more desirable to exhibit new plants at home, announcing the fact publicly, than to send them to the exhibitions. Under the prize system the advantages are none too great, but the tax of always exhibiting at a positive loss would scarcely be encouraging. *W. B.*

[We are glad of this expression of opinion, but it does not touch our argument, nor convince us to the contrary; "W. B." merely proposes four grades of prizes instead of three, and we think three quite enough. To admit a limited number of "first" money prizes would be to let in all the evils of which we, as part of the public and not exhibitors, have complained. Thus, suppose six equal prizes of money value to be offered as awards higher than certificates, it would be ten chances to one if there were just six plants so unmistakeably superior to the rest as to raise no question when these prizes were awarded to them. If there were more than six plants worthy of them, the position would be just as it often is now. If there were less than six, either some prizes must be withheld (which rule exhibitors would question, as they would hold that the six best—good or bad—were entitled), or some must go to plants obviously not equal to the rest. Either way the award would not be a correct index of merit. We should rather prefer (if the pockets of the exhibitors *must* be considered in dealing with such a question) to place two or three optional medals at the disposal of the judges, to be awarded in case of any remarkable exhibitions, such as Lilium auratum, or Lapageria rosea albiflora, but not to be given if no such prominent plant were shown. Further, in order to meet the outgoings which "W. B." deplores, we see no great objection to allowing a moderate rateable sum for expenses to the exhibitors of all certificated plants, that is, supposing no prizes of money-value are given. We must confess that we do not quite see the logic of introducing a "first" prize, as a higher award than a First-class Certificate.]

The Garden at Rushton.—Having read with pleasure and profit the Rev. Mr. Radclyffe's articles on various subjects, and having lately (Sept. 29) seen the beautiful Roses he exhibited at Weymouth (not for competition), I was induced to visit a place from which so much intelligence of a profitable nature has issued. The fruit trees of which we have read, were beautifully wooded and foliaged, and the wood appeared to be ripening fast. Though the trees range from 27 to 43 years of age, they are wooded thoroughly from base to centre, and from thence to the tops of the trees. I can easily believe the statements of such large crops of Peaches having been raised year after year by the aid of protecting sheets. As to the Strawberry plants, they were admirable; the spring-planted Elizas, Wonderfuls, and Trollope's Victorias were grand. The three-year old and two-year old plants of Eliza, Wonderful, and other sorts were beyond conception. I also examined the Home or Western Rosery, and was astonished at the vigour of the plants on the Manetti stock, which had all suffered much from the recent wind and hailstorms. Still more admirable were the four stately specimens of the Duchess of Norfolk on the Celina stock, whose shoots of one year averaged from 12 feet to 12 feet 9 inches high. The shoots towered over the wall, which is 9 feet in height. The splendid Solfaterre, Mdlle. Alice Aristide, the grand plants of Triomphe de Rennes, Celine Forestier, and some others in full bearing, would surprise the most experienced Rose grower. *W. K., Oct.* 5.

Potatos.—I purchased from Mr. Rivers this spring a quantity of his Royal Ash-leaved Kidney, which I planted on April 20, in sandy peat. We took them up on August 2, and they were the largest crop of really good-flavoured early Potatos I ever saw. From one of the outside roots we counted 54 good sized tubers. The whole crop would average from 10 to 30 fine tubers at a root. At planting time, being unaware of their very robust habit, I only allowed them 2 feet apart; had they been 3 feet apart, the crop would doubtless have been larger. All the tubers were perfectly free from disease. The earliness of this kind, together with its very robust habit, productiveness and fine flavour, cannot fail to make it a general favourite. I may also state that I have grown Myatt's Prolific Kidney for some years, and found it to be a very prolific and useful kind; it is, however, some 10 days or a fortnight later than the Royal Ash-leaved. *George T. Fox, The Nurseries, Wetley Rocks, near Leek, Staffordshire.*

Swallows.—These useful insect-eating migrants appear to honour us with their presence later than usual this autumn. During the past week, whilst on a tour in Wiltshire, I saw from two to three hundred of them on the ridge of a house in Warminster on the 10th of October, evidently preparing their little ones for a long and arduous flight to a milder climate than ours. Perhaps some of them had come from Devonshire, as they were nearly in a direct line with their shortest passage across the channel to France, Spain, and finally to Africa. *W. H. Hyne, M.R.C.A., Clifton, Bristol, Oct.* 12.

Hybridising.—I have always noticed in hybridising that if two species are bred from, one mule or type is generally the result; and if one species and a variety, there is a slight difference in the progeny, yet one type is strongly visible; whereas by hybridising one variety upon another, that is, both parents being varieties, great distinction in the kinds is obtained, some of the flowers being totally different in colour one from the other. *W. B.*

Teltow Turnip.—If seeds of this root have been distributed to the Fellows of the Royal Horticultural Society, it must have been a long time ago. If unsuccessfully and to the dissatisfaction of the Fellows, no record remains either of their experiments or of the way in which they were conducted. Nothing of the sort has been distributed for many years past, and more especially nothing since the progress of agricultural chemistry has given facilities formerly unknown for conducting experiments upon plants requiring peculiar soil or treatment. The exhibition of its roots by Mr. Hunneman was in 1822, and considerable strides have been made in agricultural and horticultural skill since that time. More than that, it should be no objection to making the attempt now that it has been already tried and failed. If that principle had been acted upon in other things we should be now living in a very different world. It would not be an uninteresting inquiry to see how many of the comforts, enjoyments, and necessaries of our present life have been brought to success after original failure. The real point for consideration is, whether the root in question is worth introducing. If it is, it seems a very proper subject for the Fellows of the Horticultural Society to try their hands upon. The Society would take care to get genuine seed, and *en passant* the best way to do so does not seem to be to go to any nurseryman or seedsman for it. It is not likely that they keep a stock of seed for the purpose of always making fruitless experiments with; and its having always failed hitherto renders it unlikely that they should have a stock for any other purpose. Something more would be expected from the Society in such a case than merely to issue problematical seed. Not only should special care be taken to procure the real seed from the spot, but more full information both as to the soil and the mode of treatment should be acquired. Mr. Hunneman says that a total absence of manure is necessary for its perfection. We have heard, on what seemed to us good authority, the very reverse of this statement, viz. that it receives a very plentiful supply of manure. It is an experiment legitimately within the scope of a Horticultural Society, and I should like very well to see it tried. *S. K. G.*

Cemeteries.—The remarks in your article of the 3d inst., on the planting of cemeteries, are distinguished by the usual good taste of the *Gardeners' Chronicle*. It is to my mind as improper to make them like a flaunting parterre as to turn a pleasure-ground into the likeness of a Turkish burying place. But there are many flowers and shrubs which seem peculiarly fit to plant among tombs, and have long had attached to them a sacred significance. The Cedar in the East, the Oak in the West, and the Ash in the North, were held as the representative of supernatural power. The Cedar, Cypress, and Pine were symbolical of the Holy Trinity; which was also illustrated by the triple leaf of the Wood Sorrel. The Lily and the Rose are associated with Holy Scripture; but it is uncertain whether the latter is the Oleander, the Rhododendron, or the large yellow Narcissus. The "St. John's Wort" is said to have owed its red spots to the blood of the Saint, sprinkling it as it fell; and of the White Thorn, so beautiful in spring, it was the fashion to believe the Crown of Thorns was made. In the books of the middle ages, with what tenderness and grace do flowers—the Pansy, the Strawberry, and the Violet—surround the page of prayer. Who cannot admire the skill with which the flower and the leaf nestle in the capital or cluster round the doorway of our early churches? I recollect once being shown a grave, covered with flowers, where four little children, brothers and sisters, lay buried, and it struck me how true was the resemblance between flowers, fashioned into beauty from the coarse earth, and the heavenly beings—of earth too, springing from corruption into immortality. *B. M.*

Peaches under Glass.—At p. 965, "An Amateur, Clapham," admits the authority of Bouguer, as regards the loss of light by reflection. He says, "According to Bouguer, as quoted by your Correspondent [p. 939], the loss of light by reflection when it falls upon glass at an angle of incidence of 85°, is upwards of one half of the whole; that is, when the rays deviate as much as 85° from perpendicular to the surface of the glass." He then goes on to remark:—"It is not easy to conceive under what circumstances such a deviation would be possible. It could only take place, I apprehend, when the sun is nearer the north than the south, when the sun would be actually behind the south wall, which would thus turn its back upon itself, as the quotation does upon the argument." I have no hesitation in stating that it is quite possible for the sun's rays to fall on the sloping roof of a glass house facing the south at an angle of 85°, or indeed at any other angle between 1° and 90°. The sun's rays can only fall in a perpendicular direction at noon, and the slope must be such that its angle and that of the sun's elevation shall together equal 90° under the ordinary pitch of roofs. This will occur twice in the year; but the disputed angle of as much as 85° of incidence may be obtained with any slope, and on any day between the spring and autumn equinoxes. This can readily be proven by any one, provided the observer is not dazzled to temporary blindness by the process. If your Correspondent likes to try it, let him watch in a fine summer morning before 6 A.M., the sloping roof of a glass structure facing the south. Let him place his eye near the glass, look at the slope of the latter, and he will, by-and-by, see the sun peeping over the top, his rays slanting along the surface of the glass. Very soon he will observe a bright spot on the glass. That brightness is the sun's image; and if he looks at it for a short time he will be half blind, unless he uses a sun glass. This is not owing to his looking at the sun and receiving his rays direct; but only at his image and receiving a large portion of rays by reflection. The rays that thus exert their force on a susceptible object outside, cannot at the same time affect anything inside. On the same principle of reflection, your Correspondent will also find it possible that with certain slopes of a roof the rays of light can fall at a high angle of incidence on the glass even in winter, and consequently a large portion of the light which is then so much wanted is dispersed in the external air, or on any object that may happen to be in the direction of its radiation. *** [Satis superque.]

Scolytus destructor.—Your Correspondent "J. O. W." (p. 966) is mistaken as to the injury accruing to the young Elm trees not being the work of insects; for upon every sunny day they have been working by

hundreds, and many persons have observed the progress they have made in the work of destruction. *W. B. Page, Southampton.*

Pelargonium Mrs. Milford.—This is a seedling, and not a sport from Goldleaf, as is suggested in the account given at p. 967 of Ringwood Hall; both are in fact seedlings from Cloth of Gold, raised by me when at the Bishop of Winchester's at Farnham Castle. *J. Goode, Bank Grove, Kingston-upon-Thames.*

Notices of Books.

The *Botanical Magazine* for October contains figures of the following subjects:—*Microstylis discolor*, a terrestrial Cingbalese Orchid with short stems, each bearing about four ovate oblong leaves of a rich purple, sometimes edged with green, plaited longitudinally, and much crisped at the margin; the minute flowers in a narrow spike, yellow, changing in age to deep orange. Sir W. Hooker observes that it may be reckoned among the most lovely of terrestrial Orchids, ranking with Anæctochilus setaceus, but though having handsome leaves and contrasting well with the Anæctochili, it can hardly be considered as equalling them in beauty. *Sphæralcea acerifolia*, a subshrubby Malvaceous plant apparently of moderate stature, having cordate five or seven-lobed leaves, and numerous flowers of a delicate rose-colour crowded along the upper part of the stems; it is a rather showy plant, and probably hardy, being found in British Columbia, and the north-western regions of America. *Eranthemum tuberculatum*, a "very floribund" slender branched shrub of dwarf bushy habit, having small opposite broadly elliptic or obovate obtuse leaves, tuberculated branches, and very copious white flowers with a long slender tube, and a five-lobed spreading somewhat two-lipped limb; it is an Australasian plant introduced by Sir Daniel Cooper, and recently flowered by Mr. Veitch. *Hibiscus Huegelii quinquevulnera*, a handsome Swan River shrub of erect habit, with deeply five-lobed leaves, having the segments also deeply sinuato-lobate, and large rosy flowers, like those of an Althea frutex, each petal being marked at its base by a deep blood-red spot. H. Wrayæ and H. grossulariæfolius are now considered mere forms of H. Huegelii. *Ceropegia Bowkeri*, a very singular Caffrarian Asclepiadaceous plant, with a depressed globose tuber, and a few erect simple stems with narrow linear leaves, bearing in the upper axils solitary flowers, of remarkable form and colour, the corolla tube being cylindrical, dilated and globose at the base and summit, and its segments linear-oblong, narrow at the base, fringed at the margin, yellow with green blotches, and remarkably reflexed so as almost to hide the greater part of the tube, but exposing its brown-stained bluntly five-spurred orifice. *Sarcopodium psittacoglossum*, a Moulmein epiphyte introduced by Messrs. Low & Co; it is a dwarf creeping Orchid, with broad elliptic leaves and greenish-yellow flowers streaked with red, the lip mottled and blotched with deep red.

Seemann's Journal of Botany for October contains a figure and description of *Mammillaria Scheerii*, a dwarf Mexican Cactus with white flowers; and among other papers, a note by Mr. Baker on a Yorkshire Galium allied to G. erectum, and which Prof. Babington suggests may be the G. album of Villars; a note by Prof. Babington on the discovery of Trichomanes in Arran, as recorded at p. 842 of our present volume; a description of the leaf-cells of the British Hymenophyllums by Prof. Gulliver, who finds the structure of the tissue of the two plants to be totally different, the cells of H. tunbridgense forming a "sphærenchyma," while those of H. Wilsoni are larger, and form an "ovenchyma;" some remarks on the origin of Herbaria, by Prof. Meyer; and an account of the Owala, an oil-producing seed of the Gaboon, by Mr. Arnaudon; descriptions of new British Cryptogamia, by Dr. Carrington, &c.

Of the *Florist and Pomologist*, the September Number contains figures of the remarkably fine *Rose Mrs. William Paul*, and of the *De Maraise* and *Belle Julie Pears;* and that for October has figures of *Standish's Perfection Rhododendron*, and of the *Belle de Septembre Plum.* The Rose, which was raised by M. Verdier, is one of the finest of the present year, a thick-petaled cupped flower of an intensely deep shaded crimson, with fiery scarlet in the centre: radiant and beautiful as Mr. Radclyffe puts it. The Pear De Maraise is a first-rate autumn sort, in season at the end of October and throughout November; a moderate sized pyriform fruit, yellow with a reddish glow, and dotted with russet freckles; the flesh tender, with abundant rich honied juice, and a fine aroma. Belle Julie is a most delicious Pear, ripe at the end of October, a long obovate regularly shaped fruit, of a dull brown colour with russety specks, and having a reddish-brown glow on the sunny side, "like a gipsy's blush," the flesh melting and very juicy, with a rich sugary vinous perfumed flavour. The Rhododendron is "one of the finest acquisitions" yet obtained among the hardy varieties, from the perfect form and delicately clear colouring of its ample blossoms, this colour being a lilac-rose, melting away into a white centre. The Plum is first-rate for cooking or preserving, and furnishes a fine crimson juice; it is a large oval fruit, of a bright red with violet bloom, an abundant bearer, and ripe about the end of September or the beginning of October. There are some excellent papers in these two Numbers.

The *Floral Magazine* has figures of *Pillar of Gold Fuchsia*, a sort with variegated leaves; two fine *Pinks: Rev. George Jeans and Lord Herbert*, the drawings of which are apologetically explained to have been made from "dressed" flowers, such as are not to be expected under ordinary culture; two fine *Pelargoniums: Achilles* and *Artist*, from Mr. Hoyle's collection; and *Greenovia aurea*, a handsome yellow-flowered succulent of the Houseleek family, formerly grown as Sempervivum aureum.

In the September and October Numbers of the *Gossip of the Garden*, we find interesting articles on Roses, Dahlias, Onions, &c.; and quite a fund of information on exhibition matters.

Garden Memoranda.

Theobald's Park, near Cheshunt, the Seat of Sir Henry Meux, Bart.—The mansion, a red brick building, is beautifully situated on rising ground, overlooking an extensive and beautiful valley on the one side, and well backed up by woods, in which are embosomed the kitchen garden and forcing grounds, on the other. In connection with the mansion is a conservatory well furnished with gay flowering plants, intermixed with others grown for the beauty of their leaves, and in front of this is a pretty flower garden, in which the beds on Grass are arranged in a sunken panel in concentric circles, relieved here and there by handsome vases set on appropriate pedestals, and charmingly filled with plants of striking colours. A fountain occupies the centre, and along the sides of the terrace walks are set standard Portugal Laurels in tubs. A ribbon border and evergreen hedge divide the flower garden from the principal approach, which near the house crosses a deep ravine, on the sides of which are fine masses of Rhododendrons and other shrubs. These form the boundary to a smooth and well kept lawn.

The kitchen garden, whose walls are well covered with fruit trees in the best possible condition, is skilfully cropped and otherwise kept in excellent order. Here Pears and Apples have this year been abundant; Morello Cherries, of unusually large size, have been a wonderful crop, and the same may with truth be said in reference to Plums.

Under glass, Pines are grown with great success by Mr. Sanders the gardener, as are also Vines, both in pots and planted out. Here we had an opportunity of seeing Mr. Williams's new Royal Vineyard Grape growing side by side with Muscat of Alexandria, which it somewhat resembles in appearance, but not in taste, being altogether devoid of Muscat flavour. So highly, however, did it stand in favour with the Fruit Committee, when it was first shown at South Kensington, that they awarded it a First-class Certificate, and we must add that in general appearance it is one of the handsomest Grapes in cultivation; a bunch of it reproduced at South Kensington the other day for further inspection measured no less than 14 inches in length, and was well spoken of by all who tasted it. It may therefore be regarded as one of the most valuable of the new Grapes about to be brought under public notice. In the same house were eight remarkably fine bunches of Buckland Sweetwater, one of the showiest and most useful of Grapes of comparatively recent introduction. They were produced by a graft inserted on a Black Hamburgh, in March, 1862.

The last named variety of Grape, and Lady Downes's Seedling, are also grown well here. The borders in which they are planted consist of good turfy loam (the top spit), half spent horse droppings, burned earth, and wood ashes. The Vines were planted in March, 1861, and pushed strong canes quite to the top of the house the first season. In December of the same year they were cut back to within 4 feet of the ground. About the end of January, 1862, they were started into growth, and made fine rods, which again reached the top of the house. In December following they were shortened a second time; but in this instance only about 4 feet were removed from the top of each Vine. Forcing was recommenced in February, 1863, and the result was an admirable crop of large finely coloured Grapes.

It may be added that the Vines are planted inside the house on a well made border, 2 feet in width, and that the roots reach the outside border through arches in the front wall. The outside border is not all made at once; on the contrary it is increased in width by the addition of new material year after year as the Vines seem to require it, a plan now followed by many of our best gardeners.

Of Pine Apples good fruit is ripening on suckers planted out in April, 1862, in loam on a bed of leaves. Additional heat is, however, provided by means of hot-water pipes.

Melons, Cucumbers, Strawberries, and similar fruits, are also forced here in abundance.

In the neighbourhood of a Tennis Court is a small Arboretum, in which are some handsome Conifers, especially an avenue of Deodars, thriving trees of tolerable size. The Park, which contains some fine timber, is watered by the New River, which passes through it, and altogether the place must be considered one of the most interesting in that part of Hertfordshire.

East Lodge, Enfield Chace, the Residence of G. F. Graham, Esq.—This place is celebrated for its Apples, of which there is this season a very fine crop. Two large trees of Ribston Pippin have produced about 7 bushels each. In addition to these, Cockle and Kerry Pippins, Pearson's Plate, Old, Flat, and Scarlet Nonpareils, Margil, and King of the Pippins are also loaded with fruit. Cornish Gilliflower, one of the best flavoured Apples in existence, is not so good this year as it usually is; but to make up, as it were, for this deficiency, there is a fair sprinkling of fruit on the old Golden Pippin, which shows no signs of wearing out. Among other dessert Apples we noticed Golden Reinette, Hick's Fancy, Yellow Ingestre, Screveton Golden Pippin, Devonshire Quarrenden, Scarlet Pearmain, Pomme de Neige, Golden Russet, Sam Young, Beechamwell, and Fearn's Pippin. Some of the best kitchen Apples grown here are Dumelow's Seedling, Hollandbury, Hall Door, Kentish Fillbasket, Round Winter Nonsuch, Norfolk Beaufin, Gravenstein, Brabant Belle Fleur, English Codlin, Yorkshire Greening, Hawthornden and Beauty of Kent. The orchard in which these grow consists of about 2 acres of ground, and is laid down in Grass. In pruning, Mr. Newton, the gardener, only thins out cross branches when required; and as regards top-dressing, farm-yard manure is applied every three or four years. Under this treatment the average annual produce is from 300 to 400 bushels. A tree of Herefordshire Pearmain, the trunk of which was broken nearly through five years ago, still lives and bears fruit, although all the support the top receives is through 2 inches in thickness of wood and bark, 6 inches wide; the head and branches lay flat on the ground. Standard Pears, which are a good crop, consist of Marie Louise, Beurré de Capiaumont, Williams's Bon Chrétien, and others. On walls we observed very good Marie Louise, Beurré Sterckmans, Passe Colmar, Glou Morceau, Beurré d'Aremberg, and Gansel's Bergamot. Of Plums, Jefferson's and Kirke's have been very fine, as has also been Coe's Golden Drop, a valuable Plum for a late crop.

Miscellaneous.

Sale of Messrs. Veitch's Japanese Plants. — On Wednesday, the 7th inst., took place at the Auction Mart the earliest of the great sales of Japanese plants that have been so long announced. As the amount realised is generally interesting, we are glad to be able, by the courtesy of Messrs. Protheroe & Morris, the auctioneers, to inform our readers that it was between 400*l.* and 500*l.* for some 295 lots. The specimens sold on this occasion were the result of Mr. J. G. Veitch's Japan expedition,

Mr. Fortune's Japanese Plants.—Let us remind our readers that all Mr. Fortune's valuable Japanese plants are to be sold, without reserve, at Stevens' Auction Rooms, on Wednesday and Thursday next; 628 lots are announced, among which are a great many original specimens, just as imported, except that they are re-established, 100 of which are stated in the Catalogue to be from 2 to 3 feet high.

Death from eating Laburnum Seeds.—A little girl, nine years of age, named Mary Watkins, living at Worcester, died a few days ago from eating the seeds of the Laburnum. It appeared that on the previous day the deceased, with some other children, was eating Indian Corn, and it is supposed that some of the Laburnum seeds were among it. The little sufferer died at 5 o'clock on Saturday morning. *Worcester Chronicle.*

Wanted—Pure Water.—Our sanitary authorities have unanimously accepted pure water as a main feature in the requirements of man. Their effort to secure to the public the necessary element, bears testimony to the difficulties that ever arise in a civilised and highly populated country, in obtaining water in its state of purity. Pure water has been the cry that has lowered the water company's dividends to an alarming extent to the shareholders. Albeit, the public weal might receive considerable addition therefrom. Still, when we realise the fact, so well established as to be beyond all doubt, that the purer the water that enters our leaden conduits, the more poisonous it may be made before it reaches the consumer, we have to ask most seriously whether or not that great depreciation of stock is not lost, so far as the public advantage that might accrue from it, by the want of a proper knowledge of the medium through which the water is conveyed. A circular was issued, or a general notice promulgated, by the several water companies, when the reservoirs were covered in and the various additions and improvements made in compliance with the new Act of Parliament relating thereto, requesting the consumers to clear out their cisterns, that they might receive the full benefit of the purer supply. Still it left an equally important requirement untouched and almost unknown. In some districts, public attention has been aroused to the knowledge of the requirement of which we speak, through the sudden death by poisoning of several members of a family, with the narrow escape of the remainder. The cause has been traced to the leaden pipes through which the water used by the family has been conveyed. We are not about to frighten our readers with a prognostication of sudden death to the consumers of water that has passed through leaden pipes, but ask their attention to a few facts relative to the characteristics of the medium through which they receive this universal element.

Firstly, we are informed by the highest chemical authorities, that pure water so rapidly acts upon lead, that in a very short space of time it becomes impregnated with this metal in a soluble form. Nor are we to escape by the comforting assurance that the water is impure. Water that contains carbonic acid (and what water does not in a greater or less degree?) equally appropriates to itself a portion of the metallic medium through which it passes; these are facts from which we have no appeal. It is true that water may contain certain constituents that will act on the lead in a manner more favourable to a hygienic state of things; but do we take the trouble to ascertain if such a quality exists in our water? We think not. The result is, therefore, that in the case of all new lead pipes, colic, next to poisoning, is the result upon all who use it; and in all cases, unless specially protected, poison, in the form of salts of lead, is administered, whether in homœopathic doses or after the more liberal allopathic system, and a deleterious effect is produced on the system and health of all who partake of the liquid. The effect of sulphuric acid as a corrective, in the exceptional cases of which we have already spoken, is caused by the internal surface of the lead being changed from the metallic state into a sulphide of the metal which is insoluble in water. This reaction may be artificially produced by a simple yet highly scientific process, the discovery of Dr. Schwarz, of Breslau. This *savant* proposes the passing through lead pipes of a solution of sulphide of potassium, at a temperature of 212°, which changes the metallic lead into a sulphide of lead, and, thus transmuted, the water passing through it is perfectly free from the risk of contamination by any poisonous salt from the lead. It remains for the public themselves to decide from our statement of facts whether or not they will continue to tolerate even the skeleton of an evil that may be so easily exorcised. *Building News, Sept.* 25, 1863.

What are Genera among Conifers, and what their distinctions.—While studying the Coniferæ of the Rocky Mountains, I was led to investigate the characters of the different types which Linnæus had comprised in his genus Pinus. The great master himself had at one time thought proper to divide that rather incongruous mass, considering Abies as distinct from Pinus, reuniting them, however, afterwards. Since then many botanists have investigated this interesting subject, and while some of the highest standing—I mention only the names of Endlicher and Hooker—have adhered to the Linnean circumscription of the genus, others of no less authority have thought it more natural to recognise the distinctions already made by popular language, and some of them adopted by the older botanists. The first who more thoroughly examined the question was Link, who (Linnæa, Vol. 15, 1841) characterised five genera, Abies, Picea, Larix, Cedrus, and Pinus. Endlicher, in Synops. Conif., 1847, further separated Link's Piceæ descis-centes under the name of Tsuga, considering all these as subdivisions of the genus Pinus. Carrière (Traité des Conifères) adopted Link's genera, with Endlicher's addition, without further developing their distinctive characters. My investigations lead me to adopt Carrière's views, more firmly establishing those six genera—not without some misgivings, however, as it will appear from the following, that, besides the characters derived from the organs of fructification, in one instance at least the characters of vegetation have also to be brought in to distinguish two apparently not very nearly allied genera, Larix and Tsuga; while others, thought to be closely connected, such as Picea and Tsuga, or Larix and Cedrus, recede far from each other in their essential organs. Otherwise the characters of fructification and vegetation go so well together as materially to confirm one another and to establish the generic differences. An interesting fact is, that the pollen grains of Abies, Tsuga, and Picea are largest (in four species 0.053—0.060 l. in the longest diameter), those of Larix and Cedrus smaller (in two species 0.042—0.043 l.), and those of Pinus the smallest (in four species 0.034—0.038 l.) Will the characters of vegetation, after all, outweigh those of fructification, and will we have to fall back to old Tournefort's views and recognise his three genera—Abies, with single leaves and large pollen; Larix, with crowded leaves and middle-sized pollen; and Pinus, with fasciculated, sheathed leaves and small pollen? *Engelmann, in the Transactions of the Academy of Sciences of Philadelphia.*

Microscopic Fungi.—If we take a stroll away from the busy haunts of men, though only for a short distance—say, for example (if from London), down to New Cross, and along the slopes of the railway cutting—we shall be sure to find the plant called the Goatsbeard in profusion. In May or June the leaves and unopened involucres of this plant will present a singular appearance, as if sprinkled with gold-dust, or rather, being deficient in lustre, seeming as though some fairy folk had scattered over them a shower of orange-coloured chrome or turmeric powder. Examine this singular phenomenon more closely, and the poetry about the pixies all vanishes; for the orange powder will be seen to have issued from the plant itself. A pocket lens or a Codrington reveals the secret of the mysterious dust. Hundreds of small orifices like little yellow cups, with a fringe of white teeth around their margins, will be seen thickly scattered over the under surface of the leaves. These cups (called peridia) will appear to have burst through the epidermis of the leaf and elevated themselves above its surface, with the lower portion attached to the substratum beneath. In the interior of these cup-like excrescences or peridia, a quantity of the orange-coloured, spherical dust remains, whilst much of it has been shed and dispersed over the unoccupied portions of the leaves, the stems, and probably on the leaves of the Grass or other plants growing in its immediate vicinity. These little cups are Fungi, the yellow dust the spores (protospores, they should be called, because in fact they germinate, and on the threads thus produced the true spores, or fruit, are borne), or ultimate representatives of seed, and the epiphytal plants we have here found we will accept as the type of the group or order to which we wish to direct attention. *Popular Science Review, October.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Dutch Bulbs should be largely cultivated where a fine display is required; and where hardy shrubs are forced for the decoration of this house, they should now be got ready for the purpose. Next to Camellias, Azaleas are perhaps the most showy plants that can be had in bloom early in the season, and where there is a good stock to select from, some of the most forward plants should be placed in heat early, moistening them over head two or three times a day. Unless, however, plants can be had which have made their growth and set their buds perfectly, they need hardly be expected to flower so finely as under more natural circumstances in spring, and unless the buds are plump there will be some danger of the plants starting into growth instead of into flower.

FORCING DEPARTMENT.

PINERIES.—If circumstances should render it necessary to subject a portion of the stock intended for fruiting to a brisk temperature at once to induce it to start, the most promising plants should be very carefully selected, and placed in a small house or pit by themselves; and, where anything like a regular supply of ripe fruit is required, several houses, or separately heated compartments, should be at command. Indeed without this convenience no gardener can reasonably be blamed for having too many ripe at one time and none at others. It is not by any means desirable to start more plants into fruit at this early season than may be absolutely necessary, for they will produce finer fruit later in the season than can possibly be obtained from them now; and where a separate house cannot be commanded for those which must be subjected to a high temperature, we would advise that the plants selected for fruiting should be placed in the warmest part of the house at command, filling the rest of the compartment with young stock.

VINERIES.—Where early forcing is contemplated, until the buds are fairly broken the points of the shoots should be kept nearly on a level with the lowest part of the Vine; and if this should not be found sufficient to induce the buds to start equally throughout the length of the Vine, the rods should be bent so as to bring the most forward buds to the lowest level, elevating those that are backward. Maintain a thoroughly moist atmosphere by frequently sprinkling the floor and passages, &c.; and syringe the Vines lightly at least twice a day until the leaves begin to appear, when the amount of moisture must be moderated.

PEACHES.—Let the house which it is proposed to force early, be got ready at the first convenient opportunity. The surface of the borders, if exhausted by repeated waterings, should be carefully taken off with a fork, and replaced with fresh soil. Worn out trees if any may also now be replaced by bearing trees from open walls.

CUCUMBERS.—These must not be permitted to overbear themselves, especially while the plants are young. It is much better to insure a constant moderate supply by judicious management, than to obtain overabundance at one time and nothing at another. Maintain a temperature of about 70°, and keep the atmosphere moist and agreeable for the growth of the plants.

FLOWER GARDEN AND SHRUBBERIES.

For some of the very tenderest kinds of Roses some protection will soon be necessary. Also get in, as previously recommended, the stock of Briars for budding upon next year, for unless these are planted soon they seldom furnish strong shoots. With weather like the present all new work should be pushed forward with vigour, and if the soil has been properly prepared by draining, where necessary, as should always be done before planting, there will be much fewer failures from planting evergreens now than if the work is delayed until March. Roll walks and lawns occasionally, so as to keep them firm and smooth. There will be comparatively little to be done in the flower garden at present, except sweeping and cleaning, and any spare time will be well spent in going over the stock of plants in pits for next season's use, removing every decaying leaf, and where the surface soil has got green, removing this and top-dressing with sandy loam. There is nothing so unfavourable to these plants at this season as damp; therefore take every possible opportunity of admitting fresh air.

HARDY FRUIT AND KITCHEN GARDEN.

Look over fruit and other stores frequently in order to see that all is safe and sound. Standard trees which have been root-pruned must be firmly secured against injury from winds; also get any root-pruning to be done this season executed as soon as possible. Endeavour as far as circumstances will permit to have a good supply of Parsley under safe protection; for there is generally a large demand for this, and in the event of a severe winter it is difficult to save it by the ordinary protection of hoops and mats.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the Week ending Oct. 14, 1863, as observed at the Horticultural Garden

Oct.	Month's Acc.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Min.	Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Thurs. 8	25	29.599	29.495	67	45	56.0	56	56	E.	.01
Friday 9	26	29.550	29.412	65	38	51.5	56½	56½	S.E.	.06
Satur 10	27	29.641	29.545	65	50	57.5	57	57	S.	.03
Sunday 11	28	29.540	29.500	66	39	52.5	56½	57	S.W.	.00
Mon. 12	☽	29.445	29.282	68	45	56.5	56½	56½	S.	.04
Tues. 13	1	29.374	29.263	67	45	56.0	56	56½	S.	.07
Wed. 14	2	29.599	29.511	68	39	53.5	56½	56½	S.	.02
Average.		29.535	29.453	66.3	43.0	54.6	56.5	56.5		.46

Oct. 8—Slight haze, lightly overcast; hazy; slight showers.
— 9—Uniformly overcast; hazy; lightning at night; rain.
— 10—Fine, cloudy, boisterous at night.
— 11—Cloudy and boisterous, fine; overcast.
— 12—Exceedingly fine, overcast at night; rain.
— 13—Showers; showers with sunshine at same time 3 P.M., splendidly coloured rainbow.
— 14—Fine; exceedingly fine; sultry; fine at night.
Mean temperature of the week 3 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending Oct. 24, 1863.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 18	57.9	41.3	49.6	18	0.85 in.	3	3	4	1	3	7	13	3
Mon. 19	59.5	39.9	49.7	18	0.61	2	3	6	3	2	8	9	4
Tues. 20	59.1	40.0	49.6	15	0.34	—	6	1	3	6	8	10	3
Wed. 21	58.3	39.6	48.9	16	0.64	3	6	3	4	5	9	5	2
Thurs. 22	58.7	43.1	50.4	21	0.96	2	1	4	1	10	10	5	4
Friday 23	58.0	40.4	49.2	20	0.55	3	2	1	3	4	14	8	2
Satur. 24	56.2	39.5	47.9	17	0.88	1	3	4	—	10	11	6	2

The highest temperature during the above period occurred on the 21st, 1831—therm. 73 deg.; and the lowest on the 23d, 1859—therm. 17 deg.

Notices to Correspondents.

HYACINTH JARS.—We have received from Messrs. Hooper & Co, of Covent Garden, a pair of what they call "New Etruscan Vases," which are certainly by far the most elegant contrivance for Hyacinth growing that we have seen. The artist who designed them has a genuine feeling for true beauty, and knows how to avoid tawdry vulgarity.

BOOKS: *W B M.* Hamilton or Glendinning on the Pine Apple. The other works you mention may be procured through any bookseller. We make it a rule never to recommend tradesmen or give prices.—*Iceberg.* The number you want (January 3, 1857) is out of print.—*Inceptor.* Both Mr. Rivers's and Mr. Pearson's little *brochures* on orchard-house management are worth consulting.—*Jane.* The Field Botanist's Companion will just suit you.—*Advertiser.* Paxton's Botanical Dictionary can be had through any bookseller.

DRY ROT: *B M.* Your fungus is Merulius lacrymans, the dry-rot fungus. It probably spread from some wood to the pillar, but we have known it penetrate and injure a brick wall. *M. J. B.*

EXPENSES: *A Foreman* should consult a lawyer. No newspaper in its senses would advise him. For ourselves we positively refuse to have anything to do with disputes about wages, or anything of the kind.

GRAPES: *Alpha.* Mrs. Pince's Black Muscat was exhibited on October 6 to the Fruit Committee of the Royal Horticultural Society, and was awarded a First-class Certificate.

HOTWATER: *J. J——s.* We cannot in any fairness recommend tradesmen. This, however, we may say, that no firm is better able to execute your work honourably than the one you have mentioned.

HYBRID MIMULI: *W. Bull.* The Mimulus flowers from your second cross are showy and interesting, the flowers, about 1½ inch across, being larger than those of the first cross: the markings however in many cases more nearly approach those of the ordinary five spotted large-flowered Mimuli. One of those sent has a rich yellow ground, and the segments nearly covered with bright coppery brown-red, breaking up more or less into spots inwardly, and irregular with a narrow yellow edge outwardly. This, as carrying the peculiar style of marking most prominent in the hybrids of last year, into flowers of larger size, is, we think, the most desirable among them.

INSECTS: *S B.* The grubs which have injured your Cabbages, Cauliflowers, and Turnips, are the caterpillars of the Dart Moth, Noctua (Agrotis) segetum, concerning which you will find ample details in several of our recent numbers.—*J D.* The insects which have attacked the Spruce Firs are the large black Aphis Pinicola of Ratzeburg. They must be treated as Aphides ordinarily are. They are very uncommon. *W.*

NAMES OF FRUIT: *J Carr.* The Musa is probably M. moschata. The Red Raspberry is Belle de Fontenay; the yellow is Cushing's Yellow. When you send your superb spike of Musa to the R. H. S. Fruit Committee *pray* let us know.

NAMES OF PLANTS: *X Y Z.* We have repeatedly stated that we cannot name more than 4 plants at a time. That is our rule to which we must adhere. We take your first four, viz., 1, Quercus Ballota; 2, Rhamnus latifolius; 3, Quercus tinctoria, apparently; 4, Quercus—some variety of the Lucombe Oak.—*Fern.* Athyrium Filix-fœmina.—*E D.* 1, Platyloma falcatum; 2, Some Davallia not in fruit, perhaps pyxidata or solida; 3, Blechnum occidentale minor; 4, Campyloneurum (Polypodium) angustifolium.—*G W.* 1, Viburnum Lantana; 2, Staphylea pinnata.—*Juvenis.* Allosorus crispus.—*Vandyke.* Monnina resedoides, a Brazilian weed.—*L V r.* Cratægus orientalis, not odoratissima, and Cr. mexicana no doubt.—*G I.* Epidendrum cochleatum.

POPLARS: *H A W.* If there is a difficulty in obtaining the Abele, nurserymen confounding with it the White Poplar, your best way would be to visit some of the great nurseries, while leaves are still on the plants in the quarters.

TRANSPLANTING: *Planter.* Your gardener is quite right. Lose no time and have nothing to do with May.

VAN HOUTTE'S NURSERY: *G.* By all means visit it when you are at Ghent. It is one of the largest, of the best managed, and of the richest in Europe. As far as we have seen, his names may be depended upon. A new Catalogue of his hardy plants is just out.

VINERIES: *H C.* Very sorry. Much too late for this week.

TRADE

HALLETT'S PEDIGREE NURSERY WHEAT.

MARK.

THE PEDIGREE WHEAT WAS AWARDED THE SILVER MEDAL BY THE JURORS OF THE CLASS "CEREALS FROM ALL COUNTRIES," AT THE MEETING, IN 1863, OF THE AGRICULTURAL SOCIETY OF DENMARK AT ODENSE.

The produce of 3 acres of this Wheat, grown 1862, in Essex, was sold to the miller, and realised £19 7*s.* per acre.
This Wheat produced in 1863 nearly 10 quarters per acre, weighing 63 lbs. per Bushel.

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PRICE—One Guinea a Bushel (or Seven Guineas a Quarter),

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In every plant of Wheat, Barley, or Oats there is always ONE BEST EAR, and in every ear there is always ONE BEST GRAIN, which is that one found at the following harvest to produce the best plant, *all* the grains having been planted in competition with each other.

The best of all the competing plants of any "family" of a cereal is ascertained by the most studious comparison of the good qualities they visibly present, *and of the notes of the peculiarities exhibited by each during the whole course of its growth*, such as:—the rapidity with which the parent seed germinates; the manner, time, and extent of the "tillering" of the plant; the periods of its earing, blooming, and ripening; its power of withstanding disease, frost, wet, &c.; the *toughness* of its straw, and any other characteristics which are essential to forming a correct decision, and which cannot be determined by even the most careful inspection of the perfect plant.

This best plant is called "*the selection*" of the year (say 1861) in which it is thus obtained, and consists of numerous ears, containing many hundreds, and even thousands, of grains which are planted separately; those of each *ear* being kept quite distinct, as although the best grain of any plant is nearly always found to lie in its best ear, it may be otherwise, and the successive parent *ears* must be preserved. At the following harvest (1862), the best plant forms "*the selection of* 1862," and its produce is continued on the experimental ground, while that of the remaining plants furnishes the annual seed for the farm in the Autumn of 1862, and the crops are in 1863 offered to the public. Thus, the selection sold is that of 1861, or in any year that of two years before; *the latest selection, that of the year immediately preceding, is not sold, being solely employed as the home seed.* The separate ears of a plant are designated by different letters, numbers, or names—as A, Z, &c., and each, with its descendants, forms a "*family*" which may develope some valuable peculiarity.

Thus, all the "Pedigree Nursery Wheat" hitherto sold has been of a family called "A," while another family of the same Wheat known as Z having been observed to exhibit marked superiority has been continued separately, and has given a greater progress during 1862 than has been before obtained in any single year.

The original ear of the large published engraving contained up one of its sides 16 "ranks" (spikelets) of grains, while the "Z family" has produced ears of 18 "ranks," and this, without any increase in the *length* of the ear, the "notches" of the axis on which the spikelets grow being placed more closely together. In a small field of this Z family, ears with 17 "ranks" were quite common, while in other fields of the family "A," *not one such ear could be found.*

This family Z *is now for the first time* offered to the public, and is ready for delivery.

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MR. JOSEPH BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.

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No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

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Such works can be executed either under the powers of several special Acts of Parliament, with money raised by loan and paid off by instalments, or with the Landowner's own money.

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AUTUMN SESSION, 1863.

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* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

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J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.
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THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
THOMAS ELLMAN, of Beddingham, Lewes—Lecture on Southdown and Short-woolled Sheep.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.
AGRICULTURAL CHEMISTRY.
THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.
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The FOURTH GREAT ANNUAL EXHIBITION of SPORTING and other DOGS will be held at BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY and THURSDAY, November 30, and December 1, 2, and 3, when Prizes exceeding 530*l.* will be awarded.
The ENTRIES CLOSE on NOVEMBER 2.
Copies of the Prize Lists and Regulations may be had on application to the Secretary. GEORGE BEECH, Secretary.
Offices, Rectory Chambers, Temple Row, Birmingham.

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EXTENSIVE GALLERIES having been erected in BINGLEY HALL, the Council have a considerable Quantity of both GROUND FLOOR and GALLERY SPACE to LET, suitable for the EXHIBITION of IMPLEMENTS and MACHINERY, SEEDSMEN'S STALLS, &c.
At the General Annual Meeting of Subscribers held at the Hen and Chickens Hotel, Birmingham, on Thursday, Dec, 4, 1862.
IT WAS RESOLVED,
"That it be a recommendation to the Council in future to restrict the Articles admitted for Exhibition, in addition to the Cattle and Poultry, to Agricultural and Horticultural Implements, Tools, and Machinery, Roots, Grain, and other Farm produce, and other Articles to be used in connection with Agricultural and Horticultural Pursuits."
Plans of the Hall, showing situation of space, Terms, and Forms of Entry, may be obtained from the Secretary.
The ENTRIES CLOSE on NOVEMBER 7.
JOHN B. LYTHALL, Secretary.
Offices—13, Temple Street, Birmingham.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1863.
The FIFTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in Bingley Hall, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 1, 2, and 3, when PRIZES to the amount of £1940 will be awarded in the following Divisions, viz.:

FAT CATTLE	.. ..	£784	5 0
FAT SHEEP	.. ..	275	15 0
FAT PIGS ..	.. ..	60	5 0
BREEDING PIGS	..	76	10 0
CORN and ROOTS	..	68	5 0
POULTRY and PIGEONS		674	4 0

Prize Lists and every information may be obtained from the Secretary.
The ENTRIES CLOSE on SATURDAY, October 31.
JOHN B. LYTHALL, Secretary.
Offices: 13, Temple Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW, 1863.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY AFTERNOON, December 7, and four following days.
The Prizes consist of 1825*l.* in money; 60 Silver Medals 6 Silver Cups and a Gold Medal.
The ENTRIES CLOSE on NOVEMBER 2.
Prize Sheets and Printed Forms of Certificates, with full particulars, can be obtained on application to
Mr. DAVID PULLEN, Assistant Secretary,
At the Office of the Honorary Secretary,
Corner of Half Moon Street, Piccadilly, London, W.
N.B.—Applications for Prize Sheets and Forms of Certificates must be addressed to the ASSISTANT SECRETARY as above, and all letters must bear outside the words "SMITHFIELD CLUB."
The Entries for the Implement Department Closed on Oct. 1.

The Agricultural Gazette.

SATURDAY, OCTOBER 17, 1863.

SOME years ago, the attention of cattle feeders was called to the importance of Wheat as fattening food; and it really seems as if prices were likely once more to bring what is properly the food for man into use in feeding beasts. Meanwhile, Mr. WILLOUGHBY WOOD, who formerly called attention to the value of Wheat, has been recently, in the columns of our contemporary, *Bell's Weekly Messenger*, directing the attention of agriculturists to the injury done them by the restrictions placed on malting Barley. Whether or not malt contains less food than the Barley out of which it is made, it is pointed out that value as food depends on palatableness as well as on nutritiveness. "Beef uncooked is more nutritious than when it is either roasted or boiled, but that would be considered a poor apology for placing it before a gentleman on his return from shooting. Nor would his good temper be much improved if the primitive repast were flanked by a plate of Barley instead of by a foaming tankard, although the superior nutritiousness of the former were vouched for by no less an authority than that of Baron LIEBIG."

Mr. WOOD proceeds to declare that many eminent practical agriculturists have found malt

to be a feeding material of no ordinary value. But precluded by law as are the bulk of farmers from using it, unless at an exorbitant and unremunerating price, there are not a sufficient number of experiments to enable us to assign it a definite rank among feeding materials. "When, however, we find that it has been habitually used by the feeders of prize stock, we may be certain that its good effects have not been overrated by general opinion. Whether it is somewhat more nutritious, or somewhat less nutritious, than Barley, does not affect the argument. The injury which is done to the farmer, is, that practically he is not allowed to use Barley for feeding, except as food for pigs. Being too heating in a raw state for cattle unless for a very limited time, or largely diluted with other substances, it may be considered as practically excluded from the list of cattle-feeding materials. The duty on malt being seldom less than 70 per cent., and sometimes approaching 100 per cent. on the lower qualities of Barley, these are sold at an unremunerative rate; when, if allowed to be malted duty free for home use, they might yield a profitable return in beef and mutton, besides contributing to the improvement of the farm. The magnitude of this loss may be estimated by the consideration that, in unfavourable seasons, one-third or more of the crop is considered by public brewers to be unfit for their use.

"It is therefore of primary importance to urge on Government the expediency of permitting farmers to malt their own corn for feeding purposes. In seasons in which the prices of corn rule low, and in those when a large proportion of the crop is inferior, it is difficult to overrate the importance to the agricultural interest of this privilege. When the inferior qualities of Wheat and Barley were cheaper than Linseed cake, they would be largely substituted for it, were the malting process allowed. The experienced feeder and the veterinary surgeon both well know the importance of varying the food of stock. In this neighbourhood, malt-dust from the brewers is in much request, while the very grains which have had as much nutriment extracted from them as the brewer's art is able to effect, are regularly purchased during the winter months by farmers in the district, who cart them to a distance even of 20 miles. So heavy an expense would not be introduced year after year unless it were found to confer a corresponding benefit. I can myself speak to the eagerness with which cattle eat chaff when mixed with grains. Thus does a material, apparently insignificant, add to the amount of stock which a farm is able to maintain; and if so much benefit arises from Grain after brewing that a single farm will sometimes consume weekly several hundred bushels, what might not be expected from the use of malt previously to the beer being extracted from it? The farmer ought, therefore, no longer to be prohibited from malting his own Grain for feeding purposes. Complete liberty in dealing with the produce of his own land is no less essential to him than is the free import of raw material to the manufacturer."

—— THE Royal Agricultural Benevolent Institution has received a gratifying letter and donation from Mr. C. T. TOWER, of Weald Hall, near Brentwood, Essex—who is well known as "the father of the Smithfield Club." The suggestion which the letter contains will, we believe, commend itself to many benevolent minds, and bear good fruit in aid of the Institution in whose interest it has been conceived. Mr. TOWER writes as follows to the Secretary*:—

"You will find my name as a donor of five guineas to the Royal Agricultural Benevolent Institution of last year, and I now inclose my cheque for 25 guineas more, to be added to that Donation List from me. I avail myself of the active exertions now going on to bear testimony, by every expression of thankfulness, to the Gracious Giver of all Good, for the abundant and well secured Harvest with which we have been blessed, and among the various schemes adopted it has occurred to me, as I hope it has to many others, that to promote subscription to the above Society, of which you are the Secretary, has a fair claim to some consideration from its immediate connection with success or failure in that occupation of human industry. I shall be obliged to you to send me by book post a few copies of the rules and regulations and list of subscribers for circulation in this parish and neighbourhood.

"I am, Sir, your obedient servant,
(Signed) "C. T. TOWER."

"To CHARLES SHAW, Esq."

The above note was read at the Council meeting of the Institution on Tuesday last, and it having been thought that its publication would do good, Mr. TOWER's permission to publish it has been obtained.

—— AN inquiry into the average annual agricultural produce of this country resolves itself into the question—What is the consumption of food by its inhabitants? We do not know the produce of our fields, and can only guess at it by inference in this way. It is nevertheless of importance that speculations on this subject be checked by comparison with any facts related to them that can be obtained. If we could learn the average consumption of various families in different circumstances, it might be possible to obtain a tolerably trustworthy idea of the food consumption of the country, which it would be exceedingly important to know. A correspondent of this Journal is in search of such information, and has placed in our hands a form to fill up with any facts of this kind that we can obtain. He asks for the ordinary weekly consumption of bread, meat, bacon, lard, butter, cheese, tea, coffee, sugar, rice, Oatmeal, flour, Potatos, vegetables, tobacco, soap, milk, beer, malt, firing, clothes, shoes, rent. The questions he puts in four distinct cases—that of an artisan, as mason, smith, or carpenter; an agricultural labourer with large family; an agricultural labourer with small family; and a single person or aged couple on parish allowance; and in every case he asks for the amount of the weekly earnings or receipts, the number of pairs of hands at work, and the number of mouths to be fed.

It is very rarely that labouring men are so communicative as to be willing to give information on these points—or even so observant as to be able to give this information. There may, however, be among our readers some who are interested in this subject, and who may know trustworthy people who can answer the questions here given. If so, we should be very much obliged if they would put the questions and send us the answers.

THE following important testimony to the character of the past harvest has just appeared in the *Times*:—

So much has been said of late respecting the Wheat crop of the harvest just passed that perhaps a statement of some of the results of my own experience on the subject may not be without interest to your readers. On a field of 14 acres I have grown Wheat every year for the last 20 years. During the whole of this period one portion of the land has been left entirely unmanured, another has received 14 tons of farmyard manure annually, and the remainder has been divided into numerous plots, which have respectively been manured with different artificial combinations, some calculated to yield moderate crops and others the heaviest produce which the characters of the soil and seasons will admit of. With some exceptions the same description of manure is applied year after year on the same plot, so that the variation in the produce from one year to another is mainly due to the characters of the seasons; and experience has shown that the produce of this field affords a tolerably correct indication of the general character of the Wheat crop over a pretty wide area.

The following is a statement of the amounts of produce obtained without manure and by farmyard manure in 1863, compared with the average of the preceding 10 years under the same conditions:—

	Bushels of corn per acre.	
	Harvest, 1863,	Average of 10 Years. 1853-1862.
Unmanured every year ..	17¼	15½
Farmyard manure every year	44	35¼

Thus, even the unmanured land has given rather more produce in the favourable season of the twentieth year than the average of the preceding ten years; but the increase due to season was far greater where the farmyard manure was employed. It was even greater still in many of the cases where artificial manures were applied, as the following results (which include those of all the plots where the yield of the present season exceeded 50 bushels per acre) will show:—

Bushels of Corn per Acre.		Bushels of Corn per Acre.	
Harvest, 1863.	Average of 10 Years, 1853-1862.	Harvest, 1863.	Average of 10 Years, 1853-1862.
53½	35½	53¼	33½
54	35⅔	53¼	34
56½	37	54	33⅔
55	37½	53½	34¼
55½	33¼	56½	37½
54⅔	34¼	55	38
53¾	34½		

It is seen that in almost every one of these cases the produce of 1863 was one-half more than the average of the preceding ten years, with the same description of manure. The quality, as indicated by the weight per bushel, was also considerably above the average. It should be observed, too, that on only one of these plots has there ever before, during the whole course of the experiments, been obtained as much as 50 bushels per acre, and on it only twice—namely, in 1854 and 1857.

I may add that in an adjoining field, not treated experimentally, but under the ordinary management of the farm, the yield of Wheat this year (after Clover) is more than 63 bushels per acre.

These results may, I think, be taken as fully confirmatory of the generally expressed opinion that the Wheat crop of 1863 is one of the largest that has been grown for many years, and also of superior quality. Those who fear that our soils are becoming rapidly exhausted may, perhaps, derive some comfort from the fact that a field of ordinary Wheat-land has grown 20 crops in succession, the 20th crop, even without manure, being heavier than the average of the 10 preceding years, and that obtained by various artificial manures being considerably heavier than in any preceding season of the series.

Rothamsted, Herts, Oct. 10. J. B. LAWES.

DISEASES OF LIVE STOCK.

[The following passages are taken from Dr. Simon's report to Government.]

DISEASE prevails very extensively in the United Kingdom among horned cattle, sheep, and swine: the diseased state of an animal not only does not commonly lead the owner to withhold it from being slaughtered for consumption as human food, but, on the contrary, in large classes of cases (especially where the disease is of an acute kind) leads him to take immediate measures with a view to this application of the diseased animal; and, consequently, a very large proportion of the common meat of the country—beef, veal, mutton, lamb, and pork—comes from animals which are considerably diseased.

The diseases which figure behind the scenes of our dead meat market are of course various. And, although for the purposes of this report it is not necessary to enter upon much detail concerning them, yet, in order to discuss their probable effect on the quality of meat, the more important kinds of disease must be separately spoken of. And they are three—viz., first, contagious fevers; secondly, the so-called anthracic and anthracoid diseases; thirdly, parasitic diseases.

Of the contagious fevers of stock, two are now widely prevalent in the United Kingdom—namely, the pleuro-pneumonia or lung-fever, which is peculiar to horned cattle, and the aphthous fever, or foot-and-mouth disease, which affects indifferently and in common horned cattle, sheep, and swine. A third disease of the same class—the small-pox of sheep, perhaps of all murrains the most dreaded in this country—is not known to be now prevailing among our flocks; but a few months ago, an outbreak of it in Wiltshire excited the greatest alarm; and it is a disease which may at any moment be spreading here. A fourth most important contagious fever of stock—the very fatal typhoid fever, or steppe murrain of Russian horned cattle, has happily been kept away from us for more than a century.

Of the so-called anthracic and anthracoid disease of stock, many prevail to a great extent in the United Kingdom. It is said to be an essential character of these diseases that the blood of the diseased animal undergoes peculiar, in some respects putrefactive, changes; but commonly the disease involves an occurrence of local infiltrations and effusions of putrescent blood-ingredients or blood. Diseases of this class are further characterised by the fact that during their course the diseased body develops in itself a specific morbid poison, which, by inoculation, can be made to spread to other animals, including man. The diseases counted under the present head are as follows:—The splenic apoplexy of horned cattle and sheep, the braxy of sheep, the black-quarter of horned cattle and sheep, the glossanthrax or tongue-carbuncle of (almost exclusively) horned cattle, the forms of anthrax which affect the mouth, pharynx and neck in swine, the apoplexy of swine, and their so-called blue-sickness or hog-cholera, the parturition fever of cows, the corresponding heaving-pains of ewes, the navel-ill of lambs, and the red-water of sheep.

Thirdly, there are the parasitic diseases of stock—diseases which consist in the colonisation of the living animal's body by lower animal forms, larval or mature, subsisting at its expense. Such are the following diseases:—The so-called "measles" of the pig, in which disease the Cysticercus cellulosæ (larva of the Solium tapeworm) is found more or less abundantly diffused through the muscular system, and perhaps in other parts of the animal; the analogous disease of horned cattle, due to the larva of the T. mediocanellata; the various, chiefly visceral, diseases of stock which depend on larvæ of the Tænia marginata and T. echinococcus; the brain disease, "gid," or "sturdy," which is due to a larva, mostly of the T. cœnurus; the rot of sheep due to swarms of adult and oviparous fluke-worms (distoma) in the liver; the lung disease, which, especially in calves and lambs, is produced by different kinds of Strongylus; the easily-overlooked, but highly-important disease of swine, which consists in an infestation of their muscular system by the minute immature forms of the Trichina.

The above is Dr. Simon's analysis of Professor Gamgee's report on this subject. Dr. Simon's further remarks on the existence of these diseases in connection with the public supplies of meat and milk are as follows:—

"From Mr. Gamgee's report, I gather that horned cattle affected with pleuro-pneumonia are, much oftener than not, slaughtered on account of the disease, and, when slaughtered, are commonly (except their lungs) eaten; and this, even though the lung disease have made such progress as notably to taint the carcass; that animals affected with foot-and-mouth disease are not often slaughtered on account of it, but, if slaughtered, are uniformly eaten; that animals affected with anthracic and anthracoid diseases, especially swine and horned cattle thus affected, are (except their gangrenous parts) very extensively eaten; that the presence of parasites in the flesh of an animal never influences the owner against selling it for food; that carcases, too obviously ill-conditioned for exposure in the butcher's shop, are abundantly sent to the sausage-makers, or sometimes pickled and dried; that specially diseased organs will often, perhaps commonly, be thrown aside, but that some sausage-makers will utilise even the most diseased organs which can be furnished them; that the principal alternative, on a large scale, to the above described human consumption of diseased carcases is, that in connection with some slaughtering establishments, swine (destined themselves presently to become human food) are habitually fed on the offal and scavenage of the shambles, and devour, often raw

* C. SHAW, Esq., 55, Charing Cross, S.W.

and with other abominable filth, such diseased organs as are below the sausage-maker's standard of usefulness.

"This, in general terms, is Mr. Gamgee's report on the subject. Disgusting as are the reflections which it suggests, there is not in it, I think, anything intrinsically improbable.

"One doubt, however, may well be raised on the subject. A first popular impression would be, that if things are as described, pestilences must be bearing witness tothe fact. Doubtless, the impunity, such as it is—results from the operation of well known chemical and physiological laws. Our animal food before we take it has for the most part been exposed to so high a temperature that any parasites which had their home in it are killed, and whatever albuminous morbid contagium it contained has been coagulated and made inert. Probably, too, against small quantities of animal poisons—and against such as communicate smallpox and glanders, just as against the venom of the cobra and rattlesnake—the stomach has resources of its own; for any such organic product entering the stomach is at once (as regards that mobile chemical constitution on which its efficiency depends) exposed to the strong disinfectant chemistry of digestion, and thus, within narrow limits of quantity, is likely to be rendered inert before it can soak into living texture. Both these influences may count for something, and the first-mentioned of them for almost everything, in explaining the fact (so far as it is a fact) that many sorts of diseased meat are eaten with impunity. On the other hand, it must be remembered, that, in this theoretical explanation, the two protective influences do not cover the whole field of danger; for, in the first place, not all meat which is eaten has been exposed throughout (nor in every instance even at all exposed) to a temperature sufficient to kill parasites, and coagulate albumen; in the second place, even complete coagulation of albumen may, for aught which we know to the contrary, leave some morbid poisons in operation; in the third place, it may very well be, that, even where cooking can divest a meat of some original specific infectiveness, the meat may still not be susceptible of quite the same digestional changes as healthy meat, when eaten, undergoes. It may be convenient to notice, under separate heads, the evidence which now exists as to the injuriousness of each chief kind of diseased meat.

"(*a*) First, as regards meat which is infested with parasites—we know with absolute certainty that this may become a source of human disease. Every tapeworm found existing in human bowels was once a hydatid, nested either in the living muscle or in some other living texture of an animal which is used for food. Tapeworm, unfortunately, is not a very rare human affection; though how it comes to pass that we not very rarely get to swallow alive those cystic brute-parasites, which are larvæ of the intestinal tapeworm, is somewhat difficult to explain. A mouthful of fresh "measly" pork, eaten raw, would of course explain such an occurrence, and it seems probable that cysticerci may outlive some or all of the processes by which meat is commonly cured, and may thus get swallowed alive by persons who eat uncooked sausage, ham, or bacon. And the danger to man is even greater than I have yet said. For pork, in order to be capable of carrying live trichinalarvæ into the stomach, needs not to be absolutely raw. Professor Leuckart, a distinguished experimenter on this subject, has found trichina-meat retaining much of its dangerous qualities even when it had to some considerable extent undergone both pickling and smoking.

"(*b*) As regards possible ill-effects from consuming in a well-cooked state, the flesh of animals with anthracic or anthracoid disease, evidence is still imperfect—partly, no doubt, because extreme ill-effects do not generally result from such eating, but partly also because, till public attention is drawn to the subject, it must be difficult to trace to their true cause any ill-effects which are thus occasioned. Mr. Gamgee tells me that he has experimented on this subject, and that dogs and ferrets, to which he has given (cooked) various parts of animals slaughtered during splenic apoplexy or parturition fever, have died in consequence of the meal; but, on the other hand, M. Renault—formerly Director of the Imperial Veterinary College at Alfort—is quoted, as believing that meat from carbuncular animals is harmless. It seems to me that in this question, which concerns so many diseases and so many different stages of disease, somewhat extensive investigations are wanted to fix accurately the limits between safe and unsafe consumption. But that human life may, under some circumstances, be endangered through the use of cooked meat derived from animals with anthrax, seems to be conclusively shown by the following case, with which Mr. Keith, senior surgeon of the Aberdeen Royal Infirmary, has favoured me:—

[Then follows a history of illness and death consequent on partaking of the flesh of a heifer which was slaughtered on the first appearance of an illness.]

"In a letter of further information which Mr. Keith has been good enough to write to me, answering various questions I had asked him, he says:—'I learn that the meat cooked was quite fresh and healthy to look at, and that the fatal dinner was cooked on the very day the animal was killed, so that putrescency had nothing to do with the matter. I further learn that one of the females—the servant—had some suspicion that it might not be safe to eat of the meat, and therefore it was that she abstained, and was safe, as already stated. The father habitually abstained from animal food, and did so that day, and escaped. One other of the females only took of the broth, and no beef, and escaped more easily than any of the others.'"

"(*c*) As regards possible ill-effects from consuming, in a well-cooked state, the flesh of animals which have been suffering an infectious fever—small-pox, typhoid fever, pleuropneumonia, or aphtha—I have no inculpatory evidence worth quoting. And as regards the last two diseases, common as they are in this country, I am of opinion that the absence of evidence is enough to show that immediate ill effects of any considerable importance do not ordinarily follow the consumption of the meat. Indeed, it is certain that on various occasions meat of this description has been consumed on so large a scale, that if the meat had been immediately hurtful, the consequent mischief could not have escaped observation. On the other hand, I must repeat that, till public attention is drawn to such subjects as these, it is difficult to prove connections, which afterwards become evident, between evils and their latent causes. And particularly in this point of view I must advert again to the unexamined part of this question—the doubt whether chronic ill-effects (which of course would be singularly difficult to trace) may perhaps result when febrile meat—meat which necessarily is of modified chemical constitution—becomes a considerable element in diet. An opinion is sometimes expressed that boils (perhaps with other like affections) are caused in the human subject by the consumption of such meat as I refer to. And, though I have not yet found any fact which I can deem conclusive in support of this opinion, I must admit that the alleged connection is not *primâ facie* impossible.

"(*d*) Before leaving the subject of cattle diseases in their relation to the supply of meat, I must mention, as a danger incidental to the consumption of meat from diseased animals, that in some cases the meat may be injurious in consequence of the animal having been excessively drugged during life. Mr. Gamgee mentions cases where animals recently drugged with arsenic and strychnia have been used for human food. He quotes a very striking case, reported nine years ago in Germany, to the effect that signs of poisoning arose almost as an epidemic among 321 persons who had eaten of the flesh of an ox which during life had been dosed with tartar emetic, and had had perhaps two ounces of that drug; that, of the 321 persons who ate of the ox, 107 suffered, and one of them fatally, from violent gastro-intestinal disturbance; that antimony was chemically found both in the flesh of the ox and in the interior of the person who died; and that doses of the flesh given experimentally to other animals produced signs of poisoning. Generally it might be expected that no drugging of an animal, in doses not sufficient to poison it, could render its flesh capable of acting as a poison on man.

"In conclusion, lest I should seem to have ignored any important existing evidence on the subject of the dangers which are attributable to the consumption of diseased meat, I think it right to observe that, in popular discussions of this subject, and even in some of the medical writings which relate to it, sufficient care has not, in my opinion, been taken to separate two important questions—the question of meat being rendered unwholesome by decomposition, and the question of meat being rendered unwholesome by disease.

"With regard to that minor branch of the inquiry which relates to the milk of diseased animals, it appears that in this country the most important question is as to the wholesomeness of milk from animals with aphtha. Mr Gamgee points out that on some occasions when aphtha has been prevailing among the cattle of a country, the human population in the same places has suffered from the same, or from some similar disorder. And experiment seems to have established as certain that, at least under some circumstances, the human affection may be caused by the consumption of milk drawn from a diseased animal. It may be that the frequency of such communications of the disease, as compared with the number of persons who (more or less) are consumers of milk, is not great. But the danger is one of which the public ought to be aware."

DAIRY STATISTICS.

Mr. Egerton Harding, of Old Springs, Market Drayton, has furnished the following statistical account of the produce from a stock of milking cows kept upon a dairy farm, of which he was both landlord and tenant for 11 years. The farm contains 133 acres, of which 67 are pasture and meadow. The rent, tithe free, was 200*l*. The cows were cross-bred, but of a Short-horn character.

Produce of Milking Cows.

	Amounts received for Cheese.	Amounts received for Butter.	Amounts received for Milk.	Amounts received for Calves.	Balances from Sales and Valuation of Stock.	Amounts received for Cheese, Butter, Milk, Calves, and Beef.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1852	261 14 1½	68 6 8½	14 5 7	14 11 0 +	45 11 6	404 8 11
1853	334 11 9½	94 3 10	13 11 7½	12 1 6 —	8 18 0	445 11 9½
1854	272 8 8½	89 18 10½	13 14 4½	20 15 6 +	6 5 6	412 12 11½
1855	329 19 4½	92 6 6	12 14 4	14 12 0 +	16 17 0	466 9 2½
1856	330 15 6½	92 6 8½	12 16 4	33 11 0 +	26 8 0	495 17 7
1857	205 2 0	81 11 4½	17 19 10½	30 10 6 +	4 4 6	338 18 3
1858	286 10 0	91 0 3½	19 11 11	27 5 6 +	28 0 9	452 8 5½
1859	279 18 10	91 1 1	20 13 2	26 13 4 +	57 9 5	475 14 10
1860	239 5 8	77 13 4	22 12 1	26 5 2 —	5 3 2	414 3 1
1861	160 4 7	68 11 5	19 5 3	15 6 0 +	54 13 0	318 0 3
1862	173 13 0	64 7 6	19 15 1	6 6 6 +	100 16 8	364 18 9
Average of 11 years ..	265 16 8¼	82 17 0½	16 19 10½	21 12 6½	29 13 2¼	417 4 3

	Amounts received for Cheese, Butter, Milk, and Calves.	Average No. of Cattle on the Farm.	Average No. of Milking Cows.	Amounts received per head of Cattle.	Amounts received per Milking Cow.	Price of Best Cheese per lb.	Price of Skim Cheese per lb.	Price of Butter per lb.	Price of Beef per lb.
	£ s. d.			£ s. d.	£ s. d.	d.	d.	d.	d.
1852	358 17 5	25	24	16 3 6	14 14 10	5½	3	10	6
1853	454 8 9½	27	26	16 10 0	17 9 6½	6½	3½	10	6½
1854	406 7 5½	27	27	15 5 8	15 1 0	6¼	3	10½	6¼
1855	449 12 2½	26¼	25	17 12 0	17 19 8	6¼	3	11	6¼
1856	409 9 7	27	26	18 7 3	18 1 1	6¼	3½	12	6½
1857	334 13 9	28	26	11 14 11	12 15 11	4½	3¾	12	5¾
1858	424 7 8½	29½	26	15 6 8	16 6 5	5¾	3½	12	6½
1859	418 5 8	30	27	15 17 1	15 9 9½	5¾	3½	14	6¼
1860	419 6 3	27	26	15 4 0	16 2 6½	6¼	3	14	6½
1861	263 7 3	28	27	11 5 1	9 15 0½	4	3	14	6
1862	264 2 1	28	25	13 0 8	10 11 3½	4¾	0	14	6½
Average of 11 years ..	387 10 9	27 7/11	25 1/11	15 2 5¼	14 19 3	5¼	3¼	12	6¼

	No. of Best Cheeses.	Weight per Cheese.	Total Weights.	No. of Skim Cheeses.	Weight per Cheese.	Total Weights.	No. of Stiltons.	Weight per Cheese.	Total Weight.	Total Weights of all Cheeses.	Weight per Cow.
		lbs.	lbs.		lbs.	lbs.		lbs.		lbs.	tn. ct. qr. lb.	lbs.
1852	238	47½	11,336	62	14½	900	0	0	0	12,230	5 9 1 0	509
1853	222	55½	12,305	64	16½	1035	0	0	0	13,400	5 19 2 16	515
1854	224	44	9,893	54	14	798	0	0	0	10,661	4 15 3 21	395
1855	240	50½	12,136	50	13¾	695	4	11	44	12,875	5 13 3 0	515
1856	247	49	12,110	38	13	497	8	10¾	86	12,693	5 13 1 9	488
1857	242	41¼	10,006	30	12¼	370	4	11	44	10,420	4 13 0 4	400
1858	273	40	11,965	17	25	425	4	10¼	41	12,431	5 10 3 27	488
1859	243	45⅔	11,170	26	18¼	349	4	12	48	11,567	5 3 1 3	465
1860	227	46¼	10,541	18	10	184	4	11¾	47	10,771	4 16 0 19	414
1861	213	41⅔	8,883	9	13⅓	120	4	10¾	43	9,046	4 0 3 2	335
1862	194	42⅔	8,296	9	0	0	4	10¾	43	8,339	3 14 1 23	333
Average of 11 years	233	45 9/11	10,785 6/11	33 5/11	14½	488 5/11	3 3/11	11	36	11,312 10/11	5 1 0 1	441 6/11

In addition to Grass, straw, hay, and roots, the produce of the farm, each cow had, night and morning, a small feed of purchased corn, which cost about 4*d*. per head per annum. *Journal of English Agricultural Society.*

Home Correspondence.

Improvements in Machinery for Purifying Casks.—It is worthy of note that the first successful introduction of machinery for this purpose was in the year 1843; previous to this period, the only known method of cleansing was by the introduction of steam or hot water, or both, assisted by a chain placed inside, and a rolling motion given to the cask by hand. By such means it will not be difficult to see how uncertain would be the internal state of the cask. The machine invented in 1843 consisted of a double frame, suited to the form and size of each cask, the frames revolving one within the other, and at right angles to each other, in such a manner as to cause a chain of peculiar construction, assisted by hot water, to traverse completely over every portion of the cask, and so effectually remove all adhering matter. These machines still continue to be held in high repute at many first-rate establishments, and so far as cleansing is concerned, they are nearly, if not quite, equal to anything which has since been attempted in this way. There is, however, one objection to them, namely, they are only calculated to cleanse one cask at a time, which, in such establishments as the two leading Burton houses (whose demand for casks each day amounts to thousands), has been a complete bar to their introduction and use. The new machine not only gets over the difficulty in respect to the number of casks cleansed at one time, but is superior to the old machine in point of speed generally. This machine consists mainly of two circular discs with an upright shaft or spindle in the centre, which has a screw at each end (the threads being cut right and left-handed). The two discs have likewise each a corresponding female screw, which, when turned round on the upright spindle (the same being temporarily fixed), it will be easy to see, will cause the discs to advance or recede from each other, according as they are turned to the right or left hand. Such is the mode by which the casks are either secured or released from the machine, that is, by turning in one direction, the casks are effectually secured between the two discs; by turning the reverse way they are released. Any number of casks which the bottom disc will contain, and even a second tier (if desired) can be fixed and afterwards cleansed at one operation—say two sets of 5 or 10 casks. A compound motion is given to this machine not dissimilar (so far as the outer action is concerned) to the old machine, but, from the fact of the cask being placed in an upright position in the machine, and likewise surrounding the middle shaft or spindle, the casks themselves, when the machine is set in motion, are twirled about in a manner altogether peculiar and effective. The best cleansing medium is found to be a small quantity of sharp shinge

along with two or three gallons of hot water. The time occupied in cleansing ordinary dirty casks is about 5 minutes, and very bad mouldy casks about 12 minutes. Thus it will be seen that one of these machines is calculated to cleanse easily 100 ordinary dirty casks, or 60 mouldy ones per hour, at the mere expense of two or three labourers and an insignificant amount of engine power. In large establishments where unheading is still resorted to, the saving to be effected by this new machine must of necessity be great. With regard to purifying both new and old casks, there can be no doubt that the wisest course for new casks is to divest the wood as much as possible of the coloured juices before it is made up into casks, which is easily done by hot water or steam, and it is afterwards dried by currents of hot air. Old and tainted casks are found to be cured (within 1 in 200) by partial steaming, and afterwards by exposure to currents of hot air at 450° Fahr. Experience having sufficiently proved the soundness of this mode of preparing casks for a most important branch of trade, it may seem almost needless to suggest any other method of performing the same work, but the author being the first to discover the importance of applying heated currents to such a purpose, he feels it incumbent on him to state that there is still another element which he is not sure but must ere long supersede to a considerable extent the one before referred to. It is that of superheated steam, the use of which was discovered lately by the author in rather a singular manner, namely, while engaged in some experiments with superheated steam, it occurred to him, seeing that there was an indicated temperature at the time of between 600° and 700° Fahr., that it would be well to try its effect upon a very bad stinking cask, which, being obtained was subjected to the heat only ten minutes, when it was pronounced perfectly sweet. It is only necessary to add that the same result has attended many repetitions of the system, and although they have not all been attended with the same successful results, the author feels that it has not arisen from any fault in the principle, but from a want of sufficient practical data as to the exact temperature and also the amount of time which the casks can be safely exposed to this powerful agent. *R. Davison, C.E., at the British Association.*

Corn Averages—Michaelmas Rents.—The fluctuation in the prices of grain during the farmer's year ending Michaelmas, 1863, has not been important, but it may be remarked that the highest price of Wheat was at the commencement of the year, and the lowest at the end. The averages deduced from the *London Gazette* for the 52 weeks ending Michaelmas, 1863, were:—

Wheat	..	..	..	46*s.* 8*d.*	per Imperial quarter.
Barley	..	..	..	34 3	do. do.
Oats	..	..	..	21 9	do. do.

During the same period the following abstract shows the dates of the highest and lowest prices, with the difference:—

	Highest Prices.		Lowest Prices.		Difference.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*
Wheat, Oct. 10, 1862	51	1..Oct. 2, 1863 ..	43	9..7	4	
Barley, March 13,'63	36	10..July 24, 1863 ..	28	10..8	0	
Oats, July 10, 1863	24	0..Jan. 23, Oct. 2, '63	20	2..3	10	

Charles M. Willich, Actuary, University Life Assurance Society, 25, Suffolk Street, Pall Mall East, S.W., Oct. 10.

Societies.

EDINBURGH: *Address by Lord Brougham to the Working Men.*—The following remarkable address was spoken by Lord Brougham on Friday evening of last week, at an enormous assemblage held in connection with the Social Science Association.

Lord BROUGHAM said: Fellow workmen,—I have been a workman like you all my life, and even when old age has come upon me, the habit is so strong that I cannot give over working now; and really it must be admitted that there is not only great profit and great usefulness, but great pleasure and comfort in work. All well regulated minds must feel what has been very well said on several occasions, that the worst of all is to have no work to do. I don't want to detain you by making a long preachment on the present occasion, but I have one or two things that I would first call your attention to; they are of the greatest importance to all classes of the community, but to no class more than the immense body of the working classes, whom I am happy to see before me. The most important class in the country are the working men; on them all depends, and he who does good to them and provides them the means for their improvement and their best welfare, does good to the whole community—to the non-working classes, to the idle as well as to the workman. Our Association, which is assembled for the seventh time on the present occasion, pays more attention to what concerns the working part of the community than to all the rest of the community together. Now, I cannot help feeling that one of the most important things for the people of this country, and above all for the industrious people, is the improvement of their minds by education, and I am most happy to find that a great improvement of late has been made, not only in the mode of instructing, but also in the course of instruction in respect of time. There has of late years prevailed, and now is becoming universal, the opinion that a great deal of time is wasted and thrown away often in elementary instruction. For instance, instead of 12 hours' work for boys and girls at school, it has been found that six hours is not only enough, but that it is better than the 12; it is better for their bodies and better for their minds. They learn more, and their minds are more on the stretch, and they actually profit more in learning, independent of the great benefit which this shortening of the time is to their health. This has been a doctrine which of late has been adopted and introduced into the army by general orders from the Horse Guards. I reckon education to be highly important in every sense. I lately read a book which I would strongly recommend to your attention. It is an excellent book on every part of the working man's fortune and labour; it is by a rev. gentleman of this city, the Rev. W. G. Blackie, and is called "Better Days for Working People." In this small volume I find the best rules on everything relating to the working men; on everything which relates to the improvement of the mind. I was much pleased with the passage which I read this morning, because it contains this quotation from an old author which gives a very accurate account of the merit of books. The quotation is to this effect, "books are masters, who instruct without rods or rules or wrath." If you go to consult them they are never asleep; if we ask them questions they don't run off; if you make blunders they don't scold you, or if ignorant don't daunt you. I think that is fully as good as all that my learned friend, who calls himself an ex-Radical, Mr. Roebuck, lately said, at Swanage, on the subject. I prefer this old gentleman's statement, which is 600 or 700 years old, to Mr. Roebuck's. It is very short, very clear, and I think it is very aptly introduced. This being the case, it will not, I hope, fail to call your attention; and if at any future time you look back on this night, and consider that to the hint I have given, or the suggestion I have made—for I am like the book, and I don't wish to scold you on the subject—if you find that from this has arisen a habit of reading—a preference of reading to other leisure employments, it will be well. And I would say, gain information as well as entertainment by reading. I greatly prefer that reading which leads to useful and profitable instruction to that which merely possesses the power of giving amusement.—The noble lord also urged his hearers to establish club-rooms for social intercourse, so that those who spend their mornings in labour, might devote their evenings to conversation and improvement. He concluded by again expressing great delight at seeing this immense assemblage, and at knowing that so many thousands of the working people of this country take an interest in the proceedings of the National Association.

RUGELEY: *Tenant Right.*—At the annual meeting of this Society last week, the following reference was made to the prize form of agreement, on which Lord Lichfield made a speech before the Staffordshire Agricultural Society the other day (see p. 973). R. C. Chawner, Esq., presided, supported by the Earl of Lichfield and others. The Earl of LICHFIELD said:—I ask you to allow me to offer a few remarks upon a subject which is more intimately connected with the occasion of our meeting here to-day. I wish to do so more especially in consequence of some misapprehensions which have taken hold of the minds of some persons with regard to what has taken place in connection with the award of the prize to the best agreement. It is supposed that I stated that it was the intention of the committee to publish the agreement which had got the prize in the shape which they intended to put upon it. I can scarcely believe it is necessary to assure any gentleman here present that the idea of mutilating the agreement, or changing it in any way, could never have crossed the mind of any member of the committee, those who were present bear me out in asserting that what I said was, that the committee, although they were perfectly unanimous that the agreement selected was the best of the agreements sent in, found the subject required so much more consideration than they had expected, that they intended before publishing that agreement to see in what way it could be improved upon, and to draw out an agreement of their own, and to publish that agreement with the agreement which had won the prize; and I really do not think the committee can in any way be blamed for such a proceeding, because it must be remembered that if that agreement had been published upon that day, the committee would in point of fact have committed themselves to that agreement, without the opportunity, which they were naturally anxious to have, of pointing out wherein they thought it might have been improved. I think the committee to a very great extent would have defeated the objects they had in view if they had acted otherwise than they have done. I quite allow that the question is one of so much importance that more delay in coming to a decision than is absolutely necessary would be undesirable; but because it is a question of that importance, I am quite sure the public would be sorry to see the committee come to a decision without very careful and very mature consideration. I hope they will be in a position at any rate in the course of the next two months—and I mention that time because it is just as well to be on the safe side—to publish both agreements—that is to say, the agreement of Mr. May as it was sent in to us, and also our agreement as we may think fit to draw it out. It is not to be expected, and much less is it to be desired, that we should all agree upon everything, because this world would be scarcely worth living in if we did, and it was not very likely we should all agree on this subject; but one thing is very satisfactory, and that is, that you have got together 12 of the leading and most intelligent tenant farmers in the county, together with an equal number of landlords, and that they have had no question brought before them on which they were disinclined to come to a reasonable, a fair, and a practical understanding. This is a very satisfactory feature in itself, and will, I think, be a sufficient reward to anybody who has taken part in the proceedings of the committee which awarded the prize. I am happy to say that since the meeting at which the successful competitor was announced I have seen remarks made by more than one large landed proprietor, and especially by our friend the Earl of Shrewsbury, expressing approval of the object of the committee. At the same time Lord Shrewsbury did this, he expressed what I hope and believe to be the feeling of most of the large landed proprietors in this county, namely, that they are upon the whole satisfied with the existing understanding between themselves and their tenantry. He evidently meant by the remarks which he made upon a late occasion, that if he sees anything in the agreement which he believes will have the effect of promoting the interests of agriculture throughout the county, he will be one of the last to refuse to adopt it; but that certainly, unless some very decided improvement is set forth, or shadowed forth, in this agreement, he naturally would be satisfied to leave things as they are. I must say it is a very great satisfaction to know that he is a member of the committee, and that so many large landed proprietors as we have upon the committee are anxious to adopt a form of agreement which will set at rest a question which has undoubtedly created a vast deal of misunderstanding, say what you will about it—put it in what words you like—between the owners and occupiers of land.

The CHAIRMAN said:—I shall only make two remarks as regards, not Mr. May's agreement—for I shall not be so presumptuous as to allude to that—but as regards that agreement which is to supplement his agreement; and I will say that if it does not provide for two points, it is not worth the paper upon which it is written. Those two points are these:—First, unless it abrogates, root and branch, every restriction upon the cultivation of land, it is not worth a halfpenny. Look at the seasons we have to contend with in this country, and look at the markets of the world which are open against as well as for us, and then to tell me that any man or any committee of men are so eminent in agricultural matters that they can lay down a course of husbandry which shall suit all climates or please all markets, is an absurdity. Now, gentlemen, I met with an instance the other day, in Lancashire, where a large occupier was not confined by any engagement whatever as to a course of husbandry. He, in common with other people, knew that the price of Wheat in the event of a good harvest would be very low, and he took more than 80 acres out of his course, which he would otherwise have sown with Wheat, and planted them with Vetches and Tares. He put sheep upon them in the spring, and kept them there until the second week in May, much to his advantage, for he was a stock-keeper. He then took the sheep out, and allowed the Vetches to go to seed, and the consequence was that he had 30 bushels an acre, which he sold at 50*s.* a quarter. Surely he was better off than if he had been compelled to sow Wheat over the whole breadth. This shows that the man who is free compared with the man who is bound under any system, must meet with success, while the other meets with failure. Take another question which if this agreement does not tackle it is of no use—that of in-coming and out-going tenants. The Lord Lieutenant's words were true enough with respect to the difficulties as to the custom of the district. It so happens that I am at the present moment an example of the stupidity and dishonesty of the custom of in-coming and out-going tenancy, and a victim of the same. Take one instance:—I gave up more than 600 acres of land last Lady Day, and of course there was a portion of it sown with Wheat. I am told by my own valuer, as well as by the valuer against me, that Wheat planted in the autumn of 1862 will be accounted for in the spring of 1864. That is a pretty business, I should think. I spend my capital in 1862 in cultivating the land and planting Wheat, and I am to receive my portion of it back again in 1864, and in the meantime the in-coming tenant takes the corn to market and makes use of my capital instead of my making use of it myself. That is one case, and there are others equally unjust, with which I will not trouble you. If the model agreement does not satisfactorily dispose of these two difficulties it will not be adopted generally, and will scarcely be adopted partially, throughout the county.

Mr. MAY said—In drawing up my agreement, my simple wish was to do justice between landlord and tenant. I do not think it will be liberal enough for Mr. Chawner. Though I think Mr. Chawner has very sound views on a great many things, I do not think if I were a landlord I should allow a tenant to crop just as he pleased. There is no course of cropping in the agreement, but the tenant is not allowed to take all the white straw crop. He is limited in every year of

his tenancy to take a portion of green. If a man had to leave a farm suddenly, either by his own wish or his landlord's, and had cropped in an extraordinary way, how would the land be fit for anybody to enter upon it? (The Chairman: Dilapidation.) I think all farms ought to be cultivated well. I would give every tenant the greatest latitude I could, but, at the same time, I would not lose sight of the right of the landlord over his property, but keep it in a state in which he would be able to pass it into other hands. To say you would have dilapidation, is only to say that you would have law, which, if I were not in the presence of lawyers, I should say you had better keep out of. My wish was, in giving in that agreement, to give one which could be adopted. I do not think a one-sided agreement would have been fair, and I can assure you, as far as regards myself, and as far as regards my position as a tenant-farmer, I wrote the agreement as one which I should be willing to farm under. There were several questions which were very puzzling, and there were several clauses which, I candidly confess, I scarcely knew how to draw up. I did not go to old forms. I simply sat down in my own house to write out the skeleton of what I thought a fair agreement, and when I came to such a question as game, I said to myself, "How is this to be dealt with?" I thought it over in various ways, and I came to the conclusion it was no use having a clause that would compel a landlord to pay for damage done by game. I think such a clause would be a source of continued unpleasantness. I fancied within my own mind there was an inclination on the part of landlords to be more honourable and more just as respected game than was formerly the case. I knew that sport was inherent in the English character, and that it ought to be fostered. We are all fond of sport, and every Englishman who is is a better Englishman than if he was not; but I would not have that at the expense of the tenant. I hold that every tenant who takes a farm is bound to reap the benefit of that farm. If he take it as a game farm at a lower rent, he is a fool, because you never know the amount of damage which may be done; but there is a clause to the effect that if a landlord lets his game to a third party, and that third party injures the tenant, the landlord shall make compensation, because it would be simply absurd as well as unjust that a man should receive money from a third party at the expense of his tenant, and not reimburse him for any loss. As regards cropping, as I said before, a large margin is given to the tenant. He is allowed to crop as he pleases, but two-fifths of the land must be in green crops. The agreement gives a large margin for white straw cropping. There was another point in it which rather troubled me, and that was the privilege of selling off, not only stock, but straw, hay, and roots. I consulted some of my friends on that point, and they all agreed that it was a bad rule to allow it—that there might be occasions, and that there were many such in the neighbourhood of large towns, where it might be possible to allow the privilege, and where men could bring back manure. But generally, if a man keeps a sufficient quantity of stock upon his farm, and winters them well, he will require nearly the whole of his straw. There was also the important question of remuneration, which I think will be found ample. For all those improvements which are permanent, such as the investment of money in manures or in artificial food, I have allowed a very considerable sum. I quite agree with Mr. Chawner that permanent improvements, such as draining, ought to be done by the landlord. It is better he should do them; but provided he does not, and the tenant does, then he is allowed a very large compensation. I forget exactly what it is, but it is very considerable. It is taken on a per centage of his farm, and supposing he used 10 per cent. he would have a higher return in proportion than a tenant who used less; and the man who uses 20 per cent. more than the man who uses 10. There are other important points; but they slip my memory. However, they have been treated in the same liberal and practical spirit. I forgot to mention that the notice is a 12 months' notice—and if the competition leads to no other change than that, I think the trouble will not have been thrown away.

The Chairman: If you have an annual agreement that will make it a two years' lease. *Abridged from the Staffordshire Advertiser.*

Cheshire.—At the recent meeting of the County Agricultural Society, Sir Harry Mainwaring, Bart., proposed "Success to the Cheshire Agricultural Society." He said: there were three matters to which he wished to allude, and which he would like to hear discussed. First, the Society was not so successful as it ought to be. Secondly, farmers as a body were not as successful as persons in other trades, and did not receive such a percentage on their capital as they ought to have, and deserved to have. The third matter was the restoration of cheese, by which farmers might return to the real produce of the county, and get such a percentage on their outlay as they ought to have. With respect to the first subject, he thought there were too many small local shows. Unfortunately, Cheshire was divided, and the north supported the Manchester and Liverpool Agricultural Society, which went about from one large town to another, not so much for the benefit of the farmer as for the benefit of the funds of the Society. He saw no reason why Cheshire should not have one general meeting for the whole county, as was the case in Staffordshire. Again, dairy farmers did not like to send their cattle to shows, nor did they like to let their Grass-fed beasts compete with beasts fed upon oil-cake. He did not know what the judges would say, but he thought there was not a bull on the ground that day that was worthy of a prize. The second point was that farmers were not so successful as they ought to be. An article appeared in the *Saturday Review* in May, in which the writer said that every other branch of trade and manufacture supplied a better investment for a man's capital and labour than farming. About 6 per cent. was the extent of a farmer's profit on his capital, and he (the Chairman) did not think that a fair remuneration. He once met a member of the House of Commons, who, in the course of conversation, said he knew a little of trade, of merchandise, of manufacture, of railroads, of farming. He (the Chairman) stopped him there, and said if he would go to the meeting of the Royal Agricultural Society, or to the meetings of the Manchester and Liverpool Society, he would find that farmers were the wisest men in the world, and that they had nothing more to learn. During the last few years he has inspected many farms. At one he asked to see the cheese-room, and was taken up a dark staircase which would have been better for the introduction of a skylight. One stormy night he was passing a cow house where a cow was ill. The cow doctor was there and a boy, and a tallow candle was stuck against the wall. At the moment the cow wanted assistance, the candle fell and went out. He learned afterwards that the cow died, and on inquiry he found that the cow doctor was a man who practised because his uncle had left him a few receipts. He charged 2*s.* for his visit, whereas a veterinary surgeon would charge 10*s.*; so the farmer saved 8*s.*, and lost his cow. He (the Chairman) thought that farmer wanted a skylight as badly as the staircase. Once he went to a model farm, where the buildings were twice as large as they needed to be. When he saw the cheese he said, "2½ cwt. [per cow] not more." The farmer began a torrent of excuses—the cows had come in badly, the pastures had not yielded as much milk as usual. He went to see the cows, and found that 30 of the 50 had had above six calves each. Everybody knew that a cow was worth nothing after her fifth calf. He went to see the bull, and was not surprised that the cows were all barren. He was broad where he ought to have been narrow, and *vice versâ*. He had a broad breast, which was perfectly useless in a bull, and a bad sign. In the milk-house all the milk was sour. The night had been hot and damp, and all the ventilators were on the ground. He told the farmer it was the damp that made the milk sour, advised him to put the ventilators 4 feet from the ground, and to light a fire in the milk-house, and went away thinking there was a skylight wanted upon the farm. On another farm he found the farmer in November carting his Turnips. Two fine horses were able to draw a load of a ton through the mud, whereas if a few rails had been laid down they could have drawn 20 tons. In another case a farmer had had a bad year, but he could not tell how it was; he only knew that he had not so much money in his pocket as he had the year before. When he (the Chairman) asked for the account book, after some search, a dilapidated memorandum book, which was all the account book the farmer had, was found in a corner cupboard. Why was it that manufacturers, with a new occupation, had beaten agriculturists who had been tilling the soil for 4000 years? It was because manufacturers had adopted every new discovery, and agriculturists had not. There were few farmers in Cheshire who had on their farms any one of the three great inventions of the age—gas, steam, and railroads. If they were to make a greater percentage on their capital, it must be by continuous improvement—improving the pasture land by means of lime and soil, improving the meadows by the best farmyard manure, improving the tillage land by drainage and guano, improving the bulbs, and improving everything connected with the agricultural societies. The three great curses of a dairy farm were draining tiles, bones, and broad-breasted bulls. One farmer whom the Chairman once visited said his cows had been unwell. His Grass land had not yet yielded as it ought to have done, because he had drained and boned it, and killed all the succulent juicy Grasses which produce cheese. Not long ago, a farmer in Essex, by draining, had destroyed all the succulent Grasses which fed his beeves, and had established hard Grass which would not feed them, and he had been obliged to irrigate all this summer. With respect to the restoration of cheese, he wished that some gentleman would give the Society next year a good simple plan of restoring the production of Cheshire cheese. He concluded by proposing the toast, which was duly honoured.

Mr. Martin, of Henhull, in responding, said there had been a great revival within the last 10 years in the make of Cheshire cheese, and he did not know that any further revival was necessary. He had no hesitation in saying that during the last 30 years the amount of the agricultural produce of Cheshire had increased in a greater ratio than that of any other county in England.

The Chairman gave "The Judges," joining with the toast the names of Mr. Dutton and Mr. Dobell. He made some ironical remarks respecting the Over Agricultural Society, the members of which he said were so enlightened that they had nothing to learn.

Mr. Dutton responded. He thought a broad breast in a bull was by no means a bad thing, as it was a sign of healthy lungs and a good constitution. The reason why Cheshire farming had not been more productive was that the delicate character of their animals had caused much disease and great mortality. In answer to the Chairman's remarks, he said that the Over Agricultural Society would feel obliged if Sir Harry would read them a paper on agriculture at one of their meetings, as the members were not quite so wise as he would wish the company to believe. The members would give him their best attention, and would feel obliged if he (the Chairman) in his magisterial wisdom would undertake to enlighten their dark minds. He alluded to the advantages of local shows, and said they were established to benefit the small farmer, who would have no chance if he competed with the "great guns" at the county meeting. *Chester Chronicle.*

Berkeley and Thornbury: *Oct.* 14.—The annual show of this flourishing local Society was this day held at the spacious homestead of Marlwood Grange, the seat of J. Thatcher, Esq., near Thornbury. A beautiful day in the midst of a long period of wet weather, and a very excellent show of cattle, horses, and pigs, attracted a large number of spectators.

The magnificent landscape stretching northwards which is commanded by Marlwood Grange includes almost the whole of the district of the Society. Mr. Thatcher is himself known as a successful competitor at the shows of the Midland Counties and Smithfield Club—and on every account, therefore, his kind offer of a site for the exhibition was most acceptable.

Prizes were offered in no fewer than 38 classes, and first, second, and third prizes in most of them. Thirteen cattle classes, including 75 entries; four horse classes, including 25 entries (a very good show); five sheep classes and 24 entries; four classes of pigs, very capital competition in some of them; three classes of cheese, two of roots, and five of poultry made a very interesting exhibition.

There were also several classes in which servants were rewarded for skill in shoeing, and for length of period in which they have remained in the same service.

The cattle shown were for the most part of the Short-horn breed. The class of pairs of Dairy Cows was a very fine illustration of the quality of the breed for this purpose—and in itself a remarkable collection of good dairy stock.

The show of pigs was in like manner a capital illustration of the Berkshire breed. The competition extends over the whole of South Gloucestershire, from Slimbridge to Bristol, and certainly does good on the large number of farms where cattle have during the past year been preparing for it. The herds of Mr. Langstone, Colonel Kingscote, Mr. Styles Rich, of Didmaston, Mr. Woodward, of Northway, Mr. Morris, of Maisemore, Mr. Stratton, Mr. Abbot, Mr. Niblett, the Earl of Ducie and others, contributed either directly or indirectly to the show. The prizes have gone to landlords and tenants indiscriminately, the Earl of Ducie, Lord Fitzhardinge, and Sir G. Jenkinson, among the former—Messrs. Cornock, Till, Savage, Robinson, Pearce, and many others, among the latter.

Mr. Robinson, of Slimbridge, who took the prize for his yearling bull at Cirencester the other day, was placed second here by the judges, though not, we think, generally by the spectators.

A remarkably well-fed Hereford ox, shown by Mr. Hatcher, was first in its class, and will no doubt appear at Birmingham and Smithfield. Remarkably good forward, he is somewhat defective behind.

The Society which has thus held its fourth annual show dined together in the evening under the presidency of Mr. P. S. Miles, M.P., of Kingswinton.

Bath: *The Functions of the Roots of Plants.*—At the recent meeting of the Archæological Society, Professor Daubeny read a short paper on this subject. He began by alluding to the opening meeting of this Society at Taunton, which was attended by himself and his lamented friend and colleague, Dr. Buckland, who, in his usual racy manner, amused the assembly by some sportive remarks upon the agriculture of Somersetshire, and the character of its rural population. Following this as a precedent, he now proposed to make some remarks on the theory of agriculture, as likely to interest a county mainly dependent upon the land for its prosperity, and would point out certain prevalent errors which seem calculated to exert a prejudicial influence upon the practice of husbandry. Amongst these he instanced the persistence in the old and exploded Humus Theory, which imagines plants to be fed directly by the matters they imbibe from the soil, just as animals are by the aliment which they take into their stomachs. This notion, since its fallacy was pointed out by Liebig, has been abandoned by every sound physiologist, and yet not long ago it was advocated by a correspondent of the *Times* newspaper,

and also countenanced in a leading article of that journal, in both which communications the speedy ruin of this and of other thickly-peopled countries was foreboded from the exhaustion of their vegetable mould. The Professor showed on the contrary, that although many countries formerly noted for their fertility are now sterile, the chief cause is to be traced to the reckless destruction of their timber, which has exposed the surface to the alternate action of scorching heat and of blighting cold, and at the same time has diminished the natural rain fall of the country. Thus, as one of many instances, may be cited the Island of Ascension, which lost the only spring it possessed when the aboriginal timber was cut down, but recovered it again when the fresh trees that were planted had grown up so as to supply its place. Although, therefore, it be true that Humus gradually consumes away under tillage, from being exposed to the oxygen of the atmosphere, and thus yielding carbonic acid for plants to feed upon, still there is no reason to doubt that it will be renewed by the very crops that grow in it, wherever vegetation is proceeding in a vigorous manner, and the elements of fertility are restored by a judicious system of cultivation. The danger to be apprehended arises, according to Baron Liebig, not from the exhaustion of Humus, but from the reckless waste of the nutritious matters, arising from the method of disposing of the sewage adopted in all our great cities, against which he has on many occasions entered a strong and indignant protest. It may indeed be objected that the most impoverished soil is found by analysis to contain more phosphoric acid, potass, and other nutritive ingredients than would be required for many successive crops, but these ingredients are not always in a condition in which they can be assimilated, being united to the soil by too close an affinity to be soluble in water. For a complete discussion of this question, however, he must refer to the important work of Baron Liebig recently published, entitled "The Natural Laws of Husbandry," or to that lucid exposition of its contents which one of the first of our living chemists, Professor Hofmann, is about to bring out. All he had time, on the present occasion, to remark on that subject was, that in every case an active force seems to be exerted by the roots, enabling them, in conjunction with the moisture of the ground, to dissolve as much of the solid ingredients present as are required, so as to absorb and transmit them to the other parts of the plant. But this applies only to such ingredients as are held by a loose affinity to the soil, and does not hold good with respect to a large proportion of its contents. Hence exhaustion will follow, if we draw too freely upon the available portion of the constituents present in the soil, unless they be returned, as fast as they are taken away, by careful manuring. This function of the roots is indeed a very wonderful one, and not explicable by known physical causes, but not less so is that power of selection which seems to belong to them, by which they are enabled to abstract from the soil those ingredients which the plant requires just in the proportions in which each one is needed. In this way a dozen different species will absorb from the same soil what each requires without taking in an excess of any one, and thus it is that a seaweed will derive from sea water as much iodine and potass as it does of chlorine and of soda, although the proportion in which the two former elements exist in the ocean is infinitely small as compared to that of the two latter. It seems also probable from the experiments made by the author of this paper, that the roots have the power of refusing access to poisonous or abnormal substances, provided they are presented to them in quantities so small as not to destroy the vitality of the roots. Neither arsenic, barytes or strontites could be detected in the crop after it had been treated with solutions of these bodies in such a state of dilution as not to interfere with the health of the plant, and in other cases, when such substances were absorbed, the roots appear to have been first deadened by the action of the poison. Thus we seem only to have the alternative of supposing the poison not to be taken up by the roots or to be afterwards excreted by them, which latter phenomenon it would seem equally difficult to account for, except by the operation of living forces. Now if living forces contribute towards enabling the roots to fulfil their functions, so that the latter are not merely passive instruments for the transmission of any juices which may exist from the soil, we can more readily understand the advantages derived in horticulture from the bottom heat, which, by its stimulating influence caused, in a recent instance, the fine Brazilian creeper, Bougainvillea spectabilis, which had never before flowered in our stoves, to put forth a profusion of splendid blossoms. The lecturer concluded by suggesting a mode in which bottom heat might be economically applied to the rearing of tender exotics at Bath, namely, by causing the waters from the medicinal springs, after they had supplied the various baths, to circulate in pipes let into the ground, until they had imparted the whole of their redundant heat to the soil around a given area. If the latter were covered with glass, a winter garden might be obtained without any expenditure of food, and even without this addition many vegetables might be stimulated into early and vigorous growth by the heat thus imparted to their roots. It is to be hoped, that as the meeting of the British Association for the Advancement of Science is to be held next September at Bath, the attention of its citizens will be thereby directed to their medicinal springs, so that the great problem of their temperature may be thoroughly investigated, and the uses to which they are applicable may be more widely extended.

ISLE OF MAN: *Cottages.*—At the late annual meeting of this Society, on Thursday, Sept. 30, His Honour DEEMSTER DRINKWATER said:—

This agricultural Society had now been in existence for six years. During that time the number of entries had increased, and the stock had been improved. There was also a corresponding improvement in the manner in which the stock had been housed; but they had not, in a corresponding degree, improved the condition of their farm servants by whose labour they existed. If the man servants were married, they had to live in wretched hovels; and if, as was frequently the case, large families of eight or ten had to live in a miserably small house of one or two rooms, they need not be surprised at the moral tone of the family being very low. The state of the unmarried servant man was much worse even than that of the married one. They were treated very badly. No doubt they got abundance to eat; but when they went out to sleep they had, during the winter nights, to turn into wretched hovels for 14 or 16 hours, where they had not proper comfort. If they had money, therefore, it was no wonder that they took refuge in the public house. If they went into their master's house, the "cold shoulder" was turned upon them, and they had no comfort there. If they had no money the men took to rambling about the roads at night, and became involved in all sorts of immorality—which was in some degree evidenced by the number of illegitimate children given birth to in the country parishes. To remedy this last named evil, as regarded the unmarried men, the best thing would be to open the parish schools, country chapels, or other similar buildings, two or three evenings, or perhaps every evening, during the week—supplying them with fire, light, and books—and he was sure that such places would soon be supplied by liberal persons with plenty of books. To these places, if so opened, he believed the young men would resort in preference to rambling through the roads. He was confident this plan, if carried out, would result in much good; and if the Society would make a beginning in the matter they would thereby confer a benefit on a body of men by whose labour they lived, and thus put a crowning point to the benefits effected by the Society, by doing something which would tend not only towards the benefit of their bodies, but to the salvation of their souls.

Mr. LAMOTHE said as to the remarks of his Honour Deemster Drinkwater with respect to the condition of the farm labourers, he entirely disagreed with his Honour on that subject. He believed the labourer here was as much cared for as in any country in her Majesty's dominions. It was true they had occasionally to sleep in out-houses, but then these houses were comfortable places, and a cow house was not a bad place to sleep in. He was willing to admit, however, that whilst the men thus slept from under their master's roof, the master had no control over them, and could not prevent them from going rambling at night. However, he would again assert that the labourer here was as much cared for and as comfortably housed as in any other country, and there was no question about it.

Farmers' Clubs.

WINFRITH: *On Corn Averages.*—Mr. R. DAMEN, of Dorchester, introduced this subject. Corn-factors, millers, and maltsters, in commencing business, were required by law to make a declaration, which was tantamount to an oath, that they would make a full and fair return of all the corn they purchased: but nine-tenths of those entering into the business never made the declaration at all, and nobody asked them. They were bound to give in a return, showing the names of the purchaser and seller, with the quantity of corn bought, and the amount paid for it, in separate columns. That appeared all very straightforward; and if they failed to make proper returns they were subject to a penalty of 10*l.*; but during an experience of about a quarter of a century he only knew of one instance in which any one was fined for not making returns. They all knew that proper returns were absolutely necessary, for rents were in many parts of the country influenced by them, and tithes generally; consequently, it was highly essential that they should be correctly obtained in fairness to all classes of the community. He did not advocate anything that was unjust to any one; and all the producer wanted was that which was fair, and what the law required. The old proverb said, "What is everybody's business is nobody's business;" and this matter being regarded as everybody's business, everybody neglected it. In order to show what a deficiency there was in the returns, it was necessary that he should go a little into figures, to illustrate what was the supposed growth of corn in England, what was imported, and what was consumed. The population of this country was about 30 millions in round numbers. It was variously estimated what these 30 millions consumed. He believed M'Culloch set it down at one quarter per head per year. This he considered was an over-estimate, and that six bushels a-year were nearer the mark than anything else. Six bushels of Wheat would produce about a sack of flour, and a sack of flour would make about 91 loaves, which, at 4 lbs. the loaf, would give just 1 lb. a-day to each individual. If they looked at the consumption in their own families they would find this a tolerably correct estimate. Some people thought a greater consumption took place among the rich; but he believed it was greater amongst the poor than in either the higher or middle classes, because they lived principally upon bread. But in taking the population at thirty millions, there must be some deduction made on behalf of Scotland and Ireland, where a considerable quantity of oatmeal, Potatos, and Indian Corn was consumed. Deducting two and a-half million quarters on this consideration, would leave about twenty million quarters of Wheat and flour as the consumption of the United Kingdom. Now, he would show what was the quantity of Wheat returned in England to meet this consumption. The figures he was quoting were quite authentic. His theory might be wrong, but his figures were right. In six years the returns from 290 towns were as follow: In 1856, 4,046,000 qrs.; in 1857, 5,243,000 qrs.; in 1858, 5,203,000 qrs.; in 1859, 5,498,000 qrs., which was the highest return in the period; in 1860, 4,623,000 qrs.; and in 1861, 3,576,000 qrs. Now, as they had to make up twenty million quarters to meet the consumption, there was a vast difference somewhere; but, of course, they had to take into account the importations that had taken place from abroad. These had ranged from five million up to ten million quarters of Wheat and flour a-year. In the first three years, five millions, in round numbers, were annually imported; but in the latter three years, about ten millions—showing the great deficiency there was in the yield of this country for the last three bad seasons. They must also add the Wheat grown in Scotland and Ireland, which did not come into these returns. It was difficult to get a correct estimate for Scotland during the last few years, because the able statistics which were obtained by the Highland Society, through Mr. Maxwell, were taken out of his hands in 1857, and no returns had been made since. Up to that time, the annual growth was about 750,000 qrs. In Ireland the growth was about 1,600,000 qrs. a year, or considerably less for the last two or three years, as they had had bad seasons in that country as well as in England. Say Scotland and Ireland produced 2,300,000 qrs.; this must be added to the quantity imported, which was five millions for the first three years of the period named, and ten millions since. Now, even taking ten millions (the most imported), with 2,300,000 for Scotland and Ireland, and three and a-half millions returned in England and Wales, there were over four million quarters not accounted for, so that it was right to assume that not one-half of the Wheat grown in this country was returned at all. In passing, he would say a few words about Barley. Now, he believed that the quantity grown in this country was nearly equal to Wheat, being greater in proportion than any other country in the world. In France they grew five times more Wheat than Barley, but we a much greater proportion of Barley to Wheat. But, notwithstanding this, only a very small portion was returned, and that the very best; so that they paid their tithes on the best Barley, the bad not being returned at all. Such men as Mr. Bass and other great brewers did no doubt make returns; but the large quantities consumed on their own farms, and by the small millers and maltsters in the rural districts, were scarcely ever returned. Now, they knew that about five million quarters of English Barley were malted annually; and he believed the quantity grown besides was from four to five millions more. And what was the only criterion of the price which this Barley fetched in the market? It was these corn returns. The quantity, however, returned as sold in England and Wales in 1856 was 2,600,000 quarters, instead of eight or nine millions; 1857, 2,200,000; in 1858, 2,400,000; in 1859, 2,400,000; in 1860, 1,778,000; and in 1861, 1,851,000, or about a quarter of what was actually grown in the country. He himself intended to have spoken upon this point when the malt tax deputation waited upon the Chancellor of the Exchequer, for Mr. Gladstone stated that, notwithstanding the duty, Barley had maintained a high price in this country, and he should have shown him, if there had been an opportunity, that the figures he quoted were very erroneous, because they were taken from these returns, which did not include one-fourth of what was grown in the country, and that, as a rule, the best. He did not think it was fair of the Chancellor of the Exchequer to draw his conclusions from such erroneous data. He did not pretend to say that false returns were made (and he wished to mark this distinction), because there was no object for doing so, although there might have been when there was a fluctuating scale of duties. He believed the errors arose more from carelessness in carrying out the law than anything else, and from the omission of the inferior qualities of corn from the returns. In the first place, all that was consumed at home on the farm was never returned. Even under a new law he did not see how this could be remedied, except, as had been suggested at a previous meeting, they sold it all; but this was more a question for the producer than the Legislature. He would also observe that respectable men were generally appointed in the towns to receive the returns; but no one had any authority or control over them. They made the returns as they liked, and, however well-intentioned, they knew that men were liable to err under such circumstances. In a neighbouring town he knew an instance in which an

inspector made a mistake of 10s. per quarter on all the Wheat sold on a particular market day; and when they considered that the three market towns in this neighbourhood ruled various transactions, not only tithes and sometimes rent, but also the valuation of crops between an incoming and an out-going tenant, they would perceive that the 10s. would have materially affected the whole average of the district. He therefore thought it was highly necessary that some less loose method should be adopted in such an important matter as this. In order to remedy the evil, it had been suggested by this Club that the corn inspectors should receive the returns as now, but that they should be subject to some supervision; that there should be a small board in each town, composed of two, three, or four disinterested persons, to examine the returns with the inspectors once a week; that they should look after all parties in the habit of buying corn in the different market towns; and if they did not make returns, call upon them to do so, or enforce the penalty if necessary, which would be an improvement, for it was only from carelessness that they were neglected. In many towns, however, where large markets had grown up, no returns at all were made, while they were required in such places as Poole, where scarcely a bushel of Wheat was sold during the year. A gentleman had told him that in Essex there were only four market towns which made any returns at all. The last time they considered this question they merely suggested that this board should be formed, and that those composing it should be moderately paid for their labour. But this appeared no longer sufficient to meet the case. The evil had grown so great that some other remedy was necessary; and he could not help thinking that the sellers should make the returns as well as the buyers. He knew the sellers might object, on the ground that it would give them considerable trouble; but they knew that the fear of a little trouble was the bugbear to any improvement. He thought it was worth their while to take upon themselves this little extra trouble, and endeavour to instil into the minds of their representatives the enormity of the present returns. He believed any gentleman willing to serve the agricultural body would gladly take up a question of this kind. It was not a question in which party politics was concerned. It was a question in which all concurred. It was a question in which landowner, occupier, and the general public were interested. All they wanted was to get fair returns, which would show what was the true state of the market, what they did actually grow, and what progress they made.

Reviews.

The Journal of Agriculture and the Transactions of the Highland and Agricultural Society of Scotland. No. 82. Oct. 1863. W. Blackwood & Son.

The Journal contains essays on the improvement of pastures; on atmospheric influence on fertility; on crops and cropping; on the three great shows at Worcester, Hamburg, and Kelso respectively; on mycophagy, or Fungus eating; and on Irish prosperity. The Transactions contain essays on plantations; on braxy in sheep; and on waste land reclamation, together with reports of Kelso, of the Veterinary College, and of the proceedings in the laboratory. The whole makes up a number hardly equal to the average quality of the serial. We extract a passage from Dr. Anderson's report of the relative feeding values of Tares and "Peas Brock."

"'Peas Brock' is the name applied to the outer skin of the Pea, which is removed by a particular process of grinding in making split-peas, and is used pretty extensively for feeding stock, being sold for this purpose at about 6*l.* to 6*l.* 10*s.* per ton. A member of the Society, who uses it extensively, being doubtful as to its value, submitted a sample for analysis, with the view of ascertaining whether it would not be more economical to use Tares, though costing more, their present price being about 7*l.* per ton. To determine this point, comparative analyses were made in the ordinary manner, and the results obtained were as follows:—

	Tares.	Peas Brock.
Water	15.36	9.36
Oil	1.87	2.82
Albuminous compounds	20.06	9.00
Starch, sugar, &c.	53.93	41.51
Fibre	5.34	33.58
Ash	3.44	3.75
	100.00	100.00
Nitrogen	3.21	1.44
An ash contained—		
Phosphates	0.54	0.68
Sand	0.02	0.66

"The difference between these substances is very considerable, and much in favour of the Tares, which contain more than twice as much albuminous compounds and considerably more starch and sugar than the Peas brock. The latter, moreover, contains a very large quantity of fibre, which may be said to be valueless as far as feeding is concerned. It is difficult to give a perfectly definite estimate of the relative values of these two substances; but if we calculate from the relative quantities of albuminous compounds and starch in the two, and if Tares be assumed to cost 7*l.*, the Peas Brock should not be sold at more than about 5*l.* per ton, or a considerably lower price than that at which it at presents sells.

"I may observe here that the result of a good deal of experience has led me to the conclusion that most kinds of refuse matters produced in manufacturing operations are sold at prices considerably higher than their quality justifies. This is perhaps less applicable to such substances as can be applied to the feeding of stock than to those which are sold as manures. Refuse lime, for example, often in a very moist state, is frequently sold at a price higher than that at which quicklime can be got direct from the kiln, and the refuse of the combmakers and bone turners is often overrated in value. This is not because they are not possessed of a definite value, but because, being refuse in the manufactories in which they are produced, they are not preserved with any care, but become mixed with rubbish of all kinds, and in large quantity, and hence a purchaser, who pays a price which might be moderate if the substance were pure, is made to give a full price for a mixture of inferior value. Of course this does not occur to the same extent in the case of mill refuse, which, having a definite and considerable value, is kept clean and pure; but nevertheless, the price asked is generally too high, and its value is fixed more in reference to the substance for which it is produced, than in relation to its intrinsic worth."

Farm Memoranda.

Aston Park, Northwich.—Mr. Hornby's farm received the prize of the Cheshire Agricultural Society, as the best dry-land farm. It contains 188 acres, held on a 14 years' lease. The soil is chiefly a light loam on a subsoil of clay, marl, and sand. This year there are 82 acres in pasture; 18 acres of old meadow, manured with tank water; 8 acres of old meadow not irrigated; 16¼ acres of Wheat, after Potatos and other green crops; 18 acres of Oats, after Wheat; 12 acres of Barley, 4 acres of Vetches, consumed green by the live stock; 20¾ acres of Potatos, and 4¼ acres of Swedes. The customary rotation is roots or Oats, roots, Wheat, Barley, or Oats seeded down for a few years. The live stock consists of five horses, three colts, one pony, one bull, 54 dairy cows, 10 heifers, 10 rearing calves, and 36 pigs. In winter a number of sheep are fed. The total of live stock this summer is 120. The stock are fed in summer on pasture and Vetches, and in winter on straw, hay, roots, crushed corn, bran, and oil-cake. All the home-made manure is chiefly applied to root crops, and all the liquid manure is made available. During his occupation, Mr. Hornby has purchased 730*l.* worth of bones, which have been applied to Grass lands, seeds, and Turnips. The landlord has paid 250*l.* of this sum. Mr. Hornby purchases annually about 3 tons of guano, 20 to 30 tons of horse dung, and about the same of night soil, which are applied to root crops and top-dressing. He has drained 71 acres, chiefly with horse-shoe tiles and slate soles. The drains are from 8 to 10 yards apart, and 3 or 4 feet deep, and the landlord provided the tiles. Mr. Hornby has marled 50 acres, at a cost of from 5*l.* to 6*l.* per acre, and carted the marl a mile and a-quarter for one field. He had filled all the pits except those required for watering cattle, and made these of easy approach for cattle. He has made two new large watering ponds, one at the farm-yard, and the other in a large field. He has eradicated 3230 yards of old fences, and planted new ones when required. All these improvements have been effected at the tenant's expense. He has erected an extra pigcot, made alterations in the old ones, and constructed a urine tank 90 ft. long, 5 ft. wide, and 5 ft. deep, the landlord finding the materials. Mr. Hornby has occupied the farm for 11 years under Mr. R. E. E. Warburton, of Arley Hall. The judge, in his remarks upon this farm, notices that 'the old meadow appeared in a productive state, and was producing good herbage. A pipe from the large urine tank conveys the liquid manure into this meadow. A water carriage can also be loaded from the tap, and filled in a few minutes.'

Tattenhall Hall, near Chester.—Mr. G. Jackson's farm has received the prize of the Chester Agricultural Society as the best clay land farm in the district. The farm contains 321⅞ acres, and is held on a yearly tenancy under Mr. R. Barbour of Bolesworth Castle. The cultivation this year is as follows:—194 acres in pasture, 14½ acres of irrigated meadow, 14 acres covered with dung water, 2½ acres of Wheat after Oats, 26½ acres of Oats, 10 acres of Barley, 5 acres of Beans, 2 acres of Potatos, 14 acres of Swedes, 2 acres of Mangel Wurzels, 1 acre of garden and orchard, and 3½ acres of homestead, reservoir, plantations, and occupation roads. The intended rotation is Oats, Wheat, green crop, Barley, and Clover; the same repeated, and then allowed to lie for 10 years. The live stock consists of 7 farm-horses, 2 nags, 4 colts, 80 dairy cows, 3 bulls, 18 feeders, 21 heifers and stirks, 168 sheep and lambs, 54 pigs, and 11 rearing calves—total live stock, 368. Previous to 1858, Mr. Jackson had boned most of the old Grass land; and since then he has spent annually on an average 104*l.* on bone manure, which has been mostly applied to seeds, and above 11*l.* per annum on superphosphates and other fertilisers, which have been applied to green crops. Many years ago he sod-drained 16 acres, and 25 acres with horse shoe tiles, at his own cost. Within the last few years the landlord has drained 215 acres, the tenant filling up the drains. The landlord has also filled up seven pits, erected an entirely new farm-building on a new site, and repaired and improved the house and dairy, spending on the whole, including drainage, nearly 4000*l.*, a part of the interest upon which is to be charged in rent. The tenant has also filled 31 old pits, supplied the boulders for nearly a quarter of a mile of paved road in connection with the homestead and the high road. He has made 700 yards of new occupation road through the farm, covering it with sandstone, brickbats, and other hard materials. He has pulled up the foundations of the old homestead, and excavated for the new, carting all the old material from the one site to the other. He has carted the sand and coals for making the new bricks, pulled up the old pavement, carted the stones and sand for the new farm-yard, and formed the ground for paving; a meadow of about 4 acres has been made out of waste land and the site of the old homestead. Mr. Jackson has levelled and prepared for irrigation 1½ acre of land which was previously a bog, and laid it down for a meadow, which will be irrigated by the wash from the house and farm buildings. The judge, remarking upon this farm, adds, that about 11 miles of old fences have been eradicated, and about six miles of new fences planted, which are well grown, very clean, and cut in a proper form. The Clover crop was the heaviest the judge had seen this season, and he was told that it had been pastured till the middle of June. The new farm buildings were the best arranged of any new ones he had seen for health and convenience of feeding, watering, and all the operations of cooking cattle food, threshing, storing fodder, corn, and roots; and they were fitted with proper machinery. The arrangements for cheese-making were excellent. Two large cheeses are made every day, except on Sundays. A model cottage is built on the farm, with a well cultivated garden around it. The cottage is substantial, has three bed-rooms, and every convenience necessary for a farm labourer's family.

Dalgig, Ayrshire: The introduction of Cheddar Cheese-making on this farm is made the subject of the following interesting report to the *Ayrshire Advertiser*:—

We had the pleasure of attending at Dalgig, the farm of Mr. Campbell, and were much pleased with the instructions there delivered by Mr. Norton, from Somersetshire, who appears a sensible, judicious man, and well acquainted with cheese-making. The different operations were clearly and distinctly pointed out, and we were much struck with the simple, intelligible language in which he explained every step in making a good Cheddar cheese.

Mr. Norton heated part of the evening's milk to about 98°, to bring the whole morning's and evening's milk put together to 82°, the temperature at which he recommends that the rennet should be added.

The curd should in an hour be firm enough to cut into three inch squares. He lets it stand till the whey shows itself between the cuts of the curd; then breaks up the curd very gently and slowly with any instrument that will not start the white whey, for if the white whey be started or moved about too violently, the cheese will not be so rich and well flavoured. Mr. Norton thinks it is a bad plan to use the iron revolving breaker within the cheese tub, as its motion breaks the curd too violently. He considers great injury is done to the curd by this violent stirring and breaking. The butter is forced out of the curd, and floats off on the whey; and of course the flavour and richness of the cheese depends much upon retaining the butter. When the curd is broken to the size of Walnuts he lets it settle. He next draws off part of the whey to scald the curd, and heats it to about 120°. As much of this whey is thrown over the curd as will raise it to 85°. Before the heated whey is added the curd is broken gently and slowly to about the size of large Peas. After the curd is again settled, a quantity of whey is drawn a second time, and heated to 130°, so as to enable the temperature of the mass to be raised to from 92° to 96°, according to the quality of the pasture on which the cows are feeding, and the season of the year. Where the pasture land is light, Mr. Norton heats the whey to 92°; but on heavier and richer land to 96°. This application of heated whey is believed to make the curd tougher, and to cause more curd to be formed. No doubt a large quantity of curd is held in solution in the whey, and it is most desirable to have it extracted. We all know how rapidly pigs fatten on whey. It is said that at least 20 per cent. of curd remains in solution in the whey.

If the curd and whey in the cheese tub exhibit no signs of sourness, a quantity of sour whey (kept from the previous day) should be stirred gently into the cheese tub after the last heated whey has been poured over the curd. The mass must be slowly and gently stirred until the curd has arrived at a certain firmness, which can be known only by practice. On some days the firmness will be attained in ten minutes, and on other days not under 40 minutes. After the stirring in of the sour whey, the curd is allowed to stand for 30 minutes, and the whey is then drawn off. Mr. Norton does not think that sour whey ever improves the quality of the cheese. But it is difficult to arrive at the sourness of the curd and consequent pureness of flavour without adding it.

After the whey is drawn away, the curd is

allowed to remain in the cheese tub, to become rather sour and tough. It is difficult to fix on the time the curd must lie to become sour and tough. It depends on the weather. Sometimes it will be ready in half-an-hour; but it may often require several hours. All this time the curd in the cheese tub must be covered to retain the heat. For this part of the process great judgment is required; no rules can direct in ascertaining the proper sourness and toughness of the curd. If, however, a mistake be made, the cheese will not be of the first-class. Before the curd is taken out of the cheese tub it must be cooled to a temperature of from 68 to 72 degrees (in warm weather it is difficult to reduce it to 68) and then well pressed for five or ten minutes. Afterwards it is taken out of the tub and broken in the curd mill, and is then ready to be salted.

Every 48 lb. of curd should receive 1 lb. of salt, and be well mixed with it. After this the curd remains some time to cool to 66 degrees or thereby before it is put into the cheese vat.

In the cheese vat or chessel it is now to be pressed. After it has been under the press for three days, it is fit to go into the cheese-room.

The cheese-rooms throughout Ayrshire, Mr. Norton considers are of a bad construction. They are unfit for ripening cheese. Much depends on the proper ripening of cheese to bring out its rich flavour, and fit it for the market. Though every step of the making be well attended to, yet if if there be no suitable room for keeping the cheese warm, and ventilating it by the admission of sunshine into the room, it will not ripen properly. In many of the Ayrshire dairies the damp, cold, ill-ventilated cheese-room is destructive of all fine flavour in the cheese. And hence the reason why so much of Ayrshire cheese is spoiled.

Mr. Norton recommends the landlords of Ayrshire to give their dairy tenants cheese rooms, placed over the rooms in which the cheese is made, and to supply means for keeping them at a temperature of about 65°. A great improvement in heating the room for ripening the cheese, and far superior to having a fire-place or stove in it, is to put up a small steam boiler in a separate chamber. This boiler is fitted with two pipes, which are introduced into the cheese room, and made to circulate round the walls. A small iron cistern filled with water is placed in a corner of the cheese room. The two pipes enter into this cistern. Thus a circulation of warm water is kept up between the boiler and cistern, the pipes throwing out heat into every part of the cheese-room. With those appliance the cheese ripens rapidly, and is fit for market in three or four months. Besides heating the cheese-room, this steam boiler may be used to heat the cheese tub. An ingenious patent cheese-making apparatus has been invented by Mr. Cockey. It was recommended by Mr. Harding in one of his letters. The cheese-tub is fitted with a double bottom, forming a chamber underneath the tub. Hot water from the boiler circulates in this chamber, heating in a few minutes the night and morning's milk to the required temperature. The heating or scalding process of the whey is also done by the heat from the hot water in the chamber; the breaking and scalding of the curd being performed at the same time, the heat of the mass of curd and whey rising from 80° to 100°, if required, during the operation.

We have detailed as briefly as we could the several steps in making Cheddar cheese, so ably explained by Mr. Norton at Dalgig, and which we had great pleasure in witnessing; but we are well aware that cheese making is not to be learned by written instructions. Practice, united with intelligence, observation, and a determination to excel, are necessary to insure success. Hand and head must unite to arrive at it. Both Mr. Norton and Mr. Harding are of opinion that the Scotch cheese-makers follow rules too closely, and exercise too little of their own judgment, without which they can very rarely make a rich-flavoured cheese.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Reading of Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Oct.	Inches.	°	°				°	°	°	°	Inches.
Friday	9	29.65	53	51	S.E.	0	10	63	47	63	45	0.16
Saturday	10	29.69	59	55	S.W.	3	8	58	44	64	36	0.29
Sunday	11	29.60	54	51	S.W.	4	10	60	50	68	45	0.45
Monday	12	29.54	54	52	S.	3	10	58	48	67	41	..
Tuesday	13	29.35	55	53	S.	2	8	58	49	67	45	0.30
Wednesday ..	14	29.51	57	54	S.W.	3	5	58	47	62	42	0.47
Thursday.. ..	15	29.69	56	55	S.W.	0	9	60	49	68	42	0.08

Miscellaneous.

The West Highland Cattle.—Some years back we saw annually at Falkirk a lot of West Highland bullocks bred by Mr. Stuart, of Harris, and brought by him to that market. They were the best lot of one man's breeding which we ever saw; Mr. Stuart kindly gave us their history. From the day of their birth they had never been under cover; neither they nor their mothers had ever received a scrap of food from the hand of man. In the summer they roamed through the mountain glens. The Atlantic storms throw up on the west of Harris long ranges of sand hillocks, which become fixed by the roots of a coarse Grass, to which, if we remember right, Mr. Stuart gave the name of Bent. We believe it is the same Grass which such of our readers as visit Paris may see extensively planted on the railway sides between Boulogne and Abbeville for the purpose of fixing the drifting sands. Mr. Stuart's herd, when driven from the hills by storm and snow, retreated to these sand-hills, and found from them all that they ever received of shelter and food. Both summer and winter they were almost independent of man. The bullocks began their southern travel by a sailing voyage of 60 miles over a very uncertain sea; they then walked about 220 miles to Falkirk, mostly over open moors, on which they bivouacked at night, picking up a living by the wayside as they journeyed. At Falkirk they appeared healthy and lively, fresh as from their native glen, firm in their flesh, and with the bloom of high condition on their long and silky coats. Nor, indeed, were their health, strength, and condition superfluous; for, through the intervention of Mr. Carmichael, or some other eminent Scotch dealer, we believe that their general destination was the Vale of Aylesbury (another walk of nearly 400 miles, for it was before railways were in general use for cattle), where they revelled in the, to them, unwonted luxury of such pastures as are found on the farms of Mr. Senior or Mr. Rowland, and before the day twelvemonth on which they had stood on Falkirk Moor, they had probably all appeared in the shop of Mr. Giblett, or some other West-end butcher. *Gisborne's Essays on Agriculture.*

Notices to Correspondents.

DESTRUCTION OF MICE: *A Constant Reader* asks for the best dressing for the destruction of mice in corn stacks. Many years since, he says, there was a Wiltshire man that travelled the country and charged 1s. per stack for the dressing which was very effectual, but he ceased to come round as usual after harvest, and the consequence is that they are very much pestered with mice. Perhaps some of our readers will, *pro bono publico*, give their experience.

DOGS: *H N.* "Stonehenge" on the Dog (Longmans) is one of the best works on the subject.

GAS LIME: *Agricola.* You will find all about gas lime in Johnston's "Agricultural Chemistry," or in Morton's "Cyclopædia of Agriculture." Lime takes up sulphur, &c., from the gas, and after long process of oxidation by exposure to the air, it becomes to that extent an inferior gypsum. You should lay it up in heaps, and turning it frequently in composts it will improve by exposure, and may be used with safety and benefit to the land. Or it may be spread broadcast (3 or 4 tons per acre) over the stubbles.

SLAUGHTER HOUSE MANURE: *J H.* We should be disposed to make a compost with plenty of earth, and turn it repeatedly during several months before use.

SALE OF POLLED ANGUS CATTLE AT BALWYLLO.—The late Mr. Scott's herd was sold on October 1. 23 cows averaged 28½ guineas, the highest price being 63 guineas. 11 yearling heifers averaged 26 guineas, the highest price being 49 guineas. Eight heifer calves fetched 16 guineas a-piece. Four bulls averaged 30 guineas, and 13 bull calves averaged 15 guineas.

MUSTARD SEED: *R. Dunn.* Your seed is that of the Sinapis alba, White Mustard, mixed with a few seeds of the Radish Mustard or Jointed Charlock, Raphanus Raphanistrum. Both are weeds of cultivation, the White Mustard being frequently employed as a sheep feed, from which in Wilts it has become the "Charlock" of the arable parts of the Downs. The Jointed Charlock is often found with the Mustard, but not so abundant.

NATAL: *E D.* We can but repeat the advice already given. In a long-established colony the wants of colonists have long since been considered by tradesmen on the spot. You had better take out nothing with you but things of personal or domestic need, about which there can be no doubt. Money will buy on the spot whatever agricultural implements and seeds are necessary.

Fruit Trees.

JOHN CRANSTON offers superior, healthy grown plants of all the best varieties of FRUIT TREES, DESCRIPTIVE CATALOGUES of which will be forwarded on application.

	Each.—s. d.
APPLES.—Very fine Dwarf-trained	2 6
,, Pyramids	2 6
,, Standards	2s. to 2 6
APRICOTS.—Dwarf-trained	3s. 6d. to 5 0
,, Standard-trained	5s. to 7 6
CHERRIES.—Dwarf-trained	3s. 6d. to 4 6
,, Pyramids	2s. 6d. to 3 6
GRAPE VINES.—Standards	2 6
,, Very fine and well-ripened	3s. 6d. to 5 0
NECTARINES.—Dwarf-trained	3s. 6d. to 5 0
,, Standard trained	5s. to 7 6
PEACHES.—Dwarf-trained	3s. 6d. to 5 0
,, Standard-trained	5s. to 7 6
PEARS.—Dwarf-trained	3 6
,, Pyramids	2s. 6d. to 3 6
,, Standards	2 6
PLUMS.—Dwarf-trained	3s. 6d. to 4 6
,, Standards	2 6
WALNUTS.—Standards	2 6
,, Extra strong	3s. 6d. to 5 0

GOOSEBERRIES, CURRANTS, FIGS, RASPBERRIES, STRAWBERRIES, &c.

PEACHES, NECTARINES, and APRICOTS, established in Pots for Orchard House Culture, 5s. each.

ASPARAGUS, two years 2s. 6d. per 100

SEA KALE, ,, 8s. per 100

Nurseries, King's Acre, near Hereford.

Planting Season.

To NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, AND PUBLIC COMPANIES ENGAGED IN PLANTING.

PROTHEROE AND MORRIS most respectfully invite the Public to inspect their VALUABLE NURSERY STOCK, extending over 30 Acres, and in the finest state of cultivation, consisting of FRUIT, FOREST, and ORNAMENTAL TREES of every description and in considerable quantities; also a large and rich assortment of AMERICAN PLANTS, FINE EVERGREENS, all sizes, including many Magnificent Specimens which will give immediate effect, and from the adhesive nature of the soil, and being continually transplanted, incur no risk from removal.

The following include a portion of their Stock:—

These are fine bushy Plants, & well set with Bloom Buds.
30,000 Rhododendrons, Scarlet, Catawbiense, Ponticum, and others.
20,000 Ghent & other Azaleas.
4,000 Kalmia latifolia.
3,000 Andromeda floribunda.

EXTRA FINE FRUIT TREES.
3,000 Peaches, Nectarines, & Apricots, Dwarf-trained, and very handsome.
6,000 Standard Apples of the best sorts, many of which have large fruiting heads, and will come into bearing at once.

A LARGE VARIETY OF ORNAMENTAL and FOREST TREES, including
7,000 Limes, 5 to 12 feet, Laburnums, Chesnuts, Birch, Maples, Poplars, Mountain Ash, Acacias, Thorns, &c.

30,000 Fine Standard Roses, including the newest and most approved varieties, with clean straight stems, fibrous roots, and full bushy heads.
2,000 Fine Double Camellias,
3,000 Azalea indica, best kinds, beautifully set with bloom buds.
50,000 Laurels, 1 to 10 feet.
5,000 Handsome Fan Yews, 3 to 12 feet high, and 6 feet wide (Magnificent Plants.)
12,000 Bushy Aucubas, 1 to 5 feet.
Green and Variegated Hollies, Box Trees, Cedrus Deodara, Cedar of Lebanon, Pinus excelsa, Hemlock Spruce, Araucaria imbricata, Picea Pinsapo, Nordmanniana and nobilis, Cupressus Lawsoniana, Thujopsis borealis, Laurustinus, Sweet Bays, Phillyreas, Irish Yews, Privet, Arbor-vitæ, Berberis, Chinese Privet, &c.

List and Prices forwarded on application.

The Nurseries are accessible by Railway in 20 minutes from Fenchurch and Bishopsgate Street Stations, whence Trains leave twelve times daily to Leytonstone Station, which adjoins the Nurseries.

American Nurseries, Leytonstone, Essex.

ARAUCARIA IMBRICATA (from 3 to 12 feet in height).—The finest and largest Stock in Europe unrivalled for Parks, Avenues, Lawns, &c. Also ABIES DOUGLASII, CEDRUS DEODARA, LIBANI, and a general assortment.

P.S. The present is the best time to remove them.

H. LANE & SON, Nurseries, Berkhampstead.

SPECIAL OFFER of SHRUBS and TREES.—The Subscriber having an abundant Stock of the following, he is prepared to offer some much below the usual rates. The undernoted is well worthy the attention of the Trade and parties about to plant, the Subscriber's Nursery having been for the past 50 years famed for producing particularly fine rooted plants. Prices per 100 and 1000 on application.

AUCUBA JAPONICA, 12-inch; APPLE STOCKS, 1-year do. 2 feet, Transplanted; ARBORVITÆ, AMERICAN, 1-year laid, 6 to 12-inch; AZALEA PONTICA, 12-inch; BARBERRY, COMMON, 12-inch; BIRD CHERRY, 2 to 3 feet; BIRCH, Transplanted, very scarce, 1½ feet; RED CEDARS, 9-inch; CUPRESSUS MACNABIANA, 2 feet; CUPRESSUS THUJOIDES, 6-inch; EUGENIA UGNI; 3-year SEEDLING SILVER FIR; 1-year SEEDLING HAZEL; GREEN HOLLIES; 1-foot LAUREL, COMMON; 1 to 3-feet PEAR STOCKS; 1-year SEEDLING, and 2½-feet Transplanted PINUS CEMBRA, 3-feet, very fine specimens; PINUS AUSTRIACA, 1 to 2-feet; QUINCE STOCKS, 2 feet, very fine stems.

ROBERT T. MACKINTOSH, Nurseryman and Seedsman, 12, Melbourne Place, George IVth Bridge, Edinburgh.

Nursery, Leith Walk.

TO BE SOLD, by PRIVATE TREATY, 16 fine SPECIMEN AZALEAS of the following varieties:—

Ardens, 4 ft. by 2 ft. 9 in.
Beauty of Europe, 3 ft. 6 in. by 3 ft.
Criterion, 3 ft. 6 in. by 2 ft. 6 in.
Delicata, 5 ft. by 3 ft. 6 in.
Eulalie Van Geert, 5 ft. by 3 ft. 6 in.
Eulalie Van Geert, 4 ft. 6 in. by 3 ft.
Empress Eugenie, 4 ft. by 3 ft.
Gledstanesii, 3 ft. 6 in. by 3 ft.
Iveryana, 4 ft. 6 in. by 3 ft.
Ditto 3 ft. 6 in. by 3 ft.
Optima, 4 ft. by 3 ft.
Perryana, 5 ft. by 3 ft.
Variegata, 5 ft. by 3 ft.
Ditto 4 ft. by 3 ft.
Vesta, 3 ft. 6 in. by 3 ft.
Union, Gledstanesii, Lateritia, and Variegata, 5 ft. by 4 ft.

The property of an Amateur, who has not sufficient room to continue their further cultivation. They have been exhibited, and gained First Prizes at one of the best Provincial Shows in this country. The plants are all young and vigorous, and finely furnished.

May be seen, and prices obtained, on application to Mr. D. DAVIS, Nurseryman, The Kensington Nurseries, London Road, Bath.

Notice.—To the Trade.

J. TROTMAN begs to announce that in consequence of his NURSERY GROUND at Hammersmith being required for building, he has removed to Spring Grove, Isleworth, where he has succeeded in obtaining land peculiarly adapted for raising of FRUIT TREES, and where he has now a very fine stock of DWARF MAIDEN TREES of all kinds.

LIST of kinds and price on application.
N.B. Very fine COMMON LAUREL 3 to 5 feet.
Ditto PORTUGAL LAUREL, 2 to 3 feet.
Spring Grove Nursery, Isleworth, W.—Oct. 17.

GEO. DAVIES begs to offer to the Trade the undernamed:—

ARAUCARIA IMBRICATA, from pans, 2 to 4 inches, 20*s.* per 100; 4 to 5 inches, 25*s.* per 100.
ACROPHYLLUM VENOSUM, 3 to 6 inches, 36*s.* per dozen.
GENETYLLIS TULIPIFERA, 6 to 12 inches, 36*s.* per dozen.
" HOOKERII, 6 to 12 inches, 36*s.* per dozen.
RHODODENDRON RETUSUM, 6 to 12 inches, 30*s.* per doz.
" " 12 to 15 inches, bushy, 36*s.* per dozen.
Reference or Remittance from unknown Correspondents.
Green Lane Nurseries, Old Swan, Liverpool.—Oct. 17.

THE EARLIEST PEA KNOWN is CARPENTER'S EXPRESS (pods larger than any other early Pea).
Among *numerous* Testimonials the following has been received:—

From Mr. JONES, *Gardener to Lord Leconfield, Petworth, Sussex.*
June 3, 1863.

"I beg to say I have found Carpenter's Express Pea to answer well as an early one; it was sown on the 20th of November, on a south border, and I gathered the first dish on the 7th of May. I had Daniel O'Rourke and your Pea side by side in November, 1861, and gathered First from Carpenter's Express in May, 1862, which led me to grow it as my earliest this year."

New Seed to be had only of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Establishment, 96, St. James's Street, Brighton. Price 2*s.* 6*d.* per quart.
Early Orders are solicited, which will be executed strictly in priority.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified in the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6*l.* per Ton, or 8*s.* per cwt.; and to prevent disappointment orders for present or spring delivery should now be sent to Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts. Sacks, 2*s.* each.

Seed Potatoes.

H. AND F. SHARPE are now prepared to make special offers to the Trade of the following varieties of SEED POTATOES, which have been harvested in fine condition, and free from disease. They comprise all the sorts worthy of cultivation, and have been grown with much care from the finest selected stocks. As the yield this season is very fine, the prices will be moderately low, and may be had on application.

Improved Ash-leaved Kidney	Early Fox's Seedling
Jackson's do. do.	Early Round Frame
Walnut-leaved do.	Early Martin's Globe
MYATT'S PROLIFIC do. (very productive)	Early Golden Globe
Fluke Kidney	Early King (for forcing)
Lapstone do.	Early British Queen
EARLY DALMAHOY	Early Cockney
Early Oxford	Early Forty-fold
	Early Snowball

Seed Growing Establishment, Wisbech.

All good Cooks and careful Housewives use

SYMINGTON'S PATENT PREPARED PEA FLOUR, which is easy of digestion, perfectly wholesome, requires no boiling, rapidly makes a Tureen of rich Soup, and never causes unpleasant feelings after eating.

In Packets, 1*d.*, 2*d.*, and 4*d.*; and Tins, 1*s.*, 1*s.* 6*d.*, and 3*s.* each.
GROATS and BARLEY prepared by the same process, in Tins 6*d.* and 1*s.* each.
SCOTCH OATMEAL for Porridge and Oat Cake, in Packets, 1*d.*, 2*d.*, 4*d.*; 28 lb. Tins and Barrels.
Patentees and Manufacturers: W. SYMINGTON & Co., Bowden Steam Mills, Market Harborough. Sold everywhere.

Horticultural Agent and Valuer.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS) continues to undertake all kinds of VALUATIONS connected with Horticulture.
1, Devonshire Terrace, Fulham Road, S.W.

City of Manchester.

To ARCHITECTS AND LANDSCAPE GARDENERS.

MANCHESTER CEMETERY.
EXTENSION of TIME.

NOTICE.—Persons desirous of obtaining Plans and other Particulars to enable them to compete for the Design for LAYING OUT this CEMETERY, can obtain them by applying at the City Surveyors' Office, Town Hall, Manchester, on or after October 8.

The date of furnishing Particulars having been postponed, a proportionate extension has been made in the time allowed for sending in Designs.
For particulars as to Premiums offered, &c. see former advertisements. By order. JOSEPH HERON, Town Clerk.
Town Hall, Manchester, Oct. 10.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.*; 4 cwt. put on the Rail at Reigate.
Best and second quality PEAT SOIL, LOAM, &c.
N.B. Loaded Trucks can be sent on all the principal Railways.
W. SHORT, Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.
116, Fenchurch Street, E.C.

LAWES'S WHEAT MANURE for AUTUMN SOWING.

A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8*l.* per ton.
2 to 3 cwts. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

SUPERPHOSPHATE of LIME	£6 6
MINERAL SUPERPHOSPHATE	5 5

Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.
American and other Cakes at market prices.
Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

Autumn Sowing.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),
Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.
Chairman.—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.
Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex.

ODAMS'S BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, has been in use for upwards of 11 years, and has given great satisfaction to consumers.
Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.
Offices: 109, Fenchurch Street, London, E.C.
Price 7*l.* 10*s.* per Ton, delivered at any Railway or Wharf in London.



Magnified Aphis.

NEAL'S PLANT SOAP and APHIS PASTILS,
1*s.* and 2*s.* per packet,
may be obtained from all respectable Seedsmen.
Testimonials forwarded on application to the Patentee,
J. NEAL,
Edward Street, Birmingham.

Winter Dress all Fruit Trees with



Red Spider Magnified.

GISHURST COMPOUND.

Copy of a Letter from Mr. RIVERS.
Nurseries, Sawbridgeworth, Herts.
Oct. 22, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."

For Orchard-house Trees 4 ounces to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.
GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), Belmont, Vauxhall, London, S.W.

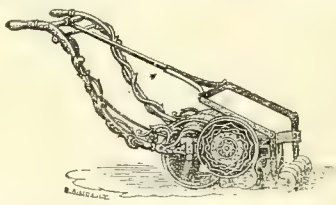
ROCKWORK FERNERIES, WATERFALLS, CAVES, BANKS of STREAMS and PONDS, executed in the only way it should be, *i.e.*, to imitate Natural ROCKS. Worked with pockets, for plenty of plants, by JAMES PULHAM, Broxbourne, Herts.
References to works executed in 10 counties, some by the recommendation of W. B. THOMAS, Esq., R. MARNOCK, Esq., and E. MILNER, Esq.

Utility and Ornament Combined.

HYACINTH GLASSES SUPERSEDED BY
HOOPER'S NEW REGISTERED ETRUSCAN HYACINTH and CUT FLOWER VASE.

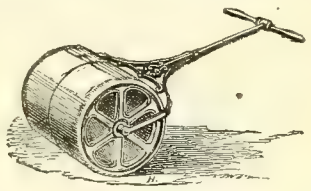
Perfectly novel and beautiful Table Ornaments; superior to Glasses for the growth of Bulbs, and equally adapted for holding Cut Flowers in summer.
Of refined and highly classical beauty, they recommend themselves at once to all persons of taste, being in short all that could be desired in an expensive ornament, brought to an inexpensive price. Price 2*s.* and 3*s.* each; Triples, 9*s.* each; to be obtained of the principal Seedsmen and Nurserymen in the Kingdom; and Wholesale and Retail of
HOOPER & Co., Covent Garden Market, London, W.C.

SHANKS' NEW IMPROVED LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINES were awarded the First Prize Medal of the International Exhibition.



Shanks' Patent Lawn Mowers are in use in the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.
These Machines are allowed to be the best and by far the most durable ever offered to the public.
ILLUSTRATED CATALOGUES on application to A. SHANKS & SON, Dens Iron Works, Arbroath; or 27, Leadenhall Street, London, E.C.

GREEN'S IMPROVED NEW PATENT ROLLER for LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS, &c.



These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the very best materials, and are got up in a manner surpassing any ever yet brought out.

PRICES:—

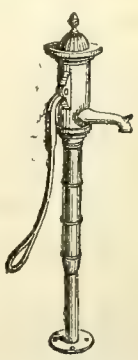
Diameter 30 inches, length 32 inches	£7	0	0
" 24 inches, " 26 inches	4	5	0
" 20 inches, " 22 inches	3	5	0
" 16 inches, " 17 inches	2	10	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

Iron Works.

COTTAM AND CO.,
2, Winsley Street, Oxford Street, London, W.





COTTAM & Co. manufacture all kinds of Implements and Machines for Garden and Horticultural purposes, Verandahs, Greenhouses, Conservatories, Hot-water Apparatus, &c.; Iron Fencing, Gates, and Hurdles.
Illustrated Catalogues free of COTTAM & Co., Iron Founders, &c., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they will not be undersold by any House in the Trade. They also warrant one of their Knives to last two of any other make.
Paxton Works, Sheffield.

Gutta Percha Tubing for Watering Gardens.

THE GUTTA PERCHA COMPANY have the pleasure to acknowledge the receipt of the following
Testimonial from Mr. J. FARRAH, *Gr. to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*

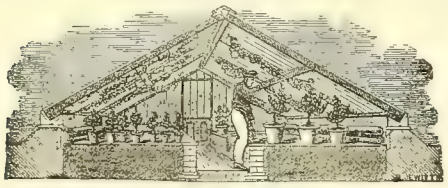
"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."

Manufactured by the GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C., and sold by their Wholesale Dealers in town and country.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only itcan be obtained.

Hothouses for the Million.—Awarded a Prize Medal at the International Exhibition, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner, all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to Samuel Hereman, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1s.; post free, 1s. 1d.

W. J. HOLLANDS, Iron Merchant, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d.; 3-inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from stock, 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

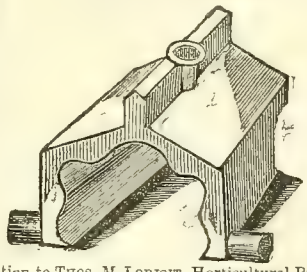
Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

Apply to Joseph Meredith, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

T. M. LOBJOIT'S PATENT HOT-WATER BOILERS are acknowledged by all who have them in use to be the most powerful Boilers now known, and are the most economical, requiring less fuel and attention than any other. They are made of various sizes, suitable for heating the smallest Greenhouse to the largest Conservatory, Churches, and Buildings of all descriptions.



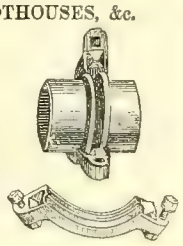
Testimonials forwarded on application to Thos. M. Lobjoit, Horticultural Builder and Hot-Water Apparatus Manufacturer, Turnham Green, W., and at Acton, Middlesex, W. The Trade supplied.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. Gray begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

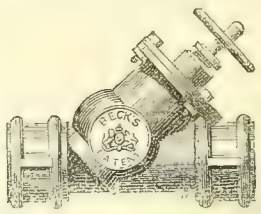
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

BECK'S

PATENT HOT-WATER VALVES



AT GREATLY REDUCED PRICES, viz.:—

2 In.	3 In.	4 In.
12s. 6d.	16s. 6d.	20s. 0d.

Upwards of 4000 of the Patent Valves are now in use and giving the greatest satisfaction.

John Beck can also supply large quantities of his

IMPROVED THROTTLE VALVES

on the shortest notice.

JOHN BECK,

PATENTEE AND MANUFACTURER

OF EVERY DESCRIPTION OF

GAS, WATER, and STEAM FITTINGS,

FIRE COCKS, WATER CLOSETS, ETC.

PATENT VALVE WORKS

AND SANITARY DEPOT,

GREAT SUFFOLK STREET, LONDON, S.E.

T. G. MESSENGER, Horticultural Builder and Engineer, Loughborough.



T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES of the above, Glazing without Putty, Garden Engines, &c., sent upon application.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.



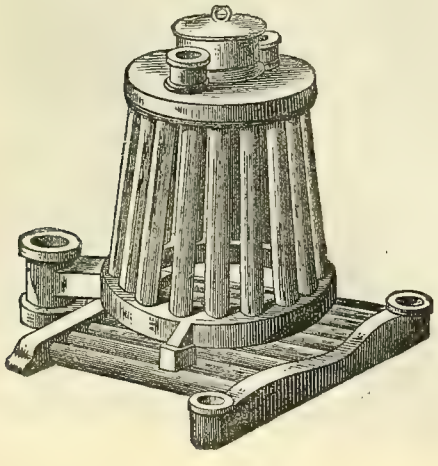
It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3d.; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW HOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

Musgrave Brothers, Ann Street Iron Works, Belfast.

BY HER MAJESTY'S ROYAL LETTERS PATENT.



ORMSON'S PATENT,

ENTITLED

"AN IMPROVEMENT IN THE MANUFACTURE OF CAST TUBULAR BOILERS."

TAKE NOTICE, that a DISCLAIMER has been filed in the Patent Office and allowed by the Attorney-General, by which such part of the above Patent as was considered questionable by the Court of Exchequer Chamber has been disclaimed. Any person infringing the said Patent after this Notice will be proceeded against according to Law.

Disclaimer allowed, September 1, filed September 2, 1863.

I BEG to NOTIFY, that having by leave of her Majesty's Attorney-General DISCLAIMED such part of my Patent as was considered by the Court of Exchequer Chamber as questionable, the said Patent is now absolutely confirmed; and any person infringing the same will be proceeded against according to law.

HENRY ORMSON,

HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Partner Wanted.

WANTED, a PARTNER for a LOCAL NURSERY and SEED BUSINESS. Capital required from 400*l.* to 500*l.*

Address, for particulars, to Messrs. Downie, Laird, & Laing, Nursery and Seedsmen, Edinburgh.

NURSERY and SEED BUSINESS.—The Senior Partner of an Old Established Business in the West of Scotland is desirous of retiring, and will DISPOSE of his INTEREST in the concern on reasonable terms. Any active young Man acquainted with the Trade, and possessed of moderate Capital, will find this a favourable opportunity of joining a good going business capable of great extension. Communications from principals only will be attended to, and strict confidence observed.

Address X. Y. Z., care of Messrs. Mudie & Sons, No. 15, Coventry Street, London, W.

TO BE DISPOSED OF, an OLD ESTABLISHED HORTICULTURAL BUSINESS and EXTENSIVE PREMISES, in the best part of King's Road, Chelsea, S.W. The proprietor retiring from business.

Apply to E. D., 152, King's Road, Chelsea, S.W.

To Nurserymen, Gardeners, and Others.

TO BE DISPOSED OF, by Private Treaty, and with early application (in consequence of the failing health of the present Proprietor) an OLD-ESTABLISHED and EXTENSIVE NURSERY, with Hot and Green Houses, doing a good Business, in an excellent situation, and within a few miles of Liverpool.

For particulars apply by letter to "J. W.," care of Wren & Sons, Temple Court, Liverpool.

To Market Gardeners and Others.

Merton, Surrey.

Ten minutes from Wimbledon Station.

TO BE LET on LEASE, or otherwise, 12 to 14 ACRES of LAND, peculiarly adapted to Market Gardeners and Seedsmen.

Apply to Mr. David Lees, Merton, Surrey, S.

TO BE LET, NURSERY GROUNDS in Brighton, comprising extensive Vineries and Peach-houses, in good bearing condition; large Span-roofed and Lean-to Houses, and Pits for Plants; also, a capital Residence and Cottages, with Stabling and Coach Houses.

The Stock can be taken at a valuation or a fixed sum, as agreed upon, or a PARTNER with Capital would be accepted.

Full Particulars to be had on application to the Garden Superintendent, Alexandra Park, Tottenham Wood, Hornsey.

Sales by Auction.

GREAT SALE (by AUCTION) of EARLY and LATE TULIPS, RANUNCULUSES, [CROCUSES, LILIUMS, NARCISSUS, and general Florist's Stock; a newly built GREENHOUSE, Boxes, Trays, Tools and Sundries, on the Premises, Beaufort Nursery, North End, Fulham, S.W., on THURSDAY, October 22, at 12 o'Clock, by George Glenny, of Dungennon House, Fulham, by order of Mr. T. Lockhart, who is declining the business.

Catalogues on the Premises, and of the Auctioneer, who will forward them by Post.

ENGLISH WOOL SALES by PUBLIC AUCTION in LONDON.—Our next SALE of ENGLISH WOOL by PUBLIC AUCTION in London, will take place on October 28, or the day preceding the next series of Australian Wool Sales, when about 1200 PACKS of LONG and SHORT WOOL from various counties will be offered.

Parties intending to send Wool for these Sales are requested to communicate with the undersigned, who will forward empty sheets, and instructions for packing and forwarding on application.

Bradbury & Cook, Wool Brokers, 17, Basinghall Street, London, E.C.

Newark-upon-Trent.

To Noblemen, Gentlemen, Nurserymen, and Others.

Important Sale of Nursery Stock under a Deed of Assignment for the Benefit of Creditors.

MR. WM. MOSS will SELL by AUCTION, on WEDNESDAY, THURSDAY, and FRIDAY, October 21, 22, and 23, commencing each day at 10 o'Clock, at the Nursery Grounds, situate respectively in Lincoln Street, near the Great Northern Station, in Newark aforesaid, and on the Lincoln Road, by order of the Assignees of Mrs. Betsy Ann Girton, the whole of the valuable NURSERY STOCK, and Sundry effects.

Catalogues may be had of Mr. Herbert Hall, Seedsman, Stodman Street, Newark; and of the Auctioneer, Newark.

Auction and Valuation Offices, 83, Barnby Gate, Newark.

The Gardens, Orton Hall, Huntingdonshire.

4000 Valuable Coniferous Plants.

MESSRS. BRISTOW and SON have received instructions to SELL by AUCTION, without reserve, in Orton Hall Gardens, near Peterborough, the property of the late Marquis of Huntly, on TUESDAY, October 20, at 11 o'Clock, a choice COLLECTION of RARE CONIFEROUS PLANTS, including Wellingtonia gigantea, Pinus Benthamiana, Cupressus Lawsoniana, Thuja Lobbii, Picea Pinsapo, Abies Douglasii, Cupressus macrocarpa, Torreya myristica, &c., &c A number of the Wellingtonias are of large dimensions, and being in boxes can be removed without the slightest risk, and the other plants having been transplanted within 12 months, are also in a good state for removal. The whole will be offered in lots to suit all classes of purchasers.

Catalogues may be had of the Gardener, Orton Hall; of Mr. J. Kellie, Orton Longueville; or by post on application to the Auctioneers, Peterborough.

Important Sale of Trees and Shrubs on Oct. 27 and 28, 1863.

GEORGE BATLEY having determined upon making extensive alterations in his Nursery, for which it is necessary to clear certain portions of his ground of TREES, SHRUBS, &c., he has instructed Mr. H. Brown to SELL by AUCTION from 600 to 700 Lots, consisting of about 20,000 TREES, including Arborvitæ, Alder, Ash, Chesnut, Elm, Oak, Firs, Scotch and Spruce, Laburnums, Poplars, Weeping Elms and Limes, Cedars, Pinus, Wellingtonias, Fruit Trees, Roses, &c., all in the best possible condition for removal, most of them having been transplanted within the year.

G. B. begs to state that to Gentlemen planting, Landscape Gardeners, Nurserymen, &c., this must be a most valuable opportunity, from the fact that everything in this Nursery are either disrooted or transplanted every two years, so that purchasers may with certainty rely on their safe removal; and to buyers at an inconvenient distance G. B. will have pleasure in lifting, packing, and forwarding whatever Lots may have been purchased.

Catalogues of Sale to be had at the Nursery, Rugby, and at the Office of Mr. H. Brown, Auctioneer, High Street, Coventry.

Balham.

MESSRS. PROTHEROE and MORRIS are instructed by Mr. J. Curtis to SELL by AUCTION on the Premises, Balham Nursery, Balham, on MONDAY, October 19, at 11 o'Clock, without reserve, the ground being immediately required to be cleared, the whole of the valuable NURSERY STOCK, consisting of Evergreens and Deciduous Shrubs, Ornamental Fruit and Forest Trees, Standard and Dwarf Roses, Climbing Plants, various, in Pots, &c.; also upwards of 200 Double Camellias, 2 to 8 feet, choice Azalea indica, sorts, a pair of fine Aloes, Oranges, &c. Two Stacks of prime old Meadow Hay, a handsome Black Gelding Cob, a capital set of Harness, a light Spring Cart, Heap of Manure, and sundry effects.

May be viewed a week prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Handsome Standard and Dwarf Roses, Dutch Bulbs, &c.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, October 23, at 12 o'Clock, a first-class Collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Crocus, Tulips, Jonquils, Anemones, Iris, &c.; also 300 handsome STANDARD and DWARF ROSES, comprising the best Hybrid Perpetuals, Bourbons, Chinas, &c., choice assortment of American Plants, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Lewisham.

To Gentlemen, Nurserymen, Builders, and Public Companies engaged in Planting.

MESSRS. PROTHEROE and MORRIS are instructed by Mr. Maller to offer for unreserved SALE by AUCTION, on the Premises, opposite the Castle Inn, Lewisham, on MONDAY, October 26, and following day, at 11 o'Clock each day, the whole of the valuable NURSERY STOCK, consisting of fine Evergreens and Deciduous Shrubs, including Common and Portugal Laurels, Green Hollies, Aucubas, Berberis, Spruce Fir, Arbor-vitæ, sorts; Rhododendrons, Azaleas, Yews, Cedrus Deodara, 2 to 5 feet; Cupressus, sorts; Lilacs, Guelder Roses, Syringa, &c.; also Ornamental and Forest Trees of the usual varieties; handsome Dwarf-trained Peaches and Nectarines, Standard and Dwarf-trained Plums, Pears, Cherries, Apples; a quantity of Prince of Wales, Red Antwerp, and Fastolff Raspberries; Rhubarb; Ivies, sorts; Sweet Briar; Virginian Creepers, Wistaria and Clematis, and Hops; 2000 fine Standard, Half Standard, Dwarf and Climbing Roses; 6000 Pinks. Cloves, Carnations, &c.; a quantity of Loam, &c.; together with a useful Cart Horse, a Pony, and other Effects.

May be viewed prior to the Sale. Catalogues may be had at Mr. Maller's, Granville Terrace, Lewisham; at the principal Seed shops in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Langhedge Nursery, Upper Edmonton.

MR. A. RICHARDS will SELL by AUCTION on the Premises on TUESDAY and WEDNESDAY, Oct. 20 and 21, at 12 o'clock precisely each day, the valuable NURSERY STOCK as advertised in last week's *Gardeners' Chronicle*.

Catalogues are now ready, and may be obtained on the Premises, and of the Auctioneer, Tottenham, N.

Norwich.

MR. G. H. MURRELL will SELL by AUCTION, on OCTOBER 21, a quantity of YOUNG TREES, PLANTS, and FLOWERING SHRUBS of the best Growths, and ready for immediate transplanting.

Offices: 5, Bank Street, Norwich.

Hammersmith, Middlesex.

To Nurserymen, Market Gardeners, and Others.

MR. J. WILLMER begs most respectfully to announce that he has received instructions from Mr. Trotman, to SELL by AUCTION, without reserve, on the Premises, The Grove, near the British Prince, New Road, Hammersmith, on TUESDAY, October 27, at 11 o'Clock, in consequence of the Ground being required for Building purposes, the whole of the NURSERY STOCK, which comprises Dwarf and Pyramid Plums, Pears and Cherries of sorts, Dwarf-trained Cherries and Plums, Standard, Dwarf, and 2 years' worked Apples of the leading kinds, Maiden Peaches, Nectarines and Apricots, Currants, Gooseberries and Raspberries, Walnuts, Standard and Dwarf Roses, Irish Yews, Hardy Heaths, Portugal Laurels, Common Laurels (5 feet), Rhododendrons, Aucuba, Red Cedar, Spruce Fir, Evergreen Privet, Climbing Roses in pots, Ivy in pots, Virginian Creeper in pots, &c. &c. &c.

May be viewed the Saturday and Monday previous to the Sale, and Catalogues had on the Premises; at Spring Grove Nursery, Hounslow; and of Mr. J. Willmer, Auctioneer, Surveyor and Valuer, Springfield Nursery, Sunbury, Middlesex.

Valuable Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, October 23, at half-past 12 o'Clock precisely, an IMPORTATION of RARE and VALUABLE ORCHIDS, comprising many hundred Plants of Lælia purpurata, Cattleya Leopoldi, Cattleya amethystina, Cattleya sphenophora, Trichopilia Turi alba, Trichopilia crispa, Vanda violacea, Cypripedium Fairrieanum, Pescatorea cerina, and many other very choice sorts.

On view the Morning of Sale, and Catalogues had.

Valuable Collection of Established Orchids.

MR. J. C. STEVENS begs to announce that he will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 29, at half-past 12 o'clock precisely, a COLLECTION of ESTABLISHED ORCHIDS, comprising, among others, the following well known varieties:—

Aerides affine superbum	Cattleya Trianæ
,, crispum	Celogyne cristata
,, Lindleyanum	Phalænopsis Schilleriana
,, Larpentæ	,, amabilis
,, maculosum	,, grandiflora
,, Lobbii	,, rosea
,, nobile	Cypripedium Veitchii
Anguloa Ruckerii	,, caudatum
,, eburneum	Saccolabium violaceum
Arpophyllum giganteum	,, retusum
Cattleya labiata	Vanda tricolor superba
,, Aurantium	,, Batemani
,, Regnelii	

On view the Morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons,

and a Collection of Hardy and Ornamental Plants from Surrey.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, October 20, at 12 o'Clock precisely, an assortment of COCHINS, DORKINGS, SPANISH, HAMBURGHS, POLANDS, &c., from the yards of Mrs. H. Fookes, Rev. G. Gilbert, Rev. G. Raynor, Messrs. Postans, and other well-known fanciers. A Collection of choice PIGEONS, being the surplus stocks of Messrs. Heath, Fulton, and Esquilant, nearly all very good birds and well worthy of attention. Also a consignment from a well-known Nurseryman in Surrey, for absolute Sale, comprising FRUIT TREES, EVERGREENS, ROSES, RHODODENDRONS, KALMIAS, HOLLIES, AZALEAS, CONIFERS, and other Hardy Plants, which will produce an immediate effect.

On view the Morning of Sale, and Catalogues had.

Important Sale of Mr. R. Fortune's Japanese Plants.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, London, W.C., on WEDNESDAY and THURSDAY, October 21 and 22, at half-past 12 o'Clock precisely each day, without reserve, a PORTION of Mr. Robert Fortune's recent JAPANESE INTRODUCTIONS, removed from Mr. Standish's Nursery, Bagshot; comprising the following new and interesting Plants.

100 Thujopsis dolabrata variegata, 6 inches.
100 Euonymus radicans foliis variegatis, 6 inches.
150 Euonymus japonicus variegatus, 1 to 2 feet.
100 Juniperus chinensis variegata.
50 Retinispora pisifera aurea, 6 inches.
50 Osmanthus ilicifolius, 9 inches.
150 Osmanthus ilicifolius variegatus nanus, 9 inches.
400 Lonicera aureo-reticulata, 1 to 2 feet.
50 Raphiolepis ovata (Photinia), 1 to 2 feet.
200 Thuja (Biota) falcata.
200 Iris lævigata.
250 Sciadopitys verticillata, 6 inches.
100 Microlepia scabra, 1 foot.
500 Lastrea opaca, 1 foot.
100 Ilex Fortunei, 1 foot.
500 Pinus densiflora.
50 Eurya latifolia variegata, 6 inches.
300 Retinispora obtusa, 6 inches to 1 foot.
300 Retinispora pisifera, 1½ feet.
400 Japanese Chrysanthemums.
50 Taxus Fortuni.

Also the following:—

50 Dracæna Banksii, 2 to 3 feet.
150 Desfontainea spinosa, 1½ feet.
50 Cyathea dealbata.
300 Rhododendron Nuttalli, 1 to 2 feet, &c.

The whole for absolute sale, and in the finest possible health.

On View on the Premises, Bagshot, Surrey, during the Sale of Mr. Standish's Nursery Stock, also on the days of Sale at Mr. J. C. Stevens's Auction Rooms and Offices, 38, King Street, Covent Garden, W.C., where Catalogues can be obtained, by forwarding two postage stamps.

Mr. Robert Fortune's Chinese Plants for Absolute Sale.

Extensive Sale of Rare and Valuable Introductions from China.

MR. J. C. STEVENS has much pleasure in announcing that he has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY and WEDNESDAY, October 27 and 28, at half-past 12 o'Clock precisely, without the least reserve, in consequence of the agreement which existed between Messrs. Standish and Fortune with regard to the Chinese Plants having terminated, the most important COLLECTION of RARE and VALUABLE PLANTS ever offered for public sale, including the whole of Mr. Robert Fortune's RECENT INTRODUCTIONS from CHINA, and a part from JAPAN, including—

3000 Torreya grandis, 4 to 10 inches
150 Abies Kæmpferi, 2 to 4 feet
2000 Chamærops Fortunei
50 Pinus Bungeana
1000 Pinus sp. (nova) Pekin (Tabulæformis), 4 to 6 inches
25 Bambusa variegata
500 Thuja sp. (Pekin)
500 Lastrea opaca
400 Lonicera aureo-reticulata
200 Iris lævigata
200 Retinispora obtusa
200 Retinispora pisifera, &c., &c.

The whole of these Plants are in the finest possible health and are lotted to suit all buyers, and are well worthy the attention of the Nobility, Gentry, and Trade.

On view at Mr. Standish's Nursery, Bagshot, during the Sale of his Nursery Stock, and on the days of Sale at Mr. J. C. Stevens's Auction Rooms and Offices, 38, King Street, Covent Garden, London, W.C., where Catalogues and full particulars can be obtained.

Japanese Seeds.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 29, at half-past 12 o'clock precisely, an importation of RARE CONIFER and other SEEDS, just arrived in splendid condition from Japan, comprising many novelties, viz.:—

Abies Veitchiana	Pinus parviflora
,, firma	,, nova species
,, polita	,, Massoniana
,, Alcoquiana	Thujopsis dolabrata
,, sibirica	Podocarpus macrophylla
,, Tsuga	Retinispora microcarpa

Also from Japan, a Collection of SEEDS of Rare TREES, SHRUBS, &c.

On view the Morning of Sale, and Catalogues had.

Hendon, Middlesex.

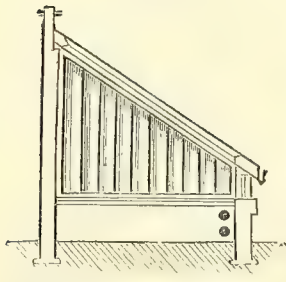
MR. J. C. STEVENS begs to announce that he has been favoured with instructions from Mr. E. Shenton, who is removing to Bagshot, to SELL by AUCTION on the Premises, Hendon Park Nurseries, Hendon, Middlesex, on FRIDAY, October 30, at half-past 12 o'clock precisely, without the least reserve, the whole of the valuable stock of HARDY and GREENHOUSE PLANTS, consisting of Conifers, Roses, Fruit Trees, Yuccas, Hollies, Pansies, Lilacs, Rhododendrons, Dahlias, Laburnums, Hollyhocks, Kalmias, Laurels, Fuchsias, Geraniums, Chrysanthemums, Carnations, Camellias, Azaleas, Ferns, Vines, &c., 4 Greenhouses, Forcing House and Pits, heated with Hot Water Apparatus, together with the LEASE and GOODWILL of this desirable Nursery, including a small Dwelling House, and 3 acres of Land.

On view the day prior and Morning of Sale, and Catalogues had of Mr. J. C. Stevens, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

An omnibus leaves the Bank at 10.15, and Tottenham Court Road at 10.45, arriving at Hendon at 12.20, just in time for the Sale.

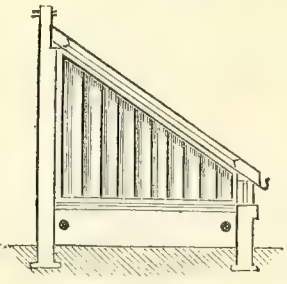
J. JONES'S HOT-WATER APPARATUS.

No. 7.



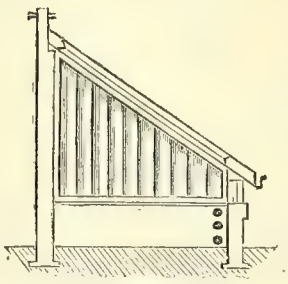
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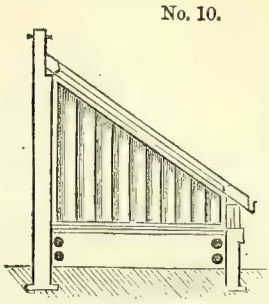
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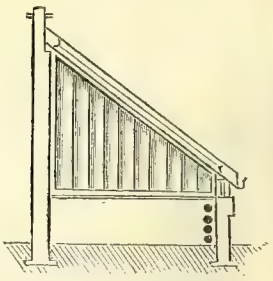
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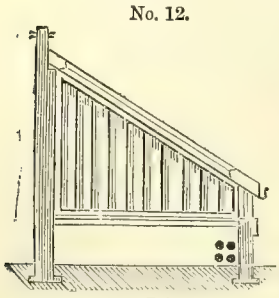
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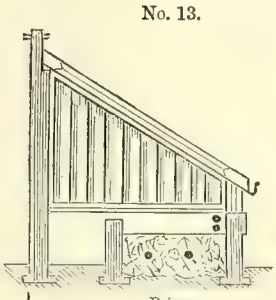
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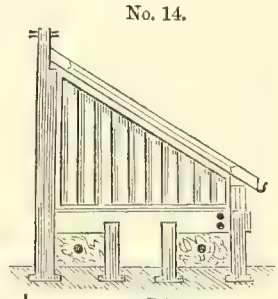
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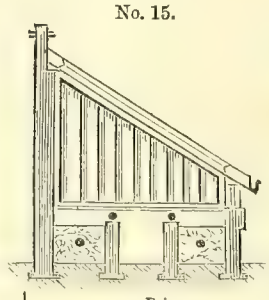
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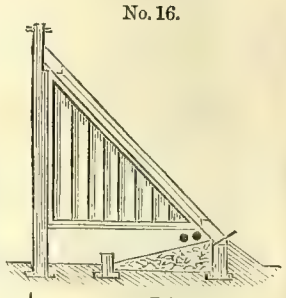
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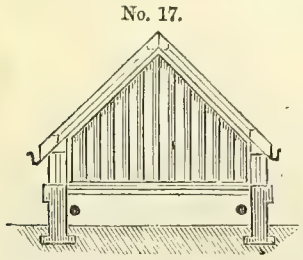
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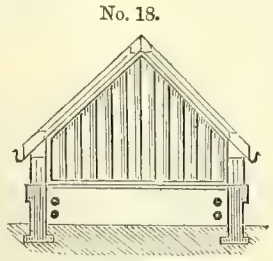
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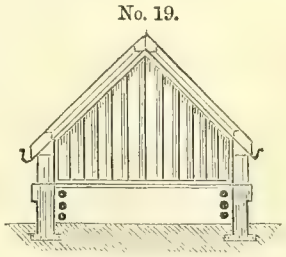
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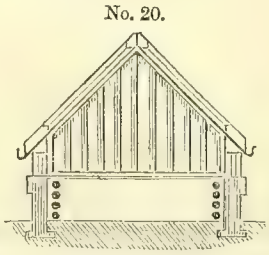
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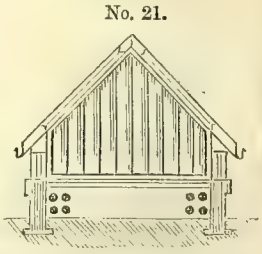
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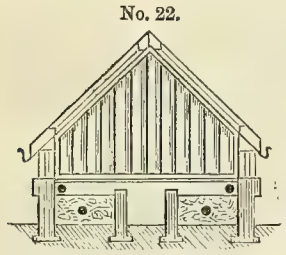
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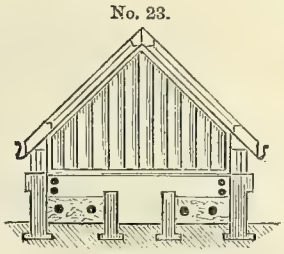
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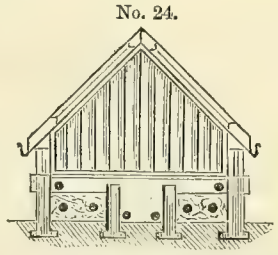
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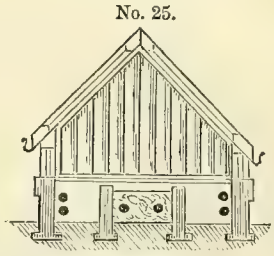
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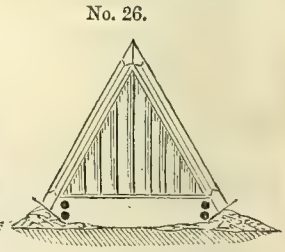
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No. 25.



Price
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No. 26.



Price
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

J. JONES will be happy to supply HOT-WATER APPARATUS for HOUSES according to any of the above Plans, delivered Free to any Station in England at the prices named, which include strong CAST-IRON CYLINDER or SADDLE BOILER, FURNACE DOORS, FIRE BARS, SOOT DOORS, CISTERN and DAMPER, 4-inch HOT-WATER PIPES and CONNECTIONS, all of the best quality; or he will forward ESTIMATES for WORK erected complete, with WROUGHT or CAST-IRON BOILER of any sort, at a small addition to the above prices.

☞ *The Black Circles on Sections of Houses show the arrangement of Pipes.*

Illustrated Catalogues and further particulars post free on application to

J. JONES, IRON MERCHANT AND HORTICULTURAL ENGINEER, 6, BANKSIDE, LONDON, S.E.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 43.—1863.] SATURDAY, OCTOBER 24. {Price Fivepence. {Stamped Edition, 6d.

INDEX.

Agriculturists' Assistant, rev.	1022 a	Japanese plant sale	1016 a
Androsace lanuginosa	1012 b	Labourers' cottages	1020 b
Books noticed	1015 a	M'Kenzie's nursery, Brighton	1015 c
Cattle profits	1020 c	Orchard-houses	1013 a—1014 c
— trade	1023 a	Potatoes	1020 c
Census of 1861	1018 b	— Paterson's	1013 b
Chillingham Castle	1015 b	— Mona's Pride	1014 c
Cotton cultivation	1012 b	Primroses	1012 b
Crow a Pine planter	1011 b	Ribbon border	1016 c
Disa grandiflora	1016 a	Rooks	1014 c
Earthquakes, Japanese	1015 c	Roses, prizes for new	1011 a
Economy of fuel	1017 a	Scolytus destructor	1014 c
Egg plant	1016 c	Seed Wheat and thin seeding	1020 c
Fish and Fishing	1013 c	Seeds, vegetation of old	1011 b
Foliage plants	1012 c	Society, Entomological	1014 c
Grapes, diseased	1014 b	Statistics, Irish agricultural	1021 c
— early	1015 c	Steam boiler explosions, prevention of	1018 b
Heating and ventilating	1014 a	Steam cultivation	1022 a
Hints about houses	1020 c	Swallows	1014 c
Hyacinths	1011 c	Tame rabbits and weeds	1020 b
Inverness-shire, harvest report of	1021 b	Things that landlords should know	1019 c
Irish agriculture	1021 c	Vine borders	1014 b
Japanese Grass	1014 c		

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AMALGAMATED METROPOLITAN CHRYSANTHEMUM SOCIETY.

NOTICE TO EXHIBITORS.

The LAST DAY for ENTRIES for the Great Show at the Agricultural Hall, NOVEMBER 3.

By Order of the Committee, J. JEFFERIES, Hon. Sec.
10, Catherine Street, Barnsbury Park, Islington, N.

Grape Vines.

WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery. PRICED LIST on application.
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WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.
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Grape Vines.

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GRAPE VINES.—Fine healthy Plants in 32-size pots, raised from the bud this year; also 2-year old Plants in large pots, including nearly all the best sorts, at 18s. per dozen. Post Office Orders payable at Loughton.
JAMES CRAWFORD, High Beech, Essex.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each.
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T. PAPE can supply PROVIDENCE and MONTSERRAT Plants, all sizes; also strong VINES for fruiting in pots or planting out.
Undercliffe Gardens, Bradford, Yorkshire.

Stanwick Nectarine.

WANTED, a large full-trained TREE of the above, for planting under glass. Any gentleman having a fine healthy tree more than he requires to dispose of, may hear of a purchaser by stating size and price to Mr. JAMES VEITCH, Royal Exotic Nursery, King's Road, Chelsea, S.W.

Very Strong Standard and Pyramid Pears and Plums.

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DOUBLE WHITE NARCISSUS, &c.
GEO. CORNWELL, Seedsman, &c., Barnet, Herts, N.

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Nurseries, Sawbridgeworth.

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RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

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Good Seeds, Carriage Free, at Market Prices.

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ROSES.—Superb Standards, 18s. per dozen. Ditto ditto Dwarfs, 12s. per dozen.
DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ROSES, Fine STANDARDS, 18s. per dozen and upwards; DWARFS, 9s. per dozen and upwards; NEW ROSES of 1863, DWARFS, 30s. to 36s. per dozen.
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ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. Those who wish for a fine display of bloom during the autumn and ensuing summer should now give their orders.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

ROSES.—A good selection of fine healthy Plants on their own bottoms, well rooted in 60-size pots, sold in collections of from 12 to 60 sorts, at the unprecedented low price of 3s. 6d. per dozen; leaving the selection to me, when nothing but good sorts will be used. The low price is caused for want of room—not that I wish to compete with Nurserymen, as my little stock will soon be gone.
JAMES CRAWFORD, High Beech, Essex.

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"Old" Cheshunt Nurseries, Herts, N.

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Nurseries, Hertford.

New Rose Catalogue for 1863-64.
New Bulb Catalogue for 1863.

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON will be happy to send copies of the above gratis and post free to all applicants.

New Pelargoniums and Cinerarias.—See J. DOBSON AND SONS' ADVERTISEMENT in last Saturday's *Gardeners' Chronicle*.
Woodlands Nursery, Isleworth, N.

Cupressus Lawsoniana.

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WILLIAM HOADE, Nurseryman, Brox, Chertsey, Surrey.

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Apply by letter, pre-paid, to Mr. H. CLEMENTS, Bradford Peverell, Dorchester, Dorset. Lowest price, cash.
N.B. Sample required.

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The Best Twelve Hyacinths Imported by

SUTTON AND SONS
for Twelve Shillings (Carriage free).
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Imported Dutch Bulbs.

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IMPORTED DUTCH BULBS.—First-class Dutch Bulbs of every description just imported.
JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

Hyacinths and other Choice Bulbs.

B. S. WILLIAMS'S DESCRIPTIVE CATALOGUE of the above post free to all applicants.
Choice HYACINTHS for Glasses or Pots, 6s., 8s., 10s., 12s. per dozen.
Paradise and Victoria Nurseries, Holloway, London, N.

Hyacinths, Tulips, Crocuses, &c.

BUTLER AND MCCULLOCH'S importation of DUTCH BULBS are unusually fine this season.
CATALOGUES Post free upon application.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

BULBS, Carriage Paid.—For COLLECTIONS of BULBS see our large advertisement in *Gardeners' Chronicle*, Sept. 19, p. 886.
For PRICED LIST of BULBS for the SPRING GARDEN, CONSERVATORY, and SITTING ROOM, see our large advertisement in *Gardeners' Chronicle*, Sept. 26, p. 914.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

Exhibition Hyacinths, Tulips, Crocus, &c.

CARRIAGE PAID.
BARR AND SUGDEN, SEED MERCHANTS and IMPORTERS of CONTINENTAL BULBS,
12, King Street, Covent Garden, W.C.

HOLLAND AND BAYLEY'S DESCRIPTIVE PRICED CATALOGUE of Carnations, Picotees, Pinks, Pansies, Phloxes, Auriculas, Polyanthuses, Azaleas, Roses, Apples, Gooseberries, Currants, &c., is now ready, and may be had on application.
Bradshaw Gardens, Chadderton, near Manchester.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz.; 20s. per 100.
Trade price on application,
Royal Nurseries, Great Yarmouth, Norfolk.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.
Dorking Nursery.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

FERN STANDS, immense quantity, filled complete, suitable for presents, 4s. 6d. each. BRITISH and FOREIGN FERNS, great variety. HYACINTHS, best named, 6s. per dozen; mixed, 20s. per 100. CROCUSES, 8s. per 1000.
R. GREEN, Bedford Conservatories, Covent Garden Market, W.C.; and 154, Kingsland Road, N.E.

ARAUCARIA IMBRICATA (from 3 to 12 feet in height). — The finest and largest Stock in Europe, unrivalled for Parks, Avenues, Lawns, &c. Also ABIES DOUGLASII, CEDRUS DEODARA, LIBANI, and a general assortment.
P.S. The present is the best time to remove them.
H. LANE & SON, Nurseries, Berkhampstead.

Laurels, and Seedling Larch.

TO BE DISPOSED OF, about Two Millions of 1-year old LARCH, extra fine, at 5l. per 100,000.
Also 100,000 of 1-year old LAURELS, from cuttings, fine (if 10,000 taken in one order, delivered in Liverpool at 7l.)
Apply to MICHAEL FAULKNER, Nurseryman, Collon, Co. Louth, Ireland.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his three new PRICE LISTS, No. 97, 98, and 99, containing the Stove, Greenhouse, and Hardy Plants (212 pages 12mo).
Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to announce that his NEW CATALOGUE, No. 73, extremely rich in Novelties, is now ready, and can be obtained free at his Agents,
Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

To Nurserymen and Florists.

NOTICE.—Any ALTERATION in the STYLE or ADDRESS of any FIRM that may have occurred since December, 1862, is requested to be sent to 162, Fleet Street, E.C., so that the necessary correction may be made in the DIRECTORY portion of The GARDENERS' YEAR BOOK, ALMANACK, and DIRECTORY for 1864, which will be published on December 1.

Now Ready,

DOBSON'S ONE GUINEA HAMPER of PELARGONIUMS.

Attraction	Lord Clyde	Queen of England
Celeste	Distinction	The Comet
Psyche	Souvenir	Bacchus
Rosalind	Victory	Lord Chancellor

Now Ready,

DOBSON'S TWO GUINEA HAMPER of PELARGONIUMS.

Queen of Whites	Startler	Stella
Landseer	Monitor	Elector
Commandant	Mdlle. Patti	Kettledrum
Review	Diadem	Sanspareil Improved

If wished, other varieties may be substituted.
Hamper and packing included in the above prices.

CATALOGUES now ready, post free, containing all the best varieties, at very moderate prices.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Prize Gladioli.

YOUELL AND CO. were awarded the following PRIZES for the above in September last:—
FIRST AND SECOND PRIZE, CRYSTAL PALACE,
FIRST PRIZE, ROYAL HORTICULTURAL SOCIETY,
FIRST PRIZE, BRIGHTON.

CATALOGUES of this collection will be forwarded on application.

Royal Nurseries, Great Yarmouth, Norfolk.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

Rhododendron Countess of Haddington.

Good plants, 21*s.* each.

Vine Tynninghame Muscat.

Good plants, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each.

ROBERT PARKER begs to announce that he is now offering for sale the above first-class Plants. Full descriptions with List of Awards received are published in his NEW CATALOGUE of PLANTS and BULBS, which will be forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

Hardy Scarlet Rhododendrons.

JOHN WATERER'S CATALOGUE of HARDY SCARLET and other CHOICE RHODODENDRONS as annually displayed in the Royal Botanic Gardens, Regent's Park, can now be had on application.

It contains faithful descriptions of all the varieties really worthy of cultivation, as well as a selection of HARDY CONIFERS, with heights and prices, with ORNAMENTAL EVERGREENS, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey.

GEO. BAKER begs to announce that his extensive Collection of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

Violets.

ROBERT SHACKELL begs to offer strong healthy plants at the following prices, basket and package free:—

	Per dozen—*s.*	*d.*
SHACKELL'S RUSSIAN SUPERB	12	0
DOUBLE PURPLE TREE VIOLET	4	0
" SPRING BLOOMING	4	0
NEAPOLITAN	4	0
DOUBLE WHITE	4	0
SINGLE WHITE RUSSIAN	4	0
OLD RUSSIAN, 10*s.* per 100 or	2	0

Violet House, 5, Broad Street, Bath.

JAS. GARAWAY AND CO.'S AUTUMN CATALOGUE for 1863, containing Priced Lists of Shrubs, Ornamental Trees, Conifers, Roses, and Fruit Trees of all descriptions, is now ready, and will be forwarded Post-free on application.

Orders exceeding 5*l.* Carriage Paid to the Irish ports in direct communication with Bristol.

JAS. GARAWAY & CO., Durdham Down Nurseries, Bristol.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Woking Nursery, Surrey.

NEW FORCING GERANIUM, MRS. LEWIS LOYD.—Rich crimson with dark maroon blotch in top petals; of dwarf robust habit, and most profuse bloomer. Forces into flower at any season without drawing. It was exhibited to the Floral Committee of the Royal Horticultural Society on March 31, and then awarded their Certificate of Commendation. Good Plants now ready, 7*s.* 6*d.* each.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

THE RED LODGE NURSERY, SOUTHAMPTON, extends over 60 acres, and contains an unrivalled stock of AMERICAN PLANTS, FRUIT, FOREST, and ORNAMENTAL TREES, EVERGREEN and FLOWERING SHRUBS, CHOICE CONIFERÆ, STANDARD and DWARF ROSES, &c., all in the best state for removal.

CATALOGUES, and every information obtainable on application to the Proprietor, Mr. W. H. ROGERS.

BARR & SUGDEN 12 KING ST COVENT GARDEN

Orders amounting to 21*s. sent Carriage Paid.*

£34 10s. Prizes for Hyacinths, Tulips, and Crocus.

The Royal Horticultural Society in MARCH, 1864, offer PRIZES to the above amount for HYACINTHS, TULIPS, and CROCUS.

For DESCRIPTIVE LIST of NEW and EXHIBITION HYACINTHS, TULIPS, and CROCUS, see BARR & SUGDEN'S "ILLUSTRATED FLORAL GUIDE," price 1*s.*

HYACINTHS.

100 in 100 exhibition varieties .. 105*s.*	100 in 100 extra fine varieties .. 84*s.*	100 very fine varieties .. .. 63*s.*
50 in 50 " " .. 50*s.*	50 in 50 " " " .. 42*s.*	50 " " " .. .. 30*s.*
25 in 25 " " .. 25*s.*	25 in 25 " " " .. 21*s.*	25 " " " .. .. 15*s.*
12 in 12 " " .. 15*s.*	12 in 12 " " " .. 12*s.*	12 " " " .. 6*s.* to 9*s.*

TULIPS.

100 in 50 exhibition varieties .. 25*s.*	100 in 30 exhibition varieties .. 17*s.* 6*d.*	25 in 25 exhibition varieties .. 5*s.* 6*d.*
100 in 40 " " .. 21*s.*	50 in 25 " " .. 10*s.* 6*d.*	12 in 12 " " .. 3*s.* 0*d.*

CROCUS.

500 in 20 exhibition varieties .. 21*s.*	250 in 20 exhibition varieties .. 10*s.* 6*d.*	100 in 20 exhibition varieties .. 4*s.* 6*d.*

COLLECTIONS of BULBS (see our Advertisement, page 886, *Gardeners' Chronicle*, Sept. 19), for the adornment of the SPRING FLOWER GARDEN, CONSERVATORY and SITTING-ROOM.

For PRICES of BULBS generally, see our Advertisement, page 958, *Gardeners' Chronicle*, Oct. 10.

For PRICED and DESCRIPTIVE LISTS of BULBS necessary for WINTER and SPRING GARDENING, with the best methods of successfully cultivating and advantageously arranging them, see BARR AND SUGDEN'S "ILLUSTRATED FLORAL GUIDE to WINTER and SPRING GARDENING."

BECK'S NEW SEEDLING PELARGONIUMS,

OFFERED FOR THE FIRST TIME.

B. S. WILLIAMS,

PARADISE AND VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Has much pleasure in stating that he has been entrusted with the distribution of BECK'S NEW PELARGONIUMS; and from the reputation the Flowers sent out yearly by this raiser have enjoyed for so long a time, B. S. W. is enabled with great confidence to bring before the public notice the forthcoming NOVELTIES, which have received Certificates of the highest merit during the past and previous seasons. They have been selected with great care, and are far in advance of any yet offered.

Strong and well-established Plants are now ready.

BECK'S NEW SHOW PELARGONIUMS.

	Each.—*s.*	*d.*
DIANA.—Good habit, abundant bloomer, constant and well shaped; maroon back petals, narrow margin of crimson, well defined; lower petals deep pink, slightly blotched. Fine for exhibition	21	0
HECTOR.—Large round flower of fine quality, good substance, and free; top petals maroon, crimson margin; lower petals warm pink, pure white eye..	21	0
PRINCESS of WALES.—Free bloomer and constant; long in the bottom petals; back petals crimson maroon, even and rich in colour; lower petals warm, salmon-veined, and slightly blotched, large distinct white eye. Very effective	21	0
PARIS.—Excellent habit, very free bloomer; top petals maroon, rosy margin; lower petals rosy pink, white eye. Fine exhibition flower	21	0
SCARLET NONPAREIL.—Constant, free bloomer, good habit and substance; high scarlet colour, with dark maroon blotch on top petals. Fine for exhibition	21	0
THE CHARMER.—A very effective and constant variety, good in quality and substance; flowers large; back petals lively maroon, shaded with a lively carmine edge; lower petals deep carmine, white eye, good shape and habit. First quality ..	21	0

The above Set for £5 5*s.*

BECK'S NEW SPOTTED PELARGONIUMS.

	s.	*d.*
DISPLAY.—Large free-blooming variety; pink, with large maroon spots. Very effective; good for exhibition ..	15	0
MAGGIE.—Top petals maroon, white margin; lower petals light pink; maroon spots; good habit, abundant bloomer. Fine exhibition flower	15	0
SPOTTED NONPAREIL.—Habit good, an abundant bloomer; top petals maroon, with pink margin; lower petals rosy pink, with large maroon spots	15	0

SHOW PELARGONIUMS.

New varieties selected from the General Collection, of sterling merit, and well worth adding to the most choice collection.

	Each.—*s.*	*d.*
AIMÉE.—This is quite new in colour; top petals nearly black, with maroon crimson edge; lower petals dark purple, painted with deep maroon. Good habit; a novelty	10	6
CYNOSURE.—Back petals a deep maroon blotch, shading off to carmine edge; lower petals warm pink even in colour, well shaped, good in substance; pure white eye	10	6
EURYDICE.—Free bloomer, in the way of Ariel; white bottom petals of good shape, very early	10	6
HEBE.—Lively, free, and constant, back petals we deep crimson, shaded into lilac edge; bottom petals clear distinct pink, edged with lilac; small white eye	10	6
PELIDES.—Good habit, large and free, constant; good shape and substance; back petals maroon, crimson margin; lower petals carmine, slightly blotched, small white eye	10	6
PRINCESS of DENMARK.—Very large truss, strong habit; upper petals maroon, with broad white margin; lower petals white; abundant bloomer, and very effective for exhibition	10	6
PRESIDENT.—Top petals dark clouded maroon, rosy lilac margin; lower petals rosy lilac; good flat sitting flower, large and free	10	6
THE MAID of HONOUR.—Lower petals lilac, purple maroon spot, lilac margin, white centre, large and fine; fine for exhibition	10	6

The Set of Eight Varieties for £3 3*s.*

NEW SHOW PELARGONIUM, QUEEN BERTHA.

B. S. W. has much pleasure in offering the above-named Pelargonium, the seedling production of Mr. G. SMITH. Having seen it in bloom during the past season, he can confidently recommend it as a valuable addition to this beautiful class of plants.

QUEEN BERTHA.—Upper petals dark maroon, lower petals mottled rose, white centre, very large flower, of fine form and substance. First-class exhibition plant .. .. 15*s.*

In connection with the above, B. S. W. begs to draw attention to his GENERAL LISTS of SHOW, FANCY, and SPOTTED PELARGONIUMS, which embrace all the known really good kinds.

A PRICED and DESCRIPTIVE CATALOGUE post free to all applicants.

A Liberal Allowance to the Trade.

THE SEMPER FIDELIS RASPBERRY.

MESSRS. JAMES SCLATER & CO.,

DEVON NURSERIES, near EXETER,

As the largest Fruit Growers in the West, can with every confidence recommend this most productive and superior Fruit. The canes from 10 to 12 feet in height, and the fruit proportionately large, of fine flavour, pleasing red colour, and very solid. The canes are of that strength and the wood of that peculiar hardness that they require no support. The most certain cropper, producing fruit in corymbs from 18 inches to 2 feet in length, from the bottom of cane to the top, fruiting in clusters from every eye, producing fruit from July to October. They have been seen by numerous first-class Horticulturists, whose testimonials can be had on application.

All Orders supplied in strict rotation at 100s. per 100 Canes, or 18s. per dozen.

Carriage paid to London, Bristol, or Plymouth.

MESSRS. HURST AND SON, SEED MERCHANTS, 6, LEADENHALL STREET,
SOLE LONDON AGENTS.

KNAP HILL NURSERY, WOKING, SURREY.

WATERER & GODFREY

INVITE ATTENTION TO THE FOLLOWING PLANTS :—

ARAUCARIA IMBRICATA, 1½ foot, 30s. per doz.; or 10l. per 100.
2 feet, 42s. per doz.; 3 feet, 60s. per doz.
4 feet, 10s. 6d. to 21s. each; 5 to 7 feet, 31s. 6d. to 63s. each; 7 to 8 feet, 84s. to 105s. each. A large number of very fine specimens, 8, 10, and 12 feet high. Prices on application.

CEDRUS DEODARA, every plant moved last February, and as handsome as can well be, 2½ to 3 feet, 30s. per doz.; 10l. per 100.
3 to 4 feet, 30s. to 42s. per doz.; 12l. 10s. per 100.
5 to 6 feet, 60s. to 84s. per doz.
7 and 8 feet, 7s. 6d. and 10s. 6d. each.
Large specimens, 10, 12, and 15 feet high.

PICEA NOBILIS, Seedlings, 3 to 5 in a pot, 9s. per doz.; 63s. per 100.
1 foot, 7s. 6d. each; 75s. per doz.
1½ feet, 10s. 6d. each; 6l. per doz.
Splendid plants, 2, 3, 4, 5, 6 and 7 feet high, from 21s. to 147s. each. We have several hundred of these large sizes; none are grafted; grafted plants are of course to be had at much lower rates.

PICEA NORDMANNIANA, (all Seedlings) 1 to 1½ feet, 10s. 6d. each; 6l. per doz.
A large number of very handsome plants, 3, 4, 5, 6, 7, 8, and 10 feet, 63s. to 210s. each.

PICEA PINSAPO, 1½ feet and as wide, 42s. per doz.
2½ to 3 feet, 10s. 6d. to 21s. each.
3½ to 5 feet, 31s. 6d. to 63s. each.
Large specimens, 6, 7, 8, and 10 feet.

ABIES MERTENSIANA or ALBERTI, 3 feet, 30s. per doz.

ABIES ORIENTALIS, very handsome seedling plants, 3, 4, 5, 6, 8, and 10 feet, 5s. to 63s. each.

CUPRESSUS LAWSONIANA, all seedlings, 1½ foot, 5l. per 100; 18s. per doz.
3 to 4 feet, 30s. and 42s. per doz.
4 to 5 feet, 5s. each.
6, 7, 9, and 10 feet, splendid plants, nothing handsomer can be desired, 10s. 6d. to 31s. 6d. each.

JUNIPERUS CHINENSIS, handsome plants, 2 to 3 feet, 30s. per doz.; 10l. per 100.
4 to 5 feet, 60s. to 84s. per doz.
6 to 7 feet, 10s. 6d. each. A large number of very fine specimens, 10, 12, and 15 feet high (all recently removed).
Irish Upright, 3 to 4 feet, 18s. to 30s. per doz.
Fine plants, 5, 6, 7 and 8 feet, 3s. 6d. to 21s. each.

YEWS, GOLDEN, many hundred fine specimens, 3, 4, 5, 6, 7 and 8 feet high.
IRISH, handsome plants, 4 to 6 feet, 2s. 6d. to 5s. each.
Do. fine, 6, 7, 8 and 10 feet.
COMMON ENGLISH, a vast number, 3, 4, 5, 6, 7, 8, 10 and 12 feet high.

THUJA AUREA, 1½ foot, and wide in proportion, 2s. 6d. each, 24s. per doz.
2, 3, 4, and 5 feet high, 7s. 6d. to 105s. each; measuring from 12 to 16 feet in circumference, perfect globes; this plant originated here, and our stock of it comprises large numbers of very much finer plants than can be found in any other Nursery.

THUJA GIGANTEA, 3, 4, 5, 6, & 7 ft. high, 7s. 6d. to 21s. each.

THUJOPSIS BOREALIS, 2 feet, 18s. per doz.
3 feet, 30s. per doz.
4, 5, 6, and 7 feet, splendid specimens, in large numbers, 5s., 7s. 6d., 10s. 6d., to 21s. each.

WELLINGTONIA GIGANTEA, stout plants, seedlings, 1 foot, 6l. per 100, 18s. per doz.
1½ to 2 feet, 30s. to 42s. per doz., 10l. to 12l. 10s. per 100.
3 feet, 10s. 6d. each, 84s. per doz.
A large number of Plants, 3½, 4, 5, 6, and 7 feet; all recently removed, 21s. to 63s. each.

GOLDEN HOLLIES.—The best variety, or "Queen;" many hundred most beautiful plants, 3, 4, and 5 feet high.

"WATERER'S" HOLLY.—This variety originated in this Nursery, and we hold a vast number of splendid plants, 3, 4, and 5 feet high, and 8 to 15 feet in circumference.

HOLLY.—Common Green, laurifolia, and Scottica, of all sizes, up to 10 feet high, and move with balls like Rhododendrons.

COMMON LAURELS.—Very bushy, healthy, and well rooted, 2, 3, 4, and 5 feet high.

All the Plants referred to in this Advertisement are handsome, well-grown, and well rooted, and any one in search of such will not regret a visit to the Nursery, where may also be seen one of the most extensive stocks of all the acknowledged hardy evergreens and deciduous plants in existence.

HARDY RHODODENDRONS.—More than 40 acres of Land may be seen covered with Rhododendrons and other American plants. We are prepared to offer them upon very advantageous terms. The sorts following are perhaps as good a selection as can be made; the plants are very healthy and bushy, 1½ to 2 feet high, many with flower buds; better cannot be desired of the size, at 30s. to 42s. per dozen, 12l. 10s. to 15l. per 100, in variety

ALARM	FASTUOSUM fl. PLENO
ATROSANGUINEUM	JOHN WATERER
ALBUM ELEGANS	LADY E. CATHCART
ARCHIMEDES	LORD JOHN RUSSELL
BLANDYANUM	MACULATUM SUPERBUM
BARCLAYANUM	MRS. WATERER
BRAYANUM	MINNIE
BYLSIANUM	NERO
CONCESSUM	REEDIANUM
CURRIEANUM	ROSEUM PICTUM
DELICATISSIMUM	SIR CHARLES NAPIER
ELFRIDA	TITIAN
EVERESTIANUM	VANDYCK
FLEUR DE MARIE	

Larger plants of these may be had at an increased price.

These next, the majority of which are raised from layers, and are as healthy and bushy as it is possible to grow them, about 1½ to 2 feet high, at 18s. per doz., 6l. 6s. per 100 :—

ALARIC	MACULATUM
ATTILA	NIGRUM
ANDERSONI	RUBRUM
AUGUSTUS	PURPUREUM
AZUREUM	MARC ANTONY
BLATTEUM	LEE'S DARK PURPLE
BICOLOR	NE PLUS ULTRA
CHANCELLOR	ORNATUM
CŒLESTINUM	PARDOLOTON
CORIACEUM	PICTUM
COLUMBUS	MULTIMACULATUM
DELICATUM	SIR ISAAC NEWTON
DESDEMONA	STANDARD of FLANDERS
GLORIOSUM	HYACINTHIFLORUM
GLENNYANUM	VICTORIA
LEOPARDI	VAN HOUTTI
LUCIDUM, or QUEEN of the WEST	VERVAENEANUM and others.
MACRANTHUM	

RHODODENDRON CATAWBIENSE, from seed, varying much in colour, nice bushy plants, 9 to 12 inches, 25s. per 100, 10l. per 1000.
Do., 1 to 1½ feet, 42s. to 63s. per 100.
Very fine plants, 2 and 3 feet and upwards.

RHODODENDRON PONTICUM, for cover, stout bushy plants, about 1 foot, at 7l. 10s. per 1000.
1 to 1½ feet, 25s. to 30s. per 100; 10l. to 12l. 10s. per 1000.
Seedling varieties of different colours (very superior in habit and foliage to the common Ponticum), about 1 foot and bushy, at 30s. per 100.

The following varieties of PONTICUM, all from layers, and very healthy and bushy, about 18 inches, at 50s. per 100 :—

ALBUM	NIVATICUM
ATROPURPUREUM	CLETHROIDES
BLANDUM	PALLIDUM
VERSICOLOR	GUTTATUM
ROSEUM	CUNNINGHAM'S WHITE,
MAGNOLIFOLIUM	&c.

DWARF RHODODENDRONS, the three best being WILSONIANUM, OVATUM, and MYRTIFOLIUM, very healthy bushy plants, 12 to 18 inches, 18s. per doz., 5l. per 100.

STANDARD RHODODENDRONS of all sizes, and nearly all the sorts; beautiful plants at reasonable rates.

AZALEAS, the very finest varieties, in capital plants, 1½ to 2 feet high, covered with buds, 18s. to 30s. per doz., 5l. to 10l. per 100.
Ordinary kinds, pink, white, yellow, and scarlet, 50s. to 75s. per 100.

ANDROMEDA FLORIBUNDA, very nice plants, healthy, bushy, and every one covered with bloom, 18 inches, 30s. per doz.

KALMIA LATIFOLIA, bushy plants and full of bloom, 12s., 18s., and 24s. per doz.

HARDY HEATHS, a selection of the most desirable kinds, including a very large quantity of the pretty E. herbacea, and plants that cannot be excelled, 6s. per dozen, 30s. to 42s. per 100 in variety.

As it not unfrequently happens that plants fall far short of the description given them, we shall be very pleased to send samples of any to intending purchasers.

A PRICED and DESCRIPTIVE CATALOGUE sent free on application.

We can now send our goods throughout in the same truck from Woking to almost every Station in the Kingdom, and when a quantity is required to be sent any distance, we should be happy to arrange for their transit to the nearest Station. The Nursery is readily reached by Train from Waterloo to Woking. Conveyances are at all times at the Station.

Paul's Nurseries, Waltham Cross, N.

ROSES.—SUPERIOR STANDARD, 18s. per doz., and upwards; Do. DWARF Do., 9s. per dozen, and upwards. All the NEW ROSES, including BEAUTY of WALTHAM, Mrs. WM. PAUL, and LORD MACAULAY (three of the best), at lowest advertised prices.

The NEW PRICED CATALOGUE is now ready, free by post.

WM. PAUL (Son and Successor to the late A. Paul), Nurseries and Seed Warehouse, Waltham Cross, N.

New Roses of 1863.

JOHN KEYNES, Castle Street Nursery, Salisbury, can supply some thousands of the above, well-established Plants in pots, comprising the very best varieties of the NEW ROSES of 1863, at 36s. per dozen. The usual discount to the Trade. To amateurs such plants are invaluable; they can be planted at once and will produce fine bloom next season, as time will be given them to draw fresh root.

CATALOGUES, with full description, containing all the leading flowers, both old and new, will be forwarded on application.

JOHN KEYNES' STANDARD and DWARF ROSES for the Autumn are in the finest condition.

The stock of ROSES of 1862, comprising Charles Lefebvre, François Lacharme, &c., both Standards and Dwarfs, cannot be surpassed. Salisbury.—Oct. 24.

Great Reduction in the Price of Roses.

NOT TO BE UNDERSOLD BY ANY RESPECTABLE HOUSE IN THE TRADE.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

Since issuing their NEW ROSE CATALOGUE for the Autumn of 1863 and the Spring of 1864,

WILLIAM WOOD AND SON have ascertained that other Houses in the Trade are offering some kinds of Roses at a lower rate than themselves, and as they are fully determined NOT TO BE UNDERSOLD by any RESPECTABLE House, they have prepared a REVISED LIST of ROSES at reduced prices, and will have much pleasure in forwarding copies of the same, Gratis and post-free, to all applicants.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

Roses.

JOHN CRANSTON offers selections of STANDARD and DWARF ROSES of very superior quality.

The robust growth and hardy constitution of the plants grown in this Nursery has long been acknowledged, and the Stock to offer this season is perhaps superior to any previous growth.

He also begs to direct attention especially to DWARF ROSES on the Manetti stock, of which he has an enormous stock.

The plants upon their own roots are also very strong and well grown

	Per dozen—s.	d.
STANDARD ROSES of all the leading varieties in cultivation	18	0
Do. Newer varieties, introduced in 1861 and 1862	24	0
DWARF ROSES, extra fine plants upon the Manetti stock .. .. 9s. to	12	0
Do., do., upon Dog-rose stock	9	0
Do. Newer Varieties, introduced in 1861 and 1862 15s. to	18	0
Do., do., of 1862 and 1863 .. ..24s. to	30	0
STANDARD and HALF-STANDARD TEA-SCENTED ROSES, all the best varieties	24	0
DWARF ROSES upon their own roots, Hybrid Perpetuals, and Bourbons .. .. 9s. to	12	0
Do., do, Tea-scented .. ..12s. to	15	0
CLIMBING ROSES	9	0
PILLAR ROSES, extra strong plants, 4 to 5 feet 12s. to	15	0
STANDARD WEEPING ROSES .. .. each 2s. to	2	6
ROSES in 8 and 9-inch pots grown especially for Forcing or Greenhouse culture, the best Hybrid Perpetuals, China, and Tea-scented varieties . .. ..24s. to	30	0

DESCRIPTIVE CATALOGUES forwarded free on application.

Nurseries, King's Acre, near Hereford.

Catalogues.

PAUL AND SON have now ready their NEW DESCRIPTIVE PRICED ROSE CATALOGUE for 1863-64.

DESCRIPTIVE CATALOGUE of HYACINTHS and other DUTCH BULBS, post free.

Also their DESCRIPTIVE CATALOGUE of EVERGREENS, DECIDUOUS TREES, CONIFERS, AMERICAN CLIMBING and HERBACEOUS PLANTS, post-free for one stamp.

"Old" Cheshunt Nurseries, N.

To the Trade.

WM. PAUL respectfully informs his friends and the Trade generally, that he has a large and superior Stock of the following. Prices very moderate, and will be given on application.

STANDARD, DWARF, and CLIMBING ROSES.
Large DECIDUOUS TREES and SHRUBS, including Planes, Elms, Poplars, Acacias, Laburnums, Thorns, &c.
WEEPING TREES, of sorts.
CLIMBING PLANTS, in pots.
EVERGREENS, of all sorts.
FRUIT TREES, of sorts: Pyramidal and Dwarf Apples and Pears, very fine.
GRAPE VINES, for Fruiting or Planting, also very fine.

PAUL'S Nurseries, Waltham Cross, N.

IMPROVEMENTS.—Gentlemen wishing to make alterations or improvements in PLEASURE GARDEN, KITCHEN GARDEN, LAWN, or PARK, would do well to consult H. LANE & SON'S

ROSE CATALOGUE,
FRUIT CATALOGUE, and
TREE and SHRUB CATALOGUE, &c.

which may be had on application at the Nurseries, Berkhamstead, Herts.

An inspection of the stock is earnestly requested.

The finest and largest quantity of ARAUCARIA IMBRICATA in Europe.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

Strawberries.

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON having an immense Stock of the following STRAWBERRIES, will be happy to supply them at the lowest possible prices.

Special offers to the Trade on application.

Adair	Elton Pine	Oscar
Alice Maud	General Havelock	Rival Queen
Boyd's Surprise	Keen's Seedling	Sanspareil
British Queen	Myatt's Surprise	Sir Charles Napier
Carolina Superba	Nimrod	Sir Harry
Eleanor	Omar Pasha	Stirling Castle Pine
	Wizard of the North.	

The Royal Hautbois Strawberry.

MESSRS. THOMAS RIVERS AND SON now offer Plants of the above. The variety was selected by them in 1861 from many hundreds of Seedlings raised from La Belle Bordelaise Strawberry, a variety of the Hautbois received from France, and has proved to be by far the largest and most prolific of the race, with the true Hautbois flavour.

Plants, 4*s.* per dozen, 30*s.* per 100. A few extra sized bearing plants, 9*s.* per dozen ; carriage paid to London.

Nurseries, Sawbridgeworth.

Vines.

JAMES CARTER AND CO. beg leave to call attention to their splendid collection of the above, consisting of several thousand CANES of the most approved varieties in cultivation. Extra strong, short-jointed, well-ripened Canes for fruiting in Pots next year ; fine strong, well-ripened Canes for planting in Vineries, and strong hardy Canes for open walls.

For prices and full descriptive list of more than 40 finest selected varieties most suitable for above purposes, see AUTUMN SUPPLEMENT to our VADE MECUM, forwarded post free on application.

Seed Merchants and Nurserymen, 237 and 238, High Holborn, London, W.C.

GRAPE VINES.—Strong well ripened Canes of the following, at 3*s.* 6*d.* to 5*s.* each :—Black Hamburgh, Grizzly Frontignan, Black Prince, Chasselas Musqué, Black St. Peter's, Black Frontignan, Cannon Hall Muscat, Précoce Malingre, White Frontignan, White Sweetwater, Muscat of Alexandria, Tokay, Golden Hamburgh, Syrian Muscat Hamburgh, Mill Hill Hamburgh, Lady Downes, Black Cluster, Esperion, Muscat Troveron, Royal Muscadine, Trentham Black, Blanc de Kentsheim, Black July, Ingram's Prolific, Buckland Sweetwater, Cavoush.

JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

Grape Vines, Late.

J. MEREDITH has some Strong VINES of the true variety of BLACK ALICANTE (which he has never occasion to set artificially) in 13 and 8-inch pots.

J. M. obtained a Prize at the Great International Show in October last, at South Kensington, for the above excellent late Grape. Splendid bunches of this valuable Grape may be seen at his Vineyard.

J. M. has also to offer some extra strong LADY DOWNES in 13 and 18-inch pots.

Prices on application to J. MEREDITH, The Vineyard, Garston, near Liverpool.

Fruit Trees.

JOHN CRANSTON offers superior, healthy grown plants of all the best varieties of FRUIT TREES, DESCRIPTIVE CATALOGUES of which will be forwarded on application.

	Each.—*s. d.*
APPLES.—Very fine Dwarf-trained	2 6
,, Pyramids	2 6
,, Standards	2*s.* to 2 6
APRICOTS.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
CHERRIES.—Dwarf-trained	3*s.* 6*d.* to 4 6
,, Pyramids	2*s.* 6*d.* to 3 6
GRAPE VINES.—Standards	2 6
,, Very fine and well-ripened	3*s.* 6*d.* to 5 0
NECTARINES.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
PEACHES.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
PEARS.—Dwarf-trained	3 6
,, Pyramids	2*s.* 6*d.* to 3 6
,, Standards	2 6
PLUMS.—Dwarf-trained	3*s.* 6*d.* to 4 6
,, Standards	2 6
WALNUTS.—Standards	2 6
,, Extra strong	3*s.* 6*d.* to 5 0

GOOSEBERRIES, CURRANTS, FIGS, RASPBERRIES, STRAWBERRIES, &c.

PEACHES, NECTARINES, and APRICOTS, established in Pots for Orchard House Culture, 5*s.* each.

ASPARAGUS, two years .. .. .. 2*s.* 6*d.* per 100
SEA KALE, ,, ... 8*s.* per 100

Nurseries, King's Acre, near Hereford.

WELLINGTONIA GIGANTEA.—The undersigned has to offer a fine stock of SEEDLING PLANTS in Pots at the following low prices :—

	Per 100.
1-year SEEDLINGS in single pots	£2 0 0
2-year ,, 8 inches	3 0 0
Ditto, in 48-pots, 1 foot	5 0 0
ARAUCARIA IMBRICATA, in pots 2 years	2 10 0
CUPRESSUS LAWSONIANA, in pots, 8 inches	0 10 0
PICEA NORDMANNIANA, 2 years .. per doz.	0 9 0

J. HENCHMAN, Edmonton, London, N.

GEO. DAVIES begs to offer to the Trade the undernamed :—

ARAUCARIA IMBRICATA, from pans, 2 to 4 inches, 20*s.* per 100 ; 4 to 5 inches, 25*s.* per 100.
ACROPHYLLUM VENOSUM, 3 to 6 inches, 36*s.* per dozen.
GENETYLLIS TULIPIFERA, 6 to 12 inches, 36*s.* per dozen.
,, HOOKERII. 6 to 12 inches, 36*s* per dozen.
RHODODENDRON RETUSUM, 6 to 12 inches, 30*s.* per doz.
,, ,, 12 to 15 inches, bushy, 36*s.* per dozen.

Reference or Remittance from unknown Correspondents.

Green Lane Nurseries, Old Swan, Liverpool.

Notice.—To the Trade.

J. TROTMAN begs to announce that in consequence of his NURSERY GROUND at Hammersmith being required for building, he has removed to Spring Grove, Isleworth, where he has succeeded in obtaining land peculiarly adapted for raising of FRUIT TREES, and where he has now a very fine stock of DWARF MAIDEN TREES of all kinds.

LIST of kinds and price on application.

N.B. Very fine COMMON LAUREL 3 to 5 feet.
Ditto PORTUGAL LAUREL, 2 to 3 feet.

Spring Grove Nursery, Isleworth, W.—Oct. 24.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable ; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength ; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c. ; and a most extensive general Nursery Stock.

For Prices and Conditions of Free Delivery see Catalogue, which will be forwarded on application.

Planting Season.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, AND PUBLIC COMPANIES ENGAGED IN PLANTING.

PROTHEROE AND MORRIS most respectfully invite the Public to inspect their VALUABLE NURSERY STOCK, extending over 30 Acres, and in the finest state of cultivation, consisting of FRUIT, FOREST, and ORNAMENTAL TREES of every description and in considerable quantities ; also a large and rich assortment of AMERICAN PLANTS, FINE EVERGREENS, all sizes, including many Magnificent Specimens which will give immediate effect, and from the adhesive nature of the soil, and being continually transplanted, incur no risk from removal.

The following include a portion of their Stock :—

These are fine bushy Plants, & well set with Bloom Buds.
30,000 Rhododendrons, Scarlet, Catawbiense, Ponticum, and others.
20,000 Ghent & other Azaleas.
4,000 Kalmia latifolia.
3,000 Andromeda floribunda.

EXTRA FINE FRUIT TREES.

3,000 Peaches, Nectarines, & Apricots, Dwarf-trained, and very handsome.
6,000 Standard Apples of the best sorts, many of which have large fruiting heads, and will come into bearing at once.

A LARGE VARIETY OF ORNAMENTAL AND FOREST TREES, including
7,000 Limes, 5 to 12 feet, Laburnums, Chesnuts, Birch, Maples, Poplars, Mountain Ash, Acacias, Thorns, &c.

30,000 Fine Standard Roses, including the newest and most approved varieties, with clean straight stems, fibrous roots, and full bushy heads.
2,000 Fine Double Camellias,
3,000 Azalea indica, best kinds, beauifully set with bloom buds.
50,000 Laurels, 1 to 10 feet.
,000 Handsome Fan Yews, 3 to 12 feet high, and 6 feet wide (Magnificent Plants.)
12,000 Bushy Aucubas, 1 to 5 feet.
Green and Variegated Hollies, Box Trees, Cedrus Deodara, Cedar of Lebanon, Pinus excelsa, Hemlock Spruce, Araucaria imbricata, Picea Pinsapo, Nordmanniana and nobilis, Cupressus Lawsoniana, Thujopsis borealis, Laurustinus, Sweet Bays, Phillyreas, Irish Yews, Privet, Arbor-vitæ, Berberis, Chinese Privet, &c.

List and Prices forwarded on application.

The Nurseries are accessible by Railway in 20 minutes from Fenchurch and Bishopsgate Street Stations, whence Trains leave twelve times daily to Leytonstone Station, which adjoins the Nurseries.

American Nurseries, Leytonstone, Essex.

HEALTHY FINE PLANTS, now ready to send out, quality first-rate.

CALCEOLARIAS.—Special attention is paid to hybridising this stock.

CINERARIAS.—Named varieties, the most select.

PRIMULA SINENSIS.—Pure white, rich crimson, mottled mauve, and new carmine, very distinct and lovely colours.

PRIMULA SINENSIS FILICIFOLIA, the two new elegant fern-leaved varieties, in white and crimson. The above Chinese Primroses are each fimbriated flowered kinds, very distinct and beautiful.

PRIMULA, DOUBLE WHITE, double purple or rose, double BLUSH WHITE fringed, also the new double RICH CRIMSON fringed ; "nivea pleno" (white), and "rubella flore pleno."

The above will be found worth the attention of cultivators, as the finest kinds for competition at the ensuing Spring Horticultural Exhibitions.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

NEW FUCHSIAS, with Blue and Mauve-coloured Corollas, 5*s.* each.—NORTHERN LIGHT and RIFLEMAN ; also EMPEROR of the FUCHSIAS, the most beautiful and elegant white corolla'd variety, with fine sweeping sepals, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each. The two former now sent out for the first time. The above post free, if preferred.

Azalea indica SOUVENIR DU PRINCE ALBERT, the most distinct and novel in colour. Good plants, 21*s.* each.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.

DAPHNE CNEORUM, very fine strong blooming plants, 9*s.* per doz., 50*s.* per 100, or 500 for 10*l.* ROSES, a splendid collection of Prize varieties : Standards, the very best, 18*s.* per doz. ; Dwarfs on Manetti Stock, these also are particularly fine, 12*s.* per doz. ; smaller, 9*s.*, all carefully named. PRIMULA SINENSIS ALBA PLENO, 12*s.* per doz. ; smaller, 9*s.* RUBRA PLENO, 18*s.* per doz. ; smaller, 12*s.* EUCHARIS AMAZONICA, strong bulbs for immediate flowering, 1*s.* 6*d.* each, or 12*s.* per doz. ; smaller, 9*s.* Its delicate snow-white flowers, 3 inches over, of delightful fragrance, together with its flowering in winter, and easy cultivation, render it quite a gem.

The above package free, and despatched with great care, upon receipt of Post Office Orders payable to

W. B. JEFFRIES, Arboretum Nurseries, Ipswich.

WILLIAM DILLISTONE begs to offer the following in Strong PLANTS for stock. He has bloomed nearly every variety that has been sent out this year, and has reserved only such in stock that are superior to older varieties, and having an immense stock, he begs to offer them at the undermentioned low prices :—

	Per doz.—*s. d.*
New Fuchsias, choice selections	6 0
,, Verbenas, ditto	4 0
,, Antirrhinums, ditto	4 0
,, Petunias, ditto	4 0
,, Pentstemons	6 0
,, Lobelias, including Paxtoniana, and five others, ditto	3 0
,, Tropæolums, including Ball of Fire, ditto	6 0
,, Veronicas, ditto	9 0
,, Gazanias, ditto	9 0
,, Lantanas, ditto	9 0
,, Chrysanthemums, do.	6 0
,, Heliotropes, ditto	6 0
,, Hollyhocks, ditto	18 0
,, Mimulus (maculosus), Bull's, ditto	4 0
,, Do., Henderson's, do.	4 0
,, Pansy, Good Gracious	9 0

	Per doz.—*s. d.*
New Ageratum, Prince Alfred	6 0
,, Pampas Grass, Gyneriun argenteum roseum	9 0
,, Geraniums, choice selection, from	9 0
,, Roses, ditto 24*s.* to	36 0
,, Lonicera aureo-reticulata .. 6*s.*, 9*s.*, and	12 0
,, Echeveria metallica each	2 6
,, Solanum capsicastrum fol. variegatum each	1*s.* 9 0
,, Perpetual Flowering Pink per pair, 1*s.* 6*d.*	12 0
,, Phlox, Mrs. Mitchell each	1 0
,, Strawberry, the Tietjen	4 0
,, Strawberry, Princess of Wales	12 0

Also the following, in Strong Plants :—

	Per doz.—*s. d.*
Hepaticas, sorts	3*s.* to 4 0
Primroses	4*s.* to 9 0
Polyanthus, choice mixed	3 0
Auriculas, border var.	3 0
Lilies of the Valley	2 0
Lavender	3 0
Pinks, finest named	3 6
Rockets, Double White and Yellow	4 0
Violets, Double White, Purple and Russian	3 0
Œnothera missouriensis	4 0
,, taraxacifolia	4 0

	Per doz.—*s. d.*
Œnothera splendens	4 0
Dielytra spectabilis	4 0
Phlox, fine named	4 0
Rock Cistus, in 20 vars., named, the collection	6 0
Hollyhocks, fine named	6 0
,, seedlings, from	3 0
Centaurea candidissima	9 0
Gnaphalium lanatum	4 0
Pansies, fine named	3 0
Roses, fine named 9*s.* to	12 0
Roses, fine named, on Manetti	9*s.* to 12 0

100 CHOICE HARDY HERBACEOUS PLANTS, in 50 varieties, carefully named and packed for 20*s.* Carriage paid.

A DESCRIPTIVE CATALOGUE of the New Plants free for one stamp.

Carriage of Parcels amounting to 20*s.* paid to London or any Station within 50 miles. Post Office Orders payable on Castle Hedingham, to

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

W. VIRGO AND SON have a very large Stock of the following to offer for Sale at very moderate prices :—

Apples, standard	Hazel, 1 year seedling
Ditto, espalier	Laburnum, 6 to 8 ft.
Beech (Common), 3, 4, to 6 ft.	Laurel, Common, 2 to 3 ft.
Berberis aquifolia, 12 to 18 in.	Ditto, Portugal, 1 to 2 ft.
Ditto dulcis, 1, 2, to 3 ft.	Mountain Ash, 6 to 9 ft.
Briar (Sweet), 2 to 3 ft.	Oak, English, 3, 4, to 5 ft.
Cherries, espalier	Ditto, 2 years seedling
Ditto, standard	Ditto, Turkey, 3 to 4 ft.
Cotoneaster myerophylla, 9 to 12 in.	Poplars of various kinds, 4 to 6 ft.
Holly, Green, 9 to 12 in.	Privet, 2 to 3 ft.
	Sycamore, 3, 4, 5, to 6 ft.

All the above are strong, healthy, and well rooted.

Samples with prices can be had on application at the Nursery, Wonersh, near Guildford, Surrey.

TO BE SOLD, by PRIVATE TREATY, 16 fine SPECIMEN AZALEAS of the following varieties :—

Ardens, 4 ft. by 2 ft. 9 in.	Gledstanesii, 3 ft. 6 in. by 3 ft.
Beauty of Europe, 3 ft. 6 in. by 3 ft.	Iveryana, 4 ft. 6 in. by 3 ft.
Criterion, 3 ft. 6 in. by 2 ft. 6 in.	Ditto 3 ft. 6 in. by 3 ft.
Delicata, 5 ft. by 3 ft. 6 in.	Optima, 4 ft. by 3 ft.
Eulalie Van Geert, 5 ft. by 3 ft. 6 in.	Perryana, 5 ft. by 3 ft.
Eulalie Van Geert, 4 ft. 6 in. by 3 ft.	Variegata, 5 ft. by 3 ft.
Empress Eugenie, 4 ft. by 3 ft.	Ditto 4 ft. by 3 ft.
	Vesta, 3 ft. 6 in. by 3 ft.
	Union, Gledstanesii, Lateritia, and Variegata, 5 ft. by 4 ft.

The property of an Amateur, who has not sufficient room to continue their further cultivation. They have been exhibited, and gained First Prizes at one of the best Provincial Shows in this country. The plants are all young and vigorous, and finely furnished.

May be seen, and prices obtained, on application to Mr. D. DAVIS, Nurseryman, The Kensington Nurseries, London Road, Bath.

ESTABLISHED UPWARDS OF A CENTURY.

BUTLER & McCULLOCH,

COVENT GARDEN MARKET, LONDON, W.C.

All Orders amounting to 21*s. sent Carriage Paid.*

COLLECTIONS of BULBS for FLOWER GARDEN.

Purchasers who may not require all the sorts mentioned, can have increased quantities of other kinds, or if they think proper, may select from the Catalogue to the amount. The numbers in the columns indicate the quantity of Bulbs in each Collection.

(B.)	No. 6. £5.	No. 7. £2 10s.	No. 8. £1 5s.	No. 9. £1 1s.	No. 10. 10s. 6d.
HYACINTHS, finest mixed, colours separate	100	50	25	25	12
NARCISSUS POLYANTHUS, mixed	50	25	12	12	6
TULIPS, splendid mixed	200	50	25	25	20
,, DUC VAN THOL	100	50	25	..	..
CROCUS in separate colours	500	250	125	100	100
ANEMONES, double, extra fine mixed	150	75	36	25	..
,, ,, single, ,, ,,	150	75	36	25	20
RANUNCULUS, Turban, in separate colours	300	150	75	50	20
CROWN IMPERIALS, mixed	12	6	3	..	..
LILIUMS, separate colours	25	12	6	6	3
IRIS, English, splendid mixed	100	50	25	25	12
,, Spanish ,, ,,	100	50	25	25	12
NARCISSUS, GARDEN	100	50	25	25	12
SNOWDROPS	300	150	75	75	50
DOG'S TOOTH VIOLETS	100	50	25	..	..

Deutzia crenata fl. pleno—Japan.

JOHN STANDISH has now the pleasure of submitting to the consideration of his friends and the public the above truly valuable and hardy ornamental plant. It has received First-class Certificates both at the Royal Horticultural and Royal Botanic Shows in June and July last (*vide* Report).

"There were a few very interesting new hardy plants shown, first a Deutzia crenata flore pleno, one of Fortune's novelties, flowered by Mr. Standish. This looked like a fine addition to hardy shrubs; it has opposite shortly stalked finely serrated leaves, and copious terminal racemes of deflexed double flowers deeply tinged externally with rose."

Plants now ready, 10*s.* 6*d.* each; or 6 Plants for 42*s.*

Royal Nursery, Ascot, Berks.

To Landowners, &c., Planting.

600,000 EXTRA STRONG LARCH.—Smaller sizes in abundance, all from native Seed. Hardy and well grown General FOREST STOCK. Our various Nurseries in Cumberland and Westmoreland supply extensive Planters annually. Prices and every information on application.

JOSEPH TREMBLE & SONS, Penrith.

E. R. GREENUS, RAILWAY NURSERIES, Watford and Rickmansworth, has to offer this season a fine healthy Stock of FRUIT and FOREST TREES, FLOWERING SHRUBS and EVERGREENS, CONIFERS, STANDARD and DWARF ROSES, CLIMBERS, &c., all of which will remove with the greatest safety; and from E. R. G.'s proximity to the London and North-Western Railway he can execute orders with promptitude and despatch to any part of the kingdom, or Continent.

CATALOGUES forwarded on application.

P.S. A very large Stock of IRISH IVIES, large, in pots, and CLIMBING ROSES; also VARIEGATED and GREEN BOX ½ to 2 feet.

PINUS LARICIO.—To gentlemen planting out largely for profit, WILLIAM BARRON begs to make a special offer of his fine and well-rooted stock of the above. This fine Pine supersedes the Larch for Forest-planting, producing timber much sooner for Railway Sleepers. It is also used for Spars and Masts in the French Navy.

2-years' Seedlings, strong plants	per 1000	15*s.*	0*d.*
2-years' transplanted, 9 to 18 inches ..	,,	30	0
2 to 3 feet	,,	70	0

Elvaston Nurseries, near Derby.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified in the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6*l.* per Ton, or 8*s.* per cwt.; and to prevent disappointment orders for present or spring delivery should now be sent to Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts. Sacks, 2*s.* each.

CHRISTMAS QUINCEY, SEEDSMAN, &c., Peterborough, has to offer to the Trade or others, DAINTREE'S SEEDLING POTATO by the cwt. or ton, MYATT'S PROLIFIC do., ASH-TOP KIDNEY, do., WEBB'S IMPERIAL do., DALMAHOYS, FORTY-FOLDS, YELLOW GLOBE MANGEL WURZEL, RED GLOBE do., ENGLEFIELD YELLOW do., ALTRINGHAM CARROT, HALLETT'S PEDIGREE WHEAT, 7*s.* per bushel (63 lbs.), 50*s.* per quarter, 5 quarters, 48*s.* New sacks, 1*s.* 10*d.* each.

Remittances to accompany orders.

Seed Potatoes.

H. AND F. SHARPE are now prepared to make special offers to the Trade of the following varieties of SEED POTATOES, which have been harvested in fine condition, and free from disease. They comprise all the sorts worthy of cultivation, and have been grown with much care from the finest selected stocks. As the yield this season is very fine, the prices will be moderately low, and may be had on application.

Improved Ash-leaved Kidney	Early Fox's Seedling
Jackson's do. do.	Early Round Frame
Walnut-leaved do.	Early Martin's Globe
MYATT'S PROLIFIC do. (very productive)	Early Golden Globe
	Early King (for forcing)
Fluke Kidney	Early British Queen
Lapstone do.	Early Cockney
EARLY DALMAHOY	Early Forty-fold
Early Oxford	Early Snowball

Seed Growing Establishment, Wisbech.

Mona's Prides.

MR. R. W. O. RUTLEDGE, of Hague House, Isle of Man, begs to say he is prepared to dispose of a quantity of the above, Extra Seed, in the finest possible condition. MONA'S PRIDE is now universally admitted to stand alone as First Early Kidney, as well as one of the most prolific and best flavoured Potatos in culture, having been already tested in the north as well as the south of England; in fact it is said by one of the first Amateur Judges to be a "Risen the Potato line," already obtaining prizes in Dublin, Warrington, Silver Medal in Birkenhead, and First Prize at Kildare shows. A peculiar merit in this fine Potato is that it crops abundantly in the field, and insures its valuable production by being ripe before disease sets in. Should references be required, the very highest shall be given. A note addressed to Mr. R. will meet with strict attention.

N.B. There are already many varieties selling for this peculiar seed.

THE EARLIEST PEA KNOWN is CARPENTER'S EXPRESS (pods larger than any other early Pea).

Among *numerous* Testimonials the following has been received:—

From Mr. JONES, *Gardener to Lord Leconfield, Petworth, Sussex.*
June 3, 1863.

"I beg to say I have found Carpenter's Express Pea to answer well as an early one; it was sown on the 20th of November, on a south border, and I gathered the first dish on the 7th of May. I had Daniel O'Rourke and your Pea side by side in November, 1861, and gathered First from Carpenter's Express in May, 1862, which led me to grow it as my earliest this year."

New Seed to be had only of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Establishment, 96, St. James's Street, Brighton. Price 2*s.* 6*d.* per quart.

Early Orders are solicited, which will be executed strictly in priority.

SEED WHEATS from the Chiltern Hills.—Essex Rough Chaff, 56*s.*; Trump, 56*s.*; Shirreff's Red, 54*s.*; and Hallett's Pedigree, 52*s.* per quarter; including new Stout Sacks and delivery to Henley Station. On quantities of 4 quarters and upwards a reduction of 4*s.* per quarter will be made. A remittance or reference required.

Mr. R. C. M. YOUNG has disposed of his Stock of the Burghfield Early White Wheat.

Hambleden, Henley-on-Thames, Oct. 24.

SPECIAL OFFER of SHRUBS and TREES.—The Subscriber having an abundant Stock of the following, he is prepared to offer same much below the usual rates. The undernoted is well worthy the attention of the Trade and parties about to plant, the Subscriber's Nursery having been for the past 50 years famed for producing particularly fine rooted plants. Prices per 100 and 1000 on application.

AUCUBA JAPONICA, 12-inch; APPLE STOCKS, 1-year do. 2 feet, Transplanted; ARBORVITÆ, AMERICAN, 1-year laid, 6 to 12-inch; AZALEA PONTICA, 12-inch; BARBERRY, COMMON, 12-inch; BIRD CHERRY, 2 to 3 feet; BIRCH, Transplanted, very scarce, 1½ feet; RED CEDARS, 9-inch; CUPRESSUS MACNABIANA, 2 feet; CUPRESSUS THUJOIDES, 6-inch; EUGENIA UGNI; 3-year SEEDLING SILVER FIR; 2-year SEEDLING HAZEL; GREEN HOLLIES; 1-foot LAUREL, COMMON; 1 to 3-feet PEAR STOCKS; 1-year SEEDLING, and 2½-feet Transplanted PINUS CEMBRA, 3-feet, very fine specimens; PINUS AUSTRIACA, 1 to 2-feet; QUINCE STOCKS, 2 feet, very fine stems.

ROBERT T. MACKINTOSH, Nurseryman and Seedsman, 12, Melbourne Place, George IVth Bridge, Edinburgh.

Nursery, Leith Walk.

Wellingtonia gigantea, and Cupressus Lawsoniana.

TO BE SOLD, Cheap, a quantity of WELLINGTONIAS, 1—2 feet, and splendid Specimen CUPRESSUS LAWSONIANA, 6 feet, will remove with large balls; and well worth attention where immediate effect is required, having been well grown.

Apply to F. G. GODWIN, Seedsman, &c., 3, Norfolk Market Hall, Sheffield.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.*; 4 cwt. put on the Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

N.B. Loaded Trucks can be sent on all the principal Railways.

W. SHORT, Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

Horticultural Agent and Valuer.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS) continues to undertake all kinds of VALUATIONS connected with Horticulture.

1, Devonshire Terrace, Fulham Road, S.W.



Magnified Aphis.

NEAL'S PLANT SOAP and APHIS PASTILS,

1*s.* and 2*s.* per packet,

may be obtained from all respectable Seedsmen.

Testimonials forwarded on application to the Patentee,

J. NEAL,

Edward Street, Birmingham.

Winter Dress all Fruit Trees with GISHURST COMPOUND.



Red Spider Magnified.

Copy of a Letter from Mr. RIVERS.

"Nurseries, Sawbridgeworth, Herts, Oct. 22, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."

For Orchard-house Trees 4 ounces to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), Belmont Vauxhall, London, S.

All good Cooks and careful Housewives use

SYMINGTON'S PATENT PREPARED PEA FLOUR, which is easy of digestion, perfectly wholesome, requires no boiling, rapidly makes a Tureen of rich Soup, and never causes unpleasant feelings after eating.

In Packets, 1*d.*, 2*d.*, and 4*d.*; and Tins, 1*s.*, 1*s.* 6*d.*, and 3*s.* each.

GROATS and BARLEY prepared by the same process, in Tins 6*d.* and 1*s.* each.

SCOTCH OATMEAL for Porridge and Oat Cake, in Packets, 1*d.*, 2*d.*, 4*d.*; 28 lb. Tins and Barrels.

Patentees and Manufacturers: W. SYMINGTON & Co., Bowden Steam Mills, Market Harborough. Sold everywhere.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address 89, Seed Market, Mark Lane; or Basingstoke.

Samples and prices on application.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

LAWES'S WHEAT MANURE for AUTUMN SOWING.

A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8*l.* per ton.

2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

SUPERPHOSPHATE of LIME	£6 6
MINERAL SUPERPHOSPHATE	5 5

Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

Autumn Sowing.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),

Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.

Chairman.—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.

Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex.

ODAMS'S BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, has been in use for upwards of 11 years, and has given great satisfaction to consumers.

Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.

Offices: 109, Fenchurch Street, London, E.C.

Price 7*l.* 10*s.* per Ton, delivered at any Railway or Wharf in London.

Utility and Ornament Combined.

HYACINTH GLASSES SUPERSEDED BY HOOPER'S NEW REGISTERED ETRUSCAN HYACINTH and CUT FLOWER VASE.

Perfectly novel and beautiful Table Ornaments; superior to Glasses for the growth of Bulbs, and equally adapted for holding Cut Flowers in summer.

Of refined and highly classical beauty, they recommend themselves at once to all persons of taste, being in short all that could be desired in an expensive ornament, brought to an inexpensive price. Price 2*s.* and 3*s.* each; Triples, 9*s.* each; to be obtained of the principal Seedsmen and Nurserymen in the Kingdom; and Wholesale and Retail of

HOOPER & Co., Covent Garden Market, London, W.C.

TREE and PLANT LABELS.—10,000 CLOTH or PATENT PARCHMENT PUNCHED LABELS for 30*s.* Delivered free in London on receipt of a Post-office Order or Stamps for the amount. Address JOHN FISHER & Co., West Road Works, Boston, Lincolnshire.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS and MACHINES of every description.

Illustrated Catalogues on application.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

AGRICULTURAL IMPLEMENTS.—STEAM ENGINES, THRESHING MACHINES, CARTS, WAGGONS, PLOUGHS, HARROWS, TURNIP CUTTERS, CHAFF CUTTERS for hand and power, LAWN MOWERS, PRIZE CHURNS, CASK STANDS, WIRE NETTING, and GARDEN TOOLS.

Illustrated Catalogues on receipt of 6 stamps. Price Lists free.

BURGESS & KEY, 95, Newgate Street, E.C.

Works, Brentwood, Essex.

Gutta Percha Tubing for Watering Gardens.

THE GUTTA PERCHA COMPANY have the pleasure to acknowledge the receipt of the following

Testimonial from Mr. J. FARRAH, *Gr. to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*

"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."

Manufactured by the GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C., and sold by their Wholesale Dealers in town and country.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the COLD WINDS & MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1*s.* 8*d.* per yard run.
Four yards wide	3*s.* 4*d.* per yard.
An improved make, 2 yards wide,	1*s.* 9*d.* per yard.
An improved make, 3 yards wide,	2*s.* 8*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

Sutton's Unrivalled Collections of Bulbs.

SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.

SUTTON'S GUINEA COLLECTION for BEDS and BORDERS.

For particulars see SUTTON'S AUTUMN CATALOGUE, which may be had Gratis and Post free.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.



HYACINTHS for EXHIBITION
FRESH IMPORTED BULBS.
SUTTON'S SELECTION.

	Per 100.	Dozen.
Finest sorts by name	£1 4s.	12s.
Very fine ditto	3 10	9
Good ditto	2 10	6

Good Hyacinths for Beds, Ribands, &c. in separate colours (fresh imported), 21s. per 100.

Anemones, Crocuses, Tulips, Gladioli, &c., also very low in prices, as per CATALOGUE, which may be had gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

£34 10s. Prizes.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.

The Royal Horticultural Society in March, 1864, offer Prizes to the amount of 34*l.* 10*s.* for HYACINTHS, TULIPS, and CROCUS.

See BARR & SUGDEN'S enumerated varieties of Exhibition HYACINTHS, TULIPS, and CROCUS; also their Advertisement, page 985.

DUTCH HYACINTHS, TULIPS, &c.

12 FINE NAMED HYACINTHS	6*s.*	0*d.*
12 CHOICER Ditto	8	0
12 CHOICEST IMPORTED Ditto	10	6
100 BORDER (Separate Colours) Ditto	21	0
1 Doz. TOURNESOL TULIPS, 1*s.*	100 7	0
1 Doz. REX RUBRORUM Ditto, 1*s.*	100 7	0
100 DOUBLE VAN THOL Ditto	3	6
100 SINGLE VAN THOL Ditto	4	6
100 LARGE BLUE CROCUS, 1*s.* 6*d.*	1000 12	6
100 LARGE YELLOW Ditto, 1*s.* 6*d.*	1000 12	6

All the above are the finest imported. For other BULBS see LIST, post free.

CHARLES SOUTHBY, Seedsman, Clapham, London, S.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON'S first importation of the above has arrived, and from the extraordinary heavy weight of the Bulbs they promise a fine bloom. Early orders are earnestly solicited. DESCRIPTIVE PRICED CATALOGUES free.

N.B.—17 FIRST PRIZES were awarded to WM. C. & SON last spring for HYACINTHS, TULIPS, and CROCUSES. In addition to this, EVERY FIRST PRIZE at the London Exhibitions to Amateurs was for Bulbs supplied by them.

The ONLY address is Highgate Nurseries, London, N.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his New CATALOGUE, containing Select, Descriptive, and Priced Lists of Exotic Orchids, New and Rare Greenhouse, Hardy, and Stove Plants, Ornamental and Variegated foliaged Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, Narcissus, and other Bulbs, is now published and will be forwarded to all applicants.

Exotic Nursery, Tooting, Surrey, S.

30,000 Hyacinths, 30,000 Tulips, 10,000 Narcissus, and 100,000 Crocus in varieties.

J. H. BIRD, F.R.H.S., NURSERYMAN, Stoke Newington, the largest Grower of the above in England. J. H. B. has again purchased, for ready money, in Holland, in addition to his usual large Stock, the above surplus Stocks of some very large growers, which he now offers at unheard of low prices. The following Roots for 1*l.*:—50 Hyacinths in 25 splendid sorts; 150 Early Tulips, sorts; 200 Crocuses, mixed; 50 Snowdrops, and 12 very large noble Narcissuses. Half the above quantity for 10*s.* 6*d.*

HYACINTHS, in 10, 20, 30, 40, or 50 splendid varieties, at One Guinea per 100. Less by the 1000.

LILIUM LANCIFOLIUM RUBRUM (true), large roots, 1*s.* each, 10*s.* per dozen, 3*l.* 5*s.* per 100, or 30*l.* per 1000.

N.B. To save trouble all Orders to be prepaid.

E. G. HENDERSON AND SON'S DESCRIPTIVE LIST of BULBS as a Guide for the Amateur's selection is now published, and will be forwarded post free on application.

GUERNSEY and BELLA DONNA LILIES, 5*s.* per doz.
HYACINTHS, choice by name, 6*s.*, 8*s.* and 9*s.* per doz.
Do., MIXED in colours, 3*s.* per doz.
Do., BEDDING VARIETIES, in kinds, each colour, 4*s.* per doz.
Do., MINIATURE FLOWERED VARIETIES, 3*s.* per doz.
TULIPS for Forcing, 6*d.* to 1*s.* per doz.
Do. EARLY SINGLE, and DOUBLE MIXED, 5*s.* and 6*s.* per 100.
Do., LATE, show varieties, mixed, 1*s.* per doz.
SNOWDROPS, single and double, 2*s.* per 100.
WINTER ACONITES, 2*s.* 6*d.* per 100.
CROCUS, in sorts, 1*s.* 6*d.* and 2*s.* per 100.
SCILLA SIBIRICA, 7*s.* 6*d.* per 100.
ANEMONES, 3*s.* 6*d.* and 5*s.* 6*d.* per 100.
RANUNCULUS, 3*s.* to 5*s.* per 100.
AMARYLLIS, by name, 3*s.* 6*d.* each,
GLOXINIAS, by name, 9*s.* and 12*s.* per doz.
ACHIMENES by name, 2*s.* 6*d.* and 3*s.* per doz.
GLADIOLUS BRENCHLEYENSIS, 3*s.* per doz., 20*s.* per 100.
" GANDAVENSIS, the finest collection offered in England.
CYCLAMEN, a choice collection of 30 varieties by name.
OXALIS, by name, 40 varieties offered.
IXIAS, mixed, 1*s.* per dozen; 40 varieties in collection offered, the inferior kinds discarded.
BABIANA, SPARAXIS, and TRITONIAS, each 1*s.* 6*d.* per dozen.
LILIES, 60 fine varieties offered.
TRITOMA UVARIA, 12*s.* per doz.
TRITONIA (CROCOSMA) AUREA, 3*s.* per doz.
EARLY SPRING-FLOWERING PLANTS, in various colours, as HEPATICAS, DOUBLE PRIMROSES, VIOLETS, CHRISTMAS ROSE, and 60 other early-flowering perennials.
Strong Clumps of NEAPOLITAN and other VIOLETS in pots for winter blooming.
Do. LILY of the VALLEY.

Wellington Nursery, St. John's Wood, London, N.W.

PAUL'S NURSERIES, WALTHAM CROSS, N.

ALL THE FIRST PRIZES

OFFERED TO NURSERYMEN FOR HYACINTHS

BY THE ROYAL HORTICULTURAL SOCIETY IN MARCH LAST,

WERE AWARDED TO WILLIAM PAUL.

WILLIAM PAUL

Has now much pleasure in offering the following, of first-rate quality:—

HYACINTHS, the finest SINGLE and DOUBLE, for Show or Decorative purposes, 9*s.* to 15*s.* per doz.; 60*s.* to 100*s.* per 100.

HYACINTHS, SINGLE and DOUBLE, good sorts for early Forcing, 6*s.* to 8*s.* per doz.; 50*s.* per 100.

HYACINTHS, SINGLE or DOUBLE, in separate distinct colours for Beds or Borders, 3*s.* per doz.; 21*s.* per 100.

POLYANTHUS NARCISSUS, best sorts, 3*s.* to 4*s.* per doz.

TULIPS, EARLY SINGLE and DOUBLE, for Pots or Massing, the finest and most distinct sorts, 9*d.* to 3*s.* per doz.; 5*s.* to 12*s.* per 100.

CROCUS, in 20 best selected sorts, 2*s.* to 5*s.* per 100.

JONQUILS, LARGEST DOUBLE, sweet-scented, 2*s.* 6*d.* per doz.

ANEMONES, RANUNCULUS, GLADIOLI, &c.

PRICED DESCRIPTIVE CATALOGUE, Free by Post.

LILIUM AURATUM.

MR. JAMES VEITCH

Has much pleasure in again directing public notice to this truly magnificent NEW JAPANESE LILY, which is undoubtedly one of the very finest Plants of recent introduction.

Having been already so often described, further remarks are unnecessary.

Plants continue to BLOOM, and J. V. will be happy to show them to any one who may favour him with a visit.

Good Bulbs, varying in size, can be supplied at the undermentioned prices:—

Small sized Bulbs	21s.	each.
Second size ,, ...	42s.	,,
Strong ,, ...	63s.	,,
A few extra strong Bulbs ...	105s.	,,

All these, with ordinary treatment, will certainly bloom next season.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

NEW AZALEA INDICA.

MR. JAMES VEITCH

Begs to call attention to the Three undermentioned splendid NEW AZALEAS, which he can confidently recommend as being distinct and valuable acquisitions.

They were selected from among many others as being the three best varieties exhibited at the GREAT QUINQUENNIAL EXHIBITION of BELGIUM, held at GHENT in 1862, and the two first named were there awarded the First and Second Prizes respectively.

AZALEA INDICA IMPERIALIS.

A bright rosy scarlet flower, of immense size, superior texture, and perfect form. It is very vigorous n habit, and possesses the double advantage of being a free and very late bloomer. Whether regarded as a variety suitable for exhibition purposes, or for general decoration, this is undoubtedly one of the finest Azaleas ever offered. This had the FIRST PRIZE at Ghent. Price 31*s.* 6*d.* each.

AZALEA INDICA LE LION DE FLANDRES.

A large finely-formed flower, of salmon-red colour, distinctly marked with dark spots on the upper petals. It is a most abundant bloomer, of a very robust and compact habit, and a fine variety for exhibition. This had the SECOND PRIZE at Ghent. Price 21*s.* each.

AZALEA INDICA VIRGINALIS.

A pure crystal white flower, of excellent form and substance, and most effectively crisped round the edge. It is of free and robust habit, and can be recommended as being a desirable acquisition to the class of White Azaleas. Price 21*s.* each.

Or the Set of Three Plants for 63s.

Fine Plants of the above are now ready for Sale.

THE ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

New Azaleas.



AZALEA (INDICA) QUEEN of BEAUTIES.—Mr. William Bull begs to announce that he has purchased from M. Ambroise Verschaffelt the sole right of supplying this exquisite variety in the United Kingdom.

Description.—Salmon pink margined with white, and flaked with carmine, densely and very richly spotted with crimson; flowers large, of good shape and substance; one of the best Azaleas ever offered. Price 21*s.* each.

AZALEA (INDICA) WAXWORK.—Unusually thick wax-like petals; flowers immensely large and finely formed; pure white striped and flaked with purple, a most desirable variety, there being only one or two kinds of white striped with purple (and these not to be compared to the one now offered), while there are several whites striped with red. Price 21*s.* each.

AZALEA (INDICA) WILLIAM BULL.—This variety was raised in Belgium, and named by M. Ambroise Verschaffelt, from whom the stock for circulation in the United Kingdom was purchased. The flowers individually are of unusual size and substance, double, and well formed; colour, crimson and violet. Price 15*s.* each.

AZALEA (INDICA) BELLE GANTOISE, 7*s.* 6*d.*
HORTENSE VERVAENE, 7*s.* 6*d.*
MADAME AMBROISE VERSCHAFFELT, 7*s.* 6*d.*
MADAME WAGNER, 15*s.*
PRESIDENT HUMANN, 21*s.*
REINE DES DOUBLES fol. VARIEGATA, 7*s.* 6*d.*
SOUVENIR DU PRINCE ALBERT, 21*s.*
SECRETAIRE CLAUS, 10*s.*
VICOMTE DE FORCEVILLE, 15*s.*

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE is HEREBY GIVEN that an ELECTION of THREE PENSIONERS on the Funds of this Institution will take place in JANUARY NEXT. All persons desirous of becoming Candidates are requested to send in their applications to the Committee on or before the 12th November next, after which time they will not be received.

Preference will be given to those Candidates who may have been Subscribers to the Society for 15 years and upwards. Should it happen that there are not sufficient Applicants of that class, then the Claims of those who have not subscribed so long or not at all, will be considered.

Application to be made upon printed forms, which may be had upon applying to the Secretary.

By Order, Edward R. Cutler, Secretary.

14, Tavistock Row, W.C.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 24, 1863.

We have already (p. 699) intimated our intention to offer annually, for the next five years, a prize of 5*l.* for the best seedling Rose of English birth. The productions of the last two or three years show that the development of a breed of English Roses of high quality is a task which may be accomplished; though the results already obtained can be regarded only as an earnest of the success which a well-directed and sustained effort may be expected to realise. It gives us no small pleasure, therefore, to have an opportunity to apply the gentle stimulant just referred to in order to bring out, if it be possible, some of the grand floral creations in the shape of Roses which as yet lie hidden in the future.

Before finally determining the conditions to be attached to the prizes in question, we have endeavoured to ascertain the views of our leading Rosarians as to the qualities most to be desired in a new English Rose, that is to say, what kind of Rose is most wanted; and we have in this way profited by many judicious suggestions. We confess however that we hardly share with one of our correspondents his scarcely suppressed doubts as to the 'vitality' of English-raised varieties, by which we understand him to mean their capability of endurance. We should indeed speculate in the opposite direction were we to speculate at all, for it is only reasonable to infer that its native air would prove more congenial to a Rose of English origin than would the same atmospheric conditions to a child of the sunny south; but setting speculation aside, there is nothing in the bold and vigorous character of such Roses as Beauty of Waltham and Princess of Wales, at all suggestive of their soon becoming used up, but on the contrary they appear to have as thoroughly robust and sturdy a constitution as could be desired. This vigour of constitution is no doubt an essential in a good Rose, for, as another correspondent observes, unless the habit be robust and an abundance of flowers be produced, both qualities being combined, a Rose is comparatively worthless.

It was at first intended to confine the prizes to Hybrid Perpetuals and Bourbons, but it is suggested by correspondents whose opinion is entitled to very much weight, that Teas and Noisettes should be included; others would leave the prizes open to all classes, while others again would prefer to confine them to Hybrid Perpetuals. One objection taken to the Bourbons is that they are a scentless race; indeed it is urged that if the latter are allowed to compete at all, scent should be insisted on. As a medium course between these conflicting opinions, we propose to leave the prizes open to be competed for by all comers, of whatever class of Rose, the preference, however, to be given to the Hybrid Perpetual and Tea-scented varieties.

That the Rose which receives any one of these prizes should be absolutely an English Rose, is of the very essence of our intention, and of the terms upon which the prize is offered; but the question of what is to constitute an English Rose has been raised, and it has been asked, (1.) Is the importation of foreign seed to be allowed? (2.) Would a Rose produced from seed saved abroad and sown here be considered an English Rose? To both these questions the answer is an emphatic "No." The Rose is to be one raised from home produced, *i. e.*, English seeds: it is to be essentially and absolutely British in its origin.

The majority of our advisers say that a pure white H. P., or a very dark H. P. of full size, and of perfect form, would either of them be valuable acquisitions, and more desirable in fact than the paler rosy tints, or the highly-coloured crimsons. What is meant by perfect form is either the globular or the cupped outline, that is to say, depth of flower, which must be combined with smooth thick petals; for without these no flower can be considered perfect.

As to the time and manner of exhibition it has been generally urged that the seedlings should be shown in the natural truss, buds, leaves, and all, as cut from the plant. It is indeed in one case insisted that they should be cut low to show a good sample of the foliage; and in another that six of such trusses should be produced, but this latter is, we think, too heavy a demand on the raiser. Three trusses such as are demanded at our Rose shows, would not however be too many to require. Virtually it may be assumed that the competition will rest amongst Hybrid Perpetuals, and this being so, it will become necessary to have some means of testing the perpetual character of the varieties. We think they *must* be shown twice, *i.e.*, in summer and again in autumn, the award being made on a fixed day in autumn; this would, we suppose, be a simple and efficient test of their perpetual blooming character. A proposition that the flower should be shown two seasons before the prize is awarded, would we fear be tedious, though we have no better objection to urge against it.

Recapitulating, then, the several suggestions which have been offered for our guidance, we find that the conditions of the competition will stand thus:—

1. The Rose may belong to any class, but preference will be given to Hybrid Perpetuals and Teas. It must be scented.
2. The full double globular or cupped form will be required, and form will take precedence of every other quality.
3. Free vigorous growth and abundant bloom will be insisted on.
4. Where merit is otherwise nearly equal, preference will be given to a pure white or yellow, or an intensely dark colour. Purity or intensity of colour will be held essential.
5. The Rose must be absolutely of English origin, and not let out.
6. Three trusses of each seedling cut with buds and leaves will be required at least once in the season.
7. The summer trusses may be shown at any of the meetings of the Floral Committee; but others will be required in autumn as evidence of the perpetual character. The award will be made at the last meeting of the Committee in the month of August.
8. If in any one year no prize can be awarded, the amount will go in augmentation of that of the succeeding year.
9. The decision of the Floral Committee is to be final.

Reports often appear of the vegetation of seeds which have been kept for many years from the influence of air, but very frequently, when the matter is inquired into, the evidence is insufficient to satisfy a close and accurate inquirer into the real conditions of the case. What we have to offer at present does not extend over any fabulous number of decades, much less of centuries, but it is instructive, and has at least the merit of authenticity.

A statement was made to us a few days since that a thin layer of peat had occurred on gravel in the course of making an excavation for the conveyance of water from the Nene to a brewery about a quarter of a mile distant, and that this peat was covered with myriads of young plants of some species which was not recognised. We have since had an opportunity of seeing a specimen of the black peaty earth covered with seedlings, of which one only had put out the first pair of leaves, and we were unable at once to recognise the species in so early a stage of growth.

There seemed every reason to believe that the seedlings actually grew from the soil, and had not been introduced from a distance, but it was absolutely necessary to visit the spot from which the black mould was taken before giving too positive an opinion. A few seconds' inspection showed that the deposit was very limited, at about 3 feet below the surface, and it was clear on further inspection that the soil above was a mere mass of rubbish, consisting of fragments of bricks, and other miscellaneous matter. Immediately on the surface of the black soil was a piece of decayed Elm, still covered with the bark. The soil itself was clothed with a mass of young seedlings, which now were clearly ascertained to be those of the common Watercress, with a slight admixture of Ranunculus aquaticus, and some Grass. The seeds had evidently vegetated from the soil itself, and had not been conveyed from a distance, as the seedlings burst out from the edge of the soil where it had been cut through with the spade, taking their origin beneath the superincumbent rubbish, and were entirely confined to the spot.

The next point, then, was to ascertain exactly when the pond had been filled up, for it was clear that a pond had existed on the spot. On inquiry of the very intelligent head of the brewery, it appeared that the fact of a pond having existed in that part of the field was well known, and that in making the excavation it was hoped that the pond might be hit upon, and a spring found which would make it unnecessary to go down to the river itself. The pond was filled up in 1830, and the field had been at once ploughed up and laid down in Grass, and had never been disturbed since. The seeds therefore of three plants of different natural orders had been dormant at a depth of a yard for 33 years, and their vegetative power was clearly as great as if they had sprouted the very first season. Seeds which could thus be stored up for so many years, without losing their powers of growth, might, as far as we can see, have retained those powers for an indefinite period, unless altered circumstances should occur which should induce decomposition. The period is not indeed very great, but it is sufficiently so to make the matter worth recording. *M. J. B.*

—— Hyacinths are not only indispensable elements in exhibitions of spring flowers, but invaluable as materials for home decoration at that season. Without them our drawing room *jardiniers*, our conservatories, and our exhibition tables would each, in early spring, lose half its charms. Now, when a flower has thus interwoven itself, as it were, with our every-day life, a great feeling of excitement attends the introduction of novel and what ought to be at the same time superior varieties; and so we come to find that an amount of interest, all their own, circles around New Hyacinths, even as it does about New Roses, and other floral favourites

All this being admitted, it cannot be questioned for a moment that New Hyacinths are very proper subjects to be invited to appear at our spring flower shows. There we hope, indeed, always to meet them, in as great force as the tactics of the schedule-makers will permit them to muster. But the group is one which, though always welcome, and apparently simple and comprehensible enough, nevertheless needs to be much more clearly defined before appearing at a flower show. It should not be left for private interpretation, as has hitherto been the case, for in this form it can scarcely fail to be, as it was indeed last spring, a source of misunderstanding and ill-will between exhibitors and judges, to say nothing of managers.

It must be conceded, and the admirable sketches given by Mr. Fortune at p. 556 confirm the fact, that Hyacinths, as a rule, are slow breeders; so much so, indeed, that a variety may often be many years old before a full market stock of it is obtained, and before it can be let out. Hence the same rule cannot be adopted to determine the novelty of a Hyacinth, which would apply to a plant quickly propagated and dispersed, as, for example, a Pelargonium or Dahlia, or even a Rose. A greater latitude must be given to the slowly increasing subject. We do not see, indeed, how to do otherwise than make it a question of dates; but it would appear from an interesting paper in the October *Florist*, that very great ignorance or uncertainty, on the part of home growers, surrounds even this question of dates. A variety which, though many years old, yet is not let out, is, in our opinion, absolutely new for all purposes of our argument; it is absolutely new, moreover, so far as the public is concerned, in the current season in which it may have been first sold out, but after that it becomes less and

less new every year. We desire to speak of it as less and less new, rather than old, because new Hyacinths are not so numerous as to be likely to supply our exhibitions with collections of actual and absolute novelties, and therefore we should be inclined to allow the novelties of a certain number of seasons—perhaps about four years—to compete together on equal terms for the prizes offered for new sorts. That is to say, in providing for a group of new Hyacinths in the coming spring of 1864, rather than limit the competition to those which may have been first sold out in the autumn of 1863, which would not probably be sufficient to make a group, or at least would not furnish sufficient choice, we should allow all those new sorts which had been first sold out in the respective seasons of 1860, 1861, 1862, and 1863, to be considered new for the purposes of exhibition; but no others should be admitted. We hardly think a range of four years would let in too wide a choice of varieties, considering the limited number of new sorts annually brought forward, or worth bringing forward, but this point would naturally soon adjust itself. According to the rule proposed, in 1865 those sorts which had been sent out between 1861 and 1864 inclusive would be admissible; in 1866 those sent out between 1862 and 1865; and so on. We might hope in time by the influence of this rule to see our bulb lists drawn up so that the novelties and the older kinds might appear separate, as they do in the case of most other florists' flowers. This would be a manifest improvement, because the information would be really useful. At present the uninitiated have no guide beyond price, and this is fallacious, because it rather represents the stock than the age or merit of the variety.

On the occasion to which reference has been made, the exhibitors of new Hyacinths and the sorts shown were these:—1. Mr. William Paul: Florence Nightingale, Lord Macaulay, Koh-i-noor, Duc de Malakoff, Haydn, Snowball; 2. Messrs. Cutbush & Son: Rouge Eclatante, Feruk Khan, Maria Theresa, Fair Maid of Denmark, San Francisco, Prince of Orange; 3. Mr. Young: Lord Macaulay, Victoria Alexandrina, Reine des Jacinthes, Von Schiller, Paix de l'Europe, Regulus. To show the different view taken by different persons as to the newness or otherwise of these varieties, and at the same time to show how desirable it is that we should have better information, and a better defined class in future, we have drawn up the annexed tabular list of the varieties forming the three collections, the statements in full being printed in the article of "Quo," already mentioned as having appeared in the last number of the *Florist*. The first three columns contain the name of the variety and of the raiser, and the year in which each was first offered for sale, according to the information supplied to "Quo" by one of the great Dutch houses, whose name is not mentioned. The other columns give the date of first importation assigned by Mr. Paul and Mr. Cutbush:—

Hyacinths.	Raised by	First catalogued for sale.	Paul's date.	Cutbush's date.
Duc de Malakoff	Kramer	1858	1862	1862
Fair Maid of Denmark	Byvoet	? 1863	1863	1863
Feruk Khan	Kramer	1858	1863	1863
Florence Nightingale..	Byvoet	1857	1861	1857
Haydn	Kramer	1858	1862	1860
Koh-i-noor	Veen Bros.	1855	1861	1859
Lord Macaulay ..	Veen Bros.	1855	1860	1862
Maria Theresa	Van der Vinne	1847	1863	Very old
Paix de l'Europe ..	Krelage	1856	1862	1862
Prince of Orange ..	Krelage	1856	1862	1863
Reine des Jacinthes ..	Schertzer	1861	1862	1860
Regulus	Rosenkertz	1847	1860	Old
Rouge Eclatante ..	Veen Bros.	1833	1863	1863
San Francisco	Byvoet	? 1863	1863	1863
Snowball	Prinser	1852	1862	1860
Victoria Alexandrina..	Van Pallandt	1839	1862	1862
Von Schiller	Veen Bros.	1853	1860	1857

It would thus appear that very few indeed of these sorts were strictly new, although they were little known generally. In Mr. Paul's collection was one sort of 10 years, two of 7 years, one of 5 years, and two of 4 years old; in Mr. Cutbush's set was one of 19 years, one of 15 years, one of 6 years, one of 4 years old, and two of the current year; in Mr. Young's set was one of 23 years, one of 15 years, one of 9, one of 7, one of 6, and one of 2 years old. These, be it remembered, were all staged—in good faith as we cannot but believe—as new sorts. But how could they have been so regarded? Mainly, as it appears to us, from the slowness with which new Hyacinths drift into general cultivation here in England, and consequently from the sorts in question being, in a general way, unfamiliar both to exhibitors and visitors; though of course well known to the few who might happen to be well posted up in the Hyacinth fancy.

These exhibitions of New Hyacinths, then, will have a beneficial influence, we cannot doubt, on our home gardening, for they will render us familiar with novel sorts awaiting our demand, with which, though a nation of gardeners, we seem hitherto to have made acquaintance very slowly, notwithstanding that they are, some of them at least, far superior to many of the old sorts we pertinaciously cultivate. They will have—these exhibitions—the same good effect as the letting in of light upon obscurity always has, namely, we shall be thereby enabled to see our cobwebs and dust, and to set about clearing them away. By continuing to encourage New Hyacinths at our shows we shall get other and better varieties yet, for the demand will create a supply. We shall get better form and richer colours amongst the cheaper sorts which supply the masses. We shall get a much further development of the attractive white-eyed group. We shall get more of those with immense bells. We shall even get new colours, as we have within the last few years. Only, keep the new sorts prominent, by giving them a good position in the schedules. But for the sake of exhibitors and judges, let us say exactly what we mean when we ask the one to cultivate and the other to adjudicate upon a group of new varieties.

—— Dr. J. E. Gray mentions in the *Journal of Botany* that in Pembrokeshire, especially near Broadhaven, the prevailing colour of the Primrose is pale lilac, and specimens of this and of the "primrose" coloured varieties may be found growing on the same stone wall (stone walls in this district taking the place of hedges), sometimes so close together that they appear to grow from the same root. The flowers of some plants are nearly white. As other examples of two forms of one plant growing under the same conditions, he further mentions a purple Wood Anemone, which he has found intermingled with the white one in the same tuft; a beautiful pink variety of Wood Sorrel growing amidst the usual white form; and a rose-coloured form of Lamium album, in the midst of beds of the usual colour.

New Plants.

262. Androsace lanuginosa, *Wallich, Herb. Ind.* 615.

Among the innumerable gems collected by Mr. Veitch in his noble nursery at Combe Wood, we had the good fortune to find in flower this exquisite rarity. It formed a trailing herbaceous stem, covered with silvery hairs, and producing leafy branchlets terminated by small umbels of lilac blossoms, just like miniature Primroses, hanging over the side of the pot in which it was growing. It was first discovered in the North of India, in the provinces of Sirmore and Kumaon. At a later period Dr. Thos. Thomson met with it in the temperate districts of the North-western Himalaya at a height of from 7000 to 10,000 feet above the sea.

We presume that it will require the usual treatment of our European alpines. With Mr. Veitch it has been kept in a cold pit, which it evidently finds very suitable to its constitution.

COTTON CULTIVATION.

I have read with much interest the communication of "R. T. C." on "Home-grown Hybridised Cotton," giving an account of a hybrid he had produced between what I take to be the long-stapled Sea Island and the very short but strong-stapled Nankin Cotton plants (Goss. religiosum, Roxb.). The former has an egg-shaped smooth black seed with the cotton fibre confined to the upper or small end; while the other has a somewhat oblong seed more or less flattened at the ends, and clothed with a short woolly tawny-coloured nap, and the true similarly coloured cotton fibre attached all over. His parent plants agree with these characters, and are I presume truly referable to the kinds here named. The hybrid differs from both, but seems to take most after the male parent, and I think it probable will yield a very valuable staple. I may here mention, that, notwithstanding the parents differ so widely in the characters of their seed and staples, I yet consider them both to be varieties of the same species, namely, Gossypium barbadense, which may, perhaps, in some measure account for the ease and certainty with which the crossing was effected.

I was first led to consider the smooth black-seeded long-stapled Bourbon Cotton plant—the original of the celebrated Sea Island Cotton, and the woolly-seeded short-stapled Nankin and New Orleans plants, as simply cultivated varieties of the same species, from seeing them all three rather largely cultivated in adjoining fields, and under exactly similar circumstances. Thus situated I have repeatedly walked through fields of them, all so alike that they were scarcely distinguishable until the pods began to open. Between the Bourbon and Nankin plants there was no difference; the New Orleans was distinguishable, but not without some care. The opinion, that they were all varieties of one species, was subsequently strengthened by finding the smooth seed of the Bourbon plant becoming woolly, apparently owing to careless culture. There is another variety known as the Upland Georgian Green Seed, the seed of which is covered with green, just as the Nankin is with brown or tawny, and the New Orleans with dirty white or ashy-coloured nap. The cause of these differences we have still to learn. With reference to the sought-for "vitifolium," I believe the vitifolium of Roxburgh, and perhaps also his hirsutum, is the Georgian Green Seed, while the vitifolium of Lamarck is the same as Roxburgh's G. acuminatum, of which more by and by.

Having thus been led to view these supposed species as varieties only, owing their peculiarities mainly to culture, I was encouraged to go a step further in the same direction, and induced to view the several Indian forms of G. arboreum, herbaceum, obtusifolium, and probably several others, as so many variations of another species (quite distinct from G. barbadense): all agreeing in an unmistakeable family likeness; all having moderate sized blunt-pointed pods about the size of large Hazel nuts; the seed nearly round, clothed with a short white nap, and with the cotton attached all over. This group I consider of Asiatic, and the barbadense of African origin; while a third group, represented by the plant which produces the Pernambuco Cotton, and by Roxburgh's G. acuminatum, I look upon as referable to South America. The plant described by Roxburgh is apparently the same as the one figured by Rumph. 4, 13, and by Rheede, Hort. Mal. 1, 13, which certainly militates against my theory; but still, I think I am right. The plants of this third group are large strong growing shrubs or even small trees, preferring low, moist, sandy soils near the coast, and therefore admirably adapted for culture on the extensive sandy flats along the shores of India, where water is usually to be found within a foot or two of the surface. The essential character of this group is found in the pod and seed. The pod is large, three-celled, ending in a long tapering point—hence, I presume, Roxburgh's name; while the seeds are smooth, flattened, kidney-shaped, adhering together by their inner surface, and bearing their long, strong staple on the outer. On removing the cotton the still adhering seeds present the appearance of a flattened cone. How many of the species named in botanical works are referable to this group I am unable to say, the seed so rarely forming part of the botanical specific character.

I have thrown together these few reminiscences of former thoughts on the genus Gossypium and its possible subdivision, in the hope of their proving useful to such an ingenious and skilful experimentalist as your Correspondent, by suggesting various modifications of his first experiment.

Before quitting the subject, I think it desirable to make known the circumstances which led me to infer that the Cottons now so largely cultivated in the American States are of African descent. A good many years ago, while studying the subject, I met with a statement in a book, the name of which I have now forgotten, to the effect that the original Bourbon Cotton was brought from the shores of the Red Sea, probably Abyssinia, and spread thence to the West Indian Islands; and thence again, after several failures, to continental America. More recently I met with another statement, to the effect that the plant now so largely cultivated in Egypt was not brought from America, but is a native of Africa, and found indigenous in Abyssinia, whence it was brought to Egypt. The probability of these statements is strengthened by a circumstance which occurred to myself many years ago in Madras.

I received at the same time three small packets of seed, marked respectively Sea Island, New Orleans, and Egyptian. They were all sown at the same time in my garden, and all duly attained maturity about the same time. The Americans came up true to sort, but the Egyptians presented both forms mixed in nearly equal proportions.

The deduction since arrived at did not then occur to me, indeed could not, for want of the historical data, which I did not discover till long after; and I was prevented following up the inquiry at the time. I mention the circumstance now, on the supposition that the easy success of the first trials may be partly owing to varieties only of the same species having been crossed, and might not be the case if truly distinct species were employed. But, if more difficult to attain, the result would be likely to be more valuable. The delicate silky Sea Island, crossed with the equally long but much stronger "Pernam's," would be likely to yield a staple greatly superior to that of either parent. Crosses again between the Indian and American short staples (*i. e.* Surats and New Orleans), may provide us with a variety superior to either as regards staple, and at the same time improved in constitution and productiveness. On the other hand, crosses between the long and short staples are likely to supply us with staples possessing both length and strength, suited to a variety of fabrics unattainable from either of the parents.

An application for seed to the Cotton Supply Association will, I am sure, meet an immediate and liberal response; and I would also recommend applications being made to Dr. Forbes Watson at the Indian Museum, and to Mr. Clements Markham at the India Office for some of the Peruvian seed recently received by him, which he supposes to be a new and valuable species. *Robt. Wight, Grazeley Lodge, Reading, Oct.* 14.

FOLIAGE PLANTS.

There is nothing in Mr. Gibson's treatment of foliage plants (see p. 986) sufficiently new or surprising to lead him to jump to the conclusion he arrives at respecting them so hastily. For bottom-heat, if autumn display alone is desired, they do not require even brick rubbish, for they grow luxuriantly after midsummer in the common beds of the garden, without any assistance whatever in the way advocated. Indeed there can be no reason why they should not when it is considered that they are all more hardy than a common Heliotrope. Many of the Canna roots were uninjured out of doors here last winter. The only advantage of furnishing them with bottom-heat is to give the plants a start as early as possible in spring,

because in instances such as ours, they would not be useful later than the end of July.

It is also for the purpose of lengthening their season that bottom heat is applied to them abroad. From Mr. Gibson's account, however, the operation of watering must at first be a more serious item even than the dung. Our plants have not been watered more than half-a-dozen times, and we have the Canna Annæi more than 10 feet in height, Ferdinandia 25 feet, Ficus 8 ft., and all our other plants in proportion. As soon as these are removed, the beds are filled with Rhododendrons and Azaleas, which could not be so conveniently done in brick-rubbish as in rotten dung and leaves, the material I employ.

We also find, and so will many others similarly circumstanced, that the little assistance by bottom heat which we give, is not at all a difficult matter. We mow our Grass twice or thrice before planting time, and lay the Grass in heaps, mixed with leaves and sweepings, close to the spot where it will be wanted, and with the addition of perhaps one load of manure, nothing more is required; this material, trenched into the bottom, will give sufficient heat for the first start.

Mr. Gibson says that his Cannas planted out in the middle of June lost their leaves; some planted out here in the first week of that month have full grown reeds and foliage which received no check. Caladium esculentum has leaves that measure upwards of 2 feet across.

A question of much more importance than that of bottom heat, and one requiring discussion, is the appropriateness of such plants for some of the places in which I have seen them this season. They cannot be placed with advantage in the centre of a flower bed, or as a row in a ribbon border. Nor is there much beauty in a good oval bed of Wigandia, the leaves round the outsides of which are only seen; but place a plant by itself on the Grass, or in a single irregular line, where its handsome leaves can properly develope their outline, keeping the specimen about 7 feet in height, so that the eye does not get under it, and something to be admired will be secured. A bed with an irregular outline, in the form of a long narrow miniature lake, is that most suitable for Cannas and Caladiums. *J. F.*

ORCHARD HOUSE EXPERIENCES.

Last year I gave you my experience of an orchard house. Perhaps a report of the third year's trial therefore, may not be uninteresting. I report that my house is 110 feet long, span-roofed, 20 feet wide, 12 feet high, with shutters opening on all sides throughout, on a hill and exposed to the air, and it runs N.E. to S.W. There is a bed in the centre in which the trees are planted out, and on the side borders they stand in pots. The trees consist of Peaches, Nectarines, Apricots, Plums, Cherries, Figs, Pears, Apples, and the Eugenia Ugni. It will be most convenient to state my experience as to each.

Peaches.—All in pots, and on the south side of the house; crop moderate, size fair, colour bad; decidedly wanting in flavour and juice, having the leafy taste so perceptible in hothouse Peaches. They ripened late; indeed many are still (Oct. 14) upon the trees; they were a month behind those on the garden walls.

Nectarines.—All in pots; crop large, size fair, colour good, flavour excellent; they were about a fortnight behind the crop on the open walls. But again the Stanwick Nectarine has proved entirely successful. This crop was good, the splitting the fruit was gradual, and where it occurred it injured only the appearance; they were the best fruit in quality. The flavour was fully equal to report; it is beyond comparison the finest Nectarine I have ever tasted; indeed, it is almost *sui generis*—so good, that it would be almost worth while to put up an orchard house for that fruit alone. It has never failed for three years in giving me an excellent crop, and it seems to be peculiarly adapted to the orchard house. It is very hardy, sets its fruit well, and never throws it.

Apricots.—Crop immense, size very small, flavour excellent. I found no perceptible difference, either in size or quality, between those in pots and in the bed; if anything the pots produced the greater quantity. They ripened in due course with the fruit out of doors. By planting half the trees in the north border that crop was delayed a month, and I had a daily dish from the middle of July till Sept. 6. There are 14 trees.

Plums.—Crop abundant, flavour indifferent, size large, colour good. Several of the sorts sent me by Mr. Rivers proved worthless. The only good ones were the Jefferson, the Green Gage, and Coe's Golden Drop. The rest were not worth house room. They ripened three weeks after those in the garden.

Figs.—Crop small; but a few out of hundreds that were set advanced to ripeness. Flavour good.

Pears.—Crop abundant, size large, flavour excellent. Ripened in due course with the out-door crops. Some in pots, some in beds, and equally good. The experience of three years has proved that the orchard house is peculiarly adapted to the Pear. It brings to perfection the fruit that will not ripen or attain its flavour out of doors. All proved to be quite equal to the best of Jersey or France. Gansel's Bergamot was superb in size and flavour. The best of them beyond measure was the Beurré Superfin; and I would recommend every reader who has it not to procure it. It is to Pears what the Stanwick is to Nectarines.

Cherries.—Crop abundant; colour and flavour good; not better than those in the garden, but they can be protected from the birds, and allowed to attain the proper stage of ripeness. This, by the by, is no small part of the advantage of the orchard house—you save your entire crops from human as well as winged plunderers.

Apples.—Crop abundant, colour and flavour fine. There is little use in growing Apples thus, unless it may be to secure a crop when frost sweeps away the out-of door blossoms. They are not better nor worse than Apples in the open garden. The space would be more profitably devoted to growing the choice Pears that will not come to perfection in the garden.

Against all the supports I grow Currants, which are thus protected from birds, hang late, and occupy a place otherwise useless.

Lastly, the Eugenia Ugni comes to great perfection here; it will not endure the winter in the open ground, and I cover it up with straw when frost threatens. The fruit is very abundant—as plentiful as Black Currants, large, and of very fine flavour. The bush is extremely ornamental as a conservatory plant, the flowers being of an exquisite waxy form, a cream white, and scented. To my taste it is one of the most agreeable of our fruits. It is just now ripe, and I look upon it as a great luxury, coming when the others are gone.

I may add that the Tangerine Orange succeeds with me perfectly. The fruit is in all respects as good as the best procurable in Covent Garden, and it is a most abundant bearer. There are 20 on a little bush 2 feet high, and hundreds have set upon a tree 5 feet in height. *E. W. Cox, Inglewood, Hendon.*

MR. PATERSON'S SEEDLING POTATOS.

[The following is extracted from a report on this subject in the *Dundee Advertiser*. It appears that Mr. Paterson, of Union Street, Dundee, has for many years been engaged in raising new varieties of the Potato from seed, with the view of obtaining varieties not liable to the disease. The following is an account of some of his sorts:—]

"Within the last few days, we have seen Mr. Paterson's seedlings growing on the home farm of Fothringham, belonging to Captain Fothringham; in the garden of Linlathen, belonging to Thomas Erskine, Esq., and also in Mr. Urquhart's Nursery, at Broughty Ferry, so that we are in a condition to speak of them with greater confidence than we should have done if our observations had been confined wholly to one plot of ground or to one description of culture.

"For the purpose of comparison, the different varieties have been planted side by side, no one variety having thus the slightest advantage over another, but all sharing alike in each case the same soil, the same climate, the same manure, and the same amount of culture and attention. The field on the Home Farm of Fothringham, in which Mr. Paterson's seedlings are growing, contains about 30 acres of good fertile soil, apparently well adapted for Potato culture. The portion of it rented by Mr. Paterson extends to 25 acres, most of which is occupied by his seedlings. Beginning at one side of the field, and passing right across it, the different varieties were taken in their order, and just as they came to hand, no attempt being made to select other than fair average specimens. Four yards of each kind were dug and the produce weighed, when the results were found to be as follows:—

Paterson's Seedling Regent. No. 1	39 lbs.
Paterson's Reds	33 ,,
Paterson's White Seedling (Regent kind)	30 ,,
New Perthsire Red	44 ,,
Paterson's Seedling Rock	40 ,,
Irish Blue	50 ,,
Forfarshire Red	36 ,,

"Such being the weights produced in four lineal yards, it follows that the yield per imperial acre will be—for the Seedling Regent (No. 1), 25 tons 1 cwt.; for the Seedling Rock, over 25 tons 14 cwt.; and for the New Perthshire Red, 28 tons 6 cwt. The above varieties, the names of which have not yet been definitely fixed, were all grown with common farm manure. Part of the field, however, had been fertilised by artificial manure, and hence it is more difficult to estimate the comparative productiveness of the kinds grown on that portion. Among these was the White Kidney variety, which produced 24 lbs. of Potatos to the four yards.

"Intermingled with Mr. Paterson's seedlings were a few of the common sorts, which were tested by the scales for the sake of comparison. The Old Rock, with common manure, produced 20 lbs. of tubers to the four yards, or exactly one-half the weight yielded by Paterson's Seedling Rock. The Old Perthshire Red (a favourite Potato 20 years ago) gave 5½ (?) lbs., while Paterson's New Perthshire Red gave as much as 44 lbs. Walker's Regents yielded 18 lbs. to 30 lbs. yielded by Paterson's white seedling Regents. Arrowsmith's English seedling and Walker's Early (the latter with artificial manure) yielded respectively 20 lbs. and 16 lbs. to the four yards—both very abundant crops, but neither of them equal to any of Paterson's new varieties. The seedling English Emperor—a great favourite south of the Tweed—produced only 11 lbs. to the four yards, or little more than one-third of the weight produced by the least productive of Mr. Paterson's seedlings. It is necessary to notice the fact that most of the plants were growing vigorously when we examined them, and that, with a continuance of genial weather, there was every likelihood that the roots will attain a still greater bulk and weight. There was one kind, called the Blue-ended Regent, the stalks of which were as strong as the branches of young trees, and upwards of three feet in height, which it will require several weeks to bring to maturity. At one stem were found 30 tubers, most of them being arranged on the fibres like beads on a string. This plant is a very Goliah amongst Potatos, and promises, with careful management, to become marvellously productive. Of the Irish Blues, Perthshire Reds, and other varieties, Mr. Paterson has grown very large quantities, so that the varieties may be considered as well tested. As an evidence of the perfect healthiness of these seedlings, it may also be stated that the whole of them produce Apples in abundance—many of the stalks being literally weighed down to the ground by their load of fruit.

"So much for field culture, and now for that of the garden. In Linlathen garden we found five sorts growing in drills, which were 30 inches wide, with 15 inches between each plant in the case of the three first kinds, and 12 inches in the other two cases. One stem of each variety was dug up and weighed, and the following was the result:—

Paterson's Seedling Regent (No. 1)	4½ lb.
Paterson's Reds	8 ,,
Blue Kidney	4½ ,,
White Seedling Kidney	4 ,,
Goliah Regent	7½ ,,

These were nearly a month too late in being planted, and consequently they are not nearly arrived at maturity. Besides, being rather too thickly planted, they had not had proper room to grow. Notwithstanding these drawbacks, however, the crop must be pronounced a most remarkable one. The new seedlings eclipsed a drill of excellent Dalmahoys which were growing alongside of them.

"In Mr. Urquhart's Nursery at Broughty Ferry, six varieties of Mr. Paterson's seedlings are to be seen growing together. Though growing in a nursery, the culture had been strictly that of the field. The following were the weights produced from three stems of each kind:—

Buff Kidney	3¾ lb.
Red-nosed Kidney	12¼ ,,
Blue-ended Regent	15¾ ,,
Early Red Kidney	6 ,,
Seedling Rock	9¾ ,,
Paterson's Seedling Regent (No. 1)	9 ,,

The above figures require no comment—they speak for themselves, and they indicate a great amount of productiveness. Had we not seen the stems turned out and weighed, we should have had some difficulty in crediting the above figures, but we can testify that they are strictly true.

"As to the quality of most of the above varieties we are also in a position to speak from experience, and we can only say that we have never tasted any Potato equal to them since that valuable esculent was tainted by the fatal blight of 1845. They contain an extraordinary amount of farinaceous matter, are pure white inside, and almost as solid as bread. When boiled they 'cast their jackets,' just as most Potatos did before the disease seized upon them, and rendered them wet and clammy."

FISH AND FISHING.—No. XVII.

(4) How Grayling got to England.

(*Continued from p.* 965).

Pisc.: In confirmation of Sir H. Davy's admission already quoted (see p. 965), I add that it is known that when in modern times the grayling has been transported from one river to another, apparently as favourable, it gradually descends the latter, if really unsuitable to it, and at last quits it altogether. Now, the grayling of the Test in Hampshire are said to have been imported from the Avon in Wiltshire.

When on a fishing excursion many years ago (1840) at Stockbridge with the late Sir F. Chantrey, I think it was he who told me that these fish were every year found lower and lower in the river Test; that formerly they were plentiful above Stockbridge, but were at that time scarce, and he anticipated that the Stockbridge Club would not long have the delight of their company, unless the members resorted to artificial means to preserve them in their waters. Then again, as regards the grayling not being found within 15 miles of Valle Crucis Abbey, I am inclined to think Sir H. Davy is under a mistake, and that there is a horse-shoe fall close to the old mail coach road rather below Llangollen where grayling are taken, and that they are taken in other parts of the Dee between Llangollen and Corwen, though by no means so commonly as between the latter place and Bala. But supposing he is right, for I forget the geography of the country after so many years absence, if you examine the map you will see Valle Crucis Abbey stands on a small tributary of the Dee; and the number of manufactories, and the Ellesmere Canal from Llandrillo through Llangollen, may have almost driven the grayling, formerly existing there, higher up the river into the more congenial part between Corwen and Bala, though contrary to our pre-conceived notions as to their habits. But here comes something approaching to legal

evidence in support of the whole "supposition," namely a tradition. My authority was fishing in the neighbourhood of Llangollen; and, first of all, he did take a grayling in the Dee close to the town; secondly, he tells me, that in the course of his peregrinations, he went up the Dee on the left bank beyond Llandrillo and above where the Ellesmere Canal receives its first mouthful of water. he came to a wood on the banks, called "Grayling Wo d," and the very spot was shown him where "tradition" says the monks first turned the grayling into the river!

Cath.: To say the least of it, it is a tradition interesting in relation to the question, and worthy of much further inquiry. And as far as I know, there are no Catholics in that neighbourhood at the present day who could have invented that tradition. There is also another view to take of it. It is considered that monastic establishments were very numerous in the early existence of Christianity in Britain. When Christianity was first introduced is not ascertained, but there is reason to believe it was somewhere about the middle of the first century. Between that and the end of the second, the Venerable Bede tells us, there were three archbishops and 28 bishops established for the government of the British Church. Christianity flourished, and grew till the invasion of Hengist and Horsa in A.D. 449. Many abbeys were endowed, many monasteries established, earlier perhaps than the days of St. Ambrose. Especially do we find this to have been the case in Wales, as at Bangor, Bethkelert or Bethgelert, and Bardsley. At Holyhead, a monastery was built A.D. 380. Then we find that the Bishops of Britain were in the habit of joining the ecclesiastical Councils on the continent, which would give them opportunity of procuring this fish, and that, at the Council of Remini in the year 359, although they were forced for a time to subscribe in favour of Arianism, they immediately on their return to Britain recanted, showing how unpopular was that doctrine. St. Ambrose being about that time the mighty assailant of Arianism, they could not have failed to admire him, and with him to have admired and perhaps to have adopted his tastes, and, with his tastes, his love for and admiration of this fish, the grayling. Thus then we show both the opportunity to obtain, and the probable inclination of the monks of old to possess this fish in the streams of Britain. Then, to deal with the objection about their non-existence at Valle Crucis Abbey, but higher up, in another way. On the Saxon invasion Christianity declined and Druidism revived in England. But in Wales Christianity still flourished. The monks of England being driven out, some resorted to Wales, and settled in many parts and places in monasteries of which time has now left no trace, they themselves, or, rather, their representatives, returning to England about A.D. 597, when, in the reign of Ethelbert, St. Augustin restored Christianity to England. That many monastic establishments had existed besides those which were kept up at the time of the Reformation, there is no doubt. Thus, to name one in Merionethshire, the only one at that period existing to glut the appetite of the tyrant was that at Kinner: while we find still standing the ruins of an abbey at Llanelltydd: and that the monks did not always remain in their first abodes appears by this one chronicle, that at Wigmore in Herefordshire "an Augustine monastery was established in 1100; but for want of water and convenience shifted up and down and finally settled into a stately monastery a mile beyond that town." Thus I would argue in favour of the probability of the existence of a Monastic establishment between Corwen and Bala, and near other streams containing grayling, though all traces of Ruins may now be lost. *E. C.*

Home Correspondence.

Heating and Ventilating.—I have seen it stated somewhere in reference to Sir William Armstrong's observations upon coal, made at the last meeting of the British Association, that "the extent of our coal fields is pretty accurately estimated at 80,000 millions of tons, and that if our annual consumption advances at its present rate, we should run through this in about 200 years." At that distance of time none of us now living will be warming ourselves at terrestrial fires. Nevertheless it becomes a question whether we should, regardless of the future, be wasteful of that which is of so much benefit to us as a nation. I say we should not; on the contrary, we should be as careful of this description of subterranean wealth as we would be of gold itself did it exist among us under similar circumstances. With the necessity of using it with economy I have long been impressed, and in furtherance of that desideratum, I have adopted a plan in connection with my fire-grate, the employment of which not only effects a great saving of fuel, but at the same time the apartment in which it is in operation is efficiently warmed and thoroughly ventilated. The plan in question is nothing more nor less than the much abused Polmaise system of heating, not applied to plant structures, but to my dwelling house, briefly as follows:—In the first place I had my floor taken up, and a hollow cold air chamber made below it 18 inches deep, with op nings into it from the outside of the house, and outlets from it into a warming chamber formed around my fire-grate (the latter a patent contrivance of my own). The cold air after being heated is admitted into my room through suitable apertures in the breast of the chimney, capable of being regulated as desired, and also at the further end of the room near the ceiling. When the fire is fairly lit I can burn the waste from my other fires, consume the smoke, and produce a most agreeable healthy circulation of air without wasting heat; and what happens in one room can easily be obtained in every apartment in the house, the chimney during its whole length being in my case converted into a warming chamber, and the smoke carried up it in a pipe. In this way I have not only an open fireplace, with the cheerful appearance of which, on a cold winter night, few Englishmen would care to dispense, but I have also perfect and thorough ventilation, with warm air, freed from all vitiating influences. In fact, I can secure the climate of Italy without having the trouble of going there, the atmosphere of my rooms being at all times invigorating and healthy. In the apartment in which my stove is in operation, fogs never exist, although in foggy weather other rooms in the house not thus heated are full, a point of much importance to persons affected with pulmonary diseases; and under such a system, in connection with improved drainage, I am sure no blood-poisoning from breathing impure air, which has proved so fatal of late, could possibly take place. The sooner therefore so inexpensive an alteration of even our open fireplace is adopted, the better for the health of our now over-crowded towns. I have devoted much of my time to the study of heating and ventilating, and I am convinced that the plan just described is the best that could be put in operation either in the houses of rich or poor. The saving of fuel it effects alone ought to render its adaptation desirable. But what is good for man, as far as free circulation of air is concerned, is also good for plants. And therefore I think that the Polmaise system of warming should be once more tried in our hothouses. We failed before in not making our warm air chambers large enough; with plenty of room I would have no fear of satisfactory results. If these remarks should induce any gentleman to try the experiment, I have not only good plans but models in my possession, the working of which I should be happy to explain. *J. Newton*, 30, *Eastbourne Terrace, Hyde Park.*

The Crow a Pine Planter.—You pointed out the other day the beautiful adaptation of animals and plants to the countries and localities best suited for their growth. In the accomplishment of this, the crow is sometimes made a propagator of Scotch Fir. In one of the Pine-clad straths of the Highlands of Scotland I have frequently seen great numbers of crows pass over my head, carrying in their bills to a neighbouring hill something resembling a Potato. I first thought that they actually did carry Potatos there for convenience of eating them, but on closer observation I saw them dig a hole in the ground with their beaks and then deposit what appeared to be a Potato, but which upon examination proved to be cones from Fir trees. For what purpose they placed them there I am unable to say, but the result was that in a few years young Firs began to spring up in all directions. A beginning thus being made the hill was planted and enclosed, and it is now covered with a beautiful and thriving plantation of Firs. The natural forests of this district are fast disappearing, to be replaced by the hand of man. Nothing, however, can be more instructive to a thoughtful and inquiring mind than the study of the ways and means by which an ever-watchful Providence sometimes carries on Nature's work. The mountain torrent spreads ruin and devastation in its onward course, but the hand of Nature soon repairs the unsightly spectacle. The winds, the rains, and the birds, all unconscious, do their allotted appointments, and clothe the disfigured landscape with beauties which it never possessed before. *J. Thomson, Leeds.*

Diseased Grapes.—In a house of late Grapes in which cutting has just commenced, the crop was good and apparently in perfect health. A few evenings since, when the gardener left the house, nothing appeared wrong about them, but about ten hours afterwards he found every bunch covered with mould, so thick that it was hopeless to attempt to wipe it off, and we were obliged to sacrifice the whole crop by cutting it. A great part of the Vine border is covered, almost matted, with self-sown Mignonette; there have been also some Gourds and some Sweet Peas grown on it during the summer. Can these by keeping the surface constantly damp have occasioned the damage, or can it be attributed to any other cause? In former years we had mould show itself in a slight degree, but we have always been able to check it by the application of brimstone. *An Original Subscriber, Tonbridge Wells.*

Vine Borders.—I shall feel greatly obliged if some of your very able correspondents will favour me with their advice on the following point. Early this last spring I erected a range of new Vineries. The Vines have grown well, having been planted early in the spring; they are strong and vigorous, and have run up to the top of the houses. The Vine borders are 18 feet wide, soil 3 feet deep at the parapet of the houses, sloping down to 15 inches deep at the bottom of the wall. The border is made of decayed turf, bones, soot, and the best and driest soil we could find; under it are placed a good layer of broken stones and brick ends and a good drain also. My gardener wishes to continue the Vine border under the gravel walk at the foot of the Vine border of 18 feet wide. I am of opinion the roots of the Vines will be better confined to the border, so carefully prepared and drained, but I am distrustful of my own opinion, and shall be very grateful for any advice that will kindly be afforded me. *An Old Subscriber.*

Scolytus destructor.—In reply to "W. B. Page" (p. 990) I have to observe that I thought I had been sufficiently careful in my note about the Southampton Elm trees (p. 966) in stating that the small branches submitted to my examination showed no traces of the attacks of Scolyti, and that the gnarled wounds were attributable to some other cause. That the trunks of the trees are infested with Scolyti was, indeed, only too probable from the numerous specimens sent to me, but the precise mischief submitted for opinion was not their work. And in the state of the question respecting the attacks of these insects on healthy trees, or only on already diseased trees, it was absolutely necessary not to widen the discussion by charging the Scolyti with mischief which they had not committed. *J. O. W.*

Rooks.—On Sept. 27 I was passing the grounds of the Rev. W. Molyneux, Elmsett Rectory, 4 miles distant from this town, when I observed a rook carrying sticks for building a nest. I saw the gardener and called his attention to the fact, when he said that he had noticed it the day before. I asked him to watch progress, and on Oct. 13 I was informed that the rook had completed her nest, and that she had then been sitting two days. The nest in question is built upon the top of a Scotch Fir. As this must be regarded as a somewhat uncommon occurrence, should she be successful in hatching, I will inform you when it takes place. *John Stopher, Hadleigh, Suffolk.*

Potatos.—We have seen the following note concerning the Mona's Pride, addressed to Mr. Rutledge, of Douglas, by one of our most distinguished cultivators:—"Your Mona's Prides are a signal success; the crop has been wonderful, the size of the Potatos large, and the quality excellent. You may safely recommend them to every lover of the most indispensable of all vegetables."

Orchard Houses.—The discussion which has taken place in your Paper as to fruits coming to their full flavour when grown under glass induces me to send you a specimen of Northern Spy Apple grown in a pot which was never removed from the Orchard house. There were three Apples in the cluster; the third having a decaying spot in it, we ate it yesterday, when it was considered full flavoured. *George J. Wilson, Gishurst Cottage, Weybridge.* [Finer flavoured specimens we never tasted of this, the most delicious of United States Apples, as well as one of the very finest of table varieties. We prefer it to the best Newtown Pippin.]

Japanese Grass.—Of the different materials used for tying plants this is by far the best. It is incredibly strong, very lasting, and it may without waste be split up into such fine threads that when used it is scarcely visible. It is cheap, and may now be had of all London nurserymen. *J. Rust, Broome House, Fulham.*

Swallows.—In your Paper of the 10th inst. I notice some observations from correspondents on the unusual lateness of the swallows in taking their autumnal departure from our shores this year; one having observed them as late as September 10, and another as late as October 1. I beg to say that I saw swallows here in great numbers, flying about as at midsummer, on October 12; I have not seen one since. I remember making a memorandum last year on the boards of my garden cot, that I had seen swallows on October 12. I have often seen them here in the last week of September, but never so late as the 2d week in October before this and the year 1862. *T. Lightfoot, Bank House, Accrington, Lancashire.*

Societies.

Entomological: *October* 5.—Francis Pascoe, Esq., F.L.S., Vice-President, in the chair. W. W. Saunders, Esq., F.R.S., exhibited specimens of the larvæ of Agrotis segetum, which he had found extremely injurious in his Turnip fields, near Reigate, at first gnawing the roots just below the surface of the ground, so that it was not possible, without disturbing the soil, to detect their presence until they had committed a certain amount of injury, evidenced by the yellow state of the leaves. He had not been able to discover any satisfactory remedy to stop their ravages. Mr. Stainton gave an account of the transformations of the rare Anesychia bipunctella. He also exhibited specimens of a gigantic species of Tortricidæ (T. grandævana), the larvæ of which when about to assume the pupa state form cylindrical cases of sand (on the coasts of the Baltic), which, after gales of wind, are exposed and left standing upright to the height of 2 or 3 inches. Professor Westwood exhibited cases formed by the larvæ of Psyche helicina of Siebold, composed of silk spun into spiral tubes, and externally coated with fine particles of mould; also specimens and drawings of the small stingless honey bee of Australia and its waxen nest: together with the larvæ and perfect insects of a new species of Nitidulidæ which feed on the wax, communicated by Mr. Woodbury; and the cases of a small species of Trichoptera (Silo pallipes) together with its parasite, the rare Agriotypus armatus, one of the most

remarkable species of Ichneumonidæ, of which he described the economy. Mr. F. Smith also forwarded a note respecting the Australian honey bee and its parasitic Nitidulidan. Mr. Bates and Mr. Cutler gave an account of the ravages of several large species of Bruchidæ (Caryoborus, sp.) on the seeds of different kinds of Palms collected in South America, and sent to England, some of the nuts containing as many as five of these larvæ, which are at times so numerous that entire cargoes have been destroyed by them. A paper was read upon the small ant found infesting a house in Guildford Street, in great numbers, by Mr. J. Young. Mr. Baly read a paper containing descriptions of new species of Phytophagous beetles, chiefly from India, Australia, and the islands of the Eastern Archipelago. And Mr. Stainton gave a condensed account of the Entomological proceedings of the recent meeting of the German naturalists at Stettin, under the presidency of Herr Dohrn.

Notices of Books.

Subtle Brains and Lissom Fingers. By Andrew Wynter, M.D. Pp. 446. Hardwicke, Piccadilly. 1863.

Under this title we have a capital book by Dr. Wynter, containing about 40 papers on a variety of subjects. Dining Rooms for the Working Classes—Railways and City Population—Vivisection—A Day with the Coroner—Half Hours at the Kensington Museum—Air Traction—Doctor's Stuff—The Bread we Eat, &c. These papers are full of information, and are written in a lively style; most of them have appeared in the pages of "Once a Week" and the "London Review." The publisher has done well in obtaining Dr. Wynter's permission to collect them for the general reader, in a good well-printed volume.

In the article on "The Restoration of our Soil" we are reminded how the leading journal most absurdly startled us, a few months ago, by stating, on the authority of some great names in the domain of Chemistry, that the vegetable mould of Europe was gradually becoming exhausted; that our system of farming was, in fact, drying up the source of our daily bread; and that our over-stimulated fields required to revert to their primal condition of wood, and forest, and bog, to bring them back to a wholesome state of fertility. Dr. Wynter remarks:—"It must have struck every thinking mind with wonder, that while our farmers are depending upon the refuse of flocks of birds in the islands of the South Pacific, and upon the bleaching bones gathered from distant battle-fields, the refuse of man himself lay decomposing beneath his feet in great cities, and giving forth exhalations which poisoned him in his own household," and proceeds to give his own views on the question, founded upon the evidence contained in what he designates one of the most important Blue Books ever published, "The Second Report of the Select Committee on Sewage of Towns."

A short paper on "The Working Men's Flower Show," is likely to interest our readers.

"A few individuals a year or two since, at the suggestion of the clergy of St. George's, Bloomsbury, formed themselves into a society for giving prizes to the working classes, for the best flowers grown in pots and windows. To insure their being really tended by the proprietors and not bought for the occasion, a rule was instituted that the plants should be entered at least six weeks before the adjudication of the prizes, between which times they were visited and watched by the gentlemen interested in the movement. By this means a genuine exhibition was insured, and the show took place in July last, in the garden of Russell Square. The plants were ranged in a gay tent, and certainly did credit to their growers. Decidedly the best show was made by the persons living in Little Coram Street. If the reader happens to know that dingy neighbourhood, he will be able to appreciate the merit of rearing fine Geraniums and Fuchsias in its dark and noisome courts. . . . But still more touching was it to see, attached to some well-grown plant, such a label as this: "Grown in the Workhouse by ——." We all know what consolation the little Picciola plant was to the prisoner in the grim Austrian fortress; and doubtless the "Balm Geraniums" which flourished so kindly in the workhouse, gave new heart to some poor inmate.

"The plants exhibited by the children of the different schools were generally grown from seeds. The stone of a Cherry, or the pip of a Lemon or an Orange dropped into the flower pot, has engaged the care of little urchins for months, and the result is a series of little seedling trees. This may be a small matter horticulturally, but morally it is a large one. With the dropping of this little vegetable seed in the earth, there is also a dropping of good seed into the heart, which one day will bear good fruit. Side by side with the flower-show movement for the working classes, is another, called the 'Clean and Tidy Room' movement, and it will not surprise the reader to hear, that many of those who carried off the prize for the best plant, also gained the prize for the clean room."

Dr. Wynter's profession leads him to the study of mental disease, and he treats his readers to a "bit of the shop" in his last paper, entitled "Early Mornings," wherein we are informed that in this busy toiling money-making world, "there is an immense amount of latent brain-disease in the community, only awaiting a sufficient exciting cause to make itself patent to the world."

Starting with this notion, the Doctor would have us watch narrowly the relative who should offer to help us to pudding when there is only pie upon the table, or who should bid us take a glass of sherry, and immediately correct himself and say "I mean port." This we think absurd. It may, however, be true that most persons are more or less afflicted with incipient brain disease, and the worthy Doctor will excuse us for having looked with a little suspicion at certain morbid symptoms in himself, induced apparently by the oppressive sight of anything uniform; thus a row of similar houses with knockers of the same pattern, must he opines be highly dangerous to the sanity of the unfortunate policeman in his monotonous beat. A series of houses papered with the same pattern is also manifestly an exciting cause to the Doctor; but enough of this, everybody will have his idiosyncracies, and the old saying is still true—"*Nemo mortalium omnibus horis sapit.*"

Books Received.—Three Prize Essays on *Physical Education*, written for the Athletic Society by Luke Owen Pike, M.A., Lord William Lennox, and Rowland Evans. The first takes the high classical ground "that sound bodily health is a virtue, and that athletic exercise is one of the modes of practising it. Health, in its true sense, includes all the virtues." This is the production of the M.A. The noble lord describes for us the "Ludi Circenses." The unadorned commoner describes "the exercises best calculated to develop the muscular system."——*Handbook to the Calculator and Letter Box*, by J. S. Laurie (Longmans), is a small pamphlet to explain an ingenious method of giving children a clear and definite conception of number. Sad to relate, it even talks of teaching fractions to infants. What a mistake!

Garden Memoranda.

Chillingham Castle.—This, the seat of the Right Hon. the Earl Tankerville, is situated in the northern division of the county of Northumberland, about four miles distant from the town of Wooler. The Castle stands on the sloping side of a hill facing the north-west. On the north-east is a deep valley, containing very large trees, principally Wych Elms, among which are great numbers of serpentine walks, which form pleasant retreats in summer.

The Castle itself is a very ancient building, to which some later additions in the Elizabethan style of architecture have been made. The parapets are all castellated, and a castellated wall carried some 400 or 500 yards west of the mansion forms the retaining boundary of the flower garden. The approach from the Wooler Road runs through a fine avenue of Lime trees planted 30 years ago, and now in vigorous health; they are 40 feet high, and are placed rather close to the road, with the view of their ultimately forming a leafy arch over the carriage way.

The flower garden on the north-west side is entered through a door in the retaining wall just mentioned. This garden, which is about 450 feet long and 360 feet wide, is laid out in geometric shaped beds, and the mixed style of decoration is that here adopted. A rough stone wall at the end of the flower garden is covered with the beautiful Fern Asplenium Trichomanes. Another wall is partially covered with creepers, among which Wistaria sinensis is a prominent feature. A ribbon border carried along under the wall is planted with Lobelias, Golden Chain Pelargoniums, Calceolarias, Scarlet Pelargoniums, Dahlias, and Hollyhocks. The beautiful Lonicera aureo-reticulata is introduced as an edging plant, and if found to produce sufficient leaves, it will be a most desirable plant for that purpose. There are four large squares of Grass in the centre of the garden, and outside of these are beds containing herbaceous plants in the centre, and ordinary bedding plants round the outside. Dahlias, Hollyhocks, and Phloxes, are largely used amongst herbaceous plants, and altogether the effect produced is good. Amaranthus melancholicus ruber succeeds well here, but Coleus Verschaffeltii fails entirely; let us hope that the former at least may continue to withstand our ordinary summers as well as it has done this season. If so, it will doubtless prove one of the handsomest of foliage plants employed for the lasting decoration of our flower-gardens.

A broad flight of steps, 28 in number, connects the flower garden with the pleasure ground on the south side of the Castle. Half way up the steps is a broad landing, on a level with which is a grassy terrace overlooking the flower garden. The south front of the Castle is partially covered with climbing plants, among which are Jasmines and Roses, 20 feet high; and some portions of the wall are covered with Ivy to the very top. A flower border made close to the house is edged with a stout stone kerb, and filled with gay flowering plants; this is the only border for flowers on this side. The lawn, which is about 4 or 5 acres in extent, contains some fine Hollies, also some very large trees of the Wych Elm. On the north front an inclosure of about 2 acres contains some specimen Conifers, also Limes, Oaks, and Maples, &c. All the Deodars and Araucarias were killed during the severe winter of 1861.

The kitchen garden lies a short distance N.E. of the Castle; it is 3¾ acres in extent, and has a good wall on three sides and across the centre; there is also a low wall on the north-west side. A Vinery 100 feet long, divided in the centre, contains in the first division, Muscats, Chasselas Musqué, and Black Hamburgh Grapes. Mr. Bowie, who has been gardener here for upwards of 20 years, is trying the effect of cutting the stems of the bunches of Chasselas Musqué nearly through, to prevent the berries from cracking, but apparently with little or no effect, the bunches so treated being cracked as badly as those not operated on. The back wall is covered with Figs. The second compartment is planted principally with Black Hamburghs, which were, when we saw them, bearing a good crop. At the end of this Vinery is a Fig house, 45 feet long and 17 feet wide; the Figs are all grown in pots and bear abundantly; the kinds that answer best are White Ischia, Brown Turkey, Angelina, and Figue d'Or. These trees are kept in the house all the year round, and bear two or three crops during the season. They are root-pruned every second year. In front of these houses are long borders for flowers. Stocks and Asters are grown here in fine condition; also many other plants. Against the wall are some very large Apricot trees, bearing good crops. The Moor Park is the variety generally grown; there is, however, another variety called Walton Seedling, but it is inferior to the Moor Park.

Pear trees on walls are bearing fine crops, and many kinds of Pears also ripen well on standard trees. Peach trees were all killed during the severe winter of 1856, and this description of crop is so very precarious in this northern latitude that the trees have not been replaced.

Many walks run through the park in various directions; and near the Castle a great many Wellingtonias and other rare Conifers are planted. The park contains from 1500 to 1600 acres within the boundary line, and in some places is very diversified, part being high hills, the rest flat table land; it contains a great quantity of timber, but none of large size. Mr. Hardie, the steward who has the charge of the estate, has thoroughly drained a great portion of the park, and the improvement made in the land is plainly visible, for good herbage is taking the place of Rushes and similar plants. This park contains the only herd of wild cattle in England. They are of medium size, white, with dark ears and very long horns, and are highly prized by Lord Tankerville.

Mr. McKenzie's Nursery, Kemp Town, Brighton.—It will be recollected that when new and old Black Hamburgh Grapes competed for the mastery at South Kensington last January, the best bunches of new ones were furnished from this Nursery by Mr. McKenzie. These were produced by Vines which, when they came into Mr. McKenzie's possession, were in a very bad state, so bad indeed, that in 1859 the crop was cut at pruning time, and not one bunch was saleable. Next year the Vines were started early, the season after that still earlier, and so on until the year in question, when the first crop was cut in February. The Vines were then rested until August, when the house in which they were growing was shut up, and even with very little fire when setting, and none when colouring, perfectly ripe and good fruit was obtained on the 1st of January. Had the Vines been in more vigorous health, the result would doubtless have been even more remarkable; but as it was the produce brought 30*s.* a pound in the market, a price which Mr. McKenzie states paid him very well for his labour. He is, however, of opinion that more credit is due to the cultivator who can ripen first-rate new Grapes on the 1st of March than to one who can provide them in January; but he adds that the prices obtained at the latter season are generally the highest. Grapes are grown largely here for sale, occupying as they do from 300 to 400 feet in length of glass. Among other varieties we noticed the original plant of the Marchioness of Hastings, a Grape raised in this nursery by the late Mr. Mitchell; also the stoneless Sultana Grape of the shops, and a fine crop of West's St. Peter's, which will keep very well until Christmas. Large ranges of glass are also occupied by Peach trees in a good bearing state, and by plants for sale. The nursery altogether consists of about 4 acres of ground, well cropped, and in excellent condition.

Miscellaneous.

Earthquakes in Japan.—In this part of Yedo there is a celebrated Buddhist temple named Eco-ying, which was erected to the memory of 180,000 human beings who lost their lives in one night about 150 years ago. As the story runs, on that night occurred one of those fearful earthquakes which so heavily afflict this beautiful country. Houses were thrown down in all directions, and hundreds were buried alive in the ruins; conflagrations naturally followed, and this city of wooden houses was almost destroyed. The natives of the country seem to dread these earthquakes even more than the

foreigners who are now located amongst them. An intelligent Japanese, who spoke English well, expressed his fears that his country would one day disappear from the surface of the globe, and sink down under the waves of the ocean. He had been told that an island out at sea, once fair and verdant, covered with people and houses and trees, was now nowhere visible, and that ships sailed over the spot where it once was. Earthquakes are so common in Japan that meteorologists have a division in their tables in order to mark their occurrence. Dr. Hepburn, to whom I am indebted for a table showing the temperature of Kanagawa, has one of these columns in his table. By a reference to it it will be found that from the 1st of November, 1859, to the 31st of October, 1860, no less than 28 shocks had been felt. In November, 1861, four are marked, and in February, 1861, there are the same number. This will give some idea of the frequency of the shocks, and of the volcanic nature of the country. When we consider how often these earthquakes happen, and how awfully violent they sometimes are, it is scarcely to be wondered at if the natives of the country view them with feelings of awe and dread, and express their fears that some day their fair and beautiful land may disappear in the waters of the sea. *Fortune's "Yedo and Peking."*

How to Grow Disa grandiflora.—Many attempts have been made to cultivate this Disa since its first introduction in 1832, but most of them have failed in consequence of inattention to the peculiarities of the constitution of the plant. About two years ago, when a fine specimen, which I had had under my care for two years, flowered splendidly, I gave an account in the *Flore des Serres* of my mode of cultivation. I return to the subject now, because winter is approaching, and it is then that the plant requires the greatest care, a fact which is not even yet sufficiently known. Unlike the generality of plants, which require rest in winter, Disa grandiflora ought then to be in full growth. To give it rest between November and March is to destroy it; and this explains why all efforts to keep the plant in health used formerly to fail. In its native country Disa grandiflora grows on the banks of still waters; its roots being submerged in winter, and dry throughout the summer. It is in October that with us the plant ought to begin to vegetate. Young plants may be advantageously put into pans about 6 inches wide and 3 inches deep, for as the roots spread laterally rather than strike deeply, and as the Disa propagates itself by suckers, such pans are most convenient. The drainage, whether by stones or Moss, must be good, and the earth should be a good healthy soil or rather a rich fibrous peat. In such a soil I have succeeded in getting three flowers on each stem instead of two, which is the common number; and in the same soil a young plant which had not, in December, a healthy root, began to grow well before the middle of January. In order to favour the production of roots, the Disa should be placed in a greenhouse near the glass, and be syringed once or twice a day; and the syringings (as the roots grow) and the season advances, should become more frequent, until they reach three a day. The plants do not grow well until the roots are fully developed, which they usually are, according to my experience, in January; then it is time to shift the plants which are strong enough to flower, to a place near the sashes of a hot-house, for they can bear a great deal of heat at this time. Syringing should be kept up three times a day: this does instead of other watering, and keeps off the insects, which might otherwise do mischief. If the plants are strong, flower buds will appear in March or April, and will expand in April or May. The flowers last six weeks or two months, and in this respect Disa surpasses Sobralia. Weak plants indeed very often flower, but they only produce one flower, and for this reason it is better to let them remain in the greenhouse. After the flowers have appeared, less water should be given, and the plants should be removed to a cool shady place in a greenhouse or in the garden; by this means the beautiful blossoms may be kept fresh much longer. The same should be done with those plants which have not flowered; they should be placed in a shady place in the garden, and be syringed less and more lightly; for summer is their time for rest, and the object is to keep them dormant until October, when they should be treated as described. The trouble will be more than repaid by the appearance of numerous flowers, unsurpassed for their exquisite beauty. *Stelzner in the Journal d' Horticulture.*

Mr. Fortune's Japanese Plants.—The two days' sale terminated on Thursday with a total result of some 600*l.* or 700*l.* Among the more remarkable lots the following fetched the prices here annexed:—Aucuba japonica vera, from 5*l.* 10*s.* to 9*l.* per plant, varying from 2 to 3 feet in height; Euonymus radicans variegatus, from 18*s.* to 4*l.* 4*s.*, ditto; Lilium auratum, from 2*l.* 4*s.* to 5*l.* 10*s.* per plant; similar lots of Sciadopitys verticillata, from 2*l.* 15*s.* to 3*l.* 10*s.*; Double-flowered Deutzia crenata, from 1*l.* 5*s.* to 2*l.* per lot of one plant each; Eurya latifolia variegata, from 1*l.* to 2*l.* 12*s.* 6*d.*; Retinispora pisifera, and others, from 1*l.* to 4*l.* 8*s.* per plant; similar lots of Ilex Fortuni, from 17*s.* to 1*l.* 7*s.*; Osmanthus ilicifolius and its variegated variety, from 15*s.* to 1*l.* 12*s.* per plant; Thujopsis dolabrata variegata, from 5*l.* to 13*l.* per plant. These were the original imported specimens. Other lots, of which there were in all 628, fetched from 5*s.* to 30*s.* per lot.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—In cool conservatories and greenhouses damp or insects soon do irreparable injury to soft-wooded plants at this season, and these must be attended to if the plants are to be wintered in first-rate condition. Pelargoniums should be kept rather cool and dry, giving whatever water may be necessary on the mornings of fine days, so that the superfluous moisture may be dried up before the evening, avoiding the use of fire heat except when necessary to prevent the temperature falling below 40°, or to dispel damp when this cannot safely be done by giving air. Calceolarias require very similar treatment, except that they are subject to the attacks of thrips, unless afforded a moist atmosphere; they must therefore be narrowly watched, and fumigated lightly two or three evenings successively if this pest makes its appearance, keeping the atmosphere moist and giving air on every favourable opportunity to prevent the foliage from flagging. Cinerarias for late blooming must also be kept cool and airy, and should not be allowed to suffer from want of pot room. These must not be trusted in cold pits after this season, for they cannot endure frost without injury. Plants intended to flower early should be encouraged with a gentle heat, keeping them near the glass and admitting air whenever it can be done. Attend to Hyacinths and other bulbs, and introduce them into heat as required.

FORCING DEPARTMENT.

Pinery.—Water plants in pots as little as possible at this season. Where the general stock is grown in this manner it is a good plan to cover the pots over 2 or 3 inches with the plunging material; where the bottom-heat will permit that to be done it obviates the necessity of watering so frequently.

Vineries.—Where forcing is commenced be careful to maintain a properly moist state of the atmosphere, and this must be especially attended to in the event of severe weather, particularly when the buds are bursting. The evaporating troughs must be kept constantly supplied with water, and the paths, bed, &c., should be frequently syringed. If fermenting material is used for warming the border, this must be well covered with dry litter, and turned occasionally, adding some fresh material as may be necessary to keep the heat in the border regular.

Peach-houses.—Take advantage of rainy weather, should it occur, to prune, wash, and tie such trees as have not already undergone these operations.

Cucumbers.—Look sharply after woodlice, which sometimes do much mischief in little time to young plants. A cooked Potato put into a flower pot and covered with dry hay or Moss is a good trap. The best of all remedies however is Mr. Cuthill's plan of pouring boiling water round the insides of the pit or house close to the walls, care being taken not to injure the roots. Bearing plants in pots or boxes will now be benefited by being top-dressed with rich soil.

FLOWER GARDEN AND SHRUBBERIES.

Examine pillar and trellis Roses, and if the weather continues favourable see if the soil wants renewing or the kinds changing. For choice sorts roomy holes should be made capable of containing three or four barrow-loads of well prepared soil. Turfy loam of good quality is the chief thing; to this add a portion of rich rotten manure, and, if at hand, a little sandy peat or leaf-mould. Crocuses may be planted whenever the weather is favourable; they like a deep, light, rich sandy soil; but will thrive in any ordinary soil or situation. In planting, the bulbs should be covered from 2 to 3 inches with fine mould; and if an effective display during the first season is desired, plant thickly—not more than 2 inches apart. For edging borders and beds the Crocus is also exceedingly useful; and, where planted in lines along the margin of walks, or in clumps of 3, 6, 12, or more bulbs each, and allowed to remain in the ground for several years, the effect of the masses of flower which they produce is all that can be desired. We have seen a very effective display in a flower garden in March, produced by each bed having a broad edging of Crocus, the colours being nicely arranged and contrasted. This may be secured without interfering with either the spring or summer occupants; for the bulbs may be planted close to the outside of the bed, where they will scarcely be in the way, either in digging or in planting. Unless the bulbs become too numerous, and the leaves spread over more space than it may be desirable to have covered with them, they should not be disturbed, as they bloom more profusely when well established. Care must be exercised, however, to protect them from mice, which are exceedingly partial to Crocuses, especially in winter. For blooming in-doors, either in pots or in any of the various contrivances that are used instead of pots, strong bulbs should be selected, planting them in succession, and keeping the crowns slightly under the surface of the soil; place them in any dark cool situation, for three or four weeks, to allow of their making roots, before exciting them into growth. If pots are used—and these are doubtless the best, if not the most ornamental—use good rich, sandy soil, and secure perfect drainage; for a liberal supply of water is required during the blooming period, and if the drainage is defective, the soil is very apt to become soddened in consequence.

HARDY FRUIT AND KITCHEN GARDEN.

Trench, dig, and ridge every spare inch of ground while the weather will permit these operations to be advantageously performed. This is particularly to be observed in gardens the soil of which is of a clayey nature. Prepare a plot of ground directly for the earliest Peas by thorough digging and manuring; they may be sown now while the weather is favourable. A few Mazagan Beans may also be planted at the same time. Let all Carrots be taken up and stored away, likewise Beet; a few Parsnips for present use may be taken up; they will, however, keep well in the ground, and thus circumstanced they may have a coat of manure spread over them for the next crop and trenched out as wanted. Some recommend to cut the head of the Carrots completely off below the neck, thus checking their tendency to grow. They may then be put in pits like Potatos, raising a sharp ridge over them to keep out wet. Proceed with pruning fruit trees as soon as the leaves are fallen; let nothing of this sort remain till spring, which will bring its own labours. Get all superfluous nails and shreds drawn soon, in order to furnish in-doors work in bad weather.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Oct. 21, 1863, as observed at the Horticultural Garden

Oct.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 15	3	29.595	29.515	62	44	53.0	56	56½	S.	.14
Friday 16	4	29 845	29 750	65	39	52.0	55½	56	S.	.01
Satur 17	5	29 965	29.880	66	35	50.5	56	56	W.	.00
Sunday 18	6	30.106	30.026	65	40	52.5	56	56½	S.W.	.00
Mon. 19	7	30.036	30.007	65	51	58.0	57	57	S.W.	.01
Tues. 20	8	30.030	30.002	63	47	55.0	57	57	N.E.	.02
Wed. 21	9	30.100	30.064	64	45	54.5	57	56½	N.E.	.00
Average.		29.953	29.892	64.3	43.0	53.6	56.3	56.5		

Oct. 15—Rain; foggy, fine at night.
— 16—Fine, with clouds; slight rain; fine.
— 17—Slight drizzle; clear and fine; cool at night.
— 18—Partially overcast; fine throughout.
— 19—Overcast; cloudy and rather windy; slight rain; fine and mild.
— 20—Overcast; shower; fine at night.
— 21—Foggy, hazy and mild, very fine.
Mean temperature of the week 4 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending Oct. 24, 1863.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 25	55 9	38 9	47.4	18	0.80 in.	4	6	5	3	4	7	5	3
Mon. 26	55.4	36.7	46.0	15	0 52	5	5	3	—	7	7	5	3
Tues. 27	54.8	39.1	46 9	23	0.92	2	6	1	1	7	6	7	5
Wed. 28	54.5	36.7	45 6	22	1.06	2	6	3	—	7	12	3	4
Thurs. 29	53.5	34.8	44.2	17	0.63	4	7	4	1	5	13	1	2
Friday 30	55.1	38.4	46 7	18	0,98	3	8	3	3	4	13	2	1
Satur. 31	53.9	38.3	46.1	20	0.88	1	4	4	2	2	13	7	4

The highest temperature during the above period occurred on the 29th, and 30th, 1833, 31st, 1854, and 28th, 1860—therm. 67 deg.; and the lowest on the 29th, 1843, and 25th, 1859—therm. 23 deg.

Notices to Correspondents.

Books: Received with thanks, as a loan, Gell's Handbook, which shall be returned when fully considered. We must consult Indian botanists.—*A Subscriber* probably means Paxton's "Botanical Dictionary." Keep your Oleander in a good-sized pot, away from frost. In summer give it plenty of water and heat; in winter withhold the former.—*L T D.* Gordon's "Pinetum," to be had of all booksellers.—*Practical Botanist.* There is nothing exactly replaces the publication you mention. Seemann's Journal of Botany is the nearest, but it is dearer and more general; it has a plate however. We should advise you to get a specimen number of that; of the Popular Science Review, and of the Natural History Review, and make your own selection.

Insects: *J B C.* The grubs injuring the Grass of your lawn are the larvæ of the common cockchaffer. We are afraid that nothing but removing the turf and digging up the soil will stop them.—*S T P.* We believe the larger drawing represents the larva of Orthosa stabilis or mimosa; and the smaller one that of Mamestra Pisi. We should think the "Zoologist" might answer your purpose, or the "Weekly Entomologist." *W.*

Names of Fruits: *A Subscriber.* 1, Yorkshire Greening; 2, Beachamweli; 3, Blenheim Pippin; 4, Reinette du Canada; 5, Pomme Royale; 9, Swan's Egg.—*J T.* Comte de Lamy.—*J B.* 1, Gansel's Bergamot; 2, Easter Beurré; 3, Louise Bonne; 4, Norfolk Beaufin; 5, Boston Russet.—*G.* Louise Bonne.—*J L.* Crimson Queening.—*W H.* 2, Beurré Bosc; 3, Knight's Monarch; 1, Blenheim Pippin; 3, Gravenstein.—*P & M.* 2, Beurré Rance; 1, Winter Crassane; 4, Crimson Queening.—*W G.* 2, Wormsley Pippin.—*A Correspondent.* 2, St. Julian; 4, The large long Pear is Vicar of Winkfield, better grown than it usually is in our climate; 5, Doyenné Gris.

Names of Plants: *W C.* Possibly Staphylea pinnata; but no one can name with certainty wretched shrivelled leaves without flowers.—*A C.* 1, Rubus pauciflorus; 2, Catasetum integerrimum.—*G T.* Gossypium herbaceum.

Ribbon Border: *Eliza.* That at Theobald's Park alluded to last week consists of Lobelia speciosa, Pelargonium Bijou, Calceolaria Prince of Orange, Perilla nankinensis, and Pelargonium Lady Middleton. The Portugal Laurels in the flower garden, which is well furnished with Standard Roses of all the leading kinds, are not in tubs as stated at p. 991, but planted out in the open ground. Magnificent specimens of Portugal Laurels also line the sides of a walk leading to the Tennis Court.

Seedling Dahlia: *R Josling.* You should send it for trial next year at Chiswick, along with others of the same race. If it is only 2 feet in height it is likely to be just the thing wanted, the colour being a very cheerful rose, and the character quite that of a pompon.

The Egg Plant: *G A.* The common sort is not very wholesome. But if you have the large sorts called Aubergines or Brinjalls, then they make a capital side dish cooked in the following manner:—Split the fruit lengthwise, and take out the interior; throw the halves into strong salt water to extract the acrid matter from them; dry them in a cloth, dust a little fine pepper over them, put pieces of butter in and about them, and bake in a Dutch or any other oven, basting occasionally with the butter. Serve up hot. There are other ways, but none better than this.

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This best plant is called "*the selection*" of the year (say 1861) in which it is thus obtained, and consists of numerous ears, containing many hundreds, and even thousands, of grains which are planted separately; those of each *ear* being kept quite distinct, as although the best grain of any plant is nearly always found to lie in its best ear, it may be otherwise, and the successive parent *ears* must be preserved. At the following harvest (1862), the best plant forms "*the selection of* 1862," and its produce is continued on the experimental ground, while that of the remaining plants furnishes the annual seed for the farm in the Autumn of 1862, and the crops are in 1863 offered to the public. Thus, the selection sold is that of 1861, or in any year that of two years before; *the latest selection, that of the year immediately preceding, is not sold, being solely employed as the home seed.* The separate ears of a plant are designated by different letters, numbers, or names—as A, Z, &c., and each, with its descendants, forms a "*family*" which may develope some valuable peculiarity.

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The original ear of the large published engraving contained up one of its sides 16 "ranks" (spikelets) of grains, while the "Z family" has produced ears of 18 "ranks," and this, without any increase in the *length* of the ear, the "notches" of the axis on which the spikelets grow being placed more closely together. In a small field of this Z family, ears with 17 "ranks" were quite common, while in other fields of the family "A," *not one such ear could be found.*

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CIRENCESTER.
AUTUMN SESSION, 1863.

President—THE RIGHT HON. THE EARL BATHURST.

Council.

The Right Hon. THE EARL BATHURST.
The Right Hon. THE EARL DUCIE.
The Right Hon. T. H. SOTHERON ESTCOURT, M.P.
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Principal—The Rev. JOHN CONSTABLE, M.A., Trin. Coll. Camb.

Resident Professors.

PRACTICAL AGRICULTURE.

J. L. FLETCHER, Farm Manager.
*T. BALDWIN, of Glasnevin—A Course of 20 Lectures on Crops.
*R. SCOTT BURN, Co-editor of the Book of Farm Buildings—A Course of 12 Lectures on Agricultural Machines.

CHEMISTRY.

ARTHUR H. CHURCH, B.A., F.C.S., Smith's Exhibitioner, Lincoln College, Oxon.

ASSISTANT TO CHEMICAL PROFESSOR.

R. WARINGTON, Jun., F.C.S.

BOTANY.—JOHN BAYLDON, M.B. Lond. B. Sc.

VETERINARY SURGERY.—A. J. MURRAY, M.R.C.V.S.

MATHEMATICS AND SURVEYING.

W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.

DRAWING.—JAMES MILLER.

* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

AGRICULTURE.

J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
THOMAS ELLMAN, of Beddingham, Lewes—Lecture on Southdown and Short-woolled Sheep.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.

AGRICULTURAL CHEMISTRY.

THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.

For further particulars apply to the PRINCIPAL.

MESSRS. WAY AND EVANS, ANALYTICAL and CONSULTING CHEMISTS, receive PUPILS for the study of AGRICULTURAL and GENERAL ANALYTICAL CHEMISTRY.

106, Leadenhall Street, E.C.

THE NATIONAL EXHIBITION of SPORTING and OTHER DOGS.

President—The Right Hon. the Earl of LICHFIELD.
Vice-President—The MAYOR of BIRMINGHAM.

The FOURTH GREAT ANNUAL EXHIBITION of SPORTING and other DOGS will be held at BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY and THURSDAY, November 30, and December 1, 2, and 3, when Prizes exceeding 530*l.* will be awarded.

The ENTRIES CLOSE on NOVEMBER 2.

Copies of the Prize Lists and Regulations may be had on application to the Secretary. GEORGE BEECH, Secretary.

Offices: Rectory Chambers, Temple Row, Birmingham.

THE BIRMINGHAM CATTLE and POULTRY SHOW, NOVEMBER 30, and DECEMBER 1, 2, and 3.

EXTENSIVE GALLERIES having been erected in BINGLEY HALL, the Council have a considerable Quantity of both GROUND FLOOR and GALLERY SPACE to LET, suitable for the EXHIBITION of IMPLEMENTS and MACHINERY, SEEDSMEN'S STALLS, &c.

At the General Annual Meeting of Subscribers held at the Hen and Chickens Hotel, Birmingham, on Thursday, Dec, 4, 1862.

IT WAS RESOLVED,

"That it be a recommendation to the Council in future to restrict the Articles admitted for Exhibition, in addition to the Cattle and Poultry, to Agricultural and Horticultural Implements, Tools, and Machinery, Roots, Grain, and other Farm produce, and other Articles to be used in connection with Agricultural and Horticultural Pursuits."

Plans of the Hall, showing situation of space, Terms, and Forms of Entry, may be obtained from the Secretary.

The ENTRIES CLOSE on NOVEMBER 7.

JOHN B. LYTHALL, Secretary.

Offices: 13, Temple Street, Birmingham.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1863.

The FIFTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in Bingley Hall, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 1, 2, and 3, when PRIZES to the amount of £1940 will be awarded in the following Divisions, viz.:

FAT CATTLE	.. ..	£784	5 0
FAT SHEEP	.. ..	275	15 0
FAT PIGS	.. ..	60	5 0
BREEDING PIGS	..	76	10 0
CORN and ROOTS	..	68	5 0
POULTRY and PIGEONS		674	4 0

Prize Lists and every information may be obtained from the Secretary.

The ENTRIES CLOSE on SATURDAY, October 31.

JOHN B. LYTHALL, Secretary.

Offices: 13, Temple Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW, 1863.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY AFTERNOON, December 7, and four following days.

The Prizes consist of 1825*l.* in money; 60 Silver Medals; 6 Silver Cups, and a Gold Medal.

The ENTRIES for LIVE STOCK CLOSE on NOVEMBER 2.

Prize Sheets and Printed Forms of Certificates, with full particulars, can be obtained on application to

Mr. DAVID PULLEN, Assistant Secretary,

At the Office of the Honorary Secretary,
Corner of Half Moon Street, Piccadilly, London, W.

N.B.—Applications for Prize Sheets and Forms of Certificates must be addressed to the ASSISTANT SECRETARY as above, and all letters must bear outside the words "SMITHFIELD CLUB."

The ENTRIES for the IMPLEMENT DEPARTMENT CLOSED on OCTOBER 1.

The Agricultural Gazette.

SATURDAY, OCTOBER 24, 1863.

ECONOMY OF FUEL in the use of steam is pressing itself every day more and more upon the attention of the agriculturist. The progress of this question is indeed literally of a daily kind. A man buying or employing an engine for the first time, does not even think of economising fuel—of using two or three pounds of coal instead of six or eight per horse-power per hour. The farmer says—with much truth—that he only occasionally uses his engine, and does not care to save a little coal. After some time, however, the constant drain upon his pocket for fuel, and a heavy coal bill staring him in the face at the end of the year, cause him to think rather differently. But the engine is bought and sold, and matters cannot be changed without great expense.

Again, of late years a new element is coming into play—the mobility of the farm engine. As a rule, steam-engines that are self-propelling, moveable in fact—such as marine engines and locomotives—are, upon the whole, the most economical in fuel. The distance from sources of supply—the necessity for providing power to carry the fuel about, thus paying doubly for it—the necessity for finding stowage room for the coal; all these necessities, among others, have had the usual effect upon invention. These necessities are now being felt to a great extent in agricultural steam-engineering. Economy of fuel means also economy of water, and a reduction of these two items of expense would be of the greatest advantage to steam-ploughing. If traction engines were less hungry beasts, if they consumed less coal and water, they would at once be bought by people who would now almost as soon think of buying a white elephant. At present, it looks

like carrying a chimney sweep in a Bath chair, or a cart-horse in a cart, to their work;—it looks like alternately blowing hot and cold—it is, in fact, an insult to engineering science—to see four horses tugging a "portable" (?) steam-engine to its work.

The difficulties, however, of inducing portable engines to work with a less voracious appetite for coal are very great. Not that these difficulties are of a scientific character. The resources of engineering are ample. They are fully equal to make an engine work with at the most 2 lbs. of coal per horse-power per hour. This saving need not be effected by means of the complicated "dodges"—they deserve no politer term—that help to win the quadrennial engine races of the Royal Agricultural Society; that help to emblazon certain "trade circulars" with delusive assertions in large type. The fire-tubes need not be brought to a high polish by rubbing them up in a scrap-cleaner with emery and oil—the fire-bars need not have a covering of fire-bricks with two equivocally-looking round holes—absurd, unmechanical, and perpetually-leaking "mid-feathers" need not be placed in the fire-box. There is no necessity for breaking up the coal into pieces the size of a hazel-nut—there is no need to make the fire-box plates so thin that there are great chances of blowing up the trial judges, and of thus putting an end to the system. There is no need of having a first-class practical engineer to tend the engine, a gentleman who has perhaps been engaged for the last six months "in running off the friction" of the engine that has to perform in public—he need not administer sly drops of oil to the coal he has to feed into the firebox—the firebars, firebox, and firetubes do not require to be furnished, before sending off the engine, with an imperceptible but useful film of oil.

If manufacturers would but apply the money, ingenuity, and enterprise they lay out in preparations for these races, to sound improvements of the portable engine, common engines would now be consuming much less fuel. The question lies entirely in the hands of the large manufacturers. An inventor, however able, has not the power to recommend his engine to customers. Farmers, on the other hand, do not know that engines ought to work with much less fuel—the eloquent travelling special pleaders of the larger firms joke them out of economical ideas. Makers do not like the expense of altering their designs, patterns, and templets.

Our limits do not at present allow us to enter into the scientific principles of a sound system for economising fuel in agricultural steam engines. It is an extensive subject. We may state, however, that the main directions towards which the portable engine may be improved, are those of higher pressures; higher rates of expansion of the steam; and lastly, of superheating the steam. What is termed superheating is simply heating the steam itself—again heating the product of the water when it has assumed the form of a vapour or gas. The description of engine in which the expansion of the steam can be carried to its fullest extent is the "compound" engine, in which the steam, after being worked in a small cylinder is conducted into a second and larger cylinder, and therein allowed to expand.

Messrs. Allchin & Son superheat the steam of their portable engines, and Clayton & Shuttleworth, by placing the cylinder entirely in the smoke-box, also virtually superheat the steam. In both these plans, however, the superheated steam is in contact with the water, which it absorbs, and the advantage of superheating is thus to a great extent lost. We noticed an engine in the Great Exhibition of last year, in which the economical expedients—viz., a high pressure, a high rate of expansion, working compound, and superheating—were combined with much ingenuity and science; and about a week ago a Correspondent further directed our attention to the plan. The exhibit (*United Kingdom* — 2019), was sent by the inventor, Mr. F. H. Wenham.

The engine—in appearance like a common double cylinder portable engine—was stated to be of 10-horse power, but was evidently only a fraction of the weight of an ordinary engine of this kind. The steam, first fed direct from the boiler to the small cylinder, was then allowed to exhaust into a heating chamber in the smoke box at the end of the boiler. The steam thus expanded by superheating enters the second and larger cylinder, and is finally exhausted into the chimney. A great advantage for ploughing is that the cranks work at right angles. It is stated that with a boiler pressure of 100 lbs. these engines consume only 2 lbs. per horse-power per hour. What a saving of fuel, water, and carriage, this would effect in ploughing!

The plan has already been successfully applied to the yacht of a gentleman well known in the north of England. His yacht can now make much longer voyages, as her engines consume less than half the quantity of fuel used by her former motors. That the plan will be applied to portables before Mr. Wenham's patent is expired, we very much doubt. The inventor can evidently barely make his engines at the price charged by others, and farmers will prefer to go to any established maker that can undersell the inventor's form of engine. *P.*

Some very singular changes in the occupations of the agricultural population are revealed by a comparison of the census of 1861 with that of 1851. It appears that the number of "Farmers and Graziers" has diminished very considerably—the present return being more than 50,000 less than that of 10 years ago. We can hardly believe that there has been actually a diminution of 20 per cent., which this would amount to, on the number of the class—or that the number of farms has been diminished by a corresponding increase of their size to that extent. In all probability, a good deal of the change is owing to a considerable number preferring some other designation. In 1851, 137,426 were returned as farmers' sons, while the number in 1861 who are so designated, is only 92,321. How are we to account for that, except on some such ground. In 1851, there were close on 20,000 male proprietors of land; in 1861, there are only 15,131!

The changes in the numbers of agricultural labourers are also considerable; and in some classes even more astonishing. In 1851 the number of male out-of-door agricultural labourers was 1,006,728; in 1861 it was 914,301. The number returned as shepherds was 19,075 in 1851; 25,559 in 1861. The difference on adding these two sets of figures together is not very great. The number of in-door male servants, however, which was 235,943 in 1851, is only 158,401 ten years later. The practice of boarding labourers in the farm-house is probably dying out; and hence the diminished return; but the men and boys thus lodged elsewhere do not appear in the lists of agricultural labourers at all; the whole class, indoor and out-of-door together, being less by 80,000, or more than 6 per cent. of the whole number than it was. In like manner, or rather in an even greater degree, are female agricultural labourers less in number than they were. In place of 70,899 out-of-door female labourers we have 43,964; in place of 128,251 in-door female labourers we have 46,561! The following are the numbers:—

Employments of the Agricultural Class.

	Males.		Females.	
a. In Fields and Pastures.	1861.	1851.	1861.	1851.
Proprietors	15,131	19,989	15,635	14,638
Farmers	226,957	275,676	22,778	28,044
Graziers	..	3,036	..	11
Farmers' and Graziers' Wives	..	..	163,765	201,736
Farmers' Sons, Daughters, &c.	92,321	137,446	83,830	137,724
Farm Bailiffs	15,698	12,805		
Agricultural Labourers (out-door)	914,306	1,006,728	43,964	70,899
Shepherds	25,559	19,075		
Farm servants (in-door)	158,401	235,943	46,561	128,251
Land surveyors	4,702	1,373		
Land agents	..	2,353		
Agricultural students	490	164		
Hop growers	33	30		
Willow ,,	55	48		
Teazle ,,	81	85		
Agricultural Implement Proprietors	256	50		
Agricultural Implement Workers	1,205			
Drainage service	1,761	11		
Colonial farmers	91	27		
Others	73	12	44	
b. In Woods.				
Woodmen	8,907	9,832		
Others	10	..	9	
c. In Gardens.				
Gardeners	76,760	78,462	1,773	2,484
Nurserymen	2,848	2,631	79	39
Water Cress growers	55	39		
Others	22	..	5	

The leading numbers here are those of in-door and out-door farm servants and shepherds, and we repeat them, dividing them into columns, determining their ages—

Labourers.	Total.		Under 20 Years Old.				Over 20 Years Old.			
			Males.		Females.		Males.		Females.	
	1861.	1851.	1861.	1851.	1861.	1851.	1861.	1851.	1861.	1851.
Out-door	958,265	1,077,627	188,983	198,226	10,202	14,826	725,318	808,502	33,762	56,072
In-door	161,902	304,194	94,959	126,491	20,718	64,713	63,442	109,452	25,843	63,538
Shepherds	25,559	19,075	4,900	2,900	..	..	20,659	16,085	..	..
Total	1,145,786	1,460,896	328,842	327,767	31,020	79,539	809,419	934,030	59,605	119,610

A loss of 5 per cent. of out-door male labourers under 20 years of age, and of 25 per cent. of in-door male labourers of that age is a very serious thing. The loss of 8 per cent. and of 40 per cent. respectively of these classes over 20 years of age, is also an extraordinary thing. But that nearly two-thirds of in-door female agricultural labourers of all ages have disappeared from the list in 10 years is perfectly unaccountable.

The prevention of agricultural steam-boiler explosions—or at least a diminution in number of these disasters—is one of the necessities of the day. The great extension in the use of steam on the farm—the resulting demand for engines, cheap in name, but dear in reality—the employment of old engines, the boilers of which ought to have been long ago sold for old iron—the ignorance of employers of the dreadful latent powers of steam, and of the no less hidden weaknesses to which iron is subject—the two-fold ignorance of the men to whom engines are confided—the constantly increasing pressures at which the engines are worked—the impure water often used:—these causes, among others, are in such continued action that we can seldom take up a daily newspaper without seeing one more of these shameful disasters on record. We say shameful, for it is as much in human power to prevent these occurrences, as it was in human power to construct the instrument itself of these occurrences.

Although some difference of opinion still exists as to the ultimate phenomena attendant on a boiler explosion, the primary causes are very simple. They may be classed under the heads of defective construction, bad material, and slovenly workmanship of the apparatus before it is in use, and bad tending and impure and corrosive water after the apparatus is in use. The three first causes are evidently only to some extent within the control of the farmer. He can choose the maker of his boiler, but it is difficult for an unprofessional man to properly estimate its mode of construction, and it would be impossible for even an engineer to judge of the quality of the plate and workmanship after the usual coating of paint has been daubed over the whole. It would be invidious to specify the defects of some of our makers' boilers; it may be sufficient to say, that we should not always be tempted by a person's name in our purchases. As to the tending of the boiler, it is evidently quite under the control of the farmer. If acidulous water be used, the plates often get honeycombed, sometimes in spots, at others over the whole plate. The sulphur, arsenic, and other substances in the coal, often corrode the plates. The seams and rivets are sometimes allowed to "blow," and the water, condensing on the outside surface, rusts and eats away the plates—often to the thickness of a shilling piece. The incrustation or fur—similar in substance to that deposited on a common tea-kettle—if allowed to go too far, and to get too thick, prevents the heat arriving to the water; the plates get red-hot, are thus weakened, and an explosion

ensues; perhaps the disaster does not then occur, but is staved off to a later period—as the plates are permanently weakened from being "burnt." Or the boiler is worked at a pressure above its strength; the plates are thus extended beyond the "limit of elasticity" of the iron—iron elongates but $\frac{1}{500}$ to $\frac{1}{2000}$ of its length before its limit of elasticity is reached—and the whole boiler is permanently injured. Sometimes the man in charge does not even know the pressure at which his boiler is working; he has screwed down the safety valve, or the lever is irregularly weighted by a piece of chain or a lump of iron. Perhaps the glass gauge has been neglected, and does not tell the true height of the water in the boiler; or the feed valve is perhaps out of order, and the water gets too low, and the plates are "burnt." One or even all of these causes are at work for years. At last, the inevitable day of reckoning comes, and what was a minute ago an instrument of peace and wealth, is now an enormous bomb-shell. A plate—generally below the water-line—gives way. According to the Astronomer Royal "the destructive energy of 1 cubic foot of water at 60 lb. pressure per square inch is equal to the destructive energy of 2 English pounds of gunpowder." The fragments of the boiler—the scalding commingled steam and water—the parts of the engine—are projected like a gunpowder mine all around—and what was a peaceful English homestead, is now a scene of devastation. Perhaps the bread-winners of some three or four poor families are sent to their last account, or, maimed and helpless, they and their families have to be tenants of the workhouse. The employer of small means is often utterly ruined by such an explosion; a rich man is put to an expense in pounds that might have been prevented by a timely outlay of as many shillings. Even when the accident does not ensue from the carelessness—that cross-bred progeny of accident and design—with which the boiler is tended, there is always a great loss of money in heavy bills for repairs; and sometimes of reputation and peace of mind by a verdict of manslaughter against the proprietor.

All these evils were long felt in Lancashire, the part of the kingdom where perhaps the largest amount of steam power is employed. The shrewd Manchester men, however, devised a complete remedy. With the help and advice of Mr. William Fairbairn, the well-known engineer, an "Association for the Prevention of Steam Boiler explosions" was formed in that city some eight years ago. A numerous staff of inspectors and sub-inspectors, composed of practical and experienced engineers, are continually engaged in visiting the numerous boilers,—amounting to more than 1500, under the care of the Association. For a small annual sum, two visits are made every year to each boiler.

The working condition of each boiler is ascertained as correctly as possible—whether it be in a fit state to stand the working pressure—whether the boiler be provided with the proper fittings, such as safety valves, steam gauges, glass gauges, and the other details required to a working boiler, and whether such details be in proper working order. The exact causes of any explosion that may happen in the neighbourhood are carefully investigated, in order to prevent a recurrence of such accidents. The most advantageous construction of a boiler is ascertained by comparison with regard to safety, economy of fuel, and durability. It appears that on an average, nearly 10 per cent. of the boilers examined for the first time were in a dangerous condition. This Boiler Association, dating from only 1855, has not merely been a public benefit, but has been a tolerably paying concern. Another similar Association was formed in Manchester about three or four years ago upon the principle of insuring boilers by means of an annual rate. Another prosperous Boiler Association has been formed at Huddersfield, near Manchester. It is remarkable that on those railway lines that adopt the means used by the Manchester Association for ascertaining the state of a boiler—the hydraulic test—an explosion has been unknown for years.

The three main necessities for the safety of boilers may be shortly stated to consist in, firstly, a periodical professional examination of the boiler, occasionally accompanied with the hydraulic test; secondly, a *vivâ voce* examination of the engine-driver by a qualified scientific engineer.

The following extract from the last monthly (September) report of the Manchester Boiler Association, may point a moral to some of our readers. The account refers to an explosion of a portable engine (not under the inspection of the Association) while driving a threshing machine:—

"The boiler, which was about 12 years old, was a portable one, of the multitubular locomotive type, and was worked at a pressure of about 40 lbs. per square inch. It was stated at the inquest that the safety valve worked freely, and that there was a due supply of water, the explosion being attributed entirely to a defective plate in the fire-box, which had been eaten away by corrosion, until reduced to one-sixteenth of an inch in thickness. This plate had been previously repaired, and at the time of the explosion was cracked through, and though it had for some days been leaking in consequence, had yet been worked on in that state.

"The owner of the boiler was brought in guilty of manslaughter, the jury adding that they thought the appointment of a Government inspector to be highly necessary."

We understand that Mr. C. F. T. Young, C.E., is getting up a boiler association for London and the neighbourhood. These most beneficial institutions are, in fact, spreading, and we hope that some day every boiler in England will be liable to a careful examination at intervals as to its working state. The operations of the Manchester parent Association already extend from Chester on the south-west, to Darlington on the north-east; from Sheffield and Rotherham on the south-east, to Preston and Longridge on the north-west.

We thus had lately the pleasure of recording a movement set on foot by the Suffolk Agricultural Society, for founding a system by which agricultural steam boilers will be subjected to a systematic scientific inspection. This alone would be sufficient to make that society worthy of the thanks of the country, as having incorporated the first Agricultural Boiler Association. Their path is, however, plain and clear before the Society. Guided by the experience of the Manchester Association they cannot go far wrong in such a well-beaten track. Indeed we do not see why the Suffolk Boiler Association should not be an offshoot from the Manchester stem.

The advantages of such a society will not be confined to the prevention of explosions. The skilled engineers of the staff of inspectors will teach the engine-owner to take proper care of the engine. Instead of leaving the piston in a cylinder half-full of water for months, the cylinder lid will be taken off, the piston taken to pieces, its rings packed away, and the whole inside of the cylinder itself carefully painted with hot tallow. The fire-box will be cleaned out, and the mud-plugs taken off, to clear the bottom of mud. The working details will be—at the least—carefully greased, and covered up. As with the Manchester Association, the engines will be indicated in order to ascertain the consumption of fuel of each engine per horse-power; to thus remedy any waste of fuel through a disarrangement or bad proportioning—by the maker—of the slide valve. Many other defects leading to waste of fuel will be shown by a new and excellent indicator lately invented in the Federal States, and imported last year into England. Nothing more than an engine exemplifies the necessity of an early attention to seemingly slight defects. The nail dropped from the horseshoe that led to the death of the rider, has its counterpart in the loss of a small split pin that may lead to the cylinder-cover being knocked out; the stitch that saves nine is as applicable to a boiler seam as to the seam of a lady's dress.

It is a trite observation, that one of the chief features of English life is the absence of Government control and supervision. We have no *préfet* system, and but little of the centralised organisation observable on the Continent. Our present system of administration, or rather of no-administration, undoubtedly lies at the root of much that is strong, of much that is good in England and the English. But it is not an unalloyed blessing. Apart from such general questions as those of the public health, of general education, and similar national objects, if we regard the questions more within our own scope, we find that a timely Government interference might have prevented much evil; that partial Government interference is doing much good. There is no doubt that if Government had put itself at the head of the railway movement, we should soon have better and cheaper railways, with fewer accidents and higher dividends. The present limited Governmental inspection of mines has done much good, a more extended inspection might do yet more. The various Factory Acts have been immense benefits to both operatives and employers. There is no doubt that next year Mr. Laird will carry his Chain Cable and Anchor Bill, rendering compulsory the initiatory and periodical testing of chain cables and anchors. In exactly the same way as with iron steam boilers, iron cables lead to lamentable loss of life, if used without a due certainty as to their trustworthiness. It is within our own knowledge that a similar compulsory Act has been proposed to the Administration of the country with regard to boilers. There is little doubt that the owners of steam boilers have now to choose between private inspection, or an eventual interference by Government.

We wish the Suffolk Agricultural Society good speed in their undertaking. Their success will lead to an annual saving of life and property, and agriculturists will be taught to work their engines with much less expense both in fuel and repairs. *P.*

THINGS THAT LANDLORDS SHOULD KNOW.

Everything that tends to increase the profit of farming, must directly or indirectly benefit the landlord, either by increasing his rental or raising the value of his land, probably both. Every effect has its cause, and there are unfortunately so many preventible losses in agriculture, that I propose one by one to enumerate some of them.

Shelter.—Animals differ in no degree from ourselves in the appreciation of a dry bed and a dry skin, a warm corner in winter, and a cool one in summer. How imploringly will cattle and sheep stand at the field gate in bad weather, when they know there is shelter for them elsewhere. How quickly sheep will avail themselves of a wooden hurdle, a hard road, or even a wheelbarrow or piece of board to lay upon, so as to avoid contact with the wet ground (damp sheets). It is a well known and admitted fact that a saving of one-third in food results from providing shelter when required. Add this gain, or deduct the 33 per cent. of loss over our 56 millions of acres, with their tens of millions of animals, and you are astounded at the enormous sum total.

Exposure, even in dry weather, to a sharp wind, abstracts an immense amount of caloric from the body, which must be made good by the fuel or fat of the food. Even with well-woolled sheep this takes place in degree, and it must interfere with their repose, for we cannot rest well when cold.

It is surprising how easily one may extemporise effective shelter. I find it undesirable to house animals at night, and turn them out in the day; the extreme variation gives them cold. I therefore, after threshing my first Wheat, stack the straw, thatch it ready for next harvest, place it on a pasture, surround it at some distance with hurdles, throw down a little straw close to the stack, and make this the night fold yard for my cattle. Here they get their cake, bran, or dry food. Bullocks soon establish, by rubbing and grooming themselves, a comfortable arcade of straw on either side, or at each end, according to the wind. Under this they lie comfortably ensconced, free from driving rains or strong cold winds, and in the day time, weather permitting, go to their feeding ground.

The act of grooming themselves gives cleanliness, and stimulates circulation in the skin, and pays well in the health and condition of the animals. They know, if their owners do not, that Wheat straw is a non-conductor of heat or damp, and they choose it for their bed with unerring sagacity.

There is no currycomb or horse brush so effective as good strong reedy Wheat straw, free from weeds, especially if you have trimmed or shaved the stack. Where reaping by hand is still the practice, a good haulm stack answers well. If landlords knew how cheaply a close shed or covered yard could be erected, and how much it influences and preserves the condition and quality of animals and manure, they would erect them, charging their tenants 5 per cent. for the outlay.

I have such a shed, 57 feet long, 35 feet wide, the walls 8 feet high, a single span and space slated roof. This will accommodate 30 2-year old bullocks. This shed is envied by many a farmer of 150 acres, who say "this is just what I want, I wish my landlord would put me up such a one, I would cheerfully pay him 6 per cent." I have at present in this shed 27 2-years-old Short-horns. They appear closely packed, but have ample ventilation. It may be called the box system on a large scale.

The straw under them is invariably cut up by steam into 2-inch lengths, and readily forms a homogeneous mass. It need not surprise us that strong reedy straw, so cut, readily absorbs urine, for in cutting it gets split and broken; thus the spongy inside of the straw at once absorbs, while the glassy exterior of uncut straw will not absorb. The cost of cutting by steam power is insignificant.

Your dung-heap is thus quickly formed under the animal, free from destructive heating, which would take place with long uncut straw. Many an animal becomes lung diseased and destroyed by the fermenting masses in open farm-yards, or even in covered yards, when the early spring sun and an increasing temperature cause heating and decomposition in the long strawed and less condensed mass, more accessible to aëration than the homogeneous hodge-podge of chopped straw manure. Assuming that the animals are fed, as they ought to be, with cake, roots, meal, bran, malt combs, and chaff, the dung from this shed, taken direct to the land, will give results that will put to shame the ordinary dung-heap, or even guano. It is always ready for use, and spares the cost and waste of a manure heap. After a heavy crop of Tares I have now a fine crop of Cabbage. As soon as the Tares were removed, acre by acre, the

shed manure was at once carted on, spread, and ploughed in, and the Cabbages planted in June. The Trench ploughing was very deep, by two horses in the top plough, 4 horses following in the same track with a second plough—making a thorough rough job of it—in a stiff clay. This is the way to grow abundant food for your animals at small cost.

I annex the utmost cost of such a shed as mine.

Cattle Shed.

Length from out to out 57 ft. 6 in. by 35 ft. Height of brickwork from floor 8 ft.

Bricklayer.	£	s.	d.
3 rods of brickwork, at 11*l.*	33	0	0
Digging foundation, all materials	4	17	0
Slating, 24½ square, at 1*l.* 8*s.*	33	19	0
7000 bricks for paving floor, at 1*l.* 5*s.*	8	15	0
116 yards paving, at 4*d.*	1	18	8
8 loads sand, and carting do., at 3*s.* 6*d.*	1	8	0
100 feet patent roll ridge, at 9*d.*	3	15	0
Screws, putting and setting	0	12	10
Carpenter.			
Roof, 24½ square, at 1*l.* 8*s.*	33	19	0
Iron rods, plates, nuts, &c.	5	0	0
Sliding doors, irons, &c., complete	2	10	0
Pair folding doors end of shed	1	10	0
2 doors and frames to side of do.	1	0	0
30 feet of plate glass, at 1*s.*	1	10	0
	£133	14	6

In my opinion it is of the first importance to have on every heavy land farm such sheds, and most particularly the means of cooking and mixing the cut straw, cakes, bran, malt combs, &c.'; a few cast-iron coppers of ample size could be cheaply and advantageously fixed.

I have observed that fattening sheep will do well in my barn in spite of draught or variation of temperature, while under the same circumstances cattle almost certainly get cold and lung disease.

Probably the dry woollen jacket is a better non-conductor than the hairy coat.

Most people know that boarded or thatched hurdles, haulm walls, &c., greatly protect sheep when folded. Animals intended for breeding or turning out get hardier constitutions when not housed too closely. *J. J. Mechi, Oct.* 12.

HINTS ABOUT HOUSES.

We have now before us a re-issue of tracts by the Manchester and Salford Sanitary Association, from which we condense the following notes, which may be usefully read by the working people and others in all parts of the kingdom; for the value of health to the workman and his family will be best understood by those who have seen the misery, suffering, and poverty which are caused when a workman, the head of a family, is stricken with sickness. Attending to the following rules would be the means of saving many valuable lives.

Wherever a working man and his family may live, whether in a neat cottage or a wretched cellar, everything in and about his dwelling should be neat and clean.

Nothing in the way of cleansing tends more to keep away fever, cholera, and infectious diseases than the frequent and proper use of lime in the washing of ceilings and walls of houses. Working men should, therefore, lime-wash in the spring of every year, and oftener if necessary, all walls not papered or painted, and every ceiling of their dwellings, and every privy and ash-pit outside their dwelling. It is suggested that lime-washing may be done by a man or his wife at a very trifling cost. And the best plan for doing this is to brush away the dust, and wash the walls with clean water; the lime-washing brush may be used for this purpose. To make the lime-wash, slake the lime in clean water only. Let the lime be as fresh as possible, as it is spoiled by lying very long in the open air. The lime-wash, when made, should be about the thickness of cream. Lay on the first coat as quickly as you can, because lime-wash does most good when it is hot. Lay on a second coat as soon as the first is so dry that it does not rub away when the brush is used.

One pennyworth of lime ought to be enough for each cottage room; and a brush may be hired at many shops for a trifle, on leaving a small sum until it is returned. There is, therefore, little excuse for dirty walls.

In re-papering rooms, let the old paper be carefully cleaned off, and the walls washed, before the new paper is put on; because when dirty paper and old paste are covered up, they are liable to mould and rot, and the vapour from anything rotting is a fruitful cause of disease.

It is almost impossible to keep fever and disease out of a house where there are bad smells from drains; and therefore, any man who cares for the health of his family ought to quit the place he occupies, if his landlord do not use proper means to remove such smells without delay.

A family cannot be kept in health unless due regard be had to the size of the rooms in which they are to live or sleep.

It is seldom possible for working men to hire houses or rooms in which anything like the space allowed for prisoners can be obtained for themselves and families, but when the space is reduced, the opportunities for good ventilation become the more necessary; and if working men would measure their sleeping and living rooms, and see how little space they allow for each member of their family, and how badly their small rooms are ventilated, they would cease to wonder at the fevers and sickness from which they so often suffer. When they are living in rooms too small, over-crowded, or ill-ventilated, their wisest course is to look about their neighbourhood, or elsewhere, and see if they cannot find more healthful accommodation. They had better pay a little more rent, if need be, than get themselves or their families laid on a sick bed.

Persons who live in confined courts and entries, or in damp cellars, have no reason to be surprised if they suffer more than other people from fever, cholera, rheumatism, and infectious diseases.

Let working men consider whether, in the present day, they need want good cottage-houses, neatly furnished, and a little ready money in the saving bank, if they will keep from the beer shop, vicious companions, &c. And if a wife wants to have a neat house and a good husband, she should keep at home, instead of gossiping with her neighbours, employ herself diligently in mending and making for her husband and children; always ready to welcome him at meal time, or after his work, with good temper, with an appearance of tidiness about her house, with a clean person, clean children, clean floor, clean furniture, clean hearth, clean fireplace, bright grate, bright tins, and avoid the pawn shop and the hawking pedlar or tally man, and she will seldom want the means not only of keeping her family out of debt, but also going with ready money to the best markets, and buying everything she wants to the best advantage.

Such is the excellent and most valuable teaching of one of these tracts; and the whole of them are so useful and so plain that they can be readily understood by any person. *Builder.*

Farmers' Clubs.

Central.—In consequence of the indisposition of Mr. Fisher Hobbs, the discussion on Monday week, November 2, will be opened by Professor Brown, V.S., late of the Cirencester College, and a gentleman well qualified to speak on such a subject as the Veterinary Art in relation to Agriculture.

Home Correspondence.

Labourers' Cottages.—I see in a recent number of the *Building News* some sensible remarks on Mr. Bailey Denton's invitation to furnish plans for prize cottages. I have looked carefully into the terms of the specification, and I am quite certain that no builder can build cottages of the description indicated, and with materials such as are specified, and sizes, at 80*l.* prime cost. If Mr. Denton happens to get any one to compete, it will end, as the *Building News* says, in disappointment. For example, let us take the cost price of a rod of brickwork, and I am afraid it will come to 5*s.* more than the price I am going to set it down at, viz.:—

	£	s.	d.
4300 Stock Bricks at 25*s.*	5	7	6
3½ yards Sand at 1*s.*	0	3	6
18 bushels Lime at 5*d.*	0	7	6
Labour	2	2	0
Carting	1	10	0
	£9	10	6

I have not put anything for water or for scaffolding. Mr. Denton talks of brickwork at 8*l.* per rod—a great many builders, I imagine, would like to have a leaf out of his book if he can get it for that price. Again, the size of timber specified is considerably stronger than would be necessary. Moreover, there is water supply, well digging, fencing, &c. People might fancy that a pair of cottages of the description wanted could be built for 160*l.*, but imagining that they might, and finding a person to build them, are two very different things. For myself I should not think of competing on the terms offered, but if, as the *Building News* says, no sum was fixed, but prizes offered to the designs that combine the greatest economy with the greatest accommodation, then I would be the first in the field. I think it is quite possible to build a pair of cottages for 200*l.* *J. Newton*, 30, *Eastbourne Terrace, Hyde Park.*

Weeds—Tame Rabbits.—The article in your last week's *Gazette*, by Professor Buckman, on Umbelliferous Weeds, suggests to me to submit to the able Professor's consideration what the natural position of the tame rabbit is on a farm, inasmuch as these animals will not only eat most of our weeds, but will thrive upon them, and that, too, on some of the poisonous Umbelliferæ. I kept the silver grey rabbits for some years whilst I was working out a conviction that the Himalaya rabbit was only an albino of this variety (which I proved). I also amused myself by seeing if they would eat the usual weeds. My conclusions were that it would pay for juveniles and old folks to gather our farm weeds and feed rabbits with them; and for winter provender Coltsfoot, the Yellow Kale, the seed-pods of Turnip and Rape-seed, &c., when dried as hay, made most excellent food. Most of the Umbelliferæ are liked, and act very beneficially upon the rabbit. But there is a very important consideration touched upon by the Professor—that it is not improbable that many species of Umbelliferæ may be wholesome in giving appetite or flavour. There is great probability that several of our plants might be given with good effect to our farm animals when suffering from a continued illness. Two years last May I bought a Shorthorn cow about four years old, and she was and always had been in so good a condition that I felt some anxiety as her calving time arrived, and prior to it had her turned upon a poor pasture. After calving she, however, soon lost flesh, and for the 20 months she was kept in this situation, although the pasture was good she positively became lean, and this I attribute to the land not growing Dandelion. This plant is well known to have a strong effect upon the liver, and I, from a little experience, am much inclined to conclude that if given to sick cattle or horses it is one of the best of green food, and soon produces favourable appearances. After this 20 months unthriving state, although she had sometimes Turnips and mashes, I brought her down here the end of last January, where there is an abundance of Dandelion in the pasture, the result of which was that by the latter end of May she became so fat that it was deemed prudent to keep her for about a month mostly upon the fallow land, to earn her living from the hedge backs, as her time was up in the first week of July. On one occasion last summer I found a fatting cow, ill with the joint yellow, eat the Dandelion leaves and roots with some avidity, when it was very much off all other food which had been placed before her—she had had the usual drinks given for this illness, but I believe the Dandelion did her much good. One of my doe rabbits for nearly two days after the birth of her young family moped and scarcely ate anything. On inspecting her hutch it struck me there was a want of appearance of urine. I therefore collected a small handful of Clivers or Goose-grass—a diuretic—and gave her them, and in a few hours she was well. *W. A. Wooler, Sodberge Hall, Oct.* 12.

Cattle Profits.—The following correspondence has appeared in the *Banffshire Journal* in consequence of the paper on Urchany Farm and its tenant's experience on Cattle feeding in a recent number of the *Agricultural Gazette*:—

[No. 1.] I observed in your Journal of Tuesday week, and have since seen the same report in other publications, a statement of profits from cattle feeding on the farm of Urchany, Nairnshire, and I assure you I have no wish to detract from the merits of the enterprising tenant there, but as such statements, if exaggerated, are apt to mislead, I would take the liberty to ask for an explanation in reference to some of the figures. The statement gives out the sum total of roup roll, £1395 19 0
adding Rye-grass sold, and dairy produce .. 110 6 0
Nett amount £1506 5 0

but in debiting the account, there is a sum of 699*l.* 15*s.* at "purchase money of the feeding cattle." Now, the information I want is this—Was there no stock bred on the farm and sold along with the animals purchased? If there were, then the statement of profits is all fudge. On the other hand, if the 699*l.* 15*s.* was full amount paid for all the cattle sold, then surely Mr. M'Lennan deserves all the credit he is getting for his success as a feeder. I am unacquainted either with the gentleman referred to, or his farm, and have no other object in writing this than to elicit facts as to the above statement, as I think the sum total of profits far exceeds the usual return for cattle feeding, and trusting to your giving this a place in your first *Journal*, it may then draw forth the information wanted. *A Farmer in Aberdeenshire.*—[No. 2.] Having found at Urchany good and successful management of a cattle stock on a system out of the common routine, I contributed a description of it to the *Agricultural Gazette*. Mr. M'Lennan furnished me with the details necessary to enable me to judge how the system works pecuniarily, or rather how it worked for the year 1862-63, and the statement of results I drew up is founded strictly on those details. I think it is a satisfactory, but not very unusually profitable, result shown from the cattle breeding and feeding—for it must be observed that both are combined at Urchany. It shows a return of 8*l.* per acre for the Turnip crop. Is that excessive? Why, Mr. M'Combie, Tillyfour, has stated his returns to average 10*l.* per acre, and it must be well known that 6*l.* is freely paid this season by feeders of cattle to Turnip growers, freeing them from investment of capital, and from risk from disease or bad markets. Then the hay crop is estimated to produce 5*l.* per acre through cattle eating; 150 stones is no peculiarly large crop; the seed is worth 2*l.* to 3*l.* per acre at the least, and the threshed hay would surely sell, even last season, at 6*d.* per stone—making together more than it figures for in the report; but how much better is it to consume it on the spot than to send it off the farm! Your correspondent, "A Farmer in Aberdeenshire," wishes to know whether cattle bred on the farm were included in the roup roll. The yearling cattle sold of course were. Mr. M'Lennan, in spring '62, had 30 cows and their calves; in spring '63 he had the same, having sold the yearlings for a round sum, included in the roup roll. Surely they were raised on the "Turnips and Grass of the farm" (the return from which is what I have stated in my sketch), and therefore formed a portion of its good, but not extravagant, returns from stock. *S., The Writer of the Article in the Agricultural Gazette.*

Seed Wheat and Thin Seeding.—The chief consideration with the majority of farmers at the present time is the getting in the Wheat seeding. Every intelligent farmer will not fail to pay requisite attention to secure suitable varieties of Wheat adapted to his peculiar occupation. Much of his success will depend upon a correct choice of seed; one variety would yield no rent, another would yield both rent and profit, according to the kind of soil and its precise condition. Good well-grown pure seed should be sown. A breeder may as well select a faulty ram to his ewe flock, or an inferior bull to his herd of cows, as an inferior sample of grain even from a good stock; good animals will propagate good animals, as good seed will produce good crops of good grain. It is true the varieties and subvarieties of Wheat now grown are so numerous that it is next to impossible to select with certainty; but with great care many true and suitable varieties may be obtained. To keep a variety true,

farmers ought to interchange with each other according to the suitability of soil and climate. The farmer on a chalk soil and cold climate should exchange with the farmer of a loamy soil and mild climate. Wheat will degenerate on rich soils, and improve on clays or mild clayey loams. It will degenerate in a cold climate, and improve in a mild one. Extremes of heat and cold are injurious to this grain; hence a frequent change of seed is necessary to insure complete success. This change, as a general rule, should be from a cold to a more genial climate, from a chalky to a loamy soil—from a peaty soil to clays and clayey loams—from clays to sands, and what is better than this, these should be fully reversed, *i.e., vice versâ*, indeed some of the Australian Wheats have in this country produced some beautiful samples and good crops. Every farmer ought to know the adaptation of his farm to produce in perfection the two fundamental varieties—Red Wheat and White Wheat. Inferior white Wheat is of less value than ordinary red. Farms subject to mildew or late ripening are not well qualified to produce white Wheat. Those ought to select the hardiest reds, *i.e.*, Old Lammas, Golden Drop, White-chaffed Red, Giant Red, Burwell Red, Browick Red, &c.; whereas good Wheat lands may be seeded with any of our best sorts, *i. e.*, Velvet-chaffed White, Chidham White, Essex White, Hunter's White, Red-chaffed White, or any good Reds, indeed varieties are endless, at least in name. Colonel Quintin's Giant Wheat, and Hallett's Pedigree have immense ears, but they are not of general adaptation. Under peculiar management and a suitable locality and soil, large yields have been got, but general growers cannot be too cautious of crack varieties. A short-strawed variety should be chosen for rich soils, a prolific strawy kind for inferior soils. Red Wheats are more hardy than Whites, and more to be depended upon for safe planting. The time of sowing is of great importance. White Wheat should not be sown late, or on very rich soils, if quality is to be a great consideration. Hardy red Wheats are best, and may on mild soils be sown with impunity in open weather during the winter, but it is by no means desirable—verily "there is a time to sow." In the best Wheat-growing districts the most suitable period for sowing is between old Michaelmas and old Martinmas, *i.e.*, October 11 and November 22; but where the land is rich, or is made highly fertile, it is better to get it in earlier, otherwise the rapid growth in the spring causes it to produce too much straw and a deteriorated grain. The quantity of seed per acre is another matter for serious consideration. Good well grown seed, on good soils, and well got in, need not exceed six or seven pecks per acre. Inferior soils which cannot force a tillering must have a thicker seeding. The late Lord Western advocated four bushels per acre, on the ground that every grain should have but one stem, *i. e.*, leaving no room for tillering. Modern practice has set this aside, indeed artificial manuring has become so general that farmers can regulate to a nicety the proper fertility necessary to produce a first-class crop on these soils. In this they have a decided advantage as Wheat growers over the occupiers of richer lands. These rich lands where they are farmed upon the best modern practice, actually require their fertile qualities reducing before they are adapted to the growth of Wheat; hence crops of Potatos, brown Mustard, and agricultural seeds, are previously taken, if not the amount of straw and grain are greatly out of proportion. The best general practice in seeding is to regulate the quantity in accordance with the time of seeding, the fertile state of the soil, and the manner or condition in which it is got in. The better the soil, and the easier it works, the less seed is required, and *vice versâ*. The preparation of the seed to prevent smut is another subject worthy of close attention. If the preceding crop has been affected with blacks, "bunt" may be expected, and no dressing of seed will prevent that. "Bunt" or "smut" is mainly propagated by the adherence of the smutty particles to the grain. It is the destruction of these smutty particles that must be effected to ensure safety, and this should be done without injury to the grain. Therefore the more simple the remedy the better. Arsenic, sulphate of copper, *i. e.*, white and blue vitriol respectively, these ought to be discarded. Many crops have been destroyed by over-dressing with these poisons. There are many safe and effectual means adopted. The washing the grain in clean running water is one, swimming it in a brine made of salt and water another. This mode has the double advantage of destroying the smut and floating off seeds of weeds, &c. The innumerable specifics put forth for dressing seed Wheat should be received with great caution. One of the most simple and efficacious known is the use of quicklime. On the day previous to sowing, the quantity of seed required should be put into a heap and be well wetted with water, say a gallon of water to five bushels of Wheat; after remaining a few minutes nicely rounded up, it should be well dusted with hot lime, such dusting to be continued as it is repeatedly turned over; a peck of well sifted lime would suffice for four or five sacks, according to its quality. The heap should be well rounded up and left till morning, when it is put into sacks ready for drilling. If not used it should be spread thinly over the floor, in which state it will keep for a long time, as the lime soon dries up the moisture in the grain. It is of course superfluous to add that all seed corn should be clean. *O. F.*

Autumn Crops in South Essex.—The summer crops of cereals, especially of Wheat, are unusually good—almost unprecedented during 50 years past, both as to quantity and quality, and they have been secured in excellent condition. It is remarkable that, notwithstanding the unquestionably large produce this year of cereals and Pulse, many years in the course of the last half century are recollected to have been as productive in ear and pod, under similar circumstances and weather, and that Wheat ears have more frequently than otherwise been set with a much greater number of grains (though very many of them have proved defective and worthless) than any which could be found in ordinary crops this year. Five and six set have been very common, even in seasons when on a whole there has been the least yield, while in the present season, two, three, and four set have been invariably the rule, yet nearly all good from the bottom to the top. Five and six set are the exception. This is a proof that such apparent enormous casual productions are only chance freaks of nature, of but little worth, arising either from various climatic causes beyond our weak comprehension to solve, or more probably the result of over-stimulating doses of manure, often injudiciously applied to the Wheat plant. As a real good Wheat year like the present has seldom or never happened, we may reasonably infer the good results of the better cultivation of the land by deep ploughing, &c. No doubt many such seasons, and even greater abundant crops, will be experienced as steam cultivation progresses, and other improvements in agricultural science, not yet acknowledged, are squeezed out and brought to light. While, however, we thus rejoice, a general complaint prevails, at least in this district, that autumnal root crops present a very sickly appearance. The many repeated cold nights, bordering on frosts, since the last severe thunder-storm about a month ago, accompanied by night hail (which often proves fatal to many crops in summer), with continued downfalls of cold rain at intervals since, appear to have chilled the then growing crops, especially those of Mangels and earliest sown Turnips, also of Potatos. The former have now at Martimas a very blighted appearance in the foliage, when Mangels and Turnips are expected to grow most. A pair of callipers applied daily to many bulbs of Mangels during the last fortnight to test their growth, have proved that they have made but little progress in their size, and it may be doubted if they have done so in their weight. The earliest sown Turnips are fast rotting, consequently, as frosts are now expected, the sooner they are pulled and heaped, if not carted, the better. Notwithstanding that Potatos escaped the prevailing disease tolerably well in summer, those, it is to be lamented, now ripening with green tops, are taking much harm, being diseased to a very alarming extent, to the no small disappointment and loss of the producers. It is cheering, however, to agriculturists, though not to horticulturists, who have no alternative, that the abundance of feed in the Grass departments will make up to them in a great measure for the supposed losses sustained by their blighted and infected roots. *M.*

Harvest Report for Inverness-shire.—The harvest has been a tedious and perplexing one, as the weather was very rainy and variable, but apart from the delay and uncertainty, and consequent expense, there has been no damage done further than a loss of colour and condition in the grain exposed to the weather after it broke on the 19th September. Previous to that date considerable progress had been made in cutting, and some in securing the corn in stack; but on that day a most unexpected and unusual downpour of rain took place, flattening the uncut grain, soaking the stooks, and penetrating into stacks gathered together during the week; and the next week gave also a continuance of heavy rains, which caused harvest prospects to look gloomy in the extreme. Since the weather has continued showery and uncertain, but there has been a good deal of sharp drying wind which prevented sprouting, and advantage being taken of the intervals of fairness, nearly the whole of the corn in the eastern and lower districts has been stacked in fair condition. In the western and upper districts there is much still to be done, and much that can never be done satisfactorily, for a great deal of the corn has, in the straths, been seriously injured by the frost of July 15 and 16 (in some cases even in the lower districts, in damp and foggy situations, this has been the case also), while some cases of total destruction of growing corn and Potatos from that sad night have come to our knowledge. Altogether to arable farmers the season has all through, from excessive damp in spring, unusual drought in summer, and broken weather in harvest, been one of perplexity and anxiety. The results in regard to quantity are, on the whole favourable. Wheat, for its acreage, has given a fair bulk, and trials of threshing promise a large return of grain. Barley has not bulked largely, but will yield well for its bulk in grain. Oats are exceedingly variable; in some places a miserable, in others an unexampled return. Altogether the grain is in excess of last year's quantity, and its quality much superior. As to prices, they promise to rule very low; and this prospect, succeeding as it does to years of wretched grain returns such as the last two, causes perplexity and alarm not groundless, with, in some quarters, a resurrection of the old and well nigh forgotten whinings about the effects of free trade. Why not point rather to excessive rental payments as the cause of farmers' difficulties? Considering the relative prices of grain and meat, it appears that the most feasible mode of making fair returns—in fact, of making both ends meet, will be to turn much of the corn into meat by feeding animals. This, however, involves a change of system, and a dislocation of farming and financial arrangements, which it is difficult, if not impossible, for a large number of corn land occupiers to adapt themselves to. Potatos are very various. Where untouched by the July frost they are abundant, and of good quality; where affected by it the return will be poor and the quality indifferent. Turnips did well in August and September, but now they have set, and we believe will be found a very disappointing crop, both as regards bulk and feeding properties. In concluding our harvest report, we have to state that this is the fourth season of our experience of reaping by machinery, and that our satisfaction with it increases from year to year. We would now as soon think of comparing threshing with the flail with threshing by a mill, as we would of comparing cutting corn, or hay, or Beans, by sickle or scythe, with cutting them by a reaping machine. Using one of the Stirling machines with back delivery, we cut 139 acres in 162 hours, the larger portion of the cutting from the state of the corn being made one way by cutting against the lay. The people employed averaged 14 (when cutting all round we required 18 people; when cutting one way but 12) say

7 Men, at 2*s.* 6*d.*	..	..	£0 17 6
7 Women, at 1*s.* 4*d.*	..	..	0 9 4
			£1 6 10

per day, which, multiplied by 16 2-10 days, gives 21*l.* 14*s.* 3*d.*, showing 3*s.* 2*d.* as the expense in labour of cutting, binding, and stooking per acre. The horses of the farm, which would otherwise have been idle, did the work as useful and wholesome exercise. *Near Beauly, Oct.* 12.

Irish Agriculture. — I of course misinterpreted your Kilkenny correspondent, if he intended to say the opposite of what his language expressed. I must, however, hesitate before I conclude so sensible a writer omitted a negative by chance; but the point is not of much importance, as Mr. Carroll admits that Ireland "as a whole is not so good a Wheat and Barley growing country as England, or parts of Scotland either." As to the statement in my letter, that farmers should approach the character of husbandry which nature points out as best suited to their climate and country, I cannot perceive that this means either "leaving our lands to nature," to Heath, to Furze, and to fairy Flax; or that I imply Ireland should be exclusively devoted to stock rearing. If I ventured to state what I considered the proper climate for Wheat, I did but quote an opinion held by others more competent than myself; and concluded that an uncertain crop in England was still more uncertain in Ireland, where the character of the climate is more maritime than in other parts of the British Isles. I shall be very much surprised if the rearing of stock in Ireland does not pay well, and can only say that my experience points in an opposite direction; and that I am now having a farm of 300 acres laid down in Grass. The impolicy of abandoning any tillage, because population will be thus diminished, is a question that it is not my wish to discuss. The success of the recruiting sergeant is seldom the sign of the prosperity of a country. I desire, like your other Correspondent, to see Ireland thriving fertile, and happy. I do not pretend to lay down his "policy" for effecting this object, though he has been so good as to find such for me; all I pretend to state is that where competition is open, that agriculture will succeed best, which adapts itself to natural circumstances without allowing social or political considerations to impede its progress. The agricultural statistics which the Irish Registrar-General has just published are remarkable. It appears from them that the "total decrease in acreage under crops of all kinds" in Ireland is 92,431, and of this that the decrease in Wheat alone is 91,555. Of the land under green crops there is a decrease of 19,358, while in meadow and Clover there has been an increase of 7724. In cattle there has been a decrease of 116,615, in sheep of 152,201, in pigs of 89,522; but Mr. Donnelly observes, that this diminution is the result of the pressure last spring upon the small farmers, who sold to meet their liabilities, while young cattle under two years old have increased since last year to the amount of 32,000. It is also agreeable to perceive that the increase in the extent of the Flax crop is 60,000 acres. From these figures it appears that there has been a larger decrease in Wheat than in any other crop, and that there is a tendency in cattle to increase. I think that this result is satisfactory. I do not desire to see the cultivation of any crop which will grow wholly given up. I know that in some parts Wheat can be well grown; so can Roses. But I humbly submit that the weeping skies and warm rains of Ireland mark it as intended for the plants which demand abundant moisture for their development, rather than for those which require a hot sun to ripen their grain. *B. N., Oct.* 6.

Irish Agricultural Statistics.—At page 950 Mr. Henley is represented as speaking on Agricultural

Statistics. He is evidently ignorant of the manner they are collected in Ireland. Ireland has been surveyed, and the Poor-law books show the quantity of land each occupier holds; from which books the police are furnished with the names and number of acres held by each person in their district; they also have books, each column with a printed heading. The most intelligent of the police calls on the farmer and asks for information on different headings, viz., number of cows, heifers, calves, horses, donkeys, mules, sheep, pigs, fowls, and the number of acres under each crop; and by knowing the number of acres in the holding he can very nearly make out a correct account. A farmer does not know from the returns what his neighbour's stock is; I believe the police would not tell. Although the Irish are naturally suspicious, they do not appear to dislike giving the information required. *A Subscriber and Small Farmer.*

Steam Cultivation.—I beg to forward to you a copy of a letter which I have sent to the President of the Royal Agricultural Society in reference to a series of errors which I have discovered in the recently published number of the Society's Journal. *William Smith, Woolston, Bletchley Station, Bucks, Oct.* 15.

"To the President, &c.

My Lord,—Since my last communication with you, returning the 15*l.* which the judges of the Royal Agricultural Society had awarded to me, I presume by mistake, I have procured a copy of the recently published number of the Society's Journal. I have read the report on Steam Cultivation at Worcester, the Prize Essay on Steam Cultivation by Mr. W. J. Moscrop. I have read also a pamphlet on Steam Cultivation, by Simon Hutchinson, which I have been led to understand was sent in for competition, but did not get the prize. As I read through these three documents, I was struck with the remarkable disagreement there exists between Mr. Moscrop's actual work per day, and the daily work of Mr. Fowler's implement, as inferred from the Worcester trials, contrasted with the singular agreement which exists between Mr. Hutchinson's actual work and the daily work of my implement as derived from the same trials. Mr. Moscrop represents Mr. Fowler's implement as doing only rather over 4 acres per day, while the Worcester trials make his daily average 9¼ and 10¼ acres per day, while both Mr. Hutchinson's actual work and the Worcester trials agree in representing my implement as doing about 6 acres per day. If this were all that I had to say on this subject I certainly should not have troubled your lordship with this; but judge my surprise (I pray your lordship to pardon my abruptness), when I inform you that after a little closer examination of these documents I discovered that every one of the daily averages of work as exhibited in the Society's report on pages 482 and 485 was wrong, that the judges, or whoever had worked out the daily averages for them, had actually done it all incorrectly. The cost of the coal per acre is also in some instances wrong; but I did not very far investigate this column of figures. The incorrectness of the column, "Number of acres per day of 10 hours," absolutely vitiates the Table altogether, since the "Total cost per acre" is dependent upon the correctness of this. I have felt it a duty I owe, both to your lordship and the public, to apprise you of this unfortunate error; the more unfortunate, as the error seems to exhibit so singular a want of care as to throw discredit on everything connected with these trials. I subjoin the erroneous column, and a corrected one with another column, showing the difference.—I am, my Lord, your obedient Servant, *William Smith, Woolston, Bletchley Station, Oct.* 15.

Page 482—Table I.

	Number of Acres per Day of 10 Hours		
	Column in Journal.	Corrected Column.	Difference.
Fowler	9.56	10.06	.5
Howard	9.08	10.02	.94
Savory	11.48	11.65	.17
Smith	6.12	6.5	.38

Table 2.

Fowler	7.5	7.89	.39
Howard	.7	7.73	.73
Savory	7.95	8.02	.07

Page 485—Table 3.

	Number of Acres per day of 10 hours.		
	Column in Journal.	Corrected Column.	Difference.
Fowler	6.64	7.54	.9
Howard	5.58	6.96	1.38
Fowler	10.43	10.7	.27
Savory	9.79	9.87	.08
Smith	5.87	6.23	.36

Table 4.

Fowler	4.65	4.89	.22
Smith	4.01	4.26	.25
Howard	3.25	3.59	.34
Fowler	3.42	3.48	.06

Reviews.

The Agriculturist's Assistant: A Note Book of Principles, Rules, and Tables adapted to the Use of all Engaged in Agriculture or the Management of Landed Property. By John Ewart, Land Surveyor, &c. Blackie & Son, Glasgow, Edinburgh, and London.

We need not go to the lists of recent publications for what appears to us as really the most generally useful book a farmer can have upon his table. Ewart's Farmers' Assistant has been published several years, and was, we believe, referred to in our columns at the time. Having had occasion lately to consult its pages, we have been astonished at the quantity of information it contains, and at the close packing of its valuable contents.

It includes first of all a treatise on arithmetic—so far as explanation of the calculations in the course of the work is needed—a treatise on mensuration of both surfaces and solids, and a treatise on weights and measures. These occupy the first part of the work. The second part contains 20 chapters on all kinds of agricultural operations. And the third relates to farm buildings, land draining, embankments, fences, roads, Grass lands, and plantations; including examples of all kinds of calculations required under every head. The whole, as we have said, is a remarkable example of well packed useful knowledge.

We take the following passage as likely to be of service at this season of the year, and as illustrating the thoroughness with which every subject is treated in these pages.

On the Measurement of Stacks.

In a matter such as finding the contents of stacks of either hay or corn, mathematical exactness is unnecessary, and all that is required in practice is a near approximation by a concise mode of calculation.

Hay stacks most usually approach in form either to a parallelopiped with a semi-cylindrical roof, or to a cylinder with a hemispherical roof; and corn stacks are most generally made cylindrical, with a conical roof, or in the form of a parallelopiped, with a roof in the form of a triangular prism. Although it is seldom that the solid figures mentioned above are found to be exactly true in the form of either hay or corn stacks, a concise mode of calculating a tolerably close approximation of the contents of these figures is all that is required in practice.

The dimensions necessary to be taken for finding the contents of the forms of stacks above mentioned, with sufficient accuracy for practical purposes, are as follows, viz.:—

For round stacks with either a hemispherical or a conical roof.—Since the figure of these stacks is composed of a nearly cylindrical body or trunk, with the roof approaching to a hemisphere—*i. e.*, the dome being in height equal to the radius of its base, or to a right cone, *i. e.*, having its height also equal to the radius of its base—it will be unnecessary to actually measure the height of the roof in such cases, as the height in either case may be ascertained from the circumference of the stack at the eaves, and be found by dividing the circumference by 3·1416, and the quotient again by 2, for the radius or semi-diameter, which is supposed to be also the height; or the same result may be obtained by one operation of dividing the circumference by 6·2832; and still more concisely by multiplying the circumference by ·159, the reciprocal or equivalent multiplier of the divisor 6·2832. And since it rarely occurs that the trunk or roof of a round stack are either of them strictly the figures named—and in such cases, any small discrepancy will not appreciably affect accuracy—it will, therefore, be necessary only to take the perpendicular height of the stack from the ground or stand to the eaves, and the circumference at half the height, as dimensions; the latter of which, when multiplied by ·16, will give the height of the roof, sufficiently near for any practical purpose.

For an oblong stack, either with a roof in the form of a semi-cylinder, or of a triangular prism.—Take the height as directed for a round stack, the length and breadth at half the height, and lastly, half the mean breadth for the height of the roof.

To find the solid contents of a round stack with a hemispherical roof.—1. Multiply the square of the circumference by ·08, and that product again by the perpendicular height from the ground to the eaves for the contents of the body or trunk. 2. Multiply the cube of the circumference by ·0085 for the contents of the hemispherical roof. 3. Add the two former results together, and their sum will be the contents of the whole stack.

To find the solid contents of a round stack with a conical roof.—Multiply the circumference by ·0533, and add the product to the perpendicular height of the body or trunk of the stack for the height for computation; then multiply the square of the circumference by 0·8, and again by the height for computation, and the product will be the solid contents of the stack.

To find the solid contents of an oblong stack with a semi-cylindrical roof. — Multiply the perpendicular height of the stack from the ground or its stand to the eaves by the mean breadth, to the product of which add the product of the square of the breadth multiplied by ·4; and the product of that sum, when multiplied by the length, will be the solid contents of the stack.

To find the solid contents of an oblong stack with the roof in the form of a triangular prism.—To the perpendicular height of the stack from the ground or its stand, add one-fourth of its mean breadth for the height for computation; then multiply the height for computation by the mean breadth, and again by the mean length, and the product will be the solid contents of the stack.

Examples.

A round hay stack having a hemispherical roof is 60 feet in mean circumference, and is 15 feet from the ground to the eaves; required its solid contents.

The square of 60 is 3600, the product of which, when multiplied by ·08, is 288, and which when multiplied by 15, the product is 4320, the contents of the body of the stack; then the cube of 60 is 216,000, the product of which, when multiplied by ·0085, is 1836, the contents of the roof of the stack; and lastly, the sum of 4320 and 1836 is 6156—the contents of the whole stack in cubic feet.

A round corn stack with a conical roof is 52 feet in mean circumference, and its perpendicular height from its stand to its eaves is 12 feet; required its solid contents.

The product of 52, multiplied by ·0533, is 2·7716, the sum of which, when added to 12, is 14·7716, the height for computation; then the square of 52 is 2704, the product of which, when multiplied by ·08, is 216·32, and the product of which, when multiplied by 14·7716, is 3195·392512—the contents of the stack in cubic feet.

Required the solid contents of an oblong hay stack with a semi-cylindrical roof, the length being 45 feet, the breadth 15 feet, and the perpendicular height from the ground to the eaves 12 feet.

The product of 12, when multiplied by 15, is 180, the product of the square of 15, when multiplied by .4, is 90, and the sum of 180 and 90 is 270, the product of which, when multiplied by 45, is 12150—the contents of the stack in cubic feet.

An eke 12 feet long of an oblong corn stock with the roof in the form of a triangular prism, the mean breadth of the stack being 15 feet, and its perpendicular height from its stand to the eaves 12 feet; required the solid contents of the eke.

One-fourth of 15 is 3·75, the sum of which, added to 12, is 15·75, the height for computation; then the product of 15·75, when multipled by 15, is 236·25, and the product of which, when multiplied by 12, is 2835—the contents of the eke in cubic feet.

Having ascertained the solid contents of stacks in cubic feet from measurement, the next process to determine the quantity of hay or corn is to assign some weight or measure to some determinate bulk of the stack, under the circumstances which influence the density of hay, or yield of grain from the sheaf.

The circumstances which influence the density of hay are the size, particularly the height, of the stack in which it is put together, the state of maturity of the Grass from which the hay is made, and the kind of Grass, *i. e.*, whether permanent or old herbage, or seedling Grass, such as Clover and what are called artificial herbage. The yield in measure of grain of corn stacks depends upon the length of straw, and the size and fulness of the ears. The following tables of divisors of the contents of stacks in cubic feet for ascertaining the tons of hay or bushels of corn, have been formed from the observation of the writer, during many years' experience, and attentive consideration of the subject:—

Hay.	Divisors for Reducing Cubic Feet in Stacks to Tons Weight.	
Large stacks of the best meadow hay, after standing over year, according to the size of the stack	162	189 to 216
Smaller stacks of good, or large stacks of inferior meadow hay	243	270 to 297
Smaller stacks of inferior meadow hay	297	.. to 324
Hay of the best quality made from Clover, or other seedling Grass, according to the size of the stack ..	270	297 to 324
Inferior hay made from Clover, or other seedling Grass, according to the size of the stack..	324	351 to 378

Corn.	Divisors for Reducing Cubic Feet in Stacks to Imperial Bushels.
Wheat.—When the straw is very long, or the heads small	36
" When moderate in both, or in either respects in a great degree	27
" When the straw is very fine or short, or the heads very large	21·6
Rye.—Indifferent yield	27
" Medium yield	21·6
" Very large yield	18
Barley.—Similar to Rye	..
Oats.—Indifferent yield	18
" Medium yield	13·5
" Very large yield	10·8
Beans and Peas are very uncertain in yield, but it seldom exceeds the quotient from	36

Straw.—It is very usual in estimating the quantity of straw in stacks to assume the weight to be twice that of the grain; but the author has found, taking the average of all kinds of cereal corn, that allowing 1 cwt. for each cubic yard of the bulk of the stack, is a sufficiently correct estimate for practical purposes.

To find the quantity of hay or corn in a stack from the solid contents in cubic feet being given.—Divide the contents in cubic feet by the divisor in the foregoing tables which the case and circumstances may require, and the quotient will be the quantity in tons or bushels, as the case may be—hay or corn.

Examples.

Required the quantity of meadow hay of the best quality, and also of hay made from seedling Clover and Rye-grass, in a stack containing 6156 cubic feet.

The tabular divisors applicable to the cases and circumstances proposed in the example are 270 for meadow hay, and 324 for hay made from seedling Grass; then the quotient of 6156, divided by 270, is 22·8—the quantity of meadow hay, and 6156, divided by 324, is 19—the quantity of hay made from seedling Clover and Rye-grass, in tons.

Required the quantity of Wheat of medium yield, and also of Oats of medium yield, in a round stack containing 3195 cubic feet.

The tabular divisors required in the case and circumstances proposed in the example are 27 for Wheat, and 13·5 for Oats; then the quotient arising from 3195, divided by 27, is 118·33—the quantity of Wheat, and

3195, divided by 13·5, is 236·66—the quantity of Oats, in imperial bushels.

Required the quantity of meadow hay of the best quality, and also of hay of the best quality made from Clover and Rye-grass, in an oblong stack containing 12150 cubic feet.

The tabular divisors required in the circumstances of the cases are 216 for meadow hay, and 324 for hay made from Clover and Rye-grass; then the quotient of 12150, divided by 216, is 56·25—the quantity of meadow hay, and 12150, divided by 324, is 37·5—the quantity of hay made from Clover and Rye-grass, in tons.

Required the quantity of Barley of large yield, and also of Oats of large yield, in an oblong stack containing 2835 cubic feet.

The tabular divisors applicable to the cases in question are 21·6 for Barley, and 10·8 for Oats; then the quotient of 2835, divided by 21·6, is 131·25—the quantity of Barley, and 2835, divided by 10·8, is 262·5—the quantity of Oats, in imperial bushels.

Miscellaneous.

The Cattle Trade.—The Great Eastern Railway Steam Packet Service, although open only a week, has been very successful, the Blenheim paddle steamer in one single trip bringing over no less than 775 head of live cattle from Rotterdam to Harwich.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. Slatter, Streatley, near Reading.

At 9 A.M., Railway Time.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Oct.	Inches.	°	°				°	°	°	°	Inches.
Thursday..	15	29·88	54	51	S.W.	1	7	58	48	63	44	0·07
Friday ..	16	30.05	55	52	N.W.	3	3	59	48	60	39	0·03
Saturday ..	17	30.12	57	54	S.W.	2	10	59	44	71	39	
Sunday ..	18	30.15	58	56	S.W.	2	10	59	54	66	53	
Monday ..	19	30.16	58	56	S.W.	2	0	60	54	63	50	
Tuesday ..	20	30.17	53	56	S.W.	0	0	60	54	65	44	
Wednesday	21	30 17	55	54	S.W.	0	10	60	50	65	44	
Thursday..	22	30.11			N.W.		10		49	62	49	

Notices to Correspondents.

Books: *A B.* Spooner on Sheep; Blacklock on Sheep. They are both good books. Mr. Spooner's address is Eling, Southampton.

Diseased Wheat: *Mark Lane.* If you crush one of the grains and moisten it, and let it lie for a few hours and then examine it through a microscope, you will find it a mass of moving eel-like animalcules.

Gorse: *B A* asks for the experience of our readers who use Gorse as fodder, as to times of cutting, mode of crushing, condition in which the food is offered to cattle, and quantities consumed, and as to its fitness for sheep, cattle, and horses, respectively.

Potato Plough: *George Fenn.* "O. F." probably referred to Howard's Potato Plough, but he will doubtless be kind enough to say.

Potatos and Peas: *Agricola.* There is no identifying Potatos by their names, and the Lemon Kidney and Early Top are both unknown to us. The Potatos we should recommend would be the Soden's Early Oxford, so known in the neighbourhood of Reading, a good early sort—and the Axbridge Kidney, a late Kidney of excellent quality till late in the season.

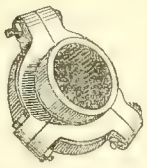
Subsoil: *S Broome.* It is impossible to give advice founded upon a mere examination by the eye of a handful of the soil.

Wheat: *Postans, Brentwood, Essex,* should apply to T. E. Pawlett, Esq., Beeston, Sandy, Beds.—*Subscriber.* One year old Wheat will be as good for sowing as new just threshed.

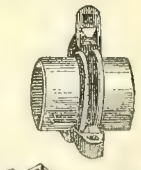
Erratum.—Mr. Hatcher's name was erroneously printed 'Thatcher' in our account last week of the meeting of the Berkeley Society, at his seat, Marlwood Grange.

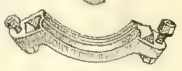
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TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

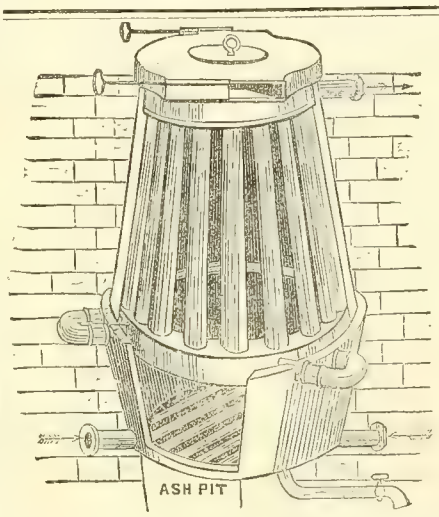
Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

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SHOWING THE PRINCIPLE OF THE PATENT DEFLECTING FLUE-PLATE OR HEAT PRESERVER.

It will be observed from the annexed diagram, that the deflecting flue-plate is placed on the top of the brickwork just level with the top of the Boiler, leaving a clear space for draught all round, consequently, the great pressure of heat from the furnace is concentrated at the top of the Boiler, and kept in close contact with it by means of the two slides which are regulated in front.

These Boilers are now fully acknowledged by a vast number of practical and experienced Gardeners to be the most Powerful and Economical Boilers extant, requiring less attention and fuel by one-half than any other Boiler they have had to manage, and state that the great improvement consists in the Water Jacket Furnace, and the deflecting flue-plate.

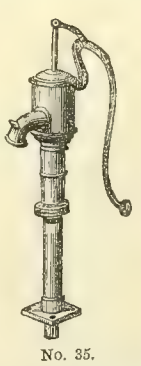
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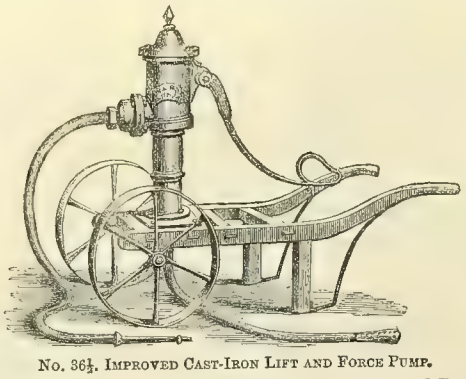
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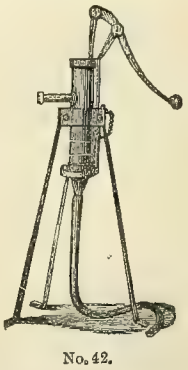
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2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
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1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

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JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

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PRIZE MEDALS OF 1851 AND 1862 AWARDED TO

JAMES PULHAM, Broxbourne, Herts. Also Notice of ARTISTIC MERIT, and of SOUND DURABLE MATERIAL in FOUNTAINS, VASES, FIGURES, FERN CASES, and BRACKETS, CONSERVATORY TUBS, with rising bottoms, &c.

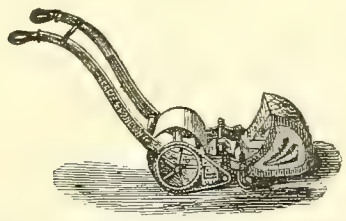
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Guaranteed to stand frost an unlimited time.

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Glass for Orchard Houses or Conservatories.

ENGLISH MANUFACTURED SHEET GLASS, 15 and 21 oz. to the foot, in sizes from 9 × 7 to 24 × 20, packed in 100 feet boxes, to be sold cheap.

Apply to WM. H. JACKSON, Plate, Crown, and Sheet Glass Warehouse, 315, Oxford Street, W.

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STEAM PLOUGHING and CULTIVATING APPARATUS

WILL BE AT WORK NEAR BEDFORD THROUGHOUT THE SEASON.

Price of a Complete Set with 10-Horse Engine £515 0 0

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(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

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The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c. the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

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GLASS MERCHANT. (Established 1750.)

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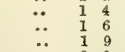
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Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home use and for Exportation.

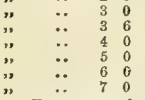


PROPAGATING GLASSES.

2 inches diam.	0s. 3½d. each.
3 "	0 4½ "
4 "	0 5½ "
5 "	0 6½ "
6 "	0 8 "
7 "	0 10 "
8 "	1 0 "
9 "	1 2 "
10 "	1 4 "
11 "	1 6 "
12 "	1 9 "
13 "	2 0 "
14 "	2 6 "
15 "	3 0 "
16 "	3 6 "
17 "	4 0 "
18 "	5 0 "
19 "	6 6 "
20 "	7 0 "



FLOWER TUBES.
2d. each, or 1s. 6d. per dozen.



ZINC HAND GLASSES.
Painted and Glazed with 16-oz. Sheet Glass.

12 inches ..	5s. 6d. each
14 " ..	6 6 "
16 " ..	7 6 "
18 " ..	8 6 "
20 " ..	9 6 "
24 " ..	11 6 "

If open top, 1s. extra.



BEE GLASSES.

4 inches diameter	0s. 6d. each
5 "	0 8 "
6 "	0 10 "
7 "	1 1 "
8 "	1 4 "
9 "	1 8 "
10 "	2 0 "
11 "	2 6 "
12 "	3 0 "



FLAT TOP BEE GLASSES.

Height	Width	s. d.
4 inches by	7 inches	1 6 each
4½ " by	7½ "	1 9 "
5½ " by	7½ "	2 0 "
6½ " by	8 "	2 3 "
7½ " by	8½ "	2 10 "

FERN SHADES & STANDS.

Ins. dia.	Shades.	Stands.
6 ..	1s. 4d. each.	1s. 0d. each
7 ..	1 8 "	1 3 "
8 ..	2 0 "	1 6 "
9 ..	2 6 "	1 9 "
10 ..	3 3 "	2 0 "
11 ..	4 0 "	2 6 "
12 ..	5 6 "	3 0 "
13 ..	7 6 "	3 6 "
14 ..	10 0 "	4 0 "
15 ..	14 0 "	4 6 "
16 ..	18 6 "	5 0 "



WASP TRAP, 2s. 6d. per doz.

Crystal Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimneys and Globes, &c.



MILK PANS.

6 inches diameter	0s. 6d. each
8 "	0 9 "
10 "	1 0 "
12 "	1 3 "
14 "	1 9 "
16 "	2 3 "
18 "	2 9 "
20 "	3 3 "
22 "	3 9 "
24 "	4 6 "



PRESERVE JARS.

In. diam.	Without Lids.	With Lids.
3 ..	0s. 4½d. ..	0s. 6½d. ea.
4 ..	0 6 ..	0 9 "
5 ..	0 8 ..	0 11 "
6 ..	0 10 ..	1 2 "
7 ..	1 0 ..	1 4 "
8 ..	1 4 ..	1 8 "
9 ..	1 8 ..	2 2 "
10 ..	2 0 ..	2 8 "

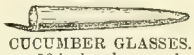


FISH GLOBES.

	Without feet.	With feet.
8 inches diam.		
9 "		
10 "		
11 "	Per lb.	
12 "	7d.	9d.
13 "		
14 "		
15 "		
16 "		



ROLLING PINS.
From 12 inches long, 1½d. per running inch.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1d. per running inch.

SHEET GLASS.
In Cases for cutting up, in Sizes as Manufactured.

	300 feet		200 feet.	
	15 oz.	21 oz.	26 oz.	32 oz
Fourths quality	33s. 6d.	33s. 6d.	39s. 6d.	45s. 0d
Thirds do.	42 0	42 0	49 0	56 0
Seconds do.	62 0	64 0	74 6	85 0
Best do.	88 6	88 6	103 6	118 0

CRYSTAL SHEET GLASS.
For Pictures and best Glazing purposes.
Averaging 16 oz. to the foot.

Best quality, in cases of 200 feet	100s.
Second quality, in cases of 100 feet	82s.

Averaging 30 oz. to the foot.

Best quality, in cases of 100 feet	100s.
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SQUARES, in 100 and 200 Feet Boxes.

Small Squares not exceeding 9½ inches by 7½ inches.

Ins. Ins.	Ins. Ins.	Ins. Ins.	Ins. Ins.
6 by 4	7 by 5	8 by 6	9 by 7
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½

Per 100 feet.

4ths.	3rds.	2nds.	Best.
9s. 9d.	11s. 3d.	13s. 9d.	16s. 9d.

Squares not exceeding 14 inches by 11 inches.

10 by 8	12 by 9	12½ by 10½	14½ by 10½
10½ by 6½	12½ by 9½	13 by 10	15 by 10
11 by 9	13 by 9	13½ by 10½	13 by 11
11½ by 9½	12 by 10	14 by 10	14 by 11

Per 100 feet.

4ths.	3rds.	2nds.	Best.
10s. 9d.	12s. 3d.	15s.	18s.

Squares not exceeding 20 inches by 18 inches.

15½ by 10½	14 by 12	17 by 13	24 by 16
16 by 10	14½ by 12½	18 by 13	20 by 17
14½ by 11½	15 by 12	18 by 14	22 by 17
15 by 11	15½ by 12½	22 by 14	24 by 17
15½ by 11½	16 by 12	24 by 14	20 by 18
16 by 11	16½ by 12½	22 by 15	22 by 18
13 by 12	17 by 12	24 by 15	24 by 18
13½ by 12½	18 by 12	22 by 16	

Per 100 feet.

4ths.	3rds.	2nds.	Best.
11s. 6d.	13s. 6d.	16s. 6d.	20s.

Orchard House Sizes, as recommended by Mr. Rivers.

Ins. Ins.	15 oz.		21 oz.	
20 by 12	4ths ..	11s. 6d.	4ths	15s. 0d.
20 by 13	3rds ..	13 6	3rds	19 0
20 by 14	2nds ..	16 6	2nds	25 0
20 by 15	Best ..	20 0	Best	30 0
20 by 16				

Per 100 feet.

Squares Cut to Sizes not on List.

	15 oz.				21 oz.			
Under	4ths.	3rds.	2nds.	1st	4ths.	3rds.	2nds.	1st
1 ft. super.	1¼d.	1⅜d.	2d.	2¼d.	2¼d.	2⅜d.	3¼d.	4¼d
2 ft. super.	1⅜	2	2¼	3	2⅜	3	4	5¼
3 ft. super.	2	2¼	2⅜	3¼	3	3¼	4¼	6
4 ft. super.	2¼	2⅜	3	4	3¼	3⅜	4½	6⅜

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

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	Per cwt.—s. d.
GENUINE WHITE LEAD	30 0
ANTI-CORROSION PAINT	28s. to 34 0
LINSEED OIL PUTTY	8 0

	Per gallon.—s. d.
FINE OAK VARNISH	10s. to 12 0
" CARRIAGE	12s. to 14 0
" PATENT DRYERS	per cwt. 28s. to 42 0

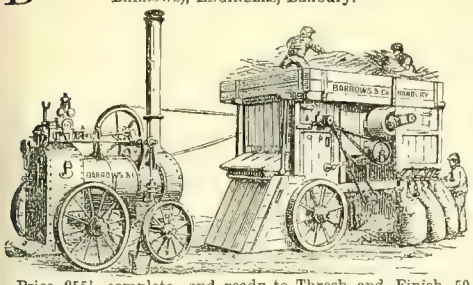
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MILLED LEAD in Sheet and Pipe of all sizes. Old LEAD bought or taken in exchange.

LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of all kinds.

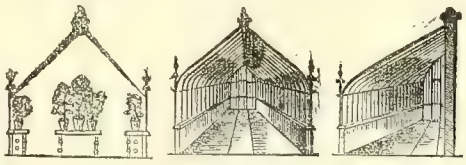
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BARROWS AND CARMICHAEL (late KIRBY & BARROWS), ENGINEERS, Banbury.



Price 255*l.* complete, and ready to Thresh and Finish 50 quarters of Grain a day in the most perfect manner. Guaranteed of best Workmanship and Material. Prizes in money and Medals have been received from important Agricultural Societies in England, Ireland, and the Continent.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

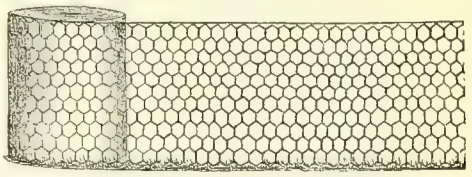


The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St. Chelmsford, Essex.

SHAW'S TIFFANY,
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

NEW IMPROVED PREMIUM WIRE NETTING.
Great Improvement with Reduced Price.



PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for.	Light. Jap	Light. Gal.	Medium. Jap	Medium. Gal.	Strong. Jap	Strong. Gal.	Extra Strong. Jap	Extra Strong. Gal.
		s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
2½ in.	Hares, Dogs, Poultry ..	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting ..	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits, Hares, &c. ..	0 4	0 4⅝	0 4⅝	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits	0 5	0 6	0 5⅝	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c.	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c. ..	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

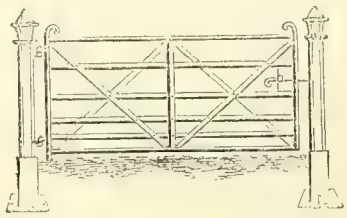
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IRON HURDLES, CONTINUOUS BAR FENCING, IRON and WIRE FENCING, FENCING WIRE, FIELD and ENTRANCE GATES, GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, CAST IRON VASES, and every description of HORTICULTURAL and AGRICULTURAL MACHINES, TOOLS, and appliances.

Lists Free on application. Every article guaranteed to be satisfactory.

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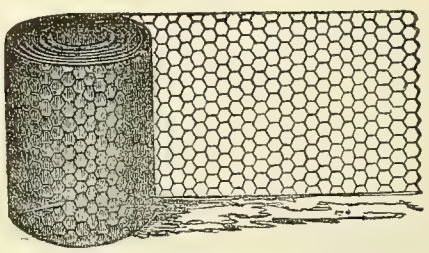
ENTRANCE GATES, either in Wrought Iron or Cast and Wrought Iron combined, ranging from the ordinary Field Gate to those of the most elaborate design.



IRON RAILING of various designs. FENCING of every description. All kinds of HURDLES, &c.

Drawings and Prices free on application to COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

BARNARD, BISHOP, AND BARNARDS, Norwich.
FURTHER REDUCTION in the PRICE of WIRE NETTING.

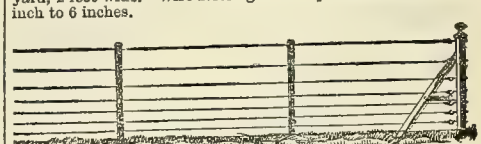


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard.
2-inch mesh, 24 inches wide ..	No. 19	4¼*d.*	3½*d.*
2-inch " " " .. "	18	5	4
2-inch " " " .. "	17	6½	5
2-inch " " " .. "	16	8	6½
1⅝-inch " " " .. "	19	4¾	4
1⅝-inch " " " .. "	18	6	4¾
1⅝-inch " " " .. "	17	7	5½
1⅝-inch " " " .. "	16	9	7

All the above kinds can be made any width (under 6 feet) at proportionate prices.

Strong Galvanised Poultry Netting, 7½*d.* per yard, 3 feet wide, Galvanised Sparrow-proof Netting for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10*d.* per yard.

The same with Galvanised Wire Rope, 1*s.* per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

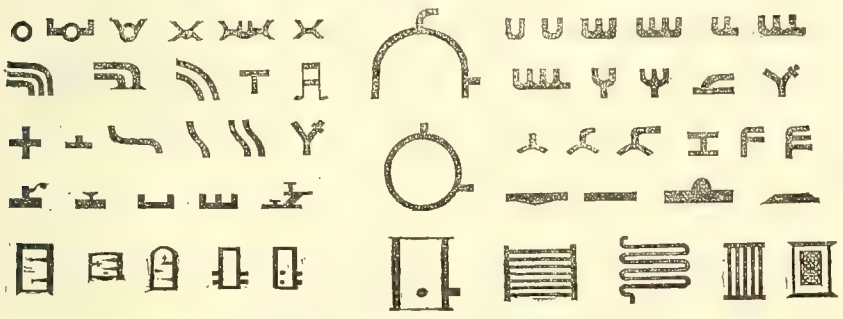
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FIXED AND UNFIXED.

PIPES AND CONNECTIONS. A FEW SECTIONS. BOILERS. PIPES AND CONNECTIONS.



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EVERY DESCRIPTION OF IRON WORK.

JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

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REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½*d.* ...	7¼*d.*
Seconds	3¾*d.* ...	5*d.*
Thirds	2½*d.* ...	3½*d.*
Fourths	2¼*d.* ...	3¼*d.*

HORTICULTURAL GLASS.

Stock Sizes, 16-ounce. In 100 feet Boxes.

These prices only apply to the sizes stated.

				4ths.	3rds.	4ths.	3rds.
				s. d.	*s. d.*	*s. d.*	*s. d.*
11 by 9	12 by 9	13 by 9	14 by 9				
12 „ 10	13 „ 10	14 „ 10	15 „ 10	10 9	12 3	12 6	14 0
13 „ 11	14 „ 11	..	..				
14 „ 12	15 „ 12	15 „ 11	16 „ 11				
18 „ 12	19 „ 12	16 „ 12	17 „ 12				
16 „ 13	17 „ 13	20 „ 12	21 „ 14	11 6	13 6	13 6	16 0
19 „ 13	20 „ 13	18 „ 13	..				
16 „ 14	17 „ 14	21 „ 13	..	14 to 15 ozs.		16 to 17 ozs.	
19 „ 14	20 „ 14	18 „ 14	..	to the foot.			

HARTLEY'S

PATENT ROUGH PLATE GLASS.

Packed in Boxes of 50 feet each.

	s.	*d.*
6 by 4 and 6½ by 4½	10	6 per box.
7 „ 5 „ 7½ „ 5½	12	0 „
8 „ 6 „ 8½ „ 6½	13	6 „
9 „ 7 „ 9½ „ 7½ and 10 by 8 ...	15	0 „

GLASS for ORCHARD HOUSES.

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Packed in 100 feet Boxes.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths ...	11*s.* 6*d.*	13*s.* 6*d.*	15*s.* 0*d.*
20 „ 13	Thirds ...	13*s.* 6*d.*	16*s.* 0*d.*	19*s.* 0*d.*
20 „ 14	Seconds	English.	English.	English.
20 „ 15	Best	18*s.* 0*d.*	23*s.* 0*d.*	

The above prices include the Boxes.

We recommend 3rds quality at 16*s.*, or 21-ounce at 19*s.* (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11*s.* 6*d.*
8 „ 6	8½ „ 6⅜	9 „ 7	9½ „ 7½	
		10 „ 8	10½ „ 8½	12 6

Boxes 2*s.* each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

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In Cases for cutting up, in Sizes as Manufactured.

London Agents for Hartley's Patent Rough Plate.

Perforated Glass for Ventilation.

Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

Glaziers' Diamonds from 10*s.* to 21*s.* each.

Glass Tiles and Slates in Sheet and Rough Plate. Plate Glass, Patent Plate, and Hartley's Improved Rough Plate.

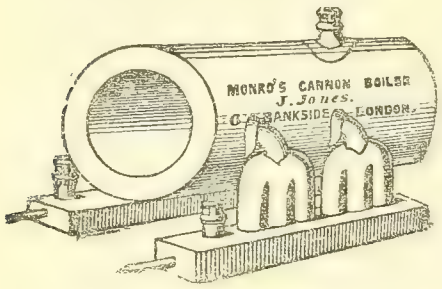
PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD. ANTI-CORROSION PAINT. | LINSEED OIL PUTTY. FINE OAK VARNISH. | FINE OAK CARRIAGE. PATENT DRYERS. | LINSEED OIL. BOILED OIL.

TURPENTINE.

LEAD in SHEETS or CUT to SIZES, LEAD PIPE, LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of every description.

HEATING BY HOT WATER.



MONRO'S CANNON BOILER.

J. JONES,

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SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

HEATING GREENHOUSES,

CONSERVATORIES,

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CHURCHES, CHAPELS, SCHOOLS,

HALLS,

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COACH HOUSES, HARNESS ROOMS, &c.,

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PLANS, ESTIMATES, and DESCRIPTIVE CATALOGUES

SENT POST FREE ON APPLICATION TO

J. JONES,

6, BANKSIDE, LONDON, S.E.

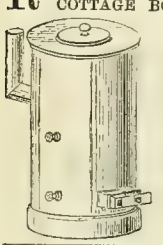
West of England, Ireland, and Wales.





VINCENT SKINNER (*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER. HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.
VINCENT SKINNER, Bridewell Street, Bristol.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

The only Stove without a Flue.



JOYCE'S PATENT, for Warming Chapels, Halls, Shops, Conservatories, and all other Places. Price from 12*s* 6*d.* each.

JOYCE'S STOVES are Portable and Economical, and burn 12 hours with one supply of fuel, requiring no attention.

STOVES for GREENHOUSES are made to burn all the Winter. Temperature always the same. Patent Fuel, 2*s.* 3*d.* per bushel,

SWAN NASH, Patentee, 253, Oxford Street; and 119, Newgate Street, London, E.C.

Illustrated Catalogues post free.

Greenhouses, Orchard-houses, and Conservatories.

H. FREEMAN'S HORTICULTURAL WORKS, Triangle, Hackney, N.E. Established 20 years.

Good substantially made GREENHOUSES, glazed, ready for fixing, 42 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 28*l.*; 12½ feet by 10 feet, 15*l.* ORCHARD-HOUSES, 10 per cent. cheaper. A handsome CONSERVATORY, 46 feet by 19 feet, for Sale.

Estimates given.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Hothouses for the Million.—AWARDED A PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, 1862.



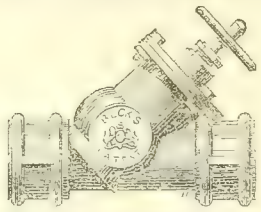
HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner, all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to SAMUEL HEREMAN, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1*s.*; post free, 1*s.* 1*d.*

BECK'S

PATENT HOT-WATER VALVES



AT GREATLY REDUCED PRICES, viz.:—

2 In.	3 In.	4 In.
12*s.* 6*d.*	16*s.* 6*d.*	20*s.* 0*d.*

Upwards of 4000 *of the Patent Valves are now in use and giving the greatest satisfaction.*

JOHN BECK can also supply large quantities of his

IMPROVED THROTTLE VALVES

on the shortest notice.

JOHN BECK,

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OF EVERY DESCRIPTION OF

GAS, WATER, and STEAM FITTINGS,

FIRE COCKS, WATER CLOSETS, ETC.

PATENT VALVE WORKS

AND SANITARY DEPOT,

GREAT SUFFOLK STREET, LONDON, S.E.

Card.

SAMUEL N. McGERROW, GENERAL HORTICULTURAL BUILDER, Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

For Sale, at E. Dench's Patent Horticultural Works, King's Road, Chelsea.

E. DENCH being about to DISPOSE of his HORTICULTURAL BUSINESS, has on hand a considerable number of VINERIES, GREEN and HOTHOUSES, which he will dispose of at a low price to clear his premises.

The Sizes being from 16 ft. to 36 ft. in length, and from 10 ft. to 15 ft. in width.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

Second-hand Greenhouses and Pit Lights.

J. WEEKS AND CO. have a large Stock of the above for SALE. Parties wishing to Purchase must send and select for themselves.

J. WEEKS & Co., Horticultural Builders, King's Road, Chelsea.

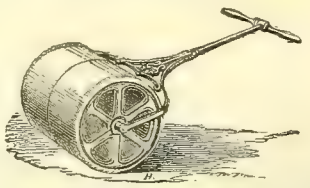
Second-hand Hot-water Boilers in Great Variety.

J. WEEKS AND CO. have a large stock of BOILERS that they have taken out, some as good as new, consisting of SADDLE, CONICAL, the RIBBED, the CANNON, and many others.

Parties wishing to purchase must send and select for themselves.

J. WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, W.

GREEN'S IMPROVED NEW PATENT ROLLER for LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS, &c.



These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the very best materials, and are got up in a manner surpassing any ever yet brought out.

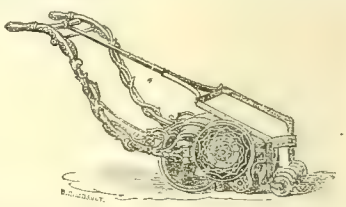
PRICES:—

Diameter 30 inches, length 32 inches	..	..	£7	0 0
,, 24 inches, ,, 26 inches	..	..	4	5 0
,, 20 inches, ,, 22 inches	..	..	3	5 0
,, 16 inches, ,, 17 inches	..	..	2	10 0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

SHANKS' NEW IMPROVED LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINES were awarded the First Prize Medal of the International Exhibition.



Shanks' Patent Lawn Mowers are in use in the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

These Machines are allowed to be the best and by far the most durable ever offered to the public.

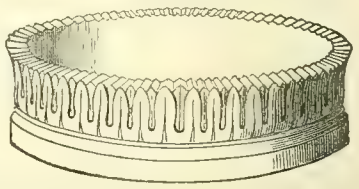
ILLUSTRATED CATALOGUES on application to A. SHANKS & SON, Deus Iron Works, Arbroath; or 27, Leadenhall Street, London, E.C.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK, 31, Cornhill, E.C.; late 6, Coleman Street.

*** Catalogues sent on receipt of 6 postage stamps.

.....6 feet 9 inches.....



AUSTIN, SEELEY, AND CO. beg to inform the Nobility and Gentry that they are prepared to supply, at three months' notice, TAZZE for Flowers or Fountains, as wide as 13 feet. They take this opportunity of referring to some large Flower Basins and Plain Kerbings made by them for the Royal Horticultural Society's Gardens; and also to those lately supplied to the Public Garden in the Regent's Park. They will be happy to forward a List of their Fountains to any gentleman requiring one.

369 to 375, Euston Road, Regent's Park, N.W.

GARDEN BORDER-EDGING TILES, in great variety of patterns and material.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability.

May be obtained at F. & G. ROSHER'S Premises, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; and Kingsland Road, Kingsland, N.E.

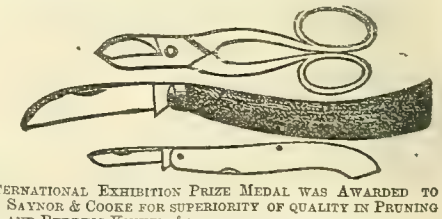
Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability. Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER at their Premises as above.

Paxton Works, Sheffield, Established 1738.



INTERNATIONAL EXHIBITION PRIZE MEDAL WAS AWARDED TO SAYNOR & COOKE FOR SUPERIORITY OF QUALITY IN PRUNING AND BUDDING KNIVES, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they will not be undersold by any House in the Trade. They also warrant one of their Knives to last two of any other make.
Paxton Works, Sheffield.

THE NEW WEATHER INDICATOR. By L. CASELLA, for correctly foretelling Changes in the Weather, either for Rain, Wind, or Moisture. Particulars, with rules, by inclosing stamp.
23, Hatton Garden, London, E.C.

PORTABLE FARM RAILWAYS.—Full particulars of a System that works well and profitably may be had on application to the Manufacturer and Patentee, Mr. J. GRANT, of Linton, Kent.
Farmers, especially those who cultivate by steam, are respectfully requested to notice the amount of damage done to the soil by the carting in the autumn and winter seasons, and how far the natural inclination of the fields might be made available as a motive power for railway trucks, and how far cultivation has prepared the surface for the rapid laying of flat-bottomed rails unencumbered by cross sleepers or tedious fastenings of any kind; and also to notice what proportion of the cornfields are favourable for running the crops to the stacks of their own weight without horses.

BENJAMIN EDGINGTON'S TEMPORARY ROOMS for the WINTER SEASON, lined, boarded, decorated, and comfortably warmed and lighted.
FLAGS and BANNERS of every description for Sale or Hire.
A large quantity of Second-hand CANVAS, remaining over from the Summer Season, and suitable for Rick Cloths, Waggon Cloths, &c., is now on Sale.
Apply early to BENJAMIN EDGINGTON, 2, Duke Street, London Bridge, S.E. No other Establishment.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

HANDSOME BRASS and IRON BEDSTEADS.—HEAL & SON'S Show Rooms contain a large assortment of Brass Bedsteads, suitable both for Home use and for Tropical Climates; handsome Iron Bedsteads with Brass Mountings and elegantly Japanned; Plain Iron Bedsteads for Servants; every description of Wood Bedstead that is manufactured, in Mahogany, Birch, Walnut Tree woods, Polished Deal and Japanned, all fitted with Bedding and Furnitures complete, as well as every description of Bedroom Furniture.
HEAL AND SON'S ILLUSTRATED CATALOGUE, containing Designs and Prices of 100 Bedsteads, as well as of 150 different articles of Bedroom Furniture, sent free by post.
HEAL & SON, Bedstead, Bedding and Bedroom Furniture Manufacturers, 196, Tottenham Court Road, W.

WANTED, in a good Market Town, a SEED BUSINESS, with a SMALL NURSERY; if containing Glass Erections, would be the more desirable. Incoming not to exceed from 500*l.* to 600*l.*
W. M., *Gardeners' Chronicle* Office, W.C.

TO BE DISPOSED OF, an OLD ESTABLISHED HORTICULTURAL BUSINESS and EXTENSIVE PREMISES, in the best part of King's Road, Chelsea, S.W. The proprietor retiring from business.
Apply to E. D., 152, King's Road, Chelsea, S.W.

TO BE LET, NURSERY GROUNDS in Brighton, comprising extensive Vineries and Peach-houses, in good bearing condition; large Span-roofed and Lean-to Houses, and Pits for Plants; also, a capital Residence and Cottages, with Stabling and Coach Houses.
The Stock can be taken at a valuation or a fixed sum, as agreed upon, or a PARTNER with Capital would be accepted.
Full Particulars to be had on application to the GARDEN SUPERINTENDENT, Alexandra Park, Tottenham Wood, Hornsey.

TO BE LET, in the neighbourhood of a thriving town in Gloucestershire, and one mile from a railway station, a NURSERY, containing about 9 Acres of excellent Land, with a Stove and Greenhouse, Pits, and requisite Offices, with superior Fittings all complete.
To an industrious Man desirous of entering the Nursery Business with a small capital, this is an opportunity which seldom presents itself. Coming-in very low. There is a Cottage adjoining, and a Shop may be had in the town if thought necessary.
For Particulars apply to Mr. JOHN SEALY, Mugland Nursery, St. George's, near Bristol.

Sales by Auction.

ENGLISH WOOL SALES by PUBLIC AUCTION in LONDON.—Our next SALE of ENGLISH WOOL by PUBLIC AUCTION in London, will take place on October 28, or the day preceding the next series of Australian Wool Sales, when about 1200 PACKS of LONG and SHORT WOOL from various counties will be offered.
Parties intending to send Wool for these Sales are requested to communicate with the undersigned, who will forward empty sheets, and instructions for packing and forwarding on application.
BRADBURY & COOK, Wool Brokers, 17, Basinghall Street, London, E.C.

ENGLISH WOOL SALE in London, by PUBLIC AUCTION, on WEDNESDAY, November 4, at 3 o'clock, at the Wool Sale Rooms, 54A, Moorgate Street, E.C.—About 1200 Packs of LONG and SHORT WOOL from various counties, including a large proportion of Lincoln, Kent, and other bright-haired Wools. Also some superior selected IRISH WOOL.
Catalogues may be had the day previous to Sale on application to BRADBURY & COOK, Wool Brokers, 17, Basinghall Street, London, E.C.

Lewisham.

TO GENTLEMEN, NURSERYMEN, BUILDERS, AND PUBLIC COMPANIES ENGAGED IN PLANTING.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Maller to offer for unreserved SALE by AUCTION, on the Premises, opposite the Castle Inn, Lewisham, on MONDAY, October 26, and following day, at 11 o'Clock each day, the whole of the valuable NURSERY STOCK, consisting of fine Evergreens and Deciduous Shrubs, including Common and Portugal Laurels, Green Hollies, Aucubas, Berberis, Spruce Fir, Arbor-vitæ, sorts; Rhododendrons, Azaleas, Yews, Cedrus Deodara, 2 to 5 feet; Cupressus, sorts; Lilacs, Guelder Roses, Syringa, &c.; also Ornamental and Forest Trees of the usual varieties; handsome Dwarf-trained Peaches and Nectarines, Standard and Dwarf-trained Plums, Pears, Cherries, Apples; a quantity of Prince of Wales, Red Antwerp, and Fastolff Raspberries; Rhubarb; Ivies, sorts; Sweet Briar; Virginian Creepers, Wistaria and Clematis, and Hops; 2000 fine Standard, Half Standard, Dwarf and Climbing Roses; 6000 Pinks, Cloves, Carnations, &c.; a quantity of Loam, &c.; together with a useful Cart Horse, a Pony, and other Effects.
May be viewed prior to the Sale. Catalogues may be had at Mr. MALLER'S, Granville Terrace, Lewisham; at the principal Seed shops in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Handsome Standard and Dwarf Roses, Dutch Bulbs, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, October 30, at 12 o'Clock, a first-class Collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Crocus, Tulips, Jonquils, Anemones, Iris, &c.; also 300 handsome STANDARD and DWARF ROSES, comprising the best Hybrid Perpetuals, Bourbons, Chinas, &c., choice assortment of American Plants, &c.
On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Winchester.

TO GENTLEMEN, NURSERYMEN, GARDENERS, AND OTHERS.
IMPORTANT SALE OF NURSERY STOCK.

MR. JAMES HARRIS has been favoured with instructions to SELL by AUCTION, on the Premises, on WEDNESDAY, November 4, at 10 for 11 o'Clock, a portion of the valuable NURSERY STOCK, late the Property of Mrs. Shilling (owing to the Land being required for Building purposes), comprising choice Fruit Trees; Portugal, Variegated, and other Laurels; Arbor-vitæ, Laurustinus, Irish and English Yews, Hollies, Box Trees, Weeping Ash, and other choice and ornamental Shrubs; also a large variety of Ash, Filberts, Cob Nut, Hazel, Limes, Larch, Scotch and Spruce Firs, and other Plants, the whole of which will be described in Catalogues, which may be obtained on the Premises; at the principal Inns; and of the AUCTIONEER, Jewry Street, Winchester.

Sale of Quick, Larch and Spruce.

MELBOURNE, NEAR DERBY.

MESSRS. NEWBOLD AND OLIVER have received instructions from Mr. S. Robinson, Shaw House, Melbourne, to SELL by AUCTION, at the Melbourne Arms Inn, Melbourne, on TUESDAY, November 3, at 3 o'clock in the afternoon, upwards of 300,000 three-years Bedding and Transplanted QUICK; 100,000 fine LARCH, 2½ to 3½ feet; 40,000 SPRUCE, same size; also some fine SCOTCH. The Quick is highly suitable for enclosure or railway purposes. The Firs will be sold in Lots, or by sample, at per thousand.
To view, apply to Mr. ROBINSON, on the Premises; or to Mr. GEO. EARLE, Melbourne Arms Inn, Melbourne, Derbyshire.

Hammersmith, Middlesex.

TO NURSERYMEN, MARKET GARDENERS, AND OTHERS.

MR. J. WILLMER begs most respectfully to announce that he has received instructions from Mr. Trotman, to SELL by AUCTION, without reserve, on the Premises, The Grove, near the British Prince, New Road, Hammersmith, on TUESDAY, October 27, at 11 o'Clock, in consequence of the Ground being required for Building purposes, the whole of the NURSERY STOCK, which comprises Dwarf and Pyramid Plums, Pears and Cherries of sorts, Dwarf-trained Cherries and Plums, Standard, Dwarf, and 2 years' worked Apples of the leading kinds, Maiden Peaches, Nectarines and Apricots, Currants, Gooseberries and Raspberries, Walnuts, Standard and Dwarf Roses, Irish Yews, Hardy Heaths, Portugal Laurels, Common Laurels (5 feet), Rhododendrons, Aucuba, Red Cedar, Spruce Fir, Evergreen Privet, Climbing Roses in pots, Ivy in pots, Virginian Creeper in pots, &c. &c &c
May be viewed the Saturday and Monday previous to the Sale, and Catalogues had on the Premises; at Spring Grove Nursery, Hounslow; and of Mr. J. WILLMER, Auctioneer, Surveyor and Valuer, Springfield Nursery, Sunbury, Middlesex.

Important Sale of Trees and Shrubs on Oct. 27 and 28, 1863.

GEORGE BATLEY having determined upon making extensive alterations in his Nursery, for which it is necessary to clear certain portions of his ground of TREES, SHRUBS, &c., he has instructed Mr. H. BROWN to SELL by AUCTION from 600 to 700 Lots, consisting of about 20,000 TREES, including Arborvitæ, Alder, Ash, Chesnut, Elm, Oak, Firs, Scotch and Spruce, Laburnums, Poplars, Weeping Elms and Limes, Cedars, Pinus, Wellingtonias, Fruit Trees, Roses, &c., all in the best possible condition for removal, most of them having been transplanted within the year.
G. B. begs to state that to Gentlemen planting, Landscape Gardeners, Nurserymen, &c., this must be a most valuable opportunity, from the fact that everything in this Nursery are either disrooted or transplanted every two years, so that purchasers may with certainty rely on their safe removal; and to buyers at an inconvenient distance G. B. will have pleasure in lifting, packing, and forwarding whatever Lots may have been purchased.
Catalogues of Sale to be had at the Nursery, Rugby, and at the Office of Mr. H. BROWN, Auctioneer, High Street, Coventry.

Donnington Nursery, near Newbury, Berks.

One mile from the Great Western Railway Station.

MR. C. W. DOE is favoured with instructions from the Proprietor, Mr. LAY, in consequence of the Land being required for Building Purposes, necessitating an early clearance, to SELL by AUCTION, on the Premises, as above, on WEDNESDAY, Nov. 4, at 10 o'Clock, the whole of his valuable NURSERY STOCK, consisting of Standard and Dwarf Roses, of best leading sorts, named; Deciduous and Flowering Shrubs, of choicest varieties: choice Dwarf-trained and Maiden Fruit trees, Laurels, Gooseberry and Currant trees; 12,000 Manetti Stocks (more or less); 1500 Oaks, two-years' growth. The Auctioneer invites the attention of gentlemen and nurserymen to the above Stock, which has been grown in a soil of an adhesive character, peculiarly adapted for the growth of Roses and Shrubs, and calculated to produce strong fibrous roots and full heads.
May be viewed the day previous and Morning of Sale. Catalogues may be obtained of the Auctioneer, Newbury. A punctual attendance is requested on account of the large number of lots.

SALE THIS DAY, AT HALF-PAST 12 PRECISELY.

Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, October 24, at half-past 12 o'Clock precisely, a Consignment of CAMELLIAS, AZALEAS, and other GREENHOUSE PLANTS from Ghent; an Importation of HYACINTHS, TULIPS, and CROCUSES from Holland; and a Collection of STANDARD ROSES, HARDY CONIFERS, &c., from Surrey.
On View the Morning of Sale, and Catalogues had.

Japanese Seeds.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 29, at half-past 12 o'clock precisely, an importation of RARE CONIFER and other SEEDS, just arrived in splendid condition from Japan, comprising many novelties, viz:—

Abies Veitchiana	Pinus parviflora
,, firma	,, nova species
,, polita	,, Massoniana
,, Alcoquiana	Thujopsis dolabrata
,, sibirica	Podocarpus macrophylla
,, Tsuga	Retinispora microcarpa

Also from Japan, a Collection of SEEDS of Rare TREES, SHRUBS, &c.
On view the Morning of Sale, and Catalogues had.

Valuable Collection of Established Orchids.

MR. J. C. STEVENS begs to announce that he will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 29, at half-past 12 o'clock precisely, a COLLECTION of ESTABLISHED ORCHIDS, comprising, among others, the following well known varieties:—

Aerides affine superbum	Cattleya Trianæ
,, crispum	Cœlogyne cristata
,, Lindleyanum	Phalænopsis Schilleriana
,, Larpentæ	,, amabilis
,, maculosum	,, grandiflora
,, Lobbii	,, rosea
,, nobile	Cypripedium Veitchii
Anguloa Ruckerii	,, caudatum
,, eburneum	Saccolabium violaceum
Arpophyllum giganteum	,, retusum
Cattleya labiata	Vanda tricolor superba
,, Aurantium	,, Batemani
,, Regnelii	

On view the Morning of Sale, and Catalogues had.

Hendon, Middlesex.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from Mr. E. Shenton, who is removing to Bagshot, to SELL by AUCTION on the Premises, Hendon Park Nurseries, Hendon, Middlesex, on FRIDAY, October 30, at half-past 12 o'clock precisely, without the least reserve, the whole of the valuable stock of HARDY and GREENHOUSE PLANTS, consisting of Conifers, Roses, Fruit Trees, Yuccas, Hollies, Pansies, Lilacs, Rhododendrons, Dahlias, Laburnums, Hollyhocks, Kalmias, Laurels, Fuchsias, Geraniums, Chrysanthemums, Carnations, Camellias, Azaleas, Ferns, Vines, &c, 4 Greenhouses, Forcing House and Pits, heated with Hot Water Apparatus, together with the LEASE and GOODWILL of this desirable Nursery, including a small Dwelling House, and 3 acres of Land.
On view the day prior and Morning of Sale, and Catalogues had of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.
An omnibus leaves the Bank at 10.15, and Tottenham Court Road at 10.45, arriving at Hendon at 12.20, just in time for the Sale.

Mr. Robert Fortune's Chinese Plants for Absolute Sale.

EXTENSIVE SALE OF RARE AND VALUABLE INTRODUCTIONS FROM CHINA.

MR. J. C. STEVENS has much pleasure in announcing that he has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY and WEDNESDAY, October 27 and 28, at half-past 12 o'Clock precisely, without the least reserve, in consequence of the agreement which existed between Messrs. Standish and Fortune with regard to the Chinese Plants having terminated, the most important COLLECTION of RARE and VALUABLE PLANTS ever offered for public sale, including the whole of Mr. Robert Fortune's RECENT INTRODUCTIONS from CHINA, and a part from JAPAN, including—

3000 Torreya grandis, 4 to 10 inches
150 Abies Kæmpferi, 2 to 4 feet
2000 Chamærops Fortunei
50 Pinus Bungeana
1000 Pinus sp. (nova) Pekin (Tabulæformis), 4 to 6 inches
25 Bambusa variegata
500 Thuja sp. (Pekin)
500 Lastrea opaca
400 Lonicera aureo-reticulata
200 Iris lævigata
200 Retinispora obtusa
200 Retinispora pisifera, &c., &c.

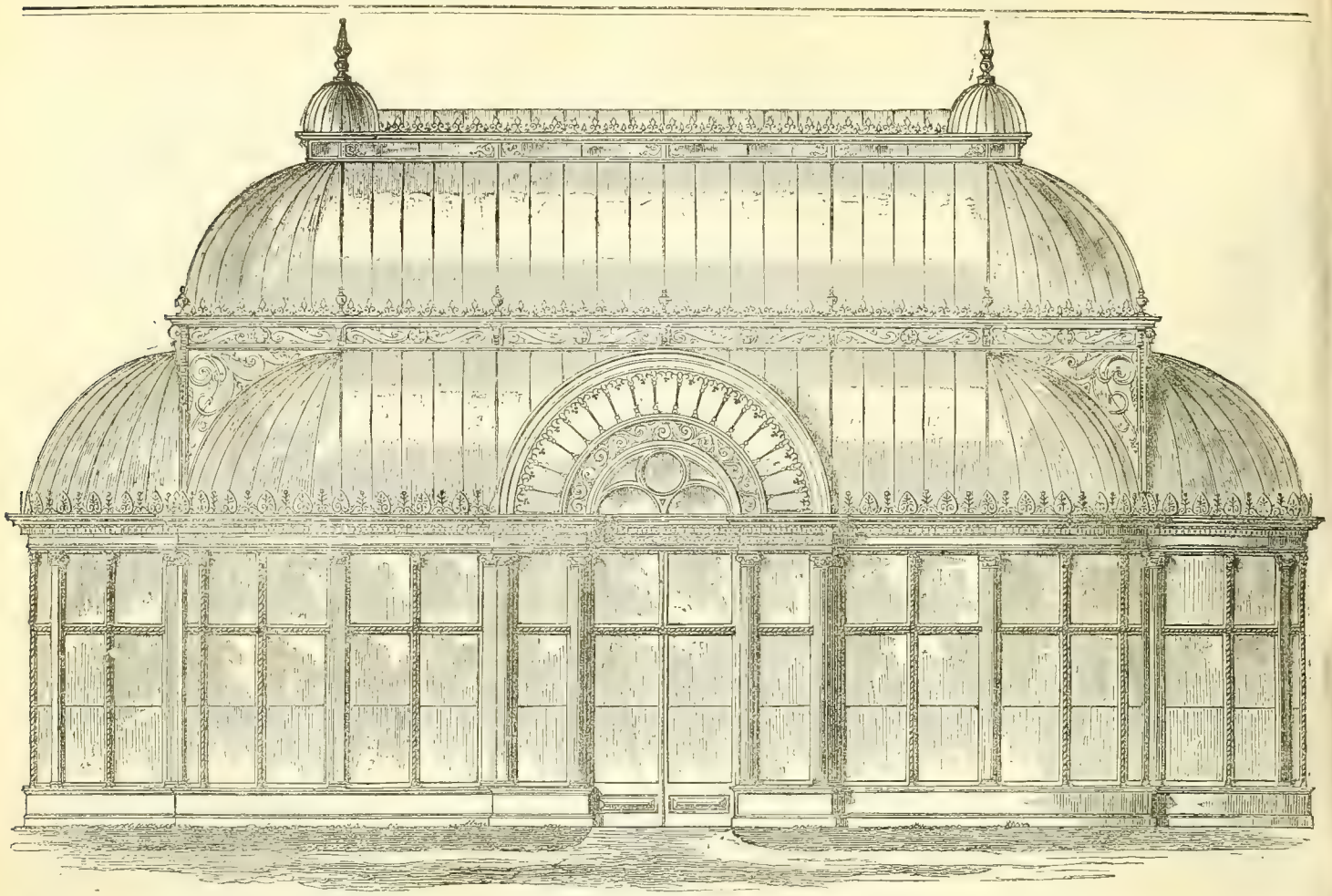
The whole of these Plants are in the finest possible health and are lotted to suit all buyers, and are well worthy the attention of the Nobility, Gentry, and Trade.
On view at Mr. STANDISH'S Nursery, Bagshot, during the Sale of his Nursery Stock, and on the days of Sale at Mr. J. C. STEVENS'S Auction Rooms and Offices, 38, King Street, Covent Garden, London, W.C., where Catalogues and full particulars can be obtained.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, November 2, at half-past 12 o'clock precisely, an IMPORTATION, from a well-known Nurseryman in Ghent, consisting of CAMELLIAS, AZALEAS, LILIUM LANCIFOLIUM, hardy RHODODENDRONS, &c.
On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 4, at half-past 12 o'Clock precisely, a Collection of choice FRUIT TREES, ROSES, RHODODENDRONS, CONIFERS, HARDY and ORNAMENTAL SHRUBS, &c.
On view the Morning of Sale, and Catalogues had.



THIS SPLENDID CONSERVATORY FOR SALE AT LESS THAN COST PRICE.

ORMSON'S CONSERVATORY, INTERNATIONAL EXHIBITION 1862.

OPINIONS OF THE PRESS.—(EXTRACTS).

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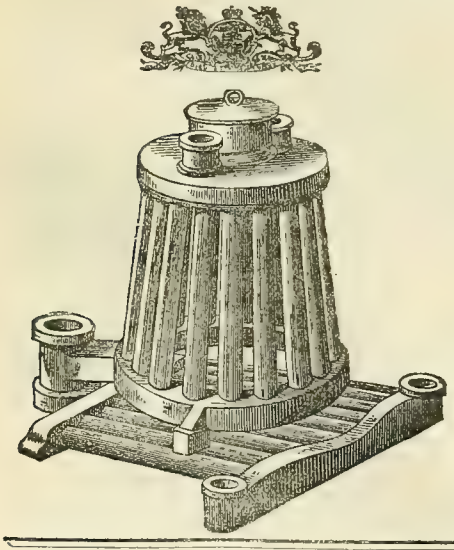
"No object in the Horticultural Department attracts the eye sooner than the splendid Conservatory erected by Henry Ormson, of King's Road, Chelsea."—The Illustrated London News.

"This construction, however, not only stands first among the Conservatories at Kensington, and indeed of any we have ever seen, but is worthy of the highest commendation on account of its eminent fitness for the purpose for which it was made."—The Illustrated News of the World.

"The beauty of this structure is as good a lesson of the value of iron as any that could be furnished in the whole Exhibition."—Gardeners' Weekly Magazine.

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have become universally adopted on account of their superior power, great safety, and economy.



BY HER MAJESTY'S ROYAL LETTERS PATENT.

ORMSON'S PATENT,

ENTITLED

"AN IMPROVEMENT IN THE MANUFACTURE OF CAST TUBULAR BOILERS."

TAKE NOTICE, that a DISCLAIMER has been filed in the Patent Office and allowed by the Attorney-General, by which such part of the above Patent as was considered questionable by the Court of Exchequer Chamber has been disclaimed. Any person infringing the said Patent after this Notice will be proceeded against according to Law.

Disclaimer allowed September 1, filed September 2, 1863.

I BEG to NOTIFY, that having by leave of her Majesty's Attorney-General DISCLAIMED such part of my Patent as was considered by the Court of Exchequer Chamber as questionable, the said Patent is now absolutely confirmed; and any person infringing the same will be proceeded against according to law.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,

AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 44.—1863.] SATURDAY, OCTOBER 31. {Price Fivepence. / Stamped Edition, 6d.

INDEX.

Abies Engelmanni ..... 1035 *b*
Agricultural education..... 1048 *a*
— statistics of Ireland.... 1043 *a*
Apricots in pots ..... 1036 *c*
Annchuris ..... 1039 *b*
Assessments, nurserymen's.. 1039 *c*
Birds .....1036 *a*—1038 *c*
Cheshire Agricultural Soc. .. 1041 *c*
Cinchonas, Indian ..... 1038 *a*
Clayton & Shuttleworth's Works ..... 1048 *a*
Colonies, the ..... 1046 *b*
Cottages ..... 1046 *c*
Cottagers' food ..... 1046 *b*
Fish and Fishing ..... 1036 *c*
Foliage plants ..... 1038 *b*
Fortune's plants, sale of .... 1040 *a*
Germinating power and animalcules ..... 1037 *b*
Gishurst Compound ..... 1039 *a*
Glycine at home ..... 1040 *a*
Harvest homes ..... 1046 *b*
Harvest in Japan ..... 1039 *c*
Home Nurse, rev..... 1039 *b*
Impure seed Wheat..... 1046 *c*
Labour cost of crops ..... 1044 *b*
Labourers' houses ..... 1046 *a*
Land companies ..... 1042 *c*
Larix Griffithiana ..... 1039 *b*
Morphology ..... 1038 *c*
Potatos ..... 1039 *a*—1046 *a*
Prize farm agreement ..... 1043 *b*
Pyrethrum Willemoti ..... 1034 *c*
Roses .....1035 *c*—1038 *a*
Smithfield Club ..... 1042 *c*
Society, Cambridgeshire (West) ..... 1047 *a*
— Penrith ..... 1047 *a*
Statistics, Irish agricultural 1043 *a*
Stock keeping ..... 1041 *a*
Strawberry runners ..... 1034 *b*
Swallows..... 1039 *b*
Tea .....1033 *c*—1034 *c*
Thin seeding ..... 1042 *a*
Tulips .....1038 *c*—1040 *a*
Wellingtonia ..... 1040 *a*
Wheat crop of 1863 ..... 1047 *c*
Vine-exostose ..... 1038 *c*

☞ NOTICE TO ADVERTISERS. — *Advertisements must reach the Office by* THURSDAY'S *post. They should be written on one side of the paper only.*

Open to all England.

THE STOKE NEWINGTON CHRYSANTHEMUM SOCIETY.

The SEVENTEENTH ANNUAL EXHIBITION will be held at the Manor Rooms, Church Street, Stoke Newington, on MONDAY and TUESDAY, November 9 and 10, when Prizes, including Meteorological Instruments, Silver Cups, and Plate will be awarded. W. F. HOWE, Hon. Sec.

The Bible Office, Shacklewell, N.E.

HORTICULTURAL SOCIETY of LIVERPOOL. —The FIRST EXHIBITION of CHRYSANTHEMUMS and FRUIT will be held in St. George's Hall, Liverpool, on WEDNESDAY, November 18.

For Schedules, &c., apply to ROBERT W. KER, Honorary Secretary, 4, Basnett Street, Liverpool.

New Chrysanthemums.

JOHN SALTER'S COLLECTION of these beautiful Flowers is NOW in FULL BLOOM. The Winter Garden contains all the finest varieties in cultivation, together with the NEW CHRYSANTHEMUMS for 1864. The Gardens are open every day except Sunday.

Versailles Nursery, William Street, near Hammersmith Turnpike and the Kensington Railway Station.

Notice.

J. H. BIRD, the great CHRYSANTHEMUM GROWER of Stoke Newington, in answer to numerous inquiries, begs to inform his friends and the public, that although he has given up Exhibiting for Competition himself, he still supplies other Exhibitors with SPECIMEN BLOOMS for that purpose in large and small quantities, and on the same liberal terms as in previous years.

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WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery. PRICED LIST on application.

PAUL'S Nurseries and Seed Warehouse, Waltham Cross, N.

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Apply to M. ROCHFORD, Market Gardener, Page Green, Tottenham, N.

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A DESCRIPTIVE CATALOGUE of PEARS, by THOMAS RIVERS (separate from the Catalogue of Fruits) sent free on application.

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RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

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ROSES.—CATALOGUES for 1863 and 1864 forwarded free on application.

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New Rose Catalogue for 1863-64.
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J. DOBSON AND SONS' ADVERTISEMENT in *Gardeners' Chronicle* of Saturday, October 17.

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IMPORTED DUTCH BULBS.—First-class Dutch Bulbs of every description just imported.

JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

Hyacinths and other Choice Bulbs.

B. S. WILLIAMS'S DESCRIPTIVE CATALOGUE of the above post free to all applicants.

Choice HYACINTHS for Glasses or Pots, 6*s.*, 8*s.*, 10*s.*, 12*s.* per dozen.

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BULBS, Carriage Paid.—For COLLECTIONS of BULBS see our large advertisement in *Gardeners' Chronicle*, Sept. 19, p. 886.

For PRICED LIST of BULBS for the SPRING GARDEN, CONSERVATORY, and SITTING ROOM, see our large advertisement in *Gardeners' Chronicle*, Sept. 26, p. 914.

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100,000 EASTHAM CABBAGE PLANTS from Seed Beds for Sale, Sangster's own stock. Per 1000, 3*s.* Sown Aug. 8.

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NOTICE.—Any ALTERATION in the STYLE or ADDRESS of any FIRM that may have occurred up to December, 1862, is requested to be sent to 162, Fleet Street, E.C., so that the necessary correction may be made in the DIRECTORY portion of the GARDENERS' YEAR BOOK, ALMANACK, and DIRECTORY for 1864, which will be published on December 1.

£34 10s. Prizes.

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See BARR & SUGDEN'S enumerated varieties of Exhibition HYACINTHS, TULIPS, and CROCUS; also their Advertisement, page 985.

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WM. CUTBUSH AND SON'S first importation of the above has arrived, and from the extraordinary heavy weight of the Bulbs they promise a fine bloom. Early orders are earnestly solicited. DESCRIPTIVE PRICED CATALOGUES free.

N.B.—17 FIRST PRIZES were awarded to WM. C. & SON last spring for HYACINTHS, TULIPS, and CROCUSES. In addition to this, EVERY FIRST PRIZE at the London Exhibitions to Amateurs was for Bulbs supplied by them.

The ONLY address is Highgate Nurseries, London, N.

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ROBERT PARKER begs to announce that his New CATALOGUE, containing Select, Descriptive, and Priced Lists of Exotic Orchids, New and Rare Greenhouse, Hardy, and Stove Plants, Ornamental and Variegated foliaged Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, Narcissus, and other Bulbs, is now published and will be forwarded to all applicants.

Exotic Nursery, Tooting, Surrey, S.

30,000 Hyacinths, 30,000 Tulips, 10,000 Narcissus, and 100,000 Crocus in varieties.

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HYACINTHS, in 10, 20, 30, 40, or 50 splendid varieties, at One Guinea per 100. Less by the 1000.

LILIUM LANCIFOLIUM RUBRUM (true), large roots, 1*s.* each, 10*s.* per dozen, 3*l.* 5*s.* per 100, or 30*l.* per 1000.

N.B. To save trouble all Orders to be prepaid.

E. G. HENDERSON AND SON'S DESCRIPTIVE LIST of BULBS as a Guide for the Amateur's selection is now published, and will be forwarded post free on application.

HYACINTHS, choice by name, 6*s.*, 8*s.* and 9*s.* per doz.
Do., MIXED in colours, 3*s.* per doz.
Do., colours separate, 4*s.* per doz.
Do., MINIATURE FLOWERED VARIETIES, 3*s.* per doz.
TULIPS for Forcing, 6*d.* to 1*s.* per doz.
Do. EARLY SINGLE, and DOUBLE MIXED, 5*s.* and 6*s.* per 100.
Do., LATE, show varieties, mixed, 1*s.* per doz.
SNOWDROPS, single and double, 2*s.* per 100.
WINTER ACONITES, 2*s.* 6*d.* per 100.
CROCUS, in sorts, 1*s.* 6*d.* and 2*s.* per 100.
SCILLA SIBIRICA, 7*s.* 6*d.* per 100.
ANEMONES, 3*s.* 6*d.* and 5*s.* 6*d.* per 100.
RANUNCULUS, 3*s.* to 5*s.* per 100.
GLOXINIAS, by name, 9*s.* and 12*s.* per doz.
ACHIMENES by name, 2*s.* 6*d.* and 3*s.* per doz.
GLADIOLUS BRENCHLEYENSIS, 3*s.* per doz., 20*s.* per 100.
" GANDAVENSIS, the finest collection offered.
CYCLAMEN, a choice collection of 20 varieties by name.
LILIES, 60 fine varieties. TRITOMA UVARIA, 12*s.* per doz.
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EARLY SPRING-FLOWERING PLANTS, in various colours, as HEPATICAS, DOUBLE PRIMROSES, VIOLETS, CHRISTMAS ROSE, and 60 other early-flowering perennials.
Strong Clumps of NEAPOLITAN and other VIOLETS in pots for winter blooming, and LILY of the VALLEY.

Wellington Nursery, St. John's Wood, London, N.W.

IMPROVEMENTS.—Gentlemen wishing to make alterations or improvements in PLEASURE GARDEN, KITCHEN GARDEN, LAWN, or PARK, would do well to consult H. LANE & SON'S

ROSE CATALOGUE,
FRUIT CATALOGUE, and
TREE and SHRUB CATALOGUE, &c.

which may be had on application at the Nurseries, Berkhamstead, Herts.

An inspection of the stock is earnestly requested.

The finest and largest quantity of ARAUCARIA IMBRICATA in Europe.

DAPHNE CNEORUM. The largest stock in England of this very fragrant blooming hardy plant, 9*s.* per doz., 50*s.* per 100, or 500 for 10*l.*

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A splendid collection of Prize varieties: Standards, 15*s.* per doz.; the very best, 18*s.* Dwarfs on Manetti Stock, these also are particularly fine, 12*s.* per doz.; smaller, 9*s.*, all carefully named.

PRIMULA SINENSIS ALBA PLENO, 12*s.* per dozen; smaller, 9*s.* RUBRA PLENO, 18*s.* per doz.; smaller, 12*s.*

EUCHARIS AMAZONICA, strong bulbs for immediate flowering, 1*s.* 6*d.* each, or 12*s.* per doz.; smaller, 9*s.* Its delicate snow-white flowers, 3 inches over, of delightful fragrance, together with its flowering in winter, and easy cultivation, render it quite a gem.

The above package free, and despatched with great care, upon receipt of Post Office Orders payable to

W. B. JEFFRIES, Arboretum Nurseries, Ipswich.

NEW HARDY LATE-FLOWERING RHODODENDRONS.

PRINCE OF WALES.—Brilliant rose shaded with purple, divided black marking on the upper petals, a profuse bloomer, very hardy, and flowers end of June.—Strong young plants, 21*s.* each; a few larger ones, 42*s.*

PRINCESS OF WALES.—Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, totally distinct from any known Rhododendron, hardy and late, a really beautiful variety.—Strong plants, 21*s.* each; larger, 42*s.*; a few extra size, 63*s.*

MAURICE YOUNG has much pleasure in now offering for the first time the above distinct and beautiful Rhododendrons, which he can confidently recommend as most desirable additions to this noble class of hardy evergreens. They have both been proved for several years in the open ground to be very hardy, free bloomers, compact truss, and very late—possessing every qualification which can be desired in a first-class Rhododendron.

Coloured plates by Andrews are now ready, and will be forwarded by post on receipt of 13 postage stamps. One plant over in three to the Trade.

MAURICE YOUNG (Son and Successor to the late WILLIAM OUNG), Milford Nurseries, near Godalming.

Strawberries.

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON having an immense Stock of the following STRAWBERRIES, will be happy to supply them at the lowest possible prices.

Special offers to the Trade on application.

Adair	Elton Pine	Oscar
Alice Maud	General Havelock	Rival Queen
Boyd's Surprise	Keen's Seedling	Sanspareil
British Queen	Myatt's Surprise	Sir Charles Napier
Carolina Superba	Nimrod	Sir Harry
Eleanor	Omar Pasha	Stirling Castle Pine

Wizard of the North.

The Royal Hautbois Strawberry.

MESSRS. THOMAS RIVERS AND SON now offer Plants of the above. The variety was selected by them in 1861 from many hundreds of Seedlings raised from La Belle Bordelaise Strawberry, a variety of the Hautbois received from France, and has proved to be by far the largest and most prolific of the race, with the true Hautbois flavour.

Plants, 4*s.* per dozen, 30*s.* per 100. A few extra sized bearing plants, 9*s.* per dozen; carriage paid to London.

Nurseries, Sawbridgeworth.

Vines.

JAMES CARTER AND CO. beg leave to call attention to their splendid collection of the above, consisting of several thousand CANES of the most approved varieties in cultivation. Extra strong, short-jointed, well-ripened Canes for fruiting in Pots next year; fine strong, well-ripened Canes for planting in Vineries, and strong hardy Canes for open walls.

For prices and full descriptive list of more than 40 finest selected varieties most suitable for above purposes, see AUTUMN SUPPLEMENT to their VADE MECUM, forwarded post free on application.

Seed Merchants and Nurserymen, 237 and 238, High Holborn, London, W.C.

GRAPE VINES.—Strong well ripened Canes of the following, at 3*s.* 6*d.* to 5*s.* each:—Black Hamburgh, Grizzly Frontignan, Black Prince, Chasselas Musqué, Black St. Peter's, Black Frontignan, Cannon Hall Muscat, Précoce Malingre, White Frontignan, White Sweetwater, Muscat of Alexandria, Tokay, Golden Hamburgh, Syrian Muscat Hamburgh, Mill Hill Hamburgh, Lady Downes, Black Cluster, Esperion, Muscat Troveron, Royal Muscadine, Trentham Black, Blanc de Kentsheim, Black July, Ingram's Prolific, Buckland Sweetwater, Cavoush.

JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

Peach Trees for Forcing.

MESSRS. THOS. RIVERS AND SON beg to offer very fine PEACH TREES in pots for forcing; they are from three to four years old, and full of blossom buds. The varieties cultivated are Noblesse, Royal George, Grosse Mignonne, Early York, Early Grosse Mignonne, and others.

Largest sized trees, 7*s.* 6*d.* each; fine trees, 5*s.* each; carriage paid to London.

Nurseries, Sawbridgeworth.

Very Strong Standard and Pyramid Pears and Plums,

JAMES GARAWAY AND CO., Durdham Down Nurseries, Bristol, offer the above, of the best varieties, 24*s.* to 30*s.* per dozen. Prices to the Trade on application.

AUTUMN CATALOGUE and FOREST TREE LIST free by post.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

ORCHARD-HOUSE TREES.

	Each.—*s. d.*		Each.—*s. d.*
Apricots, fine pyramids and bushes	3*s.* 6*d.* to 5 0	Peaches, pyramids and bushes	3*s.* 6*d.*, 5*s.*, & 7 6
,, standards	7 6	,, half standards	5*s.* to 7 6
Apples, pyramids ..	2 6	,, standards	7 6
Cherries, pyramids and bushes	3 6	Pears, pyramids and bushes	3 6
Figs ..	3*s.* 6*d.* to 5 0	Plums, pyramids and bushes	3 6
Mulberries, bushes ..	5 6	Vines from eyes, fine	3*s.* 6*d.* to 7 6
Nectarines, pyramids and bushes	3*s.* 6*d.* to 5 0		

The above are in pots and all full of blossom buds. The stock consists of many thousands of trees, and is the largest known. To facilitate package and lessen the cost of carriage, the trees are taken from their pots and packed with their balls of earth intact in crates and baskets. Carriage paid to London.

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

Fruit Trees.

JOHN CRANSTON offers superior, healthy grown plants of all the best varieties of FRUIT TREES, DESCRIPTIVE CATALOGUES of which will be forwarded on application.

	Each.—*s. d.*
APPLES.—Very fine Dwarf-trained	2 6
,, Pyramids	2 6
,, Standards	2*s.* to 2 6
APRICOTS.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
CHERRIES.—Dwarf-trained	3*s.* 6*d.* to 4 6
,, Pyramids	2*s.* 6*d.* to 3 6
GRAPE VINES.—Standards	2 6
,, Very fine and well-ripened	3*s.* 6*d.* to 5 0
NECTARINES.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
PEACHES.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
PEARS.—Dwarf-trained	3 6
,, Pyramids	2*s.* 6*d.* to 3 6
,, Standards	2 6
PLUMS.—Dwarf-trained	3*s.* 6*d.* to 4 6
,, Standards	2 6
WALNUTS.—Standards	2 6
,, Extra strong	3*s.* 6*d.* to 5 0

GOOSEBERRIES, CURRANTS, FIGS, RASPBERRIES, STRAWBERRIES, &c.

PEACHES, NECTARINES, and APRICOTS, established in Pots for Orchard House Culture, 5*s.* each.

ASPARAGUS, two years	2*s.* 6*d.* per 100
SEA KALE, ,, ...	8*s.* per 100

Nurseries, King's Acre, near Hereford.

WELLINGTONIA GIGANTEA.—The undersigned has to offer a fine stock of SEEDLING PLANTS in Pots at the following low prices:—

	Per 100.
1-year SEEDLINGS in single pots	£2 0 0
2-year ,, 8 inches	3 0 0
Ditto, in 48-pots, 1 foot	5 0 0
ARAUCARIA IMBRICATA, in pots 2 years ..	2 10 0
CUPRESSUS LAWSONIANA, in pots, 8 inches ..	0 10 0
PICEA NORDMANNIANA, 2 years .. per doz.	0 9 0

J. HENCHMAN, Edmonton, London, N.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

Prize Gladioli.

YOUELL AND CO. were awarded the following PRIZES for the above in September last:—

FIRST AND SECOND PRIZE, CRYSTAL PALACE,
FIRST PRIZE, ROYAL HORTICULTURAL SOCIETY,
FIRST PRIZE, BRIGHTON.

CATALOGUES of this collection will be forwarded on application.

Royal Nurseries, Great Yarmouth, Norfolk.

Deutzia crenata fl. pleno—Japan.

JOHN STANDISH has now the pleasure of submitting to the consideration of his friends and the public the above truly valuable and hardy ornamental plant. It has received First-class Certificates both at the Royal Horticultural and Royal Botanic Shows in June and July last (*vide* Report).

"There were a few very interesting new hardy plants shown, first a Deutzia crenata flore pleno, one of Fortune's novelties, flowered by Mr. Standish. This looked like a fine addition to hardy shrubs; it has opposite shortly stalked finely serrated leaves, and copious terminal racemes of deflexed double flowers deeply tinged externally with rose."

Plants now ready, 10*s.* 6*d.* each; or 6 Plants for 42*s.*

Royal Nursery, Ascot, Berks.

New Pear, British Queen (Ingram).

CHARLES TURNER has much pleasure in offering this beautiful Pear to the Public, the merits of which are known to many, but the following testimony to its excellence will be conclusive. The following description is supplied by Mr. Powell, of the Royal Gardens, Frogmore:—

"This Queen of Pears was raised by Mr. Ingram, Gardener to Her Majesty at Frogmore, and considered by all who have had the opportunity of testing its merits, to be the best Pear ever raised. The late Prince Consort was so pleased with the fruit, that he characterised it as the best Pear he had ever tasted. It received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society in 1861, and since maintained its character by taking the First Prize at the great Autumn Show of the above Society in 1862. The fruit is large, pyramidal in form, skin smooth and glossy, of a fine golden yellow, partly spread with cinnamon russet, and often a tinge of lively crimson on the sunny side; flesh yellowish white, very fine grained, with an abundance of juice, which is saccharine and rich, with a fine aromatic flavour; in beauty and excellence it has no equal; ripe in October and November."

Extracts from the *Gardeners' Chronicle* report of the Royal Horticultural Society's Great Autumn Fruit Show, October 8, 9, and 10, 1862 —

"Of Pears shown in a ripe state the best came from Mr. Ingram, Frogmore, who showed a beautiful dish of British Queen, a variety of which we have already spoken in favourable terms."—*Gardeners' Chronicle*, Oct. 11, 1862.

"Of novelties among the Pears of this class (Dessert) we noted very handsome fruit of the British Queen, from Mr. Ingram, Royal Gardens, Frogmore."—*Gardeners' Chronicle*, October 18, 1862.

"Hogg's Gardeners' Year Book for 1863" has a drawing with the following description:—

"BRITISH QUEEN.—This beautiful fruit is well worthy of the name it bears; the fruit is large and of a pyramidal shape, frequently having the stalk inserted obliquely; but this is not its constant character, and the outline is undulating and bossed. The skin is smooth, and almost entirely covered with a thin coat of cinnamon-coloured russet, but on the side next the sun it has a blush of bright rosy crimson; flesh yellowish white, very fine grained, buttery and melting, rich, sugary, and having the flavour of Marie Louise, coupled with that peculiar briskness which is found in the Windsor. It ripens the beginning of October."

"The Journal of Horticulture," October 15, 1861, says:—

"A seedling Pear was received from Mr. Ingram, Gardener to Her Majesty at Frogmore. We believe it was raised from seed of the Seckel, crossed with Marie Louise; it is called British Queen, and is most appropriately and worthily named. The fruit is large and pyramidal, of a fine golden yellow colour on the shaded side, and covered with a crust of fine cinnamon-coloured russet next the sun, and with a blush of rosy crimson. The flesh is firm and not crisp, very juicy and melting, and with a rich brisk flavour and a fine aroma. This was awarded a First-class Certificate."

The same authority, writing of the Great Fruit Exhibition at Kensington, October 14, 1862, adds:—

"The Flemish Pears, on the whole, were more sleek-looking than ours, but it is a question if any of them were superior to an English Seedling from Mr. Ingram, of Frogmore, named British Queen, which was one of the best looking Pears in the whole Exhibition for a first-class dessert. It is all very well to have Algerian Goliath looking Pears and Apples at a Lord Mayor's dinner, but for an aristocratic dinner that is not the fashion; but the moderate in size and the best looking, with the proper names sent up with them, and the British Queen Pear is a model for such a dinner."

Lastly, it is figured in "The Florist" for June, 1863, with the following remarks:—

"It always affords us infinite pleasure to be able to announce the appearance of a new British fruit of real merit. We have been so far behind our Continental neighbours in raising new varieties to any extent, that it is gratifying when we hear of any new success in this branch of horticulture. Mr. Ingram, Gardener to Her Majesty at Frogmore, is one of the few professional gardeners who have directed their attention to the hybridising and raising of Seedling fruits; the subject which we will bring under the notice of our readers is one of his raising. The fruit is large and pyramidal, somewhat undulating in its outline, and very handsome in its appearance; the skin is smooth and shining, of a fine golden yellow colour, freckled with patches of thin delicate cinnamon-coloured russet, and with sometimes a blush of lively crimson on the side which has been much exposed to the sun; the eye is small, with short narrow segments, and set in a considerable hollow; stalk about an inch long, stout and sometimes obliquely inserted, but generally straight with the axis of the fruit, and inserted in a round narrow cavity; flesh yellowish white, very fine grained and buttery, with an abundance of juice, which is rich, sugary, and piquant, and with a fine aroma. A very excellent dessert Pear, ripe in October. It received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society, and the stock is, we believe, in the possession of Mr. Turner, of Slough."

Plants, 10*s.* 6*d.* and 15*s.* Dwarf-trained, 20*s.*

A few Fruiting Pyramids, 42*s.*

A Coloured Drawing may be had post free for 12 postage stamps.

A CATALOGUE of ROSES, CONIFERÆ, FRUIT TREES, &c., is now ready.

Rhododendrons.

Crimson, White, Purple, and Scarlet.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

Rhododendron Countess of Haddington.

Good plants, 21*s.* each.

Vine Tynninghame Muscat.

Good plants, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each.

ROBERT PARKER begs to announce that he is now offering for sale the above first-class Plants. Full descriptions with List of Awards received are published in his NEW CATALOGUE of PLANTS and BULBS, which will be forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

Hardy Scarlet Rhododendrons.

JOHN WATERER'S CATALOGUE of HARDY SCARLET and other CHOICE RHODODENDRONS as annually displayed in the Royal Botanic Gardens, Regent's Park, can now be had on application.

It contains faithful descriptions of all the varieties really worthy of cultivation, as well as a selection of HARDY CONIFERS, with heights and prices, with ORNAMENTAL EVERGREENS, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey.

RHODODENDRON PRÆCOX.
" " SUPERBUM.
" " RUBRUM.

ISAAC DAVIES can now supply the above in nice bushy Plants, with from 10 to 100 Flower Buds at from 3*s.* 6*d.* to 7*s.* 6*d.* each. Superbum and Rubrum are the best varieties.

Larkfield Nursery, Wavertree, near Liverpool.

GEO. BAKER begs to announce that his extensive Collection of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

New Hardy Continental Rhododendrons.

AMBROISE VERSCHAFFELT, Nurseryman, Ghent (Belgium), begs to offer the following New Hardy RHODODENDRONS:—

	s.	*d.*		*s.*	*d.*
Rhododendron Comte de Gomer	4	0	Rhodo. Dr. Moore	6	0
,, Comtesse Salvi	6	0	,, Mrs. Barton	5	0
,, Dicudonné Spae	5	0	,, Mr. Stuart Low	6	0
,, Director Thelemann	5	0	,, Princess Alice	5	0
,, Duc Adolphe de Nassau	12	0	,, rubrum spectabile	4	0
			,, Verschaffeltii	8	0

The above varieties, raised by Ambroise Verschaffelt, are certainly of the finest and best varieties in trade.

The Set of the Eleven Varieties can be supplied for 3*l.*

GEO. DAVIES begs to offer to the Trade the undernamed:—

ARAUCARIA IMBRICATA, from pans, 2 to 4 inches, 20*s.* per 100; 4 to 5 inches, 25*s.* per 100.
ACROPHYLLUM VENOSUM, 3 to 6 inches, 36*s.* per dozen.
GENETYLLIS TULIPIFERA, 6 to 12 inches, 36*s.* per dozen.
" HOOKERII, 6 to 12 inches, 36*s.* per dozen.
RHODODENDRON RETUSUM, 6 to 12 inches, 30*s.* per doz.
" " 12 to 15 inches, bushy, 36*s.* per dozen.

Reference or Remittance from unknown Correspondents.

Green Lane Nurseries, Old Swan, Liverpool.

Wellingtonia gigantea, and Cupressus Lawsoniana.

TO BE SOLD, Cheap, a quantity of WELLINGTONIAS, 1—2 feet, and splendid Specimen CUPRESSUS LAWSONIANA, 6 feet, will remove with large balls; and well worth attention where immediate effect is required, having been well grown.—Apply to F. G. Godwin, Seedsman, &c., 3, Norfolk Market Hall, Sheffield.

To Nurserymen.

WANTED, about 5000 EVERGREEN SHRUBS, such as Portugal and Common Laurel, Variegated and Green Holly, Arbutus, Laurustinus, Aucuba, Phillyrea, Box, Rhododendron, Evergreen Oak, Arbor-vitæ, &c., and about 500 LIME, POPLAR, LARCH, PINASTER and other Pines. To be delivered Free at Ramsgate Station.

Lowest Terms per 100 of each sort to be addressed to Mr. R. Richardson, Broadstairs, Kent, or Mr. John Kernan, Seedsman, 4, Russell Street, Covent Garden, London, W.C.

General Nursery Stock.

SPONSFORD begs to announce that his Stock of the above is this season unusually fine. It consists of everything in demand for general planting. The most conspicuous are STANDARD and DWARF ROSES; FRUIT TREES of every description, including WALL TREES (very fine); PYRAMIDAL, BUSH and STANDARD APPLES, PEARS, &c.; STANDARD MULBERRIES, extra fine; EVERGREEN and DECIDUOUS SHRUBS, frequently removed; CHINESE ARBOR-VITÆ, all sizes; ANDROMEDA FLORIBUNDA, &c. CONIFERÆ of the known hardy kinds. LIMES, POPLARS, MOUNTAIN ASH, &c.

PRICED CATALOGUES gratis.

Loughborough Park Nurseries, Brixton, Surrey, S.

SPECIAL OFFER of SHRUBS and TREES.—The Subscriber having an abundant Stock of the following, he is prepared to offer same much below the usual rates. The undernoted is well worthy the attention of the Trade and parties about to plant, the Subscriber's Nursery having been for the past 50 years famed for producing particularly fine rooted plants. Prices per 100 and 1000 on application.

AUCUBA JAPONICA, 12-inch; APPLE STOCKS, 1-year do. 2 feet, Transplanted; ARBORVITÆ, AMERICAN, 1-year laid, 6 to 12-inch; AZALEA PONTICA, 12-inch; BARBERRY, COMMON, 12-inch; BIRD CHERRY, 2 to 3 feet; BIRCH, Transplanted, very scarce, 1½ feet; RED CEDARS, 9-inch; CUPRESSUS MACNABIANA, 2 feet; CUPRESSUS THUJOIDES, 6-inch; EUGENIA UGNI; 3-year SEEDLING SILVER FIR; 2-year SEEDLING HAZEL; GREEN HOLLIES; 1-foot LAUREL, COMMON; 1 to 3-feet PEAR STOCKS; 1-year SEEDLING, and 2½-feet Transplanted PINUS CEMBRA, 3-feet, very fine specimens; PINUS AUSTRIACA, 1 to 2-feet; QUINCE STOCKS, 2 feet, very fine stems. SPURGE LAUREL, 1 to 2 feet.

Robert T. Mackintosh, Nurseryman and Seedsman, 12, Melbourne Place, George IVth Bridge, Edinburgh.

Nursery, Leith Walk.

Catalogues.

PAUL and SON have now ready their NEW DESCRIPTIVE PRICED ROSE CATALOGUE for 1863-64.

DESCRIPTIVE CATALOGUE of HYACINTHS and other DUTCH BULBS, post free.

Also their DESCRIPTIVE CATALOGUE of EVERGREENS, DECIDUOUS TREES, CONIFERS, AMERICAN CLIMBING and HERBACEOUS PLANTS, post-free for one stamp.

"Old" Cheshunt Nurseries, N.

To the Trade.

WM. PAUL respectfully informs his friends and the Trade generally, that he has a large and superior Stock of the following. Prices very moderate, and will be given on application.

STANDARD, DWARF, and CLIMBING ROSES.
Large DECIDUOUS TREES and SHRUBS, including Planes, Elms, Poplars, Acacias, Laburnums, Thorns, &c.
WEEPING TREES, of sorts.
CLIMBING PLANTS, in pots.
EVERGREENS, of all sorts.
FRUIT TREES, of sorts: Pyramidal and Dwarf Apples and Pears, very fine.
GRAPE VINES, for Fruiting or Planting, also very fine.

Paul's Nurseries, Waltham Cross, N.

LOUIS VAN HOUTTE, Nurseryman and Seedsman, Ghent, Belgium, begs to call attention to his three new PRICE LISTS, No. 97, 98, and 99, containing the Stove, Greenhouse, and Hardy Plants (212 pages 12mo).

Agents in London: Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, E.C.

WILLIAM DILLISTONE begs to offer the following in Strong PLANTS for stock. He has bloomed nearly every variety that has been sent out this year, and has reserved only such in stock that are superior to older varieties, and having an immense stock, he begs to offer them at the undermentioned low prices:—

	Per doz.—*s.*	*d.*		Per doz.—*s.*	*d.*
New Fuchsias, choice selections	6	0	New Ageratum, Prince Alfred	6	0
,, Verbenas, ditto	4	0	,, Pampas Grass, Gynerium argenteum roseum	9	0
,, Antirrhinums, ditto	4	0	,, Geraniums, choice selection, from	9	0
,, Petunias, ditto	4	0	,, Roses, ditto 24*s.* to 36	0	
,, Pentstemons	6	0	,, Lonicera aureo-reticulata 6*s.*, 9*s.*, and 12	0	
,, Lobelias, including Paxtoniana, and five others, ditto	3	0	,, Echeveria metallica each	2	6
,, Tropæolums, including Ball of Fire, ditto	6	0	,, Solanum capsicastrum fol. variegatum each 1*s.*	9	0
,, Veronicas, ditto	9	0	,, Perpetual Flowering Pink per pair, 1*s.* 6*d.*	12	0
,, Gazanias, ditto	9	0	,, Phlox, Mrs. Mitchell each	1	0
,, Lantanas, ditto	9	0	,, Strawberry, the Tietjon	4	0
,, Chrysanthemums, do.	6	0	,, Strawberry, Princess of Wales	12	0
,, Heliotropes, ditto	6	0			
,, Hollyhocks, ditto	18	0			
,, Mimulus (maculosus), Bull's, ditto	4	0			
,, Do., Henderson's, do.	4	0			
,, Pansy, Good Gracious	9	0			

Also the following, in Strong Plants:—

	Per doz.—*s.*	*d.*			
Hepaticas, sorts	3*s.* to 4	0	Œnothera splendens	4	0
Primroses	4*s.* to 9	0	Diclytra spectabilis	4	0
Polyanthus, choice mixed	3	0	Phlox, fine named	4	0
Auriculas, border var.	3	0	Rock Cistus, in 20 vars., named, the collection	6	0
Lilies of the Valley	2	0	Hollyhocks, fine named	6	0
Lavender	3	0	,, seedlings, from	3	0
Pinks, finest named	3	6	Centaurea candidissima	9	0
Rockets, Double White and Yellow	4	0	Gnaphalium lanatum	4	0
Violets, Double White, Purple and Russian	3	0	Pansies, fine named	3	0
Œnothera missouriensis	4	0	Roses, fine named 9*s.* to 12	0	
,, taraxacifolia	4	0	Roses, fine named, on Manetti	9*s.* to 12	0

100 CHOICE HARDY HERBACEOUS PLANTS, in 50 varieties, carefully named and packed for 20*s.* Carriage paid.

A DESCRIPTIVE CATALOGUE of the New Plants free for one stamp.

Carriage of Parcels amounting to 20*s.* paid to London or any Station within 50 miles. Post Office Orders payable on Castle Hedingham, to

Wm. Dillistone, Munro Nursery, Sible Hedingham, Essex.

Planting Season.

To Noblemen, Gentlemen, Nurserymen, Builders, and Public Companies engaged in Planting.

PROTHEROE and MORRIS most respectfully invite the Public to inspect their VALUABLE NURSERY STOCK, extending over 30 Acres, and in the finest state of cultivation, consisting of FRUIT, FOREST, and ORNAMENTAL TREES of every description and in considerable quantities; also a large and rich assortment of AMERICAN PLANTS, FINE EVERGREENS, all sizes, including many Magnificent Specimens which will give immediate effect, and from the adhesive nature of the soil, and being continually transplanted, incur no risk from removal.

The following include a portion of their Stock:—

These are fine bushy Plants, & well set with Bloom Buds.
30,000 Rhododendrons, Scarlet, Catawbiense, Ponticum, and others.
20,000 Ghent & other Azaleas.
4,000 Kalmia latifolia.
3,000 Andromeda floribunda.

Extra Fine Fruit Trees.

3,000 Peaches, Nectarines, & Apricots, Dwarf-trained, and very handsome.
6,000 Standard Apples of the best sorts, many of which have large fruiting heads, and will come into bearing at once.

A Large Variety of Ornamental and Forest Trees, including
7,000 Limes, 5 to 12 feet, Laburnums, Chesnuts, Birch, Maples, Poplars, Mountain Ash, Acacias, Thorns, &c.
30,000 Fine Standard Roses, including the newest and most approved varieties, with clean straight stems, fibrous roots, and full bushy heads.
2,000 Fine Double Camellias,
3,000 Azalea indica, best kinds, beautifully set with bloom buds.
50,000 Laurels, 1 to 10 feet.
6,000 Handsome Fan Yews, 3 to 12 feet high, and 6 feet wide (Magnificent Plants.)
12,000 Bushy Aucubas, 1 to 5 feet.
Green and Variegated Hollies, Box Trees, Cedrus Deodara, Cedar of Lebanon, Pinus excelsa, Hemlock Spruce, Araucaria imbricata, Picea Pinsapo, Nordmanniana and nobilis, Cupressus Lawsoniana, Thujopsis borealis, Laurustinus, Sweet Bays, Phillyreas, Irish Yews, Privet, Arbor-vitæ, Berberis, Chinese Privet, &c.

List and Prices forwarded on application.

The Nurseries are accessible by Railway in 20 minutes from Fenchurch and Bishopsgate Street Stations, whence Trains leave twelve times daily to Leytonstone Station, which adjoins the Nurseries.

American Nurseries, Leytonstone, Essex.

Forest Trees, Shrubs, &c.

PETER LAWSON and SON, The Queen's Seedsmen, Edinburgh and London, have to announce that their PRICED CATALOGUE for the present season is now ready, and will be forwarded Free on application.

Their stock of SEEDLING and TRANSPLANTED FOREST TREES, ORNAMENTAL SHRUBS, &c., is at present very large, and of superior quality. If requested, special offers will be made to those intending to plant largely.

Edinburgh.—October 31.

Forest Trees and Shrubs.

THOMAS KENNEDY and CO., Nurserymen and Seedsmen, Dumfries, N.B., beg respectfully to call the attention of the nobility and gentry of Great Britain and Ireland to their extensive stock of FOREST TREES and SHRUBS, which they are selling at very moderate prices.

CATALOGUES furnished on application.

*** Dumfries from its central position and railway accommodation is most favourably situated for the speedy transmission of goods to all parts of the kingdom.

Transplanted Larch and Quicks.

CHIVAS and WEAVER, (late Geo. Chivas) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c.; and a most extensive general Nursery Stock.

For Prices and Conditions of Free Delivery see Catalogue, which will be forwarded on application.

WANTED IMMEDIATELY.—

LIMES	10 to 14 feet.
SPANISH CHESNUT	3 to 5 feet.
ASH	5 to 6 feet.

Good well rooted Plants.

John Cattell, Westerham, Kent.

CHARLES VERDIER, Nurseryman, 32, Rue du Marché aux Chevaux, Paris (Successor to the late firm of Victor Verdier, Père & Charles Verdier, fils), has the honour to inform Amateurs and the Trade that he has just published his NEW CATALOGUE for this season, containing all the latest novelties in ROSES, GLADIOLUS, HERBACEOUS and TREE PEONIES, &c., which may be had on application to his London Agents, Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, E.C.

AMBROISE VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to announce that his NEW CATALOGUE, No. 73, extremely rich in Novelties, is now ready, and can be obtained free at his Agents,

Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, London, E.C.

PALM SEEDS from the AMAZONS. — Just received, six varieties, off real at 21*s.* per 100; likewise seeds of XANTHORRHŒA from Tasmania, 25 for 2*s.* 6*d.*; and 12 do. of MAURITIA VINIFERA? PALM from West Africa 1*s.* each.

W. Cutter, Importer of Seeds and Objects of Natural History, Crystal Palace, Sydenham, S.

POLYSTICHUM ANGULARE var. KITSONIE.—Plants of this, the most beautiful variety of P. angulare that has ever been discovered, are now offered for Sale at the following prices:—

Large, with fronds about 1 foot long, 21*s.*
Small, ditto ditto 6 inches long, 10*s.* 6*d*
Mr. Geo. B. Wollaston, Chiselhurst, Kent, S.E.

N.B.—The plants are guaranteed to come into true character, or the money will be returned. The usual allowance to the Trade for cash on delivery.

SPRING EXHIBITIONS.—The following will be found worth the attention of cultivators, as the finest kinds for competition, also for winter and spring display in the Conservatory. The quality of all is first-class.

PRIMULA SINENSIS, with fimbriated flowers.—ALBA, pure white, 6*d.* and 8*d.*; RUBRA, rich crimson, 6*d.* and 8*d.*; PICTA, mauve on white, 1*s.* CARMINATA RUBRA, most distinct and beautiful new colour, 1*s.* 6*d.* and 2*s.* 6*d.* FILICIFOLIA ALBA, 2*s.* 6*d.*, and FILICIFOLIA CRIMSON, 2*s.* 6*d.* to 3*s.* 6*d.*, the beautiful white and crimson Fern-leaved.

PRIMULA SINENSIS, with double flowers.—NIVEA PLENA, 2*s.* 6*d.*; ALBA PLENA, 1*s.* and 1*s.* 6*d.*; ROSEA PLENA, 2*s.* 6*d.*; RUBELLA PLENA, 3*s.* 6*d.*; ALBA PLENA FIMBRIATA, blush white, 1*s.* 6*d.*; ATROROSEA FIMBRIATA PLENA, rich crimson, 7*s.* 6*d.* to 15*s.*

CALCEOLARIA.—This stock is carefully hybridised, 6*d.* and 9*d.* each.

CINERARIA.—Best sorts, by name, 6*d.*, 9*d.*, and 1*s.* each.

E. G. Henderson & Son, Wellington Nursery, St. John's Wood, London, N.W.

SPECIMEN PLANTS for SALE.—Fine plants of IXORAS, ALLAMANDRA, &c.; also fine specimens of CHOICE FERNS, such as Gymnogramma tartarea; fine specimen Cyathea dealbata, extra fine, 1 foot stem, 5 feet over; Todea australis, extra fine specimen, 4 feet; Todea Fraseri, 6 feet over, very fine; Dicksonia antarctica, 18-inch stem, extra fine head, 8 feet over; Cibotium Schiedei, a very magnificent specimen, from 14 feet to 16 feet over; Cyathea medullaris, stem 42 inches, fronds extend about 15 or 16 feet, a grand specimen; Alsophila aculeata, 2 feet, stem spreads about 8 feet; Microlepia platyphylla, a most glorious specimen, 7 feet; and about 100 others proportionately grand specimens, many of which have been exhibited at the London Shows, and obtained the 1st and 2d prizes. They are well worthy the notice of noblemen and gentlemen furnishing Conservatories.

Due notice of the day of Sale will be given next week, and Catalogues prepared; any further information required may be had at the Manor Nursery, Harrow Road, Paddington, where the Plants are to be seen; or Mr. Chandler, Horticultural Valuer, 1, Devonshire Terrace, Fulham, S.W.

N.B. On the Day of Sale there will be comfortable Rooms for the reception of the company. Purchasers may make arrangements for leaving their Plants, provided the weather does not permit the removal of them.

All good Cooks and careful Housewives use

SYMINGTON'S PATENT PREPARED PEA FLOUR, which is easy of digestion, perfectly wholesome, requires no boiling, rapidly makes a Tureen of rich Soup, and never causes unpleasant feelings after eating.

In Packets, 1*d.*, 2*d.*, and 4*d.*; and Tins, 1*s.*, 1*s.* 6*d.*, and 3*s.* each.

GROATS and BARLEY prepared by the same process, in Tins 6*d.* and 1*s.* each.

SCOTCH OATMEAL for Porridge and Oat Cake, in Packets, 1*d.*, 2*d.*, 4*d.*; 28 lb. Tins and Barrels.

Patentees and Manufacturers: W. Symington & Co., Bowden Steam Mills, Market Harborough. Sold everywhere.

Great Reduction in the Price of Roses.

NOT TO BE UNDERSOLD BY ANY RESPECTABLE HOUSE IN THE TRADE.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

Since issuing their NEW ROSE CATALOGUE for the Autumn of 1863 and the Spring of 1864,

WILLIAM WOOD AND SON have ascertained that other Houses in the Trade are offering some kinds of Roses at a lower rate than themselves, and as they are fully determined NOT TO BE UNDERSOLD by any RESPECTABLE House, they have prepared a REVISED LIST of ROSES at reduced prices, and will have much pleasure in forwarding copies of the same, Gratis and post-free, to all applicants.

ROSES.—A good selection of fine healthy Plants on their own bottoms, well rooted in 60-size pots, sold in collections of from 12 to 60 sorts, at the unprecedented low price of 3*s.* 6*d.* per dozen; leaving the selection to me, when nothing but good sorts will be used. The low price is caused for want of room—not that I wish to compete with Nurserymen, as my little stock will soon be gone.

JAMES CRAWFORD, High Beech, Essex.

Paul's Nurseries, Waltham Cross, N.

ROSES.—Superior STANDARDS, 18*s.* per dozen, and upwards.

Superior DWARFS, 9*s.* per dozen, and upwards.

All the NEW ROSES including BEAUTY of WALTHAM, Mrs. WM. PAUL, and LORD MACAULAY (three of the best), at lowest advertised prices.

The New PRICED CATALOGUE is now ready, free by post.

FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, APRICOTS, PEACHES, NECTARINES, FIGS, GRAPE VINES, GOOSEBERRIES, CURRANTS, RASPBERRIES, STRAWBERRIES, &c., all the really desirable sorts, in perfect condition for transplanting, at lowest advertised prices. Fruit-bearing trees of the first seven fruits may be had, suitable for potting for Orchard-house culture, from 18*s.* to 30*s.* per dozen. PRICED CATALOGUE, free by post.

PLANTING.—Planting to any extent, with or without the supervision of the Trees, &c., till established, undertaken in any part of the United Kingdom. The rich and varied collection of Trees and Shrubs growing in one Nursery of 30 Acres has been removed within three years, which is almost a guarantee of success in Transplantation.

WM. PAUL (Son and Successor to the late A. Paul), Nurseries and Seed Warehouse, Waltham Cross, N.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

Roses.

EDWIN HOLLAMBY has the pleasure of informing the Nobility and Gentry that his extensive Stock of STANDARD and DWARF ROSES of all the leading kinds in cultivation are in the finest possible condition; fine straight stems, fine heads, and beautifully rooted. Purchasers of large quantities will be liberally dealt with.

DESCRIPTIVE PRICED CATALOGUES for the present season will be forwarded gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells; and Goldsmith's Park, Groomsbridge, Kent.

Roses.

JOHN HARRISON'S CATALOGUE for 1863 and '64 may be had free on application, containing all the best varieties in cultivation, new and old. The DWARFS, worked on the Manetti Stock, exceed 80,000 plants, in the finest possible health and condition, and cannot be surpassed for health and vigour; also a great Stock, cultivated on their own roots in the open ground. Dwarfs from 12*s.* per dozen; Standards, 18*s*; new varieties, 24*s.* to 30*s.* per dozen. The Trade supplied by the hundred or thousand, on the most liberal terms.

Nursery, Darlington.

New Roses of 1863.

JOHN KEYNES, Castle Street Nursery, Salisbury, can supply some thousands of the above, well-established Plants in pots, comprising the very best varieties of the NEW ROSES of 1863, at 36*s.* per dozen. The usual discount to the Trade. To amateurs such plants are invaluable; they can be planted at once and will produce fine bloom next season, as time will be given them to draw fresh root.

CATALOGUES, with full description, containing all the leading flowers, both old and new, will be forwarded on application.

JOHN KEYNES' STANDARD and DWARF ROSES for the Autumn are in the finest condition.

The stock of ROSES of 1862, comprising Charles Lefebvre, François Lacharme, &c., both Standards and Dwarfs, cannot be surpassed. Salisbury.—Oct. 31.

Roses.

JOHN CRANSTON offers selections of STANDARD and DWARF ROSES of very superior quality.

The robust growth and hardy constitution of the plants grown in this Nursery has long been acknowledged, and the Stock to offer this season is perhaps superior to any previous growth.

He also begs to direct attention especially to DWARF ROSES on the Manetti stock, of which he has an enormous stock.

The plants upon their own roots are also very strong and well grown

	Per dozen—*s.*	*d.*
STANDARD ROSES of all the leading varieties in cultivation	18	0
Do. Newer varieties, introduced in 1861 and 1862	24	0
DWARF ROSES, extra fine plants upon the Manetti stock .. 9*s.* to	12	0
Do., do., upon Dog-rose stock	9	0
Do. Newer Varieties, introduced in 1861 and 1862 15*s.* to	18	0
Do , do., of 1862 and 1863 .. 24*s.* to	30	0
STANDARD and HALF-STANDARD TEA-SCENTED ROSES, all the best varieties	24	0
DWARF ROSES upon their own roots, Hybrid Perpetuals, and Bourbons .. 9*s.* to	12	0
Do., do. Tea-scented .. 12*s.* to	15	0
CLIMBING ROSES	9	0
PILLAR ROSES, extra strong plants, 4 to 5 feet 12*s.* to	15	0
STANDARD WEEPING ROSES .. each 2*s.* to	2	6
ROSES in 8 and 9-inch pots grown especially for Forcing or Greenhouse culture, the best Hybrid Perpetuals, China, and Tea-scented varieties .. 24*s.* to	30	0

DESCRIPTIVE CATALOGUES forwarded free on application.

Nurseries, King's Acre, near Hereford.

TO NOBLEMEN, GENTLEMEN, AND OTHERS

ENGAGED IN PLANTING.

JOHN WATERER

Respectfully invites the attention of Gentlemen engaged in Planting to the under-named SELECTIONS of PLANTS, which he has no hesitation in saying are not to be surpassed by any Establishment in the Trade. They are all handsome, symmetrical Plants; have never been injured by pot-culture, and from frequency of removal are in an excellent state for transplanting without any risk of failure. J. WATERER being in possession of such an immense Stock is determined to treat on the most liberal terms, and is fully convinced that Purchasers, by paying a visit and selecting their own specimens, would find themselves amply repaid by the journey, which is easily accomplished by the South-Western Railway (Reading Branch) to Sunningdale Station, which is near the Nursery.

RHODODENDRONS, STANDARDS, of all the leading choice Scarlet, Crimson, Rose, and other varieties, handsomely grown, straight stems, 3 to 4 and 5 feet, consisting of such kinds as Concessum, Congestum roseum, Lady Eleanor Cathcart, Blandyanum, John Waterer, Alfrida, Lefevreanum, and such others as are annually displayed by us at the Exhibition of Rhododendrons in the Royal Botanic Gardens, Regent's Park. Price 31*s.* 6*d.* to 63*s.* and 105*s.* each.

RHODODENDRONS, HALF STANDARD, of the most approved kinds, 2 to 3½ feet in stems, and symmetrical heads, 21*s.* to 42*s.* each.

RHODODENDRONS.—Hardy Scarlet, Crimson, Rose, White, and other choice kinds for superior clumps or borders, fine well grown plants, 1½ to 2 and 3 feet, 42*s.* per dozen, or 12*l.* 10*s.* to 15*l.* per 100. Large bushy plants, 3 to 4 and 5 feet, at a corresponding increase in price.

RHODODENDRONS.—Immense quantities of fine Seedling varieties, in large bushy plants, 1½ to 2 or 3 feet, 30*s.* to 42*s.* per dozen. These varieties would be found very serviceable if introduced into clumps of the more choice kinds. They are of all colours, from bright rose to pink and white, and carry handsome hardy foliage.

RHODODENDRONS, Dwarf-growing kinds.—We cultivate about eight varieties, some of which are delightfully scented in their foliage and flowers. From their close-growing habits they make very excellent clumps for the decoration of winter beds, or as edging to masses of the stronger growing kinds. Strong plants, 1 to 1½ foot, 15*s.* per dozen, or 4*l.* 10*s.* per 100.

RHODODENDRON CATAWBIENSE and HYBRID CATAWBIENSE, 9 to 12 to 15 inches. Good bushy plants, 21*s.* per 100, or 8*l.* 8*s.* per 1000. These are recommended to plant with Ponticum. Many very fine varieties would be flowered amongst them. Their colours are of various shades, from lilac to rose and white, and carry excellent foliage.

RHODODENDRON PONTICUM.—A large quantity, 1 to 1½ foot, 25*s.* to 30*s.* per 100; 1½ to 2 feet, 42*s.* to 63*s.* per 100. This kind is recommended to the attention of planters of game covers, as it will thrive in any soil or situation, and is never injured in the most severe weather by hares or rabbits.

HARDY AZALEAS, for extensive planting, 50*s.* to 75*s.* per 100. Colours: Scarlet, Orange, Pink, Yellow, &c.

HARDY AZALEAS, of the most superior Belgian and other varieties, 24*s.* per dozen, or 7*l.* 10*s.* per 100.

KALMIA LATIFOLIA.—Fine bushy plants, 1½ to 2 feet, 7*l.* 10*s.* per 100.

ANDROMEDA FLORIBUNDA, fine bushy plants:—
1 to 1½ foot, 24*s.* per dozen
1½ to 2 feet, 42*s.* to 63*s.* per dozen

Collection of HARDY HEATHS, in good plants, 30*s.* per 100.

PINUS NORDMANNIANA.—Of this justly admired Fir we hold by far the largest stock of really handsome Seedling plants to be found in the Trade, and can offer them strong and well shaped, as follows:—
1 foot, 7*s.* 6*d.* each, 72*s.* per dozen
1 to 1½ foot, 10*s.* 6*d.* each, 5*l.* 5*s.* per dozen
1½ to 2 feet, 21*s.* to 31*s.* 6*d.* each
2 to 3 feet, 42*s.* each
3 to 4 feet, 63*s.* to 84*s.* each
4 to 5 feet, 105*s.* each
The three last mentioned sizes are magnificent plants.

PINUS NOBILIS, all Seedlings—
1-year's Seedlings, strong, 12*s.* per dozen, or 84*s.* per 100
About 1 foot, 10*s.* 6*d.* each, 84*s.* per dozen
1 to 1½ foot, 21*s.* each
2 to 3 feet, very fine, 42*s.* to 63*s.* each

PINUS LASIOCARPA, Seedlings—
1 to 1½ foot, 10*s.* 6*d.* each
1½ to 2 feet, 21*s.* to 31*s.* 6*d.* each
2 to 3 and 4 feet, 42*s.* to 105*s.* each

PINUS AMABILIS, Seedlings—
1 foot, 7*s.* 6*d.* each; 70*s.* per dozen
1 to 1½ feet, 10*s.* 6*d.* to 21*s.* each

PINUS GRANDIS (true of Douglas)—
1 foot, 7*s.* 6*d.* each
1½ to 2 feet, 10*s.* 6*d.* to 31*s.* 6*d.* each

PINUS DOUGLASII—
1½ to 2 feet, 24*s.* per dozen, 7*l.* 10*s.* per 100
2 to 3 feet, 30*s.* per dozen, 10*l.* per 100
3 to 4 feet, 36*s.* per dozen, 12*l.* 10*s.* per 100
Larger, 4 to 5, 6, and 8 feet

PINUS PINSAPO—
1½ feet, 42*s.* per dozen
1½ to 2 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each
2 to 3 and 4 to 5 feet, 21*s.* to 63*s.* each.

PINUS INSIGNIS—
2 to 3 feet, 10*l.* per 100
3 to 4 feet, 3*s.* 6*d.* each, 30*s.* per dozen
4 to 5 feet, 5*s.* each, 42*s.* per dozen
5 to 7 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each

PINUS LAMBERTIANA—
2 to 3 feet, 5*s.* each, 42*s.* per dozen
3 to 4 feet, 7*s.* 6*d.* each, 60*s.* per dozen
4 to 5 and 6 feet, 10*s* 6*d.* to 21*s.* each

PINUS EXCELSA—
3 to 4 feet, 30*s.* per dozen | 4 to 5 feet, 3*s.* 6*d.* each

PINUS ORIENTALIS—
2 to 3 feet, 5*s.* to 10*s.* 6*d.* each | 3 to 4 feet, 10*s* 6*d.* to 21*s.* each

ARAUCARIA IMBRICATA—
2 to 3 feet, 5*s.* to 7*s.* 6*d.* each | 4 to 5 feet, 31*s.* 6*d.* to 42*s.* each
3 to 4 feet, 10*s.* 6*d.* to 21*s.* each | 5 to 6 to 10 feet, 63*s.* to 210*s.* ,,

THUJOPSIS BOREALIS—
1½ to 2 feet, 18*s.* per dozen, 6*l.* 10*s.* per 100
2 to 3 feet, 30*s.* per dozen, 11*l.* 10*s.* per 100
3 to 4 feet, 42*s.* to 60*s.* per dozen
4 to 5 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each
Of this most hardy and desirable plant we possess a stock far greater than can be met with elsewhere, and not a grafted plant amongst them.

THUJA AUREA—
2 feet, 5*s.* each, 42*s.* per dozen, or 15*l.* per 100
2 to 3 feet, 7*s.* 6*d.* each, 60*s.* per dozen, 20*l.* per 100
3 to 4 and 5 feet, 10*s.* 6*d.* to 21*s.* to 63*s.* each

THUJA GIGANTEA—
2 to 3 feet, 5*s.* each, 42*s.* per dozen, 15*l.* per 100
3 to 4 feet, 7*s.* 6*d.* each, 70*s.* per dozen
4 to 5 feet, 10*s.* 6*d.* to 21*s.* each
5 to 6 feet, 31*s.* 6*d.* to 42*s.* each
This is a plant to which we beg to direct especial attention, and from its extreme hardiness and bright green foliage must ultimately become very generally planted. It is admirably adapted to form Avenues. Intending planters would find our stock of this fine plant exceeding by far that of any establishment in England. None are grafted.

THUJA OCCIDENTALIS—
3 to 4 and 5 feet, 30*s.* to 50*s.* per 100
This forms a highly ornamental hedge, far preferable to Yew, from its faster growth. The hedges in our grounds, 8 to 10 feet high and 2 feet thick, are formed of it.

CUPRESSUS THUJOIDES VARIEGATA—
2½ to 3 feet, 42*s.* per dozen, 15*l.* per 100
3 to 4 feet, 5*s.* to 7*s.* 6*d.* each

CUPRESSUS LAWSONIANA—
3 to 4 feet, 3*s.* 6*d.* each | 4 to 5 feet, 5*s.* each

CUPRESSUS LAWSONIANA VARIEGATA, 21*s.* each
A beautifully variegated form of Lawsoniana, of which we hold the entire stock of saleable plants.

CEDRUS DEODARA—
3 to 4 feet, 3*s.* 6*d.* each, 15*l.* per 100
4 to 5 and 6 to 7 feet, 5*s.* to 10*s.* 6*d.* to 21*s.* each
We hold a large stock of this Cedar, and would recommend such 4 to 5 and 6 feet as the most preferable size to plant. Large handsome specimens could also be furnished from 10 to 15 feet, and which would be sold at a very cheap rate.

CEDARS of LEBANON—
4 to 5 feet, 5*s.* each, 42*s.* per dozen

CEDRUS AFRICANA—
4 to 5 feet, 5*s.* each, 42*s.* per dozen

JUNIPERUS HIBERNICA—
3 to 4 feet, 24*s.* per dozen, 8*l.* 8*s.* per 100
4 to 5 feet, 30*s.* per dozen, 10*l.* per 100
5 to 6 feet, 3*s.* 6*d.* to 7*s* 6*d* each
6 to 10 feet, 10*s.* 6*d.* to 42*s.* each

WELLINGTONIA GIGANTEA—
1 to 1½ feet, 18*s.* to 30*s.* per dozen
1½ to 2 feet, 3*s.* 6*d.* to 5*s.* each, 50*s.* per dozen
2 to 3 feet, 7*s.* 6*d.* to 21*s.* each
3 to 4 feet, 21*s.* to 42*s.* each
4 to 5 feet, 63*s.* to 105*s.* each

IRISH YEW—
4 to 5 feet, 3*s.* 6*d.* each — 5 to 6 feet, 5*s.* to 7*s.* 6*d.* each
6 to 7 and 8 to 10 feet, 10*s.* 6*d.* to 42*s.* each
Our stock of this Yew have all been trimmed to one single leader, and are very close in their form.

GOLD and SILVER YEWS, grafted on the stems of Irish Yews, about 4 feet from the ground, the variegated portion being from 1 to 1½ feet in length, 10*s.* 6*d.* to 21*s.* to 42*s.* each

STANDARD PORTUGAL LAURELS, 3 to 4 and 5 feet stems, very straight stems and handsome close-grown heads, 10*s.* 6*d.* to 21*s.* each

STANDARD WEEPING HOLLIES, 6 to 8 and 10 feet stems, 21*s.* to 105*s.* each

HOLLIES, GREEN, 1½ to 2 and 3 to 4 feet, 30*s.* to 50*s.* per 100, 3 to 4 and 5 to 6 feet, large quantities in fine condition, 9*d.* to 5*s.* each

HOLLIES, GOLD and SILVER, in all the approved varieties, by the hundred or thousand, 2 to 3 and 4 to 5 and 6 feet

PORTUGAL LAURELS—
Very fine, 2 to 3 and 4 to 5 feet, 3*l.* to 7*l.* 10*s.* per 100

We have likewise immense quantities of the leading kinds of EVERGREENS of all sizes, such as Yews, Box, Bays, Aucubas, Arbutus, Phillyreas, Common and Portugal Laurels, &c. &c.

CATALOGUES describing the colours of all the RHODODENDRONS worthy of cultivation, with a list of CONIFEROUS PLANTS, with heights and prices, forwarded to all applicants.

☞ Purchasers of large quantities of Goods are informed that the great expense incurred by Package is now greatly diminished, as we can forward from Sunningdale, in through trucks without charge, to all Stations on the Great Northern, North-Western, Eastern Counties, and Great Western (narrow gauge) Railways; also by South-Eastern and Brighton Lines by way of Blackwater.

THE AMERICAN NURSERY, BAGSHOT, SURREY.

Near Sunningdale Station, South-Western Railway, and Blackwater Station, South-Eastern Railway, where excellent Conveyances await all Trains.

Now Ready,

DOBSON'S ONE GUINEA HAMPER of PELARGONIUMS.

Attraction	Lord Clyde	Queen of England
Celeste	Distinction	The Comet
Psyche	Souvenir	Bacchus
Rosalind	Victory	Lord Chancellor

Now Ready,

DOBSON'S TWO GUINEA HAMPER of PELARGONIUMS.

Queen of Whites	Startler	Stella
Landseer	Monitor	Elector
Commandant	Mdlle. Patti	Kettledrum
Review	Diadem	Sanspareil Improved

If wished, other varieties may be substituted.

Hamper and packing included in the above prices.

CATALOGUES now ready, post free, containing all the best varieties, at very moderate prices.

J. Dobson & Sons, Woodlands Nursery, Isleworth, W.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Woking Nursery, Surrey.

E. R. GREENUS, Railway Nurseries, Watford and Rickmansworth, has to offer this season a fine healthy Stock of FRUIT and FOREST TREES, FLOWERING SHRUBS and EVERGREENS, CONIFERS, STANDARD and DWARF ROSES, CLIMBERS, &c., all of which will remove with the greatest safety; and from E. R. G.'s proximity to the London and North-Western Railway he can execute orders with promptitude and despatch to any part of the kingdom, or Continent.

CATALOGUES forwarded on application.

P.S. A very large Stock of IRISH IVIES, large, in pots, and CLIMBING ROSES; also VARIEGATED and GREEN BOX, 1½ to 2 feet.

Beck's New Pelargoniums,

OFFERED FOR THE FIRST TIME.

B. S. WILLIAMS begs to announce that he is now prepared to supply strong plants of the above, which have received certificates of the highest merit during the past and previous seasons. They have been selected with great care, and are far in advance of any yet offered.

For descriptions and prices, see *Gardeners' Chronicle*, Oct. 24; also in Catalogue, which can be had on application.

Paradise and Victoria Nurseries, Holloway, London, W.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

NEW FORCING GERANIUM, MRS. LEWIS LOYD.—Rich crimson with dark maroon blotch in top petals; of dwarf robust habit, and most profuse bloomer. Forces into flower at any season without drawing. It was exhibited to the Floral Committee of the Royal Horticultural Society on March 31, and then awarded their Certificate of Commendation. Good Plants now ready, 7s. 6d. each.

Thomas Jackson & Son, Nurseries, Kingston, S.W.

THE RED LODGE NURSERY, SOUTHAMPTON extends over 60 acres, and contains an unrivalled stock of AMERICAN PLANTS, FRUIT, FOREST, and ORNAMENTAL TREES, EVERGREEN and FLOWERING SHRUBS, CHOICE CONIFERÆ, STANDARD and DWARF ROSES, &c., all in the best state for removal.

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The Gardeners' Chronicle.

SATURDAY, OCTOBER 31, 1863.

Our readers will be pleased to know that two very fine collections of Apples and Pears from Nova Scotia have just reached the Royal Horticultural Society, and are now on view at South Kensington. They have been sent from Halifax by the Horticultural *Association* of Nova Scotia, and the Horticultural *Society* of the same Colony, and we shall report fully upon them in our next.

About 200 years ago the following entry was made by Mr. Pepys in his "Diary:"—"Sept. 26, 1661. I sent for a cup of tea (a China drink), of which I had never drunk before." The East India Company in 1664 bought 2 lb. 2 oz. of tea as a present to His Majesty, and in 1667 they gave their first order to their agent at Bantam to import it—he was to "send home 100 lb. of the best tea he could get." What a change has taken place in our habits and tastes during these 200 years, and what an important part does that "China drink" now play in our domestic affairs. The leaves of the Tea plant have become one of the necessaries of life amongst most of the civilised nations of the world.

Although chemists may tell us that the decoction from these leaves has no other nutritive quality about it than what is given by the milk and sugar with which we mix it, whole nations have given a different opinion as to its value by the way in which they use it and enjoy it. In England the consumption of tea has increased yearly in a most remarkable manner. The importations have been nearly doubled in the short space of 18 years. In 1844 they were, in round numbers, 51 millions of pounds, while in 1862 they had increased to 109 millions.

There can be little doubt as to the Tea plant being indigenous to China, but its early history

is shrouded in much mystery. The Chinese have a curious legend concerning its origin, which we may repeat without asking our readers to believe it. "Darma—a high priest who lived about a thousand years before the Christian era, came from India to China to teach the way of happiness. He lived a most austere life, passing his days in continual mortification, and retiring by night to solitudes, in which he fed upon the leaves of trees and other vegetable productions only. After several years passed in this manner, in fasting and watching, it happened that, contrary to his vows, the pious Darma fell asleep. When he awoke he was so much enraged at himself that, to prevent the like for the future, he cut off both his eyelids and threw them on the ground. On the following day, returning to his accustomed devotions, he beheld with amazement springing up from his two eyelids, two small shrubs of an unusual appearance, such as he had never before seen, and of whose qualities he was entirely ignorant. Being unusually hungry he was prompted to eat of the leaves, and immediately felt within him a wonderful elevation of mind and a vehement desire for divine contemplation. He communicated all these things to his disciples, who eagerly followed the example of their instructor, and in this way the noble plant which has been the theme of so many pens in succeeding ages came first into notice."

Although the use of the Tea plant as a medicine may date from a very remote period, it does not appear to have been used as a beverage in China until the fifth or sixth century. From that period, however, it has risen rapidly in general estimation, and is now consumed in large quantities all over the Empire. A Chinaman as a rule abhors cold water, and when he is thirsty or weary he always drinks tea. It, no doubt, conduces to the health of the people, and probably has a tendency to ward off those fevers and other diseases common to the country.

Of late years Tea planting has been carried on extensively in our Indian possessions, and it has also been attempted in the United States of America, but the lamentable civil war in that country will probably put a stop to it for the present. A species of Tea was discovered, many years ago, growing wild in Assam (*Thea assamica*), and later a variety very like the Chinese one has been met with in the province of Cachar. The Assam Company, which was formed for the cultivation and manufacture of Tea, was at first a failure, owing principally to bad management, but it is now progressing in a satisfactory manner; large quantities of the leaf are annually produced, and the tea commands a high price in the English market. Many other companies have also been formed in these districts with fair prospects of success.

In the north-western Himalayas (a country pointed out many years ago by Dr. Royle and Dr. Falconer) Dr. Jameson, on behalf of the Government, has been engaged in introducing and cultivating the Tea plant, and his labours would appear to have been crowned with the most complete success. In the provinces of Gurhwal, Kumaon, and in the Punjab, near Kangra, the lower slopes of many of the hills are now clothed with healthy thriving plantations.

The Government having thus shown in a satisfactory manner that Tea can be cultivated with success and profitably in these districts, is about to leave its further development to private hands. Already companies and individuals are settling down on the slopes of these Indian mountains, and if they only bring a fair share of intelligence and skill to their aid, the results can scarcely be of a doubtful kind.

The *Bombay Gazette*, received a few days ago, informs us that the Viceroy's first visit after leaving his summer quarters in Simla would be paid to one of these plantations:—"His Excellency will first visit the Kangra Valley to see the progress of Tea planting there." The Kangra Valley, which Lord Elgin proposed to visit on leaving Simla, is perhaps the best of all the sites chosen by the Government, and it is certainly the most healthy for the English planter. It lies on the south side of the Chumba range of mountains, in latitude 32° north and longitude 76° 30′ east. Snow falls annually during the months of November and December, and the winters are sufficiently cold to set vegetation completely at rest, a circumstance of much importance in Tea cultivation. In short, this district would seem to be well adapted to the purposes the Government has in view, and to be almost equal to the best districts in China. Even if China and Japan are somewhat better adapted, owing to climate, &c., to the cultivation of our national beverage than any other country in the world, yet we would not wish to be entirely dependent on these countries for our annual supplies. Our cotton trade with the Southern States of America has taught us this lesson, if we have not learned it before, and it is one which we are not likely to forget. The nations of the earth will have to grow wiser and better before they are likely to convert their "swords into plough-shares, and their spears into pruning-hooks," and until that peaceful time arrives, we must be content to draw the supplies of our necessaries and luxuries from any part of the world in which they can be produced. May all success then attend Tea-planting in our India dominions.

Should we cut off the runners of Strawberries, or should we not? This question was proposed at one of the recent meetings of the Société Impériale et Centrale d'Horticulture, Paris; and as it was not solved, M. Ferdinand Gloede gives, in the Journal of the above Society, his opinion, founded on 14 years' experience, the results of which, he says, leave no doubt in his mind on the subject. He considers that it would be as absurd to allow the runners of Strawberries to proceed unchecked, if we have in view an abundant crop, as it would be to permit the over-luxuriant branches of a fruit tree to grow at full liberty. "I boldly affirm," says M. Gloede, "that it is essential to give the strictest attention to cutting off the runners of Strawberries immediately they make their appearance, if we wish to obtain the maximum quantity of fruit which each variety is capable of producing." In proof of his assertion, besides his own experience, he refers to Strawberry plantations at Chalons-sur-Marne, and especially to those of Dr. Nicaise, who keeps continually cutting off the runners; and although there are equally good cultivators in other respects at the same place, yet, from their not paying due attention to trimming off the runners as practised by Dr. Nicaise, his plantations exhibit at a glance a decided superiority not only as regards the vigour of the plants, but likewise the beauty, goodness, and abundance of the fruit.

It is the general opinion of Strawberry growers in this country that Strawberry runners should be taken off, but the operation is not uniformly practised. It is done, however, by the best growers for the London market. Mr. Keens, who was an extensive grower, and the raiser of the well-known sort which bears his name, kept the plants distinct, and divested them of runners three times in the course of the season. He planted in rows two feet apart, with an interval of three feet between every two rows. Mr. Myatt, the noted grower, and who has raised some of our best sorts, plants in rows 18 inches apart, but leaves a space of 2½ feet between every three rows; Mr. Lydiard, one of the best growers at Bath, plants in rows 2½ feet apart and 2 feet from each other in the row. It thus appears that all these first-rate cultivators allow a large space for each plant, notwithstanding the high value of the ground occupied by the plantations. Instead of wide planting, had it been more profitable to allow the runners to take possession of the whole surface of the intervals, these men would have suffered their plants to do so.

Unquestionably Strawberry runners tend to exhaust the parent plant in two ways, directly and indirectly. In the first instance the runner must draw its nourishment directly and wholly from the plant from which it proceeds until such time as it can emit roots and become, at least to a considerable extent, self-supporting. The runner then commences to push forward again, and at a greater or less distance another joint is formed, and usually the rudiment of a third plant is developed. This second, as well as the subsequent similar efforts, are probably made with assistance from the parent stool, but to a less extent than in the first production. Thus plant after plant from the runners is rapidly established, and if the weather proves moist and favourable, and the runners are not checked, the ground is soon thickly beset with young plants. These grow vigorously, and indirectly tend to weaken the bearing plants by robbing them of much of the available nourishment which the soil contains. In this way the plants emitted from runners act as injuriously as weeds; perhaps indeed more so than some kinds of weeds, for the runner plants draw from the soil and appropriate exactly that kind of nourishment which the mother plant requires.

From what has now been stated, nobody can doubt that runners should be cleared away, unless wanted for propagation. In doing this, however, there is one point which deserves consideration. Mr. Knight states (*Horticultural Transactions*, v. 6, p. 104) that "every runner is, in its incipient state of formation, capable of becoming a fruit-stalk, and if too great a number of runners be taken off in the summer, others will be emitted by the plants, which would under other circumstances have been transmuted into fruit stalks." Runners should not, we think, in all cases be cut off on their first appearance, when the fruiting plants are inclined to grow too much to leaf; but when the runner has formed a second joint it may then be cut off nearly close to the plant from which it proceeds.

Much as has been written respecting the cultivation of Strawberries, experiments with reference to the above points might even now be made with advantageous results.

A paragraph to the following effect has been going the round of the Daily Papers:—"The American Tea Company, an association chartered by the Legislature of Pennsylvania, have employed Dr. Bonsall, 'a man of experience and character,' to examine the American Tea plant, and he speaks most confidently and encouragingly as to the success of their undertaking. He declares that the Tea plant exists in Pennsylvania and Western Maryland beyond all doubt. It grows indigenously, he states, in the greatest luxuriance and abundance; limited, however, to those localities which afford the peculiar soil indispensable to it, as is the case in China, Assam, and Japan. The character of the plant differs somewhat from the Chinese variety, but the difference is not greater than might be expected from the difference of climate and soil of the two countries. The leaf is almost identical with some of the varieties from which the best tea is made in Assam; and Dr. Bonsall expresses his belief that tea equal to any that is brought from China could be made from this plant."

Can any of the intelligent readers of the *Gardeners' Chronicle* say what this means? Of course the statement as it stands is preposterous. There are plenty of wild shrubs in the United States bearing locally the name of Tea, but nothing that has any real relation to the Asiatic genus Thea, which alone produces our domestic leaf.

—— A correspondent asks for further information on the insect-destroying Pyrethrum Willemoti, briefly alluded to at p. 967. We therefore append some particulars respecting the plant and its application, condensed from the paper of M. Willemot, to which reference has been made.

According to M. Willemot, the greater number of the plants which furnish the most satisfactory means for the destruction of insects belong to Pyrethrum. The inhabitants of the Caucasian regions seem to have been the first to discover the properties of the Pyrethrums, and to have tried on a large scale the powders obtained from them. The species employed differ in different localities. Thus the inhabitants of the Caucasus chose that kind which is most abundant in their own country; in Armenia they prefer the Pyrethrum roseum of Bieberstein, commonly called Lowizachek or Flea-plant; while the Persian powder which appears to be most extensively used, is almost wholly composed of the Pyrethrum carneum of Bieberstein. It was about 1850 when the first powder of Pyrethrum was introduced into France for the destruction of insects in houses. The powder came exclusively from the provinces of the Caucasus, of Persia, and Dalmatia, that from the Caucasus being the best.

For a long period a preparation for the destruction of injurious insects had been used throughout the Russian Caucasus, and had been regarded as a secret by the rest of the world, until its properties became known to Mr. Jumtikoff, a merchant, while travelling through that country some 40 years ago. He communicated his discovery to his son, who manufactured the article in 1828. This powder, or the plant from which it was obtained, was soon after introduced into Alexandropol; and subsequently the powder got into use in Germany and France, where its popularity is rapidly increasing. At present there are more than 20 villages in the district of Alexandropol engaged in cultivating this plant, and collecting its flowers. The plant grows on the mountains of the Caucasus, at an elevation of 5650 feet above the sea, and is of easy cultivation. The parts from which the powder is made, are the dried flower-heads, gathered when ripe on fine days, usually dried in the sun, but better in the shade, being occasionally turned during the process. When dried, they are first comminuted with the hand, and then reduced to powder in a small mill. The powder is best preserved in sealed glass vessels. It may be

applied either in the powder state, or as an infusion, the latter form being thought the more convenient when intended for the destruction of insects on plants. The powder may also be applied directly to the insects themselves or to the places they frequent. They are attracted by its smell, become stupified, and immediately die. It is estimated that the amount of the powder consumed annually in Russia alone is about 500 tons.

It was not till 1856 that, after many efforts, good seeds of this Caucasian Pyrethrum were obtained by M. Willemot; and even when plants were raised from them, it was some time before its true name was ascertained. At first it was regarded as Pyrethrum roseum; then, with better materials, Professor Decaisne referred it to the Pyrethrum pedunculare of the same region, and subsequently to the Pyrethrum elongatum of Fischer and Meyer; and finally M. Duchartre, who made it an object of especial study, considering that it had not been yet described, published it as Pyrethrum Willemoti. It is a herbaceous perennial, whitish from its vestiture of cottony hairs, and forming roundish tufts, above which the heads of flowers are elevated on long stalks. The lower leaves are 6 or 8 inches long and a couple of inches broad, pinnatifid with the segments again lobed and toothed; those of the upper part of the stem are less divided. The flower heads resemble those of the Ox-eye Daisy, having a yellow disk and from 12 to 15 white rays. The herbage has a very bitter taste.

Though inhabiting the Caucasus, at but a slight elevation above the sea, under a latitude warmer than that of Paris, this Pyrethrum is found to succeed very well on good soil in France, being very hardy and capable of sustaining without injury the severity of the winters. A few years' experience has taught M. Willemot that it needs no winter shelter. The soil best adapted for it is a fine earth, somewhat siliceous and dry. Moisture in considerable quantity and manure are both said to be injurious. A southern aspect is most favourable. The best season for planting the seeds is during March and April, or even in February if the weather permit. They are sown in prepared beds, and when large enough transplanted, and again at a later period at wider distances according to their strength. The plants commence blooming in the second year towards the end of May, and continue blooming till the end of September. It is within this period that the heads from which the powder is to be made must be gathered. The best time for gathering is when the heads are about to open, that is when the florets of the ray are yet erect, for in this state the essential oil contained in the heads has reached its highest state of development. The stalks and leaves, though having the properties in a less degree, may be used also for making the powder, but they must be mixed with the flower-heads only in the proportion of one-third of their weight. The powder thus obtained will answer perfectly for the destruction of insects. As the flower-heads are cut, they are dried in a granary or shed, care being taken not to expose them to moisture or to the sun. When completely dried they are hermetically closed up, so as to prevent the dissipation of their active properties. In pulverising them it is better not to take a larger quantity than the wants of the moment may require. The volatilisation, which is of course more rapid in the powdered form, will thus be avoided. It has been suggested that the drying of the flowers for making the powder might be effected on sheet-iron plates, as tea-leaves are dried in China, but this is a most injurious plan, from its dissipating the essential oil. The best mode of pulverisation is to pound the flowers in a covered mortar such as is used for drugs. Small quantities only should be pulverised at one time, that the mass may not become heated. The pulverised substance is sifted through a silk sieve, and the residue returned to the mortar, with an addition of fresh flower-heads. The best receptacles for holding the powder are well corked or stoppered bottles. Towards the end of September, when the flowering is past, the stems of the plants are cut off at about 4 inches from the ground.

In regard to the insecticide uses of this Pyrethrum powder, M. Willemot states that of the numerous insects injurious to agriculture and horticulture, the following are known to be destroyed by its agency:—Weevils, bark beetles, Wheat-flies, cocci, aphides, earwigs, spiders, ants, and the various species which annoy our domestic animals. Not only are the perfectly-developed insects destroyed, but also the larvæ, which are often the most injurious. The powder is equally efficacious in destroying insects which are obnoxious to man, and his habitation; gnats and musquitoes are banished, bugs, fleas, and flies disappear; and weevils, midges, crickets, cockroaches, &c., the great plagues of depots of stores of whatever kind, are destroyed. Again, if applied in time, this powder will effectually preserve woollen articles and furs and feathers, as well as natural history collections and herbaria, from their respective insect pests. Finally, it is perfectly innocuous to man.

M. Willemot gives the following directions as to the mode of applying the powder. A careful and sufficient application is insisted on, and the powder itself must have been kept close, and unexposed to air and moisture. It is also rendered less efficient by a cold, damp or rainy day. Of all methods of applying the powder to plants attacked by insects, he considers the bellows will best accomplish the object, for on account of the small quantity which is thrown at once, the loss is in this way smaller. In whatever form it should be applied directly to the affected parts, so as to be brought in contact with the insects. In all cases the operation should take place on a warm day, the morning being preferable. A slight moisture arising from morning dew will cause the powder to adhere the more readily, and it will maintain its properties long enough to cause the death of the insects. The insufflation should be renewed several times according to the nature and number of insects to be destroyed. The first operation generally stupifies them; while at the second or third they lose their strength, fall to the ground, and die sooner or later.

New Plants.

263. Abies (Picea) Engelmanni, *Parry, St. Louis Trans.* 2, *p.* 122; *Abies nigra, Engelm. in Sill. Jour.* 33, *p.* 330, *non Poir.*

Arbor elatior, pyramidata; cortice tenui squamato rubello; ramulis pubescentibus; perulis ovatis obtusis squarrosis; foliis confertis robustis compresso-tetragonis abrupte acutiusculis plerumque curvatis; amentis ovato-cylindricis perulis late ovatis involucratis, femineorum bracteis squamas ovatas obtusas crenulatas squarrosas longitudine subæquantibus; strobilis ovato-cylindricis obtusis terminalibus lateralibusve cum ramulis suis horizontalibus seu declinatis, squamis tenuibus obovato-rhombeis apice plus minus truncatis emarginatis crenulato-erosis; seminum ala oblique obovata.

Higher parts of the Rocky Mountains, from New Mexico to the headwaters of the Columbia and Missouri Rivers, and probably further; from the subalpine to the alpine districts, and with Pinus aristata reaching the highest limits of timber; occupying in Colorado a belt between the limits of 8000 and 12,000 feet, it reaches its fullest development between 9000 and 10,000 feet, near the headwaters of the streams on both slopes of the Snowy Range, constituting magnificent forests about the head of Middle Park, at Tarryall, etc., often mixed with Abies grandis; not found lower down, e. g. at Fontaine-qui-bouit, where Picea [Abies] Menziesii, with Tsuga [Abies] Douglasii, reign as monarchs of the forest. Fl. end of June.

In its most favourable localities this species makes a stately tree, 60—100 ft. high, forming a narrow, sharply-tapering spire, of a rather darkish hue; trunk perfectly straight, columnar, tapering very gradually, 1½—2½ feet in diameter; branches mostly small, lower ones horizontal, upper ones ascending; on higher altitudes it is a smaller, nearly round-topped tree, very much branched, bearing more perfect fruit than in either lower or higher elevations; on the highest summits a prostrate and almost creeping, sterile shrub, just as Picea nigra is found on Mt. Washington, N. H. Bark only 1—1½ line thick, scaly, reddish grayish purple or light purplish-brown, containing much tannin; wood soft, white, not knotty nor resinous, therefore much esteemed for inside and cabinet work; annual rings ¼—1¼ line, on an average ¾—1 line, wide. Leaves stouter than they usually are in P. alba or nigra, but less so than in P. Menziesii; in the higher localities 6—9 lines long and not quite 1 line wide; strongly carinate below, less so above, with a few lines of white stomata above and below, abruptly but not sharply acute; in lower localities the leaves are more slender and 8—12 l. long, and, if I am correct in referring here some doubtful forms, it occurs also with whiter, more slender and longer leaves, (10—15 l.; Fendler, No. 833, from a young tree without cones, mountain valley above Santa Fé.) and with almost glabrous branches and still more slender and very acute leaves (5—10 l.; Dr. Hayden, from the Big Horn Mountains; detached cones from that locality certainly belong here). I find the leaves in this genus extremely variable; P. nigra at least, of which I have been able to compare a large number of specimens, varies so much, that any attempt to base specific characters on the form of the leaves seems nugatory; the leaves in that species are straight or curved, slender or stout, quadrangular or compressed, —acute, subacute or very obtuse,—whitish, pale or dark green,—usually only 4—6, but also 10—15 lines long; the fruit, however, differs in its position from that of all other Piceæ known to me, being borne on short, recurved, scaly peduncles; it is 10—20 lines long, oval, acutish; scales thick at base, very thin at the crenulate edges. P. alba is also best characterised by the slender cylindric cones, 1—3 inches long, with thin scales, entire but not thickened, as I inadvertently stated in Sill. Jour. l. c. The true characters and the limits of variation of these species are now being investigated by Prof. O. Brunet, of Quebec, who, living in the midst of them, will be able to solve many doubts heretofore existing, and to give us their correct history. —Male aments of P. Engelmanni 6—9 l. long, on short stipes; anthers 1½ l. long; female aments 9—10 l. long, with ovate lanceolate scales almost equalling in length the dark purple fleshy scales. Cones scattered on the tree, never very abundant, 1½—2¼ (usually less than 2) inches long, ⅝ inch or less in diameter when closed; light yellowish-brown with the lower part of the scales dark when fresh, all reddish-brown when old; scales 6 l. wide and 6—8 l. long in well-grown specimens, rhombic with truncated end; in poorer ones, such as grow in lower elevations, shorter, more rounded, with the truncation indistinct. I observe the same difference in cones of P. excelsa, grown on bushy trees near their *upper* limit in Switzerland; there also cones, scales, and seeds are smaller, and the truncation of the scales is almost imperceptible. Seeds about 1 l. long without and 4½ l. long with the wing, which here, as in all Piceæ, overlaps the inner edge of the seed, dropping it at maturity; cotyledons, as in most species, 6, rarely 5; in P. excelsa I find 8, or rarely 9, (not 2—3, as Endlicher inadvertently stated,) and in the alpine specimens, mentioned above, only 6 cotyledons.

Picea Menziesii, the only other species of Colorado, is entirely subalpine, occurring between the limits of 7000 and 9000 feet, in low, moist or marshy soil, especially on the borders of streams; it is, as Dr. Parry informs me, a tree of a more oval outline, pointed upwards, with a more rapidly tapering trunk; thicker (½ in.), grayish, moderately rough bark; rapidly-growing (annual rings 1½—2 l. on an average), harsh-grained, brittle, knotty, resinous wood; stout, light-coloured, smooth, glossy branchlets; stout, broad, sharply-pointed leaves; longer (9—12 l.) male and female aments, the latter composed of pale, glistening, orbicular scales, which are many times longer than the minute bract; cylindric cones, 3—4½ inches long, drooping perpendicularly with the branch or usually at an angle with it, abundant even on young (12—15 feet high) trees, crowded especially towards the top of the tree and very conspicuous, whitish at maturity but turning light brown and persisting on the tree for another year until the new crop matures; scales elongated rhombic, 9—11 l. long, truncate, more than twice as long as the seed with its triangular obovate wing. The alpine P. Williamsonii, Newb., from the Cascade Mountains, Oregon, which I have not been able to compare, seems to be well distinguished by its peculiarly reflexed scales. *Engelmann, in Transactions of Academy of Sciences of Philadelphia.*

A FEW THINGS RELATING TO ROSES.

1. *Moss.* — On full consideration, I think that showing Roses on Moss is the best way. It is difficult in this life to make things quite equal. Those who can get tree Moss have a great advantage over those who can only get ground Moss. The quality of this differs according to the richness or poorness of the ground. Here the soil is mainly poor, and I, for one, can only procure something that bears the name of Moss. Sometimes it is as brown as a door mat.

2. *The Show Box.*—This should be 6 inches high at the back and 4 inches in front. The width should be 18 inches, including the wood. The proper length is 3 feet, but, if notice is given of the length of the box, the length is not material. To meet the upraised tendency of the back and centre, strips of wood should be nailed or screwed to the bottom of the box at the top and centre. This will make the cups level. Supposing the box to be for 24 Roses, in three lines of 8 Roses, the base of the cups may be fixed with tin tacks in their places; and being fixed, hay-bands or chips will suffice to stuff up the box, the surface being covered with Moss; where Moss is scarce, as it is here, this will be found economical. The cover of the show box should not be painted, as paint draws the heat. A wet cloth, in very hot weather, should be put over the box. The heat and shaking of a train does much mischief.

3. *The Bud Rule.*—Much diversity of opinion on this subject prevails, even among those perfectly able to form an opinion. Those who have large stocks of Roses and good land are generally for enforcing the bud rule—a rule which never is enforced, and which therefore is a very unwise rule. Were the rule enforced, there would be scarcely a box without the "disqualification." The judges at the National have no time to examine bud removals; they have barely time to count the good Roses. The bud rule is rather hard upon those who have small stocks of Roses and inferior land. Were they allowed to disbud, they might get a bloom larger and forward enough for the show day, which else would be left behind, and an inferior one would be taken in its place. The difficulties of getting good blooms and conveying them in condition long distances are sufficient already. None but those who exhibit know what a toil it is. The best way is to have no rule at all. Those who have a good Rose with clean buds will be sure to take it. A good Rose with bad buds is spoiled. The best 24 Roses that I ever saw were exhibited by Mr. J. Keynes at the Floral Hall, Covent Garden, some years back. Such of them as were not natively single had been disbudded; I give him credit for his good sense; he won the 1st prize rightly. Mr. Cranston won the 2d; these had their buds on, and were, though not quite so large, very fine Roses. They were the best 24 that I ever saw with their buds on. What we want at exhibitions is good specimens. I can assure your readers that, having acted as censor twice at the National Rose Show, with Mr. Wood—a fair and most pains-taking censor—together with others not less so, the proportion of bad, indifferent, and out-of-condition Roses quite astonished me. In the year 1862 this was especially the case. In that year the Roses from Reed Hall were as good as if they had been turned in a lathe. Mr. Hedge must be crowned king!

As regards trebles, I agree with Mr. W. Paul, that they afford an opportunity of seeing a Rose in different

stages of development; but if they are not all three in good condition, the bad one and the indifferent one make my eyes ache so, that I cannot enjoy the one which is good. I for one do not care for effective Roses or effective bushes. I look for good specimens in both cases. I was in a neighbouring county at a Rose Show some years back, where effectiveness was the order of the day. The boxes were, with one exception, more or less dressed with leaves. I observed to a gardener whose box was a "wiggery of false hair,"—"I don't like your system of dressing up." He looked at me seriously and full in the face, and said, "Why, Mr. Radclyffe, I am 'stonished' at you—a gentleman as knows a Rose so well as you—why, you would entirely 'disappint' the public and 'spile' the show!" I laughed heartily; won during the year three 2d prizes, and an extra prize for a collection of 106 Roses in September; paid my subscription for another year, like a man; and withdrew from further "effectiveness."

Nothing should be added to a truss; but I would allow disbudding. Some Roses, such as Duchesse d'Orleans and Sœur des Anges, often cast five buds of the same age and size, four of which should be removed, or they would spoil each other. In some cases the buds are so close to the centre one that it could not expand without the removal of the surrounding ones.

4. *Rose Judges.*—It is not every judge of florists' flowers that is fit for a Rose judge. None but extensive growers are really fit for it; and for this reason: Roses alter so much in travel, that three Roses usually quite distinct may look like each other. I have seen Auguste Mie, Duchesse d'Orleans, and the H. P. Queen of Denmark, look so like each other, that a non-rosarian would have disqualified the box. On one occasion I saved a gentleman from this disgrace, and he got a prize, I think a fourth prize. The Roses were rightly named.

5. *Pot Roses—Novelties.*—These generally arrive tied to a currant twig, which roots faster than the stock. The ties should be cut with a pair of scissors, and the twig should be removed and replaced with a dead twig. Scissors are better than a knife, as you are less likely to bruise the unhardened wood, which looks like seedling Asparagus three weeks old. If the novelty arrives in the autumn take it out of the pot, and plant it in the Cucumber frame. Don't water it, but put dry leaves over the surface. I lost none so treated last year. If a pot plant arrives in summer in clayey mould baked as hard as a brick, before you plant it out, soak it in a bucket of water till the ball is wet through, or you will never wet it. White fungus will then ensue, and the plant will make no growth. A 12 hours' rain alone would wet this hard ball.

After you have wintered your novelties in the frame, in May plant them in two rows with their balls on, on raised banks, such as Thorn hedges are planted on. I planted out this spring 66 frame-wintered pot plants, and no Roses, even established Roses, could have grown and bloomed better. The banks are about 3 feet wide, with ditches between them. The banks run north and south, so that the rising sun heats one side, and the setting sun the other. The top is heated by the sun in the ascendant. After planting, I put on a heavy mulching of black dung battered down, and covered the manure with 2 inches of burnt field ashes, to protect the mulching; these were also battered down. Water, during the torrid weather, was poured on the centre copiously. Thirty-three plants, in equal shares of 11, were Prince Camille de Rohan, Duc de Cazes, Princesse Mathilde, and one Vulcain, all dark Roses. I saw, on one occasion, besides continuity of blooming, 80 good blooms at one time—a very fine sight. Many of these plants are now 4 feet high, and strong.

I am induced to send this article from the great number of flattering encouragements which I have received from all grades in society, and from all parts of this kingdom. The following grateful letter from a gentleman at Middleton, in Teesdale, will gratify the Editor, no less than it has gratified me:—"Having last autumn purchased a number of Roses of the right stamp, recommended by you in the *Gardeners' Chronicle*, I beg to ask you to mark the undermentioned kinds that you consider good and vigorous growing. I am so charmed with the Roses that you recommended that I am induced to ask this favour. Our soil is stiff and strong, and none but vigorous growers are of any use to us. Sénateur Vaisse, recommended by you, has bloomed splendidly, and is the most magnificent Rose that I ever saw." *W. F. Radclyffe, Rushton, Oct.* 13.

BIRDS *versus* GARDENS, &c.—No. III.

(*Concluded from p.* 988.)

The *Times* sums up the arguments *pro* and *con.* in this question in a leading article, of which the following is the substance.

The fruits of the earth are exposed to the depredations of birds and insects, but birds, besides preying upon fruit, prey upon insects too. It was obvious, therefore, to argue that the extermination of birds would but leave the insects in greater multitudes and with greater powers of destruction than before, and that more than was gained on one side would consequently be lost on the other. This argument was corroborated by the researches and observations of naturalists, who described the habits of birds in seeking food for themselves and their young, analysed the actual contents of their stomachs, and proved to demonstration that, instead of living mainly on fruit and grain, these little creatures lived chiefly on the grubs and insects by which fruit and grain are destroyed. The reasoning on the other side was by no means so conclusive. Gardens had been known full of birds, and yet full of caterpillars too, so that while it was quite certain that birds ate fruit, it was less so that they ate grubs in any profitable proportion. But this evidence at best could only prove that in some seasons the plague of caterpillars could not be materially mitigated by any activity on the part of the birds. It showed not that they did nothing, but that all they could do was insufficient. The true question of course is, what would have been the state of things if the birds had not been there, and the caterpillars had been left to multiply undisturbed.

No person with any knowledge of the subject would expect under any circumstances to secure a full crop of fruit every year. What with frost, blight, storms, grubs, caterpillars, wasps, flies, and thieves, it is certain that his crops would be incessantly exposed to constant detriment, and that detriment would be greater rather than less if birds could be put entirely out of the way. In favour of the birds there is at least presumption, if not proof. It is only during a portion, and not a large portion, of the year that the birds can find any fruit to destroy; but they must live all the year round, and therefore of necessity eat fruit at a less rate than grubs. But the strongest evidence in the case is to be drawn from the actual experience of our French neighbours. In France the exterminators have really had their way. Partly for the sake of protecting their crops, and partly for the pleasure of eating their victims, the small farmers on the other side of the Channel have long waged war against small birds, and the minute subdivision of property has probably aided them in doing so with effect. The result is that you may travel for leagues in France without hearing a chirp or seeing the flutter of a feather along the hedge. But that result has been attended with an incident by no means satisfactory. What our naturalists have predicted as a possible contingency in England has actually occurred in France. Relieved from their feathered enemies, the grubs and insects have multiplied to such a degree as to be alarmingly numerous and destructive. A commission has been appointed to sit upon the subject, and its report was decidedly against the extermination of birds. An eminent French historian has taken up the question as bearing vitally on the interests of his country, and has framed his conclusion with striking sententiousness. "The bird," says M. Michelet, "can live without man, but man cannot live without the bird."

We will not go all those lengths in our decision, but it certainly appears to be demonstrated, with as much clearness as such a case admits, that "Bird Murder" does not conduce to that end for the sake of which alone it is perpetrated. The wholesale massacre of these little creatures brings no gain either to the farmer or the gardener. If the fruit which they might otherwise eat is saved, that fruit is exposed in consequence to worse attacks than before. It is not to be denied that they take toll of our crops, but they repay us in kind by aiding in the preservation of the remainder. The case against them is not established by showing that they eat a good deal of fruit, or that they fail to eat up every caterpillar. It is not pretended that they do more than preserve a certain balance, and prevent other creatures from acquiring formidable power. This much, however, there is reason to believe that they do really accomplish, and it necessarily follows that they earn their living, and should not be held to have forfeited their lives as evil-doers exclusively. The old proverb of "Live and let live" contains the essence of the whol case.

The utilitarian argument is supplemented by the gratification which the feathered tribes may be said to afford us by their songs, their plumage, and their company. We see from the example of our fellow-countrymen in Australia how the company of birds, like other things, is valued when it is lost. They, at any rate, do not put grubs and goldfinches on the same footing. They have expended considerable sums and no slight efforts in endeavouring to procure small birds from England; but they have not sent over for caterpillars or slugs. The interest which may be taken in ornithology is inexhaustible. The late Bishop Stanley has remarked that whereas fishes are only occasionally visible, and beasts in these islands but few in kind, birds are always accessible in comparatively infinite variety. It would probably surprise the reader to reckon up the several kinds of beasts known in Britain, and to find how very quickly he got to the end of the catalogue. But there are birds of fresh kinds, fresh plumage, and different habits to be found along every hedge, insomuch that even an experienced naturalist may sometimes be puzzled by a specimen. We think little of these things now, because we possess them, but if they were lost our farmers would be as ill off as French farmers for the want of them, and our people generally as anxious as Australians to see them once more.

The controversy has not established the absolut innocence of birds in gardens, but it has proved their claim to toleration and their title to life by showing that they do more good than harm.

MANAGEMENT OF APRICOT TREES IN POTS.

It is perhaps not generally known that Apricot trees in pots require the soil to be very firm. As this is the season when they should be top-dressed, that is, have the surface soil removed and replaced with fresh, a word or two of advice may be useful. A tenacious brownish or yellowish loam, if slightly calcareous all the better, and rich half decomposed manure, equal parts, form the best compost. Instead of removing the soil from the pots to a depth of 4 or 5 inches as usual, the better mode is to remove but a small portion, not more than 2 inches in depth, and replace it with the above compost, allowing it to remain in the pots in the orchard house for a week, so that it is partially dry, then ramming it down as firmly as possible till the surface is as hard as the well-trodden path often seen in front of an Apricot tree trained to a cottage.

So well do these trees flourish in a firm soil that in districts where tenacious loam cannot be procured, it is good practice not to disturb the roots in autumn by giving them a top-dressing, but to allow the pots to remain in the orchard house from the end of October till mild weather in February, their roots undisturbed and without water; then when the blossom-buds begin to swell to give them water; and when the fruit has set and is about the size of a small horse-bean, not till then, to scrape off the loose surface soil and give them a rich surface dressing of manure, saturated with strong liquid manure, and mixed with a liberal portion of superphosphate of lime; this compost should be formed into a basin and lie above the rim of the pot.

Those who saw the row of standard and half-standard Apricot trees standing in the centre of the large orchard house at Sawbridgeworth last July will not soon forget the sight. Every tree had large dark green luxuriant leaves, among which shone out the bright golden fruit, not small like those mentioned by Mr. Cox, but full sized, and of the most exquisite flavour. The proper management of Apricot trees in pots is the most simple of all orchard-house culture, and has yet been the most fertile in error. What culture can be more simple than to be able to grow a fine description of fruit—in my opinion the most rich and delicious of all stone fruits—without the trouble of repotting or top-dressing, but merely in May and June, for two months only, to give, say once a fortnight, a rich surface dressing as soon as the roots have devoured that previously given? Allow me to suggest to those of your readers who have failed in Apricot culture in pots under glass to try again, adhering to the following short and simple rules.

Soil in pots to be kept undisturbed throughout the year; to be perfectly dry from the end of October till mild weather in February. As soon as the fruit is set to commence rich surface dressings. Not to syringe the trees daily, but only once a week. To pinch off the end of every young shoot as soon as it has grown to the length of 5 inches. If Apricots can be grown at Sawbridgeworth after this simple method in high perfection, why should not every amateur be able to grow them? *Moor Park.*

FISH AND FISHING.—No. XVIII.

(5) How Grayling got to England.

(*Continued from p.* 1014).

Piscator: But is it necessary, in support of the proposition, to prove that near every stream in which grayling are found monks formerly dwelt? Might not the fish have been transported into that part of the Dee from some other river, as the Teme, or the Clun in Shropshire, for instance, by some lords of the soil, in imitation of the monks elsewhere.

Cath.: That never struck me; yet I am so much interested by, and in love with the idea, that I would fain carry it even higher, and give the monks all the credit. You know their extraordinary taste in all matters of refinement, which the age and circumstances in which they lived permitted. Tradition does not in any instance hand down to us the suggestion that any man or body of men in those early days, except the monks, cultivated such tastes, or were likely to trouble themselves about importing fish; and you know the necessities for fish among monks and Catholics in general. The days of abstinence and fasting among the Catholics were then far more numerous than our Church at present prescribes, formerly being about 200 out of the 365 days of the year, and now being about 105 only, whilst some religious orders were prohibited from the use of flesh meat altogether throughout the year. Of course you are aware that such things are merely rules of discipline, not of doctrine or of faith. Then, too, all Christians in England were Catholics, and thence the extreme necessity for encouraging the preservation of fish of every denomination. Then, again, viewing the grayling as a mere delicacy, be it remembered that when kings and grandees travelled in those days, they were invariably entertained with splendour by the Lord Abbots at the

monasteries; and surely the grayling was, as it is, "the dainty dish to set before the king."

Pisc.: But what say you to Sir H. Davy's first portion of objection?

Cath.: What? that about the grayling not being in the Stour* near Canterbury, or in any part of Kent, or on the south-west coast, in Dorsetshire, Devonshire, and Cornwall? Why this: that the sea provided them with constant succession of fish of every salt-water denomination, and they had trout and salmon, which have been called Forditch trout, in the Stour. At the time of the survey of William the Conqueror, Sandwich yielded, annually, 40,000 herrings to the monks of Christ Church, Canterbury. And to show how fisheries in those days were appreciated, in Cheshire and Devonshire, there were, besides the sea fisheries, those for salmon, one in Cheshire paying a rent of 1000 salmon. Stews and fishponds were also mentioned—one at Tudworth, Yorkshire, yielding 20,000 eels annually; all this through the industry of the monks. But tell me, as far as you can, where the grayling are found in Great Britain.

Pisc.: Within the last few years grayling have been introduced in many rivers; but as to the ancient depositories long prior to the modern rage for pisciculture, taking Salmonia, Yarrell, and Hansard in Wales, and Walton as our authorities, they are found in the Test, and in both the Avons in Hampshire and Wiltshire; in the Dove, the Lug, the Wye, and the Irvon in Herefordshire; in the Teme and Clun in Shropshire; the Trent and the Derwent in Derbyshire; in the Hodder, the Trent, the Dove, and the Wye in Staffordshire; in the Dee in Merionethshire; in the Ribble in Lancashire; in the Derwent, the Ure, the Wharfe, and the Wiske in Yorkshire; in the Eden and the Esk in Cumberland. Hansard adds the Dihoner at Llanddewi'r Cwm in Brecknockshire; the Ithon, and the Dulais in Radnorshire; the Vyrnwy and the Clywedog in Montgomeryshire; and in the Clwyd, at Cyfeiliog, five miles from Ruthin, in Denbighshire, where there stood formerly a monastic college founded in the year 1310.

Cath.: These are for the most part in inland counties or localities removed from the sea coast and sea fish; and most of them we know had monastic establishments near them, which, certes, favours the proposition.

Pisc.: And there is another thing which is suggested but passed over so slightingly by the work of Shipley and Fitzgibbon. It is this: that the grayling is in season in the winter months, when all other decent sized fresh-water fish, except the pike, are completely out of season. Forming so singular an exception, I conceive that this alone would have been a sufficient reason for its introduction by those who needed fish all the year round so much as the Catholics of old did.

Cath.: That is certainly a very important circumstance. At all events it is a point worthy the inquiring spirit of antiquaries. Seeing that the monks from their travels to the Continent had the opportunities of meeting with the grayling; that as the favoured fish of a favourite saint, St. Ambrose, they might have the liking for the fish; that for every kind of fish they had the great general necessity; and that for this particular fish, because in season at a time of year when all other fresh water fish except the pike, as you say, are out of season, they had the especial necessity; and not forgetting your proposed derivation of the name "Grayling;"—if antiquaries can show us as a fact, that on a very great majority of the rivers you have named, there were formerly monastic establishments—then, I think we may safely infer that grayling were originally introduced by the monks. Having already intimated that some of the religious orders confined themselves all the year round to fish as substantial food, if antiquaries also find these orders to have been established on these rivers, that will afford a still stronger support to the proposition. There is one objection, however, which must not be passed over in silence—the difficulty alluded to by Sir H. Davy, of bringing this fish *alive* from the Continent to this country.

Pisc.: I have no hesitation in admitting that it might be very difficult, even in these days of steam and railways, to bring the grayling *alive* from its natural habitats, for it is a very delicate fish; and still more difficult in olden times, when these appliances were not, and crossing the Channel might have occupied days instead of hours. But what difficulties might not the perseverance of such men as the monks have overcome, even so as to bring the fish over *alive*. Sir H. Davy asserts they will live in still water, and so the grayling might even have been brought over *alive* in still water; and they might have known an equivalent to Mr. Eyre's "fish carrier machine," which has safely conveyed at the ratio of 49 out of 50 alive from Derbyshire to Scotland. But sure I am that had those authors lived and written in the present year, in which the art of pisciculture is exhibited in the very streets of London, Sir H. Davy would not have started, and Yarrell would not have echoed, this difficulty as an objection. Through the writings of Jacobi, a century ago, the science and practice of pisciculture and artificial impregnation only faintly glimmered in the minds of modern men, and little or nothing was done in it until the last 30 or 40 years. And, for all that, it would seem that the Greeks and Romans knew something about it in their time, and that the Chinese might have practised it from an even earlier period.* But, at the present day, such have been the rapid strides in Europe in this simple science that no reasonable mind doubts the feasibility of transporting salmon in the ova state to Australia and New Zealand, the only doubt being whether they would prosper there, and whether they would reproduce—the climate, and more especially the seasons, in the South, being so diametrically opposed to ours in the North. Yet the monks of old might have known the principle of "how to do it" had they possessed the necessity and the appliances of steam, &c. They might have known "how!" We have the maxims: "Fashions change," "Keep a thing seven years and it comes into use again," "Necessity the mother of invention," "Nothing new under the sun." How many arts known formerly to have existed, which leave standing living monuments of their former existence, are lost to us! Look at the ruins of Baalbec, and the massive blocks of Druidical erection at Stonehenge, and many other Cyclopean remains elsewhere, which we know *were* raised, but by what power or art or contrivance we can only conjecture. Look at the bronze implements of war, of what origin we know not, and which no ingenuity of the present day can definitely settle how tempered. Look even at the "Indian stone hatchets," of which we can scarcely conceive how they were made! Of such arts "the monks of old" were doubtless as ignorant as ourselves: so some things die out of human knowledge perhaps for ever. Look again at the arts of staining glass, of "illumination" on vellum, and the science of music. Music! oh, England—once "Merrie England," where are now thy thousands of voices of man, woman, and child which could harmonise thy glees and glorious madrigals, and thy ancient church music, as it were, spontaneously: which it now requires thy Costas to organise among hundreds? Where is the modern fountain of Gregorian melody, which in its very simplicity would raise the human heart to tears of sorrow or bursts of grateful gratitudinal devotion? and which Handels, Haydns, and Mozarts, and their followers, great as they are, can only enlarge upon and gladden us with, through the aid of, comparatively speaking, "musical verbiage" and "vocal gymnastics?" Look even at the colouring materials of Corregio and Titian and their times, A.D. 1494-1576! Have we not at the present day failed to discover the secret of their durability? We may think ourselves of the present day more wise than our immediate ancestors, because by means of our marine aquarium, we know more than they of marine zoology, our actinias, asterias, and the like—but, "nothing new under the sun!"

And I verily believe, that save what our improved microscopes show, as much was known two centuries ago as at the present day, and perhaps more. For how sings "the divine" Du Bartas on the subject?

> "God quickened—in the sea, and in the rivers—
> So many fishes of so many features,
> That in the waters we may see all creatures—
> Even all that on the Earth are to be found,
> As if the world were in deep waters drown'd.
> For seas, as well as skies, have sun, moon, stars;
> As well as air—swallows, rooks and stares;
> As well as earth—Vines, Roses, Nettles, Melons,
> Mushrooms, Pinks, Gilliflowers; many millions
> Of other plants, more rare, more strange than these;
> As very fishes, living in the seas."

Oh! we are "wondrous wise;" but undoubtedly the "monks of old" knew many of these things which have since their time so far died away out of knowledge, or slumbered, that in the present day we are only, at the most, reviving them. Some of these were arts, the necessity for which has gone altogether, because better substitutes have been found; and as regards others, the knowledge has slumbered only. Catholics preferred gorgeous painted windows in their cathedrals, and they illuminated their works of hand for taste sake, and to impress religious subjects more readily on their minds, as pictures ever do; and they had their disciplinarian need of fish of all kinds and at all times. The Reformation came and annihilated all such necessities; and so the arts slumbered. And as regards the importation or even the increase of fish, long before the Reformation the necessity was gone, because we had long had them established, and increasing, and continuing to increase. The mere artificial production of fish is now known to be so simple, that it can scarce be called "an art." The transport of impregnated ova in wet sand or Moss perhaps, and perhaps with fresh water dripping on it, or in ice, is so easy that it might have suggested itself to even a child's mind a thousand years ago as well as now, simply on his seeing fish on its spawning ground. *E. C.*

* The Stour of the present day does not look likely to suit grayling.

* See Ashworth's Pamphlet on Propagation of Salmon. Simpkins & Marshall, 1853, p. 39; and Piscarius (pseudo) on Artificial Production. Reeve & Co., 1852, p. 7.

GERMINATING POWER

DEPENDENT ON MICROSCOPICAL ANIMALCULES!

Some curious experiments have been lately described by Dr. Lemaire (see p. 968), which in his opinion prove that infusorial animalcules are indispensable to germination. The statement of the learned gentleman is as follows:—

"I have proved that soil containing 2 per cent. of coal tar impedes Germination. I can also prove that this substance does not kill the embryo; for seeds which have lain 40 days in such soil, after having got rid of that substance, will grow and vegetate. I have compared this fact with those which I have obtained from a good many experiments made by me on fermentation, which would not take place in the presence of small doses of coal tar, benzine, or phenic acid, but was produced as soon as those matters were removed. I have proved, that in these cases fermentation was stopped by the powerful poisonous action that these substances exert upon Infusoria. Finding that the presence of these little living creatures is indispensable to the commencement of fermentation or germination, I have come to the conclusion that wherever organic matter is about to assume fresh forms, microphytes or microzoaires appear. But I have not yet proved in an unquestionable manner that Infusoria are indispensable to germination. I now intend settling that point.

"First let us examine germination under ordinary circumstances. When Kidney Beans, Peas, Lentils, Barley, or Oats are placed upon pieces of earthenware or damp sponge, and we observe through a microscope what takes place each day, it is this: at the expiration of 20 hours, at a temperature of 30° Centigrade, numbers of Bacterium termo and punctum are perceptible in the liquid, and upon the earthenware or sponge. At that time the seed and its embryo are still hard and horny; life has not yet shown itself. At the end of 48 hours we find, independently of Bacterium, the Vibrio lineola and rugula, with Monas Lens. The seed begins to soften.

"At this moment, if we open it carefully, we shall find upon its endosperm and upon its kernel a great number of those infusoria which I have already named. Then the embryo begins to show signs of life; the radicle swells, and soon everything connected with its development follows in its usual course. I have watched the experiment during a fortnight, keeping up the dampness of the ground; other infusoria have appeared I have found numbers of Monadiens and Amibs. When I left off the experiment, the stem of the Kidney Bean was 30 centimetres high. At no time of vegetation have I found Infusoria in the vegetable tissue. These facts having been well proved by many experiments, I asked myself, was it possible that the Infusoria could be introduced by the pieces of earthenware, or the sponge, or the water from the Seine. To satisfy myself on this point, I made the earthenware red hot for two hours, and then when it was cold, I placed the seeds upon it, and watered them with distilled water prepared in M. Chevreuil's laboratory. I found the same Infusoria at the same time, and in the same quantity, in the liquid and in the seeds, as in the preceding experiments. So it was not in the sponge, nor in the earthenware, or in the water which was used; the seed alone could have given birth in so short a time to such numbers of Bacteria, Vibrios and Monads as I found.

"To remove all doubts, I tried to prove by another means that infusoria are indispensable to germination. I repeated with phenic acid the experiments which I had previously made with coal tar. I proved that a thousandth part of this acid added to water—which is indispensable to vegetation, was sufficient, in closed vessels, at a temperature of 12° to 15° Centigrade, to stop germination. But at 35° or 36° it required double the quantity. At the last named temperature, a 1000th part of the acid merely retarded the action. In the presence of phenic acid, if germination does not take place, no Infusoria are to be found. It might be thought at first that the seeds were killed, but we know by experience that that is not so. In fact, if the seeds are plunged in water containing a 2000th part of phenic acid, for 3 days, and then for 5, in water containing 1000th part, afterwards washed in cold running water, and then placed in a favourable situation for germination to take place, they will grow and vegetate in the ordinary manner. Here again we find Infusoria preceding the first growth of the embryo. These facts confirm the statement which I made now three years ago.

"Seeds will not bear the action of these liquids for a longer space of time, or of a greater strength than that above named, otherwise they die altogether.

"I have made no experiments upon Cryptogamic plants, because it has been already proved that spermatozoids exist in large numbers in their reproductive organs.

"To reply to an objection which has been made to my statement, and which may be made again, I beg leave to say that it is not merely by hindering the action of oxygen that coal tar assists in stopping germination as it does in fermentation. I have shown that phosphorus, potassium, and sodium oxidize themselves as usual in an atmosphere charged with phenic acid; it is their poisonous effect which puts a stop to signs of life, and so, to the action of the oxygen. This remarkable property may nevertheless serve to distinguish the combinations formed under the influence of life, from those which obey the laws of affinity or some other force." *Les Mondes.*

No doubt these experiments are interesting; but do they indisputably prove the statement made by Dr. Lemaire, that infusorial animalcules are indispensable to germination? We think not. Surely they

prove nothing more than that infusoria often accompany germination, acting, as for example in the skeletonising of leaves, by assisting in the disintegration of the decaying tissues.

ROSE SHOWING.

During the discussion to which this interesting question has been subjected, a new idea has been brought out, which I think deserves the attention of Rose Show Committees, viz., the division of Roses into their several classes on the exhibition tables; and there can, I think, be no doubt as to the desirability of its adoption, especially at our great Shows. Its recommendations seem to be,—

1st. That it would place exhibitors upon a more equal footing, and ensure fairer competition; for it cannot be doubted that in some instances prizes have been awarded to general collections whose only claim to that distinction, as compared with others, was the presence of a larger number of Tea-scented varieties.

2d. That it would simplify and lighten the duties of the judges, by rendering comparison more easy and just.

3d. That it would materially assist amateurs in their work of notemaking, by bringing the leading varieties in each class under the eye at once.

4th. That it would give a character and an air of order to our shows as a whole, which at present they do not possess.

I am aware that there may be some difficulty in carrying out this plan in the amateur classes, but there can, I think, be no reason why it may not be adopted in the nurserymen's division, and possibly in the more extensive amateur collections. Again, reduction in the number of varieties would be a decided improvement, as it would tend to exclude flowers whose claims to our admiration have long been set aside by the influx of improved varieties.

With regard to trussing, I am in favour of single trusses, because the individual flowers stand out more distinctly, and afford a better opportunity for forming a true estimate of their merits.

Disbudding is a matter respecting which some definite rule should be made, and rigidly enforced. It should be allowed or disallowed, and means should be taken to protect those who comply with, and to expose those who violate that rule. *Gulielmus, Nurseries, King's Acre.*

CINCHONAS IN INDIA.

In the Supplement to the *Calcutta Gazette* of Aug. 15 last, we find some highly important statements concerning this interesting subject. Dr. Anderson, the very able and scientific Superintendent of the Botanic Garden, Calcutta, reports officially to the Indian Government to the following effect :—

"The progress of the cultivation of the Cinchona at Darjeeling under my direction was fully reported to the Lieutenant-Governor of Bengal on the 6th August, 1862, and the Report was published in the Supplement to the *Calcutta Gazette*.

"That Report contained the history of the experiment from the dispatch of the plants from Calcutta on the 24th March, 1862, until the 1st August. In that Report I stated that the experiment might be considered as having commenced on the 1st of June, as, from unavoidable delays in a district where carriage of all kinds was most difficult to procure, where skilled labour was scarce and extravagantly expensive, and where even the ordinary processes of gardening were quite unknown, I was obliged to keep the Cinchona plants confined for two months in Wardian cases, some of them having been already subjected to five months of this confinement. The total number of plants with which the experiment was commenced on the 1st June, was 211. On the 1st of August, the number had increased to 1611 of all kinds, of which, however, it is deserving of note that 1300 were newly raised seedlings of Cinchona Pahudiana.

"I again submitted a Report on the 12th November, in which it was shown that the total number of plants in the nursery was 2286, of which, however, 1921 belonged to the doubtfully Quiniferous species, C. Pahudiana, so largely cultivated by the Dutch in Java, leaving only 365 plants as the stock of the undoubtedly valuable species of Cinchona.

"After I left Darjeeling, I procured the occupation for one year of a garden and dwelling house at Lebong, a warm, well-sheltered spur below Darjeeling, at an elevation of 6000 feet above the sea. The plants and all the stores were removed from the temporary buildings at Sinchul to this site in the first week of April. Although the distance was seven miles, the arrangements were so carefully made by Mr. Jaffrey, who personally superintended the removal of the plants, that only one plant of Cinchona succirubra was slightly damaged. The number of plants brought from Sinchul to Lebong on the 1st April was 2489.

"I am glad to be able to report that on my visiting the Cinchona Nursery at Lebong in the end of May, I found all the plants in the highest health, and that the propagation of all the species, except Cinchona Pahudiana, was advancing rapidly.

Appendix.

From T. Anderson, Esq., M.D., Superintendent of the Botanic Gardens, Calcutta, and in charge of Cinchona cultivation, to the Secretary to the Government of Bengal,—(No. 48, dated the 25th July, 1863.)

"1. I have the honour to report, for the information of the Lieutenant-Governor of Bengal, that the condition of the Cinchona plants at Darjeeling on the 15th June was most satisfactory.

"2. In accordance with the orders of the Right Hon. the Secretary of State for India, no attention has been given since the 1st April to the increase of the stock of Cinchona Pahudiana. The increase of the other species has been great, and the plants are in excellent condition, so much so indeed, that a plant of Cinchona succirubra had grown nine inches in 30 days. The number of all species on the 15th June was 4620 (the corresponding number on the 1st June 1862 was 211), and these plants were so covered with vigorous shoots that I calculated that 6000 plants could be added to the number of all the species, exclusive of C Pahudiana, by 15th August, making a total number of 10,000 plants on that date. The most marked increase has been in the number of plants of Cinchona officinalis, of which I possessed only 93 plants received from Ceylon and Ootacamund on the 1st May; these have been increased to 573 on the 15th June. Seven hundred of the large plants of Cinchona Pahudiana have been planted in the open air at an elevation of 6000 feet, and though they have been fully exposed to all weathers from bright sunshine to heavy rain, they are growing much more luxuriantly than when they were under shelter. I have for some time been unable to distinguish botanically between the species supplied from the Ootacamund Nursery under the names C. micrantha, C. nitida, C. peruviana. These seem to me in their present state to be one and the same species, probably C. micrantha. I have therefore adopted that name provisionally, in hopes that some of the plants, with increase of age, will take on the specific characters of C. nitida and C. peruviana. Mr. Thwaites, the Director of the Botanic Gardens, Ceylon, and who has given much attention to the experimental cultivation of Cinchonas in Ceylon, finds also that from seeds supplied to him as C. micrantha, C. nitida, and C. peruviana only one species was procured, or, at least as yet he had been unable to distinguish more than one species.

"3. In the commencement of June, 1863, I supplied Dr. Simpson, Civil Surgeon of Darjeeling, with about 2 lbs. of fresh leaves of each of the following species :—C. succirubra, C. officinalis, and C. micrantha. Decoctions, prepared with water slightly acidulated with sulphuric acid, were very bitter, and three patients suffering from well-marked intermittent fever were cured by the administration of these preparations alone. Towards the end of June, Dr. Simpson and I endeavoured to examine chemically the nature of the leaves of Cinchona succirubra. We experimented on 1lb. of fresh leaves. Our mode of procedure was as follows :—The fresh leaves were boiled in water in which a certain quantity of carbonate of soda had been dissolved, and the dark-coloured liquor resulting was thrown away. The mass of leaves after having all the alkaline water pressed out of them was boiled in water with a small quantity of sulphuric acid. This was repeated three times, and the leaves were carefully squeezed at the end of each boiling. These acid liquors were then mixed and concentrated by boiling. The bitter acid, concentrated liquor, was then treated with carbonate of soda. The precipitate was collected, then mixed with distilled water and sulphuric acid added carefully. A perfectly neutral condition was obtained by adding carbonate of soda. The fluid was filtered hot, and the neutral bitter liquid was afterwards set aside to cool, in the hopes that crystals might be obtained. Crystallisation did take place on glasses under the microscope. The crystals are long and needle-shaped, and were so abundant as to appear to the naked eye as a whitish spot in the glass. A thin film of crystals (sulphate of quinine?) also formed on the surface of the fluid and could easily be skimmed off. These, dissolved in water slightly acidulated with sulphuric acid tasted very bitter. At this stage, however, the process was arrested, notwithstanding the removal of colouring matter by animal charcoal. The detection of crystals at all, with the means at our disposal, was unexpected. As it is, the undoubted presence of little needle-shaped crystals in a fluid obtained from the leaves of Cinchona is worthy of record.

"4. The cultivation of Cinchona in British Sikhim is certain to be commenced soon by private individuals. Five hundred plants have been procured by private individuals from Mr. McIvor at Ootacamund, but they nearly all died on the route, one plant having reached Darjeeling alive. However, I have applications for more than 15 lacs of plants, and I shall soon be able to supply a few."

Home Correspondence.

Battersea Park Tropical Garden.—Will your Correspondent "J. F." be kind enough to tell us what plants besides Canna, Ferdinanda, Ficus (elastica?), Wigandia, and Colocasia esculenta, have been found by him to grow luxuriantly in the common garden after midsummer, having been merely started with warm manure at planting time? Will he describe more explicitly the behaviour of the Caladiums he mentions? Will he state his experience in working with bottom heat at all seasons out of doors, and how he came to the conclusion that foliage plants (rather a large family) do not require a continued bottom-heat treatment? In a word, will he give his readers an opportunity of judging for themselves whether he knows anything about the matter at all? All this your scientific gardening readers will require to know before they can allow him to throw discredit upon a zealous, pains-taking, and ingenious man in his first attempt to carry out a very original idea. Plants of the degree of hardiness mentioned by him may be, and have been, often grown in the manner alluded to, and in hot summers like the past will succeed well. Cannas will generally survive a very mild dry winter, and in this case thrive unusually well in the succeeding summer. The omission of the writer's latitude too is a serious drawback to his information—I mean his climatic latitude. When semi-tropical plants are glowing with blossom, and rioting in foliage, in a Cornish November; when the trellised front of a South Devon house is blue with Ipomœa Learii, and the Lemon and Orange are gleaming on the garden wall, there's many a "Cornish man" can "tell the reason why." So when in less favoured latitudes, plants that languish or die in the common garden thrive in the earth-heated border, we may also infer a "reason why." The very few experimenters on the subject with whom I am acquainted, feel themselves on the threshold of a long and patient course of inquiry, and will hail with pleasure the accession of a brother worker to their thin ranks. Cheer him on, kind brother gardeners; for there is enough cold water in this weary world. *Fumarola.*

Foliage Plants.—Like your correspondent "J. F.," I do not see that any advantage is gained by Mr. Gibson's mode of treatment of these plants, viz., that of supplying brick-rubbish for bottom-heat. The extra labour it would incur in the shape of watering would be far too great to allow of its being generally practised, even if the plan were admitted to be good. If bottom heat is required at all, leaves and dung are the materials I should use for that purpose. I have Cannas here 4 and 5 feet high, without the bed in which they grow having had any preparation whatever beyond that of digging in some rotten manure just before planting. I treat my Cannas as I do other bedding plants, viz., start them in spring, and harden them off previously to planting out in the beginning of June. In clear weather I sprinkle them over head with water, after the sun is off them, till such time as they have taken hold of the soil, which they soon do without losing their leaves or turning brown. I have Cannas now as fresh and green as in August. I may add that I do not like Cannas for the centre of flower beds; in fact, they do not look well associated with flowers at all. I therefore plant them in a large bed on the lawn away from the flower garden. Their appearance is improved by mixing a little Perilla with them, and adding a carpet as it were of Lycopodium denticulatum for them to stand upon. Towards the edge of the bed I plant Farfugium grande, and Centaurea candidissima and gymnocarpa, together with a few plants of Perilla, and edge with Variegated Alyssum, altogether producing a nice effect. I have tried Begonias, Dracænas, Marantas, and some of the Caladiums, but they all failed. Dwarf Cannas mixed with Gladioli I think would look well. I tried some this year, but the Gladioli did not flower well. *J. R. B., Wakefield, Yorkshire.*

Tulips.—In your Paper of the 27th inst. I noticed an article on the Tulip by Mr. Dean, in which occur some ideas hard to understand, and as I cannot coincide with them, with your permission I will just make a few remarks on such passages as appear to me to be incorrect. Respecting the breeder Tulip Mr. D. says: "After the seed is sown it is about five or six years before it flowers, and then we have only a self flower, from which state it some time or other breaks into character, that is, it becomes either a Bizarre, Byblœmen, or Rose." To me this appears to be an anomaly, for my own experience in these matters tells me that the character referred to is decided in the breeder Tulip, the distinctions being that the Bizarre has a yellow base and stamens, the Byblœmen and Rose white bases and stamens, the difference between the two latter being the absence of a purple tint in the breeder colour of the Rose. The only feature of a definite description given to the character of the flower on breaking into colour, is that it breaks into a feather, or a feather and flame. Again, Mr. D. states that "the Bizarre Tulip has a yellow ground, and is flaked with some shade graduating between brown and maroon; the Byblœmen with some shade of rosy purple or violet; the Rose with some shade of rosy carmine." Mr. D. should however state things as they really exist. A flaked flower is not admitted to exhibitions, the feather and the feather and flamed Tulip being the two distinctions of marking recognised by the fancy. The colour of the markings in the Bizarre graduate between black, brown, and red; in the Byblœmen between black, purple, and lilac; in the Rose between crimson, red, and scarlet. Again, Mr. D. says, "Stern laws are laid down regarding form, which should be nearly two-thirds of a ball." The half ball has been allowed by growers of high repute to be the *ne plus ultra* of form; certainly there are great objections to two-thirds of a ball. Again, in speaking of Adonis breeder, Mr. D. says, "I saw at Mr. Headley's in May last a large number of roots of Adonis breeder, that is, seedlings saved from Adonis, a feathered Byblœmen flower." What can Mr. D. mean by this definition of Adonis breeder, and if he saw seedlings saved from Adonis feathered Byblœmens they are simply breeders. By Adonis breeders I understand bulbs emanating from the original bulb of Adonis breeder, and not seedlings raised from the seed of Adonis. In a former part of Mr. D.'s paper he says, "Although there is not so much talk about Tulips as formerly, I believe that they are quite as much grown as ever." If I may indicate a cause for the silence in question, I should say that the floricultural press rejects papers of persons well qualified by long experience to write on the Tulip, and admits long yarns of no utility to the grower, and only calculated to mislead the novice. Let good men be admitted into the field, and Tulip discussion will be as popular as ever it was. *Dera, Market Rasen.*

Birds v. Crocuses.—I see (p. 1016) that you recommend edgings of Crocuses. Can any of your correspondents tell me how to defend them against their principal enemy in this neighbourhood, viz., house sparrows? I had some beds this spring which were picked to pieces by these little rascals, who might be seen from the windows in the act. The boxes at the drawing-room windows were never touched, and bloomed beautifully. It is scarcely possible to protect Crocus edgings by means of nets, and I should be very glad to know of some remedy for the evil. *D. B., Hampstead.*

Morphology.—I enclose a blossom from a Fuchsia, which, though it may not be a novelty, serves to illustrate a fact which we are much indebted to you for so clearly explaining,—that the various parts of a flower "are but arrangements of altered leaves."—"Elements of Botany," page 63. The stigma of the flower I send you is the most striking development of what is clearly a leaf. *J. E.* [A very curious case. Pray try to preserve the plant, and if it again behaves in the same strange way, which is not improbable, we venture to petition for another blossom, as the one now sent was smashed in the post office.]

Vine Exostose.—The enclosed substance grew on the main rod of a Muscat of Alexandria Vine, at the joint, on the side opposite to the leaf. The Vine has been in its present locality 20 years, and neither on it or on any of the Black Hamburgh Vines which fill the other parts of the house, has a similar growth ever been previously noticed. There have been three other similar nodules on the same Vine this autumn. You would

much oblige by saying whether this growth is a sign of unhealthiness, or merely another form of the rootlets so common when the Vinery is too damp. The crop of Grapes has been unusually good in all respects this past summer. *S. M. O.* [The tumour, or Exostose, is an abortive branch, incapable of lengthening, or forming leaves, but consisting of mere cellular matter. The very medullary processes are observable in a transverse section. The cause of such malformations is wholly unknown.]

Potatos.—It may be useful if I make mention of a remarkable crop of Potatos which I have grown this year, and the mode of culture which led to so desirable a result. The soil is a good deep loam, well drained naturally, and deeply cultivated with the spade. The manure was from pig-sties covered all over to exclude rain; all the sweepings of the stable and poultry houses are conveyed to these sties, and allowed to accumulate there, and trodden under foot by the pigs, with sufficient dry material to absorb all the liquid, and keep the sties healthy. The compression of course prevents all fermentation, which takes place in the ground laid out for the crop, the dung when removed being at once conveyed there and spread, so that all the products of the fermentation are absorbed by the soil itself, and the rain washes the soluble part into the soil for the benefit of the crop. I mention this part of the preparation for the crop particularly, as I think it has much to do with the result I have to speak of. Mixtures of different sorts of manure I think desirable, but of the value of the liquid portion for this crop I am quite certain, excellence of quality having invariably followed the use of it, and this result has been attended with all but entire freedom from disease. The Potatos were of the sort called White Rocks, the seed a selection of the finest tubers cut into sets, many of which had not more than one eye. This plan combines economy in the quantity of seed, with good results to the crop, upon which point I will if you please speak more another time. The sets were planted in February before any sprouting had taken place. When the plants came up they were well hoed, and in June the spaces between the rows (which were 3 feet apart) were deeply dug. Soon after this the plants covered the ground, and I may here state that the intervals between the rows were so very wide because this kind of Potato throws up very large stems and abundant foliage, and because the abundance and quality of the manure tended to increase this habit of rank growth I have found this kind of culture highly profitable before, but this year the result far exceeded anything I have ever witnessed. From 9 perches of ground or 270 square yards were dug 1 ton 2 cwt. 100 lbs. of tubers. Scarcely any small ones or diseased ones were found, and the quality on the table is excellent. The average produce of each root was over 3½ lbs. One root yielded 9 lbs., and seven of the tubers from this root weighed ¾ lb. each. The first four plants dug filled the basket, which holds 20 lbs. of Potatos. Hundreds of tubers could be found weighing ¾ lb. and upwards. Many weighed 1½ lb., and some few came up to 2 lbs. or nearly. The produce was at the rate of 20 imperial tons to the statute acre. I am far from supposing that so enormous a crop must certainly, or even probably be looked for by following my plan of cultivation; but my success last year (15 tons to the acre) convinces me that we may look for something like it, under similar circumstances and treatment. There is no exaggeration in any of the above statements. *Rev. J. M. Taylor, Cannington.*

Gishurst Compound.—As the season approaches when gardeners begin to think of winter dressing their fruit trees, and as Mr. Rivers and other authorities have recommended the use of Gishurst Compound for this purpose. I now ask permission to give the result of some trials with Gishurst on my trees last winter and spring. For several years past, all the orchard house trees, when fully at rest, say in December, have been drenched with a solution of Gishurst, eight ounces to the gallon of soft water, without any after washing with water; this occasionally made a few buds from weakly trees to fall, but left more than sufficient for any crop, and made the trees look very healthy. However, last year, I heard several accounts from thoroughly good authorities of many buds having been destroyed, in some cases owing to too strong applications of Gishurst. Wishing to test whether this had been caused by the dressing having been applied too late when the trees were no longer at rest, when giving most of my trees their usual 8 ounce solution, I left a few for experiment later, when the buds should have begun to swell. Some of them were washed with 8 ounces strength of solution, and a few minutes afterwards the trees were washed with water, others with 4 ounces strength with no after water washing; the result was that some buds were injured by the strong solution, notwithstanding the after washing, which was not the case (except as to some half dozen buds) with the weaker solution without water washing. The conclusion I came to was that 8 ounces solution to fairly strong trees, thoroughly at rest, is the best strength and safe for buds, except possibly early Pears; that if this strength be applied after the wood begins to grow, some buds may be injured; that 4 ounces to the gallon is safe, even where buds have begun to swell, and is perhaps the best strength for not strong trees and Pears, especially early ones. These remarks apply only to pot trees in orchard houses, of which only I have any considerable experience. For fruit trees on walls, I believe a pound to the gallon drenched over the tree and wall by means of a plasterer's brush to be the best strength; last year I was allowed to experiment on some trees on an old wall, which year after year had been so eaten up with blight that the fruit came to nothing; I operated on three of the trees, Plums, with strong solutions of Gishurst, with the result that the treated trees were much improved in appearance, and bore some fine fruit, (the good summer may have helped), but they looked healthier than their unwashed neighbours, and now the whole wall has been abandoned to me to have a strong Gishurst treatment, the result of which I may communicate on a future occasion. *George Wilson, Gishurst Cottage, Weybridge,*

Anacharis Alsinastrum.—This weed is a great pest in our beautiful river—the Wandle. About 12 months ago I threw in here and there a few shovelsfull of coarse gravel for the fish to spawn in; and I have noticed that these places are wholly free from the weed. Does it thrive anywhere on a shingly bottom? or is it found only on mud? A solution of this question may lead to a ready means of extirpating it. *Wallington.*

Swallows.—Permit me to add to my note (p. 966) that swallows were last observed in Torquay on Wednesday the 21st of October. *J. T. White, 3, Western Terrace, Torquay, Devon.*

Larix Griffithiana.—I enclose a part of a branch of Larix Griffithiana having two cones, the first it has borne here. My plant is about five years old, and 9 or 10 feet in height. It was transplanted last winter, which perhaps threw it into fruit; there were upwards of 30 cones. *R., Carwinion, near Falmouth.* [Very nice specimens with many good seeds].

Notices of Books.

The Home Nurse, and Manual for the Sick Room. By Esther Le Hardy. Churchill & Sons. Pp. 434.

This Manual is not written for the hired nurse, but, as its name implies, for the friend of the patient, whether connected by the ties of relationship or acquaintance, or by those of long and attached domestic service. It contains much useful information for persons unaccustomed to the duties of a sick chamber. Air, exercise, resting, cleanliness, dress, baths, diet, &c., have each their due share of attention. The advantages of cleanliness and order cannot be too much insisted on; indeed, the life of a patient often depends upon the calmness of mind, induced by seeing everything around comfortable and in its place, instead of in confusion and disorder. Presence of mind is also necessary; an agitated or uncertain manner conveys impressions to the mind of the patient, which are highly injurious. In protracted illness or in recovery, air and light, cheerfulness without noise, and quietness without monotony, are essential. In great weakness of body, the nerves are, as it were, on edge, and those who have known, during such seasons, the misery of having the fire replenished and the grate cleaned amid an atmosphere of dust, and seemingly interminable scrapings, will be grateful for the directions given on page 53. "In cases of serious illness, the fire is always kept burning, the housemaid comes, and most enegetically 'rakes out,' as she calls it, all the dust, sending it in suffocating clouds all over the room. But the real home-nurse will attend to this duty herself, which need not be dirty work. You must first simply remove, with the tongs, all the larger pieces of lighted coal to the side of the hob, and placing a small board, or damp newspaper, in front of the underneath part of the grate, hold it there with one hand; you gently rake the dust out through the bottom with a stout stick, pointed at the end, and which should always be used in a sick room, as a poker, to prevent undue noise. Give the dust time to settle, and then your servant can remove the ashes and replace the coals."

Very valuable are the following observations. "Avoid as much as possible crossing before the eyes of the patient." "The sick seldom like to remark on the flickering and sudden change of light, or complain of the passing to and fro, lest they should incur the charge of being fidgety. They often endeavour to persuade themselves that their disquietude can be nothing more than a mere imaginary evil, while it is, in fact, a real one; for when this constant uneasiness to the nerves of the eye is kept up, sleep is often entirely banished, and though the closed eye betokens need of rest, it by no means indicates that such rest is taken, for it is still perfectly sensible of the varying changes of light and shade." "Never allow a whispered message to be brought to the sick-room door. Invalids have a kind of nervous apprehension that they are the subjects of constant observation and animadversion, and that whatever is passing has reference to them, and they are consequently very suspicious of anything that bears the least appearance of concealment from them; and as they rarely like to admit that they feel curious, they lie and brood over the mystery, to their great and needless injury. Servants should, therefore, be enjoined to communicate what they have to say in a clear and distinct manner." With regard to the serving up of an invalid's dinner, we read, "the addition of a little nosegay on the tray will give the whole a loving and cheerful appearance." This is a very pleasing idea.

Our authoress knows the value of religion, and the deep need of its comfort in serious illnesses. She therefore regards that home nurse as deficient in a most important matter, who has not herself experienced the consolations which she is called upon to set forth to the weak and often troubled mind of the patient.

The chapters entitled "Home Ailments," "Sundries," and "Cookery," contain recipes for the mitigation of various diseases, for drinks, and for the delicate preparation of the limited range of articles admitted into the patient's dietary. These are excellent.

Miscellaneous.

Harvest in Japan.—Another portion of the crop was harvested in a most curious way, which I think must be peculiar to Japan, for I have neither seen it nor heard of it in any other country. On the 10th of June—so says my journal—fires were observed blazing all over the country, and dense masses of smoke were seen rising from every corn field. This time it was not the burning of Rape stalks, for they had all disappeared, having been converted into their elements of earth and air, the former of which was already entering into another form and was supplying food for the summer crops. It was the bearded Barley which was now going through the crucible, the object being to separate the heads of corn from the straw and awns. This was done in the following way:—The corn, having been tied up in small bundles or sheaves, is removed to a convenient spot on the edge of the field. When the burning is to begin the workman takes a sheaf in one hand, and with the other applies fire to the upper or corn end of the sheaf. It immediately ignites, the awns go off in a blaze, the heads of corn snap from the stalk and fall to the ground. Lighting another sheaf, the workman throws the first away in a blaze, regardless apparently of the value of the straw, and so the operation goes on. As the beardless heads fall to the ground the fire goes out, leaving them slightly browned by the operation, but with the grain unharmed. *Fortune's "Yedo and Peking."*

Nurserymen's Assessments.—I disagree with the remarks of a writer on the subject of rating commercial gardeners' lands, and the various buildings erected thereon for the purpose of trade, made in the *Gardeners' Chronicle* of the 30th of May last, on a most important point, viz., that nurserymen's glazed compartments are mere chattels, implements in trade, and not hereditaments, which the overseers are directed by the Act to rate. The question of the right of tenants to remove such erections had long been undisputed, until a case was brought before the Court of Sessions in Scotland, Harvey v. Symes, on the 14th of December, 1861. The Court held that the tenant being a nurseryman, the erections, consisting of conservatories, hot-houses, propagating pits, and the like, were indispensable in enabling him to carry on his business. Had the tenant not been in trade, or had the fixtures not been necessary for carrying on his trade, he would have had no right to remove them. Sir W. Page Wood, in giving judgment in Chancery in a case in which the tenant was not a nurseryman, held that the landlord had a right to restrain the tenant from removing the vineries, pits, &c.; but as respects the hot water pipes, he said it was a matter of small consideration, but upon the whole, he must hold the pipes to be removable by the occupier. Being a member of a rating committee in the parish of High Wycombe, in 1818, consisting of seven farmers, and five mill occupiers, a strong controversy arose as to what deductions should be allowed from the annual rent paid for mills. One-third was claimed for machinery by one party, and resisted by the other; at last it was agreed that a case should be laid before counsel, which was done, and the opinion of Mr. Nolan, at that time the great Poor Law writer, was taken. His opinion was, that all the machinery except the first power, was tenants' property, and not liable to be rated. I am not aware of any alteration in the laws of rating since that period. Upon this decision one-third was allowed from the gross rent of mills. It was agreed by representatives from every union in the county, at a meeting at the Star Hotel, Oxford, that 35 per cent. deduction be allowed on all mills in this county; 25 per cent. on garden land, and 40 on brick kilns and yards. Mr. Lane, of Great Berkhampstead, says, "In the Act of Elizabeth everything visible is liable to be rated, even a cobbler's lapstone, and a tailor's needle. The law, however, finding the matter so difficult, has abandoned rating such things. Now, if you rate a nurseryman's greenhouse, you must rate a draper's shop fixtures, and those of every other trade. Also private houses, where the grates, coppers, gas-fittings, &c., are the tenant's, or you will have inequality of rating. Let us say a farmer puts up machinery to grind his roots, cut his chaff, and thrash his corn, at a cost of 600*l.*, and that he loses 100*l.* per annum. His next-door neighbour has a farm at the same rent, on which he keeps removable dwelling houses for herdsmen, and pens to keep his stock, altogether worth 3000*l.*, and he realises 1000*l.* per annum. How would you rate these two farms?" My reply to this question is, that rent is *prima facie* evidence of value, and will form the gross amount of each farm equally. A takes a farm at 30*s.* per acre, exclusive of tithe rent-charge, and commences breeding

tups, selling his ram lambs at from 3 to 5 guineas each, and his shearhogs at from 5 to 10 guineas each. B, his next door neighbour, takes his farm at the same rent per acre, and rears sheep for the butcher, selling lambs from 25*s.* to 30*s.* each, and his tegs and shearhogs at from 55*s.* to 63*s.* each. Although A realises more money than B, you cannot tax his judgment, care, and capital, consequently the rates must be equal. C, a florist nurseryman, takes a piece of land, in a conspicuous position on a lease for 14 years, at 8*l.* per acre; he erects greenhouses, propagating pits, together with other pits, &c., necessary for carrying on his trade, and is rated at double the amount arable land adjoining is rated at. These erections do not increase the actual value of the land. The object for which greenhouses are erected in the hands of a florist is of a two-fold character; first, for the protection of plants, and then for attraction. Why does a draper or a chymist, with his coloured bottles, take out small windows of crown glass and put in large windows of plate glass, except for the better exposure of heir goods to the public; but these are measures which do not increase the rateable value of the fabric. The overseers, assuming the power of rating nurserymen's greenhouses, &c., must rate farmers' ricks, staddles, steam ploughs, and threshing machines, which are all occasionally fixed to the freehold, like a greenhouse, but not removed with the same facility. A house 100 feet long, 12 feet wide, containing 1600 feet of glass, could be removed by two men in two hours, and I wish to know who is bold enough to say that such structures are hereditaments and rateable under the 25th and 26th of Victoria, cap. 103. I beg to suggest to such officials a consultation of Johnson, or any other dictionary, for a definition of the terms—hereditaments and chattels. The reason for rating nursery gardens at so great a price is, that a higher rent is paid for them; not that land stocked with trees can be rated higher than arable land adjoining, although the crop is tenfold the value of that of the farmer. *J. Bates, Parks Nursery, Oxford, in the Oxford Journal.*

"Breaking" of Tulips.—In Darwin's "Loves of the Plants," in a footnote to Canto 4, line 285, he says:—"When the petals of the Tulip become striped with many colours, the plant loses almost half of its height; and the method of making them thus break into colours is by transplanting them into a meagre or sandy soil, after they have previously enjoyed a richer soil: hence it appears that the plant is weakened when the flower becomes variegated."

Gardeners' Royal Benevolent Institution.—We learn that the Right Hon. Charles Lawson, Lord Provost of Edinburgh, has kindly consented to preside at the next Anniversary Dinner in the summer of 1864.

Mr. Fortune's Chinese Plants.—A portion of these was sold the other day by Mr. Stevens, and realised the following prices, viz.: Torreya grandis, from 5*s.* to 19*s.* per lot of six plants each; Abies Kæmpferi, from 10*s.* to 1*l.* 10*s.* per lot of one plant each; Pinus Bungeana, from 11*s.* to 17*s.* per lot of six plants each; a Thuja and a Pinus, from the neighbourhood of Pekin, from 10*s.* to 1*l.* per lot of 25 plants each; similar lots of Chamærops Fortuni fetched from 9*s.* to 1*l.* per lot; Bambusa variegata realised from 19*s.* to 1*l.* per lot of six plants each; Lonicera aureo-reticulata, from 5*s.* to 7*s.* per lot of 12 plants each; similar lots of Lastrea atrata and opaca, fetched from 10*s.* to 11*s.* per lot; a Sterculia from Northern China realised 7*s.* per lot of six plants each; a species of Acorus from 6*s.* to 7*s.* per lot of eight plants each; Iris lævigata, from 5*s.* to 9*s.* per lot of 10 plants each; Woodwardia japonica, 11*s.* per lot of five plants each; W. orientalis (a specimen plant fetched 15*s.*; a variegated variety of Reineckia carnea went for 7*s.* per lot of two plants each; and the double-flowered Deutzia crenata fetched from 6*s.* to 9*s.* per lot of 10 plants each.

The Glycine at Home.—Leaving the Tokaido behind us, we took a bridle-path which led us more inland, and soon afterwards we struck a broad country road, by which we journeyed onwards in the direction of the capital. On our way we called at a place called Nanka-nobu to see a large specimen of Glycine sinensis, which was one of the lions in this part of the country. It was evidently a tree of great age. It measured, at 3 feet from the ground, 7 feet in circumference, and covered a space of trellis-work 60 feet by 102 feet. The trellis was about 8 feet in height, and many thousands of the long racemes of the Glycine hung down nearly half-way to the ground. One of them, which I measured, was 3 feet 6 inches in length. The thousands of long, drooping, lilac racemes had a most extraordinary and beautiful appearance. People came from far and near to see the tree during the time it remained in bloom; and as it was in the garden of a public tea-house, it brought an extensive custom to the proprietor. Tables and benches were arranged under its shade, which at the time of our visit were well occupied with travellers and visitors, all sipping and apparently enjoying the grateful and invigorating beverage. As the day was cloudless, and the sun's rays powerful, we were not slow to imitate the example they set before us, so we sipped our tea, smoked a cigar, and admired this beautiful specimen of the vegetable kingdom. *Fortune's "Yedo and Peking."*

The Wellingtonia gigantea.—A tree, it is said, has recently been cut down in California, the circumference of which was 90 feet, and its height 325 feet. The bark was in some places 4 feet thick. The tree contained 250,000 feet of timber. Its age is estimated to have been not less than 3100 years. The wood was sound and solid. *The Builder.* [Credat Judæus.]

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—At this season every effort should be employed to keep up a good display of bloom, for this house will now be used much more than when the weather is favourable for out-door exercise; its inmates, if attractive, will therefore be much more valued now than they would be at any other period. Azaleas which set their buds early will readily push into flower, if placed in a warm moist temperature, and some of the early-blooming Rhododendrons require very little forcing to bring them into blossom at any time after this season; therefore where there is a good stock of these, and Ghent and other hardy Azaleas, well set for bloom, a portion of the plants should be placed in heat during the winter months at intervals of about three weeks, and as they are very showy and last long in beauty they will be invaluable for purposes of decoration. These, together with Camellias, Heaths, Epacrises, Acacias, Daphnes, Gesneras, Cyclamens, Cytisuses, Chinese Primulas, Cinerarias, Mignonette, Tree Violets, and other things which bloom naturally in winter, will afford a good display. Monochætum ensiferum is also an invaluable plant for winter decoration.

ORCING DEPARTMENT.

PINERIES.—The supply of ripe fruit from May until August being usually obtained from plants that start without making growth in spring, a fair proportion of the stock, as has previously been recommended, should therefore be in a well matured state by or shortly after this season, and any sudden changes of temperature which might induce too many of them to show fruit at once should be carefully avoided. Portions of the stock expected to furnish the autumn supply should not be too much checked at present, indeed these may be kept growing slowly all the winter, which is perhaps the most certain method of preventing their starting too early in spring. Where the plants likely to fruit without making farther growth are considered insufficient to meet the demand until next autumn the stronger plants of those for late fruiting should be encouraged to make growth as early as can be done without weakening the foliage, with the view of preparing them for starting in April.

VINERIES.—Where early forcing is carried on, as soon as the buds are fairly started the temperature should be increased to 60° at night and 65° by day, allowing it to rise 10° on bright days. Take every opportunity of admitting a little fresh air, but recollect that the foliage will not bear exposure to cold winds, therefore air should be admitted in contact with the heating apparatus. Where the border cannot be warmed, see that it is well protected from wet, &c., by a thick covering of dry litter. If fermenting material is used it will be advisable, however, to have some dung aud leaves thrown up to heat, as there would be some danger of chilling the bed by turning it in the event of frosty weather, and mixing it with the dung or leaves which had not commenced fermenting. Houses which it is intended to commence forcing the beginning of next month should also have some fermenting materials placed on the borders so as to encourage the roots a little before the Vines are excited, which will be of great service towards getting the buds to push strongly and without loss of time.

PEACHES AND NECTARINES.—Prune and otherwise prepare the trees in the earlier houses for forcing, which, however, except under particular circumstances, should not be commenced for several weeks yet; but let it be remembered that these fruits will not admit of rapid forcing in the early stages of the process, therefore fire-heat should be applied with caution, so that the night temperature does not exceed 50°, otherwise the blossoms will be weak and liable to drop; during the day the temperature may rise to 60°, with plenty of air on every favourable opportunity. Cover the outside border with leaves or litter, for the purpose of excluding frost and heavy rains. Tie in the trees in the later houses, and get all ready for starting when required.

CUCUMBERS.—These must be well attended to to ensure success. A temperature of about 70° should be maintained artificially, which will allow of a little air being given on comparatively cool and dull days. Stop progressing shoots at every second joint, and pinch off all tendrils and young fruit that are not wanted to swell as soon as they appear.

FLOWER GARDEN AND SHRUBBERIES.

Valuable plants, as Variegated Hollies, some of the higher coloured finer varieties of Rhododendron, &c., if not growing as freely as it is desirable that they should do, would be benefited by a liberal allowance of well-decayed leaf-mould being applied as a top-dressing, covering it with a little fine soil and working it into the ground around the ball towards the extremities of the roots. Rose borders should be well dressed with manure, which should be forked in lightly so as not to injure the roots. Keep Grass free from dead spray from trees, well rolled, neat, and trim. Get bulb planting finished as speedily as possible. With respect to Crocuses in pots, while the bulbs are kept in a dark place, very little water need be given, merely sufficient to keep the soil, moss, or sand from becoming too dry. When the roots have made some progress, the crowns will soon make their appearance; and as soon as these are observed, remove to the greenhouse; or where this is not convenient, a cold frame or pit will answer perfectly; they will also do exceedingly well in a sitting-room window. All that is requisite is to allow them all the light and air possible on mild days, giving water as may be necessary, to keep the mould, &c., in a moist state.

HARDY FRUIT AND KITCHEN GARDEN.

Apple stores should now be often examined, picking out all that show symptoms of rotting. Any of the more choice varieties of Pears that do not ripen properly should be removed to a warm dry room for a few days, which will be found to greatly improve them. Keep all fruit as cool and dry as possible. If frost is excluded from the house it can scarcely be too cool, where the object is to preserve fruit plump and sound as long as possible.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Oct. 28, 1863, as observed at the Horticultural Garden

Oct.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 22	11	30.113	30.064	69	35	52.0	57	56½	S.W.	.00
Friday 23	12	30.207	30.156	64	29	46.5	56	56½	N.W.	.00
Satur 24	13	30 222	29.989	52	36	44.0	54½	55½	N.E.	.00
Sunday 25	○	30.025	29.916	59	29	44.0	54½	55	E.	.00
Mon. 26	15	29.990	29.957	58	29	43.5	52	54	N.E.	.00
Tues. 27	16	29.944	29.764	57	40	48.5	52	54	N.E.	.00
Wed. 28	17	29.633	29.578	55	34	44.5	52½	55	S.W.	.14
Average.		30.013	29.917	59.1	33.1	46.1	54.1	55.2		.14

Oct. 22—Fine; exceedingly fine throughout.
— 23—Slight fog, very fine; slight frost at night.
— 24—Dense fog; foggy; fine at night.
— 25—Clear; fine throughout, slight frost.
— 26—Fine, foggy; fine, slight frost at night.
— 27—Foggy, fine, slight fog; foggy at night.
— 28—Overcast; rain; foggy at night.
Mean temperature of the week 4½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending Nov. 7, 1863.

November.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds								
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	
Sunday 1 .	51.4	38 3	46.3	21	0.38 in.	3	2	5	3	4	8	9	3	
Mon. 2..	51.4	37.9	46 2	16	0.61	1	3	6	3	2	13	3	6	
Tues. 3..	53 3	36.3	44 8	18	0.82	2	2	10	—	7	7	8	1	
Wed. 4..	51.5	36 7	44.1	19	0.44	2	4	8	1	7	8	5	2	
Thurs. 5..	53.5	38.2	45.9	18	0.69	4	2	4	4	5	11	3	4	
Friday 6..	53.0	38.2	45.6	19	0.76	2	5	2	3	5	14	4	2	
Satur. 7..	52.4	37.3	44.8	17	1.02	2	6	2	3	4	11	6	3	

The highest temperature during the above period occurred on the 2d, 1857—therm. 64 deg.; and the lowest on the 3d, 1861—therm. 19 deg.

Notices to Correspondents.

BOOKS: *J J C.* Works on fruit with plates are very expensive, and necessarily incomplete: 50*l.* will go very little way in their purchase. First, procure the late Mr. George Lindley's Guide to the Orchard, and after you have studied that we will advise you further.

CEMETERIES: *Eltham.* We are glad to hear that you agree with us, like all other sensible people.

EUPOMATIA LAURINA: *R W——n.*—This is a New Holland shrub, more curious than beautiful. It has flowered in this country.

HYBRID NEMOPHILA: *T M L.* Your hybrid of N. insignis crossed with discoidalis, appears to be exactly the same as the N. atomaria oculata, sent out by Mr. W. Thompson some three or four years ago; a very pretty thing of its kind, if it can be permanently fixed.

NAMES OF FRUITS: *W S.* 1, Beurré de Capiaumont; 2, Verte Longue. The Apple is perhaps the Newtown Pippin, which can scarcely be recognised when grown in a bad climate.—*J R H.* Grosse Calebasse, specimen 6 inches long.—*W S.* 3, Napoleon; 4, Gansel's Bargamot; 14, Easter Pippin or French Crab.—*J S.* 1, Doyenné Blanc; 2, Doyenné Gris.—*A D B.* 1, Beurré de Capiaumont; 2, Marie Louise; 3, Chaumontel; 4, Beurré Diel. The Cider Apples are not known.

NAMES OF PLANTS: *S S P.* Phytolacca decandra.—*X Y Z.* 1, Salix herbacea; 2, We suppose some Pomaderris, and possibly elliptica; 3, possibly Pyrus arbutifolia; 4, Cratægus pyrifolia; all without flowers or fruit, and therefore not in a proper state for examination. We really cannot again take in hand this sort of task.—*Georgiana.* Caragana Chamlagu, and Cephalanthus occidentalis. The cone belongs to Larix Griffithii.—*Canterbury.* Visnea Mocanera.—*R P.* 2, Potamogeton densus, and 1, perhaps Basilla alba. Such articles have no market value. Try to find a purchaser among your acquaintances. It is your only chance.—*Haverfordwest.* The weed that has overgrown a field of Swedes by the road side, a short distance from this town, and which at a distance is the admiration of every person, it being a mass of the brightest yellow, is Chrysanthemum segetum.

NEW PLANTS.—*A Correspondent* reminds us that the Androsace lanuginosa, mentioned as a new plant, at p. 1012, has been grown by him for upwards of fourteen years on his rockwork with other Alpines, and he has found it perfectly hardy. It is now in beautiful flower at Painswick.

PYRETHRUM WILLEMOTI: *An Earnest Reader* will find his wishes met in our present issue.

SILK WORMS: *Kangaroo.* We will inquire and report.

TIMBER: *L T D.* The Royal Forest in which Cedrus Deodara was planted a few years ago, was, we believe, the New Forest, and it is impossible to know for half a century to come whether it is likely to prove as valuable a tree for timber in this country as on its native mountains. The common Pine timber is the produce of Pinus Strobus; Memel of Pinus sylvestris; Spruce timber is the common white Deal.

MISC.: *H H W.* The charge is 6*d.* a line. Your Paper was duly forwarded.—The paper from Blandford Street is not suited to our columns, nor are any *such* communications admissible.



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J. L. FLETCHER, Farm Manager.
*T. BALDWIN, of Glasnevin—A Course of 20 Lectures on Crops.
*R. SCOTT BURN, Co-editor of the Book of Farm Buildings—A Course of 12 Lectures on Agricultural Machines.

CHEMISTRY.

ARTHUR H. CHURCH, B.A., F.C.S., Smith's Exhibitioner, Lincoln College, Oxon.

ASSISTANT TO CHEMICAL PROFESSOR.

R. WARINGTON, Jun., F.C.S.

BOTANY.—JOHN BAYLDON, M.B. Lond. B. Sc.

VETERINARY SURGERY.—A. J. MURRAY, M.R.C.V.S.

MATHEMATICS AND SURVEYING.

W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.

DRAWING.—JAMES MILLER.

* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

AGRICULTURE.

J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
THOMAS ELLMAN, of Beddingham, Lewes—Lecture on Southdown and Short-woolled Sheep.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.

AGRICULTURAL CHEMISTRY.

THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.

For further particulars apply to the PRINCIPAL.

THE BIRMINGHAM CATTLE and POULTRY SHOW, NOVEMBER 30, and DECEMBER 1, 2, and 3.

EXTENSIVE GALLERIES having been erected in BINGLEY HALL, the Council have a considerable Quantity of both GROUND FLOOR and GALLERY SPACE to LET, suitable for the EXHIBITION of IMPLEMENTS and MACHINERY, SEEDSMEN'S STALLS, &c.

At the General Annual Meeting of Subscribers held at the Hen and Chickens Hotel, Birmingham, on Thursday, Dec. 4, 1862.

IT WAS RESOLVED,

"That it be a recommendation to the Council in future to restrict the Articles admitted for Exhibition, in addition to the Cattle and Poultry, to Agricultural and Horticultural Implements, Tools, and Machinery, Roots, Grain, and other Farm produce, and other Articles to be used in connection with Agricultural and Horticultural Pursuits."

Plans of the Hall, showing situation of space, Terms, and Forms of Entry, may be obtained from the Secretary.

The ENTRIES CLOSE on NOVEMBER 7.

JOHN B. LYTHALL, Secretary.

Offices: 13, Temple Street, Birmingham.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1863.

The FIFTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in Bingley Hall, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 1, 2, and 3, when PRIZES to the amount of £1940 will be awarded in the following Divisions, viz.:

FAT CATTLE	..	..	£784 5 0
FAT SHEEP	..	..	275 15 0
FAT PIGS	..	..	60 5 0
BREEDING PIGS		..	76 10 0
CORN and ROOTS		..	68 5 0
POULTRY and PIGEONS			674 4 0

Prize Lists and every information may be obtained from the Secretary.

The ENTRIES CLOSE on SATURDAY, October 31.

JOHN B. LYTHALL, Secretary.

Offices: 13, Temple Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW, 1863.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY AFTERNOON, December 7, and four following days.

The Prizes consist of 1825*l.* in money; 60 Silver Medals; 6 Silver Cups, and a Gold Medal.

The ENTRIES for LIVE STOCK CLOSE on NOVEMBER 2.

Prize Sheets and Printed Forms of Certificates, with full particulars, can be obtained on application to

Mr. DAVID PULLEN, Assistant Secretary,

At the Office of the Honorary Secretary,
Corner of Half Moon Street, Piccadilly, London, W.

N.B.—Applications for Prize Sheets and Forms of Certificates must be addressed to the ASSISTANT SECRETARY as above, and all letters must bear outside the words "SMITHFIELD CLUB."

The ENTRIES for the IMPLEMENT DEPARTMEN CLOSED on OCTOBER 1.

The Agricultural Gazette.

SATURDAY, OCTOBER 31, 1863.

MEETING FOR THE ENSUING WEEK.

MONDAY, Nov. 2 { Central Farmers' Club (Professor G. BROWN, V.S., on Health and Disease in Live Stock).

THERE is no teaching more efficient than that which comes in the guise of fellow-learning. Example is better than precept, and nowhere therefore is the virtue of teachableness more useful or appropriate than when the teacher himself exhibits it.

Certainly we have never known an instance in which a maxim of this kind has been more recklessly outraged than it was the other day by the Chairman of a Cheshire Agricultural Meeting.* Sir H. MAINWARING had to lament that the county society is not so successful as it ought to be; he had to regret that farmers in Cheshire do not receive such a percentage on their capital as they ought to have; and he had to urge what he called "the restoration of Cheshire cheese." But all this was done in the tone least likely to enlist the friendly co-operation of those whom he addressed. Cheshire farmers are the wisest men in the world, and have nothing more to learn—so he gathered from their demeanour. They are groping in the dark without a skylight—so he gathered from their practice. Neither gas, nor steam, nor railroads—not one of these three great inventions of the age—exists upon their farms. And as to what they can do when they try their best—there was not a bull upon the ground that day that was worthy of a prize.

Nor was the matter of the discussion any better than the manner:—"The three great curses of a dairy farm are drain tiles, bones, and broad-breasted bulls." There never has been greater nonsense uttered with such arrogance. Bones and land drainage have, as everybody knows, been the salvation of poor Grass lands. Thanks to them, Cheshire has well kept its place in the march of agricultural improvement. And, as one of the company immediately pointed out, the reason why Cheshire farming has proved less profitable than it might have been, exists in the delicacy and consequent losses of the dairy stock, which "broad-breasted bulls" are the most likely to correct.

As to "the restoration of Cheshire cheese," which Sir H. MAINWARING professes to think necessary, we quite agree with him that it would be promoted by the recovered energy and prosperity of the County Agricultural Society; and the

* See page 997.

"good and simple plan" for that purpose which he calls on agricultural Societies to propound, may, we therefore think, be found in taking care to choose as the chairmen of all future gatherings men who will not offend their hearers, nor insult their common sense, by the manner and the matter of their addresses.

No county has better examples than Cheshire can exhibit of what may be done for agricultural improvement by a well directed local agricultural society; nor can any other county, it appears, better illustrate the fact that Agricultural Societies will fall to pieces in the hands of incompetent leaders.

THOUGH it is true that a farmer may be less busy at one time than at another, yet his labours are never ended, for no sooner has he gathered in one harvest than he begins to put in the seed for another.

At this time, then, the question how much seed to employ will with many be a matter of great importance to settle, though it must be confessed that farmers in general seem to be perfectly satisfied with the custom that prevails in their different districts. Still it must be observed, on a comparison with twenty years since, that the general rule is to sow little more than half the quantity of seed per acre now that was done then. At present the prevailing quantity is 2 bushels per acre before November, and 2 bushels and a peck afterwards.

But however men may consider that they are not thick seeding in sowing these quantities, we are constantly being made aware that there are advocates for the use of pecks only of seed where these "moderate men" use bushels; and while one party points to the best results from one method, the other still claims even better for theirs.

Seeing, then, that there are such wide differences upon this subject, it will hardly be wondered at that it should be a matter upon which much thought and argument, with no little writing and discussion, should have been expended. The advocates on either side can point to experiments and results in support of their opinions, from which we are expected to believe that the thick sower of two bushels and upwards can only succeed with this quantity, while the man of two pecks is willing to challenge him as to results; and we would further add for ourselves that we have witnessed the best results from both systems.

This very important matter could thus hardly fail to elicit such inquiries as the following:—

1. Is the seed sown always uniform as regards its power of germination or coming up?
2. What influence has the soil and climate?
3. What may be due to differences in cultivation?

Now, in making these three points subjects for inquiry, we had to institute a series of experiments. The results of these, with observations upon them, coupled with inquiries in the field, are now to be tabulated and discussed. Before transcribing the following table it may be well to point out the plans adopted in arriving at the results tabulated.

Having got a quantity of samples of Wheat from as many different sources as we conveniently could, we sowed a hundred grains of each in a mixture of mould and sand in marked pots; these were plunged in sand in a hot house, and subjected to a temperature of about 60°F. In from 10 to 15 days the numbers of seeds that had germinated were duly counted, and to prevent error the non-germinating grains were carefully looked over, and in most cases they were found to contain a decomposing milky kind of fluid.

Our object in experimenting in this way was to place the grain under the most favourable circumstances for germination, free from that exposure which might have resulted in loss from birds or insects.

In counting the germinated grains, most of which soon sent up leaves a few inches high, all that formed leaves at all were included, though some of them were so distorted that under the natural circumstances of sowing they could never be expected to arrive at maturity; indeed there is reason to think that these proceeded from diseased grains whose powers of germination would have been totally destroyed by the process of pickling adopted before ordinary Wheat sowing. With respect to the headings of the columns, we would remark—

1. That the names are strictly copied from the samples.

2. The weights per bushel being estimated from samples of at most but a few ounces, have been arrived at by multiplying a small measure, so that as a rule they will be in excess, but relatively they will be found to be tolerably correct.

3. The price has been quoted for the seed Wheats of 1862, and, as many of them were for seedsmen's picked and true samples, they may be a little above the market price.

4. The other columns speak for themselves.

TABLE OF THE GERMINATION OF WHEAT, &c.

No.	LABEL.	Weight per bush.	Price per bushel.		Came up, per cent.	Failed, per cent.	REMARKS.
	WHEATS OF 1862.		s.	d.			
1	Tasmania	66			46	54	These are six samples from the International Exhibition of 1862, to which they were forwarded by different colonists. Taken by us; probably the same as 6.
2	Ditto	60.5			8	92	
3	Tuscan, from Victoria	68			94	6	
4	Ditto ditto	63			78	22	
5	Ditto ditto	67			90	10	
6	Tasmania	60			30	70	
7	Ditto	59.5			28	72	
8	Talavera	66			98	2	
9	Spalding	63.3			94	6	Four samples from Hainault farm; amongst the best that have come before us.
10	Thick-set Rough Chaff	65			100	None	
11	Morton's Blood Straw	62.6			94	6	
12	Hallett's Pedigree	62.9			78	22	Communicated
13	Creeping Wheat	66.5			98	2	Ditto
14	Bland's Giant Prolific	59			96	4	Ditto
15	Fuller's Red	56.8			98	2	A poor grain; from the Cotteswold.
16	Red Straw, Lammas	56.8	7	0	82	18	Samples taken by us from Cirencester market. No. 21 not a seed Wheat. It contains 76,800 seeds of Corn Cockle, and 64,000 seeds of Rye in the bushel.
17	Hallett's Pedigree	64.6	10	6	88	12	
18	Browick	58.5	6	6	88	12	
19	Red Chaff, White	59	6	6	78	22	
20	Free Trade	59.5	6	3	88	12	
21	Russian	55	5	7½	32	68	
22	Burwell	58.5	8	0	18	82	
23	Rough Chaff, Talavera	60.5	9	0	90	10	Communicated from a well-known seedsman.
24	Talavera	63	10	0	38	62	
25	Corner's Rough Chaff	62	10	0	52	48	
26	Red Browick	65	8	0	70	30	
27	Chidham	66.5	10	0	70	30	
28	Lammas	63.3	8	0	58	42	
29	Britannia, or Red Thick-set	56	8	0	54	46	These formed a most interesting series of several sorts of Wheat, most of which looked remarkably well as hand samples.
30	Red Nursery	67	9	0	92	8	
31	Col. Quentin's Giant	68	9	0	38	62	
32	Kessingland	63.3	8	0	86	14	
33	April	60.3	12	0	84	16	
34	Golden Drop	63.3	8	0	92	8	
35	Shirreff's Bearded Red	61.5	9	0	74	26	
36	Essex Rough Chaff	68.3	9	0	96	4	
37	Hunter's White (out of condition)	60	8	0	60	40	
38	Shirreff's Bearded White	63.2	10	0	96	4	
39	White Trump	63.3	9	0	96	4	
40	Grace's White	65	10	0	38	62	
41	Hertfordshire White	66.2	8	0	94	6	
42	Hallett's Pedigree	63	10	0	92	8	
	OATS OF 1862.						
1	Tasmanian	46			92	8	From the International Exhibition. Communicated.
2	Victoria Tartars	48			96	4	
3	Ditto ditto	47.2			94	6	
	BARLEY OF 1862.						
	Victoria	58.2			98	2	
	WHEATS OF 1863.						
1	Red Lammas				94	6	Samples of seed Wheat obtained from Cirencester market.
2	Bristol Red				76	24	
3	Hallett's Pedigree				96	4	
4	Rostock				94	6	
5	Golden Drop				92	8	
	Average of 50 specimens				75	25	

Now on looking over this Table the most striking point is the immense differences presented by different samples in their power of germination, for while of some samples—and we may add those by no means the best looking—all or nearly all may come up, of others scarcely any can do so, even under the most favourable circumstances, and a glance at the bottom of the table shows as an average of 50 samples, that 25 per cent., or one quarter, did not germinate.

It must here be noted that the Wheat of 1862 was not of the best, whilst that of the present year is better than usual, so that if we put one year against another, and consider the accidents to which seed is liable in the natural soil, we may perhaps conclude that as a rule not more than three-fourths of the seed sown does germinate.

The bearing of this then upon the subject of thick or thin seeding must be obvious to all; for unless the quality of the seed be ascertained, the nominally thick seeder may be the thinner one after all; whilst the thin seeder, by which we mean he who advocates about a quarter of the usual quantity, may find himself without a plant, a position, however, which we find to be usually taken very philosophically; the birds or the wireworms or both get the credit of the disaster, and so when the thin seeding is successful another season it is held to be proof positive that this explanation is the only correct one. Another point of interest with regard to seed Wheat is that it is not always the brightest looking, plumpest, or heaviest sample that germinates best. All who saw the colonial Wheats in the Exhibition of 1862 must have been struck with the fineness of the grain. In these samples a few ounces more per bushel was almost sure to command a prize or high commendation. In the cases of the first seven samples of our Table we find that they failed in germinating to the extent of, in round numbers, 46 per cent., or nearly half.

This, we are inclined to think, is partly due to a process of drying to which some of them were probably subjected to augment the weight, and partly to their age and lengthened voyage, for probably these samples were of the year 1861. Still the heaviest sample (3) came up best, so that neither age nor other accident sensibly affected its germinating powers. With the facts before us, then, we have an element of great importance to consider in estimating the causes of failure in trials that have been made to grow Australian and other colonial Wheat in England; it is not only that they have been brought from a better to a worse climate, but there are the time and the voyage, putting aside any preparation for the market, which, affecting the germinating power to the extent of 46 per cent., more or less, would be likely to cause their failure.

Whether, then, it be deemed advisable to sow little or much, it is well to know what it is that we are sowing, and how much we may expect from our seed.

That both soil and climate will affect the quantity of Wheat to be sown few will doubt; if the effect of sowing Wheat from a warmer in a colder climate is to prevent much of it germinating, surely that fact should be known, and its possibility should be provided for.

Farmers practically admit the influence of climate when, as is a general custom in the midland counties, an additional peck of seed is added in all cases of Wheat sowing after October. What is termed cold land usually requires more than any other. Land again with the property of "throwing out" after frost will hardly do for thin seeding.

Thin brashes, say with 4 inches of soil on the hard rock, will not admit of thin seeding, for with a thin soil there is but little disposition to tiller to the extent to make up for extra thin seeding.

In estimating the effects of cultivation on the growing of Wheat, we would start with the assertion that good farming greatly ameliorates climate. We know of districts where in our youth only the hardy old Cone Wheat would succeed; this was in the days when it was not unfrequently sown on the fallow and ploughed over. Seed so sown to the extent of 4 bushels, was, perhaps, thin seeding after all. Next followed a little drainage and red beardless Wheats, and now deep drainage and deep cultivation, and white Wheats.

We are convinced that deep and thorough cultivation and thin sowing must go together, for a deep soil can accommodate a quantity of roots, and it should not be forgotten that every bud in tillering coincident with the pushing of the bud upwards sends out from 2 to 5 roots downwards, so that unless the roots can be thus accommodated buds cannot and will not form. Deep cultivation lets in air and light into the soil, so that plant food is disengaged, but this very air and light is prejudicial to the wire worm, which does best where the soil is least disturbed, to wit in old "seeds," which are perhaps only ploughed 3 or 4 inches to put in Wheat, while the worms have gone a foot into the pan away from frost.

These are some of the thoughts which arise from a consideration of our experiments and observations, and they lead us to conclude that the "thick-and-thin" advocate for any one method, regardless of all the circumstances, may sometimes err as egregiously in thin as in thick seeding.

—— MONDAY next, November 2, is the last day on which entries of live stock for the forthcoming Cattle Show of the Smithfield Club can be received. The office of Mr. B. T. BRANDRETH GIBBS, the Hon. Secretary, is at the corner of Half Moon Street, Piccadilly.—The entries for the Cattle Show at Bingley Hall, Birmingham, close this day, October 31.

LAND COMPANIES.

THE *Times* newspaper published on the 8th and on the 10th instant two letters from landowners on a subject that demands, I think, further notice.

The writer of the first letter complains that in attempting to improve his estate by the loans sanctioned by Parliament he is called upon by the

Land Companies to pay a sum he thinks unreasonable, whilst the writer of the second letter merely corrects the figures of the first.

It seems to me that a more reasonable complaint would be that landowners are compelled to pay these charges at all to Land Companies. As the matter now stands, the Land Companies, having private Acts empowering them exclusively to make rent charges on land for money expended by tenants for life and others in erecting buildings, &c., trade with these Acts and charge all those landowners for the use of them, who find it expedient to expend money for this purpose, and repay it by annual rent charges; and they enjoy a monopoly of this right which must, I think, be considered extremely unfair. The companies can only make the rent charges in question with the sanction of the Enclosure Commissioners. Then why should not the landowner be enabled himself to apply direct to the Enclosure Commissioners, and save the fee charged by the Companies for the use of their Act? leaving it to the landowner to make his application, or to obtain the money through one of the companies if he thinks it expedient. A landowner may now create a rent charge for money expended in draining with the sanction of the Enclosure Commissioners, without being put to expense by any company; but in the precisely parallel case of farm buildings, &c., he may not do so, but must work through a company and pay that company's fee.

All that is required is a short general Act of Parliament, which could meet with no opposition except from interested parties, and which was some time ago already, I believe, prepared. *C. F. Humbert, Land Agent, Watford, Herts.*

AGRICULTURAL STATISTICS, IRELAND, 1863.

The enumeration—which extends over about 606,000 distinct holdings—commenced, this year on June 2, and terminated in the middle of July.

The following summary shows the extent under cereal crops in 1862 and 1863:—

Abstract of Cereal Crops.

	1862.	1863.	Decrease.
	Acres.	Acres.	Acres.
Wheat	356,421	264,766	91,655
Oats	1,977,528	1,948,986	28,542
Barley	192,502	171,238	21,064
Bere and Rye	12,128	8,624	3,504
Beans and Peas	15,202	15,148	54
Total	2,553,481	2,408,762	144,719

Decrease in Cereal Crops in 1863, 144,719 acres.

According to this abstract there would appear to be a decrease of 91,555 acres in the extent under Wheat this year, compared with 1862; of 28,542 in that under Oats; 21,064 in Barley; 3504 in Bere and Rye; and of 54 acres in Beans and Peas; making a total decrease in the acreage under cereals of 144,719 acres, or 5.7 acres in every 100.

The area occupied by the different green crops, in the years 1862 and 1863, is given in the following Table:—

Abstract of Green Crops.

	1862.	1863.	Increase.	Decrease.
	Acres	Acres.	Acres.	Acres.
Potatos	1,018,112	1,023,626	5,514	..
Turnips	376,715	351,360	..	25,355
Mangel Wurzel and Beet Root ..	23,222	16,462	..	6,760
Cabbage	30,543	33,998	3,455	..
Carrots, Parsnips, and other green crops	17,713	22,653	4,940	..
Vetches and Rape	30,830	29,678	..	1,152
Total ..	1,497,135	1,477,777	..	19,358

Net Decrease in Green Crops in 1863, 19,359 acres.

It appears from the foregoing abstract that the extent under Potatos has increased by 5514 acres; Cabbage by 3455 acres; and Carrots, Parsnips, and other green crops by 4940 acres; while Turnips show a decrease of 25,355 acres; Mangel Wurzel and Beet Root of 6760, and Vetches and Rape of 1152 acres,—making a net decrease of 19,358 acres under green crops in 1863, compared with the previous year.

The following is a summary of the variations in the acreage under cereals, green crops, meadow, and Flax, between 1862 and 1863, as given in the subsequent Tables:—

General Summary.

	Acres.	Acres.
Decrease in cereal crops	144,719	164,077
Do. green crops	19,358	
Increase in meadow and Clover	7,724	71,646
Do. Flax	63,922	
Total Decrease in the extent of Land under Crops in 1863		92,431

The decrease in the extent of land under crops this year compared with 1862, as shown in the above summary, is 92,431 acres:—cereal and green crops having diminished by 164,077 acres;—and meadow and Flax increased by 71,646—Flax alone to the extent of 63,922 acres. The total area under Flax this year amounts to 213,992 acres, which exceeds by 39,413 acres the greatest extent sown in any year since these statistics commenced in 1847.

The total extent under each crop for the last five years—1859—1863—is given in the succeeding Table:—

Crops.	1859.	1860.	1861.	1862.	1863.
	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat	464,176	476,415	401,243	356,421	264,766
Oats	1,932,062	1,966,304	1,999,160	1,977,528	1,948,986
Barley	177,894	181,099	198,965	192,502	171,238
Bere and Rye	13,198	12,794	11,582	12,128	8,624
Beans and Peas	14,851	12,882	14,017	15,202	15,148
Potatos	1,200,347	1,172,079	1,138,504	1,018,112	1,023,626
Turnips	229,137	218,540	334,164	376,715	351,360
Mangel and Beet Root	27,054	32,124	22,949	23,222	16,462
Cabbage	31,680	29,785	30,020	30,543	33,998
Carrots, Parsnips, and other green crops	21,971	21,633	19,559	17,713	22,653
Vetches and Rape	38,245	40,481	31,280	30,830	29,678
Flax	186,862	188,595	147,967	150,070	213,992
Meadow and Clover	1,497,111	1,504,518	1,546,266	1,552,924	1,560,648

The number and value of the various descriptions of live stock from 1855 to 1863, and the difference in their number and value between these years and between 1862 and 1863, are shown in the following summaries:—

Total Number of Live Stock in Ireland, in each Year, from 1855 to 1863, inclusive.

Years.	Number of Horses.	Number of Cattle.	Number of Sheep.	Number of Pigs.
1855	556,287	3,564,400	3,602,342	1,177,605
1856	573,408	3,587,858	3,694,294	918,525
1857	599,782	3,620,954	3,454,252	1,255,186
1858	611,321	3,667,304	3,494,993	1,440,883
1859	629,075	3,815,598	3,592,804	1,265,751
1860	619,811	3,466,374	3,542,080	1,271,072
1861	614,232	3,471,688	3,556,050	1,102,042
1862	602,894	3,254,890	3,456,182	1,154,324
1863	579,179	3,138,275	3,303,931	1,064,802
Difference in Numbers between 1855 and 1863 ..	Increase. 22,892	Decrease. 426,125	Decrease. 298,411	Decrease. 112,803
Do., Do., between 1862 and 1863 ..	Decrease. 23,715	Decrease. 116,615	Decrease. 152,201	Decrease. 89,522

It is satisfactory to notice in the detail Tables an increase in Ireland of 12,771 cattle, under the head "one year old and under two years," and of 19,148 "under one year."

Total Value of Live Stock in Ireland in each Year, from 1855 to 1863, calculated according to the rates assumed by the Census Commissioners of 1841, viz.:—For horses, 8*l.* each; Cattle, 6*l.* 10*s.*; sheep, 22*s.*; and pigs, 25*s.* each.

Years.	Horses.	Cattle.	Sheep.	Figs.	Total Value.
	£	£	£	£	£
1855	..	..	..	..	..
1856	..	..	..	..	..
1857	..	..	..	..	..
1858	..	..	..	..	..
1859	..	..	..	..	..
1860	..	..	..	..	..
1861	..	..	..	..	..
1862	..	..	..	..	..
1863	4,460,296	23,165,600	3,962,676	1,477,006	33,063,478
Difference in value between 1862 and 1863	Decrease. £183,136	Increase. 4,038,492	Decrease. 4,828,152	Decrease. 4,913,956	Decrease. 4,980,720
Difference in value between 1855 and 1863	Decrease. £2,760,812	Decrease. 20,398,788	Decrease. 21,166,785	Decrease. 3,801,745	Decrease. £737,907
Difference in value between 1862 and 1863	Decrease. £398,252	Decrease. 3,634,324	Decrease. 3,801,745	Decrease. 3,911,655	Decrease. £167,421
	£	£	£	£	£
1855	4,567,284	23,321,077	4,063,723	1,148,156	33,130,220
1856	4,588,256	23,556,201	3,767,477	1,568,982	33,700,916
1857	4,580,568	23,837,475	3,844,492	1,762,354	34,324,890
1858	4,585,483	24,801,387	3,952,684	1,582,188	35,568,259
1859	4,596,288	23,441,451	3,896,288	1,588,840	33,885,047
1860	4,956,483	22,505,072	3,911,655	1,377,552	32,769,035
1861	4,913,956	21,166,785	3,801,745	1,442,005	31,224,587
1862	4,828,152	20,398,788	3,634,324	1,331,002	29,987,546
1863	4,460,296	23,165,600	3,962,676	1,477,006	33,063,478
Difference in value between 1862 and 1863	Decrease. £183,136	Increase. 4,038,492	Decrease. 4,828,152	Decrease. £141,004	Decrease. £3,075,932
Difference in value between 1855 and 1863	Decrease. £2,760,812	Decrease. 20,398,788	Decrease. 21,166,785	Decrease. 4,913,956	Decrease. £1,237,041

The returns of tillage and live stock from which the general abstracts have been compiled, are derived from information given voluntarily to the enumerators by the owners and occupiers of land throughout the country. It is gratifying to learn that this year the names of only four persons were reported to me by the enumerators as having declined to furnish them with the requisite particulars respecting the tillage and stock on their farms.

The increase in the column headed "Bog and Waste unoccupied," is owing to the withdrawal of live stock from the mountain and boggy pasture; consequent upon the decrease in stock, caused by the four last unfavourable years; but it may be reasonably assumed that with a continuance of genial seasons, the tracts of mountain and boggy pasture which, from the causes mentioned, are not this year occupied by cattle, will ere long resume their former position, and contribute to the agricultural wealth of the country.

The average produce of the crops cannot be so satisfactorily ascertained until after the general harvest has been gathered in; but from inquiries which I have made in many well-informed quarters, as well as from the very favourable accounts given by the provincial press in all parts of the country, it may be fairly estimated that the yield of the cereal crops in particular this year will prove above the average which has been known for many seasons in Ireland; and although there is a falling off in the total acreage, yet it is confidently expected that it will be compensated by the abundant produce of almost all crops—the total value of which, it has been computed, will in 1863 exceed that of the crops of last year by several millions sterling, and approximate to that of some of our best years—in Flax alone the increase in value over 1862, caused by the larger acreage of 63,922 acres, combined with the abundant yield and superior quality, will, it is expected, amount to 1,000,000*l.*

Emigration.—The number of persons who emigrated during the first seven months of the years 1862 and 1863 is given at page 20. The total amounted to 80,506, being an increase of 34,607 persons over the number who left the country during the corresponding period in 1862. The entire number of emigrants from Ireland since the 1st May, 1851, when their enumeration commenced, amounts to 1,378,333.

[The above is extracted from the report of W. Donnelly, C. B., Registrar-General to his Excellency the Lord Lieutenant.]

THE PRIZE FARM AGREEMENT.

The Earl of Lichfield recently offered a prize of 50*l.* for the best form of agreement between landlord and tenant. At the annual dinner of the Staffordshire Agricultural Society, at Stafford, on the 25th Sept., Lord Lichfield stated, as reported in our columns, that the Agreement Committee had received 47 agreements, and that they had unanimously selected as the best the one sent by Mr. G. A. May, of Elford Park, Tamworth. The committee, however, desired to obtain the advice of some agents, and further to amend the agreement before publishing it. Since the dinner Mr. May has been urged by many correspondents to publish the agreement, and accordingly, with the consent of the Earl of Lichfield, it has appeared in the *Staffordshire Advertiser*. The following is a copy of the agreement:—

Copy of Agreement made the day of 186 between A B, of Esq., of the one part, and C D, of farmer, of the other part.

The said A B (hereafter called landlord) agrees to let, and the said C D (hereafter called tenant) agrees to take, the farm called with its appurtenances, described in the schedule hereto appended, containing by admeasurement statute acres or thereabouts, situate in the parish of for one year, commencing on the 25th March next, and thenceforth from year to year, until the tenancy shall be determined by twelve months' notice, subject to the following terms and conditions:—

1. The rent shall be *l.* a year, payable half yearly.

2. The landlord or his agents shall have power at all times to enter upon the premises for the purpose of getting, working, felling, and carrying away any coal, ironstone, mineral, stone, sand, gravel, marl, clay, timber, and other trees, the tenant being paid a reasonable compensation for any surface damage.

3. The tenant shall not underlet any portion of the farm, nor fell or lop any trees, or grub up any fences, or plough or break up any old turf, unless by permission of landlord.

4. The landlord or his agents shall have the exclusive righ at all times to enter upon the land for the purpose of shooting and fishing; but if the game be let, and damage be done to the tenant's crops exceeding in any one year five per cent. on the rent, the landlord shall make compensation to the tenant to the amount of the injury done.

5. The tenant shall have the liberty of killing rabbits in the fields from 1st November to 1st April.

6. The tenant shall not have more than two-fifths of the arable land in Wheat, nor more than three-fifths in white straw crops, in any one year.

7. All grass land mown for hay, except water meadows, shall be properly manured after each mowing.

8. No hay, straw, Mangels, Turnips, or manure shall be sold off the farm unless by permission of landlord.

9. All buildings, fences, gates, drains, &c., shall be kept and left in as good repair as they were in on entry (allowance being made for unavoidable decay), materials in the rough and paint being found by landlord.

10. All wet ditches and water courses shall be cleaned out yearly. If they have not been cleaned out in the year preceding the expiration of the tenancy, the cost of cleaning them shall be allowed by the tenant, and all weeds growing on the

headlands and in the ditches surrounding the arable land shall be cut down in June yearly, and all Thistles and Nettles shall be mown, spudded, or thrashed before going to seed.

11. All buildings and fixed machinery erected at the tenant's expense shall, on leaving the farm, be offered to the landlord or incoming tenant at a fair valuation; if not accepted by either party, the tenant shall have the liberty of removing them, but he shall leave the premises as they were before the erection.

12. That not later than one month before the expiration of the tenancy the landlord or incoming tenant (if the farm be let) and the tenant shall each appoint an arbitrator, and give notice of the same to the other party. These arbitrators shall meet not later than 10 days before the expiration of the tenancy, and having appointed an umpire, shall proceed to consider the claims made by either party. In case either neglect to appoint an arbitrator as aforesaid, the arbitrator appointed by the other party shall have the same power as if he were appointed jointly by the parties.

13. The tenant, on leaving the farm, shall plough the stubbles in a good and workmanlike manner by the 1st of February. If he fail to do so, the incoming tenant shall have liberty to enter on any day after default, and to plough and sow the land. In any case, the incoming tenant may enter by the 1st of March to do his spring work, and in this, as in the preceding case, a suitable stable or shed shall be provided for the incoming tenant's horses. If the outgoing tenant do not plough the stubbles in a good and workmanlike manner he shall not be paid for doing it.

14. At the expiration of the tenancy, not more than one fourth part of the arable land shall be in Wheat, nor less than 1-fifth in seeds sown in the preceding year. If such seeds be not properly put in on clean fallows, or if they be eaten after the 30th September, the tenant shall not receive anything for them; otherwise he shall be paid for seed and labour.

15. Half the value of the Wheat crop, if a Michaelmas crop, and not sown after a white straw or root crop, shall be the tenant's portion; but if the average quantity of all the Wheat crop exceed 30 bushels per acre, the tenant shall take all in excess of 15 bushels, leaving that for the incoming tenant's share; but if any portion of the Wheat crop be sown on foul land, the tenant shall receive only the value of seed and labour for such portion.

16. Not more than one-fourth, or less than one-fifth, of the arable land shall require to be fallowed in the year after the expiration of the tenancy. If this arable land be clean and in good condition the tenants shall receive 20*s.* an acre from, and if foul he shall pay 20*s.* an acre to, the incoming tenant.

17. The out-going tenant shall leave as battens for the use of the farm one eighth part of the Wheat straw grown during the preceding year, for which he shall be paid consuming price; he shall also be paid such price for any Oat or Barley straw, the produce of the preceding year, not exceeding one eighth part of the crop. All the other portion of the straw shall be properly trodden down in the yards for manure. If any be left in the fields, causing damage, the tenant shall pay for such damage. Any hay or Clover left on the farm, not exceeding one half of the annual average crop grown, shall be paid for at a consuming price.

18. At the expiration of the tenancy, all manure made on the farm shall be the property of the landlord, except as hereafter mentioned:—The tenant shall be paid one half of the cost of all purchased manures applied to root crops (except Potatos) during the last year of the tenancy, and one fourth of that applied during the previous year, providing the cost do not exceed the average of the two preceding years. The tenant shall also be paid for all unprepared bones and lime used on the farm during the last four years of the tenancy, and for all burnt soil or marl, where the dressing of such soil or marl has not been less than 80 cubic yards to the acre; one-fourth of the cost in each case being deducted for each year's use. For every other fertiliser of a permanent character the tenant shall be paid such amount as the arbitrator may determine.

19. The tenant shall also be paid according to the following scale for all corn, cake, or Linseed consumed by stock (except horses). If during the last two years the amount used exceed in value 10 per cent. of the rent, he shall be paid one-third of the amount consumed during the last year but one. If the value consumed be under 10 per cent. and above 5 per cent., he shall be paid one-fourth of the value consumed during the last year. If the value consumed be 5 per cent., or under, he shall not be paid anything. Vouchers in all cases shall be produced by tenant.

20. If the tenant has laid down during the last ten years any drains, or taken up and re-planted any old fences, with the consent of the landlord in writing, he shall at the expiration of the tenancy be repaid the amount so expended, subject to a deduction of one-tenth for each year's use. All other permanent improvements made by the tenant, with the landlord's consent in writing, shall be paid for as the arbitrators may determine.

Lastly, The terms clean, good condition, and foul, shall be interpreted in a reasonable and practical sense, and in estimating the quantities of cropping, &c., allowance shall be made over and under for the sizes of the fields falling in the usual rotation of cropping.

STOCK KEEPING.

"But, Mr. Mechi, how do you manage to keep so much stock on 170 acres? I see that you have 70 head of bullock and cow stock, young and old, and 100 sheep, besides pigs, all in a growing and fattening condition. You have 100 acres in corn every year, you have very little Grass land, and yet I see a good hay and Clover stack. Tell us how you manage this?"

These remarks are so often made to my bailiff or to myself by practical farmers who visit my farm, that I purpose giving the explanation in your columns, hoping it may prove useful. My first object is always to have a very full crop, by deep cultivation and plenty of manure.

I have generally—

Twelve to fourteen acres of Mangel.

Six to eight acres of Swedes.

Six acres of winter Tares, mowed and brought home to be cut up for cattle and horses. The land is then heavily manured, deeply trench-ploughed, and 3 acres planted the end of June with Cattle Cabbage which are now a heavy crop. The other 3 acres have White Turnips.

Eight acres of Rape taken after White Peas picked for the London market; the land trench ploughed after Peas.

Twelve acres of Italian Rye-grass, half 1st year, half 2d year's growth.

Seven acres of Grass land, fed to 12th May, then irrigated, cut in June for hay, producing 2 tons per acre; guanoed and irrigated after the hay is removed, and grazed subsequently with calves and cows. In winter sheep folded upon it, eating Cabbage, Mangel, cake, malt combs, bran, &c.

I have now 100 lambs in fold eating green Rape, and they receive every evening in their fold 4 bushels of Wheat chaff, 2 bushels of Red Clover chaff, 2 bushels of cotton cake, 1 bushel of Oats, 1 bushel of bran.

In this mixture there is the proper material for building the animal frame—they manure the ground heavily—there is no loss by scouring, and they grow rapidly. When water or hoar frost stands on the Rape it is brushed off with a long pole before the lambs go on it. Our calves feeding out of doors on old Italian Rye-grass, Clover, or pasture, receive at night, Rape or Cotton cake, bran, malt combs, hay and straw chaff. In the summer the bullocks, all under cover, get Tares, or Italian Rye-grass cut by the chaff cutter, Cotton cake, bran, and malt combs; or in September, October, and November, Turnips or Mangel (with the tops) pulped, Cabbage ditto mixed with straw, chaff, cotton cake, malt combs, and bran.

In fact the main principle is to give mixed food and to cut up or pulp every kind of green crop, root crop, or Grass, and never to let any animal tread down or spoil food that is long enough to cut into chaff.

I expend every year in food for my animals, either purchased of others or of myself, at least 500*l.* on 170 acres. This consumed by my animal leaves manure enough to compensate for the Wheat and Barley sold off the farm—thus preserving or increasing the fertility of my soil, and the bulk of my crops. There is nothing pays better in the manure than Cotton or Rape cake, Beans, malt combs, bran, Clover hay.

It should never be forgotten that fattening animals appropriate only a very small portion of the food given to them, and that the bulk of what they eat returns to the land. It is thus easy to understand why we derive so much benefit from their manure. Cows are an exception to this rule; they take much of the goodness out of their food, which we get as milk, therefore their manure is very inferior to that from either fattening or growing animals.

Cake is the preferred of all food, because it contains the elements of lean, bone, and fat in greater proportion than any other food. Malt-combs, bran, and Beans come next.

Straw (according to Mr. Horsfall) gives us materials for fattening cheaper than any other food.

I am indebted to my sewage irrigation for a very heavy crop of Italian Rye-grass, 1 acre of which during summer will keep all my bullock stock and farm-horses for a week; 6 acres keep 100 sheep, from March until Sept. Italian Rye-grass cannot be grown in summer without plenty of good fluid. I find irrigating with farm sewage greatly increases my Grass and hay crop.

It is surprising how fast and perfectly you may build up young animals, provided you give them the proper materials in proper proportions. No one has explained this more clearly than Mr. Horsfall, in his two able papers on Dairy Farming and Meat Making, in the Royal Agricultural Society's Journal, Vol. 17 and 18.

In fact, building up an animal is like building a house; you may have no end of bricks, timber, and slate, but these are all useless without water, lime, sand, and nails.

Immense sums are wasted in food, agriculturally, for want of a proper knowledge in this matter of suiting the mixture of foods to the requirements of the animals, whether for growth, fattening, or milk making. When practical farmers have acquired this knowledge they will no longer laugh at me for attaching much value to Bean, Wheat, and Oat straw, as important feeding stuffs when properly prepared.

To sum up, it is by the extensive use of most of my straw as food, aided by imported foods, and especially by consuming rather than treading down my green crops, also by giving each animal a limited and comparatively small quantity of roots or green crops, that I am enabled to keep much stock, make much manure, and grow much corn. *J. J. Mechi, Oct.* 19.

LABOUR-COST OF CROPS.

[The following passages are taken from Mr. J. C. Morton's "Handbook of Farm Labour," of which a second edition has just been published.*

We have now to apply the particulars and data to which calculations have led us, to ascertain the labour cost of different farm crops. For some of the crops named it will be necessary to add information on particulars not yet mentioned. I shall not pretend to specify all the crops known to English agriculture; the following estimates relate only to the commonly cultivated crops and only to the labour employed on them, leaving questions of rent, manure, interest of capital, &c., to be discussed elsewhere. The crops enumerated are Wheat, Barley, Oats, Peas, Beans, Rye, Turnips, Wurzel, Carrots, Cabbage, Vetches, Rape, Flax, Clover, pasture land.

It is assumed that reaping and mowing are done by machine, that horse hoes are used in place of hand hoes where possible, and that horse, not steam cultivation is the rule. But the alternatives of hand hoeing and hand reaping on the one hand, and of steam cultivation on the other, are suggested and worked out to their results.

1. *Wheat.*—The following are estimates of the labour-cost per acre of this crop under various modes of cultivation.

	£	*s.*	*d.*
(*a.*) After Clover:—			
Ploughing	0	6	0
Two double harrowings	0	2	2
Drilling seed	0	1	6
Harrowing	0	1	1
Water furrowing, probably	0	1	0
Bird scaring	0	1	6
Rolling	0	0	6
Horse hoeing	0	1	6
Hand weeding, probably	0	2	*d*
Bird scaring	0	1	0
Cutting Corn by machine	0	6	0
Pitching, carrying, building and thatching	0	4	0
Threshing by steam power (5 qrs.)	0	10	0
Carriage to market (5 qrs.), probably	0	5	0
Cost per acre of labour	£2	3	6
If weed patches need forking out of Clover	2*s.*	0*d.*	
If reaping be done by hand	4	0	
If hoeing be done by hand	3	0	
	0	9	0
If a dressing of 15 tons of manure be carried on the Clover before ploughing:—			
Making dung	2	6	
Filling	1	6	
Carrying	5	0	
Spreading	2	0	
	0	11	0
Total labour-cost per acre	£3	3	6
(*b.*) After bare fallow:—			
Cultivation of fallow—3 ploughings and 6 double harrowings	1	7	0
Gathering and removing weeds (perhaps)	0	5	0
Seed furrow (ploughing)	0	6	0
One harrowing	0	1	1
Drilling seed, &c., as in (*a.*)	1	15	4
	3	14	5
Add, if reaping and hoeing be done by hand	0	7	0
Labour-cost per acre	£4	1	5
(*c.*) After root crop:—			
The same items as in (*a.*)	2	3	6
Or if one grubbing be given in place of the ploughing (2*s.* 6*d.* in place of 6*s.*) deduct	0	3	6
	2	0	0
Add, if reaping and hoeing be done by hand	0	7	0
Labour-cost per acre	£2	7	0

2. *Barley:*—

Ploughing after the sheep fold	0	6	0
Two double harrowings	0	2	2
Drilling seed	0	1	6
Harrowing	0	1	1
Bird scaring	0	1	0
Rolling	0	0	8
Bird scaring	0	1	6
Cutting by machine, turning, loading, building, thatching	0	8	0
Threshing (7 qrs.)	0	10	0
Carriage to market	0	5	0
	£1	16	11
Add, if cutting by hook, tying in sheaves, and stooking be adopted	1*s.*	0*d.*	0 3 0
Total labour-cost per acre of the Barley crop	£1	19	11

3. *Oats.*

(*a.*) After Clover:—			
A good crop will involve an expenditure as nearly as possible like (both in items and in total cost) that of Wheat after Clover (*a.*), viz.	2	3	6
Or if the weed forking, hand reaping and hand hoeing be required, add	0	9	0
Labour-cost per acre	£2	12	6
(*b.*) After root crop:—			
A good crop will involve an expenditure as nearly as possible like (both in items and in total cost) that of Barley after roots	1	16	11
Or with additions	0	3	0
Total labour-cost of Oats per acre	£1	19	11

4. *Peas.*

(*a.*) After Corn crop:—			
Shallow grubbing stubble	0	2	6
Harrowing	0	1	1
Gathering and burning weeds (probably)	0	3	0
A dressing of 12 tons manure:—			
Making	2*s.*	0*d.*	
Filling	1	6	
Carrying	4	0	
Spreading	2	0	
	0	9	6
Ploughing	0	6	0
Harrowing	0	1	1
Sowing by Suffolk drill	0	1	6
Harrowing	0	1	1
Bird scaring	0	1	3
Horse hoeing	0	1	6
Hand weeding	0	3	0
Bird scaring	0	1	6
Cutting by scythe and harvesting, carrying, building and thatching	0	8	0
Threshing (5 qrs.)	0	7	6
Carrying to market	0	5	0
Labour-cost per acre	£2	13	6

* Longmans.

(*b.*) Grown for green Peas :—

	£	s.	d.
Cultivation by grubber and hand weeding, as before	0	6	7
Manuring and ploughing, and harrowing, as before	0	16	7
Ribbing, ½ ploughing	0	3	0
Sowing in the drills	0	1	6
Covering by hand hoe	0	2	6
Earthing up by light plough	0	2	0
Horse hoeing	0	1	6
Hand hoeing	0	3	0
Earthing up by plough	0	3	0
	£1	19	8

The crop is sold on the ground, and followed by Turnip or Rape.

(*c.*) After root crop :—

Items and cost as in (*a.*) after the dressing of manure	1	17	5

5. *Beans.*

(*a.*) On corn stubble manured :—

The same as for Peas (*a.*) excepting that the cost of harvesting will be at least 2*s.* more, for tying in sheaves, &c.	2	15	6

It may be sown by Bean-barrow in the wake of every second plough, but this will not affect the labour-cost.

(*b.*) After root crop :—

The same as for Peas (*c.*) excepting that the harvesting will be at least 2*s.* more for tying in sheaves, &c.	1	19	5

(*c.*) After Clover or Grass :—

The same as (*b.*), except for digging weeds, add probably	2*s.*	0*d.*	
Extra harrowings required	1	1	
If dibbled instead of being sown	5	6	
	0	8	7
Labour-cost of Beans per acre	£2	8	0

(*d.*) After grain crop, and ridged as in Turnip culture :—

The same as (*a.*), excepting that the manure being spread in drills there is the cost of ribbing the land, spreading the dung in drills, sowing the seed by barrow and splitting the intervals to cover it, in place of broad-casting the manure and ploughing it under, and harrowing and sowing by Suffolk drill. Also there is an opportunity of an extra horse hoeing and moulding up; the labour cost will be probably 4*s.* greater, or	£2	17	6

In all cases of manuring the expense of making and applying the manure will vary from 6*s.* to 10*s.* and even 15*s.* per acre, according to quantity, being about 9*d.* per ton.

6. *Rye.*

(*a.*) May be sown on a manured Corn stubble :—

Costing, if thoroughly well cultivated, nearly the same as Peas (*a.*), or	£2	13	6
Deducting for diminished labour, owing to the lighter soil on which it is cultivated, probably	2	10	0

(*b.*) But in general it is grown as a forage crop :—

Costing as Peas (*a.*), up till the brairding of the seed, or	1	7	0
And then after mowing (2*s.* 6*d.*), carried to the feeding stalls, say, 8*d.* per mile, 3*s.* 6*d.*	0	6	0
Labour-cost per acre of Rye forage	£1	13	0

7. *Turnips.*

(*a.*) After Corn crop :—

Grubbing	0	2	6
Harrowing	0	2	2
Gathering and burning weeds	0	3	0
Deep ploughing	0	8	0
Harrowing	0	1	1
Grubbing	0	3	6
Harrowing	0	2	2
Rolling	0	1	0
Gathering and burning weeds	0	2	0
Ploughing	0	6	0
Harrowing	0	1	1
Rolling	0	1	0
Ribbing	0	2	6
Dressing with 18 to 20 tons manure :—			
Making	3*s.*	6*d.*	
Filling	2	6	
Carriage	3	6	
Spreading	2	0	
	0	11	6
Covering dung	0	2	6
Sowing	0	0	9
Two horse hoeings	0	3	0
Hand hoeing	0	4	0
Two horse hoeings	0	3	0
Hand hoeing	0	2	0
Harvesting and pitting	0	12	0
	£3	14	9

(*b.*) Or in place of grubbing and autumnal cultivation, it may suffice to fork out patches of root weeds, haul on the dung and plough it under in autumn, and be satisfied with grubbing, rolling, harrowing and sowing on the flat in spring in which case at least 15*s.* worth of ploughing, grubbing, harrowing are saved, and the cost will be about 3 0 0

(*c.*) Or the roots may be consumed on the ground, and the expense of harvesting will be saved, reducing cost to 2 8 0

(*d.*) If the autumnal ploughing be done by steam it will be done more efficiently, at a saving of 3*s.* or 4*s.*, reducing cost to 2 5 0

8. *Mangel Wurzel :—*

Its labour-cost will be as nearly as possible identical with that of Turnips, adding perhaps 2*s.* 6*d.* per acre to the expense of harvesting what will generally be a heavier crop.

(*a.*)	£3	18	0
(*b.*)	3	0	0
(*c.*) Where roots are at once consumed on the land, which is coming to be the practice to some extent.	2	8	0
(*d.*)	2	5	0

If seed is dibbled instead of drilled, the cost will be in every case at least 2*s.* more than this. The cost of singling will not be altered, but the total cost will then stand thus :—(*a.*) 4*l.*, (*b.*) 3*l.* 2*s.*, (*c.*) 2*l.* 10*s.*, (*d.*) 2*l.* 7*s.*

9. *Carrots and Parsnips :—*

These crops may be named together, as costing nearly the same.

The expense before winter, as in the case of the Turnips (*a*)	£0	15	8
Only the manure should have been carted on before the autumn ploughing	0	11	6
Harrowing	0	2	2
Gathering weeds	0	2	0
Sowing	0	1	6
Horse hoeing	0	1	6
Singling	0	5	0
Horse and hand hoeing	0	5	0
Harvesting	1	5	0
In all	£3	9	4

10. *Cabbages :—*

The labour-cost may be the same as for Turnips in ridges, up till sowing the seed, viz. (*a.*)	2	10	0
Afterwards there is the planting 10,000 plants, probably 1½ or 2 days' work for a man	0	4	0
Two horse hoeings and one hand hoeing	0	6	0
Harvesting, probably	0	10	0
In all	£3	10	0

11. *Potatos :—*

(*a.*) By horse culture, labour up to setting the tubers, as in Turnips (*a.*) up to covering in the dung	2	7	6
Setting tubers (carted to the field)	0	3	6
Covering	0	3	6
Harrowing down	0	1	1
Two horse hoeings	0	3	0
Hand hoeing	0	5	0
Earthing up	0	2	6
Digging and harvesting	1	10	0
	£4	16	1
(*b.*) By hand culture, labour up to ribbing for receiving the dung, the same as Turnips (*a.*)	1	13	6
Carrying manure and spreading	0	11	6
Digging and planting Potatos	0	14	0
Hacking	0	8	0
Earthing up	0	4	0
Digging and harvesting	1	10	0
Labour-cost of Potatos per acre	£5	1	0

12. *Vetches :—*

Sown after a corn crop and manured, will cost in labour, including the drilling of the seed, the same as Rye as a forage crop	1	7	0
And carried home to the feeding stalls	0	8	0
	£1	15	0

13. *Rape.*

(*a.*) Sown on a corn stubble :—

Autumn cultivation—manuring and sowing the seed on the flat—will involve nearly the same items of labour as Turnips sown on the flat, and consumed on the ground, viz. (*c.*)	2	8	0
Deduct, however, for three horse hoeings and one hand hoeing not needed	0	8	0
Leaving the cost, including one horse hoeing and a partial hand hoeing	£2	0	0

(*b*) Sown after an early crop of Rye and Vetches :—

Two grubbings and harrowings	£0	8	2
Dressing of manure (12 tons)	0	9	0
Ploughing and harrowing	0	8	2
Sowing	0	1	6
Horse and hand hoeing	0	3	6
	£1	10	10

14. *Flax.*

After root crop :—

Ploughing	0	6	0
Harrowings	0	2	2
Weeding	0	3	0
Ploughing	0	6	0
Harrowing	0	1	1
Scarifying and harrowing	0	4	3
Rolling	0	0	9
Sowing broadcast, by machine	0	0	3
*Weeding, pulling, rippling, and steeping	1	2	0
Taking from steep, spreading, turning and lifting	1	12	6
Scutching 30 stones	2	0	0
Cleaning seed	0	6	0
Labour-cost of Flax	£6	4	0

If less seed be sown, and a coarser fibre, with larger quantity of seed be obtained, the two last items will be somewhat larger.

15. *Clover :—*

(*a.*) Sowing broadcast on young Barley	0	0	3
Rolling and picking stones	0	2	9
Mowing	0	4	0
Making and building	0	6	0
Carrying	0	2	6
	£0	15	6

(*b.*) When the Clover is fed down, the last three items are saved and the cost per acre is only 3*s.*

(*c.*) When mown green and carried as forage, it may cost for mowing twice	8*s.*	0*d.*	
And carrying green twice	8	0	
Or with sowing, &c. probably	1	0	0

16. *Rye Grass :—*

Will cost in labour the same as Clover (*a*). The labour of sowing it is somewhat greater. That of mowing it is also somewhat greater. The cost of haymaking will probably be as much=	0	18	0

17. *Pasture Land :—*

Mown every other year, and the stones gathered off it, and rolled; fence mending at intervals, &c., charge per acre per annum=	0	5	0

18. *Attendance on Sheep :—*

Per head per week—less all the year round than	0	0	0½

19. *Attendance on Cattle :—*

On an average per head, winter feeding per week	7*d.* to 9*d.*		
Summer, barely	1		
Average throughout the year per week	0	0	4

Recapitulation :—The following, then, in tabulated form, are the results arrived at. The first money column states the labour-cost per acre; the second, third, and fourth state the labour-cost per bushel and per ton on various estimates of crop.

* These items are stated on the authority of Mr. M'Adam, in his Prize Essay, in vol. viii. Agricultural Society's Journal.

Labour-Cost of Grain Crops.

	Per Acre.			Per Bushel. 30 bush.		40 bush.		50 bush.		60 bush.	
	£	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Wheat (*a.*) after Clover	2	3	6	1	5½	1	1	0	10½	0	9½
,, do. manured	3	3	6	2	1½	1	7	1	3½	1	0½
,, (*b.*) after fallow	3	14	5	2	6	1	10	1	6	1	3
,, (*c.*) after roots	2	0	0	1	4	1	0	0	9½	0	8
Barley	1	19	11	1	4	1	0	0	9½	0	8
Oats (*a.*) after Clover	2	3	6	1	5½	1	1	0	10½	0	9
,, (*b.*) after roots	1	16	11	1	2½	0	11	0	8½	0	7½
Peas (*a.*) after corn	2	13	6	1	9½	1	4	1	1	0	10½
,, (*b.*) green Peas	1	19	8	1	3½	0	11½	0	9½	0	7½
,, (*c.*) after roots	1	17	5	1	3	0	11½	0	9	0	7½
Beans (*a.*) after corn	2	15	6	1	10	1	4½	1	1½	0	11
,, (*b.*) after roots	1	19	5	1	4	1	0	0	9½	0	8
,, (*c.*) after Clover	2	8	0	1	7	1	2½	0	11½	0	9½
,, (*d.*) ridged	2	17	6	1	11	1	5	1	2	0	11½
Rye	2	10	0	1	8	1	3	1	0	0	10

Labour-Cost of Green Crops.

	Per Acre.			Per Ton. 8 tons.		12 tons.		20 tons.		30 tons.	
	£	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Rye, forage	1	13	0	4	1½	2	9	1	7½		
Turnips (*a.*), carried	3	14	9	..		6	3	3	9	2	6
,, (*b.*) ,,	3	0	0	..		5	0	3	0	2	0
,, (*c.*), fed	2	8	0	..		4	0	2	5	1	7
Mangel Wurzel (*a.*), carried	3	18	0	..		..		3	10	2	7
,, ,, (*b.*) ,,	3	0	0	..		5	0	3	0	2	0
Carrots	3	9	4	..		5	9	3	5	2	3
Cabbages	3	10	0	..		5	10	3	6	2	4
Potatos (*a.*), horse culture	4	16	1	12	0*	..		..			
,, (*b.*), hand culture	5	1	0	12	8*	..		..			
Vetches	1	15	0	4	9	3	0	1	9		
Rape (*a.*)	2	0	0	5	0	3	4	2	0	1	4
(*b*)	1	10	10	8	0	2	7	1	7		
Clover (*a*), hay	0	15	6	..		..		..			
,, (*b.*), green	1	0	0	2	6	1	8	1	1		
Rye Grass, hay	0	18	0	..		..		..			

Before leaving this section of the book, let us just test the applicability of these figures to the case of a farm or two.

(*a.*) Take that of No. 17, in Table 3, p. 54, where 200 acres are cultivated on the 4-field course, and where 100 acres are pasture, and where the stock kept may be supposed equal, on an average, to 240 sheep and 30 beasts all round the year. The land is cultivated on the 4-field course.

Crops.		Labour-Cost per Acre. £	s.	d.	Total Labour-Cost. £	s.	d.
50 acres Wheat or 20 at	(*a*)	2	3	6	43	10	0
and 30 manured	(*b.*)	3	3	6	95	5	0
50 ,, Turnips 30	(*a.*)	3	15	0	112	10	0
20	(*c.*)	2	8	0	48	0	0
50 ,, Barley		2	0	0	100	0	0
50 ,, Clover 30, hay	(*a.*)	0	15	6	23	5	0
,, 20 cut twice	(*c.*)	1	0	0	20	0	0
*Sundry labour on carriage of materials, fencing, roads, &c. on 300 acres, viz.					50	0	0
Attendance on Stock.							
240 sheep at ½*d.* weekly each					26	0	9
30 beasts at 4*d.* do. do.					26	0	0
100 acres of pasture at 5*s.* an acre					25	0	0
					£569	10	0

This sum pays for horse labour as well as wages. Deduct the cost of the horse labour, except wages paid to team men=184*l.* (see No. 17, p. 54), and you have for wages 410*l.*, which is equal to 38*s.* an acre on the arable land, and 6*s.* an acre on the pasture, and this is probably near what is actually paid.

(*b.*) Take the case of a Nottinghamshire light land farm, No. 1, on p. 2. The cropping, according to the accounts received, must be nearly as follows on 930 acres :—

		Labour-Cost. Per annum. £	s.	d.	Total. £	s.	d.
100 acres in Wheat at	(*a.*)	3	3	6	317	10	0
100 acres in Oats at	(*a.*)	2	3	6	217	10	0
150 acres in Barley at		2	0	0	300	0	0
20 in Peas at	(*a.*)	2	13	6	53	10	0
210 acres in Wurzel and Turnips { 110	(*a.*)	3	18	0	429	0	0
{ 000	(*c.*)	2	8	0	240	0	0
350 acres in Clover { 100 mown		0	15	6	77	10	0
{ 100 do. twice		1	0	0	100	0	0
{ 150 fed		0	5	0	37	10	0
Sundry labour, as carriage of material, mending roads, fences, &c. (900 acres)†					120	0	0
Attendance on live stock, probably 1200 sheep, ½*d.* each per week					130	0	0
Total labour-cost					£2022	10	0

This includes cost of horse labour (see No. 30, p. 54), and deducting 608*l.*, viz. 956*l.* except wages of team men 348*l.*, you have a total paid in wages of about 1400*l.* Now the wages actually paid on that farm are 1383*l.*, which is a sufficient confirmation of the justice of our valuation.

* More likely to be half the weight and double the labour-cost per ton.

† This item may be fairly put as high, seeing that it includes a number of items hardly capable of enumeration, such as carrying corn and coal and manure from market for consumption on the farm; also lime for application at intervals of years; also every unusual expense owing to weather; also repairs of roads and fences, &c.

Home Correspondence.

Potatos.—I have found for the last two or three years that the Potatos, on digging them, have been so scabby and covered with a roughness and rust that have rendered them quite unsaleable. I have three different pieces of ground or gardens, but it is only in one that they are as I have described. What remedy would you suggest to prevent them being so another season? *Enquirer.* [In what does the plot which produces the disease differ from those which exhibit it? It may be owing to excessive richness of the soil, which might be corrected by the addition to it of burnt earth, ashes, or lime.]

Labourers' Houses.— Having been brought up in one-room houses, I read with interest anything that bears on the subject. The paper read by Mr. Robb, at the Social Science Meeting in Edinburgh, will surprise a good many as well as myself. Mr. Robb states:— "There were differences of opinion as to the proportion of houses required on a farm for the accommodation of workers, and as to the style and extent of the houses. His own opinion on the latter point, arrived at after much conversation with farmers and ploughmen in all parts of Scotland, was, that ploughmen's houses north of the Tweed should never be more than one story in height, and the door should be placed, if at all possible, so as to face the south, and there should be a recess for a bed in the kitchen. This latter provision, so opposed to English notions and our ideas of refinement, is one of which the Scotch rustic is very tenacious, as he is fond of the heat which the kitchen fire—the only one he can afford to keep—throws out. Besides the kitchen there should be a parlour and a middling-sized and airy bedroom, with perhaps a lesser one, and a small scullery. This, as a general rule, would be ample accommodation for a ploughman and his family; and such houses could be erected at from 70*l.* to 100*l.* and 120*l.* each, according to district. It was a great mistake to build too large a house for a ploughman. He did not like it for two reasons: first, because he was not able to furnish it; and next, because its emptiness made it colder than a smaller house would be." I thought it was taken for granted that every able-bodied labourer ought to occupy a house which would enable him and his wife to act like rational and sensitive beings, and be able to teach their family habits of decency and self-respect. There are innate ideas common to every man, whatever be his position in life; but their being developed depends upon circumstances. What is necessary for the Prince of Wales is necessary for a ploughman, let him be a labourer in England, a hind in Northumberland, and in the counties of Roxburgh, Berwick, and in the Lothians, or a ploughman or farm servant in the bothy districts of Scotland. It was shown in your Paper at p. 39 for 1863, that "in Roxburgh and Berwick the bondage system is universal—therefore a hind requires a house two stories in height." But let us lay aside the peculiarities connected with the relationship of master and servant in Northumberland from the Tyne northward to Dunbar, and from Berwick-on-Tweed westward to Selkirk, say over an area of 5000 square miles of arable land, and hear what Lord Palmerston stated at Romsey in 1859:—"The cottages which Mr. Dutton and myself have built contain really no more accommodation than a decent family ought to have. They have simply one room to live in, a back kitchen, and what is of the utmost importance, three sleeping places. No cottage ought to be without three sleeping places—one for the man and his wife, another for the girls, and another for the boys. * * * The effect of improving these dwellings is almost marvellous. In the first place, you know that the comfort of a man's house depends upon the tidiness of his wife and the mode in which she tries to make him comfortable; but there is a temper of the human mind which is denominated recklessness. When a thing seems impossible it is given up in despair. When a cottage is in such a ramshackle state that it is impossible for the wife to keep it clean, she becomes a slattern, everything goes to ruin, the man is disgusted, and flies to the beershop. If, on the contrary, the wife feels that she can by a little exertion makes the cottage decent and respectable, she does so, and then the man enjoys the comfort and happiness of his home, stays away from the beershop, and the sum of money he would spend in liquor goes to the benefit of his wife and children. I had an example of that in a double cottage of my own. It was in a dreadful state; the walls were not air tight, it had a brick floor, a bad roof, and everything uncomfortable. The people who occupied it were slovens and slatterns, and quarrelsome neighbours. At a small expense it was made tidy; boarded floors were put down; a little porch erected, with a woodhouse, and other conveniences." Lord Palmerston adds:—"And from that moment these people altered entirely their character, altered entirely their conduct, became well-conditioned people and good neighbours, which they had never been before." This practically illustrates the truth of Adam Smith's maxim: "As the houses, so the people." Lord Palmerston shows that English labourers are affected by bad houses and also by good ones. Scotch farm labourers are not an exception to the general rule. I have good grounds for holding strong views on the subject. My father died in 1855 in a house only one story high, with only one apartment on the ground floor. The attic floor is on a level with the top of the walls. The man who succeeded my late father as steward has a wife and a family of five, the eldest of whom acted as a hind, all of whom resided in that house till last Whitsunday; but several two-story houses were built last year with four apartments and other conveniences in each. The Duke of Buccleuch and several extensive landowners in the border counties have built hinds' houses two stories high, with four apartments in each. I referred to the Duke of Buccleuch in this respect, in my first attempt at making an appeal in behalf of hinds at page 810 of the *Agricultural Gazette* for 1857. Those who have correct ideas of social propriety ought to try and teach hinds and bondagers the same blessing. Decency demands that a husband and wife should have a bedroom for their exclusive use. I thought my letter at page 511 of the *Agricultural Gazette* for 1860, would put a stop to men of influence trying to make out that the Duke of Buccleuch has squandered his money lavishly for the building of hinds' houses. Having stated in several provincial papers that building houses with four apartments in each is not a remedy for the compulsory bondager-contract system, I take notice of this local custom. Working men sometimes require an extra room for accommodating a relative or friend with a bed when on a visit. Besides, provision ought to be made in every house for births, marriages, and deaths. Owing to hinds being paid the greater part of their wages in grain and Potatos, they are compelled to store the meal, Potatos, and coals in any spare corner. Hence the objections of casual observers to hinds being provided with four apartments. They are not prepared for such a radical change. Were you, Mr. Editor, a married hind with a wife and young family, you may fancy what your position would be by supposing your bedroom all the accommodation for you and your wife, a young family of five or six, and your kitchen maid all herding together in one room. You would consider that bad enough in good health, but in the event of a death in the family it would be harrowing to your feelings having to sit, eat, and sleep in the room beside the corpse till the funeral day. I am describing what I was brought up amongst, and I have just read that hinds should not have an idle room for cases of sickness and death. *A Canny Scotch Rustic.*

Harvest Homes.—The extraordinary abundance of the late harvest has caused harvest-home festivities to be more general than usual. Those who have ever been present at well-conducted festivities of this sort, cannot but regret that they are not much more common; yet we find many benevolent masters strongly opposed to them, some of them saying that after a fair trial they have had to discontinue them, as productive of more evil than good. We think that in these cases it will often be found that the trial made has not been a fair one. Let the rejoicing begin with a public thanksgiving in the church; let the master, and if possible, the clergyman, or at any rate, one or two of the neighbouring gentry be present during the whole of the dinner; let the supply of beer be so limited as not to permit excess; let manly sports be arranged for beforehand, or if the men prefer pipes and a song or talk at the table, let the farmer give notice before hand, at what hour he wishes to close the proceedings, and see that this limit is not much exceeded. It is here that so many fail: feeling a natural dislike to tell those who for the time are their guests to go, they themselves leave, hoping the men will soon follow their example; then, when all are enjoying themselves and there is no recognised head, each man feels that it would be invidious to be the first to move, and the sitting is continued so long that the effects of late hours are seen in next day's work; while if the beer is plentiful there is danger of drunkenness. By this time too the best songs or tales will be exhausted, and others may follow in a mixed company of men, women, and boys, which would not have been heard in the master's presence; and thus that which should be a day of grateful thanksgiving and innocent festivity, ends in intemperance and sinful revelry. All this will be prevented if the farmer is only firm enough to see that an end is made in good time, and this, by a little tact, may be done without any discourtesy, or by asking all to rise and join before they go in singing "God save the Queen," or by any friend proposing three parting cheers for the farmer himself. Hoping these few remarks, which are prompted by personal experience, may tend to make harvest homes more common and less open to objection. *Strebor.*

The Colonies.—With respect to your Notices to Correspondents, "Natal, E D.," no doubt in most well established Colonies your advice is the best, but having been for some time a resident in Natal, I am forced to confess that in the matter of seeds for agricultural purposes, "E. D." would do well to take them out with him, as those in the colony which he might purchase would be very apt to be unproductive; he would also save considerably by taking agricultural implements with him, although, as you say, they may be purchased in the colony. *Correspondent.*

A Cottager's Food.—In reference to the article in the *Agricultural Gazette* of the 17th inst., p. 994, as to the ordinary consumption by a cottager with a family, I beg to say that about the year 1840 I offered a premium of 5*l.* to any labouring man with a family who had maintained himself and his wife and children, and brought up the latter without parochial relief, who would give me an account of his weekly receipts and expenditure for a whole year. The offer remained unnoticed, though often repeated for several years. One or two made an attempt to furnish the account required, but could not keep on for more than about six months, and to whom I gave such reward as I thought they deserved for their trouble. At last, however, in 1845, I was applied to by a respectable looking labourer, quite a stranger to me, though living only a few miles off, to know if I would give him the reward if he furnished the account required, as he had not long heard of it. I agreed to do this, and at the end of the following year, 1846, the same individual called on me with the account, and seeing it looked tolerably fair I paid him half the money down, and took time to look further into the account, and to make inquiries. I did so, and not only found the account correct, but I found also that all the inquiries I made respecting him of the churchwardens of his parish, his master, and his neighbours, and the shopkeeper with whom he dealt, were in every respect satisfactory. I had great pleasure in paying the man the remainder of his money, and of course claimed and kept the account as a memento of the man and his family, and did not lose sight of him. He has since left this neighbourhood, but is living in a confidential situation as a farm bailiff, and bears the same character for honesty, industry, and frugality which he bore 10 years ago; I do not mention his name here, but I shall be happy to afford your correspondent any particulars and information he may desire, and will lend him the account itself if he will undertake to return it again after perusal. The man in question lived in an ordinary cottage at a rent of 2*s.* per week, which he paid regularly, and maintained himself, and his wife, and five children, without any parochial relief; his wages were 12*s.* per week, increased of course at haytime and harvest, and the account also contains the earnings of his wife and one boy, the only one who could work, and various small trifles of income derived from occasional extra labour, and is in itself an interesting account. *George Wood, Rochford, Essex.* [Will Mr. Wood allow us to publish the substance of the account to which he refers?]

Cottages.—The satisfactory manner in which the cottage question is spreading throughout the United Kingdom, newspapers and agricultural meetings taking up the subject in a kindly spirit, promises well for the future comfort of the labourer. During the discussion various opinions have been expressed, the great majority in favour of providing a better and more commodious description of dwelling. Some erroneous notions have however crept into the public prints, which may tend to mislead persons who have not thought much about the real state of the domestic economy of the working classes. First it has been hinted that the crowded condition of the poor man's dwelling does not injure the health or morality of the family. It appears almost unnecessary to say a word upon the bad effects, physically and morally, of condemning human beings to sleep in small, badly ventilated rooms, breathing fœtid air, which debilitates the constitutions of men and women at a period when natural rest is required to revive the system, exhausted by daily labour. This is a severe trial to the parents themselves; what becomes of the grown-up boys and girls under such circumstances? They are too often compelled, not only to occupy the same apartment at night, but the same bed! Has this nothing demoralising in it? No plan could possibly be devised more destructive to common decency and so entirely opposed to all social obligations. The second statement put forth, that cottage property does not remunerate the land-owner, is also a mistake. By paying attention to the comforts of the labourer, he is contented in his situation, attaches himself to his employer, his health and strength are preserved, and he becomes a more efficient servant in every respect. Having his home near his work, he would be saved the hardship of walking, morning and evening, two or three miles to a wretched hovel. It is a trial to a man's temper and constitution, having to plod a considerable distance on a wet winter's night, after many hours' labour, to a cheerless over-crowded cottage. Masters are aware of the advantage of warm clean stables, cow-sheds, and pig-styes—how they increase the value of all stock and economise food—yet they allow their men to be unnecessarily exposed, in all weather, and worse lodged than the brutes on their farms and premises, and this after severe manual exertion. Looking upon men and women, for argument sake, as animals, on a selfish principle, it is the interest of those who use, not to abuse them. But when labourers are placed in their true position—equal in the sight of God to the greatest men in the land, though appointed to an inferior class—humanly speaking—it is the imperative duty of those who are better educated, and richer, and who require the strength of their poorer neighbours to carry out schemes to enrich themselves, to take care that justice is done to the most ignorant workman, no matter in what capacity he may be employed. Advice is of small value, indeed, becomes a dead letter when it cannot be followed, and those who give it must know the insuperable difficulty of even preserving a semblance of morality when the sexes cannot be separated at night. It is a mockery to talk to men and women of the impropriety of allowing young people to sleep together when there is but one room in the house for them, and one mattress. *Falcon.*

Impure Seed Wheat.—There is a general, and perhaps well-founded complaint, that genuine seed Wheat is seldom to be obtained in our corn markets of the present time. This state of matters admits of explana

tion. Although genuine seed Wheat is often asked for by intending purchasers, and still more often offered by solicitous sellers, measures are seldom taken to obtain pure seed of any variety. Agricultural societies by their proceedings ignore improved cereals, and private individuals are not sufficiently encouraged to render varieties genuine. Almost every operation connected with the growing of corn tends to intermingle varieties, and it is not practicable to maintain genuineness for a length of time, when more than one variety is grown upon a farm. In the first place, varieties may be mixed in sowing, reaping, carrying to the stack, and more especially in threshing. Besides these self-evident hazards of mixing, there is the risk of interchanging bags of grain during transit, and in preparing seed for sowing. The people engaged in manipulating the cereals, from the sowing to the marketing of the grain, are generally very unobservant of and unacquainted with the characteristics of different varieties. With so many obstacles to contend with, it is wonderful to find that the Wheat is not more intermixed than it really is. In some instances, two or more varieties are intentionally mixed for sowing; and when the produce is sold for seed as a mixture, and properly described, no fault can be found with the transaction. It is, however, different with a recent mixture, which merits particular notice. In the autumn of 1861, I circulated two new varieties of Bearded White Wheat—Pringle's and Shirreff's. The external appearances of the Wheats when growing are so much alike that the one cannot be distinguished from the other, but the grains are perfectly dissimilar, the seeds of Shirreff's being somewhat short, round, white, and pearly in appearance, while the seeds of Pringle's are oval, medium-sized, and of a creamy tinge. But the appearance of the seeds of Wheat is affected by so many circumstances that no general description can apply to all samples. The beautiful summer just passed has brought out the peculiarities of varieties in the most striking manner when harvested without rain. The seeds of Shirreff's have perhaps been rendered less pearly, and the whiteness of colour intensified. On the other hand, the grains of Pringle's have become very transparent, and so highly coloured that they may be mistaken for Red Wheat. These varieties, mingled together in about equal proportions, have recently been sold for sowing in different market-places of the Lothians, and by different growers, under the name of Shirreff's Bearded White. This mixture is very attractive, from weighing well and having a fine mottled appearance. From the novelty and unexpectedness of the mixture, purchasers may perhaps be excused for not discovering the hodge-podge, but the persons who prepared the mixture are differently situated. There is a remedy for all such irregularities; and unless they are at once checked, genuine seed-corn will disappear from the markets of the Lothians, and the names of varieties become a mockery. *Patrick Shirreff, Haddington, Oct.* 19, 1863.

Societies.

West Cambridgeshire.—The Earl of Hardwicke lately made the following remarks on the subject of feeding animals for "competitive examination:"—

"The association had awarded him a prize for an animal that day. Now, no doubt, there was some reason which induced the judges to give him that prize, but he said at once that there was no credit due to himself. He was not going to reflect upon the judges, because they were the agents of a system; but he objected to the system altogether—to the system of competitive examination of animals, as at present carried on—from beginning to end. The examination was meant to decide which animal would give the best food at the least cost in its creation. The animal he had shown had been brought up on the best fatting food, without regard to cost, and its success in the prize list was no credit either to him or to the animal. That animal was a sham. For many years past he had shown animals, and had won prizes at Smithfield and elsewhere by showing shams. But he never had, and never would have, any other opinion than this—that at a show of fat animals nobody ever thoroughly knew how they became so fat, and the consequence was, that the prizes being adjudged for fatness the prize animals did not always produce the best meat. The most really profitable matter was in making food fit to eat. He might be asked how he would have the competition carried on? He replied, that they must show animals fed in a reasonable way, and that the competition should be carried on something in this wise: Suppose that Mr. Samuel Jonas and others, eminent members of that society, whom he saw around him, agreed to compete for the prize. They should agree what the age of the exhibited animal was to be, and that should be the whole question so far as the proprietors of the competing animals were concerned. The animals should then be fed, stalled, and stabled in the same manner, and at a fixed period should be brought before the judges for them to say which was the best frame for them to put fat and meat upon, and which frame would be most productive altogether of eligible and profitable food for the public. He saw no difficulty in carrying that out. There should be a shed or building in which all the animals should be placed, in the hands of a competent and trustworthy man; each should have the same amount and weight of food, water, straw, and other comforts—all should be treated alike—and at the end of a fixed period, should be produced to the judges to say which was the best. That would be competition. But his animals that day got a prize, being shown against animals which probably had not been so fed; and therefore he said that the present system was utterly useless as a test of real merit. He spoke of that animal as a winner, he dared not have spoken of him as a loser."

Penrith.—Lieutenant-Colonel Hasell pointed out how much better adapted this moist climate is for the production of green crops and the rearing of stock than for growing Wheat. Let them have their land in good heart, and lay it down in Grass, and take care to have a good breed of stock, feed them and bring them into the market; or, if their ground was not suitable for fattening them out, at all events they could bring up young stock. His impression was that wherever that could be done it was the most profitable course for the farmer to pursue. Alluding to the abolition of the corn laws, as a measure which the legislature could not have done otherwise than adopt, he said that if they looked at the *Mark Lane Express* for the returns now, they would see that for every quarter of English Wheat there were two or three quarters of foreign came in, and this kept the price of Wheat so low that Wheat growing in this country would not be a very profitable concern. In this moist climate he urged that the most profitable plan for the farmers to adopt was to pay attention to root crops, to Barley and Oats, and especially to Turnips and Potatos. This would enable them to keep their cattle in winter, and the foreigner could not compete with them in meat, nor could he depress the price of meat so long as the population of this country remained what it is. His advice was, "Don't plough too much; don't plough more than you can lay down well." Adverting to the statements of Mr. Mechi, at Whitehall, respecting the consumption of oilcake, he expressed doubt whether if they gave their cattle so much oilcake they could eat much Grass.

Mr. Grey, of Dilston, said another important matter had been before them, viz., "draining." They were not situated as the agriculturists of the Canadas or Australia, who when they have exhausted one portion of soil can turn to another. Here in their blessed seagirt isle, though they could not increase the number of their acres, he was satisfied there were many districts in England where, though they could not extend the area, they could double the produce. By taking off the superfluous and obnoxious water, by using such manures as will bring forward the finer and more nutritious qualities of Grass, they could make land carry double the quantity of stock it had hitherto done; and upon arable land if they brought into operation twelve inches of soil instead of six, and if by the judicious application of manure they could raise a greater produce, they were not only increasing the quantity of grain, but increasing the facility for getting heavy root crops, and in this way increasing the quantity of live stock they could keep; and that, they might depend upon it, was the ground of all profitable farming in this country. Speaking of the growth of Wheat, he said there were many countries in Europe where Wheat could be produced in larger quantities and of much finer quality, and also at a much cheaper rate than in their own, but there was no country that could compete with them in the production of stock. In the south of England they had a climate much more suitable for the growth of corn crops, yet in the north they had the advantage of the moist climate, and could produce much heavier and more nutritious crops of Turnips. In the south, sheep would not fatten on Turnips without they also had oilcake and Beans. But in the north they could be fattened ready for market with Turnips alone. He had known, in some places, of acres of Turnips being given away on condition that the sheep eating them should have a certain quantity of oilcake per diem. Referring to steam ploughing, he said he was satisfied that it was not so applicable to this as to many other counties, tillage was too restricted, and the fields were too small. He was of opinion that the introduction of steam would increase, and probably the cost of the machinery might in a few years be so reduced as to be brought within the reach of small occupiers. A friend of his had purchased a steam plough after being at a large outlay in draining his farm, and after he had it in use a year he asked him if he was satisfied with the expenditure of 800*l.* on such machinery. He said he was quite satisfied with the work, it covered a large space at once and left the land very clean, but the implement had been much injured by the stones, but he would take care the next time he had to plough there should be no such obstructions. He had been able to part with 14 of his horses, and the food which they consumed he could now take to market; altogether he was satisfied that he had done wisely. He thought great advantages were to accrue from the introduction of machinery upon farms. Where he lived the corn was all cut by machine, threshed on the ground, and at once secured. This was a great advantage to cutting it with a few reapers, and in a season like this, it was gratifying to find that most of the corn had been secured, whereas under the old system it would still have been lying upon the ground.

Calendar of Operations.

OCTOBER.

Chatteris, Isle of Ely: *Oct* 26—The autumn is all that the farmer could desire. Occasional showers with a good average temperature have made the Wheat sowing an agreeable operation. We commenced on the 5th, and up to the 24th had put in 260 acres, with as good a seed-bed as could well be desired. The first sown are up and look strong and healthy. We are now busily engaged in taking up and carting off Mangels, and shall put in a little more Wheat on some of these lands during the week. On cool lands where the plant was good we have a satisfactory crop of Mangels, but on one field where the drought prevented the seed germinating until several weeks after it was sown, the bulbs are small. Immediately after harvest we commenced "smashing up" our high lands, and did 125 acres with one of Howard's cultivators; some of these had had the advantage of steam cultivation in the spring for Barley, and are now ready to be manured and ploughed for Beans. The Bean stubbles that we cultivated were last week sown with Wheat without ploughing The Wheat stubbles that we "smashed up" will be recultivated in the spring and then sown with Barley. We conceive the advantages of steam cultivation on these lands will be very great. We are now threshing our Barleys grown on this system, and find we had not only a fine bulky crop of straw, but from 7 to 8 qrs. of Barley per acre also. Our land only produces an inferior malting quality, and we are selling at 32*s.* 6*d.* per quarter. Our Cole seeds are not good this year. The "smother fly" injured them a good deal in some places, and the drought made them small, although we had generally a good plant. We have now 350 lambs and 200 shearling wethers upon them. The former will, towards the end of the year, or early in January, when the Colesceds are done, be put into yards, and have our usual feed of Mangels and corn. The latter are getting fat, and will go away during the next two months. We reserve all our Mangels for sheep in yards, and what we require beyond these for treading the straw into manure we make up with bullocks. We use Scots principally, and shall winter between 70 and 80 of these, giving them a mixture of cake and Oats, besides the straw, and then giving them Grass in the spring till June, when they will be sold. We find our Wheat crops yield well, but we have not the extraordinary yields we have heard of in some districts. Very little will exceed 6 quarters per acre, and a good deal will be between 5 and 6 quarters. Oats on the hot lands cannot be a good crop. There was a deficiency of straw. The price of Wheat is low, and the consumer appears likely to derive more benefit than the producer from the good crop. *A. S. R.*

Wester Ross: *October* 20.—Our harvest this year was commenced on August 24, and because of the unsettled state of the weather, and the unequal ripening of the crops, it was not completed until October 2, thus extending over a period of not less than six weeks Although an unusually large quantity of rain fell, there was little damage done, as we were favoured with strong gales of wind, which speedily dried up the stooks, and admitted of the whole crop being ingathered in at least a safe condition. In 12 days and 8 hours, 8 men cut 170 acres of Wheat, Barley, and Oats, being somewhat more than 1½ acres per day to each scytheman, and the whole expense of cutting, gathering, binding, stooking, stacking, and thatching, was 36*l.*, or nearly 4*s.* 3*d.* per acre. Deducting the cost of stacking and thatching, the outlay per acre was 3*s.* 3*d.*; scythemen had 3*s.*, binders 2*s.* 6*d.*, gatherers 1*s.* 9*d.*, and rakers had 1*s.* 2*d.* per day. The cost of cutting by a reaper cannot be materially less than this, but where the crop is standing the work is incomparably better done by the reaper. I may add, however, that in the above statement, the wages of the usual half-year servants are not included. The stackyards are considerably smaller than last year, and perhaps the bulk is somewhat under an average, but the stacks thresh out satisfactorily, and all the grain that was secured in early harvest is in fine condition and of good weight. Barley that was stacked before the rain is of excellent quality, and well suited for malting purposes. The price of Wheat and Oats is unusually and alarmingly low. Wheat fetches 40*s.*, and Oats 24*s.* per quarter. Well-coloured Barley fetches 28*s.* for 54 lbs., and the weight being above the standard some 30*s.* per quarter may be realised. Cattle suitable for wintering are scarce, and bring unusually long prices. Turnips have greatly improved of late, but they will have quite enough to do to reach an average crop. Both Turnips and straw will be sufficiently scarce ere the season of Grass again returns. We are now busy manuring and breaking up the leas for Wheat, and in a few days we expect to have about 20 acres laid down.

Miscellaneous.

The Wheat Crop of 1863.—I send you the estimated average produce of our Wheat crop, arrived at by the mode detailed in your journal this time last year. 120 acres average 50 (fifty) bushels per acre.

The estimated quantity as given just after last harvest was for the crop of 1862	33 bushels per acre.
155 acres at 33 bushels per acre	5115
Quantity threshed	5135

20 bushels in excess of the estimate, or less than ½ a peck per acre above the actual produce.

I give this year the yield of the various fields, with their soils, and the sort of Wheat grown:—

Field.	Acres.	Sort of Wheat.	Yield per acre.	Description of Soil.
No.			bush.	
1	15	Red Chaff White	54	Sandy loam.
2	14½	Ditto ..	52	Ditto.
3	11	Browick Red	65	Clay and good loam.*
4	30	Ditto ..	54	Sand and light loam.
5	49½	Ditto ..	43	30 acres wild sand, very poor; 20 acres good sand.†
	120			

The White Wheat weighs 64 lb., and the Red 63 lb. per bushel. The average yield of Wheat upon this farm for the last 14 years is as under:—

Year.	Per acre.	
1850	32 bushels	Mean of the 13 years since 1850, 32½ bushels per acre.
1851	36 ,,	
1852	31 ,,	
1853	21 ,,	
1854	41½ ,,	
1855	36 ,,	
1856	35½ ,,	
1857	32½ ,,	
1858	36 ,,	
1859	24 ,,	
1860	30½ ,,	
1861	33¼ ,,	
1862	33 ,,	
1863	50 ,,	(estimated)

This makes the crop of this year to be 17½ bushels above the average of the 13 previous years, and I am quite inclined to think that in this estimate I am under the actual quantity rather than over. I will make no remarks, but let these figures speak for themselves; all I say is that where the land has been well farmed the crop this year is enormous, the clay land being in some instances double the produce of the past three seasons. The marking up of the shocks in the fields, the threshing, and dressing up of the quantities in each

* Very heavy straw.
† This Wheat was hurt by dry weather.

field, were all superintended by myself, and I am therefore quite satisfied this statement will be found correct. *John Coleman, Woburn Park Farm, Sept. 4, 1863, in Mark Lane Express.*

Messrs. Clayton & Shuttleworth, Stamp End Works, Lincoln.—To those interested in agricultural statistics, the following table we compiled from the books, with the dates and numbers of the engines delivered each year, may be valuable.

Date.	Number.	Horse-power.
1845	1	8
1846	2	16
1847	8	73
1848	15	87
1849	55	316
1850	74	420
1851	126	611
1852	209	1153
1853	282	1608
1854	339	2117
1855	445	3074
1856	507	3611
1857	423	3174
1858	378	2837
1859	514	3941
1860	533	4075
1861	566	4409
1862	543	4276

Up to the end of last month (July, 1863), 395 engines were made in the year 1863. Last week—the week ending August 29, 1863—16 new and 2 old engines were turned out of the works. Of threshing machines, 13 new and 3 old ones were delivered. Four straw elevators (Hayes), 3 flour-dressing machines, and 5 corn-mills were also completed. From 60 to 70 engines, and as many threshing machines, are generally in the store-shop waiting for delivery. It is noticeable that the average size of portable engine now sold is 8-horse power; in 1855, 6-horse-power, and in 1851, 5-horse power engines were most in demand. The call for 10-horse power engines is evidently due to the general adoption of steam cultivation, to which these engines can be easily applied.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. Slatter, Streatley, near Reading.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level. At 9 A.M., Railway Time.	Thermometer: Reading of Dry Bulb.	Thermometer: Reading of Wet Bulb.	Wind. Direction.	Wind. Force, 0—6.	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Thursday..	20	29.30	47	47	S.E.	3	10	54	37	64	32	0.02
Wednesday	28	29.53	47	46	W.S.W.	2	9	48	34	57	28	..
Tuesday ..	27	29.93	39	38	N.N.W.	0	10	44	35	48	29	..
Monday ..	26	30.05	38	38	N.N.E.	0	10	54	33	61	28	..
Sunday ..	25	30.03	50	46	E.	2	3	53	40	58	42	..
Saturday ..	24	30.25	41	40	S.E.	0	10	55	33	66	31	..
Friday ..	Oct. 23	30.27	52	49	N.	0	0	62	41	74	33	..
Thursday..	20	29.30	47	47	S.E.	3	10	54	37	64	32	0.02

Notices to Correspondents.

Agricultural Education: *An Oxford B.A.* wishes to become a thoroughly good scientific and practical farmer, and has for the last few years paid great attention to agriculture, by practising it on a small scale, and by reading largely the books and periodicals which treat of it, and asks—"Would the Agricultural College sufficiently meet my wants to make it worth my while to devote a year to attending the courses of lectures delivered there, and witnessing the daily routine work on the College farm?" We believe it would.

Joints of Mutton: *Subscriber of many years.* In a Southdown carcase of 11 stones, the leg will weigh 11 lbs. The loin will weigh 11 to 9 lbs., according as the kidney and fat is or is not left in. The shoulder and neck will weigh about 9 lbs. each, and the breast 4½ lbs., or thereabouts.

The Fruitful Season and the Earthquake: *Bognor.* Variations in the warmth of the subsoil, comparing one season with another, are due to meteorological causes. "The bottom heat which caused the earthquake" is too deep for its variations to influence the roots of plants.

THE EARLIEST PEA KNOWN is CARPENTER'S EXPRESS (pods larger than any other early Pea).

Among *numerous* Testimonials the following has been received:—

From Mr. Jones, *Gardener to Lord Leconfield, Petworth, Sussex. June* 3, 1863.

"I beg to say I have found Carpenter's Express Pea to answer well as an early one; it was sown on the 20th of November, on a south border, and I gathered the first dish on the 7th of May. I had Daniel O'Rourke and your Pea side by side in November, 1861, and gathered First from Carpenter's Express in May, 1862, which led me to grow it as my earliest this year."

New Seed to be had only of Edward Carpenter, Seed Merchant, Brighton and Sussex Seed Establishment, 96, St. James's Street, Brighton. Price 2*s.* 6*d.* per quart.

Early Orders are solicited, which will be executed strictly in priority.

EARLY PEAS, warranted true to name and fine samples:—

	Per bush.—*s.*	*d.*
DANIEL O'ROURKE	10	0
SANGSTER'S No. 1	11	0
SECOND EARLY CLIMAX	15	0
BLUE IMPERIAL	8	0
BRITISH HERO	10	0

LARCH, to offer, a few thousands, 3 feet, very fine, 25*s.* per 1000.

ROSES, STANDARDS, extra fine, 2 feet 6 inches, 5*l.* per 100; per dozen, 15*s.* and 18*s.* DWARFS, worked, and on their own roots, 9*s.* and 12*s.* per dozen; per 100, 3*l.*

CATALOGUES sent on application.

N. Lawrence, Nurseryman, Chatteris.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified in the "Journal of Horticulture," page 269, to have yielded at the rate of 22 tons per Acre. Present price 6*l.* per Ton, or 8*s.* per cwt.; and to prevent disappointment orders for present or spring delivery should now be sent to Mr. Simon A. Daintree, of Fendrayton, St. Ives, Hunts. Sacks, 2*s.* each.

Seed Potatoes.

H. AND F. SHARPE are now prepared to make special offers to the Trade of the following varieties of SEED POTATOES, which have been harvested in fine condition, and free from disease. They comprise all the sorts worthy of cultivation, and have been grown with much care from the finest selected stocks. As the yield this season is very fine, the prices will be moderately low, and may be had on application.

Improved Ash-leaved Kidney	Early Fox's Seedling
Jackson's do. do.	Early Round Frame
Walnut-leaved do.	Early Martin's Globe
MYATT'S PROLIFIC do. (very productive)	Early Golden Globe
	Early King (for forcing)
Fluke Kidney	Early British Queen
Lapstone do.	Early Cockney
EARLY DALMAHOY	Early Forty-fold
Early Oxford	Early Snowball

Seed Growing Establishment, Wisbech.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.* 4 cwt.; ditto Clarified fine or sharp, 2*s.* 6*d.* cwt., put on the Rail at Reigate.

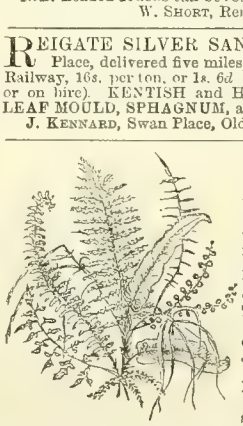
Best and second quality PEAT SOIL, LOAM, &c

N.B. Loaded Trucks can be sent on all the principal Railways.

W. Short, Reigate, Surrey.

REIGATE SILVER SAND, 12*s.* per ton at Swan Place, delivered five miles, or to any London wharf, or Railway, 16*s.* per ton, or 1*s.* 6*d.* per bushel (Sacks at cost price or on hire). KENTISH and HAMPSHIRE PEATS, LOAM, LEAF MOULD, SPHAGNUM, and COCOA FIBRE REFUSE.

J. Kennard, Swan Place, Old Kent Road, London, S.E.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

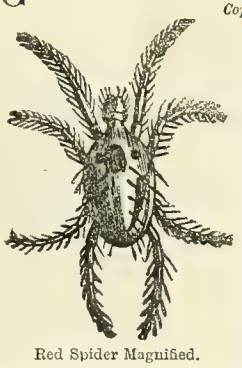
Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped 'J. Barsham's Patent'

Winter Dress all Fruit Trees with

GISHURST COMPOUND.



Red Spider Magnified.

Copy of a Letter from Mr Rivers.

"Nurseries, Sawbridgeworth, Herts, Oct. 22, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."

For Orchard-house Trees 4 ounces to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

Gishurst Compound is Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by Price's Patent Candle Company (Limited), Belmont Vauxhall, London, S.



Magnified Aphis.

NEAL'S PLANT SOAP and APHIS PASTILS,

1*s.* and 2*s.* per packet,

may be obtained from all respectable Seedsmen.

Testimonials forwarded on application to the Patentee,

J. Neal,

Edward Street, Birmingham.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value.

E. Purser, Secretary.

116, Fenchurch Street, E.C.

LAWES'S WHEAT MANURE for AUTUMN SOWING.

A supply of the above Manure is now ready for delivery, at J. B. Lawes' Factories, Deptford, and Barking Creeks. Price 8*l.* per ton.

2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. Lawes, or through any of his appointed Agents; also

SUPERPHOSPHATE of LIME	£6 6
MINERAL SUPERPHOSPHATE	5 5

Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.

American and other Cakes at market prices.

Address John Bennet Lawes, Offices, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

Autumn Sowing.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (Limited),

Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.

Chairman.—John Clayden, Littlebury, Essex.
Managing Director.—James Odams.

Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex.

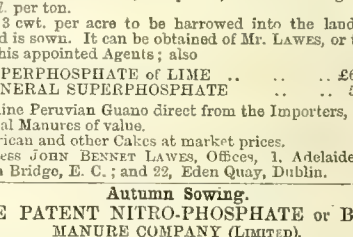
ODAMS'S BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, has been in use for upwards of 11 years, and has given great satisfaction to consumers.

Orders may be sent to the Company's Agents throughout the country, or direct to C. T. Macadam, Secretary.

Offices: 109, Fenchurch Street, London, E.C.

Price 7*l.* 10*s.* per Ton, delivered at any Railway or Wharf in London.

GREEN'S LATEST IMPROVED PATENT NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES, which gained the First Prize Medal of the International Exhibition.



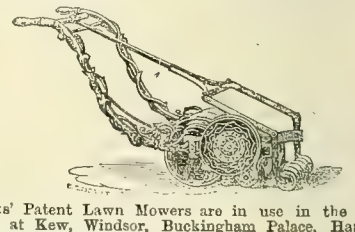
Patronized by Her Most Gracious Majesty the Queen during the seasons of 1862 and 1863.

These Machines have proved to be the best, and have carried off every prize that has been given in all cases of competition.

ILLUSTRATED PRICE LISTS on application.

Thomas Green & Son, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

SHANKS' NEW IMPROVED LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINES were awarded the First Prize Medal of the International Exhibition.



Shanks' Patent Lawn Mowers are in use in the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

These Machines are allowed to be the best and by far the most durable ever offered to the public.

ILLUSTRATED CATALOGUES on application to A. Shanks & Son, Dens Iron Works, Arbroath; or 27, Leadenhall Street, London, E.C.

PORTABLE FARM RAILWAYS.—Full particulars of a System that works well and profitably may be had on application to the Manufacturer and Patentee, Mr. J. Grant, of Linton, Kent.

Farmers, especially those who cultivate by steam, are respectfully requested to notice the amount of damage done to the soil by the carting in the autumn and winter seasons, and how far the natural inclination of the fields might be made available as a motive power for railway trucks, and how far cultivation has prepared the surface for the rapid laying of flat-bottomed rails unencumbered by cross sleepers or tedious fastenings of any kind; and also to notice what proportion of the cornfields are favourable for running the crops to the stacks of their own weight without horses.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. Gray begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

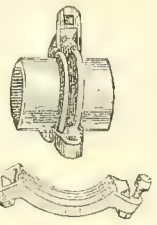
JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

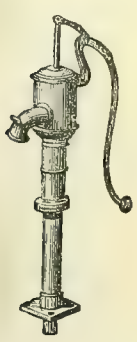
By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints

Estimates and Plans forwarded on application to
T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

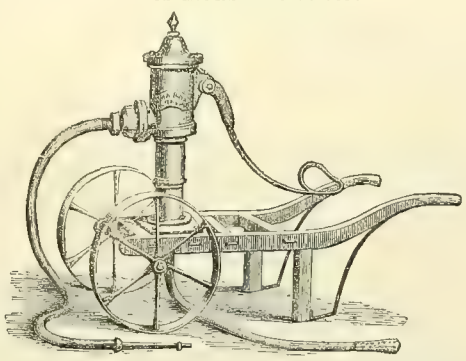
JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

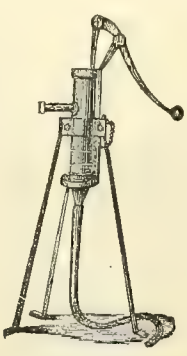
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35.



No. 36½. Improved Cast-Iron Lift and Force Pump.



No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.
When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

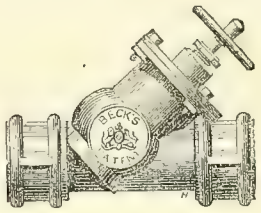
No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the
PATENTEES and MANUFACTURERS,
JOHN WARNER and SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

BECK'S

PATENT HOT-WATER VALVES



AT GREATLY REDUCED PRICES *as*:—

2 In.	3 In.	4 In.
12s. 6d.	16s. 6d.	20s. 0d.

Upwards of 4000 of the Patent Valves are now in use and giving the greatest satisfaction.

John Beck can also supply large quantities of his

IMPROVED THROTTLE VALVES

on the shortest notice.

JOHN BECK,

PATENTEE AND MANUFACTURER

OF EVERY DESCRIPTION OF

GAS, WATER, and STEAM FITTINGS,

FIRE COCKS, WATER CLOSETS, ETC.

PATENT VALVE WORKS

AND SANITARY DEPOT,

GREAT SUFFOLK STREET, LONDON, S.E.

T. G. MESSENGER, Horticultural Builder and Engineer, Loughborough.



T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

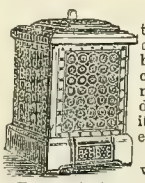
T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES of the above, Glazing without Putty, Garden Engines, &c., sent upon application.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE

This Stove is the nearest approach to Warming by Hot Water.



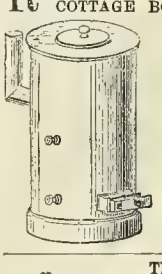
It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW HOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

Musgrave Brothers, Ann Street Iron Works, Belfast.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

The only Stove without a Flue.



JOYCE'S PATENT, for Warming Chapels, Halls, Shops, Conservatories, and all other Places. Price from 12*s.* 6*d.* each.

JOYCE'S STOVES are Portable and Economical, and burn 12 hours with one supply of fuel, requiring no attention.

STOVES for GREENHOUSES are made to burn all the Winter. Temperature always the same. Patent Fuel, 2*s.* 3*d.* per bushel.

Swan Nash, Patentee, 253, Oxford Street; and 119, Newgate Street, London, E.C.

Illustrated Catalogues post free.

Hothouses for the Million.—AWARDED A PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner, all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to SAMUEL HEREMAN, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1*s.* ; post free, 1*s.* 1*d.*

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard :—2-inch, 1*s.* 2*d.* ; 3-inch, 1*s.* 10*d.* ; and 4-inch, 2*s.* 4*d.* BENDS, from stock, 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection ; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

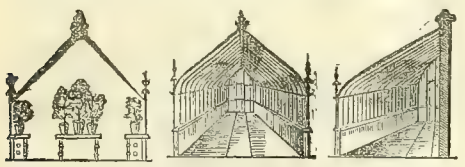
MR. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

For Sale, at E. Dench's Patent Horticultural Works, King's Road, Chelsea.

E. DENCH being about to DISPOSE of his HORTICULTURAL BUSINESS, has on hand a considerable number of VINERIES, GREEN and HOTHOUSES, which he will dispose of at a low price to clear his premises.

The Sizes being from 16 ft. to 36 ft. in length, and from 10 ft. to 15 ft. in width.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the

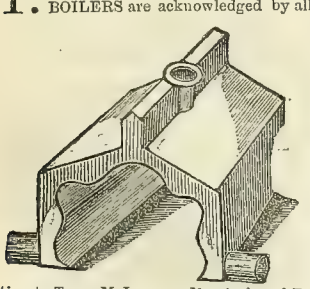


best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect ; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure

For Prospectus, &c., address T. H. P DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St. Chelmsford, Essex.

T. M. LOBJOIT'S PATENT HOT-WATER BOILERS are acknowledged by all who have them in use to be the most powerful Boilers now known, and are the most economical, requiring less fuel and attention than any other. They are made of various sizes, suitable for heating the smallest Greenhouse to the largest Conservatory, Churches, and Buildings of all descriptions.



Testimonials forwarded on application to THOS. M. LOBJOIT, Horticultural Builder and Hot-Water Apparatus Manufacturer, Turnham Green, W., and at Acton, Middlesex, W. The Trade supplied.

Second-hand Greenhouses and Pit Lights.

J. WEEKS AND CO. have a large Stock of the above for SALE. Parties wishing to Purchase must send and select for themselves.

J. WEEKS & Co., Horticultural Builders, King's Road, Chelsea.

Second-hand Hot-water Boilers in Great Variety.

J. WEEKS AND CO. have a large stock of BOILERS that they have taken out, some as good as new, consisting of SADDLE, CONICAL, the RIBBED, the CANNON, and many others.

Parties wishing to purchase must send and select for themselves.

J. WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, W.

Greenhouses, Orchard-houses, and Conservatories.

H. FREEMAN'S HORTICULTURAL WORKS, Triangle, Hackney, N.E. Established 20 years.

Good substantially made GREENHOUSES, glazed, ready for fixing, 42 feet by 13 feet, 50*l.* ; 21 feet by 13 feet, 28*l.* ; 12½ feet by 10 feet, 15*l.* ORCHARD-HOUSES, 10 per cent. cheaper. A handsome CONSERVATORY, 46 feet by 19 feet, for Sale.

Estimates given.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK, 31, Cornhill, E.C. ; late 6, Coleman Street.

*** Catalogues sent on receipt of 6 postage stamps.

ROCKWORK FERNERIES, WATERFALLS, CAVES, BANKS of STREAMS and PONDS, executed in the only way it should be, *i.e.*, to imitate Natural ROCKS. Worked with pockets, for plenty of plants, by JAMES PULHAM, Broxbourne, Herts.

References to works executed in 10 counties, some by the recommendation of W. B. THOMAS, Esq., R. MARNOCK, Esq., and E. MILNER, Esq.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows :—

PROPAGATING GLASSES.



	Each—*s.*	*d.*		Each—*s.*	*d.*
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 ,, ,, ..	0	4½	13 ,, ,, ..	2	0
4 ,, ,, ..	0	5½	14 ,, ,, ..	2	6
5 ,, ,, ..	0	6½	15 ,, ,, ..	3	0
6 ,, ,, ..	0	8	16 ,, ,, ..	3	6
7 ,, ,, ..	0	10	17 ,, ,, ..	4	0
8 ,, ,, ..	1	0	18 ,, ,, ..	5	0
9 ,, ,, ..	1	2	19 ,, ,, ..	6	0
10 ,, ,, ..	1	4	20 ,, ,, ..	7	0
11 ,, ,, ..	1	6			

HAND GLASSES, WITH OPEN TOPS.



	Each—*s.*	*d.*		Each—*s.*	*d.*
12 inches	6	6	18 inches	9	6
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

Painted and Glazed with 16 oz. Sheet Glass.

HYACINTH and FLOWER DISHES.

6 inches diameter, 1*s.* ; 9 inches, 1*s.* 6*d.* ; 12 inches, 2*s.* 6*d.*

Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

HYACINTH GLASSES.

Common shape, p. doz , 2*s.* 6*d.* | Improved shape, p. doz , 4*s.* 6*d.*

Patent shape, per dozen, 6*s.* 6*d.*

London Agents for Hartley's Improved Patent Rough Plate. Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

ANDERSON'S ARCHANGEL MATS are the best for all Garden purposes. PETERSBURG and PRUSSIAN DUNNAGE MATS. SACKS and BAGS of every description. ROPES, LINES, and TWINES.

Prices sent free on application.

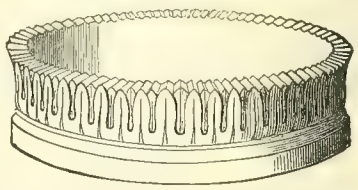
JAMES T. ANDERSON, 15, Sherborne Lane, King William Street, London, E.C.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they will not be undersold by any House in the Trade. They also warrant one of their Knives to last two of any other make.

Paxton Works, Sheffield.

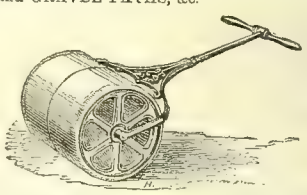
.....6 feet 9 inches.....



AUSTIN, SEELEY, AND CO. beg to inform the Nobility and Gentry that they are prepared to supply, at three months' notice, TAZZE for Flowers or Fountains, as wide as 13 feet. They take this opportunity of referring to some large Flower Basins and Plain Kerbings made by them for the Royal Horticultural Society's Gardens ; and also to those lately supplied to the Public Garden in the Regent's Park. They will be happy to forward a List of their Fountains to any gentleman requiring one.

369 to 375, Euston Road, Regent's Park, N.W.

GREEN'S IMPROVED NEW PATENT ROLLER for LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS, &c.



These Rollers possess many advantages over all others ; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the very best materials, and are got up in a manner surpassing any ever yet brought out.

PRICES :—

Diameter 30 inches, length 32 inches ..	..	£7	0 0
,, 24 inches, ,, 26 inches ..	..	4	5 0
,, 20 inches, ,, 22 inches ..	..	3	5 0
,, 16 inches, ,, 17 inches ..	..	2	10 0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds ; and 2, Victoria Street, Holborn Hill, London, E.C.

THOMAS MILLINGTON,

GLASS MERCHANT.

ESTABLISHED 1750.

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

The Agricultural Hall, Islington, containing an Acre of Glass, was supplied by T. MILLINGTON.

Mr. Rivers, and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home Use and for Exportation.

☞ *For prices see Advertisement of October 24.*

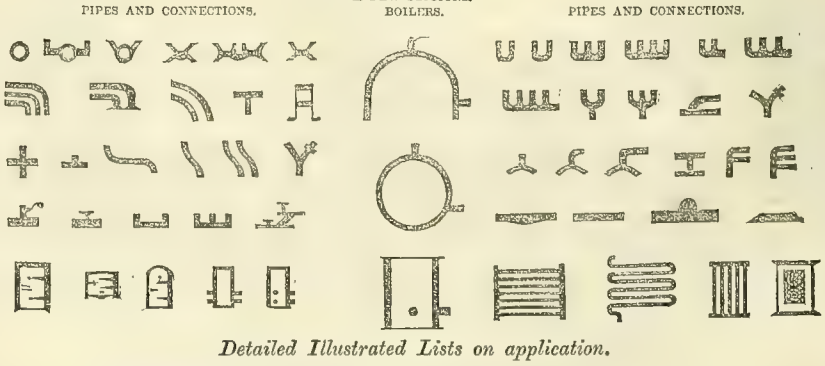
ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

HOT-WATER APPARATUS,

FIXED AND UNFIXED.

PIPES AND CONNECTIONS. A FEW SECTIONS. BOILERS. PIPES AND CONNECTIONS.



Detailed Illustrated Lists on application.

CONSERVATORIES, GREENHOUSES, &c. PATENT STABLE FITTINGS.

EVERY DESCRIPTION OF IRON WORK.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS and MACHINES of every description.
Illustrated Catalogues on application.
Thomas Green & Son, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

HAAGE'S PRUSSIAN WOODEN FLOWER STICKS and TALLIES.—Commended by the Royal Horticultural Society. All sizes can be obtained Wholesale of Messrs. Betham & Blackith, Cox's Quay, Lower Thames Street; or Retail of any Seedsman in London or the Provinces.—London, Oct. 31.

TREE and PLANT LABELS.—10,000 CLOTH or PATENT PARCHMENT PUNCHED LABELS for 30s. Delivered free in London on receipt of a Post office Order or Stamps for the amount. Address John Fisher & Co., West Road Works, Boston, Lincolnshire.

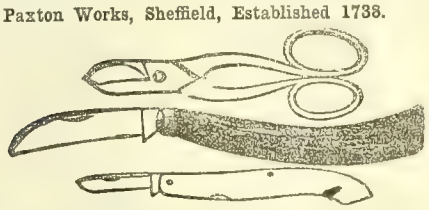
SHAW'S TIFFANY, For samples and prices apply to J. Shaw & Co., 29, Oxford Street, Manchester.

The Original Seed Bag Manufactory.
ALEXANDER NICOL and CO., Manufacturers of SEED BAGS, CORN SACKS, &c. Chalmers Street Works, Arbroath, N.B.

GARDEN BORDER-EDGING TILES, in great variety of patterns and material.
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability.
May be obtained at F. & G. Rosher's Premises, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; and Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability. Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.
To be obtained of F. & G. Rosher at their Premises as above.

Paxton Works, Sheffield, Established 1738.



International Exhibition Prize Medal was Awarded to Saynor & Cooke for superiority of quality in Pruning and Budding Knives, &c.
SAYNOR and COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.
Caution.—None are genuine unless marked Saynor. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

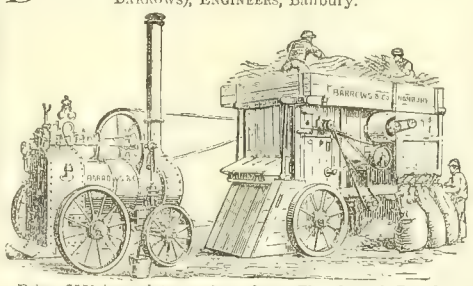
Gutta Percha Tubing for Watering Gardens.
THE GUTTA PERCHA COMPANY have the pleasure to acknowledge the receipt of the following
Testimonial from Mr. J. Farrah, *Gr. to* Boswell Middleton Jalland, Esq., *of Holderness House, near Hull.*
"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."
Manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, E.C., and sold by their Wholesale Dealers in town and country.

Oil Paint no longer Necessary.
HILL and SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
Apply to Hill & Smith, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from the COLD WINDS & MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.
Two yards wide .. .. 1s. 8d. per yard run.
Four yards wide .. .. 3s. 4d. per yard.
An improved make, 2 yards wide, 1s. 9d. per yard.
An improved make, 3 yards wide, 2s. 8d. per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.
Elisha Thomas Archer, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

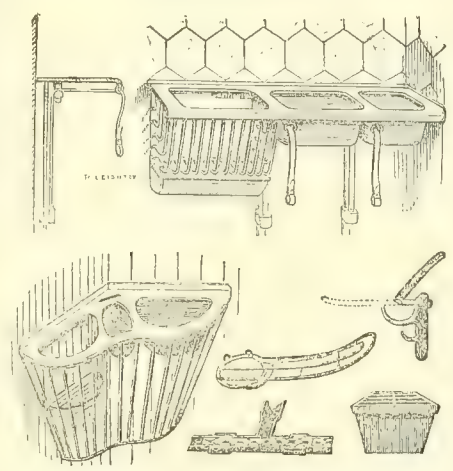
Horticultural Agent and Valuer.
MR. A. CHANDLER (of the late Firm of Chandler & Sons) continues to undertake all kinds of VALUATIONS connected with Horticulture.
1, Devonshire Terrace, Fulham Road, S.W.

BARROWS and CARMICHAEL (late Kirby & Barrows), Engineers, Banbury.



Price 255*l.* complete, and ready to Thresh and Finish 50 quarters of Grain a day in the most perfect manner. Guaranteed of best Workmanship and Material. Prizes in money and Medals have been received from important Agricultural Societies in England, Ireland, and the Continent.

COTTAM'S PRIZE STABLE FITTINGS and HARNESS BRACKETS.



These Fittings, now so generally specified by Architects in their specifications, may be seen at the Manufactory, 2, Winsley Street, Oxford Street, W., where a large supply is always on hand and regular sizes kept in stock, and where full-size Stalls and loose Boxes (variously arranged, with a view to the economy of space) can be examined.
Cottam & Company, Manufacturers and Patentees, hold the Prizes of 1851, 1855 (Paris) and 1862, for these Fittings.
*** Apply for No. 3 Catalogue, to be had free of Cottam & Co., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

BLACK and RED, in CALF, KERRY CATTLE, of the purest breed, for SALE, by Richard G. Campion, Esq., Youghal, Co. Cork. No Cow so suitable for Villas.

To Seedsmen and Others.
FOR SALE by TENDER, in One or more Lots, the well selected STOCK of FARM and GARDEN SEEDS and GARDEN IMPLEMENTS of Mr. J. H. Robinson, Seedsman, Coventry. Value at wholesale prices about 140*l.* The Premises are to Let, and may be taken or not, at the option of the Purchaser.
Apply to Mr. Thomas Clarke, Auctioneer, 1, Hertford Street, Coventry.

NURSERY and SEED BUSINESS.—The Senior Partner of an Old Established Business in the West of Scotland is desirous of retiring, and will DISPOSE of his INTEREST in the concern on reasonable terms. Any active young Man acquainted with the Trade, and possessed of moderate Capital, will find this a favourable opportunity of joining a good going Business capable of great extension. Communications from principals only will be attended to, and strict confidence observed.
Address X. Y. Z., care of Messrs. Mudie & Sons, No. 15, Coventry Street, London, W.

TO BE DISPOSED OF, an OLD ESTABLISHED HORTICULTURAL BUSINESS and EXTENSIVE PREMISES, in the best part of King's Road, Chelsea, S.W. The proprietor retiring from business.
Apply to E. D., 152, King's Road, Chelsea, S.W.

TO BE LET, in the neighbourhood of a thriving town in Gloucestershire, and one mile from a railway station, a NURSERY, containing about 9 Acres of excellent Land, with a Stove and Greenhouse, Pits, and requisite Offices, with superior Fittings all complete.
To an industrious Man desirous of entering the Nursery Business with a small capital, this is an opportunity which seldom presents itself. Coming-in very low. There is a Cottage adjoining, and a Shop may be had in the town if thought necessary.
For Particulars apply to Mr. John Sealy, Mugland Nursery, St. George's, near Bristol.

TO BE LET, NURSERY GROUNDS in Brighton, comprising extensive Vineries and Peach-houses, in good bearing condition; large Span-roofed and Lean-to Houses, and Pits for Plants; also, a capital Residence and Cottages, with Stabling and Coach Houses.
The Stock can be taken at a valuation or a fixed sum, as agreed upon, or a PARTNER with Capital would be accepted.
Full Particulars to be had on application to the Garden Superintendent, Alexandra Park, Tottenham Wood, Hornsey.

To Nurserymen and Florists.
TO BE DISPOSED OF, in the vicinity of Clapton, through the death of the Proprietor, a small NURSERY with DWELLING-HOUSE, SIX GREENHOUSES and PITS, the Ground is well stocked with Shrubs, Roses, &c. Fourteen years' Lease at a low Rent.
For terms, &c., apply to Mrs. Coole, Lea Bridge Road, Upper Clapton, N.E.

Sales by Auction.

Consignment of Plants from Ghent.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, November 2, at half-past 12 o'clock precisely, an IMPORTATION, from a well-known Nurseryman in Ghent, consisting of CAMELLIAS, AZALEAS, LILIUM LANCIFOLIUM, hardy RHODODENDRONS, &c.
On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Holland.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 4, at half-past 12 o'Clock precisely, a Collection of choice FRUIT TREES, ROSES, RHODODENDRONS, CONIFERS, HARDY and ORNAMENTAL SHRUBS, &c.
On view the Morning of Sale, and Catalogues had.

ENGLISH WOOL SALE in London, by PUBLIC AUCTION, on WEDNESDAY, November 4, at 3 o clock, at the Wool Sale Rooms, 54A, Moorgate Street, E.C.—About 1200 Packs of LONG and SHORT WOOL from various counties, including a large proportion of Lincoln, Kent, and other bright-haired Wools. Also some superior selected IRISH WOOL, and about 70 packs of SKIN WOOL.
Catalogues may be had the day previous to Sale on application to Bradbury & Cook, Wool Brokers, 17, Basinghall Street, London, E.C.

Handsome Standard and Dwarf Roses, Dutch Bulbs, &c.
MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, November 6, at 12 o'Clock, a first-class Collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Crocus, Tulips, Jonquils, Anemones, Iris, &c.; also 300 handsome STANDARD and DWARF ROSES, comprising the best Hybrid Perpetuals, Bourbons, Chinas, &c., choice assortment of American Plants, &c.
On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Tulips.
MESSRS. PROTHEROE and MORRIS are instructed by the Executrix of the late Mr. May to SELL by AUCTION, at the Mart, on TUESDAY, Nov. 10, at 12 o'Clock, the whole Collection of TULIPS, including many choice named varieties and Seedlings not in possession of any other growers; also two Cabinets for 125 rows. Together with an Assortment of First-class DUTCH BULBS, Standard and Dwarf ROSES, AMERICAN PLANTS, &c.
On View the Morning of Sale. Catalogues had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Peckham.
MESSRS. PROTHEROE and MORRIS are instructed by Mr. G. Falconer to SELL by AUCTION, without reserve, on the Premises, Victoria Nursery, Victoria Road, close to the Adam and Eve, Peckham, on MONDAY, November 16, at 12 o'Clock, the ground being immediately required to be cleared, a fine assortment of STANDARD and DWARF ROSES, Dwarf-trained Peaches and Nectarines, Standard Apples, Currants, and other Fruit trees; also choice Azalea indica, Ericas, and other Greenhouse Plants, four Greenhouses, 13 One and Two-light Boxes, capital Saddle Boiler, Bricks, Garden Tools, and sundry effects.
May be viewed week prior to the Sale. Catalogues had on the Premises; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

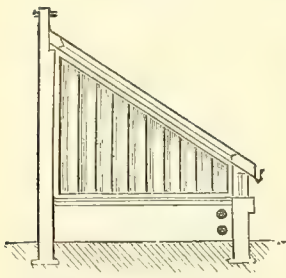
Winchester.
To Gentlemen, Nurserymen, Gardeners, and Others.
Important Sale of Nursery Stock.
MR. JAMES HARRIS has been favoured with instructions to SELL by AUCTION, on the Premises on WEDNESDAY, November 4, at 10 for 11 o'Clock, a portion of the valuable NURSERY STOCK, late the Property of Mrs. Shilling (owing to the Land being required for Building purposes), comprising choice Fruit Trees; Portugal, Variegated, and other Laurels; Arbor-vitæ, Laurustinus, Irish and English Yews, Hollies, Box Trees, Weeping Ash, and other choice and ornamental Shrubs; also a large variety of Ash, Filberts, Cob Nut, Hazel, Limes, Larch, Scotch and Spruce Firs, and other Plants, the whole of which will be described in Catalogues, which may be obtained on the Premises; at the principal Inns; and of the Auctioneer, Jewry Street, Winchester.

Sale of Quick, Larch and Spruce.
Melbourne, near Derby.
MESSRS. NEWBOLD and OLIVER have received instructions from Mr. S. Robinson, Shaw House, Melbourne, to SELL by AUCTION, at the Melbourne Arms Inn, Melbourne, on TUESDAY, November 3, at 3 o'clock in the afternoon, upwards of 300,000 three-years Bedding and Transplanted QUICK; 100,000 fine LARCH, 2½ to 3½ feet; 40,000 SPRUCE, same size; also some fine SCOTCH. The Quick is highly suitable for enclosure or railway purposes. The Firs will be sold in Lots, or by sample, at per thousand.
To view, apply to Mr. Robinson, on the Premises; or to Mr. Geo. Earle, Melbourne Arms Inn, Melbourne, Derbyshire.

Donnington Nursery, near Newbury, Berks.
One mile from the Great Western Railway Station.
MR. C. W. DOE is favoured with instructions from the Proprietor, Mr. Lay, in consequence of the Land being required for Building Purposes, necessitating an early clearance, to SELL by AUCTION, on the Premises, as above, on WEDNESDAY, Nov. 4, at 10 o'Clock, the whole of his valuable NURSERY STOCK, consisting of Standard and Dwarf Roses, of best leading sorts, named; Deciduous and Flowering Shrubs, of choicest varieties: choice Dwarf-trained and Maiden Fruit trees, Laurels, Gooseberry and Currant trees; 12,000 Manetti Stocks (more or less); 1500 Oaks, two-years' growth. The Auctioneer invites the attention of gentlemen and nurserymen to the above Stock, which has been grown in a soil of an adhesive character, peculiarly adapted for the growth of Roses and Shrubs, and calculated to produce strong fibrous roots and full heads.
May be viewed the day previous and Morning of Sale. Catalogues may be obtained of the Auctioneer, Newbury. A punctual attendance is requested on account of the large number of lots.

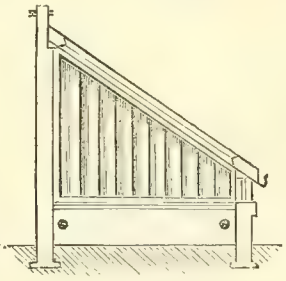
J. JONES'S HOT-WATER APPARATUS.

No. 7.



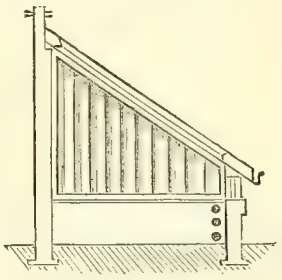
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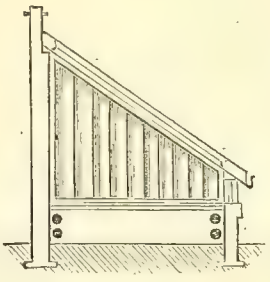
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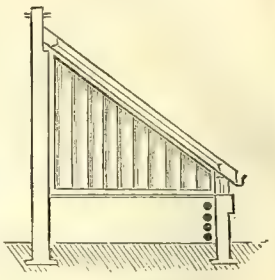
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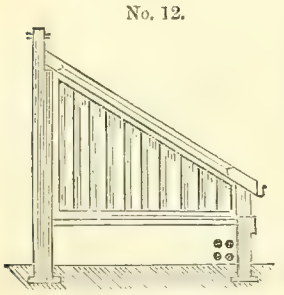
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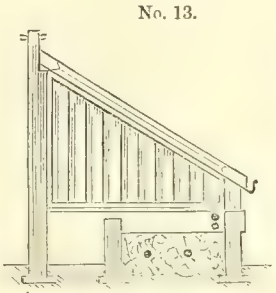
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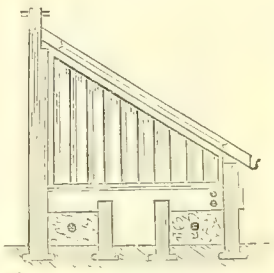
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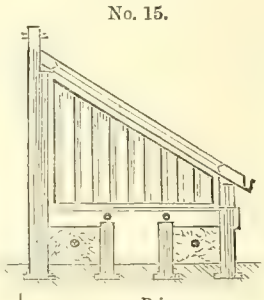
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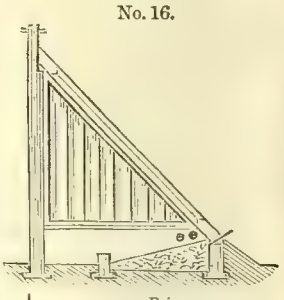
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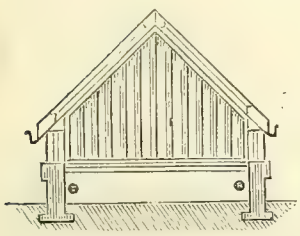
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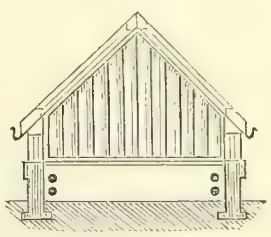
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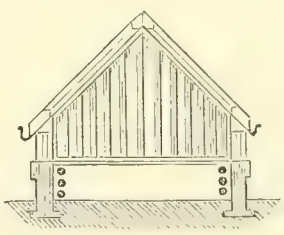
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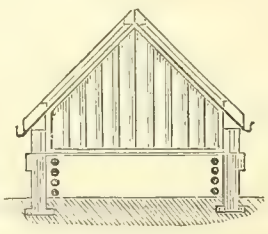
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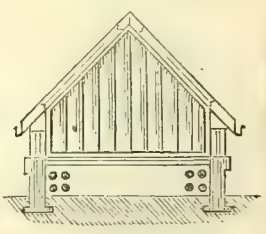
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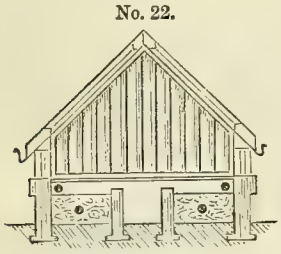
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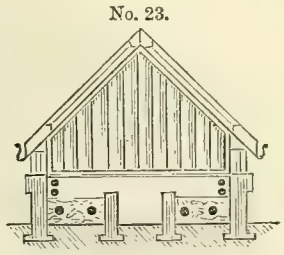
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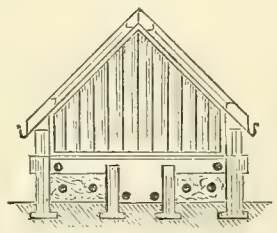
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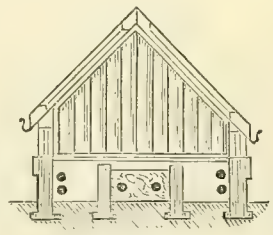
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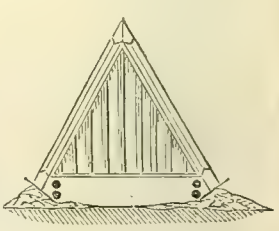
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No. 25.



Price
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25 0 0
30 0 0
35 0 0
40 0 0
45 0 0
50 0 0
55 0 0

No. 26.



Price
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

J. JONES will be happy to supply HOT-WATER APPARATUS for HOUSES according to any of the above Plans, delivered Free to any Station in England at the prices named, which include strong CAST-IRON CYLINDER or SADDLE BOILER, FURNACE DOORS, FIRE BARS, SOOT DOORS, CISTERN and DAMPER, 4-inch HOT-WATER PIPES and CONNECTIONS, all of the best quality; or he will forward ESTIMATES for WORK erected complete, with WROUGHT or CAST-IRON BOILER of any sort, at a small addition to the above prices.

☞ *The Black Circles on Sections of Houses show the arrangement of Pipes.*

Illustrated Catalogues and further particulars post free on application to

J. JONES, IRON MERCHANT AND HORTICULTURAL ENGINEER, 6, BANKSIDE, LONDON, S.E.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 45.—1863.] SATURDAY, NOVEMBER 7. {Price Fivepence. {Stamped Edition, 6d.

INDEX.

Agricultural drainage	1067 c	Guiana, British	1063 b
Anacharis Alsinastrum, 1060 a,	1062 c	Hyacinths, new	1060 a—1061 c
Apples, Nova Scotian	1060 b	Japan	1059 a
Birds	1061 a	London Farmers' Club	1066 a
— cage	1062 a	Nova Scotian fruit	1060 b
— v. Crocuses	1062 b	Orchids, cool country	1059 c
Cemeteries	1062 b	Prize farm agreement	1067 a
Cephalotaxus Fortuni	1062 c	Railway horticulture	1062 c
Chrysanthemums	1063 c—1064 a	Roses	1062 b
Farmers' Club, Halberton	1069 a	Rose Amateur's Guide, rev.	1063 c
— — Torksey	1069 b	Salter's (Mr.) nursery	1063 c
— — Dorking	1069 c	Silkworms	1064 c
— — Bukewell	1070 a	Society, Royal Agricultural of England	1068 c
Farm memoranda	1070 a	— Acclimatisation	1061 c
Fern burning and rain	1064 a	— Royal Horticultural	1063 a
Flower stands	1061 b	Squares, town	1062 a
Foliage plants	1060 c	Steam cultivation	1067 a
Forests, Royal	1064 b	Swallows	1063 a
Fuchsia deformities	1062 b	Temple Chrysanthemums	1064 a
Sarsden estate	1065 c	Weather, The	1062 c
Gorse	1068 c		

☞ NOTICE TO ADVERTISERS. — *Advertisements must reach the Office by* THURSDAY'S *post. They should be written on one side of the paper only.*

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.

The Next MEETING of this Committee will take place on TUESDAY, November 10, at 12 o'Clock, in the Council Room. The subjects for examination must be at South Kensington for Entry by 11 o'clock.

THOS. MOORE,
Secretary to the Committee.

GREAT CHRYSANTHEMUM SHOW,
AGRICULTURAL HALL.

The FIRST SHOW of the AMALGAMATED SOCIETIES will be held NOVEMBER 11, 12, and 13. Bands of the Scots Fusilier Guards (by kind permission of Col. de Bathe), the Victoria Rifle Volunteers, the Royal Caledonian Asylum, the Brothers Shapcott, and the Infant Drummer. Great Organ Performances by Mr. F. Archer, daily.

Admission: Wednesday 11th, 2*s.* 6*d.*; Children, 1*s.* Thursday 12th, and Friday 13th, 1*s.*; children, 6*d.*

GREAT CHRYSANTHEMUM SHOW,
AGRICULTURAL HALL.

On WEDNESDAY, 11th, GRAND CONCERT by the Vocal Association, accompanied by the Scots Fusilier Guards' Band. Conductor, M. Benedict. 20th Middlesex Volunteers. Presentation of Prizes at the Concert. Doors open at 12 each day.

GREAT CHRYSANTHEMUM SHOW.
AGRICULTURAL HALL.

On THURSDAY, 12th, GRAND CONCERT, by the North London Vocal Union. Conductor, Mr. R. Glenn Wesley. On Friday, the 13th, Metropolitan Brass Band Contest.

New Chrysanthemums.

JOHN SALTER'S COLLECTION of these beautiful Flowers is NOW in FULL BLOOM. The Winter Garden contains all the finest varieties in cultivation, together with the NEW CHRYSANTHEMUMS for 1864. The Gardens are open every day except Sunday.

Versailles Nursery, William Street, near Hammersmith Turnpike and the Kensington Railway Station.

Notice.

J. H. BIRD, the great CHRYSANTHEMUM GROWER of Stoke Newington, in answer to numerous inquiries, begs to inform his friends and the public, that although he has given up Exhibiting for Competition himself, he still supplies other Exhibitors with SPECIMEN BLOOMS for that purpose in large and small quantities, and on the same liberal terms as in previous years.

CHRYSANTHEMUMS. — Well-grown plants of leading kinds, both Pompone and Large-flowering, in 4 and 6-inch pots, well covered with Foliage, and full of Bloom. at 4*s.*, 6*s.*, and 9*s.* per doz.

WOOD & INGRAM, Huntingdon.

ROSES.—CATALOGUES for 1863 and 1864 forwarded free on application.

JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

ROSES.—The DESCRIPTIVE CATALOGUE of ROSES for the present season, the 30th Edition, by THOMAS RIVERS, is now ready, and will be sent free on application. Nurseries, Sawbridgeworth.

ROSES.—Superb STANDARDS, 18*s.* per dozen; Ditto ditto DWARFS, 12*s.* per dozen. NEW ROSES of 1863: DWARFS, 36*s.* per dozen.

DESCRIPTIVE PRICED LISTS on application.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ROSES, Fine STANDARDS, 18*s.* per dozen and upwards; DWARFS, 9*s.* per dozen and upwards. NEW ROSES of 1863: DWARFS, 30*s.* to 36*s.* per dozen.

WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Roses.

PAUL AND SON have this season much pleasure in offering both STANDARD and DWARF ROSES in any quantity, at moderate prices. Their Stock is unequalled, both of the new and older kinds.

"Old" Cheshunt Nurseries, Herts, N.

E. P. DIXON AND SONS' CATALOGUES of ROSES and FRUIT TREES are now ready, and may be had free on application.

57, Queen Street, Hull.

DILLISTONE'S FIRST EARLY PEA. — This is the earliest Pea ever raised (*vide* Horticultural Society's Report). Price per quart, 2*s.* 6*d.* for stamps.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH,
SEED MERCHANTS.
WANTED to PURCHASE, a few Tons of DANDELION Roots.
Covent Garden Market, London, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON,
NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

Yorkshire Seed Establishment.

EDMUND PHILIP DIXON AND SONS,
SEED MERCHANTS and NURSERYMEN,
57, Queen Street, Hull.

Nursery Lists, Wholesale and Retail.

RICHARD SMITH,
NURSERYMAN and SEED MERCHANT.
St. John's, Worcester.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

New Rose Catalogue for 1863-64.
New Bulb Catalogue for 1863.

WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON will be happy to send copies of the above gratis and post free to all applicants.

Wholesale Nursery List for 1863-1864.

PETER LAWSON AND SON, Edinburgh and London, will forward the above to the Trade on application.

AZALEA SOUVENIR DU PRINCE ALBERT.—The most distinct and novel. Good plants, 21*s.*

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

HOLLAND AND BAYLEY'S DESCRIPTIVE PRICED CATALOGUE of Carnations, Picotees, Pinks, Pansies, Phloxes, Auriculas, Polyanthuses, Azaleas, Roses, Apples, Gooseberries, Currants, &c., is now ready, and may be had on application.

Bradshaw Gardens, Chadderton, near Manchester.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.

Dorking Nursery.

New Primula Seed.

JAMES CARTER AND CO. have a small quantity of ex. ex. choice, dark carmine, pure white, and mixed Fringed PRIMULA SEED to offer to the Trade. Price on application.

The quality of these articles may be fully relied on as being first-rate.

Royal Nursery, Great Yarmouth.

YOUELL AND CO.'S New CATALOGUE of GREENHOUSE PLANTS, Rare and Hardy CONIFERÆ, SHRUBS, GLADIOLI, &c., is ready, and will be forwarded on application.

Superb Double Hollyhocks.

WILLIAM CHATER'S NEW LIST is now ready, and may be had on application by enclosing one Postage Stamp.

P.S. A large stock of FINE PLANTS now ready.

Nurseries, Saffron Walden.

Agricultural, Garden and Flower Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E.

SPECIAL LISTS of SEEDS (crop 1863) gratis on application.

Prices the lowest consistent with first-class quality.

NEW FUCHSIAS (post free). NORTHERN LIGHT and RIFLEMAN, now sending out; Blue and Mauve-coloured Corollas. 5*s.* each.

EMPEROR of the FUCHSIAS, the most beautiful and elegant white corolla'd variety.

E. G. HENDERSON & SON, Wellington Road, London, N.W.

Seed Potatoes.

H. AND F. SHARPE are now taking orders for their selected stocks of MYATT'S PROLIFIC KIDNEY POTATOES, and EARLY DALMAHOY (round) POTATO; the earliest and most productive varieties in cultivation.

Seed Growing Establishment, Wisbech.

CUCUMBER SEED.—Early Prince Albert, Highland Mary, Black Spine, and Long Gun. The best MELONS, &c. The Trade supplied reasonable by the ounce. Best MUSHROOM SPAWN. Mushrooms grown there all the year round. See Pamphlet on the Mushroom, price 1*s.* 1*d.*

JAMES CUTHILL, Camberwell, London, S.

To Hyacinth Growers.

SUTTON'S DESCRIPTIVE LIST is NOW READY, Post Free.

SUTTON & SONS, Reading, Berks.

The Best Twelve Hyacinths Imported by

SUTTON AND SONS
for Twelve Shillings (Carriage free).

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Exhibition Hyacinths, Tulips, Crocus, &c.

CARRIAGE PAID.

BARR AND SUGDEN, SEED MERCHANTS and IMPORTERS of CONTINENTAL BULBS.
12, King Street, Covent Garden, W.C.

Dutch Bulbs, &c.

JAMES FAIRHEAD AND SON, 7, Borough Market, beg to intimate they have still on hand a good supply of the above, of first size, and excellent quality.

Hyacinths and other Choice Bulbs.

B. S. WILLIAMS'S DESCRIPTIVE CATALOGUE of the above post free to all applicants.

Choice HYACINTHS for Glasses or Pots, 6*s.*, 8*s.*, 10*s.*, 12*s.* per dozen.

Paradise and Victoria Nurseries, Holloway, London, N.

Hyacinths, Tulips, Crocuses, &c.

BUTLER AND McCULLOCH'S importation of DUTCH BULBS are unusually fine this season.

CATALOGUES Post free upon application.

BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Imported Dutch Bulbs.

JAMES CARTER AND CO.'S CATALOGUE of BULBS, with Cultural Directions, forwarded free of charge, on application to 237, 238, High Holborn, London, W.C.

IMPORTED DUTCH BULBS.—First-class Dutch Bulbs of every description just imported.

JAMES CARTER & CO., 237, 238, High Holborn, London, W.C.

Grape Vines.

WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery.

PRICED LIST on application.

PAUL'S Nurseries and Seed Warehouse, Waltham Cross, N.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.

Highgate Nurseries, London, N.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10*s.* 6*d.* each.

LIST of SORTS sent on application.

Wellington Nursery, St. John's Wood, London, N.W.

CURRANTS for PLANTING.—Several thousand of the LARGE RED and NETTLE LEAF WHITE varieties, 3 and 4 years old, very strong, now coming into immediate bearing. To clear the ground will be parted with at 15*s.* per 100, or 5*l.* per 1000.

T. MITTON, Lampton, near Hounslow, W.

Pear Culture.

A DESCRIPTIVE CATALOGUE of PEARS, by THOMAS RIVERS (separate from the Catalogue of Fruits) sent free on application.

Nurseries, Sawbridgeworth.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form they can be desired for Fruiting.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester

Lavender Bushes.

FOR SALE, One Thousand fine BUSHY PLANTS of the above, 2 feet high, and three years old, at very moderate prices. Apply to

H. & F. SHARPE, Nurserymen and Seedsmen, Wisbech.

Snowdrops Wanted.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C., will be glad to have offers of the above.

Violet and Strawberry Growers.

WANTED, good strong plants of NEAPOLITAN VIOLETS; also several hundred strong STRAWBERRIES in Pots for Forcing. Apply, stating price, &c., to

Mr. HOWARD, Bedford Hill, Balham, S.

WANTED, GREEN HOLLIES, 1 to 2 feet high, to be delivered at any station on the Brighton and South Coast or on the South Eastern lines. State lowest price per hundred or per thousand.

Address, F. G., City Club, Broad Street, London, E.C.

NEW PLANTS FOR AUTUMN 1863.

UPWARDS OF SEVENTY PRIZES AND AWARDS HAVE BEEN MADE TO WILLIAM BULL FOR NEW AND RARE PLANTS, AT THE PRINCIPAL LONDON FLOWER SHOWS DURING THE PRESENT YEAR.

WILLIAM BULL, F.R.H.S., F.R.B.S.,

NURSERYMAN AND NEW PLANT MERCHANT, KING'S ROAD, CHELSEA, LONDON, S.W.,

Has selected from his COLLECTION of NOVELTIES the following Plants, many of which he offers for the first time, and recommends them with the utmost confidence, for they are the most beautiful selection he has ever had the pleasure of announcing; indeed, his Collection has never been so rich in GOOD NEW PLANTS as at the present time.

Anœctochilus zebrinus.

A beautiful Indian species of this interesting group. The leaves are ovate-lanceolate, about 2 inches long, and three-fourths of an inch broad, of a deep velvety olive green, marked with three or sometimes five distinct longitudinal golden-coloured lustrous stripes representing the principal veins. It is a very neat and desirable addition to the species already in cultivation. 10*s*.

WILLIAM BULL has the pleasure to announce that he has received a large importation of Anœctochilus Lowi, and can therefore offer them as imported at 6 guineas per dozen. Two or three new species have also been imported, but are not yet sufficiently established to offer, and will therefore not be sent out until the Spring.

Araucaria Ruleii.

This truly noble plant was discovered and introduced from Port Molle by Mr. W. Duncan, who thus speaks of it:—"Although the nearest approach in appearance to A. Ruleii is A. imbricata, the latter is not for one moment to be compared with the grandeur of the former, being without exception the grandest and most beautiful tree at present existing on the face of the whole earth. Only imagine," he adds, "A. Ruleii growing to the height of about 50 feet and 30 feet in diameter, with six times the number of branches of A. imbricata, but of a more rigid and tabular form, forking in all directions at equidistances in the most symmetrical arrangement, feathered down to the ground, and the whole covered with the fine glistening imbricated very dark-green foliage, shining in the sun as so many polished mirrors; and the tree itself growing on the very summit of an extinct volcano, in *débris* as hard as adamant in summer, and deluged with rains in winter, accompanied with hurricanes of stormy cold winds, and where not a blade of Grass, or other sign of vegetation exists for hundreds of feet below, and also that the whole group of trees is confined to the limited radius of half a mile."—Vide *Gardeners' Chronicle*, Sept. 28, 1861, page 868. This is unquestionably one of the handsomest greenhouse and conservatory plants yet introduced. Price 1½, 3, and 5 guineas.

Aspidium pinnatum.

A handsome small Tree-fern, from Brazil, that succeeds well in a greenhouse; with erect, broad, pinnated fronds. 10*s*. 6*d*.

Asplenium ferulaceum.

One of the most beautiful amongst stove Ferns. It is a native of South America, being found in Quito and New Granada, and also of Central America at Cortago, whence the plants now offered were obtained. It has a short erect caudex, from which rise up the ample finely-cut fronds, which are ovate-deltoid acuminate in outline, a foot and a half long, very much divided into small segments, and elevated on stout stipules upwards of a foot in length. Though forming so large a plant, the parts of the fronds are of the finest possible character, which has suggested the name "fennel." The fronds are four or five times pinnate, the pinnæ and pinnules somewhat deflexed, and the short narrow ultimate segments just large enough to bear a single *sorus* in the fertile fronds. The texture is herbaceous, the colour a lively green, and the surface quite smooth. It is one of the most charming hothouse Ferns which has lately been added to our garden collections. 21*s*.

Bohmeria bifida.

A dwarf free-growing suffruticose plant, furnished with opposite leaves of curious character. They are rather large, rugosely veined, distinctly toothed, divided at the apex in a bifid manner, so that there are two points, both of which are acute. The interest of the plant, which is closely related to the Nettle family, resides in the singular form and appearance of these bifid leaves. 21*s*.

Brachychiton populefolia.

This is the remarkable Bottle-tree of Australia. 21*s*.

Calonyction sanguinea.

An ornamental hothouse climber, introduced from Bombay, and remarkable for its bold and effective cordate acuminate leaves, which measure 10 inches or more in length, and 8 or 10 inches in breadth, reddish tinted while young on the under surface; the upper surface of an olive green with prominent veins, which, with the midrib, are tinted with dark red. It produces in the axils of the leaves cymose clusters of hypocrateriform flowers, the tubes of which are cylindrical, nearly 2 inches long, constricted at the base when enclosed by the calyx, and the limb spreading, measuring about 3 inches across. The flowers are of a delicate rosy flesh colour, with a deep magenta crimson eye. 42*s*.

Corysanthes limbata.

The following extract is from the "Botanical Magazine," where it is figured and fully described by Sir William Jackson Hooker; *vide* Tab. 5357.

"This perfect gem and most interesting novelty was introduced from Java, and flowered by Mr. William Bull, in his nursery, King's Road, Chelsea, last October, and is decidedly the most exquisite little plant of its size that ever came under our notice; it is, indeed, impossible in a lithograph to do justice to the transparence of its stem, the vivid green and white of its delicate undulated and variegated leaf, or the sparkling beauty of its amethystine flowers. As a botanical curiosity, it derives a double interest from being the first authenticated instance of the genus flowering in this country." 63*s*.

Centaurea argentea vera.

This pretty ornamental plant has finely divided white cottony leaves, and either for greenhouse decoration, grouping in the flower garden, or for contrasting in ribbon borders, its silvery foliage renders it of the most attractive character.

It received a Prize last June when exhibited before the Royal Horticultural Society. 7*s*. 6*d*.

Dammara hypoleuca (Moore).

The plant to which this provisional name has been applied, was found at Port Molle, New Caledonia, and appears to be distinct from the other known species of the genus. In the young state, in which only it is known to us, the habit is somewhat compact, the leaves are oblong lanceolate obtuse, showing bright green above, and glaucous beneath, varying from 1 to 2 inches in length, and from ⅛ to ¼ of an inch in breath. The shining upper and glaucous under surface of the leaves are very well marked features. 31*s*. 6*d*.

Dammara Moorei.

An ornamental greenhouse or conservatory plant from New South Wales, with light green lanceolate foliage. 10*s*. 6*d*.

Kennedya Fredwoodii.

A pretty free-flowering variety sent me from Australia; useful as a small-growing conservatory or greenhouse climber; flowers bright red, with white centre. 7*s*. 6*d*.

Meyenia Vogeliana.

A beautiful stove shrub introduced from Fernando Po. It is a smooth shrub, with erect branches, oblong-ovate acuminate serrated leaves, and copious large funnel-shaped flowers widened in the throat, which is orange coloured, the limb being broad, and of a rich violet purple. 21*s*.

Pteris pellucida.

A pinnate Fern, with long broadish ribbon-like pinnæ conspicuously wavy at the edge, the young fronds having a rich reddish-brown tint. 42*s*.

It was exhibited at a Meeting of the Royal Horticultural Society, September 9, 1863, when it was awarded a First-Class Certificate. 42*s*.

Sarcoglottis Esseri.

A dwarf terrestrial Orchid with the habit of Anœctochilus, introduced from Cortago in Central America. The leaves are some 4 inches long, and 2 inches broad, ovate oblong acuminate, with a satiny surface, dark green, mottled with large irregular blotches of pale or yellowish green, so as to produce a well-marked variegation. It associates with the Anœctochili, and will form an interesting addition to that group. 31*s*. 6*d*.

NEW MIMULUS.

Quite superseding the "maculosus," "pardina," and "tigridioides" strains, which are all very similar in general character.

The *Gardeners' Chronicle*, of April 25, 1863, remarks:—"We have received from Mr. Bull, of Chelsea, a boxful of Mimulus flowers, the produce of a new cross, the recently introduced Mimulus cupreus being one parent, and a fine large-flowered spotted sort, called Gaiety, the other. The plants resulting from this intermixture are said to be of the same dwarf habit as cupreus itself, while the flowers are full sized (about 2 inches across), and very richly marked; some of the blossoms now before us are exceedingly beautiful, reminding one, in their curious spottings, of the Tydæas, or of some of the handsomely marked Herbaceous Calceolarias which were seen in the days when Calceolarias were popular. Altogether this may be set down as a remarkably successful cross, and Mr. Bull may be congratulated on having procured for our gardens, some very gay and sparkling novelties amongst monkey flowers."

The varieties above alluded to were very striking, and, although there was a difference in the varieties, they were all much of the same type or character; with those hybrids, however, W. B. has effected another cross, and the result is a beautiful lot of seedlings, with colours more distinct, striking, and diversified than in the previous strain. From this new cross the following six have been selected, which are such as cannot fail to give general satisfaction.

BIJOU.—Yellow with one large crimson blotch on each of the five lobes, throat spotted. 3*s*. 6*d*.

CHERUB.—Straw colour, the lobes largely blotched with chestnut, yellow throat, minutely spotted. 3*s*. 6*d*.

LEOPARD.—Soft lemon, one large blotch on each of the lobes, spotted throat, very fine. 3*s*. 6*d*.

MINSTREL.—A beautifully formed even flower, orange, four of the lobes banded with bronze crimson, lower lobe blotched with brilliant coppery red, spotted throat. 3*s*. 6*d*.

SUNSHINE.—Bright yellow, all the lobes heavily blotched with dark crimson, spotted throat. 3*s*. 6*d*.

UNIQUE.—Golden yellow, throat and under lip spotted with crimson. 3*s*. 6*d*.

W. B. unhesitatingly affirms that the following NEW PELARGONIUMS and GERANIUMS are the most beautiful ever offered by any grower at any one time. They are a selection in each class carefully made from many thousands of Seedlings.

NEW

ENGLISH SPOTTED PELARGONIUMS.

The Collection of Twelve for Nine Guineas.

ADAH.—Rich maroon upper petals margined with violet; under petals violet rose spotted with crimson, light centre. 21*s*.

CHARM.—Rich crimson upper petals heavily blotched with maroon, under petals dark crimson, violet centre. 21*s*.

CORONET.—Upper petals dark crimson edged with rose; under petals rose edged with violet and spotted with crimson. 21*s*.

DECIMA.—Upper petals maroon shaded with crimson and edged with rose; under petals pale rose spotted with crimson. 21*s*.

DUNBAR.—Violet rose upper petals spotted with maroon; under petals spotted with crimson; good shape. 21*s*.

EULALIE.—Maroon upper petals edged with violet rose; under petals violet rose spotted with dark crimson. 21*s*.

INVINCIBLE.—Upper petals crimson margined with white; under petals white, cleanly spotted with crimson; fine flower. 21*s*.

LORENZO.—Dark crimson upper petals edged with rose; soft rose under petals spotted with bright carmine; a smooth good shaped flower. 21*s*.

PATENT.—Upper petals rich maroon shaded with bright crimson and edged with rosy lilac; under petals rosy lilac largely blotched with maroon, richly shaded with crimson, and margined with rosy lilac. 21*s*.

SCIPIO.—Maroon upper petals edged with violet; under petals crimson spotted with maroon; light centre. 21*s*.

WILFRED.—Upper petals rich maroon margined with fiery crimson; under petals rich crimson spotted with maroon, good shape. 21*s*.

ZARAH.—Maroon upper petals margined with bright crimson edged with rose; under petals bright rose heavily blotched with crimson, large flower. 21*s*.

Other good varieties, 18*s*., 30*s*., and 42*s*. per dozen.

NEW

FRENCH SPOTTED PELARGONIUMS.

The Collection of Twelve for Nine Guineas.

ADMIRAL.—Salmon upper petals cleanly spotted with maroon; under petals spotted with crimson and shaded with violet; light centre. 21*s*.

CORNELIA.—Upper petals bright carmine, blotched with dark crimson, margined with violet rose; under petals rose, heavily spotted with crimson. 21*s*.

DAPHNE.—Black upper petals edged with bright rose; under petals maroon, margined with violet crimson; fine flower. 21*s*.

ELFREDA.—Upper petals violet rose, edged with white, and blotched with crimson; under petals violet rose, edged with white; very large pure white centres, attractive. 21*s*.

ETTIE.—Bright red, all the petals heavily blotched with maroon. 21*s*.

FLORETTA.—Black upper petals edged with rose; under petals fiery red, spotted with crimson, light centre. 21*s*.

PETRUCHIO.—Fiery red upper petals blotched with dark crimson and edged with violet; under petals fiery red, violet centre. 21*s*.

PRINCEPS.—Fiery crimson upper petals blotched with maroon, under petals spotted with crimson, white centre, shaded with violet. 21*s*.

REMUS.—Rich maroon upper petals edged with rose; under petals violet rose, heavily blotched with dark crimson. 21*s*.

ROSETTE.—Upper petals maroon, margined with fiery crimson; under petals bright crimson, spotted with maroon; light centre. 21*s*.

ORACLE.—Fiery scarlet, all the petals spotted with maroon. 21*s*.

SANTA.—White shaded with violet upper petals spotted with black; under petals cleanly spotted with violet crimson. 21*s*.

Other good varieties, 18*s*., 30*s*., and 42*s*. per dozen.

NEW SHOW PELARGONIUMS.

The Collection of Twelve, Nine Guineas.

ANGELINA.—Rich maroon upper petals margined with crimson; under petals bright rose shaded with crimson, pure white centre. 21*s*.

ATTILA.—Rich maroon upper petals edged with purple crimson; under petals deep rose, shaded with crimson light centre. 21*s*.

CONCORDIA.—Maroon upper petals margined with scarlet under petals bright rose, pure white centre. 21*s*.

DANTE.—Upper petals bright crimson blotched with maroon and margined with French white; under petals blush. 21*s*.

EVELINA.—Pure white; upper petals cleanly blotched with crimson. 21*s*.

FLORENTINE.—Maroon upper petals margined with violet; rosy purple under petals shaded with crimson, pure and white centre. 21*s*.

MINNIE.—Maroon upper petals edged with violet rose; under petals rose shaded with crimson, pure white centre. 21*s*.

MR. WILLIAM BULL'S LIST OF NEW PLANTS FOR AUTUMN 1863—*Continued.*

NEW SHOW PELARGONIUMS.

NORA.—Black upper petals edged with dark crimson; deep rose under petals shaded with crimson and violet, pure white centre. 21*s.*

PALATIAL.—Crimson upper petals shaded with bright rose at the margin; under petals bright salmon, light centre, good shape. 21*s.*

TISONA.—Upper petals maroon shaded with bright crimson and edged with violet rose; under petals violet rose, pure white centre. 21*s.*

TITIAN.—Upper petals bright carmine, margined with pure white; under petals pure white, marked with violet rose. 21*s.*

UMPIRE.—Upper petals maroon shaded with violet crimson and margined with pure white; under petals pure white, banded with violet crimson. 21*s.*

Other good varieties, 18*s.*, 30*s.*, and 42*s.* per dozen.

NEW

ZONALE (BEDDING) GERANIUMS.

BRILLIANCY.—Upper petals violet rose margined with vermilion; under petals intensely bright vermilion, very large truss, novel. 7*s.* 6*d.*

CELESTIAL.—Blush, with deep rose centre, large flower. 7*s.* 6*d.*

CHARMER.—Deep pink, with white marking on the top petals; good shape, and fine truss. 7*s.* 6*d.*

EFFIE.—Rose, suffused with pink. 7*s.* 6*d.*

EVE.—Soft pink, half of the upper petals white, very large flowers, and fine truss. 7*s.* 6*d.*

FANTY.—Flesh shaded with salmon, horseshoe marked foliage. 7*s.* 6*d.*

FAUST.—Rich vivid crimson, immense truss and flower. 7*s.* 6*d.*

MARQUIS.—Bright rosy scarlet, very large flower. 7*s.* 6*d.*

MARVEL.—Vivid scarlet, horseshoe foliage, white eye. 7*s.* 6*d.*

PRIMER.—Pink, with white marking on the top petals. 7*s.* 6*d.*

PROVOST.—Deep rose shaded with scarlet, large flower and immense truss. 7*s.* 6*d.*

STRIKING.—Salmon shaded with scarlet and margined with rose, light eye, good shape. 7*s.* 6*d.*

Other good varieties, 18*s.* and 30*s.* per dozen.

NEW PETUNIAS.

The following kinds will be found to maintain the reputation of the varieties previously introduced by W. B.:—

BOLINA.—Bright red veined with purplish crimson and margined with dark rose, black throat. 3*s* 6*d.*

DECISION.—Pure white blotched with violet rose and veined with purplish crimson. 3*s.* 6*d.*

GERALDINE.—Crimson broadly margined with rose veined with black and shaded with violet. 3*s.* 6*d.*

LUSTRE.—Double, dark crimson slightly margined with white. 3*s.* 6*d.*

MAGNETIC.—Double, pure white, the centre of the flower filled with small blue petals. 3*s.* 6*d.*

NARRATOR.—Pink rayed and reticulated with purplish crimson, black throat. 3*s.* 6*d.*

ORNAMENTAL.—Double, bright crimson blotched with pure white. 3*s.* 6*d.*

PROMOTER.—Rich bright crimson purple throat. 3*s.* 6*d.*

RESISTLESS.—Bright red splashed and striped with white and blotched with rose. 3*s.* 6*d.*

WELCOME.—Pure white striped and blotched with bright crimson, purple throat. 3*s.* 6*d.*

Other good varieties, 18*s.* and 30*s.* per dozen.

NEW FUCHSIAS.

NOBLESSE.—Dark crimson tube and sepals, the latter completely reflexed, very wax like, and thick black corolla. 10*s* 6*d.*

OPHELIA.—Bright red sepals, which are unusually large and long; well formed purple corolla. 10*s.* 6*d.*

PERCY.—Dark, thick, crimson tube and sepals, the latter reflexed; large and full double purple corolla. 10*s.* 6*d.*

PRISTINE.—Bright carmine tube and sepals, the latter wide and well reflexed, evenly formed lake corolla. 10*s.* 6*d.*

RELIANCE.—Light red tube and sepals, the latter reflexed; light blue double corolla, free and distinct. 10*s.* 6*d.*

STANLEY.—Finely reflexed broad sepals, which, with the tube, are a bright rose colour; dark blue double corolla. 10*s.* 6*d.*

Other good varieties, 2*s.* 6*d.* and 3*s.* 6*d.* each.

NEW AZALEAS (INDICA).

QUEEN of BEAUTIES.—Salmon pink margined with white and flaked with carmine, densely and very richly spotted with crimson, flowers large, of good shape and substance; one of the best Azaleas ever offered. 21*s.*

Mr. William Bull begs to announce that he has purchased from M. Ambroise Verschaffelt the sole right of supplying this exquisite variety in the United Kingdom.

SOUVENIR DU PRINCE ALBERT.—A most distinct and beautiful double flowered variety, colour a warm peach-rose margined with pure white; a great novelty. 21*s.*

WAXWORK.—Unusually thick wax-like petals, flowers immensely large and finely formed, pure white striped and flaked with purple; a most desirable variety, there being only one or two kinds of white striped with purple (and these not to be compared to the one now offered), while there are several whites striped with red. 21*s.*

WILLIAM BULL.—This variety was raised in Belgium, and named by M. Ambroise Verschaffelt, from whom the stock for circulation in the United Kingdom was purchased. The flowers individually are of unusual size and substance, double and well formed; colour crimson and violet. 15*s.*

	s. d.		*s. d.*
BELLE GANTOISE ..	7 6	PRESIDENT HEUMANN	21 0
HORTENSE VERVAENE	7 6	REINE DES DOUBLES fol. VARIEGATA ..	7 6
IMPERIALIS	31 6	SECRETAIRE CLAUS..	10 6
LE LION DE FLANDRES	21 0	VICOMTE DE FORCEVILLE	15 0
MADAME AMBROISE VERSCHAFFELT ..	7 6	VIRGINALIS	21 0
MADAME WAGNER ..	15 0		

Selections of well-known good sorts, in fine plants, can be made from W. B.'s general Collection, at 24*s.*, 30*s.*, 42*s.*, and 60*s.* per dozen.

NEW AND RARE PLANTS.

ADIANTUM FÉEI.—New species from Guatemala. This remarkably handsome Fern differs very materially from any other of its family, being of semi-scandent habit and Gleichenia-like growth. 63*s.*

ALOCASIA ZEBRINA.—A remarkable and fine foliaged plant introduced from the Philippine Islands. Its leaf-stalks, which are upwards of 2 feet in length, present a most striking appearance; they are of a pale yellow colour marbled in the most distinct manner with dark green. The leaves are large, of a velvety green colour, and having the sagittate form peculiar to this family. 42*s.*

ALOCASIA ALBO-VIOLACEA, 10*s.* 6*d.*, 15*s.*, and 21*s.*

,, (CALADIUM) LOWI. 15*s.*, 21*s.*, and 42*s.*

,, MACRORHIZA VARIEGATA, 10*s.* 6*d.*, 15*s.*, and 21*s.*

,, METALLICA, 15*s.*, 21*s.*, and 42*s.*

,, (SCHISTOCASIA) PORTEI, 42*s.* and 63*s.*

,, (CALADIUM) VEITCHI, 31*s.* 6*d.*, and 42*s.*

ANTHURIUM LEUCONEURUM.—A handsome variegated species from South America, with thick waxy cordate leaves, of a rich dark olive-green colour, distinctly veined and spotted with grey. 31*s.* 6*d.*

ARISTOLOCHIA ORNITHOCEPHALA.—A stove climber of very remarkable character, the blossoms are very large, and of the most singular structure imaginable; to render any description of it at all familiar, it may be said to have the head of a hawk and the beak of a heron, with the wattles of the Spanish fowl, which, however, are grey netted with brown; the head the same colour veined, whilst the beak is grey. 10*s.* 6*d.*

ATHYRIUM FILIX-FŒMINA CORONATUM.—A pretty, hardy Fern, with fronds narrow at the base, the apex forming a very large flattish crest spreading at right angles to the plane of the frond. 7*s.* 6*d.*

ATHYRIUM FILIX FŒMINA GRANDICEPS.—Another hardy fern, with narrowish lance-shaped fronds, the top of each frond many times short-branched, with the ultimate branchlets crispy; the whole forming a dense and massive cresting. 7*s.* 6*d.*

BEGONIA DISCOLOR MARMOREA.—BEGONIA ROBERT EMMET.—Two variegated kinds, but totally differing from the general character of the variegated sorts; for instead of being stemless, these are arborescent, and consequently make remarkably handsome decorative stove shrubs. 7*s.* 6*d.* each.

CIONIDIUM MOOREII.—This interesting Greenhouse Fern is an Australasian species discovered by Mr. Charles Moore, after whom it is named, and particularly interesting as a netted veined representative of Deparia; a Fern in which the fructification forms little cups set out on short footstalks from the margin. The fronds of this Cionidium, which were rather broad-surfaced and divided something after the manner of Aspidium triflolatum, appeared fringed by the multitude of these projecting sori. 15*s.*

CLEMATIS BRASILIENSIS.—This new Clematis has been introduced by the Royal Horticultural Society. Their collector, Mr. Weir, thus writes:—The Clematis is perhaps the most conspicuous object in the forest at present, after the Bougainvillæa, being completely covered with immense bunches of its long-awned seeds. It has the appearance of being clothed in—

"'A silken gown o' siller grey.'"

—Vide Royal Horticultural Society's Transactions. 10*s.* 6*d.*

DICHORISANDRA ARGENTEO-MARGINATA.—This is an extremely pretty variegated stove plant, with acuminate oblong leaves, which have a central stripe of bright green, and one broadly margined with white. 15*s.*

DRACÆNA FERREA VARIEGATA.—This resembles D. ferrea in its habit, but the rich colouring of the foliage, which is variegated with bright rosy crimson, renders it one of the most beautifully decorative plants extant. 31*s.* 6*d.*

ERANTHEMUM RUBROVENIUM.—This really beautiful little plant in general appearance resembles an Anœctochilus; it is of a very dwarf trailing habit, having all its leaves thickly veined and netted with deep pink, free in growth, and of easy culture, and will without doubt be a great favourite. 31*s.* 6*d.*

JUSTICIA VARIEGATA.—An ornamental stove plant, with green leaves marked by reddish ribs and dark brown patches. 10*s.* 6*d.*

LOPHOSPERMUM SCANDENS GRANDIFLORA.—Crimson, with white throat, a free flowering, useful, and pretty climber. 5*s.*

MICONIA PULVERULENTA.—This fine stove shrub was introduced from Peru. It is furnished with elliptic rugose dark green leaves 12 to 15 inches long, marked by a broad central silvery bar, the terete stem and the surface of the leaves being hairy. The flowers are white, succeeded by bunches of red berries. Both in a young state and as a specimen, this plant has been proved to be a most desirable addition to the class of ornamental foliaged plants. 21*s.*

NEPHELAPHYLLUM CORDATUM,

,, PULCHRUM.

Two pretty quaint-looking variegated plants from the East Indies, associating with Anœctochili, and forming desirable additions to that group. 31*s.* 6*d.* each.

OSMUNDA REGALIS CRISTATA.—A handsomely crested really splendid variety of a noble growing Fern. 10*s.* 6*d.*

POGONIA DISCOLOR.—A dwarf-growing singular looking plant introduced from Java; it produces one cordate olivaceous leaf, which is thickly set with golden hairs, thus rendering it very attractive. 42*s.*

RETINOSPORA LEPTOCLADA.—This distinct species is so thoroughly hardy that it has stood uninjured where Cedrus Deodara and Araucaria imbricata have been killed. The habit and appearance of this Conifer differs materially from that of any other Retinospora. It assumes an erect pyramidal outline of growth, branching proportionately wide at the base, and tapering upwards to a gracefully alternate point, and forms a densely-branched compact pyramidal plant. 10*s.* 6*d.*

RHODODENDRON AUGUSTE VAN GEERT.—A very effective hardy variety, of fine habit. The size of the flowers individually, as also the truss, is something extraordinary; colour purple red, darkly spotted in the upper segment. 10*s.* 6*d.*; extra strong, 21*s.*

SYNGONIUM WENDLANDI.—A singularly pretty Aroid from Guatemala, with bright deep green foliage contrasted with a white variegation. 10*s.* 6*d.*

SPHÆROGYNE LATIFOLIA.—In habit it somewhat resembles the far-famed Cyanophyllum magnificum; but whilst being perfectly equal to that species in the magnificence of its foliage, it far surpasses it in habit and the general beauty of its appearance. The stem and leaf-stalks are red and thickly covered with reversed hairs. Its magnificent ovate leaves are of a rich velvety olive-green colour on the upper surface, and of a beautiful red underneath. 63*s.*

NEW CALADIUMS.

	s. d.		*s. d.*		*s. d.*
Affine ..	15 0	Kocki	7 6	Reichenbachii ..	10 6
Amabile ..	5 0	Lancheanum .	5 0	Rubro-venia ..	7 6
Argenteum ..	7 6	Lemaireanum .	7 6	Schmitzi.. ..	5 0
Cupreum ..	7 6	Lowi, 15*s.*, 21*s.*, &	42 0	,, viride .	15 0
Devosianum .	7 6	Mirabile ..	15 0	Splendidissima .	7 6
Enkii.. ..	15 0	Marmoratum..	10 6	Thelemanni ..	15 0
Formosum ..	10 6	Pallidinervum .	7 6	Van den Heckei .	15 0
Gærdtii ..	21 0	Picta	15 0	Veitchi, 31*s.* 6*d.* &	42 0
Haageanum .	7 6	Regale	7 6	Wallisi	21 0

NEW CAMELLIAS.

Bella Romana..	10*s.* 6*d.*	Leopold I.	10*s.* 6*d.*
Comte de Toll..	15 0	Monsieur d'Offoy	7 6
Cora L. Burton	10 6	Queen of Beauties, 10*s.* 6*d.* &	15 0
Lavinia Maggi .	7 6	Reticulata fl. pl.	10 6

Selections of well-known good sorts, in fine plants, can be made from W. B.'s general Collection, at 30*s.*, 42*s.*, and 60*s.* per dozen.

GESNERAS.

The following are three very handsome Winter flowering varieties:—

BICOLOR.—Coral tube, yellow lobes and throat. 5*s.*

CHROMATELLA.—Bright lemon tube and lobes, orange throat. 5*s.*

ROSEA PUNCTATISSIMA.—Violet rose tube, blush lobes, orange throat, spotted with crimson. 5*s.*

NEW ERECT GLOXINIAS.

This select and very beautiful collection has been selected from an immense number of seedlings, and are great improvements upon those at present in cultivation.

ANONYMA.—Blue lobes margined with lavender, white mouth and throat spotted at the base. 5*s.*

BEAUTY.—Pink lobes, pure white mouth and throat. 5*s.*

BRILLIANT.—Bright crimson, the lobes margined with rose, rich violet throat. 5*s.*

CELESTIAL.—Rose lobes, throat encircled with deep violet, base of the tube white spotted with brown. 5*s.*

CUPID.—Light blue lobes with white marking, pure white throat. 5*s.*

FAIRY.—White tube and lobes, the mouth peculiarly encircled with violet crimson. 5*s.*

FAVOURITE.—Bright rose shaded with crimson, throat encircled with violet, white tube. 5*s.*

MODEL.—Pink shaded with violet, white tube. 5*s.*

PEERESS.—Rich purple, the lobes margined with blue, base of the throat white, spotted with brown. 5*s.*

PRINCESS ALEXANDRA.—White lobes margined with porcelain blue. 5*s.*

ROSALIND.—Soft violet pink with immensely broad lobes, the mouth encircled with violet, white tube and throat. 5*s.*

SERENA.—Soft rose, half of each lobe encircled with white, tube and throat white. 5*s.*

Other good varieties 18*s.*, 30*s.*, and 42*s.* per dozen.

NEW DROOPING GLOXINIAS.

The following may be depended upon as a very superior and beautiful selection.

ACME.—Blue lobes edged and prettily marked with white, violet throat. 5*s.*

ASPROMONTE.—Broad clear rose lobes, pure white throat, spotted at the base. 5*s.*

BEAUTY.—Bright blue lobes encircled with purple, white throat. 5*s.*

FLORA.—Rose lobes shaded with violet crimson and marked with white, pure white throat. 5*s.*

ILLUMINATOR.—Beautiful deep crimson, the lobes broadly margined with bright red. 5*s.*

LAURETTA.—Blue marbled with white, very distinct and attractive. 5*s.*

MATCHLESS.—Lobes rose shaded with violet crimson, white mouth, the tube prettily striped and spotted with rose. 5*s.*

OPTIMA.—Deep rose encircled with violet, white throat, very distinct. 5*s.*

PRINCESS BEATRICE.—Porcelain blue, each lobe spotted with violet, pure white throat. 5*s.*

QUEEN of PORTUGAL.—Rose, rich violet mouth, the base of the throat white spotted with crimson. 5*s.*

SANSPARIEL.—Pure white, each lobe spotted with crimson, and the throat encircled with violet crimson, very delicate and pretty. 5*s.*

VIRGINIE.—Blush, under lobes bright crimson, violet throat. 5*s.*

Other good varieties, 18*s.*, 30*s.*, and 42*s.* per dozen.

NEW

FRENCH SPOTTED PELARGONIUMS.

AILEEN.—Dark crimson upper petals surrounded with fiery crimson and margined with white, pure white under petals lightly spotted with fiery crimson. 7*s.* 6*d.*

ALICIA.—Rich maroon upper petals margined with rose violet; under petals rose violet heavily blotched with deep crimson. 7*s.* 6*d.*

ANACREON.—Bright orange carmine upper petals spotted with maroon; lower petals slightly spotted with purple, white centre. 7*s.* 6*d.*

ANNA DUVAL.—Lilac rose shaded with violet upper petals blotched with dark maroon; lower petals lightly spotted and striped with purple. 7*s.* 6*d.*

ANNETTE.—Dark crimson upper petals margined with carmine violet; under petals rose violet spotted with crimson. 7*s.* 6*d.*

ASMODEE.—Bright cerise upper petals nerved and blotched with maroon, lower petals nerved and spotted with purple, white centre.

BUTTERFLY (BECK).—Lower petals deep crimson with intense black spots; top petals black with a narrow margin of crimson; very free bloomer, and effective for the home stage or exhibition. 5*s.*

CALIBAN (BECK).—Black maroon spots shaded with crimson purple, blush edges, very profuse bloomer, and striking. 5*s.*

COMTE DE GOMER.—Dark maroon upper petals edged with scarlet; lower petals carmine, lightly spotted with purple, white centre. 7*s.* 6*d.*

CORAL.—Fiery crimson upper petals blotched with maroon, under petals slightly spotted with dark crimson. 7*s.* 6*d.*

CUVIER.—Rose shaded with salmon, all the petals spotted with black. 7*s.* 6*d.*

MR. WILLIAM BULL'S LIST OF NEW PLANTS FOR AUTUMN 1863—*Continued.*

NEW FRENCH SPOTTED PELARGONIUMS.

DE CANDOLLE.—Carmine with white centre, all the petals spotted with black. 7*s.* 6*d.*

EUGENE GUENOUX.—Black upper petals margined with vermilion; lower petals rosy orange spotted with black, white centre. 7*s.* 6*d.*

FIREBALL.—Upper petals fiery scarlet, blotched with rich maroon; under petals very bright red, lightly spotted with crimson. 10*s.* 6*d.*

FREDERIC SCHLUMBERGER.—Purple maroon, centre white, spotted with violet, superb. 7*s.* 6*d.*

INTERNATIONAL.—Rich maroon upper petals margined with rose; bright rose under petals shaded with fiery crimson, heavily spotted with maroon. 10*s.* 6*d.*

JOSEFA.—Rich maroon upper petals edged with cerise; under petals pink, distinctly spotted with dark crimson; light centre.

LANDSEER (FOSTER).—A rich flower in the way of Peacock, lower petals orange rose, black maroon spots, top petals maroon with shaded orange margin, free and fine. 5*s.*

LE VESUVE.—Rich fiery vermilion, upper petals blotched with maroon. 7*s.* 6*d.*

MABEL.—Maroon upper petals deeply margined with crimson; bright red under petals spotted with crimson; violet throat. 7*s.* 6*d.*

MADAME LANSEZEUR.—Cerise, centre white and violet, upper petals spotted and nerved with dark maroon. 7*s.* 6*d.*

MONITOR (FOSTER).—A large dark variety, deep shaded rose, with large black spots on all the petals, top petals margined with rose, free. 5*s.*

MONSIEUR WAROCQUE.—Centre of the flower white, petals spotted with carmine, veined with purple, and margined with white. 7*s.* 6*d.*

NEMESIS.—Lilac shaded with violet, margined with white; all the petals spotted with violet purple. 7*s.* 6*d.*

NEPTUNE.—Crimson shaded with purple, upper petals spotted with black, centre white shaded with violet. 7*s.* 6*d.*

NICOLA.—Fiery red upper petals shaded with scarlet and spotted with maroon; under petals distinctly spotted with maroon, violet centre. 7*s.* 6*d.*

NINA.—Deep crimson upper petals edged with rose lilac; lower petals bright scarlet, heavily blotched with deep crimson, and margined with violet pink. 7*s.* 6*d.*

ROSARIO.—Bright red upper petals with light margin, blotched with maroon and shaded with violet; under petals bright red, shaded with violet, and largely spotted with crimson. 7*s.* 6*d.*

THETIS.—Upper petals dark maroon; lower petals dark crimson, white centre, shaded with violet. 7*s.* 6*d.*

VICEROY of EGYPT.—Rich maroon upper petals margined with lilac rose; under petals lilac rose, heavily spotted with crimson. 10*s.* 6*d.*

Other good varieties, 18*s.*, 30*s.*, and 42*s.* per dozen.

NEW SHOW PELARGONIUMS.

ADELINE.—Pure white; upper petals blotched with bright crimson, very fine. 5*s.*

ARDENS (BECK).—Lower petals rich crimson; painted black top petals shaded to the margin with maroon, bright crimson edge, free and showy. 5*s.*

BEACON (HOYLE).—A large crimson flower, very free bloomer, and excellent for exhibition, very striking. 5*s.*

BRITON.—Dark maroon upper petals edged with bright rose; under petals bright rose, shaded with crimson. 7*s.* 6*d.*

GLORY.—Upper petals maroon surrounded with violet crimson, and edged with rose; lower petals pink, large white centre. 5*s.*

HERO.—Fiery red upper petals blotched with deep crimson and margined with rosy violet; lower petals soft rose, pure white centre. 5*s.*

ILLUMINATOR (FOSTER).—Bright scarlet, black and maroon spot on the top petals, fiery scarlet margin, smooth and fine form. 5*s.*

IMPROVEMENT (FOSTER).—Lower petals purple; strongly marked dark maroon top petals, rosy purple margin, very free. 5*s.*

INEZ (HOYLE).—Orange lower petals painted with a bright shade; and red rich brown maroon top petals, carmine margin, white centre, novel. 5*s.*

LORD PALMERSTON (HOYLE).—Bright purple lower petals, dark top petals, with shaded margin of rich carmine. 5*s.*

MAYFLOWER.—Pure white, spotted in the upper petals. 7*s.* 6*d.*

OTTAVIA (HOYLE).—A light flower of fine form and very free, lower petals nearly white, rich maroon and red top, white margin. 5*s.*

SOUVENIR (FOSTER).—Richly painted crimson and black lower petals; black top, fiery margin, large and showy. 5*s.*

WAVERLEY.—Glossy black top petals, very narrow margin of fiery crimson, and white centre; lower petals heavily painted with rose and dark red, a smooth and beautiful flower. 7*s.* 6*d.*

Other good varieties, 18*s.*, 30*s.*, and 42*s.* per dozen.

NEW ZONALE GERANIUMS.

ACHIM.—Rose shaded with pink, excellent form. 3*s.* 6*d.*

ALFRED.—Clear orange scarlet, very large flowers of a magnificent form, shell-like petals, and large truss. 5*s.*

ASPASIA.—Bright rose, very pretty. 3*s.* 6*d.*

AURICULA.—Soft flesh, with bright rose-coloured centre, white eye. 5*s.*

BEAUTY.—Vivid scarlet, white eye, flowers large and very round. 5*s.*

BONNIE DUNDEE.—Rosy pink, large and very round flower, horse-shoe foliage, fine. 5*s.*

NEW ZONALE GERANIUMS.

CAROLINE.—Carmine, shaded with orange scarlet, immense truss. 3*s.* 6*d.*

CECILIA.—Bright rose, shaded with scarlet, immense flower, and fine truss. 5*s.*

CELINA.—Rosy salmon, scarlet centre. 5*s.*

CHANCELLOR.—Clear rose, with scarlet centre. 5*s.*

CLIMAX.—Crimson scarlet, large flower, good shape, and immense truss. 5*s.* 3*s.* 6*d.*

COMMISSIONER.—Brilliant scarlet, vermilion upper petals.

CONSTANCE.—Blush with red centre. 5*s.*

COUNTESS.—Rose shaded with scarlet. 3*s.* 6*d.*

DORIS.—Vivid orange scarlet, white eye. 3*s.* 6*d.*

DR. LINDLEY.—Light scarlet, the largest and best formed flower ever offered. 7*s.* 6*d.*

EDITOR.—Orange scarlet, white centre. 5*s.*

EFFECTIVE.—Vermilion, shaded with rose. 5*s.*

ELEANOR.—Rich vermilion, upper petals shaded with violet, fine. 5*s.*

ENCHANTRESS.—Flesh, beautiful form, fine truss, horse-shoe foliage. 5*s.*

ENVOY.—Very deep rosy scarlet, large flower. 3*s.* 6*d.*

ERIN GO BRAGH.—Blush, margined with white, horse-shoe foliage. 5*s.*

ERNEST.—Flesh, with red centre. 5*s.*

EVA.—White, with scarlet centre, horse-shoe foliage. 5*s.*

GARLAND.—Pure white margin, clean bright scarlet centre. 5*s.*

GLORIOUS.—Light scarlet, light centre. 3*s.* 6*d.*

HECTOR.—Clear soft rose, horse-shoe foliage, 5*s.*

HELDI.—Glowing scarlet, large flowers. 3*s.* 6*d.*

LOUISA.—Bright rose shaded with salmon. 5*s.*

LUCILLA.—Beautiful soft clean rose, flowers of enormous size and most perfect form, trusses fine. 5*s.*

LUCIUS.—Bright rose, very large truss. 5*s.*

LUCRETIA.—Blush, rose centre, horse-shoe foliage. 5*s.*

MAJOR DOMO.—Rosy scarlet, fine flowers. 3*s.* 6*d.*

NELLY.—Blush, with salmon centre, horse-shoe foliage. 5*s.*

NEPTUNE.—Blush white with salmon centre, very large flower. 5*s.*

NORA.—Bright rose shaded with scarlet, very fine flower and large truss, horse-shoe foliage. 5*s.*

PAULINE.—White, with pink centre, large flower, horse-shoe foliage. 5*s.*

PERSIAN.—Bright rose. 3*s.* 6*d.*

REALLY GOOD.—Vivid scarlet, white eye. 5*s.*

ROSAMOND.—Pale salmon pink, large flower, very fine. 5*s.*

ROSETTA.—Very deep bright pink, excellent. 5*s.*

THE SWAN.—Pure white, large flower, fine shape, horse-shoe foliage. 5*s.*

TRANSCENDENT.—Bright cerise shaded with scarlet. 5*s.*

UMPIRE.—Cerise shaded with pink, large flower. 3*s.* 6*d.*

UNIT.—Soft rose. 3*s.* 6*d.*

VICEROY.—Rich cerise, very large flower. 5*s.*

VICTORIA.—White, bright red centre. 5*s.*

VISITOR.—Brilliant rose, immense flower, excellent form. 5*s.*

Other good varieties, 18*s.* and 30*s.* per dozen.

PINE APPLE PLANTS.

The most healthy and largest stock of saleable PINE PLANTS in this country, but as the room is required for NEW PLANTS, the Pines are offered at a moderate price. They can be supplied either in Fruiting Plants or Successions of any size.

All well-known PLANTS are supplied at moderate prices, to clear them off and to make room for WILLIAM BULL'S new introductions. Purchasers can therefore always make advantageous selections.

W. B. begs to intimate that he does not publish a GENERAL CATALOGUE of PLANTS, but only issues short LISTS of NOVELTIES from time to time.

CATALOGUE of NEW PLANTS for Autumn 1863 is now ready.

W. B. begs to invite the Nobility and Gentry about to furnish Conservatories, to an inspection of the MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS in his Winter Garden, some of which are the handsomest in Europe.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

CHOICE ORCHIDS.

HUGH LOW & CO.

Have pleasure in announcing the arrival of a large consignment from the Philippine and neighbouring Islands, and they respectfully invite gentlemen interested in ORCHIDACEOUS PLANTS to inspect the same. Amongst them are

PHALÆNOPSIS SCHILLERIANA, in quantity, at a very moderate price. | **PHALÆNOPSIS ROSEA.**

PHALÆNOPSIS SPECIES (may prove botanically allied to P. grandiflora).

From an Island in the China Sea, described by the Collector as producing flowers larger and with more white in the centre, and the leaves greener and handsomer than those of P. grandiflora. The leaves were seen close on 2 feet in length, and flower spike 4 feet in length. Some of the plants to hand are probably the strongest Phalænopsis of any kind yet imported.

DENDROBIUM SPECIES.—Described as very beautiful.

VANDA (SACCOLABIUM) VIOLACEA.

Of this lovely species H. L. & Co. have a very large number of plants, many of them showing flower spikes. They are offered at very moderate prices.

VANDA GIGANTEA, in quantity. | **VANDA HOOKERIANA.** | **AERIDES SUAVISSIMUM** and Varieties in quantity.

NOTICE.—In consequence of the very general interest now evinced in the subject of Orchidaceous Plants adapted for cultivation in houses of a cool temperature, HUGH LOW & Co. have despatched to New Grenada a thoroughly competent and energetic Collector, with instructions to forward large supplies of the ODONTOGLOSSUMS, CYPRIPEDIUMS, MAXILLARIAS, and other choice Orchids to be found in the Cordilleras of Colombia and the adjacent countries.

CLAPTON NURSERY, LONDON, N.E.

Paul's Nurseries, Waltham Cross, N.

ROSES.—Superior STANDARDS, 18*s.* per dozen, and upwards.

Superior DWARFS, 9*s.* per dozen, and upwards.

All the NEW ROSES including BEAUTY of WALTHAM, Mrs. WM. PAUL, and LORD MACAULAY (three of the best), at lowest advertised prices.

The New PRICED CATALOGUE is now ready, free by post.

FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, APRICOTS, PEACHES, NECTARINES, FIGS, GRAPE VINES, GOOSEBERRIES, CURRANTS, RASPBERRIES, STRAWBERRIES, &c., all the really desirable sorts, in perfect condition for transplanting, at lowest advertised prices. Fruit-bearing trees of the first seven fruits may be had, suitable for potting for Orchard-house culture, from 18*s.* to 30*s.* per dozen. PRICED CATALOGUE, free by post.

PLANTING.—Planting to any extent, with or without the supervision of the Trees, &c., till established, undertaken in any part of the United Kingdom. The rich and varied collection of Trees and Shrubs growing in one Nursery of 30 Acres has been removed within three years, which is almost a guarantee of success in Transplantation.

WM. PAUL (Son and Successor to the late A. Paul), Nurseries and Seed Warehouse, Waltham Cross, N.

Great Reduction in the Price of Roses.

NOT TO BE UNDERSOLD BY ANY RESPECTABLE HOUSE IN THE TRADE.
WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

Since issuing their NEW ROSE CATALOGUE for the Autumn of 1863 and the Spring of 1864,

WILLIAM WOOD AND SON have ascertained that other Houses in the Trade are offering some kinds of Roses at a lower rate than themselves, and as they are fully determined NOT TO BE UNDERSOLD by any RESPECTABLE House, they have prepared a REVISED LIST of ROSES at reduced prices, and will have much pleasure in forwarding copies of the same, Gratis and post-free, to all applicants.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

ROSES.

TWENTY-SEVEN FIRST PRIZES DURING THE PAST SEASON.

PAUL & SON,

OLD CHESHUNT NURSERIES, HERTS, N.,

Beg to announce that they are now sending out the above. Their Stock of both STANDARD and DWARF ROSES was never finer.

CATALOGUES will be forwarded free on application.

PAUL & SON would solicit early orders, as the stock of certain kinds, as H.P. LORD CLYDE and CHARLES LEFEBVRE, &c., is but limited.

To gentlemen planting Rosaries they would be happy to submit Plans, or to furnish Roses by the 100 or 1000 at special prices.



Orders amounting to 21*s. sent Carriage Paid.*

£34 10s. Prizes for Hyacinths, Tulips, and Crocus.

The Royal Horticultural Society in MARCH, 1864, offer PRIZES to the above amount for HYACINTHS, TULIPS, and CROCUS.

For DESCRIPTIVE LIST of NEW and EXHIBITION HYACINTHS, TULIPS, and CROCUS, see BARR & SUGDEN'S "ILLUSTRATED FLORAL GUIDE," price 1*s.*

HYACINTHS.

100 in 100 exhibition varieties .. 105*s.*	100 in 100 extra fine varieties .. 84*s.*	100 very fine varieties .. .. 63*s.*
50 in 50 " " .. 50*s.*	50 in 50 " " " .. 42*s.*	50 " " " .. .. 30*s.*
25 in 25 " " .. 25*s.*	25 in 25 " " " .. 21*s.*	25 " " " .. .. 15*s.*
12 in 12 " " .. 15*s.*	12 in 12 " " " .. 12*s.*	12 " " " .. 6*s.* to 9*s.*

TULIPS.

100 in 50 exhibition varieties .. 25*s.*	100 in 30 exhibition varieties .. 17*s.* 6*d.*	25 in 25 exhibition varieties .. 5*s.* 6*d.*
100 in 40 " " .. 21*s.*	50 in 25 " " .. 10*s.* 6*d.*	12 in 12 " " .. 3*s.* 0*d.*

CROCUS.

500 in 20 exhibition varieties .. 21*s.*	250 in 20 exhibition varieties .. 10*s.* 6*d.*	100 in 20 exhibition varieties .. 4*s.* 6*d.*

COLLECTIONS of BULBS (see our Advertisement, page 886, *Gardeners' Chronicle*, Sept. 19), for the adornment of the SPRING FLOWER GARDEN, CONSERVATORY and SITTING-ROOM.

For PRICES of BULBS generally, see our Advertisement, page 958, *Gardeners' Chronicle*, Oct. 10.

For PRICED and DESCRIPTIVE LISTS of BULBS necessary for WINTER and SPRING GARDENING, with the best methods of successfully cultivating and advantageously arranging them, see BARR AND SUGDEN'S "ILLUSTRATED FLORAL GUIDE to WINTER and SPRING GARDENING."

NEW HARDY LATE FLOWERING RHODODENDRONS.

PRINCE OF WALES.

Brilliant rose shaded with purple, divided black marking on the upper petals, compact truss, good substance, a profuse bloomer, very hardy, and flowers end of June.

Strong young plants, 21s. each. | A few larger ones, 42s. each.

PRINCESS OF WALES.

Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, compact truss and good substance. TOTALLY DISTINCT FROM ANY KNOWN RHODODENDRON. Hardy and late. A really beautiful variety.

Strong plants, 21s. each. | Larger, 42s. each. | A few extra size, 63s. each.

One Plant over in three to the Trade.

MAURICE YOUNG has much pleasure in now offering for the first time the above distinct and beautiful RHODODENDRONS, which he can confidently recommend as most desirable additions to this noble class of hardy evergreens. They have both been proved for several years in the open ground to be very hardy, free bloomers, compact truss, and very late—possessing every qualification which can be desired in a first-class Rhododendron.

COLOURED PLATES by ANDREWS are now ready, and will be forwarded on receipt of 25 postage stamps.

MAURICE YOUNG (SON and SUCCESSOR to the late WILLIAM YOUNG), MILFORD NURSERIES, NEAR GODALMING.

ROSES, NEW and OLD
CATALOGUES NOW READY.

A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS. Those who wish for a fine display of bloom during the autumn and ensuing summer should now give their orders.

CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

Roses.

EDWIN HOLLAMBY has the pleasure of informing the Nobility and Gentry that his extensive Stock of STANDARD and DWARF ROSES of all the leading kinds in cultivation is in the finest possible condition; fine straight stems, fine heads, and beautifully rooted. Purchasers of large quantities will be liberally dealt with.

DESCRIPTIVE PRICED CATALOGUES for the present season will be forwarded gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells; and Goldsmith's Park, Groomsbridge, Kent.

Roses.

JOHN CRANSTON offers selections of STANDARD and DWARF ROSES of very superior quality.

The robust growth and hardy constitution of the plants grown in this Nursery has long been acknowledged, and the Stock to offer this season is perhaps superior to any previous growth.

He also begs to direct attention especially to DWARF ROSES on the Manetti stock, of which he has an enormous stock.

The plants upon their own roots are also very strong and well grown

	Per dozen—*s.* *d.*
STANDARD ROSES of all the leading varieties in cultivation	18 0
Do. Newer varieties, introduced in 1861 and 1862	24 0
DWARF ROSES, extra fine plants upon the Manetti stock .. .. 9*s.* to	12 0
Do., do., upon Dog-rose stock	9 0
Do. Newer Varieties, introduced in 1861 and 1862 15*s.* to	18 0
Do., do., of 1862 and 1863 .. .. 24*s.* to	30 0
STANDARD and HALF-STANDARD TEA-SCENTED ROSES, all the best varieties	24 0
DWARF ROSES upon their own roots, Hybrid Perpetuals, and Bourbons .. .. 9*s.* to	12 0
Do., do, Tea-scented .. .. 12*s.* to	15 0
CLIMBING ROSES	9 0
PILLAR ROSES, extra strong plants, 4 to 5 feet 12*s.* to	15 0
STANDARD WEEPING ROSES .. .. each 2*s.* to	2 6
ROSES in 8 and 9-inch pots grown especially for Forcing or Greenhouse culture, the best Hybrid Perpetuals, China, and Tea-scented varieties .. .. .. 24*s.* to	30 0

DESCRIPTIVE CATALOGUES forwarded free on application.

Nurseries, King's Acre, near Hereford.

General Nursery Stock.

S. PONSFORD begs to announce that his Stock of the above is this season unusually fine. It consists of everything in demand for general planting. The most conspicuous are STANDARD and DWARF ROSES; FRUIT TREES of every description, including WALL TREES (very fine); PYRAMIDAL, BUSH and STANDARD APPLES, PEARS, &c.; STANDARD MULBERRIES, extra fine; EVERGREEN and DECIDUOUS SHRUBS, frequently removed; CHINESE ARBOR-VITÆ, all sizes; ANDROMEDA FLORIBUNDA, &c. CONIFERÆ of the known hardy kinds. LIMES, POPLARS, MOUNTAIN ASH, &c.

PRICED CATALOGUES gratis.

Loughborough Park Nurseries, Brixton, Surrey, S.

CHARLES VERDIER, NURSERYMAN, 32, Rue du Marché aux Chevaux, Paris (Successor to the late firm of Victor Verdier, Père & Charles Verdier, fils), has the honour to inform Amateurs and the Trade that he has just published his NEW CATALOGUE for this season, containing all the latest novelties in ROSES, GLADIOLUS, HERBACEOUS and TREE PEONIES, &c., which may be had on application to his London Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

WELLINGTONIA GIGANTEA.—The undersigned has to offer a fine stock of SEEDLING PLANTS in Pots at the following low prices:—

	Per 100.
1-year SEEDLINGS in single pots	£2 0 0
2-year " 8 inches	3 0 0
Ditto, in 48-pots, 1 foot	5 0 0
ARAUCARIA IMBRICATA, in pots 2 years ..	2 10 0
CUPRESSUS LAWSONIANA, in pots, 8 inches ..	0 10 0
PICEA NORDMANNIANA, 2 years .. per doz.	0 9 0

J. HENCHMAN, Edmonton, London, N.

Wellingtonia gigantea, and Cupressus Lawsoniana.

TO BE SOLD, Cheap, a quantity of WELLINGTONIAS, 1—2 feet, and splendid Specimen CUPRESSUS LAWSONIANA, 6 feet, will remove with large balls; and well worth attention where immediate effect is required, having been well grown.—Apply to F. G. GODWIN, Seedsman, &c., 3, Norfolk Market Hall, Sheffield.

Forest Trees, Shrubs, &c.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN, Edinburgh and London, have to announce that their PRICED CATALOGUE for the present season is now ready, and will be forwarded Free on application.

Their stock of SEEDLING and TRANSPLANTED FOREST TREES, ORNAMENTAL SHRUBS, &c., is at present very large, and of superior quality. If requested, special offers will be made to those intending to plant largely.

Edinburgh.—Nov. 7.

Forest Trees and Shrubs.

THOMAS KENNEDY AND CO., NURSERYMEN and SEEDSMEN, Dumfries, N.B., beg respectfully to call the attention of the nobility and gentry of Great Britain and Ireland to their extensive stock of FOREST TREES and SHRUBS, which they are selling at very moderate prices.

CATALOGUES furnished on application.

*** Dumfries from its central position and railway accommodation is most favourably situated for the speedy transmission of goods to all parts of the kingdom.

Hardy Trees, Shrubs, and Plants.

W. SHORT begs to acquaint noblemen, gentlemen, and planters that he has direct transactions with numerous eminent nurserymen in various parts of the United Kingdom, and with his knowledge and through them he feels confident of being enabled to execute their orders to any extent on very liberal terms, for which he solicits their commands, which shall receive his best attention.

Reigate, Surrey—November 7.

Araucaria Rulei, from the New Hebrides.

F. SMITH, late of SMITH & ADAMSON, Melbourne, begs to announce that he has a few 2 year old Plants of this valuable New CONIFER to offer at 10*l.* each.

A report with full particulars of this invaluable, extremely rare, and perfectly unique Conifer can be seen in the Proceedings of the Royal Horticultural Society, who are also in possession of a living plant and dried specimens.

Address WILLIAM SMITH & SON, Nurserymen and Seedsmen, Aberdeen.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz. ; 20s. per 100.

Trade price on application,

Royal Nurseries, Great Yarmouth, Norfolk.

Prize Gladioli.

YOUELL AND CO. were awarded the following PRIZES for the above in September last :—
FIRST AND SECOND PRIZE, CRYSTAL PALACE,
FIRST PRIZE, ROYAL HORTICULTURAL SOCIETY,
FIRST PRIZE, BRIGHTON.

CATALOGUES of this collection will be forwarded on application.

Royal Nurseries, Great Yarmouth, Norfolk.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application ; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Woking Nursery, Surrey.

JAPAN LILIES, Extra strong Flowering Bulbs.

		Each—s.	d.
LILIUM LANCIFOLIUM ALBUM	.. .. ..	1	0
,, ,, ROSEUM	.. .. ..	1	3
,, ,, RUBRUM	.. .. ..	1	3

Three each of the above, 10s.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

NEW FORCING GERANIUM, MRS. LEWIS LOYD.—Rich crimson with dark maroon blotch in top petals ; of dwarf robust habit, and most profuse bloomer. Forces into flower at any season without drawing. It was exhibited to the Floral Committee of the Royal Horticultural Society on March 31, and then awarded their Certificate of Commendation. Good Plants now ready, 7s. 6d. each.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

THE RED LODGE NURSERY, SOUTHAMPTON, extends over 60 acres, and contains an unrivalled stock of AMERICAN PLANTS, FRUIT, FOREST, and ORNAMENTAL TREES, EVERGREEN and FLOWERING SHRUBS, CHOICE CONIFERÆ, STANDARD and DWARF ROSES, &c., all in the best state for removal.

CATALOGUES, and every information obtainable on application to the Proprietor, Mr. W. H. ROGERS.

Peach Trees for Forcing.

MESSRS. THOS. RIVERS AND SON beg to offer very fine PEACH TREES in pots for forcing ; they are from three to four years old, and full of blossom buds. The varieties cultivated are Noblesse, Royal George, Grosse Mignonne, Early York, Early Grosse Mignonne, and others.

Largest sized trees, 7s. 6d. each ; fine trees, 5s. each ; carriage paid to London.

Nurseries, Sawbridgeworth.

Very Strong Standard and Pyramid Pears and Plums.

JAMES GARAWAY AND CO., Durdham Down Nurseries, Bristol, offer the above, of the best varieties, 24s. to 30s. per dozen. Prices to the Trade on application.

AUTUMN CATALOGUE and FOREST TREE LIST free by post.

JAS. GARAWAY & CO., Durdham Down Nurseries, Bristol.

The Royal Hautbois Strawberry.

MESSRS. THOMAS RIVERS AND SON now offer Plants of the above. The variety was selected by them in 1861 from many hundreds of Seedlings raised from La Belle Bordelaise Strawberry, a variety of the Hautbois received from France, and has proved to be by far the largest and most prolific of the race, with the true Hautbois flavour.

Plants, 4s. per dozen, 30s. per 100. A few extra sized bearing plants, 9s. per dozen ; carriage paid to London.

Nurseries, Sawbridgeworth.

Vines.

JAMES CARTER AND CO. beg leave to call attention to their splendid collection of the above, consisting of several thousand CANES of the most approved varieties in cultivation. Extra strong, short-jointed, well-ripened Canes for fruiting in Pots next year ; fine strong, well-ripened Canes for planting in Vineries, and strong hardy Canes for open walls.

For prices and full descriptive list of more than 40 finest selected varieties most suitable for above purposes, see AUTUMN SUPPLEMENT to their VADE MECUM, forwarded post free on application.

Seed Merchants and Nurserymen, 237 and 238, High Holborn, London, W.C.

GRAPE VINES.—Strong well ripened Canes of the following, at 3s. 6d. to 5s. each :—Black Hamburgh, Grizzly Frontignan, Black Prince, Chasselas Musqué, Black St. Peter's, Black Frontignan, Cannon Hall Muscat, Précoce Malingre, White Frontignan, White Sweetwater, Muscat of Alexandria, Tokay, Golden Hamburgh, Syrian Muscat Hamburgh, Mill Hill Hamburgh, Lady Downes, Black Cluster, Esperion, Muscat Troveron, Royal Muscadine, Trentham Black, Blanc de Kentsheim, Black July, Ingram's Prolific, Buckland Sweetwater, Cavoush.

JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

DILLISTONE AND CO., Sturmer and Woodlands Nurseries, one mile from the Haverhill Station, Colne Valley Railway, beg to offer a few thousand of the finest kinds of mixed LANCASHIRE GOOSEBERRIES, four years old ; they consist of Crown Bobs, Companion, Troubler, Whitesmiths, Wellington Glory, and other large and good bearers. Price upon application.

All the popular kinds of ROSES on MANETTI, 2½ to 6 feet in height, price 6s. to 18s. per dozen, cheaper by the hundred.

A few hundreds of choice HOLLYHOCKS, same of best PANSIES, cheap and good plants, and will give satisfaction to the purchaser.

DILLISTONE'S 1st EARLY PEA, originated here, by the quart, peck, or bushel, with everything connected with the Nursery and Seed Business. Cash or reference is requested.

Sturmer, Nov. 7.

Rhododendron Countess of Haddington.

Good plants, 21s. each.

Vine Tynninghame Muscat.

Good plants, 3s. 6d., 5s., and 7s. 6d. each.

ROBERT PARKER begs to announce that he is now offering for sale the above first-class Plants. Full descriptions with List of Awards received are published in his NEW CATALOGUE of PLANTS and BULBS, which will be forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

Hardy Scarlet Rhododendrons.

JOHN WATERER'S CATALOGUE of HARDY SCARLET and other CHOICE RHODODENDRONS as annually displayed in the Royal Botanic Gardens, Regent's Park, can now be had on application.

It contains faithful descriptions of all the varieties really worthy of cultivation, as well as a selection of HARDY CONIFERS, with heights and prices, with ORNAMENTAL EVERGREENS, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

RHODODENDRON PRÆCOX.
,, ,, SUPERBUM.
,, ,, RUBRUM.

ISAAC DAVIES can now supply the above in nice bushy Plants, with from 10 to 100 Flower Buds at from 3s. 6d. to 7s. 6d. each. Superbum and Rubrum are the best varieties.

Larkfield Nursery, Wavertree, near Liverpool.

New Hardy Continental Rhododendrons.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), begs to offer the following New Hardy RHODODENDRONS :—

	s.	d.		s.	d.
Rhododendron Comte de Gomer ..	4	0	Rhodo. Dr. Moore ..	6	0
,, Comtesse Salvi ..	6	0	,, Mrs. Barton	5	0
,, Dieudonné Spae ..	5	0	,, Mr. Stuart Low ..	6	0
,, Director Thelemann	5	0	,, Princess Alice ..	5	0
,, Duc Adolphe de Nassau	12	0	,, rubrum spectabile ..	4	0
			,, Verschaffeltii .. .	5	0

The above varieties, raised by AMBROISE VERSCHAFFELT, are certainly of the finest and best varieties in trade.

The Set of the Eleven Varieties can be supplied for 3l.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

Beck's New Pelargoniums,

OFFERED FOR THE FIRST TIME.

B. S. WILLIAMS begs to announce that he is now prepared to supply strong plants of the above, which have received certificates of the highest merit during the past and previous seasons. They have been selected with great care, and are far in advance of any yet offered.

For descriptions and prices, see *Gardeners' Chronicle*, Oct. 24 ; also in Catalogue, which can be had on application.

Paradise and Victoria Nurseries, Holloway, London, W.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

JAS. GARAWAY AND CO.'S AUTUMN CATALOGUE for 1863, containing Priced Lists of Shrubs, Ornamental Trees, Conifers, Roses, and Fruit Trees of all descriptions, is now ready, and will be forwarded Post-free on application.

Orders exceeding 5l. Carriage Paid to the Irish ports in direct communication with Bristol.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

CARTER'S NOVELTIES for 1864:

MIMULUS TIGRIDIOIDES.

LUPINUS ALBO COCCINEUS.

GODETIA ROSEO - ALBA, TOM THUMB.

TROPÆOLUM MAJUS PURPUREUS.

SWAINSONIA SPLENDENS.

CLARKIA PULCHERRIMA INTEGRIPETALA.

GILIA LACINIATA.

KAULFUSSIA ATROVIOLACEA.

LOBELIA PAXTONIANA.

Coloured Plates will be ready next week.

Price to the Trade on application to JAMES CARTER & Co., 237 and 238, High Holborn, W.C.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select, Descriptive, and Priced Lists of Exotic Orchids, New and Rare Greenhouse, Hardy, and Stove Plants, Ornamental and Variegated foliaged Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, Narcissus, and other Bulbs, is now published and will be forwarded to all applicants.

Exotic Nursery, Tooting, Surrey, S.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON'S first importation of the above has arrived, and from the extraordinary heavy weight of the Bulbs they promise a fine bloom. Early orders are earnestly solicited. DESCRIPTIVE PRICED CATALOGUES free.

N.B.—17 FIRST PRIZES were awarded to WM. C. & SON last spring for HYACINTHS, TULIPS, and CROCUSES. In addition to this, EVERY FIRST PRIZE at the London Exhibitions to Amateurs was for Bulbs supplied by them.

The ONLY address is Highgate Nurseries, London, N.



HYACINTHS for EXHIBITION.
FRESH IMPORTED BULBS.
SUTTON'S SELECTION.

	Per 100.	Dozen.
Finest sorts by name ..	£4 4s.	12s.
Very fine ditto ..	3 10	9
Good ditto ..	2 10	6

Good Hyacinths for Beds, Ribands, &c. in separate colours (fresh imported), 21s. per 100.

Anemones, Crocuses, Tulips, Gladioli, &c., also very low in prices, as per CATALOGUE, which may be had gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

E. G. HENDERSON AND SON'S DESCRIPTIVE LIST of BULBS as a Guide for the Amateur's selection is now published, and will be forwarded post free on application.

HYACINTHS, choice by name, 6s., 8s. and 9s. per doz.
Do., MIXED in colours, 3s. per doz.
Do., colours separate, 4s. per doz.
Do., MINIATURE FLOWERED VARIETIES, 3s. per doz.
TULIPS for Forcing, 6d. to 1s. per doz.
Do. EARLY SINGLE, and DOUBLE MIXED, 5s. and 6s. per 100.
Do., LATE, show varieties, mixed, 1s. per doz.
SNOWDROPS, single and double, 2s. per 100.
WINTER ACONITES, 2s. 6d. per 100.
CROCUS, in sorts, 1s. 6d. and 2s. per 100.
SCILLA SIBIRICA, 7s. 6d. per 100.
ANEMONES, 3s. 6d. and 5s. 6d. per 100.
RANUNCULUS, 3s. to 5s. per 100.
GLOXINIAS, by name, 9s. and 12s. per doz.
ACHIMENES by name, 2s. 6d. and 3s. per doz.
GLADIOLUS BRENCHLEYENSIS, 3s. per doz., 20s. per 100.
GANDAVENSIS, the finest collection offered.
CYCLAMEN, a choice collection of 20 varieties by name.
LILIES, 60 fine varieties. TRITOMA UVARIA, 12s. per doz.
TRITONIA (CROCOSMA) AUREA, 3s. per doz.
EARLY SPRING-FLOWERING PLANTS, in various colours, as HEPATICAS, DOUBLE PRIMROSES, VIOLETS, CHRISTMAS ROSE, and 60 other early-flowering perennials.
Strong Clumps of NEAPOLITAN and other VIOLETS in pots for winter blooming, and LILY of the VALLEY.

Wellington Nursery, St. John's Wood, London, N.W.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

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WM. PAUL respectfully informs his friends and the Trade generally, that he has a large and superior Stock of the following. Prices very moderate, and will be given on application.

STANDARD, DWARF, and CLIMBING ROSES.
Large DECIDUOUS TREES and SHRUBS, including Planes, Elms, Poplars, Acacias, Laburnums, Thorns, &c.
WEEPING TREES, of sorts.
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EVERGREENS, of all sorts.
FRUIT TREES, of sorts : Pyramidal and Dwarf Apples and Pears, very fine.
GRAPE VINES, for Fruiting or Planting, also very fine.

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Deutzia crenata fl. pleno—Japan.

JOHN STANDISH has now the pleasure of submitting to the consideration of his friends and the public the above truly valuable and hardy ornamental plant. It has received First-class Certificates both at the Royal Horticultural and Royal Botanic Shows in June and July last (*vide* Report).

"There were a few very interesting new hardy plants shown, first a Deutzia crenata flore pleno, one of Fortune's novelties, flowered by Mr. Standish. This looked like a fine addition to hardy shrubs ; it has opposite shortly stalked finely serrated leaves, and copious terminal racemes of deflexed double flowers deeply tinged externally with rose."

Plants now ready, 10s 6d. each ; or 6 Plants for 42s.

Royal Nursery, Ascot, Berks.

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For £1 1s., Carriage Paid.

BARR AND SUGDEN'S No. 3 COLLECTION of BULBS for the SITTING-ROOM or CONSERVATORY.—12 splendid Hyacinths, 6 Pompone Hyacinths, 6 Polyanthus Narcissus, 6 Double Sweet-scented Jonquils, 24 splendid Tulips, 50 New Crocus, 3 Japan Lilies, 6 Achimenes, 3 Lachinalias. Half the above, 10*s.* 6*d.*

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£34 10s. Prizes.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.

The Royal Horticultural Society in March, 1864, offer Prizes to the amount of 34*l.* 10*s.* for HYACINTHS, TULIPS, and CROCUS.

See BARR & SUGDEN'S enumerated varieties of Exhibition HYACINTHS, TULIPS, and CROCUS; also their Advertisement, page 985.

GREAT FRUIT and CHRYSANTHEMUM SHOW at BIRMINGHAM.—The ANNUAL GREAT FRUIT, GOURD, and CHRYSANTHEMUM SHOW, open to all the World, will take place at the Town Hall, Birmingham, in connection with the Handsworth Horticultural Society (simultaneously with the Cattle, Poultry, and Dog Shows), on TUESDAY, WEDNESDAY, and THURSDAY, December the 1st, 2d, and 3d.

Schedules of Prizes (which include a Ten Guinea Cup for a Collection of Fruit), are now ready, and may be had on application.

Entries close on THURSDAY, November 26.

CHAS. JAS. PERRY, Castle Bromwich.
GEORGE P. TYE, Handsworth.

ROYAL HORTICULTURAL SOCIETY.
FRUIT COMMITTEE.

A MEETING of this Committee will be held at the Garden, South Kensington, W., on TUESDAY, November 10, for the Examination of such FRUITS and VEGETABLES as may then be submitted for the judgment of the Committee, and for awarding the following prizes:—

CLASS A.—The best Three Dishes of any variety of DESSERT APPLES, distinct kinds, 15*s.*, 10*s.*

CLASS B.—Ditto ditto PEARS, 15*s.*, 10*s.*

CLASS C.—Best Three Bunches of any of the newer varieties of GRAPES without Muscat flavour, 20*s.*, 10*s.*

CLASS D.—Ditto with Muscat flavour, 20*s.*, 10*s.*

☞ All Packages must be at the place of Meeting by 11 o'clock on the morning of the day of Meeting, and together with Communications are to be addressed to

ROBERT HOGG, LL.D., Secretary to the Committee.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 7, 1863.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	NOV.	9	Chrysanthemum Exhibition at Stoke Newington.
TUESDAY,	—	10	
TUESDAY,	—	10	Royal Horticultural (Floral and Fruit Committees) at S. Kensington .. Noon
WEDNESDAY,	—	11	
THURSDAY,	—	12	Chrysanthemum Exhibition at the Agricultural Hall, Islington.
FRIDAY,	—	13	

JAPAN, "THE LAND OF THE RISING SUN," as it is somewhat poetically called by its inhabitants, has been lately opened to the rest of the world; having been all but closed for upwards of 200 years. Partial glimpses of the country which had been obtained from time to time showed that it was very rich in vegetable productions of an ornamental and useful kind, which would be highly valued in Europe. The writings of KÆMPFER and THUNBERG, and of late years of SIEBOLD and ZUCCARINI, had made us acquainted with many plants of great beauty, some of which had been introduced to this country, but the greater number were still unknown to our parks and gardens. When, by our late treaties with Japan, that country was partially opened to foreign nations, an opportunity presented itself of introducing these desirable novelties to Europe. Such an opportunity was too valuable to be lost, and it was most promptly used.

The botanical expeditions to "the Land of the Rising Sun" appear to have met with a rare amount of success, if we may judge from the number of new shrubs and trees which have lately appeared at our Exhibitions. The first results were exhibited by Mr. STANDISH on the 5th of June, 1861, at the opening of the Royal Horticultural Society's Garden at South Kensington, a fit occasion for the new vegetable foreigners to present themselves. It was stated at the time, in our report of that exhibition, that "these plants, though they had been but a few days in England, were as fresh and healthy-looking as though they had all their lives been revelling in the pure air of Bagshot, and had never known the discomfort of a long sea voyage." In 1862 and during the past summer both Mr. VEITCH and Mr. STANDISH have exhibited long lines of new Japanese plants at all our principal exhibitions, and have carried off many prizes.

As many of these interesting novelties have it may be worth while to draw the attention of our readers to some of the most valuable amongst them, as well as to the effect which they are likely to produce in our gardens and landscapes. With this end in view we shall divide them into four classes, namely, bulbs and herbaceous plants, climbers, shrubs, and trees.

In the first class by far the most beautiful plant is Lilium auratum; indeed, we have had nothing to rank with this since SIEBOLD introduced Lilium speciosum from the same country. Lychnis Sennoand its variety with striped blossoms, are likely to prove very ornamental plants; we are informed the specimens exhibited last summer gave a very faint idea of the beauty of this species. The dragon and striped Chrysanthemums, although not particularly handsome in their present state, may produce a new race of fine things in the hands of our florists. Tricyrtis hirta, a plant with mottled blossoms, is particularly handsome; and so is Saxifraga Fortunei, lately figured and described by Sir WILLIAM HOOKER in the "Botanical Magazine." Nor must we omit from this list a beautiful little Saxifraga in the way of S. sarmentosa, having its green leaves beautifully mottled and tinted with various colours of white, pink, and rose.

Of CLIMBING PLANTS there are only three which we can notice at present, but they are all very great acquisitions to our gardens. There is a charming Honeysuckle (Lonicera aureo-reticulata) whose leaves are veined and mottled like an Anœctochilus, and two species of Clematis, one having flowers of a deep violet blue, and the other large double white ones, deliciously scented like the Orange blossom.

The SHRUBS which have been introduced are of very great value. In the first rank amongst them we place the new evergreen, Aucuba japonica vera. It has bright glossy leaves of the deepest green colour, and, in our opinion, is a far more beautiful object than the variegated variety common in our gardens. By the side of this, and as an object of equal importance, we must place the *male* of Aucuba japonica, which has now been introduced, and which was exhibited by Mr. STANDISH, in flower last summer. We understand Mr. STANDISH has a female plant covered with berries which will soon show the value of this introduction. Osmanthus ilicifolius, a shrub nearly allied to the Olive, and somewhat like a Holly in appearance, is another decided acquisition. Two new species of Skimmia also look very promising; they are larger and more vigorous in their growth than the Chinese Skimmia japonica, and if their fruit is produced as profusely and is as ornamental, they will be very useful plants. The double Deutzia crenata is another valuable addition to the things already in our gardens; it produces, in great abundance, fine racemes of double flowers, which are white and tinged on the outer surface with deep rose. Ilex crenata (Thunb.) incorrectly named I. Fortuni in the nurseries, is another valuable introduction. It is of a neat habit, has bright green glossy leaves, and as an evergreen hedge plant will be most useful.

Pines and their allies are the principal TREES which have been introduced. Amongst these perhaps the most remarkable is the "Umbrella Pine" (Sciadopitys verticillata). This tree is quite distinct in its habit and general appearance from any of the family of Conifers hitherto introduced to Europe; we have already given a figure of it, for which we were indebted to Mr. J. G. VEITCH. Abies firma, Alcoquiana, Veitchii, and Pinus densiflora, are likely to prove very ornamental and useful trees, if they prove themselves hardy in our climate. Retinospora obtusa and R. pisifera are trees which resemble Cupressus Lawsoniana in their appearance, and if they grow as well with us as they do on the hill sides of Japan, they will be highly prized. Retinospora obtusa nana and its variegated varieties, are handsome dwarf garden plants, and these, with R. pisifera aurea and R. pisifera variegata, will be invaluable as dwarf trees for our lawns or suburban gardens. Thujopsis dolabrata is one of the handsomest trees in Japan, and we have the satisfaction to know that it is as hardy as a Scotch Fir. To this we have now added a variegated variety, and another named Thujopsis Standishii.

The Oaks and Maples of Japan appear to be interesting and beautiful, and we are glad to find that many of these have been brought to Europe. Travellers write in glowing terms of noble hedges of evergreen Oaks which fringe the roads near Yedo, and afford a pleasant shade from the sun; even in the depth of winter the country has an unusually green appearance, owing to the abundance of these fine trees. The foliage of the different kinds of Maples as it ripens in the autumn, takes on many bright hues of colour—yellow red, and purple—and has a very remarkable effect upon the landscape.

A curious feature in these Japanese introductions is the number of variegated plants which have been discovered. Almost every species of plant indigenous to Japan, whether herbaceous, shrub, or tree, would appear to have a variegated variety. There are variegated Camellias, the Tea plant is met with in like condition, and even Pines, Palms, and Orchids, have their variegated representatives. The favourite Aucuba of our gardens is doubtless a sport from the plain leaved kind lately introduced. Many of these natural sports are very handsome. As examples, we may point to several varieties of the Osmanthus, Retinospora, Elæagnus, Euonymus, Eurya, &c.

Some plants have also been introduced which are probably natives of the southern parts of the Japanese islands. These will not thrive in the open air in this country, but they are well worth notice on account of their beautiful foliage. Amongst them we may mention Eurya latifolia variegata, a charming plant with Camellia-like leaves blotched with white, and when young tinged with pink and orange. Illicium variegatum, Gardenia radicans variegata, and several kinds of Podocarpus and Nageia have their leaves striped with different colours as if painted by the hands of an artist. These are far more beautiful in Japan than they have yet been seen in England, and evidently want more summer-heat than we have in the open air in this country to bring them to perfection. For conservatories and for winter gardens, which are now coming so much into use, these plants will be found admirably adapted. They will well repay a little extra care.

These then are a few of the more important results of the opening of Japan in as far as horticulture and arboriculture are concerned. We could add a number of other plants to the list we have given, such, for example, as several pretty Ferns, Primroses, and other things of interest. The introduction of such a large number of valuable plants in so short a space of time is a very unusual occurrence, and we are not likely to see such a number of important novelties at one time again. It is not every day that an old country, with a high civilisation of its kind, is all at once thrown open to other nations after a seclusion of 200 years—a country too with a people passionately fond of flowers and trees.

Our travellers would seem to have visited Japan at the right time. We are now at war with that country—at least with some of its Daimios or feudal Princes; Yedo the capital, whose gardens furnished many of the fine things we have been describing, is again all but closed to foreigners, and it may be long before it is safe to visit it again and ramble about amongst its well-stocked gardens. The curtain which had been drawn up for a brief space has fallen once more; meanwhile we have been able to add to our collections many plants of great importance, which are likely, as they acquire age and size, to make an impression on our gardens and landscapes.

SUCH of our readers as are looking forward to the opening up of a new field of enjoyment in the cultivation of cool-country Orchids, will be glad to hear that Mr. LINDEN—the well known introducer of a host of valuable plants—has received information from his collector in New Grenada, of the despatch of a very large assemblage of the most brilliant species of Odontoglossum, Masdevallia, &c. As the arrival of these exquisite treasures may be immediately expected, we hope that our friends will lose no time in making preparations for their suitable accommodation, and—grown wiser by experience—will not repeat the suicidal folly of attempting to cultivate in a hot stove plants that ask only for a cool greenhouse.

Lest, however, there should be any misunderstanding in regard to the conditions under which these plants may be properly grown, we would again remind our readers that they come from localities that are not merely *cool*, but which are also — in most instances—*humid* and *gloomy*. To ensure success then, they should have a low damp house facing the north, such a one for example as that in which Mr. BATEMAN has succeeded so well with Epidendrum vitellinum and various Odontoglots. In such a house as this four-fifths of the Peruvian, and two-thirds of the Mexican Orchids might be grown with the greatest ease and economy; but an ordinary greenhouse,

with the usual accompaniments of plenty of light, and air, and dryness, would be as little congenial to them as the temperature of the East India house, to which they were formerly consigned.

IT appears from a short notice in a recent number of the *Botanische Zeitung*, that the ANACHARIS ALSINASTRUM, which has already become established in Belgium and Holland, is also making itself known in Germany. From a pond in the Leipsic Botanic Garden, in which it had been grown as an interesting botanical object, it has spread to the environs of the city; and Herr MORSCH had in July last sent it to a horticultural gathering at Sanssouci, near Potsdam, as a plant which had escaped from the Berlin Garden, and was already filling up all the canals and ditches in that neighbourhood. Thus it is behaving exactly as it did with us.

—— IN another column will be found some remarks on the subject of NEW HYACINTHS, by a correspondent who is one of the most constant exhibitors of these flowers. It will be seen that he urges the adoption of an old rule of the Royal Horticultural Society respecting New Plants as the best means of settling this disturbed question of New Hyacinths. That rule was, that any plant which had previously been exhibited before the members could not be considered new. On this point we do not agree with him. The rule in question applied properly enough, and might still properly enough be made to apply to what are understood by the term New Plants, that is to say imported species of plants; but it does not apply well to the case of florists' flowers, amongst which the Hyacinth must be included. Seedlings of florists' flowers appear and disappear at a much more rapid rate than imported species, and some more active rule than this is necessary in their case. The rule which has been referred to does not, it will be seen, define what a new plant is, but simply has this negative result, that any plant not already shown must be taken as new. This, indeed, is the only possible rule with respect to imported plants, such as those to which we refer, because in their case no limit of time can safely be fixed: one grows freely, so as to be increased, flowered, and exhibited in the course of a year; another progresses so slowly that it may be five, 10, or 20 years before it can be flowered or increased, and probably at least several before it can be got into a fit state even to exhibit. It is not so with florists' flowers; they are raised and flowered in succession year after year, so that there is annually a set of varieties to be "let out," and these make their appearance in the florists' catalogues. Such flowers must always be regarded as novelties of that year in which they are first catalogued for sale. This defines clearly the date assignable to each, except in the infinitesimal number which are not sold, but distributed as gifts by their raisers. Now, all florists' flowers ought, it is clear, to come under the same rule, for notwithstanding that Hyacinths are of somewhat slower increase than such things as Dahlias and Verbenas, we do not see any necessity to apply to them any different arrangement.

We do not raise new Hyacinths in England, so that it is clear we ought to consult not our own lists, but those of the growers themselves, in order to determine this question of novelty. We should, therefore, hold to the Dutch catalogues as being the best produceable evidence of novelty. It is true our correspondent says his search amongst them does not yield results which agree with those we quoted from a contemporary at p. 1012; but there is at least little doubt that now the question has been opened, we shall have novelties distinctly announced in future. In fact, if the Dutch growers will collectively communicate a descriptive list of the novelties to be annually let out, before the bulb season comes on, we will undertake that it shall be put on record in our columns. If they will do this even now, commencing from 1860, and giving the name of the raiser or distributor as well as the year when first sold out, a good starting point will have been gained.

After all, however, the great point for the exhibitor at our own shows is a definition in the schedules of the classes of New Hyacinths—an explanation, that is to say, of what they are intended to include. The exhibitor need then have no difficulty. We do not think the best definition to be one which would admit all varieties not exhibited previously, first because this would be a mere negative rule, and would not shut out old sorts; and secondly, because it would always be open to dispute. If new Hyacinths were produced thick enough, we should certainly prefer those which had been "let out" in the current year; but as this does not appear to be the case, and as mere novelty is of less interest than merit and novelty combined, we should, in the interests of the visitors, adopt such a definition as would let in the new introductions of say three or four years, by which a group of good sorts might be ensured. There is another advantage in this plan, for the public would thus become familiarised with the BEST of the new sorts, as they came to bear a reasonable price in the market.

FRUIT FROM NOVA SCOTIA.

WE announced last week that two fine collections of fruits had been received by the Royal Horticultural Society from Halifax, Nova Scotia; one of these was from the Horticultural Association, and the other from the Horticultural Society of that colony. Both collections may still be seen at South Kensington. With fine exhibitions of fruits grown in England our readers are familiar; but with regard to the fruit productions of our colonies no very correct ideas are entertained. From former representations of the climate of Nova Scotia it could not have been imagined that fruits of such size and beauty as those now brought under our notice at South Kensington could have been grown in that country under any circumstances, whereas we are informed that "the whole were grown upon standards with ordinary orchard culture."

Halifax, N.S., it may be observed, is farther south by 6½° of latitude than London, and ought consequently to have a more genial climate, or one equal to that of Italy; but whilst Britain lies in the course of the equatorial current, which keeps it warmer than perhaps any other country situated in an equally high latitude, Nova Scotia has masses of ice from the polar regions floating along the Atlantic in proximity to its eastern coast. This extends 300 miles, and is characterised as bold, rocky, and barren, and for a considerable portion of the year subject to cold fogs, occasioned by the melting ice. The Atlantic coast of this colony presenting to the earlier explorers a forbidding appearance, and the climate being reported to be particularly dismal and dreary, gave rise to the supposition that the country was almost uninhabitable, and by many it was long considered as such. The present exhibition forms, however, a pleasing contrast to the impressions derived from partial experience; and it may be safely laid down as a rule that wherever the Apple will succeed as it does in Nova Scotia, according to the examples before us, British settlers will find a salubrious climate, good soil, and the means of existence.

The Apple, of varieties of which the exhibition chiefly consists, is subject to peculiar circumstances as regards climate in Nova Scotia. In Mr. Knight's prize Essay "On the Colony and its Resources," it is stated that, "the most important points in which the climate of Nova Scotia differs from that of Great Britain, are its higher summer temperature, and the shortness of this season (which, however, is compensated to some extent by a remarkable rapidity in the process of vegetation), and the lower temperature of its winter. The severity and the length of its winter are also compensated by the unexampled mildness and beauty of its autumn, which is frequently protracted to the early part of December." The mean temperature of April in Nova Scotia is only 30°, and that of May 40°; that being the case the Apple cannot be in blossom much before the beginning of June. After that period vegetation is very rapid, the mean temperature of July being 63°, and that of August 70°, or equal to the heat of the south of Europe. This short but very hot summer appears to suit the Apple better than the Pear, for the specimens of the latter are not remarkably fine. This is doubtless owing to the circumstance of the Apple naturally requiring a shorter period from its blossoming till it acquires its full size, than the Pear does.

Among the more remarkable varieties of Apples, both as regards size and colour, a few are known and cultivated in English gardens; but in making comparisons it should be recollected, as already mentioned, that the Nova Scotian productions are from open standards, receiving only ordinary orchard culture. What they would have been in highly cultivated gardens we leave our readers to judge.

Gloria Mundi.—Circumference 12½ inches; height 3¾ inches; weight 15 oz.; pale yellow with a tinge of brownish red next the sun, in which tinge large whitish specks are rendered conspicuous.

Gravenstein.—Very fine specimens, 11 inches in circumference, weight 8½ oz., beautifully coloured. This variety, a native of the North of Germany, where it is much cultivated, evidently succeeds well in Nova Scotia, indeed fully as well if not better than in its native country.

Alexander.—Circumference 12¾ inches, 3⅞ inches high. Smooth, shining, finely coloured and streaked.

York and Lancaster, or Nova Scotia Seedling.—An Apple bearing the latter name, proves to be the same as the York and Lancaster. It is beautifully striped with red and white like a Carnation.

Rhode Island Greening.—Circumference 10¾ inches, height 2½ inches, greenish, with a tinge of brown next the sun (grown in England this sort is entirely green). A good Apple for kitchen and table; at Halifax it proves hardy, a good keeper, and great bearer.

Baldwin.—About the same size as the preceding, smooth, reddish next the sun, obscurely streaked. Succeeds in England, but not so well as the Rhode Island Greening. At Halifax it is stated to be a prodigious bearer, good keeper, and hardy.

Blenheim Pippin.—Fair sized specimens.

Blue Pearmain.—Rather large, oval, streaked with deep purplish red.

Calkin Pippin.—11½ inches in circumference, weight 10 oz.; roundish ovate, smooth greenish yellow; flesh briskly acid, probably a good kitchen Apple.

Pound Sweet.—Circumference 12 inches, weight 11 oz.; form of Gloria Mundi; red, streaked with darker red.

Northern Spy.—Weight 8½ oz., roundish, glossy, red streaked with somewhat darker red; the colouring however not so brilliant as in specimens grown in the States of North America.

Twenty Ounce Pippin or *Cayuga Redstreak.*—Circumference 13 inches, height 2¾ inches, weight 11½ oz. Dull red intermixed with lighter.

Yellow Newtown Pippin.—Of average size and very good quality.

New Large Yellow Golden Pippin.—Circumference 12½ inches, height 3½, weight 13½ oz. Smooth and of a fine yellow colour. Resembles very much the Golden Noble.

The above are some of the largest; the following are some good dessert sorts:—Ribston Pippin, of fair size, clear skinned; Roxburgh Russet; English Pearmain, which proves to be our Winter Pearmain; Herefordshire Pearmain, doubtful, it being more glossy than with us; Fameuse, or Pomme de Neige, beautiful glossy red with snow-white flesh; Pomme Grise, said to be in Nova Scotia a great bearer, very hardy, and of fine quality and handsome form; Nonpareil, or English Russet, appears to be the Boston Russet, which has long been suspected to be of English origin.

As has been already observed, Pears do not succeed so well in Nova Scotia as Apples. Specimens of Duchesse d'Angoulême are scarcely ripe; Onondaga, a medium-sized turbinate Pear, is buttery and very good, and deserves to be introduced into this country; Paradise d'Automne is not that variety, but as far as could be judged from its decayed state it seems to be Hacon's Incomparable; Frederick de Wurtemburg is of the nature of Napoléon, but with bright red next the sun; the Vicar of Winkfield seems to want a longer summer; Winter Nelis is a fair specimen; one marked unknown appears to be the same as the preceding; that named Bergamot is the Gansel's Bergamot.

Some black Hamburgh Grapes, grown under glass without fire-heat, are well coloured, but have suffered from carriage. With the assistance of only a little fire-heat previous to the hot season, doubtless splendid Grapes could be produced in Nova Scotia. If assisted till June, the warm months of July and August would naturally complete the process of maturation. There are also several bunches of the Isabella, reputed as one of the best of the American native Fox Grapes; but bad it is as usual, possessing, like all those of its class, a nauseous slimy pulp.

Together with various cereals are also exhibited some good sames of Maize, which are as well ripened as if they had been grown in southern Europe.

FOLIAGE PLANTS.

YOUR Correspondent "J. R. B." has, I think, given a sufficient reply to "Fumarola" respecting the growth of these plants after midsummer, and also regarding latitude, as I am much nearer London. I am, however, anxious to remove what appears to be a misunderstanding. It is stated that I throw discredit upon a painstaking man. Few, I hope, have taken my remarks in that light; on the contrary, permit me to say, that no park around London has done more credit to its manager during the past season than Battersea. Nevertheless, I hope we are at liberty to discuss the merits or demerits of the system of culture carried on there, as compared with our requirements elsewhere, without committing any breach of the peace.

I will therefore endeavour to explain my experience in a small way, which dates back from that period when the Champs Elysées, the present head-quarters of foliage plants, was a quagmire, and French cultivators, as well as ourselves, had to borrow the practice of growing them properly from Germany. And let me start with the question mooted at page 1013, viz., where is the proper place for such plants in our flower gardens? To put this more pointedly, in what does their beauty consist, and beyond a dell, or pond side, or similar place, are they appropriate ornaments according to our present flower garden arrangements? In Germany their growth was a matter of necessity from want of other plants, but of late years the Germans are giving place to the English system of growing flowers, while we are now encouraging foliage plants. The latter are used in the Champs Elysées as blinds to Cafés Chantants, or other places of public amusement. With every season, however, their quantity is reduced in favour of our English Geraniums and Fuchsias, as extended means can be acquired to keep the latter over the winter months.

My knowledge of bottom heat, in reference to these and other plants, leads me to the conclusion that it answers the purpose of establishing early growth. Let us take, for example, a Tomato, in the first week in June; we plant this out on bottom heat, which forces it into early growth, and fruit soon sets and swells. By July it is of little importance whether the bottom heat is spent or not. It must be bad weather indeed if these early set fruit do not ripen in the proportion of 12 to 1 compared with that on plants put out in the ordinary way, so with the Chili, Aubergine, French Beans, &c. These plants are useful and necessary in most establishments. But before applying bottom heat to tender plants in

general out of doors, I should, upon renewing any trials, consider what object was to be attained by its use. Suppose I succeeded in getting an Ipomœa Leari to spread all over a large house front, by the addition of bottom heat, in the hot months of July and August; it would doubtless be very beautiful in the early part of bright mornings, when comparatively few for whom it was pushed on could see it; half an hour's hot sun would take every bloom off it, and afterwards there would be only the curled up pink remains of what in the morning was a gorgeous blue flower. By this experiment therefore what have we gained? Instead of the Ipomœa, if we had bestowed as much care upon some of our beautiful hardy summer flowering climbers, that could hold their own under all circumstances, and keep their beauty to be enjoyed and admired for the whole day, a result worthy of our attention would be secured.

Leaving Ipomœas therefore for the conservatory, where there are means of shading and protecting their blooms, so that they may be enjoyed. Let me add that there are numerous stove plants which come into beauty at certain seasons, and are so nearly half hardy as to be most successfully used for out-door display. For example, the most effective plant up to October 25, in and around Paris, is Cassia corymbosa, particularly a long border of it in the Luxembourg, where its beautiful clusters of rich golden yellow flowers are a loadstone to the eye the moment a visitor enters the garden. It did M. Rivière infinite credit, and where autumn beds are an object, it would be worth a trial in this country, in various ways, to forward its growth early, which is doubtless the secret of success in the case of this plant. *J. F.*

BIRDS.

The renewal of the discussion as to whether small birds are more useful or destructive in cultivated districts, seems to indicate a still unsettled conviction on the part of many persons interested in the subject. While bird defenders are so satisfied as to their general usefulness, and bird detractors are so certain as to their mischievous tendencies, little hope remains (between two parties whose convictions are so opposite) of a satisfactory solution of the question. The accumulation of facts bearing on the subject, by impartial observers, really and practically interested, will help more than anything else to determine the real facts of the case. Living in a large garden, and in a country abounding in birds, my experience may be of some little value in the vexed question. I may premise that I am fond of the study of natural history, and that I look with never failing interest on the habits and peculiarities of the birds constantly about me. I have to grow fruit and vegetables and flowers, and it is important and essential to my interest that I secure good crops and good examples of each of the above mentioned products of the garden.

Let me instance the birds common to the locality: I am visited by the bullfinch, greenfinch, goldfinch, and chaffinch, and sometimes by the hawfinch. The starling calls upon me occasionally; the too clever jackdaw is at one season an unwelcome visitor; the jay makes his unmusical voice in my orchards; the missel thrush is never long absent; the song thrush and the blackbird never leave me; and the sparrow is equally constant in his attentions. The linnet is a summer visitor; the wagtail and the swallow come regularly every spring. The wren and the hedge sparrow are my unfailing friends; titmouse major and all the minor minims of that busy and inquisitive family call upon me regularly. I wish I could number the rook amongst my familiar visitors; he rarely trusts himself within the confines of a garden, though sufficiently discriminating to know friends from enemies. With all these hungry little fellows about me, and with so much to tempt them to satisfy their unfailing appetites, it may excite the surprise of many persons that anything is left to the cultivator.

We must if we wish to manage any living creature study its habits and peculiarities. A knowledge of the ways of birds leads us to an acquaintance with one fact amongst others which has an important bearing on the subject we are discussing. It is the instinctive power which leads birds to distribute themselves in due proportion according to the probable supplies of food over a space of country, and not like locusts to sweep over and devastate a whole district in a few weeks. I believe I owe a partial immunity to a knowledge of this fact, and to the prompt application of remedies suggested by it, which I shall refer to as I speak of the various feathered frequenters of the garden. I must mention a few instances which will illustrate my assertion as to the equality in the distribution of birds over the country.

I believe each rookery has its allotted acres, and that tenant-right is strictly observed by the rooks of different localities; certain sparrows inherit certain districts; starlings are constant to their own (no our) county boundaries. We see swallows returning year after year to the same houses, and twittering their satisfaction as they take their rest on familiar ledges. I am so well aware of this peculiarity in the habits of birds that I am never afraid of being overwhelmed by numbers—their commissariat arrangements are too well made. I have my proportion of friends and enemies in the allotment which the bird parliament has awarded me; and if I choose to appeal in a very practical way, which I regret to be obliged sometimes to do, if I feel I am overtaxed, why I believe it is remembered in future arrangements, and amended.

Let me enumerate my feathered friends and describe as I go on their merits and their faults, and the way I meet and control them. I will begin with one I regard as a benefit and a blessing to man; I rejoice to see the active, glossy, bright-eyed starling at work on lawn and fallow. I know the small snails, the wire-worm, and grub will suffer where he searches, and I wish I could engage him to work for me, but he has higher duties in the fields. He is the cleverest, handsomest, and best of our birds; hear him after his morning's work, whistling as he sits on the topmost branch of his favourite tree, mimicking the owl and other night birds, and you learn that he has faculties beyond a search for grubs; watch him in the breeding season, and note his busy happiness and ceaseless anxiety, and the more you know of the starling the more you will learn to love and admire him.

I must digress for a moment to remark on the degree of intelligence possessed by various orders of birds, as the success of our corrective measures depends on the power of appreciating the intention of its application. The starling is a clever fellow, and soon takes a hint; the bullfinch is a capable and intelligent bird; the greenfinch is self-reliant, bold, and clever; the goldfinch and chaffinch are less clever and capable than the foregoing, and perhaps amongst birds a little silly; the jackdaw is a wise bird, and understands the terrors of death; the jay is cunning, timid, and dishonest, as many little birds know; the sparrow is crafty, bold, greedy, and clever; the blackbird is silly, heedless, and indiscreet in its indulgence of appetite.

I have taken the starling as an example of excellence and utility in birds. I will next speak of the bird whose habits have led to his condemnation in some cases, and praise in others—the sparrow. I have said before that he is a capable fellow; he is an adaptable bird, and must be regarded in various aspects—the city sparrow, the country town sparrow, the farmyard sparrow, and the garden sparrow, are the same in plumage, but differ very much in habit and intelligence. I will treat first of the country sparrow, as I am more intimately acquainted with him; but having claimed already so much space, I must defer my remarks on this subject until another week. *W. I.*

STRAY NOTES ON FLOWERS.

A short time ago in Worcestershire I saw some such charming flower stands that I am sure some of the readers of the *Gardeners' Chronicle* would find them great acquisitions for grouping their flowers in. The stands to which I refer were made in various shapes; some were low branchy things, looking like rustic candlesticks, containing several sockets, in which glasses fitted; others were more in basket shapes, supported on pretty pedestals; and others and more ambitious ones were quite pieces of handsome furniture, a beautiful table for instance, and chairs to place in conservatories. The art is not at all difficult for any one who can carpenter. The grand thing is to be sure of having an eye for straightness—at least for balance—and not to be inclined to crowd in too much ornament.

The material is old Apple tree, and the wood is varnished thoroughly. Now, I have not a doubt that people are already beginning to think of great branches and of huge and much twisted garden seats. They cannot at all imagine the graceful but rough little stems and branchlets which seem to be only wrought into a picturesque state of knobbiness. No wood, however, is used for the smaller things, of more than about 2 inches diameter in the thickest knobs; and besides this, for each stand, the whole of the wood is chosen of as nearly as possible the same size.

These stands are expensive to buy, considering their material; but any one seeing one of them would easily make others like them, and it perhaps would be a pleasant amusement for the long winter evenings.

Though I cannot recommend the maker, thinking him extortionate, I shall be happy to give the address to any one really wanting a pattern, if they will forward a note to me at the office of the *Gardeners' Chronicle*, and inclose a directed envelope. The effect when filled with flowers is quite equal to any Oak carving, the little sparkling flower knots lighting them up so charmingly.

One of the prettiest things too, is the flower table; it is made in the same style exactly, only on a larger scale, and this would be really perfect for a display of spring flowers and bulbs.

To those who have planted bulbs, indeed, I must give a hint, there are such pretty carved tables at Hammond's shop in Baker Street; they are not at all expensive, and would hold a downright flower bed. One of these little tables filled with the dwarf Hyacinth and with small red Tulips, and crammed in every corner with Snowdrops and blue Scillas, would make such a winter ornament as any one might delight in. Flowers are such a safe investment; they can't grow aught else but lovely, and then when they turn out beautiful we take all the credit of it. *E. A. M., South Kensington.*

THE ACCLIMATISATION SOCIETY.

We observe with much satisfaction that the Admiralty has determined to forward in earnest the objects contemplated by this important Association, as is shown by the following official announcement:—

Admiralty, October 10, 1863.—My Lords Commissioners of the Admiralty, having had under their consideration the important question of Acclimatisation, are pleased to direct that so far as is consistent with the requirements of the public service, and upon the distinct understanding that no expense whatever is incurred, every facility is to be given by the commanding officers of Her Majesty's ships and vessels to any accredited agent of the Acclimatisation Society, who may apply to them through any of Her Majesty's foreign ministers or consuls, or through the governor of any of Her Majesty's colonies, for the transport of specimens. The annexed copy of a circular addressed by permission of the Secretaries of State for Foreign Affairs and for the Colonies to Her Majesty's foreign ministers and consuls and colonial governors, in various parts of the world, will explain the objects which the Society has in view.—By command of their Lordships, C. Paget.

Enquiries addressed to Her Majesty's Minister, Governor, or Consul at ——.

The gentlemen to whom these questions are addressed are earnestly requested to consider the high importance which will be attached to the answers which they may return, and the service which they will render to the cause of Acclimatisation by endeavouring to the utmost of their knowledge to make those answers as full and otherwise as satisfactory as possible. The main purposes of acclimatisation are to introduce, acclimatise, and propagate in the United Kingdom and its dependencies such animals, birds, fishes, insects, and vegetables as are likely to be of use or ornament, whether for domestication or for varying the common food of the people, or for manufacturing, or for any other useful purpose; and whose constitution and habits offer a reasonable prospect of successful cultivation. It is obvious that in India, Australia, Canada, the Cape, and other important dependencies, unlimited scope is afforded for almost any variety of experiment. It is confidently expected that the answers returned to these questions by Her Majesty's ministers, governors, and consuls in different parts of the world, will bring together a mass of information on this interesting and highly important branch of knowledge, such as never has been collected before, and the benefit which these gentlemen will thus confer upon their fellow-countrymen will be in proportion to the fulness and exactness with which those answers are drawn up. In replying to Questions 1, 2, 3, and 8, it is particularly requested that those special qualities which recommend the quadrupeds, birds, fishes, and vegetables, as fit for food or domestic utility may be described. As regards quadrupeds, birds, and fishes, it will be very desirable to collect all the information which can be got as to the best modes of feeding, keeping, and rearing the same, and, as regards vegetables, any information as to the best mode of cultivation.

Questions.

1. Is there any quadruped, indigenous or introduced to the country in which you reside, which (having regard to the above definition of the objects in view) merits attention with a view to acclimatisation in Great Britain or any of its dependencies? If there be any such, state whether it is attainable at a reasonable rate, and whether it is likely to bear the risk of transport.
2. Is there any such bird?
3. Is there any such fish?
4. Is there any such insect?
5. Is there any such timber tree?
6. Is there any such medicinal plant?
7. Is there any fibrous plant likely to be useful for manufacturing purposes?
8. Is there any vegetable suitable for the food of man, or for forage, or for any other useful purpose?
9. Do you know any quadruped, bird, fish, insect, tree, or plant existing elsewhere, the introduction of which to the country in which you reside would be likely to be beneficial: one of the objects of the Acclimatisation Society being to reciprocate the benefits which it receives from other countries.
10. Does any organisation exist, or could it be easily called into existence, capable of undertaking the task of introduction?

Any remarks founded upon special knowledge or local information, capable of being made useful to the progress of acclimatisation, will be desirable.

Home Correspondence.

New Hyacinths.—What should constitute a New Hyacinth? On this question I wish to give my own, and what I take to be the general opinion. First, then, what constitutes a new plant? I believe no better definition can be given than that afforded by the Royal Horticultural Society's old established rule, which says, "Any plant that has been previously exhibited before the members cannot be considered new;" or in other words, any plant that has been introduced to, or if a seedling raised in, this country, and exhibited or offered for sale beyond the current year, cannot be considered new. I certainly cannot perceive why the Hyacinth should be any exception to this rule. It matters little about the time it occupies between the raising of the seedling and its introduction. It is well known that the Hyacinth is many years in reaching us; it must be known to the raiser 8 or 10 years before he can get a sufficient number to export, say two or three bulbs; and before it becomes a commercial sort another 10 years must elapse. When I visited Haarlem in the spring of 1862, and was examining the seedlings, I inquired how long it would be before I could have those I had selected as the most suitable for English growers? The answer was—"possibly in 10 years, but more probably 20." This leads me to a question in your article (p. 1011) which may seriously affect ourselves as exhibitors. You have given a tabular list of the *quasi* new sorts exhibited at the R.H.S. on the 18th of March last. Of the column headed—"First catalogued for sale" I can only say that the dates given are no guide whatever as to their introduction here. I have searched the Dutch lists of the years quoted, and cannot find any of the sorts in them; and even if they had been, that is no reason why they should have been imported. My own conviction is that the Dutch have taken the dates from their lists as used amongst themselves. They dispose of their seedlings and choice varieties by a sort of

auction, though of course we know nothing of them for years after. It is with them a private matter, just as it is here between the raiser of a seedling Pelargonium and the person who may send it out. [This does not affect the date of letting out.] I consider that to ascertain the time at which a Hyacinth was introduced into England would be the only satisfactory way of settling the question of what is new. All that it would be necessary to ascertain would be, when was it first introduced [Yes] and publicly exhibited [No]. I do not agree with you that the class for new sorts should be extended to those introduced in previous years (I mean so as to include sorts that have been known or publicly shown), because it gives the least amount of encouragement to the most enterprising exhibitor of novelties. Mr. Paul's varieties exhibited last spring in the new class were such as had been shown before, and could not be strictly termed new: they were Florence-Nightingale (Fabiola), shown by ourselves in 1857; Lord Macaulay in 1862; Koh-i-noor in 1860; Duc de Malakoff in 1862; Snowball in 1860; and Haydn by Mr. Turner in 1860. This leads me to remark that judges who are doubtless well versed in such flowers as Roses, Dahlias, &c., may be little practically versed in Hyacinths, from the very slight opportunities afforded of inspecting their respective qualities. There are men who make the Hyacinth a complete study by growing and comparing them sort by sort, over a period of years. As regards your last column, headed "Mr. Cutbush's date," every sort you name has the date attached when it was first imported or exhibited, having come direct from the Dutch growers as "never sent to England before." There is a mistake as to the six sorts: you enter Maria Theresa and omit Estella. Estella had never been publicly shown, although two years previous we had it in bloom here. Our standing rule from the first introduction of this new class has been to stage none that have ever appeared before, in accordance with the general rule which I quoted above. I cannot but think that the Hyacinth is destined to fill a much more prominent position than it now occupies. The question of various classes, such as white-eyed, large belled, and large spiked varieties, ought to be well considered and speedily adopted. *James Cutbush, Highgate Nurseries, Oct.* 29.

Cage Birds.—In summer weather there is amongst us a class of forgotten sufferers. Many of the readers of the *Gardeners' Chronicle* must see continually in London and elsewhere little scraps of cages, some few inches square, hung up on some bare wall on which the sun strikes strongly. The birds (they are often larks! or poor little sweet-voiced goldfinches) are panting upon the floor. One feels that they are in misery, and would almost wish they might die. The water, too, dries up in the heat of the burning sun, and when one sees in the country how the little birds revel in shade, and hears their sweet songs coming from the green trees all the day, it does go quite to one's heart to think of the wretched fate of those who, deprived of liberty, at least demand some care. It is not only in the poorer streets, where one would be less surprised at ignorance, though the wish to make things happy would be likely enough to be strong; but in some of the most frequented places—near the Park and in Piccadilly, it is perfectly horrible to see how the birds are tortured. They sing, sure enough; but it is enough to make one hate birds' songs to know how often those sweet notes are only a cry for relief. The sweetest notes of some birds are when they are crying out in the hope of obtaining help. *E. A. M.*

Open Spaces and Squares.—The waste condition of many of our public spaces, and the want of Horticulture in the better squares, now that a recent Act empowers parochial authorities to take them in charge, ought to receive attention in the districts in which such are situated. The season is now opportune for improvements, such as planting, trenching, turfing, and cutting away all decayed trees or superfluous growth of scrub. On an inspection of our squares, it may be remarked that the outside borders are generally screened off by a hedge placed close within the iron railing or fence; thereby shutting out all view of what ought to offer a pleasing prospect to the opposite houses as well as to passers by. This should not be so; on the contrary, the outer margin should be always bordered with turf, so as to form an agreeable and refreshing outline, whatever the style of planting adopted may be. The condition of trees in the oldest and most central squares, and of the shrubs, plants, and turf, where any care is manifested in their culture, proves how easily a reform in such matters might be carried out; and it would increase the value of all neighbouring property, and at the same time diffuse general satisfaction among all classes. As to the style of planting and embellishing, a very fair example has already been set in the new borders of our great parks. As regards forest trees in some inclosures, such as Golden Square, two of the worst grown out of every three ought to be removed; and this thinning process is equally needed in the Groves of Kensington, where dead and decaying trees much disfigure the otherwise pleasing effect of the survivors. The most conspicuous neglect, however, in the way of planting may be seen in a space of an acre, or thereabouts, railed round in a really good neighbourhood, formerly called Paddington Green; a foot-path crosses this inclosure, on all sides of which there are ranges of goodly houses, together with a fine church. In this area a few trees of mature growth may be found; but several are dead, decaying, and stripped of bark. This open space, properly managed, would be of the greatest benefit to residents and children. It should, therefore be reclaimed and planted, turfing round the outer border, while fixed seats or forms might be placed at suitable intervals apart for the accommodation of visitors. By such an arrangement this now uninviting inclosure might be rendered an ornament to the neighbourhood. By placing a wire-cord fence round the flower-beds in our more important squares too, such as Lincoln's-inn Fields, there is no reason to suppose that these gardens (as yet locked against the whole community) would not be as secure from damage or wanton mischief as are the Park borders, or the more central Temple Gardens, which have always been so liberally and gratuitously thrown open for the enjoyment of all classes. Formerly, when comparatively rural suburbs were within walking distance of central London, the embargo imposed by locked up gates was as important as the screening off the view by close bordering hedges. Now, however, all squares and trees, and every patch of verdure, have attained a value which only people living in crowded districts can properly appreciate. To cite all the gardens and railed inclosures which need improvement and care would fill many columns, but allusion to the waste condition of Oxford and Cambridge Terraces, at least as far as the greater portion of the range is concerned, may for the present suffice to show the want of taste in horticultural matters in London. Should the advice to rail in and plant closed churchyards, given in the *Times* last week, be acted on, and improvement take place in our squares, I think London might yet stand comparison with other cities. Let us hope, therefore, that some movement in the direction just indicated may speedily be made. *Jos. Newton, F.R.H.S.*, 30, *Eastbourne Terrace.*

Roses.—I am glad to see that your correspondent "Gulielmus" (p. 1037), agrees with me in thinking it desirable to have separate classes for some of the varieties. Hybrid Perpetuals are certainly sufficiently numerous now to be shown by themselves, and so I think are Teas. Summer Roses, such as Gallicas, Damasks, &c., could be shown together, but Mosses should have a distinct class. I should be glad to hear what Mr. Radclyffe has to say about this. Why should not Rosarians form a club, frame a set of rules, and make a schedule which should serve as a model for the Rose world in general. I should be glad to subscribe my guinea or two (if necessary), per annum for such a purpose. One object of such a club should be by the offer of liberal prizes to encourage the raising of English seedlings. *P.*

Cemeteries.—In ornamenting graves I have often noticed with regret a want of taste, not only in the gardening department, but also in the statuary work. A walk in any churchyard will at once illustrate what I allude to, viz., an ill-proportioned huge head-stone without the slightest regard to beauty, together with railings and stone kerb quite out of character with the stone. The fault in a great measure lies with masons not attempting to furnish ornamental work in anything like artistic style. Nothing looks more beautiful than a grave neatly and properly planted, so as to harmonise with the statuary. I consider that polished red and grey granite is the most beautiful of all materials employed in the way of head-stones, except marble monuments, which are generally designed by qualified architects. If cemetery companies were to fix a specimen of statuary for a grave, and select a plan of planting to associate with it, the public would soon, I think, relinquish the present system of choking a grave space with every conceivable kind of plant as it does at present. On the Continent Gothic crosses and iron chains and posts surrounding what would be termed in this country several grave spaces, but what are there named family allotments, are really very pleasing features of a cemetery. The small patches of bulbs employed, springing up and surrounding the plants, add considerably to the beauty of foreign burial places, which are in that way made very attractive. Surely with such beautiful seasons as we generally experience in England, we ought to make our cemeteries and churchyards something more than a receptacle for ill-fashioned masonry and queer gardening. I imagine that rustic wood-stands, placed so as to be removed when necessary in the centre of graves, and filled with bulbs, would look characteristic and pretty. *J. M., Woking.*

Birds versus Crocuses.—Your Hampstead Correspondent (p. 1038) may keep sparrows off his Crocuses by hanging lines of cotton or worsted with a few feathers tied in them over his Crocuses. In this way I defend my autumn sown Peas with perfect success. *W. F. Radclyffe, Rushton.*

Fuchsia Deformities.—I am indebted to the kindness of Mr. Crocker, of Chichester, for other flowers of Fuchsia similar to those mentioned by me at p. 906. Mr. Crocker's specimens were produced on a variety named Rose of Castille in the early part of the season, but as the year advanced, there was a gradual transition from the exceptional form of the flowers to the customary one, till at length all the flowers that were developed were of the usual shape. My original examples were procured from two varieties in my father's nursery at Canterbury (neither of them answering to the name of Rose of Castille). The gradation in form observed by Mr. Crocker, did not occur in the flowers grown at Canterbury. I had concluded that there was a "a race" of such Fuchsias in cultivation—if not, there soon will be, if cultivators consider it desirable. *Maxwell T. Masters.*

Railway Horticulture.—The pleasure of railway travellers is much enhanced in Scotland by the very pretty and tasteful manner in which the gardens scattered along the various lines are cultivated. This applies more particularly to those upon the Scottish North-Eastern line. Almost every station between Aberdeen and Edinburgh possesses a plot of ground, of greater or less extent, carefully cultivated, and the very model of cleanliness. In general we find flower-beds full of the beautiful and varied herbaceous plants, while in others we find the more gaudy, but not more interesting, bedding-plants, introduced; very often there is a bit of rock-work with Ferns and Alpine plants, and almost every station possesses a plot of lawn, well kept and in good condition. The walks are in every case clean and well made, and the edgings of the beds carefully attended to. I was told that this most desirable result has been brought about by the Company offering prizes for the best kept gardens along their line. It seems to me that this example might with advantage be followed by the Directors upon some of our English lines. Few persons travel by rail simply for pleasure—we most of us use the railway only as the means to an end, and the more quickly we arrive at our destination the better we are satisfied. At the same time no one can doubt but that it would be more agreeable to look from the carriage windows upon a series of model gardens than to have nothing but bare, broken, uncultivated banks to engage one's attention. Some of the railway banks, even within 20 miles of the metropolis, are still left in the same rough condition they were in when the line was first opened, now some years ago. Nature has, it is true, carpeted them with wild flowers, draped them with festoons of Ivy, and done her part towards beautifying them; Nature has done all and man nothing, and in many places these banks look like long slices of wilderness on either side of the line. It may be said that, however carefully the banks were cultivated, not a score of extra travellers would pass along the line in the course of a year, but that is hardly the question. The same principle which leads the directors to build commodious stations, with tastefully-decorated waiting-rooms, should induce them to encourage gardening, more especially in the neighbourhood of the stations. During the summer time one would hardly regret having to wait ten minutes at a country station if the time could be spent in a flower-garden perfumed with the odour of Roses and Mignonette. Horticulture has a refining, humanising influence upon those who practise it; and doubtless, the encouragement of it would have a good effect. The gate-keepers along the lines have a good deal of leisure time upon their hands, and many of them show that they know how to turn it to account in cultivating the ground allotted to them. At some of the country stations too, the porters often have an hour or two at a time without any duty to perform, and yet they must be near the station in case they should be required. Might not their time be employed in gardening, with pleasure to themselves and advantage to all? The cheapness with which much might be done, is, in itself, one of the recommendations of this plan; it would only be necessary to give the men the use of the ground a little more freely than before, and to distribute a few pounds annually in the way of prizes. It seems to me that this is worthy of consideration, if the Directors can spare time from weightier matters to consider a trifle. *C. W. C.*

Anacharis Alsinastrum.—I have got rid of this by introducing a couple of swans into our pond, which is between 3 and 4 acres in extent. The weed first made its appearance about seven years ago, and spread rapidly up to last November, when the swans were procured. Being young birds they were fed for a time, and did not seem to notice the plant, but after a few weeks they began tearing it up in all directions, and at the present time not a vestige of it is to be seen, with the exception of a portion in one corner, which is fenced off for fish that are being used. There the swans may be seen swimming backwards and forwards, stretching their long necks over the wire work, and destroying all the weed within their reach. *H. T., Elsham Hall, Brigg.*

Cephalotaxus Fortuni.—We have a fine female plant of this bearing several ripe seeds, making the second time that it has fruited, namely this year and last. It stands about five yards from the male plant, on which, though we carefully examined it when the female plant was in bloom in the spring, we could not discover a single head of flower. We therefore conclude that the flowers must have been fertilised by the pollen of either the Golden or Common Yew, by a collection of which the plant in question is surrounded. If this be correct, the seeds may produce some interesting hybrids. The fruit is brown, longish, about the size of a linnet's egg, with a thick tough skin and gummy pulp surrounding the seed. We mention this, not knowing if the plant has fruited before in this country. We heard a year or two ago that it had seeded abundantly at Orleans. *Paul & Son, Old Cheshunt Nurseries, N.*

The late Storm in Suffolk.—We experienced a severe storm of wind and rain on the 30th ult., about half-past

4 P.M., which has done a considerable amount of damage to the flower garden and pleasure ground. Happily it only lasted about 10 minutes, or the consequences might have been much worse; the force of the storm did not seem to extend beyond 200 or 300 yards in breadth, but in its course several trees were torn up by the roots, and almost every one within its range is more or less injured. The fine old Chestnuts along the Diana Walk, which have braved the blast of several centuries, have had some of their large spreading limbs twisted and torn from their trunks. Numbers of vases, statues, &c., were blown down, and some of the most valuable have been smashed to pieces. *Thos. Blair, Shrubland Park, Ipswich, Nov.* 2.

Swallows.—It may be interesting to know that there are still both swallows and martins flying about here. I counted 11 martins near the mansion this morning. Five years ago I saw two on the 20th of November. *Thos. Woodford, Eastwell Park, Ashford, Nov.* 3.

Societies.

Royal Horticultural:—The third annual meeting of the northern committee of the pomological section of the Royal Horticultural Society was held at Malton on October 29. There was a remarkably fine display of fruit, by far the largest and best yet held, of which 149 contributions were Apples and 150 Pears, two-thirds of the whole being distinct varieties. The object is to learn what varieties of fruit are of most value in various localities, and to remedy the confusion at present existing in nomenclature. The exhibitors were from widely distant parts, including Mr. C. W. Strickland (Chairman), Hildenley Hall, Yorkshire; Mrs. Norcliffe, Langton Hall, Yorkshire; Mr. Robert Bower, Welham Hall, Yorkshire; Sir Edward Lechmere, Worcester; Mr. Hornsey, Snainton, Scarborough; Rev. C. P. Cleaver, Holme Pierrepoint, Notts, and Appleton Rectory, Yorkshire; Mr. F. Bell, Thirsk; Mr. H. Hawke Spink, Norton; Mr. Robert Wise, Manor House, Norton; Mr. Monkman, Malton; Mr. English, Raithwaite, Whitby; Mr. J. Muckle, Norton; Mr. W. H. T. Colby, Wentworth House, Malton; Captain Copperthwaite, the Lodge, Malton; Mr. Agar Wrelton, Pickering; Messrs. Slater and Sons, Malton; Mr. Henry Baines, Yorkshire Philosophical Society, York; Mr. Trennam, Sinnington, Yorkshire; Mr. R. Stabler, Malton; Mr. Hornsey, Wydale, Scarborough; Mr. James Horsley, Norton; Mr. Daglish, Aldborough, Boroughbridge; Mr. Teesdale, Welburn; Mr. John Taylor, Scagglethorpe; and Mr. Sotherington, Mennithorpe, Yorkshire. After the examination had been made, and the unknown sorts selected for sending to the parent society in London, the public were admitted. It is in contemplation to offer prizes in future years.

Notices of Books.

The Rose Amateur's Guide, &c. By Thomas Rivers. Eighth Edition, enlarged, corrected and improved. 12mo. Longmans.

The Eighth Edition!! Bravo. A parallel case is not (?) to be found in the history of Horticulture, except in the culture of fruit trees. Two things are thus proved; the one that there is a universal and increasing love for Roses, and the other that the author of the book before us stands among the princes of garden guides. That he merits the rank must be admitted, for we do not see how instructions can be more practical, more full, or more skilfully presented to the eye of the reader. On the present occasion Mr. Rivers announces a new idea which he thinks will lead to the extinction of Standard Roses; a consummation earnestly to be wished for, provided they are succeeded by something much better. He proposes to form what he calls Pyramidal Hybrid Perpetuals, of which he gives the following account:—

"Standard Roses, inartistic and picturesque as they are, have 'held their own' for some years. It is time that some new Rose idea was originated, and I hope, ere long, to hear standard Roses spoken of as things of the past—like stage coaches and road waggons. The culture of pyramidal Roses will require more care and time than the culture of standards, which we all know is very simple; but the Rose gardener will be amply compensated by such glorious effects as have never yet been seen in our Roseries.

"Like all really good gardening ideas, the culture of Rose pyramids, although requiring more time and care than the culture of standard and dwarf Roses, is still very simple, and may be carried out as follows:—

"Some strong two years old stocks of the Manetti Rose should be planted in November, in a piece of ground well exposed to sun and air. The soil should have dressings of manure, and be stirred to nearly 2 feet in depth. In the months of July and August of the following year they will be in a fit state to bud. They should have one bud inserted in each stock close to the ground. The sort to be chosen for this preliminary budding is a very old Hybrid China Rose, called Madame Pisaroni, a Rose with a most vigorous and robust habit, which, budded on strong Manetti stocks, will often make shoots from 6 to 7 feet in length, and stout and robust in proportion. In the month of February following, the stocks in which are live buds should be all cut down to within 6 inches of the bud. In May the buds will begin to shoot vigorously; if there are more shoots than one from each bud they must be removed, leaving only one, which in June should be supported with a slight stake, or the wind may displace it. By the end of August this shoot ought to be from 5 to 6 feet in height, and is then in a proper state for budding to form a pyramid. Some of the most free-growing and beautiful of the Hybrid Perpetual Roses should be selected and budded on these stems in the following manner:—Commence about 9 inches from the ground, inserting one bud: then on the opposite side of the stock and at the same distance from the lower bud, insert another; and then at the same distance another and another, so that buds are on all sides of the tree up to about 5 feet in height, which, in the aggregate, may amount to nine buds. You will thus have formed the foundation of a pyramid, which should be like the annexed figure, which is assumed to be a pyramid just pushing forth its flowers in June.

I need scarcely add that the shoots from the stock must be carefully removed during the growing season, so as to throw all its strength into the buds. It will also be advisable to pinch in the three topmost buds rather severely the first season, or they will, to use a common expression, draw up the sap too rapidly, and thus weaken the lower buds. In the course of a year or two magnificent pyramids may thus be formed, their stems completely covered with foliage, and far surpassing anything yet seen in Rose culture. I have, as yet, found no Rose equal in vigour to Madame Pisaroni, although, when attention is turned to the subject, other varieties may perhaps be found. If extra strong growth be desired, the stem may be suffered to grow two seasons before it is budded.



"To those who think the trouble of budding and re-budding too much, I may point out a more simple method, which I extract from the Gardener's Annual for 1863.'—(Longmans.)

"'Have some Dog-rose stocks gathered from the woods and hedges in November, December, or January. Every stock selected should be of only one year's growth, a young shoot of the preceding season's growth. They should be planted in a deep rich soil, and some manure placed on the surface round their stems. In spring and early summer the young shoots should be removed from the lower part of their stems within, say, a foot of the ground, and all the remaining shoots suffered to grow as they list. In the months of July and August they may be budded after the following mode:—Take some free-growing beautiful Hybrid Perpetual, and place one bud *in the stem*, mind, of your stock about 9 inches from the ground, and then on the opposite side of the stem place another bud and so on, shifting sides to about 3, or 4, or 5 feet in height. When these buds break out in the following May, be sure and pinch in closely the three or four buds at the top of the stock, or they will greedily drink too much of the precious sap. A Rose-lover must imagine the great beauty of such a pillar of Empereur de Maroc or Sénateur Vaise; if his constitution be not strong, the sight might make him die of a Rose in aromatic pain.'

"The most free-growing kinds, such as Jules Margottin, General Jacqueminot, Colonel de Rougemont, Triomphe des Beaux Arts, Lord Raglan, Souvenir de la Reine d'Angleterre, Triomphe de l'Exposition, and other kinds of vigorous habit, these will form grand pyramids from 6 to 7 feet in height. For smaller pyramids those of more moderate growth may be selected. It will scarcely be advisable to bud more than one sort on a stem, as no two kinds will be found equal in growth, but as a matter of fancy, varieties of different colours may be inserted so as to make a variegated pyramid. Vigorous growing Bourbon Roses may be employed for pyramids, and Tea-scented and Noisette Roses, as the stock is highly favourable to their growth, but they should be protected in winter by Fern or branches of evergreens tied round them."

Proceedings of the Natural History Society of British Guiana at the Exhibition of the Collection of Specimens Illustrative of the Natural History of the Colony, in the Assembly Rooms, Georgetown, Saturday, August 1, 1863.

A very interesting and instructive account of the results attending the late International display of produce by one of our greatest colonies. Rich as Demerara was known to be, the details of the objects exhibited in 1862 surpassed all expectation. Sir Wm. Holmes, in his able report upon those objects, has placed permanently on record the actual capabilities of the colony in 1862, and has thus furnished a standard by which its progress may be safely measured in future years. It is impossible not to assent to the sound practical remarks of the Hon. Wm. Walker, President of the Natural History Society of British Guiana, in his address to the meeting whose proceedings are recorded in the pamphlet before us.

"There are some truths," he observed, "so obvious, and to the assumption of which the mind becomes, as it were unconsciously, so habituated, that it seems almost impertinent to dwell upon them, and yet when adverted to, we are constrained to recognise them as being more readily received theoretically, than practically exemplified. Thus, if I suggest that such pursuits as embrace the study of external nature are calculated, far more than the gratification of those passions which stimulate men's eager pursuit of wealth, or rank, or political influence, to elevate and purify—to raise our affections, our hopes and our desires, towards that higher and more perfect state of being wherein we shall no longer see 'as through a glass, darkly,' but our perceptions, our capacities for the acquisition and the enjoyment of knowledge shall be alike expanded, developed, and matured, I shall doubtless meet the spontaneous assent of all who hear me. Yet let us look around, each on the circle with which he is most familiar, and how little will he see of any illustration of this truth? How many indeed pass through life's ever-varying aspects without one intelligent glance at the wonders by which they are encompassed, or one thought as to how they originated or are maintained? And if this impression be, as I believe it to be, correct, even as regards those who dwell in climes more favourable than this to the energetic exercise of the mental as well as of the physical faculties, are we not undertaking a useful work if we endeavour to provide for ourselves such wholesome occupation, and to quicken the intellectual appetite to the appreciation of such attractive fare."*

Garden Memoranda.

Mr. Salter's Nursery, William Street, Hammersmith.—This establishment furnishes many specialities not often found elsewhere, such as Double Pyrethrums, Peonies of different kinds, Fancy Pansies, and hardy variegated plants. Among the latter are many useful things for edgings, ribbons, and the decoration of the flower garden in general, not only in summer, but also in winter. At present a sample bed may be seen bordered with Cerastium, inside of which is Trifolium rubrum, the dark leaves of which contrast well with the grey foliage of the Cerastium, and in the middle is Pulmonaria sibirica.

The grand feature at this season is however Chrysanthemums, of which there are fine collections, both in the open air and under glass. The sides of a walk 500 feet long are lined with all the leading varieties, the earliest of which are now in flower, and, should the weather remain mild, the collection will be well worth visiting during the next week or two. Two large houses, converted into a winter garden, are also full of Chrysanthemums beautifully arranged, and tastefully associated with other plants in picturesque groups. These improve the effect and relieve the eye, tired with a minute inspection of gay colours. By the side of a winding gravel path which runs through the houses in question, are small circular beds of Pompones and plants remarkable for the beauty of their leaves. Among the latter, Centaurea gymnocarpa in the form of a standard has a very ornamental appearance. Another clump consists of the Variegated Ivy called Hedera latifolia maculata, and other varieties of Ivy, while from the centre of a third bed rises a standard of Myoporum punctatum, bearing a fine head of interesting foliage. Ferns are employed for edgings as well as for other purposes, particularly the Maiden-hair, and different varieties of Scolopendrium.

In the principal bank of Chrysanthemums we observed the following new sorts of last spring, viz.:—Her Majesty, delicate peach; Beverley, large white; Abbé Passaglia, amber; Duchess of Buckingham, white; Cardinal Wiseman, bright crimson; Princess Alexandra, blush; Lord Palmerston, crimson and blush; Golden Eagle, red and orange; Mulberry, dark maroon; Athlète, large rose; Princess Louis of Hesse, rose pink; Jane, pink blush; and Cleopatra, lilac blush.

Among fine blooms of the best varieties of former years were striking illustrations of Queen of England, a flower raised by Mr. Salter fifteen years ago, and one which still keeps a prominent place in most collections; Lady Harding, General Slade, Novelty, White Queen, Golden Queen, Dr. Rozas, Alfred Salter, Seraph, Little Harry, Lord Ranelagh, Golden Trilby, Vesta, Ion, Beauty, Prince Albert, Jardin des Plantes,

* We find that we inadvertently made an error in the *Gardeners' Chronicle* of November 1, 1862, in which a long and very excellent address delivered by Mr. Walker, at the opening of the local Exhibition of British Guiana at Georgetown, August 28, 1861, was ascribed to Mr. Hincks, the present Governor. Mr. Walker, at that time, was Lieutenant Governor of the Colony, and Mr. Hincks Governor of Barbados.

one of the best yellows; Cherub, Sparkler, Yellow Perfection, Dido, Boadicea, Dupont de l'Eure, and Nil Desperandum.

Large numbers of seedlings are just coming into bloom. Among those fully expanded we observed several which promise to be fine distinct kinds. General Bainbrigge, red and gold; Shakspeare, bright red; Lord Clyde, bright crimson; Prince Alfred, large rose; Princess of Wales, ivory blush; St. Margaret, orange Anemone; Jupiter, carmine; Pelagia, amber; Lord Brougham, rose purple; Stonewall Jackson, red; Venus, delicate lilac; Margaret Vatcher, bright chesnut; and Florence Nightingale, rosy blush, will all be regarded with interest by lovers of Chrysanthemums.

In a span-roofed house adjoining the winter garden are some very dwarf specimen Chrysanthemums, both of seedlings and named flowers, from which a fine display is expected.

Among miscellaneous plants, Gazania splendens, with variegated foliage, and Oxalis corniculata rubra, with rose-coloured variegation, seem both likely to be pretty things for flower garden decoration. The true Ribston Pippin Apple tree here, one of the oldest in the country, has this season borne some fine fruit, superior even in size and flavour to the fine specimens of the same kind in the collections from Nova Scotia, noticed in another column.

TEMPLE GARDEN CHRYSANTHEMUMS.—Notwithstanding the storm of wind and rain which we experienced on the 30th ult., and the unfavourableness of the weather generally for fine out-door displays of flowers, these Chrysanthemums are, we think, in quite as good condition as we ever remember to have seen them in former years, and viewed as a whole they have a gay and cheerful aspect, quite astonishing to Londoners during this dark and dreary month. Mr. Broome's principal border, which is about 75 yards in length, though not yet perhaps at its best, is well worth inspection. Of fine individual blooms we noticed beautiful examples of the following, viz., Queen of England, Novelty, Alfred Salter, Seraph, a pale sulphur-colour sort; General Slade, a variety in the way of Dupont de l'Eure, but an improvement upon that fine old kind; Chevalier Domage, a useful yellow sort for out door work; Formosum and Cassandra, both good whites; Progne, dark red; Cherub, bronzy yellow, as well formed as Little Harry, and altogether a fine kind; Rifleman, Hermione, Cassy, Arigena, Plutus, still a useful yellow; Waverley, white; and last but not least Lady Harding. Among Pompons, a line of which is run along in front of the large-flowered sorts, one named Ellen Lindsay, a blush kind, is remarkable for fine form, and Mr. Broome has also a charming sport from the well-known Cedo Nulli, which for purposes of bedding promises to be an acquisition; for in-door work it will doubtless likewise be a favourite, the crimson centre setting off the rosy lilac-coloured blossoms to excellent advantage. Open beds along the upper portion of the lawn are also as gay as the season will permit, and tasteful in form, the plants being skilfully arranged as to size, and held in their places by means of a stout stake in the centre, and cross-bands of strong twine passed from that to outside supports, the whole of this frame-work being kept as much out of sight as possible. This is the fourth crop which these beds have produced this year; the first was bulbs, the next annuals, then bedding plants, and lastly Chrysanthemums.

In the Middle Temple Mr. Dale has also a good display, especially of large kinds on a wall under protection. Here some of the blooms are very perfect and of large size. Among the best are Queen and its Golden variety, Novelty, Lord Palmerston, Cherub, Little Harry, Favourite, Oliver Cromwell, Madame Poggi, Formosum, Yellow Perfection, Campestroni, and the Anemone-flowered sort called Fleur de Marie. Among other kinds were some charming blooms of Vesta, a well-known but still most useful variety. Pompons bedded out are not yet in perfection, the weather at present being very unfavourable to the free development of bloom. Even in their present state, however, they are worth inspection, if only for the purpose of seeing how well the small kinds are suited for ordinary London gardens. A few of the best for out-door purposes seem to be General Canrobert, Cedo Nulli, Helène, Surprise, Duruflet, Mr. Murray, and Florence. With these in beds, and some of the large-flowered kinds in borders, suburban squares and gardens might be made to present a much more attractive appearance than they now do. An inspection of Mr. Dale's and Mr. Broome's collections may therefore furnish a useful lesson.

Miscellaneous.

Burning Fern brings Rain.—In a volume containing a miscellaneous collection by Dr. Richard Pococke, in the British Museum (Add. 15,801, at fol. 33), is the copy of a letter written by Philip Herbert, third Earl of Pembroke, Lord Chamberlain, to the Sheriff of Staffordshire, which illustrates a curious popular belief of the period, from which even the king was not free. It is as follows:—Sir:—His Majesty taking notice of an opinion entertained in Staffordshire that the burning of Ferne doth draw downe rain, and being desirous that the country and himself may enjoy fair weather as long as he remains in those parts, his Majesty hath commanded me to write to you to cause all burning of Ferne to be forborne until his Majesty be passed the country. Wherein not doubting but the consideration of their own interest as well as of his Majesty's, will invite the country to a ready observance of this his Majesty's command, I rest, your very loving friend, PEMBROKE & MONTGOMERY. *Notes and Queries.*

Royal Forests.—The Commissioners of Woods and Forests have made the following report of the receipts and expenditure in respect of the Royal forests and woodlands in the year ending March, 1863:—1. Windsor parks and woods—receipt 7260*l.*, expenditure 18,602*l.* 2. New Forest—receipt 19,403*l.*, expenditure 13,982*l.* 3. Dean Forest (exclusive of mines)—receipt 12,286*l.*, expenditure 9932*l.* 4. High Meadow Woods, Gloucestershire—receipt 9103*l.*, expenditure 2745*l.* 5. Alice Holt Woods, Hants—receipt 663*l.*, expenditure 896*l.* 6. Woolmer Estate, Hants—receipt 1293*l.*, expenditure 276*l.* 7. Bere Woods, Hants—receipt 2484*l.*, expenditure 884*l.* 8. Parkhurst Woods—receipt 305*l.*, expenditure 500*l.* 9. Hazleborough Wood, Northamptonshire—receipt 922*l.*, expenditure 382*l.* Salcey Wood, Northamptonshire—receipt 1777*l.*, expenditure 969*l.* 11. Delamere Woods, Cheshire—receipt 974*l.*, expenditure 1018*l.* 12. Epping Forest—receipt *nil*, expenditure 50*l.* 13. Chopwell Woods, Durham (exclusive of mines, which produced 50*l.*)—receipt 27*l.*, expenditure 454*l.* This is but a sorry account—receipts 56,497*l.*, expenditure 50,090*l.* Of the expenditure 8613*l.* went in planting, new works, and improvements; all the rest was for maintenance and general management. *Times.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Some of the earlier Chrysanthemums and other plants being now in bloom, care must be taken to prevent all drip from the roof. To accomplish this, very little water must be applied in any shape, except what is absolutely necessary at the root. Under these circumstances, a very moderate amount of atmospheric heat must be allowed; for, wherever heat is given there must be atmospheric moisture, and the plants will soon show marks of debility; therefore the proper conservatory management from the end of November until the early part of February, is to keep as low a temperature as possible, consistently with the main object in view, viz, enabling plants with duly organised buds to develop their blossoms in a proper way. This is the principal object; their continuance in bloom, and the preservation of their tints, follow in close connection. The ventilation must be moderate as to heat; about 45° or 55° by day, and 40° or 45° by night, will be quite sufficient for the present. Orchids and stove plants must be kept quiet. Maintain a similar atmosphere to that recommended for the conservatory, but about 10° higher. A little more atmospheric moisture must, however, be allowed. If the forcing pit for supplying the Conservatory is heated merely by means of fermenting matter, a very free ventilation must occasionally be permitted, or the moisture will be overpowering. A bottom-heat of 75° ought to be secured; this is indispensable. The pots should be about half plunged in the old tan. Keep the atmospheric heat very low at first, about 55° or 60° in the day, with as much air as can be managed, and 50° to 55° by night, still leaving air more or less.

FORCING DEPARTMENT.

PINERY.—Late-swelling fruiters, which have had little water, may receive a slight increase of tepid manure-water. There is, however, room for doubts as to whether it is absolutely necessary after this period. Plants managed in the old style (in houses or pits with flues), no doubt would require it. By modern plans, however, a much greater amount of atmospheric moisture is indulged in; and this should be duly considered. When sunshine occurs, instead of giving air, let the thermometer rise to 80° or even 90°, after which give air.

VINERIES.—If former directions have been attended to, little can yet be added. As before observed, commence gradually. If there is fermenting matter within the house, let it be turned or stirred once a week, in order to promote fermentation; taking care to keep it moist.

CUCUMBERS.—Those who have winter plants in pits or frames must be sure to keep the glass perfectly clean. If much atmospheric moisture be applied, so as to lodge on the leaves in a general way, ventilate, or by other means dry the dew off the leaves for an hour or two every day. Secure a day heat of 70°, allowing 85° during sunshine, and from 60° to 65° by night.

MUSHROOM HOUSE.—Keep the floor constantly wet. Be moderate in the use of fire-heat—55° to 60° will be sufficient.

FLOWER GARDEN AND SHRUBBERIES.

Where Dahlias are taken up, let them be temporarily placed heels upwards under cover to dry. See that coarse-growing plants which may be encroaching upon their weaker neighbours are reduced so as to occupy their proper places. Gladioli may still be planted, but most kinds of bulbs are better now in the ground than out of it. For Gladioli choose a warm thoroughly-drained situation; work the soil well by deep digging, and add plenty of rotted manure; elevate the bed or patch a few inches above the general level; plant the bulbs 5 or 6 inches deep, and 6 inches apart, surrounding them with 1 inch of sand before covering with mould; and protect during the winter against excessive wet and frost, with a thick layer of sawdust, old tan, dry litter, and old carpet, thatched frame, or tarpaulin; the three latter coverings must be removed during favourable weather, and the former coverings entirely cleared off when the plants appear. Ranunculuses may also still be planted. The situation of the beds should be cool and somewhat moist; at the same time there should be good drainage. The most suitable soil is a hazelly loam. If therefore the natural soil be unsuitable, remove it to the depth of about 2 feet, and 4 feet in width, replacing it with rich loam from an old pasture; this ought to be rather firmly trodden in, and should form the foundation and principal portion of the bed. On this should be laid a liberal dressing of well decayed manure, mixing it a little with the under soil; and over this, for the top of the bed, should be placed a layer of soil 6 inches deep for planting the tubers in; this latter should be stiffish fibry loam, mixed with well-decayed cow-dung and leaf-soil. Draw drills, 6 inches apart and 2 inches deep, with a small hoe, and plant the roots 4 inches apart, with the claws downwards, gently pressing them into the soil; the crown of the tubers should be at least 1½ inch under the surface of the bed.

HARDY FRUIT AND KITCHEN GARDEN.

Do not let Pears get over-ripe before being used; also look over the whole stock as often as time can be spared, removing any fruit that exhibit symptoms of decay, and putting them aside for immediate use. Any of the choicer varieties of Pears that do not ripen properly in the fruit room should be removed to a warm dry room for a few days, which will be found to greatly improve them. Keep all fruit as cool and dry as possible, as has been previously stated; if frost is excluded from the house, it can scarcely be too cool where the object is to preserve fruit plump and sound as long as possible. Get manure wheeled upon vacant ground when the weather is suitable, and this can be done without injuring the walks; and as soon as the leaves are down get all spare ground turned up, so as to expose it to the action of the weather.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Nov. 4, 1863, as observed at the Horticultural Garden

Oct. and Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 29	17	29.449	29.265	53	37	45.0	52	51	S.W.	.10
Friday 30	18	29.358	29.042	53	36	44.5	52	53	S.	.46
Satur 31	19	29.472	29.449	54	33	43.5	51½	52½	S.W.	.09
Sunday 1	20	29.563	29.509	53	35	44.0	50	52	W.	.08
Mon. 2	21	28.877	28.857	53	34	43.5	50	51½	S.W.	.03
Tues. 3	22	29.624	29.309	58	46	52.0	50	51	S.W.	.10
Wed. 4	23	29.982	29.929	63	51	57.0	53½	53	S.W.	.27
Average.		29.475	29.323	55.3	37.4	46.9	51.3	52.4		1.49

Oct. 29—Rain: heavy clouds and showers fine at night.
— 30—Fine: becoming overcast, very heavy rain, fine.
— 31—Clear, quite cloudless, very boisterous, with heavy rain.
Nov. 1—Clear, fine, boisterous with heavy rain at night
— 2—Rain: boisterous, showery, barometer exceedingly low; boisterous.
— 3—Lightly overcast, boisterous.
— 4—Overcast, boisterous, with rain at night.
Mean temperature of the week 1½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending Nov. 14, 1863

November.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 8..	51.1	34.9	43.0	17	0.58 in	2	5	1	2	2	15	6	4
Mon. 9..	50.7	34.8	42.7	15	0.40	3	4	3	3	5	10	3	6
Tues. 10..	50.6	35.2	42.9	21	0.67	3	6	3	2	8	10	2	3
Wed. 11..	50.9	35.1	43.0	15	1.02	3	3	6	1	7	8	5	3
Thurs. 12..	50.4	34.1	42.3	16	0.59	4	4	7	3	3	7	7	2
Friday 13..	49.5	35.4	42.5	20	1.16	2	9	4	2	7	4	5	4
Satur. 14..	48.0	33.9	40.4	19	1.24	6	5	4	5	2	6	4	5

The highest temperature during the above period occurred on the 12th, 1841—therm. 63 deg.; and the lowest on the 9th, 1854—therm. 18 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

FUCHSIA: *G Fry.* Your seedling, Lord of the Manor, is a very large double variety, and no doubt very showy, which is all we can say of it, in the absence of the plant. The foliage indeed looks coarse, and the corolla is not so compactly double as in some older varieties.

NAMES OF FRUITS: *Alpha.* 1, Marie Louise; 2, Glou Morceau; 3, Easter Beurré.—*G H L.* 1, 2, Marie Louise; 3, Fearn's Pippin.—*P M.* 2, King of the Pippins; 3 (decayed), probably Althorp Crassane; 4, Beurré Diel.—*J S.* The Apple is like a small specimen of the Gravenstein.—*J F.* 1, Beurré d'Aremberg; 2, Comte de Lamy; 3, Passe Colmar; 4, Beurré Rance.—*T C.* 1, Orange Pippin; 3, Pomme Royale; 5, Golden Reinette; 6, Reinette du Canada; 9, appears to be Beauty of Kent; 11, Winter Pearmain; 13, Pomme de Neige; 16, Kirke's Lord Nelson.

NAMES OF PLANTS: *Hossack.* Asplenium Ruta-muraria, not uncommon in some places.—*Guy T—n.* Orchis spectabilis.

SILKWORMS: *Kangaroo.* In the April number of the Technologist there is an article "On the cultivation of silk in Tasmania," and there is a good French periodical with the following title:—"Revue de Sériciculture comparée: journal agricole formant les Annales du Laboratoire Central de Sériciculture—correspondance entre les agriculteurs qui s'occupent de l'élevage des vers à soie du murier, de l'Ailante, du Chêne, et de l'emploie de leurs divers produits, par M. Guérin Méneville."

THE FEEJEE ISLANDS.—*E A M.* (*Dublin*) will thank any of our correspondents for information respecting the climate, horticulture or agriculture of the Feejee and Tonga Islands, or the name of any work having reference to these states will be gratefully received.

TRUFFLES: *Cantab* shall have a full answer next week.



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ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

AUTUMN SESSION, 1863.

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Council.

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The Right Hon. THE EARL DUCIE.
The Right Hon. WILLIAM BATHURST.
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MATHEMATICS AND SURVEYING.

W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.

DRAWING.—JAMES MILLER.

* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

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J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
THOMAS ELLMAN, of Beddingham, Lewes—Lecture on Southdown and Short-woolled Sheep.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.

AGRICULTURAL CHEMISTRY.

THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.
Mr. HEWITT DAVIS will Lecture on Thursday next, the 12th inst., at 1.45 P.M., on "The Injury and Waste of Corn from too Thickly Seeding"

For further particulars apply to the PRINCIPAL.

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The Agricultural Gazette.

SATURDAY, NOVEMBER 7, 1863.

—— OUR advertising columns announce that two farms on the Sarsden estate of the late Mr. LANGSTON, M.P., are to be let. They were formerly in his own occupation under the immediate management of his agent, Mr. SAVIDGE. The larger of the two is chiefly arable; the smaller, half plough land and half pasture.

They are on the oolite formation, chiefly a good calcareous loam. Both have been for some time under steam cultivation, both are in the highest possible condition; and both are in that thorough state of equipment with good buildings, which characterises all the farms on Mr. LANGSTON'S well managed estate. It is rarely that two such excellent farms are thus offered publicly.

We have also to announce the sale next March of the Sarsden Short-horn herd; of which a detailed account will hereafter be given.

THE Papers on Veterinary subjects read by Mr. HOLLAND, M.P., and Prof. GAMGEE, at the Social Science Congress at Edinburgh, have been worthily

followed by a debate on the relations between Agriculture and the Veterinary Art, before the London Farmers' Club. On Monday last, Prof. BROWN, V.S., late of the Royal Agricultural College, gave a very able lecture on this subject, and led a very interesting discussion on the actual and possible uses of well-qualified veterinary practitioners. There was of course no relation between Prof. GAMGEE's recent agitation of the Health-of-Stock question and Prof. BROWN's lecture on last Monday. The subject had been placed on the card of the London Farmers' Club by Mr. FISHER HOBBS, twelve months ago; and had he not been disabled, we very much regret to say, by serious illness, he would himself have read the leading paper of the evening. In his absence, Prof. BROWN, at short notice, undertook the duty; and although no reference whatever was made to the recent lectures and publications of Mr. HOLLAND and Mr. GAMGEE, yet we doubt not that the meeting will be of service to the cause which these gentlemen have undertaken.

Prof. BROWN commenced by an allusion to the connection between cultivation and stock-keeping, in the need of the dungheap for the maintenance of fertility. The farmer was in the beginning not only the breeder and the feeder, but the doctor of his stock, which he kept both for the maintenance of fertility and for the sake of a separate profit on their own account.

The veterinary art is now at length in charge of a separate profession. He was, however, bound to confess, that the stock of the country is not much the better for its being so. An enormous per centage of cattle and sheep yearly no doubt die from diseases which veterinary art is powerless to cure. But a great deal of our yearly losses are due to agriculturists not having availed themselves generally or sufficiently of the veterinary art which exists in the midst of them.

The stock of the country is not in the hands of the educated practitioner. The number of uncertified, and, so to speak, unlicensed practitioners, is at least double that of the properly educated men.

Independently however of the influence of a fact like this, it is right to confess that there are epizootic diseases to which great losses are due, which are utterly beyond the reach of art to cure. The proper and efficient way of meeting them is by properly organised systems of prevention. And this is where periodical inspections by properly qualified veterinary surgeons will be most useful. Pleuro-pneumonia, which is already a far advanced disease when its first external symptoms show themselves, is then incurable. And all alleged examples to the contrary are fallacious. An instance was related, where Professor BROWN had been called in to inspect the stock of one who had he believed driven pleuro-pneumonia off his premises by fumigation with burnt tar; "there had been but one fatal case." But no pleuro-pneumonia had existed; and the one loss by death had been due to suffocation!

The lecturer then referred to the means of preventing disease, which veterinary surgeons if systematically consulted, could employ. First, as regards care in breeding:—In the breeding of the horses of the farm little care is taken. The consequence is that the good old hack is nowhere, and the good hunter is getting rare. When care is taken, as is the case in certain other kinds of live stock, the improvement is wonderful. Early maturity is year by year becoming earlier. The old veterinary writers speak of the dentition of the ox being perfected at five years old. Full-mouthed Short-horns are now to be seen at three years old, and the same precocity is witnessed in sheep and pigs. On the other hand the law (for so it seems to be), that what is quickly produced shall not long continue, tells severely upon these quickly growing animals. Disease is more frequent than it used to be. There is greater lack of tone and less strength of constitution than there used to be. It is a rare thing to find the lungs of a fat sheep at two years old free from disease. The sheep is indeed so much the seat and victim of all sorts of parasites whose presence indicates this lack of tone that the propriety of killing them at 12 and 15 months is indicated not only by their fitness for the butcher then, but by the enormous losses which a second year, if they were kept, would certainly witness.

The proper management of breeding stock has a good deal to do with this liability to disease in their offspring, but the proper feeding of them, on which a veterinary inspector could give useful advice, would also diminish this risk. More especially is this true as regards the feeding of breeding stock. The object of agricultural societies seems by their practice to be, not the development of the most perfect form, but the development of excessive fat. "It is not fat enough to show"—a remark one constantly hears made by the farmer of his well-bred Short-horn cow or bull—is a remark that ought never to be encouraged as it is by the practice of adjudging prizes at our agricultural shows. The prevalence to an extraordinary degree of fatty degeneration of the liver has been recently observed in sheep and oxen, whereas hitherto it has been supposed a disease exclusively human. It is unquestionably owing to the adoption of a too fattening diet.

One reason why the veterinary surgeon is rarely called in, except to horses and valuable breeding stock, is that a cure of fat stock is necessarily accompanied with loss of condition. The proper way of dealing with the first symptoms of disease in fat stock is to slaughter the animal. And there cannot be a doubt that while the disease is merely local or merely incipient the flesh of such an animal is perfectly good food. The use of the veterinary surgeon in such a case is to certify the fitness or unfitness of the carcase. It is absurd to say that an animal just attacked with disease is unfit for food. But there is a stage of disease when this fitness is lost. Sheep are often put in the last stage of the fattening process on rotting meadows, and go to market good mutton with diseased livers. But if the disease affects the general constitution it is no longer good mutton, and it is the office of a veterinary inspector to pass it or condemn it. An instance was named in which a single butcher had sent up 750 rotten sheep—bad mutton—during a single quarter—and the coincidence and probable connection was suggested between the common use of diseased flesh, and the unusual prevalence of fever during the past summer.

What then is the proper connection between Agriculture and the Veterinary art—shall agriculturists pay the surgeon on the Chinese principle, only while his stock are healthy, making the inspector pay him as soon as they are diseased? At any rate prevention is better than cure, and the history of the recent attack of small-pox in sheep is a splendid illustration of what can thus be done by union and organisation. On the first certainty that the disease was among them, farmers met, formed mutual insurance associations, appointed inspectors, isolated the disease, allowed no infected animal to enter the market—buried those which died—and the disease itself died out in a month or two. So might it be with other epizootic attacks were similar means employed. Agriculture allying itself with the veterinary art for purposes of prevention can do much, but for purposes of cure it can do little or nothing.

Professor BROWN concluded his very able address by insisting on the need of the importance of the veterinary art being taught from the very beginning in agricultural schools and colleges, of which agriculture needs not one for the whole country, but one for every considerable district within the country.

Dr. VOELCKER followed Professor BROWN. He did not believe that disease was attributable to an excessive quantity of fat, or of matters related to fat, in food. Rather he attributed disease to excessive quantity of the flesh-producing material in food. He had been surprised to hear it stated by one who was an authority in the agricultural world—Mr. ALDERMAN MECHI—that 28 lbs. of oil-cake might be given to a fatting beast daily. An animal was undoubtedly a manure-producing *machine;* but even a threshing-machine would break down under excessive *feeding;* and a surplus of food could not be administered to an animal without injury to its constitution. But Linseed-cake is less open to a change of this kind than other kinds of cake. It is accompanied with a large quantity of oil, which so far from being considered in excess, ought to be considered as the antidote and remedy for the mischief likely to be done by the excessive dose of the nitrogenous or flesh-forming part of the food. In the case of Cotton-seed cake, where less oil is present, great injury has been done by the excessive quantity of the flesh-forming food, unaccompanied by the only antidote which is given in Linseed. Speaking as a chemist, Dr. VOELCKER condemned the giving so much as even 10 lbs. of cake a day to a fatting beast; he believed 5 lbs. of good cake daily was a maximum.

Mr. COUSSMAKER defined the relations of agriculture with the veterinary art to consist in the employment of the educated practitioner in hunting countries and in districts where valuable breeding stock existed—and elsewhere in the use of a few simples by the farrier and the cow-leech for stock in a store condition, with that of the knife for whatever is fit for the butcher.

Mr. VIVIAN explained, with reference to the story of 28 lb. of cake given daily to a beast, that this was a story not related by Mr. MECHI as of his own practice, but a story related to him by another.

Mr. THOMAS, of Bedfordshire, disputed the assertion that good hunters are not now to be had—on the contrary, good hunters were never better than they are. The old-fashioned Hack no doubt has gone, and probably owing to that carelessness and mismanagement which had been condemned. As to the quantity of food proper to be given to fatting stock, he believed 5 lbs. of cake might very well be pronounced enough. He was now giving mixed Linseed and Wheat flour, which he believed to be as cheap a cattle food as could be provided.

Mr. CORBET, the Secretary of the Club, in a very energetic speech recalled the meeting to the subject of discussion. He believed that the relations between agriculture and the veterinary art ought especially to be taken charge of by the local agricultural societies. Whenever he acted as judge at any of these local shows he always insisted on the preliminary examination of stock by the veterinary surgeon. It is with reference to breeding stock, not with reference to fatting stock, that his services are required. The effect of the prize system is to spread the stock to which the award is made. Let us take heed then by careful veterinary examination that we are not disseminating stock with any hereditary taint. One chief use of a local agricultural society should be to introduce a well educated and efficient veterinary practitioner into its district.

Professor COLEMAN combatted the idea that stock bred so as to exhibit early maturity is therefore necessarily short lived or more liable to disease. That liability was owing to their treatment as much as to their breeding. He contended for the need of frequent examinations by competent inspectors in order to the preservation of health.

Mr. FREERE said that the veterinary art, like that of medicine in general, consisted of two separate branches; the one consisting in the recognition of diseases by their symptoms, the other in the exhibition of the proper remedies. The advance hitherto had been chiefly in the former division of the subject. Excepting the discarding of severe purgatives, little progress had been made in the latter division of the subject. He suggested, however, the propriety of Homœopathic treatment as a step in the right direction. He asked for an explanation of the incurableness of pleuro-pneumonia, seeing that inflammation of the lungs was a perfectly manageable complaint in man.

Mr. WOOD had been startled by the statement that any connection existed between rot in sheep and typhus fever in man. Sheep were systematically put on rotting meadows before being sent to the butcher, and he believed mutton in the incipient state of rot to be perfectly wholesome. The effect of the discussion to which he had listened would, he hoped, be to prepare farmers for the adoption of periodical veterinary inspection with a view to the prevention of disease.

Mr. TRETHEWY, the Chairman, after summing up the discussion, asked Prof. BROWN how it was if the full dentition of the pig, the sheep, and the ox had been so much earlier by attention to their breeding and management, that no such greater earliness was observable in the case of the horse. Five years had always been and is now the age of the full-mouthed horse; and certainly there had been no lack of attention to the breeding of certain classes of horses.

Professor BROWN replied to the several speeches. To Mr. FREERE he said: Pleuro-pneumonia in the ox, and inflammation of the lungs in man, have nothing whatever in common. Pleuro-pneumonia is not an inflammatory disease at all, but one in which the constitution of the blood is greatly altered by the presence of fibrine in enormous excess. Its incurableness arises from our being unable to detect its first occurrence. To Mr. TRETHEWY he replied that the horse had in great measure attained an increased precocity long ago—it had been longer in the hands of the careful breeder—nevertheless it is not now true, as it used to be, that horses are necessarily five years old before their dentition is perfect. There are numbers of full-mouthed four-year-old horses, and every year the number is increasing.

The discussion was closed by votes of thanks to the lecturer and the Chairman.

THE PRIZE FARM AGREEMENT.

THIS agreement has been given to the public in your Journal of Saturday last, I presume, for their criticism, and I venture therefore to make the following remarks upon it, hoping that the author of the agreement, Mr. G. A. May, will not feel that I do so in any other than a fair spirit of inquiry. Out of consideration for your space I have condensed my remarks as much as possible at the sacrifice of the formality of style that should be observed in such a communication.

CLAUSE 1. Provides for the payment of rent half-yearly. Nothing is said about the payment of rates, tithes, land tax, or quit rents, &c.

CLAUSE 3. Prohibits the tenant from underletting any portion of the farm. He is allowed to underlet the farm house. Is he expected to reside at the house with his family?

In the same clause he is prohibited from breaking up old turf. He is not prohibited from selling off stones, sand, &c.

CLAUSE 4. The exclusive right of shooting is reserved to the landlord. He should also have power to trap game, and hunt or course, or ferret the banks.

CLAUSE 5. Power is given to the tenant to kill rabbits in the field. Is it intended to reserve the banks, particularly the banks round woods, if there be any?

CLAUSE 8. No hay, &c., is to be sold off the farm; this, looking to Clause 17, where Clover and meadow-hay are spoken of distinctly and separately, only applies to meadow-hay, and therefore the tenant may sell off his Clover-hay without bringing back manure.

CLAUSE 9. The buildings, fences, &c., are to be repaid by the tenant, materials in the rough being found by the landlord. The tenant is not bound to repair the roads, and the expression "materials in the rough," might be understood to comprise rough foreign, as well as English timber, rough iron, glass, &c. The word rough, I apprehend, generally implies unconverted, and in agricultural agreements refers almost exclusively to timber grown on or near the farm. Nothing is said about the cartage of materials.

CLAUSE 10. The tenant is to undertake to clean wet ditches yearly, but ditches that do not come under the denomination of wet he is exempted from cleaning.

CLAUSE 11. All buildings and fixed machinery erected by the tenant my be taken away by him at the end of the term unless purchased by the landlord. The law gives the tenant the power to move all fixed machinery and trade fixtures at the end of his term, but this clause seems rather to militate against him, as it might be argued that cisterns and some other things, being neither buildings nor machinery, may under it be required to be left without payment.

CLAUSE 12. Provides for the appointment of an arbitrator by each party at the end of the tenancy, and it gives these arbitrators the power "to proceed to consider the claims made by either party," and here I suppose their powers end. They seem to have no power to make an award, nor is any provision made for delivering the claims which they are to consider.

CLAUSE 13. The outgoing tenant is to provide the horses of the incoming tenant with a "suitable stable or shed;" possibly the best shed he might have to offer might prove unbefitting the incoming tenant's horses.

CLAUSE 17. "Any hay or Clover left on the farm, not exceeding one-half the annual average crop grown, shall be paid for at consuming price." If more than that quantity is left, is it not to be paid for, or may the tenant sell it off? Assuredly the tenant will leave as much as he can, for he is not to be paid for the manure—see clause 18.

CLAUSE 20. The tenant is to be paid for drains laid down during the last ten years; that is, for drains laid down without the landlord's consent or approbation, and although he may disapprove of them, and of the system on which they are laid, and may even know them to be unscientifically and inefficiently laid. And the price to be paid for them is fixed without appeal to the arbitrators!!

Should the points to which I have drawn attention prove to be defects, they will admit of easy remedy. But are the difficulties in the way of substituting a Michaelmas for a Lady Day entry so insurmountable, I would venture to inquire, that the change cannot be attempted? Surely it will not be doubted that the Michaelmas entry upon an arable farm is the most simple and most satisfactory. *Charles F. Humbert, Land Agent, Watford, Herts, Nov.* 2, 1863.

STEAM CULTIVATION.

LITTLE STAMBRIDGE HALL, NEAR ROCHFORD, ESSEX.—In a letter published in last Wednesday's *Times*, Mr. Wray, of Tunbridge Wells, thus spoke of "the steam plough and the modern agricultural implements." "All practical men admit that the steam plough is not far enough advanced to be brought into use by the large and wealthy occupiers of land; and as to its use for the general farmers, most of them holding farms under 300 acres, it is out of the question altogether." It is with the former part of this sentence we have now to do: let us examine it by the light of the following example.

In farms around and at various distances from Little Stambridge Hall, the fine old farm house where he resides, Mr. William Allen occupies 3000 acres of land—2000 acres arable and 1000 acres pasture. It is for the most part held on lease; some of the marsh land is his own property. We presume that he fairly comes within the class who, according to Mr. Wray and "all practical men," have found steam cultivation unprofitable. The land is of all qualities, from a comparatively light and occasionally somewhat gravelly soil, which however is not common, to deep sandy, deep clayey, and deep alluvial loam. It lies in fields of all sizes, from 10 acres to 50. It is cultivated on the universal practice of the district, with especial regard to surface drainage. Most of it is not under-drained; a great deal of it in the marsh, where there is a very large proportion of the land under arable culture, is below high-water mark, and thus not easily capable of satisfactory drainage, hence the need of narrow lands and frequent water-furrows across them.

It is cultivated generally in a six-field rotation of crops. On the lighter land—fallow (generally bare fallow), Oats or Barley, Clover, Wheat, Root crop as Mangel Wurzel, Swedes or Potatos, and Wheat. On the marsh land—bare fallow, Oats or Barley, Beans, Wheat, Clover, Wheat. Some 70 or 80 horses are employed in the cultivation of this land—in three-horse teams on the marsh, and as often three as pair-horse teams elsewhere. The whole district is a country of large farms. There are several holders of 2000 and 3000 acres in the neighbourhood—one of at least 5000 acres in the county. This, then, is a district of large and wealthy occupiers, to whom, according to Mr. Wray, steam-ploughing is unprofitable. This is not the opinion of Mr. Allen, the only one of the number who has yet tried it here. He purchased Fowler's 14 horse-power engine with four-furrow plough and cultivator in June, 1862.

The rope has already cultivated 1200 acres, and has never been broken. It seems perfectly equal to another year's work. There has been only one considerable accident—the breaking of two or three cogs out of the wheel by which the clip drum is driven, which delayed them a week. The whole of the repairs, added to the estimated wear of rope, does not exceed 100*l.* for the two years, during which 2000 acres have been worked. Repairs and rope together thus have not exceeded 1*s.* an acre. The whole is evidently under careful management, and the tools and engine are kept in good working order. This is proved by the small consumption of coal, which has not exceeded 3 tons a week!

The weekly wages paid are as follows:—driver, 30*s.*; ploughman, 18*s.*; anchorman, 15*s.*; engine boy, 9*s.*; three boys at 6*s.*, water fetcher, 18*s.* There is thus an unusual quantity of well paid labour employed, and no doubt a good deal of the economy of the working has been owing to this. To this add the cost of the horse and water-cart, which we may put at 1*l.* a week, and there is a weekly cost of 6*l.*, or a daily expenditure of 1*l.* The coals at 24*s.* a ton on the ground cost 12*s.* a day, the oil costs under 1*s.* a day, a gallon lasting a week; and the whole daily outgoings thus amount to 33*s.*

The following is the work done, taken from the books of the farm. During 1862—after June, when the apparatus commenced work, 562 acres were cultivated. Nothing was ploughed, but 26 acres were worked with the digging breasts. In all 588 acres were cultivated, and the second cultivation is declared to have been 10 to 12 inches deep. The whole work was done in 103 days. During the current year, and up till last week, 168 acres had been twice cultivated, 170 acres had been once cultivated, 79 acres had been ploughed, and 43 acres had been "dug." This amounts in all to 630 acres of work since April 6. It has been done in 105 days of work, including the labour of removal, or 6 acres a day exactly. The total cost may be put thus:

	£	s.	d.
Labour, fuel, and oil, 105 days, at 33*s.* ..	172	7	0
Repairs and rope for one year	50	0	0
10 per cent. on value for tear and wear, and 5 per cent for interest of money	120	0	0
Total	£342	7	0

This, divided over 630 acres of work done, amounts to about 10*s.* 8*d.* an acre.

This, it may be said, is a fair price for ploughing. The valuers in that district will charge from 9*s.* to 12*s.* an acre for horse ploughing, and it seems steam ploughing is no cheaper. It must, however, be remarked as reducing the actual cost below our figures, that a full year's charge is made for interest and tear and wear, which is the great burden of the cost, though the year's work is not yet completed. We saw it making capital work—ploughing across the narrow 7¼ ft. ridges of a Clover lea for Wheat last Wednesday, and it will do a good deal of work yet this year. Besides this, the whole year's interest is never chargeable on the ploughing. The engine has threshed 1200 quarters of corn this year already, and its value for this purpose should be deducted from the charges which we have put upon the cultivation.

The true answer, however, to any assertion of expensiveness is to compare the cost with the quality of the work. "The value of a thing is not what it costs, but what it is worth." The usual payment which Mr. Allen's neighbours make him for steam cultivation (and he has done a good deal for hire) is 10*s.* to 15*s.* an acre with coals and water. And, speaking of one example of such work, we heard of a case of stiff and foul land which had been cultivated and crossed, that the 30*s.* which the two operations cost was not half the good they did. It must have cost more than 3*l.* an acre to get the land by horses into the condition in which this steam cultivation had left it.

It is here that Mr. Jephson Rowley—who has been comparing horse and steam cultivation before a Staffordshire meeting lately, to the disparagement of the latter—and others, like Mr. Wray, are wrong. They compare the mere expenditure on steam cultivation (even so they cannot prove their point) with that of horse-ploughing; and because no such great advantage thus appears, they say, "let well alone." But ploughing is not necessarily cultivation, and cost as little as it may, it sometimes even does harm instead of good. It is the quality of the work that must be the test of its worth.

A barefallow on the marsh land means seven ploughings besides other tillage. A double steam "cultivation," besides the other tillage, does away with the need of five of these.

But besides this it in many cases enables a crop in place of a fallow. And more of this will now be done than has hitherto been done. We saw a large field just sown with Wheat, and in capital order, which had borne a Wheat crop in 1862; it was cultivated and cross cultivated by steam, and cleaned in the autumn of that year—then sown with Trifolium incarnatum—it bore a crop this summer of three loads per acre; was immediately steam cultivated once, harrowed and cleaned, and sown with 3 cwt. of guano per acre to Swedes (they got the length of being hoed, but were eaten off by the grub); the land was then steam ploughed and harrowed, and horse ploughed in the 7 ft. 3 ridges of the district, and sown to Wheat.

A very fine piece of Mangel Wurzel, just in process of being harvested, had been steam grubbed in autumn, and left flat all winter—a most daring experiment—again steam grubbed in spring, and then bouted up with horses for manure; thus about halving the usual preparation by horse power.

A Pea stubble had been fallowed by steam power, grubbed, cleaned, cross-ploughed this autumn, then marked out by deep horse-drawn furrows at 7 feet 3 inch intervals, with the double mould-board plough. The earth was raked both ways from the furrows, and the land was then ready for the harrow and the drill. The great pains and care of the arable farmer, especially on the marsh land, is to provide for the surface drainage. To this end the land, after four or five ploughings, is ploughed in breaks or beds, more or less across the fall, 4 perch wide, leaving deep furrows, and it is then ploughed in lands 7 ft. 3 in. wide up and down the fall. The cross furrows are cleaned out thoroughly as water furrows, and the furrows between the ridges are also cleaned out. These frequent ridges are great difficulties in the way of efficient steam culture; but they are perfectly overcome by care in crossing the furrows, slowly and without any jerk. And a combination of horse work for the preservation of the proper surface configuration and surface drainage of the land with steam work for efficient tillage, is what distinguishes Mr. Allen's management.

He has not yet done much towards diminishing his horse stock. The only step hitherto taken has been to breed from all his mares; their idle spring and summer being more than made up by the steam cultivator, which is, he believes, equal in its efficiency to seven 3-horse teams. The work of actual reduction of horse power will proceed, now that sufficient experience has been obtained. But it is to the superiority of the work and the power of the tackle to do that at once or twice which horses can less perfectly accomplish at four or five ploughings, on which Mr. Allen especially depends. And he said, "You cannot speak too confidently of the unquestionable value and success of steam cultivation in my experience as a marsh land farmer." The enormous scale on which farming is in many instances carried on in this part of Essex, and the large size of the fields, mark it out as especially adapted to steam cultivation, and we cannot doubt that Mr. Allen's example will be followed. His farms are interesting on other grounds as well as for their steam cultivation. That it is not only on thorough tillage that their fertility depends appears from the large use on these farms of London dung and artificial manure, the keeping of 1500 to 2000 sheep, and the wintering and fattening of several hundred beasts.

But it is nevertheless unquestionable, both from the general experience, and from many examples which were quoted of it, that the fertility of the land is wonderfully dependent on thorough tillage, and that a crossing with the steam-cultivator is more than equivalent to the three or four ploughings which it displaces.

Before Mr. Wray again takes it upon him to deny the profitableness of steam cultivation, we recommend to him a visit to Little Stambridge Hall.

AGRICULTURAL DRAINAGE.

DISTRICT DRAINAGE AND OUTFALLS.

The following is the substance of a lecture lately given by Mr. Bailey Denton, the first of a short course on this subject which that gentleman is kindly giving to the Royal Agricultural College, Cirencester.]

IT is necessary that I should make a few introductory remarks before I proceed with those practical

details in which I hope to interest you: and let me begin by saying that although my interest in this Institution and my confidence in its management are great, I should not have ventured before you in my present capacity had I not entertained a very strong opinion that the best instruction that can be given in the Applied Sciences is that which combines Theory with Practice, by illustrating the teachings of acknowledged professors with instances of actual experience. To afford such illustrations has brought me here, and I must ask you to bear in mind that the information I am about to tender has not been gathered from a study of words, but from an active professional career in which works have taken their place.

Agricultural Drainage is a new art, if we regard it as it is regarded by practical men, whose views extend beyond the moment. There are no books which will give the student the data required for a sound foundation. In speaking of "practical men," I do not mean those who deem a knowledge of their own property the best and only necessary qualification in draining, but I refer to those who have made Agricultural Drainage a special object of attention, and regard it as a branch of education which can only be reached by scientific investigations, and by careful study and observation of Nature's laws, and those principles which rule in Hydraulic questions of all kinds. The practical man in the matter of Drainage, need not necessarily devote himself to it, but to comprehend it thoroughly he must have a love and knowledge of science, and must widen his observations beyond the area of his own estate or farm. The majority of those present have probably been led to think, and the greater proportion of those who have wet lands to drain are doubtless of opinion, that Agricultural Drainage is nothing more nor less than under drainage by set rules—drains so far apart and so deep—and that no other consideration is due to the subject beyond that which will apply to the draining of a farm or a single field; that, in fact, any person who can by prescribed method remove the injurious water immediately affecting his farming operations, accomplishes all that is required. To study and ascertain the real source and cause of the wetness, and the most appropriate mode of removing it without deranging the water economy of the country, and the best way of discharging the water of drainage without injury to lower lands, are objects of supererogation, and altogether beyond his duty. My introductory remarks, however, will be directed to the removal of this impression,—to show you that these neglected considerations are the Alpha and Omega of the art, that the prevailing practice of draining all soils on a parallel, 4 feet deep system, is a very narrow one, and that, although considerable improvement has resulted from what has been done, that improvement has resulted rather from the fact that all drains do some good, than from the control of scientific judgment.

So limited has been the consideration given by agriculturists to the natural laws by which water enters and travels through the soil,—which should be the first study of the drainer when designing his work,—that although they talk of the great variety of soils they meet with, they acknowledge but two descriptions of excessive wetness, viz., that caused by the retention of the rain falling directly on the surface, and that which is caused by springs. By a very convenient simplification these waters are called "top" and "bottom" waters respectively, and in a certain sense the terms are right, but as I proceed you will see how prejudicial to an economical and scientific treatment of the matter, and how injurious to the country at large, such generalisms are.

And with respect to outfalls for the discharge of injurious waters,—which is the very key of all under-drainage works,—so completely has the attainment of this desideratum been disregarded, that though we have been spending millions in subordinate work, we are at a loss even for a word to express the operation when a combination of interests is involved, and it extends to the improvement of rivers and watercourses. Some people christened the improvement of the river system "Arterial Drainage," but the late Mr. Pusey ridiculed the term, saying, "that it was an absurd name, importing the reverse of its object, since arteries convey their fluid into small channels, whereas these main cuts carry theirs off," and substituted the term "Trunk Drainage." Under this title, Mr. Algernon Clarke wrote an admirable Prize Essay, which appeared in the Journal of the Royal Agricultural Society of England, though, when afterwards advocating the general improvement of outfalls, he adopted the more commonly understood term of "River Reform." This, again, has been considered too large a phrase to mean the ordinary watercourses and ditches of tributary valleys, the improvement of which is as essential to the full development of under drainage as that of the rivers themselves; we have, therefore, settled down into the acceptance of "District (combined) drainage and private (simple) outfalls" as proper terms to express all that comes within the agricultural view of the question, and these are the terms adopted by the Legislature in "The Land Drainage Act, 1861."

Mr. Pusey's idea, in designating the river "the trunk" of the drainage system, is perfectly consistent with that comprehensive view which ought to prevail; for, if we accept the term figuratively, and take a tree as the type of the so-called Arterial System, and regard the relative duties of the several parts, we shall find that the sea represents the root—the river, the trunk—the tributary watercourses, the branches—and the under-drainage of the fields, the fibrous structure of the leaves. Each part has its functions; but the whole are connected and dependent on each other.

It is my intention to limit this lecture to the subject of "District Drainage and Outfalls," because, although there are consideration with respect to the source of injurious waters which should pre-eminently influence the drainer when making his design, the starting point of the workman is the lowest point, and his first actual work should be to provide an outfall for the water his under-drains will collect; and it is clearly the duty of any one aiming at the instruction of others, not only to point out the evil of beginning at the wrong end, but to avoid the practice himself.

The feeling of our country is naturally so opposed to compulsion, and agriculture itself has, until lately, been so sluggish in its progress, that combined works, by which the majority of a district suffering from want of outfall might compel the minority to join in and contribute to the cost of its improvement, have been delayed until now, and it is only within the last year that a general Act giving this power has come into actual operation. Fifty years hence, when you are succeeded by your children, this country will look back with surprise at our present want of foresight in having commenced a great work without a base of operations, a work which must go forward, let the obstacles be what they may. But so jealous has the landed interest been of everything in the shape of interference in the control of land improvements, and so general has been the opinion that the less scientific education a man had gained, the better he was qualified to act as the medium for their execution, that agriculture has itself only to blame for the extraordinary fact that the Government up to this moment, has, in its administration of the several Acts of Parliament for the drainage of land, practically ignored the necessity of legal outfall powers, and excluded the engineering element from the organisation of the works carried out under Government control.

In the Act of 1861 the engineer is only to be recognised by his foreshadow. Though the Government authority is made necessary on points upon which an engineer must be consulted, the Act does not render it necessary that the works themselves should be approved! It requires that the Inclosure Commissioners shall determine the area of the districts formed under the Act, but it does not allow of their controlling the nature of the outfall works, which every drainer knows practically decides the limit of the area. This, however, will be remedied by amending Acts.

You, as students, must not be misled by the frequent outcry we hear of the costly consequences of superior knowledge in the execution of agricultural improvements, but remember that it is much easier for a practical man, of scientific education, to descend to the capabilities of a labourer, than for a labourer to ascend to his. Nor must you be misled by the frequent observations of certain Members of the Legislature, who, in post-prandial speeches at agricultural meetings, flatter their hearers by telling them that their knowledge of their farms render them better drainers than those who have made drainage a special study; but you must bear in mind that flattering men's prejudices is one way of gaining their sympathies and their votes.

Under the belief that agricultural drainage was a simple thing which every one with ordinary intelligence could do, and of which the results must be purely and wholly beneficial, several millions of money have been expended within the last 20 years, without regard to those physical conditions which regulate the supply and passage of water through the soil, or to the mode in which those waters are ultimately discharged to the sea.

We have been content to remove the evil in the best way expediency might suggest, without reference to the water economy of the country, or the injury done to valleys below. It cannot be necessary to tell you that any practice giving individual profit, which is attended with national disadvantage and injury to others, is at best an imperfect system; but it is very desirable to impress upon every future drainer, that agricultural drainage, as an art, goes, beyond the mere expulsion of water, to the most judicious way of removing it with reference to the cause of wetness, and to the discharge and utilisation of the surplus water, so that it shall not only reach its ultimate destination without injury to interposing properties, but that it shall be turned to good account in its passage to that point. We must always look upon water as an element given us for good purposes, and that the excess that troubles us in the soil is capable of many uses in its transit from the clay hills and free-soil valleys to the sea.

The mode of under-draining an individual estate may be determined arbitrarily by its owner, whether that mode leads to disorganisation or not, and the only way of bringing about an uniform action, based upon correct principles, is by the dissemination of information of a sound character; but the discharge and distribution of the drainage water being dependent on systematic arrangement, and requiring the combined action of adjoining proprietors, cannot be subject to the same caprices. It is, therefore, probable that a comprehensive treatment of the whole matter will only be deferred until the outfall consideration has taken its proper position in drainage control, and this time is fast approaching.

Large estates, comprising hill and valley, clay lands and free soils, possess within themselves the capability of a comprehensive system of drainage and distribution, in which all the elements of economy may be regarded; and as many of you will probably become land agents, and have the management of extensive properties, let me remind you that the *ne plus ultra* of under draining is not the rapid ejection of water which is in troublesome excess, for you may eject water too quickly, as well as too slowly, but the subduction of that excess beyond the power of doing injury, by the least outlay; and that there are many uses to which collected water—that which a good system of works will allow of being concentrated at any given points—may be usefully and profitably applied. Have we not just passed through a very dry summer in the Eastern Counties, in which the poor of our villages and the cattle of our farms have been crying out for water; and could we not have stored much of the water of drainage which was discharged last winter for its use in these dry months? Then, consider the numberless instances in which the water of drainage may be collected and applied as a motive power. Sir Wm. Armstrong, in his recent address to the British Association, called the attention of the country to the comparatively rapid exhaustion of accessible coal. It would be alien to the present object to give the figures by which he showed that in two hundred years we should be without this valuable source of motive power, particularly as it has been asserted that Sir William has much underrated the quantity accessible. You can readily realise the prognostication, however, by remembering that two hundred years only takes you back to the time of the second Charles, which is but as yesterday in the world's history; and without debating the duration of the coal beds, you cannot fail to acknowledge that with the warning given us, it is a national sin to continue to discharge as heedlessly as we are doing that element of power which will endure for ever, and, if rightly placed, is the cheapest of all appliances.

Again, how often can the water of Drainage be turned to account in irrigation, or as a vehicle for the distribution of sewage, and the liquid manure of the farmyard?

These objects may appear to your ears as refinements—beyond the duties of the draining engineer and farmer—but I can assure you they come naturally to my mind as the result, in a great degree, of my own experience, and, in a still greater degree, as the result of what I have seen might be done, were the application of water appreciated as it ought to be; and, moreover, I hope to show you that they are essentially connected with the outfall question, and that a clear understanding of those geographical facts and physical conditions upon which the supply and utilization of drainage waters depend, the better fits the drainer for the main object, underdrainage itself. When I deal with that object in detail, I shall show you, in order that you may yourselves supply the deficiency, that the absence of a knowledge of geology, a disregard of meteorological circumstances, and an omission to give to height and varying inclinations of surface, the influence due to each, is bringing about a change in our water economy, which is pernicious to individual and national interests alike; and that underdraining, which should have the effect of reducing floods, is, by the want of discrimination, tending to augment them.

If underdraining was to be limited to a few millions of acres in isolated patches, we should not have to fear any great derangement of our river system, but, as there are ten times as much to do as has been done—all of which will be done sooner or later—it becomes you, as the rising generation, to remember that there exists no reason why agricultural drainage should be exempt from the rules and formulæ which govern all hydraulic works in which the discharge or application of surface water is the object. In a few short years it will be regarded as one of the paradoxes of the present truly scientific age, that local and physical data should have been overridden by official forms and tabulated returns, and that for the sake of uniform treatment, lands of every texture, form, and position, and subject to rainfall of various quantities, should have been drained alike. You should travel through the several counties of the north-west of England—Shropshire and Staffordshire for instance—in which much the larger proportion of the land is wet and still remains to be drained, and, having seen that the saturated subsoil is comparatively free and open, contemplate the aggregate effect of indiscriminate stereotyped drainage on the valleys of the Severn and the Trent. To appreciate effect and consequences you should remember that, in hydraulic operations, the maximum quantity of water to be discharged, is the datum of the engineer when determining the capacity of an outfall; and that, all other things being equal, the greater the number of drains put into the ground, the more rapid and irregular the discharge, particularly in free and mixed soils, which have little retentive property to retard the passage of water. Having realised all these facts in your mind, you will have a problem before you worthy of your special study. In a subsequent lecture it is my intention to trace the effect of land drainage on our rivers more particularly.

(To be continued.)

Home Correspondence.

Gorse.—Your correspondent "R. A." asks for information respecting the use of Gorse as fodder. As food for horses, cattle, and sheep, it is of the highest value, combining well marked sanative with fattening properties. When cut with a chaff-cutter it is readily consumed by horses, not so well by horned cattle unless it is subsequently crushed or pounded. I make use of a machine of my own invention, which dispenses with the chaff-cutter altogether; by means of it the Furze is reduced to such a state that I use it regularly in stall-feeding to the extent of 40 lb. a day per beast, and with such advantage that it is become almost indispensable. When cattle in the stalls will eat it, as they do, ravenously, it is a sufficient assurance that young and store animals will do the same. I find it of the utmost benefit to calves and yearlings during the winter months, from October to May. Of its results with sheep I have not sufficient experience myself, but I am informed that they are equally satisfactory. It has also been used with success in feeding swine. A fat pig obtained a prize at the Dublin Society's Show last April, which had been fed largely with Furze so prepared and steamed. Not to take up too much of your space I shall conclude by saying that I will with pleasure give any information in my power either as to the machine or the use of Gorse to any person applying to me. *John Walsh, Stedalt, Balbriggan, Ireland, Oct.* 28. [Thanks.]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, November* 4.—Present: Lord Feversham, President, in the chair; the Earl of Powis, Lord Berners, Lord Tredegar, Lord Walsingham, the Hon. W. Cavendish, M.P.; Sir E. Kerrison, Bart, M.P.; Sir A. K. Macdonald, Bart; Sir M. White Ridley, Bart, M.P.; Mr. Acland, Mr. Amos, Mr J. H. Arkwright, Mr. Raymond Barker, Mr. E. Bowly, Mr. Branston, M.P.; Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Dent, M.P.; Mr. Druce, Mr. Exall, Mr. Brandreth Gibbs, Mr. Holland, M.P.; Mr. Wren Hoskyns, Mr Humberston, M.P.; Mr. Jonas, Mr. Lawes, Mr. Lawrence, Mr. Milward, Mr. Pain, Mr. Randall, Mr. Rigden, Mr. Robert Smith, Mr. Shuttleworth, Mr. Torr, Mr. Wallis, Mr. Wells, Mr. Burch Western, Mr. Henry Wilson, Professor Wilson, Mr. Frere, Professor Simonds, and Dr. Voelcker.

The following New Members were elected:—

Aveling, Thomas, Rochester.
Bangham, Geo. A., Bridgnorth, Salop.
Batchelor, T. B., Maindee, Newport, Monmouthshire.
Beckwith, Thomas Percival, 52, Eaton Place, London, S.W.
Birch, Thomas, Grafton Farm, Hereford.
Blenkinsop, John, Simonside House, South Shields.
Brandon, Benjamin, Ross, Herefordshire.
Brett, Wilford George, The Lodge, Esher.
Bright, John, Longford, Market Drayton, Shropshire.
Buchanan, David, The Lodge, Clifton, Rugby.
Burdett, Edward, The Manor Farm, Lyveden, Thrapstone.
Burton, Robert Henry Lingen, Chilton Grove, Shrewsbury.
Burrows, Thomas Ash, Normanton-on-Trent, Newark, Notts.
Clive, the Hon. Captain Geo. W. Windsor, M.P., 53, Grosvenor Street, London, W.
Colby, S. E., Havod Grove, Cardigan, South Wales.
Coultas, James, jun., Spittlegate, Grantham.
Dees, Robert Richardson, Wallsend Hall, Newcastle-on-Tyne.
Donkin, Robert, Felton, Acklington, Northumberland.
Draper, Charles, Kenilworth.
Ealand, John Robert, Aisthorpe, Lincoln.
Evans, Robert, Talladine, Worcester.
Evans, Thomas Astwood, Worcester.
Fenton, Joseph, Bamford Hall, Rochdale.
Gape, George Thomas, Elm House, Winkfield, Windsor.
Goodwin, Frederick, Droitwich.
Gotch, Wm. Hepburn, Bratton, Westbury.
Green, Andrew Whyte, Craig House, Girvan, Ayrshire.
Gulliver, William, Swarcliffe, Banbury.
Hall, William, Seven Springs, Cubberley, Cheltenham.
Haines, John, Rotherby, Leicester.
Hammond, Dr., 11, Charlotte Street, Bedford Square, London, W.C.
Hamond, Charles Frederick, Newcastle-upon-Tyne.
Hamond, Philip, East Grinstead, Sussex.
Hart, George, Wakefield.
Harwood, Thomas, Belstead Hall, Ipswich.
Hatton, William, Kingston, Tetsworth, Oxon.
Hodgson, James, Liverpool.
Kingsnorth, Edward, Brookland, New Romney, Kent.
Lancaster, Thomas, Bownham House, Stroud, Gloucestershire.
Lloyd, George Woodall, Whitchurch, Monmouth
Margesson, Rev. Wm., 4, Green's Row, Chelsea, London, S.W.
Nickisson, John, Stone, Staffordshire.
Painter, Thomas, Bodlondeb, Wrexham.
Pitt, Walter William, Whitchurch, Monmouth.
Raglan, Lord, Cefntilla House, Usk, Monmouthshire.
Ramsay, John Taylor, Walbottle Hall, Newcastle-upon-Tyne.

Ridley, Andrew, Newcastle-upon-Tyne.
Rix, John, sen., Lusley Court, Worcester.
Roberts, Hugh, Eastgate Row, Chester.
Royds, Henry, Elm House, Wavertree, Liverpool.
Smith, John P., Leominster.
Smith, Tysoe, Hinchwick Farm, Stow-on-the-Wold.
Splatt, William Francis, Abbotsford, Torquay, Devon.
Stephenson, William, Throckley House, Newcastle-upon Tyne.
Timbrell, Robert, Beckford, Tewkesbury.
Toder, John, South Muskham, Newark-on-Trent.
Vaizey, John Robert, Attwoods, Halstead.
Wakefield, W. H., Prizet, Kendal.
Walker, G H., Oakleigh, East Grinstead.
Watham, Joseph Street, Coalbrook, Ross.
Wilkinson, Edwin, Isle of Cinder, Leeds.
Willyams, E. Brydges, Nanskeval, St. Columb, Cornwall.
Wilson, William, Oubas Hill, Ulverston.
Woodall, Thomas, Dinham, Chepstow.

Finances.—Mr. Bramston, M.P., presented the Report, from which it appeared that the Secretary's receipts during the past three months had been examined by the Committee and by Messrs. Quilter, Ball & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on October 31 was 2146*l.* 7*s.* 7*d.* The balance sheet for the quarter ended September 30, and the statement of subscriptions and arrears, were laid upon the table; the amount of arrears then due being 821*l.*

General Newcastle Committee.—The Earl of Powis reported that the Committee had carefully investigated the general plan and appropriation of the ground, and recommended that there be two entrances to the Show-yard, in order to accommodate an influx of visitors from either railway station.

Clipping Sheep for Show.—Mr. Holland, M.P., reported the recommendation of the Committee—1. That Sheep exhibited for any of the prizes must have been really and fairly shorn bare after the 1st of April in the year of the exhibition; and that the date of such shearing form part of the certificate of entry. 2. The Committee further recommend that two Inspectors be appointed by the Council to examine the Sheep on their admission to the Show-yard, with instructions to report to the Stewards any cases in which the Sheep have not been really and fairly shorn bare.

The Council having received Memorials from breeders of Channel Islands cattle, praying that a class be granted for this breed in the Prize Sheet, directed them to be referred to the Stock Prizes Committee.

A letter on the production of Beet-root sugar, from Monsieur de Lirac, of Algiers, was referred to the Journal Committee.

The following works having been presented to the Society's Library, the Council ordered their thanks to be returned to the donors:—Proceedings of the Boston Society of Natural History; New York State Agricultural Society's Transactions, 1860-61; Ohio Agricultural Report, 1861; Patent Office Report, 1861; Institution of Civil Engineers' Minutes of Proceedings, Vols. 19 and 20; The Farmers' Almanack for 1864.

Farmers' Clubs.

Halberton: *Farm Capital.*—At the late annua meeting of this Society the Rev. Canon Girdlestone thus spoke on this subject. We have greatly abridged his address:—He would take for his text one single word. He liked short texts, because they were more easily remembered, and for this reason he frequently gave them from the pulpit. His text, then, that evening should be the word "Capital," and, when he asserted that capital was indispensable to the success of agriculture, he did not think he should find any one to deny that assertion. Many things besides money were capital. Education was capital. For himself he might say that he never had any other capital than education. He was the youngest son of a youngest son, and he had no fortune left him. But his father gave him the best education that could be obtained when he was a young man, and that was the capital on which he had traded ever since. He did not know what they thought, but he would tell them that a canonry at Bristol and the snug little village of Halberton, were not, in his opinion, very bad profit on his capital. He was all in favour of education being capital. Education was the most valuable kind of capital a farmer could have, and he would attempt to show them in what way it was so valuable. First, then, the educated farmer understood and appreciated better than the uneducated farmer, what he might call the science of agriculture. They might depend upon it, that if agriculture was to be carried on successfully, and if the farmers of Devonshire would compete with those in other counties and on the Continent, they must treat agriculture as a science; and, the more the farmer was educated, the more would he appreciate those improvements of stock, the value of which no one was better acquainted with than their vice-chairman. Education would also enable the farmer to understand the value of that sewage, which, until recently, had always been wasted, and in what way it could be profitably applied to the soil; moreover, it would teach him to more liberally employ artificial manures; he would see the great importance of a good system of drainage; and he would be alive to the necessity of getting his landlord to increase the size of his enclosures, by taking down the hedges and hedgerows, so that God's sun and air might have free access to come in and cultivate the soil. In all these things would the educated farmer possess capital which the uneducated farmer did not. Again, the educated farmer would be able more thoroughly to appreciate the use of improved agricultural implements. When the threshing machine was introduced into the country it nearly bred a riot, just as the introduction of the loom into the manufacturing districts. But now there was scarcely any part in England where the old flail was used, except for special purposes. The threshing machine had superseded the flail, and, in many places, the scythe and the sickle had been superseded by the mowing and reaping machines. In more advanced districts they saw the steam-plough taking the place of those implements which they had seen so skilfully handled in the field that day. The more educated the farmer, the more ready was he to adopt all the improved agricultural implements which were invented. Another way in which education was capital to a farmer, was this—it would let him see the fallacy of supposing there was anything antagonistic between the agricultural and manufacturing districts. There never was a greater fallacy than to suppose there was anything like antagonism existing between the two; for the manufacturing districts were nothing but a great mouth—a wide, broad lane down which the farmers could pour their oxen and sheep and their sacks of corn. No antagonism ever existed; but the agricultural population might well take example from the enterprise which the manufacturers up to the present time had evinced. There was another point on which he thought education was capital to the farmer, and that was, that the educated farmer would have more sympathy with the skilled labourer, and would seek to improve the habits and character of those he employed. And this would produce one inevitable result. He was not referring to the subject in a religious or moral sense, but in a political and social sense; and he need scarcely tell them that very much of the prosperity of a farmer depended on his servants. An educated farmer, then, would find his interest to be in employing those servants who were honest, sober, industrious, and intelligent. There was another point in which education might be regarded as capital to the farmer, and perhaps they would smile when he mentioned it, but it was not the first time he had been laughed at. An educated farmer, then, he believed, was able to choose a better wife than an uneducated one. He did not know what their experience had been in the matter of a wife, but he had a very good one, and his little farm had prospered with such a help-mate—and they may depend upon it that a good wife was no small amount of capital on a farm. The Scripture said a good wife was above rubies, and he believed it. There was one further way in which education was capital—and that was of more serious import. Education would lead a man to pray for God's blessing on all his agricultural operations. He would know that, however, great his skill or his industry, what he did would be of no avail unless God prospered it.

Torkesey: *Steam Cultivation.*—At the late annual meeting of this Club, Mr. S. Hutchinson spoke on this subject:—It had frequently been said that it was all very well for men just entering upon farms to introduce cultivation by steam, but those who had horses, implements, and everything necessary for horse cultivation were placed in a very different position. All men had entered upon their farms at some time or other, and could start afresh if they chose; they were not bound hand and foot to the present system of horse cultivation—a system by means of which less crops were obtained at a greater expense than by means of steam cultivation. It had also frequently been remarked that steam cultivation could only be introduced on large farms, and undoubtedly its introduction would be attended with greater advantage on large than on small farms and fields. But it was not an insuperable difficulty to cultivate small fields by steam if the apparatus provided was suitable. Those farmers who said their holdings were too small, and that they could not afford the cost of the apparatus, ought to encourage the manufacture and introduction of machinery appropriate to small farms, rather than machinery and tackle appropriate to large farms only. It behoved small farmers—men with small capital—to seek out the mode of applying steam cultivation, for it was a system which would go on; by its means the saving of expense was so great, and the increased production so large, that they could not do without it with Wheat at 40*s.* per quarter. Some might ask for figures showing the cost of steam cultivation, and an estimate of the expense of horse cultivation. In 1861 and 1862 he adopted steam cultivation on a farm in Bedfordshire, consisting of 546 acres of very strong land, and from a summary in his pamphlet it would be seen that the gain by increased produce the first year steam succeeded horse cultivation was 776*l.* 2*s.* 11*d.*, added to which was a balance of expense the first year in favour of steam over horse cultivation of, (the former 289*l.* 0*s.* 3*d.*, the latter 586*l.* 2*s.* 6*d.*) 297*l.* 12*s.* 2*d.*, thus showing an increased advantage by the adoption of steam of 1073*l.* 15*s.* 2*d.*, twice the value of the engine and apparatus employed. Besides this, the fee simple value of the farm was improved 1500*l.* over and above what could have been accomplished at a greater cost by horse power. That was a startling fact, but in his pamphlet they would find all the details, if they chose to look for themselves. There was a deal of difficulty in effecting the introduction of reaping machines in this county. He was agent of a property in Durham and Yorkshire which was divided into small farms of from 200 to 300 acres, and of the 12 tenants no less than 8 had reaping machines of their own. Now he did not give these tenants credit for increased sagacity over their Lincolnshire brethren; to some extent the machines were forced on them by the fact that all the excessive labour was absorbed in the coal-fields and iron-works, and, as a consequence, agricultural labourers were difficult to obtain. Still there could be no doubt these machines were of immense advantage, and that they were not more generally adopted was owing to cheap labour. So, low prices for produce would do more than any other thing to force on the introduction of steam cultivation. He thought that if landlords, tenants, and agents were to put their heads together there would be very little difficulty about it. The surplus horses on the farm could be disposed of, and the fodder which was formerly required for them would keep cattle and sheep instead, so that it must be more advantageous. The thing was so palpable that if it were well laid before landlords by their tenants all difficulty whatever would vanish. Perhaps it would ill become him to say which system was the best—Fowler's, Smith's, or Howard's,—because he had only the experience of Smith's, which he highly approved of, and one thing very much in its favour was that it was not at all expensive, for all the machinery required could be set up at an expense of 500*l.* He had really, however, no interest in the matter. If the tenantry in one parish could unite, and purchase the apparatus he had named, he could not see any great difficulty as to expense. A Steam Cultivation Company was in course of formation in London, under very high auspices, and a capital of 50,000*l.* was required before commencing operations, and when this company was fairly started, any difficulty as to capital would no longer continue. It was a very trite observation that a friend of his overheard the other day at a railway station. Two farmers were engaged in conversation about steam cultivation, when one said to the other he scarcely knew what to think of it, to which the other replied, "If we can get cultivation by steam at half the cost of horse-power, we shall have a great deal more money to spend in muck." This showed that the man had a desire not simply to have his increased returns, but to turn them to compound interest. He had made two attempts at farming, the first time being 12 years ago, and he might as well give them an outline of the results. In his first attempt he could not show a good balance sheet. He was obliged to take in hand a strong clay land farm of 900 acres, 800 of which were arable, and started with the intent of employing 46 horses. Not an acre of the land was drained, there was no road upon it and no gates, and no buildings except stables, so they might be sure he started under a disadvantage. He first purchased 30 horses at an expense of 43*l.* each, one of them being a French horse which he obtained in London. The latter was a really splendid animal, but unfortunately it introduced the glanders into his stables, and he lost no less than 15 of the horses in a very short time, nine having to be shot one morning. This, they would agree with him, was a very serious matter, and as he dare not buy new horses, the land was badly managed. He purchased a number of bullocks, but they were very slow, and altogether he employed 7000*l.* on the farm, and he left it little better than when he entered upon it, after losing 5000*l.*, sinking some permanent improvements. The next farm he had to take in hand contained 546 acres, and he asked for a capital of 4500*l.* to work it, but after he had had 3500*l.* the owner would not let him have more, for fear the results should be no better than in the first case. He had, however, this advantage: he had the privilege of keeping the rent until he found it convenient to pay it. What was the result? He paid the rent and the capital in two years. This was by the aid of steam cultivation, and when he left the farm it was worth 2000*l.* more than when he entered. When he took it every field was a perfect bed of twitch, but he left it, with the exception of one field, as clean as any garden in the country, and he could not have done this if he had had 50 horses. It must be admitted that the result was highly favourable, and showed that steam cultivation had great advantages over horse cultivation. He would have them, by all means, to use every effort and endeavour, by combining together or otherwise, to introduce steam cultivation on their farms, whether large or small.

Docking: *Condition of Labourers.*—At a meeting of this association, Lord Leicester spoke of the state of the cottages in the rural districts. The great difficulty was the large outlay and the inadequacy of the pecuniary return. But he did not recognise this question as one of mere profit and loss; he looked upon it as a matter of duty. The owners of landed property in England have acknowledged that it is a duty entailed upon them, and he believed that many have done, and were doing, as much as their means will admit. Having provided education for the boy, and a proper habitation for the man, much, very much, of the welfare and condition of the labouring man depends upon the employer. He, perhaps, had been

an employer of more labour than most men; he had personally superintended much of that labour, and with the assistance of the able men he had had as managers of the different works, a marked improvement had taken place in the men that had been under his employ. By rewarding and encouraging the industrious, by punishing the idle and shifty, by giving the men an interest in the work they were doing, and by allowing them, when possible, to earn by piece-work more than they would by day wages—under this system they got a different stamp of men to do their work than they would otherwise have. Not many years ago drunkenness was not an uncommon vice in this neighbourhood. During the last few years he could not bring to his recollection having seen more than one of his labourers the worse for drink, and during the last harvest, when he was very much amongst his men, he never heard an oath or a coarse expression used. The encouragement to skilled labour offered by societies like this is of great advantage to employers and employed. It has been stated that the labourer is degraded by receiving a premium for long service; he did not think so; at least he was satisfied that he does not feel any degradation in accepting that premium. He thought he looked upon it in the light in which it is intended to be given, as a public acknowledgment of his merit. He had a doubt whether the reward for long service should come out of the funds of the society, not on account of the recipient, but whether it is not a matter which should rest solely with the employer. Great exertions are being made to improve the condition of the labourer, and he was grateful to many of his tenants for the interest they had shown in his behalf. Schools and benefit clubs have been established by them undirected by him. Though hardly any of his tenants are connected with this union, yet he saw around him many whom he knew had made like exertions for the improvement of the labourer in their respective parishes. In conclusion, he might fairly state that the agricultural labourer was never so well cared for or so well off as he is at present.

BAKEWELL.—At a recent meeting of this Club, Sir JOSEPH PAXTON said:—I maintain that we have very good land in this part of the country, and can feed beasts as well as any part of her Majesty's dominions. I believe I may say that one of the greatest difficulties we have to contend with in this county is the great variety of land which has to be dealt with. It is quite a different thing in Norfolk and Leicester, where they have nothing to do but plough the land, sow and till according to a fixed rotation, and depend upon the seasons. Here we are dependent upon a variety of circumstances requiring great ingenuity on the part of the man who means to make a livelihood out of farming, in adopting the best system of carrying out his operations. I have been connected with the county nearly forty years, and have taken a great interest in everything connected with the rearing of animals and plants; and, as the results of my long experience, I have come to the conclusion that one of the most important things for a Derbyshire farmer to attend to is to take care that he keeps his animals warm, particularly in the winter. I concur in the advice given at a meeting here, in the early existence of this Club, by a much respected member of Parliament, who was not only a politician but a farmer, and the author of some good articles on draining. He said he got it into his head that Short-horns would do in the High Peak, and he put some out to pasture on the high lands. It was so cold in the winter that they set their backs up, and they could never be got to straighten them again. Whether a farmer in the Peak district pastures, in the high or the low lands, it is a great point to attend to the warmth of his stock. Another point is, never to break up any good Grass land if he can avoid it. I know some land in this district (I won't mention the name of person or place) which was broken up so long ago as the great revolutionary war in France, when corn was selling at fabulous prices, and it has never got round. It was broken up to get corn; but the growth of corn is quite a speculation. It cannot be grown here more than once in two years; and it is not worth cultivation in such districts as this. I know you must plough a little land in order to get straw for your farmyards; but I strongly advise you as a farmer myself, and as a man who has had the management of a very large property, and taken great interest in this matter for a long period, to break up as little land as possible in this district.

Farm Memoranda.

EAST CRAIGIE is situated about ten minutes' walk from Cramond Bridge, the farm—consisting of about 200 Scotch acres—lying on the left or western bank of the river Almond, and on its northern extremity separated from the Firth of Forth only by a belt of trees. It is naturally a remarkably attractive place, and Mr. Rintoul, the tenant, has spared no pains to add to its attractiveness by art. The pillars to the entrance gate are tastefully covered with sea-shells, while inside on the lawn we have grottos and summerhouses formed of the same material. A bee-house takes the form of a miniature fort, and is also completely decorated with shells, and bristling with imitation cannon; while the inside garden wall, which is also shelled over, resembles the outer defences of a citadel. Rockeries, composed chiefly of very interesting geological specimens, are also scattered over the lawn, and the effect of the whole, comparatively small though the scale be, is very good. Mr. Rintoul makes his own gas with a small portable apparatus manufactured by Mr. Porter, of Lincoln, the price of which was 65*l.*, and he does so at a cost much below that charged at Edinburgh.

It is now some years since the low price of corn and the high rent of land set Mr. Rintoul thinking as to how the British farmer could best hold his own against foreign competitors, whose produce was raised under much more favourable conditions—viz., in a better climate, on cheaper land, and by smaller-waged labourers. There was, he considered, very little chance of farm produce rising—it was more likely to fall—as year by year the foreigner improved, as he was sure to do, his means of communication. There was also but little probability that land would lower so long as people who had made a little money in other trades continued so enamoured of the country and of a profession of which they are wholly ignorant, and so long as landlords are protected from the consequences of that ignorance—failure—by the law of the land. What remained for the British agriculturist to do, therefore, was to cultivate the land to the highest possible state of perfection, in order that he might obtain from it the greatest amount of produce it was capable of yielding. This was the plan Mr. Rintoul adopted, and his land, a light sandy one, suited, on the whole, his practice well.

Mr. Rintoul commenced his system of double cropping by taking Turnips after early Potatos. The Potatos sown about the end of February were manured with 40 tons of farmyard dung and 5 cwts. of Peruvian guano to the Scotch acre. About the last week of June these Potatos were raised, and the land as speedily as possible got into condition for the Turnip crop, which was sown about the beginning of July, 5 cwts. of Peruvian guano per Scotch acre being given. Year after year Mr. Rintoul has continued this plan with success, eating the Turnips off with sheep, and the white crops following have generally been excellent. Several neighbours, though some were disposed to laugh at first, have wisely taken a leaf out of Mr. Rintoul's book in this matter. As an example of how little this practice exhausts the land under the liberal treatment it receives at East Craigie, we may mention that this year Mr. Rintoul took 12 qrs. of Barley per Scotch acre from a field which in the previous year had been cropped with Potatos, and Turnips fed off with sheep. All that it received, in addition to the manuring for the two preceding crops, was a top-dressing of 1 cwt. of nitrate per acre when the braird was hoed. The field was seeded at the rate of 2 bushels per Scotch acre.

This year, Mr. Rintoul determined to carry his system of double cropping a step further, to take a crop of Potatos after Potatos—that is, a second crop from the same land in one year. Like a cautious experimenter, Mr. Rintoul did not risk too much at first, and set aside only an acre or so for the trial. The first crop of Potatos, a good one, was lifted on the 22d June. The land was immediately got into order, and the second crop was planted on the 26th, four days after the first was taken off the ground, 5 cwt. of Peruvian guano being given them. The weather became excessively dry after the tubers were planted, and remained so for about six weeks. Mr. Rintoul trembled for the result of his experiment; but notwithstanding the untoward circumstances under which it was conducted, it has turned out most successful. He calculates that the yield will reach at least 25 bolls per acre, and the Potatos are of very fair size, and excellent to eat. At present they resemble new Potatos in flavour. Next year Mr. Rintoul contemplates raising at least as many Potatos as a second crop as will seed his farm. The Turnips which were this year sown after Potatos are now looking remarkably healthy, with a profusion of shaws and capital bulbs. Indeed, we have seen fields this year where the Turnips as a first and only crop did not equal in appearance those now to be seen at East Craigie.

When Mr. Rintoul entered the farm he was much annoyed with Finger-and-Toe in his Turnips, and liming heavily had no effect in preventing the disease. One year he ran somewhat short of dung, and applied instead on his Turnip field about 14 cwt. of bone and 3 cwt. of Patagonian guano to the Scotch acre, and he noticed that on this portion of the field there was no finger-and-toe. From that time forth he gave over applying farm-yard dung to the Turnip crop in the drill (whatever of that substance he gives is put on the stubble and ploughed in), and since then he has not been troubled with this provoking disease. Mr. Rintoul's opinion is that stable-yard applied in the drill is detrimental to Turnips, and that it is desirable in all cases to have the drills as low as possible. *Scottish Farmer.*

Miscellaneous.

Artificial Fertilisation of Crops.—A singular discovery has lately been announced in France. The discovery however is that of a Dutchman, M. Hooibrenk, and the results of his researches have been so well marked and valuable that he has been awarded the Cross of the Legion of Honour by the Emperor, who has directed that a scientific commission be appointed to investigate and report upon the matter. M. Hooibrenk supposes that the number of grains in an ear of corn can be increased by bringing a larger quantity of pollen into contact with the stigmata than they usually receive. He conducts his experiments as follows:—He takes a cord of from 25 to 30 yards long, and fastens to it a stiff woollen fringe of about 10 inches long; he steeps it for a short time in honey, and drags it over the fields of corn two or three times after flowering. It catches the pollen from the anthers, and applies it to the stigmata (it is, in fact, Mr. Darwin's bee process on a gigantic scale), and the result is a greatly increased crop. This method has been tried in conjunction with the old one, on a farm near Epernay, in Champagne, the property of the celebrated wine dealers, Messrs. Jaquesson. The results beneath show the relative advantages of both systems:—

	Hooibrenk's System. Kilogrammes.	Old System. Kilogrammes.
Wheat	31	21
Rye	25.5	16
Barley	24	16
Oats	17	12

It has been conjectured that the results would have been still more striking had not this season been such a favourable one. Fruit and garden vegetables have been similarly treated, and with a like success. It has been found also that an inclination of 112° of the branches of the Vine produces some effect upon the flow of the sap, and increases the fruit crop. M. Hooibrenk maintains that by his process, and without any material additional outlay, crops of fruit, vegetables, and corn can be increased in value 50 per cent.

Cattle Disease.—The statistics which irrefutably indicate that Ireland is not prospering include a statement as to the decrease in the amount of live stock. Attention has been repeatedly drawn to this subject, and Lord Carlisle spoke not long ago in Dublin of the importance of attending more to the health of Irish stock, which his Yorkshire tenantry declared to be more subject to the prevailing epizootics than British cattle. Last year I had occasion to study very carefully the subject of disease among animals in Ireland, and arrived at the conclusion that whereas the soil and climate of Ireland are the most favourable in the three kingdoms for the rearing of healthy stock, there is a constant higher mortality there among cattle, sheep, and pigs, than either in England or Scotland. The losses in Britain are enormous, and urgently call for a more careful consideration of the question of prevention of disease among stock; but we have not so constantly as in Ireland the destruction of our cattle to the extent of 8 and 10 per cent., of our sheep up to 10 and 15, and among pigs up to 10, 12, and sometimes 20 per cent. How is it possible in the face of such losses that an essentially stock-producing country should thrive? Of late years the difficulties have been enormous in the way of getting calves in Ireland for the purpose of rearing and fattening. They have been bought up in Lancashire, Yorkshire, and adjacent counties, where, born in the cowsheds of large cities, they have contracted diseases which they have transmitted down the Irish Channel, and losses on them have been sustained amounting very frequently to 50 and 60 per cent. I was most careful in tracing the spread of contagious diseases; and the best informed persons in Dublin, several of whom were engaged in the trade of calves, assured me that owing to losses by disease there had been a great demand for English calves, and these had constantly carried over to Ireland the diseases which, in Britain, are due to the importation of foreign stock and to the ever increasing traffic in diseased animals. Many of your readers will doubtless remember how the Earl of Cork visited his tenantry last year, and granted reductions in rent in consequence of the heavy losses by disease. Mr. Herbert, of Muckcross, assured me that the demands on Irish landlords were great and universal from this same cause. Among sheep and pigs the losses by disease were very heavy last year. Indeed, the rot has destroyed thousands of sheep annually, and during 1862 the parasitic lung disease appeared with great virulence. The pigs have been carried off of late years by the so-called hog cholera, and the measles have continued to reduce the value of a very heavy per centage, though not so great as formerly. It is a very easy task to calculate losses to the amount of many hundred thousand pounds sterling per annum even in a poor country like Ireland, and all this by preventible disease among stock. Surely the subject should be inquired into, and unremittingly worked out. It is important to remember that when animals are destroyed by disease, there is not only the direct loss on their money value, but they are carried off the land they should fatten. When we consider how land improves by feeding sheep in it we can easily understand that last year Irish farmers lost enormous sums of money from the sheep dying off as they did. The losses cannot be calculated, as they are not confined to the single year. Land which is imperfectly manured one year requires more another, and to obtain this money must be spent. If the difficulties in the way of prevention of disease were insuperable, and if attention to the subject necessitated enormous expenditure, there might be some excuse for the absence of all effort in that direction; but as the immediate return for any trouble or expenditure would be very large, and ever increasing, it is truly surprising that

some steps are not taken by Government with a view somewhat to check the ravages by cattle, sheep, and swine plagues of home and of foreign origin in a country so poor as Ireland. If attention be paid to the health of stock, Mr. Donnelly's returns will soon change their aspect. If, on the other hand, we continue as for the past, Ireland's decline can only be accelerated. *John Gamgee, Principal of the New Veterinary College, Edinburgh. London, Oct.* 23. (*Times.*)

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

At 9 A.M., Railway Time.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Reading of Dry Bulb.	Thermometer. Reading of Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in 24 hours previous on the Ground.
	Oct.	Inches.	°	°				°	°	°	°	Inches.
Friday ..	30	29.36	50	50	S.	4	6	54	40	55	35	0.11
Saturday ..	31	29.40	50	41	W.	5	0	52	39	57	32	1.04
Sunday ..	Nov. 1	29.55	44	41	S.	2	0	50	37	58	30	..
Monday ..	2	28.89	55	43	S.W.	0	10	48	38	55	38	0.67
Tuesday ..	3	29.78	46	44	S.W.	2	10	48	39	57	31	0.10
Wednesday	4	29.92	57	55	S.W.	3	10	56	44	57	43	0.16
Thursday..	5	30.17	55	54	W.	1	10	53	52	63	49	..

Notices to Correspondents.

BUTTER FROM CREAM: *Violet* has seen a statement in the report of the late Thornbury Agricultural meeting that Mr. P. W. S. Miles has obtained 26 oz. of butter from one quart of cream. She would be glad to know the common experience of dairywomen on this point. The late Mr. Horsfall obtained 25 oz. per quart by the use of Rape-cake in cow-feeding and by other management, resulting in an extremely dense cream. In general 21 or 22 pints of milk will yield 2 to 2 and 1-5th pints of cream, and for that 1 lb. of butter, which is quite in accordance with "Violet's" own experience of 15 oz. of butter from one quart of cream. Morton's "Hand-book of Dairy Husbandry" (Longmans) contains a lot of statistics on this subject.

GRASS LANDS: *Cross.* If the land is as it ought to be ploughed and cleaned, then you had better fold sheep over it, and in the spring break it up with the scarifier, and sow with the Barley seed the following mixture, which is adapted to a good loamy soil:—

Aira cæspitosa lutescens	1 lb.
Alopecurus pratensis	2
Arrhenatherum avenaceum	1½
Avena flavescens	1
Dactylis glomerata	2
Festuca duriuscula	3
F. heterophylla	1
F. loliacea	1
F. pratensis	2
Lolium italicum	3
L. perenne	5
Phleum pratense	1½
Poa nemoralis	4
P. trivialis	1½
Trifolium pratense	4
T. repens	5

In all nearly 40 lb. per acre.

PLOT OF LAND: *Freehold.* Your field is "out of condition, a sandy soil now in Oats, and one-half next year to be green crop;" the other half might be put to some pulse crop. If you can get it clean before winter, you might apply guano as manure, and sow Peas in March next. It would then easily be brought under alternate husbandry.

SALT AND LIME: *T D.* We would not put on more than 30 bushels per acre of a mixture of 1 to 3 of this substance. It might very well be mixed with the damp sawdust you allude to.

SMALL HOMESTEADS: *Architect.* You will find some plans in some of the earlier volumes of the "Edinburgh Quarterly Journal of Agriculture."

SOW: *Woodford.* The destruction of her young, which the sow will sometimes eat, is a phenomenon connected with temper rather than with food. She has been excited or disturbed; it is not owing to any deficiency of food.

WORMS IN HORSES: *Agricola.* Give the following, every evening for six days, in a mash:—Tartarised antimony, 2 scruples; submuriate of mercury, 1½ do.; sulphate of iron, 2 do; after which, 2 pints of Linseed oil, or apply to your veterinary surgeon.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified in the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6*l.* per Ton, or 8*s.* per cwt.; and to prevent disappointment orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts. Sacks, 2*s.* each.

Seed Potatoes.

H. AND F. SHARPE are now prepared to make special offers to the Trade of the following varieties of SEED POTATOES, which have been harvested in fine condition, and free from disease. They comprise all the sorts worthy of cultivation, and have been grown with much care from the finest selected stocks. As the yield this season is very fine, the prices will be moderately low, and may be had on application.

Improved Ash-leaved Kidney	Early Fox's Seedling
Jackson's do. do.	Early Round Frame
Walnut-leaved do.	Early Martin's Globe
MYATT'S PROLIFIC do.	Early Golden Globe
(very productive)	Early King (for forcing)
Fluke Kidney	Early British Queen
Lapstone do.	Early Cockney
EARLY DALMAHOY	Early Forty-fold
Early Oxford	Early Snowball

Seed Growing Establishment, Wisbech.

THE EARLIEST PEA KNOWN is CARPENTER'S EXPRESS (pods larger than any other early Pea).

Among *numerous* Testimonials the following has been received:—

From Mr. JONES, *Gardener to Lord Leconfield, Petworth, Sussex. June* 3, 1863.

"I beg to say I have found Carpenter's Express Pea to answer well as an early one; it was sown on the 20th of November, on a south border, and I gathered the first dish on the 7th of May. I had Daniel O'Rourke and your Pea side by side in November, 1861, and gathered First from Carpenter's Express in May, 1862, which led me to grow it as my earliest this year."

New Seed to be had only of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Establishment, 96, St. James's Street, Brighton. Price 2*s.* 6*d.* per quart.

Early Orders are solicited, which will be executed strictly in priority.

FOR SALE, 200 Large Roots of EARLY RHUBARB, fit for forcing, at 5*l.* Several thousand 4-year old ASPARAGUS ROOTS, at 5*s.* per 100, or 2*l.* per 1000. Some hundred SEAKALE, at 5*s.* per 100.

Also TREES and SHRUBS, including Planes, Chesnuts, Birch, Oaks, Walnuts, Poplars, Acacias, Laburnums, and several small Limes; some fine Aucubas, Laurels, Privets, &c., to be disposed of a bargain, the ground to be cleared by Christmas

Apply to A. LAIDLAW, 17, Church Street, Stoke Newington.

ORCHARD-HOUSE TREES.

	Each.—*s. d.*		Each.—*s. d.*
Apricots, fine pyramids and bushes	3*s.* 6*d* to 5 0	Peaches, pyramids and bushes	3*s* 6*d.*, 5*s.*, & 7 6
,, standards	7 6	,, half standards	5*s.* to 7 6
Apples, pyramids ..	2 6	,, standards	7 6
Cherries, pyramids and bushes	3 6	Pears, pyramids and bushes	3 6
Figs ..	3*s.* 6*d.* to 5 0	Plums, pyramids and bushes	3 6
Mulberries, bushes ..	5 6	Vines from eyes, fine	3*s.* 6*d.* to 7 6
Nectarines, pyramids and bushes	3*s.* 6*d.* to 5 0		

The above are in pots and all full of blossom buds. The stock consists of many thousands of trees, and is the largest known. To facilitate package and lessen the cost of carriage, the trees are taken from their pots and packed with their balls of earth intact in crates and baskets. Carriage paid to London.

THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

Fruit Trees.

JOHN CRANSTON offers superior, healthy grown plants of all the best varieties of FRUIT TREES, DESCRIPTIVE CATALOGUES of which will be forwarded on application.

	Each.—*s. d.*
APPLES.—Very fine Dwarf-trained	2 6
,, Pyramids	2 6
,, Standards	2*s.* to 2 6
APRICOTS.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
CHERRIES.—Dwarf-trained	3*s.* 6*d.* to 4 6
,, Pyramids	2*s.* 6*d.* to 3 6
GRAPE VINES.—Standards	.. .. 2 6
,, Very fine and well-ripened	3*s.* 6*d.* to 5 0
NECTARINES.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
PEACHES.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
PEARS.—Dwarf-trained..	.. .. 3 6
,, Pyramids	2*s.* 6*d.* to 3 6
,, Standards	.. .. 2 6
PLUMS.—Dwarf-trained	3*s.* 6*d.* to 4 6
,, Standards	.. .. 2 6
WALNUTS.—Standards	.. .. 2 6
,, Extra strong	3*s.* 6*d.* to 5 0

GOOSEBERRIES, CURRANTS, FIGS, RASPBERRIES, STRAWBERRIES, &c.

PEACHES, NECTARINES, and APRICOTS, established in Pots for Orchard House Culture, 5*s.* each.

ASPARAGUS, two years .. .. .. 2*s.* 6*d.* per 100

SEA KALE, ,, ... 8*s.* per 100

Nurseries, King's Acre, near Hereford.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, Waterloo Place, Edinburgh, respectfully invite the attention of gentlemen who are about to be engaged in planting, to their extensive stock of FOREST and ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, &c, all of which are in fine condition for removing at present, the wood having been thoroughly matured by the unusually favourable summer.

PRICED CATALOGUES and samples can be had free on application.

SEPARATE CATALOGUES can also be had of Rhododendrons and Conifers, Stove and Greenhouse Plants, and Ferns, Herbaceous and Alpine Plants, New Pansies, Florists' Flowers, Dutch Flower Roots, Gladiolus, Vegetable and Flower Seeds, Agricultural Seeds, &c.

WHOLESALE NURSERY LIST to the Trade on application.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c.; and a most extensive general Nursery Stock.

For Prices and Conditions of Free Delivery see Catalogue, which will be forwarded on application.

New Pear, British Queen (Ingram).

CHARLES TURNER has much pleasure in offering this beautiful Pear to the Public, the merits of which are known to many, but the following testimony to its excellence will be conclusive. The following description is supplied by Mr. Powell, of the Royal Gardens, Frogmore:—

"This Queen of Pears was raised by Mr. Ingram, Gardener to Her Majesty at Frogmore, and considered by all who have had the opportunity of testing its merits, to be the best Pear ever raised. The late Prince Consort was so pleased with the fruit, that he characterised it as the best Pear he had ever tasted. It received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society in 1861, and since maintained its character by taking the First Prize at the great Autumn Show of the above Society in 1862. The fruit is large, pyramidal in form, skin smooth and glossy, of a fine golden yellow, partly spread with cinnamon russet, and often a tinge of lively crimson on the sunny side; flesh yellowish white, very fine grained, with an abundance of juice, which is saccharine and rich, with a fine aromatic flavour; in beauty and excellence it has no equal; ripe in October and November.'

Extracts from the *Gardeners' Chronicle* report of the Royal Horticultural Society's Great Autumn Fruit Show, October 8, 9, and 10, 1862 —

"Of Pears shown in a ripe state the best came from Mr. Ingram, Frogmore, who showed a beautiful dish of British Queen, a variety of which we have already spoken in favourable terms."—*Gardeners' Chronicle*, Oct. 11, 1862.

"Of novelties among the Pears of this class (Dessert) we noted very handsome fruit of the British Queen, from Mr. Ingram, Royal Gardens, Frogmore."—*Gardeners' Chronicle*, October 18, 1862.

"Hogg's Gardeners' Year Book for 1863" has a drawing with the following description:—

"BRITISH QUEEN.—This beautiful fruit is well worthy of the name it bears; the fruit is large and of a pyramidal shape, frequently having the stalk inserted obliquely; but this is not its constant character, and the outline is undulating and bossed. The skin is smooth, and almost entirely covered with a thin coat of cinnamon-coloured russet, but on the side next the sun it has a blush of bright rosy crimson; flesh yellowish white, very fine grained, buttery and melting, rich, sugary, and having the flavour of Marie Louise, coupled with that peculiar briskness which is found in the Windsor. It ripens the beginning of October."

"The Journal of Horticulture," October 15, 1861, says:—

"A seedling Pear was received from Mr. Ingram, Gardener to Her Majesty at Frogmore. We believe it was raised from seed of the Seckel, crossed with Marie Louise; it is called British Queen, and is most appropriately and worthily named. The fruit is large and pyramidal, of a fine golden yellow colour on the shaded side, and covered with a crust of fine cinnamon-coloured russet next the sun, and with a blush of rosy crimson. The flesh is firm and not crisp, very juicy and melting, and with a rich brisk flavour and a fine aroma. This was awarded a First-class Certificate."

The same authority, writing of the Great Fruit Exhibition at Kensington, October 14, 1862, adds:—

"The Flemish Pears, on the whole, were more sleek-looking than ours, but it is a question if any of them were superior to an English Seedling from Mr. Ingram, of Frogmore, named British Queen, which was one of the best looking Pears in the whole Exhibition for a first-class dessert. It is all very well to have Algerian Goliath looking Pears and Apples at a Lord Mayor's dinner, but for an aristocratic dinner that is not the fashion; but the moderate in size and the best looking, with the proper names sent up with them, and the British Queen Pear is a model for such a dinner."

Lastly, it is figured in "The Florist" for June, 1863, with the following remarks:—

"It always affords us infinite pleasure to be able to announce the appearance of a new British fruit of real merit. We have been so far behind our Continental neighbours in raising new varieties to any extent, that it is gratifying when we hear of any new success in this branch of horticulture. Mr. Ingram, Gardener to Her Majesty at Frogmore, is one of the few professional gardeners who have directed their attention to the hybridising and raising of Seedling fruits; the subject which we will bring under the notice of our readers is one of his raising. The fruit is large and pyramidal, somewhat undulating in its outline, and very handsome in its appearance; the skin is smooth and shining, of a fine golden yellow colour, freckled with patches of thin delicate cinnamon-coloured russet, and with sometimes a blush of lively crimson on the side which has been much exposed to the sun; the eye is small, with short narrow segments, and set in a considerable hollow; stalk about an inch long, stout and sometimes obliquely inserted, but generally straight with the axis of the fruit, and inserted in a round narrow cavity; flesh yellowish white, very fine grained and buttery, with an abundance of juice, which is rich, sugary, and piquant, and with a fine aroma. A very excellent dessert Pear, ripe in October. It received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society, and the stock is, we believe, in the possession of Mr. Turner, of Slough."

Plants, 10*s.* 6*d.* and 15*s.* Dwarf-trained, 20*s.*

A few Fruiting Pyramids, 42*s.*

A Coloured Drawing may be had post free for 12 postage stamps.

A CATALOGUE of ROSES, CONIFERÆ, FRUIT TREES, &c., is now ready.

GEO. DAVIES begs to offer to the Trade the undernamed:—

ARAUCARIA IMBRICATA, from pans,	2 to 4 inches, 20*s.* per 100; 4 to 5 inches, 25*s.* per 100.
ACROPHYLLUM VENOSUM,	3 to 6 inches, 36*s.* per dozen.
GENETYLLIS TULIPIFERA,	6 to 12 inches, 36*s.* per dozen.
,, HOOKERII,	6 to 12 inches, 36*s.* per dozen.
RHODODENDRON RETUSUM,	6 to 12 inches, 30*s.* per doz.
,, ,,	12 to 15 inches, bushy, 36*s.* per dozen.

Reference or Remittance from unknown Correspondents.

Green Lane Nurseries, Old Swan, Liverpool.

SPRING EXHIBITIONS.—The following will be found worth the attention of cultivators, as the finest kinds for competition, also for winter and spring display in the Conservatory. The quality of all is first-class.

PRIMULA SINENSIS, with fimbriated flowers.—ALBA, pure white, 6*d.* and 8*d.*; RUBRA, rich crimson, 6*d.* and 8*d.*; PICTA, mauve on white, 1*s.* CARMINATA RUBRA, most distinct and beautiful new colour, 1*s.* 6*d.* and 2*s.* 6*d.* FILICIFOLIA ALBA, 2*s.* 6*d.*, and FILICIFOLIA CRIMSON, 2*s.* 6*d.* to 3*s.* 6*d.*, the beautiful white and crimson Fern-leaved.

PRIMULA SINENSIS, with double flowers.—NIVEA PLENA, 2*s.* 6*d.*; ALBA PLENA, 1*s.* and 1*s.* 6*d.*; ROSEA PLENA, 2*s.* 6*d.*; RUBELLA PLENA, 3*s.* 6*d.*; ALBA PLENA FIMBRIATA, blush white, 1*s.* 6*d.*; ATROROSEA FIMBRIATA PLENA, rich crimson, 7*s.* 6*d.* to 15*s.*

CALCEOLARIA.—This stock is carefully hybridised, 6*d.* and 9*d.* each.

CINERARIA.—Best sorts, by name, 6*d.*, 9*d.*, and 1*s.* each.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

MESSRS. BROWN AND CO. offer the following Selection of CHOICE PLANTS, which they will forward to any part of the kingdom :—

	s.	d.
25 AZALEAS, new hardy Belgian varieties, one of a sort, on their own roots, by name	20	0
25 AZALEAS, hardy American varieties, do. do ..	15	0
12 Hardy RHODODENDRONS, one of a sort, including Scarlet, White, and Rose colour	12	0
Hardy HEATHS, LEDUMS, and KALMIAS, per doz.	6	0
ROSES, best sorts, Standards and Half Standards, per dozen, 12s. to	15	0
CLIMBING ROSES, of best sorts .. .. per dozen	6	0
PILLAR and TRELLIS ROSES .. .. ,,	9	0
DWARF ROSES for beds or forcing, including Bourbons, Teas, and Perpetuals .. per dozen	12	0

Choice Hardy PINUS and other CONIFERÆ. Cheap. Price List by post.

Greenhouse AZALEAS, fine varieties, per dozen, 10s. to 15 0
CAMELLIAS, best double varieties .. per dozen 28 0

CHOICE FRUIT TREES.

Fine Standard and Dwarf-trained Peaches, Nectarines, Apricots, Cherries, Apples, Plums, and Pears, 2s. 6d. each, or 24s. per dozen.

Dwarf Plants of all the above kinds, grown especially for pot culture in Orchard Houses, &c., 18s. per dozen.

Filberts, Gooseberries, Currants, and Raspberries, p. doz., 3s.

American Nurseries, near Farnham, Surrey.—Nov. 7.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his three new PRICE LISTS, No. 97, 98, and 99, containing the Stove, Greenhouse, and Hardy Plants (212 pages 12mo).

Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

W. VIRGO AND SON have a large Stock of the following to offer for Sale at very moderate prices :—

Apples, standard
Ditto, espalier
Beech (Common), 3, 4, to 6 ft.
Berberis aquifolia, 12 to 18 in.
Ditto dulcis, 1, 2, to 3 ft.
Briar (Sweet), 2 to 3 ft.
Cherries, espalier
Ditto, standard
Cotoneaster mycrophylla, 9 to 12 in.
Hazel, 1 year seedling
Holly, Green, 9 to 12 in.
Laburnum, 6 to 8 ft.
Laurel, Common, 2 to 3 ft.
Ditto, Portugal, 1 to 2 ft.
Mountain Ash, 6 to 9 ft.
Oak, English, 3, 4, to 5 ft.
Ditto, 2 years seedling
Ditto, Turkey, 3 to 4 ft.
Poplars of various kinds, 4 to 6 ft.
Privet, 2 to 3 ft.
Sycamore, 3, 4, 5, to 6 ft.

All the above are strong, healthy, and well rooted.

Samples with prices can be had on application at the Nursery, Woking, near Guildford, Surrey.

WILLIAM DILLISTONE begs to offer the following in Strong PLANTS for stock. He has bloomed nearly every variety that has been sent out this year, and has reserved only such in stock that are superior to older varieties, and having an immense stock, he begs to offer them at the undermentioned low prices :—

	Per doz.—s.	d.
New Fuchsias, choice selections	6	0
,, Verbenas, ditto ..	4	0
,, Antirrhinums, ditto .	4	0
,, Petunias, ditto ..	4	0
,, Pentstemons	6	0
,, Lobelias, including Paxtoniana, and five others, ditto ..	3	0
,, Tropæolums, including Ball of Fire, ditto	6	0
,, Veronicas, ditto ..	9	0
,, Gazanias, ditto ..	9	0
,, Lantanas, ditto ..	9	0
,, Chrysanthemums, do.	6	0
,, Heliotropes, ditto ..	6	0
,, Hollyhocks, ditto ..	18	0
,, Mimulus (maculosus), Bull's, ditto ..	4	0
,, Do., Henderson's, do.	4	0
,, Pansy, Good Gracious	9	0

	Per doz.—s.	d.
New Ageratum, Prince Alfred	6	0
,, Pampas Grass, Gynerium argenteum roseum	9	0
,, Geraniums, choice selection, from ..	9	0
,, Roses, ditto 24s. to	36	0
,, Lonicera aureo-reticulata .. 6s., 9s., and	12	0
,, Echeveria metallica each	2	6
,, Solanum capsicastrum fol. variegatum each	1s. 9	0
,, Perpetual Flowering Pink per pair, 1s. 6d.	12	0
,, Phlox, Mrs. Mitchell each	1	0
,, Strawberry, the Tietjen	4	0
,, Strawberry, Princess of Wales	12	0

Also the following, in Strong Plants :—

	Per doz.—s.	d.
Hepaticas, sorts ..	3s. to 4	0
Primroses	4s. to 9	0
Polyanthus, choice mixed	3	0
Auriculas, border var. ..	3	0
Lilies of the Valley ..	2	0
Lavender	3	0
Pinks, finest named ..	3	6
Rockets, Double White and Yellow	4	0
Violets, Double White, Purple and Russian ..	3	0
Œnothera missouriensis	4	0
,, taraxacifolia	4	0
Œnothera splendens ..	4	0
Dielytra spectabilis ..	4	0
Phlox, fine named ..	4	0
Rock Cistus, in 20 vars., named, the collection	6	0
Hollyhocks, fine named	6	0
,, seedlings, from ..	3	0
Centaurea candidissima	9	0
Gnaphalium lanatum ..	4	0
Pansies, fine named ..	3	0
Roses, fine named, on Manetti	9s. to 12	0

100 CHOICE HARDY HERBACEOUS PLANTS, in 50 varieties, carefully named and packed for 20s. Carriage paid.

A DESCRIPTIVE CATALOGUE of the New Plants free for one stamp.

Carriage of Parcels amounting to 20s. paid to London or any Station within 50 miles. Post Office Orders payable on Castle Hedingham, to

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

SPECIAL OFFER of SHRUBS and TREES.—The Subscriber having an abundant Stock of the following, he is prepared to offer same much below the usual rates. The undernoted is well worthy the attention of the Trade and parties about to plant, the Subscriber's Nursery having been for the past 50 years famed for producing particularly fine rooted plants. Prices per 100 and 1000 on application.

AUCUBA JAPONICA, 12-inch; APPLE STOCKS, 1-year do. 2 feet, Transplanted; ARBORVITÆ, AMERICAN, 1-year laid, 6 to 12-inch; AZALEA PONTICA, 12-inch; BARBERRY, COMMON, 12-inch; BIRD CHERRY, 2 to 3 feet; BIRCH, Transplanted, very scarce, 1½ feet; RED CEDARS, 9-inch; CUPRESSUS MACNABIANA, 2 feet; CUPRESSUS THUJOIDES, 6-inch; EUGENIA UGNI; 3-year SEEDLING SILVER FIR; 2-year SEEDLING HAZEL; GREEN HOLLIES; 1-foot LAUREL, COMMON; 1 to 3-feet PEAR STOCKS; 1-year SEEDLING, and 2½-feet Transplanted PINUS CEMBRA, 3-feet, very fine specimens; PINUS AUSTRIACA, 1 to 2-feet; QUINCE STOCKS, 2 feet, very fine stems. SPURGE LAUREL, 1 to 2 feet.

ROBERT T. MACKINTOSH, Nurseryman and Seedsman, 12, Melbourne Place, George IVth Bridge, Edinburgh. Nursery, Leith Walk.

REIGATE SILVER SAND.—Best quality, 7s. 6d. per ton; packed, 16s. per ton; ditto 5s. 4 cwt.; ditto Clarified fine or sharp, 2s. 6d. cwt., put on the Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

N.B. Loaded Trucks can be sent on all the principal Railways.

W. SHORT, Reigate, Surrey.

TO NOBLEMEN, GENTLEMEN, AND OTHERS

ENGAGED IN PLANTING.

JOHN WATERER

Respectfully invites the attention of Gentlemen engaged in Planting to the under-named SELECTIONS of PLANTS, which he has no hesitation in saying are not to be surpassed by any Establishment in the Trade. They are all handsome, symmetrical Plants; have never been injured by pot-culture, and from frequency of removal are in an excellent state for transplanting without any risk of failure. J. WATERER being in possession of such an immense Stock is determined to treat on the most liberal terms, and is fully convinced that Purchasers, by paying a visit and selecting their own specimens, would find themselves amply repaid by the journey, which is easily accomplished by the South-Western Railway (Reading Branch) to Sunningdale Station, which is near the Nursery.

RHODODENDRONS, STANDARDS, of all the leading choice Scarlet, Crimson, Rose, and other varieties, handsomely grown, straight stems, 3 to 4 and 5 feet, consisting of such kinds as Concessum, Congestum roseum, Lady Eleanor Cathcart, Blandyanum, John Waterer, Alfrida, Lefevreanum, and such others as are annually displayed by us at the Exhibition of Rhododendrons in the Royal Botanic Gardens, Regent's Park. Price 31s. 6d. to 63s. and 105s. each.

RHODODENDRONS, HALF STANDARD, of the most approved kinds, 2 to 3½ feet in stems, and symmetrical heads, 21s. to 42s. each.

RHODODENDRONS.—Hardy Scarlet, Crimson, Rose, White, and other choice kinds for superior clumps or borders, fine well grown plants, 1½ to 2 and 3 feet, 42s. per dozen, or 12l. 10s. to 15l. per 100. Large bushy plants, 3 to 4 and 5 feet, at a corresponding increase in price.

RHODODENDRONS.—Immense quantities of fine Seedling varieties, in large bushy plants, 1½ to 2 or 3 feet, 30s. to 42s. per dozen. These varieties would be found very serviceable if introduced into clumps of the more choice kinds. They are of all colours, from bright rose to pink and white, and carry handsome hardy foliage.

RHODODENDRONS, Dwarf-growing kinds.—We cultivate about eight varieties, some of which are delightfully scented in their foliage and flowers. From their close-growing habits they make very excellent clumps for the decoration of winter beds, or as edging to masses of the stronger growing kinds. Strong plants, 1 to 1½ foot, 15s. per dozen, or 4l. 10s. per 100

RHODODENDRON CATAWBIENSE and HYBRID CATAWBIENSE, 9 to 12 to 15 inches. Good bushy plants, 21s. per 100, or 8l. 8s. per 1000. These are recommended to plant with Ponticum. Many very fine varieties would be flowered amongst them. Their colours are of various shades, from lilac to rose and white, and carry excellent foliage.

RHODODENDRON PONTICUM.—A large quantity, 1 to 1½ foot, 25s. to 30s. per 100; 1½ to 2 feet, 42s. to 63s. per 100. This kind is recommended to the attention of planters of game covers, as it will thrive in any soil or situation, and is never injured in the most severe weather by hares or rabbits.

HARDY AZALEAS, for extensive planting, 50s. to 75s. per 100. Colours: Scarlet, Orange, Pink, Yellow, &c.

HARDY AZALEAS, of the most superior Belgian and other varieties, 24s. per dozen, or 7l. 10s. per 100.

KALMIA LATIFOLIA.—Fine bushy plants, 1½ to 2 feet, 7l. 10s. per 100.

ANDROMEDA FLORIBUNDA, fine bushy plants :—
1 to 1½ foot, 24s. per dozen
1½ to 2 feet, 42s. to 63s. per dozen

Collection of HARDY HEATHS, in good plants, 30s. per 100.

PINUS NORDMANNIANA.—Of this justly admired Fir we hold by far the largest stock of really handsome Seedling plants to be found in the Trade, and can offer them strong and well shaped, as follows :—
1 foot, 7s. 6d. each, 72s. per dozen
1 to 1½ foot, 10s. 6d. each, 5l. 5s. per dozen
1½ to 2 feet, 21s. to 31s. 6d. each
2 to 3 feet, 42s. each
3 to 4 feet, 63s. to 84s. each
4 to 5 feet, 105s. each
The three last mentioned sizes are magnificent plants.

PINUS NOBILIS, all Seedlings—
1-year's Seedlings, strong, 12s. per dozen, or 84s. per 100
About 1 foot, 10s. 6d. each, 84s. per dozen
1 to 1½ foot, 21s. each
2 to 3 feet, very fine, 42s. to 63s. each

PINUS LASIOCARPA, Seedlings—
1 to 1½ foot, 10s. 6d. each
1½ to 2 feet, 21s. to 31s. 6d. each
2 to 3 and 4 feet, 42s. to 105s. each

PINUS AMABILIS, Seedlings—
1 foot, 7s. 6d. each; 70s. per dozen
1 to 1½ feet, 10s. 6d. to 21s. each

PINUS GRANDIS (true of Douglas)—
1 foot, 7s. 6d. each
1½ to 2 feet, 10s. 6d. to 31s. 6d. each

PINUS DOUGLASII—
1½ to 2 feet, 24s. per dozen, 7l. 10s. per 100
2 to 3 feet, 30s. per dozen, 10l. per 100
3 to 4 feet, 36s. per dozen, 12l. 10s. per 100
Larger, 4 to 5, 6, and 8 feet

PINUS PINSAPO—
1½ feet, 42s. per dozen
1½ to 2 feet, 7s. 6d. to 10s. 6d. each
2 to 3 and 4 to 5 feet, 21s. to 63s. each.

PINUS INSIGNIS—
2 to 3 feet, 10l. per 100
3 to 4 feet, 3s. 6d. each, 30s. per dozen
4 to 5 feet, 5s. each, 42s. per dozen
5 to 7 feet, 7s. 6d. to 10s. 6d. each

PINUS LAMBERTIANA—
2 to 3 feet, 5s. each, 42s. per dozen
3 to 4 feet, 7s. 6d. each, 60s. per dozen
4 to 5 and 6 feet, 10s 6d. to 21s. each

PINUS EXCELSA—
3 to 4 feet, 30s. per dozen | 4 to 5 feet, 3s. 6d. each

PINUS ORIENTALIS—
2 to 3 feet, 5s. to 10s. 6d. each | 3 to 4 feet, 10s. 6d. to 21s. each

ARAUCARIA IMBRICATA—
2 to 3 feet, 5s. to 7s. 6d. each | 4 to 5 feet, 31s. 6d. to 42s. each
3 to 4 feet, 10s. 6d. to 21s. each | 5 to 6 to 10 feet, 63s. to 210s. ,,

THUJOPSIS BOREALIS—
1½ to 2 feet, 18s. per dozen, 6l. 10s. per 100
2 to 3 feet, 30s. per dozen, 11l. 10s. per 100
3 to 4 feet, 42s. to 60s. per dozen
4 to 5 feet, 7s. 6d. to 10s. 6d. each
Of this most hardy and desirable plant we possess a stock far greater than can be met with elsewhere, and not a grafted plant amongst them.

THUJA AUREA—
2 feet, 5s. each, 42s. per dozen, or 15l. per 100
2 to 3 feet, 7s. 6d. each, 60s. per dozen, 20l. per 100
3 to 4 and 5 feet, 10s. 6d, to 21s. to 63s. each

THUJA GIGANTEA—
2 to 3 feet, 5s. each, 42s. per dozen, 15l. per 100
3 to 4 feet, 7s. 6d. each, 70s. per dozen
4 to 5 feet, 10s. 6d. to 21s. each
5 to 6 feet, 31s. 6d. to 42s. each
This is a plant to which we beg to direct especial attention, and from its extreme hardiness and bright green foliage must ultimately become very generally planted. It is admirably adapted to form Avenues. Intending planters would find our stock of this fine plant exceeding by far that of any establishment in England. None are grafted.

THUJA OCCIDENTALIS—
3 to 4 and 5 feet, 30s to 50s. per 100
This forms a highly ornamental hedge, far preferable to Yew, from its faster growth. The hedges in our grounds, 8 to 10 feet high and 2 feet thick, are formed of it.

CUPRESSUS THUJOIDES VARIEGATA—
2½ to 3 feet, 42s. per dozen, 15l. per 100
3 to 4 feet, 5s. to 7s. 6d. each

CUPRESSUS LAWSONIANA—
3 to 4 feet, 3s. 6d. each | 4 to 5 feet, 5s. each

CUPRESSUS LAWSONIANA VARIEGATA, 21s. each
A beautifully variegated form of Lawsoniana, of which we hold the entire stock of saleable plants.

CEDRUS DEODARA—
3 to 4 feet, 3s. 6d. each, 15l. per 100
4 to 5 and 6 to 7 feet, 5s. to 10s. 6d. to 21s. each
We hold a large stock of this Cedar, and would recommend such 4 to 5 and 6 feet as the most preferable size to plant. Large handsome specimens could also be furnished from 10 to 15 feet, and which would be sold at a very cheap rate.

CEDARS of LEBANON—
4 to 5 feet, 5s. each, 42s. per dozen

CEDRUS AFRICANA—
4 to 5 feet, 5s. each, 42s. per dozen

JUNIPERUS HIBERNICA—
3 to 4 feet, 24s. per dozen, 8l. 8s. per 100
4 to 5 feet, 30s. per dozen, 10l. per 100
5 to 6 feet, 3s. 6d. to 7s 6d each
6 to 10 feet, 10s. 6d. to 42s. each

WELLINGTONIA GIGANTEA—
1 to 1½ feet, 18s. to 30s. per dozen
1½ to 2 feet, 3s. 6d. to 5s. each, 50s. per dozen
2 to 3 feet, 7s. 6d. to 21s. each
3 to 4 feet, 21s. to 42s. each
4 to 5 feet, 63s. to 105s. each

IRISH YEW—
4 to 5 feet, 3s. 6d. each .. — 5 to 6 feet, 5s. to 7s. 6d. each
6 to 7 and 8 to 10 feet, 10s. 6d. to 42s. each
Our stock of this Yew have all been trimmed to one single leader, and are very close in their form.

GOLD and SILVER YEWS, grafted on the stems of Irish Yews, about 4 feet from the ground, the variegated portion being from 1 to 1½ feet in length, 10s. 6d. to 21s. to 42s. each

STANDARD PORTUGAL LAURELS, 3 to 4 and 5 feet stems, very straight stems and handsome close-grown heads, 10s. 6d. to 21s. each

STANDARD WEEPING HOLLIES, 6 to 8 and 10 feet stems, 21s. to 105s. each

HOLLIES, GREEN, 1½ to 2 and 3 to 4 feet, 30s. to 50s. per 100, 3 to 4 and 5 to 6 feet, large quantities in fine condition, 9d. to 5s. each

HOLLIES, GOLD and SILVER, in all the approved varieties, by the hundred or thousand, 2 to 3 and 4 to 5 and 6 feet

PORTUGAL LAURELS—
Very fine, 2 to 3 and 4 to 5 feet, 3l. to 7l. 10s. per 100

We have likewise immense quantities of the leading kinds of EVERGREENS of all sizes, such as Yews, Box, Bays, Aucubas, Arbutus, Phillyreas, Common and Portugal Laurels, &c., as well as fine strong transplanted FOREST TREES, 2 to 3 and 4 feet, consisting of Ash, Beech, Alder, Spanish Chestnut, Hazel, Withy, Larch, Spruce, Pinus austriaca, &c.

CATALOGUES describing the colours of all the RHODODENDRONS worthy of cultivation, with a list of CONIFEROUS PLANTS, with heights and prices, forwarded to all applicants.

☞ Purchasers of large quantities of Goods are informed that the great expense incurred by Package is now greatly diminished, as we can forward from Sunningdale, in through trucks without change, to all Stations on the Great Northern, North-Western, Eastern Counties, and Great Western (narrow gauge) Railways; also by South-Eastern and Brighton Lines by way of Blackwater.

THE AMERICAN NURSERY, BAGSHOT, SURREY.

Near Sunningdale Station, South-Western Railway, and Blackwater Station, South-Eastern Railway, where excellent Conveyances await all Trains.

KNAP HILL NURSERY, WOKING, SURREY.

WATERER & GODFREY

INVITE ATTENTION TO THE FOLLOWING PLANTS :—

ARAUCARIA IMBRICATA, 1½ foot, 30*s.* per doz.; or 10*l.* per 100.
2 feet, 42*s.* per doz. ; 3 feet, 60*s.* per doz.
4 feet, 10*s.* 6*d.* to 21*s.* each ; 5 to 7 feet, 31*s.* 6*d.* to 63*s.* each ; 7 to 8 feet, 84*s.* to 105*s.* each. A large number of very fine specimens, 8, 10, and 12 feet high. Prices on application.

CEDRUS DEODARA, every plant moved last February, and as handsome as can well be, 2½ to 3 feet, 30*s.* per doz ; 10*l.* per 100.
3 to 4 feet, 30*s.* to 42*s.* per doz. ; 12*l.* 10*s.* per 100.
5 to 6 feet, 60*s.* to 84*s.* per doz.
7 and 8 feet, 7*s.* 6*d.* and 10*s.* 6*d.* each.
Large specimens, 10, 12, and 15 feet high.

PICEA NOBILIS, Seedlings, 3 to 5 in a pot, 9*s.* per doz. ; 63*s.* per 100.
1 foot, 7*s.* 6*d.* each ; 75*s.* per doz.
1½ feet, 10*s.* 6*d.* each ; 6*l.* per doz.
Splendid plants, 2, 3, 4, 5, 6 and 7 feet high, from 21*s.* to 147*s.* each. We have several hundred of these large sizes ; none are grafted ; grafted plants are of course to be had at much lower rates.

PICEA NORDMANNIANA, (all Seedlings) 1 to 1½ feet, 10*s.* 6*d.* each ; 6*l.* per doz.
A large number of very handsome plants, 3, 4, 5, 6, 7, 8, and 10 feet, 63*s.* to 210*s.* each.

PICEA PINSAPO, 1½ feet and as wide, 42*s.* per doz.
2½ to 3 feet, 10*s.* 6*d.* to 21*s.* each.
3½ to 5 feet, 31*s.* 6*d.* to 63*s.* each.
Large specimens, 6, 7, 8, and 10 feet.

ABIES MERTENSIANA or ALBERTI, 2 feet, 30*s.* per doz.

ABIES ORIENTALIS, very handsome seedling plants, 3, 4, 5, 6, 8, and 10 feet, 5*s.* to 63*s.* each.

CUPRESSUS LAWSONIANA, all seedlings, 1½ foot, 5*l.* per 100 ; 18*s.* per doz.
3 to 4 feet, 30*s.* and 42*s.* per doz.
4 to 5 feet, 5*s.* each.
6, 7, 9, and 10 feet, splendid plants, nothing handsomer can be desired, 10*s.* 6*d.* to 31*s.* 6*d.* each.

JUNIPERUS CHINENSIS, handsome plants, 2 to 3 feet, 30*s.* per doz. ; 10*l.* per 100.
4 to 5 feet, 60*s.* to 84*s.* per doz.
6 to 7 feet, 10*s.* 6*d.* each. A large number of very fine specimens, 10, 12, and 15 feet high (all recently removed).
Irish Upright, 3 to 4 feet, 18*s.* to 30*s.* per doz.
Fine plants, 5, 6, 7 and 8 feet, 3*s.* 6*d.* to 21*s.* each.

YEWS, GOLDEN, many hundred fine specimens, 3, 4, 5, 6, 7 and 8 feet high.
IRISH, handsome plants, 4 to 6 feet, 2*s.* 6*d.* to 5*s.* each.
Do. fine, 6, 7, 8 and 10 feet.
COMMON ENGLISH, a vast number, 3, 4, 5, 6, 7, 8, 10 and 12 feet high.

THUJA AUREA, 1½ foot, and wide in proportion, 2*s.* 6*d.* each, 24*s.* per doz.
2, 3, 4, and 5 feet high, 7*s.* 6*d.* to 105*s.* each ; measuring from 12 to 15 feet in circumference, perfect globes ; this plant originated here, and our stock of it comprises large numbers of very much finer plants than can be found in any other Nursery.

THUJA GIGANTEA, 3, 4, 5, 6, & 7 ft. high, 7*s.* 6*d.* to 21*s.* each.

THUJOPSIS BOREALIS, 2 feet, 18*s.* per doz.
3 feet, 30*s.* per doz.
4, 5, 6, and 7 feet, splendid specimens, in large numbers, 5*s.*, 7*s.* 6*d.*, 10*s.* 6*d.*, to 21*s.* each.

WELLINGTONIA GIGANTEA, stout plants, seedlings, 1 foot, 6*l.* per 100, 18*s.* per doz.
1½ to 2 feet, 30*s.* to 42*s.* per doz., 10*l.* to 12*l.* 10*s.* per 100.
3 feet, 10*s.* 6*d.* each, 84*s.* per doz.
A large number of Plants, 3½, 4, 5, 6, and 7 feet ; all recently removed, 21*s.* to 63*s.* each.

GOLDEN HOLLIES.—The best variety, or "Queen ;" many hundred most beautiful plants, 3, 4, and 5 feet high.

"WATERER'S" HOLLY.—This variety originated in this Nursery, and we hold a vast number of splendid plants, 3, 4, and 5 feet high, and 8 to 15 feet in circumference.

HOLLY.—Common Green, laurifolia, and Scottica, of all sizes, up to 10 feet high, and move with balls like Rhododendrons.

COMMON LAURELS.—Very bushy, healthy, and well rooted, 2, 3, 4, and 5 feet high.

All the Plants referred to in this Advertisement are handsome, well-grown, and well rooted, and any one in search of such will not regret a visit to the Nursery, where may also be seen one of the most extensive stocks of all the acknowledged hardy evergreens and deciduous plants in existence.

HARDY RHODODENDRONS.—More than 40 acres of Land may be seen covered with Rhododendrons and other American plants. We are prepared to offer them upon very advantageous terms. The sorts following are perhaps as good a selection as can be made ; the plants are very healthy and bushy, 1½ to 2 feet high, many with flower buds ; better cannot be desired of the size, at 30*s.* to 42*s.* per dozen, 12*l.* 10*s.* to 15*l.* per 100, in variety

ALARM
ATROSANGUINEUM
ALBUM ELEGANS
ARCHIMEDES
BLANDYANUM
BARCLAYANUM
BRAYANUM
BYLSIANUM
CONCESSUM
CURRIEANUM
DELICATISSIMUM
ELFRIDA
EVERESTIANUM
FLEUR DE MARIE
FASTUOSUM fl. PLENO
JOHN WATERER
LADY E. CATHCART
LORD JOHN RUSSELL
MACULATUM SUPERBUM
MRS. WATERER
MINNIE
NERO
REEDIANUM
ROSEUM PICTUM
SIR CHARLES NAPIER
TITIAN
VANDYCK

Larger plants of these may be had at an increased price.

These next, the majority of which are raised from layers, and are as healthy and bushy as it is possible to grow them, about 1½ to 2 feet high, at 18*s.* per doz., 6*l.* 6*s.* per 100 :—

ALARIC
ATTILA
ANDERSONI
AUGUSTUS
AZUREUM
BLATTEUM
BICOLOR
CHANCELLOR
CŒLESTINUM
CORIACEUM
COLUMBUS
DELICATUM
DESDEMONA
GLORIOSUM
GLENNYANUM
LEOPARDI
LUCIDUM, or QUEEN of the WEST
MACRANTHUM
MACULATUM
NIGRUM
RUBRUM
PURPUREUM
MARC ANTONY
LEE'S DARK PURPLE
NE PLUS ULTRA
ORNATUM
PARDOLOTON
PICTUM
MULTIMACULATUM
SIR ISAAC NEWTON
STANDARD of FLANDERS
HYACINTHIFLORUM
VICTORIA
VAN HOUTTI
VERVAENEANUM
and others.

RHODODENDRON CATAWBIENSE, from seed, varying much in colour, nice bushy plants, 9 to 12 inches, 25*s.* per 100, 10*l.* per 1000.
Do., 1 to 1½ feet, 42*s.* to 63*s.* per 100.
Very fine plants, 2 and 3 feet and upwards.

RHODODENDRON PONTICUM, for cover, stout bushy plants, about 1 foot, at 7*l.* 10*s.* per 1000.
1 to 1½ feet, 25*s.* to 30*s.* per 100 ; 10*l.* to 12*l.* 10*s.* per 1000.
Seedling varieties of different colours (very superior in habit and foliage to the common Ponticum), about 1 foot and bushy, at 30*s.* per 100.

The following varieties of PONTICUM, all from layers, and very healthy and bushy, about 18 inches, at 50*s.* per 100 :—

ALBUM
ATROPURPUREUM
BLANDUM
VERSICOLOR
ROSEUM
MAGNOLIFOLIUM
NIVATICUM
CLETHROIDES
PALLIDUM
GUTTATUM
CUNNINGHAM'S WHITE, &c.

DWARF RHODODENDRONS, the three best being WILSONIANUM, OVATUM, and MYRTIFOLIUM, very healthy bushy plants, 12 to 18 inches, 18*s.* per doz., 5*l.* per 100.

STANDARD RHODODENDRONS of all sizes, and nearly all the sorts ; beautiful plants at reasonable rates.

AZALEAS, the very finest varieties, in capital plants, 1½ to 2 feet high, covered with buds, 18*s.* to 30*s.* per doz., 5*l.* to 10*l.* per 100.
Ordinary kinds, pink, white, yellow, and scarlet, 50*s.* to 75*s.* per 100.

ANDROMEDA FLORIBUNDA, very nice plants, healthy, bushy, and every one covered with bloom, 18 inches, 30*s.* per doz.

KALMIA LATIFOLIA, bushy plants and full of bloom, 12*s.*, 18*s.*, and 24*s.* per doz.

HARDY HEATHS, a selection of the most desirable kinds, including a very large quantity of the pretty E. herbacea, and plants that cannot be excelled, 6*s.* per dozen, 30*s.* to 42*s.* per 100 in variety.

As it not unfrequently happens that plants fall far short of the description given them, we shall be very pleased to send samples of any to intending purchasers.

A PRICED and DESCRIPTIVE CATALOGUE sent free on application.

We can now send our goods throughout in the same truck from Woking to almost every Station in the Kingdom, and when a quantity is required to be sent any distance, we should be happy to arrange for their transit to the nearest Station. The Nursery is readily reached by Train from Waterloo to Woking. Conveyances are at all times at the Station.

HOWARD'S

STEAM PLOUGHING and CULTIVATING APPARATUS

WILL BE AT WORK NEAR BEDFORD THROUGHOUT THE SEASON.

Price of a Complete Set with 10-Horse Engine £515 0 0
Price of a Complete Set without Engine 220 0 0

Catalogues, with Sixty Reports from Purchasers, may be had on application to

JAMES AND FREDERICK HOWARD, BRITANNIA IRON WORKS, BEDFORD.

WANTED to PURCHASE, 800 or 1000 Strong APPLE, PEAR, or CRABTREE STOCKS, or any less quantity ; they must be healthy, well-rooted, and strong Plants.
Apply to HENRY GODFREY, Nurseryman, Stourbridge.

WANTED, STRONG TRANSPLANTED ASH, 3½ to 4 feet, and 5 to 6 feet.
Address, quoting lowest price per 1000, Free on Rail, to WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

Sycamore Wanted.

J. CARTER, NURSERYMAN, Keighley, Yorkshire, is in want of a considerable number of good SYCAMORE 7 or 8 feet high. Any one having them to offer, will oblige by quoting price and number.

THORN QUICKS.

J. C. has a large stock of Quicks of various sizes, and very well grown. Prices and samples, and also general NURSERY CATALOGUE on application.

CARTER'S PROLIFIC RASPBERRY still retains its superiority over every other variety. Strong Canes, 3*s.* per dozen, 21*s.* per 100. Address as above.

Nursery and Seed Establishment, Hastings.

WILLIAM EPPS, JUN., begs to inform his numerous patrons that he has REMOVED from Ashford, and opened a new Establishment as above ; and trusts to merit a continuance of their favours.

W. E., JUN., has had the honour of being patronised by the Royal Family of Hesse, the Grand Duchess Constantine, and the Japanese Ambassadors.

All good Cooks and careful Housewives use

SYMINGTON'S PATENT PREPARED PEA FLOUR, which is easy of digestion, perfectly wholesome, requires no boiling, rapidly makes a Tureen of rich Soup, and never causes unpleasant feelings after eating.

In Packets, 1*d.*, 2*d.*, and 4*d.* ; and Tins, 1*s.*, 1*s.* 6*d.*, and 3*s.* each.

GROATS and BARLEY prepared by the same process, in Tins 6*d.* and 1*s.* each.

SCOTCH OATMEAL for Porridge and Oat Cake, in Packets, 1*d.*, 2*d.*, 4*d.* ; 28 lb. Tins and Barrels.

Patentees and Manufacturers : W. SYMINGTON & Co., Bowden Steam Mills, Market Harborough. Sold everywhere.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863 ; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'



Magnified Aphis.

NEAL'S PLANT SOAP and APHIS PASTILS,

1*s.* and 2*s.* per packet,

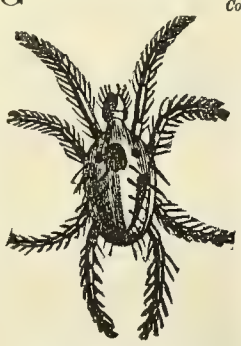
may be obtained from all respectable Seedsmen.

Testimonials forwarded on application to the Patentee,

J. NEAL,
Edward Street, Birmingham.

Winter Dress all Fruit Trees with

GISHURST COMPOUND.



Red Spider Magnified.

Copy of a Letter from Mr. RIVERS, "Nurseries, Sawbridgeworth, Herts, Oct. 22, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water ; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees ; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."

For Orchard-house Trees 4 ounces to the gallon will be found a good strength ; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), Belmont Vauxhall, London, S.

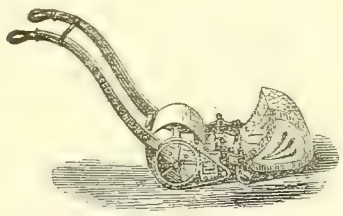
Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

GREEN'S LATEST IMPROVED PATENT NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES, which gained the First Prize Medal of the International Exhibition.



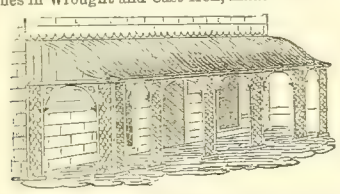
Patronized by Her Most Gracious Majesty the Queen during the seasons of 1862 and 1863.

These Machines have proved to be the best, and have carried off every prize that has been given in all cases of competition.

ILLUSTRATED PRICE LISTS on application.

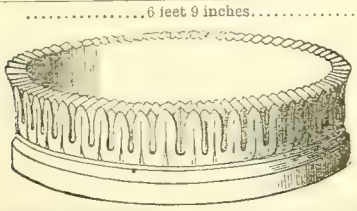
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

VERANDAHS, COVERED WAYS, AWNINGS, CONSERVATORIES, and every description of Roofing and Sashes in Wrought and Cast Iron, made to order.



Apply to COTTAM & Co., Manufacturers, (Iron Works) 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

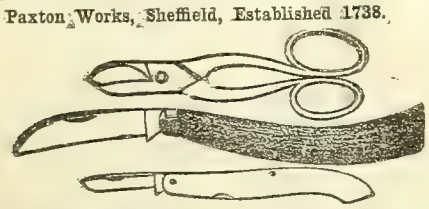
.....6 feet 9 inches.....



AUSTIN, SEELEY, AND CO. beg to inform the Nobility and Gentry that they are prepared to supply, at three months' notice, TAZZE for Flowers or Fountains, as wide as 13 feet. They take this opportunity of referring to some large Flower Basins and Plain Kerbings made by them for the Royal Horticultural Society's Gardens; and also to those lately supplied to the Public Garden in the Regent's Park. They will be happy to forward a List of their Fountains to any gentleman requiring one.

369 to 375, Euston Road, Regent's Park, N.W.

Paxton Works, Sheffield, Established 1738.



INTERNATIONAL EXHIBITION PRIZE MEDAL WAS AWARDED TO SAYNOR & COOKE FOR SUPERIORITY OF QUALITY IN PRUNING AND BUDDING KNIVES, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

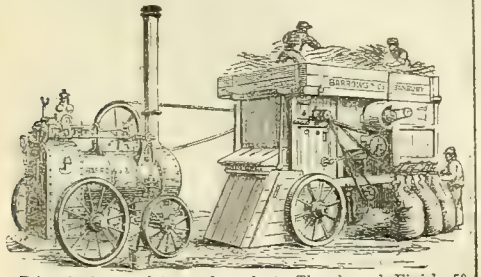
CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

1000 GARDEN TARPAULINGS, very thick, 8 feet by 4 feet, with 6 brass eyelet holes, 32*s.* per dozen, made up any size at 9*d.* per square yard. GARDENERS' WATERPROOF CAPES, 3 feet deep, 3*s.* 6*d.* each. POLICE CAPES, 18*s.* to 30*s.* per dozen. HORSES' NOSE BAGS, Cocoa Nut Fibre, full size, with Straps, 18*s.* per dozen, or 1*s.* 9*d.* each. HORSES' LOIN CLOTHS, lined with Woollen and Strapped, 7*s.* each. WOOLLEN HORSE CLOTHS for Stable, Cart and Waggon Covers.

R. RICHARDSON, 99, Euston Road, London, N.W.

N.B. GALVANIZED WIRE NETTING, 18 gauge, 15-S mesh, 7*d.* per square yard; 2 inch, 6*d.* Long HARE and RABBIT NETS, 50 to 100 yards, on Cords.

BARROWS AND CARMICHAEL (late KIRBY & BARROWS), ENGINEERS, Banbury.



Price 255*l.* complete, and ready to Thresh and Finish 50 quarters of Grain a day in the most perfect manner. Guaranteed of best Workmanship and Material. Prizes in money and Medals have been received from important Agricultural Societies in England, Ireland, and the Continent.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

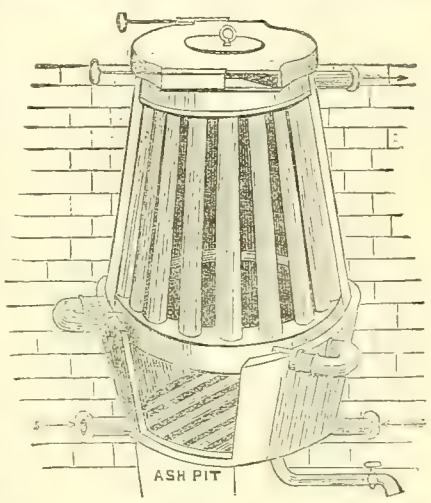
DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c. the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.



BY HER MAJESTY'S ROYAL LETTERS PATENT.

A PUBLIC BOON.

CLARKE'S NEW WATER JACKET FURNACE BOILER,

SHOWING THE PRINCIPLE OF THE PATENT DEFLECTING FLUE-PLATE OR HEAT PRESERVER.

It will be observed from the annexed diagram, that the deflecting flue-plate is placed on the top of the brickwork just level with the top of the Boiler, leaving a clear space for draught all round, consequently, the great pressure of heat from the furnace is concentrated at the top of the Boiler, and kept in close contact with it by means of the two slides which are regulated in front.

These Boilers are now fully acknowledged by a vast number of practical and experienced Gardeners to be the most Powerful and Economical Boilers extant, requiring less attention and fuel by one-half than any other Boiler they have had to manage, and state that the great improvement consists in the Water Jacket Furnace, and the deflecting flue-plate.

Estimates for every description of Heating, with Boiler and Piping complete, erected upon Mr. C.'s new and much approved principle, for top and bottom heat, sent upon the shortest notice, by applying to the Eagle Iron Foundry, 25, Seel Street, Liverpool.

T. C. CLARKE, PROPRIETOR.



HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.

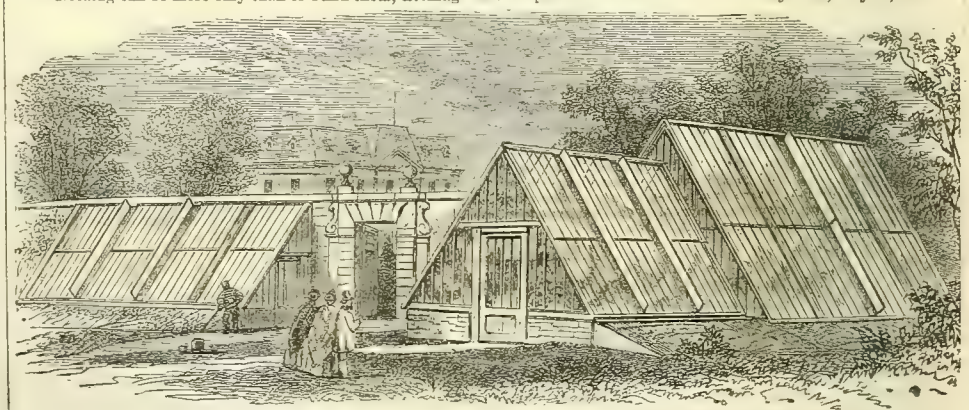
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Ft.	In.	8 ft. Lights	10 ft. Lights	Ft.	In.	12 ft. Lights	14 ft. Lights	16 ft. Lights
20	7 in length	£12 0 0	£16 0 0	20	11 in length	£21 18 0	£28 10 0	£34 5 0
31	3 in length	16 10 0	21 2 6	31	9 in length	29 6 0	37 12 0	45 16 0
41	11 in length	20 18 0	26 18 6	42	7 in length	36 16 0	46 14 0	57 7 0
63	3 in length	30 6 0	38 10 0	64	3 in length	51 14 0	64 18 0	80 10 0
84	7 in length	39 6 0	49 11 6	85	11 in length	66 12 0	83 2 0	103 11 0
105	11 in length	48 17 6	60 12 6	107	7 in length	81 10 0	101 10 0	126 13 0

SPAN-ROOF HOUSES at double the above prices for each length of house.

Circulars with Lists of Prices and Cards to view houses in operation in the neighbourhood of London, also Estimates for Heating and Erection complete, can be had on application to

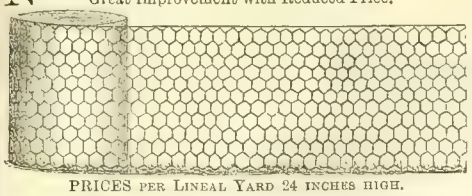
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Great Improvement with Reduced Price.



PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for.	Light. Jap	Light. Gal.	Medium. Jap	Medium. Gal.	Strong. Jap	Strong. Gal.	Extra Strong. Jap	Extra Strong. Gal.
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2¼ in.	Hares, Dogs, Poultry ..	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting ..	0 3½	0 4¼	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits, Hares, &c. ..	0 4	0 4¾	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in	Pheasantries, &c.	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
⅝ in.	Aviaries, &c. ..	1 0	1 3	1 3	1 6	1 6	1 9	..	.

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

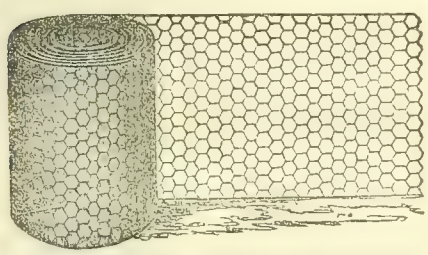
*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.

IRON HURDLES, CONTINUOUS BAR FENCING, IRON and WIRE FENCING, FENCING WIRE, FIELD and ENTRANCE GATES, GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, CAST IRON VASES, and every description of HORTICULTURAL and AGRICULTURAL MACHINES, TOOLS, and appliances.

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FURTHER REDUCTION in the PRICE of WIRE NETTING.

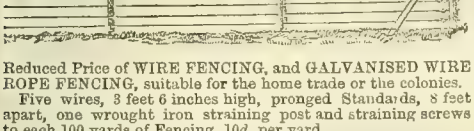


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	Galvanised. Gauge.	Galvanised. per yard.	Japanned Iron. per yard.
2-inch mesh, 24 inches wide ..	No. 19	4¼d.	3½d.
2-inch ,, ,, ,, .. ,,	18	5	4
2-inch ,, ,, ,, .. ,,	17	6½	5
2-inch ,, ,, ,, .. ,,	16	8	6½
1⅝-inch ,, ,, ,, .. ,,	19	4¾	4
1⅝-inch ,, ,, ,, .. ,,	18	6	4¾
1⅝-inch ,, ,, ,, .. ,,	17	7	5½
1⅝-inch ,, ,, ,, .. ,,	16	9	7

All the above kinds can be made any width (under 6 feet) at proportionate prices.

Strong Galvanised Poultry Netting, 7½d. per yard, 3 feet wide, Galvanised Sparrow-proof Netting for Pheasantries, 11d. per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



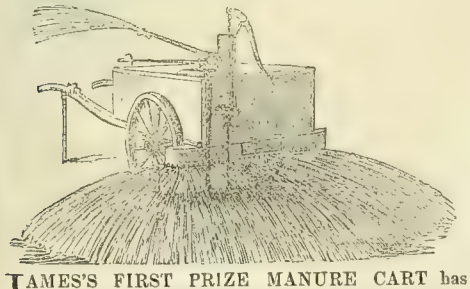
Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10d. per yard.

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The last great improvement in Washing Machines is in JAMES'S new Patent PRIZE WASHING, WRINGING, and MANGLING MACHINES, awarded several FIRST PRIZES. Will Wash 20 Shirts in 20 Minutes, with much less injury than with the hand. More than 300 Sold.

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GARDEN BORDER-EDGING TILES, in great variety of patterns and material.
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ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

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Testimonial from Mr. J. FARRAH, *Gr. to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*

"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."

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BLACK and RED, in CALF, KERRY CATTLE, of the purest breed, for SALE, by RICHARD G. CAMPION, Esq., Youghal, Co. Cork. No Cow so suitable for Villas.

TO BE DISPOSED OF, the OLD ESTABLISHED HORTICULTURAL WORKS, 152, King's Road, Chelsea, S.W.; very extensive commanding Premises, having sufficient room for another business. Twelve years of the Lease unexpired. Parties wishing to take it would only be required to take the necessary Tools and Machines with a small amount of Stock and Shops by Valuation or otherwise, as agreed on, E. D. retiring from business.

TO BE LET, NURSERY GROUNDS in Brighton, comprising extensive Vineries and Peach-houses, in good bearing condition; large Span-roofed and Lean-to Houses, and Pits for Plants; also, a capital Residence and Cottages, with Stabling and Coach Houses.

The Stock can be taken at a valuation or a fixed sum, as agreed upon, or a PARTNER with Capital would be accepted.

Full Particulars to be had on application to the GARDEN SUPERINTENDENT, Alexandra Park, Tottenham Wood, Hornsey.

Oxfordshire.

TO BE LET, from Lady-day next, TWO First-class FARMS, lately in the occupation of J. H. Langston, Esq., M.P., deceased, situate at Churchill and Sarsden, about three and four miles respectively from the Market Town of Chipping Norton, and within a shorter distance of other Railway Stations.

No. 1. The Farm commonly called "CHURCHILL MOUNT," on which is an excellent and commodious Dwelling House and Offices, with extensive and convenient Farm Buildings, all recently built and fitted up with Machinery worked by steam-power for Threshing, Grinding, Chaff-cutting, &c., together with 530 acres of Arable and Pasture Land (in nearly equal proportions). The well-known "Sarsden Herd" is, and has been for some years, kept upon this farm.

No. 2. The Farm known as "FAIR GREEN," with other Lands added, near and adjoining Sarsden, comprising a superior and commodious Dwelling House and Offices; the Buildings are unusually good, convenient, and equal to the requirements of the Farm, and well supplied with Water throughout. The Dwelling House and Farm Offices have been recently erected and fitted up with Machinery driven by steam-power for similar purposes as mentioned in No. 1. This Farm contains 744 Acres, of which 574 are Arable and 169 Pasture, and is well adapted to Steam Cultivation. There are several Cottages attached to the Farm.

The Farms have been for some time under Steam Cultivation, and are both in high condition, having been many years kept in hand by the late proprietor. In both cases the Residences and Farms are of a very superior description.

For further Particulars, and for viewing the same, application should be made at the Office of Mr. HENRY ANDREWS, at Sarsden, near Chipping Norton, to whom Sealed Tenders for each farm separately, stating the clear annual rent, are to be sent on or before December 18, 1863, soon after which the persons whose tenders are accepted will have notice thereof. The setter will not consider himself bound to take the highest tenders.

Sarsden, November 7.

Sales by Auction.

Beverley.

To NURSERYMEN, SEEDSMEN, &c.

MR. HENRY WATSON will SELL by AUCTION, at the Beverley Arms Inn, in Beverley, on MONDAY, November 16, at half-past 2 for 3 o'Clock in the afternoon (subject to such conditions as shall be then and there produced), a MESSUAGE or DWELLING HOUSE, with the Stables, Cartshed, and other Outbuildings, and the NURSERY GROUND adjoining, most conveniently situate on the south side of Norwood in Beverley, on which the late Mr. ALEXANDER LAING carried on the business of a Nurseryman and Seedsman for upwards of 23 years.

The premises include a substantial Dwelling-house and Seed Shops fronting the Town Street, and the Nursery Ground immediately behind comprises nearly two acres of Land, and has upon it several Greenhouses, Propagating Houses, Pits, Frames, and every other requisite convenience for carrying on an extensive business. It is now well stocked with good specimens of Trees, Plants, Shrubs, and Flowers, and an eligible opportunity is presented to a Purchaser to step at once into a first-class business, with an extensive and respectable connection.

Independent of the above Nursery, the late Mr. Laing was the lessee for a term, of which 8 years are still unexpired, of another Nursery, at a little distance, which would be transferred to the purchaser, who will be required to take the Stock in Trade in both Nurseries, and also the Seeds, &c., at a valuation, on such conditions as will be declared at the time of sale.

For further particulars, and to View the Property, apply to Mr. THOS. SHEPHERD, Solicitor, Beverley.

To Gentlemen engaged in Planting.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, November 14, at half-past 12 o'Clock precisely, the SURPLUS STOCK of a NURSERYMAN comprising 2000 Common Laurels, 2000 Privet, 5000 Spruce Firs, 1000 Tree Box, 500 Common Yews, 200 Irish Yews, 500 Green Hollies, 2000 Berberis aquifolia, 1000 Standard and Dwarf Roses, 100 Portugal Laurels, 100 Aucubas, &c, Lotted to suit private buyers and the Trade.

On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 19, at half-past 12 o'clock precisely, 300 CAMELLIAS, 300 INDIAN AZALEAS, 300 LILIUM LANCIFOLIUM RUBRUM, 200 HARDY RHODODENDRONS, 100 KALMIAS, &c.

On view the Morning of Sale, and Catalogues had.

New Roses, Standard, Half Standard, and Dwarf,

BEING A CONSIGNMENT RECEIVED DIRECT FROM ONE OF THE MOST RENOWNED ROSE GROWERS IN FRANCE, ALL FOR ABSOLUTE SALE AND IN THE FINEST POSSIBLE CONDITION.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 24, at half-past 12 o'clock precisely, an assortment of splendid FRENCH ROSES, comprising 2500 Standards, Half-Standards, and Dwarfs, of the most approved sorts. On view the Morning of Sale, and Catalogues had.

Tulips.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executrix of the late Mr. May to SELL by AUCTION, at the Mart, on TUESDAY, Nov. 10, at 12 o'Clock, the whole Collection of TULIPS, including many choice named varieties and Seedlings not in possession of any other growers; also two Cabinets for 125 rows. Together with an Assortment of First-class DUTCH BULBS, Standard and Dwarf ROSES, AMERICAN PLANTS, &c.

On view the Morning of Sale. Catalogues had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Handsome Standard and Dwarf Roses, Dutch Bulbs, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, November 13, at 12 o'Clock, a first-class Collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Crocus, Tulips, Jonquils, Anemones, Iris, &c.; also 300 handsome STANDARD and DWARF ROSES, comprising the best Hybrid Perpetuals, Bourbons, Chinas, &c., choice assortment of American Plants, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Peckham.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Victoria Nursery, Victoria Road, near the Adam and Eve, Peckham, on MONDAY, November 16, at 12 o'Clock, by order of Mr. Falconer, without reserve, the ground being immediately required to be cleared, the whole of the NURSERY STOCK and GREENHOUSE PLANTS, including some handsome Standard, Half Standard, and Dwarf Roses, Dwarf-trained Peaches and Nectarines, Standard and Dwarf Apples, Pears, Plums, Cherries, Lilacs, Ribes, Privet, Sumach, Gooseberries and Currants, Raspberries, Rhubarb, &c.; choice Azalea indica, well set with bloom buds; Ericas sorts, Cactus, Geraniums, &c.; together with four capital Greenhouses, several One and Two-light Boxes, Saddle Boiler, Bricks, Garden Pots, Tools, and Sundry Effects.

May be viewed one week prior to the Sale. Catalogues may be had on the Premises; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Highly Important Sale of Ferns, Specimen Stove and Greenhouse Plants, &c.

MESSRS. PROTHEROE AND MORRIS are directed to SELL by AUCTION, on the Premises, Manor Nursery, Harrow Road, Paddington, on TUESDAY, Nov. 17, at 11 o'clock, the entire Collection of EXOTIC and BRITISH FERNS, late the property of W. C. Carbonell, Esq., including specimens of great magnitude and beauty rarely to be met with, being collected regardless of expense, the result of many years' careful cultivation, and which have obtained first-class certificates at most of the Metropolitan Floral Fêtes, including Cibotium Schiedei, 14 to 16 feet through; Dicksonia antarctica, 18 inch stem, fine head 8 feet through; Microlepia platyphylla, 7 feet; Lastrea indivisa, fine plant, 8 feet; Gleichenia microphylla, 5 feet; Leucostegia chærophylla, 5 feet; Asplenium marinum (splendid specimen), and many other smaller but more choice varieties, also some fine specimen STOVE and GREENHOUSE PLANTS, comprising Allamanda Schotti; Ixora javanica, 5 feet by 5 feet; Burchellia capensis, 6 feet by 4 feet; Combretum purpureum, 3 ft. 6 in. by 4 feet, &c. Fine Orange Trees, some choice Azalea indica, Ericas sorts, &c.; with a selected assortment of Standard Roses, &c.

May be viewed one week prior to the Sale. Catalogues may be had on the Premises; of Mr. THOMAS HAWKINS, 3, Inverness Terrace, Bishop's Road, Bayswater; and of the Auctioneers, American Nursery, Leytonstone, N.E.

Great Sale of Roses, Fruit Trees, Evergreen Shrubs and Coniferæ, Lilium lancifolium, &c.

To NOBLEMEN, GENTLEMEN, NURSERYMEN AND OTHERS.

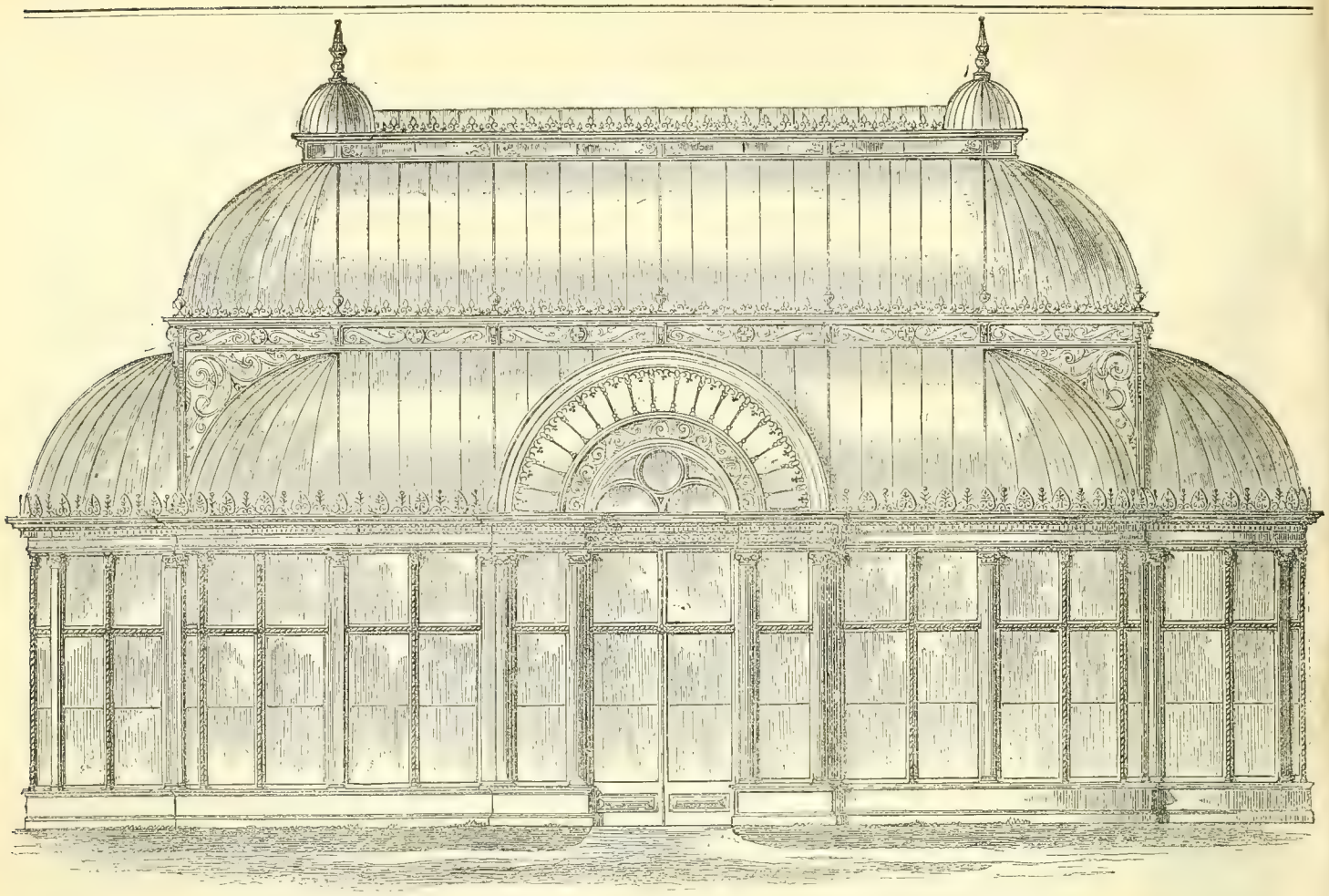
MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on WEDNESDAY, November 18, at 12 o'Clock, a splendid assortment of 1000 STANDARD, HALF STANDARD, and DWARF ROSES of remarkably fine growth; selected FRUIT TREES, viz., handsome Dwarf-trained Peaches, Nectarines, Apricots, Standard and Dwarf Apples, Pears, Plums, Cherries, &c.; CONIFERÆ and EVERGREEN SHRUBS, comprising Thuja aurea, Cupressus Lawsoniana, Thujopsis borealis, Cedrus Deodara, Wellingtonia gigantea, Araucaria, &c.; choice HARDY AMERICAN PLANTS, consisting of Scarlet and Hybrid Rhododendrons, Kalmias, Azaleas, Andromeda floribunda, &c., with 200 fine BULBS of Lilium lancifolium rubrum and album, from a celebrated Grower in Belgium, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Tulips, &c.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at the Mart, on THURSDAY, Nov. 19, at 12 o'Clock, the whole Collection of TULIPS, late the property of Fred. Perkins, Esq., including all the leading sorts in cultivation. Also a fine assortment of DUTCH BULBS, Standard, Half-standard, and Dwarf ROSES, &c.

On view the Morning of Sale. Catalogues had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex N.E.



THIS SPLENDID CONSERVATORY FOR SALE AT LESS THAN COST PRICE.

ORMSON'S CONSERVATORY, INTERNATIONAL EXHIBITION 1862.

OPINIONS OF THE PRESS.—(EXTRACTS).

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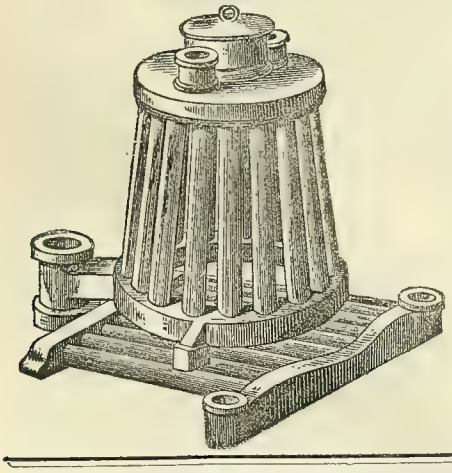
"No object in the Horticultural Department attracts the eye sooner than the splendid Conservatory erected by Henry Ormson, of King's Road, Chelsea."—The Illustrated London News.

"This construction, however, not only stands first among the Conservatories at Kensington, and indeed of any we have ever seen, but is worthy of the highest commendation on account of its eminent fitness for the purpose for which it was made."—The Illustrated News of the World.

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have become universally adopted on account of their superior power, great safety, and economy.



BY HER MAJESTY'S ROYAL LETTERS PATENT.

ORMSON'S PATENT,

ENTITLED

"AN IMPROVEMENT IN THE MANUFACTURE OF CAST TUBULAR BOILERS."

TAKE NOTICE, that a DISCLAIMER has been filed in the Patent Office and allowed by the Attorney-General, by which such part of the above Patent as was considered questionable by the Court of Exchequer Chamber has been disclaimed. Any person infringing the said Patent after this Notice will be proceeded against according to Law.

Disclaimer allowed September 1, filed September 2, 1863.

I BEG to NOTIFY, that having by leave of her Majesty's Attorney-General DISCLAIMED such part of my Patent as was considered by the Court of Exchequer Chamber as questionable, the said Patent is now absolutely confirmed; and any person infringing the same will be proceeded against according to law.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,

AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 46.—1863.] SATURDAY, NOVEMBER 14. {Price Fivepence. Stamped Edition, 6d.

INDEX.

Agricultural drainage	1091 a	Prevention of disease by law	1092 a
Botanical Magazine, rev.	1087 b	Primroses	1085 a
Breeds of sheep	1090 b	Rook's nest at Elmsett Rectory	1085 a
Cereals, decortication of	1093 a	Rose showing	1083 c
Cheap glass	1081 c	Society, Bath and West of England	1094 b
Egypt, steam cultivation in	1095 c	— Royal Horticultural	1085 b
Farmers' Club, London	1089 b	— Linnean	1085 c
— Chertsey	1095 a	— Chrysanthemum, Amalgamated	1086 a
— Wigton	1094 c	— Stoke Newington	1086 b
Flora Australiensis, rev.	1086 b	Steam cultivation	1090 a
Foliage plants	1085 b	Strawberry runners	1083 a
Food at 12s. per week	1091 c	Stray Hints about flowers	1084 b
Gondinie, South Africa	1094 b	Swallows	1085 b
Health of stock	1089 c	Tenancy at will	1092 a
Labourers' houses	1093 c	Training and Gymnastics, rev.	1087 b
Literary curiosity	1084 c	Trees and shrubs, damaging	1085 b
London Farmers' Club	1090 b	Trees of Fraser River	1088 a
Malt as food for cattle and sheep	1090 b	Truffle spawn	1082 b
Morphology	1085 a	Young Sheep, winter management of	1095 c
Natural history objects, sale of	1087 c	Vinegar Plant	1087 c
New Hyacinths	1084 b	Vitality of a Fulham Oak	1084 c
New kind of Rape-meal	1090 c	Wages of labourers	1090 b
New plants	1083 a	Wistaria sinensis	1085 c
New Zealand, emigration to	1083 b		
Orchids, cool treatment of	1085 a		
Pampas Grass	1085 a		

MY ADVERTISEMENT last week having failed to produce the ADDRESS of WILLIAM HALLIDAY (late in my employ), I beg to request all who have in any way transacted business with him in my name, to favour me with the nature of the same.
CHARLES NOBLE, Sunningdale, Bagshot.

Grape Vines.

PAUL AND SON beg to offer fine well-ripened Canes of all the best Sorts for Planting, 5s. each.
"Old" Cheshunt Nurseries, N.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.
Highgate Nurseries, London, N.

Grape Vines.

WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery.
PRICED LIST on application.
PAUL'S Nurseries and Seed Warehouse, Waltham Cross, N.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each.
LIST of SORTS sent on application.
Wellington Nursery, St. John's Wood, London, N.W.

CURRANTS for PLANTING.—Several thousand of the LARGE RED and NETTLE LEAF WHITE varieties, 3 and 4 years old, very strong, now coming into immediate bearing. To clear the ground will be parted with at 15s. per 100, or 5l. per 1000.
T. MITTON, Lampton, near Hounslow, W.

Pear Culture.

A DESCRIPTIVE CATALOGUE of PEARS, by THOMAS RIVERS (separate from the Catalogue of Fruits) sent free on application.
Nurseries, Sawbridgeworth.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form they can be desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester

AZALEA SOUVENIR DU PRINCE ALBERT.—The most distinct and novel. Good plants, 21s.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

FICUS ELASTICUS.—A very fine specimen of the above, 10 feet high, and 3½ feet through, with foliage to the base, to be SOLD very cheap, as it is too high for the owner's house. Price on application to
WOOD & INGRAM, Huntingdon.

CUCUMBER SEED.—Early Prince Albert, Highland Mary, Black Spine, and Long Gun. The best MELONS, &c. The Trade supplied reasonable by the ounce. Best MUSHROOM SPAWN. Mushrooms grown here all the year round. See Pamphlet on the Mushroom, price 1s. 1d.
JAMES CUTHILL, Camberwell, London, S.

Seed Potatoes.

H. AND F. SHARPE are now taking orders for their selected stocks of MYATT'S PROLIFIC KIDNEY POTATOES, and EARLY DALMAHOY (round) POTATO; the earliest and most productive varieties in cultivation.
Seed Growing Establishment, Wisbech.

Emperor Peas (True).

TO BE DISPOSED OF, about 20 Quarters of the above in Fine Condition.
For Price apply to Mr. WM. WOOD, Cattal, York.
A purchaser for the whole would be liberally dealt with.

Best Seeds, Carriage Free.

BUTLER AND MCCULLOCH,
SEED MERCHANTS.
WANTED to PURCHASE, a few Tons of DANDELION Roots.
Covent Garden Market, London, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON,
NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

Yorkshire Seed Establishment.

EDMUND PHILIP DIXON AND SONS,
SEED MERCHANTS and NURSERYMEN,
57, Queen Street, Hull.

Nursery Lists, Wholesale and Retail.

RICHARD SMITH,
NURSERYMAN and SEED MERCHANT,
St. John's, Worcester.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

MUNRO BROTHERS,
SEEDSMEN, NURSERYMEN, AND FLORISTS,
Union Street and Ness Walk Nurseries, Inverness.

MAURICE YOUNG'S CATALOGUE of NEW HARDY PLANTS, CONIFERS, and general NURSERY STOCK is now ready, and may be had on application.
Milford Nurseries, near Godalming.

Wholesale Nursery List for 1863-1864.

PETER LAWSON AND SON, Edinburgh and London, will forward the above to the Trade on application.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Gladiolus Bowiensis, brightest and best of its class.

THOMAS BARNES offers the above in fine Bulbs by the 100 and 1000 at very low prices, which can be had on application.
Dane Croft Nursery, Stowmarket.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.
Dorking Nursery.

ANDROSACE LANUGINOSA.—Strong Plants of this beautiful Himalayan Alpine can now be supplied at 2s. 6d. each, or 21s. per dozen. Young Plants in spring at 9s. per dozen, 50s. per 100.
JAS. BACKHOUSE & SON, York Nurseries.

1-year Seedling Larch.

FRANCIS and ARTHUR DICKSON AND SONS have to offer several Millions of unusually strong 1-year SEEDLING LARCH, of their own growth.
Price on application.
"Upton Nurseries," Chester.

Planting Season.

WM. URQUHART AND SONS, Dundee, beg to announce that their PRICED LIST of FOREST TREES, ORNAMENTAL TREES, SHRUBS, BORDER FLOWERS, ROSES, FERNS, and AURICULAS, may now be had on application.

Fine Laurels and Arbor-vitæ.

CHAS. SOUTHBY, NURSERYMAN, Clapham, S., offers LAURELS, 4 to 6 feet high, and 3 feet in diameter, bushy and well furnished. Also ARBOR-VITÆ, 4 to 5½ feet high, stout handsome plants. A fine stock of GREEN HOLLY and AUCUBA, all safe to move well.

FOR SALE, a few Thousand First-rate MANETTI STOCKS.
Apply to W. C. LAY, London Road Nursery, Newbury, Berks.

Lavender Bushes.

FOR SALE, One Thousand fine BUSHY PLANTS of the above, 2 feet high, and three years old, at very moderate prices. Apply to
H. & F. SHARPE, Nurserymen and Seedsmen, Wisbech.

WANTED, a LARGE HORSE-CHESNUT TREE, for Ornamental purpose.
Direct, J. BENNETT, The Gardens, J. C. im Thurn, Esq., Champion Hill, Camberwell, London, S.

WANTED, STRONG TRANSPLANTED ASH, 3½ to 4 feet, and 5 to 6 feet.
Address, quoting lowest price per 1000, Free on Rail, to WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

WANTED to PURCHASE, from 3000 to 4000 CRAB STOCKS, clean stuff, not less than 4 feet.
Address, stating lowest net cash price, CHRISTMAS QUINCEY, Seedsman, &c., Peterborough.

Exhibition Hyacinths, Tulips, Crocus, &c.
CARRIAGE PAID.

BARR AND SUGDEN, SEED MERCHANTS and IMPORTERS of CONTINENTAL BULBS.
12, King Street, Covent Garden, W.C.

Dutch Bulbs, &c.

JAMES FAIRHEAD AND SON, 7, Borough Market, beg to intimate they have still on hand a good supply of the above, of first size, and excellent quality.

Hyacinths and other Choice Bulbs.

B. S. WILLIAMS'S DESCRIPTIVE CATALOGUE of the above post free to all applicants.
Choice HYACINTHS for Glasses or Pots, 6s., 8s., 10s., 12s. per dozen.
Paradise and Victoria Nurseries, Holloway, London, N.

Hyacinths, Tulips, Crocuses, &c.

BUTLER AND MCCULLOCH'S importation of DUTCH BULBS are unusually fine this season.
CATALOGUES Post free upon application.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Imported Dutch Bulbs.

JAMES CARTER AND CO.'S CATALOGUE of BULBS, with Cultural Directions, forwarded free of charge, on application to 237, 238, High Holborn, London, W.C.

IMPORTED DUTCH BULBS.—First-class Dutch Bulbs of every description just imported.
JAMES CARTER & Co., 237, 238, High Holborn, London, W.C.

ROSES.—CATALOGUES for 1863 and 1864 forwarded free on application.
JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

ROSES.—The DESCRIPTIVE CATALOGUE of ROSES for the present season, the 30th Edition, by THOMAS RIVERS, is now ready, and will be sent free on application. Nurseries, Sawbridgeworth.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

ROSES.—Superb STANDARDS, 18s. per dozen; Ditto ditto DWARFS, 12s. per dozen. NEW ROSES of 1863: DWARFS, 36s. per dozen.
DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ROSES, Fine STANDARDS, 18s. per dozen and upwards; DWARFS, 9s. per dozen and upwards. NEW ROSES of 1863: DWARFS, 30s. to 36s. per dozen.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

E. P. DIXON AND SONS' CATALOGUES of ROSES and FRUIT TREES are now ready, and may be had free on application.
57, Queen Street, Hull.

New Rose Catalogue for 1863-64.
New Bulb Catalogue for 1863.
WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON will be happy to send copies of the above gratis and post free to all applicants.

To the Trade.

ROSES.—A large Quantity of STANDARDS and DWARFS at unprecedented low prices.
A DESCRIPTIVE CATALOGUE sent free upon application to
W. H. DAVIS, Rose Nurseries, Newbury, Berks.

RHODODENDRONS, COMMON and HYBRID strong well rooted Plants, suitable for Shrubberies, Covers, and large Plantations, 2 feet, 20s. per 100; 3 feet 30s. per 100.
Apply to W. H. ROGERS, Red Lodge Nursery, Southampton.

Green Lanes, Stoke Newington.
NOTICE TO THE SEED TRADE.

J. H. BIRD, NURSERYMAN, Stoke Newington, can still supply Large Golden Yellow and other sorts of CROCUS, of fine quality, by the 1000. Prices upon application

CHRYSANTHEMUMS. — Well-grown plants of leading kinds, both Pompon and Large-flowering, in 4 and 6-inch pots, well covered with Foliage, and full of Bloom at 4s., 6s., and 9s. per doz.
WOOD & INGRAM, Huntingdon.

New Primula Seed.

JAMES CARTER AND CO. have a small quantity of ex. ex. choice, dark carmine, pure white, and mixed Fringed PRIMULA SEED to offer to the Trade. Price on application.
The quality of these articles may be fully relied on as being first-rate.

Royal Nursery, Great Yarmouth.

YOUELL AND CO.'S New CATALOGUE of GREENHOUSE PLANTS, Rare and Hardy CONIFERÆ, SHRUBS, GLADIOLI, &c., is ready, and will be forwarded on application.

Agricultural, Garden and Flower Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E.
SPECIAL LISTS of SEEDS (crop 1863) gratis on application.
Prices the lowest consistent with first-class quality.

NEWSPAPER STAMP PENNY

Great Reduction in the Price of Roses.

NOT TO BE UNDERSOLD BY ANY RESPECTABLE HOUSE IN THE TRADE
WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

Since issuing their NEW ROSE CATALOGUE for the Autumn of 1863 and the Spring of 1864,

WILLIAM WOOD AND SON have ascertained that other Houses in the Trade are offering some kinds of Roses at a lower rate than themselves, and as they are fully determined NOT TO BE UNDERSOLD by any RESPECTABLE House, they have prepared a REVISED LIST of ROSES at reduced prices, and will have much pleasure in forwarding copies of the same, Gratis and post-free, to all applicants.

Catalogues.

PAUL AND SON have now ready their NEW DESCRIPTIVE PRICED ROSE CATALOGUE for 1863-64.

DESCRIPTIVE CATALOGUE of HYACINTHS and other DUTCH BULBS, post free.

Also their DESCRIPTIVE CATALOGUE of EVERGREENS, DECIDUOUS TREES, CONIFERS, AMERICAN CLIMBING and HERBACEOUS PLANTS, post-free for one stamp.

"Old" Cheshunt Nurseries, N.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

Roses.

JOHN CRANSTON offers selections of STANDARD and DWARF ROSES of very superior quality.

The robust growth and hardy constitution of the plants grown in this Nursery has long been acknowledged, and the Stock to offer this season is perhaps superior to any previous growth.

He also begs to direct attention especially to DWARF ROSES on the Manetti stock, of which he has an enormous stock.

The plants upon their own roots are also very strong and well grown.

	Per dozen—s.	d.
STANDARD ROSES of all the leading varieties in cultivation	18	0
Do. Newer varieties, introduced in 1861 and 1862	24	0
DWARF ROSES, extra fine plants upon the Manetti stock .. 9s. to	12	0
Do., do., upon Dog-rose stock	9	0
Do. Newer Varieties, introduced in 1861 and 1862 15s. to	18	0
Do , do , of 1862 and 1863 ..24s to	30	0
STANDARD and HALF-STANDARD TEA-SCENTED ROSES, all the best varieties	24	0
DWARF ROSES upon their own roots, Hybrid Perpetuals, and Bourbons .. 9s. to	12	0
Do., do. Tea-scented .. 12s. to	15	0
CLIMBING ROSES	9	0
PILLAR ROSES, extra strong plants, 4 to 5 feet 12s. to	15	0
STANDARD WEEPING ROSES .. each 2s. to	2	6
ROSES in 8 and 9-inch pots grown especially for Forcing or Greenhouse culture, the best Hybrid Perpetuals, China, and Tea-scented varieties .. ..24s. to	30	0

DESCRIPTIVE CATALOGUES forwarded free on application.

Nurseries, King's Acre, near Hereford.

Standard Roses.

JEAN VERSCHAFFELT begs to announce that he has a fine stock of STANDARD ROSES, on fine straight stems, splendidly rooted, and with large heads, all of the best sorts, which he can offer at the very low rate of 4*l.* per hundred. In order to secure a first choice, immediate orders are respectfully requested.

Apply to JEAN VERSCHAFFELT, 43, Rue de la Caverne, Ghent, Belgium.

Roses.

CHARLES VERDIER, NURSERYMAN, 32, Rue du Marché aux Chevaux, Paris, (Successor to the late firm of VICTOR VERDIER PÈRE & CHARLES VERDIER FILS), has the honour to inform Amateurs and the Trade, that he has a large Collection of splendid STANDARD and other ROSES, which he is now ready to supply at the following prices, viz. :—

Good old sorts, such as JULES MARGOTTIN, SOUVENIR DE LA REINE D'ANGLETERRE, GÉNERAL JACQUEMINOT, TRIOMPHE DE L'EXPOSITION, LORD RAGLAN, GLOIRE DE DIJON, &c.

Standards at 15*s.* per dozen; or 4*l.* 17*s.* per 100.

Dwarfs at 7*s.* 6*d.* per dozen; or 2*l.* 9*s.* per 100.

Varieties, such as SENATEUR VAISSE, GLOIRE DE SANTHENAY, VICTOR VERDIER, FRANCIS 1st, EMPEROR OF MOROCCO, COMTESSE CECILE DE CHABRILLANT, GENERAL WASHINGTON, &c.

Standards at 19*s.* per dozen; or 6*l.* per 100.

Dwarfs at 9*s.* 6*d.* per dozen; or 3*l.* 12*s.* 6*d.* per 100.

Newer Varieties, such as MADAME BOUTON, MAURICE BERNARDIN, DUC DE ROHAN, MARECHAL VAILLANT, &c.

Standards at 1*l.* 4*s.* per dozen; or 8*l.* per 100.

Dwarfs at 16*s.* 6*d.* per dozen; or 5*l.* per 100.

The CATALOGUE of ROSES, GLADIOLUS, HERBACEOUS and TREE PEONIES, &c., may be obtained on application to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

Roses.

EUGÈNE VERDIER Fils aîné, NURSERYMAN, 6, Rue des Trois Ormes, Gare d'Ivry, Paris, has the honour to inform the Trade and the Public generally, that he can supply, in fine condition, STANDARD and DWARF ROSES of all the best varieties, viz. :—Baronne Lassus de St. Genics, Baron de Rothschild, Charles Lefèvre, Comtesse Cecile de Chabrillant, Deuil du Prince Albert, Duc de Cazes, Duc de Rohan, Empereur de Maroc, Eugène Appert, François Arago, François Ier, François Lacharme, General Washington, Gloire de Santenay, Madame Briançon, Madame Charles Wood, Madame Furtado, Maurice Bernardin, Prince Camille de Rohan, Senateur Vaisse, Victor Verdier. TEA ROSES—Madame Falcot, Triomphe de Rennes, &c.

The finest varieties of this autumn can also be had, viz. :—Madame Doré, Madame Josephine Guyot, Rev. H. Dombrain, Alphonse Belin, Baronne Peletin de Kinkelin, Bernard Palissy, Claude Million, Centifolia rosea, George Paul, Kate Hausburg, George Prince, Gloire du Sacré Cœur, Eugène Verdier, John Nasmith, Joseph Fiala, La Duchesse de Morny, Louis Van Houtte, Madame Victor Verdier, Pierre Notting, Senateur Reveil, Vicomtesse Douglas, Souvenir du Maréchal Serrurier, Mademoiselle Gabriel de Peyronny, &c.

An extensive assortment of STANDARD and DWARF ROSES, and ROSES upon their own Roots in Pots, at the most moderate prices.

CATALOGUE of ROSES, GLADIOLI, and PÆONIES will shortly be published, and will be sent post-free on demand to E. V., as above, or to his Agents in London, BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, E.C.

Roses.

EDWIN HOLLAMBY has the pleasure of informing the Nobility and Gentry that his extensive Stock of STANDARD and DWARF ROSES of all the leading kinds in cultivation is in the finest possible condition; fine straight stems, fine heads, and beautifully rooted. Purchasers of large quantities will be liberally dealt with.

DESCRIPTIVE PRICED CATALOGUES for the present season will be forwarded gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells; and Goldsmith's Park, Groomsbridge, Kent.

Collections of Roses.

ALFRED GOSLING, having several thousands of superior STANDARD, HALF-STANDARD, and DWARF ROSES, with fine heads, would be happy to supply them, in equal quantities, in packages containing 1, 2, or 3 dozens, perpetual kinds, at 12*s.* per dozen, selection left to himself. Plants will be added to compensate for carriage. No charge for packing.

Tower Nurseries, Heathfield, Hurst Green, Sussex.

Rhododendron Countess of Haddington.

Good plants, 21*s.* each.

Vine Tynninghame Muscat.

Good plants, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each.

ROBERT PARKER begs to announce that he is now offering for sale the above first-class Plants. Full descriptions with List of Awards received are published in his NEW CATALOGUE of PLANTS and BULBS, which will be forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

RHODODENDRON PRÆCOX.
" " SUPERBUM.
" " RUBRUM.

ISAAC DAVIES can now supply the above in nice bushy Plants, PRÆCOX with from 10 to 100, the others 1 to 10 flower buds, at from 3*s.* 6*d* to 7*s.* 6*d.* each. SUPERBUM and RUBRUM are the best varieties.

Larkfield Nursery, Wavertree, near Liverpool.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

New Hardy Continental Rhododendrons.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), begs to offer the following New Hardy RHODODENDRONS :—

	s.	d.		s.	d.
Rhododendron Comte de Gomer	4	0	Rhodo. Dr. Moore	6	0
,, Comtesse Salvi	6	0	,, Mrs. Barton	5	0
,, Dieudonné Spae	5	0	,, Mr. Stuart Low	6	0
,, Director Thelemann	5	0	,, Princess Alice	5	0
,, Duc Adolphe de Nassau	12	0	,, rubrum spectabile	4	0
			,, Verschaffeltii	8	0

The above varieties, raised by AMBROISE VERSCHAFFELT, are certainly of the finest and best varieties in trade.

The Set of the Eleven Varieties can be supplied for 3*l.*

New and Interesting Plants.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the following NEW and INTERESTING PLANTS :—

AMARYLLIS PROCERA, the blue flowering Amaryllis from Brazils, strong roots, 63*s.* each.
ALOCASIA ZEBRINA, strong plants, 30*s.* each.
MUSA ABACCA, a fine species, 18*s.* each.
RHODODENDRON AUGUSTE VAN GEERT, the largest flower of all the hardy kinds, 7*s.* 6*d.* to 21*s.*
YUCCA CANALICULATA FILAMENTOSA, fine plants, 7*s.* 6*d.*
AGAVE FILIFERA, 7*s.* 6*d.* to 21*s.*
,, PICTA, 5*s.* to 21*s.*
,, APPLANATA, most distinct, 7*s.* 6*d.* to 42*s.*
,, SCHIEDIGERA, 7*s.* 6*d.*
LIGUSTRUM OVALIFOLIUM VARIEGATUM, 7*s.* 6*d.*
LOMARIA FLUVIALIS, 30*s.* per doz.
,, DISCOLOR, 24*s.* per doz.
WOODWARDIA ORIENTALIS, strong plants, 24*s.* per doz.
TESTUDINARIA ELEPHANTIPES, strong, 21*s.* to 42*s*
ENCEPHALARTOS CAFFRA, strong, 105*s.* to 210*s.*

CATALOGUES may be had on application.

CARTER'S NOVELTIES for 1864:

MIMULUS TIGRIDIOIDES.

LUPINUS ALBO COCCINEUS.

GODETIA ROSEO-ALBA, TOM THUMB.

TROPÆOLUM MAJUS PURPUREUS.

SWAINSONIA SPLENDENS.

CLARKIA PULCHERRIMA INTEGRIPETALA.

GILIA LACINIATA.

KAULFUSSIA ATROVIOLACEA.

LOBELIA PAXTONIANA.

Coloured Plates will be ready next week.

Price to the Trade on application to JAMES CARTER & Co., 237 and 238, High Holborn, W.C.

Vines.

JAMES CARTER AND CO. beg leave to call attention to their splendid collection of the above, consisting of several thousand CANES of the most approved varieties in cultivation. Extra strong, short-jointed, well-ripened Canes for fruiting in Pots next year; fine strong, well-ripened Canes for planting in Vineries, and strong hardy Canes for open walls.

For prices and full descriptive list of more than 40 finest selected varieties most suitable for above purposes, see AUTUMN SUPPLEMENT to their VADE MECUM, forwarded post free on application.

Seed Merchants and Nurserymen, 237 and 238, High Holborn, London, W.C.

GRAPE VINES.—Strong well ripened Canes of the following, at 3*s.* 6*d.* to 5*s.* each:—Black Hamburgh, Grizzly Frontignan, Black Prince, Chasselas Musqué, Black St. Peter's, Black Frontignan, Cannon Hall Muscat, Précoce Malingre, White Frontignan, White Sweetwater, Muscat of Alexandria, Tokay, Golden Hamburgh, Syrian Muscat Hamburgh, Mill Hill Hamburgh, Lady Downes, Black Cluster, Esperion, Muscat Troveron, Royal Muscadine, Trentham Black, Blanc de Kentsheim, Black July, Ingram's Prolific, Buckland Sweetwater, Cavoush.

JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

Very Strong Standard and Pyramid Pears and Plums.

JAMES GARAWAY AND CO., Durdham Down Nurseries, Bristol, offer the above, of the best varieties, 24*s.* to 30*s.* per dozen. Prices to the Trade on application.

AUTUMN CATALOGUE and FOREST TREE LIST free by post.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

The Royal Hautbois Strawberry.

MESSRS. THOMAS RIVERS AND SON now offer Plants of the above. The variety was selected by them in 1861 from many hundreds of Seedlings raised from La Belle Bordelaise Strawberry, a variety of the Hautbois received from France, and has proved to be by far the largest and most prolific of the race, with the true Hautbois flavour.

Plants, 4*s.* per dozen, 30*s.* per 100. A few extra sized bearing plants, 9*s.* per dozen; carriage paid to London.

Nurseries, Sawbridgeworth.

RASPBERRIES.—Cornwell's Seedling, Carter's Prolific, Prince of Wales, Fillbasket, Red Prolific, Autumn Tinted, and Yellow Antwerp. STRAWBERRIES, Sorts. GOOSEBERRIES.—Crown Bob, Warrington, Whitesmith, and Balloon. Large LAURUSTINUS, 3 feet; one and two-year ASPARAGUS; Double White and Yellow NARCISSUS, &c.

GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts.

New Seedling Gooseberries—Golden Queen and Rifleman.

J. HILLIER begs to offer the above as acquisitions, and which he has Exhibited and obtained Prizes for on several occasions.

GOLDEN QUEEN.—Rich golden yellow; smooth, well-formed berry; weight, 26 dwts. 3 grains.

RIFLEMAN.—Dark green; long smooth berry; robust habit; abundant bearer; weight, 24 dwts. 5 grains.

Strong plants, 5*s.* each. Usual Discount to the Trade.

The Nurseries, Marlborough, Wilts.

IMMENSE GOOSEBERRY.—Strong plants of the splendid RED SEEDLING GOOSEBERRY named THE MARLBOROUGH for SALE, at 7*s.* 6*d.* per plant.

A Berry of this kind came out in 1860 weighing 27 dwts. 18 grains, and in the following year gained a Prize at the Seedling Gooseberry Show at Manchester.

Orders, accompanied by a Post-office Order, to be made to Mr. RICHARD LAVINGTON, Marlborough.

DILLISTONE AND CO., Sturmer and Woodlands Nurseries, one mile from the Haverhill Station, Colne Valley Railway, beg to offer a few thousand of the finest kinds of mixed LANCASHIRE GOOSEBERRIES, four years old; they consist of Crown Boba, Companion, Troubler, Whitesmiths, Wellington Glory, and other large and good bearers. Price upon application.

All the popular kinds of ROSES on MANETTI, 2½ to 6 feet in height, price 6*s.* to 18*s.* per dozen, cheaper by the hundred.

A few hundreds of choice HOLLYHOCKS, same of best PANSIES, cheap and good plants, and will give satisfaction to the purchaser.

DILLISTONE'S 1st EARLY PEA, originated here, by the quart, peck, or bushel, with everything connected with the Nursery and Seed Business. Cash or reference is requested.

Sturmer, Nov. 14.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

E. G. HENDERSON AND SON'S DESCRIPTIVE LIST of BULBS as a Guide for the Amateur's selection is now published, and will be forwarded post free on application.

HYACINTHS, choice by name, 6*s.*, 8*s.* and 9*s.* per doz.
Do., MIXED in colours, 3*s.* per doz.
Do., colours separate, 4*s.* per doz.
Do., MINIATURE FLOWERED VARIETIES, 3*s.* per doz.
TULIPS for Forcing, 6*d.* to 1*s.* per doz.
Do. EARLY SINGLE, and DOUBLE MIXED, 5*s.* and 6*s.* per 100.
Do., LATE, show varieties, mixed, 1*s.* per doz.
SNOWDROPS, single and double, 2*s.* per 100.
WINTER ACONITES, 2*s.* 6*d.* per 100.
CROCUS, in sorts, 1*s.* 6*d.* and 2*s.* per 100.
SCILLA SIBIRICA, 7*s.* 6*d.* per 100.
ANEMONES, 3*s.* 6*d.* and 5*s.* 6*d.* per 100.
RANUNCULUS, 3*s.* to 5*s.* per 100.
GLOXINIAS, by name, 9*s.* and 12*s.* per doz.
ACHIMENES by name, 2*s.* 6*d.* and 3*s.* per doz.
GLADIOLUS BRENCHLEYENSIS, 3*s.* per doz., 20*s.* per 100.
,, GANDAVENSIS, the finest collection offered.
CYCLAMEN, a choice collection of 30 varieties by name.
LILIES, 60 fine varieties. TRITOMA UVARIA, 12*s.* per doz.
TRITONIA (CROCOSMA) AUREA, 3*s.* per doz.
EARLY SPRING-FLOWERING PLANTS, in various colours, as HEPATICAS, DOUBLE PRIMROSES, VIOLETS, CHRISTMAS ROSE, and 60 other early-flowering perennials.
Strong Clumps of NEAPOLITAN and other VIOLETS in pots for winter blooming, and LILY of the VALLEY.

Wellington Nursery, St. John's Wood, London, N.W.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c.; and a most extensive general Nursery Stock.

For Prices and Conditions of Free Delivery see Catalogue, which will be forwarded on application.

GEO. DAVIES begs to offer to the Trade the undernamed:—

ARAUCARIA IMBRICATA, from pans, 2 to 4 inches, 20*s.* per 100; 4 to 5 inches, 25*s.* per 100.
ACROPHYLLUM VENOSUM, 3 to 6 inches, 36*s.* per dozen.
GENETYLLIS TULIPIFERA, 6 to 12 inches, 36*s.* per dozen.
„ HOOKERII, 6 to 12 inches, 36*s* per dozen.
RHODODENDRON RETUSUM, 6 to 12 inches, 30*s.* per doz.
„ „ 12 to 15 inches, bushy, 36*s.* per dozen.

Reference or Remittance from unknown Correspondents.
Green Lane Nurseries, Old Swan, Liverpool.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, Waterloo Place, Edinburgh, respectfully invite the attention of gentlemen who are about to be engaged in planting, to their extensive stock of FOREST and ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, &c., all of which are in fine condition for removing at present, the wood having been thoroughly matured by the unusually favourable summer.

PRICED CATALOGUES and samples can be had free on application.

SEPARATE CATALOGUES can also be had of Rhododendrons and Conifers, Stove and Greenhouse Plants, and Ferns, Herbaceous and Alpine Plants, New Pansies, Florists' Flowers, Dutch Flower Roots, Gladiolus, Vegetable and Flower Seeds, Agricultural Seeds, &c.

WHOLESALE NURSERY LIST to the Trade on application.

Hardy Trees, Shrubs, and Plants.

W. SHORT begs to acquaint noblemen, gentlemen, and planters that he has direct transactions with numerous eminent nurserymen in various parts of the United Kingdom, and with his knowledge and through them he feels confident of being enabled to execute their orders to any extent on very liberal terms, for which he solicits their commands, which shall receive his best attention.

Reigate, Surrey—November 14.

Forest Trees and Shrubs.

THOMAS KENNEDY AND CO., NURSERYMEN and SEEDSMEN, Dumfries, N.B., beg respectfully to call the attention of the nobility and gentry of Great Britain and Ireland to their extensive stock of FOREST TREES and SHRUBS, which they are selling at very moderate prices.

CATALOGUES furnished on application.

*** Dumfries from its central position and railway accommodation is most favourably situated for the speedy transmission of goods to all parts of the kingdom.

The Nurseries, Folkestone, Kent.

JAMES MEIKLE specially offers BLACK ITALIAN and ONTARIO POPLARS, fine healthy transplanted plants, 8 to 12 feet high, well adapted for bleak localities, seaside planting, or to produce immediate effect.

Also a General Stock of ORNAMENTAL TREES and SHRUBS, FRUITS, &c., all repeatedly transplanted and warranted to move safely.

Carriage paid to London, or any Station on the South Eastern Line.

A DESCRIPTIVE ROSE LIST, free on application.

General Nursery Stock.

S. PONSFORD begs to announce that his Stock of the above is this season unusually fine. It consists of everything in demand for general planting. The most conspicuous are STANDARD and DWARF ROSES; FRUIT TREES of every description, including WALL TREES (very fine); PYRAMIDAL, BUSH and STANDARD APPLES, PEARS, &c.; STANDARD MULBERRIES, extra fine; EVERGREEN and DECIDUOUS SHRUBS, frequently removed; CHINESE ARBOR-VITÆ, all sizes; ANDROMEDA FLORIBUNDA, &c. CONIFERÆ of the known hardy kinds. LIMES, POPLARS, MOUNTAIN ASH, &c.

PRICED CATALOGUES gratis.

Loughborough Park Nurseries, Brixton, Surrey, S.

Araucaria Rulei, from the New Hebrides.

F. SMITH, late of SMITH & ADAMSON, Melbourne, begs to announce that he has a few 2 year old Plants of this valuable New CONIFER to offer at 10*l.* each.

A report with full particulars of this invaluable, extremely rare, and perfectly unique Conifer can be seen in the Proceedings of the Royal Horticultural Society, who are also in possession of a living plant and dried specimens.

Address WILLIAM SMITH & SON, Nurserymen and Seedsmen, Aberdeen.

FOR IMMEDIATE SALE, 100 ORCHARD-HOUSE TREES, established 3 and 4 years in pots; 50 TANGERINE ORANGES, in pots; 500 TRANSPLANTED FRUIT TREES, Dwarfs and Pyramids; 1000 LARGE RHUBARB ROOTS, all the best sorts for Forcing or Planting; 500 yards TREE BOX EDGING, 12 to 15 inches high. No reasonable offer will be refused for the whole or any one lot, as the ground must be cleared at once. Delivered to Railway. Lists of Sorts, &c., on application to

Mr. JOHN BAILEY, Shooter's Hills, Longton, Staffordshire.

This Advertisement will not be repeated.

SPECIAL OFFER of SHRUBS and TREES.—The Subscriber having an abundant Stock of the following, he is prepared to offer same much below the usual rates. The undernoted is well worthy the attention of the Trade and parties about to plant, the Subscriber's Nursery having been for the past 50 years famed for producing particularly fine rooted plants. Prices per 100 and 1000 on application.

AUCUBA JAPONICA, 12-inch; APPLE STOCKS, 1-year do. 2 feet, Transplanted; ARBORVITÆ, AMERICAN, 1-year laid, 6 to 12-inch; AZALEA PONTICA, 12-inch; BARBERRY, COMMON, 12-inch; BIRD CHERRY, 2 to 3 feet; BIRCH, Transplanted, very scarce, 1½ feet; RED CEDARS, 9-inch; CUPRESSUS MACNABIANA, 2 feet; CUPRESSUS THUJOIDES, 6-inch; EUGENIA UGNI; 3-year SEEDLING SILVER FIR; 2-year SEEDLING HAZEL; GREEN HOLLIES; 1-foot LAUREL, COMMON; 1 to 3-feet PEAR STOCKS; 1-year SEEDLING, and 2½-feet Transplanted PINUS CEMBRA, 3-feet, very fine specimens; PINUS AUSTRIACA, 1 to 2-feet; QUINCE STOCKS, 2 feet, very fine stems. SPURGE LAUREL, 1 to 2 feet.

ROBERT T. MACKINTOSH, Nurseryman and Seedsman, 12, Melbourne Place, George IVth Bridge, Edinburgh.

Nursery, Leith Walk.

Forest Trees, Shrubs, &c.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN, Edinburgh and London, have to announce that their PRICED CATALOGUE for the present season is now ready, and will be forwarded Free on application.

Their stock of SEEDLING and TRANSPLANTED FOREST TREES, ORNAMENTAL SHRUBS, &c., is at present very large, and of superior quality. If requested, special offers will be made to those intending to plant largely.

Edinburgh.—Nov. 14.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Woking Nursery, Surrey.

Handsome Specimen Trees.

CEDRUS DEODARA, 8 to 9 feet high, 5 feet in diameter, 25*s.* to 31*s.* 6*d.* each.

Ditto, 10 to 12 feet high, 7 feet in diameter, 42*s.* each.

Splendid trees, and all recently removed.

WELLINGTONIA GIGANTEA, 4 to 5 feet high, 4 feet in diameter, 63*s.* each.

Ditto, 6 to 7 feet high, 5 to 6 feet in diameter, 105*s.* each.

These trees have all been prepared early this autumn, and will remove safely, with fine fibrous rooted balls of earth.

Apply to GEO. JACKMAN & SON, Woking Nursery, Surrey.

WELLINGTONIA GIGANTEA.—The undersigned has to offer a fine stock of SEEDLING PLANTS in Pots at the following low prices:— Per 100.

1-year SEEDLINGS in single pots	£2	0	0
2-year „ 8 inches	3	0	0
Ditto, in 48-pots, 1 foot .. .. „	5	0	0
ARAUCARIA IMBRICATA, in pots 2 years ..	2	10	0
CUPRESSUS LAWSONIANA, in pots, 8 inches ..	0	10	0
PICEA NORDMANNIANA, 2 years .. per doz.	0	9	0

J. HENCHMAN, Edmonton, London, N.

W. VIRGO AND SON have a very large Stock of the following to offer for Sale at very moderate prices:—

Apples, espalier	Laburnum, 6 to 8 ft.
Beech (Common), 3, 4, to 6 ft.	Laurel, Common, 2 to 3 ft.
Berberis aquifolia, 12 to 18 in.	Ditto, Portugal, 1 to 2 ft.
Ditto dulcis, 1, 2, to 3 ft.	Mountain Ash, 6 to 9 ft.
Briar (Sweet), 2 to 3 ft.	Oak, English, 3, 4, to 5 ft.
Cherries, espalier	Ditto, 2 years seedling
Ditto, standard	Ditto, Turkey, 3 to 4 ft.
Cotoneaster microphylla, 9 to 12 in.	Poplars of various kinds, 4 to 6 ft.
Holly, Green, 9 to 12 in.	Privet, 2 to 3 ft.
Hazel, 1 year seedling	Sycamore, 3, 4, 5, to 6 ft.

All the above are strong, healthy, and well rooted.

Samples with prices can be had on application at the Nursery, Wonersh, near Guildford, Surrey.

Fruit Trees.

JOHN CRANSTON offers superior, healthy grown plants of all the best varieties of FRUIT TREES, DESCRIPTIVE CATALOGUES of which will be forwarded on application.

	Each.—*s. d.*
APPLES.—Very fine Dwarf-trained	2 6
„ Pyramids	2 6
„ Standards .. .. 2*s.* to	2 6
APRICOTS.—Dwarf-trained .. .. .. 3*s.* 6*d.* to	5 0
„ Standard-trained .. .. 5*s.* to	7 6
CHERRIES.—Dwarf-trained .. .. .. 3*s.* 6*d.* to	4 6
„ Pyramids .. .. 2*s.* 6*d.* to	3 6
GRAPE VINES.—Standards	2 6
„ Very fine and well-ripened .. .. 3*s.* 6*d.* to	5 0
NECTARINES.—Dwarf-trained .. .. .. 3*s.* 6*d.* to	5 0
„ Standard-trained .. .. 5*s.* to	7 6
PEACHES.—Dwarf-trained .. .. .. 3*s.* 6*d.* to	5 0
„ Standard-trained .. .. 5*s.* to	7 6
PEARS.—Dwarf-trained	3 6
„ Pyramids .. .. 2*s.* 6*d.* to	3 6
„ Standards	2 6
PLUMS.—Dwarf-trained .. .. .. 3*s.* 6*d.* to	4 6
„ Standards	2 6
WALNUTS.—Standards	2 6
„ Extra strong .. .. 3*s.* 6*d.* to	5 0

GOOSEBERRIES, CURRANTS, FIGS, RASPBERRIES, STRAWBERRIES, &c.

PEACHES, NECTARINES, and APRICOTS, established in Pots for Orchard House Culture, 5*s.* each.

ASPARAGUS, two years .. .. „	2*s.* 6*d.* per 100
SEA KALE, „	8*s.* per 100

Nurseries, King's Acre, near Hereford.

NEW FORCING GERANIUM, MRS. LEWIS LOYD.—Rich crimson with dark maroon blotch in top petals; of dwarf robust habit, and most profuse bloomer. Forces into flower at any season without drawing. It was exhibited to the Floral Committee of the Royal Horticultural Society on March 31, and then awarded their Certificate of Commendation. Good Plants now ready, 7*s.* 6*d.* each.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W.

JAS. GARAWAY AND CO.'S AUTUMN CATALOGUE for 1863, containing Priced Lists of Shrubs, Ornamental Trees, Conifers, Roses, and Fruit Trees of all descriptions, is now ready, and will be forwarded Post-free on application.

Orders exceeding 5*l.* Carriage Paid to the Irish ports in direct communication with Bristol.

JAS. GARAWAY & CO., Durdham Down Nurseries, Bristol.

SPRING EXHIBITIONS.—The following will be found worth the attention of cultivators, as the finest kinds for competition, also for winter and spring display in the Conservatory. The quality of all is first-class.

PRIMULA SINENSIS, with fimbriated flowers.—ALBA, pure white, 6*d.* and 8*d.*; RUBRA, rich crimson, 6*d.* and 8*d.*; PICTA, mauve on white, 1*s.* CARMINATA RUBRA, most distinct and beautiful new colour, 1*s.* 6*d.* and 2*s.* 6*d.* FILICIFOLIA ALBA, 2*s.* 6*d.*, and FILICIFOLIA CRIMSON, 2*s.* 6*d.* to 3*s.* 6*d.*, the beautiful white and crimson Fern-leaved.

PRIMULA SINENSIS, with double flowers.—NIVEA PLENA, 2*s.* 6*d.*; ALBA PLENA, 1*s.* and 1*s.* 6*d.*; ROSEA PLENA, 2*s.* 6*d.*; RUBELLA PLENA, 3*s.* 6*d.*; ALBA PLENA FIMBRIATA, blush white, 1*s.* 6*d.*; ATROROSEA FIMBRIATA PLENA, rich crimson, 7*s.* 6*d.* to 15*s.*

CALCEOLARIA.—This stock is carefully hybridised, 6*d.* and 9*d.* each.

CINERARIA.—Best sorts, by name, 6*d.*, 9*d.*, and 1*s.* each.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

STRONG SEAKALE ROOTS for FORCING, 10*s.* per 100. Early orders are solicited. Apply to

Mr. MYATT, Manor Farm, Deptford, S.E.

MYATT'S PROLIFIC ASH-LEAVED POTATO and EARLY DALMAHOY. Price on application.

Mr. MYATT, Manor Farm, Deptford, S.E.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified in the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6*l.* per Ton, or 8*s.* per cwt.; and to prevent disappointment orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts. Sacks, 2*s.* each.

Seed Potatoes.

H. AND F. SHARPE are now prepared to make special offers to the Trade of the following varieties of SEED POTATOES, which have been harvested in fine condition, and free from disease. They comprise all the sorts worthy of cultivation, and have been grown with much care from the finest selected stocks. As the yield this season is very fine, the prices will be moderately low, and may be had on application.

Improved Ash-leaved Kidney	Early Fox's Seedling
Jackson's do. do.	Early Round Frame
Walnut-leaved do.	Early Martin's Globe
MYATT'S PROLIFIC do.	Early Golden Globe
(very productive)	Early King (for forcing)
Fluke Kidney	Early British Queen
Lapstone do.	Early Cockney
EARLY DALMAHOY	Early Forty-fold
Early Oxford	Early Snowball

Seed Growing Establishment, Wisbech.

E. T. ATHERTON, NURSERYMAN, Chatteris, having grown that wonderful ASH-LEAVED KIDNEY POTATO called MYATT'S SEEDLING two years, and which made over 50*l.* per acre last year, offers it to the public, with confidence that it will give satisfaction, at 6*l.* per ton, or 1*s.* 2*d.* per stone; not less than four stone sent.

E. T. A. has also to offer a collection of STANDARD ROSES in good condition, height from 2 to 5 feet, at 12*s.* per dozen, delivered at Chatteris Station free; most of them Perpetuals. For cash.

THE EARLIEST PEA KNOWN is CARPENTER'S EXPRESS (pods larger than any other early Pea).

Among *numerous* Testimonials the following has been received:—

From Mr. JONES, *Gardener to Lord Leconfield, Petworth, Sussex. June* 3, 1863.

"I beg to say I have found Carpenter's Express Pea to answer well as an early one; it was sown on the 20th of November, on a south border, and I gathered the first dish on the 7th of May. I had Daniel O'Rourke and your Pea side by side in November, 1861, and gathered First from Carpenter's Express in May, 1862, which led me to grow it as my earliest this year."

New Seed to be had only of EDWARD CARPENTER, Seed Merchant, Brighton and Sussex Seed Establishment, 96, St. James's Street, Brighton. Price 2*s.* 6d. per quart.

Early Orders are solicited, which will be executed strictly in priority.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his three new PRICE LISTS, No. 97, 98, and 99, containing the Stove, Greenhouse, and Hardy Plants (212 pages 12mo).

Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

Nursery and Seed Establishment, Hastings.

WILLIAM EPPS, JUN., begs to inform his numerous patrons that he has REMOVED from Ashford, and opened a new Establishment as above; and trusts to merit a continuance of their favours.

W. E., JUN., has had the honour of being patronised by the Royal Family of Hesse, the Grand Duchess Constantine, and the Japanese Ambassadors.

REIGATE SILVER SAND, 12*s.* per ton at Swan Place, delivered five miles, or to any London wharf, or Railway, 16*s.* per ton, or 1*s.* 6*d.* per bushel (Sacks at cost price or on hire). KENTISH and HAMPSHIRE PEATS, LOAM, LEAF MOULD, SPHAGNUM, and COCOA FIBRE REFUSE.

J. KENNARD, Swan Place, Old Kent Road, London, S.E.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.* 4 cwt.; ditto Clarified fine or sharp, 2*s.* 6*d.* cwt., put on the Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

N.B. Loaded Trucks can be sent on all the principal Railways.

W. SHORT, Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his New CATALOGUE, containing Select, Descriptive, and Priced Lists of Exotic Orchids, New and Rare Greenhouse, Hardy, and Stove Plants, Ornamental and Variegated-foliaged Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, Narcissus, and other Bulbs, is now published and will be forwarded to all applicants.

Exotic Nursery, Tooting, Surrey, S.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON'S first importation of the above has arrived, and from the extraordinary heavy weight of the Bulbs they promise a fine bloom. Early orders are earnestly solicited. DESCRIPTIVE PRICED CATALOGUES free.

N.B.—17 FIRST PRIZES were awarded to WM. C. & SON last spring for HYACINTHS, TULIPS, and CROCUSES. In addition to this, EVERY FIRST PRIZE at the London Exhibitions to Amateurs was for Bulbs supplied by them.

The ONLY address is Highgate Nurseries, London, N.

Imported Bulbs.

BORDER HYACINTHS, 2*s.* per doz., 16*s.* per 100.
REX RUBRORUM TULIP, 7*s.* per 100.
POLYANTHUS NARCISSUS, from 2*s.* per doz.
SINGLE and DOUBLE SNOWDROPS, 1*s.* 6*d.* per 100.
LARGEST YELLOW CROCUS, 2*s.* 6*d.* per 100.
LILIUM LANCIFOLIUM ALBUM, 7*s.* 6*d.* per doz.
GARLIC, SHALLOTS, &c.
RETAIL CATALOGUES and price to the Trade on application.

H. BROWN, 4, Commutation Row, Liverpool.

For £1 1s., Carriage Paid.

BARR AND SUGDEN'S No. 3 COLLECTION of BULBS for the SITTING-ROOM or CONSERVATORY.—12 s lendid Hyacinths, 6 Pompone Hyacinths, 6 Polyanthus Narcissus, 6 Double Sweet-scented Jonquils, 24 splendid Tulips, 50 New Crocus, 3 Japan Lilies, 6 Achimenes, 3 Lachenalias. Half the above, 10*s.* 6*d.*

BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

£34 10s. Prizes.

BARR AND SUGDEN, SEED MERCHANTS, 12, King Street, Covent Garden, W.C.

The Royal Horticultural Society in March, 1864, offer Prizes to the amount of 34*l.* 10*s.* for HYACINTHS, TULIPS, and CROCUS.

See BARR & SUGDEN'S enumerated varieties of Exhibition HYACINTHS, TULIPS, and CROCUS; also their Advertisement, page 1081.

DUTCH BULBS.—The following Collection for 10*s.*, (half the quantity 5*s.*):—12 best named HYACINTHS for pots or glasses, six fine POLYANTHUS NARCISSUS, 50 fine DUTCH CROCUS, 50 Double SNOWDROPS, 12 best EARLY TULIPS,
CATALOGUES of DUTCH BULBS and Choice GLADIOLUS free by Post.

J. H. COTTRELL, The London Seedsman, 15, Bull Ring, Birmingham.

DUTCH BULBS.—HYACINTHS, best named varieties, 6*s.* per dozen, 40*s.* per 100; ditto, all colours mixed, 3*s.* per dozen, 20*s.* per 100; CROCUS, 8*s.* per 1000; TULIPS, &c., FERNS, FERN CASES, and AQUARIUMS, FOREIGN BIRDS and CAGES, the greatest variety in the Trade.

R. GREEN, Bedford Conservatories, Covent Garden Market; and 154, Kingsland Road, N.E.

PALM SEEDS from the AMAZONS.—Just received, 15 varieties, offered at 21*s.* per 100; likewise seeds of XANTHORRHŒA from Tasmania, 25 for 2*s.* 6*d.*; and 12 do. of MAURITIA VINIFERA? PALM from West Africa, 1*s.* each.—W. CUTTER, Importer of Seeds and Objects of Natural History, Crystal Palace, Sydenham, S.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3*s.* per doz.; 20*s.* per 100.
Trade price on application,

Royal Nurseries, Great Yarmouth, Norfolk.

Prize Gladioli.

YOUELL AND CO. were awarded the following PRIZES for the above in September last:—
FIRST AND SECOND PRIZE, CRYSTAL PALACE,
FIRST PRIZE, ROYAL HORTICULTURAL SOCIETY,
FIRST PRIZE, BRIGHTON.

CATALOGUES of this collection will be forwarded on application.

Royal Nurseries, Great Yarmouth, Norfolk.

WILLIAM DILLISTONE begs to offer the following in Strong PLANTS for stock. He has bloomed nearly every variety that has been sent out this year, and ha reserved only such in stock that are superior to older varieties, and having an immense stock, he begs to offer them at the undermentioned low prices:—

	Per doz.—*s.*	*d.*
New Fuchsias, choice selections	6	0
,, Verbenas, ditto	4	0
,, Antirrhinums, ditto	4	0
,, Petunias, ditto	4	0
,, Pentstemons	6	0
,, Lobelias, including Paxtoniana, and five others, ditto	3	0
,, Tropæolums, including Ball of Fire, ditto	6	0
,, Veronicas, ditto	9	0
,, Gazanias, ditto	9	0
,, Lantanas, ditto	9	0
,, Chrysanthemums, do.	6	0
,, Heliotropes, ditto	6	0
,, Hollyhocks, ditto	18	0
,, Mimulus (maculosus), Bull's, ditto	4	0
,, Do., Henderson's, do.	4	0
,, Pansy, Good Gracious	9	0

	Per doz.—*s.*	*d.*
New Ageratum, Prince Alfred	6	0
,, Pampas Grass, Gynerium argenteum roseum	9	0
,, Geraniums, choice selection, from	9	0
,, Roses, ditto 24*s.* to	36	0
,, Lonicera aureo-reticulata .. 6*s.*, 9*s.*, and	12	0
,, Echeveria metallica each	2	6
,, Solanum capsicastrum fol. variegatum each 1*s.*	9	0
,, Perpetual Flowering Pink per pair, 1*s.* 6*d.*	12	0
,, Phlox, Mrs. Mitchell each	1	0
,, Strawberry, the Tietjen	4	0
,, Strawberry, Princess of Wales	12	0

Also the following, in Strong Plants:—

	Per doz.—*s.*	*d.*
Hepaticas, sorts	3*s.* to 4	0
Primroses	4*s.* to 9	0
Polyanthus, choice mixed	3	0
Auriculas, border var.	3	0
Lilies of the Valley	2	0
Lavender	3	0
Pinks, finest named	3	6
Rockets, Double White and Yellow	4	0
Violets, Double White, Purple and Russian	3	0
Œnothera missouriensis	4	0
,, taraxacifolia	4	0

	Per doz.—*s.*	*d.*
Œnothera splendens	4	0
Dielytra spectabilis	4	0
Phlox, fine named	4	0
Rock Cistus, in 20 vars., named, the collection	6	0
Hollyhocks, fine named	6	0
,, seedlings, from	3	0
Centaurea candidissima	9	0
Gnaphalium lanatum	4	0
Pansies, fine named	3	0
Roses, fine named 9*s.* to	12	0
Roses, fine named, on Manetti	9*s.* to 12	0

100 CHOICE HARDY HERBACEOUS PLANTS, in 50 varieties, carefully named and packed for 20*s.* Carriage paid.

A DESCRIPTIVE CATALOGUE of the New Plants free for one stamp.

Carriage of Parcels amounting to 20*s.* paid to London or any Station within 50 miles. Post Office Orders payable on Castle Hedingham, to

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Beck's New Pelargoniums,

OFFERED FOR THE FIRST TIME.

B. S. WILLIAMS begs to announce that he is now prepared to supply strong plants of the above, which have received certificates of the highest merit during the past and previous seasons. They have been selected with great care, and are far in advance of any yet offered.

For descriptions and prices see *Gardeners' Chronicle*, Oct. 24; also in Catalogue, which can be had on application.

Paradise and Victoria Nurseries, Holloway, London, W.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

THE RED LODGE NURSERY, SOUTHAMPTON. extends over 60 acres, and contains an unrivalled stock of AMERICAN PLANTS, FRUIT, FOREST, and ORNAMENTAL TREES, EVERGREEN and FLOWERING SHRUBS, CHOICE CONIFERÆ, STANDARD and DWARF ROSES, &c., all in the best state for removal.

CATALOGUES, and every information obtainable on application to the Proprietor, Mr. W. H. ROGERS.

LINARIA ALPINA.—Flowers orange and purple, fine dwarf silvery tufts, quite hardy, 6*s.* per dozen, 42*s.* per 100.

CALANDRINIA UMBELLATA.—Perennial, vivid purplish crimson. Good blooming plants, 4*s.* per dozen, 30*s.* per 100. Extra strong, 6*s.* to 9*s.* per dozen.

LYCHNIS (AGROSTEMMA) CORONARIA.—Corymbs of vivid "magenta" flowers 1½ inches across, from silvery tufts, 1 to 2 feet. Strong blooming plants, 5*s.* per dozen, or 21*s.* and 31*s.* 6*d.* per 100.

AUCUBA-LEAVED or GOLD NETTED DAISY.—Strong plants, 4*s.* per dozen, 21*s.* per 100.

JAS. BACKHOUSE & SON, York Nurseries.



Orders amounting to 21*s.* *sent Carriage Paid.*

£34 10s. Prizes for Hyacinths, Tulips, and Crocus.

The Royal Horticultural Society in MARCH, 1864, offer PRIZES to the above amount for HYACINTHS, TULIPS, and CROCUS.

For DESCRIPTIVE LIST of NEW and EXHIBITION HYACINTHS, TULIPS, and CROCUS, see BARR & SUGDEN'S "ILLUSTRATED FLORAL GUIDE," price 1*s.*

HYACINTHS.

100 in 100 exhibition varieties	..	105*s.*	100 in 100 extra fine varieties	..	84*s.*	100 very fine varieties	..	..	63*s.*
50 in 50 ,, ,,	..	50*s.*	50 in 50 ,, ,, ,,	..	42*s.*	50 ,, ,, ,,	..	..	30*s.*
25 in 25 ,, ,,	..	25*s.*	25 in 25 ,, ,, ,,	..	21*s.*	25 ,, ,, ,,	..	..	15*s.*
12 in 12 ,, ,,	..	15*s.*	12 in 12 ,, ,, ,,	..	12*s.*	12 ,, ,, ,,	..	6*s.* to	9*s.*

TULIPS.

100 in 50 exhibition varieties	..	25*s.*	100 in 30 exhibition varieties	..	17*s.* 6*d.*	25 in 25 exhibition varieties	..	5*s.* 6*d.*
100 in 40 ,, ,,	..	21*s.*	50 in 25 ,, ,,	..	10*s.* 6*d.*	12 in 12 ,, ,,	..	3*s.* 0*d.*

CROCUS.

500 in 20 exhibition varieties	..	21*s.*	250 in 20 exhibition varieties	..	10*s.* 6*d.*	100 in 20 exhibition varieties	..	4*s.* 6*d.*

COLLECTIONS of BULBS (see our Advertisement, page 886, *Gardeners' Chronicle*, Sept. 19), for the adornment of the SPRING FLOWER GARDEN, CONSERVATORY and SITTING-ROOM.

For PRICES of BULBS generally, see our Advertisement, page 958, *Gardeners' Chronicle*, Oct. 10.

For PRICED and DESCRIPTIVE LISTS of BULBS necessary for WINTER and SPRING GARDENING, with the best methods of successfully cultivating and advantageously arranging them, see BARR AND SUGDEN'S "ILLUSTRATED FLORAL GUIDE to WINTER and SPRING GARDENING."

CHOICE ORCHIDS.

HUGH LOW & CO.

HAVE PLEASURE IN ANNOUNCING THE ARRIVAL IN FINE CONDITION OF A QUANTITY OF

CATTLEYA ACLANDIÆ,

which they offer at moderate prices.

NOTICE.—IN CONSEQUENCE OF THE VERY GENERAL INTEREST NOW EVINCED IN THE SUBJECT OF ORCHIDACEOUS PLANTS ADAPTED FOR CULTIVATION IN HOUSES OF A COOL TEMPERATURE, HUGH LOW & CO. HAVE DESPATCHED TO NEW GRENADA A THOROUGHLY COMPETENT AND ENERGETIC COLLECTOR, WITH INSTRUCTIONS TO FORWARD LARGE SUPPLIES OF THE ODONTOGLOSSUMS, CYPRIPEDIUMS, MAXILLARIAS, AND OTHER CHOICE ORCHIDS TO BE FOUND IN THE CORDILLERAS OF COLOMBIA AND THE ADJACENT COUNTRIES.

CLAPTON NURSERY, LONDON, N.E.

ROSES.

TWENTY-SEVEN FIRST PRIZES DURING THE PAST SEASON.

PAUL & SON,

OLD CHESHUNT NURSERIES, HERTS, N.,

Beg to announce that they are now sending out the above. Their Stock of both STANDARD and DWARF ROSES was never finer.

CATALOGUES will be forwarded free on application.

Paul & Son would solicit early orders, as the stock of certain kinds, as H.P. LORD CLYDE and CHARLES LEFEBVRE, &c., is but limited.

To gentlemen planting Rosaries they would be happy to submit Plans, or to furnish Roses by the 100 or 1000 at special prices.

ROSES.

TWENTY-ONE FIRST PRIZES FOR ROSES WERE AWARDED TO

WILLIAM PAUL

at the principal London Flower Shows.

SUPERIOR STANDARDS, 18s. per doz. and upwards. | SUPERIOR DWARFS, 9s. per dozen and upwards.

All the NEW ROSES, including BEAUTY of WALTHAM, Mrs. WM. PAUL, and LORD MACAULAY (three of the best), in almost unlimited quantities.

The NEW PRICED CATALOGUE is now ready Free by Post.

FRUIT TREES.

APPLES, PEARS, PLUMS, CHERRIES, APRICOTS, PEACHES, NECTARINES, FIGS, GRAPE VINES, GOOSEBERRIES, CURRANTS, RASPBERRIES, STRAWBERRIES, &c. All the really desirable sorts in perfect condition for transplanting at lowest advertised prices. Fruit-bearing trees of the first seven fruits may be had suitable for potting, for orchard-house culture, from 18s. to 30s. per dozen.

PRICED CATALOGUE Free by Post.

PLANTING.

Planting to any extent, with or without the supervision of the Trees, &c., till established, undertaken in any part of the United Kingdom. The rich and varied collection of Trees and Shrubs growing in one Nursery of 30 acres has been removed within three years, which is almost a guarantee of success in Transplantation.

PAUL'S NURSERIES and SEED WAREHOUSE, WALTHAM CROSS, N.

NEW HARDY LATE FLOWERING RHODODENDRONS.

PRINCE OF WALES.

Brilliant rose shaded with purple, divided black marking on the upper petals, compact truss, good substance, a profuse bloomer, very hardy, and flowers end of June.

Strong young plants, 21s. each. | A few larger ones, 42s. each.

PRINCESS OF WALES.

Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, compact truss and good substance. Totally distinct from any known Rhododendron. Hardy and late. A really beautiful variety.

Strong plants, 21s. each. | Larger, 42s. each. | A few extra size, 63s. each.

One Plant over in three to the Trade.

Maurice Young has much pleasure in now offering for the first time the above distinct and beautiful RHODODENDRONS, which he can confidently recommend as most desirable additions to this noble class of hardy evergreens. They have both been proved for several years in the open ground to be very hardy, free bloomers, compact truss, and very late—possessing every qualification which can be desired in a first-class Rhododendron.

COLOURED PLATES by Andrews are now ready, and will be forwarded on receipt of 25 postage stamps.

MAURICE YOUNG (Son and Successor to the late William Young), MILFORD NURSERIES, near GODALMING.

NEW PEAR, BRITISH QUEEN (Ingram).

CHARLES TURNER

Has much pleasure in offering this beautiful PEAR. The following description is supplied by Mr. Powell, of the Royal Gardens, Frogmore :—

"This Queen of Pears was raised by Mr. Ingram, Gardener to her Majesty at Frogmore, and considered by all who have had the opportunity of testing its merits, to be the best Pear ever raised. The late Prince Consort was so pleased with the Fruit, that he characterized it as the best Pear he had ever tasted. It received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society, in 1861, and since maintained its character by taking the First Prize at the great Autumn Show of the above Society, in 1862. The Fruit is large, pyramidal in form, skin smooth and glossy, of a fine golden yellow, partly spread with cinnamon russet, and often a tinge of lively crimson on the sunny side; flesh yellowish white, very fine grained, with an abundance of juice, which is saccharine and rich, with a fine aromatic flavour; in beauty and excellence it has no equal; ripe in October and November."

Plants, 10s. 6d. & 15s. | Dwarf-trained, 20s. | A few Fruiting Pyramids, 42s.

A Coloured Drawing may be had, post free, for 12 *Postage Stamps.*

A CATALOGUE of ROSES is now ready.

New Plants.

MR. WILLIAM BULL begs to announce that his NEW PLANTS from Brazil, Central America, Australia, Bombay, Java, New Caledonia, and Guatemala, are now ready for delivery. For particulars *vide* Advertisement in last week's *Gardeners' Chronicle.*

A DESCRIPTIVE PRICED LIST of Novelties can be had on application.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1072.

To the Seed Trade.

W. THOMPSON, Seedsman, Tavern Street, Ipswich, begs to announce that the Stock of the following beautiful and distinct NEW ANNUALS—

RHODANTHE ATROSANGUINEA,
RHODANTHE MACULATA ALBA,
HELIPTERUM SANFORDII,

for which Silver Banksian Medal and First-class Certificates have been awarded him, is now ready for distribution.

Prices may be had on application either to his London Agents, Messrs. Henderson & Co., Pine Apple Place, Edgware Road, W., or to himself.

NEW FUCHSIAS (post free). NORTHERN LIGHT and RIFLEMAN, now sending out; Blue and Mauve-coloured Corollas. 5s. each.

EMPEROR of the FUCHSIAS, the most beautiful and elegant white corolla'd variety.

E. G. Henderson & Son, Wellington Road, London, N.W.

Superb Double Hollyhocks.

WILLIAM CHATER'S NEW LIST is now ready, and may be had on application by enclosing one Postage Stamp.

P.S. A large stock of FINE PLANTS now ready.
Nurseries, Saffron Walden.

ANDROMEDA FORMOSA (TRUE).—Fine strong Plants, averaging 1 foot, 60s. per 100. Selected specimens, very fine, averaging 2 feet, 12s. per doz.

The above beautiful hardy evergreen shrub is strongly recommended.

W. H. Rogers, Red Lodge Nursery, Southampton, has the only large stock in the Trade.

JAPAN LILIES, Extra strong Flowering Bulbs.

	Each—s.	d.
LILIUM LANCIFOLIUM ALBUM	1	0
,, ,, ROSEUM	1	3
,, ,, RUBRUM	1	3

Three each of the above, 10s.

Butler & McCulloch, Seed Merchants, Covent Garden Market, London, W.C.

New Chrysanthemums.

JOHN SALTER'S COLLECTION of these beautiful Flowers is NOW in FULL BLOOM. The Winter Garden contains all the finest varieties in cultivation, together with the NEW CHRYSANTHEMUMS for 1864. The Gardens are open every day except Sunday.

Versailles Nursery, William Street, near Hammersmith Turnpike and the Kensington Railway Station.

GREAT FRUIT and CHRYSANTHEMUM SHOW at BIRMINGHAM.—The ANNUAL GREAT FRUIT, GOURD, and CHRYSANTHEMUM SHOW, open to all the World, will take place at the Town Hall, Birmingham, in connection with the Handsworth Horticultural Society (simultaneously with the Cattle, Poultry, and Dog Shows), on TUESDAY, WEDNESDAY, and THURSDAY, December the 1st, 2d, and 3d.

Schedules of Prizes (which include a Ten Guinea Cup for a Collection of Fruit), are now ready, and may be had on application.

Entries close on THURSDAY, November 26.

Chas. Jas. Perry, Castle Bromwich.
George P. Tye, Handsworth.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 14, 1863.

MEETING FOR THE ENSUING WEEK.

Thursday, November 19—Linnean .. .. 8 P.M.

Of late years the desire to avail ourselves of the advantages of Cheap Glass for the cultivation and protection of plants has been apparent in every part of the kingdom, and hothouse builders have been doing a thriving trade. Every house in our towns which has any pretensions to comfort or luxuries of the most moderate kind, has a little greenhouse or conservatory attached to it, in which plants can be grown all the year round, and particularly where they can be protected during the winter. Orchard houses too, have come much into fashion, and these are not only useful in insuring an abundant crop of fruit in this uncertain climate of ours, but are also capable of affording a very great amount of enjoyment in many other ways.

What Mr. Rivers has done with cheap glass structures for fruit trees may, we think, be done on a larger scale for plants of an ornamental kind. There are a large number of plants remarkable for the beauty of their foliage or blossoms, which are all but hardy in this country, and which require only a little higher temperature in summer, or a very slight protection in winter to make them very enjoyable objects. The Eucalypti of New Holland, with their curious glaucous leaves; the Acacias of the same country; the Camellias of China, and the Euryas and other fine

foliaged plants of Japan to which we have lately alluded (p. 1059) are some of the things of this description which would succeed admirably in such structures, and which would well repay a little extra outlay in their cultivation. They might be planted out in the borders of such houses, and being strong and vigorous in their habits, they would require but little care or attention afterwards.

There is another class of very beautiful plants, which are natives of very cold countries with early springs, but with springs not so treacherous as ours. In those countries, when the frost is once gone in spring it rarely returns until the following autumn. The productions to which we allude are aware of this, and hasten to put forth their leaves and blossoms in the end of March or April, with the certainty that no rude frost will nip them in the bud at a later period. When such plants are introduced to a country like England their nature is unchanged; their confidence in climate is the same as when they were at home, and when the bright and sunny days of spring come round they boldly push out their buds and blossoms. Soon, however, they find out that their confidence has been misplaced; the frost returns again, sometimes as late as the middle of May, and their leaves and blossoms are destroyed. The Moutan, or Tree Peony, is an example of the plants to which we allude. All who had an opportunity of seeing the gorgeous flowers exhibited by Mr. BATEMAN at South Kensington last summer, will regret that such things are not more frequently met with. In a paper which Mr. BATEMAN sent with these flowers, and which was afterwards published in the "Proceedings of the Royal Horticultural Society," he describes his method of cultivation which produced such successful results. In his attempts to grow them out of doors in his garden at Biddulph Grange he was unsuccessful. "If the summer was cold and wet their wood was imperfectly ripened; if the winter was peculiarly severe their constitution suffered; or if it was mild, the early growth that it induced was certain to lead to mischief from late spring frosts or cutting winds. . . . In my own case, while convinced of the hopelessness of attempting to grow these plants out of doors—in North Staffordshire at all events—and yet not caring to throw my plants away, I placed about a dozen of them in the central border of the Orchard-house at Knypersley, where they have flourished marvellously, as a glance at the specimens now contributed will sufficiently prove."

The Moutan is a fair example of a class of beautiful plants, which, although perfectly hardy in England, yet require some slight protection from our spring frosts and perhaps a little higher temperature in summer to enable the wood to become well ripened. No art or horticultural skill which we can employ can change their nature, in so far as the individual is concerned, and if we wish to see such things in all their beauty we must give them the shelter which glass can afford. But such protection from the changes of our variable climate need be but slight and inexpensive, and for such we shall find ourselves most amply repaid.

With cheap glass, and a selection from the class of plants to which we have just alluded, builders and owners of building land in and about our large towns might contrive to make our streets and squares much more attractive than they are at present; more enjoyable to the inhabitants; and in a commercial point of view more remunerative to themselves. As it is, they do not find it advisable to cover the whole of their building land with houses; on the contrary, open spaces are included in the building plans, and these "squares" are laid out as gardens and planted with shrubs and trees. Why not carry the matter a little further, and have a WINTER GARDEN of glass in such squares, which should be common to all the inhabitants in the neighbourhood who have the right of entrance. In wealthy localities the Winter Garden would be in keeping with the surrounding mansions, it would be erected and maintained in a handsome manner; but smaller and less expensive structures would be equally enjoyable in districts where economy is of more importance. In this way a delightful place of resort might be enjoyed by many persons at a cheap rate, and we think, even as a speculation, it would pay for the extra outlay of capital.

Winter, with its leafless trees, cold winds, and cloudy skies, has come round once more. Swallows have already left us to pass their winter in a milder climate; and many amongst us, more particularly those who are invalids, would like to follow their example. That many do so, the crowds that flock south annually to pass the winter in the south of Europe and even in Egypt, abundantly prove. But many more must stay at home, and for their benefit we recommend the erection of Glass houses or WINTER GARDENS in the squares and open places of our English Towns.

WE have very recently had an application made to us for directions as to the best place for procuring Truffle spawn, and the most approved mode of treating it. Unfortunately one of the great desiderata of horticulture is the preparation of saleable Truffle spawn and a certain method of cultivation. As information on this point still seems requisite, and recurrence to the subject may lead to fresh researches, we offer to-day a few observations, though we have really nothing new to bring forward.

The BRITISH TRUFFLES, which belong to several well defined genera of extremely different structure, are confined principally to the midland and southern counties. We know little or nothing of Irish species, while those which have been ascertained to grow in Scotland are few in number. Glasgow has produced at least one species, and that not found hitherto in any other part of Great Britain, and we have lately received the fœtid *Melanogaster ambiguus* from the neighbourhood of Jedburgh. One or two more common kinds complete the list of Scottish species as far as they are at present known.

Though a few species are not confined to limestone formations, it may as a general matter be assumed that Truffles require a calcareous soil for their growth, and that they increase in number of species and individuals as we approach the southern limits of our island. And if this is true of Truffles in general, it is more especially so as regards the esculent kinds, which are alone likely to be objects of cultivation. Lime, and a certain degree of temperature, must therefore be assumed as necessities in their culture.

As regards their spawn, it is almost as various as the genera to which Truffles belong. Earlier authorities believed that they formed an exception to the general rule, and that they were produced at once from the fruit, without any previous development of germinating threads. Later observations, and especially those of Messrs. TULASNE, have shown not only that extremely abundant spawn is developed in several genera, but that even in the common Truffle of our markets, the soil in which they grow is during the month of September traversed by many white cylindrical strings much more slender than a common sewing thread, which themselves consist of multitudes of extremely delicate articulated filaments, which communicate with a fine byssoid mass, some lines in thickness, surrounding the young Truffles, with the outer coat of which they are in direct union. This envelope soon disappears, and the young Fungus seems completely isolated in the soil, though very careful examination will often detect some remains of the adherent byssus. The spawn is said occasionally to be luminous, but this is possibly not a constant character, and the notion may have arisen from some luminosity in the surrounding leaves independent of the spawn.

As regards other kinds of Truffles we have a cottony spawn in *Hymenogaster;* and a thick abundant villous matter of various colour, which connects the particles of soil, and often forms a sort of permanent outer shell in *Elaphomyces,* which is still more conspicuous in one or two Australian species, where rough particles of sand are concreted into a case resembling that of some pupæ or sea-worm. In *Hysterangium* the white spawn is peculiarly abundant, and is here and there spread out into little films which are extremely conspicuous, quite as much or more so in fact than the spawn of the common Mushroom. In *Melanogaster,* to which genus belongs the red Truffle of BATH, the spawn forms thick brown strings, some of which adhere to the surface of the fungus, anastomosing with each other; and very similar spawn occurs in *Rhizopogon,* which also contains more than one esculent species; while in *Genea* and some others we have abundant black or brown loose bundles of threads enveloping the whole or attached only to the base. Other instances might be given, but these are enough to show that Truffles do not form any exception to the general rules, that Fungi spring from spawn or mycelium developed from their reproductive cells, known under the names of spores or sporidia.

Though the spawn of the common esculent Truffle then, is neither so permanent nor so conspicuous as that of the Mushroom, its existence is a matter of fact. The next point is to ascertain if possible in what sort of soil it will run best, and as it is fugacious, what is the exact season at which it should be used. Experience alone can show whether, like Mushroom spawn, it will preserve its vegetative power when made up into cakes and dried.

In general the soil in which the common Truffle grows, for it is that about which we are at present interested, is tolerably compact, though sufficiently loose to allow the threads of which it is composed to traverse it with ease. A very loose leaf-mould, with a large addition of sand, would not therefore be likely to promote its growth, though a loose covering of leaves is often present in Truffle beds; nor is it probable that manure could enter largely into the compost with advantage, as Truffles certainly do not seem to love a richly manured soil. It might possibly conduce to success if the sporidia were induced to germinate on slips of glass by the addition of a solution of saltpetre, as in the case of Mushrooms, the young plant being carefully removed to proper soil, with a view to make it run.

Attempts have been made from time to time, with more or less judgment, and with a greater or less knowledge of their habits, to propagate these Fungi, or to produce a saleable spawn, but at present with very small results. In the south of France, the late Vicomte NOÉ succeeded in raising Truffles in his woods by sprinkling the soil with water in which the parings of Truffles had been rubbed down, protecting the ground from the ravages of swine and other animals, by a coat of Thorns. Here, however, the soil was simply natural, the only effort towards cultivation consisting in the supply of abundant sporidia. Still less can the practice in Poitou of inclosing a portion of the downs and sowing it with acorns, be considered cultivation, though the practice seems uniformly attended with success, as with the exception of a protecting fence, and the introduction of the mast, all is left to nature. A work was published some years since in Germany under the name of BORNHOLZ, which professed to give directions for cultivation, accompanied by the assurance that they had been employed successfully, but this was afterwards believed to be a mere catch-penny pamphlet, and led to no result.

About 15 years ago serious attempts were made to produce a marketable spawn, and the parties who conducted the experiments were sanguine of success, and hoped in a few months to be able to offer Truffle spawn for sale. Specimens were actually forwarded to us, but whether there was some fallacy about the running of the spawn, or the after-treatment of it was injudicious, no Truffles were produced, and the problem was left for future solution.

At a subsequent period the late Mr. DISNEY of The Hyde, near Ingatestone, took up the matter warmly, and we were invited to be present at the opening of his Truffle beds. Unhappily, however, instead of experimenting with fresh Truffles, he contented himself with the sweepings of the drawers of one of our principal oilmen, consisting mostly of slices of Truffles which had evidently been submitted to heat, and, as might be expected, the experiments failed. We fancied, indeed, that in one or two spots the spawn had really run, but we could not quite satisfy ourselves as to the point; and as the worthy experimentalist had already passed fourscore years, and experienced at the time a severe domestic calamity, the trial was not renewed. We have heard of no later attempts, but ultimate success is not without hope. We would, however, strongly recommend any one who is desirous of renewing them, to study Truffles closely in their place of growth, not only as regards the texture and constitution of the soil, aspect, and climate, but also the time, mode, and duration of the spawn, together with its powers of conservation and capability of enduring drought. Success can scarcely be expected without some previous discipline of this nature.

One matter is certain—that Truffles do not like the subsoil to be much disturbed. A most productive Truffle ground was completely destroyed under our eyes, and not without remonstrance, by digging it over for the sake of obtaining a large temporary supply. Beech trees are by no means a "sine quâ non." Oak groves are sometimes as productive, especially in France, and an admixture of young Fir trees is not inadmissible. The most productive plot we ever saw was a grove in which there was a predominance of Beech over Oak, with an undergrowth of Spruce Fir. Neither do Truffles always grow in naked

ground, or ground covered with fallen leaves. We have seen them in abundance on a close-shaven lawn, where they cropped out, and were frequently cut off by the scythe. *M. J. B.*

New Plants.

264. Polychilus cornu-cervi, *Kuhl & Hasselt.* Stags-horn Polychilus, *Lindley, Gen. et Sp. Orchid.* 1854.

Among a host of other new Orchids from Moulmein, Messrs. Hugh Low & Co. have been fortunate enough to introduce a few individuals of this remarkable plant, which appears to be of free growth, and will no doubt speedily produce flowers. In habit it resembles a Phalænopsis, to which indeed Prof. Reichenbach refers it; but the lip is differently formed, and the flowers are attached to a broad branching toothed rachis, unlike anything that has yet been seen in the genus in question. Another plant with a similar rachis, but otherwise abundantly distinct, exists under the name of Phalænopsis zebrina in Messrs. Low's collection. It comes from the Eastern Archipelago, and may probably prove a second species of Polychilus. The flowers of P. cornu-cervi are described as of a reddish yellow, about 2 inches across, and speckled in lines with a deeper red.

265. Dendrobium infundibulum.

(See *Gardeners' Chronicle*, p. 1194, 1862.)

A single flower of this glorious Moulmein Dendrobium has just been produced on a small plant in Mr. Rucker's collection. It is inimitably beautiful, the sepals and petals being of a dazzling white, with a lip to correspond, marked at the base with clear lines of deep Roman red. This, too, is one of Messrs. Low's introductions, and appears to be of the easiest cultivation. Probably there are many varieties.

STRAWBERRY RUNNERS.

I have read with interest the remarks at page 1034 concerning the Runners of Strawberries, and as they conclude by recommending further experiments to be made, I beg leave to make some suggestions as to the manner in which some of these experiments should, I think, be conducted.

I must premise that I consider it very important to keep in mind while making these experiments Mr. Knight's sensible observation quoted by you, viz, "that every runner is, in its incipient state of formation, capable of becoming a fruit stalk, and if too great a number of runners be taken off in the summer, others will be emitted by the plants, which would under other circumstances, have been transmuted into fruit stalks." The Strawberry plant being naturally inclined to produce runners, this natural tendency cannot be much opposed without doing injury to the fruitfulness of the plant. Several years ago, I tried an experiment on some Strawberries by planting them about 3 feet apart every way, and cutting off during the summer every runner soon after it made its appearance. The consequence was that as soon almost as each runner had been taken off another or more appeared in its stead, the leaves at the same time becoming very luxuriant, and the plants seeming determined to have their own way; and in order to carry on the war with their unnatural antagonist, before the end of the summer, all the resources of the plants that ought naturally to have gone towards producing blossom buds, were exhausted in the unexpected strife, and what would otherwise have been dormant blossom buds were compelled to become runners in order that the strong natural propensity of the plants to propagate their kind by runners might not be overcome. Of course there was no fruit next year.

After reading your remarks this question suggested itself to me:—Why should not the summer pruning (so to speak) of the Strawberry be conducted in a similar manner to that of our fruit trees, seeing that the object and the principles involved are much the same in both cases. Fruit trees if too much stimulated by excessive pruning would, like Strawberries, produce plenty of fine leaves, but no fruit. The most generally approved plan of treating fruit trees is to follow a middle course between allowing them to grow without control, and pruning them excessively. The practice is, more especially in the case of those trees intended to be kept of a moderate size, to pinch off the ends of the young shoots as soon as they have grown 4, 5, or 6 inches in length, according to circumstances, reserving a sufficient number of buds on the lower part of each shoot to form fruit buds, besides one or two buds at the top of the shoot, on which latter buds to allow the tree to exhaust its superfluous energy, and thereby save those buds reserved for fruit from breaking out into wood shoots. If these upper buds produce wood shoots, these secondary shoots are pinched in to one or two buds; and so on during the summer with other shoots that may be produced, always taking care that the lower buds reserved for fruit buds be not stimulated to become wood buds by pruning too close to them. If these buds are not too much stimulated, this mode of pruning is the means of more strongly developing them as fruit buds.

Now the practice which I have endeavoured shortly to describe, having been found so successful in the case of fruit trees, I would suggest that experiments be made in a similar direction with Strawberries. When the Strawberry runners have made two or three joints, let them be stopped at the first or second joint, and if these stopped runners should produce other runners, let these latter be stopped at the first joint, and so on during the summer. The propagating energy of the plants would thus probably find sufficient exercise in feeding the stopped runners without breaking into runners those dormant buds which ought to produce blossom the following year. On the contrary, these dormant buds would probably (as in the analogous case of fruit trees) be by this practice only so far stimulated as to be strengthened to produce fruit the following year. Another advantage would probably attend this practice; the rooted joints of the stopped runners would make fine plants for transplanting in the autumn, when the runners ought all to be cut off close to the mother plants. This mode would probably on the one hand avoid the too great excitement of the plants by excessive excisions, and on the other the impoverishment of the plants and soil by a wilderness of runners. *A. T., Nov.* 3.

EMIGRATION TO NEW ZEALAND.—No. I.

It seems that there are some legends we carry through all our lives. Who has not some El Dorado? Who has not dreamt sometimes of streets that are paved with gold? Who has not sought some Tom Tiddler's ground to gather gold and silver?

Men tried it in California, and gold digging was all the rage. Perhaps those who went however would scarcely have called that play. The privations and the hardships, the want and the risk incurred, bought the golden store very dearly. Often when that was bought the power was past to use it, except indeed in such ways as made the gain but a curse.

Still people are always dreaming of some good time coming, and of some land far off, where the law of labour reaches not, and the poor have ceased from the land. These wild hopes cannot be realised—well for us, indeed, they cannot be. People who shrink from work here are not likely to find case elsewhere. We all have our own tasks, the rich and the poor together, and truly an idle paradise would seem a sort of anomaly.

But in these days of emigration what are the things folks run after? Some, they may say, have heard of gold that is gathered by bushels—lumps that make men's fortunes, and perhaps some one man in a thousand has got and not lost such a fortune, almost as some one gambler has made what he calls a "lucky throw." Men who leave work and duty to hunt thus for gold are gamblers. Another, we hear, has been told that in foreign parts things grow without any labour at all. You have just to throw down your seed, and in a short time there is a crop. Nay, after the first time even the crop comes up unsown!

Young women have their strong ideas of places where servants are mistresses; they are so very valuable—high wages, unlimited holidays, no stint as to finery, and then to marry doubtless some rich colonial gentleman! Work is the very last thing that enters their calculations. The light of their countenance is sufficient gain to any place. They forget that such things don't stand. They may have for a few months high wages, but without such conduct as deserves to make good friends, and entitles them to respect, what wretched lives they must lead; and if in a few cases, far more rarely than they may suppose, they attain their first aim, and get married, it is perhaps to some worthless fellow, cast off by his own friends, and with scarce one restraint, such as the old country gives her men.

But others, both men and women, there are, who go out to work, and not to be idle. They accept that Providence which calls on us all to labour. Idleness is no luxury. What they ask is a field to work in.

In England the land is already filled, the labour markets are crowded. The worker has no field to work in; to build up a home seems hopeless—not for the want of will, but just because there is no room. A man waits for an opening; he looks for a chance in life, but perhaps that never comes to him, or his best years have flown while waiting. It is to such men that the colonies open new fields. In them they have a real prospect of building up a home, and a name that may root itself and grow as in the old home. To those then who are wanting to go out and work in the colonies, I offer these hints and details which are given by those who have lived and mixed in Colonial life. First, there is the outfit and voyage to be thought of. The voyage lasts often four months, as in the case of some friends of mine, who, sailing in December, set foot on shore next in April. Clothing is most frequently a source of great suffering. People sail in April, and think summer is before them, or in December and reckon on wintry cold. Now, go at what time you will, you have at least some very hot weather, and one severe spell of winter—such winter very likely as you never felt before. Flannels and blankets, warm wrappings, and warm gloves are then an immense advantage, and these are things that are always useful too on arriving. Secondly—this is feminine—people must mind the sea-air, for if they take light merinos and silks, and pretty things, and occupy the long voyage in now and then looking them over, the colours will mostly have fled, and they will be little use on arriving. All gilt things, too, will tarnish. The plain ingrained colours are best for the sea outfit.

As to the packing, too: things should be divided from the very outset into those for use in the voyage, and those that can be packed up and not opened again till you land. The latter should be packed in boxes lined with zinc or tin, and with a tin or zinc cover soldered carefully down. In this case it is most essential that everything be well aired before it is laid in the box, otherwise you are worse off than if your goods were in unlined boxes, as in the different temperatures through which the ship has to pass, the damp from one thing, becomes vapour and penetrates all the boxfull.

Seeds are sometimes taken out, and they form too a most profitable collection often to bring home, especially from those parts which are as yet but little known. The hardy New Zealand and many Australian plants are wanted over here very much, and many of the islands in the Eastern seas are crowded with plants and shrubs that would make quite a fortune here. The seeds, going out or returning, should be gathered when perfectly ripe, and seen to be perfectly dry. The best way then of conveying them is folded in several folds of paper, and hung up in a cabin in common stout canvas bags.

On the voyage too the water is often very bad, and the heat during much of the time renders the thirst of the passengers very great. Some bags of Lemons, if possible, should be included therefore in the outfit of every person.

But now we must proceed to the fate of our friends after landing.

If they are bound for Christchurch, the ship will cast her anchor in the beautiful bay of Lyttleton, a smooth and glassy bay, reminding one of a Swiss lake, while round about the snow-capped mountains tower. This place is some miles from Christchurch, and railways as yet are not. Some friends of mine felt happy in obtaining a sort of tax cart, in which some of the party travelled, while the others walked over the hills. But it is no small difficulty to convey your goods up from the port. The cost of so doing is said to equal that of their passage the whole way out besides. If a common labourer's wages are a shilling an hour, we easily shall imagine that a cart and horse for the day cost a high sum.

So soon as this we begin then to find out the advantages of those who go unencumbered, and who, if they have wives and children, have such as will work too.

Everything you want, house-room, conveyance, food, labour, is an immense expense; but then on the other hand everything you can do is an equal gain.

The Government agents help much in the emigration of those who are skilled mechanics or artisans; carpenters, gardeners, shoemakers, are all extremely wanted; but the likeliest man of all to do really well in a colony is one who, while knowing one trade, can turn his hand to anything, and who is not above so doing. Here is an extract from the letter of a clergyman now at Christchurch:—

"I strongly recommend this colony for labouring men, mechanics, female servants, and gentlemen with small capital. A good ploughman would be surprised to find how valuable he is out here."

All information about emigrating is to be obtained from John Marshman, Esq., 16, Charing Cross, London. Government pays as much again as each emigrant can pay in cash, and for the remainder the emigrant must give a bill to pay it off by degrees in the colony; 5*l.* is quite enough for an emigrant to pay down for a passage to Canterbury. Wages are so high there that they are very soon able to pay the rest. Nine pounds down indeed clear him altogether; or I believe an emigrant can go without paying down for anything, only then he will have 18*l.* to pay off by degrees in the colony.

"This is, I think, (says another letter) a capital place for working men; wages are so high, and food is not worse than in England, though fuel and house-rent are certainly very high. I have heard of the coal being up to 5*l.* a ton in Christchurch, but that was during, certainly, an exceptional time of scarcity; and no doubt when the railway is opened its cost will be much lessened by the then so much cheaper conveyance.

"But then for the wages—a common labourer gets 100*l.* a year; and to get a little work done a shilling an hour is paid. No one will work more than eight hours a day, and this leaves a good margin for those men who are anxious to work on their own account, and to get up a cottage and perhaps a bit of garden near the fast-growing town.

"Female servants have 30*l.* a year and everything found; and you must be very civil or they will go away. People are obliged to live very plainly because they cannot get servants." *E. A. M.*

ROSE SHOWING.

The first things that I look for on opening the *Gardeners' Chronicle*, are Roses and Strawberries. In the Number of October 31, I soon espied the observations of "Gulielmus," page 1038, and read them with great interest. In the Number of November 7, I see a request for an opinion, and also some similar observations. I am happy to give the requested opinion; but I hope that other Rosarians will also express their

ideas. "In the multitude of counsellors there is wisdom."

1. "Gulielmus," page 1038 :—

Clause 1. No doubt those who can grow the delicate coloured Tea Roses first-rate have an immense advantage over those who have given up the delicate-coloured summer Roses, and cannot grow Tea Roses; but if this mixture of Teas enables the H. P.'s to win, does not that show the value of the mixture? It is against my interests to admit Teas into boxes with H. P.'s; still, I would by no means exclude them. The H. P.'s are unfortunately at present short of delicate colours. They have no full-sized pure white Rose; they have not one yellow Rose; they are well up in rose, crimson, and dark Roses. These are their forte. They have only four first-rate light-coloured Roses—the last being uncertain and not over hardy, viz., Caroline de Sansal, Duchesse d'Orleans, Madame Knorr, and the Queen of Denmark. Queen Victoria (does well on Manetti here) is fine, but a bad wet weather Rose. Louise Darzens I have not got. M. Vidot—the most perfect and beautiful of all light Roses—and M. Rivers cannot be grown in all lands. The other delicate-coloured Roses are either tender, as Virginale and Dr. Henon; bad openers, as Louise Magnan; or bad growers, as M. Bonnaire, a very beautiful Rose. Is it wise then to shut out from H. P. boxes the five yellow Roses, Solfaterre, Gloire de Dijon, Triomphe de Rennes, Célestine Forestier, and Lamarque, which are perfectly growable on a south wall? or the four best white hardy Roses, M. Zoutman—the finest of all whites—Acidalie, Devoniensis and Sombreuil? I think that such Roses are not only beautiful, and fit to go with H. P.'s, but a great relief to the monotony of their colours.

Clauses 2, 3, 4, I quite agree to; but in the next unclaused paragraph comes the difficulty, which, if "G." had not pointed out, I should have noticed in due time in the *Gardeners' Chronicle*. Such an arrangement would not, I think, be acceptable to amateurs with small stocks of Roses, or to amateurs whose stocks are made up of all families. Competition among amateurs is short enough already, and the difficulty of procuring really good blooms, and the expenses of travel seem to cry out "do not put any more bars in the way of competitors."

As regards nurserymen, no doubt the suggested arrangements could be carried out (always, as regards H. P.'s, subject to the defects pointed out); but this is a matter for them to express their opinion upon.

In the last paragraph but one "G." favours "single trusses." I am not against trebles, provided they are good. If trebles are shown, properly speaking, they should be separated a little, but not mixed all over the box. This separation, however, entails three or four boxes instead of one, where 24 Roses are shown. We do not want more boxes to travel with than we can possibly help.

In the last paragraph "G." refers to disbudding. I have already expressed my opinion on that point. I so far agree with him, that if a bad rule exists it should be rigidly enforced. This will require more censors. Rules should be few, simple, and rigidly carried out, or the most obedient exhibitors will be the greatest sufferers.

Here, however, we are met by another difficulty—Will exhibitors like all their Roses taken out of their cups and put back again, as it may please the examiners? I say, have no rule at all; but if you have a rule, the society who imposes it is bound to see it enforced.

2. "P.," page 1062 :—

The Summer Roses could certainly be shown together; but, from the rage of late for H.P.'s, I fear that some nurserymen and many amateurs have mainly and unwisely given them up. I am well up in them, and they grow and bloom most beautifully here; but I am against such a rule, as believing that it will inconvenience smaller holders. I want to see a burly shopkeeper of Edmonton or Tooting (everybody obliged to consume his own smoke) with his few Roses win a Rose prize. What a ringing of bells at Edmonton, responded to by the bells of Islington and Tooting! What an impulse to the Rose trade!

Moss Roses certainly should be a separate class, without interdiction from other classes except Tea classes. They should be shown not quite expanded, as, when fully expanded, their peculiar character is gone. If trebles are shown, one expanded bloom out of the three trusses would add to the effect.

Tea Roses, without interdiction from other classes, save the Moss Rose class, should be shown by themselves; but here again lies a difficulty; there are no high coloured Teas worth a "stump." I do not think there is one dark one. Still they are so lovely in the monotony of their beauty, that this default may be forgiven.

Instead of a Rose club to form rules for the Rose world—a world that will never abide by the rules, nor even see existing rules enforced (in England we frame rules, and then follow customs)—instead of this, the best way would be for the National Society to consult the wishes of nurserymen and amateurs severally, as regards their classes. A paper to be filled up might be sent to a dozen nurserymen, and also to a dozen amateurs. The N. should have nothing to do with A. classes, and *vice versâ*.

One thing I think will be agreed to by most amateurs, that at present H. P.'s, Bourbons and Noisettes (and I think Teas), should be allowed to go together. The Bourbons are not worth a separate class; they are scentless, usually under size, and, with a few exceptions, best for autumnal blooming. The two most valuable are Malmaison and Acidalie. We must have these among H. P.'s.

The only Noisettes worth keeping for show are Solfaterre, Triomphe de Rennes, Lamarque, Célestine Forestier, and Gloire de Dijon, which, like the others, is evidently a Tea-Noisette. America is a hard opener, but extra fine, when it succeeds. The Cloth of Gold and Isabella Gray are only fit for orchard houses. You cannot, therefore, make up a Noisette class unless you confine it to the above. This I should like—the best box of yellow Roses, Tea-Noisettes, numbers unlimited! From May till frost set in, I can do this well nearly every day.

There is, however, another consideration, viz. funds. In provincial places they could not stand "Sam," for so many classes. The R. H. Society could, and, no doubt, would do so, if it was the generally expressed wish of nurserymen and amateurs.

As regard summer Roses: whilst the shows are held so late as July 1, it is scarcely worth while to make them a separate class; as, unless they are moved every year, or planted against a north wall, or cut back a month later than they ought to be, they will be mainly bloomed out, except in cold lands, or in wet cold summers, before the time of show. On the whole review of the case, I cannot but think, as regards amateurs, that, at present, it is not advisable to restrict them as to families of Roses. I would merely have open classes both for Tea Roses and Moss Roses.

In conclusion, though I have no doubt that the writers in question are both nurserymen, yet I am sure that their observations have flowed from a zeal for the Rose cause, and not from any selfish motives. I can truly say the same of my own observations. I have also no doubt that in process of time we shall be able to show Roses according to the notions of "Gulielmus" and "P." *W. F. Radclyffe, Rushton, Nov. 9.*

STRAY NOTES ABOUT FLOWERS.—No. II.

DURING last summer I saw a great many hanging baskets—some so remarkably pretty, and so green and flowery—others so very leaf-bare, so dried up and so miserable, that perhaps a few words on their contrasts may be of use to the owners of such as the latter ones are.

The galvanised or green-painted wire baskets seem to be so popular, and they are so light and so easily suspended, that perhaps they may be regarded as the best and most usual basket type. Those of rough wood interlaced, and those made of earthenware, resembling closely-set Pine sticks, though they are exceedingly pretty, are less easy to suspend, and perhaps it is for that reason that we see them more rarely.

But for the wire baskets! How long are we to meet with them with neat tin linings inside, seemingly made to hinder all the pretty and graceful ways in which the bright flowers creep out?

The three most exquisite flower baskets I ever saw in my life were three that were in the Gloxinia house at Mr. Veitch's nursery. To see the Gloxinias was itself well worth a visit, but really those hanging baskets were something complete and perfect. They were a thorough lesson on what hanging baskets should be.

And of course they were very simple—just a green sphere of Moss, the common Lycopodium, that matted itself on the frame, and amidst the bright green, twining in and out, clinging and wreathing round, went in one basket white Thunbergia, in another red Achimenes, and in another most lovely one the beautiful blue Torenia asiatica. The exquisite contrast or harmony of the colours, the deep rich velvet purple of the open flowers, resting on the dark green that seemed of the self-same depth, although of a different hue, the pretty elegant twinings and the tiny sprays and tendrils, so close and yet so natural—all these things seemed to mark that basket as a real gem.

And the next day I saw some "well-assorted baskets"—a Fern and a Lobelia, and I think a red Verbena! They grew up straight and proper, and hung over just where they should do; and of all hideous things they were just about the most hideous.

The beautiful ones, however, are no harder to manage than these. Every one knows how beautifully one Moss roots on another. The loveliest green Lycopodiums that I have ever had, were those that grew self-planted on mats of brown English Hypnum—that common Moss of our woods. This Moss then may be well dried and made into a ball, placed in the wire basket, and thoroughly well soaked through. Some scraps of Lycopodium are then just dotted over it, and a little plant of some creeper, in a little pot, is buried in the centre of the ball of Moss. The more light and the less sunshine the basket has the better, and a dip in a bucket of water or a greenhouse tank, is its happiest mode of watering. *E. A. M.*

Home Correspondence.

New Hyacinths.—I cannot coincide in Mr. Cutbush's statement that he "cannot perceive why the Hyacinth should be any exception to the rule" he quotes from the Royal Horticultural Society's regulations in regard to new plants. Were it to be made to apply to the Hyacinth at the shows of the Royal Horticultural Society, it would not hold good as applicable to the exhibitions of any other Society except as to very questionable value as a precedent. It is a general and comprehensive rule that is required, not a partial and exceptional regulation. A flower that has never before appeared at any meeting of the Royal Horticultural Society, might have been shown at the Hyacinth exhibitions of Edinburgh, or elsewhere, so that it would require unexceptionable guarantees to convince one that it was the first appearance of the flower at any meeting in the United Kingdom. It is therefore probable that a flower that would be considered old at Edinburgh, might claim to be a new variety at South Kensington, or *vice versâ*. Again, however indifferent the collection of new flowers might be in point of quality, if this newness must determine the judgment, no other consideration could be permitted to influence the judges, if a stand, professedly of new varieties, were of the highest merit, and yet had partially appeared before. If the Hyacinth were raised in England in common with the majority of other florists' flowers, or when raised on the continent was so offered to exhibitors in England, that any one of these might become a possessor of the variety or varieties at the same time as his fellow competitors, and thereby be placed on the same level of competitive resources, it would very much mitigate, though not altogether remove, the objections to the rule proposed by Mr. Cutbush. I have looked through as many of the Dutch lists as I could lay hands on, to ascertain in how many of them the six varieties staged by Mr. Cutbush in March last were catalogued in the present year. I exclude Maria Theresa, S.R., and take in Estella, D.R., without conceding the point to Mr. Cutbush that Estella was one of the six varieties named I find Rouge Eclatante, D.R., to be quoted in sixteen lists at prices averaging from 1*s.* to 2*s.* 6*d.* It has always been acknowledged to be a scarce variety, which will account for its maintaining a high price, though having been in cultivation for so long a period. Estella, D.R., I find in three lists at such low prices that it must have been something older than "new of 1863," and may perhaps have reached England before. Prince of Orange, S.R., or D.R., appears in fifteen lists, and being priced at a moderate figure, must be plentiful. This variety is so generally grown for exportation to England, that it too cannot be regarded as "new of 1863," even if new to Mr. Cutbush. I find Feruk Khan, S.B., to be offered in three lists, in one at 10*d.*, in another at 3*s.*, in another at 5*s.* The vendors who quote it so low were not the raisers of the flower, but may perhaps have purchased the stock. Fair Maid of Denmark, S.W., and San Francisco, S.Y., I cannot find in any of the Dutch lists. I infer from this that Mr. Cutbush obtains Seedling Hyacinths from the continent, which he names, and can therefore exhibit them in England before they appear in the catalogues of the Continental growers. If this be so, it gives him a great advantage over those other exhibitors who have not the same privilege, even under present usage, when there is no restriction as to the age of the flowers; while, were the rule he suggests acted upon, during the time he can avail himself of this privilege it would give him an almost entire monopoly of the exhibition of new Hyacinths. *Quo.*

Literary Curiosity.—For several years past I have published a catalogue of Roses. This season it contained some 200 kinds, more or less, all of which at the commencement of the season I could supply. Very little curiosity in this, say your readers. True; but the curiosity is, that a Mr. Walker, of Leicester, finds himself in possession of the exact number of kinds enumerated, and that he describes them in precisely the order in which they appear in my catalogue. My surprise may be conceived when a friend handed me a fac simile of my catalogue, bearing its exact outward appearance, and I believe word for word the same all through. The only difference discoverable is that the prices of all the older kinds are not marked in figures. I confess that I am not a true believer in spirit rapping, but I am sadly bothered to know what medium exists between myself and Mr. Walker, whom to my knowledge I have never seen. Can our friends the Spirit Rappers clear up this mystery, or must I go back to the transmigration of spirits, and believe that myself and Mr. Walker have roamed on the sunny wings of butterflies over gardens of Roses, and that the self-same beauties have alike charmed Mr. Walker and myself? Moreover, that that being so, after our change to this prosaic life the same ideas were common to both. In order to show you the resemblance just alluded to, I beg to enclose both catalogues, but I must ask the favour of their return, as I value them as curiosities in literature. *Charles Noble, Sunningdale Nursery, Bagshot.*

Vitality of a Fulham Oak.—In making alterations about this time three years ago we had reluctantly to grub up a good specimen of this Oak. The tree had a straight stem 6 feet in height, and a uniform girth of nearly 5 feet. After grubbing up it was carted into a wood-yard and thrown upon a pile of timber-root; in this state it lay for nearly two years, when it was ordered to be cut up; but young shoots had pushed around the cut end, and indicated such remarkable vigour that it was resolved once more to plant it root downwards. It was therefore re-planted

where its progress could be observed. In the operation a few barrowfuls of pond mud were put well in amongst the old roots. Up to the end of July last, six months after planting, no active signs of growth showed themselves; since that time, however, a considerable amount of new healthy growth has taken place, giving promise of the tree again becoming established. When removed from the pile of old timber, it was found that the cut end had sunk a few inches in the ground; this may have in some degree prevented its losing sap. Has any such vitality been observed in Oaks elsewhere? *Chas. McDonald, Woodstock Park, Innistiogue.*

Primroses.—I beg to corroborate Dr. Gray's statement (see p. 1012) respecting various shades of colour existing in the common Primrose. In the woods at this place are acres of it, which, looked at in the distance, when in bloom, resemble a field of ripe Wheat. Amongst them are several shades of colour; one kind, a nearly pure white, attracted my attention more than any other. I have likewise observed a purple-flowered Wood Anemone, which I found invariably to grow in large patches distinct from the white blooming one. The moist climate of the north of Ireland evidently suits the Primrose, which grows here in great luxuriance. *John Edlington, Crom Castle.*

The Rook's Nest at Elmsett Rectory (see p. 1014).—I was at Elmsett on the 4th inst., and upon inquiry found that three fine young rooks have been hatched, and that they are now large enough to be seen from the road when the old birds are feeding them. Another nest is also built on a large Ash, and the old bird is sitting. This is surely a very unusual circumstance, but the church clerk of Elmsett, now an old man, asserts that 52 years ago something similar occurred at the same place. *John Stopher, Hadleigh.*

Pampas Grass.—I have at this time on my lawn a plant of this Grass with 147 spikes of silvery white blossom on it, three having been broken off during the late gale—making in all 150 spikes. It was well watered during the dry weather. *H., Compton Basset, Calne, Wilts.*

Morphology.—Seeing a notice of a case of "Morphology" at p. 1038, I send you the enclosed, which I should think permanently fixed, the specimen being from one of a number of cuttings from the parent plant, certainly the third, if not the fourth generation. All that I have seen or flowered retain the character distinct and perfect as the inclosed. I have thought these two years of sending it to the Horticultural Society, but have not had a nice plant at a convenient season. *Robert H. Poynter, Taunton.* [Mr. Poynter's Fuchsias afford an excellent illustration of the deviation already alluded to (p. 989), and amply confirm the inferences therein drawn. The two flowers forwarded have each eight or more petals of the ordinary form, and in addition four stalked petals, partaking more or less of the character of anthers; within these are eight stamens, which, as well as the sepals and pistils, are of the usual form. *M. T. M.*]——A few weeks ago I met with a singular specimen of the fruit of Cucumis ovifera. It was about 1¼ inch in length, and appeared like two joined together, and coalescing at the base and apex. It had three styles, two joined and one free. Between two of the divisions of the corolla there appeared an extra one partially developed. I also met with two curious bodies in a flower of Antirrhinum majus in a position similar to that occupied by the abortive stamen which is sometimes found in them. I regret not having been able to preserve the specimens themselves, but I send you a sketch of them, and should like to know if you are aware of any similar cases. *J. C.* [The peculiarity in the fruit of Cucumi ovifera, mentioned by "J. C.," is, as he rightly surmises, due to a blending of two fruits. This is almost as common an occurrence in Gourds as it is in Apples. It is most probable that both these fruits originate in part at least from dilatation of the end of the flower stalk; hence, in the case before us, there would simply be a fusion of two branches—a sufficiently common condition. The exact nature of the unusual formation noticed in the flower of Antirrhinum is not to be ascertained without seeing the specimen, but most probably the organ in question was a modified stamen, presenting some of the characters of a petal. *M. T. M.*]

Wistaria sinensis.—Should it be any further inducement (after what is written by Mr. Fortune) to planters, I could send you a description of a standard Glycine sinensis growing near here, and which is one of the most beautiful objects I ever saw, and such as I should be glad to meet with more frequently. *R. H. Poynter, Taunton.* [We shall be glad to have it.]

Cool treatment of Orchids.—I can from some years' experience indorse the remarks made last week (p. 1162) on this subject. There is, however, no necessity to consign our favourites to such a house as Mr. Bateman has grown them in. I send you herewith an average leaf of Lycaste Deppei and Skinneri for your inspection. My Odontoglots are in proportion equally robust. All have been grown under the shade of Grape Vines. All have bloomed or are coming into bloom in a style not often seen. Such leaves as those now sent are an ornament to any house, and I think you will agree with me that they need not be put out of sight. As I get a good crop of Grapes, and a beautiful display of flowers under them, the plan must be more economical than any other yet devised. *Robert Warner, Broomfield.* [The leaves in question are wonderful examples of robust health, deep green in colour, and perfectly free from speck or blemish of any kind. They measured respectively 31 inches in length, and one 5 inches, the other 8 inches in width.]

Foliage Plants.—I am glad that your correspondent "J. F." has taken my remarks in good part, for I fear I expressed myself, though in good faith, a little testily. I do not, however, consider myself answered by "J. R. B." or anybody else. Neither of your correspondents appear to have understood that most important thing, the question. I, it would seem, misunderstood "J. F." and Co., and they misunderstand myself and, I think, Mr. Gibson; and so the real question, to wit the raising of the temperature of the soil while that of the atmosphere remains (necessarily) unchanged, has leaked out and run away. Your two correspondents and myself have all three in the course of our little discussion made the same assertion—that certain plants, tenderer in constitution than such as are ordinarily cultivated in England, if started with a little bottom-heat when first planted out, will shift for themselves afterwards, and that in France and other parts of the continent of Europe, where they are warmer both above ground and below it, they succeed better still. I interpreted the Battersea experiment thus—that it was an ingenious attempt to get a slight but continuous exaltation of ground heat during the whole season of growth. That such an effect will tell on vegetation is evidenced by the now manifest effect of drainage on large tracts of country. The farmers of England are actually bottom-heating the British islands—with what result no one can be ignorant, while gardeners are hesitating to work out the problem of growing the plants and fruits of warmer climates than their own in a ground heat more suitable to their nature and habits. Again, to shift the scene, plants truly tropical that were never planted by the hand of man, are found growing over the fumarole or natural hotbeds of the Ætnæan district in Sicily. Hoping to hear of your two correspondents next season in the ranks of the hotbed volunteers, I remain, yours, *Fumarola.*

Swallows.—To the remarks as to the lateness of swallows, I beg to add that I saw a great many swallows and martins flying in all directions on Sunday, November 8, in these gardens. The morning was very mild, the afternoon rather cold. *G. Harnett, Cadland Gardens, Southampton.*——On Sunday, the 8th inst., I saw a swallow flying near the church here, though the day was very windy and wet. On Monday, the 9th inst., I saw two flying near a large pond. I have lived in Suffolk several years, but I do not remember having seen them so late in the season before. *A Subscriber, Stoke, Nov.* 11.

Damaging Ornamental Trees and Shrubs.—The time is approaching when depredations are made on Hollies and other trees and shrubs for the ornamentation of London. Have there not been recently some legislative enactments for the punishment of these offences? if so it would be well to direct attention to them, as one means of deterring the commission of damage so frequently done around the suburbs of London. *Conservator.* [Refer to 26 & 27 Vict. c. 13. An Act for the protection of certain garden or ornamental grounds in cities and boroughs.]

Societies.

Royal Horticultural: *Nov.* 10.—(*Floral Committee.*)—Five plants of Mr. Fortune's Late Yellow Dragon-flowered Chrysanthemum were shown on this occasion from the Society's Garden at Chiswick, and received a label of Commendation. The plants, which were small, were each surmounted by a single bloom, which was large, showy, and of so rich a colour as to leave no doubt that this description of Chrysanthemum when better known will be a favourite. A First-class Certificate was awarded to Messrs. Veitch for Pleopeltis albido-squamatum, a useful looking Fern, with pretty deep green leaves, thickly covered with minute white spots; from the same firm also came the beautiful white-blossomed Eranthemum tuberculatum, and six varieties of Lycaste Skinneri. A Lindsæa from Trinidad, in robust health, and evidently a more easily cultivated species than most of those of which the genus consists to which it belongs, came from Mr. Bull, and received a First-class Certificate. Mr. Cattell, of Westerham, furnished an example of Picea pectinata pendula, a useful kind of weeping Conifer; and from Mr. Bull came a variety of Pteris argyræa, called sublobata, and a good form of Alocasia Lowii.

November 10 (*Fruit Committee*).—At this meeting considerable numbers of Apples were exhibited, some of which almost equalled in size and beauty those from Nova Scotia itself. From Messrs. Paul & Son came examples of a fine looking seedling called Cheshunt Pippin, which was stated to be useful for culinary purposes until Christmas, and after that to be a good sort for dessert. Mr. Whiting, of The Deepdene, received a 1st prize for handsome fruit of Cox's Orange Pippin, Mickleham Pearmain, and Eldon Pippin. To the second prize lot no exhibitor's name was attached, we therefore could not learn from whom it came. It consisted of Cockle and Fearn's Pippins, and apparently some kind of Pearmain. A collection in which were beautiful specimens of Margil, was disqualified because on cutting open some Ribstons which it contained, they were found to be decayed in the centre. From Mr. Hall, gr. to Captain Tyrrell, came handsome specimen of Blenheim and Ribston Pippins, and good Chaumontel Pears. Of other Pears a first prize lot came from Mr. Cox of Redleaf. It consisted of Chaumontel, Glou Morceau, and Winter Nelis. The second exhibition of Pears in point of merit was furnished by Mr. Whiting, and contained Eyewood, Beurré Superfin and Marie Louise. Various sets of Pears and Apples also came from Messrs. Beasley, Gilbert, Earley, Curd, and others. Among these were Ribston and Fearn's Pippins, also King of the Pippins, Wyken Pippin, and other well-known varieties of Apples. Of Grapes, a very good collection was contributed by Messrs. Lane, in which were bunches of Snow's Muscat Hamburgh, weighing nearly 4 lbs. each; their only fault was want of colour; they, however, did not appear to be quite ripe. Along with these were also fine examples of West's St. Peter's (?); White Nice, and Trebbiano, by some considered "one and the same" Grape, but as shown evidently different sorts; Golden Hamburgh, Buckland Sweetwater, Dutch and Black Hamburghs, and Black Prince, all excellent specimens of skilful cultivation. From Mr. Williams, of Holloway, came a handsome bunch of new Royal Vineyard, a white Grape of which we have spoken in favourable terms on former occasions. A bunch of Grapes sent from Scotland, under the name of Muscat of Alexandria, proved not to be that sort; though in general appearance it bore considerable resemblance to that variety, no trace of Muscat flavour could be detected in any of its berries. Finally, Mr. Thomson, of Archerfield, sent a Cayenne Pine Apple, in order to show that, contrary to the generally received opinion, it will keep good for a considerable length of time after being cut.

Linnean: *Nov.* 5.—G. Bentham, Esq., President, in the chair. This was the first meeting of the session 1863-4. Several candidates were proposed for the Fellowship. The following papers were read:—1. "On the Genus Euptelea of Siebold and Zuccarini;" by Drs. Hooker and Thomson.——2. "On the Plants of the Temperate Regions of the Cameroons Mountains, and Islands in the Bight of Benin, collected by Mr. Gustav Mann, Government Botanist;" by Dr. J. D. Hooker. The author observed that the last few years had been fruitful in contributions to our knowledge of the botany of the least known, and, in the present state of science, most interesting portion of the globe, namely, the interior and the mountains of tropical Africa. The collections of Welwitsch in Loanda, of Kirk and Mellor in Livingstone's expeditions, of Vogel and Petherick in the White Nile and Nubia, of Baikie and Barter in the Niger Valley, of Speke and Grant in their arduous journey through eastern tropical Africa, and lastly of Gustav Mann on the shores, islands, and mountains of the Bight of Benin, were referred to as of great extent, and abounding in novelty and interest. It is with the highest satisfaction, continued Dr. Hooker, that we have lately welcomed amongst us the first-named of these adventurous explorers, Dr. Welwitsch, who is charged by the King of Portugal with a mission to this country for the purpose of preparing his collections for publication; and it only remains for us to hope that the exertions now being made by Sir W. Hooker to induce the British Government to follow the example of his Majesty in securing the publication of our own collections will be successful, and that the botanical results of so many expeditions brought together at such great cost, and at so great a sacrifice of life, may not be doomed to lie unpublished in our museums for want of the trifling sum requisite for rendering them available to science. It was to a small portion of Mr. Mann's collection that this paper was devoted, for the general collection it was stated, would take many months of continuous labour to investigate and fully report upon it. The portion of which an account was now laid before the Society, consisted of the temperate plants of the mountain regions explored. The Peak of Fernando Po (9469) feet), was ascended seven times, and its summit reached five times. The summit of the peak of St. Thomas Island (7500 feet), was also gained, a species of Podocarpus being the most remarkable discovery. Here also the magnificent Musa sapientum var. vittata was discovered in a cultivated state, and sent in a living state to Kew; it is, according to Mr. Mann, a native of the Gaboon. Prince's Island was also visited. The noble group of the Cameroons Mountains (13,100 feet), consisting of many volcanic peaks, was well explored, the summit of one of the peaks, Mount Helen (9290 feet), having been visited by Mr. Mann in December 1861, and that named Mount Albert, (13,100 feet), in January 1862, in company with Consul Barton; subsequently a visit was made to the summit of Mount Victoria, (12,861 feet), and to Mount Hooker and Mount Etindet; and besides these other expeditions were made to the different peaks. The Cameroons present a dense forest region up to about 7000 feet, when open grassy fields succeed, with bushes of Hypericum, Pittosporum, Adenocarpus, Pygeum, Leucothöe, Ericinella, and Myrica, and many herbaceous plants. The many peaks which rise above this elevation are either stony and barren, being all formed of lava or scoria or basalt, or are dotted with tufts of Grass and a few other herbaceous plants. The most interesting plants from the highest summits were Cotyledon Umbilicus, Silene, Trifolium, Galium Aparine and rotundifolium, Scabiosa succisa, Helichrysa, Veronica, Bartsia, Stachys, Trichonema Bulbo-

codium, Deschampsia cæspitosa, Poa nemoralis, Kœleria cristata, and various other European and even British plants. The Sierra del Crystal was found to be a low range of hills nowhere exceeding 2000 ft. elevation, and much overrated by M. du Chaillu. From Corisco Bay, the summit of Mount Mavega (1668 feet), erroneously supposed to be 5000 feet high, and the summit of the chain, was reached; the true summit however, is Mount Shomba (1767 feet.). The number of plants collected by Mr. Mann was stated to amount probably to 3000 species of flowering plants, of which 237, found at elevations above 5000 feet, formed the subject of this paper. No less than 112 of these were described as new, and upwards of half were from the Cameroons. Excluding the few peculiar to St. Thomas and Prince's Islands, there occur on the Cameroons, at elevations above 5000 feet, 203 species, and on Fernando Po Peak, 102, of which 68 are common to both localities. The monocotyledons bear a larger proportion to the dicotyledons on the Cameroons (1 : 2.3) than on Fernando Po Peak (1 : 3.2). Several interesting tables of distribution were given; and it was remarked that the most remarkable features of the temperate vegetation of these mountains were: the poverty of the Flora, probably dependent to a certain extent on the arid volcanic nature of the soil, and the limited area of the temperate region; the preponderance of Abyssinian forms, almost all the genera and half the species being natives of Abyssinia; the remarkable proportion of European plants, by far the greater part of which were British, and a few, as Radiola Millegrana, had not been found previously on the African continent; the paucity of S. African types; the great rarity of new genera, only one, Ardisiandra, a well-marked new form of Primulaceæ, allied to Androsace, having been found; and the absence of St. Helena types. The remainder of the paper was devoted to an enumeration of the species, with technical descriptions of such as were considered new.——3. "Contributions to the Cryptogamic Flora of the Atlantic Islands," by W. Mitten, Esq. An account of some Mosses and Jungermanniæ of Madeira and the adjacent islands.

STOKE NEWINGTON CHRYSANTHEMUM: *Nov.* 9 *and* 10.—The display both of plants and cut blooms was all that could be desired. The plants were ranged all round the room, the central portion being occupied by the cut blooms and a row of pyramidal Pompons.

For Six Plants a prize was awarded to Mr. Forsyth, who had Prince Albert, Defiance, Alma, Annie Salter, Arigena, and Lady St. Clair. Mr. Howe furnished excellent plants of Lord Ranelagh, Lady Hardinge, Orange Perfection, Draco, Hélène, and White Christine.

For Six Pompons, Mr. Forsyth was 1st with excellent examples of Cedo Nulli, Duruflet, Golden Cedo Nulli, General Canrobert, Hélène, and Rose Trevenna. Mr. Howe was 2d. Excellent plants of Mr. Astie and Annie Salter were also shown as single specimens, and well deserved the prizes which were awarded them.

Three pyramidal Pompons, from Mr. Howe, consisting of General Canrobert, Cedo Nulli, and Hélène, were beautiful examples of that description of training, and those from Mr. George, Stamford Hill, who was 2d, were also good.

Of Cut Blooms there were several stands. In Twenty-four, Mr. Cattell, of Westerham, had the 1st prize, having amongst yellows Plutus and Jardin des Plantes; Cassy, orange; Beauty, peach blush; Queen of England, Mrs. W. Holborn, and Lucidum, white; Her Majesty, silvery blush; Alfred Salter, Rifleman, Raymond, Madame Andry, Hermione, Arigena, and Fabius. Mr. Slade was 2d, having amongst others, Beverley, a fine cream white; and Aimée Ferrière, a white variety delicately tipped with pink.

In Twelves, Mr. Cattell was again 1st, and Mr. Moxham was 2d; and in Sixes, Mr. Cornwall, Kingsland, had very fine blooms of White Globe and Jardin des Plantes.

Of Anemone-flowered varieties there were several good stands. Among large kinds were George Hock, Gluck, Lady Margaret, and Louis Bonamy. Among small varieties were fine examples of Madame Sentir and M. Montels, white; and Antonius and Marguerite de Wildemar, yellow.

AMALGAMATED CHRYSANTHEMUM.—This show took place on the 11th, 12th, and 13th inst., in the Agricultural Hall, Islington, where a considerable number of plants were brought together, and arranged on parallel stages in the body of the building, supported on two sides by banks of Evergreens. The Chrysanthemums themselves, though somewhat unequal in point of merit, were nevertheless, as a whole, in tolerably good condition.

In Section A we noticed some fine plants of Annie Salter, Alma, Vesta, General Havelock, Golden Christine, Trilby, Dr. Maclean, Chevalier Domage, Hermione, Golden Trilby, Aimée Ferrière, Alarm, Arigena, Defiance, Lady Hardinge, Nil Desperandum, Progne, Rifleman, and other well known sorts.

Awards.—Class I.: 1st, Mr. Glover, gr. to R. C. Lepage, Esq.; 2d, Mr. George, gr. to Miss Nicholson. Class II.: 1st, Mr. Monk, gr. to J. Lescballis, Esq.; 2d, Mr. Weston, gr. to D. Martineau, Esq.; 3d, Mr. Glover; 4th, Mr. George; Extra, Mr. Whitbread, gr. to C. B. Warner, Esq. Class III.: 1st, Mr. Beecher, gr. to T. Chandler, Esq.; 2d, Mr. Weston; 3d, Mr. Wood, gr. to W. Fowler, Esq.; 4th, Mr. Monk; Extra, Mr. Butcher, gr. to R. Charles, Esq. Class IV.: 1st, Mr. Whitbread; 2d, Mr. Beecher; 3d, Mr. Ward; 4th, Mr. Monk. Class V.: 1st, Mr. Whitbread; 2d, Mr. George; 3d, Mr. Ward.

In Section B the following were well grown and finely bloomed, viz, Alma, Rifleman, Annie Salter, Arigena, Defiance, Christine and its Golden variety, Pilot, Prince Albert, and Insigne.

Awards.—Class I.: 1st, Mr. Forsyth, Stoke Newington; 2d, Mr. Oubridge, ditto. Class II.: 1st, Mr. Forsyth; 2d, Mr. Oubridge. Class III. (Pompons): 1st, Mr. Forsyth; 2d, Mr. Oubridge. Class IV.: 1st, Mr. Forsyth; 2d, Mr. Oubridge. Class V. (Group of plants): 1st, Mr. Forsyth; 2d, Mr. Oubridge.

In Section C some handsome Pompons were exhibited, among the best of which were La Sultana, General Canrobert, Duruflet, Cedo Nulli and its Golden variety, Hélène, Trophée, Drin Drin, Florence, Fairest of the Fair, Esmeralda, La Vogue, Salamon, Rose Trevenna, President Decaisne, Modèle, Mrs. Dix, and Orange Boven.

Awards.—Class I. (Large varieties): 1st, Mr. Howe, Shacklewell. Class II.: 1st, Mr. Howe; 2d, Mr. Parker, Stratford Class III. (Pompons): 1st, Mr. Parker; 2d, Mr. Bolton, Hackney; 3d, Mr. Howe; 4, Mr. Gardiner, Clapton. Class IV.: 1st, Mr. Bolton; 2d, Mr. Parker; 3d, Mr. Howe. Class V. (group of plants), 1st, Mr. Howe; 2d, Mr. Cox, Kentish Town.

Section D consisted for the most part of Specimen plants, which were, with few exceptions, well grown and flowered. From Mr. Monk came a very large bush of Golden Christine, and Mr. Howe had a very fine specimen of Lady Hardinge; others consisted of Vesta and Alma, both of which were in good condition. The best Pompons were Saint Thais and Golden Cedo Nulli.

Awards.—Class I. (specimen plants): 1st, Mr. Monk; 2d, Mr. Howe; 3d, Mr. Forsyth; 4th, Mr. Glover. Class II. (specimen Pompon): 1st, Mr. Forsyth; 2d, Mr. Bolton; 3d, Mr. Oubridge. Class III. (Anemone Pompons): 1st, Mr. Ward; 2, Mr. George.

The Anemone-flowered Pompons were grown in the form of pyramids, and, being well bloomed, had a good effect. Among the varieties were Madame Carnac, Mr. Astie, Reine des Anemones, Antonius, Astrea, and Marguerite de Wildemar.

Of Cut Blooms numerous stands occupied the galleries; we, however, did not remark among them anything different from what has been frequently recorded by us on former occasions. They were generally large and fine, especially Queen of England, Jardin des Plantes, and others from Mr. Cattell.

In the way of training little novelty was perceptible. Pyramids, standards, and ordinary round-headed bushes seemed to be the order of the day. Of the two first, the Pyramids, however, were the prettiest, and the Standards being in many instances badly managed rendered the contrast all the more striking. Flat table-headed Pompons are evidently disappearing, a circumstance not to be regretted, for though well calculated to show off a large surface of bloom, their appearance is by no means handsome.

Of new varieties, especially among Pompons, a few made their appearance, which we hope to be able to describe on a future occasion.

We must in conclusion mention an excellent stall filled to repletion with artificial paper flowers, exhibited by Miss A. Brunies. To the taste displayed in arrangement it is needless to refer, but it may truthfully be stated that the artificial productions in this instance might well have challenged comparison with many natural specimens which received prizes.

Notices of Books.

Flora Australiensis; a Description of the Plants of the Australian Territory. By George Bentham, F.R.S., P.L.S., assisted by Ferdinand Mueller, M.D., F.R.S., and L.S., Government Botanist, Melbourne, Victoria. Vol. I. Ranunculaceæ to Anacardiaceæ. Published under the authority of the several Governments of the Australian Colonies. London: Lovell Reeve & Co.

If asked of what continent we should most desire to have a Flora published, we should certainly answer "Australia," and if offered our choice of an author we should as certainly select Mr. Bentham. Situated at the antipodes of Europe, swarming with curious, interesting, and beautiful plants, so many of which furnish the winter decoration of our conservatories, supplying the strongest timber for ship-building, and the most durable and beautiful woods for cabinet and upholstery work, and lastly, peopled by our own countrymen, Australia is of all countries in the globe the most interesting in a practical and scientific point of view to the English botanist and gardener; and that no one has during the last half century essayed to give a systematic account of its vegetation, is at first sight an unaccountable thing. But for this there are many good reasons. In the first place the undertaking is no trifling one: it will take at least seven or eight years of continuous and laborious work; secondly, the result must be a book of as many volumes, and consequently of some expense, and comparatively little sale; and lastly, it was hoped that a most distinguished botanist, who in the half-century preceding the present had begun to publish a general Flora of Australia, would have completed it at some period of his long life, during which it was deemed both uncourteous and impolitic to attempt another Flora of the same regions. That Flora, however, never has and never will be completed, and the "Prodromus Floræ Novæ Hollandiæ" of Robert Brown, published in 1810, though a monument of the genius, sagacity, and extraordinary attainments of its author, is but a fragment without beginning or end, and cannot be regarded as either a popular or scientific Flora of Australia.

With the death of Robert Brown all hopes of a Flora of Australia vanished, till the Director of our Royal Gardens, Sir W. Hooker, originated the scheme of publishing under Government auspices inexpensive Floras of all the British colonies; and having indefatigably urged the importance of such undertakings, first on the Home and then on the Colonial Legislatures, had been at last rewarded with that signal success which has attended so many of his disinterested efforts in the cause of science, and of which the volume before us is one of the fruits. From a paper headed "Colonial Floras" in the volume of the Natural History Review for 1861 (p. 255), we learn that the idea of Colonial Floras had long engaged Sir W. Hooker's thoughts, that after consultation with several eminent botanists he had matured a plan for publishing them at very trifling expense to the Government, in a uniform series of independent and cheap works which should be written in English, be of the same size (8vo), and plan; and that having secured a grant for two (of the British West Indies and of Hong Kong), from the Secretary of State for the Colonies, the Lords of the Treasury refused the rest, and (probably having the fear of Professor Goldwin Smith before them) pronounced the Colonies to be rich enough to pay for their own Floras if they should want such superfluities. Acting on this suggestion, Sir W. Hooker applied personally and through Her Majesty's Secretary of State for the Colonies, to the Colonial Governors and Parliaments, and may well be proud of the results, for, mainly through his personal exertions, there are now finished or in preparation in this country, no less than six of these Floras, viz.:—the British West Indies, by Dr. Grisebach; the South African Colonies, by Drs. Harvey and Sonder; Hong Kong, by G. Bentham; New Zealand, by Dr. Hooker; Australia, by G. Bentham; British India, by Drs. Hooker and Thomson; and there is every reason to hope that the Floras of Ceylon by Mr. Thwaites, and of British North America, will soon be sanctioned. It may be well to add here for the use of our readers, that the price of these works is guaranteed not to exceed 20*s.* per volume, of about 500 to 600 pages, containing descriptions of twice or more that number of species, that the liability of the Government is limited to the purchase of 100 copies on the day of sale from the publisher, and a gratuity of 150*l.* per volume to the author on the publication of each volume; and that the profits of sale, which in the case of some of the Floras will not be remunerative for some years, belong wholly to the publisher. According to this wise arrangement the author and publisher are entirely independent of one another, and all those complications of interests which have resulted in the premature abandonment of so many scientific undertakings are avoided. On the other hand the authors' remuneration seems to us to be niggardly, considering the great labour of such descriptive works, the national character of the undertaking, and that the authors are pledged to the completion of their tasks, which in some cases will certainly occupy 10 years of their lives. Sir W. Hooker, however, who is well known to be a wise man in his generation, doubtless found that by asking too much he would lose all; and if there is illiberality anywhere, his is the last door at which such a charge can be laid.

The first volume of Mr. Bentham's Flora contains descriptions of about 40 Natural Orders, from Ranunculaceæ to Anacardiaceæ, 240 genera and 1070 species; these are arranged according to the Candollean sequence, and after each generic character there are admirable synoptical keys to the species, which again are followed by the detailed descriptions of the latter. The volume is preceded by a brief Introduction to Botany, the same as was published in the Hong Kong Flora, and which it is proposed should be given with all the Floras, thus ensuring uniformity in phraseology in the use of terms, &c., throughout the series.

In the Preface a brief enumeration is given of the principal sources from which the plants described are drawn; these are for the most part contained in the Hookerian Herbarium at Kew; the only two important collections which have had to be consulted elsewhere, are the Banksian Herbarium at the British Museum, and R. Brown's in the possession of J. J. Bennett, Esq. The West Australian plants described (for the most part so badly) in the two volumes of "Plantæ Preissianæ," have been liberally lent by Dr. Sonder, of Hamburgh, to Mr. Bentham; the Cunninghamian collection, thanks to the liberality of R. Heward, Esq., its former possessor, has been presented to Kew; and the magnificent collection of Dr. Mueller, of Victoria, which alone approaches the Hookerian for its richness in Australian plants, is being transmitted by instalments to Kew by Dr. Mueller himself for the purpose of assisting in the work.

Dr. Mueller's labours and essential services to the Australian Flora are indeed ranked so high by Mr. Bentham, that he has devoted upwards of three closely printed pages of the short preface to an enumeration of that Botanist's journeys and writings, and to the contents of his herbarium, and has further placed Dr. Mueller's name on the title-page as assistant in the authorship of the whole work.

For the purposes of defining the limits to which the species, &c., are confined, the whole of Australia is

divided by Mr. Bentham into regions which to a great extent accord with the political divisions of the continent; these are 1, North Australia, which includes the intertropical regions west of Cape York, extending on the west coast as far south as Shark's Bay; 2, Queensland, which includes the country north of New South Wales as far north as Cape York; 3, New South Wales; 4, Victoria; and 5, South Australia—all as defined in the maps; 6, Western Australia, extending from the west limits of South Australia to Shark's Bay; and, lastly, the Island of Tasmania. From the contents of the present volume it is not easy to say which of these districts will prove the most rich botanically, but we are inclined to suppose that New South Wales contains the greatest number of species, and Western Australia the most peculiar forms. In the latter district, indeed, there seems to be quite a manufactory of peculiar species, for even of so mundane a genus as Frankenia, of the seven Australian species all are from Western Australia, and one only is found in the other regions. Tasmania seems to contain very few peculiar species, and most of the New South Wales plants extend either into Queensland, or into Victoria, or both. South Australia, as its size, position, and proximity to the great desert would indicate, seems to be by far the poorest of the Floras.

With regard to the limitation of species, Mr. Bentham often finds himself hampered by contradictory opinions; as a rule he takes pretty broad views himself, but Dr. Mueller takes far broader, driving him to the adoption of an uncertain policy in many cases of dispute, to which he thus refers in the following judicious manner:—

"Many of the varieties which I have indicated will be considered as distinct species by a large number of general botanists; on the other hand, there are many forms which I have adopted as species which Dr. Mueller is disposed to reduce. In some cases I have yielded to his opinion, rather against the conclusion I should have come to from the examination of dried specimens, because, for Victorian plants especially, he has the great advantage of observing them living in their native stations. Having had myself much experience in describing plants, both with and without this aid, I can fully appreciate the great use which can be made of it, provided due caution be observed: for it often acts as a snare. It rarely occurs that many species of a genus are found together, so as to admit of comparison in a growing state, and we are too apt in regard to them to trust to recollections of general impressions. I do not consider it safe, therefore, to unite forms usually regarded as distinct, and appearing so in a large number of specimens from a great variety of stations, on account of generally observed variations unconfirmed by specimens; nor even on account of single apparently intermediate specimens, unless the history of such abnormal specimens is ascertained. Little as we know, for instance, of the influence of natural hybridising in Europe, it has been still less, if ever, observed in Australia; and many other causes may have produced passages between species really distinct. I have, therefore, wherever there is a difference of opinion between Dr. Mueller and myself, adopted the conclusion which has appeared to me the most probable, and mentioned the objection to it, for the consideration, and, if possible, the decision of future botanists."

To the horticulturalist the volume before us has an especial value, for it teems with descriptions of plants which have for the whole of this century contributed in yearly increasing numbers to ornament our greenhouses and drawing-rooms. Some of these are very large, as Hibbertia, containing 67 species, almost all of which are large flowered and worth cultivation; the same may be said of Candollea with 15 species; of the 16 species of Marianthus, the 18 of Tetratheca; the 25 of Thomasia, 21 of Comesperma, and 20 of Lasiopetalum; of the 57 Boronias, 26 Hibiscus, and 7 Fugosias; whilst of other orders, as Rhamneæ, Cruciferæ, Portulaceæ, which in other countries yield so many garden favourites, and which are all well represented in Australia, scarcely one presents anything worth conservatory accommodation or the gardener's skill and time.

It is interesting, amongst so many strange and unfamiliar forms of vegetation as Australia contains, to observe the number of European orders, genera, and even species that are found intermixed with them; thus out of the 39 orders described in this volume, 25 are European and 15 British. Of the 243 genera 50 are European, whilst of our common British plants the following are found to be truly indigenous in Australia:—

Ranunculus aquatilis	Capsella procumbens
,, parviflorus	Senebiera didyma
Myosurus minimus	Lepidium ruderale
Nasturtium palustre	Stellaria glauca
Barbarea vulgaris	Sagina procumbens
Turritis glabra	Spergularia rubra
Cardamine hirsuta	Montia fontana
Draba muralis	Geranium dissectum

And we further find the genera Anemone, Caltha, Papaver, Thlaspi, Gypsophila, Viola, Polygala, Frankenia, Elatine, Hypericum, Erodium, and Oxalis, all containing either European species, or species closely allied to the European.

In conclusion, it remains to express our entire satisfaction with the way Mr. Bentham has conducted his labours hitherto, and to wish him health and energy to complete this great national undertaking. The number of species he will have to deal with, is, we hear, computed at about 7000; a most formidable figure to place before one even so gifted as Mr. Bentham is with unflagging industry, rare facility of working with both skill and accuracy, and with, we hope we may add, not a few years of undiminished powers of active exertion:—"Work on, work ever!" must be his motto; "Hope on, hope ever!" ours.

The *Botanical Magazine* for the present month, contains figures of the following plants, namely:—*Stauranthera grandiflora*, a fine Indian Cyrtandraceous plant, with branching stems, large oblong somewhat fleshy singularly one-sided leaves, and a bi-tri-chotomous panicle of large purplish-lilac wide-tubed flowers with a white throat marked with a broad heart-shaped orange spot on the lower side. The leaves have one large rounded auricle, the opposite half being cut off obliquely. It was found on limestone rocks in Moulmein, by the Rev. C. S. P. Parish, by whom it was sent to Kew. *Gardenia octomera*, a stove shrub with apparently horizontal branches, ternately whorled ovate-oblong shortly acuminate sessile leaves, and erect sessile solitary flowers in the axils, the corolla having a slender cylindrical tube six inches long, and a limb of eight white spreading segments. It is a native of Fernando Po, whence it was sent by Mr. Gustav Mann. It flowers freely when only two to three feet high. *Miconia pulverulenta*, a Peruvian Melastomad, introduced by Messrs. Veitch, and shown by him during the past summer. It is a much branched shrubby plant, with large elliptic rugosely veined leaves of a deep velvety green, marked by a broad white midrib, and is very ornamental in respect to its foliage, but insignificant in regard to its flowers, which form a thyrsoid paniele, and are enveloped in dense ferruginous tomentum. *Webbia pinifolia*, a composite herbaceous plant of South Africa, having the erect stems sub-shrubby at the base, the leaves linear smooth above and hoary beneath, and the stems terminating in a corymbose head of flowers, each capitule of which consists of a tubular disk and ligulate ray florets, both of an intense blood-purple colour. *Fugosia cuneiformis*, a rare and little known West Australian shrub, with smooth cuneate oblong or broadly linear leaves, and large white flowers marked at the base of the petals with a rich crimson stain. It forms a much branched and very woody shrub.

The *Florist and Pomologist* figures the *Deutzia crenata flore-pleno*, introduced by Mr. Fortune, a very elegant dwarf hardy shrub, bearing racemes of drooping double flowers, which are white tinged exteriorly with red. There is also a representation of the *Victoria Nectarine*, a valuable new variety bred from the Stanwick by Mr. Rivers, and described as having all the merits of the Stanwick and none of its defects. It was raised from the Violette Hâtive impregnated by the Stanwick; and the fruit has all the appearance and richness of flavour of the male parent, but with the deep red stain around the stone as in the female, than which it is a fortnight later, and a month earlier than the Stanwick. This is likely to originate a new race of Nectarines more rich and saccharine in flavour than our present favourite varieties. Amongst the articles is one of some interest, entitled Hints on the cultivation of the Grape Vine, by Mr. Meredith, of Garston.

The plates in the *Floral Magazine* represent:—*Tea Rose Madame Falcot*, a golden yellow, described as an excellent Rose for pot culture; *Petunia Mrs. Smith*, one of varieties with white bars on a magenta ground; *Gladiolus Charles Davis*, one of Mr. Standish's novelties, of a bright crimson colour, and a first-class flower; and the old *Astelma eximium*.

In *Gossip of the Garden* are some very good remarks on Roses, in which it is stated that varieties of delicate habit require to be worked every year to ensure a good bloom. Such fine sorts as Madame Furtado and Louise Magnan are said to dwindle and die after the first year from the bud, and the writer strongly recommends the annual working of all delicate Roses. Some remarks on Gladioli we must take another opportunity of referring to. There is also a paper on Storer's Seedling Tulips, which are highly spoken of, though it is feared that as many breeder bulbs have been let out without name or number, and are being "named everywhere and by everybody," endless confusion will ensue.

The *Botanist's Chronicle* is a new penny serial, intended to supply in some measure the place of the defunct 'Phytologist,' and for the present issued at 28 Manor Street, Chelsea. The editor's address informs us that it is intended to supply the less affluent friends of science with a serial suited to their means, that is to say, a cheap magazine, the intention being to give the current doctrines of political economy a fair trial in the scientific book market. The most productive labourers in the field of science, it is remarked, are such as are not rich, but such as need both help and encouragement. This it is proposed to give them, or rather it is intended to give them, what is far more pleasant and effectual, the means of helping themselves and each other. The pages of the "Botanist's Chronicle" will afford a medium for that kind of friendly intercourse, the giving and receiving help, mutual civilities, &c., which will be beneficial to both the writer and the reader, the querist and the respondent. There is no doubt a field for such a publication, and we hope the one before us may succeed in successfully and usefully occupying it.

Miscellaneous.

Sale of Natural History objects by order of the Linnean Society.—Mr. Stevens brought these to the hammer last Tuesday. The following prices were obtained for some of the more interesting lots. Pultney's shells in 47 lots, 13*l.* 2*s.* 6*d.*——Skull of an Alligator, 2*l.* 4*s.*; of a Crocodile, 3*l.* 15*s.*; of a Hippopotamus, 3*l.* 4*s.*——Dried plants, viz.: Australian Alps, &c., from Müller, 5 bundles, 5*l.*; S. European, 12 bundles, 1*l.* 14*s.*; Portuguese, named by R. Brown, 3 bundles, 1*l.* 1*s.*; Cape of Good Hope, 21 bundles, 7*l.* 16*s.*; N. India, Hooker & Thomson, 12 bundles, 2*l.* 5*s.*; Ceylon, Thwaites, about 1700 named specimens, 4 bundles, 1*l.* 1*s.*; Gardens, from Borrer, 14 bundles, 1*l.*; Cuming's Philippine Plants, 5 bundles, 1*l.* 18*s.* Upon the whole these things may be said to have been given away. Was Botany *in extremis?* or what was the matter?

The Vinegar Plant.—The "Micrographic Dictionary" observes that, from various observations, the Vinegar plant may be regarded as the mycelium of Penicillium glaucum vegetating actively, and increasing also by crops of gonidia or gemmæ. It adds that "the moniliform growth is at the same time scarcely distinguishable from the Yeast plant by any satisfactory character, and repeated observations strongly impress us with the idea that these objects are all referable to one species—the Vinegar plant being the form of vegetative growth taking place at low or ordinary temperatures in highly saccharine liquids; while the true Yeast plant, or Torula, is formed in the more rapid fermentation, taking place at more elevated temperatures."* The Vinegar plant, commonly so-called, is a tough, leathery mass, often used by private families to make vinegar out of a solution of sugar and treacle; but the same plant exists in a more delicate and diffused form when other modes of vinegar making are employed; and M. Pasteur shows that it coats the shavings or twigs over which some manufacturers cause a suitable liquid to flow when they desire to promote its acetification. If a thin piece of the large tough Vinegar plant is examined microscopically, a moderate power suffices to show what the "Micrographic Dictionary" describes, namely, an unorganised jelly and cellular structures of many shapes, often resembling coherent cells of yeast, others being like Oïdium, &c. It is also, in those I have examined, easy to see something like an entangled mass of minute threads; but, when this structure is carefully treated, myriads of bacterium bodies appear, and are found to constitute the chief bulk of the plant itself. I am not aware that these bacterium bodies have been described before, and I will therefore explain the process by which I became acquainted with their existence. First a small thin strip of the Vinegar plant should be torn off from any part on or below the surface. This should be placed upon a glass slide, moistened with a drop of water, and stretched out by means of a camel-hair pencil-holder, and the back of a penknife. When reduced by stretching and squeezing to a film not exceeding a 250th or a 300th of an inch thick, cover with thin glass, press steadily, and view with a high power, using the achromatic condenser and a small stop. An immense quantity of little thread-like bodies will then be seen; and, if the power be sufficient and the illumination carefully adjusted, a beaded form will appear sufficiently often to indicate the class of object to which they belong. That the little bacterium bodies have not been obtained by tearing big ones to pieces in the stretching process will be plain upon examination of the plant in different conditions of extension and thickness. I have employed in this investigation Smith & Beck's one-twentieth and second eye-piece, giving a magnification of 1750 linear. A minute drop of solution of iodine, followed by another minute drop of dilute sulphuric acid, facilitates the view of the beaded structure. The bacterium bodies probably give rise to the tough mucus in which they are involved, and the unorganised mass in which they are embedded in the Vinegar plant may only differ in density from the more delicate material in which the same kind of bodies are enveloped when they form a pellicle on the surface of infusions, or adhere in a more or less globular shape. The Yeast plant is shown to be intimately connected, if not identical with, several vegetable forms to which distinct names have been assigned; but both upon botanical and chemico-physiological grounds, it would be very interesting to ascertain to what extent that form of it known as the Vinegar plant is associated with bacterium bodies. It is not enough that in one or two cases we find quantities of these bodies present when alcohol or saccharine matter is converted into vinegar; the question is, are they always present, and do they seem to be the particular agents by which the vinegar-making is carried on? When vinegar is obtained from a saccharine solution, the cane sugar is converted into grape sugar, the grape sugar into alcohol, and the alcohol into vinegar. Thus the Vinegar plant appears to perform the double function of first alcoholising and then acetifying the solution.

* This theory is doubtful, as the alcoholic fermentation goes on slowly and at low temperatures with the German sediment yeast.

Do the yeast-like cells accomplish one portion of this task, and the bacterium bodies the other? The mycoderm of wine does not in its ordinary state give rise to vinegar. Its own vital processes merely supply the means by which the changes incidental to vinous fermentation take place, but it occasionally happens that brewers are greatly teased by the acetous fermentation of their beer occurring after the alcoholic change has finished. I have heard of several instances this summer in which great annoyance has been experienced from this cause, and it would seem either that spores of the Vinegar plant were diffused to a greater extent than usual, or that portions of yeast remaining in the beer had developed into the Vinegar plant form. M. Pasteur's view of fermentation does not coincide with the common statement that the Yeast plant merely separates sugar into carbonic acid and alcohol—at any rate he does not represent that as the entire process, because he tells us that when experiments were performed in close vessels containing besides the fermenting liquid, a known quantity of air, it was found that the Vinegar plant took oxygen from the air, and therewith converted the alcohol into acetic acid; and that the mycoderm of wine converted the alcohol into water and carbonic acid. Thus both act as oxydisers; and it is well known that if the Vinegar plant be left in a fluid after it has transformed the sugar or alcohol into vinegar, it then burns up the vinegar, and leaves the housewife, or other manufacturer, who has neglected to remove it at the right period, only dirty water for her pains. *H. J. Slack, in Intellectual Observer.*

Fruit and Chrysanthemum Show in Birmingham.—The Handsworth Floral and Horticultural Society proposes to establish a fruit show upon a great scale. "A contemporary," say the Secretaries, "has remarked that setting aside Herefordshire and other parts of the West of England, the scarcity of such homely and desirable fruits as Apples, Pears, and Plums, all of which can be grown cheaply and well throughout the United Kingdom, is somewhat surprising; and in a recent publication Mr. Roach Smith states his opinion that the plantations of fruit trees in this country do not exceed those of the time of Charles the Second, a state of things, be it remembered, which competent authorities assure us exercises an appreciable effect of an unfavourable kind upon the health of the community. It is a mistake to suppose, as many persons probably do, that fruit is merely a luxury relished by every palate with more or less avidity, for we are quite certain that its consumption in a sound condition and in moderate quantities, has a wholesome effect upon the human system, and that a deficiency of it and of other descriptions of vegetable food is often productive of disease. We are, indeed, confidently assured that man is essentially, or by nature, 'a frugivorous animal;' and that those who conclude, from the formation of his teeth, that he was designed to be carnivorous, are altogether wrong, his dental conformation closely resembling that of the monkey tribes, which are not carnivorous but frugivorous. He has, nevertheless, made good his claim to be regarded as omnivorous, but he often eats more flesh than is good for him, and as a penalty is afflicted with cutaneous and other maladies, for which fruit is a specific, and a plea has been urged for its more systematic cultivation. Heavy crops, it is contended, might be obtained from ground on which at the same time vegetable products might be brought to maturity. A suggestion has, moreover, been made that thousands of acres of land, on the sides of our railways, which now lie waste, might be planted with Apple, Pear, and other trees, and thus turned to profitable account." In the forthcoming Exhibition, we learn that the committee have received encouraging promises of support. One of the classes is open to all the world, growers, fruiterers, and dealers being admissible, but for each entry a fee of 5*s.* will be payable. A silver cup, of the value of 10 guineas, is offered for the best collection of 24 varieties of fruit; besides 3*l.* and 1*l.* 10*s.* for the second and third best respectively; while persons of limited resources may now enter the lists with collections of only 12 varieties, for which prizes of 2*l.* 10*s.*, 1*l.* 10*l.*, and 15*s.* will be given. A division is again appropriated to ornamental, edible, or other Gourds, with three prizes of 3*l.*, 2*l.*, and 1*l.* each; but no collection is to include more than 100 specimens. This regulation has been introduced because many varieties are worthless. Prizes of 3*l.*, 2*l.*, and 1*l.* are offered for the first, second, and third best collections of 12 varieties of dessert Apples, consisting of eight of each; and sums of equal amount for similar collections of kitchen Apples, dessert Pears, and stewing or baking Pears. For the best six dishes of dessert Pears (eight in a dish), Mr. Gidings will give two guineas, to be contested by all comers. In the other classes, which are open only to members of the Society, prizes are offered for six varieties (eight of each) of dessert and kitchen Apples and Pears; and also for the three best collections of fruit, not exceeding 12 dishes each. For the benefit of visitors all specimens of whatever kind in the open class are required to be as correctly named as possible; and the judges will be instructed to take this into consideration when making their awards. So much for the Pomological department. For encouraging the floriculture of the winter season arrangements have also been made. The increasing attention paid to the Chrysanthemum is recognised, and an opportunity will be afforded to growers in the southern districts to manifest their skill by the admission of cut blooms. Liberal premiums "open to all the world" are placed at the disposal of the judges for the best three collections of 24, 18, and 12, competitors being charged 5*s.* for each entry. Entries in the open class must be made not later than November 26. Schedules may be obtained on application to the Honorary Secretaries, Mr. G. P. Tye and Mr. C. J. Perry.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—If the weather should suddenly dry up and become frosty, conservatories will require great nicety of management. Atmospheric humidity cannot by any means be entirely dispensed with, yet this if unskilfully applied will produce drip, which we need scarcely say is most prejudicial to the delicate texture of Camellia blooms and other gay plants. The best plan is to keep as low a temperature as can possibly be allowed, say from 40° to 45° at night, and to leave a little back and front air all night if the weather is at all favourable. The front air must be very moderate, or the atmospheric moisture, instead of passing quietly away by the back apertures, will be condensed as it arises. With a good roof covering in the case of small conservatories 40° would be sufficient, and then there would be atmospheric moisture enough at all times, without the special application of water. See that young stock in mixed greenhouses, such as Heliotropes, scarlet Pelargoniums, Cyclamens, and other flowers, grown especially for winter, have nice light situations, and regular attention as regards watering. Let Cape Heaths have close attention as to watering; if they stand unfortunately near hotwater pipes, they may become suddenly very dry. Keep up a quiet ventilation day and night if possible; let the air steal in moderately, and dispense with strong fires. Do not water Pelargoniums until they are tolerably dry, and take care to fumigate frequently and slightly. The compost yards, if not already filled, must now have immediate attention. This most important adjunct of good gardening is doubtless, in many cases, still behind the improved practices of the present day, in point of good management. Such is not always the fault of the gardener, but frequently arises from an inadequate supply of labour at certain periods. One of the most important points in this department is to see that the drenching autumn rains have every facility for escape. The best of soils, be they ever so well harvested, will become soured in a very short period by the lodgment of stagnant waters. A good compost yard on this account should be a steadily inclined plane, and the soils or composts should invariably run the way of the descent in parallel ridges. Now, although the special mixing of soils a long time beforehand is by no means to be recommended, yet it so happens that in general gardening much surplus soil or vegetable matter comes to hand in the course of the year. Such in all cases cannot and need not remain separate; for in a mixed state there will soon arise a demand for it—if only in repairing the beds of the flower garden. Those who have not harvested their loam should lose no time; for assuredly a little should be obtained annually if possible. To the storing of this and of peat we have alluded on former occasions; it only remains, therefore, to repeat, that not only should such soils be kept clear of standing water, but that provision should be made to prevent the rain from entering. Those who are procuring loam now may let it remain on the ground where dug until hard frozen; it may then be carted away without destroying its texture.

FORCING DEPARTMENT.

PINERY.—Winter watering of Pines in pots is rather a doubtful proceeding; a better way with general stock is to cover over the pots with Cocoa-nut refuse or some such material 2 or 3 inches thick, provided the bottom-heat is in proper condition.

VINERY.—If any portions of the stems of Vines now in forcing are near the influence of hotwater pipes, they should be bound with Moss, old mat, or any other material, to ward off the dry heat. Keep the temperature at present down to 60° in the case of sunshine in the day time, sinking to 50° at night. Do not give air unless to depress the thermometer, or to avoid a superabundance of rank steam from fermenting matter. Let the syringe be applied two or three times a day, suffering the wood to become dry between the applications.

FLOWER GARDEN AND SHRUBBERIES.

Hitherto little has been said about the protection of tender Roses. No time should now however be lost in regard to this matter. The tops of standards, worked on ordinary stocks, may be protected by straw bands bound amongst and over their branches, or by tight canopies firmly fixed. Beds or masses of certain kinds of Teas, or other tender kinds, should have some porous material strewed amongst them, to afford a little protection, especially during very severe weather. Cocoa-nut refuse or even a coating of half-decayed leaves would answer the purpose of protecting their stems about the "collar." Four or five inches of such materials may keep them safe in the event of a severe winter. If it is desirable to protect the tops efficiently, mats thrown lightly on them will suffice, taking care on the breaking up of frost, to expose cautiously, and not until after they have become thawed.

HARDY FRUIT AND KITCHEN GARDEN.

Trench, dig, and ridge every spare inch of ground when frost permits; this is particularly to be observed in gardens inclining to a clayey texture. During frost let the manure necessary be wheeled out for the whole of the spring cropping, laying it in heaps, either on the spot where it will be wanted, or as near as possible to it. That portion not required for immediate digging in should be piled in small mounds and soiled over, to prevent loss by evaporation. The principal operations in the fruit department will now relate to pruning. Planting ought now to be pushed forward with vigour. With regard to bush fruit, if dressings with hot lime and soot when the trees are wet were more attended to, we should not hear so much of the ravages of birds upon the buds, and we would recommend their application also to standard Plum trees wherever practicable, as they not only keep them free from Moss and Lichen, but assist in the extirpation of those insects, in the search for which birds commit such ravages. Dressing with freshslacked lime is still more imperative on Apple trees which are situated in damp localities, where Mosses and Lichens spread with great rapidity, and if not checked are very injurious to the well-being of the trees, besides affording a secure harbour for numberless insects to lay up during winter. The effectual remedy, however, for all such evils is thorough drainage. Prune and train wall fruit trees in open weather, also prune and dress pyramid and espalier Apples and Pears; after which apply a top-dressing of compost, and prick it in slightly so as not to interfere with the roots. This operation is a very necessary one where a regular system of root-pruning is persevered in.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Nov. 11, 1863, as observed at the Horticultural Garden

Nov.	Month's Age	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs.	5 24	30.459	30.098	58	30	44.0	53½	53	S.W.	.04
Friday	6 25	30.441	30.328	51	29	40.0	53	53	N.E.	.00
Satur	7 26	30.295	29.913	54	47	50.5	51½	52	S.W.	.09
Sunday	8 27	29.800	29.776	52	38	45.0	52	52	N.W.	.20
Mon.	9 28	30.172	30.102	52	20	36.0	51½	52.	N.E.	.00
Tues.	10 29	29.834	29.593	49	24	36.5	51	51	S.W.	.08
Wed.	11 ☽	29.412	29.312	43	21	32.0	49½	50½	N.E.	.00
Average.		30.046	29.865	51.3	29 8	40.5	51.4	51.9		.41

Nov. 5—Rain, densely clouded and boisterous, rain at night.
— 6—Fine; thinly clouded, hazy; foggy at night.
— 7—Uniformly overcast, constant rain, boisterous.
— 8—Rain; boisterous with rain, yet the barometer rather high.
— 9—Clear and fine, very clear at night, with sharp frost.
— 10—Frosty with fog, rain; clear at night, frosty.
— 11—Foggy; uniformly overcast; clear; sharp frost.
Mean temperature of the week 3½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending Nov. 21, 1863

November.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 15..	48 4	31 4	41.4	16	0.34 in.	3	5	5	3	4	10	5	2
Mon. 16..	48.5	32.7	40.6	13	0.34	6	3	4	3	5	8	6	2
Tues. 17..	47.5	33.8	40.1	17	0.38	9	5	3	1	7	7	2	3
Wed. 18..	47 6	33 3	40.4	19	0.56	3	7	3	2	3	11	3	5
Thurs. 19..	48 3	33 7	41.0	16	0.87	1	5	4	4	3	12	2	6
Friday 20..	48 5	33.0	41 7	13	0.35	1	7	3	—	6	8	6	6
Satur. 21..	49.2	34 4	42.8	22	0.41	4	5	4	3	4	11	4	2

The highest temperature during the above period occurred on the 16th, 1840—therm. 62 deg.; and the lowest on the 15th, 1843—therm. 18 deg.

Notices to Correspondents.

CAMELLIAS INFESTED WITH SCALE: *C J P* asks if any correspondent has found a ready way of extirpating these pests. There is, we fear, no remedy for him but careful and, if need be, repeated washings, which may very well be done at this season. The plants, stems and leaves, may be sponged with a strong Gishurst solution, taking care to wash it off completely before it dries on the leaves. To avoid injury to the wood buds, this must be done before they push; and, as the bushes are planted out, care must be taken not to get the soil soddened by the water applied to cleanse the leaves. Camellias do not, however, object to liberal and even abundant waterings while swelling their flower buds, so long as they are not drowned.

FEEJEE ISLANDS: *E A M.* (*Dublin*) will find (says a correspondent) several chapters on the Feejee group of Islands in the second Volume of Wilkes's "Narrative of the United States Exploring Expedition during the years 1838, 1839, 1840, 1841, 1842," (London, 1852).—*T C.* refers "E. A. M." for information regarding the climate, &c. of the Feejee Islands, to Dr. Seemann's "Viti, an Account of the Government Mission to the Vitian or Fiji Islands." He also suggests a reference to "Cook's Voyages" to those Islands; and to the "Life of John Hunt, a Missionary to the Cannibals," published in 1860, which contains much information regarding the people of these Islands.

FUNGI: *A M.* Your Fungus is Agaricus æruginosus, a very common, but when perfect, a very pretty species. *M J B.*

MESEMBRYANTHEMUM: *Anon.* The Editor hopes to be well enough to reply next week.

NAMES OF FRUITS: *J P.* 1, King of the Pippins; 2, Not known; 3, Margil; 4, Ord Apple; 5, Redstreak. ‖

NAMES OF PLANTS.—(We never name more than four at a time).—*P D.* 1, Triodia decumbens; 2, Avena pratensis; 3, Milium effusum; 4, Aira caryophyllea.—*H J Cope.* The botanical name of the Bamboo is Bambusa. There are many sorts.

ORCHIDS: *B.* Yes, but better not in the form of We.

STEPHANOTIS FLORIBUNDA: *O. Morris.* It is not uncommon for this plant to fruit, but the fruits are not wholesome; whatever you do, don't bite them.

TRITOMA UVARIA: *C W.* This old inhabitant of gardens, although it comes from the Cape of Good Hope, is perfectly hardy in the county of Norfolk. It is the finest of autumnal flowers of its class.

ERRATUM.—In our leading article, p. 1059, bottom of first column, read, As many of these interesting novelties have "been distributed all over the country," it may be worth while, &c.



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Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

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For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster S.W.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

AUTUMN SESSION, 1863.

President—THE RIGHT HON. THE EARL BATHURST.

Council.

The Right Hon. THE EARL BATHURST.
The Right Hon. THE EARL DUCIE.
The Right Hon. WILLIAM BATHURST.
The Right Hon. T. H. SOTHERON ESTCOURT, M.P.
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MATHEMATICS AND SURVEYING.

W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.

DRAWING.—JAMES MILLER.

* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

AGRICULTURE.

J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
THOMAS ELLMAN, of Beddingham, Lewes—Lecture on Southdown and Short-woolled Sheep.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.

AGRICULTURAL CHEMISTRY.

THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.

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Landowners having limited interests, such as Tenants for Life, Tenants in Tail, Mortgagors, and others, can Drain and improve their Lands without any expense to themselves personally,—as the Company's Act does not require Proprietors to liquidate the cost, the amount may remain permanently charged on the property, at interest, or be paid off when convenient, or be made redeemable over any term of years.

The works are undertaken by the Company, who keep in constant employ a very extensive and experienced staff of Engineers, Surveyors, and workmen; or Proprietors may avail themselves of the powers of the Act only, and get the works executed under their own superintendence, or by Agents appointed by themselves.

Outfalls through adjoining lands are obtainable under the Company's Act.

Works are also executed by the Company for Parties advancing their own capital, or not wishing to borrow the money.

Every information may be obtained on application to

FREDERICK BRODIE, Secretary, Castle Street, Exeter.

Offices: Castle Street, Exeter; and 30, Parliament Street, Westminster.

THE NATIONAL EXHIBITION of DOGS.—The FOURTH GREAT ANNUAL EXHIBITION of SPORTING and other DOGS will be held in Paradise Street (near Bingley Hall), BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY and THURSDAY, November 30, and December 1, 2, and 3 (the week of the CATTLE and POULTRY SHOW). For SPECIAL RAILWAY ARRANGEMENTS, see the Advertisements and Bills of the Companies.

BINGLEY HALL, BIRMINGHAM.—The FIFTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 1, 2, and 3.

For Special Railway Arrangements, see the advertisements and bills of the Companies.

SMITHFIELD CLUB CATTLE SHOW, at the AGRICULTURAL HALL.
PRIVATE VIEW, MONDAY, December 7, after 2 P.M.

The Agricultural Gazette.

SATURDAY, NOVEMBER 14, 1863.

PROFESSOR GAMGEE is continuing his agitation of the Health of Stock question very effectively by letters, lectures, and discussions. His statement on opening the Winter Session at the New Veterinary College, is given in another page. Reference has already been made in our columns to his Government Report, and to the papers read by him and by Mr. HOLLAND, M.P., at the Social Science Congress on this subject. He has now seized the occasion of a reported successful transportation of stock to Harwich during the recent storms, which were fatal to so many cargoes for the Thames, to ask "what additional precautions are being taken to prevent the introduction of diseased animals from abroad, seeing there is a prospect of the largest portion of the cattle trade from the North of Europe never coming under the notice of the Inspectors at the port of London."

A competent authority on veterinary subjects—he declares that our foreign importations have *led* to a steady rise in prices for years past, and must still favour that rise if we do not check their plague-disseminating tendencies.

"The extraordinary prevalence of the foot-and-mouth complaint at the present time, which exceeds the formerly unexampled frequency of the malady 12 months since, depends," he says, "entirely on the condition of foreign stock. This is at the root of the evil. We could not have the disease without its introduction. We never had it before free trade in live stock, and we have it not at present where cattle are only sold and exported from breeding districts. It is perfectly true that many Scotch, Irish, or English cattle leaving their original homes in perfect health prove diseased in the fairs and in the farms they are taken to; but why? The answer to this question has been frequently given this year by practical men who have spoken at various meetings when the subject of cattle disease has been discussed. They unanimously say, 'Look at the cattle trucks! They are never cleaned out from year's end to year's end, and after conveying one lot of diseased cattle the mass of filth bespattered on the sides and lying thick at the bottom of the trucks is charged with poison, which readily infects any animals coming in contact with it.'"

These considerations cannot be too strongly or frequently urged on public attention; the conviction to which they must lead—that not only stock-owners but meat consumers are sufferers to a very great and needless extent in this country—must result in greater care and circumspection being used by individual purchasers, whether it ends in Government inter-

ference or not. It is hardly likely that this Government interference will amount to more than the collection and publication of information, except with reference to foreign stock received at the ports. The inspection which, according to Prof. Gamgee and all the authorities, is especially needed as a safeguard there, seems to indicate that the condition of live stock is worse in the countries where Government takes care of the health of the cattle of the country than it is at home, where every man does the best he can for himself.

Another writer has come forward to dispute the assertion of Mr. Wray, of Tonbridge Wells, that all practical men are agreed that steam cultivation is not yet sufficiently advanced for use even by the large and wealthy occupiers of land, while for the general farmer it is altogether out of the question. Our Correspondent last week described the experience of one of the former class; and now Mr. Smith of Woolstone, than whom there is no better authority, speaks on behalf of the latter. He describes his own experience as one of them in the *Times*, and adds:—

"Perhaps Mr. Wray would like to know a little about others who use my tackle. I will tell him. I have a neighbour who has had six years at it. It is Mr. Whiting, of Stoke Goldington, Newport Pagnell. He occupies 160 acres of poor clay land under Lord Carrington, a small farm at Newport Pagnell 80 acres, and 20 acres at Horton; about 200 acres of it are arable. Within that period he has well drained and cleaned them, and they give him good crops, but he will not tell you what the produce is. He is a tenant. Besides this he has done 2000 acres of contract work for his neighbours. Since doing 170 acres for himself this autumn first (you see self stands first) he has done nearly 300 acres for his neighbours. His tackle is always to be found in good working order. The wear and tear has been but a trifle during the six years. He has just put on his second steel rope, and that is about all, besides trifles. His windlass appears and works as well as ever. Surely this will rub Mr. Wray's eyes open a little, and with them, I hope, some of our unbelieving, over-knowing, horse farmers, 'all practical men.'"

Mr. Smith writes in the *Times* of Nov. 11 a very excellent letter, well deserving the attention of the many who are now hesitating about the adoption of steam cultivation, and who may be frightened by the assertion of a confident writer like Mr. Wray. He says:—

"There are between 200 and 300 sets of my tackle in general use, to say nothing of those sent out by other makers, and they have given general satisfaction. They have not only been used by 'large and wealthy occupiers of land,' but also by 'the general farmers,' many of them not occupying so many as 300 acres of arable land. I myself am one of their number, for my acreage of arable land is 112. Mr. Wray will tell me that I am an interested man—true, and especially so for the wellbeing of my country, for I have spent every shilling my inventions have earned me in experimenting, &c., and knocking the prejudice out of the heads of high-learned 'practical men;' but I have never spent the whole of my private income, and when I go the way of all flesh I shall leave an empty house behind me, no chick. So the words 'interested man' will not avail him much. Now, let us see what evidence there is to show that the steam plough is advanced enough to be brought into general use."

Mr. Smith then states his own experience, and proves that whereas the horse-labour of ordinary tillage costs at least 15*s.* 5*d.* per acre per annum, that of steam tillage on his farm has not averaged above 10*s.* per acre annually. But the greater economy is a very small part of the advantage which he claims.

Hear him on the subject of increased fertility:—

"We have a clean gain of 33*s.* in the six years, 30 per cent., and what is worth more we have no weeds to burn, but we have an increased produce. 'How is that?' Mr. Wray will say. 'You can't beat our tip-top horse farmers.' Never mind, I farm as deep again as they do, and get a greater produce from a poor clay soil than it was ever known to grow under good horse farming. My father farmed these soils 40 years ago, and he farmed well according to his day. He gave a good dead fallow every four years, well folded for Wheat or Barley; he put all the manure he could make for his second crop, Beans, and he well worked his land for his third crop. Besides this he well drained it with good tiles; but he never did but once get 40 bushels of Barley per acre; neither did I, or even that, until I applied a steam plough. My first crop of Barley under steam in 1857 gave me a produce of 56 bushels per acre; that same field gave me a produce this year of 61 bushels per acre, and my average for the seven years has been 2½ quarters per acre more than it was ever known to be before. Yes, and my seven years' average of Wheat has been full 8 bushels more than it had ever been before, and my land is always in crop and clean."

Well down, Woolstone! The little Buckinghamshire farm and its energetic tenant continue with the leaders of the van, and are likely to remain so, whatever the amount of incredulity and repulse which they receive, whether from Societies or individuals.

—— We should be glad if any of our readers could furnish us with any examples of the kind given in another page, where the year's income and year's expenditure of a labouring man is analysed and stated. This example, which Mr. Wood, of Rochford, has been good enough to send us, is remarkable for the complete exactness of the account which has been kept. Nominally receiving 12*s.* or 12*s.* 6*d.* a week, the labourer in question was actually in receipt of nearly 20*s.* weekly, owing to lodgers, occasional employment for his boy, and some other incomings of less importance.

One would like to know how far this case is generally true. And we should be glad to publish examples if they were supplied to us, illustrating the expenditure and receipts in cases which must be frequent enough where a much harder family is fed on lower wages.

—— Prizes are to be awarded at the Bingley Hall Show of the Midland Counties Association at Birmingham next month for the "best trimmed" sheep. A great deal of discussion has lately arisen on this subject, owing to a recent disqualification on the score of improper trimming at the Staffordshire Agricultural meeting; and now some gentlemen, adopting the obnoxious term, have secured the services of two excellent judges, who will, on the Monday of the meeting, examine the classes of Shropshire sheep shown in Bingley Hall, and award to shepherds prizes of 2*l.* and 1*l.* respectively for the "best trimmed" pens of Shropshire sheep of any age. They are to exclude any sheep that they consider has not been "fairly and barely shorn," as well as any whose wool has been made "filthy and untouchable by grease, ochre, &c., so as to spoil the trousers of a gentleman, or ruin the kid gloves of a lady." Those who offer this prize feel "assured that rules may as well be enacted against grooming horses, shaving men, painting implements, or varnishing pictures, as against trimming sheep; but are anxious to know what a well-trimmed sheep is," and hence these prizes.

It appears to us that, notwithstanding the formal acceptance of the rules laid down for exhibitors by Agricultural Societies with which the announcement of it is prefaced, this prize will tend rather to stimulate the tendency which already sufficiently exists to "sail as near the wind" as possible in the sort of obedience which is given to these rules.

Malt as Food for Cattle and Sheep.—The following letter has been addressed to the Chairman of the Central Farmers' Club by Sir Fitzroy Kelly, one of the Members for East Suffolk:—

"Sir,—I am instructed by the Committee appointed to inquire into the effect of the Malt-Tax upon the quantity produced, and the price of Barley and malt, and upon the feeding of cattle and sheep with malt, to say that they will feel exceedingly obliged by any information that your Association may have the means of communicating to me between the present time and the re-assembling of Parliament concerning the application of malt to the feeding of cattle, sheep, and pigs, and especially the relative value and effect of Barley, oilcake, or other description of food, as compared with malt in the fattening and feeding of cattle, and in the production of milk. Should it be within the province or power of the Society, or of any of its members to whom the wish of the Committee may be made known, to make any experiments upon this important subject, and so to put to the test the comparative advantages and cost of the one mode of feeding and the other, the results of such experiments, especially if made with great care and minuteness, and reported upon with the most accurate precision, will be extremely acceptable to the Committee, and of great benefit and service to the public.

"I have the honour to be, Sir, your very obedient servant,
"Fitzroy Kelly."

The Committee are about to call the especial attention of the Members of the Club to the subject of this communication, with the view to obtaining some practical information on the points raised by Sir Fitzroy Kelly. It will be necessary that any such data on the relative value of malt and Barley for feeding purposes should be supplied early in the new year, as the Committee purpose dealing with such matter as may be forwarded at the Monthly Meeting, on the first Monday in February, 1864.

ON A NEW KIND OF RAPE-MEAL.

By Arthur H. Church, M.A. Oxon, F.C.S., Professor of Chemistry at the Royal Agricultural College, Cirencester.

A new process for extracting oil from seeds by means of bisulphide of carbon is now attracting some attention. The advantages said to be obtained by the use of this solvent for the removal of the oil, in lieu of extracting it by means of pressure, are given at length in a prospectus. The chief points are these:—

1. An increase in yield of oil amounting to from 8 to 10 per cent.
2. A purer product; the oil being free from mucilage. It can be used at once.
3. Less costly machinery.
4. Greater economy of time, space, and labour.
5. More highly nutritive residues.

The prospectus states that where 1,500,000 litres of oil can be made by the old process, 1,680,000 litres or more can be made by the new in the same space and time. It is indeed certain that if the new process be managed with due care the yield of oil will be much larger than before, at the same time that the cost of production will be materially lessened. And it is quite intelligible how the oil prepared by treatment of the crushed seed with vapour of bisulphide of carbon should be freer from suspended impurities than that obtained by pressure, but it is a matter of great doubt whether the nutritive properties and feeding value of the residues of the new process are greater than that of the old. Where, however, it is not contemplated to employ the seed-residues as feeding material, but to make use of them as manurial agents, the case assumes a different aspect. If by lessening the percentage of oil in the residue we have reduced its fattening qualities, we have on the other hand increased the proportion of its nitrogenous constituents and its ash. Thus its value as a manure will be raised in two ways. Firstly, by the removal of a larger proportion of oil, the presence of which tends so materially to retard decomposition; and secondly, by the increased amount of nitrogen, of phosphates and of potash which a given weight of the residue can supply. A comparison of the composition of the residues furnished respectively by the old and new process will place these considerations in a clearer light. Samples I. *a* and I *b* were of German manufacture; they were analysed in the condition in which they would be brought to market.

	I. Rape Residue or Refuse, after extraction of the oil by the new process with bisulphide of carbon.		II. Rape Cake, after extraction of the oil by old pressure process.
	a	*b*	
Nitrogenous Compounds..	32.20	33.95	29.52
Oil	4.70	2.21	11.10*
Mucilage, Sugar, &c ..	25.63	35.52	33.00
Fibre	9.45	11.06	7.30
Ash	8.14	8.95	7.79
Water..	9.88	8.31	10.68
	100.00	100.00	100.00

Owing to the great demand for Colza or Rape oil, the new process has been scarcely tried upon any other seed at present. But there is no doubt that the plan will receive an extended application, and that residues from Linseed, Poppy-seed, and other oily seeds will find their way into commerce before long. The question of the feeding value of these products will then become a matter of considerable importance. For it will be desirable to ascertain not only their chemical composition, but also whether the natural value of the seed has been injuriously affected by the use of bisulphide of carbon. The nitrogenous matters of Rape seed, so far as my experiments go, are not altered by the process, while the small quantity of residual oil left in the Rape refuse of the new process is not resinified, an undesirable change which occurs when cakes have been pressed at too high a temperature. But I cannot say that the residues of various crushed seeds which have been tried, after their oil has been for the most part removed by bisulphide of carbon, have at all a palatable flavour. When the whole of the adherent bisulphide has completely evaporated, a flavour and odour by no means pleasant can still be detected. This smell and taste is indeed quite different from the peculiar and powerful odour of the bisulphide itself, and it would seem to be due, not to that liquid directly, but to some impurity contained in it, or to some compound produced by its action on the constituents of the seed. Anyhow the residues smack too much of a certain nauseous and sulphurous taste, which I cannot think would be highly esteemed by cattle.

We know how important in the successful fattening of stock is a wholesome sweetness in their food. But the most carefully purified bisulphide of carbon appears to impart to the seed a sickly and disagreeable taste and odour which no subsequent treatment is capable of removing. In the commercial samples, however, which I have examined, this offensive odour and taste are not perceptible to a superficial observer, but they become very marked when the Rape-refuse is moistened and warmed. Should the residues of the new process be offered as cattle food, either alone or mixed with other materials, it will be necessary to submit the new

* Dr. Anderson found 8.63 and 12.50 per cent. of oil in two Rape cakes which he analysed. (Journal of Agriculture, January, 1860.

products to a very careful examination. The peculiar odour to which I refer as characteristic of the Rape residues examined is best observed when the remaining oil is extracted by means of ether and the etherial solution evaporated. Actual experiments with stock will of course be necessary before the exact value of these new materials can be determined. In the meantime it is evident that the almost entire removal of their oil must depreciate their value considerably to purchasers who may buy these materials as fatteners.

Some idea of the complete manner in which the oil may be extracted from seeds and even from oil-cakes by means of the new process with bisulphide of carbon may be gathered from the following experiments. The amount of oil in a Linseed-cake was determined (1) by the usual process of repeated extraction with ether; (2) by repeated extraction with bisulphide of carbon. In each experiment the same amount of material was employed, and in each case the solvent was distilled through the powdered oil-cake the same number of times. By these two processes the oilcake analysed gave the following per centage of oil:—

Ether Process.	Bisulphide Process.
16.57.	16.79.

The new process is as easy of execution and infinitely less costly than the old. *Royal Agricultural College, Cirencester.*

AGRICULTURAL DRAINAGE.

DISTRICT DRAINAGE AND OUTFALLS.

[The following is the conclusion of Mr. Bailey Denton's lecture to the Royal Agricultural College, Cirencester.]

(*Continued from p.* 1068)

I will now endeavour to explain to you the bearing of these remarks on the country.

Take a geological map of England and Wales and study the position of the out-cropping strata; you will find a distinct though a somewhat tortuous line running from Whitby, in Yorkshire, to Lyme Regis, in Dorset. This marks the outcrop of the lias formation, and forms a line of demarcation which may be well considered by the draining student.

On the west and north of this line you have the older formations, viz., the new red sandstone, the Permian rocks, the coal measures and carboniferous limestone, and the Devonian, Cambrian, and Silurian ranges, with their igneous interstratifications.

With the exception of the new red sandstone, which covers a very wide though undulating plain at their base, these formations are much elevated, having been excessively disturbed and extensively denuded.

The effect of denudation upon them has been to cover the valleys beneath with a mixed debris of boulders of sandstone marls, shales, and limestones, among which alluvial matter has taken its place.

The proportion of clay in this mixture is comparatively small. The rainfall, on the contrary, is very considerable, and with an annual fall, varying from 26 to 36 inches, on the lower grounds of the new red sandstone, it rises in annual amount, according to position, elevation, and aspect, from 32 to 140 inches among the Devonian, Cambrian, and Silurian Hills, and the frequency of rain is manifested by the fact that the number of wet days in the year will often exceed 250. The inclination of the slopes and sides of these high broken regions is often very steep, and the clouds from the Atlantic being broken by their superior height, the rain is precipitated into the valleys of free soil below, there to keep them saturated until drainage, percolation, and evaporation effect a reduction. In some sluggish valleys, and in numerous land-locked hollows amongst the hills, we find marshes of peat and bog which suffer in a greater degree than the drifted soils of the more rapid valleys, which possess natural though slow drainage by percolation down their longitudinal courses.

While these conditions and features of the older formations place at our disposal a very large quantity of water, its quality is far superior to the supply to be gained from the more recent formations outcropping to the eastern side of the country, which is generally impregnated with lime.

The value of the water of the older formations is well shown by its appropriation at Glasgow, Greenock,* Manchester, Stockport, and numerous other places by means of drainage and collection in valleys and basins more or less distant from the places in which it is used, and the drainer cannot fail to see when he is operating in these districts, that he has at his disposal in the water of drainage, an object of value which will be appreciated, as manufactures and population extend and its application for motive power and for domestic and trading purposes becomes more profitable. You will observe that the manufacturing districts are nearly wholly confined to that portion of the country lying to the west and north of the lias line, to which I have drawn your attention. This arises chiefly from the fact that the coal measures exist on that side, but the plenitude of water has much to do with it, and it is on all grounds desirable that in our drainage operations we should do nothing to lower our national pre-eminence as a manufacturing people.

I will not detain you now to show to what extent these districts with free soils, great rainfall, steep slopes, and great heights are affected by wetness—not that which is due to the quantity of rain falling directly on the surface of the saturated land, nor that which results from the outflowing of springs,—but that which descends rapidly and without loss of quantity down the hill sides into the valleys of detritus below to rise by gravity to the surface; I leave that for my next lecture. I am content to tell you that the rules rightly applicable to clays and homogeneous soils with regular surfaces, are altogether inapplicable here, and one drain beyond what is sufficient operates injuriously. This water is "the water of pressure," named so by me in contradistinction to that which falls directly on the surface, or that which we understand as "springs."† That you may not undervalue the importance of this character of water in its bearing upon the enlarged view of drainage which I wish you to consider, I may here cursorily state that in several drainage works in my hands, as much water is being discharged from the drains in one month as falls in the drained surface in a whole year, without touching a single "spring." The extent of land in Great Britain affected by the "water of pressure," extends to several millions of acres.

Let us now pass to the east of the lias line, and examine the physical structure of that part of the country.

The dip of the strata outcropping, in England, is from the north-west to the south-east—that is, the most recent are found in the south-east, and the oldest in the north-west.

Succeeding the lias, which is the lowest bed of the oolites, we have the strata comprising the oolitic series—then the greensand and chalk—then the tertiaries and the post-tertiaries. If you examine the stratification closely, with the desire of turning the facts to account in the practice of draining, you will find that the porous and retentive strata alternate with remarkable regularity. For instance, you will find the corn-brash and inferior oolitic beds lying between the lias and Oxford clays; then the coral rag and calcareous grit between the Oxford and Kimmeridge clays; then the sand beds and gault of the greensand, and upon that the chalk, succeeded by the plastic and London clay. These several clays are much stiffer and more retentive than those of the older formations on the western side of the lias. But mark how greatly the counteracting circumstances qualify these facts. In the western districts the maximum height exceeds 4000 feet, the rainfall 140 inches, and the number of wet days 250, whereas the greatest height to the east of the lias does not reach 1300 feet, nor the greatest amount of annual rainfall 32 inches, nor the number of wet days in the year 175. Hence we see that as tenacity of soil increases, and elevation is reduced, the fall of rain becomes less in quantity and frequency. This is very interestingly shown by the records of the manager of the canals department of the Manchester, Sheffield, and Lincolnshire Railway, which I will tabulate according to place, geological formation, height, and rainfall:—

County.	Place.	Geological Formation.	Height over Sea Level.	Rainfall. 1860.	1861.	1862.
				Ins.	Ins.	Ins.
Cheshire ...	Bollington	Coal Measures	1279	48.61	37.99	43.61
	Whaley ..		602	46.81	37.00	44.08
Lancashire .	Oldham ..		345	42.13	32.79	30.74
Yorkshire ..	Sheffield ..		188	27.58	25.55	23.93
Lincoln	Lincoln ..	Lias ..	23	27.15	16.97	20.31
	New Holland	Post-tertiary	18	28.48	20.73	21.62

But this is not all. The alternation of the porous or water-bearing strata, with the retentive clays, serve as natural drains, and exhibit a marvellous system of arrangement which should excite our gratitude as well as our wonder. We occasionally find the drainer penetrating the clays by wells, called Swallow Holes, and dropping the water of drainage down by them into the porous stratum beneath. This is done in the open oolitic beds, and in the chalk, and thus drainage adds, in a very small degree, to the subterranean supply. You may smile at this statement, and I should not have made any reference to the practice—which has its drawbacks—were it not that it has a very pertinent bearing on the water-economy of the country, and will grow in importance as under drainage extends.

I would recommend you to read "Ramsay's Physical Geology and Geography of Great Britain," and to study Beardmore's "Manual of Hydrology." These works should be in the hands of every draining student.

On the east of the lias line we have comparatively but little of the water of pressure to contend with; on the west its existence is the rule, on the east it is the exception, though it gives a special and important character to the river valleys of the chalk.

But this line of demarcation does not apply to soil, height, and rainfall only, it influences the regime of our rivers.

If you look closely to the river courses you will see that whereas all the rivers to the east of the lias run at right angles to the line of outcrop, those that traverse the neighbouring new red sandstone—the Severn and the Trent—flow in a direction parallel with the out-crop, and thus separate distinctly the higher, and broken ranges of the west and north, from the lower and regular surfaces of the east and the south.

Putting all these circumstances together, you cannot fail to see, that to be treating alike—as is the case at the present moment—the two sides of the country, which are so unlike in their distinguishing features, that they might truly be the antipodes of each other, is wrong—that although you may in individual cases drain effectually a single field or a single farm without reference to any circumstances beyond it, the best and most economical treatment is that which is based on those phenomena and physical conditions which characterise the locality, as well as the field in which you operate, and that it is altogether unworthy of a country like ours to be proceeding with underdraining without reference to fundamental data—in fact, to be putting the cart before the horse.

Having said so much by way of introduction, I will only add, before proceeding to details, that what I have felt myself compelled to say is the result of 25 years active work and earnest consideration, and I should not perform the duty I have taken upon myself did I not impress upon you the advantage of a more comprehensive view of the subject than has hitherto been given to it. I have become more and more convinced, as my experience has been enlarged, that the drainage of a single estate, to be rightly conducted, should have reference to exterior influences, and that under-drainage and arterial drainage are allied works which constitute, in their connected form, one of the most important objects to which the national mind can apply itself.

At this time the only control vested in the Government is exerted by a commission, of which the members are eminent as lawyers, and it must often be a matter of regret to them in their earnest desire to do their utmost for the benefit of the nation, that they have not a colleague equally eminent as themselves, versed in the very difficult matter of water economy, and capable of applying those principles of action which are only to be understood by men who have studied and are conversant with the physical structure and geology of the country in conjunction with hydraulic science.

The exclusion of the engineer would prove that the legislature esteemed such an authority uncalled for, and that legal knowledge was all that was necessary to dispense the various Acts of Parliament. But the time has gone by when this could be said. From under-drainage the Commissioners have already entered upon duties connected with district drainage under the Act of 1861, and are gradually merging from their legal character into that of engineers. It is true that the commission exercises its functions through the medium of inspectors, who are qualified for their duties, but this semi-responsible system is manifestly opposed to a sound and comprehensive treatment of one of the most difficult questions which can possibly affect the social condition of any country.

Though still earnest in my profession, my life is on the wane; you are entering upon yours with all the vigour of youth, and I cannot do better than leave the reflections with which I have introduced my Lecture, for your careful consideration, reminding you that though you cannot compel the co-operation of others, it is the duty of every good citizen to consider, as he follows his vocation, that he is but a member of one large constituency, and that his individual acts should all conduce to the general benefit.

* The Greenock works stand alone in the ingenuity displayed; in the first instance, in getting water to supply the inhabitants of the town, who were, before the construction, destitute of it in dry summers; and in the next, in making the best use of the surplus quantity.

The land from Ducal Moss to Shaw's Hills, to the extent of very nearly 5000 acres, has been drained, and the water collected in reservoirs, covering a space of nearly 400 acres, and the available quantity derived from this source is 700,000,000 of cubic feet annually. The town takes 18,250,000 cubic feet annually for domestic purposes, and the remainder is at the disposal of two lines of mills, one stretching to the east, and the other to the west. The company contracted to supply the two lines with 1200 cubic feet each per minute for 310 days, 12 hours each day, and this amounts to 535,680,000 cubic feet annually. The two applications amount to 553,930,000, leaving a very considerable surplus to provide against drought.

† See "Land Drainage and Drainage Systems," by the Author.

FOOD AT TWELVE SHILLINGS A WEEK.

I have sent you the labourer's account to which my letter of the 20th October refers (see p. 1016), from which you are at liberty to make any extracts you please, and to publish all or any portion of it.

My letter contains an account of all the circumstances relating to it, and I will not trouble you further about it. It is singular what may be effected if energy be rightly applied, as will be seen by the following account, which occurred under my own notice.

A young lad who now lives in this place was left destitute by his father absconding when the youth was only 13 years of age (I believe he had not attained that age), with a mother, three brothers, and a sister, without any resources whatever, except a barber's shop and a small quantity of household furniture. With these, and having been instructed by his father in the trade of a barber, he commenced business, and, quite unassisted, maintained himself and his mother and brothers and sister, brought them all up, placed out the two brothers in good situations; the sister remained at home with the mother, and is lately dead. The young man and his mother are now living together at Rochford, and he bears an extremely good character, and, as you would expect from his conduct, deserves and receives the support of the neighbourhood. *George Wood, Rochford, Essex.*

The following is an analysis of the expenditure and receipts—in fact an analysis of the account book which we have received. It relates to the year Nov. 14, 1815 to Nov. 14, 1846. The average price of Wheat in that year was 54*s.* per quarter. The family consisted of man, wife, and five children.

Payments.

	£ s. d.	Number of Payments.	Average amount of Payment at once.
Rent	5 4 0	47	2*s.*
Bread	8 15 10¾	52	2*s.* to 8*s.*
Flour	15 5 1	52	3*s.* to 12*s.*
Pork	3 7 5½	46	1*s.* to 4*s.*
Beef	0 14 9	6	1*s.* to 4*s.*
Mutton	0 1 1½	2	1*s.* to 2*s.*
Bacon	0 13 2	..	1*s.* to 2*s.*
Tobacco	0 19 3	51	3*d.* to 6*d.*
Soap	0 13 6½	38	5*d.*
Coffee	0 7 10½	47	1½*d.* to 2½*d.*
Candles	0 11 7½	41	2*d.* to 6*d.*
Butter	1 11 7½	46	5*d.* to 10*d.*
Sugar	0 18 3½	50	2½*d.* to 5*d.*
Cheese	1 6 2½	47	6*d.* to 1*s.*
Tea	0 11 5	29	3*d.* to 7*d.*
Coals	1 14 2½	42	7*d.* to 1*s.* 3*d.*
Wood	0 2 0	1	2*s.*
Herrings	0 3 7	8	2*d.* to 6*d.*
Salt	0 1 5½	16	1*d.*
Pepper	0 1 5½	12	1½*d.*
Mustard	0 0 4	2	1*d.* to 3*d.*
Vinegar	0 0 8¾	3	1¼*d.* to 5*d.*
Ink	0 0 0½	1	½*d.*
Carrots and Turnips	0 2 0	3	3*d.* to 1*s.*
Potatos	0 18 0½	6	2*s.* to 12*s.*
Garden seeds	0 1 3½	4	
Rice	0 0 10	3	
Cucumber	0 0 1	1	
Mending kettle and umbrella	0 0 10	2	
Mugs and pail	0 2 1	3	
Milk	0 6 2	30	
Matches	0 1 5	16	
Cleaning watch and clock	0 6 6	2	Shoes, 9*s.* 6*d.* to 3*s.* 6*d.*, no article of dress. Payments to club.
Clothing	2 17 8	53	
Starch, &c.	0 3 3	25	
Lard	0 5 1	15	
Eggs	0 0 5	2	
Currants, &c.	0 3 9	6	
Oil	0 3 2	13	3*d.*
Medicine	0 7 2	11	
Beer	0 5 7½	14	2½*d.* to 5*d.*
Yeast	0 2 8	14	2*d.*
Gatherings (probably collections at church)	0 3 1½	6	
Book	0 0 8	1	
Club	0 16 0	3	
	£50 14 11½		

Receipts.

	£ s. d.	
Wages:—		
Self	34 7 2	One week ill—Wages 12*s.*, 12*s.* 6*d.*; 15*s.* in Harvest.
Boys	10 6 3	Three weeks ill — sometimes one boy, sometimes two boys, — 2*s.* to 3*s.*
Washing	2 2 3	
Gifts	0 14 6	
Lodgings	2 18 6	Sometimes one lodger, sometimes two lodgers, 6*d.* to 1*s.*
Fowls	0 7 10	Rearing.
Apples and Pears	0 15 5	
Beeswax	0 3 8	
Rags	0 3 6	
Laying-out a Corpse	0 2 6	
Mending chair	0 0 6	
	£52 2 1	

Consumption of Bread.—The accounts I send with this letter will show you that I paid a baker 3*l.* 0*s.* 9½*d.* for 93¼ quarter (4 lb.) loaves; I consumed from February 11, till September 4, 1861, when employed in

the capacity of journeyman in a nobleman's garden, where five single men are employed, all of whom resided in a bothy.

Our food consisted of oatmeal-porridge and milk for breakfast, loaf-bread and milk for dinner, and bread and butter and coffee or tea for supper on week days.

Although employed in a nobleman's garden, I applied myself more energetically to work during that period than I ever did in any capacity to farmers or contractors. Each of a good many men will consume three quarters of a pound of meal made into porridge, but when several men's porridge are made together, half a pound of oatmeal will make one man's breakfast of porridge. I pay 6½*d.* at present for six breakfasts of porridge. I was employed several years in a garden where I had a breakfast of porridge for 1*d.*, when 2*s.* 8*d.* was the selling price of an imperial stone of oatmeal. Six breakfasts for 6*d.* Of course we had the milk gratis as a perquisite. Twenty-one pounds of oatmeal made eight men's breakfasts six mornings.

Reckoning ½ lb. of oatmeal to make a breakfast, the accounts will show you that I consumed 12 lb. of loaf-bread in the seven days, exclusive of six breakfasts of porridge each week.

The man on duty on Sabbath was allowed to take a few vegetables to cook a dinner of Scotch Kail for the five men on Sabbath, but I do not remember having Potatos or any other vegetable for dinner on week days from February 11 till September 4, which accounts for the consumption of such a large quantity of bread.

One of the men ate two loaves a week, and supped the same quantity of porridge that I did, two ate the same quantity of bread as myself, and one man ate one loaf more in the week than I did.

The head gardener's domestic servant made the breakfast, and made the beds and cleaned the bothy; but each of the five men acted as housekeeper and cook for a week in rotation. I have resided in bothies where I did not eat such a large quantity of bread, owing to my having a mixed diet consisting of bread, meat, and vegetables, which is much better for the system than living solely on farinaceous food. Residing in hired lodgings at present, where I get home to all my meals, I sometimes make use of bread only once a day; but where a woman is employed by gardeners and farmers for keeping the bothies in order and cooking the men's food, single men can get a mixed diet as well in bothies as in private lodgings. *W.* [Can our Correspondent procure for us any such detailed account of the expenditure of a Scotch family as is given above of an English one?]

TENANCY AT WILL.

IN the business affairs of this world we are not saved by faith, but rather by the want of it. A hundred instances in corroboration of this saying might be easily adduced in every walk of trade, commerce, or manufacture. Take the daily transactions of our good old city as instances. One agrees to sell and another to buy certain cargoes or parcels of oil, tallow, timber, tea, coffee, cotton, or any other commodity; the broker is witness to that agreement, and binds it by a written contract, delivered to each party. Mark those numerous scaffoldings in almost every street. Old houses pulled down, and replaced by costly modern structures, raised on ground leased probably for 80 years from another. I have taken premises, and expended on them during a long period 20,000*l.* in improvements or alterations suitable to my trade. Without a long and certain tenure I should have been considered a fool or a lunatic to trust my capital to the mercy or caprice of any individual. The very basis of change and progress rests commercially upon certainty of tenure and independence of action. Without this you have unalterability and the poverty of servility and insecurity. The same remarks apply to farming, which ought to be a business, and regulated by business principles. Both landlord and tenant must of course look after their own interest; but capital can be attracted only by a reasonable prospect of securing a profitable return. We can no more expect improvement from the yearly tenant of a farm than from the yearly tenant of a house. Our good old City Corporation wins the confidence of its tenants by never removing them, provided they take care of the property, and are content to pay, as the leases fall in, such an increase of rental as circumstances justify. They are never rack-rented on the investments they themselves have made. It is thus that capital flows freely into the corporation property, giving it, in various ways, aggregated wealth and profit. Although the Corporation retains the right, it never refuses to allow the sale or transfer of a lease if the tenant desires it, and if the new tenant is a desirable person. Why should not this be done in agriculture? Capital and independence refuse to be encumbered by restrictive trammels inconsistent with a free and progressive action. Wise landlords know all this, and act upon it, very much to the benefit of their estates; witness the case of the Duke of Bedford, and many other of our great landlords. *J. J. Mechi, Nov. 4.*

PREVENTION OF DISEASE BY LAW.

AT the opening last week of the New Veterinary College, Edinburgh, Professor GAMGEE thus spoke on the importance of legislation for the prevention of disease amongst our domestic animals:—No sooner had I been intrusted, in 1862, with a general inquiry into the diseases of animals in the United Kingdom in relation to the supply of animal food for our people, than the outbreak of small-pox in sheep afforded me an excellent opportunity of demonstrating what serious losses were sustained in this country through the importation of infected stock from abroad. We can now point to the Wiltshire outbreak as an excellent illustration of the value of preventive measures in arresting the progress of the most fatal and contagious epizootics. We can adduce instances of great destruction due to negligence and mismanagement, and of great saving of life and money as a reward for a little care and intelligent interference. If the few gentlemen north of the Tweed who wish to stir up opposition to any proposal having for its object specially the prevention of contagious diseases, are at all disposed to consider in a becoming spirit how I wish wide-spreading plagues to be dealt with, let them read the history of the Wiltshire outbreak. We soon put an end to the spread of the disease—we locked it up on the farms where it broke out. We prevented the sale of diseased sheep; and whereas the losses on the farms which suffered prior to my visit to Devizes amounted to 20 per cent., the total deaths on the flocks I had to deal with only amounted to 1.6 per cent. These facts were brought under the special attention of Parliament during the past session by the Vice-President of the Privy Council; and in the face of such statistics, it cannot be said that we are powerless in dealing with malignant epizootics.

The first outbreak of small-pox in this country, in 1848, led to the passing of an Act which refers more or less vaguely to contagious diseases in general. That Act has been found deficient; and in consequence of the difficulties experienced at Worcester in controlling the traffic in diseased animals, in the vicinity of a site selected for the last show of the Royal Agricultural Society, Mr. Holland, one of the Members of Parliament for the county of Worcester, and a Member of Council of the Royal Agricultural Society, introduced a measure into Parliament last session, "which it was thought might, if it became law, save the breeder and grazier from the enormous losses to which they are now liable through death from contagious and infectious diseases amongst their stock." Mr. Holland's efforts have led to the exacting a pledge from Government that, in the course of the ensuing session, a more stringent measure than the one in force will be framed.

It is to me a source of special satisfaction, that this important question is now receiving so large a share of public attention.

We have 1018 qualified veterinarians to attend to the health of nearly three million horses, upwards of seven and a half million head of cattle, forty million sheep, and four million pigs. The thing is quite preposterous. Ireland is writhing under misfortune, and she has 36 veterinarians to attend to the health of an aggregate amount of stock valued at 29,997,546*l.*! Is it to be wondered at if we are told that there are five or six unqualified practitioners for every qualified veterinarian in the United Kingdom? How to remedy the evil? If young men will not enter the veterinary profession, law cannot compel them to. Quite true. But the strong incentive to induce men to work at any subject is to make it worth their while. Provide livings for them, and then the number cannot long remain short of the requirements of the age. At the present time veterinary surgeons throng to the large towns to treat horses. They are well paid for that work; and the result is that the county of Middlesex has within it 103 qualified veterinarians and 112 unqualified; whereas the whole of Scotland numbers only 164 qualified veterinarians and 84 unqualified ones. There is another startling fact worthy of special consideration. In large towns cattle are dying off at the rate of 30, 40, and 50 per cent. It is there that there are most veterinarians, but they are rarely if ever seen in a cow-house. Why? In the first place, because the butcher is said to be the best doctor; and, in the second place, because the prevention of disease has not been attended to by those who should long since have exerted themselves for this purpose. Individual practitioners cannot battle against plagues which sweep off cattle almost as rapidly as they might be cut down with cannon shot. It is essential in such cases to organise measures adequate to great emergencies; and it is ludicrous to think that physic is to save the lives of hundreds upon hundreds of cattle, which we should and could preserve from any attack of the kind so common at the present day.

One of the first steps in legislation, with a view to the prevention of disease, is to favour the progress of veterinary science and art, by securing to its students and practitioners privileges which they are justly entitled to, and without which our profession exists only in name. Improve the status of the veterinarian, and we shall soon see well-educated men devoting their best attention to the study of the diseases of animals—a study of engrossing interest and surpassing difficulty.

But the next step, and the most important of all, is, that the British Government and the British people should encourage the appointment of veterinarians over the whole country, with a view to check the spread, and report on the existence of, diseases of all kinds amongst our domestic quadrupeds. Sooner or later this must come to pass, inasmuch as the veterinary profession is perfectly useless in its present divided and scattered condition, in dealing with the questions of real importance to the farmer and the public generally.

In order to show up in clear light how veterinarians should be made to work, let me turn your attention to those vast flocks which enable us to clothe and to feed our people, when the produce of Cotton fields is kept from us by a disastrous war. What should we do in this country without our sheep? What would Scotland be but for its five or six million sheep? What would that food and wool-producing county of Lincolnshire be without its hundreds and hundreds of thousands of sheep? Ponder over any statistics you like, commercial or agricultural, and you must plainly see that our precious soil would lie waste, and the British Isles would cut a sorry figure in the world, but for our flocks—but for our hardy Blackfaced and our magnificent Cheviots, our long-woolled Lincolns and flesh-making Downs. Look at the wretched sheep imported. A few are respectable offsprings of British sheep, exported to Germany; but when will you ever produce in the frost-bitten fields of the European continent sheep such as those which tread the grassy hills and luxuriant plains of England and Scotland? I say never. We do not need to box our sheep in filthy and disease-generating stables for half a year. Our sea-girt islands are in a warming-pan which can never transmit its heat to the piercingly cold sheep-rearing districts of Hanover and Prussia, of Austria, and the dominions of the Czar. We are apt to speak of Britain as richly endowed from the perseverance of its people rather than from the natural gifts of Providence. No greater fallacy. What do we owe our magnificent horses to?—soil and climate. What do we owe our Short-horns to?—soil and climate. What do we owe our superb sheep to?—soil and climate. People Italy or France with Englishmen—with enthusiastic stock-breeding farmers—and you will fail to obtain there what you have here—viz., the finest stock that the world can produce. Knowing this, is it not painful to reflect on the fact that we care not how speedily our animals are destroyed by disease. Is it not disgraceful to neglect the investigation of diseases which are annually curtailing the capabilities of these islands for the production of food for their people. If our labourers are not well fed, what can we expect from them? I am a firm believer in some of the views entertained by Professor Christison as to the dependence of malignant epidemics in man on the want of food. We have the typhus of famine-stricken lands, and hundreds of thousands of people in this country are prematurely lost to us in consequence of the extraordinary price of provisions, and especially of the price of the real blood and bone-making aliment—viz., meat.

I believe it is impossible to bring out the real facts of our position in relation to the prevalence of disease amongst animals better than by devoting a short time to the consideration of sheep diseases. In my Government Report, I estimate in round numbers the annual loss in money from disease amongst our sheep at 1,600,000*l.* This is far below the mark. However alarming my statistics have been, they have all been framed so that, with a closer investigation of the subject, it may be found that I have erred on the safe side, and never used sensation figures. I can easily show you how much within the mark I am as to the losses amongst sheep. The information I have received from all the farmers in Scotland who are acquainted with this subject tends to prove that on a flock of sheep the loss is very rarely less than one per score, but often up to two, three, and even five per score. A short time since I was favoured by the secretary to the Hungerford Farmers' Club with statistics referring to 12 farms for the six months ending June 1, 1863. The gentlemen who supplied the returns had instructions to keep a record for six months of the numbers in each flock; the loss in sheep and lambs; the date and the cause of death to the best of the reporters' judgment.

The losses in six months were as follows:—

1.	On 555	14,	or at the rate of	5	per cent. per annum.	
2.	,, 210	31,	or	,,	29.5	,,
3.	,, 386	21,	or	,,	10.8	,,
4.	,, 615	18,	or	,,	5.8	,,
5.	,, 832	25,	or	,,	6	,,
6.	,, 568	63,	or	,,	22.2	,,
7.	,, 614	45,	or	,,	14.6	,,
8.	,, 250	21,	or	,,	16.8	,,
9.	,, 420	37,	or	,,	17.6	,,
10.	,, 220	4,	or	,,	3.6	,,
11.	,, 837	31,	or	,,	7.4	,,
12.	,, 287	9,	or	,,	4.6	,,
Totals,	5894	319,	or	,,	10.8	,,

Here we have the statement of twelve farmers whose names and farms I know not; but as members of the Hungerford Farmers' Club, they depute their secretary to send me the above item of information, in reply to an expressed desire of mine to get some statistics. There are those who might suppose that on the above twelve farms there must have been some plague. Not at all. The sheep and lambs died of ordinary diseases, and such decimation, nay, more, is going on throughou the length and breadth of the United Kingdom.

I will give you a few more statistics, such as the

above, before stating the causes of death amongst these flocks:—

One farmer in Lincolnshire reports his loss in twelve months—

On 465 lambs to be 62, or 13·3 per cent.
On 620 sheep „ 29, or 4.6 per cent.

Another farmer in Cambridgeshire reports a loss of 6.4 per cent.

A third farmer in Buckinghamshire reports having fortunately escaped without usual losses, and on an average amount of stock of about 350 ewes and lambs, he lost 11, or 3.11 per cent. This is looked upon as absolutely no loss at all.

Lastly, a Caithness farmer, who speaks of the unusual very low mortality, reports a loss of only 16 animals on 1095 in a whole year.

These are the numbers I can give you just now, to demonstrate the truth of what I have before stated, and it transpires that on 8924 sheep on 16 different farms, and in at least five different counties in England and Scotland, we have a loss of about 8.5 per cent. On one farm, as a great exception, there is a mortality of only 1·5 per cent., whereas on others the losses amount to nearly 30 per cent.

It is worthy of very special remark, that the farmers who have reported their stock to have been healthy state that it has been quite unusually so; therefore, health is the exception and disease the rule. Does this not show, when I estimated the loss amongst sheep in the United Kingdom at 5 per cent., that I was far within the mark? I have no hesitation in saying that the average loss is usually above double that.

In none of the reports above referred to is there any mention of the disorders that commonly tend to destroy heavy percentages of sheep. There is no smallpox, no scab, no rot, no parasitic lung disease.

It is quite evident that the losses in this country by preventible disease are enormous; that the veterinary profession has not been employed to prevent disease, but the few veterinarians we have, have attended to their own interests by studying the diseases of animals for the treatment of which they were likely to be remunerated; that without any special effort the important diseases of cattle, sheep, and pigs, which are ruining stockowners, keeping up the price of meat, and generally deteriorating our food supply, must continue unstudied and uncared for.

How are we to correct the grand anomaly, as it has been called, of the four-pound loaf at 5*d.*, and that of meat at 9*d.*? I say by the prevention of diseases. Let the landowners and farmers in their respective counties combine to pay for scientific investigation and for the constant devotion of enlightened labour to the study and prevention of epizootics. If they expect a class of philanthropic veterinarians to start up and practise in the hills where sheep maladies abound, just for the sake of benefiting mankind, they must wait in vain; or if they think a busy practitioner in the heart of Devonshire or Berkshire is going to spend a couple of years in researches on the livers of lambs, or the bearing pains of ewes, merely for the love of science, they are woefully mistaken; but what would it be for any county to provide funds for the constant employment of the best men in the land to keep disease at bay.

To secure, however, the services of such men, we should have fixed Government appointments, and salaries supplied in part by the public treasury, and principally by the local authorities, wherever the services of the professional men are required. In Prussia and elsewhere, for example, there are veterinary surgeons holding such appointments in every district; and the result is that the diseases of animals can never be neglected.

ON THE DECORTICATION OF CEREALS.

WHAT is understood by the decortication of grain? It is a system by which the exterior envelope is taken off, so that there remains only the kernel of flour; in other words, decortication does to the grain what most persons do to fine fruit before eating, namely, they peel it, in order that the bitterness or coarseness of the skin may not diminish the flavour and goodness of that which is within.

Thus, decorticated grain is without the bitterness which the skin communicates, whether it be for making bread or for distillation; in fact, any one who has not tasted bread made from decorticated corn does not know the natural taste of Wheat flour.

Corn is the most valuable of the farinaceous food of man, and it is important to know if the flour of old corn can be improved by decortication. Look, then, to the structure of a grain of corn, beginning from the outside. We find a gummy and resinous pellicle in order to protect the grain, at the same time not stopping the power of absorption, and it is easy to understand that this pellicule easily gets discoloured and charged with dust that must impart a bad taste; after this pellicule there is a thinner skin distilling the air and nourishing the kernel as through a thin veil. There is a third envelope, formed of impalpable dust, which acts as a sponge, absorbing the damp and stopping putrefaction, and giving a longer life to the kernel. These three envelopes form the brans, and are called in science, Epiderme, Epicarpe, and Ludicarpe. Under these three there is a thin skin, called in science "Testa." This skin sticks to the floury kernel, and surrounds it like a cuirass, and the object of the decorticator is to take off this cuirass, and strip it completely without injuring it.

After the testa we come to the germ of the grain, which surrounds the kernel like a crown, enlarging it towards the embryo. This is the flour *par excellence*. Then come the particles the most glutinous, then the centre.

One can understand that in completely taking off the three brans of old Wheat, or of Egyptian Wheat, before grinding, the flour will necessarily be better. If the three brans be preserved separately, the inner one will be found in the form of a fine, black, bitter, bad smelling dust.

What advantages, then, are to be obtained by decortication?—The answer is 10 per cent. increase in quantity of flour (at least upon Wheat), and from 12 to 15 per cent. in Barley and Oats, and at the same time a finer colour and a better taste. The next question which arises is, "Ought the grinding of decorticated grain to be done in the same manner as undecorticated grain?" The answer is, "No." Having shown that the finest flour for taste and nourishment adheres to the skin, the grain must be pulverised to detach this flour from its envelope. You must then grind as fine as possible, so as not to heat the flour, then dress through a dressing machine, of which the coarsest silk will not let through more than the third or fourth degree of fineness—thus you will obtain 80 per cent. of the weight of corn; then you will either regrind or redress the remainder, so as to have 90 parts of flour from 100 parts of the corn decorticated. The 90 parts of flour will make a delicious and nourishing bread.

As to decortication in a hygienic point of view, the flour of decorticated corn at 90 per cent. is more nutritious than ordinarily ground corn at 78 or 80. All the chemists (in France) who have analysed and compared flour from decorticated and undecorticated corn find 5 and 6 per cent. more gluten in the former than in the latter. The formation of the grain shows us that it must be so. In grinding undecorticated grain, to prevent the third bran from spoiling the colour of the flour, the stones are put so far apart that a large portion of the flour is suffered to escape in the brans, and we have seen that the exterior flour is richest in gluten and in phosphoric principles.

As in the ordinary millering, the greater part of this excellent flour is left in the bran, so flour from undecorticated corn extracting 78 to 80 per cent. of the weight of the corn, is inferior in nourishment and in flavour to the flour of decorticated corn extracting 90 per cent. of the natural weight of the corn.

As regards the several qualities of bread, the decortication does not affect the different qualities that exist in the flour; the compartments of the dressing machine divide it, and one can always have bread more or less white according as the 1st, 2d, or 3d flours are more or less mixed. The quality of the 1st will be incomparable—but what is gained in whiteness is lost in taste and nourishment. Thus we say, the first flour will only be used for pastry and very fine bread—it will be excluded from the table where bread is the principal food—and will be only used at the table of the luxurious.

It is better to make a quality with all flours united, making a wholesome and well flavoured bread, and experience has proved that young people, more especially, fed with this bread will have a strong and vigorous constitution instead of the lymphatic blood produced by the white and tasteless bread in common use.

In order to obtain this complete decortication, the principle adopted by M. Poissant (the pioneer of this system) is that of causing a continuous rubbing of grain against grain by means of a well devised machine—the result of many years' toil—but which it is hardly possible to describe here. Suffice it to say that it consists of two sets of revolving blades, driven at 300 or 400 revolutions per minute, which causes the grains to come into contact with each other in such a manner as to create a speedy expansion and separation of the skin, and as each skin is loosened, so is it driven off at stated and fixed periods by an arrangement of fanning.

It is necessary to observe that the grain, previous to decorticating, is immersed for a second or two in cold water, and allowed to drain for four or five minutes before it is put into the hopper of the machine. The next step before grinding is to take care that the grain is thoroughly dried, which is easily accomplished by rapid currents of heated air meeting the grain as it passes from the machine, it being observed that the moisture, through its immersion, is exceedingly slight, and altogether superficial.

It is a matter of singular yet great importance to know that corn and other cereals decorticated are not likely to be attacked by that destructive insect the weevil, that is, if the decorticated corn is carefully excluded from sunshine. Thus, to preserve decorticated corn, after it is properly dried, it should be put into barrels, or stored in close and air-tight granaries, where it will be found to keep for an indefinite period.

By way of recapitulation it may be stated,

1st. That decorticated grain will always be profitable to the world, as it incontestibly yields 10 to 12 per cent. more flour than ordinary millering.

2nd. It can be done in either small or large quantities, and not only produces from 10 to 12 per cent. more flour, but at the same time from 5 to 6 per cent. more glutinous nourishment.

3d. Its non-susceptibility of attack from the weevil, and therefore its fitness for storing against periodical seasons of scarcity.

Lastly. The machines are simple, cheap, lasting, and capable of being worked either by hand or motive power at small cost, and have, in fact, no known drawbacks, except that pollard bran, &c., which is produced by the present method of millering, will no longer be an article of commerce. But as a set off, the pellicle which is produced by the new system is found to make an excellent vellum-like paper, which is largely sought after in France by bookbinders.

The above is based partly on personal observation and examination, and partly from written communications from M. Poissant, whose whole life nearly has been devoted to this subject. *C. Davison, C.E., at the British Association.*

Home Correspondence.

Labourers' Houses.—Farm operatives are regarded as being unable to keep more than one room at a high enough temperature by fire-heat, which Mr. Robb considers a plausible pretext for objecting to hinds' houses being built two stories high. If it could be proved that hinds cannot afford to have more than one fire, I would consider it, on the contrary, a pretext for building two-story houses, because bedrooms in the second story do not require fire-heat; but bedrooms on the ground-floor require it during the winter months. I am lodging with a mason who, after reading Mr. Robb's paper, said to me that the labour on the foundations of cottages would do a good deal towards constructing the second story. Since it is taken for granted that Lord Palmerston's labourers' houses are not too large for working men in a district where serfdom does not prevail, two-story houses are indispensable on farms in Northumberland and northwards where the bondage system prevails, and where ploughmen's wages are paid in kind, which consists of a cow's keep, meal, potatos, and coals. I have stated several times in the *Agricultural Gazette* that Scotch hinds have the cartage of six and seven cartloads of coals, say five to five and a-half tons in a twelvemonth. Can you, Mr. Editor, inform me how many tons of coals each of your ploughmen will burn in a twelvemonth? Although my scribbling may be too local for general application, a lesson may be learned from it. For instance, when employed in the counties of Worcester, Buckingham, and Kent, I often contrasted the comparative condition of the ploughmen residing in cottages on farms, on Tweedside, with those grouped together in villages several miles from the farms where they were and still are employed. Scotch hinds have their coals at cost price at the coal pits. I don't know their price at present, but I have seen hinds have six loads for 27*s.* to 35*s.* Either sum will purchase a very small quantity of coals in the majority of the English counties south of Yorkshire. To return to my subject—the comparative merits of one and two-story houses: the former would suit English labourers better than Northumbrian and Scotch hinds, because the former are paid with cash weekly or fortnightly; whereas the latter receives very little cash. A hind's house requires to contain not only the ordinary living apartments, but also a dairy, coal hole, Potato bin, and a storeroom for the oatmeal, Barley and Peas. There is a fireplace in each of three apartments in each of the new two-story houses recently built on the farm where my father was steward for the 11 years preceding his death. One of the rooms in the second story would be a very good bedroom in an emergency, but it without the fire place is intended for a storeroom. I have often felt amazed at seeing landowners making such small apartments in the houses recently built, so small that there is not sufficient space for people sitting in chairs at each side of a very small square table. Either the kitchen or parlour ought to be 12½ feet to admit of two 6 feet beds being set either on the side or across the end of the apartment. The gentry do not sleep with their children, but nurses generally sleep in the same room in which the children sleep. A good many of the new houses are not large enough for two beds in one room. Hence the prevalent practice, notwithstanding that there are other rooms, of two children sleeping with their father and mother. Mr. Robb suggests that "there should be a recess for a bed in the kitchen." Recess beds are justly condemned by the Board of Health. The editor states in the note he appended to my letter at page 1146 of the *Scottish Farmer* (Oct. 21):—"The accommodation mentioned in Mr. Robb's paper will be acknowledged by most people who know anything of the subject to be sufficient." The majority of "people who know anything of the subject" cannot be regarded as competent judges. It cannot be denied that gentlemen and practical farmers in the neighbourhood of both sides of the Tweed, 40 miles north and 60 miles south of it, have violated public decency. As a proof of it, see a letter by Mr. Hope, of Fenton Barns, in the *Morning Post* in 1858, at p. 631 of the *Agricultural Gazette* for 1860, where Mr. Hope stated—"The bondage system, I confess, still prevails on many farms, though it has been given up on the larger proportion. The compelling the hind to furnish a stout boy or girl during the summer months is undoubtedly a hardship, when he has not a member of his own family suitable for the purpose. It breaks up the domesticity of the family

circle, but I cannot see that there is anything leading to immorality in it." Here is a distinguished practical farmer, with the accomplishments of the scholar and the gentleman, who "cannot see that there is anything leading to immorality" in a husband and wife and a young woman, sitting, eating, and sleeping in one room! Such a statement justifies me in stating that distinguished practical farmers are not competent to give an opinion on the merits and demerits of Mr. Robb's statements about married hinds' houses. *W.*

——In the consideration of this question a very important point seems to be lost sight of by most of the persons who have written or spoken upon it. Lord Palmerston stated the other day at Romsey that no cottage ought to be without three sleeping rooms, and this and similar opinions have been promulgated with much laudation. Now to all men practically acquainted with the subject it seems very unreasonable as well as very unjust to lay down a positive rule of this sort; persons forget that with farm labourers, as with all other classes, the accommodation required varies very greatly. Surely all farm labourers have not large families?—say that the man marries when he is 25, and his wife is 22 years of age, is it reasonable to expect that those young people, who in a majority of cases have nothing but their own savings to help them, can have money to furnish a house with three bedrooms? But supposing that by some extraordinary piece of good fortune they have the money to buy so much furniture, is it possible to devise a more unproductive method of using it? It may be urged that although the young couple have no children at first, these little care-producers generally follow in quick succession. True, in many, but not in all cases—some couples never have children. If, however, their family does so increase, then the man who at first took a house suited to his wants and means, will naturally look out for one with more accommodation. If he has been a good servant, his master will no doubt help him to what he wants either on his own or on some friend's farm. If I am right in this description—and I do not expect that it will be disputed—cottages should be built of two sizes, one suitable for a married couple with no children; these would afford ample provision for health and decency if they contain a good living room, a pantry, and one bed room. For those who have several children, two and occasionally three bed rooms, should be provided. In this, as in most cases, it is mischievous to lay down positive rules, because it is impossible to make them justly suit all. If proprietors would agree to pull down all old dilapidated one-room cottages, and would erect well ventilated dwellings with a good living room, and one, two, or three sleeping rooms as likely to be wanted, the real evil would be sapped at the root; to accomplish this a great outlay of money would not be required. I am of course supposing that the health and comfort of the occupiers are made the first consideration, which is quite compatible with neatness in the exterior of the buildings, but all fancy gables, and indeed fancies of all sorts, are totally out of place in the dwelling of a farm labourer. If the building is well adapted for the healthy occupation of human beings, and, if in addition to this, it has a useful, but not a large garden; and if the master, or better still, if the mistress is a frequent visitor to those cottages, with a word of kind advice when needed, and of commendation on seeing any extra neatness in the house, or of unusual beauty in the plants in the window, or in the cropping of the garden, depend upon it the greatest ornament about a labourer's cottage will soon be found there, viz., the happy faces of a healthy and contented family. *Roaldus.*

The Winter Management of Young Sheep.—This is a subject which cannot be too forcibly impressed upon every flock-master at this season of the year, and more particularly, as upon the successful wintering of the young flock depends its healthy condition and future prosperity. The young flock, *i. e.*, the weaned lambs or hoggets, should be put upon their winter food early in the season, certainly not later than old Michaelmas. The great point is to get them well habituated or settled down to this great change of keeping before the commencement of cold or frosty weather. Otherwise the cold and watery Turnips or ranker green Coleseed will prove injurious to them. Their stomachs cannot properly digest such strong food, and colic and scouring most frequently take place. The correct practice is to get them up as well as possible during the time of suckling; to wean them about the last week in July or first week in August; to put them at first upon the sweetest but not richest pasture for two or three weeks, then change them to a field of Clover eddish or Grass eddish till Michaelmas, when they should be transferred to their winter keeping. If the suckling season be unpropitious, and Grass not nutritive, Oats or cake should be given to them in troughs, so fenced in, that their dams cannot get to them. This allowance of Corn or cake should be continued during the time they are on eddishes and through the winter. "A lamb well reared is half wintered." When they are first put on their winter keeping it is desirable to take them off for a day or two and return them to their eddish, so that the change be less direct, and thus prevent the possibility of danger to some of the weaker lambs. They thus fill their stomachs with their old digestible food, and return to their winter rations with renewed zest and vigour The best winter food for these young lambs when first put on is healthy green Cole-seed, *i. e.*, Cole-seed free from mildew or yellow leaves, and not too strong. From this they should go to the common or white-fleshed Turnips, and, lastly, to the Swedes. The Turnips and Swedes should all be cut for them. It is true they will do very well upon common Turnips if not cut, but as one man and one boy could supply above 300 sheep, the expense of cutting is more than saved, both in the condition of the flock and the economical consumption of the crop. On turning them on Cole-seed they should at first have a considerable breadth to roam over—say at least 2 or 3 acres for every hundred lambs, according to the strength of the crop. When they have eaten or injured much of this plot, then a sufficient piece for daily consumption should be given. In this way if the lairage is good a very large saving will be made. In feeding off the Turnip crop the same order should be observed, and it is essential. If they are not wholly confined on the crop in the first instance many will continue to hanker after the crop, and if provided with a "fall-back" of stubble or otherwise they should every day be compelled to feed fully upon the winter food before they are allowed to browse over the stubble field. When once they have truly taken to their winter food then they may be left at liberty. As the winter advances they will abide rather close folding, which in some districts is so necessary for the benefit of the land, although not of the flock. Mangels must be altogether avoided till about the middle of March, when, if Swedes are scarce, they may be partially resorted to, but generally they are too laxative for young sheep. As dry lairage is of great importance to healthiness, much attention should be paid to secure it. The means for this end is not to crowd too many in one fold. Another is to provide plenty of straw for both provender and lairage. A small cob of straw is good for both shelter and food. Bean, Pea, or Oat-straw is best, but both Wheat and Barley-straw are highly useful for the lambs to pick at. Should the lairage become very bad, so as to endanger their well-being, they must without hesitation be removed for a short time to some dry locality, even though it be the fold-yard. Young sheep cannot abide a lengthened season of wet lairage. Inflammatory affections soon commence. The flock-master should be soon aware of the quality of the food upon which his flock are feeding. It is very surely proved that green crops raised exclusively from artificial manures do not possess such really nutritive qualities as those produced from fold yard manure. Hence he must by artificial foods endeavour to compensate for the difference. To promote their growth he must give food containing phosphates, chalk, starch, lime, &c., *i. e.*, Oats or Barley, Bean or Pea-meal, or Wheaten flour (in their cheap times), with plenty of chaff cut from Oat, Wheat, or Pea straw. To promote their better thriving condition he must give Linseed cake, Clover hay, meadow hay, and all the straw they will consume. Of course good judgment must be exercised in administering these foods. A young sheep in fair health would readily appropriate with benefit to himself daily half a pint of Oats, or half a pound of Cake, or half a pint of Bean or Pea-meal, but of Wheat flour somewhat less, and of Barley a gill will suffice. As the spring advances and they grow and thrive, any of these rations may be increased some 25 to 50 per cent. Chemistry tells us that to make a young animal grow fat he would require food containing a surplus of phosphates, starch, chalk, lime. To supply this lack of these ingredients in any crop, the above are recommended to promote growth. But they again tell us that these will not greatly promote fatting or condition, but such food as contains gluten, sugar, starch, albumen; hence the latter foods are recommended to promote thriving and condition. *O. F.*

Foreign Correspondence.

GONDINIE, WORCESTER DISTRICT, WESTERN PROVINCE, SOUTH AFRICA, *August* 10, 1863: *The Management of Stock and Farming in South Africa.*—Though some 7000 miles away, I read your paper upon stock management, in the *Derby Mercury* of May 20, with very great pleasure. My object in writing you a few lines is to corroborate that part of it where you lay great stress upon the injury done to cows by the hand of man during the period of bringing their calves into the world. In this parish the farmers hold somewhere about 500 calving cows, and each of these brings forth its calf year after year, (for they are very rarely barren) and the hand of man is never placed upon them to assist them in this process. They bring forth their calves in the field with no other covering than the sky, and the death of either cow or calf from calving is of so rare an occurrence that after reading your paper, upon asking two of the largest breeders in the parish if they ever lost any from this cause, the reply was, that in 16 years one of them had not lost one, and the other only two. It might be inferred that the animals are wild and unmanageable, but it is not so, as they are as docile as lambs, and stand perfectly quiet to be milked in the open kraal or yard. Perhaps it may not be uninteresting to you to know the process of rearing. When the calf is born it is allowed to stay with its mother, and sucks what milk it chooses, and for the first eight months, that is from August until the end of March, it does well, and would be a credit to an English dairyman, but after that time there is a great falling off in its condition from the following causes—first, the Grass has been going off for three months, for you must understand January is our hottest summer month, and from that time until April, the first winter month, there is seldom much, and more frequently no rain at all. The cow gives at that period very little milk, and the calf from always being with its mother during the fresh grassy time will not now eat the dry old herbage, and from this time until September it grows little or none. The farmers provide no winter food for their cattle, and they never taste one mouthful except what they pick up from the ground from the day of their birth until the day they die. After having said thus much I need not tell you what miserable managers of stock they are. There is not one covered shed in the whole of this parish (which contains about 25,000 acres, and about 50 farmers); the consequence is, that if the weather becomes unusually wet and cold in winter (as in 1862, when it rained to my knowledge for 16 days, with not five hours fair weather), the cattle die by hundreds, and the country is white over with bones. The present value of stock here is about half that of the value in England; a yearling is worth 2*l.*, a two-year old about 4*l.*, and a good milk cow about 8*l.*; the bull calves are worth more than the cow, and a farmer will always be pleased with his cows bringing a good proportion of bulls; the reason is plain enough. All farm work is done with oxen in this district, and most of the produce until last year, when the railway was opened 40 miles, had to be taken 35 miles to market, over tremendously heavy roads. The ox is much more enduring than the horse, and no expense to the farmer on the way, inasmuch as he eats Grass or bush at the outstanding places. They travel in this way about 20 miles a day for eight or ten days, and if there is plenty of Grass by the way, after a couple of days' rest at home, are not much the worse. Vast numbers of oxen are used to convey goods to the frontier of this colony, and it is a distance of 600 or 700 miles, in many parts very dry and herbage scarce; consequently many die on these journeys, which tends to keep up the demand for draught oxen; therefore, they are more valuable than cows. Butter is the only profit the farmer gets from his cows for some time, and of this they make very little. I do not think after the calf has sucked the cow they average more than one pound each weekly, the value of this article is from 3*s.* to 1*s.* 6*d.* per lb. The diseases in cattle are very few. The pleura takes off immense numbers from the districts where it sets in. Such a thing as a veterinary surgeon is unknown, and since residing here (now for 18 months) I have never seen but one sick beast, and the only medicine this one had was composed of a mixture of the manure from the (Das) badger (found amongst the mountains) and grease, but, however, he got well, but in all probability he would if he had not had the somewhat primitive potion. You will not derive much useful information from this communication, but at all events it will show you that things here are left pretty much in a state of nature, and their natural habits are very little interfered with, perhaps too little. On the other hand, it is equally certain the English farmer interferes too much. This colony, against which so much is said that is untrue, has some very extraordinary advantages, and no doubt some great drawbacks, but what country has not? The climate is perhaps the most healthy in the world. The heat of summer, which has been greatly exaggerated, is not so intolerable as the closeness of an English atmosphere in what is called sultry weather. Vegetation is most rapid, and where you have a good stream you can grow two crops of many kinds of vegetables in one year, such as Potatos, Cabbages, Turnips, Onions, Beetroot, Carrots, &c. Cattle will get quite fat enough in ordinary seasons, and the quality is excellent. Any industrious man would find this country by no means an objectionable one to farm in, but he would require some little experience before he commenced. There are thousands of acres that have never felt the plough, now growing nothing but bush, about two feet high, and unless a more enterprising class of farmers come into the country, will continue to do so for many years. *John Hassall, to Dr. Hitchman, in the Derby Reporter.*

Societies.

BATH AND WEST OF ENGLAND.—The usual monthly meeting of the Council of this Society was held at Taunton on Saturday last. Present: Earl Fortescue, (President) in the Chair; the Earl of Portsmouth, Sir M. Lopes, Bart., M.P., Sir J. Duckworth, Bart., Sir J. Duntze, Bart., Colonels Acland and Luttrell, Drs. Brent, Gillett, and Scott, Messrs. Adair, Andrews, Archer, C. and R. H. Bush, G. Braginton, R. G. Badcock, Cotterell, Danger, J. T. Davy, J. Daw, E. S. Drewe, R. Dymond, H. Fookes, M. Farrant, J. Fry, John and Jonathan Gray, C. Gordon, T. Hussey, J. E. Knollys, G. Langdon, J. Lush, H. G. Moysey, S. Pitman, G. S. Poole, J. P. Pitts, W. Porter, J. and J. W. Sillifant, E. U. Vidal, J. W. Walrond, H. Williams, W. Wippell, J. Widdicombe, H. Maule and J. Goodwin.

THE BRISTOL MEETING.—Mr. Moysey, as Chairman of the Stock Prize List Committee, brought up the amended prize list, and remarked that after very anxiously considering the resolutions of the Council at their October meeting, the committee, having regard to

the fact that one of the fundamental objects of the Society was to encourage the improvement of breeding stock in the West of England, had felt it their duty to recommend that the prizes for stallions should not be discontinued, but that at the Bristol meeting in June next, prizes of the same amount as at the Exeter Spring Meeting should be given for thorough-bred stallions best calculated to get weight-carrying produce, to serve not less than 30 mares, in the counties of Cornwall, Devon, Somerset, Dorset, Wilts, and Gloucester, and in South Wales.

A long and earnest discussion followed, in the course of which the following principles were affirmed:—1st. That as the encouragement of breeding stock is a fundamental principle of the Society, it is desirable in the case of horses to offer prizes for good sires and dams in preference to good produce; and 2dly. That the prizes should be so offered as to encourage improvement in the breeding of horses in the West of England. At the Bristol meeting there will therefore be prizes for thorough-bred and agricultural stallions (as there were at Exeter), but the competing animals will have to be shown for the first three days of the June meeting (instead of in the spring). Subject to these modifications, the prize list as approved at the October meeting was confirmed, and ordered to be issued as soon as practicable. In order to keep clear of the Ascot, Bath, and Epsom races, the Bristol meeting was fixed to begin on Monday, June 13th.

Farmers' Clubs.

WIGTON: *The Condition of our Farm Labourers.*—The Rev. CANON HODGSON read a paper on this subject at a recent meeting of this Club, from which we make the following extracts:—

No man can deny that the soil is better cultivated now than it was in the time of our ancestors, and it must be evident to every one that we are much superior to them in all the material appliances of civilisation. But among the classes which have on the whole grown worse, I fear we must include that of farm servants. The wages of farm servants depend neither upon the price of corn nor the ability of the employer to pay them, but upon supply and demand. When there are many servants wanting to be hired, and few people who require their services, wages are low. Within the last quarter century, two causes have been in operation tending to raise the price of labour. One has been, increased employment in draining, making railways and other works tending to material prosperity. The other cause is the immensely increased facility for emigration. These two forces acting jointly upon the condition of the labourer have produced two effects. They have, as every farmer knows, raised his wages, and also improved his position. He is of more importance than he was, and in any dispute with his master, does not care about being turned off, because he is tolerably certain of meeting with another engagement. Here, then, is a double reason which powerfully tends to diminish the influence of a farmer over his servant.

There is a third circumstance which has, I think, a very detrimental effect upon the character of the farm servants of this county. We all know that in every country the character of man depends upon that of woman. And Arthur Young, a very high authority, tells us that it is always a mark of low civilisation in a country where the agricultural work which properly belongs to men is performed by women. If the civilisation of this county be measured by this test, I fear it must be pronounced to be in a very low condition. We see women driving carts along the roads, harrowing in the fields, loading dung carts in farm yards, and performing other offices which must have a tendency to root out of their minds all purity, delicacy, and modesty. I have heard that women who have been thus employed on a farm, cannot bear the confinement of household work, and prefer to the proper occupations of women, those employments which in other counties, and even in the neighbouring county of Westmoreland, are almost universally performed by men. If this be the case, a more positive condemnation of the system cannot be pronounced. It unfits women for their proper avocations, and disables them from exercising over men those softening influences which tend so much to improve and civilise us all. I cannot but think that every one of us ought to do his utmost to free Cumberland from the reproach of being remarkable among the counties of England for its barbarous treatment of women. Here I may mention the custom of engaging a married man to live as a servant in a farm house, while his wife and family are living by themselves at a distance, it may be of several miles. I have lived in several parts of England and have never known this custom to prevail in any other county than this, and it is scarcely necessary to say, that in almost every point of view it is an exceedingly bad one. The man is totally prevented from looking after the education of his children, and is himself deprived of the ameliorating influence of intercourse with his wife and family. The children are brought up without the guidance of a father, and we cannot be surprised if they take to evil courses. The wife is deprived of the protection of her husband, and has often to throw herself upon the kindness of neighbours for those offices which she has the best right to expect from the man who has promised to love and to cherish her. The custom, therefore, I think, ought to be abolished, and on every farm cottages provided, in which the married men who are employed upon it may live with their families. And these cottages ought to have three bedrooms each, with proper convenience for cooking and cleaning. They ought also to be well lighted, and to be free from those clay floors which the poor woman cannot keep free from defilement by washing. If male and female servants are boarded in the house it is essentially necessary that provision be made for the effective separation of the sexes. That this is not done in every farm house is a scandal to our common Christianity and civilisation.

I come now to the question of hiring servants. Some, indeed, hold that the mere fact of a man's standing in a market place, with a straw in his mouth for the purpose of showing that he wishes to be hired, is a degradation to him, and that the custom ought to be abolished. I cannot but think this is a sentimental refinement. When a clerk is out of place he advertises in the *Times* for a situation; and when a farm servant is out of place he stands with a straw in his mouth, on a particular day, in a particular place, and thus shows that he wishes to be hired. It appears to me that this may be regarded as an advertisement, and is no more degrading than publishing your wish to be engaged in a newspaper. In some places an effort has been made to abolish hiring days altogether, and to substitute for them Register-offices, to which masters who want servants, and servants who want places may both apply. For my own part I should wish to see this substitution effected, and I am only prevented from recommending it by a fear that there is little hope of my recommendation being attended to. But if I hired a man in a market-place, I would see that he had a character in his pocket as well as a straw in his mouth.

Formerly they were not wanted, but now common prudence tells us they are now positively necessary, and I hope that at all events, the members of this club will forthwith resolve never to hire a servant who cannot produce a satisfactory character. Having engaged a servant, we have to consider the best way of managing him, which circumstances already enumerated make a more difficult task than it used to be. It must be evident to all that it is the master's place to command. He not only has a right to point out to a servant the work which he expects him to perform, but also to see that his household is conducted in a decent and orderly manner. He not only can forbid all drunkenness and other disorderly practices, but also fix the hours at which his house is closed, and before which each member of his family must be at home. And he will do this much more effectually, as well as more pleasantly to himself, if he lets each servant know and feel that he does not regard him as a mere machine, out of which he wishes to get as much work as possible, but as a reasonable creature, about whose comfort and moral and mental welfare he is anxious. I regard this as a point of very great importance. Every servant soon discovers in what light he is regarded by his master, and if he thinks that his master is only anxious to get out of him as much work as possible, he determines to do as little as he can, and looks upon his master as an enemy to whom he is to give just as much as the law compels him. If, on the other hand, he finds that he is treated as a friend, he works with energy and good will, and is as anxious to forward the cultivation of the farm as if it were his own.

Perhaps you will think that the remarks with which I shall conclude, partake of a professional character; but sometimes much instruction may be obtained by attending to the derivation of words, and some of you may be surprised to hear that the name "religion" is derived from a Latin word which signifies binding, and doubtless it is so called, because it is the great binding principle. It binds man to God, and through God it binds man to man and class to class. It would therefore be a great omission in a discussion like the present to leave religion out of consideration. In the house of God the rich and poor meet together, and recognise the Lord as the maker and supporter of them all. In the work of common praise and common prayer human distinctions disappear; each learns to respect the other's rights. Every man looks not on his own things, but on the things of others also. I hope, therefore, you will excuse me if at the close of this paper I take leave to press upon you the great duty of a uniform attendance on public worship by every Christian family. And I should be sorry if I led you for a moment to suppose that our religious duties are discharged by a constant attendance at church each Lord's Day. Religion ought to penetrate and pervade the whole of a man's life and conversation, and that it will never do unless each master has family worship night and morning. It is difficult to tell the effects which this practice would have upon society if it were universally followed. Master and servant would then alike take God in all their ways, would uniformly feel His presence. Masters would give to their servants that which is just and equal, knowing that they also have a Master in heaven. Servants would obey their masters, not with eye-service as men-pleasers, but in singleness of heart, fearing God.

CHERTSEY: *Agricultural Statistics.*—Mr. W. S. LINDSEY, M.P., said: Upon another subject connected with agriculture he could speak from his knowledge as a commercial man, and that was as to the necessity of having agricultural statistics. In 1846 or 1847 he, as a broker engaged tonnage to bring to this country no less than 1,200,000 quarters of corn. Other brokers of course did the same, but he then felt it to be uncertain whether that quantity of grain was actually required. At that time France was buying corn largely in our markets at from 46*s.* to 50*s.*, and the farmers and holders of corn were selling at those prices. Nine months afterwards the people of this country were paying 102*s.* per quarter for corn. France, by reason of the statistics taken in that country, knew the quantity of corn likely to be required from abroad, while we were in utter ignorance as to the quantity we had actually grown. In consequence, France had a great advantage over us, and for three or four months the people of England were paying 1,500,000*l.* per month for grain from abroad. In 1846-47 we had to send abroad large amounts of gold to pay for grain. A panic followed, and a fearful crisis occurred; some of the largest houses failed, and very many farmers lost large sums of money, because, in our ignorance of our real stock, we had sold to France for 46*s.* to 50*s.* the corn we had afterwards to replace at 100*s.* to 102*s.* The people suffered and the farmers suffered, because no one class could suffer without all other classes in some degree also suffering. As it was with individuals, so it was with nations, when one suffered so did the other. America was now passing through a fearful ordeal, and England was suffering, too, to a great extent from the calamities of the American people. It was the interest certainly of England to see all other nations prosperous and happy. Twenty million quarters of corn required 3,000,000 of registered tonnage or 4,000,000 tons burden of shipping to import it. They could easily perceive how that would affect the price of other articles of import by creating a scarcity of tonnage, and enhancing the price of cotton and other raw materials upon which our manufacturers and artisans depended. The price of these manufactured articles advanced, and thus all classes were affected. He would therefore suggest to his agricultural friends to consider calmly whether the collection of agricultural statistics would not be an advantage to them as well as to other classes of the community.

Mr. CAIRD, M.P., said he had long been acquainted with the character of the English farmers, and always found them ready to give a friendly reception, even when he made inquiries which they considered would be as well omitted. The subject of agricultural statistics was one to which he had devoted much attention, and it could not be put in a fairer way than it had been put by the Chairman, as a commercial man. He would speak to those present as a farmer to farmers. It had been said that the question was a corn merchant's or corn dealer's question, and not a farmer's question; but he would ask them, were not the far greater number of corn dealers also farmers? There were about 500,000 farmers in Great Britain, and only about 5000 or 6000 corn merchants; and, therefore, surely if anybody was interested in obtaining correct information it was the farmer. The only advantage they could hope to have over the foreign grower was their proximity to the market; and if they had early information of the state of the market they would have the benefit of that advantage. He was glad to believe, from the friendly manner in which the Chairman's remarks had been received, that in that part of the country no insuperable objection existed to a system of statistics that would not be inquisitorial. The right hon. member for Oxfordshire, Mr. Henley, who justly enjoyed the confidence of the agriculturists, had put it that the farmers would not object to answer certain inquiries, but would object that the cost of making such inquiries should be exclusively borne by them. That was a reasonable objection, and no man could say that the farmer should be exclusively taxed for a proceeding that was intended to be for the equal benefit of all classes. He knew of no other country where agriculture had improved more than in this country. Our agricultural shows, our stock shows, our display of implements and machinery, proved that. He would just make a few remarks upon the late abundant harvest, that they might realise what was the meaning of those words. Taking one quarter per acre as the average excess of the crops of this year, which he believed was a moderate estimate, and adding for the additional weight and better quality of the grain 2 bushels per acre, there would be 10 bushels per acre above the average. They had certain facts, although but partial information, upon which they could calculate the breadth of land under grain cultivation. He found that something like 12 million acres of land in the United Kingdom were used for the growth of corn; 10 bushels excess per acre upon the breadth of land gave a total excess of quantity above an average crop of 15 millions of quarters. From those facts his hearers could realise the meaning of an abundant harvest, which gave them an excess, valued at present rates, at 21,000,000*l.* He had referred to all kinds of grain; but, confining himself to Wheat, how did the case stand? He had been surprised to see in a usually well-informed newspaper, the *Spectator*, so low an estimate of the annual produce of Wheat as 6½ million quarters a-year. He believed it was nearly 12 million quarters. The excess of crop this year would be about 5,500,000 quarters,

and as the average consumption in this country was 20 million quarters, it followed that we should have to import not more than 2½ million quarters in the present year. Not having the figures before him, he could not speak precisely, but he believed that last year we bought abroad about 10 million quarters, at a cost of 25,000,000*l.*, while this year we should only have to buy 2,000,000 quarters, at a cost of 5,000,000*l*, thus effecting a saving to the country in the single article of Wheat of 20 millions sterling. They knew also as farmers that it was not their business to depend exclusively upon the produce of their cornfields, but rather to increase their green crops, with which the foreigner could not so well or so cheaply supply them. Referring to Arthur Young's account of prices in 1770, he found that bread was then 1½*d.* per lb., the same as it is now. Meat was then 3*d.* per lb., now from 7*d.* to 8*d.*; butter which was 6*d.* is now 1*s.* 3*d.*; and wool has risen in value 6*d.* to 1*s.* 6*d.* per lb. Therefore the conclusion was that the land yielded the same in bread as in Arthur Young's time; but it now yielded more than twice as much in meat and three times as much in wool. It was therefore not doubtful that the farmers would devote their energies to those branches of their trade which were likely to be the most remunerative.

Miscellaneous.

Steam Cultivation in Egypt.—We are glad to find that the importance of securing the best agricultural appliances is becoming recognised in connection with cotton cultivation. A considerable number of steam ploughs and other implements have been sent to Egypt, with a view of preparing the land for the growth of cotton. A Manchester house has just forwarded to Messrs. Howard, of Bedford, an order for eight complete sets of steam cultivating apparatus for the same country. *Cotton Supply Reporter.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.
By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Nov.	Inches.	°	°				°	°	°	°	Inches.
Friday ..	6	30.48	41	39	N.W.	0	5	57	36	50	29	0.33
Saturday ..	7	30.21	49	48	S.W.	1	10	48	34	60	28	..
Sunday ..	8	29.78	52	51	W.	0	10	54	46	55	45	0.10
Monday ..	9	30.21	45	43	N.	2	0	52	40	58	35	0.27
Tuesday ..	10	29 84	36	36	N.W.	0	10	49	27	62	23	0.06
Wednesday ..	11	29.32	40	38	N.E.	0	10	49	32	57	29	0.02
Thursday ..	12	29.85	41	39	N.W.	3	0	44	33	45	27	..

Notices to Correspondents.

HARVESTING GRAIN: *A B.* The two rows of hurdles placed parallel, and a yard apart, are for the purpose of maintaining an empty channel through which air may circulate. The hurdles are not covered with anything. The space between them may be covered by the sheaves gradually approaching one another.

HEIFERS: *Subscriber from the Beginning.* You cannot do much while the heifer is in milk. When nearly dry the fistulous opening in the upper part of the teat may be laid open with a knife and afterwards healed. Sometimes a little camphor ointment rubbed into the quarter, and perhaps an India-rubber false teat may be useful, so as to cover the fistulous opening. *W C S.*

VILLAGE SCHOOLS: *Subscriber from the Beginning.* We do not know to what publication you refer. The best exponent and advocate of what is called the half-time system in schools is Mr. E. Chadwick, C.B., Richmond.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.
116, Fenchurch Street, E.C.

Autumn Sowing.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),
Consisting of Tenant Farmers occupying upwards of 80,000 Acres of Land.
Chairman.—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.
Offices: 109, Fenchurch Street, London, E C.
Manufactory: Plaistow Marshes, Essex.
ODAMS'S BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, has been in use for upwards of 11 years, and has given great satisfaction to consumers.
Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.
Offices: 109, Fenchurch Street, London, E.C.
Price 7*l.* 10*s.* per Ton, delivered at any Railway or Wharf in London.

LAWES'S WHEAT MANURE for AUTUMN SOWING.
A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8*l* per ton.
2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

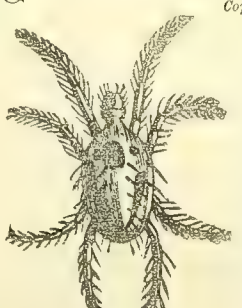
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American and other Cakes at market prices.
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Magnified Aphis.

NEAL'S PLANT SOAP and APHIS PASTILS,
1*s.* and 2*s.* per packet,
may be obtained from all respectable Seedsmen.
Testimonials forwarded on application to the Patentee,
J. NEAL,
Edward Street, Birmingham.

Winter Dress all Fruit Trees with GISHURST COMPOUND.


Red Spider Magnified.

Copy of a Letter from Mr RIVERS.
"Nurseries, Sawbridgeworth, Herts, Oct. 22, 1861.
"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."
For Orchard-house Trees 4 ounces to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.
GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), Belmont Vauxhall, London, S.

TO COWKEEPERS.—Double your quantity of Milk and improve its quality by using two penny packets of THORLEY'S delicious CONDIMENT daily mixed with damped chaff, grains, pulped Turnips, or Wurzel.—145, Fleet Street, City, E.C., and may be had of all Grocers, Druggists, and Corn Chandlers in town or country. Read the Discussions on this Condiment before the Members of the Royal Agricultural Society held in Hanover Square Rooms. Sent free on application.

Gutta Percha Tubing for Watering Gardens.

THE GUTTA PERCHA COMPANY have the pleasure to acknowledge the receipt of the following
Testimonial from Mr. J. FARRAH, *Gr. to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*
"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."
Manufactured by the GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C., and sold by their Wholesale Dealers in town and country.

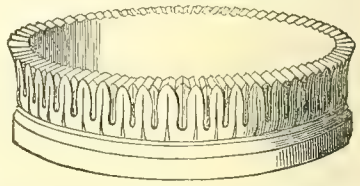
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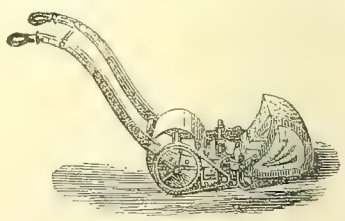
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Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.
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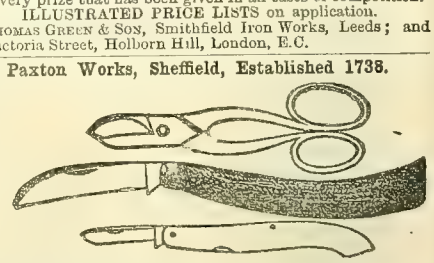
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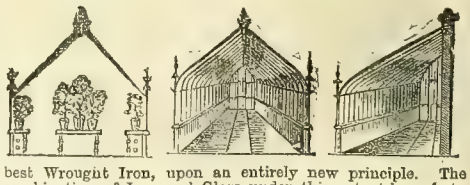
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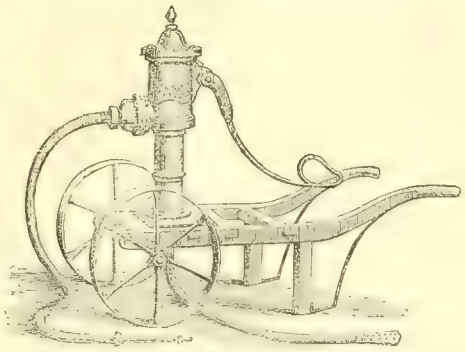
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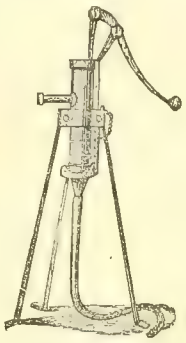
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3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

PATENTEES and MANUFACTURERS,

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

THE NEW WEATHER INDICATOR.

By L. Casella, for correctly foretelling Changes in the Weather, either for Rain, Wind, or Moisture. Particulars, with rules, by inclosing stamp.

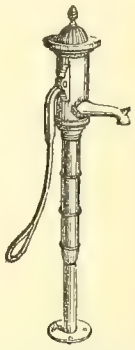
Also, just published, Casella's New and Improved FORMS for correctly REGISTERING METEOROLOGICAL OBSERVATIONS. 23, Hatton Garden, London, E.C.

Iron Works.

COTTAM AND CO.,

2, Winsley Street, Oxford Street, London, W.

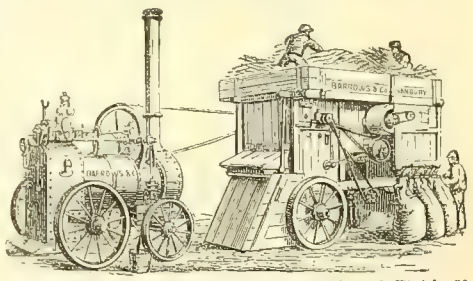




Cottam & Co. manufacture all kinds of Implements and Machines for Garden and Horticultural purposes, Verandahs, Greenhouses, Conservatories, Hot water Apparatus, &c.; Iron Fencing, Gates, and Hurdles.

Illustrated Catalogues free of Cottam & Co., Iron Founders, &c., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

BARROWS AND CARMICHAEL (late Kirby & Barrows), Engineers, Banbury.

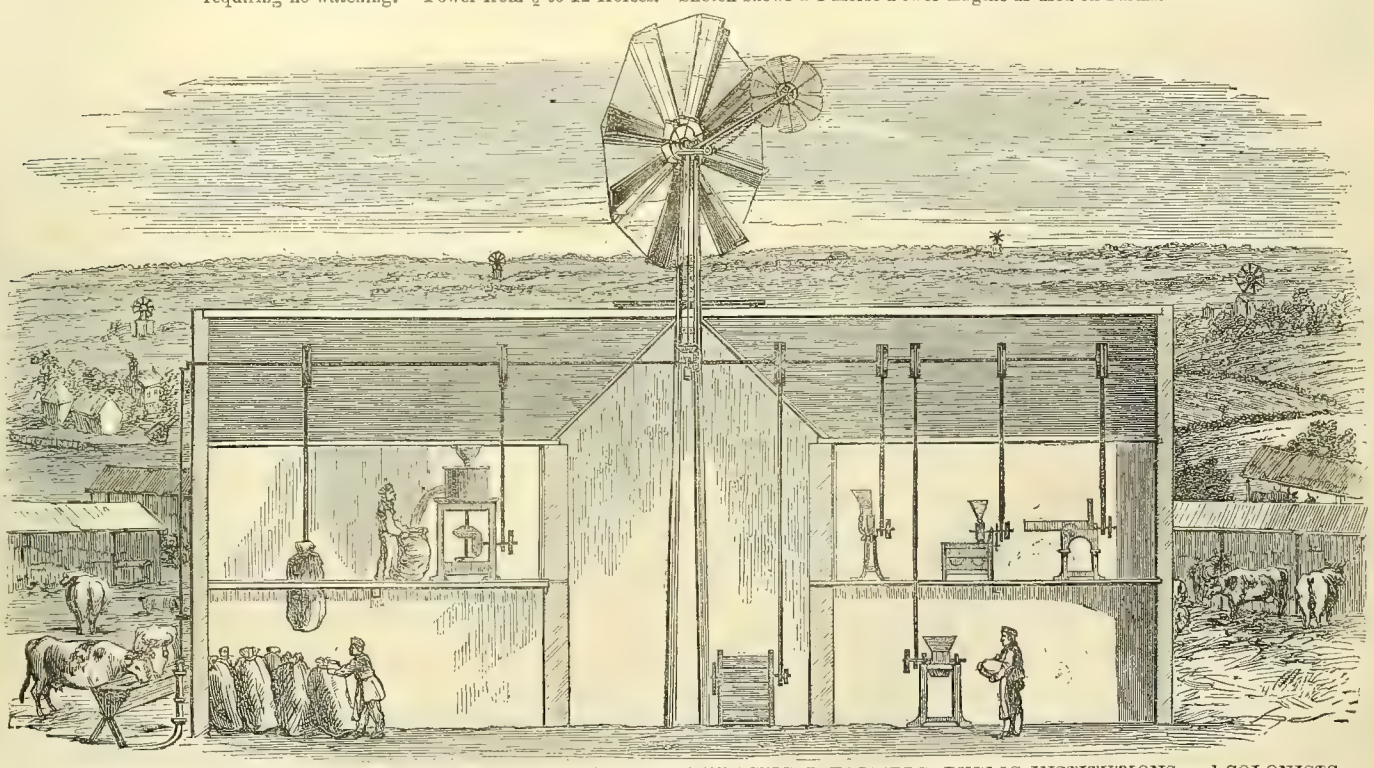


Price 255*l.* complete, and ready to Thresh and Finish 50 quarters of Grain a day in the most perfect manner. Guaranteed of best Workmanship and Material. Prizes in money and Medals have been received from important Agricultural Societies in England, Ireland, and the Continent.

WIND ENGINE,—Patent Self-Regulating, for

PUMPING, OAT-CRUSHING, THRESHING, GRINDING, CHAFF-CUTTING, SAWING, OR DRIVING OTHER MACHINES.

For FARM PURPOSES most economical.—Costing nothing to work.—Erection simple and cheap. For PUMPING PURPOSES invaluable, working day and night, requiring no watching. Power from ½ to 12-Horses. Sketch shows a 4-Horse Power Engine as used on Farms.



The LORDS of the ADMIRALTY, the VICEROY of EGYPT, NOBLEMEN, PRACTICAL FARMERS, PUBLIC INSTITUTIONS, and COLONISTS, now use these ENGINES for all purposes.

BURY AND POLLARD, Sole Manufacturers,

PARK IRON WORKS, NEW PARK STREET, SOUTHWARK, LONDON.

THOMAS MILLINGTON,

GLASS MERCHANT.

ESTABLISHED 1750.

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

The Agricultural Hall, Islington, containing an Acre of Glass, was supplied by T. MILLINGTON.

Mr. Rivers, and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home Use and for Exportation.

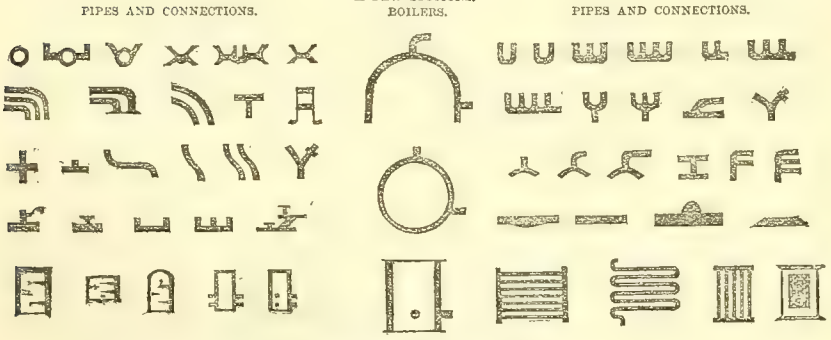
☞ *For prices see Advertisement of November 7.*

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

HOT-WATER APPARATUS,

FIXED AND UNFIXED.



Detailed Illustrated Lists on application,

CONSERVATORIES, GREENHOUSES, &c. PATENT STABLE FITTINGS.

EVERY DESCRIPTION OF IRON WORK.

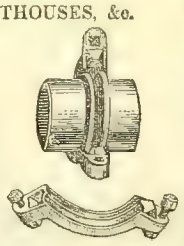
PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—



TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0	£2 0 0	30 feet by 12 feet ...	£11 15 0	£2 10 0
20 feet by 10 feet ...	8 17 6	2 0 0	40 feet by 15 feet ...	15 0 0	2 15 0
25 feet by 12 feet ...	10 5 0	2 5 0	50 feet by 15 feet ...	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING GLASSES.



	Each—s.	d.		Each—s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 ,, ,, ..	0	4½	13 ,, ,, ..	2	0
4 ,, ,, ..	0	5½	14 ,, ,, ..	2	6
5 ,, ,, ..	0	6½	15 ,, ,, ..	3	0
6 ,, ,, ..	0	8	16 ,, ,, ..	3	6
7 ,, ,, ..	0	10	17 ,, ,, ..	4	0
8 ,, ,, ..	1	0	18 ,, ,, ..	5	0
9 ,, ,, ..	1	2	19 ,, ,, ..	6	0
10 ,, ,, ..	1	4	20 ,, ,, ..	7	0
11 ,, ,, ..	1	6			

HAND GLASSES, WITH OPEN TOPS.



	Each—s.	d.		Each—s.	d.
12 inches	6	6	18 inches	9	6
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

Painted and Glazed with 16 oz. Sheet Glass.

HYACINTH and FLOWER DISHES.

6 inches diameter, 1s.; 9 inches, 1s. 6d.; 12 inches, 2s. 6d.

Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

HYACINTH GLASSES.

Common shape, p. doz., 2s. 6d. | Improved shape, p. doz., 4s. 6d.

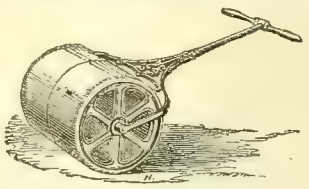
Patent shape, per dozen, 6s. 6d.

London Agents for Hartley's Improved Patent Rough Plate.

Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

GREEN'S IMPROVED NEW PATENT ROLLER for LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS, &c.



These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the very best materials, and are got up in a manner surpassing any ever yet brought out.

PRICES:—

Diameter 30 inches, length 32 inches ..	..	£7	0 0
,, 24 inches, ,, 26 inches ..	..	4	5 0
,, 20 inches, ,, 22 inches ..	..	3	5 0
,, 16 inches, ,, 17 inches ..	..	2	10 0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

For Sale, at E. Dench's Patent Horticultural Works, King's Road, Chelsea.

E. DENCH being about to DISPOSE of his HORTICULTURAL BUSINESS, has on hand a considerable number of VINERIES, GREEN and HOTHOUSES, which he will dispose of at a low price to clear his premises.

The Sizes being from 16 ft. to 36 ft. in length, and from 10 ft. to 15 ft. in width.

Heating.

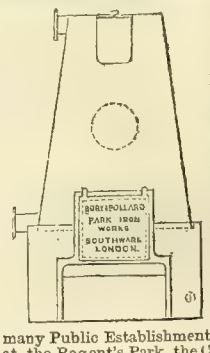
HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

MR. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.



LATEST IMPROVEMENTS IN

Heating by Hot Water.

THE IMPROVED

CONICAL BOILERS,

FOR HEATING PINERIES, CONSERVATORIES, GREENHOUSES, MANSIONS, HALLS, WAREHOUSES, &c.,

SOLELY MANUFACTURED BY

BURY AND POLLARD

(Successors to JOHN R. PEILL, Late STEPHENSON & PEILL).

Annexed Sketch shows BURY & POLLARD'S improved arrangement, requiring

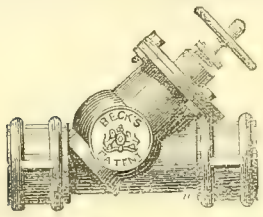
NO BRICKWORK SETTING.

These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United Kingdom. References where they have been 20 years in constant use.

Price Lists on application to BURY & POLLARD, Park Iron Works, New Park Street, Southwark, London, S.

BECK'S

PATENT HOT-WATER VALVES



AT GREATLY REDUCED PRICES, viz. :—

2 In.	3 In.	4 In.
12s. 6d.	16s. 6d.	20s. 0d.

Upwards of 4000 of the Patent Valves are now in use and giving the greatest satisfaction.

John Beck can also supply large quantities of his

IMPROVED THROTTLE VALVES

on the shortest notice.

JOHN BECK,

PATENTEE AND MANUFACTURER

OF EVERY DESCRIPTION OF

GAS, WATER, and STEAM FITTINGS,

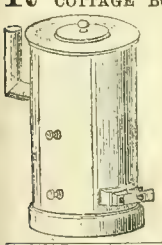
FIRE COCKS, WATER CLOSETS, ETC.

PATENT VALVE WORKS

AND SANITARY DEPOT,

GREAT SUFFOLK STREET, LONDON, S.E.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

T. G. MESSENGER, Horticultural Builder and Engineer, Loughborough.



T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

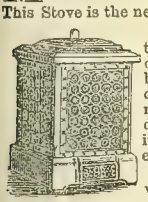
T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES of the above, Glazing without Putty, Garden Engines, &c., sent upon application.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE

This Stove is the nearest approach to Warming by Hot Water.



It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW HOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

Musgrave Brothers, Ann Street Iron Works, Belfast.

The only Stove without a Flue.



JOYCE'S PATENT, for Warming Chapels, Halls, Shops, Conservatories, and all other Places. Price from 12*s* 6*d.* each.

JOYCE'S STOVES are Portable and Economical, and burn 12 hours with one supply of fuel, requiring no attention.

STOVES for GREENHOUSES are made to burn all the Winter. Temperature always the same. Patent Fuel, 2*s.* 3*d.* per bushel,

Swan Nash, Patentee, 253, Oxford Street; and 119, Newgate Street, London, E.C.

Illustrated Catalogues post free.

Hothouses for the Million.—Awarded a Prize Medal at the International Exhibition, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner, all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to Samuel Hereman, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1*s.*; post free, 1*s.* 1*d.*

Card.

SAMUEL N. McGERROW,
General Horticultural Builder,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS and MACHINES of every description.

Illustrated Catalogues on application.

Thomas Green & Son, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

Cows.

FOR SALE, Four well-bred AYRSHIRE YOUNG COWS, in Calf. Price 12*l.* 10*s.* each.

Apply to the Gardener, Crouch Hall, Crouch End, Hornsey.

BLACK and RED, in CALF, KERRY CATTLE, of the purest breed, for SALE, by Richard G. Campion, Esq., Youghal, Co. Cork. No Cow so suitable for Villas.

To Gentlemen, Nurserymen, and Others.

TO BE SOLD, by Private Contract, a large GREENHOUSE or VINERY, about 40 feet by 16 feet. The purchaser to take it down.

Apply to Mr. Harris, Leyton, Essex, N.E. Can be viewed between the hours of 10 and 4 for a week.

TO BE DISPOSED OF (the Lease 39 years unexpired), the STOCK, GREENHOUSES, PITS, and UTENSILS in Trade of a NURSERY, 21 years established.

Apply on the Premises, Mr. Child's, Blenheim Nursery, Rye Lane, Peckham, S.E.

TO BE LET, NURSERY GROUNDS in Brighton, comprising extensive Vineries and Peach-houses, in good bearing condition; large Span-roofed and Lean-to Houses, and Pits for Plants; also, a capital Residence and Cottages, with Stabling and Coach Houses.

The Stock can be taken at a valuation or a fixed sum, as agreed upon, or a PARTNER with Capital would be accepted.

Full Particulars to be had on application to the Garden Superintendent, Alexandra Park, Tottenham Wood, Hornsey.

Oxfordshire.

TO BE LET, from Lady-day next, TWO First-class FARMS, lately in the occupation of J. H. Langston, Esq., M.P., deceased, situate at Churchill and Sarsden, about three and four miles respectively from the Market Town of Chipping Norton, and within a shorter distance of other Railway Stations.

No. 1. The Farm commonly called "CHURCHILL MOUNT," on which is an excellent and commodious Dwelling House and Offices, with extensive and convenient Farm Buildings, all recently built and fitted up with Machinery worked by steam-power for Threshing, Grinding, Chaff-cutting, &c., together with 530 acres of Arable and Pasture Land (in nearly equal proportions). The well-known "Sarsden Herd" is, and has been for some years, kept upon this farm.

No. 2. The Farm known as "FAIR GREEN," with other Lands added, near and adjoining Sarsden, comprising a superior and commodious Dwelling House and Offices; the Buildings are unusually good, convenient, and equal to the requirements of the Farm, and well supplied with Water throughout. The Dwelling House and Farm Offices have been recently erected and fitted up with Machinery driven by steam-power for similar purposes as mentioned in No. 1. This Farm contains 744 Acres, of which 574 are Arable and 169 Pasture, and is well adapted to Steam Cultivation. There are several Cottages attached to the Farm.

The Farms have been for some time under Steam Cultivation, and are both in high condition, having been many years kept in hand by the late proprietor. In both cases the Residences and Farms are of a very superior description.

For further Particulars, and for viewing the same, application should be made at the Office of Mr. Henry Andrews, at Sarsden, near Chipping Norton, to whom Sealed Tenders for each farm separately, stating the clear annual rent, are to be sent on or before December 18, 1863, soon after which the persons whose tenders are accepted will have notice thereof. The setter will not consider himself bound to take the highest tenders.

Sarsden, November 14.

Sales by Auction.

Lea Bridge Road, near Clapton, N.E.

MR. A. RICHARDS will SELL by AUCTION, on the Premises, Lea Bridge Nursery, N.E., a short distance from Clapton, on WEDNESDAY, November 18, at 11 for 12 o'Clock precisely, the NURSERY STOCK, GREENHOUSES, ERECTION of SHEDS, and other effects, of the late Mr. J. Coole; the erection of 6 Greenhouses, with Brickwork, Stages, &c., Ranges of Pits and Lights, a large quantity of Evergreens, including fine Hollies, Laurels, Aucubas, Privet, China and Lignum arborvitæ, Seedling ditto, Box, Euonymus, Guelder Roses, Lilacs, Ribes, a quantity of Moss and other Roses, Ivies in Pots, Honeysuckle, Limes, Poplars, &c. 500 doz. Geraniums in pots, Fuchsias, &c.; also the Lease of the Ground with Cottage, held for an unexpired term of 2 years, at the low rent of 15*l.* per annum.

May be viewed the Day previous. Catalogues obtained on the Premises, and of the Auctioneer, Tottenham, N.E.

Dutch Bulbs, Standard Roses, Fruit Trees, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, November 16, at half-past 12 o'Clock precisely, a choice assortment of DUTCH BULBS, comprising most of the newest and best varieties, and a COLLECTION of PLANTS from a well-known nurseryman in Surrey, consisting of Roses, Conifers, Laurels, Hollies, Fruit Trees, Azaleas, Yuccas, Rhododendrons, &c.

On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 19, at half-past 12 o'clock precisely, 300 CAMELLIAS, 300 INDIAN AZALEAS, 300 LILIUM LANCIFOLIUM RUBRUM, 200 HARDY RHODODENDRONS, 100 KALMIAS, &c.

On view the Morning of Sale, and Catalogues had.

New Roses, Standard, Half Standard, and Dwarf,

Being a Consignment received direct from one of the most renowned Rose Growers in France, all for absolute Sale and in the finest possible condition.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 24, at half-past 12 o'clock precisely, an assortment of splendid FRENCH ROSES, comprising 2500 Standards, Half-Standards, and Dwarfs, of the most approved sorts. On view the Morning of Sale, and Catalogues had.

Peckham.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, on the Premises, Victoria Nursery, Victoria Road, near the Adam and Eve, Peckham, on MONDAY, November 16, at 12 o'Clock, by order of Mr. Falconer, without reserve, the ground being immediately required to be cleared, the whole of the NURSERY STOCK and GREENHOUSE PLANTS, including some handsome Standard, Half Standard, and Dwarf Roses, Dwarf-trained Peaches and Nectarines, Standard and Dwarf Apples, Pears, Plums, Cherries, Lilacs, Ribes, Privet, Sumach, Gooseberries and Currants, Raspberries, Rhubarb, &c.; choice Azalea indica, well set with bloom buds; Ericas sorts, Cactus, Geraniums, &c.; together with four capital Greenhouses, several One and Two-light Boxes, Saddle Boiler, Bricks, Garden Pots, Tools, and Sundry Effects.

May be viewed one week prior to the Sale. Catalogues may be had on the Premises; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Highly Important Sale of Ferns, Specimen Stove and Greenhouse Plants, &c.

MESSRS. PROTHEROE and MORRIS are directed to SELL by AUCTION, on the Premises, Manor Nursery, Harrow Road, Paddington, on TUESDAY, Nov. 17, at 11 o'clock, the entire Collection of EXOTIC and BRITISH FERNS, late the property of W. C. Carbonell, Esq., including specimens of great magnitude and beauty rarely to be met with, being collected regardless of expense, the result of many years' careful cultivation, and which have obtained first-class certificates at most of the Metropolitan Floral Fêtes, including Cibotium Schiedei, 14 to 16 feet through; Dicksonia antarctica, 18 inch stem, fine head 8 feet through; Microlepia platyphylla, 7 feet; Lastrea indivisa, fine plant, 8 feet; Gleichenia microphylla, 5 feet; Leucostegia cbærophylla, 5 feet; Asplenium marinum (splendid specimen), and many other smaller but more choice varieties. Also some fine specimen STOVE and GREENHOUSE PLANTS, comprising Allamanda Schotti; Ixora javanica, 5 feet by 5 feet; Burchellia capensis, 6 feet by 4 feet; Combretum purpureum, 3 ft. 6 in. by 4 feet, &c. Fine Orange Trees, some choice Azalea indica, Ericas sorts, &c.; with a selected assortment of Standard Roses, &c.

May be viewed one week prior to the Sale. Catalogues may be had on the Premises; of Mr. Thomas Hawkins, 3, Inverness Terrace, Bishop's Road, Bayswater; and of the Auctioneers, American Nursery, Leytonstone, N.E.

Great Sale of Roses, Fruit Trees, Evergreen Shrubs and Coniferæ, Lilium lancifolium, &c.

To Noblemen, Gentlemen, Nurserymen and Others.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on WEDNESDAY, November 18, at 12 o'Clock, a splendid assortment of 1000 STANDARD, HALF STANDARD, and DWARF ROSES of remarkably fine growth; selected FRUIT TREES, viz., handsome Dwarf-trained Peaches, Nectarines, Apricots, Standard and Dwarf Apples, Pears, Plums, Cherries, &c.; CONIFERÆ and EVERGREEN SHRUBS, comprising Thuja aurea, Cupressus Lawsoniana, Thujopsis borealis, Cedrus Deodara, Wellingtonia gigantea, Araucaria, &c.; choice HARDY AMERICAN PLANTS, consisting of Scarlet and Hybrid Rhododendrons, Kalmias, Azaleas, Andromeda floribunda, &c., with 200 fine BULBS of Lilium lancifolium rubrum and album, from a celebrated Grower in Belgium, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Tulips, &c.

MESSRS. PROTHEROE and MORRIS are instructed to SELL by AUCTION, at the Mart, on THURSDAY, Nov. 19, at 12 o'Clock, the whole Collection of TULIPS, late the property of Fred. Perkins, Esq., including all the leading sorts in cultivation. Also a fine assortment of DUTCH BULBS, Standard, Half-standard, and Dwarf ROSES, &c.

On view the Morning of Sale. Catalogues had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex N.E.

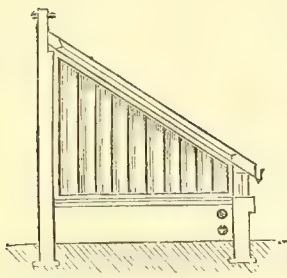
Handsome Standard and Dwarf Roses, Dutch Bulbs, &c.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, November 20, at 12 o'Clock, a first-class Collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Crocus, Tulips, Jonquils, Anemones, Iris, &c.; also 300 handsome STANDARD and DWARF ROSES, comprising the best Hybrid Perpetuals, Bourbons, Chinas, &c.; choice assortment of AMERICAN PLANTS, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

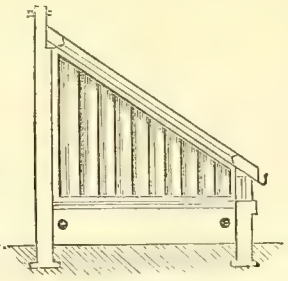
J. JONES'S HOT-WATER APPARATUS.

No. 7.



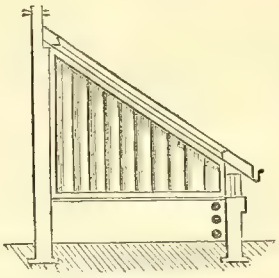
Size of House.	Price
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No. 8.



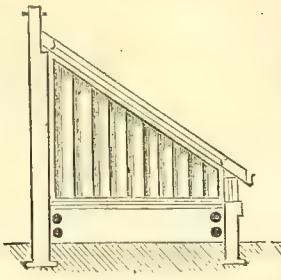
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No. 9.



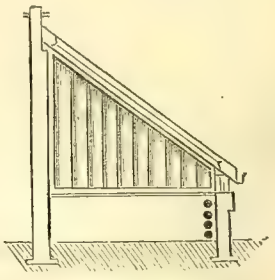
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No. 10.



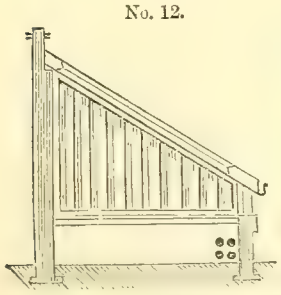
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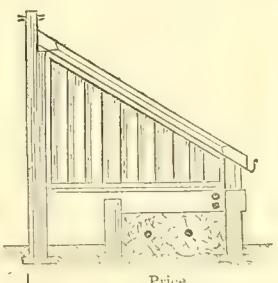
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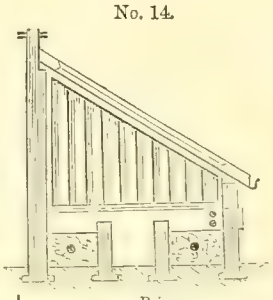
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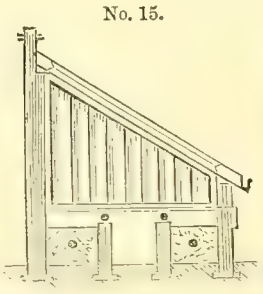
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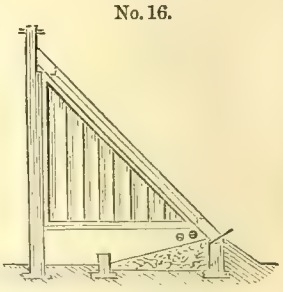
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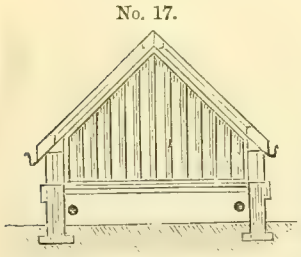
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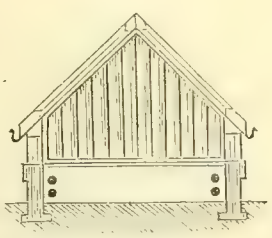
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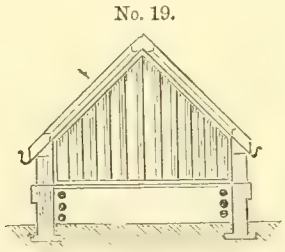
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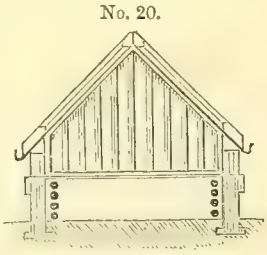
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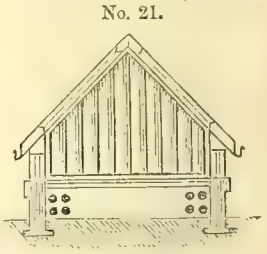
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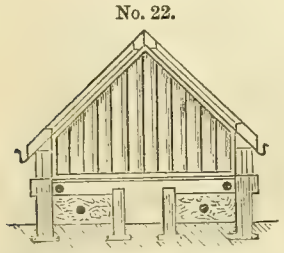
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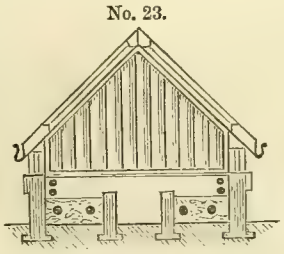
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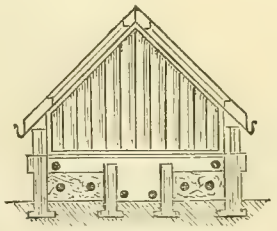
Size of House.	Price
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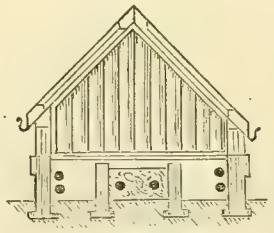
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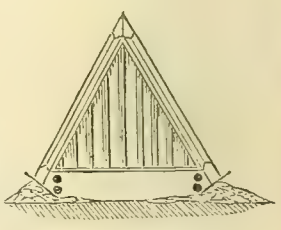
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No. 25.



Price
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25 0 0
30 0 0
35 0 0
40 0 0
45 0 0
50 0 0
55 0 0

No. 26.



Price
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

J. JONES will be happy to supply HOT-WATER APPARATUS for HOUSES according to any of the above Plans, delivered Free to any Station in England at the prices named, which include strong CAST-IRON CYLINDER or SADDLE BOILER, FURNACE DOORS, FIRE BARS, SOOT DOORS, CISTERN and DAMPER, 4-inch HOT-WATER PIPES and CONNECTIONS, all of the best quality; or he will forward ESTIMATES for WORK erected complete, with WROUGHT or CAST-IRON BOILER of any sort, at a small addition to the above prices.

☞ *The Black Circles on Sections of Houses show the arrangement of Pipes.*

Illustrated Catalogues and further particulars post free on application to

J. JONES, IRON MERCHANT AND HORTICULTURAL ENGINEER, 6, BANKSIDE, LONDON, S.E.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 47.—1863.] SATURDAY, NOVEMBER 21. {Price Fivepence. STAMPED EDITION, 6d.

INDEX.

Abbotsford	1111 c	Fish and Fishing	1109 c
Agriculture a commercial pursuit	1116 b	Foliage plants	1112 c
Bacon making	1113 c	Gladioli	1108 a
Birmingham show	1108 b	Hyacinths, new	1110 c
Breeds of cattle, wild	1117 b	Hybridisation	1107 c
Cattle trucks	1114 b	Injury and waste of corn	1111 c
Chrysanthemums	1107 a	New Zealand	1108 c
Commercial pursuit, agriculture as	1116 b	Orchard-house culture	1110 c
Cunninghams, the botanists	1110 b	Orchids	1110 b
Farmers' Calendar	1117 b	Perfumes, new	1112 a
Farmers' Club, Croydon	1118 c	Potatos	1110 a
— East Lothian	1117 c	Roses	1109 a
Feejee Islands	1110 b	Stanley's (Bishop) Addresses	1110 c
Ferns, new garden	1108 b	Steam cultivation	1115 c
		Swallows	1110 c
		Thin seeding	1116 a

☞ NOTICE TO ADVERTISERS.—*An Enlarged Sheet of the* GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE *will be published on Saturdays, December* 5 *and* 12, *the weeks before and after the* CATTLE SHOW.

ADVERTISEMENTS *intended for either or both of these Numbers must be sent to the Office not later than* THURSDAY *in each week.*

Fruiting Vines.

JAMES CARTER AND CO. have all the most approved varieties in extra strong short-jointed well ripened Canes with prominent Eyes, that will give an abundant crop in Pots next year. Price 10*s.* 6*d.* LIST of Sorts on application.
High Holborn, London; and Crystal Palace Nursery, Perry Hill, Sydenham, S.E.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10*s.* 6*d.* each.
LIST of SORTS sent on application.
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Grape Vines.

WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery.
PRICED LIST on application.
PAUL's Nurseries and Seed Warehouse, Waltham Cross, N.

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B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

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WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.
Highgate Nurseries, London, N.

Grape Vines from Eyes.

H. LANE AND SON have great pleasure in offering fine plants of all the popular sorts, new and old, with well ripened Canes.
The Nurseries, Berkhampstead.

CURRANTS for PLANTING.—Several thousand of the LARGE RED and NETTLE LEAF WHITE varieties, 3 and 4 years old, very strong, now coming into immediate bearing. To clear the ground will be parted with at 15*s.* per 100, or 5*l.* per 1000.
T. MITTON, Lampton, near Hounslow, W.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form they can be desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester

New Primula Seed.

JAMES CARTER AND CO. have a small quantity of ex. ex. choice, dark carmine, pure white, and mixed Fringed PRIMULA SEED to offer to the Trade. Price on application.
The quality of these articles may be fully relied on as being first-rate.

TO BE DISPOSED OF, by a well known Private Grower, a small quantity of very choice PRIMULA and CINERARIA SEED. Quality of the former can be seen.
Address Z. Y., Post Office, Balham, S.

Royal Nursery, Great Yarmouth.

YOUELL AND CO.'S New CATALOGUE of GREENHOUSE PLANTS, Rare and Hardy CONIFERÆ, SHRUBS, GLADIOLI, &c., is ready, and will be forwarded on application.

NEW CHRYSANTHEMUMS of 1863.—Strong Plants of the above, including the Japanese varieties, are now ready at 5*s.* per dozen.
W. HOLMES, Frampton Park Nursery, Hackney.

RHODODENDRONS, COMMON and HYBRID, strong well rooted Plants, suitable for Shrubberies, Covers, and large Plantations, 2 feet, 20*s.* per 100; 3 feet, 30*s.* per 100.
Apply to W. H. ROGERS, Red Lodge Nursery, Southampton.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON,
NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

Yorkshire Seed Establishment.

EDMUND PHILIP DIXON AND SONS,
SEED MERCHANTS and NURSERYMEN,
57, Queen Street, Hull.

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RICHARD SMITH,
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St. John's, Worcester.

Good Seeds, Carriage Free, at Market Prices.

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SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

MUNRO BROTHERS,
SEEDSMEN, NURSERYMEN, AND FLORISTS,
Union Street and Ness Walk Nurseries, Inverness.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH,
SEED MERCHANTS.
WANTED to PURCHASE, a few Tons of DANDELION Roots.
Covent Garden Market, London, W.C.

THE LONDON SEED COMPANY, LIMITED.—
REGISTERED OFFICES:
68, Welbeck Street, Cavendish Square, London, W.

THE LONDON SEED COMPANY LIMITED,
with which is AMALGAMATED the
PLYMOUTH SEED COMPANY LIMITED.
Offices: 68, Welbeck Street, Cavendish Square, London, W.

MAURICE YOUNG'S CATALOGUE of NEW HARDY PLANTS, CONIFERS, and general NURSERY STOCK is now ready, and may be had on application.
Milford Nurseries, near Godalming.

Wholesale Nursery List for 1863-1864.

PETER LAWSON AND SON, Edinburgh and London, will forward the above to the Trade on application.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for
"Excellent Seed Corn and Seeds."

Gladiolus Bowiensis, brightest and best of its class.

THOMAS BARNES offers the above in fine Bulbs by the 100 and 1000 at very low prices, which can be had on application.
Dane Croft Nursery, Stowmarket.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.
Dorking Nursery.

R. M. STARK having the prospect of disposing of his Nursery Business during next spring, is offering the STOCK at GREATLY REDUCED RATES.
PRICED CATALOGUES on application.
Edgehill Nursery, Edinburgh, November 21.

GARDENIAS for SALE, CHEAP.
Fine Specimen Plants.
Apply to the GARDENER, Granard Lodge, Roehampton, S.W.

The Nurseries, Horncastle.

W. CROWDER has a quantity of large SPANISH CHESTNUTS, 7 to 8 and 8 to 10 feet; also LIMES, 5 to 6 feet. Price on application.—Nov 21.

LAPAGERIA ROSEA.—Six of the BEST NEWLY-GATHERED SEEDS of this magnificent Climber, Post-free, for Half-a-Crown.
JAMES DICKSON & SONS, 102, Eastgate Street, Chester.

Planting Season

WM. URQUHART AND SONS, Dundee, beg to announce that their PRICED LIST of FOREST TREES, ORNAMENTAL TREES, SHRUBS, BORDER FLOWERS, ROSES, FERNS, and AURICULAS, may now be had on application.

Lavender Bushes.

FOR SALE, One Thousand fine BUSHY PLANTS of the above, 2 feet high, and three years old, at very moderate prices. Apply to
H. & F. SHARPE, Nurserymen and Seedsmen, Wisbech.

To Nurserymen and Others.

REQUIRED, for IMMEDIATE PLANTING, 250,000 QUICKSETS, 3 years old, 2-years' Transplanted. TENDERS to be addressed—
Northern Outfall Works, Plaistow, Essex.

Mountain Ash.

WANTED, MOUNTAIN ASH, from 3 to 5 feet.
Apply to THOMAS METHVEN, Leith Walk Nurseries, Edinburgh.

The Best Twelve Hyacinths Imported by

SUTTON AND SONS
for Twelve Shillings (Carriage free).
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

To Hyacinth Growers.

SUTTON'S DESCRIPTIVE LIST is NOW READY, Post free.
SUTTON & SONS, Reading, Berks.

Hyacinths, Tulips, Crocuses, &c.

BUTLER AND McCULLOCH'S importation of DUTCH BULBS are unusually fine this season.
CATALOGUES Post free upon application.
BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

POMPON HYACINTHS, 3*s.*, 4*s.*, and 5*s.* per dozen.
These are valuable for growing in Masses.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

DUTCH CROCUS, 12*s.* 6*d.* per 1000.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

ROSES.—CATALOGUES for 1863 and 1864 forwarded free on application.
JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

ROSES.—Superb STANDARDS, 18*s.* per dozen; Ditto ditto DWARFS, 12*s.* per dozen. NEW ROSES of 1863: DWARFS, 36*s.* per dozen.
DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ROSES, Fine STANDARDS, 18*s.* per dozen and upwards; DWARFS, 9*s.* per dozen and upwards. NEW ROSES of 1863: DWARFS, 30*s.* to 36*s.* per dozen.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

E. P. DIXON AND SONS' CATALOGUES of ROSES and FRUIT TREES are now ready, and may be had free on application.
57, Queen Street, Hull.

New Rose Catalogue for 1863-64.
New Bulb Catalogue for 1863.
WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.
WM. WOOD AND SON will be happy to send copies of the above gratis and post free to all applicants.

To the Trade.

ROSES.—A large Quantity of STANDARDS and DWARFS at unprecedented low prices.
A DESCRIPTIVE CATALOGUE sent free upon application to W. H. DAVIS, Rose Nurseries, Newbury, Berks.

Roses.

H. LANE AND SON, The Nurseries, Berkhampstead, will send their CATALOGUES free on application.
No. 1. ROSE CATALOGUE. | No. 3. FRUIT CATALOGUE.
No. 2. TREE and SHRUB CATALOGUE. | No. 4. AZALEA INDICA CATALOGUE.

FOR ONE GUINEA, 12 Superb STANDARD ROSES; 12 ditto DWARF ditto. In 24 distinct sorts.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

FOR SALE, a few Thousand First-rate MANETTI STOCKS.
Apply to W. C. LAY, London Road Nursery, Newbury, Berks.

PELARGONIUMS.—The best and cheapest place for New and Old Varieties (see CATALOGUES post free) is J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Seeds. Seeds. Seeds.
NEW, GENUINE, AND CARRIAGE FREE.
J. DOBSON AND SONS' CATALOGUE will be ready early in December, free on application.
Seed Establishments, Isleworth, W., and Hounslow, W.

Green Lanes, Stoke Newington.
NOTICE TO THE SEED TRADE.
J. H. BIRD, NURSERYMAN, Stoke Newington, can still supply Large Golden Yellow and other sorts of CROCUS, of fine quality, by the 1000. Prices upon application.

Agricultural, Garden and Flower Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E.
SPECIAL LISTS of SEEDS (crop 1863) gratis on application.
Prices the lowest consistent with first-class quality.

CARTER'S CHAMPION BROCCOLI, the best Late White Broccoli in cultivation, 1*s.* per packet.
JAMES CARTER & CO., 238, High Holborn, W.C.

WANTED, SEA-KALE.—Send Sample and Price of above to
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

To Seedsmen, Gardeners, &c.

EMPEROR PEAS (TRUE).—To be Disposed of, about 20 Quarters of the above, in fine condition.
For Price apply to Mr. WM. WOOD, Cattal, York.
A purchaser for the whole would be liberally dealt with.

Great Reduction in the Price of Roses.

NOT TO BE UNDERSOLD BY ANY RESPECTABLE HOUSE IN THE TRADE.
WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

Since issuing their NEW ROSE CATALOGUE for the Autumn of 1863 and the Spring of 1864,

WILLIAM WOOD AND SON have ascertained that other Houses in the Trade are offering some kinds of Roses at a lower rate than themselves, and as they are fully determined NOT TO BE UNDERSOLD by any RESPECTABLE House, they have prepared a REVISED LIST of ROSES at reduced prices, and will have much pleasure in forwarding copies of the same, Gratis and post-free, to all applicants.

Roses.

EDWIN HOLLAMBY has the pleasure of informing the Nobility and Gentry that his extensive Stock of STANDARD and DWARF ROSES of all the leading kinds in cultivation is in the finest possible condition; fine straight stems, fine heads, and beautifully rooted. Purchasers of large quantities will be liberally dealt with.

DESCRIPTIVE PRICED CATALOGUES for the present season will be forwarded gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells; and Goldsmith's Park, Groomsbridge, Kent.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

Roses.

JOHN CRANSTON offers selections of STANDARD and DWARF ROSES of very superior quality.

The robust growth and hardy constitution of the plants grown in this Nursery has long been acknowledged, and the Stock to offer this season is perhaps superior to any previous growth.

He also begs to direct attention especially to DWARF ROSES on the Manetti stock, of which he has an enormous stock.

The plants upon their own roots are also very strong and well grown.

	Per dozen—s.	d.
STANDARD ROSES of all the leading varieties in cultivation	18	0
Do. Newer varieties, introduced in 1861 and 1862	24	0
DWARF ROSES, extra fine plants upon the Manetti stock .. .. 9s. to	12	0
Do., do., upon Dog-rose stock	9	0
Do. Newer Varieties, introduced in 1861 and 1862 15s. to	18	0
Do., do., of 1862 and 1863 .. .. 24s. to	30	0
STANDARD and HALF-STANDARD TEA-SCENTED ROSES, all the best varieties	24	0
DWARF ROSES upon their own roots, Hybrid Perpetuals, and Bourbons .. .. 9s. to	12	0
Do., do, Tea-scented .. .. 12s. to	15	0
CLIMBING ROSES	9	0
PILLAR ROSES, extra strong plants, 4 to 5 feet 12s. to	15	0
STANDARD WEEPING ROSES .. .. each 2s. to	2	6
ROSES in 8 and 9-inch pots grown especially for Forcing or Greenhouse culture, the best Hybrid Perpetuals, China, and Tea-scented varieties .. .. .. 24s. to	30	0

DESCRIPTIVE CATALOGUES forwarded free on application.

Nurseries, King's Acre, near Hereford.

Roses.

EUGÈNE VERDIER Fils aîné, NURSERYMAN, 6, Rue des Trois Ormes, Gare d'Ivry, Paris, has the honour to inform the Trade and the Public generally, that he can supply, in fine condition, STANDARD and DWARF ROSES of all the best varieties, viz.:—Baronne Lassus de St. Genies, Baron de Rothschild, Charles Lefèvre, Comtesse Cecile de Chabrillant, Deuil du Prince Albert, Duc de Cazes, Duc de Rohan, Empereur de Maroc, Eugène Appert, François Arago, François Ier, François Lacharme, General Washington, Gloire de Santenay, Madame Briançon, Madame Charles Wood, Madame Furtado, Maurice Bernardin, Prince Camille de Rohan, Senateur Vaisse, Victor Verdier. TEA ROSES—Madame Falcot, Triomphe de Rennes, &c.

The finest varieties of this autumn can also be had, viz.:—Madame Doré, Madame Josephine Guyot, Rev. H. Dombrain, Alphonse Belin, Baronne Peletin de Kinkelin, Bernard Palissy, Claude Million, Centifolia rosea, George Paul, Kate Hausburg, George Prince, Gloire du Sacré Cœur, Eugène Verdier, John Nasmith, Joseph Fiala, La Duchesse de Morny, Louis Van Houtte, Madame Victor Verdier, Pierre Notting, Senateur Reveil, Vicomtesse Douglas, Souvenir du Maréchal Serrurier, Mademoiselle Gabriel de Peyronny, &c.

An extensive assortment of STANDARD and DWARF ROSES, and ROSES upon their own Roots in Pots, at the most moderate prices.

CATALOGUE of ROSES, GLADIOLI, and PÆONIES will shortly be published, and will be sent post-free on demand to E. V., as above, or to his Agents in London, BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, E.C.

Roses.

CHARLES VERDIER, NURSERYMAN, 32, Rue du Marché aux Chevaux, Paris, (Successor to the late firm of VICTOR VERDIER PÈRE & CHARLES VERDIER FILS), has the honour to inform Amateurs and the Trade, that he has a large Collection of splendid STANDARD and other ROSES, which he is now ready to supply at the following prices, viz.:—

Good old sorts, such as JULES MARGOTTIN, SOUVENIR DE LA REINE D'ANGLETERRE, GÉNERAL JACQUEMINOT, TRIOMPHE DE L'EXPOSITION, LORD RAGLAN, GLOIRE DE DIJON, &c.

Standards at 15s. per dozen; or 4l. 17s. per 100.
Dwarfs at 7s. 6d. per dozen; or 2l. 19s. per 100.

Varieties, such as SENATEUR VAISSE, GLOIRE DE SANTHENAY, VICTOR VERDIER, FRANCIS 1st, EMPEROR OF MOROCCO, COMTESSE CECILE DE CHABRILLANT, GENERAL WASHINGTON, &c.

Standards at 19s. per dozen; or 6l. per 100.
Dwarfs at 9s. 6d. per dozen; or 3l. 12s. 6d. per 100.

Newer Varieties, such as MADAME BOUTON, MAURICE BERNARDIN, DUC DE ROHAN, MARECHAL VAILLANT, &c.

Standards at 1l. 4s. per dozen; or 8l. per 100.
Dwarfs at 16s. 6d. per dozen; or 5l. per 100.

The CATALOGUE of ROSES, GLADIOLUS, HERBACEOUS and TREE PEONIES, &c., may be obtained on application to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

Roses.

GEO. PARSONS, NURSERYMAN and SEEDSMAN, by Special Appointment, to her Majesty, begs to offer fine STANDARD ROSES, from 2½ to 4 feet stems, at 15s. per doz., or 5l. per 100; DWARFS (none better in England), 9s. per doz., or 65s. per 100. The new varieties of 1862 and '63 at proportionate prices. CATALOGUES free on application.

Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

THE LONDON SEED COMPANY, LIMITED.—The Directors have much pleasure in stating that they have completed the harvesting of all kinds of Seeds, and are now in a position to execute orders for every requisite for the FARM and the GARDEN.

The GENERAL PRICE CURRENT will be ready in December, and will be forwarded Gratis and Post-free on application. Seeds carriage free.

Offices: 68, Welbeck Street, Cavendish Square, London, W.

PERFECTION "SWEET WILLIAM."

THE SEED NOW OFFERED BY

E. G. HENDERSON & SON

Of this magnificent strain of Mr. HUNT'S variety, is direct from Mr. Bragg, of Slough, and is *bonâ fide* the same as exhibited by him during the last summer. It is without exception the finest and purest of Hunt's known, and whilst other parties are offering seeds as Hunt's strain, which that gentleman never saw, nor heard of, the present is the only batch personally seen and recognised by him as his own latest improvement. To ensure and warrant the brilliant strain now offered, E. G. HENDERSON & SON were allowed, in connection with Mr. Hunt, to exercise their own rigorous judgment in weeding out every inferior flower whilst in bloom during the last summer.

SEED, from 1s. per packet. Trade supplied per oz.

A splendid PLATE by Miss SOWERBY of Trusses in variety, is published, a copy of which will be presented to every Trade purchaser of 3 oz.

The number of Plates being limited, early orders will ensure a copy, a duplicate of which will only be supplied in connection with the seed.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

NEW FANCY PANSIES.

WILLIAM DEAN,

BRADFORD NURSERY, SHIPLEY, YORKSHIRE,

Can now supply fine Plants of the following superb NEW FANCY PANSIES:—

HER MAJESTY.—Rich blue purple, upper petals with wire margin of white, shaded white and lilac under petals, with large dark blotch, very fine form, extra fine. 5s. each.

PRINCE of WALES.—A very rich coloured flower, shaded purple, maroon and rich orange, the lower petal edged with gold, very fine blotch, extra fine and distinct. 5s. each.

PRINCESS of WALES.—White beautifully edged with purple, very large dark maroon blotch, large and very fine form. 5s. each.

*THOMAS MOORE.—Very rich blue purple, distinctly blotched with lemon and white, with very large centre blotch, a perfectly distinct and very fine variety. 5s. each.

These four very handsome and distinct kinds will be figured in the "Floral Magazine" for December, 1863.

	s.	d.		s.	d.		s.	d.		s.	d.
MRS. DEAN	5	0	THE LORD PROVOST..	5	0	ALEXANDRA	3	6	BLUE BEARD	3	6
RICHARD DEAN ..	5	0	WILLIAM PAUL ..	5	0	PRINCE ALFRED ..	3	6	COLUMBINE	3	6
ANNIE BROOKSHANK	5	0	ADMIRATION	3	6	DUCHESS of CAMBRIDGE ..	3	6	HIBERNIA	3	6
KING of ITALY	5	0	CLARA DEAN	3	6	PRINCE ARTHUR ..	3	6	FIREFLY .. .	3	6
MRS. TURNER	5	0	PRINCESS BEATRICE	3	6	SINGULARITY	3	6	MOONSHINE	3	6

NOTE.—*A very liberal allowance to the Trade.*

For descriptions, see CATALOGUE, Post Free on application.

Fine varieties, 9s., 12s., 18s., and 24s. per dozen.

FANCY PANSY SEED.

Saved by W. DEAN from his superb collection. 2s. 6d. per packet.

Many letters expressing great satisfaction have been received, amongst them the following:—

From Mr. B. K. BLISS, *Springfield, Mass., U. S. A.*

"The Pansy seed you sent me has produced some of the finest flowers ever seen in this country. That sown in my own garden has given me great satisfaction, and those of my customers who purchased Seed are greatly pleased. I have imported Pansy Seed for the last 10 years, but never had a lot which proved so uniformly good as yours."

From Mr. GEORGE ELLIOTT, *The Gardens, Wanlip Hall, Leicester.*

"Please send me a packet of your Fancy Pansy seed, as that I had from you last year produced some very fine flowers, which were admired by every person who saw them."

From THOMAS INGLE, Esq., M.D., *The Villetta, Emsworth, Hants.*

"I cannot allow the season to pass without notifying to you the high gratification I have received from the Pansy Seed you sent me. During the course of well nigh 40 years I have been a most devoted Pansy grower, and I never received a packet of Seed in finer condition than yours, and all the plants or nearly so have given flowers very far superior to any I have raised before. The beauty and novel characters of many have proved very attractive to all who have seen them."

DEAN'S AURICULA-EYED SWEET WILLIAM. 1s. per packet.

The following extract is from the *Gardeners' Chronicle* of July 4th, 1863:—

"Have any of your readers grown the Auricula-eyed Sweet Williams? If not, they should do so. These are the finest Sweet Williams I have ever seen, and I have been engaged in improving this flower for the last 10 years. I received the seed from Mr. W. DEAN, of Shipley, and I am bound to say they have given complete satisfaction. They have large white centres, clearly defined and rounded, to flowers of large size and good form. For exhibition purposes they are unequalled. I send some for your inspection. *Henry Braithwaite, Brixton, London.*"—[They are very handsome certainly, the dark sorts chiefly shades of crimson or purple with large white eye. As border flowers nothing can be more effective. *Ed. G. C.*]

The above-named Seeds can be supplied by the following Nurserymen and Seedsmen:—

Messrs. PETER LAWSON & SON, Edinburgh and London
" HURST & SON, 6, Leadenhall Street, London
" BECK, HENDERSON, & CHILD, Adelphi Wharf, London
" BARR & SUGDEN, King Street, Covent Garden, London
" HOOPER & Co., Covent Garden, London
Mr. JAMES VEITCH, Royal Exotic Nurseries, Chelsea, London
Messrs. E. G. HENDERSON & SON, Wellington Road, London
" FERGUS FARRELL & SONS, Dublin
" DICKSON, HOGG, & ROBERTSON, Dublin
" EDMONDSON BROTHERS, Dublin
" JAMES DICKSON & SONS, Edinburgh
" CARSTAIRS & SON, Edinburgh
Mr. R. T. MACKINTOSH, Edinburgh
Messrs. F. & A. DICKSON & SONS, Chester
" AUSTIN & M'ASLAN, Glasgow
" J. & R. THYNE, Glasgow
Mr. SMALL, Sandymount, Glasgow
" CHARLES TURNER, Royal Nurseries, Slough
Messrs. SUTTON & SONS, Reading
Mr. JOHN CATTELL, Westerham
" J. B. HARTLAND, Cork
" THRELKELD, Belfast
" WM. THOMPSON, Ipswich
" B. K. BLISS, Springfield, Mass., U. S. A.
" THOMAS SIMPSON, 1, College Green, Dublin
Messrs. J. C. WHEELER & SON, Gloucester

Other Agents will be announced hereafter.

Very Strong Standard and Pyramid Pears and Plums.

JAMES GARAWAY AND CO., Durdham Down Nurseries, Bristol, offer the above, of the best varieties, 24*s.* to 30*s.* per dozen. Prices to the Trade on application.

AUTUMN CATALOGUE and FOREST TREE LIST free by post.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

GRAPE VINES.—Strong well ripened Canes of the following, at 3*s.* 6*d.* to 5*s.* each:—Black Hamburgh, Grizzly Frontignan, Black Prince, Chasselas Musqué, Black St. Peter's, Black Frontignan, Cannon Hall Muscat, Précoce Malingre, White Frontignan, White Sweetwater, Muscat of Alexandria, Tokay, Golden Hamburgh, Syrian Muscat Hamburgh, Mill Hill Hamburgh, Lady Downes, Black Cluster, Esperion, Muscat Troveron, Royal Muscadine, Trentham Black, Blanc de Kentsheim, Black July, Ingram's Prolific, Buckland Sweetwater, Cavoush.

JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

Vines.

JAMES CARTER AND CO. beg leave to call attention to their splendid collection of the above, consisting of several thousand CANES of the most approved varieties in cultivation. Extra strong, short-jointed, well-ripened Canes for fruiting in Pots next year; fine strong, well-ripened Canes for planting in Vineries, and strong hardy Canes for open walls.

For prices and full descriptive list of more than 40 finest selected varieties most suitable for above purposes, see AUTUMN SUPPLEMENT to their VADE MECUM, forwarded post free on application.

Seed Merchants and Nurserymen, 237 and 238, High Holborn, London, W.C.

Peach Trees for Forcing.

MESSRS. THOS. RIVERS AND SON beg to offer very fine PEACH TREES in pots for forcing; they are from three to four years old, and full of blossom buds. The varieties cultivated are Noblesse, Royal George, Grosse Mignonne, Early York, Early Grosse Mignonne, and others.

Largest sized trees, 7*s.* 6*d.* each; fine trees, 5*s.* each; carriage paid to London.

Nurseries, Sawbridgeworth.

RASPBERRIES.—Cornwell's Seedling, Carter's Prolific, Prince of Wales, Fillbasket, Red Prolific, Autumn Tinted, and Yellow Antwerp. STRAWBERRIES, Sorts. GOOSEBERRIES.—Crown Bob, Warrington, Whitesmith, and Balloon. Large LAURUSTINUS, 3 feet; one and two-year ASPARAGUS; Double White and Yellow NARCISSUS, &c.

GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts.

IMMENSE GOOSEBERRY.—Strong plants of the splendid RED SEEDLING GOOSEBERRY named THE MARLBOROUGH for SALE, at 7*s.* 6*d.* per plant.

A Berry of this kind came out in 1860 weighing 27 dwts. 18 grains, and in the following year gained a Prize at the Seedling Gooseberry Show at Manchester.

Orders, accompanied by a Post-office Order, to be made to Mr. RICHARD LAVINGTON, Marlborough.

DILLISTONE AND CO., Sturmer and Woodlands Nurseries, one mile from the Haverhill Station, Colne Valley Railway, beg to offer a few thousand of the finest kinds of mixed LANCASHIRE GOOSEBERRIES, four years old; they consist of Crown Bobs, Companion, Troubler, Whitesmiths, Wellington Glory, and other large and good bearers. Price upon application.

All the popular kinds of ROSES on MANETTI, 2½ to 6 feet in height, price 6*s.* to 18*s.* per dozen, cheaper by the hundred.

A few hundreds of choice HOLLYHOCKS, same of best PANSIES, cheap and good plants, and will give satisfaction to the purchaser.

DILLISTONE'S 1st EARLY PEA, originated here, by the quart, peck, or bushel, with everything connected with the Nursery and Seed Business. Cash or reference is requested.

Sturmer, Nov. 21.

JAS. GARAWAY AND CO.'S AUTUMN CATALOGUE for 1863, containing Priced Lists of Shrubs, Ornamental Trees, Conifers, Roses, and Fruit Trees of all descriptions, is now ready, and will be forwarded Post-free on application.

Orders exceeding 5*l.* Carriage Paid to the Irish ports in direct communication with Bristol.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

JOSEPH FRYER, Clarendon Nurseries, Camberwell, S., has to offer a very large quantity of LILACS of various sorts and sizes, LIMES, POPLARS, LABURNUMS, SCARLET THORNS, IVIES, EUONYMUS JAPONICA, ALTHÆA FRUTEX, AUCUBA JAPONICA, LAURELS, GUELDER ROSE, PYRUS JAPONICA, GLYCINE, CLEMATIS. Fine Dwarf-trained APPLES, PEARS, PLUMS and APRICOTS. GRAPE VINES, FIGS, GOOSEBERRIES and CURRANTS, and other general NURSERY STOCK.

New Melon—Scarlet Perfection.

DOWNIE, LAIRD AND LAING have much pleasure in announcing that they have secured the stock of the above valuable SCARLET-FLESH MELON, and will shortly be prepared to execute all orders. It was awarded a First-class Certificate by the Fruit Committee of the Royal Horticultural Society, London, Oct. 6, 1863. The following is Dr. Hogg's report of it in *Cottage Gardener*, Oct. 13:—"Large-sized, ribbed, and of a very dark bottle-green colour; the flesh was, unlike Scarlet-flesh Melons, very tender and melting, remarkably juicy and rich. This is by far the richest-flavoured and best of all the Scarlet-fleshed Melons we ever tasted. It was very justly awarded a First-class Certificate." Price 2*s* 6*d.* per packet.

Stanstead Park, Forest Hill, London, S.E.; and Edinburgh.

CARTER'S NOVELTIES for 1864.

MIMULUS TIGRIDIOIDES.

LUPINUS ALBO COCCINEUS.

GODETIA ROSEO-ALBA, TOM THUMB.

TROPÆOLUM MAJUS PURPUREUS.

SWAINSONIA SPLENDENS.

CLARKIA PULCHERRIMA INTEGRIPETALA.

GILIA LACINIATA.

KAULFUSSIA ATROVIOLACEA.

LOBELIA PAXTONIANA.

Coloured Plates will be ready next week.

Price to the Trade on application to JAMES CARTER & Co., 237 and 238, High Holborn, W.C.

Novelties.

E. G. HENDERSON AND SON, Wellington Road, St. John's Wood, London, N.W.

FUCHSIA RIFLEMAN.

FUCHSIA NORTHERN LIGHT.

CAMELLIA PUNICEA.

AZALEA SOUVENIR DU PRINCE ALBERT.

VERBENA NOBILE CAROLINA FRANZIEUR.

STRAWBERRY TRIUMPH OF HOLLAND.

The Verbena is the most beautiful of all the Italian Striped kinds. The Strawberry the best Perpetual or Autumn bearing. The Azalea the most novel coloured.

Fruit Trees.

JOHN CRANSTON offers superior, healthy grown plants of all the best varieties of FRUIT TREES, DESCRIPTIVE CATALOGUES of which will be forwarded on application.

	Each.—*s. d.*
APPLES.—Very fine Dwarf-trained	2 6
,, Pyramids	2 6
,, Standards	2*s.* to 2 6
APRICOTS.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
CHERRIES.—Dwarf-trained	3*s.* 6*d.* to 4 6
,, Pyramids	2*s.* 6*d.* to 3 6
GRAPE VINES.—Standards	2 6
,, Very fine and well-ripened	3*s.* 6*d.* to 5 0
NECTARINES.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
PEACHES.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
PEARS.—Dwarf-trained	3 6
,, Pyramids	2*s.* 6*d.* to 3 6
,, Standards	2 6
PLUMS.—Dwarf-trained	3*s.* 6*d.* to 4 6
,, Standards	2 6
WALNUTS.—Standards	2 6
,, Extra strong	3*s.* 6*d.* to 5 0

GOOSEBERRIES, CURRANTS, FIGS, RASPBERRIES, STRAWBERRIES, &c.

PEACHES, NECTARINES, and APRICOTS, established in Pots for Orchard House Culture, 5*s.* each.

ASPARAGUS, two years	2*s.* 6*d.* per 100
SEA KALE, ,,	8*s.* per 100

Nurseries, King's Acre, near Hereford.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his New CATALOGUE, containing Select, Descriptive, and Priced Lists of Exotic Orchids, New and Rare Greenhouse, Hardy, and Stove Plants, Ornamental and Variegated-foliaged Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, &c., Hyacinths, Tulips, Gladioli, Narcissus, and other Bulbs, is now published and will be forwarded to all applicants.

Exotic Nursery, Tooting, Surrey, S.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON'S first importation of the above has arrived, and from the extraordinary heavy weight of the Bulbs they promise a fine bloom. Early orders are earnestly solicited. DESCRIPTIVE PRICED CATALOGUES free.

N.B.—17 FIRST PRIZES were awarded to WM. C. & SON last spring for HYACINTHS, TULIPS, and CROCUSES. In addition to this, EVERY FIRST PRIZE at the London Exhibitions to Amateurs was for Bulbs supplied by them.

The ONLY address is Highgate Nurseries, London, N.

DUTCH BULBS.—The following Collection for 10*s.*, (half the quantity 5*s.*):—12 best named HYACINTHS for pots or glasses, six fine POLYANTHUS NARCISSUS, 50 fine DUTCH CROCUS, 50 Double SNOWDROPS, 12 best EARLY TULIPS.

CATALOGUES of DUTCH BULBS and Choice GLADIOLUS free by Post.

J. H. COTTRELL, The London Seedsman, 15, Bull Ring, Birmingham.

Beck's New Pelargoniums,

OFFERED FOR THE FIRST TIME.

B. S. WILLIAMS begs to announce that he is now prepared to supply strong plants of the above, which have received certificates of the highest merit during the past and previous seasons. They have been selected with great care, and are far in advance of any yet offered.

For descriptions and prices see *Gardeners' Chronicle*, Oct. 24; also in CATALOGUE, which can be had on application.

Paradise and Victoria Nurseries, Holloway, London, W.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1072.

RHODODENDRON PRÆCOX.
,, ,, SUPERBUM.
,, ,, RUBRUM.

ISAAC DAVIES can now supply the above in nice bushy Plants, PRÆCOX with from 10 to 100, the others 1 to 10 flower buds, at from 3*s.* 6*d.* to 7*s.* 6*d.* each. SUPERBUM and RUBRUM are the best varieties.

Larkfield Nursery, Wavertree, near Liverpool.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

Rhododendron Countess of Haddington.

Good plants, 21*s.* each.

Vine Tynninghame Muscat.

Good plants, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each.

ROBERT PARKER begs to announce that he is now offering for sale the above first-class Plants. Full descriptions with List of Awards received are published in his NEW CATALOGUE of PLANTS and BULBS, which will be forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

New Hardy Continental Rhododendrons.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), begs to offer the following New Hardy RHODODENDRONS:—

	s. d.		*s. d.*
Rhododendron Comte de Gomer	4 0	Rhodo. Dr. Moore	6 0
,, Comtesse Salvi	6 0	,, Mrs. Barton	5 0
,, Dieudonné Spae	5 0	,, Mr. Stuart Low	6 0
,, Director Thelemann	5 0	,, Princess Alice	5 0
,, Duc Adolphe de Nassau	12 0	,, rubrum spectabile	4 0
		,, Verschaffeltii	8 0

The above varieties, raised by AMBROISE VERSCHAFFELT, are certainly of the finest and best varieties in trade.

The Set of the Eleven Varieties can be supplied for 3*l.*

New and Interesting Plants.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the following NEW and INTERESTING PLANTS:—

AMARYLLIS PROCERA, the blue flowering Amaryllis from Brazils, strong roots, 63*s.* each.
ALOCASIA ZEBRINA, strong plants, 30*s.* each.
MUSA ABACCA, a fine species, 18*s.* each.
RHODODENDRON AUGUSTE VAN GEERT, the largest flower of all the hardy kinds, 7*s.* 6*d.* to 21*s.*
YUCCA CANALICULATA FILAMENTOSA, fine plants, 7*s.* 6*d.*
AGAVE FILIFERA, 7*s.* 6*d.* to 21*s.*
,, PICTA, 5*s.* to 21*s.*
,, APPLANATA, most distinct, 7*s.* 6*d.* to 42*s.*
,, SCHIEDIGERA, 7*s.* 6*d.*
LIGUSTRUM OVALIFOLIUM VARIEGATUM, 7*s.* 6*d.*
LOMARIA FLUVIALIS, 30*s.* per doz.
,, DISCOLOR, 24*s.* per doz.
WOODWARDIA ORIENTALIS, strong plants, 24*s.* per doz.
TESTUDINARIA ELEPHANTIPES, strong, 21*s.* to 42*s.*
ENCEPHALARTOS CAFFRA, strong, 105*s.* to 210*s.*

CATALOGUES may be had on application.

NEW PEAR, BRITISH QUEEN (Ingram).

CHARLES TURNER

Has much pleasure in offering this beautiful PEAR. The following description is supplied by Mr. Powell, of the Royal Gardens, Frogmore:—

"This Queen of Pears was raised by Mr. Ingram, Gardener to her Majesty at Frogmore, and considered by all who have had the opportunity of testing its merits, to be the best Pear ever raised. The late Prince Consort was so pleased with the Fruit, that he characterized it as the best Pear he had ever tasted. It received a First-class Certificate from the Fruit Committee of the Royal Horticultural Society, in 1861, and since maintained its character by taking the First Prize at the great Autumn Show of the above Society, in 1862. The Fruit is large, pyramidal in form, skin smooth and glossy, of a fine golden yellow, partly spread with cinnamon russet, and often a tinge of lively crimson on the sunny side; flesh yellowish white, very fine grained, with an abundance of juice, which is saccharine and rich, with a fine aromatic flavour; in beauty and excellence it has no equal; ripe in October and November."

Plants, 10s. 6d. & 15s. | Dwarf-trained, 20s. | A few Fruiting Pyramids, 42s.

A Coloured Drawing may be had, post free, for 12 *Postage Stamps.*

A CATALOGUE of ROSES is now ready.

SPRING EXHIBITIONS.—The following will be found worth the attention of Cultivators, as the finest kinds for competition, also for Winter and Spring Display in the Conservatory. The quality of all is first-class :—

PRIMULA SINENSIS, with Fimbriated Flowers.

P. ALBA	P. CARMINATA RUBRA
P. RUBRA	P. FILICIFOLIA
P. PICTA	P. „ ALBA.

PRIMULA SINENSIS, with Double Flowers.

NIVEA PLENA	ALBA PLENA FIMBRIATA
ALBA PLENA	ATROROSEA PLENA FIMBRIATA.
ROSEA PLENA	
RUBELLA PLENA	

CALCEOLARIA PLANTS.—This stock is carefully hybridised
CINERARIA PLANTS.—Best sorts, by name.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

MESSRS. BROWN AND CO. offer the following Selection of CHOICE PLANTS, which they will forward to any part of the kingdom :—

	s.	d.
25 AZALEAS, new hardy Belgian varieties, one of a sort, on their own roots, by name	20	0
25 AZALEAS, hardy American varieties, do. do. ..	15	0
12 Hardy RHODODENDRONS, one of a sort, including Scarlet, White, and Rose colour	12	0
Hardy HEATHS, LEDUMS, and KALMIAS, per doz.	6	0
ROSES, best sorts, Standards and Half Standards, per dozen, 12s. to	15	0
CLIMBING ROSES, of best sorts .. .. per dozen	6	0
PILLAR and TRELLIS ROSES .. .. „	9	0
DWARF ROSES for beds or forcing, including Bourbons, Teas, and Perpetuals .. per dozen	12	0
Choice Hardy PINUS and other CONIFERÆ. Cheap. Price List by post.		
Greenhouse AZALEAS, fine varieties, per dozen, 10s. to	15	0
CAMELLIAS, best double varieties .. per dozen	28	0

CHOICE FRUIT TREES.

Fine Standard and Dwarf-trained Peaches, Nectarines, Apricots, Cherries, Apples, Plums, and Pears, 2s. 6d. each, or 24s. per dozen.

Dwarf Plants of all the above kinds, grown especially for pot culture in Orchard Houses, &c., 18s. per dozen.

Filberts, Gooseberries, Currants, and Raspberries, p. doz., 3s.

American Nurseries, near Farnham, Surrey.—Nov. 21.

GEO. DAVIES begs to offer to the Trade the undernamed :—

ARAUCARIA IMBRICATA, from pans, 2 to 4 inches, 20s. per 100 ; 4 to 5 inches, 25s. per 100.
ACROPHYLLUM VENOSUM, 3 to 6 inches, 36s. per dozen.
GENETYLLIS TULIPIFERA, 6 to 12 inches, 36s. per dozen.
„ HOOKERII, 6 to 12 inches, 36s. per dozen.
RHODODENDRON RETUSUM, 6 to 12 inches, 30s. per doz.
„ „ 12 to 15 inches, bushy, 36s. per dozen.

Reference or Remittance from unknown Correspondents.

Green Lane Nurseries, Old Swan, Liverpool.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application ; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANS PLANTED FOREST TREES, &c.

Woking Nursery, Surrey.

Handsome Specimen Trees.

CEDRUS DEODARA, 8 to 9 feet high, 5 feet in diameter, 25s. to 31s. 6d. each.

Ditto, 10 to 12 feet high, 7 feet in diameter, 42s. each.
Splendid trees, and all recently removed.
WELLINGTONIA GIGANTEA, 4 to 5 feet high, 4 feet in diameter, 63s. each.
Ditto, 6 to 7 feet high, 5 to 6 feet in diameter, 105s. each.

These trees have all been prepared early this autumn, and will remove safely, with fine fibrous rooted balls of earth.

Apply to GEO. JACKMAN & SON, Woking Nursery, Surrey.

SPECIAL OFFER of SHRUBS and TREES.—The Subscriber having an abundant Stock of the following, he is prepared to offer same much below the usual rates. The undernoted is well worthy the attention of the Trade and parties about to plant, the Subscriber's Nursery having been for the past 50 years famed for producing particularly fine rooted plants. Prices per 100 and 1000 on application.

AUCUBA JAPONICA, 12-inch ; APPLE STOCKS, 1-year do. 2 feet, Transplanted ; ARBORVITÆ, AMERICAN, 1-year laid, 6 to 12-inch ; AZALEA PONTICA, 12-inch ; BARBERRY, COMMON, 12-inch ; BIRD CHERRY, 2 to 3 feet ; BIRCH, Transplanted, very scarce, 1½ feet ; RED CEDARS, 9-inch ; CUPRESSUS MACNABIANA, 2 feet ; CUPRESSUS THUJOIDES, 6-inch ; EUGENIA UGNI ; 3-year SEEDLING SILVER FIR ; 2-year SEEDLING HAZEL ; GREEN HOLLIES ; 1-foot LAUREL, COMMON ; 1 to 3-feet PEAR STOCKS ; 1-year SEEDLING, and 2½-feet Transplanted PINUS CEMBRA, 3-feet, very fine specimens ; PINUS AUSTRIACA, 1 to 2-feet ; QUINCE STOCKS, 2 feet, very fine stems. SPURGE LAUREL, 1 to 2 feet.

ROBERT T. MACKINTOSH, Nurseryman and Seedsman, 12, Melbourne Place, George IVth Bridge, Edinburgh.

Nursery, Leith Walk.

To Gentlemen Planting.

MR. MASTERS informs gentlemen requiring large Plants for Parks, Shrubberies, &c., that he has fine Trees of ENGLISH and TURKEY OAKS, LIMES, SYCAMORES, NORWAY MAPLE, ACACIAS, LABURNUM, MAPLES, ALDER, in great quantity ; also SCOTCH and SPRUCE FIRS, as well as a large Collection of CONIFERS, and a very extensive Collection of the best EVERGREENS and FLOWERING SHRUBS, including an acre of RHODODENDRONS. Prices upon application.

Exotic Nursery, Canterbury.

To Noblemen, Gentlemen, and Others, engaged in Planting.

JOHN PERKINS begs to offer in large quantities extra-fine BLACKTHORNS, PRIVET, and GORSE, for covert planting ; 2 Millions of twice-transplanted LARCH FIR, from 1½ to 2, 2 to 3, and 3 to 4 feet ; 2 Millions of WHITETHORN, 2, 3, and 4 years transplanted ; 2 Millions of WHITETHORN in Drills, 2 years, extra fine ; 5000 CEDRUS DEODARA, 2 to 3, 3 to 4, 4 to 5, 6 to 8 feet, perfect specimens.

Also, in large quantities, suitable for extensive new Plantations, Ash, Alder, Beech, Birch, Spanish and Horse Chesnuts, English and Turkey Oaks, Elms, Spruce and Scotch Firs, Poplars, Sycamore, Box, Laurels, Berberis aquifolia, Cotoneaster, &c.

Price of the above forwarded on application to 52, Market Square, Northampton.

New Chrysanthemums.

JOHN SALTER'S COLLECTION of these beautiful Flowers is NOW in FULL BLOOM. The Winter Garden contains all the finest varieties in cultivation, together with the NEW CHRYSANTHEMUMS for 1864. The Gardens are open every day except Sunday.

Versailles Nursery, William Street, near Hammersmith Turnpike and the Kensington Railway Station.

DOBSON'S SUPERB SEEDS.—
CALCEOLARIA, 1s. 6d., 2s., 3s, and 5s. per pkt.
CINERARIA, 1s., 2s. 6d., and 5s. ditto.
PRIMULA, 1s., 2s. 6d., and 5s. ditto.
HOLLYHOCK, 1s, 2s. 6d., and 5s. ditto.

The above are unequalled for quality. Liberal Trade allowance.

Woodlands Nursery, Isleworth, W.

Scarlet Clove—Princess of Wales.

WILLIAM TOOGOOD has much pleasure in offering for the first time the above distinct CLOVE, which he can confidently recommend as being very hardy, and a free bloomer. Price 5s. per pair.

Westergate Nursery, near Arundel, Sussex.

YEW, TAXUS ERECTA (CROWDER'S).—The Raiser of this beautiful Evergreen is now sending it out at greatly reduced prices. It was awarded a First-class Certificate of Merit by a Committee of the Horticultural Society, as being the most distinct Pyramidal Yew in cultivation.

The Nurseries, Horncastle.—Nov. 21.

TO GENTLEMEN PLANTING.—Extra strong HOLLIES, ARBOR-VITÆS, YEWS, AUSTRIAN PINE, BERBERIS, HORSE CHESTNUT, LABURNUMS, LIMES, &c., at very low prices.

Apply to WM. BOOSEY, Nurseryman, Middlewich, Cheshire.

SPECIAL OFFER to the TRADE.—
BERBERIS AQUIFOLIA, 1 foot, 40s. per 1000.
SPRUCE FIRS, 1½ to 2 feet, stout, 16s. per 1000.
HOLLIES (shifted last May), 1 to 1½ foot, 12s. per 100.
Do. do., very bushy, 1½ to 2 feet, 18s. per 100.

Also strong EVERGREEN PRIVET, AUSTRIAN PINE, QUICK, &c. Cash or reference.

Apply to WM. BOOSEY, Nurseryman, Middlewich, Cheshire.

Laurels.

FOR SALE, several Thousands of Well-grown and thriving LAUREL PLANTS, from 2 to 3 feet high, delivered at the Tisbury Station on the London and South-Western Railway, in quantities not less than 1000, at 25s. per 1000.

Apply to Mr. JEFFERY, Old Wardour Castle, Salisbury.

Trees,—To Nurserymen and Others.

WANTED, from One to Three Dozen fine straight ACACIA TREES, 10 or 12 feet in the stem clear of the head and root, and 2 to 3 inches girth ; heads 4 to 5 feet above the stem. Also similar-sized LIMES, and a few good AILANTHUS and PLANES.

Apply to J. S. PHENÉ, Esq., Architect, 34, Oakley Street, Chelsea, S.W.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable ; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength ; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c. ; and a most extensive general Nursery Stock.

For Prices and Conditions of Free Delivery see Catalogue, which will be forwarded on application.

W. VIRGO AND SON have a very large Stock of the following to offer for Sale at very moderate prices :—

Apples, espalier	Laburnum, 6 to 8 ft.
Beech (Common), 3, 4, to 6 ft.	Laurel, Common, 2 to 3 ft.
Berberis aquifolia, 12 to 18 in.	Ditto, Portugal, 1 to 2 ft.
Ditto dulcis, 1, 2, to 3 ft.	Mountain Ash, 6 to 9 ft.
Briar (Sweet), 2 to 3 ft.	Oak, English, 3, 4, to 5 ft.
Cherries, espalier	Ditto, 2 years seedling
Ditto, standard	Ditto, Turkey, 3 to 4 ft.
Cotoneaster microphylla, 9 to 12 in.	Poplars of various kinds, 4 to 6 ft.
Holly, Green, 9 to 12 in.	Privet, 2 to 3 ft.
Hazel, 1 year seedling	Sycamore, 3, 4, 5, to 6 ft.

All the above are strong, healthy, and well rooted.

Samples with prices can be had on application at the Nursery, Wonersh, near Guildford, Surrey.

The Nurseries, Folkestone, Kent.

JAMES MEIKLE specially offers BLACK ITALIAN and ONTARIO POPLARS, fine healthy transplanted plants, 8 to 12 feet high, well adapted for bleak localities, seaside planting, or to produce immediate effect.

Also a General Stock of ORNAMENTAL TREES and SHRUBS, FRUITS, &c., all repeatedly transplanted and warranted to move safely.

Carriage paid to London, or any Station on the South Eastern Line.

A DESCRIPTIVE ROSE LIST, free on application.

General Nursery Stock.

S. PONSFORD begs to announce that his Stock of the above is this season unusually fine. It consists of everything in demand for general planting. The most conspicuous are STANDARD and DWARF ROSES ; FRUIT TREES of every description, including WALL TREES (very fine) ; PYRAMIDAL, BUSH and STANDARD APPLES, PEARS, &c. ; STANDARD MULBERRIES, extra fine ; EVERGREEN and DECIDUOUS SHRUBS, frequently removed ; CHINESE ARBOR-VITÆ, all sizes ; ANDROMEDA FLORIBUNDA, &c. CONIFERÆ of the known hardy kinds. LIMES, POPLARS, MOUNTAIN ASH, &c.

PRICED CATALOGUES gratis.

Loughborough Park Nurseries, Brixton, Surrey, S.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, Waterloo Place, Edinburgh, respectfully invite the attention of gentlemen who are about to be engaged in planting, to their extensive stock of FOREST and ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, &c., all of which are in fine condition for removing at present, the wood having been thoroughly matured by the unusually favourable summer.

PRICED CATALOGUES and samples can be had free on application.

SEPARATE CATALOGUES can also be had of Rhododendrons and Conifers, Stove and Greenhouse Plants, and Ferns, Herbaceous and Alpine Plants, New Pansies, Florists' Flowers, Dutch Flower Roots, Gladiolus, Vegetable and Flower Seeds, Agricultural Seeds, &c.

WHOLESALE NURSERY LIST to the Trade on application.

Forest Trees, Shrubs, &c.

PETER LAWSON AND SON, THE QUEEN'S SEEDSMEN, Edinburgh and London, have to announce that their PRICED CATALOGUE for the present season is now ready, and will be forwarded Free on application.

Their stock of SEEDLING and TRANSPLANTED FOREST TREES, ORNAMENTAL SHRUBS, &c., is at present very large, and of superior quality. If requested, special offers will be made to those intending to plant largely.

Edinburgh.—Nov. 21.

Forest Trees and Shrubs.

THOMAS KENNEDY AND CO., NURSERYMEN and SEEDSMEN, Dumfries, N.B., beg respectfully to call the attention of the nobility and gentry of Great Britain and Ireland to their extensive stock of FOREST TREES and SHRUBS, which they are selling at very moderate prices.

CATALOGUES furnished on application.

*** Dumfries from its central position and railway accommodation is most favourably situated for the speedy transmission of goods to all parts of the kingdom.

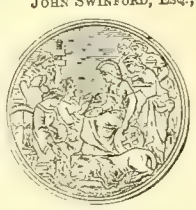
Hardy Trees, Shrubs, and Plants.

W. SHORT begs respectfully to acquaint the Nobility, Gentry, and Planters that his COLLECTION of DRIED SPECIMENS of the FOLIAGE of HARDY TREES, SHRUBS, and PLANTS contains 300 rare and select species and varieties, and that he has devoted much of his time in studying the habits and growths, with the peculiar soils and localities adapted to the development of Trees, Shrubs, and Plants which endure the climate of the United Kingdom.

Reigate, Surrey—November 21.

Carter's Champion Broccoli.

A DWARF AND COMPACT-GROWING LARGE-HEADED LATE WHITE BROCCOLI, RAISED IN 1858 BY MR. SWINHERD, GARDENER TO JOHN SWINFORD, ESQ., MINSTER ABBEY, KENT.





JAMES CARTER AND CO. have much pleasure in calling special attention to the above first-class variety of BROCCOLI ; it has been thoroughly proved by them for the last five seasons, and they can with confidence recommend it as being the BEST LATE WHITE BROCCOLI in CULTIVATION.

The following unsolicited testimonials have been received :—

Extract from the *Gardeners' Chronicle* of May 2S, 1859 :—

"Messrs. Carter & Co. have sent us specimens of a new Broccoli with the following memorandum :—'This Broccoli has been proved side by side with the Wilcove Late White, Ward's Late White, Reading Giant Late White, Dwarf Danish, and other approved late kinds, and has shown itself superior to all of them. The Wilcove Late White are finished cutting more than a fortnight since ; this variety is just coming in, and fine heads will be cut for the next 10 days.' The heads forwarded to us were of the finest possible quality, very large, not in the least coarse, white rather than cream-coloured, and proved when cooked to be wholly free from the strong taste which spoils so many Broccolis."

Extract from *Essex Telegraph*, September 1, 1863.

"Carter's Champion, a late variety, producing very large heads, white."

Extract from the *Gardeners' Chronicle* of Saturday, Oct. 3, 1863.

"Among Broccolis, Carter's Champion stands at the head, being the latest variety in cultivation, very large, white and unusually free from the strong taste which spoils so many Brocolis."

Letter received from ARTHUR HENDERSON, Esq., Pine Apple Place Nurseries, Edgware Road.
"Pine Apple Place, Edgware Road, London, W.
"November 9, 1863.

"DEAR SIRS,—A friend of mine in Bedfordshire sent me some very fine heads of your Broccoli 'Carter's Champion,' certainly a most excellent variety. He says : 'With me this kind comes so dwarf and keeps so close to the ground that the wintry weather and wind has no effect in hurting it ; other varieties suffered, whereas this Brocoli escaped and produced fine large heads.' He also states : 'I have some dozens equal to those sent you to-day, May 28. Cauliflower with me will be fit to cut before this Champion is over. This is what has been wanting for many a long year ; a vegetable of this kind is a trump card worth a trifle.' I saw this Broccoli afterwards myself, and it is a really excellent and compact variety, with large round and close heads, flavour sweet and first-rate ; growth equal and alike as if turned out of a machine. There is no mistake in this being one of the right things ; coming in so late is another valuable consideration ; it certainly fills up the gap or interval between the Broccoli and Cauliflower.

"Yours faithfully, ARTHUR HENDERSON."

Messrs. JAMES CARTER & Co., High Holborn, London, W.C.

Price 1s. per packet, to be had TRUE TO NAME of the following.

Messrs. AUSTIN & MCASLAN	.. Glasgow.
„ BALLANTYNE & SON	.. Dalkeith.
„ BARR & SUGDEN ..	.. Covent Garden.
„ J. & T. BLACK ..	.. Jedburgh.
„ BUTLER & MCCULLOCH ..	Covent Garden.
Mr. E. COOLING	.. Derby.
„ W. DEANS	.. Jedburgh.
Messrs. F. & A. DICKSON & SONS,	Chester.
„ JAS. DICKSON & Co.	.. Edinburgh.
„ JAS. DICKSON & SONS	.. Edinburgh.
Mr. W. DODS	.. Haddington.
Messrs. EDMONDSON BROS.	.. Dublin.
„ A. HENDERSON & Co.	.. Edgware Road.
Mr. G. INGLIS	.. Dron.
Messrs. LAIRD & SINCLAIR	.. Dundee.
„ E. SANG & SONS ..	.. Kirkcaldy.
Mr. G. SIBBALD	.. Dundee.
Messrs. SMITH & SIMONS ..	.. Glasgow.
„ STUART & MEIN ..	.. Kelso.
„ SUTTON & SONS ..	.. Reading.
Mr. W. TAYLOR	.. Cupar, Fife.
Messrs. J. C. WHEELER & SON	.. Gloucester.
Mr. G. WHITE	.. Paisley.
Messrs. W. WOOD & SON ..	.. Maresfield.

A more complete LIST of NAMES will be published December.

JAMES CARTER & Co., 238, High Holborn, W.C.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified in the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6*l.* per Ton, or 8*s.* per cwt.; and to prevent disappointment orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts. Sacks, 2*s.* each.

Seed Potatoes.

H. AND F. SHARPE are now taking orders for all the principal varieties of Seed Potatoes, including MYATT'S EARLY PROLIFIC KIDNEY, and EARLY DALMAHOY (round), the earliest and most productive varieties in cultivation. The quality is very fine and prices low.
Seed Growing Establishment, Wisbech.

To the Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED MERCHANT, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and will be forwarded free on application to his Agent, GEO. MACINTOSH, Nurseryman, High Road, Hammersmith, W., to whom all communications should be addressed.

FOR SALE, 200 Large Roots of EARLY RHUBARB, fit for forcing, at 5*l.* Several thousand 4-year old ASPARAGUS ROOTS, at 5*s.* per 100, or 2*l.* per 1000. Some hundred SEAKALE, at 5*s.* per 100.
Also TREES and SHRUBS, including Planes, Chesnuts, Birch, Oaks, Walnuts, Poplars, Acacias, Laburnums, and several small Limes; some fine Aucubas, Laurels, Privets, &c., to be disposed of a bargain, the ground to be cleared by Christmas. Apply to
A. LAIDLAW, 17, Church Street, Stoke Newington, London, N.E.

WANTED, about 16,000 each HAZEL and ENGLISH OAK; must be strong, healthy plants, 3 to 3½ feet high, and have been regularly transplanted. Parties offering the same may apply, with prices, &c., to Mr. LEWES or T. W. BOOTH, Gardener, Arley Hall, Northwich, Cheshire.

Nursery and Seed Establishment, Hastings.

WILLIAM EPPS, JUN., begs to inform his numerous patrons that he has REMOVED from Ashford, and opened a new Establishment as above; and trusts to merit a continuance of their favours.
W. E., JUN., has had the honour of being patronised by the Royal Family of Hesse, the Grand Duchess Constantine, and the Japanese Ambassadors.

FERN STANDS, filled complete, suitable for presents, 4*s.* 6*d.* each; BRITISH and FOREIGN FERNS, immense quantity; HYACINTHS, best named, 6*s.* per dozen; Ditto MIXED, 20*s.* per 100; CROCUS, 8*s.* per 1000, &c GOLD and SILVER FISH; FOREIGN BIRDS and CAGES of every description.
R. GREEN, Bedford Conservatories, Covent Garden Market, W.C.; and 154, Kingsland Road, N.E.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.* 4 cwt.; ditto Clarified fine or sharp, 2*s.* 6*d.* cwt., put on the Rail at Reigate.
Best and second quality PEAT SOIL, LOAM, &c.
N B. Loaded Trucks can be sent on all the principal Railways.
W. SHORT, Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'



Magnified Aphis.

NEAL'S PLANT SOAP and APHIS PASTILS,
1*s.* and 2*s.* per packet,
may be obtained from all respectable Seedsmen.
Testimonials forwarded on application to the Patentee,
J. NEAL,
Edward Street, Birmingham.

Winter Dress all Fruit Trees with

GISHURST COMPOUND.



Red Spider Magnified.

Copy of a Letter from Mr. RIVERS.
"Nurseries, Sawbridgeworth, Herts, Oct. 22, 1861.
"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."
For Orchard-house Trees 4 ounces to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.
GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), Belmont Vauxhall, London, S.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE, Address 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.
116, Fenchurch Street, E.C.

Autumn Sowing.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),
Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.
Chairman.—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.
Offices: 109, Fenchurch Street, London, E C.
Manufactory: Plaistow Marshes, Essex.
ODAMS'S BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, has been in use for upwards of 11 years, and has given great satisfaction to consumers.
Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.
Offices: 109, Fenchurch Street, London, E.C.
Price 7*l.* 10*s.* per Ton, delivered at any Railway or Wharf in London.

LAWES'S WHEAT MANURE for AUTUMN SOWING.
A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8*l.* per ton.
2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

SUPERPHOSPHATE of LIME	£6 6
MINERAL SUPERPHOSPHATE	5 5

Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.
American and other Cakes at market prices.
Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

SHAW'S TIFFANY,
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

The Original Seed Bag Manufactory.

ALEXANDER NICOL AND CO.,
MANUFACTURERS of
SEED BAGS, CORN SACKS, &c.
Chalmers Street Works,
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Russian Mats.

FOR SALE, a large STOCK of the above, of various descriptions.
Apply to CHAMBERS & FARGUS,
Importers, &c.,
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ANDERSON'S ARCHANGEL MATS are the best for all Garden purposes. PETERSBURG and PRUSSIAN DUNNAGE MATS. SACKS and BAGS of every description. ROPES, LINES, and TWINES.
Prices sent free on application.
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GARDEN BORDER-EDGING TILES, in great variety of patterns and material.
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability.
May be obtained at F. & G. ROSHER'S Premises, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; and Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.
To be obtained of F. & G. ROSHER at their Premises as above.

Garden and Architectural Decorations in Terra Cotta.

PRIZE MEDALS OF 1851 AND 1862 AWARDED TO
JAMES PULHAM, Broxbourne, Herts. Also Notice of ARTISTIC MERIT, and of SOUND DURABLE MATERIAL in FOUNTAINS, VASES, FIGURES, FERN CASES, and BRACKETS, CONSERVATORY TUBS, with rising bottoms, &c.
The novel FERNDELABRUM.—To grow SIXTY FERNS (or Flowers) on a space 4 ft. 8 in. over, 8 ft. high, &c.
Guaranteed to stand frost an unlimited time.
Stereographs sent to inspect for 12 stamps.
Illustrations in the *Art Journal Catalogue*, the *Masterpieces*, and *Gems of the Exhibition*.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from the COLD WINDS & MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1*s.* 8*d.* per yard run.
Four yards wide	3*s.* 4*d.* per yard.
An improved make, 2 yards wide,	1*s.* 9*d.* per yard.
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Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

Horticultural Agent and Valuer.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS) continues to undertake all kinds of VALUATIONS connected with Horticulture.
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Landscape Gardening.

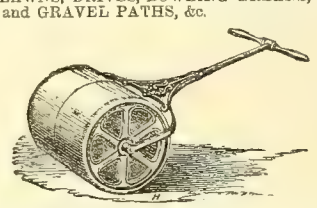
MR. GEO. H. STOKES, ARCHITECT, engages to prepare DESIGNS for Laying Out ESTATES and ORNAMENTAL GARDENS, having been for upwards of 17 years Principal, under Sir Joseph Paxton, M.P., in the preparation of similar Designs, including those for the Crystal Palace at Sydenham.
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TREE and PLANT LABELS.—10,000 CLOTH or PATENT PARCHMENT PUNCHED LABELS for 30*s.* Delivered free in London on receipt of a Post-office Order or Stamps for the amount.—Address, JOHN FISHER & Co., West Road Works, Boston, Lincolnshire.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS and MACHINES of every description.
Illustrated Catalogues on application.
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

AGRICULTURAL IMPLEMENTS.—Steam Engines, Threshing Machines, Carts, Waggons, Ploughs, Harrows, Turnip Cutters, Chaff Cutters for hand and power, Lawn Mowers, Prize Churns, Cask Stands, Wire Netting, Garden Tools of all kinds.
Illustrated Catalogues on receipt of 6 stamps. Price Lists free.
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GREEN'S IMPROVED NEW PATENT ROLLER for LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS, &c.



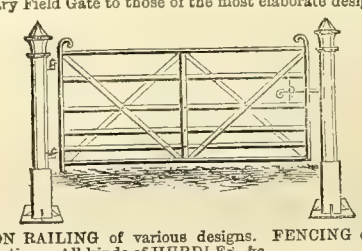
These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the very best materials, and are got up in a manner surpassing any ever yet brought out.

PRICES:—

Diameter 30 inches, length 32 inches ..	..	£7	0 0
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Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

ENTRANCE GATES, either in Wrought Iron or Cast and Wrought Iron combined, ranging from the ordinary Field Gate to those of the most elaborate design.



IRON RAILING of various designs. FENCING of every description. All kinds of HURDLES, &c.
Drawings and Prices free on application to COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

1000 GARDEN TARPAULINGS, very thick, 8 feet by 4 feet, with 6 brass eyelet holes, 32*s.* per dozen, made up any size at 9*d.* per square yard. GARDENERS' WATERPROOF CAPES, 3 feet deep, 3*s.* 6*d.* each. POLICE CAPES, 18*s.* to 30*s.* per dozen. HORSES' NOSE BAGS, Cocoa Nut Fibre, full size, with Straps, 18*s.* per dozen, or 1*s.* 9*d* each HORSES' LOIN CLOTHS, lined with Woollen and Strapped, 7*s.* each. WOOLLEN HORSE CLOTHS for Stable, Cart and Waggon Covers.
R. RICHARDSON, 99, Euston Road, London, N.W.

Gutta Percha Tubing for Watering Gardens.

THE GUTTA PERCHA COMPANY have the pleasure to acknowledge the receipt of the following
Testimonial from Mr. J. FARRAH, *Gr. to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*
"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."
Manufactured by the GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C., and sold by their Wholesale Dealers in town and country.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

Superb Double Hollyhocks.

WILLIAM CHATER'S NEW LIST is now ready, and may be had on application by enclosing one Postage Stamp.

P.S. A large stock of FINE PLANTS now ready.

Nurseries, Saffron Walden.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

JAPAN LILIES, Extra strong Flowering Bulbs.

	Each—s.	d.
LILIUM LANCIFOLIUM ALBUM	1	0
,, ,, ROSEUM	1	3
,, ,, RUBRUM	1	3

Three each of the above, 10s.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

GLADIOLUS.—Flowering Bulbs of Seedlings, from all the best brilliant Red, Yellow, and White varieties, at 15s. per 100, or 6d. per 1000. Also a few hundred named Bulbs, including most of the best and high priced varieties, in one lot, at 1l. 5s. per 100.

Apply to C. CLARK, Stamford.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz. ; 20s. per 100.

Trade price on application,

Royal Nurseries, Great Yarmouth, Norfolk.

Prize Gladioli.

YOUELL AND CO. were awarded the following PRIZES for the above in September last :—

FIRST AND SECOND PRIZE, CRYSTAL PALACE,
FIRST PRIZE, ROYAL HORTICULTURAL SOCIETY,
FIRST PRIZE, BRIGHTON.

CATALOGUES of this collection will be forwarded on application.

Royal Nurseries, Great Yarmouth, Norfolk.

Choice Gladioli.

B. S. WILLIAMS has great pleasure in announcing that he has a Choice Collection of each class of these popular Bulbs. Also a Select List of the New Varieties raised this year. The Bulbs are very fine, and early orders are respectfully solicited.

Collection of 24 Choice Varieties, one root of each, for 21s.
Choice named Varieties, 6s., 8s., and 10s. per dozen.
A PRICED and DESCRIPTIVE LIST on application.

Paradise and Victoria Nurseries, Holloway, London, N.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his three new PRICE LISTS, No. 97, 98, and 99, containing the Stove, Greenhouse, and Hardy Plants (212 pages 12mo).

Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

NEW FUCHSIAS (post free). NORTHERN LIGHT and RIFLEMAN, now sending out; Blue and Mauve-coloured Corollas. 5s. each.

EMPEROR of the FUCHSIAS, the most beautiful and elegant white corolla'd variety.

E. G. HENDERSON & SON, Wellington Road, London, N.W.

To the Trade.

AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds at moderate prices, an inspection solicited.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

ANDROMEDA FORMOSA (TRUE).—Fine strong Plants, averaging 1 foot, 60s. per 100. Selected specimens, very fine, averaging 2 feet, 12s. per doz.

The above beautiful hardy evergreen shrub is strongly recommended.

W. H. ROGERS, Red Lodge Nursery, Southampton, has the only large stock in the Trade.

ROSES.

THE FINEST ROOTED PLANTS IN THE COUNTRY.

THIRTY-SEVEN PRIZES FOR ROSES ALONE WERE WON DURING THE PRESENT YEAR BY

WILLIAM PAUL

(SON and SUCCESSOR to the late A. PAUL).

Twenty-one of which were FIRST PRIZES won at the PRINCIPAL LONDON FLOWER SHOWS.

Entrance from the Platform, Waltham Station (Great Eastern Railway). Half an hour's ride from London.

BARR & SUGDEN 12 KING ST COVENT GARDEN

Orders amounting to 21s. sent Carriage Paid.

BULBS FOR PRESENT PLANTING.

POMPON HYACINTHS, for Flowering in Masses, 3s., 4s., and 5s. per dozen.
CROCUS, fine mixed, 12s. 6d. per 1000.

The No. 4, £2 2s., Collection of Bulbs; Half, £1 1s.; Quarter, 10s. 6d.

Part for the Conservatory or Sitting Room, and part for the Flower Garden.

25 NAMED HYACINTHS	24 TULIPS for Indoor Culture	100 ANEMONES
25 BORDER ditto	100 Ditto for Out ditto ditto	50 IRIS
12 POLYANTHUS NARCISSUS	200 CROCUS	4 JAPAN LILIES
100 GARDEN ditto	100 RANUNCULUS	12 WHITE LILIES

The No. 5, £2 2s., Collection of Bulbs; Half, £1 1s.; Quarter, 10s. 6d.

For the Decoration of Sitting Room and Conservatory.

30 NAMED HYACINTHS, in 30 vars.	12 Dbl. SWEET-SCENTED JONQUILS	18 IXIAS, in 6 vars.
12 POMPON ditto in 12 vars.	100 NEW CROCUS in 10 vars.	18 SPARAXIS, in 6 vars.
12 POLYANTHUS NARCISSUS, in 12 vars.	4 JAPAN LILIES, in 3 vars	12 ANOMATHECA CRUENTA
50 TULIPS, in 16 vars.	12 ACHIMENES, in 6 vars.	4 WATSONIAS
	12 LACHENALIAS, in 4 vars.	4 DIELYTRA SPECTABILIS

The No. 6, £2 2s., Collection of Bulbs; Half, £1 1s.; Quarter, 10s. 6d.

For Ornamenting the Flower Garden.

50 HYACINTHS	150 RANUNCULUS	4 JAPAN LILIES	3 ARUMS
100 NARCISSUS	150 ANEMONES	12 WHITE ditto	3 ANTHOLYZAS
200 CROCUS	24 GLADIOLI	50 ENGLISH IRIS	3 WATSONIAS
150 TULIPS			

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN.

NEW HARDY LATE FLOWERING RHODODENDRONS.

PRINCE OF WALES.

Brilliant rose shaded with purple, divided black marking on the upper petals, compact truss, good substance, a profuse bloomer, very hardy, and flowers end of June.

Strong young plants, 21s. each. | A few larger ones, 42s. each.

PRINCESS OF WALES.

Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, compact truss and good substance. TOTALLY DISTINCT FROM ANY KNOWN RHODODENDRON. Hardy and late. A really beautiful variety.

Strong plants, 21s. each. | Larger, 42s. each. | A few extra size, 63s. each.

One Plant over in three to the Trade.

MAURICE YOUNG has much pleasure in now offering for the first time the above distinct and beautiful RHODODENDRONS, which he can confidently recommend as most desirable additions to this noble class of hardy evergreens. They have both been proved for several years in the open ground to be very hardy, free bloomers, compact truss, and very late—possessing every qualification which can be desired in a first-class Rhododendron.

COLOURED PLATES by ANDREWS are now ready, and will be forwarded on receipt of 25 postage stamps.

MAURICE YOUNG (SON and SUCCESSOR to the late WILLIAM YOUNG), MILFORD NURSERIES, NEAR GODALMING.

CHOICE ORCHIDS. SACCOLABIUM HARRISONIANUM.

HUGH LOW & CO.

Have pleasure in announcing that they have received from Pulo Copang, in the China Sea, a SACCOLABIUM with WHITE and FRAGRANT FLOWERS. The habit of the Plant is very fine; leaves thick and broad, very much resembling those of Saccolabium violaceum. The flowers are very large, and the species is evidently a most abundant flowering one, as on an imported stem, 6 inches in height, 7 flower spikes can be counted, those which are unbroken measuring 13 inches in length. The odour emitted by the flowers very closely resembles that of Aerides odoratum.

The stock held by H. L. & Co. being large, they are enabled to offer this fine Orchid in really good Plants at an unusually low price, singly or by the dozen.

The Plant is now in flower at the Nursery, and H. L. & Co. will have pleasure in shewing it to gentlemen who may favour them with a visit.

PHALÆNOPSIS SCHILLERIANA and PHALÆNOPSIS ROSEA, in quantity.

CLAPTON NURSERY, LONDON, N.E.

New Plants.

MR. WILLIAM BULL begs to announce that his NEW PLANTS from Brazil, Central America, Australia, Bombay, Java, New Caledonia, and Guatemala, are now ready for delivery. For particulars *vide* Advertisement in *Gardeners' Chronicle*, Nov. 7.

A DESCRIPTIVE PRICED LIST of Novelties can be had on application.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

SUTTON'S
Unrivalled Collections of Bulbs.

SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.

SUTTON'S GUINEA COLLECTION for BEDS and BORDERS.

For particulars see SUTTON'S AUTUMN CATALOGUE, which may be had Gratis and Post free.

SUTTON & SONS,
Royal Berks Seed Establishment,
Reading.

THE PLYMOUTH SEED COMPANY LIMITED is AMALGAMATED with the LONDON SEED COMPANY LIMITED.
Registered Offices: 68, Welbeck Street, Cavendish Square, London, W.

£20 REWARD.—WHEREAS for several months past a series of ROBBERIES have been committed in the FULHAM NURSERY, and on Wednesday Night or Thursday Morning last, the 12th inst., many valuable Plants stolen, comprising among others the following:—CORDYLINE INDIVISA, SCIADOPITYS VERTICILLATA, YUCCA FILAMENTOSA VARIEGATA, RETINOSPORA LEPTOCLADA, THUJOPSIS DOLABRATA VARIEGATA, AUCUBA HIMALAICA, GERANIUM MRS. POLLOCK, whoever will give information that will lead to the Conviction of the Offender or Offenders, shall receive the above Reward.
Fulham Nursery, Nov. 21. OSBORN & SONS.

GREAT FRUIT and CHRYSANTHEMUM SHOW at BIRMINGHAM.—The ANNUAL GREAT FRUIT, GOURD, and CHRYSANTHEMUM SHOW, open to all the World, will take place at the Town Hall, Birmingham, in connection with the Handsworth Horticultural Society (simultaneously with the Cattle, Poultry, and Dog Shows), on TUESDAY, WEDNESDAY, and THURSDAY, December the 1st, 2d, and 3d.
Schedules of Prizes (which include a Ten Guinea Cup for a Collection of Fruit), are now ready, and may be had on application.
Entries close on THURSDAY, November 26.
CHAS. JAS. PERRY, Castle Bromwich.
GEORGE P. TYE, Handsworth.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 21, 1863.

THE CHRYSANTHEMUM is one of the gayest and most useful of our garden flowers. It produces its blossoms to cheer us at a season when our summer favourites, such as Geraniums, Verbenas, and Roses, have all passed away, and thus forms, as it were, a link in the chain which unites the autumn with the coming spring. It is very hardy in its constitution, easily cultivated, produces its flowers in great profusion, and is useful to all classes of the people, whether they dwell in palaces or in cottages, or even amidst the smoke of large towns. As a window flower too, at this dull season of the year, nothing can surpass it.

Upwards of 30 years ago 49 varieties were introduced to England by the Horticultural Society of London and cultivated in the Chiswick Garden. They attracted a good deal of attention at the time, and were largely distributed amongst the Fellows of the Society. It would appear that they had been finer and more attractive kinds than any that had been previously introduced. As the Chrysanthemum at that time did not produce perfect seeds in England, no new varieties were added to our collections for several years after this date.*

The next period of new introductions of the Chrysanthemum occurred in 1837 or 1838, when Messrs. CHANDLER, of Vauxhall Nursery, brought forward a number of beautiful seedlings which had been raised in the island of Jersey. These were considered decided improvements upon those formerly in cultivation. Varieties amongst them named "Formosum," "Lucidum," &c., were long great favourites with the public, and may still be met with in some collections.

Mr. SALTER'S productions mark the third period of progress. By means of seed saved annually for him in the South of France, he has been enabled to raise many new kinds of great beauty both in form and in colour, and he goes on adding to them year by year. Indeed, now that seed can be procured annually, both at home and abroad, there seems no limit to the number of new varieties which may be obtained. The little "Chusan Daisy," introduced from China in 1846, has played a very important part in the race of improvement which we have been running so rapidly. Its long journey of some 16,000 miles has been attended with the most important results to floriculture. To it we are indebted for all those daisy-like flowers called "Pompons," which are now so common in our gardens.

Some of the varieties of the Chrysanthemum "sport" in a very remarkable way. Owing to some cause, which we are unable to explain, a plant will sometimes send out a side-shoot or branch with flowers of a different colour from its own, and if this shoot is taken off and propagated a new variety will be secured. The well-known and favourite kind with blush-coloured blossoms raised by Mr. SALTER, of Hammersmith, and named "Queen of England," has thrown out several distinct kinds in this way. Its first sport was of a rosy-pink colour, and shortly afterwards another branch produced yellow flowers, and is now known in collections as the "Golden Queen of England." This prolific kind has produced several other varieties in the same curious manner, one of which has flowers of a pure white colour, while in another instance they are a pencilled rose. These changes have not been confined to the flowers alone, for varieties with variegated leaves have also been produced by the plant we have just named. The sorts named "Christine" and "Julie Grisi," are remarkable for producing sports in the same way. "Cedo Nulli," one of the most beautiful amongst the Pompons, may also be named as another example which has the same habit as the others already mentioned. It has thrown off, in one instance, a kind with yellow flowers, and in another a lilac sort has been produced. Many other examples might be brought forward, all showing the results of some curious chemical action which is continually going on in the stems and leaves of these plants.

The varieties of the Chrysanthemum in cultivation, which 30 years ago amounted in the Chiswick Garden to 49 in number, have now increased to more than a thousand. A greater variety of colour in the flowers has also been obtained—all shades of white, red, orange, yellow and lilac are now common, although no blue has yet made its appearance. A blue Chrysanthemum, like a blue Dahlia, is still one of the things of the future. Then there are some new kinds with striped flowers; and Dragon-flowered kinds have been also lately introduced. These may give some variety in colour and in form, which our florists may yet turn to good account.

Having visited the great exhibitions of the Chrysanthemum lately held in the Agricultural Hall, and at Stoke Newington, we may now make a few remarks on the cultivation of this favourite autumnal flower. The barbarous system of producing large blooms by allowing only one or two flowers to be formed on the top of a tall, and, in many instances, bare stem can only, we think, be tolerated in private. It may be well enough to practise it in order to secure large blooms to be cut and shown in stands like Dahlias, but the long leafless stems ought to be kept at home. If large flowers can only be produced in this manner they are scarcely worth the care expended upon them, Our idea of perfection in cultivation would be a bushy plant covered with bloom, and at the same time exhibiting a green and healthy foliage all over it. The small-flowered Pompons which we met with at these exhibitions were, for the most part, remarkable examples of good cultivation, but the taste displayed in training them is still capable of some improvement. The table-training system seems almost too elaborate to be pleasing. The pyramid is a more natural form, especially when the flower stems stand out more loosely and irregularly than they are generally allowed to do. In all cases a green and healthy foliage—we again repeat, adds greatly to the beauty of the specimen.

While we thus give great praise to our Chrysanthemum growers for the skill which they evince in the management of their favourite flower, we must still urge them onwards to greater perfection. We are informed by good authority that our gardeners are still far behind the Chinese and Japanese in the cultivation of the larger-flowered kinds. In those countries, and especially in the last-named, it is no uncommon thing to meet with bushes which measure 30 feet in circumference, covered with hundreds of blooms, each of which is as large as those produced on the standards above noticed, and at the same time feathered with leaves from the top to the bottom.

Our varieties of the Chrysanthemum in Europe are now much more numerous than they are in those countries to which the plant is indigenous. As regards the form of the flower and different shades of colour, we have completely outstripped the Orientals. We could now send them many new kinds which would astonish them, and which they would no doubt highly prize. In the Pompon class in particular we have left them far behind. Like the Irish emigrant, the little "Chusan Daisy" would seem to have been much more useful and productive abroad than at home.

THE annals of Horticulture bear witness to the success which has attended at least many of the efforts made by cultivators in the HYBRIDISATION of the ornamental plants of other climes after they have been introduced amongstus. In short, many of the finest plants we cultivate owe their origin to this source. Some have been crossed and intercrossed until they have been thoroughly broken up, and now yield us seminal varieties to an unlimited extent, while in others, as it were, the first sod only has been turned, and rich diggings remain behind to reward the persevering operator. Considering what has been already done in this direction, the rich store of originals as yet untouched, which is from year to year accumulating in our gardens, should set some of our busy and intelligent cultivators to work at creating new forms of floral beauty, which we cannot doubt await only the *fiat* of a clever experimentalist to usher them into being. Orchids have indeed been broken into of late, and that with remarkable success, as witness some of the fine productions of Mr. DOMINY; but much more, no doubt, remains to be accomplished even with them, and they are not the only plants which invite experiment with a fair prospect of something like a successful result. And then there is the great and important class of useful plants open to experiment—our fruits and vegetables and field crops; and not only these, but the economical plants, such as Cotton, which latter happens to be just now one of the most important of all crops, and which some observations at p. 966, and further particulars which will appear next week, prove to be not beyond the influence of the cross-breeder.

We have been led, however, to call attention at this moment, to the wide field which lies before the hybridiser, not so much from an economical as from a decorative point of view, that is to say, as bearing on the production of new forms of plants suitable for garden ornamentation. The recollection of some hardy hybrid forms of CLEMATIS, shown at South Kensington during the past summer, has served us as a reminder. Amongst hardy climbers the Clematis already occupies a very high position, especially since the introduction of the large-flowered Chinese and Japanese kinds, which we owe to the successive journeyings of Mr. FORTUNE. Both C. cœrulea (patens) and C. lanuginosa, now well known, are plants of the foremost rank in the class to which they belong, and they have already yielded—cœrulea at least has—some fine garden varieties of greater beauty if possible than that possessed by the originals. But it occurred to Mr. JACKMAN, of the firm of G. JACKMAN & SON, of Woking, to hybridise C. lanuginosa, which yields pale blue flowers, with C. Viticella atrorubens and Hendersoni, which have very dark red-purple flowers. The result has been the production of a batch of seedlings yielding flowers of great beauty, some of which will be most valuable acquisitions to the class of hardy climbing shrubs. Cut flowers of two of them exhibited on the occasion referred to (Aug. 4, 1863) obtained each an unanimous award of a First-class Certificate; and well they deserved it, for certainly nothing in their way could be more beautiful.

We transcribe from our notes some particulars of these two varieties, which were named respectively C. JACKMANI and C. RUBRO-VIOLACEA, and which will be found well worth introducing wherever hardy flowering climbers are cared for. C. Jackmani had the leaves ovate, of moderate size, that is rather over 2 inches long, and, as well as their stalks, slightly hairy. The flowers were spread open, 4 or sometimes 5 inches across, with from four to six sepals of a roundish-obovate form terminating in a little point; these sepals were downy on the lower surface, and of an intense violet purple on the upper, the colour being remarkable for its rich velvet-like appearance; at the back near the centre of each sepal were three ribs extending from the base to the apex, these being represented by three channels on the upper surface, which was also rugose and veiny. C. rubro-violacea differed in having its leaves smooth, and its flowers a trifle smaller and of a

* By an artificial mode of treatment the seeds of the plant can now be ripened, and hence varieties from English seed are ot uncommon.

rich reddish-tinted violet, indeed almost a maroon when fresh opened, but assuming the violet tint as they became older, though always retaining a reddish hue as compared with the former. The sepals were here, if possible, even more remarkable for their lustrous velvety surface. A third seedling which we have seen, had the flowers of a distinct shade of pale violet; and in a fourth, affording distinct evidence of the cross, the bell-shaped character of the flowers of Viticella was reproduced. These seedlings were bred from lanuginosa, the female plant, crossed with the two very distinct sorts already mentioned. We have seldom seen anything more beautiful, the lustrous richness of the colours very much enhancing their beauty.

Here, then, is a fresh incitement to hybridists to set about the origination of new forms of plants. It was no doubt with some such object in view, that the schedules of the Horticultural Society in former days embraced prizes for new Hybrid Garden Shrubs. Such a class, from its direct bearing on experimental horticulture, ought, one would think, to be stereotyped in the prize lists of a body expressly incorporated for the advancement of horticulture, so as to be open to receive any stray novelty that might from time to time spring up, (and none the less open because not often used), as well as to act as an ever-operative incentive; but somehow or other it has been allowed to lapse. Whether encouragement of this kind be again forthcoming or not, we would at least strongly urge upon plant growers the advantage and profit of setting themselves some such task as that which Mr. JACKMAN has so successfully worked out. We have new and distinct species in many familiar genera even of hardy plants, which might be turned to good account in this way. And if tender plants be also taken into account, the field is almost boundless.

THE writer of an article in a contemporary, on the manner of EXHIBITING GLADIOLI, noticed in p. 1087, has somewhat mistaken some remarks of ours at p. 842 on the same subject, in which we have recommended Gladiolus leaves as the proper garniture of Gladiolus flowers. He asks, very properly, why it should come to pass that this charming flower is not deemed fit for the exhibition table except in the disguise of Jack-in-the-Green, and goes on to express his regret at finding the leading weekly authority in horticultural matters, whose opinions, he is pleased to say, are for the most part sound and trustworthy, advocating the practice which he condemns. Now, though we confess to having recommended the plan of using Gladiolus leaves, we certainly did not mean to recommend its abuse; and we are very willing to join "J. S." in his protest against the Jack-in-the-Green style of setting up these flowers as embodied in the following remarks:—

"If any one will examine a spike of Gladiolus growing in the open garden, he will observe that it stands considerably above any foliage, challenging admiration, as it were, solely by the force of its own inherent beauty, altogether independent of adventitious ornament. The florist has taken it in hand, and by means of cross-breeding and high cultivation has added immensely to its brilliancy of colouring, the length of its spike, the size, form, and substance of its individual flowers, and its robustness of growth, but he cannot, or at all events as yet has not, enclosed it in a bower of foliage. Almost without exception the flowers shown this year have been 'improved' by the addition of extraneous foliage; on one occasion the fronds of Ferns were used, but more frequently the foliage of the Gladiolus itself was employed to form the 'embellishment.' When I first witnessed this 'new style,' I was rather struck with astonishment at seeing—say a dozen—fine spikes liberally supplied with foliage, arranged most symmetrically at the back and sides; and towering majestically above them, but not intruding themselves in front of the blooms. A little closer examination soon informed me of the *modus operandi* of the Gladiolus shower in his 'improvement' on nature. He first cuts the spike he intends to exhibit, with or without a leaf as the case may be, generally without, as the foliage is supplied from plants that have not yet thrown up their flower-spikes; of these, three are cut nearly close to the bulb, and placed one behind and the others on each side of the spike to be exhibited. Thus the produce of four bulbs is required for every spike shown; and to make up a stand of twelve, a dozen spikes *in esse* and three dozen *in posse* must be sacrificed. To those who grow them for sale and count their bulbs by hundreds of thousands, this wholesale destruction is of no consequence; but how a small grower, if he have any real love for the flower, can make up his mind to such an act is quite beyond my comprehension. . . . My protest may not count for much, still, my mind will be easier for having raised my voice, however feeble, in opposition to a system so artificial, so unnatural, and above all so destructive."

The tendency of the modifications brought about in this flower through the agency of the florists, has been, as "J. S." remarks, among other things to impart vigour to the plants, and with it length to the spike of flowers. Nor can we desire that this should be otherwise. But it should be remembered that as seen growing on the plant, these noble spikes, though above the leaves, are not dissociated from leaves, however they may excel them in attractions; and it must also be remembered that when cut without leaves and set up singly in a stand they have a bare and gawky appearance, altogether different from the aspect they bear when viewed on the plant. Hence some accompaniment is necessary; and though on every ground we should favour, as little as "J. S." himself does, the Jack-in-the-Green style of setting up, we certainly think that whatever is used should be the natural leaves of the plant, used as we have said "in just sufficient quantity to take off the baldness which is apparent in the ungarnished flower spikes." Our former remarks were chiefly intended to show that some garnishing was desirable: they may even be interpreted to mean that too much is better than none; but now that the question is raised we are glad to join our contemporary in protesting against carrying this garnishing to excess. For our own part, we do not think the appearance of these cut spikes is nearly so pleasing when they are set up on a flat board as when placed in vases, such as TYE's Hyacinth glasses. And in respect to embellishment, what we should recommend would be to cut the stem low enough to retain a couple of its own leaves, which would be ample for the purpose of preventing baldness, at least in most cases.

—— THE example set last year by the Royal Horticultural Society in holding an international show of Hardy Fruits, induced the Handsworth Horticultural Society to hold a similar exhibition in the Town Hall, Birmingham, on the days of the Cattle and Dog Shows. The experiment was so far a success that the Society has announced its intention of holding a Fruit Show annually in the first week of December. Many prizes are offered to members only for collections of home-grown fruits, but unquestionably the open class, in which fruiterers, dealers, &c., both from the Channel Islands and the continent, are admitted to equal competition, is the most interesting. We know of nothing at this season of the year more instructive than displays of this character; and we heartily wish the Society every success in its endeavour to carry out so laudable an undertaking. The show takes place on the 1st, 2d. and 3d of December; and we observe among the prizes open to all the world a ten-guinea silver cup for the best collection of fruit. Entries must be made before the 26th of the present month.

—— It has been from time to time whispered about that the EXHIBITORS OF FLORISTS' FLOWERS do not appear to understand the rule which most societies impose, that the exhibited articles should be of their own growth. It used, indeed, to be said that they begged or bought a greater or less proportion of the flowers they exhibited. Of course the plant exhibitors of those days—long long ago, never did such things! and so somehow or other the odium seemed to rest mainly with the florists, though it was well known that no such suspicions could fairly attach to the respectable members of the fraternity. Doubtless, as with other legends, the whispered story had some foundation in fact, but to whatever extent the practice may have been adopted, it was carried on in secret, as though the practitioners knew that it was not fit to bear exposure to the light of day. We have no doubt, moreover, that the extent to which it was carried, was very much exaggerated by disappointed competitors. But what shall we say now about Chrysanthemums. An advertisement has lately appeared more than once in our pages, in which the advertiser, although he has given up, as he says, exhibiting for competition himself, tells us that he "still SUPPLIES OTHER EXHIBITORS WITH SPECIMEN BLOOMS for that purpose in large and small quantities, and *on the same liberal terms* AS IN PREVIOUS YEARS." There is no secresy here, but the most bare-faced shamelessness. The advertisement, indeed, while exhibiting "in large quantity" the moral qualities of its framer, stands as a disgraceful charge against exhibitors of cut blooms "in previous years," and a direct insult to conscientious exhibitors of the present season. Such an advertiser should be tabooed by every honest man.

NEW GARDEN FERNS.

ASPLENIUM FERULACEUM, *Moore, Hb. Hook.; Hooker, 2nd Century of Ferns*, t. 38; *Id. Species Filicum*, iii. 216.

Fronds bright green membranaceous, deltoid-ovate, acuminate, supradecompound; primary pinnæ numerous horizontal, broad ovate acuminate, 6-8 inches long; secondary pinnæ about 3 inches long; ultimate pinnules short linear-spathulate, simple or two or three cleft, the segments usually monosorous; sori small with a greenish submembranous indusium; caudex short erect; stipes stout elongated, pallid, furrowed in front; primary and secondary rachides terete glossy, the ultimate very narrow linear compressed.

A very distinct and most beautiful tropical Fern, with something the aspect of *A. scandens*, but more compound, and differing entirely in its short erect, not creeping caudex. The fronds stand up around this short upright stem, and have stout stalks or stipes a foot or more in length, and a very much divided lamina, four or five times pinnate, a foot and a half long, and about a foot in breadth at the base. The whole frond is smooth, and of a clear green colour. The secondary pinnæ are somewhat deflexed from the plane of the frond; and the ultimate segments are all narrow linear with blunt rounded ends, the uppermost on the ultimate pinnules simple, the lower two or three cleft. The species belongs to the Darea group, and is a most charming addition to the other handsome species of this section already in cultivation. It is found in New Granada, where it was gathered by Hartweg (no. 1519); and in Quito, where it was found by Jameson. The cultivated plants, which we have seen in the nursery of Mr. Bull, of Chelsea, are stated to have been obtained from Cortago, in Central America. Its finely cut Ferula-like fronds, will, we have no doubt, render it quite a favourite amongst cultivators.

DICTYOPTERIS VARIANS, *T. M.*

Fronds subcoriaceous, smooth, ovate, pinnate, (the lamina about a foot, the stipes about ¾ of a foot long); pinnæ (6—12, with a terminal one) obliquely oblong, abruptly caudate, irregularly crenate, and somewhat undulated at the margin, (6 inches long exclusive of the caudate extremity of 1 inch, and 2 inches broad), the upper somewhat smaller, the terminal one about equalling the lower, which has the posterior base shorter than the anterior, and broad and truncately rounded, or sometimes producing a large posterior lobe: the lower pinnæ shortly stalked, the upper sessile; veins subpinnate from a central costa, anastomosing in about two series of irregular areoles without appendages; sori very numerous, scattered thickly over the whole under surface, very various in form, round oblong linear or irregularly confluent; caudex creeping; stipes slightly scaly at the base; rachis proliferous in the axils of the pinnæ.

This bold habited and very distinct Fern was introduced some two or three years since to the Edinburgh Botanic Garden from Calabar. It is remarkable amongst the polypodioid net-veined species for its very copious and very irregularly disposed and variously formed sori. Its fronds produce from six to twelve bold looking oblong pinnæ, which are of thickish texture and somewhat irregular at the edge, terminating abruptly in a narrow tail-like point fully an inch long. The caudex is thick, and covered with lanceolate acuminate appressed brown scales. The fronds are of a dull deep green colour, and grow from a foot and a half to two feet high, and from 14 to 20 inches broad. The plant is well adapted for pot-culture, on account of the freely branching character of its creeping caudices. At the under surface of the anterior base of the pinnæ tubercular processes are formed, which ultimately assume the rhizomatic character, giving off fronds and rootlets. For some of these observations on the habit of the plant, I am indebted to Mr. Scott, of the Edinburgh Botanic Garden. *T. M.*

EMIGRATION TO NEW ZEALAND.—No. II.

(*Concluded from p.* 1083.)

THE great source of New Zealand fortunes is doubtless in the sheep farms. People rent great "runs," and have many immense flocks on them. Often men of small capital join stock with a larger capitalist, and thus they seem to go on till very large fortunes are raised. A flock of 4000 sheep is considered small for Canterbury, and the owners find quite enough to do in riding about their stations and inspecting affairs in general. At one place some friends record 200 head of cattle—and at that place it was they saw a ton of cheese in the dairy.

"It is quite marvellous," one writes, "to see how rapidly this place increases. You can buy here anything that you would in a good English county town, and some things are not dearer. We have shops of all kinds, and capital roads for some way out of Christchurch; though many of the streets are still grass."

The houses are built very often of only a single story, often too of wood, and as the ceilings are done in some strictly colonial fashion, with a sort of linen and paper batten, the flapping up and down in a gale is said to be very remarkable! Soda water corks too have been known to shoot through the ceiling! The slightness of the buildings causes sometimes a little amusement. Two friends of mine who had just landed were holding a brisk conversation through what they supposed to be the thin wall between their apartments. Some other weary traveller was however ensconced between them, and they talked through his room.

The gardening in the colony is wonderfully profitable. At present the commonest flowers are very rare and scarce; plants that you see in England in every cottage garden cost perhaps 5*s.*—that is, when they can be bought. A friend of mine bought a Heliotrope so small you could scarcely see it, but the only one he could get, at a price which he would not name—I fear it was so exorbitant.

Common workmen, as has been already said, are paid a shilling an hour here for garden work, and it is said that English gardening has quite to be unlearnt. The climate is of course so very different there. Still for people who mean to work and are willing to learn new ways, there is an amazing opening.

The worst and commonest flowers sell from 2*s.* to 2*s.* 6*d.*, and though there are many things to be watched against, still the growth is exceedingly rapid. I heard a report of a gardener landing with 10*l.*, whose fortune has grown to 50,000*l.*! But for the truth of this, in its full extent, I do not like to

vouch, though I myself believe it to have been quite possible.

The climate of New Zealand, unpleasant though it is, seems wonderfully healthy. It makes up by this one good point for a perfect host of discomforts. Winds, that seem quite eternal, blowing from all quarters, cold and hot and rainy—the coldest of all their breezes being what we call "balmy south winds." Blowing from the South Pole they come up in bitter blasts. The wind gets up daily about 10 o'clock, and goes down at sunset, leaving the early morning and again the evening pleasant. But the twilight is not long and pleasant as in England, although for those few hours the days are mostly enjoyable. The heat and the dust at Christmas comes out in the strongest contrast with our green Holly branches and the church paths sprinkled with snow. Last Christmas more than four months had passed without any rain, and the dust and the flies were becoming a great torment.

New comers find that it takes some time to get acclimatised. The extreme dryness of the air during part of the year is especially one of those things that appear so uncomfortable, though it is most likely that this very dryness tends much to the general healthiness. At first, however, the colonists have often to endure much discomfort in the shape of gathered fingers, headaches, and so on.

The nor' westerly winds are described as by far the most unpleasant. Their dryness is quite indescribable—you feel quite baked up by them and utterly good for nothing, and then from this great heat the day will change to cold, and going out in the morning lightly clad, and quite oppressed with heat, at night you will find yourself shivering in a cold wind, requiring a great fire, and piling the bed with blankets. The nights are indeed in New Zealand always more or less cold. The heat is at times exceedingly great. In Australia the very hot seasons are said to recur generally about every twelve years, the heat afterwards gradually decreasing, and again increasing till the next hot year. This seems to have been the case also in Canterbury, for the letters written there last Christmas report the heat as exceptional, such a season not having been known since the first settlers landed, just 12 years before.

Letters written at Christchurch (February 12, 1863) speak of the thermometer having reached 130° in the sun. No rain had fallen for very long, and the very dust was becoming alive with insects. Fires were raging up the country, which nothing but heavy rains would quench. The loss of wood and grass, it was feared, would be very great, the whole sky being lit up at night with the wide-spread flames, while by day the great clouds of smoke often hung in the air so densely as to a great extent to obscure the light, and diminish the heat of the sun.

In spite of the summer dryness the winter's wet is very great. Streets even in Christchurch become filled with pools; horses are up to the girths in heavy sticky mud, in which it is hard to obtain a footing, and with many parts of the country, communications are quite cut off.

The great sheep farms of course and some of the mission stations of the Church of England lie many miles up the country.

The scenery is some of it exceedingly beautiful, and here I quote again from letters descriptive of it:—

"The mountains surrounding Christchurch (which during some months are covered with snow), resemble very much in appearance the Pyrenees. Close by we have the Port Hills, and in the distance the snow-capped western range, and within these again what are called the Malvern Hills."

"There is very little timber here, and though a great many people have planted trees and made very pretty places, they have not yet had time to grow to any size. There is, however, some natural wood called the Riccarton Bush, close to Christchurch, which is a great relief to the landscape."

Another letter gives an account of a visit to a lovely place called Akaroa, on Banks's Peninsula. "The woods come down to the water's edge, and the scenery is lovely beyond anything I ever saw. It is a great place for gardens and fruit trees, and you cannot imagine the delight of seeing the lovely woods and trees, and hearing the birds sing, and having good water to drink." (This came, it must be remembered, as a break in unwonted town life.)

"All Banks's Peninsula is beautiful, except Lyttleton. The Akaroa roads are not passable in winter, so it is rather cut off from the world—it is in fact in the bush. Just at sunrise here the birds make a sort of concert, and it seems as if each was trying to sing the other down. It woke me up the first morning and surprised me; some of the birds have very pretty notes, too." *E. A. M.*

ROSES.

Why do not Roses more generally succeed in England? Various reasons may be given.

1. Climate.—Ours is the most variable and consumptive climate in the world. England is the hyphen between a frying pan and a well—*i. e.*, between France and Ireland. One would have thought that the temperature would be at all times equable; but such is not the case. We are liable to quick transitions, and also to winter-summers and summer-winters! The Roses being imported, with rare exception, from the warm and more equable climate of France cannot but suffer from the change: more especially glass-raised, unhardened novelties.

2. Sorts.—People fail, because they do not get right sorts; or they do not get right sorts on stocks suitable to the Rose itself, or they do not get right stocks, by which I mean stocks which, being suitable to the Rose in some lands, are also suitable to their land. In this climate, robust, hardy, vigorous growers will alone last any length of time: even these will, on own roots, and on all stocks occasionally die, though they be well looked after, which is far from being generally the case.

3. Stocks.—Briars, Manetti, Celine, are all good Stocks. Of the Celine stock I know but little: such as I have upon it grow and bloom well. Briars are best for moderate growers, and good also for strong growers in strong land. Manetti is good chiefly for strong growers, and indispensable for inferior lands. In very strong lands it would drive the Rose into a pole Rose, which might not be convenient. This stock, with suitable Roses on it, is suitable to all lands. Its triumph, however, is seen in highly manured, shallow and worthless lands, where Briars would do but little. I have many Manetti Roses planted in what was a duck pond, bottomed with chalk; also many in land close upon solid gravel. Between the chalk in one case, and the gravel in the other, I put a bed of black dung and half-inch bones, and plant the Manetti Roses on the top of it, and then fill in, tread hard, and tie the plants to sticks; and nothing can succeed better. I have in the same ground Briars, homebudded, but they bear no relation whatever to purchased Roses on the Manetti stock. In either of my lands, both different in their natures, you might as well put a hen against a horse as put a Briar Rose against a Manetti Rose. In my north-east garden this can be seen any day.

4. Winds.—Roses cannot have too much air and too little wind. Those who are exposed as I am to the violent assaults of the W. and S.W. winds, which, by their violence and prevalence bend the heads of Elms and other trees here towards the S.E. as if they were bowing to the Eastern Magi, know how injurious wind is in early spring and early summer. The sap then rises, but the lungs are destroyed; and the effect on the new wood is much the same as that of garotting. The sap is pent back upon the wood, and it becomes bad. Of course good wood and good flowers cannot come out of bad wood. Whatever suddenly destroys the leaves, or impedes their action, whether wind, hail, or fungi, at the early part of the year before the wood is matured, will do great present and future damage. My home Rosery is as exposed to the W. and S.W. wind as Portland or Stonehenge. My house ought to be a windmill. Still I bear the demolitions of wind and hail, year after year,

> "With that untaught innate philosophy,
> Which, be it wisdom, coldness, or deep pride,
> Is gall and wormwood to an enemy!"

5. Drainage.—No matter what the stock is, or the Rose upon it, free drainage is absolutely necessary. A rivulet, at the base of my home Rosery, stops the water back upon me. The Manetti Roses bear it respectably. The Briar Roses were annihilated in the well-known severe winter.

6. Planting, Staking, and Tying.—These are important things. Ground plants in highly protected situations may not require staking and tying, as they do here; but standards always, in all places, require it. As regards planting, the Briar Roses should never be planted deeply—not more than 4 inches; Manetti Roses must be planted sufficiently deep to cover the collar of the bud an inch or two: hence it follows that they should be budded low, or the radius of the roots will be too far from the action of the sun. A Briar Rose deeply planted will have weak wood and bad flowers, then weak wood and no flowers, and then neither wood nor flowers.

7. Aphides and Fungi.—If Roses were kept constantly syringed from the time the trees put forth their spring leaves, little or no damage would be done by them. Clean water would cleanse the leaves and rid them of millions of helpless aphides and of the invisible spores of Fungi. Orange Fungus must be destroyed by hand at once. This can be only effectually done by taking off the leaf with the orange nucleus, which usually adheres to the lower side of the leaf, before it bursts and spreads its spores over both sides of the leaves. In spring you will discover it by a small discoloration of the upper side of the leaf; just beneath that is the orange nucleus. Sometimes it is on the stems. After heavy thunderstorms, I have observed that aphides and Fungi greatly disappear.

These, then, are some of the main reasons why Roses do not more generally succeed in England. There are other reasons, which need only be summed up, viz., improper pruning, pruning at an improper time, cutting the wood of H. P.'s before they have dropped their flowers, insufficient manure, lack of mulching and water in torrid summers, and insufficient root protection (straw is good for it) in severe winters.

Finally, a good grower of Roses does not necessarily imply a first rate Rosarian; nor does the winning of prizes necessarily imply such a thing. The lands of some are so adapted to Roses that they have little to do but plant and cut off the flowers. Were they stuck in the eye of the wind on my dense chalky hill—chalk all the way to New Zealand, I believe they would be confounded. That man is a true Rosarian, who, surrounded by great natural difficulties, fights, and fights successfully against them; who studies the various likes and dislikes of Roses, and treats them accordingly. "Necessity is the mother of invention," and nothing but difficulties and experience can make a man a first-rate Rosarian. August, September, and October test a Rosarian better than June and July. *W. F. Radclyffe.*

FISH AND FISHING.—No. XIX.

(6.) How Grayling got to England.

(*Concluded from p.* 1037.)

Pisc.: Certain it is, from the Hexaemeron of St. Ambrose alone, that, in his day (the 4th century), they could not have failed to observe the difference of male and female fish, when produced at their tables; and that the fecundation of ova by the milt was the natural process. The roe in one, and milt in another, was enough; and "continuo enim tactu parentis animatum ovum cecidit—et piscis exivit," says St. Ambrose. Therefore, I would urge, why should not Pisciculture by artificial impregnation have suggested itself, where the inducements and necessity we have pointed out existed, as regarded the grayling, to such learned and practically learned minds as those in the days of the "monks of old?" Considering how many are the discoveries claimed by moderns which are really traceable to the ancients;* coupling on, the assumed fact of the introduction of pike into England upwards of three or more centuries ago (ante, p. 748); and firmly believing that I am correct in attributing the introduction of grayling to the monks of old upwards of 1000 years ago, I cannot but think that the art of pisciculture is far less modern than we of the present day assume it to be. Under all the circumstances, I cannot resist the conclusion that the monks of old did import this fish.

Cath.: Nor can I. But, my dear Piscator, what a subject for reflection, what a moral does all this contain! Our overweening vanity in the present day, puffs us up to the belief that we in Europe are the greatest people that ever lived; and like the men of old time in Scripture History, we conceive ideas and build "Towers of Babel." We sink our Thames Tunnel at enormous cost of money, labour, and some loss of human life, and it remains as scarce more than a London "sight." We continue to erect bridges of enormous span which can never "pay." We build a "Leviathan," which we can scarcely launch, and which when launched we at first cannot afford to fit up, and which, when ultimately fitted up, makes a voyage or two. Ask shareholders as to the rest. We cross the Atlantic with our electric wires, they fail, and at this moment we can only pray God that, for the peace of the world, they may be workable ultimately! Unquestionably during the last half century we have made lightning "progress." Our electrical discoveries and submerged telegraphs, our steam ships and engines, our railways, our tubular bridges, our chemistry, our geology, whether limited to its strict meaning, or extended to our "knowledge of the world;" our gold; in fact our many hundred matters—all these we may boast of within the last half century, but take heed, oh man! for

> "When he thinks, good easy man, full surely
> "His greatness is a ripening,"

he may find a "Hitherto thou shalt go and no further!" He may find that the flood of his greatness is at its height, and that the ebb is on; he may be made to feel that there is a "Tree of Knowledge," of which he ought not to have eaten so much; and that the builders of a "Tower of Babel" may be confounded! Look, my friend, at what history teaches us. First, that Solomon knew the principle of hydrostatics in his supply of water to Jerusalem, viz., that water would find its own level; while the Romans, who followed long after, could only conceive the idea that water could be conveyed by aqueducts on a simple inclined plane. Again, Solomon prayed to God for "an understanding heart" to judge God's people; "and the Lord said to Solomon: Because thou hast asked this thing, and hast not asked for thyself long life and riches," "behold I have done for thee according to thy words, and have given thee a wise and understanding heart, insomuch that there hath been no one like thee before thee, nor shall arise after thee." And Solomon "treated about trees, from the Cedar that is in Libanus, unto the Hyssop that cometh out of the wall, and he discoursed of beasts and of fowls, and of creeping things, and of fishes:" so he understood botany and zoology. And Solomon built the first Temple; gold was in superabundance, and brass was molten: so he understood metallurgy. And then that magnificent Temple was destroyed, and on its foundations another was built, so far inferior to the first, that the old men, who had seen the former, wept on beholding the inferiority of the second. Yet, at the second overthrow which ensued, the Romans, though

* See Translation of Dutens' Origine des Découvertes attribuées aux Modernes, &c., 8vo, London, 1769 (An Inquiry into the Origin of Discoveries attributed to the Moderns, &c.) This work is in the British Museum.

conversant with their own beautiful architecture, as well as with that of Greece, neither of which we of the present day can, or presume to think we can, equal, or even approach—the Romans wondered at the magnificence of the inferior second Temple! And thus human knowledge flows and ebbs, and flows and ebbs again, from generation to generation. Even now we wonderful Europeans must further humble ourselves by discovering that among those whom we have regarded as only semi-civilised, there is the town of Jeddo, or Yedo.*

Pisc.: But after all, except for the moral you have drawn from this subject, *cui bono* our discussion? Who cares whether the monks did or did not do this good deed?

Cath.: Unless we can tickle the fancy of the "utilitarian,"—can propose, out of our discourse, something which will "make money," I agree with you we have lost much time and labour, though pleasantly spent to ourselves. Yet if we can call the attention of people at large to the subject of Pisciculture—to the increase of our salmon and our other sea and river fishes, so that the poor man's table can be supplied more abundantly and more cheaply with even salmon, not as a luxury, but as food and sustenance; if we can by "pressure from without" so force the subject upon the Legislature as to drive the Government of Great Britain or any public society or body of persons to take pisciculture into its own august or influential hands, as our neighbour France has wisely done—then who will deny the *cui bono?* And, failing that achievement, if we can wipe off some of the obloquy attached to any people, be they "the monks of old," or any sect or class of men, by the reminiscence of their good *versus* their (supposed) bad deeds,—if we, by showing that the monks had other reasons for the culture of this or that, far superior to their animal appetites; that they were far above the appellations "Sybarites," "Gluttons," "well-capon-lined," &c., &c., at least, I say, we shall have placed truth in antagonism with prejudice! And that is something. Magna est veritas, et prævalebit! *E. C.*

Home Correspondence.

Potatos.—As so many of your readers have recorded the results of their Potato culture, perhaps you will allow me the like privilege. Last year a friend furnished me with a few for trial, of a red and also a white kind. I had no name with them, but was told the red ones came from Madeira. For the present we can call them Jasper's Pride, unless you can give us a name of longer standing. Unfortunately, my friend did not give a recipe for cooking them. Our cook tried to get a couple done for dinner, but, failing in the attempt, kept on till supper time, but it was evident they could not be done in one day. I suppose therefore we must cut and shape them into ordinary sized Potatos, if you cannot tell us a better way. It was rather amusing to dig them up, as it was something like turning up little black and white pigs. We had about 4 bushels, scarcely any small ones, and a few diseased. I send you one of each colour as a specimen; the two only weigh 4½ lbs. now, having been exposed in a very dry situation since they were taken up, as I did not think of sending them at the time. We fancy they are larger than common, and as no one hereabouts has seen larger, we are a little lifted up in consequence. Perhaps some of your correspondents will take us down by sending finer ones. *Jasper Standstill.* [Very large tubers certainly; the white sort weighed 2 lbs. 2½ oz., and measured 17 inches in circumference in the longer, and 13½ inches in the shorter axis; while the red weighed 2 lbs. 1 oz., and measured 18 inches and 13 inches in circumference in the longer and shorter axes respectively. They were, however, deep eyed, the greatest possible fault, the eyes being sunk from ¼ to ⅜ of an inch. Such Potatos are only fit for cattle-feeding.]——In the remarks upon these recently made by your Correspondents I observe that one variety, the Old Rock, which is most extensively grown in Ireland, proved inferior to several others, both as regards quantity and quality. Here it withstands the ravages of the disease better than any other kind; it is also the most prolific and best-flavoured sort in use all the season through. A kind called Skerry Blues was planted to a considerable extent last spring under the impression that it was a better cropper than the Rock, but the opinions of small farmers who have grown it differ considerably on this point; with me it produced a fair crop, small, but quite free from disease, while Rocks growing side by side with it were more or less tainted. For early digging our small farmers plant a large-growing kind called the Flounder; in reclaimed bogs this produces enormous tubers, but they are somewhat soapy, and under every circumstance inclined to be diseased. Without doubt the Old White Rock is the hardiest and on the whole the best Potato for general purposes which Ireland ever possessed—nothing but the hardiest of varieties would be suitable for this sunless wet locality. The lazy bed system is much condemned in England; but those who there object to it would, if here, either have to practise it or lose their principal crop. *John Edlington, Crom Castle.*

The Brothers Cunningham, the Botanists.—In the article "Australia" in the last edition of the "Encyclopædia Britannica," an incorrect account is given relative to Allan Cunningham. It is stated in the portion devoted to the discoveries of Sir T. L. Mitchell on the Bogan River, New South Wales (1835), that—"The botanist, Allan Cunningham, was lost from the main body of the party in his rambling for plants through the interminable wilderness, and from subsequent facts which came to light there is every reason to believe that he was murdered by the natives. In memory of his sad fate and invaluable services to the colony, the Government have erected an obelisk in the Botanic Garden at Sydney." It was not Allan Cunningham that accompanied Sir T. L. Mitchell as botanist, for at that period he was in England. It was his younger brother, Richard Cunningham, who met the sad fate above alluded to. A monument to his memory was placed by his brother Allan in the Scotch Church in Sydney. The obelisk that is erected in the Botanic Garden is to the memory of Allan Cunningham, who died on the 27th June, 1839. It was subscribed for by his personal friends, the Government having nothing to do with its erection. An inscription on their father's grave-stone in Kensington Churchyard, also records the labours of these scientific and enterprising botanists. A curious error has also just appeared in the last number of the Edinburgh Review, in an article on "Queensland." The writer, after giving great praise to Allan Cunningham's discoveries in botany and geography, states that in gratitude for his invaluable services, the community of Sydney erected a marble statue to his memory in the Botanic Garden, which said statue is nothing more than the obelisk just mentioned. *R. H.*

Orchids.—Recently much has been written in reference to the cool treatment of certain Orchids, and as an illustration of what can be done under this mode of management, allow me to request your acceptance of a photograph of a plant of Odontoglossum grande, which I flowered this autumn in a 10-inch pot, with nine bloom spikes bearing 36 flowers (those expanded measuring fully 6 inches across, and three of the bulbs producing two spikes of bloom each). This is the result of three and a half years' greenhouse treatment and a liberal use of very weak liquid manure in the growing season, allowing from three to four months rest in the winter, water at the root being then altogether withheld, except when much fire heat was required to keep the house at a temperature suitable for Pelargoniums, and then only sparingly administered, the foliage being kept clean by repeated spongings, and an occasional syringing on very fine sunny days. *Joshua Saunders, Clifton, Bristol.* [By far the finest specimen we ever saw of this fine species.]

Feejee Islands.—One of your correspondents, I observe, requires information respecting these islands. The accompanying observations, sent to me by Mr. Binner, are so conclusive as to this delightful climate, that you may probably wish to publish them. Mr. Binner, I regret to state, died in May last, having resided more than 20 years in Ovalau, one of the most extensive islands in the group. *R. J. Graham, Combe Down, Bath:*—

ABSTRACT FROM METEOROLOGICAL REGISTER KEPT AT LEONHA, OVALAU, FEEJEE ISLANDS, FOR THE BRITISH GOVERNMENT, BY JNO. BINNER:—

Year and Month.	Self-registering Thermometer.		Height of Barometer.		Rainfall in Inches.
	Max.	Min.	Max.	Min.	
1861.	Deg.	Deg.	Deg.	Deg.	
January	91.9	72.4	30.060	29.730	11.650
February	87.8	72.8	30 008	29.608	22 880
March	89 0	70.9	30.064	29.700	23 930
April	87.2	72.3	30.678	29 808	10.730
May	85.0	70 9	30.070	29 846	11.320
June	85.0	70.0	30.816	29 440	6.190
July	83.2	68.0	30.556	29 540	1 865
August	84.6	68.0	30.936	29 566	4.660
September ..	85.0	68.0	30.836	29.920	9.050
October	86.0	65.0	30.216	29.806	6.560
November.. ..	89.0	71.0	30.066	29.726	5.170
December	87.0	71.5	30.066	29.726	4.560

N.B. The cistern of barometer stood from 1st January to 30th April at 110.8 feet, and from 1st May to 31st December at 152.2 feet above mean level of the sea. Thermometers at same height in shelter and shade with a south aspect.

The above observations were taken with standard instruments supplied by the Board of Ordnance, and corrected for index error. Total rainfall for 1861, 118 065 inches. *Leonha, Feb.* 10, 1862.——Your Dublin Correspondent may obtain much of the information she requires on the subject of the climate and productions, &c., of these islands in "Figi and the Figians,"* by Thomas Williams, missionary for many years there. Being so near the line, the temperature is of course high, but it is tempered by the sea breezes; the mean temperature he gives as 80°. There is much rain, and occasionally he has known a succession of 45 days with more or less of rain; sometimes, also, there are two or three months without rain. In the culture of food plants, Mr. W. says the Feejeans are far ahead of any of the islanders of the Western Pacific. Yams of the enormous length of 9 feet, and weighing 80 lbs., are cultivated in mounds; and the Sweet Yam and Sweet Potato are also highly prized and productive. But the Feejean's staff of life is the Dalo (Arum esculentum); it is cultivated on irrigated land, and is exceedingly productive. Bananas, with bunches containing 180 fruits, Plantains, Bread-fruit, Cocoa-nuts, Arrowroot, Nutmegs, Sugar-cane, Shaddock, &c., grow spontaneously, and are also cultivated. *E. M.*

Orchard House Culture.—I beg to send for your inspection three varieties of Pears, gathered from trees grown in 11-inch pots; 16 Pears were produced by the tree whose fruit is numbered 1; 28 were gathered from No. 2; and 32 from No. 3. Should you think them worthy of notice, I shall feel obliged by any remark upon them you may be pleased to make; and as I have some doubts about their names, your setting me right in that matter will be considered a favour. I have under my charge a lean-to Orchard house, 48 feet long, 12 feet wide; 3 feet high in front and 8 feet high at the back. This has been built four years, and as I have been every year successful in having an abundance of good ripe fruit, I am partial to the orchard house mode of fruit growing, not only because by that system a greater amount of fruit can be obtained than by any other method, but because of its excellence and certainty. I am well acquainted both with indoor and outdoor fruit growing, my experience being spread over some 22 years; and I must say that never have I tasted better flavoured fruit, under any circumstances, than those gathered from an orchard house. We have two rows of trees running the whole length of the house, and most of the Peach and Nectarine trees were allowed to carry 3 and 3½ dozen fruit each, and some even 4 dozen. Our Plum trees this season have been a perfect picture: Coe's Golden Drop bore 7½ dozen, which for colour and flavour were all one could wish; Denyer's Victoria had 7 dozen; Columbia Plum, 6 dozen; Jefferson's, 7½ dozen; and Washington and others, 7 and 8 dozen each; Cherries, Figs, and Pears, have been equally good. Many have visited this house this season, and all have not only been pleased with what they saw, but several have made up their minds to have an orchard house built for themselves. *Charles Squire, Heywood, Westbury, Wilts.* [The varieties of Pears sent were:—1, Easter Beurré, very large, considerably above its usual size; 2, Thompson's; 3, Beurré Bosc; these were fully the average size and of good quality. In the case in question, the lean-to form of house has certainly answered well, much better we presume than a span roof would have done.]

Swallows.—Permit me to say that swallows were seen here in large numbers hawking for flies over my Rose nursery at Torquay on the 16th Nov. *Henry Curtis.* [They had also been observed at St. Leonard's on the 13th and 14th inst.]

New Hyacinths.—I was about to reply to Mr. Cutbush's remarks on New Hyacinths when my eye caught the reply of "Quo" (p. 1084), who is evidently well versed in the subject, and whose views, as far as expressed, coincide with my own. But more remains to be said. Mr. C. would apply an old rule of the Royal Horticultural Society, originally framed for a purpose altogether different: "Any plant that has been previously exhibited before the members cannot be considered new." Now, if I mistake not, this rule has never been applied to new Roses, new Pelargoniums, new Hyacinths, or any other collection of new florists' flowers, nor can it be so applied with any advantage to horticulture. It is an exceptional rule, framed for and hitherto applied to single plants only, and not to collections. Mr. C. says, "Mr. Paul's varieties could not be strictly termed new." Certainly not, if his reading of the word be admitted. But he is the sole authority for such an interpretation, and custom is against him. Moreover his special signification is put after the show. With regard to the number of years my new Hyacinths had been before the public, they were in the aggregate newer than Mr. C.'s; the age of four of the latter amounted to 44 years, whereas my six amounted to 37 years only! Novelty therefore was in my favour, and quality far more so. Mr. C. says he did not intend showing Maria Theresa. Well! but judges cannot act on exhibitors' intentions. According to the reports of the "Journal of Horticulture," the "Florist," and my note-book, he did show it. It is strange if three separate and independent reports should contain the same error. So far from the judges being "little practically versed in Hyacinths," it would appear that they were better versed in the matter than Mr. C. himself. *Wm. Paul, Waltham Cross, N.*

Notices of Books.

Addresses and Charges of Bishop Stanley, with a Memoir. By Arthur Penrhyn Stanley, D.D. Murray, Albemarle Street. Pp. 206.

This is by no means a recent publication, yet, somehow attention has at last been drawn to the late Bishop of Norwich. Possibly some conversation respecting the late Archbishop of Dublin, who, like the subject of this memoir, was at one time greatly misrepresented, but died regretted by all; or perhaps the sight of a simple black marble slab in the nave of the Cathedral; or, suffice it to say, something has suggested the re-reading of Canon Stanley's memoir of his revered parent, who was always an encourager of natural science, was well-known as an ornithologist, and was some time President of the Linnean Society.

It seems that young Edward Stanley acquired in

* See the splendidly written Leader of *The Times*, Nov. 3, 1858. Those who would form a just idea of the wisdom and knowledge of the ancients as compared with moderns, would do well to read the translation of Dutens already referred to.

* Haylin, Paternoster Row, 1858.

early years a passion for the sea, which he cherished up to the time of his entrance at College, and which never left him through life. As to his early education for that profession for which he was actually destined, it was utterly neglected, till he entered at St. John's College, Cambridge, in 1798.

"This deficiency, now that he was for the first time become his own master, he remedied to a great extent by unremitting exertions. He acquainted himself with the classical languages sufficiently for common purposes, and in mathematics he made such proficiency as to appear as a wrangler in the mathematical tripos of 1802. To Cambridge, in this respect, he always looked back with gratitude as the source to which he owed all the real education that he had enjoyed; and many years afterwards he sent a brief but spirited statement of his own experience of its benefits to a provincial journal, in reply to the well-known attack on that University by Mr. Beverley in 1834.

"'I can never,' he said on that occasion, 'be sufficiently grateful for the benefits I received within those college walls; and to the last hour of my life I shall feel a deep sense of thankfulness to those tutors and authorities for the effects of that discipline and invaluable course of study which rescued me from ignorance, and infused an abiding thirst for knowledge, the means of intellectual enjoyment and those habits and principles which have not only been an enduring source of personal gratification, but tended much to qualify me from the period of my taking orders to the present day for performing the duties of an extensive parish.'"

After serving for three years as a curate, he became rector of Alderley, in Cheshire, a family living, with an agricultural population of 1300 souls, which had been shamefully neglected, according to the general practice of those days. "The clerk used to go to the church-yard-stile to see whether there were any more coming to church, for there were seldom enough to make a congregation."

From the first moment of his entrance on his work, the young clergyman devoted himself to it, with an energy and exactitude which drew upon him at that time the reproach of singularity, and even of "Methodism," for the discharge of duties which would now be deemed too common to deserve notice. One who well knew the diocese of Chester thus describes the interest which he took in schools, an interest at that time shared by so few of his profession.

"He was the first who distinctly saw and boldly advocated the advantages of general education for the lower classes. Schools had been founded, he had borne his part—and a most active part—in the first movement, but I think that he first set the example of the extent to which general knowledge might be communicated—and beneficially communicated—in a parochial school. I well remember the appearance of the school at Alderley, where, in addition to the usual range of desks and books, the apparatus for gymnastic exercises was seen suspended from the roof. I remember the admiration excited at a lecture which he delivered in Chester, when he exhibited a "hortus siccus" of the plants found in the parish, made by one of the girls in the school; and though few or none did more than wonder at what was accomplished at Alderley, an impression was created that a large amount of useful secular knowledge might be added without any deduction from what would be considered the proper objects of a parochial school."

He instituted examinations for the children twice every year, published a little book of "scriptural questions," and gave medals or prize-books according to the proficiency and general good conduct of the scholars. The children did their best, knowing that if their lessons were well learned they were sure to be rewarded with the rector's well known smile, and expressions of approbation, and his gentle tap on the head of each. Sometimes to their great delight he allowed them to accompany him in his boat on Alderley Mere, and spent the afternoon on the water with them himself.

He visited the poor thoroughly, and established weekly cottage lectures at different points in the parish for the old and infirm, who were unable to walk to church. He issued printed or lithographed addresses on various subjects, and tried to stem the torrent of intemperance. The people saw that he was working for their good, were won by his gentleness, and always yielded to his good sense and firmness, with the happiest results.

Mr. Stanley hated religious controversy, but ever saw in the natural world an exhibition of Divine power and goodness, which he always regarded as one of the purest sources of intellectual and religious instruction.

"'The perversions of men,' he used to say, 'would have made an infidel of me, but for the counteracting impressions of Divine Providence in the works of nature.' Of all the branches of science, natural history was that to which he was most inclined. His quick eye enabled him readily to observe, and his methodical habits accurately to register, the phenomena of the animal creation; and thus to acquire, without interfering with any graver pursuits, a very considerable knowledge of ornithology, entomology, and mineralogy. Ornithology in particular became his favourite study, and it was a constant source of amusement and interest to him in his parish walks and rides to notice the flight and habits of birds, to collect remarkable specimens of their organisation, and to gather from his parishioners stories of any peculiarities which they had themselves noticed. The result of these observations he embodied, in 1836, in two small volumes, published by the Society for Promoting Christian Knowledge, and entitled 'A Familiar History of Birds; their Nature, Habits, and Instincts.'"

In 1829, during the excitement and panic which immediately preceded the passing of the Roman Catholic Relief Bill, he wrote "A Few Words in behalf of our Roman Catholic Brethren," in the form of a short address to his parishioners, with the view of allaying the alarm which, under the influence of the opponents of the measure, had penetrated even to the lowest classes, and the most rustic populations.

In 1831 he was the chief promoter of a meeting of the clergy of the county, "to consider the expediency of taking into consideration such timely remedies for ecclesiastical abuses as might avert the danger of too extensive changes."

In 1836, having made a short tour in the West of Ireland, he published a pamphlet entitled—"A few Observations on Religion and Education in Ireland."

Hearty reformer of abuses as he was, Mr. Stanley was ready to defend existing institutions. His answer to the attack on the University of Cambridge by Mr. Beverley was peculiarly telling, coming as it did from one who had always been a persevering reformer of abuses in every department, civil and religious. He published also under the title of "A Country Rector's Address to his Parishioners," originally for his own people, but afterwards circulated for general use, a short address against those agitators who in the troubles of 1831 and 1832 endeavoured to excite the lower orders against property and law. With the same feelings he offered his services as Chairman of the Board of Guardians, to stem the odium under which the New Poor Law laboured at the time of its first appearance.

In the spring of 1857, the thirty-second year of his residence at Alderley, Mr. Stanley received from Lord Melbourne the offer of the bishopric of Norwich, and the grief of his parishioners at parting with their beloved rector was excessive. He kept his promise of paying them a visit once every year. His predecessor in the see had lived to the advanced age of 93, and was of a remarkably easy and indulgent temperament, so that an abundant crop of abuses had grown up, and had got confirmed, which the new Bishop found it as difficult as it was necessary to remedy.

Several times an outcry was raised against the latitudinarian Bishop of Norwich, as many persons regarded him. Pure, upright in his motives, and utterly devoid of guile, he confesses, upon one occasion, "I certainly ought to have been more cautious; but what a life of wretchedness, to be for ever watching over and repressing the spontaneous acts of kindness which opportunities call forth."

A bishop of such a disposition was sure to live down all the opposition and calumnies that could possibly be raised against him.

Those who differed from him on material points, after a few interviews invariably felt that, differ as they might, their affections were enlisted on the side of a heart so true; their full confidence was won by his frankness, by his fatherly and most Christian sympathy. Many confessed that they had never known the true meaning of the word liberality before. While stirring up his clergy to the same keen sense of professional duty which had ever actuated his conduct as a parochial minister, he was often grieved to hear the cry raised "The Church in danger," by those very persons who seemed never to do anything to keep it from danger.

In Norwich itself he did everything that lay in his power to promote the interests of the city, more especially devoting himself to such institutions as were connected with its moral and religious welfare. On week day afternoons it was his practice to visit the schools, both those belonging to the Establishment, and those of Dissenters, examining the children himself, and noting their excellencies or defects. The children of the workhouse schools always engaged his especial attention.

To a clergyman in a deplorably ignorant part of the city he suggested the possibility of getting up an evening school and inducing members of his congregation to teach the neglected children. The Bishop went with that clergyman to open the evening school, knelt down, and offered up a prayer for the Divine blessing upon the undertaking, and then sat down and instructed a class of boys. On walking back to the palace with this clergyman, he remarked, "what a blessing it will be if we can but be made the instruments of saving the soul of one of these poor children."

The good Bishop was blamed for expressing his admiration of Dr. Arnold's character, but his opinion has been ratified by the whole world.

Much controversy was excited by his invitation to the famous Swedish singer Jenny Lind; and here again the people of Norwich now acknowledge that he was right.

In 1843, the famous Father Mathew, who had been the means of converting vast bodies of the Irish people to a state of comparative, if not of absolute temperance, proposed a visit to Norwich, which caused much excitement, from the circumstance that he was an Irish Roman Catholic priest. The Bishop entertained the simple-minded priest at the episcopal palace, and seconded his efforts in behalf of temperance on the platform.

In some other matters the kind-hearted Bishop was misunderstood and at the time blamed; but when his conscience told him he was doing right, he was not likely to be deterred by the thought of what people might say. Like the rest of mankind he was fallible, a truth which he was quite aware of, but for purity of motive and fearless honesty of purpose, for kindness of heart and genuine liberality of feeling, he was most remarkable.

It must be no small satisfaction to the Bishop's admirers that his memoirs have been written so graphically, and with so much loving filial reverence by his highly gifted son Canon Stanley, Regius Professor of Ecclesiastical History at Oxford.

As we read this very interesting memoir, we seem to have the venerable Bishop's very picture before our eyes. The frank open countenance, the quick bright eye, the elastic step, the hearty feeling, and the profusion of white hair which imparted to his appearance a solemnity beyond his years, are all portrayed most vividly, and to our eyes the portrait is most pleasing. The good Bishop died universally regretted, Sept. 1, 1849, aged 70, having completed 12 years of his Episcopate.

The above was scarcely committed to print when it was announced to the world that the Rev. Arthur Penrhyn Stanley, D.D., was promoted to the high post of Dean of Westminster; a post which has almost invariably been held, for many years past, by men of distinction and literary ability, and for which the present occupant is on all hands confessed to be eminently qualified. It is also a position which has this special advantage in the present case, that it will afford its possessor abundance of literary leisure.

Supplement to English Botany, Nos. 77 and 78; being the 1st and 2d Numbers of the 5th Volume.

Fourteen years have elapsed since the completion of the 4th Volume of this valuable work. About 100 or 120 plants, mostly phænogamous, excluding the Brambles and Hawkweeds, which it is proposed some day to publish separately, and which one may be glad fairly to dispense with, still remain to be figured, and we hail with great satisfaction the appearance of two numbers of the new volume. Differing as we do from Professor Babington, who supplies the greater part of the descriptive matter, as to the limits of species, we are still glad to possess such good figures of the several forms of Ranunculus aquatilis, recognised as species indeed by various continental botanists, but regarded by most of our best British authorities from a very different point of view. To say the least, they are at any rate well-marked varieties, which can scarcely be asserted of most of the Rubi and Hieracia.

The volume just commenced, the 41st of the whole work, presents no new features, except the exclusion of the lower Cryptogams, and one principal object in noticing it is to apprise possessors of the former volumes of the commencement of the present, a fact which is certainly not generally known. Had the encouragement of the Supplement been at all equal to that of the original volumes, we should long since have had a very complete Flora, and we are anxious that no needless delay should occur from the backwardness of the supporters of the Supplement to declare themselves as subscribers.

Garden Memoranda.

ABBOTSFORD.—This, once the favourite residence of Scotia's great poet, and now of Mr. Hope Scott, who is married to Sir Walter's granddaughter, is situated on an eminence on the south bank of the Tweed, about two miles west of Melrose.

The house is approached from the Melrose and Selkirk road by a carriage way about 200 yards long. On the south side is a sloping bank, which rises considerably higher than the house, and is planted with Oak, Beech, and Conifers, and so arranged as to leave space for planting underneath, where we found good shapely specimens of Portugal and common Laurels, Rhododendrons, and similar plants. The trees on this bank, it is said, were planted by Sir Walter's own hands. The Grass which covers the bank being kept neat and clean, serves to heighten the good effect produced by the trees and shrubs.

That portion of the mansion which forms the entrance has been added by the present proprietor. The approach formerly used by Sir Walter is now closed to vehicles; it is a square court yard with a wall on two sides, the house forming the third, and an iron fence of beautiful design—the pattern of which was taken from the cloisters of Melrose Abbey—completes the square. A number of curiously carved heads from the old Tolbooth of Edinburgh is inserted in the wall at intervals; these were scarcely visible a few years ago from their colour so much resembling that of the stone wall. To obviate this Mr. Dalgleish, the gardener, has covered the wall to the top with common Yew, and cut out circles round all the relics, setting them as it were in a green frame; the Yew is kept nicely trimmed, and although not more than 2 or 3 inches thick, clothes the wall perfectly with rich dark foliage. This is well worthy of imitation where blank walls have to be covered; the Yew looks neater than Ivy.

A large portion of this square is now converted into a flower garden. A round bed opposite the entrance to the house has for its centre the fountain of the Old Cross at Edinburgh; this was filled with Saponaria ocymoides, and the outside was partly covered with Tropæolum, so arranged that the curious old relic was prettily draped with wreaths of flowers. Here on the Grass is the grave of Sir Walter's favourite dog Maida, whose effigy is placed upon it, carved in stone. A large octagonal border on the right was filled with Humea elegans in the centre, and Calceolarias and Geraniums round the outside. A heart-shaped border on the left was filled with the pink Saponaria. These borders occupied about half the square, the remaining portion, an oblong square, is arranged in the following manner: a large circle occupies the centre, in which are cut out several geometric shaped beds on

the Grass. A gravel walk is taken round the circle and across the centre, leaving four corners of Grass, which are also covered with geometric-shaped flower-borders, the principal ones forming part of the circular arrangement, with corner beds to fill up the square. These have all been well filled this season with the usual summer flowering plants, and looked very neat and gay in contrast with the dark Yew which covered the wall. Beyond this is another small square enclosure, which once formed part of Sir Walter's kitchen garden, and is now converted into a lawn. On the south side of this garden is a Vinery containing the Vines planted by the poet, and consisting of Black Hamburgh, Grizzly Frontignan, and White Muscadine. A plant house attached to this was well filled with Fuchsias, Geraniums, &c.; the wall on the east side is covered with Cotoneaster microphylla, Ceanothus rigidus and papillosus, and the Russian Pyracantha. The wall on the north side is covered with Ivy; on the west is a series of flat arches filled in with iron work, similar to that before mentioned, with which it is in close proximity. At the corners of the walks are several large Irish Yews, which were also planted by Sir Walter, and are now 14 or 15 feet high; and in the centre of the Grass, in front of the Vinery, is a kneeling figure of old Morris, the gauger, praying for his life (as mentioned in Rob Roy), cut in stone by Greenshield. Close to the Vinery is a flower border filled with alternate bands of White and Red Candy-tuft and Mignonette, which at the time of our visit were in full beauty.

The kitchen garden is placed at the east side of this, and is a square about an acre in extent. It is well stocked with vegetables, and contains a number of pyramidal fruit trees, principally Pears. The walls are covered with Pears and Plums, and with Currants on the north side. The Peach trees were killed some years ago, and have not since been replanted. It seems pretty certain, from all we observed, that Peaches cannot be grown successfully upon open walls, even in the south of Scotland. This garden is on the side of the hill, inclining to the west, and at the top of the central walk is a very pretty Gothic conservatory, which can be seen from the front of the mansion, and is a pretty object at the end of the vista formed by the arches of the several enclosures; it is filled with flowering plants, and the roof is covered with creepers. This was built by Sir Walter, and was one of his favourite places of resort. Being placed on an eminence, it commands a beautiful view of the surrounding country. To the north-west is the valley of the Gala, and the small river which gives it the name, winds its circuitous route through it, and supplies Galashiels, a very flourishing manufacturing town, with water. So serpentine is its course, that the railway crosses it 21 times in three or four miles. Many of the tall chimneys can be seen from this spot. On the south-west all is covered with rich foliage, completely shutting out the distant view.

The north side of the house facing the river Tweed has been much altered since Sir Walter's time. The house was then embosomed in tall trees, these have been all cleared away, and a succession of terrace walks and grassy slopes substituted. On the upper terrace is a castellated round tower, peeping up through the gravel. This is called Sir Walter's Larder, and on the top, seats are arranged for the convenience of visitors. This larder is approached from the house by a subterranean passage. The level part of this terrace is 50 or 60 feet wide, followed by a sloping bank, 20 feet deep, which stands at about 1 to 1; it is thus steep from the rocky nature of the substratum. At the foot of this slope is a gravel walk running its whole length and ascending to the upper terrace in the eastern angle. This is succeeded by another grassy slope, about 15 feet deep, with a walk at the foot, running away amongst the large trees and gaining the upper terrace by a circuitous route at some little distance from the house.

A fine plant of Garrya elliptica covers the wall near the house to the height of 8 or 9 feet, with its dark green shining leaves, and numerous catkins, showing how suitable it is for such a place.

Taking away the large trees from this point is a great improvement, as it opens up a beautiful view of the country to the north, with the Tweed in the foreground, and moderately high hills clothed with trees in the distance; and it must have contributed not a little to the sanitary condition of the place.

The garden is everywhere extremely neat and clean, and reflects much credit on Mr. Dalgleish, the manager of this highly interesting place.

Miscellaneous.

New Perfumes.—Azulene is the name given by Mr. Septimus Piesse to a new body discovered by him to exist in several essential oils. In a paper describing azulene, read before the Chemical Society, Nov. 5, the author stated that though this substance was first observed by him as a product derived from the fractional distillation of Otto of Patchouly, he has since found it to exist generally in essential oils, as an integral part of their proximate constitution, giving in fact the colour by which each oil is distinguished. Pure azulene has a beautiful blue colour, and it is owing to the presence of a small quantity of azulene that blue oil of Chamomile owes its azure tint, and hence the name given to the new body. It is now ascertained that brown green, yellow green, and green oils owe their colour to a portion of azulene, and a yellow resin varying in proportion as optically indicated. We believe, however, that Mr. Piesse does not view the general presence of azulene in essential oils, merely as a colouring matter; he thinks it must play some other part in connexion with odorous bodies which Mr. Piesse will doubtless endeavour to ascertain in his future experiments.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—See that flowering Chrysanthemums have the lightest place in the house. Let plants of Eranthemum pulchellum coming into blossom have abundance of water and a warm situation. Take care that pots in the conservatory forcing pit are not plunged deep, if there is a lively bottom-heat; in the neighbourhood of the roots it should by no means exceed 75°. Indeed, if atmospheric heat of 60° or 65° can be secured by other means, a bottom-heat of 70° would suffice.

FORCING DEPARTMENT.

Pinery.—Atmospheric moisture must not be withheld from Pines in a swelling state, although we have arrived at the dark days. Nothing has a greater tendency to premature ripening. Give little or no air at this season, except under the pipes. There should, however, be slight ventilation of this kind all day, and sometimes all night if the weather is mild.

Vinery.—Where the roots of Vines started are inside, either wholly or partially, they should be thoroughly watered, if rather dry, with liquid manure, at a temperature of 75° or 80°; this will impart nutrition and warmth. An ounce of best guano to a gallon of warm water (allowed to settle), will be found serviceable. If the soil is exceedingly dry, the application of clear water should precede that of the liquid manure, or the latter will be wasted by running off in the fissures. As previously observed, proceed moderately; the first three weeks in such matters should hardly be considered forcing—merely softening the scales of the bud.

Mushroom House.—Be moderate in the use of fire-heat. If the beds have been made in due time, and on substantial principles, little fire-heat will be wanted.

Peach House.—While the weather is open and favourable, continue to expose the trees as much as possible; the sashes need not be drawn up at night unless it is frosty or windy.

Fig House.—Give air constantly during mild weather, but should frost occur, do not let the trees be exposed to it.

Cucumbers.—Follow strictly the directions previously given as to water, stopping, temperature, &c. Plants in pots will, of course, require water oftener than those growing in large masses of mould, such as those contained in the inside of pits filled with soil in the usual way. As to varieties, none are better for winter work than Cuthill's Black and White-spined kinds, both of which are very hardy and abundant bearers.

FLOWER GARDEN AND SHRUBBERIES.

Once more look over tender stock, and add any protection necessary according to principles heretofore laid down. Remember that fresh sawdust, ashes, dry Fern, or Cocoa-nut fibre refuse are excellent protectors to the crown and collar of tender plants. The last named material should however, be kept dry if possible. It will be advisable to keep all Carnations or Pinks which may have been potted during the past month from the action of frost should it occur, as they are unable to withstand it so well as those which have established themselves by being potted earlier in the season; they should not, however, be shut down when damp, for though extremely hardy, no flower suffers more from want of a circulation of air, than the Carnation. Examine the plants often, and fasten the soil if loose carefully round the stems. They want very little water at this season of the year. Tulip beds will now be ready for covering. It is a good plan to lay young shoots of Gorse between the rows of Pinks where rabbits are apt to come, and it will prevent cats from taking liberties with the beds, independent of protecting the plants from the cutting winds of the winter months. Look well to the turning of compost heaps, &c. Modes of storing half hardy plants away differ in different situations; some can afford pits, some even can spare house-room, and some are driven to the cellar. Whatever mode be adopted, let it be borne in mind, that confined damp is nearly as prejudicial as frost.

HARDY FRUIT AND KITCHEN GARDEN.

Winterly weather may now every day be expected. Lettuces therefore intended for the supply next spring must have attention. Some do not object to their being subjected to a little frost. A very light screen of straw, they say, should be shaken over them at first, and when this is frozen, add a little more; the object being to keep them frozen as long as possible. Above all, do not uncover them when a thaw arrives, but let them remain until completely thawed. An opportunity will now occur of covering the roots of Asparagus with a good coat of the best rotten manure. Hard frosts frequently do serious injury to this root, for want of such a procedure. Celery ground will answer well for a new plantation; it should be ridged to mellow as the roots are taken up. At this period, those who are desirous of laying the foundation for a good garden in the ensuing year should closely review the routine of cropping for the past summer, and even cast their eye back on that of the preceding year. Various are the schemes or rotations practised by different gardeners, many of them being based on no better foundation than the convenience of the present hour; where, however, the kitchen garden is sufficiently extensive, and where much produce is required, the rotation of crops should be carefully studied. The great difficulty is to procure fresh ground for the Cabbage tribes, so numerous are the kinds, as well as successions in cultivation. Broken up plantations of Strawberries, Raspberries, and bush-fruit, with Celery ground, should at all times, as a leading principle, be set apart for some of the Brassica family. Potatos prepare well for almost any crop. Deep or tap-rooted crops should be succeeded by shallow or fibrous ones. When the course of cropping has been decided on for the ensuing year, and duly entered with numbers in the garden book, the usual practice is to set up laths opposite to the space appropriated to each crop, with a number corresponding with that in the book, and the name of the crop on one side; and on the other the manure (if any), and mode of cultivation. This done, a labourer who can read the label can set out or proceed with the work at any spare time. This, therefore, is a matter which should receive attention.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Nov. 18, 1863, as observed at the Horticultural Garden

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 12	1	30.074	29.718	49	29	34.5			N.E.	.00
Friday 13	2	30.220	30.187	54	40	47.0	46	49	S.W.	.00
Satur 14	3	30.225	30.181	52	39	45.0	47	48½	W.	.00
Sunday 15	4	30.204	30.153	56	44	50.0	49	49	W.	.00
Mon. 16	5	30.154	30.121	58	47	51.5	49	49½	S.W.	.01
Tues. 17	6	30.109	30.061	57	45	51.0	50	50	S.W.	.00
Wed. 18	7	30.260	30.181	65	38	46.5	50	50	S.	.00
Average.		30.182	30.054	54.1	39	46.6	47.3	42.1		.01

Nov. 12—Clear and frosty; very fine; clear; sharp frost.
— 13—Light clouds, overcast; mild at night.
— 14—Overcast; cloudy; fine; overcast.
— 15—Overcast; fine; cloudy; fine at night.
— 16—Overcast, densely overcast, slight rain; fine.
— 17—Overcast throughout.
— 18—Fine, overcast; cloudy; fine at night.
Mean temperature of the week 5¼ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending Nov. 28, 1863.

November.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 22	48 8	34.1	41.4	20	0.80 in.	3	4	6	3	4	7	8	2
Mon. 23	47.0	34.0	40.0	15	0.36	1	6	3	2	5	11	6	3
Tues. 24	47.1	32 1	39 6	11	0.61	5	8	3	2	4	8	2	5
Wed. 25	45.9	33.4	39 6	19	0.34	3	4	6	3	7	8	3	3
Thurs. 26	47.0	33.0	40.0	19	0.70	2	6	6	1	4	13	1	4
Friday 27	46.8	34.3	40.1	17	0.88	1	5	5	1	6	9	6	4
Satur. 28	48.0	35 3	41.7	18	1.21	2	4	3	2	8	7	7	4

The highest temperature during the above period occurred on the 28th, 1828—therm. 60 deg.; and the lowest on the 23d, 1838—therm. 9 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

Books: *E S.* Consult the article "Sea-side Planting," in Morton's Cyclopædia of Agriculture.—*Rusticus.* Loudon's Encyclopædia of Gardening, and M'Intosh's Book of the Garden are full of plans of gardens.

Caper Plant: *X* asks if any correspondent can tell him how to manage this so as to get it to grow freely. He has had plants for some years, but cannot coax them to make anything like satisfactory progress.

Foliage Plants: *E S.* The plants with large leaves which you saw so extensively grown about Paris, were no doubt the Ferdinandas, Wigandias, Cannas, Caladiums, &c., which were to have been seen last summer in the sub-tropical garden in Battersea Park.

Fuchsia: *Devonian.* Of no value whatever as a florists' flower. As it seems very free it may prove a showy decorative sort, but of this we cannot judge from such materials.

Gynerium: *G H.* The red Gynerium is probably the male of G. argenteum. At any rate it is antheriferous.

Hops.—Would some practical friend be good enough to give us the name of the best recent work on the literature of Hops? He would much oblige us, and others,

Names of Fruits: *T F.* 2, Easter Beurré; 3, 4, Crassane; 6, 10, 16, Winter Nelis; 9, Louise Bonne; 12, Beurré Rance. ‖

Names of Plants: *Jim Crow.* A flesh-coloured Tea Rose, but that is all we can say from a solitary bud.—*Bromus.* 1, Panicum colonum; 2, Melica ciliata; 3, Triticum venulosum; 4, Erianthus Ravennæ.—*Manchester.* 1, Medicago tornata; 2, M. intertexta; 3, M. tentaculata; 4, M. scutellata.—*Cantab.* No doubt Bupleurum canescens as you suppose, and Nyssa capitata.—*E H, Norwich.* The bodies taken from the crop of a pheasant are not seeds, but are the lenticular cases of some fungus belonging to the genus Nidularia (*alias* Cyathus). These cases contain the microscopical sporules. There is a figure of one species in *Greville's Cryptogamic Flora*, t. 34. Possibly they are to a pheasant what Truffles are to an epicure. We also found a solitary seed of some Strawberry.—*F C.* Some Bolbophyllum, very near reptans, possibly new. Whence comes it?—*Biddenham.* Tagetes tenuifolia.

Obituaries. *R P.* The maxim "de mortuis *nil* nisi bonum" is excellent; and as we have nothing "bonum" to record respecting the deceased we are silent.

Truffles: *Barr & Sugden.* We know not how the notion has arisen that Truffles have of late been cultivated successfully. We should be rejoiced ourselves to have information on this point. *M J B.*

Misc.: *S W H.* Pray forgive us. Your note has been lost or mislaid during our late illness. Would you have the kindness to repeat the question, which we have quite forgotten.—*Anon.* The statement in Lady's Botany is correct. The Rose of Jericho is a cruciferous plant.



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W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.

DRAWING.—JAMES MILLER.

* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

AGRICULTURE.
J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
THOMAS ELLMAN, of Beddingham, Lewes—Lecture on Southdown and Short-woolled Sheep.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.

AGRICULTURAL CHEMISTRY.
THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.
Mr. ELLMAN will Lecture on "Southdown and Short-woolled Sheep," on Friday, Nov. 27, at 10 A.M.

For further particulars apply to the PRINCIPAL.

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Drainage of Land.

MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5s. per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

THE LANDOWNERS' WEST of ENGLAND and SOUTH WALES LAND DRAINAGE and INCLOSURE COMPANY. Established in the year 1844, and Incorporated by Special Act of Parliament, 11 & 12 Vict., Cap. cxlii.

Chairman—The Right Hon. the EARL of DEVON, Powderham Castle.

Deputy Chairman—WILLIAM PORTER, Esq., Hembury Fort, near Honiton.

Landowners having limited interests, such as Tenants for Life, Tenants in Tail, Mortgagors, and others, can Drain and improve their Lands without any expense to themselves personally,—as the Company's Act does not require Proprietors to liquidate the cost, the amount may remain permanently charged on the property, at interest, or be paid off when convenient, or be made redeemable over any term of years.

The works are undertaken by the Company, who keep in constant employ a very extensive and experienced staff of Engineers, Surveyors, and workmen; or Proprietors may avail themselves of the powers of the Act only, and get the works executed under their own superintendence, or by Agents appointed by themselves.

Outfalls through adjoining lands are obtainable under the Company's Act.

Works are also executed by the Company for Parties advancing their own capital, or not wishing to borrow the money.

Every information may be obtained on application to
FREDERICK BRODIE, Secretary,
Castle Street, Exeter.

Offices: Castle Street, Exeter; and
30, Parliament Street, Westminster.

THE NATIONAL EXHIBITION of DOGS.—The FOURTH GREAT ANNUAL EXHIBITION of SPORTING and other DOGS will be held in Paradise Street (near Bingley Hall), BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY and THURSDAY, November 30, and December 1, 2, and 3 (the week of the CATTLE and POULTRY SHOW). For SPECIAL RAILWAY ARRANGEMENTS, see the Advertisements and Bills of the Companies.

BINGLEY HALL, BIRMINGHAM.—The FIFTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 1, 2, and 3.

For Special Railway Arrangements, see the advertisements and bills of the Companies.

BIRMINGHAM CATTLE SHOW.—Exhibitors and the Public will be ADMITTED to Bingley Hall to Witness the JUDGING of the CATTLE, SHEEP, PIGS, ROOTS, and CORN (but not the Poultry), on SATURDAY NEXT, November 28, at 9 o'clock, A.M., upon payment of 10s. each. J. B. LYTHALL, Secretary.

SMITHFIELD CLUB CATTLE SHOW, at the AGRICULTURAL HALL.

PRIVATE VIEW, MONDAY, December 7, after 2 P.M. Admission 5s.; December 8, 9, 10, and 11, Admission 1s.

The Agricultural Gazette.

SATURDAY, NOVEMBER 21, 1863.

MEETING FOR THE ENSUING WEEK.

SATURDAY, Nov. 28 { Exhibition of Poultry and Fat Stock at Bingley Hall, Birmingham—opens this day for the award of prizes. Admittance, 10s.

A RECENT discussion on the profitableness of pig feeding is reported in another column. No very definite conclusion on the point seems to have been arrived at. The question—Does pig feeding pay?—is however answered definitely enough by the permanence and magnitude of the bacon manufacture. Establishments which have for many years each sent several millions of pounds of bacon annually into the market would long ago have failed if pig feeding did not answer. The 300 to 500 fat hogs weekly which such establishments convert would not be forthcoming week after week, and year after year, if their feeding did not pay.

In one instance known to us some 15,000 hogs per annum, averaging 10 score lbs. apiece (carcase weight), are killed, and upwards of 2,000,000 lbs. of bacon are annually sold. The greater number come from Ireland, but the Gloucestershire dairy districts yield a constant and considerable share of the annual supply; and whether in Ireland or in Gloucestershire, the feeding if unprofitable would undoubtedly have ceased.

Leaving, however, this preliminary question settled in this way, let us describe one of these great bacon manufactories, whose continuance gives the answer which the Croydon Farmers' Club could not with any confidence pronounce from their own experience. The management of a great market is often of as much agricultural interest as the process which supplies it, and such an establishment offers a market of this kind.

At Newmarket, near Nailsworth, Gloucestershire, Messrs. HILLIER & SON have for many years killed and converted into bacon some 16,000 fat pigs annually. These are curiously near 10 score pounds apiece as the average carcase weight.

Two-thirds of them are from Ireland—the great majority are more or less of the ordinary Berkshire type. The great scale of the manufacture is indicated by such figures as 120 tons of salt and 8 tons of saltpetre purchased annually, 30 cwt. of sausages sold weekly, and 300 to 350 hogs purchased every week. A ten-score pig makes about 144 lbs. of bacon, the remainder of the weight goes under various designations, either fresh or manufactured, to agents in almost every English town within 12 hours of a railway journey. Thus, as hocks, faces, "eyes," tongues, fry, backs, blades, bits, "meat," "leaf," chitts, sausages, saveloys, and BACON—the whole of the weight paid for to the feeder is sold to the consumer. Besides, however, these sales there is a considerable quantity of refuse material which, till lately, has been wasted. Blood is indeed sold for manure at about 24*s.* per ton, and various other refuse matters have found their way into the dung-pit. But an attempt likely to be successful has been lately made to turn them to account in the feeding of ducks. Several hundreds of young birds, fully grown however, and purchased at 15*d.* to 16*d.* apiece, have been imported from Ireland, and they are fed on "smut dust," as it is called, grains, and this refuse meat. It is found that 500 ducks will eat about 30 cwt. a week, consisting of 1 ton of grains, 8 or 9 cwt. of the mill dust, and about 2 cwt. of the offal meat. The chief produce hitherto has been the birds' dung. The weekly produce of this kind from 500 birds weighs about 20 cwt., and this is worth from 40*s.* to 50*s.* Farmers in the neighbourhood have contracted to purchase at this price, and manure manufacturers offer an even higher price.

The actual work of the bacon manufactory may be very easily and shortly described. The pigs are driven into pens close by the slaughter-house for a day before being killed. A chain, running over a pulley in the ceiling, is worked rapidly by a windlass, and, being furnished with a hook at the end, is used to lay hold of them individually by the hind leg as they press against the door separating the two houses. The animal is thus dragged quickly backwards and hangs suspended by one leg.

In that position it is stuck, and the hook, an S, which holds it, is detached from the chain, and is suspended on a bar—a sort of suspended single railway line which traverses the ceiling. It is pushed a yard or two forwards on this line while another pig is drawn out, "stuck," and also pushed along. There is very little noise. In this way four or five may be hanging close together before the first is dead. It has by this time been pushed 6 or 7 yards along the line. There, a jacket of flame is ready to receive it and scorch the hair and outer cuticle in preparation for the scraping and cleaning which it immediately receives.

An iron jacket or saddle, some 3 feet square, furnished on its inner surface with some dozens of large gas burners, through which atmospheric air is also driven by the steam engine outside, is accurately counterpoised, so as to be easily under the management of one man, and is made to play with all its flame on the back, legs, and belly of the hanging pig which is under the management of another man. When the two have scorched sufficiently the surface of the carcase, it is slid along the line a yard or two, and the second is taken in hand. The first falls into the hands of another man armed with a much smaller handful of flame, which he directs upon all the ends and corners which have not yet been scorched. The hoofs are torn off, and the carcase is then slid along the line and shunted—for this hanging railway of a single line is provided with arrangements enabling this—on to one or other of a series of parallel lines hanging from the ceiling of a wider and more open house, where the cutting open is performed. The killing goes on until some 150 perhaps are slaughtered and scorched and hanging on these ceiling lines. The men then scrape them and wash them, water being provided from hose under pressure for the purpose; and the opening proceeds. We need not describe this in detail, nor the cutting up which takes place on the following day. It must suffice to say that every part of the animal is turned to account. The lard is sold in bladders and casks, the sausages prepared on the premises are sold by the cwt. to dealers, the pork is despatched to the nearest railway station for long journeys, and to all the villages around. The hams, and hocks, and faces, are pickled and dried upon the premises. The sides are wheeled into a long cellar, and there laid on the stone floor and sprinkled with saltpetre, and covered with salt, which is rubbed into them. They lie there for a few days, salted every morning, and are then piled five or ten together, to make room for others.

After a fortnight or thereabouts they are packed and sold in London and elsewhere to those whose trade it is to dry and cure them further. Those intended for home consumption are hung in a smoke kiln, and dried before sale. But much the greater proportion is sold "green" as it is termed.

Besides being great manufacturers, Messrs. HILLIER have been great feeders of bacon, and whenever prices suggest it they buy large numbers of swine in an "unripe" state, to finish before slaughter. It is found that pigs weighing 5 or 6 score apiece will fatten up to 10 score, the ordinary weight, on 56 lbs. of meal a week. During the process Peas and Barley mixed are the best food; Indian Corn with Barley tends to make the bacon soft; Bean-meal makes it strong; Lentils are the most forcing food, but they tend to make the bacon oily. It is the experience here that pig feeding pays only on certain occasions when prices suit, but Messrs. HILLIER are not in the position of the farmer, who has a quantity of offal food for which he can find no market, except such as pig feeding offers—the dairy farmer for example, who thus makes 30*s.* per cow of his whey—or the ordinary arable farmer, whose tailing corn and much green food in addition, thus finds the most profitable conversion.

The large experience on wholly purchased food—meal alone—in which Messrs. HILLIER occasionally indulge, is after all the most interesting part of their business to the farmer, who however shares to some extent in every improvement and economy in the subsequent manufacture of the bacon after he has sold it. Probably the largest experience of this kind of which any one man can boast, has been witnessed during the past year at Buscott near Faringdon, where pigs have been bought by the hundred, and their food by the shipload. We should be very glad to state for the benefit of our readers, the profit or loss account of the 800 fatting pigs which we there saw feeding on Mangels and meal in the spring of this year.

THE subject of foul and infected cattle trucks, to which we referred last week, receives a striking illustration in the following communication just received:—

In taking possession of my farm in Dorsetshire I was particularly desirous to start with a good flock of breeding ewes, and finding it impossible to personally attend different fairs, I sought the assistance of a friend upon whose judgment I could rely. In a few days, and within a short time of each other, I received two lots of promising ewes—Hampshire Downs—one from Dinton and the other from Devizes. These animals arrived all well (certainly they were not lame). In two or three days, however, there were symptoms of lameness in a few, which seemed rapidly to spread until *many* became involved in the attack, and the few became worse.

Further, a ram which I borrowed from a neighbour whose flock is not at all affected, and two rams sent afterwards by my friend, immediately took the "foot rot."

These facts show that my flock is affected by a malady, the contagion of which spreads in the most rapid manner. It therefore becomes a matter not only of interest to myself but of importance to the public to inquire into the circumstances by which so contagious a disease may have reached me, and may indeed be at this moment in the process of dissemination throughout the land. Having written to my friend respecting the sheep, I do not hesitate to copy the following remarks from his letter, as they may tend to aid us in the solution of the case.

"I am exceedingly vexed to find that the sheep have fallen lame, but every inquiry I have made respecting the health and condition of the flocks I had them from has been answered satisfactorily, and I know their breeders to be good men, and the neighbourhood to be free from epidemic, which is not the case, I am sorry to say, in some other breeding districts, as you may see from the following account of Winchester fair:—

"WINCHESTER SHEEP FAIR.—An unusually short supply. An average is computed to be 30,000; but on this occasion there were barely 20,000—a full third deficient—in a great measure to be attributed to the sudden outbreak of epidemic lameness, which during the last fortnight has presented itself in an alarming form throughout the southern and south-western parts of the county. Many pens taken a few days since found no occupants, the sheep being unable to hobble off the farm they are feeding on. Notwithstanding the very short supply, the trade was dull and dragging during the early part of the day, but ultimately the business became quicker, and the whole were disposed of in about two hours, at prices varying but little from the late Weyhill Fair. The following were the general prices—Ewes 35*s.* to 45*s.*; extra lots, 48*s.* to 50*s.*; lambs, 25*s.* to 39*s.*; extra, 40*s.* to 44*s.*; wethers, 40*s.* to 52*s.* each."

"They tell me it made its appearance at once, without the least previous indication; but I find that with care it is soon got over, and trust it may be your case.

"Could they have caught it from standing in the railway truck? I was so anxious to get the 180 ewes to you on the day I bought them that I left the fair, being unable to hire a man so early, and helped drive them to the station, and found every ewe upright; the trucks we found in a filthy state, but I had them cleaned out before we filled them, but the sheep were in as soon as the muck was out, as the train was just ready to take them."

Now the inquiry of my friend—"Could they have caught it in the railway truck?" is of a very serious nature, and as it would seem that on the farm this disease is communicable to sound animals from treading on the same ground as the infected ones, it is, to say the least, presumptive evidence that it may be disseminated far and wide by means of dirty trucks.

It follows, then, that as every precaution to check so sad a malady should not be overlooked, that of a constant cleaning of railway trucks used in the conveyance of cattle should not be overlooked. Indeed, not only should trucks be constantly washed, but the employment of some such disinfectants as chloride of lime might easily and inexpensively be had recourse to; and the interests of the public, no less than of the farmer himself, demand that something of the kind should be done.

INJURY AND WASTE OF CORN FROM THICK SEEDING.

[The following lecture was given last week by Mr. Hewitt Davis at the Royal Agricultural College.]

THE subject selected for my lecture is the Injury and Waste of Corn from the present practice of too thickly sowing; and I hope to gain your attention by showing you that in seeding we should be careful not to create more plants at first than the space allowed will leave room at last to grow to maturity, and that the right proportioning of corn seed must ever form part of good husbandry.

As I shall propose to farmers a very considerable reduction in the quantities of their seed corn from what they have been accustomed to sow, and as they, very wisely, are more ready to follow an example attended with success than to take lessons on trust, I will premise by saying, that I was for many years a large farmer, and have long and successfully practised the thinner seeding that I am about to recommend to you. You will observe that I speak of the injury and waste of corn from too thickly sowing as of two distinct evils arising from sowing too much seed, namely, the injury and the waste.

Although my advice to sow less comes strongly recommended by the saving of seed which is obtainable, if I show that the sowing of 1 bushel answers the purpose of the two hitherto sown, I will at once tell you that this is not the gain that I ever had in view in recommending thinner seeding, and were the advantage from sowing thinner confined to the economy of seed, I should have little to say on the subject, although the loss in this respect is considerable, and should not be neglected. It is to the injury to the growth of the plants by sowing too much seed that I wish particularly to call your attention, and all I need say to you on the subject of waste of seed is that I have found by my practice above a bushel an acre, taking all grain sown, is used more than is advantageous, and as something like 8 millions of acres are yearly sown with corn in the United Kingdom, it follows that above a million quarters of corn are thus annually wasted, and British farmers sustain a loss of something like a million and a half pounds per annum in their waste of seed.

The small returns the farmers gain for the seed they sow, and the large proportion of their grain that is wanted back for seed, is very remarkable, when we take the natural fecundity of corn into account.

Let us take Wheat for example, and I will confine my observations to this grain in all I have to say to-day, seeing that my doing so will simplify my subject, although all I say on the excess of seed in Wheat will be seen to equally apply to all other grain. The ordinary practice in sowing Wheat is to put on from 1½ to 3 bushels an acre (and I recollect the time when the late Lords Leicester, Western, and other high agricultural authorities of their day, recommended as much as 4 bushels and more, on the grounds that to reap a full crop you must sow enough, never considering the evil from sowing too much), and the return reaped certainly never averaged 32 bushels, so that we do not gain 16 fold for all we sow, and much less was gained in days of thicker seeding; and of all we grow a 16th is wanted back for seed, and yet this small return is made from grain which will return thousands fold when space is given to it to develope its extraordinary natural fecundity. Many instances have been given of a grain of Wheat planted singly having given 3000 grains and upwards at harvest, and every farmer knows the wonderful power of branching and tillering out that all corn possesses, where room is afforded for making its natural growth—a single plant of Wheat where room is given it, under favourable circumstances will throw up 40 or 50 stems, on each of which at harvest will be found an ear yielding 50 to 70 grains, and surely this should be enough to prove that it cannot be right to sow so much even as one bushel an acre with a view to grow the largest crop that possibly can be grown. I may prove this further by saying that an ordinary ear from ordinary sowing yields on an average 36 grains, and allowing each grain sown to produce only one ear, and that one ear only to give 36 grains, it would follow that the yield from 1 bushel of seed sown on one acre, should at least be 4½ quarters—that is to say, 36 fold of the seed sown. I may be told that no allowance is here made for loss

from bad seed, destruction by birds, insects, and the many ills that the seed and young plants are exposed to; but surely this is to be found in the bountiful provision there is in store from the tillering of what is left, and the larger size which fully-developed ears attain wherever the plant has room given it to grow out, and when we see this it follows that sowing more than a bushel of Wheat an acre must at first generate more plants than can possibly find space to grow to harvest, and, this being so, let me ask you to reflect on what must be the state of the growing crop when the time arrives that the young swelling plants press upon each other, and find no room to grow larger—a period in the age of the young crop usually reached in April, when observation will show you a sickly stage in thickly sown corn arises from the over-crowding that thinner seeding is free from. It was the change I saw come over very thick sown corn in spring, and the unhealthy hue plants always take where seed had been spilt, that first attracted my attention to the mischief from over-seeding, and I saw the same mischief in the corn that I had seen in plantations, where over-crowding in planting, unless afterwards mended by sufficient thinnings, is sure to bring a stage of disease destructive to many of the young trees and injurious to all; and a period comes when from want of room part die and part dwindle on, so that at last no more trees will remain than the space afforded ample room to grow, and these will be seen to have suffered in the fight for existence they have gone through, and never to have attained the growth they would have attained had they had room given them to grow out from the first.

Among the many lessons I have had of the advantage from reducing my amount of seed, and apportioning it to the space left for it in its after-growth, I may mention the following, which was well-known at the time:—

In the autumn of 1840 I had an 8-acre field to sow with Wheat, and 7 bushels of seed were prepared and given to the drill-man to sow it, but owing to his putting on the wrong wheel, he found that when he had gone half over the field he had not sown half the ground, and to correct this error and get rid of the remainder of the seed, he then altered the drill and sowed the rest of the seed upon the remaining portion of the land, and in this way one half of the field was sown with 2 peaks to the acre, and the other half with 5 pecks. I was not informed of what had been done, and therefore was ignorant of the example I was preparing to show the results of the thick and thin sowing, but in the winter I soon found part of the field looking very thin, so much so that at one time I thought of ploughing it up—but in the spring it rapidly mended, and when the crop was reaped at harvest, I found the crop of the thin sown side was the better half of the field; and then was first told of the mistake made in drilling it.

A frequent visitor to my farm, and a convert to thin seeding, for he had watched my practice for many years, sent me Arthur Young's Tour, drawing my attention to the fact that when that great agricultural observer inspected the farming of England, for the purpose of writing his reports, 92 years ago, he much to his surprise found that the largest crops he met with were the produce of the smallest quantities of seed; and in his summary he thus speaks, alluding to the crops raised from different proportions of seed:—

(Extract from "The Farmer's Tour through the East of England." By Arthur Young, 1771, vol. iv., p. 247.)

	Crop.
"From 2 bushels	24 bush.
,, 2¼ and 2½ ditto	23 ,,
,, 2¾ and 3 ditto	22 ,,
,, 3¼ and 3½ ditto	21 ,,

"A more unbroken degradation could not have happened; and though there is not a proof that the cause is the quantity of seed, yet there is much reason to suppose small portions a part of good husbandry, and attendant on rich soils. When the land is rich and the husbandry good, it is evidently proved that 2 bushels of Wheat seed are preferable to any larger quantity, and of course that there is a great waste when more is used." This being so, is it not a pity that Arthur Young met with no instances where less than 2 bushels of seed were used; he wrote this in the days of broadcast sowing, when 2 bushels were thin sowing, comparatively as much so as one appears to be at the present day. But the subject of sowing less seed is not by any means a new one for discussion—it has always been seen to be deserving of attention, as the following extracts from a book of farming written in the year 1732, or 131 years ago, will show you; it shows that so long ago, and by reference to a still older work, written a hundred years before, that the waste of seed had been felt, but the want of good drills and horse hoes kept back the progress of thin seeding.

(From the "Practical Husbandman.")

"B——, Essex, July 12, 1732.

"Mr. Switzer,—In answer to yours concerning the planting or setting of corn with proper instruments, and for the reducing a kind of vineyard culture into our fields, I acquaint you that I have made diligent search amongst ancient authors, but cannot find anything that seems to point that way, although it must be acknowledged to be a very pleasant, useful, advantageous method in all well cultivated soils, and in those years especially when corn and Grass seeds of all kinds are dear, provided there could be such instruments found out which would be regular and punctual in their delivery of the seed at equal distances, being fully convinced that the sowing of grain at random and so thick, as it used to be (whatever it is in Grass), is yet in bread and other corn a very bad practice. But however unsuccessful my endeavours have been in finding out this practice amongst the ancients, I have had better luck in the perusal of some modern tracts in agriculture, an account of which I shall give you in the detail of this letter. Gabriel Platt (an honest well-meaning writer, about the time that anarchy took place in England) seems to be one of the first who fell into this way of thinking, and the calculations which he made thereon he communicated to Mr. Hartlibb, the ingenious author of the 'Brabant Husbandry,' near one hundred years ago, and which were since printed in one of the parts of Hartlibb's works, now out of print; the substance of which is as follows:—400 grains of Wheat (says Platt) weigh three quarters of an ounce, which is about 533 grains to an ounce; and so 160 perches, which is an acre, must have 480 ounces, that is 30 lbs., which is in measure half a bushel and two pints of it to an acre. If this half bushel (continues Platt) be set upon an acre of good ground, though it increase but as a hundred to one, which is often allowed, then there will be 11 quarters on that acre on which that half bushel was sowed; it appeareth clear that there is 80 lbs. in 200 lbs. saved in seed Corn by setting with instruments more than there is by the common way, *i. e.*, random or broadcast. The said Gabriel Platt also offers to make it appear that this way shall yield a full third-part of increase more than by the common way, which said third part will (as he thinks) pay all charges whatsoever, both as to rent and other incidents."

Again I quote from the same book. "Seedsmen generally allow 2 bushels, or 2½ bushels of Wheat on an acre, according to the rankness or poverty of the ground. This, we say, is the general method of sowing, and the allowance of seed Wheat to an acre of ground, if sown by broadcast, and allowance is made for what lies above ground and is picked up by pigeons and birds; but if the farmer would drill in his Wheat by a plough made for that purpose, 1 bushel will be sufficient, it being a truth (even beyond peradventure) that Wheat is generally, especially on good land sown too thick, of which there was a remarkable instance happened some years ago at Farringdon, in Berkshire, where a farmer's corn had the misfortune (as he thought) to miss, on which he had ploughed it up, had not a neighbouring gentleman dissuaded him from it, and though it appeared to him as if half his corn was lost, yet at harvest he found a much finer crop than he had ever had on that spot before. And this thin sowing would be especially useful when seed Wheat is dear, which it often is, a bushel and a half of Wheat in dear times amounting to 10*s.* or 12*s.*"

I had long taken credit for having originated the practice of such very thin seeding as I had adopted when the work of Jethro Tull came into my hands, and I found thin sowing had been recommended, and was successfully practised by an agriculturist who died ere my grandfather was born.

That "there is nothing new under the sun" has come home to me, by my finding that my thin seeding, wide drilling, horse-hoeings, and minor estimation of manure against good cultivation, are recommended in the strongest manner in a work written 150 years ago, and these who have read Jethro Tull's work will hardly believe that I can have trod so directly in his path without being conscious I was doing so; and it is with a view to encourage others in what I, by experience, have found to be a right and profitable course, that I bring Jethro Tull's work again into notice. That extraordinary man, William Cobbett, accidentally fell in with his writings just as they were passing into obscurity. His good sense was struck with the truth of them; he saw their value, adopted the practice, and gave the public a new edition of them. In Cobbett's preface, at p. 10, he gives an account of an experiment of his in 1813, where he sowed 13 rods of land with Wheat on Tull's system, namely—in three ridges, a single row on a ridge, and the ridges 2 feet apart, against other 13 rods sown broadcast, and this is the result. The Tullian grown yielded 2 bushels 5¾ gallons, the broadcast 2 bushels 7½ gallons; the first being at the rate of 33 bushels 6 gallons to the acre, the latter at the rate of 36 bushels ½ a gallon to the acre. Whilst the broadcast was sown at the rate of 3 bushels per acre, the Tullian had only 5 gallons; and deducting the seed sown, the account shows the returns to be as follows—the Tullian 33 bushels 1 gallon per acre, the broadcast 33 bushels ½ a gallon per acre. After this experiment he (Cobbett) made another. Taking 10 feet of one of the rows, and thinning out the plants so as to leave only 12 plants in a foot, the produce of these 10 feet gave a wine glass more Wheat than the row not thinned out. Wheat so thin would require no more than 1¼ gallon of seed to the acre, and it produced at the rate of 31½ bushels per acre. In chapter vii., p. 108, Tull thus speaks, and I quote it because my experience fully bears out its truth—"The too great number of plants placed all over the ground in common sowings, have, whilst it is open, an opportunity of wasting, when they are very young, that stock of provision for want of which the greatest part of them are afterwards starved. Hence it is that the old method, exhausting the soil to no purpose, produces a less crop, and yet leaves less pabulum behind for a succeeding one." Again, "in a large ground of Wheat it was proved that the widest hoed intervals brought the greatest crop of all." "Dung without hoeing did not equal hoeing without dung." At chapter xi., page 186, he recommends "6 gallons of Wheat, and only 4 gallons on rich land, for the seed of an acre;" at page 199, he says, "If a square yard of sown Wheat (that is, broadcast—and 3 bushels to the acre) be marked out, and the stalks thereon numbered in the spring, it will be found that nine parts in 10 are missing at harvest." Again, at page 201, "The greatest difference of having an equal crop, from a small number of strong plants and from a great number of weak ones is, that the soil is vastly less exhausted by the former than by the latter, not only from the latter's exhausting more in proportion to their number when young, while each of them consumes as much nourishment as each of the small number, but also from the different increase that a strong plant makes, by receiving the same proportion of food with a weak one." "It appears from Dr. Woodward's experiments, that the plant which receives the least increase carries off the greatest quantity of nourishment in proportion to that intrease It is the same with animals; all who are acquainted with fatting swine know that they eat less when they thrive most, the fatter they grow the less they eat." Space is wanting for me to quote more from this valuable old book. I trust I have introduced enough to recommend it to general attention and to show that as scientific principles began to be applied to farming, thin seeding was seen to be part of a better practice, I, too, have discovered the very important fact which Tull has so strongly urged, namely, that the exhaustion of the soil for the next crop is much less from thin seeding, notwith-standing that the produce of grain is more, and the benefit from thinner seeding extends to the crops that follow after, for the land is left less exhausted.

The luxuriance of my Wheat sown on poor land the fifth year since the application of manure can only be accounted for by supposing that it arises from the ground having been saved the early exhaustion which results from the early occupation of all space by thick sowing. Two bushels of Wheat per acre (broadcast or in narrow drills) will early occupy the whole of the ground almost without any tillering, and will have proportionately exhausted the land in the spring of the year; whereas 3 pecks per acre, in rows 12 inches apart, leave much space unoccupied and unexhausted until late in the season, when tillering and summer growth fill up the intervals.

Certain I am that thinner seeding has given me larger crops, with less occasion for manure, than ever I had from sowing double the quantity of seed.

My lecture should here be closed, seeing that my subject, the injury and waste of corn from too thickly sowing, may be said to be now ended.

I trust I have said enough to lead you when sowing of corn to reflect that you may sow too much. You cannot make two plants grow where there is space only for one: but I cannot close without saying a few words on the further gain which Mr. Hallett is showing is to be made from thin seeding, namely the improvement of the corn, for I, too, had entered into this field when I ceased to be a farmer. I had seen that thinner seeding produced a bolder grain, and acting on this and the example of gardeners, I after harvest put two women into a Wheat barn, and had sheaves of Wheat thrown to them to draw the largest ears. The ears so selected I had threshed and carefully made up, so as to have only the largest and finest grains left; and these I carefully dibbled in a corner of a Wheat field, 2 pecks per acre, two grains in a hole, 12 inches apart each way. The young crop was several times carefully hoed and weeded in the spring, and at harvest I had it reaped by itself. The produce was again carefully hand-picked in the same way, and enough carefully selected to sow a field the following season, when I saw a result at harvest fully equal to my expectations—it was superior to any other field I had; but here ended my experiment, for I then ceased to farm.

I have often thought how much in gardening the desirable qualities of fruit and vegetables have been developed by selection, thin seeding and hoeing, and yet how little has been done in this way in farming. I have seen in my own practice that great improvement in the quality of our grain is to be gained in this way, and I wish others would follow up the experiment that I began with so much success. The practice of sowing thick is a bar to the improvement of grain, as it would have been to the improvement of fruit. To what is it we owe the delicious and productive Strawberries we have had introduced in the last 50 years but to the care that a Myatt has given to the selection, and to the development he has made of his plants? without very thin planting the wild Strawberry would never have grown into the British Queen. *Hewitt Davis, Nov.* 12.

STEAM CULTIVATION.

Pyrgo Park Farm, near Romford.—Mr. Howard's steam cultivator, worked by Clayton & Shuttleworth's 10-horse power engine, has been employed on this farm during the past two years. Employed on 77 days, including the time lost in removals in 1862, and on 34 days during 1863, it, with eight horses, has done the work of the farm, which includes 204 acres of arable land and 229 acres of pasture. This is a full allowance of force for the usual work to be done; but the land is a heavy loam, and there has been a great deal of extra work owing to the progress of estate improvement, and the condition in which the land came into the occupation and possession of the present owner.

Some four or five years ago, before its purchase by Mr. Bray, one of the farms of which it consisted, including nearly all the present arable land, was managed by five pairs of horses. This sufficiently illustrates the character of the soil, which is a stiff loam containing flints. The use of the steam cultivator has enabled Mr. Bray to secure the thorough fallowing of the arable land, which came to him very foul and out of condition, and at the same time to do the other work of the estate, including now upwards of 200 acres of Grass land in addition, with four pairs of horses. This therefore is hardly a case in which a direct comparison between horses and steam power can be instituted, but the actual expense of the steam cultivator is exhibited in the following table:—

Work done by Howard's Cultivator.

	In 1862.	In 1863.
Acres grubbed at depths varying from 6 to 12 inches	508	286
Harrowed	59	
Numbers of days, including removals	77	34
Number of removals	?	5
Wages..	£78 18 6	£34 17 0
Fuel	25 9 0	15 9 0
Oil	4 7 0	1 14 0
Repairs	12 18 0	10 0 0

The original purchase included engine, price 420*l.*; cultivator and rope, 1600 yards long, and snatchblocks, rope-porters, &c., costing 210*l.* On these in all a sum of 22*l.* 18*s.* has been spent in repairs during two years' work. The original rope is still in use, but will need replacing by a new one after another season's work. Charging 10 per cent. for tear and wear on engine and tackle, and 5 per cent. for interest of capital, these with portion of the cost of new rope and cost of fuel, wages, and repairs, amount to 288*l.* 2*s.* 6*d.* for which sum 880 acres have been grubbed over one way at depths varying from 6 to 12 inches, and 50 acres have been heavily dragged at a cost of between 7*s.* and 8*s.* for the grubbing per acre. The engine when not used on the land is employed in threshing and sowing, so that the whole cost of it ought not to fall on the cultivation.

The estate lies in the midst of the high undulating country some 4 miles to the north of Romford; and presents a pleasantly diversified scene of pasture, plough-land and plantation. A vigorous growth of Oak and some large Elm trees indicate a considerable natural fertility, and when drained the Grass land is very good, and the arable land is productive.

The crops of the past year have been sufficiently illustrative of the value of thorough tillage on a stiff adhesive soil. In particular, the Swedes and Mangel Wurzel are this year remarkably good. A foul Wheat stubble in 1862 was steam grubbed some 6 inches deep, and then drained 3 feet 6 inches to 4 feet deep, and 20 feet apart, 2 inch pipes being used for the minor drains, and 4 inch pipes for the leaders. In spring it was cross scarified by steam power, harrowed and cleaned, the rubbish being carted off. It was then scarified a third time and again harrowed and cleaned. A further scarifying was followed by ribbing with the plough, manuring with 12 to 15 cubic yards of farmyard dung in the drills, and 2½ cwt. of guano per acre strewed along the dung by hand. The drills were then covered by splitting the intervening ridgelets, and the seed (4 lbs. of Skirving's Swedes per acre) was sown early in June. The horse hoe was kept continually between the drills during summer, and the result is a crop of probably 25 tons of Swedes per acre, which are being partly carted off the land and partly left for feeding on the land.

A capital crop of Mangels which have just been pitted was in like manner obtained after a crop of summer Vetches in 1862 by the help of two steam scarifyings and other horse tillage.

The usual rotation of the arable land is the four-field course of crops—Wheat, root crops, Barley, Clover or Beans, and occasionally a snatch crop of Vetches is taken between the Wheat and the roots; a plan which

steam cultivation certainly enables—while on the stiffest land a crop of summer Vetches has occasionally been taken in place of the root crop. A great deal is being done by drainage and liming, by the removal of fences and the making of roads, to bring an estate formerly exceedingly out of condition, and ill equipped, into good order. A good deal has also been done in the way of laying down land to grass in places where pasture land was needed, and in improving Grass land by breaking up old worthless pastures and relaying them. There are already several fields with a capital coating of Grasses and Clovers, which have been treated in this way; and it is evident that the importance at once of a deep tillage and of a consolidated surface of Grass lands, is well understood by Mr. Burgess the farm manager.

Fields now lying deeply stirred by the steam cultivator, and subsequently ploughed by horses, are to be folded over with sheep, and then lightly cultivated and sown with Barley and Grass seeds next spring, as the best possible preparation for the permanent Grass land into which they are to be converted.

The fertility of the land depends not only on the drainage and deep and thorough tillage to which it has been subjected as well as on the considerable purchase of artificial manure which is annually made, but also on the purchase as well as growth and consumption of cattle food.

Some 200 ewes with their lambs are sold off fat yearly; also about 100 store sheep, which are usually bought in in autumn; and 10 cows with their produce and 40 beasts are kept, the cattle and sheep being fattened —receiving to some extent cake on the pasture towards the end of summer if that be necessary to fatten them before winter; and when both together have failed, whether owing to the season or to the condition of the cattle when put on the pastures in spring, then receiving cake and Bean-meal and crushed Oats along with roots partly cut and partly pulped mixed with cut hay chaff.

About 100 acres of Grass land are annually mown by Wood's machine—the hay being made at the cost on an average of 15*s.* an acre, which is a small sum for the neighbourhood of London.

These constitute the principal points in the management of a clay-land estate, which is only gradually getting into condition—where steam-power has been employed both for the sake of the deep and thorough tillage which it alone on clay land can accomplish, and for the sake of displacing horse-power enough for the carriage of road material and building material, and for the other work inevitably attendant on estate improvement.

THIN SEEDING.

THE elaborately composed article inserted in the *Agricultural Gazette* of the 31st ult., and at page 1042, is such a heavy blow and great discouragement aimed at agricultural improvement, that as no one else has commented upon it or noticed it, I will ask you to be kind enough to endeavour to find a few corners in the *Agricultural Gazette* for me, for I must write two, three, or four papers, for so many criticisms upon it, since no one else has.

The author of the article, I am fully aware, is a scientific and highly respectable gentleman, and I lament much that I am compelled to dissent from him so completely as I do; but I frankly state that I do so, and *in toto* nearly. But in this paper I shall skim over the surface of the article, or confine myself to two or three statements only; but dig deeper into the subsoil of it, so to write, hereafter. But first, I will remark that the writer of the article would have the readers of it believe that he is entirely disinterested; that he holds the balance impartially equal between the thick and the thin seeders, and that it is quite indifferent to him which way the beam turns; but it requires no extraordinary acuteness of observation to discover on which side his prejudices lie, and into which scale he slips the weight of his arguments in support of them.

But first he compliments the farmers by stating that they "seem perfectly satisfied with the custom as to how much seed to employ," of course in the sowing of given quantities of land.

Now, were my profession that of a tiller of the ground, instead of a compliment I should regard this to be as keen a satire upon me as the ingenuity of man could invent; as the progress towards the perfection to which any art or science can be carried, is caused by wise men not being perfectly satisfied; and this is what has raised our manufacturers to be what they are, and to gain the power and influence they now possess in the state, and enabled them to supply nearly or quite all the rest of the world besides their own country, with nearly every kind of article, either for use or ornament, which the world may require. But had those manufacturers, as we are informed by the writer of this article the farmers are, been "perfectly satisfied" before they made the advance they have, in what condition would our country have been at the present day? Why, nearly in the same that it was 500 or 1000 years back. No; good and wise men are never "perfectly satisfied" with anything they do or can do, but are always pushing forward to higher and higher states of improvement, and on this the real happiness of civilised and educated men depends; ignorance alone can produce perfect satisfaction, and hence we learn from travellers among them that the Esquimaux are the happiest people on earth, in fact, they are, as we are now informed farmers are, "who can eat, and drink, and sleep, kill a pig, or a goose, or a turkey, or a couple of ducks or fowls when they are hungry, and roast or boil them, or both, and thus be perfectly satisfied; brew themselves a few hogsheads of nut-brown October also; and thus again drink at their leisure, fall asleep and be happy and satisfied with the custom that prevails in their different districts,"—or so writes their eulogist; but we hope, and are inclined to believe that he is under a mistake; and we further hope that, if he be correct, some means will be adopted to infuse a spirit of inquiry among farmers, and arouse them from their lethargy and mental slumber.

But to proceed, we are next informed in reference to the quantities of seed sown on given quantities of land, that at present the prevailing quantity is 2 bushels per acre before November, and 2 bushels and a peck afterwards; and that these quantities, "as a general rule," are only little more than half the quantity of seed per acre "that was sown 20 years since;" and so, as "a general rule," 20 years back little less than 4 bushels of seed were sown per acre before November, and 4½ afterwards. Now, gentlemen of the same school as this writer are continually informing us, that for the last 40 or 50 years the quantities of seed per acre have diminished in nearly equal ratios; and thus, if, as our author writes, it diminished 2 and 2¼ bushels, or about those quantities, in the first 20 years, it also diminished 2 and 2½ bushels the previous 20 years, or from about 1820 to 1840, as well as from 1840 to 1860, and thus, again adhering to our author's "facts and figures," in 1820 about 6 bushels and 3 pecks were sown—to produce what? Why, 20 bushels, for I have read that Mr. Caird, M.P., considered to be the best authority, has published that even now the average yield is but about 20 bushels an acre throughout the whole country.

But were 6¾ bushels sown generally in 1820? No. Were 4½ bushels sown generally or anywhere in 1840? No.

But has the quantity of seed Wheat diminished at all since 1840? Yes, about half a bushel and no more. *Geo. Wilkins, Parsonage, Wix, Nov.* 12, 1863.

AGRICULTURE AS A COMMERCIAL PURSUIT.

BY PETER M'LAGAN, ESQ., OF PUMPHERSTON, N.B.

Paper read in the Sixth Department of the Social Science Congress, on Tuesday, Oct. 13, 1863. (*Abridged*).

THE letting of a farm is generally considered a purely commercial transaction by which both landlord and tenant are presumed to act on the fundamental principle that "one should sell in the dearest and buy in the cheapest market."

But in the matter of rent, the highest offered at the time the farm is let is not always the best for the landlord, even in a commercial view. That which yields the largest sum to him throughout the lease, and at the end of it enables the tenant to leave the farm in improved condition and of increased value, is the most profitable for the landlord. We thus see that something more than mere money is involved in the first commercial step taken by the farmer. Again, a landlord in the selection of a tenant should look to his skill, his capital, and his fitness for that particular farm for which he offers. The personal element also often enters into the preliminary measures in the taking of a farm; a landlord may have a liking for one man as a tenant more than for another, quite irrespective of the rent offered and the capital and skill of either. And he cannot be blamed for giving due weight to this element in the choice of a tenant when we consider that for 19 years he will be continually brought into contact with him, not only in business but also in social intercourse. A good neighbour is one of the great blessings and sources of enjoyment in a country life. And if the very first transaction which a farmer makes towards the prosecution of his business contains elements which divest it somewhat of a commercial character, there is still stronger reason why the relation between the landlord and him, which will exist for about 20 years, should be modified in its commercial aspect. By all means let the lease be as strictly drawn out as any business paper can be made. But in its duration there are sure to be many vicissitudes which no one could foresee, which constitute a difference between the letting of a farm and an ordinary commercial transaction the term of which is but short. There is no trade of which the followers are more powerless to help themselves, when brought under adversity, than those of farming. During the lease there may be a succession of bad seasons, such as we have experienced for the last two or three years, during which many a farmer's capital, at first ample for his farm, has been swept away, and he unable to meet the engagements with his landlord. There may be an unforeseen depression of prices which no ordinary capital of a tenant could stand against. There may be much loss from disease in stock. Would such occurrences as these not be a sufficient reason for relaxing the strict commercial rules in favour of an industrious tenant? Let the conditions of the lease be interpreted in as liberal a spirit as possible, and let there be a mutual forbearance on the part of both landlord and tenant, and the tenant will farm none the worse—the landlord will be as sure of his rent, both will be none the less happy, and the country none the less prosperous.

The first thing required in any commercial transaction is security for the capital invested. As there cannot be security for the tenant's capital, laid out more particularly in improving the farm, without his being insured of the occupation of the farm for a certain time, a lease is absolutely necessary if agriculture is to be conducted as a commercial pursuit, and the lease should be of sufficient duration, and with clauses just and equitable for both landlord and tenant.

I shall allude to only one clause in the lease, that which refers to game. Landlords generally reserve the game to themselves, and tenants come under an obligation not to destroy it. Both parties are bound to act up to the conditions which they sign; but this obligation, to which many farmers give an unwilling assent, is objectionable in a commercial transaction, as where game is strictly preserved there is often an undue increase in the numbers, and it is difficult for the tenant to prove whether the landlord has trangressed his part of the agreement, though there were no doubts of the fact itself. It would perhaps be better to let the tenant have the liberty of keeping within reasonable bounds only for the use of himself and family the game fed on his crops. A landlord will find that the best and cheapest way of preserving the game on his property is to give a tenant who likes a shot liberty to shoot over his farm. Such a tenant is not the man to extirpate game; and the laird would always be sure of a good bag on his farm. While I thus express myself on a subject which is often a cause of heartburning between landlord and tenant, I would not have it supposed that I join in that sympathy which is felt by some for poachers, whom I have always found to be the least respectable members of the community, whose families are generally reduced to beggary, and their own end too often the hulks or the gallows.

When treating of the commercial relation between landlord and tenant, I cannot pass over without remark the law of hypothec by which the rent is secured to the landlord, and which gives him a preferable claim to a certain extent before any other creditor of the tenant.

He can, for instance, exercise his right of hypothec by sequestrating the crop for the rent due for that crop, but only for that crop, and also by sequestrating the farm stock for one year's rent—his preferable right to do so existing only for three months after the last conventional term of payment of the year's rent. Neither crop nor stock can be sequestrated for the arrears of previous years' rents.

One objection to this law is, that in consequence of the preferable claim it gives the landlord a tenant cannot afford the same security to others, and hence he has not the same facilities for borrowing money as he otherwise would have; in short, his credit is impaired, and he is so far hampered in his pecuniary transactions. Another and stronger objection is, that after a *bonâ fide* sale of the produce of the farm has been made by the tenant, and the goods delivered, the landlord in the exercise of his right of hypothec can compel the purchaser to re-deliver the article or pay a second time for it. This is so repugnant to everything that is fair and just in commercial dealing as to make the law most obnoxious. Fortunately the cases in which the landlord has carried this right to such an extent are rare, but even the power to do so in any case should not be possessed by him.

The existing relations between landlord and tenant, and the circumstances connected with terms of entry, tenants' capital, &c., being induced by the law of hypothec, its abolition would be attended with much greater changes than we would suppose at first sight. If the security which the landlord possesses from this law were withdrawn by its abolition, the simplest and readiest remedy for the landlord would be to make the rents payable before the crop is reaped and disposed of, and not after as is generally the case at present. This change would demand a larger capital from the tenant on entry, in as far as he would have to provide a sum equivalent to one year's rent in addition to the money required for stocking and cultivating the farm as well as for performing such improvements as usually fall to be done by a tenant at the commencement of a new lease. A tenant, for instance, at present entering upon a lease at Martinmas is not generally called on to pay any rent till the Candlemas or Whitsunday after the crop is reaped—that is, about 15 or 18 months after his entry. He has thus the use of this money in the management of his farm for this period. If, however, the law of hypothec were to be abolished, and the rent made payable before any crop were reaped—say at the Whitsunday immediately after the entry at Martinmas, the tenant would be deprived of the use of a sum equivalent to his rent in assisting him to raise his first crop. I believe that were the law of hypothec abolished and prepayments of rents substituted, as the present leases expired many tenants now considered unexceptionable would find their means inadequate for their present farms, and would have to give them up and content themselves with smaller holdings. But by the abolition of the preferable right which the law of hypothec conferred on the landlord, the tenant would be enabled to give better security to the capitalists, and his credit with the public would be improved; and this would at least be some compensation for the disadvantage he would be at in paying his rent before his crop was reaped were the law of hypothec abolished.

Before we can estimate the amount of capital necessary to be invested in the farm by a tenant, we should decide as to what improvements are expected to be performed by him.

The negotiations between the landlord and tenant regarding the improvements to be performed on the farm should be based on the principle that permanent improvements should be executed by him who has a permanent interest in the land—viz., the proprietor, and temporary improvements by him who has but a temporary interest—viz., the tenant, according to the duration of his tenancy. The execution of improvements is generally the subject of agreement between the parties; for instance it may not be convenient for a landlord to lay out the necessary funds in improvements, and the tenant may agree to do them at his own expense on condition of getting the farm at a lower rent; or the tenant may offer a certain sum as rent, and promise to pay interest on the money laid out in improvements. This latter plan has crept very much into use of late, and tenants are now unconsciously executing permanent improvements on their farms by paying the whole interest on the money borrowed from Lands Improvement Companies. It is now quite customary for tenants to pay 6¾ per cent. of interest on the money obtained in this way. Part of this interest is charged to redeem in 25 years the capital sum laid out, so that in fact this capital is paid by the tenant. Entailed proprietors, who on account of their entails cannot obtain money on the same terms as other proprietors, are the principal borrowers from these Companies. It is questionable whether the measures sanctioned by the legislature for allowing entailed estates to be improved by money borrowed from Lands Improvement Companies are the wisest that could have been devised under the circumstances. There can be no doubt that much good has resulted from them; for on many estates no improvements could have been executed without them. But why should particular Companies have such privileges invested in them? They simply borrow the money from capitalists, and charge a commission to proprietors of land for advancing this money to them, thus imposing an additional burden on land. It would be much better were entailed proprietors allowed to go directly to the money market and borrow without the intervention of such Companies. Why should there not be land debentures in every respect the same as railway debentures? At present there is a large amount of money unemployed because the owners cannot get what they consider sufficiently safe investments for it. Let entailed proprietors be allowed to issue debentures on their estates under certain conditions, and a new field for the employment of capital will be opened up which would be attended with the greatest advantages to the owners of both land and money, to

the tenant, to the labourer, and to the country by the improvement of a large extent of land.

The amount of capital necessary for the proper cultivation of an arable farm depends upon the situation of the farm, the system of management to be pursued on it, its condition at the time of entry, the term at which the first rent is to be paid, and some other circumstances. As might be expected the capital considered necessary varied at different periods. In a pamphlet published by Mr. Wedderburn in 1770, it was stated that the capital considered requisite for a farm was 1*l.* 7*s.* 9*d.* per statute acre. Mr. Robertson, farmer at Granton, in his "Report of the Agriculture of Mid-Lothian," drawn up for the consideration of the Board of Agriculture in 1795, estimated the capital at 5*l.* per statute acre. Sir John Sinclair in 1812 calculated from the returns given in to him by a large number of farmers in Scotland that 6*l.* 12*s.* 9*d.* per acre was sufficient. Professor Low in 1844 estimated the requisite capital at 6*l.* 17*s.* 4*d.* per acre. And in "Morton's Encyclopædia of Agriculture," published in 1851, it is estimated at 9*l.* for a farm managed on the four-course system, and 11*l.* 7*s.* for one managed so as to have the half in Wheat, and the other in Beans, Clover, Turnips, and Mangel Wurzel, provided the farms are in good order, and it is not necessary to purchase lime or other costly manure. It will be observed how the capital considered necessary for a farm is gradually increased by the different writers as they approach the present times. But when we consider the difference between the value of money now and what it was even a quarter of a century ago, the actual difference in the requisite amount of capital is not so great as the figures above indicate. I do not believe that the capital invested by tenants in the arable farms throughout Scotland exceeds if it even amounts to 5*l.* per acre on an average. And though agriculture has made great progress of late years, and rents have risen much, there has not been a corresponding increase in the profits of the farmer. This has been owing very much in many instances to the want of the necessary capital to develop the full resources of the soil. The great desideratum in Scotch agriculture at present is capital; there are intelligence, skill, enterprise, and industry, but capital is awanting. Many tenants are too fond of having larger holdings than their means warrant, and hence full justice is not done to the farms, and the profits are necessarily less. It is unfortunate for the agriculture of Scotland that many both of the landlords and the tenants are ambitious of possessing and occupying a greater extent of land than they can do full justice to with their capital. I consider that the capital requisite for an arable farm under ordinary circumstances, and on which the landlord is to execute all permanent improvements, should not be less than from 10*l.* to 12*l.* per acre according to the condition of the farm at the time of entry.

Some shrewd farmer's wife is reported to have compared farming as a remunerative business to "cooking a feast and getting the smell of it for the trouble, or putting money into one's pocket with one hand and taking it out with the other." Most farmers will agree with her that the profits of farming are not great, and these vary much, as in all occupations, with the followers themselves.

A farmer must not only have a knowledge of his business—know in fact the most profitable way of manufacturing Wheat, beef, and the other produce of the farm—he must not only have sufficient capital, but he should endeavour to rent a farm suited to his qualifications. If he have a taste for and is a good judge of live stock, let him select a farm or adopt such a system on his farm as to apply this talent to the most profitable account. Farming differs from the purely mercantile profession in this and other respects. The merchant having learned his business begins to practise it at once by buying and selling. The farmer on the other hand has to choose first from among the different branches into which his business is divided which he is to practise. He becomes a manufacturer before he engages in the proper mercantile part of farming, viz., that of buying and selling. And the same qualities requisite for a merchant are also essential to a farmer in a greater degree. That attention to details which is a qualification all men of business should possess is particularly necessary for the farmer; for success in farming is due as much to constant attention in working out the details of a system, as to any superiority in the system—as much to small savings as to large profits. It has been well said that "the master's eye fattens the ox," and that "the best manure you can put on the land is the foot of the farmer." In his commercial capacity the farmer should know the value of the articles he deals in, and how to purchase and dispose of them to the greatest advantage. Too often have farmers skilled in the art of raising good crops and in the general management of their farms been disappointed in the remuneration obtained for the trouble and expense they bestowed on their farms—the main if not the sole cause of this disappointment being their want of the important qualification of buying and selling to the best advantage. When we consider the great labour, anxiety, and risk which a farmer undergoes in the prosecution of his business, he is fully entitled to 15 per cent. on his capital; but generally speaking the return is much below this—10 per cent. being, I believe, a high average in Scotland. To enable him to determine what he is really making from his business, accurate accounts should be kept, which should be balanced at least once a year. And on comparing returns from farming with those from other pursuits should not forget in their calculations to credit the farm with house rent and with the value of a great part of the food consumed by their family.

A farmer in prosecuting his business commercially should be able to accommodate his system to the times; and hence the advantage, I would say the necessity, of his not being fettered by vexatious and obstructive clauses in his lease which prescribe a particular plan of management, which might be quite proper at the beginning of his lease, but would be quite unsuitable before the half of its term was past.

However profitable, for instance, it was to cultivate Wheat and the other cereals during the Crimean war, their cultivation is now almost unremunerative, and therefore commercially wrong. And the high prices of cattle, sheep, and wool, as contrasted with the low prices of the cereals, point to the advantage of a change in the system, viz.—in reducing the extent of land under the plough and in increasing our pastures. I believe that it would be for the benefit of the farmer and of the nation at large were Grass to form a larger proportion of the rotations at present in use in Scotland; for while the competition from abroad has forced down and is likely to keep down the price of the cereals, those of cattle, sheep, and wool have on the contrary risen. It is worthy of remark here that while the price of Wheat, as representing the Cereals, is about the same price now as it was 90 years ago, that of butcher meat has increased about 100 per cent., wool about 150 per cent., and rents upwards of 100 per cent. Mr. Caird mentions, in his "English Agriculture," "that the great corn-growing counties of the east coast yielded an average rent of 23*s.* 8*d.* per acre; while the more mixed husbandry of the midland counties, and the grazing, green crop, and dairy districts of the west yielded 31*s.* 5*d.* per acre.', These striking facts clearly point to the most remunerative system to be pursued in most districts in Scotland, and the farmer would do well to study them. The objection made to the adoption of this system of pasturing is that the pasture on medium and inferior soils becomes deteriorated in a few years. True, but the deterioration can be prevented by a generous treatment of the pastures by liberal manuring, and the consumption of cake or other food on them by cattle and sheep, by which means double the number of stock can be kept on the farm. Farmers often act most unwisely by giving high rents for Grass parks often at a distance from their own farms, while by using the above means they could keep the same number of stock on their farms as on the rented pasture and their own farms without such means, while they would greatly enrich their fields by the cake and manure used on the pastures.

A farmer who has once got his land into condition commits a commercial blunder by allowing it to lose any of that condition.

Too often as the end of a lease approaches, and the tenant is uncertain as to having his lease renewed, the liberal treatment of the soil previously pursued is changed for one of mistaken economy. Little or no manure is purchased, and all is taken out of the soil that can be got without restoring anything to it. The use of a manure when applied to the soil is not merely to supply the elements necessary for the growth of the plant, and restore to the soil those that have been removed from it by the plant, but also to call into action some of the constituents of the soil which otherwise would have lain dormant. The farmer therefore who, trusting to the high condition of his soil, purchases no manure towards the end of his lease, has not the advantage of the profit to be derived from the manure itself, and from the elements of the soil called into action from the application of such manure, while the soil is exhausted of its more available elements. He is thus the first sufferer himself, and through him both the landlord and the nation also suffer loss—the former by his land being exhausted, the latter firstly by the reduced profit of the tenant, and secondly by the reduced fertility of the soil. No manufacturer of sense would allow his machinery to get out of order because he expects to leave his premises in a few years. He knows the better the order his machinery is in the more work he will get out of it, and therefore he does not grudge the small annual expense in keeping it in proper order. What the machinery is to the manufacturer the farm is to the farmer; and what is true of the one is also true of the other.

Some people contend that the remedy for this system of exhausting the soil towards the end of a lease is to allow compensation for "unexhausted improvements," or, in other words, "tenant-right." "The recognition of any such claim," said the late Mr. M'Culloch, "would be most mischievous, and is indeed quite at variance with the principle of occupancy for specified terms." "We have seen in the counties where it exists," says Mr. Caird, "that the agriculture is on the whole inferior to that of other districts, and in no case, even under the most favourable circumstances, superior to other well conditioned counties which do not possess this tenant-right. In every county it has led to fraud in greater or less degree. It perpetuates bad husbandry by stereotyping costly practices which modern improvements have rendered obsolete. It absorbs the capital of the entering tenant, thus limiting his means for future improvement. Let the lease be framed on pure mercantile principles, and its stipulations be explicit and based on equity, and there will be no need at the end of the lease of such unbusinesslike proceedings as those required by tenant-right, or compensation for unexhausted improvements, which encourage dishonest trickery and bad farming. It is not by such means as these that Scotch farmers are to expect to contest successfully with that world-wide competition to which they are now exposed. The state of transition consequent upon the introduction of Free Trade measures may now be said to be past, though the full effect of them was not felt by the farmer till last year with a deficient crop, an immense importation of breadstuffs, and the low prices which necessarily followed. But even if these low prices are to continue, as there is every likelihood of their doing during a time of peace, the energy, skill, and capital of the farmer may yet be successfully employed in raising stock instead of grain.

Home Correspondence.

The Wild Breed of Cattle.—A correspondent in one of your recent Papers is wrong when stating that Chillingham, in Northumberland, is the only place in England where the original breed of wild cattle is to be found, as a fine herd of these interesting animals exists, and has done for centuries, at Chartley, near Stafford, an estate of Lord Ferrers. The cattle are white, and a curious family superstition is associated with the herd—should a black or spotted calf be born, it is considered a sure sign that a death will shortly occur among the noble family to whom the estate and herd belong. *R. D. S., Cheshunt, Nov.* 11.

Arthur Young's Farmers' Calendar, 21st Edition.—Why my friend Morton should call this "Arthur Young's Farmers' Calendar," I know not. It has nothing of that excellent writer, but execrable farmer, about it, but the name. Did the subject admit of a pun, I should say it was too young for Young. It is the play of Hamlet with the part of Hamlet omitted. The plan is Young's, the superstructure is Morton's, and a good substantial building it is; materials of first-rate quality, and such as were not come-at-able in Young's time; for, of the host of authorities to be found in the pages of the modern work, not one will be found in the original. Bailey Denton was a babe unborn; Mechi was not; Voelcker and guano and other "chemical mucks" were alike unknown. Even John Chalmers Morton himself had not then lisped in "Numbers." In sober sadness I fear we were great noodles in those days, content to jog on as our fathers had jogged on before us. Practice and Science were then hardly on speaking terms, or were at best but beginning to join hands; and sulphates and phosphates, queer things to swallow, and by no means easy of digestion. In short, a broad line was drawn between the practical and the theoretical, to the great disparagement of the latter, or book-farmer, as he was called in derision; nor am I disposed to contend that there might not be instances where practice and science could never be brought properly to harmonise. Arthur Young was one; for, as I have already said, he was a most miserable farmer; and yet who would infer this from the plain, practical good sense of his writings? One of the best farmers I ever knew, used to advise me when a young man to read, and if possible get by heart the Farmers' Calendar, as the best guide to good management he ever knew, yet I have heard my father say, that when in the neighbourhood of Bradfield, he could always tell to a field where Arthur Young's farm began, from the badness of the farming! What a strange contradiction between preaching and performing! To go back to the "Calendar." Others have followed in Arthur Young's track; for Young had his followers, as Shakespeare and Milton had theirs—John Lawrence was one, but at what a distance! His "New Farmer's Calendar" is become old—at all events it never will be Young. Mr. Morton's is better, and a great deal too, inasmuch as his materials are all of modern date—"the latest authorities," as very old maps never failed to specify. I, for one, rejoice to have found the work in such hands, but why not call it by its right name? It is not Arthur Young's, but J. C. Morton's "Farmers' Calendar." *S. T.*

Farmers' Clubs.

EAST-LOTHIAN: *Nov.* 6, *Steam Cultivation.*—Mr. SCOT SKIRVING, who presided, introduced the discussion by a long reference to the history and literature of the subject.

Mr. SADLER, of Ferrygate, then said:—You are aware that last year I purchased an improved set of Fowler's steam ploughing apparatus, and I have come here to-day at the request of the Club to give you some account of my progress and experience with it. You will get a full account and an unbiassed opinion, for I have no interests whatever to serve, and I do not mean to extol any one of the two great competing systems of steam culture over the other—viz., the turn-over furrow, or the smashing up without inversion; and I will just observe in starting that both the systems of direct and of round-about action have each their advantages and disadvantages. If Fowler cannot send a light implement over the land in moist weather and prepare a seed-bed in the excellent manner in which I saw Howard doing the other day at Fenton Barns, in Potato land in preparation for Wheat, he can, on the other hand, drive a grubber, two yards wide, through the ground in dry weather at the rate of ten and 15 acres a-day or more at 1*s.* 6*d.* an acre, employing only six people, part of whom are boys, and he can dig 10 or 12 inches deep in solid clay, as I have been doing this autumn. Fowler, however, requires more favourable circumstances; he does not adapt himself so much to the tenant; he will not work in angles; he must have the fences 400 yards apart; and he must have the stones taken out of his way. Last winter I spent a very considerable sum in blasting and removing stones, and I had also breakages in some places to the extent of 1*l.* per acre. I am sorry to say we are still meeting stones in this our second year, and I fear on the heavy land the cost for breakages will not be less than 5*s.* an acre still; all time lost in replacing breakages must be added to this. I may mention that when using the grubber we never had any breakages, but I prefer using the plough when pioneering for stones, with its cast-iron skifes, although they do break now and then. I say I prefer this to straining the tackle, as I believe nothing can be worse, both for rope and engine, than doing so. In regard to the great controversy as to whether ploughing or cultivating is the best system, I can tell you what Mr. Fowler says:—"Dig all your land in the autumn, and put the steam harrow 12 feet wide, with slack gear, as exhibited by him at Worcester, over it in spring, and never use the cultivator at all." He is so convinced that this is the right work for his strong tackle that he intends abandoning the manufacture of cultivators. After he hears of the effect of this implement upon our Potato crop, however, I have a notion that he will change his mind. That he is right so far with regard to the reduction of the dug land in spring I feel certain, as it is no easy business to get such gigantic clods reduced with the horses. It requires more than the agricultural pace. We have not yet had enough experience, but my belief is that the cultivator or grubber, for they are synonymous terms, must be adhered to in working Potato and Bean land in autumn for Wheat, as I could not fancy any work superior to that I am at present doing at Ferrygate on Potato land, the drill following the engine close up, and the tilth is as beautiful as could be desired. I should be pleased to show it to any member of the Club. In the south they advocate ploughing nothing except Clover lea. I consider the digging which I have been doing this autumn worth 20*s.* an acre where Potatos are to be grown, as from experiments we tried this year we find that we can increase that crop about a fourth by the use of steam power. Any one who saw the sets put into the drills after the cultivator had moved the land to a depth of 16 or 18 inches, could well look forward to such results as we have obtained. I thrust a walking-cane easily down into the subsoil between the sets, and as the manure was put in in autumn, there was no pressure of carts in spring.

21 drills, horse-worked, produced 12 carts Potatos.
38 " steam-worked, " 29 "
Or about 25 per cent. in favour of steam.

Some of you may say that four horses could have ploughed and grubbed the land equally well, but allow me to tell you it is quite impossible; 20 could not have done it, even if you could have got them to draw.

It is the swift shaky pace that renders steam grubbing so beneficial. My opinion is that, barring stones, it will pay any man to use steam who grows 40 acres of Potatos, and I believe it will turn out that this crop will bring in the best return from steam cultivation; and I think we may also look for our horses living longer and costing us less. I have used nine horses upon my farm for the last 12 months, instead of 14 as formerly, and I have not found any loss thereby. It is true we stacked part of the distant corn out in the fields. I ploughed too deep last year for Wheat, and lost money by doing so. Mr. Fowler warned me, but I persisted in my search for boulders. It is considered a great mistake to go too deep with steam at first, especially for a seed furrow. My Oats grown after the steam ploughing were a very good crop indeed. So also was the Barley; and I have exhibited my first samples of steam-grown Barley in our market to-day weighing 59 lb. per bushel, sold at 36*s.* 6*d.* per qr. The effects upon the Turnip crop were also good, but not so apparent as on some of the others. Still the first sown Swedes weighed 36½ per ton. We have many points yet to learn regarding steam culture, and once we become masters of them I expect to see work kept well forward; and you know, gentlemen, that is a very desirable matter in our climate. I believe it to be nearly the whole secret of success. With steam, and the use of portable manures, I see no reason why we may not yet be able to take a free-trade price for our produce; and in Scotland we have the advantage of cheap coals, as my engine does not cost me more than 4*s.* a-day for coals at present, say if doing very heavy work 5*s.* per day. I now use the Wallyford coal, double-screened, at 6*s.* per ton, laid down. This is a very important fact for you to know. My opinion is that steam will increase the value of clay land immediately, and that all light thin soils upon the rock will fall in value, unless it be left in Grass for sheep; and if it be true what I see told in that European organ, the *Times*, which has ever taken the part against the British farmer, that Wheat will never be dear and that mutton will never be cheap, perhaps the more in Grass the better. Steam in the field seems to use a hackneyed phrase, to be a "great fact," and one too, which few people think of abandoning. We have not heard of any steam farmer going back to be a horse farmer. It would be like pulling down your steam threshing machine and putting up a horse work. On the contrary, we have one of the greatest steam men in England declaring that he would rather pay rent and farm with steam than be rent-free if compelled to revert to horses. I look in course of time to finding no fields less than one mile long and 400 yards wide; hedges on one side of each field removed, and in its place a sunk fence on each side of a road for the engine. There is one question not yet alluded to—viz., the minimum of land upon which steam may be profitable. My farm being partly light soil, and not very extensive—only 409 acres arable imperial—it may be questionable as to where much profit is to come from, unless it be the Potatos. Yet look at Mr. Smith's, of Woolston, success on only 112 acres, with a portable engine of eight-horse power; he has only three horses on his farm, which is a poor cold clay. I feel certain that when any of you occupy 400 to 500 acres of stiff land (some say light pays best, as it can be ploughed for 5*s.* an acre—my idea is with a stiff land farm), the question is not will it pay, but rather what am I losing by not having it? I cannot see that the present rents on stiff land can be paid with present prices unless with the aid of steam. I regret that I have not kept an exact statement of the work done last year. It was commenced; but from interruption, breakages, and stoppages, by wet weather, discontinued. This season we have got about 100 acres of stubble and Potato land ploughed, dug, and scarified; and I expect next autumn, if certain animals could be got rid of, much of the stubbles would be by this time under winter Tares for sheep feed in spring, instead of growing up an idle mass of weeds. I should like our Turnip break to bear something else—still eaten off in good time for a crop of the latter root. I wish to call your attention to the company now forming in London—viz., the Steam Cultivation Company. This company is formed for the purpose of enabling farmers to purchase steam ploughs, by advancing the money, and taking re-payment by instalments. I strongly recommend it to your notice. I am sure I should have dealt with this Company had they been in existence when I started. As affecting steam, I do not see why our landlords should not give us a right to destroy the hares. In some places of England I find neither hares, crows, nor wood-pigeons. "What a paradise" some of you will say, "Why can we not have the same here?" I am certain that, in general, landlords do not value the ground game. As to hares and rabbits, by the use of steam we are now enabled to break up our stubbles in good time for winter Vetches and other sheep-keeping crops, to be succeeded in summer by common Tares, Rape, and White Mustard, by which a larger flock of sheep may be maintained upon an arable farm. Now upon the generality of our farms here we cannot grow winter Tares, for the hares eat them totally up. Let us have free trade in hares, which eat our sheep-feed as well as our sheep-nets to such a woeful extent, so that we may grow those crops which steam now enables us to do, and which are necessary to pay the rents of the present day. I see no greater barrier to the introduction of steam here than the land-fast stones, and I would call upon the owners of the soil seriously and respectfully to the subject. It will be a pity if they cannot go hand in hand with the tenantry in helping them to increase their crop by the introduction of steam upon their farms. The use of steam I believe to be our only chance in this crisis of low prices which has come upon us. I look upon it as equal to the discovery of guano, and something more. By it alone can we fight the battle of a cheap production with foreign nations, who are sending us now 40,000 quarters of corn weekly into London and Liverpool alone. Foreigners, too, will adopt it shortly; let us, then, have the start. It matters not, I think, what system you adopt; any system of steam is better than none, and the worst is incomparably superior to horses. The entire daily cost with me of working is under 1*l.* per day, and if we can do only four acres of digging worth 80*s.*, I think there is some hope for profit. It is not only the quantity of work done, it is the quality. There are (at least there was) both difficulty and anxiety at first, but I am happy to say these have now vanished, and I feel sure that in the generality of cases both masters and men will yet be benefited by steam tillage.

Mr. HOPE, of Fenton Barns, said:—My experience of steam cultivation is small, but, as far as it has gone, it has been most satisfactory. We began with Howard's apparatus on September 25 last, and since then we have grubbed or cultivated 32 acres after Beans, and about 45 acres (both imperial measure) after Potatos, the whole of which has been sown with Wheat. We have also done 50 acres of stubble land—or in all say 127 imperial acres. We might have got done another 25 or 30 acres of stubble, but in our anxiety to get Wheat sown, we placed it beside a Potato field before the crop was removed, and thus lost more than eight days. In regard to the depth the soil has been moved, there were a few acres full of stones that we only did about five inches deep; the greater part has been done from 7 to 8 inches; and the last 10 or 15 acres we have gone over has been moved fully 10 inches. The shares being 13 inches broad, the soil is cut quite level, and effectually thrown up and stirred. The Couch Grass and other weeds are left on the top, and when harrowed, may be taken off. In fact I was rather astonished at the quantity of Couch taken off both my Bean and Potato land, and which would have been all left in the soil had it been ploughed in the ordinary way. This cultivation is a very different operation from any grubbing with horses that I ever saw; after it the rain goes through the land like a sieve, and it dries very quickly. I have begun to think it may prove the best way of treating all kinds of land, except perhaps lea, which had better be turned over. I intend in spring to go over the stubble land a second time, and then drill it up for Potatos and Turnips, but perhaps the drills could be made up at once. It takes five men and two boys to work the apparatus, besides a lad with a horse about half-time to supply the engine with water, when none can be got where it is placed. The consumption of coal is from 8 to 9 cwt. daily. We use what are called chows; they cost on the farm about 9*s.* 6*d.* per ton. The expense for oil daily is another 1*s.* I calculate the daily cost for wages, coal, oil, &c., to be from 21*s.* to 22*s.* If the apparatus has to be moved once a week, it will add another 2*s.* 6*d.* to this, as it takes about half a-day to complete the removal from one field to another at a moderate distance, besides the use of three horses for a couple of hours. We, however, got over about 62 imperial acres without moving the engine at all. As the cultivator goes over fully six imperial acres daily, the expenses may be reckoned nearly 4*s.* per acre, exclusive of interest on capital invested, and the tear and wear. This is greater or less per acre according to the number of acres it is spread over. The apparatus I have got cost 550*l.* Say I count for interest and depreciation 70*l.* per annum, and spread this over betwixt 400 and 450 imperial acres, which I fully expect to accomplish, this will add nearly another 3*s.* 6*d.* per acre, and make the total expense 7*s.* 6*d.* per imperial acre. From the quality of the work performed, I consider it fully worth this sum; besides, I anticipate other incidental advantages, such as keeping the land more easily clean, and getting the various crops sown in better time.

Mr. SCOT SKIRVING said he would have bought a steam plough long ago if anybody had told him how he was to do without horses. He wished to know how Scotch farmers could, in the event of a wet summer, bring all the corn home to the threshing mills, drive out all the dung made in the farm steadings, and lead home the Turnips in the event of a frosty night coming on suddenly, without having a full complement of horses. He himself could not have done this without proper horse-power although he were to get every inch of his land ploughed for him. He was persuaded that he could employ every horse on his farm in the operations he had referred to, although his whole farm were ploughed by steam.

Mr. SADLER said this, along with some other difficulties, was yet to be got over by experience, but in the meantime one great advantage of the steam plough was, that he believed the crops would be got in 14 days earlier.

Mr. TOD, Castlemains, said that Mr. Sadler's horses were often employed in the carting of manure, Potatos, &c., when those of other farmers were yoked to the plough. It was thus apparent that the farmer who possessed a steam plough could carry on his ploughing and other operations simultaneously, which was a very great advantage.

CROYDON: *Are Pigs Profitable?*—This subject was discussed at a recent meeting of this Club. Mr. WILSON read the introductory paper. He said:—

No doubt the profit of pig keeping depends in a great measure upon having a good breed, and on the management of them.

In an article on high farming read by the late Mr. Baker before the London Farmers' Club, some years since, that gentleman says:—"A bushel of Barley or Peas has always been considered as equivalent to the production of 8 lb. of meat. Therefore, if the price of meat is less per stone than the grain per bushel, the difference is a loss, and *vice versâ*." Now, if I can show from others and my own experience that pigs do pay for the food they consume, and leave a small balance besides, I think it will be admitted that they are a profitable stock to keep. In some experiments tried at Mr. Lawes' farm, Rothamstead, with 16 pigs,

	£	*s.*	*d.*
Four pigs were bought in at 41*s.* 6*d.* each ..	8	6	0
Consumed 2650 lb. of Barley, at 37*s.* 6*d.* per qr. of 416 lb., including grinding	11	18	10½
	£20	4	10½
99 stone 3 lb. of pork sold at 4*s.* 4*d.* per stone, sinking the offal	21	10	7½
Profit	£1	5	9

This experiment shows that the farmer obtained a good price for his Barley, though the pork was sold at a low price. When I commenced farming, in December, 1857, I had one pig, valued to me at 1*l.* 10*s.* In May, 1859, by purchases and breeding, the number had increased to 77, at a cost of 35*l.* 2*s.* 6*d.* At the latter date I had sold out for 133*l.* 4*s.* 5*d.*, thus leaving a balance of 104*l.* 1*s.* 11*d.* for their keep. I then commenced again with two sows, and in 12 months I bred from them 39 pigs, and purchased 14, making together 55. In the succeeding 12 months I lost four by death, and sold the remaining 51 for 100*l.* 5*s.* 11*d.*, thus leaving 85*l.* 17*s.* 11*d.* for their keep. Now, this appeared to be very satisfactory; but, as I had not kept an account of the cost of the food consumed, I could place no reliance on the result; therefore, after that time, I entered against the pigs the cost of all they consumed, and I will now state to you my profit and loss account:—

	£	*s.*	*d.*
May, 1860. two sows in pig (produced 16 pigs) ..	3	0	0
Cost of food and grinding	24	6	7
Profit	7	17	9
	£40	4	4
November, 1860, sold 16 fat pigs	28	4	4
Two sows and their second farrow (19)	12	0	0
	£40	4	4
November, 1860, to April, 1862.			
Bred and purchased 99 pigs at a cost of	36	18	0
Cost of food with grinding	104	4	9
Profit	10	13	0
	£151	15	9
April, 1862.			
By sale of 89 pigs to date	£151	15	9
Died 10			

Now I admit that this profit of 10*l.* 13*s.*, extending over a period of nearly 18 months, is not large; but you will bear in mind that the Oats, Barley, and Peas consumed were my own growth, and charged to the pigs as follows—viz., Oats, 27*s.*; Barley, 36*s.*; and Peas, 42*s.* per quarter. Pollard and middlings at the miller's charge.

	£	*s.*	*d.*
From April 25 to Dec. 31, 1862, I had and purchased 30 pigs, at a cost of	11	6	6
Cost of food and grinding	15	13	11
	£27	0	5
30 pigs sold as stores and fat for	29	3	0
Profit	£2	2	7

Since which time I have not struck a balance. I have made no charge for attendance, as I consider the manure made a sufficient set-off against it. To my thinking, pigs possess an advantage over other animals kept on a farm, in this respect—that you sooner get a return of the capital originally invested in them. For instance, suppose you commence with a sow and eight pigs, and that you give 6*l.* for them, you will not have to keep them long before you can sell the pigs for the same amount, and have the sow left to fatten or breed from, as you please. Out of 24 farrows that I have had, I find the average number reared has been eight and a-half.

Dr. POWELL said a friend of his had three pigs, and he weighed all their food, and every week he weighed the pigs regularly, and he found that for every half-hundred weight of food he gave them that they gained 14 lb. of flesh. He mostly fed them upon Rice, but whether upon Rice or Barley meal he found that for every half-hundred he gave they gained 14 lb. of flesh.

Mr. ASHBY said pigs were cleanly, and would thrive best by being kept in a clean state. He would tell them they must not put a pig to feed a pig. If they wanted a pig to pay, they must be well looked after, for pigs wanted as much looking after as a Christian in regard to cleanliness. Mr. Streeter once kept an accurate account for two consecutive years for his own satisfaction, and he had found the balance in favour of

the pig. He pulped Swedes and Mangels in spring and summer, and mixed ground corn with it, which kept them in a growing and thriving condition, and reduced the expense of keeping them; but if the pulped food was continued during the whole time of fatting, the fat would boil out in cooking; but if the fattening was finished with corn alone, the pork would be fine and good. His opinion was that it was a cheaper mode of making good yard manure, than making it by fattening bullocks; but to be profitable, independent of the manure, it was indispensable that the young pig be kept on good food, and never be let go back in condition.

Mr. HUMPIDGE thought it was better to sell pigs as stores than to keep them to fatten. Mr. Wilson had said he had allowed the attendance for the dung. He (Mr. Humpidge) thought if they put the straw and attendance against the manure, they would find that it would come to a pretty high price. He did not know whether Mr. Wilson had charged all the food the pigs had consumed.

Mr. WILSON said he had entered all that had come from the barn. He could not say that he had charged for every Cabbage that had been given to them.

Mr. HUMPIDGE at one time kept an account of the cost of his pigs, and he found that all he got was their manure. A person he knew had kept an account what the pigs had cost him, and he never found that they cost him less than 6*d.* a pound, and sometimes they cost him a shilling. The principal argument in favour of fattening pigs was the large amount of manure that would be available to the farmer.

Miscellaneous.

The New Mayor of Bedford.—It will gratify many of our readers to learn that Mr. James Howard has been unanimously elected Mayor of Bedford for the ensuing year, a post which his worthy and venerated father filled for four years in succession, a circumstance without a parallel in the history of the borough. The same office was filled by the ancestors of the present Mayor in 1757, 1758, 1766, 1767, 1781, and 1782.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.
By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0–6	Amount of Cloud, 0–10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Thursday..	19	30.20	49	46	S.W.	0	10	51	44	56	38	..
Wednesday	18	30.21	50	47	S.W.	3	5	54	46	66	43	..
Tuesday ..	17	30.13	53	49	S.W.	1	10	56	48	60	43	..
Monday ..	16	30.15	52	51	S.E.	1	10	52	44	61	38	0.00*
Sunday ..	15	30.26	49	47	W.	0	10	52	47	56	42	..
Saturday ..	14	30.27	49	47	W.	1	10	49	37	53	30	..
Friday ..	13	30.20	37	36	S.W.	1	1	45	27	52	22	..
Thursday..	Nov. 12											

*(Etc.)

Notices to Correspondents.

POTATO CULTURE: *Enquirer* says "I have a field of light land exceedingly well adapted for the growth of Potatos; it has been thoroughly cleared of Couch and root weeds, but it is very poor. I have no farm-yard dung nor can I procure any except at a great cost. [We would have grown Rye with the aid of guano, and ploughed it under early in April. In May apply 2 qrs. of bone-dust and in June sow Turnips with 3 cwt. of superphosphate. Feed them off on the land, and then in 1865 grow Potatos. If you must have a crop of Potatos in 1864 put in 16 or 20 bushels of rotten bone-dust now, and sow 5 cwt. of guano per acre at intervals during the setting and hoeing of the Potato crop.]

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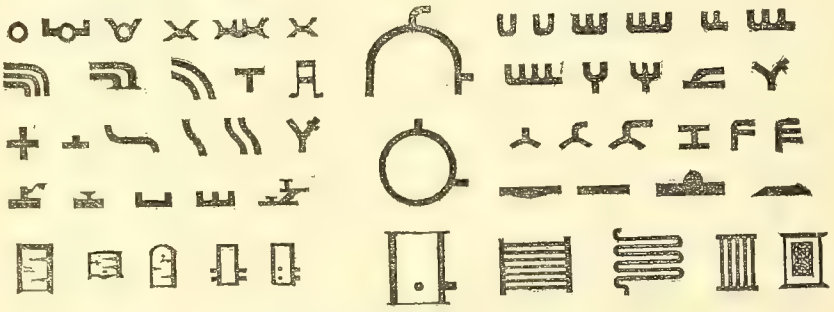
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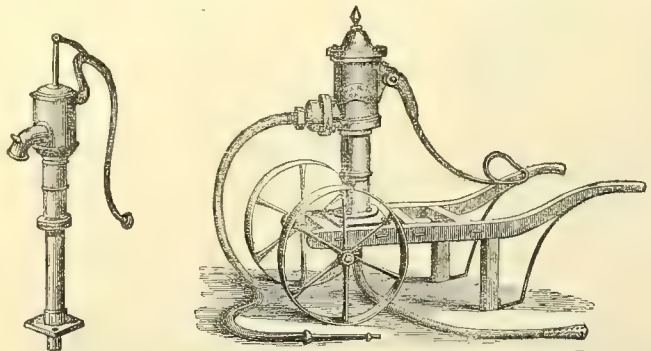
CONSERVATORIES, GREENHOUSES, &c. PATENT STABLE FITTINGS.

EVERY DESCRIPTION OF IRON WORK.

JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35. No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP. No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

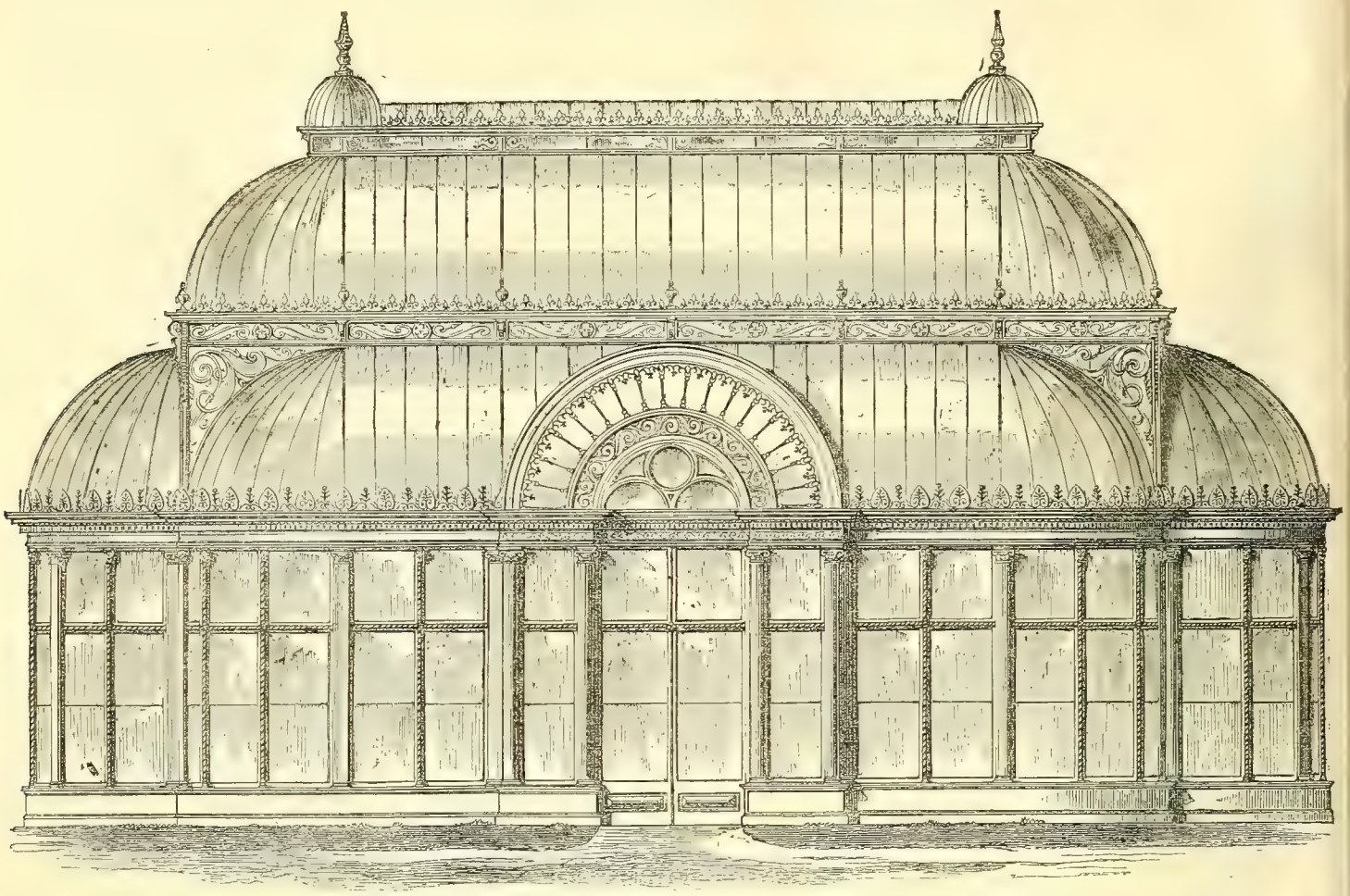
No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

PATENTEES and MANUFACTURERS,

JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.



THIS SPLENDID CONSERVATORY FOR SALE AT LESS THAN COST PRICE.

ORMSON'S CONSERVATORY, INTERNATIONAL EXHIBITION 1862.

OPINIONS OF THE PRESS.—(EXTRACTS).

"As a First-class Designer and Manufacturer Mr. Ormson stands unrivalled."—Bell's Weekly Messenger.

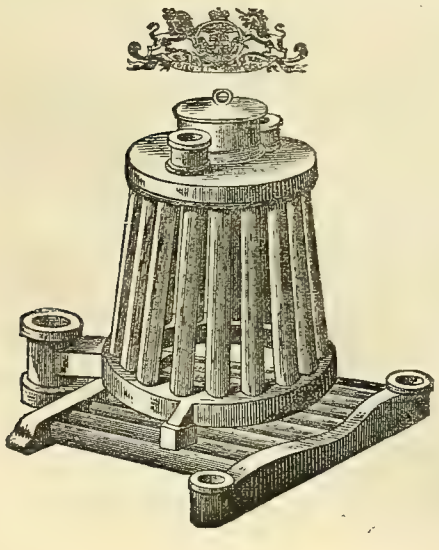
"No object in the Horticultural Department attracts the eye sooner than the splendid Conservatory erected by Henry Ormson, of King's Road, Chelsea."—The Illustrated London News.

"This construction, however, not only stands first among the Conservatories at Kensington, and indeed of any we have ever seen, but is worthy of the highest commendation on account of its eminent fitness for the purpose for which it was made."—The Illustrated News of the World.

"The beauty of this structure is as good a lesson of the value of iron as any that could be furnished in the whole Exhibition."—Gardeners' Weekly Magazine.

ORMSON'S ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become universally adopted on account of their superior power, great safety, and economy.



BY HER MAJESTY'S ROYAL LETTERS PATENT.

ORMSON'S PATENT,

ENTITLED

"AN IMPROVEMENT IN THE MANUFACTURE OF CAST TUBULAR BOILERS."

TAKE NOTICE, that a DISCLAIMER has been filed in the Patent Office and allowed by the Attorney-General, by which such part of the above Patent as was considered questionable by the Court of Exchequer Chamber has been disclaimed. Any person infringing the said Patent after this Notice will be proceeded against according to Law.

Disclaimer allowed September 1, filed September 2, 1863.

I BEG to NOTIFY, that having by leave of her Majesty's Attorney-General DISCLAIMED such part of my Patent as was considered by the Court of Exchequer Chamber as questionable, the said Patent is now absolutely confirmed; and any person infringing the same will be proceeded against according to law.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,

AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c. the Plant Cases will be found an inestimable boon.

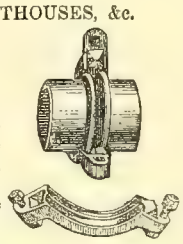
The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of The Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.





T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREEN-HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
20 feet by 10 feet	8 17 6 ...	2 0 0	40 feet by 15 feet	15 0 0 ...	2 15 0
25 feet by 12 feet	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½d. ...	7¼d.
Seconds	3¾d. ...	5d.
Thirds	2½d. ...	3½d.
Fourths	2¼d. ...	3¼d.

HORTICULTURAL GLASS.

Stock Sizes, 16-ounce. In 100 feet Boxes.

These prices only apply to the sizes stated.

				4ths.	3rds.	4ths.	3rds
				s. d.	s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	10 9	12 3	12 6	14 0
12 „ 10	13 „ 10	14 „ 10	15 „ 10				
13 „ 11	14 „ 11	..	..				
14 „ 12	15 „ 12	15 „ 11	16 „ 11				
18 „ 12	19 „ 12	16 „ 12	17 „ 12				
16 „ 13	17 „ 13	20 „ 12	21 „ 14	11 6	13 6	13 6	16 0
19 „ 13	20 „ 13	18 „ 13	..				
16 „ 14	17 „ 14	21 „ 13	..	14 to 15 ozs.		16 to 17 ozs.	
19 „ 14	20 „ 14	18 „ 14	..	to the foot.			

HARTLEY'S

PATENT ROUGH PLATE GLASS.

Packed in Boxes of 50 feet each.

		s.	d.	
6 by 4 and 6½ by 4½	... ...	10	6	per box.
7 „ 5 „ 7½ „ 5½	... ...	12	0	„
8 „ 6 „ 8 „ 6½	... ...	13	6	„
9 „ 7 „ 9½ „ 7½ and 10 by 8	...	15	0	„

GLASS for ORCHARD HOUSES.

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Packed in 100 feet Boxes.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths ...	11s. 6d.	13s. 6d.	15s. 0d.
20 „ 13	Thirds ...	13s. 6d.	16s. 0d.	19s. 0d.
20 „ 14	Seconds		English.	English.
20 „ 15	Best		18s. 0d.	23s. 0d.

The above prices include the Boxes.

We recommend 3rds quality at 16s., or 21-ounce at 19s. (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7⅛ by 5½	11s. 6d.
8 „ 6	8½ „ 6⅜	9 „ 7	9½ „ 7½	
		10 „ 8	10½ „ 8½	12 6

Boxes 2s. each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

London Agents for Hartley's Patent Rough Plate.

Perforated Glass for Ventilation.

Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

Glaziers' Diamonds from 10s. to 21s. each.

Glass Tiles and Slates in Sheet and Rough Plate. Plate Glass, Patent Plate, and Hartley's Improved Rough Plate.

PAINTS, COLOURS, VARNISHES, &c.

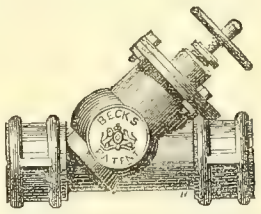
GENUINE WHITE LEAD. | ANTI-CORROSION PAINT. | LINSEED OIL PUTTY. | FINE OAK VARNISH. | FINE OAK CARRIAGE. | PATENT DRYERS. | LINSEED OIL. | BOILED OIL.

TURPENTINE.

LEAD in SHEETS or CUT to SIZES, LEAD PIPE, LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of every description.

BECK'S

PATENT HOT-WATER VALVES



AT GREATLY REDUCED PRICES, viz.:—

2 In.	3 In.	4 In.
12s. 6d.	16s. 6d.	20s. 0d.

Upwards of 4000 of the Patent Valves are now in use and giving the greatest satisfaction.

JOHN BECK can also supply large quantities of his

IMPROVED THROTTLE VALVES

on the shortest notice.

JOHN BECK,

PATENTEE AND MANUFACTURER

OF EVERY DESCRIPTION OF

GAS, WATER, and STEAM FITTINGS,

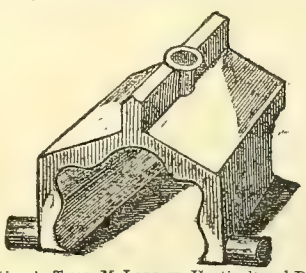
FIRE COCKS, WATER CLOSETS, ETC.

PATENT VALVE WORKS

AND SANITARY DEPOT,

GREAT SUFFOLK STREET, LONDON, S.E.

T. M. LOBJOIT'S PATENT HOT-WATER BOILERS are acknowledged by all who have them in use to be the most powerful Boilers now known, and are the most economical, requiring less fuel and attention than any other. They are made of various sizes, suitable for heating the smallest Greenhouse to the largest Conservatory, Churches, and Buildings of all descriptions.



Testimonials forwarded on application to THOS. M. LOBJOIT, Horticultural Builder and Hot-Water Apparatus Manufacturer, Turnham Green, W., and at Acton, Middlesex. W The Trade supplied.

West of England, Ireland, and Wales.



VINCENT SKINNER (*late Partner with* J. WEEKS & CO.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER. HEATING on the ONE-BOILER



SYSTEM. Plans and Estimates on application.
VINCENT SKINNER, Bridewell Street, Bristol.

The only Stove without a Flue.



JOYCE'S PATENT, for Warming Chapels, Halls, Shops, Conservatories, and all other Places. Price from 12s 6d. each.

JOYCE'S STOVES are Portable and Economical, and burn 12 hours with one supply of fuel, requiring no attention.

STOVES for GREENHOUSES are made to burn all the Winter. Temperature always the same. Patent Fuel, 2s. 3d. per bushel.

SWAN NASH, Patentee, 253, Oxford Street; and 119, Newgate Street, London, E.C.

Illustrated Catalogues post free.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.



The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure

For Prospectus, &c., address T. H. P DENNIS, Horticultura Builder, Hot-Water Engineer, &c., High St. Chelmsford, Essex.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s* each. Valves from 10*s.* 6*d.* each. Patent Valves. Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at
Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

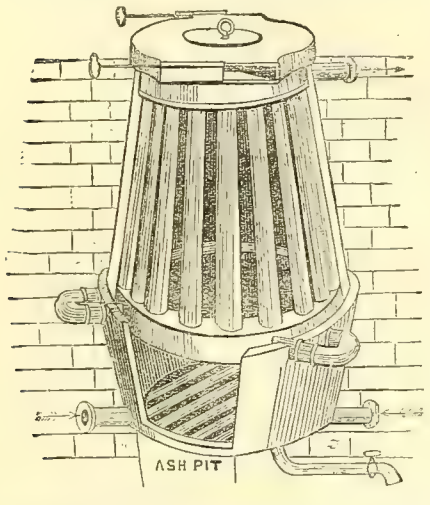
Hothouses for the Million.—AWARDED A PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner, all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to SAMUEL HEREMAN, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1*s.*; post free, 1*s.* 1*d.*



BY HER MAJESTY'S ROYAL LETTERS PATENT.

A PUBLIC BOON.

CLARKE'S NEW WATER JACKET FURNACE BOILER,

SHOWING THE PRINCIPLE OF THE PATENT DEFLECTING FLUE-PLATE OR HEAT PRESERVER.

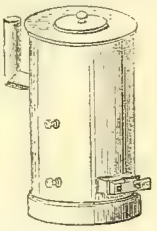
It will be observed from the annexed diagram, that the deflecting flue-plate is placed on the top of the brickwork just level with the top of the Boiler, leaving a clear space for draught all round, consequently, the great pressure of heat from the furnace is concentrated at the top of the Boiler, and kept in close contact with it by means of the two slides which are regulated in front.

These Boilers are now fully acknowledged by a vast number of practical and experienced Gardeners to be the most Powerful and Economical Boilers extant, requiring less attention and fuel by one-half than any other Boiler they have had to manage, and state that the great improvement consists in the Water Jacket Furnace, and the deflecting flue-plate.

Estimates for every description of Heating, with Boiler and Piping complete, erected upon Mr. C.'s new and much approved principle, for top and bottom heat, sent upon the shortest notice, by applying to the Eagle Iron Foundry, 25, Seel Street, Liverpool.

T. C. CLARKE, PROPRIETOR.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the
Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

THOMAS MILLINGTON,

GLASS MERCHANT. (Established 1750.)

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

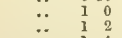
THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY T. MILLINGTON.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home use and for Exportation.

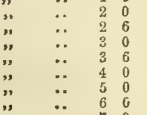


PROPAGATING GLASSES.

2 inches diam.			0*s.* 3½*d.* each.
3	,,	..	0 4½ ,,
4	,,	..	0 5½ ,,
5	,,	..	0 6½ ,,
6	,,	..	0 8 ,,
7	,,	..	0 10 ,,
8	,,	..	1 0 ,,
9	,,	..	1 2 ,,
10	,,	..	1 4 ,,
11	,,	..	1 6 ,,
12	,,	..	1 9 ,,
13	,,	..	2 0 ,,
14	,,	..	2 6 ,,
15	,,	..	3 0 ,,
16	,,	..	3 6 ,,
17	,,	..	4 0 ,,
18	,,	..	5 0 ,,
19	,,	..	6 6 ,,
20	,,	..	7 0 ,,



FLOWER TUBES.
2*d.* each, or 1*s.* 6*d.* per dozen.



ZINC HAND GLASSES.
Painted and Glazed with 16-oz. Sheet Glass.

12 inches	..	5*s.* 6*d.* each
14 ,,	..	6 6 ,,
16 ,,	..	7 6 ,,
18 ,,	..	8 6 ,,
20 ,,	..	9 6 ,,
24 ,,	..	11 6 ,,

If open top, 1*s.* extra.



BEE GLASSES.

4 inches diameter			0*s.* 6*d.* each
5	,,		0 8 ,,
6	,,		0 10 ,,
7	,,		1 1 ,,
8	,,		1 4 ,,
9	,,		1 8 ,,
10	,,		2 0 ,,
11	,,		2 6 ,,
12	,,		3 0 ,,



FLAT TOP BEE GLASSES.

Height		Width	*s.* *d.*
4 inches	by 7 inches	1	6 each
4½ ,,	by 7½ ,,	1	9 ,,
5½ ,,	by 7½ ,,	2	0 ,,
6½ ,,	by 8 ,,	2	3 ,,
7½ ,,	by 8½ ,,	2	10 ,,

FERN SHADES & STANDS.

Ins. dia.	Shades.		Stands.
6 ..	1*s.* 4*d.* each.		1*s.* 0*d.* each
7 ..	1 8	,,	1 3 ,,
8 ..	2 0	,,	1 6 ,,
9 ..	2 6	,,	1 9 ,,
10 ..	3 3	,,	2 0 ,,
11 ..	4 0	,,	2 6 ,,
12 ..	5 6	,,	3 0 ,,
13 ..	7 6	,,	3 6 ,,
14 ..	10 0	,,	4 0 ,,
15 ..	14 0	,,	4 6 ,,
16 ..	18 6	,,	5 0 ,,



WASP TRAP, 2*s.* 6*d.* per doz.

Crystal Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimneys and Globes, &c.



MILK PANS.

6 inches diameter			0*s.* 6*d.* each
8	,,		0 9 ,,
10	,,		1 0 ,,
12	,,		1 3 ,,
14	,,		1 9 ,,
16	,,		2 3 ,,
18	,,		2 9 ,,
20	,,		3 3 ,,
22	,,		3 9 ,,
24	,,		4 6 ,,



PRESERVE JARS.

In. diam.	Without Lids.		With Lids.
3 ..	0*s.* 4½*d.*	..	0*s.* 6½*d.* ea.
4 ..	0 6	..	0 9 ,,
5 ..	0 8	..	0 11 ,,
6 ..	0 10	..	1 2 ,,
7 ..	1 0	..	1 4 ,,
8 ..	1 4	..	1 8 ,,
9 ..	1 8	..	2 2 ,,
10 ..	2 0	..	2 8 ,,

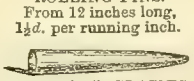


FISH GLOBES.

	Without feet.	With feet.
8 inches diam.		
9 ,,		
10 ,,		
11 ,,	Per lb.	
12 ,,	7*d.*	9*d.*
13 ,,		
14 ,,		
15 ,,		
16 ,,		



ROLLING PINS.
From 12 inches long, 1½*d.* per running inch.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1*d.* per running inch.

SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

	300 feet	200 feet.		
	15 oz.	21 oz.	26 oz.	32 oz
Fourths quality	33*s.* 0*d.*	33*s.* 6*d.*	39*s.* 6*d.*	45*s.* 0*d*
Thirds do.	42 0	42 0	49 0	56 0
Seconds do.	62 0	64 0	74 6	85 0
Best do.	88 6	88 6	103 6	118 0

CRYSTAL SHEET GLASS.

For Pictures and best Glazing purposes.

Averaging 16 oz. to the foot.

Best quality, in cases of 200 feet .. .. .. 100*s.*
Second quality, in cases of 100 feet .. .. 82*s.*

Averaging 30 oz. to the foot.

Best quality, in cases of 100 feet .. .. .. 100*s.*
Second quality, in cases of 100 feet .. .. 82*s.*

SQUARES, in 100 and 200 Feet Boxes.

Small Squares not exceeding 9½ inches by 7½ inches.

Ins. Ins.	Ins. Ins.	Ins. Ins.	Ins. Ins.
6 by 4	7 by 5	8 by 6	9 by 7
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½

Per 100 feet.

4ths.	3rds.	2nds.	Best.
9*s.* 9*d.*	11*s.* 3*d.*	13*s.* 9*d.*	16*s.* 9*d.*

Squares not exceeding 14 inches by 11 inches.

10 by 8	12 by 9	12½ by 10½	14½ by 10½
10½ by 6½	12½ by 9½	13 by 10	15 by 10
11 by 9	13 by 9	13½ by 10½	13 by 11
11½ by 9½	12 by 10	14 by 10	14 by 11

Per 100 feet.

4ths.	3rds.	2nds.	Best.
10*s.* 9*d.*	12*s.* 3*d.*	15*s.*	18*s.*

Squares not exceeding 20 inches by 18 inches.

15½ by 10½	14 by 12	17 by 13	24 by 16
16 by 10	14½ by 12½	18 by 13	20 by 17
14½ by 11½	15 by 12	18 by 14	22 by 17
15 by 11	15½ by 12½	22 by 14	24 by 17
15½ by 11½	16 by 12	24 by 14	20 by 18
16 by 11	16½ by 12½	22 by 15	22 by 18
13 by 12	17 by 12	24 by 15	24 by 18
13½ by 12½	18 by 12	22 by 16	

Per 100 feet.

4ths.	3rds.	2nds.	Best.
11*s.* 6*d.*	13*s.* 6*d.*	16*s.* 6*d.*	20*s.*

Orchard House Sizes, as recommended by Mr. Rivers.

I s. Ins.	15 oz.			21 oz.		
20 by 12	4ths ..	11*s.* 6*d.*	Per 100 feet.	4ths	15*s.* 0*d.*	Per 100 feet.
20 by 13	3rds ..	13 6		3rds	19 0	
20 by 14	2nds ..	16 6		2nds	25 0	
20 by 15	Best ..	20 0		Best	30 0	
20 by 16						

Squares Cut to Sizes not on List.

	15 oz.				21 oz.			
Under	4ths.	3rds.	2nds.	1st	4ths.	3rds.	2nds.	1st
1 ft. super.	1½*d.*	1¾*d.*	2*d.*	2½*d.*	2½*d.*	2¾*d.*	3¼*d.*	4¼*d*
2 ft. super.	1¾	2	2½	3	2¾	3	4	5¼
3 ft. super.	2	2¼	2¾	3¼	3	3¼	4¼	6
4 ft. super.	2¼	2½	3	4	3¼	3¾	4½	6¼

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

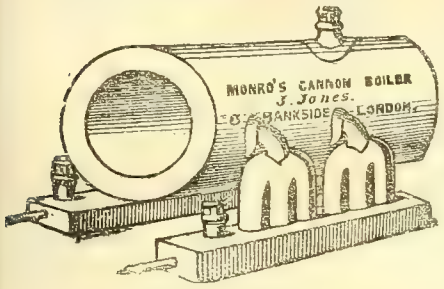
	Per cwt.—*s.* *d.*		Per gallon.—*s.* *d.*	
GENUINE WHITE LEAD	.. .. 30 0	FINE OAK VARNISH	.. 10*s.* to 12 0	LINSEED OIL, BOILED OIL, TURPENTINE — Subject to fluctuation of the market.
ANTI-CORROSION PAINT	..28*s.* to 34 0	,, CARRIAGE	.. 12*s.* to 14 0	
LINSEED OIL PUTTY	.. .. 9 0	PATENT DRYERS	per cwt. 28*s.* to 42 0	

MILLED LEAD in Sheet and Pipe of all sizes. Old LEAD bought or taken in exchange.

LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of all kinds.

NETT CASH.

HEATING BY HOT WATER.



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J. JONES,

HORTICULTURAL ENGINEER AND IRON MERCHANT,

SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

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HEATING GREENHOUSES,

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FORCING PITS,

CHURCHES, CHAPELS, SCHOOLS,

HALLS,

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COACH HOUSES, HARNESS ROOMS, &c.,

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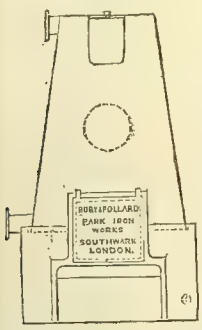
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E. DENCH being about to DISPOSE of his HORTICULTURAL BUSINESS, has on hand a considerable number of VINERIES, GREEN and HOTHOUSES, which he will dispose of at a low price to clear his premises.

The Sizes being from 16 ft. to 36 ft. in length, and from 10 ft. to 15 ft. in width.



LATEST IMPROVEMENTS IN
Heating by Hot Water.
THE IMPROVED
CONICAL BOILERS,
FOR HEATING PINERIES, CONSERVATORIES, GREENHOUSES, MANSIONS, HALLS, WAREHOUSES, &c.,
SOLELY MANUFACTURED BY

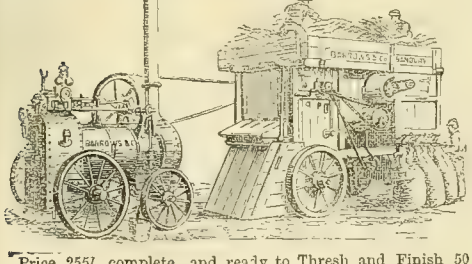
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(Successors to JOHN R. PEILL, Late STEPHENSON & PEILL).

Annexed Sketch shows BURY & POLLARD's improved arrangement, requiring
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These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United Kingdom. References where they have been 20 years in constant use.

Price Lists on application to BURY & POLLARD, Park Iron Works, New Park Street, Southwark, London, S.

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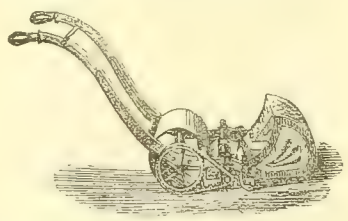
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Glass for Orchard Houses or Conservatories.

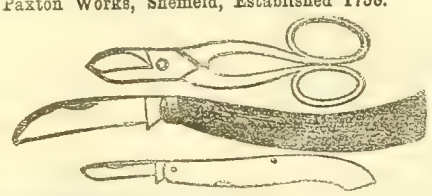
ENGLISH MANUFACTURED SHEET GLASS, 15 and 21 oz. to the foot, in sizes from 9 by 7 to 24 by 20, packed in 100 feet boxes, to be sold cheap.
Apply to WM. H. JACKSON, Plate, Crown, and Sheet Glass Warehouse, 315, Oxford Street, W.

GREEN'S LATEST IMPROVED PATENT NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES, which gained the First Prize Medal of the International Exhibition.



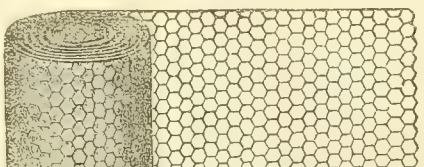
Patronized by Her Most Gracious Majesty the Que n during the seasons of 1862 and 1863.
These Machines have proved to be the best, and have carried off every prize that has been given in all cases of competition.
ILLUSTRATED PRICE LISTS on application.
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

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INTERNATIONAL EXHIBITION PRIZE MEDAL WAS AWARDED TO SAYNOR & COOKE FOR SUPERIORITY OF QUALITY IN PRUNING AND BUDDING KNIVES, &c.
SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.
CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

BARNARD, BISHOP, AND BARNARDS, Norwich.
FURTHER REDUCTION in the PRICE of WIRE NETTING.



BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised per yard.	Japanned Iron. per yard.
2-inch mesh, 24 inches wide ..	No. 19	.. 4½*d.*	.. 3½*d.*
2-inch " " " .. "	18	.. 5	.. 4
2-inch " " " .. "	17	.. 6½	.. 5
2-inch " " " .. "	16	.. 8	.. 6½
1½-inch " " " .. "	19	.. 4½	.. 4
1½-inch " " " .. "	18	.. 6	.. 4¾
1½-inch " " " .. "	17	.. 7	.. 5½
1½-inch " " " .. "	16	.. 9	.. 7

All the above kinds can be made any width (under 6 feet) at proportionate prices.
Strong Galvanised Poultry Netting, 7½*d.* per yard, 3 feet wide, Galvanised Sparrow-proof Netting for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.
Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 10*d.* per yard.
The same with Galvanised Wire Rope, 1*s.* per yard.
Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.
*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

TO DAIRY FARMERS and OTHERS.—A gentleman is desirous of placing some young POINTER PUPPIES out at Walk in some healthy locality at a Dairy Farm or elsewhere, where they would have light wholesome Food and the run of a yard. He would be willing to give 2*s.* a week for each Puppy.

X. X., *Gardeners' Chronicle* Office, W.C.

BLACK and RED, in CALF, KERRY CATTLE of the purest breed, for SALE, by RICHARD G. CAMPION, Esq., Youghal, Co Cork. No Cow so suitable for Villas.

TO BE LET, 27 ACRES of first-rate LAND, Seven Miles from London.
G. GLENNY, Agent, Valuer, and Auctioneer, Fulham, S.W.

TO BE LET, NURSERY GROUNDS in Brighton, comprising extensive Vineries and Peach-houses, in good bearing condition; large Span-roofed and Lean-to Houses, and Pits for Plants; also, a capital Residence and Cottages, with Stabling and Coach Houses.
The Stock can be taken at a valuation or a fixed sum, as agreed upon, or a PARTNER with Capital would be accepted.
Full Particulars to be had on application to the GARDEN SUPERINTENDENT, Alexandra Park, Tottenham Wood, Hornsey.

Oxfordshire.

TO BE LET, from Lady-day next, TWO First-class FARMS, lately in the occupation of J. H. Langston, Esq., M.P., deceased, situate at Churchill and Sarsden, about three and four miles respectively from the Market Town of Chipping Norton, and within a shorter distance of other Railway Stations.
No. 1. The Farm commonly called "CHURCHILL MOUNT," on which is an excellent and commodious Dwelling House and Offices, with extensive and convenient Farm Buildings, all recently built and fitted up with Machinery worked by steam-power for Threshing, Grinding, Chaff-cutting, &c., together with 530 acres of Arable and Pasture Land (in nearly equal proportions). The well-known "Sarsden Herd" is, and has been for some years, kept upon this farm.
No. 2. The Farm known as "FAIR GREEN," with other Lands added, near and adjoining Sarsden, comprising a superior and commodious Dwelling House and Offices; the Buildings are unusually good, convenient, and equal to the requirements of the Farm, and well supplied with Water throughout. The Dwelling House and Farm Offices have been recently erected and fitted up with Machinery driven by steam-power for similar purposes as mentioned in No. 1. This Farm contains 744 Acres, of which 574 are Arable and 169 Pasture, and is well adapted to Steam Cultivation. There are several Cottages attached to the Farm.
The Farms have been for some time under Steam Cultivation, and are both in high condition, having been many years kept in hand by the late proprietor. In both cases the Residences and Farms are of a very superior description.
For further Particulars, and for viewing the same, application should be made at the Office of Mr. HENRY ANDREWS, at Sarsden, near Chipping Norton, to whom Sealed Tenders for each farm separately, stating the clear annual rent, are to be sent on or before December 18, 1863, soon after which the persons whose tenders are accepted will have notice thereof. The setter will not consider himself bound to take the highest tenders.

Sarsden, November 21.

Sales by Auction.

New Roses, Standard, Half Standard, and Dwarf,
BEING A CONSIGNMENT RECEIVED DIRECT FROM ONE OF THE MOST RENOWNED ROSE GROWERS IN FRANCE, ALL FOR ABSOLUTE SALE AND IN THE FINEST POSSIBLE CONDITION.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 24, at half-past 12 o'clock precisely, an assortment of splendid FRENCH ROSES, comprising 2500 Standards, Half-Standards, and Dwarfs, of the most approved sorts. On view the Morning of Sale, and Catalogues had.

Japanese Plants and Seeds.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 25, 4500 fine healthy Plants of RETINOSPORA PISIFERA, being a consignment received from a well known nurseryman in New York. Also an importation of choice JAPANESE CONIFER SEEDS. All for Sale without the least reservation.

On view the Morning of Sale, and Catalogues had.

Established and Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 25, at half-past 12 o'clock precisely, a small COLLECTION of established ORCHIDS, comprising many rare Vandas, Aerides, Saccolabiums, Dendrobiums, &c. Also two or three small importations of Orchids from various parts.

On view the Morning of Sale, and Catalogues had.

French Roses.

MR. J. C. STEVENS will SELL, by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 26, at half-past 12 o'Clock precisely, an importation from France, consisting of about 1800 STANDARDS, HALF-STANDARDS, and DWARF ROSES, comprising most of the newest and best varieties. Also 200 choice RHODODENDRONS with flower-buds.

On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, November 28, at half-past 12 o'Clock precisely, a Collection of Choice TREES and SHRUBS from Holland, consisting of Fruit Trees, Hollies, Laurels, Conifers, Roses, Rhododendrons, &c., all very healthy and fine plants.

On view the Morning of Sale, and Catalogues had.

Handsome Standard and Dwarf Roses, Dutch Bulbs, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, November 27, at 12 o'Clock, a first-class Collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Crocus, Tulips, Jonquils, Anemones, Iris, &c.; also 300 handsome STANDARD and DWARF ROSES, comprising the best Hybrid Perpetuals, Bourbons, Chinas, &c.; choice assortment of AMERICAN PLANTS, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

JOHN WEEKS & COMPANY

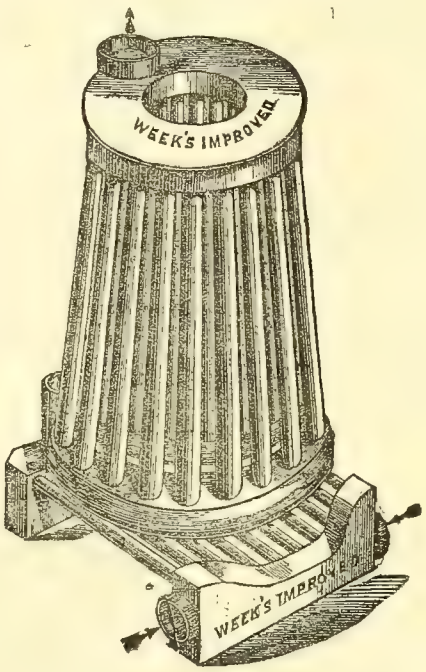
HAVE MUCH PLEASURE IN ANNOUNCING THAT THEY ARE HONOURED WITH COMMANDS TO SUPPLY TO

HIS MAJESTY THE KING OF HANOVER,

A HEATING APPARATUS upon their improved ONE-BOILER SYSTEM,

THUS ADDING ANOTHER ROYAL NAME TO THEIR ALREADY LONG LIST OF AUGUST PATRONS, OF WHICH THE FOLLOWING ARE A FEW OF THE MOST DISTINGUISHED :—







HER MAJESTY THE QUEEN
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HIS ROYAL HIGHNESS PRINCE DEMIDOFF
HER MAJESTY'S COMMISSIONERS OF WORKS, IRELAND
THE GOVERNMENT OF GREAT BRITAIN
THE TOWER OF LONDON

THE ROYAL HORTICULTURAL SOCIETY, LONDON
THE ROYAL BOTANIC SOCIETY, REGENT'S PARK, LONDON
THE ROYAL BOTANIC SOCIETY, DUBLIN
THE ROYAL BOTANIC SOCIETY, LIVERPOOL
THE ROYAL ZOOLOGICAL SOCIETY, LONDON
THE CRYSTAL PALACE, SYDENHAM
And NUMEROUS PUBLIC COMPANIES.

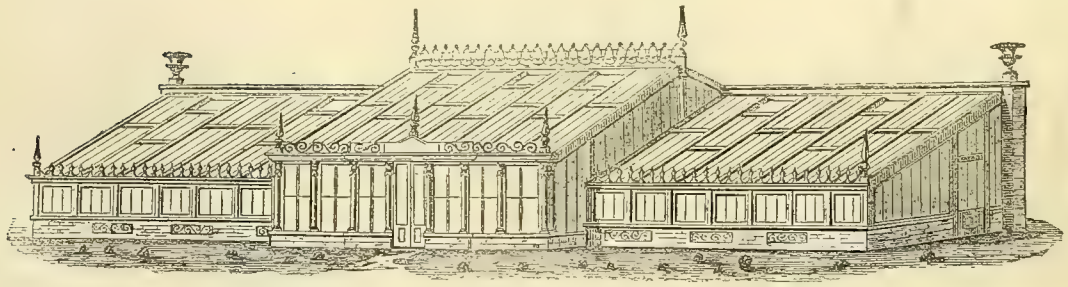
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FOR THE MANY IMPROVEMENTS IN THEIR

SUPERIOR SYSTEM OF HEATING BY HOT-WATER,

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J. WEEKS AND COMPANY possessing every variety of STEAM-POWER MACHINERY specially adapted to the purposes of HORTICULTURAL BUILDING, are enabled to EXECUTE WORKS of the most ELABORATE DESIGN and BEST DESCRIPTION at the shortest possible notice.

Their IMPROVED IRON and WOOD PORTABLE PEACH-HOUSES give general satisfaction, as also their IMPROVED VENTILATING APPARATUS, which combines great simplicity with utility.

A great stock of SECOND-HAND BOILERS, &c., which J. W. & Co. have at various periods removed, to be substituted by their improved ONE-BOILER SYSTEM, together with a quantity of SECOND-HAND LIGHTS, are to be sold very cheap.

ADDRESS, J. WEEKS AND COMPANY, HORTICULTURAL ENGINEERS, KING'S ROAD, CHELSEA, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 48.—1863.] SATURDAY, NOVEMBER 28. {Price Fivepence. Stamped Edition, 6d.

INDEX.

Ague, diphtheria, drainage, and irrigation	1143 c	Labourers, condition of farm	1141 c
An Autobiography	1139 c	Law of assessments	1130 a
Assessments	1130 a	Luminosity of plants	1134 c
Autumn cultivation	1137 c	Oak, Herne's	1135 c
Books noticed	1134 c	Orchard houses	1138 b
Botanic Garden, Hull	1132 c	Over feeding animals	1142 b
Cattle trucks, dirty	1141 c—1142 b	Oxford, new park at	1131 b
Cavan, Seed trial at	1137 b	Rats, to destroy	1144 a
Cephalotaxus Fortuni	1134 a	Rearing Calves, rev.	1143 b
Cocoa-nut, Fruiting of	1129 c	Roses, November	1132 b
Condition of farm labourers	1141 c	— showing	1133 c
Cottage building	1142 a	Royal Agricultural College	1138 b
Cotton, hybrid	1130 c—1133 a	Seeds, locomotive	1134 b
— Italian	1136 a	Sheep farming	1141 a
Exhaustion of vegetable mould	1138 c	Society, Manchester and Liverpool	1142 c
Farmers' Club, Brancote	1142 c	Society of Arts	1131 a
Farm Memoranda—Blandsfort, Queen's County	1143 a	Steam cultivating companies	1140 c
Ferns	1131 a	Tar, smell of coal	1134 a
Fish breeding	1135 b	Tenancy at will	1138 a
Foul and infected trucks	1142 b	The Poultry Yard	1143 b
Hull Botanic Garden	1132 c	Violet, Russian	1134 b
		Wistaria sinensis	1133 c
		Woollen refuse	1133 c

☞ NOTICE TO ADVERTISERS.—*An Enlarged Sheet of the* GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE *will be published on Saturdays, December* 5 *and* 12, *the weeks before and after the* CATTLE SHOW.

ADVERTISEMENTS *intended for either or both of these Numbers must be sent to the Office not later than* THURSDAY *in each week.*

GREAT FRUIT SHOW in the TOWN HALL, BIRMINGHAM (simultaneously with the Cattle and Dog Shows), on TUESDAY, WEDNESDAY, and THURSDAY NEXT, December 1, 2, and 3. All visitors to Birmingham should visit this marvellous collection.

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E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10*s.* 6*d.* each. LIST of SORTS sent on application.
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B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.
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WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Price on application.
Highgate Nurseries, London, N.

Grape Vines from Eyes.

H. LANE AND SON have great pleasure in offering fine plants of all the popular sorts, new and old, with well ripened Canes.
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Pine Plants and Vines.

T. PAPE can supply PROVIDENCE, BLACK PRINCE, and MONTSERRAT PINE PLANTS, all sizes. Also strong VINES for fruiting in pots or planting out.
Undercliffe Gardens, Bradford, Yorkshire.

Strong Standard Apples.

CHARLES BURGESS, The Nurseries, London Road, Cheltenham, begs to offer the above of the best varieties. Prices by the dozen, hundred, or thousand on application. A remittance or reference from unknown correspondents.

RED and BLACK CURRANTS. Splendid plants of the above, 50*s.* per 1000.
WOOD & INGRAM, Huntingdon.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form they can be desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester

NEW CHRYSANTHEMUMS of 1863.—Strong Plants of the above, including the Japanese varieties, are now ready at 5*s.* per dozen.
W. HOLMES, Frampton Park Nursery, Hackney.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.
Dorking Nursery.

Gladiolus Bowiensis, brightest and best of its class.

THOMAS BARNES offers the above in fine Bulbs by the 100 and 1000 at very low prices, which can be had on application.
Dane Croft Nursery, Stowmarket.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Yorkshire Seed Establishment.

EDMUND PHILIP DIXON AND SONS, SEED MERCHANTS and NURSERYMEN, 57, Queen Street, Hull.

Nursery Lists, Wholesale and Retail.

RICHARD SMITH, NURSERYMAN and SEED MERCHANT, St. John's, Worcester.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech. SPECIAL PRICED LIST of NEW SEEDS on application.

Best Seeds, Carriage Free.

BUTLER AND MCCULLOCH, SEED MERCHANTS.
WANTED to PURCHASE, a few Tons of DANDELION Roots.
Covent Garden Market, London, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

THE LONDON SEED COMPANY, LIMITED. REGISTERED OFFICES: 68, Welbeck Street, Cavendish Square, London, W.

MAURICE YOUNG'S CATALOGUE of NEW HARDY PLANTS, CONIFERS, and general NURSERY STOCK is now ready, and may be had on application.
Milford Nurseries, near Godalming.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

HUNT'S PERFECTION SWEET WILLIAM.—Seed of the above, from Bragg's superb strain, carefully selected. Price to the Trade on application.
J. CARTER & Co., 238, High Holborn, W.C.

Scarlet Clove—Princess of Wales.

WILLIAM TOOGOOD has much pleasure in offering for the first time the above distinct CLOVE, which he can confidently recommend as being very hardy, and a free bloomer. Price 5*s.* per pair.
Westergate Nursery, near Arundel, Sussex.

To the Trade.

AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds, at moderate prices. An inspection solicited.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

LAPAGERIA ROSEA.—Six of the BEST NEWLY-GATHERED SEEDS of this magnificent Climber, Post-free, for Half-a-Crown.
JAMES DICKSON & SONS, 102, Eastgate Street, Chester.

ANDROSACE LANUGINOSA.—Strong Plants of this beautiful Himalayan Alpine can now be supplied at 2*s.* 6*d.* each, or 21*s.* per dozen. Young Plants in spring at 9*s.* per dozen, 50*s.* per 100.
JAS. BACKHOUSE & SON, York Nurseries.

GREEN SAVIN TIPS. Apply to J. OGDEN, Nurseries, Coventry.

Handsome well-shaped Spruce Firs for Christmas Trees.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.
WM. WOOD AND SON have a large Stock of the above. Prices and all particulars furnished on application, addressed as above.

OAKS.—About 70,000 of very superior OAKS in most vigorous health, ranging from 2½ to 6 feet.
For Price apply to JNO. THOMPSON & SON, 18, French Gate, Doncaster.

Fine Laurels and Arbor-vitæ.

CHAS. SOUTHBY, NURSERYMAN, Clapham, S., offers LAURELS, 4 to 6 feet high, and 3 feet in diameter, bushy and well furnished. Also ARBOR-VITÆ, 4 to 5½ feet high, stout handsome plants. A fine stock of GREEN HOLLY and AUCUBA, all safe to move well.

Planting Season.

WM. URQUHART AND SONS, Dundee, beg to announce that their PRICED LIST of FOREST TREES, ORNAMENTAL TREES, SHRUBS, BORDER FLOWERS, ROSES, FERNS, and AURICULAS, may now be had on application.

Mountain Ash.

WANTED, MOUNTAIN ASH, from 3 to 5 feet.
Apply to THOMAS METHVEN, Leith Walk Nurseries, Edinburgh.

WANTED, 16,000 HAZEL.—Must be strong and healthy Plants, well rooted, about 18 inches high. Must have been regularly transplanted.
Apply, naming price, to Mr. ALLISTON, Home Farm, Laverstoke House, Micheldever Station.

ROSES.—CATALOGUES for 1863 and 1864 forwarded free on application.
JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

ROSES, NEW and OLD. CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

ROSES.—Superb STANDARDS, 18*s.* per dozen; Ditto ditto DWARFS, 12*s.* per dozen. NEW ROSES of 1863: DWARFS, 36*s.* per dozen.
DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

New Rose Catalogue for 1863-64.
New Bulb Catalogue for 1863.
WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.
WM. WOOD and SON will be happy to send copies of the above gratis and post free to all applicants.

ROSES, Fine STANDARDS, 18*s.* per dozen and upwards; DWARFS, 9*s.* per dozen and upwards. NEW ROSES of 1863: DWARFS, 30*s.* to 36*s.* per dozen.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

E. P. DIXON AND SONS' CATALOGUES of ROSES and FRUIT TREES are now ready, and may be had free on application.
57, Queen Street, Hull.

To the Trade.

ROSES.—A large Quantity of STANDARDS and DWARFS at unprecedented low prices.
A DESCRIPTIVE CATALOGUE sent free upon application to
W. H. DAVIS, Rose Nurseries, Newbury, Berks.

Roses.

H. LANE AND SON, The Nurseries, Berkhampstead, will send their CATALOGUES free on application.

No. 1. ROSE CATALOGUE.	No. 3. FRUIT CATALOGUE.
No. 2. TREE and SHRUB CATALOGUE.	No. 4. AZALEA INDICA CATALOGUE.

FOR ONE GUINEA, 12 Superb STANDARD ROSES; 12 ditto DWARF ditto. In 24 distinct sorts.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

DUTCH CROCUS, 12*s.* 6*d.* per 1000.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

POMPON HYACINTHS, 3*s.*, 4*s.*, and 5*s.* per dozen. These are valuable for growing in Masses.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

Hyacinths, Tulips, Crocuses, &c.

BUTLER AND MCCULLOCH'S importation of DUTCH BULBS are unusually fine this season. CATALOGUES Post free upon application.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

NEW FUCHSIAS (post free). NORTHERN LIGHT and RIFLEMAN, now sending out; Blue and Mauve-coloured Corollas. 5*s.* each.
EMPEROR of the FUCHSIAS, the most beautiful and elegant white corolla'd variety.
E. G. HENDERSON & SON, Wellington Road, London, N.W.

Superb Double Hollyhocks.

WILLIAM CHATER'S NEW LIST is now ready, and may be had on application by enclosing one Postage Stamp.
P.S. A large stock of FINE PLANTS now ready.
Nurseries, Saffron Walden.

Royal Nursery, Great Yarmouth.

YOUELL AND CO.'S New CATALOGUE of GREENHOUSE PLANTS, Rare and Hardy CONIFERÆ, SHRUBS, GLADIOLI, &c., is ready, and will be forwarded on application.

Agricultural, Garden and Flower Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E. SPECIAL LISTS of SEEDS (crop 1863) gratis on application. Prices the lowest consistent with first-class quality.

CARTER'S CHAMPION BROCCOLI, the best Late White Broccoli in cultivation, 1*s.* per packet.
JAMES CARTER & Co., 238, High Holborn, W.C.

WANTED, ASPARAGUS ROOTS for Forcing.—Must be large and good; roots from old beds preferred. State price per 100 or 1000, to IVERY & SON, Dorking Nurseries.

WANTED, SEA-KAIL.—Send Sample and Price of above to
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

JAS. WRIGHT AND CO. beg to say they have a quantity of strong SEA KAIL and good BOX EDGING to dispose of. Price upon application.
Edgeware, N.W.

Cattle Show.—Stand No. 69.

HIND'S RED REGENT POTATOS.—Seed of the above can be had now, or at seed time, by applying to Mr. W. HIND, Farmer, Erith, Kent.

Vines.

JAMES CARTER AND CO. beg leave to call attention to their splendid collection of the above, consisting of several thousand CANES of the most approved varieties in cultivation. Extra strong, short-jointed, well-ripened Canes for fruiting in Pots next year; fine strong, well-ripened Canes for planting in Vineries, and strong hardy Canes for open walls.

For prices and full descriptive list of more than 40 finest selected varieties most suitable for above purposes, see AUTUMN SUPPLEMENT to their VADE MECUM, forwarded post free on application.

Seed Merchants and Nurserymen, 237 and 238, High Holborn, London, W.C.

Grape Vines, Late.

J. MEREDITH has some Strong VINES of the true variety of BLACK ALICANTE (which he has never occasion to set artificially) in 13 and 8-inch pots.

J. M. obtained a Prize at the Great International Show in October last, at South Kensington, for the above excellent late Grape. Splendid bunches of this valuable Grape may be seen at his Vineyard.

J. M. has also to offer some extra strong LADY DOWNES in 13 and 18-inch pots.

Prices on application to J. MEREDITH, The Vineyard, Garston, near Liverpool.

GRAPE VINES.—Strong well ripened Canes of the following, at 3s. 6d. to 5s. each:—Black Hamburgh, Grizzly Frontignan, Black Prince, Chasselas Musqué, Black St. Peter's, Black Frontignan, Cannon Hall Muscat, Précoce Malingre, White Frontignan, White Sweetwater, Muscat of Alexandria, Tokay, Golden Hamburgh, Syrian Muscat Hamburgh, Mill Hill Hamburgh, Lady Downes, Black Cluster, Esperion, Muscat Troveron, Royal Muscadine, Trentham Black, Blanc de Kentsheim, Black July, Ingram's Prolific, Buckland Sweetwater, Cavoush.

JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

EXTRA STRONG FRUITING VINES, from Eyes, with stout well ripened Rods, for immediate Fruiting in Pots, from 7s. 6d each; for Planting Out, from 3s. 6d. each. DESCRIPTIVE LIST upon application.

"We can especially recommend the above, our Strong Vines having for some years given unqualified satisfaction." *Vide* leading article in *Gardeners' Chronicle*, Dec. 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries; and 102, Eastgate Street, Chester.

Very Strong Standard and Pyramid Pears and Plums.

JAMES GARAWAY AND CO., Durdham Down Nurseries, Bristol, offer the above, of the best varieties, 24s. to 30s. per dozen.

AUTUMN CATALOGUE and FOREST TREE LIST free by post.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

RASPBERRIES.—Cornwell's Seedling, Carter's Prolific, Prince of Wales, Fillbasket, Red Prolific, Autumn Tinted, and Yellow Antwerp. STRAWBERRIES, Sorts. GOOSEBERRIES.—Crown Bob, Warrington, Whitesmith, and Balloon. Large LAURUSTINUS, 3 feet; one and two-year ASPARAGUS; Double White and Yellow NARCISSUS, &c.

GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts.

DILLISTONE AND CO., Sturmer and Woodlands Nurseries, one mile from the Haverhill Station, Colne Valley Railway, beg to offer a few thousand of the finest kinds of mixed LANCASHIRE GOOSEBERRIES, four years old; they consist of Crown Bobs, Companion, Troubler, Whitesmiths, Wellington Glory, and other large and good bearers. Price upon application.

All the popular kinds of ROSES on MANETTI, 2½ to 6 feet in height, price 6s. to 18s. per dozen, cheaper by the hundred.

A few hundreds of choice HOLLYHOCKS, same of best PANSIES, cheap and good plants, and will give satisfaction to the purchaser.

DILLISTONE'S 1st EARLY PEA, originated here, by the quart, peck, or bushel, with everything connected with the Nursery and Seed Business. Cash or reference is requested.

Sturmer, Nov. 28.

Peach Trees for Forcing.

MESSRS. THOS. RIVERS AND SON beg to offer very fine PEACH TREES in pots for forcing; they are from three to four years old, and full of blossom buds. The varieties cultivated are Noblesse, Royal George, Grosse Mignonne, Early York, Early Grosse Mignonne, and others.

Largest sized trees, 7s. 6d. each; fine trees, 5s. each; carriage paid to London.

Nurseries, Sawbridgeworth.

Fruit Trees.

JOHN CRANSTON offers superior, healthy grown plants of all the best varieties of FRUIT TREES, DESCRIPTIVE CATALOGUES of which will be forwarded on application.

	Each.—s. d.
APPLES.—Very fine Dwarf-trained	2 6
,, Pyramids	2 6
,, Standards	2s. to 2 6
APRICOTS.—Dwarf-trained	3s. 6d. to 5 0
,, Standard-trained	5s. to 7 6
CHERRIES.—Dwarf-trained	3s. 6d. to 4 6
,, Pyramids	2s. 6d. to 3 6
GRAPE VINES.—Standards	2 6
,, Very fine and well-ripened	3s. 6d. to 5 0
NECTARINES.—Dwarf-trained	3s. 6d. to 5 0
,, Standard-trained	5s. to 7 6
PEACHES.—Dwarf-trained	3s. 6d. to 5 0
,, Standard-trained	5s. to 7 6
PEARS.—Dwarf-trained	3 6
,, Pyramids	2s. 6d. to 3 6
,, Standards	2 6
PLUMS.—Dwarf-trained	3s. 6d. to 4 6
,, Standards	2 6
WALNUTS.—Standards	2 6
,, Extra strong	3s. 6d. to 5 0

GOOSEBERRIES, CURRANTS, FIGS, RASPBERRIES, STRAWBERRIES, &c.

PEACHES, NECTARINES, and APRICOTS, established in Pots for Orchard House Culture, 5s. each.

ASPARAGUS, two years ... 2s. 6d. per 100
SEA KALE, ,, ... 8s. per 100

Nurseries, King's Acre, near Hereford.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c.; and a most extensive general Nursery Stock.

For Prices and Conditions of Free Delivery see CATALOGUE, which will be forwarded on application.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Woking Nursery, Surrey.

Handsome Specimen Trees.

CEDRUS DEODARA, 8 to 9 feet high, 5 feet in diameter, 25s. to 31s. 6d. each.

Ditto, 10 to 12 feet high, 7 feet in diameter, 42s. each.

Splendid trees, and all recently removed.

WELLINGTONIA GIGANTEA, 4 to 5 feet high, 4 feet in diameter, 63s. each.

Ditto, 6 to 7 feet high, 5 to 6 feet in diameter, 105s. each.

These trees have all been prepared early this autumn, and will remove safely, with fine fibrous rooted balls of earth.

Apply to GEO. JACKMAN & SON, Woking Nursery, Surrey.

W. VIRGO AND SON have a very large Stock of the following to offer for Sale at very moderate prices:—

Apples, espalier	Laburnum, 6 to 8 ft.
Beech (Common), 3, 4, to 6 ft.	Laurel, Common, 2 to 3 ft.
Berberis aquifolia, 12 to 18 in.	Ditto, Portugal, 1 to 2 ft.
Ditto dulcis, 1, 2, to 3 ft.	Mountain Ash, 6 to 9 ft.
Briar (Sweet), 2 to 3 ft.	Oak, English, 3, 4, to 5 ft.
Cherries, espalier	Ditto, 2 years seedling
Ditto, standard	Ditto, Turkey, 3 to 4 ft.
Cotoneaster microphylla, 9 to 12 in.	Poplars of various kinds, 4 to 6 ft.
Holly, Green, 9 to 12 in.	Privet, 2 to 3 ft.
Hazel, 1 year seedling	Sycamore, 3, 4, 5, to 6 ft.

All the above are strong, healthy, and well rooted.

Samples with prices can be had on application at the Nursery, Wonersh, near Guildford, Surrey.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, Waterloo Place, Edinburgh, respectfully invite the attention of gentlemen who are about to be engaged in planting, to their extensive stock of FOREST and ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, &c., all of which are in fine condition for removing at present, the wood having been thoroughly matured by the unusually favourable summer.

PRICED CATALOGUES and samples can be had free on application.

SEPARATE CATALOGUES can also be had of Rhododendrons and Conifers, Stove and Greenhouse Plants, and Ferns, Herbaceous and Alpine Plants, New Pansies, Florists' Flowers, Dutch Flower Roots, Gladiolus, Vegetable and Flower Seeds, Agricultural Seeds, &c.

WHOLESALE NURSERY LIST to the Trade on application.

General Nursery Stock.

SPONSFORD begs to announce that his Stock of the above is this season unusually fine. It consists of everything in demand for general planting. The most conspicuous are STANDARD and DWARF ROSES; FRUIT TREES of every description, including WALL TREES (very fine); PYRAMIDAL, BUSH and STANDARD APPLES, PEARS, &c.; STANDARD MULBERRIES, extra fine; EVERGREEN and DECIDUOUS SHRUBS, frequently removed; CHINESE ARBOR-VITÆ, all sizes; ANDROMEDA FLORIBUNDA, &c. CONIFERÆ of the known hardy kinds. LIMES, POPLARS, MOUNTAIN ASH, &c.

PRICED CATALOGUES gratis.

Loughborough Park Nurseries, Brixton, Surrey, S.

To Gentlemen Planting.

MR. MASTERS informs gentlemen requiring large Plants for Parks, Shrubberies, &c.; that he has fine Trees of ENGLISH and TURKEY OAKS, LIMES, SYCAMORES, NORWAY MAPLE, ACACIAS, LABURNUM, MAPLES, ALDER, in great quantity; also SCOTCH and SPRUCE FIRS, as well as a large Collection of CONIFERS, and a very extensive Collection of the best EVERGREENS and FLOWERING SHRUBS, including an acre of RHODODENDRONS. Prices upon application.

Exotic Nursery, Canterbury.

The Nurseries, Folkestone, Kent.

JAMES MEIKLE specially offers BLACK ITALIAN and ONTARIO POPLARS, fine healthy transplanted plants, 8 to 12 feet high, well adapted for bleak localities, seaside planting, or to produce immediate effect.

Also a General Stock of ORNAMENTAL TREES and SHRUBS, FRUITS, &c., all repeatedly transplanted and warranted to move safely.

Carriage paid to London, or any Station on the South Eastern Line.

A DESCRIPTIVE ROSE LIST, free on application.

To Noblemen, Gentlemen, and Others, engaged in Planting.

JOHN PERKINS begs to offer in large quantities extra-fine BLACKTHORNS, PRIVET, and GORSE, for covert planting; 2 Millions of twice-transplanted LARCH FIR, from 1½ to 2, 2 to 3, and 3 to 4 feet; 2 Millions of WHITETHORN, 2, 3, and 4 years transplanted; 2 Millions of WHITETHORN in Drills, 2 years, extra fine; 5000 CEDRUS DEODARA, 2 to 3, 3 to 4, 4 to 5, 5 to 8 feet, perfect specimens.

Also, in large quantities, suitable for extensive new Plantations, Ash, Alder, Beech, Birch, Spanish and Horse Chesnuts, English and Turkey Oaks, Elms, Spruce and Scotch Firs, Poplars, Sycamore, Box, Laurels, Berberis aquifolia, Cotoneaster, &c.

Price of the above forwarded on application to 52, Market Square, Northampton.

SPECIAL OFFER of SHRUBS and TREES.—The Subscriber having an abundant Stock of the following, he is prepared to offer same much below the usual rates. The undernoted is well worthy the attention of the Trade and parties about to plant, the Subscriber's Nursery having been for the past 50 years famed for producing particularly fine rooted plants. Prices per 100 and 1000 on application.

AUCUBA JAPONICA, 12-inch; APPLE STOCKS, 1-year do. 2 feet, Transplanted; ARBORVITÆ, AMERICAN, 1-year laid, 6 to 12-inch; AZALEA PONTICA, 12-inch; BARBERRY, COMMON, 12-inch; BIRD CHERRY, 2 to 3 feet; BIRCH, Transplanted, very scarce, 1½ feet; RED CEDARS, 9-inch; CUPRESSUS MACNABIANA, 2 feet; CUPRESSUS THUJOIDES, 6-inch; EUGENIA UGNI; 3-year SEEDLING SILVER FIR; 2-year SEEDLING HAZEL; GREEN HOLLIES; 1-foot LAUREL, COMMON; 1 to 3-feet PEAR STOCKS; 1-year SEEDLING, and 2½-feet Transplanted PINUS CEMBRA, 3-feet, very fine specimens; PINUS AUSTRIACA, 1 to 2-feet; QUINCE STOCKS, 2 feet, very fine stems. SPURGE LAUREL, 1 to 2 feet.

ROBERT T. MACKINTOSH, Nurseryman and Seedsman, 12, Melbourne Place, George IVth Bridge, Edinburgh.

Nursery, Leith Walk.

JAS. GARAWAY AND CO.'S AUTUMN CATALOGUE for 1863, containing Priced Lists of Shrubs, Ornamental Trees, Conifers, Roses, and Fruit Trees of all descriptions, is now ready, and will be forwarded Post-free on application.

Orders exceeding 5l. Carriage Paid to the Irish ports in direct communication with Bristol.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

Forest Trees and Shrubs.

THOMAS KENNEDY AND CO., NURSERYMEN and SEEDSMEN, Dumfries, N.B., beg respectfully to call the attention of the nobility and gentry of Great Britain and Ireland to their extensive stock of FOREST TREES and SHRUBS, which they are selling at very moderate prices.

CATALOGUES furnished on application.

*** Dumfries from its central position and railway accommodation is most favourably situated for the speedy transmission of goods to all parts of the kingdom.

TRANSPLANTED SEEDLING FOREST, FRUIT, and other TREES.—Chesnuts, Oaks, Elms, Larch, Birch, Alders, Poplars, Sycamores, Privets, Berberis aquifolia, Ditto dulcis, Laurel (Common and Portugal), Spruce and Scotch Firs, Broom (Yellow Spanish), Cornus sanguinea, Ailanthus glandulosa, Thuja orientalis, Ditto occidentalis, Viburnum Tinus, Standard and Dwarf Roses; Apples, Pears, Plums, Cherries, Trained Apricots, and other Fruit Trees.

For price and other particulars apply to JOHN THOMPSON & SON, 18, French Gate, Doncaster.

THORN QUICKS.

1,000,000 TRANSPLANTED THORNS, 18 inches to 2½ feet.
1,500,000 SMALL THORNS, 9 to 15 inches.

Samples and Prices on application.

Newry Nurseries: GEORGE R. DAVIDSON, Proprietor.

Notice.

CHARLES JAMES DYER, for 20 years with Messrs. VEITCH & SON, of the Royal Exotic Nurseries, Exeter and Chelsea, begs to announce that he has taken the Grounds and purchased the extensive NURSERY STOCK in Trade from the Executors of the late Mr. J. YOUNG, so successfully carried on by him for over 40 years; and also begs to add that he has a choice and well selected stock of the following to offer to the Trade, viz.:—

1000 CEDRUS LIBANI, 3 to 8 feet.
1000 TAXODIUM SEMPERVIRENS, 4 to 10 feet.
7000 ARBUTUS UNEDO, 1½ to 3½ feet.
3000 LAURUSTINUS, 1 to 4 feet.
3000 WHITE BROOM.
1000 DEUTZIA GRACILIS, fine for Forcing.
50,000 FINE TRANSPLANTED THORNS.

WANTED to PURCHASE.

5000 CIDER APPLE TREES.
200 SCARLET RHODODENDRONS.

Lowest price, with Samples, for Cash, will meet with an immediate reply.

C. J. DYER, Exotic Nursery, North Town, Taunton.

WANTED IMMEDIATELY, 500,000 1-year LARCH, 200,000 2-year SCOTCH, 50,000 SMALL TRANSPLANTED SCOTCH, 100,000 1, 2, and 3-year BEECH. The whole must be stiff, healthy, good rooted stuff.

Persons having all or any of the above to offer will oblige by sending lowest cash price to G. FROST, Nurseryman, Bampton, Devon.

Laurels.

FOR SALE, several Thousands of Well-grown and thriving LAUREL PLANTS, from 2 to 3 feet high, delivered at the Tisbury Station on the London and South-Western Railway, in quantities not less than 1000, at 25s. per 1000.

Apply to Mr. JEFFERY, Old Wardour Castle, Salisbury.

FOR IMMEDIATE SALE, fine large Fruit-bearing MULBERRY TREES; also the NURSERY STOCK on about 2 acres of ground. The stock consists of Aucubas, Box, Arbor-vitæ, Green Hollies, &c., large and small Ivies, Virginian Creepers, Clematis Flammula and other Climbing Plants. A quantity of Lilacs of sorts, and various other Flowering Shrubs.

WM. DENNIS & Co., King's Road, Chelsea, S.W.

DUTCH BULBS.—The following Collection for 10s., (half the quantity 5s.):—12 best named HYACINTHS for pots or glasses, six fine POLYANTHUS NARCISSUS, 50 fine DUTCH CROCUS, 50 Double SNOWDROPS, 12 best EARLY TULIPS,

CATALOGUES of DUTCH BULBS and Choice GLADIOLUS free by Post.

J. H. COTTRELL, The London Seedsman, 15, Bull Ring, Birmingham.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON'S first importation of the above has arrived, and from the extraordinary heavy weight of the Bulbs they promise a fine bloom. Early orders are earnestly solicited. DESCRIPTIVE PRICED CATALOGUES free.

N.B.—17 FIRST PRIZES were awarded to WM. C. & SON last spring for HYACINTHS, TULIPS, and CROCUSES. In addition to this, EVERY FIRST PRIZE at the London Exhibitions to Amateurs was for Bulbs supplied by them.

The ONLY address is Highgate Nurseries, London, N.

Surplus Stock of Crocus, Tulips, &c., offered by EDWARD TAYLOR, FLORIST, Malton, Yorkshire.

	Per 1000.—s. d.		Per 100.—s. d.
Blue and Purple Crocus	10 0	Narcissus, fine sorts	12 6
Large Yellow Dutch do.	10 0	Mixed Parrot Tulips	5 0
Cloth of Gold do.	10 0	Mixed Border Hyacinths	10 0
Cloth of Silver do.	14 0	Mixed Show Tulips	5 0
White do.	14 0	English Iris	5 0
Striped and Spotted do.	14 0	Gladiolus Brenchleyensis	12 6

Two years' ASPARAGUS Roots, 1s. 6d. per 100; 12s. 6d. per 1000.

CROCUS, in 25 named sorts, 20s. per 1000.

SPRING EXHIBITIONS.—The following will be found worth the attention of Cultivators, as the finest kinds for competition, also for Winter and Spring Display in the Conservatory. The quality of all is first-class:

PRIMULA SINENSIS, with Fimbriated Flowers.

P. ALBA	P. CARMINATA RUBRA
P. RUBRA	P. FILICIFOLIA
P. PICTA	P. ,, ALBA.

PRIMULA SINENSIS, with Double Flowers.

NIVEA PLENA	ALBA PLENA FIMBRIATA
ALBA PLENA	ATROROSEA PLENA FIMBRIATA.
ROSEA PLENA	
RUBELLA PLENA	

CALCEOLARIA PLANTS.—This stock is carefully hybridised.

CINERARIA PLANTS.—Best sorts, by name.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

THE STUDENT PARSNIP.—This delicious Parsnip becomes every year more popular. Numerous Prizes have been taken this season at Horticultural Shows; as also the First Prize at the International Show of the Royal Horticultural Society in October 1862.

Mr. SHIRLEY HIBBERD, in the *Garden Oracle*, says of it:—"SUTTON'S Student Parsnip is a great improvement and should be grown everywhere. It is certainly the best for Exhibition."

SUTTON & SONS, Reading, can supply New Seed, 1*s.* per ounce (post free). Trade price on application. The undermentioned Houses have been supplied with New Seed direct from Messrs. SUTTON & SONS' this season.

BATT, RUTLEY & SILVERLOCK	Strand, London, W.C.
BACKHOUSE, JAS. & SON	York.
BURGESS, A.	Nurseries, Cheltenham.
DICKSON, HOGG, & ROBERTSON	22, Mary Street, Dublin
DIXON, E. & SON	67, Queen Street, Hull
DICKSONS & BROWN	Corporation Street, Manchester.
EDMONDSON BROTHERS	10, Dame Street, Dublin.
FINNEY, SAMUEL & CO.	Gateshead, Newcastle-on-Tyne.
FISHER, HOLMES, & Co.	Handsworth, Sheffield.
HURST & SON	6, Leadenhall Street.
LAFFAN, JOHN	1, Pembroke St., Cork.
NUTTING & SON	60, Barbican, E.C.
PILLINGER, JOHN	Nurseries, Chepstow.
STUART & MEIN	Kelso, N.B.
SHAW, JOHN	20, Oxford St, Manchester
TURNER, CHARLES	Royal Nurseries, Slough
VEITCH, J.	Royal Exotic Nursery, Chelsea.
VEITCH & SON	54, High Street, Exeter.
WOOD & SON	Maresfield, Uckfield.
WRENCH, JACOB & SON	London Bridge, E.C.

PRICE PER POUND ON APPLICATION.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Backhouse's Winter White Protecting Broccoli.

JAS. BACKHOUSE AND SON have much pleasure in offering this valuable BROCCOLI. It comes into use EARLY IN DECEMBER, being in this neighbourhood 10 to 14 days earlier than Snow's Winter White; from which it also differs in being a true "protecting" kind: the pure white heads being completely covered by leaves. It stood perfectly uninjured during last winter with 12° of frost. See *Gardeners' Chronicle* for December 20, 1862.

The following Seedsmen having ordered it, will be able to supply genuine Seed:—

CHARLWOOD & CUMMINS	14, Tavistock Row, Covent Garden.
DRUMMOND, W. & SONS	58, Dawson Street, Dublin.
FISHER, HOLMES & Co.	Handsworth, Sheffield.
GLENDINNING, S & SONS	Chiswick Nursery, W.
HENDERSON, A. & Co.	Pine Apple Place, Edgware Road, W.
HURST & SON	6, Leadenhall Street, E.C.
JACKSON, T. & SON	Kingston-on-Thames.
LAWSON, P. & SON	London and Edinburgh.
SMITH, RICHARD	Worcester.
SUTTON & SONS	Reading.

Price 2*s.* 6*d.* per packet.

York Nurseries.—November, 1863.

Broccoli, Snow's Winter White (True).

ROBERT PARKER begs to announce that he can supply a few pounds of SEED (harvested this season) of this scarce and valuable variety. Price per pound on application.

Exotic Nursery, Tooting, Surrey, S.

To the Seed Trade.

PEAS.—Early Emperor, Prizetaker, Bedman's Imperial, Ne Plus Ultra, Sangster's No. 1, and Payne's Conqueror. The Subscribers have pleasure in offering about 200 quarters of the above, all the growth of 1863, from true stocks, and harvested in fine condition. Samples with Prices on application to

MARSH & PERKINS, 42, Drapery, Northampton.

STRONG SEAKALE ROOTS for FORCING, 10*s.* per 100. Early orders are solicited. Apply to Mr. MYATT, Manor Farm, Deptford, S.E.

MYATT'S PROLIFIC ASH-LEAVED POTATO and EARLY DALMAHOY. Price on application.

Mr. MYATT, Manor Farm, Deptford, S.E.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified in the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6*l.* per Ton, or 8*s.* per cwt.; and to prevent disappointment, orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Fendrayton, St. Ives, Hunts. Sacks, 2*s.* each.

Seed Potatoes.

H. AND F. SHARPE are now taking orders for all the principal varieties of Seed Potatoes, including MYATT'S EARLY PROLIFIC KIDNEY, and EARLY DALMAHOY (round), the earliest and most productive varieties in cultivation. The quality is very fine and prices low.

Seed Growing Establishment, Wisbech.

"Z" Family, now offered for the First Time.

HALLETT'S PEDIGREE NURSERY WHEAT.

TRADE MARK.

For full description of "Z family" see Advertisements in our Numbers for September and October, 1863.

PRICE—One Guinea a Bushel (or Seven Guineas a Quarter), delivered with printed directions for planting, at the Brighton Railway Station, in bags sewed up and sealed, upon receipt of Cheque or Post Office Order, which must in all cases accompany the order. *In December drill 8 bushels on 5 acres.*

HOW OUR WHEAT CROPS MAY BE DOUBLED, and other papers, forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

Nursery and Seed Establishment, Hastings.

WILLIAM EPPS, JUN., begs to inform his numerous patrons that he has REMOVED from Ashford, and opened a new Establishment as above; and trusts to merit a continuance of their favours.

W. E., JUN., has had the honour of being patronised by the Royal Family of Hesse, the Grand Duchess Constantine, and the Japanese Ambassadors.

THE LONDON SEED COMPANY, LIMITED.—The Directors have much pleasure in stating that they have completed the harvesting of all kinds of Seeds, and are now in a position to execute orders for every requisite for the FARM and the GARDEN.

The GENERAL PRICE CURRENT will be ready in December, and will be forwarded Gratis and Post-free on application. Seeds carriage free.

Offices: 68, Welbeck Street, Cavendish Square, London, W.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.* 4 cwt.; ditto Clarified fine or sharp, 2*s.* 6*d.* cwt., put on the Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

N B. Loaded Trucks can be sent on all the principal Railways.

W. SHORT, Reigate, Surrey.

REIGATE SILVER SAND, 12*s.* per ton at Swan Place, delivered five miles, or to any London wharf, or Railway, 16*s.* per ton, or 1*s.* 6*d.* per bushel (Sacks at cost price or on hire). KENTISH and HAMPSHIRE PEATS, LOAM, LEAF MOULD, SPHAGNUM, and COCOA FIBRE REFUSE.

J. KENNARD, Swan Place, Old Kent Road, London, S.E.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'



Magnified Aphis.

NEAL'S PLANT SOAP and APHIS PASTILS,

1*s.* and 2*s.* per packet,

may be obtained from all respectable Seedsmen.

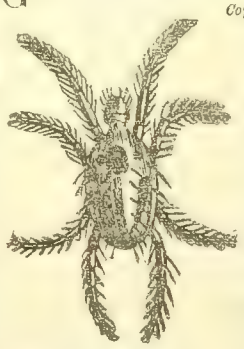
Testimonials forwarded on application to the Patentee,

J. NEAL,

Edward Street, Birmingham.

Winter Dress all Fruit Trees with

GISHURST COMPOUND.



Red Spider Magnified.

Copy of a Letter from Mr. RIVERS.

"Nurseries, Sawbridgeworth, Herts, Oct. 22, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."

For Orchard-house Trees 4 ounces to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), Belmont Vauxhall, London, S.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the COLD WINDS & MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1*s.* 8*d.* per yard run.
Four yards wide	3*s.* 4*d.* per yard.
An improved make, 2 yards wide,	1*s.* 9*d.* per yard.
An improved make, 3 yards wide,	2*s.* 8*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE, Address 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

Autumn Sowing.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),

Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.

Chairman.—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.

Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex.

ODAMS'S BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, has been in use for upwards of 11 years, and has given great satisfaction to consumers.

Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.

Offices: 109, Fenchurch Street, London, E.C.

Price 7*l.* 10*s.* per Ton, delivered at any Railway or Wharf in London.

LAWES'S WHEAT MANURE for AUTUMN SOWING.

A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8*l.* per ton.

2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

SUPERPHOSPHATE of LIME	£6 6
MINERAL SUPERPHOSPHATE	5 5

Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

Horticultural Agent and Valuer.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS) continues to undertake all kinds of VALUATIONS connected with Horticulture.

1, Devonshire Terrace, Fulham Road, S.W.

Landscape Gardening.

MR. GEO. H. STOKES, ARCHITECT, engages to prepare DESIGNS for Laying Out ESTATES and ORNAMENTAL GARDENS, having been for upwards of 17 years Principal, under Sir Joseph Paxton, M.P., in the preparation of similar Designs, including those for the Crystal Palace at Sydenham.

7, Pall Mall East, London, S.W.

SHAW'S TIFFANY.

For samples and prices apply to J. SHAW & Co., 29, Oxford Street, Manchester.

TREE and PLANT LABELS.—10,000 CLOTH or PATENT PARCHMENT PUNCHED LABELS for 30*s.* Delivered free in London on receipt of a Post-office Order or Stamps for the amount.—Address, JOHN FISHER & Co., West Road Works, Boston, Lincolnshire.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS and MACHINES of every description.

Illustrated Catalogues on application.

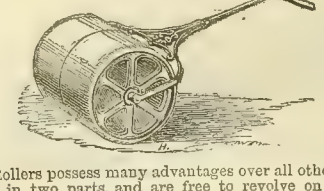
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

AGRICULTURAL IMPLEMENTS.—Steam Engines, Threshing Machines, Carts, Waggons, Ploughs, Harrows, Turnip Cutters, Chaff Cutters for hand and power, Lawn Mowers, Prize Churns, Cask Stands, Wire Netting, Garden Tools of all kinds.

Illustrated Catalogues on receipt of 6 stamps. Price Lists free.

BURGESS & KEY, 95, Newgate Street, E.C.
Works: Brentwood, Essex.

GREEN'S IMPROVED NEW PATENT ROLLER for LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS, &c.



These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the very best materials, and are got up in a manner surpassing any ever yet brought out.

PRICES:—

Diameter 30 inches,	length 32 inches	£7	0 0
,, 24 inches,	,, 26 inches	4	5 0
,, 20 inches,	,, 22 inches	3	5 0
,, 16 inches,	,, 17 inches	2	10 0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

ROCKWORK FERNERIES, WATERFALLS, CAVES, BANKS of STREAMS and PONDS, executed in the only way it should be, *i.e.*, to imitate Natural ROCKS. Worked with pockets, for plenty of plants, by JAMES FULHAM, Broxbourne, Herts.

References to works executed in 10 counties, some by the recommendation of W. B. THOMAS, Esq., R. MARNOCK, Esq., and E. MILNER, Esq.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3*s.* per doz. ; 20*s.* per 100.

Trade price on application,

Royal Nurseries, Great Yarmouth, Norfolk.

Prize Gladioli.

YOUELL AND CO. were awarded the following PRIZES for the above in September last :—

FIRST AND SECOND PRIZE, CRYSTAL PALACE,
FIRST PRIZE, ROYAL HORTICULTRAL SOCIETY,
FIRST PRIZE, BRIGHTON.

CATALOGUES of this collection will be forwarded on application.

Royal Nurseries, Great Yarmouth, Norfolk.

GLADIOLUS.—Flowering Bulbs of Seedlings, from all the best brilliant Red, Yellow, and White varieties, at 15*s.* per 100, or 6*l.* per 1000. Also a few hundred named Bulbs, including most of the best and high priced varieties, in one lot, at 1*l.* 5*s.* per 100.

Apply to C. CLARK, Stamford.

Choice Gladioli.

B. S. WILLIAMS has great pleasure in announcing that he has a Choice Collection of each class of these popular Bulbs. Also a Select List of the New Varieties raised this year. The Bulbs are very fine, and early orders are respectfully solicited.

Collection of 24 Choice Varieties, one root of each, for 21*s.*
Choice named Varieties, 6*s.*, 8*s.*, and 10*s.* per dozen.
A PRICED and DESCRIPTIVE LIST on application.

Paradise and Victoria Nurseries, Holloway, London, N.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

New Chrysanthemums.

JOHN SALTER'S COLLECTION of these beautiful Flowers is NOW in FULL BLOOM. The Winter Garden contains all the finest varieties in cultivation, together with the NEW CHRYSANTHEMUMS for 1864. The Gardens are open every day except Sunday.

Versailles Nursery, William Street, near Hammersmith Turnpike and the Kensington Railway Station.

Beck's New Pelargoniums,

OFFERED FOR THE FIRST TIME.

B. S. WILLIAMS begs to announce that he is now prepared to supply strong plants of the above, which have received certificates of the highest merit during the past and previous seasons. They have been selected with great care, and are far in advance of any yet offered.

For descriptions and prices see *Gardeners' Chronicle*, Oct. 24 ; also in CATALOGUE, which can be had on application.

Paradise and Victoria Nurseries, Holloway, London, W.

To the Seed Trade.

W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, begs to announce that the Stock of the following beautiful and distinct NEW ANNUALS—

RHODANTHE ATROSANGUINEA,
RHODANTHE MACULATA ALBA,
HELIPTERUM SANFORDII,

for which Silver Banksian Medal and First-class Certificates have been awarded him, is now ready for distribution.

Prices may be had on application either to his London Agents, Messrs. HENDERSON & Co., Pine Apple Place, Edgware Road, W., or to himself.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his Four New PRICE LISTS, No. 97, 98, 99, and 100, containing the Stove, Greenhouse, Hardy Plants, Seeds (262 pages 12mo).

Agents in London : Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

To the Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED MERCHANT, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and will be forwarded free on application to his Agent, GEO. MACINTOSH, Nurseryman, High Road, Hammersmith, W., to whom all communications should be addressed.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1072.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

New Hardy Continental Rhododendrons.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), begs to offer the following New Hardy RHODODENDRONS :—

	s. d.		*s. d.*
Rhododendron Comte de Gomer	4 0	Rhodo. Dr. Moore ..	6 0
,, Comtesse Salvi ..	6 0	,, Mrs. Barton	5 0
,, Dieudonné Spae ..	5 0	,, Mr. Stuart Low ..	6 0
,, Director Thelemann	5 0	,, Princess Alice ..	5 0
,, Duc Adolphe de Nassau	12 0	,, rubrum spectabile ..	4 0
		,, Verschaffeltii	8 0

The above varieties, raised by AMBROISE VERSCHAFFELT, are certainly of the finest and best varieties in trade.

The Set of the Eleven Varieties can be supplied for 3*l.*

New and Interesting Plants.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the following NEW and INTERESTING PLANTS :—

AMARYLLIS PROCERA, the blue flowering Amaryllis from Brazils, strong roots, 63*s.* each.
ALOCASIA ZEBRINA, strong plants, 30*s.* each.
MUSA ABACCA, a fine species, 18*s.* each.
RHODODENDRON AUGUSTE VAN GEERT, the largest flower of all the hardy kinds, 7*s.* 6*d.* to 21*s.*
YUCCA CANALICULATA FILAMENTOSA, fine plants, 7*s.* 6*d.*
AGAVE FILIFERA, 7*s.* 6*d.* to 21*s.*
,, PICTA, 5*s.* to 21*s.*
,, APPLANATA, most distinct, 7*s.* 6*d.* to 42*s.*
,, SCHIEDIGERA, 7*s.* 6*d.*
LIGUSTRUM OVALIFOLIUM VARIEGATUM, 7*s.* 6*d.*
LOMARIA FLUVIALIS, 30*s.* per doz.
,, DISCOLOR, 24*s.* per doz.
WOODWARDIA ORIENTALIS, strong plants, 24*s.* per doz.
TESTUDINARIA ELEPHANTIPES, strong, 21*s.* to 42*s.*
ENCEPHALARTOS CAFFRA, strong, 105*s.* to 210*s.*

CATALOGUES may be had on application.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants.

ALOCASIA METALLICA, 7*s.* 6*d.* to 63*s.* each.
AZALEA INDICA, finest named varieties set for flower, grafted plants of English growth, from 18*s.* per dozen.
RHODODENDRON, COUNTESS of HADDINGTON, 21*s.* each.
RHODODENDRON, fine-named hardy varieties set for flower, from 30*s.* per dozen.
ROSES, DWARFS, finest varieties of Hybrid Perpetual, extra strong plants from 12*s.* per dozen.
STATICE PROFUSA, 3*s.* 6*d.* each.
STRAWBERRIES, finest varieties, from 1*s.* 6*d.* per 100.
VINE TYNNINGHAME MUSCAT, 3*s.* 6*d.* to 7*s.* 6*d.* each.
Ditto ditto all the best varieties, from 3*s.* 6*d.* each.

PRICED and DESCRIPTIVE CATALOGUES of Greenhouse, Hardy, and Stove Plants, Seeds and Bulbs, are published, and will be forwarded to all applicants.

Exotic Nursery, Tooting, Surrey, S.

SUTTON'S UNRIVALLED COLLECTIONS of GARDEN SEEDS, for One Year's Supply. Carriage free.

SUTTON & SONS are now prepared to receive Orders for their unrivalled collections of GARDEN SEEDS, as under :—

	£	*s.*	*d.*
A Complete Collection of KITCHEN GARDEN SEEDS for One whole Year's Supply (with Instructions on Cultivation)	3	3	0
Ditto, in quantities proportionately reduced	2	2	0
Ditto, ,, ,, ...	1	1	0
Ditto, for a SMALL GARDEN	0	10	6

Sent Carriage Free by Rail, and 5 per cent. discount allowed for cash payment. A remittance or reference requested from unknown Correspondents.

*** By Ordering one of these Collections once a year much trouble and expense will be saved.

Also NATURAL GRASSES for LAWNS and MEADOWS, fine sorts of MANGEL WURZEL, TURNIP, and other AGRICULTURAL SEEDS.

SUTTON'S GENERAL DESCRIPTIVE PRICED CATALOGUE and AMATEUR'S GUIDE will be ready shortly, price 6*d.*, gratis to customers.

Remittances may be made by Cheques on Town or Country Bankers, or by Post-office Orders payable to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Great Reduction in the Price of Roses.

NOT TO BE UNDERSOLD BY ANY RESPECTABLE HOUSE IN THE TRADE.
WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

Since issuing their NEW ROSE CATALOGUE for the Autumn of 1863 and the Spring of 1864,

WILLIAM WOOD AND SON have ascertained that other Houses in the Trade are offering some kinds of Roses at a lower rate than themselves, and as they are fully determined NOT TO BE UNDERSOLD by any RESPECTABLE House, they have prepared a REVISED LIST of ROSES at reduced prices, and will have much pleasure in forwarding copies of the same, Gratis and post-free, to all applicants.

Roses.

EDWIN HOLLAMBY has the pleasure of informing the Nobility and Gentry that his extensive Stock of STANDARD and DWARF ROSES of all the leading kinds in cultivation is in the finest possible condition ; fine straight stems, fine heads, and beautifully rooted. Purchasers of large quantities will be liberally dealt with.

DESCRIPTIVE PRICED CATALOGUES for the present season will be forwarded gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells ; and Goldsmith's Park, Groomsbridge, Kent.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

Roses.

GEO. PARSONS, NURSERYMAN and SEEDSMAN, by Special Appointment, to her Majesty, begs to offer fine STANDARD ROSES, from 2½ to 4 feet stems, at 15*s.* per doz., or 5*l.* per 100 ; DWARFS (none better in England), 9*s.* per doz., or 65*s.* per 100. The new varieties of 1862 and '63 at proportionate prices. CATALOGUES free on application.

Western Road, Brighton ; and Hassock's Gate Nursery, Keymer, Sussex.

JAMES CRAWFORD begs to announce that he has still got a few Thousands of ROSES to part with in 60-Pots, all of first-rate quality, at the very low price of 3*s.* 6*d.* per dozen ; in collections of from 12 to 60 sorts, the selection being left to himself.

High Beech Nursery.

Roses.

JOHN CRANSTON offers selections of STANDARD and DWARF ROSES of very superior quality.

The robust growth and hardy constitution of the plants grown in this Nursery has long been acknowledged, and the Stock to offer this season is perhaps superior to any previous growth.

He also begs to direct attention especially to DWARF ROSES on the Manetti stock, of which he has an enormous stock.

The plants upon their own roots are also very strong and well grown.

	Per dozen—	*s.*	*d.*
STANDARD ROSES of all the leading varieties in cultivation		18	0
Do. Newer varieties, introduced in 1861 and 1862 ..		24	0
DWARF ROSES, extra fine plants upon the Manetti stock	9*s.* to	12	0
Do., do., upon Dog-rose stock		9	0
Do. Newer Varieties, introduced in 1861 and 1862	15*s.* to	18	0
Do., do., of 1862 and 1863	24*s.* to	30	0
STANDARD and HALF-STANDARD TEA-SCENTED ROSES, all the best varieties		24	0
DWARF ROSES upon their own roots, Hybrid Perpetuals, and Bourbons	9*s.* to	12	0
Do., do, Tea-scented	12*s.* to	15	0
CLIMBING ROSES		9	0
PILLAR ROSES, extra strong plants, 4 to 5 feet	12*s.* to	15	0
STANDARD WEEPING ROSES	each 2*s.* to	2	6
ROSES in 8 and 9-inch pots grown especially for Forcing or Greenhouse culture, the best Hybrid Perpetuals, China, and Tea-scented varieties	24*s.* to	30	0

DESCRIPTIVE CATALOGUES forwarded free on application.

Nurseries, King's Acre, near Hereford.

LINARIA ALPINA.—Flowers orange and purple, fine dwarf silvery tufts, quite hardy, 6*s.* per dozen, 42*s.* per 100.

CALANDRINIA UMBELLATA.—Perennial, vivid purplish crimson. Good blooming plants, 4*s.* per dozen, 30*s.* per 100. Extra strong, 6*s.* to 9*s.* per dozen.

LYCHNIS (AGROSTEMMA) CORONARIA.—Corymbs of vivid "magenta" flowers 1½ inches across, from silvery tufts, 1 to 2 feet. Strong blooming plants, 5*s.* per dozen, or 21*s.* and 31*s.* 6*d.* per 100.

AUCUBA-LEAVED or GOLD NETTED DAISY.—Strong plants, 4*s.* per dozen, 21*s.* per 100.

JAS. BACKHOUSE & SON, York Nurseries.

FREDERICK ADOLPHUS HAAGE, JUN., NURSERYMAN and SEEDSMAN, of Erfurt, Prussia, offers to the Trade the following NEW ANNUALS of his own growing, and is fully convinced that they will be general favourites in the Flower Gardens :—

PHLOX DRUMMONDI, chamois rose, quite distinct and constant in colour.

DWARF DOUBLE JACOBŒA of the following new colours, viz. : white, crimson, carmine, purple, dark purple, violet, dark ash-coloured lilac.

For Prices, see his New TRADE SEED LIST for 1863-4, which may be had on application to his Agents, Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London.—November, 1863.

CHOICE ORCHIDS.

HUGH LOW & CO.

HAVE PLEASURE IN ANNOUNCING THE ARRIVAL IN GOOD CONDITION OF AN IMPORTATION OF

CYPRIPEDIUM LOWI and CYPRIPEDIUM STONEI.

The Plants are on Sale at very moderate prices.

CLAPTON NURSERY, LONDON, N.E.

ROSES.

THE FINEST ROOTED PLANTS IN THE COUNTRY.

THIRTY-SEVEN PRIZES FOR ROSES ALONE WERE WON DURING THE PRESENT YEAR BY

WILLIAM PAUL

(SON and SUCCESSOR to the late A. PAUL).

Twenty-one of which were FIRST PRIZES won at the PRINCIPAL LONDON FLOWER SHOWS.

Entrance from the Platform, Waltham Station (Great Eastern Railway). Half an hour's ride from London.

ROSES.

TWENTY-SEVEN FIRST PRIZES DURING THE PAST SEASON.

PAUL & SON,

OLD CHESHUNT NURSERIES, HERTS, N.,

Beg to announce that they are now sending out the above. Their Stock of both STANDARD and DWARF ROSES was never finer.

CATALOGUES will be forwarded free on application.

PAUL & SON would solicit early orders, as the stock of certain kinds, as H.P. LORD CLYDE and CHARLES LEFEBVRE, &c., is but limited.

To gentlemen planting Roseries they would be happy to submit Plans, or to furnish Roses by the 100 or 1000 at special prices.

BARR & SUGDEN 12 KING ST COVENT GARDEN

Orders amounting to 21s. sent Carriage Paid.

BULBS FOR PRESENT PLANTING.

POMPON HYACINTHS, for Flowering in Masses, 3*s.*, 4*s.*, and 5*s.* per dozen.
CROCUS, fine mixed, 12*s.* 6*d.* per 1000.

The No. 4, £2 2s., Collection of Bulbs; Half, £1 1s.; Quarter, 10s. 6d.

Part for the Conservatory or Sitting Room, and part for the Flower Garden.

25 NAMED HYACINTHS	24 TULIPS for Indoor Culture	100 ANEMONES
25 BORDER ditto	100 Ditto for Out ditto ditto	50 IRIS
12 POLYANTHUS NARCISSUS	200 CROCUS	4 JAPAN LILIES
100 GARDEN ditto	100 RANUNCULUS	12 WHITE LILIES

The No. 5, £2 2s., Collection of Bulbs; Half, £1 1s.; Quarter, 10s. 6d.

For the Decoration of Sitting Room and Conservatory.

30 NAMED HYACINTHS, in 30 vars.	12 Dbl. SWEET-SCENTED JONQUILS	18 IXIAS, in 6 vars.
12 POMPON ditto in 12 vars.	100 NEW CROCUS in 10 vars.	18 SPARAXIS, in 6 vars.
12 POLYANTHUS NARCISSUS, in 12 vars.	4 JAPAN LILIES, in 3 vars	12 ANOMATHECA CRUENTA
50 TULIPS, in 16 vars.	12 ACHIMENES, in 6 vars.	4 WATSONIAS
	12 LACHENALIAS, in 4 vars.	4 DIELYTRA SPECTABILIS

The No. 6, £2 2s., Collection of Bulbs; Half, £1 1s.; Quarter, 10s. 6d.

For Ornamenting the Flower Garden.

50 HYACINTHS	150 RANUNCULUS	4 JAPAN LILIES	3 ARUMS
100 NARCISSUS	150 ANEMONES	12 WHITE ditto	3 ANTHOLYZAS
200 CROCUS	24 GLADIOLI	50 ENGLISH IRIS	3 WATSONIAS
150 TULIPS			

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN.

NEW HARDY LATE FLOWERING RHODODENDRONS.

PRINCE OF WALES.

Brilliant rose shaded with purple, divided black marking on the upper petals, compact truss, good substance, a profuse bloomer, very hardy, and flowers end of June.

Strong young plants, 21s. each. | A few larger ones, 42s. each.

PRINCESS OF WALES.

Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, compact truss and good substance. TOTALLY DISTINCT FROM ANY KNOWN RHODODENDRON. Hardy and late. A really beautiful variety.

Strong plants, 21s. each. | Larger, 42s. each. | A few extra size, 63s. each.

One Plant over in three to the Trade.

MAURICE YOUNG has much pleasure in now offering for the first time the above distinct and beautiful RHODODENDRONS, which he can confidently recommend as most desirable additions to this noble class of hardy evergreens. They have both been proved for several years in the open ground to be very hardy, free bloomers, compact truss, and very late—possessing every qualification which can be desired in a first-class Rhododendron.

COLOURED PLATES by ANDREWS are now ready, and will be forwarded on receipt of 25 postage stamps.

MAURICE YOUNG (SON and SUCCESSOR to the late WILLIAM YOUNG), MILFORD NURSERIES, NEAR GODALMING.

THE PLYMOUTH SEED COMPANY, LIMITED,
is AMALGAMATED with the
LONDON SEED COMPANY, LIMITED.
Registered Offices: 68, Welbeck Street, Cavendish Square, London, W.

JAPAN LILIES, Extra strong Flowering Bulbs.

		Each—*s.*	*d.*
LILIUM LANCIFOLIUM ALBUM		1	0
" " ROSEUM		1	3
" " RUBRUM		1	3

Three each of the above, 10s.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

£20 REWARD.—WHEREAS for several months past a series of ROBBERIES have been committed in the FULHAM NURSERY, and on Wednesday Night or Thursday Morning last, the 12th inst., many valuable Plants stolen, comprising among others the following:—CORDYLINE INDIVISA, SCIADOPITYS VERTICILLATA, YUCCA FILAMENTOSA VARIEGATA, RETINOSPORA LEPTOCLADA, THUJOPSIS DOLABRATA VARIEGATA, AUCUBA HIMALAICA, GERANIUM MRS. POLLOCK, whoever will give information that will lead to the Conviction of the Offender or Offenders, shall receive the above Reward.
Fulham Nursery, Nov. 21. OSBORN & SONS.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 28, 1863.

MEETING FOR THE ENSUING WEEK.
THURSDAY, December 3—Linnean .. .. 8 P.M.

WE have to record a very considerable HORTICULTURAL ACHIEVEMENT. The COCOA-NUT TREE, which has hitherto been universally barren in Europe as far as we can discover, has at length been enabled to yield its fruit. In the Conservatory of the Duke of NORTHUMBERLAND'S Palatial Garden at Syon there is now a most beautiful specimen of this graceful Palm, with a nut securely "set," and advancing steadily to maturity. It has been obtained from a flower which opened last July, and it already measures 10½ inches in circumference.

The history of the event is too instructive to be passed over in silence, for it teaches the really intelligent gardener that anything, not in itself absolutely impossible, may be accomplished with plants by means of patience and skill. It is fully 12 months since that the Syon Cocoa-nut first produced female flowers; they even arrived at the size of pigeons' eggs, but then fell off. The belief was that the tree was not strong enough to bear them, and considering that many trees are unwilling to set fruit until they acquire age such belief was not unnatural. Mr. SMITH, however, the very able manager of the Duke's Garden at Syon, was not quite satisfied with such a reason. It occurred to him that it might arise from the absence of pollen to fertilise the females. There was this difficulty indeed in the supposition, viz., that the male flowers were numerous, vigorous, and abundantly polliniferous; and according to the figure in LOUDON'S Encyclopædia of Plants, the female flower was so fully exposed to their influence that contact between pollen and stigma was unavoidable. For according to this figure the flowers some time or other spread completely open, leaving the tender fruit entirely exposed. At Syon the last flowering branch bore seven females, but although stronger than any of its predecessors, the young nuts began to drop off just as before.

Now Mr. SMITH is, as all gardeners ought to be, a man of observation, and he had remarked that none of the female flowers at all resembled the figure given in LOUDON. On the contrary, instead of the calyx and corolla spreading completely apart, he found that the flowers only formed at the point a wee-wee triangular opening, perhaps a sixteenth of an inch deep and as much wide, so that LOUDON'S figure, when brought face to face with the best of all witnesses, was a mere pictorial lie*. He therefore determined to see what would happen if pollen were really introduced into this opening. It so happened that his decision was taken so late that only one female, and that a weak one, remained in a state for trial. To it the pollen was administered, and presto! immediate action ensued. The stigmas shrivelled, the ovary swelled, and the result is now shown in the rapid growth of a fine plump nut. Oh ye gardeners, take this as a gentle warning, *never again to put your faith in pictures*. For ourselves we fully anticipate quite a crop of Cocoa-nuts at Syon in some future year, for the tree is in magnificent health, with 15 exquisitely beautiful leaves, each about 16 feet long, growing from the top of a sturdy stem 2 feet in circumference.

No one who has enjoyed the opportunity of seeing Syon lately will be surprised at Mr. SMITH'S success, for in other directions also good gardening

* ROXBURGH states, and we are assured by friends who have lived in Cocoa-nut countries, that in fact the females never do expand, and the necessary effect can only be produced naturally by the agency of either insects or storms.

is carried to the highest possible perfection. There is in one house the great Bamboo of Chittagong, with a stem as thick as a man's arm, that is lengthening at the rate of 10 feet a week. In other houses are beautiful specimens of the Mangosteen, the Cinnamon, the Allspice, the Breadfruit, the Date Palm, Dwarf Bananas nearly ripe, and Vanilla plants loading the rafters with pods. Nor are tropical fruits the only examples of first-rate Gardening. We doubt whether there was ever elsewhere such a superb specimen of *Eucharis amazonica*, by far the handsomest of white-flowered Amaryllids. As for *Chrysanthemums* in the greenhouses, they are just what such flowers should be, most graceful, branching, leafy, and abundant, not like the big South Kensington things, which are about as handsome as so many coloured mops with their handles downwards. Moreover, on the open walls of the Kitchen Garden may be seen such Peach training as even the late ANDREW KNIGHT would have pointed to with pride had it been his.

We must all be glad that such an example of general Horticultural skill is to be found at home without the need of travelling in search of it to some unknown country abroad.

AT p. 1039 will be found, extracted from the *Oxford Journal*, some observations contributed to that Paper by Mr. BATES, of Parks Nursery, near Oxford. The writer takes exception to our exposition of the LAW AS IT AFFECTS THE ASSESSMENT OF NURSERYMEN'S PREMISES, which appeared in the *Gardeners' Chronicle* of the 30th May last. Mr. BATES's objections, although in our opinion unfounded in law, and proceeding on a misunderstanding of what we then said, are yet so ably stated, as to make it expedient to add a word or two of explanation and reply.

Now Mr. BATES appears to assume that we expressed an opinion that greenhouses, &c., were to be rated as hereditaments under the Act; and that we denied that they were to be deemed in law, when erected by a nurseryman leaseholder during his term, for the purposes of his business, as what are technically called "trade fixtures." Upon these two assumptions his criticism is based. They are both of them wide of the truth, as he will discover on a closer examination of our language. Now, although the question as to whether a nurseryman can remove greenhouses, &c. erected under the circumstances indicated, is by no means so clear a matter as Mr. BATES assumes it to be, yet we gave the nurseryman the benefit of the doubt, and stated what in our opinion is the true state of the law, namely, that, apart from the provisions of 14 & 15 Vict. c. 25, § 3, the nurseryman *can* remove such erections under the same restrictions as any other trader can remove his trade fixtures. And further we also stated that such erections were not rateable, *per se*, as houses or hereditaments, under the Parochial Assessment Act. But our argument was directed to this: although, in favour of the nurseryman, the soundness of these two propositions may be granted, yet, that in rating the nurseryman's premises, the overseers would be bound to take into consideration the improvement of their lettable value, (say) arising from the occupation of the land rated, by the greenhouses and similar erections placed upon it. This argument Mr. BATES has either overlooked or misunderstood, and has altogether failed to meet. We propose now to add to what we then said a few remarks by way of further illustration.

Now Mr. NOLAN, the authority vouched by Mr. BATES (and who, if we may judge from that work and the principles there laid down, would certainly as the law stood in his day have decided the present controversy in our favour), in the first volume of his work on the Poor Laws, thus states the principle:—"A real subject has been held rateable according to its annual value, although that value may be derived from the annexation of a personal chattel." Clearly this statement of the law, which is deducible from several authorities which might be cited, were this the place to do so, entirely supports our view of the matter in dispute. If, we say, the nurseryman's garden derives additional value from the annexation of these greenhouses, even though they be considered as personal chattels, then that additional value is to be taken into account in rating them. The question proposed is, what will these premises let for, in their present condition, to be occupied in the most profitable way, with all the privileges and opportunities which enhance the value of the occupation? It is for this reason that a gas or a water company is held rateable—not for its gas or water pipes, which are personal chattels merely resting by their own weight in the soil—but for the land occupied by the pipes, and thus deriving an enhanced value by being capable of being used for the purposes of the company. The land in both these cases is not rateable at its mere value as land, for that would be in most cases "nil;" but it is assumed that the tenant would enjoy all the privileges of the water company or the gas company by which they are able profitably to occupy the premises, such as connection with other parts of the apparatus, the reservoirs, service pipes, &c., and the nature of the occupation of the soil, *i. e.*, by water or gas pipes so connected, is properly taken into account in assessing the land so occupied to the poor rate. So also the wires of the telegraph company and the barges of which the floating piers in the river are constructed, are personal chattels; yet they are rated—and why—because by the posts, and the anchor, for the purposes of rating, the land is considered as occupied; and although the value of the occupation exclusively arises from the annexation of the personal chattel, yet the telegraph companies and the pier proprietors are held rateable, and the increased value from the peculiar occupation of the land in each case is taken into account.

Again it is quite obvious that it would be utterly impossible for an overseer to take into consideration all those nice questions of law and fact upon which depend the right of a tenant to remove pictures. It matters not who built the house rated, or who improved the property—the present occupation is the thing to be regarded. Mr. BATES, who really seems to have studied the subject and to have the legal authorities at his fingers' ends, need not be told that the right to remove fixtures depends not only on their nature or their use, but, first and foremost, upon the fact whether the tenant put them up himself. Of course if the fixtures, whether trade fixtures or not, were on the property when the tenant entered on his tenancy, he can have no right to remove one of them. The mere fact therefore that a tenant, in a particular case, may remove fixtures, cannot affect the question of the rateability of the land to which they are affixed. The truth is that the right to remove fixtures at all, whether tenant or trade fixtures, is an exception introduced in favour of tenants and tradesmen, by judges and their decisions, into the rigid ancient code, which, conceived entirely in favour of the land, made everything annexed, as a greenhouse is ordinarily annexed, at the very moment of annexation, the property of the owner of the soil.

But the real questions are: first, is the land occupied?—second, how is it occupied?—and third, of what is the value of the occupation? Now the mere fixing of a screw to a floor to steady a machine, it might be argued, and perhaps successfully in some cases, would not be an occupation of a sufficiently permanent character to be called an occupation at all. On some such principle was decided the case of the floating dock at Hull, which was moveable, and constantly moved from one place to another. But in all cases it is a question of degree; and, in our opinion, beyond all doubt, in the case of a greenhouse as ordinarily annexed to the land, it would be held that the land *was* occupied by the greenhouse, and was assessable at an improved value, if by reason of the existence of the greenhouse upon it, the value were improved.

The case of greenhouses erected under the circumstances now discussed, is, as may be gathered from the explanation of the principles of rating above attempted, of less difficulty than that of machines and so forth, set up in a manufactory, but here also it is a question of degree. Is the machinery so fixed to the building as to form as it were part of it? There can be no doubt that if this be the case, the additional value which such annexation gives to the building, must be taken into consideration. Fixed machinery is, as a matter of fact, constantly and properly taken into account, and it matters not whether such machinery, by reason of custom or positive agreement, can be removed by the tenant for the time being in occupation of the premises. And so, to take Mr. BATES's other illustrations, the tenant who by putting in plate glass windows under circumstances which would give him a right to remove them during his term, or who, repairing and decorating a dilapidated building, and by fitting it up with valuable trade fixtures, increases its lettable value as a shop, would thenceforth be properly rated at its increased value. "If a house," it is said in one of the cases on the subject, "is let for 30*l.* per annum, and to-morrow if turned into a shop would let for 50*l.*, when it is turned into a shop it shall be rated at 50*l.*" So also, if the principles above laid down be properly applied, the farmer's case put by Mr. BATES as an *argumentum ad absurdum*, will turn out to be one which, so far from being absurd, is perfectly consistent with the law as at present interpreted. Suppose one farm with dilapidated buildings, and another with modern improvements, fixed steam-engines, and with threshing machine also fixed to the soil—will he say that the one ought to be rated as high as the other, the rateable value of the mere land being assumed to be equal. In our opinion it is clear, as a proposition of law, that the engine house and threshing machine, if fixed into the soil so as to occupy it with such a degree of permanence as above indicated, ought, if their existence renders the occupation of that farm more valuable in experienced hands and under ordinary circumstances, to be taken into consideration in assessing the farm to the poor-rate. It can, in our opinion, make no difference that the tenant may have the privilege of removing them under the Act of Parliament before cited (14 & 15 Vict. c. 25), which, in the interests of agriculture, extended the privileges of tenants in this particular.

We had intended to close this article without citing a single authority, but we are tempted to make one exception, as it seems to us very exactly to bear out the propositions for which we have been contending. In the celebrated case in which the rating of the Southampton Docks was considered, the Company claimed an allowance, which was thus stated and disposed of by the late Lord CAMPBELL in delivering the considered judgment of the Court of Queen's Bench:—

"The fourth question arose upon a deduction claimed by the appellants, which was disallowed. They contended that their cranes, steam engines, and other like ponderous machinery, although attached to the freehold, ought to be treated as stock in trade, and part of the capital which a tenant would have to invest in the business, so as to diminish instead of increasing the rateable value of the property of the Company. The Sessions did find as a fact, that these fixtures, worth 6450*l.* to an incoming tenant, although attached to the freehold are capable of being detached from the freehold as easily and with as little injury to it as other fixtures put up for the purposes of the trade of the tenant, and usually valued as between incoming and outgoing tenants. But this is a rate upon buildings to which machinery is attached for the purposes of trade; and it has been solemnly decided that such real property ought to be assessed according to the existing value as combined with the machinery, without considering whether the machinery be real or personal property, or whether it be liable or not to distress or seizure under a *fieri facias*; or whether it would go to the heir or executor; or, at the expiration of a lease, to the landlord or tenant. *Rex* v. *the Birmingham and Staffordshire Gas Light Company*, 6 A. & E. 634; *Rex* v. *Guest*, 7 A. & E. 951. In this last case all the arguments pressed upon us to show that such fixtures are stock in trade, and not to be taken into account in a rate on the realty, were urged, but urged in vain. It is of the greatest importance that a rule upon such a subject, which has been laid down and acted upon, should be adhered to; and we see no reason why this rule should be now disturbed."

And this case, it is to be observed, was decided in 1851, long after the passing of what is called the Stock in Trade Exemption Act (3 & 4 Vict. c. 89), in 1840; an Act which has since been yearly re-enacted, and which is relied upon both by Mr. LANE and by Mr. BATES as establishing their contention, that the value, added to the occupation of the soil by the existence of greenhouses annexed thereto, ought to be disregarded in assessing the premises of nurserymen to the poor rate.

IT is not alone amongst ornamental plants, as was remarked in our observations on HYBRIDISING at p. 1107, that the vegetable cross-breeder may turn his skill to good account. That in this department he may be successful, the instance mentioned in our previous remarks sufficiently proves, but our own pages have recently recorded also a very interesting and successful first step in cross-breeding (see p. 966), viewed in its bearing on Economical Botany; we refer to the IMPROVEMENT of COTTON—that is to say, of Cotton viewed in its commercial aspect—through the agency of hybridisation. The same kind of experiment has, it appears, been made in India, as we learn from a pamphlet by Dr. BONAVIA now before us,* bearing the very appropriate motto: "Perseverance is the Mother of Success."

Dr. BONAVIA seems to have grown and distributed in Oudh seed of the New Orleans Cotton, and to have introduced its cultivation in that district with fair success. But though the New Orleans and Nankin are favourite varieties, he hopes to supplant them both by the hybrid which he has been successful in raising.

The following is a brief account of the

* Notes on Foreign Cotton Cultivation in Oudh. By Dr. E. BONAVIA, Secretary to the Agri-Horticultural Society of Oudh. Lucknow, 1863. Pp. 12.

attempts at hybridising the Cotton plant, made by this gentleman, with their results:—

"In 1861 I successfully hybridised two pistils of the Egyptian Cotton with the pollen of the New Orleans Cotton. I had two bolls, from which, in 1862, I had fourteen plants. Six of them were much larger than the rest, the latter having been shaded by some Castor plants. About the end of the rains of 1862 the leaves turned yellow and dropped off, and after the rains they began to bud again. At this season one boll was produced by one of the plants, which was well formed. On ripening, I found it full of large seeds, but entirely free from fibre. This appeared like the prelude of a disappointment, but having observed that the first flower of Geraniums, especially of those raised from seeds, is generally a monster, I was not much disheartened by this first cottonless boll. I took care of the plants, and when the winter was over I pruned and watered them. They threw out a number of branches and flowers, and became covered with bolls, which, on ripening, produced a very superior kind of cotton.

"The general aspect of the plant was that of the Egyptian Cotton. The flowers were buff-coloured, and opened widely like those of the New Orleans Cotton, but were much larger; the crimson spot near the claw of the petals being pale, and in some flowers almost wanting, as is the case in the flower of the New Orleans Cotton; while the flowers of the Egyptian kind are sulphur-coloured, large, and the petals are twisted into a tube when full blown, the crimson stain near the claw being dark and well marked. So that the characters of the hybrid plants showed a perfect mixture of the two parents.

"In May, 1862, they produced a large crop of bolls, the majority being four-valved. In this particular they resembled the New Orleans, the Egyptian as a rule producing only three-valved bolls. The fibre was long and silky. The seeds of some of the hybrid plants were green-fuzzed, of some brown-fuzzed, and of others black with partial green-fuzz."

The cotton from this small group of hybrid plants was collected and sent to Calcutta for the opinion of the Cotton Committee of the Agri-Horticultural Society of India. The experiment was pronounced a great success, the cotton being considered in every respect a perfect article of its kind; and under present exceptional circumstances it was valued at 2*s*. 6*d*. per lb. in Liverpool. Dr. Bonavia was also invited to favour the Society with a detailed account of his experiment.

"Here is a field," he writes in the pamphlet from which these particulars are gleaned, "on which any one may immortalise himself! We are in the habit of hearing of hybrid Roses, hybrid Turnips, and other hybrids of comparatively trifling value; and Cotton is a most important plant to man, and it required no less than a tremendous American war to thrust the subject of its hybridisation on the minds of scientific men. I have given up," he continues, "further attempts at hybridising the foreign with the indigenous Cotton. I felt that the species were so divergent as to exclude the possibility of their fertilising each other. But some good results may yet be obtained from trials to cross the indigenous Berar Cotton with the indigenous common Cotton."

Dr. Bonavia thinks there is little doubt that by judicious selection and crossing it is possible to produce a Cotton not only adapted to the various soils and climates of India, but of high commercial value in regard to quantity and quality. One of the great drawbacks of native Cotton, he remarks, is its small amount of produce, which is suspected to be owing to interbreeding. The Egyptian Cotton, too, is almost as bad, and goes from bad to worse every year, so that, as a crop, in Oudh, it is considered worthless, though it is most valuable for the "natural hybridisation" presently to be mentioned. The New Orleans variety produces a sufficiently good crop, but in many plants even of this a large number of flowers are not fertilised, which is again attributed to interbreeding, in accordance with Darwin's observations that "a cross between different varieties, or between individuals of the same variety but of another strain, gives vigour and fertility to the offspring; and on the other hand, close interbreeding diminishes vigour and fertility." Thus Dr. Bonavia's variety, which resulted from crossing the New Orleans and the Egyptian, themselves varieties of the same stock, is not only a more vigorous and finer kind, but more fertile than either of its parents; and being the child of Indian soil and climate is regarded as more likely to be suited for cultivation in India than they are. It is Dr. Bonavia's opinion, too, that this cross can occur naturally, and he records in proof of this, the existence of plants more vigorous than the rest, and agreeing with some of his hybrids, in plots of either parent when growing contiguously.

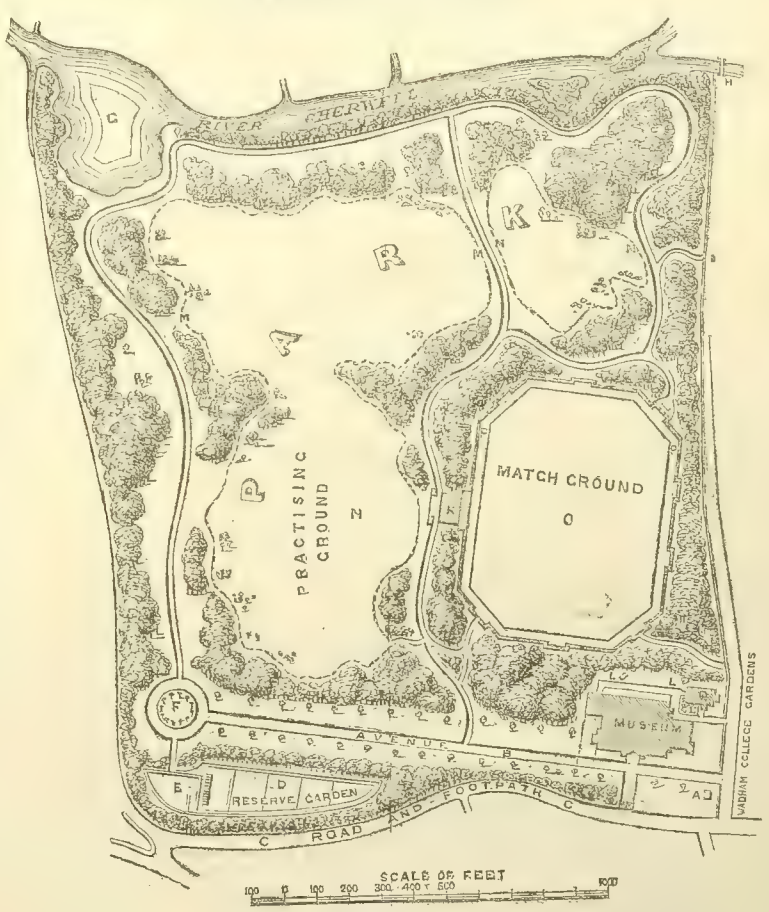
Natural hybridisation is regarded as the best course to be pursued. "I strongly recommend," writes our authority, "that the two kinds of Cotton should be sown on the same piece of ground in alternate rows, so that a large number of the pistils of both may be hybridised through the agency of insects and of wind. The seeds of these two kinds gathered separately, and sown again on separate plots, will produce among the usual kinds a number of plants which will be more vigorous, the pods more numerous, and the fibre longer and more silky; and if I am correct in my deductions, the seed will be green. All such seeds are to be carefully selected for further multiplication. This is a method of producing hybrid seed in large quantities. The success I have obtained in creating, so to speak, a new and useful kind of Cotton is so encouraging that I shall make further and more extensive experiments. Some very important results may in course of time be obtained. With this end in view I have procured some indigenous Cotton seed from Dharwar to cross with the Berar, and some Mexican from Goruckpore to cross with the New Orleans. And some Pernambuco Cotton seed may, if not very prolific in itself, be very useful to cross with other kinds."

We cannot do otherwise than wish Dr. Bonavia every success in his well-meant and important operations.

In fulfilment of a promise made to our readers last spring, we are happy to be enabled to lay before them in our present Number the plan which, at the recommendation of the Delegates, has been prepared by Mr. Bateman for laying out the estate adjoining the Oxford University Museum. Mr Bateman's hands were a good deal tied by the large demands for space made upon him by the cricket interest, and by the indisposition of the authorities to incur a large expenditure in works with which a considerable portion of the academic body did but imperfectly sympathise, however important they might appear in the eyes of the world at large. We can only say that the plan seems to us to be admirably adapted to the circumstances of the case, and we sincerely trust that Convocation may speedily be led to assent to its adoption.

Although the plan is the production of an amateur, it would be difficult to name any professional man who has had much more experience in laying out grounds, or who is more thoroughly acquainted with the habits and capabilities of hardy trees and plants than its author, Mr. Bateman.

Mr. Bateman's Plan for Laying out the Parks Estate, belonging to the University of Oxford, and attached to the New Museum.



REFERENCE.

A. Principal lodge and entrance.
B. Grand avenue, proposed to be planted with Wellingtonias.
C. Road and footpath.
D. Reserve garden, with pits, frames, &c.
E. Yard for compost, &c.
F. Site for some handsome architectural object (*e. g.*, fountain, group of sculpture, cross, &c.)
G. Sheet of water obtained by widening the river Cherwell.
H. Site for Bridge over the Cherwell.
I. Entrance for carts, sheep, &c.
K. Cricket house, with dressing rooms, dining room, kitchen, &c., having one face towards the match and the other towards the practising ground.
L. Details of this locality left for future consideration.
M. Fence between plantation and practising ground.
N. Cricketers' practising ground.
O. Cricketers' match ground, 10a. 2r. 10p., surrounded by gravel walk.
P. Yew hedges, recesses for seats, &c.
Q. Curator's house.

N.B. The ground slopes gently towards the river, its average height above the latter being about 20 feet. The substratum is gravel, and the soil is poor, but from the meadows adjoining the river a sufficient quantity of rich loam may be obtained to insure the success of the groups of trees to which of course it would be devoted. As it is indispensable that mounds should be formed of sufficient height (when planted), to shut out unseemly buildings and secure the requisite privacy, it is proposed to obtain the necessary material for them by enlarging a portion of the river Cherwell, which would thus present a broad expanse of water and have all the effect of a lake. It is not proposed to adopt any botanical arrangement of trees or shrubs—for the University has already its Botanic garden, but merely to arrange in suitable masses, and with due regard to picturesque effect, a series of such Conifers and other evergreen or deciduous trees as may be thoroughly relied upon to succeed in the climate of Oxford. It might have been desirable to treat more architecturally the immediate vicinity of the Museum building, but anything of this kind would be quite impracticable unless a very much larger sum were voted than that which the

University seems at present willing to devote to the Parks.

WE have to make the very important announcement that Major TREVOR CLARKE'S Hybrid Cotton has been pronounced by Dr. F. WATSON to be of *three times* the market value of the Nankin parent.

—— THE Society of Arts has just announced the Subjects for which it offers Premiums for the Sessions 1863-64 and 1864-65. The following may interest some of our readers :—

COTTAGES FOR THE LABOURING CLASSES.—Two prizes, of 25*l.* each, are placed in the hands of the Council by J. BAILEY DENTON, Esq., to which are added the Society's medals, to be offered for the most approved designs for cottages, to be built singly or in pairs, at a cost not exceeding 100*l.* each. One prize is to be competed for by members of the Architectural Association, and the other is open to general competition.

Detailed particulars have been issued and may be had on application to the Secretary.

The plans, drawings, and specifications, must be sent to the Society's House, not later than the 1st January, 1864.

TOBACCO.—For an account of the cultivation, preparation, and manufacture of the various kinds of Tobacco and the commerce therein.

USES OF SEAWEED.—For the extraction from Seaweed of any substance, or preparation, capable of extensive application as a dye, drug, thickening, tanning agent, or other generally useful product.

FLAX IN AUSTRALIA.—For the production in any of the Australian Colonies of Flax of a good marketable quality. A sample of not less than one bale to be forwarded to the Society.

AFRICAN SPICE PLANTS.—For an account of the spice plants and condiments of Africa, wild or cultivated, with samples and cost.

ESSENTIAL OILS FROM AUSTRALIA.—For the introduction into commercial use at a moderate price of the essential oils shown at the late International Exhibition from Australia, or of any other new essential oil likely to be useful in medicine or the arts.

SUBSTITUTE FOR WOOL.—For any fibrous material available in large quantity and at a low price, capable of being used advantageously in textile fabrics, as a substitute for wool. The fibre should be from 1 to 6 or 8 inches in length, and suitable for being spun on the ordinary woollen or worsted machinery.

SUBSTITUTE FOR COTTON OR FLAX.—For any new fibrous plant or substance which may be used wholly or in part as a substitute for Cotton, Flax, Hemp, &c., or any new processes whereby useful fibres may be extracted from plants.

NEW GUMS.—For any new substance or compound which may be employed as a substitute for India-rubber or gutta-percha in the arts and manufactures.

NEW GUMS OR OILS.—For any new gum or oil the produce of Africa, calculated to be useful in the arts and manufactures, and obtainable in quantity. Samples of not less than 25 lbs. of gum, and 50 lbs. of oil to be transmitted to the Society.

NEW EDIBLE ROOTS.—For the discovery and introduction into this country of any new edible root useful as food for man or cattle, and capable of extensive and improved cultivation.

EDIBLE SEAWEEDS.—For a means of rendering seaweeds generally available as a wholesome vegetable food on board ship.

AUSTRALIAN SUGAR.—For the production and manufacture of not less than 1 ton of cane sugar, the produce of any of the Australian colonies. Details of the extent of land under cultivation, the yield of sugar per acre, and the cost of production per ton, to be furnished.

AUSTRALIAN COFFEE.—For the successful introduction of Coffee cultivation into any of the Australian colonies, and the production of 1 cwt. of merchantable Coffee. Samples of 10 lbs. to be sent to the Society.

SPICE CULTURE IN AUSTRALIA.—For the introduction of the Nutmeg, Clove, Pepper, or any other useful commercial plant into the Australian colonies, and the production of not less than 1 cwt. of produce therefrom. Samples of at least 1 lb. of each to be sent to the Society.

—— We have received from Mr. MOORE the accompanying additional memoranda (see p. 747), concerning certain ornamental novelties amongst the VARIETIES OF BRITISH FERNS, which will no doubt be interesting to our Fern-loving readers.

"First on the list is POLYSTICHUM ANGULARE HOLEANÆ, found near Stickwick, in the parish of Bovey Tracey, by the gardener to Mrs. HOLE, of Parke, and communicated by Mr. R. J. GRAY, of Alphington. This is a variety of the proliferum series, and one of the handsomest yet discovered, the fronds being broad and leafy, and yet very much divided upon the same plan as proliferum itself. Mr. GRAY'S specimen without the stipes, is about 2 feet long, and nearly 9 inches across towards the base. The pinnæ are thickly set, so that the pinnules overlap each other, those on one pinna reaching as far as the midrib of the next pinna, and yet from their divided character leaving numerous openings between their parts. The more perfectly developed pinnules are an inch long, almost linear in form, and divided into 10 or 12 small but distant pinnulets which are irregularly obovate in form, with two or three small sharp teeth ending in an awn. As in all this series, the rachides are densely scaly.

"The next is a Hart's Tongue found at Mainforth in Cornwall, by Miss MARIAN DRUMMOND, of Denham, Uxbridge, in compliment to whom it is named SCOLOPENDRIUM VULGARE DRUMMONDÆ. The fronds of this Fern are about a foot and a half long exclusive of the stipes; below they are undulated in a very decided manner in the way of crispum, the base of the frond having the usual cordate outline, while in the upper part they become multifidly divided into a tuft of about 6 inches across, the divisions of which are repeatedly forked, and the ultimate lobes not simply pointed, but becoming dilated and breaking out into several coarse tooth-like projections, which are somewhat cristate. The fronds are sparingly soriferous. It is one of the handsomer forms of Hart's Tongue, combining the ornamental features of crispum with those of the subcristate forms of multifidum.

"Another ornamental form of Hart's Tongue is the SCOLOPENDRIUM VULGARE WEAVERI, found by Mr. J. WEAVER on an old wall, near the Menai Bridge in Carnarvonshire. This is also undulated and multifid, but is very different from the last, the margin being crisped moderately, after the model of undulatum rather than of crispum, and the apex being simply multifid, that is divided into segments, each of which terminates in a simple point. The fronds are abundantly soriferous, and have a slight tendency to become crenato-lobate on the edge.

"Mr. R. J. GRAY has sent a beautiful Polystichum found by himself near Exmouth, which it is proposed should bear the name of P. ANGULARE GRAYI. It is a variety having a good deal of the character of brachiatum, that is to say, from the lower part of the frond is produced a pair of arms, which rather represent branches than pinnæ. These branches are not equally developed on all the fronds, but there is always a pair of sensibly larger divisions thrown off at the base of the rachis. In the most marked examples, the fronds of which are about a foot in length, including the stipes, the two branches are each about 7 inches, the centre portion being 8 inches in length, the whole having the appearance of a nearly equally three-branched frond. Other fronds are about a foot long, excluding the stipes, and almost of a pyramidal outline, the two lower pinnæ being so developed as to appear considerably larger than the rest. The central branch is sometimes distinctly multifid, and the apices of the fronds and branches, and frequently of the pinnæ and pinnules form little crests or dilatations. The pinnules are small linear oblong or obcuneate, frequently semihastate from the slightly increased development of both anterior and posterior basal lobes; the larger ones are lobed and toothed, the smaller only toothed, all the teeth having long awn-like or setiform points. It is a very elegant and well marked variety, abundantly distinguished from brachiatum, which has the same manner of branching, by its little cristules and the form and toothing of the pinnules.

"Among Lastreas a very pretty form was given me last summer by Mr. F. SCHEER, of Northfleet, which as it proves to be a distinct variety, I propose to distinguish as LASTREA DILATATA SCHEERII. It is related to erosa and to some of the smaller forms referred to interrupta, but is distinct from them, and especially remarkable for the exaggerated development of its marginal teeth. It is rather a small form, the entire frond including the stipes being under a foot in length. It is not quite normal in outline, the parts (more frequently the pinnules than the pinnæ) being here and there dwarfed or even wanting. The general outline of the frond is ovate, that of the pinnæ more elongate, and that of the pinnules obliquely ovate; these latter are divided into several oblong lobes, which are rather distant, and slashed at the margin into several unequal but rather long often incurved and frequently spiny-pointed teeth. The stipes bears a few lanceolate dark-centred scales at its base.

"Finally of Aspleniums, two very interesting ones have to be recorded. The first is A. TRICHOMANES HAROVII, a well-known European form figured by SCHKUHR so long ago as the beginning of the present century, but not hitherto recorded as British. It has been found near Chepstow by Mr. G. S. STREATFIELD, and Mr. A. G. MORE has communicated specimens from Barmouth. It may be described as a form intermediate between subæquale, which has the costa central and the base of the pinnæ inclining to hastate, and incisum in which the pinnæ are deeply incised; in other words it is a variety with subhastate or semihastate lobed pinnæ tending towards incisum. The pinnæ are bluntly ovate, with usually a longish ear-like lobe at the posterior base, and more or less of a smaller lobe frequently developed at the anterior base, the margin being more or less notched and slightly toothed. The second has been called A. ADIANTUM-NIGRUM FLABELLATUM, and bears some analogy to the var. cristatum noticed at p. 748. It is, however, quite distinct, the fronds being scarcely more than pinnate, with an ovate-lanceolate outline; the pinnæ divided into a few not very distinct lobes at the base, and merely dilated and toothed at the apex, while the tip of the frond, beyond where it narrows almost to a point, is branched out into a multifid fan-shaped tuft of linear acute segments. This was found at Bishop's Teignton, near Teignmouth, by the Rev. G. W. THORNTON, and is stated to be quite constant."

NOVEMBER BLOOMING ROSES.

ONE great charm attached to the Rose, is the length of time in which it may be had in bloom in the open garden, without protection of any kind. I have this day (Nov. 18.) gathered a bouquet of these charming flowers sufficiently numerous to fill a large vase, and of a quality good enough to grace a drawing-room, or I might almost say fit for setting up in an exhibition stand. Although we have lately experienced violent gales of wind and heavy storms, many of the blooms have not a damaged petal, while the glowing colour of some varieties is exquisite. The few last warm days have contributed to this result.

It is my intention to give a short, but, I trust, a useful list of varieties which can be depended upon for late autumn or winter blooming, and I shall place them in their order of merit, viz.:—

General Jacqueminot. This brilliant variety decidedly claims the foremost place; not only are blooms and buds on every plant, but the flowers not being so full as in many kinds, open much more freely, and have all the high colouring we expect to find early on a summer's morning.

Louise Odier is another charming Rose, the colour soft pink, the form good; the plants are now covered with flowers.

Senateur Vaisse is an excellent late bloomer; the colour deeper than in the summer, but the buds being fuller of petals do not expand so freely as the General.

Madame Charles Wood is another acquisition; the plants with me have more blooms and buds on than they can well support. Colour deeper than earlier in the season; the blooms open freely.

Madame Knorr is a pleasing Rose now, being small and pretty, but the colour rather washy.

Madame Louise Carique is a variety which is much more beautiful now than in the summer; the blooms open freely, and are distinct in colour from any other Rose, the petals being crimson dashed and shaded with deep violet. This Rose is by no means a favourite with me, either for exhibition or decorative purposes in the summer, but it is well worth growing, if only for its beauty at this season.

Madame Clemence Joigneaux is a fine bold rose-coloured variety, but too full to open freely unless the weather be dry.

Gloire de Dijon must not be forgotten, as its fine blooming qualities and its chaste colour render it a decided acquisition; although some scores of blooms are now on the plants, very few have opened nicely; the winds and rains at this period of the year are apt to destroy its beauty.

La Reine is not so free as some others, yet here and there a grand bloom can be found.

Monsieur de Montigny is another of the La Reine class, but deeper in colour and very showy.

Victor Verdier is a pleasing bright pink, and opens very freely if the weather is not wet.

Maria Portemer is a neat dark Rose, and very free; the outer petals are apt to decay before the flower opens; it was very fine in October.

Noëmi is very free, the flowers light pink, but small; it has the same fault as Maria Portemer.

La Fontaine is a showy Rose; opens well, and keeps its colour.

Triomphe des Beaux Arts is a free blooming kind, very dark, semi-double, but pretty, chiefly on account of its colour.

Madame Schmidt is a fine chaste rose-coloured flower, not very free, but distinct and beautiful.

Souvenir de la Reine d'Angleterre is another large showy Rose, and opens well; colour pale pink.

Duchesse d'Orleans produces occasionally fine blooms of a pale flesh colour, which are exceedingly delicate at this season.

Souvenir de la Malmaison is also of a beautiful colour now, but the outer petals often decay before the blooms expand.

Blanche de Solverille is distinct from all others; the blooms are small, of a creamy white; opens well; not very double.

Salet (*Moss*) is the only Moss that opens freely, and is therefore desirable, although of a poor colour.

Bouquet de Flore is a pretty cupped Rose, deep pink, small.

Jules Margottin is a free bloomer of a pleasing colour, but the wind appears to damage the blooms much, giving them a very ragged appearance.

It will be borne in mind that the colours here given are as produced now, and that the varieties enumerated are those that are in bloom this 18th day of November.

Many other kinds could be mentioned that are beautiful in the months of September and October, but which will not come into the list of November Roses.

Chas. Jas. Perry, The Cedars, Castle Bromwich.

NOTES ON GARDENS.—No. I.

HULL BOTANIC GARDEN.

ONE fine August morning I started from King's Cross on a botanical tour, full of "great expectations," which were more than realised. After sweeping by the hills of Barnet, through the then golden prairies of Lincolnshire, and across the Humber, I safely landed in Hull; and, though late, I had heard too much of Mr. Niven's Alpines to rest until I had made for the Botanic Garden and introduced myself to him, which I accordingly did, in the vicinity of his Saxifrages. Preliminaries were soon cut short by the sight of a bed of diminutive Alpines, and so I commenced an examination of the finest collection of these most interesting plants I have ever seen.

To begin with the Saxifrages: there are upwards of 120 species, not presenting, as is too often the case with collections of plants difficult to name, characters totally opposite to those indicated by the specific names attached, but well named and distinct. Here I had the pleasure of making the acquaintance of species

from the mountains of Killarney, the highlands of Scotland, the Alps, the Pyrenees, and from almost every northern peak, all near neighbours now, in the most perfect health, and as easily studied as if one possessed the mountaineering capabilities of the "Witch of the Alps." Never have I seen anything prettier than the little frosted silvery masses of the encrusted-leaved section—S. cæsia, diapensoides, caryophyllata, and others of that type. Surely it is remarkable that these lovely things are not more appreciated and cultivated—always neat and pleasing to the eye, retaining their foliage throughout the year, and yet giving forth their numerous flowers as gaily as many plants which are now ragged and decaying. Even in London at this dreary season, the varieties and numerous allies of S. hypnoides are assuming their loveliest tint of green. When it is considered that the "scarlets" and their few select companions have banished variety from most private gardens; that Alpine plants have been almost expunged in the general clear out; and that the rarer and more delicate kinds are now only to be met with in botanic gardens, and in here and there a private collection, it will be seen how difficult it is now-a-days to collect and preserve such a magnificent collection as that in the garden at Hull. Among the rarest species I noticed S. gibraltarica, aretioides, mutata, thysanodes, and the true irrigua.

Next in interest and numbers came the Sedums, there being about 60 species, including fine specimens of the rosy-tinted brevifolium, farinosum, glanduliferum, and cyaneum. Sempervivums were equally well done. Of the beautiful spring-flowering Drabas, there were healthy tufts of bœtica, tridentata, and ciliaris, with nine other commoner species. Amongst Geraniaceæ, Monsonia speciosa deserves especial notice. By the by, there are several other Monsonias which would be well worth reintroducing. Pyrolas looked admirably under pot culture. Amongst composites the old Arctotheca grandiflora was very fine; also Antennaria tomentosa, a very white-leaved neat species; and the small variety of A. dioica, which covers the pans during the spring months with a mass of its rosy flowers, 2 inches high. Dolomiæa lucida was in bloom, but is decidedly more curious than beautiful. Primulas were in great force; there were strong plants of P. verticillata, purpurea, and mollis, with many more generally grown species. The Androsaceas included the too-little known lanuginosa; would not this make an admirable basket-plant for the cool greenhouse? Statice Thouinii, a small species, looked very distinct amidst 20 more of that genus. The sweet little Houstonia cœrulea was also here, but it is grown much better near the glass in one of the cool greenhouses. Gunnera perpensa and magellanica, and the northern Willows—Salix polaris, arctica, and reticulata, were quite at home. Of Epimediums there were 18 species, but Mr. Niven thinks the genus is much in want of revision and reduction. Violaceæ was very strongly represented, and conspicuously so by well flowered specimens of the charming little Erpetion reniforme. And what has been said of the Saxifrages may with equal justice be applied to Iberis, Arabis, Dianthus, and many other families in this unique collection.

The Alpines cultivated in pots number at present 1600 species, and are arranged along a border about 4 feet wide, raised 2 feet high at the back, with 1 foot slope towards the north. Here they remain exposed to all weathers, the pots merely plunged in ashes, the only protection given being that which nature affords in the form of snow, this being heaped above the plants and allowed gradually to melt away. Though this mode of culture applies to the general collection, there are of course exceptions made, a few of the tenderer things being removed to cold frames. I observed moreover several thousand duplicates in small pots, which are all removed to frames in winter; and in many instances it is found that plants which damp off in the larger pots maintain perfect health in the small ones, from their being somewhat stunted. It is owing to the number of duplicates thus kept, that a species is very rarely lost when introduced to this collection.

Twilight fell just as I had finished the minims, and obliged me to leave the rest till the morrow, which proved wretchedly wet; but having to explore many other places widely separated, there was no alternative but to complete my notes in a downpour.

The Hull Botanic Gardens is one of the oldest of our provincial ones, having been established in the year 1811, under the most favourable auspices, as a purely scientific garden, and having amongst its promoters Spence the entomologist, and Watson the dendrologist. For many years it continued a prosperous institution; but through party feeling a rival sprung up in the form of a Zoological Garden, which, from its novelty, absorbed a good deal of support from the older institution, and its popularity declining gradually, some dozen years ago there were serious intentions of doing away with it altogether. About 10 years since, however, the British Association having arranged to honour the ancient borough of Kingston-upon-Hull with a visit, it behoved the town to put its scientific house in order, and to Mr. J. C. Niven, then superintendent of the herbaceous department at Kew, was consigned the task of rendering the garden in some degree worthy of its by-gone fame. This was the turning point of the prosperity of these gardens. Slowly at first, but within the past few years very rapidly, it has emerged from poverty to financial success; and at the present time its income is nearly three times what it was in 1853—a case which is probably unparalleled in the history of botanic gardens. Any remark of mine on the management which has produced such a result would be superfluous.

The garden is the property of a number of shareholders, who subscribe one guinea annually, which subscription also admits to the garden persons who are not shareholders. It covers about 6 acres, the surface being almost a dead level. The natural soil is a very shallow stiff clayey loam on a subsoil of stony clay. The principal range of glass is about 100 feet long, and having been erected more than 50 years is of course somewhat antiquated, but hopes are entertained of superseding it ere long by something more characteristic of the crystal age. The more popular classes of plants chiefly occupy the glass houses; though in the warmer division such interesting medicinal and other plants as the Camphor, Cinnamons, Gamboge, Matico, Cocculus indicus, Turmeric, Myrospermum, Cubebs, &c. were to be seen. There are several houses in the rear devoted to Ferns, propagating purposes, &c.

The collection of herbaceous plants is arranged in symmetrical beds, according to the natural system, and in this manner about 2000 species are cultivated. The space appropriated to these being limited, the plan adopted is to retain only those which are really distinct, and such as illustrate the various sections of a genus. Here I found many interesting plants, and among them Dorema ammoniacum, to the flowering of which Mr. Niven was looking anxiously forward; also the true Asa dulcis of Crete, the Thapsia garganica, which had such a miraculous reputation amongst the ancients as to have been struck by them on the reverse of their coins. Asters, usually in botanic gardens a most heterogeneous mass, were here very distinct; among them I noted A. sikkimensis, cabulicus, bessarabicus, grandiflorus, and the very rare, even in its natural habitat, A. pyrenaicus. On inquiring whether any great interest was taken in this department by the supporters of the garden, I learnt that such was not the case, or at any rate was exceptional, but its value was fully appreciated by the medical students. In nicely sheltered squares were long beds, some of them filled with bog soil, where each choice thing had a few square feet of the bed to itself. Here was a fine collection of the smaller Heaths, and of the American Cowslips, the latter attaining a height in the flower scapes of 2 feet, and doubtless presenting a beautiful sight in spring. Each of a dozen kinds of Scilla had 5 feet of bed devoted to it, Stocks, Asters, &c., flourishing over the dormant bulbs in summer time. The curious Megacarpæa polyandra, which is so remarkable a divergence from the hexandrous character of Cruciferæ, was here; also Ranunculus parnassifolius, uniflorus, and cortusifolius; Trillium grandiflorum, Trientalis europæa; Salix reticulata, so vigorous as to successfully dispute with the Box edging the limit assigned to it; while Andromeda tetragona was growing in fine style, as was Menziesia cœrulea and empetrifolia, and Bryanthus erectus. Berberis empetrifolia looked as much at home as if in its antarctic habitat. Silphium laciniatum, the celebrated Compass-plant of the North American prairies; Lilium colchicum, dauricum, and tenuifolium; Helleborus olympicus, argutifolius, and atrorubens; Asclepias tuberosa, and many other fine perennials of more frequent occurrence, were beautifully and abundantly grown in those carefully prepared beds. Close by was a very strikingly pretty looking shrub with golden leaves and stem, evidently a close ally of Eurybia, and provisionally named E. chrysoclada; it had stood for the past two winters, but was killed to the ground in 1860.

Numerous as were the "botanical" plants and rarities, the garden is not at all given up to these objects, but a very happy attempt is made, while cultivating as varied a number of distinct plants as possible, to cater for the more popular taste for showy flowers, proving that the two objects are not so antagonistic as is sometimes supposed.

Amongst the flower beds, those which most attracted my attention were raised by rustic Larch stalks driven into the ground so as to leave about 15 inches above the surface, the inside being filled with prepared compost, and planted with a mixture of Fuchsias, Humeas, Geraniums, Verbenas, Calceolarias, Heliotropes, &c., &c., many of which, such as Fancy Geraniums, were in bloom when planted out, the whole being so arranged as to give, if I may so say, a regular irregularity, or good bouquet-like aspect. This appeared an admirable plan for isolated beds. Centaurea ragusina is used as an edging plant with excellent effect, and, by the way, proved perfectly hardy last winter, resisting the spring frosts, though planted in a very damp locality. I was informed that all the bedding plants, except Dahlias, were planted out the first week in May, and though nipped a little by frost, and discoloured in foliage, the result was so satisfactory as to induce a repetition of the plan. The Verbenas so treated were good masses of bloom long before those in the neighbourhood, which were turned out at the end of the month.

The place was in excellent keeping. Trees and all hardy plants seemed to thoroughly enjoy the situation; but being obliged to catch the train for York, I bid good-bye to this remarkably interesting garden with one regret—that it was not on some early summer day I had found myself there, to fully enjoy the alpine gems in their gayest beauty. *William Robinson.*

Home Correspondence.

Showing Roses.—With the exception of 12 Tea-scented Roses and collection of Moss Roses, no classification was required in the schedules of last year's show. The idea of introducing a more distinct classification is well worthy of some consideration, and might in a spirit of fairness be adopted. Hitherto the schedules have consisted of three main divisions:—1st, nurserymen; 2d, amateurs; 3d, open. A recognition of the different sections of Roses would not interfere with those divisions, but would materially alter the effect of the display, and bring in much uniformity—if insisted upon entirely, that is, if no box whatever is to contain only one section, H.P.'s for example. To appoint a Rose show on this principle would act injuriously to amateurs willing to exhibit, but whose stock is limited. None would like to see Gloire de Dijon shut out from his collection—for nearly every amateur's box contains it; or Triomphe de Rennes, which is generally the "great horse" for yellow; or Charles Lawson or Coupe d'Hébé, also deservedly favourites, and being vigorous growers and free bloomers, are depended upon to "help out." To insist upon the classification system with amateurs must tend to exclude very many of them. In the case of the large growers the distinction might with some propriety be adopted; but if so, the number of blooms should be reduced in proportion. Ninety-six single H.P.'s of dissimilar kinds would at the present time be too many, although there are many more than 96 kinds in cultivation. It may also be remarked that the number of varieties of Gallicas, Hybrid Chinas, &c., in the trade lists have of late been greatly diminished, so that many would not possess a sufficient number to form a good collection. It is to be regretted that this is so; and a judicious arrangement of the schedules would do much to restore to them some degree of popularity. As regards Tea-scented and Noisette varieties, it is already acknowledged that our climate is unfavourable to them out of doors. Unless, then, an amateur possesses means of adequate shelter, he will do but little with them. In exhibiting them with other varieties a restriction should be placed upon the number, say out of 24, not more than four or six to be Teas and Noisettes. This will be fair to those who cannot grow them. Considering the whole subject of classification, I am of opinion—1st. That a more distinct recognition of the different families of Roses at our great shows is desirable. 2. That such recognition should be effected in separate classes described as open, or included in the nurserymen's 96, each class exhibited in separate boxes, and labelled to that effect. 3. That the classification should not be too minute; for example: Hybrid Perpetuals should stand as a class; Bourbons for one, and Moss for one; Teas and Noisettes should also form one; and Gallicas, Hybrid Chinas, and Hybrid Bourbons should together form only one. If trebles are shown they should only be in the smaller numbers, such as the 24 of nurserymen. When a higher number of trebles has been brought to the show, there has almost invariably been many bad and indifferent blooms among them. And lastly, if it be one of the objects of Rose shows to encourage the culture of that superb flower among amateurs, the classes relating to them should be so arranged that the prizes can be won by as many different exhibitors as possible. *Adolphus H. Kent, Blechingley, Surrey.*

Woollen Refuse.—I forward for your inspection a small quantity of this material. When I entered the service of my present employer, about 10 years ago, I found many hundreds of tons of it at my disposal. Mr. Cliff patented a press for the extraction of the oil from it, and although not a woollen manufacturer himself, he finds it very remunerative to purchase the refuse for the sake of the oil it contains alone. I began to use the refuse in the garden with extreme caution, as I had an idea that it would generate Fungi, which might be destructive to the roots of plants. After seven years trial of it, however, in various ways, I am now able to speak of it with confidence, and I find it to be extremely useful, not only as a manure, but also for other purposes. I shall be glad to send you a short description of the different uses to which I put it, if you think it worth laying before your readers. *J. T., Wortley, near Leeds.* [Pray favour us with the description alluded to; we shall be glad to publish it.]

Wistaria sinensis.—Reading in your columns an account of a standard Wistaria, reminded me of the fine effect of one in my nursery in conjunction with two other trees. After growing above a boarded fence on which it was trained, I led a shoot of it to a branch of a large standard Plum tree about 20 feet in height, having a huge round head, and in two or three years the Wistaria intwined itself amongst the branches, which it surmounted, and seemed to seek further support. It also sent out another shoot over a doorway, and attached itself to another similar tree, which it soon overtopped, coiling round and mingling with the branches, the sombre green leaves of the trees contrasting agreeably with the paler hue of those of the Wistaria; its long racemes of lilac blossoms, too, produced a beautiful effect and

were much admired, the whole having the appearance of noble standards of the Wistaria itself. On seeing these trees at a distance. I very well remember the astonishment and admiration expressed by an eminent nurseryman friend, who exclaimed "Ah, what have you got yonder?" hurrying towards the spot with rapid inquiries and strides, which I found it difficult to reply to or keep pace with. Those who possess strong plants of the Wistaria, with the other facilities just named, may, I apprehend, do likewise, and obtain a similar treat. *Wm. Godsall, Hereford.*

Cephalotaxus Fortunei.—I observe by a letter written by Messrs. Paul & Son, of the Old Cheshunt Nurseries, and published at p. 1062, that a plant of, what is called, the female of this species, is now producing its fruit in their nursery. Permit me to give your readers some information about this "female." When I discovered Cephalotaxus Fortunei (Hooker) in North China, it was the only species of the genus I had met with in that country. As it appeared to be a very handsome shrub or small tree, particularly when grown in a shaded situation, I determined to introduce it to Europe; but as it was rather rare in the locality where it was first met with, I despatched some of my Chinese friends to another district in search of its seeds. A large quantity was eventually got together and sent home. When the seeds vegetated in the Bagshot Nursery it was observed that two very distinct-looking species made their appearance, although I had sent home a notice of one only; a dried specimen had been sent at the same time and forwarded to Sir William Hooker, who named it and described it in the Botanical Magazine. Sir William's plant and the one I had discovered were of course identical; but what was the other species which had vegetated in company with it, and of which no notice or dried specimen had been sent to England? No one knew, and for some reason which I cannot explain it was sent out as the female in question, the other I suppose for the same reason being considered the male. The first time I had an opportunity of seeing the second species was therefore in England, although I had sent its seeds from China. I remember the circumstance puzzled me considerably at the time, for although I was well aware that curious changes do frequently take place in the reproduction of plants from seed, yet I felt somehow convinced that the so-called "female" had not been produced by the seeds of the true Cephalotaxus Fortunei. When I returned to China some time afterwards on another expedition, I determined to solve this curious problem, and having the same persons in my service as on the former occasion, I had little difficulty in doing so. On visiting the localities pointed out to me by my guides I soon found the trees from which they had collected the seeds. The species proved to be quite distinct from that which had been named and described by Sir Wm. Hooker, and appeared to me to be new to science. It had shorter leaves than the other, and grew to a much greater size, although the fruit of the two was very much alike. I may mention that in this genus the male flowers are always produced on one plant and the female ones on another, and consequently there were male and female plants of both the species which I had discovered. In order to clear the matter up I dried specimens of the two sexes of each species, and I believe specimens of these were afterwards presented both to Sir Wm. Hooker and to Dr. Lindley. Another mistake appears to have been made with reference to the plant in question. Many persons considered it to be identical with C. drupacea (Siebold), and those who gave up the bad habit of calling it the "female" named it C. drupacea. Siebold's plant, however, is apparently quite distinct from mine, a circumstance which has already been pointed out by Dr. Lindley in the *Gardeners' Chronicle*. My friend Mr. Gorrie, the manager of Messrs. Lawson's extensive nurseries in Edinburgh, and a good authority in such matters, regards the two species as quite distinct, and drew my attention to the fact a few weeks ago when I was in Scotland. It appears, therefore, that the plants I have noticed form three distinct species, namely C. Fortunei (Hooker), C. drupacea (Siebold), and the said "female," which up to this time has neither been named or described. *Robert Fortune.*

Can bad smells arising from Coal Tar be got rid of?—May I venture to ask if you or any of your readers can advise me in the following serious difficulty:—About three years ago, I built three small houses in a damp situation; there was no story below the ground floor rooms, and the usual precautions were taken to have slates in cement in the walls, and a good height below joists, and three air bricks back and front in each house. The ground under the floor joists was covered with some inches deep of concrete; and as this did not set so hard as I hoped (owing to the gravel being rather loamy), I, in an evil hour, payed it (the concrete) over with coal tar from the gas works. The smell of this tar has been a source of constant complaint from the tenants since they entered the houses. I hoped at first that the smell would by degrees pass off, as it would do out of doors, but, notwithstanding the current of air through the air bricks, it is now as bad as ever. In one house I tried caulking the joints of the floor boards with twine (larger than the joints), passed through hot glue and driven in while hot, but the smell remains the same as in the other two houses. Can you suggest any plan for destroying the smell, or the tar itself, without tearing up the whole floors, which would be difficult, as the joists are Oak, and the operation would seriously impair the carefully finished work of the rooms. I fancy that some liquid might be poured through a hole cut in the floors, which would spread itself over the level surface of the concrete. Chloride of lime would be I think but a temporary remedy, as it would act merely by deodorising the exhalations of the tar—and besides its soon losing its power, it would be objectionable from its own strong scent in the houses. I am at my wits' end to provide an efficient remedy—and if any of your readers can tell me of an effectual plan, I shall indeed be most grateful. *A Subscriber from* 1841. [This is a builders' question. We are unable to answer it.]

The Russian Violet.—To those who have to furnish a boudoir or drawing-room with scented flowers during the dull months of November and December, this kind of Violet is invaluable. Managed in the way I describe, it flowers here more or less the whole year round. In May I prepare a piece of ground for it at the foot of a south wall; I take off all the strongest runners and plant them in rows 15 inches apart and about 10 inches asunder in the row; I prepare a compost consisting of equal parts of sand, loam, and well rotted leaf-mould, and in this I plant the runners. No more attention is required except shading them for a few days until they become rooted; should the summer prove dry they will be benefited by copious waterings, and if the weather should be boisterous and wet in October, an old spare light may be put over them, tilting it on bricks at the corners. This will prevent the blooms from being damaged. *John Edlington, Crom Castle, Ireland.*

Advertisement Sharpers.—Being about to leave my situation, I had an advertisement inserted in a country paper last Saturday. On Sunday I received a letter from a Mr. * * * *, which I enclose for your perusal. He says, "My terms are, no fee until after a situation is obtained; then only 3*s.* 6*d.*; all I require for the present is 18 stamps." Any one may in a moment see why he is so interested in writing; it is his desire to obtain the 18 stamps. I trust, therefore, that none of the gardeners and others who advertise for situations in your columns have been duped by him. I replied to his letter, but took good care not to send the stamps, and I expect he will be careful about writing to me again. *Gentian.*

Locomotive Seeds.—Can you tell me anything of seeds from Mexico of a tree called *Yerba de flecha*, which are reported when placed on paper to move about slowly, then move rapidly, till at last they jump about like so many large Peas on a hot iron. Is it true? *J. W.* [Yes. The motion arises from the presence of a living active maggot in the inside of the seeds.]

Orchard Houses.—Much has been written about the quantity and quality of fruit grown in Orchard houses and on walls. Having tried both ways and given them a great deal of consideration, I must say that my opinion is decidedly in favour of open walls. Among other reasons for arriving at this conclusion, I may state in the first place that I find the flavour of out-of-door Peaches far superior to that of fruit grown in orchard houses, and the colour is also far better. Our orchard house is built and ventilated according to the most correct principles, and yet, notwithstanding that the ventilators are open day and night for months, the Royal George is as pale as a Noblesse, and the latter about as poor in colour as a Dutch Turnip. In proof of what I state relative to want of colour, I have only to advert to the wonderfully large Barrington Peaches exhibited by Mr. Kaile at the Royal Horticultural Society's late show at South Kensington. Never perhaps before were such large Peaches seen, but there was nothing inviting about their appearance; they were positively straw-coloured, with not one streak of red about them, and all on account of their having been grown under glass. Another serious charge I might urge against these houses is the labour they require, incurring as they do an immense amount of extra work. The syringe must be kept going to keep down red spider, and the watering-pot must be constantly in hand, while few, very few, have any surplus labour at command. All of us know that for days, nay weeks, trees on the open wall will take care of themselves; night dews take the place of the syringe, and rains that of hand-watering, and this is as it should be, for

> "Nature will be Nature still,
> Let orchard-house folks say what they will."

But then comes the question—what about spring frosts? I answer that the blossom is as safe under Frigi Domo as under glass; and that, notwithstanding its advanced price, that material can still be put up for 2*s.* per yard, so as to let up and down. We employ the Snelston Hall plan here for protection, and it costs 2*s.* per yard, and will last 10 years, but I prefer Frigi Domo, because it keeps the blossom dry—a very essential point. Again, orchard houses have been recommended as nice places for invalids, but a greater mistake could not be made, for they are so drafty that a delicate person any time in them is sure to catch cold. It is all moonshine to tell us that in some localities in England Peaches cannot be grown, for as handsome a Nectarine tree, and as fine a crop of fruit too as ever I saw in my life, was at Banchory, a place close to the Grampian Mountains, and 500 miles north of London. The only advantage the tree in question had was, shelter, suitable soil, and good drainage. What say the opponents of open wall Peach and Nectarine culture to this? *J. Rust, Broom House, Fulham.*

Notices of Books.

A Practical Guide to Training, Gymnastics, and Riding. By a Subaltern. Longmans. 18mo.

The young officer who wrote this capital little book deserves public thanks, for in less than 70 pages he has shown how a beginner or an ill-trained veteran should behave in every department of physical training, about which the young in this country know far too little. Walking, Running, Riding, Fencing, Backstick, Clubs, and other kinds of exercise are all treated of with full knowledge of the points that demand especial attention. To young Volunteers the Subaltern's advice is most especially welcome. We quote a passage from his Introduction:—

"In this age and country we have come, by degrees, into an unnatural mode of living. The hurry and anxiety of business, late hours, sedentary habits, excessive use of stimulants, and the increasing tendency to centralise in large towns, have produced their legion of pale faces, bent figures, unequal shoulders, shaky limbs, and ruined constitutions. We live in such a way as to derange our systems, and when derangement takes place we have recourse to medicines, which, while they relieve our sufferings, reduce our stamina and power of throwing off disease.

"It is when people become luxurious and inactive that they most readily fall into vice; and when a nation becomes luxurious, inactive, and vicious in its members, it falls into degradation—its glory departs. Of this we have ample proof in history, ancient and modern. Patriots, therefore, have a duty to perform in promoting that culture and those sports which check the deterioration of a people and develop muscularity and manliness. It becomes Christians also to practise and advance a proper physical training, by which the maximum of calmness and self-command is attained. And we would earnestly remind men of study, and those who have to appear before the public, that our intellects depend for their clearness and force, and our nerves for their firmness, on a health of body which cannot be kept up to the right point without this systematic attention. Nor is it useless to those who do manual work, as it brings into action unused muscles, and fits for the better enduring and accomplishing of hard labour. In a word, it is incumbent upon every one to use his health and strength as a talent which is to be improved, with which the greatest possible amount of good is to be done, and of which he must give an account."

The Orchard in the Flower Garden, by James Ponsford (162, Fleet Street), is a pamphlet of some 40 pages, devoted to brief practical instructions for the management of the more useful hardy fruit trees in small town gardens. Supposing, for example, a garden to be laid out with a small lawn and surrounding walks, and a moderate width of flower-border outside dotted over with shrubs, there being no space for a kitchen garden in which fruit trees might be grown, the author proposes here and there in this border, to replace an Aucuba, a Box tree, an unsightly Lilac, or such like, by a nicely-formed pyramidal Pear, Apple, or Plum, &c.; and he argues that the space would be filled by a tree equally ornamental, perhaps more so, while it would be one that might be expected to yield a profitable return. He, however, particularly impresses on the reader, and it is well he does so, that the tree must not be crowded in between evergreens or other shrubs, but must stand so that air and light may circulate freely about it. And then on the lawn, it is proposed to plant the best-shaped pyramidal trees on each side at convenient distances. Where there is a small separate piece of ground devoted to vegetables, instead of surrounding it by a belt of Gooseberries and Currant bushes, he proposes to run these in rows across the centre, and devote the sides to choicer fruits, grown in the shape of pyramids or bushes. Even the cottager might do something of this kind without wasting his ground. About 30 pp. are devoted to brief, plain, and reliable instructions for the planting, pruning, and training of Pears, Apples, Apricots, Cherries, Plums, Medlars, and Quinces, with a descriptive list of a few of the best varieties of each. The remarks are addressed to amateurs with small gardens, by whom they will be found useful, and are mainly intended to show that our ordinary but most useful fruits may be successfully grown even in town-gardens.

Seemann's Journal of Botany contains papers on the Geographical distribution of the Equisetaceæ, by Dr. Milde; on Viola arenaria as a British plant, by Prof. Babington; a translation with notes of Goethe's Essay on the Metamorphosis of Plants, by Dr. Masters; and various shorter notices on curious botanical matters. Among other things we find the following interesting remarks on the luminosity of the Fraxinella, by Dr. Hahn:—"When the daughter of Linnæus one evening approached the flowers of Dictamnus albus with a light, a little flame was kindled without in any way injuring them. The experiment was afterwards frequently repeated, but it never succeeded; and whilst some scientific men regarded the whole as

a faulty observation or simply a delusion, others endeavoured to explain it by various hypotheses. One of them especially, which tried to account for the phenomenon by assuming that the plant developed hydrogen, found much favour. At present, when this hypothesis has become untenable, the inflammability of the plant is mentioned more as a *curiosum*, and accounted for by the presence of etheric oil in the flowers. Being in the habit of visiting a garden in which strong healthy plants of Dictamnus albus were cultivated, I often repeated the experiment, but always without success, and I already began to doubt the correctness of the observation made by the daughter of Linnæus, when, during the dry and hot summer of 1857, I repeated the experiment once more, fancying that the warm weather might possibly have exercised a more than ordinary effect upon the plant. I held a lighted match close to an open flower, but again without result; in bringing, however, the match close to some other blossoms it approached a nearly faded one, and suddenly was seen a reddish, crackling, strongly shooting flame, which left a powerful aromatic smell, and did not injure the peduncle. Since then I have repeated the experiment during several seasons, and, even during wet, cold summers, it has always succeeded, thus clearly proving that it is not influenced by the state of the weather. In doing so I observed the following results, which fully explain the phenomenon. On the pedicels and peduncles are a number of minute reddish-brown glands, secreting etheric oil. These glands are but little developed when the flowers begin to open, and they are fully grown shortly after the blossoms begin to fade, shrivelling up when the fruit begins to form. For this reason the experiment can succeed only at that limited period when the flowers are fading. Best adapted for the purpose are those panicles which have done flowering at the base, and still have a few blossoms at the top. The same panicle cannot be lighted twice. The rachis is uninjured by the experiment, being too green to take fire, and because the flame runs along almost as quick as lightning, becoming extinguished at the top and diffusing a powerful incense-like smell."

In the *Journal of the Proceedings of the Linnean Society*, No. 27, which has lately appeared, will be found the address of Mr. Bentham (the President) at the last Anniversary—an address which we venture to denominate a model for such compositions. We can only find space for one extract—a rather long one, but not longer than the interest of its subject will justify.

"The extinction of ancient races is comparatively easy of comprehension. We all see how species gradually disappear from particular districts, and how many are becomingly exceedingly rare in any country; and we have at least the Dodo amongst animals, and the St. Helena Trochetias amongst plants, which are now believed to be totally extinct, although we have specimens prepared from the life during the short time which has elapsed since natural history collections were first formed. The discussion as to whether the majority of ancient species have disappeared by a similar gradual extinction, or by sudden convulsions, belongs more to geologists than to ourselves. But of the commencement of any one species we have no human record, and, as far as naturalists are concerned, we must rely entirely on circumstantial evidence.

"Three different hypotheses are now more or less under discussion.

"1. That the individuals now living have descended from as many common stocks as there are distinguishable varieties or geographical races or areas of dispersion, these common stocks being the result of special creations, either simultaneous or consecutive.

"2. That the whole of the individuals belonging to each species (including often several more or less permanent races) are descended from one specially created common stock, from which they have gradually spread to the different parts of the world they now inhabit.

"3. That the races now occupying the globe are lineally descended from those ancient and very different races which preceded them, by a gradual process of variation and extinction, according to pre-established laws still more or less actively in operation.

"The first hypothesis, that of several centres of creation or origin for each species, was a favourite one among several Continental naturalists, especially botanists, a quarter or half a century since. It is, I believe, still maintained, either directly or disguised under the form of admitting distance of geographical area as a specific distinction, by Agassiz, by Carl Müller and others in Germany, as well as by some French botanists of the school of Lecoq, whose voluminous writings on geographical botany I do not find in any of our libraries, and am therefore unable to refer to. My recollection of them is, however, that the speculations they contain are founded chiefly on the geology and botany of a very limited district, and therefore of little weight with the general naturalist. And when Lyell, Forbes, and others broke down the limits previously assigned to the possibility of dispersion by the prevalent ideas of impassable geographical obstacles, the theory of separate creations became no longer necessary to account for observed phenomena: it was tacitly given up by many, and openly renounced by A. De Candolle in his 'Géographie Botanique.' It has, however, been recently revived by some ethnologists, and especially by the President of the Ethnological Society, Mr. J. Crawfurd, in a series of papers read before that Society. His arguments however relate exclusively to Man, and they are therefore based not so much on difficulties of dispersion as upon the supposed immutability of races when not modified by hybridism, on the presumed distinctness of type in languages, and other questions of fact upon which ethnologists are by no means unanimous.

"The second hypothesis, that of the independent creation of one common stock for each species now existing on the globe, has been at all times the one most generally received, acknowledged, and taught by authority. It has been supported by observations so numerous in every branch of natural history, that, when assailed, it has only been thought necessary summarily to refute any theories that may have been raised in opposition to it. This was an easy task so long as those theories were confined to mere speculations; and even now that the plausible application of undeniable facts to the establishment of serious objections, or at any rate of important exceptions, has caused a revolution in the views of many eminent naturalists, there are others who still more or less maintain the unity and original independence of existing species.

"The third hypothesis, that the present species are lineally descended from preexisting ones by a process of gradual variation, was generally treated as an idle speculation, and, whenever brought forward, only broached to be almost unanimously rejected, until the publication of Mr. Darwin's 'Origin of Species.' This remarkable work has carried more or less of conviction into such minds as those of Lyell, Hooker, A. Gray, A. DeCandolle, and others whose previous arguments pointed towards a contrary direction; it has met with the most cordial adoption on the part of many eminent men who had not so committed themselves, and has excited in a large proportion of other naturalists doubts as to their previous firmest convictions. This has been effected rather by the extreme simplicity of the new principle applied to phenomena previously observed, but little attended to, and now first placed in juxtaposition, than by the discovery of any remarkable hitherto hidden phenomenon. By connecting the hereditary diversities in constitution as well as in form in the offspring of a species, with the premature destruction from external causes of the immense majority of the offspring produced, and by supposing that permanence would be given to those varieties alone whose hereditary constitution is the best suited to resist or survive these causes of destruction, Mr. Darwin has shown how specific changes *may* take place; and by the accumulation of a vast number of carefully observed or well authenticated facts, aided by great lucidity of exposition and powers of argument, he has endeavoured to show how they do take place. His is not therefore a theory capable of proof, but 'an unimpeachable example of a legitimate hypothesis' requiring verification, as defined by J. S. Mill in his excellent chapter on Hypothesis, commencing the second volume of his Logic. Mr. Darwin has proceeded with this verification so far as the present state of our knowledge permits; and we must, I think, cordially agree with the same distinguished logician, that he has 'opened a path of inquiry full of promise, the results of which no one can foresee,' and that it is 'a wonderful feat of scientific knowledge and ingenuity to have rendered so bold a suggestion, which the first impulse of every one was to reject at once, admissible and discussible even as a conjecture.'

Miscellaneous.

Fish Breeding.—If we wish to take lessons in the ingenuities of fish culture, we must visit China. The ingenious people of the Celestial Empire have carried the art of fish-breeding to such an extent as to be able to keep up a constant supply of those particular fishes which inhabit their seas and rivers, so that any quantity of this kind of food can be obtained all over the kingdom, at the rate of about 3*d.* a stone weight! Would not London be delighted to obtain fish at such a price? Nothing so much astonished a Chinese fisherman as the price he was charged for a fish breakfast at Toulon. This person had arrived with 4000 or 5000 young fishes of the best kinds produced in his country, for the purpose of being placed in the great marine aquarium in the Bois de Boulogne. This intelligent youth, amazed at the comparative scarcity of fish in France, wrote a brief memoir, showing that, with the command of a small pond, any quantity of fish might be "raised" at a trifling expense. All that is necessary is to watch the time of spawning, and throw yolks of eggs into the water from time to time, by which means an incredible quantity of the young fry are saved from destruction. An ingenious method of artificial hatching has been resorted to by the people of China, which is worth noting as a piscicultural novelty. These ingenious celestials carry on a business in selling and hatching fish-spawn, collecting the impregnated eggs from various rivers and lakes, in order to sell to the proprietors of canals and private ponds. When the proper season for hatching arrives, they empty a hen's egg by means of a small opening, sucking out the natural contents, and then, after substituting fish spawn, close up the opening. The egg thus manipulated is placed for a few days under a hen! Being removed, the shell is broken, and the contents are placed in a vessel of water warmed by the heat of the sun only: the eggs speedily burst, and in a short time the young fish are able to be transported to a river or lake of ordinary temperature. Heat expedites the birth of the fish. The eggs of a minnow have been sensibly advanced towards maturity by being held on the palm of the hand. The spawn of the lobster has the advantage of being nursed on the tail of the animal till it is just on the point of ripening into life. Salmon eggs deposited early in the season, when the temperature is high, come sooner to life than those spawned in mid-winter: indeed there is a difference of as much as 50 days between those deposited in September and those spawned in December, the one requiring 90 days, the other 140 days to ripen into life. Salmon have been brought to life in 60 days at Huninque; but the quickest hatching ever accomplished at the Stormontfield breeding-ponds took 120 days. The ancient Romans, taking a leaf out of the Chinese book of pisciculture, achieved great wonders in the way of fish-breeding, and were able to perform curious experiments with the piscine inhabitants of their aquariums. A classic friend, who is well read in ancient fish-lore, tells us that the great Roman epicures could run their fish from icy cold water into boiling caldrons without handling them. Lucullus at one time sold his stock of fish for the sum of 35,000*l.*; but that would most likely be a fancy price, because he would be in possession of unique varieties, derived from curious crosses, &c. These ancient lovers of good things had pet breeds of fish, in the same sense as gentlemen in the present day have pet breeds of sheep or horned cattle. Red mullet or fat carp, which sold for large prices, were not at all unusual. One noble Roman went to a fabulous expense in boring a tunnel through a mountain, in order that he might obtain a plentiful supply of salt water for his fish ponds. Sergius Orata invented artificial oyster-beds. He caused to be constructed at Baiæ, on the Lucrine Sea, great reservoirs, where he grew the dainty mollusk in thousands; and, in order that he and his friends might have this renowned shell-fish in its very highest perfection, he built a palace on the coast, in order to be near his oyster-ponds; and thither he resorted when he wanted to have a fish dinner free from the care and turmoil of state and business. The French are now repeopling their oyster-beds, which a few years ago became exhausted from over fishing, much in the same way as these ancient Italian gentlemen stocked their artificial ponds. The cardinal point in oyster-breeding, as we have already said, is to provide a holding-on place for the spat; because when the spat or spawn of the oyster cannot obtain a coigne of vantage to grow from it is lost, and never can become of use to mankind. Oyster culture is carried on with great industry at Whitstable; but in detail our English dredgers are surpassed by the French, who begin at the beginning of the process, that is, they grow their own spat, and breed countless quantities of oysters, having recreated all their old beds, and erected besides a great number of new ones. The French also cultivate their mussels in the same way; and, as these shell-fish are largely used as bait by our fishermen, they ought to take a lesson in mussel cultivation out of the French book; and our neighbours across the Channel, it is certain, contrive to make their mussel-beds very remunerative. Similar beds could easily be constructed in our English and Scottish bays, and, with the demand for bait and the facilities of sale afforded by constant railway communication, there can be little doubt of their being profitable. The oyster-beds in Kent and Essex are cultivated like these mussel-beds, and they prove very remunerative. We have often wondered why none of our enterprising fisher class have commenced the breeding of lobsters. We require, it is stated, 40,000 lobsters every day, and could use double the number if we had them—thus affording a fine chance for enterprise. No lobsters have been bred in the ponds at Hamble, near Southampton; they are simply used as a storing place. But could not lobsters be bred on the artificial system? *Frazer's Magazine.*

Herne's Oak.—Public attention has been very recently directed towards this celebrated tree, the old trunk of which has lately been blown down. The first thing is to prove that the tree in question was the real Herne's Oak of Shakespeare. In my "Gleanings in Natural History," (1834) I endeavoured to do this; but in consequence of what I had alleged as to the identity of the tree, I was attacked in various publications. The attack on me in the "Quarterly" was as follows: "Among his anecdotes of celebrated English Oaks, we were surprised to find Mr. Loudon adopting an apocryphal story about Herne's Oak, given in the lively pages of Mr. Jesse's 'Gleanings.' That gentleman, if he had taken any trouble, might have ascertained that the tree in question was cut down one morning, by order of King George III., when in a state of great, but transient excitement. The circumstance caused much regret and astonishment at the time, and was commented on in the newspapers. The Oak which Mr. Jesse would decorate with Shakespearian honours, stands at a considerable distance from the real Simon Pure. Every old woman in Windsor knows all about the facts." That a tree was cut down near the Castle in consequence of a dispute the King had with his son, afterwards George IV., cannot be doubted. Sir

Herbert Taylor informed me that he heard the order given, but he assured me that the tree so felled was an Elm. Indeed, the whole character of George III. would of itself be a sufficient guarantee that Herne's Oak was not cut down by his order. He always took a pride and pleasure in pointing it out to his attendants whenever he passed near it, and that tree was the one whose identity I am now advocating. To set the matter at rest, however, I will repeat the substance of some nformation given to me relative to Herne's Oak by the late Mr. Ingall, the highly respected bailiff and manager of Windsor Home Park. He stated that he was appointed to that situation in the year 1798. On receiving his appointment, he was directed to attend upon the King at the Castle, and on arriving there he found his Majesty, as he said, with "the old Lord Winchelsea." After a little delay, the King set off to walk in the Park, attended by Lord Winchelsea, and Mr. Ingall was desired to follow them. Nothing was said to him until the King stopped opposite an Oak tree. He then turned to Mr. Ingall, and said: "I brought you here to point out this tree to you. I commit it to your especial charge, and take care that no damage is ever done to it. I had rather that every tree in the park should be cut down than that this tree should be hurt. This is Herne's Oak." Mr. Ingall added that this was the tree still standing near Queen Elizabeth's Walk; and it is the same tree I have referred to and given a sketch of in my "Gleanings." I have also the authority of H.R.H. the late Duke of Cambridge for stating that George III. always mentioned the tree lately blown down as Herne's Oak. Mr. Charles Davis, the present well-known and much-respected huntsman of her Majesty's hounds, assured me that he had heard the King assert that he had not cut down Herne's Oak, and that he repeated the assertion when his mind was in a perfectly healthy state. When the Emperors of Russia and Austria, and the King of Prussia, assembled at Windsor Castle to celebrate the christening of our Prince of Wales, the Queen invited these potentates to walk in her grounds, but some of their attendants remained at the Castle. Instead of viewing the objects in it, the celebrated Baron Humboldt inquired his way to Herne's Oak. This was the first object of his attention and curiosity, and probably of his veneration. The splendour of the Castle, its pictures, the noble scenery which is to be seen from it, and the many historical facts connected with it, were objects of inferior interest compared with the shattered trunk of an Oak, "dry and dead," yet rich with recollections of the genius of our immortal Shakespeare. On arriving at the interesting relic, the Baron gazed upon it in silence; and at last gathered a leaf from the Ivy which clung to the decaying trunk, and deposited it in his pocket-book as a relic to carry back to his own country. This ancient tree, alas! no longer stands on the spot which Shakespeare has immortalised; it was but lately—

a huge Oak, dry and dead,
But clad with reliques of its trophies old,
Lifting to heaven its aged, hoary head—
With wreathed roots, and naked arms,
And trunk all rotten and unsound.—*Spenser.*

At present portions of it will be eagerly sought after, like the Mulberry tree of Stratford, to turn into snuff-boxes and tobacco-stoppers—such will be its "reliques!"

"Arbore dejectâ qui vult ligna colligit."

Edward Jesse, in Once a Week.

The Cotton Plant.—A Report from Royal Commissioners has lately been presented to the Italian Government on the cultivation of the Cotton plant in Southern Italy. About 80,000 bales of cotton have been grown during the past season in the latter district, including Sicily. This quantity would, it is said, have been trebled, had it not been for the excessive drought that prevailed. The attempts hitherto made to grow the celebrated Sea Island Cotton have failed; the quality produced is however very good, returning a profit to the cultivator, at the present price of cotton, of 20*l.* an acre. A very satisfactory feature of the Report is the favourable nature of a vast area of Central and Southern Italy for the growth of cotton. There is very little doubt that Southern Italy alone could easily furnish 550,000 bales of excellent cotton annually, which exceeds by 50,000 bales the quantity produced by South Carolina. The insignificant quantity of cotton now grown in Italy is the more remarkable, when it is remembered that during the last century it was cultivated as far north as Tuscany, and was so abundant that during the wars of Napoleon the First, and the continental blockade, Italy supplied almost the whole of Europe with cotton. The plant was especially grown around Naples, and was known in commerce as Castellamare cotton. [This important information, which has appeared in the *Athenæum*, cannot be too widely circulated. There is no doubt that many countries can produce as good cotton as North America, and we should think at far less expense.]

Calendar of Operations

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—As the introduction of Chrysanthemums must have in one house or other caused a disarrangement of part of the stock, it becomes a matter of importance, after the beauty of the Chrysanthemums is over, to get such plants as have been moved, back into their former situations, or so to re-arrange matters that the whole may have a good effect. Valuable plants must not be set where they will not thrive, and this is a point to which careful attention must be paid. Chrysanthemums, decaying, if not already done, should be cut down, suffered to become somewhat dry, and removed to cold frames. Those who cannot afford frame room may secure them in some shed or out-house for a few weeks, covering them over head with clean straw should frost occur. If they should get slightly frozen even it will not signify; only take care that they do not thaw too suddenly. Little can be said with respect to stove plants at present. Use moderation in heat and atmospheric moisture. Beware of exciting the buds of Orchids before their time.

FORCING DEPARTMENT.

PINERY.—As previously stated late swelling fruiters, which have had little water, may receive a slight increase of tepid manure-water. There is, however, room for doubt as to whether it is absolutely necessary after this period. Plants managed in the old style (in houses or pits with flues), no doubt would require it. By modern plans, however, a much greater amount of atmospheric moisture is indulged in; and this should be duly considered. When sunshine occurs, instead of giving air, let the thermometer rise to 80° or even 90°, after which give air.

VINERY.—Where forcing has commenced, and the roots are outside, every attention should be given to the borders. A proper degree of heat must be maintained in the fermenting material. Any kind of protection, such as tarpaulin, to throw off rain would be invaluable, and would improve the warming powers of the covering.

MUSHROOM HOUSE.—This, when sufficiently roomy, is one of the most useful structures about a garden. Seakale may be forced here in constant succession with as little trouble as raising a crop of small salad. The old plan of raising a bed of fermenting materials, over the crowns out of doors, is an uncertain process compared with this. It is equally well adapted for Rhubarb forcing. Nothing is needed but a long, narrow pit along the bottom of the house, on one or both sides, the top of the pit to be level with the floor. It should be 4 feet deep, and filled in portions as wanted, with any hot, fermenting material, to within half a yard of the top, which would be very perfect if covered with a lid. The Kale and Rhubarb should be placed on the surface of the fermenting matter as thick as it can stand, and then filled in lightly with soil or fine old tan. Chicory roots may be placed in a circle round roomy pots, and set on the flues of this house. Lily of the Valley, too, may be plunged overhead in a fermenting bed of 70° here, until the blossom-spikes appear, when it must be inured to light, but in the most gradual and cautious way imaginable. Early potted Hyacinths and Narcissi may also be treated precisely the same as the Lilies, taking care not to withdraw them until the pots are nearly full of roots, and many other uses may likewise be found for this house.

FLOWER GARDEN AND SHRUBBERIES.

Although the weather is still favourable, continue to have an eye to the protection of tender things; and in mild weather like the present, especially when dry, open the canopies or coverings a little for a few hours, as often as time can be spared for that purpose. If frost sets in, a plan of the masses or beds might be decided on, and the soil renewed according to the character of the flowers to be planted. As regards florists' flowers, little can be done now except in the way of preparation, and should frosty weather set in it will afford every opportunity of having all the compost heaps thoroughly frozen; by repeatedly removing the encrusted surface, and piling it up every morning, many insect pests will be destroyed, a point of no small importance to the cultivator. We need scarcely say, too, that hard weather is a good time to cart turf, peat, &c., and to lay in a good stock of soils, which, however, should have been done before this time. If leaden pegs are used for layering Carnations, a fresh stock may be cast, and the old ones cleaned and straightened. If the florist can mend his own hand-glasses and shades, these ought now to be done, and the metallic wire which has been used for attaching the stems of Carnations or Tulips to their support, should be made ready for use, and stored away in its place till the returning season renders it available.

HARDY FRUIT AND KITCHEN GARDEN.

It may appear much too early to offer remarks on spring work, but such is the pressure of business soon after Christmas has passed, that no amount of precaution can be considered too great where general gardening has to be carried out through the ensuing year according to the improved practice of the present day. When things that might be done now are delayed until spring, there is sure to be a sacrifice of some importance. All the pruning, except that of Figs and Apricots, and most of the nailing of wall trees, as well as the training of espaliers, should be finished if possible by New Year's day; and the same may be said of bush fruit. The making of borders or stations for fruit trees, too, should be autumn business; indeed, where new soil has to be introduced, September or October is the most fitting time, as the best of soils may be seriously injured by moving them in a wet state. No time should be lost, when the weather is bad, in getting on with in-door work. All matting or bast required for the ensuing year should be cut, sorted, and hung up ready for use. Besoms and baskets should also be prepared. The tool-house should be examined, and put in an efficient state; and in fact, everything of this kind done that is possible. Should frost set in, the best Celery beds should be immediately covered with clean straw 6 inches thick. Let all other vegetables have due attention. Also let all manure be wheeled out whenever the weather is favourable for such operations.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Nov. 25, 1863, as observed at the Horticultural Garden

Nov.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 19	8	30.160	30.143	55	37	46.0	50	50½	S.	.00
Friday 20	9	30.116	30.110	61	30	45.5	51½	50¼	S.	.00
Satur 21	10	29 812	29.628	57	37	47.0	50	50	S.	.16
Sunday 22	11	29.759	29.712	57	36	46.5	50	50	S.W.	.04
Mon. 23	12	29 816	29.780	56	48	52.0	49¼	50	S.W.	.06
Tues. 24	13	29.808	29.706	57	45	51.0	49½	50	S.	.08
Wed. 25	○	30.103	30.050	62	35	48.5	51	50½	E.	.00
Average.		29.930	29.871	57.8	38.3	48.1	50.1	50.2		.24

Nov. 19—Very fine; overcast; cloudy; fine.
— 20—Uniformly overcast; cloudy; hazy.
— 21—Cloudy; windy; flying clouds in strata; rain.
— 22—Clear; fine; overcast, rain.
— 23—Fine, overcast, rain, very mild.
— 24—Constant rain; overcast; drizzly.
— 25—Cloudy and fine; very fine; mild for the season; fine at night.

Mean temperature of the week 7¼ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending Dec. 5, 1863.

November and Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 29	47.8	34.7	41.2	19	0 56 in	4	1	7	3	5	11	4	2
Mon. 30	48.0	35.0	41.1	20	0.30	4	4	3	3	3	10	8	2
Tues. 1	48.4	35.2	41.8	17	0.25	2	2	3	4	4	7	11	4
Wed. 2	47.4	34.2	40.3	16	0.51	2	4	1	5	11	3	7	
Thurs. 3	47.0	35.3	41.1	20	0.26	1	6	5	2	4	11	7	1
Friday 4	47.6	35.7	41.6	17	0.39	4	2	2	3	6	14	5	1
Satur. 5	48.4	34.7	41.5	22	0.25	—	3	2	1	4	12	11	4

The highest temperature during the above period occurred on the 1st, 1857—therm. 62 deg.; and the lowest on the 30th, 1856, and 5th, 1844—therm. 14 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

BOOKS: *W R S.* We are not aware of any separate treatises on the subjects you name, but we will endeavour to supply the information shortly.

COTTON: *Mancastriensis.* Seemann's Mission to Viti or Feejee contains valuable information from a clear-headed practical man. *E. g.* he says:—"Cotton requires a gently undulated surface, slopes of hills rather than flat land. The whole country, the deltas of the great rivers excepted, is a succession of hills and dales, covered on the weather-side with a luxuriant herbage or dense forest; on the lee-side with Grass and isolated screw-pines, more immediately available for planting. Cotton wants sea-air. What country would answer this requirement better than a group of more than 200 islands surrounded by the ocean as a convenient high way to even small boats and canoes, since the unchecked force of the winds and waves is broken by the natural breakwater presented by the reefs which nearly encircle the whole? Cotton requires, further, to be fanned by gentle breezes when growing, and a comparatively low temperature; there is scarcely ever a calm, either the north-east or the south-east trade wind blowing over the island keeps up a constant current, and the thermometer for months vacillates between 62° and 80° Fahrenheit, and never rises to the height attained in some parts of tropical Asia, Africa, or America. In fine, every condition required to favour the growth of this important production seems to be provided, and it is hardly possible to add anything more in order to impress those best qualified to judge with a better idea of Fiji as a first-rate Cotton-growing country." Men like Hooker, Fortune, and Seemann are the persons to consult in this emergency. Why Government does not use them we cannot tell.

GOLD FISH: *J R E R* says he has a pond in which there are several gold fish, and that those which have been bred in it, though three or four years old, are still of a dark brown colour. He will, therefore, be obliged by any of our correspondents accounting for their not changing to the usual gold colour.

HEATING: *Winchester.* The heating apparatus in the vast conservatories at Syon, which you truly call admirable, was, we learn, constructed by Messrs. Ormson & Co.

NAMES OF PLANTS: *T K & Co.* Populus angulata, as far as we can judge from an inspection of only three leaves without any wood. Very slender evidence in a genus whose leaves are variable.—*Thomas Leslie.* Wistaria sinensis is right, so is Glycine sinensis. Have nothing to do with such a piece of affectation as Wistaria Consequana.—*W. Mortimore.* It is one of the many forms of Polystichum proliferum, and is sometimes called tripinnatum in gardens.—*G B.* Lastrea spinescens, certainly distinct, as we think, from L. decomposita. *E C.* Selaginella pubescens, generally but falsely called S. Willdenovii in gardens.—*S W T.* Basella nigra.

PEACH HOUSE, SHEFFIELD: *G W G* will be obliged by our correspondent "C W." kindly stating what the thickness is of the fire-clay pipes he uses; what provision he has made for cleaning out the soot deposited in them; and whether he has used them for the chimney to his house, or erected one of ordinary brickwork.

POLYCHILOS CORNU-CERVI: *A Correspondent* in the Isle of Man reminds us that more than 3 years ago he sent it to us (vide *Gardeners' Chronicle*, Sept. 8, 1860). It is therefore not so great a novelty as we supposed. See *New Plants*, No. 264, p. 1083.

SCARLET RHODODENDRONS: *G C.* Layers, if really good ones, and we see they are offered by good people, are all that you need.

VINERIES: *A B.* Your house *ought* to be well managed with such assistance as you propose. Black Hamburgh and the old Sweetwater are what we advise you to trust to. Study Thomson on the Vine.

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AUTUMN SESSION, 1863.

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VETERINARY SURGERY.—A. J. MURRAY, M.R.C.V.S.

MATHEMATICS AND SURVEYING.

W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.

DRAWING.—JAMES MILLER.

* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

AGRICULTURE.

J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.

HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.

CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.

J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.

THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.

THOMAS ELLMAN, of Beddingham, Lewes—Lecture on Southdown and Short-woolled Sheep.

J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.

WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.

AGRICULTURAL CHEMISTRY.

THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.

Mr. ALGERNON CLARKE will lecture on Tuesday, December 1, at 1 45 P.M. Capt. TANNER DAVY will lecture on Thursday, December 3, at 9 A.M. Mr DUCKHAM will lecture on Friday, December 4, at 10 A.M.

For further particulars apply to the PRINCIPAL.

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Offices: 63, Welbeck Street, Cavendish Square, London, W.

STEAM CULTIVATION.—A PUBLIC MEETING will be held in ST. JAMES'S HALL, PICCADILLY, on WEDNESDAY, December 9, at 2 o'Clock precisely, for the purpose of considering the best mode of EXTENDING the APPLICATION of STEAM POWER to the CULTIVATION of the SOIL.

All interested in this desirable object are invited to attend.

THE NATIONAL EXHIBITION of DOGS.—The FOURTH GREAT ANNUAL EXHIBITION of SPORTING and other DOGS will be held in Paradise Street (near Bingley Hall), BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY and THURSDAY, November 30, and December 1, 2, and 3 (the week of the CATTLE and POULTRY SHOW). For SPECIAL RAILWAY ARRANGEMENTS, see the Advertisements and Bills of the Companies.

BINGLEY HALL, BIRMINGHAM.—The FIFTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 1, 2, and 3.

For Special Railway Arrangements, see the Advertisements and Bills of the Companies.

SMITHFIELD CLUB CATTLE SHOW, 1863.—The SIXTY-FIFTH ANNUAL EXHIBITION of CATTLE, SHEEP, PIGS, IMPLEMENTS, SEEDS, and ROOTS, will be HELD in the AGRICULTURAL HALL, Islington.

PRIVATE VIEW on MONDAY, December 7, after 2 P.M. Admission 5s.; TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, Admission 1s.

Carriage entrance, Liverpool Road only.

The Agricultural Gazette.

SATURDAY, NOVEMBER 28, 1863.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

MONDAY, to FRIDAY,	Nov. 30 to Dec. 4	Exhibition of Fat Cattle and Sheep and Pigs, and of Poultry, at Bingley Hall, Birmingham.	
MONDAY,	— 7	London Farmers' Club (Meat Producing Capabilities of Arable Land—Mr COLEMAN.)	6 P.M.
MONDAY, to FRIDAY,	— 7 to — 11	Smithfield Club Cattle Show at the Agricultural Hall, Islington.	
WEDNESDAY,	— 9	Society of Arts (Agricultural Progress, its Helps and Hindrances—Mr. J. C. MORTON.)	8 P.M.

AN important trial at the late Cavan Quarter Sessions, in which a seedsman was sued by several farmers for selling bad Turnip seed, is reported in the Irish papers. It seems that Swedish Turnip seed had been asked for, and the crop that came was Rape, or something like it. The plants produced are described sometimes as resembling Rape and sometimes as being "very like what is known as Kohl Rabi in England." The plaintiffs proved that they purchased the seed from the defendant, and their solicitor contended that they ought to have got the article they asked for. The judge directed that if Turnip seed was asked for, the seedsman was bound to supply an article that was "commercially known as Turnip seed." The defence proved that the seed had been bought from wholesale dealers as Turnip seed, and the jury found for the defendant.

They were no doubt impressed not only by the ruling of the judge but by evidence which alleged the extreme liability of Turnip seed to sport.

One witness declared that in one field you might have a spurious plant, and in another a good Turnip from the same seed.

Mr. D. DRUMMOND, whose authority weighed much with both judge and jury, gave the following evidence:—

Is extensively engaged in the seed trade, both in Dublin and Scotland; is familiar with the growth and cultivation of the Turnip; went, accompanied by the defendant, to view BENNETT'S crop; saw what he complains of as Rape. In one portion of the field found altogether Rape-like plants, most of which had purple stalks, which common Rape has not; these were from defendant's seed, which was the purple-topped Swede; next to these found a portion of the field, partly Swede Turnips, and partly Rape-like plants, growing together about half and half; the Turnips were of the green-top variety and the Rape-like plants had green stalks, showing they must have been grown from the same seed as the bulbs; was informed by defendant that the green-topped seed was supplied by another seedsman. The Swede Turnip is originally derived from the common Rape, as the Carrot and Parsnip are originally derived from weeds of these names; is of opinion that under certain circumstances of soil, weather, or the like, this "sport" in the Swede is the plant going back to its original or normal state, and he is borne out in this opinion by some eminent botanists; but like the mystery of the Potato blight, the real cause is quite unknown: for, notwithstanding many experiments made to ascertain it, we are as much in the dark as ever. Has seen seed which he knew to have been grown from large selected bulbs produce chiefly Rape-like plants, when sown on one day, while the remainder of the seed, out of the same bag, and in the same field, two days after, gave as fine a crop of Swedes as could grow, and entirely free from sporting plants. Saw in the county of Wicklow—on one of the best cultivated farms—a field of 12 acres, where the ends of about 20 drills gave only Rape-like plants, extending to about 20 yards in the field, while the remainder of the field was an excellent crop of bulbs; and again in Tipperary, where there were two fields separated by a ditch, the ditch was thrown down, and the field sown with Swedes; on each side of the levelled ditch was a crop of excellent bulbs, while over the ditch almost every seed grew to Rape-like plants. Saw a field in the county of Carlow last week where there were a considerable number of Rape-like plants, although the seed was grown by the gentleman himself from large selected bulbs; and another grower of his own seed—who sows extensively in Ireland—had almost a lost crop a few years ago, from the non-bulbing of the plants; it is well known that Carrot and Mangel sown on one farm will produce a large proportion of plants which do not bulb, while seeds sown from the same bag on another farm will yield crops entirely free from such "starters," but the cause cannot be accounted for any more than we can account for the Swede going wrong. Grows the most of his Swedes in Scotland, in the most careful manner, from the purest stocks; still has had complaints similar to plaintiff's; could not be hybridised with Rape when in flower, as Rape is not grown in Scotland; his seed could not have been accidentally mixed with Rape, for to avoid such an accident keeps his Rape and Turnip seed in separate warehouses, and each bag has the name plainly printed on it. Has taken alarm at the frequency of late years of the "sporting" of the Swede, so much so, that to protect himself from liability he two or three years ago consulted counsel on the subject, and following counsel's advice, got a non-guarantee notice printed on all his bills. In fact so annoying and troublesome has it become, from the uncertainty of the Swede producing bulbs, he has been seriously thinking of giving up that branch of the trade.

It is plain that if Mr. DRUMMOND'S view of the extreme liability of well grown Swede seed to sport is to be adopted, there is an end of all "Seed Cases" for the future. No man need hereafter attempt to make his seedsman pay for the injury he has suffered because the article commercially known as Turnip seed with which he has been supplied, has produced stalk and leaf instead of bulb. We shall however be very much surprised if this Cavan trial is ever quoted as a leading case.

THE subject of autumn cultivation has been lately discussed with some spirit in the columns of the *Times* newspaper. It is not likely to want variety of opinion as long as soils vary in their mineral composition, and in their relations to water. We can bring forward good witnesses to prove that a fallow is better made if the stubbles are not disturbed till late in spring—and equally good witnesses shall prove that not only should it be commenced, but it should be all but finished in the previous autumn. Differences shall arise, however, even among these when the alternative of ploughing and grubbing is considered. Mr. SMITH is clear for grubbing—other men contend for turning over a furrow slice. At Woolston the preparation for the next year's root crop consists simply in manuring the stubble, and at once mixing it up by a grubbing which throws the land into ridges.

"It is the fact," says Mr. SMITH, "that this one steam ridging in the autumn, with one harrowing and sowing in the spring, is all the operations for roots upon the true Woolston system. Additional cleaning operations by horses are not required; indeed, they would be out of place—waste labour. Some time in the winter I let a man examine every ridge from end to end and with a fork take out every Dock or objectionable weed; he can easily do 2 or 3 acres per day; and that's all beyond the ordinary horse and hand hoeings. The manure is spread upon the stubble before the ridging is done. In 1859 my roots grown in this way weighed—Mangels, 55 tons; Swedes, 31 tons per acre."

To this Messrs. HOWARD reply:—

"The system Mr. SMITH recommends has been practised by him on his own farm for about seven years, but few, if any, of the numerous farmers who have adopted his cultivator have followed his plan in the use of the steam ridging plough. On this point we can speak with some certainty, as we were for some years the manufacturers of Mr. SMITH'S apparatus, and we have uniformly obtained reports of the practice of most of the 300 agriculturists to whom we have supplied steam cultivating machinery. Having ourselves had extensive experience in steam cultivation we recommend the following plan, which we adopt upon our own farms, and which has been most generally and successfully adopted by others:—In preparing land intended for root crops, and as soon as possible after the corn is harvested, break up the stubbles with the steam cultivator or grubber. The land is then left exposed to the action of the sun and air until November, or even later. Then, with the steam plough, or, as the horses are at that time not very busy, with the ordinary double mould-board plough, ridge up the land for the winter. The plan pursued and advocated by Mr. SMITH has these great drawbacks; the benefits of the action of the autumn sun and air in destroying weeds, and the still greater benefits arising from the thorough aëration of the soil, are entirely lost; and, further, on large farms it would be most unwise to postpone the work to so late a period as Mr. SMITH recommends."

Mr. MILWARD, of Thurgarton Priory, Notts, also replies to Mr. SMITH, of Woolston. He says:—

I do not wish to detract from the merits of steam

cultivation, but I must say a word or two, if you will allow me, in favour of the old plan. Mr. Smith, of Woolston, says that his roots are grown by one steam ridging in the autumn, with one harrowing and sowing in the spring, and that he has grown 55 tons of Mangels and 31 tons of Swedes per acre. Some of your readers may imagine that this is entirely owing to steam; in fact, it would be a legitimate conclusion in the absence of any other statement. It is well known in this county that for the last 12 years I have grown large crops of roots—as much as 35 tons of Swedes per acre, and seldom less than 30 tons—with one autumn ploughing and one harrowing and drilling in the spring. As soon as the Wheat sowing is finished, the land intended for roots is manured and ploughed 8 or 10 inches deep. In April it is harrowed and drilled on the flat, 30 inches apart. I have followed this plan on very strong clay land, as well as on mixed gravelly loam, with equally good results. I have no prejudice against steam cultivation; on the contrary, I am well convinced of its value on large occupations and in suitable localities, and I have daily opportunity of seeing its beneficial effects, as one of my tenants has used a Howard's cultivator for the last 18 months."

Mr. MILWARD's land must be unusually predisposed to the condition of good tilth,—it is very rarely that a single deep autumnal ploughing, followed by a single harrowing in spring, will ensure a decent crop of Turnips. Indeed if ever there were an exceptional experience without a right to any place in the argument for a general rule, it must be this. A grubbing done by steam, deep enough to stir the drained subsoil, will perfectly aërate the land whether it be left ridged or level; and such an operation followed by a harrowing, with a winter frost between, will generally, and especially in calcareous clays, produce good tilth. A ploughing must generally be crossed either by plough or grubber in order to produce the same condition, and where it has been done by horses it is certainly inferior in effect to a ploughing or a grubbing done by steam power.

On some soils, and the close fine sands of the Wealden district are among them, a grubbing seems of little use; the land runs together as firm as ever, and the only effect seems to be to give a temporary stimulus to the growth of weeds. On such soils, and wherever the drainage is doubtful or imperfect, ploughing before winter is a better thing than grubbing.

It is rarely that a discussion of this subject in the winter season is of any use; but the remarkably fine and dry November we have had this year has enabled tillage operations much later in the year than usual; and so this contest of opinion among the authorities on this subject may have been of some service. We see Mr. MILWARD tells a doubting correspondent that a four-horse plough will enable an 8 or 10-inch furrow. Compare this with a steam-grubbing which does not trample and harden the subsoil, and which is so much deeper than an 8 and 10-inch furrow, that Mr. SADLER reports his breakages on landfast stones have been 20s. an acre in a district where 8 and 10-inch ploughing has been long the rule.

TENANCY AT WILL.

IF in the business affairs of this world we are not saved by faith, as your gifted correspondent affirms, yet I venture to submit that faith is an ingredient in most of our business transactions. Admitted we buy or sell certain goods and take the precaution to secure a witness to the transaction; yet it must not be forgotten that the goods are bought or sold by sample. In agricultural transactions still stronger evidences of faith may be found. I have before me instances of two tenants having a few years since laid out large sums of money on their farms under the promises of leases for terms of years, and both have elected to farm on as yearly tenants without any kind of agreement. I could also tell of a farmer who farms under one landlord 800 acres of poor stiff land, 560 of which have been handed down to him by his ancestors, who have held it probably two centuries without written agreement of any kind; none has even been proposed. Capital alone without great skill and industry could not have brought this farm into the high state of cultivation in which it now is; it might be readily let at a much advanced rent, and the tenant could be ejected by six months notice with no claim to compensation. Here are strong evidences of faith, and such cases are, I believe, more numerous than is generally supposed.

I have been led to consider the subject from this point of view, from the belief that a conviction is gaining ground that no small part of the bad farming of this kingdom is due to the want of greater security to farm tenants; due in fact to the unwillingness of landlords to grant tenants leases for terms of years. I do not believe that our landlords refuse trustworthy tenants this security when there is sufficient reason for asking for it. But I believe that as a rule perfect confidence and good faith exists between our landed proprietors and their tenantry. Any legislative enactment on the subject of unexhausted improvements may tend to disturb this feeling, nothing that is compulsory can encourage it. I believe there are no grounds for complaining that agriculture does not advance as rapidly as might be expected. Let any one for a moment reckon the vast visible improvement that has taken place during the last 20 years. True, it is easy to point to glaring instances of retrogression, arising almost invariably from a want of capital or of energy and skill to expend it. But it is better to bear for a time with such cases than deal hastily or too summarily with them. All changes that occur tend to the general improvements and I really believe that, rightly viewed, the present aspect of agricultural improvement is satisfactory. *Chas. F. Humbert, Watford, Herts, Nov.* 16, 1863.

THE ROYAL AGRICULTURAL COLLEGE.

IN CONCLUSION OF A COURSE OF LECTURES.

By T. BALDWIN, OF THE ALBERT INSTITUTION, GLASNEVIN.

GENTLEMEN, having now concluded my lectures, perhaps you will allow me to make a few general observations before I depart. The introduction to a book is usually written after the book itself; and so my introduction to these lectures had better be spoken after they have been delivered. It will be a short and simple one. Standing here with the result of many years' personal experience at a kindred institution before me, I ought to be able to form a tolerably correct notion of the merits of the Royal Agricultural College. I have, during my six weeks' residence at the College, studied every feature of it with interest and care. I have had daily opportunity of witnessing your round of occupations. I have watched what you do on the farm, and how you spend your time in this theatre and in class rooms, and above all I have had the pleasure and advantage of that insight into the real life of this College, which personal intercourse with its working men—Principal, professors, and students—alone can give.

Before we can fully appreciate the system of instruction adopted here we must have a conception of its objects. To my own mind they appear to be:—

First of all to afford a sound knowledge of the principles of improved farming; in other words, to give the young farmer an opportunity of acquiring such a knowledge of chemistry, botany, physics, &c., as would enable him to see the bearing of those sciences in his daily avocations. I should be offending your good sense, and the good sense and experience of any of the intelligent farmers of this country who may read these remarks, if I were to waste your time or my own in proving the value of this kind of knowledge. I may, however, be permitted to say that the mere communication of the facts of science, without any regard to the mode of doing so, appears to me to be but a part, and for some students but a small part, of the real work of education. The highest end of education of all kinds is, in my opinion, to discipline the mind. Depend upon it if you and your successors here are, as I fully believe you are, to exercise an influence for good on British farming, it will be because the principles and facts of agriculture are taught here not in a desultory way, but by a regular and systematic course of study. This is not an opinion formed by me this morning or while here, but it is a conviction forced upon me by 12 years' pretty hard work in the education of farmers. Every body knows the difference between desultory and systematic physical labour; and the difference between desultory and disciplined mental labour is infinitely greater, though the difference is not so apparent on the surface of every-day life. You can acquire knowledge in this theatre in a way which must influence the career of each of you more or less in after life; and it is this feature of the life of this College more than any other that would at present induce me to recommend any young friend who wishes to occupy a good position among the advanced farmers of his day to go through your course of study.

The details of practical farming may be acquired elsewhere; but the principles which should form the groundwork of a man's knowledge of farming, can best be learned at an institution like this, where men devote their lives to the work of mastering the difficulties of their respective subjects, and the mode of communicating knowledge to others. You may see as varied and instructive a system of farm management on many a private farm as on the College farm, but no private farmer would or could undertake to give you the scientific knowledge of farming which is imparted in this College.

And this brings me to the second object sought to be accomplished here, namely, to exemplify on the College farm as many of the principles expounded in this theatre as can be exemplified on such a farm. Without a farm this College could have neither a long nor healthy existence. A farm well stocked with cattle, crops, and implements, is just as necessary in the education of a farmer as a dissecting-room and hospital are in the education of a medical man. The prosperity of this College will depend largely upon the success achieved upon the farm, and the way in which many of you attend to its cultivation and general management.

The College will rise or fall in public estimation just in proportion as these two great objects—the scientific and the practical—are harmonised and made subservient the one to the other. Some of you would perhaps wish to be permitted to give more attention to science and less to practice. Some, again, would not perhaps object if you were allowed to throw off some of the scientific trappings in which you are harnessed. This is the old conflict between theory and practice. I advert to it now because I have found a little of it among you, and it is met with everywhere; and also because it is desirable to combat it. There ought to be no conflict between practice and science in agriculture, and certainly there ought to be none in your education. In the science of farming there can be little or no progress without practice. Any of you who wishes to succeed in the profession he has selected, must carefully collect all the practical facts that crop up day after day and season after season on the College farm. But do not neglect science, do not miss the chance which will never again occur of storing your mind with first principles. Science makes every man who possesses it more useful to himself and the community; science dignifies and exalts a profession; science dignifies and exalts a man; science dignifies a farmer and exalts him in the estimation of his brother farmers. Mark my words, therefore, when I say to you respectfully, but confidently, that you will in after life find too much cause to look back with deep regret on your College course if you neglect to store your minds with the scientific knowledge so zealously communicated within these walls by your accomplished professors.

ON THE SUPPOSED DETERIORATION OF THE SOIL OF GREAT BRITAIN, THROUGH THE EXHAUSTION OF ITS VEGETABLE MOULD.

A LECTURE DELIVERED BEFORE THE OXFORDSHIRE FARMERS' CLUB, NOV. 11, 1863.

By CHARLES DAUBENY, M.D., F.R.S., Professor of Rural Economy, Oxford.

WHEN an University Professor presumes to lecture before an assembly of such men as I see around me on a subject, with the details of which they must be much more familiar than himself, the only way in which he can hope to be worth listening to, is by selecting for the subject of his remarks some point of Theory, involving errors in practice which admit of being corrected by an appeal to the general principles of Science. For it must not be taken for granted that a farmer, however ignorant he may profess to be on scientific matters, is, therefore, never guided in practice by theoretical considerations, for so difficult is it for the mind to abstain from speculation of some description or other, that I have known the wildest and most baseless hypotheses embraced by men who prided themselves on being guided solely by the light of experience, and who would have been the first to treat any suggestion founded upon philosophical principles with sovereign contempt.

I recollect, for instance, not many years ago, one of the best practical farmers in this neighbourhood soliciting me to superintend the erection of a series of wires, to be stretched at a certain elevation over his growing crops, by which he imagined that the electricity of the atmosphere might either be brought down or carried off (I forget which of the two was the theory he favoured) so as to increase the amount of his produce.

How often, too, do we hear from the lips of agriculturists the term of *Clover-sick* applied to land which, for some unexplained reason, becomes, after a certain time, even after the most liberal application of manure, incapable of yielding this kind of crop, and the word employed, not as the mere expression of a fact, but, in a certain sense, as a mode of accounting for it.

How often are we told that the reason why certain manures lose their efficacy after frequent repetition is that they operate as *stimuli*, and therefore, as happens in the case of the animal system, must of course gradually become inert. As if there could be any analogy between the effects of alcohol or of opium upon an animal, and that of a manure upon the ground or upon the seed planted in it; the former, an inanimate body, and therefore incapable of being affected by stimuli at all; the latter renewed at each successive period of sowing, and therefore no more liable to be deadened to its influence by the constitution of the plant that had preceded it, than a man would be to that of brandy, because the former occupant of the dwelling in which he resided had, from long indulgence in alcoholic drinks, become insensible to their operation.

These perhaps are harmless bits of speculation on the part of those who indulge in them, as they may not affect the practice of farming, but the same cannot be said of the theory which, from a mistaken analogy between the animal and vegetable organisation, imagines plants to depend for their nutrition upon the matter imbibed from the mould present in the soil.

For it seems plain, that if vegetable mould supplies plants directly with nourishment, the main efforts of the farmer ought to be directed towards its increase; whereas if it affect plants indirectly, as the best physiologists suppose, by the carbonic acid, &c., given out during its decomposition, other means of supplying

the growing vegetable with those necessary ailments might be afforded, by manuring, or even by tillage.

Now, this theory, after having been shown in the clearest manner to be opposed to the first principles of vegetable physiology, appears to have been revived of late, and still to hold its ground in many quarters.

So true is the remark, that nothing is so tenacious of life as error, and that like a noxious weed, which the cultivator flatters himself he has eradicated by long and repeated hoeing, it springs up again after a time in places where it is least expected, and requires a reiteration of the same treatment as before for its removal.

This train of thought was suggested to me some time ago by the perusal of an article in the *Times* newspaper, which from its appearance in that journal, no less than from its own character, which bespoke the hand of a practised writer, naturally arrested one's attention.

In this article the impoverishment of the land and the consequent decline and ultimate ruin of the country were predicted from the gradual diminution and final exhaustion of its vegetable mould.

"The means of increasing or preserving the vegetable mould," remarks the writer, "is the greatest question that concerns man, and yet one which is scarcely thought of. In the poorer soils, which include a great proportion of the more level cultivable portion of the globe, the vegetable mould is fast suffering exhaustion under the present system, and man does not seem to be aware of what he is about.

"In the Eastern States of North America, from the State of Maine to Florida, in Lower Germany west of the Vistula, and in many parts of Spain and France, the vegetable mould is much exhausted, and no means are taken to prevent ultimate sterility.

"The loss has been so great as almost to be irremediable by man, and perhaps must be left to the repairing agency of Nature; first to cover up the wasted land by a dense Pine forest for a number of ages, and when, by this means, a sufficiency of mould and moisture of climate is attained for the growth of broad-leaved trees, to remain for ages more under these; or if the exhaustion is too far advanced, or the climate too dry for forest growth, the country to be again dipped for a geological period under the ocean.

"In most places of the American Eastern States, except the Pine barrens of sheer sand, the vegetable mould upon the clearance of the forest cover, amounts to from a foot to 18 inches of rich, black, vegetable mould, and this under 12 or 18 years aeration is completely dissipated, nothing remaining but light-coloured poor mineral earth, such as would delight the heart of Liebig or Professor Voelcker.

"Germany, from the Vistula to the German Ocean, with the exception of the rich river deltas, is almost equally exhausted, not only the vegetable mould lost, but even the marl and clay once existing in the soil wasted away, forming the alluviums of the Rhine, Weser, Elbe, and Vistula. In the greater part of this country nothing remains on the surface within reach of the plough but sterile siliceous sand, termed 'geest land,' perhaps a corruption of 'giest land.'

"Liebig," continues the writer, "has written in ignorance, at least ignoring the importance of vegetable mould, the garnered food supply of the higher vegetables, prepared by Nature in a manner perhaps more than anything else showing a provision of a means to an end. Liebig seems so much captivated with what he calls absurdly 'inorganics,' (as if one constituent of an organism was more or less organic than another), as almost to recognise nothing else necessary, when the fact is, that it is the carbonic acid given out by the vegetable mould that, increasing with water supply, renders the water able to dissolve, and convey these minerals to the root mouths of the plant. In the case of a heavy crop being produced by the artificial small manures so much vaunted by Liebig and his followers, there results a great exhaustion of the other components of the soil not easily to be recovered."

This communication, as proceeding from an anonymous writer, would not have called for so much remark, if it had not been countenanced by the Editor of the influential paper which had admitted it into its columns, so far as that in the next number a leading article was devoted to the subject, in which, without precisely adopting the views of his correspondent, the journalist seemed to adopt the idea that the earth was becoming effete, and that the gradual decrease of vegetable mould was the chief cause of the apprehended ruin. Now this erroneous conception of the causes of the sterility of soils arises from a revival of the exploded notion that vegetable mould serves the same office to plants which vegetable food does to animals, and consequently that when that store-house which had been filled by the *débris* of former generations of plants is once consumed, the crops must infallibly fall off, owing to the deficiency of the necessary provender. This opinion was adopted in his later publications, to a certain degree at least, by the celebrated Saussure, although in his earlier works he had entertained sounder views on the subject; and notwithstanding its being in direct opposition to the received principles of science, it held its ground amongst many agricultural theorists, until Liebig exposed its fallacy.

Humus, or vegetable mould, it was shown, dissolves in too minute quantities in water to be taken up to any amount by plants. Indeed, if it were otherwise, it would be carried off by the rain that fell from the heavens, and consequently speedily disappear. It is only through its gradual and slow conversion into carbonic acid by the oxygen of the air under the influence of moisture that it consumes away, to be again renewed by the living plants which are cultivated in the soil. There exists, indeed, an acid, called the humic, produced by the action of oxygen upon it, and this acid combining with calcareous matter, forms a compound called humate of lime; but that this cannot, as has been sometimes crudely imagined, be the medium through which plants obtain their nutriment, is evident from the fact, that no such ingredient is found in the water of springs that percolate through vegetable mould, as in those of the stalactitic caverns of Franconia, where the water, although it has trickled through humus, is nevertheless perfectly pure and limpid; whereas a very small admixture of humic acid imparts to it a yellow or brown colour.

Such is the case with the water of peaty soils; but this, so far from favouring vegetation, is peculiarly prejudicial to it; nor can a particle of humus be detected in any portion of the vegetable tissue. Indeed, from the late researches of the present Master of the Mint, it would appear, that a solution of vegetable mould is incapable of gaining admission at all into the tissue of a plant, for the thin membrane which incases the extremities of the roots, although easily penetrable by saline solutions, is almost impermeable to bodies of a gummy or viscid nature, like vegetable extractive matter.

A late Memoir by Messrs. Lawes and Gilbert, on the Cause of the Failure of the Clover crop, might perhaps be cited by some as affording an indirect support to the old theory, which supposes manures to act directly by providing nourishment to certain plants.

Finding that soils which yielded abundant crops of Cereals were incapable, even though richly manured, to grow Clover, these gentlemen arrived at the conclusion, that the latter is one of a class of plants which depend for their support upon a supply within the soil of complex organic compounds, bearing, as it would seem, the same relation to others, which the carnivorous species of animals do to graminivorous ones.

Now this explanation seems, in my humble judgment, so contrary to analogy, that I am glad to escape the necessity of adopting it, by availing myself of another view of the subject which Baron Liebig has suggested, and by supposing that the cause of the failure of the Clover may have been, that the manure had not penetrated to the inferior strata of the soil, down to which the Clover pushes its roots. Hence, in spite of the superfluity of nutritious matter introduced into the soil, the Clover languished from want of food in the parts to which its roots resorted for subsistence.

At any rate we should be disposed to wait for further experiments, before we took refuge in an hypothesis which seems to be at variance with our preconceived notions with regard to the functions of vegetable life. For it seems evident that humus can form vegetation only in the two following ways: 1st by absorbing oxygen and thereby evolving carbonic acid, and 2dly by its porous nature, which enables it to absorb from air and water the ammoniacal salts present in both.

In a virgin soil therefore, exposed for the first time to the action of the air, much carbon and much nitrogen will be supplied to the growing plant through the rapid decomposition of humus, and the processes of the living organism will thus proceed with proportionate activity.

But as the very humus which possesses these elements of fertility is itself originally derived from plants, there seems no reason to doubt that it will be reproduced in sufficient quantity wherever vegetation is proceeding in a vigorous manner. Hence the fears that are entertained as to the exhaustion of the soil by drawing too freely upon the vegetable matter accumulated during the lapse of ages, seem chimerical, and founded upon a mistaken analogy between plants and animals.

Accordingly the letter which appeared in the *Times* elicited from Baron Liebig a reply, in which, under a lively sense of the injury done to society by the dissemination of such errors, he seems to treat almost as a moral delinquency the revival of an hypothesis which he considers to have been so long consigned to oblivion. This, however, I shall forbear to quote, as it appears to me, that in the article in question upon which he so severely comments, there is a certain admixture of truth with error; of truth, when the writer attributes the fertilising effect of humus to its yielding carbonic acid; of error, when under the influence of the old theory which regarded vegetable mould as itself furnishing aliment to the growing plant, he anticipates the ruin of the country from its gradual exhaustion.

For in admitting the former to be the mode in which humus favours vegetation, he dispels the fears which its anticipated exhaustion might inspire, since the very crops grown upon the land would leave behind them a residuum of carbonaceous matter calculated to supply by its *eremacausis* the same necessary pabulum.

With reference to the support which this theory appears to derive from experience, it cannot indeed be disputed that many of the most fertile districts in the ancient world, and some of those in the modern, have sunk into absolute sterility.

No one can visit the shores of Asia Minor, the Islands of the Archipelago, or certain parts of Virginia, without being struck with the contrast between their present condition, and that which they possessed formerly.

Nor can this be wholly attributed to the neglect and ignorance of the present generation, for the same remark applies to certain parts of Italy in which the people are probably in no worse condition than formerly, and even to Virginia and other parts of North America, where at least the energy of the population has nowise degenerated.

But two causes may be pointed out capable of accounting for this deterioration, without supposing that the exhaustion of humus can have had anything to do with the matter.

The first of these is the reckless destruction of timber, which has taken place to so large an extent, that whole districts in these countries present a naked surface, exposed to the scorching heat of summer, and to the biting cold produced by the free radiation of heat from their surfaces into space, as soon as ever the sunbeams are withdrawn.

Nor is this arid condition of the soil the sole cause of the absence of plants in the deserts of Africa and Arabia, for the sudden transition from extreme heat to extreme cold, which takes place in these regions, is in itself highly prejudicial to the health of most species of vegetables.

It is well known, from the accounts of travellers, that after a day of scorching heat, a night supervenes of almost extreme coldness, one severe enough even to cause water to freeze in porous vessels, in which manner ice is commonly obtained in Bengal; a cold rendered more penetrating from the dryness of the air, which causes the heat of the body to be carried off with greater rapidity, than would happen if the atmosphere contained a large amount of aqueous vapour in an aeriform or transparent condition.

This cold arises from the free radiation of heat into space from the ground during the cloudless nights that prevail in these dry and tropical regions. But independently of this, the cutting down of timber exerts a very remarkable influence upon the rainfall of a country. Trees arrest in their progress the clouds and mists which sweep over the surface of the ground, and cause them to deposit their moisture; whilst at the same time evaporation from the ground itself will go on more rapidly when the wind has free access than when the ground is protected by wood.

In proof of the extent to which these causes have operated, I must refer you to the accounts which Boussingault has given with respect to the change produced in the climate of Venezuela by the cutting down of its forests, and likewise to the case of the Island of Ascension, where the removal of the timber was followed by the drying up of the only spring which the island possessed, and where the subsequent restoration of the trees brought with it the recovery of the lost water.

These and other instances, which I have adduced in my late publication entitled "Lectures on Climate," * prove, that man has in many instances modified in a very striking manner for good or for evil the condition of the countries in which he has established himself. Neither do I mean to deny, that virgin soil, when first turned up by the plough, is capable of yielding, without manure, an amount of produce, which no skill or labour can extract from it after it has been long in cultivation, and which therefore makes the latter appear by the side of it wanting in productive power.

(To be continued.)

AN AUTOBIOGRAPHY.

Mr. Editor,—As I have from time to time sent you a few papers on Husbandry Operations, which you have kindly caused to be inserted in the increasingly valuable and largely circulated *Agricultural Gazette*, and as it is my intention to send you a few more, and as my views run counter to most of those of agriculturists in general, and those also who write on agricultural subjects—counter to those in general I write, but not to all—and as many people ask, and perhaps not without some show of reason, how I, a mere country parson, cultivating a few acres of glebe only, can understand the art of husbandry sufficiently to enable me to write upon it so confidently as I do—I have thought that were I to give a brief statement of matters upon which my pretensions are founded, it would be read with interest by my friends, of whom I rejoice to know I have many, and may put to silence also some of those fierce opponents who consider me to be a mere stripling youth, without experience or practice, and so become vainly confident of easy victories over me. That I am no youth, the white locks which for many years have flown over my shoulders, and a beard of the same colour sweeping over nearly half my waistcoat, and even resting (and, I will add, in my opinion not ungracefully) on my table as I pen this article, sufficiently show; and more particularly if I add that more summers and winters have passed over my head than the Royal Psalmist informs us are allotted to the race of men; and I think, further, that all who may read this paper will acknowledge when they shall have gone through it that my experience and practice have been commensurate with the number of years I have been exercised on them, and especially as they amount to nearly 60; and I add further, and I rejoice that I am enabled to do so, that there is not an operation in agricultural practice but I am able to perform. For examples, I can plough; yes, my readers, I can, and I have often ploughed my own glebe, and well too; and I can scarify, and drill in my seed with my drill, and I every year do drill it in; and I horse-hoe my growing crops also myself; and I can reap, and I can mow; and I once reaped against a practical farmer, who cultivated his hundreds of acres, and beat him completely; and I have but little doubt but I could even now, when more than three score years and ten have passed since I first saw the light of the sun, beat nine-tenths of those self-confident gentlemen who wage their literary wars against me, and think to annihilate me with a few strokes of their pens, or with hard words.

Know, then, my respected readers all, that I was bred upon an estate of nearly 2000 acres of land, and all of

* Four Lectures on Climate, delivered at Torquay in 1863.

which was chiefly under tillage, and from 90 to 100 horses were constantly employed to cultivate them; the system of tillage also, was that for which from my convictions of its being the best yet discovered, I contend, and in defending of which, as I had truth, nature, theory, and practice on my side, I have so easily floored, with no other weapon than a feather from the wing of a goose so many opponents; but "then thrice is he armed who has his quarrel just." But the system was this: every acre seeded on the estate was cultivated, disintegrated, and comminuted, never fewer than 9 and generally 12 and more inches deep, by the plough and the scarifier, and each seeded field, and every year, was ploughed and reploughed and scarified and re-scarified until it was brought into the condition I here state, and then, and not before, the seed, on the system practised and recommended by Tull, was put in with the drill, then only coming into use, and in rows for Wheat and Barley and Oats 12 inches asunder, and for Pulse about double that width, or for Peas never less than 2 feet. The seed for Wheat never exceeded one bushel an acre, and for Barley and Oats but half a bushel more, and for Beans and Peas according to their kinds, but never half the quantities per acre that are now generally used. After the crops were up they were all horse-hoed, and some of them several times over, but not with the destructive machines under the name of horse-hoes now in general use, and which are such a disgrace to our age, and which cut off the soft sponge-like fibres of the roots, the mouths indeed through which the plants ought to be fed with the organic and mineral pabula they require, and thus yearly tens of thousands of acres of cereals are either greatly injured or ruined entirely by them; but the horse hoes used on that estate were not cutters at all, but made something like a double-tom iron plough going equi-distances between the wide rows, throwing out the greater number of the weeds and letting in the genial influences of the air and the sun, and moulding up the rows of growing corn at the same time. Oh! how often have I seen those modern abominable implements called horse-hoes, those satire, upon our age, at work on the large farms of the modern practical farmers, going between the rows of growing corn only six inches asunder, and trimming and pruning off the roots as they were dragged along as completely as those roots could be, if cut and trimmed with so many knives! But so the world moves on, showing the marvellous progress that is being made in mechanical wonders! and most especially in some of the implements connected with practical agriculture. But to proceed; on the same estate in the year 1803, an acre of land in the centre of a large field of 40 acres was measured accurately and hurdled off from the rest of the field, and dibbled with exactly 1 peck of seed Wheat, and at harvest it was reaped, threshed, winnowed and measured by itself, and the produce was 210 fold or 210 pecks; and this I inform my readers I myself was a witness of, indeed I may say with the poet:—

"Quæque ipse * * * vidi
"Et quorum pars magna fui."

But after that date, namely 1803, I removed to a school near London, then in very high repute—indeed, second to no private school in England, and there I remained upwards of nine years. The master was a worthy clergyman, and he so much indulged my taste for land cultivation, that he assigned to me a portion of his large garden, which I cultivated with my own hands, digging the whole full 2 feet deep, completely comminuting the soil also to that depth, and sowing my seeds on the true Tulhan system in rows, 1, 2, and 3 feet asunder, and I had patches of cereals of all kinds, and of Pulse, as well as of roots and vegetables; and if the worthy master of the establishment were now alive it would, I know, be a great pleasure to him to bear witness to the extraordinary perfection and size to which my system of thorough cultivation and thin seeding caused everything to reach in my garden. There were also several nursery gardens in the neighbourhood in which I spent much spare time, and in all of them I was always welcome, and especially in one belonging to a very worthy and industrious Scotsman, with whom I spent no little time, and by him I saw the system of land cultivation I have adopted carried out to a still higher degree of perfection than I had known it to be even on the farm, for whatever crops were grown, or for shrub and tree-planting, the land was well broken up to the depth of 3 feet or more; and thus when I saw the rapidity with which everything that was sown grew, and the perfection to which all, whether vegetables, flowers, trees or shrubs, so rapidly arrived in that garden over that of general farm cultivation, my young mind was set "a thinking," and I said that the farm I was connected with was the only one I had to that time seen rationally cultivated; and, I now add, it is painful to reflect that since, after between 40 and 50 years of experience, scientific and rationally cultivated farms are the exceptions I have seen, whilst irrationally cultivated ones are the general rule.

I know against this statement a thousand tongues will at once rise up and exclaim—nor had I a hundred mouths, a hundred tongues, a hundred pair of brazen lungs, would it be possible for me to silence even half-a-dozen of them. But still, even among farmers, there are many very excellent men, and there must also be wise ones; but as a general rule they despise experiments, and will not quarter the ruts or remove out of the old roads made by their forefathers, though far better, and shorter, and nearer roads, invite them to travel over them; but education is everywhere making rather rapid though unseen progress, and this will ultimately accomplish what arguments, without it, labour for in vain.

But again to proceed; notwithstanding my being at that most respectable school, the nearly three months of holidays which were given every year were spent by me chiefly on the farm, and hence I knew nearly as well what was being done and had been done on it, as if my time had been wholly spent upon it, and, as I have said before, after a lapse of between 40 and 50 years, I have never since seen so much land together so thoroughly cultivated, and so little seed sown on given quantities of it, and yearly such large and fine crops grown as were on that farm; and I have *viva voce* and documentary evidence of all I state. I am aware that in making these statements I am bringing upon my devoted head no little contumely, and probably some little of what?—it may be of abuse; but all this I am inured to, and so, as use is a kind of second nature, I can from custom easily bear it. But, my readers of the old school of farming, let us reason a little together. How do you plough your lands? "How?—why as much as three inches deep and sometimes nearly four." And how many times? "Very often twice, and sometimes even three times, and Clover leys once; and this is quite enough—indeed, better than more."

That is, you cut the surface of your land into slices 3 and 3½ inches deep, and turn the slices first this way and then that, twice, and some chance times three times, and some once only; and then with a machine you make furrows in the slices, and with cups like tea-spoons throw into them your seed; or you make holes in the slices, and drop handfuls of Wheat, Barley, or Oats, or Pulse into them?

"Certainly we do; and this is the proper way of ploughing and sowing, and there is no better; and, besides, our fathers and grandfathers and great grandfathers always did the same, and we never have altered—and why should we?"

And in this way 2 and 2½ bushels of Wheat, and a learned authority in the *Agricultural Gazette* of the 31st ult., and at page 1042, informs us that 20 years back 4 and 4½ bushels were generally thrown on an acre of ground; but whether by shovels out of carts, or what other instruments were used he does not enlighten us, but ungratefully leaves us in the dark; but from the 2 and 2½, and 4 and 4½ bushels of seed, we further learn from the best authority, namely, Mr. Caird, M.P., as I have been told, that from 20 to 24 bushels alone of produce an acre on an average are produced. But on the nearly 2000 acres I refer to, from 1 bushel only, the Wheat crops averaged nearer 40 bushels, and the quality was always as fine as the quantity was large. And, besides, there are a few gentlemen and farmers even now, like oases in a desert, who are known to me, and who drill but 1 bushel, or but a fraction more, and their yields are still as great or greater; and there was one highly respectable individual in this county—now, alas! departed to that bourne whence no traveller returns—who never dibbled more than 1 peck an acre, and his yields were still larger, and he published his balance-sheet every year, and I myself frequently saw his crops; and several other gentlemen, clergymen, and others I could instance drill, or rather seed their lands, with 3 pecks an acre only.

And I myself have since my ordination, with a very few years of intervals, cultivated land and grown corn, and I have done so in my present parish for nearly 27 years, and my maximum quantities of seed have never exceeded 2 pecks an acre, and often not one, and I never had but one failing crop of Wheat, though I have cultivated Wheat after Wheat for four years in succession, and that failing crop was 4½ quarters an acre; and of Barley, from 2 pecks, I have had 7⅝ quarters an acre, and Oats from as small quantities equally as good. And I further add, that for most of those crops the land was generally ploughed by myself, and always drilled and horse-hoed by myself, my parishioners and many others continually seeing me in my fields behind a pair of horses performing all kinds of farming work that could be done by them; and thus they will all bear witness that I have not eaten the bread of idleness, and will perhaps long remember, after I shall be removed to another sphere of existence, how I was to be seen early in the morning and late in the evening, and in noonday, whether hot or cold, cultivating my fields, and thus, I trust, setting my parishioners examples of industry, frugality, and contentment.

Nor must I forget to state that during the time I was at that excellent school, many of the very best books on husbandry and the arts connected with it were purchased by me, namely, Xenophon's Economics, Theocritus, Columella, and, of course, the Georgics of Virgil from the ancients; and Tusser, and Tull, and the Essays of Bishop Watson, and the Agricultural Chemistry and Elements of Chemical Philosophy of Sir H. Davy, Parkes' Chemical Catechism, and several other works of the moderns, from which I hope I obtained instruction; and from time to time I have added more to them, and especially those of Baron Liebig, which ought to be in every man's possession who cultivates land, whether he calls it a farm or garden. I also attended many lectures which bore on my favourite study, namely those of Chemistry by Dr. Birkbeck, then a lecturer held in reputation; and the sublime lectures on Vegetable Poisons, by the then Mr., but afterwards Sir B. Brodie, and I had the pleasure of witnessing the experiments of Sir Benjamin of those poisons as preparations for his lectures, showing their effects on the inferior animals, and above all, to gain the friendship of that profound philosopher and most excellent man, and which friendship, I have the additional pleasure of being able to record, remained to the day he was summoned from a world which he had so many years adorned with his wisdom and benevolence, and, I may add, every Christian virtue, to one of permanent rest and happiness in a far better world, and in the enjoyment of the presence of the unseen Creator of it—his God.

And in conclusion, I must be permitted to repeat what I have said and published very many times, namely, that what is over thin-seeding in one man's hands is over thick-seeding in those of others; and that one kind of Wheat should be seeded nearly doubly as thick as some other kinds; but the man who requires more than a bushel of seed an acre of any kind of Wheat ought not to be intrusted with the seeding and cultivating of land for Wheat at all; for I write from nearly 60 years of practical experience, that in the hands of a wise man all the seed above a bushel, of whatever kind of Wheat, diminishes both the quantity and quality of the crop, as in such hands the land will be sure to be in good heart, full of vegetable and mineral pabula, be really cultivated, and the seed properly put in. *Geo. Wilkins, The Parsonage, Wix, Nov.* 14.

STEAM CULTIVATING COMPANIES.

IT is well worthy of note how the country is awakening to the wonderful advantages to be derived from steam cultivation generally, and in clay-land districts more particularly. This is as it should be. If British agriculturists are to keep pace with the improvements of the age, and to make themselves competent to meet profitably in their own markets the competition of the whole world, it must be by bringing into full exercise every acknowledged improvement of the day. It is only in this way that they can excel in management, and create a produce unknown to other nations for extent and value. The British climate is fickle—farm operations of culture cannot at all times proceed—a favourable time must be waited for and seized; but then, with farm-horses only, the season is gone before the work can be satisfactorily accomplished, and of course loss of time and crop ensues. It is unquestionably of great moment to introduce into our agriculture a power capable of overcoming in a great measure these hindrances, so that our farmers shall for the most part be independent of climate, and be able to effect their proper culture at the right time. This undoubtedly is the province of "steam cultivation," and to bring this astonishing power down to the capabilities of every ordinary farmer is the object of many projected companies. The design is well conceived, but the difficulties in carrying out the operations of so many companies are insurmountable. Consider the various organisations, the cost of getting up such companies, the payments to directors, secretaries, engineers, and minor officials. Then their objects. One company designs to purchase apparatus for letting out, another for advancing capital to farmers to purchase for themselves, another professes to combine the two. Others contemplate taking contracts for steam culture; others profess to take in all the requirements of the farmer, and aim to aid him in all his expensive purchases of machinery, &c. (one or two of these companies have already succumbed.) Now all these companies have to be worked by an expensive staff of officials, and to pay these and carry out effectually the objects of such companies cannot leave much margin of profit to shareholders; hence it does seem desirable and right to repudiate these minor companies, and to establish a central company, possessing a powerful and comprehensive character capable of accomplishing all that in the present state of our agriculture is required. Farmers, it is proverbially said, never can combine for any useful purpose and effect it. There arise so many causes of difference, so much conflict of opinion, that minds cool upon the question even before it gets thoroughly before the world. It will be so in the present case if more interest and energy is not forthcoming. In London a Central Steam Cultivation Company has been incorporated under high and influential auspices, for the purpose of supplying needy farmers with the means to purchase steam cultivating apparatus on repayment at intervals extending over a course of years, and sufficiently long to enable the borrower to reimburse the outlay from his profits derived from such culture. Beyond the few noblemen and gentlemen who so laudably took the initiative, but few farmers have become shareholders, although the amount of shares is small, and the Company is under the Limited Liability Act. This is decidedly wrong, a company formed to promote the farmers' successful progress, ought to meet with their universal support. It ought to be the farmers' company, and every farmer ought to be a shareholder for mutual aid and benefit. No farmer can be liable for more than his 10 pounds share. This company purposes holding a general meeting in the Christmas Show week in London, (of which no doubt notices by advertisement will appear in all the agricultural papers), to ascertain the feeling of the farming public and the friends of steam cultivation upon

the broad question, and their determination relative to the countenance to be accorded to this Company. If competent support is withheld, and landlords and tenants manifest great supineness, it is more than probable that this chance of promoting steam cultivation will be thrown away, and every needy farmer be again driven to contend with his difficulties as heretofore. *O. F.*

SHEEP FARMING ON 200 ACRES OF ARABLE LAND IN MORAYSHIRE.

THE farm is of 200 acres, farmed on the usual five course rotation, a breeding stock of 10 cows is kept for the purpose of supplying the establishment with milk, and rearing calves to be sold as yearlings, and a larger stock of cattle can be kept during winter, these cattle to be fed on the Turnips which can be spared from the sheep, assisted by a few tons of oil-cake, or other feeding stuffs.

For the last twenty-five years I have practised sheep farming in this county, and during that time have made repeated trials of various breeds of sheep, but have come to the conclusion that the most profitable for this district are what is called the half and three-parts-bred sheep—that is, the first cross between the Cheviot ewe and the Leicester tup for the half-bred, and this ewe crossed again by the Leicester tup for the three-parts-bred sheep. I have tried the pure Leicester, the pure Cheviot, and pure Southdown, a cross between the Leicester and Southdown, likewise a Cotswold cross; but I have ever found that, for all practical purposes, the half-bred ewes and the pure Leicester tup paid the most money—producing more weight of mutton and wool as they do, and at the same time a comparatively hardy and docile animal. In keeping up the stock of half-bred ewes, I have been in the habit of buying either half-bred gimmers or lambs from breeders in this county, who breed from the Cheviot ewe and Leicester tup, or have got first-class half-bred gimmers from the county of Caithness, where, I think, they will be found better adapted for this county than those bred here. The Caithness sheep are lengthier and stronger, and altogether serve to counteract that tendency to diminish the length of body, size of animal, and closeness of wool which the light land of this county produces after a few years. The Caithness breeders, from their proximity to the best stocks of Cheviot ewes, and from the stronger nature of their soil, and larger farms, have it more in their power to produce a bigger half-bred sheep than we have. These Caithness gimmers may be bought at an average of from 30*s.* to 35*s.*, when sixteen months old, or once clipped.

In the note of my calculations given at the end of this paper, I have not taken any notice of the yearly purchase-price of these gimmers, because the money realised for our draughts will equal that paid for our gimmers; and as we generally take three crops of lambs from the ewes, it will be seen that one-third of them go off annually, and of course one-third forms the new entry. As stated formerly, I have taken a 200 acre farm as my basis, and upon this I shall place a stock of 120 ewes, and propose to follow up their probable produce to market, not, however, estimating the value of that produce at the present high rates for wool and mutton, but what may looked for over a series of years. I may here state that there generally runs to well-managed flocks in this district about thirty pairs of twins to the 100 ewes, and which would give of lambs a produce of 156 or thereby; and I shall now proceed to give what may be termed a very limited account of the treatment of the ewes and produce, for time will not permit of my going more into detail. I will therefore propose that the stock is laid out early in the autumn, consisting of the following numbers, and rated at the following prices, viz.:—

120 ewes at 33*s.*	£198
156 lambs at 20*s.*	156
Two Leicester tups at 5*l.*	10
	£364

Having now got the flock on, the first expense necessarily attending them will be the dipping or bathing, and which may be taken at 1½*d.* each. The dips I have used are Randen's and Biggs', and I have found the one equally efficacious as the other in clearing them of all sorts of vermin and preventing scab; but if scab really exists, more stringent and expensive measures must be used, and the spirit of tar and tobacco juice applied with unsparing and unremitting attention till it be eradicated.

As a rule, lambs should never be short of meat, and should always be on Turnips about the first days of October, and if upon Rapes and early Globes even sooner so much the better; but this is a matter for the farmer to judge of, although under any circumstances I should never recommend them being later than the time named. And here I would mention that the kind of Turnips I prefer laying them on to are, first—any of the variety of Globes, being kept on them till the end of November, then yellows till the end of January, followed by Swedes. I have found it desirable to change the kind of Turnips. At first they do not consume many Turnips, but after a time they gain condition fast, and get well up to stand bad weather in November, and more particularly in December, while if severe weather should happen to come on during the transition state from Grass to Turnips, and before they are really well accustomed to the latter, damage may be done to them which they will never recover. A little expense, therefore, for Turnips at that time is well bestowed.

In putting them on to Turnips in the field, I consider it better to do so by degrees than to force them upon them all at once—that is to say, laying them on for three or four hours daily at first, and then lifting them off to a Grass field, lengthening the time each day for a fortnight or three weeks till they get fairly bit with them, and then allowing them to remain on altogether, although with the choice of a Grass field to run back upon, if they wish it, and if convenient. I think this more judicious than keeping them in close till they learn to eat Turnips from sheer hunger; but, indeed, if lambs have been on Turnips with their mothers, it is little learning they require, as they take to them at once—the effect of early tuition. The lambs should get a fresh bit daily, but in giving them this it should never be done unless the morning be very dry, till the sun is well up, and the frost or wet off the leaves, otherwise much loss may ensue from inflammation—the effect of this food in this state on an empty stomach. And in times of severe frost there ought to be a stack of stored Turnips on the field put up in fresh weather. I do not mean that the lambs should be confined to this bit of Turnips, but with power to fall back upon their former leavings when they have a mind, and if dry weather they will pick up the last morsel.

Lambs, or rather I ought to say hoggs, will do very well in this way till about the middle of January, when, if they are forward in condition, you must begin to slice, and keep slicing till they go to grass about the end of April. This has been my general practice, but I have varied it according to circumstances, and have given them ¼ lb. of rapecake and ¼ lb. of Locust Beans, bruised and mixed, or ¼ lb. of oilcake and bruised Oats daily, either in the field or in house-feeding, or in sheds with open yards, and have sold them, after this treatment, quite fat before they were twelve months old, at from 38*s.* 6*d.* to 45*s.* I have used them instead of cattle for making manure in yards, and you cannot do a more profitable thing in sheep feeding, but they require in this case a good deal more attention, and in particular fresh litter daily. If the Turnips are a good crop, about 15 acres will do the 156 hoggs.

On a farm of 200 acres farmed on a five-course shift, there will be 80 acres first and second year's Grass, and 40 acres Turnips, and therefore it is necessary, with this limited quantity of keep, to consider how it may be most profitably used. My impression is that it is better to sell 100 of the best of these hoggs off Turnips, and to graze the remainder so as to bring them to an equality before disposal. The Grass, therefore, required, would be for the ewes (120), with their lambs, at the rate of three to the acre, 40 acres, and for the 56 hoggs at 5½ per acre, say 10 acres—leaving 30 acres to cut for hay—keep the cows and calves and the six or seven farm horses.

Having now generally stated the management of the hoggs, I shall shortly treat of the ewes. I have said that it would be necessary to draught about a third of them each year; and having done so and replaced them with gimmers, or 16 months' old ewes, being the age at which they are generally entered to the ewe flock, you will give them a run over a bare Grass field after weaning time, and keep them sparingly by cleaning up your stubbles, &c., till near tupping time, when the keep ought to be increased, and if a bit of second foggage, or good seeds, can be had about the time the tup is put to, you are pretty certain of a good sprinkling of twins. Ewes are proverbially persevering in obtaining their livelihood, and they will pick the last out of everything either in your stubble fields or Grass fields about to be broken up, and therefore, instead of costing anything for keep, are really benefiting the land than otherwise; my impression is that there will be sufficient Grass on the farm to carry them on till about the end of January, before they get Turnips, but then it will be necessary to give them a few daily till they come near lambing-time, when their feed may be increased. After lambing, I find I can make the best lambs by putting the ewes into a new Grass field, and give Turnips along with the Grass for the first fortnight, and then return them to Turnips entirely during the day, and into a new or second year's Grass field at night. To keep lambs, and have 120 ewes, about 6 acres of good Turnips will be necessary, thus leaving from the sheep, 19 acres for the cattle. I may here mention that during a long and protracted, and perhaps unexpected snowstorm, I have known a little oilcake bring the ewes through in capital condition, and with no loss either to ewe or lamb, and this may be necessary if your stock of stored Turnips gets exhausted. At one time, I dared not give my ewes Swedish Turnips from the dread of inflammation after lambing, but now I find from some cause which I cannot account for, unless it be the uniformly higher condition of the ewe, that the Swede is about as safe as any other Turnip. After the Turnips are done, you must not stint the ewes in Grass, and new Grass if possible, trying to produce the largest flow of milk possible from them, for that is what really makes the lamb. The best time for bringing the lambs to this county seems in most seasons to be from about the 20th March till the middle of April, but if you have plenty of house-room you may bring them sooner, and always with the chance of making them better; but in this case it will be well to see that you have a large stock of stored Turnips or Mangel. The ewes, if in good condition, may be clipped about the first weeks of June, and the hoggs during the latter part of May, or sooner, according to weather and condition. The lambs may be weaned about the end of July, and when weaned must be put on good Grass or Clover foggage, and in either case it is better that no sheep have grazed it for at least ten days beforehand.

Having given this necessarily short outline of merely one branch of sheep farming on arable land in this county, I shall now proceed to do, or suppose—which is much easier than to do in reality—namely, sum up the probable money proceeds out of the 120 ewes treated as I have very generally and imperfectly detailed, but premising that even this result may not be looked for without considerable care, much attention and judgment, and besides that the 200 acres of land must be really fair land, and in very good condition, giving good crops of Turnips and Grass; and without all these, and ordinary good pasture besides, the result may not be looked for, although, on the other hand, it is quite possible, by extreme good management, to exceed it. I shall therefore say that from the 120 ewes there ought to be sold:—

100 hoggs in April at 35*s.*		£175	0 0
56 do. in July, clipped at 32*s.*		89	12 0
Wool of 120 ewes, 56 hoggs, and 2 tups, at 6*s.* 6*d.*		57	17 0
		£322	9 0
But from which deduct—			
5 per cent. on original capital for deaths and casualties	£18 4 0		
Expense of bathing 278 sheep, 1½*d.*	1 14 9		
Expense of shepherd	28 0 0		
		47	18 9
		£274	10 3

Mr. PETRIE, Miltonduff, asked what would be the value of that land.

Mr. GEDDES said 40*s.* an acre at current rates—though he wished he could get it at 30*s.*

Mr. FERGUSON, East Grange, corroborated what Mr. Geddes had said, but would go further. Assuming a stock of 120 ewes, he saw his way to profit much earlier than Mr. Geddes showed, by putting the tup to the ewes a fortnight or three weeks earlier than the general habit is. He assumed, of course, that the soil and shelter were suitable. Then you could send your lambs to the fat market earlier by the present facilities you have for railway communication. You could have all your fat lambs sent away by the end of June. You could have your ewes clipped and sell them fat by the month of August, thereby profiting by lamb, wool, and ewe within a space of eight and a-half or nine months.

[The above paper was read by Mr. GEDDES, of Orbliston, at a recent meeting of the Morayshire Farmers' Club, presided over by the Duke of Richmond.]

Home Correspondence.

Dirty Cattle Trucks.—With reference to the filthy and dangerous condition of railway cattle, sheep and pig trucks, let me suggest an easy and uncostly way of cleansing them. A gutta percha hose and jet attached to a 6-inch force pump driven by steam power, would effectually cleanse a truck in two or three minutes. I speak practically in this matter, for my own jet worked by steam is of a thousand scrubbing-brush power. Every crack and cranny is almost instantaneously cleansed. Merely drawing it hastily across a hard gravel walk will cut a furrow in it, and I could when I fed 350 pigs or beasts, wash them all clean in 10 minutes within a range of 40 or 50 feet. One of our steam fire-engines gives an exact illustration of the operation I describe. Railway Companies have generally plenty of water and steam power to propel it. The health of our stock is of vast importance, and it becomes a duty due to the public. In fact, legally, I apprehend that if it could be shown that our animals became diseased by railway neglect, we could not fail to recover damages. The jet would answer equally for steam vessels used in conveying stock. *J. J. Mechi, Tiptree, Kelvedon, Nov.* 23.

Condition of Farm Labourers.—In these days of so much talking and writing about farming and its details, I often admire the edifying but unassuming style of address of "M. J. B." in the *Gardeners' Chronicle and Agricultural Gazette*, who just tells his scientific story, and leaves topics which require a practical knowledge of details to practical men. Were men of science and of letters, as distinct or separate classes, to imitate "M. J. B." in this respect, many of your correspondents would not lay themselves so open to attack. Let me refer for example to the Rev. Canon Hodgson's remarks on women doing the greater part of the manual labour connected with the threshing and dressing of grain by machinery, the filling the carts when cleaning out the cattle pens, the turning manure heaps, spreading the manure on the land broadcast and in drills, and the singling, hoeing, and pulling of Turnips. My paternal grandfather served one tenant farmer in the capacity of steward for 32 years, and during that period had the management for 19 years of Sir E. Antrobus's estate of 1300 acres when rented by a non-resident tenant. My father acted in the capacity of a tenant farmer's foreman or steward from 1821 till 1855,

barring a few intervening years. I worked for 10*d.* a day in the capacity of a bondager in the summer of my 18th year. I was employed for three years in the capacity of a general labourer on a 1300-acre farm, where I cut drains and scoured ditches in the winter months, and filled up my time in the spring, summer, and autumn months in assisting the shepherd, mending fences, filling manure, and harvest work, and had the current rate of men's wages when employed occasionally with the bondagers. I make the foregoing statements to show my opportunities of being conversant with details, and I say that I entirely agree with my sister, who has the practical experience of a bondager, house-maid, and a dressmaker, and who, after reading the Rev. Canon Hodgson's address, remarked that a good many of the field labourers in Northumberland, and in the counties of Roxburgh and Berwick, are much more cleanly in their habits than a great many domestic servants are after they get married. A woman working only 10 hours a day as a field and barn labourer has more leisure time for reading and intellectual culture than the majority of the different classes of domestic servants. Dr. Strachan, of Dollar, denounces the long hours of domestic servants. It is strange that the long hours of the different classes of domestics should be neglected by our public speakers and writers. Mr. Hodgson states that women brought up as field labourers do not settle at housework. It is the first time I heard of it. I could name several housekeepers in large families who were bondagers in early womanhood. They changed their position by commencing as scullery-maids, and got up by degrees till they reached their present positions. *W.*

Cottage Building.—There is a point of view from which, as it seems to me, the important subject of cottage improvement, especially in its relation to the agricultural labourer, has not yet been regarded, namely, that from which the labourer is seen to bear a share in defraying the cost of that improvement from which he is to derive so great benefit. That the solution of the difficulty attending cottage property lay in this direction I was long ago convinced. But the actual discovery is of recent date. The great hindrance to the improvement of that property has been in adhering to the old standard of rent, and expecting that for this same sum a cottage shall be provided of double or treble value; for even supposing that a cottage possessing all the requirements for a due attention to morality, and decency, and to comfort, can be erected for 100*l.* (another fixed standard most unwisely set up), it is only under the influence of high principles and feelings of benevolence that large investments in such property can be expected; and the investments which throughout our land are loudly and justly demanded are large indeed. Then on the side of the labourer it may justly be said that if his earnings from all sources be insufficient to admit of his paying a higher rent than 2*l.* or 2*l.* 12*s.* a year, he will be unable to provide bedding and furniture and sufficient warmth for an increased number of rooms of perhaps larger dimensions, in which case a large cottage will prove to him that which a large mansion has often proved to those in the upper classes, a great evil, or at best a great source of discomfort. If, however, the cottage can be made not only more healthy and more consistent with morality and decency, but also more economical, and, together with a right use and a better cultivation of the garden, much more profitable to him, then, with great advantage to himself, the labourer would readily give double the rent, or even more, for it than for his present cottage; and the landowner instead of 2*l.* or 2*l.* 10*s.* per cent. might get 4*l.* or 5*l.* per cent. on his outlay. At the same time, with a slight and easy supervision, and a little kindly interest in the cottager and his family, he might do far more in this than in any other way to raise the character and improve the general condition of the agricultural labourer. It is in bringing to bear on cottage building and cottage economy, my several discoveries as to sewage and heat (see as to the former the Journal of the Royal Agricultural Society for 1863, article, Earth *versus* Water), that my solution of the difficulty of cottage improvement has been found. By economising heat, and by a novel application of it so economised; by an improved system of ventilation of all the rooms in the cottage; by a perfectly inoffensive removal and utilisation of all the house sewage, the several objects above mentioned can be effected. At present I will state only what may be done in a first-class cottage consisting of two living rooms, three bedrooms, and a scullery or pantry. One living room will be 15 feet by 10 feet, the other and the three bedrooms each 10 feet square. The height of all will be 8 or 9 feet. They will be thoroughly ventilated without injurious draught. One close kitchen range, with the consumption of not more than 1 cwt. of coal and coke a week, will be sufficient for cooking, baking bread, washing, and ironing, and for sufficiently warming at will the second living room and the three bedrooms, so as in the latter to save probably half the expense of bed-clothes. The rainfall on the roof will afford an ample supply of the best water. By the adoption of the earth sewage system all the manure of the family will be saved, by the right use of which an industrious family, acting on the suggestion in my tracts, "Manure for the Million," and "Self-supporting Schools for Children of the Working Classes," might from a quarter of an acre of ground raise such produce as would enable them easily and gladly to pay for such a cottage 6*l.* or 7*l.* a year, and in the neighbourhood of a town even more. I have plans and specifications for this and for a second and third-class cottage. The cost of this one, with kitchen range, earth-closet, and water tank complete, is estimated at not more than 130*l.* *Henry Moule.*

[P.S. Let me add that my system of heating frames and hothouses, and of warming large rooms, is now so perfected in my mind, and by sufficient experiment, that for a fair remuneration which will enable me to give the time and expend the money for the purpose, I am prepared to show to the public: (1). That at a first cost of not more than 15*l.* or 20*l.*, and with an expenditure at first of not more than 2*d.* or 3*d.* a day, a hothouse of 60 feet by 20 feet can be sufficiently heated, partially with moist bottom heat, and throughout with heat above; (2), that consequently a room of that size or larger, may with less fuel than this be sufficiently warmed; (3), that steaming food for cattle can thus be effected at far less cost than at present; (4), that sheds for drying, in uncertain and bad weather, either Grass or corn, can be profitably erected with my mode of heating them; and (5), that a way is thus opened, especially where peat can be had for fuel, for a profitable establishment of glass culture on some of our wildest heaths and most barren moors.

Foul and Infected Cattle Trucks.—I am glad that this question has been noticed in the *Agricultural Gazette*, as it is of much more importance than is generally thought, and I am inclined to think railway companies are liable to damages, as it is surely gross neglect and not reasonable to supply infected trucks for customers' cattle. I am not now going to study the legal points of the question, but as this is a very serious loss to the buyer of cattle as well as the seller, consequently to the public in general, I beg to add a little to the discussion in aid of getting the matter more ventilated. It seems a settled thing at Darlington to expect Irish lean cattle fresh brought to this country to be either suffering or infected with the mouth and foot disease, and hence the danger of bringing it on to any farm if these are bought, or even sometimes, and that too often, if cattle are bought at a market or fair. One neighbour thus introduced it to his farm last year, and lost two of his fatting beasts; another, through one beast bought at Darlington last year, and although he was a very cautious and careful man, got this disease amongst the stock of milch cows, resulting in the death of 15 or more pigs and a very great reduction in the condition of most of the large stock of cattle then upon the farm. Some years ago two German *savans* experimentally drank milk taken from cows suffering under this complaint, and themselves became affected in the mouth, similarly to the cows. My wife last March had four Persian cats infected, although the proportion of milk from the affected cows could not be above one-fifth of the sound milk with which it was mixed, and yet one of these cats died under the disease. Another farmer took some young cattle to Darlington market late in the autumn of 1862, and not selling them returned home with them, when soon afterwards the disease broke out and "ran through" all his cattle. As a coincident of the conviction of your Correspondent that the trucks are infected, I may instance a buyer of a Short-horned cow at Mr. Maynard's sale, and which cow my man brought here along with two I purchased, and then sent off to Carlisle, its destination. He was instructed by its owner's steward not to send it by truck as the trucks were so infectious, but in a horse box. Mr. Currie, a large cattle dealer, tells me he strongly recommends to have spent tanner's bark strewed thickish on the bottom of the trucks before having the cattle put in. But there is also the question of foul and infectious steamboats. Trucks and steamboats could be easily whitewashed with lime and water, by having the vessel containing the wash at a good height with a flexible pipe, at the end of which should be fixed a suitable rose to distribute the dashing mixture over the sides and bottom of these cattle trucks, &c. *W. A. Wooler.*

Over-feeding Animals.—It requires a certain amount of moral courage to attempt to change a custom, no matter how objectionable, which has become part and parcel of a great institution. It is not proposed to do away entirely with the exhibition of over-fed animals at the annual meetings of the Royal Agricultural Society; the desire is to introduce a new description of prize or prizes for general competition, which would enable the small farmer to enter the field against his more wealthy neighbour, in a friendly contest, on equitable terms; a Dr. and Cr. account of the expense of preparing the animals for market being the criterion of the value and usefulness of the stock brought under the notice of the judges. The advantage of forming a new prize class as suggested would soon be apparent. A farmer of limited means might then show his sheep, pigs, or oxen, with a fair prospect of obtaining favourable notice, his success depending upon his own knowledge and judgment, more than upon a long purse, and doctoring for an appetite. Individual exertion would thus receive a wholesome stimulus, and small land holders would cease to complain of being excluded from exhibiting. Any plan to increase the energy, and develop the skill and economy of the farmer, would prove a great boon to the agricultural interest, on which so much of the welfare of the country depends. To mix up the fat, fatter, and fattest, and request men who undertake the onerous duty of judges, to select from the lot of animals those coming under the denomination of marketable, or fit for the butcher's immediate use, would only embarrass the judges without satisfying exhibitors. But if a distinct class was established, with a thorough understanding relative to condition, age, quality, &c., accompanied with a strict Dr. and Cr. account of the food of every description consumed—for on this latter stipulation hinges the benefit to be derived from the experiment—success would be almost certain. An extra prize class might be introduced at the gathering of the Royal Agricultural Society in 1864 without much expense, with every chance of its becoming a popular movement with the annual subscribers, and ultimately increasing the funds of the institution. *Falcon.*

Societies.

MANCHESTER AND LIVERPOOL: At the annual meeting of this Society last week the report of the committee was read and confirmed. We give an extract:—The late meeting at Birkenhead was fixed upon two years ago, and up to the time of its taking place was looked forward to with much interest. In the minds of some the suitableness of Birkenhead as a place for show meeting was regarded with much doubt, owing to its somewhat isolated and unfavourable situation. But thanks to the zeal and liberality of the inhabitants, and the activity of the local committee, the show proved to be a very great success. A sum amounting to about 1000*l.* was subscribed by the town and neighbourhood, out of which amount 842*l.* 7*s.* was offered as special prizes in addition to those given by the society. This brought into the field a considerable number of new competitors, and raised the number of entries to 3141, irrespective of 23 extra stock entries. By the appendix annexed hereto it will be seen that number comprised 1000 more than had ever been entered before; and it may be further noted as showing the growing state of these exhibitions that whereas about 12 or 13 acres of land was this year required for the purposes of the show as in 1860 and 1861, and the catalogue comprised 175 pages of closely-printed matter, about half an acre sufficed in 1848 and the catalogue was then a mere pamphlet of a few pages, the total number of entries then being 310. In short our statistics now show that the annual exhibition has in every respect gradually prospered until it is now about 10 times greater than it was the first two years after the amalgamation of the two societies. The society's income during the past 12 months from the actual guaranteed source of members' subscriptions has been 570*l.*, which is fully the general average of receipts from annual subscribers. It is clear therefore that nearly three times the amount so received was offered in prizes to members and the public, and it is not too much to say that for several years past the society has paid in prizes, fully twice the amount it has had to depend upon from members' subscriptions. The committee, therefore, feel that they may reasonably ask for much more support from that source. The next year's meeting is appointed for Sept. 8th and 9th at Knutsford. *Warrington Guardian.*

Farmers' Clubs.

BRANCOTE: *Wheel or Swing Ploughs* v. *Steam.*—At a recent meeting of this Farmers' Club Mr. T. B. CHARLTON said: Much as I feel the excellence and the importance of farming in the county of Nottingham, and much as I esteem the spirited character of the farmers, at the same time I do think that the farmers of Notts should not think themselves disgraced if they were put on an equality with the farmers of East Lothian. Nor should the farmers of Nottinghamshire feel themselves disgraced or degraded if they were put on a level with or even second to the arable farmers of that, the best cultivated part of Scotland. I have seen as good ploughing with the swing plough on strong land there—land which very nearly resembles the red marl of the valley of the Trent, as could possibly be. I have seen as good ploughing in Scotland as in any part of the country. Now, in the observation made on what I said last year, it was assumed that the use of the swing plough was a retrograding in the work. All I can say is that it is perfectly amazing to me that if that be the case the practice in East Lothian should be what it is, and not only in East Lothian, but throughout the whole of the south of Scotland, a part of the country where farming is carried on to the highest degree of excellence; it is perfectly amazing to me, and I cannot believe that anything like backwardness in farming is going on there, or that the farmers there would use an instrument that would be going backward. Is is well known, and if there be any gentleman present connected with the manufacture of farming implements he will bear me out in saying, that whenever any new instrument is introduced it comes first into use in Scotland. When the Government grant for drainage was made some years ago the greatest demand for it was in Scotland, and to this day the greatest purchasers of guano we have are the agriculturists of the southern parts of Scotland. And it may be assumed that where there are men of great intelligence, as the Scotch farmers are, who have steam buildings in every part of the country, and who are always ready to use newest inventions before their

neighbours in other parts of the country—this fact, I say, may be assumed as a fair argument for the excellence of their instruments. If the object is to bring out the greatest skill in the man who uses the plough, then I maintain that the man who ploughs equally well with a swing-plough as another man with a wheel-plough is the better ploughman of the two. If that, however, be but a secondary object, then perhaps it may be admitted that the wheel-plough is the better implement. I admit at once that the use of two wheels with a plough simplifies the operation, and makes it easier to do better and smoother work. Take the case of painters, for instance. An artist paints a picture, and he does it without lines or rules of any kind. It arises from his own idea of drawing, and if he happens to make a beautiful picture it is an affair of great value. But if that picture is put into the hands of a man to engrave it, he uses squares and lines and other appliances, and he produces it may be a noble work; but it will not be of the same value as the original. So it is also with sculpture. The statue which the sculptor has chiselled out can be reproduced in plaster of Paris, but the excellences of the artist remain with him who formed the original statue. And I may, I think, fairly argue that the use of the swing-plough as contra-distinguished from the wheel-plough has this effect, that if we obtain excellent work from them it must be due in some degree to the efficiency and skill of the men who perform the work.

Mr. J. C. Nixon said he thought that the time had arrived when the simple fact of being enabled to plough well with a pair of horses, whether with swing ploughs or with wheel ploughs, which latter were now more generally adopted, would soon be a matter of minor consideration; since the progress of education and instruction seemed likely to lead them to use the same agency which had aided in the growth of towns, and which could not fail to be of equal advantage to the country. It would be probable that the use of swing ploughs or wheel ploughs would be a matter of history, for the agency of steam would take the place of the horse, and a great portion of the land would be cultivated by that cheap and rapid process. He knew that he would be met by the argument that their fields are not adapted for steam cultivation; but he begged to draw their attention to the state of facts twenty years back, and begged to ask them whether the factories of Nottingham were then adapted for the present system of manufactures, or whether the proprietors were then capable of producing in such quantity and such quality as they are now? Certainly not. He might ask them if the fleets of ships which carried their merchandise abroad would have been enabled to export the vast quantities they now did, if it had not been for the adaptation of modern science? Their shipowners and their manufacturers had applied this modern agency, and in doing so they benefited the country to an incalculable extent. He was convinced that the same agency if applied to agriculture would be beneficial to the landlords and to the cultivators of the soil, increasing their annual income to the same or a proportionate extent. It might be a matter of very considerable doubt to the minds of some men who had cultivated the land whether these results would arise; but, if they looked at the matter in a practical way, they would be convinced that there were advantages in adopting the new system rather than keeping on with the present limited system.

Farm Memoranda.

Blandsfort, Queen's County.—For months past we have heard very glowing reports of the excellence of the green crops at Blandsfort, the seat of Loftus H. Bland, Esq., Q.C., and on the 6th inst. a very close inspection of Mr. Bland's crops exceeded the expectations which we had formed from information received. The field to which we devoted our chief attention contains about 7 Irish acres. When we last saw it, nearly three years ago, it presented the most sterile aspect, and was a favourite haunt of the snipe and wild duck, and exhibited a serious blot and eyesore amid a fertile and sweetly undulating surface. The field was thoroughly drained in the year '61; properly levelled by spade and plough; got a heavy dressing of lime to manufacture the inert vegetable mass, and stimulate the dormant capabilities of the soil into fruitful action, and was sown with Oats in the spring of '62; got a bold stubble ploughing last autumn, and was put under Turnips, Mangel, and Cabbage last spring. The earthy ingredients of the soil and subsoil have been so intimately mixed by superior tillage, that it is now a rich friable loam of the weightier class, and well adapted for the production of any of our cultivated plants.

The present crop is worth more money than the ground in its original state would have returned in at least 50 years to come; and this only exemplifies what might be effected by drainage and reclamation in almost every local spot in Ireland. Mr. Bland has also drained pretty extensively on the outside of the demesne. When we saw the ground three years ago, it was a wet, sour, swampy tract of land, stamped with an extreme poverty in the production of the most worthless Grasses, sub-aquatic plants, &c., and is now under a crop of the cultivated Grasses, and its value for either tillage or Grass is enhanced fully cent. per cent.; and the hired labour which has been called into requisition in effecting these improvements has been a blessing of no mean magnitude. In the reclaimed field, which is under green crops, Mr. Davidson (the energetic land steward at Blandsfort) has made some interesting and valuable experiments, and which may be of high practical importance upon a large scale.

In the last week in May Mr. Davidson sowed 17 different kinds of Turnip seed—a drill of each kind side by side—the circumstances being the same in every respect. When inspecting these experimental drills (accompanied by two influential farmers) the eye was able to discern such a wide difference in the produce, that we took a lineal perch of each drill directly across, and as near an average as we could select, and got a perch of each pulled, topped, tailed, and weighed; and the following is the result. We also tested the quality as far as could be ascertained by the sappy, sweet, and mellow taste:—

		tn.	cwt.	qr.
No. 1.	Pomeranian White Globe, at the rate of ..	102	4	0
No. 2	Red Globe	61	1	2
No. 3.	Green Globe	59	2	0
No. 4.	Grey Stone, a mellow Turnip	90	0	0
No. 5.	Drummond's Early Field	67	10	0
No. 6.	Dale's Hybrid	64	12	0
No. 7.	Aberdeen Yellow Improved Green Top ..	66	17	0
No. 8.	,, ,, ,, Purple Top ..	55	8	0
No. 9.	Bronze Top Swede, a hard solid Turnip, of a high specific gravity	57	18	0
No. 10.	Laing's Improved Swede, very mellow ..	42	9	0
No. 11.	Leinster Swede, a good sound Turnip ..	46	14	0
No. 12.	Giant Tankard, quality middling	46	14	0
No. 13.	Hardies' Green Top, a hard sapless, fibrous, fingery, unshapely article	36	0	0
No. 14.	Sutton's Champion, middling quality ..	40	0	0
No. 15.	East Lothian, a mellow solid Swede ..	46	14	0
No. 16.	Drummond's Improved Swede, the best type, the best bred, the finest skin, and the sweetest mellowest Turnip	60	0	0
No. 17.	Skirving's Improved Swede, quality middling	54	1	0
No. 18.	Cabbage Drumhead, very good	58	18	0

The general crop on the farm we inspected very closely (Drummond's improved Swede), and weighed a perch of a drill which gave at the rate of 68 tons 17 cwt., but although the perch was not picked, and by no means the best, we are inclined to think that if the whole crop was weighed, it would not yield more than about 60 tons per Irish acre.* The general crop was sown between the 15th and 20th of May.

The manure applied to the experimental drills and general crop per acre was:—

1½ cwt. bone meal, at 12*s.* per cwt.; 1½ ditto superphosphate, 11*s.* 3*d.* per cwt.; 1 ditto Peruvian guano, 14*s.*—1*l.* 17*s.* 3*d.*; 25 tons good farm-yard manure, at 4*s.* per ton, 5*l.*; total cost of manure per acre, 6*l.* 17*s.* 3*d.*

The manures were supplied by P. & J. Gillie, Ballykilcavan, Mills, and the Turnip seed from Drummond & Sons, 58, Dawson Street, Dublin. The difference in the weight of the experimental drills is of such a telling character, and of such practical importance, the circumstances being exactly the same, that no Turnip grower should lose sight of it, but test the virtue of the different kinds of Turnips not only in quantity but also in quality. We found as much difference in the taste and mellowness of the respective lots as there is between a green Apple and a ripe one.

Seeing that the acreable produce may be so very importantly affected by the kind of Turnip cultivated (the seeds being saved from selected bulbs) it is of primary importance to the farmer to make choice of the most productive and nutrimental kinds. In the class of soft Turnips the Grey Stone appears to occupy a prominent position. It is a very robust, free grower, and from the closeness and solidity of its texture we think it probable that the extra produce of the Pomeranian White Globe is more than counterbalanced by the extra nutriment of the Grey Stone. The Bronze Top Swede is of high specific gravity, and a free grower, but is not such a rich mellow Turnip as Drummond's Improved Swede, and Laing's and the Leinster and East Lothian Swedes, but in quantity it stands high in the scale.

The Mangel at Blandsfort is a fine crop, but we had not time to test their acreable weight. The herd of Durham Short-horns and border Leicester sheep at Blandsfort are an acquisition to the county, and they require only to be known to be appreciated. *James Clapperton, Dysart Enos, Nov.* 12, 1863 (*in the Leinster Express*).

* An Irish acre is 7840 square yards, about 1⅗ Imperial.

Reviews.

The Poultry Yard, comprising the Management of Fowls for Use and Exhibition. Edited by E. Watts. Routledge, Warne, & Routledge.

This is a remarkably cheap shillingsworth. The Spanish, Game, Dorking, Brahma Pootra, Poland, Bantam fowls and ducks, are well illustrated in page engravings. There is a great deal of useful and sound information given in the text; enough of practical detail and enough of scientific interest.

Prize Essay on the Rearing of Calves. By Thomas Bowick, Stoneleigh Abbey Farm, Kenilworth. Day, Son, and Hewitt, 22, Dorset Street, Baker Street, London.

This is a cheap tract, well written, on a matter of great practical importance. The essay has appeared in the English Agricultural Society's Journal, having received the Society's prize. It is now issued by Messrs. Day and Hewitt, price twopence, free by post for three postage stamps, and is certain to receive a wide independent circulation in this way. No doubt it is because the essay recommends "Day's Gaseous Fluid" for attacks of diarrhœa in the calf, that Messrs. Day have found it to be their interest to publish an edition of it in this way. But Mr. Bowick's experience, not only in this particular, but in the other details of calf management, is worth knowing; and we doubt not that the readers as well as the publishers will profit by the publication.

Miscellaneous.

Ague, Diphtheria, Drainage, Irrigation.—Ague is not accountable for a single death in Scotland. There are 107 heads in the register, and that for ague is the only one which stands blank. But ague was at one time very common indeed in many parts of Scotland. My father, a Berwickshire man, often told me that in his young days, probably about 1775, ague was so common among the farm labourers of that famous agricultural county, that a prudent farmer always set off on account of it a certain proportion of no-work days for his men in spring and autumn. The same was the state about the same time of the neighbouring county of Roxburgh. To Dr. Mackenzie, of Kelso, I am indebted for information, unique and satisfactory, as to the dates of the prevalence and disappearance of ague in that part of Roxburghshire. There are dispensary records extant there for one of the oldest dispensaries in Scotland, beginning, in fact, with 1777. From a table which has been extracted from these records, showing the agues for every year from 1777 till its disappearance in the dispensary books, it appears that the number of agues rose in 1780 to 161; by which time the total applicants for all diseases was nearly 700. Then it sank gradually to 18 in 715 applicants in the year 1790. And afterwards it went on fluctuating, but still on the whole diminishing, till in 1800 there were only 4 agues in 665 patients, none in 1805, and one in 1806; since which year no case of ague appears on the dispensary books. What then has been the cause of this striking improvement in the public health of Scotland? In what change of circumstances did it take place? We owe it to incidental causes ruled to their end by another power.

Dr. Christison then proceeded to refer to continued fevers, from which, he said, Scotland had been far from attaining the same happy deliverance as from those of the intermittent type. But there were some very remarkable facts in their recent history which pointed to the possibility of such an event, and, at any rate, to the fruitfulness of further inquiry on the subject. With regard to typhus, he quoted from statistics to show that a marked decrease in the number of cases had of late years taken place in Edinburgh. The cause had certainly not yet been found out; but his own strong impression was, that the secret would be found to be connected with the theory which had been much canvassed in the present day—the successive changes of type or constitution of epidemic diseases. He combatted the idea that thorough drainage was the remedy for all fevers. The best drainage left untouched the real foundation of the disease—viz., penury pent up in airless dwellings. But provide work for the unemployed, teach them in return due ventilation and cleanliness, and the epidemic would soon vanish. After noticing several other types of fever, the speaker next alluded to diphtheria, which, he said, appeared to be connected with a sanitary question of strong local interest in Edinburgh.

"This terrible disease is far from common in Edinburgh. I am glad to say I have seen but one instance of it originating in town; and that was many years ago, before it had begun to be much talked of in any part of Britain. No epidemic disease has been by many late writers in England more confidently referred to foul exhalations as its cause, and even its only cause. I shall not take up the question here, however. My own observation gives me little help in forming my opinion. Let me merely say, that, as I in the single case I have seen in Edinburgh, so likewise many of my professional brethren in the course of their observation, have failed to trace diphtheria to any source of foul air. But it is remarkable that it seems to have shown a slight attachment to our irrigated meadows to the east of the city. An intelligent practitioner in Leith, Dr. Paterson, informs me he saw last year five cases at a place on the borders of the district. I scarcely think, however, that, taken along with the negative evidence I have received from others who practise among the natives of these marshes, these cases, which may have had a more local cause still, can be held to convict the irrigated meadows. For I wish to add the information, that I have recently been making careful inquiry respecting this famous and somewhat unsavoury institution. That many years ago my own prejudices were all against the meadows; that I have been compelled to surrender them; that I am satisfied neither typhus, nor enteric fever, nor dysentery, nor cholera, is to be encountered in or around them, whether in epidemic or non-epidemic seasons, more than in any other agricultural district of the neighbourhood. About 25 years ago it was stated that the cavalry soldiers at Piershill Barracks, which are situated very near them, were unusually liable to the zymotic diseases caused or promoted by foul emanations; and also that meat could not be kept in the officers' larder on account of the absorption of foulness, and quickly following decay. Either, however, there was some mistake committed through prepossession, or the meadows are now worked

on a better system. But, at all events, I have the assurance of Mr. Lockwood, surgeon of the Scots Greys, that, during their late occupation of Piershill Barracks for two years the messman of the regiment never observed the meat to be injured, nor did he himself observe among the men anything but remarkable freedom from diseases at large. I think it right, in reference to the late introduction of the Craigentinny system of irrigation into the vicinity of other large towns, that these precise facts should be known." *Dr. Christison, at the Social Science Congress, Edinburgh.*

To Destroy Rats.—1 quart of the best oatmeal; 2 ounces of finely powdered loaf sugar; 6 drops oil of rhodium; 6 drops oil of carraway; 6 drops oil of aniseed; musk, ¼ of a grain. Mix well together on a sheet of clean paper with a knife, taking every possible care to break the small lumps formed by the drops of oil in the oatmeal; also not to touch the mixture with the hands. Keep in a closely covered pot for use. Choose a very quiet, retired place, much frequented by rats; place on six or eight pieces of clean board about two tablespoonful of the feed for at least four nights successively, taking care to remove all that the rats have not consumed every morning; in so doing, disturb the rats as little as possible, and on no account whatever attempt to strike or kill them, even should they be found tame enough to be caught by the hand. In the course of four or five days they will become tame, and will scarcely leave the feed on the approach of any person. They will scent each other, and will probably congregate from all parts of the neighbourhood. Continue to feed them nightly until they are found to eat freely; then, about the sixth night, mix a small teaspoonful of arsenic with the powder; and after leaving it all night, remove what may remain, and burn it. They will retreat to their haunts, where, feeling an intolerable thirst, most of them will drink water and die. Care must be taken not to use too much arsenic, on account of its extreme acidity, or their natural instinct will be sure to deter them from swallowing any part of the poison. *Morton's New Farmer's Almanac.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.
By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
Thursday..	26	Inches. 30.31	52	51	S.W.	2	10	52	47	63	42	..
Friday ..	Nov. 27	30.14	52	51	S.W.	2	10	52	47	63	42	..
Saturday ..	28	29.98	54	52	S.	3	10	56	50	58	48	0.02
Sunday ..	29	29.83	53	51	S.E.	0	10	52	40	58	42	0.06
Monday ..	30	29.84	45	44	S.W.	1	9	50	41	58	35	0.03
Tuesday ..	Dec. 1	29.79	46	43	S.E.	1	2	51	41	59	34	0.34
Wednesday ..	2	29.76	50	49	S.	2	10	51	44	54	40	..
Thursday..	3	30.14	46	45	S.	1	10	50	44	52	31	..

Notices to Correspondents.

BARREN FIELD: *Agricola Secundus.* If not poisoned you should be able to fertilise it by adding vegetable and minera manures, and probably the best plan will be to try Buckwheat and plough it in. If you can get a compost made of lime and any vegetable refuse as a dressing, apply it liberally. We don't suppose the land will be fit for Sainfoin for a year or two!

MANURE: *T L G.* Ammoniacal manures are of great service to Grasses, but not to Sainfoin or Clover. The bones and superphosphates will do them good. For the Narbonne Vetch you must apply to one of our leading seedsmen.

SALT: *G H P.* 4 cwt. per acre will not kill weeds on light land. You must get the weeds up by scarifying, harrowing, gathering, and burning. Earlier in the year you might have done a good deal to it by mere sunshine.

PAXTON GARDEN ENGINE.

IS PORTABLE, EASILY WORKED, NOT LIABLE TO GET OUT OF ORDER; WILL THROW WITH JET 40 FEET, AND WITH "ROSE" WILL COVER 40 FEET ACROSS.

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Rail Carriage Paid.

One Penny per Square Foot.

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CROGGON AND CO., 2, DOWGATE HILL, LONDON, E.C.; and 2, GOREE PIAZZAS, LIVERPOOL.

CATTLE SHOW, AGRICULTURAL HALL, ISLINGTON.—STAND No. 18.

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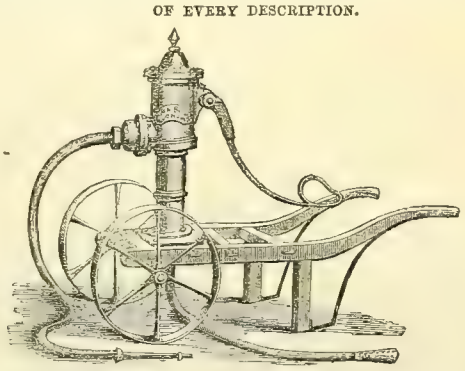
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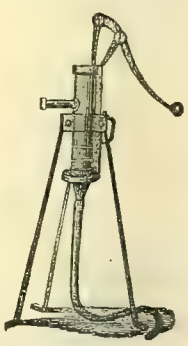
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No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2¼ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

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4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

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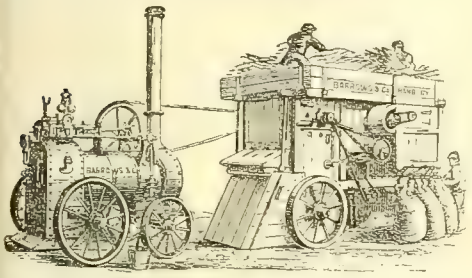
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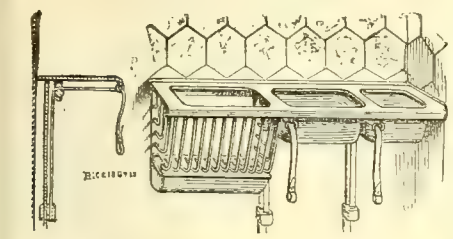
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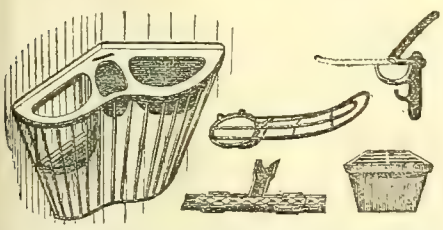
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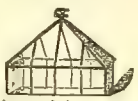
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3 ,, ,, ..	0	4½	13 ,, ,, ..	2	0
4 ,, ,, ..	0	5½	14 ,, ,, ..	2	6
5 ,, ,, ..	0	6½	15 ,, ,, ..	2	0
6 ,, ,, ..	0	8	16 ,, ,, ..	3	6
7 ,, ,, ..	0	10	17 ,, ,, ..	4	0
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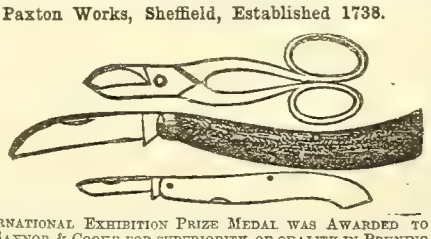
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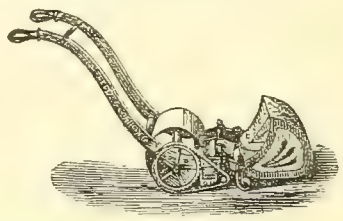
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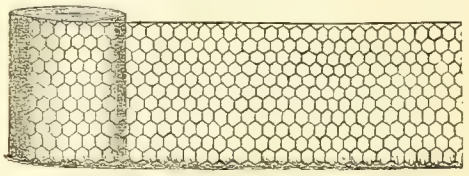


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2½ in.	Hares, Dogs, Poultry ..	*s. d.* 0 3	*s. d.* 0 4	*s. d.* 0 3½	*s. d.* 0 5	*s. d.* 0 4½	*s. d.* 0 6	*s. d.* 0 5½	*s. d.* 0 7
2 in.	Game or Poultry Netting ..	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
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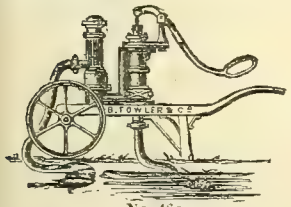
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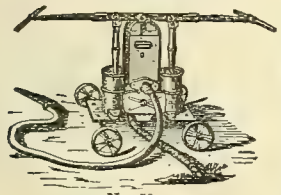
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PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON.



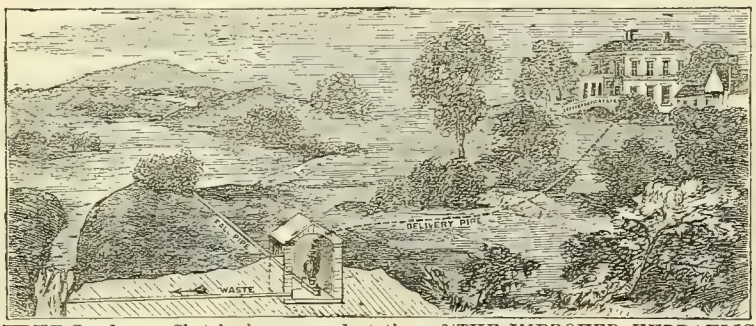
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No. 50.

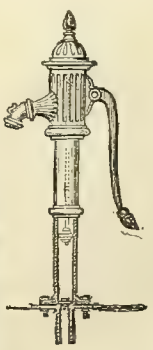


No. 49*a*.

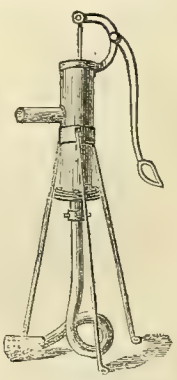


THE Landscape Sketch shows an adaptation of THE IMPROVED HYDRAULIC RAM for forcing water to considerable heights and distances to supply Mansions, Farms, &c., where a few feet fall can be obtained. Full particulars of this useful Self-acting Machine can be had on application.

No. 4. FOWLER'S Useful YARD, GARDEN, and COTTAGE PUMPS, from 1*l.* 5*s.* each.
No. 38. FOWLER'S Portable LIQUID MANURE PUMPS, with flexible suction pipe.
No. 46*a*. FOWLER'S DOUBLE-ACTION PORTABLE FORCE PUMPS and FIRE ENGINES for Water or Liquid Manure.



No. 4.



No. 38.



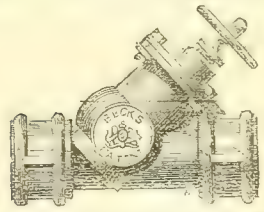
No. 49.

No. 50. FOWLER'S Improved (Holman's Patent) DOUBLE-BARREL FARM FIRE ENGINES and IRRIGATING PUMPS.
No. 49. GARDEN ENGINES of all sizes.

No. 49*a*. Improved SWING WATER CARRIERS, holding 24 and 35 gallons, for Garden Use.
Further Particulars, Estimates, and Illustrated Price Lists on application.

BECK'S

PATENT HOT-WATER VALVES



AT GREATLY REDUCED PRICES, viz.:—

2 In.	3 In.	4 In.
12s. 6d.	16s. 6d.	20s. 0d.

Upwards of 4000 of the Patent Valves are now in use and giving the greatest satisfaction.

JOHN BECK can also supply large quantities of his

IMPROVED THROTTLE VALVES

on the shortest notice.

JOHN BECK,

PATENTEE AND MANUFACTURER

OF EVERY DESCRIPTION OF

GAS, WATER, and STEAM FITTINGS,

FIRE COCKS, WATER CLOSETS, ETC.

PATENT VALVE WORKS

AND SANITARY DEPOT,

GREAT SUFFOLK STREET, LONDON, S.E.

Hothouses for the Million.—AWARDED A PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, 1862.

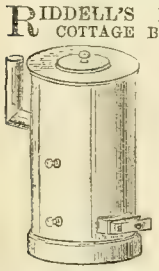


HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner, all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to SAMUEL HEREMAN, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1s.; post free, 1s. 1d.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



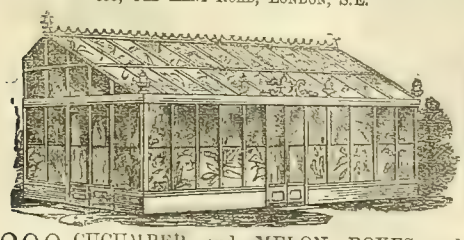
Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3d. per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3l. 10s.

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOTWATER APPARATUS MANUFACTURERS, 353, OLD KENT ROAD, LONDON, S.E.



200 CUCUMBER and MELON BOXES and LIGHTS, and from

400 to 500 LIGHTS for PITS of all SIZES kept in STOCK.

Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the kingdom.

10 dozen strong Zinc HAND GLASSES, Glazed and Painted complete, ready for immediate use, 18, 20, and 22, all shifting tops.

Reference to the Nobility, Gentry, and Trade in most of the Counties in England.

THOMAS MILLINGTON,

GLASS MERCHANT.

ESTABLISHED 1750.

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

The Agricultural Hall, Islington, containing an Acre of Glass, was supplied by T. MILLINGTON.

Mr. Rivers, and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home Use and for Exportation.

☞ *For prices see Advertisement of November 21.*

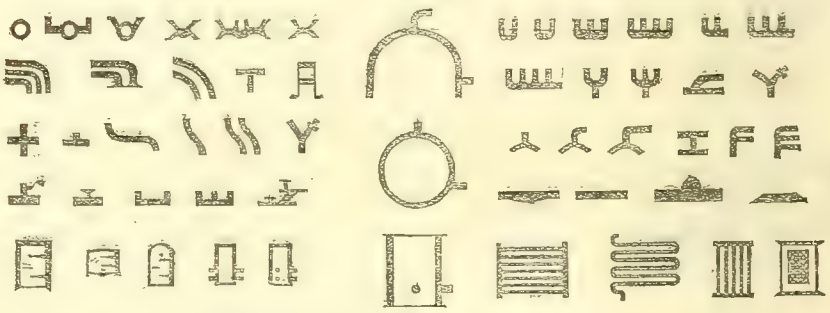
ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

HOT-WATER APPARATUS,

FIXED AND UNFIXED.

PIPES AND CONNECTIONS. A FEW SECTIONS: BOILERS. PIPES AND CONNECTIONS.



Detailed Illustrated Lists on application.

CONSERVATORIES, GREENHOUSES, &c. PATENT STABLE FITTINGS.

EVERY DESCRIPTION OF IRON WORK.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,

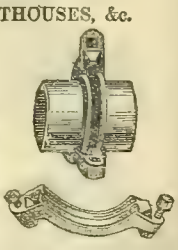
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS





Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

TWO 4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet ...	£8 10 0 ...	£2 0 0	30 feet by 12 feet ...	£11 15 0 ...	£2 10 0
20 feet by 10 feet ...	8 17 6 ...	2 0 0	40 feet by 15 feet ...	15 0 0 ...	2 15 0
25 feet by 12 feet ...	10 5 0 ...	2 5 0	50 feet by 15 feet ...	18 0 0 ...	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

Heating.

HEATING APPARATUS fitted in every description of HOTHOUSES. Estimates given for Building Hothouses, and Laying out Kitchen Gardens and Vineries. Advice given in Planting, &c.

Apply to JOSEPH MEREDITH, Vine Cottage, Garston, near Liverpool.

N.B. References to Noblemen and Gentlemen and their gardeners sent on application.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

For Sale, at E. Dench's Patent Horticultural Works, King's Road, Chelsea.

E. DENCH being about to DISPOSE of his HORTICULTURAL BUSINESS, has on hand a considerable number of VINERIES, GREEN and HOTHOUSES, which he will dispose of at a low price to clear his premises.

The Sizes being from 16 ft. to 36 ft. in length, and from 10 ft. to 15 ft. in width.



The only Stove without a Flue.

JOYCE'S PATENT, for Warming Chapels, Halls, Shops, Conservatories, and all other Places. Price from 12s. 6d. each.

JOYCE'S STOVES are Portable and Economical, and burn 12 hours with one supply of fuel, requiring no attention.

STOVES for GREENHOUSES are made to burn all the Winter. Temperature always the same. Patent Fuel, 2s. 3d. per bushel.

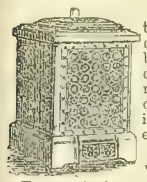
SWAN NASH, Patentee, 253, Oxford Street; and 119, Newgate Street, London, E.C.

Illustrated Catalogues post free.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.



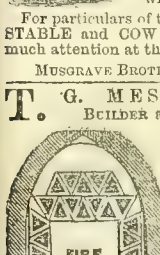
It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3d.; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW HOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

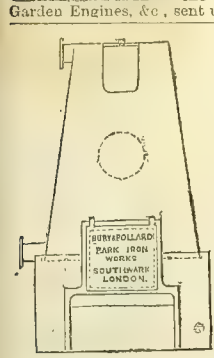
T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.



T. G. M.'s PATENTED BUILDINGS combine all the modern improvements; are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES of the above, Glazing without Putty, Garden Engines, &c., sent upon application.



LATEST IMPROVEMENTS IN
Heating by Hot Water.
THE IMPROVED
CONICAL BOILERS,
FOR HEATING PINERIES, CONSERVATORIES, GREENHOUSES, MANSIONS, HALLS, WAREHOUSES, &C., SOLELY MANUFACTURED BY

BURY AND POLLARD
(Successors to JOHN R. PEILL, Late STEPHENSON & PEILL).

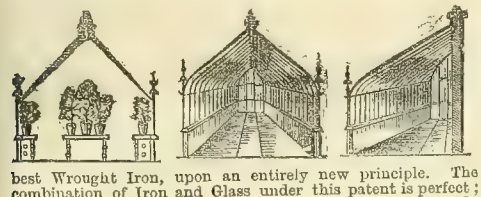
Annexed Sketch shows BURY & POLLARD'S improved arrangement, requiring

NO BRICKWORK SETTING.

These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United Kingdom. References where they have been 20 years in constant use.

Price Lists on application to BURY & POLLARD, Park Iron Works, New Park Street, Southwark, London, S.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.



The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St. Chelmsford, Essex.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2 inch, 1s. 2d.; 3-inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from stock, 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices; and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

GARDEN BORDER-EDGING TILES, in great variety of patterns and material.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability.

May be obtained at F. & G. ROSHER'S Premises, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; and Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER at their Premises as above.

Gutta Percha Tubing for Watering Gardens.

THE GUTTA PERCHA COMPANY have the pleasure to acknowledge the receipt of the following

Testimonial from Mr. J. FARRAH, *Gr. to* BOSWELL MIDDLETON JALLAND, Esq., *of Holderness House, near Hull.*

"I have had 400 feet of your Gutta Percha Tubing, in lengths of 100 feet each, with union joint, in use for the last 12 months for watering these gardens, and I find it to answer better than anything I have ever yet tried. The pressure of the water is very considerable, but this has not the slightest effect on the tubing. I consider this tubing to be a most valuable invention for Gardeners, inasmuch as it enables us to water our gardens in about one-half the time, and with one-half the labour required."

Manufactured by the GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C., and sold by their Wholesale Dealers in town and country.

CHUBB'S PATENT SAFES, the most secure against Fire and Thieves.

CHUBB'S FIRE-PROOF STRONG ROOM DOORS. CHUBB'S PATENT DETECTOR LOCKS and STREET DOOR LATCHES; CHUBB'S CASH and DEED BOXES.

Illustrated Price List gratis and post free.

CHUBB & SON, 57, St. Paul's Churchyard, London, E.C.

DAY, SON, AND HEWITT, Inventors of the "Stock Breeder's Medicine Chest;" containing

DAY'S EXTRACT and GASEOUS FLUID,

which are to the Stock Breeder and Farmer of the most inconceivable value, inasmuch as paining in Ewes in bad lambing, Cows in bad calving, swollen udders, sore teats, and all bad wounds, bruises, and swellings in all Animals, are dissipated and finally annihilated by the "Extract," while the "Gaseous Fluid" for Ewes weakly after bad lambing, Cows after bad calving, Mares after bad foaling, by its balsamic and electrical influence imparts the greatest life and animation. It is proverbial for its marvellous cure of the Fret, Colic, and Gripes in Horses, and for Diarrhœa (or Scour) in Calves, Sheep, and Lambs. Such is the permeation of the "Extract" by rubbing in, and of the "Gaseous Fluid" by dosing, that they draw the acrid humours which cause disease out of the parts affected, and excite the curative powers of nature into action; when life, vigour, and the soundest health ensue. This is the secret of their wonderful popularity. Price of "Extract," 2s. 6d. and 7s. per bottle; or quarter of dozen in wood box, 7s. 6d. "Gaseous Fluid," 1s. 8d. per bottle, or 20s. per dozen in wooden box. Plain directions for use given with every Article.

☞ Caution. Counterfeits are being hawked about at markets, some as "DAY'S," and others as "DAY & CO.'S," to avoid which be sure and ask the person soliciting orders, "Are you travelling for DAY, SON, & HEWITT?"

The "Key to Farriery," free by post for 13 stamps.
SAMPLE MEDICINE CHEST, 16s. 6d. Carriage paid.
Patrons, 70,000.

Address, 22, Dorset Street, Baker Street, London, W., and Wantage, Berks. No other branch in the kingdom.

GIVE YOUR HORSE a TREAT.—Two Penny Packets of THORLEY'S DELICIOUS CONDIMENT daily, mixed with damped Chaff and Corn, will, at three weeks hence, astonish the owner. Packed publicly at 145, Fleet Street, City, E.C. None genuine without the Inventor's signature engraved on each packet, "JOSEPH THORLEY."

Read the Discussion on this Condiment, held in Hanover Square Rooms, and judge for yourselves how its opponents were put *hors de combat*—one an Oil Cake Dealer, the other a Veterinary Surgeon. May be had Free on application.

PARTNER, with not less than £1000.—He must either understand Growth of Pines, Grapes, and Peaches (as these are grown extensively), or the Seed Trade. The Advertiser being owner of the Concern, this is a rare opportunity. Extent of Ground 17 acres; quantity of wall covered with bearing Peaches; 12 Houses.—O., Post Office, Gloucester.

To Landed Proprietors.

WANTED to RENT on LEASE, from FIVE to TEN ACRES of good strong LOAMY LAND, suitable for converting into a NURSERY GARDEN. It must be near a Station (a Junction preferred), on one of the Trunk Lines of Railway, and also near a large town.

Send particulars and terms to NURSERY, *Gardeners' Chronicle* Office, W.C.

To Market Gardeners and Others.

TO BE LET on LEASE, with Immediate Possession, 3½ ACRES of LAND, well stocked with Fruit Trees, good Dwelling House, &c., situated on a main road, within a quarter of a mile of a proposed Railway Station now in the course of construction, and within 15 miles of London.

N.B. More Land can be had if required.

For particulars and to view apply to Mr. J. WILLMER, Auctioneer and Valuer, Sunbury, Middlesex, S.W.

TO BE DISPOSED OF, a SMALL NURSERY in a flourishing Market Town, about 12 miles from London, with good Dwelling House and Seed Shop in the Market Place. The business has been carried on very successfully for some years by the present tenant. A Lease of the whole can be had, with additional Land if required.

Direct to W. T., *Gardeners' Chronicle* Office, W.C.

Oxfordshire.

TO BE LET, from Lady-day next, TWO First-class FARMS, lately in the occupation of J. H. Langston, Esq., M.P., deceased, situate at Churchill and Sarsden, about 3 and 4 miles respectively from the Market Town of Chipping Norton, and within a shorter distance of other Railway Stations.

No. 1. The Farm commonly called "CHURCHILL MOUNT," on which is an excellent and commodious Dwelling House and Offices, with extensive and convenient Farm Buildings, all recently built and fitted up with Machinery worked by steam-power for Thrashing, Grinding, Chaff-cutting, &c., together with 530 acres of Arable and Pasture Land (in nearly equal proportions). The well-known "Sarsden Herd" is, and has been for some years, kept upon this farm.

No. 2. The Farm known as "FAIR GREEN," with other Lands added, near and adjoining Sarsden, comprising a superior and commodious Dwelling House and Offices; the Buildings are unusually good, convenient, and equal to the requirements of the Farm, and well supplied with Water throughout. The Dwelling House and Farm Offices have been recently erected and fitted up with Machinery driven by steam-power for similar purposes as mentioned in No. 1. This Farm contains 744 Acres, of which 574 are Arable and 169 Pasture, and is well adapted to Steam Cultivation. There are several Cottages attached to the Farm.

The Farms have been for some time under Steam Cultivation, and are both in high condition, having been many years kept in hand by the late proprietor. In both cases the Residences and Farms are of a very superior description.

For further Particulars, and for viewing the same, application should be made at the Office of Mr. HENRY ANDREWS, at Sarsden, near Chipping Norton, to whom Sealed Tenders for each farm separately, stating the clear annual rent, are to be sent on or before December 18, 1863, soon after which the persons whose tenders are accepted will have notice thereof. The setter will not consider himself bound to take the highest tenders.—Sarsden, November 28.

Sales by Auction.

Importation of Roses from France.

CONSIGNMENT OF DUTCH BULBS, AND AN ASSORTMENT OF FRUIT TREES, COB NUTS, &C., FROM KENT.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on MONDAY, November 30, at half-past 12 o'Clock precisely, 800 STANDARD ROSES, 1000 Half-Standard Roses, 200 Gladiolus, 200 Hyacinths, 200 Ranunculus, 180 Amaryllis, 200 Anemones, 250 Tulips, 500 Cob Nuts, 500 Shropshire Damsons, 200 Apples, 200 Plums, and other choice Fruit Trees.

On view the Morning of Sale, and Catalogues had.

Handsome Standard and Dwarf Roses, Dutch Bulbs, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on FRIDAY, December 4, at 12 o'Clock, a first-class Collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Crocus, Tulips, Jonquils, Anemones, Iris, &c.; also 300 handsome STANDARD and DWARF ROSES, comprising the best Hybrid Perpetuals, Bourbons, Chinas, &c.; choice assortment of AMERICAN PLANTS, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Consignment from Ghent for Absolute Sale.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on WEDNESDAY, December 9, at 12 o'Clock, about 400 Choice DOUBLE CAMELLIAS and 200 AZALEA INDICA 1 to 3 feet, beautifully set with bloom buds; 500 remarkably fine bulbs of LILIUM LANCIFOLIUM RUBRUM and ALBUM; also about 200 handsome STANDARD and DWARF ROSES; an assortment of Choice AMERICAN PLANTS, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Norwood, Beverley.

PEREMPTORY SALE OF EXTENSIVE NURSERY STOCK.

MR. HENRY WATSON will SELL by AUCTION (under an Assignment for the benefit of Creditors), on WEDNESDAY, December 16, and following days, on the premises in Norwood and Pighill Lane, Beverley, the whole of the extensive and first-class NURSERY and FLORIST'S STOCK of the late Mr. Alexander Laing.

The Stock consists of Ornamental Trees, Evergreens, Flowering Shrubs, Coniferæ, Fruit Trees, Roses, Stove and Greenhouse Plants in very great variety, all in fine condition. It comprises 120,000 Quickwood, 90,000 Larch, 260,000 Spruce, 8000 Scotch Firs, 11,000 Ash, upwards of 9000 Beech, 1000 Elms, 800 Silver Firs, upwards of 3500 Hollies (various), upwards of 800 Laburnums, 1100 Poplars, 6000 Privets, with a large Stock of Sycamore, Horse Chesnuts, Walnuts, Birch, Elms, Hornbeam, Limes, Mountain Ash, &c., from 4 to 15 feet. Upwards of 6500 Standard trained, Dwarf, and Dwarf trained Apples, Pears, Plums, Cherries, Apricots, and Nectarines; 6000 Fruit Tree Stocks, 500 Worked Pears, also Filberts and Nuts, and 3300 Gooseberries, Currants, and Raspberries.

Amongst the Ornamental Trees will be found a fine variety of Weeping Trees in Cotoneasters, Ashes, Elms, Beeches, Scarlet Horse Chesnuts, Oaks, Planes, Thorns, Willows, Limes, &c., &c.

Amongst the Shrubs will be found upwards of 4500 Aucuba Japonicas, 1500 Tree Box, upwards of 2400 Standard, Perpetual, and Dwarf Roses, 2000 Euonymus (variegated and green), 3800 Arbor-Vitæ of various sorts, 4000 Common and Irish Yews, 5000 Laurels (Common and Portugal), 500 Rhododendrons, Ericas, Kalmias, and other American Plants, with a large stock of Deciduous Flowering Shrubs (various).

Amongst the Coniferæ will be found fine specimens of the Wellingtonia gigantea, Thujopsis borealis, and many rare Conifers, from 4 to 5 feet.

In the Greenhouse department there is a variety, consisting of 2000 variegated Scarlet and Show Geraniums, 350 pairs of Carnations, Picotees, and Pinks; 450 Tea and Bourbon Roses in Pots, 800 miscellaneous Greenhouse Plants, such as Camellias, Ericas, Epacris, and other choice species; 600 Indian Azaleas; 1600 Conifers in pots, and a large and extensive collection of Greenhouse Plants.

Also an extensive Stock of AGRICULTURAL, GARDEN, and FLOWER SEEDS.

ORDER OF SALE.

FIRST DAY.—The Hardy Nursery Stock in the Pighill Lane Nursery.

SECOND DAY.—The Hardy Stock and Ornamental Trees in the Home Nursery.

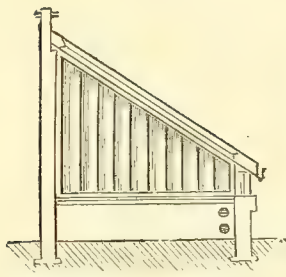
THIRD and FOLLOWING DAYS until the whole is sold. Plants in Pots, Miscellaneous Greenhouse Stock, and Seeds.

The Sale to begin punctually at 11 o'clock each day.

Catalogues will be ready a week before the Sale, and may be had on application to Mr. T. SHEPHERD, Solicitor, Beverley, or to the Auctioneer.—Beverley, Nov. 28.

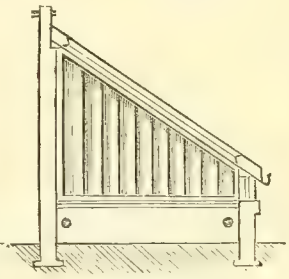
J. JONES'S HOT-WATER APPARATUS.

No. 7.



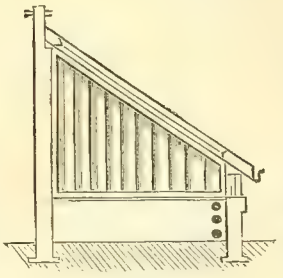
Size of House.	Price
20 by 10 feet	£9 0 0
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40 „ 15 „	15 0 0
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60 „ 15 „	20 0 0
70 „ 15 „	22 0 0
80 „ 15 „	24 0 0
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No. 8.



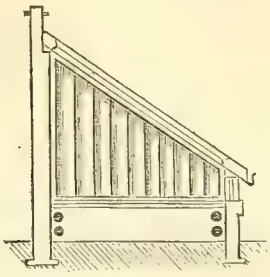
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No. 9.



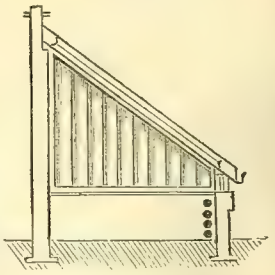
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No. 10.



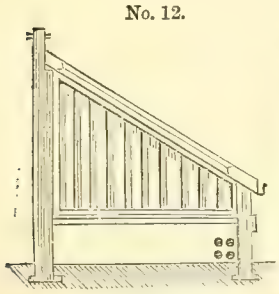
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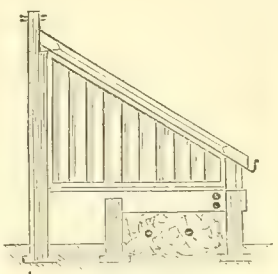
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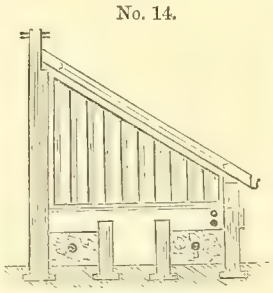
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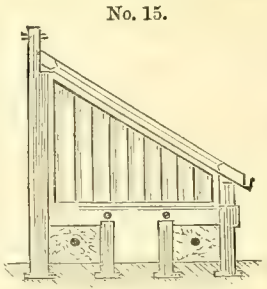
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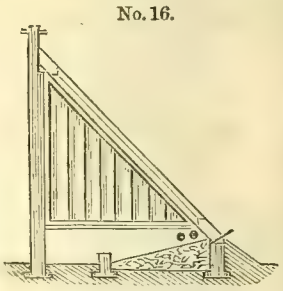
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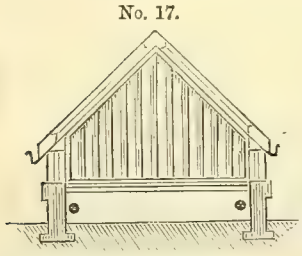
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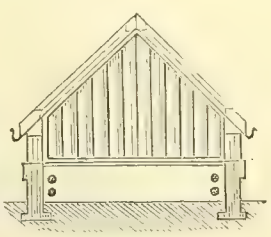
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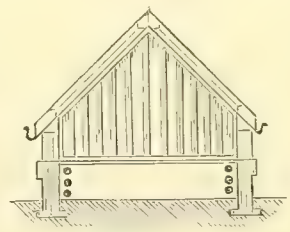
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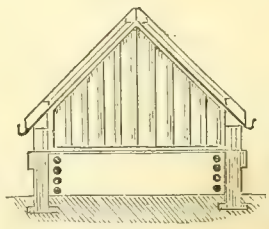
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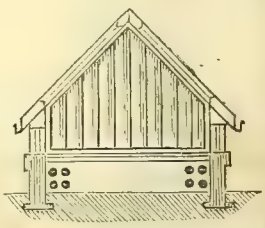
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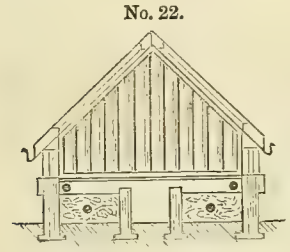
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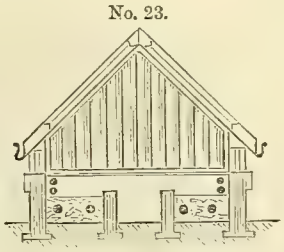
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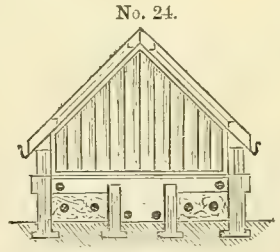
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No. 23.



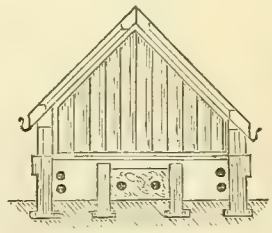
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72 0 0

No. 24.



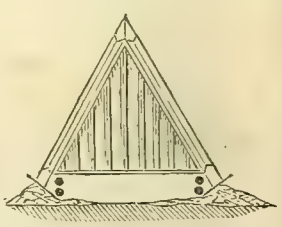
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44 10 0
51 10 0
58 0 0
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No. 25.



Price
£18 10 0
25 0 0
30 0 0
35 0 0
40 0 0
45 0 0
50 0 0
55 0 0

No. 26.



Price
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

J. JONES will be happy to supply HOT-WATER APPARATUS for HOUSES according to any of the above Plans, delivered Free to any Station in England at the prices named, which include strong CAST-IRON CYLINDER or SADDLE BOILER, FURNACE DOORS, FIRE BARS, SOOT DOORS, CISTERN and DAMPER, 4-inch HOT-WATER PIPES and CONNECTIONS, all of the best quality; or he will forward ESTIMATES for WORK erected complete, with WROUGHT or CAST-IRON BOILER of any sort, at a small addition to the above prices.

☞ *The Black Circles on Sections of Houses show the arrangement of Pipes.*

Illustrated Catalogues and further particulars post free on application to

J. JONES, IRON MERCHANT AND HORTICULTURAL ENGINEER, 6, BANKSIDE, LONDON, S.E.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 49.—1863.] SATURDAY, DECEMBER 5. {Price Fivepence. Stamped Edition, 6d.

INDEX.

Apricots and Peaches	1158 b	London Farmers' Club house	1161 b
Astro-meteorology	1168 a	Mangel, value of	1167 c
Bacon, price of	1165 b	Oil-cake feeding	1164 c
Berkeley, Rev. M. J.	1165 b	Oranges, Tangerine	1157 b
Bread from tailing Wheat	1168 a	Orchard houses	1157 b
Brugmansias	1158 a	Orchids, cool treatment of	1158 b
Callirhoe verticillata	1157 c	Peaches and Apricots	1158 b
Caper Plant	1157 c	Pears out of season	1157 c
Chrysanthemums	1156 a	Potatos	1157 c
— at Crystal Palace	1158 b	Potato soup, to make	1168 a
Cotton growing	1157 b	Restoration of fertility	1163 b
Dies Orchidianæ	1156 c	Society, Royal Agricultural of England	1165 b
Exhaustion of vegetable mould	1162 c	— Midland Counties	1165 c
Farm balance sheet	1167 c	— Linnean	1158 c
Fire insurance	1162 b	— Royal	1158 c
Funguses, Badham's	1159 c	— Birmingham	1159 a
Geology, Manual of	1160 a	Strawberry runners	1157 a
Grafting Vines	1155 c	Thermometers	1158 a
Grapes, Muscat	1157 c	Town gardening	1158 a
Hams	1168 a	Trees, Fraser River	1160 a
Improved clay land	1161 c	Vine grafting	1155 c
Labrador	1159 a	Winter, coming	1160 a

☞ NOTICE TO ADVERTISERS.—*An Enlarged Sheet of the* GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE *will be published on Saturday, December* 12, *the week after the* CATTLE SHOW.

ADVERTISEMENTS *intended for this Number should be sent to the Office not later than* THURSDAY.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.

The NEXT MEETING of this COMMITTEE will take place on TUESDAY, December 8, at 12 o'Clock, in the Council Room at South Kensington.

The Subjects for Examination must be sent in for Entry by 11 A.M.

THOMAS MOORE,
Secretary to the Committee.

ROYAL BOTANIC SOCIETY'S GARDENS, REGENT'S PARK.

The Days fixed for the EXHIBITIONS in these Gardens in 1864 are:—SPRING EXHIBITIONS, SATURDAYS, March 19, April 9, and April 30; and for the GENERAL EXHIBITIONS, SATURDAYS, May 21, June 11, and July 2.

ROSES.—CATALOGUES for 1863 and 1864 forwarded free on application.
JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

ROSES.—Superb STANDARDS, 18*s.* per dozen; Ditto ditto DWARFS, 12*s.* per dozen. NEW ROSES of 1863: DWARFS, 36*s.* per dozen.
DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

To the Trade.

ROSES.—A large Quantity of STANDARDS and DWARFS at unprecedented low prices.
A DESCRIPTIVE CATALOGUE sent free upon application to
W. H. DAVIS, Rose Nurseries, Newbury, Berks.

ROSES, Fine STANDARDS, 18*s.* per dozen and upwards; DWARFS, 9*s.* per dozen and upwards. NEW ROSES of 1863: DWARFS, 30*s.* to 36*s.* per dozen.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

New Roses.

PAUL AND SON beg to offer in addition to all the older kinds (see large 'Advertisement' of last week), fine Plants of the best of the NEW ROSES of last spring at reasonable prices.
Old Cheshunt Nurseries, N.

New Rose Catalogue for 1863-64.
New Bulb Catalogue for 1863.
WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.
WM. WOOD AND SON will be happy to send copies of the above gratis and post free to all applicants.

E. P. DIXON AND SONS' CATALOGUES of ROSES and FRUIT TREES are now ready, and may be had free on application.
57, Queen Street, Hull.

FOR ONE GUINEA, 12 Superb STANDARD ROSES; 12 ditto DWARF ditto. In 24 distinct sorts.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Roses.

H. LANE AND SON, The Nurseries, Berkhampstead, will send their CATALOGUES free on application.
No. 1. ROSE CATALOGUE.
No. 2. TREE and SHRUB CATALOGUE.
No. 3. FRUIT CATALOGUE.
No. 4. AZALEA INDICA CATALOGUE.

JAMES CRAWFORD begs to announce that he has still got a few Thousands of ROSES to part with in 60-Pots, all of first-rate quality, at the very low price of 3*s.* 6*d.* per dozen; in collections of from 12 to 60 sorts, the selection being left to himself.
High Beech Nursery.

ROSES, VINES, and INDIAN AZALEAS, in pots. —A select collection of each at low prices. Also a fine Collection of DUTCH BULBS in first-rate condition.
JAMES CRAWFORD, High Beech, Essex.

Grape Vines.

PAUL AND SON beg to offer fine well-ripened Canes of all the best Sorts for Planting, 5*s.* each.
"Old" Cheshunt Nurseries, N.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Grape Vines.

WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery.
PRICED LIST on application.
PAUL'S Nurseries and Seed Warehouse, Waltham Cross, N.

Grape Vines from Eyes.

H. LANE AND SON have great pleasure in offering fine plants of all the popular sorts, new and old, with well ripened Canes.
The Nurseries, Berkhampstead.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.
Highgate Nurseries, London, N.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10*s.* 6*d.* each.
LIST of SORTS sent on application.
Wellington Nursery, St. John's Wood, London, N.W.

Strong Standard Apples.

CHARLES BURGESS, The Nurseries, London Road, Cheltenham, begs to offer the above of the best varieties. Prices by the dozen, hundred, or thousand on application. A remittance or reference from unknown correspondents.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form they can be desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Best Seeds, Carriage Free.

RICHARD SMITH,
SEED MERCHANT and NURSERYMAN,

DUTCH CROCUS, 12*s.* 6*d.* per 1000.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

POMPON HYACINTHS, 3*s.*, 4*s.*, and 5*s.* per dozen. These are valuable for growing in Masses.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

Hyacinths, Tulips, Crocuses, &c.

BUTLER AND McCULLOCH'S importation of DUTCH BULBS are unusually fine this season.
CATALOGUES Post free upon application.
BUTLER & McCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

NEW FUCHSIAS (post free). NORTHERN LIGHT and RIFLEMAN, now sending out; Blue and Mauve-coloured Corollas. 5*s.* each.
EMPEROR of THE FUCHSIAS, the most beautiful and elegant white corolla'd variety.
E. G. HENDERSON & SON, Wellington Road, London, N.W.

VICTORIA RHUBARB.—A quantity of fine strong Roots at 15*s.* per 100. Apply to
DICKSONS & Co., Waterloo Place, Edinburgh.

CARTER'S CHAMPION BROCCOLI, the best Late White Broccoli in cultivation, 1*s.* per packet.
JAMES CARTER & Co., 238, High Holborn, W.C.

WANTED, SEA-KAIL.—Send Sample and Price of above to
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

Fine Forcing Sea Kale.

GEORGE CLARKE has a very large quantity of very stout clean Roots again for Sale this year. Prices on application.
Nursery, Streatham Place, Brixton Hill, near London, S.

PEAS.—DANIEL O'ROURKE, EARLY PRIZE-TAKER, WOODFORD'S MARROW, CHAMPION of ENGLAND.
For Samples and Prices apply to C. SHARPE & Co., Seed Merchants, Sleaford.

FOR SALE, 10 TONS of the Earliest kind of ASH-LEAF KIDNEY POTATOS.
Apply to Mr. ROBERT SHARPE, Bristol Arms Hotel, Sleaford.

Potatos.—Cattle Show, Stand No. 69.

HIND'S RED REGENT POTATOS.
300 or 400 Tons on Sale.
Seed of the above can be had now, or at seed time, of Mr. WM. HIND, Farmer, Erith, Kent.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS,
SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

Yorkshire Seed Establishment.

EDMUND PHILIP DIXON AND SONS,
SEED MERCHANTS and NURSERYMEN,
57, Queen Street, Hull.

Nursery Lists, Wholesale and Retail.

RICHARD SMITH,
NURSERYMAN and SEED MERCHANT,
St. John's, Worcester.

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Best Seeds, Carriage Free.

BUTLER AND McCULLOCH,
SEED MERCHANTS.
WANTED to PURCHASE, a few Tons of DANDELION Roots.
Covent Garden Market, London, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON,
NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

THE LONDON SEED COMPANY, LIMITED.
REGISTERED OFFICES:
68, Welbeck Street, Cavendish Square, London, W.

MAURICE YOUNG'S CATALOGUE of NEW HARDY PLANTS, CONIFERS, and general NURSERY STOCK is now ready, and may be had on application.
Milford Nurseries, near Godalming.

RAYNBIRD, CALDECOTT, AND BAWTREE
SEED FARMERS and MERCHANTS.
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

THE LONDON SEED COMPANY, LIMITED,
with which is AMALGAMATED the
PLYMOUTH SEED COMPANY LIMITED.
Offices: 68, Welbeck Street, Cavendish Square, London, W.

Choice Camellia Blooms.

LUCOMBE, PINCE AND CO. have now a large quantity of extra-fine CAMELLIA BLOOMS for disposal, which can be securely packed and sent to any distance with safety. Price on application.
Exeter Nursery, Exeter.

Imported Double Tuberoses.

JAMES VEITCH has much pleasure in announcing the arrival of a Consignment of fine strong Flowering Bulbs of the above, in splendid condition, which are now ready for sending out.
Royal Exotic Nursery, King's Road, Chelsea, S.W.

Agricultural, Garden and Flower Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E.
SPECIAL LISTS of SEEDS (crop 1863) gratis on application.
Prices the lowest consistent with first-class quality.

Royal Nursery, Great Yarmouth.

YOUELL AND CO.'S New CATALOGUE of GREENHOUSE PLANTS, Rare and Hardy CONIFERÆ, SHRUBS, GLADIOLI, &c., is ready, and will be forwarded on application.

FEATHER GRASS WANTED.
Samples and price per pound to be sent to
HOOPER & Co., Covent Garden Market, London, W.C.

LAPAGERIA ROSEA.—Six of the BEST NEWLY-GATHERED SEEDS of this magnificent Climber, Post-free, for Half-a-Crown.
JAMES DICKSON & SONS, 102, Eastgate Street, Chester.

To Seaside Planters and Others.

PINUS LARICIO, or True CORSICAN PINE.
PINUS AUSTRIACA | PINUS MARITIMA.
The above in large quantities, Seedlings and Transplanted.
R. MORRISON, The Nurseries, Elgin, N.B.

SPRUCE FIRS for CHRISTMAS TREES, symmetrical and very handsome, price 50*s.* to 75*s.* per 100; or from 6*d.* to 2*s.* 6*d.* each, according to size and quality.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Handsome well-shaped Spruce Firs for Christmas Trees.
WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.
WM. WOOD AND SON have a large Stock of the above. Prices and all particulars furnished on application, addressed as above.

COMMON and PORTUGAL LAUREL, fine bushy well-rooted plants. Price on application
R. MORRISON, Nurseryman, Elgin, N.B.

OAKS.—About 70,000 of very superior OAKS, in most vigorous health, ranging from 2 to 6 feet.
For price apply to JNO. THOMPSON & SON, 18, French Gate, Doncaster.

100,000 QUICKS for SALE, Two-years Transplanted, extra strong. Price per 1000 on applying to
S. EVANS, Nurseryman, &c., Chichester.

Peach Trees for Forcing.

MESSRS. THOS. RIVERS AND SON beg to offer very fine PEACH TREES in pots for forcing; they are from three to four years old, and full of blossom buds. The varieties cultivated are Noblesse, Royal George, Grosse Mignonne, Early York, Early Grosse Mignonne, and others.

Largest sized trees, 7*s.* 6*d.* each; fine trees, 5*s.* each; carriage paid to London.

Nurseries, Sawbridgeworth.

EXTRA STRONG FRUITING VINES, from Eyes, with stout well ripened Rods, for immediate Fruiting in Pots, from 7*s.* 6*d* each; for Planting Out, from 3*s.* 6*d.* each. DESCRIPTIVE LIST upon application.

"We can especially recommend the above, our Strong Vines having for some years given unqualified satisfaction." *Vide* leading article in *Gardeners' Chronicle*, Dec. 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries; and 102, Eastgate Street, Chester.

GRAPE VINES.—Strong well ripened Canes of the following, at 3*s.* 6*d.* to 5*s.* each:—Black Hamburgh, Grizzly Frontignan, Black Prince, Chasselas Musqué, Black St. Peter's, Black Frontignan, Cannon Hall Muscat, Précoce Malingre, White Frontignan, White Sweetwater, Muscat of Alexandria, Tokay, Golden Hamburgh, Syrian Muscat Hamburgh, Mill Hill Hamburgh, Lady Downes, Black Cluster, Esperion, Muscat Troveron, Royal Muscadine, Trentham Black, Blanc de Kentsheim, Black July, Ingram's Prolific, Buckland Sweetwater, Cavoush.

JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

Grape Vines, Late.

J. MEREDITH has some Strong VINES of the true variety of BLACK ALICANTE (which he has never occasion to set artificially) in 13 and 8-inch pots.

J. M. obtained a Prize at the Great International Show in October last, at South Kensington, for the above excellent late Grape. Splendid bunches of this valuable Grape may be seen at his Vineyard.

J. M. has also to offer some extra strong LADY DOWNES in 13 and 18-inch pots.

Prices on application to J. MEREDITH, The Vineyard, Garston, near Liverpool.

Vines.

JAMES CARTER AND CO. beg leave to call attention to their splendid collection of the above, consisting of several thousand CANES of the most approved varieties in cultivation. Extra strong, short-jointed, well-ripened Canes for fruiting in Pots next year; fine strong, well-ripened Canes for planting in Vineries, and strong hardy Canes for open walls.

For prices and full descriptive list of more than 40 finest selected varieties most suitable for above purposes, see AUTUMN SUPPLEMENT to their VADE MECUM, forwarded post free on application.

Seed Merchants and Nurserymen, 237 and 238, High Holborn, London, W.C.

Very Strong Standard and Pyramid Pears and Plums.

JAMES GARAWAY AND CO., Durdham Down Nurseries, Bristol, offer the above, of the best varieties, 24*s.* to 30*s.* per dozen.

AUTUMN CATALOGUE and FOREST TREE LIST free by post.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

RASPBERRIES.—Trade Price: Cornwell's Seedling 14*s.*; Carter's Prolific, 12*s.*; Fillbasket, 10*s.*; Red Prolific, Autumn-Fruited and Yellow Antwerp, 8*s.* per 100. GOOSEBERRIES: Crown Bob, Warrington, Whitesmith and Balloon, bearing plants, 16*s.* per 100. ASPARAGUS, 1-year 10*s.*, 2-year 15*s.* per 1000. Large LAURUSTINUS, &c.

GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts, N.

New Melon, Scarlet Perfection.

DOWNIE, LAIRD, AND LAING are now prepared to supply all orders for the above unrivalled SCARLET FLESH MELON, which was awarded a First-class Certificate by the Fruit Committee of the Royal Horticultural Society October 8, 1863. Price 2*s.* 6*d.* per packet, Post-free.

Alexandra Nursery and Seed Establishment, Stanstead Park, Forest Hill, London, S.E.; and Edinburgh.

W. VIRGO AND SON have a very large Stock of the following to offer for Sale at very moderate prices:—

Apples, espalier	Hazel, 1 year seedling
Beech (Common), 3, 4, to 6 ft.	Laburnum, 6 to 8 ft.
Berberis aquifolia, 12 to 18 in.	Laurel, Common, 2 to 3 ft.
Ditto dulcis, 1, 2, to 3 ft.	Ditto, Portugal, 1 to 2 ft.
Briar (Sweet), 2 to 3 ft.	Mountain Ash, 6 to 9 ft.
Cherries, espalier	Oak, Turkey, 3 to 4 ft.
Ditto, standard	Poplars of various kinds, 4 to 6 ft.
Cotoneaster microphylla, 9 to 12 in.	Privet, 2 to 3 ft.
Holly, Green, 9 to 12 in.	Sycamore, 3, 4, 5, to 6 ft.

All the above are strong, healthy, and well rooted.

Samples with prices can be had on application at the Nursery, Wonersh, near Guildford, Surrey.

Fruit Trees.

JOHN CRANSTON offers superior, healthy grown plants of all the best varieties of FRUIT TREES, DESCRIPTIVE CATALOGUES of which will be forwarded on application.

	Each.—*s. d.*
APPLES.—Very fine Dwarf-trained	2 6
,, Pyramids	2 6
,, Standards	2*s.* to 2 6
APRICOTS.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
CHERRIES.—Dwarf-trained	3*s.* 6*d.* to 4 6
,, Pyramids	2*s.* 6*d.* to 3 6
GRAPE VINES.—Standards	2 6
,, Very fine and well-ripened	3*s.* 6*d.* to 5 0
NECTARINES.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
PEACHES.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
PEARS.—Dwarf-trained	3 6
,, Pyramids	2*s.* 6*d.* to 3 6
,, Standards	2 6
PLUMS.—Dwarf-trained	3*s.* 6*d.* to 4 6
,, Standards	2 6
WALNUTS.—Standards	2 6
,, Extra strong	3*s.* 6*d.* to 5 0

GOOSEBERRIES, CURRANTS, FIGS, RASPBERRIES, STRAWBERRIES, &c.

PEACHES, NECTARINES, and APRICOTS, established in Pots for Orchard House Culture, 5*s.* each.

ASPARAGUS, two years	2*s.* 6*d.* per 100
SEA KALE, ,,	8*s.* per 100

Nurseries, King's Acre, near Hereford.

MESSRS. BROWN AND CO. offer the following Selection of CHOICE PLANTS, which they will forward to any part of the kingdom:—

	s.	*d.*
25 AZALEAS, new hardy Belgian varieties, one of a sort, on their own roots, by name	20	0
25 AZALEAS, hardy American varieties, do. do	15	0
12 Hardy RHODODENDRONS, one of a sort, including Scarlet, White, and Rose colour	12	0
Hardy HEATHS, LEDUMS, and KALMIAS, per doz.	6	0
ROSES, best sorts, Standards and Half Standards, per dozen, 12*s.* to	15	0
CLIMBING ROSES, of best sorts, per dozen	6	0
PILLAR and TRELLIS ROSES ,,	9	0
DWARF ROSES for beds or forcing, including Bourbons, Teas, and Perpetuals, per dozen	12	0
Choice Hardy PINUS and other CONIFERÆ. Cheap. Price List by post.		
Greenhouse AZALEAS, fine varieties, per dozen, 10*s.* to	15	0
CAMELLIAS, best double varieties, per dozen	28	0

CHOICE FRUIT TREES.

Fine Standard and Dwarf-trained Peaches, Nectarines, Apricots, Cherries, Apples, Plums, and Pears, 2*s.* 6*d.* each, or 24*s.* per dozen.

Dwarf Plants of all the above kinds, grown especially for pot culture in Orchard Houses, &c., 18*s.* per dozen.

Filberts, Gooseberries, Currants, and Raspberries, p. doz., 3*s.*

American Nurseries, near Farnham, Surrey.—Dec. 5.

JEAN VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer the following New and interesting plants:—

AZALEA INDICA SECRETAIRE CLAUS, 7*s.*
,, ,, VICOMTE DE FORCEVILLE, 10*s.*
,, ,, PRESIDENT HUMANN, 12*s.*
CAMELLIA VICOMTE DE NIEUPORT, 12*s.*
,, LEOPOLD I. (with flower buds), 8*s.*
,, QUERCIFOLIA, 10*s.*
RHODODENDRON JEAN VERSCHAFFELT (extra strong plants), 10*s.*
RHODODENDRON SOUVENIR DE JEAN BYLS (with 5 to 7 and 8 flower buds), 16*s.*
RHODODENDRON NOTAIRE BEAUCARNE, 8*s.*
DRACÆNA STRICTA (grandis) 15*s.*
,, TERMINALIS LATIFOLIA PENDULA (1 foot high plants), 16*s.*
DRACÆNA TERMINALIS VERSICOLOR (extra fine), 1*l.* 12*s.* per dozen.
AGAVE CHLORACANTHA, 4*s.*
,, FILIFERA (3 years' imported plants), 10*s.*
,, SCHIEDIGERA, 8*s.*
YUCCA FILAMENTOSA (true), 1*l.* 5*s.* per dozen.
,, ALOEFOLIA VARIEGATA (fine strong plants), 1*l.* 4*s.* per pair.

A quantity of very strong LILIUM LANCIFOLIUM RUBRUM and ALBUM, LILIUM EXCELSUM (TESTACEUM) at very moderate prices. STANDARD ROSES in great variety, &c.

All applications to be directed to JEAN VERSCHAFFELT, Nurseryman, 43, Rue de la Caverne, Ghent, Belgium.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.* 4 cwt.; ditto Clarified fine or sharp, 2*s.* 6*d.* cwt., put on the Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

N B. Loaded Trucks can be sent on all the principal Railways.

W. SHORT, Reigate, Surrey.

To the Seed Trade.

W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, begs to announce that the Stock of the following beautiful and distinct NEW ANNUALS—

RHODANTHE ATROSANGUINEA,
RHODANTHE MACULATA ALBA,
HELIPTERUM SANFORDII,

for which Silver Banksian Medal and First-class Certificates have been awarded him, is now ready for distribution.

Prices may be had on application either to his London Agents, Messrs. HENDERSON & Co., Pine Apple Place, Edgware Road, W., or to himself.

EDWARD J. EVANS AND CO., of York, Pennsylvania, U.S., have issued a DESCRIPTIVE CATALOGUE of NEW AMERICAN NATIVE APPLES, to which they invite special attention. Their collection embraces a large variety obtained from various sections of the country, all of which have considerable local reputation in localities from which received, and are worthy of more extended trial.

For CATALOGUES apply as above, or to Mr. C. RAOUX, New York.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Woking Nursery, Surrey.

Handsome Specimen Trees.

CEDRUS DEODARA, 8 to 9 feet high, 5 feet in diameter, 25*s.* to 31*s.* 6*d.* each.

Ditto, 10 to 12 feet high, 7 feet in diameter, 42*s.* each.

Splendid trees, and all recently removed.

WELLINGTONIA GIGANTEA, 4 to 5 feet high, 4 feet in diameter, 63*s.* each.

Ditto, 6 to 7 feet high, 5 to 6 feet in diameter, 105*s.* each.

These trees have all been prepared early this autumn, and will remove safely, with fine fibrous rooted balls of earth.

Apply to GEO. JACKMAN & SON, Woking Nursery, Surrey.

CHARLES JAMES DYER, for 20 years with Messrs. VEITCH & SON, of the Royal Exotic Nurseries, Exeter and Chelsea, begs to announce that he has taken the Grounds and purchased the extensive NURSERY STOCK in Trade from the Executors of the late Mr. J. YOUNG, so successfully carried on by him for over 40 years; and also begs to add that he has a choice and well selected stock of the following to offer to the Trade, viz.:—

1000 CEDRUS LIBANI, 3 to 8 feet.
1000 TAXODIUM SEMPERVIRENS, 4 to 10 feet.
7000 ARBUTUS UNEDO, 1½ to 3½ feet.
3000 LAURUSTINUS, 1 to 4 feet.
3000 WHITE BROOM.
1000 DEUTZIA GRACILIS, fine for Forcing.
50,000 FINE TRANSPLANTED THORNS.

WANTED to PURCHASE:—5000 CIDER APPLE TREES, and 200 SCARLET RHODODENDRONS.

Lowest price, with Samples, for Cash, will meet with an immediate reply.

C. J. DYER, Exotic Nursery, North Town, Taunton.

THE SEMPER FIDELIS RASPBERRY.

MESSRS. JAMES SCLATER & CO.,

DEVON NURSERIES, near EXETER,

As the largest Fruit Growers in the West, can with every confidence recommend this most productive and superior Fruit. The canes from 10 to 12 feet in height, and the fruit proportionately large, of fine flavour, pleasing red colour, and very solid. The canes are of that strength and the wood of that peculiar hardness that they require no support. The most certain cropper, producing fruit in corymbs from 18 inches to 2 feet in length, from the bottom of cane to the top, fruiting in clusters from every eye, producing fruit from July to October. They have been seen by numerous first-class Horticulturists, whose testimonials can be had on application.

All Orders supplied in strict rotation at 100*s.* per 100 Canes, or 18*s.* per dozen.

Carriage paid to London, Bristol, or Plymouth.

MESSRS. HURST AND SON, SEED MERCHANTS, 6, LEADENHALL STREET,
SOLE LONDON AGENTS.

NEW HARDY LATE FLOWERING RHODODENDRONS.

PRINCE OF WALES.

Brilliant rose shaded with purple, divided black marking on the upper petals, compact truss, good substance, a profuse bloomer, very hardy, and flowers end of June.

Strong young plants, 21*s.* each. | A few larger ones, 42*s.* each.

PRINCESS OF WALES.

Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, compact truss and good substance. TOTALLY DISTINCT FROM ANY KNOWN RHODODENDRON. Hardy and late. A really beautiful variety.

Strong plants, 21*s.* each. | Larger, 42*s.* each. | A few extra size, 63*s.* each.

One Plant over in three to the Trade.

MAURICE YOUNG has much pleasure in now offering for the first time the above distinct and beautiful RHODODENDRONS, which he can confidently recommend as most desirable additions to this noble class of hardy evergreens. They have both been proved for several years in the open ground to be very hardy, free bloomers, compact truss, and very late—possessing every qualification which can be desired in a first-class Rhododendron.

COLOURED PLATES by ANDREWS are now ready, and will be forwarded on receipt of 25 postage stamps.

MAURICE YOUNG (SON and SUCCESSOR to the late WILLIAM YOUNG), MILFORD NURSERIES, NEAR GODALMING.

TO NOBLEMEN, GENTLEMEN, AND OTHERS

ENGAGED IN PLANTING.

JOHN WATERER

Respectfully invites the attention of Gentlemen engaged in Planting to the under-named SELECTIONS of PLANTS, which he has no hesitation in saying are not to be surpassed by any Establishment in the Trade. They are all handsome, symmetrical Plants; have never been injured by pot-culture, and from frequency of removal are in an excellent state for transplanting without any risk of failure. J. WATERER being in possession of such an immense Stock is determined to treat on the most liberal terms, and is fully convinced that Purchasers, by paying a visit and selecting their own specimens, would find themselves amply repaid by the journey, which is easily accomplished by the South-Western Railway (Reading Branch) to Sunningdale Station, which is near the Nursery.

RHODODENDRONS, STANDARDS, of all the leading choice Scarlet, Crimson, Rose, and other varieties, handsomely grown, straight stems, 3 to 4 and 5 feet, consisting of such kinds as Concessum, Congestum roseum, Lady Eleanor Catheart, Blandyanum, John Waterer, Alfrida, Lefevreanum, and such others as are annually displayed by us at the Exhibition of Rhododendrons in the Royal Botanic Gardens, Regent's Park. Price 31*s.* 6*d.* to 63*s.* and 105*s.* each.

RHODODENDRONS, HALF STANDARD, of the most approved kinds, 2 to 3½ feet in stems, and symmetrical heads, 21*s.* to 42*s.* each.

RHODODENDRONS.—Hardy Scarlet, Crimson, Rose, White, and other choice kinds for superior clumps or borders, fine well grown plants, 1½ to 2 and 3 feet, 42*s.* per dozen, or 12*l.* 10*s.* to 15*l.* per 100. Large bushy plants, 3 to 4 and 5 feet, at a corresponding increase in price.

RHODODENDRONS.—Immense quantities of fine Seedling varieties, in large bushy plants, 1½ to 2 or 3 feet, 30*s.* to 42*s.* per dozen. These varieties would be found very serviceable if introduced into clumps of the more choice kinds. They are of all colours, from bright rose to pink and white, and carry handsome hardy foliage.

RHODODENDRONS, Dwarf-growing kinds.—We cultivate about eight varieties, some of which are delightfully scented in their foliage and flowers. From their close-growing habits they make very excellent clumps for the decoration of winter beds, or as edging to masses of the stronger growing kinds. Strong plants, 1 to 1½ foot, 15*s.* per dozen, or 4*l.* 10*s.* per 100.

RHODODENDRON CATAWBIENSE and HYBRID CATAWBIENSE, 9 to 12 to 15 inches. Good bushy plants, 21*s.* per 100, or 8*l.* 8*s.* per 1000. These are recommended to plant with Ponticum. Many very fine varieties would be flowered amongst them. Their colours are of various shades, from lilac to rose and white, and carry excellent foliage.

RHODODENDRON PONTICUM.—A large quantity, 1 to 1½ foot, 25*s.* to 30*s.* per 100; 1½ to 2 feet, 42*s.* to 63*s.* per 100. This kind is recommended to the attention of planters of game covers, as it will thrive in any soil or situation, and is never injured in the most severe weather by hares or rabbits.

HARDY AZALEAS, for extensive planting, 50*s.* to 75*s.* per 100. Colours: Scarlet, Orange, Pink, Yellow, &c.

HARDY AZALEAS, of the most superior Belgian and other varieties, 24*s.* per dozen, or 7*l.* 10*s.* per 100.

KALMIA LATIFOLIA.—Fine bushy plants, 1½ to 2 feet, 7*l.* 10*s.* per 100.

ANDROMEDA FLORIBUNDA, fine bushy plants:—
1 to 1½ foot, 24*s.* per dozen
1½ to 2 feet, 42*s.* to 63*s.* per dozen

Collection of HARDY HEATHS, in good plants, 30*s.* per 100.

PINUS NORDMANNIANA.—Of this justly admired Fir we hold by far the largest stock of really handsome Seedling plants to be found in the Trade, and can offer them strong and well shaped, as follows:—
1 foot, 7*s.* 6*d.* each, 72*s.* per dozen
1 to 1½ foot, 10*s.* 6*d.* each, 5*l.* 5*s.* per dozen
1½ to 2 feet, 21*s.* to 31*s.* 6*d.* each
2 to 3 feet, 42*s.* each
3 to 4 feet, 63*s.* to 84*s.* each
4 to 5 feet, 105*s.* each
The three last mentioned sizes are magnificent plants.

PINUS NOBILIS, all Seedlings—
1-year's Seedlings, strong, 12*s.* per dozen, or 84*s.* per 100
About 1 foot, 10*s.* 6*d.* each, 84*s.* per dozen
1 to 1½ foot, 21*s.* each
2 to 3 feet, very fine, 42*s.* to 63*s.* each

PINUS LASIOCARPA, Seedlings—
1 to 1½ foot, 10*s.* 6*d.* each
1½ to 2 feet, 21*s.* to 31*s.* 6*d.* each
2 to 3 and 4 feet, 42*s.* to 105*s.* each

PINUS AMABILIS, Seedlings—
1 foot, 7*s.* 6*d.* each; 70*s.* per dozen
1 to 1½ feet, 10*s.* 6*d.* to 21*s.* each

PINUS GRANDIS (true of Douglas)—
1 foot, 7*s.* 6*d.* each
1½ to 2 feet, 10*s.* 6*d.* to 31*s.* 6*d.* each

PINUS DOUGLASII—
1½ to 2 feet, 24*s.* per dozen, 7*l.* 10*s.* per 100
2 to 3 feet, 30*s.* per dozen, 10*l.* per 100
3 to 4 feet, 36*s.* per dozen, 12*l.* 10*s.* per 100
Larger, 4 to 5, 6, and 8 feet

PINUS PINSAPO—
1½ feet, 42*s.* per dozen
1½ to 2 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each
2 to 3 and 4 to 5 feet, 21*s.* to 63*s.* each.

PINUS INSIGNIS—
2 to 3 feet, 10*l.* per 100
3 to 4 feet, 3*s.* 6*d.* each, 30*s.* per dozen
4 to 5 feet, 5*s.* each, 42*s.* per dozen
5 to 7 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each

PINUS LAMBERTIANA—
2 to 3 feet, 5*s.* each, 42*s.* per dozen
3 to 4 feet, 7*s.* 6*d.* each, 60*s.* per dozen
4 to 5 and 6 feet, 10*s* 6*d.* to 21*s.* each

PINUS EXCELSA—
3 to 4 feet, 30*s.* per dozen | 4 to 5 feet, 3*s.* 6*d.* each

PINUS ORIENTALIS—
2 to 3 feet, 5*s.* to 10*s.* 6*d.* each | 3 to 4 feet, 10*s.* 6*d.* to 21*s.* each

ARAUCARIA IMBRICATA—
2 to 3 feet, 5*s.* to 7*s.* 6*d.* each | 4 to 5 feet, 31*s.* 6*d.* to 42*s.* each
3 to 4 feet, 10*s.* 6*d.* to 21*s.* each | 5 to 6 to 10 feet, 63*s.* to 210*s.* ,,

THUJOPSIS BOREALIS—
1½ to 2 feet, 18*s.* per dozen, 6*l.* 10*s.* per 100
2 to 3 feet, 30*s.* per dozen, 11*l.* 10*s.* per 100
3 to 4 feet, 42*s.* to 60*s.* per dozen
4 to 5 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each
Of this most hardy and desirable plant we possess a stock far greater than can be met with elsewhere, and not a grafted plant amongst them.

THUJA AUREA—
2 feet, 5*s.* each, 42*s.* per dozen, or 15*l.* per 100
2 to 3 feet, 7*s.* 6*d.* each, 60*s.* per dozen, 20*l.* per 100
3 to 4 and 5 feet, 10*s.* 6*d.* to 21*s.* to 63*s.* each

THUJA GIGANTEA—
2 to 3 feet, 5*s.* each, 42*s.* per dozen, 15*l.* per 100
3 to 4 feet, 7*s.* 6*d.* each, 70*s.* per dozen
4 to 5 feet, 10*s.* 6*d* to 21*s.* each
5 to 6 feet, 31*s.* 6*d.* to 42*s.* each
This is a plant to which we beg to direct especial attention, and from its extreme hardiness and bright green foliage must ultimately become very generally planted. It is admirably adapted to form Avenues. Intending planters would find our stock of this fine plant exceeding by far that of any establishment in England. None are grafted.

THUJA OCCIDENTALIS—
3 to 4 and 5 feet, 30*s.* to 50*s.* per 100
This forms a highly ornamental hedge, far preferable to Yew, from its faster growth. The hedges in our grounds, 8 to 10 feet high and 2 feet thick, are formed of it.

CUPRESSUS THUJOIDES VARIEGATA—
2½ to 3 feet, 42*s.* per dozen, 15*l.* per 100
3 to 4 feet, 5*s.* to 7*s.* 6*d.* each

CUPRESSUS LAWSONIANA—
3 to 4 feet, 3*s.* 6*d.* each | 4 to 5 feet, 5*s.* each

CUPRESSUS LAWSONIANA VARIEGATA, 21*s.* each
A beautifully variegated form of Lawsoniana, of which we hold the entire stock of saleable plants.

CEDRUS DEODARA—
3 to 4 feet, 3*s.* 6*d.* each, 15*l.* per 100
4 to 5 and 6 to 7 feet, 5*s.* to 10*s.* 6*d.* to 21*s.* each
We hold a large stock of this Cedar, and would recommend such 4 to 5 and 6 feet as the most preferable size to plant. Large handsome specimens could also be furnished from 10 to 15 feet, and which would be sold at a very cheap rate.

CEDARS of LEBANON—
4 to 5 feet, 5*s.* each, 42*s.* per dozen

CEDRUS AFRICANA—
4 to 5 feet, 5*s.* each, 42*s.* per dozen

JUNIPERUS HIBERNICA—
3 to 4 feet, 24*s.* per dozen, 8*l.* 8*s.* per 100
4 to 5 feet, 30*s.* per dozen, 10*l.* per 100
5 to 6 feet, 3*s.* 6*d.* to 7*s* 6*d* each
6 to 10 feet, 10*s.* 6*d.* to 42*s.* each

WELLINGTONIA GIGANTEA—
1 to 1½ feet, 18*s.* to 30*s.* per dozen
1½ to 2 feet, 3*s.* 6*d.* to 5*s.* each, 50*s.* per dozen
2 to 3 feet, 7*s.* 6*d.* to 21*s.* each
3 to 4 feet, 21*s.* to 42*s.* each
4 to 5 feet, 63*s.* to 105*s.* each

IRISH YEW—
4 to 5 feet, 3*s.* 6*d.* each | 5 to 6 feet, 5*s.* to 7*s.* 6*d.* each
6 to 7 and 8 to 10 feet, 10*s.* 6*d.* to 42*s.* each
Our stock of this Yew have all been trimmed to one single leader, and are very close in their form.

GOLD and SILVER YEWS, grafted on the stems of Irish Yews, about 4 feet from the ground, the variegated portion being from 1 to 1½ feet in length, 10*s.* 6*d.* to 21*s.* to 42*s.* each

STANDARD PORTUGAL LAURELS, 3 to 4 and 5 feet stems, very straight stems and handsome close-grown heads, 10*s.* 6*d.* to 21*s.* each

STANDARD WEEPING HOLLIES, 6 to 8 and 10 feet stems, 21*s.* to 105*s.* each

HOLLIES, GREEN, 1½ to 2 and 3 to 4 feet, 30*s.* to 50*s.* per 100, 3 to 4 and 5 to 6 feet, large quantities in fine condition, 9*d.* to 5*s.* each

HOLLIES, GOLD and SILVER, in all the approved varieties, by the hundred or thousand, 2 to 3 and 4 to 5 and 6 feet

PORTUGAL LAURELS—
Very fine, 2 to 3 and 4 to 5 feet, 3*l.* to 7*l.* 10*s.* per 100

We have likewise immense quantities of the leading kinds of EVERGREENS of all sizes, such as Yews, Box, Bays, Aucubas, Arbutus, Phillyreas, Common and Portugal Laurels, &c., as well as fine strong transplanted FOREST TREES, 2 to 3 and 4 feet, consisting of Ash, Beech, Alder, Spanish Chestnut, Hazel, Withy, Larch, Spruce, Pinus austriaca, &c.

CATALOGUES describing the colours of all the RHODODENDRONS worthy of cultivation, with a list of CONIFEROUS PLANTS, with heights and prices, forwarded to all applicants.

☞ Purchasers of large quantities of Goods are informed that the great expense incurred by Package is now greatly diminished, as we can forward from Sunningdale, in through trucks without change, to all Stations on the Great Northern, North-Western, Eastern Counties, and Great Western (narrow gauge) Railways; also by South-Eastern and Brighton Lines by way of Blackwater.

THE AMERICAN NURSERY, BAGSHOT, SURREY.

Near Sunningdale Station, South-Western Railway, and Blackwater Station, South-Eastern Railway, where excellent Conveyances await all Trains.



SUTTON'S UNRIVALLED COLLECTIONS of GARDEN SEEDS for ONE YEAR'S SUPPLY, Carriage free.

SUTTON & SONS are now prepared to receive Orders for their unrivalled Collections of GARDEN SEEDS, as under:—

	£	s.	d.
A Complete Collection of KITCHEN GARDEN SEEDS for One whole Year's Supply (with Instructions on Cultivation)	3	3	0
Ditto, in quantities proportionately reduced	2	2	0
Ditto Ditto	1	1	0
Ditto, for a SMALL GARDEN ..	10	6	

Sent Carriage Free by Rail, and 5 per cent. discount allowed for cash payment. A remittance or reference requested from unknown Correspondents.

*** By Ordering one of these Collections once a year much trouble and expense will be saved.

Also NATURAL GRASSES for LAWNS and MEADOWS, fine sorts of MANGEL WURZEL, TURNIP, and other AGRICULTURAL SEEDS.

SUTTON'S GENERAL DESCRIPTIVE PRICED CATALOGUE and AMATEUR'S GUIDE will be ready shortly, price 6*d.*, gratis to customers.

Remittances may be made by Cheques on Town or Country Bankers, or by Post-office Orders payable to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants,

ALOCASIA METALLICA, 7*s.* 6*d.* to 63*s.* each.
AZALEA INDICA, finest named varieties, set for flower, grafted plants of English growth, from 18*s.* per dozen.
CENTAUREA RAGUSINA (CANDIDISSIMA), 12*s.* per dozen.
RHODODENDRON, COUNTESS of HADDINGTON, 21*s.* each.
RHODODENDRONS, fine named hardy varieties set for flower, from 30*s.* per dozen.
ROSES, DWARFS, finest varieties of Hybrid Perpetual, extra strong plants from 12*s.* per dozen.
STATICE PROFUSA (RATTRAYANA), 3*s.* 6*d.* each.
STRAWBERRIES, finest varieties, from 1*s.* 6*d.* per 100.
VINE TYNNINGHAME MUSCAT, 3*s.* 6*d.* to 7*s.* 6*d.* each.
VINES, of sorts, all the best varieties, from 3*s.* 6*d.* each.
PRICED and DESCRIPTIVE CATALOGUES of Greenhouse, Hardy, and Stove Plants, Seeds and Bulbs, are published, and will be forwarded to all applicants.
Exotic Nursery, Tooting, Surrey, S.

SPRING EXHIBITIONS.—The following will be found worth the attention of Cultivators, as the finest kinds for competition, also for Winter and Spring Display in the Conservatory. The quality of all is first-class:

PRIMULA SINENSIS, with Fimbriated Flowers.

P. ALBA	P. CARMINATA RUBRA
P. RUBRA	P. FILICIFOLIA
P. PICTA	P. ,, ALBA.

PRIMULA SINENSIS, with Double Flowers.

NIVEA PLENA	ALBA PLENA FIMBRIATA
ALBA PLENA	ATROROSEA PLENA FIMBRIATA.
ROSEA PLENA	
RUBELLA PLENA	

CALCEOLARIA PLANTS.—This stock is carefully hybridised.
CINERARIA PLANTS.—Best sorts, by name.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

JAS. GARAWAY AND CO.'S AUTUMN CATALOGUE for 1863, containing Priced Lists of Shrubs, Ornamental Trees, Conifers, Roses, and Fruit Trees of all descriptions, is now ready, and will be forwarded Post-free on application.
Orders exceeding 5*l.* Carriage Paid to the Irish ports in direct communication with Bristol.
JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

Larch and Quickwood.

W. WITTY AND SON have to offer 100,000 well-grown LARCH, from 1½ to 2 feet high.
Also 100,000 QUICKWOOD, from 2½ to 3 feet high.
Samples and prices on application.
Nurseries: Cottingham, near Hull.

Forest Trees and Shrubs.

THOMAS KENNEDY AND CO., NURSERYMEN and SEEDSMEN, Dumfries, N.B., beg respectfully to call the attention of the nobility and gentry of Great Britain and Ireland to their extensive stock of FOREST TREES and SHRUBS, which they are selling at very moderate prices.
CATALOGUES furnished on application.
*** Dumfries from its central position and railway accommodation is most favourably situated for the speedy transmission of goods to all parts of the kingdom.

To Noblemen, Gentlemen, and Others, engaged in Planting.

JOHN PERKINS begs to offer in large quantities extra-fine BLACKTHORNS, PRIVET, and GORSE, for covert planting; 2 Millions of twice-transplanted LARCH FIR, from 1½ to 2, 2 to 3, and 3 to 4 feet; 2 Millions of WHITETHORN, 2, 3, and 4 years transplanted; 2 Millions of WHITETHORN in Drills, 2 years, extra fine; 5000 CEDRUS DEODARA, 2 to 3, 3 to 4, 4 to 5, 6 to 8 feet, perfect specimens.
Also, in large quantities, suitable for extensive new Plantations, Ash, Alder, Beech, Birch, Spanish and Horse Chesnuts, English and Turkey Oaks, Elms, Spruce and Scotch Firs, Poplars, Sycamore, Box, Laurels, Berberis aquifolia, Cotoneaster, &c.
Price of the above forwarded on application to 52, Market Square, Northampton.

SPECIAL OFFER of SHRUBS and TREES.—The Subscriber having an abundant Stock of the following, he is prepared to offer same much below the usual rates. The undernoted is well worthy the attention of the Trade and parties about to plant, the Subscriber's Nursery having been for the past 50 years famed for producing particularly fine rooted plants. Prices per 100 and 1000 on application.
AUCUBA JAPONICA, 12-inch; APPLE STOCKS, 1-year do. 2 feet, Transplanted; ARBORVITÆ, AMERICAN, 1-year laid, 6 to 12-inch; AZALEA PONTICA, 12-inch; BARBERRY, COMMON, 12-inch; BIRD CHERRY, 2 to 3 feet; BIRCH, Transplanted, very scarce, 1½ feet; RED CEDARS, 9-inch; CUPRESSUS MACNABIANA, 2 feet; CUPRESSUS THUJOIDES, 6-inch; EUGENIA UGNI; 3-year SEEDLING HOLLIES; 1-foot LAUREL, COMMON; 1 to 3-feet PEAR STOCKS; 1-year SEEDLING, and 2½-feet Transplanted PINUS CEMBRA, 3-feet, very fine specimens; PINUS AUSTRIACA, 1 to 2-feet; QUINCE STOCKS, 2 feet, very fine stems. SPURGE LAUREL, 1 to 2 feet.
ROBERT T. MACKINTOSH, Nurseryman and Seedsman, 12, Melbourne Place, George IVth Bridge, Edinburgh.
Nursery, Leith Walk.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c.; and a most extensive general Nursery Stock.

For Prices and Conditions of Free Delivery see CATALOGUE, which will be forwarded on application.

To Gentlemen Planting.

MR. MASTERS informs gentlemen requiring large Plants for Parks, Shrubberies, &c., that he has fine Trees of ENGLISH and TURKEY OAKS, LIMES, SYCAMORES, NORWAY MAPLE, ACACIAS, LABURNUM, MAPLES, ALDER, in great quantity; also SCOTCH and SPRUCE FIRS, as well as a large Collection of CONIFERS, and a very extensive Collection of the best EVERGREENS and FLOWERING SHRUBS, including an acre of RHODODENDRONS. Prices upon application.

Exotic Nursery, Canterbury.

THORN QUICKS.

1,000,000 TRANSPLANTED THORNS, 18 inches to 2½ feet.
1,500,000 SMALL THORNS, 9 to 15 inches.
Samples and Prices on application.
Newry Nurseries: GEORGE R. DAVIDSON, Proprietor.

TRANSPLANTED SEEDLING FOREST, FRUIT, and other TREES.—Chesnuts, Oaks, Elms, Larch, Birch, Alders, Poplars, Sycamores, Privets, Berberis aquifolia, Ditto dulcis, Laurel (Common and Portugal), Spruce nd Scotch Firs, Broom (Yellow Spanish), Cornus sanguinea, Ailanthus glandulosa, Thuja orientalis, Ditto occidentalis, Viburnum Tinus, Standard and Dwarf Roses; Apples, Pears, Plums, Cherries, Trained Apricots, and other Fruit Trees.

For price and other particulars apply to JOHN THOMPSON & SON, 18, French Gate, Doncaster.

TO PLANTERS.—600,000 extra strong LARCH, 70,000 very stiff OAKS, very strong ALDER, BEECH, &c. Smaller sizes in great abundance.

Extensive Stock of FOREST TREES and SHRUBS, hardy and well grown in our various Nurseries here and in Westmoreland.

We supply some extensive Planters annually, and can refer ourselves to them.

JOSEPH TREMBLE & SONS, Penrith.

TO THE TRADE.—A very large Stock of the undernoted finely grown Plants:—1 and 2 year Seedling LARCH, extra; True Native Highland SCOTCH FIR; Pinus Laricio, or true Corsican Pine; P. austriaca, P. maritima, P. Cembra; Silver Fir, Norway Spruce, Sycamore, Norway Maple, Oak, Elm, Ash, Alder, Beech, Birch, Hornbeam, Laburnum, Arbor-vitæ, Arbutus, Berberis of sorts, &c.; also Transplanted Spruce, Quick, Larch, Pinus austriaca, P. Laricio, &c., prices of which may be had on application.

R. MORRISON, Nurseryman, Elgin, N.B.

To the Trade.

TO BE SOLD, Cheap, large quantities of LILACS of various sorts and sizes; Limes, Poplars, Laburnums, Scarlet Thorns, Ivies, Aucubas, Euonymus japonica, Althæa frutex, Guelder Rose, Glycine sinensis, Pyrus japonica, Clematis, Passion-flower, Periploca, Menispermum; large Dwarf-trained Apples, Pears, and Plums; Grape Vines, Figs, Gooseberries, Currants, and other Nursery Stock.

WANTED, large EVERGREENS, various sorts, 8 to 12 feet, with cash price.

JOSEPH FRYER, Clarendon Nurseries, Camberwell, S.

Laurels.

FOR SALE, several Thousands of well-grown and thriving LAUREL PLANTS, from 2 to 3 feet high, delivered at the Tisbury Station on the London and South-Western Railway, in quantities not less than 1000, at 25*s.* per 1000.

Apply to Mr. JEFFERY, Old Wardour Castle, Salisbury.

FOR SALE, several dozen AUCUBAS, 2 feet 6 inches, good plants, at 15*s.* per dozen; a less size at 9*s.* LAURELS, 2 feet 6 inches, at 6*s.*; PRIVETS, 3 feet, at 2*s.* 6*d.*; EVERGREEN BERBERIS at 6*s.*; HOLLIES, one year transplanted, at 15*s.* per 100; EARLY RHUBARB, fit for forcing, at 6*s.* per dozen, or 2*l.* per 100. A number of FOREST TREES, &c., fit for transplanting, at a very low price, the ground to be cleared by Christmas.

Apply to A. LAIDLAW, 17, Church Street, Stoke Newington, London, N.

WANTED, 20,000 to 30,000 extra strong WYCH ELM, 4 to 5, or 5 to 6 feet, and 8000 to 10,000 extra strong ASH, about 5 to 6 or 7 feet, both for Cover Planting.

Also a few Hundreds of ENGLISH OAK, 6 to 8 or 9 feet, straight, clean, handsome plants, well rooted, for Planting singly.

State quantities, sizes, and prices to FRANCIS & ARTHUR DICKSON & Co., "Upton Nurseries." Chester.

Backhouse's Winter White Protecting Broccoli.

JAS. BACKHOUSE AND SON have much pleasure in offering this valuable BROCCOLI. It comes into use EARLY IN DECEMBER, being in this neighbourhood 10 to 14 days earlier than Snow's Winter White; from which it also differs in being a true "protecting" kind: the pure white heads being completely covered by leaves. It stood perfectly uninjured during last winter with 12° of frost. See *Gardeners' Chronicle* for December 20, 1862.

The following Seedsmen having ordered it, will be able to supply genuine Seed:—

CHARLWOOD & CUMMINS	14, Tavistock Row, Covent Garden
COOPER & BOLTON	152, Fleet Street, E.C.
DRUMMOND, W. & SONS	58, Dawson Street, Dublin
EDMONDSON BROTHERS	10, Dane Street, Dublin
FISHER, HOLMES & Co.	Handsworth, Sheffield
FRASER, RICHARDSON, & GOAD	82, Bishopsgate Street, E.C.
GLENDINNING, S & SONS	Chiswick Nursery, W.
HENDERSON, A. & Co.	Pine Apple Place, Edgware Road, W.
HURST & SON	6, Leadenhall Street, E.C.
JACKSON, T. & SON	Kingston-on-Thames
LAWSON, P. & SON	London and Edinburgh
LONDON SEED COMPANY, LIMITED	68, Welbeck Street, Cavendish Square
NUTTING & SONS	60, Barbican, E.C.
SIBBALD, THOS.	Bishop Auckland
SUTTON & SONS	Reading
SMITH, RICHARD	Worcester
TURNER, CHARLES	Slough

Price 2*s.* 6*d.* per packet.

York Nurseries.—November, 1863.

Broccoli, Snow's Winter White (True).

ROBERT PARKER begs to announce that he can supply a few pounds of SEED (harvested this season) of this scarce and valuable variety. Price per pound on application.

Exotic Nursery, Tooting, Surrey, S.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2*s.* 6*d.* each.

Fulham Nursery, London, S.W.—December 5.
Special offer to the Trade on application.

Carter's Champion Broccoli.

A DWARF AND COMPACT-GROWING LARGE-HEADED LATE WHITE BROCCOLI, RAISED IN 1858 BY MR. SWINHERD, GARDENER TO JOHN SWINFORD, ESQ., MINSTER ABBEY, KENT.





JAMES CARTER AND CO. have much pleasure in calling special attention to the above first-class variety of BROCCOLI; it has been thoroughly proved by them for the last five seasons, and they can with confidence recommend it as being the BEST LATE WHITE BROCCOLI in CULTIVATION.

The following unsolicited testimonials have been received:—

Extract from the *Gardeners' Chronicle* of May 28, 1859:—

"Messrs. Carter & Co. have sent us specimens of a new Broccoli with the following memorandum:—'This Broccoli has been proved side by side with the Wilcove Late White, Ward's Late White, Reading Giant Late White, Dwarf Danish, and other approved late kinds, and has shown itself superior to all of them. The Wilcove Late White are finished cutting more than a fortnight since; this variety is just coming in, and fine heads will be cut for the next 10 days.' The heads forwarded to us were of the finest possible quality, very large, not in the least coarse, white rather than cream-coloured, and proved when cooked to be wholly free from the strong taste which spoils so many Broccolis."

Extract from *Essex Telegraph*, September 1, 1863.

"Carter's Champion, a late variety, producing very large heads, white."

Extract from the *Gardeners' Chronicle* of Saturday, Oct. 3, 1863.

"Among Broccolis, Carter's Champion stands at the head, being the latest variety in cultivation, very large, white and unusually free from the strong taste which spoils so many Brocolis."

Letter received from ARTHUR HENDERSON, Esq., Pine Apple Place Nurseries, Edgware Road.

"Pine Apple Place, Edgware Road, London, W.
"November 9, 1863.

"DEAR SIRS,—A friend of mine in Bedfordshire sent me some very fine heads of your Broccoli 'Carter's Champion,' certainly a most excellent variety. He says: 'With me this kind comes so dwarf and keeps so close to the ground that the wintry weather and wind has no effect in hurting it; other varieties suffered, whereas this Brocoli escaped and produced fine large heads.' He also states: 'I have some dozens equal to those sent you to-day, May 28. Cauliflower with me will be fit to cut before this Champion is over. This is what has been wanting for many a long year; a vegetable of this kind is a trump card worth a trifle.' I saw this Broccoli afterwards myself, and it is a really excellent and compact variety, with large round and close heads, flavour sweet and first-rate; growth equal and alike as if turned out of a machine. There is no mistake in this being one of the right things; coming in so late is another valuable consideration; it certainly fills up the gap or interval between the Broccoli and Cauliflower.

"Yours faithfully, ARTHUR HENDERSON."

Messrs. JAMES CARTER & Co., High Holborn, London, W.C.

J. CARTER & Co. are prepared to offer seed of this first-class Broccoli in packets, price 1*s.* each, and to the Trade in larger quantities on liberal terms.

The undermentioned is a List of Seed Merchants who have received their supply direct from J. CARTER & Co.:—

Messrs. AUSTIN & MCASLAN	Glasgow.
" BALLANTYNE & SON	Dalkeith.
" BARR & SUGDEN	Covent Garden.
" J. & T. BLACK	Jedburgh.
" BUTLER & MCCULLOCH	Covent Garden.
Mr. E. COOLING	Derby.
Messrs. COOPER & BOLTON	Fleet Street
Mr. W. DEANS	Jedburgh.
Messrs. F. & A. DICKSON & SONS,	Chester.
" JAS. DICKSON & CO.	Edinburgh.
" JAS. DICKSON & SONS	Edinburgh.
Mr. W. DODS	Haddington.
Messrs. EDMONDSON BROS.	Dublin.
" A. HENDERSON & CO.	Edgware Road.
" HURST & SON	Leadenhall Street
Mr. G. INGLIS	Dron.
Messrs. LAIRD & SINCLAIR	Dundee.
Mr. H. MAY	Bedale
" R. H. POYNTER	Taunton
Messrs. E. SANG & SONS	Kirkcaldy
Mr. G. SIBBALD	Dundee.
" T. SIBBALD	Bishop Auckland
Messrs. SMITH & SIMONS	Glasgow.
Mr. J. SODEN	Middle Barton, Oxon
Messrs. STUART & MEIN	Kelso.
" SUTTON & SONS	Reading.
Mr. W. TAYLOR	Cupar, Fife.
THE LONDON SEED COMPANY	Welbeck Street
Mr. W. J. WATSON	Fenham, Newcastle-on-Tyne
Messrs. J. C. WHEELER & SON	Gloucester.
Mr. G. WHITE	Paisley.
" B. S. WILLIAMS	Holloway
Messrs. W. WOOD & SON	Maresfield.

JAMES CARTER & Co., 238, High Holborn, W.C.

To the Seed Trade.

PEAS. — Early Emperor, Prizetaker, Bedman's Imperial, Ne Plus Ultra, Sangster's No. 1, and Payne's Conqueror. The Subscribers have pleasure in offering about 200 quarters of the above, all the growth of 1863, from true stocks, and harvested in fine condition. Samples with Prices on application to

MARSH & PERKINS, 42, Drapery, Northampton.



THE STUDENT PARSNIP.—This delicious Parsnip becomes every year more popular. Numerous Prizes have been taken this season at Horticultural Shows; as also the First Prize at the International Show of the Royal Horticultural Society in October 1862.

Mr. SHIRLEY HIBBERD, in the *Garden Oracle*, says of it:—

"SUTTON'S Student Parsnip is a great improvement, and should be grown everywhere. It is certainly the best for Exhibition."

SUTTON & SONS, Reading, can supply New Seed, 1*s.* per ounce (post free). Trade price on application. The undermentioned Houses have been supplied with New Seed direct from Messrs. SUTTON & SONS' this season.

BATT, RUTLEY & SILVERLOCK	Strand, London, W.C.
BACKHOUSE, JAS. & SON	York.
BURGESS, A.	Nurseries, Cheltenham.
DICKSON, HOGG, & ROBERTSON	22, Mary Street, Dublin
DIXON, E. & SON	57, Queen Street, Hull
DICKSONS & BROWN	Corporation Street, Manchester.
EDMONDSON BROTHERS	10, Dame Street, Dublin.
FINNEY, SAMUEL & Co.	Gateshead, Newcastle-on-Tyne.
FISHER, HOLMES, & Co.	Handsworth, Sheffield.
HURST & SON	6, Leadenhall Street.
LAFFAN, JOHN	1, Pembroke St., Cork.
NUTTING & SON	60, Barbican, E.C.
PILLINGER, JOHN	Nurseries, Chepstow.
STUART & MEIN	Kelso, N.B.
SHAW, JOHN	29, Oxford St., Manchester
THE LONDON SEED COMPANY	68, Welbeck Street, Cavendish Square, London.
TURNER, CHARLES	Royal Nurseries, Slough
VEITCH, J.	Royal Exotic Nursery, Chelsea.
VEITCH & SON	54, High Street, Exeter.
WOOD & SON	Maresfield, Uckfield.
WRENCH, JACOB & SON	London Bridge, E.C.

PRICE PER POUND ON APPLICATION.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Seed Potatoes.

H. AND F. SHARPE are now taking orders for all the principal varieties of Seed Potatoes, including MYATT'S EARLY PROLIFIC KIDNEY, and EARLY DALMAHOY (round), the earliest and most productive varieties in cultivation. The quality is very fine and prices low.

Seed Growing Establishment, Wisbech.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified in the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6*l.* per Ton, or 8*s.* per cwt.; and to prevent disappointment, orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Pendrayton, St. Ives, Hunts. Sacks, 2*s.* each.

The Yorkshire Hero Pea.

E. P. DIXON AND SONS have to announce their intention of sending out their new DWARF GREEN WRINKLED MARROW PEA, the YORKSHIRE HERO, which cannot be surpassed for fine flavour and productiveness, upwards of 70 pods having been counted on a stem. It is similar in appearance to the Veitch's Perfection, but much dwarfer, more prolific and considerably earlier. As a proof of its qualities, the following Testimonials will show:—

From Mr. THOMAS GIBB, *the Gardener to the* Right Hon. the EARL of YARBOROUGH, *Brocklesby Park Gardens.*

"I grew the Yorkshire Hero Pea the last season, and found it an abundant bearer and an excellent Pea of the Marrow sort. It resisted the dry hot weather of July, and remained quite green to the last, while other sorts sown at the same time were covered with mildew.—October 6, 1863."

From Mr. GEORGE FAIRBANKS, *Gardener to* JOSEPH ROBINSON PEASE, Esq., *Hesslewood House, near Hull.*

"I had some of the Yorkshire Hero Peas from you the past season, and can truly say that it is a most excellent sort; being early, dwarf, of most delicious flavour, and an extraordinary bearer, it withstood the mildew better than any other Pea we had.—October 6, 1863."

From Mr. WALTER HARDIE, *Forester to the* Right Hon. the EARL of YARBOROUGH, *Brocklesby Park Nursery.*

"Having grown the Yorkshire Hero Pea, I can bear testimony to its excellence in every respect, especially its delicious flavour and productiveness.—October 5, 1863."

From R. R. BROWN, Esq., *Bridlington Quay.*

"I have great pleasure in subscribing my testimony in favour of the wonderfully productive qualities of your Yorkshire Hero Pea. I can pronounce them with the greatest degree of truth to be the best Dwarf Pea I have ever grown. They are very large, and at the same time very delicious eating, and believe can be grown as early as any Pea yet brought out, although I did not sow them for a first crop, but intend doing so next season.—October 6, 1863."

From Mr. W. KEMP, *late Gardener to* Sir THOS. BECKETT, Bart., *Somerby Park.*

"The Yorkshire Hero Pea is a splendid variety of the Wrinkled Marrow, 2½ feet in height, very branching and an abundant bearer; requires sowing very thin in good rich soil, and will produce from 50 to 70 well-filled pods of a most delicious flavour and very thin in the skin, full 10 days or a fortnight earlier than the Veitch's Perfection, and superior in every respect; it is the best Pea I am acquainted with, and will become a general favourite in every garden, not requiring such an immense forest of sticks to support them as most sorts do. I may further mention that from the quart of seed I had from you I have saved SIX PECKS of well-ripened Peas, which I can readily dispose of at 5*s.* per quart to those who saw them in bearing.—Bracebridge, October 5, 1863."

Price 5*s.* per quart; 2*s.* 6*d.* per pint.

The NEW MAMMOTH WHITE CELERY, the largest and sweetest grown; wherever exhibited it always obtained the First Prize. 1*s.* per packet.

HUNT'S SWEET WILLIAMS (true), 1*s.* 6*d.* per oz., or 6*d.* per packet.

EDMUND PHILIP DIXON & SONS, The Yorkshire Seed Establishment, 57, Queen Street, Hull.

AGENTS in London:—
Messrs. HURST & SON, 6, Leadenhall Street.
" COOPER & BOLTON, 152, Fleet Street.
" JACOB WRENCH & SONS, London Bridge.

Smithfield Show, Stand No. 35.

DECEMBER 7, 8, 9, 10, and 11.

BRIDGE PAGE ROYAL SOUTH HANTS SEED ESTABLISHMENT BY APPOINTMENT

B. PAGE will Exhibit, as usual, Specimen ROOTS and SEEDS from his Superior Stock; also BLUNDELL'S CATTLE MELON. This valuable Cattle Food is admirably adapted to fill the vacuum during the months of August, September, and October, before the ordinary Root Crops, such as Mangel, Swedes, Carrots, &c., are ripe for feeding, and by previous selection and cultivation in the open air, is now offered to the Public as a fruit capable of producing a very weighty crop cultivated in the field, under the same circumstances as Mangels and other Root Crops.

Sole Agent, B. PAGE, Oxford Street and West End Royal South Hants Seed Establishment, Southampton.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

All good Cooks and careful Housewives use

SYMINGTON'S PATENT PREPARED PEA FLOUR, which is easy of digestion, perfectly wholesome, requires no boiling, rapidly makes a Tureen of rich Soup, and never causes unpleasant feelings after eating. In Packets, 1*d.* 2*d.*, and 4*d.*; and Tins, 1*s.*, 1*s.* 6*d.*, and 3*s.* each.

GROATS and BARLEY prepared by the same process, in Tins, 6*d.* and 1*s.* each.

SCOTCH OATMEAL for Porridge and Oat Cake, in Packets, 1*d.*, 2*d.*, 4*d.*; 28 lb. Tins and Barrels.

Patentees and Manufacturers: W. SYMINGTON & Co., Bowden Steam Mills, Market Harborough. Sold everywhere.



Magnified Aphis.

NEAL'S PLANT SOAP and APHIS PASTILS,

1*s.* and 2*s.* per packet,

may be obtained from all respectable Seedsmen.

Testimonials forwarded on application to the Patentee,

J. NEAL,

Edward Street, Birmingham.

Winter Dress all Fruit Trees with

GISHURST COMPOUND



Red Spider Magnified.

Copy of a Letter from Mr RIVERS.

"Nurseries, Sawbridgeworth, Herts, Oct. 22, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."

For Orchard-house Trees 4 ounces to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), Belmont Vauxhall, London, S.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the COLD WINDS & MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. .. 1*s.* 8*d.* per yard run.
Four yards wide .. .. .. 3*s.* 4*d.* per yard.
An improved make, 2 yards wide, 1*s.* 9*d.* per yard run.
An improved make, 3 yards wide, 2*s.* 8*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE, Address 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

THE LONDON MANURE COMPANY have now ready

PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.

All the above being in the finest condition. They also continue to supply

GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.

116, Fenchurch Street, E.C.

Autumn Sowing.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),

Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.

Chairman.—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.

Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex.

ODAMS'S BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, has been in use for upwards of 11 years, and has given great satisfaction to consumers.

Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.

Offices: 109, Fenchurch Street, London, E.C.

Price 7*l.* 10*s.* per Ton, delivered at any Railway or Wharf in London.

LAWES'S WHEAT MANURE for AUTUMN SOWING.

A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8*l.* per ton.

2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

SUPERPHOSPHATE of LIME £6 6
MINERAL SUPERPHOSPHATE 5 5

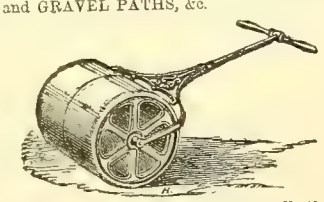
Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.

American and other Cakes at market prices.

Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.

TREE and PLANT LABELS.—10,000 CLOTH or PATENT PARCHMENT PUNCHED LABELS for 30*s.* Delivered free in London on receipt of a Post-office Order or Stamps for the amount.—Address, JOHN FISHER & Co., West Road Works, Boston, Lincolnshire.

GREEN'S IMPROVED NEW PATENT ROLLER for LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS, &c.



These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the very best materials, and are got up in a manner surpassing any ever yet brought out.

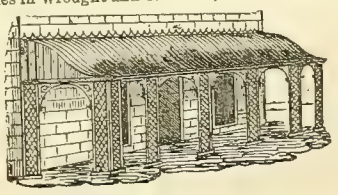
PRICES:—

Diameter 30 inches, length	32 inches	..	..	£7	0 0
,, 24 inches, ,,	26 inches	..	..	4	5 0
,, 20 inches, ,,	22 inches	..	..	3	5 0
,, 16 inches, ,,	17 inches	..	..	2	10 0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

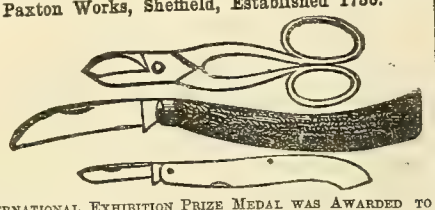
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

VERANDAHS, COVERED WAYS, AWNINGS, CONSERVATORIES, and every description of Roofing and Sashes in Wrought and Cast Iron, made to order.



Apply to COTTAM & Co., Manufacturers, (Iron Works) 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

Paxton Works, Sheffield, Established 1738.



INTERNATIONAL EXHIBITION PRIZE MEDAL WAS AWARDED TO SAYNOR & COOKE FOR SUPERIORITY OF QUALITY IN PRUNING AND BUDDING KNIVES, &c.

SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

Horticultural Agent and Valuer.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS) continues to undertake all kinds of VALUATIONS connected with Horticulture.

1, Devonshire Terrace, Fulham Road, S.W.

Landscape Gardening.

MR. GEO. H. STOKES, ARCHITECT, engages to prepare DESIGNS for Laying Out ESTATES and ORNAMENTAL GARDENS, having been for upwards of 17 years Principal, under Sir Joseph Paxton, M.P., in the preparation of similar Designs, including those for the Crystal Palace at Sydenham.

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ROCKWORK FERNERIES, WATERFALLS, CAVES, BANKS of STREAMS and PONDS, executed in the only way it should be, *i.e.*, to imitate Natural ROCKS. Worked with pockets, for plenty of plants, by JAMES PULHAM, Broxbourne, Herts.

References to works executed in 10 counties, some by the recommendation of W. B. THOMAS, Esq., R. MARNOCK, Esq., and E. MILNER, Esq.

GARDEN BORDER-EDGING TILES, in great variety of patterns and material.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability.

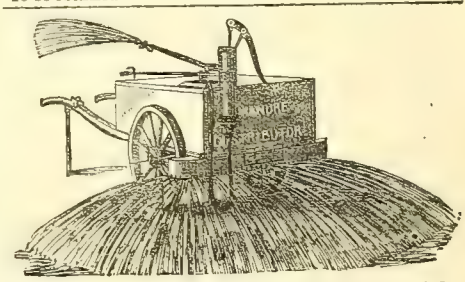
May be obtained at F. & G. ROSHER'S Premises, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; and Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER at their Premises as above.



JAMES'S FIRST PRIZE MANURE CART has been Awarded 20 PRIZES. Is now fitted up to answer for LIQUID MANURE, for Supplying the STEAM PLOUGH, for WATERING STREETS, or for a FIRE ENGINE. Nearly 300 already sold.

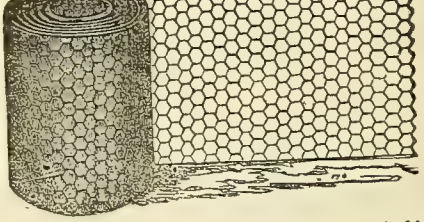
Washing.

The last great improvement in Washing Machines is in JAMES'S new Patent PRIZE WASHING, WRINGING, and MANGLING MACHINES, awarded several FIRST PRIZES. Will Wash 20 Shirts in 20 Minutes, with much less injury than with the hand. More than 300 Sold.

Address, I. JAMES, Tivoli Works, Cheltenham.

BARNARD, BISHOP, AND BARNARDS, Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.

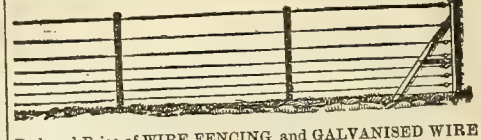


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard.
2-inch mesh, 24 inches wide ..	No. 19 ..	4¼*d.* ..	3½*d.*
2-inch ,, ,, ,, .. ,,	18 ..	5 ..	4
2-inch ,, ,, ,, .. ,,	17 ..	6½ ..	5
2-inch ,, ,, ,, .. ,,	16 ..	8 ..	6½
2-inch ,, ,, ,, .. ,,	19 ..	4¾ ..	4
1⅝-inch ,, ,, ,, .. ,,	18 ..	6 ..	4¾
1⅝-inch ,, ,, ,, .. ,,	17 ..	7 ..	5¾
1⅝-inch ,, ,, ,, .. ,,	16 ..	9 ..	7
1⅝-inch ,, ,, ,, .. ,,			

All the above kinds can be made any width (under 6 feet) at proportionate prices.

Strong Galvanised Poultry Netting, 7½*d.* per yard, 3 feet Wide Galvanised Sparrow-proof Netting for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 11*d.* per yard.

The same with Galvanised Wire Rope, 1*s.* 1*d.* per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

Roses.

JOHN CRANSTON offers selections of STANDARD and DWARF ROSES of very superior quality.

The robust growth and hardy constitution of the plants grown in this Nursery has long been acknowledged, and the Stock to offer this season is perhaps superior to any previous growth.

He also begs to direct attention especially to DWARF ROSES on the Manetti stock, of which he has an enormous stock.

The plants upon their own roots are also very strong and well grown.

	Per dozen—s. d.
STANDARD ROSES of all the leading varieties in cultivation	18 0
Do. Newer varieties, introduced in 1861 and 1862	24 0
DWARF ROSES, extra fine plants upon the Manetti stock .. .. 9s. to	12 0
Do., do., upon Dog-rose stock	9 0
Do. Newer Varieties, introduced in 1861 and 1862 15s. to	18 0
Do., do., of 1862 and 1863 .. ..24s. to	30 0
STANDARD and HALF-STANDARD TEA-SCENTED ROSES, all the best varieties	24 0
DWARF ROSES upon their own roots, Hybrid Perpetuals, and Bourbons .. .. 9s. to	12 0
Do., do. Tea-scented .. ..12s. to	15 0
CLIMBING ROSES	9 0
PILLAR ROSES, extra strong plants, 4 to 5 feet 12s. to	15 0
STANDARD WEEPING ROSES .. . each 2s. to	2 6
ROSES in 8 and 9-inch pots grown especially for Forcing or Greenhouse culture, the best Hybrid Perpetuals, China, and Tea-scented varieties . .. ..24s. to	30 0

DESCRIPTIVE CATALOGUES forwarded free on application.

Nurseries, King's Acre, near Hereford.

TO THE TRADE.—We beg to draw the attention of the Trade to the reasonable Prices at which we offer really fine STANDARD and DWARF ROSES this season. PRICED WHOLESALE LIST free (on receipt of business card from unknown Correspondents.)

PAUL & SON, Old Cheshunt Nurseries, N.

Roses.

GEO. PARSONS, NURSERYMAN and SEEDSMAN, by Special Appointment, to her Majesty, begs to offer fine STANDARD ROSES, from 2½ to 4 feet stems, at 15s. per doz., or 5l. per 100; DWARFS (none better in England), 9s. per doz., or 65s. per 100. The new varieties of 1862 and '63 at proportionate prices. CATALOGUES free on application.

Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

Roses.

EDWIN HOLLAMBY has the pleasure of informing the Nobility and Gentry that his extensive Stock of STANDARD and DWARF ROSES of all the leading kinds in cultivation is in the finest possible condition; fine straight stems, fine heads, and beautifully rooted. Purchasers of large quantities will be liberally dealt with.

DESCRIPTIVE PRICED CATALOGUES for the present season will be forwarded gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells; and Goldsmith's Park, Groomsbridge, Kent.

Great Reduction in the Price of Roses.

NOT TO BE UNDERSOLD BY ANY RESPECTABLE HOUSE IN THE TRADE.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

Since issuing their NEW ROSE CATALOGUE for the Autumn of 1863 and the Spring of 1864,

WILLIAM WOOD AND SON have ascertained that other Houses in the Trade are offering some kinds of Roses at a lower rate than themselves, and as they are fully determined NOT TO BE UNDERSOLD by any RESPECTABLE House, they have prepared a REVISED LIST of ROSES at reduced prices, and will have much pleasure in forwarding copies of the same, Gratis and post-free, to all applicants.

Paul's Nurseries, Waltham Cross, N.

ROSES.—Superior STANDARDS, 18s. per dozen and upwards; Do. DWARFS, 9s. per doz. and upwards.

All the NEW ROSES, including BEAUTY of WALTHAM, MRS. WM. PAUL, and LORD MACAULAY (three of the best), at the lowest advertised Prices. The new PRICED CATALOGUE is now ready, free by Post.

FRUIT TREES.—Apples, Pears, Plums, Cherries, Apricots, Peaches, Nectarines, Figs, Grape Vines, Gooseberries, Currants, Raspberries, Strawberries, &c. All the really desirable sorts in perfect condition for transplanting at lowest advertised prices. Fruit-bearing trees of the first seven fruits may be had suitable for potting for orchard house culture, from 18s. to 30s. per dozen. PRICED CATALOGUE free by post.

PLANTING.—Planting to any extent, with or without the supervision of the trees, &c., till established, undertaken in any part of the United Kingdom. The rich and varied collection of Trees and Shrubs growing in one Nursery of 30 Acres, have been removed within three years, which is almost a guarantee of success in transplantation.

WM. PAUL (Son and Successor to the late A. PAUL), Nurseries and Seed Warehouse, Waltham Cross, N. Entrance from the platform, Waltham Station (Great Eastern Railway), half-an-hour's ride from London.



HYACINTHS for BEDS or RIBBONS,

In all the distinct shades of Blue, Purple, Lavender, Rose, Violet, Crimson, Scarlet, and White, at 4s. per dozen, 30s. per 100.

JAMES CARTER & Co.,

237 & 238, High Holborn, W.C.

JOSEPH SMITH, SEN., Tansley Nursery, Matlock, Derbyshire, begs to intimate that his CATALOGUE of GENERAL NURSERY STOCK is now ready, which he will be happy to forward on application. It contains a large stock of Forest Trees, Hardy Evergreens, Ornamental Trees and Shrubs, American Plants, &c.

The Nursery is in a very exposed situation, the soil of a fibrous nature, and the plants take up with excellent roots, such as to ensure the best success in their removal.

ROSES.

THE FINEST ROOTED PLANTS IN THE COUNTRY.

THIRTY-SEVEN PRIZES FOR ROSES ALONE WERE WON DURING THE PRESENT YEAR BY

WILLIAM PAUL

(SON and SUCCESSOR to the late A. PAUL).

Twenty-one of which were FIRST PRIZES won at the PRINCIPAL LONDON FLOWER SHOWS.

Entrance from the Platform, Waltham Station (Great Eastern Railway). Half an hour's ride from London.



GOOD SEEDS, CARRIAGE FREE,

(Except Small Parcels.)

AT MARKET PRICES.



SUTTON'S PRICED CATALOGUES POST FREE.

KITCHEN GARDEN SEEDS of all the Newest and most approved sorts. NEW GERMAN, ITALIAN, FRENCH, and ENGLISH FLOWER SEEDS. TURNIP and MANGEL SEEDS of best Pedigree. SUTTON'S GRASS SEEDS for all Soils.

Five per Cent. Discount for Cash.

SUTTON & SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

ESTABLISHED UPWARDS OF A CENTURY.

EXHIBITION PRIZE MEDALS 1851 and 1862.

BUTLER & McCULLOCH,

SEED MERCHANTS,

COVENT GARDEN MARKET, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS for 1864,

OF THIS YEAR'S GROWTH.

Carriage Free. Five per Cent. allowed for Cash.

A London reference or remittance requested from unknown correspondents.

No. 1.	**Containing 28 quarts Peas and Beans, and all other Seeds requisite for the Kitchen Garden in proportion**	...	...	...	...	...	...	**£3**	**3**	**0**
No. 2.	**Containing 16 quarts Peas and Beans**			**ditto**		**ditto**	**ditto** ...	**2**	**2**	**0**
No. 3.	,, **12** ,,	,,	,,	,,	,,	,,	...	**1**	**10**	**0**
No. 4.	,, **8** ,,	,,	,,	,,	,,	,,	...	**1**	**1**	**0**

A DETAILED LIST of these COLLECTIONS may be had on application.



Orders amounting to 21s. sent Carriage Paid.

BULBS FOR PRESENT PLANTING.

POMPON HYACINTHS, for Flowering in Masses, 3s., 4s., and 5s. per dozen.

CROCUS, fine mixed, 12s. 6d. per 1000.

The No. 4, £2 2s., Collection of Bulbs; Half, £1 1s.; Quarter, 10s. 6d.

Part for the Conservatory or Sitting Room, and part for the Flower Garden.

25 NAMED HYACINTHS	24 TULIPS for Indoor Culture	100 ANEMONES
25 BORDER ditto	100 Ditto for Out ditto ditto	50 IRIS
12 POLYANTHUS NARCISSUS	200 CROCUS	4 JAPAN LILIES
100 GARDEN ditto	100 RANUNCULUS	12 WHITE LILIES

The No. 5, £2 2s., Collection of Bulbs; Half, £1 1s.; Quarter, 10s. 6d.

For the Decoration of Sitting Room and Conservatory.

30 NAMED HYACINTHS, in 30 vars.	12 Dbl. SWEET-SCENTED JONQUILS	18 IXIAS, in 6 vars.
12 POMPON ditto in 12 vars.	100 NEW CROCUS in 10 vars.	18 SPARAXIS, in 6 vars.
12 POLYANTHUS NARCISSUS, in 12 vars.	4 JAPAN LILIES, in 3 vars	12 ANOMATHECA CRUENTA
50 TULIPS, in 16 vars.	12 ACHIMENES, in 6 vars.	4 WATSONIAS
	12 LACHENALIAS, in 4 vars.	4 DIELYTRA SPECTABILIS

The No. 6, £2 2s., Collection of Bulbs; Half, £1 1s.; Quarter, 10s. 6d.

For Ornamenting the Flower Garden.

50 HYACINTHS	150 RANUNCULUS	4 JAPAN LILIES	3 ARUMS
100 NARCISSUS	150 ANEMONES	12 WHITE ditto	3 ANTHOLYZAS
200 CROCUS	24 GLADIOLI	50 ENGLISH IRIS	3 WATSONIAS
150 TULIPS			

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN.

Beck's New Pelargoniums,
OFFERED FOR THE FIRST TIME.

B. S. WILLIAMS begs to announce that he is now prepared to supply strong plants of the above, which have received certificates of the highest merit during the past and previous seasons. They have been selected with great care, and are far in advance of any yet offered.
For descriptions and prices see *Gardeners' Chronicle*, Oct. 24; also in CATALOGUE, which can be had on application.
Paradise and Victoria Nurseries, Holloway, London, W.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.
A DESCRIPTIVE and PRICED CATALOGUE post free on application.
Paradise and Victoria Nurseries, Holloway, London, N.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.
Knap Hill Nursery, near Woking, Surrey.

NEW CHRYSANTHEMUMS of 1863.—Strong Plants of the above, including the Japanese varieties, are now ready at 5*s.* per dozen.
W. HOLMES, Frampton Park Nursery, Hackney.

J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.
Dorking Nursery.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

Superb Double Hollyhocks.

WILLIAM CHATER'S NEW LIST is now ready, and may be had on application by enclosing one Postage Stamp.
P.S. A large stock of FINE PLANTS now ready.
Nurseries, Saffron Walden.

To the Seed Trade—Tritoma Uvaria.

WM. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, has a few Ounces of SEED to spare of the best variety of the above highly ornamental Perennial at a very moderate price, which he will be happy to furnish on application.

To the Trade.

AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds, at moderate prices. An inspection solicited.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON'S first importation of the above has arrived, and from the extraordinary heavy weight of the Bulbs they promise a fine bloom. Early orders are earnestly solicited. DESCRIPTIVE PRICED CATALOGUES free.
N.B.—17 FIRST PRIZES were awarded to WM. C. & SON last spring for HYACINTHS, TULIPS, and CROCUSES. In addition to this, EVERY FIRST PRIZE at the London Exhibitions to Amateurs was for Bulbs supplied by them.
The ONLY address is Highgate Nurseries, London, N.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his Four New PRICE LISTS, No. 97, 98, 99, and 100, containing the Stove, Greenhouse, Hardy Plants, Seeds (262 pages 12mo).
Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

To the Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED MERCHANT, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and will be forwarded free on application to his Agent, GEO. MACINTOSH, Nurseryman, High Road, Hammersmith, W., to whom all communications should be addressed.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3*s.* per doz.; 20*s.* per 100.
Trade price on application,
Royal Nurseries, Great Yarmouth, Norfolk.

Prize Gladioli.

YOUELL AND CO. were awarded the following PRIZES for the above in September last:—
FIRST AND SECOND PRIZE, CRYSTAL PALACE,
FIRST PRIZE, ROYAL HORTICULTURAL SOCIETY,
FIRST PRIZE, BRIGHTON.
CATALOGUES of this collection will be forwarded on application.
Royal Nurseries, Great Yarmouth, Norfolk.

Choice Gladioli.

B. S. WILLIAMS has great pleasure in announcing that he has a Choice Collection of each class of these popular Bulbs. Also a Select List of the New Varieties raised this year. The Bulbs are very fine, and early orders are respectfully solicited.
Collection of 24 Choice Varieties, one root of each, for 21*s.*
Choice named Varieties, 6*s.*, 8*s.*, and 10*s.* per dozen.
A PRICED and DESCRIPTIVE LIST on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Gladiolus Bowiensis, brightest and best of its class.

THOMAS BARNES offers fine Bulbs of the above at following prices, according to size:
Per 100: 8*s.*, 10*s.*, 12*s.*, & 16*s.* Per 1000: 70*s.*, 80*s.*, 100*s.*, & 140*s.*
When 5000 and more are taken at once, a great reduction will be made on either price.
Dane Croft Nurseries, Stowmarket.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.
His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.
☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151.

Rhododendrons.
CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.
FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.
CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.
CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

JAPAN LILIES, Extra strong Flowering Bulbs.

	Each—*s.*	*d.*
LILIUM LANCIFOLIUM ALBUM	1	0
" " ROSEUM	1	3
" " RUBRUM	1	3

Three each of the above, 10*s.*
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

THE PLYMOUTH SEED COMPANY, LIMITED, is AMALGAMATED with the LONDON SEED COMPANY, LIMITED.
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ROYAL HORTICULTURAL SOCIETY.
FRUIT COMMITTEE.

A MEETING of this COMMITTEE will be held on TUESDAY, December 8, at the Rooms of the Society at South Kensington, for the Examination of such FRUITS and VEGETABLES as may then be submitted, and for awarding the following Prizes:
CLASS A.—Best Three Dishes DESSERT APPLES, distinct kinds. 15*s.*, 10*s.*
CLASS B.—Best dish Huyshe's BERGAMOT PEAR. 10*s.*, 5*s.*
CLASS C.—Ditto ditto Huyshe's VICTORIA. 10*s.*, 5*s.*
CLASS D.—Ditto ditto JOSEPHINE DE MALINES. 10*s.*, 5*s.*
All Fruit must be ripe, sound, and fit for table. A Dish is to consist of Six Fruits. Subjects for Exhibition must be at the rooms by 11 o'clock on the day of Meeting. As the awards are made by flavour, those Exhibitors who require their Fruit to be returned must not expect to receive it entire.
Communications and Packages to be addressed to ROBERT HOGG, LL.D., Secretary to the Committee.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 5, 1863.

MEETING FOR THE ENSUING WEEK.

TUESDAY, Dec. 8 { Royal Horticultural (Floral and Fruit Committees) at S. Kensington .. Noon

THE award to the Rev. M. J. BERKELEY of one of the Gold Medals annually placed by HER MAJESTY at the disposal of the Royal Society, wherewith the Council of that eminent body may reward distinguished scientific services, is an event which we hail with the utmost satisfaction. Surely such a distinction was never more honourably won, whether we regard the length of service, the range of investigation, or the interest and importance of the scientific labours of our illustrious contemporary and constant correspondent; and if to these considerations we add the obscurity and comparative unpopularity of that branch of botany he especially cultivates, the Fungi, and his own singularly unobtrusive character, we cannot fail to recognise the fact that the Council has not only honoured the Royal trust confided to it by this award, in giving honour where honour is pre-eminently due, but has exercised a higher and rarer wisdom in bringing forward for public recognition, the services and the person of one, whose modesty and retiring disposition are as genuine as his love of science is disinterested.

The special grounds upon which the Medal is awarded, are, as we gather from the President's address delivered on Monday last at the room of the Society in Burlington House, "for Mr. BERKELEY'S researches in Cryptogamic Botany, especially Mycology;" but in the course of that address an *éloge* was pronounced, in which his various labours were dwelt upon with considerable skill, discrimination and judgment. Amongst other claims to the award, there were mentioned: the length and unbroken continuity of Mr. BERKELEY'S studies, extending over 35 years; the excellence of his published works on British and Foreign Fungi; the value and significance of his discoveries on the reproductive organs of the same class of plants; the wide range and philosophical character of his "Introduction to Cryptogamic Botany;" and, lastly, his researches in Vegetable Pathology.

This last fact we have a pardonable pride in recording, as it was in the columns of the *Gardeners' Chronicle* that these researches were, we believe, without exception published, and, as yet, are there, and in Morton's "Encyclopædia of Agriculture," only to be found. They attracted much attention at the time, as most valuable contributions to general knowledge; but their true and high scientific interest and importance, though all along known to a few, are now for the first time publicly recognised, and this by the highest tribunal in the country.

OUGHT we to GRAFT the more tender or less vigorous varieties of the GRAPE VINE upon stocks of the stronger-habited sorts, or is there any advantage resulting from the practice? What says theory? The effect of grafting a plant upon an older stock, that is upon one which has attained to something like the full vigour of growth, is in a general way to render the graft more vigorous than it otherwise would have been; but there are some collateral considerations. There must be a fitness in all the circumstances of the case. The stock must be such as to suit the conditions of soil in which it is to grow; and there must be a sort of constitutional affinity between the stock and the graft. These points bring this question entirely within the range of experimental cultivation. In the case of the Vine the fitness would depend upon the hardihood of the stock in respect to its roots, and upon its degree of vigour being such as to suit the constitution of the scion. In other words, the advantage to be derived from grafting a Vine would be, that a tender delicate-rooted sort, liable to suffer from even the unavoidable coldness of the soil, might draw up its nourishment through a stem, the roots of which, belonging to a variety of hardier nature, would be less influenced by the amount of cold to which they might happen to be subjected; while, if the graft were of a sort deficient in natural vigour, a stock of moderately increased vigour would serve to impart to it the very strength it needed. We say, of moderately increased vigour, because there ought not to be too great a disparity of constitution between stock and graft, though this is perhaps of less importance in the case of the Vine than in that of many other fruit trees.

Besides this influence, which it is well-known to exert over the vigour of the graft, the stock also, in some cases at least, exercises an influence upon its productiveness, as well as upon the quality of the fruit. This latter result would lead us to prefer to use as a stock some sort which was known to produce fruit of good quality, as well as to possess the requisite degree of vigour in its constitution.

Such considerations as these indicate at least that grafting may be advantageous; and that beyond the benefit which it may confer by rendering possible the substitution of good for indifferent varieties with comparatively little loss of crop—and that it will do this, by reason of the rapidity with which a graft united to a healthy established stock will replace the bearing rods which may have been cut away to make room for it, is evident. They also seem to be suggestive, that a healthy moderately strong variety producing fruit itself of superior quality—such a variety, in short, as the Black Hamburgh, is one of the best that can be selected as a stock where choice is possible; and this mainly because of the comparative root-hardiness, as well as vigour, which this most estimable Grape possesses. This is very well expressed in the following passage from *Thompson's Gardeners' Assistant*:—"The hardiness of the stock is of great importance in the cultivation of trees and shrubs indigenous to southern climates, for many of such plants either perish or thrive badly on their own roots when planted in the comparatively cold soil of Britain. They are, of course, affected somewhat injuriously by the coldness of our atmosphere, but they are more than doubly so when the roots, upon which their supply of nourishment depends, are also in a colder medium than they are adapted to endure. But when grafted on a stock, the roots of which are not likely to be injured, in a properly drained soil, by the lowest ground temperature which occurs in this country, tender plants that can be properly grafted on such thrive tolerably, in consequence of being fed by roots uninjured by cold." The question of root-hardiness alone will probably explain the

frequent failure of such tender-rooted sorts as the Golden Hamburgh appears to be, and on the other hand the success of such varieties when grafted on a less tender-rooted stock. This may indeed suffice to account for the different estimates which are formed of the merit of this variety.

But what says practice in answer to the question with which we set out? No doubt we can find a few illustrative cases on record. The Vineries at Dalkeith furnish one such case. In *Gossip of the Garden* (Nov. 1863, p. 372) we read of the Muscat Hamburgh, with rods not quite ripe, bearing clusters of fruit of not less than 4 or 5 lbs. weight, far more like Barbarossa than the Muscat Hamburgh as usually seen. These Vines are planted inside the house, and are grafted on the Black Hamburgh. The difference between the bunches on grafted plants, and those on plants on their own roots, repeatedly seen elsewhere, is so marked, that the writer does not hesitate to recommend Mr. THOMSON'S plan to all gardeners. In the *Florist and Pomologist* (Nov. 1862, p. 168), it is stated of the valuable late black variety known as Lady Downes' Seedling, that the fruit is greatly improved by the Vine being grafted on the Black Hamburgh, as Mr. HILL grows it. And not to multiply quotations, our own columns have recently recorded (October 17, p. 991), some remarkably fine examples of the Buckland Sweetwater produced on rods which had been grafted on the Black Hamburgh. Some of the advantages which, it would thus appear, certainly do result from the practice of grafting, may be attributable to the mere vigour imparted by the older and well established stock; but it would also appear that there are in the cases of delicate-rooted and weak-growing, or perhaps even small-berried varieties, decided advantages to be derived from grafting on a comparatively hardy-rooted vigorous stock, and among these the Black Hamburgh appears to hold a prominent position.

The case is analogous to that of tender constitutioned varieties of Indian Azaleas, for example, which are well known to be improved by grafting on a more hardy and free-growing stock. We shall be glad, however, to hear further what is the practical experience of cultivators on this interesting question.

—— THE display of CHRYSANTHEMUMS at the Versailles Nursery, Hammersmith, to which attention was invited in our Garden Memoranda (p. 1063), has been a very gay one, and well it might be, since Mr. SALTER cultivates something approaching to two thousand varieties of this fine autumnal flower. Even now, though the brightness of the earlier sorts is somewhat passing off, the winter garden in which the pot-grown plants are displayed, affords a many-coloured picture well worth examining, for the later plants and the later sorts are scarcely past their best.

Our object however is not to refer further to the general collection, but to notice briefly some of the many fine Seedling varieties, amongst which there is this year more than an average number of novelties that may be regarded as acquisitions. We understand that Mr. SALTER has flowered about three hundred seedlings; no wonder then that some extremely choice varieties should have made their appearance, when it is considered that it is only the choicer of the old sorts, or such as present some special desirable property, which are bred from.

We could not but notice with satisfaction the general advance which is being made in the flower-heads of the Chrysanthemum from a floral point of view, as evidenced by the breadth which the florets have in most instances acquired; "broad-petaled" flowers as they are called, were in fact found to be the rule rather than the exception amongst the recent seedlings which Mr. SALTER has bloomed. Another fact was patent, and furnished its own reflections. We sometimes hear it said of Chrysanthemums, as it was not long since with more point, of Fuchsias, "Oh! these creations of the florist are as nothing compared with the familiar forms of earlier days!" Well, Mr. SALTER has busied himself in getting together all the old familiar sorts he can find, and here they are scattered through his collection: but with what result! They are mean, ragged, wretched-looking things beside the modern florists' varieties, and excite none of the poetic admiration the critics have supposed them to inspire. And so it must be. The experience of cultivators is, that under cultivation it is the very nature of plants to improve—to develope in fact; and although one is not bound to admire alike all the varieties the florist may originate, or all the points on which he may insist when regarding any particular flower as a specialty, we cannot deny that his efforts have a general progresive result. He is least happy perhaps when he attempts to intermix very distinct species, as in the case of the Fuchsia, and then would reduce the progeny to one common model. In the case of the Fuchsia, for instance, it may be a question whether we should not now have stood better if, instead of introducing the blood of fulgens, which has given coarse foliage and succulent racemose-flowering branches, such as most of the light sorts possess, we had gone on merely selecting and improving from such a type as gracilis. Certainly the more fulgens is now obliterated in the progeny the better the result. Some of the creeping abundant-flowered species would perhaps have yielded better materials for intermixture, and might have saved our garden Fuchsias from the 'plethoric' charge now brought against them.

But to return to the New Chrysanthemums. They appear this year at Hammersmith, as already remarked, in greater force and in greater excellence than we remember to have previously seen in any one year. At their head, outshining all the rest, and with all the sterling qualities of the Queen of England, stands the Princess of Wales, a truly regal flower, the blooms of which, in the unceremonious way in which Mr. Salter always grows his flowers, could not be less than 5 inches in diameter, and which therefore, when highly cultivated, will come up to the highest standard in respect to size*; this variety is also remarkable for the breadth of its florets, which turn inwards quite naturally to form a full incurved flower-head; the colour is a pearly white, delicately tinged at the margin with peach colour, which at length deepens into a soft rose. To the same class of flower belongs Prince Alfred, a large-sized variety, well deserving from its excellence to be associated with a royal name; it has broad florets and fully incurved flower-heads, and the colour is a rosy purple, paler and silvery at the backs of the florets. Lady Slade is another of the same type, large, fully incurved, and having broad well disposed florets; this is of a clear pale rosy lilac, very distinct in colour, very chaste looking, and in every way commendable. General Bainbrigge and Jupiter are further additions to the same set as the preceding; the first a very fine amber-coloured sort, the second a dark red-chestnut with golden tips. Robert James, a full-sized variety, with yellow centre passing off to a coppery tinge at the outside; and Venus, a delicate pearly lilac, are still others amongst the desirable novelties of this incurved group.

To the Dupont de l'Eure type, that is to say those with shorter, stiffer, and less incurved florets than the preceding, often with a tendency to quarter like the pentagonal Camellias, but having in these novelties an increase of breadth in the florets equally with the more strictly incurved group, belongs the Rev. Joshua Dix a well-filled flower of medium size, having the characteristic short, somewhat incurving half-cupped florets, and being of a composite colour, yellow in the centre, the outer florets shaded with pale purplish-red. Saumarez, of medium size, is of a brown red in front, golden at the back, and is remarkable again for the breadth of its florets; so also is Sir G. Bowyer, whose florets are rosy purple in front, paler behind. Pelagia, a flower above the average size, and rather flatter in form than the foregoing, is of a bright chestnut orange with golden tips. Mrs. Edward Miles, on the other hand, though not above medium size, is of great depth, very full, moderately incurved, and of a remarkably bright clear yellow, paler in tint than Jardin des Plantes, and altogether a most desirable novelty. Something of this form, but without incurving and about medium size, is one called Lord Clyde, a remarkably handsome variety for decorative purposes; this is of a deep crimson, richer in colour probably than any variety yet obtained, but having as usual the backs of the florets paler, though, as they scarcely at all incurve, this pale tint is very little seen.

Some large varieties of the Anemone-flowered group seem to be marked improvements on those previously known. Empress, one of them, has extra large flowers, the guard being of a beautiful peach colour, at length passing into rose, while the centre is of a delicate lemon tint. St. Margaret is a large yellow Anemone-flowered sort, remarkable for the broad florets which form the guard, as well as for its full centre. Mrs. Pethers is another, of a pale lilac peach, with a full centre of the same colour. These Anemone-flowered sorts are all provided with several series of guard 'petals,' and hence have a much more finished appearance than the sorts formerly grown, which had only a single row of outer florets. A very curious novelty of this series, called Painted Lady, has been obtained; in this, which has three or four series of outer or guard florets, the points are tightly rolled in, while in the centre, replacing the disk, is a small close tuft of the quilled florets; this centre is creamy, and the outer florets whitish with a bar of rosy pink on the outside. Mr. SALTER has also obtained one thoroughly good, indeed first-rate Pompon, which is named Lizzy Holmes; it is Ranunculus-formed, very full and deep, and also a very free bloomer, the colour yellow slightly tinted with purplish-red at the sides.

One variety, not perhaps to be recommended for exhibition purposes, but one which Mr. SALTER will no doubt prize as a breeder, and one which will also be sought after for decorative purposes on account of its colour, is called Prometheus; this, though rather flat, is remarkably showy, the colour being a peculiarly bright fiery coppery red, quite new, so far as we have observed amongst these flowers. Another high-coloured variety, having perhaps little else to recommend it, though of fair average quality amongst the smaller-sized flowers, is to be called Sanguineum; it is of a ruby-red, brighter than the shades of this colour usually appear. Another small-flowered sort with compact Ranunculus-formed flower-heads, and of a rosy-amaranth with bronzy yellow tips, after the style of Stafford's Gem Dahlia, bears the name of Sam Slick, and like the two preceding may be useful where large flowers are not required.

* It may be interesting here to record the result of growing some specimen blooms at Chiswick, with the view of showing the Fellows of the Royal Horticultural Society how large flowers are produced. The finest blooms were those of Queen of England and its sports and allies; thus Golden Queen of England measured nearly 6½ inches, White Queen of England 6 inches, Alfred Salter 5½ inches, Lady St. Clair, a fine white, 5½ inches, and Mrs. W. Holborn, another fine white, 5½ inches in diameter Jardin des Plantes, a very charming flower, measured 5 inches across.

DIES ORCHIDIANÆ.—No. VIII.

(*Continued from p. 389*).

MESSRS. ROLLISSON'S, TOOTING.—The well-stored Orchid houses of the Messrs. Rollisson possess peculiar interest to the amateur, not merely on account of the many varieties they contain, but because they may serve to carry him back in imagination to what may be termed the *eocene* period of Orchid growing. The establishments of Mr. Colville and the Messrs. Loddiges having been long since broken up, it is only in the Tooting Nursery that one can still find the plants that were popular in the infancy of our science, but which from the caprice of fashion, inattention to the proper mode of treatment, or other causes, have now all but disappeared from collections. We have all heard of the difficulty with which a Catasetum was procured for Mr. Darwin's experiments; nor has the writer forgotten the labour and importunity that it cost him to obtain a morsel of the old Bletia Tankervilliæ (Phaius grandifolius), or how at one of Mr. Stevens's recent sales a little plant of Rodriguezia secunda—once a weed in collections—was knocked down for the extravagant price of five guineas! Such instances must have been largely multiplied had not the Messrs. Rollisson kept up a reserve of the old favourites, which are now happily again surrounded by a numerous train of admirers. Amongst these the Pleiones and Cœlogynes, of which Messrs. Rollisson have a large assortment, deserve especial mention, not simply on account of their beauty, but because their culture is generally neglected or misunderstood.

The charms of Cœlogyne cristata when well grown will scarcely yield to those of any other white-flowered Orchid with which we are acquainted, but among us it is seldom seen in perfection, because its flowers, under the ordinary mode of treatment, are rarely produced with the same prodigality that distinguishes the species on its native hills. And yet nothing can be more simple than its cultivation, for all that it asks is a moderate supply of heat and moisture during its short season of growth in the summer months, with a cool regime at other times. Persons sceptical on these points should see the magnificent specimens, loaded with blossoms during the winter months, that are grown by the Messrs. Yates of Manchester. Phalænopsis itself cannot produce a finer mass of pure white combined with gold! And as with C. cristata, so with all its congeners from the Neilgherry hills, and from the mountainous districts of upper India. C. corrugata and C. odoratissima, two charming species from the former locality, are never found—as a distinguished officer and close observer of Nature recently told me—on the eastern slopes of the Ghauts, but if you cross the ridge to the western side you find them growing, almost close to the summit, in the richest profusion, on cushions of Moss among masses of rock. In such situations they are sheltered from cutting winds, and are secure of moisture to their roots even during the driest season. C. elata is another fine species, as the figure in Wallich's great work shows at a glance, but it is perhaps inferior in stateliness of habit to C. Gardneriana, of which a splendid specimen was blooming with Messrs. Rollisson at the time of my visit to their nursery. Altogether a dozen species of this attractive genus might perhaps be selected from amongst Messrs. Rollisson's stock, without counting such species as C. pandurata and C. Lowii, which, as denizens of Borneo, are accustomed to a very high temperature, and cannot therefore be expected to thrive under the same artificial conditions as the species of continental India. I would add that the Pleiones, if justice be done to them, require even a still less degree of heat than their kinsmen and neighbours, the Indian Cœlogynes.

The Huntleyas, like the Cœlogynes, are a compact and beautiful family, at present very imperfectly known in consequence of the difficulty that, through their having no pseudo-bulbs to retain moisture during a long voyage, is apt to attend their importation. This difficulty has, however, not availed to prevent the introduction of a goodly number of species, of which Messrs. Rollisson possess a larger proportion than any other nurserymen; but as they are as slow to increase as they are difficult to introduce, Huntleyas will always be rare plants, and this notwithstanding that they are among the easiest of Orchids to grow and the freest to flower. Huntleya violacea, H. cerina (Pescatorea cerina), H. meleagris, H. candida (Warscewiczella candida), H. marginata (Warscewiczella marginata), and H. Wailesii are among the best of

what we now have; but we may hope in the course of 1864 to receive far finer kinds, such *e. g.* as H. triumphans (Pescatorea triumphans, *Reichenbach*), H. amazonica, &c.

In the warmer department of the Tooting Orchid houses there is a remarkably fine collection of East Indian Air-plants, with which some choice Angræcums and rare Cymbidiums are associated. Here may be had the very finest "strain" of Vanda tricolor and V. suavis, each of which was extensively imported by Messrs. Rollisson. Fine Dendrobiums also abound. And I could not but remark a handsome specimen of the Scorpion plant (Renanthera Arachnitis), which, though it always grows freely, has never during 20 years of cultivation in more than as many collections, been induced to produce one single specimen of its marvellous flowers! So far as I am aware, this is the only Orchid that has hitherto entirely baffled the skill of the cultivator. Can no one be found to take the stubborn plant in hand, and master it, as Mr. Leach has done the once equally intractable Disa grandiflora? *Serapias.*

CUTTING OFF STRAWBERRY RUNNERS.

I AGREE with your observations (see p. 1034) on this subject. I have practised for 11 years the cutting off of the umbilical cord, as soon as it makes its appearance, before the berries are formed, during fruiting, and afterwards when runners are not wanted: moreover, I have practised it on the same plants three years following, and I have grown great crops of Strawberries. I have just broken up nine ranks of Rivers' Eliza, cropped for three years heavily, and full of fruit crowns for next year, which have always been deprived of runners. I broke them up, simply because I have five other strong plantations of that variety, and also because my other plantations are so many-crowned that I should not be able to get rid of the Strawberries. Usually three crops off the same plants are sufficient. Some sorts indeed will only crop heavily once or twice.

I have read Mr. Knight's opinion, twice quoted in your Paper, and I will not go against such high authority. Still, facts are stubborn things. I have two new spring-planted plantations of Eliza (Rivers'), one of Wonderful, and one of Trollope's Victoria. All these were deflowered and kept free from runners all through the summer and autumn; yet they are full of fruit crowns; and they are the most beautiful that I ever saw. Many of the readers of the *Gardeners' Chronicle* live around here, and they are welcome to come and see. I practise the same plan with novelties sent here for trial. If they are planted late in the fall, or in the spring, I deflower them and keep off the runners; and then the next season I fruit them. I find that by deflowering them they run at once, and that, by constantly depriving them of their strings, they make many and fine fruit crowns.

Perhaps we may apply to Strawberry plants and also to soils the saying, that "what is one man's meat is another man's poison." It may possibly be good for some sorts, in some soils, to be allowed to have a few runners. Their constitutions and habits are not all the same. Some absolutely require rich clay or rich deep loam; also some lands are best without any manure, or with a much smaller quantity of manure than I am obliged to put on. I suppose that, if Mr. Tiley or Mr. J. Keynes were to anoint their fine lands as I do mine, they would never have a Rose or a Strawberry.

I have made this observation many times in my life, that people who let their plants have a wilderness of runners, have either no Strawberries or very poor crops. Those who have rich strong land abounding in potash may be able to do it successfully. If persons find in their soil that plants deprived wholly of runners do not fruit well, then it would be wise to follow the suggestions of "A. T." given at page 1083.

"Medio tutissimus ibis."

It would also be well to plant two beds each of approved sorts—say six sorts, and to deprive of runners for three years one bed of each sort, and to let one bed of each sort have their runners after fruiting. Of course they must be planted at the same time, in the same quality of land, and be treated in every respect in the same way, or the trial will be worthless.

The worst of a theorist is this, that he strives to make his theory come true, and as earnestly strives to upset theories that are true. As to experimentalists, their conclusions are drawn from unequal circumstances, and sometimes from incorrect data.

At present, from what I have seen here and elsewhere, I cannot think that a Strawberry plant will bear huge crops of Strawberries for three years following if it is allowed to have runners *ad libitum*. All nature, I know, makes an effort to reproduce. A Strawberry plant makes an effort to do so by seed, and also by plant. It is seminiferous and viviparous; I should think, therefore, that the two would cause exhaustion.

It might not be a bad plan in some soils to cut off the runners, and leave the cord on: I merely suggest this. In fine natural soils, or in soils in high condition, a runner on each side of a strong plant may be pegged into a pot during fruiting without detriment, if the runner is wanted for early planting. Indeed, the best Queen grower that I ever saw, always got his runners by this plan. As soon as the runner had got hold it was cut off, and the pots were put aside till ground was ready. The success of a Queen plant depends, more than any other Strawberry, on an early runner well established before winter sets in.

I find here that cutting off runners at all times conduces to heavy crops, and to continued and increased vigour. In other soils, and under other circumstances, it may not be the case. It seems not to be the case with "A. T." He says: "Of course there was no fruit next year." This arose I fancy from high cultivation, and from a very fine soil. A few runners no doubt would do great good under such circumstances. Roses in strong land, if cut hard, will sometimes give strong blind wood. Indeed, if you cut hybrid Chinas, hybrid Bourbons, and strong-growing Noisettes hard, you will get strong wood and no flowers!

Strawberry plants that flower a second time, such as the Hautbois race and the Black Prince, should be allowed to run, and should not be manured till the spring. *W. F. Radclyffe, Rushton.*

Home Correspondence.

Cotton Growing.—Government being now perplexed as to what to do with, and where to send our convicts, why not make the Feejees a penal colony and employ the men upon growing Cotton. Dr. Seemann, who has visited the Islands and knows all about them, speaks from experience as to their capability to produce the plant, which grows there in a remarkably luxuriant manner; and with an almost unlimited supply of labour, could certainly be made most profitable. *B. L.*

Tangierine Oranges.—With this I send you a few fruit of these, which are now beginning to ripen freely. The trees were placed in a forcing house with Vines about the end of February. They blossomed towards the end of March; were kept in the house and had gentle fire-heat all the summer. The crop is very good, and the little trees, some of them more than 2 feet high, have a charming appearance. Properly they should be now dead ripe and their skins cracking with the abundance of juice, but I did not begin forcing till a little too late. If the trees are placed in a vinery, where Grapes are forced, early in January, they will give ripe fruit early in October, and supply the dessert till Christmas. There is, perhaps, no fruit of its quality so easily cultivated as the Tangierine Orange; gentle artificial heat all the summer—if the pots are plunged in some warm material all the better—and sponging the leaves occasionally, to keep them clean, is all they require. For the dessert they should either be introduced to the table on the trees—they are then very ornamental—or gathered with some of their leaves attached to the fruit, after the manner of those I now submit to your notice. *Thomas Rivers.*

Mr. Rust on Orchard Houses.—I have been much interested and amused in reading Mr. Rust's article in your last Number: amused, because it is so rare to find a man publishing to the world his incapacity, for he acknowledges to having a house built "according to the most correct principles," and yet he cannot grow good fruit—admirable candour! Again he tells us that "orchard houses are so drafty" (I presume he means when all the doors and ventilators are open) "that a delicate person any time in them is sure to catch cold"—wonderful logic! When we wish our rooms to be warm in autumn, winter, and early spring, do we not close our doors and windows to keep out drafts, and would not a man with ordinary ingenuity treat his orchard house in the same way, when making his promenade, knowing that his trees in the cool and cold months in their leafless state require but little or no fresh air? My house has been closed ever since the first week in October, and at all times forms a dry and delightful promenade; the temperature, when the sun shines, at 60°. From his advocating Frigi Dome as a covering to walls instead of bright clear sheet glass, I fear Mr. Rust is going backwards instead of forwards; to a certainty he has not calculated the time taken every morning and evening in letting down and drawing up those ugly brown opaque coverings, useful enough under some circumstances, but not to be compared with glass, for with the latter there is no fear of the under-gardener having forgotten to let down the curtains, and of the chief awakening in the middle of some cold frosty night in April with the terrible feeling that they may have been forgotten. The time taken up in covering and uncovering wall trees from the commencement of April to the end of May, may be calculated at the same ratio as that consumed in syringing orchard-house trees during the months of June and July. My Royal George, Galande, and Barrington Peaches were last August of the deepest crimson, as were those in many orchard houses that came under my observation, managed by experienced gardeners; but my Noblesse, Malta, and some other kinds of Peaches, which were of a pale straw colour, without the least shade of crimson, were far more rich in flavour—in fact perfect. Watering with water-pots is a bad practice. A cistern a little elevated so as to give pressure, and gutta percha tubing, will enable a man to do an hour's work of the watering-pot in ten minutes. Mr. Rust tells us that because he saw one Nectarine tree at Banchory bearing a good crop of fruit, "it is all moonshine to tell us that in some localities in England Peaches cannot be grown"—powerful reason! I have, I believe, noticed the prominent parts of Mr. Rust's communication, and beg to tell him in all kindness that if he will come to our establishment we will do for him all that his professional character requires. *John Polish, Galvanising Gardens, Pimlico.*

Callirhöe verticillata alias *involucrata.* — The nuisance of double names is so great that I venture to ask your aid in preventing, if possible, a fresh infliction of this nature. It seems that continental seedsmen are about to offer, as a novelty, a so-called Callirhöe verticillata, a desirable Malvaceous plant with handsome crimson flowers. Having received seeds under this name two or three years since, I believe myself in a condition to affirm that the plant in question is simply the C. involucrata, A. Gray, one form of which was figured at Tab. 4681 of "Botanical Magazine." I enclose you dried specimens, which will enable you to judge of the correctness of this opinion. As for the singularly inappropriate cognomen verticillata, Dr. Asa Gray, who has made of this genus a special study, himself informed me that he knew no species bearing this designation. *W. Thompson, Ipswich.* [What the *Revue Horticole* says is this:—"The Callirhöe verticillata is a plant almost entirely unknown at present, and very probably has not yet been figured anywhere, nor even described. We have not even been able to find a description of it amongst the numerous publications on the Flora of North America in M. F. Delessert's library. Be that as it may, this species, the meaning of whose specific name we try in vain to explain, belongs to the section Malvoideæ of the genus Callirhöe, known by having a three-leaved involucre very close to the calyx. It appears very near to Callirhöe involucrata of Asa Gray, of which species we find a beautiful figure with its analysis in Dr. Asa Gray's "Genera Floræ Americæ Boreali-orientalis Illustrata." The only differences that we remark are that the flowers are much larger, and the leaves broader and rather less deeply cut. Perhaps this Callirhöe verticillata may be only a very vigorous variety of the species alluded to, said by Dr. Asa Gray to be from Texas and the Arkansas." There is no doubt that Mr. Thompson's specimens belong to the plant of the *Revue Horticole*, the figure of which is excellent. Let us add that these Callirhöes are marvellously like each other, that the Malva Papaver of Texas is one of them, and that they are, we fear, all too "weedy" to become favourites.]

Muscat Grapes.—Understanding that during this season the four following kinds of Vines, viz., Alexandrian, Bowood, Passe, and Tynningham Muscats, have fruited in a house side by side at Chiswick, I should, along with many brother gardeners, be much obliged by Mr. Thompson's candid opinion whether he considers them the same; if not, wherein the difference consists, and which is the best. *J. W.* [The Fruit Committee examined the Grapes referred to; and it would be contrary to the regulations to give an individual opinion. Nor do we think that the differences could be clearly made out from one-year-old plants like these. To give a doubtful opinion would certainly tend to do harm.]

The Caper Plant.—About 18 months ago I was in the same plight as "X." about the Caper plant. Having considered that it grows freely on old walls, and in such places in Italy and the South of Europe, I tried to imitate to some extent such a situation, by filling a 15-inch pot with old bricks and lime rubbish, with a third-part of loam intermixed, planting the old stump in it, and placing the pot in a sunny corner of a dry warm greenhouse, where it has since remained. During the summer of 1862 the plant grew nicely, and it has this season made numerous shoots 3 feet long, producing also a couple of dozen of strikingly beautiful flowers. A seedling plant put in last spring by the side of the old one, has since made a single shoot 2 feet long. *W. R.*

Potatos.—The following is a short account of the produce of two Potatos of the Regent kind. The weight of each respectively was 1¼ lb. and ½ lb., in all 1¾ lb. The produce of the first was 93 lb., and that of the other 30 lb., in all 123 lb. Had it not been for a few accidents that befel them, the yield would have been considerably more. In size they were above the common run, and, what is important, they were free from disease, although other Potatos in their immediate vicinity were more or less affected. Now this freedom from disease deserves attention. Whether or not the method of cultivation adopted had anything to do with the cleanness of the tubers I cannot say. The method consisted in merely planting out the shoots as they were produced by the tubers, after the manner of Dahlia cuttings. They were planted in a not very rich soil, consisting of sandy loam, without a particle of manure of any kind. Under this description of treatment I had a very fine crop, even as far back as 1826, and now that disease has spread its devastations throughout the land the method may be worth revival. Be that as it may, I think that the plan is a very good one for the increase of any particular sort. *Thomas Whyte, Pomona Cottage, Kew Green.*

Pears out of Season.—Have any of your correspondents noticed the unusual time at which the different kinds of Pears are coming into use? Marie Louise was fit for table at the end of September; Winter Nelis, of fine flavour, we have just finished; and Passe Colmar is now fit for use; but the most remarkable fact is that Beurré Rance and Easter Beurré will be fit for eating

in a few days, although the same kinds last year were kept on till April. They however did not prove satisfactory, and were in the end thrown to the rubbish heap. I may add that those now turning into use were kept in the room occupied by last year's fruit, and that their treatment has been in every respect the same. *E. Welch, The Palace. Armagh, Ireland.*

The Brugmansia.—This tender shrub is not employed for out-door summer decoration to that extent which it deserves. For a centre ornament for a large bed or for a specimen plant on Grass it is admirably adapted, and it is very manageable, requiring only to be kept free from frost, and to have a slight pruning in every season. Strong baskets are the best contrivances to grow the Brugmansia in; they can readily be plunged in the ground with 6 inches of good rich compost put round them; into this the plant roots, and grows and flowers most profusely. At housing time these outside roots are cut off; this checks the plant, which is apt to grow with too great vigour when planted out. We have some good sized plants of it at this place, which have been subjected to this treatment year after year, and they are now objects of attraction. What can be more graceful than a plant 5 feet high, well feathered to the ground, with drooping trumpet-shaped flowers? In-doors it is much subject to red spider; out-doors in this dripping climate it escapes this pest; the yellow and red blooming kinds are best suited for out-door work. *John Edlington, Crom Castle, Ireland.* [But how about high wind?]

Town Gardening.—Chrysanthemums are amongst the few plants which attain to any degree of perfection in gardens situated in the midst of smoke, fog, and the innumerable disadvantages of a city. With respect to these it cannot be asserted that it is impossible to produce good flowers and healthy plants; for any one who has visited the Temple Gardens this season must admit that such is practicable. However, all town gardeners are not Broomes or Dales; they cannot, therefore, sweep before them the many obstacles which serve to prevent Chrysanthemums from attaining that acme of perfection to which the skilful gardeners just named have brought those under their management. Nevertheless, being myself for once successful, I am desirous of recording the fact, and of stating how I contrived to be so, for there are doubtless many who like myself are limited in space, and whose so-called gardens are surrounded on all sides by lofty mansions. I have often wished to grow Chrysanthemums, but unfortunately seldom succeeded. This I mainly attribute to the fact of my being in the country at the time when the plants require attention and training. Having happily obtained a collection of Chrysanthemums last spring, I determined not to lose sight of them. I potted them in 7-inch pots, and placed them in a cool frame. In May they had made some good shoots, and in June so strong were they that I "headed" them, making cuttings of the wood removed. Early in July I commenced to stake the large plants, attending constantly to the syringing and watering of them in a garden at the north side of the street, and consequently seldom benefited by the sun's rays. I have the advantage of a small greenhouse, which, being heated by a stove of the old fashioned style, affords me a supply of early-flowering plants in winter; it is about 30 feet from the house on the west side, and between it and the rear of the dwelling house is a border containing Lily of the Valley. Against the wall which separates ours from our neighbour's premises I planted several of the Chrysanthemum plants, and the others in pots in the centre of the garden; but in July, when all promised well, I had to leave town for the sea-side. I was determined, however, to do justice as far as I could to the plants, and therefore left them in the care of a man known to me more for his honesty than his horticultural skill. I impressed upon "James" the necessity of syringing every evening, and watering evening and morning. I observed that some of the plants had been attacked by snails, which together with slugs are a great annoyance in town as well as in country gardens. I instructed my man to procure lime and place it along the wall and round each pot; this served the purpose, and at last I have been victorious. I may therefore state, and I have the opinion of Mr. A. Balfe, Secretary of the Royal Horticultural Society of Ireland, who visited me yesterday, in my favour, that better blooms or more healthy foliage have seldom been seen on town-grown plants. *E. A. M., Dublin.*

Thermometers, &c.—I shall be much obliged to any of your correspondents (not interested in the sale) who will give an account of their experience of Casella's self-registering thermometer, to ascertain whether it can be trusted for accuracy. I have one hung, according to the directions, at the height of about three feet from the ground, in the open air, which has lately shown a degree of frost scarcely warranted by the effect on Calceolarias and other half-hardy plants in the garden. On the night of the 21st–22nd inst. 14° of frost were shown, the pin having stood at 18° Fahr. On the 28th–29th it stood at 20°. The thermometer, without sun, is generally in the day-time about 3° lower than one (by Troughton) in the shade. *A Subscriber.* [The instrument to which you refer must have been wrong on the night of the 21st–22nd ult., but it appears to have been about right on that of the 28th–29th. We have experienced that all complicated thermometers are the most liable to get out of order, and therefore we prefer registering thermometers on Rutherford's construction. Their principle is very simple, and when well made, the indications of these thermometers are perhaps, of all others, the most reliable. If properly placed, the minimum ones are not liable to get out of order. Their bulb end should be kept a little lower than the tube, which will consequently incline slightly upwards from the horizontal. The late Mr. Newman made a great improvement in Rutherford's maximum thermometer, by introducing a graphite index instead of steel, the mercury being apt to adhere to the latter. This improvement should not be lost sight of by present makers; they have indeed sought out many inventions, but by so doing have they at greater expense been able to give more truthful indications than Rutherford's thermometers give?]

Chrysanthemums in the Crystal Palace.—As our local shows are now over, and as out-of-door border flowers are looking shabby, I took a stroll to the Crystal Palace on Friday last to see what remained there, and to my astonishment I found the centre avenue a blaze of fresh blooms, in beds round, oval, and diamond-shaped. Mr. Williams, who had the care of them, informed me that he grew the large varieties all on the "second bud," with which he commenced disbudding the latter end of August, watered with weak guano, and housed them the beginning of October. The Pompons are all well-bloomed. Mr. Williams trains many of them so as to have from a foot to 18 inches clear stem; they then branch out pyramidally, and look exceedingly pretty without the support of sticks. As some of your readers may wish to have a collection to bloom in conservatories up to Christmas, commencing in November, I will give the names of the most showy varieties, which are as follows:—LARGE VARIETIES: *Yellow.*—Little Harry, Jardin des Plantes, Chevalier Domage, Annie Salter, Cherub (golden amber). *Red and Orange.*—Sparkler, Mr. Jay, Abbé Passaglia, Dupont de l'Eure, Fabius. *Red.*—Julie Lagravère, Madame Poggi, Auguste Mie, Oliver Cromwell, Victor Hugo (chestnut and red). *White.*—Novelty, Beverley, Vesta, Mrs. W. Holborn, Lucidum. *Rose.*—Pilot, Alma, Mr. Murray, Grand Sultan, Lord Palmerston. *Blush and Pink.*—Julia Grisi, Alfred Salter, Queen of England, Ariadne, Orpheus, Cassandra, Christine. *Indian Red.*—General Slade. *Red and Orange.*—Boadicea, Fair Rosamond. *Amaranth.*—Arigena, Progne, Beauté du Nord. POMPONS: *Yellow.*—General Canrobert, Solfaterre, Golden Cedo Nulli, Mr. Astie (anemone), Priscilla, Golden Drop. *Red and Chestnut.*—Bob, Fanny, Saint Thais, Mustapha, Calliope (anemone), Madame Pepin. *White and Sulphur.*—Argentine, Cedo Nulli, Tactonia, Bijou de l'Horticulture, Andromeda, Modèle. *Rose and Lilac.*—Hélène, Fairest of the Fair, Salamon, Duruflet, Galatea. *Shaded.*—Adèle Priselle (fringed lilac), Madame Rousselon (white and rose), Madame Montels (white and yellow anemone), Madame Carnac (rose and yellow anemone), Perle (rose anemone), President Morel (red and crimson anemone), Aurore Boréale (orange). *Samuel Broome, Temple Gardens.*

Mildness of the Season.—At the desire of Lord Stamford, I send you a flower of Rhododendron ponticum, which his lordship gathered in the woods here the other day. It is not a solitary adventitious flower, but one of many fully expanded. Common wood spring flowers, too, are much in advance of ordinary seasons, and Roses in the gardens continue in flower—altogether proving the extraordinary mildness of the season. *W. Craw, Enville.*

Apricots and Peaches.—It is intended to erect in the kitchen garden a fruit house against the wall. There are walls facing south and east of equal height; on the south wall there are Apricot trees which bear, but not particularly well; on the east, Peach trees that generally blight, and so do not bear. Would it be advisable to take up the Apricot trees and plant Peaches and Nectarines, and enclose them with glass—or would it be better to let the Apricot trees stay as they are, and enclose the wall facing east, where the Peach trees are already that get so blighted? Or, if both the walls were treeless, on which should a lean-to glass house be built, so as to get the most fruit of various kinds? *Novice.* [Apricots should do very well on an east aspect; and if you move them carefully now, they will most likely do better than they have done on the south aspect. On the other hand, the Peaches will acquire their proper flavour by being placed against the south aspect, especially if you cover them with glass. This glass will be most advantageously bestowed on the southern aspect.]

Foreign Correspondence.

Cool Treatment of Orchids.—Lyons, Nov. 28, 1863.—Much has of late been published in your columns on this subject, and from what I have been able to learn from different quarters, the question must now be considered settled in favour of growing certain species in greenhouse temperature, instead of roasting and boiling them as hitherto practised. Nevertheless, as many are still incredulous, and as some cannot make up their minds to deviate from old habits, you will, I am sure, consider it useful to publish everything that pleads in favour of the more rational treatment. I therefore send you herewith an extract from a letter which I have received a few days ago bearing on the subject. *John Sisley, Rue St. Maurice, Monplaisir.*

"Bahia, Oct. 30, 1863.

"I have read with great interest your article on Orchids in the *Salut Public* (of Lyons), of the 10th Sept. last. My own observations induce me to be completely of your opinion respecting a great many species of that interesting class of plants. In general I have met with very few Orchids in the low and hot plains under the line; but I have found a great many in the higher regions, principally at the summits of the highest mountains, and particularly Cattleya Mossiæ, which I have not found anywhere but on the highest mountains, in the provinces of Pernambuco and Parahyba, where the thermometer marked 13° Centigrade (55° Fahr.) at sunrise, during the hottest months of summer. To what degree it falls during the rainy season I have not been able to ascertain. I have found at the same altitude many Oncidiums and Epidendrums. *L. I. Brunet, Directeur de l'Institut Agricole de Bahia, Brésil.*"

Societies.

LINNEAN: *Nov.* 19.—G. Bentham, Esq., President, in the Chair. F. DuCane Godman, Esq., and G. C. St. Brody, Esq., were elected Fellows. The following papers were read:—1. "Note on the Structure and Mode of Dehiscence of the Legumes of Pentaclethra macrophylla, Benth.," by Professor Oliver. The late Mr. Barter, while attached to Dr. Baikie's Niger Expedition, sent home from Fernando Po some remarkable legumes, which under the native name Opochala remained undetermined in the Kew Museum until the recent return of Mr. G. Mann from Tropical Africa. By Mr. Mann they were recognised as belonging to a tree called Pentaclethra macrophylla, and as being so abundant in the island of St. Thomas that the natives collect them for fuel. The seeds are edible and afford a useful oil. These legumes contract in drying, so that the valves become very strongly revolute in the direction of their length. The object of the paper was to explain the results of an examination of the tissues of the pods, undertaken with the object of ascertaining the cause of their remarkable contractility. The structure of these tissues was very minutely described, and illustrated by a series of excellent microscopical drawings. The rolling up of the separated valves was found to be dependent on the unusual contractility of the prosenchymatous bundles. The legumes are chiefly remarkable for their large size, measuring from 22 to 24 inches in length, and from 3½ to 3¾ inches in breadth near the centre, the valves being a quarter of an inch thick along the middle part, and half an inch at the edge.——2. "A Letter to Sir W. J. Hooker, giving an account of some very remarkable Tasmanian Fern Trees with many Crowns," by Mr. W. Archer. The remarkable Tree Ferns described in this paper were examples of Dicksonia antarctica. They were said to grow on the northern side of the mountain called Cumminge's Head, in the midst of a damp forest of Gum-trees of various species, intermixed with other trees. Many of the Ferns have more than one crown; but one in particular was mentioned, on which Mr. Archer had counted round the circumference of its top 19 crowns, while within it was calculated there must have been half as many more, making 28 or 29 in all. Mr. Archer remarked that when he first saw this Fern, and roughly estimated the number of crowns at 15 or 16, he thought it the most wonderful Fern-tree in the world; but now he is satisfied that it is one of the wonders of the world! Another tree near this, had 17 crowns round its top, giving an estimated total of about 25. There were also two others within 20 or 30 yards of the latter, the one with seven, the other with six crowns. The tree with 25 crowns was described as a very singular one; it seemed to have been originally about 16 feet high, and to have fallen and broken at a height of 9 feet from the ground, and to have shot up again straight from the fracture.——3. "Memorandum on a presumed case of Parthenogenesis, in Xanthoxylum alatum," by D. Hanbury, Esq. This dicœcious plant flowered in the garden of Mr. Hanbury's father at Clapham in 1862. It was examined, but no stamens could be detected, and as no other plant of the genus was growing near, Mr. Hanbury was surprised to find the ovaries swell, and the berries attain their full development; but still more so, when having carelessly placed three or four of the seeds in a pot of earth, a seedling Xanthoxylum appeared. The plant again flowered in 1863; it was still more carefully scrutinised without finding on it any other than pistilliferous flowers; nevertheless the ovaries enlarged, and mature berries have been again produced.——The President read letters of thanks from Mr. Panizzi on the part of the Trustees of the British Museum, in return for the Banksian collection of insects and shells, the typical specimens of Australian Mammals, &c., which at the meeting of June 4, were directed to be presented to that institution; and from Mr. Brady, on the part of the Natural History Society of Northumberland, &c., for the donation of the late Mr. Winch's herbarium.

A Special Meeting was afterwards held, at which R. Heward, Esq., was elected a member of the Council, in the room of Beriah Botfield, Esq., deceased.

THE ROYAL.—The anniversary meeting of this Society was held at Burlington House on Nov. 30, when the officers and Council for the ensuing year were elected as follows:—President, Major-General Edward Sabine, R.A., D.C.L., LL.D.; Treasurer, William Allen Miller,

M.D., LL.D.; Secretaries, William Sharpey, M.D., LL.D., and George Gabriel Stokes, M.A., D.C.L.; Foreign Secretary, Professor William Hallows Miller, M.A. Other members of the Council, James Alderson, M.D.; George Busk, Sec. L.S.; Colonel Sir George Everest, C.B.; Hugh Falconer, M.A., M.D.; John Hall Gladstone, Ph.D.; Joseph Dalton Hooker, M.D.; Henry Bence Jones, M.A., M.D.; Professor James Clerk Maxwell, M.A.; Professor William Pole, C.E.; Archibald Smith, M.A.; Professor Henry J. Stephen Smith, M.A.; the Earl Stanhope, P.S.A., D.C.L.; Professor James Joseph Sylvester, M.A.; Thomas Watson, M.D., D.C.L.; Professor Charles Wheatstone, D.C.L., and the Rev. Professor Robert Willis, M.A. At the same time medals were presented to Professor Sedgwick for his observations and discoveries in geology; to the Rev. M. J. Berkeley, for his studies in botany; and to Mr. J. P. Gassiot, for his researches in electricity.

Birmingham Fruit and Chrysanthemum Show.—This exhibition opened to the public on Tuesday last, and must as a whole be looked upon as a success. The fine hall had a beautiful appearance, the fruit being displayed on long side tables; while a large raised centre table was filled with well-grown Chrysanthemums, surmounted by specimen Camellias.

The collections of Fruits in 24 varieties contained some finely grown specimens of Queen and Cayenne Pines; Muscat and Black Hamburgh Grapes; Chaumontel, Uvedale's St. Germain, and Glou Morceau Pears; Reinette du Canada, Blanche Colville, Belle du Bois, and Blenheim Apples.

Awards.—1st, Mr. J. Bent, Edgbaston, Birmingham; 2d, Mr. R. Gidings, Birmingham; 3d, Mr. W. Ingram, Belvoir Castle, Grantham.

Collections of Dessert Apples were numerous. Among them some nice examples of Ribston Pippin, Fearn's Pippin, Lemon Pippin, Cornish Gilliflower, Court of Wick, Newtown Pippin, Wyken Pippin, and Powell's Russet, were conspicuous.

Awards.—1st, Mr. A. Lumsden, Bloxholm Hall, Sleaford; 2d, Mr. R. Gidings, Birmingham; 3d, Mr. J. Bent, Edgbaston.

Culinary Apples in sets of 24 varieties were largely shown. Among them were some beautiful specimens of Celine Pippin, Blenheim Orange, Royal Russet, Beauty of Kent, Reinette du Canada, Walton Pippin, Hollandbury Pippin, Flower of Kent, Dumelow's Seedling, Northern Greening, Yorkshire Greening, Alfriston, and Bridgewater Pippin.

Awards.—1st, Mr. C. J. Perry, Castle Bromwich, Birmingham; 2d, Mr. R. Gidings, Birmingham; 3d, Messrs. Pluck & Wood, Jersey.

Dessert Pears (24 varieties) were likewise well shown; fine examples of Chaumontel, Glou Morceau, Bon Cure, Crassane, Beurré Clairgeau, Josephine de Malines, Winter Nelis, Marie Louise, Passe Colmar, Beurré Diel, and Easter Beurré, were numerous.

Awards.—1st, Mr J. Bent, Edgbaston; 2d, Mr. A. Lumsden, Bloxholm Hall; 3d, Mr. R. Gidings, Birmingham.

The Collections of Culinary Pears (24 varieties), were however by far the most conspicuous—the great size of some of the specimens appeared somewhat marvellous, more especially Belle de Jersey, Catillac, and Gilogil.

Awards.—1st, Mr. R. Gidings; 2d, Mr. C. J. Perry; 3d, Messrs. Pluck & Wood.

The show of Large-flowered and Pompon Chrysanthemums was good, and a great improvement on that of previous years. Primulas were also remarkably fine. Among the Chrysanthemums were well-grown plants of Chevalier Domage, Julie Lagravère, Lady Hardinge, Antigone and Rifleman; and among Pompons, Cedo Nulli, Yellow Cedo Nulli, Priscilla, Ninon, Bob, Attila, Andromeda, and Drin Drin.

Awards.—Chrysanthemums—Collection of 9: 1st, Mr. J. Bent; 2d, Mr. W. Middlemore. Collection of 6: 1st, Mr. C. J. Perry; 2d, Mr. J. Bent. Single specimens: 1st, Mr. C. J. Perry; 2d, Mr. Bent; 3d, Mr. Middlemore. Cut Blooms: Collection of 12: 1st, Mr. Fewkes; 2d, Mr. John Lowe. Pompons—Collection of 9: 1st, Mr. C. J. Perry; 2d, Mr. J. Bent; 3d, Mr. W. Middlemore. Collection of 6: 1st, Mr. C. J. Perry; 2d, Mr. J. Bent. Single specimen: 1st, Mr. W. Middlemore; 2d, Mr. C. J. Perry; 3d, Mr. J. Bent.

Cut blooms were also shown well by Mr. J. George, of Stamford Hill, who took the three first prizes, for 24, 18, and 12 blooms in the open class.

Interesting Collections of Gourds were shown by Messrs. Sutton & Sons, and by Mr. C. J. Perry; also a highly instructive Collection of 130 varieties of Apples and Pears from Messrs. Rivers & Son, of Sawbridgeworth, which added materially to the display.

Notices of Books.

Explorations in the Interior of Labrador. By Henry Youle Hind, M.A., F.R.G.S. 2 vols. 1863. Longman & Co. Pp. 618 (351+267).

The great peninsula of Labrador (though the name is often confined to the north-eastern portion), is bounded on three sides by the Gulf of St. Lawrence, the North Atlantic, and Hudson's Straits and Bay, while Rupert's River, the Mistassini, and the Bersamit's River are its approximate limits on the south-west. The area of this vast country is about 420,000 square miles, the greater part being pretty much in the latitude of Great Britain, but with a very different climate. The fisheries on its Atlantic coast alone yield a yearly return of at least one million sterling. It was once rich in fur-bearing animals, and in caribou or reindeer, and in those days supported powerful tribes of Montagnais and Nasquapee Indians, the former of which could muster 1000 warriors to repel the incursions of the Esquimaux.

Disastrous fires, however, have turned their extensive tracts of hunting ground in the interior into a desert, and the ancient inhabitants have been literally starved out, leaving behind them mere nomadic bands of the two tribes above named, which, with the Mistassini and Swampy Creek Indians, and the wandering Esquimaux, on the northern coasts, are all that remain of the former lords of the soil. Those Indians who come to the settlements on the coast soon lose their bodily strength and active habits: they live on seals and fish, become very susceptible of changes in the weather, suffer from the fogs and damp, are liable to severe attacks of influenza in the spring, the young become consumptive, the middle-aged rheumatic, and death is fast sweeping them away.

Mr. Hind, accompanied by his brother, who acted as draughtsman to the expedition, two gentlemen appointed by the Canadian Government as surveyors, five French Canadian voyageurs, and two natives of the country, commenced this voyage of exploration up the river Moisie, in the beginning of June, 1861, stowed away with instruments of various kinds, and a supply of bacon, flour, biscuit, tea, tobacco, and pressed vegetables, in three Birch-bark canoes, knowing well that all these things, canoes and all, would have to be carried with infinite labour at the numerous "portages" which occur on that rapid river.

A better selection than Mr. Hind could scarcely have been been made as manager of the expedition, for he had already explored the Canadian Red River in 1857, and the Assiniboine and Saskatchewan in 1858, and took a peculiar interest in the character, condition, customs, and traditions of the aborigines.

The natives advised that they should wait a fortnight at least "to give the river time to fall." They said "no canoe can pass the gorges while the water is high; perpendicular rocks, smooth as glass, flank the river on each side, and it rushes between them like a rapid. You can't put out a line to tow, there is no ground to walk on, nothing but high rocks, high, high (for so they emphasise a word by repeating it); you must wait till the river falls." Mr. Hind judged rightly that time was too precious to be wasted, and that ultimately the falling of the water was the very thing that would stop his progress, and pushed onward while he could.

The falls were magnificent; the portages very numerous, often very steep and rugged, sometimes miles in length, and passing over mountains, once over a terrific landslip; once the dry Moss was set on fire, and almost overtook the men as they ran along, carrying the boats in haste to escape the threatening element. At times the torrent was so swift that paddles were useless; then they used poles, or, landing, tracked the canoes along with ropes. In the gorges the rocks often came down too perpendicularly to the edge to admit of tracking, but the Indians were fertile in resources, sometimes tying the boats together, sometimes landing and creeping round a boulder or point of rock, and thence casting a cord with a stick attached into the stream, which, floating down, was seized by the boatmen, and the boats dragged past the difficult and otherwise impassable point. Often the frail Birch-bark canoes got damaged, and then they set to work sewing up the gaping seams, patching and gumming them to keep them watertight.

In some parts the scenery was exquisitely beautiful, "stupendous sheets of ice hanging from the edge of a perpendicular rock, at least 150 feet above the river. Blue and white masses of pure ice, in fact an icicle on a gigantic scale, glistened in the light of the evening sun. Clumps of Birch in full leaf, growing out of crevices in the rock, hung tenderly over the cold white ice below. On each side of this beautiful sheet of white, fringed with delicate green, the red rocks rose stern and unchangeable. White, green, and red, in trees and rocks blending in exquisite harmony, created a picture at which even the Indians gazed with silent admiration."

At first trees of large growth were met with. The most imposing were the Spruce, some of which approached 2 feet in diameter, with tall and clean trunks. The Birch trees were also large in the neighbourhood of the Grand Portage, and in the present condition of the country they are of the greatest importance; for from them the Montagnais and Nasquapees procure the Birch bark for their canoes. Higher up the trees are too small for the purpose.

Sometimes the waters were teeming with fish, which rose at anything, and seemed most anxious to be caught, freely taking a little silver spoon by way of bait. Generally the absence of living things was a striking peculiarity of the country; once or twice this total silence seemed to weigh upon the spirits of the party to a degree that they found very difficult to shake off. "All were more or less under its influence. The day was hot, the purple mountains casting their deep shadows on the lake; the trees, where they could grow on the sloping rocks, wearing their summer dress, but the Indians are silent as the grave; the French voyageurs neither laugh nor talk nor sing, but move their paddles mechanically, dipping them carefully into the water so as to make as little noise as possible. What is it that weighs upon the spirits of us all? It is the absence of life, the consciousness of being in a desolate wilderness. Rocks, and trees, and water, are as beautiful as they can be imagined, yet there is no bird, or beast, or fish, to give animation to this lovely scene."

The tents which our travellers used were made of light sail-cloth, or "American Cotton," which turned the rain well enough so long as the cloth was stretched tight and touched no object inside. If, however, it chanced to touch a bag or gun or anything, at that point the water would penetrate and begin to drip. An excellent half tent of Birch or Spruce bark is made in the following way:—A stout pole about 7 feet long, with a crotch at one end, is driven into the earth by repeatedly plunging it into the same hole, and then made firm by driving two or three short stakes into the ground close to it. Six or eight other poles about 12 feet long are laid in the crotch at an angle of 45°, and about two feet apart at the base. Large slabs of Spruce bark are then cut from neighbouring trees, and arranged on the poles like tiles, and kept from falling by other poles resting upon them on the outside. This makes a tent that is not to be despised. Hunting is of course the great occupation of the Indians, both for the sake of food, and for the skins which are sold to the Hudson's Bay Company, or rather exchanged for goods.

The caribou or reindeer used to be the mainstay of the Montagnais and Nasquapee races, but very few comparatively visit their country now. Its pilage or fur, for it is almost such, is the loosest and largest-haired of any deer, being particularly shaggy about the head and neck. The flesh is delicious, and the leather excellent for leggings and moccasins. As to its habits, while the Lapland and Siberian reindeer is the tamest and most docile of its genus, the American caribou is the fiercest, fleetest, wildest, shyest, and most untameable, so much so that they are rarely pursued by white hunters or shot by them, except through casual good fortune; Indians alone having the patience and instinctive craft which enables them to crawl on them unseen, unsmelt; for the nose of this animal can detect the smallest taint upon the air of anything human at least two miles up wind of him, and unsuspected. If he takes alarm and starts off on the run, no one dreams of pursuing. Bears also form no despicable article of food. Rabbits and beavers, when they can be found, and even musk-rats, are eaten; while skins of every kind are valuable, from that of the little marten, which fetches a high price (5 dollars a-piece), to those of lynx and carcajou wolf, fox, bear, caribou, and seal.

The marten-trap is a sort of triangular box, constructed on the flat stump of a small tree, at about the height of the snow-line, *i. e.*, 3 feet from the ground. The fall is formed by a neighbouring tree almost cut through, and kept hanging by a few fibres. This is supported by a small piece of wood resting on a cross piece. This fall acts the part of a brick in the common sparrow trap. The wolverine (Gulo Luscus), or carcajou, as the French Canadians call it, will often go along a line of traps extending for miles, and take all the baits out of them, and the only remedy is to watch for the depredator and shoot him.

The lynx too is not uncommon, and, at times, a formidable animal. Mr. Mackenzie, of Mingan, landed on a small island opposite the Post, more for exercise than any special object, taking with him a Montagnais bow and arrow, a knife, and snow shoes. He soon saw the fresh tracks of a lynx, adjusted his shoes, and went in pursuit, chasing it round and round the island at a steady pace. Towards evening the animal was evidently getting tired, and he got two opportunities of striking it with the heavy Montagnais arrow used for killing the smaller game. At last he got within 20 yards: the cat (as the Indians call it) turned round, rose on its hind legs, snarled, and began to paw the air. Mr. M. discharged another arrow, but at the same moment his snow-shoes tripped him up, and he fell headlong with his face in the snow. The cat instantly sprang upon him, tearing with one stroke the coat from his back. Mr. M. turned round at once, and caught the cat by the throat with one hand, and with the other drew his knife; but as he made a lunge they both rolled over together, and he received some very severe scratches. Still holding on firmly by the throat, he was not bitten, although in danger of having his bowels torn out by the hind legs of the beast, which was making a vigorous resistance. A second lunge with the knife was successful, passing through the animal's heart; but it left the victor exhausted and bleeding on the snow. He soon recovered, and carried his booty in triumph to the Post.

When caribou, partridge, and fish fail, there is little left till the geese come. Their arrival is hailed with rapturous joy, for the Indians are sadly improvident, and are often driven to fearful straits by want of food. Tripe de Roche (Sticta pulmonaria), and broth of Birch buds, is poor fare in that cold climate, and it is said that sometimes they have been driven to eat human flesh. Our travellers got as far as the summit of the dividing ridge which separates the watershed into north and south. The burnt country extended miles and miles, a picture of utter desolation. So they com-

menced their homeward journey on the 2d of July, and came rapidly down the stream, to ascend which had been so severe a toil.

(To be continued.)

The School Manual of Geology. By J. Beete Jukes, F.R.S. 12mo., pp. 362. Edinburgh : Black.

The title of this useful little book sufficiently explains its object. It is intended for beginners, and is, so far as we can judge, exactly what they want. The work is divided into three parts, of which the first relates to "geological operations now in action;" the second to "some of the facts observable in the crust of the earth;" and the third to the "history of the earth's crust, deduced from the facts observable in it as interpreted by the operations now going on." Each of these parts is well and clearly written, and is illustrated by good and useful woodcuts.

We have before us a *Provisional List of Medicinal Plants, &c., proposed to be cultivated in the Botanic Garden of the Society of Apothecaries, Queen's Road West, Chelsea, London.* Compiled from Lindley's Vegetable Kingdom, Flora Medica, and Medical Botany, Pereira's Materia Medica, Royle's Manual of Materia Medica, the Pharmacopée Universelle, and other sources. It is extremely well done, and we shall congratulate the Society when they shall have succeeded in getting together such a collection.

Miscellaneous.

Death of Mr. Wood.—We regret to have to announce the decease, on the 3d inst., of Mr. William Wood, the very respectable Nurseryman and Rose-grower, at Maresfield, in his 82d year.

The Coming Winter.—Severe winters invariably follow the class of weather which has characterised the present autumn. High winds have prevailed, with excess of rain, and the temperature above the average. Parallel seasons to the present occurred in 1837-8, 1844-5, 1854-5, and 1860-1. In 1838 a great frost set in on the 1st of January; this continued two months. On the 20th of January the thermometer was at 3° below zero. In February the Thames and Severn were partially frozen over. In 1845 hard weather began on the 28th of February, and lasted four weeks. March was the coldest on record, even exceeding the memorable cold March of 1837. On the 13th of that month the thermometer stood 11° Fahrenheit. In 1855 severe frost commenced on the 16th of January, and February was the coldest ever known in England. February 18th registered 26° below freezing point. This frost continued six weeks. February 19th, Thames and Severn again partially frozen over. In 1860 intensely cold weather set in on the 17th of December, and continued with great severity until the third week in January. Christmas Day, 1860, found the thermometer 2° below zero. The prevailing weather throughout the autumn periods of the above years partook of similar description to the present autumn—warm, rainy, and boisterous. I am of opinion, therefore, that we shall have a winter of most intense frost. Whether its advent will be in December or deferred till after Christmas cannot now be stated, but the longer the inclement season which I anticipate is delayed, the greater will be, I apprehend, its severity. *T. L. Plant, M.B.M.S., in Times.*

The Trees of the Lower Frazer River.—The trees most commonly met with are the Abies Douglasii, Lindl. (the Douglas Spruce or Fir), several specimens of which, measured in the neighbourhood of Sumass, were found to be nearly 30 feet in circumference at 5 feet from the ground. 250 feet was the measured length of one that had been blown down; but some which we saw must have been considerably higher than this. The Abies Menziesii (Menzies' Spruce or Fir), a large tree 25 to 30 feet in circumference, and at least 200 feet high. The Abies Mertensiana (Hemlock Spruce of our axemen) is a common tree, growing to the height of 150 or 200 feet. Some trees were observed with a perfectly straight trunk of 60 or 70 feet high before giving off a branch. The Pinus contorta is not uncommon here. The Thuja gigantea, Nutt., known as the 'Cedar,' also attains a very large size in this neighbourhood. The circumference of one measured was 26 feet 9 inches at 6 feet from the ground, and the estimated height 250 feet. This and the Douglas Fir are the most useful trees on this part of the coast. There is a large and increasing export of the Douglas Fir, both as spars and lumber, from Puget's Sound as well as from Vancouver Island. Various parts of the 'Cedar' are applied to different purposes by the Indians. The trunk is used to form their canoes, and when split into slabs (which it is very easily), to build their permanent huts or lodges. The stringy bark and the integuments of the root are plaited into useful and ornamental articles of clothing and household utensils. At intervals, interspersed amongst the trees already mentioned, we find small clumps or solitary specimens of the Acer macrophyllum, Pursh (large-leaved Maple). This tree chooses the more open parts of the forest, where it sometimes attains a height estimated at 150 feet. The circumference of one measured was 20 feet. Along with this tree, as well as in other places, we meet with the Acer circinatum, Pursh, Cornus Nuttallii, And. (which grows to the height of 60 to 80 feet in all, with a straight trunk of 14 or 15 feet before branching, and a diameter of about a foot and a half), the Alnus viridis, D.C., the Alnus rubra, Big. (a common tree most plentiful in wet places), and the Betula occidentalis, Hook. (a tree growing to the height of 60 or 70 feet, and most common about the borders of the forest). Along the immediate banks of the Lower Fraser, on islands and on low grounds subject to annual overflow, narrow belts of Poplar (Populus balsamifera, L.) of large size frequently occur. *Dr. Lyall in the Journal of the Linnean Society.*

Calendar of Operations

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &C.—Owing to the mildness of the weather some of the very earliest Camellias may now be coming into bloom; and where that is the case take care to keep as low a temperature as possible, in order to prolong their beauty. All drip must also be avoided. Early Hyacinths will also soon be in flower, and with care, a succession of them may be kept up till spring. For late flowering bulbs the best pots are 5-inch (forty-eights) for one bulb, and 6 or 7 inch (thirty-twos and twenty-fours) for three bulbs; and where fine display is sought for, three grown together in one pot, secure that object much better than single bulbs. For potting, the soil should be as rich as possible; such as one-half fresh loam, cut from a pasture with the turf decayed in it, and well-decomposed cow or horse manure, and a small quantity of clean sand well intermixed. If, however, this kind of compost cannot be obtained, then the lightest and richest at command must be employed instead. Drain efficiently, and, after filling the pots lightly with the soil, place the bulbs upon the surface, slightly pressing them into the soil. After watering, if the soil is not sufficiently moist, set the pots out of doors, on a dry bottom, and cover them with old tan, ashes, saw-dust, leaf-soil, Cocoa-nut refuse, or any other light material. After remaining thus for a month, the bulbs will be sufficiently rooted to render it safe to remove them to a gentle bottom heat of about 55°, introducing the pots in numbers proportionate to the demand, at intervals of about a fortnight; in this manner, a succession of flowers will be secured. In forcing, endeavour to prevent the roots from penetrating the fermenting material.

FORCING DEPARTMENT.

PINERY.—Atmospheric moisture must not be withheld from Pines in a swelling state, although we have arrived at the dark days. Nothing has a greater tendency to premature ripening. Give little or no air at this season, except under the pipes. There should, however, be slight ventilation of this kind all day, and sometimes all night while the weather is mild.

VINERY.—Where the buds are beginning to swell, or are starting a little, increase of temperature must be allowed—say 60° by day and 55° by night. Take care that plenty of atmospheric moisture is maintained by syringing or otherwise. Do not, however, keep them constantly wet. Allow the stems to become comparatively dry at intervals. The oftener the fermenting materials are turned the better. Let newly introduced Vines be bent down where practicable, to equalise the sap. As soon as the Grapes are all cut in late Vineries, let the Vines be pruned immediately. Whether taken out to rest or not depends, of course, on other arrangements. If they are taken out, be sure to cover them well with old mats and litter.

PEACH-HOUSE.—Begin to force very gradually here. Give air on every opportunity, leaving a circulation day and night, if possible.

CUCUMBERS.—Bearing plants in pots and boxes should be fed once or twice a week with manure water, but take care that it is not too strong or cooler than the air of the house. If young plants have already been raised on a dung bed, they must be carefully guarded against damp and steam from the hot dung. A layer of sand over the surface will check the ascent of vapour through the light material with which seed beds are usually covered.

FLOWER GARDEN AND SHRUBBERIES.

In most gardens leaves can be collected, and when properly managed they form perhaps the most useful source of bottom heat with which we are acquainted, except, of course, hot water. If not already done, all the leaves necessary for carrying on the business of the ensuing year should therefore be collected as early as possible, and laid close together to heat. After fermenting for three weeks or a month, they will be in excellent order for use; in this state they will both heat with more certainty and tread more closely. In order to be ready to make up propagating beds of all kinds, or to form linings, it is necessary to have a mixture at hand, composed of hot dung and leaves, during the course of next month; therefore, before wanted to be put up into a bed, a quantity of hot dung should be drawn from the stable-yard to the leaf yard, thrown together, and well watered, in order to dispel the fiery heat. When fermented thus for a week or so, it may be mixed with leaves. About four parts of leaves to one of hot-manure will make an enduring mixture. This provided, a good frame or pit can be made up at any time; for if the dung has had one heating previous to its mixture with the leaves, little danger need be apprehended from impure vapours, provided the most ordinary precautions are observed. As regards other matters, take the first opportunity of carefully looking over Carnation layer that are in frames; it is possible that dirt may have settled in the axils of the leaves; as this retains moisture in a very inconvenient degree, it is highly necessary for the health of the plants that it should be removed.

HARDY FRUIT AND KITCHEN GARDEN.

In all cases in which the leaves are down proceed with pruning and nailing. Should the weather set in frosty, wheel out manure as has been before recommended to all vacant plots of ground, where heaps may be made, and covered with soil till wanted. In many cases, however, it may be trenched in at once, especially where Carrots, Parsnips, Beet, or Onions are to be grown. All these require to have the soil turned up some months previous to sowing time. Great attention must be paid to Cauliflowers in frames, and under handlights; stir the surface round them in mild weather, and give frequent dressings of dry soot, lime, and ashes, taking care also to give air whenever practicable. Continue to store up any of the late tied Endive and Lettuces, and see that those formerly stored have as free a circulation of air as the weather will permit. All late Cabbages and Winter Greens should be earthed up if not already done, and if dry leaves are plentiful they may be laid very thickly between rows of choice Broccoli, and confined there by sticking Birch boughs round the outside of the beds. Snow's Winter Broccoli, if coming in, should be taken up and protected whenever the heads are large enough for use. Sow small salading under cover, and protect Turnip Radishes and other things in frames.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Dec. 2, 1863, as observed at the Horticultural Garden

Nov. and Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 26	15	30.305	30.302	54	45	49.5	51½	51½	S.E.	.00
Friday 27	16	30.300	30.205	52	37	44.5	51	51	S.	.00
Satur. 28	17	30.238	30.179	54	21	37.5	49	51	S.	.00
Sunday 29	18	30.254	30.119	46	22	34.0	49	50¼	E.	.00
Mon. 30	19	30.105	29.915	46	24	35.0	48½	49	E.	.00
Tues. 1	20	29.797	29.492	49	43	46.0	48	49	S.	.25
Wed. 2	21	29.409	28.945	58	34	46.0	48½	49	S.W.	.63
Average.		30.048	29.593	51.3	32.3	41.8	49.3	50.1		.88

Nov. 26—Uniformly overcast; very fine; overcast; fine.
— 27—Overcast; fine, overcast.
— 28—Fine; very fine, frosty at night.
— 29—Frosty, with dense fog; fine; overcast; frosty.
— 30—Hazy; fine, overcast, cloudy.
Dec. 1—Uniformly overcast, densely clouded, rain.
— 2—Rain; very boisterous, with heavy rain at night.'
Mean temperature of the week 9·10th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending Dec. 12, 1863

Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 6..	47.7	36.1	41.4	19	0.76 in.	2	4	2	3	6	14	4	2
Mon. 7..	48.1	36.0	42.1	18	1.02	1	6	2	3	4	12	6	3
Tues. 8..	43.8	34.0	38.9	16	0.58	2	5	1	2	2	14	6	5
Wed. 9..	46.5	35.7	41.1	15	0.40	3	4	3	3	5	9	3	7
Thurs. 10..	46.7	33.3	40.0	24	0.67	2	6	3	2	8	10	3	3
Friday 11..	45.5	32.4	39.0	16	1.02	3	5	6	1	7	9	5	2
Satur. 12..	45.6	33.7	39.6	16	0.66	3	4	7	3	3	7	8	2

The highest temperature during the above period occurred on the 12th, 1841—therm. 63 deg.; and the lowest on the 9th, 1851—therm. 16 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

BOOKS: *W T.* Read Hamilton on the Pine Apple.

BROCCOLI: *J. Backhouse & Son.* Your Broccoli is excellent; it is large in size, beautifully white, and thoroughly self-protecting.

DYED FLOWERS: *R E G.* Excuse us for saying that your question is not in any way, directly or indirectly, horticultural. Therefore, we regret to say, we cannot answer it.

EUCHARIS AMAZONICA: *Clifton.* We have mislaid our memoranda, but will reply next week.

HEATING: *Watford.* It is a puzzling case. Heat you must have. Have nothing to do with patent fuel, if you are wise. The best thing you can use is good wood-charcoal. But even then your stove should have a pipe communicating with the roof to carry off the products of combustion.

INSECTS: *B W A.* Your insect on Bark is the Mussel scale. You may remove it by scrubbing the bark with soft soap and water at 160°, not lower. As for the other grub, don't you know that all wood-boring maggots throw out what they destroy in the form of sawdust? Attack American Blight by violent syringing with soft soap and water.

NAMES OF FRUITS: *J A F.* 2, Dumelow's Seedling; 3, Rymer; 4, Forelle.—*D B L.* 2, 5, Alfriston; 4, Dutch Mignonne; 6, London Pippin.—*H S.* 1, 2, Dumelow's Seedling; 3, London Pippin; 4, Dutch Mignonne; 5, 7, Hollandbury; 6, Easter Beurré.—*J S.* The Apple appears to be the King of the Pippins.—*X X.* Cluster Pippin.—*G G.* 2, Pomme Poire; 3, Beurré Rance; 4, Bishop's Thumb; 7, St Germain.

NAMES OF PLANTS: *A Thomson.* Gazania splendens. Ageratum mexicanum is blue.—*W Thomas.* It is a very formidable parasite called Clover Dodder, or by the learned *Cuscuta Trifolii.* We much regret that severe illness should have rendered us incapable of answering you before.—*Philander.* No Cryptogamic plants are objects of cultivation—at present—except Ferns; and we name no others. When such plants as Mosses and Lichens become objects of horticulture we shall be happy to name them also, if sent in a recognisable state, which we venture to remark yours are not.—*M J B.* The Cupressus known as Cupressus fragrans has always appeared to us to be some variety of C. sempervirens. We never saw the cones.

PASSIFLORA QUADRANGULARIS or the GRANADILLA: Our good Correspondent, Mr. W. Thompson, of Ipswich, wants a few seeds of this and Musa Cavendishii to transmit to Swan River. They are not in "the trade." Can any kind amateur assist him?

TANGIERINE ORANGES: *** They are most delicious, and only second to Peaches, Nectarines, and Grapes. They are evidently of the Mandarin race. Everybody who has an Orchard House, or who can manage a common Greenhouse, should certainly set about growing them.

Drainage of Land.

MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5*s.* per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

DRAINAGE LOANS are made by the GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY to the Owners of Freehold Estates, Life Tenants, Trustees, Incumbents, Bodies Corporate, &c., for all works of Agricultural Drainage, as well as Irrigation, Enclosing, Road Making, Wood Grubbing, and Farm Buildings, sanctioned by the Inclosure Commissioners.

The advances are repaid by way of Rent Charge on the Estate created for such a term of years as the Landowner shall determine will best adapt the annual charge to the circumstances of the Tenants.

No investigation of title being required, or notices given to Reversioners or Mortgagees, no legal expenses are incurred.

The Company either supply the money expended by landowners in works designed and executed by their own Agents, or they undertake the entire improvement by their experienced staff, supply the weekly advances required, and charge on the estate the actual outlay in the works, and their commission thereon.

Applications to be addressed to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, London, S.W.

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No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

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AUTUMN SESSION, 1863.

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Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

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CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.

J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.

THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.

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J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.

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SMITHFIELD CLUB CATTLE SHOW, 1863.—The SIXTY-FIFTH ANNUAL EXHIBITION of CATTLE, SHEEP, PIGS, IMPLEMENTS, SEEDS, and ROOTS, will be HELD in the AGRICULTURAL HALL, Islington.

PRIVATE VIEW on MONDAY, December 7, after 2 P.M. Admission 5*s.*; TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, Admission 1*s.*

Carriage entrance, Liverpool Road only.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

The GENERAL MEETING of MEMBERS will be held at the Society's House, 12, Hanover Square, W., on WEDNESDAY, December 9, at 11 o'Clock.

By Order of the Council.

London, Dec. 5. H. HALL DARE, Secretary.

The Agricultural Gazette.

SATURDAY, DECEMBER 5, 1863.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	Dec.	7	Smithfield Fat Cattle Show open at the Agricultural Hall, Islington, at 2 P.M., continuing open till Friday evening. Central Farmers' Club .. .. 6 P.M. (Mr COLEMAN, of Woburn, on Meat Making on Plough Land.)
TUESDAY,	—	8	Smithfield Club (General Meeting). Farmers' Club (Annual Dinner) .. 5 P.M. Agricultural Society of England .. 11 A.M.
WEDNESDAY,	—	9	Public Meeting at St. James's Hall (Steam Cultivation) .. .. 2 P.M. Society of Arts, Adelphi .. .. 8 P.M. (Mr. J. C. MORTON on Agricultural Progress, its Helps and Hindrances.)

—— IN connection with the above announcements we are informed that in consequence of the premises of the York Hotel being at once required by the Dover and Chatham Railway, the rooms of the Central Farmers' Club there will be no longer available. Very good accommodation, however, has been obtained at 10, Chatham Place, Blackfriars Bridge. This house is part of DE KEYSER'S Royal Hotel, where a dining-room, a reading-room, and an ample number of bed-rooms will be in readiness for the members of the Club during the ensuing Smithfield Show week. The Discussion Meeting on Monday evening, December 7th, and also the General Meeting on December 8th, will be held at 10, Chatham Place; but the Club dinner will take place as usual at Radley's Hotel, New Bridge Street, at 5 o'clock.

THE circumstances of English agriculture present a series of extraordinary contrasts, though it is but a little island which holds them all. Mr. MECHI in another column explains his Cumberland account of the Castle Acre cake bill; and from a still directer source we know that on Mr. HUDSON'S farm the purchased manure has not been less than 1000*l.* annually for many years. The purchased cake and feeding stuffs have varied from 2000*l.* to 3000*l.* a year; and they are now consuming on that farm 15 tons of cake and a considerable quantity of Wheat meal weekly. At the other side of the island, on soil naturally richer, the land is now covered with a greyish coat of sedge and moss with frequent plots of Devils-bit and Hawkweed, and here and there a thorny spray of Rest Harrow, very little Grass being visible in the so-called Grass field,

Mr. HUDSON tells us that in West Norfolk they are now in the same "rut" that they were in some 20 years ago, growing about the same crops, and keeping about the same quantity of stock—but then they had been farming highly for 20 years before. Mr. MECHI was mistaken in speaking of 25 years as the period of Mr. HUDSON'S farming; it was in 1822, more than 48 years ago, that he made the first purchases of cake at Castle Acre, which have since amounted to so large a sum. The only novelty of late on these light soils, where the fertility is so largely artificial, is the employment of HOWARD'S one-horse plough in spring, with which they plough the land for Barley, preparing it without treading on the land, so that it needs little after harrowing. The liberal treatment, and easy cultivation, and great crops of these light soils, present indeed a wonderful contrast to the poor produce and miserable rent of land naturally much richer which we saw near Purton, Wilts, last week.

But, standing in one of these poor fields, paying probably 10*s.* to 15*s.* an acre to the landlord, and yielding half-a-load per acre of green stuff of all sorts for hay, one does not need to look across to Norfolk for a contrast. There is one close by. On the other side of the fence the Grass is green and plentiful. What is the difference owing to?

It seems, strangely enough, that it is hard to give an answer which shall not give offence. Early in the present year an attempt was made to describe the operations of a vigorous improver on an estate not very far from the field we are now referring to. Two reports were given, one of which described the operations that had been commenced and the results that appeared to the reporter to have been already achieved. The other, *per contra*, referred to the evils of haste, and the importance of carrying labourers and tenants with you in your schemes of improvement. The writer of these reports had been invited to act as judge of green crops for the local agricultural society, but he was afterwards informed that such was the angry feeling excited in the neighbourhood by his account of this improved estate, that had he acted as requested not a single entry would have been submitted for his award!

If this be true, how shall we avoid a similar unfortunate result at present? It is, we believe, of use to give reports of cultivation and improvements, and point out places where striking agricultural lessons are being given; but we have no wish to excite any angry feeling in connexion with them. The best plan, however, that can be adopted is to disregard the risk we run, and do as always hitherto—describe as honestly as possible whatever has been seen and heard.

Mr. RUCK, of Castle Hill near Cricklade, well known as a leader in steam cultivation, purchased two years ago a farm of 300 acres of clay land near Purton, about one half under Grass and one half arable, which had been let at the yearly rent of 186*l.* The estate was bought for less than 15*l.* an acre. There are two or three good Elm trees close by the farm house; but excepting these there was little evidence of fertility. The "Grass" was chiefly sedge and moss, the hedgerows were straggling into the fields, the timber was small and stunted, the land was water-logged, the tenant was dissatisfied.

By removing some fences and confining others to a reasonable width—by deepening the outfalls and the ditches, and bringing steam power to bear in drainage—by liberal dressings of manure to the Grass lands, and feeding sheep upon the fields with cake and corn, and by steam cultivation on the arable land, a great and obvious increase of fertility has been already conferred upon the estate.

The Grass fields now are green, and where stock enough is on them they are grazed well down. The arable land, which has all borne a crop of Wheat, and is now all in Italian Rye-grass, has been laid open by the removal of fences for the systematic drainage, burning, and steam cultivation which it is to receive. Most of the estate had been drained with Government money many years ago—inch-pipe tiles being used, but placed not nearly deep enough; while imperfect horse tillage, and utter regardlessness of the outfalls, had afterwards rendered the work useless. Mr. RUCK has "mole" ploughed most of the land by steam power, placing the channels about 3 yards apart and 3 feet deep, and furnishing each with a pipe tile exit to the open ditch. The land after this treads sound, and where dressings of artificial manure have been applied is evidently improving and improved. A dressing to the pastures of 2 cwt. of superphosphate and 1¼ cwt. of guano per acre applied in April in 600 gallons of water, and repeated in July—the rapid growth of Grass being fed off by sheep receiving also cake and corn—has soon put a different appearance on the Grass lands. Dressings of compost earth and dung and lime have also been applied with good effect. The influence of the artificial dressing is, however, seen where there is a mere line of division between the two; the immediate effect of the soluble manure being visible in the greater greenness of the Grass and the considerable destruction of weeds already produced in it.

We saw feeding on this grass 100 Cotswold Chilver tegs, eight and nine months old, which were already taking the ram. Of course this is to a great extent an experiment, but they are the largest, finest lambs we have ever seen, and seemed forward enough to save a year by having their lambs at 12 months old. Mr. RUCK is also bringing forward a lot of young cattle, for feeding while in shelter. A space of 50 feet by 80 is being covered with a double roof of faggots and thatch; the space beneath being divided out by gangways and into boxes, so as to enable the proper division of the lot into small companies, with easy access to each.

The arable land has yet to be properly drained and fallowed, and steam power has been and will yet be brought successfully to bear in that deep, in a certain sense *bottomless*, and thorough tillage, which is not only a great help to land drainage generally, but a necessary condition of it in stiff clays.

It is impossible to doubt that the purchase and improvements have been profitable; and it is to be hoped that the large extent of clay land, yielding little either to landlord or to tenant in that neighbourhood, will by the example of the Manor Farm at Purton be made more productive to the benefit of all the classes dependent on it than it has been hitherto.

Examples of the kind thus described must ultimately exert an influence on the relative value of clay lands. The contrast between the enterprise and liberality of management on clay lands and lighter soils is still very great. We have the following report from Sussex, bearing on this point:—

"I called upon a nobleman's agent on Monday, who within the last few years has expended 10,000*l.* in draining the stiffest clay soils of the county, and asked him the straightforward question, 'Have your rents increased in consequence?' and I could not get him to say that they had. His reply was (what every one very well knows), 'that all wet land must be improved by draining.' I cannot find a case in my neighbourhood of an increase of rent from draining on heavy clay soils beyond a fair per centage on the outlay. It may however, to some extent, be accounted for by heavy land farms being much more difficult to let than they were 10 or 20 years ago. But for the improvement of draining, they would not bring the rent now that they then did. I know one case of a farm of this description coming into the market at Michaelmas, 1862, and remaining unlet until two or three weeks before last Michaelmas, and then at a reduced rent, with an agreement that the landlord should allow the 'inventory' about 3*l.* an acre upon a large portion of the worst of the land, that the tenant might without loss to himself lay it down to permanent Grass. Another proof that clay farms have latterly decreased in value, is that there are 10 applicants for a hill to one for a vale farm. Much of the clay land of Sussex I have no doubt would now be laid down to Grass but for the heavy 'inventory,' which the tenant when leaving would lose, to the amount of from 3*l.* to 5*l.* an acre. Quite the reverse is the case with hill farms. The disposition to break up down land is increasing every year, and a very large extent has been brought under cultivation in the last 20 years; the use of artificial manures has increased to an immense extent with the breaking up of this description of land, and also the consumption of purchased artificial food (chiefly oilcake), the result of which is a larger quantity of sheep kept, and, much better kept than formerly, and no doubt gradually increasing in size—a much larger produce in corn, and a much larger employment of labour. The use of bought cattle-food has also greatly increased upon the poor and second-class lowland pasture farms, cattle and sheep being now fattened upon this description of land by this means that formerly only kept them in fair growing condition. Oilcake is also now used very generally in keeping store cattle in the winter in yards upon straw or hay. Formerly this description of stock was merely kept alive through the winter, and frequently to be seen going down to the marshes in the spring, very little more than skin and bone. Latterly, by the use of oilcake with the coarse fodder, poor stock is seldom to be seen. The great and gradual increase in the use of artificial manures, and the consumption of bought cattle food, is the most important feature in the recent history of Sussex farming. Oxen are as generally worked upon the hill farms as they were 20, 50, or 100 years ago. You cannot find a hill farm in a 20 miles ride that does not work oxen; and considering that these farms are mostly large and occupied by well educated and intelligent farmers, we may conclude that they cannot be done away with to advantage. In the heavy land farms, where oxen were worked 20 years ago, they are now seldom to be seen, and no doubt such land can be tilled cheaper with horses or steam power. The latter has however only been introduced into this county in a very few places, and I fear cannot be generally brought into use until the timber and hedges are to a great extent removed to enlarge the fields."

The writer of this interesting report refers to steam-power as probably more economical than draught oxen for working clay soils. That it will prove more efficient is unquestionable; and probably drainage will become a more profitable because a more successful operation when the soil shall have been worked in a manner which does not lay an impervious bed between it and the subsoil.

INSURANCE AGAINST FIRE.

As careful insurance against fire is one of the first duties of a prudent farmer, I think it may be useful to call the attention of the public to the great importance of coming to a clear understanding with the Insurance Companies upon every introduction of a new fireplace upon the insurer's premises—and particularly with respect to fixed and moveable steam threshing machines. I need not say that the use of these engines is almost universal in Scotland and England, and rapidly spreading over Ireland; in my own immediate neighbourhood there are six or seven travelling machines kept for hire. Now the public may not be aware that a policy in the Royal Exchange Insurance Company would be vitiated by the adoption of this, one of the most important of improvements in modern husbandry—I of course refer to the only company with whose regulations on this subject I have been made officially cognisant, but I do think that it becomes every one using steam power to look carefully into the terms of their policies. The facts regarding my own case are simply these:—I have lately put up a small steam engine for the purpose of threshing, &c.; I at once gave notice to the Royal Exchange Company that I had done so, and I received a letter enclosing a plan of the premises insured, with a request that I would mark the place of the engine upon it, and give a description of it, which I did to this effect: That it was in a stone and slated building, with brick floor and brick chimney, and communicating with the barn only by means of a shaft passing through a thick wall; the furnace opening to the outside of the building which contains the engine, and at a distance from either hay or straw—in fact, there could not possibly be a position more carefully selected with a view to safety. I was therefore surprised at receiving from Messrs. Corbett and Armstrong the following letter:—

"Having transmitted to the Royal Exchange Assurance Company your notification of having put up a steam-engine in connection with your out-offices at Hamwood, we are directed in reply to inform you that the Directors invariably decline proposals upon farm buildings and farming stock where steam power is used, and decline granting permission for the use thereof on property already insured," &c.

The remainder of this letter referred to their offer to refund that part of the unexpired policy which affected the offices, and to cancel the policy on farm stock.

I was surprised at this, as the rule seemed to me to strike at the foundation of one of the most important of agricultural improvements; and knowing that almost every farm in Fifeshire or East Lothian had its steam-engine, I walked down to the office of the North British Insurance Company, and found that not only did that Company not refuse to insure, but actually made no addition to the usual premium where either fixed or moveable engines were used. I need not say that I insured my premises at once in that office, and as I look back with not very comfortable feelings to the fact that my having used a hired portable machine would have given the Royal Exchange Company an excuse for depriving me of the advantage they had been for half a century paid to secure, I think it my duty to warn others to make similar inquiries in the offices in which they are insured. *Charles Wm. Hamilton, Hamwood, Nov.* 29.

ON THE SUPPOSED DETERIORATION OF THE SOIL OF GREAT BRITAIN, THROUGH THE EXHAUSTION OF ITS VEGETABLE MOULD.

A LECTURE DELIVERED BEFORE THE OXFORDSHIRE FARMERS' CLUB, NOV. 11, 1863.

By CHARLES DAUBENY, M.D., F.R.S., Professor of Rural Economy, Oxford.

Concluded from p. 1139).

THE vegetable matter accumulated by the decay of plants during centuries, and now for the first time exposed to the influence of the oxygen of the air, will of course become so rapidly decomposed, as to promote in an extraordinary manner the growth and development of any crops, which may be brought into contact with the gases so copiously evolved from it, and with the inorganic constituents so plentifully stored up within its substance.

It is in this manner that we may explain the overflowing population existing in many ancient countries, which, in spite of wars, famines, and bad government, are recorded to have sent forth armies so numerous, as to tax the faith of those who contemplate their desolate state and deficient capabilities at the present time. Look, for instance, at modern Palestine, a country not bigger than Wales, and almost equally mountainous, and yet maintaining in ancient times a number of fenced cities, inhabited by the seven different Canaanitish nations which the Israelites exterminated, and afterwards occupied by the ten tribes, who, we are told, at the period of their greatest prosperity under David, numbered 800,000 men fit to bear arms in Israel, and 500,000 in Judah. Surely such a teeming population implies a richer soil than at present exists in this region.

But leaving out of the account these exceptional cases, which can only occur generally in a country at an early stage of its occupation, or in a few peculiarly favoured localities in one long inhabited, I see no reason to suppose that the general average of the produce need, if properly and judiciously cultivated, fall short of that which was obtained from the land in former ages. Liebig, indeed, who, though utterly opposed to the humus theory, takes as gloomy a view of the prospects of agriculture as the advocates of that hypothesis have done, brings forward the case of the Rhine district of Hesse, as showing that the produce has there declined more than one-fifth within the last 15 years; and some expressions in his book respecting England might lead us to infer that he extends the same remark to this country.

This, however, as he assures me in a letter, is a misunderstanding of his meaning; what he really asserted being, not that Great Britain had diminished in its produce, but only in its natural fertility, that is, the quantity which it would produce if unaided by foreign auxiliaries. Indeed it must be admitted that the idea of an actual falling off of our produce is opposed both to fact and probability—to fact, inasmuch as we have evidence from several quarters of a real increase in the produce of land under tillage during the last half century; by probability, as the increase of rents and of wages which has taken place within the same period, evidently points in the same direction.

Professor Voelcker has given a few statements in support of the former proposition in a lecture delivered before the Royal Institution in May last. Thus in the parish of Oxnead, western part of Norfolk, the Wheat crop amounted in 1773 to 15 bushels per acre; 1784, 23 do.; 1798, 28 do.; average, 26 bushels. Whereas it now produces from 32 to 36 bushels.

Holkham, Norfolk: in 1800, 24 bushels; average at present, 36 do.

Waterden, near Wells, Norfolk: 1800, average crop 24 bushels per acre; at present, 36 do.

Wymondham, near Norwich: 1800, average crop, 20 bushels; 1860, average crop, 32 do.

Mr. Hudson, of Castle Acre, states that the average Wheat crop round Lynn in 1800 was 20 bushels, whereas it is now from 32 to 36.

Nor is it necessary for Liebig's argument to be able to show that a general deterioration in the produce of the country has as yet actually taken place.

Indeed it would be wonderful if with our extended commerce and unbounded capital the evil tendency of an erroneous system were not often counteracted, and in some degree neutralised.

It is sufficient for our purpose, if we are able to show that where there has been an augmentation of produce, the improvement is attributable to expedients which, from their very nature, are temporary and precarious, and where there has been a falling off, the deterioration has arisen from causes which are capable of removal.

For, in the first place, it must be evident that the only sound and rational system of husbandry, the only one destined for perpetuity, and capable of maintaining itself under all the vicissitudes to which a country is exposed, is one which draws its resources from itself, and not from without.

Such is that which the Chinese and the Japanese appear to have adopted, and which has preserved their vast territory in a state of exuberant fertility, from a period long antecedent to that which witnessed the prosperity of those classical regions, now reduced to

barrenness, as some will have it, through the exhaustion of their vegetable mould.

In the case of the above two nations the processes of farming are simplified by the very sparing use which is made of animal food, so that little or no stock is kept, and human excrement is almost the only kind which is available as a top-dressing to their land.

Now as these must consist of the very materials which had been removed from the land by the preceding crops, it is evident that by taking advantage of every particle of dung which the town populations afford, in addition to the contents of their own privies, the farmers may be enabled to keep up the land for an indefinite period to the same high standard of fertility as that which it enjoyed when first cultivated. It is a significant fact, that with them the volatile or azotised portion of the manure is little thought of, for the dung-heap is left exposed to the sun and air, until it becomes desiccated, and all its animal matter is destroyed. It is a part of their system to add manure every year, but fallow crops are never intercalated with cereals, as with us.

A recent writer on Japanese Agriculture remarks, that the Empire of Japan covers an area about equal to Great Britain and Ireland, and that owing to the hilly nature of the ground, not more than one-half is fitted for tillage. Nevertheless its population, which is greater than that of the British Islands, is maintained exclusively by the produce of their own land, whereas Great Britain annually imports corn from other countries to the extent of many millions. Now this fact alone is sufficient to falsify those theories which attribute the falling off of our crops to the exhaustion of the natural humus.

Were there any truth in such a notion, the long continued tillage which the ground has undergone in these countries, and the reduction of the whole region, so many centuries ago, to an artificial condition, by the removal of the primeval forests, and by bringing the whole land under the dominion of man, must have afforded warnings significant enough, that the earth was approaching its dissolution.

Nor is it at all surprising, if this decline of fertility should have been perceived in other regions.

In many indeed far more pains have been bestowed in getting rid of these excrementitious matters than in preserving them, and the fable of Hercules cleansing the Augean stable by forcing the waters of a river through it, is a type of what is often done in the backwoods of America, and in certain of the more fertile portions of Russia, even at the present day.

In such cases there is no need to attribute the decay of fertility to the exhaustion of vegetable mould by culture, since the removal from the soil of the inorganic matters taken up by a number of successive crops, sufficiently explains the impoverishment which it has experienced.

But in countries somewhat more advanced, various expedients are resorted to with greater or less success, in order to bring back the land to its original state of productiveness.

In thinly peopled regions indeed, where an abundance of unclaimed territory exists, upon which to fall back, it has been found most easy to abandon the old and exhausted land, and to resort to new, so that the system of fallowing, which has held its ground in most nations till a recent period, is in fact an expedient borrowed from the practice which the early settlers in every country have been accustomed to adopt, of abandoning the land which did not of its own accord yield them sufficient returns.

The injurious consequences of this system of draining the natural resources of the soil, without attempting to restore them, are shown in the gradual diminution of produce which has taken place in the six Southern States of the American Confederacy, where the number of bushels of Wheat grown in 1840 was 2,014,111, whereas in 1850 it had sunk to 1,053 192 bushels; and when that of Potatos, of which in 1840 35,207,500 bushels had been grown, not more than 19,418,100 were obtained from the same tract in 1850. Indeed, we in Europe are obliged to look for our supply of corn, not to the surplus produce of the Eastern States, but to the vast prairie lands of Illinois and Michigan, where the original fertility of the soil has not yet been sensibly reduced by continued cropping. This has been the cause of the wonderfully rapid rise of the Port of Chicago on Lake Erie, the great emporium of the Corn trade of the Western States of America.

But there can be no doubt, that here also the same effects will ensue, and that in a few years the land will sink to the same condition as that in the older settlements, not indeed reduced to sterility, through the exhaustion of its vegetable mould, but requiring that aid from tillage and manure which is found in other cases indispensable.

In more thickly peopled regions, two methods are resorted to for the purpose of restoring to the land a portion at least of its original fertility.

The first of these is carried on by the operations of ploughing, harrowing, &c., by which we set free a portion of these ingredients which exist so locked up in the soil, as not to be available for the uses of the plant.

For it must be recollected, that there are few soils so sterile, and few rocks so destitute in themselves of fertilising ingredients, as not to contain enough for almost any number of successive crops, so that the only reason why they require to be stirred up and pulverised by the labour of the husbandman is, that only a very small portion, derived chiefly from the surface, is naturally in a condition to be absorbed by the roots of plants.

Accordingly in some cases, as in the well-known one at Lois Weedon, in Northamptonshire, a long series of abundant Wheat crops has been obtained without any manure at all, simply by allowing one half of the ground under cultivation to remain fallow every alternate year, after having been broken and stirred up effectually by the spade.

But experience appears to have shown, that on lands in general no expenditure of labour, that can be regarded remunerative, will avail to bring into an available condition for the purposes of the plant a sufficient quantity of the dormant ingredients of the soil, to supply materials for an abundant harvest.

Hence, under the operation of mere tillage, land would become gradually less and less productive until it failed at length altogether to yield a profitable return.

The elements of fertility indeed exist, and will by slow degrees be brought into an available condition, but not rapidly enough to meet the wants of the husbandman, who, although informed by the chemist, that he has a store of wealth under his feet which is, practically speaking, inexhaustible, soon finds by experience, that the greater part of it lies beyond his reach, and is therefore to him as though it did not exist. Were he therefore to rely upon this dormant capital, he would find himself in the condition of a landholder, who should have inherited a mine of some precious material, but one which could only be extracted by a slow, laborious, and expensive process.

His frugal ancestors indeed, having laid by the profits of the ore, which during a long succession of years they had dug out, and having handed down from father to son their joint acquisitions, would have secured to the present proprietor the enjoyment of wealth, had he only put out to interest the capital that had descended to him, and been content to live upon its proceeds.

But if, presuming upon the fact that a vast and unlimited amount of ore not yet worked out still lay dormant in the rock, he chose to squander away the accumulation of ages, he would be sure to find to his cost, that what he could extract by dint of labour from the earth, left him after all but a scanty subsistence, and perhaps even one, which, as we are told by Sir W. Armstrong, will one day be the case with our coal, may have become, in consequence of the increasing depth from which it could alone be obtained, virtually inaccessible.

And such would be the case with the British landholder, were it not, that our extended commerce and vast capital enable us for a time to replace in a great degree by artificial substitutes the valuable materials which are so recklessly squandered.

RESTORATION OF FERTILITY.

And this leads me to the second branch of the subject, namely the means of restoring the materials consumed by preceding crops through the aid of manures.

The soundest and most efficacious method of effecting this object is the one already alluded to as in use from time immemorial in China and Japan, where human excrements are employed almost exclusively for the purpose of replacing what had been removed by the crops which afford subsistence to man.

In most other countries, in lieu of this, the most unfailing recipe, various artificial substitutes have been resorted to, and especially some form of phosphate of lime, that being the mineral substance which enters most largely into the constitution of our crops in general.

As I am lecturing to practical farmers, I will not dwell upon the various sources from which this important article is derived, whether from the bones of animals or from the recesses of the earth; suffice it to say, that although oxen and other cattle are slaughtered in vast numbers on the Pampas of Peru, often for no other purposes than for the sake of their bones and tallow, the demand for the former has of late years so greatly exceeded the supply, that various mineral substitutes have been proposed for furnishing the same ingredient.

One of these, a mineral deposit in Spanish Estremadura, of considerable extent, and consisting mainly of phosphate of lime in a state of great purity, I explored myself in 1843, at the request of the Royal Agricultural Society, and I am happy now to find, that the impediment to its introduction, namely the difficulty of transport to the nearest sea-port, which precluded its use at the time of my visit, has been now removed, by the construction of a railroad intended to connect Lisbon and Madrid, which passes near the spot where the bed occurs.

You will see on the table specimens of all the various mineral phosphates that I have been able to collect, many of which are doubtless familiar to you, as they are derived from rocks in this country, especially those near Ipswich, near Cambridge, and about Farnham in Hampshire.

But as phosphate of lime alone is insufficient to maintain the fertility of land unimpaired for any length of time, resort has lately been had to guano, which, besides phosphoric acid, contains other fertilising ingredients.

Of this 2,837,365 tons have been exported into Europe within seven years,* and as one example of the advantage derived from its use it may be stated that experiments made in six places of the kingdom of Saxony showed, that each cwt. put upon the ground produced 150 lbs. of Wheat, 400 lbs. of Potatos, and 200 lbs. of Clover more than the same sized farm yielded without it.

Now the superior efficacy of guano can hardly be explained from its analysis alone, for by referring to the following table, which is given on the authority of Liebig, it will be seen, that in addition to phosphoric acid it contains only from 1½ to 2 per cent. of potass, and from 2 to 2½ of magnesia.

CONSTITUENTS OF 100 PARTS OF THE ASH.

	Guano.	Wheat.	Peas and Beans.	Rape.
Potass	1.5 to 2	30	40	24
Lime	34 to 37	4	6	10
Magnesia	2.5 to 2.0	12	6	10
Phosphoric acid ..	41 to 40	45	86	36

Now these quantities are so small, that Liebig is inclined to attribute the superiority of guano over simple phosphate of lime to the ammoniacal salts it contains. Yet it is found that the addition of ammonia to bones does not render it equally efficacious, and hence Liebig looks to the oxalic acid present in guano as contributing to its beneficial action; for this acid, if assisted with moisture, unites with the lime, and sets free the phosphoric acid, which, combining with the ammonia, forms a salt, affording from its easy solubility a ready supply of nutriment to plants.

But even guano after a time loses its efficacy, and this may be explained by comparing its composition with that usually given of the inorganic constituents of the seeds cultivated for food, for whilst, for example, Wheat yields an ash containing 30 per cent. of potass and 12 of magnesia to 45 of phosphoric acid; Peas and Beans, 40, and Rape, 24 of potass to 36 of phosphoric acid; guano, as we have seen, furnishes only 1½ to 2 per cent. of potass, and 2 of magnesia, to about an equal amount of this same acid.

So soon therefore, as the available potass or magnesia present in the soil becomes expended, the phosphoric element of the guano will cease to contribute to the growth of the plants submitted to its influence.

Even guano therefore is, after all, an imperfect substitute for those excrementitious matters, which experience led the farmer to apply to his land, long before the reason of their efficacy was discovered.

The excrements of his cattle, mixed with the straw and other refuse of the crops he cultivates, are used under the name of farmyard manures, and are regarded in all countries amongst the most valuable as well as the most accessible kinds of manure which can be applied to land.

But they are inadequate to fulfil their appointed office, both in quantity and in quality; in quantity, because they represent merely the inorganic constituents of the food which the cattle have consumed, and consequently do not replace the loss occasioned by the sale of corn, legumes, and live stock off the property; in quality, because as the dung of cattle is derived from the hay, Clover, Turnips, &c., which they feed upon; and as these contain a larger proportion of the ingredients required for the straw of the cereals than for their grain, it follows that whilst the former is augmented, the latter will suffer both relatively and absolutely; relatively, because the straw will be developed more than the grain; absolutely, because the increase in the straw draws off a larger quantity of those ingredients, which the grain afterwards produced requires for coming to maturity.

The system of intercalating fallow crops serves indeed for a time to prevent our perceiving the deterioration which the land has undergone, because these draw their supply of nourishment from a deeper stratum, and thereby bring up to the surface a fresh supply of nutritive matter, which, after passing through the system of the cattle which feed upon them, is distributed over the surface soil in the form of stable or farmyard manure. But this resource will at length come to an end by the exhaustion of the subsoil from which the new supply is drawn, as the failure of the Clover and other crops alone is sufficient to evince.

We arrive then at length at the conclusion, which the oldest nations on the globe, namely the Chinese and Japanese, have recognised practically from time immemorial, namely, that the only method of maintaining our land for an indefinite period in a condition of undiminished fertility, is by availing ourselves of the excrementitious matters not only of cattle but also of man, and in taking advantage of the latter by not allowing that derived either from the country or the town population to run to waste. In a perfect system of farming, it is evident that care would be taken to restore to the land all that had been withdrawn from it, except that small proportion which had been appropriated by the increasing population of

* Mr. Markham, in his "Travels in Peru," states that the Chincha Islands in the Bay of Peru contained, in 1853, 12,376,100 tons of guano, of which 2,837,365 tons had been exported up to the year 1861. In that year as many as 433 vessels, with a tonnage of 348,554 tons, had loaded in the Chincha Islands; so that at that rate the store of guano in those Islands will not last more than 23 years, or beyond the year 1883.

the country, or was contained in the solid portions of those individuals who had been interred in their cemeteries; and even the latter would no doubt after a certain lapse of years be rendered back to the soil from which they were derived.

In the state of things thus supposed we might even anticipate an increase of fertility the longer the ground remained under cultivation, because every arable soil contains a large amount of phosphoric acid, of alkalies, and of earths in a condition not available at one time to the plant, which however by degrees, through the action of air and water, is rendered soluble; so that in a field under constant tillage more and more of its inorganic ingredients will be rendered fitted for agricultural purposes. Nor under these circumstances will it so much matter, whether the manures have retained their ammonia, as every soil absorbs from the rainwater or from the atmosphere more of this ingredient than is required for any ordinary crop.

We perceive, therefore, the theoretical correctness of the principle upon which Liebig proceeded in proposing a set of mineral manures adapted to each particular crop, as being calculated to supply the waste of nutritive matters occasioned, by restoring them in a proportion as nearly as possible corresponding with that in which they had been withdrawn. Their failure, which is not now disputed even by their inventor, arose from the reduction of the ingredients of which they were composed into a condition in which the roots of plants were incapable of absorbing them. Fearing lest the alkaline matters should be washed away by the rain before they could be assimilated, Liebig directed that the materials should be fused together in a reverberating furnace, supposing that in that state they would, when spread over the soil, become gradually dissolved in water, and thus in a liquid state be applied to the absorbing surfaces of the plant.

But it has since been rendered extremely probable by the important researches of Professor Way, that roots chiefly derive their nutritive matters from what is held by the soil in a solid condition. Way observed, that soils possess the power of absorbing from aqueous solutions of saline matters, sometimes the whole, sometimes the base only of the dissolved salt, and that in the latter case the acid of the salt from which the soil had withdrawn the base, passed through it in combination with lime. This power of arresting either the whole or a portion of the saline ingredients circulating through the soil in a state of solution in water, Liebig ascribes to the attraction exerted by the surfaces of the earthy matter for these ingredients, and he is of opinion, that whilst this attraction is powerful enough to prevent in great measure the nutritive matters from being carried off by the water which percolates the soil, it does not hinder the roots from absorbing what they are brought into contact with, and thus is no obstacle to their becoming subservient to the nutrition of the plant.

It is therefore only by the combined action of the moisture present, and of the absorbing surfaces of the roots, that the minute quantities of potass, phosphate of lime, and other fertilising materials, which are attached to the surfaces of the soil, can be rendered soluble, so as to find access to the growing plant.

But where, as in Liebig's manures, the ingredients were all fused into a mass, it became impossible for these combined agencies to overcome the attraction which bound them together, with sufficient readiness at least to render them available for the uses of the plant.

The above considerations may perhaps furnish an answer to an objection, which I dare say many of you may be disposed to make to my position, that even guano, if applied year after year to the same soil, will in the end bring about its impoverishment.

If, it may be said, this arises from the deficiency of potass and of magnesia, why not supply these ingredients in the proportions in which they will be required, and thus prevent the soil from being exhausted of any one of the elements of its fertility.

Now without entering upon the question, whether the requisite quantity of pearl-ash, or of a soluble salt of magnesia could be obtained at a price for which the farmer would be indemnified by the increase occasioned in his crop, I may remind you, that in order that these ingredients should be serviceable, they must be applied in such a form and in such quantities, as to be present everywhere throughout the substance of the soil, and to be there fixed in a state of chemical or physical adhesion so intimate, as to resist, to a certain extent at least, the action of the weather.

The farmer, therefore, who should add only that quantity of potash or of magnesia which would be required by the crop that he hoped to raise, would be grossly disappointed in his calculations; first, because in the state in which these ingredients were administered, a large porportion of each would be dissolved and carried into the subsoil by the rain; secondly, because what remained for the plant to take up must be so distributed, as that the spongioles of each root should find in contact with them that amount which the plant itself requires for its healthy development.

This of course implies, that a much larger proportion of them should be introduced than would be required by the crop grown.

One difficulty moreover in the administration of such substances as manures, arises from their too ready solubility, which requires to be counteracted by combining them with some substance which should render it more difficult for water to take them up, and in the attempt to do this, we are apt to fall into the opposite extreme, and, as Liebig had done in his original mineral manure, to render the material unfitted for the roots to act upon, or rather brought into a condition, which incapacitates them for their ready diffusion through the soil in those minute quantities which allow the roots to absorb them.

The failure of Liebig's mineral composts, whilst it reads us an useful lesson as to the danger of calculating upon the apparently soundest *à priori* conclusions in their application to practice, may also suggest a caution to those, who, presuming upon their present ability to obtain artificial manures at prices low enough to be remunerative, carry on a system of high farming without considering its ultimate consequences upon the fertility of the soil.

A large proportion of the ingredients which analysis shows to be present in the earth, are, as has been already pointed out, in the condition of those existing in Liebig's manures, namely, locked up by so close an affinity as to require a long period of time to render them soluble.

Hence if by the application of phosphates, guano, &c., or still more by the addition of nitrogenous substances, we succeed in extracting from the soil for a series of years an abundant return, we are exhausting in the same proportion the supply of those ingredients which the manures employed do not contain, and the eby bringing on a period of sterility.

And although a single district or nation may avert this catastrophe, by procuring from foreign lands the ingredients wanting to make good the deficiency, and to restore the balance, yet if the general system of European culture proceed, as appears to be the case at present, on this mistaken principle, it is much to be feared that the supply will not equal the demand, and consequently the prices of the article required run too high to be remunerative.

With reference to this and other allied subjects, I would strongly recommend to my audience the perusal of the latter part of the Report of the Jury on Chemical Products and Processes exhibited at the late International Exhibition, which has been drawn up by that distinguished chemist Professor Hofmann.

In this report they will see the rival claims of Baron Liebig, and of our own experimental agriculturists, Messrs. Lawes and Gilbert, fairly and clearly discussed; and whilst the services rendered to practical farming by the laborious researches of the latter are candidly stated, due credit is paid to the philosophical views contained in the new work of Baron Liebig, entitled "The Natural Laws of Husbandry," which cannot fail in the long run to exert a wide-spreading influence over the principles of farming.

And I am much mistaken, if the censures which the author has passed upon the system now so prevalent in this country in disposing of our sewage, although perhaps couched in too vehement terms of invective, will not eventually be acquiesced in as in the main correct. Whatever opinion may prevail as to the power of a great commercial and wealthy nation to replace by artificial substitutes the loss sustained by the waste of its town sewage (and it must be recollected, that the question is not whether the loss can be replaced, but whether the substitutes can long continue to be obtained at prices which will be remunerative), no doubt can be entertained as to the value of the material itself, which in consequence of the existing arrangements is so recklessly squandered.

In a few cities indeed, as is notoriously the case in that in which this Lecture is delivered, the very end for the sake of which the loss of our sewage is in other cases submitted to, namely, the prevention of epidemics, and the preservation of the health of the community, is altogether overlooked.

In most other towns, the accumulated filth is carried off from the vicinity, and if lost to the community, is at least rendered innocuous.

But in Oxford a large portion of the sewage is made to empty itself into the bed of a river, often nearly destitute of water, under the most public of its thoroughfares, and in close contiguity to many of its dwelling houses and some of its collegiate buildings.

I do not know that any so flagrant a case of mismanagement as this can elsewhere be cited, but in very many of our large towns the sanitary object is consulted without regard to the economical one, and the only aim appears to be that of the getting rid of the nuisance with the least danger to the health of the community.

For this purpose a system of dilution has been adopted, which, though it facilitates the removal of the excrementitious matters from the vicinity of the town, limits their application as a manure to those crops which admit of irrigation throughout the year, and precludes their employment as a top-dressing generally to cereals.

Dr. Hofmann, indeed, in his Report, is sanguine enough to anticipate the period when a system of pipes will be carried along the whole length and breadth of cultivable land in the country, co-extensive with those which now convey the sewerage away from the town population.

But if this scheme should, from its gigantic proportions, be regarded as inapplicable to the generality of the estates in this country, it may still be found feasible to devise some method of deodorising and rendering inoffensive the sewage matter itself, so as to render possible a return to the old plan of cesspools now in use in most continental cities; although I fear it must be admitted to be one, which under its existing arrangements is not sufficiently free from those objections of annoyance to the senses, and of injury to the health, which have caused it to be superseded in this country. Nevertheless, I have lately seen at Coventry a plan adopted, which seems to fulfil those conditions both of health and of economy, which ought to be jointly aimed at; the sewage being removed in pipes to a proper distance from the town, where it becomes deodorised by admixture with the road sweepings, &c., and then retained in tanks for a time long enough to admit of the deposition of the greater part of its solid matter, after which the liquid portion, deprived of all smell, and nearly in a limpid condition, is allowed to discharge itself into an adjoining river.

So useful is this semi-solid matter found to be in agriculture, so large is the demand for it amongst the neighbouring farmers, that the expense of the management is stated to be repaid by the profits obtained from the sale of the proceeds.

I fear that some portion of the preceding remarks will appear to my audience scarcely to have a practical bearing, for so long as artificial substitutes for the sewerage can be obtained in this country at prices which admit of their being employed with profit, it is hardly to be expected that individuals, from considerations of public utility, will take the trouble of reverting to other expedients, which may have been shown in theory to be better calculated to perpetuate that fertility of which they are reaping the present benefit.

Nevertheless, whilst it may not be amiss to suggest to the present generation of farmers, that even at the present time, and with reference to their own personal advantage, it might be expedient to make some use of the means for restoring fertility to our land which Nature herself seems to have provided, it cannot but be important, that with a view to influence public opinion, every person interested in the well-being of the country should be made aware of the fact, that a time is likely to arrive, when the present system of manures, so far as it is dependent on artificial substitutes, will require to be abandoned; in order that arrangements may be made in anticipation of that period for utilising the treasures now allowed to run to waste, and thus for preparing ourselves to meet the exigencies that are likely to arise; just as at a period of profound peace it is found prudent to prepare the fortifications, and provide the armaments, which would be necessary for maintaining our maritime ascendancy in the event of a future war.

OILCAKE FEEDING.

I HAVE been a great deal amused and somewhat astonished at the hubbub created by my remarks in Cumberland about oilcake feeding. As I am particular in my facts, I will repeat clearly my statement, and then endeavour to convince my brother agriculturists that they ought not to be astonished at those statements, because if they are, it proves to me that they do not understand so well as the Norfolk and Lincolnshire farmers the cheapest and most effective mode of maintaining or increasing the fertility of their soils. I can easily imagine that the thousands of farmers whose animals seldom or ever see cake must regard with astonishment the facts I shall lay before them; but I trust that they will derive from these facts a determination, so far as their capital will permit, to go and do likewise—to hold less land and put more into it. But let us look at it as a manuring question, and we need no longer doubt the wisdom of our Norfolk and Lincoln friends. Are my brother farmers aware that many good practical men manure their land with cake (Rape and other sorts), ploughing in 10 to 12 cwt. per acre? Now, there is a great maxim that every farmer should remember, that every vegetable production pays better to feed than to plough in. This holds good from a field of green Rape or roots to a sack of Barley or a ton of cake. The reason is obvious. The fattening animals take very little from the food, and that little, when converted into meat, sells at 7*d.* per lb., or about 65*l.* per ton, although its elements are really not intrinsically more valuable than the cake at 10*l.* per ton (see chemical analysis: flesh contains 77 per cent. of water—cake only 7 per cent.) When I hear a man complaining of loss by farming, I ask him, "How much is your gross produce per acre?" and if I find it small, I at once understand the cause of his complaining. I except, of course, adverse seasons, of which we have lately had three, during which much capital has been lost by farmers. Speaking however of the average of seasons, a small gross return in produce indicates unprofitable farming. The gross produce of the kingdom is stated by Lavergne and other authorities to be only 3*l.* 12*s.* per acre, or about 3½ rents; and I have now before me a balance sheet of a large farm, which last year (1862) did not produce 3*l.* per acre, and which showed a considerable loss. However poor the farm may be naturally, the gross produce ought to be made 7*l.* per acre, and if much purchased food is used, even up to 11*l.* to 12*l.* per acre. It is easy to understand that the fixed per centage of charges for rent, tithe, labour and horse labour is considerably diminished by a large return. The Norfolk, Lincoln,

and other good farmers understand this well, and "go in" for large meat-making and manure-making, by purchasing and consuming food brought on the farm, to restore the fertility taken away in the Wheat and Barley crops sold. This is what makes Norfolk and Lincolnshire the meat and bread-makers for London. The Smithfield returns confirm this. Well, then, having said so much, I will go to the point upon which I was so snubbed by Professor Voelcker and others at the last meeting of the Central Farmers' Club.

First, let me say that the farmers with whom I occasionally associate in these districts are "practical men," living by their business, and, I may safely say, knowing well what they are about. A few years ago my friend, Mr. John Hudson, of Castle Acre, West Norfolk, was driving me from Lynn to his house, and I saw in the road 35 great 5-year old Devons, as fat as many we see in the show at Christmas. I said, "What extraordinary bullocks!" This was in July. "Well," he said, "these are mine; but I did not intend that you should see them until to-morrow." I said, "How are you feeding them?" He replied, "They were working bullocks, and after they had put in my 300 acres of Barley, I began with 5 lb. of Linseed-cake a day, and gradually increased their allowance; they are now eating 20 lb. of cake a day." I said, "What do they have besides?" "Well," he said, "what they like on the pasture and in the yards, but they won't eat a great deal beside the cake."

Last year, in a company of farmers, I asked, "How is friend Hudson feeding his animals?" The answer was, "He has some great Short-horns; they get 22 lb. of cake a day, half a peck of Bean-meal, and what hay and Turnips they like to eat." A farmer present (Mr. Fuller) said, "I once fed a lot of great Lincoln beasts on cake and straw; they actually at last ate 28 lbs. of cake each per day." Discussing, on the same occasion, the quantity of stock made per acre, Mr. Leeds, one of the company, was pointed out as one of the greatest meat-makers in Norfolk; and on inquiry I found that he purchased, on a farm of 1200 acres, from 250 to 350 tons of Linseed cake per annum, probably at a cost of 2500*l.* to 3500*l.* per annum. "Sometimes," he said, "I lose, and sometimes I gain by it; but the corn crops always feel the effect of it." Again, Mr. Hudson told me that during his long tenure (25 to 30 years) of a farm of 1200 acres, he had expended 70,000*l.* in cake, and 50,000*l.* in artificial manures; and, as he jocularly said to his landlord, "The top or ploughed soil is mine; I made it; the subsoil belongs to your lordship." Now, sir, these wise and successful men know quite well that small crops on land naturally poor and thin won't pay, and they go in for cramming it, and forcing from it great corn crops. I remember once, in a favourable season, seeing on Mr. Hudson's farm 8 Wheat stacks from a 40-acre field—the produce 8½ quarters per acre. This came of stuffing, and the loss on the cake was made up by the increase in the corn. On the ordinary "bread and cheese and no cake" principle, the natural crop of that thin soil would probably have been 4 quarters per acre. These farmers don't trouble themselves about the animal's digestion; they want the cake in the land, and they know that it is more profitable to pass it through the animal than to plough it direct into the soil. People who jeer about 20 lbs. of cake a day never tried what an animal will eat. It is no uncommon thing for my fat sheep on Clover to eat 2 lbs. of cake per day, which is equal to 16 lbs. or 18 lbs. for a bullock. Of course they must have water to drink. I know of a case in my own county where a cow, having got access during the night to the oil-cake bin, ate 55 cakes, or more than 112 lbs. My friend was alarmed for the cow, but she carried it off very comfortably. There is no mistake about it; many a poor farm that is now unprofitable might be rendered remunerative by the abundant consumption of cake. I know a case where half a field of Rape was folded with sheep eating cake, and the other half with sheep eating corn, of the same cost. The cake side, in the following Barley, produced 2 quarters per acre more than the corn-fed side. This was not far from my farm. Therefore don't let my "uncaked" farming friends laugh at me any more about my Cumberland speeches, but rather "go and do likewise," and so improve the condition of their breeches pockets. Many farmers are not aware that when they have given to their bullock 3 bushels of roots, weighing 150 lbs., he has had only 15 lbs. of dry food mixed with 13½ gallons of cold water—very cold indeed in severe weather. This 15 lbs. of dry food is poor in nutritive and manurial matter, compared with oilcake, for it contains a large quantity of woody fibre (see comparative analysis); therefore, if I give my animal 15 lbs. of good cake (which, remember, is a cooked and well-prepared substance), I have afforded it a much better dinner than the Turnip meal, and the manure resulting from the cake is much richer and more forcing, and will show a larger return in the corn crop, or any other to which it may be applied. Of course the cake-fed animal would, like the Turnip-fed, have access to straw, and would also have water, of which I will promise you he will drink less than 13½ gallons in cold weather.

We all farm too much land, and so complain of want of capital. Experience teaches me that our cultivation is too shallow, our manure too little, and our produce too small. No man ever ruined his root and green crops by filling the land to the depth of 2 feet with good manure. When I once told my farming friends that Mr. Bagley, of Fulham, grew 70 tons of Mangel per acre, and sold them at 20*s.* per ton to Mr. Rhodes, the cowkeeper, there was a shout of laughter, and something said about a "crammer;" but market gardeners, who cultivate four times as deep, and manure four times as heavily as ordinary farmers, look upon such a crop as nothing extraordinary. Depend upon it, England is not half farmed; and we must give up a good many of our old prejudices, both as landlords and tenants, before we make farming more profitable. Our tillage is miserably shallow—not deeper than a common wine glass. My practice and advice is:—"Break up your land very deep in dry weather. Do not bring the bad soil to the top, but let one plough follow under the other, and put on plenty of manure, and so grow as many roots and as much corn on 1 acre as you would by ordinary cultivation on 2 acres." This is my advice, but being "gratis," I fear it may not be sufficiently appreciated. *J. J. Mechi, Tiptree Hall, November*, 1863.

P.S.—I find on making up my live stock account annually that, after paying from 500*l.* to 700*l.* for purchased food, I get from 5*l.* to 6*l.* per acre for my green and root crops. The sewage irrigation helps me on my Italian Rye-grass, and my stock consume (cut up and steamed) all my Bean straw, and much of my grain straw. I have reason to believe that this is a more favourable result than is generally obtained where much purchased food is used. Since writing the foregoing, a neighbour, who farms 230 acres of very heavy land undrained, has just called and says he loses 400*l.* this year. On my asking him as to his live stock, he says he has 4 cows and 10 pigs. How can corn be grown without manure? On my own farm, which is only 170 acres, I have nearly 70 head of bullock, cow, and calf stock, and 100 sheep, besides pigs. Unfortunately I know of endless cases similar to my neighbour's. I have just returned from Cambridgeshire, and find the best farmers there using great quantities of cake and meal in feeding.

Home Correspondence.

Price of Bacon. — Reading an article in the *Gardeners' Chronicle* to-day, on pig feeding, it struck me whether you would be interested in having a statistical account of the price of pigs slaughtered at one place for the last 32 years. Sixteen years under a high protecting duty on bacon, and 16 since free from any duty. It appears at first sight almost incredible, but I can vouch for its correctness, having every item before me, as I have entered it from year to year as it has taken place, and I give it you just as entered. *Isaac Hillier, Newmarket, near Stroud, Nov.* 26.

1831	price	7*s.* 2*d.*	per score	1839	price	8*s.* 1½*d.*	per score
1832	,,	7 4½	,,	1840	,,	8 4½	,,
1833	,,	6 5½	,,	1841	,,	8 10½	,,
1834	,,	5 11	,,	1842	,,	7 6½	,,
1835	,,	5 7	,,	1843	,,	5 10½	,,
1836	,,	7 9	,,	1844	,,	7 4	,,
1837	,,	8 1	,,	1845	,,	7 9½	,,
1838	,,	7 10	,,	1846	,,	8 6½	,,

The average price for the 16 years ending 1846, 7*s.* 5*d.* In 1847 3*d.* per lb. duty was taken off bacon, and the following are the prices of pigs since:—

1847	price	10*s.* 10*d.*	per score	1855	price	10*s.* 1*d.*	per score
1848	,,	10 1	,,	1856	,,	10 8½	,,
1849	,,	8 3½	,,	1857	,,	10 9½	,,
1850	,,	7 3	,,	1858	,,	8 8	,,
1851	,,	7 6	,,	1859	,,	8 11½	,,
1852	,,	7 8½	,,	1860	,,	10 9	,,
1853	,,	9 6	,,	1861	,,	10 8	,,
1854	,,	10 2½	,,	1862	,,	9 8	,,

The average price for the 16 years, 9*s.* 6*d.* per score.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, Dec.* 2.—Present, Lord Feversham, President, in the Chair. Lord Chesham, Major-General the Hon. A. N. Hood, Mr. Acland, Mr. Raymond Barker, Mr. Bowly, Mr. Barthropp, Mr. Bramston, M.P.; Colonel Challoner, Mr. Dent, M.P.; Mr. Druce, Mr. Exall, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Hoskyns, Mr. Holland, M.P., Mr. Jonas, Mr. Lawes, Mr. Pain, Mr. Randell, Mr. Shuttleworth, Mr. Thompson, M.P.; Mr. Torr, Mr. Wells, Mr. Frere, Professor Simonds, and Dr. Voelcker. The following New Members were elected:—

Boby, Robert, Bury St. Edmunds
Bowstead, Thomas, Eden Hall, Penrith
Champney, Felix, Gatwick, Crawley, Sussex
Duval, Fernand R., The Chateau de Marolles, Indre et Loire, France
Eddowes, Thos. Henry, Pontesbury, Salop
Freeman, Thomas, 27, Millbank Street, London, S.W.
Gilbert, Robert, jun., Ashby Hall, Bergh Apton, Norfolk
Henderson, John, Horsley Hill, South Shields
Honywood, Frances Emma, Marks Hall, Kelvedon
Horncastle, Edwin, Edwinstowe, Ollerton, Notts
Mynors, Robert, Weather Oak, Alvechurch, Worcestershire
Nicholson, James, Blencairn Hall, Penrith
Riddell, Henry P. A. Buchanan, Maidstone
Rodgett, Miles, West Cliffe, Preston, Lancashire
Smith, William Arthur, Colebrooke Park, Tunbridge
Tate, John, Bilton, Alnwick
Trethewy, Alfred Hugh, Blickling, Aylesham, Norfolk
Waddilove, G., M.D., Brunton, Hexham
Wall, Geo. Young, Jun., 39, North Bailey, Durham
Waller, John Anthony, Brinkburn House, South Shields
Wallis, Robert, Old Ridley, Stocksfield, Northumberland
Wing, William, Market Overton, Oakham

FINANCES.—The Hon. Major-General Hood presented the report, from which it appeared that the Secretary's receipts during the past month had been examined and found correct. The balance in the hands of the bankers on the 30th November was 1599*l.* 9*s.* 11*d.* The Country Meeting account for Worcester was laid on the table. The Committee recommended that the names of 20 members in arrear from various causes be struck off the list of the Society; this report was adopted.

JOURNAL.—Mr. Thompson, M.P., reported that in Class VIII. (1863, Miscellaneous Essays) no prize is awarded, but No. 334 will be published in the Journal by arrangement with the author. *Worcester Local Prizes for Essays.*—When the essays competing for these prizes were sent in, the Journal Committee resolved to appoint one judge for each class on the part of the Society, and to invite the Worcester Local Committee to appoint another. Two applications made to the Worcester Committee with this object have, however, received no reply, and the Journal Committee now propose to appoint a second Judge for each class in the usual manner. This report was received and adopted.

CHEMICAL.—Mr. Wren Hoskyns presented the report, which was ordered by the Council to be referred back to the Chemical Committee to prepare for publication in the Journal.

VETERINARY.—Mr. Raymond Barker reported the recommendation of the Committee that, in consequence of the repeated abuse of the privileges of entry, the disqualification of their pigs, and abusive language towards the officers of the Society, John Dyson, of Adelphi Hotel, Dock Street, Leeds, and James Graham, of 1, Blackburn's Buildings, York Road, Leeds, be excluded from exhibiting in future at the shows of this Society. The Committee further recommended that the Stock Committee be requested to frame a resolution for the prevention of future erroneous entries.

GENERAL NEWCASTLE. — Colonel Challoner reported that the Committee recommended that the showyard be open on Monday the 18th July, and close on Friday evening the 22d, and that the trials of implements commence on Wednesday, July 13. Maps and plans of the showyard and trial grounds were laid on the table, and the Council unanimously accorded their thanks to Mr. Torr for the time and care he had bestowed on the selection of the fields. The Committee further recommended that Mr. Jacob Wilson be authorised to make such arrangements as may be necessary to secure green food, hay and straw for the purposes of the Show. In consequence of the change and extra quantity of land taken for the trials of implements, it was desirable that 150*l.* be paid to the local Committee. This report was adopted.

The Annual Reports of all the standing committees were presented by the respective Chairmen.

The Standing Committees for 1864, viz.:—Finance Committee, Journal Committee, Chemical Committee, House Committee, Implement Committee, Veterinary Committee, aad Stock Prizes Committee, were appointed.

The Council having fixed the General Meeting of the Society for 11 o'clock on Wednesday next, Dec. 9th, adjourned to the first Wednesday in February.

A Special Council was held at the rising of the Monthly Council, for the purpose of receiving the Reports of the Implement and Stock Prizes Committees and of settling the Prize-sheets for the Society's Show at Newcastle-upon-Tyne.

MIDLAND COUNTIES AGRICULTURAL ASSOCIATION.

BINGLEY HALL: *Nov.* 30.—Bingley Hall is this year filled with an unusually good collection under almost every division of its manifold December show. The Cattle classes are more numerous than they have ever been before. The Pigs are also above the average number. The Poultry are 1500 strong. The collection of Roots and Grain was never better; and the several firms of agricultural machine manufacturers and seedsmen are well represented.

The *Hereford* classes include 31 animals in the four classes of oxen, steers, cows, and heifers. The best of the lot is a heifer shown by Mr. Groves, of Shrewsbury, girthing 8 feet 4 inches, and 5 feet 4 inches long at 3½ years old; a remarkably deep, long, wide, well-covered frame, wonderfully good forward, but even and symmetrical throughout. The older oxen are not in any respect remarkable. Mr. Phillips' 1st prize ox is a heavy, somewhat coarse beast, and the 2d prize goes to an animal shown by Mr. W. Heath, with great depth and massiveness, also somewhat coarse; the 3d to the Earl of Shrewsbury. The younger oxen are of more even quality, and have received the general commendation of the judges. Mr. Shirley, of Bawcott, Munslow, who has been often successful at these shows, takes the 1st prize with a straight-backed, symmetrical, evidently well bred and well-coated animal. Mr. Pitt, of Leominster, the breeder of the 1st prize ox, takes the 2d prize for his steer, and the 3d prize goes to Mr. J. Williams, of Kingsland, for a mottle-faced steer, considerably inferior to the other two. The Cows, a small class, include entries by Mr. Pitt, Mr. Draper, and the Hon. General Hood, respectively 1st, 2nd, and 3rd, and two others, one of which certainly was unworthy of a place. The Heifer class of Herefords is worthily "generally commended." It, like the older female class, contains an animal that had tried for a prize at the Worcester Show, and in this

case was disqualified as being excessively fat. She came here when her fault had become a merit, and takes the third prize in the class. The 2d prize animal is shown by Mr. Betteridge of Wantage.

The *Shorthorns* are a noble show. Here, too, the prize of all the classes goes to a heifer, and she is further decorated as the best animal in the Hall. She is certainly a superb specimen of a well-bred well-fatted Short-horn, perfectly cylindrical throughout several feet of her length from the shoulder backward, remarkably fine and firm over the loin, with good flank and thighs, and hardly a weak point about her. She is 8 feet 10 inches round, and 5 feet 5 inches long, at 3 years and 11 months old. She receives the 1st prize in her class, and the prize of 25 guineas as the best Short-horn, the prize of 25 guineas as the best animal in the Cattle Classes, and the Gold Medal as the best Short-horn in the Hall. The class of Oxen includes several noble specimens of the breed; Mr. Baker, of Cottesmore, Mr. Swinnerton, of Nuneaton, and Mr. Thompson, of Anlaby, being 1st, 2d, and 3d, respectively. Mr. Baker's roan ox, rather light behind, particularly good forward, and handling well, girthed 9 feet 1 inch, and is 5 feet 3 inches long. The 2d prize red and white ox beside him, somewhat larger and more massive, is better behind, but coarse in his shoulders. He girths 9 feet 3 inches, and is 5 feet 4 inches long.

In the Steers, the Rev. T. Staniforth, of Windermere, takes the first place with a wonderfully deep and massive animal for so young a beast. He takes Lord Chesterfield's prize for the best ox in the yard, bred and fed by the exhibitor. The 2d prize goes to Mr. Baker, who has won also in the older class, and the 3d goes to the Duke of Beaufort for a very well bred well fed beast, Mr. Thompson, his agent, being commended for one of equal merit. The cows and heifers among Short-horns are very numerous and excellent classes. The 1st prize cow, shown by Mr. Lynn of Stroxton, received the extra prize of 15*l.* offered by Lord Aylesford for the best Short-horn bred by the exhibitor.

The *Devon* classes as usual are not very numerous. They include animals of a larger average size than heretofore. Messrs. Farthing, Heath, and Tucker, all well-known names, are 1st, 2d, and 3d in the older class of oxen. Major-General the Hon. A. N. Hood is first, and ought to have had the third place also in the younger class. It is awarded to Mr. Smith, of Southernhay. The 2d prize goes to Mr. Farthing. Mr. Tucker, Mr. Smith, and General Hood are 1st, 2d, and 3d in the older cow class. The 2d prize animal has an extraordinary development of flesh over the loins. The three heifers shown by Messrs. Smith, Tucker, and Hambro, were respectively 1st, 2d, and 3d in this class.

There is an unusually good show of Long-horns. The cross-bred animals do not include any such wonderful specimens as have in past years been seen, though Messrs. Martin's ox is a very fine beast, both broad and deep. The Scotch classes are particularly well filled. The West Highland class in particular contain a number of very even and handsome animals. Both the Scotch classes are generally commended.

The following are the awards in the Cattle classes:—

HEREFORDS.

OXEN OR STEERS.—1st, 15*l.*, Mr. Joseph Phillips, Ardington, Wantage, Berkshire; 2d, 10*l.*, Mr. William Heath, Ludham Hall, Norwich; 3d, 5*l.*, the Earl of Shrewsbury and Talbot, Brancote. Commended: Mr. Joseph Phillips, Ardington.

STEERS NOT EXCEEDING 3 YEARS AND 3 MONTHS OLD.—1st, 15*l.*, and Silver Medal as breeder, Mr. R. Shirley, Church Stretton; 2d, 10*l.*, Mr. G. Pitt, Chadnor Court; 3d, 5*l.*, Mr. John Williams, St. Mary's, Kingsland. Highly Commended: Mr. R. Shirley. Commended: Mr. J. S. Stock and Mr. J. Draper. The class generally commended.

Cows.—1st, 15*l.*, and Silver Medal as breeder, Mr. G. Pitt, Chadnor Court; 2d, 10*l.*, exhibitor, Mr. J. S. Draper, Thinghill Grange. Hereford; breeder, Mrs. Edwards, Kingsland, Leominster; 3d, 5*l.*, Major Gen. A. N. Hood, Windsor.

HEIFERS.—1st, 15*l.*, extra prize of 25*l.*, and Silver Medal as breeder, Mr. W. Groves, Walk Mills, Shrewsbury; 2d, 10*l.*, Mr. H. Bettridge, Wantage; 3d, 5*l.*, exhibitor, Mr. J. Williams, St. Mary's Kingsland. Highly Commended: Mr. J. Baldwin, Luddington, Stratford-upon-Avon. Commended: Lord Hatherton. The Class generally Commended.

SHORT-HORNS.

SHORT-HORN OXEN OR STEERS, EXCEEDING 3 YEARS AND 3 MONTHS OLD.—1st, 15*l.*, and Gold Medal as best Ox or Steer, exhibitor, Mr. W. H. Baker, Cottesmore; breeder, the late R. W. Baker, Esq., Cottesmore; 2d, 10*l.*, exhibitor, Mr. R. Swinnerton, Nuneaton; breeder, Mr. R. Stratton; 3d, 5*l.*, Mr. J. B. Thompson, Anlaby, near Hull. Commended: Earl of Aylesford, and Sir W. de Capell Brooke, Bart.

STEERS, NOT EXCEEDING 3 YEARS AND 3 MONTHS OLD.—1st, 15*l.*, the President's Silver Cup, and Silver Medal as breeder, the Rev. E. Staniforth, Storrs, Windermere; 2d, 10*l.*, Mr. W. H. Baker, Cottesmore; 3d, 5*l.*, the Duke of Beaufort. Highly Commended: Mr. J. Thompson. Commended: J. Walter, Esq., M.P.

Cows.—1st, 15*l.*, Earl Aylesford's extra prize of 15*l.*, and Silver Medal as breeder, Mr. John Lynn, Church Farm, Stroxton; 2d, 10*l.*, exhibitor, Earl Howe; breeder, the late J. H. Langston, Esq., M.P.; 3d, 5*l.*, exhibitor, Mr. W. H. Baker; breeder, the late R. W. Baker, Esq., Cottesmore. Highly Commended: Earl Radnor. Commended: Mr. J. Faulkner, Bretby Farm, Burton-upon-Trent; Mr. J. N. Beasley, Brampton, Northampton; and Mr. C. H. Abbot, Long Ashton, Somersetshire.

HEIFERS.—1st, 15*l.*, extra prize of 25*l.*, Gold Medal as best Cow or Heifer, and 15*l.* Hotel or Innkeepers' prize, exhibitor, Mr. C Swaisland, Crayford, Kent; breeder, Lady Lubbock, High Elms, near Farnborough, Kent; 2d, 10*l.*, Mr. James, Jun., Coventry; 3d, 5*l.*, Mr. R. Stratton. Commended: Mr. C. Stubbs and Mr. J. Faulkner.

DEVONS.

OXEN OR STEERS, EXCEEDING 3 YEARS AND 3 MONTHS OLD.—1st, 15*l.*, exhibitor, Mr. W. Farthing, Stowey Court, Bridgwater, Somersetshire; breeder, Sir A. A. Hood, Bart., M.P.; 2d, 10*l.*, Mr. W. Heath, Ludham Hall, Norwich; 3d, 5*l.*, Mr. John Tucker, Staplegrove, Taunton. Commended: Mr. W. Smith, Southernhay, Exeter.

STEERS, NOT EXCEEDING 3 YEARS AND 3 MONTHS OLD.—1st, 15*l.*, and extra prize of 25*l.*, exhibitor, Major-Gen. the Hon. A. N. Hood; breeder, the late Prince Consort; 2d, 10*l.*, exhibitor, Mr. W. Farthing, Stowey Court; 3d, 5*l.*, exhibitor, Mr. Smith, Exeter.

DEVON COWS.—1st, 15*l.*, exhibitor, Mr. John Tucker, Staplegrove, Taunton; breeder, Mr. J. Dunning, Orech St. Michael; 2d, 10*l.*, Mr. W. Smith, Exeter; 3d, 5*l.*, Major-General the Hon. A. N. Hood.

HEIFERS.—1st, 15*l.*, exhibitor, Mr. W. Smith, Exeter; breeder, Mr. G. Holland, Ladbury; 2d, 10*l.*, Mr. J. Tucker, Staplegrove; 3d, 5*l.*, C. Hambro, Esq., Milton Abbey, Blandford.

LONG-HORNS.

OXEN OR STEERS.—5*l.*, Mr. R. H. Chapman, Upton, near Nuneaton.

COWS OR HEIFERS.—1st, 10*l.*, and Silver Medal as breeder, Mr. J. H. Burbery, The Chase, Kenilworth; 2d, 5*l.*, W. T. Cox, Esq., The Hall, Spondon, Derby. Commended: Mr. R. H. Chapman, Upton, and Mr. R. Hawkes, Hunscote.

OTHER PURE BREEDS (EXCEPT SCOTCH AND WELSH) AND CROSS-BRED ANIMALS.

FAT OXEN OR STEERS.—1st, 10*l.*, Messrs. J. & W. Martin, Aberdeen (cross); 2d, 5*l.*, Mr. Allan Pollok, Lismany, Ballinasloe, Ireland (Short-horn and Scotch). Commended: Mr. John Baldwin, Luddington (Short-horn and Hereford).

FAT COWS.—1st, 10*l.*, and Silver Medal as breeder, Mr. C. Hobbs, Maisey Hampton, near Cricklade (Short-horn and cross); 2d, 5*l.*, Mr. Aaron Pike, Mitton, near Tewkesbury (cross).

FAT HEIFERS.—1st, 10*l.*, Messrs. J. & W. Martin, Aberdeen (cross); 2d, 5*l.*, Mr. Allan Pollok (Scotch and Short-horn). Commended: Mr. J. Faulkner, Bretby Farm, Burton-upon-Trent (Short-horn and Golloway).

SCOTCH BREEDS.

POLLED OXEN OR STEERS.—1st, 15*l.*, and extra prize of 25*l.*, Mr. W. M'Combie, Tillyfour; 2d, 10*l.*, Mr. W. Heath, Ludham Hall, Norwich (Galloway). Highly Commended: Mr. J. Stewart. Commended: Messrs. J. & W. Martin. Aberdeen. The Class generally Commended.

WEST HIGHLAND AND OTHER SCOTCH HORNED OXEN OR STEERS.—1st, 15*l.*, and Earl Dartmouth's prize of 10*l.*, exhibitor, Ralph Sneyd, Esq., Keele Hall, Staffordshire (West Highland); 2d, 10*l.*, Mr. Allan Pollok (Scotch horned). Highly Commended: Mr. S. Swan, Bush, Jedburgh; Mr. M. G. Rannie, Kelso; and B. E. Bennett, Esq., Rugby. Commended: Earl of Harewood (two Commendations). The Class generally Commended.

SCOTCH COWS AND HEIFERS.—10*l.*, the Earl of Southesk (polled Angus).

WELSH BREEDS.

OXEN OR STEERS.—1st, 10*l.*, B. E. Bennett, Esq., Rugby; 2d, 5*l.*, Henry Platt, Esq., Bangor.

EXTRA CLASS.

For Animals not qualified to compete in any other classes.

OXEN OR STEERS.—5*l.*, Mr. F. Lythall, Spittal Farm, Banbury (cross).

COWS OR HEIFERS.—5*l.*, Mr. W. Lambe, Aubourn, near Lincoln (Shorthorn). Highly Commended: Mr. W. Fletcher, Mansfield, and C. W. Packe, M.P. Commended: Lord Fitzhardinge.

The SHEEP shown at Bingley Hall are not so large a collection as usual. Most of the Leicester prizes go to the finer boned, small high-bred style of sheep, of which Mr. Foljambe's 1st prize animal is the type.

The Long-woolled class is a very fine illustration of a noble breed.

Lord Walsingham carries away nearly all the prizes with his Southdowns in the Short-woolled classes; and in the class of the single fat ewes he is again successful with a model of quality and beauty.

The Shropshire classes include 28 entries, Lord Wenlock, Mr. Foster, and Mr. Holland being among the successful exhibitors. In the cross-bred sheep Mr. Overman takes the first prize with a very fine and massive pen. Colonel Loyd Lindsay shows two pens, from which three sheep, better than the first prize here, might have been selected, but they were badly arranged.

The classes of Pigs are very well filled, the most interesting being the Berkshire for breeding; and the single fat pigs exceeding 15 months old. Mr. Wainman's fat hog was as wonderful an animal in its way as Mr. Swaisland's fat heifer, near which it stood. Several pens are disqualified on the score of misstated age. Professor Gamgee had the noisy and disagreeable work of examining the dentition of every pig in the yard.

The following are the awards:—

SHEEP.

LEICESTERS.

FAT WETHERS, NOT EXCEEDING 22 MONTHS OLD.—1st, 15*l.*, extra prize of 10*l.*, given by the Mayor of Birmingham, and Silver Medal as breeder, G. S. Foljambe, Esq., Osberton Hall, Worksop, Nottinghamshire; 2d, 10*l.*, Mr. L. Willmore, Leicester; 3d, 5*l.*, Mr. R. Lovell, Knapton.

LONG-WOOLLED SHEEP, NOT BEING LEICESTERS.

FAT WETHERS, NOT EXCEEDING 22 MONTHS OLD.—1st, 15*l.*, and Silver Medal as breeder, Messrs. Thomas and George West, Greenhill Farm, Bletchington, Oxfordshire (Cotswold); 2d, 10*l.*, John Henry Elwes, Esq., Colesborne Park, near Cheltenham (Cotswold); 3d, 5*l.*, Mr. C. Kearsey, Glewstone, near Ross (Cotswold).

SOUTH AND OTHER DOWN SHEEP.

FAT WETHERS, NOT EXCEEDING 22 MONTHS OLD.—1st, 15*l.*, and Silver Medal as breeder, Lord Walsingham (Southdown); 2d, 10*l.*, Lord Walsingham; 3d, 5*l.*, Earl Radnor.

SOUTH AND OTHER DOWN SHEEP.

FAT WETHERS, EXCEEDING 22 BUT NOT EXCEEDING 34 MONTHS OLD.—1st, 10*l.*, extra prize of 10*l.*, given by the High Sheriff of Warwickshire, and Silver Medal as breeder, Lord Walsingham (Southdown); 2d, 5*l.*, Lord Walsingham. Highly Commended: Mr. J. Overman.

SHROPSHIRE SHEEP.

FAT WETHERS, NOT EXCEEDING 22 MONTHS OLD.—1st, 15*l.*, and Silver Medal as breeder, Lord Wenlock; 2d, 10*l.*, Lord Wenlock; 3d, 5*l.*, Mr. C. R. Keeling, near Penkridge. Commended: Mr. H. Smith, Sutton Maddock, Shiffnall.

FAT WETHERS, EXCEEDING 22 BUT NOT EXCEEDING 34 MONTHS OLD.—1st, 10*l.*, Mr. Newdegate's extra prize of 10*l.* 10*s.*, and Silver Medal as breeder, W. O. Foster, Esq., M.P., Kinver Hill, near Stourbridge; 2d, 5*l.*, E. Holland, Esq., M.P., Dumbleton. Commended: Mr. J. H. Bradburne, Pipe Place, near Lichfield.

SINGLE SHROPSHIRE WETHER OF ANY AGE.—Silver Cup, value 5*l.* 5*s.*, given by Messrs. Mappiebeck and Lowe, W. O. Foster, Esq., M.P., Kinver Hill Farm, Stourbridge. Highly Commended: Mr. J. Coxon, Freeford, Lichfield. Commended: the Earl of Aylesford.

OXFORDSHIRE DOWNS.

FAT WETHERS, NOT EXCEEDING 22 MONTHS OLD.—1st, 10*l.*, and Silver Medal as breeder, Duke of Marlborough; 2d, 5*l.*, Mr. S. Druce.

CROSS-BRED SHEEP.

FAT WETHERS, NOT EXCEEDING 22 MONTHS OLD.—1st, 10*l.*, and Silver Medal as breeder, Mr. John Overman (Southdown and Leicester); 2d, 5*l.*, Mr. W. Hewer, Sevenhampton, Highworth.

LEICESTER EWES.

FAT EWES OF ANY AGE HAVING BRED ONE OR MORE LAMBS.—1st, 5*l.*, exhibitor, Mr. John Lynn, Grantham; breeder, the late Mr. Robert Lynn; 2d, 3*l.*, Mr. J. G. Watkins, Woodfield, Worcestershire. Highly Commended: the Rev. Gregory Watkins, Woodfield.

LONG-WOOLLED EWES, NOT BEING LEICESTERS.

FAT EWES OF ANY AGE HAVING BRED ONE OR MORE LAMBS.—1st, 5*l.*, and Silver Medal as breeder, Mr. J. Lynn (Lincoln and Leicester); 2d, 3*l.*, Mr. T. Porter, Baunton, Cirencester (Cotswold). Highly Commended: Mr. T. Porter, Baunton, Cirencester, and Mr. W. Smith, Bibury. Commended: Mr. W. Smith, Bibury (two commendations, and Mr. T. Porter, Baunton, Cirencester.

SOUTH AND OTHER DOWN EWES.

FAT EWES OF ANY AGE, HAVING BRED ONE OR MORE LAMBS.—1st, 5*l.*, and Silver Medal as Breeder, Lord Walsingham (Southdown); 2d, 3*l.*, the Duke of Marlborough.

SHROPSHIRE EWES.

FAT EWES OF ANY AGE, HAVING BRED ONE OR MORE LAMBS.—1st, 5*l.*, and Silver Medal as Breeder, W. O. Foster, Esq., M.P., Kinver Hill Farm, Stourbridge; 2d, 3*l.*, Mr. Henry Smith, Sutton Maddock, Shiffnal. Highly Commended: Lord Wenlock. Commended: Mr. C. R. Keeling. Mr. J. H. Bradburne; Messrs. Bowen & Jones, Shrewsbury (two Commendations).

FAT PIGS.

THREE PIGS OF ONE LITTER, NOT EXCEEDING 10 MONTHS OLD.—1st, 10*l.*, Society's Silver Cup, and Silver Medal as breeder, T. L. M. Cartwright, Esq., Aynho, Banbury; 2d, 5*l.* Major General the Hon. A. N. Hood; 3d, 3*l.*, Mr. M. Sharman, Wellingborough. Disqualified: Mr. J. Perrin, Birmingham.

THREE FAT PIGS OF ONE LITTER, NOT EXCEEDING 15 MONTHS OLD.—1st, 10*l.*, and Silver Medal as breeder, Major-General the Hon. A. N. Hood; 2d, 5*l.*, G. B. Morland, Esq., Abingdon, Berkshire; 3d, 3*l.*, Colonel Pennant, M.P. Highly Commended: Mr. J. Darling. Commended: the Countess of Chesterfield, and Mr. T. Crisp.

EXCEEDING 15 MONTHS OLD.—1st, 6*l.*, and Silver Medal as breeder; exhibitor and breeder, W. B. Wainman; 2d, 3*l.*, Mr. S. G. Stearn, Brandeston; 3d, 2*l.*, Mr. G. Mangles, Givendale, Ripon. Highly Commended: Mr. W. Yulls, jun., Highworth. Commended: Mr. J. Darling, Rugeley, Mr. T. Crisp, W. B. Wainman, Esq., and Mr. J. K Tombs, Langford, Lechlade.

BREEDING PIGS.

PIGS OF THE BERKSHIRE BREED.

FIVE PIGS OF ONE LITTER, EXCEEDING THREE AND NOT EXCEEDING SIX MONTHS OLD.—1st, 10*l.*, Society's Silver Cup, and Silver Medal as breeder, Mr. G. M. Allender, Lee Grange, Winslow, Buckinghamshire; 2d, 5*l.*, do.; 3d, 3*l.*, Mr. W. B. Scott, Queen's Hotel, Birmingham. Highly Commended: Rev. Edward Roberts. Silver Medal: Mr. W. J. Sadler, Bentham Calcutt, Cricklade. Disqualified: Mr. Daniel Long, Whaddon, near Gloucester; and Mr. J. K. Tombs, Langford, Lechlade.

PIGS OR OTHER LARGE BREEDS.

FIVE PIGS OF ONE LITTER, EXCEEDING THREE AND NOT EXCEEDING SIX MONTHS OLD.—1st, 10*l.*, and Silver Medal as breeder, W. H. Wainman, Esq.; 2d, 5*l.*, do.; 3d, 3*l.*, Mr. F. F. Wells, near Leamington. Silver Medal: Mr. A. A. Guy, Eaton.

PIGS OF A SMALL BREED.

FIVE PIGS OF ONE LITTER, EXCEEDING THREE AND NOT EXCEEDING SIX MONTHS OLD.—1st, 10*l.*, Society's Silver Cup and Silver Medal as breeder, Mr. T. Crisp; 2d, 5*l.*, Major-General the Hon. A. N. Hood; 3d., 3*l.*, R. Berkeley, Esq., Spetchley Park, near Worcester, Silver Medal: Mr. S. G. Stearn. Disqualified: Mr. J. Lynn, Church Farm, Stroxton, Grantham.

THE GALLERIES OF THE HALL are filled with a capital assortment of Grain and Roots. The Mangel Wurzels are perhaps hardly so good as we have seen there. The class in which prizes are offered for the best collection of Mangels, Swedes, and Carrots, and Mangels, Swedes, and Cabbages, is uncommonly well filled. We have never seen a finer collection of specimens than Mr. Moore, of Warwick, and the Rev. T. Stevens, of Bradfield, exhibit. The show of Potatos too, is first rate. Fifty-seven entries of corn, and 124 of roots, show how great the competition is in the several classes. The Cabbages are enormous. The following is the List of Prizes:—

CORN (1 Bushel samples).

JUDGE.—Mr. J. Mathews, Edgbaston House, Birmingham.

WHITE WHEAT.—1st, 2*l.* 2*s.*, Mr. Charles Kearsey, Glewstone, Ross (Talavera); 2d, 1*l.* 1*s.*, Mr. Joseph H. Clark, Altwood House, Maidenhead, Berkshire (Chidham).

RED WHEAT.—1st, 2*l.* 2*s.*, Mr. Robert Raynbird, Hengrave, near Bury St. Edmonds (Shirreff's Bearded); 2d, 1*l* 1*s.*, Mr. Edmund Lythall, Radford Hall near Leamington (Nursery).

BARLEY.—1st, 2*l.* 2*s.*, Mr. Joseph H. Clark, Altwood House, Maidenhead (Golden Melon); 2d, 1*l.* 1*s.*, Samuel Druce, Eynsham, near Oxford (Old Chevalier).

OATS.—1st, 2*l.* 2*s.*, Mr. Frederick Lythall, Spittal Farm, Banbury (white); 2, 1*l.* 1*s.*, do. (white).

BEANS.—1st, 2*l.* 2*s.*, Mr. Thomas Halford, Newbold, Shipston-on-Stour (French white) eyes; 2d, 1*l.* 1*s.*, Mr. Frederick Lythall, Spittal Farm (Spring).

PEAS.—1st, 2*l.* 2*s.*, Mr. Robert Raynbird, Hengrave (Early Emperor); 2d, 1*l* 1*s.*, Mr. Edmund Lythall, Radford Hall (Blue Field). Highly Commended; Lord Boston, Hedsor, Maidenhead (Maple or Partridge).

ROOTS.

JUDGE.—Mr. J. Mathews, Edgbaston House, Birmingham.

A Silver Cup (10 guineas), offered by Messrs. Proctor & Ryland, of Birmingham, as a prize for the best collection of the four following varieties, namely, Long Mangel Wurzel, Globe Mangel Wurzel, Swedes, and Carrots—six roots of each to be shown for this prize alone—Mr. John Moore, Warwick.

A Silver Cup (10 guineas) offered by Messrs. Griffin, Morris, and Griffin of Wolverhampton, for the best collection of Long Mangel Wurzel, Globe Mangel Wurzel, Swedes, and Ox Cabbage—six roots of each kind to be shown for this prize alone; the Mangel Wurzel to be selected from crops of not less than 2 acres, the Swedes not less than 5 acres, and the Cabbage to be field-culture. The Rev. Thomas Stevens, Bradfield, Reading, Berkshire.

KOHL RABI.—1st, 2*l.* 2*s.*, Colonel North, M.P., Wroxton

Abbey, near Banbury (green); 2d, 1*l.* 1*s.*, Rev. Thomas Stevens, Bradfield.

LONG MANGEL WURZEL.—1st, 2*l.* 2*s.*, Mr. John K. Fowler, Prebendal Farm, Aylesbury (Sutton's Yellow); 2d, 1*l.* 1*s.*, Rev. Thomas Stevens, Bradfield (red).

GLOBE MANGEL WURZEL.—1st, 2*l.* 2*s.*, Rev. Thomas Stevens, Bradfield; 2d, 1*l.* 1*s.*, the Lord Boston (yellow). Highly Commended: Col. North, M.P. (Wroxton Improved); Mr. John Moore, Warwick; and Rev. Thomas Stevens, Bradfield.

SWEDES OF ANY VARIETY.—1st, 2*l.* 2*s.*, Mr. John Darling, Beaudesert, Rugeley, Staffordshire (Dickson's Bronze Top); 2d, 1*l.* 1*s.*, Mr. Samuel Robinson, Shaw House, Melbourne, Derbyshire. Highly Commended: Mr. William K. Malins, Brackley, Northamptonshire (Skirving's); Mr. William T. Crosbie, Ardfert Abbey, Tralee (Sutton's Champion); Mr. Samuel Robinson, Shaw House; Mr. William Fletcher, Radmanthwaite, Notts (Sutton's Champion).

COMMON TURNIPS, SIX SPECIMENS.—1st, 2*l.* 2*s.*, Sir William Heathcote, Bart., M.P. (Grey Stone); 2d, 1*l.* 1*s.*, Mr. Charles Kearsey, Glewstone (Grey Stone). Highly Commended: His Grace the Duke of Portland (Green Globe), two entries.

CARROTS OF ANY VARIETY, SIX SPECIMENS.—1st, 2*l.* 2*s.*, His Grace the Duke of Portland (Altringham); 2d, 1*l.* 1*s.*, His Grace the Duke of Portland (Altringham). Commended: Mr. G. S. Foljambe, Osberton Hall, Notts (Altringham); His Grace the Duke of Portland (Belgian), two entries.

OX CABBAGE, 6 SPECIMENS.—1st, 2*l.* 2*s.*, Mr. Samuel Robinson, Shaw House (Robinson's Champion); 2d, 1*l.* 1*s.*, Mr. Samuel Robinson, Shaw House (Robinson's Champion).

KIDNEY POTATOS, 12 SPECIMENS.—1st, 2*l.* 2*s.*, Mr. George Mangles, Givendale, Yorkshire; 2d, 1*l.* 1*s.*, Mr. Samuel Robinson, Shaw House (King of Flukes). Commended: Mr. J. Choyce, jun., Harris Bridge, Atherstone (New Seedling); Mr. Samuel Robinson, Shaw House (Melbourne Hero); Mr. John Shackel, Blenheim House, Small Heath, near Birmingham (King's).

ROUND POTATOS, 12 SPECIMENS.—1st, 2*l.* 2*s.*, Mr. G. S. Foljambe, Malvern (Wonder); 2d, 1*l.* 1*s.*, Rev. Thomas Stevens, Bradfield (Red Rover). Highly Commended: Mr. J. K. Fowler, Aylesbury; Mr. G. S. Foljambe (Dunbar Regent).

The IMPLEMENT DEPARTMENT is well represented by 20 or 30 firms, including all the well-known names; and steam-engines, threshing machines, barn implements, and tools for the field, the foldyard, and the feeding house are all well represented.

The walls and galleries are filled with a magnificent suite of exhibitions by seedsmen, among whom Messrs. Sutton, of Reading, stand easily first, although Messrs. Dickson, of Chester, and Mr. Perry, of Banbury, also have first-rate stands.

LIST OF JUDGES.

CATTLE.—Mr. J. E. Jones, Springfield, Brelnton, Hereford; Mr. Richard Doig, Lillingstone Hall, Buckingham; Mr. George Turner, Beacon Downes, Exeter.

SHEEP AND PIGS.—Mr. John Moon, Maristow, Plymouth; Mr. J. B. Spearing, Oxford; Mr. Edward Gough, Gravel Hill, Shrewsbury.

ROOTS AND CORN.—Mr. J. Mathews, Edgbaston House, Birmingham.

POULTRY.—The Rev. Robert Pulleine, the Rectory, Kirby Wiske, Thirsk; George James Andrews, Esq., Dorchester; J. H. Smith, Esq., Skelton Grange, York; Joseph Hindson, Esq., Barton House, Everton, Liverpool; Mr. John Baily, Mount Street, Grosvenor Square, London.

PIGEONS.—Mr. Harrison Weir, Lyndhurst Road, Peckham, London; Mr. T. J. Cottle, Pulteney Villa, Cheltenham.

REFEREE FOR THE AGES OF STOCK.—Professor John Gamgee, New Veterinary College, Edinburgh.

VETERINARY INSPECTOR.—Mr. E. Stanley, Stephenson Place, Birmingham.

POULTRY.

For fourteen years the progress of this show has been onwards, and the increase in every respect has never perhaps been more marked than in the show that terminated on Thursday last. Whether we look at entries or sales there was a considerable increase; and the question may arise at some future time as to what is to be done by the Council for the accommodation of the still growing giant. Seventeen hundred and eighty pens competed this year. While this affords an undeniable proof that the public interest in the pursuit remains unabated, the more practical side of the question receives its illustration in the fact that the breeds that offer the most useful qualities are the most largely kept, and while there are sufficient entries in the fanciful sorts to afford competition and amusement, yet the public taste remains fixed on the noble Dorking, as our best table fowl, and most profitable inhabitant of our farm yards, while numerous admirers remain to the once semi-worshipped Cochin China, recognizing and appreciating its laying properties, the ease with which it is reared, and the contented stay-at-home disposition that adapts it especially to the dweller in a town, or the man with limited space. By means of exhibitions like this, the progress is not confined to entries or visitors—it extends itself to knowledge. This is not limited to the breeds that were familiar in former times. Then, a fowl was a fowl, except that in certain counties, as Kent, Surrey, and Sussex, the Dorkings were known for the table. In others, as Lancashire, Worcestershire, Cheshire, and Yorkshire, Game were kept for fighting; and Moonies, Chitteprats, and Bolton Bays and Greys, were kept for eggs. Nearly all other fowls were summed up in one designation—they were barn-door fowls. The first thing that broke this quiet was the institution of showing; this caused the Cochin mania, and the stone once set in motion has been rolling ever since. Every one is more interested in this than would appear at first sight. Although poultry may still remain among the desiderata to many, yet all eat eggs, and it would be a boon if they were more numerous and consequently cheaper. This has led to inquiry into the capabilities of the different breeds of the Continent, and a desire to possess those that are the most profitable. The Council of the Birmingham Show, mindful of their mission, this year encouraged the pursuit by offering four prizes for Crevecœurs, believing on reliable information their introduction into this country would be an advantage, from the size and number of their eggs.

The different Dorking classes brought 260 competing pens, most of them of very high merit. Captain Hornby and Lady Holmesdale took the three principal prizes. Mrs. Fergusson Blair was a prize-taker in nearly every class with birds bred in and sent from Scotland, proving by their success when competing with birds bred in every part of England, that they do not degenerate when removed from their natural soil or climate. The Spanish were good, and added to the laurels of Mr. Lane, of Bristol, who was successful in three classes. This show was remarkable for veins of good fortune, and none more so than that of Captain Heaton, of Manchester, who won both the principal first prizes, and two silver cups, together with four other prizes in Cochin Chinas, although the entries of this breed were 163 in number. Messrs. Stretch, Tudman, and Smith, also showed excellent specimens. Mrs. Fergusson Blair took both the first prizes for Brahma Pootras. Mrs. Rothery and Mr. Teebay also showed very excellent specimens. This is another new breed, and a valuable one; the beauty and uniformity of the specimens show it is appreciated. The Malays were excellent, but not numerous. We have already mentioned the Crevecœurs, which came next in order. They were followed by two more new classes, viz., for Black Hambros. This was their first emancipation from the Various class, and they justified the experiment by the number and quality of their entries. Messrs. Royds, Shaw, and Lingard took the prizes. The Silver Pencilled were not as good as the Golden, but the Golden and Silver-spangled left nothing to desire. The Polish were well represented in every class Mr. G. C. Adkins was especially fortunate, taking four well deserved prizes. Mrs. Pettat and Messrs. Dixon and Edwards showed good birds. The former gentleman was distinguished in the Silver-spangled Hambros. Lord Guernsey, the Countess of Aylesford, and Mr. Lowndes took the prizes in the Various class, which consisted of Cuckoos, La Flèche, Silkies, Houdans, and other novelties. The Game brought two hundred and eighty competing pens of beautiful birds. It is hard to mention any in particular when Black-reds, Brown-reds, Duckwings, Blacks, Whites, and Piles have equal claims to notice. We were much struck with the Cup pen, belonging to Mr. James Wood, the Black-reds of the Rev. G. Cruwys, and the Duck-wings of Mr. Garlick. The condition of all these birds was marvellous. The classes for single cocks, introduced only within the last few years, formed a show in themselves, and 123 were named in the prize list. The Dorkings formed a wonderful display; great numbers of them were sold. Lady Holmesdale's first prize is a noble bird. The same lady headed a beautiful class of Spanish, beating all the best exhibitions of the day. Mr. Richard White took first in both the Cochin classes. Many of the Cochin cocks were very large and beautiful in shape. The Brahma Pootras rewarded Mrs. Fergusson Blair with first and second prizes, well deserved by the enterprise which makes this lady a large exhibitor. Regardless of distance, Mrs. Hargreaves showed a bird that in most shows would easily take a prize. The Hamburgh classes were highly meritorious, and the same may be said of the Game, especially Mr. Slatter's Silver Cup bird. Sebright Bantams were good, the Silver were better than the Gold in marking, the Golden better than the Silver in combs. Mr. H. D. Bayley was very successful here. The Game Bantam Cocks were beautiful. We noticed that, with few exceptions, the classes for pullets and hens were but moderately filled.

The Aylesbury ducks still stood first in weight, but they were hard run by the Rouens in this particular, and eclipsed in numbers. The increase of this latter class is astonishing. The weights were:—Aylesburys, 25, 24½, 24 lbs.; Rouens, 23, 22, 21½ lbs. East Indians were very good, but hardly equal to those we saw at the Crystal Palace. The white Geese weighed 67, 62, 53 lbs., 52, 50, 49 lbs.; the grey and mottled, 77, 75, 70 lbs., 63, 57, 50 lbs., each pen containing three birds. The Turkeys weighed 65, 61, 58 lbs., 58, 45, 44 lbs. We have been careful in giving these weights. They are eloquent essays to those who keep those birds. It is more than probable these heavy birds cost and consumed no more than the apologies that run in many farm yards, and excite wonder when geese weigh 12 lbs. or turkeys 18 lbs.

The show was eminently successful; it can hardly be otherwise when we consider the amount of intelligence, experience, and persevering industry brought to bear on the enterprise by all the members of the management. The public, and above all the people of Birmingham, are deeply indebted to them. The judges were, the Rev. R. Pulleine, Kirby Wiske, York; G. J. Andrews, Esq., Dorchester; J. H. Smith, Esq., Skelton Grange, York; J. Hindson, Esq., Barton House, Everton, Liverpool; Mr. Baily, London.

THE DOG SHOW in an adjoining street has attracted as usual large numbers of spectators. Prizes offered in no fewer than 57 classes have drawn together a very large collection for their inspection. A fine class of Bloodhounds—a better than usual class of Foxhounds, to which many packs contributed—fair classes of Greyhounds, and very fine classes of Pointers—a number of Retrievers, Water Spaniels, and Clumber Spaniels make up the list of Sporting Dogs. In the large remainder of the show, Mastiffs, Newfoundlands, Bulldogs, Sheep-dogs, and very large classes of Terriers were the most noticeable features of the show. We have not room for a prize list.

Miscellaneous.

Value of Mangel, Steamed, Raw, or as Pulp.—To test the feeding-value of Mangel-pulp, and correct the exaggerated impression entertained by some persons of the unimportance of saccharine matter for feeding purposes, 3 lots, each of 5 sheep, 23 months old, the first cross of Southdown, were fed, from November 28, 1858, to May 5, 166 days, the 1st lot on raw Mangel; 2d, on pulp; 3d, on Mangel steamed, with the addition to each sheep of nearly ½ lb. of bran and ½ lb. of straw-chaff. The result showed that, if Mangel is valued at 10*s.* per ton, pulp is worth 6*s.* 8*d.* per ton; or since a ton of Mangel gives about ⅔ of a ton of pulp, the refuse from 1 ton of Mangel is worth 5*s.* In this experiment steamed Mangel showed a decided advantage over that given raw, since 59 lbs. steamed were found equivalent to 70 lbs. raw. In addition to the straw-chaff, the sheep picked a little straw out of the rack, but the amount was insignificant. The following table gives—

A. The total increase in live weight.
B. The total cost of the food: Mangel being valued at 10*s.* per ton, pulp at 6*s.* 8*d.*, straw at 2*l.*, bran at 6*l.*
C. An estimate of the total value of the manure, arrived at by the confinement of one sheep of each lot for 24 hours in the cell arranged for this purpose.
D. The amount of roots or pulp consumed for the increase of 1 kilogramme of live weight.
E. The cost of that same increase.
F. The nitrogen in the food for that increase.
G. The per centage of nitrogen found in the meat.

Lot.	Mangel.	A. Gain.	B. Food.	C. Worth of Manure.	D. For Gain of 1 Kil. Live Weight. Roots Eaten.	E. For Gain of 1 Kil. Live Weight. Cost of Food.	F. For Gain of 1 Kil. Live Weight. Nitrogen in Food.	G. Per centage of Nitrogen.
		kil.	fr.	fr.	kil.	fr.	grms.	
1	Raw ..	45.3	72	20	70	1.15	235	3.61
2	Pulp ..	39.9	61.3	29	101	.80	327	3.17
3	Steamed ..	58.7	75.5	23	59*	.89	187	3. 0

The economical results are given in the columns D, E, F, of which column E shows that Mangel steamed, at 10*s.* per ton, is nearly equal to pulp at 6*s.* 8*d.*, and much superior to raw Mangel. Column G may in some degree indicate the superior quality of the meat made in lot 1, but the variation is chiefly due to the greater fatness of lot 3; nevertheless, we are here reminded of Mr. Lawes's remarks on the degree in which meat produced by steamed food "boils away" when dressed. *Mr. J. Reiset's experiments, described by Mr. Frere in the Journal of the English Agricultural Society.*

A Farm Balance Sheet.—Mr. Henry Wiggin, of Metchley Grange, Harborne, has published the subjoined balance sheet of the Lea End Farm, Worcestershire, of which he is the proprietor, and which is in his own hands, but under the management of a bailiff. This balance sheet was prepared by Mr. Wiggin for distribution to his private friends amongst the merchants and manufacturers of Birmingham, his object being to show that gentlemen having a taste for rural pursuits might indulge it in amateur farming, and at the same time secure a moderate interest for the capital invested, with an undoubtedly safe security:—

"LEA END FARM BALANCE SHEET,
For the year ending September 30th, 1863.

EXPENDITURE.

From October 1st, 1862, to September 30th, 1863.

Labour	£226	19 0
Rates, tithe, and taxes	71	15 0
Manure	60	6 0
Seed	44	16 0
Keep	73	17 0
Sundries	27	2 0
	£504	15 0

RECEIPTS.

"*From October 1st, 1862, to September 30th, 1863.*

Milk, butter, and cows sold	£182	6 0
Sheep, wool, and lambs sold	180	10 0
Hay and straw	71	6 0
Pigs	35	0 0
Fowls	6	19 0
Corn not yet threshed is only approximate—		
Seventeen acres Wheat, a very good crop, say 240 bags, at 15*s.*	180	0 0
Thirteen acres Beans, say 150 bags, at 15*s.*	112	10 0
Twelve acres Oats, at 7*l.* per acre ..	84	0 0
Receipts	852	11 0
Expenditure	504	15 0
Balance, being Profit..	£347	16 0

This farm is situated about seven miles south-west of Birmingham, in the county of Worcester, and consists of 80 acres of Grass and 60 acres of arable. The soil is a strong red tenacious marl, much better calculated for growing Wheat and Beans than Barley and Turnips. At the time it was purchased, about four years ago, it was terribly out of condition, and required thoroughly draining, cleaning, and manuring. This occupied between two and three years, consequently the year to which the accompanying balance-sheet refers is the first in which the whole farm could be said to be under proper cultivation. The total cost of the 140 acres,

* 59 kilogrammes of roots took up 11 of steam.

including draining, cleaning, and all improvements, is 7200*l.*, in addition to which a capital of 1300*l.* is employed for stock and working the farm; making a total of 8500*l.* The number and value of the stock was the same on the 1st of October, 1862, as on September 30, 1863. This is mentioned to show that nothing has been taken from capital to increase the amount of profit. The amounts placed to the credit of the farm are all sums actually received, except that for corn, which, not yet being threshed, is only approximate; but, as all the crops were good, the estimate may be considered rather under than over the real amount. The Wheat is estimated in the balance sheet at 14 bags per acre, and the price 15*s.* per bag; whereas 3 acres have been threshed out, and yielded a little over 16 bags per acre, all of which, on account of its very fine quality, has been sold for seed at 18*s.* per bag. It will thus be seen that the account shows an excess of receipts over expenditure of 347*l.* 16*s.*, or a little over four per cent. on the total capital employed. Probably, as the land improves in condition by the application of large dressings of manure, an increased produce will be obtained, and possibly it may ultimately become a 5 per cent. investment, but more than this it is doubtful if amateur farming can be made to pay. *Midland Counties Herald.*

Bread from Tailing Wheat.—The tailings of Wheat are sent to the mill, and ground into flour. This flour is made into dough with buttermilk instead of water. A dessert spoonful of carbonate of soda is mixed with a portion of the milk, and a little yeast added, with salt to taste. This leavens the lump in a few minutes; it is at once shaped out into loaves, and put into the kitchen oven, from which it is taken in rather less than an hour in the form of wholesome brown bread, pleasing to the palate and easy of digestion. The cost stands thus:—A bushel of tailings, weighing 57 lb., gave a return of 54 lb. flour; value of wheat, 7*s.* 6*d.*; milling and cartage, 6*d.*, total 8*s.* A baking of 6 lbs. flour at this rate costs 10½*d.*; half gallon buttermilk, 3*d.*; yeast, carbonate of soda, and salt, 1½*d.*; total, 1*s.* 3*d.* From this is produced 10½ lb. bread, which costs 1¼*d.* per lb., say 5*d.* for the 4 lb. loaf. The oven of the cooking stove is ordinarily hot enough to fire the bread put into it.

Hams.—When perfectly dry from the smoke house wash them over with thick whitewash on every cut surface of meat, *i. e.*, all over excepting on the skin. Do this thrice at intervals of a few days. This is the best security against flies, which are the cause of hoppers. If the ham is already affected, cut out the affected part, and rub in some dry oatmeal and keep it in a paper bag in a dry place. The lime should be old whitewash.——For a ham from 15 to 20 lb. weight, salt well by rubbing every day with fresh common salt for four or six days, if preferred very salt; then rub lightly off the salt and rub in ¼ lb. of saltpetre finely powdered, and pour over all 3 lb. of treacle. It is better if several hams are pickled together, as there is more liquid. Drip the hams with the pickle so made several times a day, the oftener the better, for the first week; then rub in a handful of dry common salt, and drip the hams twice a day for six weeks; then smoke and dry them, and hang in bags well secured from flies in a dry airy place for a year before cooking. It is a great mistake to use hams without well keeping. Those 25 lb. each, or more, with this method of pickling, are better for keeping 18 months, or even longer.

To make Potato Soup.—Boil 3 lb. of Potatos and 7 good-sized Onions in 3 quarts of water; after rubbing it through a sieve, add a pint of good cream and 3 ounces of butter, with pepper and salt.

Astro-Meteorology.—Mr. White's pluck is uncommonly amusing. He slips over his frequent miscalculations with the dexterity of an eel, pointing here and there and everywhere for a local fulfilment of doubtful predictions, in the true style of Moore & Co., and assumes proof upon a bare assertion, not failing to discharge a heavy electric rod among unbelievers. Doubtless Mr. Silk's ingratitude to Jupiter calls for signal vengeance, but happily Silk is a non-conductor. It seems now that Neptune is in the ascendant (witness Poland and America); but Mr. White, who has exulted in planetary triumphs 25 years, only very lately accepted his services, because previously his influence was unappreciable. "Sed tempora mutantur." If therefore for about 20 years out of the 25 he did so well without him, why not give Jupiter an equal furlough? And to make amends for his absence, let some choice asteroids and a few picked comets fill up the void. I grant he has much to do in adjusting the results of 362,880 aspects annually; but by the aid of electric light and a few hints from the Admiral, what is this to his ubiquitous science? Besides, there are lots of legends when the planets won't work kindly. Hoping for truth and pleasant prospects. *Scintilla, in the Mark Lane Express.*

Notices to Correspondents.

OATS: *Correspondent.* There is a collection of illustrations and characters given in the Farmer's Calendar (Routledge). Further next week.

TUMOURS: *Q B.* Sometimes these tumours are caused by lying down on a hard and slippery floor. If otherwise, give nitrate of potash, powdered, 1 drachm; colchicum, powdered, half-a-drachm, morning and night in a mash made with bran and a pound of crushed Linseed cake for four days; then omit a day or two, and repeat as before. The cake may be continued. The tumours may be painted over with compound tincture of iodine. *W. C. S.*

CATTLE SHOW, AGRICULTURAL HALL, ISLINGTON.—STAND No. 18.

E. R. & F. TURNER, IPSWICH,

AWARDED THE 1862 EXHIBITION MEDAL FOR

PORTABLE STEAM ENGINE, THRESHING MACHINE,

AND CORN CRUSHING MILLS.

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E. R. & F. T. hold the highest Testimonials to the superiority of their Portable Engines and Threshing Machines, both finishing and single blast. Copies sent Post Free on application.

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IS PORTABLE, EASILY WORKED, NOT LIABLE TO GET OUT OF ORDER; WILL THROW WITH JET 40 FEET, AND WITH "ROSE" WILL COVER 40 FEET ACROSS.

Price 30s. and 40s. each.

CROGGON AND CO., 2, DOWGATE HILL, LONDON, E.C.

PATENT ASPHALTE ROOFING FELT.

Rail Carriage Paid.

One Penny per Square Foot.

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CROGGON AND CO., 2, DOWGATE HILL, LONDON, E.C.; and 2, GOREE PIAZZAS, LIVERPOOL.

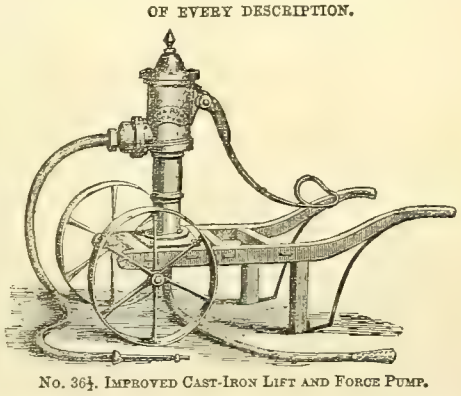
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BELL AND BRASS FOUNDERS TO HER MAJESTY,

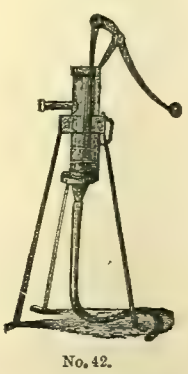
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35.



No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP.



No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

No. 42. IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve, and cannot clog in action.

4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

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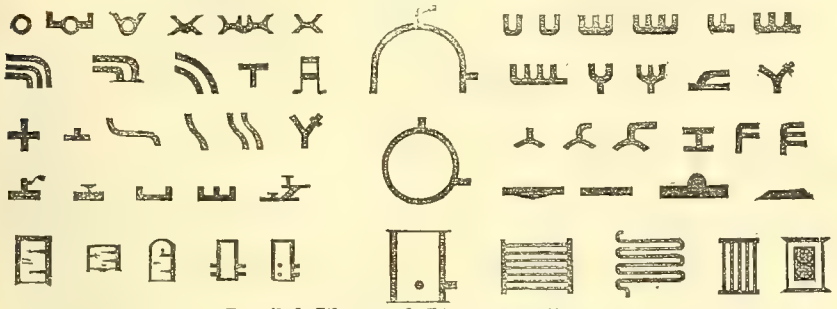
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HOT-WATER APPARATUS,

FIXED AND UNFIXED.

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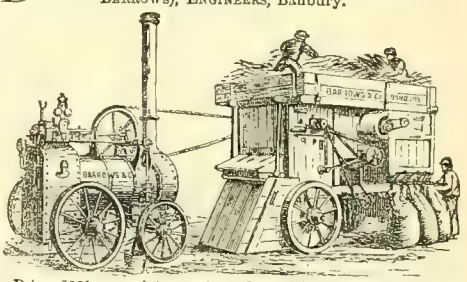
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SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they WILL NOT BE UNDERSOLD by any House in the Trade. They also warrant one of their Knives to last two of any other make.

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BARROWS AND CARMICHAEL (late KIRBY & BARROWS), ENGINEERS, Banbury.



Price 255*l.* complete, and ready to Thresh and Finish 50 quarters of Grain a day in the most perfect manner. Guaranteed of best Workmanship and Material. Prizes in money and Medals have been received from important Agricultural Societies in England, Ireland, and the Continent.

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ENGINEERS, IRONFOUNDERS,

AND

MANUFACTURERS OF AGRICULTURAL IMPLEMENTS AND MACHINES.

IPSWICH.

SMITHFIELD CLUB CATTLE SHOW, 1863.

MESSRS. CLINTON AND OWENS, in common with other Firms, were EXCLUDED from EXHIBITING at the above Show, owing to an informality in sending in their application for Space. They will be happy to see any one who may desire to inspect their large and varied Stock at the WORKS, WHITEFRIARS.

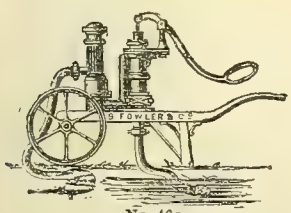
CLINTON & OWENS

(LATE BENJAMIN FOWLER & CO.),

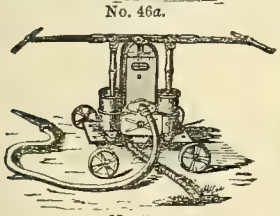
MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON.



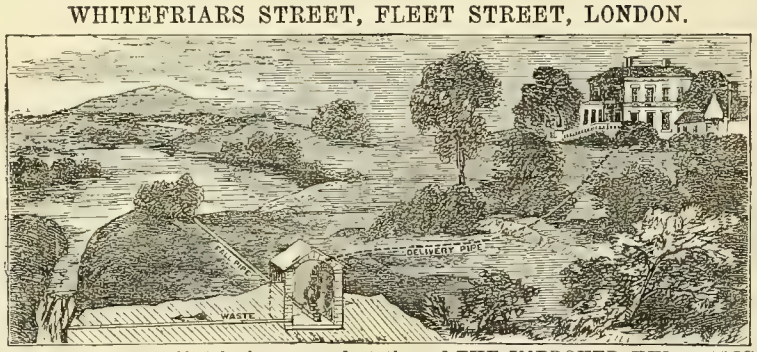
No. 46*a*.



No. 50.



No. 49 *a*.

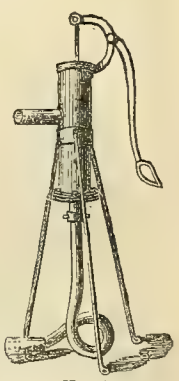


THE Landscape Sketch shows an adaptation of THE IMPROVED HYDRAULIC RAM for forcing water to considerable heights and distances to supply Mansions, Farms, &c., where a few feet fall can be obtained. Full particulars of this useful Self-acting Machine can be had on application.

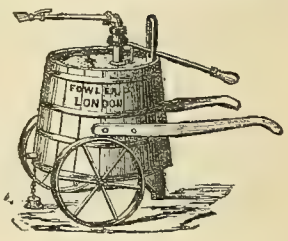
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No. 38. Portable LIQUID MANURE PUMPS, with flexible suction pipe.
No. 46*a*. DOUBLE-ACTION PORTABLE FORCE PUMPS and FIRE ENGINES for Water or Liquid Manure.



No. 4.



No. 38.



No. 49.

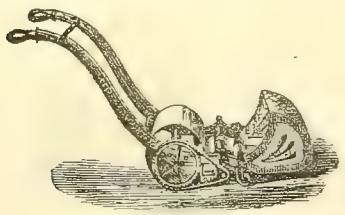
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AGRICULTURAL IMPLEMENTS.—Steam Engines, Threshing Machines, Carts, Waggons, Ploughs, Harrows, Turnip Cutters, Chaff Cutters for hand and power, Lawn Mowers, Prize Churns, Cask Stands, Wire Netting, Garden Tools of all kinds.
Illustrated Catalogues on receipt of 6 stamps. Price Lists free.
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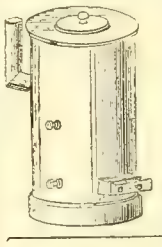
GREEN'S LATEST IMPROVED PATENT NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES, which gained the First Prize Medal of the International Exhibition.



Patronized by Her Most Gracious Majesty the Queen during the seasons of 1862 and 1863.
These Machines have proved to be the best, and have carried off every prize that has been given in all cases of competition.
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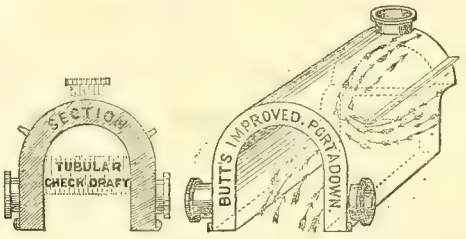
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ENGLISH MANUFACTURED SHEET GLASS, 15 and 21 oz. to the foot, in sizes from 9 by 7 to 24 by 20, packed in 100 feet boxes, to be sold cheap.
Apply to WM. H. JACKSON, Plate, Crown, and Sheet Glass Warehouse, 315, Oxford Street, W.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3d. per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the
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Price complete from 3l. 10s.
Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

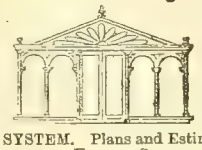
Heating by Hot-water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent by hot-water, and at a moderate price.
Gardeners interested in such work should write for LIST of TESTIMONIALS, sent Post Free, on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

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SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.
Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

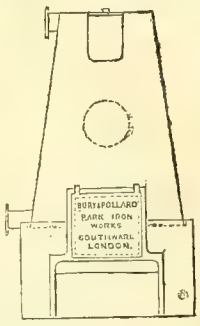
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VINCENT SKINNER
(*late Partner with* J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER.



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LATEST IMPROVEMENTS IN
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THE IMPROVED
CONICAL BOILERS,
FOR HEATING PINERIES, CONSERVATORIES, GREENHOUSES, MANSIONS, HALLS, WAREHOUSES, &c.,
SOLELY MANUFACTURED BY
BURY AND POLLARD
(Successors to JOHN R. PEILL, Late STEPHENSON & PEILL).
Annexed Sketch shows BURY & POLLARD'S improved arrangement, requiring
NO BRICKWORK SETTING.
These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United Kingdom. References where they have been 20 years in constant use.
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REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

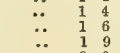
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Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home use and for Exportation.

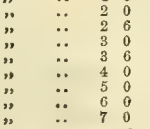


PROPAGATING GLASSES.

2 inches diam.			0s. 3½d. each.
3	,,	..	0 4½ ,,
4	,,	..	0 5½ ,,
5	,,	..	0 6½ ,,
6	,,	..	0 8 ,,
7	,,	..	0 10 ,,
8	,,	..	1 0 ,,
9	,,	..	1 2 ,,
10	,,	..	1 4 ,,
11	,,	..	1 6 ,,
12	,,	..	1 9 ,,
13	,,	..	2 0 ,,
14	,,	..	2 6 ,,
15	,,	..	3 0 ,,
16	,,	..	3 6 ,,
17	,,	..	4 0 ,,
18	,,	..	5 0 ,,
19	,,	..	6 0 ,,
20	,,	..	7 0 ,,



FLOWER TUBES.
2d. each, or 1s. 6d. per dozen.



ZINC HAND GLASSES.
Painted and Glazed with 16-oz. Sheet Glass.

12 inches	..	5s. 6d. each
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16 ,,	..	7 6 ,,
18 ,,	..	8 6 ,,
20 ,,	..	9 6 ,,
24 ,,	..	11 6 ,,

If open top, 1s. extra.



BEE GLASSES.

4 inches diameter			0s. 6d. each
5	,,	..	0 8 ,,
6	,,	..	0 10 ,,
7	,,	..	1 1 ,,
8	,,	..	1 4 ,,
9	,,	..	1 8 ,,
10	,,	..	2 0 ,,
11	,,	..	2 6 ,,
12	,,	..	3 0 ,,



FLAT TOP BEE GLASSES.

Height		Width	s. d.
4 inches	by 7 inches		1 6 each
4½ ,,	by 7½ ,,		1 9 ,,
5½ ,,	by 7½ ,,		2 0 ,,
6½ ,,	by 8 ,,		2 3 ,,
7½ ,,	by 8½ ,,		2 10 ,,

FERN SHADES & STANDS.

Ins. dia.	Shades.		Stands.
6 ..	1s. 4d. each.		1s. 0d. each
7 ..	1 8	,,	1 3 ,,
8 ..	2 0	,,	1 6 ,,
9 ..	2 6	,,	1 9 ,,
10 ..	3 3	,,	2 0 ,,
11 ..	4 0	,,	2 6 ,,
12 ..	5 6	,,	3 0 ,,
13 ..	7 6	,,	3 6 ,,
14 ..	10 0	,,	4 0 ,,
15 ..	14 0	,,	4 6 ,,
16 ..	18 6	,,	5 0 ,,



WASP TRAP, 2s. 6d. per doz.

Crystal Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimneys and Globes, &c.



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6 inches diameter			0s. 6d. each
8	,,	..	0 9 ,,
10	,,	..	1 0 ,,
12	,,	..	1 3 ,,
14	,,	..	1 9 ,,
16	,,	..	2 3 ,,
18	,,	..	2 9 ,,
20	,,	..	3 3 ,,
22	,,	..	3 9 ,,
24	,,	..	4 6 ,,



PRESERVE JARS.

In. diam.	Without Lids.		With Lids.
3 ..	0s. 4½d.	..	0s. 6½d. ea.
4 ..	0 6	..	0 9 ,,
5 ..	0 8	..	0 11 ,,
6 ..	0 10	..	1 2 ,,
7 ..	1 0	..	1 4 ,,
8 ..	1 4	..	1 8 ,,
9 ..	1 8	..	2 2 ,,
10 ..	2 0	..	2 8 ,,



FISH GLOBES.

	Without feet.	With feet.
8 inches diam.		
9 ,,		
10 ,,		
11 ,,		
12 ,,	Per lb. 7d.	9d.
13 ,,		
14 ,,		
15 ,,		
16 ,,		



ROLLING PINS.
From 12 inches long, 1½d. per running inch.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1d. per running inch.

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	300 feet	200 feet.		
	15 oz.	21 oz.	26 oz.	32 oz
Fourths quality	33s. 6d.	33s. 6d.	39s. 6d.	45s. 0d
Thirds do.	42 0	42 0	49 0	56 0
Seconds do.	62 0	64 0	74 6	85 0
Best do.	88 6	88 6	103 6	118 0

CRYSTAL SHEET GLASS.
For Pictures and best Glazing purposes.
Averaging 16 oz. to the foot.

Best quality, in cases of 200 feet	100s.
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SQUARES, in 100 and 200 Feet Boxes.

Small Squares not exceeding 9½ inches by 7½ inches.

Ins. Ins.	Ins. Ins.	Ins. Ins.	Ins. Ins.
6 by 4	7 by 5	8 by 6	9 by 7
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½

Per 100 feet.

4ths.	3rds.	2nds.	Best.
9s. 9d.	11s. 3d.	13s. 9d.	16s. 9d.

Squares not exceeding 14 inches by 11 inches.

10 by 8	12 by 9	12½ by 10½	14½ by 10½
10½ by 6½	12⅝ by 9½	13 by 10	15 by 10
11 by 9	13 by 9	13½ by 10½	13 by 11
11½ by 9½	12 by 10	14 by 10	14 by 11

Per 100 feet.

4ths.	3rds.	2nds.	Best.
10s. 9d.	12s. 3d.	15s.	18s.

Squares not exceeding 20 inches by 18 inches.

15½ by 10½	14 by 12	17 by 13	24 by 16
16 by 10	14½ by 12½	18 by 13	20 by 17
14½ by 11½	15 by 12	18 by 14	22 by 17
15 by 11	15½ by 12½	22 by 14	24 by 17
15½ by 11½	16 by 12	24 by 14	20 by 18
16 by 11	16½ by 12½	22 by 15	22 by 18
13 by 12	17 by 12	24 by 15	24 by 18
13½ by 12½	18 by 12	22 by 16	

Per 100 feet.

4ths.	3rds.	2nds.	Best.
11s. 6d.	13s. 6d.	16s. 6d.	20s.

Orchard House Sizes, as recommended by Mr. Rivers.

Ins.	15 oz.		21 oz.	
20 by 12	4ths	11s. 6d.	4ths	15s. 0d.
20 by 13	3rds	13 6	3rds	19 0
20 by 14	2nds	16 6	2nds	25 0
20 by 15	Best	20 0	Best	30 0
20 by 16				

Per 100 feet.

Squares Cut to Sizes not on List.

	15 oz.				21 oz.			
Under	4ths.	3rds.	2nds.	1st.	4ths.	3rds.	2nds.	1st
1 ft. super.	1½d.	1¾d.	2d.	2½d.	2½d.	2¾d.	3½d	4½d
2 ft. super.	1⅞	2	2½	3	2¾	3	4	5½
3 ft. super.	2	2¼	2¾	3¼	3	3¼	4¼	6
4 ft. super.	2¼	2½	3	4	3¼	3½	4½	6½

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PAINTS, COLOURS, VARNISHES, &c.

	Per cwt.—s. d.
GENUINE WHITE LEAD	30 0
ANTI-CORROSION PAINT	28s. to 34 0
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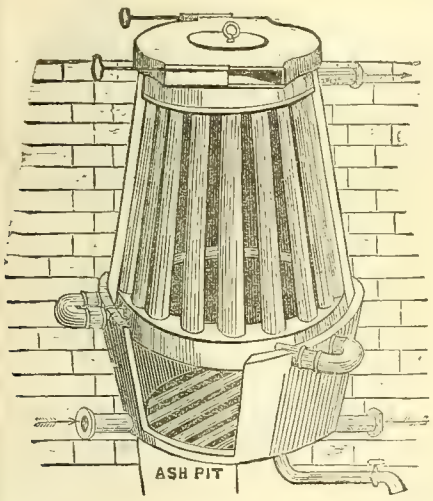
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31	3 in length	16 10 0	21 2 6	31	9 in length	29 6 0	37 12 0	45 16 0
41	11 in length	20 18 0	26 18 6	42	7 in length	36 16 0	46 14 0	57 7 0
63	3 in length	30 6 0	38 10 0	64	3 in length	51 14 0	64 18 0	80 10 0
84	7 in length	39 6 0	49 11 6	85	11 in length	66 12 0	83 2 0	103 11 0
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Z. Y., *Gardeners' Chronicle* Office, W.C.

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No. 1. The Farm commonly called "CHURCHILL MOUNT," on which is an excellent and commodious Dwelling House and Offices, with extensive and convenient Farm Buildings, all recently built and fitted up with Machinery worked by steam-power for Threshing, Grinding, Chaff-cutting, &c., together with 530 acres of Arable and Pasture Land (in nearly equal proportions). The well-known "Sarsden Herd" is, and has been for some years, kept upon this farm.

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The Farms have been for some time under Steam Cultivation, and are both in high condition, having been many years kept in hand by the late proprietor. In both cases the Residences and Farms are of a very superior description.

For further Particulars, and for viewing the same, application should be made at the Office of Mr. HENRY ANDREWS, at Sarsden, near Chipping Norton, to whom Sealed Tenders for each farm separately, stating the clear annual rent, are to be sent on or before December 18, 1863, soon after which the persons whose tenders are accepted will have notice thereof. The setter will not consider himself bound to take the highest tenders.—Sarsden, Dec. 5.

Sales by Auction.

Consignment from Ghent for Absolute Sale.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at the Mart, Bartholomew Lane, City, E.C., on WEDNESDAY, December 9, at 12 o'Clock, about 400 Choice DOUBLE CAMELLIAS and 200 AZALEA INDICA, 1 to 3 feet, beautifully set with bloom buds; 500 remarkably fine bulbs of LILIUM LANCIFOLIUM RUBRUM and ALBUM; also about 200 handsome STANDARD and DWARF ROSES; an assortment of Choice AMERICAN PLANTS, &c.

On view the Morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Handsome Standard and Dwarf Roses, Dutch Bulbs, &c.

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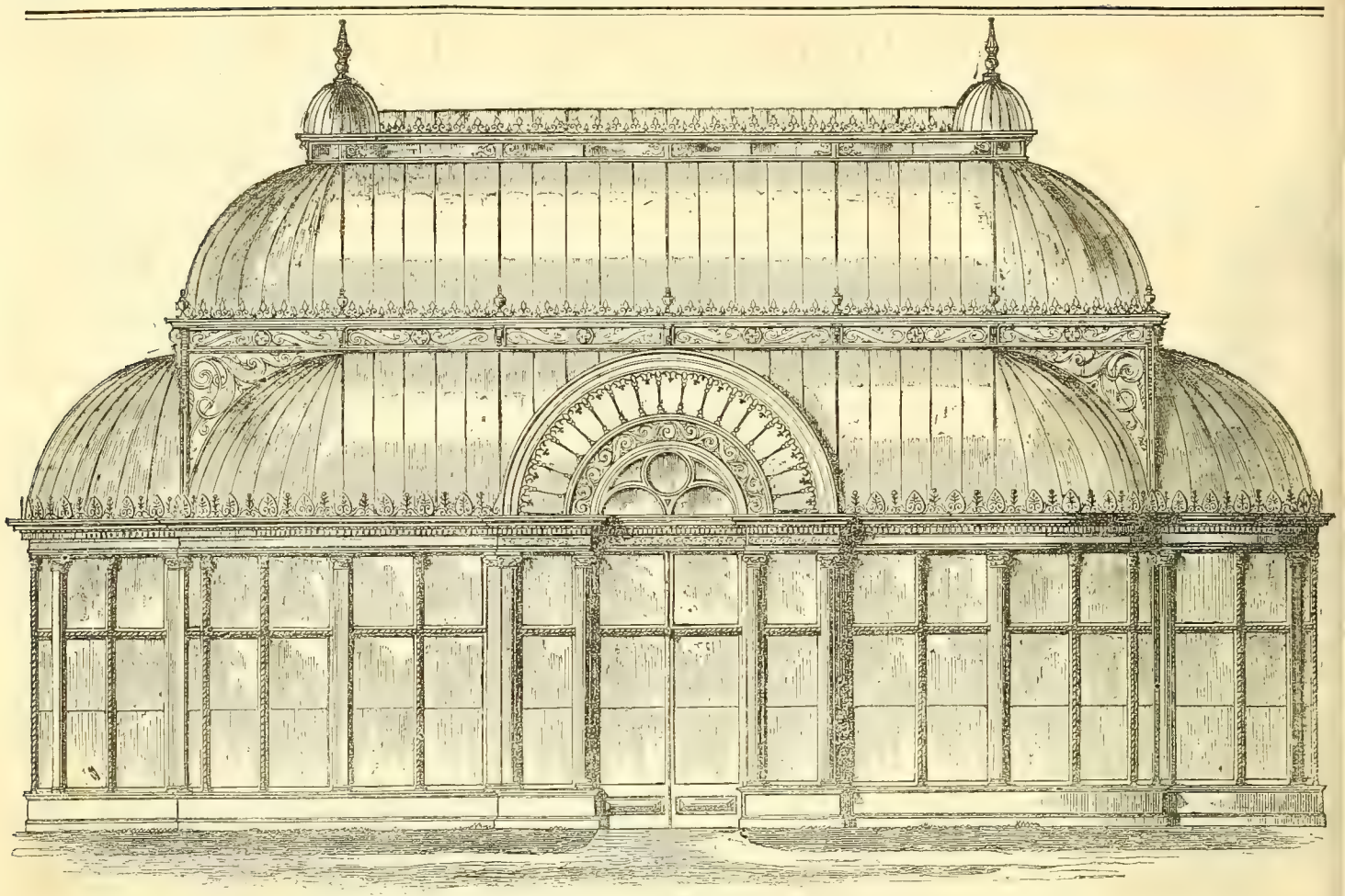
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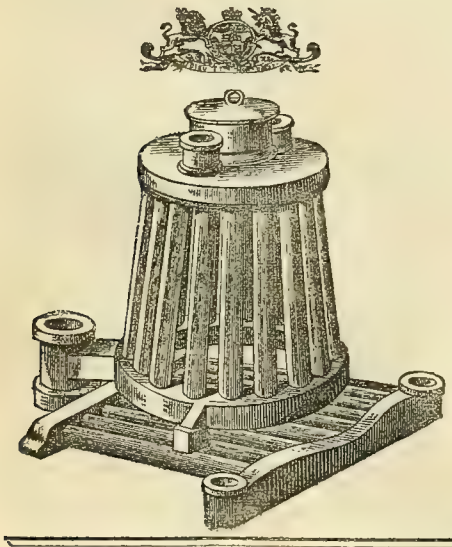
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BY HER MAJESTY'S ROYAL LETTERS PATENT.

ORMSON'S PATENT,

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"AN IMPROVEMENT IN THE MANUFACTURE OF CAST TUBULAR BOILERS."

TAKE NOTICE, that a DISCLAIMER has been filed in the Patent Office and allowed by the Attorney-General, by which such part of the above Patent as was considered questionable by the Court of Exchequer Chamber has been disclaimed. Any person infringing the said Patent after this Notice will be proceeded against according to Law.

Disclaimer allowed September 1, filed September 2, 1863.

I BEG to NOTIFY, that having by leave of her Majesty's Attorney-General DISCLAIMED such part of my Patent as was considered by the Court of Exchequer Chamber as questionable, the said Patent is now absolutely confirmed; and any person infringing the same will be proceeded against according to law.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 50.—1863.] SATURDAY, DECEMBER 12. {Price Fivepence. STAMPED EDITION, 6d.

INDEX.

Agricultural progress	1186 a	London Farmers' Club	1192 b
Baskets, hanging	1180 a	Meetings, agricultural	1185 b
Books noticed	1182 c	Orange culture	1179 a
Brugmansia	1182 a	Orchard houses	1182 b
Causes of agricultural progress	1186 a	Orchids	1179 c
Cherries, retarding	1184 b	Paris people's garden	1184 b
Chrysanthemum, the	1180 b	Railway gardens	1179 b
Chyia nobilis	1181 c	Rhododendron soils	1181 c
Cream cheese	1193 a	Rose exhibiting	1182 a
Education	1189 a	Season, mildness of	1183 c
Egyptian gardening	1181 a	Smithfield Club Show	1190 c
Eucharis amazonica	1181 b	Society, Royal Horticultural	1181 b–1182 b
Farmers' Club, London	1192 b	— Entomological	1182 c
Ferns, new garden	1180 a	Society, Royal Agricultural of England	1190 a
Gas work refuse	1193 b	Steam cultivation	1189 c
Generation, spontaneous	1183 c	Swedes not bulbing	1185 c
Helps and hindrances	1187 a	Vine borders	1181 c
Hyacinths	1182 b	Wellingtonia, growth of	1184 a
Landlord and tenant	1187 a		

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GEORGE CLARKE has a very large quantity of very stout clean Roots again for Sale this year. Prices on application. Nursery, Streatham Place, Brixton Hill, near London, S.

JAS. WRIGHT AND CO. beg to say they have a quantity of strong SEA KALE and good BOX EDGING to dispose of. Price upon application. Edgeware, N.W.

STRONG SEA KALE ROOTS for FORCING, 10s. per 100. Early orders are solicited. MYATT'S PROLIFIC ASH-LEAVED POTATO and EARLY DALMAHOY. Price on application. Mr. MYATT, Manor Farm, Deptford, S.E.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12s. per bushel.—Application at the Gardens at Calcot, near Reading.

FOR SALE, 10 TONS of the Earliest kind of ASH-LEAF KIDNEY POTATOS. Apply to Mr. ROBERT SHARPE, Bristol Arms Hotel, Sleaford.

True Old Ash-leaf Kidney Potatos.

HUGH LOW AND CO. have to offer a few Tons of the above. Price per Bushel or per Ton on application. Clapton Nursery, London, N.E.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified in the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6l. per Ton, or 8s. per cwt.; and to prevent disappointment, orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Pendrayton, St. Ives, Hunts. Sacks, 2s. each.

SPRING EXHIBITIONS.—The following will be found worth the attention of Cultivators, as the finest kinds for competition, also for Winter and Spring Display in the Conservatory. The quality of all is first-class:

PRIMULA SINENSIS, with Fimbriated Flowers.

P. ALBA	P. CARMINATA RUBRA
P. RUBRA	P. FILICIFOLIA
P. PICTA	P. ,, ALBA.

PRIMULA SINENSIS, with Double Flowers.

NIVEA PLENA	ALBA PLENA FIMBRIATA
ALBA PLENA	ATROROSEA PLENA FIMBRIATA.
ROSEA PLENA	
RUBELLA PLENA	

CALCEOLARIA PLANTS.—This stock is carefully hybridised.

CINERARIA PLANTS.—Best sorts, by name.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB's Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants.

ALOCASIA METALLICA, 7s. 6d. to 63s. each.
AZALEA INDICA, finest named varieties, set for flower, grafted plants of English growth, from 18s. per dozen.
CENTAUREA RAGUSINA (CANDIDISSIMA), 12s. per dozen.
RHODODENDRON, COUNTESS of HADDINGTON, 21s. each.
RHODODENDRONS, fine named hardy varieties set for flower, from 30s. per dozen.
ROSES, DWARFS, finest varieties of Hybrid Perpetual, extra strong plants from 12s. per dozen.
STATICE PROFUSA (RATTRAYANA), 3s. 6d. each.
STRAWBERRIES, finest varieties, from 1s. 6d. per 100.
VINE TYNNINGHAME MUSCAT, 3s. 6d. to 7s. 6d. each.
VINES, of sorts, all the best varieties, from 3s. 6d. each.

PRICED and DESCRIPTIVE CATALOGUES of Greenhouse, Hardy, and Stove Plants, Seeds and Bulbs, are published, and will be forwarded to all applicants.

Exotic Nursery, Tooting, Surrey, S.

LINARIA ALPINA.—Flowers orange and purple, fine dwarf silvery tufts, quite hardy, 6s. per dozen, 42s. per 100.

CALANDRINIA UMBELLATA.—Perennial, vivid purplish crimson. Good blooming plants, 4s. per dozen, 30s. per 100. Extra strong, 6s. to 9s. per dozen.

LYCHNIS (AGROSTEMMA) CORONARIA.—Corymbs of vivid "magenta" flowers 1½ inches across, from silvery tufts, 1 to 2 feet. Strong blooming plants, 5s. per dozen, or 21s. and 31s. 6d. per 100.

AUCUBA-LEAVED or GOLD NETTED DAISY.—Strong plants, 4s. per dozen, 21s. per 100.

JAS. BACKHOUSE & SON, York Nurseries.

EDWARD TAYLOR, NURSERYMAN, Malton, Yorkshire, offers a Surplus Stock of the following at the prices affixed:—

		s.	d.
PURPLE and BLUE DUTCH CROCUS ..	per 1000	10	0
STRIPED and SPOTTED CROCUS	,,	14	0
CLOTH of GOLD CROCUS	,,	10	0
25 named varieties of CROCUS	,,	20	0
QUEEN VICTORIA CROCUS	per 100	2	0
DAVID RIZZIO CROCUS	,,	4	0
Mixed PARROT TULIPS	,,	5	0
Finest ENGLISH SHOW TULIPS, mixed ..	,,	5	0
POLYANTHUS NARCISSUS, fine roots	,,	12	6
DOUBLE DAFFODILS	,,	2	6
Mixed DUTCH BORDER HYACINTHS	,,	16	0
SINGLE SCARLET ANEMONES	,,	2	6
Mixed DOUBLE ANEMONES	,,	4	0
Mixed RANUNCULUS	,,	2	6
GLADIOLUS, in 30 fine named varieties		40	0
Two-years' old ASPARAGUS ROOTS, 1s. 6d. per 100;	per 1000	12	6
Two-years' old SEA KALE ROOTS	per 100	6	0
BLACK and RED CURRANTS, strong and fine ..	,,	8	0
FILLBASKET RASPBERRY CANES	,,	8	0
JERUSALEM ARTICHOKES ..	per bushel of 56 lb.	3	6
Dwarf-trained MOORPARK APRICOTS ..	per dozen	21	0
Dwarf-trained PEACHES	,,	30	0

THE LONDON SEED COMPANY, LIMITED.—The Directors have much pleasure in stating that they have completed the harvesting of all kinds of Seeds, and are now in a position to execute orders for every requisite for the FARM and the GARDEN.

The GENERAL PRICE CURRENT will be ready in December, and will be forwarded Gratis and Post-free on application. Seeds carriage free.

Offices: 68, Welbeck Street, Cavendish Square, London, W.

JEAN VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer the following New and interesting plants:—

AZALEA INDICA SECRETAIRE CLAUS, 7s.
,, ,, VICOMTE DE FORCEVILLE, 10s.
,, ,, PRESIDENT HUMANN, 12s.
CAMELLIA VICOMTE DE NIEUPORT, 12s.
,, LEOPOLD I. (with flower buds), 8s.
,, QUERCIFOLIA, 10s.
RHODODENDRON JEAN VERSCHAFFELT (extra strong plants), 10s.
RHODODENDRON SOUVENIR DE JEAN BYLS (with 5 to 7 and 8 flower buds), 16s.
RHODODENDRON NOTAIRE BEAUCARNE, 8s.
DRACÆNA STRICTA (grandis) 15s.
,, TERMINALIS LATIFOLIA PENDULA (1 foot high plants), 16s.
DRACÆNA TERMINALIS VERSICOLOR (extra fine), 1l. 12s. per dozen.
AGAVE CHLORACANTHA, 4s.
,, FILIFERA (3 years' imported plants), 10s.
,, SCHIEDIGERA, 8s.
YUCCA FILAMENTOSA (true), 1l. 5s. per dozen.
,, ALOËFOLIA VARIEGATA (fine strong plants), 1l. 4s. per pair.

A quantity of very strong LILIUM LANCIFOLIUM RUBRUM and ALBUM, LILIUM EXCELSUM (TESTACEUM) at very moderate prices. STANDARD ROSES in great variety, &c.

All applications to be directed to JEAN VERSCHAFFELT Nurseryman, 43, Rue de la Caverne, Ghent, Belgium.



NEW BEDDING GERANIUMS.



JAMES CARTER & CO.

Have much pleasure in calling attention to the undermentioned FIRST-CLASS NEW BEDDING GERANIUMS, which they are now prepared to let out.

SNOWBALL.

A new pure White Bedding Geranium, raised by Mr. Keeler, of Woodhouse, Dulwich, and who has placed the entire stock in our hands for distribution. Description of the same type as Madame Vaucher, but IN EVERY RESPECT SUPERIOR—fine large truss, well up in the centre, giving a flat even surface, and both in form and colour almost equal to the old Double White Camellia. Petals pure white, good form, and of great substance. Habit very robust and compact. Foliage rich green, with dark zone, will form a most desirable pot plant for Conservatory, and is without doubt a valuable acquisition for general Bedding purposes. It is the opinion of Mr. Keeler the raiser (who has proved it for two seasons against all the best varieties) that it is superior to anything yet introduced to the notice of the public, and is the best White Geranium ever raised by him.

Each 5s.

BEL DEMONIO.

A bright lively Salmon colour, of dwarf, compact, but very robust habit of growth. The free blooming habit of this variety will make it most desirable for planting in large masses or extensive ribbon lines. The trusses are very large, individual flowers large and of uncommon substance, in petal and blooms well up above the foliage. This variety resists the effect of sun and rain better than any before offered in this class, and was raised at the same place as the preceding splendid White variety.

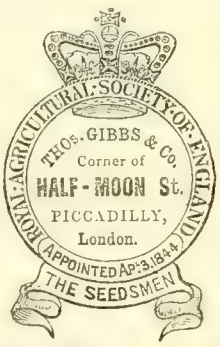
Each 3s. 6d.

JAMES CARTER & CO., HIGH HOLBORN, LONDON, W.C.;
CRYSTAL PALACE NURSERY, PERRY HILL, SYDENHAM, S.E.

KITCHEN GARDEN SEEDS,
FLOWER SEEDS.

In Collections including all the new and approved kinds, or separate to order.

PRICED LISTS free on application.



AGRICULTURAL SEEDS,
GRASS SEEDS.

DETAIL CATALOGUES post free.

Thomas Gibbs & Co.
CORNER OF
HALF-MOON St.
PICCADILLY, LONDON, W.

THE SEMPER FIDELIS RASPBERRY.

MESSRS. JAMES SCLATER & CO.,

DEVON NURSERIES, near EXETER,

As the largest Fruit Growers in the West, can with every confidence recommend this most productive and superior Fruit. The canes from 10 to 12 feet in height, and the fruit proportionately large, of fine flavour, pleasing red colour, and very solid. The canes are of that strength and the wood of that peculiar hardness that they require no support. The most certain cropper, producing fruit in corymbs from 18 inches to 2 feet in length, from the bottom of cane to the top, fruiting in clusters from every eye, producing fruit from July to October. They have been seen by numerous first-class Horticulturists, whose testimonials can be had on application.

All Orders supplied in strict rotation at 100s. per 100 Canes, or 18s. per dozen.

Carriage paid to London, Bristol, or Plymouth.

MESSRS. HURST AND SON, SEED MERCHANTS, 6, LEADENHALL STREET,
SOLE LONDON AGENTS.

NEW HARDY LATE FLOWERING RHODODENDRONS.

PRINCE OF WALES.

Brilliant rose shaded with purple, divided black marking on the upper petals, compact truss, good substance, a profuse bloomer, very hardy, and flowers end of June.

Strong young plants, 21s. each. | A few larger ones, 42s. each.

PRINCESS OF WALES.

Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, compact truss and good substance. TOTALLY DISTINCT FROM ANY KNOWN RHODODENDRON. Hardy and late. A really beautiful variety.

Strong plants, 21s. each. | Larger, 42s. each. | A few extra size, 63s. each.

One Plant over in three to the Trade.

MAURICE YOUNG has much pleasure in now offering for the first time the above distinct and beautiful RHODODENDRONS, which he can confidently recommend as most desirable additions to this noble class of hardy evergreens. They have both been proved for several years in the open ground to be very hardy, free bloomers, compact truss, and very late—possessing every qualification which can be desired in a first-class Rhododendron.

COLOURED PLATES by ANDREWS are now ready, and will be forwarded on receipt of 25 postage stamps.

MAURICE YOUNG (SON and SUCCESSOR to the late WILLIAM YOUNG), MILFORD NURSERIES, NEAR GODALMING.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Woking Nursery, Surrey.

Handsome Specimen Trees.

CEDRUS DEODARA, 8 to 9 feet high, 5 feet in diameter, 25*s.* to 31*s.* 6*d.* each.

Ditto, 10 to 12 feet high, 7 feet in diameter, 42*s.* each.

Splendid trees, and all recently removed.

WELLINGTONIA GIGANTEA, 4 to 5 feet high, 4 feet in diameter, 63*s.* each.

Ditto, 6 to 7 feet high, 5 to 6 feet in diameter, 105*s.* each.

These trees have all been prepared early this autumn, and will remove safely, with fine fibrous rooted balls of earth.

Apply to GEO JACKMAN & SON, Woking Nursery, Surrey.

TO THE TRADE.—A very large Stock of the undernoted finely grown Plants:—1 and 2 year Seedling LARCH, extra; True Native Highland SCOTCH FIR; Pinus Laricio, or true Corsican Pine; P. austriaca, P. maritima, P. Cembra; Silver Fir, Norway Spruce, Sycamore, Norway Maple, Oak, Elm, Ash, Alder, Beech, Birch, Hornbeam, Laburnum, Arbor-vitæ, Arbutus, Berberis of sorts, &c.; also Transplanted Spruce, Quick, Larch, Pinus austriaca, P. Laricio, &c., prices of which may be had on application.

R. MORRISON, Nurseryman, Elgin, N.B.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c.; and a most extensive general Nursery Stock.

For Prices and Conditions of Free Delivery see CATALOGUE, which will be forwarded on application.

CHARLES JAMES DYER, for 20 years with Messrs. VEITCH & SON, of the Royal Exotic Nurseries, Exeter and Chelsea, begs to announce that he has taken the Grounds and purchased the extensive NURSERY STOCK in Trade from the Executors of the late Mr. J. YOUNG, so successfully carried on by him for over 40 years; and also begs to add that he has a choice and well selected stock of the following to offer to the Trade, viz.:—

1000 CEDRUS LIBANI, 3 to 8 feet.
1000 TAXODIUM SEMPERVIRENS, 4 to 10 feet.
7000 ARBUTUS UNEDO, 1½ to 3½ feet.
7000 LAURUSTINUS, 1 to 4 feet.
3000 WHITE BROOM.
1000 DEUTZIA GRACILIS, fine for Forcing.
50,000 FINE TRANSPLANTED THORNS.

WANTED TO PURCHASE:—5000 CIDER APPLE TREES, and 200 SCARLET RHODODENDRONS.

Lowest price, with Samples, for Cash, will meet with an immediate reply.

C. J. DYER, Exotic Nursery, North Town, Taunton.

SPECIAL OFFER of SHRUBS and TREES.—The Subscriber having an abundant Stock of the following, he is prepared to offer same much below the usual rates The undernoted is well worthy the attention of the Trade and parties about to plant, the Subscriber's Nursery having been for the past 50 years famed for producing particularly fine rooted plants. Prices per 100 and 1000 on application.

AUCUBA JAPONICA, 12-inch; APPLE STOCKS, 1-year do. 2 feet, Transplanted; ARBORVITÆ, AMERICAN, 1-year laid, 6 to 12-inch; AZALEA PONTICA, 12-inch; BARBERRY, COMMON, 12-inch; BIRD CHERRY, 2 to 3 feet; BIRCH, Transplanted, very scarce, 1½ feet; RED CEDARS, 9-inch; CUPRESSUS MACNABIANA, 2 feet; CUPRESSUS THUJOIDES, 6-inch; EUGENIA UGNI; 3-year SEEDLING SILVER FIR; 2-year SEEDLING HAZEL; GREEN HOLLIES; 1-foot LAUREL, COMMON; 1 to 3-feet PEAR STOCKS; 1-year SEEDLING, and 2½-feet Transplanted PINUS CEMBRA, 3-feet, very fine specimens; PINUS AUSTRIACA, 1 to 2-feet; QUINCE STOCKS, 2 feet, very fine stems. SPURGE LAUREL, 1 to 2 feet.

ROBERT T. MACKINTOSH, Nurseryman and Seedsman, 12, Melbourne Place, George IVth Bridge, Edinburgh.

Nursery, Leith Walk.

BARR & SUGDEN, 12 KING ST COVENT GARDEN

Orders amounting to 21s. sent Carriage Paid.

SURPLUS STOCK of BULBS for PRESENT PLANTING.

	s.	d.
HYACINTHS, mixed, all colours .. per 100 15*s.* and 18	0	
,, splendid named varieties per doz. 4*s.*, 6*s.*, and 9	0	
,, POMPON, mixed, all colours .. .. per 100 15	0	
,, ,, named varieties .. .. .. ,, 21	0	
TULIPS, EARLY SINGLE, splendid mixed, all colours per 100 7*s.* to 10	0	
,, ,, ,, named varieties per 100 7*s.* 6*d.* to 10	6	
,, ,, DOUBLE, splendid mixed, all colours per 100 7*s.* to 10	0	
,, ,, ,, named varieties per 100 7*s.* 6*d.* to 10	6	

	s.	d.
IRIS, ENGLISH, splendid mixed .. .. per 100	5	6
,, ,, ,, named varieties .. ,,	7	6
,, SPANISH, splendid mixed .. .. .. ,,	5	6
,, ,, ,, named varieties .. ,,	7	6
IXIAS, SPARAXIS, TRITONIAS, and BABIANAS, splendid mixed .. .. .. per 100	5	6
IXIAS, SPARAXIS, TRITONIAS, and BABIANAS, splendid named .. .. per 100	7	6
LILY of the VALLEY .. .. ,,	5	6
DOG'S-TOOTH VIOLETS .. .. ,,	5	6
WINTER ACONITES .. .. ,,	2	6

SURPLUS COLLECTIONS OF BULBS.

No. 14. Collection for the Flower Garden, £2 2s.; Half, £1 1s.; Quarter, 10s. 6d.

50 HYACINTHS	50 IRIS	6 ARUMS	12 ALLIUMS
150 NARCISSUS	30 IXIAS	12 WHITE LILIES	12 ORNITHOGALUM
200 TULIPS	30 SPARAXIS	50 DOG'S-TOOTH VIOLETS	12 WATSONIAS
300 CROCUS	90 SCILLAS	50 WINTER ACONITES	50 WINTER ACONITES

No. 15. Collection for the Sitting Room and Conservatory, £2 2s.; Half, £1 1s.; Quarter, 10s. 6d.

25 HYACINTHS for Glasses	25 POLYANTHUS NARCISSUS	200 SEEDLING CROCUS
25 HYACINTHS for Pots	25 DOUBLE SWEET-SCENTED JONQUILS	25 IXIAS
25 POMPON HYACINTHS	50 TULIPS in 16 varieties	25 SPARAXIS

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN.

ESTABLISHED UPWARDS OF A CENTURY.

EXHIBITION PRIZE MEDALS 1851 and 1862.

BUTLER & McCULLOCH,

SEED MERCHANTS,

COVENT GARDEN MARKET, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS for 1864,

OF THIS YEAR'S GROWTH.

Carriage Free. Five per Cent. allowed for Cash.

A London reference or remittance requested from unknown correspondents.

No. 1.	**Containing 28 quarts Peas and Beans, and all other Seeds requisite for the Kitchen Garden in proportion**	...	...	...	...	...	...	**£3**	**3**	**0**
No. 2.	**Containing 16 quarts Peas and Beans**			**ditto**	**ditto**	**ditto**	...	**2**	**2**	**0**
No. 3.	,,	**12**	,,	,,	,,	,,	,,	,,	...	**1**	**10**	**0**
No. 4.	,,	**8**	,,	,,	,,	,,	,,	,,	...	**1**	**1**	**0**

A DETAILED LIST of these COLLECTIONS may be had on application.

TRANSPLANTED SEEDLING FOREST, FRUIT, and other TREES.—Chesnuts, Oaks, Elms, Larch, Birch, Alders, Poplars, Sycamores, Privets, Berberis aquifolia, Ditto dulcis, Laurel (Common and Portugal), Spruce and Scotch Firs, Broom (Yellow Spanish), Cornus sanguinea, Ailanthus glandulosa, Thuja orientalis, Ditto occidentalis, Viburnum Tinus, Standard and Dwarf Roses; Apples, Pears, Plums, Cherries, Trained Apricots, and other Fruit Trees.

For price and other particulars apply to JOHN THOMPSON & SON, 18, French Gate, Doncaster.

JOSEPH SMITH, SEN., Tansley Nursery, Matlock, Derbyshire, begs to intimate that his CATALOGUE of GENERAL NURSERY STOCK is now ready, which he will be happy to forward on application. It contains a large stock of Forest Trees, Hardy Evergreens, Ornamental Trees and Shrubs, American Plants, &c.

The Nursery is in a very exposed situation, the soil of a fibrous nature, and the plants take up with excellent roots, such as to ensure the best success in their removal.



SUTTON'S UNRIVALLED COLLECTIONS of GARDEN SEEDS for ONE YEAR'S SUPPLY, Carriage free.

SUTTON & SONS are now prepared to receive Orders for their unrivalled Collections of GARDEN SEEDS, as under:—

	£	*s.*	*d.*
A Complete Collection of KITCHEN GARDEN SEEDS for One whole Year's Supply (with Instructions on Cultivation)	3	3	0
Ditto, in quantities proportionately reduced	2	2	0
Ditto Ditto	1	1	0
Ditto, for a SMALL GARDEN ..	10	6	

Sent Carriage Free by Rail, and 5 per cent. discount allowed for cash payment. A remittance or reference requested from unknown Correspondents.

*** By Ordering one of these Collections once a year much trouble and expense will be saved.

Also NATURAL GRASSES for LAWNS and MEADOWS, fine sorts of MANGEL WURZEL, TURNIP, and other AGRICULTURAL SEEDS.

SUTTON'S GENERAL DESCRIPTIVE PRICED CATALOGUE and AMATEUR'S GUIDE will be ready shortly, price 6*d.*, gratis to customers.

Remittances may be made by Cheques on Town or Country Bankers, or by Post-office Orders payable to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

"Z" Family, now offered for the First Time.

TRADE

HALLETT'S | PEDIGREE | NURSERY WHEAT.

MARK.

For full description of "Z family" see Advertisements in our Numbers for September and October, 1863.

PRICE—One Guinea a Bushel (or Seven Guineas a Quarter), delivered with printed directions for planting, at the Brighton Railway Station, in bags sewed up and sealed, upon receipt of Cheque or Post Office Order, which must in all cases accompany the order. *In December drill 8 bushels on 5 acres.*

HOW OUR WHEAT CROPS MAY BE DOUBLED, and other papers forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

Seed Potatoes.

H. AND F. SHARPE are now taking orders for all the principal varieties of Seed Potatoes, including MYATT'S EARLY PROLIFIC KIDNEY, and EARLY DALMAHOY (round), the earliest and most productive varieties in cultivation. The quality is very fine and prices low.

Seed Growing Establishment, Wisbech.

To the Trade.

VEITCH'S PERFECTION PEA, TRUE.

MR. JAMES VEITCH, Royal Exotic Nursery, Chelsea, having grown a very superior Stock of the above fine PEA this Season, and having rather more than he requires for his own Retail Sale, will be happy to furnish price per bushel on application.

To the Seed Trade.

PEAS.—Early Emperor, Prizetaker, Bedman's Imperial, Ne Plus Ultra, Sangster's No. 1, and Payne's Conqueror. The Subscribers have pleasure in offering about 200 quarters of the above, all the growth of 1863, from true stocks, and harvested in fine condition. Samples with Prices on application to

MARSH & PERKINS, 42, Drapery, Northampton.

The Yorkshire Hero Pea.

E. P. DIXON AND SONS have to announce their intention of sending out their new DWARF GREEN WRINKLED MARROW PEA, the YORKSHIRE HERO, which cannot be surpassed for fine flavour and productiveness, upwards of 70 pods having been counted on a stem. It is similar in appearance to the Veitch's Perfection, but much dwarfer, more prolific and considerably earlier. Price 5*s.* per quart; 2*s.* 6*d.* per pint.

For Testimonials we beg to refer to the *Gardeners' Chronicle*, Dec. 5, p. 1152.

The NEW MAMMOTH WHITE CELERY, the largest and sweetest grown; wherever exhibited it always obtained the First Prize. 1*s.* per packet.

HUNT'S SWEET WILLIAMS (true), 1*s.* 6*d.* per oz., or 6*d.* per packet.

EDMUND PHILIP DIXON & SONS, The Yorkshire Seed Establishment, 57, Queen Street, Hull.

AGENTS in London:—

Messrs. HURST & SON, 6, Leadenhall Street.
,, COOPER & BOLTON, 152, Fleet Street.
,, JACOB WRENCH & SONS, London Bridge.
,, BECK, HENDERSON, & CHILD, Seed Merchants, 221 & 222, Upper Thames Street, London, E.C.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.* 4 cwt.; ditto Clarified fine or sharp, 1*s.* 6*d.* cwt., put on the Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

N B. Loaded Trucks can be sent on all the principal Railways

Every description of Nursery Products on Sale for the Trade.

W. SHORT, Reigate, Surrey.

REIGATE SILVER SAND, 12*s.* per ton at Swan Place, delivered five miles, or to any London wharf, or Railway, 16*s.* per ton, or 1*s.* 6*d.* per bushel (Sacks at cost price or on hire). KENTISH and HAMPSHIRE PEATS, LOAM, LEAF MOULD, SPHAGNUM, and COCOA FIBRE REFUSE.

J. KENNARD, Swan Place, Old Kent Road, London, S.E.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2s. 6d. each.

Fulham Nursery, London, S.W.—December 12.

Special offer to the Trade on application.

Carter's Champion Broccoli.

A DWARF AND COMPACT-GROWING LARGE-HEADED LATE WHITE BROCCOLI, RAISED IN 1858 BY MR SWINHERD, GARDENER TO JOHN SWINFORD, ESQ., MINSTER ABBEY, KENT.



JAMES CARTER AND CO. have much pleasure in calling special attention to the above first-class variety of BROCCOLI; it has been thoroughly proved by them for the last five seasons, and they can with confidence recommend it as being the BEST LATE WHITE BROCCOLI in CULTIVATION.

The following unsolicited testimonials have been received:—

Extract from the *Gardeners' Chronicle* of May 28, 1859:—

"Messrs. Carter & Co. have sent us specimens of a new Broccoli, with the following memorandum:—'This Broccoli has been proved side by side with the Wilcove Late White, Ward's Late White, Reading Giant Late White, Dwarf Danish, and other approved late kinds, and has shown itself superior to all of them. The Wilcove Late White are finished cutting more than a fortnight since; this variety is just coming in, and fine heads will be cut for the next 10 days.' The heads forwarded to us were of the finest possible quality, very large, not in the least coarse, white rather than cream-coloured, and proved when cooked to be wholly free from the strong taste which spoils so many Broccolis."

Extract from *Essex Telegraph*, September 1, 1863.

"Carter's Champion, a late variety, producing very large heads, white."

xtract from the *Gardeners' Chronicle* of Saturday, Oct. 3, 1863.

"Among Broccolis, Carter's Champion stands at the head, being the latest variety in cultivation, very large, white and unusually free from the strong taste which spoils so many Broccolis."

Letter received from ARTHUR HENDERSON, Esq., Pine Apple Place Nurseries, Edgware Road.

"Pine Apple Place, Edgware Road, London, W.
"November 9, 1863.

"DEAR SIRS,—A friend of mine in Bedfordshire sent me some very fine heads of your Broccoli 'Carter's Champion,' certainly a most excellent variety. He says: 'With me this kind comes so dwarf and keeps so close to the ground that the wintry weather and wind has no effect in hurting it; other varieties suffered, whereas this Broccoli escaped and produced fine large heads.' He also states: 'I have some dozens equal to those sent you to-day, May 28. Cauliflower with me will be fit to cut before this Champion is over. This is what has been wanting for many a long year; a vegetable of this kind is a trump card worth a trifle.' I saw this Broccoli afterwards myself, and it is a really excellent and compact variety, with large round and close heads, flavour sweet and first-rate; growth equal and alike as if turned out of a machine. There is no mistake in this being one of the right things; coming in so late is another valuable consideration; it certainly fills up the gap or interval between the Broccoli and Cauliflower.

"Yours faithfully, ARTHUR HENDERSON."

Messrs. JAMES CARTER & Co., High Holborn, London, W.C.

J. CARTER & Co. are prepared to offer seed of this first-class Broccoli in packets, price 1s. each, and to the Trade in larger quantities on liberal terms.

The undermentioned is a List of Seed Merchants who have received their supply direct from J. CARTER & Co.:—

Messrs. AUSTIN & MCASLAN	.. Glasgow
,, BALLANTYNE & SON	.. Dalkeith
,, BARR & SUGDEN	.. Covent Garden
,, J. & T. BLACK	.. Jedburgh.
Mr. BRADFORD	.. Fisherton, Salisbury
Messrs. BUTLER & MCCULLOCH	.. Covent Garden
Mr. E. COOLING	.. Derby
,, J. COOLING	.. Bath
Messrs. COOPER & BOLTON	.. Fleet Street
Mr. W. DEANS	.. Jedburgh
Messrs. F. & A. DICKSON & SONS,	Chester
,, JAS. DICKSON & Co.	.. Edinburgh
,, JAS. DICKSON & SONS	.. Edinburgh
,, DICKSONS & BROWN	.. Manchester
Mr. W. DODS	.. Haddington.
Messrs. EDMONDSON BROS.	.. Dublin
,, JAS. GARAWAY & Co.	.. Bristol
Mr. F. G. GODWIN	.. Sheffield
Messrs. A. HENDERSON & Co.	.. Edgware Road
,, JAS. HUNTER & Co.	.. Bristol
,, HURST & SON	.. Leadenhall Street
Mr. G. INGLIS	.. Dron
Messrs. LAIRD & SINCLAIR	.. Dundee
Mr. H. MAY	.. Bedale
,, R. H. POYNTER	.. Taunton
Messrs. E. SANG & SONS	.. Kirkcaldy
Mr. G. SIBBALD	.. Dundee
,, T. SIBBALD	.. Bishop Auckland
Messrs. SMITH & SIMONS	.. Glasgow
,, W. SMITH & SON	.. Aberdeen
Mr. J. SODEN	.. Middle Barton, Oxon
Messrs. STUART & MEIN	.. Kelso
,, SUTTON & SONS	.. Reading
Mr. W. TAYLOR	.. Cupar, Fife
THE LONDON SEED COMPANY	.. Welbeck Street
Mr. C. TURNER	.. Slough
,, JAMES VEITCH, Jun.	.. Chelsea
,, W. J. WATSON	.. Fenham, Newcastle-on-Tyne
Messrs. J. C. WHEELER & SON	.. Gloucester
Mr. G. WHEELER	.. Warminster
,, G. WHITE	.. Paisley
,, B. S. WILLIAMS	.. Holloway
Messrs. W. WOOD & SON	.. Maresfield

JAMES CARTER & Co., 238, High Holborn, W.C.

SEEDSMEN BY APPOINTMENT Sutton AND Sons

THE STUDENT PARSNIP.—This delicious Parsnip becomes every year more popular. Numerous Prizes have been taken this season at Horticultural Shows; as also the First Prize at the International Show of the Royal Horticultural Society in October 1862.

Mr. SHIRLEY HIBBERD, in the *Garden Oracle*, says of it:—

"SUTTON'S Student Parsnip is a great improvement, and should be grown everywhere. It is certainly the best for Exhibition."

SUTTON & SONS, Reading, can supply NEW SEED, 1s. per oz. (post free). Trade price on application. The undermentioned Houses have been supplied with New Seed direct from Messrs. SUTTON & SONS' this season.

AUSTEN & MCASLAN	.. 186, Trongate, Glasgow
BATT, RUTLEY & SILVERLOCK	.. Strand, London, W.C.
BACKHOUSE, JAS. & SON	.. York.
BECK, HENDERSON, & CHILD	.. Adelphi, London, W.C.
BROWN HENRY	.. 4, Commutation Row, Liverpool
BURGESS, A.	.. Nurseries, Cheltenham.
COOPER & BOLTON	.. Fleet Street, London, E.C.
DICKSON, HOGG, & ROBERTSON	22, Mary Street, Dublin
DIXON, E. & SON	.. 57, Queen Street, Hull
DICKSONS & BROWN	.. Manchester
DICKSON & TURNBULL	.. 26, George Street, Perth
EDMONDSON BROTHERS	.. 10, Dame Street, Dublin
FINNEY, SAMUEL & Co.	.. Gateshead
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GARAWAY & Co.	.. Durdham Down, Bristol
HURST & SON	.. 6, Leadenhall Street.
LAFFAN, JOHN	.. 1, Pembroke St., Cork.
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THE LONDON SEED COMPANY	.. 66, Welbeck Street, London
TURNER, CHARLES	.. Royal Nurseries, Slough
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RETAIL PRICE, 1s. per oz.
WHOLESALE PRICE ON APPLICATION.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'



Magnified Aphis.

NEAL'S PLANT SOAP and APHIS PASTILS,

1s. and 2s. per packet,

may be obtained from all respectable Seedsmen.

Testimonials forwarded on application to the Patentee,

J. NEAL,

Edward Street, Birmingham.

Winter Dress all Fruit Trees with GISHURST COMPOUND



Red Spider Magnified.

Copy of a Letter from Mr. RIVERS.

"Nurseries, Sawbridgeworth, Herts, Oct. 22, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq, of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."

For Orchard-house Trees 4 ounces to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), Belmont Vauxhall, London, S.

ROCKWORK FERNERIES, WATERFALLS, CAVES, BANKS of STREAMS and PONDS, executed in the only way it should be, *i.e.*, to imitate Natural ROCKS. Worked with pockets, for plenty of plants, by JAMES PULHAM, Broxbourne, Herts.

References to works executed in 10 counties, some by the recommendation of W. B. THOMAS, Esq., R. MARNOCK, Esq., and E. MILNER, Esq.

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Universal Microscope. Price £5 5s.

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HOT WATER PIPES, from Stock, per yard:—2 inch, 1s. 2d.; 3-inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from stock, 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

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Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

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"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."

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The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

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PROTECTION from the COLD WINDS & MORNING FROST.

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Two yards wide	.. 1s. 8d. per yard run.
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An improved make, 2 yards wide,	1s. 9d. per yard.
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Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

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"It is much cheaper than Mats as a covering.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

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NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

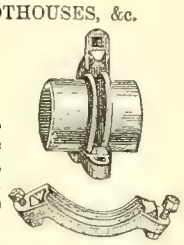
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16 feet by 8 feet	£8 10 0 ...	£2 0 0	30 feet by 12 feet	£11 15 0 ...	£2 10 0
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Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

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WHITE	Per cwt. 30s.	BRIGHT RED	Per cwt. 26s.
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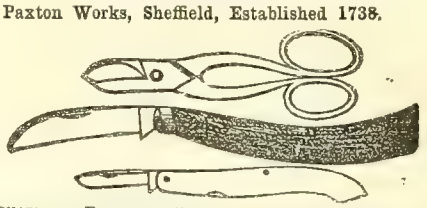
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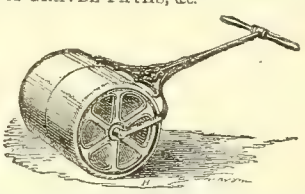


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SAYNOR AND COOKE'S celebrated English and French Exhibition PRIZE PRUNING KNIVES, &c., can be obtained of any respectable Nurseryman or Seed Merchant in the three kingdoms, all Knives warranted both by the Seller and Maker.

CAUTION.—None are genuine unless marked SAYNOR. Other marks would cause disappointment, as these Knives are tempered by an improved process known only to the Makers.

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These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the very best materials, and are got up in a manner surpassing any ever yet brought out.

PRICES:—

Diameter 30 inches, length 32 inches	..	..	£7 0 0
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Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

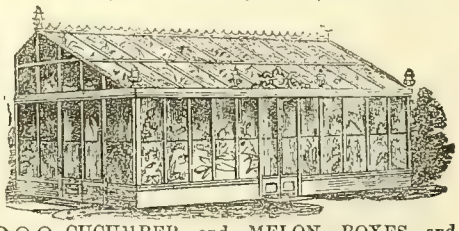
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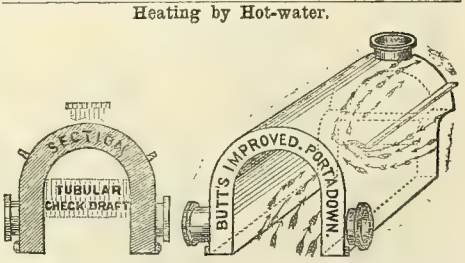
200 CUCUMBER and MELON BOXES and LIGHTS, and from
400 to 500 LIGHTS for PITS of all SIZES kept in STOCK.

Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the kingdom.

10 dozen strong Zinc HAND GLASSES, Glazed and Painted complete, ready for immediate use, 18, 20, and 22, all shifting tops.

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THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent by hot-water, and at a moderate price.

Gardeners interested in such work should write for LIST of TESTIMONIALS, sent Post Free, on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

THE LONDON SEED COMPANY, LIMITED, with which is AMALGAMATED the PLYMOUTH SEED COMPANY LIMITED.
Offices: 68, Welbeck Street, Cavendish Square, London, W.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including price list of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No 7.

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Foot's Cray Nursery, S.E.

Superb Double Hollyhocks.

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P.S. A large stock of FINE PLANTS now ready.
Nurseries, Saffron Walden.

To the Seed Trade—Tritoma Uvaria.

WM. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, has a few Ounces of SEED to spare of the best variety of the above highly ornamental Perennial at a very moderate price, which he will be happy to furnish on application.

To the Trade.

AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds, at moderate prices. An inspection solicited.

THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

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JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

JAPAN LILIES, Extra strong Flowering Bulbs.

	Each—s.	d.
LILIUM LANCIFOLIUM ALBUM	1	0
,, ,, ROSEUM	1	3
,, ,, RUBRUM	1	3

Three each of the above, 10s.

BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

Beck's New Pelargoniums,

OFFERED FOR THE FIRST TIME.

B. S. WILLIAMS begs to announce that he is now prepared to supply strong plants of the above, which have received certificates of the highest merit during the past and previous seasons. They have been selected with great care, and are far in advance of any yet offered.

For descriptions and prices see *Gardeners' Chronicle*, Oct. 24; also in CATALOGUE, which can be had on application.

Paradise and Victoria Nurseries, Holloway, London, W.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz.; 20s. per 100.

Trade price on application,
Royal Nurseries, Great Yarmouth, Norfolk.

Prize Gladioli.

YOUELL AND CO. were awarded the following PRIZES for the above in September last:—
FIRST AND SECOND PRIZE, CRYSTAL PALACE,
FIRST PRIZE, ROYAL HORTICULTURAL SOCIETY,
FIRST PRIZE, BRIGHTON.

CATALOGUES of this collection will be forwarded on application.

Royal Nurseries, Great Yarmouth, Norfolk.

Choice Gladioli.

B. S. WILLIAMS has great pleasure in announcing that he has a Choice Collection of each class of these popular Bulbs. Also a Select List of the New Varieties raised this year. The Bulbs are very fine, and early orders are respectfully solicited.

Collection of 24 Choice Varieties, one root of each, for 21s.
Choice named Varieties, 6s., 8s., and 10s. per dozen.
A PRICED and DESCRIPTIVE LIST on application.
Paradise and Victoria Nurseries, Holloway, London, N.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his Four New PRICE LISTS, No. 97, 98, 99, and 100, containing the Stove, Greenhouse, Hardy Plants, Seeds (262 pages 12mo).

Agents in London: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

To the Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED MERCHANT, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and will be forwarded free on application to his Agent, GEO. MACINTOSH, Nurseryman, High Road, Hammersmith, W., to whom all communications should be addressed.

Great Reduction in the Price of Roses.

NOT TO BE UNDERSOLD BY ANY RESPECTABLE HOUSE IN THE TRADE.
WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

Since issuing their NEW ROSE CATALOGUE for the Autumn of 1863 and the Spring of 1864,

WILLIAM WOOD AND SON have ascertained that other Houses in the Trade are offering some kinds of Roses at a lower rate than themselves, and as they are fully determined NOT TO BE UNDERSOLD by any RESPECTABLE House, they have prepared a REVISED LIST of ROSES at reduced prices, and will have much pleasure in forwarding copies of the same, Gratis and post-free, to all applicants.

Roses.

EDWIN HOLLAMBY has the pleasure of informing the Nobility and Gentry that his extensive Stock of STANDARD and DWARF ROSES of all the leading kinds in cultivation is in the finest possible condition; fine straight stems, fine heads, and beautifully rooted. Purchasers of large quantities will be liberally dealt with.

DESCRIPTIVE PRICED CATALOGUES for the present season will be forwarded gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells; and Goldsmith's Park, Groombridge, Kent.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

Roses.

GEO. PARSONS, NURSERYMAN and SEEDSMAN, by Special Appointment, to her Majesty, begs to offer fine STANDARD ROSES, from 2½ to 4 feet stems, at 15s. per doz., or 5l. per 100; DWARFS (none better in England), 9s. per doz., or 65s. per 100. The new varieties of 1862 and '63 at proportionate prices. CATALOGUES free on application.

Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

Roses.

JOHN CRANSTON offers selections of STANDARD and DWARF ROSES of very superior quality.

The robust growth and hardy constitution of the plants grown in this Nursery has long been acknowledged, and the Stock to offer this season is perhaps superior to any previous growth.

He also begs to direct attention especially to DWARF ROSES on the Manetti stock, of which he has an enormous stock.

The plants upon their own roots are also very strong and well grown.

	Per dozen—s.	d.
STANDARD ROSES of all the leading varieties in cultivation	18	0
Do. Newer varieties, introduced in 1861 and 1862 ..	24	0
DWARF ROSES, extra fine plants upon the Manetti stock .. .. 9s. to	12	0
Do., do., upon Dog-rose stock	9	0
Do. Newer Varieties, introduced in 1861 and 1862 15s. to	18	0
Do., do., of 1862 and 1863 .. .. 24s. to	30	0
STANDARD and HALF-STANDARD TEA-SCENTED ROSES, all the best varieties	24	0
DWARF ROSES upon their own roots, Hybrid Perpetuals, and Bourbons .. .. 9s. to	12	0
Do., do., Tea-scented .. .. 12s. to	15	0
CLIMBING ROSES	9	0
PILLAR ROSES, extra strong plants, 4 to 5 feet 12s. to	15	0
STANDARD WEEPING ROSES .. . each 2s. to	2	6
ROSES in 8 and 9-inch pots grown especially for Forcing or Greenhouse culture, the best Hybrid Perpetuals, China, and Tea-scented varieties . .. .. 24s. to	30	0

DESCRIPTIVE CATALOGUES forwarded free on application.

Nurseries, King's Acre, near Hereford.

Paul's Nurseries, Waltham Cross, N.

ROSES.—Superior STANDARDS, 18s. per dozen and upwards; Do. DWARFS, 9s. per doz. and upwards.

All the NEW ROSES, including BEAUTY of WALTHAM, MRS. WM PAUL, and LORD MACAULAY (three of the best), at the lowest advertised Prices. The new PRICED CATALOGUE is now ready, free by Post.

FRUIT TREES.—Apples, Pears, Plums, Cherries, Apricots, Peaches, Nectarines, Figs, Grape Vines, Gooseberries, Currants, Raspberries, Strawberries, &c. All the really desirable sorts in perfect condition for transplanting at lowest advertised prices. Fruit-bearing trees of the first seven fruits may be had suitable for potting for orchard house culture, from 18s. to 30s. per dozen. PRICED CATALOGUE free by post.

PLANTING.—Planting to any extent, with or without the supervision of the trees, &c., till established, undertaken in any part of the United Kingdom. The rich and varied collection of Trees and Shrubs growing in one Nursery of 30 Acres, have been removed within three years, which is almost a guarantee of success in transplantation.

WM. PAUL (Son and Successor to the late A. PAUL), Nurseries and Seed Warehouse, Waltham Cross, N. Entrance from the platform, Waltham Station (Great Eastern Railway), half-an-hour's ride from London.

Fruit Trees.

JOHN CRANSTON offers superior, healthy grown plants of all the best varieties of FRUIT TREES. DESCRIPTIVE CATALOGUES of which will be forwarded on application.

	Each—s.	d.
APPLES.—Very fine Dwarf-trained	2	6
,, Pyramids	2	6
,, Standards .. .. 2s. to	2	6
APRICOTS.—Dwarf-trained .. .. .. 3s. 6d. to	5	0
,, Standard-trained .. .. 5s. to	7	6
CHERRIES.—Dwarf-trained .. .. .. 3s. 6d. to	4	6
,, Pyramids .. .. 2s. 6d. to	3	6
GRAPE VINES.—Standards	2	6
,, Very fine and well-ripened .. .. 3s. 6d. to	5	0
NECTARINES.—Dwarf-trained .. .. .. 3s. 6d. to	5	0
,, Standard-trained .. .. 5s. to	7	6
PEACHES.—Dwarf-trained .. .. .. 3s. 6d. to	5	0
,, Standard-trained .. .. 5s. to	7	6
PEARS.—Dwarf-trained	3	6
,, Pyramids .. .. 2s. 6d. to	3	6
,, Standards	2	6
PLUMS.—Dwarf-trained .. .. .. 3s. 6d. to	4	6
,, Standards	2	6
WALNUTS.—Standards	2	6
,, Extra strong .. .. 3s. 6d. to	5	0

GOOSEBERRIES, CURRANTS, FIGS, RASPBERRIES, STRAWBERRIES, &c.

PEACHES, NECTARINES, and APRICOTS, established in Pots for Orchard House Culture, 5s. each.

ASPARAGUS, two years	2s. 6d.	per 100
SEA KALE, ,, ...	8s.	per 100

Nurseries, King's Acre, near Hereford.

Very Strong Standard and Pyramid Pears and Plums.

JAMES GARAWAY AND CO., Durdham Down Nurseries, Bristol, offer the above, of the best varieties, 24s. to 30s per dozen.

AUTUMN CATALOGUE and FOREST TREE LIST free by post.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

RASPBERRIES.—Trade Price: Cornwell's Seedling, 14s; Carter's Prolific, 12s; Fillbasket, 10s.; Red Prolific, Autumn-Fruited and Yellow Antwerp, 8s. per 100. GOOSEBERRIES: Crown Bob, Warrington, Whitesmith and Balloon, bearing plants, 16s. per 100. ASPARAGUS, 1-year 10s., 2-year 15s. per 100. Large LAURUSTINUS, &c.

GEO. CORNWELL & Co., Seedsmen, &c., Barnet, Herts, N.

Peach Trees for Forcing.

MESSRS. THOS. RIVERS AND SON beg to offer very fine PEACH TREES in pots for forcing; they are from three to four years old, and full of blossom buds. The varieties cultivated are Noblesse, Royal George, Grosse Mignonne, Early York, Early Grosse Mignonne, and others.

Largest sized trees, 7s. 6d. each; fine trees, 5s. each; carriage paid to London.

Nurseries, Sawbridgeworth.

EXTRA STRONG FRUITING VINES, from Eyes, with stout well ripened Rods, for immediate Fruiting in Pots, from 7s. 6d. each; for Planting Out, from 3s. 6d. each. DESCRIPTIVE LIST upon application.

"We can especially recommend the above, our Strong Vines having for some years given unqualified satisfaction." *Vide* leading article in *Gardeners' Chronicle*, Dec 13, 1862, p. 1170.

JAMES DICKSON & SONS, The Newton Nurseries; and 102, Eastgate Street, Chester.

Vines.

JAMES CARTER AND CO. beg leave to call attention to their splendid collection of the above, consisting of several thousand CANES of the most approved varieties in cultivation. Extra strong, short-jointed, well-ripened Canes for fruiting in Pots next year; fine strong, well-ripened Canes for planting in Vineries, and strong hardy Canes for open walls.

For prices and full descriptive list of more than 40 finest selected varieties most suitable for above purposes, see AUTUMN SUPPLEMENT to their VADE MECUM, forwarded post free on application.

Seed Merchants and Nurserymen, 237 and 238, High Holborn, London, W.C.

GRAPE VINES.—Strong well ripened Canes of the following, at 3s. 6d. to 5s. each:—Black Hamburgh, Grizzly Frontignan, Black Prince, Chasselas Musqué, Black St. Peter's, Black Frontignan, Cannon Hall Muscat, Précoce Malingre, White Frontignan, White Sweetwater, Muscat of Alexandria, Tokay, Golden Hamburgh, Syrian Muscat Hamburgh, Mill Hill Hamburgh, Lady Downes, Black Cluster, Esperion, Muscat Troveron, Royal Muscadine, Trentham Black, Blanc de Kentsheim, Black July, Ingram's Prolific, Buckland Sweetwater, Cavoush.

JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

Grape Vines, Late.

J. MEREDITH has some Strong VINES of the true variety of BLACK ALICANTE (which he has never occasion to set artificially) in 13 and 8-inch pots.

J. M. obtained a Prize at the Great International Show in October last, at South Kensington, for the above excellent late Grape. Splendid bunches of this valuable Grape may be seen at his Vineyard.

J. M. has also to offer some extra strong LADY DOWNES in 13 and 18 inch pots.

Prices on application to J. MEREDITH, The Vineyard, Garston, near Liverpool.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form they can be desired for Fruiting.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

W. VIRGO AND SON have a very large Stock of the following to offer for Sale at very moderate prices:—

Apples, espalier	Hazel, 1 year seedling
Beech (Common), 3, 4, to 6 ft.	Laburnum, 6 to 8 ft.
Berberis aquifolia, 12 to 18 in.	Laurel, Common, 2 to 3 ft.
Ditto dulcis, 1, 2, to 3 ft.	Ditto, Portugal, 1 to 2 ft.
Briar (Sweet), 2 to 3 ft.	Mountain Ash, 6 to 9 ft.
Cherries, espalier	Oak, Turkey, 3 to 4 ft.
Ditto, standard	Poplars of various kinds, 4 to 6 ft.
Cotoneaster microphylla, 9 to 12 in.	Privet, 2 to 3 ft.
Holly, Green, 9 to 12 in.	Sycamore, 3, 4, 5, to 6 ft.

All the above are strong, healthy, and well rooted.

Samples with prices can be had on application at the Nursery, Wonersh, near Guildford, Surrey.

EDWARD J. EVANS AND CO., of York, Pennsylvania, U.S., have issued a DESCRIPTIVE CATALOGUE of NEW AMERICAN NATIVE APPLES, to which they invite special attention. Their collection embraces a large variety obtained from various sections of the country, all of which have considerable local reputation in localities from which received, and are worthy of more extended trial.

For CATALOGUES apply as above, or to Mr. C. RAOUX, New York.

Double Italian Tuberose Roots, 4s. per Dozen.

A. COBBETT, FOREIGN WAREHOUSE, 18, Pall Mall W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.

N.B. Directions for Planting sent with each order.

JAS. GARAWAY AND CO.'S AUTUMN CATALOGUE for 1863, containing Priced Lists of Shrubs, Ornamental Trees, Conifers, Roses, and Fruit Trees of all descriptions, is now ready, and will be forwarded Post-free on application.

Orders exceeding 5l. Carriage Paid to the Irish ports in direct communication with Bristol.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

Nurseries, Clonmel, Ireland.

THE UNDERSIGNED is prepared to make a special offer of the following well-grown Plants, viz.:—

40,000 Beech, 3 and 4 ft. high.	5000 Evergreen Privet, 2 to 3 ft.
8,000 Ash, 3 and 4 ft. high.	3,000 Tree Box, 1½ to 2 ft.
1,500 Sweet Bays, 1½ to 2 ft. do.	100 Phormium tenax.

With a large and well-assorted Nursery Stock.

JOSEPH HIGGINS.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to Mr. WEBB, Calcot Gardens, Reading.

THE PLYMOUTH SEED COMPANY, LIMITED, is AMALGAMATED with the LONDON SEED COMPANY, LIMITED.
Registered Offices: 68, Welbeck Street, Cavendish Square, London. W.

Best Seeds, Carriage Free.

RICHARD SMITH,
SEED MERCHANT and NURSERYMAN,
Worcester.

ROYAL HORTICULTURAL SOCIETY.
FLORAL COMMITTEE.
LIST OF AWARDS.

FIRST-CLASS CERTIFICATES.

Oct. 6. DENDROBIUM EBURNEUM, from Messrs. Low & Co., Clapton.
Nov. 10. PLEOPELTIS ALBIDO-SQUAMATA, from Mr. Veitch, Chelsea.
" LINDSÆA? TRAPEZIFORMIS, from Mr. Bull, Chelsea.
Dec. 8. CALANTHE VEITCHII SUPERBA, from Mr. Veitch.
" SAXIFRAGA "JAPONICA" TRICOLOR, from Mr. Bull.

SECOND-CLASS CERTIFICATES.

Oct. 6. ANEMONE JAPONICA HONORINE JOBERT, from Messrs. E. G. Henderson & Son.
Dec. 8. CHRYSANTHEMUM MISS NIGHTINGALE, from Mr. Brown, Great Marlow.

COMMENDATION.

Nov. 10. CHRYSANTHEMUM LATE YELLOW DRAGON, from the Society's Garden.

SPECIAL CERTIFICATE.

Dec. 8. ODONTOGLOSSUM PHALÆNOPSIS, from E. McMorland, Esq.

THOMAS MOORE, Secretary to the Committee.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 12, 1863.

MEETING FOR THE ENSUING WEEK.
THURSDAY, December 17—Linnean .. .. 8 P.M.

FOR many many years—nay for centuries—in England and France we have been cultivating for mere ornament large numbers of a race of fruit trees which Providence bestowed on us for their invaluable fruit. With here and there an exception, home-grown Oranges have been confined to Dreamland, and our best gardeners, misled by ancestral tradition, have not thought of turning their attention to their culture. We are however awake at last. We are now reminded that the kingdom of Do-nothing has passed away, and that we may soon expect our desserts to be furnished with well-ripened delicious Oranges from October till Christmas, long before any can be imported.

We are led to introduce this matter in consequence of having received from Mr. RIVERS of Sawbridgeworth a basket of ripe Tangierine Oranges, of most excellect flavour, each fruit having attached to it a cluster of the bright green leaves of the tree: the fruit when cut emitting a most agreeable odour, and the juice having a delicious briskness never to be found in imported fruit.

There are, it seems, two modes of cultivating this kind of Orange; either by forcing it so as to ripen in a single season, or by greenhouse management, under which the fruit produced in June does not ripen till July in the following season, thus hanging on the trees upwards of a year. As the first method seems the most eligible, we extract from the 11th edition of the "Orchard House" * the directions given for this mode of culture.

"The best way is certainly by forcing so as to have the fruit ripe in October. Oranges, if properly treated, will then be in the highest perfection, their skins bursting with delicious juice. To carry out this mode of culture, the trees should be removed to the pinery or vinery where early Grapes are being forced, early in the month of January; the pots plunged in gentle heat in the high temperature of such houses. They will blossom towards the end of February, and should be treated as all other kinds of fruit trees are when in bloom, *i. e.*, the pots and the lower branches may be syringed, but the blossoms kept dry. They will set large crops of fruit, which if too much crowded should be thinned. If possible the pots should be kept plunged or stand on a heated surface all the summer in the temperature of the pinery or forcing vinery; they will then ripen their fruit early in autumn." We may add that the fruit may remain on the trees, even when quite ripe, till after Christmas.

In growing Tangierine Oranges for dessert it seems that we are only on the threshold of Orange culture, for Mr. Rivers tells us that the thin-rinded St. Michael's Oranges, of which there are several varieties, ripen freely under the above treatment, the trees beginning to bear when quite young. The Maltese Blood Orange ripens equally well a few weeks after the Tangierine, and is also an abundant bearer, even when the trees are young. Nor can there be a doubt that in time we shall cultivate the large Pernambuco Oranges and other fine kinds. We may even hope indeed to see some day an Orange grove such as is described in the "Orchard House." It must, however, be always borne in mind that root-heat or "geothermal culture" must be carefully provided wherever Orange trees are planted out in glass houses for the sake of their fruit, or no success can possibly attend the experiment.

It is not with fruit as with flowers; in growing the former, changes are made very slowly. In the case of these Tangierine Oranges it is, we understand, 10 years or more since Mr. RIVERS ate some from trees growing in the garden of Mr. BELLENDEN KER at Cheshunt. On that occasion he was so struck with their excellence that he forthwith attempted to make them a regular article of trade cultivation. Having in this been perfectly successful, the growth of other kinds of Oranges naturally followed, and it is now clear that no reason exists why they should not enter into our fruit culture as largely as Peaches and Nectarines, for which they are most especially adapted, because of the fragrance of their flowers, and the beauty of their foliage, as well as the universally recognised excellence of their delicious fruit.

That the Gardens of the Hesperides will soon be restored in England we entertain no doubt.

* *The Orchard House, or the Cultivation of Fruit Trees under Glass*; by Thos. Rivers. Eleventh edition, enlarged and improved. Longmans, 12mo., pp. 193.

GARDENS AT RAILWAY STATIONS, to which a Correspondent alludes at p. 1062, are objects of considerable interest, both to the public and also to the porters and others engaged at the stations. As the train by which we are travelling comes slowly to the stopping place, it is pleasant to look out upon a neat little garden, gay with pretty flowers. It reminds us of a degree of refinement and civilisation which was all but unknown a few years ago, and suggests that such objects are well worth the encouragement which directors and managers of railways are said to bestow upon them. In so far as the servants of the companies are concerned, such gardens must employ many an idle hour which would otherwise hang heavy on their hands, and at the same time afford an amount of real pleasure which is the reward of all the lovers of gardening pursuits.

The poorer classes in the northern parts of the kingdom have, as a rule, been rather behind their brethren in the south in their appreciation and enjoyment of plants and flowers. We well remember the efforts that were made some years ago to induce the agricultural labourers in Scotland to cultivate ornamental plants, and to form little gardens in front of their dwellings. In many instances such gardens were made, planted, and even kept in order by the landed proprietors themselves. But all this was of no avail; these gentlemen could not create the taste which was desired; there was a deep-seated prejudice against such innovations, and in favour of the mud heaps and dunghills of the olden time. The fences were gradually broken down, the shrubs and flowers were one by one rooted up, and all these doings had a tendency to dishearten the landlords, who, after all, perhaps had not set about the system of reformation in the proper way. Railways, however, are now civilising the people in the North, as well as in other parts of the country. Station gardens are common objects on many of the lines, and very pretty they are. A few weeks ago we happened to travel along a portion of the new line which runs through the heart of the Highlands—from Perth to Inverness—and in the course of the journey between Perth and the celebrated Highland Pass of Killiecrankie, we were greatly pleased with the number of nicely kept station gardens which we passed by the way. From the neat way in which the flowers were grown and arranged, their cultivation was evidently no task work, but a "labour of love," the results of which were appreciated and enjoyed. We are glad to find by the remarks of the correspondent we have alluded to, that directors of other lines of railway on the east coast of Scotland are also patronising station gardens by offering and awarding prizes for those that are best kept. This is as it should be, and the encouragement afforded in this way has already been followed by the most satisfactory results. Expensive plants are not required for such gardens. A few ornamental evergreen shrubs, Fuchsias, Scarlet Geraniums, Verbenas, Stocks, Wallflowers and Hollyhocks, together with Mignonette, and a good assortment of hardy annuals, are all cheap, and are easily cultivated. And no doubt gentlemen's gardeners along the lines, with their usual good nature, would readily supply seeds and cuttings of plants from their surplus stores, and would be encouraged to do so by their employers.

The encouragement of gardening amongst the poorer classes of our countrymen is a subject well worth the attention of all who take an interest in their welfare and happiness. On this account we gladly notice the efforts that are being made in many parts of the country, and even in the heart of London itself, to induce the poor to cultivate flowers, fruits, or vegetables by means of prizes to the most successful competitors, and by kindly words—"good words"—to all. These efforts do a large amount of good in many different ways. They give a healthy employment, with something to interest the mind, and much to enjoy. Leisure hours which would probably be spent in idleness, or in something worse, are usefully employed, and much happiness unalloyed is in this way placed within the reach of many whose lot it is to "earn their bread by the sweat of their brow." Nor are the poor alone benefited by changes which are brought about in this way. Those who lend a helping hand, and society in general, are all better for them, and thus the effort made is "twice blessed"—"it blesseth him that gives and him that takes."

While upon the subject we may again allude to the great importance of having soldiers' gardens at all those places where our troops are stationed, not in England only, but also in all parts of our possessions abroad. Idleness of body and mind is the worst enemy the common soldier has to contend with. It leads to all kinds of excesses on the one hand, and on the other it renders him more liable to the attacks of many of those diseases which are so fatal in the countries in which he is called to serve. We could point to more than one of our colonies in which, while the commissioned officers, merchants, and all who had occupation for the body and mind, were comparatively healthy, the common soldiers sickened and died in such numbers that a whole regiment was lost in three years! We have no hesitation in saying that this fearful state of mortality is more to be attributed to the want of mental occupation than to the unhealthiness of climate. Let our soldiers have more to occupy their minds than the mere routine of duty, and there is no reason why they should be more unhealthy than the other classes we have just mentioned. As a means to this most desirable end, soldiers' gardens cannot be too highly encouraged.

In all parts of the world civilisation and a love for gardening pursuits appear to go hand in hand. Whenever we meet with a people who are fond of flowers, we may be pretty sure that they are not the rude savages we may have been led to believe them to be. Their civilisation may not be quite of the same kind as ours; they may not be so far advanced in a knowledge of arts and sciences as we are, but nevertheless we shall probably find that they have acquired enough of knowledge to enable them to produce all the necessaries and many of the luxuries of life, and that they are good parents, dutiful children, and worthy members of society. Our own country forms no exception to the general rule, and we are glad to accept the increasing love for flowers amongst our labouring population as one of the landmarks of progress in our advance in civilisation.

IN the present transition state of the ORCHID FANCY, it cannot be too frequently repeated, that some of the most lovely of the species of this lovely family are to be found among those which, for their preservation at least, if not always for their acquisition, do not make the highest demands on the purses of those who cultivate them. They ask but a minimum expenditure for fuel, if only they are sheltered by an enclosure of glass, and are not stinted for want of moisture. Mr. BATEMAN some time ago had illustrated this fact at one of the floral meetings at South Kensington by the production of Epidendrum vitellinum in good health, grown under the cool *régime*.

It was further illustrated on Tuesday last by Mr. M'MORLAND, who brought forward a plant of the

rare and beautiful Odontoglossum Phalænopsis in perfect health, and bearing a spike of its exquisitely-coloured moth-like flowers, very much finer, as Mr. M'MORLAND stated, than any he had ever been successful in growing before, successful as he is in Orchid culture. We understand that this plant had been KEPT ALL THROUGH THE SUMMER IN A GREENHOUSE. A month since it was removed into a CLOSER COOL HOUSE, where it is to be suffered to remain CLOSE TO THE GLASS until next May or June. When facts like these come to be realised by the lovers of horticultural pursuits, we may expect to see large accessions to the ranks of Orchid growers, which have no doubt been kept thinner than they would otherwise have been, from a general impression of the great expense attending the cultivation of this race of plants, as well as of the little enjoyment to be found in viewing them in the stew-pans in which only, it was thought, they could be coaxed to exist. It is now beginning to be seen that this is not the case, and indeed that while subjected to the discomforting conditions under which only they were lately to be found. they were literally being SIMMERED TO DEATH.

—— THE use which is made of HANGING BASKETS for the cultivation of flowers in conservatories and other plant structures, gives an especial interest to the appearance of a subject well adapted for such a mode of growth. We have often felt some degree of surprise that the hosts of glowing Mesembryanthemums and some other succulent plants of suitable habit to be found in the gardens of here and there a lover of succulents, are not more frequently seen employed for this mode of culture, which would most assuredly suit them admirably; it is not, however, our present object to refer further to these. We only wish to mention a novelty which seems to have been expressly designed for a basket flower.

It is sufficiently well-known that Mr. G. SMITH, of the Hornsey Road Nursery, is a raiser of new FUCHSIAS —indeed he is perhaps answerable for the production of some of those fat and full-faced ones which have been the subject of recent remark in our columns. Be that as it may, there occurred amongst his seedlings of last year, one which refused to grow upwards, but persisted in thrusting its branches down over the sides of the pot. When it came to flower it proved to have too little of the 'plethoric' character to be regarded as of any value as a florist's flower, but was just an ordinary common-place Fuchsia in respect to its blossoms. The habit however was noticed to be very peculiar, and quite dissimilar from that of other varieties. No upright stem was developed, but the whole of the branches were directed downwards, giving out branchlets and flowering freely: having in fact a thoroughly dependent or drooping character. Now as Fuchsias are very good plants for the system of basket-culture which has grown to be so popular, the new Fuchsia dependens may probably be found to be especially suitable for being grown in this way, if indeed it does not put on an entirely new face when it comes to be propagated. At any rate it will be worth inquiring about amongst the novelties of the ensuing spring, by those who adopt this style of decoration, and we invite their attention to it.

NEW GARDEN FERNS.

PLEOPELTIS ALBIDO-SQUAMATA, *Presl, Tent. Pter.* 193. POLYPODIUM ALBIDO-SQUAMATUM, *Blume, Fil. Jav.*, 132; *Id. Fl. Jav.*, 137, t. 57; *Mettenius, Pol.* 108, t. 1, fig. 29. POLYPODIUM ALBO-SQUAMATUM, *Hooker, Gard. Ferns*, t. 47.

Fronds pinnate (or simple when young): pinnæ petiolate lanceolate or oblong lanceolate, cuspidate, repand, submembranaceous, smooth, marked on the upper surface along the margin and over the whole disk with small white scales, the principal veins parallel and evident beneath; sori in a single row half way between the costa and margin; stipes elongate, nearly terete, and, as well as the rachis, smooth; rhizome creeping, scaly.

This very handsome Polypodioid Fern, which was previously known as a native of Java, has been introduced to England by Mr. Veitch, of Chelsea, from Borneo, whence also it has made its way to the collection at Kew. It is a particularly elegant plant, combining with the beauty of a smooth-fronded pinnate Fern having caudate pinnæ, the interesting marking of its upper surface, whereon are distributed in a single tier close to the margin and also scattered rather thickly over the intervening space white dot-like scales. The tail-like extremities of the pinnæ seem to be rather less developed in the Bornean than in the Javanese plant. The fronds spring from a moderately thick creeping densely scaly rhizome, and are from 1 to 3 feet in length, and drooping, so that it will form a very handsome Fern for cultivation on blocks or in suspended baskets. The pinnæ are distinctly stalked, alternate, 6 inches or more in length, and about an inch in breadth, the fertile and sterile ones being uniform. Sir W. J. Hooker unites with this the P. varians of Blume, found both in Java and the Philippines, but this has the white scales confined to the margin of the pinnæ, and appears to be of thicker texture, so that the veins are not evident beneath. According to Blume, there is, however, a variety of the present species with the white scales confined to the margin.

PTERIS SERRULATA, *var.* CRISTATA, *Moore in Proc. Roy. Hort. Soc.* iii. 289.

Apices of the fronds, pinnæ, and pinnules, multifid-crisped.

Pteris serrulata, one of the commonest of our cultivated greenhouse Ferns, is also one of the most elegant and most valuable, especially for plant cases, its elegance resulting from the abundance of its long ribbon-like drooping pinnæ and pinnules, and its value for the specialty of case-culture resulting from its moderate size, its hardihood, and its free-growing habit. The species itself is of Chinese extraction, and has long been known in cultivation—much better indeed than in the wild state. The variety now under notice was met with in Japan, by Mr. J. G. Veitch, during his recent visit to that country. It has the general habit of the species itself, forming a moderate-sized tuft of spreading and more or less drooping fronds, which are bipinnately divided, the tips of the frond itself, as well as those of the pinnæ and pinnules, being developed into a crispy tassel, in which consists its difference from the type. The cristate varieties of Ferns being especial favourites with cultivators, we may expect that the present plant, so useful for Wardian cases, will soon establish itself in the good graces of Fern-growers. Like so many other crested varieties of Ferns it is reproduced from the spores. *T. M.*

EXHIBITION FLOWERS.

THE CHRYSANTHEMUM.

AGAIN has the Chrysanthemum season come and gone, and again has the opportunity been afforded us of profiting by the past, and making resolves for the future. Under these circumstances I feel sure the time will not be unprofitably spent in taking a retrospect of the Chrysanthemums and the Chrysanthemum exhibitions of the present season. At first, I would refer to the exhibitions. That held at the Agricultural Hall, of course, will take precedence, and for quantity it perhaps far, very far, surpassed any previous exhibitions of this flower; but, on the other hand, if the quality either of the plants, or blooms, is taken into account, I have no hesitation in saying that it manifested a very decided falling off. Those who remember the Crystal Palace, the Royal Horticultural, the early Stoke Newington, and the Hackney exhibitions, will, I am quite sure, arrive at the same conclusion. How this is to be accounted for, I scarcely know, for certainly the season has been by no means adverse; indeed, on the contrary, it has been an unusually fine one. I am rather disposed to account for this retrograde state of things, by the absence of several exhibitors whose names have for years been as household words among Chrysanthemum growers, but which this year have been conspicuous by their absence.

It has been stated that the improvement which has been effected in the Chrysanthemum is due rather to improved cultivation than to the production of new varieties; and to a certain extent this is true, for we find such sorts as Lycias, Lucidum, Formosum, Vesta, and King still holding their own. How soon they will have to give place to others which are both newer and better I will not say, but certainly among Salter's seedlings of this year are some varieties which are unsurpassed by any that I have yet seen, and I have no hesitation in saying they will be acquisitions to the most select collection. Foremost I would mention one called Prince Alfred, a noble Arigena-like flower, only as beautifully incurved as could possibly be desired; the colour is a silvery shaded purple-crimson; this is a first-class variety. Then Princess of Wales, an ivory blush, is a gem. Venus, a silvery lilac, is very fine. A variety called General Bainbrigge deserves especial mention; its colour is golden cinnamon. Lord Clyde, a very fine dark crimson, is a showy flower, and well adapted for a specimen plant.

One of the best among Anemone-flowered varieties (which, by the by, make but very little headway, at which I am not surprised, for they never have, and I think never will be favourites), is Empress, a promising blush flower with yellow centre. Among Pompons may be mentioned one called Lizzy Holmes, the colour of which is a golden-orange, shaded and tipped; this is as near perfection as I ever saw a Pompon, an abundant bloomer, and of good habit, each flower of great depth and full in the centre.

I will now offer a few remarks upon the cultivation of Chrysanthemums, first taking plants grown as specimens. As the habit of the different sorts varies greatly, it follows that all are not alike adapted for this object. I would therefore suggest that a selection should be made of those varieties which are stocky and short jointed in their habit, and of decided colours, such as Julie Lagravère, Mount Etna, Auguste Mie, Dr. McLean, Annie Salter, Defiance, Prince Albert, &c. If the object is to produce really fine specimens the young plants should be secured at once. Select the strongest suckers from the old stools, pot them separately into 60-sized pots, place them in a cold frame, and let them remain till April; then shift them from the sixties into the blooming pots, which should measure say eleven inches in diameter. By adopting this course it will be found that the plants will break uniformly at almost every joint; and thus the cultivator may secure at once the foundation of a well-balanced plant, without that miserable coiling round and round the pot which we now so often see. I have no hesitation in saying that a few years ago such abortions would not have been tolerated. I have this season seen plants of large-flowered varieties, perhaps 1 foot in height, with a score of solitary blooms, each tied to a separate stick, the pot being almost hidden by the stems coiled around it. Now I contend that a fine Chrysanthemum plant can be grown with foliage down to the pot without any coiling whatever. It has been done, and the sooner we fall back upon that plan the better for our reputation as plant cultivators. Plants treated in the way recommended will require no stopping if they are desired to assume the pyramidal shape. When the buds appear, the malformed and lateral ones are to be removed, reserving all the terminal ones. In a specimen plant a large number of perfect moderate-sized blooms is far preferable to a few of extra large size.

Now one word for the Pompons, which certainly may be called the people's flowers, for they are universal favourites, adapting themselves to every condition, and blooming under almost any circumstances. In the case of these again, it is much to be regretted that the plants are so mechanically trained, and so utterly spoiled, as we almost invariably see them now-a-days. The time was when a collection of Pompons would as nearly as possible resemble a collection of Turner's or Bailey's fancy Pelargoniums—I mean of course as regards their style of growth; but instead of this we now have placed upon our exhibition tables plants as round and broad as washing tubs, with a perfectly flat surface, and every bloom and twig secured with twine. It would be impossible to place such plants in any conservatory without offending the taste of those who gazed upon them. The following are a few of the very best Pompon varieties for pot culture:—Andromeda, Aurora Borealis, Bob, Duruflet, Florence, General Canrobert, Cedo Nulli, Golden Cedo Nulli, Miss Julia, Mrs. Talfourd, Requiqui, Saint Thais, Rose Trevenna, Autumnum, Drin Drin, Graziella, L'Escarboucle, and Lizzy Holmes. They may be treated exactly as the others, except that the Pompons will require stopping several times during the season; the last stopping, however, must not take place later than the middle of August.

In each case drainage is of paramount importance. No plant, I think, suffers more from imperfect drainage than the Chrysanthemum, for under such conditions the foliage turns yellow, and thus one of the prettiest features of a well-grown specimen is lost. The soil best adapted for the Chrysanthemum is a compound of two-thirds loam, and one-third well rotted manure, with sufficient sand to keep the mixture open. Broken oyster-shells freely mixed with the soil will be found advantageous; this will also be found the best material for drainage. In all cases liquid manure should be used sparingly.

Let me now offer a few remarks upon plants grown for the special purpose of producing specimen blooms. We will suppose the selection of sorts and of plants to have been already made, and that we have reached the month of April. All that is required will be to keep the plants perfectly free from aphides, and also from severe frosts, which latter may be done by growing them in a cold frame. As the pots become filled with roots they may be shifted into larger ones; not as in the case of specimen plants put immediately into their blooming pots, but gradually shifted on from one size to another, till they get up to the blooming pots. The advantage of this mode of procedure is, that the plants are never over-gorged, and consequently the ripening process is more perfectly secured. This ripening is an essential element in the production of fine flowers. I have never seen this fact more strongly illustrated than in the present year, in which I have met with a collection of wonderful plants, and they were in pots wonderful as to size, certainly; I think I never saw plants so fine before. I have also this season seen a collection of plants, small in number, bloomed in 48-pots, and for quantity of bloom, with two or three exceptions, the plants or rather the blooms from the 48-pots have beaten those from the large over-potted plants. I contend that to grow the Chrysanthemum so strong in its early stage, is a mistake. The result will generally be large malformed coarse flowers, unfit for exhibition, or even for decorative purposes. Hence, I think, little or no stimulant is required until the bud is formed; then it may be applied gradually with advantage, withholding it as the bloom shows colour. Most of the varieties will show their bloom buds by the middle of August. If they are grown very strong and vigorous, the buds may be got earlier, but, as I have before said, they will be of little use. As soon as the bud can be seen, at once remove every eye and side shoot, so as to throw all the vigour of the plant into the bud. It is as these buds increase in size that liquid manure can be supplied with advantage. It is to be remembered that several branches may be retained on a plant, but only one bud on each branch. Single-stemmed plants are not to be recommended. The plants must be kept free from earwigs, and especially from aphis, and with these precautions success will be tolerably certain.

I will add a list of the finest varieties for producing specimen blooms:—Abbé Passaglia, brassy amber; Lady Hardinge, rosy lilac; Lady Russell, shaded lilac; White Globe, white, fine; Cassandra, white, slightly

shaded; Pandora, light buff; Nil Desperandum, deep red; Aimée Ferrière, white with pink tip; Lycias, orange; Formosum, yellow; Dr. Brock, orange red; Lady St. Clair, white; General Slade, Indian red; Beverley, fine white; Her Majesty, blush; Princess Alexandra, lilac blush; General Hardinge, Indian red; Jardin des Plantes, bright yellow; Leon Leguay, lilac; Nonpareil, rosy lilac; Novelty, blush white; Pictorium Roseum, salmony purple; Pio Nono, red with gold tips; Queen of England, blush; Rifleman, dull red; Themis, lilacy rose; Vesta, blush, light; Carissimum, white; Julia Grisi, light rose; Little Harry, golden amber. *William Holmes, Hackney.*

EGYPTIAN GARDENING.

[The following extracts from a letter recently received may prove interesting to your readers. *T. R.*]

"The Gardens, Gazeereh, Cairo, Nov. 10.

"We are now in November, and you will be putting on warm gloves and buttoning your overcoat closely around you, while here we are enjoying such weather as you would like to experience even during your summer months. The Nile is now receding fast, and as soon as the ground is sufficiently dry, we shall commence to plant, and to sow our vegetable seeds. Some of the deciduous trees are beginning to shed their leaves, but you would be surprised to see our gardens so gay with Roses, Poinsettia pulcherrima, and Hibiscus mutabilis, with its large double flowers, on trees 12 to 14 feet in height, literally covered with its gay blossoms. The beautiful Poincianas do well here; they have been in flower for months. Vinca rosea and alba are also in full beauty; they have, however, been so all the summer. Abutilon striatum grows and flowers abundantly here; it is just now in great beauty. Brugmansias and Scarlet Geraniums of many kinds are also very gay and beautiful.

"Clerodendrons, Plumbagos, Jasmines of sorts, Russelia juncea, and Yucca gloriosa are all in full bloom; and the Tussac[?] Grass is more magnificent than I ever saw it, for on one plant I have counted 70 of its fine feathery heads. Some Acacias are still in flower, as is also the Tamarind Tree. The Oleanders have been splendid all the summer. No English gardener could form any conception of the great beauty of this old well-known shrub. Our plants are from 8 to 10 feet in height, and 6 or 8 feet through; when covered with their Rose-like flowers they have a noble and beautiful appearance. Buddlea Lindleyana, Bignonia radicans, Lantanas, and Gardenias, are now really most beautiful. Crinums grow most vigorously, and have been in bloom for the last month, throwing up flower stems from 3 to 4 feet in height, with fine trusses of fragrant flowers, perfuming the entire garden.

"Petunias, Globe Amaranths, Marigolds, and Zinnias of sorts, are still in full bloom; they all grow with such vigour as scarcely to be recognised, and make the garden very gay. Ipomœas are also very fine and vigorous, but I must not forget a Pandanus, 10 to 12 feet high, which has flowered for the last two months, one spike after another. The Bamboo is something very extraordinary, its canes measuring 2 feet in circumference, and from 80 to 100 feet in height. Palms and Cycads have done well this season. We have had a fine crop of Dates; the trees really looked beautiful with their large bunches of red and golden fruit. Erythrinas grow to be large trees here, and bloom gloriously. Just at present I am most struck with the Poinsettia pulcherrima, which is one blaze of scarlet; some of our plants are from 8 to 10 feet high, and as much through.

"I have, I think, said enough about flowers, and must now tell you something about your favourites—the fruits. I commenced to cut Grapes on the 29th of June from the old Vines I mentioned in my last letter, and continued to cut from 12 to 18 bunches per diem to the end of August. On the 13th of September I commenced cutting my second crop from the same old Vines, and I shall continue to cut this second crop till the end of this month; this is something new in this old country, and mind, this is done in the open air, as we have no glass. The Vines have made very fine shoots for next year's crop.

"We had a fine crop of Peaches from June till August; few of the native Peaches are worth growing, being mostly Clingstones, although they are much thought of by the natives; some of them grow to a large size. Plums are in season from June till August; Apricots in June and July; Apples from June till September; they grow to a good size, but are deficient in juice and the piquant flavour we are used to in English Apples. The French and Belgian Pears do well here, and grow to a large size, but are inclined to be coarse. They are in season from June till the middle of this month. They seem this season as if they would be useful for some time to come. Gansel's Bergamot, and Williams's Bon Chrétien were remarkably good the past autumn. I hope by looking into all these matters closely, if I am spared and continue here, to be able to give some interesting information about fruits and fruit trees. Figs are of course very fine here, and are abundant from the end of July till September. Pomegranates from September till November; they are large and their flavour agreeable to those who like them. Mangoes are plentiful in August and September, also Prickly Pears (Cactus) in the latter month; they are fine, but I think the taste for them must be acquired. The natives are very fond of them. We have plenty of Guavas in August; our last crop was fine, and I observe that the trees are making a second growth, and are now in flower, but I doubt if they will ripen their fruit at this season.

"The native Fig (Ficus Sycomorus) is in abundance from September till November. Musas (Plantains) we commenced to cut in September, and shall continue to do so all the winter. The clusters of fruit are cut green and divided into pieces; these are then put into a large box in alternate layers of chopped straw. A heavy weight is then placed on the top, which causes the straw to heat; by this means their ripening takes places in a few days, and they are very good indeed. They would ripen well on the plants; but this forcing them into ripeness is done to keep up a succession for the table. The Loquat (Mespilus japonica) is in full bloom now (November 9), and will continue to ripen its fruit throughout the winter. I do not admire it, but it comes in useful when other fruits are scarce. I have now to tell you something about my favourite fruit, of which you write in the "Orchard House," quoting some author who called it "spiritualised Strawberries and cream"—I allude to the Custard Apple or Cherimoyer, as it is called in South America—the Arabs here call it "Qeshteh" (I cannot give you the Arabic letters) which signifies cream. I tasted one the other day, and I can assure you it is one of the most delicious fruits I ever tasted. It is like eating cream and sugar. The fruit is about the size of a good-sized Apple, but broad next the stalk. Its skin is, when the fruit is ripe, covered with warts about the size of the point of a lady's finger, and is of a uniform greenish yellow. It is a fruit that ought to be better known, and more generally cultivated in England, as it would form a valuable and delicious addition to our desserts. It grows here freely in a loamy soil in our fruit gardens, and I am inclined to think that the temperature of the forcing Peach-house would suit it well. It is worthy of its room in any house where it will grow and bear fruit." *James Hardie.*

[We quite agree, and hope that some clever fruit-grower will try his hand at this Cherimoyer, or Anona Cherimolia.]

Home Correspondence.

Eucharis amazonica.—The wonderful specimen of this plant now growing at Syon is in a 13-inch pot; the leaves are 2 feet 7 inches long, and 6½ inches wide; there are 22 flower spikes each from 2 feet 6 inches to 3 feet in height. The plant measures 4 feet 6 inches through. We learn moreover that Mr. Saunders, of Clifton, has also a very striking specimen growing in a 13-inch pot, and just coming into flower, with 9 strong spikes of bloom well thrown up above the foliage, some of which is 24 inches long by 5 inches wide. This too is something to be proud of, although but a pigmy compared with that at Syon.

Home grown Tobacco.—We sow the seed of the true Virginian Tobacco on a gentle heat in the first week in May, and prick off the young plants into pans, boxes, or pots, as soon as they can be handled, an inch apart, placing them again in a little heat in frames or shelves in some of the houses, making use of light rich open soil. By the time the flower-garden plants are turned out, plenty of small 60-pots are at liberty to pot off singly the required batch of plants, which are again placed thick together in a little warmth for a few days, then placed to harden off in some of the temporary structures, where the flower garden plants have previously been. Hardened off by the middle of June, they will become strong plants and fit to plant out of doors on any well-trenched well-prepared ground. By August the plants will be from 4 to 5 feet high, the bottom tier of leaves large, and the first three or four tiers in good order to gather. They should be tied up in bunches of eight or ten, and hung up to dry gradually in the tool-house, where a gentle smouldering fire is kept by using any kind of slow-burning refuse. The door and windows being kept shut, in about eight or ten days the sap is found to be enough evaporated to store the bunches of leaves, tightly pressed, into boxes or old hampers. They should be very firmly packed by pressing or treading, and placed away in a dry shed or loft till wanted for use. If put away in good condition, it will be found on being taken out for use very sweet, oily, and perfect for cutting up either by a chaff-cutter, bill-hook, or knife, according to the quantity required for use. We continue collecting a batch of leaves in succession at about a week or 10 days till the middle of October, when the plants have arrived to 7 or 8 feet high, when we make a general clearance of all the leaves, side shoots, and 3 or 4 feet of the summit of the stems—blossoms, seed and all. They are tied up, bunched, dried, and packed away when dry. Three or four feet of the large bare part of the stems and roots are then pulled up, and dried in open lofts or sheds, bundled or faggoted up, and stored in a dry loft, to smoke the Apple orchards with other rubbish in the months of April and May—which adds wonderfully to the success of the general crop of Apples. In short we find home-grown Tobacco so useful in gardens for many purposes, that I may point out a few of them on a future occasion. *James Barnes, Bicton.*

Rhododendron Soils.—Will any of your correspondents be so good as to inform me what is the fact as to the possibility of growing Rhododendrons, Azaleas, and Andromedas in other than peat earth. Messrs. Maule & Sons, near Bristol, have several acres of these and similar shrubs growing in what they assure me is ordinary loam; while my gardener and other people inform me, that whatever Messrs. Maule may do, I shall not be able to make these plants grow in any but peat soil. I cannot get peat, and I am trying some of Messrs. Maule's shrubs in ordinary garden loam. Will some one be so obliging as to tell me whether there are any special precautions which are likely to make the experiment—as my gardener holds it to be—succeed. *E. S., Sutton Court, Pensford, Bristol.*

Woollen Refuse.—I have found the waste wool thrown aside by manufacturers useful in a variety of ways. As a fermenting material, when thrown together in quantity, it is invaluable, the heat however, sometimes becoming so violent as to cause spontaneous combustion. As a covering for Vine borders it is much more effective than stable dung. I have been in the habit of covering all my Vine borders with a layer of this material to the depth of three or four inches in the fall of the year, before the temperature of the soil began to decrease. The application resembled covering them up with a good woollen blanket, that would keep out both cold and wet to a certain extent, for, owing to the oily nature of the material employed, rain does not soon penetrate it, and during cold and dry winds in spring moisture evaporates from it very rapidly. I would certainly advise persons preparing Vine borders to cover over the rubble or bottoming with a layer of this material to the depth of two inches; it effectively prevents the compost from ever becoming mixed with the rubble, and it also prevents all nutritive particles from passing through it. I cover over the rubble or bottoming of my Pine pits in this way, and not a particle of tan bark ever gets through it. Where moss is scarce, as it is in this neighbourhood, this refuse may likewise be used to cover the drainage of pots, and to those having a Peach wall covered by any kind of protecting material which causes constant treading around the trees, a ton or so of waste wool spread at the bottom of the wall will be of benefit, forming as it does a carpet to walk upon. In the early part of summer, when I remove the waste in question, I have found that the tree roots had come to the surface, and that they were running along underneath the waste. For the growth of subtropical plants in beds out of doors this material is superior to any other. In the autumn I dig out a bed to about the depth of 2½ feet, and fill it with refuse, covering with soil on which I sow Radish, and on removing the material at the end of 12 months I have found it still at a temperature of from 60° to 65°. Regarding its value as a manure I may speak on another occasion. *J. Thomson, Wortley, Leeds.*

Alocasia zebrina and Caladium Veitchii.—Will you allow me in justice to Mr. Veitch, the introducer of both the above-named plants, to point out thus publicly a slip of the pen in the list of new plants given in Hogg's Gardeners' Year Book for 1864, in which this Alocasia is said to be the same as C. Veitchii. The two plants are of course quite different. The statement in question applies to Alocasia Veitchii, and not to A. zebrina. The public should therefore be told that it is a palpable blunder, which lies at my door, as the writer of the list referred to. *M.*

Vine Borders.—In the autumn of 1862 I erected three new Vineries. In the smallest, for early fruiting, the Vines are planted inside, the front of the house being arched so as to permit the roots spreading outside. This outside Vine border is 4½ feet from the parapet wall to the walk, and the inside border is the same width. The outside borders of the two larger Vineries are 18 feet from the parapet wall to the gravel walk. The depth of soil is 27 inches at the parapet, tapering down to 15 inches at the gravel walk. The borders are well drained, and upon the drain pipes there is a layer of broken bricks and stones. The border is made of turf, good light soil, and prepared bones. The Vines are planted inside the houses, which are arched to allow the Vine roots to grow outside, there being a leaf-pit inside the houses, and consequently very little space for the roots to grow except outside. My gardener wishes to make a border under the gravel walk to give the Vine roots more room. I shall therefore be much obliged by some of your able correspondents favouring me with their advice upon this question. *An Old Subscriber.*

Clivia nobilis.—This useful winter-blooming plant is not grown so extensively as it deserves; even when not in flower, it is somewhat ornamental, especially when mixed with fine-foliaged plants. I give it stove treatment all the season through, and I find it to succeed remarkably well. It requires an abundance of water early in the season, with plenty of heat, both of which may be gradually reduced when growth is completed. It thrives in good loam and leaf-mould, with a liberal addition of sand, and it requires frequently sponging to keep the foliage clean. It is readily increased from seed as well as by means of shoots, which push at the base of the plant, from which they are readily detached. These offsets if grown well will bloom the second year. I have plants which have received this treatment in bloom now, and they are certainly beautiful. My

blooming plants are in No. 16 pots, a size sufficiently large for them. *John Edlington, Crom Castle, Ireland.*

Rose Exhibiting.—It appears to me that in sustaining a Rose Show, the promoters ought to have (*inter alia*) the following objects in view, viz.:—1. To make a Show and to gratify the public; 2. To make the exhibition sufficiently remunerative to promoters and exhibitors; 3. To afford information to Rose growers; and 4. To extend the public taste for the Queen of flowers. To accomplish these objects I take the schedule of the Royal Horticultural Society of last year as being very near my idea of a model schedule, and likely, with some slight modifications, to considerably further the ends sought; if some or all of the suggestions below, and not already adopted by the Society, be welded into its next issue, we shall have a very nearly perfect schedule. In order to make the Show attractive to the public, and to enlighten Rosarians, we must have quantity, and I see no reason why the 96 trebles for nurserymen should not be continued. Experience has shown that there is no difficulty in finding competitors in this class, and from the increasing popularity of the Rose, we may expect increasing competition, and ample opportunity is afforded for an amateur out of the 96 varieties of bud, opening and full-blown Roses, to select his score or more of varieties which to him may appear striking; sufficient scope is given too for all tastes—for what pleases the eye of one person does not always afford the same gratification to another. I would, however, suggest, that as there are both large and small growers for sale, the competitors amongst the 96's should not also be allowed to exhibit in the 48's and classes of smaller numbers. I also think that the 48 single truss class is the best possible limit for amateurs, and I would urge that an exhibitor in the 48's should not be allowed to exhibit in a class lower than the 24's. For effect, single trusses are unquestionably the best, and it would be impossible for any but the very largest amateur growers to cut three trusses each of a number of varieties. In making a show remunerative to its promoters, the time of exhibition is very important, and although the Rev. W. F. Radclyffe seems to think the 1st July late, and it probably is for the latitude of Rushton, it has not practically proved to be so for the district near London. Only as far north as Newark it has been much too soon; and, taking the seasons as average ones, I believe the first week in July is generally most suitable for a London Rose show. On the question of disbudding, I am glad to see a brother Rosarian, who I have an impression formerly favoured the disbudding Rule, now regard it as impossible to be carried out. Do not the frost, wind, weather, and Rose-maggot generally do more disbudding than the Rose-grower cares to see? and how is it possible for a judge to distinguish between the work of these natural executioners and the timely artificial manipulation of the cultivator? Additions to foliage should be prohibited in order to prevent a made-up Rose, but I would sweep away all restrictions, prohibitions, and disqualifications possible as tending to cramp the efforts of the promoters of a Rose show. An improvement may perhaps be effected by dispensing with the classes for single trusses and bouquets; by adding a class for Teas and Noisettes for amateurs; by more prizes (open) for 12 blooms of a particular sort, a half dozen or a dozen sorts to be named—the number of prizes to be increased in the class for 12 of any one variety. These twelves of one variety are very attractive and useful in affording a thorough test of the constitution and facility of propagation of the recent varieties. I would add prizes for the best material as a background for cut Roses (although I have never yet seen a stand of blooms more at home and more effective than when arranged on good green moss); also for the most improved mode of labelling the show flowers. If additional variety be desired, a class might be added for striped and mottled Roses, there being yet no good striped Perpetual. I see no advantage in further separating the families, for in reality the present divisions are arbitrary and merely nominal, and it might only give rise to quibbling, and cause extra work for the judges. With regard to judging, a standard set of rules should be framed, in which beauty of form, freshness of colour, size, novelty, foliage and buds, variety of shades and arrangement, should be taken into consideration in the order in which I have named them. Little regard should be paid to the proportion of Teas, Noisettes, or other varieties requiring warmth to bring them to perfection. Amongst the dealers' three-truss classes the different stages of maturity of bloom should be considered; and finally, Roses should be judged by their actual condition at the time of trial, as judges cannot and ought not to take into consideration what the blooms have been, or how far they have travelled. An autumn Rose show, I may add, ought to be and might be a success. Most of the high-coloured Roses are more brilliant, and some varieties even expand better in October than in summer. We should soon find out then whether all Roses which are called Perpetuals, are actually such. If the Society will initiate an autumnal exhibition, it will find growers ready to embrace another opportunity to exhibit and visitors enough to admire. *Stamfordiensis.*

The Brugmansia.—In my remarks last week I omitted to state that the Brugmansia should if possible be placed in a partially sheltered situation; strong winds, if not opposed by some protection, damage both foliage and flowers. I thank you therefore for pointing out the omission—an important one to those who may employ the plant for the purposes recommended at page 1158. *John Edlington, Crom Castle, Ireland.*

New Hyacinths.—We must say, in reference to these, that we agree with Mr. W. Paul, that though a Hyacinth had not been exhibited in London, it might have been shown in other places, and we find such to be the case, as you made mention of two Hyacinths which we exhibited in London in March last as new, while they had been shown in Edinburgh before. We refer to Amphion, "a novel claret-coloured variety," and to Lord Palmerston, "one of the blue varieties with white eye." It is thus almost impossible to say what constitutes a new Hyacinth. It may perhaps be worthy of mention that we have Hyacinths in full flower, and have had them since the 28th November. We do not of course refer to the early "miniature" varieties, but to ordinary Dutch sorts. This is about three weeks sooner than we ever had them before. *Carstairs & Sons*, 121, *George Street, Edinburgh.*

Orchard Houses.—These, if I understand rightly, are contrivances for mitigating the severity of our climate, especially in spring, when east winds, fogs, and hoar-frosts are often prevalent for weeks; they are, in short, intended to afford protection to the blossoms of fruit trees at a period when a dry and somewhat mild atmosphere is most conducive to fructification. I cannot quite agree with Mr. Rust that Frigi Domo is as effectual for this purpose as glass; yet I must express my belief that as splendid crops of Peaches may be grown even in these days of orchard houses with Frigi Domo and such like temporary coverings in spring, as used to be produced before we had any unheated glass structures. To erect orchard houses for the growth of Peaches alone, seems to me a useless outlay of money, unless artificial heat can be applied. As the time of ripening of this fruit in orchard houses differs so little from the period at which it arrives at maturity on the open wall, little is gained by so much outlay. The great object we should aim at in growing Peaches under glass is to extend the period during which this fruit may be had ripe for the table, and this I think cannot be done in cold houses; therefore a Peach house should have a heating apparatus, so as to get ripe fruit say in May, June, and July; then follow the out-door Peaches in August and September, thus securing ripe Peaches for four or five months. About 250 trees are grown here in pots, in the form of pyramids and bushes; among them are Apples, Pears, Peaches, Nectarines, Apricots, Plums, Figs, Eugenia Ugni, Cherries, and Vines. These last are in tubs, which stand seven feet apart on the south side of the house, which is 120 feet long; they are trained on wires across the roof. The sorts are principally Black Hamburgh, and they have only been planted two years. Six bunches were allowed to remain on them this year, which ripened in September; the last dish was cut December 1st. The only total failure here has been Apricots, which on open walls have been good crops. Of Peaches and Nectarines we had 20 dozen of various sizes and quality, from about 26 bushes. Plums have been a fine crop, varying from five to eight dozen on bushes measuring from two feet to a yard in diameter. Pears have been a good average crop, and some of the specimens have been of extraordinary size, and the trees are now splendidly set with blossom buds. Apples have been good and of large size; Cherries never fail. Pears, Plums, and Cherries are in my opinion the best subjects for orchard house culture. Pears especially are valuable, for with a judicious selection this fruit may be had from August to April, and a great number may be grown in the shape of pyramids in a small space. We have now many of them from 5 to 6 feet high, and 1½ to 2 feet through at the base, fine thriving trees. The points to be observed are, particular attention to the roots, pinching at proper lengths, a liberal supply of liquid manure when growing, and thorough ventilation at all times. I am surprised to see Mr. Polish telling us that orchard house trees when at rest do not even require fresh air, and that his house has been closed since October, and that the temperature is raised frequently to 60°. I fear if he perseveres in this mode of procedure, his trees will a season or two hence, assume a different appearance from what they do now. *J. Huddart, Ashfield Hall, Cheshire.*

Societies.

ROYAL HORTICULTURAL: *December* 8 (*Floral Committee*).—Messrs. Veitch received a First-class Certificate on this occasion for a charmingly-coloured variety, superba, of Calanthe Veitchii, a bright rosy-crimson hybrid Orchid, raised between C. vestita and Limatodes rosea. Of the produce of this cross, four plants were exhibited, differing from each other slightly in colour, but all remarkably handsome, their tall graceful spikes of showy blossoms having a striking effect, especially at this dull season of the year. From E. McMorland, Esq., came a plant of the rare Odontoglossum Phalænopsis, for which a Certificate was awarded. To Saxifraga "japonica" tricolor, a pretty variegated-leaved Saxifrage, from Mr. Bull, a First-class Certificate was awarded. From the same grower a second came a broad leaved variety of Dracæna terminalis, a pretty red-veined Eranthemum, and one or two other plants. For an Anemone-flowered Pompon Chrysanthemum named Miss Nightingale, Mr. Brown, of Great Marlow, received a Second-class Certificate; it has a compact pale yellow centre and blush-coloured guard petals, well arranged and of good substance. From Mr. Macintosh, of Hammersmith, came blooms of a lilac-blush hybrid Pompon, which looked as if it might prove useful for decorative purposes. Messrs. Smith, of Dulwich, furnished various Chinese Primulas, consisting both of double and single varieties, all of which were stated to come true from seed.

Dec. 8 (*Fruit Committee*).—Considerable numbers of Apples were shown at this meeting. For three dishes of dessert kinds a 1st prize was awarded to Mr. Ruffett, gr. to Lord Palmerston, and a 2d to Mr. Simpson, gr., Stoke Park, near Slough. In these and other exhibitions were good fruit of Scarlet Russet, Golden Harvey, Keddleston Pippin, Cox's Orange Pippin, Cornish Gilliflower, Braddick's Nonpareil, Eldon Pippin, and other well known kinds of Apples. Of Huyshe's Bergamot Pear very fine specimens came from Mr. Pince, of Exeter, and of Huyshe's Victoria Pear, a fine looking variety, beautiful fruit was furnished from the neighbourhood of Exeter by Mr. Scott. Of Josephine de Malines Pear the best dish was contributed by Mr. Spivey, but Mr. Cox, of Redleaf, also had excellent fruit of that useful variety; the last named exhibitor likewise showed an interesting collection of Apples, which received a label of Commendation. From Mr. Wilson, Weybridge, came finely grown Pears from an orchard house. Two good specimens of Pine-apples were shown, one a Cayenne, the other the kind called Charlotte Rothschild. Of Grapes Messrs. Lane & Son again exhibited good bunches of Barbarossa and other black and white sorts, also a finely ripened bunch of Golden Hamburgh to show that it will keep good on the Vine for a considerable time after being fully ripe. Finally, from Mr. Meredith came a large and showy bunch of a new Grape, called "Childe of Hale," a pale amber-coloured sort, which promises to be one of our best very late white Grapes; on that account it must therefore be considered an acquisition. It is, we believe, a cross between the Syrian and Muscat of Alexandria. Along with it, Mr. Meredith also showed a bunch of Black Alicante, likewise a valuable late Grape. Of Currants, we observed a dish of Red Dutch still in a state of good preservation.

ENTOMOLOGICAL: *Nov.* 2. F. Smith, Esq., President, in the chair.—Mr. Bates, the distinguished traveller of the Amazons, and author, having been proposed as a member of the Society, the ordinary rules respecting the admission of members were dispensed with, and he was elected unanimously by acclamation. The President exhibited the nest of Trigona carbonaria, the small stingless honey bee of Australia, obtained by Mr. Woodbury from Queensland, and now belonging to the British Museum. Also the remarkable nest of Tenthredo (Deiloceras) Ellisii, figured and described by Mr. Curtis in the Transactions of the Linnean Society, consisting of a mass of hexagonal cells. The exhibition of these two remarkable insect-structures led to considerable discussion. He also exhibited specimens of the moth Hyponomenta, said to have been reared from larvæ found feeding on the unripe grains of Wheat in a corn field in Suffolk, but which statement, however, was considered to have originated in some mistake. Mr. F. Bond exhibited a drawing of the larva of Sphinx Convolvuli, taken at St. Leonard's on the 17th September, feeding on the small Bindweed. Also a specimen of a very dark-coloured variety of the larva of the Death's-head moth, preserved by Mr. Baker, of Cambridge, taken on the Ash. Mr. F. Moore exhibited some impressions of the wings of Indian butterflies taken upon waxed paper, and Mr. Francis specimens of Anthrebus albinus, taken at Folkestone in September. Mr. MacLachlan exhibited an interesting series of the cases formed by species of the different genera of Caddice flies. Professor Westwood exhibited a large sheet of a delicate white silken tissue found at the bottom of a biscuit chest, the contents of which had been attacked by larvæ considered as Dipterous; it was, however, thought that the structure was that formed by Lepidopterous larvæ, probably Tinea granella. The specimen had been received from Dr. Cuthbert Collingwood. Mr. Waterhouse communicated some notes on a species of Scymnus, regarded as identical with S. quadrilunulatus of Mulsant, and Mr. Stainton read a memoir on the European species of minute moths belonging to the genus Cosmopteryx, three of which were British, and amongst the most elegant of the native Tineidæ.

Notices of Books.

Explorations in Labrador. By Henry Youle Hind, M.A., F.R.G.S. In 2 vols. London: Longman & Co. 1863. [SECOND NOTICE.]

Mr. Hind has given the reader a very lively and valuable account of his voyage up the Moisie, a voyage 120 miles long, during which his goods and canoes had to be carried round the sometimes stupendous rapids or falls, at about 40 different "portages." One of the two maps which accompany the book, gives, at its side, the elevation, drawn to a scale, of these various portages and lakes, till the travellers arrive at the table

land of the great Labrador Peninsula, at an elevation of 2214 feet above the level of the sea.

It was no small advantage to our author, that an artist brother was always ready with his sketch-book, whenever an opportunity occurred of delineating the features of the country or the people. Twelve beautiful chromo-lithographs give an excellent idea of the gorgeous colouring that so often adorns those regions in early summer time, and twice that number of woodcuts serve further to embellish these beautiful volumes. The strange perpendicular rocks, and other peculiarities of the country, are so well represented by Mr. W. Hind, that they make an indelible impression on the memory, and one almost fancies one has seen that singular land. This reminds us of another characteristic, viz., the remarkable growth of Lichens, from the mere time-stain that marks the gneissoid rock, to a vegetation of gorgeous colouring, which is thus described:—

"The colours of the rocks were most striking, and contrasted with the gloomy green of the Spruce forest and the narrow strips of Birch. The purple mountains rise in grand walls of labradorite, or slope away to the sky in cold masses of gneiss. Language fails to express the beauty of the Mosses and Lichens. They are of all colours, from frosted silver to vermilion—from deepest orange to velvet black. Here, a mere time-stain, there a thick, heavy, and pulpy thallus, varying in colour from the most vivid green, through all the greys, to the richest and deepest velvet black, these Mosses and Lichens creep over the harsh and unyielding rocks, covering the deep cracks with a treacherous mantle, beautifying jagged points, growing and flourishing wherever light can come."

Before quitting the Moisie, a few remarks must be made on the extensive utility of Birch bark. It is used for every conceivable purpose. To make canoes and tents, of course; to protect anything from the rain, large sheets of this material are used. If bread is to be made, the preliminary process is to cut and spread out a beautiful clean sheet of bark whereon the kneading may be performed. Is a letter to be written or a map to be drawn, or is a cache to be made, the Birch bark is called into requisition. In the latter case the skins, tobacco, or tea, or whatever light material is to be taken care of, is carefully folded up in the Birch bark, and tied neatly up with reindeer sinews or thongs, and the whole suspended on a tree out of the reach of four-footed depredators.

Whether it was any part of Mr. Hind's commission to collect information respecting the condition, habits, and customs of the Labrador Indians, or whether it was merely from his love of those investigations, certain it is, that he was well qualified for making these observations, from having already passed some time among the cognate races in Western Canada.

Of their earlier history this is known, that in 1535 a French mariner visited the village of Hochelaga, situated near where Montreal now stands. He found the people living in a semi civilized state, and cultivating their lands, and especially noticed that his road lay through fields of Indian Corn. The village was fenced with pikes and stakes, and was a very defensible position, enclosing houses made of wood, and covered with Birch bark, each house containing several chambers.

In 1603 this village had wholly disappeared, having doubtless been destroyed by the powerful tribe of Hurons. These villagers appear to have been of the Algorkin tribe, and all that remained of them were absorbed by the Hurons and Iroquois. It is a circumstance of peculiar interest, that the remains of the village of Hochelaga have lately been discovered. There were found skeletons, fire-places, carbonaceous matter, bones of wild animals, pottery, and various implements of stone and bone, including some of those articles which are used for playing the favourite Indian "game of bones."

Paul le Jeune, a Jesuit missionary, who visited the Montagnais of the Lower St. Lawrence in 1632, noticed the fiendish cruelty exercised by all these Indian tribes upon their unfortunate captives; he says, "in short they make them suffer everything that cruelty and the devil could put in their minds." Their fortitude and apparent indifference to pain while undergoing these tortures, is remarkable. They are dreadfully superstitious, and their medicine men or conjurors impose sadly upon them. They believe in a future state after death, and indeed in the spiritual existence of every material thing. The souls of the dead were thought to travel to a country near the setting sun, the happy hunting grounds of Indian mythology. They walked on the shadows of snow shoes in winter, and killed their game with the shadows of the arms they had been accustomed to use in life, subsisting upon the spirits of the beaver, porcupine, and caribou. The Jesuit asked what became of the souls of these beavers thus killed by the souls of Indians as they travelled to the setting sun? One replied, "Be still; you are talking about things which you do not understand. If I had been in that country I would have answered you."

Wonderful tales of hardihood, cruelty, and courage are told of all these races, whose feuds with one another seem to have been of the most deadly character. If there were ever villages, like Hochelaga, scattered over the land, they have been destroyed long since.

Now the poor Indians are constantly suffering from starvation; they have no notion of cultivating the land, and their hunting grounds have been over-hunted to supply the Hudson's Bay Company with peltry; much of their country has been burnt through carelessness; and the salmon fisheries in the mouths of their rivers have been leased to the white man, who forbids his swarthy brother to fish in his own waters, under the pretext that he is so wasteful and destructive of the fish. Hard lines these, for the poor Indian! Up the country he is starved; on the coast his constitution cannot stand the damp and foggy weather; his companions die around him; and he soon gets too feeble to return to his old pursuits.

The *robe noire*, as the Jesuit priest is called, does something towards his civilisation, but takes care to teach him as little religion as possible, beyond the very rudiments of faith.

Here is a characteristic tale which must not be omitted. At Seven Islands a girl had promised to marry an Indian as soon as the priest should come. Accordingly a seal was shot for the wedding breakfast; loons and porcupine were to form the side dishes, for it was to be a sumptuous entertainment. But they sought high and low; and the young lady could nowhere be found. So the friends consulted as to what should be done in this emergency, and with one consent it was agreed, that at all events they would have their feast. Presently the young girl was discovered most unconcernedly gathering Cranberries. They reproached her for her cruelty and inconstancy. She replied "Do you think I am going to marry him? he can't *call a loon*. I heard him yesterday, and he frightened the bird. He may find another wife." The strangest part of the story is, that the lover and the lass joined in the feast as heartily as any of the rest, without the least appearance of shyness or restraint.

In the latter part of his work Mr. Hind gives a description of the singular winter phenomena of the St. Lawrence, arising from the immense body of water, half pent up by the ice and exerting an enormous force, sometimes contriving to escape by a course underneath the ice; at other times, lifting and carrying ice and all downward with terrific violence. Mr. Hind also describes various harbours and fishing stations in the mouth of the St. Lawrence, and enlarges upon the importance of the island of Anticosta, which he considers to have the greatest possible value as a fishing station. It is highly probable that the information contained in this part of the volume respecting the fisheries, is vastly more valuable than all the rest of the book put together, and we hope the Canadian and British Governments will think well to act upon it.

The money value of the fisheries in these parts is estimated at fully 4 millions sterling, and they form a fine school for the training of hardy seamen. Newfoundland alone exports annually about half a million seal skins, together with 3 million gallons of seal-oil, worth 330,000*l*. Such an amount of wealth, won from the sea, ought not to be disregarded, for surely it is of national importance. Our rulers should study these pages to obtain correct information, and then judge for themselves.

We observe that Mr. Hind speaks very highly of the Moravian missionaries, in their four stations on the east coast of Labrador, where they are exercising the most beneficial influence upon the Esquimaux. He says, "Some idea of the hardships these devoted men and women have to endure, may be gathered from the fact that the mean annual temperature at Nain is 22° 52′. At Ok-kak it is 27° 86′, and at Hopedale 27° 82′, and this in a country where scarcely any fuel is to be had; the missionaries warm their houses by means of stoves." They have 1163 persons under instruction, and through their prudence and fostering care the natives never suffer absolute want. Besides instructing them in the truths of Christianity, they teach them useful mechanical arts. We have gained much instruction and amusement from Mr. Hind's capital work. It has also a good and copious index—a great merit.

Warner's Select Orchidaceous Plants. Part VI.

This Part contains figures of *Oncidium sarcodes*, *Dendrobium Dalhousianum*, *Cattleya superba*, and an *Aerides* called *Williamsii*, although we are quite unable to see in what—except the paler tint of the flowers—it differs from the stouter-growing varieties of A. affine. The three first plants in the above list are charming subjects, and admirably rendered by Mr. Fitch; and we only regret that a work which in many respects is so well adapted to meet a pressing want of the day should forfeit so much of its usefulness and prestige by its reckless disregard of the ordinary rules of botanical nomenclature.

In our notice of the preceding Part we pointed out the identity between the so-called Dendrobium Wardianum and the D. Falconeri figured by Dr. Hooker, and if we were to cast a glance at the earlier numbers, we should find a still more extraordinary jumble of untenable names. What, for example, are Cattleya Dawsoni and C. Warneri but varieties of C. labiata or C. Mossiæ? and what Lælia Turneri and L. gigantea but varieties of the protean Cattleya elegans? Neither can we (or Reichenbach in the Xenia) discover any difference between "Cattleya Warscewiczii delicata" and the Cattleya pallida figured ages ago in Lindley and Paxton's Magazine of Botany. The work before us deserves to be regarded as something more than a Nurseryman's Catalogue, and yet the manufacture of unauthorised names, and—in the defiance of all botanical precedent—the calling plants by the editors *after themselves*, will, if persisted in, prevent its taking the place to which the general excellence of the plates, the beauty of the subjects, and the admirable cultural information it contains, would otherwise entitle it. As we see that it is intended to continue the work beyond the original ten parts, we are the more anxious to have the faults remedied to which we have now deemed it our duty to advert.

Flora of Surrey, by J. A. Brewer (Van Voorst), is a very nice duodecimo volume, containing such an enumeration of the plants of this important county as may serve as a model for similar publications. Their localities are clearly and copiously given, and a capital coloured Geological Map of Surrey contributed by Mr. Prestwich adds greatly to the sterling value of the work.

The Flora of Marlborough, with Notices of the Birds, and a Sketch of the Geological Features of the Neighbourhood (same publisher), is a very inferior affair; but we dare say useful locally. We must, however, beg to inquire upon what authority the author makes the e in gigantea short, or the second i in Torilis, long.

The *National Magazine* for December, is ushered in by a hideous face called "Cunning," but which should have been labelled "Squinting." Upon the usual literary matter which follows, we have no observation to make.

In a small duodecimo printed at Bombay, Mr. Gill has published an excellent Vocabulary of native Indian names of plants under the title of a *Handbook for use in the Jungles of Western India, &c.* It ought to be among the baggage of every Indian official, and to be introduced into every native school. The first step to acquiring a knowledge of Botany is to become familiar with the common plants around the student, which can only arrive after their scientific names have been learned. That step taken, the rest is easy; and as Botany does not interfere with any native prejudices, it seems the most suitable of all natural sciences for Indian education. The little volume is introduced by a preface marked by very great good sense.

Watts' *Dictionary of Chemistry*, Part X. (Longmans), reaches "Fluorine," and has excellent articles on "Flesh" and "Fermentation."

Under the name of *A Handbook of Practical Telegraphy*, by R. S. Culley, Telegraphic Engineer and Superintendent (Longmans), an 8vo. volume has just appeared, containing an immense quantity of most useful information concerning the most marvellous of modern sciences.

Messrs. Walton & Maberly have issued the first number of *A History of the World*, by P. Smith, B.A., to appear in monthly parts. That before us contains chapters on the Creation of the World, and the First State of Man, from the Fall to the Deluge, or, the Catastrophe of Sin; the Post-diluvian World, from the Deluge to the Dispersion, or, Man's Second Probation and Fall; the Division of Nations; and Early History of the Hebrew Race, from the Call of Abraham to the Exodus.

Miscellaneous.

Mildness of the Season.—Last Sunday—a bright, clear, sunshiny day, although frosty in the morning and evening—we saw in bloom, by the roadside, in the neighbourhood of Preston, the Dandelion and Daisy; on a bank under a Hawthorn a solitary lowly Primrose; and flowering in the garden were Stocks, Wallflowers, the Polyanthus and Double Primrose, hybrid perpetual and other late blooming Roses, several Heaths, the Marigold, and common Groundsel, not to make mention of the Chrysanthemum, which, unless cut down by frost, is generally in flower at this season. *Preston Chronicle.*

Spontaneous Generation was long a favourite speculation amongst casual observers, who could not otherwise explain the sudden appearance of thousands of little frogs or fish after a shower of rain, or of myriads of worms in organic substances in corruption. But science has gradually reduced the area of this mysterious operation till it is now nearly limited to those microscopic creatures which, in their full-grown state, often strain to their utmost limits the powers of our magnifying instruments, and whose germs, if they exist, may not be always appreciable to our senses. In this form the cause of heterogeny has been strongly taken up by some continental observers. M. Pouchet, of Rouen, in 1859 devoted a volume to its advocacy, under the title of Traité de la Génération Spontanée. M. L. Pasteur, on the other hand, came to an opposite conclusion, publishing the results of his researches in the Annales des Sciences Naturelles, Zoologie, sér. 4, vol. xvi. (1861), and more fully in the Annales de Chimie et de Physique for January, 1862. In this very remarkable paper he gives the history of the doctrine up to that time, and a detailed account of a number of curious experiments, by which he appears completely to refute the idea of heterogeny in the production of microscopic animals or plants in organic matter in a state of

fermentation, and brings forward a mass of evidence in favour of their origin in some of the numerous spores always floating in the air, although frequently inappreciable by our microscopes. Shortly afterwards Prof. J. Wyman instituted a number of similar experiments at Boston, but as it appears from his paper (dated May 6, 1862) in Silliman's Journal (vol. xxxiv. p. 79), not with the same results. It is probable, however, from his referring only to Pasteur's previous memoirs in the Annales des Sciences Naturelles, that he had not yet received the above-mentioned one in the Annales de Chimie, and that the heat employed for destroying the germs (M. Pasteur has ascertained that it required in certain cases 10° above boiling-water heat) was not always sufficient. At any rate, there is a great want of uniformity in the results of his different experiments; and Prof. Wyman, although he appears to consider them on the whole as contradicting Pasteur's, yet refrains from expressing any decision of his own, giving only the arguments that his researches might supply to both sides. In the mean time the Académie des Sciences of Paris had proposed this subject for competition for the Alhumbert prize for 1862. M. Pouchet sent in a series of papers, which, however, he withdrew before the Commission began their examination (Comptes Rendus, vol. lv. pp. 544, 785); and the Commission, consisting of MM. Milne-Edwards, Flourens, Brongniart, Coste, and Claude Bernard, appear to have actually had for consideration only M. Pasteur's memoir, and a series of communications from MM. Joly and Musset, a summary of which these gentlemen published in the Comptes Rendus, vol. lv. pp. 487-491, professing to have repeated M. Pasteur's experiments with results diametrically opposite, and quoting also in support of their views, Prof. Wyman's experiments. The commission, however, unanimously awarded the prize to M. Pasteur, with a high eulogium on the ability and care with which his experiments had been conducted, passing over MM. Joly and Musset's papers in silence. The Academy also further testified their opinion of M. Pasteur's merits by electing him, about the same time (December, 1862), into a vacant seat among their number. Again, a further communication illustrative of the subject, read by M. Pasteur, on the 9th of March of the present year (Comptes Rendus, lvi., p. 416), appears, from some journals of the day, to have excited considerable sensation among his colleagues, as affording further convincing proofs of the correctness of his views. Having scarcely risen from a perusal of M. Pasteur's papers, I was not a little surprised to see, in the Athenæum of March 28th of this year, a new form of spontaneous generation promulgated, as it were, *ex cathedrâ*, in a review of Dr. Carpenter's Introduction to the Study of the Foraminifera. We are told that these animals are produced by the action of a general polarizing force on the slime contained in the beds of mud or ooze at the bottom of seas, lakes, rivers and other aggregates of waters. I see, however, no indication of the evidences on which this extraordinary statement is founded, nor can I find, on looking over the general chapters of Dr. Carpenter's work, anything to warrant a hypothesis so contrary to all conclusions derived from analogy. It is true that the extreme simplicity of structure of the Foraminifera is insisted on in a most graphic passage extracted by the reviewer, showing how those vital operations, which we are accustomed to see carried on by an elaborate apparatus, are performed without any special instruments whatever; yet we learn from an equally strong passage in a subsequent page, that these creatures do perform all the functions which constitute in their aggregate the life history of an animal; and, without strong evidence to the contrary, we have no right to conclude that this vital power is the result of those purely physical forces which produce crystallisation, and is not transmitted from an organised being similar to themselves. It is to be regretted also that the anonymous reviewer should have adopted a tone so depreciatory of a work evincing such elaborate and extensive research, such powers of methodising and lucidity of exposition. Still less does it seem consistent with that impartiality which every reviewer is supposed to possess, that, when returning to the subject in the Athenæum of April 25, he should have cited as conclusive in favour of spontaneous generation, the authority of Pouchet, Joly, Musset, Schaaffhausen, Mantegazza, and Wyman, completely ignoring the refutation of Pasteur, considered so satisfactory by the French Academicians. *Bentham, in Annual Address to Linnean Society.*

Growth of Wellingtonia in the Scottish Highlands.—It has been considered doubtful whether this wonderful tree would bear the rigours of our severe climate; but we are glad to be able to adduce a case in which it has not only thriven, but thriven in a most remarkable degree, under circumstances which may be deemed anything but favourable. The Earl of Seafield has a nursery of Pines far up the Forest of Abernethy, almost at the base of the Cairngorme, and a correspondent mentions that he saw there, the other day, two young specimens of Wellingtonia, which, it had been ascertained by careful measurement, had grown not less than, in one case, 13, and in the other case 15 inches, in the course of 12 months. This instance of satisfactory growth seems to settle the question as to whether these trees ought not to be more generally planted. Their success in Abernethy, indeed, would seem to suggest that possibly the Wellingtonia may supplant the Pine, which has from time immemorial occupied and luxuriated in our native forests. *Banffshire Journal.*

Retarding Cherries, an ancient Practice.—When Sir Francis Carew had rebuilt his mansion at Beddington, in Surrey, he planted the garden with choice fruit trees. There he was visited by Queen Elizabeth;—and Sir Hugh Platt, in his Gardens of Eden, tells a curious anecdote relating to one of these visits. "I conclude," says he, "with a conceit of that delicate knight, Sir F. Carew, who, for the better accomplishment of his royal entertainment of our late Queen Elizabeth, led her Majesty to a Cherry tree, whose fruit he had of purpose kept back from ripening at least one month after all Cherries had taken their farewell of England. This secret he performed by straining a tent, or cover of canvas over the whole tree, and wetting it now and then with a scoop, as the heat of the weather required; and so by withholding the sunbeams from reflecting upon the berries, they grew both great, and were very long before they had gotten their perfect cherry colour; and when he was assured of her Majesty's coming, he removed the tent, and a few sunny days brought them to their maturity." *Country Paper.*

People's Garden in Paris.—A new garden for the recreation of the working classes is about to be opened at the Buttes St. Chaumont, one of the northern suburbs of Paris. This new garden, or, more properly, park, will be the largest within the fortifications of Paris, covering a space of 50 acres, nearly double the area of the Parc Monceaux. It will, moreover, command the finest view. It is to be, like other public gardens, planted with the rarest foreign shrubs, selected from the horticultural gardens of La Muette, near Auteuil. *Times.*

Calendar of Operations

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—After the beauty of the Chrysanthemums is over, move them to other quarters, and get such plants as had to be set aside for the time to make room taken back into their former situations, or so re-arrange matters that the whole may have a good effect. The decayed Chrysanthemums removed should be cut down, suffered to become somewhat dry, and placed in cold frames. Those who cannot afford frame room may secure them in some shed or outhouse for a few weeks, covering them overhead with clean straw should frost occur. Young plants intended for next years specimens should be at once secured. Little can be said with respect to stove plants at present. Use moderation in heat and atmospheric moisture. Beware of exciting the buds of Orchids before their time.

FORCING DEPARTMENT.

PINERY.—As previously stated late swelling fruiters, which have had little water, may receive a slight increase of tepid manure-water. There is, however, room for doubt as to whether it is absolutely necessary after this period. Plants managed in the old style (in houses or pits with flues), no doubt would require it. By modern plans, however, a much greater amount of atmospheric moisture is indulged in; and this should be duly considered. When sunshine occurs, instead of giving air, let the thermometer rise to 80° or even 90°, after which give air.

VINERY.—Where forcing has commenced, and the roots are outside, every attention should be given to the borders. A proper degree of heat must be maintained in the fermenting material. Any kind of protection to throw off rain would be invaluable, and would improve the warming powers of the covering.

MUSHROOM HOUSE.—This, as we have formerly stated, is one of the most useful structures about a garden. Seakale may be forced here in constant succession with as little trouble as raising a crop of small Salad. The old plan of raising a bed of fermenting materials, over the crowns out of doors, is an uncertain process compared with this. It is equally well adapted for Rhubarb forcing. Nothing is needed but a long, narrow pit along the bottom of the house, on one or both sides, the top of the pit to be level with the floor. It should be 4 feet deep, and filled in portions as wanted, with any hot, fermenting material, to within half a yard of the top, which should be covered with a lid. The Kale and Rhubarb should be placed on the surface of the fermenting matter as thick as it can stand, and then filled in with soil or old tan.

FLOWER GARDEN AND SHRUBBERIES.

When dry, open canopies or coverings of tender plants a little for a few hours, as often as time can be spared for that purpose. A plan of the masses or beds might now be decided on, and if frost sets in, the soil may be renewed according to the character of the flowers to be planted. Have all compost heaps turned over often if the weather should become frosty; by repeatedly removing the frozen surface, and piling it up, many insect pests may be destroyed. Hard weather is also a good time to cart turf, peat, &c. and to lay in a good stock of soils, which, however, should have been done before this time. After so fine an autumn, during which all bulbs have been got well into the ground—and the Tulip grower especially has commenced his labours under favourable auspices—we would advise that every bed, however small, be properly and substantially hooped over, so that by covering with a number of Russian mats sewed together, the whole length and breadth of the bed or beds, the collection may be safely defended from an excess of either rain or frost. Beds of choice Pansies ought also to be protected. Perhaps the best bloom of Polyanthuses which we have of late years seen was grown in a pit facing the north-east (built of turves cut from a pasture field), and planted in a compost of decayed leaves, loam, and sheep manure; the plants during the spring months were robust in the extreme, and the bloom of first-rate excellence. Growers of this flower should therefore try a turf pit against one made with brick, at least those of them who are about commencing the cultivation of the Polyanthus; it will be found more impervious to frost, and decidedly more congenial to the habits of the plants than growing them in pots in frames. Carnations, Picotees, and Auriculas must be kept clean, and the pots not allowed to get soddened with wet; in fact, the less water the better, compatible with health.

HARDY FRUIT AND KITCHEN GARDEN.

Push forward all work that can be done now with expedition. When things that might be done now are delayed until spring, there is sure to be a sacrifice of some importance. All the pruning, except that of Figs and Apricots, and most of the nailing of wall trees, as well as the training of espaliers, should be finished if possible by New Year's day; and the same may be said of bush fruit. The making of borders or stations for fruit trees, too, should be autumn business; indeed, where new soil has to be introduced, September or October is the most fitting time, as the best of soils may be seriously injured by moving them in a wet state. In wet weather, let matting or bast required for the ensuing year be cut, sorted, and hung up ready for use. Besoms and baskets should also be prepared. The tool-house should be examined, and put in an efficient state, and in fact everything of this kind done that is possible. Should frost set in, the best Celery beds, if not already done, should be immediately covered with clean straw 6 inches thick. Let all other vegetables have due attention. Also let manure be wheeled out whenever the weather is favourable for such operations.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Dec. 9, 1863, as observed at the Horticultural Garden

Dec.	Month's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain.
Thurs.	3	29.816	29.119	44	30	37	47½	48½	S.E.	.60
Friday	4	30.286	30.218	51	45	48	47	48	S.	.10
Satur	5	30.196	30.044	54	30	42	47	48	S.	.07
Sunday	6	30.260	30.102	52	33	44	48	48	E.	.60
Mon.	7	30.317	30.242	52	43	47.5	49½	48½	E.	.60
Tues.	8	30.224	29.936	51	41	46	49	48½	S	.05
Wed.	9	30.013	28.972	52	27	39.5	48½	49½	S.W.	.02
Average.		30.151	29.933	50.8	36.0	43.4	47.6	48.3		.14

Dec. 3—Very boisterous; clear and boisterous, clear at night.
— 4—Clear; very fine, overcast
— 5—Overcast; drying wind, boisterous; rain at night.
— 6—Very fine; fine throughout.
— 7—Fine, cloudy, fine
— 8—Overcast, cloudy and fine.
— 9—Rain, damp and drizzly, densely overcast; fine.
Mean temperature of the week 2½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending Dec. 19, 1863.

Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 13..	46.4	32.5	39.5	21	1.16 in.	2	9	1	2	6	5	5	4
Mon. 14..	45.8	33.8	39.3	19	1.24	6	5	4	5	2	6	5	4
Tues. 15..	46.1	34.5	40.3	16	0.34	2	6	5	3	5	10	5	2
Wed. 16..	45.6	34.4	40.0	13	0.34	6	3	1	3	6	8	5	2
Thurs. 17..	44.9	33.6	39.8	18	0.38	8	5	3	1	7	8	2	3
Friday 18..	45.9	33.9	39.9	19	0.56	9	6	3	2	3	12	2	6
Satur 19..	44.6	33.5	39.1	16	0.87	1	4	1	4	3	12	3	6

The highest temperature during the above period occurred on the 16th, 1840—therm. 62 deg.; and the lowest on the 13th, 1848—therm. 18 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARAUCARIA: *H F S.* The only thing you can do is to remove very carefully as much of the present soil as you can get away without injuring the roots, and replacing it with loam. The tree is evidently suffering from exhausted soil. The operation had better be effected at intervals of a few months.

BOOKS: *Under Gardener.* Lindley's School Botany, and Kemp on How to Lay Out a Garden.

GRAPES: *J D.* Your Grape resembles the Muscat of Alexandria, but, though very sweet, it has not so much Muscat flavour as is generally found in the true Muscat of Alexandria.

NAMES OF PLANTS: *W T T.* Either Cmaridium vestitum, or very near it. The materials do not enable us to form a positive opinion on so nice a point.—We are obliged, as we have stated over and over again, to decline naming plants not in flower.—*A Young Gardener.* The Heath is some one of the Garden mules from E. cerinthoides.—*G.* Viburnum Lantana.—*A K.* Garrya elliptica. The others are species of Cupressus or Juniperus, not in a state for determination.—*R T.* No doubt some Abolboda, a mere Botanical weed.—*H W.* Garrya elliptica.

PASSIFLORA QUADRANGULARIS, OR GRANADILLA: *S* says, should Mr. W. Thompson (see p. 1160) fail in obtaining in England seeds of this delicious fruit, he shall be happy to procure some from friends in South America (of which country it is a native) upon Mr. Thompson's favouring him through our columns with an address to which they might be sent in a letter. As the fruit in question, he states, does not ripen there till December, a long delay in forwarding the seeds will be inevitable. There is, he adds, a plant of the Granadilla in the Victoria House, at Kew, but he is quite unable to say whether it has ever ripened any fruit or not.

THE DOUGLAS FIR: *N.* No one in this country can as yet answer your question satisfactorily. All that is certain is that the timber, if grown in N. W. America, is the best "deal" in the world. As to rain water we reply "Yes."

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The Agricultural Gazette.

SATURDAY, DECEMBER 12, 1863.

IT is impossible, within the narrow limits of this Journal, to overtake, on one day, and in full report, the agricultural proceedings of the past week. The items are shortly these:—On Monday, the Show of the Smithfield Club (reported elsewhere) was opened in the Agricultural Hall. In the evening of that day Mr. COLEMAN, of Woburn, read an excellent paper on the management of live stock on arable land, which is imperfectly reported in another page. On Tuesday the annual dinner of the London Farmers' Club took place; and on Wednesday the general meeting of the Royal Agricultural Society (referred to elsewhere) was followed by what was probably the most important agricultural event of the week. A meeting took place in St. James's Hall under the presidency of Mr. HOLLAND, for the promotion of steam cultivation, of which a short account is given in another page. In the evening the Annual Dinner of the Smithfield Club took place, and Mr. MORTON read a paper before a full meeting of the Society of Arts, on Agricultural Progress, its Helps and its Hindrances. A portion of that paper is given in the following pages. There was a very vigorous discussion consequent upon it, in which Mr. COLE spoke of the condition of the labourer, Colonel CHALLONER and Mr. ROBERT SMITH, of Exmoor, defended the prize system of the Royal Agricultural Society of England; and Mr. FOWLER and Mr. RANSOME condemned it. Mr. HOLLAND spoke of the way in which agricultural progress had benefited all classes; and Dr. ELLIS referred to the improved condition of the agricultural labourer, consequent on the agricultural use of steam power. The Chairman, Mr. GREY, of Dilston, after a discussion unusually prolonged, and ultimately borne with impatience, in wise and weighty words, brought it to a close, speaking, as his long experience enabled him, of the benefits, obligations and duties by which all classes of the agricultural world are united, and on the right observance of which true agricultural progress depends.

We hope to give a report of these addresses next week, as well as of those which followed the excellent paper of Mr. COLEMAN at the Farmers' Club.

SWEDES NOT BULBING.

THE evidence I gave at the trial which took place lately at Cavan regarding the sporting of the Swede Turnip having been questioned, I am induced to trouble you with a few facts which have come under my own observation, and I prefer giving facts rather than offering an opinion as to the cause of such sporting, for notwithstanding my close observation of this strange freak, and my experiments made to discover its source, I am as unable as ever to account for it, although it is now some years since I first observed this particular change in the character of the plant. And as every year the cases are increasing in Ireland, I have not only in late years given the subject greater attention, but, as a seedsman, have doubled my diligence and care in the production of the seed; still I am baffled, as my very best selected seed has given me the greatest trouble, through having produced some of the worst cases of sport. For instance, seed grown at my residence near Dublin, under my own care, from large selected bulbs (and not within sight of any seeding plant of Rape or other of the Brassica tribe), when sown in the county of Wicklow, on one of the very best cultivated farms, the ends of 20 or 30 drills, and extending 30 or 40 yards in the field, produced only plants without bulbs, and so tall and bushy, that they could be seen from a considerable distance. The roots were strong and forked, and of a yellow hue, like the flesh of the Swede; the remaining portion of the drills, and all the field beside, was a heavy crop of well-formed bulbs without a single sporting plant. Again, in the county of Tipperary, where were two fields separated by a wide ditch, the ditch was thrown down and the field sown with the same seed across the ditch; on each side of the levelled ditch was a crop of excellent bulbs, while over the ditch almost every seed produced large Rape-like plants without bulbs. Again, in 1861, a gentleman in the county of Carlow sowed 20 lbs. of Skirving's Swede on a field of 5 acres. The field had previously consisted of two fields of 3 acres and 2 acres, separated by a ditch; the ditch was levelled and the 5 acres tilled in the best manner and heavily manured; the seed was sown in drills running across the ditch. The 3 acre portion was an excellent crop of well formed bulbs, while the 2 acres produced only Rape-like plants quite innocent of bulbs. When the crop was matured the farmer was candid enough to inform the seed merchant that had the drills not run across the ditch and embraced in their length both fields, he would have insisted that Rape seed had been put on the top of the bag, and would have sued for compensation. Again this season, in the Queen's County, a gentleman who farms extensively, and who prides himself on his excellent cultivation and heavy crops, sowed on one afternoon about 25 drills of Swede, and in a day or two thereafter the remainder of the field; the previous crop, culture, and manure being the same, and apparently there was not the slightest difference in the soil. The 25 drills produced a mixed crop, about half Rape-like plants and half bulbs, while the other portion of the field, and much the largest, gave an excellent crop of bulbs, entirely free from sporters; but it is needless multiplying cases, although I could relate 20 similar to those above, and I vouch for all I state to be strictly true, and most of the sported crops I examined for myself. I am well aware of the necessity for a careful selection of the parent stock, and in growing the Brassicas especially that they be seeded far apart from flowering plants of every other variety of the tribe to keep them from hybridising, and I think I have not been wanting in success, as my friends have testified; but where the matter of the Swedes sporting is so little understood, it is certainly very hard that seedsmen should have to answer for that over which they have no control, for instance where one respectable seedsman here was sued for Swede sporting, and a verdict given against him to the tune, including costs, of over 500*l.*, and another was mulcted in a still larger sum. While I am fully persuaded that the seed had nothing to do with it, at the same time I frankly admit seedsmen's responsibility, and would not for a moment flinch from meeting responsibilities if I brought them on myself through fraud or carelessness. That Turnip and other round seeds are too often adulterated with killed Rape, &c., I believe is too true, and those who follow such a nefarious practice should be made to answer for it; at the same time I am free to say that never in all the course of my business, and that is for nearly 30 years, did I ever mix or cause to be mixed, an ounce of such adulteration, but gave out my Turnip seeds pure as grown, and most of them are produced by my brother in Stirling, who is unusually careful in his selection of bulbs, and to avoid accidental mixing with Rape I keep my Turnip and Rape seed in separate warehouses, each bag having the name plainly marked; besides, the plants complained of which do not bulb are the true Brassica

campestris rutabaga, or Swede Turnip, and not the B. napus or Cole, which most growers suppose they are. It is to be remarked that although I have known the sport in Swedes for eight or more years in Ireland, and yearly increasing, I have not heard of a single case in Scotland, although much larger quantities of the same seed complained of here are annually sown in Scotland. *D. Drummond, Dublin, Dec. 3.*

AGRICULTURAL PROGRESS.

ITS HELPS AND HINDRANCES.

[The following paper was read by Mr. J. Chalmers Morton, last Wednesday evening, Dec. 9, before the Society of Arts —Mr. John Grey, late of Dilston, in the chair. The discussion which ensued upon it will be referred to next week.]

IT is the object of this paper to illustrate the fact of agricultural progress—to specify the circumstances by which it has been promoted—and to enumerate some of the obstacles by which it has been hindered. A discussion of the helps and hindrances amidst which it has been accomplished ought to be of service to it in the future; and it is as an introduction to such a discussion that the following statement has been prepared.

[Unfortunately the subject is too great and the statement too long for discussion in one paper, and the former part of it is postponed till next week.]

I have collected a number of the testimonials and opinions of practical farmers and land agents of long and large experience in various parts of the country, all concurrent to the effect that the agricultural produce of this country is now much larger than it has ever been before—that the fertility of the land is increasing, and that both in bread and meat of home produce we are really better off than formerly, notwithstanding that our imports of food have also largely increased in order to supply our better fed and larger population. All this might have been as well illustrated, though not better *proved* by a number of definite instances of improvement. I have, however, preferred the other plan of putting the fact before you, for one reason among others—because I believe that the indefinite, and even the almost inarticulate judgment of an experienced man is, after all, more trustworthy than the precise figures which might be given in an account of individual examples. In agricultural questions, where everything is so dependent on circumstances, I would rather have the round numbers of a generally observant practical man than the decimals to the third and fourth place of an enthusiast on any particular point. And I think the body of testimony, from which I have now read specimens, is conclusive of the fact of agricultural progress. I should like, however, to add one reference to a particular example. If our Chairman can say that during his management of the Greenwich Hospital Estates 100,000*l.* has been spent in land improvements, and many hundreds of cottages have been built, and largely increased rents have been obtained, and the tenants are in better circumstances, and the land is more productive, so that every class connected with it is benefited—so also can many an owner of land in the south. I will particularly mention the Sarsden Estate in Oxfordshire, because it enables me to pay a tribute to the memory of one in whom English agriculture has lately lost a public-spirited exemplar and energetic friend.

During the late Mr. Langston's ownership of Sarsden —an estate of small extent compared with those of the Greenwich Hospital—60,000*l.* or 70,000*l.* had been spent in the various estate improvements, which include the soil and its live stock, its roads, fences, buildings, farm-houses, cottages, and schoolrooms. No part of the interests of landowner, tenant farmer, or labourer had been neglected. And the result is seen here, as in a multitude of other less definite examples throughout the country, in greater produce and a better conditioned agricultural population.

CAUSES OF AGRICULTURAL PROGRESS.

Admitting, then, as proved, the increased produce of the country, what, let us ask, has it been owing to? And first not of the original but of the immediate causes of it.

(1) It has been owing, first, to better tillage. The object of tillage is the creation of an increased available surface within the soil, on which may be prepared and deposited food for plants, and on which the roots of plants may feed. The greater the quantity of this internal superficies to act as a laboratory, as a warehouse, as a pasturage, and the better stored it is, under a given extent of land—then, so long as the fitness of the mechanical condition of the land with reference to particular plants is preserved, the more fertile is that land with reference to those plants.

In order to the creation of this inner surface a greater depth of soil is stirred, and clods are comminuted. In order to the increased accessibility of this inner surface land is drained. The air and rain water which then traverse soil and subsoil, instead of merely lodging in them, introduce substances into this warehouse and activity into this laboratory.

The air which rain-water thus draws through the soil as it sinks downwards to the drains is as necessary to the fertility of the soil as it is to the heat of burning coals. The fire will merely smoulder until, by the erection of a chimney over it, a current upwards through the burning mass is impressed upon the air. And even then, in fires of caking coal, the heap may smoulder until, by the smashing of the fuel, that inner surface of the fire, where the action of the air takes place throughout it, is multipled, and the impervious ceiling—or floor, as we might call it, to an upward current—which has hindered the passage of the air over that inner surface, is broken up.

Land drainage is the provision of a passage for the rain water, along with which the fertilising air has thus a downward current given it through the soil and subsoil. And tillage, especially tillage by steam-power, which does not cake a floor, as horse-power does, beneath the soil it stirs—has all that enlivening effect of the poker on a caked coal fire, which the parallel suggests. Extended drainage has a great deal to do with our increased produce. Mr. Bailey Denton estimates that nearly 2,000,000 acres have within the past 15 years been under-drained, and the fertility of these acres has no doubt been largely increased.

Deeper and better tillage has contributed to the same result. The extension of autumnal tillage is an undoubted fact; the enormously increased use of implements of the grubber class is another; the general adoption of a better form of plough is a third; the more general adoption of the fertilising practice of burning clay soils is a fourth. The success which has at length rewarded unconquerable perseverance in the attempt to use steam power for tillage operations is another great fact, which, if it cannot yet be quoted in explanation of agricultural progress hitherto, will unquestionably be looked back upon 10 years hence as having contributed largely to the increased fertility which will then fall to be recorded.

(2) In the second place our agricultural progress has been owing to the greater richness of home made manures, and to the greater use made of imported fertilisers. The imports of guano since 1840 have amounted to 3¼ millions of tons; the imports of cubic nitre, which averaged 10,000 to 14,000 tons per annum up to 1858, have since varied from 25,000 to 40,000 tons per annum. The imports of bones since 1848 have increased from 30,000 to 70,000 or 80,000 tons annually. All these are manuring substances. Dr. Voelcker informs me that 75,000 to 80,000 tons of Suffolk and Cambridgeshire coprolites, and 15,000 to 20,000 tons of Sombrero phosphate are also used in the superphosphate manufacture, which now probably exceeds in worth 1,000,000*l.* per annum. To facts like this we have to add the enormous extension in the use of oilcakes and richer foods in the meat manufacture, by which the richness of home made manure is increased. The increased adoption of the practice of applying manures at once to the land instead of rotting it in heaps is an economy, and so an addition to our resources worth naming. The increased practice of feeding and collecting manures under shelter is another economy. The increased care to properly pulverise and even dissolve manures, so as to distribute them thoroughly through the soil, is another first-class example of a most important improvement in farm practice. On the other hand we have to confess the increased value of the town sewage, due to the improved drainage of our towns—which is still suffered to go to waste. On the whole, however, there cannot be a doubt that the increased fertility of the soil is due not only to improved drainage and tillage, but to the direct application of fertilising ingredients in a more liberal and economical manner.

(3) Leaving now the soil, we have the way in which its increased fertility is developed and expressed. I suppose in the first place it will on the whole be admitted that on arable lands at least there are fewer weeds, our fallow crops are cleaner, our tillage and manures are not wasted so much on plants we do not want to grow. That is the first *fact*, as I believe it to be, under this head.

Another is the prevalence of rotations of crops in which bare fallows are diminished, and in which there is a larger acreage of the more valuable crops. The prevalent rotation of the country is the four-field course, in which Wheat, Turnips, Barley, and Clover occupy one-fourth of the land apiece. But it is common on well cultivated land—where the land is folded by cake-fed sheep, and where a top-dressing of guano is given to the corn, to take a crop of Wheat between the Turnips and the Barley, so that three-fifths instead of two-quarters of the land are in grain crops. One-half of the Clover land, too, is often sown instead with Peas or Beans, so that five-eighths instead of three-fifths are in grain. Again, over large districts, especially in Scotland, Potato culture does to a great extent displace Turnips or other fallow crops, and this provides a great increase of food for man.

But besides the adoption of improved rotations, we have to report the improved cultivation of individual crops. I suppose that the gradually diminished quantity of seed used per acre in growing grain crops—as drill husbandry extends, and as an increased independence of mere custom becomes the rule, each man determining his practice for himself—will be admitted by most people as an example of this kind. Certainly every one will admit that the extension of drill husbandry in the cultivation of root crops, the extended use of the horse-hoe in the cultivation of grain crops, the extended use of so-called artificial manures as top-dressings and otherwise in the cultivation of all crops—all illustrate the improved cultivation of the plants by which the greater fertility of our soils is expressed and utilised.

Again, we owe our better crops to the selection and adoption of better sorts of the plants in cultivation. I don't suppose that individual sorts have improved upon our hands. Probably, as a general rule, they have deteriorated. But new sorts are being perpetually introduced; and of Wheat, Barley and Oats, Mangel Wurzel, Swedes, Turnips and Potatos, Cabbages and Vetches, a man can grow sorts as good as any—I think probably better than any—that his predecessors have known.

(4) We now come to the produce of meat; and the question of sort has a great deal to do with our improvement here. There are probably fewer acres now devoted directly to the growth of cattle food than there ever hitherto has been; and though, notwithstanding this I do not doubt that, owing to liberal and vigorous cultivation, we grow more tons of cattle food annually than ever hitherto, yet it is not so much to this as to our improved sorts of cattle, sheep, and pigs that we owe our increased produce of animal food. Our sheep are now ready for the butcher at 14 months old—our cattle at 24 and 30 months. Formerly it needed at least two years of feeding to make a smaller carcase of mutton, and at least three or four years' feeding to make a smaller carcase of beef. A thousand sheep upon a farm in March or April now mean something like 500 ewes in the lambing fold, and 500 sheep ready for the market. Formerly they meant not more than 300, and those a smaller lot, ready for the butcher; and this great increase in the meat produce of a given head of stock is witnessed as much in pork and beef as it is in mutton.

All the important breeds of cattle, sheep, and pigs have improved and increased in numbers during this period. Mr. Strafford receives entries for his Herd-Book from fourfold the number of Short-horn breeders, and the influence of this, the dominant breed of cattle, in crossing the general stock of the country has wonderfully increased. Messrs. Duckham and Tanner Davy report no falling off in the number and quality of the more local breeds of Herefords and Devons. Both Downs and Long-woolled sheep—and especially the latter —have made great strides both as to increase of numbers and general improvement, and much more general interest is taken in the improvement of the breeds of swine. The public attention has lately been drawn, or rather driven, to the fact that disease is rife among our stock, and it is said to be increasing. It is one part of our evidence for the fact of great agricultural improvement, that an evil of this kind, whether general or local, and wherever it exists, is not now left to fester, but exposed and probed by an energetic public agitation which will undoubtedly promote its cure.

The greater rapidity of growth and the increased size of our improved stock, both well illustrated by Mr Herbert's figures in the "Royal Agricultural Society's Journal," which describe the supplies to the metropolitan market, are owing partly to the better food we give our stock as well as to their increased precocity, and the enormous extension of better bred stock. And thus, as part of this experience, we have a supply of more fertilising manure and an increased growth of grain crops. It is I believe the fact that there are more acres of corn grown now than ever has before been known in England, and I look upon this as a proof of agricultural progress. And so long as this is consistent with the maintenance of fertility, it is certainly for the interests of the consumer. It is said our climate is especially favourable for the growth of green crops. I believe we grow more bushels of Wheat per acre than any other country, whether we have so good a climate for it or not; and if the present extravagant cry for laying land down to grass which has hitherto grown grain and green crops in alternate husbandry shall to any extent prevail, I do not know who is to benefit by the change. Landlord, tenant, labourer, and consumer are alike interested in the larger produce and more energetic cultivation of arable land.

The progress which I have thus sketched has been achieved rather by the extension of good agriculture than by the invention of any new process during the period of it: and yet there is enough of novelty and change apparent, too, on comparing the farmer now with his predecessor then. Bones and rape-cake, soot and salt and gypsum, lime and marl and composts, used to be the principal methods of adding directly to fertility; and indirectly the same end was attained by the cultivation of successive green crops, feeding Rye and Rape, Vetches and Turnips and Cabbages off successively upon the same field. This "double" culture was advocated confidently, as the perfection of arable cultivation, 28 or 30 years ago. Hear Mr. Middleton, who edited the 20th edition of Arthur Young's Farmers' Calendar, writing on this very practice: "That very numerous class of supine persons," he says, "whose minds are so weak as not to adopt this practice, which is the most improved that is known, will certainly continue to complain of hard landlords and bad times. Such characters do not succeed in any profession; neither can they in agriculture. I had nearly said they deserve to be poor, but, whether they deserve it or not, their destiny is to be so."

Notwithstanding, however, Mr. Middleton's vigorous assertion of this practice, it is not thus that the farmer now in general seeks the increased fertility of his lands.

He has guano, superphosphate, and other fertilisers at his command. He has machinery not only for the increased efficiency, but for the cheapening of all agricultural processes. Steam-power both tills the soil and threshes out its produce. The mowing machine, hay-tedder, and reaper—the chaffcutter, pulper, and steamer cheapen the labour of securing his crops, and economise the after use of them. Better plants are grown, and better animals are fed; and the fertility which came with profit under the best management in two or three years, is now achieved, perhaps with no greater profit, but almost at once.

But I believe that I have sufficiently illustrated the fact of agricultural progress. Let me now enumerate some of the helps and hindrances amidst which it has been accomplished.

HELPS AND HINDRANCES TO PROGRESS.

The original purpose of this paper was to bring into the brightest light that I could strike, the share which agricultural societies have had in promoting the progress which has been now described—the influence of farmers' clubs, of local, provincial, and national agricultural associations—and in what way it could be wielded more efficiently. To this end I have entered into correspondence with the secretaries of these Societies; and learning from them the nature of the efforts and achievements which have thus in many places been witnessed, it is impossible to doubt that these societies have been of service in the promotion of good cultivation, both by the stimulating influence of the competition which they have excited, and also (though this is not so uniformly true) by the guiding influence of the awards that they have made. And in previously backward and secluded localities, especially where railroads and access to new markets have happened together with the establishment of the local society or club, great agricultural improvement has unquestionably been accomplished. It is however, I believe, also unquestionable that after all the Society plays a subordinate and merely incidental part. The real stimulant to agricultural improvement is the self-interest of the landowner—the self-interest of the tenant farmer—which is sharper, far more earnest, more genuine and trustworthy than any external spur or rein, such as societies do to some extent supply. And thus it is in the business relations of the farmer that we have the real limits and conditions under which his professional ability appears. The terms on which he has hired the machine, the factory, the mine, or whatever his farm may best be likened to—the relation in which he stands to the owner of it, and to the labourer by whom he is to work it—these are the real rein and spur by which his progress is at once urged and guided. For here, as in other professions, most men know a great deal more than they practise. It is not always ignorance which hinders progress, which societies with their exhibitions and discussions might remove. Self-interest does not urge them, or rather it is self-interest, after a wary consideration of their circumstances, which restrains them. And thus it is that first among the helps and hindrances upon our list stands the relation of landlord and tenant.

RELATION OF LANDLORD AND TENANT.

All agricultural readers know that this has been the subject of very general discussion lately at agricultural meetings. A Society in Suffolk has offered a prize for the best form of agreement between landlord and tenant; Lord Lichfield, in Staffordshire, has done the same; and the Vale of Evesham Agricultural Society has issued the result of its studies of the subject. The salient points of the discussion were perfectly brought out at one of the meetings in connection with Lord Lichfield's prize agreement. The Earl of Shrewsbury is reported to have spoken there as follows:—

"I hold that you cannot frame any agreement which can be binding everywhere, but you can do what I have done—namely, endeavour to act fairly and honestly by those who live under you. I should be sorry, and I should feel it to be dishonest, if I allowed any tenant of mine to leave me in debt to him. I mean, if a man put on to a farm that which would improve it, I should feel bound not to let that man leave my estate without being remunerated for what is unexhausted. That is the only fair principle that can be acted on. All other matters must be subjected to a give-and-take agreement. I am not averse to any good arrangement that can be made, at the same time I do not hold out any hope that I can make any change in my arrangements with my tenants. We have agreed well together so far, and I hope that we shall continue to do so. Where there is a desire on both sides to agree, we are not likely to fall out. I adhere to what I have always said respecting leases—namely, that nothing will induce me to give a man a lease, because in the first place a lease is all on one side. The landlord remains, but the tenant, if he be inclined to be fraudulent, may go. I boldly and honestly state I will never surrender my property to a tenant. I mean that no man who will allow his sons to poach and act disgracefully shall have control over my land for a number of years. I will have an agreement for the mutual benefit and protection of myself and the tenant; and if any agreement really better than the existing one can be found, I will adhere to it. I hope that my tenants will feel confidence in me and my successor, and that they will be content to lay out their money with a feeling of security."

I do not recollect anywhere to have read a clearer, more straightforward statement of what is, I believe, the prevalent feeling among owners of land. It would, of course, be little better than impertinence to say that Lord Shrewsbury has a perfect right to dictate the terms on which he will let his land—this anybody knows. At the same time everybody, I am sure, also knows and feels that his lordship cordially admits the public duty by which the theoretical omnipotence of ownership is practically limited. It is only as among the helps and hindrances to agricultural progress that we have any right to the discussion here of the opinions he has expressed. The promotion of that progress—meaning, as it simply does, more food per acre—is what every public-spirited man will admit to be a public duty; and therefore it is clearly within the scope and object of this paper to consider the influence on agricultural progress of such a resolution as Lord Shrewsbury has expressed.

I am not going to weary you with the oft-repeated argument in favour of leases for a term of years as tending to increased fertility—to that increased outlay of capital in cultivation on which the productiveness of the land depends. But there are just two or three points, which Lord Shrewsbury's speech has mooted, on which as many short remarks may be made.

I ask then, first, with reference to leases—Is it true that the lease is all on one side?

On the contrary:—Put all the advantages on that side which it confers, it is the instrument which not only secures those advantages to the tenant, but which secures to the landlord the annual sum or rent at which he himself has valued them.

Again with reference to tenancy at will I ask—Does the landlord "remain"? We all know that the word "changeable" applies to a man's will as well as to his person. The landlord does not remain, and his successor, whether he be the inheritor of his property, or himself in a different mood of mind, may, in the case of a tenancy at will, arbitrarily put an end to an unwritten bargain.

Thirdly, as between leases and tenancy at will, Lord Shrewsbury says—"I will never surrender my land for a series of years to a tenant." Under tenancy at will, however, a tenant is asked to entrust his property in great measure, and I will say in *greater* measure, to his landlord: it is much truer to say the land remains, than it is to say the landlord remains, and I do not hesitate to say that, in the case of well cultivated land of average fertility, there is not under leasehold farming so much of the landlord's property per acre in the power of the tenant to injure or destroy, as in the case of tenancy at will there may be of the tenant's property per acre within the landlord's power to appropriate. A landlord may say, "I will never surrender my property to a tenant," but in point of fact he never does surrender his property to a tenant. The land remains—it cannot be destroyed. We hear from Baron Liebig of the exhaustion of the land—no such thing is known in practice. I do not suppose that in average circumstances what is practically known as "worn out" land is ever injured to the extent of two years' purchase; that is to say, a farm—and if it be held on lease, we must suppose the tenant to have been not only fraudulent but a fool—a farm which has been injured as much as such an one might do it, would be readily taken at the old rent, provided the new tenant had it the first two years for nothing. The injury which a fraudulent tenant can do—*provided he be also a fool*—may thus amount to 3*l.* or 4*l.* per acre. On the other hand, taking the case of a man farming land as it may be profitably farmed (in the manner which alone contributes to agricultural progress), where a large expenditure has been incurred perhaps in draining, certainly in liming, in burning, in boning, in marling, in artificial manures and oilcake, and other purchased food for cattle and for sheep (all of which require time to realise their effect upon fertility), and I say the landlord has more than 3*l.* or 4*l.* per acre of the tenant's property within his power.

"Well!" it may be rejoined, "it is the object of this model farm agreement to graft on the system of tenancy at will such a bargain as shall ensure the repayment of these 3*l.* or 4*l.*, or whatever the unexhausted outlay may be. Lord Shrewsbury proposes to adopt this, and the objection to which you have thus alluded—putting it in as personal a manner as possible—thus falls to the ground." There is not a chance within the hour of discussing the essential superiority of the lease for a term of years to any modification of tenancy at will, however bolstered up by these provisions for the repayment of unexhausted improvements: and therefore, with reference to this rejoinder, I will only say that I cannot help the personal aspect in which the systems of lease and tenancy at will of necessity are regarded.

It is the personal aspect which is the real one. Landlords inevitably entertain the personal question first and foremost; and if obtruded on the one side, it must be entertained upon the other. It is even less a tenant who will cross-crop and starve the land, than a tenant "who will permit his sons to poach and behave disgracefully," that is feared. After all, it is the fear of having an ill-conditioned set of neighbours that is at the bottom of the dislike of leases. Experienced land-agents will tell you that it is altogether a mistake to apply general rules to the management of property. They say: "The majority of farmers don't want 'a field for the investment of capital,' as the phrase goes; they want an occupation and a home. Leases will not change the nature of a man; and, in fact, few things more obstruct agricultural progress than the system of dealing with farmers as a class (which they are not) instead of as individuals on their individual merits, which include as much variety as exists among any other body of their fellow countrymen."

To this most people will I think agree; and in accordance with it, one of the chief advantages I claim for leases is, that where adopted as a system greater individual care is taken in the admission of tenants on to an estate. And in accordance with it, too, one of the chief articles in the indictment against tenancy at will is that it is based upon a class treatment of the very kind which is thus condemned. It has, I believe, been proved in other walks of life that the plan of universal restriction—of treating all men with suspicion—of making your general arrangements hinge on the possibility that every man is a rogue, is a blunder. It is an especial mistake in agriculture: for there *is* a certain class colouring perceptible, as in other professions so in farming, and tenant-farmers may be safely spoken of as a worthy and well conditioned body of men. If, as is ludicrously feared, a general prevalence of the lease should displace the homely and neighbourly class with whom in English country districts one has so long enjoyably associated, by a set of energetic, ruthless, restless, money-making "sharps," the change would be lamentable indeed; but the fear is ludicrous. However many new men may be entering agriculture from other walks of life, it will always be that the bulk of farmers have been bred by farmers. And it is, I believe, an easier and a better thing to engraft upon the characteristic good qualities of the class, or rather (for they already exist) to foster there the intelligence and enterprise and energy of commercial life, by adopting more generally a commercial view of the relations between landlord and tenant, than it will be to engraft a strict valuation and acknowledgment of tenant right upon the system of tenancy at will.

I am aware that this subject has thus been barely touched—that in order to the full discussion of the influence of the well-drawn lease on farm practice, the great body of experience relating to it both in agriculture and in other businesses ought to be at least alluded to—that in particular those conditions of the lease which refuse or grant the tenant the full exercise of his intelligence in the cultivation of the land—and those conditions which maintain or define or abandon the landlord's right, if he choose to exercise it, to preserve a live stock of his own upon the crops grown upon his land should be discussed. The maintenance of an unlimited quantity of game upon the tenant's crops, consuming much that would be food for man and injuring the remainder, is of course fatal to agricultural progress, and has in many instances already proved so. And had there been time, it would have been my duty to put this fact, with the others which are dealt with in a well-drawn lease, as clearly as possible before the readers of this paper. Failing opportunity for this, however, I am very glad that if the relations of landlord and tenant shall be the subject matter of the discussion which will ensue, we have as Chairman one enabled to "moderate" in such a discussion, by a long and most useful experience of the influence of a liberal and well drawn lease upon not only the fertility of the land, but on the character of the tenantry and on the condition of the labourer.

The other business relations affecting agricultural progress are those existing between the farmer and his labourers. It would have been easy enough to show that agricultural labourers, still badly enough off in many districts, have largely shared in the advantages of recent agricultural progress. Wages are better—a good deal more is being done to the improvement of cottages—and day and evening schools are exerting an unquestionable influence. The goodwill and intelligence of the labourer, both of which have thus been increasing of late years, are again among the greatest helps to further progress; and this is especially true now that steam-power is being used everywhere in the fallow field as well as in the barn and feeding house. I merely name this subject, however, and hasten on to consider the way in which agricultural societies have influenced and may further agricultural improvement.

AGRICULTURAL SOCIETIES.

To this subject, which should have been the main topic of my paper, I must now devote the remainder of the hour. There is, I believe, nothing in other professions corresponding to the Agricultural Society. There are no mutual improvement societies among those who supply us with our apparatus, or our means—agricultural machine makers, manure manufacturers, and seedsmen. Nor are there mutual improvement societies among those who deal with our results, as millers, brewers, bakers, and butchers. Every man among these, notwithstanding that for some special purposes, *e.g.* mutual protection, they may unite, does the best he can for himself, and stands or falls by his own merit or demerit. This is of course also true of farmers. But the Agricultural Society, like many another feature of our profession, arising out of the peculiarity of its raw material—land, is as much a social as a strictly technical or professional institution; it deals with and affects a whole country side, and the whole population is interested in its proceedings. This is more especially true, however, of only one class of agricultural societies. There are several: and it is plain that it is only by a short reference to the classes

under which the many hundred agricultural societies of this country can be arranged, that I can hope to illustrate my subject.

1. Proceeding from the ranks of the tenant farmer on either side of him, there is first the strictly farmers' clubs, meeting for periodical discussions of agricultural topics. They were once very much more numerous than they are now. Only a few have survived from the period of twenty years ago, when a great many were in activity. They have unquestionably been of great service in publishing agricultural information, in the direct introduction of improved practice into their respective neighbourhoods, and in establishing better business arrangements.

Their discussions generally published in the country papers, and their annual reports distributed to members, are sure of being read by those to whom they are addressed. I have an immense mass of reports, through many successive years, from a great many of these clubs, and there is no better agricultural library —no more useful one, if only some means were devisable for indicing or arranging it.

We have a Central Farmers' Club, in London distinguished for the great practical value of its monthly papers and discussions. I do not know that it claims anything more than geographical centrality. It would, however, be of great agricultural service, I believe, if it were also officially central with reference to these institutions, and its library contained the annual reports of all the local societies, or if its secretary were the editor of them, by whom an annual volume of selected papers might be prepared, to which more prominent influence might thus be given. A connection through some central officer in this way would tend to the permanence of these local institutions. They are very shortlived, and this in various ways has been owing to their strictly local character.

These institutions have not only kept their members informed—they have often introduced new practice into their localities. The Morayshire Farmers' Club, established so long ago and thriving still, was, I believe, the first to call general attention to the value of superphosphate as a manure. And long before this (I believe early in this century) it had deputed one of its members to visit Norfolk and bring back agricultural information for the guidance of the body. The Ayrshire Farmers' Club, by the adoption of similar means, appointing deputies to visit and report upon the dairy districts of England, has been the means of introducing the Cheddar cheese manufacture into its county. The business arrangements of their locality are also often most usefully guided by these societies. The erection of corn exchanges—the alteration of market arrangements, and the establishment of new markets, are among the subjects which are often thus regulated.

As an example of the great service done thus, I will quote a report from Mr. Wilson, of Edlington Mains, regarding the Union Farmers' Club, a Society embracing more than one county :—

"Its head-quarters are at Kelso; it is of long standing, and has had upon the whole a useful career. I would specially refer to the annual sale of Leicester rams, now of some dozen years standing, which was begun and is carried on under its auspices, and which has been a great success. It has tended most directly to the preservation, improvement, and wide dissemination of that truly valuable breed of sheep, the Border Leicester. For several years past about 2,000 shearling rams, chiefly of that breed, have been sold by auction at this annual Kelso ram fair, and have been widely dispersed over Scotland, Ireland, and the North of England. These rams are for the most part bought for crossing either with pure Cheviot ewes or with ewes of the first, second, or third cross from the Cheviot. These crosses are a truly valuable kind of sheep, and it is with them that the arable farms of Scotland are now chiefly stocked. This annual congregating of rams from the flocks of so many different breeders, and the sale of them by auction at the same time and place, both affords ample choice to customers, gives to the ram breeders the best opportunity of knowing exactly the kind of animal that is in demand, and brings them under the influence of a far more powerful stimulus to exert their utmost skill and care than any system of prizes for selected animals could do."

This is only one illustration of a whole class of public services rendered by local clubs.

It is impossible to enumerate even a tithe of the many local institutions which have been of immense local benefit in all these ways. In the North of England, the Newcastle and the Hexham and Penrith Farmers' Clubs have distinguished themselves by the valuable papers read at their meetings. The St. Quivox Farmers' Club, in Ayrshire, and the Wirral Farmers' Club in Cheshire, and the Maidstone Club (Kent), have occasionally adopted the useful plan of going in a body to visit particular farms and localities. Others have instituted book societies for the loan or circulation of the leading agricultural works.

Among the defunct institutions, whose annual reports are full of useful information, I may mention Gloucester. Among the longest lived and still surviving, similarly distinguished, I may mention St. Austel, in Cornwall, Framlingham, in Suffolk, and Wirral, in Cheshire. Among the newer and more lately established Farmers' Clubs, which have also attained high merit in this way, I would name the Kingscote Farmers' Club in Gloucestershire.

I have an immense mass of local correspondence and reports from the officers of these institutions, which it is impossible to epitomise, but I hope to publish it piecemeal hereafter. A great help to this most useful body of societies would, as I have already said, be given by a central office, such as the Central Farmers' Club might be, through which every individual society would be kept in communication with all the others. The Society of Arts has thus inspirited and aroused all the Mechanics' Institutes of the country, and a similar service might thus be also done to Farmers' Clubs.

2. There is a second class of local agricultural associations, of which I can give no detailed account, simply from want of space and time. They have, however, I believe, exerted a very useful influence on agricultural improvement. Labourers' Friend Societies, as they are called, are scattered pretty thickly over England; their prizes for skill in the ploughman, shepherd, hedger, and thatcher, and so on, have unquestionably led to useful rivalry and greater improvement in the ability of the agricultural labourer. There is many a locality where both master and man have thus benefited, and where the improvement, and, still more, the desire for improvement thus implanted have directly furthered agricultural progress.

3. I could give many examples of this, but must hurry on to the third and most important class of all, including all those societies which act mainly by the annual show of implements and cattle exhibited in competition for premiums awarded by the Societies' judges. They are of all ranks, as to the extent of district to which they are confined and the funds they administer. These societies have unquestionably been of great service to agricultural progress. They are useful in their social relations, as affording good-humoured gatherings of all classes with a common interest in view; and, professionally, they excite the rivalry and guide the judgment of those who exhibit stock or implements at them, and they confer commercial rank and afford commercial opportunities. The personal rivalry which they excite is as powerful an engine in the arm of the purely local societies as it is in those of greater pretensions; and there are in every locality now so many herds, and flocks, and manufactories, which send out specimens of first-class merit, that these local societies are also serviceable in the second way I named, by giving to spectators models of excellence for their guidance.

That these local societies, which, with their sweepstakes and local prizes, have always been serviceable in stimulating the farmers of the district, now stand so high also as affording examples of first-class excellence in every department of their show, is due, in great measure, to the influence of the greater and the county societies, which, having a wider basis and more extensive district, have made merit in all their departments generally known when it was rarer. These provincial societies are now generally swallowing up the local ones. I think it is a pity that the local societies should disappear in this way. There is an almost domestic character about their annual meetings. A personal influence is exerted on exhibitor and spectator—and a more wholesome influence exerted on the relation of master and servant by the annual holiday thus spent together. And where these societies obtain the services of judges of well-known character from a distance, their decisions are not only of great service, but they are accepted, and thus the feeling of angry disappointment which is sometimes felt by exhibitors at these local shows has little chance of development.

The county and provincial societies have latterly enormously grown, distributing many of them a thousand pounds in prizes at their annual shows. They attract large quantities of stock, and a sufficient company is drawn together to induce the manufacturers of influence not only of the locality, but from a distance, to expose their wares, whether there is any competition among them for prizes offered by the Society or not.

Most of these county societies meet annually in successive towns within their district, and the whole force of the exhibition and the company is thus brought to bear on different localities in turn. The provincial societies—the Yorkshire and the Bath and West of England, which include either several counties or one as large as several—adopt, of course, with an increased effect, this principle of directing the whole force of a province on successive points within it. The latter of these Societies, which has other objects beside the strictly agricultural object, and thus can more directly claim the cordial sympathy of the Society of Arts than any of them, has by adopting this very principle lately taken a new lease of life. Invigorating, and being invigorated by the several districts which it visits, it has grown in all the departments of its show to the very highest rank of excellence and influence. I refer to it especially, because it has soonest of any of these great societies seen that the agricultural machine department has outgrown in many ways the power of the society to exercise with any good effect either the guiding or the stimulating influence which prizes have hitherto exercised. The Bath and West of England give no prizes, but merely room and opportunity to exhibitors of implements; yet the usefulness of this department of their show has not in any way diminished.

The national societies by which the stock of every breeder, and the machines of every manufacturer are made known at the annual shows to buyers of all countries, and by which the agricultural force of the whole nation is discharged upon one province after another, as the great association makes its annual step from one point to another in the course of its journey once in 12 or 15 years around them all—these are the last agency of this class for agricultural improvements to which I will refer. And, confining myself to the Royal Agricultural Society of England, although I do not think it necessary to enumerate the many proofs which exist of its usefulness, as seen in the multiplication of good herds and flocks, even in the increased activity of the provincial societies in the districts it has visited, in the improved agriculture especially of the more secluded of these localities, and in the general extension and adoption of improved implements, yet no one is more thoroughly convinced than I am of the great national service that it has rendered in all these ways. I will quote but one slight but (as it is definite and local) striking illustration of the kind of good which in one of these ways it has done, simply because it is just to that one way that I purpose to confine the rest of my remarks on its management.

In a very interesting report by Mr. Jefferson, of Whitehaven, on the proceedings of the West Cumberland Agricultural Society, he says, "Thanks to the Royal Agricultural Society holding their meeting at Carlisle, I believe that exhibition was instrumental in opening the eyes of many of our Cumberland mechanics. Previous to 1855, our county was wont to boast of her ploughmen, but when it came to the test at Carlisle, we were well beaten upon our own soil; not that our ploughmen were deficient in skill, but they had not the implements to work with.

It is to the implement department of the English Agricultural Society—to the prize system as carried out in its annual shows, and to the influence of it that I shall now confine myself. The following are the reasons why I think that the prize system for implements may now be properly given up.

The awards of the judges are made after insufficient trial. During July, which is the usual month of meeting, the state of the soil and of the crops upon it is not adapted for the trial of whole classes of machines; and even if it were, the time allowed the judges for arriving at their conclusion is with reference to many machines altogether inadequate, and I believe that the Society would both guide and stimulate manufacturers better by appointing judges to report at leisure on the experience of localities respecting this, that, and the other machine, than it does at present, by submitting all, in a sort of scramble, before half-a-dozen judges on one spot. Then, again, the award of a prize confers too great, *i. e.*, too abrupt, a distinction. As regards many machines whose work cannot be expressed or represented by numbers—the plough for example—the prizeman wins, the rest are nowhere. There never probably was a more marked example of this than at the Warwick show, where a new man appeared as ploughwright, and took many of the principal prizes. His plough, a good and well made tool, as all of Messrs. Hornsby's manufacture are, pressed the furrow slice tighter home, and left a higher crest than the others. Its work gratified the eye—the judges pronounced it best—and their decision was an altogether excessive advantage given for the mere shade of alleged superiority which conferred it.

No doubt a tightly-laid furrow slice is, for some purposes, advantageous, but all the tendency of late has been to regard tillage as a smashing up; and where the land tilled lies on a drained subsoil, the rougher the surface is, the better for its future tilth. But it is an illustration of the excessive character of the prize system that, whereas the decision at Warwick placed Messrs. Hornsby on a pedestal, while Messrs. Howard and Ransome, and others, were, so far as the Society was concerned, in the case of that particular competition, nowhere, I do not suppose there are 10 practical tillage farmers who will say that it matters one penny per acre per annum whether Hornsby's, or Howard's, or Ransomes' plough is adopted as the implement of the farm. Yet, still, year after year [or rather every fourth year successively], ploughs are pitted against each other as if some new form of the tool were yet to be forthcoming, or as if three men, clever as they may be, could in a few hours' trial, fish out the microscopic differences which may exist. The whole thing has now dwindled to a mere ploughing match, and the firm that can tempt the cleverest ploughman to its service wins the day.

Although, however, to the extent of its value, the distinctions awarded at these shows are excessively abrupt, as well as liable to error from inadequate previous trial; and although, no doubt, originally, the award of a prize, during the earlier years of the Society's proceedings, was a great advantage to the winning firm, yet it is proof of the unfitness of this system to the existing state of the manufacture that it has now little influence on sales. This can be shown by examples, both of commercial success without prizes, and of failures notwithstanding prizes. To give names would be invidious, and I will therefore merely say that I know of a tillage implement which for years obtained a sale of thousands, before the Society's judges would consent to give it a trial. At length for two years it was placed first, but the manufacturer declares that no impetus was given to the sale of it by these awards, while in a subsequent year, after a rival had distanced it in the show-yard, the orders received for the tool were unusually numerous—400 more than could be executed. Again, I know a whole class of tools which for years were demanded, and patronised, and at length rewarded by the Society's judges, but they have never come into use. For these machines one maker received six

prizes, and never sold one; one indeed he parted with, but it was very soon returned to him as useless.

I could name to you firms which have repeatedly received first prizes for another whole class of implements, who have never succeeded in gaining the public patronage, although they have had that of the judges; while others who took hardly any of the prizes, have, nevertheless, taken all the orders.

Lastly, I could name an example in which a firm lost its trade in a particular tool by anxiously following the leading of the judge, regaining it, however, as soon as they resolved on depending on themselves. Making 700 or 800 implements of the kind annually, and taking prizes perpetually, yet following the lead of the judges, complaints from customers increased, and trade diminished year by year, until, from 700 sold each year, the sales dropped to 50. At length the manufacturer called his men together, that they might consult in order to recover the art they had lost. "You have been bamboozled," he said, "out of your ability by following false leadership. Here is one of the old tools, made 20 years ago; copy it in every particular." "Ah! Mr. ——," said one of his customers shortly afterwards—one who had complained of a machine he had previously bought—"this one answers perfectly; you have learned at length to make the tool work." He had but retraced the steps of 20 years' false leading. This may seem a one-sided and extravagant illustration of my point. Unfortunately it is a true one.

The trials are inadequate. There is a false advantage given to mere novelty—the prizes are in effect a premium upon mere speed and capability of standing a short race—on all these grounds it is impossible that the awards can be trustworthy. The prizes are too abrupt a distinction, and yet their influence on the trade is small, and both of these facts indicate that the time has arrived when, with reference to the implement department of the show, the prize system should be abandoned.

There is one further consideration, affecting the implement trade generally, to be urged against it. It adds considerably to the cost of agricultural machines. One firm says it has spent 30,000*l.* during the Society's meetings up till now, in preparing and exhibiting for prizes. Another estimates its expenditure at 20,000*l.* A third says the disorganisation of the work—the spoiling of the best men—and the actual expenditure are together past estimate. Who has paid these large sums? Not these firms, but their customers. The cost of a machine is made up of the material it is made of, the labour spent on it, and a whole class of items which come under the general designation of waste charges. These waste charges amount to no less than 30 per cent. of the selling price, and the expenditure at the Agricultural Society's shows is a principal one of them.

There need be no fear that the shows would dwindle if prizes were abandoned. The manufacturers will not lose the chance of so good an advertisement and market as these shows afford. In fact, though protesting against the prize system, yet they will endure it rather than give up the show, and many of them who protested some years ago and refused to exhibit, are, nevertheless, coming round again. Commercial success, which hinges on the efficiency of the machines made, is a sufficient stimulant to the manufacturers; and if the Society think they can can usefully guide the manufacture, let them appoint judges as heretofore, not to award prizes, but to make suggestions and reports. The exhibition may be as much under the control of the Society as hitherto, and the opportunities given to the exhibitors for showing their tools and implements at work, may be as completely arranged as hitherto.

In the quadrennial division of the exhibition which is now adopted, there is a certain confession on the part of the Society of some of the evils attending their present plan. I believe their influence would be as useful and as great if they were to abandon it altogether.

But I have exceeded my time, and therefore I now leave this subject, and shall conclude with a short reference to one other branch of the general subject of helps to agricultural progress; coming to it through one mention more of the class of small local societies named at first.

AGRICULTURAL EDUCATION.

It is to the credit of a local Farmers' Club, that the only agricultural college in Great Britain originated in a paper read by one of its members.

The late Mr. Robert Brown, of Cirencester, read a paper, some twenty years ago, before the Fairford Farmers' Club, recommending systematic education for the farmer, and urging the establishment of a public agricultural school. Armed with the approving resolution of this Society, he aroused the gentry of the neighbourhood and county, obtained the support of public men and the patronage of the Prince Consort, and ultimately succeeded in raising a fund sufficient for the erection of the college buildings. The shareholders are incorporated by royal charter, and the institution, saved at one time by the public spirit of Mr. Holland, of Dumbleton, has continued, with varying prosperity, to impart an education in which the theory and practice of agriculture are combined.

The importance of the systematic education which is to be acquired as a whole at Cirencester, and piecemeal elsewhere, is the last consideration affecting the progress of agriculture to which I shall refer. Ours can be no exception to the rule of all other professions. There are great public schools of divinity, medicine, and law, and as the future rank of the individuals who have passed through them, so the status, from time to time, of the professions themselves, connected with each, depends on the thoroughness of the professional education there acquired. Agriculture, which deals with a larger capital, and provides a larger annual income than any other profession, ought to support and be supported by its schools. And I believe it is within the scope of our agricultural societies to attend to this. So directly was this seen by the promoters of the Royal Agricultural Society of England, that one of the 10 objects for which its Royal charter of incorporation declared it to have been founded was, "to take measures for the improvement of the education of those who depend upon the cultivation of the soil for their support." I have been a member of the Society from the year of its formation, and I submit to those who are responsible for its guidance that, from that year to this, nothing has yet been done by it in discharge of that particular duty which it then assumed.

It seems probable that the reason why comparatively little success has attended schemes of agricultural education hitherto is that the practical element has been inefficiently attended to. Certainly, no man is perfectly taught until he has acquired a practical knowledge of his business. There cannot be a doubt, I will not say of the absolute need of the practical part of agricultural education, but of its being the element which alone makes the education agricultural. The physiologist, the chemist, and the botanist, already have a knowledge of the general laws which include all the facts and phenomena of agriculture, but though any one combined the knowledge of them all he would not therefore be an agriculturist. None of them could make a living off a farm unless he also possessed a knowledge of farm practice, and therefore it is that no school or college will be ever trusted, or have any claim to be considered as an agricultural school or college, unless the practical teaching is regarded as the aim and end of the institution.

One is perfectly willing to admit, nevertheless, that agricultural progress depends in great measure on that general intelligence and scientific knowledge which includes the theory of agriculture. The scientific and the practical man really are and ought to feel themselves allies, as much so as the geographer and traveller. The one knows the map, the other has a knowledge of the country. The one knows the several bearings of the route—the other knows the difficulties of the way. To be a successful traveller needs indeed the tact and skill and courage of the practical man, but it also needs the previous knowledge of the geographer and man of science. And agricultural improvement regarded as a progress is necessarily guided by the great landmarks of scientific truth; and a general knowledge of the facts and doctrines by which these landmarks are established must tend to its promotion.

It is to the credit of the Society of Arts that this subject, notwithstanding the many to which its attention has been more particularly directed, has not been neglected by it. Its annual educational examinations include Agriculture among their subjects. The Highland and Agricultural Society of Scotland, too, confers its diploma after an annual examination in the sciences and practice of agriculture by a board of professors and practical farmers. The Agricultural Society of England, originally committed by its charter to direct action on this subject, has hitherto been inactive.

IN CONCLUSION.

It only remains for me now to thank you for the patience with which you have listened to my long and tedious story. Its large subject has necessarily been very inadequately treated. The lease as giving the tenant security for his capital, provided, unlike many taken out of the dusty pigeon holes of an office, it also gives him liberty for the exercise of his intelligence—and the agricultural college for imparting a sound practical and scientific professional education: these are the great helps to agricultural progress. The Agricultural Society is also a great stimulant and help; but its chief use and merit is in having interested the landowners of the country in agricultural pursuits, for agricultural progress depends quite as much on good landowning as it does on good farming. Good service is done, I believe, to agricultural progress by the attraction of educated and wealthy men to agricultural pursuits. One word more, therefore, on the merits and advantages of the profession. We all know the general attractiveness of a country life; to this have to be added the more specific professional advantages of the art and business of agriculture. I do not claim for it a very lucrative or money-making character, but it is a maintenance and livelihood, and it has that, besides, which is more than money's worth. I believe there is in its intelligent prosecution, more than in that of any other profession, scope for the exercise and enjoyment of the whole nature of man. There is opportunity, during its prosecution, for the cordial, frank, and independent exercise of all the social relations. Landlords, tenantry, and labourers are generally a well-conditioned company. There is, certainly, opportunity in its superintendence for the profitable exercise and trial of most of the moral attributes. Temper, resolution, patience, and perseverance are tried in agricultural experience, and receive in it their appropriate reward. There is ample intellectual scope amidst the subjects which it presses on our attention. The first intellects of the age have been engaged with enjoyment and success in agricultural research. The highest names in all the sciences—Boussingault and Liebig among chemists; Buckland, Murchison, and De la Beche, among geologists;—De Candolle, Lindley, and Berkeley, among botanists, have especially distinguished themselves in the agricultural relations of their several sciences. The farm is no mere field for dull routine; it is the platform on which the best minds of the day may well employ themselves. And I add, as holding, of course, a good place upon the list of agricultural privileges, that the physical enjoyments of a country life are no mean additions to its advantages. We can all of us, to some extent at any rate, sympathise with the exclamation of the Arab scheik to Mr. Layard, as they went careering over the plain, then green with the first verdure, and enamelled with the first flowers of spring: "Oh, Bey! what else is there worth living for? What do the dwellers in towns know of true happiness—they have never seen Grass or flowers. May God have pity on them!"

I ought perhaps, to apologise for this somewhat wild ending of what has been intended as a sober statement of my subject, and I will, therefore, in a single sentence recall to your recollection the main object and purport of this paper. The general position which I wish to establish is that agricultural progress is chiefly dependent, first on the improvement of our means of agricultural education, and secondly, on the business relations of the farmer being placed on a sounder footing.

STEAM CULTIVATION.

A public meeting was held on Wednesday at St. James's Hall, for the purpose of considering the best mode of extending the application of steam power to the cultivation of the soil. Mr. E. Holland, M.P., in the chair.

Mr. Holland said they all knew what the difficulties were of starting steam cultivation upon a farm, but after it was once started, and after the land had been for two years under such a system, they all knew how they were repaid for the capital employed in the machinery necessary for the purpose, and for the trouble and labour they had gone through. In steam cultivation they must not commence without having thoroughly drained the land, and after they had once commenced operations, they gained, more especially in heavy clay land, great advantages from the absence of the pressure of horses. With regard to the number of horses employed, he had in his own case at one time 20 working horses under the old system, and he had now reduced that number to 12, after four years' cultivation by steam. Younger horses had come in for the lighter work, which the steam had left to be done, and they had always a marketable value, like sheep, or stock, or anything sold from the farm. But the advantage from steam cultivation was that it enabled them to effect in a fortnight in the autumn, that which under the horse system would have taken six weeks. And these advantages were not obtained at a heavy cost. Where they used to plough with four horses at a cost of 20*s.* per acre, they now ploughed by steam at a cost, including wear and tear of machinery, of 10*s.* an acre, and cultivated by steam at a cost of 5*s.* or 6*s.* an acre. After having had the system in operation for four years, his experience was that the additional produce per acre under the influence of steam ploughing versus horse labour was about eight bushels. With all these great advantages arising from the system, how was it then that it had not been more generally adopted over the country? One reason was that the landlords were not yet satisfied as to the merits of steam ploughing, and, consequently, would still keep their small fields, and would not allow the numerous hedgerows to be removed. Another objection was to the amount of capital required to start steam ploughs. The amount of capital expended in his own case was 1000*l.*, and though a cheaper process might be employed, the farmer would still have to invest several hundreds. It had been considered that it would be of advantage to start a steam-ploughing cultivation company, for the sake of supplying ploughs, engines, and other agricultural implements to tenant farmers, and it was for the purpose of ascertaining what the opinions of the agricultural world were on this subject that the present meeting was called together. It was proposed to purchase the most improved steam cultivators and sell them to agriculturists upon the principle of a mortgage of the machinery, to be paid off by instalments; and whether this company was successful or not he was certain that its existence must prove a great advantage to the agricultural world.

Lord R. Montagu moved—"That the cultivation of the land by steam is now proved to be an advantageous and highly economical process, and that the machinery now used for this purpose is of a character sufficiently

perfect to be recommended for the use of practical farmers."

Mr. JAMES WILLIAMS, of North-court, Abingdon, seconded the resolution, and pointed out the advantage of steam ploughing in the capability of the machine to work continuously for any number of hours.

Mr. BROOKE was not satisfied with regard to the economy of steam cultivation. He was a landowner in Suffolk, and he had tried the application of steam to threshing, but had found the expense greater than the receipts to defray those expenses. Except upon very large farms he did not think that horse labour could be superseded by steam.

The Earl of SUFFOLK moved—"That one great obstacle to the progress of steam culture is the inability of the generality of tenant farmers to purchase the expensive machinery now used to break up and prepare the soil."

Sir H. VAVASOUR seconded the resolution.

Mr. BEAVIS, a Gloucester tenant farmer, believed that a great deal was to be accomplished from the employment of steam tackle for ploughing, and he doubted whether farmers, though an isolated class, were more backward than manufacturers in adopting anything that was for the good of their pockets. He should be glad himself to have the opportunity of hiring a steam plough, if it would do the work at 10s. an acre.

Mr. HARRISON, who could speak from his experience in connection with the Gloucester Steam Plough Company, declared that the letting out of apparatus on hire was impracticable because unprofitable. The true way of assisting the promotion of steam cultivation was to do as the proposed Steam Company intended, sell the apparatus and receive payment by instalments. For the security of the Company it would, however, be necessary to have additional guarantee of repayment; and that he proposed to obtain from the owner of the land. Let the tackle be in effect the property of the landowner (whose only part, however, would be to guarantee the payment for it) until the engine had by complete payment become the tenant's. He proposed —"That considerable advantage would arise to tenant farmers and others from the establishment of a joint-stock company for the purpose of supplying steam apparatus to applicants, allowing them to repay the cost price by instalments extending over a certain number of years, on the principle of a rolling stock company." In his opinion the purchase should be made by the landlord and tenant in conjunction, the company taking a bond from the landlord for the payment of the money.

Dr. VOELCKER seconded the resolution, in a long and excellent speech, expressing his belief that by steam cultivation they could get from many soils an immense quantity of manure, and thus save a great deal of money in the purchase of artificial or the production of home-made manure; and there were many soils in this country which were not in a fit condition to receive the manure, if the farmer had a willingness to purchase guano, superphosphate of lime, or to apply his own farmyard manure to the land, which would be made fit by the operation of the steam cultivator.

A GENTLEMAN, the owner of sugar estates in the West Indies, spoke of the success with which steam cultivation had been introduced into Demerara, Barbadoes, and Antigua, but urged that attention should be turned to simplifying the machinery, and thus reducing its cost.

The resolution was carried.

On the motion of Sir GEO. JENKINSON, seconded by Mr. HUTCHINSON, whose speeches, both most serviceable to the cause of steam cultivation, we are unable to give this week, a resolution, approving of the objects of the General Steam Cultivation Company, and the mode in which it was designed to carry them into effect, was also adopted.

A cordial vote of thanks was then accorded to Mr. Holland for presiding, and the meeting separated.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

December 9.—The General Meeting was held this day, Lord Feversham in the chair. A large number of members were present.

The following Report was read and approved:—

The Council have to report that since the last General Meeting 317 Members have been elected, while 2 Governors and 33 Members have died, and 22 Members have been removed from the list; so that the Society now consists of

79 Life Governors
87 Annual Governors
1308 Life Members
3952 Annual Members
17 Honorary Members,

making a total of 5443 at the present time; being an increase of 220 within the year.

The Finances of the Society are in a satisfactory condition, as is shown by the Balance-sheet to the 30th June, which has been already published in the Journal; since which time the Finance Committee have reported that all claims against the Society submitted to them up to their last meeting had been discharged. The funded property invested in the names of the Trustees remains at 16,488*l.* 17*s.* 10*d.* stock in the New Three per Cents.

The collection of the arrears of subscription has been steadily progressing, the amount now due, inclusive of those in arrear for the present year, being 631*l.*; and the Council hope that, by an early payment of the subscription, the members will enable them to frame the financial arrangements for the ensuing year.

The period of holding the half-yearly audits having been more closely approximated to the termination of the half-years, the Council are thus enabled to inform the Members, in each successive Journal, as to the latest state of the Society's accounts.

The Worcester Meeting, notwithstanding the unfavourable weather on some days of the Show, fully satisfied the expectations of the Council. The authorities of the city and the Local Committee contributed greatly to promote the objects of the Society on the occasion, and received at the time the public thanks of the Members at the General Meeting held in the Town Hall.

The Balance-sheet of the Meeting, which is now laid before the Members and will be published in the February Journal, shows that the system of distributing the Forage by means of tickets furnished to exhibitors, has proved satisfactory, and has tended to reduce this item of expense in the Live Stock department.

The quadrennial system for the trial of Implements, which commenced at Warwick, has terminated this year at Worcester, and, at the request of the Council, the Implement Committee have given the subject their careful consideration. The Council have adopted the recommendation of the Committee, that the trials should as formerly be triennial, such special prizes and medals for miscellaneous improvements being also offered each year as the Council may determine. The following is the schedule of arrangement:—

Special Prize for Steam Cultivation.

1864.—I. IMPLEMENTS AND MACHINERY FOR THE DRAINAGE, TILLAGE, AND CULTIVATION OF LAND.—Tile and brick machines, draining implements, grubbers, ploughs, cultivators, clod crushers, rollers, harrows.

1865.—II. IMPLEMENTS AND MACHINERY FOR THE CULTIVATION AND HARVESTING OF CROPS.—Drills and distributors, horse hoes, mowing machines, reaping machines, haymaking machines, horse rakes, carts and waggons.

1866.—III. IMPLEMENTS AND MACHINERY FOR THE PREPARATION OF CROPS FOR MARKET AND FOR FEEDING STOCK.—Steam engines, threshing machines, dressing machines, mills and crushers, chaff cutters, cake breakers, root cutters and pulpers, dairy implements.

In order to consider the most effectual means of obviating the practice of unfairly clipping sheep for exhibition at the Society's Country Meetings, the Council appointed a Committee to take this subject into consideration, and have approved of the following regulations, which they trust will effectually prevent the recurrence of an evil so generally complained of:—

1. That sheep exhibited for any of the prizes must have been really and fairly shorn bare after the 1st of April in the year of the exhibition; and that the date of such shearing form part of the certificate of entry.
2. That two inspectors be appointed by the Council, to examine the sheep on their admission to the Show-yard, with instructions to report to the Stewards any cases in which the sheep have not been really and fairly shorn bare.

The Country Meeting next year will be held in the week, commencing Monday the 18th July, and the authorities at Newcastle-upon-Tyne are making great exertions to place the land for the Show Yard and trial fields in a course of due preparation.

The Council have decided on the Prize Sheet for the Newcastle Meeting. That for Live Stock will amount to 2620*l.*, being an increase over last year of 625*l.*; and for Implements the amount will be 550*l.*, being an increase over last year of 240*l.*, making a total increase of 865*l.*

The above will, in addition to the usual prizes, include classes for Channel Islands, Ayrshire, Scotch Horned and Polled Cattle, Clydesdale Horses, Cheviots, and Black-faced Mountain Sheep.

By order of the Council,
H. HALL DARE, Secretary.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

DR. HALF-YEARLY CASH ACCOUNT FROM 1ST JANUARY TO 30TH JUNE, 1863. CR.

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
To Balance in hand, January 1, 1863:			By Expenditure:—		
Bankers	349 2 8		Establishment—		
Secretary	33 3 9		Official Salaries and Wages	327 6 0	
		382 6 5	House Expenses, Taxes, &c.	257 15 2	
To Income, viz.:—					585 1 2
Dividends on Stock	238 1 2		Journal:—		
Subscriptions:—	£ s. d.		Printing	386 1 0	
Governors' Annual	390 0 0		Stitching	65 0 0	
Members' Life-Compositions	450 0 0		Delivery, Advertising, &c.	109 18 3	
Members' Annual	2,994 5 0		Prize Essays	25 0 0	
	3,834 5 0		Other Contributions	5 10 0	
Journal:—			Editor's Salary	250 0 0	
Sales	116 19 6				841 9 3
Advertisements	23 16 4		Chemical:—		
	140 15 10		Consulting Chemist's Salary	150 0 0	
Veterinary:—			Grant for Investigations, 1863	200 0 0	
Sale of Pamphlets	5 1 3				350 0 0
Sale of Wool	0 1 [illegible]		Veterinary:—		
		4,224 6 3	Grant to Royal Veterinary College		100 0 0
To London Show	2 6 0		Stock:—		
To Worcester Meeting	3,618 0 0		Brokerage, &c.		9 13 6
			Postage and Carriage		43 18 6
			Advertisements		13 3 6
			Sundries		10 16 16
			Subscriptions returned (paid in error)		3 0 0
			Wool at International Exhibition		9 16 4
					1,966 18 7
			By London Show		582 16 1
			By Worcester Meeting		1,090 13 4
			Total Payments		3,640 8 0
			By Deposit with London and Westminster Bank		2,000 0 0
			By Balance in hand:—		
			Bankers	2,585 1 11	
			Secretary	1 8 9	
					2,586 10 8
	£8,226 18 8				£8,226 18

BALANCE SHEET, 30TH JUNE, 1863.

LIABILITIES	£ s. d.	£ s. d.	ASSETS.	£ s. d.	£ s. d.
To Capital:			By Cash in hand	2,586 10 8	
Surplus, 31st December, 1862	21,557 18 2		By Deposit Account, London and Westminster Bank	2,000 0 0	
Surplus of Income over Expenditure during the Half-year, viz:—	£ s. d.		By New 3 per Cent. Stock, 16,488*l.* 17*s.* 10*d.* cost	15,851 11 1	
Income	4234 6 3		By Books and Furniture, Society's House, Hanover Square	2 000 0 0	
Expenditure	1966 18 7				22,468 1 9
	2,957 7 8				
		23,815 5 10	By Account at Credit of Worcester Meeting		2 237 6 8
To London Show:—					
Difference between Receipts and Expenditure, the latter exceeding the former by		3,584 10 9			
		£20,230 15 1			£20,230 15 1

(Signed) A. N. HOOD, on behalf of Finance Committee.

Examined, audited, and found correct, this 11th day of August, 1863.

(Signed) WILLIAM COPELAND ASTBURY. HENRY CORBET. WILLIAM COHEN. } Auditors on behalf of the Society.

Mr. Sidney then addressed the meeting on the faults of the present management of the Journal. He also referred to the defective accommodation for members at present afforded by their rooms; and he argued for the establishment of a library and museum in connection with the Society.—Sir J. H. Maxwell, Bart., replied to Mr. Sidney as to the management of the Journal, which he considered most admirably conducted. —Mr. J. C. Morton called attention to the fact that whereas according to the charter, one of the objects for which the Society had been founded was to promote agricultural education, nothing whatever had yet been done by the Society in discharge of its duty on that point.—Mr. Duckham called attention to the difficulties of exhibition, and of removing stock from the show-yards of the Society, and also to the extreme variety of rule which different Societies observe in dating the age of stock.

Lord Feversham replied at length, acknowledging the value of many of the suggestions, and congratulating the members on the usefulness and condition of the Society.

After votes of thanks to the Auditors and the President, the meeting separated.

THE SMITHFIELD CLUB SHOW.

THE great Winter Show of Fat Stock, and (for it has now become an important feature of the meeting) of Agricultural Implements, has been held as usual under the auspices of the Smithfield Club during the past week. It is magnificently housed in the lofty and spacious Agricultural Hall at Islington, where 20,000 visitors need not incommode each other; and where both divisions of the exhibition are shown and seen and superintended, so that the animals themselves, the spectators, and the attendants are in peace and comfort, notwithstanding all the crowd.

The corresponding meeting of the preceding week at

Birmingham generally affords some indications of the fortunes of particular animals, and of the awards regarding them by the Judges at the Metropolitan Show. This year it has done so less than usual. The interval between the Shows, though only a few days, is sufficient in many cases to develope the foot and mouth disease, the seeds of which are laid on leaving the feeding stall for the first of these meetings, and illness at once affects the appearance of the animals. And this cause has had its effect in an unusual number of cases on the present occasion. But independently of this, the decisions made this week have been the result of a different judgment of the animals exhibited. Messrs. Coleman, Smith and Sanday, Brown, Randall, Parkinson, and Buckley do not agree in every case with Messrs. Turner, Doig and Jones, Moon, Spearing, and Gough. The awards of the latter in various cattle classes, and in those of the sheep classes where the same animals reappear for comparison, have not always been confirmed.

THE DEVON CATTLE, a large show, occupy the first four classes at Smithfield. Mr. Wortley's ox, wonderfully ripe and good over rib and loin, girths 8 feet at 2 years and 7 months old, and easily takes the first rank. Lord Leicester and Mr. Overman take the second and third. It is an illustration of the wide-spread reputation of the breed that all these animals were fed in Norfolk.

The older class of Oxen includes 13 well-fattened specimens. Several of the prize and commended animals at Birmingham are among them, but none of them are decorated here

Mr. Heath's 4 years and 7 months old ox, wonderfully thick and wide in front, is easily 1st. Major-General Hood's 3 years and 1 month old ox, good in rib and flank, somewhat drooping at the rump, is 2d. Mr. Buller has a good ox in this class, very thick and wide all along the back, and straight from end to end.

The Heifers are a smaller class. The 1st prize is won by our correspondent, Mr. John Ford of Rushton, who shows an animal of remarkably fine quality, a perfect gem for beauty. Mr. Farthing's 2d prize heifer is also good. Mr. Smith of Exeter, takes the 3d prize with the heifer which was first at Birmingham. The other prize animals from Bingley Hall are also here. The 1st and 2d prize Cows from Birmingham do not receive prizes at Islington. Mr. Overman's straight, well-made, and heavily-fleshed cow is 1st, Mr. Heath and General Hood are 2d and 3d; both the cows shown by these, especially the one shown by Mr. Heath, are almost disfigured by the enormous development of flesh over the loin, giving the back the appearance of drooping at the rump.

The HEREFORD Classes are well filled. Major-General Hood's ox is placed 1st in the younger class; it was not noticed at Birmingham at all. The 1st prize ox at Birmingham, shown by Mr. Shirley, very good on loin and rib, is 2d here; and the 3d prize goes to Mr. Bettridge for a red and white, and rather coarse-looking animal.

The older oxen of this class carry off the Gold Medal for the best beast in the yard. Mr. Heath's 4-year old ox girths 9 ft. 4 in. He is an enormously thick animal, a perfect mountain of flesh, yet retaining true symmetry. In the Heifer Class Mr. Bettridge, 2d at Birmingham, is placed 1st. Mr. Grove's beautiful heifer, 1st at Birmingham, is here 2d, losing her place probably because of illness. The Cows are a small class. The 1st, 2d, and 3d at Birmingham are all here, and are placed 1st, 3d, and 2d, respectively; General Hood's cow advancing one step in the ranks.

The SHORT-HORNS are well represented. The Steers are a very numerous class, 20 animals competing for the prizes. The old class of Oxen number 17; there are six heifers and 12 cows. The Gold Medal for the best cow in the yard is awarded to Mr. Swaisland's heifer, which carried everything before it at Birmingham. She is, as we then stated, remarkably thick, good and symmetrical from shoulder backwards, but her head and neck and shoulders do not indicate first-class quality. There she is beaten by the 1st prize red cow shown in the older class, to which, on this account, good judges have declared the Gold Medal should have gone. The Birmingham award has, however, been confirmed. It has not however been confirmed in every instance, and there is one very remarkable example to the contrary. Mr. Thompson's (of Badminton) ox, only commended at Birmingham, placed below the Duke of Beaufort's, which took the 3d prize in its class, is here raised to the first rank. It takes the 1st prize in its class, beating animals which were placed above it at the Midland show, and beating a great many first-class specimens of the breed in the most numerous class within the Hall.

The SUSSEX breed is very well represented. No fewer than 30 specimens are shown. We have rarely seen two more beautiful heifers, remarkable for quality, symmetry, and ripeness of feeding, than those taking the 1st and 2d prizes in this class, shown by Messrs. Heasman and Mr. Shoosmith respectively; the competition is very large and close in many of the classes, and Sussex has every reason to be satisfied with its representations.

The NORFOLK Cattle, not so well represented as usual, has yet six or eight very good specimens of this capital breed, which comprises a first-rate dairy value with great aptitude to fatten; the prize list is given below. A few well-fattened Long-horned cattle, but equal in number to the Midland Society's show of them, are exhibited.

The SCOTCH classes are very well filled indeed. Mr Sneyd's horned ox is again placed 1st, as it well deserves to be, and Mr. McCombie's ox is also 1st, as it was at Birmingham, in the Polled classes. We have now only to notice the cross bred and extra stock classes of cattle, which, more numerous than usual, are yet not so perfectly illustrative as usual of the great merit of the produce of an ordinary cow by a pure bred bull.

The following are the Awards of Prizes in the Cattle classes, which we preface with the list of Judges.

LIVE STOCK JUDGES.

SHORT HORNS, SCOTCH, WELSH, AND EXTRA STOCK CATTLE.

Sanday, William, Holme Pierrepont, Notts.
Brown, John, Coldham Hall.
Parkinson, Thomas, Hexgreave Park, Southwell, Notts.

DEVONS, HEREFORDS, SUSSEX, NORFOLK, LONG HORN, IRISH AND CROSS BRED CATTLE.

Smith, Robert, Emmett's Grange, South Molton.
Buckley, John, Normanton Hill, near Loughborough.
Coleman, John, The Farm, Woburn Park, Beds.

LEICESTER, COTSWOLD, LINCOLN, ROMNEY MARSH, CROSS-BRED OXFORD AND MOUNTAIN SHEEP.

Heanley, Marshall, Croft, Boston.
Phillips, John & Co., Beadlam Grange, Nawton, Yorks.
Spencer, Francis, Alma House, Claybrook, Lutterworth.

SOUTHDOWN, HAMPSHIRE AND SHROPSHIRE SHEEP.

Webb, Henry, Streetly Hall, West Wickham, near Linton.
Turner, J. S., Chyngton Farm, Seaford, Lewes.
Randell, C., Chadbury, near Evesham.

PIGS.

Mann, George, Scawsby, Doncaster.
Moon, John, Maristow, Plymouth.
Waters, John, Motcombe, Eastbourne, Sussex.

CATTLE.

CLASS 1. DEVON STEERS, NOT EXCEEDING 3 YEARS OLD.—1st, 30*l.*, Robert Wortley, Suffield Hall, Aylsham; Silver Medal to the breeder, Robert Wortley; 2d, 20*l.*, the Earl of Leicester, Holkham, Wells; 3d, 10*l.*, John Overman, Burnham Sutton, Norfolk.

CLASS 2. DEVON STEERS OR OXEN, ABOVE 3 YEARS OLD.—1st, 30*l.*, William Heath, Ludham Hall, Norwich; Silver Medal to the breeder, John Passmore, Twitchen, South Molton; 2d, 20*l.*, Major-General the Hon. A. N. Hood, Windsor; 3d, 10*l.*, the Earl of Leicester.

CLASS 3. DEVON HEIFERS, NOT EXCEEDING 4 YEARS OLD.—1st, 25*l.*, John Ford, jun., Rushton, Blandford; Silver Medal to the breeder, Charles J. Louch, Westfield Place, Kingston-on-Thames; 2d, 15*l.*, Walter Farthing, StoweyCourt, Bridgwater; 3d, 10*l.*, William Smith, 85, Southernhay Street, Exeter.

CLASS 4. DEVON COWS, ABOVE 4 YEARS OLD.—1st, 25*l.*, John Overman, Burnham Sutton; Silver Medal to the breeder, Mrs. Clarke, Burnham Market; 2d, 15*l.*, William Heath; 3d, 10*l.*, Major-General the Hon. A. N. Hood.

CLASS 5. HEREFORD STEERS, NOT EXCEEDING 3 YEARS OLD.—1st, 30*l.*, Major-General the Hon. A. N. Hood; Silver Medal to the breeder, H.R.H. the late Prince Consort; 2d, 20*l.*, Richard Shirley, Barcott Munslow, Church Stretton; 3d, 10*l.*, Henry Bettridge, East Hanney, Wantage.

CLASS 6. HEREFORD STEERS OR OXEN, ABOVE 3 YEARS OLD.—1st, 30*l.*, William Heath; Silver Medal to the breeder, Thos. Lockley Meire, Cound Arbour, Shrewsbury; 2d, 20*l.*, William Symonds, Lambourne, Romford; 3d, 10*l.*, William Aldworth, Frilford, Abingdon.

CLASS 7. HEREFORD HEIFERS, NOT EXCEEDING 4 YEARS OLD.—1st, 25*l.*, Henry Bettridge, East Hanney; Silver Medal to the breeder, Mr. Tudge, Adforton, Lentwardine; 2d, 15*l.*, William Groves, Walk Mills, Shrewsbury; 3d, 10*l.*, Charles Hunt, Widemarsh, Hereford.

CLASS 8. HEREFORD COWS, ABOVE 4 YEARS OLD.—1st, 25*l.*, George Pitt, Chadnor Court, Dilwyn, Leominster; Silver Medal to the breeder, George Pitt; 2d, 15*l.*, Major-General the Hon. A. N. Hood; 3d, 10*l.*, Joseph S. Draper, of Thingehill Grange, Hereford.

CLASS 9. SHORT-HORNED STEERS, NOT EXCEEDING 3 YEARS OLD.—1st, 30*l.*, John Thompson, of Badminton, Chippenham; Silver Medal to the breeder, John Thompson; 2d, 20*l.*, the Earl Radnor, Coleshill; 3d, 10*l.*, Sir A. de Rothschild, Bart., Tring.

CLASS 10. SHORT-HORNED STEERS OR OXEN, ABOVE 3 YEARS OLD.—1st, 30*l.*, W. H. Baker, Cottesmore, Oakham; Silver Medal to the breeder, the late R. W. Baker; 2d, 20*l.*, Robert Swinnerton, Weddington Grove, Nuneaton; 3d, 10*l.*, John B. Thompson, Anlaby, Hull.

CLASS 11. SHORT HORNED HEIFERS, NOT EXCEEDING 4 YEARS OLD.—1st, 25*l.*, Charles Swaisland, Crayford, Kent; Silver Medal to the breeder, Lady Lubbock, High Elms, Farnborough; 2d, 15*l.*, Richard Stratton, Wall's Court, Stapleton; 3d, 10*l.*, John Faulkner, Bretby Farm, Burton-on-Trent.

CLASS 12. SHORT-HORNED COWS, ABOVE 4 YEARS OLD.—1st, 25*l.*, Thomas Matthews, Merton, Thetford; Silver Medal to the breeder, T. Matthews; 2d, 15*l.*, John Lynn, Church Farm, Stroxton, Grantham; 3d, 10*l.*, Charles Hardcastle Abbott, Long Ashton.

CLASS 13. SUSSEX STEERS OR OXEN, NOT EXCEEDING 3 YEARS OLD.—1st, 20*l.*, John Shoosmith, Berwick, Lewes; Silver Medal to the breeder, John Shoosmith; 2d, 10*l.*, William Wood, Ifield Court, Crawley.

CLASS 14. SUSSEX STEERS OR OXEN, ABOVE 3 YEARS OLD.—1st, 25*l.*, J. M. Montefiore, Werth Park, Crawley; Silver Medal to the breeder, J. M. Montefiore; 2d, 15*l.*, William Botting, Westmeston Place, Hurstpierpoint; 3d, 10*l.*, Edward Cane, Berwick Court, Lewes.

CLASS 15. SUSSEX HEIFERS OR COWS, OF ANY AGE.—1st, 20*l.*, John & Alfred Heasman, Angmering Arundel; Silver Medal to the breeders, John & Alfred Heasman; 2d, 15*l.*, John Shoosmith, Lewes, Sussex; 3d, 10*l.*, Pennington Gorringe, Pebsham, Sidley, Bettle.

CLASS 16. NORFOLK OR SUFFOLK POLLED STEERS OR OXEN.—1st, 15*l.*, Robert John Oliver, Docking, Norfolk; Silver Medal to the breeder, Robert John Oliver; 2d, 10*l.*, Robert Wortley, Suffield Hall.

CLASS 17. NORFOLK OR SUFFOLK POLLED HEIFERS OR COWS, OF ANY AGE.—1st, 15*l.*, William Thomas Mullen, Knapton, near North Walsham; Silver Medal to the Breeder, William Thomas Mullen; 2d, 10*l.*, Barnabas Collins, Hunston, Ixworth, Suffolk.

CLASS 18. LONG-HORNED STEERS OR OXEN, OF ANY AGE.—1st, 10*l.*, R. H. Chapman, Upton, Nuneaton; Silver Medal to the breeder, R. H. Chapman; 2d, 5*l.*, William Thomas Cox, The Hall, Spondon.

CLASS 19. LONG-HORNED HEIFERS OR COWS, OF ANY AGE.—1st, 10*l.*, Joseph H. Burbery, The Chase, Kenilworth; Silver Medal to the breeder, Joseph H. Burbery; 2d, 5*l.*, William Thomas Cox, The Hall, Spondon, Derby.

CLASS 20. SCOTCH HORNED STEERS OR OXEN, OF ANY AGE—1st, 30*l.*, Ralph Sneyd, Keele Hall, Staffordshire; 2d, 15*l.*, Allan Pollok, Lismany, Ballinasloe.

CLASS 21. SCOTCH HORNED HEIFERS OR COWS, OF ANY AGE.—1st, 15*l.*, Richard Eastwood, Thorney Holme, Clitheroe.

CLASS 22. SCOTCH POLLED STEERS OR OXEN, OF ANY AGE.—1st, 30*l.*, William M'Combie, Tillyfour, N.B.; Silver Medal to the breeder, James Stephen, Conglass, Aberdeen; 2d, 15*l.*, William Heath, Ludham Hall.

CLASS 23.—SCOTCH POLLED HEIFERS OR COWS, OF ANY AGE.—1st, 15*l.*, the Earl of Southesk, Brechin; Silver Medal to the breeder, the Earl of Southesk; 2d, 10*l.*, James Stewart, 1 and 2, New Market, Aberdeen.

CLASS 24. IRISH STEERS OR OXEN, OF ANY AGE.—1st, 10*l.*, Clare Sewell Read, Plumstead House, Norwich.

CLASS 25. IRISH HEIFERS OR COWS, OF ANY AGE.—1st, 10*l.*, the Earl of Darnley, Cobham Hall, Gravesend.

CLASS 26 WELSH STEERS OR OXEN (RUNTS), OF ANY AGE.—1st, 20*l.*, Barwell Ewins Bennett, Marston Trussell Hall, Rugby; 2d, 10*l.*, Henry Platt, Bryn-y-newadd, Bangor.

CLASS 27. WELSH HEIFERS OR COWS, OF ANY AGE.—1st, 10*l.*, Clare Sewell Read, Plumstead House; Silver Medal to the breeder, W. B. Roberts, Loveston, Pembroke.

CLASS 28. CROSS OR MIXED-BRED STEERS, NOT EXCEEDING 3 YEARS OLD.—1st, 20*l.*, John Wortley, Felmingham, North Walsham; Silver Medal to the breeder, John Wortley; 2d, 15*l.*, James Steward, 1 and 2, New Market, Aberdeen.

CLASS 29. CROSS OR MIXED-BRED STEERS OR OXEN, ABOVE 3 YEARS OLD.—1st, 20*l.*, John Overman, Burnham Sutton; Silver Medal to the breeder, John Overman; 2d, 15*l.*, John Tingey, Little Ellingham, near Attleborough; 3d, 10*l.*, J. and W. Martin, Aberdeen.

CLASS 30. CROSS OR MIXED-BRED HEIFERS, NOT EXCEEDING 4 YEARS OLD.—1st, 15*l.*, Allan Pollok, Lismany, Ballinasloe; Silver Medal to the breeder, Allan Pollok; 2d, 10*l.*, Robert Farthing, Farrington Farm, North Petherton, Bridgewater.

EXTRA STOCK.—CATTLE.

Silver Medal and 5*l.* (the best Steer), Robert Birkbeck Gatton, Reigate; Silver Medal and 5*l.* Prize (the best Heifer) C. W. Packe, M.P., Prestwold Hall Farm, Loughborough.

THE SHEEP AND PIGS.

The classes of Sheep shown are, with the exception of the Cotswold breed, fully up to the usual mark of excellence.

The LEICESTER classes, not very full, are nevertheless sufficiently representative of that important breed. Mr. Foljambe takes the highest prize with the only pen he showed, the second going to Col. Lowther. In the class of limited weight Lord Berners is 1st, and Col. Lowther again 2nd.

The COTSWOLD breed is represented by only two pens, and no prizes were awarded.

LINCOLNS again are represented by only four pens, the prizes going to Messrs. Cranfield, Marshall, and Wyles.

The SOUTHDOWNS are in their usual force. Nothing can be more beautiful than the style in which this breed is exhibited. Lord Walsingham has sent models of symmetry, which take the prizes in almost every case. The Duke of Richmond however is 1st in the older class.

Of the HAMPSHIRE DOWNS, a most useful breed, eight pens are shown. In the two classes of the Shropshires, 10 pens appear. There are four pens of the Oxfordshire Downs, and eight of Mountain breeds. The decisions of the Bingley Hall judges are overruled in the case of the Shropshires, where Mr. Henry Smith, of Shiffnal, carries away the 1st prize with a pen of first-rate yearling wethers, which were only commended at the Midland Counties show.

The EXTRA STOCK Classes are very well filled, both with the Long-woolled and Short-woolled breeds; containing many animals of remarkable merit, shown by Mr. J. Peel, Lord Walsingham, Mr. H. Smith, and Mr. T. Porter, of Cirencester, whose Cotswold wether redeemed the credit of the breed.

The PIG CLASSES contain nearly 60 entries. The Gold Medal for the best pen in the yard has gone to Major-General the Hon. A. N. Hood, for three first-rate specimens of the White Windsor breed. In the first class, young pigs under 4 months old, some astonishing specimens of precocity appear. Mr. Stearn's white pigs, and Mr. Crisp's black ones, are capital illustrations of the two sorts. The 1st prize however goes to Mr. De la Rue for Essex Black Pigs, and the 2nd to Mr. Barber, for improved Middlesex White.

Black and White appear in competition throughout the various classes, which are arranged simply according to eye. The Gold Medal goes to the oldest class, and certainly the 1st prize pen shown in that class, 17 months and 22 days old, are a capital illustration of the condition to which, by attention both to breeding and to feeding, the animal can be brought.

The following is the list of the awards:—

SHEEP.

CLASS 31. FAT WETHER SHEEP, OF THE LEICESTER BREED, (UNDER 23 MONTHS).—1st, 20*l.*, G. S. Foljambe, Osberton Hall, Worksop; Silver Medal to the breeder, G. S. Foljambe; 2nd, 15*l.*, the Hon. Colonel Lowther, Barleythorpe Hall, Oakham; 3rd, 5*l.*, Richard Lovell, Knapton, Malton.

CLASS 32. FAT WETHER SHEEP, OF THE LEICESTER BREED (UNDER 23 MONTHS), EACH SHEEP NOT TO EXCEED 220LBS. LIVE WEIGHT.—1st, 20*l.*, Lord Berners, Keythorpe Hall; Silver Medal to the breeder, Lord Berners; 2nd, 15*l.*, the Hon. Col. Lowther; 3rd, 5*l.*, Lawrence Wilmore, The Newarke, Leicester.

CLASS 33. FAT WETHER SHEEP, OF THE COTSWOLD BREED (UNDER 23 MONTHS).—No prizes awarded—not sufficient merit.

CLASS 34. FAT WETHER SHEEP, OF THE LINCOLN BREED (UNDER 23 MONTHS).—1st, 20*l.*, William Cranfield, Buckden, Huntingdon; Silver Medal to the breeder, William Cranfield; 2nd, 15*l.*, Thomas B. Marshall, Branston; 3rd, 5*l.*, Joseph Wyles, Welby Warren, Grantham.

CLASS 35. FAT WETHER SHEEP, OF THE KENTISH OR ROMNEY MARSH OR ANY OTHER DISTINCT LONG-WOOLLED BREED (NOT LEICESTERS, COTSWOLDS, OR LINCOLNS (UNDER 23 MONTHS).—1st, 15*l.*, Frederick Murton, Smeeth, Ashford, Kent; Silver Medal to the breeder, Frederick Murton; 2d, 10*l.*, James Newport, Elmsted Court, Ashford.

EXTRA STOCK.—LONG-WOOL.

SILVER MEDAL to the exhibitor, for the best Leicester Wether in Extra Stock, the Hon. Colonel Lowther; SILVER MEDAL to the Exhibitor, for the best Leicester Ewe in Extra Stock, John Lynn, Church Farm; SILVER MEDAL to the Exhibitor, for the best Long-woolled Sheep (not Leicester) in Extra Stock, Thomas Porter, Baunton, Cirencester.

CLASS 36. FAT WETHER SHEEP OF THE SOUTHDOWN BREED 1 YEAR OLD (UNDER 23 MONTHS).—1st, 20*l.*, Lord Walsingham, Merton Hall, Thetford; Silver Medal to the breeder, Lord Walsingham; 2nd, 10*l.*, John and Alfred Heasman, Angmering, Arundel; 3rd, 5*l.*, the Earl of Radnor, Coleshill.

CLASS 37. FAT WETHER SHEEP, OF THE SOUTHDOWN BREED (UNDER 23 MONTHS, EACH SHEEP NOT TO EXCEED 200 LBS. LIVE WEIGHT).—1st, 15*l.*, Lord Walsingham; Silver Medal to the breeder, Lord Walsingham; 2d, 10*l.*, the Duke of Richmond; 3d, 5*l.*, the Earl of Radnor.

CLASS 38. FAT WETHER SHEEP OF THE SOUTH-DOWN BREED, (ABOVE 23 AND UNDER 35 MONTHS.)—1st, 20*l.*, Duke of Richmond; Silver Medal to the breeder, the Duke of Richmond; 2d, 10*l.*, Lord Walsingham; 3d, 5*l.*, John Overman.

CLASS 39. FAT WETHER SHEEP OF THE HAMPSHIRE OR WILTSHIRE DOWN BREED, UNDER 23 MONTHS.—1st, 20*l.*, William Brown Canning, Elston Hill, Devizes, Wilts; Silver Medal to the breeder, William Brown Canning; 2d, 15*l.*, W. F. Bennett, Chilmark, Salisbury; 3d, 5*l.*, William King, New Hayward, Hungerford.

CLASS 40. FAT WETHER SHEEP, OF THE SHROPSHIRE BREED, UNDER 23 MONTHS.—1st, 15*l.*, Henry Smith, Sutton Maddock, Shiffnal; Silver Medal to the breeder, Henry Smith; 2d, 5*l.*, Lord Wenlock, Bourton Cottage, Much Wenlock.

CLASS 41. FAT WETHER SHEEP OF THE SHROPSHIRE BREED (ABOVE 23 AND UNDER 35 MONTHS).—1st, 15*l.*, Thomas Horley, Jun., The Fosse, near Leamington; Silver Medal to the breeder, Thomas Horley, Jun.; 2d, 5*l.*, The Earl of Aylesford, Packington Hall, Coventry.

CLASS 42. FAT WETHER SHEEP OF THE OXFORDSHIRE BREED, (1 YEAR OLD UNDER 23 MONTHS) —1st, 15*l.*, Arthur Overman, Egmere, Brandon; Silver Medal to the breeder, H. W. Keary, Bridgenorth, Salop; 2d, 10*l.*, Zachariah W. Stilgoe, Adderbury Grounds, Banbury; 3d, 5*l.*, Samuel Druce, Eynsham, near Oxford.

CLASS 43. FAT WETHER SHEEP OF ANY WHITE-FACED MOUNTAIN BREED OF ANY AGE.—1st, 15*l.*, J. B. Downing, of Holme Lacey, Hereford; Silver Medal to the breeder, J. B. Downing; 2d, 10*l.*, William Smith, 85, Southernhay, Exeter.

CLASS 44. FAT WETHER SHEEP OF ANY BLACK-FACED OR SPECKLED-FACED MOUNTAIN BREED OF ANY AGE.—1st, 15*l.*, Richard Eastwood, Thorney Holme; Silver Medal to the breeder, Richard Eastwood; 2d, 10*l.*, Jonathan Peel, Knowlmere Manor, Clitheroe,

EXTRA STOCK.—SHORT-WOOL.

SILVER MEDAL to the Exhibitor, for the best South-down Wether Sheep in Extra Stock, to Jonathan Peel; SILVER MEDAL to the Exhibitor, for the best South-down Ewe in Extra Stock to Lord Walsingham; SILVER MEDAL to the Exhibitor, for the best Short-woolled Sheep (not South-down) in Extra Stock, to Henry Smith of Shiffnal.

CLASS 45. LONG AND SHORT-WOOLLED CROSS-BRED FAT WETHER SHEEP (UNDER 23 MONTHS).—1st, 20*l.*, John Overman; Silver Medal to the breeder, John Overman; 2d, 10*l.*, Thomas James, Octagon House, Cople, Bedford; 3d, 5*l.*, Sir Thomas Barrett Lennard, Bart., of Belhus Aveley, Romford.

CLASS 46. LONG AND SHORT-WOOLLED CROSS-BRED FAT WETHER SHEEP, UNDER 23 MONTHS.—Each Sheep not to exceed 220 lbs. live weight.—1st, 10*l.*, John Overman; Silver Medal to the breeder, John Overman; 2nd, 5*l.*, John Hatcher, Marlwood Grange, Bristol.

EXTRA STOCK.—CROSS-BRED SHEEP.

SILVER MEDAL to the exhibitor, for the best Cross-bred Sheep in extra stock, W. H. Baker, Cottesmore.

PIGS.

CLASS 47. PIGS, OF ANY BREED, NOT EXCEEDING 4 MONTHS OLD.—1st, 15*l.*, T. De la Rue, The Hazels, Sandy; Silver Medal to the breeder, Thomas De la Rue; 2d, 10*l.*, William Albert Barber, Sunning Hill; 3d, 5*l.*, William Mills Barber.

CLASS 48. PIGS, OF ANY BREED, ABOVE 4 AND NOT EXCEEDING 8 MONTHS OLD.—1st, 15*l.*, Sir Thomas Barrett Lennard, Bart.; Silver Medal to the breeder, Sir T. Barrett Lennard, Bart.; 2d, 10*l.*, the Countess of Chesterfield, Bretby Hall, Burton-on-Trent; 3d, 5*l.*, S. G. Stearn, Brandeston, Wickham Market.

CLASS 49. PIGS, OF ANY BREED, ABOVE 8 AND NOT EXCEEDING 12 MONTHS OLD.—1st, 15*l.*, G. B. Morland, Abingdon; Silver Medal to the breeder, G. B. Morland; 2d, 10*l.*, John Biggs, Cublington, Leighton, Buzzard; 3d, 5*l.*, Adolphus Frederick Slade, Kemnal House, Chiselhurst.

CLASS 50. PIGS, OF ANY BREED, ABOVE 12 AND UNDER 18 MONTHS OLD.—1st, 15*l.*, Major-General the Hon. A. N. Hood; Silver Medal to the breeder, Major-General the Hon. A. N. Hood; 2d, 10*l.*, Thomas Crisp, Butley Abbey, Wickham Market; 3d, 5*l.*, G. B. Morland.

SILVER MEDAL to the exhibitor, for the best Pig in extra stock, to S. G. Stearn.

SILVER CUPS.

SILVER CUP, value 40*l.*, to the exhibitor, for the best Steer or Ox in any of the classes, to William Heath.—Do., value 40*l.*, to the exhibitor, for the best Heifer or Cow in any of the classes, Charles Swaisland.—Do., value 20*l.*, to the exhibitor, for the best pen of Leicesters, Cotswolds, Lincolns, Kentish, or other Long-woolled breed, in any of the classes, G. S. Foljambe.—Do., value 20*l.*, to the exhibitor, for the best pen of one-year old South-downs, Hampshire, or Wiltshire Downs, Lord Walsingham.—Do., value 20*l.*, to the exhibitor, for the best pen of Shropshire, Oxfordshire, Cross-bred, or any other breed of Sheep (not specified in Prize List) in any of the classes, John Overman.

GOLD MEDAL.

GOLD MEDAL, to the exhibitor, for the best pen of Pigs in any of the classes, the Hon. Major-General Hood.

The spacious galleries, with the spaces under them surrounding the Hall, are filled with a wonderfully fine collection of Implements.

The great seedsmen, too, exhibit astonishing collections of roots, and the usual series of specimens of other agricultural plants. Messrs. T. Gibbs & Co., and Messrs. G. Gibbs & Co., have their admirable stands on one side of the quadrangle, and on the other Messrs. Sutton, of Reading, make a very remarkable display. In particular, we may refer to the extraordinary Swedish Turnips on Messrs. Sutton's stand—probably the heaviest that were ever grown. They weigh upwards of 28 lbs. apiece, were grown by Mr. Crawshay, near Reading, and are the result, mainly, of early sowing. The only other point requiring notice is the display of the so-called Cattle Melon by Mr. Page of Southampton. Mr. Blundell of Bursledon, near Southampton, speaks of growing 40 tons per acre of them at no greater expense than he grows 20 tons of Turnips, and he speaks highly of their value as cattle food.

Of the Implement Show it is needless to repeat the report—for that is what it would amount to—of the multifarious articles which our great shows of agricultural implements now always include. We may, however mention as a novelty that Messrs. Howard have adapted to their cultivator for steam-power wings to each of the cultivating tines, which break up and scatter more thoroughly than the tool has hitherto done the ground it stirs. Mr. Fowler is present with a number of his powerful machines.

The manufacturers of steam cultivating machinery are all in good spirits; and they seem all to have more orders than they can immediately execute, and there is a good demand from English farmers. Messrs. Ransome, and Garrett, and Hornsby, and Clayton & Shuttleworth, Bentall, Samuelson, Burgess, Aveling, Nicholson, Ashby, Boby, Hunt, Holmes, Nalder, Amies & Barford, Richmond & Chandler, Cambridge, and many others, have stands at which steam engines, threshing machines, winnowing machines, ploughs, harrows, cultivators, horse-hoes, reaping and mowing machines, implements, of carriage, of the road, the field, the barn, and feeding house are exhibited in profusion. Mr. Steevens, of Hammersmith, shows his four-furrow steam plough, the driver seated on the framework, and in no way by his weight affecting the action of the tool.

The whole collection sent by the different makers, merely that they may meet their customers, is as perfect an illustration of the present state of our machine manufacture as was ever brought together in competition for prizes.

Farmers' Clubs.

LONDON: *Dec.* 7.—At one of the largest meetings ever held of this Society, Mr. H. Trethewy in the Chair, a paper on the meat manufacture upon arable land was read by Mr. COLEMAN, Woburn. We can this week give only a partial report of it. He said:—

1. Heavy land has not hitherto carried that quantity of stock we should all of us like, for the reason that it is unkind for the growth of roots; and even when a crop can be grown, it very often injures the land to either cart them off, or eat them on, during the winter months; but now, with steam come to aid the occupiers of such soils, I see no reason why they should not in the autumn get some portion of the land in such a forward state as to admit of very early spring sowing, and by that means almost ensure a good crop of roots.

I will not press upon the occupiers of heavy land the necessity of increasing the growth of Mangels to too great an extent; but some they must have, if they wish to take care of their stock during the early spring months. I would rather see them planting in March a few acres of cattle Cabbage (the plants having been reared in some warm corner during the previous autumn), which may be eaten on the land in the summer months, June, July, and August, when it will bear treading with sheep; and I am sure if the fallows after an autumn cultivation were dunged and set up in ridges for the winter, a very heavy crop may be produced. I am no great friend to the Cabbage tribe on light soils, as they produce so much woody fibre that stock cannot turn to any account, but I think them quite worth a trial on heavy land. Every one knows the necessity of having the roots on clay land consumed in dry weather, therefore we must try to produce them at such a time. The Green Globe and common white Turnip, if sown in April or beginning of May, will be ready for consumption in July; now this is what must be done upon our tenacious soils, or at least attempted more than it has been. I have very often had white Turnips ready for use the early part of July; they have been sown in May, as soon as the Mangel seeding was finished; if the bulbs have not been very large they produce a great quantity of top, which is at that time of year more nutritious than the bulb would be in October. I well know the disadvantages a clay-land farmer has to contend against, but I think if a few of my friends try what can be done by early sowing even the commonest description of Turnip, they will not be disappointed with the result. They must leave it to their light-land neighbours to produce Swedes for winter use, and grow what they can for summer consumption: sow early and consume early must be their maxim; and I see no reason why, on such farms, very much more stock may not be kept than at the present day.

2. The medium soils are those which will grow any and every description of root to perfection, and although some of these are a little too stiff to admit of being much trodden in wet weather, still, when part of the crop is drawn off for consumption, with bullocks in the stalls, the rest may be used on the land without much detriment to it.

Such land as this is properly called Turnip land, and produces both the best crops and the finest quality; I know some persons say that a Turnip grown on one soil is as good as that grown on any other, but with this I do not agree, as I found when in Norfolk, that the stock did not do so well upon the light land roots as they did upon those grown on medium or mixed soils. Mr. Heath, of Ludham, grows roots upon his land that will fatten a bullock as fast as those upon the light sandy soils of West Norfolk, with from 2 to 4 lb. of cake in addition. The heavier the land that produces the root, generally the better the quality. I do not find upon light land that Turnips for winter use are the best that are sown first; and another thing against the roots keeping well through the winter is, that the Swedes are now much more tender than they used to be; we all like to have the sort that will produce the greatest weight per acre, and, like our improved cattle, improved Swedes are not so hardy as they were; they require to be pitted earlier, or you stand a chance of losing them by frost, and when secured do not keep so well as in years gone by. We must use every sort of root in its proper season; white-fleshed Turnips should be finished by October, Swedes from that time to February and March, and then comes that most valuable of all roots the Mangel Wurzel. You may use this with advantage all the year round; I have commenced upon a crop in September, and continued until the following August, but they are of the greatest value in the spring and summer months. The Mangel is a plant that requires warmth hence they are much more extensively grown in the east and south of England, where less rain falls; but in the north and west, which are moist climates, perhaps the Swede is the most profitable root to cultivate. For my own part I grow half of each as near as I can, and then in a very dry season the Mangel makes up the deficiency of the Swede, and in a wet one the contrary. For all roots a portion of farm-yard dung, from 8 to 10 tons per acre, with from 2 to 4 cwt. of superphosphate, forms the best dressing. I do not like upon any light soil to see too much dung used, as the most decayed crop of Swedes I ever saw in my life was upon a farm where from 20 to 30 tons had been applied without any artificial dressing.

3. How are the occupiers of arable land to stand their ground with the present low prices of Wheat?

Every one will answer, by keeping more stock. It is all very well to tell a farmer to keep four bullocks where before he had only three; but let him, before he thinks of increasing his stock, direct his attention to the production of food for them, for if there is anything that does not pay, it is having more stock than he can find food for, although I do not think many farmers now-a-days will have more money than is really necessary to invest in stock, as corn does not fill the pocket to overflowing. I am quite sure that a small number of cattle, well done, will pay more than a large number improperly attended to, or that have to be supplied with innutritious food, such as straw, to make up for the want of roots or hay. We will take the production of an acre of roots at 20 tons for a good crop, and a crop of Trefoil or Clover at 30 cwt. per acre, and see how long this will with proper management keep a fair-sized ox in a going-on state. The food per day shall be—84 lbs. of roots, 6lbs. of Clover chaff, 6 to 8 lbs. of straw chaff. The artificial food shall be put at the quantity I generally use, viz.—4 lbs. of Linseed cake, 2 lbs. of corn meal. This gives from the produce of 1 acre of Turnips and 1 of Clover 76 weeks keep for a bullock: the artificial food, with cake at 10*l.*, and Bean, Indian Corn or Lentil meal at 8*l.* per ton, will cost 3*s.* 6*d.* per week per head. Now, it is but a moderate sort of bullock that will not pay 6*s.* per week for this keep, which will leave 5*l.* per acre for the roots, and 3*l.* per ton for the Clover consumed, *besides the manure*; those who do not wish to give Clover to their cattle will have to add two pounds of artificial food per day, and use all straw; but I like a portion of each for profitable feeding, if possible. I consider if a farmer realises 5*s.* per ton for his roots, and 3*l.* for his hay, by feeding bullocks, he does very well, and it is quite as much as many of us do. With present prices of beef of course more is made, but he is a lucky man who this year averages 20 tons of roots per acre. Those who say that cattle do not pay for feeding I would tell to take a trip into Norfolk during the winter, and ask some of the farmers in the eastern part of the county what (with the present price of corn) pays their rents, and they will tell you their bullocks.

4. What is the best sort of bullock for our stalls, boxes, or yards?

Without doubt the Shorthorn, because as good a sort as any man need wish to have is always procurable at a lower price than any of our other established breeds; and I find if they, the Shorthorns, do consume a little more food than the Hereford or Devon, they make more meat, and invariably pay best where a liberal supply of cake, corn, and roots, can be given. I do not mean an animal that boasts of a long pedigree, for, though no one likes blood better than I do, still I find the best bred Shorthorns are not the best butchers' beast. I have found the Herefords very well in the stall, but much better in the Grass field, and therefore our arable farmer cannot compete with the Grass men for their possession, at any profit to himself; and if he chose to do so, I should like to know where he is to procure any quantity of good beasts from; there are not a great number bred, and of those the best never get far from their native county, and they do not make growth enough when in the stall to pay for expensive feeding. I consider their place is in the Grass field; and although I very often finish a good many in the stalls, and have some in now that will I hope this week make 40*l.* each, still I never like to keep them there for many weeks, and never will put them in unless they are in good condition. The Devon, or red beast of the West of England, is a very useful animal; I do not mean the pure "North Devon," for these are few and far between at our fairs and markets. I did pick up 15 at last Barnet fair, but I never saw many of them so far from home. The Scotch, both polled and horned, are now nearly all the best of them kept at home, and when fattened, sent to London and other markets. It is to Ireland we must look for the main supplies to our feeding stalls, as her moist climate and humid atmosphere are more suitable for growing cattle than corn. I trust the reports we have lately heard of the decrease of stock in the sister isle will prove incorrect, for it will be an immense loss to us all if the Irish store cattle came shorter in numbers than they have done.

5. The breeding of cattle upon a farm of arable land—is it advisable or not?

I say no; still as there are few farms upon which there is not some old pasture, a limited number may be bred and reared for the purpose of fattening for the butcher, and as store cattle are now so high in price, it is a good practice for all occupiers of arable land to keep a few cows, and rear the produce of them.

[The discussion of this point by Mr. Coleman, as well as his remarks on the relative value of foods, must be postponed for a week.]

6. I have, I am afraid, devoted too much time to the cattle on arable farms; but I felt that, if not of so great importance now-a-days as sheep farming, still there was more room for improvement in the management of horned stock than in that of the fleecy tribe.

My remarks relative to the production of Cabbage and common Turnips for consumption in the summer months, will be of even more service where a farmer prefers sheep to bullocks, for we know that at present prices sheep are kept at much less expense than cattle, as regards labour, and as they produce very nearly the same weight of meat for a like quantity of food as an ox, and the *wool besides*, they have an advantage in every manner, and therefore it does not require any words from me to impress upon the occupier of arable land the necessity of sheep farming. Every occupier of arable land will see the necessity of breeding as many sheep as possible; upon light soils as many as he can feed off in the winter with Turnips; and on heavy land, by the growth of early Cabbage, Coleseed, and common Turnips. Upon arable land, and where the lambs are intended for fattening purposes, they are usually taken off the ewe in June, as soon as some part of the seeds have been mown for hay, and then turned on to the eddish; and if a few early Cabbage are ready to throw to them at this time, it will be of great benefit, when Grass keeping is very short. As soon as taken from the ewe, the lamb should have a small quantity of cake or corn, as nothing pays so well for it as a sheep at this age—such as are intended for fattening at a year old, I mean. Of course, store sheep, that are meant for breeding purposes, need not live so well. Do not allow the lambs to go upon seeds that have been closely eaten down, and much manured by sheep in the spring, as it is very unhealthy for them indeed; and many farmers know, when once a lot of lambs begin to "scour," the loss they have suffered—so remember prevention is better than cure, and never keep the lamb too long upon the same food, but let it have a frequent change. The occupiers of chalk land know the

advantage of Sainfoin for young sheep, and I wish very much our sand land would produce it, but, after repeated trials, I am obliged to give it up. Dutch and Red Clover must be stocked with lambs very carefully at first: it is best to put them on for a few hours in the day, and that in dry weather, before they go on to it altogether. I have seen much damage arise to a lot of lambs turned into a piece of Dutch Clover fresh and full in the head. I expect to see our friend have upon his farm, by the beginning of August, some Turnips to throw to the lambs on his Clover eddishes, and if not quite ready, Cabbages until they are. By giving Turnips in this way, for a month or so before the lamb is put upon the Turnip land to fold, you stand a much better chance of keeping the animal in a healthy state, and there is not a loss of time and weakening of constitution, which necessarily occurs in any sudden change of food. The lamb, when put upon the Turnip land, should commence with a few hybrid Turnips, or Swedes, and white mixed, as it does not do to give all Swedes to young sheep at this time of the year, or you will stand a chance of losing very many of your tegs, as they are now called. When first put upon Turnips, a liberal supply of Clover and straw chaff must be given, and cake and corn in moderate quantities the first few weeks, to be increased as they get more accustomed to the food. Coleseed on many of our deep loamy soils is very often grown, and there is no green crop that will fatten sheep faster or so fast. I like it for finishing old sheep for the butcher, but find that tegs taken off it, and put on Turnips, make but little improvement for some time afterwards. The Swedes having lasted our sheep until the end of March, we now commence on Mangels for them, and at this time change the food if all cake, and give some corn, such as Peas, Beans, or Lentils. Cotton seed cake may now be used with advantage, and, mixed with the Linseed, will keep the sheep in a healthy state, now Mangels are given. If we take a good crop of Swedes, as before, to be 20 tons, and allowing a sheep to consume from 15 to 25 lbs. per day, besides chaff and artificial food, we have 250 to 400 head kept one week upon an acre. The difference in the quantity consumed will vary according to the size and breed of sheep; a small Southdown will eat about the smallest quantity, and a large Cotswold or Lincoln perhaps even more than the highest figures. It is a bad teg that will not pay 1*s.* per week for feeding on Turnips; of this amount it will cost about 4*d.* per week for artificial food, leaving 8*d.* as the return made for Turnips, chaff, and attendance. This, taking only 250 sheep as kept upon an acre of Turnips for a week, will give 8*l.* 6*s.* as the return for the Turnips, hay, and attendance, besides the manure, which may fairly be valued at from 2*l.* to 3*l.* per acre more; but suppose we only take half this estimate, and make the sheep pay 5*l.* per acre for a crop of Swedes, as, taking the country through, the average is not more than 12 to 15 tons per acre, and perhaps in some seasons not up to this. Sheep are much less expensive to feed than beasts, hence leave more profit; and I would have our arable-land farmer keep as many of them as possible.

7. Mr. Coleman then referred to the relative merits of the different breeds, and concluded as follows:—

I would impress upon the occupiers of our clayey or tenacious soils the necessity of trying to increase the production o meat during the summer months, for it is at that time of year that it often pays best, as we have witnessed during the last 25 years, such an immense increase of meat being made during winter (through the extended growth of Turnips, and the use of corn and cake upon arable land) as sometimes almost to inundate the market. Clay-land farmers well know the necessity of being on their land in dry weather, and will, I hope, make an effort in the direction I have pointed. We know we cannot upon our best Grass lands much increase the production of meat, and as every year the consumption goes on gaining ground, there will be an opening for our occupiers of clay land to see what they can do. I wish to be understood as meaning that the cheapest way to grow corn is by keeping plenty of stock, and doing them well; and generally if one does not pay, the other will make up the deficiency. Just now increase your root and green crops, and by that means, whenever corn should rise above its present value, you will be enabled to take a few extra crops when they pay you well, and with long leases (without which you cannot be expected to invest money upon another's property), you will prove that the British farmer is not quite "done up" yet. Our occupier of an arable farm will, I am sure, take care and have a lease of his farm before he starts upon modern improvements, for it is far preferable to any, and the best of, yearly agreements; and I hope those landlords who object to granting leases of their farms (on the plea of giving the management of their property into the hands of others) will see it is their duty towards their country to give to the occupier of the soil security of tenure, or they cannot expect a man to become a good farmer and an enterprising tenant.

Miscellaneous.

Cream Cheese.—Take a quart of cream, or, if not desired very rich, add thereto one pint of new milk; warm it in hot-water till it is about the heat of milk from the cow, add a small quantity of rennet (a tablespoonful is sufficient), let it stand till thick, then break it slightly with a spoon, and place it in the frame in which you have previously put a fine canvas cloth, press it slightly with a weight, let it stand a few hours, then put a finer cloth in the frame, a little powdered salt may be put over the cloth. It will be fit for use in a day or two. *Another Method.*—If cream is scarce, so that a sufficient quantity cannot be had at once, take a fine canvas bag, and pour as much cream as you may happen to have into it, adding additional small quantities of ice a day; and from its becoming naturally sour, the thin part will drain through the canvas, and the remainder will prove an excellent cheese. If one quart of cream can be had at once, and poured into a fine canvas bag, it will make a nice sized cheese, and, of course, equally good as those made by several small quantities added at convenient intervals. The cheeses made in this way are not fit for use so soon as those made with rennet.

Calendar of Operations.

NOVEMBER.

WESTER ROSS: *November* 30.—Since the completion of harvest there has been a continuation of weather as fine as it was desirable for us to have, and all out-door labour consequently is unusually advanced. A pretty large breadth of Wheat has been laid down in first-rate condition, and the earlier sowings are already appearing above ground. A good deal of Wheat will yet be sown so soon as the fields are cleared of Turnips; but, Mr. Wilkins's earnest pleadings notwithstanding, we continue to sow some 3 bushels of Wheat per acre, and this habit we persevere in with the utmost unconcern, supposing that the censor's rod is too short, or not intended to reach us in the north of Scotland. We believe, however, that notwithstanding the severity of our winter, our damp and ungenial spring, and the necessity of speeding the crop to harvest by thick seeding, the quantity of seed will yet be considerably lessened by more thorough draining, and higher cultivation Perhaps nothing is more requisite for improving agriculture in this county than increased drainage, and few things are more expensive. A large proportion of the subsoil is impervious mountain clay, which, although quite dry in summer, is in winter overlaid with a covering of mud, through which neither man nor beast can comfortably tread. For many years I have been in the way of putting in several thousands of yards of stone drains annually, which cost from 2*d* to 2½*d*. per yard, and the regret is that present prices of grain will not admit of improvements of this nature being carried out on a scale that is both requisite and desirable. The next year's green crop lot is now nearly all turned over, and is thus early exposed to the pulverising and highly beneficial effects of the winter's frost. A beginning has also been made in breaking up leas for Oats. Turnips are now well-stocked with sheep and cattle, and as they scarcely stand the eating that we anticipated, we bid fair to be on short supplies ere the Grass returns. The wages of half-year's servants have considerably fallen over the north, and, as work is scarce, our labourers may not be fully employed through the winter, even at reduced wages.

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

At 9 A.M., Railway Time.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Wind. Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Dec.	Inches.	°	°				°	°	°	°	Inches.
Friday ..	4	30.20	37	35	W	1	0	45	35	51	28	0.03
Saturday ..	5	30.10	50	46	W.	1	6	49	34	53	29	..
Sunday ..	6	30.25	44	41	N W	2	0	51	40	54	34	0.01
Monday ..	7	30.37	50	48	W.	0	10	49	42	55	35	0.00
Tuesday ..	8	30.14	48	45	S.W.	2	7	51	46	55	42	..
Wednesday ..	9	30.02	51	51	S.W.	0	10	50	47	52	40	0.07
Thursday ..	10	30.22	45	42	S.W.	1	2	50	35	51	29	0.04

Notices to Correspondents.

ABORTION: *Boveney.* This serious evil is often produced by the cows feeding on old pastures on which the old Rye-grass stems have not been mown, and which often contains Ergot. Remove the cattle and change the food as much as possible. If hay had been given change it for straw and oil-cake, and separate immediately the animals that have aborted, or threaten to do so. *W C S.*

DR CAMERON'S PAPER ON STRAW: *W Causs.* We do not know if it is published *in extenso* anywhere. Apply to the Editor of the *Agricultural Review*, Dublin.

FARM LABOUR: *Constant Reader.* "The Handbook of Farm Labour" (*1s. 6d.*), Longmans, is just what you ask for.

FLAX STRAW: *Rusticus* asks, What is its value, and for what purposes is it valuable? [For litter only.]

GAS WORKS REFUSE: *T G* says—"Can you tell me what use can be made in agriculture of the spent oxide of iron obtained from some of the gas works. No doubt you are aware that a few of the gas companies throughout the country are using native oxide of iron to purify the gas. After they have done with it, it contains a large per centage of ammonia, which should be useful in some way. Would it do for Turnips or Potatos? and if so, what quantity would it take to the acre? or would it not do combined with something such as superphosphate of lime in certain proportions? No doubt it would be very valuable if there was any way of neutralising the oxide of iron. Perhaps you could tell me if there is any plan of so doing." [The annexed is an analysis of the spent oxide:—

Water	22.60
Organic matter	40.30
Oxide and sulphide of iron	20.50
Sand	5.40
Sulphate and carbonate of ammonia ..	11.20*
	100.00

It is worth trying on Grass land, at the rate of 3 to 5 cwt. per acre. The ammonia will increase the produce, unless there be any noxious salt of iron in it.]

OAT SEED: *A Subscriber.* An immediate answer is probably unnecessary; and the pressure on our space hinders us this week.

REPORTS OF STANDS: *Two* Received, but will not be *read!*

* Equal to 3.75 per cent. of ammonia.

WILLIAM SMITH, of Woolston, Bletchley Station, Bucks, supplies the most efficient, simple, and durable STEAM CULTIVATING TACKLE there is in the world, but he did not send a dummy to the Smithfield Club Show, where it is utterly impossible for any practical man to know the worth of it. If practical men would like to know the worth of it, let them come and see the Woolston Farm.

1000*l.* upon the Woolston System against any other system of Steam Cultivation.

AGRICULTURAL IMPLEMENTS.—Steam Engines, Threshing Machines, Carts, Waggons, Ploughs, Harrows, Turnip Cutters, Chaff Cutters for hand and power, Lawn Mowers, Prize Churns, Cask Stands, Wire Netting, Garden Tools of all kinds.

Illustrated Catalogues on receipt of 6 stamps. Price Lists free.
BURGESS & KEY, 95, Newgate Street, E.C.
Works: Brentwood, Essex.

Improved Chaff Cutters.

MANUFACTURED BY MAPPLEBECK & LOWE, BIRMINGHAM.

MAPPLEBECK AND LOWE Manufacture a Variety of NEW PATTERN CHAFF MACHINES, from 2*l.* 5*s* to 10*l.* 10*s.* each, with recent Improvements, combining simplicity of construction, first-class Workmanship, great Durability, and economy of Labour.

Drawings and Prices on application.

To Seed Merchants and Nurserymen.

SAYNOR AND COOKE, PRUNING and BUDDING KNIFE MANUFACTURERS, beg respectfully to say that they WILL NOT BE UNDERSOLD by any House in the Trade. They also warrant one of their Knives to last two of any other make.
Paxton Works, Sheffield.

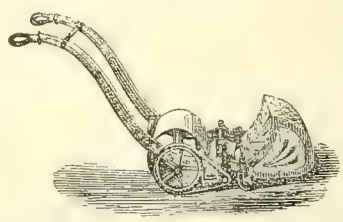
Glass for Orchard Houses or Conservatories.

ENGLISH MANUFACTURED SHEET GLASS, 15 and 21 oz. to the foot, in sizes from 9 by 7 to 24 by 20, packed in 100 feet boxes, to be sold cheap.

Apply to WM. H. JACKSON, Plate, Crown, and Sheet Glass Warehouse, 315, Oxford Street, W.

TREE and PLANT LABELS.—10,000 CLOTH or PATENT PARCHMENT PUNCHED LABELS for 30*s.* Delivered free in London on receipt of a Post-office Order or Stamps for the amount.—Address, JOHN FISHER & CO., West Road Works, Boston, Lincolnshire.

GREEN'S LATEST IMPROVED PATENT NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES, which gained the First Prize Medal of the International Exhibition.



Patronized by Her Most Gracious Majesty the Queen during the seasons of 1862 and 1863.

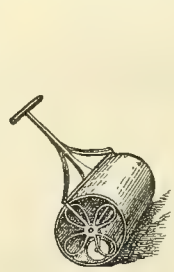
These Machines have proved to be the best, and have carried off every prize that has been given in all cases of competition.

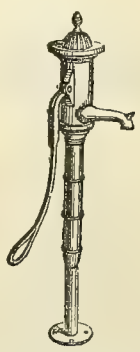
ILLUSTRATED PRICE LISTS on application.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

Iron Works.

COTTAM AND CO.,
2, Winsley Street, Oxford Street, London, W.





COTTAM & Co. manufacture all kinds of Implements and Machines for Garden and Horticultural purposes, Verandahs, Greenhouses, Conservatories, Hot water Apparatus, &c.; Iron Fencing, Gates, and Hurdles.

Illustrated Catalogues free of COTTAM & Co., Iron Founders, &c., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

BARROWS AND CARMICHAEL (late KIRBY & BARROWS), ENGINEERS, Banbury.

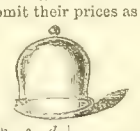


Price 255*l.* complete, and ready to Thresh and Finish 50 quarters of Grain a day in the most perfect manner. Guaranteed of best Workmanship and Material. Prizes in money and Medals have been received from important Agricultural Societies in England, Ireland, and the Continent.

Glass for Garden Purposes.

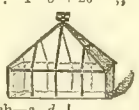
JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING GLASSES.



Each	s.	d.	Each	s.	d.
2 inches in diameter	0	3½	12 inches in diameter	1	9
3 " "	0	4½	13 " "	2	0
4 " "	0	5½	14 " "	2	6
5 " "	0	6½	15 " "	2	0
6 " "	0	8	16 " "	3	6
7 " "	0	10	17 " "	4	0
8 " "	1	0	18 " "	5	0
9 " "	1	2	19 " "	6	0
10 " "	1	4	20 " "	7	0
11 " "	1	6			

HAND GLASSES, WITH OPEN TOPS.



Each	s.	d.	Each	s.	d.
12 inches	6	6	18 inches	9	6
14 "	7	6	20 "	10	6
16 "	8	6	22 "	11	6
			24 "	12	6

Painted and Glazed with 16 oz. Sheet Glass.

HYACINTH and FLOWER DISHES.

6 inches diameter, 1s.; 9 inches, 1s. 6d.; 12 inches, 2s. 6d.

Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

HYACINTH GLASSES.

Common shape, p. doz., 2s. 6d. | Improved shape, p. doz., 4s. 6d.

Patent shape, per dozen, 6s. 6d.

London Agents for Hartley's Improved Patent Rough Plate.

Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

For Sale, at E. Dench's Patent Horticultural Works, King's Road, Chelsea.

E. DENCH being about to DISPOSE of his HORTICULTURAL BUSINESS, has on hand a considerable number of VINERIES, GREEN and HOTHOUSES, which he will dispose of at a low price to clear his premises.

The Sizes being from 16 ft. to 36 ft. in length, and from 10 ft. to 15 ft. in width.

THOMAS MILLINGTON,

GLASS MERCHANT.

ESTABLISHED 1750.

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

The Agricultural Hall, Islington, containing an Acre of Glass, was supplied by T. MILLINGTON.

Mr. Rivers, and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home Use and for Exportation.

☞ *For prices see Advertisement of December 5.*

PAXTON GARDEN ENGINE.

IS PORTABLE, EASILY WORKED, NOT LIABLE TO GET OUT OF ORDER; WILL THROW WITH JET 40 FEET, AND WITH "ROSE" WILL COVER 40 FEET ACROSS.

Price 30s. and 40s. each.

CROGGON AND CO., 2, DOWGATE HILL, LONDON, E.C.

PATENT ASPHALTE ROOFING FELT.

Rail Carriage Paid.

One Penny per Square Foot.

ALSO INODOROUS FELT, AND DRY HAIR FELT FOR COVERING BOILERS AND STEAM PIPES.

CROGGON AND CO., 2, DOWGATE HILL, LONDON, E.C.; and 2, GOREE PIAZZAS, LIVERPOOL.

RANSOMES & SIMS,

ENGINEERS, IRONFOUNDERS,

AND

MANUFACTURERS OF AGRICULTURAL IMPLEMENTS AND MACHINES.

IPSWICH.

ILLUSTRATED CATALOGUES CONTAINING PARTICULARS AND PRICES GRATIS ON APPLICATION.

SMITHFIELD CLUB CATTLE SHOW, 1863.

MESSRS. CLINTON AND OWENS, in common with other Firms, were EXCLUDED from EXHIBITING at the above Show, owing to an informality in sending in their application for Space. They will be happy to see any one who may desire to inspect their large and varied Stock at the WORKS, WHITEFRIARS.

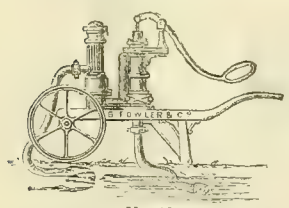
CLINTON & OWENS

(LATE BENJAMIN FOWLER & CO.),

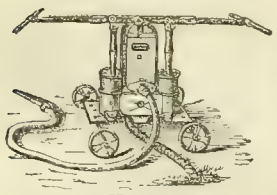
MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

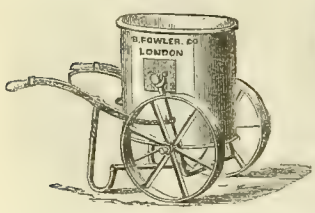
WHITEFRIARS STREET, FLEET STREET, LONDON.



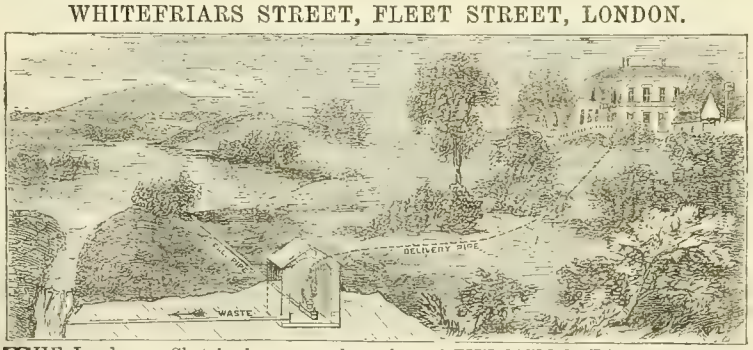
No. 46a.



No. 50.



No. 49a.



THE Landscape Sketch shows an adaptation of THE IMPROVED HYDRAULIC RAM for forcing water to considerable heights and distances to supply Mansions, Farms, &c., where a few feet fall can be obtained. Full particulars of this useful Self-acting Machine can be had on application.

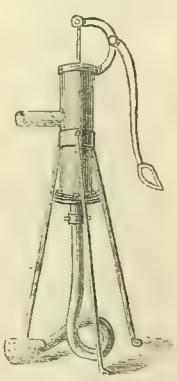
No. 4. Useful YARD, GARDEN, and COTTAGE PUMPS, from 1*l.* 5*s.* each.

No. 38. Portable LIQUID MANURE PUMPS, with flexible suction pipe.

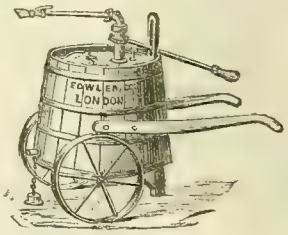
No. 46*a*. DOUBLE-ACTION PORTABLE FORCE PUMPS and FIRE ENGINES for Water or Liquid Manure.



No. 4.



No. 38.



No. 49.

No. 50. Improved (Holman's Patent) DOUBLE-BARREL FARM FIRE ENGINES and IRRIGATING PUMPS.

No. 49. GARDEN ENGINES of all sizes.

No. 49*a*. Improved SWING WATER CARRIERS, holding 24 and 35 gallons, for Garden Use.

Further Particulars, Estimates, and Illustrated Price Lists on application.

E. R. & F. TURNER, IPSWICH,

AWARDED THE 1862 EXHIBITION MEDAL FOR

PORTABLE STEAM ENGINE, THRESHING MACHINE,

AND CORN CRUSHING MILLS.

Their 4-HORSE POWER FINISHING MACHINE, at the recent R. A. S. E. WORCESTER TRIALS, THRESHED 100 SHEAVES of WHEAT in 5 min. 55 secs., this time being less than was occupied by several other Machines requiring double the power. The Straw was threshed clean, the Corn unbroken, and the finished Sample unsurpassed.

PORTABLE STEAM ENGINES, from 2 to 10 Horse Power, and THRESHING MACHINES adapted for the same.

E. R. & F. T. hold the highest Testimonials to the superiority of their Portable Engines and Threshing Machines, both finishing and single blast. Copies sent Post Free on application.

CORN and SEED CRUSHING MILLS, R. A. S. E. Prize. These Mills continue to maintain their long-established pre-eminence.

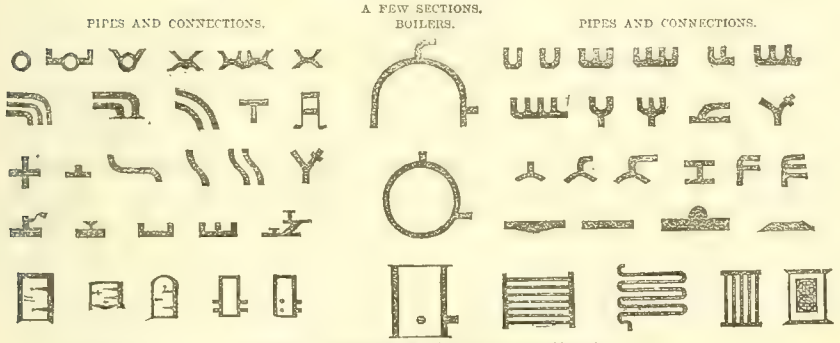
ILLUSTRATED CATALOGUES sent Free on application.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

HOT-WATER APPARATUS,

FIXED AND UNFIXED.



Detailed Illustrated Lists on application.

CONSERVATORIES, GREENHOUSES, &c. PATENT STABLE FITTINGS.

EVERY DESCRIPTION OF IRON WORK.

Smithfield Fat Cattle Show in London this Week.

64 ANIMALS EXHIBITED HAD BEEN FED ON FOOD SEASONED WITH

THORLEY'S DELICIOUS CONDIMENT, and 25 gained Prizes. Penny packets, packed publicly at 145, Fleet Street, City, E.C. None genuine without the Inventor's signature engraved on each packet, "JOSEPH THORLEY." Read the Discussion on this Condiment, held in Hanover Square Rooms, and judge for yourselves how its opponents were put *hors de combat*—one an Oilcake Dealer, the other a Veterinary Surgeon. May be had Free on application.

DAY, SON, AND HEWITT, Inventors of the "Stock Breeder's Medicine Chest;" containing

DAY'S EXTRACT and GASEOUS FLUID,

which are to the Stock Breeder and Farmer of the most inconceivable value, inasmuch as paining in Ewes in bad lambing, Cows in bad calving, swollen udders, sore teats, and all bad wounds, bruises, and swellings in all Animals, are dissipated and finally annihilated by the "Extract," while the "Gaseous Fluid" for Ewes weakly after bad lambing, Cows after bad calving, Mares after bad foaling, by its balsamic and electrical influence imparts the greatest life and animation. It is proverbial for its marvellous cure of the Fret, Colic, and Gripes in Horses, and for Diarrhœa (or Scour) in Calves, Sheep, and Lambs. Such is the permeation of the "Extract" by rubbing in, and of the "Gaseous Fluid" by dosing, that they draw the acrid humours which cause disease out of the parts affected, and excite the curative powers of nature into action; when life, vigour, and the soundest health ensue. This is the secret of their wonderful popularity. Price of "Extract," 2*s.* 6*d.* and 7*s.* per bottle; or quarter of dozen in wood box, 7*s.* 6*d.* "Gaseous Fluid," 1*s.* 8*d.* per bottle, or 20*s.* per dozen in wooden box. Plain directions for use given with every Article.

☞ Caution. Counterfeits are being hawked about at markets, some as "DAY'S," and others as "DAY & CO.'S," to avoid which be sure and ask the person soliciting orders, "Are you travelling for DAY, SON, & HEWITT?"

The "Key to Farriery," free by post for 13 stamps.

SAMPLE MEDICINE CHEST, 16*s.* 6*d.* Carriage paid.

Patrons, 70,000.

Address, 22, Dorset Street, Baker Street, London, W., and Wantage, Berks. No other branch in the kingdom.

PARTNER, with not less than £1000.—He must either understand Growth of Pines, Grapes, and Peaches (as these are grown extensively), or the Seed Trade. The Advertiser being owner of the Concern, this is a rare opportunity. Extent of Ground 17 acres; quantity of wall covered with bearing Peaches; 12 Houses.—O., Post Office, Gloucester.

LOP-EAR RABBITS.—A gentleman has for SALE some well-bred YOUNG RABBITS, aged from 4 to 7 months, price 10*s.* 6*d.* to 15*s.* 6*d.*, according to quality; also a LITTER of Six well marked young, 15 inches, age 2 months, price 3*l.* 10*s.* Some fine grown DOES, 14 months.

A. B. C., *Gardeners' Chronicle* Office, W.C.

SHORT-HORN BULL for SALE.—BARONET (19,276), aged 19 months; by Lord Althorpe (14,800), dam, Bella, by Louis (14,861), &c. First Prize at Kent County and Borders of Kent and Sussex Show.

For further particulars and Pedigree apply to the BAILIFF, Pullen's Farm, Lamberhurst, Kent.

Essex.

TO BE LET on LEASE, and entered upon at Michaelmas next, the FARM known as WALTON HALL, near Walton-on-the-Naze, in the County of Essex, and about 18 miles from Colchester, to which town a Branch Railway is in course of formation. The Farm consists of 330 Acres of Arable, 375 Acres of Pasture and Old Marsh, 376 Acres of Saltings, partly enclosed from the Sea, and the rest Water, Sea Walls, &c.; total, 1190 Acres. The House is a first-class residence, suitable for a gentleman of property; the Buildings are extensive and commodious, and contain ample accommodation for the requirements of Modern Farming. There are also two newly-erected Labourers' Cottages on the Estate. It is bounded on two sides by the Sea, and on a third by the Creek known as the Walton Back Water, furnishing great facilities for Shipping produce to London or elsewhere. The rapidly increasing Watering place, Walton-on-the-Naze, adjoins the Farm. The Land is of extraordinary fertility, and is in a high state of cultivation, and is particularly adapted for Steam.

For further particulars and to view the same, apply by letter to the Rev. E. SMYTHIES, Hathern Rectory, Loughborough, to whom Sealed Tenders, stating the clear annual rent offered are to be sent on or before February 1, and the persons tendering will be communicated with in a fortnight after. The Proprietor does not bind himself to take the highest Tender.

Oxfordshire.

TO BE LET, from Lady-day next, TWO First-class FARMS, lately in the occupation of J. H. Langston, Esq., M.P., deceased, situate at Churchill and Sarsden, about 3 and 4 miles respectively from the Market Town of Chipping Norton, and within a shorter distance of other Railway Stations.

No. 1. The Farm commonly called "CHURCHILL MOUNT," on which is an excellent and commodious Dwelling House and Offices, with extensive and convenient Farm Buildings, all recently built and fitted up with Machinery worked by steam-power for Threshing, Grinding, Chaff-cutting, &c., together with 530 acres of Arable and Pasture Land (in nearly equal proportions). The well-known "Sarsden Herd" is, and has been for some years, kept upon this farm.

No. 2. The Farm known as "FAIR GREEN," with other Lands added, near and adjoining Sarsden, comprising a superior and commodious Dwelling House and Offices; the Buildings are unusually good, convenient, and equal to the requirements of the Farm, and well supplied with Water throughout. The Dwelling House and Farm Offices have been recently erected and fitted up with Machinery driven by steam-power for similar purposes as mentioned in No. 1. This Farm contains 744 Acres, of which 574 are Arable and 169 Pasture, and is well adapted to Steam Cultivation. There are several Cottages attached to the Farm.

The Farms have been for some time under Steam Cultivation, and are both in high condition, having been many years kept in hand by the late proprietor. In both cases the Residences and Farms are of a very superior description.

For further Particulars, and for viewing the same, application should be made at the Office of Mr. HENRY ANDREWS, at Sarsden, near Chipping Norton, to whom Sealed Tenders for each farm separately, stating the clear annual rent, are to be sent on or before December 18, 1863, soon after which the persons whose tenders are accepted will have notice thereof. The setter will not consider himself bound to take the highest tenders.—Sarsden, Dec. 12.

TO BE LET, with immediate possession, with or without Stock, a genuine NURSERY BUSINESS, 40 miles from London, in a fast improving Market Town. Good Dwelling House, Out-Houses, about 3000 feet of Glass, 6 acres of Valuable Land. Nine years unexpired Lease. Rent only 30 guineas per annum. Cause of leaving, present occupier wishing to join his friends in one of the colonies

Z. Y., *Gardeners' Chronicle* Office, W.C.

Sales by Auction.

SALE THIS DAY AT HALF-PAST 12 PRECISELY.

Consignment of Roses from France, and Hardy Trees and Shrubs from Surrey.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., THIS DAY, Saturday, at half-past 12 o'clock precisely, 800 Splendid STANDARD ROSES from France, 400 Dahlia Roots, Fruit Trees, Rhododendrons, Conifers, Laurels, Flowering Shrubs, &c., from Surrey; also some elegant Rustic Garden Seats, Stools, Gothic Chairs, Flower Vases, and Baskets, &c., from a celebrated Manufacturer.

On view the Morning of Sale, and Catalogues had

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, Dec. 15, at 12 o'Clock precisely, a capital lot of Dorkings, Spanish, Bantams, Hamburghs, Rouen and Aylesbury Ducks, &c., from four celebrated breeders; a fine assortment of Game, Partridge, Cochins, Black Spanish, and White Pouters, from Mr. A. Heath, of Calne, Wilts; some choice Game Bantams from Mr. M. Leno, Jun., of Herts; Coloured Dorkings, from Surrey. The entire stock of valuable BLACK SPANISH FOWLS, the property of Joseph Rake, Esq., of Bristol. This celebrated and unrivalled stock consists of all the adult birds which Mr. Rake has so successfully exhibited at all the principal public Shows in the kingdom for so many years past, together with the entire stock of young Birds bred from them this year. Mr. Rake has had many applications for Birds this season, but has declined them all, having determined to submit his entire stock to public competition. Twenty-four splendid CARRIER PIGEONS, from Mr. E. Everett, of Brighton; Twenty fine CANARIES, from a celebrated fancier; the Surplus Poultry and Pigeons of J. H. Craigie, Esq., of Chigwell; some Buff Cochins, from Mrs. Large, of Norwich; also various other Birds, from many well-known breeders and exhibitors.

On view the Morning of Sale, and Catalogues had; if for the country, by enclosing two stamps.

Fruit Trees from Surrey, and Roses from France.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, December 16, at half past 12 o'Clock precisely, a splendid lot of STANDARD, PYRAMIDAL, DWARF and TRAINED FRUIT TREES, Choice varieties from a well known Nurseryman in Surrey; RHODODENDRONS, LAURELS, HOLLIES, and 1000 STANDARD ROSES from France.

On view the Morning of Sale, and Catalogues had.

English Roses and Ornamental Shrubs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on MONDAY, December 21, at half-past 12 o'clock precisely, 1000 STANDARD and HALF-STANDARD ROSES, from a well-known English grower, comprising many very choice varieties. Also, a first-rate lot of hardy CONIFEROUS TREES and SHRUBS, ORNAMENTAL EVERGREENS, FRUIT TREES, RHODODENDRONS, &c., from one of the oldest established Nurseries in Surrey.

On view the Morning of Sale, and Catalogues had.

Winding-up Sale for this Season.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, on FRIDAY, Dec. 18, at 12 o'clock, a splendid Assortment of 1000 STANDARD, HALF-STANDARD, and DWARF ROSES, of very fine growth; Selected FRUIT TREES; EVERGREEN SHRUBS, comprising handsome plants of Thuja, Cupressus, Thujopsis, Variegated Hollies, Portugal and Common Laurels, Aucubas, Phillyreas, &c.; a choice Assortment of Hardy AMERICAN PLANTS, consisting of Scarlet and Hybrid Rhododendrons, Azaleas, Kalmias, Clematis, Wistaria, and other Climbers. Also 500 remarkably fine Bulbs of Lilium lancifolium rubrum and album; Gladiolus: with a fine Assortment of DUTCH BULBS, &c.

On view the Morning of Sale. Catalogues had at the Mart; and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Hornsey.

TO GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS ENGAGED IN PLANTING.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. George Cragg to SELL by AUCTION, on the Premises, Crouch End Nursery, near the King's Head, Hornsey, Middlesex, on MONDAY, December 21, at 12 o'clock, the ground being required immediately for building purposes, the whole of the NURSERY STOCK, consisting of Evergreens and Deciduous Shrubs, Ornamental, Fruit and Forest Trees; a fine assortment of about 300 Standard and Dwarf Roses, &c.

May be viewed one week prior to the Sale. Catalogues may be had on the Premises; at the Cock Inn, Highbury; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Sarsden, near Chipping Norton, Oxon.

EXTENSIVE AND IMPORTANT SALE OF FIRST-CLASS SHORT-HORNED CATTLE.

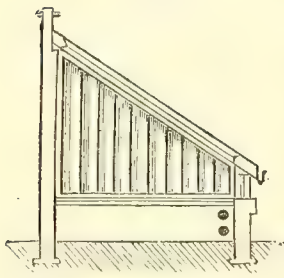
MR. STRAFFORD begs to announce that he is honoured with instructions from the Executors of the late J. H. Langston, Esq., M.P., to SELL by AUCTION, without any Reserve, on TUESDAY, March 22, the entire and far-famed HERD at Sarsden, consisting of about 100 head of BULLS, COWS, and HEIFERS, that have been long and carefully bred from animals purchased in the counties of Durham, Northumberland, and Yorkshire; some choice specimens have since been added from the Tortworth, Fawsley, Milcote, and other famed Herds, whilst Bulls of the highest breeding and character have been used, such as Prince (4772), Locksley (4240), Prince of Wales (8432), Lord Milton (10,461), General Elliott (10,266), &c., and latterly Gloster's Grand Duke (12,949), Archduke 2d (15588), and Royal Turk (16,875). The young stock are chiefly by Lord of the Harem (16,430), Royal Arch (18,749), and Royal Counsellor (20,725).

Catalogues, with pedigrees, will be issued in due time, and announced, with further particulars, in future advertisements.

London: 13, Euston Square, Dec. 12, 1863.

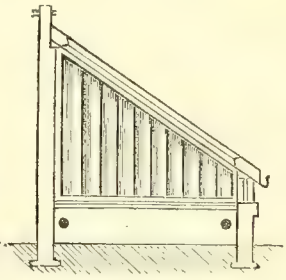
J. JONES'S HOT-WATER APPARATUS.

No. 7.



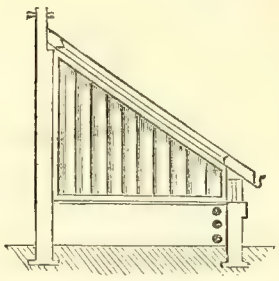
Size of House.	Price
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40 „ 15 „	15 0 0
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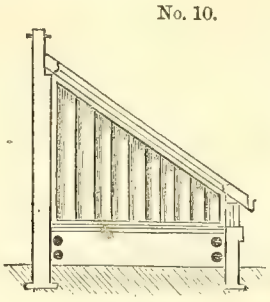
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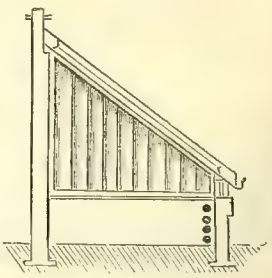
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No. 10.



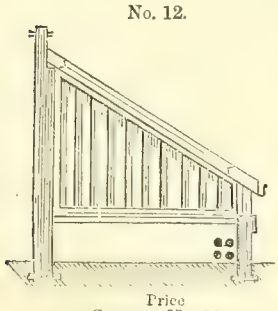
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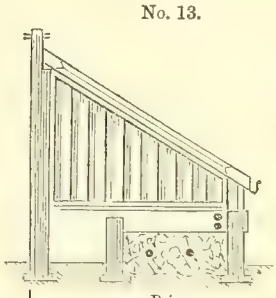
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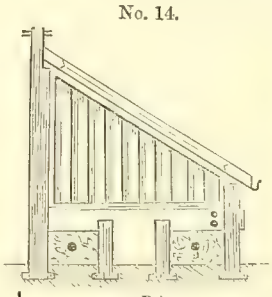
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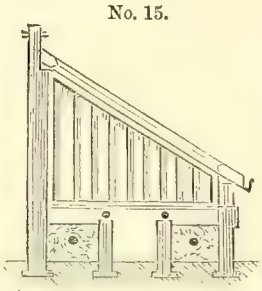
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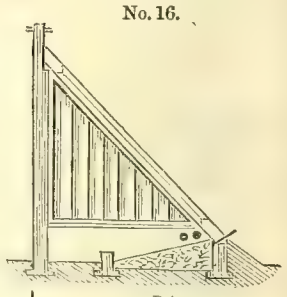
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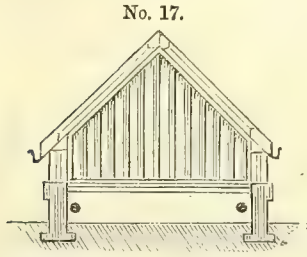
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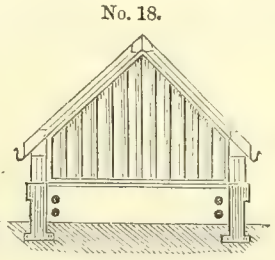
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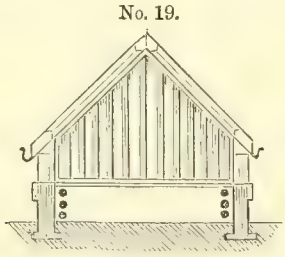
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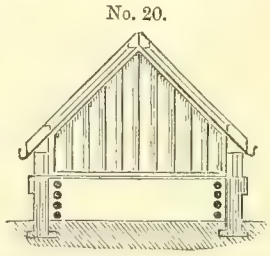
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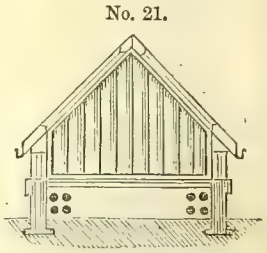
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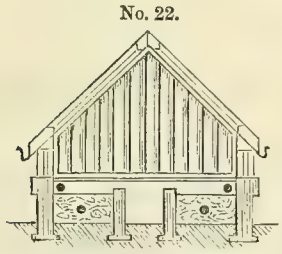
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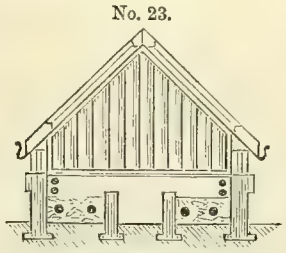
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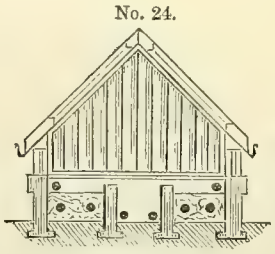
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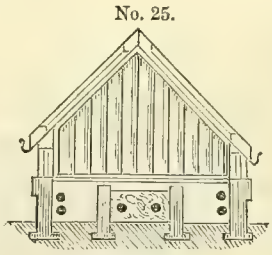
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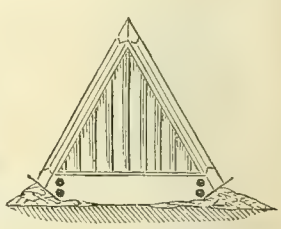
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No. 25.



Price
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25 0 0
30 0 0
35 0 0
40 0 0
45 0 0
50 0 0
55 0 0

No. 26.



Price
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

J. JONES will be happy to supply HOT-WATER APPARATUS for HOUSES according to any of the above Plans, delivered Free to any Station in England a the prices named, which include strong CAST-IRON CYLINDER or SADDLE BOILER, FURNACE DOORS, FIRE BARS, SOOT DOORS, CISTERN an DAMPER, 4-inch HOT-WATER PIPES and CONNECTIONS, all of the best quality; or he will forward ESTIMATES for WORK erected complete, with WROUGHp or CAST-IRON BOILER of any sort, at a small addition to the above prices.

☞ *The Black Circles on Sections of Houses show the arrangement of Pipes.*

Illustrated Catalogues and further particulars post free on application to

J. JONES, IRON MERCHANT AND HORTICULTURAL ENGINEER, 6, BANKSIDE, LONDON, S.E.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No 11, Bouverie St., in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, December 12, 1863.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 51.—1863.] SATURDAY, DECEMBER 19. {Price Fivepence. {Stamped Edition, 6d.

INDEX.

Agricultural progress	1209 *b*	Monthlies, noticed	1207 *a*
Appointments, recent	1203 *c*	Nandoo	1203 *c*
Autumn culture by steam	1213 *a*	Orchard houses	1205 *b*
Birmingham Root Show	1213 *c*	Pear, new	1204 *c*
Buds and birds	1205 *a*	Pears, bad keeping of	1203 *b*
Books noticed	1206 *a*	Rhododendron soils	1205 *a*
Bulb farms, Haarlem	1203 *a*	Roses, disbudding	1204 *b*
Calliphoræ involucrata	1205 *c*	Royal Agricultural College	1209 *b*
Cattle traffic	1213 *a*	Sale of Shorthorns	1209 *b*
Cheimoyer	1205 *a*	Sheep clipping	1213 *b*
Christmas flowers	1205 *a*	Society of Arts, discussion at	1211 *b*
Cotswold farming	1213 *a*	Society, Bot. of Edinburgh	1205 *c*
Crofton Hall	1207 *b*	— Entomological	1206 *a*
Dies Orchidianæ	1201 *a*	— West Cumberland	1215 *a*
Dionæa	1208 *a*	Steam cultivation, discussion on, at St. James's Hall	1214 *c*
Districts of stationary fertility	1210 *b*	Strawberry, French work on	1206 *b*
Drosera	1208 *a*	Swedes and Rape	1213 *c*
Fishes, vitality of	1208 *a*	Tales, Tom Moody's	1207 *a*
Flowers, stray notes on	1204 *a*	Testimonies to progress	1210 *b*
Fungusses, Badham on, rev.	1206 *a*	Vine borders	1205 *c*
Hyacinths, new	1203 *c*	Vine, perpetual fruiting	1205 *b*
Imports and sales	1209 *c*	Vines, a fact	1208 *c*
Loquat	1205 *a*	Walls, concrete	1208 *c*
Mangel growing	1213 *c*	Worms	1208 *c*

ADVERTISEMENTS *must reach the Office by* THURSDAY'S *post. They should be written on one side of the paper only.*

Fruiting Vines.

E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10*s.* 6*d.* each.
LIST of SORTS sent on application.
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Grape Vines.

PAUL AND SON beg to offer fine well-ripened Canes of all the best Sorts for Planting, 5*s.* each.
"Old" Cheshunt Nurseries, N.

Grape Vines.

WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery.
PRICED LIST on application.
PAUL's Nurseries and Seed Warehouse, Waltham Cross, N.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.
Highgate Nurseries, London, N.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

RED and BLACK CURRANTS. Splendid plants of the above, 50*s.* per 1000.
WOOD & INGRAM, Huntingdon.

Raspberry Canes.

FOR SALE, 23,000 of fine Young ANTWERP CANES.
Apply to Mr. STICKLAND, Estate Office, Belvedere, Kent.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to Mr. WEBB, Calcot Gardens, Reading.

THE LONDON SEED COMPANY, LIMITED, with which is AMALGAMATED the PLYMOUTH SEED COMPANY, LIMITED.
Offices: 68, Welbeck Street, Cavendish Square, London, W.

DOUBLE TUBEROSES, just imported, 3*s.* per dozen.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

SURPLUS STOCK of HYACINTHS, TULIPS, IRIS, IXIAS, &c. See Advertisement, page 1175 of *Gardeners' Chronicle.*
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

Hyacinths, Tulips, Crocuses, &c.

BUTLER AND MCCULLOCH'S importation of DUTCH BULBS are unusually fine this season.
CATALOGUES Post free upon application.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

NEW FUCHSIAS for 1863, at 5*s.* per dozen, including the most choice varieties.
JOHN TUCKER, The Nursery, Burnham, Somerset.
Post-office orders to be made payable at the Burnham Post Office.

NEW FUCHSIAS (post free). NORTHERN LIGHT and RIFLEMAN, now sending out; Blue and Mauve coloured Corollas. 5*s.* each.
EMPEROR of the FUCHSIAS, the most beautiful and elegant white corolla'd variety.
E. G. HENDERSON & SON, Wellington Road, London, N.W.

NEW CHRYSANTHEMUMS of 1863.—Strong Plants of the above, including the Japanese varieties, are now ready at 5*s.* per dozen.
W. HOLMES, Frampton Park Nursery, Hackney.

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Dorking Nursery.

Nursery Lists, Wholesale and Retail.

RICHARD SMITH, NURSERYMAN and SEED MERCHANT, St. John's, Worcester.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Best Seeds, Carriage Free.

BUTLER AND MCCULLOCH, SEED MERCHANTS.
WANTED to PURCHASE, a few Tons of DANDELION Roots.
Covent Garden Market, London, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS, Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS, SEED GROWERS and MERCHANTS, Royal Berkshire Seed Establishment, Reading.

Yorkshire Seed Establishment.

EDMUND PHILIP DIXON AND SONS, SEED MERCHANTS and NURSERYMEN, 57, Queen Street, Hull.

GENUINE GARDEN, FLOWER, and AGRICULTURAL SEEDS.
JAMES VEITCH, King's Road, Chelsea, London, S.W.
CATALOGUES post-free on application.

THE LONDON SEED COMPANY, LIMITED.
REGISTERED OFFICES:
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RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Choice Camellia Blooms.

LUCOMBE, PINCE AND CO. have now a large quantity of extra-fine CAMELLIA BLOOMS for disposal, which can be securely packed and sent to any distance with safety. Price on application.
Exeter Nursery, Exeter.

Choice Pine-apples.

LUCOMBE, PINCE AND CO. have now ripe some splendid PINE-APPLES, of very superior quality, which they are offering at Market price.
Full particulars may be had on application.
Exeter Nursery, Exeter.

Royal Nursery, Great Yarmouth.

YOUELL AND CO.'S New CATALOGUE of GREENHOUSE PLANTS, Rare and Hardy CONIFERÆ, SHRUBS, GLADIOLI, &c., is ready, and will be forwarded on application.

Handsome well-shaped Spruce Firs for Christmas Trees.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.
WM. WOOD AND SON have a large Stock of the above. Prices and all particulars furnished on application, addressed as above.

SPRUCE FIRS for CHRISTMAS TREES, symmetrical and very handsome, price 50*s.* to 75*s.* per 100; or from 6*d.* to 2*s.* 6*d.* each, according to size and quality.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Mulberry Trees.

TO BE SOLD, Cheap, SIX very handsome ones, about 9 years old.
Apply Swiss Cottage, John Street, Albany Road, Old Kent Road.

WEYMOUTH PINES, Twice Transplanted, 3 to 4 feet, fine, 15*s.* per 100. Usual Discount to the Trade.
STUART & MEIN, Nurseries, Kelso, N.B.

Laurels.

FOR SALE, several Thousands of well-grown and thriving LAUREL PLANTS, from 2 to 3 feet high, delivered at the Tisbury Station [illegible] London and South-Western Railway, in quantities not less than 1000, at 25*s.* per 1000. Apply to Mr. JEFFERY, Old Wardour Castle, Salisbury.

WANTED to PURCHASE, 100 POPLAR TREES, about 10 feet high (not Balsams). Send price, carriage paid, to Paddington or Kensington Stations.
Address Cheese's Retreat, Shepherd's Bush, London, W.

WANTED, 20,000 extra strong Transplanted CRAB STOCKS, and 20,000 extra strong Transplanted ASH, 4 to 5 feet. Lowest cash price to
JOHN PERKINS, 52, Market Square, Northampton.

To Nurserymen.

WANTED, 20,000 Transplanted LARCH, 2 to 3 feet, delivered in London. State lowest cash price.
Address Mr. MORRIS, Gardener, Pluckley, Kent.

To Contractors and Others.

A LARGE SPACE (probably 40 acres, more or less) within 12 miles of London, is required to be CLEARED of FURZE and BUSHES within a limited time.
Apply by letter to C. D., Post Office, Wimbledon, Surrey, S.W.

New Roses.

PAUL AND SON beg to offer in addition to all the older kinds (see large Advertisement of last week), fine Plants of the best of the NEW ROSES of last spring at reasonable prices.
Old Cheshunt Nurseries, N.

ROSES.—CATALOGUES for 1863 and 1864 forwarded free on application.
JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

ROSES, NEW and OLD. CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

ROSES.—Superb STANDARDS, 18*s.* per dozen; Ditto ditto DWARFS, 12*s.* per dozen. NEW ROSES of 1863: DWARFS, 36*s.* per dozen.
DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ROSES, Fine STANDARDS, 18*s.* per dozen and upwards; DWARFS, 9*s.* per dozen and upwards. NEW ROSES of 1863: DWARFS, 30*s.* to 36*s.* per dozen.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

New Rose Catalogue for 1863-64.
New Bulb Catalogue for 1863.
WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.
WM. WOOD AND SON will be happy to send copies of the above gratis and post free to all applicants.

TO THE TRADE.—We beg to draw the attention of the Trade to the reasonable Prices at which we offer really fine STANDARD and DWARF ROSES this season. PRICED WHOLESALE LIST free (on receipt of business card from unknown Correspondents.)
PAUL & SON, Old Cheshunt Nurseries, N.

LAPAGERIA ROSEA.—Six of the BEST NEWLY-GATHERED SEEDS of this magnificent Climber, Post-free, for Half-a-Crown.
JAMES DICKSON & SONS, 102, Eastgate Street, Chester.

Agricultural, Garden and Flower Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E.
SPECIAL LISTS of SEEDS (crop 1863) gratis on application.
Prices the lowest consistent with first-class quality.

ASPARAGUS PLANTS.—Several Thousand Three-years' ASPARAGUS Plants, strong, in any quantity.
For price, apply to ALFRED GOSLING, Tower Nurseries, Heathfield, Sussex.

CARTER'S CHAMPION BROCCOLI, the best Late White Broccoli in cultivation, 1*s.* per packet.
JAMES CARTER & Co., 238, High Holborn, W.C.

TO THE SEED TRADE.—CARTER'S CHAMPION CUCUMBER, HIGHLAND MARY, VICTORY OF BATH, and others.
Prices on application to STEPHEN BROWN, Seed Grower, Sudbury, Suffolk.

REYNOLDS' PERPETUAL BEARER is the most useful and prolific CUCUMBER in cultivation. Can be had in packets containing Six Seeds for 1*s.* 6*d.*, of Messrs. HURST & SON, Seedsmen, Leadenhall Street, London; and of GEORGE EDWARDS, Seedsman, 1, King Street, York.

Broccoli, Snow's Winter White (True).

ROBERT PARKER begs to announce that he can supply a few pounds of SEED (harvested this season) of this scarce and valuable variety. Price per pound on application.
Exotic Nursery, Tooting, Surrey, S.

Fine Forcing Sea Kale.

GEORGE CLARKE has a very large quantity of very stout clean Roots again for Sale this year. Prices on application.
Nursery, Streatham Place, Brixton Hill, near London, S.

PEAS.—DANIEL O'ROURKE, EARLY PRIZE-TAKER, WOODFORD'S MARROW, CHAMPION of ENGLAND.
For Samples and Prices apply to C. SHARPE & Co., Seed Merchants, Sleaford.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12*s.* per bushel.—Application at the Gardens at Calcot, near Reading.

SEED POTATOS: TRUE SKERRY BLUES.—For QUALITY, PRODUCTIVENESS, and FREEDOM from DISEASE A 1, at 20*s.* per sack of 4 imperial bushels, sack included. Larger quantities at special rates.
JOHN E. NELSON, Rinefield, Lymington, Hants.

Seed Potatoes.

H. AND F. SHARPE are now taking orders for all the principal varieties of Seed Potatoes, including MYATT'S EARLY PROLIFIC KIDNEY, and EARLY DARMAHOY (round), the earliest and most productive varieties in cultivation. The quality is very fine and prices low.
Seed Growing Establishment, Wisbech.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified in the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6*l.* per Ton, or 8*s.* per cwt.; and to prevent disappointment, orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Tobbicston, St. Ives, Hunts. Sacks, 2*s.* each.

American Plants.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE for the present Season is now ready, and will be forwarded free to all applicants. As well as American Plants, it contains a summary of their General Nursery Stock, one of the most extensive in the kingdom.

Knap Hill Nursery, near Woking, Surrey.

Gladiolus Brenchleyensis.

YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3s. per doz. ; 20s. per 100.

Trade price on application,

Royal Nurseries, Great Yarmouth, Norfolk.

Prize Gladioli.

YOUELL AND CO. were awarded the following PRIZES for the above in September last :—

FIRST AND SECOND PRIZE, CRYSTAL PALACE,
FIRST PRIZE, ROYAL HORTICULTURAL SOCIETY,
FIRST PRIZE, BRIGHTON.

CATALOGUES of this collection will be forwarded on application.

Royal Nurseries, Great Yarmouth, Norfolk.

Choice Gladioli.

B. S. WILLIAMS has great pleasure in announcing that he has a Choice Collection of each class of these popular Bulbs. Also a Select List of the New Varieties raised this year. The Bulbs are very fine, and early orders are respectfully solicited.

Collection of 24 Choice Varieties, one root of each, for 21s.
Choice named Varieties, 6s., 8s., and 10s. per dozen.
A PRICED and DESCRIPTIVE LIST on application.

Paradise and Victoria Nurseries, Holloway, London, N.

Gladiolus Bowiensis, brightest and best of its class.

THOMAS BARNES offers fine Bulbs of the above at following prices, according to size:

Per 100 : 8s., 10s., 12s , & 16s. Per 1000 : 70s., 80s., 100s , & 140s.

When 5000 and more are taken at once, a great reduction will be made on either price.

Dane Croft Nurseries, Stowmarket.

Notice.

JOHN WATERER, of The American Nursery, Bagshot, Surrey, is the EXHIBITOR of RHODODENDRONS at the Royal Botanic Gardens, Regent's Park.

His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151.

Rhododendrons.

CRIMSON, WHITE, PURPLE, AND SCARLET.

CHARLES NOBLE has RECEIVED the AWARD of the Royal Horticultural Society as under FOR RHODODENDRONS.

FIRST PRIZE, 1861.
FIRST PRIZE, 1862.
FIRST PRIZE, 1863.

CATALOGUES are now ready, and a stock of Plants in the most perfect health, of all sizes, and at prices to suit all purposes. Sunningdale Nursery, S.W. Rail.

GEO. BAKER begs to announce that his extensive Collections of Hardy RHODODENDRONS, GHENT AZALEAS, and KALMIA LATIFOLIA, are unusually well set with bloom, and his fine Collection of CONIFERS in the best possible condition.

CATALOGUES on application at the American Nursery, Bagshot, Surrey. The Nurseries are about 1 mile from Sunningdale Station, South-Western Railway.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to

Mr. WEBB, Calcot Gardens, Reading

Beck's New Pelargoniums,

OFFERED FOR THE FIRST TIME.

B. S. WILLIAMS begs to announce that he is now prepared to supply strong plants of the above, which have received certificates of the highest merit during the past and previous seasons. They have been selected with great care, and are far in advance of any yet offered.

For descriptions and prices see *Gardeners' Chronicle*, Oct. 24; also in CATALOGUE, which can be had on application.

Paradise and Victoria Nurseries, Holloway, London, W.

LOUIS VAN HOUTTE, NURSERYMAN and SEEDSMAN, Ghent, Belgium, begs to call attention to his Four New PRICE LISTS, No. 97, 98, 99, and 100, containing the Stove, Greenhouse, Hardy Plants, Seeds (262 pages 12mo).

Agents in London : Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

To the Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED MERCHANT, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and will be forwarded free on application to his Agent, GEO. MACINTOSH, Nurseryman, High Road, Hammersmith, W., to whom all communications should be addressed.

Double Italian Tuberose Roots, 4s. per Dozen.

A. COBBETT, FOREIGN WAREHOUSE, 18, Pall Mall, W., has the pleasure to inform all Amateurs and Gardeners that he has just received from Italy his usual Annual Importation of this beautiful and fragrant Flower; and has much pleasure in announcing that the Roots are very large, and in splendid condition.

N.B. Directions for Planting sent with each order.

Choice Camellias and Indian Azaleas.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer, the selection being left to him :—

100 DOUBLE CAMELLIAS, in 50 or more varieties (without bud), nice young plants, 6 to 9 inches high, for 4*l*.

100 small INDIAN AZALEAS, dwarf grafted plants with flower-buds, in 50 fine varieties, for 3*l*.

For the above no packing is charged, and only 5*s*. per package for carriage to London.

A. V. G. begs to say that not less than a hundred Plants of the above can be supplied for the quoted prices.

Agents in London, Messrs. R. SILBERRAD & SON, 5, Harp Lane.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants.

ALOCASIA METALLICA, 7*s*. 6*d*. to 63*s*. each.
AZALEA INDICA, finest named varieties, set for flower, grafted plants of English growth, from 18*s*. per dozen.
CENTAUREA RAGUSINA (CANDIDISSIMA), 12*s*. per dozen.
RHODODENDRON, COUNTESS of HADDINGTON, 21*s*. each.
RHODODENDRONS, fine named hardy varieties set for flower, from 30*s*. per dozen.
ROSES, DWARFS, finest varieties of Hybrid Perpetual, extra strong plants from 12*s*. per dozen.
STATICE PROFUSA (RATTRAYANA), 3*s*. 6*d*. each.
STRAWBERRIES, finest varieties, from 1*s*. 6*d*. per 100.
VINE TYNNINGHAME MUSCAT, 3*s*. 6*d*. to 7*s*. 6*d*. each.
VINES, of sorts, all the best varieties, from 3*s*. 6*d*. each.

PRICED and DESCRIPTIVE CATALOGUES of Greenhouse, Hardy, and Stove Plants, Seeds and Bulbs, are published, and will be forwarded to all applicants.

Exotic Nursery, Tooting, Surrey, S.

SPRING EXHIBITIONS.—The following will be found worth the attention of Cultivators, as the finest kinds for competition, also for Winter and Spring Display in the Conservatory. The quality of all is first-class :

PRIMULA SINENSIS, with Fimbriated Flowers.

P. ALBA	P. CARMINATA RUBRA
P. RUBRA	P. FILICIFOLIA
P. PICTA	P. ,, ALBA.

PRIMULA SINENSIS, with Double Flowers.

NIVEA PLENA	ALBA PLENA FIMBRIATA
ALBA PLENA	ATROROSEA PLENA FIMBRIATA.
ROSEA PLENA	
RUBELLA PLENA	

CALCEOLARIA PLANTS.—This stock is carefully hybridised.

CINERARIA PLANTS.—Best sorts, by name.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.



Orders amounting to 21s. sent Carriage Paid.

SURPLUS STOCK of BULBS for PRESENT PLANTING.

	s.	d.
HYACINTHS, mixed, all colours .. per 100	15	0
,, splendid named varieties per doz.	4	0
,, POMPON, mixed, all colours .. .. per 100	15	0
,, ,, named varieties .. .. .. ,,	21	0
TULIPS, EARLY SINGLE, splendid mixed, all colours per 100,	7	0
,, ,, ,, named varieties per 100,	7	6
,, ,, DOUBLE, splendid mixed, all colours per 100,	7	0
,, ,, ,, named varieties per 100,	7	6

	s.	d.
IRIS, ENGLISH, splendid mixed .. .. per 100	5	6
,, ,, ,, named varieties .. ,,	7	6
,, SPANISH, splendid mixed .. .. .. ,,	5	6
,, ,, ,, named varieties .. ,,	7	6
IXIAS, SPARAXIS, TRITONIAS, and BABIANAS, splendid mixed .. .. per 100	5	6
IXIAS, SPARAXIS, TRITONIAS, and BABIANAS, splendid named .. .. per 100	7	6
LILY of the VALLEY .. .. ,,	5	6
DOG'S-TOOTH VIOLETS .. .. ,,	5	6
WINTER ACONITES .. .. ,,	2	6

SURPLUS COLLECTIONS OF BULBS.

No. 14. Collection for the Flower Garden, £2 2s.; Half, £1 1s.; Quarter, 10s. 6d.

50 HYACINTHS	50 IRIS	6 ARUMS	12 ALLIUMS
150 NARCISSUS	30 IXIAS	12 WHITE LILIES	12 ORNITHOGALUM
200 TULIPS	30 SPARAXIS	50 DOG'S-TOOTH VIOLETS	12 WATSONIAS
300 CROCUS	30 SCILLAS		50 WINTER ACONITES

No. 15. Collection for the Sitting Room and Conservatory, £2 2s.; Half, £1 1s.; Quarter, 10s. 6d.

25 HYACINTHS for Glasses	25 POLYANTHUS NARCISSUS	200 SEEDLING CROCUS
25 HYACINTHS for Pots	25 DOUBLE SWEET-SCENTED JONQUILS	25 IXIAS
25 POMPON HYACINTHS	50 TULIPS in 16 varieties	25 SPARAXIS

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN

WHITE TOM THUMB GERANIUM.

MESSRS. E. G. HENDERSON & SON

Beg to offer the above as the finest WHITE BEDDING GERANIUM yet raised for beds or pots. It is a Seedling from Madame Vaucher, and surpasses that variety in being more dwarf and compact, with smaller leaves, a more prolific and continuous bloomer, the flowers being long retained upon the plant; the truss is globular and full, like the Globe Scarlet, but in greater abundance.

ILLUSTRATED BY MISS SOWERBY.

Will be sent out in the Spring of 1865.

P.S. In consequence of observing a plant in the same section offered by Messrs. Jas. Carter & Co., as Geranium Snowball, purporting to be the best in its class, and alleged by them to have been proved two seasons against all the best varieties by the raiser, Mr. Jas. Keeler, Messrs. E. G. HENDERSON deem it their duty to contradict this statement. First, from the fact that the plants are the produce of seed sown only two years since last October, and which, on being bloomed the first year in pots, were submitted to us, but we requested them to be flowered a second year to confirm our choice and selection of the best. Secondly, that the variety offered by them was but the remnant of the batch of Seedlings raised by Mr. Keeler, from which Messrs. E. G. HENDERSON & SON had previously selected the finest for a considerably higher sum, the variety offered as Bel Demonio being considered much inferior to many others in cultivation, in evidence of which we offer the annexed confirmation of the present remarks :—

AFFIRMATION.

The variety of Bedding Geranium named Snowball, and offered by advertisement from Messrs. Jas. Carter & Co., was raised by, and purchased from me, but in being declared by them, that the variety thus offered has been proved against and superior to all other white varieties for two seasons, is incorrect, it being impossible to prove them by the first season's bloom. The finest and most valuable variety in the same batch of seedlings was previously sold to Messrs. E. G. HENDERSON & SON for a much larger sum—therefore I affirm that the one offered by Messrs. Carter & Co. was but of inferior merit compared with the White Tom Thumb raised by me, and now offered to notice by Messrs. E. G. HENDERSON & SON.

(Signed) JAMES KEELER.

December 16, 1863.

ERANTHEMUM RUBROVENIUM.

A dwarf decumbent hothouse plant, with the most beautiful and interesting coloured leaves that have been introduced for a considerable time. It is of easy culture, and covers the pot with comparatively broad, neat, even-surfaced oblong ovate leaves, elegantly veined and notted with rich deep rosy pink lines, after the style of the beautiful Ancectochilus. 10*s*. 6*d*. each.

DRACÆNA TERMINALIS PENDULA.

A new and picturesque leaved hothouse shrub, in the style of the parent type, but with broader and somewhat wavy pendulous leaves, richly flaked or banded with flame-crimson. The most beautiful for decoration in large drawing-room vase, table, or warm conservatory groups. 21*s*. each.

For other NEW PLANTS of the Season see the *Gardeners' Chronicle*, November 21st, p. 1103. In the same Paper at p. 1102, is described the finest known strain of SWEET WILLIAM, as exhibited last summer, and illustrated by Miss SOWERBY.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

Roses.

EDWIN HOLLAMBY has the pleasure of informing the Nobility and Gentry that his extensive Stock of STANDARD and DWARF ROSES of all the leading kinds in cultivation is in the finest possible condition; fine straight stems, fine heads, and beautifully rooted. Purchasers of large quantities will be liberally dealt with.

DESCRIPTIVE PRICED CATALOGUES for the present season will be forwarded gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells; and Goldsmith's Park, Groomsbridge, Kent.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

Great Reduction in the Price of Roses.

NOT TO BE UNDERSOLD BY ANY RESPECTABLE HOUSE IN THE TRADE.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

Since issuing their NEW ROSE CATALOGUE for the Autumn of 1863 and the Spring of 1864,

WILLIAM WOOD AND SON have ascertained that other Houses in the Trade are offering some kinds of Roses at a lower rate than themselves, and as they are fully determined NOT TO BE UNDERSOLD by any RESPECTABLE House, they have prepared a REVISED LIST of ROSES at reduced prices, and will have much pleasure in forwarding copies of the same, Gratis and post-free, to all applicants.

Roses.

JOHN CRANSTON offers selections of STANDARD and DWARF ROSES of very superior quality.

The robust growth and hardy constitution of the plants grown in this Nursery has long been acknowledged, and the Stock to offer this season is perhaps superior to any previous growth.

He also begs to direct attention especially to DWARF ROSES on the Manetti stock, of which he has an enormous stock.

The plants upon their own roots are also very strong and well grown.

	Per dozen—s.	d.
STANDARD ROSES of all the leading varieties in cultivation	18	0
Do. Newer varieties, introduced in 1861 and 1862	24	0
DWARF ROSES, extra fine plants upon the Manetti stock .. .. 9s. to	12	0
Do., do., upon Dog-rose stock	9	0
Do. Newer Varieties, introduced in 1861 and 1862 15s. to	18	0
Do., do., of 1862 and 1863 .. ..24s. to	30	0
STANDARD and HALF-STANDARD TEA-SCENTED ROSES, all the best varieties	24	0
DWARF ROSES upon their own roots, Hybrid Perpetuals, and Bourbons .. .. 9s. to	12	0
Do., do, Tea-scented .. ..12s. to	15	0
CLIMBING ROSES	9	0
PILLAR ROSES, extra strong plants, 4 to 5 feet 12s. to	15	0
STANDARD WEEPING ROSES .. . each 2s. to	2	6
ROSES in 8 and 9-inch pots grown especially for Forcing or Greenhouse culture, the best Hybrid Perpetuals, China, and Tea-scented varieties . .. ..24s. to	30	0

DESCRIPTIVE CATALOGUES forwarded free on application.

Nurseries, King's Acre, near Hereford.

Paul's Nurseries, Waltham Cross, N.

ROSES.—Superior STANDARDS, 18s. per dozen and upwards; Do. DWARFS, 9s. per doz. and upwards.

All the NEW ROSES, including BEAUTY of WALTHAM, MRS. WM. PAUL, and LORD MACAULAY (three of the best), at the lowest advertised Prices. The new PRICED CATALOGUE is now ready, free by Post.

FRUIT TREES.—Apples, Pears, Plums, Cherries, Apricots, Peaches, Nectarines, Figs, Grape Vines, Gooseberries, Currants, Raspberries, Strawberries, &c. All the really desirable sorts in perfect condition for transplanting at lowest advertised prices. Fruit-bearing trees of the first seven fruits may be had suitable for potting for orchard house culture, from 18s. to 30s. per dozen. PRICED CATALOGUE free by post.

PLANTING.—Planting to any extent, with or without the supervision of the trees, &c., till established, undertaken in any part of the United Kingdom. The rich and varied collection of Trees and Shrubs growing in one Nursery of 30 Acres, have been removed within three years, which is almost a guarantee of success in transplantation.

WM. PAUL (Son and Successor to the late A. PAUL), Nurseries and Seed Warehouse, Waltham Cross, N. Entrance from the platform, Waltham Station (Great Eastern Railway), half-an-hour's ride from London.

Roses.

GEO. PARSONS, NURSERYMAN and SEEDSMAN, by Special Appointment, to her Majesty, begs to offer fine STANDARD ROSES, from 2½ to 4 feet stems, at 15s. per doz., or 5l. per 100; DWARFS (none better in England), 9s. per doz., or 65s. per 100. The new varieties of 1862 and '63 at proportionate prices. CATALOGUES free on application.

Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

New and Choice Plants.

B. S. WILLIAMS invites inspection of his large and well assorted Collections of EXOTIC ORCHIDS, FERNS, and LYCOPODS, MISCELLANEOUS STOVE and GREENHOUSE PLANTS, VARIEGATED and ORNAMENTAL FOLIAGED PLANTS, TREE FERNS, &c., amongst which are some very fine specimens.

A DESCRIPTIVE and PRICED CATALOGUE post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

JAS. GARAWAY AND CO.'S AUTUMN CATALOGUE for 1863, containing Priced Lists of Shrubs, Ornamental Trees, Conifers, Roses, and Fruit Trees of all descriptions, is now ready, and will be forwarded Post-free on application.

Orders exceeding 5l. Carriage Paid to the Irish ports in direct communication with Bristol.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER, (late GEO. CHIVAS) Chester, offer SEVEN MILLIONS of TRANSPLANTED LARCH from 1½ to 4½ feet, the quality is unexceptionable; and FOUR MILLIONS of TRANSPLANTED THORNS, a very large proportion of which are four years old, and of extra strength; together with corresponding proportions of SPRUCE, SCOTCH OAK, &c.; and a most extensive general Nursery Stock.

For Prices and Conditions of Free Delivery see CATALOGUE, which will be forwarded on application.

SPECIAL OFFER of SHRUBS and TREES.—The Subscriber having an abundant Stock of the following, he is prepared to offer same much below the usual rates. The undernoted is well worthy the attention of the Trade and parties about to plant, the Subscriber's Nursery having been for the past 50 years famed for producing particularly fine rooted plants. Prices per 100 and 1000 on application.

AUCUBA JAPONICA, 12-inch; APPLE STOCKS, 1-year do. 2 feet, Transplanted; ARBORVITÆ, AMERICAN, 1-year laid, 6 to 12-inch; AZALEA PONTICA, 12-inch; BARBERRY, COMMON, 12-inch; BIRD CHERRY, 2 to 3 feet; BIRCH, Transplanted, very scarce, 1½ feet; RED CEDARS, 9-inch; CUPRESSUS MACNABIANA, 2 feet; CUPRESSUS THUJOIDES, 6-inch; EUGENIA UGNI; 3-year SEEDLING SILVER FIR; 2-year SEEDLING HAZEL; GREEN HOLLIES; 1-foot LAUREL, COMMON; 1 to 3-feet PEAR STOCKS; 1-year SEEDLING, and 2½-feet Transplanted PINUS CEMBRA, 3-feet, very fine specimens; PINUS AUSTRIACA, 1 to 2-feet; QUINCE STOCKS, 2 feet, very fine stems. SPURGE LAUREL, 1 to 2 feet.

ROBERT T. MACKINTOSH, Nurseryman and Seedsman, 12, Melbourne Place, George IVth Bridge, Edinburgh.

Nursery, Leith Walk.

Fruit Trees.

JOHN CRANSTON offers superior, healthy grown plants of all the best varieties of FRUIT TREES, DESCRIPTIVE CATALOGUES of which will be forwarded on application.

	Each.—s.	d.
APPLES.—Very fine Dwarf-trained	2	6
,, Pyramids	2	6
,, Standards .. .. 2s. to	2	6
APRICOTS.—Dwarf-trained .. .. .. 3s. 6d. to	5	0
,, Standard-trained .. .. 5s. to	7	6
CHERRIES.—Dwarf-trained .. .. .. 3s. 6d. to	4	6
,, Pyramids .. .. 2s. 6d. to	3	6
GRAPE VINES.—Standards	2	6
,, Very fine and well-ripened .. .. 3s. 6d. to	5	0
NECTARINES.—Dwarf-trained .. .. 3s. 6d. to	5	0
,, Standard-trained .. .. 5s. to	7	6
PEACHES.—Dwarf-trained .. .. .. 3s. 6d. to	5	0
,, Standard-trained .. .. 5s. to	7	6
PEARS.—Dwarf-trained..	3	6
,, Pyramids .. .. 2s. 6d. to	3	6
,, Standards	2	6
PLUMS.—Dwarf-trained .. .. .. 3s. 6d. to	4	6
,, Standards	2	6
WALNUTS.—Standards	2	6
,, Extra strong .. .. 3s. 6d. to	5	0

GOOSEBERRIES, CURRANTS, FIGS, RASPBERRIES, STRAWBERRIES, &c.

PEACHES, NECTARINES, and APRICOTS, established in Pots for Orchard House Culture, 5s. each.

ASPARAGUS, two years	2s. 6d.	per 100
SEA KALE, ,, ...	8s.	per 100

Nurseries, King's Acre, near Hereford.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANSPLANTED FOREST TREES, &c.

Apply to GEO JACKMAN & SON, Woking Nursery, Surrey.

JOSEPH SMITH, SEN., Tansley Nursery, Matlock, Derbyshire, begs to intimate that his CATALOGUE of GENERAL NURSERY STOCK is now ready, which he will be happy to forward on application. It contains a large stock of Forest Trees, Hardy Evergreens, Ornamental Trees and Shrubs, American Plants, &c.

The Nursery is in a very exposed situation, the soil of a fibrous nature, and the plants take up with excellent roots, such as to ensure the best success in their removal.

Nurseries, Clonmel, Ireland.

THE UNDERSIGNED is prepared to make a special offer of the following well-grown Plants, viz.:—

40,000 Beech, 3 and 4 ft. high.	5000 Evergreen Privet, 2 to 3 ft.
8,000 Ash, 3 and 4 ft. high.	3,000 Tree Box, 1½ to 2 ft.
1,500 Sweet Bays, 1½ to 2 ft. do.	100 Phormium tenax.

With a large and well-assorted Nursery Stock.

JOSEPH HIGGINS.

PALM SEEDS, Just Received.—14 BRAZILIAN, 4 MAURITIAN, 5 WEST AFRICAN, 21s. per 100; 4 CENTRAL AMERICAN (New) 30s. Urania speciosa, Madagascar, 15s. Xanthorrhœa, Tasmania, 10s.

W. CUTTER, Naturalist, Importer of Seeds, Shells, &c., Crystal Palace, Sydenham.

WANTED, several Thousand young Plants of LAURUSTINUS, RHODODENDRONS, PORTUGAL LAUREL, BOX, HOLLY, AUCUBA, Double FURZE, ROSES to name, &c. Also young hardy Nursery Stock generally, and Seedlings in stores or otherwise. Price per thousand, with full particulars of age, size, &c.,

T. S. WARE, Hale, Tottenham, Middlesex, N.

15 Qrs. HAIR'S DWARF MAMMOTH PEAS.
10 Qrs. DICKSON'S FAVOURITE PEAS.
14 Qrs. FAIRBAIRD'S SURPRISE PEAS.

E. P. DIXON AND SONS, having a Surplus Stock of the above, can offer them to the Trade, low. Price on application.—57, Queen Street, Hull.

THE YORKSHIRE HERO PEA.—A splendid Wrinkled Marrow, dwarf, early and prolific.

For Testimonials we beg to refer to the *Gardeners' Chronicle*, Dec. 5, p. 1152.

Supplied in London by the following:—

Messrs. HURST & SON, 6, Leadenhall Street.
,, COOPER & BOLTON, 152, Fleet Street.
,, JACOB WRENCH & SONS, London Bridge.
,, BECK, HENDERSON, & CHILD, 221 & 222, Upper Thames Street.

TO THE SEED TRADE.

DICKSON'S FAVOURITE PEAS, 7s. per bushel.
BLUE SCIMITAR, 8s. per bushel.
NE PLUS ULTRA, 10s. 6d. per bushel.
WEBB'S IMPERIAL KIDNEY POTATO, 6s. per bushel, or 11s. per cwt.
GLOUCESTERSHIRE KIDNEY, 6s. per bushel, or 11s. per cwt.

Terms cash.

W. MINCHIN & SON, The Nurseries, Hook Norton, Oxon.

NEW VEGETABLES.

DALMENY SPROUTS.—"This is a new Vegetable, raised by Mr. Melville, of Dalmeny Park, Edinburgh, and is the result of a cross between the common heading Cabbage and Brussels Sprouts. The growth is the same as that of Brussels Sprouts, being a tall stem, a foot high, thickly set with sprouts or small Cabbages, and terminated by a Cabbage of medium size. It differs from Brussels Sprouts in being altogether a Cabbage; while the latter is a form of the Savoy. It was Awarded a First-class Certificate by the Royal Horticultural Society of London, April 9, 1861." —*From the Gardeners' Year Book for* 1862, *by Robert Hogg, LL.D., F.L.S.*

The flavour is that of the Cabbage, and free from the Savoy Sprout taste. After the tops are cut off, a fine succession of sprouts is obtained for a lengthened period. 1s. per Packet.

FEARNOUGHT CABBAGE.—A hybrid between the Early Dwarf Cabbage and the Hearting Scotch Green. Withstands frost and damp better than any other of the Brassica family. Is more delicate and well flavoured than the Early Dwarf Cabbage. Can be had fit for use from November till spring Cabbages are ready. Awarded First-class Certificate by the Royal Horticultural Society of London, March 11, 1861. Per Packet, 6d.; per oz., 2s.

NEW NEMOPHILA.

NEMOPHILA AURICULÆFLORA.—The handsomest of all the new varieties; resembles the Auricula in size and appearance; it is of finer habit than any other of its class, being dwarf and distinct, like a close-growing Verbena. It is remarkably hardy, and stands the winter well. Flowers, dark chocolate, with a distinct pure white border. It was awarded a Commendation by the Royal Horticultural Society's Floral Committee, July 7, 1863, and described as "A handsome variety, with a well-defined pure white margin." 1s. per packet.

Prices to the Trade on application.

The undermentioned Seed Merchants can supply the above, having received a supply direct from STUART & MEIN:—

BUNYARD & SONS	Maidstone, Kent
CAMPBELL & SON	7, Eden Quay, Dublin
DICKSON & BROWN ..	Corporation Street, Manchester
DEAN	Bradford Nursery, Shipley, Yorkshire
DREGHORN & AITKEN ..	Kilmarnock, N.B.
FINNEY & Co.	Gateshead
FISHER, HOLMES, & Co. ..	Sheffield
FAIRHEAD & SON	Borough Market, London
HOOPER & Co.	Covent Garden, London
HENDERSON & Co. ..	Pine-apple Place, Edgeware Road, London
MARTIN & SONS	Hull
NUTTING & SONS	Barbican, London
PONTEY	21, Cornwall Street, Plymouth.
SUTTON & SONS	Reading.
TURNER	Royal Nurseries, Slough.
TAYLOR	Maldon, Yorkshire.
THE LONDON SEED COMPY.	Welbeck Street, London.
VEITCH	Royal Exotic Nursery, London.
VILMORIN ANDRIEUX & Co.	Paris.
WILLIAMS	Paradise Nursery, London.
WOOD & SON	Maresfield, Uckfield.
WITTEY & SON	Cottingham, near Hull.

STUART & MEIN, Seed Merchants, Kelso, N.B.

ESTABLISHED UPWARDS OF A CENTURY.

EXHIBITION PRIZE MEDALS 1851 and 1862.

BUTLER & McCULLOCH,

SEED MERCHANTS,

COVENT GARDEN MARKET, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS for 1864,

OF THIS YEAR'S GROWTH.

Carriage Free. Five per Cent. allowed for Cash.

A London reference or remittance requested from unknown correspondents.

No. 1.	**Containing 28 quarts Peas and Beans, and all other Seeds requisite for the Kitchen Garden in proportion**	...	...	...	...	...	...	**£3**	**3**	**0**
No. 2.	**Containing 16 quarts Peas and Beans**		**ditto**		**ditto**		**ditto**	...	**2**	**2**	**0**
No. 3.	,,	**12**	,,	,,	,,	,,	,,	,,	...	**1**	**10**	**0**
No. 4.	,,	**8**	,,	,,	,,	,,	,,	,,	...	**1**	**1**	**0**

A DETAILED LIST of these COLLECTIONS may be had on application.

Carter's Champion Broccoli.

A DWARF AND COMPACT-GROWING LARGE-HEADED LATE WHITE BROCCOLI, RAISED IN 1858 BY MR SWINHERD, GARDENER TO JOHN SWINFORD, ESQ., MINSTER ABBEY, KENT.





JAMES CARTER AND CO. have much pleasure in calling special attention to the above first-class variety of BROCCOLI; it has been thoroughly proved by them for the last five seasons, and they can with confidence recommend it as being the BEST LATE WHITE BROCCOLI in CULTIVATION.

The following unsolicited testimonials have been received:—

Extract from the *Gardeners' Chronicle* of May 28, 1859:—

"Messrs. Carter & Co. have sent us specimens of a new Broccoli, with the following memorandum:—'This Broccoli has been proved side by side with the Wilcove Late White, Ward's Late White, Reading Giant Late White, Dwarf Danish, and other approved late kinds, and has shown itself superior to all of them. The Wilcove Late White are finished cutting more than a fortnight since; this variety is just coming in, and fine heads will be cut for the next 10 days.' The heads forwarded to us were of the finest possible quality, very large, not in the least coarse, white rather than cream-coloured, and proved when cooked to be wholly free from the strong taste which spoils so many Broccolis."

Extract from *Essex Telegraph*, September 1, 1863.

"Carter's Champion, a late variety, producing very large heads, white."

Extract from the *Gardeners' Chronicle* of Saturday, Oct. 3, 1863.

"Among Broccolis, Carter's Champion stands at the head, being the latest variety in cultivation, very large, white and unusually free from the strong taste which spoils so many Broccolis."

Letter received from ARTHUR HENDERSON, Esq., Pine Apple Place Nurseries, Edgware Road.

"Pine Apple Place, Edgware Road, London, W.
"November 9, 1863.

"DEAR SIRS,—A friend of mine in Bedfordshire sent me some very fine heads of your Broccoli 'Carter's Champion,' certainly a most excellent variety. He says: 'With me this kind comes so dwarf and keeps so close to the ground that the wintry weather and wind has no effect in hurting it; other varieties suffered, whereas this Broccoli escaped and produced fine large heads.' He also states: 'I have some dozens equal to those sent you to-day, May 28. Cauliflower with me will be fit to cut before this Champion is over. This is what has been wanting for many a long year; a vegetable of this kind is a trump card worth a trifle.' I saw this Broccoli afterwards myself, and it is a really excellent and compact variety, with large round and close heads, flavour sweet and first-rate; growth equal and alike as if turned out of a machine. There is no mistake in this being one of the right things; coming in so late is another valuable consideration; it certainly fills up the gap or interval between the Broccoli and Cauliflower.

"Yours faithfully, ARTHUR HENDERSON."

Messrs. JAMES CARTER & CO., High Holborn,
London, W.C.

J. CARTER & Co. are prepared to offer seed of this first-class Broccoli in packets, price 1*s.* each, and to the Trade in larger quantities on liberal terms.

The undermentioned is a List of Seed Merchants who have received their supply direct from J. CARTER & Co.:—

Messrs. AUSTIN & MCASLAN	.. Glasgow
,, BALLANTYNE & SON	.. Dalkeith
,, BARR & SUGDEN ..	.. Covent Garden
,, BECK, HENDERSON, & CHILD	Upper Thames Street
,, J. & T. BLACK ..	.. Jedburgh.
,, THOMAS BUNYARD & SONS	Maidstone
Mr. BRADFORD	.. Fisherton, Salisbury
Messrs. BUTLER & MCCULLOCH	.. Covent Garden
Mr. JOHN CATTELL	.. Westerham
Messrs. CHIVAS & WEAVER	.. Chester
Mr. E. COOLING	.. Derby
,, J. COOLING	.. Bath
Messrs. COOPER & BOLTON	.. Fleet Street
Mr. W. DEANS	.. Jedburgh
Messrs. F. & A. DICKSON & SONS,	Chester
,, JAS DICKSON & SON	.. Chester
,, DICKSON & Co. ..	.. Edinburgh
,, JAS. DICKSON & SONS	.. Edinburgh
,, DICKSONS & BROWN	.. Manchester
Mr. W. DODS	.. Haddington.
Messrs. EDMONDSON BROS.	.. Dublin
,, JAS GARAWAY & Co.	.. Bristol
Mr. F. G. GODWIN	.. Sheffield
Messrs. A. HENDERSON & Co.	.. Edgware Road
,, JAS. HUNTER & Co.	.. Bristol
,, HURST & SON ..	.. Leadenhall Street
Mr. G. INGLIS	.. Dron
Messrs LAIRD & SINCLAIR	.. Dundee
Mr. J. W. MACKEY.. ..	.. Dublin
,, H. MAY	.. Bedale
,, JOHN PILLINGER ..	.. Chepstow
,, S. PONSFORD	.. Loughborough Road, Brixton
,, R. H. POYNTER.. ..	.. Taunton
Messrs. E. SANG & SONS ..	.. Kirkcaldy
Mr. G. SIBBALD	.. Dundee
,, T. SIBBALD	.. Bishop Auckland
Messrs. SMITH & SIMONS ..	.. Glasgow
,, W. SMITH & SON..	. Aberdeen
Mr. J. SODEN	.. Middle Barton, Oxon
Messrs. STUART & MEIN ..	.. Kelso
,, SUTTON & SONS ..	.. Reading
Mr. W. TAYLOR	.. Cupar, Fife
THE LONDON SEED COMPANY	.. Welbeck Street
Mr. W. H. TREEN	.. Rugby
,, C. TURNER	.. Slough
,, JAMES VEITCH, Jun. ..	.. Chelsea
,, W. J. WATSON.. ..	.. Fenham, Newcastle-on-Tyne
Messrs. J. C. WHEELER & SON	.. Gloucester
Mr. G. WHEELER	.. Warminster
,, G. WHITE	.. Paisley
,, B. S. WILLIAMS ..	.. Holloway
Messrs. W. WOOD & SON ..	.. Mare-field

JAMES CARTER & Co., 238, High Holborn, W.C.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2*s.* 6*d.* each.
Fulham Nursery, London, S.W.—December 19.
Special offer to the Trade on application.

Brocoli.

WANDLESS'S WONDERFUL LATE SUMMER BROCCOLI.—White, large, late, dwarf protecting variety; new, highly recommended, 2*s.* per packet. Will be forwarded to any part of England by forwarding 26 Postage Stamps.
Address, W. WANDLESS, Market Gardener, &c., Sunderland.
Agents: HENRY CLARK & SON, Nurserymen and Seedsmen, 89, King Street, Covent Garden, London, W.C.; or, J. BACKHOUSE & SON, York Nurseries.



THE STUDENT PARSNIP.—This delicious Parsnip becomes every year more popular. Numerous Prizes have been taken this season at Horticultural Shows; as also the First Prize at the International Show of the Royal Horticultural Society in October 1862.

Mr. SHIRLEY HIBBERD, in the *Garden Oracle*, says of it:—

"SUTTON'S Student Parsnip is a great improvement, and should be grown everywhere. It is certainly the best for Exhibition."

SUTTON & SONS, Reading, can supply NEW SEED, 1*s.* per oz. (post free). For List of Agents see *Gardeners' Chronicle* of December 12, p. 1176. The following are additional:—

AUSTEN & MCASLAN	.. 186, Trongate, Glasgow
BROWN, HENRY ..	.. 4, Commutation Row, Liverpool
GODWIN, F.G. ..	.. Norfolk Market Hall, Sheffield
LEE, & Co.	.. Hammersmith, London
LONDON SEED COMPANY	.. 68, Welbeck Street, London
PONSFORD S. ..	.. Loughboro' Park Nursery, Brixton
PONTEY, Mrs. M. L.	.. 21, Cornwall St., Plymouth

RETAIL PRICE, 1*s.* per oz.
WHOLESALE PRICE ON APPLICATION.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

To the Trade.

AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds, at moderate prices. An inspection solicited.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

TO THE TRADE.—Mr. THOMPSON'S New RHODANTHES are, through inadvertence, offered in our List at a wrong price. They should be as follows:—
RHODANTHE MACULATA ALBA, 80*s.* per oz.
,, ATROSANGUINEA, 6*l.* 6*s.* per oz.
JAMES CARTER & Co., High Holborn, W.C.

WANTED, DELPHINIUM GRANDIFLORUM MAXIMUM, DELPHINIUM BARLOWII, LUNARIA BIENNIS, LUNARIA REDIVIVA. Any one having any of the above may hear of a Purchaser by quoting the lowest price per dozen or 100 for strong Plants.
Direct to G. H. BUNNEY, Nurseryman, Stratford, E.

Seedlings, &c.

ALFRED GOSLING would be pleased to forward samples and price of SEEDLING SPRUCE, SYCAMORE, BIRCH, and ASH, prime and well-rooted stuff, also very fine one-year LAUREL CUTTINGS, extra strong.
Tower Nurseries, Heathfield.

400,000 STRONG TRANSPLANTED LARCH, 1½ to 2 feet, and 2 to 3 feet, healthy and good-rooted. Prices moderate, with samples, may be had on application.
GEORGE T. FOX, The Nurseries, Wetley Rocks, near Leek, Staffordshire.

"Z" Family, now offered for the First Time.

TRADE

HALLETT'S | PEDIGREE | NURSERY WHEAT.

MARK.

For full description of "Z family" see Advertisements in our Numbers for September and October, 1863.

PRICE—One Guinea a Bushel (or Seven Guineas a Quarter), delivered with printed directions for planting, at the Brighton Railway Station, in bags sewed up and sealed, upon receipt of Cheque or Post Office Order, which must in all cases accompany the order. *In December drill 8 bushels on 5 acres.*

HOW OUR WHEAT CROPS MAY BE DOUBLED, and other papers forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.* 4 cwt.; ditto Clarified fine or sharp, 1*s.* 6*d.* cwt., put on the Rail at Reigate.
Best and second quality PEAT SOIL, LOAM, &c.
N B. Loaded Trucks can be sent on all the principal Railways
Every description of Nursery Products on Sale for the Trade.
W. SHORT, Reigate, Surrey.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped 'J. BARSHAM'S Patent'

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE, Address 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

THE LONDON MANURE COMPANY have now ready
PREPARED BONE MANURE for present use on PASTURES.
WHEAT MANURE for AUTUMN SOWING.
BLOOD MANURE for ditto.
SUPERPHOSPHATES of LIME, &c.
All the above being in the finest condition. They also continue to supply
GIBBS'S PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, and every Artificial Manure of known value. E. PURSER, Secretary.
116, Fenchurch Street, E.C.

Autumn Sowing.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),
Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.
Chairman.—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.
Offices: 109, Fenchurch Street, London, E.C.
Manufactory: Plaistow Marshes, Essex.
ODAMS'S BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, has been in use for upwards of 11 years, and has given great satisfaction to consumers.
Orders may be sent to the Company's Agents throughout the country, or direct to C. T. MACADAM, Secretary.
Offices: 109, Fenchurch Street, London, E.C.
Price 7*l.* 10*s.* per Ton, delivered at any Railway or Wharf in London.

LAWES'S WHEAT MANURE for AUTUMN SOWING.
A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford, and Barking Creeks. Price 8*l.* per ton.
2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

SUPERPHOSPHATE of LIME	.. £6 6
MINERAL SUPERPHOSPHATE ..	.. 5 5

Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.
American and other Cakes at market prices.
Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E. C.; and 22, Eden Quay, Dublin.



Magnified Aphis.

NEAL'S PLANT SOAP and APHIS PASTILS,
1*s.* and 2*s.* per packet,
may be obtained from all respectable Seedsmen.
Testimonials forwarded on application to the Patentee,
J. NEAL,
Edward Street, Birmingham.

Winter Dress all Fruit Trees with GISHURST COMPOUND



Red Spider Magnified.

Copy of a Letter from Mr. RIVERS.
"Nurseries, Sawbridgeworth, Herts, Oct. 22, 1861.
"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."

For Orchard-house Trees 4 ounces to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), Belmont Vauxhall, London, S.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump, Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Compan , and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½d. ...	7¼d.
Seconds	3⅞d. ...	5d.
Thirds	2⅝d. ...	3½d.
Fourths	2¼d. ...	3¼d.

HORTICULTURAL GLASS.

Stock Sizes, 16-ounce. In 100 feet Boxes.

These prices only apply to the sizes stated.

				4ths.	3rds.	4ths.	3rds
				s. d.	s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9				
12 „ 10	13 „ 10	14 „ 10	15 „ 10	10 9	12 3	12 6	14 0
13 „ 11	14 „ 11	..	..				
14 „ 12	15 „ 12	15 „ 11	16 „ 11				
18 „ 12	19 „ 12	16 „ 12	17 „ 12				
16 „ 13	17 „ 13	20 „ 12	21 „ 14	11 6	13 6	13 6	16 0
19 „ 13	20 „ 13	18 „ 13	..				
16 „ 14	17 „ 14	21 „ 13	..	14 to 15 ozs.		16 to 17 ozs.	
19 „ 14	20 „ 14	18 „ 14	..	to the foot.			

HARTLEY'S

PATENT ROUGH PLATE GLASS.

Packed in Boxes of 50 feet each.

			s.	d.	
6 by 4	and 6½ by 4½	... ...	10	6	per box.
7 „ 5	„ 7½ „ 5½	... ...	12	0	„
8 „ 6	„ 8 „ 6½	... ...	13	6	„
9 „ 7	„ 9½ „ 7½	and 10 by 8 ...	15	0	„

GLASS for ORCHARD HOUSES.

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy and Gentlemen of the United Kingdom.

Packed in 100 feet Boxes.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths ...	11s. 6d.	13s. 6d.	15s. 0d.
20 „ 13	Thirds ...	13s. 6d.	16s. 0d.	19s. 0d.
20 „ 14	Seconds ...	...	English.	English.
20 „ 15	Best ...	...	18s. 0d.	23s. 0d.

The above prices include the Boxes.

We recommend 3rds quality at 16s., or 21-ounce at 19s. (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11s. 6d.
8 „ 6	8½ „ 6⅜	9 „ 7	9½ „ 7½	
		10 „ 8	10½ „ 8½	12 6

Boxes 2s. each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

London Agents for Hartley's Patent Rough Plate.

Perforated Glass for Ventilation.

Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

Glaziers' Diamonds from 10s. to 21s. each.

Glass Tiles and Slates in Sheet and Rough Plate. Plate Glass, Patent Plate, and Hartley's Improved Rough Plate.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD. ANTI-CORROSION PAINT. | LINSEED OIL PUTTY. FINE OAK VARNISH. | FINE OAK CARRIAGE. PATENT DRYERS. | LINSEED OIL. BOILED OIL.

TURPENTINE.

LEAD in SHEETS or CUT to SIZES, LEAD PIPE, LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of every description.

HOWARD'S

PATENT STEAM CULTIVATING and PLOUGHING APPARATUS.

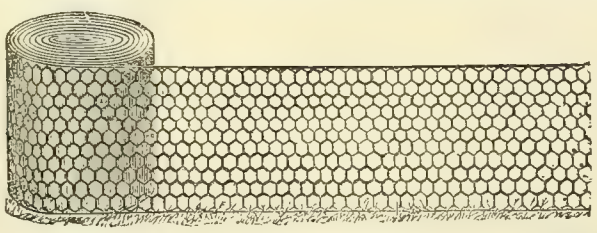
J. & F. HOWARD have now Manufactured and Sold 300 SETS of STEAM CULTIVATING APPARATUS.

Reports from numerous Purchasers in most of the counties of England, with full particulars, may be had free on application to

JAMES AND FREDERICK HOWARD, BRITANNIA IRON WORKS, BEDFORD.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH:—

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
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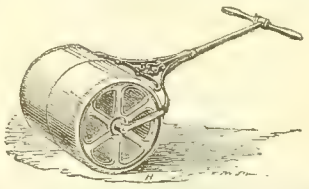
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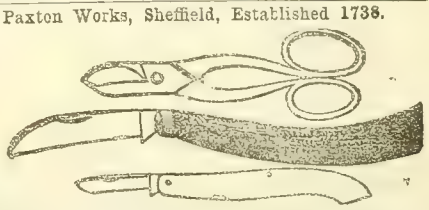
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J. MEREDITH has some Strong VINES of the true variety of BLACK ALICANTE (which he has never occasion to set artificially) in 13 and 8-inch pots.

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LETTUCE.

NONSUCH, COS, new | NEAPOLITAN CABBAGE, very fine

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ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
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" " RUBRUM	1	3

Three each of the above, 10s.
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GARDENERS' ROYAL BENEVOLENT INSTITUTION.
NOTICE IS HEREBY GIVEN, that the ANNUAL GENERAL MEETING of the SUBSCRIBERS to this Institution will be held at the Bedford Hotel, Covent Garden, on THURSDAY, January 14 next, for the purpose of receiving the Report of the Committee and the Accounts of the Society for the past year, and Electing Officers for the ensuing year.
An ELECTION of THREE PENSIONERS will afterwards take place.
The Chair will be taken at 6 o'Clock in the evening.
The Ballot will close at 8 o'Clock precisely.
The Balloting Papers have all been issued; any Subscriber not having received one is respectfully requested to make immediate application for one. By Order,
EDW. R. CUTLER, Secretary.
14, Tavistock Row, Covent Garden. W.C.—Dec. 19.

The Gardeners' Chronicle.
SATURDAY, DECEMBER 19, 1863.

THE BULB FARMS OF HAARLEM have been sending us, during the last few weeks, their annual consignments of Hyacinths, on which we depend so much for the decoration of our windows, greenhouses, and gardens in the early portion of the year. Holland appears peculiarly well adapted for the production of such plants. Her moist air, sandy soil, and the water which is always met with standing a few feet below the surface of the ground, would seem to furnish the most favourable conditions for their cultivation, and until such conditions are met with in other countries, she is likely to remain without a rival in the market for such things. We buy them yearly of her; they bloom with us in perfection the first season, but are afterwards thought worthless, and, in most instances, they are thrown to the rubbish heap. All those millions of Hyacinth bulbs which crowd or have crowded our seedsmen's shops and auction rooms, will have disappeared by this time next year, and their places will be filled by another importation direct from Holland. And so we go on year after year; the bulbs are reared in the sandy plains about Haarlem, where they form and lay up in store a stock of organic matter which enables them to bloom well one year at least after they are sent over to England, and then they dwindle away, degenerate, and die.

Is this result to be attributed to climate and soil, or to our mode of cultivation and general treatment of the bulbs? Is it possible, or probable, that the day may arrive when we shall be able to cultivate the Hyacinth as successfully as our Dutch friends do now, and keep it in health and vigour for a number of years instead of one only? We fully concur in the opinion that soil and climate are somewhat in favour of those who dwell in the vicinity of Haarlem; and further, that it will always be more satisfactory for us to import our annual supplies of fresh bulbs than to attempt to grow them ourselves.

But having admitted thus much, we, as good gardeners, ought not to consider such disadvantages insurmountable. With a little extra expense and care it is not impossible to preserve the Hyacinth in health and vigour, and thus enable it to grow and bloom with us for many successive years. Let us endeavour, therefore, to direct attention to the system of cultivation which is practised in Holland with such successful results.

In the first place the natural soil about Haarlem is composed chiefly of sand and decaying shell, which has been thrown up in former times by the ocean. It also contains a portion of vegetable matter, and is enriched annually by a liberal supply of cow-dung—the only kind of manure which is used. The land which is to be planted with the bulbs is trenched 2 or 3 feet deep in spring, and manured at the same time. But it is not yet in a fit condition for the reception of the Hyacinth. And mark, particularly, the next preparatory operation. *A crop of vegetables, generally Potatos, is taken off it* in order to draw out any rankness or impurities which might prove injurious to the Hyacinth. This being done during the spring and summer months, the land is ready for the reception of the bulbs in autumn, which is the proper season to plant them. Nor is this all; a careful system of rotation in cropping is also observed, so that these bulbs are rarely, if ever, grown on the same land two years in succession.

When planted, in October, the bulbs are covered over with 3 or 4 inches of soil, and are further protected during the winter months with a layer of reeds, some 5 or 6 inches in thickness. And now the process of growth immediately begins, and in a way to which we beg to draw particular attention. It is the roots only that grow. They strike deep down into the earth in search of nourishment, while the stem remains, all but inactive, patiently waiting for the time when the roots shall be in a position to supply all its requirements. And thus it happens that when the spring comes round, and when the bulb begins to grow, as we say, a sufficient supply of nourishment is readily and abundantly supplied.

Another point which the Dutch cultivator considers of great importance is the careful preservation and full development of the leaves. Any disease in the leaves is rapidly communicated to the bulb, and hence every precaution is used to keep them in health and vigour. The flower stems themselves are usually removed before they are in full bloom, not with the view, as is sometimes supposed, of strengthening the bulbs, but in order to prevent the heavy flower heads from falling upon and rotting the leaves. Huge heaps of Hyacinth blooms may be seen laid up in the corners of all the fields about Haarlem in the month of April, having been cut to prevent the chance of such a thing taking place. The Hyacinth would appear to be very liable to become diseased, and hence every precaution is taken by the Dutch cultivator to remove any predisposing cause, whether that be in the composition of the soil or in any injury that may happen to the leaves.

These, then, would appear to be the principal reasons which account for the success which attends the cultivation of the Hyacinth in Holland. That our gardeners, were they to try, might be as successful as the Dutch we have little doubt, but whether such success would be worth their while, or whether "it would pay," is quite another matter. All that we have in view is to point out the cause of this success, namely, a mode of management founded on a knowledge of the laws of vegetable physiology, and on the peculiar nature and habits of the Hyacinth.

In the above remarks we have drawn especial notice to the manner in which the growth of the Hyacinth commences; how the roots are formed during the autumn and winter, ready to supply nourishment to the leaves as they are put forth in the spring. This circumstance will explain, at a glance, the kind of treatment which should be given to Hyacinths when they are grown in glasses, or vases, in water, for the decoration of our windows or sitting rooms. At this season of the year, when our fair readers, in particular, are engaged in this kind of Hyacinth culture, we cannot do better than repeat the advice which we have often given, namely, "keep your bulbs in a dark place until they have formed a good supply of roots to nourish and support the coming leaves and flowers."

ALMOST every one complains that in spite of the late dry and warm summer, which was so favourable to the ripening of the wood, and which promises such a plentiful and strong blossom in the spring, PEARS have kept very badly. Some have prematurely bletted, others have gone rapidly to decay, while many have been spotted all over, so as to be unpresentable. Far the greater part of an abundant crop of Glou Morceau from our own garden are in the latter condition. Under each dark spot there is a brown dry mass of tissue of a greater or less depth, without any tendency to run into a state of moist decay, and extremely analogous to the dry form of the Potato murrain. These spots have in the first instance undoubtedly originated in the growth beneath the real cuticle, of a minute brown parasitic Fungus, Cladosporium dendriticum, which has destroyed the vitality of the subjacent tissue, but has not sufficient vigour of growth or greediness of moisture to make it penetrate deeply into the fruit. Where moist decay has supervened, it is apparently due to other Fungi which have accompanied or replaced the Cladosporium. This mould has of late years been a dreadful pest both to Pears and Apples, in some cases being virulent enough to destroy or greatly impair the young shoots, and its growth beneath the cuticle makes it almost impossible to apply a remedy. After a time, indeed, the cuticle bursts, to allow the fertile threads to break out into the air and bear fruit, but the mischief is then already done, and it is notorious that even were the habit different, dark threaded Fungi are far less destructible than those which are colourless. There is no reason to suppose that the Fungus is a new visitant, as some kinds of Apples, the Golden Pippin for example, have always been subject to this spotting. Unless, however, we are mistaken, it is far more prevalent than it was some 30 years ago, and the discovery of an effectual remedy would be a great benefit to the horticulturist. *M. J. B.*

—— THE NEW HYACINTH question has been further ventilated in the pages of one of our monthly contemporaries, where Mr. W. PAUL argues that the admission of 'New and Rare' sorts would produce a finer exhibition, and more surely promote the true interests of floriculture, than the restriction to 'New' flowers alone, if the word is to be taken in the most restricted sense. Hence it is urged that the alteration in the schedules of the Royal Horticultural Society's Spring shows, which confines this class of new sorts to the productions of a single year, is a matter of regret, inasmuch as it is barely probable that six new varieties of the current year will surpass, if indeed they equal, those already known to us. If they do not, the prize would, on the one hand, have to be withheld on the ground of indifferent quality, or on the other hand must be awarded as a premium on retrogression—two horns of a dilemma, on neither of which would it be dignified to be transfixed. With the mystery and mystification which seem to hang over the nativity of Hyacinths, and the consequent uncertainty of what is really to be regarded as new, we think the limitation to varieties of one year—"new kinds of 1863-4," it is set down in the schedule—will not realise the effect which is to be looked for from classes like this, namely to familiarise the public with the best novelties. We have already stated our own conviction that in a flower which so slowly makes its way into the market at a price which puts it within reach of the public, and not merely into the hands of a few enthusiastic fanciers alone, it would have been better to have admitted the new productions of some two or three seasons to equal competition. Unlike many other popular flowers, the Hyacinth, if we mistake not, does not afford enough marketable new sorts annually, to support a competition of the kind which has now been referred to. The only advantage to gardeners and gardening to be derived from the existence of this competition amongst new sorts, is that of showing what are the best of the come-at-able new sorts: it will tell but little on the decoration of a conservatory to know, that some 10 years hence we may expect to meet with, at a non-prohibitive price, some striking variety which may happen to be shown under the present schedule.

—— OF RECENT APPOINTMENTS, it may be mentioned that Mr. BLACK, for some years the painstaking and obliging Curator of the Kew Herbaria, and who has left England on account of delicate health, has been appointed to the superintendence of the Botanic Garden at Bangalore.——Mr. GUSTAV MANN, who has been engaged in exploring the mountain regions of Tropical Africa with so much success, and who not long since returned to England in good health, has been appointed to superintend the Cinchona plantations in Darjeeling, under Dr. ANDERSON.——Professor SCHLEIDEN has been elected to the Chair of Botany in the University of Dorpat.

—— The NARDOO plant of Australia is not, it seems, "one and indivisible," for at the recent meeting of naturalists at Stettin, Prof. BRAUN exhibited living specimens of four species of Marsilea, two of which had been raised from Nardoo seed received from New Holland. These two were the M. hirsuta of R. BROWN, and the M. Salvatrix of HANSTEIN, the latter of which was figured recently in the *Journal of Botany*, and identified by Mr. CURREY with M. macropus of HOOKER. In this view, however, BRAUN does not agree, but he considers Salvatrix to be probably the same as a plant he had previously named Muelleri, and macropus as unquestionably one he had two years earlier named Drummondi. The learned Professor of Berlin, has moreover, recently published an interesting sketch of the genera Marsilea and Pilularia, 37 species of the former, and 4 of the latter genus being recorded, together with their geographical range, and various other particulars respecting them.

DIES ORCHIDIANÆ.—No. IX.

(*Continued from p.* 1157)

MR. RUCKER'S, WEST HILL, WANDSWORTH.—Mr. Rucker has been famous as an Orchid grower for more than a quarter of a century. When quite a young man he distanced all competitors, and took at once the foremost place among exhibitors at Chiswick in the palmiest days of the old Horticultural Society. Nor, although he has long since left the excitements of all such like arenas to enthusiasts of more recent date, is this other than an act of self-denial on his part, for among all the multitudinous Orchid growers of the present day, I know not one who could hope to do battle against him with the slightest chance of success!

At the time of my visit (November), the show-houses at West Hill were gay—absolutely gay—with Orchids; and this not as is frequently the case, by multiplying plants of the more showy kinds, but by bringing together when in bloom a brilliant array of contrasted forms and varied hues. It would be utterly impossible to particularise all the beauteous things that made up this unparalleled display, but there were a few which for the sake of the neophytes may be advantageously singled out for special comment. Of these, Vanda cœrulea may perhaps claim the first place, for the profusion in which its blossoms of softest azure were borne aloft on stately flower-spikes, at once arrested the eye of the visitor. This species is often found troublesome to manage, but Mr. Rucker finds that if grown in a moderately cool house it is perfectly tractable, which is precisely what might have been anticipated when the climate and elevation of the Khasya Hills, on which it was originally discovered by Dr. Hooker, are taken into account. Next to this Vanda, as regards striking effect, came the old Cattleya labiata, which Mr. Rucker grows to perfection, and of which he has several splendid varieties. Less gorgeous, but scarcely less beautiful, was a well-flowered specimen of the still rare Cattleya maxima which one meets with in collections under a variety of "aliases," such as Lælia elegans, L. Laurenceana, &c.* Passing on, we come to Calanthe Veitchii, which as seen most frequently has flowers of a pale tint, but in Mr. Rucker's variety they are of the most brilliant rose-colour, and produced, moreover, in such profusion, that the eye is attracted by them at a great distance. Of course the two varieties (that with the crimson and that with the yellow eye) of the well-known C. vestita contributed their full quota of beauty. Equally, if not even more charming were two Dendrobiums—D. formosum and D. infundibuliforme—the latter flowering for the first time, but already rivalling the former in beauty; higher praise than which it cannot have. In agreeable contrast to the pure white flowers of these superb Dendrobia, Miltonia Moreliana displayed a number of its deep purple blossoms, the largest I had ever seen. All these and many more were on a shelf nearly level with the eye, but suspended in the air over-head was another world of interest and beauty, the most striking components of which were Sophronitis grandiflora and Lælia præstans (alias Cattleya marginata, C. pumila, C. Pinelli, &c.). I am no advocate for multiplying specimens of the same species—quite an epidemic now-a-days; but still I would allow every one to keep at least half a dozen plants of Sophronitis grandiflora, and this not merely for the sake of its scarlet colour, so rare among Orchids, but also because there is a difference, extending at least over two months, in the times at which different individuals (even if treated alike) come into bloom; and certainly the flowering season of such a sparkling gem can never be too much prolonged.† Not far from the Sophronitis hung a very splendid specimen of Oncidium crispum, producing a most singular effect with its large copper-coloured flowers margined with yellow. This species never seems to thrive unless it be set upon a block of wood and grown in a moderate temperature—such I mean as would be proper to the Cattleya-house as contradistinguished from the Odontoglossum-house, which should be much cooler, and from the East Indian house, which should of course be much warmer. The former temperature is that of the Organ Mountains, from whence come many of our finest Cattleyas, Oncidiums, and Sophronitis grandiflora itself. *Serapias.*

(*To be continued.*)

* Since the above was written I have seen a still finer specimen in the collection of Miss Willis, Hurst House, near Prescot, Lancashire. It had as many as eight flowers on a spike.

† An Orchidophilist should choose his own Sophronitis at the nurseries (in many of which there is now a vast assortment), so that he may secure the best varieties, and select a series that will flower in rotation. At Messrs. Low's, last November, such multitudes were in bloom that they looked like regiments of red-jackets dangling in the air.

STRAY NOTES ON FLOWERS.

WHEN winter is well established, and out-of-door flowers are rare, then comes the time when people wish they had some in-doors. There is something very pleasant in anticipating the spring, and in seeing sweet spring flowers blossoming in our windows in advance of those outside. I was reminded of this to-day by a visit to a seed shop in the neighbourhood of Covent Garden. I had been moving about, and had got very few bulbs indeed, but there I found they had such really charming arrangements—not things that one calls "shoppy," but really well arranged and coming on for bloom. There was the Rustic Robin, of which I made trial last year, a most luxuriant mass of Hyacinths and Crocuses, and Snowdrops, and I think Tulips, making such a pile of beautiful sweet flowers, giving so little trouble, asking only for light and water, and then lasting such a time.

Another plan there is for growing things in tiers; this is a jardinet, called after the Prince of Wales. This I have not yet seen in flower, but it promises to be beautiful. The rough wood-like single flower-pots never are very attractive to my particular taste, because for plants in rooms more finished things seem more suitable; but even these, for conservatories, often look very well. The large rustic things, however, seem quite free from that defect. They stand more as single objects. Besides these, there are well finished dark-red terra-cotta flower-pots of exquisite colour and texture, which would be quite perfect for standing in the deep windows and recesses of Gothic houses. These pots with some large white flower—a Lily for example—or else with tall white Hyacinths, or with spreading Ferns, would look beautiful. I mention these things now, because now is the time for having them, and yet it is perhaps a time when few people chance to be reminded of them by seeing them. And also it is pleasant to be able to make up for lost time, and to get bulbs ready growing, when we have failed to plant them.

I saw too at Covent Garden some such lovely table baskets or tins, planted with red Poinsettias, and white pink-touched Heaths and Tulips. It struck me that three of these would be so perfect for the dinner-table, one red and white say, and two white and red, or *vice versâ*, the centre plant being dominant, and making a real difference, though it does not sound so.

I took the precaution of asking if groups such as these could be packed and sent down safely anywhere, and was told that they could be, and that the cost of the three would be from a guinea to 30*s*. A more really charming ornament I could not recommend for Christmas time; and though, indeed, the Poinsettias require heat to grow in, the Heaths will last for many weeks in beauty if carefully soaked—not merely watered—and then let drain sufficiently.

A few weeks ago I mentioned some pretty rustic stands for holding small knots of cut flowers; and as many people seemed interested about them, I have sent one of my own to Mr. Hammond's (Baker Street), to be copied. It can be seen there any time for the next two or three weeks; but when seen without flowers, it does not look attractive; so people must imagine little red and yellow groups lighting it. Christmas Roses and Fir look well in it, and the red Anemones and Primroses will do charmingly. *E. A. M.*

ROSES.

THIS article has been written five weeks. I see that "Stamfordiensis" takes the same view as myself of the bud rule, and has given the identical reasons herein expressed why the rule cannot be carried out. I agree with him in thinking that the schedule referred to needs but little alteration, if any. As regards time of show, if suitable to the interests of the Royal Horticultural Society, I would, to suit S. and N. alternately, have the days as near as possible (avoiding Monday and Saturday) to June 25 and July 1. Both these days are in the full London season. I also hope that the Royal Horticultural Society will have a September show for Roses. This is the time to tell "who is who!"

Have persons who advocate the bud rule considered how difficult it is to carry it out? Most Roses in the early part of the year have buds, but who can determine for certainty whether the side buds were killed in infancy by frosts, blights, aphides, the bud worm, or by the following mode? As soon as the centre bud is the size of a pea, a person may move back the sheath that covers the side buds, which are just visible, and by the prick of a pin in their centres procure their destruction. There is no need to remove them; they will wither away and drop off. Here then is one way of obviating the rule. To a Rosarian the sheaths that covered the buds will tell that there had been buds there, but who can say how they were removed?

Again, let us suppose that the centre Rose has bloomed and that three buds of the same age are left on. If two are removed, and taken away they must be, who is to say whether they have bloomed or have been removed?

Again, supposing a truss to have a good centre flower, two good buds, and one unsightly one. Is the exhibitor to be allowed to take off the bud that spoils the truss? If the answer is, yes, then he might, if untruthful, say, they were all so unsightly—nibbled by aphides, or yellow blighted, that "I was obliged to remove them, or they would have spoiled this beautiful Rose (holding it up in the hand) which is worth a king's ransom!" In fact, there would be no end to juggling, no end to examination, no end to adjudication.

Here is Class B., 24 singles. On a box numbered 7 is inscribed on a card "First prize," Peter Poser, Esq., of "Sans Souci" Cottage, Herts. Now, if at that moment P. P. could look in, and see his box labelled A 1, he would be in a "delirium" of joy, little dreaming that it is soon to be exchanged for "delirium tremens," or, as the poor people here call it, "delirious triangles!" The judges pass on to decide the 2d prize, followed by the examiners of buds (for judges have no time to do so), who, as the 2d prize is just decided, cry out, here is a screw loose in the box from "Sans Souci." Mutilation has been detected in several of the Roses of "delirious" Peter Poser—one of which, Géant des Batailles, is held up as a scandalous specimen of ingenious bud deprivation; and the triumphant colours of Peter Poser are hauled down, and the box of Simon Soapy, Esq., of Vilamgerbendi Cottage,* Wilts, becomes 1st prize. Well, the bud examiners now proceed to examine the box from Vilamgerbendi, and the same thing is found again; and "1st prize" descends, as from sire to son, respectively, to Richard Dodger and Samuel Slyboots, Esquires, who are, in due time, found to have loose screws. In fact,

"Hæres,
Hæredem alterius, velut unda supervenit undam."

Nor does the matter end here. I would it did; but it having eked out that Peter Poser is triumphant in Class B, Peter invites a dozen friends to dine with him at the Hummums. Peter Poser is not the man to enjoy a victory solus. He has sent a special message to the Hummums, with a scrap of paper on which might be seen something like the following:—"Dinner at 7; covers for 12; turtle and venison (if possible), turbot, mutton kebob, new college puddings, Pine Apple. P.S. Ice the champagne and sherry cobblers!"

Now, imagine the change of Peter Poser's face (reverse of the petals "glaucous"), as he learns that his box is disgraced, instead of being honoured, *triumphantibus coloribus*. Imagine the chaffing at dinner on the subject of the bud rule! and if at that moment, Peter is in a philosophic state of mind, he will fill his glass, and amuse the company with such broken fragments as these: "Nation worse and worse!"—"always cheated, go where I will!"—"said so before I went, hang me if I didn't!"—"what a fool I was!"—"never exhibit again in London."

It may be said, this is being too critical—too exact. I think so to; but if you have a rule at all, it should be carried out with the utmost rigour of the law. Practically you could not do so, because you could not tell whether the side buds were destroyed in infancy by hand, or by causes previously stated. If 24 Roses were all minus buds, it would be a strong *primâ facie* evidence of mutilation; still, you could not be sure. You might put a man upon his honour (which in all human competitions I am for neither trusting nor trying); and, if he were a truthful man, he would tell you "I pricked out their eyes with a pin."

"Monstrum horrendum—lumen ademptum!"

But to examine the exhibitors, they must be kept close at hand. I need not say that this could scarcely be done. Nor do travelled Roses want so much handling as this severe scrutiny would occasion. From the moment they are cut they begin to decline.

The rule as it stands, like an Act of Parliament, is wide enough to drive a carriage and four horses through it. "The truss, with such buds as are on it, is to be exhibited as cut from the tree." Well, if I destroy the buds in infancy, or a few days before, and then cut the Rose for exhibition, I exhibit it as I cut it from the tree. The rule wants a little addition.

I think the following would insure buds where they could be left on with good effect. "It is requested that Roses will be shown with their buds on. The judges will have instructions to weigh the merits of such against larger Roses deprived of their buds."

In conclusion, I doubt whether you could find sufficient extra censors, (for you must have more) up to the mark, to carry out a rule rigidly, which would tend to shorten competition, and to impede rather than favour the production of good specimens.

I honestly confess that I have practised delirious Peter Poser's plan a good many times, in the case of medium sized Roses, or Roses that could not otherwise be got ready for the show day. *W. F. Radclyffe, Rushton.*

* The late Sir Claude Scott called his Dorset House "Sans Souci"—(without care). Vilamgerbendi is a name that I saw some years ago, stuck on a cottage inhabited by an Indian, a little distance from the stone which marks the place where Rufus was slain in the New Forest; it always tickles my fancy!

NEW PEAR.

PRINCE CAMILLE DE ROHAN.

THIS variety has been produced from my seedlings. In 1857, the tree, scarcely eight years old, bore its first three fruits. In 1858, it bore seventeen; in 1859, a dozen, and in 1860, five only. This present year, the mother plant, having reached a good size, bore 170 beautiful Pears. And it must be added that none of these fruits fell, from the month of May to the time of gathering them.

The first gathering took place about the 15th of September; the second the 20th of the same month; and the third on the 12th of October.

The fruit of these different gatherings have the same form and colour; and there is little or no difference in their quality. The fruits of 1863 were larger, and of a more regular form.

The skin of the fruit, at the time of gathering it, has a clear green ground, covered almost entirely with indentations and brown spots. The more the fruit gains size, the more the skin becomes uneven. The eye is in a slight cavity, and has the calyx open. The stalk is thin, flexible, and woody, about an inch long,

of an olive brown colour. The cells, which are tolerably wide, each contain three, four, or five pips, which are fine, long, plump, slightly depressed, and of a nut-brown colour.

The fruits of the three first gatherings ripened in December; those gathered in 1860 held on till the 25th of January. Whilst ripening in the fruit-room, the Pear assumes successively a tawny yellow colour or an opaque brown, becoming soft about the stalk. It will keep a fortnight in this state without becoming over ripe. The skin is rather thin; the flesh a pure white, with a good sweet, vinous flavour, sufficiently juicy; it is neither stringy nor gritty. Let me add that the fruit is quite distinct from any varieties known to the most experienced amateurs. *J. de Jonghe, 9, Chaussée du Nieuwmolen, Brussels.*

Home Correspondence.

Anona Cherimolia (Cherimoyer), and Eriobotrya japonica (Loquat).—One of your recent Correspondents seems to wonder that Cherimoyers are not grown in the hot-houses of this country, and is very urgent that an attempt should be made to add to our desserts what is undoubtedly a most delicious fruit. I am far from wishing to throw cold water upon a suggestion which I sincerely hope may be acted upon by some zealous horticulturist, but it is only fair that I should mention an attempt in the same direction made by myself some 25 years ago, and which resulted in total failure. Having obtained a healthy plant of the Anona it was turned out in a space of about 6 feet square that formed a portion of the border in a stove at Knypersley; and as it grew—which it did most vigorously—the branches were trained on a trellis near the glass, where flowers were produced in great abundance. Unhappily, although the experiment was continued for several years, and although we did what we could to fertilise the blossoms, not one of the latter ever could be induced to set, so that at last in sheer despair the plant was thrown away. I ought however to add that the house in which it grew had metal sashes and was then heated by steam pipes, both of which conditions would no doubt militate against success then, but do not prove that with our vastly superior modern appliances a different result might not be attained now. With the Loquat, which was treated in precisely the same manner, I was somewhat more successful, for it not only grew vigorously, and flowered in profusion, but actually on two occasions (in six years) produced about half a dozen fruit. These were the colour of the Apricot and the size of an ordinary Grape, and it is remarkable that the flavour was an exquisite compound of these two delicious fruits. Still, however excellent, it was impossible to continue to devote a sixth part of the available space in a hothouse to a tree which produced on an average two berries per annum! I believe the late Lord Bagot also fruited the Loquat, and succeeded much better than I did, as regards the amount of produce. *J. B., Biddulph Grange.* [The Cherimoyer was fruited at Howick about 30 years since, and the following brief account thereof was given by Mr. Stevenson in the *Floricultural Magazine*, in 1838:—"The Cherimoyer has been fruited at Howick for four successive years, producing one fruit in 1834 (I believe for the first time in the kingdom), two in 1835, one in 1836, and two in December 1837. The plant was raised from seeds brought from South America by the Hon. Capt. F. Grey, R.N., in 1829, and planted in a division between the back wall and the pit of a small plant stove in 1831; the division 1 foot wide, 4 feet long, and 5 feet deep. Although it has produced its fruit but sparingly, yet by appropriating a house to it, and carefully fertilising its fragrant blossoms when fully expanded, and otherwise judiciously managing it, I am inclined to think it would fruit as freely as the Peach." Can any one tell how this or other plants have behaved subsequently].

Look to your Fruit-tree Buds.—In passing through an orchard in the woods here in the beginning of the month, I noticed that a few bull-finches flew from a standard Kentish Cherry. Upon examining the tree in question, I was surprised to find that more than half the buds were gone, and that the whole of the trees in the locality, about one dozen in all, were more or less in the same condition. Several May Duke Cherries were also attacked, but not so badly as the Kentish variety. I found likewise on passing a clump of Thorns, a little beyond this garden, that a great many of the flower buds were gone, and that some Scotch Roses in another garden were also disbudded. Plums, Pears, and Gooseberries, are untouched, although they suffered last season, particularly the Plums. Soot I am afraid will not prove an effective remedy, as rain washes it off, and the buds are again attacked. *J. F., Cliveden.*

Rhododendron Soils.—For the benefit of "E. S." (see p. 1181), permit me to state, from practical experience in an extensive tract of forest land, that I find wherever Rhododendrons are planted in virgin soil, whether it be clay or loam, black or brown, they invariably luxuriate. To me it seems evident that Rhododendrons do not so much require a peat soil as one abounding in vegetable mould, properly so called. If "E. S." has not such a soil, he should add to his ordinary garden loam before planting as much leaf or other vegetable mould as he can get. After that I should not hesitate to plant Rhododendrons, knowing as I do that time would soon prove that they will not only grow but luxuriate under such circumstances. *Senilis.*—There can be no question that the Rhododendron grows best in peat, but it does also remarkably well in loam; I could point to thousands of magnificent plants growing in pure loam, and in some instances almost on bare rocks. Where the ground is naturally poor, I would recommend the addition of manure and leaf-mould, which will very much assist the plants in their growth. I may add, however, that this neighbourhood, and South Wales in general, owing to its moist atmosphere, is well suited to the growth of this beautiful tribe of shrubs; and I may refer hereafter to some of the more extraordinary specimens to be found at Penllergare, the seat of J. D. Llewellyn, Esq., F.R.H.S., and elsewhere in this neighbourhood. *W. Barron, Sketty Nursery Farm, Swansea.*—I can affirm that peat soil is not indispensable for these shrubs. I know more than one place in Sussex and Wilts where they grow luxuriantly, coming up by hundreds of seedlings in the woods, many miles from any peat. Any light loam with a little sand and leaf-mould will grow them well. But there are other conditions necessary to have Rhododendrons in any tolerable perfection, viz.:—1. A loose sandy soil, rather damp, and not too dry in summer. 2. It is absolutely impossible to grow them on a chalk or limestone subsoil, even in an artificially made bed; as soon as the roots penetrate down to the chalk the plants turn yellow, and their health is ruined. It is surprising how small an amount of lime will kill them. Even water from a well on the chalk is injurious. 3. Sea breezes are destructive to them. It is useless to try them in a maritime district—I suspect Bristol is too near the salt water. Messrs. Maule's nurseries are no doubt well sheltered from the sea air. Why not grow the Arbutus in such places instead? Nurserymen advertise Rhododendron ponticum by the 100 for coverts. It is, I am told, quite useless to game preservers; hares and rabbits will not touch these plants; but neither they nor pheasants will remain among them unless driven there. *C. D., Ashdean, near Chichester.*—Azaleas and Rhododendrons grow well here in loam on a clayey subsoil. As a proof of the way they grow, I have measured some Rhododendrons this morning and found them to be 40 feet and upwards in circumference, quite pictures of robust health. If "E. S." or his gardener will pay us a visit in June when they are in flower, I will feel a pleasure in showing how well our Rhododendrons grow in loam. *Geo. Fletcher, Gardener, Picton Castle, Pembrokeshire.*

Perpetual Fruiting Grape Vine.—It is nothing new to hear of perpetual Roses or perpetual Figs, but I fancy it would sound strange to hear of a perpetual Grape. If you refer to your volume for June 22, 1861, you will find my account of a Vine bearing ripe and unripe Grapes at the same time, which is carried on through pages 733, 755, and 792. At page 755 it was stated that I did not say whether the two crops were produced every year. This was answered at the time. I may, however, state that the Vine in question has not failed to do so yet, and the object of my again addressing you is to inform you that it has this year borne three crops. The two first ripened as in former years, and the last bunch (or rather part of it) of the third crop this year I send with this. It has hung rather too long, and being just over the open hot-water tank, you will perceive that it has lost a portion from the steam which is constantly rising. Of course this is not sent as being anything fine, but merely as a novelty; nevertheless I think you will allow that the Grapes are well coloured and sweet. I have hitherto been afraid to try a third crop, as we of the old school used to think it necessary to rest the Vine after it had ripened the crop. These have been ripened on the laterals produced on the wood which bore the early crop, so that it does not interfere with the wood for the next early crop whenever it may happen to come, as it is left entirely to chance, our object being to grow a few stove plants without studying the Vine. What the effect of this third crop will be I cannot tell, but you will see by the shoot sent that there is as yet no appearance of going to rest. I suppose the leaves will fall some day, when, if spared, I shall prune the Vine again; we shall then see how long it requires to rest. With these you will receive the young leaves of this last crop and a leaf of the early and second crop. *Jasper Standstill, Bourton.* [The Grapes were delicious.]

Orchard Houses.—Your correspondents seem to forget that what will succeed in one situation may be totally useless in another; Frigi Domo may be an excellent help in obtaining a crop of Peaches in some localities; Tiffany may be the one thing needful in another, but however skilfully handled I fear that both would not be of much service in ripening the crop, or maturing the wood in exposed situations where there is not sufficient solar heat to do so one season in six. In such a case I think that even glass without artificial heat would not be quite such a useless expense as Mr. Huddart seems to imagine. But let me give him a proof: we had nine Peaches and Nectarines against a south-east wall, which have been carefully cultivated and lifted for the last six years, yet they failed to produce a satisfactory crop; two were removed last December, one to an early house, the other to a late one, which although furnished with hot water, was never warmed by it except during a few days while the trees were in bloom. The tree in question bore five dozen fine fruit; the other in the early house bore eight dozen ripe in June, six months after planting, some of which gained our 1st prize at one of the leading provincial shows. Those on the open wall, seven in number, did not bear a dozen fruit each, and they never made a second swelling; as a remedy we have covered them with glass without hot water, and I hope to prove to my employer that it is not "a useless expense." *G.S.*

Vine Borders.—I would advise "An Old Subscriber" (see p. 1181) to get his gardener to cut a trench the whole length of his new 18 feet wide border, at the distance of 9 feet from the front of his house, and the full depth of the border. After that is done, he must encourage the roots to fill well that part of the border which is inside the house, and also the 9 feet space outside. At the end of five years from the time of planting, if the roots have made good progress, they may be allowed to take possession of the second 9 feet of border. *J. H., Ashfield Hall.*

Callirhöe involucrata.—Permit me to say in reference to your remark at p. 1157, that C. involucrata is really not liable to the imputation of being weedy when grown in light soils. Though perhaps in some soils with excess of moisture in them it may assume such a character. The flowers are so numerous, and the colour so rich, that I have not much doubt of its becoming as popular as C. pedata. *W. Thompson, Ipswich.*

Societies.

Botanical of Edinburgh: *Nov.* 12.—Prof. Maclagan, President, in the chair. H.R.H. Prince Alfred was elected an honorary fellow. The following donations to the Herbarium were announced:—Plants collected in Western Australia by Captain Patullo, from P. N. Fraser, Esq.; specimens of Statice Caspia, collected near Hunstanston, from Dr. J. Lowe; large collection of Australian plants, from Dr. Milligan; specimens of Scleranthus annuus, var., from Dr. Dickson; specimens of Fucus distichus, from N. B. Ward, Esq.; specimens of Peltidea aphthosa, from W. H. Lightbody, Esq. Various donations to the Museum of Economic Botany at the Royal Botanic Garden were noticed. The President delivered a long opening address, from which the following are extracts:—Let me recall to your memory the leading features of the papers read to us last session. In the department of vegetable organography and physiology, we had Dr. Alexander Dickson, laying before us his observations on the embryogeny of Tropæolum majus, regarding which I shall only say that it would be well if in similar researches all authors would as conscientiously as he does refrain from eking out their delineations of structure by adding anything from memory to what they have actually under their eye when they make their drawings. It is quite a legitimate proceeding to put down diagrammatically what an organographist may feel assured is the actual relation of parts in any organism which he has been studying, provided he takes care to make it plain that his drawing is truly a diagram. But it is a disheartening and discouraging thing to a less experienced observer to find a drawing given of what seems to be a very plain structure, which he finds himself unable to make out, though, according to the paper before him, it ought to be easily recognised. We had also Mr. Sadler's remarks on the bursting of the spathe of Seaforthia, in which he was unable to obtain any evidence of the production of a sound as stated to occur in the native country of the Palm; and we had papers on the propagation and irritability of Drosera and Dionæa, and on the fertilisation of Orchids by Mr. John Scott. Among the organographic papers were two to which I would invite attention. The papers on the contractile filaments of the anthers of Thistles, by Cohn of Breslau, and on the Perigynium of the genus Carex, by Wesmael of Vilvorde; and with these De Candolle's paper on the character of the Oaks, drawn from the annual or biennial maturation of the fruit. In descriptive botany, besides the papers already mentioned, those on Lemania variegata and the Canadian Equisetums by Professor Lawson, the Rev. T. Salwey's paper on new and rare British Lichens, and Professor Babington's commentaries on Cyperaceæ, we have a continuation of Dr. Carrington's investigations of the various orders of Cryptogams, and the fruits of the diligence of our resident fellow Dr. Greville, in working out and describing the exquisite Diatoms. In the department of Œconomical Botany it is to be hoped that Professor Archer will lay before us those notices of the economic uses of plants which his position as Director of the Industrial Museum may enable him to present us, and of which his account of Paullinia sorbilis was an interesting example. We have also had before us three subjects which at present attract the notice not merely of the scientific but of the political world. The success of Tea cultivation in India is an established fact. Large tracts are now planted with it. The produce is of excellent quality, and that it does not seem to be an unprofitable culture may be inferred from the fact that Mr. Jameson of Saharunpore, has sold one Government experimental Tea farm in the north-west provinces for the substantial sum of 10,000*l.*, while he expects with three lots more to realise an

additional 60,000*l*.! Not less interesting is the question of the production of cotton in our own colonies and other lands, which was brought before us in the form of abstracts of Mr. Markham's communications to the Agri-Horticultural Society of Madras So long as fratricidal war continues to irrigate the valleys of the Potomac with blood, the question as to where Lancashire and Glasgow are to get the raw material must be of the deepest interest to Britain; but even were America at peace, cotton cultivation in other lands will not lose its interest; for we have from the political events across the Atlantic learned that it is unsafe to be dependent for the raw material of any of our great industries on any one country, however productive. Another lesson of a similar kind has also been taught us from across the Atlantic. The recklessness of the South American cascarilleros, or bark gatherers, in destroying the Cinchona trees, whilst they might have collected their medicinal barks by less destructive methods, has more than once led the governors of the country temporarily to interdict the gathering of the barks, and has thus raised the price of these valuable commodities to exorbitant amounts. To Britain, whose fleets and armies are in every quarter of the globe, and often in territories infected by the dangerous fevers of miasmatic origin, a full supply of the great remedy, quinine, becomes indispensable; and it has become imperative on Britain to take steps for making herself no longer dependent upon one foreign quarter of the world for this precious guardian of the health of our sailors and soldiers. The efforts that have been made to accomplish this have been at length, after many difficulties, so far successful that we have now many species, including the pre-eminently valuable Cinchona Calisaya, now in cultivation in India. It is true that we are neither the first, nor as yet the most successful cultivators of Cinchona in the East; the Dutch have done much in this matter in Java, but now that we have made a beginning, and considering that our Himalayas offer us the kind of localities in which Cinchonas thrive, we need, I think, be in no doubt that we shall in time have abundant supplies of quinine from our own eastern empire. The following communications were then read:—I. *Notes on the Fertilisation of Orchids.* By W. Rutherford, M.D.——II. *Synopsis of Canadian Ferns and Filicoid Plants.* By G. Lawson, LL.D.——III. *Notes of some New and Rare British Mosses, and on the occurrence of Trichomanes radicans in the Island of Arran, Firth of Clyde.* By Mr. J. Sadler, Curator.

ENTOMOLOGICAL: *Dec.* 6.—F. Smith, Esq., President, in the Chair. Mr. S. Stevens exhibited a box of interesting Coleoptera, collected in the Zulu country by the Rev. Mr. Gerard; also a curious variety of Polyommatus, apparently intermediate between P. Alexis and Adonis, taken in the Isle of Wight. General Sir J. B. Hearsey exhibited a case of Indian nocturnal Lepidoptera, containing some fine Geometridæ and Noctuidæ. Professor Westwood stated that the Rev. H. Rowley, attached to the Oxford and Cambridge Mission to the Zambesi, had recently forwarded a small collection of insects to Oxford, containing many interesting species, which were very similar to the insects of Mozambique. He also exhibited a manuscript Journal kept by the late Mr. Curtis, containing notes on the habits of insects extending through a number of years; also a Report of one of the Meetings of the Norwich Entomological Society in 1812, at which the Rev. W. Kirby was elected a member. He also exhibited and read descriptions of two curious minute Coleoptera collected in the Canary Islands by Mr. Wollaston, forming the types of two new genera. Mr. W. W. Saunders exhibited specimens of a small new species of Bryocoris (a genus of Hemiptera) which infests the leaves of Orchids from Hayti, as well as of Catasetum, in the same manner as Thrips. Captain Cox sent for exhibition a series of photographic representations of Lepidopterous insects, in which the peculiar markings of the insects were beautifully reproduced. Mr. Kirby exhibited a copy of Dr. Loew's new work on the Trypetidæ, in which the beautiful wings of these dipterous insects were represented by photography of a gigantic size. Mr. F. Smith read a description of the nest of the small honey bee of New South Wales, which had been opened and carefully examined since the last meeting. The cells were hexagonal, forming regular combs, but the honey was found stored in oval cells, as in the Bombi. Mr. Wilson, of Adelaide, communicated observations on the habits and larvæ of Calosoma Curtisii; and Mr. MacLachlan read some notes on the types of Phryganeidæ contained in the Banksian collection, described by Fabricius.

Notices of Books.

A Treatise on the Esculent Funguses of England. By C. D. Badham, M.D. Second Edition. Edited by F. Currey, Esq., M.A., F.R.S., F.L.S. Reeve, 1863. 8vo. Pp. xvi. and 152. Plates xii., lith. and col.

The appearance of a second cheaper edition of Dr Badham's treatise is one amongst the many proofs which might be brought forward that the study of Mycology is daily becoming more prevalent. The widespread prejudice against the use of any Fungus for food, except the Mushroom, Truffle, and Morel, is rapidly wearing out, and there is scarcely an English village where there is not some one inquiring after information on which reliance may be placed, respecting these much maligned works of the Creator. Here and there a dark spot may still be found where prejudice is so strong, that even the best Mushrooms are passed by, or if gathered at all, gathered with fear and trembling; and we have even heard persons otherwise intelligent, and whose education has been such as ought to place them above vulgar errors, who have never in the whole course of their lives ventured to taste a Mushroom. This however is quite exceptional, and there is now many a family which gratefully acknowledges the immense boon that Fungi afford to those whose means do not allow them frequently to purchase meat. Their experience possibly may not extend much beyond the particular group to which the true Mushroom belongs, but they would as soon think of crushing their Potatos beneath their feet as to kick up Agaricus arvensis, as so many do in scorn, when, not to speak of its merits as a catsup-yielding Fungus, it supplies such an abundant and excellent article of food through the months of autumn, in districts where the true Mushroom, Agaricus campestris, is comparatively rare.

Dr. Badham's book has done much towards dispelling prejudice, and with its help any one with ordinary powers of observation and comparison may fearlessly go into the fields and woods and procure many a wholesome and delicate repast. Cantharellus cibarius, Hydnum repandum, Agaricus gambosus, Agaricus personatus, and many more useful species of greater or less excellence, may be gathered without the possibility of mistake, and proper directions for cooking them in the most approved way are scattered about with no sparing hand throughout the volume. In spite, however, of Dr. Badham's efforts much still remains to be done. We would not, indeed, recommend rash experiments where doubts exist as to the real character of species. Agaricus mellens, for instance, should be carefully avoided, nor are its qualities such as to render it very inviting; while, on the other hand, when once Marasmius oreades has been well distinguished from one or two darker-gilled species, it will be welcomed wherever it is found as a dish worthy of the gods, though we have seen it, as at Rhyl, occurring in myriads, yet utterly neglected. Boletus edulis, one of our best Fungi, is comparatively unknown. Cantharellus cibarius again, which seldom occurs in any available quantity in England, grows in the utmost profusion in the Birch woods of Aberdeenshire, without the slightest suspicion on the part of the peasantry that it is an excellent article of food. This is, however, the less surprising, as even the common Mushroom, though abundant in some seasons, is little sought for in that part of Scotland, or esteemed.

We have lately had our attention called to the excellence of Agaricus pratensis, which occurs in such luxuriance on the Sussex Downs. We have ourselves no experience of its qualities, but its whole appearance and character bespeak its usefulness. It is doubtless perfectly wholesome, and is sometimes eaten in France, though not considered equal to Agaricus virgineus. Agaricus rubescens again, a widely distributed species, which has long borne a doubtful character, is on the authority of both Dr. Badham and Mr. Currey pronounced to be wholesome and very delicate.

As regards the present edition of Dr. Badham's work, which has been justly esteemed for its lively style, and the immense quantity of information it contains within a short compass, we may observe that Mr. Currey has with great good sense religiously preserved the original text, the few alterations and omissions he has made being so trifling as scarcely to deserve notice. The plates have been remodelled, some useless figures removed, and others substituted, while the whole number has been advantageously reduced from 20 to 12. A few errors are corrected in the preface, and we may ourselves remark that in Plate 5 of the new edition, there is some confusion as regards the references. Two things are certainly included under Fig. 2, and Fig. 3 is *Clavaria Botrytis* and not *C. coralloides*.

Le Fraisier. Par Le Comte Léonce de Lambertye. Paris, 8vo., pp. 392.

This is a work extending to nearly 400 pages on the Botany, History, and Cultivation of the Strawberry. The author recognises eight species, distributed as follows:—three European: Fragaria vesca, F. elatior, and F. collina; three American: Fragaria chiloënsis, F. virginiana, and F. Grayana; two Asiatic: Fragaria Daltoniana, and F. nilgherrensis.

There are numerous varieties of F. vesca; but the best, and most generally cultivated, is the semperflorens, comprising the Red Alpine, and its subvariety the White Alpine. The Red and the White Wood Strawberries cannot be considered distinct from the Red and White Alpines, for these if not renewed by seed will degenerate and become similar to the wood varieties; that is to say, instead of being tolerably large, conical, and sometimes cockscomb-shaped, they will assume a small and roundish form. There is a sub-variety, Fraisier de Gaillon *(efflagellosa semperflorens)* which does not emit runners, and is also known under the name of F. des Quatre Saisons sans Coulants. The variety called *muricata*, or F. de Plymouth, was described by John Tradescant in 1633, and he states that it was cultivated as a curiosity by a lady at Plymouth. The original has no doubt been lost; but it appears to have been only a sport or monstrosity from the Alpine, with the petals and stamens transformed into leaves. *F. vesca* var. *monophylla*, F. à Feuilles simples, is a variety raised by Duchesne, at Versailles, in 1761. The leaves consist of only one leaflet instead of the usual number, three. *F. vesca* var. *efflagellis*, Fraisier sans Coulants, and F. Buisson, Bush Alpine, is like the Wood Strawberry, but makes no runners. This was formerly much used for edgings, and is still sometimes employed for that purpose. It must not be confounded with the variety, des Quatre Saisons sans Filets, which, however, may be substituted for it. *F. vesca* var. *multiplex*, Fraisier à fleur double, the Double flowering Strawberry, had, it is stated, disappeared from the gardens in France, but had been latterly reintroduced by M. Gloëde from England. Another variety of F. vesca is still cultivated in some districts near Paris, under the name of Fraise Petite Hâtive de Fontenay-aux-Roses. It ripens five or six days earlier than the earliest of the other varieties.

Fragaria elatior, Caperon commun, F. Caperon, is the Hautbois of the English. It appears that the French have employed the term Caperon as we have done that of Hautbois, to designate not only the Hautbois proper, but also any other large Strawberry of the Pine or Chili breed; and hence a considerable amount of confusion arose. Comte de Lambertye reduces the varieties to four, besides the Belle Bordelaise, and this he might have included with the Caperon Royal, our Prolific or Conical Hautbois, which it has proved to be. It may be useful to give the synonymes of the Hautbois according to the author's arrangement, as he has evidently taken great pains to ascertain them according to the different authors who have written on the subject. The Caperon Royal, Caperonier Royal, Caperonier parfait, Caperon hermaphrodite, Caperon de Bruxelles, Caperon de Fontainebleau, Prolific or Conical "Strawberry" [Hautbois], or Double Bearing, is very well described; but the description of the Caperon Framboise, taken from Duschesne, is somewhat imperfect; it is probably the Large Flat Hautbois. The Caperon Abricot, Caperonier Abricot, le Caperon abricoté, la Fraisier abricotée, is described as roundish or ovate, very large, brown-red, its flavour being the same as that of the common Hautbois. The Black, and the Monstrous Hautbois are also mentioned; and finally the Belle Bordelaise, stated to have been obtained in 1854 by M. Lartey. This last appeared in foreign and English catalogues as a new sort; but on fruiting in this country it was at once recognised as not differing from the Prolific or Conical Hautbois; and with the latter Comte de Lambertye's description of La Belle Bordelaise perfectly agrees.

Fragaria collina.—Six principal varieties are enumerated, and numerous sub-varieties, which have given rise to a confused nomenclature, which the author has cleared up to a considerable extent, though practically, as regards cultivation and utility, they are really not worth the trouble. Such for instance is the *Fragaria collina abortiva*, F. Concon, Breslinge Concon, Breslinge Borgne, F. Aveugle des Anglais, &c. The only one which, in our opinion, deserves notice in this group is the Green Strawberry. It is very different from the Alpine varieties, and from all others. Its flavour approaches nearer to that of the Pine-Apple than does perhaps the flavour of any other fruit. The question is, will it hybridise with the Scarlet Strawberries? Doubtful. Or with the Pine or Chili? Very doubtful. But with the Hautbois there is every probability that it would cross, and something very remarkable might be the result. Many years ago it was found, we believe, growing wild, at a place called Goftonburn, near Belsay Castle, in Northumberland. At all events it doubtless exists somewhere in England and consequently may be obtained.

From the remarks in the second part of the work, which relates to the geographical distribution of the Strawberry, it appears that Fragaria vesca, from which the cultivated Alpine Strawberry has been derived, is the most widely dispersed species of the genus. It is found indigenous in certain localities from Iceland to Madeira; and it grows in Lapland, the Caucasus, Siberia, and the Mongolian frontier of China. In the Alps it bears fruit at the height of upwards of 5000 feet; at 1400 feet it ripens in the beginning of July; at 3300 feet about the middle of July; and at 4600 feet in August and September.

The third part contains descriptions of 40 varieties which the author considers proper for cultivation. These are arranged into several categories, according to different points of merit, as, for example:—

1st. Sorts possessing all the merits—*goodness, fertility, beauty*, and *hardiness*. Of such, 28 sorts are enumerated.

2d. Sorts not invariably so productive as some, but of which the fruits are *handsome* and *excellent*: these consist of the British Queen and Keens' Seedling.

3d. Sorts which are of *remarkably fine appearance*: Admiral Dundas, very good; Duc de Malakoff, good; Jucunda, very middling.

4th. Sorts recommendable on various accounts: Elton, late, possessing all the desirable qualities were it not rather too acid; May Queen, the earliest of all known varieties; Prince of Wales (Steward and Neilson), very early; Princess Frederick William, the

earliest after the May Queen, and the first very large Strawberry. Among those in the category of such as force very well, we observe, besides the British Queen and Keens' Seedling, the names of La Constante, Empress Eugénie, Duc de Malakoff, Sir Harry, Sir Charles Napier, and Oscar.

According to Comte de Lambertye's full and excellent descriptions, the following appear to be most highly deserving of cultivation:—Carolina superba, flesh white, solid, buttery, melting, very sugary, with a delicious perfume; excellent. La Châlonnaise, flesh juicy, acidulated, very sugary and perfumed; excellent. La Constante; excellent. Duc de Malakoff, very large, weighing sometimes 1½ ounce, the flesh light red, juicy, acidulated, sugary and perfumed. Elton, a variety of which M. Gloëde wished both Comte de Lambertye and Dr. Nicaise to give up the culture, on account of its being too acid, but neither of them would consent to do so, its fault, the only one that can be ascribed to it, being easily corrected at table by a little more sugar; whilst, on the other hand, it has a handsome form, a superb colour, and its flesh is juicy and perfumed; the plants moreover are vigorous and very hardy; upwards of 300 acres are devoted to the cultivation of this Strawberry in the communes of Verrières, Sceaux, Châtenay, Fontenay-aux-Roses, &c. Hendrie's Seedling, exquisite. Lucas, excellent. Marquise de Latour-Maubourg, also called Vicomtesse Hericart de Thury, very sugary and high flavoured, one of the best. Oscar, excellent. Prince of Wales, very good. Sir Harry, flavour exquisite. [The Elton was first described when it fruited in the garden of the Horticultural Society, in 1827; but Mr. Knight, who raised it at Downton Castle, thought it too acid. Afterwards, however, he approved of it, and named it the Elton. It was then further distributed.]

Tom Moody's Tales; by Mark Lemon. Square 12mo. (Bradbury & Evans).

This is a very pretty looking book in a scarlet cover, containing 14 tales, such as "The Martyr Post-boy," "Recollections of a Retired Butler," "The Adventures of a Christmas Turkey," &c., very acceptable no doubt to our young friends as a Christmas Box, and more especially suited to boys. The illustrations, of which there are 13, are extremely spirited and clever, as will be expected when it is known that they are executed by Hablot Browne.

We find in the *Botanical Magazine* for the present month representations of the following plants:—*Dipteracanthus affinis*, a handsome Brazilian subshrubby Acanthad, with broad oval acute leaves, and axillary subsessile scarlet flowers having a long funnel-shaped corolla with a broad spreading limb, and vying, as Sir W. Hooker expresses it, with the deep purple-blue D. spectabilis. It was brought into notice and figured in the *Illustrated Bouquet* some time since, by Messrs. E. G. Henderson & Son. *Eria myristicæformis*, a Moulmein species, with upright spikes of pretty and very fragrant white flowers, but chiefly remarkable for the fact that its old pseudobulbs, after the leaves are cast off, look not unlike a cluster of nutmegs, whence the name has evidently been taken. It has flowered with Messrs. Low. *Heliconia brevispatha*, the H. aurantiaca of Belgian gardens, a supposed South American plant, with oblong acuminate stalked leaves, and having its stem terminated by three or four yellowish-white flowers issuing from the axils of short orange-red bracts. *Ligularia Hodgsoni*, a tall Japanese perennial, sent to Kew by C. P. Hodgson, Esq., The broad root-leaves are roundish cordate, repandly-lobed, and coarsely toothed; and the thick succulent stem, 3 feet high, is terminated by a corymbose head of large capitules, 2½ inches across, of from 16 to 20 broad bright yellow ray florets surrounding a yellow disk; the smaller upper leaves are cucullato-vaginate around the stem.. *Adenium obesum*, an odd gouty-stemmed plant from Aden, and said to be the same as the Adenium Boughel figured in the Botanical Register many years ago. The oblong leaves are crowded at the end of the short unshapely branches, from amongst which issue the rosy apocynaceous flowers. "Judging by a photograph lately sent to us by the kindness of Capt. Playfair, the shrub attains a very large size, and exhibits a most curious aspect with its thick tortuous branches, and very gouty base of its trunk; the flowers, however, are handsome and not much unlike those of the Oleander." *Burlingtonia decora* var. *picta*, a pretty Brazilian Orchid flowered by Mr. Bateman; the flowers have a large flat bilobed white lip, and white sepals and petals marked with spots and unequal blotches of deep chocolate purple; the leaves, short and acute, are said to resemble more closely those of B. rigida, than those of the original B. decora. This closes the volume for 1863, which is dedicated to Dr. Wight, "the distinguished illustrator of Indian botany."

The *Florist and Pomologist* has a figure of the fine *Clematis Fortuni*, already fully noticed by us; also a representation of the *Frogmore Late Pine Strawberry*, a valuable sort raised by Mr. Ingram. "The fruit is large, varying from conical to cockscomb-shaped, and having the glossy neck of the old Pine, which shows its parentage. The skin is glossy, bright red, with a scarlet shade in it, and the seeds are not deeply embedded. The flesh is tender, red throughout, and of a rich Pine flavour. The variety comes in at the same season as the Elton, but is far superior to it, both in flavour and productiveness."

Gossip of the Garden closes its useful career with the current number, the reasons being "entirely of a private nature." We shall be sorry to part company with so genial and well-conducted a contemporary. Amongst its contents we notice a few sharply reprehensory words on the famous Chrysanthemum advertisement; more about New Roses; seasonable hints on Seedling Gladioli; some notes on new Tulips; and various minor floral memoranda.

The *Floral Magazine* has a showy plate of *Fancy Pansies*, consisting of some of the finest of Mr. Dean's novelties, named Her Majesty, Prince of Wales, Princess of Wales, and Thomas Moore; *Gastronema sanguineum*, a handsome South African orange-red Amaryllidaceous bulb allied to Cyrtanthus, introduced by Messrs. Backhouse & Son, and said to be almost hardy; *Clematis reginæ*, a hybrid, raised by Mr. Anderson Henry, between azurea grandiflora and lanuginosa; and not at all well rendered in the figure if its flowers keep up the character they had when shown in 1862 at South Kensington; and finally a *Picotee* called *Colonel Clark*, and a *Carnation* named *Lord Clifton*, the first one of the heavy rosy-scarlet class, and the second a pink and purple bizarre "of great size and beauty."

Seemann's Journal of Botany contains a notice by Mr. Carruthers, with a coloured plate, of Fucus distichus, the new Irish Sea-weed, found last summer by Dr. Harvey and Mr. Ward at Kilkee, and previously mentioned under the name of F. furcatus. A more careful examination has shown it to be a Linnean species found in Northern Europe, but till now not noticed nearer our shores than the Faroë Islands. Mr. H. C. Watson has a note on the discovery of Sagina nivalis on Ben Lawers, where it was picked some years ago, by Professor Balfour. Mr. Mitten notices a Reigate Moss, hitherto known as Hypnum abietinum, under the new name of Thuidium hystricosum, with a short character. There are some remarks on the yield of quinine from Cinchona leaves, by Dr. Anderson; and though the quantity seems small and much entangled with tannin and other matters, yet its presence is confirmed. Dr. Anderson states that the quinine is present in the old leaves—those about to fall off; and hence, as the Cinchonas are not absolute evergreens, but cast off a large portion of their leaves after resting and when growth is renewed, the leaves might be picked then without any detriment to the plants. The Rev. Mr. Newbould asks British Botanists who visit Ingleborough to find out early in spring if Hutchinsia alpina is really British; its unbranched stem and large petals will, he says, enable any one who makes the search to distinguish it if met with. The translation of Goethe on the Metamorphosis of Plants, with notes by Dr. Masters, is concluded. There is also a notice of Dr. Prior's new book on the popular names of British plants. The present number concludes the volume, one of the commendable features of which is a good index, in which the subjects, and not merely the headings of the papers, are referred to individually.

The Society for the Diffusion of Useful Knowledge has commenced the issue of a *Family Atlas*, to consist of 80 maps, published in 20 half crown parts. It is in large 4to, beautifully executed, and Mr. Stanford, of Charing Cross, is the publisher. We observe that it is also to contain Star Maps, a Geological Map of England and Wales by Sir Roderick Murchison, and Plans of London and Paris.

The New Number of the *Linnean Transactions* (Vol. XXIV, Part 2. Longmans.) contains eleven good papers on interesting subjects, among which is a capital dissertation by Dr. Harley on the parasitism of Miselto, and a most curious account, by Mr. Salter, of a Passiflora that *took to forming pollen in its ovules!*

Mr. Murray has just published a most beautiful edition of the *Book of Common Prayer*, with all manner of illustrations in red and black initial letters, ornamental borders, &c. It has no rival as a Christmas gift book.

We have received from Messrs. Lawson, of Edinburgh, Parts III. and IV. of their superb *Pinetum Britannicum*. Part III. contains Picea Cephalonica and Pinsapo, with 26 engravings on wood. Part IV. has Abies Hookeriana and Pattoniana, with 23 engravings on wood. The work, which is most carefully prepared by Mr. Andrew Murray, is an honour to the Natural History of the present day.

Garden Memoranda.

CROFTON HALL, the seat of Sir Robert Briscoe, Bart. This fine place lies a few miles west from Carlisle. On approaching it, the first object that attracts attention is a noble archway erected over the road leading towards the hall; this road divides the latter from the deer park. The mansion itself is a fine building, and near it is an excellent orchard house, facing the south; it is built upon the lawn, and is backed up on the north by an Oak plantation, which not only hides the stables and back departments of the premises from view, but also forms shelter for the gardens. The deer park contains upwards of 120 acres laid down in Grass, and 20 more acres are occupied by water in the shape of ponds for fish, water-fowl, &c. The park, taken as a whole, is beautifully undulated, and outside on the south and north is a natural peak planted with Oaks, which may be seen from a great distance. A walk extends from the pleasure-grounds along the ridge of a hill sheltered from the north on one side by a plantation of Oak, and having a Sweet Briar fence on the opposite side. This overlooks the fertile valley of the Wample, from which the ground rises in swelling altitudes even up to lofty Skiddaw itself.

Upon entering the orchard house we were at a loss what most to admire—its noble appearance, or the fine healthy state of its inmates. This house is a span-roofed one, glazed with Hartley's rough plate glass. It is 140 feet in length, 25 feet in width, and 21 feet high. The space inside is divided into four longitudinal beds, into which the pots are plunged. There are 350 trees grown in this house, in pots 17 inches in diameter, and 15 inches in depth. They are all arranged in straight lines as follows:—One row consists of Pears, two of Apples, one of Plums, and one of Cherries. The front lines are Peaches and Nectarines, but we were informed that they did not succeed well, the trees being too far from the light. Cherries, Plums, and Apples do admirably; many of the latter, we observed, were worked on the French Paradise stock, and we were informed that it answered well, for wherever the stock came in contact with the soil an abundance of roots was emitted. The system of pruning pursued is summer finger-and-thumb-pinching, leaving very little to be done by the knife in winter. At the time of our visit, the trees with their pots were all placed on the surface of the beds. Mr. Weddle, the gardener, informed us that every year, when the fruit is all gathered, the pots are raised to the surface, and all roots that have entered the bed are cut off. The trees remain in this position until they have shed their leaves, when they are again plunged, covering the pots over the rim. This plan, we were told, answered much better than leaving the pots exposed in the winter, the roots being kept more uniform as regards warmth and moisture. As soon as the trees show signs of growth they are again lifted three parts of their depth, and receive a top-dressing, composed of good loam, well decomposed manure, with a few half-inch bones. Water is given when necessary, and after the fruit is set the trees receive a liberal supply of manure water, which Mr. Weddle states greatly assists their swelling. In this house Vines are trained up under each rafter; the varieties which succeed best in this cool temperature are Chasselas Musqué, Muscat St. Laurent, and Black Frontignan. Black Hamburgh Vines in 11 and 8-inch pots were also well grown, some of their canes measuring an inch in circumference.

In the frame ground two fine ranges of forcing pits are in course of erection; each range is to be 49 feet in length; the whole to be heated with hot water.

The kitchen garden, which has good walls, is rather more than an acre in extent, and is laid out in four squares. Espaliers were formerly grown here on wooden rails bounding each square, from which they were separated by a narrow border, the side of which next the wall was occupied by herbaceous and other plants, which created a pleasing effect in the summer. The espaliers are, however, now superseded by pyramid Pear trees. Two span-roofed houses, erected last spring, are about 25 feet long by 14 feet wide, and 10 feet 6 inches high. In one of these, Melons and Cucumbers have been grown in abundance this season; in the other, which is a permanent Pine stove, the plants are looking exceedingly well; nothing in short could excel their robust health. Next came two old-fashioned Vineries, each 35 feet in length by 21 feet in width, and containing two Pine beds, one in front and the other near the back of the house. The beds are divided by an alley, which runs up the centre of the house and passes along near the back wall. These houses are all furnished with hot-water pipes, both for bottom and surface heat; formerly they were heated by means of steam, but that plan is now superseded by Meiklejohn's cruciform boiler and hot-water pipes, which are found to work well. The Muscat Grapes grown in these houses at one period could not be surpassed in quality; but, owing to little or no extent of border having ever been made for them, they are now getting exhausted, and a new border is about to be raised for them entirely above the level of the surrounding ground. When that is done, young Vines will be planted. Adjoining this house is a plant stove, 33 feet long by 15 feet wide; in this house is a choice collection of plants, many of which are remarkably fine specimens. Among them we observed two splendid plants of Allamanda in flower, but most conspicuous of all was a fine example of the noble Cyanophyllum magnificum; here also were some fine specimens of Ferns, the beautiful Eucharis amazonica in flower, and some charming plants of Gesnera cinnabarina; some of the latter were in full bloom, and others were coming into flower. A good collection of Orchids is also cultivated here. In the other Vinery already mentioned was a collection of Azaleas, well set with flower-buds. Here also might be seen a fine old Hamburgh Vine, which we were informed had borne a heavy crop during the last summer, and, judging from the luxuriant shoots made this season, it looked as if it would soon fill the whole house. In a Peach-house, which is 96 feet long by 6 feet 6 inches wide, the trees are trained to a trellis on the back wall, and Vines are grown up each rafter. Mr. Weddle informed us that this house is to be removed into the kitchen garden to be enlarged and heated with hot water. After inspect-

ing this, we passed through the flower garden into the conservatory or show house. This is a lean-to structure, very lofty, and has altogether an elegant appearance. It is 91 feet long, and 15 feet in width, with a stage running the whole length of the house. Here we observed some remarkably fine Orange trees, bearing heavy crops of useful as well as ornamental fruit; indeed from their produce very fine marmalade has frequently been made. Of Camellias, all of which seemed in fine health, some were full of flower buds, and others were in bloom. Chrysanthemums and Scarlet Geraniums were interspersed with good effect amongst the green leaves of the Oranges and Camellias.

A fruit wall stands a little to the west of the mansion. It is 267 yards in length, and 10 feet high; 140 feet of it runs east and west, giving north and south aspects. The remainder runs nearly due south, which furnishes a great length of east and west aspect. On this wall are trained a fine selection of fruit trees, consisting of Pears, Plums, Cherries, and Apricots. Here were some fine examples of training. The Pear trees are all trained on the "pendulous" mode, which is said to answer admirably for this kind of fruit, but it does not suit Apple trees. Here were examples of the beneficial effects of root pruning. The fruit-tree borders were all trenched two spades deep in the autumn of 1861, when the roots were checked, and any that were taking a downward direction were lifted and replanted. No manure was given at that time; but after the trenching was finished, 4 inches of fresh loam were laid on the borders, slightly dug in, and well mixed with the old soil. These operations have produced favourable results, for the stems and branches literally shine as if polished. We never saw wall trees in a more healthy condition, and most of them had produced good crops last season. The Pears succeed much better on the west than on the east aspect; and in consequence of this all the finest Pears on the east side are to be removed to the west aspect, and many of the Plums will have to be rooted out to give them space. The borders to this wall are only 6 feet wide. The Pears most in favour at this place are Winter Nelis, Easter Beurré, Beurré Rance, Summer Rose, Glou Morceau, Beurré d'Amanlis, Citron des Carmes. In addition to these Mr. Weddle mentioned the Melon de Namur, as being a first-class dessert Pear.

Miscellaneous.

Christmas Flowers.—There are now in flower at Acton Green near London, in the cold London clay, Primroses, Violets, Wild Strawberries, Purple Dead Nettle, Chinese Chrysanthemums, Cydonia japonica, Laurustinus (most beautiful), Arabis grandiflora, Iberis sempervirens, Garrya elliptica, Jasminum nudiflorum, China Roses, Heartsease, Holly-leaved Berberry, Christmas Roses, Aster Amellus, Periwinkles, Helleborus argutifolius, and Daisies. We learn too from Mr. Drewitt, of The Denbies, near Dorking, Surrey, that he gathered on December 16, from the open ground, flowers from the following plants, viz. Scarlet Rhododendron, Jasminum nudiflorum, Mignonette fresh and good, Picotees, Purple Branching Larkspur, Single Anemones, Wallflowers, Oxlips, Double Purple Primroses, Polyanthuses, Purple King and Lord Raglan Verbenas, and Cydonia japonica.

Vitality of Fishes.—Although the constitutions of fish are in some cases influenced by the temperature of the element they inhabit, and a few degrees above or below a certain temperature will drive them to seek other positions, yet, in many cases, they are not so influenced. The fact is well authenticated, that certain species can bear the test of being frozen in solid ice, and on being gradually thawed, will regain their former signs of vitality; while others have been observed swimming about in hot springs at Manilla and in Barbary, in water of a temperature of from 172° to 185°; and a species of Silurus, according to Humboldt, was observed by him thrown up alive with the heated waters of a South American volcano, which were proved to be of a temperature of 210°, or within 2° of the boiling point. *Technologist.*

Drosera and Dionæa; their Propagation and Irritability.—The modes of propagation and means of dissemination of Drosera (Sundew), and Dionæa (Venus's Fly-trap) are varied. Thus, independently of reproduction by seeds, the leaves of a number of the Droseras present a remarkable aptitude for the production of adventitious buds. This property is well illustrated by the British species, all of which produce with the greatest facility young plants on the surfaces of their petioles and laminæ. So frequent is this mode of propagation, that it must be familiar to all who have collected these plants in the later summer or autumn months, when the earlier developed leaves are beginning to decay. These falling on the moist mossy bed are reimbued with the formative force, and along their surfaces small cellular protuberances first make their appearance with a few pale fawn-coloured scales, after which one or usually two leaves are developed, and then a little rosette of undeveloped leaves beset with scales, forming a pseudo-hybernaculum. The young plant up to this period is generally attached to the generative leaf, so that its nourishment is entirely derived from the parent. The vital activity of the recipient plant now in a great measure ceases, the generative leaf undergoes decay, and leaves it a free and independent organism, which, ere spring returns, may have been transported to some distant nidus by the floods, which generally sweep their habitats during winter. As illustrating susceptibility to mechanical irritation, the following experiments on Drosera rotundifolia (round-leaved Sundew), performed in a temperature of 65° Fahr., may be mentioned. Selecting a vigorous plant, I carried on a gentle irritation of the hairs for a short time; their collapsing soon became evident, and in half an hour they were all curved in upon the surface of the laminæ. Again, placing an insect upon the surface of another, the hairs had begun to collapse in 12 minutes, and in 20 minutes nearly all those near the base of the leaf had their glands applied to the insect, while those on the apical part had undergone little or no change. This had been occasioned by the position of the insect, which had been accidentally placed on a line with the petiole near the base of the lamina. Thus it would appear that the Droseras do not possess the communicative powers of either their ally the Dionæa, the lobes of which collapse on the touching of a single hair, or of the Mimosa, which exhibits the same rapid communicability to the other pinna of the leaf when the equilibrium of one is disturbed. Some experiments in support of Dr. Nitsche's statement "that their susceptibility to irritation is invariably proportionate to the activity of their secretions, and dependent on the process of assimilation," were made, but none of those with chemical stimuli elicited any susceptibility to irritation, though chloroform seemed to have an anæsthetic influence. In one experiment two portions of the leaf of Drosera binata were placed under a bell-glass exposed to the vapour of chloroform. In four minutes no perceptible change having taken place in either, one of them was taken out, and it was found that the hairs were completely anæsthetised. *J. Scott, in Trans. Bot. Soc. Edinburgh.*

Calendar of Operations

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—About 40° is a good temperature for this house when not attached to sitting rooms, and only used for the purpose of wintering large specimens without plants in blossom; but where a supply of stove plants in bloom is constantly kept up from a forcing pit, which is essentially necessary in every large establishment in winter, the best heat is 45°. Cinerarias, which are great ornaments in this house in winter, are thirsty plants, and should be well attended to with water; they are also liable to the attacks of insects, and must be well looked after. Chinese Primroses are likewise very ornamental, and ought to be cultivated in quantity. In regard to soil, two parts rough leaf-mould, and one of well decayed cow-dung, with a little sand, suits them best, and with this they like plenty of moisture. All stove plants should now, and for the next six weeks, be quite at rest, and in that state 55° will be high enough for them in cold weather. No more water should be given at the roots than what will keep the leaves from flagging, but the atmosphere should be kept more or less moist. Keep plants in pits and frames as hardy as possible, by fully exposing them in mild weather, but do not give them any more water than is absolutely necessary. Remove all decayed or decaying leaves, and keep the atmosphere in as healthy a state as possible.

FORCING DEPARTMENT.

PINERIES.—Where a supply of Pines is wanted throughout the year, it is sometimes necessary at this season to subject some of the fruiting plants to a high temperature to start them into fruit. If a few of those most likely to fruit soon can be put into a house by themselves, where a temperature of from 65° to 70° can be maintained by night and 72° by day, with about 85° of bottom heat, it will bring on the fruit. The other plants can then be kept at a moderate temperature till the end of next month; this will prolong the succession of fruit, and be much better than subjecting many plants to a high temperature at this dull season.

VINERIES.—As before mentioned, observe great moderation in regard to increase of temperature in houses in which forcing has just commenced.

PEACHES.—It is an excellent plan to have a stock of Peach trees in pots, especially for the first crop. Therefore, if these are not already at hand, no time should be lost in getting a supply of trees from some nursery, nicely set with fruit buds.

CUCUMBERS.—These should have as great an amount of foliage as possible exposed to light. Continue, as opportunities occur, successional crops of Kidney Beans, Seakale, Rhubarb, and Mushrooms.

FLOWER GARDEN AND SHRUBBERIES.

Where alterations are contemplated, such as making new walks, new flower-beds, or renewing the soil in old ones, these should be forwarded whenever the weather will permit. Holes for planting choice shrubs or trees may also be prepared by removing the bad soil, and replacing it by a compost suitable for the plants; and even where trees are planted and not growing well, the soil may be carefully removed from the roots, and replaced by better material. In wet weather plenty of work may be found in making pegs, brooms, flower sticks, repairing rustic baskets, and seats, and in painting wire trellises. Should frost set in, cover Auricula frames with two good mats, giving air by tilting the lights whenever possible. Should the plants by any means get frozen, allow them to thaw gradually, without being exposed to the action of the sun's rays. Those who have not obtained the necessary number of Ranunculuses to make up their beds, ought to do so without delay. If the beds have not been already formed, perhaps the simplest and best way is to excavate the soil 2 feet deep, put in 6 inches of decayed cow-dung, covering this with maiden turfy loam to the depth of 12 inches, the remaining 6 inches to be equal parts loam, leaf-soil, and sand, thoroughly incorporated.

HARDY FRUIT AND KITCHEN GARDEN.

Persevere while the weather is mild in getting well forward with all necessary operations on wall fruit trees, such as pruning, nailing, and dressing. Continue the renovation of old borders as opportunity offers. See that pyramid and bush Pears and Apples get the necessary pruning, and dress orchard trees with quick lime to destroy moss. The most effectual cure for this is, however, thorough drainage. All unoccupied ground should now be turned up by rough digging, trenching, or ridging; regulating these operations according to the nature of the soil, and the character of preceding and contemplated future crops. All sorts of work which can be done under cover should be got well forward in bad weather; and hard frost will afford opportunities for wheeling on all sorts of manures and composts. Every advantage must be taken of mild weather to give attention to growing crops, such as Lettuces, Cabbages, and Cauliflowers; surface stirring whenever practicable must be persevered in, also dressings of dry lime and ashes may be given to check damp and the ravages of snails.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Dec. 16, 1863, as observed at the Horticultural Garden

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 10	●	30.141	30.122	51	28	39.5	43½	49	S.W.	.00
Friday 11	1	30.204	30.052	53	46	49.5	48	49	S.W.	.00
Satur 12	2	30.099	30.061	56	27	41.5	49	49	W.	.00
Sunday 13	3	30.325	30.180	58	29	43.5	49	49	S.W.	.00
Mon. 14	4	30.382	30.326	48	27	37.5	47	48½	W.	.00
Tues. 15	5	30.318	30.119	48	42	45.0	47	48	S.W	.00
Wed. 16	6	29.867	29.714	49	32	40.5	47	48	W.	.00
Average.		30.189	30.082	51.5	33.0	42.2	47.9	48.6		.00

Dec. 10—Clear; overcast; mild breeze.
— 11—Overcast, densely clouded, fine at night.
— 12—Cloudy; very fine throughout.
— 13—Clear and fine; very fine, slight frost at night.
— 14—Foggy; fine throughout; slight frost.
— 15—Hazy; fine at night
— 16—Densely clouded; very fine.

Mean temperature of the week 2½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 37 years, for the ensuing Week, ending Dec. 26, 1863.

Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 20	44 0	33.7	38.9	13	0.76 (in.	3	▮	1	2	5	12	3	2
Mon. 21	43.4	33.7	38.6	14	0.20	1	8	▮	2	2	14	3	4
Tues. 22	44.9	33.0	38 9	18	0.37	5	7	3	1	2	11	6	2
Wed. 23	44.2	32 0	38 1	20	1.13	6	8	2	2	1	12	2	4
Thurs. 24	44.0	31.4	37.7	16	0.30	4	4	4	2	1	15	3.	4
Friday 25	43.5	—	38 8	9	0.45	4	8	5	—	2	12	5	3
Satur. 26	42.7	31.3	37.0	12	0.39	3	6	3	4	4.	9	5	3

The highest temperature during the above period occurred on the 25th, 1827—therm. 58 deg.; and the lowest on the 24th, 1860—therm. 4 deg.

Notices to Correspondents.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

BOOKS: *W H.* Theology is not in our province.

CONCRETE WALKS: *S R.* Very good ones may be made by laying down 3 inches in thickness of clean coarse gravel, and pouring upon it a thin grouting of Portland cement, smoothing all over with a trowel. If done in summer such walks are stated to stand for years. If they are to bear much wheeling, then the gravel must be at least 4 inches in thickness.

CUCUMBERS: *J S.* They are bitter because they have too little bottom-heat and too much exposure.

GAS STOVES: —— Gas stoves cannot be recommended for warming a conservatory, or for any structure in which plants are grown. At least we have never met with a safe one. No doubt the premature decay of Cinerarias and Chrysanthemums may be attributable to the one you employ. The damage is caused by the fumes which escape.

GRAPES: *Henry.* Yes, they are named rightly, and uncommonly good they are. It would be better for more autumn heat.

NAMES OF FRUITS: *A.* 1. King of the Pippins, very fine specimen; 2. Over ripe, bears resemblance to the Gravenstein; 3. Hollandbury; 4. Probably a seedling, not worthy of a name.—*Mrs. F.* Apple B. New Rock Pippin; C. Beauty of Kent. Pear A. Ne plus Meuris; B. Beurré Rance.

NAMES OF PLANTS: *Mrs. F.* Celosia coccinea.—*A.* After spending some time in a vain attempt at identifying your flower, we have had no success. If you will favour us with a leaf or two it will then be possible.

PASSIFLORA QUADRANGULARIS OR GRANADILLA. *Mr. Thompson, of Ipswich,* begs to tender his best thanks to "S." (see p. 1184) for his kind offer to procure seeds of this for him from South America; but adds that he does not now need to put him to so much trouble, as he finds that some of the great Continental seedsmen have them for sale.

SUNK FENCE: *F.* Next week.

VINES: *H R C.* At the warmest end of your house we would try a Muscat of Alexandria; for the other rafters you might have Buckland Sweetwater, Frankenthal, Grizzly and White Frontignans, Black and Mill Hill Hamburghs, Black Prince, Chasselas Musqué, Royal Muscadine, and for the coldest end West's St. Peter's and Lady Downes' Seedling.

WORMS ON LAWNS: *B.* Lime water, *i e*, water that has been mixed with caustic lime, and been allowed to stand till clear, will rid you of these pests.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

AUTUMN SESSION, 1863.

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J. L. FLETCHER, Farm Manager.
*T. BALDWIN, of Glasnevin—A Course of 20 Lectures on Crops.
*R. SCOTT BURN, Co-editor of the Book of Farm Buildings—A Course of 15 Lectures on Agricultural Machines and Farm Buildings.

CHEMISTRY.

ARTHUR H. CHURCH, B.A., F.C.S., Smith's Exhibitioner, Lincoln College, Oxon.

ASSISTANT TO CHEMICAL PROFESSOR.

R. WARINGTON, Jun., F.C.S.

BOTANY.—JOHN BAYLDON, M.B. Lond. B. Sc.
VETERINARY SURGERY.—A. J. MURRAY, M.R.C.V.S.

MATHEMATICS AND SURVEYING.

W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.

DRAWING.—JAMES MILLER.

* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services :—

AGRICULTURE.

J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.

HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.

CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.

J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.

THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.

THOMAS ELLMAN, of Beddingham, Lewes—Lecture on South-down and Short-woolled Sheep.

J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture —A Course of 8 Lectures on Tillage and Land Drainage.

WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.

AGRICULTURAL CHEMISTRY.

THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.

For further particulars apply to the PRINCIPAL.

Chemical Analyses.

DR. AUGUSTUS VOELCKER, F.C.S., CONSULTING CHEMIST to the Royal Agricultural Society of England, has REMOVED his LABORATORY from Cirencester to 191, LEADENHALL STREET, LONDON, E.C., where he receives a few Private Pupils for the Practical Study of Analytical and Agricultural Chemistry.

Drainage, &c.

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MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5*s.* per acre ; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

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The Agricultural Gazette.

SATURDAY, DECEMBER 19, 1863.

THE Autumn Session of the Royal Agricultura College was brought to a successful conclusion on Wednesday last. Messrs. HILL, JACOBSEN, RIVINGTON, GRAY, and WRIGHTSON received the College Diploma. The Principal and Professors reported severally of the industry and achievements of the students. Mr. HOLLAND, M.P., the Chairman of the Council, who presided, offered his congratulations on the character of these reports, referred with satisfaction to the success which had attended the experiment of a divided lectureship on agriculture, and thanked the many public spirited men who had thus gratuitously taken part in the labours of the session.

——OUR readers will have seen it announced in our advertising columns that Mr. STRAFFORD is to dispose of the Sarsden herd of Short-horns on Tuesday, March 22, 1864. It will doubtless prove one of the leading sales in the history of the breed.

THE rest of the Paper on AGRICULTURAL PROGRESS, read last week at the Society of Arts, is given in another page ; and the discussion which ensued upon it is also reported. A leading agricultural journal speaks of the meeting as "one of those amusing occasions when the farmer is assumed to know little or nothing of his own business, and is exhorted accordingly by the self-sufficient *savans* who seem to be permanent fixtures for these Wednesdays." Whether the remark is just or not will appear from the following facts :—

The argument of the introductory paper was directed especially to a proof that the farmer already knows his own business, and that sound business relations, and not prizes, patronage, or petting, are what is wanted for agricultural progress. Educate the young man, and when he enters into business, place him under favourable circumstances as to security for his capital and liberty for his intelligence ; that is the way to promote agricultural progress. Societies have by their prizes and awards exerted a stimulating and a guiding influence ; but the self-interest of the landlord and the tenant, and well defined, well drawn, relations between the two, are the real guarantee that the land will be made to yield its utmost.

And as to the discussion which ensued after the ground had been broken by two representative men on the Council of the Society, it was impossible to have selected a more thoroughly representative agricultural company than the speakers formed. In order to such a company there were wanted representatives of the societies and of the implement makers, of the landlords, the farmers, and the land agents.

In Colonel CHALLONER, a fluent, intelligent, and confident speaker, and an efficient labourer from the commencement on the Council of the Agricultural Society, there was the best possible representative of the view which is unquestionably correct, that the societies with their prizes have been of great agricultural service. In Mr. JOHN FOWLER, the most successful prize-taker of the day, who has nevertheless struggled into his present successful position by his own resolution and ability, we have an able representative of the view, also as we believe correct, that the imperfections of the prize system have at length overborne its usefulness. Mr. RANSOME represents the long-established agricultural machine manufacture, and was thoroughly capable of giving authoritative expression to the views and interests of that particular body.

No one will deny that in Mr. HOLLAND, M.P., we have the best possible representative landowner, or that in Mr. ROBERT SMITH, of Exmoor, we have a thoroughly good representative tenant farmer. Dr. ELLIS, of Richmond, who also spoke —and who is a frequent speaker at the London Farmers' Club—may well be taken as one of the considerable body of intelligent holders of land, who are not strictly tenant farmers ; and in Mr. COLE, C.B., and Mr. HARRY CHESTER, who, however, spoke merely to call his colleague to order, we have the voice of the outside public.

The whole discussion terminated in the address of the evening. Mr. GREY, of Dilston, whose experience has been acquired during a long life of labour in the service, not more of one of the largest landowners in the kingdom than in that of the farmers and the labourers upon the estates under his management, is a true representative of good land agency. We add that the writer of the paper on which the discussion turned, can himself look back on 12 years experience in the management of a farm, and 20 years of experience in agricultural journalism.

These are no "self-sufficient savans"—nor was this "an amusing occasion when farmers were assumed to know little or nothing of their own business, and so exhorted accordingly." The Hall is one of the oldest homes of "agriculture" in London. The word itself is the first which catches the eye of the Chairman—emblazoned chief among those which stand upon its walls to indicate the objects of the Society. The company, unusually large, included along with large numbers of agriculturists and manufacturers, a sufficient number of the general membership of the Society of Arts to ensure the advocacy of the public as well as of the strictly agricultural interest.

The only really outside voice in the course of the discussion was immediately rebuked by one in the same position as itself. The speakers were thus all men thoroughly well representing the several sections of the agricultural interest "exhorted ;" and the President, grey-headed in public spirited, benevolent, and agricultural labours, had well earned his right to speak with authority on any agricultural or social question which could arise.

AGRICULTURAL PROGRESS.

[The following is the first portion of the Paper read last week at the Society of Arts, of which the latter half was reported in our last Number.]

FIRST : of the fact that great progress and improvement have been witnessed in our agriculture during the past quarter of a century.

This is just the period during which I have been in the ranks ; and as, during the past 20 years, it has been my weekly occupation to narrate particular examples of agricultural improvement, and to record the circumstances to which they have been owing, it may be thought an easy thing for me to prove and illustrate the general agricultural progress which has thus been made. On the contrary, it is an extremely difficult thing to do so in any satisfactory manner : for agricultural progress, if of any interest or value whatever, simply means more food produced per acre ; and of our food produce we have no statistics.

IMPORTS AND SALES.

Such records as we possess do indeed appear at first to deny the existence of any such progress as is asserted. Certainly, they prove that our agriculture is now farther

short of supplying us with the food that we consume than it ever hitherto has been. The annual import of Wheat and flour of Wheat, reckoned together, which amounted in 1845 to 1,142,000 quarters, and in 1846 to 2,340,000 quarters, varied between 3 and 5 millions of quarters per annum between 1847 and 1859. In 1860 it exceeded 7,000,000, in 1861 it exceeded 8,000,000, and in 1862 it amounted to 11,528,445 quarters—more than tenfold what it was in 1845. And the annual importation of other kinds of grain and meal has also increased during the same period. Varying in general from 4 to 5 millions of quarters between 1846 and 1859, it exceeded 7,000,000 in 1860, '61, and '62.

These three last years have we know been very unproductive in this country; but even if we disregard the excessive importations of these three years as altogether exceptional, there remains the fact of an enormous and, on the whole, increasing dependence on foreign supplies during a long series of years before. And this, I say, appears at first to be incompatible with the idea of any great agricultural progress at home.

There has been no corresponding increase in the quantity of meat or in the number of cattle and sheep imported. The number of oxen has varied irregularly during the past 15 years between 60,000 and 100,000 per annum, and that of sheep and lambs between 130,000 and 300,000 per annum, without much indication of an increased importation year by year. Nor have the imports of bacon, beef, and pork materially increased except during the last two years. But admitting that we are not on the whole so increasingly dependent on foreigners for our meat as we are for our bread, it must be remembered, on the other hand, that the prices of our home-produced meat have been gradually rising. The best fat Hereford oxen were sold for little more than 5*d.* per lb. 18 or 20 years ago—they are now worth nearly one-half more. Mutton in like manner has risen from 6*d.* to 8*d.* and more per lb. And from this, as from the increased importation of grain, it does not at first appear as if the agricultural progress which we boast meant an increased produce of food. I need not refer in detail to those importations which supplement the produce of particular districts; but these, too—the imports of butter, cheese, and eggs—exhibit in an even greater degree the increasing deficiency of our home supplies.

And there is yet another set of figures, which, taken for what they are worth, seem even more to throw doubt upon the assertion that our produce per acre is increasing. In order to determine from year to year the value per quarter of those quantities of Wheat, Barley, and Oats into which the tithe has in every parish been commuted, it is provided by law that a record be kept in all the principal English market towns of the quantities and prices of Wheat, Barley, and Oats sold on every market-day throughout the year. There is a certain, and if we might suppose an unvarying degree of obedience paid to this law, then the amounts thus declared to have been sold would bear a constant proportion to the quantity of grain sold throughout the country, and they would fairly indicate the varying produce of our crops from year to year. That they do to a certain extent represent the productiveness of the year appears from the fact that they do rise and fall with the admitted character of the harvest. Thus, the quantity of Wheat recorded as sold, which is generally about 5,000,000 quarters per annum, was, in the unproductive years of 1860, '61, and '62, 4,600,000, 4,289,000, and 3,588,000 quarters respectively. But what is noteworthy, if it can be at all taken as indicating the general productiveness of the country, is that the largest quantity recorded since 1844 was 6,666,000 quarters, sold in 1845; that the quantity was somewhat under 5,000,000 quarters per annum from 1844 to 1854; that it was somewhat over 5,000,000 quarters per annum from 1855 to 1859; and that it again, as already said, fell considerably below 5,000,000 quarters per annum during the past three years. Certainly there is no indication here of increasing annual productiveness. And the sales of Barley and Oats, similarly recorded, are equally unsatisfactory to those who would naturally hope to see in these records some indication of the increasing productiveness of our arable lands.

Of course the great majority of those who examine these figures, will find for themselves some explanation of them which is consistent with the belief, which will be retained, that our agriculture *is* nevertheless greatly more productive than it was.

Every countryman can point to so many instances of agricultural improvement within his own knowledge, that whatever the explanation be, he knows there must be some way of reconciling these figures with the fact, of which he is certain, that land upon the whole produces now much more than formerly.

But before I proceed to justify this belief by marshalling the evidence on which it rests, it is right that we should be aware that it has been always possible to lead a proof by instances and examples of the productiveness of English agriculture.

Listen to Mr. Thompson, of Kirby Hall, near York, who, as President of the Yorkshire Agricultural Society had last year to review the agriculture of the 20 years during which the Society which he had helped to found had been in operation. He said that he had been a constant attendant at the shows of that Society, and a very frequent one at those of other societies: and he was confident that the prize animals shown by Lord Spencer, Messrs. Booth and Bates, and others, in the early days of the Society, were as good in every respect as those shown by Col. Towneley, Mr. Fawkes, Lord Feversham, and other noted breeders of the present day—and the same might be said of other classes of stock. Then as to the crops—it was usual 20 years ago to grow 5 quarters of Wheat per acre, and not uncommon to grow six. Occasional instances could be found where the produce had been greater still, and he had yet to learn that they could do more now. The best cattle and the best crops are no better now than then.

It is plain therefore, that though I should bring before you hundreds of examples of productive farming in operation now, yet as I should be doing no more than another might have done with equal force 20 or 30 years ago, I should not thereby establish the advance which I believe has been made during the interval. Although therefore I shall refer to one or two particular instances of the progress which has been accomplished, yet it will be rather by a collection of testimonies from land agents and tenant farmers in different parts of the country, of the general condition of the land as to productiveness now and 20 or 30 years ago, that I propose to prove the general progress which has been asserted.

DISTRICTS OF STATIONARY FERTILITY.

Of some districts I suppose this progress cannot be asserted—their produce has not increased. Thus I have before me a curious table, giving the produce of Wheat on a large fen farm in Lincolnshire, from 1839 to 1862. The average produce of the Wheat harvest during that period has been close on 39 bushels per acre—but it has varied irregularly between 49 and 24 bushels, without any indication whatever of a gradually increasing fertility. The produce per acre runs thus in bushels per acre in successive years:—34, 40, 35, 43, 38, 48. 32, 41, 42, 43, 44, 28, 45, 47, 41, 45, 26, 47, 48, 40, 26, 24, 27, 34—these four last being the produce of 1859, 1860, 1861, and 1862.

"You will see," says the tenant of this farm, "that we are not at all improving in the yield of Wheat, which is the great staple of this district. The Oat crop has been more productive than formerly, or we should have been worse off, and stock have left more profit than usual; but with those helps I never knew three consecutive years so bad as 1859, 1860, and 1861. The rents generally have been raised from 5*s.* to 10*s.* per acre during that period."

Another correspondent in the same neighbourhood, speaking of the meat produce of the Fens, says:—

"I should think the amount of meat produced, and the quantity of live stock kept in the Fens, has decreased rather than increased during the last 15 or 20 years. Since railway facilities have been afforded, a good deal of land has been employed in the production of Potatos, Carrots, &c., for the London and Birmingham markets. Some of these crops, on lands suited to their cultivation, have realised good prices per acre, and have been as paying and profitable as the grain crops."

Another district of stationary agriculture, or rather class of districts it may be called, includes all those richly manured suburban holdings which around our large towns are cultivated rather as market gardens than as farms, and which have always been maintained in the highest state of fertility. If we except some considerable tracts of light land which have long been well farmed—where, as Mr. Hudson, of Castle Acre, says, they have been in the same rut for a quarter of a century, consuming on a single tenancy 2000*l.* to 3000*l.* worth of oilcake, and using 1000*l.* of artificial manure per annum, and where the land therefore has not much capacity of additional improvement in it—these are probably the only large tracts of land in the country of which no progress is reported; the one owing to the high degree of fertility which drainage and marling had at once conferred upon it, and the other because of the high artificial fertility which it has always possessed.

TESTIMONIES TO PROGRESS.

Now for the large remainder. Beginning in the North, I would state generally, there cannot be a doubt that it, more than any other part of the island, has benefited by the importation of guano and the manufacture of artificial manures during the past 20 years. It has also benefited, as much as any other part of Great Britain, by the extension of drainage and of deeper tillage, and by the improvement of stock.

Thus Mr. Simpson, of Beauly, Inverness, says the live stock on the waste land of his district has increased one-half during the last 20 years. Mr. Fraser, of Culloden, says, during the past 20 years great improvements have taken place. Waste land has been brought into cultivation, and old land has been drained, and in many places the face of the country has been changed. Though the gross produce has increased, yet the produce of the best land has not altered. Rents, however, have greatly advanced.

Mr. McCormack, of the Vale of Alford (Aberdeenshire), says:—"Within the past 20 or 30 years rents have greatly increased. Railways have been introduced. Wages have risen 75 per cent. Much land has been reclaimed; much land has been furrow-drained and made fruitful."

Mr. Drennan, of Ayr, has in like manner given me an elaborate report of the alterations and improvements in his county, and of the share taken in them by the agricultural societies of the county. To this I shall refer again.

Except that it does not mention the increased growth of the Potato crop, by means of which such enormous rents are paid in many parts of Scotland, and by which a largely increased produce of food has been obtained, the following report by Mr. McLean Secretary of the Wigtown Agricultural Society, and specially descriptive of the County of Wigtown, will apply to many other districts:—

"During the last 20 years there has been a remarkable advance made within the bounds of the Society, particularly in the cultivation of green crops, and the feeding of cattle and sheep for the English markets, to which ready means of access have been, during all that period, afforded by our excellent iron steamer (the Countess of Galloway) plying regularly between the ports of the district and Liverpool, and for the last two years and a-half by the Portpatrick Railway Company. In many farms the dairy system (with Ayrshire cows) has been successfully introduced. I believe that the improvement of the district has been mainly owing to the introduction of imported manures (chiefly bones and guano), the consequent increased extent of green crops and ready means of conveying fatted stock to the English markets."

In Berwickshire Mr. Wilson, of Edington Mains, reports thus of the improvements during the past 20 or 30 years. After referring to the great extension of land drainage during the past 20 years, he says:—

"When I began farming, exactly 34 years ago, the application of bone-dust as a manure for Turnips was just getting into general use in this district, and the slicing of Turnips for hoggets was then unpractised among us. In 1830 or 1831 I happened to procure a Turnip-slicing machine from one of the Midland Counties of England, which—so far as I have been able to find out—was the first that was used by a tenant-farmer in this county. In a very few years after that date, the universal use of bone-manure caused an immense increase of the acreage annually under Turnips, and also of the weight of produce per acre. The general adoption of the practice of slicing Turnips for hoggets soon after changed our whole system of sheep management. Our hoggets began to be sent to market as soon as they were shorn (say at 15 months old) instead of being kept until about two years old, as had been the previous practice. The use of bone-manure produced nearly as great an improvement upon the seeds as upon the Turnip crop to which it was directly applied. This increase of the green crops and earlier marketing of the hoggets produced, of course, a greatly increased demand for lambs, and thus led to corresponding changes of practice on the upland sheep-farms, from which the supplies of store sheep were drawn. Instead of an annual crop of 2 or 3-years-old wedders of the pure Cheviot or Blackfaced breeds, they began to cross their ewes with Leicester rams, and sold these cross-bred lambs at weaning-time to the low-country farmers. The command of portable manures has enabled the occupiers of these up-lying farms to bring much additional land under tillage. This process is steadily extending; and as it does so, the command of green crops thus obtained is regularly accompanied by a change to a sheep-stock of a more valuable class. All these practices date earlier than 20 years ago; but they have been greatly extended and developed since then. The introduction of pipe tiles for draining, and of guano, nitrate of soda, and bones in the form of superphosphate as manures, have supplied great additional facilities for all this. Until thirty-years ago Linseed-cake may be said to have been unknown in this district. About that time it began to be used in the rearing of calves, and gradually a good many farmers began to give a little of it to their fattening bullocks for a short time before sending them to market. Now cakes of various kinds and other farinaceous feeding stuffs are in general use for the fattening both of sheep and cattle. The trade in these articles and portable manure has here as elsewhere grown to an important branch of business. Thorough draining, portable manure, artificial feeding stuffs, are now trite expressions; but when it can be reported of a district or county that all of them are included, less or more, in the cultivation of very nearly the whole of its farms, it is superfluous to add that a very great increase of produce has been the result. It has been said that every cwt. of guano applied to our farms is equivalent to the importation of a sack of Wheat. Whether this be a strictly accurate statement or no, there can be no doubt that green crops, live-stock, dung, corn, is a true sequence in agriculture, and that an increase of the first item really means an increase of all the rest."

Coming farther south, I have the following excellent report from Mr. Stephenson, of Fourstones, near Hexham:—

"I think no change which has taken place in the farming of this district since 1840 will so much strike the practical farmer as the increased quantity of Turnips grown and, as a natural consequence, the very large extension of sheep-feeding. The general management of the district has so wonderfully improved, from the cause I have stated, that any one will at once perceive from what cause arises the increased value of land. The introduction of leases with clauses for unexhausted improvements has aided no little towards our progression, and I still hope to see enterprising tenants more liberally dealt with, which I think will be one of the best ways of giving birth to future and permanent improvements. The much earlier period at which sheep and cattle are brought to market must not be overlooked; for not only is this one of the most interesting parts of farming, but it possesses the additional advantage of bringing a quicker return for the outlay of capital. Perhaps one of the most striking, and, in its results, one of the most beneficial improvements that has taken place in this district is the greatly improved method of conducting our harvesting operations; reaping Corn is entirely done by machinery and short scythes, and the beautifully laid and even-cut fields present a pleasing contrast to the knee-deep stubbles of 20 years ago. Nearly the whole of the district has been thoroughly drained, and pipe-tiles have taken the place of the old stone drains. In summing up improvements since 1840, we notice the general management of the district wonderfully improved; the extension of green crops, which has greatly enhanced the value of land; the greatly increased number of sheep and cattle reared, and the much earlier period at which they are brought to market—the improved method of cutting corn and harvesting in general—the improvement in agricultural implements—the success which has attended thorough draining, and the introduction of farm leases with clauses for unexhausted improvements. The high rate of wages which the agricultural labourer receives is to be attributed in a great measure to the demand for labour at the lead mines and collieries. Hinds are receiving from 15*s.* to 17*s.* per week, with privileges which cannot be less than 3*s.* per week. They are energetic and persevering, show much skill in the several departments of the farm, and readily learn the working of any new implement. There are now good schools in every parish; and as many of the men are receiving an income of 50*l.* per annum (independent of the money earned by their wives and families), it will be seen they have every chance of giving their children a sufficient education."

It is in this district that the Greenwich Hospital Estates lie, which have for so many years been under

the management of our Chairman—during which time the interests of landlord, tenant, and labourer have alike prospered. An additional 10,000*l.* a year as rent is now remitted to the landlord—the arrears are *nil*—cottages are improved, and wages are increased. And of course all this has come out of the increased produce of land.

"The increased produce," says Mr. Gray, "consists more in root crops and the amount of stock kept than in corn, although the crops of corn have also partaken of the benefit of better cultivation. The total increase upon farms where thorough draining and deeper cultivation are practised, must at least be one-third: in some instances it is more, but that is not yet apparent in the rents; for it is only obtained by a greatly increased expenditure by the tenant, in extra manuring and cultivating, and, besides, the value of the improvement is not found by the landlord till the end of the lease. All such increased outlay by tenants contributes no doubt to the welfare of the labourers, whose condition in this county has been greatly improved during the last 30 years, by the general improvement of their dwellings, and advance of wages."

I have a very interesting report from Mr. Sweeten, the Hon. Sec. of the Penrith Farmers' Club, of the improvements which during the last 20 years have taken place in Cumberland and Westmoreland. Rents have risen some 15 per cent., wages have risen 25 per cent.; the live stock of the locality has improved, and the extension of land drainage, and the increased use of artificial manures and feeding stuffs, have added materially to the produce of the land.

Hear now the following valuable account of North Lincolnshire improvements by Mr. Sowerby of Aylesby:—

"The improvement in farming in North Lincolnshire has been very progressive for the last 30 years and upwards. I daresay you are aware we farm, almost altogether on the four course system, Turnips, Barley, &c., Seeds, and Wheat, the Turnips for the most part fed off by sheep with a liberal allowance of oilcake. This management, with a good quantity of oilcake used in the fold yards, will always insure improvement in land. Half-inch bones to a great extent are used for the Turnip crop, and perhaps to a greater extent 20 years ago than they are now. Superphosphates have taken their place a good deal of late years; and of course that is the same thing, but not so lasting. Good crops of roots fed off by sheep is the great improver of land, and moreover what enables us to pay our rents; for nothing pays like sheep. A considerable extent of land in this part of Lincolnshire termed the 'Middle Marsh,' that is, land laying from the foot of the Wolds to the marshes adjoining the sea and Humber, required underdraining, which, to a great extent was done about 20 or 30 years ago, about 2 feet deep, with sods and bushes. That improved the land very much, and paid well for doing. Those drains of course after a time failed, but still lasted nearly 20 years when done well. For the last 10 to 15 years draining has gone on upon that land with pipe tiles put in from 3½ to 4 feet deep. This district of country is likewise farmed upon the four-course system same as the Wolds. A good deal of this was ordinary Grass land, a good deal of which is ploughed and makes good corn land. I have myself taken up nearly 300 acres the last 30 years upon Aylesby Farm. In addition to growing so much more corn, the same land will keep a great deal more stock. At the first glance you hardly could believe that. Bear in mind that though it is inferior Grass land, it becomes the best of corn land, growing good root crops, and keeping a great deal of stock. I have been 40 years at Aylesby, and I think I speak within bounds when I say I have grown double the quantity of corn and kept double the quantity of stock this last 10 years that I did the first 10 years I was a farmer, though of course I have been at considerably more expense. For the most part we have liberal landlords, particularly our larger landed proprietors. Wages are good. The lowest I gave last winter was 13*s.* 6*d.* per week, and this winter I daresay will be the same, though perhaps in many instances they may be down to 12*s.* for our common labourers. We do a good deal of work by the piece. I shall not grumble if my men that are draining earn 20*s.* per week, which I daresay they will do."

In the neighbourhood of Grantham, Mr. Charles Beasley, of Harston, informs me—

"There has been a very marked improvement in this district during the last 20 years, both in the quality of the stock bred and in the management of it, especially in the eating off of Turnips with sheep. The great majority of farmers are now cleaning their Turnips, cutting them up, and using large quantities of dry food with them, which has very much mitigated the prevalency to disease, which was a very serious impediment to successful sheep keeping in this neighbourhood."

Let us now cross to the dairy districts of Cheshire. Mr. Palin, of Stapleford Hall, near Tarvin, writes:—

"Great progress has been made in this county within the last 20 years; the increase of stock, both in cattle and sheep, is very considerable (in some instances nearly doubled), and this arises principally from the great improvement of our clay-land pastures by the use of bone manure, by draining, and a more extensive cultivation of green crops, although it would be difficult to show by figures, with any great accuracy, the amount of such increase, either as regards cattle, sheep, or cheese, in consequence of the great changes in stock, from cattle to sheep and *vice versâ*, and also an increase of tillage occasionally on many of our farms during that period, caused by that dreadful scourge, pleuro-pneumonia."

From the same county Mr. Rigby, of Fenny Wood, Winsford, also writes:—

"The most decided improvements observable in the last 20 years have been seen in draining and boning Grass lands. The principal product of this county, as you are aware, is cheese; and the quantity of this commodity has been quite doubled by the application of bones on the pastures and of draining, although there is yet much of the latter to be done. I know many farms that used only to keep 40 cows ten years ago that now milk 80; and one farm which then kept 60 has now 140 milking cows on it, besides other stock, and this has been effected principally by these means; the stock too are better kept in the winter than formerly, and come to calve in much better condition, and as a consequence give better results."

I must not fatigue you with the multitude of witnesses who might, if there were time, be brought into Court, and I shall quote only a few more.

Mr. Howard, of Bedford, writes as follows:—

"The great improvements in cultivating the land during the last 20 years are almost confined to clay land; our light lands were farmed almost as well 20 years ago as now. Thousands of acres of clay have during this period been underdrained thoroughly with tiles; the growing of summer feed, such as Tares, is extensively practised; the growing of Mangel is a great boon; summer fallows are almost abolished, and the live stock kept is greatly increased—indeed, some of what were considered poor clays grow our best Barley, and will with the aid of steam be worth as much as the light lands. I cannot give you 'any instances of produce, rent, or wages,' but all have risen, the produce and rent in the larger proportions; still the introduction of piece-work has greatly benefited the labourer, and day wages have increased from 9*s.* to 11*s.*, and from 10*s.* to 12*s.* per week, according to which side the county I take."

This is in keeping with reports from Norfolk and from Essex. The lighter lands of the former county, which do not need drainage and have long been liberally treated with artificial manures and well-fed stock, have not such capacity of improvement in them as the heavier undrained soils of Essex, from which county we have reports of improved tillage, extension of root crops, diminished bare fallow, and improved crops, upon clays improved by land drainage and by deeper and better tillage.

Let us now travel to the end of our story by the other side of the country. Mr. Bowley of Siddington, near Cirencester, has given me an elaborate and most satisfactory report on the advantages of drainage, artificial manures, and improved machinery, as exhibited in the Cotswold district, where improved root crops, improved cattle and sheep, and better grain crops, have all increased the produce of the district.

Mr. Holborow, the Secretary of the Tetbury Farmers' Club, says of this district:—

"In the growing and management of root crops the improvement is very marked—autumn cultivation, drilling, horse-hoeing, the liberal use of artificial manures, securing the root crops in heaps covered with earth, being pretty general. In live stock the improvements may be said to consist in a greater quantity being kept of an improved sort, earlier maturity, and quicker preparation for the butcher being to a considerable degree manifested. The consumption of corn and oilcake by cattle and sheep is also largely increased, and the consequent effect on the crops of corn (coupled with better and more liberal management of the land generally) is patent to every one. The better employment (and payment too) of the labouring population is one happy result; their most respectable and comfortable appearance being very apparent, even though, alas! their cottage accommodation has not kept pace with other things, whilst their better education adds to the necessity and desirability of this. However, here is one class whose material interest has certainly kept pace with the other subjects of improvement—viz., the landlord's, in a considerably augmented rentroll."

Mr. Rich, of Didmarton, adds:—

"As an illustration of the advance of agriculture in this neighbourhood (part of the Cotswold hills) witness the improvement of live stock; the steer is now frequently made fat at about 2½ years old; the sheep, which formerly arrived at maturity at 2½ or perhaps 3 years, is now the same weight, and frequently too heavy for the butcher, at 1 year and 2 months old, yet wintered in the open field on roots, &c., leaving the richest manure where it is at once required."

I add a report from Wiltshire. Mr. George Brown, of Avebury, writes as follows:—

"The improvement in the cultivation of the soil is very great; a much greater abundance of stock is kept and brought out at a much earlier period, as regards age, and very much higher in condition, consequently much more valuable. Admitting this to be correct, I consider the great improvements in the cultivation of the soil and in the increase in stock, and condition in which they are brought to market, is at so great a cost to the farmer, as to leave a very small profit to him at the end of the year, but, on the other hand, it is a great advantage to the community at large."

Mr. Benson, of Tavistock, speaks of the vast advancement made in his locality during his acquaintance with it.

Mr. Scott Hayward, of Follington, Sussex, speaking of the light land and down district of the county, says:—

"The disposition to break up downland is increasing every year, and a very large extent has been brought under cultivation in the last 20 years; the use of artificial manures has increased to an immense extent with the breaking up of this description of land, and also the consumption of purchased artificial food (chiefly oilcakes), the result of which is a larger quantity of sheep kept, and much better kept than formerly—no doubt gradually increasing in size—a much larger produce of corn, and a much larger employment of labour. The use of bought cattle food has also greatly increased upon the poor and second-class lowland pasture farms, cattle and sheep being now fattened upon this description of land by this means, that formerly only kept them in fair growing condition. Oilcake is also now used very generally in keeping store cattle in the winter in yards upon straw or hay; formerly this description of stock was merely kept alive through the winter, and frequently to be seen going down to the marshes in the spring very little more than skin and bones. Latterly, by the use of oilcake with the corn fodder, poor stock is seldom to be seen. The great and gradual increase in the use of artificial manures and the consumption of bought cattle food is the most important feature in the recent history of Sussex farming."

The following report from Hampshire by Mr. Blundell, of Southampton, must conclude my quotations:—

"I offer you my estimate of the progress of the farming of our district, in a tabulated form, as the result of close observation since I have occupied my farm, for 32 years past. I estimate as follows:—

Crops.	1840 to 1843. Average produce per Acre.	1860 to 1863. Average produce per Acre.	1843 to 1863. Acreage grown.	1843 to 1863. Quality.
Wheat	24 bush.	29 bush.	Increase 25 per cent.	No improvement.
Barley	28 ,,	32 ,,	Decrease 20 ,,	Deteriorated.
Oats	34 ,,	42 ,,	Increase 10 ,,	Improved.
Beans	24 ,,	26 ,,	Increase 10 ,,	No improvement.
Peas	23 ,,	24 ,,	Increase 10 ,,	No improvement.
Rye for feeding	....	....	Doubled	...
Tares ditto	....	....	Doubled	....
Grasses for hay and feeding	....	...	Decrease 25 per cent.	No improvement.
Swedish Turnips	13 tons	16 tons	Decrease 20 ,,	Deteriorated.
Common Turnips	12 ,,	15 ,,	Increase 5 ,,	Deteriorated.
Mangel Wurzel	18 ,,	25 ,,	Increase 15 ,,	Improved.
Cabbages, Carrots, Kohl Rabi, &c.	15 ,,	20 ,,	Increase 10 ,,	Improved.

Live Stock	1843 to 1863.
Horned cattle, fattened	double number.
Dairy cattle	increase 10 per cent
Calves raised for dairy purposes	,, 10 ,, ,,
Calves raised for fatting purposes	,, 30 ,, ,,
Value of cattle raised at two years old	,, 16 ,, ,,
Sheep stock for breeding purposes	,, 25 to 30 ,,
,, fatting purposes	,, 50 ,, ,,
Value of sheep stock of all ages	,, 20 ,, ,,
Swine of all ages	,, 30 ,, ,,
Value of ditto	,, 10 ,, ,,
Horses for farm work	no increase.
Value of ditto	increase 15 per cent.

"Great losses by disease unknown before 1840 have been reported of cattle and sheep.

"In the above attempt to tabulate this information, please observe that I make no reference to actual prices, as they may vary, but in speaking of value I take the real or improved value; with regard to produce, I only allude to increased production, and not to variation of crops. In speaking of increase of live stock, I make no allowance for losses by disease; they have, however, been enormous, past all calculation, and the improvement both in number and quality of sheep and cattle must have very far exceeded my present estimate had they been as free from disease as previous to the year 1840. In speaking of root crops, such as Swedes and Turnips in particular, deterioration in feeding quality has gone on, consequent upon repetition of the crop and the application of stimulating manures. The value of land has been raised in rental since 1843 from 4*s.* to 6*s.* per acre, and may be attributed to various causes, amongst which are the commutation of tithes, the competition for farms by parties who require a healthy and pleasant pursuit, and by those who possess capital for which an investment is required; and there are applicants for farms resulting from scientific education of young men for the business of farming. The actual returns, as profit for investment on the farming account, do not warrant the increased rental above alluded to. The quantity of land absorbed by railways, and the public works of government and companies of various kinds, and the increase of towns, has taken more land out of the market for occupation than has been supplied by recent enclosures. Although the recent Enclosure Act has facilitated the enclosure of waste and commonable lands, yet much more may be done in this respect."

The following is an abridged report of the discussion which ensued last week upon Mr. Morton's paper.

After Mr. Cole, C.B., had called attention to one defect in the paper, its lack of information on the condition of the labourer, and Mr. H. Chester had redirected the discussion into the channel indicated by it:—

Colonel CHALLONER said he should be sorry it should go forth as the opinion of this Society, that the giving of prizes by the Royal Agricultural Society for implements had not been beneficial to the progress of agriculture. Mr. Morton was aware that at the first meeting of the Royal Agricultural Society, at Oxford, the number of implements exhibited was considerably under 150, and they were all of the coarsest description of manufacture. He asked what had brought the implements of England to the perfection in which they were at the present time? He submitted it was owing to the system of prizes adopted by the Royal Agricultural Society. He had been brought to this conclusion from his observations as a member of the Implement Committee of that Society. Let them compare the position of implement makers now and 20 years ago. The progress had been enormous, and he thought that, without the prize system, the manufacturers would not have been guided to the production of the class of implements really required. There were well known names who had made a high reputation everywhere, and it would perhaps be very agreeable for those gentlemen to rest upon their laurels, with the knowledge that everybody would buy their implements; but what was to become of the humble implement maker—the man of small means? He had no chance of competing against those great men, except by the help of the prize system.

Mr. JOHN FOWLER remarked that he stood in the position of a very successful exhibitor of agricultural implements, as far as prizes were concerned, and had never failed in obtaining the prize he competed for; at the same time, he thoroughly endorsed every word that Mr. Morton had said with regard to the prize system. He had many times been placed in an unduly prominent position by a prize—a position he had no right to at the time; and if the prize system were con-

tinued, it might be he should be placed in a position he had no right to the other way. With respect to the present system of awarding prizes by the Royal Agricultural Society, it was known to be a mere scramble, for there were often hurried and imperfect trials; but if instead of this a well considered report was made of agricultural experience with regard to any particular implement, this would be of real value. In the first place they must look at the circumstances under which the trials of implements were now made. The expense for land for this purpose at Leeds was 800*l.*, and the cost of 100 acres of land at Newcastle next year would be 500*l.* He had offered to subscribe another 250*l.* in order that the trials might be made on a more extended scale. They could not respect a prize which was given upon a trial extending over only a few acres of land, and confined to one locality, which had features of soil and other circumstances peculiar to it. Col. Challoner had stated that the prize system had made the implement makers what they were. He (Mr. Fowler) would say it had not made him. If the Royal Agricultural Society, instead of spending 500*l.* for land for the trials of implements next year, would spend that amount in a careful examination into the present results of steam cultivation upon farms in this country, no undue preference being given to any individual, very valuable practical results would be obtained. He was therefore opposed to the continuation of the prize system for agricultural implements, and he would prefer to see well-digested reports upon their merits as the result of test and experience in various localities.

Mr. E. HOLLAND, M.P., said, all those great improvements to which Mr. Morton had alluded could not be carried on by the tenant-farmer alone, but were more or less associated with the landlord and the labourer. There were formerly points in connection with the state of society, which militated against every advance in agriculture, for at that time a tenant was more readily accepted by a landlord on account of his politics than his powers of farming. The labourer also was at that period in a far more wretched condition than at present. From the days of Elizabeth up to the time when the new Poor Law came into operation, the condition of the labourer had been gradually deteriorating; and the present Poor Law system was adopted as a remedy for a far worse system. Now-a-days a tenant was chosen because he understood his business and had capital to carry it on, and in proportion as the tenant improved in capital, intelligence, and experience, so would the condition of the labourer be improved. There was nothing of late years which had had so much influence upon all connected with agriculture as the introduction of steam ploughing. Agriculture in this country had an enormous task thrown upon it. Allowing for emigration and deaths, the annual increase of population was immense. Besides this, the wants of civilisation must be met; houses, railways, and land for domestic purposes were required, the whole of which had to be taken out of the area which produced food for the people. But the steam-plough had been introduced, and the farmer discovered that by going more deeply into the land he could produce more food, and more or less keep pace with the increasing wants of society. This would not have been effected by the old class of tenant farmers. Men of capital and education were now taking their places, and the consequence was that they required a firmer hold upon the land than the man who had no capital and no education to direct the profitable employment of it—unless such men made a bargain with the landlord for the due security of the capital which they put into the land, it was not likely they would farm up to the wants of the present day. The consequence of this was that the condition of the labourers was also raised, and though there might not be much in the matter of dress, yet he had found that on the adoption of steam culture, simply from being obliged to discard the smock frock, and adopt a less cumbersome form of garment, the labourer had become a different man. The labourer must now wear an engineer's dress, and he became a different creature, and his social condition was also improved. Upon the subject of labourers' dwellings he agreed with much that had been said. He had recently found it necessary to build a good many cottages, the rent of which, to pay a fair interest upon the capital expended, would be 6*l.* per annum, but the labourer could not afford to pay more than 4*l.* He explained this to his tenants. There remained 2*l.* per annum to repay him. This was arranged in the following manner:—The tenant, feeling the advantage he would gain by the improved condition of the labourer, agreed to pay half, while he, the landlord, consented to forego the other half. Thus, while the labourer only paid 4*l.* in rent, he was able, by being on the spot, to come fresh to his work in the morning, instead of being wearied by a walk of several miles. Mr. Cole would thus see that in some instances at least, landlords and tenants were not unmindful of the points he had raised.

Dr. ELLIS thought the great improvements in agriculture during the last 20 years were mainly attributable to the improved implements employed in cultivation. These inventions had all tended to relieve man from the more arduous portions of labour as compared with the primitive modes of agriculture. Dr. Ellis referred to the effects upon the physical condition of the labourers who excelled in their localities in mowing and reaping, the great manual exertion required for those operations tending to cripple the frame at a premature period of life. Threshing and ploughing by hand-labour were also referred to, as further instances of this; and so complete was the exhaustion of the physical energies by this arduous toil from early morning till evening, that there was little opportunity and less inclination on the part of the labourer for any efforts at mental improvement. Upon the subject of leases, Dr. Ellis stated his entire concurrence in the views expressed by Mr. Morton, and contended that unless satisfactory leases were granted to tenants, neither the capital nor the intelligence necessary for successful farming would be employed in agriculture.

Mr. R. C. RANSOME said, having been engaged for the last 16 or 17 years in the manufacture of agricultural implements, and having attended most of the exhibitions of the Royal Agricultural Society as the representative of his firm, he begged to state that all that had fallen from Mr. Morton condemnatory of the present prize system met with his fullest concurrence. He was quite sure it was not the temptation of the prizes that stimulated manufacturers to bring forward improved machinery, but the great and natural stimulus was the hope of ultimate profits from an extensive sale. With regard to the progress which agricultural machinery had made during the last 12 or 14 years, it must not be forgotten that railways had made the means of transit so much easier. The gold fields of Australia and California had been opened out, a large European population had emigrated to those regions, who required to be supplied with food raised by the operations of agriculture, and these could not be carried on without the aid of machinery, which machinery could only be manufactured in England or America. Nor must it be forgotten that during that period England had become the grain market of the world, importing large quantities of corn and sending back gold for it, so that a greater demand for our machinery had been created in all the corn-growing countries of the world. These were more potent stimuli to the industry of the country than medals, diplomas, or any such trifling matters, and when he found that cottagers could gain prizes for their pigs against men who were able to feed 200 or 300 head of swine, and out of that number select the best, he would believe that the small wheelwright could beat the capitalist. He (Mr. Ransome) entirely repudiated the notions of Col. Challoner with respect to prizes on behalf of his own firm, and he believed he might do so on behalf of many other firms. It was the desire of the large implement maker to assist in bringing forward talent wherever it was found to exist, and to keep steadily on in the march of improvement, not resting upon his laurels, but always making further efforts.

Mr. ROBERT SMITH endorsed the remarks of Colonel Challoner with respect to the value of the prize system to the fullest extent, and pointed to the state of agricultural implements, as well as to the position of the makers prior to the institution of the Royal Agricultural Society, in support of that view. It was the prize system of that Society which brought together a large quantity of implements to be tested as to their merits. Allusion had been made to the Bath and West of England Agricultural Society having discontinued the system of prizes. Being himself a West of England man, he knew the history of that matter, and he believed it had been occasioned by undue dictation on the part of some members of that Society, to whom the Council gave way, and the consequence was the prizes were discontinued; but he added that a lurking fondness for the system was manifested by exhibitors of implements at the shows, for they displayed in a corner of their stalls the medals that had been awarded to them. As a member of the Council of the Royal Agricultural Society, and having closely watched its working, he considered the decision to continue the prizes for implements a judicious one. Mr. Ransome had spoken of the trade in these implements which had sprung up with our colonies. He (Mr. Smith) quite granted that, but it was only after the implements had been improved and had become of established use in our own country.

Mr. HAMMICK (Assistant Government Commissioner for the Census), referred to the subject of agricultural statistics. The advantage to all classes of the community, particularly to the agricultural portion of it, of organising a good system of agricultural statistics in this country had frequently been pointed out. Mr. Morton had referred to the testimonies of competent persons as to the extent of agricultural progress in this country, but had he been able to refer to figures instead of general statements from scattered parts of the country, he believed still more satisfactory results would have been put before them. It was quite competent for them to have a similar system to that in Ireland, where the facts were collected and recorded by public officers, forming the basis of all deductions drawn as to the state of things in that country. It was a reflection upon them that whilst France, Belgium, and other continental nations had established a complete system of agricultural statistics, nothing had been done in that direction in this country. He quite believed with Mr. Henley that the fault did not lie with the farmers themselves, for he thought they would be quite willing to give the information if the Government provided proper persons to collect it.

The CHAIRMAN said he felt it would be wanting in respect to them, and to the great subject which had brought them together, were he not to express the satisfaction he had felt at hearing the very comprehensive paper which Mr. Morton had read—a paper which was in so many points instructive, and in so many other points, suggestive of improvements which were to follow. Agriculture had been the occupation of his life, which had not been very short or very inactive, and he rejoiced to see the interest which was taken on this occasion by the large audience gathered before him, considering, as they must do, agriculture to be the most important branch of our national industry—inasmuch as we had to look to it for supplying the means of all human existence, and without it, no other branch of industry could long be sustained. There were very few opinions expressed in the paper with which he did not entirely concur, but from his own experience, he could not agree with what Mr. Morton had said, when he stated he believed there was less food for cattle raised in this country than at a former period. [Mr. MORTON. Less acreage devoted to it.] His experience led him to think otherwise. In many of the mountainous districts the facility given for the production of root crops, by the introduction of portable manures, had gone far to increase the cultivation of green crops. The system of thorough draining and deeper cultivation had brought a great proportion of land into a condition to grow Wheat crops, which 40 years ago was thought only fit for a naked fallow, and would only produce a scanty crop of Wheat. In this respect he was a little surprised to hear what Mr. Morton—no doubt from his experience and facts gained in other parts of the country—believed to be correct. The introduction of the portable manures had undoubtedly had great effect in extending the growth of Turnips, and it was the superior cultivation of the land, by drawing from it much greater produce, and by the improvement of the various descriptions of crops, which had caused the great increase in the production of human food. One of the first things a farmer had to do was to exercise his judgment in the description of stock to which the climate and the soil in which he was located were suited, and then to bring that stock to the greatest perfection. They knew that large Short-horn cattle and large sheep would be destructive to the farmer having poor land; therefore it was upon the exercise of his judgment in that respect that his success depended. Something had been said with respect to the difference between leases and tenants-at-will. In his part of the country he could say he never asked a man to farm without a lease. He should think it was doing great injustice to the tenant not to give him the security which a lease afforded, nor, as far as his experience went, would he think he was doing justice even to the owner of the land, because he believed the greatest impulse had been given to improvements where leases of considerable length were granted. No doubt, if a farm was in good condition and admitted of but small improvement, a man might go in without the security of a lease and manage it to good purpose; but if there were large improvements to be undertaken, if a man were required to lay out, as was the case on many farms he had had to let, from 2000*l.* to 10,000*l.*, would it be reasonable to say, "I will not grant you a lease or give you any security for the capital you put into the land?" Although much might be said about good understandings between landlords and tenants, under which the same family had been found from age to age on the same land, he would ask, what had the public benefited by that? Did they find that great experiments were undertaken by tenants of that description? for however good might be the understanding which existed between one man and another, a Pharaoh might arise "who knew not Joseph," and the family of the tenant might not be left in the position which justice to their interests required. He had listened with some pain to the gentleman who had spoken of some instances—he hoped partial and exceptional—of great cruelty to the labouring class. That was another argument furnished in favour of leases, for in the country where he had lived and had a good deal to do with landed property, where they had leases, no tenant would take a lease unless he had sufficient houses on the farm for his labourers to live in. It had been said that the cows and pigs were better accommodated than the labourers, and that the latter had often to walk long distances to and from their work. That was so absurd and impolitic a proceeding, that he could hardly conceive a person in his senses would continue it. In the north of England and in Scotland, there were numbers of cottages for the labourers near their work, and they had them rent-free. They were built by the landlord and maintained in repair by the tenants. Of late years he had built many hundreds of cottages—not in the old style, with a single room, where whole families were huddled together without comfort or decency, but with three or four rooms and all kinds of conveniences. That led to another remark. Mr. Morton had very happily and properly alluded to the superior system of education amongst agriculturists of the present day. He had, however, in a great measure confined that to the sons of farmers and occupiers of land. He (the Chairman) should be glad to say one

word for the labourers. It was quite obvious that the class of men accustomed to perform the operations of agriculture some years ago, could not, without superior education and skill, manage the agricultural machinery now used. It was in this view of the matter, and desiring to promote the interests of agriculture, that he would suggest that each one of them should, as far as his influence went, aid in promoting the education of the labourer,—in fact, do what he could to elevate him in character and feeling. Even as a matter of mere policy this was important, because the work required was of a more skilled character than formerly. The value of the labourer did not now depend so much upon the strength of his limbs and sinews as upon the knowledge he could bring to bear in conducting his operations. Taking a higher view, however, he would say that it was also a matter of duty on the part of the higher classes to imbue the labourer with just sentiments as well as with knowledge beneficial to him in his occupation, and to educate the young amongst this class in such a way that they would perform their duties and fulfil their position in life as accountable beings here and hereafter. He was sure he should have the hearty concurrence of the meeting in tendering their best thanks to Mr. Morton for his very excellent paper.

COTSWOLD FARMING.

Having made no memoranda as to dates during the last 20 years, my remarks must be very desultory, being dictated from memory of what has taken place in this county. Draining was undoubtedly the first start made; public attention was drawn to the advantage of thorough draining by the evidence of the late Mr. Smith, of Deanston, before the Parliamentary Committee appointed to investigate the causes of agricultural depression, in, I believe, 1836 or 1838; before this period the only drainage adopted was putting a drain here and there across a field to cut off the water, often very shallow, and never of any real use. The expense of this operation was generally divided between landlord and tenant, the former finding materials, the latter the labour.

I was myself much impressed by reading the evidence of Mr. Smith, which I laid before Lord Bathurst, and represented to him the advantage I thought would acrue to his tenants and himself if some arrangement could be made for carrying out the thorough drainage of his estate. He at once entertained the subject, and agreed to be at the whole expense of draining all land wished by his tenants on their paying him 6 per cent. for the outlay. This arrangement was speedily followed by other landlords, and greatly facilitated by the advances of money for the purpose by Government, so that now there is scarcely an undrained piece of land in this part of the county.

The advantage of draining to the tenant varies very much according to the quality of the land. I have some land not improved more than 10 per cent., and other which is quadrupled in value—the latter consisting of a sandy land on the forest marble formation, which, as you are aware, is quite as impervious to water as the strongest clay, but when broken through it drains freely, and the poor sand is converted into a sandy loam.

After drainage, I consider the introduction of superphosphates and other artificial manures the greatest advantage. We before applied 16 and 20 bushels bonedust an acre, at an expense of from 2*l.* to 3*l.*; now, by the application of sulphuric acid, rendering the bones soluble, this expense is reduced to 15*s.* or 20*s.* per acre.

Steam threshing was the exception in this neighbourhood only 10 years since; now it is the rule. You never see the flail, and very rarely horse labour employed, and the advantages of steam over every other system, you estimate more correctly than I can.

Twenty years since, even the drill system for Turnips was by no means general—now the little man who has only an acre or two to plant, borrows his neighbour's drill.

One-horse carts are more general, and of the immense increase in number of implements, and the superiority of structure during the period of which I write, I know you are fully informed.

I am very sorry I can get no notes of the proceedings of our Farmers' Club. I dare say you are aware it was from it that our College started into existence; this Club was formed and attended almost exclusively by tenant farmers. The late Mr. R. J. Brown brought forward the subject of the advantages of education for agricultural pursuits, which was immediately taken up by the farmers, but so much time was occupied by the establishment of the College that none was left for other objects, and the Club was given up.

The late Mr. R. J. Brown wrote a report of the rise and progress of the College, which I dare say you have seen; if not, and you think it will be any use to you, I will try to get you a copy.

I should have before mentioned that in this neighbourhood the substitution of the scarifier for the plough has been successful in saving expense with advantage to the land. The old custom was to plough twice for Barley, and four times for Turnips; now these crops are often grown with only one plough, and we do not so often see the fields bare of Turnips, excepting on the headlands, where they were often good, being saved from the injury of overploughing by the extra treading they got.

I cannot agree with letters I often see in agricultural papers complaining that our land is tired of roots, and we cannot grow the same weight as formerly; in this neighbourhood the average crops of roots are better than they were.

Although there were perhaps as good individual specimens of our breeds of cattle the early part of this century as now, the number of good animals is vastly increased, particularly Short-horns. When I began breeding them in 1836, the late Lords Ducie and Sherbourne, and the Misses Strickland were almost the only persons besides myself who kept a pure bred bull in this county; now we have them in almost every parish.

Under the circumstances one is sometimes disappointed that the cattle brought to our markets and fairs are not more improved. This, however, proceeds from the best animals finding purchasers at home, and never entering a market at all.

Looking back perhaps 40 years our supply of mutton must be doubled, or nearly so, as by the improvement in feeding, our farmers bring out their sheep at a year old, weighing as much as they formerly did at two years old.

The Leicester sheep are little improved, probably not so good as they were 20 years since: but in Cotswolds there is great advance; likewise the Hampshire downs have been vastly improved by judicious crossing with the Sussex, and the Oxfordshire Downs are a new breed altogether within 20 years, and are becoming more popular every year, and I think deservedly so. *Edward Bowly, Siddington, Cirencester.*

CATTLE TRAFFIC.

Though I am but a poor, lean, and now diseased Irish bullock, I am sure that you, with your usual readiness to make known and redress cruelty and wrong, will permit me to tell that great doctor of my cloven-footed race, John Gamgee, a few things which he seems not to know, for I hear that he is taking a wrong turn, so that his zeal in our behalf will do us no good, nor will he add much to his own reputation. As I have said, sir, I am an Irish bullock, one of a drove of 140, brought here not many days ago by two English farmers from Ballinasloe Fair. At the fair we were all strong and in good health, sound in lung and limbs; for though people called us lean store beasts, we had been well fed, and for growing cattle we were in first-rate condition. Alas, what a change is to be seen in us now! In this short time we, who were so strong, are brought down; some of us are dead, some of us have lungs so inflamed that we can hardly breathe, others' tongues are so sore we cannot eat, and our feet so distended by fœtid matter that we cannot walk, and all are truly lean, and have coats, so soft and free but a few days ago, standing up or turned the wrong way, as if fright had made them stand on end and fixed them there. Now, Sir, I hear that Mr. Gamgee has been writing to you that thousands of my fellow cattle in all parts of the country are suffering in the same way, and that he says it is because a few foreign cattle have been brought here, which come with diseases and give them to us. Pray let me be heard on this subject. It stands to reason that we bullocks know more than even Mr. Gamgee about the way we catch diseases, and I am sure that he will be glad to learn what we can tell. Well, then, we were bought in Ballinasloe Fair, carried thence in railway trucks, a distance of about 80 miles, to Dublin. We had been standing all day in the fair without food and without water, after long journeys the day, for some of us days, before. When we reached Dublin late at night we were driven some distance to our beds for the night—such beds!—and were miserably supplied with food and even with water. The next day we were put into the hold of a steamboat, which carried us to Holyhead. We overheard the men on board say what a good passage we were having; but our sufferings, notwithstanding, were horrible. We had an atmosphere so close, so hot, so poisoned by being inhaled over and over again, that the men who came down at Holyhead to sling us could remain but a few minutes at a time, and had to work by relays; yet we, whose lungs as much as theirs require pure air, had to breathe it for hours. When we were got out we could hardly see each other, or even the lamps which the men carried among us, for the steam rose from us in dense clouds, and the rain, which was pouring down, seemed to hiss and bound from our burning skins as it did from the big hot funnel on the boat's deck. Here our masters, who would, if only for their own sakes, have taken care of us, could do no more than turn us on to a bleak mountain side, where, hot and weary as we were, we lay during a night uncovered, to be stiffened by the blasts of the cold wind and rain. After a night like this we were again put into railway trucks, which brought us to this place. On the way we spent long, long hours, through day and night, without food, without water, in inclement weather, with a footing so slippery we could not stand, but so closely packed that we could not lie down, in trucks so narrow that our heads had to be some half thrust through the upper rails, others forced up over our neighbours' backs—in positions so painful and constrained that we wonder we can now carry them right again. At times, when the train stopped or started, we were thrown this way, then that, having all our limbs wrenched, and our skins so abraded that most of us, if we survive, will bear the scars with us to the end of our days. Foreign cattle! What, Sir, have foreign cattle to do with our sufferings? In coming here did we not undergo enough to give us diseases of the lungs, diseases of the feet, diseases of the mouth, diseases in every part? If Mr. Gamgee had been with us, driven like us to the fair, made to stand like us through the day, unfed, treated as we were at Dublin, in the steamboat, on the mountain side at Holyhead, and in the trucks thence to Market Harborough, would not he be as we are, though no German or Dutchman or other outlandish foreigner had ever set foot in Great Britain? And what do our masters say? They have seen the causes of our sufferings, and they know that they have sustained by them the losses they have. They go at once to the point, and they say, as I overheard, that they would have paid half as much again to bring us as we ought to be brought, for our maltreatment has caused us to be as we are. And yet, after all, they say that we of this drove have been fortunate, for if we had been brought over as most of us Irish bullocks are, by dealers, we might have been carried all the way from Ireland, as —— brought his the other day to Leicester, and there made them stand through the market hours without having had one morsel of food or one drop of water since they left the shores of their own dear Erin. Such of us, it seems, as, having been brought here by dealers, on arrival are not fit to show in the market, are placed with small farmers round about, whose want of capital make them willing to take in even diseased bullocks for a little cash, there to recover or die as may happen, while the rest of the drove are driven at once to the market or fair for sale, there to stand for the first half of the day, and to be driven at last to their purchaser's home, where in a few days diseases "brought by foreign cattle," Mr. Gamgee would say, decimate the herd.

Pray, sir, let Mr. Gamgee and all men see this true though faint description of what I and my horned brethren were made to undergo, and tell them that in that horrible hold of the steamboat our hatches were open, but that in bad weather the hatches have to be closed. Ask, them, sir, to try to imagine the sufferings endured in that hold which the other day left the continental port, containing 500 living things, cattle, sheep, and pigs, but which on reaching its port here yielded up instead 500 dead carcases.

Tell men these things, and I shall remain with the deepest gratitude, your servant for ever, *Rory O'Moo-oh, The Pastures, Market Harborough.*

P.S. What was that Black Hole affair at Calcutta, which I heard some one comparing the hold of our steamboat to? Was it a place in which men shut up cattle? *Times.*

Home Correspondence.

Swedes and Rape.—On my arrival here about a month ago from Scotland, I was struck with a report of a trial held at the county Cavan quarter sessions, as reported in the *Farmers' Gazette* of the 7th ult., and being much astonished at the evidence adduced, and the results of that trial, and also sharing in the opinion of Lord Cloncurry and others, that Swede Turnip seed could not produce Rape-like plants, I determined to examine for myself while travelling through the country the Turnip crops in various counties. The first farms which I visited were those of Mr. Anderson, on His Grace the Duke of Leinster's property in the county of Kildare. These farms are managed on the most approved principles of modern husbandry, and well worthy of being placed in the foremost ranks of good farming either in Scotland or England, and therefore no care or skill was awanting in the management of the Turnip crop, which is on the whole in this case an exceedingly abundant one. Mr. Anderson told me that a portion of his crop was grown from seeds raised by himself from selected transplanted bulbs. I found spread over some parts of the field various plants having an appearance of shott Cabbage or Rape; these plants are not regularly distributed all over the field, but occur only on certain patches of it, indicating clearly to my mind that the sporting in the crop is not from the seed. From these farms I drove to Carlow and thence through the counties of Wexford and Wicklow; in the latter county I examined the Turnip crops on a large farm in the highest state of cultivation, and there I found the sporting or malformation of the Turnip developed in a very marked degree. The field, a large one, was sown in the usual way in parallel drills; at the one end of the field and about half way down there was not a spurious Turnip to be seen, but at the other end, and extending for several hundred yards, and embracing portions of many drills, the crop was studded over with these sporting plants without bulbs, but having strong fibrous roots like small trees, and large tops resembling overgrown Rape. I was therefore conclusively led to the conviction that sporting in the Turnip seed did exist in this country, and although from a large and varied experience both in England and Scotland I had never seen or heard of it until now, the crop referred to, which had not sported, was as fine as I ever saw, and I was informed that the seed was saved from large selected bulbs, and in a country where no Rape is seeded, so that the Turnip could not be hybridised. *Land Agent, Jury's Hotel, College Green, Dublin.*—In reading in your last number the Cavan trial

upon Swedes *versus* Rape, I am quite disposed to agree with the verdict of the judge, jury, and evidence of D. Drummond, for this reason; some 10 years ago, a friend sent me from the neighbourhood of Ilsley, Berks, 2 quarts of Swede seed, of a particular good "sort," well known to have grown some first-rate crops, and under the eye of a very practical man. I took more than ordinary pains in sowing them with a drill on one side, Mr. W. Skirving's sort the other side of the drill, consequently they were put in the ground the same moment. The Berkshire came up what is described in the Cavan trial as Rape, and when the grower was informed of the transgression committed by his favourite Swede he would not believe it, nor does he to this day; and I firmly believe that if the extraordinary pains which our seedsmen resort to were to slacken for a year or two, Swedes would quickly resume their original complexion—Rape. Out of 50 acres of very good Swedes now on the land, when old hedgerows have been grubbed, you may have as fine Rape as need to be grown, while those on the old land are as handsome as can be grown—the stock of Mr. Skirving, of Liverpool, whom I have now patronised for 27 years, and while I live mean to do so. *W. Eve, Manor Farm, North Ockendon, Romford, Dec.* 1.

Autumn Culture by Steam.—The Messrs. Howard's letter is incorrect when it says that "on large farms it would be most unwise to postpone the work to so late a period as Mr. Smith recommends." Now I have examined most carefully every letter that I have written upon the subject of steam cultivation since January, 1856, and every thing that has been printed that I have said, without finding such a recommendation, but I have found in a letter written by me and addressed to the farmers of England in 1858, the following:—"I may state that five acres of heavy and eight acres of light land have been found to be an average day's work; that September, October, and March are the best months for applying steam power to the cultivation of the soil; that after deducting Sundays and a few days for threshing or stoppage by rain, the working days for September and October may be put down at 45; this, multiplied by 5 for heavy and 7 for light, gives 225 acres and 315 acres as the quantity of land that can be cultivated once over with a set of steam apparatus within three months. By this it is clearly seen that if steam power is to be generally applied to the cultivation of the soil, every large farmer must possess a set of apparatus of his own. Two or three small farmers may have a set between them or hire one of another, according to arrangement; for September and October will not wait, and if the work is to be done well it must be done in those months." The letter containing this recommendation for pushing on the work as fast as possible directly after harvest was not only published in the leading agricultural papers, but was circulated by the Messrs. Howard themselves, first by circulars, and lastly in their catalogues of 1859, 1860, and 1861. This will be enough to convince the Messrs. Howard of the incorrectness of their remark. Now let me tell them that their letter is further incorrect, or rather, short of the truth, when they say, "we recommend the following plan, which we adopt upon our own farms, and which has been generally and successfully adopted by others . . . break up the stubbles with the steam cultivator . . . Then with the steam plough, or as the horses are at that time not very busy, with the ordinary double mould board plough, ridge up the land for the winter." Now this may be correct so far as laying land for the winter, but it also implies that a harrowing and sowing is enough for the spring seeding, whereas that is not the practice either of the Messrs. Howard or the general public for the least done to the land either by them or the public, in the spring, is the putting in the manure and splitting the ridge before seeding; in many cases a great deal more is done. The Messrs. Howard would do well to be a little more correct in their statement, and above all to give the whole truth. *William Smith, Woolston.*

Sheep Clipping.—I am much pleased that the Council of the Royal Agricultural Society have at length seriously considered the sheep-clipping question. I have fought the battle almost single-handed, and have been ever steady in exposing this crying evil, and no one knows this better than one who made very unfair remarks concerning my sheep at Oxford and Kilkenny, where, by the bye, a bare shorn sheep won the first prize. I hope the Council will alter April for May as the day of shearing, for I have spoken to several skilled sculpturers, and they say they can be cut into shape if shorn bare the 1st of April; and no farmer in the world could prevent a shepherd doing so, or be answerable for it; and to appoint a censor for deciding such a matter would indeed open the flood gates of dissatisfaction. If, as the Bath and West of England orders them, they be shorn by the 1st of May, then not much harm can be done. Four weeks later will make a great difference; they should be very strict in seeing it is fairly done then, and on no account attempt a censorship. On the subject of overfeeding I am sure nothing can be done. I showed at Leeds, so best judges said, the best sheep there, but he was not fully fat, and the judges passed him over. I took him all through the Yorkshire and Leicester shows, and he was admitted to be the best grown Cotswold sheep they had ever seen, but he died from his journeys. Another subject which requires the serious consideration of the Council is, now they have decided upon open judging, to prevent the judges knowing who the sheep belong to, and they are not aware of the tricks that are played to do so. The stewards of the yard cannot be all the time with the judges, and persons should be appointed never to leave the judges, and those animals should at once be disqualified, when the owners take any steps to show the judges whose they are. I have always upheld the judges, knowing what an unthankful office it is, and should not have acted differently at Battersea, though I knew, and the Cotswold men admitted I had one of the best sheep there; but when Mr. Robert Smith, one of the judges, thought fit to write an account of the Cotswold sheep and their breeders, and to name the number of prizes every one had taken, and to leave me out, who had in six years taken more prizes than nearly all of them; and also knowing that no one had formerly more warmly congratulated me on my success, I could not set him down but as a biassed judge, recollecting he was one of the members of Council who I had just before tried to remove for new blood, and hence he was so severely handled by the public press. I am quite sure judges should be appointed as far as possible who have no local interest, and who are above petty spites. This Battersea sheep was shown at Worcester, just opposite the Gold Medal prize Battersea sheep, and took the second prize there, one of the judges telling me afterwards it was the best two-shear sheep he had ever seen, and the person who joined him in the congratulation was judge at Leamington, and gave the first prize to a sheep that was inferior in every point. Any person who is curious in these matters can come down here and see all three of the sheep, and now I hope the Council will allow the members to vote by proxy, and then I would prophesy an increase of prosperity to the Agricultural Society that its warmest friend has never anticipated. *T. Beale Browne, Salperton Park, Andoversford.*

Mangel Growing.—For the information of some of my neighbours, will Mr. Smith of Woolston be so kind as to publish in the *Agricultural Gazette*, how many of these roots he, on an average, grows on each square yard of ground when the crop is 55 tons or 123,200 lb. an acre? or, if he will give the average weight of each root it will do as well. And if Mr. Milward will answer the same question in reference to his Swede crops of 35 tons an acre, he will also confer an equal favour. From the many examinations I have made to ascertain the depths to which by good cultivation both grain and root crops will descend in search after food, and the large yields of produce that will be the consequence, if the land also be thinly and evenly seeded, I should not have been so much surprised at these results had Mr. Smith by steam cultivation, and Mr. Milward by horse-power, given their lands what I consider to be good, that is, deep and thorough cultivation. But I am surprised, and more than I can express, that one of these gentlemen should grow 55 tons of Mangel, and the other 35 tons of Swedes per acre, with in reality no cultivation at all, or certainly none within the year when these marvellous outrageous crops were grown. In the palmy times of my old friend, the *John Bull* newspaper, an old and prudent lady of the name of Ramsbottom—"Mrs. Ramsbottom"—used to instruct the public by the publication of some wise maxims, directed chiefly for her son and daughter, and amongst them she advised "her darlings always to take Time by the forelock," a maxim it appears which Messrs. Smith and Milward have dropped upon and put into practice, by the grubbing, and ploughing, and preparing their lands in the autumn of one year to be all ready for their cropping the next year. *Geo. Wilkins.*—P.S. Will Mr. Smith also be so kind as to favour me with one of his Wurzels, as, for the novelty of the thing, I should like to convert one into a kennel for my half-bred Newfoundland dog? *G. W., Wix Parsonage, Dec.* 2.

Birmingham Root Show.—At the late exhibition of the above Society there were exhibited some very fine White Belgian Carrots from Osberton, six of which weighed no less than 36 lbs., which, for such a weight were exceedingly well grown. Yet these received no award, while the Carrots that obtained the prizes, although well grown, did not weigh so much by at least 26 lbs. the half dozen. Now it is my opinion and impression that size combined with quality should have the preference and be encouraged, especially in agricultural produce, as weight per acre is the agriculturist's motto. Am I right or not? *A. H. B.*

Societies.

ST. JAMES'S HALL: *Steam Cultivation.*—The following is a further report of some of the addresses at the meeting held last week, to which we alluded in our last Number:—

J. T. HARRISON, Esq., of Frocester Court, Gloucestershire, moved, "That considerable advantage would arise to tenant farmers and others from the establishment of a joint-stock company for the purpose of supplying steam apparatus to applicants, allowing them to repay the cost price by instalments extending over a certain number of years, on the principle of a rolling stock company." The purchase should be made by the landlord and tenant in conjunction, the company taking a bond from the landlord for the payment of the money. As a farmer he had had a little experience of steam-ploughing already, and he knew the great disadvantage to a farmer of having to wait for his turn to have his land cultivated by steam. He sometimes missed his opportunity, and when he did get the steam plough he almost wished it away. Hence he considered that it would be a great benefit to farmers to have steam-cultivating apparatus of their own. Their experience of steam ploughing in Gloucestershire clearly showed that it was not desirable for any company to undertake ploughing by hire. It was essential to the owners of an undertaking like that under consideration that there should be good security, and such security could be obtained through the landlord and the tenant acting in conjunction. Under the proposed plan the company could supply the steam cultivator, and the tenant would pay the cost by instalments, and a certain amount for interest; and the company would have an additional security in a bond from the landlord that the money should be paid. Let them observe the advantages of this scheme. When the machinery was first supplied, the landlord's responsibility was at the maximum; but the engine was new and in first-rate condition. Year after year, as the tenant continued paying off, the amount of his interest increased, while the landlord's responsibility diminished. The company still retained its security; and in the event of the tenant's refusing or becoming unable to continue the payments, the landlord would meet them, and at the end of the period the cultivator would be his. He thought that was the only way to obtain proper security; nor was it at all unreasonable in his opinion, to ask landlords to incur a responsibility for what would conduce to their benefit as well as to that of the tenant.

The Earl of SUFFOLK observed that under that system a landowner might have half-a-dozen steam ploughs left on his hands.

Mr. HARRISON replied, that in that case he would have half a dozen farms to be cultivated. He knew a recent case in which a farm had to be let, on which there was a steam plough, and one of the conditions was that the new tenant should take to that plough. There were a great number of applicants for the farm, and so far from the condition just mentioned being objected to by them, it was considered an advantage that the future tenant would obtain a steam plough on the farm.

Dr. VOELCKER seconded the resolution. He said the farmers of England were frequently spoken of as a prejudiced, ignorant, and slow race of men. It was not for him to say whether they were more so than other classes of the community. All had their prejudices, and all were more or less ignorant, and if one class were a little quicker than another, the quicker was not always the surer. Farmers, as a class, perhaps no one would deny, were slow, but their very slowness was a recommendation; for, if they were not slow, they could not be good farmers. But, if slow, they were sure. He believed that the carrying out of the resolution just proposed would be of immense advantage to agriculture. He thought there should be not only one joint-stock company of this kind, but a number of them scattered all over the country. What made a man engaged in manufactures or commerce enterprising was the command of surplus capital. Farmers, as a body, were not in that position: they really had to turn a penny twice before they could with comfort to themselves spend it; and it was very reasonable that a farmer should think twice before spending a large sum on an implement of which he had perhaps had little general observation, and no personal experience. Now, it was to meet this case, as he understood, that joint-stock companies were to be established, and he had no doubt that farmers would largely avail themselves of the opportunity of repaying by instalments the money advanced by capitalists. But he felt that he was somewhat ought of place in speaking on such a purely practical question, and he would therefore, as a scientific man, mention two points with which the discussions which took place on the advantages of steam cultivation did not appear to him to have been made sufficiently prominent. They were, first, that by steam cultivation you could get from many soils an immense quantity of manure, and thus save a good deal of money in the purchase of artificial or the purchase of home-made manures—a very important advantage; secondly, that there were many soils in this country which were really not in a fit condition to receive artificial manure, if the farmer were willing to purchase it—for example, guano or superphosphate of lime, or even farm-yard manure. This second point was one of great practical importance. They frequently heard of clay land which was so poor that it would not repay the cost of cultivation; and it would be well to inquire what was the cause of that poverty. Land of that kind might be poor for one or two reasons—either because it had not the elements of fertility in it, or because it was not in a fit condition to receive manure. In either case something should be done to bring the soil into a better condition. To do this by manual labour was out of the question, and to do it by horse labour was in many cases, as he had no hesitation in saying, impossible. The only mode of effecting this object in some parts of England, was, happily, steam power. What would be the result of steam cultivation? In places where there was, so to speak, an immense amount of capital locked up in the soil, that capital would be set free; in other words, steam cultivation would eliminate from the soil itself the elements of manuring fertility which were purchased so dearly in guano and manufactured manures. All who knew anything of his writings must know that he was a great advocate for every description of manure in its proper place. He called applications of manure out of place when they had the elements of fertility in the soil, and when for want of proper energy or proper implements they did not avail themselves of steam cultivation to work out of the land the materials they required This was a point which had not been sufficiently attended to by writers on steam cultivation, and he wished, therefore, strongly to impress on the meeting that from nine-tenths of the soils of a heavy description, they would get by steam cultivation an immense amount of fertilising matter. Few persons had any adequate idea of the enormous resources of clay soils. Some time ago he examined some clay soils in Gloucestershire, and for his own amusement he made a calculation with regard to their constituents. He found that in the clay soils there was, within a depth of an inch and a-half, a sufficient amount of that very important element potash to supply the Wheat crops for 1500 years, and that farmers had only to go down another inch and a half to get enough potash for 1500 years more. There were many poor clay lands, and if they were cultivated by steam would for a long succession of years yield large crops, without the farmers being compelled to make large purchases of guano or other artificial manures. In the next place he would observe that many soils were not in a fit condition to receive manures; they were bad clays, or so tenacious that if manure were applied to them it ran off the surface. When rain fell, the most valuable portion of the manure was washed out; the essence of the manure ran in the readiest way through the cracks of the clay, instead of filtering through the soil. By steam cultivation the mechanical condition of the soil, and therefore its fitness to receive manure, would be greatly improved. In whatever light clays were regarded, steam cultivation could not but produce wonderful effects; and he believed that what they now witnessed was merely a foretaste of what was to be expected from steam cultivation, and what would be seen 20 years hence.

Sir GEORGE JENKINSON moved:—"That this meeting views with decided approbation the objects of the General Steam Cultivation Company, and the mode in which it is designed to carry them into effect." He said that resolution was a very practical one, raising, as it did, the question whether the scheme of forming a company should succeed or should fall to the ground. With a view of showing clearly the principal features of the scheme, he would read what they proposed to

make the base of their proceedings: "Since steam will enable the farmer to cultivate with fewer horses, since it improves the quality and increases the produce of his land, since it makes him almost independent of the weather, by doing his work with marvellous expedition and precision, the progress of steam cultivation must mean more profitable farming and more abundant food. The majority of farmers who use steam bear enthusiastic testimony to its superiority over horse-power. The farmer who may desire to buy machinery through the agency of this company, will, to a great extent, be at liberty to choose his own system and implement maker. The shareholders, on the other hand, are free from risk, since the company order only after they have sold. They are not called upon to venture a shilling in agricultural steam machinery; they are merely the intermediaries who pay the implement maker for goods supplied, and have their outlay returned, with interest, by instalments. They have undoubted security for their invested capital, for while the company receive in ready money 25 per cent., and when the first year's quarterly instalments have been paid, hold a total cash security equal in no case to less than 33 per cent. of the retail value—they retain the legal ownership of the machinery—to them an always available security, until the price of it has been completely reimbursed to them. The rate at which the capital is repaid to the company will always, even under the seven years' scale, maintain the amount in their hands at a sum far beyond any possible amount of depreciation, which the machinery might suffer from neglect; but the purchaser will, nevertheless, be bound to keep the machinery in an effectual state of repair, and to the satisfaction of the company's engineer; which, indeed, it will obviously be to his own interest to do." Three objections were raised against steam cultivation. The first was the expense it involved. That objection would be entirely met by the company, inasmuch as the tenant-farmer would not be called upon to lay out any money to obtain a steam cultivator. The second objection was the trouble or annoyance which might be caused to landlords by requiring them to alter the shape of their fields, and to remove their fences. If a landowner improved his farms to the extent necessary for steam-draining and cultivation, the enhanced value of the land would be ample compensation for his trouble. He would be able to obtain a better class of tenants, because the land would yield a greater amount of produce, and carry more stock. The last objection to steam cultivation was that it would interfere with hunting. Even if that would be the case, it should be remembered that hunting was not everything, and that it must, if necessary, give way to the production of increased food for the population. But as one who hunted himself, he contended that that objection was unfounded. In conclusion, he would remark that scarcely anything great or important could be achieved without some sacrifice at the outset; and even if a landlord did lose a few hundred pounds by making himself responsible in the manner now proposed, he would ultimately reap advantage in the improved state of his land, and in securing better tenants.

WEST CUMBERLAND.—I cannot even give you the date of the foundation of the West Cumberland Agricultural Society, I fancy it is about 30 years since it was established. For a few years, when the Society was in its infancy, the annual show was held at Egremont; it was afterwards removed to Whitehaven, where it still continues to be holden either in the month of September or early in October, the fixture depending upon the time of harvest. My residence in the district dates from 1845. For the last 10 years I have acted as Hon. Secretary and Treasurer to the Society. The funds are raised by annual subscription. We have no farmers' club, nor have we any discussions except what may be promiscuously brought forward at the show-day dinner.

The improvements that have taken place during the last 20 years in the agriculture of this district are marked and various. I will take for example the township of Sandwith: when I first came into this vicinity, it was one complete bed of Couch Grass. The land had been cropped with Potatos and Wheat until it was exhausted, and two or three small stacks were all one could see about each farm house. When the blight came upon the Potato crop in 1845, it was looked upon as a great visitation, but in the end it has proved the salvation of many a poor farmer. When the Potato failed, attention was then turned to the growth of the Swede, for which the climate and soil of the township is peculiarly adapted. And as the Society has always given liberal prizes for the growth of that root, the competition has been keen and spirited. As much as 13*l.* per acre has been made of a crop of Swedes by taking in sheep to consume them on the land at 4½*d.* per head per week. The difference between carting the Potato crop to market and consuming the Swedes on the land has made a wonderful change in the cereal crops which the land now produces. The stackyards are full to overflowing, the land is as clean as a garden, and whereas in 1845 it was one of the worst farmed districts in the North of England, it is now second to none in the kingdom.

There has also been a considerable improvement effected in regard to haymaking in West Cumberland since machinery was introduced into that department of husbandry. I get from my farm from 400 to 700 cart-loads annually; and before the year 1855 it was all made by hand labour, the scythe, the fork, and hand rake, being the sole implements used. I have now six horse machines in daily use, the result is, quicker, cheaper, and better made hay.

As an example of expeditious haymaking, I may mention that I commenced to cut a five-acre plot on a Thursday evening at 5 o'clock, and before 6 o'clock on Saturday evening following I had the whole produce, consisting of 28 cart-loads, safely secured in the mow, as dry, sweet, and well-made hay as I would wish for, and the entire cost for manual labour of mowing, making, and gathering into rows, ready to fork into the cart, was 1*s.* per acre; whereas on the old system it would have cost from 7*s.* to 10*s.* per acre.

Threshing machines and ploughs have also undergone a considerable improvement during the last 10 years—thanks to the Royal Agricultural Society holding their meeting at Carlisle. I believe that exhibition was instrumental in opening the eyes of many of our Cumberland mechanics. Previous to 1855 our county was wont to boast of her ploughmen, but when it came to the test at Carlisle, we were well beaten upon our own sod—not that our ploughmen were deficient in skill, but they had not the implements to work with. Rents have been gradually rising since I came into the neighbourhood, and I know several farms which have gone up 50 per cent. If I may take the wages of my own farm servants as a criterion, they have also gone up 50 per cent. I keep eight servants in the house, and they are engaged by the half year; and I find in 1845 and 1846 they averaged 7*l.* each—they now average 10*l.* 10*s.* Poor-rates, taxes, &c., which come against my farm, have risen nearly 100 per cent. *Robert Jefferson, Preston House, Whitehaven.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

At 9 A.M., Railway Time.

Day of the Week.	Day of the Month.	Barometer corrected to Freezing Point at Mean Sea Level.	Reading of Thermometer. Dry Bulb.	Wet Bulb.	Wind. Direction.	Force, 0—6	Amount of Cloud, 0—10.	Reading of Self-Registering Thermometers. In Shade. Max.	Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
		Inches.	°	°				°	°	°	°	Inches.
Friday ..	Dec. 11	30.25	43	36	W.	2	10	48	42	65	35	..
Saturday ..	12	30.17	49	47	N.W.	3	5	51	17	53	43	..
Sunday ..	13	30.40	41	40	N.W.	0	9	54	33	61	59	..
Monday ..	14	30.44	47	45	N.W.	0	0	49	34	60	59	..
Tuesday ..	15	30.55	45	44	N.W.	0	10	52	15	59	28	..
Wednesday ..	16	29.88	49	48	W	0	10	49	44	50	39	..
Thursday ..	17	29.93	45	40	N.	4	8	48	38	55	30	..

The rainfall on the week ending Dec. 3, was 1.60 inch.

Miscellaneous.

To make Plain Gingerbread.—Mix 3 lb. of flour with 4 ounces of moist sugar, ½ ounce of powdered ginger, and 1¼ lb. of warm treacle, melt ½ lb. of fresh butter in it, put it all to the flour, and make it a paste. Then form it into nuts or cakes, or bake it in one cake.

Strengthening Jelly for an Invalid.—2 ounces of white sugar candy, 1 ounce of isinglass, 1 ounce of gum arabic; put these ingredients into a basin, cover them with cold water, let it stand all night, the next morning put it on the fire and let it simmer until all is dissolved. Then add 1 pint of port wine and boil it all together half an hour; strain it, and let the patient take a tablespoonful three times a day.

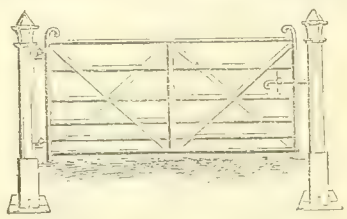
Marine Glue.—Dissolve 1 lb. of caoutchouc in 4 gallons of coal naphtha; mix 1 pint of this solution with 2 lb. of shellac; the mixture, when cold, resembles sealing wax. Make the parts to be joined very hot, cover them with the cement, and press them tightly together till cold; clean off the superfluous portions with liquor potassæ.

The best Soup.—When 1 lb. of lean beef, free of fat, in the finely chopped state in which it is used for beef sausages or mince-meat, is uniformly mixed with its own weight of cold water, slowly heated to boiling, and the liquid, after boiling briskly for a minute or two, is strained through a towel from the coagulated albumen and the fibrine, now become hard and horny, we obtain an equal weight of the most aromatic soup, of such strength as cannot be obtained, even by boiling for hours, from a piece of flesh. When mixed with salt and the other usual additions by which soup is usually seasoned, and tinged somewhat darker by means of roasted onions or burnt sugar, it forms the very best soup which can in any way be prepared from 1 lb. of flesh. *Liebig's Researches on Food.*

HORTICULTURAL and AGRICULTURAL IMPLEMENTS and MACHINES of every description.
Illustrated Catalogues on application.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

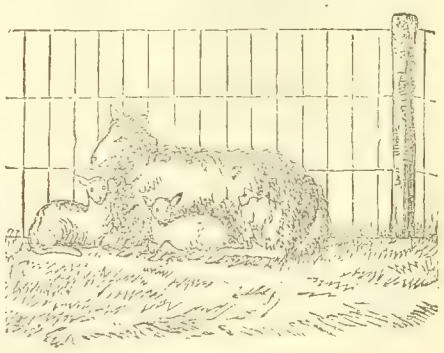
ENTRANCE GATES, either in Wrought Iron or Cast and Wrought Iron combined, ranging from the ordinary Field Gate to those of the most elaborate design.



IRON RAILING of various designs. FENCING of every description. All kinds of HURDLES, &c.

Drawings and Prices free on application to COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

Patronised by H.R.H. the late Prince Consort.



No. 7B variety, 9*d.* per lineal yard.

GREENING AND CO. received the award of another Silver Medal and Commendations at the recent great Birkenhead Cattle Show of the South Lancashire Society.

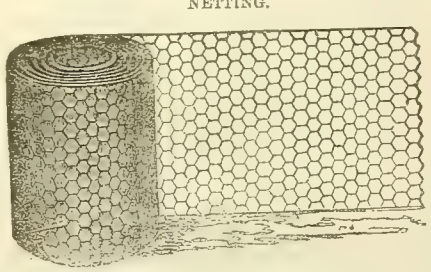
In 1857 the judges of the Royal Society reported of their Patent Iron Wire Sheep-fold Fence, that it "was cheap and excellent. It can be very easily fixed, and was well coated with a bright and durable-looking varnish."

G. & Co.'s prices remain unadvanced, notwithstanding the rise in the iron market. Their enlarged Catalogue of Fences and Iron Gates post-free on receipt of three stamps. An explanatory circular sent without charge, on application.

Address GREENING & COMPANY, Victoria Works, 81, Oxford Street, Manchester.

BARNARD, BISHOP, AND BARNARDS, Norwich.

FURTHER REDUCTION in the PRICE of WIRE NETTING.

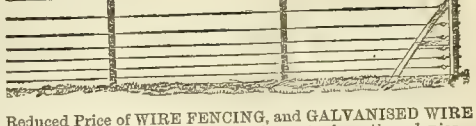


BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised. per yard.	Japanned Iron. per yard.
2-inch mesh, 24 inches wide ..	No. 19	.. 4½*d.*	.. 3½*d.*
2-inch " " " "	18	.. 5	.. 4
2-inch " " " "	17	.. 6½	.. 5
2-inch " " " "	16	.. 8	.. 6½
1½-inch " " " "	19	.. 4¾	.. 4
1½-inch " " " "	18	.. 6	.. 4¾
1½-inch " " " "	17	.. 7	.. 5½
1½-inch " " " "	16	.. 9	.. 7

All the above kinds can be made any width (under 6 feet) at proportionate prices.

Strong Galvanised Poultry Netting, 7½*d.* per yard, 3 feet Wide Galvanised Sparrow-proof Netting for Pheasantries, 11*d.* per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Reduced Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.

Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 11*d.* per yard.

The same with Galvanised Wire Rope, 1*s.* 1*d.* per yard.

Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application

*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

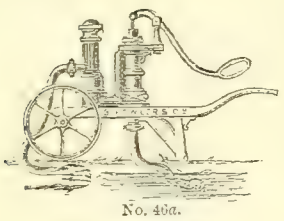
CLINTON & OWENS

(LATE BENJAMIN FOWLER & CO.),

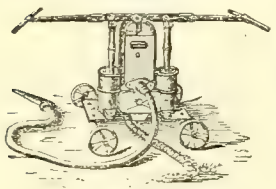
MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

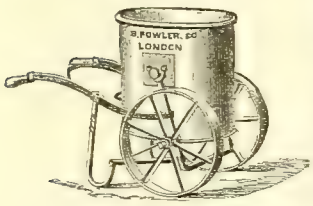
WHITEFRIARS STREET, FLEET STREET, LONDON.



No. 46a.



No. 50.



No. 49a.

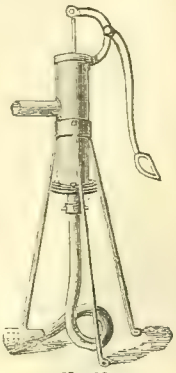


THE Landscape Sketch shows an adaptation of THE IMPROVED HYDRAULIC RAM for forcing water to considerable heights and distances to supply Mansions, Farms, &c., where a few feet fall can be obtained. Full particulars of this useful Self-acting Machine can be had on application.

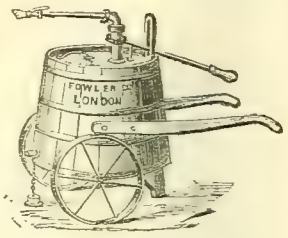
No. 4. Useful YARD, GARDEN, and COTTAGE PUMPS, from 1*l.* 5*s.* each.
No. 38. Portable LIQUID MANURE PUMPS, with flexible suction pipe.
No. 46*a*. DOUBLE-ACTION PORTABLE FORCE PUMPS and FIRE ENGINES for Water or Liquid Manure.



No. 4.



No. 38.



No. 49.

No. 50. Improved (Holman's Patent) DOUBLE-BARREL FARM FIRE ENGINES and IRRIGATING PUMPS.
No. 49. GARDEN ENGINES of all sizes.

No. 49*a*. Improved SWING WATER CARRIERS, holding 24 and 35 gallons, for Garden Use.

Further Particulars, Estimates, and Illustrated Price Lists on application.

THOMAS MILLINGTON,

GLASS MERCHANT. (Established 1750.)

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

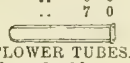
THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY T. MILLINGTON.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured T. M. with orders for Home use and for Exportation.



PROPAGATING GLASSES.

2 inches diam.		0s. 3½d.	each.
3	,, ..	0 4½	,,
4	,, ..	0 5½	,,
5	,, ..	0 6½	,,
6	,, ..	0 8	,,
7	,, ..	0 10	,,
8	,, ..	1 0	,,
9	,, ..	1 2	,,
10	,, ..	1 4	,,
11	,, ..	1 6	,,
12	,, ..	1 9	,,
13	,, ..	2 0	,,
14	,, ..	2 6	,,
15	,, ..	3 0	,,
16	,, ..	3 6	,,
17	,, ..	4 0	,,
18	,, ..	5 0	,,
19	,, ..	6 0	,,
20	,, ..	7 0	,,



FLOWER TUBES.
2*d.* each, or 1*s.* 6*d.* per dozen.



ZINC HAND GLASSES.
Painted and Glazed with 16-oz. Sheet Glass.

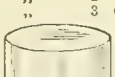
12 inches ..	5*s.* 6*d.*	each
14 ,, ..	6 6	,,
16 ,, ..	7 6	,,
18 ,, ..	8 6	,,
20 ,, ..	9 6	,,
24 ,, ..	11 6	,,

If open top, 1*s.* extra.



BEE GLASSES.

4 inches diameter	0*s.* 6*d.*	each	
5	,,	0 8	,,
6	,,	0 10	,,
7	,,	1 1	,,
8	,,	1 4	,,
9	,,	1 8	,,
10	,,	2 0	,,
11	,,	2 6	,,
12	,,	3 0	,,



FLAT TOP BEE GLASSES.

Height	Width	*s.*	*d.*	
4 inches	by 7 inches	1	6	each
4½ ,,	by 7½ ,,	1	9	,,
5½ ,,	by 7½ ,,	2	0	,,
6½ ,,	by 8 ,,	2	3	,,
7½ ,,	by 8½ ,,	2	10	,,

FERN SHADES & STANDS.

Ins. dia.	Shades.		Stands.	
6 ..	1*s.* 4*d.*	each.	1*s.* 0*d.*	each
7 ..	1 8	,,	1 3	,,
8 ..	2 0	,,	1 6	,,
9 ..	2 6	,,	1 9	,,
10 ..	3 3	,,	2 0	,,
11 ..	4 0	,,	2 6	,,
12 ..	5 6	,,	3 0	,,
13 ..	7 6	,,	3 6	,,
14 ..	10 0	,,	4 0	,,
15 ..	14 0	,,	4 6	,,
16 ..	18 6	,,	5 0	,,



WASP TRAP, 2*s.* 6*d.* per doz.

Crystal Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimneys and Globes, &c.



MILK PANS.

6 inches diameter	0*s.* 6*d.*	each	
8	,,	0 9	,,
10	,,	1 0	,,
12	,,	1 3	,,
14	,,	1 9	,,
16	,,	2 3	,,
18	,,	2 9	,,
20	,,	3 3	,,
22	,,	3 9	,,
24	,,	4 6	,,



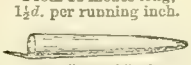
PRESERVE JARS.

In. diam.	Without Lids.		With Lids.	
3 ..	0*s.* 4½*d.*	..	0*s.* 6½*d.*	ea.
4 ..	0 6	..	0 9	,,
5 ..	0 8	..	0 11	,,
6 ..	0 10	..	1 2	,,
7 ..	1 0	..	1 4	,,
8 ..	1 4	..	1 8	,,
9 ..	1 8	..	2 2	,,
10 ..	2 0	..	2 8	,,



FISH GLOBES.

	Without feet.	With feet.
8 inches diam.	Per lb. 7*d.*	Per lb. 9*d.*
9 ,,		
10 ,,		
11 ,,		
12 ,,		
13 ,,		
14 ,,		
15 ,,		
16 ,,		



ROLLING PINS.
From 12 inches long, 1½*d.* per running inch.



CUCUMBER GLASSES.
From 12 inches long and upwards, 1*d.* per running inch.

SHEET GLASS.
In Cases for cutting up, in Sizes as Manufactured.

	300 feet			200 feet.			
	15 oz.		21 oz.	26 oz.		32 oz	
	33*s.* 6*d.*		33*s.* 6*d.*	39*s.* 6*d.*		45*s.* 6*d*	
Fourths quality	42	0	42	0	49	0	56	0
Thirds do.	62	0	64	0	74	6	85	0
Seconds do.	88	6	88	6	103	6	118	0
Best do.								

CRYSTAL SHEET GLASS.
For Pictures and best Glazing purposes.
Averaging 16 oz. to the foot.

Best quality, in cases of 200 feet .. .. .. 100*s.*
Second quality, in cases of 100 feet .. .. 82*s.*

Averaging 30 oz. to the foot.

Best quality, in cases of 100 feet .. .. .. 100*s.*
Second quality, in cases of 100 feet .. .. 82*s.*

SQUARES, in 100 and 200 Feet Boxes.
Small Squares not exceeding 9½ inches by 7½ inches.

Ins. Ins.	Ins. Ins.	Ins. Ins.	Ins. Ins.
6 by 4	7 by 5	8 by 6	9 by 7
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7¼

Per 100 feet.

4ths.	3rds.	2nds.	Best.
9*s.* 9*d.*	11*s.* 3*d.*	13*s.* 9*d.*	16*s.* 9*d.*

Squares not exceeding 14 inches by 11 inches.

10 by 8	12 by 9	12½ by 10½	14½ by 10½
10½ by 8½	12½ by 9½	13 by 10	15 by 10
11 by 9	13 by 9	13½ by 10½	13 by 11
11½ by 9½	12 by 10	14 by 10	14 by 11

Per 100 feet.

4ths.	3rds.	2nds.	Best.
10*s.* 9*d.*	12*s.* 3*d.*	15*s.*	18*s.*

Squares not exceeding 20 inches by 18 inches.

15½ by 10½	14 by 12	17 by 13	24 by 16
16 by 10	14½ by 12½	18 by 13	20 by 17
14½ by 11½	15 by 12	18 by 14	22 by 17
15 by 11	15½ by 12½	22 by 14	24 by 17
15½ by 11½	16 by 12	24 by 14	20 by 18
16 by 11	16½ by 12½	22 by 15	22 by 18
13 by 12	17 by 12	24 by 15	24 by 18
13½ by 12½	18 by 12	22 by 16	

Per 100 feet.

4ths.	3rds.	2nds.	Best.
11*s.* 6*d.*	13*s.* 6*d.*	16*s.* 6*d.*	20*s.*

Orchard House Sizes, as recommended by Mr. Rivers.

I s. Ins.	15 oz.		21 oz.	
20 by 12	4ths ..	11*s.* 6*d.*	4ths	15*s.* 0*d.*
20 by 13	3rds ..	13 6	3rds	19 0
20 by 14	2nds ..	16 6	2nds	25 0
20 by 15	Best ..	20 0	Best	30 0
20 by 16				

Per 100 feet.

Squares Cut to Sizes not on List.

	15 oz.				21 oz.			
Under	4ths.	3rds.	2nds.	1st	4ths.	3rds.	2nds.	1st
1 ft. super.	1¾*d.*	1¾*d.*	2*d.*	2½*d.*	2½*d.*	2¾*d.*	3½*d*	4½*d*
2 ft. super.	1¾	2	2½	3	2¾	3	4	5½
3 ft. super.	2	2½	2¾	3¾	3	3½	4½	6
4 ft. super.	2½	2½	3	4	3½	3¾	4½	6½

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

	Per cwt.—*s.* *d.*		Per gallon.—*s.* *d.*	
GENUINE WHITE LEAD	.. .. 30 0	FINE OAK VARNISH	.. 10*s.* to 12 0	LINSEED OIL
ANTI-CORROSION PAINT	..28*s.* to 34 0	,, CARRIAGE	.. 12*s.* to 14 0	BOILED OIL
LINSEED OIL PUTTY	.. .. 9 0	PATENT DRYERS	per cwt. 28*s.* to 42 0	TURPENTINE

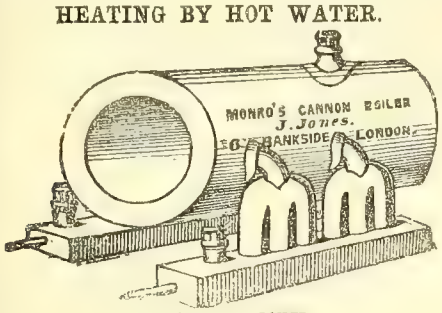
Subject to fluctuation of the market.

MILLED LEAD in Sheet and Pipe of all sizes. Old LEAD bought or taken in exchange.

LIFT PUMPS, WATER CLOSETS, and PLUMBERS' BRASS WORK of all kinds.

NETT CASH.

HEATING BY HOT WATER.



MONRO'S CANNON BOILER.

J. JONES,

HORTICULTURAL ENGINEER AND IRON MERCHANT,

SUPPLIES OR ERECTS, COMPLETE,

HOT-WATER APPARATUS

OF EVERY DESCRIPTION,

FOR

HEATING GREENHOUSES,

CONSERVATORIES,

FORCING PITS,

CHURCHES, CHAPELS, SCHOOLS,

HALLS,

BILLIARD ROOMS,

COACH HOUSES, HARNESS ROOMS, &c.,

OF THE BEST QUALITY, AND AT MODERATE CHARGES.

PLANS, ESTIMATES, and DESCRIPTIVE CATALOGUE

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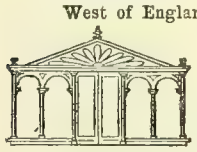
J. JONES,

6, BANKSIDE, LONDON, S.E.

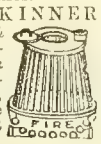
Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.
Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

West of England, Ireland, and Wales.

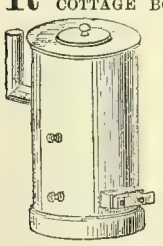


VINCENT SKINNER
(late Partner with J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT WATER APPARATUS MANUFACTURER, HEATING on the ONE-BOILER



SYSTEM. Plans and Estimates on application.
VINCENT SKINNER, Bridewell Street, Bristol.

RIDDELL'S PATENT SLOW-COMBUSTION COTTAGE BOILER for HEATING CONSERVATORIES, ENTRANCE HALLS, BATHS, &c., by the Circulation of Hot Water.



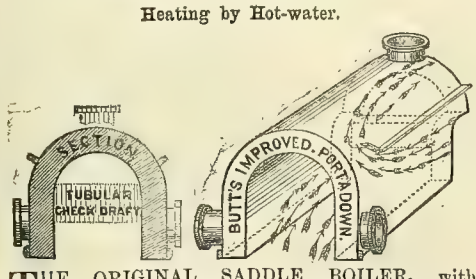
Requires no brickwork setting; will keep in action from 12 to 18 hours without attention, at an expense of about 3*d.* per day. Is perfectly safe, requires no additional building, and may be seen in operation daily at the

Patentee's Warehouse, 155, Cheapside, London, E.C.

Price complete from 3*l.* 10*s.*

Illustrated Prospectus free, and Estimates prepared for Erecting Hot-Water Apparatus of any magnitude.

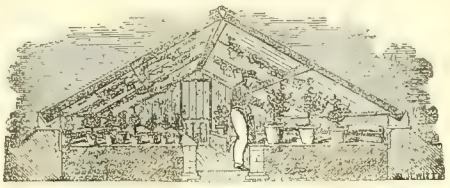
Heating by Hot-water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent by hot-water, and at a moderate price.

Gardeners interested in such work should write for LIST of TESTIMONIALS, sent Post Free, on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

Hothouses for the Million.—AWARDED A PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, 1862.

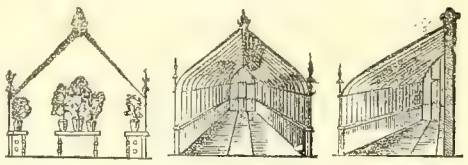


HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability, being capable of fulfilling, in the most perfect manner all the requirements of Horticulture.

Illustrated Circulars, with Lists of Prices, can be had on prepaid application to SAMUEL HEREMAN, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, price 1*s.*; post free, 1*s.* 1*d.*

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the



best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

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THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

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The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

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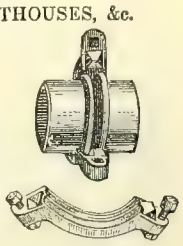
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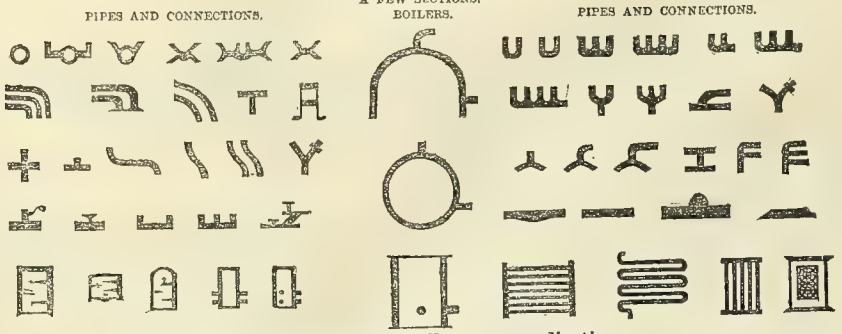
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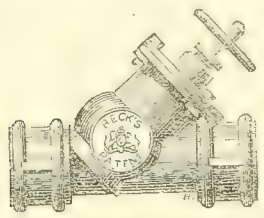
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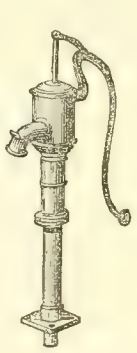
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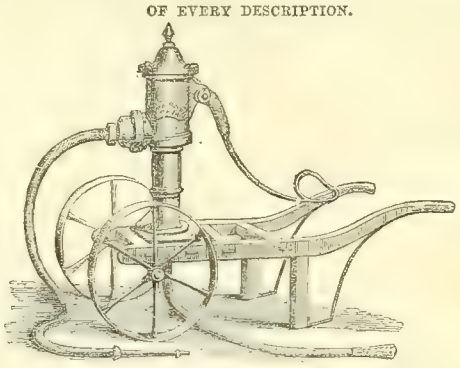
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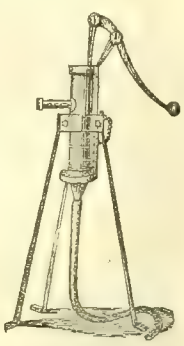
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No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
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The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

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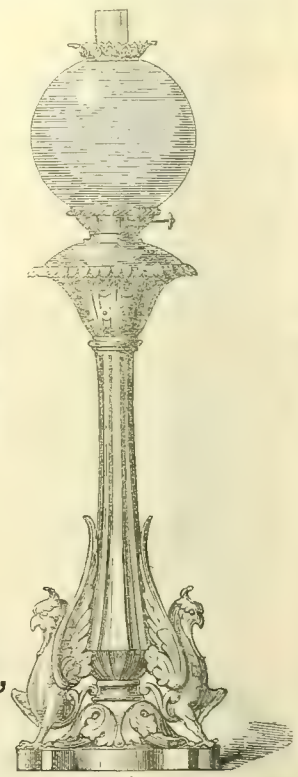
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TO BURN

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The LAMP is easily Trimmed, the Wick requires Cutting but seldom, and a beautifully Brilliant and White Light is produced without either Smoke or Smell, combustion being more perfect than in Lamps with the common Flat Wick.

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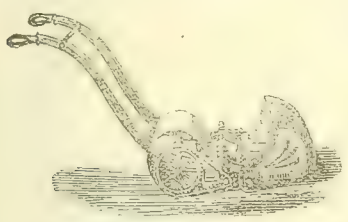
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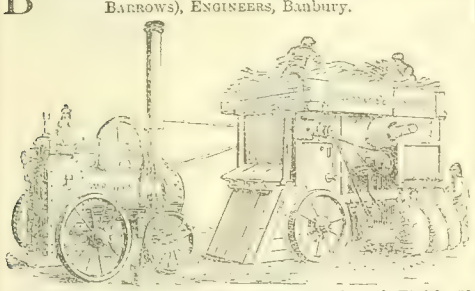
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3⅝-inch fine ivory handles	15 0	11 6	4 3
4-inch ivory balance handles	18 0	14 0	4 9
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White bone handles	11*s.* 0*d.*	8*s.* 6*d.*	2*s.* 6*d.*
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DINNEFORD'S PURE FLUID MAGNESIA has been during 25 years emphatically sanctioned by the Medical Profession, and universally accepted by the public, as the best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion, and as a mild Aperient for delicate constitutions, more especially for ladies and children. It is prepared in a state of perfect purity and of uniform strength by DINNEFORD & Co., 172, New Bond Street, London, and sold by all respectable Chemists throughout the world.

PARTNER, with not less than £1000.—He must either understand Growth of Pines, Grapes, and Peaches (as these are grown extensively), or the Seed Trade. The Advertiser being owner of the Concern, this is a rare opportunity. Extent of Ground 17 acres; quantity of wall covered with bearing Peaches; 12 Houses.—O., Post Office, Gloucester.

WANTED, a PARTNER, to take an active equal part in a Nursery and Seed Business in one of the leading Market Towns in England; a moderate capital required. This would prove a good investment, the Advertiser having been in business 12 years.

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HUGH LOW AND CO. are in want of LAND suitable for NURSERY purposes, and will be pleased to receive offers of such. The land would require to be situated within a reasonable distance of their present Nurseries at Upper Clapton.

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TO BE LET, a COTTAGE and large Walled-in GARDEN, used for many years past as Nursery Ground and Market Garden, situated at Andover, Hants, and bounded on the west by the river Ande.

The concern presents a good opportunity for an enterprising man, who might connect with it the Laying-out of Grounds.

Other Premises belonging to the same proprietor, might be added if required.

For Particulars apply to H. A. LOSCOMBE, Esq., Solicitor, Andover; or Mr. JAMES WEEKS, Estate Agent, Wokingham, Berks.

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TO BE LET on LEASE, and entered upon at Michaelmas next, the FARM known as WALTON HALL, near Walton-on-the-Naze, in the County of Essex, and about 18 miles from Colchester, to which town a Branch Railway is in course of formation. The Farm consists of 330 Acres of Arable, 375 Acres of Pasture and Old Marsh, 376 Acres of Saltings, partly enclosed from the Sea, and the rest Water, Sea Walls, &c.; total, 1190 Acres. The House is a first-class residence, suitable for a gentleman of property; the Buildings are extensive and commodious, and contain ample accommodation for the requirements of Modern Farming. There are also two newly-erected Labourers' Cottages on the Estate. It is bounded on two sides by the Sea, and on a third by the Creek known as the Walton Back Water, furnishing great facilities for Shipping produce to London or elsewhere. The rapidly increasing Watering place, Walton-on-the-Naze, adjoins the Farm. The Land is of extraordinary fertility, and is in a high state of cultivation, and is particularly adapted for Steam.

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TO NURSERYMEN, FLORISTS, AND OTHERS.

TO BE DISPOSED OF, with immediate possession, in consequence of the Proprietor retiring from business, an Old Established NURSERY BUSINESS, situate at Prescot, about eight miles from Liverpool, and about 22 from Manchester, easy of access by Rail or Bus.

The Nursery, with about 6 acres of rich Pasture Land, occupies about 22 acres, is in a good state of cultivation, and situate in a highly respectable neighbourhood, which is rapidly improving with Villa Residences, affording a first-rate prospect for a Landscape Gardener and Nurseryman, for which the Nursery possesses every facility for cultivating a most extensive business.

The Grounds are well stocked with choice Fruit Trees and ornamental Nursery Stock, including a great variety of first-class Evergreens, Deciduous Trees, and Shrubs. There are five Hothouses, filled with Fruiting Vines and Pines, a large Greenhouse containing Vine and other plants, and a Dutch Pit; also several Frames for propagating; the whole containing above 5000 feet of Glass.

The whole of the Stock, Fixtures, &c., to be taken at a valuation. The landlord is willing to grant a lease to an incoming tenant.

For particulars and notes to view, apply to JOHN WHITE, 20, Clayton Square, Liverpool.

Oxfordshire.

TO BE LET, from Lady-day next, TWO First-class FARMS, lately in the occupation of J. H. Langston, Esq., M.P., deceased, situate at Churchill and Sarsden, about 3 and 4 miles respectively from the Market Town of Chipping Norton, and within a shorter distance of other Railway Stations.

No. 1. The Farm commonly called "CHURCHILL MOUNT," on which is an excellent and commodious Dwelling House and Offices, with extensive and convenient Farm Buildings, all recently built and fitted up with Machinery worked by steam-power for Threshing, Grinding, Chaff-cutting, &c., together with 530 acres of Arable and Pasture Land (in nearly equal proportions). The well-known "Sarsden Herd" is, and has been for some years, kept upon this Farm.

No. 2. The Farm known as "FAIR GREEN," with other Lands added, near and adjoining Sarsden, comprising a superior and commodious Dwelling House and Offices; the Buildings are unusually good, convenient, and equal to the requirements of the Farm, and well supplied with Water throughout. The Dwelling House and Farm Offices have been recently erected and fitted up with Machinery driven by steam-power for similar purposes as mentioned in No. 1. This Farm contains 744 Acres, of which 574 are Arable and 169 Pasture, and is well adapted to Steam Cultivation. There are several Cottages attached to the Farm.

The Farms have been for some time under Steam Cultivation, and are both in high condition, having been many years kept in hand by the late proprietor. In both cases the Residences and Farms are of a very superior description.

For further Particulars, and for viewing the same, application should be made at the Office of Mr. HENRY ANDREWS, at Sarsden, near Chipping Norton, to whom Sealed Tenders for each farm separately, stating the clear annual rent, are to be sent on or before December 18, 1863, soon after which the persons whose tenders are accepted will have notice thereof. The setter will not consider himself bound to take the highest tenders.—Sarsden, Dec. 12.

Sales by Auction.

English Roses and Ornamental Shrubs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 21, at half-past 12 o'clock precisely, 100 STANDARD and HALF-STANDARD ROSES, from a well-known English grower, comprising many very choice varieties. Also, a first-rate lot of hardy CONIFEROUS TREES and SHRUBS, ORNAMENTAL EVERGREENS, FRUIT TREES, RHODODENDRONS, &c., from one of the oldest established Nurseries in Surrey.

On view the Morning of Sale, and Catalogues had.

Hornsey.

TO GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS ENGAGED IN PLANTING.

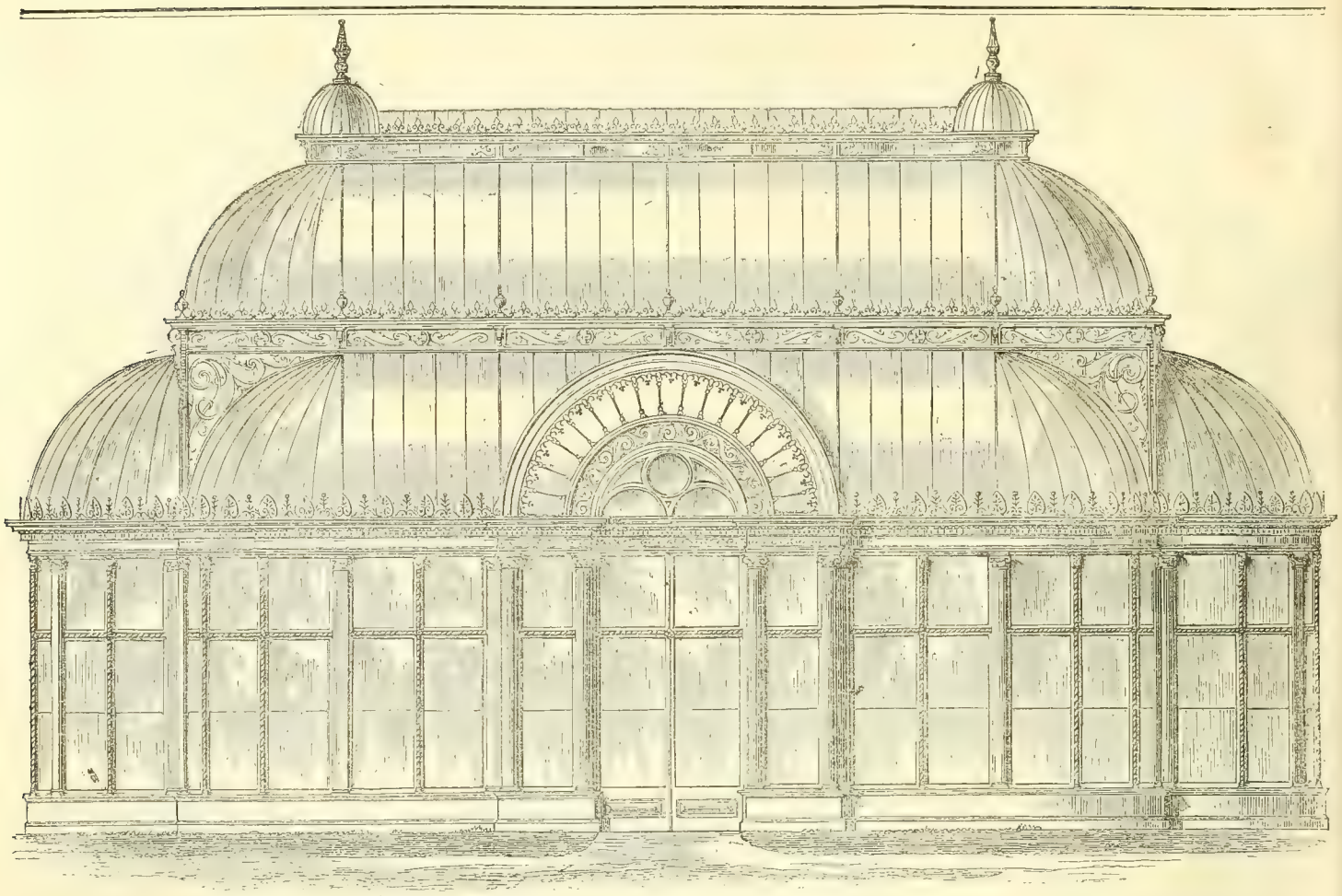
MESSRS. PROTHEROE AND MORRIS are instructed by Mr. George Cragg to SELL by AUCTION, on the Premises, Crouch End Nursery, near the King's Head, Hornsey, Middlesex, on MONDAY, December 21, at 12 o'clock, the ground being required immediately for building purposes, the whole of the NURSERY STOCK, consisting of Evergreens and Deciduous Shrubs, Ornamental, Fruit and Forest Trees; a fine assortment of about 300 Standard and Dwarf Roses, &c.

May be viewed one week prior to the Sale. Catalogues may be had on the Premises; at the Cock Inn, Highbury; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Preliminary Notice of an Important Sale.

MESSRS. PROTHEROE AND MORRIS have received instructions from the Trustees of Mr. Robert Donald, to submit to an unreserved SALE by AUCTION, unless previously disposed of by Private Contract, in the month of FEBRUARY, on the Premises, Goldworth, near Woking, Surrey, about one mile from the Railway Station, the LEASES, together with the whole of the Valuable and Extensive NURSERY STOCK, ranging over 152 Acres, including Evergreens, Conifers and other Shrubs, Fruit, Ornamental and Forest Trees, Greenhouse Plants, Greenhouses, Pits, Frames, and other effects, of which full particulars will be furnished in future advertisements.

American Nurseries, Leytonstone.



THIS SPLENDID CONSERVATORY FOR SALE AT LESS THAN COST PRICE.

ORMSON'S CONSERVATORY, INTERNATIONAL EXHIBITION 1862.

OPINIONS OF THE PRESS.—(EXTRACTS).

"As a First-class Designer and Manufacturer Mr. Ormson stands unrivalled."—Bell's Weekly Messenger.

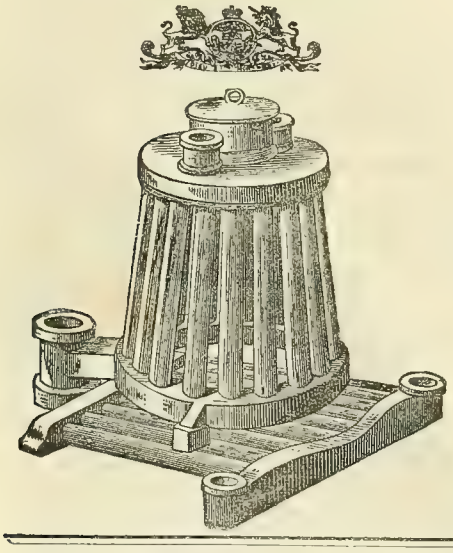
"No object in the Horticultural Department attracts the eye sooner than the splendid Conservatory erected by Henry Ormson, of King's Road, Chelsea."—The Illustrated London News.

"This construction, however, not only stands first among the Conservatories at Kensington, and indeed of any we have ever seen, but is worthy of the highest commendation on account of its eminent fitness for the purpose for which it was made."—The Illustrated News of the World.

"The beauty of this structure is as good a lesson of the value of iron as any that could be furnished in the whole Exhibition."—Gardeners' Weekly Magazine.

ORMSON'S ONE-BOILER SYSTEM and PATENT JOINTLESS TUBULAR BOILERS

have become universally adopted on account of their superior power, great safety, and economy.



BY HER MAJESTY'S ROYAL LETTERS PATENT.

ORMSON'S PATENT,

ENTITLED

"AN IMPROVEMENT IN THE MANUFACTURE OF CAST TUBULAR BOILERS."

TAKE NOTICE, that a DISCLAIMER has been filed in the Patent Office and allowed by the Attorney-General, by which such part of the above Patent as was considered questionable by the Court of Exchequer Chamber has been disclaimed. Any person infringing the said Patent after this Notice will be proceeded against according to Law.

Disclaimer allowed September 1, filed September 2, 1863.

I BEG to NOTIFY, that having by leave of her Majesty's Attorney-General DISCLAIMED such part of my Patent as was considered by the Court of Exchequer Chamber as questionable, the said Patent is now absolutely confirmed; and any person infringing the same will be proceeded against according to law.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,

AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 52.—1863.] SATURDAY, DECEMBER 26. {Price Fivepence. / Stamped Edition, 6*d*.

INDEX.

Ada aurantiaca	1228 *b*	Royal Hort. Society's Conservatory	1231 *c*
Almanac, Dr. Hogg's	1239 *b*	Rucker's (Mr.) Orchids	1228 *b*
Bath cheese	1240 *a*	Season, mildness of the	1232 *a*
Books noticed	1231 *a*	Seeds, germination of	1228 *a*
Breeding	1240 *a*	Sewage, metropolitan	1237 *a*
Census, the	1234 *c*	Society, Linnean	1230 *c*
Cherimoyer	1230 *a*	— Hot. of Edinburgh	1231 *a*
Cocoa-nut Palm	1227 *a*	— Long Sutton Agri.	1237 *c*
Dies Orchidianæ	1228 *b*	— St. Austell's do.	1238 *a*
Draining, under	1237 *b*	— Kingscote do.	1238 *b*
Fences, sunk	1230 *a*	— Wirral do.	1238 *c*
Heating, fire-clay pipes for	1230 *b*	— Newmarket do.	1238 *b*
Latimer's	1228 *c*	— Alford do.	1239 *a*
Mangel Wurzel	1237 *b*	Soils, Rhododendron	1230 *b*
Manures, artificial	1236 *a*	Stapleford Hall	1239 *c*
Morayshire Farmers' Club	1233 *c*	Steam cultivation	1235 *a*
Musa Cavendishii	1232 *a*	Steam cultivation company	1233 *b*
Mushroom parasites	1227 *b*	Sunk fences	1230 *a*
Orchard houses	1 0 *a*	Walls, open v. orchard-house	1230 *b*
Parasites, Mushroom	1 27 *b*	Wellingtonia	1230 *b*
Petunias	1 28 *a*	Yams	1232 *a*
Rabbits	1 27 *b*	Yucca monstrosity	1227 *c*
Rhododendron soils	1 30 *b*		

ADVERTISEMENTS *must reach the Office by* THURSDAY'S *post. They should be written on one side of the paper only.*

Fruiting Vines.

E. G. HENDERSON AND SON offer the above with splendid Canes of well matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10*s*. 6*d*. each.
LIST of SORTS sent on application.
Wellington Nursery, St. John's Wood, London, N.W.

Grape Vines.

PAUL AND SON beg to offer fine well-ripened Canes of all the best Sorts for Planting, 5*s*. each.
"Old" Chesbunt Nurseries, N.

Grape Vines.

WM. PAUL (Son and Successor to the late A. PAUL) has a large stock of vigorous, close-jointed plants, including all the most recent additions, now ready for delivery.
PRICED LIST on application.
PAUL'S Nurseries and Seed Warehouse, Waltham Cross, N.

Grape Vines from Eyes.

WM. CUTBUSH AND SON have an immense stock of GRAPE VINES for fruiting in pots, or planting out, of all the best kinds. Prices on application.
Highgate Nurseries, London, N.

Grape Vines.

B. S. WILLIAMS begs to announce that he has a fine and healthy stock of the best kinds of GRAPE VINES from EYES, for fruiting in pots or planting out. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

THE SMALL RED and WHITE RASPBERRY, by far the best for preserves, and a sort that grows on any land most freely, at 1*l*. a thousand; also SEEDLING ASH TREES, 3 to 4 feet high, at 30*s*. per thousand; Small do. at lower prices.
Apply to Mr. CROW, Salperton, Andoversford, Gloucestershire.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to Mr. WEBB, Calcot Gardens, Reading.

AND. G. DALY, Newry, Ireland, wants 5000 or 6000 WALNUTS, and 3000 SPANISH CHESTNUTS, strong 2-years Seedlings, or very small transplanted stuff will do. He can Sell cheap, delivered in Liverpool or Glasgow, 500,000 2-years Seedling THORNS, and 1,000,000 of 2-years transplanted.

WEYMOUTH PINES, Twice Transplanted, 3 to 4 feet, fine, 15*s*. per 100. Usual Discount to the Trade.
STUART & MEIN, Nurseries, Kelso, N.B.

SPRUCE FIRS for CHRISTMAS TREES, symmetrical and very handsome, price 50*s*. to 75*s*. per 100; or from 6*d*. to 2*s*. 6*d*. each, according to size and quality.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Royal Nursery, Great Yarmouth.

YOUELL AND CO.'S New CATALOGUE of GREENHOUSE PLANTS, Rare and Hardy CONIFERÆ, SHRUBS, GLADIOLI, &c., is ready, and will be forwarded on application.

THE LONDON SEED COMPANY, LIMITED, with which is AMALGAMATED the PLYMOUTH SEED COMPANY, LIMITED.
Offices: 68, Welbeck Street, Cavendish Square, London, W.

To the Trade.

AZALEAS, ERICAS, and EPACRIS, fine bushy plants, well set with flower buds, at moderate prices. An inspection solicited.
THOMAS JACKSON & SON, Nurseries, Kingston, S.W., adjoining the Kingston New Station, South Western Railway.

WANTED, HEPATICAS, Single White and Red, and Double Blue.
W. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

WANTED, several Thousand young Plants of RHODODENDRONS, BOX, HOLLY, AUCUBA, Double FURZE, ROSES to name, &c. Also young hardy NURSERY STOCK generally, and Seedlings in stores or otherwise. Price per thousand, with full particulars of age, size, &c.,
T. S. WARE, Hale, Tottenham, Middlesex, N.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Best Seeds, Carriage Free.

BUTLER AND MCCULLOCH, SEED MERCHANTS.
WANTED to PURCHASE, a few Tons of DANDELION Roots.
Covent Garden Market, London, W.C.

Garden and Agricultural Seeds, Carriage Free.

WILLIAM WOOD AND SON, NURSERYMEN and SEED MERCHANTS,
Maresfield, near Uckfield, Sussex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

Good Seeds, Carriage Free, at Market Prices.

SUTTON AND SONS, SEED GROWERS and MERCHANTS,
Royal Berkshire Seed Establishment, Reading.

Yorkshire Seed Establishment.

EDMUND PHILIP DIXON AND SONS, SEED MERCHANTS and NURSERYMEN,
57, Queen Street, Hull.

GENUINE GARDEN, FLOWER, and AGRICULTURAL SEEDS.
JAMES VEITCH, King's Road, Chelsea, London, S.W.
CATALOGUES post-free on application.

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St. John's, Worcester.

Good Seeds, Carriage Free.

B. S. WILLIAMS, NURSERYMAN and SEEDSMAN,
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REGISTERED OFFICES:
68, Welbeck Street, Cavendish Square, London, W.

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89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

LAPAGERIA ROSEA.—Six of the BEST NEWLY-GATHERED SEEDS of this magnificent Climber, Post-free, for Half-a-Crown.
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DOUBLE TUBEROSES, just imported, 3*s*. per dozen.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

SURPLUS STOCK of HYACINTHS, TULIPS, IRIS, IXIAS, &c. See Advertisement, page 1175 of *Gardeners' Chronicle*.
BARR & SUGDEN, Seed Merchants, 12, King Street, Covent Garden, W.C.

NEW FUCHSIAS for 1863, at 5*s*. per dozen, including the most choice varieties.
JOHN TUCKER, The Nursery, Burnham, Somerset.
Post-office orders to be made payable at the Burnham Post Office.

NEW FUCHSIAS (post free). NORTHERN LIGHT and RIFLEMAN, now sending out; Blue and Mauve-coloured Corollas. 5*s*. each.
EMPEROR of the FUCHSIAS, the most beautiful and elegant white corolla'd variety.
E. G. HENDERSON & SON, Wellington Road, London, N.W.

NEW CHRYSANTHEMUMS of 1863.—Strong Plants of the above, including the Japanese varieties, are now ready at 5*s*. per dozen.
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J. IVERY AND SON beg to announce that their new PRICED DESCRIPTIVE CATALOGUES of AZALEA INDICA and HARDY BRITISH FERNS are now ready, and will be forwarded on application.
Dorking Nursery.

Superb Double Hollyhocks.

WILLIAM CHATER'S NEW LIST is now ready, and may be had on application by enclosing one Postage Stamp.
P.S. A large stock of FINE PLANTS now ready.
Nurseries, Saffron Walden.

JAPAN LILIES, Extra strong Flowering Bulbs.

	Each—*s*.	*d*.
LILIUM LANCIFOLIUM ALBUM	1	0
" " ROSEUM	1	3
" " RUBRUM	1	3

Three each of the above, 10*s*.
BUTLER & MCCULLOCH, Seed Merchants, Covent Garden Market, London, W.C.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

ROSES.—CATALOGUES for 1863 and 1864 forwarded free on application.
JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

ROSES, NEW and OLD.
CATALOGUES NOW READY.
A SELECTION, believed to be second to none in the Kingdom, is offered, VERY STRONG, in POTS.
CHARLES NOBLE, Sunningdale Nursery, S.W. Rail.

ROSES.—Superb STANDARDS, 18*s*. per dozen; Ditto ditto DWARFS, 12*s*. per dozen. NEW ROSES of 1863: DWARFS, 36*s*. per dozen.
DESCRIPTIVE PRICED LISTS on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ROSES, Fine STANDARDS, 18*s*. per dozen and upwards; DWARFS, 9*s*. per dozen and upwards. NEW ROSES of 1863: DWARFS, 30*s*. to 36*s*. per dozen.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

New Rose Catalogue for 1863-64.
New Bulb Catalogue for 1863.
WOODLANDS NURSERY AND SEED WAREHOUSE, MARESFIELD, NEAR UCKFIELD, SUSSEX.
WM. WOOD AND SON will be happy to send copies of the above gratis and post free to all applicants.

TO THE TRADE.—We beg to draw the attention of the Trade to the reasonable Prices at which we offer really fine STANDARD and DWARF ROSES this season. PRICED WHOLESALE LIST free (on receipt of business card from unknown Correspondents.)
PAUL & SON, Old Cheshunt Nurseries, N.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, and VINES.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form they can be desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Agricultural, Garden and Flower Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E.
SPECIAL LISTS of SEEDS (crop 1863) gratis on application.
Prices the lowest consistent with first-class quality.

CARTER'S CHAMPION BROCCOLI, the best Late White Broccoli in cultivation, 1*s*. per packet.
JAMES CARTER & Co., 238, High Holborn, W.C.

Broccoli, Snow's Winter White (True).

ROBERT PARKER begs to announce that he can supply a few pounds of SEED (harvested this season) of this scarce and valuable variety. Price per pound on application.
Exotic Nursery, Tooting, Surrey, S.

TO THE SEED TRADE.—CARTER'S CHAMPION CUCUMBER, HIGHLAND MARY, VICTORY OF BATH, and others.
Prices on application to STEPHEN BROWN, Seed Grower, Sudbury, Suffolk.

May's Prolific Pea.

J. MAY begs to offer the above unrivalled kind. Price reduced to 1*s*. 6*d*. per quart. Trade price on application.
J. MAY, Seedsman, &c., 15, Waterloo Road, London, S.W.

PEAS.—DANIEL O'ROURKE, EARLY PRIZE-TAKER, WOODFORD'S MARROW, CHAMPION of ENGLAND.
For Samples and Prices apply to C. SHARPE & Co., Seed Merchants, Sleaford.

15 Qrs. HAIR'S DWARF MAMMOTH PEAS.
10 Qrs. DICKSON'S FAVOURITE PEAS.
14 Qrs. FAIRBAIRD'S SURPRISE PEAS.
E. P. DIXON AND SONS, having a Surplus Stock of the above, can offer them to the Trade, low. Price on application.—57, Queen Street, Hull.

STRONG SEA KALE ROOTS for FORCING, 10*s*. per 100. Early orders are solicited.
MYATT'S PROLIFIC ASH-LEAVED POTATO and EARLY DALMAHOY. Price on application.
Mr. MYATT, Manor Farm, Deptford, S.E.

SHALLOTS, GARLIC, TOBACCO PAPER, POTATOS off the Lancashire Moss or Sand.
Prices for quantities on application to H. BROWN, 4, Commutation Row, Liverpool.

WEBB'S IMPERIAL KIDNEY POTATOS, the best Potato for quality, quantity, and size, 12*s*. per bushel.—Application at the Gardens at Calcot, near Reading.

Seed Potatoes.

H. AND F. SHARPE are now taking orders for all the principal varieties of Seed Potatoes, including MYATT'S EARLY PROLIFIC KIDNEY, and EARLY DALMAHOY (round), the earliest and most productive varietie in cultivation. The quality is very fine and prices low.
Seed Growing Establishment, Wisbech.

DAINTREE'S SEEDLING POTATO.—This fine flavoured early round white variety is certified in the "Journal of Horticulture," page 269, to have yielded at the rate of 22 TONS per Acre. Present price 6*l*. per Ton, or 8*s*. per cwt.; and to prevent disappointment, orders (enclosing remittance) should now be sent to Mr. SIMON A. DAINTREE, of Fendrayton St. Ives, Hunts. Sacks, 2*s*. each.

Mitchell's Renowned Roses.

PATRONISED BY THE ROYAL FAMILY.

JAMES MITCHELL has the honour of informing the nobility and gentry, that he has to offer this season the most magnificent stock in England. All Roses at these Nurseries are propagated and grown in the open ground, possessing a hardy constitution suitable for all climates.

(No grafted plants or any drawn up under glass, which cause the great number to fail every season).

Piltdown Nurseries, Maresfield, near Uckfield, Sussex.

Great Reduction in the Price of Roses.

NOT TO BE UNDERSOLD BY ANY RESPECTABLE HOUSE IN THE TRADE.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

Since issuing their NEW ROSE CATALOGUE for the Autumn of 1863 and the Spring of 1864,

WILLIAM WOOD AND SON have ascertained that other Houses in the Trade are offering some kinds of Roses at a lower rate than themselves, and as they are fully determined NOT TO BE UNDERSOLD by any RESPECTABLE House, they have prepared a REVISED LIST of ROSES at reduced prices, and will have much pleasure in forwarding copies of the same, Gratis and post-free, to all applicants.

Roses.

EDWIN HOLLAMBY has the pleasure of informing the Nobility and Gentry that his extensive Stock of STANDARD and DWARF ROSES of all the leading kinds in cultivation is in the finest possible condition; fine straight stems, fine heads, and beautifully rooted. Purchasers of large quantities will be liberally dealt with.

DESCRIPTIVE PRICED CATALOGUES for the present season will be forwarded gratis and post paid on application.

Nursery and Seed Establishment, Tunbridge Wells; and Goldsmith's Park, Groomsbridge, Kent.

Roses.

GEO. PARSONS, NURSERYMAN and SEEDSMAN, by Special Appointment, to her Majesty, begs to offer fine STANDARD ROSES, from 2½ to 4 feet stems, at 15s. per doz., or 5l. per 100; DWARFS (none better in England), 9s. per doz., or 65s. per 100. The new varieties of 1862 and '63 at proportionate prices. CATALOGUES free on application.

Western Road, Brighton; and Hassock's Gate Nursery, Keymer, Sussex.

Roses.

JOHN CRANSTON offers selections of STANDARD and DWARF ROSES of very superior quality.

The robust growth and hardy constitution of the plants grown in this Nursery have long been acknowledged, and the Stock to offer this season is perhaps superior to any previous growth.

He also begs to direct attention especially to DWARF ROSES on the Manetti stock, of which he has an enormous stock.

The plants upon their own roots are also very strong and well grown.

	Per dozen—s. d.
STANDARD ROSES of all the leading varieties in cultivation	18 0
Do. Newer varieties, introduced in 1861 and 1862	24 0
DWARF ROSES, extra fine plants upon the Manetti stock .. .. 9s. to	12 0
Do., do., upon Dog-rose stock	9 0
Do. Newer Varieties, introduced in 1861 and 1862 15s. to	18 0
Do., do., of 1862 and 1863 .. .. 24s. to	30 0
STANDARD and HALF-STANDARD TEA-SCENTED ROSES, all the best varieties	24 0
DWARF ROSES upon their own roots, Hybrid Perpetuals, and Bourbons .. .. 9s. to	12 0
Do., do., Tea-scented .. .. 12s. to	15 0
CLIMBING ROSES	9 0
PILLAR ROSES, extra strong plants, 4 to 5 feet 12s. to	15 0
STANDARD WEEPING ROSES .. .. each 2s. to	2 6
ROSES in 8 and 9-inch pots grown especially for Forcing or Greenhouse culture, the best Hybrid Perpetuals, China, and Tea-scented varieties .. .. .. 24s. to	30 0

DESCRIPTIVE CATALOGUES forwarded free on application.

Nurseries, King's Acre, near Hereford.

Paul's Nurseries, Waltham Cross, N.

ROSES.—Superior STANDARDS, 18s. per dozen and upwards; Do. DWARFS, 9s. per doz. and upwards.

All the NEW ROSES, including BEAUTY of WALTHAM, MRS. WM PAUL, and LORD MACAULAY (three of the best), at the lowest advertised Prices. The new PRICED CATALOGUE is now ready, free by Post.

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Beans
„ French
Beet
Borecole, or Kale
Broccoli
Brussels Sprouts
Cabbage
„ Savoy
Capsicum and Chili
Carrot
Cauliflower
Celery
Collections of
Couve Tronchuda
Cress
Cucumber
Dioscorea Batatas
Endive
Garnishing Plants
Gourds (Edible)
Herbs
Leek
Lettuce
Melon
Mushroom
New kinds
Mustard

KITCHEN GARDEN SEEDS (CULTIVATION OF), *continued*.
Onion
Parsley
Peas
Parsnip
Pumpkin
Potatos
Radish
Rhubarb
Salsify
Scorzonera
Spinach
Strawberry (Seed)
Tomato
Turnip
Vegetable Marrow

FLOWER SEEDS.
Alphabetically arranged
Collections of
Cultivation of
English, Assortments of
German ditto
Gourds, Ornamental
Grasses ditto
Hardy, by weight
New Varieties

AGRICULTURAL SEEDS (CULTIVATION OF).
Carrot
Clover
Clover and Rye-grass Mixtures
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„ Permanent
„ Pasture, &c.
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„ Laying Down
Kohl Rabi
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Rye-grasses
Turnip

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Chrysanthemums
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Dahlias
Feather Grass
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„ Greenhouse
Fuchsias
Geraniums
Greenhouse and Stove
Hollyhocks
Pampas Grass
Pansies
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Petunias
Phloxes
Pinks
Roses
Selaginella, or Exotic Mosses
Sundry Hardy Plants
Tritoma Uvaria
Verbenas
Violets

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Asparagus
Rhubarb
Seakale
Strawberries
Sundries

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„ (Horticultural)
Bulbous Flower Roots
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His CATALOGUE, describing colours, prices, &c., can be obtained by letter addressed to the Nursery as above.

☞ For detailed Advertisement of CONIFERS, ORNAMENTAL SHRUBS, &c., refer to page 1151.

Rhododendrons.

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Ditto dulcis, 1, 2, to 3 ft.	Ditto, Portugal, 1 to 2 ft.
Briar (Sweet), 2 to 3 ft.	Mountain Ash, 6 to 9 ft.
Cherries, espalier	Oak, Turkey, 3 to 4 ft.
Ditto, standard	Poplars of various kinds, 4 to 6 ft.
Cotoneaster microphylla, 9 to 12 in.	Privet, 2 to 3 ft.
Holly, Green, 9 to 12 in.	Sycamore, 3, 4, 5, to 6 ft.

All the above are strong, healthy, and well rooted.

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JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

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PEAS: Denyer's Prolific Green Marrow, true; Woodford Green Marrow, Scimitar, Bedman's Imperial, Bishop's Early Dwarf, Ne plus Ultra, Hair's Dwarf Mammoth, Climax or Napoleon, Eugenie, and Veitch's Perfection.

ROYAL DWARF FAN or BOG BEANS, HOLLOW-CROWN PARSNIP, and mixed SWEET PEAS.

Prices upon application.

Genuine Seeds, Carriage Free.

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OFFERED FOR THE FIRST TIME.

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For descriptions and prices see *Gardeners' Chronicle*, Oct. 24; also in CATALOGUE, which can be had on application.

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	Each.—*s. d.*
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,, Standards	2*s.* to 2 6
APRICOTS.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
CHERRIES.—Dwarf-trained	3*s.* 6*d.* to 4 6
,, Pyramids	2*s.* 6*d.* to 3 6
GRAPE VINES.—Standards	2 6
,, Very fine and well-ripened	3*s.* 6*d.* to 5 0
NECTARINES.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
PEACHES.—Dwarf-trained	3*s.* 6*d.* to 5 0
,, Standard-trained	5*s.* to 7 6
PEARS.—Dwarf-trained	3 6
,, Pyramids	2*s.* 6*d.* to 3 6
,, Standards	2 6
PLUMS.—Dwarf-trained	3*s.* 6*d.* to 4 6
,, Standards	2 6
WALNUTS.—Standards	2 6
,, Extra strong	3*s.* 6*d* to 5 0

GOOSEBERRIES, CURRANTS, FIGS, RASPBERRIES, STRAWBERRIES, &c.

PEACHES, NECTARINES, and APRICOTS, established in Pots for Orchard House Culture, 5*s.* each.

ASPARAGUS, two years	2*s.* 6*d.* per 100
SEA KALE, ,,	3*s.* per 100

Nurseries, King's Acre, near Hereford.

NEW VEGETABLES.

DALMENY SPROUTS.—"This is a new Vegetable, raised by Mr. Melville, of Dalmeny Park, Edinburgh, and is the result of a cross between the common heading Cabbage and Brussels Sprouts. The growth is the same as that of Brussels Sprouts, being a tall stem, a foot high, thickly set with sprouts or small Cabbages, and terminated by a Cabbage of medium size. It differs from Brussels Sprouts in being altogether a Cabbage; while the latter is a form of the Savoy. It was Awarded a First-class Certificate by the Royal Horticultural Society of London, April 9, 1861."—*From the Gardeners' Year Book for* 1862, *by Robert Hogg, LL.D., F.L.S.*

The flavour is that of the Cabbage, and free from the Savoy Sprout taste. After the tops are cut off, a fine succession of sprouts is obtained for a lengthened period. 1*s.* per Packet.

FEARNOUGHT CABBAGE.—A hybrid between the Early Dwarf Cabbage and the Hearting Scotch Green. Withstands frost and damp better than any other of the Brassica family. Is more delicate and well flavoured than the Early Dwarf Cabbage. Can be had fit for use from November till spring Cabbages are ready. Awarded First-class Certificate by the Royal Horticultural Society of London, March 11, 1861. Per Packet, 6*d.*; per oz., 2*s.*

NEW NEMOPHILA.

NEMOPHILA AURICULÆFLORA.—The handsomest of all the new varieties; resembles the Auricula in size and appearance; it is of finer habit than any other of its class, being dwarf and distinct, like a close-growing Verbena. It is remarkably hardy, and stands the winter well. Flowers, dark chocolate, with a distinct pure white border. It was awarded a Commendation by the Royal Horticultural Society's Floral Committee, July 7, 1863, and described as "A handsome variety, with a well-defined pure white margin." 1*s.* per packet.

Prices to the Trade on application.

The undermentioned Seed Merchants can supply the above, having received a supply direct from STUART & MEIN:—

BUNYARD & SONS	Maidstone, Kent
CAMPBELL & SON	7, Eden Quay, Dublin
DICKSON & BROWN	Corporation Street, Manchester
DEAN	Bradford Nursery, Shipley, Yorkshire
DREGHORN & AITKEN	Kilmarnock, N.B.
FINNEY & Co.	Gateshead
FISHER, HOLMES, & Co.	Sheffield
FAIRHEAD & SON	Borough Market, London
HOOPER & Co.	Covent Garden, London
HENDERSON & Co.	Pine-apple Place, Edgeware Road, London
MARTIN & SONS	Hull
NUTTING & SONS	Barbican, London
PONTEY	21, Cornwall Street, Plymouth.
SUTTON & SONS	Reading.
TURNER	Royal Nurseries, Slough.
TAYLOR	Maldon, Yorkshire.
THE LONDON SEED COMPY.	Welbeck Street, London.
VEITCH	Royal Exotic Nursery, London.
VILMORIN ANDRIEUX & Co.	Paris.
WILLIAMS	Paradise Nursery, London.
WOOD & SON	Maresfield, Uckfield.
WITTEY & SON	Cottingham, near Hull.

STUART & MEIN, Seed Merchants, Kelso, N.B.

TO THE SEED TRADE.

DICKSON'S FAVOURITE PEAS, 7*s.* per bushel.
BLUE SCIMITAR, 8*s.* per bushel.
NE PLUS ULTRA, 10*s.* 6*d.* per bushel.
WEBB'S IMPERIAL KIDNEY POTATO, 6*s.* per bushel, or 11*s.* per cwt.
GLOUCESTERSHIRE KIDNEY, 6*s.* per bushel, or 11*s.* per cwt.

Terms cash.

W. MINCHIN & SON, The Nurseries, Hook Norton, Oxon.

A Few Really Good Things.

DIXON'S NEW YORKSHIRE HERO PEA, 5*s.* per quart.

	per packet—*s. d.*
DIXON'S New MAMMOTH WHITE CELERY	1 0
DIXON'S New CHAMPION GREEN COS LETTUCE	1 0
DIXON'S YORKSHIRE FAVOURITE MELON	1 0
DIXON'S YORKSHIRE HERO CUCUMBER	2 0
The EARLY FORCING CAULIFLOWER	1 0
The ROSEBERRY BRUSSELS SPROUTS	0 6
MELVILLE'S VARIEGATED GARNISHING KALE	0 6

All post free except the Peas.

EDMUND PHILIP DIXON & SONS, The Yorkshire Seed Establishment, Hull.

THE YORKSHIRE HERO PEA.—A Dwarf Green Wrinkled Marrow, pronounced by all who have tried it to be a "WONDERFUL" Pea. We have selected from numerous testimonials the following:—

From Mr. W. KEMP, *late Gardener to* Sir THOS. BECKETT, Bart., *Somerby Park.*

"The Yorkshire Hero Pea is a splendid variety of the Wrinkled Marrow, 2½ feet in height, very branching, and an abundant bearer, requires sowing very thin in good rich soil, and will produce from 50 to 70 well-filled pods of a most delicious flavour and very thiu in the skin, full 10 days or a fortnight earlier than the Veitch's Perfection, and superior in every respect; it is the best Pea I am acquainted with, and will become a general favourite in every garden, not requiring such an immense forest of sticks to support them as most sorts do. I may further mention that from the quart of seed I had from you I have saved 6 pecks of well-ripened Peas, which I can readily dispose of at 5*s.* per quart to those who saw them in bearing."—Bracebridge, Oct. 5, 1863.

Price 5*s.* per Quart.

EDMUND PHILIP DIXON & SONS, Yorkshire Seed Establishment, Hull.

Supplied in London:—
Messrs. HURST & SON, 6, Leadenhall Street.
,, COOPER & BOLTON, 152, Fleet Street.
,, BECK, HENDERSON, & CHILD, Upper Thames Street.
,, JACOB WRENCH & SONS, London Bridge.

OSBORN'S WHITE WINTER BROCCOLI.—This is without doubt the best early and mid-winter Broccoli in cultivation; it forms fine heads and is as white as a Cauliflower—in these respects being equal to "Snow's," but superior to it, inasmuch as it is hardier (being self-protecting) and comes in before it. If sown early in March, it turns in early in November, and by successive sowings may be had in use up to April or May. Sold in sealed packets, 2*s.* 6*d.* each.

Fulham Nursery, London, S.W.—December 19.

Special offer to the Trade on application.

THE STUDENT PARSNIP. — This delicious Parsnip becomes every year more popular. Numerous Prizes have been taken this season at Horticultural Shows; as also the First Prize at the International Show of the Royal Horticultural Society in October 1862.

Mr. SHIRLEY HIBBERD, in the *Garden Oracle*, says of it:—"SUTTON'S Student Parsnip is a great improvement, and should be grown everywhere. It is certainly the best for Exhibition."

SUTTON & SONS, Reading, can supply NEW SEED, 1*s.* per oz. (post free). For List of Agents see *Gardeners' Chronicle* of December 12, p. 1176. The following are additional:—

AUSTEN & MCASLAN	186, Trongate, Glasgow
BROWN, HENRY	4, Commutation Row, Liverpool
DICKSON, JAS. & SON	102, Eastgate Street, Chester
GODWIN, F.G.	Norfolk Market Hall, Sheffield
LEE, & Co.	Hammersmith, London
LONDON SEED COMPANY	68, Welbeck Street, London
MAULE, WM. & SON	Nurseries, Bristol
PONSFORD, S.	Loughboro' Park Nursery, Brixton
PONTEY, Mrs. M. L.	21, Cornwall St., Plymouth

RETAIL PRICE, 1*s.* per oz.

WHOLESALE PRICE ON APPLICATION.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

MR. ALEXANDER FRASER, for many years with Messrs. Arthur Henderson & Co., Pine-apple Place, and for the last five years with Messrs. James Carter & Co., of High Holborn, begs respectfully to inform his Friends and Correspondents that he has COMMENCED BUSINESS at the TREDEGAR NURSERY, Bow, London, in the Partnership of MCRAE & FRASER.

All orders for Seeds or Plants, entrusted to the care of the Firm just named, will be executed with punctuality, and articles of best possible quality only supplied.

MCRAE & FRASER, Tredegar Nursery, Bow, London.

"Z" Family, now offered for the First Time.

TRADE

HALLETT'S | PEDIGREE | NURSERY WHEAT.

MARK.

For full description of "Z family" see Advertisements in our Numbers for September and October, 1863.

PRICE—One Guinea a Bushel (or Seven Guineas a Quarter), delivered with printed directions for planting, at the Brighton Railway Station, in bags sewed up and sealed, upon receipt of Cheque or Post Office Order, which must in all cases accompany the order. *In December drill* 8 *bushels on* 5 *acres.*

HOW OUR WHEAT CROPS MAY BE DOUBLED, and other papers forwarded on application, enclosing six stamps.

Apply to FREDERIC F. HALLETT, Esq., F.L.S., The Manor House, Brighton, Sussex.

REIGATE SILVER SAND.—Best quality, 7*s.* 6*d.* per ton; packed, 16*s.* per ton; ditto 5*s.* 4 cwt.; ditto Clarified fine or sharp, 1*s.* 6*d.* cwt., put on the Rail at Reigate.

Best and second quality PEAT SOIL, LOAM, &c.

N B. Loaded Trucks can be sent on all the principal Railways.

Every description of Nursery Products on Sale for the Trade.

W. SHORT, Reigate, Surrey.

To Florists and Nurserymen.

HY. PERKINS calls the attention of the above to his large stock of TOBACCO PAPER and CLOTHS, at 10*d.* per lb.; and superior ROLL PAPER, at 1*s.* per lb. Warranted free from adulteration, having taken every pains to secure the same.

16, Cambridge Circus, Hackney Road, N.E.

THE LONDON SEED COMPANY, LIMITED.—The Directors have much pleasure in stating that they have completed the harvesting of all kinds of Seeds, and are now in a position to execute orders for every requisite for the FARM and the GARDEN.

The GENERAL PRICE CURRENT will be ready in December, and will be forwarded Gratis and Post-free on application. Seeds carriage free.

Offices: 68, Welbeck Street, Cavendish Square, London, W.

Surplus Nursery Stock.

WOOD AND INGRAM have to offer the following at very moderate prices, which, with samples if required, may be had on application.

ELMS, NARROW-LEAVED ENGLISH, 2 years seedling
,, ,, ,, ,, fine transplanted
,, HERTFORDSHIRE, true from layers, 3 to 4, 4 to 5, and 5 to 6 feet
,, HUNTINGDON, 4 to 5, 5 to 6, and 6 to 8 feet
HOLLIES, 1-year Seedling, extra fine
OAK, ditto. ditto.
FIR, SPRUCE, 1 to 1½, and 1½ to 2 feet
,, WEYMOUTH PINE, 2 to 3, 3 to 4, and 4 to 5 feet
LABURNUM, fine Standards
LILACS, 4 to 5, 5 to 6, and 6 to 8 feet
POPLAR, BLACK ITALIAN, 5 to 6, 6 to 8, and 8 to 10 feet
,, LOMBARDY, 8 to 10, and 10 to 12 feet
,, ONTARIO, 4 to 6, 7 to 8, 8 to 10, and 10 to 12 feet
,, ABELE and WHITE, 2 to 3, 3 to 4, 7 to 8, and 8 to 10 feet
WILLOW, BEDFORD, (CŒRULEAN and HUNTINGDON, 4 to 5, 5 to 6, 6 to 7, 8 to 10, and 10 to 12 feet
YUCCA RECURVA, very fine plants
ROSES, Dwarf Standards, on 6 to 18 inch stems
VINES, BLACK HAMBURGH and MUSCAT of ALEXANDRIA, from eyes, various size.
CURRANTS, Red and Black
Huntingdon Nurseries.



COCOA-NUT REFUSE, delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped. J. BARSHAM'S Patent'



Magnified Aphis.

NEAL'S PLANT SOAP and APHIS PASTILS,

1s. and 2s. per packet,

may be obtained from all respectable Seedsmen.

Testimonials forwarded on application to the Patentee,

J. NEAL,

Edward Street, Birmingham.

Winter Dress all Fruit Trees with

GISHURST COMPOUND.



Red Spider Magnified.

Copy of a Letter from Mr. RIVERS,

"Nurseries, Sawbridgeworth, Herts, Oct. 22, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all early last February, and gave all but one a thorough painting with Gishurst Compound, 1lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly aphis entirely, and has made his trees clear and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c., and it does not blacken the shoots on the walls."

For Orchard-house Trees 4 ounces to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is Sold Retail by Nurserymen and Seedsmen, in boxes 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), Belmont Vauxhall, London, S.

SHAW'S TIFFANY.

For samples and prices apply to J. SHAW & Co., 29, Oxford Street, Manchester.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK, 31, Cornhill, E.C.; late 6, Coleman Street.

*** Catalogues sent on receipt of 6 postage stamps.

The Original Seed Bag Manufactory.

ALEXANDER NICOL AND CO., MANUFACTURERS of SEED BAGS, CORN SACKS, &c. Chalmers Street Works, Arbroath, N.B.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS and MACHINES of every description. Illustrated Catalogues on application.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

Landscape and Ornamental Gardening.

MR. THOROLD, of Thorpe Bower, near Norwich, continues to render his professional services in the highest branches of the Art, and can offer the best references.

Landscape Gardening.

MR. GEO. H. STOKES, ARCHITECT, engages to prepare DESIGNS for Laying Out ESTATES and ORNAMENTAL GARDENS, having been for upwards of 17 years Principal, under Sir Joseph Paxton, M.P., in the preparation of similar Designs, including those for the Crystal Palace at Sydenham.

7 Pall Mall East, London, S.W.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING  GLASSES.

Each—	s.	d.		Each—	s.	d.
2 inches in diameter..	0	3½	12 inches in diameter ..	1	9	
3 ,, ,, ..	0	4½	13 ,, ,, ..	2	0	
4 ,, ,, ..	0	5½	14 ,, ,, ..	2	6	
5 ,, ,, ..	0	6½	15 ,, ,, ..	2	0	
6 ,, ,, ..	0	8	16 ,, ,, ..	3	6	
7 ,, ,, ..	0	10	17 ,, ,, ..	4	0	
8 ,, ,, ..	1	0	18 ,, ,, ..	5	0	
9 ,, ,, ..	1	2	19 ,, ,, ..	6	0	
10 ,, ,, ..	1	4	20 ,, ,, ..	7	0	
11 ,, ,, ..	1	6				

HAND GLASSES,  WITH OPEN TOPS.

Each—	s.	d.		Each—	s.	d.
12 inches	6	6	18 inches	9	6	
14 ,, ...	7	6	20 ,, ...	10	6	
16 ,, ...	8	6	22 ,, ...	11	6	
			24 ,, ...	12	6	

Painted and Glazed with 16 oz. Sheet Glass.

HYACINTH and FLOWER DISHES.

6 inches diameter, 1s.; 9 inches, 1s. 6d.; 12 inches, 2s. 6d.

Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

HYACINTH GLASSES.

Common shape, p. doz, 2s. 6d. | Improved shape, p. doz., 4s. 6d.
Patent shape, per dozen, 6s. 6d.

London Agents for Hartley's Improved Patent Rough Plate. Linseed Oil, Genuine White Lead, Carson's Paints, Paints of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

Glass for Orchard Houses or Conservatories.

ENGLISH MANUFACTURED SHEET GLASS, 15 and 21 oz to the foot, in sizes from 9 by 7 to 24 by 20, packed in 100 feet boxes, to be sold cheap.

Apply to WM. H. JACKSON, Plate, Crown, and Sheet Glass Warehouse, 315, Oxford Street, W.

GARDEN BORDER-EDGING TILES, in great variety of patterns and material.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability.

May be obtained at F. & G. ROSHER'S Premises, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; and Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free on application. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also WHITE GLAZED TILES, for Lining Walls of Baths, Dairies, Larders, Kitchen Ranges, &c. Grooved Terro metallic and other Stable Paving Bricks of great durability, Clinkers, Red and White Wall Copings, Glazed Drain Pipes, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

ROCKWORK FERNERIES, WATERFALLS CAVES, BANKS of STREAMS and PONDS, executed in the only way it should be, *i.e.*, to imitate Natural ROCKS. Worked with pockets, for plenty of plants, by JAMES PULHAM, Broxbourne, Herts.

References to works executed in 10 counties, some by the recommendation of W. B. THOMAS, Esq., R. MARNOCK, Esq., and E. MILNER, Esq.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the COLD WINDS & MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. .. 1s. 8d. per yard run.
Four yards wide .. .. .. 3s. 4d. per yard.
An improved make, 2 yards wide, 1s. 9d. per yard.
An improved make, 3 yards wide, 2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

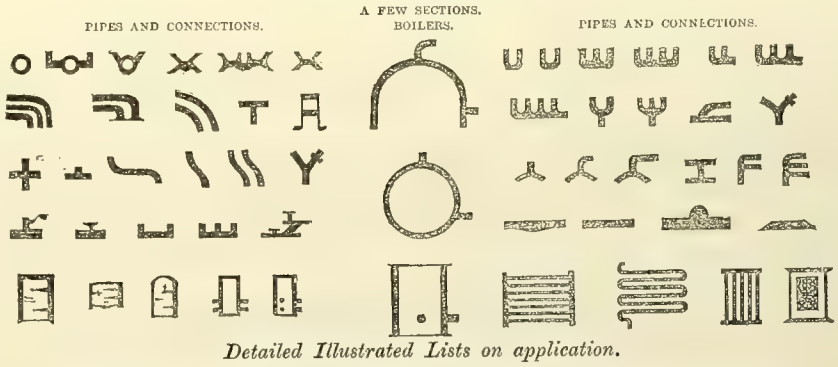
"It is much cheaper than Mats as a covering.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

HOT-WATER APPARATUS,

FIXED AND UNFIXED.



Detailed Illustrated Lists on application.

CONSERVATORIES, GREENHOUSES, &c. PATENT STABLE FITTINGS.

EVERY DESCRIPTION OF IRON WORK.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.



CARTER'S SELECT LIST of SEEDS for 1864,



Containing all the best and latest Novelties in FLOWER SEEDS, FARM SEEDS, and GARDEN SEEDS, also NEW PLANTS, and FRENCH GLADIOLI, is now published, and will be forwarded gratis and Post Free on application to

JAMES CARTER AND CO., 237, 238, & 261, HIGH HOLBORN, LONDON, W.C.

CARTER'S COLLECTIONS of GENUINE GARDEN SEEDS for 1864,

BEING A COMPLETE SUPPLY OF VEGETABLE SEEDS FOR ONE YEAR.

Our Collections are made up in the most liberal manner, care being taken to give a sufficient quantity of all the finest varieties and most useful sorts of Vegetables rather than a long list of kinds that are comparatively useless in the Kitchen Garden, and of which the only real value is to make an imposing array of names.

*** *The Seeds in these Collections have been carefully grown and selected by ourselves at our Seed Farms at Dedham and St. Osyth.*

The following Collections are always kept ready, and can be supplied at a moment's notice.

No. 1, 10s. 6d.; No. 2, 21s.; No. 3, 42s.; No. 4, 63s.; No. 5, 105s.

JAMES CARTER AND CO., 237, 238, & 261, HIGH HOLBORN, LONDON, W.C.

THE LATE MR. DONALD BEATON'S GERANIUMS.

It is with sincere regret that we have to notice the demise of the above-named highly esteemed gentleman, one whom we believe cannot easily be replaced in the world of horticulture. For the last 20 years he has been looked to by all as the genius of the gardening world; and it has been admitted on all sides that his Seedling Geraniums alone have immortalised his name among the floral public.

We have now to announce that only 10 days prior to his death he concluded a contract with us for all the Geraniums sold by him during the present season to Nurserymen for distribution in 1864. We therefore now offer that which for three years had been thought by him to be the best Nosegay Geranium he had ever raised, viz.:—

CYBISTER.

We need add no other testimony in its favour, but when we say for two years successively it has been exhibited in the most prominent beds both at South Kensington and the Crystal Palace Gardens, and universally admired by all who have seen it, we have only to say that the flowers are scarlet crimson, produced in immense trusses, often more than 200 flowers and pips on each truss, habit of a Tom Thumb, and producing its trusses quite as freely. That all may be possessed of so desirable a plant, we offer them thus early in strong plants that may be propagated from before May, at 5*s.* each. The first week in May we shall send out the remainder of those entrusted to us; at this time we will only say that they are novel and of sterling merit. Full description will be given in the Spring.

JAMES CARTER AND CO., 237, 238, & 261, HIGH HOLBORN, LONDON, W.C.



SNOWBALL versus WHITE TOM THUMB GERANIUM.



Messrs. E. G. Henderson & Son were pleased to draw an invidious comparison in last week's *Gardeners' Chronicle* between a White Geranium, Snowball (about to be offered to the public by us), and a White Geranium which Messrs. E. G. Henderson & Son announce for distribution in 1865, and misnamed by them White Tom Thumb; they also append a reputed copy of what they term an "Affirmation," from Mr. James Keeler, the raiser of both the Geraniums in question.

We do not wish to take up the time of the public by what we consider to be a useless squabble, and will endeavour to be as concise as possible, and we should not have condescended to notice Messrs. E. G. Henderson & Son's remarks had they not attacked us in a direct manner.

We give Messrs. E. G. Henderson & Son a direct denial that they have the finest White Bedding Geranium. We herewith annex a verbatim copy of the WARRANTY we received from Mr. James Keeler at the time we purchased Geranium Snowball of him, and it should be borne in mind THAT THIS WAS AFTER HE HAD SOLD Messrs. E. G. Henderson & Son their White Tom Thumb.

WARRANTY. "June 8, 1863.

"GENTLEMEN,—In acknowledging receipt of cheque I beg to assure you that I consider the White Seedling I have sold to you by far the finest I ever raised, and confident nothing can equal it for SUBSTANCE of FLOWER, PURITY of COLOUR, and FORM of TRUSS.

"Messrs. JAMES CARTER & Co." "Gentlemen, your obedient servant,
(Signed) "JAMES KEELER."

REMARKS.

It will be remembered that when we announced Beaton's Helen Lindsay last spring, Messrs. E. G. Henderson & Son had something far superior to it (in their own estimation). They announced last week that Snowball was of INFERIOR MERIT to White Tom Thumb and Bel Demonio (a variety not yet out of our hands), considered (by whom?) much inferior to many others. We shall leave the Public to draw their own inference from the above remarks, and at the same time wish to say that we are always open to FAIR criticism, but we do not think that goods offered by one House can be made any better by endeavouring to depreciate the goods in the possession of another.

We also wish to observe that we have no doubt Messrs. E. G. Henderson & Son are fully alive to the advantages of a "selling" name, but at the same time we think that when a plant has a name given to it that bears a "direct" signification, we think it ought to be a "correct" one.

White Tom Thumb Geranium is described by Messrs. E. G. Henderson & Son as a seedling from Madame Vaucher. Why not let it stand on its own merits, without dragging the old favourite Tom Thumb (which it cannot be said to resemble in any one way, either in COLOUR, HABIT, or FOLIAGE), and our new favourite Snowball also into the question.

We again have the pleasure of calling public notice to our two First-Class GERANIUMS that we are about to let out.

SNOWBALL, the finest White Bedding Geranium, 5s. each. | **BEL DEMONIO, 3s. 6d. each.**

JAMES CARTER AND CO., HIGH HOLBORN, LONDON, W.C.; CRYSTAL PALACE NURSERY, PERRY HILL, SYDENHAM.

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GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1863 and Spring 1864 can be had free on application; it comprises FRUIT TREES, ROSES, AMERICAN PLANTS, CONIFERS, EVERGREEN and DECIDUOUS TREES and SHRUBS, and TRANS PLANTED FOREST TREES, &c.

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YOUELL AND CO. have much pleasure in offering the above GLADIOLUS, unequalled by any other variety for the brilliancy of its colour. The Bulbs are unusually fine. Price 3*s.* per doz.; 20*s.* per 100.

Trade price on application,

Royal Nurseries, Great Yarmouth, Norfolk.

Prize Gladioli.

YOUELL AND CO. were awarded the following PRIZES for the above in September last:—

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FIRST PRIZE, ROYAL HORTICULTURAL SOCIETY,
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Collection of 24 Choice Varieties, one root of each, for 21*s.*
Choice named Varieties, 6*s.*, 8*s.*, and 10*s.* per dozen.
A PRICED and DESCRIPTIVE LIST on application.
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RICHARD SMITH,
SEED MERCHANT and NURSERYMAN,
Worcester.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE IS HEREBY GIVEN, that the ANNUAL GENERAL MEETING of the SUBSCRIBERS to this Institution will be held at the Bedford Hotel, Covent Garden, on THURSDAY, January 14 next, for the purpose of receiving the Report of the Committee and the Accounts of the Society for the past year, and Electing Officers for the ensuing year.

An ELECTION of THREE PENSIONERS will afterwards take place.

The Chair will be taken at 6 o'Clock in the evening.

The Ballot will close at 8 o'Clock precisely.

The Balloting Papers have all been issued; any Subscriber not having received one is respectfully requested to make immediate application for one. By Order.

EDW. R. CUTLER, Secretary.

14, Tavistock Row, Covent Garden, W.C.—Dec. 26.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 26, 1863.

AT page 1129 we gave some account of the fruiting of the COCOA-NUT TREE in the garden of His Grace the Duke of Northumberland, at Syon House. We return to this subject in order to point to a circumstance of considerable importance in a horticultural point of view, and one which is well worth the attention of our readers.

The Cocoa-nut tree is largely cultivated in tropical countries, and generally near the sea-shore, a situation which it seems to prefer to more inland districts. It abounds in Ceylon, as well as in the islands of the Eastern Archipelago. As the voyager from Europe approaches the shores of these lovely islands, he is struck with the broad masses of green foliage which present themselves to his view, and which are unlike anything he has looked upon at home. When he gets a near view, or when he lands, he discovers that the forests he has been looking upon consist of Palm trees, and that these Palm trees yield the Cocoa-nut of commerce, one of the most useful of tropical productions, and one of the necessaries of life to the natives of those countries.

If our supposed voyager were a geologist, or a farmer, or a gardener, he would probably examine the soil in which these trees grow in such luxuriance; and if he did so, he would find it composed chiefly of a yellowish loam mixed with sand and vegetable matter formed by decayed leaves and stems of trees, which have probably been accumulating for ages before the Cocoa-nut trees were planted. This, then, is the soil, which, when salted by the spray of the ocean, seems best suited to the growth of the Cocoa-nut.

Keeping these facts, as regards the natural soil of the Cocoa-nut Palm, fully in view, let us now relate the story of the treatment which this plant has received in the gardens at Syon House. When Mr. SMITH undertook the management at Syon, he found the plant in a very unsatisfactory condition. Its growth was all but stationary, and it was sickly and stunted in appearance. The cause of this state of things was supposed to exist in the composition of the soil in which it was planted. On examining this it was found to be a stiff sour kind of loam, badly drained, and altogether totally unsuited to a plant requiring such a soil as that in which this grows, when at home, in the Eastern Archipelago. That a change of soil was necessary in order to get the plant into a healthy condition was most evident, and it is to this change of soil and to its results that we now beg to draw especial attention. Mr. SMITH removed the stiff and sour earth from his plant, cleaned its roots, and replanted it in a light rich vegetable mixture very like that in which it grows in the tropics. Knowing too, that the plant is always found naturally, and in the greatest luxuriance, near the sea-shore, where the land is salted by the spray, Mr. SMITH applies to the soil, now and then, a little salt, and thus all the natural requirements of the plant are supplied, in as far as they can be in an artificial way, in an English hothouse.

The results of this mode of treatment are just such as we might have expected. Nature has well repaid the intelligent gardener for his attention to her laws. As we have already stated at p. 1129, the tree is now in magnificent health, with 15 exquisitely beautiful leaves, each about 16 feet long, growing from the top of a sturdy stem 2 feet in circumference. We have the authority of those who have visited the Cocoa-nut forests in the Eastern Archipelago for stating that this young tree in the stove at Syon is as healthy and vigorous as any they have ever met with in those favoured islands.

The circumstances relating to the cultivation of this Palm which we have just recorded, teach us all a useful lesson, and one which is well worth learning. Many plants, we know, will flourish in almost any kind of soil, but there are others which are formed by nature—for wise reasons no doubt—to feed in a peculiar way, and if we wish to succeed in the cultivation of such plants we must study the conditions which surround them in those countries to which they are indigenous, or in which they find themselves peculiarly at home.

Soil and temperature, wet and dry seasons, periods of growth and rest, exposure to the sun or shade, and many other circumstances in connection with the growth of plants in their natural habitats, ought to be carefully inquired into if we would be successful in the cultivation of such exotics in our English gardens. Had we studied these matters a little more closely, how many beautiful plants might have been growing and flowering amongst us which are now either lost altogether in this country, or dwindling away beyond hope of cure. The true mode of treatment is now dawning upon us at last, particularly with regard to Orchids from *cool countries*, which we used to try to grow but could not, although we supplied them with a temperature equal to that of the swamps of tropical India! When the natural habits and requirements of tropical fruit trees are more studied and better understood, we may expect the most satisfactory results; and, as a proof of this we point to the success which has followed Mr. SMITH's treatment of the Cocoa-nut Palm at Syon House.

No part of the garden is exempt from the attacks of PARASITES, either in the form of Insects or Fungi. The disastrous influence of the former has been more or less distinctly an acknowledged fact from the earliest times of cultivation; and though the effect of the agency of the latter has almost as long been recognised under the general name of blight, the real cause of the mischief has often been overlooked, and indeed it is only within the last 20 or we may add even ten years, that anything like a general admission of the immense powers possessed by Fungi of originating disease, has prevailed even amongst scientific men, and the more highly informed cultivators.

A most curious instance of this influence has just been reported to us. A Mushroom bed, made after the most approved principles, with spawn derived from one of the first nurserymen in London, produced for about five weeks an abundant crop of excellent Mushrooms. About 10 days since however a sudden change took place. A few still remained in the ordinary condition, as appears from a fine specimen now before us, but the greater part underwent a most singular transformation. Those which still retained the ordinary external form, had the gills contracted, and connected together by a mould-like growth, which in parts entirely masked the common structure of hymenium, turning the whole into a spongy mass. Many of the individuals, however, produced a crop of small Mushrooms, after the fashion of a Hen-and-Chicken Daisy, from the margin, but they were destitute of any stem. Occasionally the growth had proceeded after the first development of the marginal pilei, so that the Mushroom was lobed in the most intricate manner, and the dark hymenium was variegated by the white margin, which appeared everywhere amongst the contracted gills. As regards the gills themselves, not one was in its usual condition, but their surface was everywhere corrugated, in such a manner that an intimate union took place between them, entirely altering the generic character. Indeed in a few places only did any trace of gills and of fructification appear, the rest being occupied by a liver-coloured parasite, which after a time loses all trace of pubescence, and becomes smooth and waxy. No fructification has at present appeared in the new growth, but it is quite clear that the distortion of the Fungus has been caused altogether by the attack of a little parasite which is known by botanists under the name of Hypocrea lateritia. We have seen Mushrooms attacked by this parasite before, but have never yet seen it perfectly developed except upon Fungi in woods, and even there in the majority of cases the young plant alone can be found, as from the great tendency of the plants on which it grows to run into decay, it is only under peculiarly favourable conditions of weather that it is fully developed. There are several species of the genus Hypocrea which attack the fleshy Fungi, but they are often overlooked by Fungologists, and the older writers on the subject mistook the metamorphosed species for new and distinct forms of very different genera.

Where these little parasites penetrate the Mushroom-house, no blame attaches either to the gardener or the preparer of the spawn. The only possible precaution, as far as we can see, is to destroy at once every individual which shows any traces of the evil. If this is done there will at any rate be no new crop of seeds from within to injure the succeeding beds.

Mushrooms vary much more under cultivation than is generally supposed. A few years since we figured several forms which they occasionally assume. A long stalked white variety comes up every year together with the usual brown form in a neighbouring Mushroom house, whatever be the source from whence the spawn is derived. Happily these varieties are equally wholesome with the more approved variety. We should however be very unwilling to try the transformed individuals before us, as it is very uncertain whether the parasite may not alter the chemical condition as well as the general structure of the Mushroom. *M. J. B.*

SOME specimens were kindly forwarded to us in the middle of last October by the Earl of ILCHESTER, of a curious MONSTROSITY which has appeared regularly for many years at Melbury on the leaves of Yucca flaccida, but, as it appears, on no other species, not even its cognate Y. glaucescens. It has been observed in more than one garden, and is certainly not dependent merely on peculiarities of season. We have delayed noticing it till the present time, in the hope of gaining some information with respect to something like a modification of the peculiarity in neighbouring genera or species, but as it seems to be wholly unknown, we must content ourselves with simply calling attention to the fact.

The monstrosity consists in the development of two nearly but not exactly opposite lobes or projections, usually near the upper extremity of the leaf, in each of which the disc is raised from beneath into a conical process, the tip of which is slightly cartilaginous. The thread-like border passes completely round the lobes, which are sometimes directed backwards, and are more or less attenuated at the apex. There is not the slightest trace, as far as we can see, of any insect or other parasite in the cavity, and the peculiar position of the lobes seems to indicate some approach to a type which may exist in some neighbouring genera. The vascular bundles, it should be observed, are interrupted so as to enter into the lobes, and after

running round them, on their return to the main lamina they resume their original direction. *M.J.B.*

It will be remembered that at p. 1011 an instance was recorded of the GERMINATION of SEEDS which had been buried in the earth for a number of years, but which had been brought to the surface within the influence of heat and moisture. A somewhat similar case, or perhaps what some may consider a stronger illustration of the fact that buried seeds retain for a long time their germinating power, was observed by Mr. G. B. WOLLASTON, of Chislehurst, a few years since, at the time the Beckenham station on the Mid-Kent Railway was being formed. Certain excavations were necessary, and these had to be made to a depth varying from 5 feet to 10 feet in the virgin sand and gravel of the district. Thereupon Erigeron canadense sprang up everywhere so as to completely cover the surface of the earth, to the almost total exclusion of other vegetation.

The Erigeron was not previously known to grow in the neighbourhood. Indeed it is one of the so-called rare species, of which comparatively few habitats are known in England, and even its claim to rank as a native plant is generally questioned. Yet the interesting fact Mr. WOLLASTON records, though not to be taken as exact evidence, seems to afford strong presumptive proof that the plant is a true native, and that its seeds must have been buried for an indefinite period in the soil on which they sprung up. How else is the profusion in which the plant appeared immediately after the cutting was made, to be accounted for? At the same place Melilotus leucantha made its appearance, but in small quantity.

We may just mention, as bearing on the same subject, that Mr. WOLLASTON has reared in his garden during the past summer Lathyrus Aphaca and Melilotus leucantha, the first from seeds gathered in Cambridgeshire in 1850, and the second from seeds gathered in the Isle of Wight in 1857.

—— The race of DOUBLE-FLOWERED PETUNIAS seems to have soon reached its limit. Recommended strongly to the notice of cultivators by the appearance some two or three years since of what was oddly named the Inimitable—P. inimitabilis flore-pleno—great expectations were raised as to what should follow in the wake of a flower of such acknowledged merit; but although numbers of new varieties have since appeared, and here and there one amongst these —Eliza Mathieu for example—has been really meritorious, the majority have proved very far inferior to that which first attracted special attention to the race, and which, along with the other variety that has been mentioned, will long be prized as a decorative plant. It is of course impossible to surmise what may be yet in store, but a really distinct and good double variety, when it shall be forthcoming, will be welcomed amongst plant growers, as P. inimitabilis flore-pleno itself was.

For the present, the striped-flowered race of single varieties, of which Mrs. Ferguson was the forerunner, is in the ascendant, and very pretty flowers occur amongst the members of this group, though unfortunately they are of a somewhat sportive character. Nevertheless it is probably in this direction that favourite Petunias will have to be sought, the natural form of the flower being one which is not generally improved by duplication. It will be incumbent however on seedling raisers and censors to exercise discrimination in respect to the sorts which are allowed to go forth as candidates for public favour, for there are two distinct types of this flower, of which one is much inferior to the other. The general form of a Petunia flower, as is well known, is that which is described as funnel-shaped. This monopetalous funnel-shaped corolla is made up of five petals joined together by their sides, and hence in the margin of the funnel there are five points more or less readily distinguishable. In one race of these flowers, of which Mr. HOLLAND has, during the past season, shown some very pretty examples, the margin is almost even, producing a very close approach to a Convolvulus-shaped flower. Now, it is this chastely-formed type, with its, so to speak, evenly chiseled outline, which is to be preferred as the more elegant form of a Petunia; and since we have varieties almost perfect in this respect, those should not be tolerated which deviate in any marked degree from this model, as do those of the other group to which reference has been made. In these latter, the little points which indicate the originally pentaphyllous character of the corolla are prolonged, and as their presence increases the length of the circumferential line they become necessarily reflexed, and thus we have a Convolvulus-shaped flower with five reflexed lobes superadded—an addition which takes off entirely the natural evenness of surface, and produces as many deep furrows as there are points, besides destroying anything like smoothness and definition in the margin itself. Such flowers, moreover, have always a loose flabby appearance, occasioned in great measure by the very coarseness which finds a vent in the development of these hanging marginal lobes.

The two groups to which attention has been invited, have been very well represented by seedlings of the striped race, exhibited during the past summer. Mr. HOLLAND'S Royalty represents the classic model which we recommend should be adopted as the perfection of form in a florist's Petunia—the true Convolvulus pattern, with an even margin very slightly curving outwards; while Mr. TURNER'S Mrs. Sherbrook represents the pointed form, which should not, we think, be admitted amongst choice Petunias. As for border flowers, varieties of this loose flabby type are altogether unfit for out-door growth unless serene summer weather can be assured.

New Plants.

266. ADA AURANTIACA, *Lindl. Fol. Orch.* vol. I.

This remarkable New Grenada Orchid is now in flower (for the first time in England) in Mr. Bateman's collection at Knypersley, to which it was sent by M. Linden. The foliage is prettily mottled, and the general habit somewhat resembles that of Warrea tricolor (the old Maxillaria Warreana of Loddiges' Botanical Cabinet), a variety of which was itself once most unexpectedly found by Mr. Purdie in the same parts of New Grenada from which the Ada comes. The flower-stems rise from among the young leaves, are a foot or more high, and bear at their extremity a closely arranged raceme of apricot-coloured flowers, of which the sepals and petals somewhat resemble those of Lælia cinnabarina, but they do not expand, and therefore quite conceal in their embrace the minute lip. In spite of this drawback the plant is decidedly ornamental, and will no doubt become much more so when it has gained strength enough to yield flowers in greater profusion. It is of easy cultivation, and was grown, Mr. Bateman informs us, during the summer in the Odontoglossum house at Knypersley, but on showing flower was removed to a warmer berth. At present the plant is exceedingly rare, but doubtless some of the many collectors now Orchid-hunting in New Grenada will be able to send home a fresh supply.

DIES ORCHIDIANÆ.—No. X.

(*Continued from p.* 1204).

MR. RUCKER'S, WEST HILL, WANDSWORTH.—Besides the plants I enumerated last week as contributing to the gaiety of the show-house, there were many other Orchids in flower, which had been suffered to bloom unmolested in the places where they ordinarily grew. Such were Angræcum apiculatum and A. pertusum,—the latter protruding a vast multitude of its singular spikes, by no means unlike the end of a rattle-snake's tail. These were in the East Indian house, where they would be speedily reinforced by A. eburneum var. superbum, and by the wondrous A. sesquipedale, which last was sending forth some half-a-dozen of its sturdy flower-stems.*

In a cooler, though by no means the coolest house, the charming Burlingtonia venusta and a white variety of the rare Sobrala liliastrum, were in flower. The latter disappoints expectation, for although there is much delicacy about its snow-white flowers, these are borne at the extremity of stems of such disproportionate length, that in order to be seen to any advantage they would need to be looked down upon from a gallery.†

The Burlingtonias deserve more than a passing word. Besides many varieties of the B. venusta above referred to, Mr. Rucker grows the deliciously sweet B. fragrans (rarely met with true), and half-a-dozen other kinds, in the very highest perfection. Formerly they were regarded as an impracticable race; but now, if their simple requirements be attended to, they may be grown with the greatest ease. All that they ask is to be suspended in small baskets, or, better still, in perforated saucer-shaped pots filled with potsherds and sphagnum mixed well together, so that their long roots may run freely in and out without any risk of injury from their greatest enemy, stagnant moisture. Of water, if it pass readily from them, they can scarcely have too much, and they are by no means impatient of heat.

In Mr. Rucker's cooler houses—for he has already two of these, and contemplates a third—Cypripedium Schlimii (a most desirable plant), Barkeria Skinneri (of which there were varieties of every shade, from richest rosy-crimson to purest white), Epidendrum vitellinum, &c., were already in bloom, while the noble Odontoglossum Pescatorei, Lælia autumnalis, L. anceps, and many others were sending up the most vigorous flower-stems. Here were the finest specimens I ever beheld of Odontoglossum citrosmum roseum; here, too, were plants of those exquisite treasures, O. triumphans and O. Phalænopsis, both apparently doing well. As great rarities I must also particularise Colax jugosus and Batemannia fimbriata. There was also an Orchid from N. Grenada, of so peculiar a habit, that I durst not commit myself to any opinion as to its probable genus, but as it was coming finely into flower, we shall not be kept long in suspense. In these houses there were several Huntleyas, some of them succeeding well, others evidently crying out for a little extra heat. Cultivators can indeed scarcely be too cautious in their management of the species of this singular genus, some of which require a very high and others a very low temperature—points that can only be settled by experience in default of accurate information as to the elevation and climate in which the plants were originally found. Let us hope that the half dozen collectors now gone forth in quest of cool-country Orchids, will furnish the most minute particulars on these all-important matters

I have scarcely left myself space to do more than glance at a few of the remarkable specimens which, even when out of flower, cannot fail to arrest the attention of the visitor. Foremost of these I must place the gigantic plant of Vanda Lowii, which a year ago produced flower spikes of such extraordinary length, that they required to be fastened to the rafters, from whence they hung down in long and graceful festoons. A stately specimen of Schomburgkia tibicinis producing flowers greatly superior to those of the ordinary variety, is a special favourite with Mr. Rucker. More interesting to me was a noble plant of Dendrobium bigibbum, a species which when it has attained its full dimensions* is among the most striking of all the Dendrobia. But it were vain to attempt to particularise a tithe of what was admirable, either among the Air-plants or in the Cattleya house, or in divers other houses, whether of high or low degree, through which this vast collection was distributed. Suffice it then to say that the Orchids as a whole were in most excellent health, thanks to Mr. Pilcher's untiring care and skill. May they for many many years to come minister to the enjoyment of their generous and spirited proprietor! *Serapias.*

LATIMER'S, THE SEAT OF THE RIGHT HON. LORD CHESHAM.

THIS lovely place is situated about three miles north-east of Amersham, and two miles from Chesham. The mansion, which in its first foundation was very ancient, is built of red brick, and was fully repaired and ornamented in the Elizabethan style A.D. 1826. It is now an imposing structure, and has an air of great comfort about it. It is situated on the brow of one of the smaller branches of the Chiltern Hills. From the front of the house the view is most charming,; the surface is free from all rough excavations, and the eye reposes on an extensive bank of beautiful green turf, which carries it down to a lucid lake, formed by heading the river Colne, which flows through the park from Chesham on its way to Berkhampstead and Watford. On the banks of this lake are many Chestnut trees, which must augment the beauty much when in flower, and which in my mind's eye I long to see in that state. The grouping and distribution of the trees have been done by a master hand, and the top of a steep chalk hill opposite the house is most beautifully varied. Part of it belongs to the Duke of Bedford's estate at Cheneys, but his Grace allows Lord Chesham to treat his outline as he pleases, and he certainly has done it very perfectly.

There is a narrow terrace along the front of the house. The foundation of this is chequered by being built of freestone of different colours. I thought it had too much of a chess-board appearance, and that one and the same stone would have given more idea of solidity and stability, as the apparent foundation of this stately building.

The approach from the lodge to the house is nearly half a mile in length, and is very pretty. Upon entering, you have a nice breadth of park lawn, extending in some places far beyond the turnpike-road, and giving a good idea of extent, while on one side is situated an old and large farmhouse, which looks very well. The road continues, and passes over two bridges, the second of which gives a view of a beautiful cascade, over which the river Colne is precipitated in a very picturesque manner, and is by means of this dam made to form a beautiful lake, whilst below the cascade it meanders along the park in a gentle course.

On leaving this bridge the road winds a little and passes under a fine old Walnut tree. Every step you take now presents new charms, and on arriving at the summit, the beauty and harmony of the whole are apparent. Certainly it is one of the most perfect scenes of the kind with which I am acquainted.

Having reached this summit you find a broad,

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* There are many other fine Angræcums yet to come to us from Africa and the adjacent islands, and it is much to be regretted that so much difficulty and delay should attend their introduction to our stoves, where they would be especially welcome, not simply for the sake of the beauty of their flowers, but because the species are of the easiest culture, and flower for the most part during the winter months. I have been told that many of the trees that overhang the Niger are loaded with Angræcums.

† In Mr. Day's collection there is a still loftier specimen of an allied species, S. dichotoma, which has not yet flowered. Fortunately there are other Sobralias of more manageable dimensions but of equal or greater beauty; *e. g.* S. macrantha and S. rosea (Ruckeri), and some half-dozen other kinds from New Grenada and Peru, which may probably reach us in the course of the ensuing summer, and which when they do come will require to be kept cool.

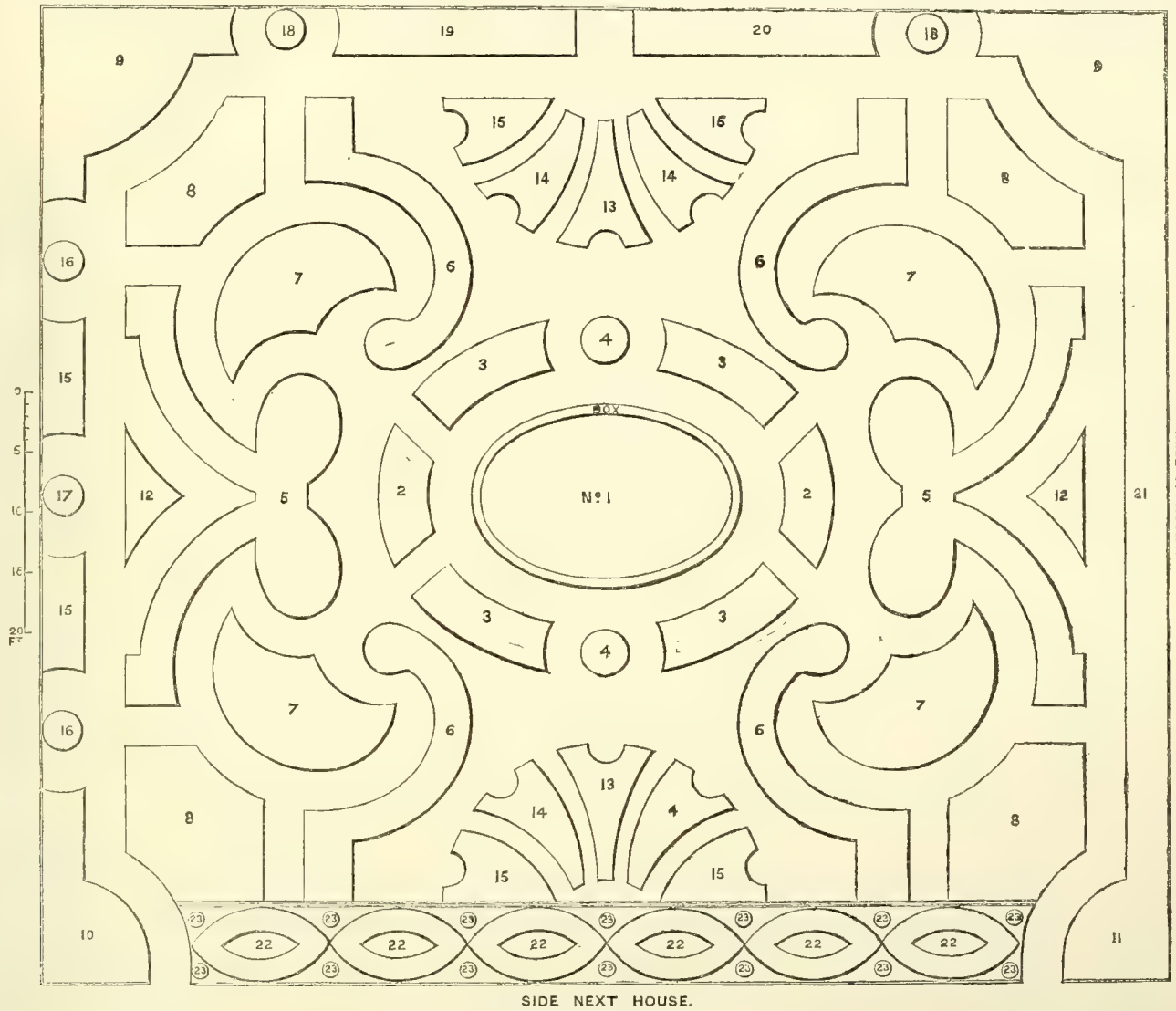
* Dendrobium bigibbum comes from the northern (*i.e.*, tropical) coast of Australia, and its beauty ought to serve as an incentive to further examination of that remarkable and little known region. New Guinea also teems with Orchids—many of them remarkably fine—not one of which has yet reached us in a living state. The natives of the island used indeed to be looked upon as pre-eminently dangerous, but surely if Mr. Wallace can pass months at a time among them, shooting Birds of Paradise, there can be no extraordinary difficulty in getting together a few living plants.

traight, gravel road, which conducts you to the house; and here I must pause to note one feature which particularly struck me. All was repose, beautiful turf, fine trees and shrubs, but no frittering of flowers, and all this with the highest keeping. From thence we passed along the front of the house to the south-west corner, where I found the most beautiful garden I have ever seen; it was perfectly dazzling to look at, and arranged with admirable symmetry. The following is a plan of it, designed by a Mr. Thompson.

It has always been my idea that gardeners generally err much in sticking flowers all over their grounds, which they thus render monotonous. In large places there may be several concentrations with adequate repose. Nothing has done more to disfigure our really fine places than the rage for planting Pinetums, where the little wretches of plants from 48 or 32 pots are planted in contrast with fine old English Elms, Limes, and Beeches. A Pinetum is a beautiful and attractive thing to have, but should not be attempted by engrafting it upon an old place, which is much too generally done; it should be formed in a wild, isolated spot.

There is a good deal of pleasure ground at Latimer's, which is all treated in the spirit of repose; the grounds are very pretty, but I was sorry to observe some fine young Pinuses planted so thickly as to destroy all breadth. I was happy however to hear that they were to be removed.

In the front of the house the terrace is very narrow, but below it there is a large platform of level turf, with



SIDE NEXT HOUSE.

REFERENCES TO PLAN.

1. Christine Pelargonium, rosy pink.
2. Tropæolum elegans, orange scarlet.
3. Alma Pelargonium (variegated), scarlet.
4. Tropæolum Garibaldi, dark orange scarlet.
5. Yellow Calceolaria (aurea floribunda) edged with Verbena Purple King.
6. Cloth of Gold Pelargonium (variegated), scarlet flowers, intermixed with Heliotrope, Etoile de Marseilles, violet purple.
7. Frogmore Improved Pelargonium, scarlet.
8. St. Clair Pelargonium (variegated), pink flowers, edged with blue Lobelias.
9. Trentham Rose Pelargonium, rosy scarlet.
10. Herald of Spring Pelargonium, orange tinted cerise.
11. Comte de Morny Pelargonium, rosy scarlet.
12. Tropæolum Eclipse, scarlet.
13. Gazania splendens, orange yellow, dark ring round the disc.
14. Verbena Purple King.
15. Brilliant Pelargonium (variegated), scarlet.
16. Petunia Mrs. Ferguson, purple and white.
17. Madame Vaucher Pelargonium, blush white.
18. Prince of Hesse Pelargonium, pale salmon pink.
19. Countess of Warwick Pelargonium (variegated), scarlet flowers, intermixed with Amaranthus melancholicus ruber, blood-red foliage.
20. Bijou Pelargonium (variegated), scarlet flowers, intermixed with Amaranthus.
21. Ribbon Border, in three rows:—Front row, Lobelia speciosa, blue; middle row, Annie Pelargonium (variegated), scarlet flowers; back row, Yellow Calceolaria and Amaranthus, plant for plant.
22. Mangles' Pelargonium (variegated), pink flowers, intermixed with blue Lobelia.
23. Coleus Verschaffeltii, dark purple foliage.

a broad straight walk from end to end. Sir Joseph Paxton has suggested the placing of vases along the line of this walk, and I cannot but think that if this were done, the effect would be very good.

The kitchen garden is a very useful one, 3½ acres in extent. It is situated close to the house, and its walls are concealed by banks of Laurels. It contains one span-roofed and three other common Vineries, in one of which a magnificent crop was still hanging; these were of the Hamburgh kind; they were particularly well flavoured, owing mainly I think to the outside border being protected with tarred weather boarding, which has thrown off them the excessive autumnal rains and prevented the berries from being surcharged with aqueous fluid, thus rendering them in a more fitting state for keeping late. The use of these boards is in my opinion very judicious. There are also some other houses—a Peach-house, Fig-house, Stove and Greenhouse, also three houses for miscellaneous purposes—one Paxtonian built by Hereman, one built by Taylor, and one by Dench. Of these Taylor's house seemed much the best. Dench's had large squares and light metallic bars, and was found to get too hot in fine weather.

In the kitchen garden, Strawberries seem grown to great perfection, and I was struck with the vigour of the Brussels Sprouts, and all that tribe of plants. There was a magnificent collection of Chrysanthemums, superbly grown. The transplantation of large fruit trees seemed to be a general principle. I saw some fine Moor Park Apricots which had borne large crops of fruit, and close to them were trees (not transplanted) which had not given one Apricot.

The whole management of Latimer's does infinite credit to Mr. Donaldson, the gardener. I noticed some Spruce Firs which had become much disfigured by the leaves nearest the bases of the branches having turned to a reddish brown colour; the points of the branches were in vigorous health, but the whole of this brown foliage must in time fall off, and when so will render the trees miserable specimens. I supposed it to arise from the over dryness of a strong chalk soil in an extraordinary hot summer, which last year was.

I have already said a word upon the close proximity of Cheneys to Latimer's, and will conclude with a few words upon this charming place. The living is held by Lord Wriothesly Russell, and the village has the Bedfordian stamp of cleanliness, comfort, and ample convenience throughout it. I was charmed to hear such a character of this divine as one seldom meets with.

One of the most beautiful things at Cheneys is a long terrace walk bordered with English Elms, through the stems of which are seen the house and grounds of Latimers; it is on the side of a steep hill, from whence the ground slopes to the river Colne, while the prospect is bounded by large masses of Beech wood, which, when robed in their autumnal tints, as they were when I saw them, are most lovely. From this I ascended the hill, where I met with a ruin of the old manor house—part of the kitchen, and adjoining it at a little distance I found one wing of the old house fitted up and tenanted by Mr. Rickards, who occupies with it a farm of 500 acres. Near this house is a splendid farmyard, a horse-engine for pumping water up into a cistern, which provides by flow pipes and taps all the water necessary. On one side of the house there is a venerable Oak, upwards of 500 years old.

The church is close by the mansion house, and is a very pretty building, in thorough repair, and not mutilated as too many of our churches are by the whitewashing and repairs of Messrs. the Churchwardens. In it is a magnificent chancel, wherein lie the ashes of many generations of the illustrious house of Bedford.

Here is the monument of the first Baron Russell of Cheneys, of whom it is related by Dugdale that "in the reign of Henry 7th, Philip, Archduke of Austria, being bound for Spain, the heiress of which kingdom he had married, was obliged by a storm to put on shore at Weymouth, where he was received by Sir Thos. Trenchard, Knight, of Wolverton, who till he could inform the Court of the event, sent for his friend Mr. John Russell, then lately returned from his travels,

to entertain his illustrious guests. The Archduke was so pleased with his conversation that he soon advanced him to several honourable posts, and King Henry VIII. made him Baron Russell, of Cheneys, which he afterwards acquired by marriage, and also Lord Warden of the Stannaries, Lord Admiral of Scotland, Knight of the Garter, and Lord Privy Seal."

There is also a very splendid monument to the memory of Lord and Lady William Russell. It is of delicate white marble, and must have cost an immense sum of money. Lord and Lady William are full-sized figures exquisitely sculptured, and they are surrounded by medallion busts of their children. The sad history of his lordship's fate renders this an attractive object, and the numerous other monuments render the place most striking as an illustration of the vanity of human greatness.

It is to be remarked that there is a peculiar expression about the whole of the Bedford property. Thus the farm is distinguished from those in its vicinity by very extensive and open fields, with little hedge-row timber. The crops seem principally to be Wheat, Barley, and Mangel Wurzel. The hedge-rows, as is general in this county, are badly managed; they consist of nearly every hardy plant except the proper one, Whitethorn; Elder, Sloe, and Nut trees are the principal plants in them, and these are trimmed up with hooks every autumn; they vary in width from two yards at the base to four yards, and when the men cannot reach to top them, they are allowed to grow up *ad libitum*.

His Grace the Duke of Bedford's hedges are more moderate in size than those of his neighbours; but still there is much room for improvement, and I think that the landlords of Buckinghamshire cannot turn attention to a more profitable subject than the improvement of their hedges. If agricultural societies were to offer prizes for the best kept hedges, the result would be that we should have them such as they ought to be, and the farmer would gain by the increase of his crops. *Henry Bailey, C.M.R.H.S., Amersham, Bucks.*

Home Correspondence.

Sunk Fences.—We are making a sunk fence to divide our garden from the surrounding field, and we should be very much obliged for any information your correspondents could give us, as to the best way of finishing it at the top. In our old sunk fence the turf of the lawn was simply continued to the extreme edge of the wall of the sunk fence, thus giving the thickness of one turf upon the top of the wall, but we have found that this has not answered, as the turf upon the well was always brown and bare, leaving an ugly edge to the lawn. Should we gain a sufficiently firm edge if we were to place a solid square of earth (cut with the sod) upon the top of the wall with the turf side outwards towards the field, and were then to lay the lawn turf on the top of that? This plan would give sufficient depth of soil for the lawn Grass, and a beautiful green coping for the wall of the sunk fence—but we fear that the earth would be liable to crumble down, and leave a ragged edge. The slope from the bottom of the wall up to the field has been made very smooth and gradual, so that if we could secure a firm green top to the wall, there would be scarcely any perceptible break to the eye between the lawn and the field, which is of importance to us, as our garden is not large. Any advice on the subject will therefore greatly oblige us. *F.* [We should advise you to keep the top of the wall somewhat below the level, sloping the lawn towards it, so that the eye might be carried over it to meet the green slope beyond.]

Orchard-houses.—May I ask some of your correspondents whether we may expect to ripen fruit in an orchard house without any heat, supposing proper skill and attention on the part of the gardener are supplied? We do not wish to force the fruit, but simply to protect it, as in this bleak part of Yorkshire (Otley), we find it vain to depend upon crops grown in the open air. But we are told that some heat is always required in an orchard-house. *F.*

Cherimoyer.—I am much interested in the remarks in your last week's impression on this Queen of Fruits. I have eaten it in great perfection at Sydney, New South Wales—the South American variety I mean, not the East Indian Custard Apple, which is turpentiny and inferior. The want of success in the stove at Knypersley is not surprising, for the flowers do not always readily set, even in the dry warm climate of Sydney. For instance, I there knew a tree of large size, 30 feet high, growing in a poor sand, never manured, which bore profusely. A raw English gardener in his zeal pruned it very severely, in fact headed it down. The following season it made tremendous shoots; after a year or two it flowered again profusely, perfuming the air with its most delicious scent, equal to that of orange blossom, but it set no fruit: other trees in its vicinity fruiting as usual. Whether the tree has since recovered the effects of the pruning or not, I am unable to say. May not the specimen at Knypersley have been also too vigorous? Would not pot culture and pinching be likely to produce the desired result—the tendency to set? Mr. Rivers in his little work the "Orchard House," talks very enthusiastically about this fruit—has he done anything with it? I have long thought it would fruit in a warmed orchard house, and had six plants sent to me from Sydney last year in a Wardian case, but they all arrived dead. Can any of your readers tell me where a plant may be procured nearer than the antipodes? The tree being deciduous, requires in winter, in my opinion, nothing but protection from frost, and to be kept tolerably dry at the root, together with a little heat in the spring, and perhaps also in summer if the season be gloomy and cold, for it only just ripens as the leaves are falling in the Sydney climate, where the summers are very hot and the autumn prolonged. *J. R.* [There can be little doubt that the Cherimoyer would always need to be artificially fertilised here. This should be done with a large camel's-hair pencil. It must be remembered that the leathery-petaled flowers do not open widely.]

Wellingtonia.—Permit me to add another proof to the many already published, of the hardiness of Wellingtonia. We have two plants of it here that were put out in May, 1859, when they were only 2 feet in height. I have just measured them, and I find them now to be 8 feet high, their annual growths measure 21 and 23 inches respectively, and altogether they are very good specimens, quite pictures of robust health and vigour. The plants just mentioned were raised from cuttings, and are equally as good in this locality as seedlings. *W. G., Brechin Castle, Forfarshire, Scotland.*

Open Walls versus Orchard Houses.—When will the warfare waged between the friends and opponents of these two systems of fruit growing come to an end? An open wall champion boldly throws down the gauntlet, and Mr. Polish accepts the challenge on the part of orchard houses, which he manfully defends. Nevertheless, as an old fashioned gardener, I certainly do feel a sort of veneration for open walls. In my youth they were thought to be appliances that would never be subjected to opposition, but it has come to them at last in the shape of various glass coverings and orchard houses. Still, with every degree of sympathy for their champion under the thrusts that have been aimed at him by his opponent, I really must confess that the latter seems to me to have the best of it. A clear and transparent covering of glass, either in the shape of an orchard house or otherwise, must, I should think, be preferable to Frigi Domo and other textile protections now in use; besides, glass must necessarily admit more light and heat, and exclude more cold than any woven material. As regards colour and flavour of fruit, Mr. Rust's remarks are important, for if they can be borne out by fact, we may at once discard our Peach houses, &c., as the argument advanced by Mr. R. must equally apply to all glass structures. Some more detailed account of his experience, therefore, on this and other points connected with the subject, would greatly oblige *A Looker On.*

Heating Peach-houses with Fire-clay Pipes. — In answer to your correspondent's inquiry, I beg to state that the pipes alluded to at p. 1136 are nearly one inch thick, 9 inches in diameter inside, and about 2 feet long, with a collar 2½ inches. Mine, as I before stated, are only in use five or six weeks during the year, and consequently the soot accumulates very slowly indeed; in fact they have only been cleaned once since the house was built—about nine years ago; they were then all taken up, as I had occasion somewhat to alter the position of the flue. The soot would, however, be removed at any time with the greatest facility by taking up one or more pipes at each end, and running a strong wire through the intermediate space, with a little hay or straw fastened to it. The chimney is of brick, with the exception of one pipe placed at the top; but it would doubtless answer the purpose equally well if made entirely of pipes, if this were found more convenient. I would have complied with "G. W. G.'s" request at an earlier date, but having been absent from home I only observed it a day or two ago on taking up your Paper of the 28th ultimo. A little lime will prevent smoke escaping at the collars. *W., Sheffield.*

Rhododendron Soils.—I am of opinion that the statement of your correspondents made at page 1205, in reference to this subject, should be received with some degree of reservation; that they are perfectly true, as far as they go, cannot be doubted, and I can confirm all that has been advanced in the matter as far as ponticum is concerned; but the latter is a most accommodating plant, and will, it should be remembered, grow most luxuriantly in loam and leaf-mould, in pure loam, and even in clay itself. When we come however to hybrids, particularly such as have much of the arboreum breed in them, we find them very much less accommodating in their habits and likings. In fact I have known many instances where, when planted side by side with the common ponticum, they have dwindled away, whilst the latter has grown away most luxuriantly. At the same time I must admit that hybrids may and will grow without peat. I have indeed known them to make satisfactory progress in pure sand, but they succeed much better when leaf mould is mixed with it. I have formed many borders of loam, leaf-mould, and sand intermixed with a strong clay soil, and in this they have run up to the height of 10 and 12 feet in a few years; in such cases however, leaf mould should always predominate as much as possible, but if peat is easily obtained I should prefer using a portion of it. I would never however think of planting these plants in a border consisting entirely of peat, being convinced that they are the better for having loam and leaf-mould intermixed with it. Andromedas and Azaleas I should treat in a similar manner. All of them require prepared soil, to which peat, though not absolutely necessary in certain cases, should always be applied if possible. I made a plantation of Rhododendron ponticum on a sand-bank, about 10 years ago, with no other preparation than that of trenching in the Grass and brakes which grew on it, and the shrubs now form quite a jungle, which is a favourite home for hundreds of rabbits, and one in which our sportsmen always expect to find a good supply of pheasants. *A. A. P.*

Societies.

LINNEAN: *Dec.* 3.—G. Bentham, Esq., President, in the chair. J. E. Tierney Aitchison, M.D.; E. J. Waring, Esq.; Rev. J. E. Woods; and R. C. Woods, Esq., were elected Fellows. Sir J. B. Hearsey exhibited a box of Indian Noctuidæ. The following papers were read:—1. "On the species of Mitridæ found in the seas of Japan," by A. Adams, Esq. 2. "On the Palms of Tropical Western Africa," by Mr. Gustav Mann and Herm. Wendland; communicated by Dr. Hooker. The authors stated that up to this time, only five Palms of Western Tropical Africa had been known, namely, Phœnix spinosa, Calamus (now Ancistrophyllum) secundiflorus, Raphia vinifera, Borassus æthiopum, and Elaeis guineensis. All these had been again found by Mr. Mann in the course of his explorations, and about a dozen others had been added. The group of Arecineæ, which was previously quite unknown on the mainland of Africa, had now yielded two species constituting two new genera, namely, Podococcus, distinguishable at first sight by its pedicellate ovary, and by its fruit, which when mature stands at almost a right angle with the pedicel; and Phytelephantopsis, which has for its nearest affinity the genera Orania and Manicaria, and is most remarkable for its extrorse anthers, and the position of the petals of the female flowers, which are membranous and imbricate only at the base. The Calameæ or Lepidocaryneæ were largely represented, four new genera and ten new species having been found. Thus two-thirds of the Palms which had been met with belonged to this sub-family, the others being distributed, two to the Arecineæ, one to the Cocoineæ, and one to the Borassineæ. The authors remarked that it had been hitherto overlooked, that in the young state, several species of Raphia are dichotomous, or even sometimes trichotomous, in consequence of which they are always seen with two or three stems together. Foremost amongst the useful Tropical Western African Palms stands the Elaeis, the oil of whose fruits constitutes in most parts the chief food of the natives, who scarcely take a meal in which it is not used in some way or other. It is nutritious and of an agreeable flavour, so that it generally becomes a favourite dish with Europeans. Besides being used for food, the natives also use it for oiling their skins, partly to keep off insects and partly as a substitute for clothing, of which they are entirely destitute. The Bubis or Boobees of Fernando Po make an excellent poultice of it, which they apply when, in accordance with usage, the hand of any person found guilty of adultery has been cut off. Amongst the more civilised nations it is used as with us, in the manufacture of soap, and for illumination, the oil from the kernel being preferred for this latter purpose. The exportation of the seeds of this Palm was stated to be rapidly on the increase, already large quantities being shipped from Sierra Leone and its neighbourhood, During the last three years 130,381 tons of palm oil, of the value of 5,605,913*l.* had been imported into Great Britain. It was stated that Elaeis wine, a drink much liked by the natives, is obtained by cutting off the male flower-spike; this wine is used by Europeans instead of yeast in making bread. The main nerves of the pinnæ, and the exterior of the petiole, are used for basket work, for making brooms, &c.; the fibre at the base of the leaves and also that of the spathe is used at St. Paul de Loanda for stuffing cushions; and the soft centre of the undeveloped petioles is much relished as a vegetable. Finger-rings, bracelets, necklaces, and other ornaments, are cut from the endocarp of the seed. The species of Raphia rank next to Elaeis in regard to utility. Their petioles furnish the materials of which huts and beds are made, while the pinnæ are used for roofing, and the epidermis of the leaflets furnishes a material for clothing; besides which, where the Elaeis is scarce, the oily substance between the scaly exterior of the fruit and the kernel, though bitter, is eaten with Yam, Cassada, &c., and the oil pressed out of it is preferred by the women for dressing their hair. Several of the Raphias yield wine; indeed the pleasant taste of that procured from R. Hookeri has even been sufficient to overcome the innate idleness of the natives of Old Calabar, and has induced them to cultivate it. The wine is procured by cutting out the terminal inflorescence as soon as it makes its appearance, and is obtained in large quantities. The natives of Old Calabar manufacture cloths, &c., from the epidermis of the leaflets of this species. Another found by Dr. Welwitsch, at St. Paul de Loanda, which the authors

briefly noticed under the name of R. Welwitschii, is used in a similar way. The petioles of R. vinifera are employed as poles upon which to carry the palanquins; and the leaflets furnish a durable roofing which lasts three years, that of other species enduring but one. Phœnix spinosa also yields wine; its fruit is much liked; and the very young leaflets before the leaves expand are used for plaiting hats and caps at Accra. The stems of the climbing Palms are used for binding together the materials of which the huts are constructed. The Bafan people take large quantities of Ancistrophyllum secundiflorum with them as food when they go to the hills to procure Rubber, the extremities of the stem without leaves being the parts used; these are simply roasted, and the soft central part (which is rather bitter and tough) is eaten. The fruits of Pododoccus Barteri are also eaten. The authors gave many particulars of the differences between the various genera which formed the subject of the paper, and concluded by an enumeration of the species, the new ones consisting of Podococcus Barteri, Phytelephantopsis Manni, Calamus decretus (?), Laccosperma lævo and opacum, Eremospatha Hookeri, cuspidata and macrocarpa, Oncocalamus Manni, and Raphia Gaertneri, longiflora, and Hookeri; to which the above-mentioned R. Welwitschii may be added.

BOTANICAL OF EDINBURGH: *Dec.* 10.—Prof. Balfour in the chair. The following office-bearers for 1863-64 were elected, viz.:—President, Prof. J. H. Balfour; Vice-Presidents: Prof. Archer, Dr. Browne, Prof. Allman, Mr. H. Graham, W.S.; Council: Mr. C. Lawson, jun., I. Anderson-Henry, Esq., W. Elliot, Esq., F. Naylor, Esq., F. Anderson, Esq., Prof. Maclagan, Dr. Duckworth, Dr. Kirk, Dr. Seller, J. M'Nab, Esq.; Hon. Secretary, Dr Greville; Hon. Curator, The Professor of Botany; Foreign Secretary, Dr. A. Dickson, Auditor, Mr. W. Brand, W.S.; Treasurer, P. N. Fraser, Esq.; Artist, Mr. N. Stewart; Vice-Secretary and Curator, Mr. J. Sadler. The following communications were read:—I. *Notice of the occurrence of Polypodium calcareum, near Aberdeen.* By Mr. J. Robertson; communicated by Prof Balfour.——II. *Account of the Vegetation of the Cliffs at Kilkee, County Clare, Ireland.* By N B. Ward, Esq.——III. *Remarks on the Sexual Change in the Inflorescence of Zea Mays.* By Mr. J. Scott.——IV. *Remarks on some of the Economical Plants of India.* By Dr. H. Cleghorn.——V. *On the Cultivation of the Quinifirous Cinchona in British Sikkim.* By Dr. T. Anderson, Superintendent of the Botanic Garden, Calcutta. The cultivation of Cinchona at Darjeeling has been carried on successfully. The following is a return of the Cinchona plants in the nurseries at that place on the 15th June 1863:—Cinchona succirubra, 1024; C. Calisaya, 53; C. officinalis, 573; C. micrantha, 695; C. peruviana, 2275—total, 4620. The cultivation of Cinchona at Darjeeling was attended with very great difficulties at first, but these have now been overcome, and there is every reason to believe that the plantation will be successful. In the beginning of June 1863, I supplied Dr. Simpson, the European Assistant Surgeon of Darjeeling, with about 2 lbs. of the fresh leaves of each of the following species:—C. succirubra, C. officinalis, and C. micrantha. Decoctions prepared with water slightly acidulated with sulphuric acid, were very bitter, and patients suffering from well-marked intermittent fever were cured by the administration of these preparations alone. Towards the end of June Dr. Simpson and I endeavoured to examine chemically the nature of the leaves of Cinchona succirubra, and we discovered quinine in them.——VI. *On the Cultivation of Tea in India.* By W. Jameson, Esq., Surgeon-Major, Saharunpore. Mr. Jameson gave an account of the Tea plantation in the Kohistan of the North-West Provinces of India. He referred to the cultivation of Tea in Kumaon, Almorah, Hamul Bagh, Bheemtal, Sealkote, Dehra Dhoon, Kangra, &c. He says—In a former communication I estimated the quantity of waste and other lands fitted for cultivation with Tea throughout the Kohistan of the North-western provinces and Punjaub and Dhoons, and showed that by them the enormous quantity of 885,000,000 lbs. might be there raised. But in this estimate I excluded the Kohistan of Huzarah and Rawul Pindee, of Cashmere Jummoo, and the protected Sikh States. The following estimate of the yield of the British territory is nearer the mark, and, as a general return when in full bearing, 100 lbs. per acre may be given:—

Kohistan of Rawul Pindee and	Acres.	lb. per Acre.
Huzarah	20,000	2,000,000
Kangra Valley	35,000	3,500,000
Kasloo	35,000	3,500,000
Murundee, &c.	40,000	4,000,000
Protected Hill States	10,000	1,000,000
Jensar Bawer	10,000	1,000,000
Dehra Dhoon	100,000	10,000,000
Western Gurhwal	180,000	18,000,000
Kumaon	350,000	350,000,000
		900,000,000

A quantity equal to the whole export trade of China, and with high cultivation the figures might easily be doubled, and thus not only allow an immense quantity for the consumption of the Indian community, but at the same time afford a vast supply for export to other countries. Tea cultivation in the North-western Provinces is no longer an experiment now. It has been proved by data which cannot be gainsaid, that the cultivation of the Tea can be profitably conducted; that the Tea prepared is admirably fitted for the home and Indian markets; and that, if properly conducted and backed by capital, the undertaking presents a safe and profitable investment.——VII. *Notice of the occurrence of Sagina nivalis, Lindbl., on Ben Lawers, Perthshire.* By Prof. Balfour.——VIII. *Extracts from a Letter from William Jameson, Esq.*——IX. *Notice of Plants in Flower in the open air in the Royal Botanic Garden.* By Mr. M'Nab. Mr. M'Nab remarked that to give some idea of the mildness of the present season, he begged to lay before the society dried specimens of 220 species of plants in flower, collected from the open air in the Royal Botanic Garden since the 1st of December, the greater number being the summer and and autumn annual and perennial plants; the others chiefly composed of trees, shrubs, and spring-flowering plants, in the following proportions:—Summer and autumn flowering annuals, 34; perennials, 118; trees and shrubs, 38; Ferns, 8; spring flowering plants, 22—total number of plants in flower, 220.——Miss Hope sent specimens of fifty species of plants in full flower, growing in the open air at Wardie.——Isaac Anderson-Henry, Esq., Hay Lodge, exhibited sprigs of blossom taken from two separate Pear trees growing in the open air in his garden. The one tree had been covered with blossom for the last fortnight, the other was just beginning to burst its flowers.——Mr. J. Sadler exhibited branches of Apricot in full foliage from the open wall in the Experimental Garden. The trees, although deciduous, have as yet lost none of their last summer foliage, owing to the mildness of the season.

Notices of Books.

Cartoons from Punch. By John Tenniel. 4to. Bradbury & Evans.

Among the Christmas Books of the season, this stands almost, if not quite, without a competitor. A volume of a hundred of the cleverest possible drawings upon all manner of subjects, beautifully printed and charmingly "got up," forms such a present as we have rarely seen provided for the buyers of gift books. Never till now was there an artist with the talents of Mr. Tenniel who so thoroughly understood the art of representing human passions of the quietest or most violent kind without introducing an incident that could offend the most fastidious taste. "When he chooses to take a serious view of a serious subject, Mr. Tenniel quits the real, not for the grotesque, but for the sublimely real. He can symbolize grandly as well as comically, and astonish into grave admiration a public that merely expected to laugh." So says the *Times*, and so will every one say who has turned over these wonderful hundred pages.

Amongst the continental publications devoted to Garden Botany, and giving illustrations of New Plants, that which reaches us the most regularly is *L'Illustration Horticole* of M. Ambroise Verschaffelt, which has just reached the close of its tenth volume. We find in the pictorial department of this work figures of many plants of interest to cultivators, some of the more prominent of which it may be interesting to notice. There is first a very good representation of *Phalænopsis Schilleriana*, a charming Orchid, which has now become pretty well known in England; also of *Cypripedium Stonei*. A tree Violet with double flowers, blue streaked with white, is called *Viola arborea Brandyana* after its raiser, M. Brandy, a French amateur: the 'arboreous' habit of the plant being induced by cultivation as in some other varieties of the Sweet Violet. A Lilac called *President Massart*, a Belgian seedling, bears noble thyrses of large deep violaceous flowers; another called *Ambroise Verschaffelt* has the flowers of a delicate lilac tint; both are fine hardy flowering shrubs. *Lilium neilgherrense* (here called neilgerricum) is an Indian Lily, with something of the aspect of eximium, and with greenish fragrant flowers, which, however, M. Lemaire figures and describes as of *un jaune miel*. The *Camellia Baron de Vrière* is a full imbricated rose-coloured sort, of an attractive character, and useful in its class; *Vicomte de Nieuland*, also a rose, is less pronounced in character; but one called *Bella Romana*, an Italian seedling, represented with very handsome flesh-coloured flowers striped with carmine, and having also good foliage, is no doubt an acquisition; *Duchesse de Nassau* is a bold flower, of a delicate blush rose, but the petals are notched, which is a blemish; this, however, is not the case with *Fanny Sanchioli*, which, if the figure is to be trusted, is a fine, full, round-petaled double white, with scarce a tinge of blush, in form a good deal resembling the noble Duchesse de Berri; this white is of Italian origin. One plate is devoted to some high-coloured varieties of *Diplacus glutinosus*, amongst which *Godronii*, with large crimson flowers deepening into deep blood-red around the open orange-yellow throat, must be a very handsome plant of its kind; these varieties were raised by M. Ingelrelst, of the Botanic Garden at Nancy. *Pinanga maculata* is a handsome broad-leaved Philippine Island Palm, in which the leaves are mottled with pale and olive green. *Dorstenia maculata* is a Mexican plant, with the aspect of D. Contrayerva, and with similar quadrangular receptacles, but having somewhat hastate leaves indistinctly marked with greyish blotches. A *Rhododendron* called *formosum* is said to be a hybrid between the yellow R. aureum and R. arboreum, but has carmine flowers very like the ordinary high-coloured hybrids of the latter species. *Azalea Reine des Beautés* should be, as it is described to be, magnificent, having large semi-double flowers of a delicate rosy flesh-colour dashed with white around the margin, and thickly spotted on the upper segments and central petaloid bodies with deep carmine. A yellow-flowered subshrubby stove plant, found in Para by M. Baraquin, is called *Scutellaria aurea*, and is of about equal merit with some other species already found in our stoves. *Serissa fœtida fol. aureo marginatis* makes a pretty little picture as it does a pretty little bush, succeeding in a greenhouse, but developing foliage all the better in a higher temperature. There is a group of *Pompon Chrysanthemums* of various tints, among which *Marmouset*, a crimson, looks tempting if it be true. *Rhododendron Duc Adolphe de Nassau* is a dark violet-red heavily spotted hardy variety. *Gymnostachyum Verschaffeltii* is the same as a pretty dwarf stove plant shown last summer by Mr. Veitch as Eranthemum rubronervium, a plant with the habit of E. leuconeurum but having the veins red; it is an elegant dwarf herb so far as the leaves are concerned, but has insignificant yellow flowers. *Sedum Sieboldii fol. medio-variegatis* is a beautiful little plant, pictured by just imagining Sedum Sieboldii, with all the central parts of its leaves of a clear cream colour in a sort of oval blotch half an inch or more across. *Catasetum trimerochilum* is one of the Mormodes set, with yellow flowers stained with brown and dotted in lines with purple, much like M. lineatum. Two glorious Moutan Peonies fill a double plate; the one, *Madame Stuart Low*, of a bright carmine rose, double, and fully 8 inches across; the other, *Président Lambinon*, equally large, but less full, and of a lilac rose; both are Belgian seedlings, and like other Tree Peonies grand acquisitions in situations where these requirements can be met. *Hechtea Ghiesbreghtii* is a dwarf Mexican Bromeliad, with the long spiny-edged spreading leaves, which are of a brownish purple above, white with close pubescence underneath; the tall scape bears numerous small white flowers. *Brahea dulcis* is a tall slender-stemmed fan Palm, the Corypha dulcis of Humboldt and Bonpland, and has been introduced from Mexico. *Phrynium Van den Heckii*, is one of the handsomest of the marantoid stove plants, throwing up its leaves boldly on purplish red stalks, the leaves themselves broad, of a shaded green with a clear silvery centre and two submarginal bands, thus trifasciate, and the under surface deep purplish red; it will be a remarkably effective plant. *Tacsonia Van Volxemii* is a fine New Grenadian creeper with large crimson short-tubed flowers, and appears to be one of the finest of its race, *Caladium mirabile* is a green sort with paler nerves and white dots, rather distinct, but falling into the second rank. In the text will be found historical notices of the species of Phalænopsis, Strelitzia, and Echeveria, with much miscellaneous information.

Hogg's Gardeners' Year-Book for 1864 is a good shilling's worth, and the best of its class. The lists of New Fruits, Plants, and Flowers are ample and carefully prepared; and the British and Foreign Horticultural Directory, which forms a prominent feature, is the most perfect of its kind which has been attempted. A very useful addition to this part of the book is a list of the more important seats of the nobility and gentry, with the gardener's name where known, and that of the post town. There is besides the usual information found in an almanac.

Garden Memoranda.

ROYAL HORTICULTURAL SOCIETY'S CONSERVATORY AT SOUTH KENSINGTON.—With the neat and tasteful manner in which this house is kept, the Fellows of the Society and their friends may well be satisfied; for no pains seem to be spared to render it both attractive and enjoyable at all seasons of the year. In early spring it is a blaze of floral beauty, produced by Hyacinths, Tulips, Lily of the Valley, and other forced bulbs. In summer these are succeeded by Pelargoniums, Tree Mignonette, and plants of that description; while later in the season Fuchsias and Chrysanthemums form prominent features of decoration; and at the present time masses of Chinese Primroses, and of Solanum Pseudo-Capsicum and Capsicastrum, loaded with tempting-looking round red fruit, together with Ferns and other plants, give the central promenade a gay and cheerful appearance.

Among specimen trees in tubs, the Norfolk Island Pine (Araucaria excelsa) seems to succeed admirably, making vigorous growth every year; and, associated with plants of this and other kinds we noticed, in addition to Orange trees, beautiful examples of Clethra arborea, standard Myrtles, and Sweet Bays, Tree Ferns, Palms, and Camellias the last covered with flower buds, many of which are just bursting into blossom. The old Double White kind is remarkable for robust health and for the beauty of its flowers, which, owing to severe disbudding early in the season, are unusually large and perfect. The well-known kind called variegata is also conspicuous for the gaiety of its prettily striped red and white blossoms.

In the border fronting the corridor at the rear of the building, thriving plants of Dicksonia antarctica rise out of elevated knolls green with Toothed Lycopod (L. denticulatum), and little masses of rockwork, raised in the first instance with the intention of hiding tubs in which Araucaria trees are grown, have been rendered extremely ornamental by planting them with variegated Ferns, such as Pteris argyræa and P. cretica albo-lineata, intermixed in such a manner with the green-leaved Cyrtomium falcatum, Asplenium bulbiferum (whose fronds furnish young plants by which it may be increased), and other kinds, as to produce an agreable contrast. Here too the Myrtle-leaved Eugenia forms a handsome pyramid some 14 feet in height; Fuchsias and Hedychiums bloom gaily during the summer and autumn months; and now, plants grown for the beauty of their leaves, such as Wigandias, Ferdinandas, and Dracænas, are set off to excellent advantage by blossoms of Camellias, Luculia gratissima, whose large sweet-smelling flower heads are quite nosegays of themselves, and, last but not least, the lively primrose-coloured inflorescence of Jasminum nudiflorum. An edging of Toothed Lycopod completes this border in a very satisfactory way.

In the belt of tall-growing plants in pots which occupy the foreground of this house, are some fine specimens of the true Rhododendron arboreum, whose rich scarlet flowers produce early in the summer a striking effect; Palms, Encephalartos, and Dracænas also succeed well here, although in winter the temperature is often little more than a degree or two above the freezing point.

To screen the outside pots from view—a great desideratum, as well as to form an agreeable evergreen

edging for the belt just mentioned, Mr. Eyles has in an ingenious manner contrived a series of boxes planted with Toothed Lycopod. These have not yet been placed in position; but when that is done they cannot fail greatly to improve the appearance of this portion of the house. The boxes in question are merely made of rough deal, 9 inches in height at the back, 3 inches high in front, filled with earth, and planted so as to form a little green sloping bank from the top of the pots down to the gravel pathway in front of them. In one of these boxes the variegated-leaved Cyanotis vittata and Isolepis gracilis have been planted with the Lycopod, a mixture, which, though tried for the first time, by way of experiment, looks as if it might answer. In short we need not state that the good keeping of a house of this kind consists quite as much in the skilful application of small matters as in that of more costly materials. Nothing is so well suited for indoor edgings as the gracefully drooping Grass-like Isolepis gracilis with which the margins of the central clumps here are ornamented, and the Toothed Lycopod, the deep green hue of which is always welcome to the eye.

The bracket-like semicircular stages fixed at certain intervals apart along the front of this house are at present filled chiefly with Pompon Chrysanthemums, which, as their beauty fades, give place to other plants, such as Begonias, Primulas, Mignonette, Jasminum nudiflorum, and little golden-striped Aloes. These, when judiciously arranged, as they are here, and surrounded by an edging of Lycopod, are extremely pleasing and pretty, the wire ornamentation round the margins forming a useful support for the Lycopod. To have the latter in perfection, however, it must have a little care in the way of trimming, and it requires to be renewed once at least in every two years.

Finally, Climbers planted to cover pillars and other supports have this season made great progress. Among them one of the fastest growing is Cobœa scandens, which is neatly trained in a circular manner over the arches at the back part of the house, and from them led up to the gallery railings, which it covers with a thicket of green leaves. Higher up, as well as in other parts of the building, it also forms graceful festoons of refreshing green foliage. On some of the pillars, too, the charming Lapageria rosea is growing with great vigour, so that all supports and cross ties necessary in the construction of a house of the dimensions of that now under notice are either already or very soon will be concealed beneath a mass of rich and luxuriant vegetation.

Miscellaneous.

Royal Horticultural Society.—There is now to be seen in the garden at South Kensington a bunch of fruit of the Musa Cavendishii of unusual size. It is 5 feet in circumference at the broad end of the bunch, and weighs 86 lb. (50 lb., we believe, is reckoned a very fine bunch). Most people are under the impression that it takes a long course of years to get fruit from the Banana in England. The fruit now in the Horticultural Garden may dispel this notion. Mr. P. L. Hind, F.R.H.S., of Byfleet, Surrey, who has sent the fruit for exhibition, received some small plants from the West Indies on the 6th of September, 1862, and under the skilful culture of Mr. Carr, his gardener, one of these has already produced this enormous fruit; in fact, the bunch is little less in size than the plant which produced it. The plant is now 4 ft. 6 in. in height, and the bunch about 3 ft. It is now exhibited, hung up, in one of the arches of the colonnade in the conservatory. We understand that it is destined for presentation to the Queen, and an early visit will be necessary in order to see it before it leaves the garden. *Times.*

Mildness of the Season.—In confirmation of this a correspondent has sent us Laburnum blossoms gathered the other day from a tree growing in a shrubbery in the north of Shropshire. He also adds that Gooseberry trees are in flower. Mr. Barnes, of Bicton, Devonshire, has also furnished us with blossoms of Rhododendrons gathered in the open air there. He states that they are from plants measuring from 6 to 8 feet high, and about the same in diameter, and adds that they have hundreds of bunches of blooms all over them. Stray flowers, he mentions, of the old R. ponticum may be found generally all the autumn there, and it is usual, he says, for many varieties of the scarlets and intermediate colours to be in flower in succession from October till May, when they are succeeded by the North-American varieties for 8 or 10 weeks. In the open ground at Bicton are also yet to be seen Scarlet Pelargoniums, Salvias, Ageratums, Verbenas, Fuchsias, Mignonette, Wallflowers, Tree Carnations, Polyanthus, Primroses, and Violets in abundance. He states, moreover that "the Miselto thrush or storm cock is hurrying out its screeching sort of note, and that the song thrush, robin, wren, and hedge sparrow are all merry with their sweet songs."

Yams.—The Yam principally cultivated is the Dioscorea alata, Linn., having a square climbing stem without prickles. The natives distinguish a number of varieties, all of which are known by the collective name of Uvi. Some have large, some small roots, of either a white or more or less purplish tinge; and upon these differences, as well as their shape and time of maturity, the distinctions are founded. At Navua, in Viti Levu, Chief Kuruduadua showed us a lot of Yams 6 feet long and 9 inches in diameter, perfectly mealy, and every part good eating; and specimens 8 feet long, and weighing 100 lbs., are by no means rare in the group. Skilful growers maintain, that in order to produce large and abundant roots, the settings ought to be put into hard and unprepared soil. According to their notion, the Yam ought to meet with resistance ere it will put forth its whole strength, or, as they sometimes express themselves, it must get angry before it will exert itself. I even heard of a bet won by a woman who pursued this simple plan, and who fully made good her word, that she would produce a root large enough to feed 20 people; whilst the man who bet with her could only raise one that would not have fed one-third of that number, though he took great pains to pulverise and prepare the soil for the reception of the setting. The general signal for planting is the flowering of the Drala (Erythrina indica, Linn.). As soon as its blossoms begin to appear, which happens about July and the beginning of August, all hands busy themselves about it. The land having already been cleared during the previous months, hillocks, about 2 feet high and 4 or 5 feet apart, are thrown up; these hillocks are known by the name of Buke, whence the highest mountain in Kadavu—for the first time ascended on the 6th of September, 1860, by Mr. Pritchard and myself, and resembling them in shape—takes its name of Buke Levu, or large Yam-hillock. There are no spades or any other iron tool for digging; all is done with staves made of Mangrove-wood, and the bare hands. Pieces of old Yams are set on the top of these hillocks, and within a short space of time they begin to sprout out. In less than a month they require reeds for climbing, after which little else is needed than keeping the plantations free from weeds. About February the first Yams begin to ripen, and in the heathen districts offerings of them are made to the priests. In March and April the principal crop comes in, and is stored in sheds thatched with Cocoa-nut leaves. As the season advances the contents of these sheds require at least a monthly overhauling; the roots exhibiting any kind of decay have to be removed to prevent their contaminating the healthy ones. Yams are eaten baked, boiled, or steamed, and the natives can consume great quantities of them. Whole cargoes have occasionally been taken with profit to New South Wales and New Zealand, and whaling and trading vessels never touch at the group without laying in a good supply. *Seemann's Mission to Viti.*

Calendar of Operations

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—As this house will now be the chief resort of the family, it is requisite that the floors, &c., be at all times kept particularly clean and dry. Dryness of atmosphere through fire heat will not, however, keep the plants in that luxuriant health which not only creates a present interest in them, but also furnishes a guarantee for success in the future. Great moderation, therefore, in the use of fire heat is necessary in this department. A temperature of from 40° to 45° at night, and from 50° to 55° during the day time, is during this dead time of the year amply sufficient. Camellias in bloom may be watered now and then with clear tepid manure-water. In the case of stove plants keep up an abundance of atmospheric humidity, to counteract the drying tendency of hot-water pipes. In order to obviate the inconvenience of drip, leave a very little back air on all night whenever the weather is at all favourable. A few early Gloxinias and Achimenes may now be gently forced on for the decoration of warm houses. Let Pelargoniums now be kept as much at rest as possible, giving them but little water—in fact none except the leaves show a disposition to flag. In favourable weather like the present they should, however, have plenty of air, but not in the shape of cold currents, which are apt to prove injurious to the leaves. A temperature of 50° by day and 40° at night will be sufficient for the present. The pit in which flowers for the conservatory are forced should possess at this period a permanent bottom-heat of from 70° to 80°; atmospheric moisture, let us presume, has been secured. Such being the case preparations must be made for securing a due succession of early flowers.

FORCING DEPARTMENT.

PINERIES.—Continue former directions with regard to Pines for the present.

VINERIES.—If the buds in the early house are now broken, endeavour to raise the temperature daily a little, until it reaches 70°, at which it may remain for a while; attend well to atmospheric humidity.

MELONS.—To ensure success with these there must be the means of maintaining a bottom heat of from 75° to 80°, and the temperature of the atmosphere at from 65° to 75°, but good crops may be obtained in summer frames placed upon a bed of slowly fermenting materials. Seed for an early crop must soon be sown; after the young plants are up pot them in small pots when strong enough; keep them near the glass, and either plant them out or pot into large pots, using properly warmed, rather strong turfy soil. Sow for succession at intervals of about a month until May. When the plants get into free growth give air on every favourable occasion, so as to secure short-jointed wood. Trim and train the shoots regularly, keeping the main shoots thin, so as to allow space for the laterals on which the fruit will be produced. The soil should be made rather firm, which will tend to prevent over-luxuriant growth, and water should not be given too freely; but care must be exercised to maintain a sweet healthy atmoshere, and to guard against red spider.

FLOWER GARDEN AND SHRUBBERIES.

The weather having as yet been unusually mild, every chance has been afforded of not only bringing up arrears of autumn business, but of even stealing a march on the coming spring. In the flower garden little can, however, be done now except digging deep the beds for clumping out flowers to ameliorate the soil; any that are exhausted should, as we stated the other day, have the soil renewed ready for spring work. In open weather laying turf or other pleasure-ground alterations may be proceeded with. See that all half-hardy plants are secured against severe weather. All Pink and Pansy beds must be well looked after; those plants that are loosened in any way should be carefully fastened; the same observations will apply to seedling Auriculas, Polyanthuses, &c. Carnations and Picotees also require regular attention; water occasionally when the soil is very dry, but avoid wetting the foliage as much as possible.

HARDY FRUIT AND KITCHEN GARDEN.

As has been before stated, all spare ground should now be dug and ridged, indeed, trenched, if time permit. Where a systematic rotation of crops is carried out, and, of course, a regular and pre-planned system of spade management, it is an excellent plan to trench all the kitchen garden successively in the course of every three years. The trenching to be performed each year should be on the ground intended for tap-rooted plants, such as Carrots and Parsnips; also, in forming new plantations of Strawberries, Raspberries, bush fruit, &c., if the subsoil is stiff, it should be well worked up, and if wet, of course, well drained; a good coat of cinder ashes worked into it would serve to facilitate the passage of water and air.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Dec. 23, 1863, as observed at the Horticultural Garden

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 17	7	30.221	29.821	48	40	44.0	43½	47½	N.	.00
Friday 18	8	30.415	30.356	44	31	37.5	43½	47	N.	.00
Satur 19	9	30.411	30.361	51	25	38.0	45¼	46½	N.W.	.00
Sunday 20	10	30.213	30.147	48	31	39.5	45	46½	N.W.	.00
Mon. 21	11	30.034	29.826	48	35	41.5	45½	46½	N.W.	.05
Tues. 22	12	30.144	29.756	41	19	30.0	46	46¼	W.	.02
Wed. 23	13	30.052	29.934	50	34	42.0	45	46	W.	.00
Average.		30.213	30.028	47.1	30.7	38.9	45.5	46.6		.07

Dec. 17—Densely clouded; overcast; fine at night.
— 18—Fine throughout.
— 19—Uniformly overcast; very fine; slight frost.
— 20—Light clouds; very fine; clear and fine at night.
— 21—Partially overcast; hazy; fine; rain at night.
— 22—Showers; clear and cold; very clear at night; frosty.
— 23—Uniformly overcast, very fine in forenoon; clear.
Mean temperature of the week ½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 37 years, for the ensuing Week, ending Jan. 2, 1864.

Dec. and Jan,	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 27	42.7	29 60	36.1	14	0.40 in.	5	5	1	5	2	8	7	4
Mon. 28	41.8	29.36	35.6	11	0.21	4	4	4	3	3	7	10	2
Tues. 29	43.0	33.3	38.1	17	0.62	2	5	1	4	5	8	7	3
Wed. 30	44.7	32 6	38.7	15	0.18	1	6	2	2	4	10	11	5
Thurs. 31	44.2	33.5	38 9	11	0.44	—	8	1	2	6	11	5	1
Friday 1	43.4	31.3	37.4	12	0.70	5	5	2	3	4	9	5	4
Satur. 2	42.5	31.3	37.4	15	0.21	3	3	2	2	4	11	8	5
													7

The highest temperature during the above period occurred on the 28th, 1855—therm. 58 deg.; and the lowest on the 28th, 1860—therm. 1 deg. below zero.

Notices to Correspondents.

BOOKS: *T W R.* Hamilton on the Pine Apple was published by "Joseph Masters, 33, Aldersgate Street, and Thomas Claye, Stockport."

DIOSCOREA BATATAS: *W.* Your gardener has advised you well. Only throw some litter over the place where they stand.

DRACONTIUM PERTUSUM: *Trowbridge* states that in the garden of Mr. John Norris Clark, of Bellefield, Trowbridge, there is a plant of this in flower, an occurrence which must be considered to be to some extent a rarity. To his inquiry, "Is the fruit edible?" we answer that we greatly doubt.

LONDON SEEDSMEN: *Eques.* If such is your opinion you had better get rid of it; for nothing can be more erroneous. Moreover, if you promulgate it you will find yourself in a very serious scrape, the consequences of which, after this warning, you will richly deserve.

NAMES OF FRUITS: *J Wood.* 1, Hoary Morning; 2, Handsome enough, but acid and astringent; 3, Like the Bersdorffer Reinette; 4, Winter Pearmain. Pears:—1, Decayed; 2, St. Germain; 3, Glou Morceau.—*J. W.* Your Pear is the Beurré Rance, ripened this season much earlier than usual, as has been the case with many other late-keeping sorts.

NAMES OF PLANTS: *A.* After a long and careful comparison we have arrived at the conclusion that the Thunbergia is one of the varieties of Th. fragrans.—*R G.* Epidendrum radiatum.—*S S S.* Abutilon vitifolium; and Boronia crenulata, with withered leaves and flowers. Hardly examinable.—*A.* Phillyrea media.

QUERCUS CHINENSIS: *C P* will be obliged by being informed whether the Quercus chinensis discovered by Mr. Fortune, and mentioned in our Leading Article, Jan. 25, 1862, can be purchased in England. We ourselves do not know.

ULMUS FULVA: *C E F.* Botanists know nothing of this name. The Slippery Elm of North America is U. rubra, a plant very like the Dutch Elm or some form of U. montana. No doubt you may hear of it at Kew. We never see the paper to which you refer; if you think it worth while to send us a cutting from it we will endeavour to answer your enquiries. Prune Hybrid perpetual Roses about the end of February, if the weather is mild.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE, Address 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

THE LONDON MANURE COMPANY have now ready

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2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

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Drainage of Land.

MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5*s.* per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

Drainage, &c.

MR. JOSEPH BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments, and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.

Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements. Valuations made for Sales, or the re-letting of Farms.

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DRAINAGE LOANS are made by the GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY to the Owners of Freehold Estates, Life Tenants, Trustees, Incumbents, Bodies Corporate, &c., for all works of Agricultural Drainage, as well as Irrigation, Enclosing, Road Making, Wood Grubbing, and Farm Buildings, sanctioned by the Inclosure Commissioners.

The advances are repaid by way of Rent Charge on the Estate created for such a term of years as the Landowner shall determine will best adapt the annual charge to the circumstances of the Tenants.

No investigation of title being required, or notices given to Reversioners or Mortgagees, no legal expenses are incurred.

The Company either supply the money expended by landowners in works designed and executed by their own Agents, or they undertake the entire improvement by their experienced staff, supply the weekly advances required, and charge on the estate the actual outlay in the works, and their commission thereon.

Applications to be addressed to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, London, S.W.

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2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
   Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission, in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster S.W.

MESSRS. WAY AND EVANS, ANALYTICAL and CONSULTING CHEMISTS, receive PUPILS for the study of AGRICULTURAL and GENERAL ANALYTICAL CHEMISTRY.

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Chemical Analyses.

DR. AUGUSTUS VOELCKER, F.C.S., CONSULTING CHEMIST to the Royal Agricultural Society of England, has REMOVED his LABORATORY from Cirencester to 191, LEADENHALL STREET, LONDON, E.C., where he receives a few Private Pupils for the Practical Study of Analytical and Agricultural Chemistry.

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ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
AUTUMN SESSION, 1863.

President—THE RIGHT HON. THE EARL BATHURST.

Council.
The Right Hon. THE EARL BATHURST.
The Right Hon. THE EARL DUCIE.
The Hon. WILLIAM BATHURST.
The Right Hon. T. H. SOTHERON ESTCOURT, M.P.
EDWARD HOLLAND, Esq., M.P.

Principal—The Rev. JOHN CONSTABLE, M.A., Trin. Coll. Camb.

Resident Professors.
PRACTICAL AGRICULTURE.
J. L. FLETCHER, Farm Manager.
*T. BALDWIN, of Glasnevin—A Course of 20 Lectures on Crops.
*R. SCOTT BURN, Co-editor of the Book of Farm Buildings—A Course of 15 Lectures on Agricultural Machines and Farm Buildings.
CHEMISTRY.
ARTHUR H. CHURCH, B.A., F.C.S., Smith's Exhibitioner, Lincoln College, Oxon.
ASSISTANT TO CHEMICAL PROFESSOR.
R. WARINGTON, Jun., F.C.S.
BOTANY.—JOHN BAYLDON, M.B. Lond. B. Sc.
VETERINARY SURGERY.—A. J. MURRAY, M.R.C.V.S.
MATHEMATICS AND SURVEYING.
W. MEREDITH LANE, B.A., Scholar of Trin. Coll. Camb.
DRAWING.—JAMES MILLER.

* These Gentlemen will be in temporary residence.

Arrangements have been made for the delivery of Special Lectures by the following Gentlemen, who have kindly offered their services:—

AGRICULTURE.
J. ALGERNON CLARKE, of Long Sutton, Lincolnshire—Lecture on Leicester and Long-Woolled Sheep.
HEWITT DAVIS, M.R.I., Author of Agricultural Essays—Lecture on the Injury and Waste of Corn from too thickly seeding.
CAPTAIN TANNER DAVY, Editor of the Devon Herd Book—Lecture on the History of the Devon Breed.
J. BAILEY DENTON, M. Inst. C.E.—Lectures on Drainage, Road Making, and other Land Improvements.
THOMAS DUCKHAM, Editor of the Hereford Herd Book—Lecture on the History of the Hereford Breed.
THOMAS ELLMAN, of Beddingham, Lewes—Lecture on Southdown and Short-woolled Sheep.
J. CHALMERS MORTON, Editor of the Cyclopædia of Agriculture—A Course of 8 Lectures on Tillage and Land Drainage.
WILLOUGHBY WOOD, of Holly Bank, Burton-on-Trent—Lecture on the History of the Short-Horn Breed.
AGRICULTURAL CHEMISTRY.
THOMAS ANDERSON, M.D., Professor of Chemistry in the University of Glasgow, and Chemist to the Highland and Agricultural Society of Scotland—A Course of Lectures.

For further particulars apply to the PRINCIPAL.

CENTRAL FARMERS' CLUB.
NOTICE TO MEMBERS.

The term for which the Committee held the Rooms in Blackfriars having expired, due accommodation has been provided at THE CALEDONIAN HOTEL, 3, Robert Street, Adelphi, W.C., where the rooms will be ready for use on January 1.

HENRY CORBET, Secretary.

The Agricultural Gazette.

SATURDAY, DECEMBER 26, 1863.

—— WE publish in another column a verbatim report of several of the most important speeches given before the meeting in St. James's Hall, called by the Steam Cultivation Company during the week of the Smithfield Club Show. Nothing more strikes the observer of agricultural progress than the altered tone of men in authority on this subject. The President of the Royal Agricultural Society recommends the young farmer about to enter into business to consider the question whether he shall not at once apply steam power in his fields and purchase a diminished number of horses. And experienced men in all the agricultural ranks—landowners, large farmers, and even small occupiers—are to be found recommending their brother agriculturists to abandon horse tillage for steam cultivation. In the speeches now for the first time fully published, we have both the commercial and the scientific aspects of the subject well discussed, and the landlord and the tenant farmer respectively state their case.

—— On Wednesday of last week, Dr. E. SMITH, F.R.S., read before the Society of Arts an extremely full paper on the nutritive value of foods, which we hope hereafter to lay before our readers. One point on which he opposes the prejudice of what may be called amateur science, and gives his sanction to the long prevalent popular judgment, is the alleged superior nutritiveness of whole meal bread, which he denies, and on which he brings a good deal of illustrative experiment and discussion to bear.

THE Morayshire Farmers' Club is, we believe, the oldest Society of its class in Great Britain. It has been in operation since 1798. Mr. ISAAC FORSYTH, its original secretary, could say when he resigned his office in 1825, that he had completed 27 years in its service—and he could then speak of the agricultural improvement which during the past quarter of a century had so evidently been accomplished by its means "in the country that we all love." During its operations up till then it had appropriated 2800*l.* to accomplish improvements in stock, implements, and tillage; and, as the report of that date says:—"every one who can carry his recollection to the beginning of the century, and compare the agricultural state of the country then with what it is now, will have no difficulty in attributing the mighty alteration that has taken place to such an application."

And the social benefits which the Association had conferred were also confidently named by its retiring Secretary. "Its happy influence in so frequently bringing together and uniting almost like the members of one family all the agricultural intelligence and respectability of so considerable a district have been attended with consequences in enlarging and liberalising the minds of its members that will continue to be felt in every corner of the county." Mr. FORSYTH was able to attend the Jubilee meeting of the Club in 1849, nearly a quarter of a century after the period of his retirement, and he then took his final leave of the association, after a 50th annual subscription to its funds, in an address which we have before us as we write, characterised by that hearty sympathy with both its objects and its membership, which had long made him so efficient an office bearer.

Mr. COKE of Holkham, had been elected an Honorary Member of the Morayshire Farmers' Club in 1818. His interest in it probably arose from the official visit paid to his estates by Mr. FORSYTH and other members of the Society, who in 1815 or 1816, had been deputed by the Club to examine into Norfolk agriculture. The inquiries which the deputation were directed to make are given below, along with the answers which were elicited. And we have to thank the family of the late Mr. FORSYTH, who have now enabled us to publish so interesting a picture of the agriculture of half a century ago.

The following are the questions put by the Club, and the answers obtained by Mr. FORSYTH, its Secretary:—

I.—The soil of many parts of Norfolk was poor and unproductive sand, at first yielding inferior Oats and Rye: by better management it now produces Turnips, Barley, Clover, and Wheat. It would be interesting to learn what steps have been taken, and by whom (whether heritors or tenants, or both combined) to work this change; what the old and new rents were and are, and in what proportion the times and new mode of husbandry have operated towards the beneficial change which has taken place?

The steps to this great improvement have been taken by landlord and tenant; and the means have been, 1st, applying the subsoil, consisting of calcareous matter, to the surface. 2d. The application of oilcake manure in addition to that of the farm-yard. 3d. The cultivation of Turnips, and eating them on the ground with sheep. The introduction of Southdowns in room of old Norfolks, the introduction of machinery and new implements of husbandry, and chiefly the introduction of drill husbandry, by which the land is kept so perfectly clean. The greatest part of these improvements have been introduced by Mr. Coke in the last 40 years. The general rent of Norfolk is supposed to be 15*s.* per acre, including tithes.

II.—Do the landlords build the houses and fence the lands; do they exact a per centage for such? Supposing a farm in want of both—what sum might be requisite for buildings and fences per 100 acres under a 5-shift course? How are the hedges reared and protected, and at what age do they become fencible on the clay, loams, and sands?

Landlord builds the houses and includes them in his rent. If houses are added after an agreement for a farm is made, the landlord builds them, but tenant pays 7½ per cent. on the outlay. The fences are done by tenant, but landlord finds the Thorn-layer and Whinseed to protect them, by forming a hedge on one side. The houses of every description for a farm do generally cost 5 years' rent. The hedges are all reared on a ditch and bank, and dead hedge of Thorns set on top of bank, and fenced from sheep on the land side by hurdles. They are fencible against sheep in 6 years, but require two or three years more to be strong

enough for neat cattle. They are not cut before they become mossed or cankered generally.

III.—Are leases given, and of what duration? What are the terms on lands in and out of condition at the tenants' entry?

Leases are given all over the county, and generally for 21 years: as there is no such thing here as a farm being out of condition at the end of a lease; the land is always let in an uniform way. The average price per acre, as already mentioned, is 15*s.* over the whole county.

IV.—At what terms are rents payable, and what are they in general for clays, loams, and sands?

The entries being at Michaelmas, the rents are due at Lady-day and Michaelmas following, but from the custom of the county the payments are seldom actually made till three months after these days, say at Midsummer and Christmas. The average rent of the county is given.

V.—Is marl, lime, or chalk used? In what quantities and at what cost per acre? Specimens of all would be desirable.

No lime used as manure, but the subsoil, which is found everywhere over the county under the denominations of chalk, marl, and clay, is applied to the surface. Chalk is the original substance in a dry state; marl is the same with an intermixture of earth, and rather moist; clay is the same substance with a more tenacious earth intermixed. These are all so strongly calcareous as to effervesce with vinegar. 40 cubic yards per acre are applied once in 20 years, and the expense of casting, carting, and spreading, when contracted for, is 1*s.* per cubic yard. There seems no necessity for specimens, as it cannot possibly be conveyed, and the variety of quality is very great.

VI.—Do the tenants obtain foreign manure, and by what means do they increase the ordinary produce of the farm-yard?

The only foreign manure used is oil-cake bruised and made from Rape-seed, which is Cole-seed. The method of increasing the farm-yard manure is distinctly pointed out in Mr. Blaikie's pamphlet on that subject.

VII.—Rape or Coleseed cake. Ascertain the usual weight allowed per acre for a Turnip crop, when and how deposited: if experienced agriculturists have actually found it equal to farm yard manure; supposing the Turnips carted off can they be succeeded by Barley with every chance of a fair return, or must a top-dressing be given, and what weight of Coleseed or other manure?

Seven cwt. per acre without yard dung for common Turnips; 12 loads of dung, 1 ton each, without oil-cake, for common Turnips; 10 loads of dung with 5 cwt. of oil-cake for Swedish Turnips. The cake is sown in two different ways: 1st, broadcast over the ground flat, then ridged up and Turnips sown on top immediately. 2d, the ridges formed and the oil-cake sown broadcast, the drills closed over it, and Turnips sown on top immediately. Experienced farmers use it in the above manner, and find it answer well for raising a crop of Turnips, but these must be eaten off by sheep, as a preparation for Barley. If Turnips, raised by yard manure or oil-cake, are carted off from good land, a good crop of Barley may be expected without further manure. A part only of Turnips can be carted off from light land; the residue must be eaten off by sheep, if a good crop of Barley is expected.

VIII.—Ascertain the construction and cost of the Coleseed cake bruising machine, and of that used for depositing the pounded cake? Those who subscribed for a quantity of the cake authorise Mr. Forsyth to order the depositing machine if he sees proper.

This machine for bruising oilcake to be worked by two men (about 2 tons per day) costs 15*l.*; ditto with horse-power attached, 30*l.* Machine for depositing the bruised cake with all sorts of corn and seeds, 40*l.* For the purpose of an experiment to sow it broadcast by hand is sufficient.

IX.—Is the four or five shift course practised? Are Turnips ate off the ground? By what description of stock and how are the bestial hurdled or netted?

According to the nature or quality of the soil, the four, five, six, and seven shift courses are adopted. Turnips are universally ate off the ground by sheep, except on the very strongest lands in the county. By South-down sheep, or cross Leicester and South-down. Generally hurdled.

X.—Is breeding, feeding, or part of both practised? What are the favourite and most approved kinds of cattle and sheep? How are they housed and fed the year round? Are pigs, and what breed, reared; if so, how are they kept?

Part breeding and part feeding is practised. The favourite breed of cattle is North Devons, and Galloway Queys, and oxen. In summer they are put to the pastures, and in winter in the fold yards, having open sheds for the cattle to go under in bad weather. In this season they have a small portion of hay in racks under the sheds; common and yellow Turnips to February, and Swedes after, as long as they last.

Sheep—South-Downs, and cross Leicester and South-downs—put to the pastures all the summer; and in winter in hurdles on Turnips.

Pigs, immense quantities bred of the White Suffolk breed. When young, that is to 4 months, kept on whey, milk, kitchen wash, grains, &c., with a few Peas. After 4 months they have the run of the cattle and straw yard, and Swedish Turnips till sold. In summer, after the Swedes are done, the pigs have Clover mown for them, and given in the yard with Peas or Beans. Pigs after harvest are ringed and herded upon the stubbles, sometimes from 100 to 200 in a drove.

XI.—Examine particularly the Cocksfoot, Lucerne, Burnet, and Chicory Grass-fields. How is each sort liked compared to Clover, with or without Rye-grass? Whether all or either do for pasture only, or hay also? Ascertain the quantities sown per acre, and what soils each sort is adapted to. Bring samples. Learn the nature and value of Timothy Grass, the soil to which it is applicable, if sown alone, and in what quantity per acre.

There is scarcely any Lucerne, and no Burnet, or Chicory, or Timothy Grass raised in this county. Cocksfoot is sown upon the light and sandy lands, with Rib Grass, White Clover, and remains in pasture for three years, never cut as hay; and must be kept close eat down by store sheep. Red Clover, 12 lb., on the four-course shift, is only sown once in eight years, and is mown for hay. And the next round a mixture of a peck and a half of Rye-grass, 4 lb. of White Clover, and 8 lb. of Trefoil is sown and pastured, only used in good lands. Sainfoin, 12 lb., with White Clover, 4 lb., per acre, is sown on dry chalky land, and mown for hay every year for eight years.

XII.—How are horses and other working cattle fed? What are the hours of labour, summer and winter; and what the description most approved of for the purposes of husbandry?

Horses from 20th October to 20th May have a peck (Imp.) of Oats a horse a day, with hay also part of the hay is cut and mixed with the chaff of corn, and a few Swedes during this season. No boiled meat. From 20th May to October they are soiled on Clover in the yards. The horses have liberty of running loose from the yards to the stables day and night, summer and winter. The horses are light, strong, and active animals, about 15 to 16 hands high, little hair on the heel and full of bone, mostly browns, bays, and chesnuts. Devon oxen are used only in ploughing and scarifiers, but not generally. They are very active, and as quick in their paces as the horses, a pair plough an acre a day. They are not large, but very clean boned, handsome horns, and all dark red in colour. When fatted at 5, they weigh 70 stone 14 lb.; they are broke into work at three years. In summer soiled, in winter Turnips and hay, and when in work a feed of cut hay and bran, Swedes.

XIII.—It may be desirable to see the moveable threshing machines at work, and to be well informed as to their merits and execution.

This machine from being moved about is very apt to go out of order, and cannot with advantage or safety be placed without a thorough bred mechanic accompanying it. Here where there are generally two large barns on every farm, at a distance—and on some farms three such barns, the convenience and economy of moving machines is obvious though very troublesome, as they are constantly going into disorder, and breaking parts of them. But this by no means applies to the necessities of Morayshire. A moveable machine of four horses power, to thresh 40 coombs a day, costs 100*l.*, and some of the farmers seem perfectly satisfied with their execution, others not.

XIV.—Examine minutely the Wheat and other grain drill machines and cleaning hoe. Ascertain if they can be made to work on the flat broad ridges, and without rounded narrow ridges.

The grain drill here is very nearly the same as that in use in Morayshire. The difference is that the tubes for conveying the grain are made more flexible, and that there is a marker attached to every machine. This latter is a very material improvement, though perfectly simple. It consists of a pole across the shafts, from which is suspended a movable piece of iron fixed at the distance of the drill for the time, which trailing on the surface makes a rut or mark for the horse to be led on in the next turn. Hence, with the superiority of Norfolk ploughmen and the steadiness of their horses, arises that most striking and singular regularity and nicety of their drilling, which in a 1000 acres will not present one irregular line. As to working on the flat they do nothing else in Norfolk. There is not such a thing as a narrow ridge in Holkham. In 10,000 acres you will not find one hinting furrow in the whole space, all flat and level, and not one drill out of place or awry in the whole. A drill machine for grain is 15*l.* to 18*l.*, a broadcast machine for seeds or grain, 15*l.* to 18*l.*, a ditto to sow oil-cake, 15*l.* to 18*l.*, a ditto. to sow the whole together or separate, 40*l.* The drills here have circular barrels with metal cups drove into them instead of the brushes in ours, which is thought a great superiority.

XV.—Ascertain the most approved method to crop the sands, loams, and clays of Norfolk; the quantities of grain and seeds sown per acre, broadcast and drilled; the distance between the drills, and most approved method of sowing.

The sands are done by a 7 and 4 shift course, viz., 1st, Turnips, Barley, Cocksfoot and mixed Grasses pastured for three years, Peas, Wheat; next, 2d, Turnips, Barley, Red Clover (mown), Wheat. For a weak loam, 5 and 6 alternate course—1st, Turnips, Barley, Rye-grass Trefoil and White Clover (pastured two years), Wheat; 2d, Turnips, Barley, Red Clover (mown), Wheat. Best loams, 4 course only—1st, Turnips, Barley, Red Clover (mown), Wheat; 2d, Turnips, Barley, Trefoil and White Clover, Wheat. Clays, 4 shift in 2 courses—1st, Turnips, Barley, Red Clover (mown), Wheat; 2d, Turnips, Barley, Beans, Wheat. Quantity of Wheat seed per acre is 3½ bushels drilled; Barley, 3 bushels; Oats, 6 bushels; Peas, 3 bushels: Beans, 2 bushels. Clover and Rye-grass with Sainfoin and Trefoil are already mentioned. As a general rule the distance of the drills is regulated by the condition of the land. A medium Wheat is 9 inches, Barley and Oats, 6; Peas, 9; Beans, 18; Turnips, 18 and 27.

VI.—Inspect the Wheat and Oats, especially those cut green, as described by Mr. Coke. Bring average samples of all (those green cut in the ear), and find how seed Wheat is prepared to insure the crop against the smut.

The general opinion here is in favour of cutting Wheat rather green, and a sample is taken. The test for shearing is when there can be no milk expressed from the grain by pressure, and the back of the corn becomes brownish, also when there is about 2 inches of the straw below the ear turned white, and you cannot express any juice from the stem—then it ought to be cut, however green in the straw. Barley should be dead ripe. Oats rather green to prevent shaking, and have the straw in greater perfection. Peas, when the lower pods are ripe. Beans, when black in the eye. Seed Wheat, to prevent smut, should be riddled gently into tubs half filled with water, and the swinings carefully skimmed off, which must on no account be put into the dung yard. Stir the Wheat well, and give it more clean water if necessary, then run off all the water, and pour in a brine made of salt and water sufficiently strong to carry a new laid egg. Let it remain in the brine six hours and frequently stirred in that time, careful to skim off all refuse as before. Then the brine is drawn from it and preserved for next steeping, with additional salt put to it to restore the strength of the former test. The Wheat is then put upon a floor where no smutty Wheat has previously been, and mixed with quick lime, and then spread thin on a floor. The greatest care must be taken in every part of this process to prevent the clean Wheat from touching anything which has formerly had smut near it, as inoculation will inevitably happen. Every farmer ought to be sufficiently aware of the infectious nature of the disease so as to be exceedingly on his guard against it. And he has only to take a handful of clean Wheat, wet it and rub with smut powder, and sow it in his garden, to be convinced of this fact.

XVII.—Examine the implements of husbandry, from the thrashing mill to the smallest dung fork. Fix in your own mind if all or either exceed ours, and be able to point out to the Club what you think it would be of importance to order. Attend to see the hand wheel rake, drill roller with cutting wheels, one-horse plough, &c.

The implements that appeared most useful to me were 1st, an inverted horse hoe for Turnips, &c.; 2d, a ditto for grain at 6 and 9 inches; 3d, a cultivator for bringing up quickens to the surface by four horses, having two rows of long and strong teeth, which are far superior to the extirpator for destroying root weeds. A marker to the drills used at Oldmills, and a set of more pliable iron funnels.

XVIII.—Ascertain the mode of storing Turnips—the kind most in use and preferred.

Look to Mr. Blaikie's book for the manner of placing Turnips, which is now become universal in the county, and at this moment (6th May) Swedish Turnips are to be seen everywhere in the highest state of preservation, in consequence of it, and expected to continue so for a month longer. The kinds preferred are Decanter Norfolk White, Yellow Scotch, Swedish.

XIX.—Find if the crops are cut down by the acre, day, or thrave; at what rate per acre, with or without food and drink.

Reaped by hooks at 10*s.* to 14*s.* per acre, according to thickness and standing, including binding and stooking; also by a band of shearers, all men, at 7*l.* or 7 guineas a head, for the harvest, to do everything, but receive no meat or drink; average of harvest a month. Each man is expected to do about 14 acres.

XX.—How are labourers and servants paid and fed?

Farm servants by the year receive 10*l.*, and pay about 9*s.* a week of board wages. Labourers 17*s.* to 18*s.* a week in summer on piece work. In winter about 15*s.* do., no meat nor drink. Labourers plough at 2*s.* per acre, and keep six horses clean and feed them, and receive 2*s.* a week extra for this. In winter ploughs 1¼ acres per day, 10 inches wide and 6 deep. In summer ploughs 1½ acres a day, same size of slice, only one pair of horses to this work.

[Some detached reports of separate farms will be given hereafter.]

It is necessary before closing our volume for 1863, that a correction should be made in the same pages with the error which was committed some weeks ago by the writer of an article on the census returns of 1861. On page 1018 will be found remarks on the changes in the agricultural population which are revealed by the census of 1861 when compared with its immediate predecessor. A table is there given in which the employments of the agricultural class in 1851 and 1861 were compared—but unfortunately the writer had compared the figures as given by the Registrar-General in a volume of the earlier date relating to England and Scotland with those given in the bulky Parliamentary Blue Book just issued about the recent census, which relates only to England and Wales.

Of course, this putting all Scotland out of consideration was certain to produce the great discrepancies which the writer thought he had detected. And we have to thank Mr. Wyatt,

chief clerk in the Census Office, for pointing the error out.

We have also to thank Mr. ROBERT DUKE, who was engaged in the late Census, for supplying the correct figures for 1851 with which those of the recent Census are alone comparable. In 1851 the returns for Scotland were made up in Edinburgh; in 1861 they were made up at Somerset House; and the consequent variation in the form of publication led to the error which we now correct by publishing the accurate figures which Mr. DUKE has sent to us:—

EMPLOYMENTS OF THE AGRICULTURAL CLASS.

	Males.		Females.	
a. IN FIELDS AND PASTURES	1861.	1851.	1861.	1851.
Proprietors	15,131	17,047	15,635	13,268
Farmers	226,957	224,066	22,778	22,916
Graziers	..	2,449	..	..
Farmers' and Graziers' Wives	..	..	163,765	164,618
Farmers' Sons, Daughters	92,321	111,704	83,830	105,147
Farm Bailiffs	15,098	10,561	..	..
Agricultural Labourers (out-door)	914,306	908,678	43,964	44,319
Shepherds	25,559	12,517	..	..
Farm servants (in-door)	158,401	189,116	46,561	44,319
Land surveyors	4,702	3,064	..	..
Land agents	..	..	..	..
Agricultural students	490	104	..	..
Hop growers	33	30	..	..
Willow ,,	85	59	..	..
Teazle ,,	81	85	..	..
Agricultural Implement Proprietors	236	50	..	5
Agricultural Implement Makers	1,034	641	14	12
Drainage service	1,761	11	..	..
Colonial farmers	91	16	..	..
Others	73	116	44	12
b. IN WOODS.				
Woodmen	8,907	7,772	..	..
Others	10	220	9	16
c. IN GARDENS.				
Gardeners	76,760	69,685	1,773	2,120
Nurserymen	2,838	2,350	79	33
Water Cress growers	55	39	..	..
Others	22	23	5	74

The leading numbers here are those of in-door and out-door farm servants and shepherds, and we repeat them, dividing them into columns, determining their ages:—

Labourers.	Total.		Under 20 Years Old.				Over 20 Years Old.			
			Males.		Females.		Males.		Females.	
	1861.	1851.	1861.	1851.	1861.	1851.	1861.	1851.	1861.	1851.
Out-door	958,265	952,997	188,983	183,839	10,202	9457	725,318	724,339	33,762	34,862
In-door	161,902	288,272	94,959	101,508	20,718	51,706	63,442	87,608	25,843	47,450
Shepherds	25,550	12,517	4,900	2,265	..	..	20,659	10,252	..	..
Total	1,145,726	1,253,786	288,842	287,612	30,920	61,163	809,419	822,699	59,605	82,312

The chief points which these figures indicate, on a comparison of 1851 and 1861, are—the diminished number of male proprietors, the almost identical number of tenant farmers and graziers, the large increase in the number of farm bailiffs, and the largely diminished number of indoor farm servants. This last is, we presume, simply the continued extension of the tendency which has been in operation during many past decennial periods, by which masters and servants in agriculture have at length become socially as distinct as in all other occupations where capital is invested.

STEAM CULTIVATION.

Discussion at the Public Meeting in St. James's Hall. Dec. 9.—The following is a report of the addresses of Mr. Harrison, C.E., Frocester Court, Gloucestershire; Sir G. Jenkinson, Bart., Eastwood House, Berkeley; and Dr. Voelcker, Consulting Chemist of the Royal Agricultural Society of England. A portion of the address of Mr. S. Hutchinson, of Grantham, is also given.

Mr. HARRISON: The resolution which I have to submit is—"That considerable advantage would arise to tenant farmers and others from the establishment of a joint stock company, for the purpose of supplying steam apparatus to applicants, allowing them to repay the cost price by instalments extending over a certain number of years on the principle of a rolling stock company."

We have heard from previous speakers the immense advantage which the extension of steam cultivation throughout the country would be to the public at large. It seems to me that the point of view in which it is more especially desirable to regard this subject is, that the extension of steam cultivation is a very decided benefit not only to the tenant farmer but to the landowner, and in going into this question, and considering the best mode of introducing steam cultivation into this country, I think it must be looked upon as a joint question between the tenant farmer and the landowner. With respect to the expense of cultivating land, I believe there is very little land that cannot be cultivated by steam and cultivated very much better than by the ordinary processes. Now I have been connected with a steam machinery company, and therefore I speak with some knowledge of the subject. The disadvantages arising from a number of farmers in a locality joining together for the purpose of obtaining a machine have been already very truly pointed out. It is obvious that they would all be wanting the machine at the same time. Now that objection stands good in regard to the formation of a company in any particular town. As a farmer, I have experienced myself the very great disadvantage of having to wait my turn in order to have my land cultivated by steam. I have missed the opportunity of doing it when it would have been most advantageous. Therefore, I think it is better for farmers to have a complete apparatus of their own. Our experience as a steam company at Gloucester was that it was not desirable for any company to undertake ploughing by hire. Mr. Holland pointed out to us the disadvantages of continuing to employ the men for any length of time, and the inability to give them constant employment. This applies to letting the machines for hire. The proposition that I have to make is that a company should be formed for the purpose of supplying steam apparatus to tenant farmers, which shall be paid for by instalments extending over a certain number of years, on the principle of a rolling stock company. That, I believe, would be the right principle to go upon, but the thing would require an immense deal of care. Our experience is that the steam power, notwithstanding the improvements which are made, deteriorates so rapidly that any company formed to supply farmers with steam tackle under this system must be extremely cautious, otherwise they will very soon find that they have a large quantity of stock upon their hands which is almost unsaleable. In the case of a rolling waggon company, the waggons are kept in repair by the persons who hire them, and they are useful as waggons for many years. In the course of a few years, unless we had good security, these machines might be thrown upon our hands and found to be of little or no use. I think this is a company that is likely to stand, and the greatest safeguard for its permanency will be to obtain adequate security from the persons making use of the apparatus. Now it strikes me that that security is to be obtained from the tenant farmer and landowner in conjunction. Let the company supply the engines to the tenant farmer in the manner proposed, the tenant farmer having to pay a certain amount of interest and to pay off the capital by instalments, and the landlord to furnish the company with a security by mortgage of the land that those instalments shall be paid. Now see the advantage in point of fact of this plan. Year after year the tenant pays his instalments, and consequently while the value of the engine and tackle may be reduced, the amount remaining to be paid diminishes also, and the company's security is all the greater. In the case of the tenant refusing after a few years to continue to pay for the apparatus, the security would of course be called upon to make good the deficiency. I think that is a mode in which a good security would be got for the Company, and I do not at all think it is too much to ask the landlords to assent to it, because they have as much interest in the introduction of steam-power upon their land as the tenant farmer. In the case of a farm where steam machinery has been used which has lately let, I have it on the best authority that the number of applications has been very great indeed, and it has been considered most advantageous to the farm. It is suggested to me that the principle is of very great importance to small farmers who form the greater part of the community. The expense of steam machinery to such persons is so considerable that they are unable to obtain it in the ordinary way. Therefore I think that the formation of a company of this kind to supply steam apparatus to tenant farmers, upon receiving security from the tenant farmers conjointly with the landlord, so that the tenant farmers might have the privilege of using the apparatus in farming and paying for it by instalments from year to year, will be of very great benefit, and I happy to come forward to propose it.

The CHAIRMAN: The gentleman who seconds this resolution is no other than Dr. Voelcker.

Dr. VOELCKER: The agriculturists of England are said to be a slow race of men. It is not for me to say whether they are slower than any other class of the community. We all have our prejudices, and if, perhaps, one class is a little quicker than the other, the quicker is not always the surer. Agriculturists as a class perhaps nobody will deny are slow, but their slowness is a great recommendation to them. If they were not slow, they could not be agriculturists; but, if they are slow, they are sure. After referring at some length to the advantages of the Company in supplying capital for agricultural use, Dr. Voelcker said:—

"In seconding the resolution, I feel I am somewhat out of place in speaking of such a purely practical matter as a scientific man. I will, therefore not say anything more on that subject, but point out one or two matters to your attention which occur to my own mind. All the advantages of steam cultivation have not in my opinion been sufficiently prominently brought forward. For instance, it is not generally understood that by steam cultivation we can work many soils without manure, and thus save a great deal of money in the purchase of composition or in the production of home made manure. A second point is that there are many lands in this country which are not in a condition to receive manure. If the farmer is willing to purchase guano or apply ordinary manure to his land, to what purpose is it unless the land is in a condition to receive it. These are two points of very great practical importance. We frequently hear of poor clay land, of land so poor that it does not pay for the trouble of cultivation, and it would be well to inquire what can be the reason of the poverty of this land? Now, land of that character may be poor in this sense, that it may not have the essence of fertility in it, or, on the other hand, it may not be in a fit condition to receive the manure. In either case we must do something towards bringing matters to this issue, that it shall be made a fit soil, and to do this by manual labour is out of the question. To do it in many instances by horse-labour is likewise, I have no hesitation in saying, impossible. The only way of cultivating some thousands of acres in England is by the employment of steam power. And what would be the result of steam cultivation? In the case of those lands which contain, so to speak, an immense capital in a locked up condition, the result would be to set this capital at liberty. We do by steam cultivation eliminate from the soil itself the elements of agriculture, the elements of fertility which we purchase so dearly in guano and in other manufactured manures. I am a great advocate for the liberal application of every description of manure in its proper place. Now, I call the application of manure out of place when I have the elements of fertility in the soil and for want of proper energy or for want of proper implements I neglect to get them out of the land, and ignore the advantages which steam will give me in working the land. Now this is a topic to which sufficient importance has not been attached by writers, and I wish therefore very strongly to impress upon the present meeting that besides cultivating soils of a heavy description, we get by steam cultivation an immense amount of fertilising matter. Few people have an idea of the enormous resources of some of the clay soils. Some time ago I examined some clay soils in Gloucester, and for my own amusement I made a calculation, and found that in one soil there was sufficient of the great element of fertility to supply our Wheat crops for 1500 years; and we have only to go down another inch and a half to have sufficient to last us another 1500 years, supposing nothing occurred with the soil. Now I mention this to show the enormous extent of subsoils, and yet these are described as poor clays not fit to be taken in hand by the tenant farmer. If they were properly cultivated, and they cannot be properly cultivated but by steam, they would yield for a succession of years large crops without compelling the farmer to put his hand into his pocket for buying very largely guano and other artificial manures. Then in the next place there are soils which are not in a fit condition to receive it—some of our bad clays. When rain falls the most valuable portion of manure is washed out, the essence waste away, filtering through the soil. Now, by proper cultivation the mechanical condition, and with it its fitness to receive the manure, may be very greatly improved. Whether we speak therefore of clay as poor in the latter or former sense, in most cases steam cultivation will effect such wonders as to astonish many of us. No doubt 20 years hence we shall know better what may be expected from steam cultivation than we do at the present time.

Sir G. JENKINSON:—The resolution which I have to propose is the practical resolution of this meeting; in fact, if I may so speak, it is popping the question, "Will you or won't you?" Now this resolution points to the entire question, whether it shall succeed or fall to the ground. With the view of showing shortly the principal point to be arrived at by this Company, I will read that which we propose to make the basis of our proceedings. Sir G. Jenkinson then read from the prospectus of the Company the portion already given at p. 1215, and continued:—

Now, gentlemen, I will shortly address myself to the principal points of objection which exist in my own knowledge to the use of steam machinery for the cultivation of the land. I may say I know something about it because I have been concerned already with the Steam Plough Company in Gloucestershire, and although that did not succeed, I could very easily show why it did not succeed, and why the position of this Company is quite distinct and different from that. The object of that Company was to hire out engines; the object of this Company is to purchase and sell them, not to be paid for at once, but in a series of years. Now that is a very different plan. It may be said that there are objections to the scheme, but I do not hold with the doctrine that they should in the least prevail, for reasons which I will shortly detail to you. The principal point I have heard is the expense as regards tenant-farmers or holders. The second is the prejudice of landowners and of some occupiers against squaring their fields, and enlarging them and straightening their fences. And, thirdly, there is an objection which has not at all been mentioned to-day, but which I can assure you I have often heard, that is, that it interferes with hunting. The expense is a question entirely met by the objects of this Company, because the tenant-farmers will not be called upon to lay out the money, for the capital invested in the machinery will be the capital of the Company. That therefore I look upon as practically of no effect as regards the tenant farmar. The second is a question which I think a little reflection will show the landowners they are not for a moment to regard, namely the trouble or even expense of altering the size and shape of their fields and fences, because everybody knows that if a landlord improves his land to the extent that it is certain to be improved by employing steam machinery and draining the land properly, the value of his land is so much enhanced that he will always be able to command a better and higher class of tenants, men with more capital, because the land will be in a state to produce infinitely better crops in an undrained and half cultivated state. Those are points which must be patent to everybody who reflects upon the subject. The third objection, as to interference with hunting, I have heard people make. I think it is a narrow-minded and superficial view which cannot for a moment stand. In the first place if it did interfere with hunting, hunting is not everything, and the increased food that is wanted for the masses is more important than hunting, and hunting must give way to it. I am one of those who hunt, and I say it is a great mistake. Everybody knows that if the land is well drained, you can ride over it with far greater pleasure, and jump the fences with far greater ease than if the ground is full of water and muck. And, to come to the chief point of all, the injury done to the land in a drained and dry state is infinitely less than when in a heavy undrained state where a horses foot makes a pool of water. I will not address myself more to the tenant's side of the question, because there are so many more practical men here. A great deal has been said both on the tenant's side and the landlord's side. We have heard a great deal as to this Company paying or not paying, we have heard a great deal of advocacy upon points of interest; but, gentlemen, I think, viewing it from a landlord's point of view, which is the one I am now taking, there is a higher ground of argument which I hope nobody of the class I belong to will ever ignore in this country. Everybody knows, and none better than the owners of land, that the improvement of land must depend upon the owners themselves. The tenants must and ought to follow the landlords, and everybody knows that it is the interest as well as the duty of landowners to set an enlightened example, and take the lead in all matters that intimately concern the material welfare not only of the general community, but of those who are dependent in any way upon them. There are not wanting at any time—certainly not at the present time, men who hold back and seem to say that they are not willing to do as much for those who depend upon them. Now, gentlemen, it is surely to take the wind out of such people's sails to set an example and disarm them entirely. Everybody will agree with me that there have been in former times many great and good men to whom the wealth and prosperity of this country is mainly to be attributed, and who have always been ready to make some sacrifice as a noble example to others. There is nothing to be achieved without some sacrifice, and I look upon it that if the landlord does lose a few hundreds, or perhaps one hundred, it is like throwing a sprat to catch a whale; he will lose the interest on that one or two hundred pounds, but he will reap the benefit in a very vastly improved state of his land. It seems to me that the landlords of this great country will, by aiding the introduction of steam machinery in agri-

culture, prove themselves worthy to hold the land, which has descended to them from their ancestors. The resolution I have to move is as follows:—"That this meeting views with decided approbation the objects of the General Steam Cultivation Company, and the mode in which it is designed to carry them into effect."

Mr. HUTCHINSON followed with a full and detailed account of his experience as a steam cultivator, which our readers will also find in his pamphlet, "Fire *versus* Water," (Simpkin, Marshall, & Co.) We make one extract from his speech:—

There are three points in which I consider the advantage of steam very great. The labour and the anxiety on a farmer's mind, which is caused by the employment of steam, is very different from what you may suppose. The process is extremely simple, and gives the farmer much less anxiety, inasmuch as he has fewer horses to care for and fewer men about his premises, and altogether he can get through the work with greater ease and greater facility. Without steam it is impossible that you can have perfect ploughing; the plough does not go to the root of the matter, but steam roots up everything. Ploughing we all know merely cuts in two what we ought to eradicate, and therefore the root is always ready to push up its head whenever it has got the opportunity. There is another great advantage in the employment of steam power which has not been touched upon to-day, which is this. In the second season of my steam cultivation—not the year, because I go by the season; the second season I reckon at 168 days, not 365. During the 168 days of the second season there were 40 idle days, from wet weather, and Sundays, and other causes—one, I think, from breakage of the machinery. This is a point that requires particular consideration, and which I wish to impress upon this meeting more especially than any other point, that during those 40 days the loss upon the steam cultivator is incomparably less than upon horses and men who are idle for the same period. I made a calculation which any of you can follow. I will not give you the details, because they are rather tedious. We have the steam cultivator for 40 days idle; what is the loss upon it? There is the interest of the money, which amounts, we will say, to 2*l.* 4*s.* for the 40 days. But what have you as the loss upon horses? I will take a very moderate number, say 24; I take the engine to represent 24 horses' work. I cannot go through the items particularly, but on a moderate estimate those 24 horses' keeping for the 40 days, deducting the value of manure, for which we ought to make a liberal allowance, amounts to no less a sum than 70*l.* There is the value of two horses gone at a crack, you see that, in 40 days. It amounts to this, that the loss by the steam cultivator came to 1*s.* 1*d.* per day, but with the horses it came to 1*l.* 15*s.* a day. You cannot make anything different of it. It is a fact that cannot be denied; therefore it is a very important matter.

ARTIFICIAL MANURES.

(The following address was delivered by Dr. Anderson before the Highland and Agricultural Society of Kelso.]

FEW things are more astonishing than the rapid rise of the consumption of these manures; and when we hear of millions being annually expended in their purchase, we can scarcely realise the fact that it is little more than 20 years since their use commenced, and that even a dozen years ago it was confined to the most active and energetic farmers; while now, I suppose, it may be safely asserted, that there scarcely exists a man who does not use them, or would be inclined to deny their utility. The best proof of their value is in fact to be found in the rapidity with which they have become an essential and indispensable part of agricultural practice; and the farmer may point to what has occurred with regard to them as a triumphant refutation of his alleged indisposition to go with the times and adopt what is new. I propose to confine myself to considering in a practical point of view the nature of these substances, the sources from which we obtain them, and the mode in which they are manufactured. In discussing these matters, however, we cannot altogether avoid reference to principles, and we must at least lay down some fundamental positions which may afford data for the discussion of certain matters it will be necessary afterwards to consider. I would in the first place point out that the action of a manure is of a twofold character. It supplies food to the plants growing in the soil to which it is applied, and it acts upon the soil itself, and promotes those chemical changes which are constantly going on within it, and which in particular cases proceed with extreme slowness.

The first of these is well known and universally recognised as the most important function of a manure, while the other is far too little regarded, and has scarcely received that amount of attention it merits. To supply food to the plants is unquestionably the primary and fundamental duty of a manure, and no substance deserves that name which does not fulfil it more or less completely, while it is not absolutely necessary that it should act on the soil; and many substances are in daily use as manures which have little efficacy in this respect, although there are probably none which are altogether devoid of it. It is unquestionably possible that a substance might be used as a manure—and even with advantage—which has no action on the soil; while a substance which exerts an influence on it without supplying in itself some part of the food of plants, would scarcely deserve to be called by that name. A perfect manure acts in both ways; and these properties are possessed in the highest degree by substances rich in organic matters, which being in their nature prone to change, readily undergo decay in the soil, and yield carbonic acid—a substance which, though it acts slowly and imperceptibly, is nevertheless one of the most powerful agents in effecting many of the greatest and most important changes occurring at the surface of our globe.

If we are to accept as the definition of a manure a substance which supplies food to the plant, and acts upon the soil so as to set free the supplies of nutriment existing in it, but which, without its use, would be unavailable, then it may be said that farmyard dung is the only perfect manure. It is the only substance which, if added to a soil entirely devoid of all the elements of fertility, would enable it to maintain a crop, and under such circumstances it would obviously be valuable merely as a source of plant food, while its decomposing action on a soil containing none of the elements of fertility would be useless. The case now supposed is one that could never occur in practice, inasmuch as no soils exist which do not contain at least some of the elements required by the plant, and hence the decomposing action is always important. But there is a still more important inference to be drawn from this fact; for if the soil contains within it a sufficient quantity of some substance necessary to the plant, it is immaterial whether it be present in the manure or not. And so, likewise, if the soil be rich in all the elements of plant food except one, a manure which supplies that substance, and that alone, would act just as well as if it contained every individual element required by the plant. Now, the condition to which reference has just been made, does, to a certain extent, occur in practice. Plants do not remove from the soil equal quantities of all their elements, some being carried off in much larger proportion than others; and hence it happens that when land is cropped for a long succession of years, the supply of particular elements is reduced below the requirements of the crop, although others may still abound in the soil. Under such circumstances, it is obvious that a manure containing only, or chiefly, those substances which have been removed in excessive quantity would effectually restore the fertility of a soil. In fact, if it were possible to ascertain exactly what the plant removes, we might attain this object by adding them in precisely the requisite quantities. That would be the perfection of agriculture; but I suppose we are none of us so foolish as to suppose that it is possible to attain perfection, or to imitate exactly the great laws of nature by which our earth is governed; but we can at least keep these matters before us as guides and directors. Inquiring, then, as to those substances which are removed from the soil, it is important to notice that only a part of the crop is in this predicament. Root crops and straw are not lost, but restored to the land in the form of dung; and it is really only the grain of the cereals which is conveyed off the farm and consumed elsewhere. Now, it so happens that the seed of all plants contains a large quantity of phosphoric acid and nitrogen. During the early part of their growth these substances circulate uniformly through all parts of the plant, but when the period of maturity arrives they are carried to the seed and accumulated there, while the quantity in all the other organs of the plant undergoes a corresponding decrease. The difference is well illustrated by linseed and flax straw, the latter containing little more than one-tenth per cent. of nitrogen, and the former 3.5 per cent., or more than 30 times as much. The same is observed though to a less striking extent, in the grain of the cereals, which in round numbers may be said to contain nearly ten times as much nitrogen as the straw. These considerations show distinctly that when the part of the crop which is rich in nitrogen is carried off, and that which is poor in it returned to the soil, there must be a gradual diminution in the quantity of that substance available to the plant unless the manure containing the small proportion be used in excessive quantities, and in that case the other elements of plant food which it may contain in full quantity are needlessly accumulated in the soil. What has been said regarding nitrogen applies equally to phosphoric acid, and to a minor extent also to potash. When dung was the only manure employed, the crop produced was limited by the quantity of these substances it contained; or if it was used in sufficient abundance to supply them all, the other elements which accumulated in the soil were either lost, or, at all events, could only be looked upon as a reserve which might become available under favourable circumstances. It is in this state of matters that artificial manures become useful, and their great value lies in their supplementing farmyard manure, and increasing the supply of those substances which are relatively deficient in it. An artificial manure cannot take the place of farmyard manure; it is only capable of supplying its deficiencies. It cannot of itself support the life of plants, except in those rare cases in which it happens to contain all their constituents; and when it is employed alone it operates by throwing the plants upon the natural resources of the soil for a supply of those substances in which it is deficient. By the term artificial manure, it will be observed we do not understand a substance manufactured by any particular process, but take it in its wider acceptation as meaning what is perhaps more correctly designated by the name of a special manure; and the most conspicuous difference between them and farmyard manure lies in this, that the latter contains all, the former in general only some of the elements of plants. Some guano, no doubt, contains a small quantity of all the necessary constituents, and in a few manufactured manures an attempt has been made to supply them, but this object has generally been very imperfectly fulfilled; and in all but exceptional cases, artificial manures may be considered as sources of nitrogen and phosphoric acid, the former existing in them as ammonia or nitric acid—chiefly in the first of these forms—and the latter as phosphate of lime, occasionally associated with a small quantity of phosphate of magnesia. Every substance which has acquired a reputation as an artificial manure contains one or other of these elements, often both; and no substance which derives its commercial value from potash, soda, or magnesia, has come into general use; and though cases occur in which they have been employed, and sometimes with very great advantage, they are so rare as to be quite exceptional. The fact is, that farmyard manure, and most soils capable of producing a crop, contain these substances in sufficient abundance to make their supply from other sources a matter of minor importance; and though no wise farmer will overlook them, but will gladly add them to his soil when he has an opportunity, he will prefer nitrogen and phosphoric acid to them. In making this statement, I am expressing no theoretical opinion; I am stating a fact derived from the experience of practical farmers, who invariably select as artificial manures substances containing nitrogen and phosphoric acid.

When used as manures, they are obtained either mixed or separate. When mixed, they are of peculiar importance to the farmer, not merely because he gets both together, but much more because when in that state they are, if I may so express it, condensed to be used as manures. Separate, they may be turned to other uses,, but mixed they are entirely at the disposal of the farmer, and there is little to interfere with their price, which will always be regulated by what we can afford to pay for them. The substances which yield these elements mixed are almost exclusively of animal origin, and embrace the various kinds of guano and bones. It is unnecessary to enter upon the composition of these substances further than to remark that we know guanos of various kinds passing from Peruvian, in which ammonia preponderates, to Bolivian, in which phosphates abound. Different as these are in composition, they were originally identical, both being the dung of carnivorous birds, and their present difference depends, as is well known, on the circumstances attending their deposition, a dry and rainless climate preserving them in their original condition, or in a slightly altered state, while in a moist locality the decomposition of their organic matter causes the disappearance of a large portion of ammonia. These manures, however, are important not merely on account of the large proportion of the elements in question which they contain but because of their organic matter, which is of a peculiarly decomposable kind, and hence they fulfil to a certain extent the office of acting on the soil and liberating its useful constituents, which is one of the great characteristics of farmyard manure. It is satisfactory to find from the statements recently published that the supply of Peruvian and analogous guano is much larger than we were led to suppose, and that there is at least for a very considerable time no prospect of their being exhausted. As regards the supply of phosphated guano, there is little available information. The best is Bolivian guano, which is imported in large quantities, though little of it comes to Scotland. There is a very valuable kind, containing about 60 per cent. of phosphates and 1 or 2 of ammonia, which merits more attention from farmers than it has received. The great objection to these guanos is their want of uniformity, and this tells still more with the inferior kinds, such as Bird Island, Kooria Mooria, &c. The sources and supply of these inferior guanos are of less importance, for their import has greatly diminished, and will probably become still less as farmers become aware of their quality. As it is, I believe it consists with the experience of all merchants that guanos of this description have of late years entailed a loss of not less than 1*l.* a ton on the importer. A certain number of cargoes of the kind are annually imported, which are got rid of in those districts where agriculture is less advanced, and where the relative value of different artificial manures is not understood. Sulphate of ammonia, which is an important source of nitrogen, has this disadvantage, that the supply cannot be increased in proportion to the demand, because it can only be produced during the manufacture of gas; and a proportion of that manufactured is carried off by other trades—such as the manufacture of alum, &c.—in which it has come to be largely used in place of potash, which has largely increased in price. There is, however, some prospect of advantage in this respect, as a new source of potash has been recently discovered. At the present moment, the product of the salt called the muriate of potash in this country amounts to 7000 or 8000 tons, while a work has been recently established in Germany which proposes to make 10,000 tons annually. This great increase in the supply must affect the price of ammonia, and it may prove useful to the farmer in giving him a supply of potash which, at no distant date, it will probably be necessary for him to apply to the soil. Dr. Anderson then proceeded to refer to the nature and manufacture of superphosphates, pointing out the difference between those made from bone, which, like farmyard manure and guanos, contain decomposable organic matter, and hence exert a chemical action on the soil, and those which are made from mineral phosphates—such as coprolites. While recognizing the fact that the latter are so far inferior, he pointed out that, considered merely as a source of soluble phosphates, there is no difference between a manure made from coprolites and one from bones; but it ought to be understood that there is a very great

difference between the prices of the raw materials in the two cases, and the farmer has a right to complain if the manufacturer sells a manure as being made from bones, but which in reality contains coprolites. The various mineral phosphates—such as apatite, Sombrero guano, &c.—were then discussed, and their use in the manufacture of manures pointed out. Dr. Anderson then observed that the mode in which the sale of manure was conducted was a matter of the greatest importance to the farmer, and he thought it was at present conducted on erroneous principles. The manufacturers guaranteed a certain composition, and if the value of the manure supplied to the farmer fell short of this, a deduction was made; while, if it exceeded it, no corresponding increase of price was paid. He pointed out the effect this had in increasing the price of manure, and stated that the true principle, and that to which the farmer would come some time or other, was to sell each individual constituent of a manure separately, so that the farmer, in place of buying the mixture which the manufacturer now offers, would take the quantities of soluble phosphates, insoluble phosphates, ammonia, &c., which he required, and mix them for himself. No doubt there was great difficulty in introducing so great a change, but it would, he believed, eventually take place, and be for the advantage of both buyer and seller.

Home Correspondence.

The Metropolitan Sewage.—I see by the resolutions passed, and the speeches made at several recent meetings of metropolitan ratepayers, that "the analysis of the metropolitan sewage made by Messrs. Hofmann and Witt," and Mr. Ellis's interpretation of the estimate of those gentlemen, are adopted as a basis of the expectations entertained of the great pecuniary benefit to accrue to the rate-payers from the utilisation of the sewage. Mr. Ellis maintains that the estimate of Messrs. Hofmann and Witt, of a little over 2*d.* per ton for the manurial value of the constituents in the metropolitan sewage, refers to the average of the normal sewage and the rainfall taken together. Accordingly, he takes 266,000,000 tons, the estimated annual amount with rainfall, at 2*d.* per ton; and on the assumption of this rate of value he holds out the pleasing assurance to the rate-payers that their moiety of the profit arising from the adoption of his scheme of utilisation would be "an annual sum of not less than 700,000*l.*" I, on the contrary, have repeatedly maintained that it is perfectly clear from the report of the main drainage referees, embody ing that of Messrs. Hofmann and Witt, that their estimate of 17*s.* 7*d.* per 100 tons, or a little over 2*d.* per ton, refers to the normal sewage without rainfall; and, accordingly, in calculating the total annual value, they took into account only the amount of sewage exclusive of rainfall, which may be stated in round numbers as averaging only about three-fifths of the total quantity, inclusive of rainfall. I further maintain that, especially under the then existing conditions, it would have been absurd in the extreme to attempt to determine the average composition of the sewage by the analysis of samples of the essentially variable diluted sewage inclusive of rainfall, unless indeed of specimens taken almost the year round. But all my appeals to the public document itself have been met by Mr. Ellis, and some of the advocates of his scheme, by contradiction, by irrelevant quotations from it, by pretty direct accusation of falsehood, and by most unfair and entirely unfounded imputations of unworthy and interested motive on my part in making the statements, which it is alleged are untrue. I have thought it only due, therefore, both to the ratepayers who are so much interested in the matter, and to myself whose veracity and motive have been publicly called in question, to request statements for publication from the authors of the report. The following are copies of the letters which have been kindly furnished to me by Professor Hofmann, the surviving analyst, and by Captain Douglas Galton and Mr. James Simpson, C.E., the surviving Main Drainage Referees.

(Copy.)

"Royal College of Chemistry, October 14, 1863.

"My Dear Dr. Gilbert,—On referring to the report made by the late Mr. H. M. Witt and myself to the Main Drainage Referees in 1857, I find you are perfectly correct in stating that our estimate of 17*s.* 7*d.* for the manurial value of the constituents in 100 tons of the metropolitan sewage (equal a little over 2*d.* per ton) is founded upon the analysis of samples of mean sewage taken from the Savoy Street sewer. I also find that the amount of sewage which the samples in question were supposed to represent, was according to the information furnished to us by the referees, taken at 95,000,000 gallons per day, and their report (p. 14) shows that this was the estimated amount of the dry weather sewage. Reckoning the total amount of the normal dry weather sewage, in accordance with the above information supplied by the referees, at 95,000,000 gallons per day or 157,625,250 tons per annum, we arrived at 1,385,540*l.* as the total annual value of the constituents of the metropolitan sewage. You are at liberty to make whatever use you may like of this letter.—I remain, my dear Dr. Gilbert, yours very sincerely, A. W. Hofmann."

"Dr. Gilbert, F.R.S., F.C.S."

(Copy.)

"London, December 4, 1863.

"Dear Sir,—With reference to the question contained in your letter of the 18th ult., we beg to state that the samples of sewage taken under our direction for analysis by Messrs. Hofman & Witt for the purposes of our Report on the Main Drainage of the Metropolis, were mean samples of dry weather sewage taken from the Savoy Street sewer in the manner described in the Report, and, from the analysis of these samples, Messrs. Hofmann & Witt estimated the value of the constituents in the Metropolitan Sewage at 17*s.* 7*d.* per 100 tons, or about 2*d.* per ton. Their estimate refers therefore to normal sewage without rainfall.—We are, dear sir, yours truly, Douglas Galton, James Simpson."

"Dr. J. H. Gilbert."

There is no doubt whatever, therefore, that Mr. Ellis has estimated the total sewage with rainfall, at the value per ton fixed by Messrs. Hofmann & Witt for the sewage without rainfall, and that he has thus, so far as the value is determinable on such data, overstated it by somewhat more than the amount which he informs the ratepayers will be placed at the disposal of the Board of Works for the reduction of local taxation over the metropolitan area, provided his proposition for the utilisation of the metropolitan sewage be accepted. *J. H. Gilbert, Harpenden.*

Under Draining, River Drainage, Irrigation, and Water Supply.—As under draining is extended, river drainage will become more difficult, if the water that is so rapidly discharged from the drains after heavy rains is not checked, impeded or diverted from its course to the rivers. I think this can be done with very great advantage, both to those who have drained their lands as well as to those who occupy land in low situations by the sides of the rivers. The rainfall not being greater now than formerly, we have only to deal with the water that is rapidly discharged from drains after heavy rains, so as to prevent the water from entering the rivers so rapidly as to cause overflowing, and this can to a great extent be done by a general system of irrigation, and with great advantage, as the water after heavy rains is of great value for the purpose, containing at those times a deal of valuable manure washed from farmyards, foul drains, and ditches; also from manure heaps, sheep-folds, and all lands that may have been recently manured. So that the manure that is washed away from one field is by means of the water spread over the surface of another; it is also on such occasions that we should make use of the water to spread the contents of our house sewage from the tanks and cesspools, which would add to the fertilising quality of the water, and at the same time create a more healthy atmosphere about our dwellings; and as under draining will diminish the supply of water to springs and watercourses, it may be desirable to construct reservoirs, tanks, and ponds for the supply of water in dry weather. The price of meat being high in comparison to the price of corn, many agriculturists are directing their attention to the importance of increasing the area of their pasture lands; and in doing so it is of importance that the most suitable portions should be selected for irrigation levelled and arranged with suitable ditches previous to being sown down with the Grass seeds; and it is not the water alone that falls on our own farms so much as what our neighbours may send to us that we may have to provide for, remembering that the water, as it travels from one farm to another, gathers manuring properties as fast as it deposits it. So long as the water is not impeded or retained too long in a place, it is the most important, because the cheapest element by which pasture lands can be speedily brought into a high state of productiveness; and we also have the satisfaction of knowing that we retain a deal of valuable drift and manuring properties that would otherwise be lost. *B. Ransley, Perrysfield Farm, Oxted, Surrey.*

Rabbits.—I have taken a farm of a gentleman on lease, and he has given the shooting to another gentleman; the rabbits, on a poor piece of ground, have completely eaten down a piece of Wheat, so that you can hardly see the rows, and he and his friends say it will stand out better in the spring. If so, why do not farmers the end of November eat down theirs close with sheep? I think it is quite poisoned and destroyed—what say you? *A Subscriber.*

Mangel Wurzel.—I am very pleased to give the Rev. George Wilkins the required information for the use of himself and neighbours. The Mangels referred to as producing 55 tons per acre "were plants in rows 36 inches from row to row, and the planting in the rows averaged 24 inches from plant to plant. The average weight on the 7 acres was 17 lbs. per root. The weight per acre was 55 tons 2 cwt.," (see Vol. 20, Part 2, Page 448 of the R. A. Society's Journal. Now, see *Bell's Weekly Messenger* of Dec. 5, 1859. "At the stand of Messrs. Howard, who manufacture the steam cultivating implements of Mr. Smith of Woolston, were exhibited the Mangels that are grown on the farm of the latter gentleman, and which are the result of steam cultivation. These roots, of remarkable weight and of excellent quality, were much examined, and we may safely say also much admired. There certainly were no finer roots at the Show (Smithfield Club), but very many of much inferior quality. The average weight of the crop was 55 tons per acre, and the weight of those shown on the stand ranged from 35 lb. to 46 lb. each." By this, our reverend friend will see that it is no after fetch without data. One thing I am wrong in, for by reference to the Royal Society's Journal I find that the land was subsoiled at a cost of 3*s.* per acre in addition to the 10*s.* 2*d.* already shown. That is, a subsoil plough was drawn along between each ridge with horse to the depth of 14 inches. Mr. Wilkins's Newfoundland dog weighs more than 46 lb., and therefore is larger than my largest Mangel, that would not be large enough to make a kennel for him; besides Mr. W.'s dog is not of handsome globe-like make, and requires a kennel three times larger than himself to drag his sprawling legs into; his ugly tail will frequently stick out, and more frequently than that, his ugly legs and snout. This is all fancy, mind you, for I am not possessed of such an animal. Now, if my rev. friend will just have a peep at Woolston, I will show him my land now lying in ridges, at one operation, at a cost of 10*s.* 2*d.* per acre, without the assistance of any subsoiling, ready for next year's root crop, and if he will go a little further into an adjoining field I will show him an excellent plant of Wheat after Beans, the land cultivated and drilled with 2½ pecks of each per acre at one operation by steam-power, and altogether that I am the regular "Mrs. Ramsbottom" of his story. *William Smith, Woolston, Bletchley Station, Bucks.*

Societies.

Long Sutton, Lincolnshire.—We commenced our Association about 28 years ago. Prior to that time but little attention was paid to any improvement of our agriculture, or the promotion of good conduct or skill in our labourers. I am sorry to say that at most of their gatherings in this neighbourhood, such as our village fairs, hiring statutes, &c., their great interests centered in the prowess of some rustic champion or some vulgar sports; and often the village belles had to encounter coarse and ribald conduct. At our own (Long Sutton Mayday Fair), great irregularities continually took place, which of course we were anxious to suppress. At length a few young farmers sought to promote a competition in ploughing. This was about 40 years since. We succeeded in getting up a "drawing match," *i. e.* to draw the straightest furrow across the field. This little diversion drew from the fair very many refractory young fellows who would have tried either their strength or skill in some way much less commendable. For some years we persevered with much success, till at length our Long Sutton Agricultural Association took it up. We persevered for a few years in getting up an exhibition of stock, as well as to offer a series of rewards for skill, good conduct, and industry to our labourers. Much good was effected amongst the owners and occupiers by this exhibition, but as this is not so much a breeding county as a grazing or fatting county, we after a few years decided to increase our offers of rewards to labourers, and give up the show of stock, so that in fact ours is now a Labourers' Friends' Society. I need not enumerate our premiums, they are similar to others, *i. e.* we have rewards for shepherds, waggoners, ploughmen in many classes, stackers, thatchers, drillmen; length of servitude, male and female; widows, labourers with families, ditto for working with one master, ditto for cleanest cottage and garden, ditto for best allotments, hedgers, ditchers, drainers, &c. But to these we add a novel feature for an Agricultural Society. We have a long series of prizes which we call educational. Our educational prizes are for the poor children of our schools, free or otherwise. We have commenced this series in prospect of a new order of agriculture in which our labourers will be required to know more. We have very satisfactorily proved that our best informed thinking men are our best labourers—hence this new feature which we do not confine to mere agricultural subjects; but we design to make better labourers and better house-wives, and prizes are there for both boys and girls. Reading, writing, spelling, arithmetic, making out bills of parcels, book debt bill, settlement of accounts, receipts for bill, for rent, &c., and to write and fold a note, &c. Besides they are examined in scriptural knowledge, &c.; in agricultural mechanics (for boys), in history, geography, grammar, steam-power and machinery, implements and their uses. The girls are further examined in domestic economy—*i. e.*, of housemaid, cook, nurserymaid, and attendance on the sick, &c.; then as to proficiency in sowing, knitting, and varieties in needlework; then all as to punctuality in attendance at their respective schools, including Sunday schools. These classes create great interest, and the examinations and results are very satisfactory. These are now our objects, and for 28 years we have persevered, because we saw a manifest improvement in the condition of our population, both mental and social. The prejudices existing amongst our labouring population 30 years ago are all dissipated—abandoned. Threshing by machine was then only just tolerated; mowing Wheat was a "rank injustice to the poor;" "driving the Irish" was quite common; carting the crop before the gleaners were permitted to glean was unpardonable; mowers almost demanded the right to glean after their husbands; claiming a right to carry home Potatos at picking time. These matters and others are done away with. Now every labourer is prepared for the introduction of any improvement, be it threshing by steam power, ploughing by steam power, or to use it in any other way. They don't object to reaping machines; it prevents the influx of strangers "to take away the money;" women wait patiently till the field is cleared ere they enter to glean. In fact the labourers all perceive that more and more work is the result of these innovations. Autumn culture can at once proceed as soon as the field is cleared; no waiting for the stubble to be mown. The lads and lasses are wanted to pick off the rubbish, and the women are amongst Potatos and Mangels, getting them up; the

men are aiding, and also engaged to fork over the stubbles, clean out the ditches, seeing to the under-draining, &c., preparing the land for future cropping, &c.

Produce.—There cannot remain a doubt as to the increase of produce. It is very considerable in every respect, but particularly in our root crops, for which we still retain two prizes; *i. e.*, for the best crop of Mangels, and the best crop of Swedes. It is chiefly owing to agricultural societies in general, and ours in particular for our district, that greater interest is excited. Great care is taken to prepare the land in the best style, to select the best seed, and to put it in in the best manner—and this is not all—no crop is permitted to take its chance after a successful seeding, but it undergoes careful attention and management up to the time it is harvested. There is no relaxation of efforts; every farmer is intent upon securing the best crop possible. Slovenly and bad cultivation is now unknown in the district; artificial manurings are universal and most liberal, reaching to 60*s.* per acre, besides foldyard manure. Average crops are about 5 qrs. for Wheat, 6 qrs. for Barley, 5 qrs. for Beans and Peas, 9 qrs. for Oats, 35 tons Mangels, 28 tons Swedes, 30 tons common Turnips, 8 to 10 tons Potatos. *Jno. Clarke.*

ST. AUSTELL FARMERS' CLUB.—I received a note from you about the middle of last month, in which you desired me to give you some information respecting the formation of our Club, &c. As far as my knowledge will permit I will endeavour to do so.

Our Club was formed in 1842, and consists of a President, three Vice-Presidents, and Secretary, together with about 40 members, including several honorary ones. Our meetings until within the past six months have been monthly, but owing to the bad attendance of members we have this year tried it quarterly; we find it much better, as members don't find it such a tameness as before when meetings were so often.

We have had a great many subjects discussed, a few of which I subjoin:—Preparation of land and kind of manure for Turnip crop; comparative merits of Devon, Short-horn, and Hereford; preparation of land for Barley and Oats; rearing calves—their treatment; preparing land for Mangel Wurzel; the proper time to wean lambs; breed and treatment of horses.

The Club had a meeting some time since to discuss the total repeal of the malt tax; an animated discussion ensued, in which the members were anxious for the total repeal of the duty, and were willing to co-operate to obtain that object. Manure for Wheat. Tenant right—the Club sent a guinea towards the testimonial presented to Mr. Shaw in 1849, for his exertions on the subject of tenant-right. The culture of Carrots. Atmospheric influence on the Turnip crop—in fact, I could enumerate a great many subjects, but time and space will not admit.

Our library consists of several publications, some of which I annex:—The Farmers' Monthly Magazine, the Bath and West of England Journal, Royal Agricultural Society's Journal, the Journal of Agriculture, Youatt's Treatise on the Horse, Sheep, and Cattle, Morton on Soils, Liebig's Organic Chemistry, Berry's Short-horns, Johnson on Liquid Manure, Hillyard's Practical Farming and Grazing, the Veterinarian, by Karkeek, with a great number of other very useful books.

We have a ploughing match occasionally, together with hedge making, spear making, rope spinning, &c., for which prizes are offered, by which means we obtain indirectly good labourers.

The wages for our farm labourer is 12*s.* per week out of the house; farm servants, with board, about 10*l.* per year. The female labourer gets 8*d.* per day of eight hours; harvest time her wages is 1*s.* Wages are much higher now than at the formation of the Club, as I find then a good farm labourer out of the house had 9*s.* per week, and servant in the house, 7*l.* per year.

Rent is also considerably increased, in many cases since that period of fully 25 per cent. We get a great deal more out of the land now than formerly by the means of artificial food and manuring; our sheep and bullocks also are much improved both in quantity and quality. Wool is a great deal better in our neighbourhood than it was 20 years ago.

This year we have tried Hallett's Wheat, and the dibbling process, and found it answered well; although labour was high, we found at harvest there was a saving of 20 per cent., that is in reckoning the quantity of seed put and the yield per acre, as compared with our former means of putting. Next year we intend having one of Garrett's drills as a dibbler. This I have taken on myself to do independent of the Club.

Great benefit to the neighbourhood has arisen within the last two years owing to the Club having procured samples of the different phosphates, guanos, &c., sold in the district, and forwarded them to the chemist for analysis, and distributed the result to the farmers of the district, thereby benefiting the honest manufacturer, and the contrary with the dishonest one. We find phosphates containing a goodly quantity of soluble phosphate is very beneficial to the Rape and Turnip crops grown on the land in our district. Phosphate and guano are a great boon to our part of the country; they make land that was formerly considered worthless at least worth 30*s.* per acre.

Although the farmer grows more produce now in one year than he formerly did in two, and in some cases I may say three years, he is nothing the better off, as rent, tithes, taxes, and especially the poor rates, are so extremely high there is no chance. Several farmers of our neighbourhood are leaving on that account. Mining is in such a depressed state in this district, which is one cause of the rates being high. *H. H. Roberts.*

KINGSCOTE.—The first Discussional Meeting of this season was held at Hunter's Hall Inn, recently, J. T. Harrison, Esq., in the Chair, when a lecture on "Outlines of Vegetable Physiology" was delivered by Mr. Cramb, of Tortworth. The lecturer showed the necessity of farmers acquiring an intimate knowledge of elementary principles, as the most legitimate guide to correct practice; that anything short of this is little less than a mere system of guessing. The four elementary principles that play so important a part in the vegetable economy—carbon, hydrogen, oxygen, and nitrogen, were described, and the compounds formed by their union, and their direct action upon the vegetable system, the different organs of plants, were brought under notice, the functional changes they perform, the difference existing between those bodies that possess or ever have possessed life and dead matter. Speaking of a seed, the lecturer showed that the duration of vitality depended principally on the amount of carbon, moderate dryness, and exclusion from air; on the contrary, oily and nitrogenous seeds are more prone to decompose, and some seeds part with life in the course of a few weeks.

The conditions necessary to produce germination were then explained; that owing to the difference in the excitability of seeds, all do not require the same amount of heat and water when the young shoot on springing into being is supported by the nutriment contained in the seed leaves, which principally consists of sugar and carbonic acid. The difference in the development of seed has divided the Vegetable Kingdom into two great classes, known among Botanists as Monocotyledonous and Dicotyledonous plants; and the lecturer explained the way in which the annual additions of new matter are deposited, in the one case derived from the outside and the other from the inside—hence the terms Exogen and Endogen.

The formation of roots next came under consideration: the growing points are nearly made up of water, and are consequently injured by very trifling causes; their formation is caused by the leaves, owing to the action of light and actinism, carrying on a constant succession of chemical transformations, setting in operation the absorbing power of roots, and conveying the sap through the stem, and distributing it among the remotest leaves, by a constant system of pumping somewhat akin to animal vitality; an action that can only be resolved into the indefinable principle of life. The difference in the density of solution next came under notice, showing that the greater the solidity the more sluggish absorption, and that the temperature of the earth should be constantly a few degrees warmer than the atmosphere, which can generally be secured by a proper system of drainage. The difference between the structure of the Exogenous and Endogenous leaf was explained, and the functions of perspiration and respiration, showing that in whatever way their action is impeded, the progress of the plant suffers in proportion. Some consideration was also given to the conditions requisite to enable plants to resist the greatest amount of cold without injury; the more water contained in the cells the greater the liability to be killed by frost, while on the contrary the more matured the wood the greater the resistance to cold; that if by the freezing of fluid the cells become ruptured death will follow; that all functions for the preservation of vegetable life are quite as necessary as in the animal body. In conclusion, that we had been dealing with inducted truths of what composes an organic body, what takes place within it, and the laws which act upon it; that a study of these can alone contribute to agricultural prosperity; that the farmer has gained all that mere practice can give him.

The discussion that ensued was of a practical and animating nature, and J. T. Harrison, Esq.; Colonel Kingscote, Mr. G. Thomas, Mr. F. Burnet, and several others entered fully into the advantages of draining, and having all seeds fully matured. They were aware that it was becoming more the practice of the day to cut Wheat before it was fully ripe. This was because the millers liked it better; but the opinion of most present was that Wheat cut in that state when used as seed did not come up so quick nor so strong as when fully ripe. In consequence of the lateness of the hour the discussion was agreeably brought to an end. A unanimous vote of thanks to Mr. Cramb for his excellent paper, and to J. T. Harrison, Esq., for his duties in the chair, concluded a most agreeable meeting.

NEWMARKET.—Having been connected with this Union as an officer for nearly 28 years, I can speak upon the improvements with some certainty. Until the union was formed there appeared to be a large excess of labour, which, in some parishes, became fearful, and no hope appeared, but emigration immediately set in, and removed a great portion from some parishes, and there is now frequently a shortness of hands.

The produce has in many parishes increased to a very large extent, sheep and stock in much larger quantities are now to be seen on most farms, especially around me. In cleanliness much improvement has taken place, some kinds of weeds which used formerly to infest our soil have quite disappeared, especially Garlic and others.

I consider an important improvement has taken place amongst the labouring population. Wages in those parishes which used formerly to be known as low priced, have now come up to the average* amount paid in the neighbourhood, cottage accommodation is being increased, and a desire amongst landlands to make the dwellings of the poor fit for Christian families. At one of our dinners I mentioned the subject of ventilation in cottages, the want of which, in my opinion, is the great cause of diphtheria. Ventilation has much to do with the healthiness of such buildings. The improved appearance of the labourers in the parish I reside in is striking; about 15 years since smocks were generally worn, then came fustians—a dark velveteen gave quite a character to the individual, but now everything of that kind has disappeared, except in about two cases; dark coats and waistcoats, Tweed trowsers, Wellington boots, turn-down collars and ties, with nobby hats, are the general dress upon Sundays, quite equal to their employers.

I have been at this house 15 years, and it is a remarkable fact that the instances are rare, where children educated in our house return to it when grown up, either girls or boys. I have now application for boys, but have none to supply, and I am exceedingly careful into whose hands I send them; if not well used they have liberty to return to this house. I am often told they are too well cared for; they are like gentlemen's children. Corporal punishments I have abolished, either in or out of the schools, and it is a great pleasure to me, as they frequently call to see me, after long absence, to see, as they say, their old home.

There is one subject in farming which does not appear to be understood, and I am frequently laughed at when I introduce the subject. Some years since two friends of mine left three or four acres of Clover about a foot high, as they did not require the food, and ploughed it into the land for Wheat; and they both told me the difference was striking and plain from where they had fed or mown off close to the ground. Four years since I was looking out of an old farmer's window, and I remarked the difference between the crops in the field adjoining. He said, "I should not have thought you would have noticed it, but I will tell you; that was very large pudding Turnips, and I sold them for 25*s.* per acre. The sheep came on to that side, and they began to rot so that we were obliged to send them away. This side was not folded. We spread the Turnips over the land, and I believe I have three coombs more Barley on that portion than on that which was folded; thus showing the sheep had carried off the land if Barley was at 15*s.* per coomb, 20*s.* per acre instead of leaving anything behind them." I often put the question: suppose you fold 100 sheep upon 20 acres of Turnips, and they were worth 40*s.* each when they were put upon it, and when they have eaten these off, are worth 50*s.* each. From whence has the increase arisen? It is quite evident the soil has given up some peculiar quality, which renders it of less value and diminishes its power to produce the like amount without replenishing; thus growing animal food at a loss, and sending to the South Seas for fertilisers. A small piece of land which produced me eight quarters of Barley per acre, from the loss of shelled corn, is now covered with a green crop from 9 inches to a foot high. I have had several offers to feed it off for me, but I consider its rotting upon the land will be of more profit. *Chas. Clarke, Hon. Secretary to Newmarket Farmers' Club.*

WIRRAL.—I feel confident that much good has been effected by our two Agricultural Societies in this "agriculturally" isolated part of Cheshire, for truly it was 20 years since, and even more recently than that, a most benighted part of the world in that respect—but has since that period made most rapid strides in the way of improvement, and which is still progressing rapidly; for certainly a good deal yet remains to be done. Strings of carts laden with pipe tiles for draining, pass my cottage daily from the adjacent railway station to the Earl of Shrewsbury's farms, and new farm-houses are also springing up on this hitherto large, but till recently neglected estate. The "Wirral Agricultural Improvement Society" (discussional), was established in the spring of 1849. The other Society, Wirral Agricultural Society, or commonly called or miscalled the "Wirral Farmers' Club" for rewards to labourers and for show of stock, was established a few years earlier, I think in 1842, and to prove that the interest taken in that Society has increased, I will mention that in 1849 I find the annual subscription was 49*l.*, while in 1862 it was 340*l.*; in 1863 I believe it will be more. Under its auspices the art of ploughing has arrived at great perfection, and is second to none in any part of the country, and the annual contest in the spring greatly excites the labouring population; up to four years since only one annual meeting was held in the spring, now we have one in the autumn also, for the show of live stock and produce. To show you the progress of the district, I beg to refer you to "A Selec-

* Coprolite digging has something to do with the rise of wages

tion from Papers read before the Wirral Agricultural Improvement Society," a copy of which I hope to send you by this post, where at pages 6, 7, 8, 9, and 10 you will find the particulars you require, for in it there are extracts from the prize report by Mr. Palin on the "Agriculture of Cheshire" in 1844, and his remarks (very disparaging) on this district of Wirral—and its present state contrasted. I myself came into this part in 1845, and can vouch that nothing is overdrawn. At that time little land was drained, and no sheep kept regularly; a few very ill-bred Irish sheep were driven through the county in the summer, and a score or two bought here and there for very little money, and an attempt made to fatten them. Now large flocks of superior Shropshire down ewes and some Cheviots are kept all over the Hundred; indeed, it is the prevalent opinion that the produce of the district by the improved methods pursued is trebled, but of course this is only conjecture

With regard to the subjects brought forward at the monthly discussions of the Improvement Society, I will state that we began in 1849 and following year with small practical matters, such as "the work on the farm," immediately following the monthly meetings, till we had gone through the whole course of husbandry, and we published our opinions in a small pamphlet, which I think might yet be read by a young beginner with some advantage to himself. I am sorry I have not a copy I can spare to send you. Since that time we have introduced subjects of general as well as local interest. The majority of the members are in favour of leases, and we have spent several evenings in endeavouring to frame a good lease, in which to the best of our knowledge we introduced such clauses as we considered would fully protect the landlord without restricting the tenant, except the last three or four years of the lease.

The inequality of weights and measures and proposed remedies for it occupied much of our time and attention, and we communicated with many societies on the matter throughout the kingdom. We succeeded in stirring up the powerful body of the Liverpool Corn Exchange Company, and the cental was introduced at first in Liverpool for all kinds of grain, but unfortunately prejudice set in strong against the innovation, and a compromise was at last agreed upon (tantamount to a defeat), that Wheat should be sold by the cental of 100 lbs., and the other grains remain at the various weights before in use, such as 45 lbs. for the bushel of Oats, 60 lbs. for Beans, Indian Corn, &c. Another object we attained, viz., establishing a market in Birkenhead for the sale of hay, straw, Turnips, &c., now in full force. Also we established an annual wool fair at the same place. Again, we well discussed and proposed a system by which agricultural statistics could be taken and no farmer's affairs be made public. We also attended in a body at an agricultural discussion at Chester on "Farm Agreements," and other subjects; and although we took no part in these discussions, it produced the little work I also send by post, called "Five Letters by a Tenant Farmer," one of our little body. Again, we went in a body by invitation to view some leading farms in the adjoining county of Lancashire, and compare notes with them on their quite different system of agriculture.

Our principal discussions, however, as you will see by the book sent, are on practical subjects of agriculture as best adapted for our district, and I think I may say (though all certainly are not yet converted to the opinion), that such meetings of farmers acting together and searching after truth, and joining to carry into execution any new work required by the growth of the neighbourhood and the general advance of agriculture everywhere, cannot fail to benefit ourselves, the farmers generally, and the public; and perhaps though last, not least, the landlords.

We are now comparing our own plans of farm buildings with a model which obtained a prize at the Manchester and Liverpool Show held at Birkenhead, which model, by the way, was made by a farmer, one of our best members.

N.B. Rents have greatly advanced in this neighbourhood, doubled in some cases. Skilled labour is scarce, and has also advanced about a sixth. *W. B. Burnham.*

THE VALE OF ALFORD AGRICULTURAL ASSOCIATION (Aberdeenshire, Scotland), was instituted in the year 1831, and is now 32 years old. "The object and attention of the Society," says one of its rules, "shall be directed to encourage the rearing, fattening, &c., of farm stock, by granting premiums for the best specimens exhibited at shows; to promote the attention and reward the industry of tenants, farm servants, labourers and artificers; to obtain the earliest and best information of all discoveries and improvements connected with agriculture, and to disseminate the same, and in general to advance by every means in its power, the agricultural interests of the district."

The subscription constituting a member of this Society is only 7*s.* 6*d.*; it was formerly 10*s.* 6*d.* yearly. The Right Hon. Lord Forbes is the perpetual President, and his lordship contributes handsomely to the funds of the association by a liberal yearly donation.

Its meetings are appointed to be held at Bridge of Alford twice in the year, on the 12th March and on the 1st August, or on the day following when either of these days falls on a Sunday. As the members do not turn out so well at two meetings in the year, the spring meeting is now generally dispensed with; the other meeting almost always comes off in the first or second week of August. A handbill of our last show is herewith sent, which will give you some idea of the nature of our Society. Not a few subjects have been discussed at one time or other at the Society's meetings, but these discussions have not been recorded or reported.

The handbill herewith sent will show you the nature of the premiums given at the spring show (when held). Nothing now sent requires to be returned.

That this Agricultural Society has been the means of improving the breed of cattle (as well as many other things), admits not of a doubt. It was at some of its shows that Mr. McCombie's, of Tillyfour, stock was first exhibited and excited notice, and which has now gained him European fame as a breeder of Aberdeenshire's. Short-horns have been also introduced, and being of quicker growth than the Aberdeenshires, are thought by some to be more remunerative than the native breed. The beef, however, of the Aberdeenshires has the preference in the London market, brings the best price, and even reaches the table of Royalty itself. So much has the breed of cattle been improved in this locality within the past 20 years, that a crofter (a person occupying from, say, 2 to 10 acres of land) possesses now-a-days fully as good a cow, perhaps a pair, equal in size and quality to any that might have been found a few years ago in the herd of the largest farmer. This Society has also this year given a stimulus, a thing much needed, to the breeding of pigs (see the accompanying handbill) through sundry premiums for that class of animals kindly granted by the Highland Society of Scotland, and which are promised to be continued for the next two years. These premiums were keenly contested, and new blood of the most approved sort has already been brought into the locality. Pigs and their right breed have not had, in this part of the country, that attention paid to them that they deserve—which is not a little astonishing, seeing that no animal is more profitable, nor more easily kept.

Within the last 20 or 30 years the rent of land has been yearly increasing, till it is now believed to be at its utmost pitch. Railways have been lately introduced. Farm servants' wages, men and women, are higher. Much land has been reclaimed from bogs and barren moor, especially since the introduction of guano. Much land formerly under the plough, but next to barren owing to wetness, has been furrow-drained and made fruitful. Grain crops have been for many years past cut with the scythe in place of the abandoned sickle, but reaping machines have been tried this year in different places. On all farms the flail, that ancient tedious laborious implement, has been many years ago laid aside, having given place to threshing mills driven by water or horses, and portable steam-mills. Rearing and feeding cattle for the Aberdeen, London, and other markets, occupy much attention. Wherever new houses are being erected for man or beast, these houses are neat and commodious—great improvements on the old ones.

The only great drawback to our agriculturists of the present day is the low price of all sorts of grain, which cannot remunerate the farmer; and the high price of our native beverage, whisky, which he can well live without. There is something absurd in a gallon of whisky costing more, 1*s.* or 2*s.*, than a quarter of Oats. A small quantity of our own native drink—the wine of our own country—agrees far better with a Scotch stomach than any quantity, small or great, of rot-gut French wines. We ought to be thankful that we have plenty of cold water, untaxed, to quench our thirst. But our native drink should not be put almost beyond our reach. *Hugh M'Connach, Sec. and Tr., Crobhlair, Alford.*

P.S. I may venture to add that within the last 20 years servants wages have risen 75 per cent., land about 50 per cent. *H. M'C.*

Reviews.

The Companion to the Almanac, or Year Book of General Information for 1864. Knight & Co., 90, Fleet Street.

This volume, which has now reached its 37th annual edition, is this year particularly interesting, containing, besides the usual statistical and historical information, essays on the Occupations of the People, by Mr. Knight; on the Physical Constitution of the Sun, by Mr. Brayley; on the Employment of Children in Trades, by Mr. Plummer; on the Royal Academy Commission, by Mr. Thorne; on the Fire Insurance Duty, by Mr. Dodd; on the War of Secession in America, a mere chronology; and on Architecture and Public Improvements. The following extracts may be properly republished in these columns:—

ABSTRACTS OF PUBLIC ACTS.

MISAPPROPRIATION BY SERVANTS.

[26 and 27 Victoria, cap. 103.—July 28, 1863.]

An Act to amend the Law in certain cases of Misappropriation by Servants of the Property of their Masters.

Servants taking their master's corn (§ 1) without authority, for the purpose of giving the same to their master's horses or other animals, are not in future to be deemed guilty of felony; but on conviction before two justices of the peace, may either be imprisoned with or without hard labour, for any term not exceeding three months, or else forfeit and pay such sum as they may deem meet not exceeding 5*l.*; but the justices have the power to dismiss the case altogether if deemed too trifling, or if the circumstances render it inexpedient to inflict any punishment; and if upon the trial of any servant for feloniously taking his master's corn or other food for cattle, he satisfy the jury that it was only an offence under this Act, the jury may return a verdict accordingly, and the punishment to be awarded shall be such as the provisions of this Act prescribe. Power is given (§ 2) of appeal to the next quarter-sessions within twelve days after conviction; and no conviction or adjudication on appeal (§ 3) is to be quashed for want of form, and no warrant of commitment to be deemed void by reason of any defect therein, provided it be alleged that the person has been convicted and there be a good and valid conviction to sustain the same. Summary proceedings are to be taken (§ 4) under the 11 and 12 Vict., cap. 43, except in London and the Metropolitan district. The Act (§ 5) extends to England only; and commenced (§ 6) on September 1, 1863.

POISONED GRAIN.

[26 and 27 Victoria, cap. 113.—July 28, 1863.]

An Act to prohibit the Sale of Poisoned Grain or Seed.

Every person offering or exposing for sale or selling any grain, seed, or meal which has been steeped in poison, or with which any poison or other ingredient has been mixed, so as to render it calculated to destroy life; or who shall knowingly and wilfully "sow, cast, lay, put, place, or cause to be so done, any such grain, seed, or meal," is subject to a penalty not exceeding 10*l.*, to be recovered by summary process, and half the penalty to be paid to the informer, if not a police constable or peace officer; and any one giving evidence is discharged from the offence in case he has been a participator, provided he give the evidence before an information has been laid against himself. But "nothing in this Act shall prohibit the offering or exposing for sale or selling or the use of any solution or infusion, or any material or ingredient for dressing, protecting, or preparing any grain or seed for *bonâ fide* use in agriculture only, or the sowing of such last-mentioned grain or seed so prepared."

The Agricultural Class of the People.—This class is divided into two orders, the first amounting to 1,924,110 persons; the second to 86,344. The sub-orders sufficiently define the orders. It is noted, however, in the Census, that in addition to those here returned, many persons connected with the land, as proprietors or occupiers, are returned under other heads, according to their professions or occupations. The distinctive employments of males in the first sub-order are—Land Proprietor, 15,131; Farmer, Grazier 226,957; Farmer's son, grandson, brother, nephew' 92,321; Farm Bailiff, 15,698; Agricultural Labourer' out-door, 914,301; Shepherd, out-door, 25,559; Farm, servant, in-door, 158,401. There are also of Land Surveyors, &c., 4,702; and, an entirely new denomination—Agricultural Student, 490. The mechanised improvements of modern husbandry are indicated by 236 Agricultural Implements Proprietors, and 1205 Agricultural Engine and Machine workers. 1761 persons are also returned as belonging to Land Drainage service, not in towns. Of the two other sub-orders, there are—Woodman, 8907; Gardener, not domestic servant, 76,760. Of Female Agriculturists, there are, Land Proprietor, 15,635; Farmer, Grazier, 22,778; Farmer's, Grazier's Wife, 163,765; relatives living on the farm, 83,830; Agricultural Labourer, out-door, 43,964; Farm servant, in-door, 46,561.

The great fact connected with the agricultural class is, that the labourers are not increasing relatively to the increase of population. It has been held, indeed, that there is a positive decrease within the last few years. Some apprehension has been felt that this fact is one of the symptoms of national decay. It may be viewed as an evidence of the direct contrary. Scientific improvements are turning the mere physical labour into skilled labour, and the condition of the farm labourer will be proportionately improved. As the improvement goes on he will obtain better wages, more food, and some better home than a ruinous hovel.

Farm Memoranda.

STAPLEFORD HALL, NEAR CHESTER.—Farm contains 250 acres. Of this 114 acres are in pasture, 28 acres meadow not irrigated, 10 acres meadow irrigated, 17 acres Wheat, 17 acres Oats, 12 acres Barley, 3 acres Clover and Vetches for stall feeding, 15 acres Clover and seeds for mowing, but pastured with ewes and lambs till the end of May, 7 acres Potatos, 12½ acres of Turnips, 5½ acres Mangels, 4 acres orchards and gardens, 5 acres homestead, plantations, and roads.

Customary Rotation.—First, ley Oats; 2d, Wheat; 3d, root crop; 4th, Barley, seeded Clover, seeds mown the first year, then pastured three or four years.

Live Stock consists of 8 horses, 6 colts, 50 dairy cows, 14 heifers, 220 sheep and lambs, 40 pigs, and 17 calves; total, 355. Stock pastured in summer, horses sometimes soiled. In winter fed on straw and roots till the end of January; then hay, roots, corn, and cake.

Make annually about 400 tons of manure, which is

applied principally to root crops. Make also a considerable quantity of compost of sand, urine, and dung, and applied to meadow. In 1853 purchased 60 tons of lime, and applied it to Clover root intended for Wheat. Cost 30*l.*, besides labour and carting four miles. Four tons were applied per acre. The improvement was more visible in the green crops than in the Cereals.

I have paid 28*l.* a year interest for an outlay for bones by my landlord upwards of 20 years, which were applied to permanent Grass. In March, 1860, this land was renovated by a second application of bones, 10 tons being applied to 20 acres, at a cost of 60*l.* In 1861, 18 tons were applied to 34 acres of old Grass, at a cost of 140*l.* I frequently apply 2 or 3 tons of artificial manure annually to root crops, at a cost of 15*l.* to 20*l.* per annum. This is chiefly prepared bones.

All the land has been drained which required it, and was done previous to 1853, when the prize for the farm was awarded me. In 1858 I marled 10 acres for Wheat, and 1 acre for Turnips, with 96 cubic yards per acre, and cost 5*l.* per acre. The sample of Wheat gained the medal at Liverpool for the best white Wheat. Upwards of two miles of new fences have been planted, but previous to gaining the last prize for the farm.

In 1860 improved 4½ acres of meadow by draining, eradicating old fences, and planting new, to the extent of 726 yards, and cost 8*l.* Landlord finding Quicks and paid for cutting the main drain.

July 22, 1862. (Signed) WILLIAM PALIN.

INSPECTORS' REMARKS.

Mr. Palin's farm is not very well situated for good public roads. In markets and climate about on an equality with his opponent. Thirty-five acres of land is detached, and is a light sandy loam, and under arable cultivation. The remainder of the arable land is a good deep strong loam. The meadow land mostly an alluvial soil, lying on the banks of a brook. The pasture a stiff clay soil, of good quality, lying upon marl.

Potatos, mostly early varieties, and taken up, and second crops put in, of Mangels, Swedes, and common Turnips. Early sown Mangels, not healthy looking, but plenty of plants. Had Maggots in the leaf. Swedes had only been sown 10 days, but were well up and healthy. All the root crops clean, as well as the headridges around. A 5 acre piece of wheat, 4 acres a good average crop, and one acre very bad; 11 acre field of Wheat, after Oats, a very fine thick crop of good colour, and stood well. Oats a splendid crop of 5 feet high, thick on the ground, and stood well. Barley about an average crop, good seeds at bottom. Clover and seeds, pastured to the end of May, and then left to mow, was promising for a heavy crop of good quality. The old meadows, both those irrigated and those not irrigated, were full of good Grass, a very thick crop. A 15 acre field of third year's lie, in pasture, was bare of Grass, and did not appear very productive. The remainder of the pasture, mostly old turf, amounting to near 100 acres, and including the new boned land, was full of good herbage, and evidently in a very productive state.

The hedges on the farm very good ones, and on the Grass part left to grow up for shelter to the live stock. The gates, posts, roads, and watercourses in proper keeping. Gardens and rrchards very extensive, and in good cultivation. Mr. Palin raises a considerable quantity of Turnips and Mangel seed from well selected roots.

The homestead is commodious, and well arranged in all the various departments. The various descriptions of live stock were of good average quality. The implements well selected for use. Attention being properly paid to all the departments of the concern, both indoors and out. *Report of the Manchester and Liverpool Society.*

Miscellaneous.

Bath Cheese.—To 1 gallon of new milk add 2 quarts of cold spring water, rennet sufficient to turn it (not hard); take it gently out with the skimming dish and lay it in the vat until full; put a weight upon it, and apply dry cloths for a day or two when turned out on a plate with another over it, and turned occasionally. They are ready in about a fortnight.

Breeding the Sexes.—The *Archives des Sciences* for September, 1863, contains a communication from a Swiss agriculturist, stating that in February, 1861, he received from Professor Thury of Geneva, a letter containing confidential instructions which he was to carry out for the purpose of experimentally verifying an assumed law regulating the production of the sexes amongst animals. The result was, that in 22 successive cases females were obtained according to desire. The animals bred from were Swiss cows, and a Durham bull. M. Cornaz then purchased a Durham cow, and desired to procure by breeding a Durham bull, in which he succeeded. He also desired to breed six bulls crossed between Durham and Swiss, and by selecting cows of the colour and height he wanted, he was again successful, and regards Professor Thury's method as of the highest importance to breeders of cattle. The law enunciated by Professor Thury, and confirmed by M. Cornaz, is that sex depends on the degree of maturation of the egg at the moment of fecundation. In uniparous animals fecundation at the commencement of the rutting period gives females at its termination, males. In multiparous creatures the first eggs that descend from the ovary generally give females, the last males; but M. Thury says that in the second generative period that succeeds the first, circumstances are considerably changed, and the last eggs give females. Many of our rural readers engaged in agriculture will be able to verify these curious statements, which may have an important influence on the profits of farming. *From Intellectual Observer, Nov.* 1863.

Calendar of Operations.

DECEMBER.

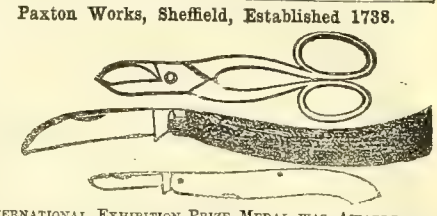
WEST SUSSEX: *December* 19.—After a rather wet season for Wheat sowing, we have now got dry and mild weather, such as we seldom get at this season. There are still some patches of Wheat to sow after Rape, as it is a practice with many to sow from time to time up to March. The Wheat generally up looks well, and in many places is by far too thick, as for tillering, it is impossible for the blades already up to find room for healthy growth. But there is always a false appearance of vigour about thick seeding when the plant first comes up that makes thin seeders almost regret their practice; it is only as the spring advances that they begin to feel thoroughly at ease. And it is no wonder that thin sowing is very cautiously adopted. But there is no doubt that there has been little allowance made for the better quality of the seed this year. There has already been a good deal of corn threshed out, and the yield, though good, is not more than was expected, and as the price is low it is not likely that more money will be made of it than last year. But stock farmers must have rather the best of it at present, as every kind of lean stock commands a good price; indeed it hardly leaves a chance for fatting to pay its way. Lean Devon steers, 30 months old, are from 13*l.* to 17*l.* each, and others in proportion, while Down ewes that are now about to lamb, range from 40*s.* to 50*s.* each, if about the size that will come out by ordinary feeding about eight and a half stones; so that we can hardly expect to get the lamb quite clear without feeding the ewe pretty highly. There are already a good many horned ewes lambed, but the suet, so far as I have heard, is not very good, and the quality of the lambs is seldom what it ought to be. It appears that little trouble is taken to get a good down ram for the ewes, and this perhaps is not to be wondered at, as the owners at the time they go to ram are not likely to see anything of the lambs, and only uphold them to have been put to a down ram, but it would be well if a little more care were taken in the selection of the rams. As might be expected sheep do pretty well in the field, but lameness is rather prevalent among them, perhaps owing to the dampness of the season. There has been a pretty good supply of stock sheep in the market, but they all sell well; wether lambs nine months old have been sold at 44*s* and 46*s.* each; lean pigs have been low at all ages, though lately strong ones fit for putting up to fat have got dearer. Fat pigs are worth about 3*s.* 10*d.* per stone if not over 25 stones and good, but many are sold at not more than 3*s.* 6*d.* Though Swedes are not a very good crop, yet Turnips have kept growing all through the autumn, so that there will be more feed than we expected at one time, and the mildness of the season has spared the hay. Potatos, though a good crop, have not kept well, perhaps owing to many of them having been dug before they were ripe, and the price most of them have been sold at has been about 3*s.* per cwt. Work is well forward, and the chief thing now is ploughing up the stubble land for roots when the weather permits, and providing for live stock. *G. S.*

METEOROLOGICAL OBSERVATIONS—BERKSHIRE.

By the Rev. J. SLATTER, Streatley, near Reading.

Day of the Week.	Day of the Month.	At 9 A.M., Railway Time. Barometer corrected to Freezing Point at Mean Sea Level.	Thermometer. Dry Bulb.	Thermometer. Wet Bulb.	Wind. Direction.	Wind. Force, 0–6	Amount of Cloud, 0–10.	Reading of Self-Registering Thermometers. In Shade. Max.	In Shade. Min.	Max. in Sun.	Min. on Grass.	Rain fallen in previous 24 hours on the Ground.
	Dec.	Inches.	°	°				°	°	°	°	Inches.
Friday ..	18	30.49	31	30	N.	0	2	45	27	51	20	..
Saturday ..	19	30.48	43	42	N.W	0	8	45	31	49	27	..
Sunday ..	20	..	..	..	N.W.	0	10	..	..	..	..	..
Monday ..	21	30.17	44	44	W.	0	9	49	35	53	27	0.05
Tuesday ..	22	29.90	41	39	N.W.	4	8	44	40	53	34	0.03
Wednesday ..	23	30.01	40	37	N.W.	3	5	40	26	45	10	..
Thursday ..	24	30.19	47	45	N.W.	3	10	48	39	52	36	..

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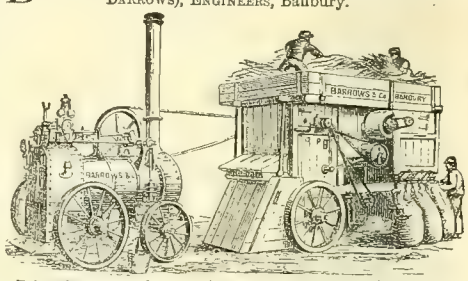


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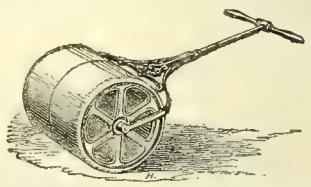
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,, 16 inches, ,, 17 inches ..	..	2	10 0

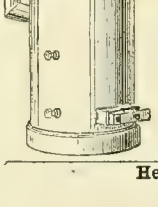
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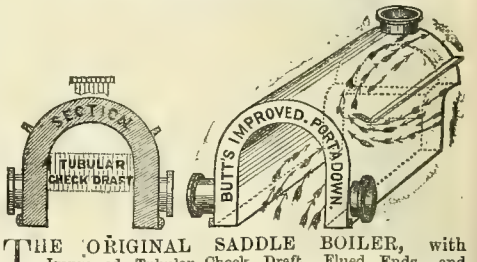
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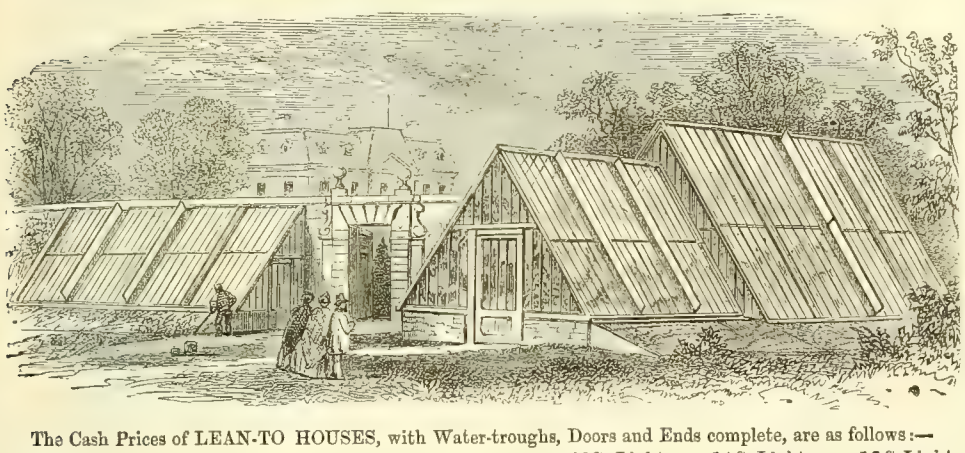
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41	11 in length	20 18 0	26 18 6	42	7 in length	36 16 0	46 14 0	57 7 0
63	3 in length	30 6 0	38 10 0	64	3 in length	51 14 0	64 18 0	80 10 0
84	7 in length	39 6 0	49 11 6	85	11 in length	66 12 0	83 2 0	103 11 0
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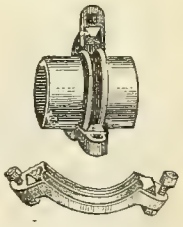
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25 feet by 12 feet	10 5 0 ...	2 5 0	50 feet by 15 feet	18 0 0 ...	3 0 0

Erections beyond 25 *miles of London, Railway Fare for one Man charged extra.*

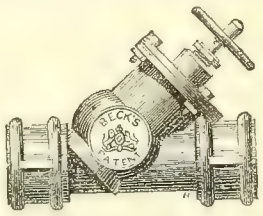
By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

BECK'S

PATENT HOT-WATER VALVES



AT GREATLY REDUCED PRICES, viz.:—

2 In.	3 In.	4 In.
12s. 6d.	16s. 6d.	20s. 0d.

Upwards of 4000 *of the Patent Valves are now in use and giving the greatest satisfaction.*

JOHN BECK can also supply large quantities of his

IMPROVED THROTTLE VALVES

on the shortest notice.

JOHN BECK,

PATENTEE AND MANUFACTURER

OF EVERY DESCRIPTION OF

GAS, WATER, and STEAM FITTINGS,

FIRE COCKS, WATER CLOSETS, ETC.

PATENT VALVE WORKS

AND SANITARY DEPOT,

GREAT SUFFOLK STREET, LONDON, S.E.

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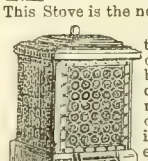
SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.



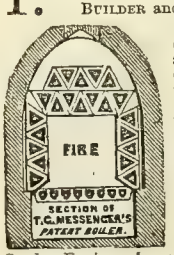
It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW HOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

T. G. MESSENGER, HORTICULTURAL BUILDER and ENGINEER, Loughborough.

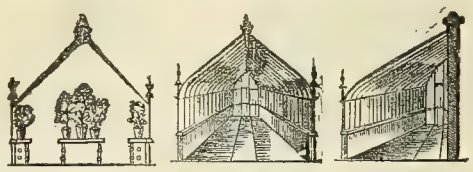


T. G. M.'s PATENTED BUILDINGS combine all the modern improvements, are most effectually ventilated by means of his unequalled Apparatus, can be made either plain (and which are at the same time elegant in appearance), or of the most elaborate design. They can be fixed as permanent buildings, or made to be portable.

T. G. M.'s HEATING APPARATUS continues to give the greatest satisfaction for its heating qualities and small consumption of fuel.

ILLUSTRATED CATALOGUES of the above, Glazing without Putty, Garden Engines, &c., sent upon application.

DENNIS'S PATENT METALLIC HORTICULTURAL BUILDINGS are made from the

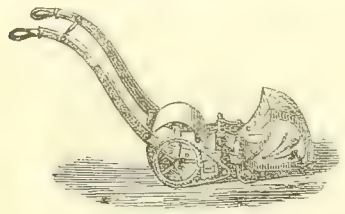


best Wrought Iron, upon an entirely new principle. The combination of Iron and Glass under this patent is perfect; the possibility of fracture is prevented, and a permanently Water-tight Roof insured.

The leading practical advantages are extreme smallness of Framing, admitting a maximum of light and heat, great strength, durability, and perfect ventilation. They are speedily erected, partake of more desirable outline, and do not exceed the cost of a perishable wooden structure

For Prospectus, &c., address T. H. P. DENNIS, Horticultural Builder, Hot-Water Engineer, &c., High St. Chelmsford, Essex.

GREEN'S LATEST IMPROVED PATENT NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES, which gained the First Prize Medal of the International Exhibition.



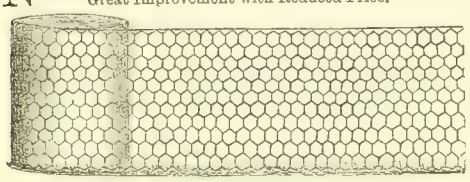
Patronized by Her Most Gracious Majesty the Queen during the seasons of 1862 and 1863.

These Machines have proved to be the best, and have carried off every prize that has been given in all cases of competition.

ILLUSTRATED PRICE LISTS on application.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 2, Victoria Street, Holborn Hill, London, E.C.

NEW IMPROVED PREMIUM WIRE NETTING.
Great Improvement with Reduced Price.



PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for.	Light. Jap	Light. Gal	Medium. Jap	Medium. Gal	Strong. Jap	Strong. Gal	Extra Strong. Jap	Extra Strong. Gal
		s. d	s. d	s. d	s. d	s. d	s. d	s. d	s. d
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits Hares, &c	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 8
½ in.	Smallest Rabbits	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
	or, Pheasantries, &c	0 9	0 11	10½	1 1	1 3	1 6	1 9	2 0
[illegible]	[illegible]	1 0	1 3	1 3	1 6	1 6	1 9	[illegible]	[illegible]

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.

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Lists Free on application. Every article guaranteed to be satisfactory.

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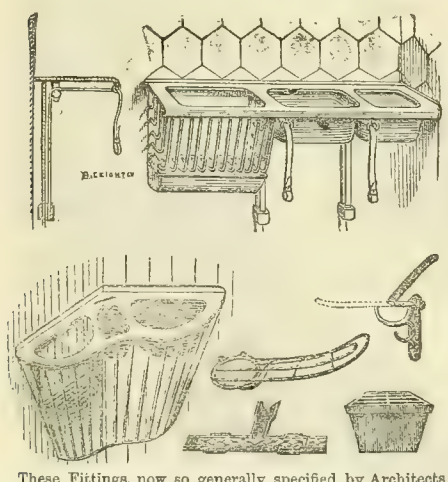
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Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 76, Cannon Street, E.C., from whom only it can be obtained.

COTTAM'S PRIZE STABLE FITTINGS and HARNESS BRACKETS.



These Fittings, now so generally specified by Architects in their specifications, may be seen at the Manufactory, 2, Winsley Street, Oxford Street, W., where a large supply is always on hand and regular sizes kept in stock, and where full-size Stalls and loose Boxes (variously arranged, with a view to the economy of space) can be examined.

COTTAM & COMPANY, Manufacturers and Patentees, hold the Prizes of 1851, 1855 (Paris) and 1862, for these Fittings.

*** Apply for No. 3 Catalogue, to be had free of COTTAM & Co., 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

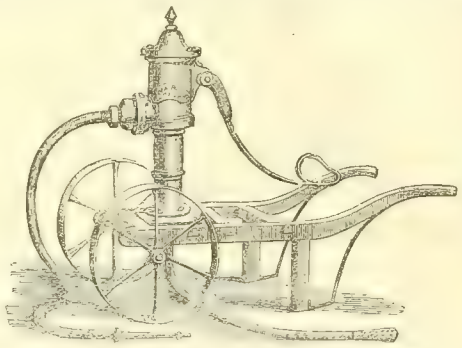
JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

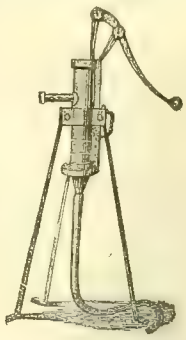
HYDRAULIC ENGINEERS, BRAZIERS, and MANUFACTURERS of PUMPS, COCKS, and CLOSETS OF EVERY DESCRIPTION.



No. 35.



No. 36½. IMPROVED CAST-IRON LIFT AND FORCE PUMP.



No. 42.

No. 35. PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

2½ inches ... ... 1 foot 7 inches high ... £1 1 0 | 2½ inches ... ... 3 feet 3 inches high ... £1 10 0
2½ inches short, with 15 feet of Lead Pipe attached, ready for fixing £2 0 0
2½ inches long, ditto ditto 2 14 0

No. 36½. WARNER'S IMPROVED 3-INCH CAST-IRON LIFT and FORCE PUMP, mounted on Barrow, with Suction and Delivery Screw, 18-inch Branch Pipe and Spreader, and Suction Rose £5 15 0

1¼-INCH 2-PLY RUBBER and CANVAS HOSE ... ... at per foot 0 1 4

2½-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 3*s.*) 3 0 0

3-INCH LIFT and FORCE PUMP (Mounted on Plank, 3*l.* 15*s.*) 3 10 0

Larger sizes of any of the above.

By an improved and new action of the handle, this Pump is so constructed that a great deal of friction is avoided; an air vessel is secured, and by introducing a brass lining into the barrel, with brass bucket and sucker, many of the objections to iron pumps are overcome. By this Pump ONE MAN WILL FORCE THE WATER in a continuous stream TO A HEIGHT OF 50 FEET.

When mounted on a barrow it forms a cheap, useful, and portable Fire Engine or Garden and Field Irrigator. The simplicity of its construction enables it to be offered to the public at a less price than any other Pump of equal capabilities.

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4½-inch LIQUID MANURE PUMP, with legs, 2*l.* 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the Legs are 5 feet high.

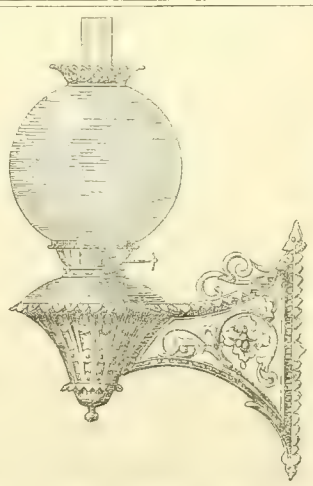
The above may be obtained of any Ironmonger or Plumber in Town or Country, or of the

PATENTEES and MANUFACTURERS,

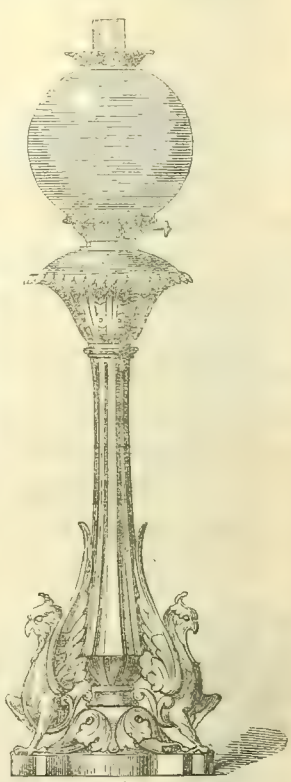
JOHN WARNER AND SONS, 8, CRESCENT, CRIPPLEGATE, LONDON, E.C.



No. 12.



No. 20.



No. 1.

WARNERS'

IMPROVED

KOH-I-NOOR LAMP,

TO BURN

HYDRO-CARBON OILS.

J. WARNER AND SONS have much pleasure in informing the public that they have produced a Superior LAMP for Burning any Description of Hydro-Carbon or Mineral Oils, and can, with great confidence, recommend the same as the best Lamp yet offered for the purpose.

The LAMP is easily Trimmed, the Wick requires Cutting but seldom, and a beautifully Brilliant and White Light is produced without either Smoke or Smell, combustion being more perfect than in Lamps with the common Flat Wick.

The LAMP is introduced as a Pillar Lamp for the Dining or Drawing-room, as a Bracket and Hanging Lamp for the Hall, or Public Assembly Rooms.

They are Ornamental in appearance, Strong, and of First-class Workmanship.

THE ABOVE FIRST-CLASS LAMPS TO BE OBTAINED OF ANY LAMP DEALER.

Greenhouses, Orchard-houses, and Conservatories.

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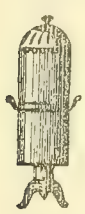
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E. DENCH being about to DISPOSE of his HORTICULTURAL BUSINESS, has on hand a considerable number of VINERIES, GREEN and HOTHOUSES, which he will dispose of at a low price to clear his premises.

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HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Builders' Castings of every description in stock, at

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The only Stove without a Flue.

JOYCE'S PATENT, for Warming Chapels, Halls, Shops, Conservatories, and all other Places. Price from 12*s* 6*d.* each.

JOYCE'S STOVES are Portable and Economical, and burn 12 hours with one supply of fuel, requiring no attention.

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Illustrated Catalogues post free.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles. Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump, Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

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CHUBB'S FIRE-PROOF STRONG ROOM DOORS. CHUBB'S PATENT DETECTOR LOCKS and STREET DOOR LATCHES; CHUBB'S CASH and DEED BOXES.

Illustrated Price List gratis and post free.

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FURNISH your HOUSE with the BEST ARTICLES: they are the cheapest in the end.

DEANE'S—Celebrated Table Cutlery, manufactured in every variety of style and finish.

DEANE'S—Electro-plated Spoons and Forks, best manufacture, strongly plated.

DEANE'S—Dish Covers and Hot-water Dishes. Prices of Tin Dish Covers in sets, 18*s.*, 30*s.*, 40*s.*, 63*s.*, 75*s.*

DEANE'S—Copper and Brass Goods, Kettles, Stew and Preserving Pans, Stockpots, &c.

DEANE'S—Moderator and Rock Oil Lamps, a large and handsome assortment.

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DEANE'S—Fenders and Fire-irons, in all modern and approved patterns.

DEANE'S—Bedsteads in Iron and Brass, with Bedding of superior quality.

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Shower Baths, from ..	8*s.* 0*d.*	to £6	0*s.* ,,
Lamps (Moderateur), from	6*s.* 0*d.*	to £8	10*s.* ,,

(All other kinds at the same rate).

Pure Colza Oil .. .. 4*s.* per gallon.

CUTLERY, WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on sale at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales.

Ivory Handles.	Table Knives, per dozen.	Dessert Knives, per dozen.	Carvers, per pair.
3½-inch ivory handles..	12*s.* 6*d*	10*s.* 0*d*	4*s.* 3*d*
3½-inch fine ivory handles	15 0	11 6	4 3
4-inch ivory balance handles	18 0	14 0	4 9
4-inch fine ivory handles	24 0	18 0	7 3
4-inch finest African ivory handles ..	32 0	26 0	11 0
Ditto, with silver ferules	40 0	33 0	12 6
Ditto, carved handles, silver ferules ..	50 0	43 0	17 6
Nickel electro-silver handles, any pattern	25 0	19 0	7 6
Silver handles of any pattern	64 0	54 0	21 0
Bone and Horn Handles.—Knives and Forks per dozen.			
White bone handles	11*s.* 0*d*	8*s.* 6*d*	2*s.* 6*d*
Ditto balance handles	21 0	17 0	4 6
Black horn, rimmed shoulders	17 0	14 0	4 0
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ASK FOR LEA AND PERRINS' SAUCE.

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Hawking Down House, Wiltshire,
May 4, 1860.

To Mr. F. CUPISS,

SIR,—In answer to yours of the 1st, I beg to say you are quite at liberty to publish my opinion of your Constitution Balls, which I very much approve of for getting Horses into fine condition. They are also good for Sheep, especially Lambs when they are in a pining state, by making them into pills about the size of a nut, and giving two or three occasionally; the animal soon becomes strong and healthy.—I remain, yours respectfully, MORALITY RAWLINGS.

Mains of Arisay, Fortwilliam, N.B., Oct. 26, 1860.

SIR,—I have given your Constitution Balls to Horses and Cattle for the last four years, and have always been satisfied with their effect. I consider it a boon to any one keeping Stock to be able to get Balls so good and so sure in their effect.—I remain, yours obediently, JOHN CARTER.

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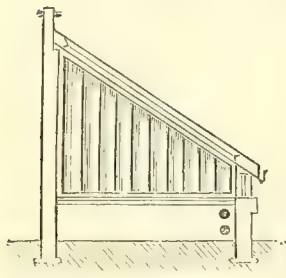
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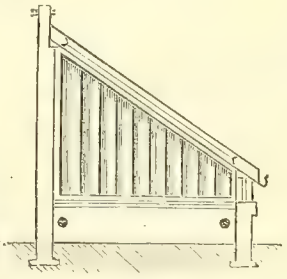
J. JONES'S HOT-WATER APPARATUS.

No. 7.



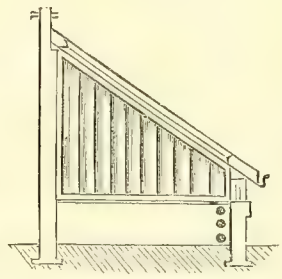
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80 „ 15 „	24 0 0
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No. 8.



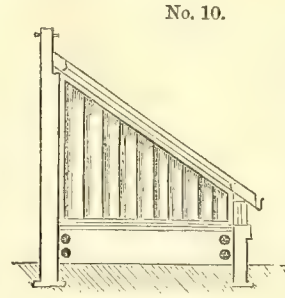
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No. 9.



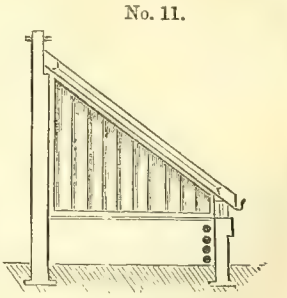
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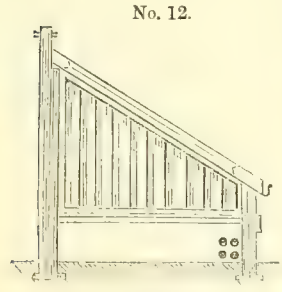
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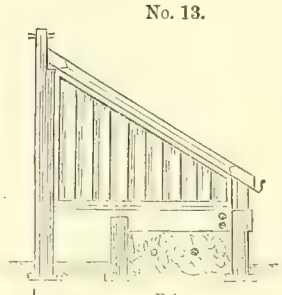
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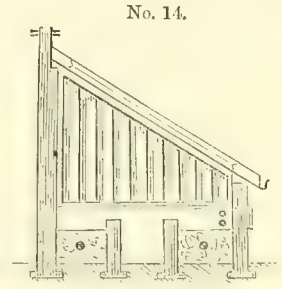
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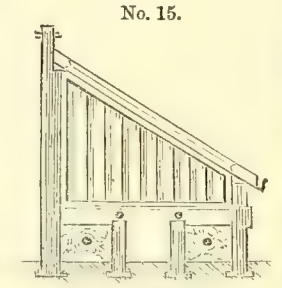
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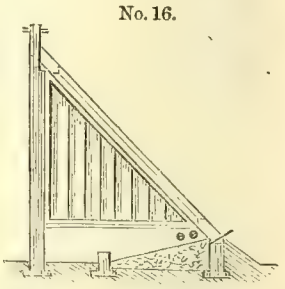
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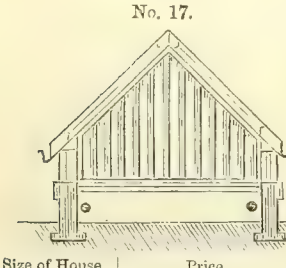
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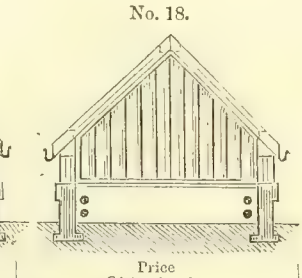
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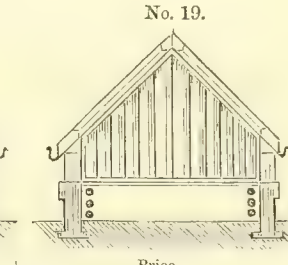
Size of House.	Price
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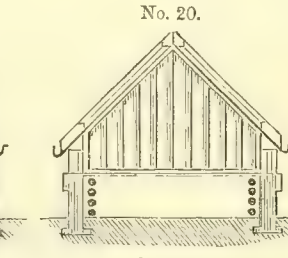
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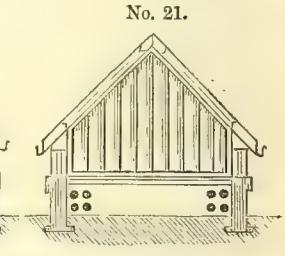
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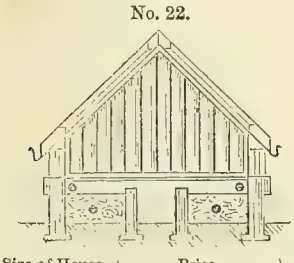
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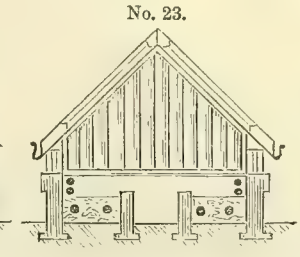
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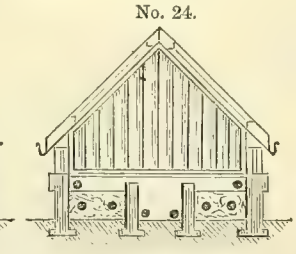
Size of House.	Price
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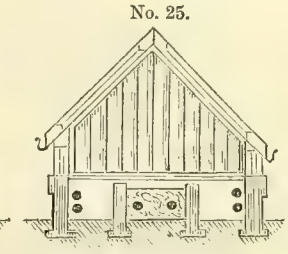
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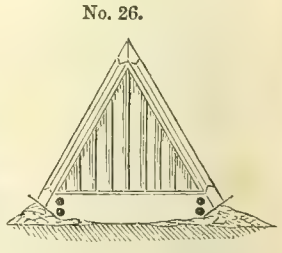
Price
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38 10 0
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No. 25.



Price
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25 0 0
30 0 0
35 0 0
40 0 0
45 0 0
50 0 0
55 0 0

No. 26.



Price
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

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